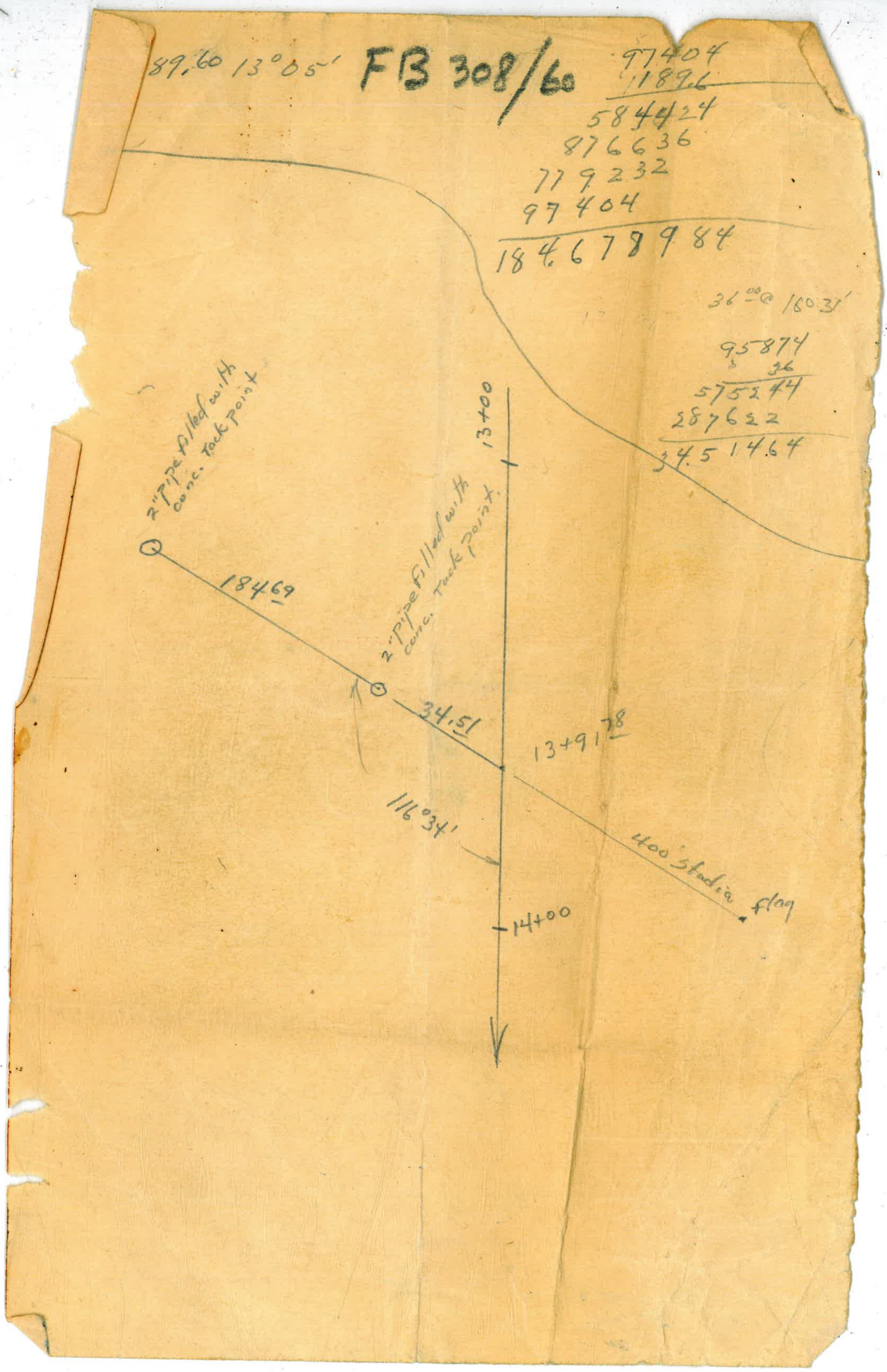
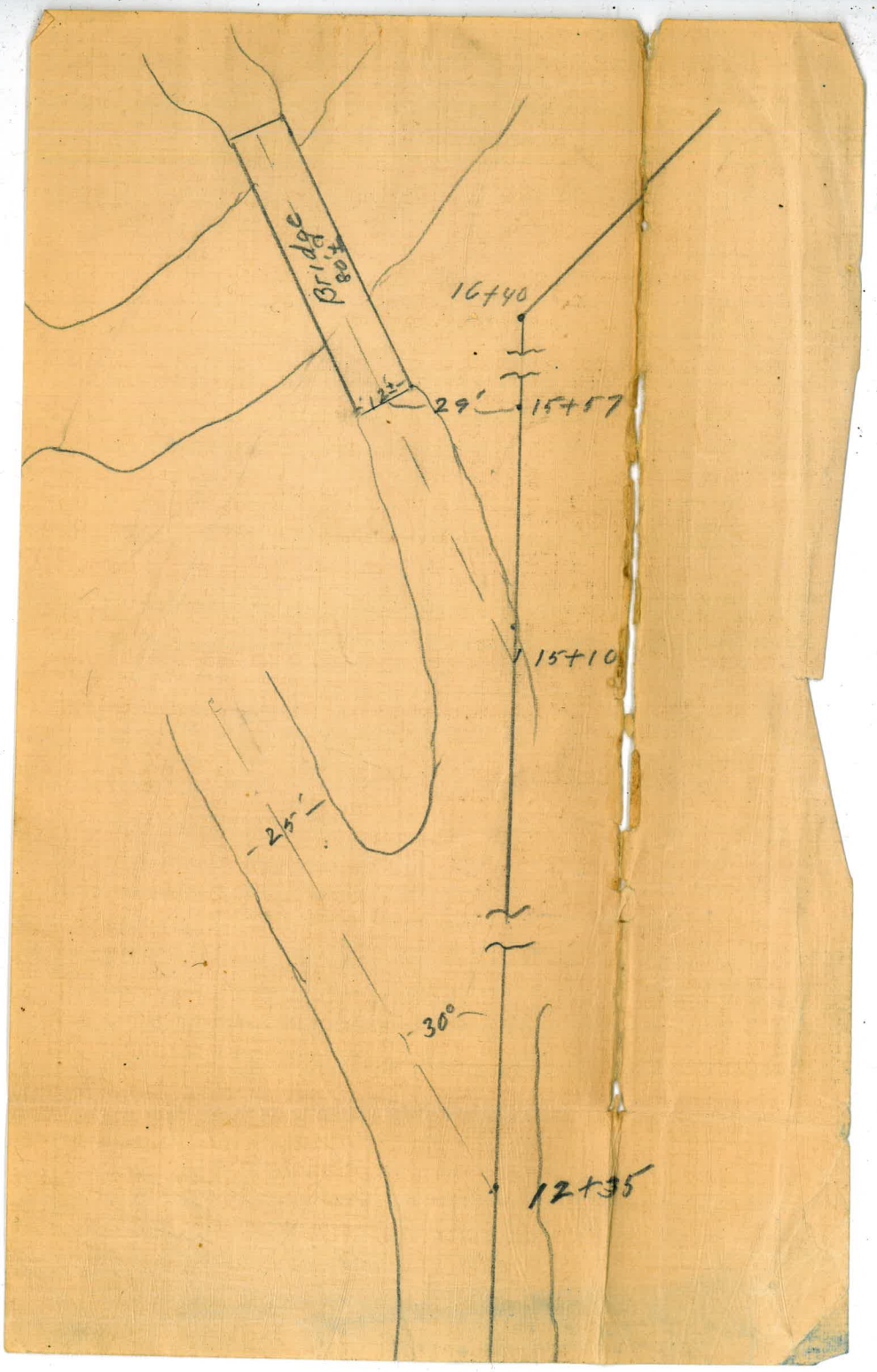

89.60 13°05'
FB 308/60
97404
1189.6
5844424
876636
779232
97404
184.67898 4
36 @ 180.3'
95874
36
5752 44
287622
34.5 14.64
2" pipe filled with conc. tack point
2" pipe filled with conc. tack point
13+00
184.69
34.51
13+91.78
116°34'
400' stadia
flag
14+00


Bridge
16+40
29°
15+57
15+10
25°
30°
12+35

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

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

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THE FREDERICK POST CO.

ENGINEERING and DRAFTING SUPPLIES

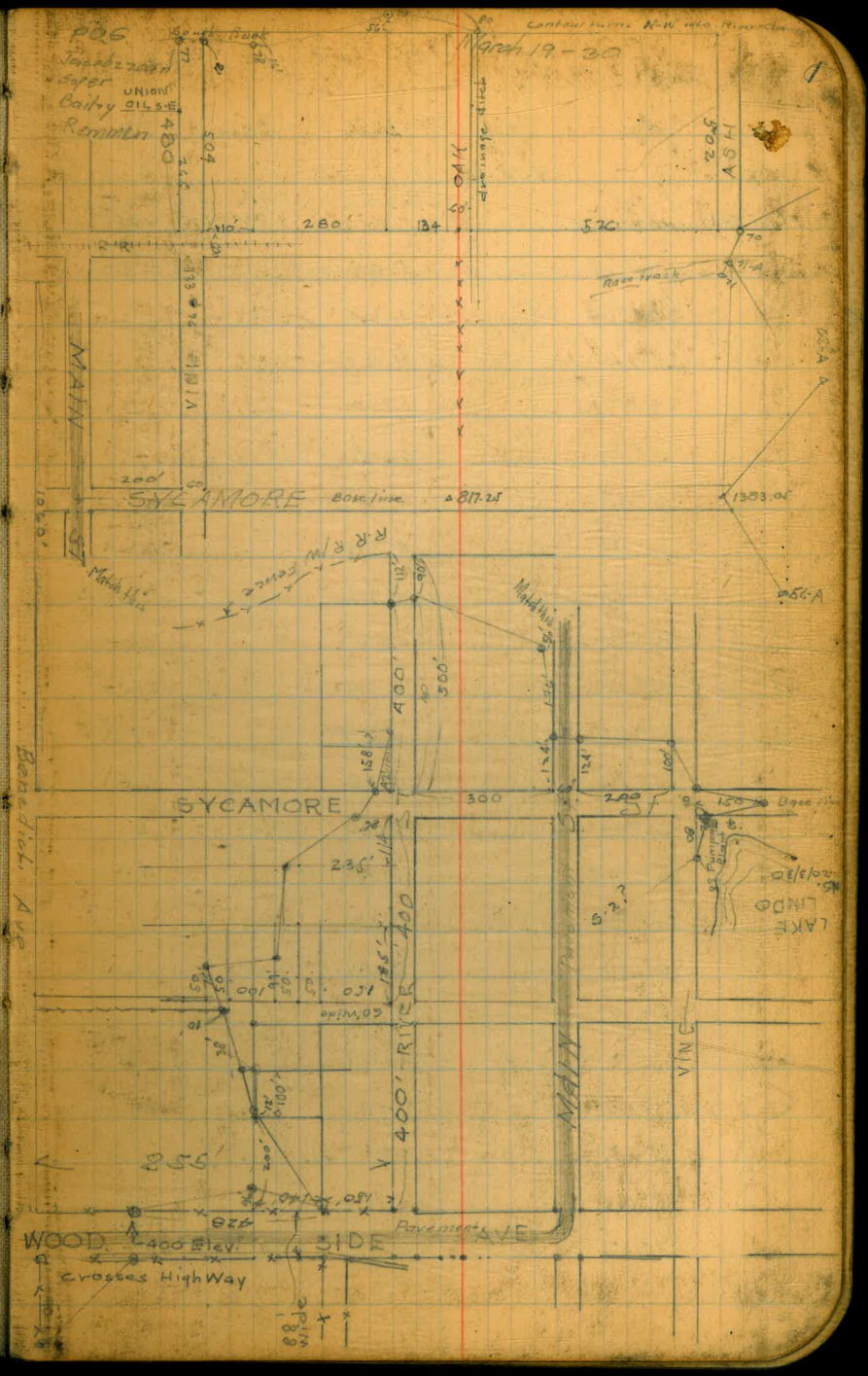
IRVING PARK STATION

CHICAGO, ILL.

INDEX

400' Contour thru Lakeside Townsite North across River

7.49	407.71		400.22	BM #21 county elev. 400.25
6.25	408.17	5.79	401.92	
2.60	403.62	7.15	401.02	
4.04	402.06	5.60	398.02	
8.76	408.78	2.04	400.02	
5.45	411.53	2.70	406.08	
5.16	408.00	8.69	402.84	
		14.07	393.93	U.S. in Lake Linda 20/3/30
		9.63	398.37	



400' Contour thru Lakeside around Lake Linda and accross River

Sta.	Az	H.I 6.73	Dist.	Bear.	Elev.
0+00 to		405.10			
P/. Main St. & Sycamore St.				S 80°54W	398.37
	260°54		5.28		
	271°09		4.24		
	298°17		2.43		
	355°55		1.60		
	51°34		2.64		
	61°58		3.90		
	71°49		4.72		
2	69°16		5.46		400.
	50°40		5.52		lake shore
3	45°16		6.40		400.
4	36°25		5.64		400
	38°02		4.36		lake shore
	26°44		6.40		" "
5	29°22		6.48		400
6	22°40		7.12		"
7	19°30		8.56		"
8	15°15		9.20		"
9	11°50		8.44		"
	15°36		7.84		lake shore
10	9°20		6.64		400
	10°25		6.12		lake shore 4.65
11-A	3°32		8.02	S 3°32W	400.45
11-A to					

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Bailey
Soper
Remman

March 20-30

2

0+00 - End of Base - being Sycamore St. from ℄ of Main St. produced East 817.25
Mag. 581 W this is on road accross lake ground in center of bridge being the inlet of Lake.

this lake has no outlet in the event of overflow - water runs thru town in direction of R.R. Station

on shore line of lake

" " " " "

" " " " "

" " " " "

" " " " "

to point on sketch preceeding page

lake shore

400' Contour around Lindo Lake.

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March 20 30

3

Sta.	Az.	H.I.	Dist.	Bear.	Elev.	
		4.86				
11-A to		405.31			400.45	
	169°55		1.61			West end of Walk to Boat house
12	343°36		.96		400	
13	332°57		2.11		"	
	325°12		2.20		lake shore	
	349°38		3.28		"	
14	4°12		3.26		400	
15	344°40		4.08		"	
16	335°45		5.84		"	
	329°45		4.42		lake shore	
17	303°02		3.60		400	
18	295°00		4.42		"	
19	269°26		3.20		"	
	275°00		2.82		lake shore	
20	238°09		2.37		400	
	226°20		2.20		lake shore	
	223°00		2.50			East end of Walk to Boat house
	213°00		3.82		lake shore	
21	216°56		3.62		400	
22	225°15		4.00		"	
Run out Base line 565.8' further east to point						35' east of bridge one of the inlets to Lake Road turns S-E
Instrument At 1383.05 East of Pl. Main & Sycamore Str.				S80°54W		
to 56-A	319°17		4.00	S40°33E		
156-A to		4.80 405.44			400.	
22-A	61°19 61°19		6.52 6.22		400.64 lake shore	Set by Wy level

400 Contour around Lake Lindo

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March 20 - 30

N.S. Lake

Sta.	Az	H.I.	Dist.	Bear.	Elev.	
56-A		405.44				
23	50°47		6.60		400	
24	41°32		7.16		〃	
25	28°32		7.26		〃	
26	22°53		7.34		〃	
	26°34		7.16		lake shore	
27	22°18		5.94		400	
	24°39		5.58		lake shore	
28	11°13		5.54		400	
	10°03		5.34		lake shore	
29	350°55		7.02		400	
	349°28		6.88		lake shore	
N-Side 58	134°42		4.14		400	East side bridge on lake side
	120°38		3.86		lake shore	
57	149°56		2.40		400	
	103°39		~~3.78~~ 1.89		lake shore	
56	130°20		1.34		400	
55	10°00		.05		〃	
	9°45		.74		lake shore	
54	300°30		2.24		400	
53	295°51		3.76	S 64°04 E	400.00 5.44	
53 to S-Side 30		405.10	from "V" level point			
	14°10		7.28		400	
	14°17		6.66		lake shore	
31	8°21		6.94		400	

400' Contour around lake

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March 20 - 30

5

Side of lake		H.I.	Dist	Bear.	Elev.	
53 to		405.10				
	7°30		6.68		lake shore	
32	358°21		7.14		400	
33	354°03		8.24		"	
	351°30		7.28		lake shore	
34	348°35		~~7~~ 7.74		400	
	346°00		6.44		lakeshore	
35	338°51		7.66		400	
	328°16		9.24		400	
	328°17		9.44?		lakeshore	Something rotten will shoot this again from forward point
N-side	43°23		.75		lake shore	
52	277°55		1.80		400	
51	283°52		3.26		1 "	on edge of dirt road
	302°40		3.00		lakeshore	
50	292°55		5.00		400	
50-A	287°51		5.48	S 72°09 E		
50-A to						
48-A	337°07		5.68	S 22°53 E		
		405.08	H.I. From TP by Y level			
S-side	89°22		5.56		lake shore	
36	67°00		3.44		400	
37	51°28		2.60		"	
	55°36		2.34		lakeshore	
38	30°43		3.16		400	
	25°45		1.90		lake shore	S-E end of water

400' Contour around Lake Lindo

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Cloudy March 21-30

6

Sta.	Az.	H.I	Dist.	Bear.	Elev.
48-A		405.08			
39	40°10		2.74		400
40	324°46		2.28		"
41	314°42		2.82		"
42	307°26		3.46		"
43	309°16		4.28		"
44	282°36		5.30		"
45	254°50		4.90		"
46	239°21		4.76		"
47	220°25		3.46		"
N.S	149°27		3.34		lake shore
49	166°30		4.12		400
	154°38		2.36		lake shore
48	187°41		3.32		400
48-B	266°08		2.24	N86°08E	

in N&S Road at east end of Lake

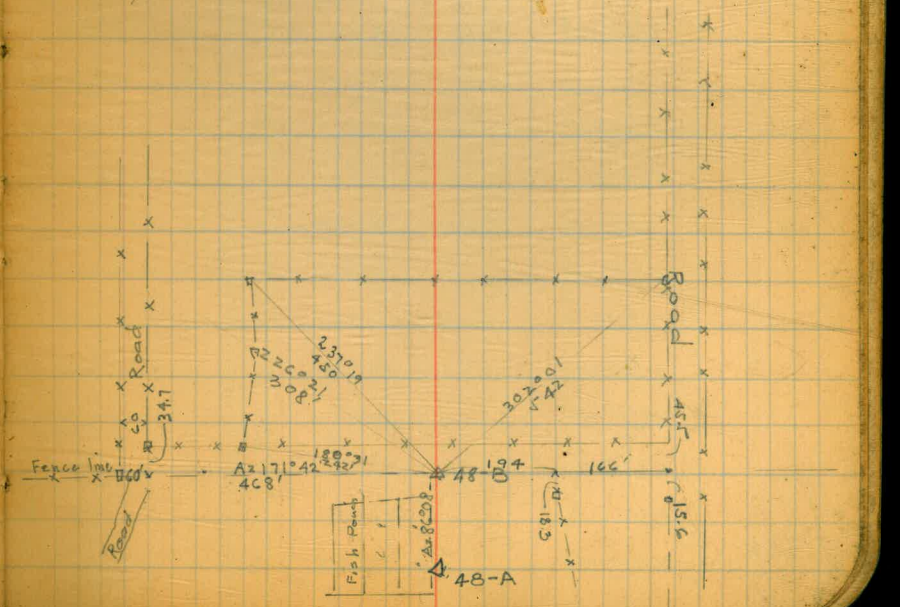
in Field east of Lake

on Fence line E&W

on N&S Fence east side of Road.

N.E end of water

end of lake



400 Contour thru Lake side

Sta	Az.	H.I.	Dist.	Bear.	Elev.
	again at	4.64			
1383.05 = end of Baseline		405.81		N80°54E	401.17
59	180°00		.12		4.00
68	297°00		3.08		"
61	285°52		4.34		"
62	256°28		5.22		"
	220°55		.75		
	253°18		7.72		405
	260°54		7.08		
62-A	239°53		6.54	N59°53	4.26 401.55
62-A to		5.46 406.63			401.17
1383.05 point					
	328°30		2.54		
	225°20		2.10		399.1
63	315°23		1.62		4.00
64	288°13		1.01		"
65	274°46		1.30		"
	287°58		4.80		
	284°38		4.40		
	262°51		1.26		
	283°41		5.24		
	281°28		5.98		
	251°56		5.62		
	248°55		4.12		
	247°05		3.62		

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March 21-30

1

Bearing from Kibby Map

on S. south edge of artificial ditch - inlet to lake on North edge Road

on north edge of Road

" on south Bank of ditch to lake ditch 18' wide on top 4' deep

" " " " " " " " near bridge and 2' deep

to Fence cor. Fence E & N

on North side of old Race track

from "V" level elev.

Course of Race track

to Fence cor already taken

in ditch fence gives out

S of track

N of " a ditch is cut thru track at this point to let the water from the N.F. enter the lake

on Fence cor.

on Fence in bend of Road

Road in between

on Fence cor. Fence W-N-E

Fence cor. North, side of Road

bend Fence N. side of Road

Fence cor. Fence W-N-E

½ " " N-N-S

" " " W-S-E

" " " E & N

400' Contour thru Lake side

Sta	Az	H.I.	Dist.	Bear.	Elev.
62-A		406.63			
66	251°30		5.42		400
67	237°23		8.28		"
68	16°42		7.76		"
	220°56		4.58		
	194°14		3.20		
	203°55		10.16		
	177°26		8.58		
69	178°45		7.04		400
	185°56		3.70		
	181°46		3.58		
	175°80		3.04		
	186°02		2.56		
~~70~~	247°55		.67		
70	176°20		7.04		400
	175°32		8.58		
70-A		4.62	18.84		4.75 401.88
70-A to		406.50			
62-A			8.86		401.55
	34°12		4.36		
71	22°07		5.78		400

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March 21 - 30

8

on E&W Fence

on N&S Fence

Fence cor Fence S-E-W

" " " South makes North side of Road

" " " S-W

" " " S-E

Fence Cor. Fence N&W North ~~east~~ side of Road

" " " N-E-N " " "

" " " W&S curve at South " " "

" " " S&curve west West " " "

" " " " " " "

" " " S-W-N

" " " S-W-N

4' South of Fence

Fence cor Fence N-E = East side of Road = S-W cor. BLK 4

" " " E&N = North side of Road

400' Contour thru Lake side

Sta.	Az.	H.I.	Dist.	Bear.	Elev.
T again at 13.83.05 = end of Base line		408.24		N80°54E	
to 71-A	164°29		5.08	N15°31W	
	213°40		1.12		
72	21°04		.76		400
73	73°53		2.52		"
74-A	81°00		6.96	S81°00W	400.71
74-A to		405.80			
71-A			6.92		
74	354°00		.62		400
75	63°05		3.80		"
76	89°14		2.20		"
77	137°40		6.76		"
	134°55		6.14		
* 78	174°55		6.46		"

See City plan on page 1 for corred contour points

T again at 71-A 408.17

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March 21 - 30

9

H.I. from 'Y' level shot on face track

Fence cor. Fence N&W

Contour goes underneath instrument. We are on earth bank of old Race track

in Street 1 blk East of Main Str.

" " intersection 1 blk North Sycamore & 1 blk east of Main

in ℄ of Str. at Bank of San Diego River

N-E cor Standard Oil Co.

5C' North of Fence cor. Fence W-S-E

400' Contour on N. Side of River

Sta.	Az	H.I.	Dist.	Bear	Elev.
Iron in Fence cor. East side of Road going up West side San Vicente Valley 382' North of Paved Highway to Ramona				59°53E	Bearing from 1913 Pipe line Survey
to end of fence N-S of Pav.	350°07		382		
P.O.T	350°07		6+48		
P.O.T	350°07		10.54	Fd o/d hub	0.6' East
P.O.T	350°07	1.98 402.84	11.92		400.86
	222°30		4.38		
	203°30		1.64		
	86°14		.92		
	29°13		3.72		
Δ-1	350°07		4.18		396.61
At Δ-1 to Δ-2 on 2' bank above 400'	219°45	4.41 407.39	8.30		400. 400.98 ground elev.
	245°00		1.66		400
	314°41		4.08		"
	4°25		6.40		"
again at Δ-1 to		4.23 400.84			396.61
Δ-3	350°07		6.36		
	217°21		4.32		400
	323°10		1.44		"
	346°35		4.14		399.08
	134°30		7.00		400
	109°25		7.50		"
	79°42		7.64		"
	81°55		7.14		"

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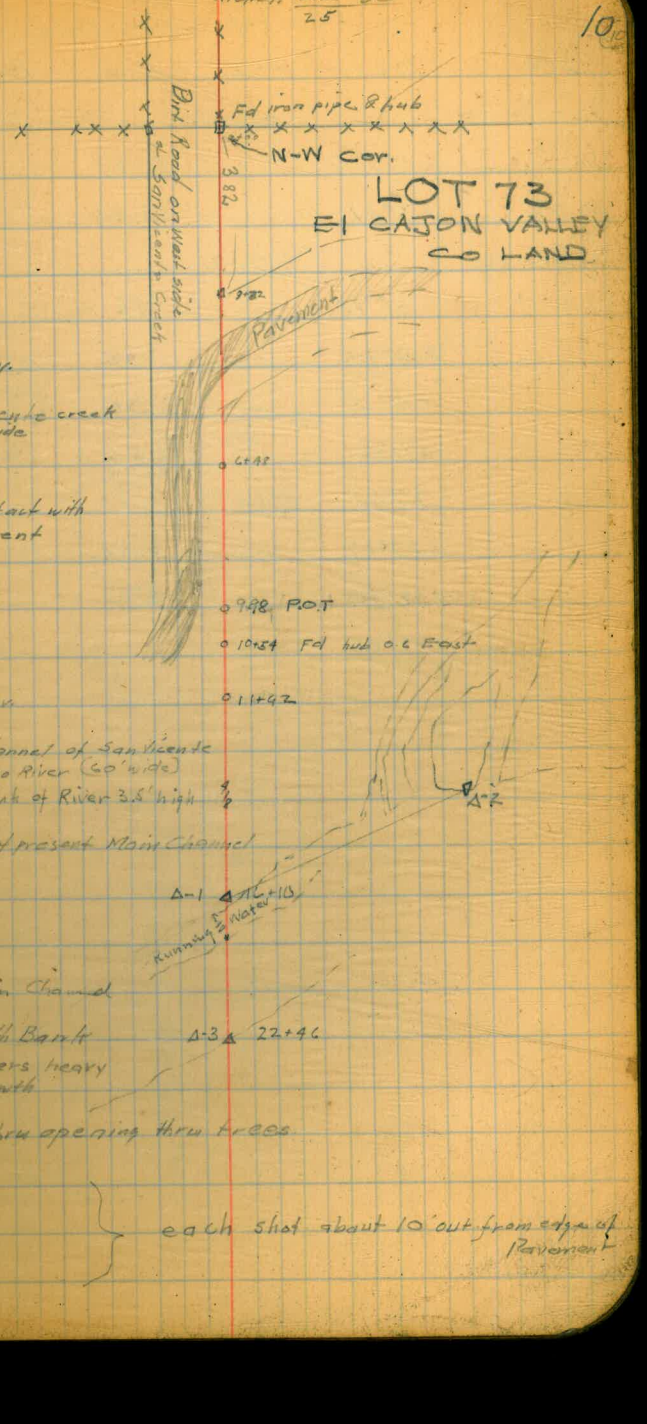
March 22 25 30

10



400' Contour N.S. San Diego River
north of Lake-side

Sta	Az.	H.I	Dist.	Bear	Elev.
⊼ at Δ-3 to					
	69°00		8.27		
Δ-4	57°21		10.40		
⊼ at Δ-4 to		410.12			
	220°08		.56		400
	32°24		.35		400
	44°30		2.00		4
	47°45		2.56 +4.62		12.93 397.19 +.88
Δ-5	47°45	398.07	7.18		
	207°07		3.34		400
	179°00		2.80		4
	179°25				

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March 25-30

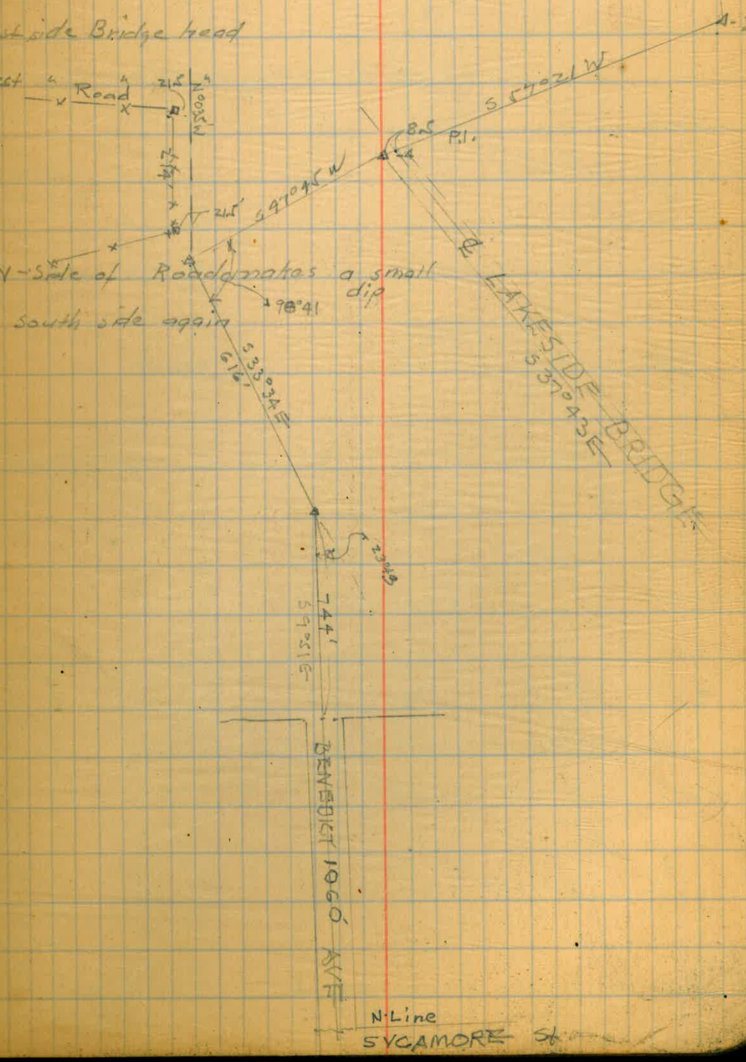
on South Bank of Main Channel of San Diego River

Mag. 9 58°30W

East side Bridge head

West

on N-Side of Road makes a small dip
on south side again



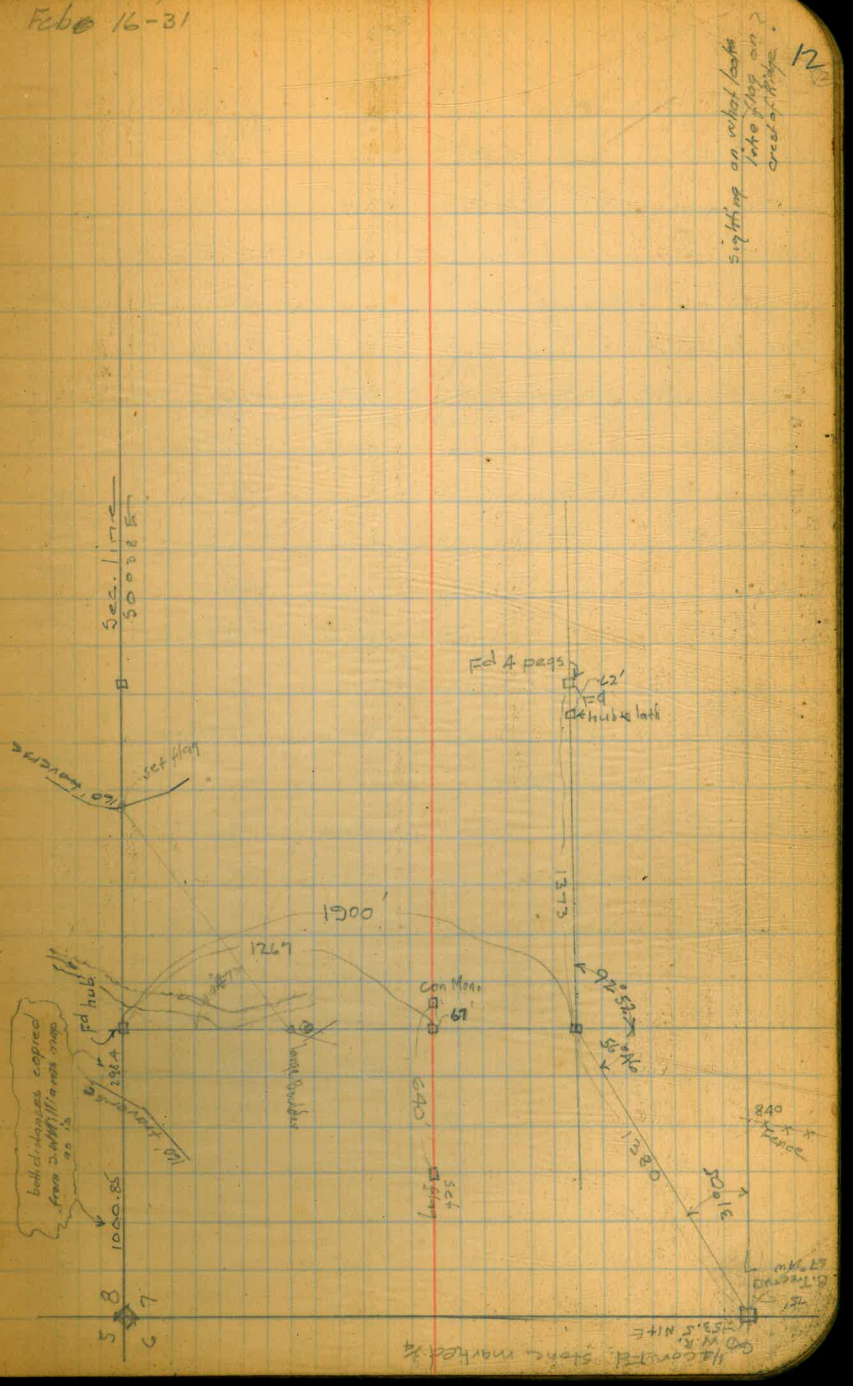
Land Survey - near Damsite #2
El Capitan Site on S.O. River

Febo 16-31

12

				Mag Bear
to 980		380 232 230	VA 5°50 525 = 520	
Tat Sec. Cor	158°20 Lt			S15°E
to sec cor.	56°46 Rt	1390 1311. 62 1373	VA = 4°40 1390 = 1381	
		62' more South another hub (in rocks)		
to hub back	x2	10.2 = 14.40 1307	VA 17°24 1440	
Tat 19 35.	94°20 Lt	+004. 1311		S17°15 E
to 1900 to Pl.		-35		
Tat 1812.7		122.3		west
to 1812.7		17.45 5.45		West
Tat = 1267.	78°56 Lt	67. to 2" iron pipe set in 24"x18" conc b/back		
		+6.1'		
	331.7	5.3 330	6°36 VA	
Tat 935.7				West
Tat 935.7	30° Rt	55.7		West
to get by Rock	60°00 Lt	32.08	=55.70	
Tat 880	30°00 Rt	32.08		
Tat Sec. line	90°38 Rt	13.80 8.80		West S74°30 W S16°00 E

Tat hub 1x2 sighting on point set 18.33 West of 759 point on 160' did not find anything to indicate Pl. having ever been set



CROSS-SECTIONS to Determine Material for Hydraulic Fill

Sta. B-0	630.3		633.0
Sta. A-0		8.4	627.9
Sta. C-0		4.8	631.5
+12.1 P.I. to Pipe angle	(C.W.Co Siphon)	1230' east to siphon Box (read from Plane table sheet)	
Sta. D-0		6.8	629.6
Sta. E-0		7.8	628.5
Sta F-0		6.6	629.7
Sta G-0		12.8	623.5
Sta. H-0		12.6	623.7
Sta. I-0		11.3	625.0
Sta J-0		4.7	631.6

San Diego River at junction with Chocolate Creek
see also Plane table sheet #

P.O.G. J. Salgado M. Soper

13

	Rt	Lt
Sta A	320' 0 13 N.B.	140' L' 0 13' N.B. 16 N.B. = 6190
Sta B	580 0 13' N.B. 400 0 13' N.B.	0 13' N.B. 250 9' Rock 345' N6 = 12102.
Sta C runsout	800 0 9' bottom? 400 0 6' bottom	P.I. with Pipe C+W.Co C+121' 0 13 N.B. 250 9' bottom 450 13' N.B. = 17650.
1000 Sta runs out	800 0 13' N.B. 400 0 6' bottom	0 6' bottom 250 7' bottom 480 9' bottom River abt. low = 10965.
1000 Sta runs out	800 0 9' bottom 400 0 10' bottom	0 10' N.B. 250 6' bottom 100 6' bottom S.D. R. Bank 11675.
Sta F runsout	800 400 0 13' N.B.	0 13' N.B. 250 6' 280 R. B.
Sta G runsout	800 400 0 13' N.B.	0 6' 250 8' = 7891.
Sta H runsout	600 400 0 13' N.B.	0 9' 185 13' N.B. = 7735
Sta I-0 runsout	500 400 0 13' N.B.	0 9' Bottom 450 13' bottom = 6700.
Sta runsout	500 ~~400~~ 13' NB	0 13' NB 150 13' bott.

Levels for Well Elev.

County Park Well El Monte Camp

			508.445	BM #5
	4.535	512.980		
Top of Casing		4.88	508.11	
Av. ground at Well		4.88	508.11	
℄ of Channel 400±		12.55	500.43	
W.S. below Top of casing		22.35	485.76	
			503.05	B.M. P.P. # 76104 in El Cap. Book #26104
	3.11	506.16		
		5.33	500.83	
	2.87	503.705		
		3.11	500.595	
	2.605	503.200		
	5.53	499.13	9.60	493.60
	2.75	492.98	8.90	490.23
℄ of River 150' west		8.1	484.9	
on Conc. curb of Well		3.42	489.56	north side
		4.61	488.37	
	4.78	493.15		
Top of Conc. block		3.37	489.78	
Av. ground		4.9	488.2	
		4.67	488.48	
	4.65	498.13		
Joughans Pump house		4.06	494.07	
Top of casing 1st Well		14.23	483.90	
℄ of River Channel		16.1	482.0	
Av. ground at well		5.4	492.7	

July 28-31

P.O.G.
J. Salgado
H. Soper

El Capitan Pipe line Survey

nail in Power Pole # sta 76802 also 76109

given as 100 Lt of Sta. 121+30 pipe location

Nordlinger Well

out this blackpotende two valve Stems & a 2" vent pipe 12' high water shooting 8" over

Joughans Well

on Top of Conc. curb West side

dist. to W.S. 9.7 = 474.2 Aug. 3-'31

Observation Well data

			~~484.39~~ 486.39	BM # Z6
	0.37	484.76		
			481.18	
		5.58	~~479.18~~	
	2.57	481.75		
			478.24	
Top Casing 6" con. pipe		5.51	~~476.24~~	
			463.14	
dist. to W.S. below casing		15.1	~~461.14~~	W.S.
			480.49	
		3.26	~~478.49~~	
	6.09	484.58	482.99	
		3.59	~~480.99~~	
	5.75	486.74	486.65	
		2.09	~~484.65~~	
	4.32	488.97	486.69	
		4.28	~~484.69~~	
	5.99	490.68	490.91	
		1.77	~~488.91~~	
	5.10	494.01	491.95	
		4.06	~~489.95~~	
	4.45	494.40		
			494.09	OK
		2.31	~~492.09~~	=494.07
			483.90	
Top of casing 6" conc. pipe		12.49	~~481.90~~	
			474.2	
dist. to W.S. below casing		9.7	~~472.2~~	W.S.
℄ of Channel		14.4	482.0 480.0	
av. ground elev.				
		3.7	492.7 ~~490.7~~	
	5.18	490.78	487.60	
		8.80	~~485.60~~	
			488.43	
		4.35	~~486.43~~	old T.P.
			492.28	
		0.50	~~490.28~~	
	5.62	495.90	497.59	
		0.31	~~495.59~~	
	2.86	498.45	497.84	
		2.61	~~495.84~~	
	7.40	503.24	502.73	
		2.51	~~500.73~~	
	3.82	504.55	503.06	?
		3.49	~~501.06~~	=503.05

nail in P.P. # 73929 Sta. 211+26 El Capitan Pipe line

Should be 486.39

See Book 194 Page 18

Well pumping.

River channel 400' N 10.5 – 473.5 = 476.5

Top of Con. curb of Large Pumppit (west side) Younghans Well. Well pumping (1st well west)

see above

Checklevels BM # Z6 to BM # Z4

0.37	484.76		484.39
2.87	482.05	5.58	479.18
11.21	489.56	3.70	478.35 ?
		0.78	488.78 = 490.91

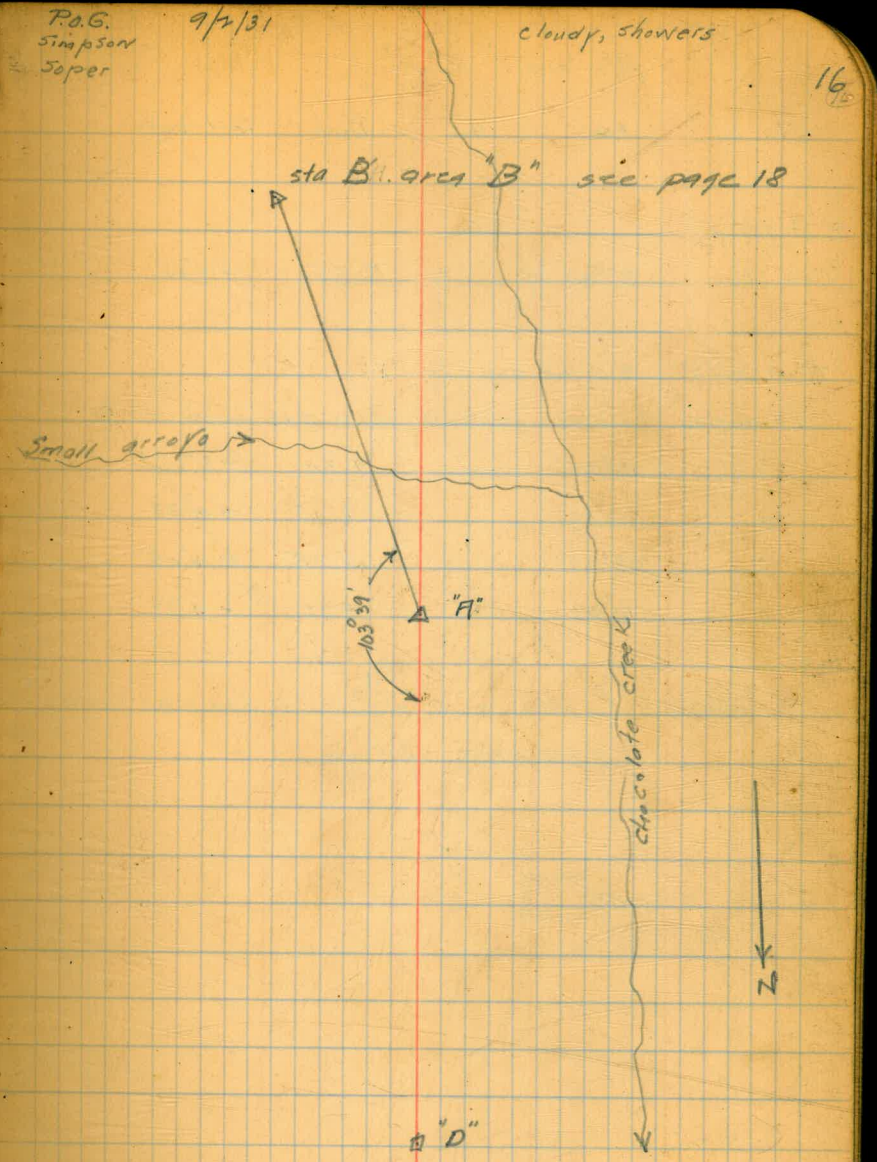
Tie from Area "A" to "B"

P.O.G. Simpson Soper 9/7/31 cloudy, showers

Sta	As.	Ht.	Dist	Vert. Angle
T at A:0		627.9 + 5.0 = 632.9		
A'	103°39'		7.70	+5°05'
T At Sta. A' to	B.S on "A"	+5.0		
1	102°36'		5.40	-1°13'
2	134°20'		4.15	+0°43'
3	156°21'		4.45	+0°34'
4	180°02'		6.10	+4°05'
5	191°59'		9.20	+3°49'
6	214°43'		7.85	+1°30'
7	268°28'		4.55	-4°30'
8	287°53'		6.90	-4°50'
9	312°58'		6.55	-6°19'
10	334°14'		6.10	-6°24'
11	21°45'		3.00	-6°08'
12	78°21'		4.25	-5°39'

center Hair on 15'

sta B'. area "B" see page 18



Area "C"

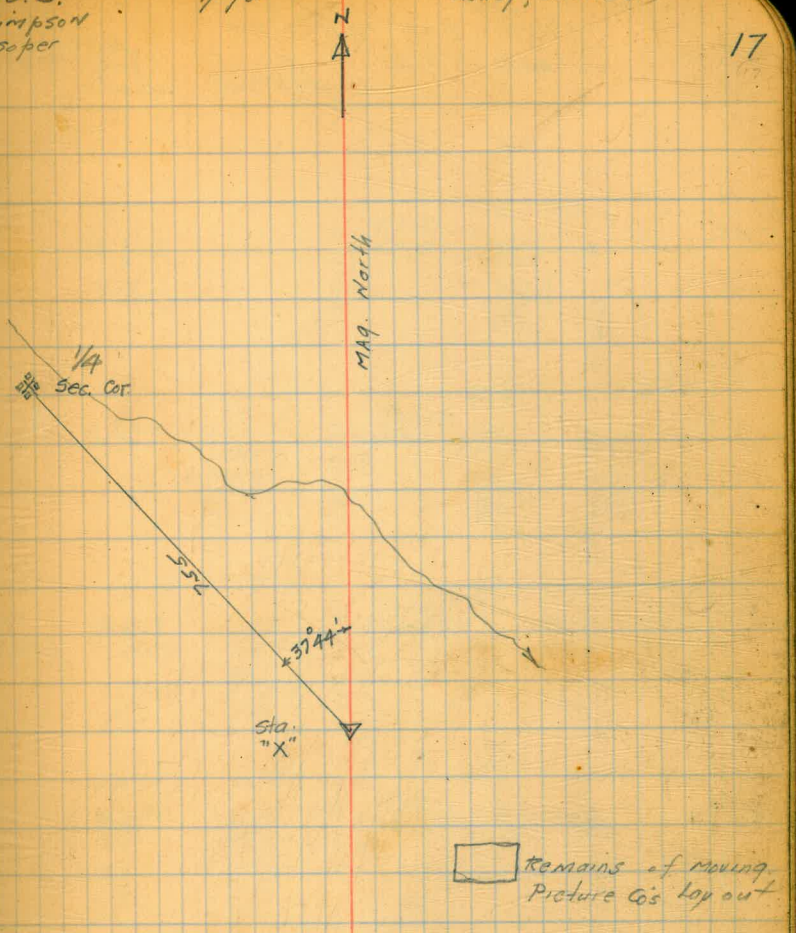
Sta	Az.	H.I.	Dist	Vert. Angle
π At sta "X"		+5.0		
To Sec. cor.	37°44' Lf.		7.55	+5°04
π At sta "X"	F.S. on sec cor.			
All angles	turned Azmiuth	from sec cor.		
1.	17°55'		9.30	+5°25'
2	23°04'		8.15	+4°33'
3	23°27'		5.75	+4°06'
4	10°29'		4.90	+4°33'

Note: later a different tie was used
see page 20

P.O.G.
Simpson
Soper

9/2/31

cloudy, showers



Waypoint for Test pits
Deposit X² 2 — Area B

F' — D=950 V=4°00+ — 761.5
E' — D=750 V=3°01+ — 734.8
D' — D=500 V=1°40+ — 710.0
C' — D=250 V=1°30+ — 705.9
B' — Hi 5 — At B' — 695.4
A' — D=250 V=5°30+7− — 664.6

200' 250' 250' 250' 250'

to

from B' 495 Rt △ 45° Rt 100' 5' lower X2

from backsight deflection at 11°40

P.O.S. 9/3/31 Hot as [illegible] 18
A. Remmen
H. Soper

75 Lt D=75 V=5.3− 761.7 (3A)
Hi 6.0 761.5 (18+)
100 Rt D=100 V=13.0 753.5 (6)

53 Lt D=53 V=5.0 735.0 (3.5)
Hi 2.5 734.8 (13+)
83 Rt D=83 V=5.5 739.6 (13+)
245 Rt D=245 V=2°43− 722.3 (20)

100' same elev.
145 Lt D=145 V=14°37+ 716.3 (3)
58 Lt no D=58 V=10°44+ 720.6 (1.5)
Hi 5.1 710 (5)
75 Rt D=75 V=6.9S 708.2 (4)
250 Rt D=245 V=13.8− 701.3 (3.5)
345 Rt D=345 V=2°50 692.9 13+

320 Lt D=320 V=005− 708.8 (3)
155 Lt D=155 V=6°41− 687.8 (2)
Hi 5.0 705.9 (AP)
40 Rt D=40 V=3.3S−53 Hi. 707.5 (4)
180 Rt D=180 V=8°51− 695.8 (4)
370 Rt D=330 +30 V=5°25 676.8 (25)

524 Lt D=524 V=10 14− 684.3 (25 GR)
200 Lt D=200 V=9°31− 662.8 (3)
Hi 0.60 664.4 (A)
270 Rt D=270 V=7.5O− 659.0 (3)
495 Rt D=495 V=4°54− 653.3 (18) x2

125 Lt (8 GR) D=125 V=7°25− 648.6
664.6 Hi 5.0
84 Rt (3.5 GR) D=84 + At V=10 14+ 666.4
284 Rt (8.5 GR) D=201 V=6°00− 649.7
544 Rt (15 NB) D=460 V=3°53− 633.5
654 Rt (12) D=570 V=4°09 623.6
D=970 V=5°30− (16) C21.6
D=165 V=11°45 L=31.8 (6 DGR)

figures in circle = depth of test hole

Lay out for testpits contin.
South-west side chocolate creek

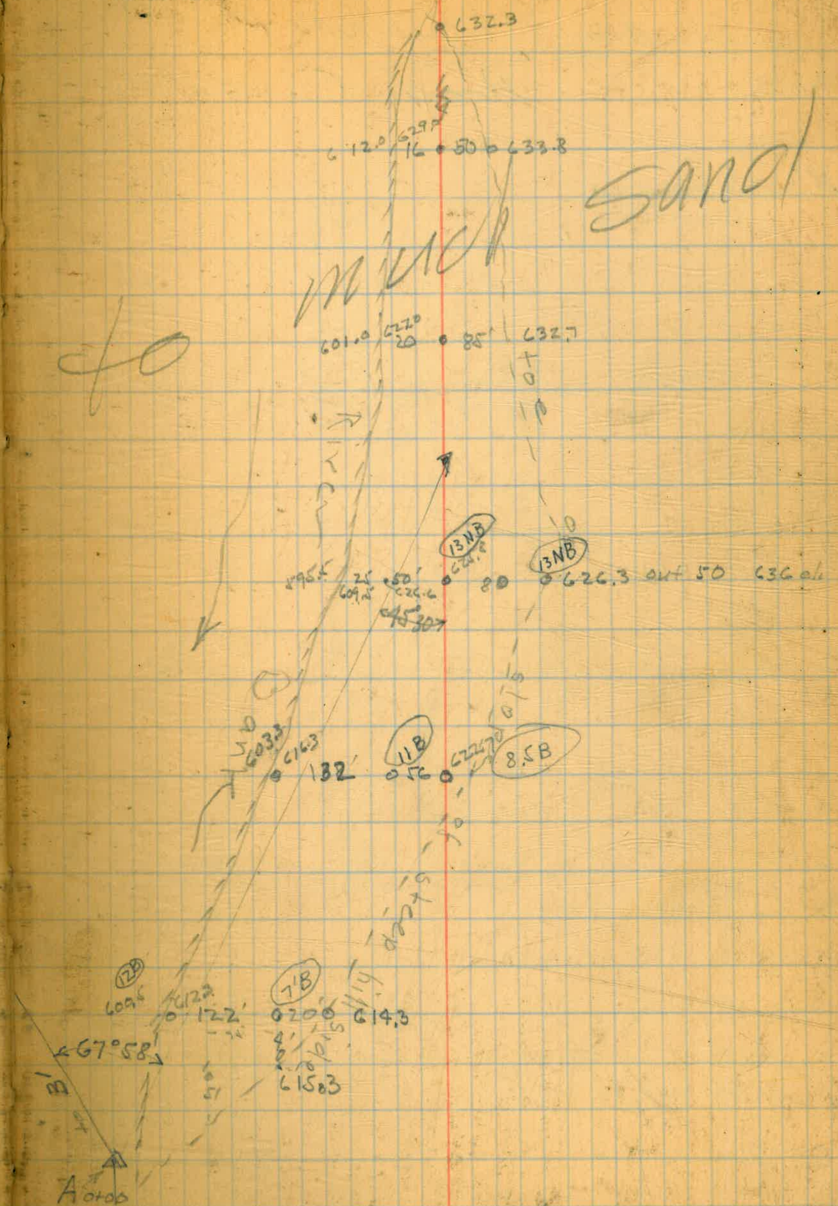
F''	0	D=360 V=1°00+2	630.3
	220'		
E''	0	D=140 V=1°00+	628.5
	140'	↑	
X Sta. ⊼	X H.I.5.1	↓	626.1
	80'		
D''	X	D=80 V=-6A	625.8
	270		
C''	X	D=350 V=0°33-	622.7
	188		
B''	X		616.3
	250		
A''	X		613.8
	X H.I. 5.0 to X -6.8		632.9 -68

⊼ at A sighting on B' 67°58 Rt 870' to point on West Bank of Chocolate creek (new Area)

no good

P.B.G.
H. Soper
A. Reh[illegible]

9/4/31



to much sand

"C' Area below Damsite N.B.

Area C

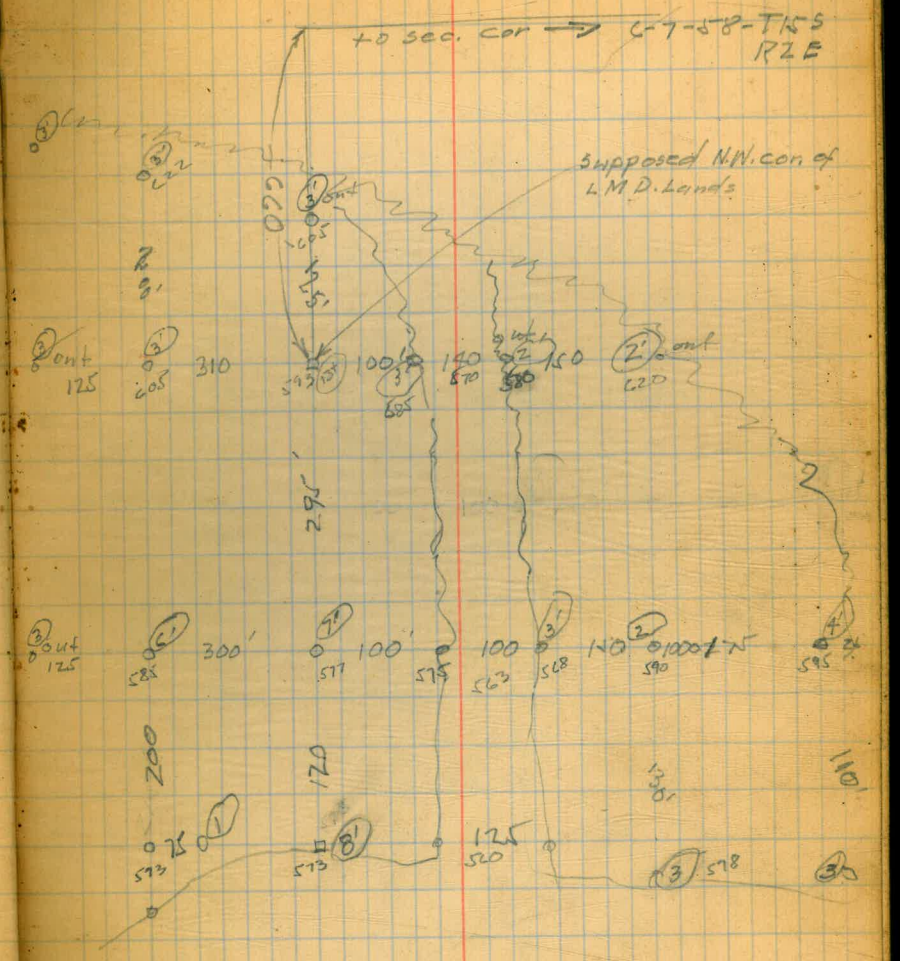
A'

A

B

C

POC. 9/8/31
A. Remmers
J.W. Turk



Establishing B.Ms at Damsite

South-side				584.45	Nail in Oak tree Williams-Converse
	8.66	593.11			
	12,125	604.660	0.575	592.535	
	11.435	614.525	1.57	603.09	B.M. Top of rock on P.O.G. Axis
	11.585	626.030	0.080	614.445	
	12.160	638.025	0.165	625.865	
	12.510	650.175	0.360	637.665	
	12.145	662.200	0.120	650.055	B.M. Point on rock 35' west of P.O.G. Axis
	12.120	674.035	0.285	661.915	
	12.645	685.935	0.745	673.290	
	12.240	698.020	0.155	685.780	
	12.670	710.320	0.370	697.650	
			9.250	701.070	BM Top of rock 7' West of P.O.G. Axis
	11.730	721.790	0.260	710.060	
	12.455	734.110	0.135	721.655	
	12.025	745.980	0.155	733.955	
	12.255	758.010	0.225	745.755	
			1.860	756.150	BM Top of rock 300' west-south of Flume on west side of gulley
	11.900	757.655		745.755	
			3.75	753.90	Flume grade at Freeman axis as is
			1.570	756.085	B.M. Top of large Boulder 400 East 40 north of Flume

Dec. 24-81
P.O.C.
J. Salgado
A. Remmen

Traverse of C00 & 650 elev. tied to
⊼ at hub to Rt of road

	Dist.	V A going South	
0.00			
0+52.44	52.44 57.00	23°06+	to 600 elev.
1+18.40	118.40 132.50	26°40+	
1+44.25	25.85	0°0	to 650 elev
⊼ at 600-0 sighting north to hub			
600-1-N	47.50	95°12 Lt.	
600-2-W	105.72	90°53 Lt	
⊼ at 600-2-W backsight to 600-0			
600-3-W	63.00	17°36 Rt	deflec.
600-4-W	105.42	18°19 Rt	
⊼ at 600-4-W backsight to 600-2-W			
600-5-W	27.7	16°53 Lt.	
600-6-W	81.6	9°19 Lt	
600-7-W	118.00	19°20 Lt	end
⊼ at 600-0 sighting north to hub			
600-E-1	16.40	80°47 Rt	
600-E-2	135.25	85°41 Rt	
600-E-3	172.00	83°56 Rt	
⊼ at 600-E-3 backsight to 600-0			
600-E-4	55.05	21°27 Lt	
⊼ at 600-4-E backsight to E-3			
600-E-5	43.0	36°25 Rt	
600-E-6	57.7	8°22 Rt	
600-E-7	122.4	1°08 Rt	
600-E-8	172.90	2°12 Rt	

P.O.G. Axis

27

⊼ at 600 E-8	Dist.	Δ	
600-E-9	69.25	17°05 Rt	
600-E-10	129.60	16°49 Rt	
60-E-11	191.60	20°32 Rt	end

Dec. 23 - 31
P.O.G

on Vertical Boulder

△ at G50-0

sighting north to hub in road

G50-1-W	47.0	38°23 Lt
G50-2-W	81.0	71°41 Lt
Auxilary	81.17	90°45 Lt
△ at Aux.	backsight to G50-0	
G50-3-W	16.46	46°44 Rt
G50-4-W	51.6	1°40 Lt
G50-5-W	75.0	1°56 Lt end

△ at G50-0 sighting north to hub

G50-1-E	42.48	84°54 Rt
△ at G50-1-E	backsight on G50-0	
G50-2-E	56.45	12°51 Rt
G50-3-E	126.50	10°00 Rt
G50-4-E	258.97	6°33 Rt
△ at G50-4-E	backsight to G50-1-E	
G50-5-E	27.0	21°37 Rt
G50-6-E	78.0	44°36 Lt
Auxilary	151.6 152.20	34°52 Lt on Large Boulder
△ at "	backsight to G50-4-E	
G50-7-E	16.0	124°05 Lt
G50-8-E	58.7	11°16 Rt
G50-9-E	97.30	24°32 Rt end

△ at G50-0 to G50-7-E
78°04 Rt

Ties — various

At hub near road sighting north

	34.52	94°18 Rt	
At dump	33.0	83°00 Rt	to Portal
	83.0	" "	to face of drift

to Base line

No 1 hub	141.77		
At No 1	on Base line and P.O.G axis		
to No. 2		69°00 Rt	from Axis North
to Freeman Axis flag		2°28½ Lt	north end
" " " "		148°27 Rt	South end nailed
At Base line No 2		sighting on No 1	
to 600-0 on northside		52°45 Rt	
650-0 on " "		60°08 Rt	
Freeman Axis flag		76°26 Rt	northside
" " "		68°16 Lt	Southside
hub near road		18°14½ Lt	
600-0 southside		23°20 Lt	
650-0 " "		30°31 Lt	
752± hub		39°48½ Lt	on flume grade

Length of Base line 350.57'

	333.95	59°52 Rt	to Tunnel on northside
At Portal	3.0	18°15 Rt	to Portal
	99.0	"	to face of drift

Dec. 24-31
P.O.G

24

to tunnel dump

to establish 600 and 650 elev. north-side and on P.O.G Axis.

603.09 B.M.
5.81
608.90
12.50
596.40 T.P. northside

to Flume

603.09
5.72
608.81

650.05 B.M.
10.10
600.15
8.54
651.61

Dec 25-31
P.O.C.
J. Salgado
A. Remmon

25

Stadia dist. to 600 N 650 elev.
on north side
Flat 650 south side P.O.G. Axis

to			
600-0	622	0°00	
600-1-W	575	8°15 Lt	
600-2-W	582	18°16 Lt	
600-3-W	640	26°06 Lt	
600-4-W	715	33°30 Lt	
600-1-E	680	6°11 Rt	
600-2-E	685	8°42 Rt	
600-3-E	735	16°18 Rt	
600-4-E	785	18°17 Rt	gulley
600-5-E	785	21°11 Rt	
600-6-E	840	22°32 Rt	gulley
600-7-E	817	24°16 Rt	
600-8-E	820	27°53 Rt	
600-9-E	842	31°20 Rt	
600-10-E	925	32°34 Rt	gulley
600-11-E	922	37°06 Rt	
600-12-E	955	40°37 Rt	small gulley + 10'
600-13-E	960	43°25 Rt	end
650-19-E	1090	41°27 Rt	"
650-16-E	1085	38°51 Rt	
650-15-E	1110	37°02 Rt	gulley
650-14-E	1062	34°54 Rt	
650-13-E	1032	32°13 Rt	
650-12-E	1065	27°38 Rt	gulley

Dec. 26-31
R.O.G
V. Salgado
A. Rammen

	C&O	contour on northside contin.	
C50-11-E	1007	27°38Rt	
C50-10-E	957	26°02Rt	
C50-9-E	952	21°40Rt	
C50-8-E	972	19°14Rt	gulley
C50-7-E	907	17°37Rt	
C50-6-E	857	14°00Rt	
C50-5-E	860	11°52Rt	gulley
C50-4-E	810	10°29Rt	
C50-3-E	757	6°50Rt	
C50-2-E	700	2°37Rt	
C50-1-E	697	1°55Rt	
C50-0-0	675	0°18Lt	
C50-1-W	647	5°55Lt	
C50-2-W	652	11°16Lt	
C50-3-W	665	15°35Lt	
C50-4-W	707	19°37Lt	
C50-5-W	770	25°06Lt	end
to Tunnel		~~1405 Rt~~ ?	to point and dump
⍋ at E-base line		89°11Rt	" " " "
			4.2 to Portal, 1043 to face
⍋ at Tunnel	foresight	to Base #1	
		97°20Rt	Tunnel bearing ~~735~~ elev. ± 676 ?

Williams BM on top of pipe without sleeve
furthest east in trail elev. 654.105
from 30 book 165

700 contour on S. Side

Dec. 29-31
P.A.G. after big storm
river discharge 1000 cfs

At Base #1		
to 700 auxillary point		72°09 Rt from Base line to Auxillary
At Base #2		68°50 Lt " " "
At Auxillary	Foresight on Base #1	angles Left & Rt
700-0-0	328	44°54 Lt on R.O.G. Axis ±
700-1-W	385	45°49 Lt
700-1-E	288	45°51 Lt
700-2-E	259	47°09 Lt
700-3-E	214	48°30 Lt
700-4-E	112	52°30 Lt
700-5-E	11	35°00 Lt
700-6-E	55	143°36 Rt
700-7-E	102	118°04 Rt
700-8-E	146	116°08 Rt
to Axis at Flume grade		60°45 Lt
At Flumegrade & Axis		100°32 Lt this a hub 0.7 south of Flag to which all angles have been read
Angles Lt Rt from Axis		
750-0-	3	0°0
750-1-W	25	84°20 Lt
750-1-E	70	102°22 Rt
750-2-E	125	97°27 Rt
750-3-E	172	99°51 Rt
750-4-E	267	97°10 Rt
750-5-E	300	97°54 Rt
750-6-E	335	99°15 Rt
750-7-E	375	101°08 Rt

72°09 152°27
44 18 76 9/3 1/2
68°49-30 37-40-30
68-50-00

29°10
39-49'
111
179-59

756.10 = H.I.
10.43
45.53

750 continued

750-8-E	405	99°25	
766 -	35	171°10 Rt	
			offset line
766	190	101°50 Rt	24' Rt
766	285	101°50 Rt	16' Rt
766	365	101°50 Rt	26' Rt
766	414	101°50 Rt	33 Rt

Mat Base #2 foresight on #1 angles Left & right

560 contour

662	6°08 Rt	
598	4°36 Rt	
560	0°25 Rt	
515	4°04 Lt	
408	13°19 Lt	
325	19°36 Lt	
265	21°07 Lt	
165	35°14 Lt	
118	63°05 Lt	to head of wash along south bank
138	37°32 Lt	
245	17°20 Lt	
360	10°26 Lt	
440	3°19 Lt	
530	5°19 Rt	Point of sand bar
460	6°21 Rt	
420	6°45 Rt	
330	1°53 Rt	

Dec. 29-31
P.O.C

28

584.4' B.M.
0.38
584.83
12.68
572.15
3.45
575.60
12.63
562.975 BM on nail in Baseline #2 hub
7.93
570.905

Dec. 29-31 - 30-31
P.O.6

560 continued
South-side

Mat Base #2			
560 contin	280	9°13Rt	
	255	15°56Rt	
	111	17°30Rt	
	25	68°55Rt	in wash
	62	52°54Rt	
	162	25°12Rt	
	210	24°30Rt	on point of sand bar
	150	48°54Rt	
	137	68°38Rt	
	122	93°18Rt	
	140	125°14Rt	
	190	149°13Rt	
	280	169°44Rt	
	325	176°45Rt	
	400	186°27Rt	this on S. S. of present N. S.
Mat Base #1			
560 on North side			on No 2
	485	147°53Lt	about 35 from creek bank
	260	123°13Lt	20' from creek and 40' from toe of slope
	225	96°33Lt	
	215	90°08Lt	
	225	75°42Lt	
	320	54°11Lt	
	400	41°26Lt	

Dec. 30 31
P.O.E

560 cont. on North S. contin.
setting B M s on northside

T at Base #1						
560	4.55	31°30 Lt				
	5.17	25°43 Lt				
	6.10	16°17 Lt				
	8.00	4°33 Lt				
				654.105	B.M.	on east pipe of bore hole station by J.W.E from Book 165 P. 30
	11.06	665.165				
Check			13.530	651.635	+651.614	
	11.700	676.495	0.370	664.795		
	12.230	688.100	0.625	675.870		
	12.685	700.255	0.530	687.670		
	12.400	712.145	0.510	699.745	BM on	Top of Boulder on line t 699.745 806 707.80
	12.810	724.445	0.510	711.635		
	12.640	736.740	0.345	724.100		
	12.720	749.285	0.175	736.565		
	12.605	761.695	0.195	749.090		
T at Base #1			2.970	758.725	B.M. on	top of east pipe of bore hole station on point W of Axis
to Auxillary on 750 cont.		75°04 Lt		from Base line		
to Tunnel point		57°56 Lt				
to Auxillary on 700		71°03 Lt				
T at Base #2	foresight	on #1				
to Auxillary on 700		67°32 Rt				
to Tunnel		89°14 Rt				
to Auxillary on 750		69°44 Rt				

700 & 750 contour on north side

Dec 30-31
ROG

31

⊼ at auxiliary	700 Cont. foresight on Base #1		
700-0	23	130°02 Lt	on P.O.G. Axis ±
700-1-W	23	31°54 Rt	
700-2-W	61	52°53 Rt	
700-3-W	113	57°52 Rt	amongst huge Boulders
700-1-E	116	130°47 Lt	
700-2-E	227	137°16 Lt	gulley
700-3-E	240	130°00 Lt	
700-4-E	340	125°18 Lt	
700-5-E	416	127°37 Lt	gulley
700-6-E	425	121°30 Lt	
700-7-E	505	113°38 Lt	
700-8-E	570	117°12 Lt	gulley
700-9-E	580	113°35 Lt	joined on 650
700-10-E	635	111°10 Lt	gulley
⊼ at aux. 750	foresight on Base #1		
	110	64°52 Rt	
	85	47°02 Rt	
	50	29°40 Rt	
	65	131°20 Lt	
1	160	129°20 Lt	
2	234	134°25 Lt	
3	250	128°47 Lt	
4	290	126°54 Lt	
5	355	122°15 Lt	
	475	121°40 Lt	gulley
	480	116°33 Lt	
	540	111°25 Lt	

Road Survey Preliminary

		Elev.
64+00		960
65+00	1-16" culvert	
66+00		948
68+00		936
68+25	1-16" culvert	
70+00		924
70+50	1-	
71+00	1- } 16" culvert	
71+50	1	
72+00		918
74+00	1-16" culvert	
75+00	1-16" culvert	
76+00		888
76+50	1-16" culvert	
78+00		876
80+00		864
82+00		852
83+00	1-30" culvert	
84+00		840
86+00		828
88+00		816
90+00		804
92+00		792
93+00	1-16" culvert	
94+00		780

Dec. 31-31

P.O.G.
J. Salgado
A. Remmen.

Note: from Topog. sheet assumed flag set at elev. 973 as being 1.2 miles from Pavement with grade for this point being 960 this elev. fits ground, set flag marked Sta. 64+00 and proceeded down hill on 6%

		Elev.
95+00	1-16" culvert	
96+00		768
97+00		762 = Flume grade ±

	C o/o	Road grade	
64+00			960
63+00	1-16"	Culvert	
62+00			972
61+50	1-16"	"	
60+75	1-16"	"	
60+00			984
58+00			996
56+00			1008
54+00			1020
53+75	1-12"	"	
52+00			1032
50+00			1044
49+25	1-30"	"	
48+00			1056
47+50	1-16"	"	
46+00			1068
45+75	1-30"	"	
44+00			1080
42+50	1-12"	"	
42+00			1092
40+25	1-16"	"	
40+00			1104
38+00			1116
36+00			1128
34+00			1140
33+50	1-30"	"	
32+00			1152

Jan. 4-32
P.O.C

Tape constants

Time Jan. 1-1932 10.20 a.m. 63° Fahr.

200 foot = 199.98

100 " = 99.99

grade at this point should not be lower as gully becomes very steep downstream

Road grade contin

32+00			1152
31+40	1-12"	culvert	
30+00			1164
29+75	1-12"	"	
28+25	1-12"	"	1176
26+00			1188
24+00			1200
23+25	1-12"	"	
22+00			1212
21+25	1-12"	"	
20+00			1224
18+00			1236
16+00			1248
14+00			1260
13+00	1-16"	"	
12+00			1272
10+00			1284
8+00			1296
6+00			1308
4+00			1320
3+75	1-12"	"	
2+00			1332
1+75	1-12"	"	
1+00	1-12"	"	or combine
0+10	1-12"	"	
0+00			1332

0+00 is 200 North of Pavement on line to Topog. Sta.

Jan 4-32
P.O.G

34

30 40 50 62 960
6 6 6 376
180 240 300 376 1336
960 960 960
1140 = 34 # 1200 # = 1260

1340 16 96 64 1341
96 96 6 384
1244 384 1340 954
960
288
1244

sharp turn required grade should be level 200'

12+50 line goes thru 3-Pole Tower of P.L.

1332
8
1340
16
1326 on BM at P.P.

1332 1332.5
4
1328

Meridians and Bearings
at El Capitan Dam site

P.O.G. Axis P.O.G Solar obser. S8°45W
to "C" Axis 83° 13 Lt
2-15
S 74-58 E

"C" to P.O.G Axis 76-52 Rt

Bearing of "C" S1°54W by Conv. Solar S1°55W
S1°56 W
S1°58 W

Mag. Bearing N15°E

Jan. 23-32
P.O.G.

Road Prelim. Chocolate creek
Checklevels Sta.

March 9-32

36

			784.07	BM
3.250	787.32	11.57	775.75	
0.235	775.985	11.255	764.730	
4.790	769.520	3.140	766.380	-766.37

=765.36 line over ridge has 1' minus error
ridge summit by H.L. 807

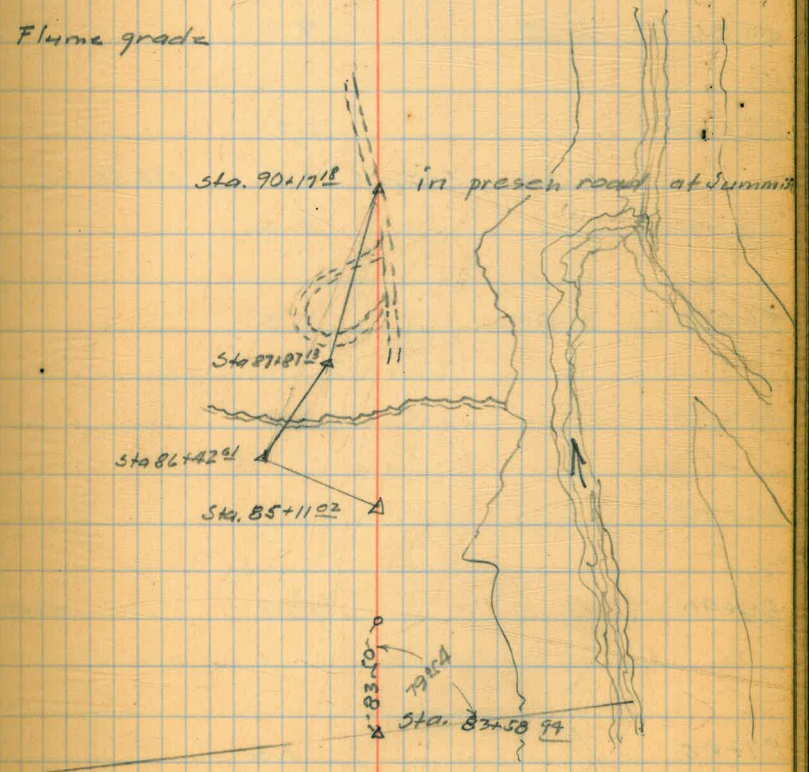
Tie to existing road on west side of Chocolate creek from Bridge Head

B line

94+01 21	P.O.T		on Boulder
92+~~77.18~~ + 32.30 = 92+77.48	P.I.	25°17 Rt	
B 90+17.18	P.I.	14°33 Rt	
B 87+87 13	P.I.	15°53 Lt	
B 86+42 61	P.I.	95°46 Rt	
B 85+11.02	P.I.	51°36 Lt	
B 83+58 94 = 83+58 94	P.I. P.O.T	79°54 Lt	

Sta'd'g
+306'+
9401.2 = 104+61
97+07.2 =

in Flume grade



Profile levels B line

March 9-32

	1.50	772.96		771.46	T.P.	at 0+00 Base line
85+58.94	△ L+					
84+42.4			1.5			
85+00			7.3			
85+11.02	△ L+		9.1			
85+45			9.3			
	6.70	767.25	12.41	760.55		
86+00			8.2			
86+42.6'	△ R+		7.7			
86+54			8.7			
86+75			13.7			
86+90			20.7		drain	S-E
87+10			11.2			
87+40			4.8			

B line Profile

		767.25			
87+87 13	△ Lt		2.4		
88+00			2.4		
89+00			5.3		
90+00			5.3		
90+17 18	△		4.9	762.3	in old road at summit
91+00			4.5		
	4.87	768.45	3.67	763.58	
92+00			2.2		
92+45			3.1		
92+77 48	△ Rt		6.6	761.8	Flume grade West of creek xsing
93+38 48			13.0	755.4	
	0.79	756.88	12.36	756.09	
93+95			11.5	745.4	on ground
94+01			7.1	749.8	on large Boulder
	9.58	765.67		756.09	
			9.90	755.77	BM on Boulder 93+48

756.88
2.33
H.I. 754.55
Li. 47
692.58
-3.50
689.08

D-155 Y Δ 22°34
cos 142.01
sin 61.97

94+01.21
142.01
95+43.28 El. 689.0

	6.0	695.0		689.0
95+25			4.7	690.3
95+43				
95+65			6.0	689.0
95+82				696.3
96+43				748.8

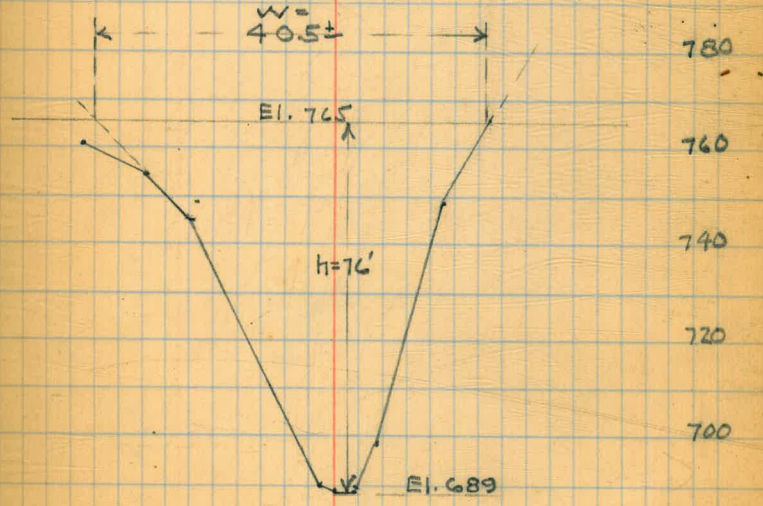
March 9-32
P.O.C

A-0

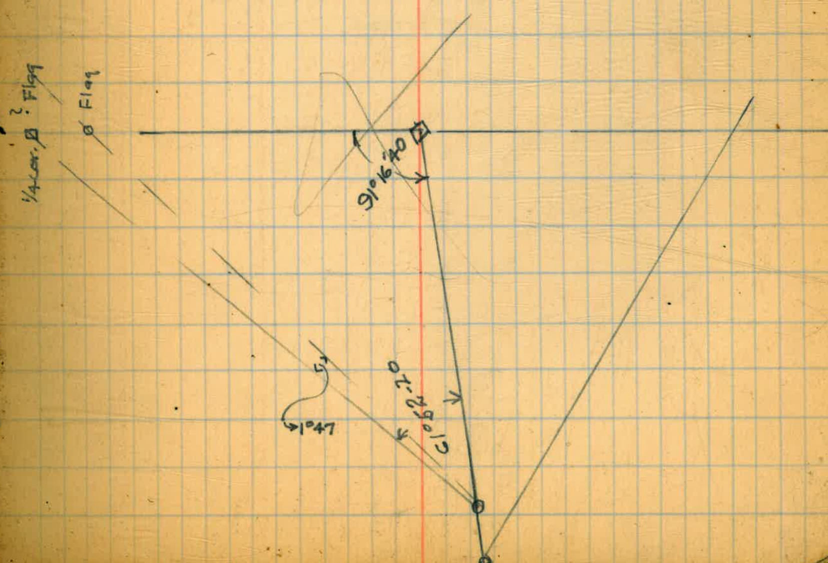
Toe of slope West bank
West creek channel
East creek channel

Toe of slope E Bank

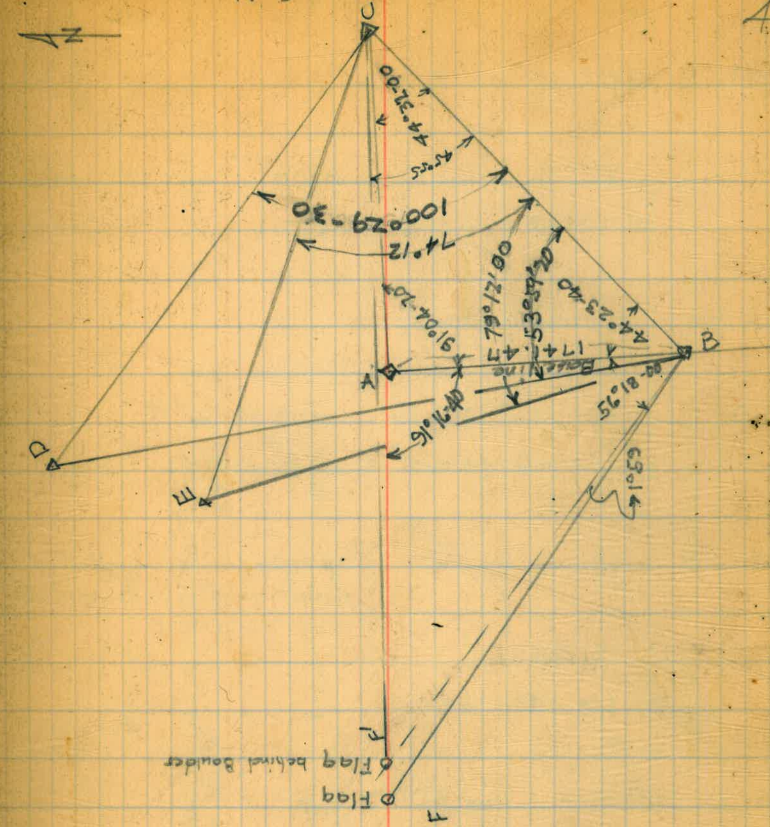
756.09
9.58
765.67
+ 3.41 on last T.P. 105±
769.26



Flume x sing of Chocolate
creek


1/4 cor. ⊠ ? Flag
ø Flag
91°16'40
1°47
21°52'20

March -14-32


N
C
A
B
D
E
F
F'
Base line
Flag
Flag behind Boulder
44°32'00
100°29-30
74°12
79°12'00
44°23-40
51°18-00

March 15 -32 raining!!, a fine mess

P.O.C

43

N

At E sighting on B

to C	to D	to H	to J
26°36	85°01'-40"	147°30-40	233°04
3) 79°48	3) 255°02	3) 442°31	3) 699-12

At H sighting on E

to D	to G	to J
43°02	129-53-30	28°31
3) 129-04 = 43-01-20	3) 389-39 = 129-53	3) 85°35

At G sighting on D

upright stone marked X with mound of rocks towest

to H
71°21
3) 214-03-20 = 71-21-[illegible]

At J sighting on E

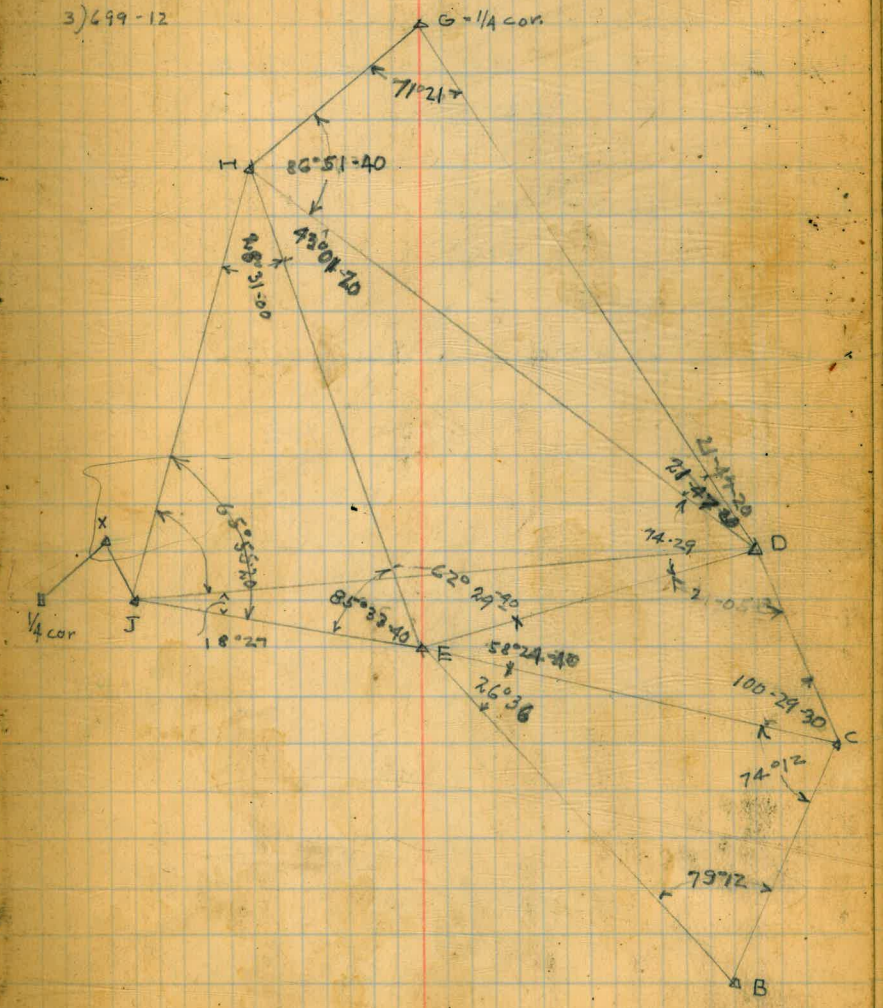
to D	to H
18°27	65°55-20
3) 55°20	3) 197-46

to X 104°56 Lt D = 115.4 VΔ = 7°36-

At X sighting on J

to 1/4 cor Δ S-W 85°34 D = 200 VΔ = 11°28 + 51.4

↳ upright stone marked + mound of rocks west



⊼ at G = 1/4 cor sighting on H

to E-1 134-52 to E-0 97-38-30

2) 269-43 = 134-51-30 2) 195-16-40 = 97-38-20

⊼ at E-1 to E-0 14-21-30 to E-2 41-37

2) 28-42-20 2) 83-13

D = 200
VA = 25°08 - = 181.06

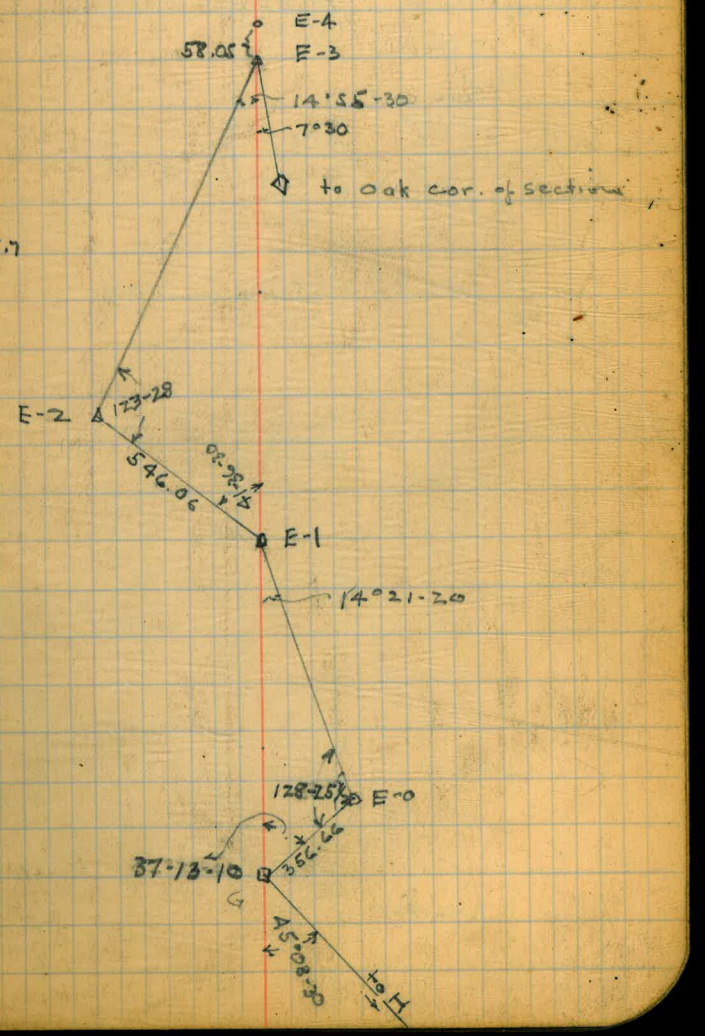
⊼ at E-3 to E-2 14°55

2) 29°51

⊼ at E-3 to Sec. cor. from E-1 left 7°30

D = 200
VA = 10°30 - + 113

D = 200
VA 17°32 - + 25.7

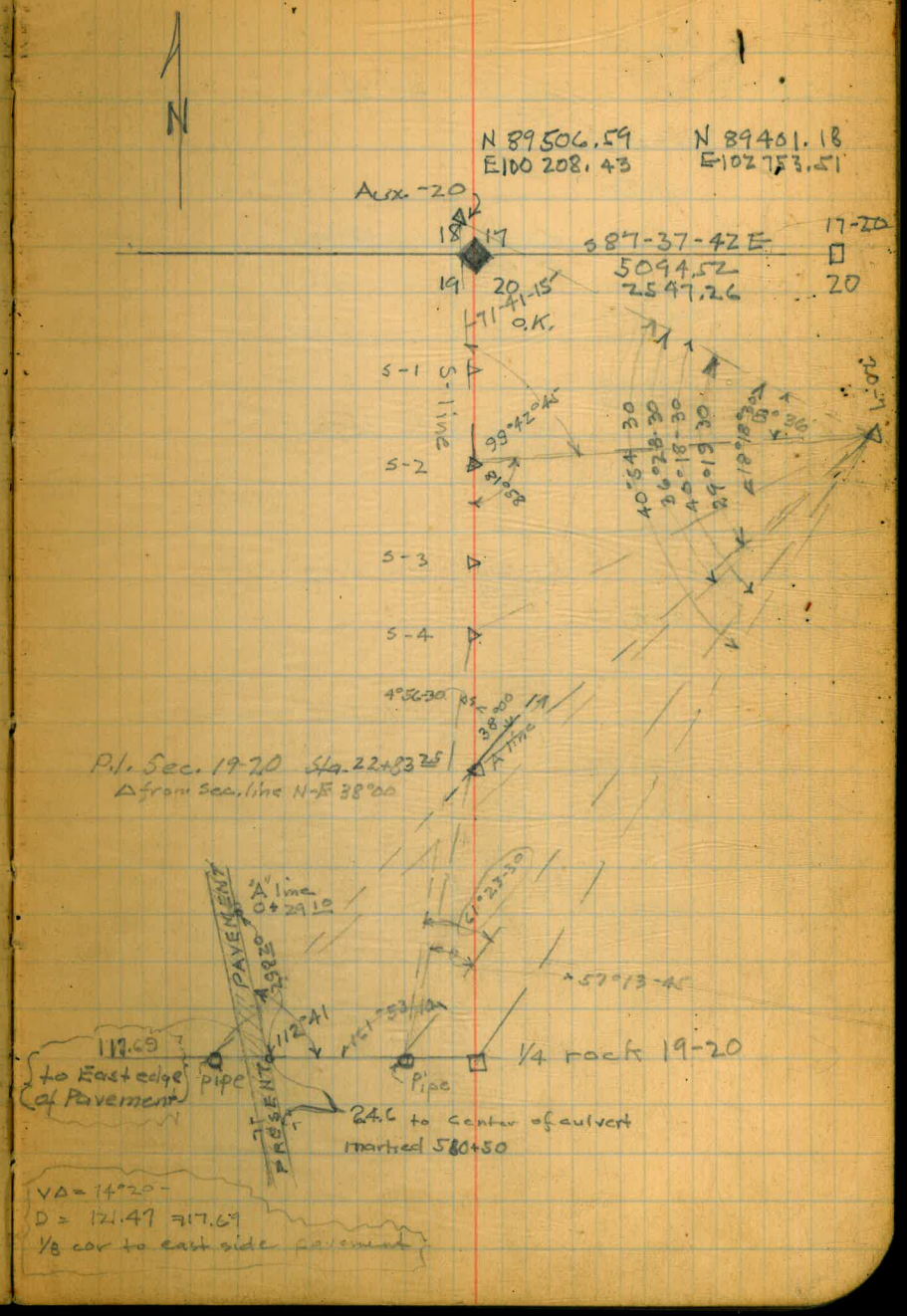


Prop. ties at Wileys Ranch

	20-7		
℄ at S-2		81°58	81-58
	¼ cor. 19-20	163-56	
	Aux. 20		
℄ at S-2		99°43	99-42-45
	20-7	199-25-30	
	Pipe cast at ¼ cor		
℄ at S-4		4°57	
	¼ cor 19-20	9°53	4-56-30
℄ at P.I. Sec. line & A 22+83.25	tang. 23+	38°00	38°00
	S-4		
	S-4		
℄ at A 22+83.25		170-54	170-53-30
	Pipe cast	341°47	
	Aux-20		
℄ at 20-7		8°36	8°36
	S-2	17-12	
	Aux. 20		
20-7		18°18	18-18-30
	S-4	36.37	
	Aux-20		
20-7		29-19	29-19-30
	A 22+83.25	58-39	

April 12-32
I.P.O.C.

45



Mat 20-7	Aux-20	40-55 81-49	40-54-30
	¼ cor. 19-20		
20-7	Aux 20	40-19 80-37	40-18-30
	to pipe east of ¼ 19-20		
20-7	to ⅛ cor east of ¼	36°28-30 72-57	36-28-30
	Aux-20		
Mat pipe- cor of ¼ cor	20-7	61-24 122-47	61-23-30
	S-4		
Pipe	20-7	57-14 114-27-30	57-13-45
	P.I. A 22+83		
pipe	20-7	161-53-30 323-46-20	161-53-10
	¼ cor east		

N 68-37-40 W 20-7 to Aux.

S 3-03-35 E Aux to S-2

S 4-44-20 E S-2 to ¼ cor 19-20

S 77-13-40 E S-2 to 20-7

Profile And Cross-Sections of County Road Survey From El Monte Park To El-Capitan Dam. For Pipe Line Location

March-23-1935.
Hill - Simpson
Soper - Remmen

Cont'd. From Book #317 - Page 74.

548.5

T.P. 549.50

7.29 556.79

Station	Lf.					Rt.		
368+50	543.4 / 13^{4} / 33	545.2 / 11^{6} / 20	549.4 / 7^{4} / 11	550.0 / 6^{8} / 6 N.edge Rd.	549.9 / 6^{9} / ℄	550.3 / 6^{5} / 13	550.5 / 6^{3} / 16 = S.edge Rd., At City Camp And Toe slope	
369+00		543.6 / 13^{3} / 30	545.5 / 11^{3} / 13	550.5 / 6^{3} / 3	551.4 / 5^{4} / ℄	550.5 / 6^{3} / 4 = N.edge Rd.	551.0 / 5^{8} / 13	551.5 / 5^{3} / 21 = S. edge Rd, at city camp. And Toe slope
+50	543.5 / 13^{3} / 35	544.4 / 12^{4} / 25	549.9 / 6^{9} / 13	551.3 / 5^{5} / 10	551.5 / 5^{3} / ℄	551.8 / 5^{0} / 13	552.0 / 4^{8} / 22	Plotted to here. 4-13-35
370+00	542.9 / 13^{9} / 46	544.8 / 12^{0} / 25	550.6 / 6^{2} / 13	551.9 / 4^{9} / 11	552.0 / 4^{8} / ℄	552.0 / 4^{8} / 13	552.0 / 4^{8} / 17	
+50		543.7 / 13^{1} / 38	550.9 / 5^{9} / 13	552.5 / 4^{3} / 9	552.7 / 4^{1} / ℄	552.5 / 4^{3} / 13		
371+00	536.4 / 20^{4} River / 94 ; 538.8 / 18^{0} / 64	546.3 / 10^{5} / 40	553.4 / 3^{4} / 30	553.9 / 2^{9} / 13	553.8 / 3^{0} / ℄	553.9 / 2^{9} / 12		
+50		543.5 / 13^{3} / 50	551.2 / 5^{6} / 22	555.4 / 1^{4} / 12 N.edge Rd.	555.5 / 1^{3} / ℄	555.6 / 1^{2} / 11		

T.P. 1.46 555.33

8.71 564.04

Station	Lf.			Rt.
372+00	553.1 / 10^{9} / 23	557.6 / 6^{4} / 13 N.edge Rd.	558.0 / 6^{0} / ℄	558.2 / 5^{8} / 13

3/35 ok
Reduced profile plotted
Plotted G.W.C. 4-15-35

			Lf.	℄	Rt.
	564.04 ✓				
	554.1 ✓	560.0 ✓	560.3 ✓	560.7 ✓	560.7 ✓
372+50	9 9	4 0	3 7 N. edge	3 3	3 3 = S. edge Rd. At City Camp
	25	16	13 Rd.	℄	13 And toe slope
		554.1 ✓	559.8 ✓	560.5 ✓	560.6 ✓ 560.7 ✓
373+00		9 9	4 2 "	3 5	3 4 3 3 "
		23	13	℄	13 19
		555.8 ✓	556.2 ✓	557.6 ✓	558.5 ✓ 558.9 ✓
+50		8 2 N. edge	7 8	6 4	5 5 5 1 "
		22 Rd.	13	℄	13 20
	525.4 ✓ 38.6				
	538.6 25 4 River	550.1 ✓	552.1 ✓	557.5 ✓	558.6 ✓ 558.9 ✓ 559.2 ✓
374+00	100	13 9	11 9	6 5	5 4 5 1 4 8 "
		51	19	11 ℄	13 21
		560.0 ✓	560.0 ✓	560.0 ✓	560.0 ✓ 560.3 ✓
+50		4 0	4 0 = S. side	4 0	4 0 3 7 "
		32	8 of City Garage	℄	13 16
T.P.			3.90	560.14 ✓	
	10.33	570.47 ✓			
B.M.			1.60	568.87 ✓ = check on	B.M. # 4 · Rec. Elev. 568.88
T.P.				560.14 ✓	
	11.16	571.30 ✓			
		560.1 ✓	560.5 ✓	561.1 ✓	561.3 ✓
375+00		11 2	10 8	10 2	10 0 = S. edge Rd.
		32	13	℄	12 And Toe Slope

Plotted
G.W.G.
4-15-35

Cont'd. From Page 48.

		Lf.		℄	Rt.
	571.30				
	554.3	558.4	563.2	563.4	563.3
375+50		17.0	12.9	8.1 : N. edge	7.9	8.0 : S. edge Rd.
		40	23	13 Rd.	℄	10 And Toe slope
	557.8	566.9		566.3	566.8
376+00		13.5	4.4		5.0	4.5 "
		25	13		℄	10
	569.5	570.6		569.7	570.3	570.7
+50	Steep slope ← to River	1.8	0.7 : N. edge		1.6	1.0 : S. edge	0.6 : Toe slope
		23	13 Rd.		℄	13 Rd.	20
T.P.		0.18	571.12			
	11.85	582.97				
	541.4	544.9	573.7	573.5	573.0	573.0
377+00	41.6 River	38.1	9.3 : N. edge	9.5	10.0	10.0 : S. edge Rd.
	110	67	20 Rd.	13	℄	2 And Toe slope
	574.9	575.8		575.6	575.9	576.3
+50		8.1	7.2 : N. edge		7.4	7.1 : S. edge Rd.	6.7 : Toe slope
		17	13 Rd.		℄	6	13
		North			South	
377+67.63 = P.I. - Co. Rd. Survey #606	575.2	576.0		576.2	576.3	577.4
2.3+26.07 P.I. - Pipe Line Survey	7.8	7.0		6.8	6.7 "	5.6 "
Use Pipe Line Re Survey on East to Dam	15	12		℄	8	12
		577.4		577.1	577.2	579.1
23+00		5.6 : N. edge		5.9	5.8 "	3.9 "
		13 Rd.		℄	6	11

Note: Profile and X Sections are Taken on the Semi-Tangent from Sta. 376+71.19 to Sta. 377+67.63

Plotted G.W.G. 4-17-35

582.97

	North.	℄	South.
22+50	577.9 5.1 29	578.4 4.6 N. edge 13 Rd.	578.6 4.4 = S. edge ℄ Rd.	581.8 1.2 = Toe Slope 10
22+00		579.2 3.8 N. edge 20 Rd.	579.6 3.4 " ℄ And Toe Slope	
21+50		580.5 2.5 " 17	580.5 2.5 ℄	581.2 1.8 = Toe Slope 9
21+00	542. 40.8 River 94	581.9 1.1 " 23	581.6 1.4 ℄	582.4 0.6 " " 10
T.P.	1.64	581.33		
	2.45 583.78			
20+50		581.7 2.1 N. edge 28 Rd.	581.6 2.2 - S. edge ℄ Rd.	
20+00		580.1 3.7 " 21	579.0 4.8 ℄	578.9 4.9 - S. Edge Rd. 4 And Toe Slope
19+50		575.8 8.0 " 24	575.3 8.5 ℄	575.4 8.4 " 3

584.3 587.8
+0.5 +4.0
7 13
Top Bank

Plotted
G.M.G.
4-17-35

Cont'd. From Page 50

		North.	℄	South.		
	583.78 ✓					
		572.7 ✓	572.6 ✓	572.9 ✓	580.1 ✓	582.9 ✓
19+00		11 L = N. Edge Rd. 23	11 R = S. ℄ Edge Rd.	10 9 = Toe Slope 1	3 7 = Top Bank 7	0 9 14
		571.0 ✓	570.6 ✓	571.0 ✓		
18+50		12 8 " 18	13 R ℄	12 8 = S. Edge Rd. 6 And Toe Slope		
T.P.		12.14	571.64 ✓			
	1.54	573.18 ✓				
	542.4 ✓	558.5 ✓ 566.3 ✓	569.1 ✓	569.2 ✓	569.3 ✓	
18+00	30 8 River 147	14 7 6 9 83 20	4 1 = N. Edge Rd. 13	4 0 ℄	3 9 " 11	
		568.6 ✓	568.2 ✓	568.3 ✓	572.3 ✓	
+50		4 6 " 22	5 0 ℄	4 9 " 3	0 9 6	
		567.7 ✓	568.2 ✓	568.3 ✓	571.6 ✓	573.2 ✓
17+00		5 5 " 23	5 0 ℄	4 9 " 2	1 6 5	0 0 10
		567.9 ✓	568.2 ✓	569.8 ✓	572.6 ✓	
+50		5 3 = N. Edge Rd. 21	5 0 = S. Edge Rd. 4	3 1 ℄	0 6 14	
		568.0 ✓	568.2 ✓	572.1 ✓	574.2 ✓	
16+00		5 2 " 26	5 0 " 10	1 1 ℄	+1 0 13	
T.P. & B.M.		0.47	572.71 ✓ = check	on B.M. #3 - Rec. Elev. 572.72		
	0.34	573.05 ✓				

Plotted G.W.G. 4-17-35

573.05 ✓

	North.		℄	South.
	566.3 ✓		566.1 ✓	569.5 ✓
15 + 50	6.7 N. Edge		6.9 = S. Edge	3.5
	21 Rd.		℄ Rd.	12
	558.4 ✓	563.3 ✓	563.7 ✓	563.7 ✓
15 + 00	14.6	9.7 "	9.3	9.3 = S. Edge Rd.
	18	12	℄	17 Rod Toe Slope
	544.1 ✓	546.6 ✓ 551.8 ✓ 563.7 ✓	564.0 ✓	564.1 ✓
+ 50	28.9 River	26.4 21.2 9.3 "	9.2	8.9 "
	200	190 80 10	℄	10
		563.6 ✓	563.3 ✓	563.4 ✓ 566.6 ✓
14 + 00		9.4 "	9.7	9.6 " 6.4
		21	℄	6 8
		563.5 ✓	563.5 ✓	563.7 ✓ 568.0 ✓
+ 50		9.5 "	9.5	9.3 " 5.0
		24	℄	1 6
T.P.		10.10 ✓ 562.95 ✓		March - 25 - 1935
	10.73	573.68		
	545.2 ✓	548.2 ✓ 554.6 ✓ 562.7 ✓	563.0 ✓	563.0 ✓
13 + 00	28.5	25.5 19.1 11.0 N. edge	10.7 S. edge	10.7 = Toe Slope
	208	200 55 23 Rd.	℄ Rd.	9
		563.2 ✓ 563.3 ✓	563.6 ✓	563.7 ✓
+ 50		10.5 N. edge 10.4 S. Edge	10.1	10.0 "
		27 Rd. 10 Rd.	℄	14

Hill - Simpson
Soper - Rammen.

11.9 3.5.7 3.70 .5

Plotted
G.W.G.
4-17-35

Contd. From Page 52

	573.68	North.	℄	South
12+00	564.8	565.0	567.9	569.7
	8.9 = N. Edge Rd. 26	8.7 = S. Edge Rd. 13	5.8 ℄	4.0 12
+50	566.2	566.1	569.0	571.1
	7.5 " 28	7.6 " 10	4.7 ℄	2.6 12
11+00	565.5	565.7	570.3	574.3
	8.2 " 30	8.0 = Toe Slope and S. Edge Rd. 10	3.4 ℄	+0.6 14
+50	566.3	565.8	576.0	579.0
	7.4 = N. Edge Rd. 35	7.9 = S. Edge Rd. 20	+2.3 10	+5.3 ℄
+30	566.7	566.3	585.3	584.7
	7.5 = N. Edge Rd. 38	7.4 = S. Edge Rd. 22	+11.6 = on Large Boulder. 15	+11.0 = on Large Boulder 4
T.P.			7.19	566.49
	8.39	574.88		
10+00	549.8	563.4	554.4	567.7
	25.1 114	11.5 76	20.5 58	7.2 = N. Edge Rd. 36
	546.1 28.8 = River 121			
	567.4	567.5	576.7	587.9
	7.5 = S. Edge Rd. 17	7.4 = Toe Slope 11	+1.8 ℄	+13.0 16
9+50	568.3	568.2	570.5	577.1
	6.6 = N. Edge Rd. 25	6.7 = S. Edge Rd. 8	4.4 ℄	+2.2 2
	582.5	585.9		
	+7.6 15	+11.0 25		

Plotted 6.W.G. 4-16-35

574.88

	North	℄	South	
9+00	569.9 5⁰ N. Edge 20 Rd.	570.1 4⅞ S. Edge Rd. ℄ And Toe Slope	578.8 +3⅝ 8	585.1 +10⅔ 22
+50	568.7 6⅔ " 16	569.6 5⅔ ℄	569.7 5⅔ S. edge Rd. 6 And Toe slope.	
8+00	568.3 6⅚ N. Edge 22 Rd.	568.9 6⅓ S. Edge 4 Rd.	569.7 5⅔ ℄	574.9 0⁰ 13
+50	568.5 6⅘ " 22	568.0 6⅑ " 4	571.2 3⅐ ℄	575.1 +0⅔ 23

T.P. 7.13 567.75

6.37 574.12

546.2	549.5	549.4	565.7	567.0	567.2	567.9	570.9	574.3	
7+00	27⅑ River 130	24⅚ 125	24⅞ 117	8⅘ 70	7⅒ N. Edge 15 Rd.	6⅑ S. Edge 1 Rd.	6⅔ ℄	3⅔ 4	+0⅔ 15
				567.5	567.6			572.3	
+50				6⅚ N. Edge 14 Rd.	6⅝ S. Edge Rd. ℄ And Toe Slope			1⅘ 7	
			568.3	568.5	570.2		575.7		
6+00			5⅘ N. Edge 17 Rd.	5⅚ S. Edge Rd. 2	3⅑ ℄		+1⅙ 12		

Plotted
G.W.C.
4-16-35

Cont'd. From Page 54

		574.12	North.	℄	South.	
		569.0	569.2	569.9	574.5	
5+50		5.1 : N. Edge 18 Rd.	4.9 : S. Edge 5 Rd.	4.2 ℄	+0.4 15	
		568.3	568.8	571.1	575.0	
5+00		5.8 " 28	5.3 " 6	3.0 ℄	+0.9 15	
			569.1	569.8	574.7	
+50			5.0 : N. Edge 20 Rd.	4.3 : S. Edge ℄ Rd.	+0.6 19	
	548.0	563.5 565.5	572.1	571.6	577.8	
4+00	26.1 River 145	10.6 8.6 119 66	2.0 20	2.5 " ℄	+3.7 15	
T.P.			2.28	571.84		
	8.18	580.02				
		569.8	570.7	574.3	580.9	
+50		10.2 37	9.3 : S. Edge 10 Rd.	5.7 ℄	+2.9 16	
		571.4	572.0	575.3	586.6	
3+00		8.6 30	8.0 " 3	4.7 ℄	+6.6 20	
			571.8	573.0	573.7	
2+90			8.2 25	7.0 ℄	6.3 18	

Plotted G.W.G. 4-16-35

		North.	℄	South
	580.02 ✓			
		573.5 ✓	573.5 ✓	573.7 ✓
2 + 50		6 5	6 5	6 3
		20	℄	20
		573.9 ✓ 574.4 ✓	579.6 ✓	580.4 ✓
+ 30		6 1 5 6	0 4	+ 0 4
		16 7	℄	18
		572.1 ✓ 572.2 ✓	573.7 ✓	577.3 ✓ 580.3 ✓
2 + 00		7 9 7 8	6 3	2 7 + 0 3
		14 3	℄	4 15
	548.8 ✓	556.8 ✓ 570.0 ✓	570.2 ✓	571.0 ✓ 573.5 ✓ 576.1 ✓
1 + 58.6 P.I.	31 2	23 2 10 0	9 8	9 0 6 5 3 9
	20	11 2	℄	5 8 15
		547.1 ✓ 552.5 ✓	570.1 ✓	571.4 ✓ 574.6 ✓ 578.4 ✓
+ 35		32 9 stream 27 5	9 9	8 6 5 1 1 6
		19 Bed. 8	℄	4 5 15
T.P.		12.81 567.21 ✓		
	0.63	567.84 ✓		
B.M.		4.09 563.75 ✓	check	on B.M. Rec. Elev. 563.65'.
T.P.		11.78 556.06 ✓		
	2.13	558.19 ✓		
		547.0 ✓ 553.0 ✓	559.5 ✓	560.8 ✓
1 + 10		11 2 5 2	4 7	+ 2 6 on Side of Steep Bank ✓
		13 8	℄	6 Tunnel out-let Cut

Plotted
G.W.G.
4-16-35

Cont'd. From Page 56

		North,	&	South
	558.19 ✓			
		546.9 ✓	556.6 ✓	559.5 ✓
0+95		11⅔ Stream	1⅔	+1⅔
		10 Bed.	&	9
		546.6 ✓	551.x ✓	553.8 ✓
+70		11⅔ "	7⅓	4⅓
		10	&	10

0+40± = End of Apron at Tunnel out-let Portal

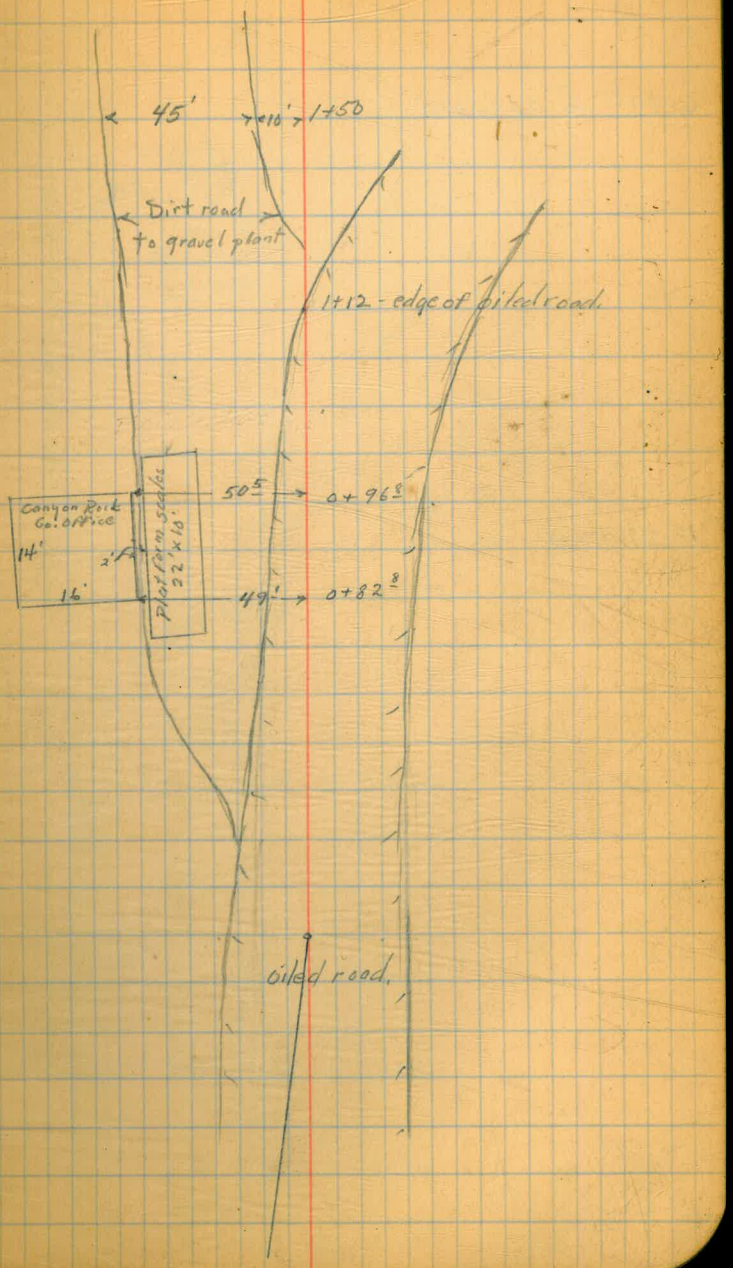
0+00 = Tunnel Out-let Portal

Plotted
G.W.G.
4-16-35

Transit line from Mission Gorge road to Mission Gorge Damsite #3. Profile in Book #193-13

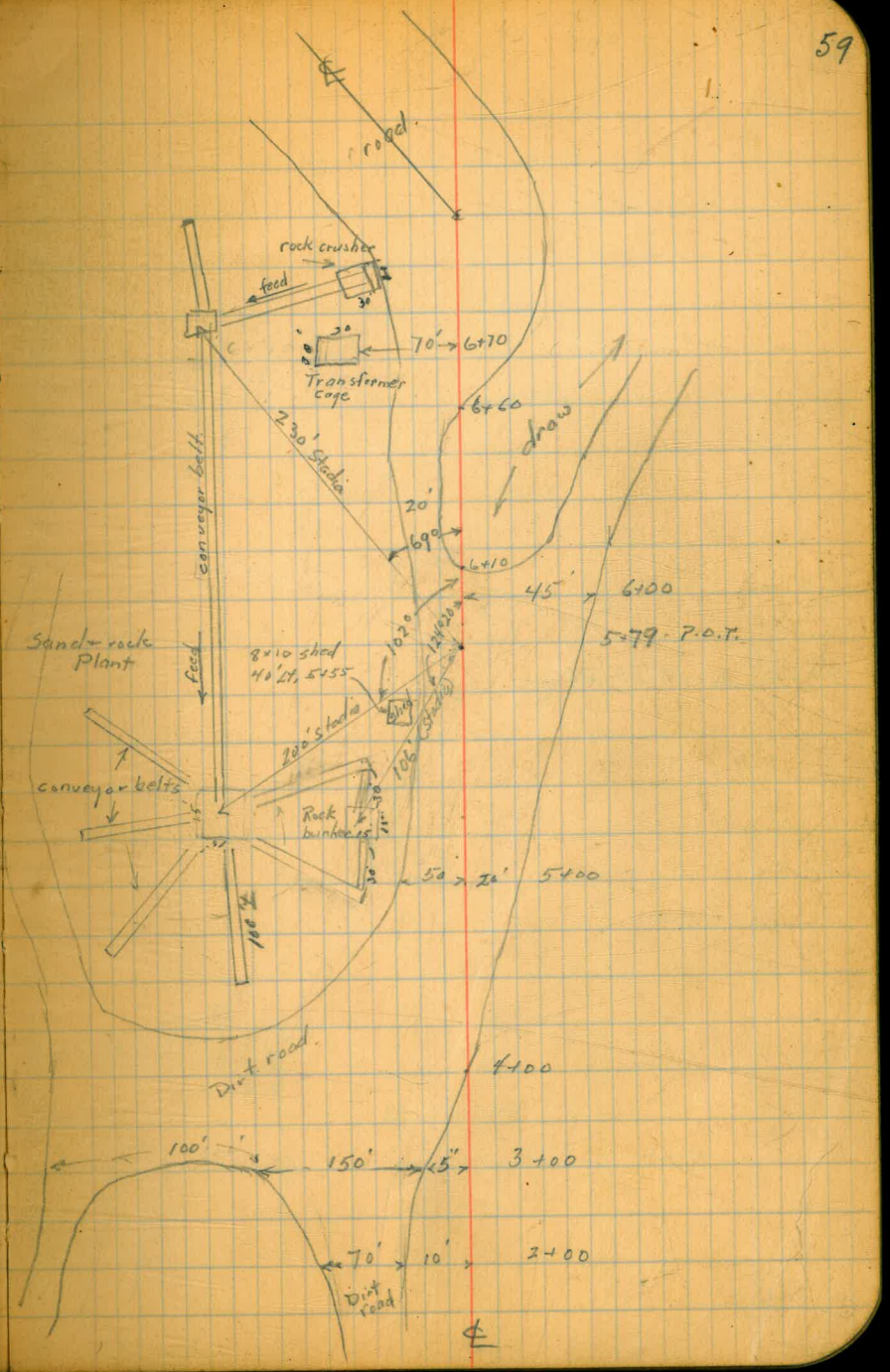
0+00 = 173+54 Co. Road Sta. B.C. ∴ 2°15' Lt.

4/6/42
Soper
Bowlin
Davis

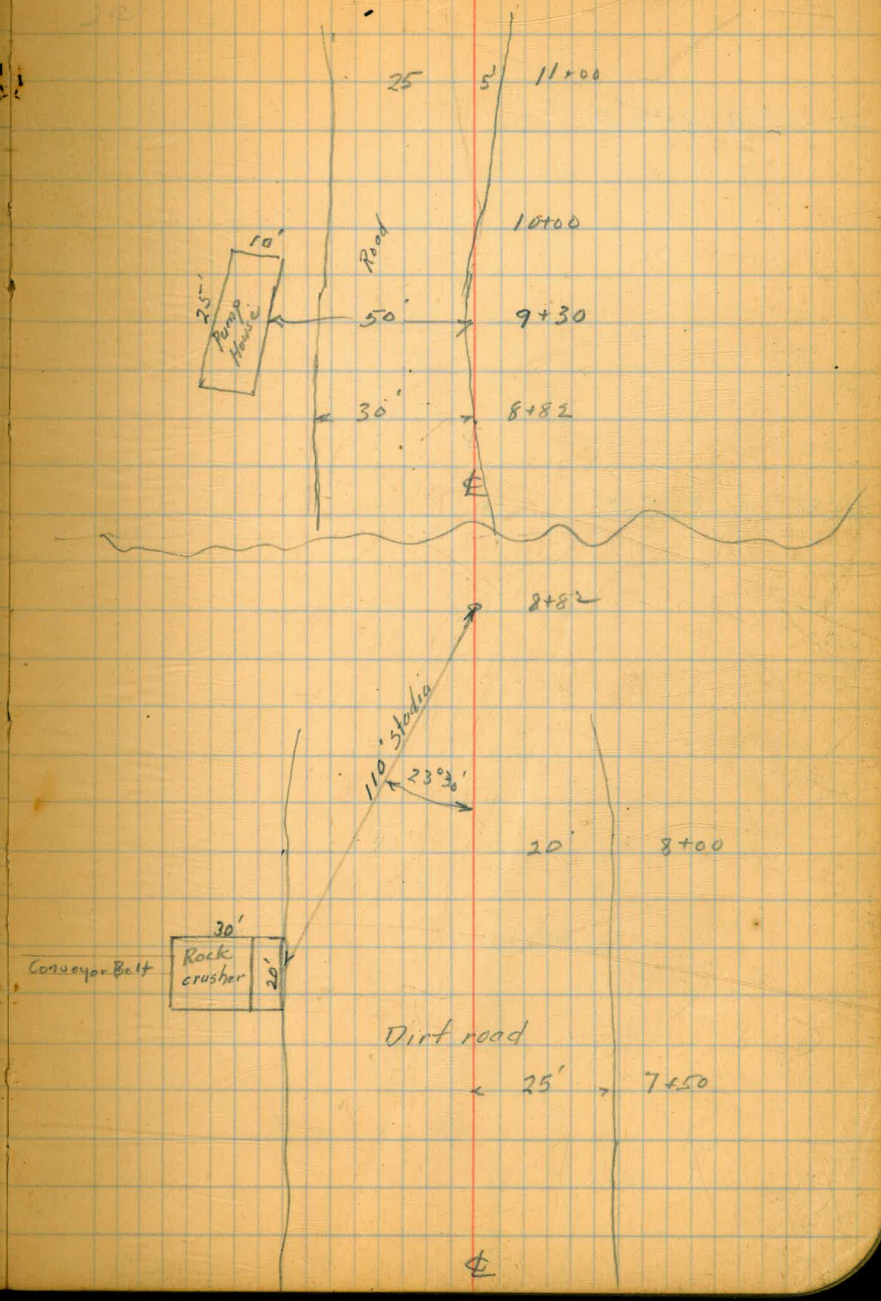


6+87.00 = Δ 37°40' Lt

5+79 P.O.T.



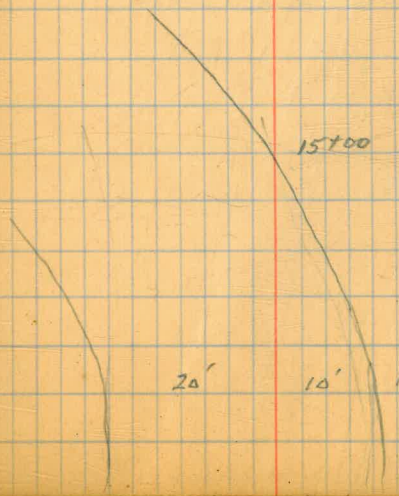
8+82.00 Δ 14°35' Rt



4/3/42
Soper
Bowlin
Davis

21+15.00 Δ 20°18' Lt

16+40.00 Δ 19°50' Rt



33+86 ± Approx. axis of Damsite #3

24+10.0 Δ 5°36' Rt.

Levels For 353 Contour
Near Apex Sand Co.
East End Mission Gorge

Bm.	0.62	338.12			337.50
T.P.	0.17	326.23	12.06	326.06	
T.P	0.29	313.63	12.89	313.34	
T.P	0.26	301.21	12.68	300.95	
TP.	5.60	293.65	13.16	288.05	
T.P.	12.62	303.97	2.30	291.35	
T.P	12.76	316.33	0.40	303.57	
T.P.	12.00	328.25	0.08	316.25	
T.P	13.26	341.26	0.25	328.00	
T.P	12.86	354.12	0.00	341.26	
TBM.	11.01	354.35	10.78	~~343.34~~ 348.34	
T.P.	5.51	358.45	1.41	352.94	
T.P.	4.40	357.49	5.36	353.09	
TP	6.47	358.80	5.16	352.33	
TP	2.94	357.15	4.59	354.21	
T.P	5.74	356.48	6.41	350.74	
T.P	7.97	358.61	5.84	350.64	
TP.	8.42	361.21	5.82	352.79	
TP	5.63	358.13	8.71	352.50	
TP	3.56	356.88	4.81	353.32	
TP	2.41	355.14	4.15	352.73	
TBm	0.61	350.58	4.65	350.49	
T.P.	8.01	350.00	9.51	341.99	
TP	3-21	345.81	8.40	342.60	
B.M.			8.36	337.45	337.50

King
West &
Williams

3-26-37

Windy - clear

63

U.S.G.S. X-321 - on Road to Santee

Topz" pipe N.W.Cor Apex Lease

Long Shot

on rock on No. Property line Apex Sand - 20' West of 353 Contour

U.S.G.S. X-321

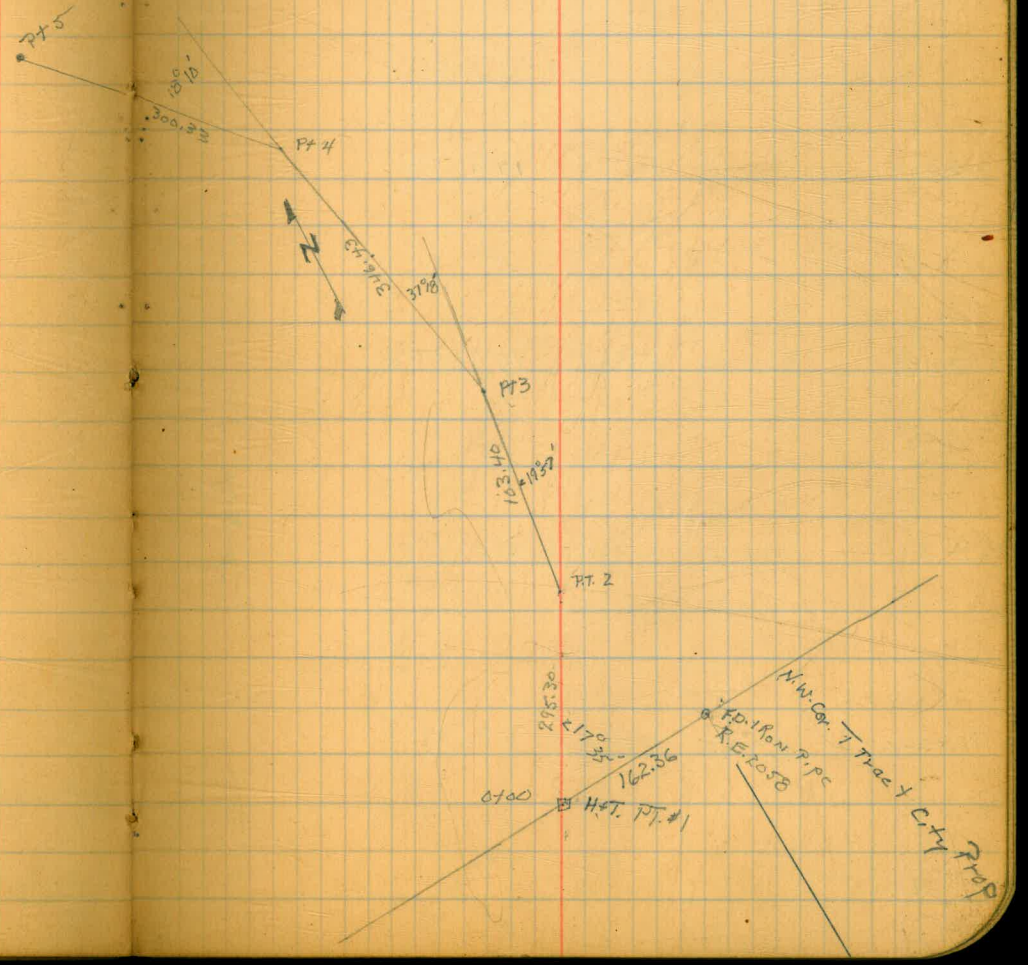
Traverse U.S. Navy Prop. Elev. 353.0 U.S.G.S.
North & Adjacent to Apex Sand Co

King
West
Williams

8-28-51 Berger #15094 Clear - Hot.

64.

Sta.	Dist.	Mag Bearing	Horz ∠
			Eastend Mission Gorge
Pt #4-5	300.33	N 2° W	18° 10' Lt
Pt. #3-4	346.43	N 16° E	37° 18' Lt
Pt #2-3	103.40	N 53 E	19° 57' Lt
Pt #2 0+00 - Pt 1 B.S. ON East Property Apex Sand Co.	295.30	N 71° E	17° 35' Inside (162° 25' Rt)



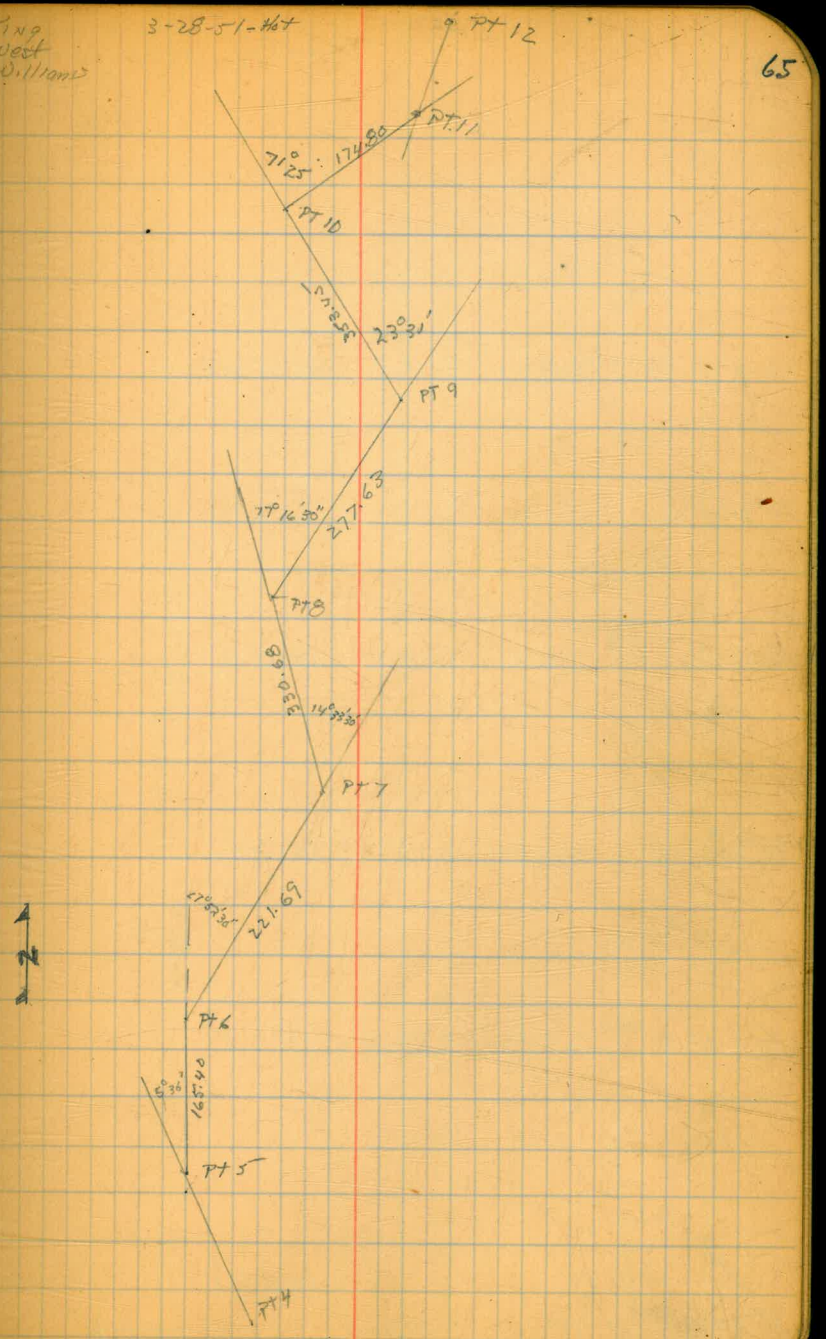
Traverse
Cont-From P64

PT. 11-12	73.08	N 9°30 E	51°43' Lt.
PT. 10-11	174.80	N 61°31' E	71°25' R
PT 9-10	353.45	N 10°30 W	23°31' Lt.
PT 8-9	277.63	N 13°30 E	17°16'30" R
PT 7-8	330.68	N 3°30" W	14°33'30" Lt.
PT 6-7	221.69	N 10°30 E	7°52'30" R
PT 5-6	165.40	N 3°30 E	5°36' R.

King
West
Williams

3-28-51-467

65

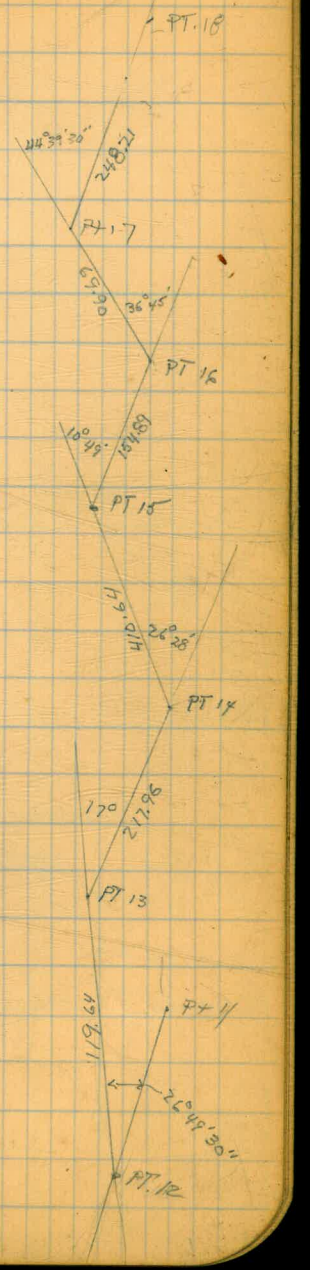


Traverse Cont. From 765

Pt Pt 17-18	248.21	S 7° E	44°39'30" R
Pt Pt 16-17	69.90	S 52°30' E	36°45' Lt
Pt 15-16	154.89	S 16° E	10°49' R.
Pt Pt 14-15	410.64	S 26°30' E	26°28' Lt
Pt Pt 13-14	217.96	S 0° W	17° 0' R
Pt Pt 12-13	119.64	S 17°30' E	153°10'30" R / 26°49'30" Inside

King 7
West
Williams
3-28-57
HOT

66



Traverse Cont. from P66

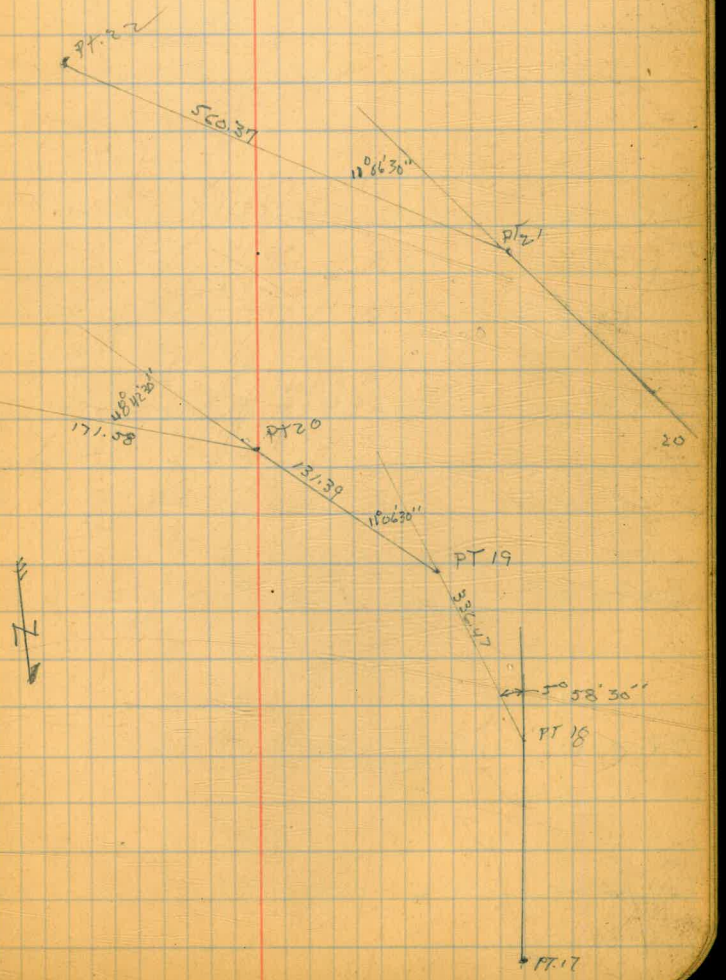
PT. 21 - 22	560.37	S 84° 30 E	11° 06' 30" Lt.
PT 20 - 21	171.58	S 72° 30' E	48° 42' 30" LT
PT 19 - 20	131.39	S 25° E	11° 06' 30" LT
PT 18 - 19	336.47	S 14 E	5° 58' 30" LT

King T
West
Williams

3-29-51

Cool

67



Traverse Cont. From 67

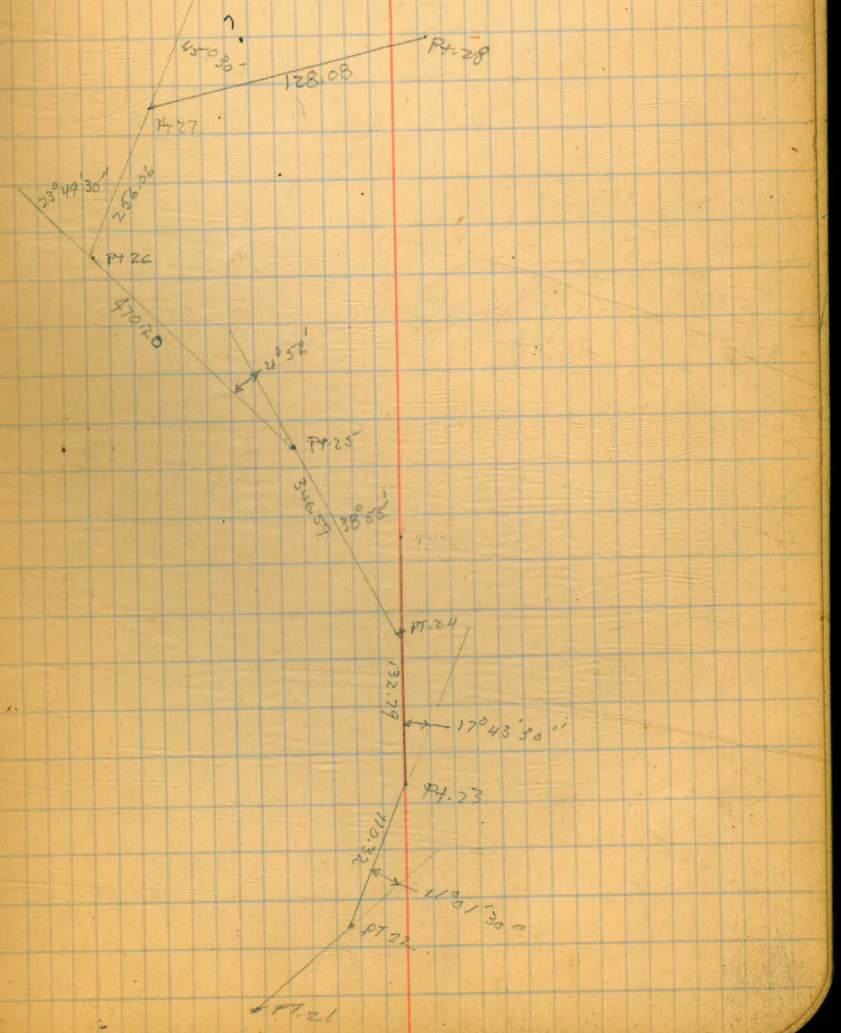
Pt 27-28	128.08	S 45°30' E	88°31' R.
Pt. 26-27	256.06	N 44° E	23°49'30" R
Pt 25-26	470.20	N 22° E	4°52' Lt
Pt 24-25	346.59	N 27°30' E	38°55' Lt.
Pt 23-24	132.79	N 66° E	17°43'30" Lt.
Pt 22-23	110.32	N 83°30' E	11°01'30" Lt

King
West
Williamd

3-29-51

Cool

68



Traverse cont. From P68

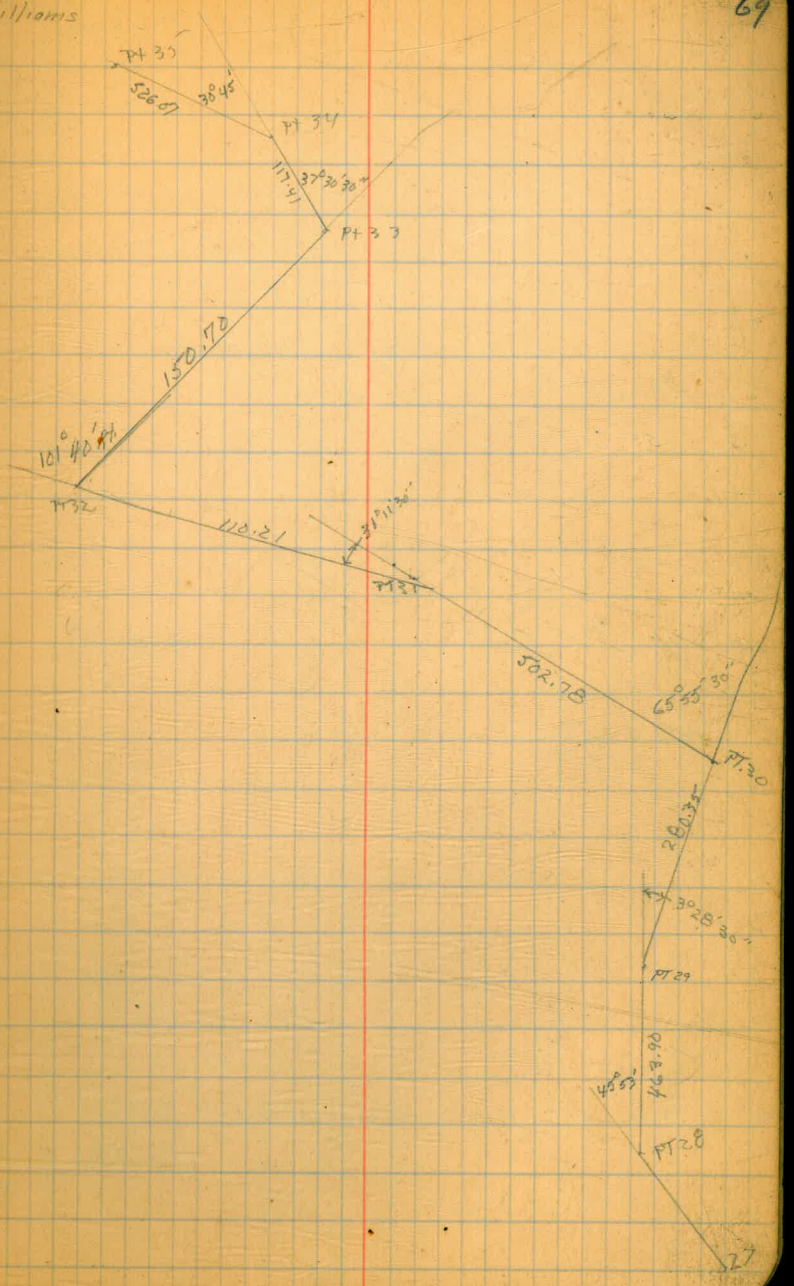
Pt 34-35	526.07	S 59 30 E	30° 45' 0" Lt
Pt 33-34	117.41	S 29° E	37° 30' 30" Lt.
Pt 32-33	150.70	S 90° 30' W	101° 40' Rt
PI π 31-32	110.21	N 85° E	31° 11' 30" Lt
PI π 30-31	502.78	S 63° 30' E	65° 55' 30" Lt.
Pt 29-30	280.35	S 4° W	3° 28' 30" R
Pt π 28-29	463.90	S 0 E	45° 53' R

King
West
Williams

3-29-51

C001

69



Traverse (Cont. From P69)

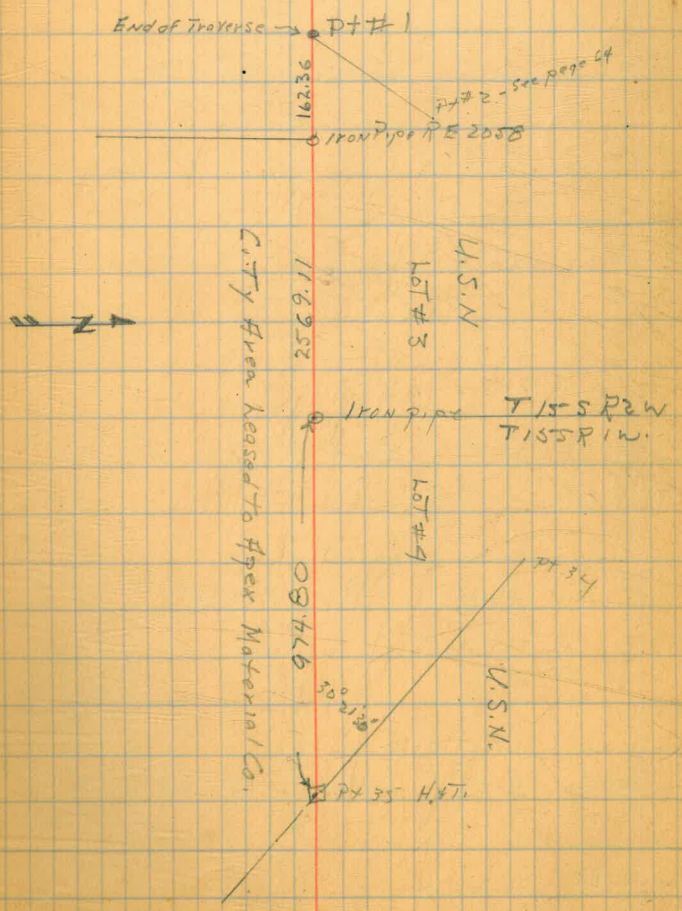
U.S.N. Prop. East End Mission gorge

Pt 35 - Pt. 1	S 0° W	149° 38' 30" Rt	(38° 21' 30")

Use 30° 22' & Close.
W. H.

King
West
Williams

4-4-51 Cool



Traverse U.S.N. Prop. East End Mission gorge
353 Contour

Nat West Apex Sand Co

Pt 7-8	498.20	S 72 W	74° 45' R	
Pt 6-7	207.07	S 42 E	99° 46' L	
Pt 5-6	406.13	S 57 W	31° 40' R	
Pt 4-5	315.96	S 25° 30 W	27° 39' R	
Pt 3-4	138.59	S 1° E	162° 08' Lt (17° 52')	inside Δ
Pt 2-3	123.62	N 18° W	89° 59' 30" Rt	
Pt 1-Pt 2	44.02	S 72° W	18° 55' Lt	
Dtod = Pt 1	See page 70			

King
Loeff
Williams

4-16-51

King
West
Williams

4-18-57

Pt 14-15	178.38	N 76°30W.	~~86°56'32"~~ Lt (86°57' Lt)
Pt 13-14	235.21	N 11°E	50°01' R.
12-13	377.30	N 40W	~~39°12'16"~~ (39°3') Lt.
Pt 11-12	493.39	N 10°W	19°11' R
Pt 10-11	164.02	N 20°W	32° 40' R
Pt 9-10	85.10	N 52°30W	60°57' R
Pt 8-9	187.83	S 66°W	33°18'30" R

U.S.M. Traverse 353 Contour
(Cont'd)

~~S 73 W~~			
Pt. 22-23	99.68	~~S 83 W~~	57°41' Lt.
Pt 21-22	172.46	N 49 W	39°37' Rt.
Pt 20-21	36.95	S 90° W	~~S 58° 55' E~~ (S 90° 56') Rt
Pt 19-20	218.51	S 30°30' W	42°19' Rt
Pt 18-19	277.90	S 11° E	49°58' Lt
Pt 17-18	112.05	S 38° W)	130° 14 Lt (49° 46') [illegible]
Pt. 16-17	118.00	N 12° 50 W	57° 24' 30" R
Pt 15-16	187.49	N 69° W	6° 56' 55" R

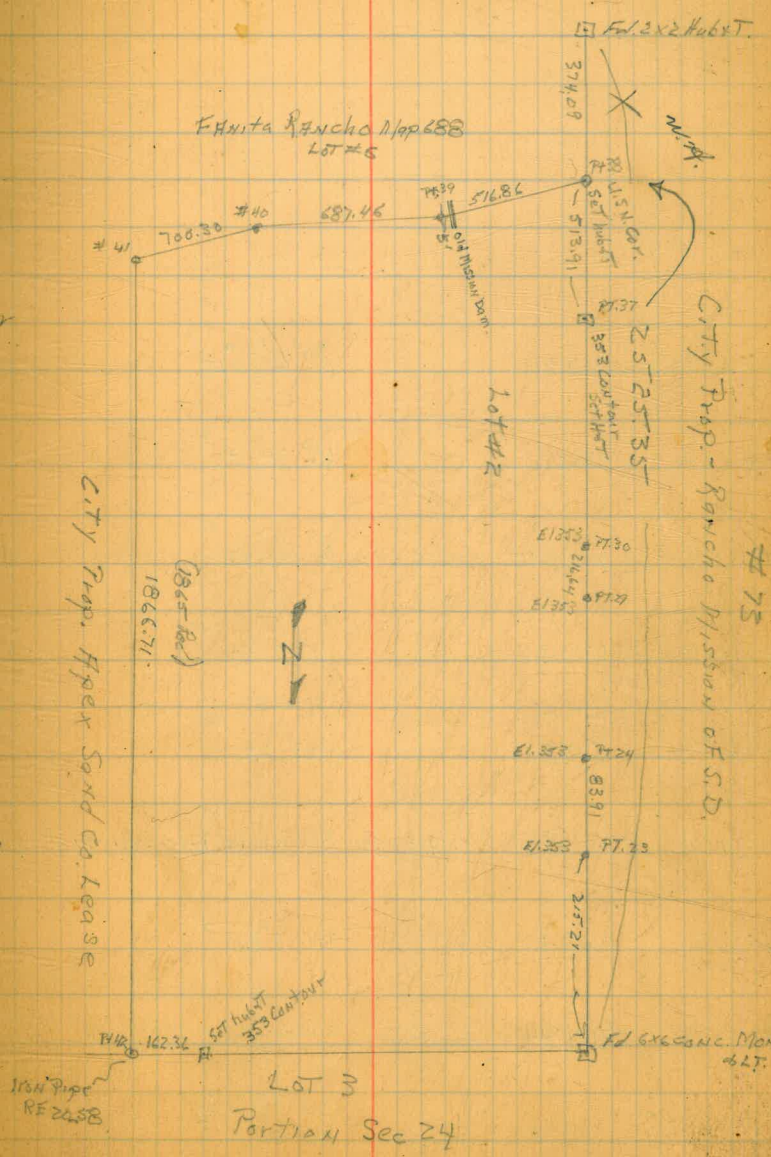
King
West
Williams

4-19-51

U.S.N. Prop. Traverse 353 Contour

Pt 33-34	136.11	S 19 30 W	28° 22' Rt
Pt 32-33	262.59	S-1° 30 E	8° 45' 30" Rt
Pt 31-32	100.65	S 1° E	48° 56' 30" Rt
Pt 30-31	74.51	S 65° E	~~57° 48' 30"~~ Lt (57° 49') Pt 30 - City P.L.
Pt 29-30	216.64	S 8° 30' E	49° 38' 30" Lt Pt 29 + 30 City P.L. & 353 Contour
Pt 28-29	149.37	S 41° 30" W	34° 27' 30" Rt
Pt 27-28	142.95	S 90° W	61° 38' Rt
Pt 26-27	78.33	S 53° 30' E	36° 22' 30" Lt
Pt 25-26	314.20	S 17° 30 E	31° 17' 45" Rt
Pt. 24-25	59.59	S 49 E	~~41° 21' 30" N~~ 41° 24' Lt Pt. 24 - City P.L. & 353 Contour
Pt. 23-24	83.91	S 7° E	~~76° 55' N~~ 79° 56' Lt Pt 23 + 24 on City P.L. & Contour 353

King West Williams 4-20-57 Cool - Rainy



U.S.N. Prop. Traverse 353 Contour

King
West
Williams

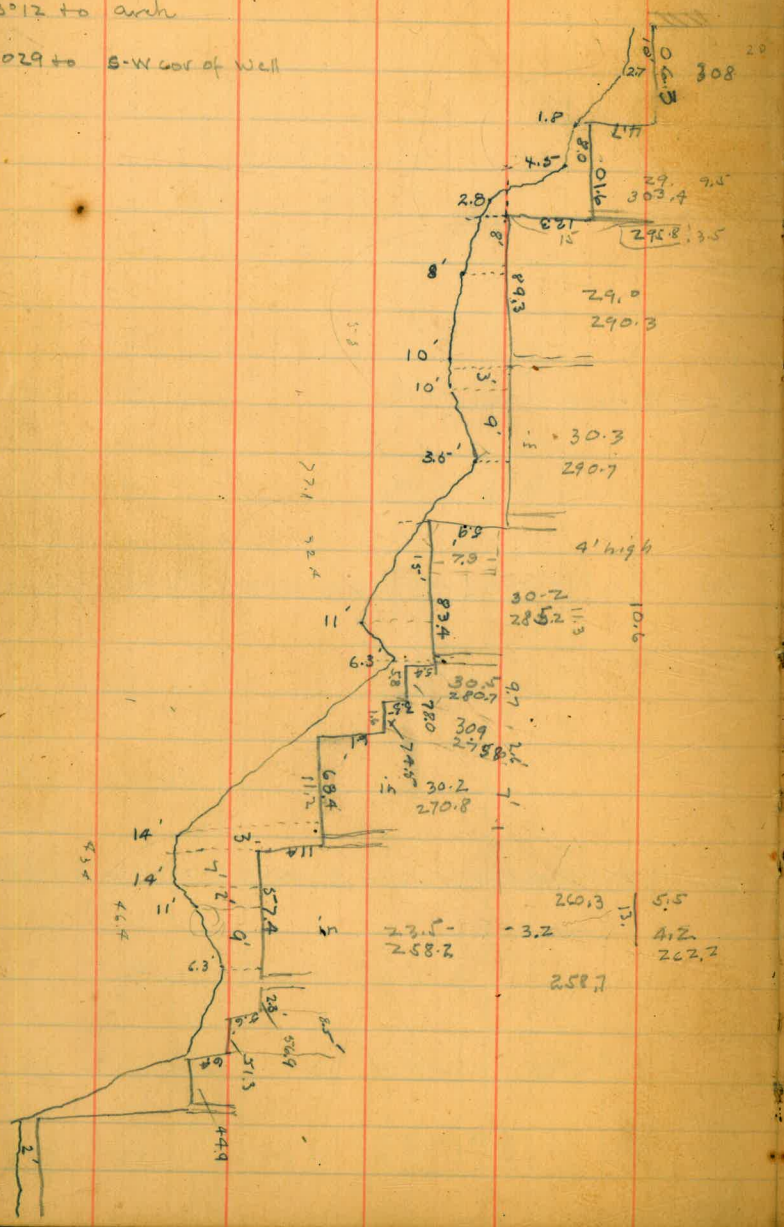
4-21-51 Cool-Rain

Pt 42-Pt 1	162.36		89°38'30" Lt.	End of Traverse
Pt 41-42	1866.71		67° 34' Lt.	Chained by King Party
Pt. 40-41	699.28		8° 21' Lt.	Note - This distance by Kingsparty after intersecting 2 lines
Pt 39-40	687.46		7°05' Rt.	
Pt 38-39	516.86		103° Lt	
Pt. 37-38	513.91	S 7°30 E	29° 47' Lt Pt 37 - City Pt N 353 Cont.	From Pt. 37 - Retrace U.S. Navy survey to point # 42. See U.S.N. Map
Pt 36-37	208.10	S 22° W	41° 57' Rt	
Pt 35-36	77.34	S 21° E	~~31°53'30" Rt~~ 31° 52' R	
Pt 34-35	104.50	S 52 E	72°08'30" Lt ~~72°08' Lt~~	

Lake Hodges

Rt 43°12 to arch

Lt 19029 to S-W cor of Well



766.37
765.36

784.07

	Lt	0				
	H.I.	319.6				
000	8.1	8.1	311.5			
12	5.7		313.9			
6 -	7.0		312.6			
6 -	5.9	313.7		Pier Centers distance		
5 -	6.6	313.0		end of Stovepipe		
7 -	5.5	314.1	0-0	to 1	29.3	
13 -	8.0	311.6	1 -	- 2	19.8	
	Rt		2 -	- 3	19.9	
8 -	6.4	313.2	3 -	4	19.9	
9 -	8.9	312.7	4 -	5	24.0	
6 -	9.5	312.1	5 -	6	20.0	
20 -	10.4	309.2	6 -	7	20.0	
13 -	7.9	311.7	7 -	8	19.8	
4 -	6.0	313.6	8 -	9	20.0	
10 -	5.7	313.9	9 -	10	19.9	
10 -	6.4	313.7	10 -	11	20.0	
20 -	5.6	314.0	11 -	12	19.8	
			12 - to wall		28.0	

0 6.3
4.7
01.6
12.3
89.3
5.9
83.4
5.4
78.0
3.5
74.5
6.1
68.4
11.4
57.4
6.1
51.3
6.4
44.9

259.4
16.0
243.4
+ 0.6
244.0
- 16.0
228.0
- 16.0
212.0
- 7.4
204.6 = A

			446.10	B.M. 4
12.12	458.22			
		0.08	458.14	
12.10	470.24			
12.51	482.58	0.17	470.07	
12.18	494.68	0.08	482.50	
12.668	507.18	0.16	494.52	
12.77	519.80	0.15	507.03	
12.16	531.90	0.06	519.74	
11.96	543.82	0.04	531.86	
12.25	555.99	0.08	543.74	
12.60	568.54	0.05	555.94	
12.08	580 579.54	0.08	567.46	
12.91	593.40	0.05	580 579.49	
12.90	606.17	0.13	593.27	
12.36	618.32	0.21	605.96	
11.94	628.91	0.35	617.97	
12.59	641.90 641.44	0.060	629.31 628.85	
12.18	653.61	0.01	641.43	
12.17	665.86	0.02	653.69	
12.69	678.36	0.19	665.67	
12.17	690.41	0.12	678.24	
12.22	702.27	0.36	690.05	
11.03	712.94	0.36	701.91 701.53	
11.90	724.66	0.18	712.76	
		2.82	2 721.84	Flow line = floor of Tunnel

9.61	674.20		664.59
13.30	687.44	0.06	674.14
12.80	700.24	0.00	687.44
11.26	711.43	0.07	700.17
		8.39	703.04
			− 9.14
		− C	693.90

GW
4 h.
639.

Random line West from Sec. 2/1 11/12

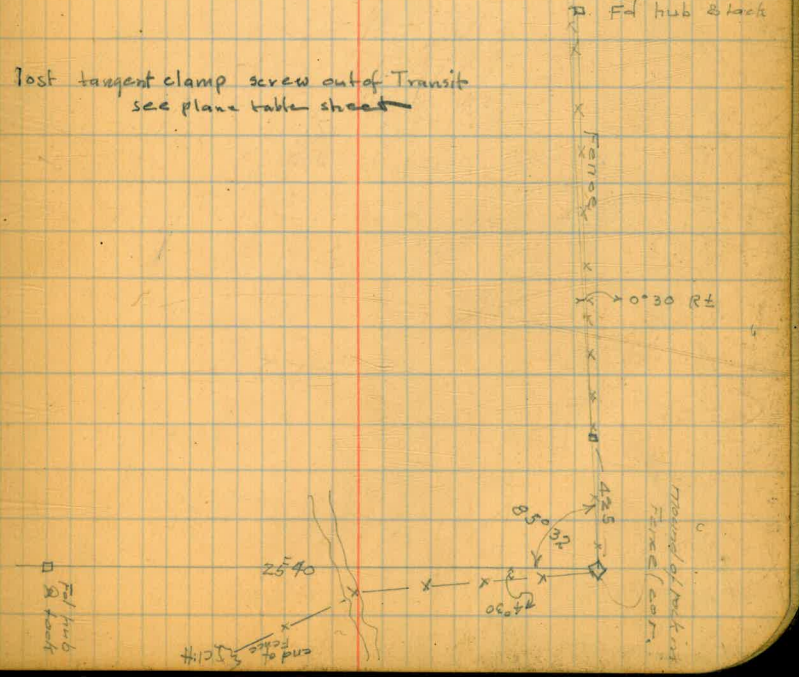
T14S-R2E

P.O.G. May 21-22, 1930

N

Fd hub & tack

Lost tangent clamp screw out of Transit
see plane table sheet



Random line from Sec. cor. 2-1/11-12

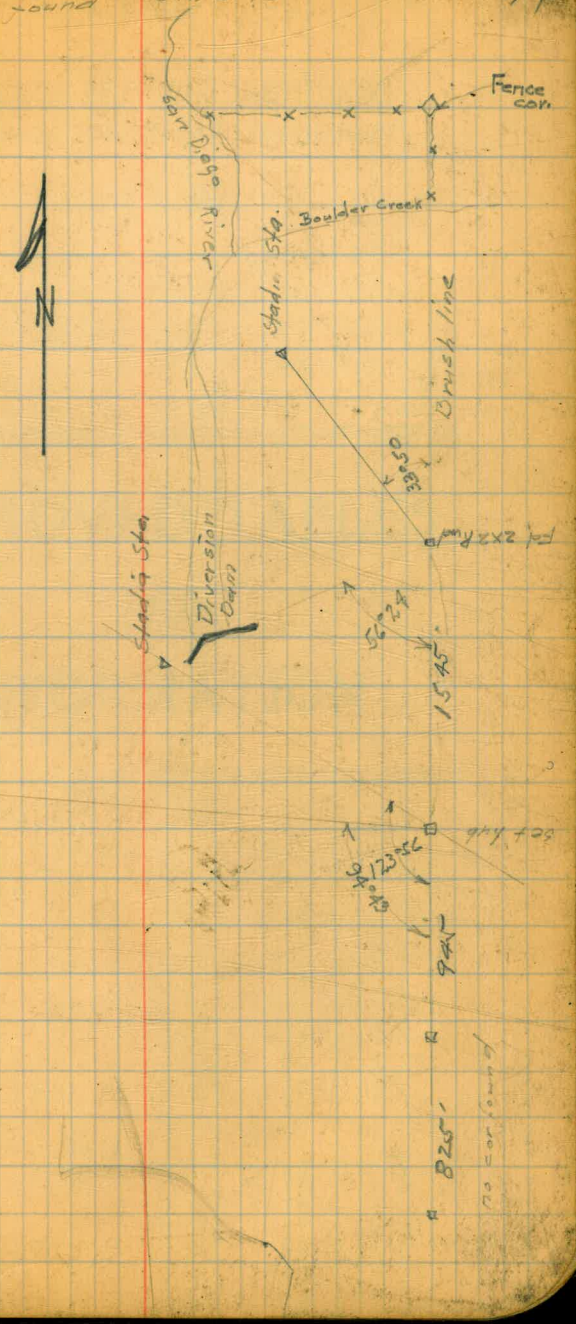
T14S-R2E

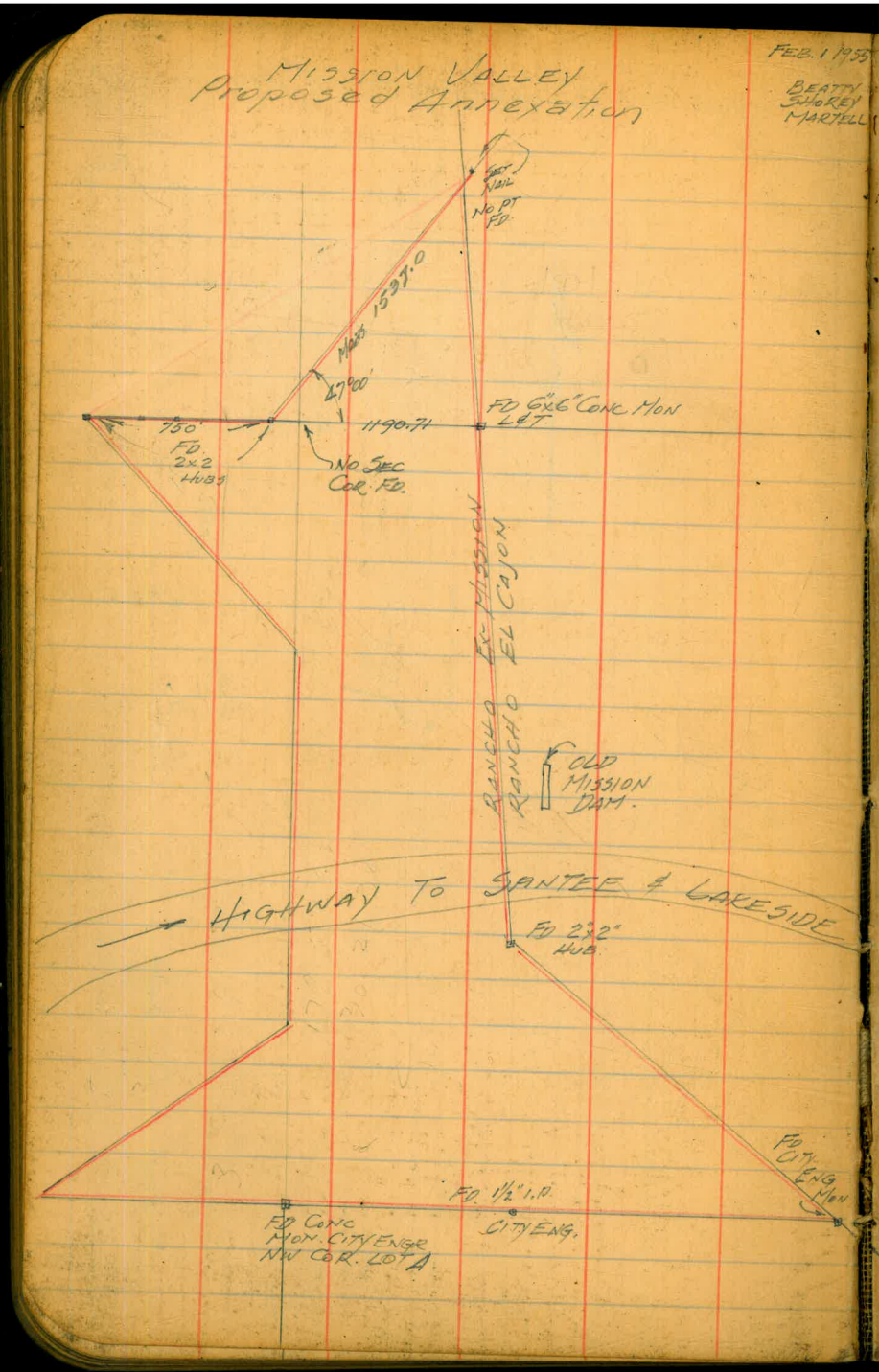
V= 5°20
d= 15.60

V=17°40
d=10.90

V= 13°00
d=8.70

South thru hub found south 2540 in brush cut





B.M. # A 568.88

IMPROVED TABLES AND INFORMATION

DIRECTIONS FOR USE OF TABLES

TABLE No. 1.

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

TABLE No. 9.

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

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

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

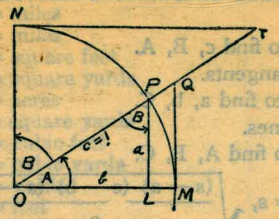


TABLE II

TRIGONOMETRIC FORMULÆ.

$\angle A = \angle MOP \qquad \angle B = \angle PON = \angle OPL$

$R = OB = c = 1$

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

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

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

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

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

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

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

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

$\text{exsec } A = PQ = \text{coexsec } B$

$\text{coexsec } A = PT = \text{exsec } B$

$\sin \tfrac{1}{2} A = \sqrt{\frac{1 - \text{Cos } A}{2}} \qquad \cos \tfrac{1}{2} A = \sqrt{\frac{1 + \text{Cos } A}{2}}$

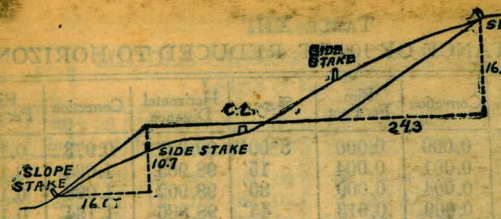
$\sin 2A = 2 \sin A \cos A \qquad \cos 2A = \cos^2 A - \sin^2 A$

Law of Sines $\frac{\sin A}{a} = \frac{\sin B}{B} = \frac{\sin C^1}{C}$

Law of Cosines $c^2 = a^2 + b^2 - 2ab \cos C$

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

58.4.45



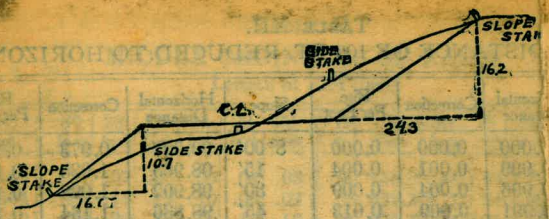
DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING.

SLOPE 1½ TO 1. ROADWAY OF ANY WIDTH.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0 00	0 15	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	0
1	1.50	1 65	1 80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	1
2	3.00	3.15	3.30	3 45	3.60	3 75	3.90	4.05	4.20	4 35	2
3	4.50	4 65	4.80	4.95	5 10	5 25	5 40	5.55	5.70	5.85	3
4	6.00	6 15	6.30	6.45	6.60	6.75	6.90	7.05	7.20	7.35	4
5	7 50	7.65	7.80	7.95	8.10	8.25	8.40	8.55	8.70	8.85	5
6	9 00	9 15	9.30	9.45	9.60	9.75	9.90	10.05	10.20	10.35	6
7	10.50	10 65	10.80	10.95	11.10	11.25	11.40	11.55	11 70	11.85	7
8	12.00	12 15	12.30	12.45	12.60	12.75	12.90	13.05	13.20	13.35	8
9	13 50	13.65	13 80	13 95	14.10	14.25	14.40	14 55	14.70	14.85	9
10	15.00	15 15	15 30	15 45	15.60	15.75	15.90	16.05	16.20	16 35	10
11	16 50	16 65	16 80	16.95	17 10	17.25	17.40	17.55	17.70	17.85	11
12	18 00	18 15	18.30	18 45	18.60	18 75	18.90	19.05	19.20	19 35	12
13	19 50	19 65	19.80	19.95	20.10	20.25	20 40	20.55	20.70	20.85	13
14	21.00	21 15	21.30	21.45	21 60	21.75	21.90	22 05	22 20	22 35	14
15	22 50	22 65	22 80	22 95	23.10	23.25	23.40	23.55	23.70	23.85	15
16	24.00	24 15	24 30	24 45	24 60	24.75	24 90	25 05	25.20	25.35	16
17	25.50	25 65	25.80	25 95	26.10	26 25	26 40	26.55	26.70	26.85	17
18	27.00	27 15	27.30	27 45	27.60	27.75	27.90	28.05	28 20	28.35	18
19	28 50	28 65	28 80	28.95	29.10	29.25	29.40	29.55	29.70	29.85	19
20	30 00	30 15	30.30	30.45	30.60	30.75	30.90	31.05	31.20	31.35	20
21	31 50	31 65	31.80	31.95	32 10	32 25	32.40	32.55	32 70	32 85	21
22	33 00	33 15	33 30	33 45	33.60	33 75	33.90	34.05	34.20	34.35	22
23	34 50	34 65	34.80	34.95	35.10	35 25	35 40	35.55	35.70	35 85	23
24	36.00	36 15	36.30	36 45	36.60	36.75	36.90	37.05	37 20	37.35	24
25	37.50	37.65	37 80	37.95	38.10	38.25	38.40	38.55	38.70	38.85	25
26	39 00	39 15	39 30	39 45	39 60	39.75	39.90	40.05	40.20	40.35	26
27	40 50	40 65	40 80	40.95	41.10	41.25	41 40	41.55	41.70	41.85	27
28	42 00	42 15	42.30	42.45	42.60	42 75	42.90	43.05	43.20	43.35	28
29	43 50	43 65	43.80	43 95	44.10	44 25	44 40	44.55	44.70	44 85	29
30	45 00	45 15	45.30	45 45	45.60	45.75	45 90	46.05	46 20	46.35	30
31	46.50	46.65	46.80	46 95	47.10	47.25	47.40	47.55	47.70	47.85	31
32	48 00	48.15	48.30	48 45	48.60	48 75	48.90	49.05	49 20	49.35	32
33	49.50	49 65	49.80	49.95	50.10	50.25	50.40	50.55	50 70	50.85	33
34	51 00	51.15	51.30	51.45	51.60	51.75	51 90	52.05	52.20	52.35	34
35	52 50	52.65	52.80	52.95	53.10	53.25	53.40	53.55	53.70	53.85	35
36	54 00	54 15	54.30	54 45	54.60	54.75	54.90	55.05	55.20	55.35	36
37	55 50	55 65	55.80	55 95	56.10	56.25	56.40	56.55	56.70	56.85	37
38	57.00	57.15	57.30	57 45	57.60	57 75	57.90	58.05	58.20	58 35	38
39	58 50	58.65	58 80	58 95	59.10	59 25	59.40	59 55	59.70	59.85	39
40	60 00	60 15	60 30	60 45	60 60	60.75	60 90	61.05	61 20	61.35	40
41	61.50	61 65	61 80	61 95	62 10	62 25	62.40	62 55	62 70	62.85	41
42	63 00	63.15	63 30	63 45	63 60	63 75	63 90	64 05	64 20	64.35	42
43	64.50	64 65	64 80	64.95	65.10	65 25	65 40	65.55	65.70	65.85	43
44	66 00	66 15	66 30	66.45	66.60	66 75	66.90	67.05	67.20	67.35	44
45	67 50	67 65	67 80	67.95	68.10	68.25	68.40	68.55	68.70	68.85	45
46	69 00	69 15	69 30	69.45	69.60	69.75	69.90	70.05	70.20	70.35	46
47	70 50	70 65	70 80	70 95	71.10	71.25	71 40	71.55	71.70	71.85	47
48	72.00	72 15	72.30	72.45	72.60	72.75	72.90	73 05	73.20	73 35	48
49	73 50	73 65	73.80	73.95	74.10	74.25	74.40	74.55	74.70	74.85	49
50	75.00	75.15	75.30	75.45	75.60	75.75	75.90	76.05	76.20	76.35	50

Computed by L. Leland Locke.

584.45



DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

SLOPE 1½ TO 1. ROADWAY OF ANY WIDTH.

	0	.1	.2	.3	.4	.5	.6	.7	.8	
0	0 00	0 15	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1
1	1.50	1 65	1 80	1.95	2.10	2.25	2.40	2.55	2.70	2
2	3.00	3.15	3.30	3 45	3.60	3 75	3.90	4.05	4.20	4
3	4.50	4 65	4.80	4.95	5 10	5 25	5 40	5.55	5.70	5
4	6.00	6 15	6.30	6.45	6.60	6.75	6.90	7.05	7.20	7
5	7 50	7.65	7.80	7.95	8.10	8.25	8.40	8.55	8.70	8
6	9 00	9 15	9.30	9.45	9.60	9.75	9.90	10.05	10.20	10
7	10.50	10 65	10.80	10.95	11.10	11.25	11.40	11.55	11 70	11
8	12.00	12 15	12.30	12.45	12.60	12.75	12.90	13.05	13.20	13
9	13 50	13.65	13 80	13 95	14.10	14.25	14.40	14 55	14.70	14
10	15.00	15 15	15 30	15 45	15.60	15.75	15.90	16.05	16.20	16
11	16 50	16 65	16 80	16.95	17 10	17.25	17.40	17.55	17.70	17
12	18 00	18 15	18.30	18 45	18.60	18 75	18.90	19.05	19.20	19
13	19 50	19 65	19.80	19.95	20.10	20.25	20 40	20.55	20.70	20
14	21.00	21 15	21.30	21.45	21 60	21.75	21.90	22 05	22 20	22
15	22 50	22 65	22 80	22 95	23.10	23.25	23.40	23.55	23.70	23.
16	24.00	24 15	24 30	24 45	24.60	24.75	24 90	25 05	25.20	25.
17	25.50	25 65	25.80	25 95	26.10	26 25	26 40	26.55	26.70	26.
18	27.00	27 15	27.30	27 45	27.60	27.75	27.90	28.05	28 20	28.
19	28 50	28 65	28 80	28.95	29.10	29.25	29.40	29.55	29.70	29.
20	30 00	30 15	30.30	30.45	30.60	30.75	30.90	31.05	31.20	31.
21	31 50	31 65	31.80	31.95	32 10	32 25	32.40	32.55	32 70	32
22	33 00	33 15	33 30	33 45	33.60	33 75	33.90	34.05	34.20	34.
23	34 50	34 65	34.80	34.95	35.10	35 25	35 40	35.55	35.70	35
24	36.00	36 15	36.30	36 45	36.60	36.75	36.90	37.05	37 20	37.
25	37.50	37.65	37 80	37.95	38.10	38.25	38.40	38.55	38.70	38.
26	39 00	39 15	39.30	39 45	39 60	39.75	39.90	40.05	40.20	40.
27	40 50	40 65	40 80	40.95	41.10	41.25	41 40	41.55	41.70	41.
28	42 00	42 15	42.30	42.45	42.60	42 75	42.90	43.05	43.20	43.
29	43 50	43 65	43.80	43 95	44.10	44 25	44 40	44.55	44.70	44
30	45 00	45 15	45.30	45 45	45.60	45.75	45 90	46.05	46 20	46.
31	46.50	46.65	46.80	46 95	47.10	47.25	47.40	47.55	47.70	47.
32	48 00	48.15	48.30	48 45	48.60	48 75	48.90	49.05	49 20	49.
33	49.50	49 65	49.80	49.95	50.10	50.25	50.40	50.55	50 70	50.
34	51 00	51.15	51.30	51.45	51.60	51.75	51 90	52.05	52.20	52.
35	52 50	52.65	52.80	52.95	53.10	53.25	53.40	53.55	53.70	53.
36	54 00	54 15	54.30	54 45	54.60	54.75	54.90	55.05	55.20	55.
37	55 50	55 65	55.80	55 95	56.10	56.25	56.40	56.55	56.70	56.
38	57.00	57.15	57.30	57 45	57.60	57 75	57.90	58.05	58.20	58
39	58 50	58.65	58 80	58 95	59.10	59 25	59.40	59 55	59.70	59.
40	60 00	60 15	60 30	60 45	60 60	60.75	60 90	61.05	61 20	61.
41	61.50	61 65	61 80	61 95	62 10	62 25	62.40	62 55	62 70	62.
42	63 00	63.15	63 30	63 45	63 60	63 75	63 90	64 05	64 20	64.
43	64.50	64 65	64 80	64.95	65.10	65 25	65 40	65.55	65.70	65.
44	66 00	66 15	66 30	66.45	66.60	66.75	66.90	67.05	67.20	67.
45	67 50	67 65	67 80	67.95	68.10	68.25	68.40	68.55	68.70	68.
46	69 00	69 15	69 30	69.45	69.60	69.75	69.90	70.05	70.20	70.
47	70 50	70 65	70 80	70 95	71.10	71.25	71 40	71.55	71.70	71.
48	72.00	72 15	72.30	72.45	72.60	72.75	72.90	73 05	73.20	73
49	73 50	73 65	73.80	73.95	74.10	74.25	74.40	74.55	74.70	74
50	75.00	75.15	75.30	75.45	75.60	75.75	75.90	76.05	76.20	76

Computed by L. Leland Locke.