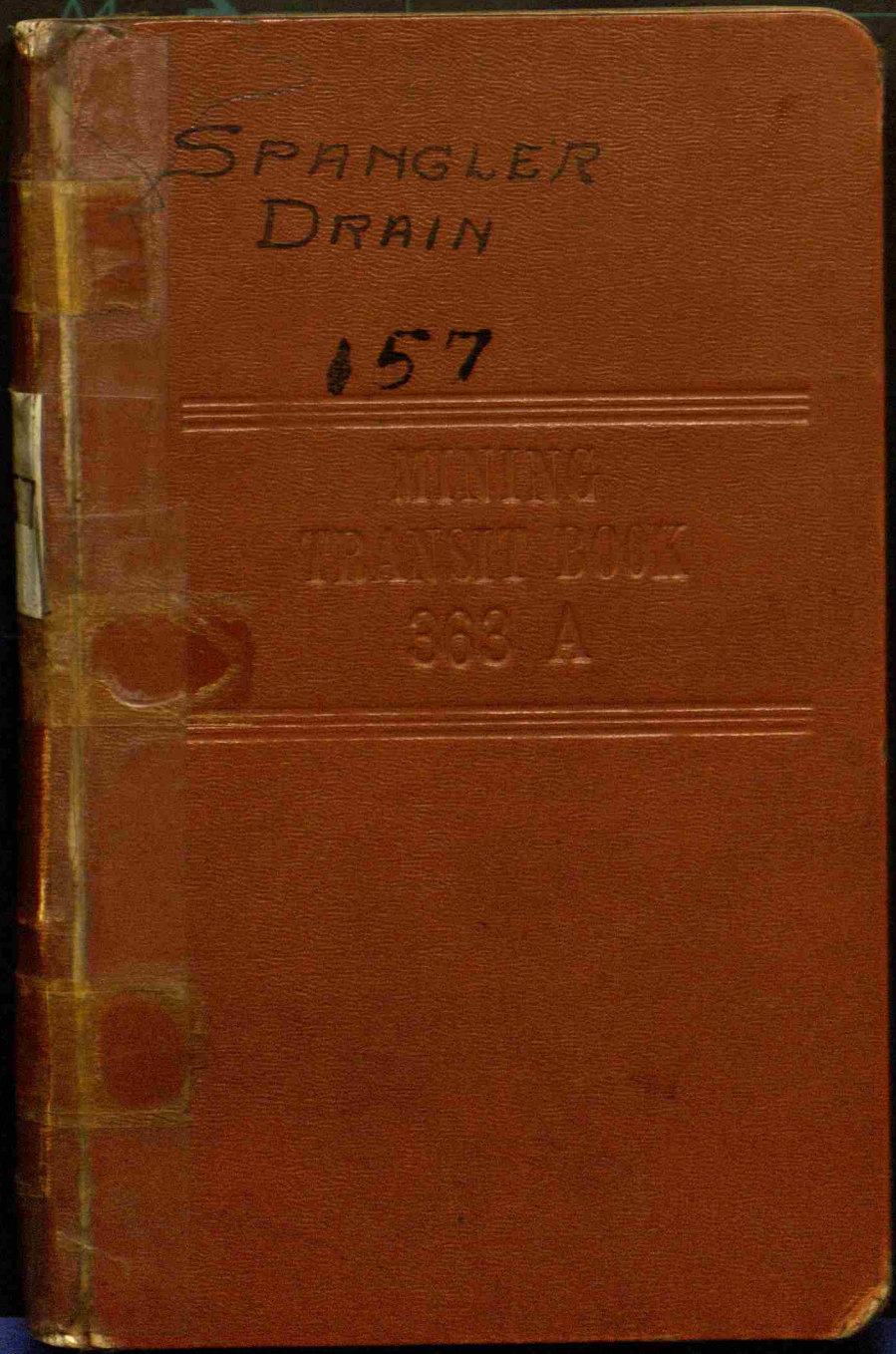

SPANGLER
DRAIN
157
MINING
TRANSIT BOOK
363 A

		STR	Kitch Bot
83	97.60	100.04	
84	98.00	99.64	
85	97.30	98.94	95.53
86	97.80	99.26	95.50
87	97.85		95.40
88	97.75	99.14	
89	98.10	99.50	
90	98.10	99.13	96.02
91	98.05	99.55	
92	97.56	99.30	95.45
95	97.65	99.60	95.24
96	97.85	99.43	
97	98.15	99.03	
98			
99		99.39	95.87
98			
99			
100	98.05	99.50	95.64
101	99.00	100.47	
102	100.80	102.24	
103	99.90	101.33	
104	98.80	100.19	95.89
105	98.65	100.15	95.24
106	98.40	100.33	
107	98.30	99.69	

Lorin Ross

100.04 — 98.00
97.60 — 97.64
2.44 — 98.00
1.64

100.09
100.86 — 98.84
97.30
1.64

99.24
97.20
103.25
102.65 — 1.44
60

99.30 — 95.45

100.15
95.24
4.91

Sta		Elev	Diff	
108	9825	99.98	9510	
109	9830	99.81		
110	9855	99.96		9410
111	9870	100.15		
112	9840	99.80	9548	
113	9900	100.38		
114	9910	100.36		
115	9860	100.03	9516	
116	9830	99.67		9410
117	9845	99.84		
118	9853	99.94		
119	9760	98.98	9419	
120	9785	99.00		
121	9820	99.43		
122	9900	100.40		
123	9850	99.80		
124	9840	99.63	9503	
125	9790	99.14		
126	9775	98.97	9423	
127	9740	98.67	9430	
128	9785	99.15		
129	9805	99.29		
130	9850	99.81		
131	9775	99.13	9402	
132	9815	99.40		
133	9735	98.68		
134				

① 100.46

① 100.66

09893

103.15

~~BM check~~

B.M. 96.15 Ed of SE Wing.

L 6

		Stk	Ditch Bot.	
135	9790	9784		
136				
137				
138				
139				
140				
		Stk	Ditch Bot.	
225				
226	9390	9390	8845	
227				
228				8871
229	9490	9463	8831	8780
230	9440	9400	8770	91
231			8710	
232	9465	9463	8760	
233	9410	9415	8803	
234	9345	9345	8794	
235	9295	9298		8770
236	9285	9290	8791	

L 7

9936

10403

10224

		℄		℄
98+00		7388	7397	7400
98+50		7410	7397	7380
99+00	✓	7394	7414	7395
99+50	✓	7411	7406	7384
100+00	✓	7407	7409	7404
100+50	✓	7421	7404	7398
101+00	✓	7376	7386	7358
101+50	✓	7360	7376	7370
102+00	✓	7379	7375	7386
102+50	✓	7375	7385	7378
103+00	✓	7400	7390	7397
103+50	✓	7455	7464	7476
104+00	✓	7518	7530	7534
104+50	✓	7611	7613	7622
105+00	✓	7690	7717	7706
105+50	✓	7805	7811	7824
106+00	✓	7889	7905	7900
106+50	✓	7995	8008	7990
107+00	✓	8086	8104	8074
107+50	✓	8172	8186	8184
108+00	✓	8287	8290	8297
108+50	✓	8428	8395	8401
109+00	✓	8544	8522	8510
109+50	✓	8651	8657	8640
110+00				
110+50				

086.50

07625

Brown Rd

	DN	E	
59+00	4170	4221	4178
58+50	4211	4233	4214
58	4242	4266	4270
57+50	4288	4280	4322
57	4292	4326	4367
56+50	4386	4418	4394
56	4478	4482	4484
55+50	4578	4564	4528
55	4645	4667	4645
54+50	4711	4755	4745
54	4830	4870	4856
53+50	4956	4980	4967
53	5049	5092	5093
52+50	5195	5254	5218
52	5274	5385	5341
51+50	5414	5528	5533
51	5643	5678	5661
50+50	5801	5831	5800
50	5952	5974	5939
49+50	6082	6104	6071
49	6178	6210	6193
48+50	6344	6364	6335
48	6454	6493	6480
47+50	6690	6711	6715
47	6756	6823	6805
46+50	6857	6888	6896

0 48 27

0 56.60

0 65.48

	W		E
46+50	6869	6934	6914
46	6880	6914	6868
45+50	6849	6867	6848
45	6857	6862	6790
44+50	6778	6804	6750
44	6745	6750	6741
43+50	6609	6675	6626
43	6565	6574	6526
42+50	6566	6570	6594
42	6627	6624	6693
41+50	6535	6562	6557
41	6672	6661	6662
40+50	6770	6836	6838
40	6958	6941	7028
39+50	7243	7187	7206
39	7356	7346	7341
38+50	7542	7558	7556
38	7720	7745	7763
37+50	7945	7965	7952
37	8095	8124	8176
36+50	8258	8323	8289
36	8415	8444	8415
35+50	8483	8519	8522
35	8515	8571	8477
34+50	8581	8600	8541

Brown Rd

6768 OK

07493

08514

	W		E
3270	8611	8643	8601
32+50	8637	8691	8643
3240	8722	8757	8676
31+50	8782	8820	8725

110+0
109+50
109+0
108+50
108+0
107

Richardson Road

Sta	Sub Grade	Hedge Gutter	Gd	Top wall	Stake	
116+30	94.75	93.30	94.32	94.30	94.80	
+50	94.25	93.00	93.99	94.00	94.50	✓
+70	93.25	92.75	93.64	93.70	94.20	✓
+90	92.25	92.50	93.41	93.40	93.90	✓✓
117+10	91.25	91.50	93.17	93.10	93.60	✓✓
+30	90.25	90.50	93.35	92.80	93.30	✓✓
+50	89.25	89.50	93.15 ✓	92.50	93.00	✓✓
+70	88.25	88.50	92.30 ✓	92.70	92.70	✓✓
+90	87.25	87.50	90.28	90.50	90.50	
118+10	86.25	86.50	87.97	88.80	88.80	✓
118+30	85.25	85.50	85.30	87.10	87.10	✓✓

El 119+00 = 81.75
Subgrade

B.M. El - 81.68
on ~~Hedge~~ end
E Hdwall of Culvert
Sta 119+26

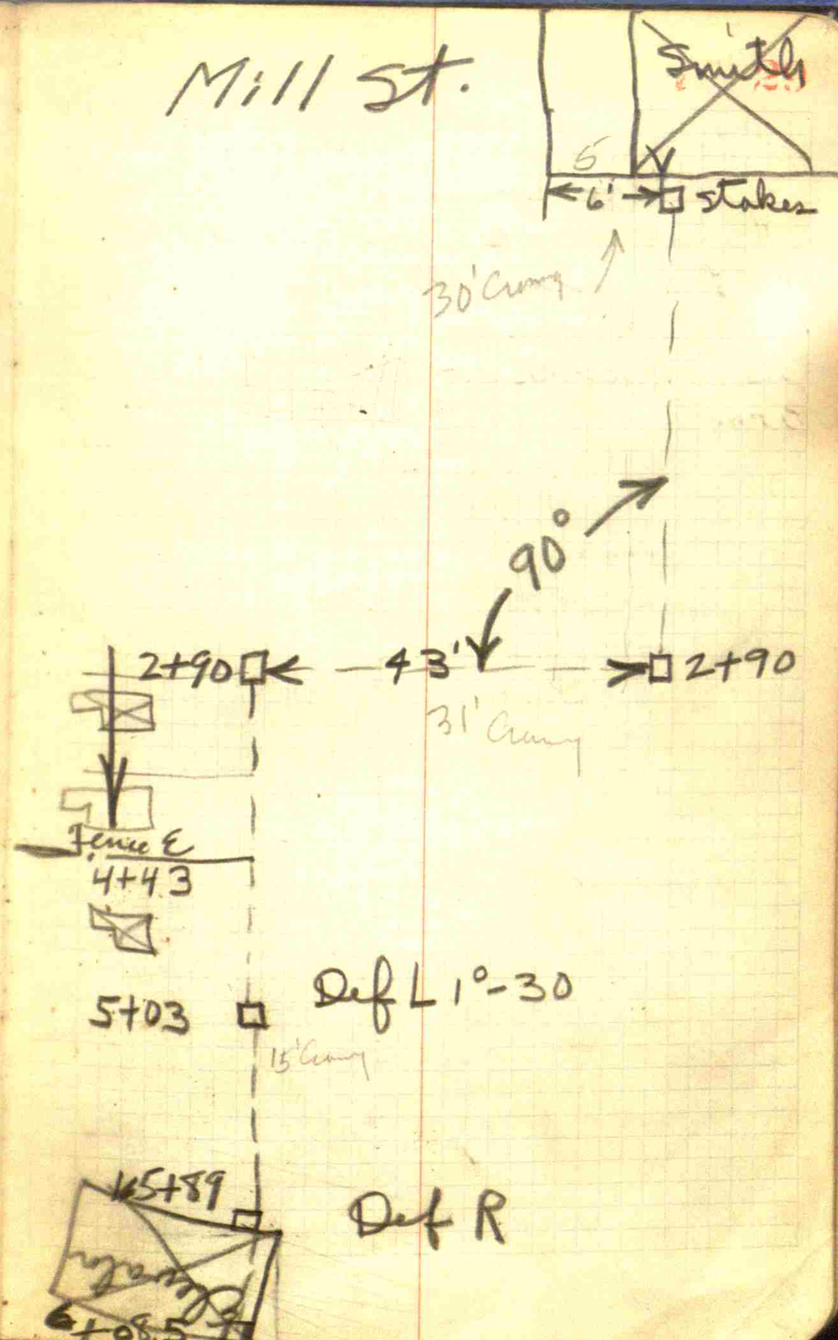
116 ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
36 +50 +70 +90 117 +10 +30 +50 +70 +90 118 +10 +30

9340 9310 9280 9250

Stakes on W side are 1'-0" W of W edge walk and stakes on E. side are 1'-0" E of E edge walk.

Sta	on walk 6' W of cen	on Gd 6' W on walk	Cen. Rd
0+00	100.00 Stk	9983	99.78
0+30	10049	Gd IP. 10042	Cen Rd 99.95
1+00	10125	100.53	100.63
1+50	10147	100.91	101.08
2+00	10170	10115	101.38
2+50	10155	10100	101.63
2+90 W	10168	101.02	102.04
2+90 E	10341	102.95	102.04
3+50	10330	10291	10261
4+00	10343	10317	10287
4+50	10312	10263	102.88
5+00	10331	10277	10295
5+03	10321	10265	10290
5+50	10372	10304	102.83
5+89	10368	10320	10320

103.205 rail Smith at center Crossing



Main

Wells W L	Fence E of Bridge	0+50
	Bridge E Side	0+56
	Bridge W Side	0+74
Evans E L	Fence on W Side	0+75
	Fence N & S Sta	4+43
Evans N L	Fence E + W Sta	22+55
Reeds S L	Fence E + W Sta	22+91
	Fence E + W Sta	36+57
	Fence E + W Sta	39+22
	~~Fence~~	
	Arm running South	69+62
	Fence N + S	79+28
	Header at end of Ditch	79+30

Arm. No 1.

End of Arm + Fence N+S 19+55

69+62
64+22
5+40

79+30
69+62
9+68

E Russell Rd.

Sta.					
39+40	X		10.22	10.32	10.16
39+00	X	14.25	13.48	12.76	11.34
38+60	X	19.15	17.81	17.53	17.85
38+55	X	23.30	20.24	19.12	19.15
38+42	X		24.40	23.71	25.87
38+00	X	27.55	25.51	24.90	25.25
37+50	X	28.46	26.60	26.70	26.80
37+00	X	32.80	29.00	29.10	30.40
36+50	X	38.93	34.45	33.84	35.33
36+00	X	41.80	40.38	39.00	40.35
35+50	X	46.64	43.67	42.31	44.61
35+00	X	50.21	46.43	46.68	47.96
34+50	X	56.20	52.19	51.78	53.21
34+00	X	60.05	57.25	56.11	57.50
33+90	X	63.00	59.25	58.41	60.00
33+00	X	61.75	59.02	57.85	57.15	57.60
32+50	X	59.50	56.71	55.82	56.38	56.40
32+00	X	59.00	54.68	55.00	54.40	53.85
31+50	X	52.85	50.50	52.25	52.18	52.23
31+00	X	57.00	47.60	49.70	49.50	49.45
30+50	X	52.90	45.50	47.70	47.87	48.30
30+00	X	46.80	44.00	47.18	47.05	46.60

W O

41.52

BM. 10.00 on SW. abut

12.15				
18.33				
22.12	22.43	23.17	24.86	
30.30				52.30
35.00	32.60			
34.25				
40.17				
42.00				
48.14				
51.38				
56.81				
61.04				
63.00				
61.00	62.00			
56.68	57.45			
54.40				
50.30	52.00	50.30		
48.05	50.10	48.20		
44.50				
44.20				

		E		E	
29+50		42.00	4580	4658	4560
29+0		41.80	4600	4738	4595
28+50		5460	4760	4789	4701
28+0		4200	4870	4859	4770
27+50	5520	4974	5100	5080	5098
27+0	4638	4805	5320	5316	5338
26+70	5300	5400	5510	5525	
26+45		6430	6320	5503	5610
26+0		6410	5685	5820	5840

W
4250
4400
4450
4575
4708
4815

Cut Sheet

Russell Rd.

Sta.	New Gd.	El. Gd. Stk.	Cut	Fill.
39+0	12.00	1560	3'-7½"	
38+50	15.91	2687	10'-11½"	
38+0	19.84	3050	10'-8½"	
37+50	23.73	3358	9'-10"	
37+0	27.64	3589	8'-3"	
36+50	31.55	3935	7'-10"	
36+0	35.46	4422	8'-9"	
35+50	39.37	4988	10'-6"	
35+0	43.28	5083	7'-7"	
34+50	47.19	5667	9'-6"	
34+0	51.10	6015	9'-0½"	
33+50	54.21	6118	6'-11½"	
33+0	55.73	5981	4'-1"	
32+50	55.83	5737	1'-9"	
32+0	54.40	5473	0'-4"	
31+50	53.15	5212		1'-0½"
31+0	51.90	5007		1'-10"
30+50	50.65	4827		2'-5"
30+0	49.40	4748		1'-11½"
29+50	48.52	4615		2'-4½"
29+0	48.40	4654		1'-10½"
28+50	49.02	4783		1'-2½"
28+0	50.40	4903		1'-4½"
27+50	52.15	5142		0'-9"
27+0	53.90	5443	0'-6½"	

01948

02903

03809

04880

06015

05213

Russell Rd April 13 – 1928

BM 10.00 W. edge ditch

	℄	East Ground	[illegible] on E.	East [illegible]	W	
39+0	12.75	10.90 [22]	1204 [24]	1523 [27]	12.07 [18]	1535 [20]
38+50	1782	19.06 [18]	1963 [18]	2660 [21]	1853	2353 [19]
38+0	21 83	2320 [20]	2396 [20]	2996 [25]	2596 [13]	2700 [16]
37+50	2677	2922 [21]	3576 [24]	3478 [26]	2872 [13]	3104 [17]
37+0	2900	3475 [22]	3826 [20]	3751 [26]	3443	3840 [22]
36+50	3660	3953 [20]	4388 [20]	4308 [26]	3940 [17]	4235 [22]
~~[illegible]~~	~~[illegible]~~	~~[illegible]~~ [17]	~~[illegible]~~	~~[illegible]~~ [26]	~~[illegible]~~ [18]	~~[illegible]~~ [22]
36+0	4203	4480 [18]	4875 [25]	4820 [25]	4447 [17]	4708 [22]
35+50	4533	4815 [19]	5195 [25]	5152 [25]	4871 [17]	5238 [24]
35+0	4922	5162 [24]	5566 [26]	5505 [26]	5112 [12]	5361 [22]
34+50	5474	5602 [19]	5970 [25]	5882 [25]	5553 [15]	5750 [18]
34+0	5754	5901 [15]	6352 [22]	6271 [22]	5970 [15]	6322 [22]
33+50	5972	6101 [15]	6390 [20]	6330 [20]	6179 [15]	6444 [21]
33+0	5967	5999 [15]	6238 [20]	6150 [21]	6022 [14]	6265 [18]
32+50	5880	5865 [16]	6178 [22]	6092 [22]	5983 [14]	6025 [20]
32+0	5759	5780 [16]	6125 [21]	6045 [21]	5686 [13]	5746 [21]
31+50	5571	5640 [17]	5854 [20]	5771 [20]	5532 [21]	5486 [22]
31+0	5413	5441 [19]	5917 [26]	5835 [26]	5380 [21]	4975 [24]
30+50	5190	5090 [20]	5267 [25]	5344 [25] 5554 [23]	5710 [18]	4712 [22]
30+0	5042	~~4980~~ 4989 4691 [17]	5124 [24]	5050 [24]	5033 [17]	4633 [20]
29+50	4993	4847 [10] 4537 [20]	5181 [31]	5109 [31]	5000 [17]	4540 [20]
29+0	5033	4911 [17]	5057 [24]	4980 [24]	5000 [19]	4530 [24]
28+50	5134	5210 [17]		5510 [23]	5060 [17]	45 21 [20]
28+0	5220	5178 [16]		4680 [19]	5206 [11]	46.07 [14]
				4766 [27] gd. at [illegible]		

5086 [26]

0 30.35

0 45.21

5627

5365

17.17

28.38

27+50	5458	~~5277~~ 17	5258 27	5368 27	5465 27
27+0	5703	5677 6	5254 14	5736 14	5718 25
26+50	5840			6125 5E	5946 3W
26+0	6250	6094 50 W	6193 7W	6375 2E	6247 7W

N

5120 7			
5318 29			5468
5744 32W	5980 34W		
6173 30W	6036 32W	6430 36W	

24

	C	E	E°	E south	W
36+50	3382	3723	4002	4076	3642
36+0	3908	4278	4575	4574	4268
35+50	4229	4601	4845	4893	4620
35+0	4626	4895	5186	5260	4938
34+50	5168	5286	5570	6765	5280
34+0	5455	5641	5902	6084	5624
33+50	5696	5800	6045		5685
33+0	5634	5700	5853	5935	5745
32+50	5575	5595	5789	5872	5586
32+0	5454	5452	5741	6821	5320
31+50	5269	5331	5461	5549	5148
31+0	5076	5146	5570	6615	4950
30+50	4840	4790	4965	5038	4805
30+0	4742	4430	4742	4820	4711
29+50	4689	4568	4408	4877	4512
29+0	4684	4045	4673	4757	4622
28+50	4823	4916	5245		4732
28+0	4915	4872	4572	4569	4900
27+50	5124	5070	5261	5344	5101
27+0	5400	4827			5411
26+50	5536	5837	5638	5533	5714
26+0	5931	6275		5854	5814

W
4017
4932
5088
5467
6001
5897
5921
5119
5436
4648
4555
4405
4321
4156
4120
4331
4658
4611
5011
6007

3752

4935

5862
42
6004

5802

5134

S.M. Hendricks Drive

Edge Point →	℄
0+00	12.89
0+10	13.37
0+20	13.70
0+30	14.56
0+40	15.70
0+50	17.15
0+60	18.28
0+70	19.42
0+80	20.44
0+90	21.58
1+0	22.70
1+10	23.85
1+20	25.15
1+30	26.70
1+40	28.47
1+50	29.85
1+60	31.32
1+70	32.82
1+80	34.10
1+90	35.71
2+0	37.01
2+10	38.41
2+20	39.72
2+30	40.73

B.M. on top of wood corner Post 50' E of 0+20. El. 10.00

⊙ 18.30
⊙ 27.87
⊙ 37.87

		℄
2+40		41.47
2+50		42.12
2+60		42.81
2+70		43.49
2+80		43.68
2+90		44.02
3+0		43.89
3+10		43.95
3+20		44.09
3+30		44.11
3+40	Conc. floor	44.02

B.M. on concrete wall next to house - West side of Garage door - EL. 45.91

Rosedoom Drain

Bottom Width

0+0	77+34	3'
77+34	127+43	4'
127+43	186+79	5'
186+79	243+0	6'
243+0	267+30	8'
267+30	307+63	10'
307+63	360+53	12'
360+53	437+0	14'

Sta.	Top-W	Check Top-W	Check Bot-W	℄ Elev.	Check Elev.
0+00	14½'	15''		100.25	
3+0	17½'	15'		99.53	
6+0	17'	18'½'		98.81	
9+0	16½'	18		98.09	
12+0	18½	17½'		97.37	
15+0	17½	16		96.65	
18+0	18½	20		95.93	
21+0	16	16		95.21	
24+0	16	15		94.49	
27+0	15	16		93.77	
30+0	17	15		93.05	
33+0	16	15½		92.33	
36+0	15	17½		91.61	
39+0	14	14		90.89	
42+0	15?	14		90.17	

Def. -

3+42 - R -
5+29 - R -
12+11 - R
15+22 - L
18+84 - R.
25+48 - L -
28+90 - L
33+10 - L
36+0 - R.
42+77 - L
44+20 - L
46+14 - L
47+53 - L
50+12 - R
52+38 - L
53+67 - R
59+35 - L
66+29 - L
69+45 - R
77+34 - R
82+22 - R
83+34 - R
86+01 - R
88+20 - R.
89+40 - R

92+64 - L
95+0 - L
96+22 - R
99+0 - R
103+40 - L
106+48 - R
108+68 - R
116+34 - L
117+65 - L
120+99 - R
121+57 - R
122+72 - L
124+09 - R
125+12 - L
127+43 - R
128+76 - R
131+14 - R
132+32 - L
134+45 - R
136+13 - R
137+94 - L
139+04 - R
140+08 - L
141+56 - L
142+80 - R

Sta	Top Width	Check Top Width	Check Bot. Width	℄ Elev.	Check Elev.
45+0	15			89.53	
48+0	14			89.05	
51+0	14½			88.57	
54+0	13½			88.09	
57+0	14¼			87.61	
60+0	15'			87.73	
63+0	15			86.65	
66+0	15½'?			86.17	
69+0	15			85.69	
71+0	14½			85.37	
3' 74+0	13			84.89	
> 77+34	18			84.35	
4' 80+0	19			84.11	
82+22	18			83.84	
83+34	21½			83.78	
86+01	22?			83.51	
88+20	21			83.29	
Tile 89+40	23?			83.14	
92+64	23?			82.82	
95+0	24?			82.58	
96+22	22?			82.46	
99+0	14?			82.18	
101+0	18?			81.98	
103+40	18			81.74	
106+48	20			81.44	

— DEF. —

144+87 — R
147+25 — L
148+51 — R
152+26 — R
155+02 — L
158+18 — L
160+51 — R
163+03 — L
165+01 — R
166+51 — L
169+08 — L
170+86 — R
173+53 — L
178+40 — L
180+51 — L
182+55 — R
185+96 — R
186+79 — R
191+43 — R
194+18 — L
197+60 — R
199+11 — L
202+83 — R
204+15 — R
209+78 — R
210+83 — R

215+99 — L
224+63 — R
227+45 — L

Sta 120+41 cove in on both banks Bad condition

119+25 cove in on N. bank. Working on So. bank

115+34 - did not leave lower end (W) of cut-off open.

113+0 - Did not leave lower end of cut off open (E)

109+75 Cove in west bank —

Sta	Top Width	Check Top Width	Check Bot Width	℄ Eley.	Check Eley
108+68	25½?	22		81.22	
110+0	21	18		81.09	
114+0	20½	19		80.69	
116+34	20½?	20		80.46	
✓117+65	22½?	18½		80.33	
✓120+99	23?	16		80.00	
✓121+57	20½	16		79.97	
122+72	21	19		79.82	
124+09	20	15		79.69	
125+12	21	20		79.59	
127+43	22	20		79.36	
128+76	15			79.23	79.35
131+14 WALL TO GK.	22	20		78.99	79.25
132+82	21	21		78.84	79.00
134+45	21½	23		78.63	79.20
136+13	24?	22		78.45	79.20
137+94	21½	22		78.25	78.70
139+04	22	18		78.12	78.68
140+08	20	19		78.02	79.03
141+56	20½	22		77.86	79.02
142+80	22	20		77.72	78.85
144+87	21?	21		77.49	79.00
147+25	23	25		77.23	78.50
148+51	21?	26		77.09	78.80
152+26	24	20		76.68	77.85

13613
13445
168

13445
3232
213

13904
13794
110

12099
1176
923

11999
427

13794
13613
181

14008
13904
104

14280
14156
124

14156
14008
148

122 72 14725
37 14487
238

El 91.03
Send E nail Bk 131+65
90.86

5226
4851
375

12730
12272
458

Top SW wing at end nail
El 91.67

12099
11764
335

12272
157
115

14851
14725
126

13232
13176
56

7850
135
7715

80.35
135

12576
743
133

⊙ ~~86.52~~
⊙ ~~86.46~~ ⊙ 86.56

Sta 143+80 cave in on E. bank about 6' into ditch - Width 4' wide

Sta 149+50 to 151+00 cave in on both sides - Bad shots

Sta 152+26 cave in on East bank - Sta 152+20 cave in on West bank

Sta 134+75 Cave in on West bank for 60' Back —

Sta	Top Width	Check Top	Check Bot.	E EL.	Check EL.
155+02	23	25		76.38	77.89
158+18	23½	24		76.03	76.98
160+51	22	19		75.77	77.52
163+03	20	21½		75.49	76.80
165+01	20	24		75.28	76.98
166+51	18	23		75.12	76.80
169+08	16	20		74.84	76.20
170+86	17	18		74.64	75.95
173+56	27 ?	22		74.43	75.60
174+50				74.33	75.30
177+0	22	21		74.05	74.85
178+40	24 ?	22		73.90	74.94
180+51	18 ?	24		73.67	74.75
182+55	18 ?	24		73.45	74.90
185+96	15 ?	21		73.08	74.35
186+79	18 ?	23		72.99	74.25
189+0	17 ?	25		72.75	73.52
191+43	24	25		72.47	73.30
194+18	21	28		72.17	73.10
197+60	22	28		71.79	72.80
199+11	25	25		71.62	72.75
202+83	20	29		71.22	72.50
204+15	20	32		71.02	72.40
207+0	22	24		70.76	72.05
209+78	15 ?	26¾		70.34	72.00

16908
16651
257

19760
19418
342

20415
20283
132

18596
18255
341

15818
5502
316

19418
19143
275

283
89
372

7475
50

160+51
15818
233

19911
19760
151

~~⊙ 82.35~~

16303
16051
252

19143

⊙ 77.42

B.M. to quit on June 3. — on Top stump in center — on West bank at Sta 189+03
EL 85.91

17450
17356
94
~~74.30~~

18051
17840

170.86
169.08
178

84.05

17352
17082
270

⊙ 97.75
~~⊙ 98.15~~
~~⊙ 81.90~~

B.M. on middle on No. rail of bridge sta 158+30.
EL. 86.68

Sta 175+50 bank on East side caved in

Sta	Top Width	Check Top	Check Bot	E El.	check El.
210+83	23	25		70.23	72.00
213+07	17 ?	25		69.98	71.06
215+99	Bridge		70.55	69.64	70.55
219+0	21	23	70.50	69.31	70.50
222+0	21	22	70.15	68.98	70.15
224+63	18½ ?	22	69.90	68.69	69.90
227+45	25			68.38	68.80
231+0					

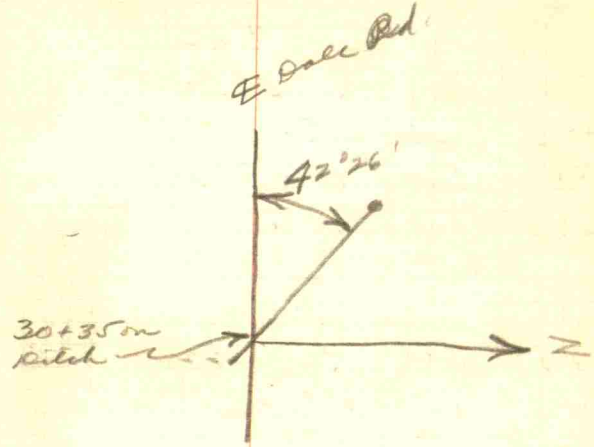
BM El. 80.78 - Top SW Wing at end of rail

Cave-in at Sta 225+0 on West bank.

⊙ 80.80

Spangler Drain

0+0	Intersection with 7 inch Dale
2+86	Deg L 3°31'
5+0	Cross Sec
7+39	Deg R. 45°00'
10+15	Deg L 23°31'
13+15	Cross Sec
14+60	Deg R. 15°29'
16+60	Deg L ~~16°69'~~ - 15°50'
19+0	Cross Sec
22+0	" "
25+0	" "
27+85	Deg L 48°28'
30+35	E E+W Road - Dale Rd.
5th	line intersects Dale
Rd	at 72+62 on Dale Rd.
31+0	Cross Sec.
33+0	" "
33+80	Deg R 45°53'
35+0	Cross Sec.
37+80	Deg R 1°31'
40+0	Cross Sec
42+0	" "
44+75	Spangler N. line Cross Sec
46+0	Cross Sec



37+75 - E+W Fence

48+43 Deg L 49°02'
49+79 Deg R 25°54'
52+25 Deg L 18°00'
54+0 Deg R 9°29'
56+0 Cross Sec.
58+0 " "
60+0 " "
61+93 Deg. R. 31°22'
62+03 ℄ old State Rd
63+32 to N. R. of W. line T.H.1 & E
63+35 Sth 15' W. of ~~24~~ N. end of 24" V Tile under Traction.
63+53 N. rail of T.H.1 & E Track
63+80 So. End of 24" V. Tile under Traction.
64+0 N. end of 22" Cont Drain Pipe under R.R.
64+13 N. rail of R.R. Track
64+31 So. End 22" Pipe under R.R.
64+52 N End of 12" Cr Tile under State Rd
64+60 to N. end 24" R.C under State Rd - End of Improvement

52+90
8" tile from Kibbey
15' E to old ditch
tile is 25' E of ofd ditch.

5169 542 5125 5169 5164 656 51.18

		Top stk	Gd at stk			E	Bot abut.	Top of abut			
0+0	level	48.00	47.45	4735-15	42.02^{18}	4200^{23}	41.40^{27}	4680^{27}	4768^{30}	level	
2+86	"	48.57	48.12	4758^{7}	4470^{11}	4422^{14}	4438^{16}	4638^{20}	4820^{30}	"	
5+0	"	49.42	4882	4882^{10}	4550^{13}	4532^{16}	4555^{19}	4882^{28}	level		
7+39	"	50.49	49.01-5 49.74	4751^{10}	4635^{11}	4570^{14}	4632^{16}	4852^{20}			
13+15	"	53.60	52.20-6 53.10	5141^{11}	4951^{14}	4928^{14}	4950^{15}	5050^{18}	5314^{21}		
14+60	"	55.06	5443	5212^{10}	5086^{12}	50.51^{14}	5076^{16}	5315^{18}	5430^{23}	level	
16+60		5620	55.35-5 55.60	51.85^{6}	5169^{9}	5312^{10}	5380^{15}		56.76^{32}		
19+0		57.25	5682	5716^{8}	5420^{11}	5250^{13}	52.45^{16}	5722^{25}	5672^{28}		
22+0		5881	5918	5782^{18}	5370^{20}	5340^{25}	5792^{32}	5853^{35}			
25+0		6032	59.60	5862^{3}	5485^{6}	5438^{9}	5641^{10}	5981^{18}	6021^{25}		
27+85	45' to ℄ old stat	6065	60.00	6022^{24}							
29+0			℄ –	61.78							
31+0		6252	6187	6125^{3}	5780^{10}	5622^{11}	5585^{12}	5628^{15}	5762^{16}	61.52^{27}	
33+0		6355	6272	63.64^{5}	6221^{9}	5812^{15}	5631^{17}	5670^{19}	5811^{20}	6361^{32}	6270^{39}
33+80		6469	6393	~~6393~~	6396^{11}	5892^{20}	5679^{22}	5672^{24}	5836^{25}	6456^{36}	
35+0	61.66^{2}	6089	~~61~~	5846^{5}	5665^{6}	5678^{8}	5850^{10}	6220^{22}	6105^{30}		
37+80	6141^{5}	62.46	6200-3 61.89	5950^{9}	5750^{12}	5760^{14}	5925^{15}	6140^{20}	6085^{31}		
40+0	6043^{2}	6156	6102	5924^{9}	5767^{10}	5768^{12}	5946^{13}	6085^{20}	5985^{25}		
42+0		6176	level →	6125^{7}	5943^{6}	5805^{7}	5789^{9}	5971^{11}	6158^{17}	6080^{21}	
44+75		6132	6043	6008^{9}	5825^{11}	5845^{13}	6022^{15}	6070^{20}			
10+15		51.00	5055	4939^{11}	4740^{12}	4662^{15}	4732^{17}	4782^{18}	4860^{20}	5085^{24}	

B.M.
Sta 30+
on W.
end of
NW. Wing
of Conc.
bridge
EL. 62.30

		Top Sth	Gd.		
46+0		6223	6145	6039^{9}	5852^{11}
48+43		6353	6272	6312^{9}	5932^{14}
49+79		6467	6390	6335^{6}	5955^{17}
52+25		6500	6421	6430^{5}	6110^{17}
54+0		6370	6280	6225^{10}	6005^{13}
56+0		6345	6283		
58+0		6344	6290	60' E. to ditch	
60+0		6408	6355	80' E. " "	
61+92		6618	6556	E 6399	
62+03					
62+11			old 6072	6594 gd. 6380	
63+35		64.75	~~6475~~	6070 FL. 24" Sewer	
63+80	FL. So. end Culvert T.H.I. + E 60.70				
64+0		68.35		60.85	FL. N. end of R.R. Culvert
64+31	Fl. S. end R.R. Culvert –			61.40	
64+60	~~A. End~~	68.83			

N. end Fl. R.C. Pipe 63.86

64+52 6238 Top of 12" tile

So. rail T.H.I. 8 E – 70.55

S. rail of R.R. track 72.06

61.38
42
19.38

5885^{13}	6035^{15}	6180^{19}	6190^{25}	
5938^{17}	6076^{19}	6352^{25}	6310^{31}	
5952^{15}	~~5900~~^{15}	6312^{18}	6415^{23}	
5990^{13}	6070^{16}	6162^{17}	64.25^{24}	level
6040^{15}	6150^{16}	6276^{21}	6256^{26}	

B.M. 67.49
on W. end of
N. headwall of
State Rd Culvert
64+60

Stone Cor. Sec. 29,
Twp 17. N R 1E

Cor post S 45° W 22'
Cor post E — 16.5'

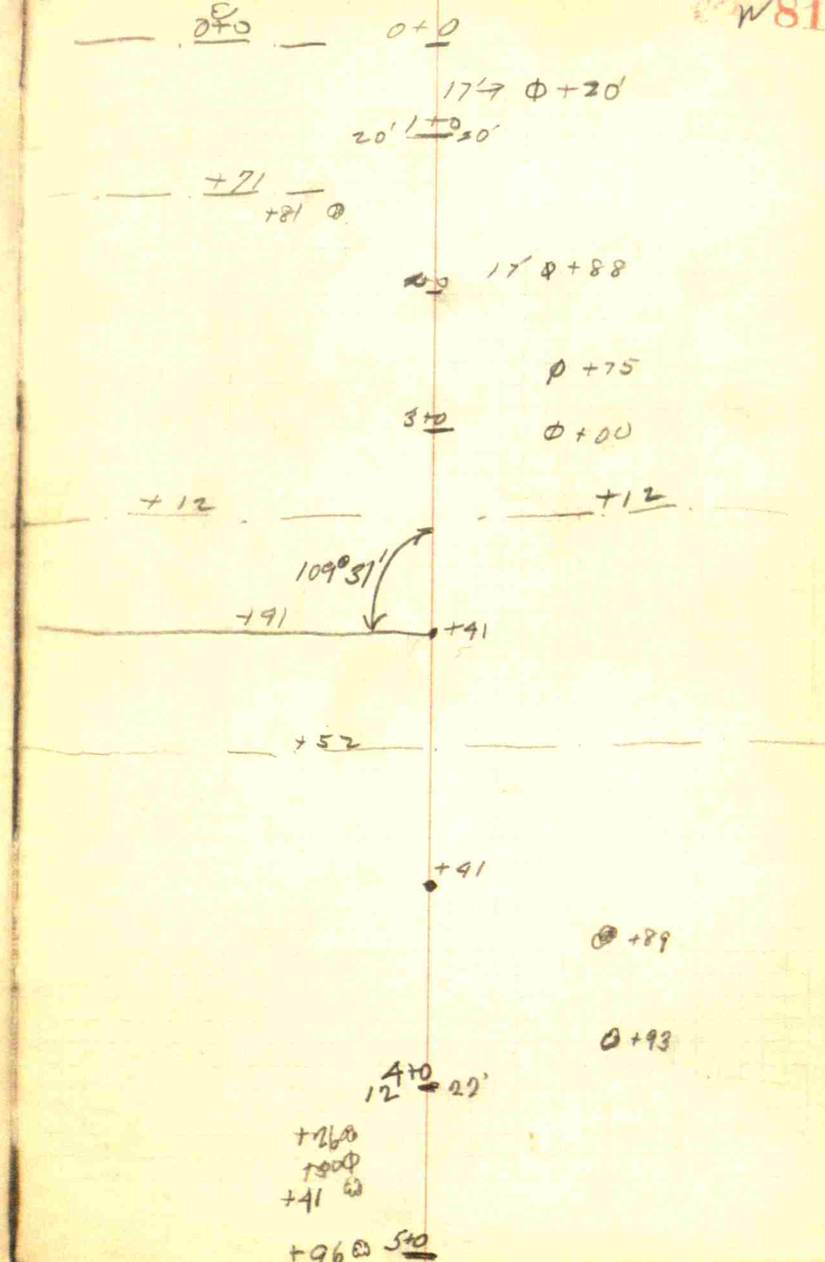
#4. Cor. Stone

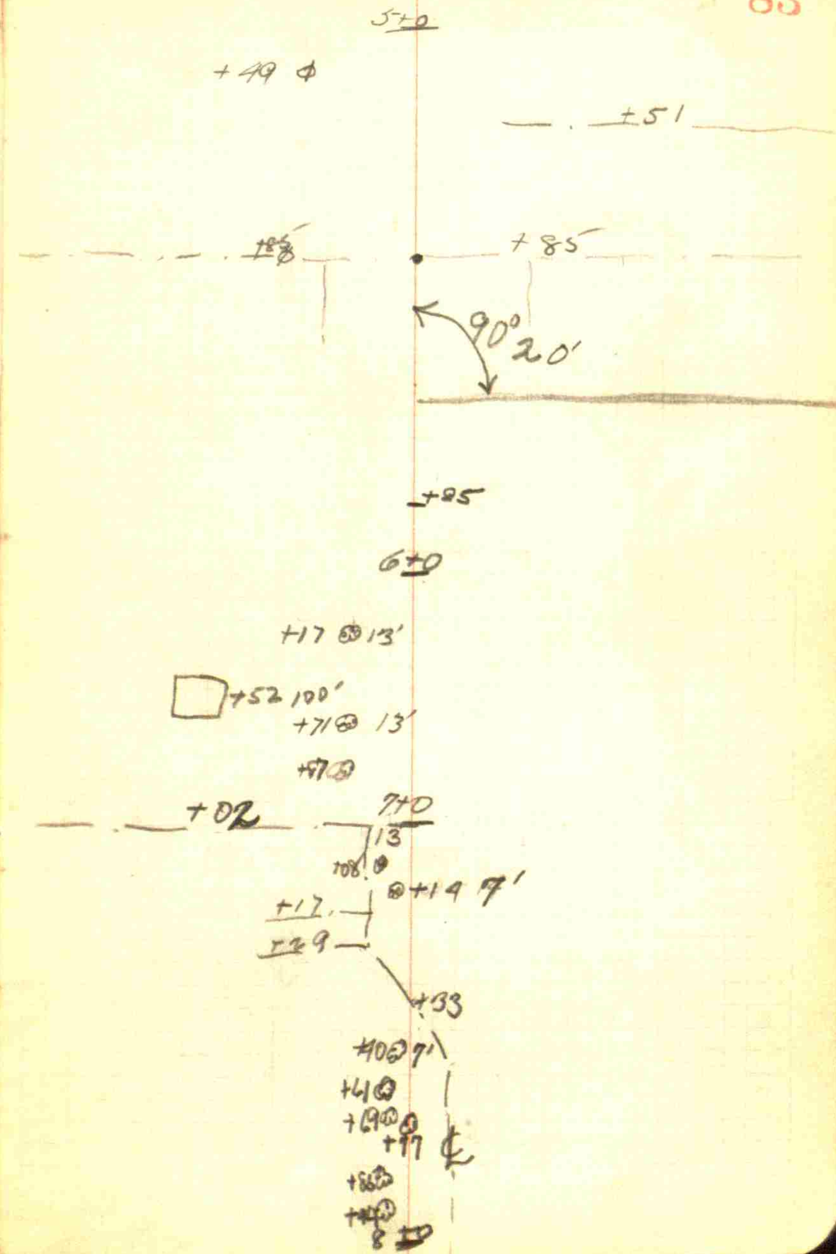
telephone pole N 30° W 58'

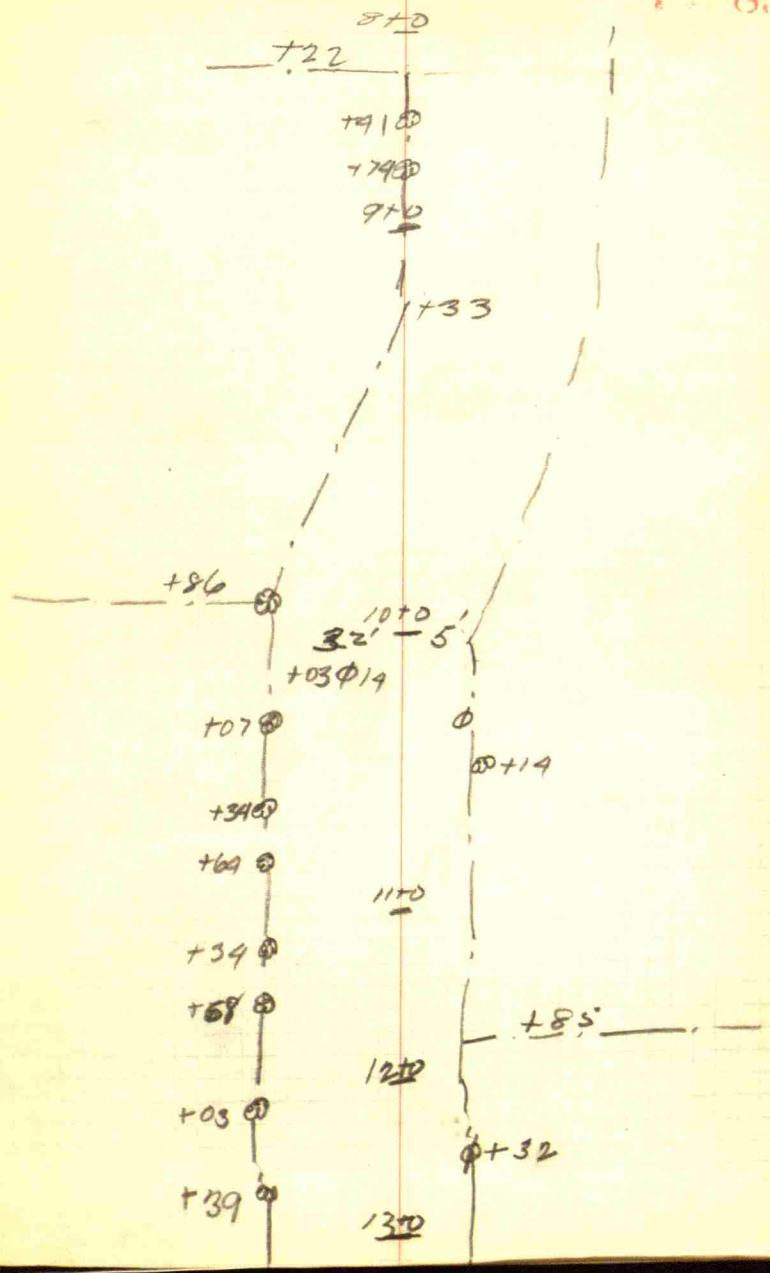
#5 Cor Stone
Pine Tree N 45° W 33.5
S W Cor house N 60° W 76'

Beg. at Pittsboro; thence N & E to the Cen. 29-17-1E

WATERS ROAD

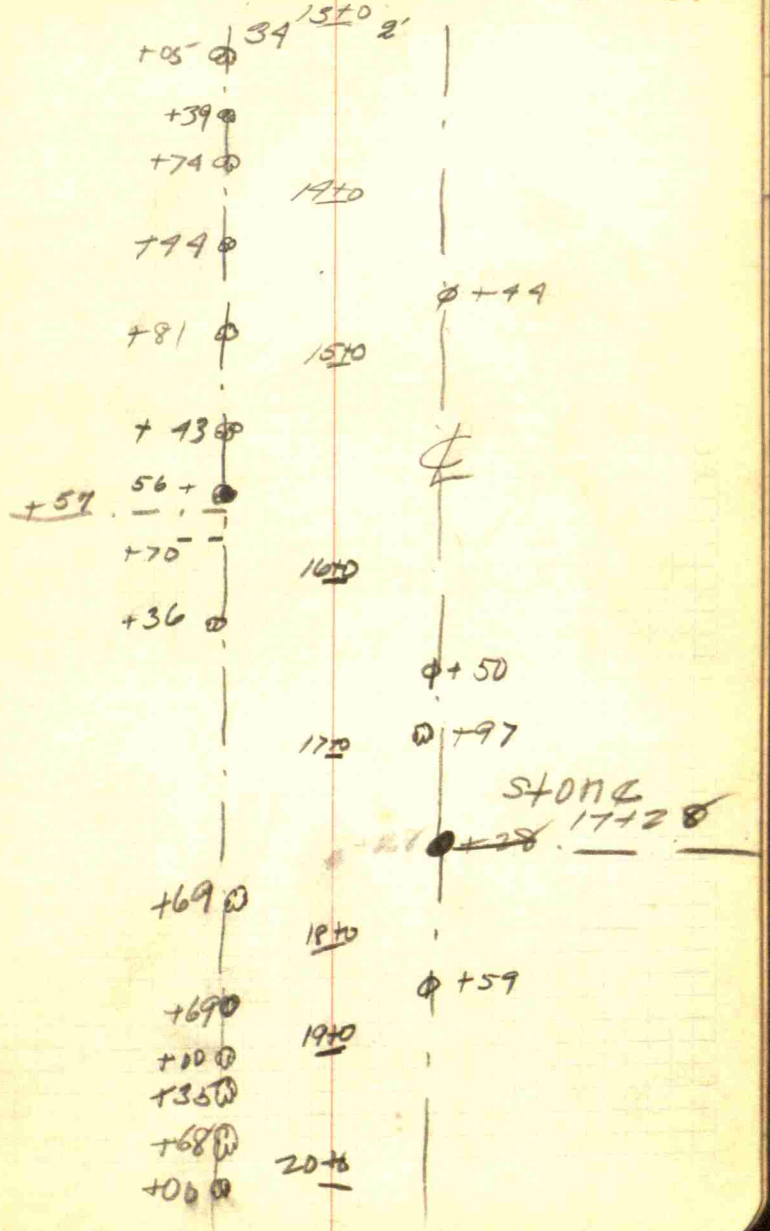



5+0
+49
+51
+85
90° 20'
+85
6+0
+17 13'
+52 100'
+71 13'
7+0
+02
13
+14 7'
+17
+29
+33
8+0

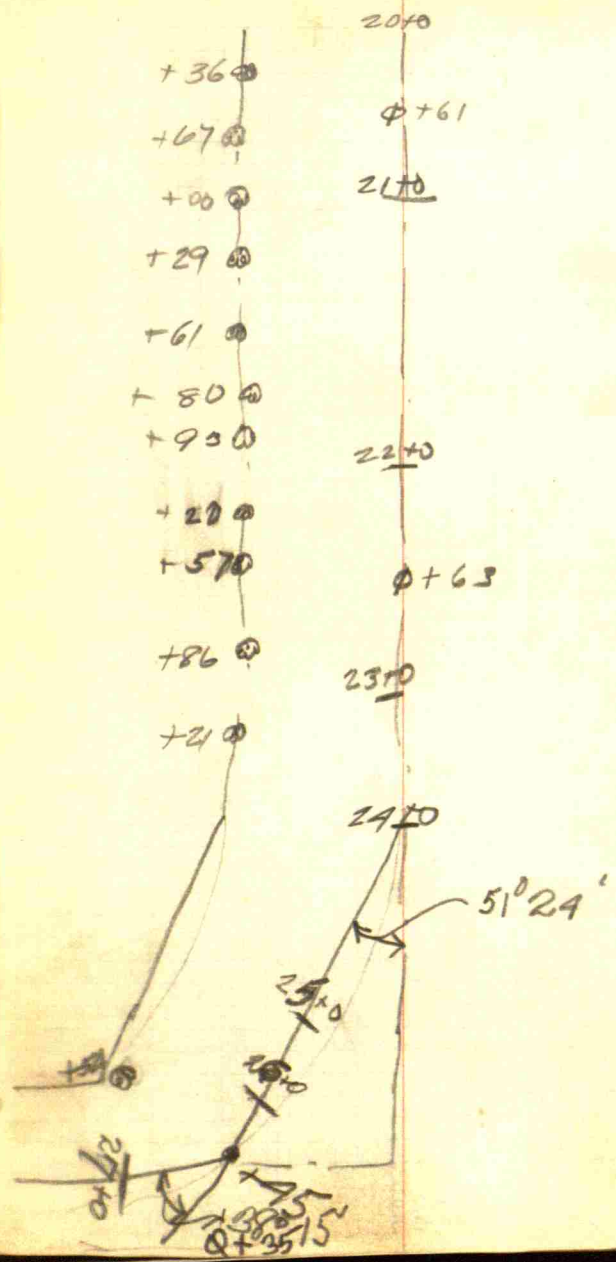

8+0
+22
+91
+79
9+0
+33
+86
10+0
32'
5'
+03
Φ14
+07
Φ
+14
+34
+69
11+0
+34
+68
+85'
12+0
+03
Φ+32
+39
13+0

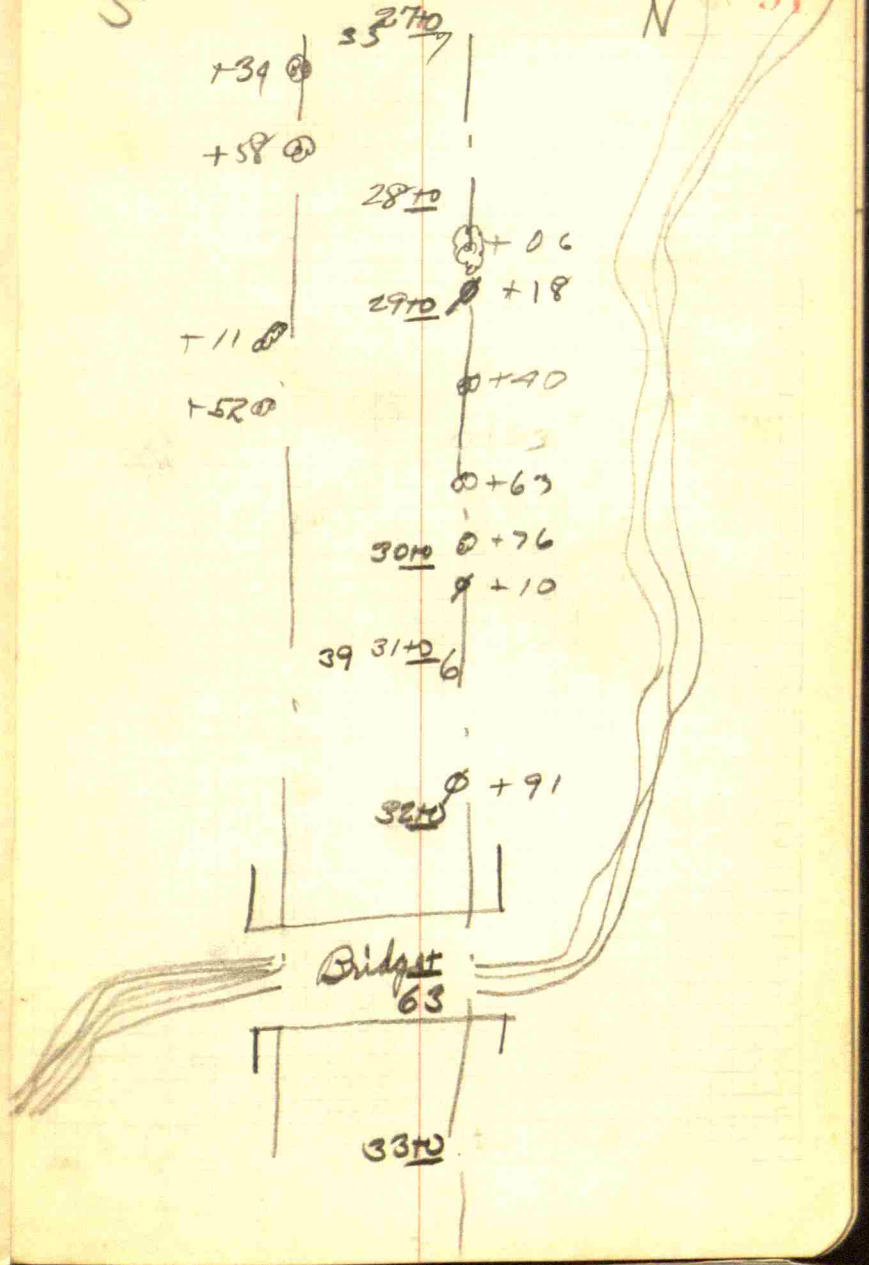
L 86

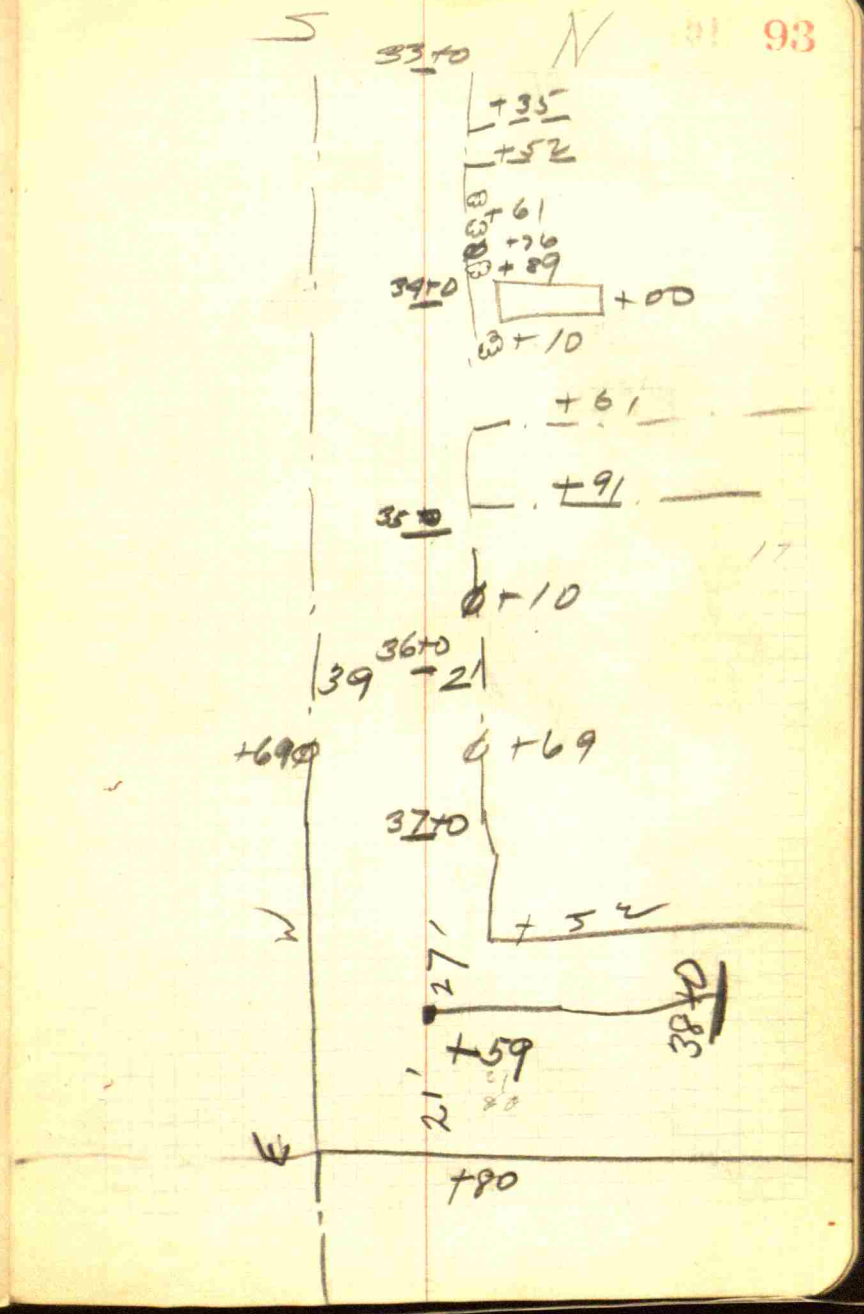
L 87

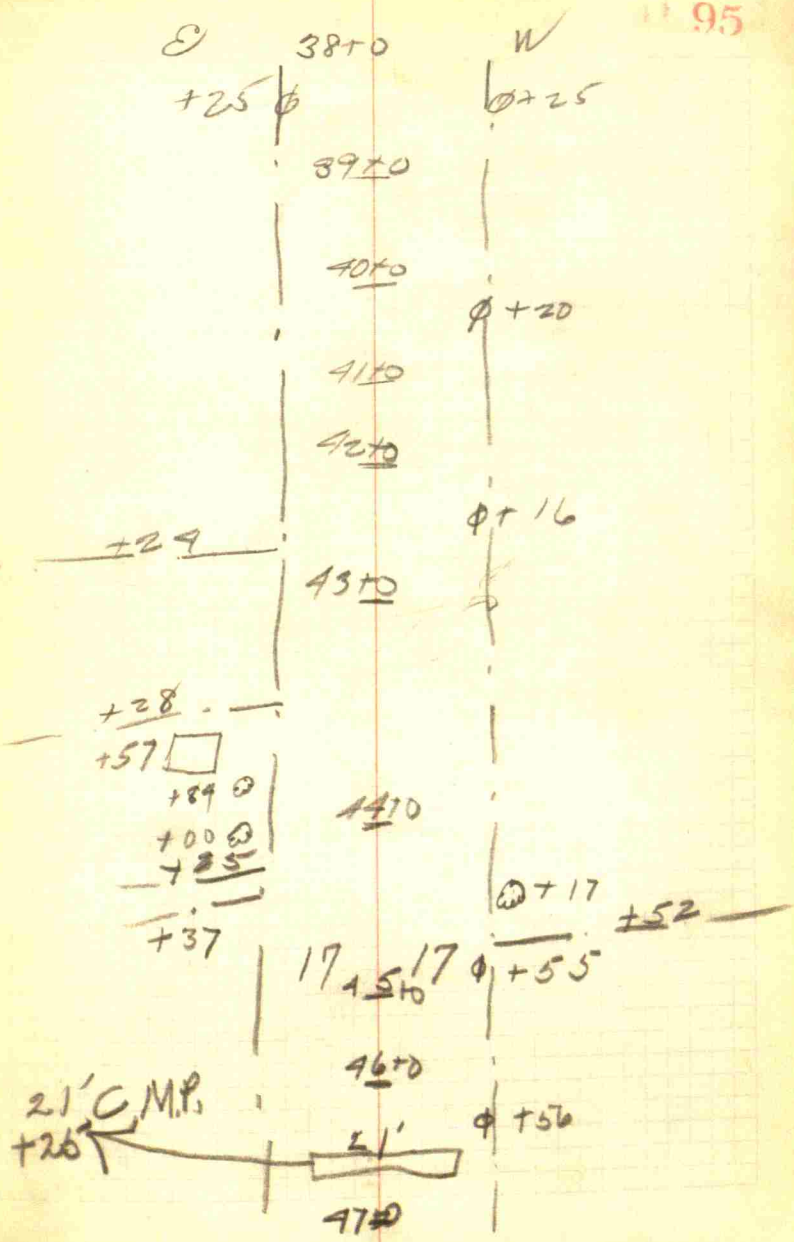

+05
34
15±0
2'
+39
+74
14±0
+94
+81
15±0
+13
56
+57
+70
16±0
+36
+50
17±0
+97
stone
17+28
+69
18±0
+59
+69
19±0
+00
+35
+68
20±0
+06

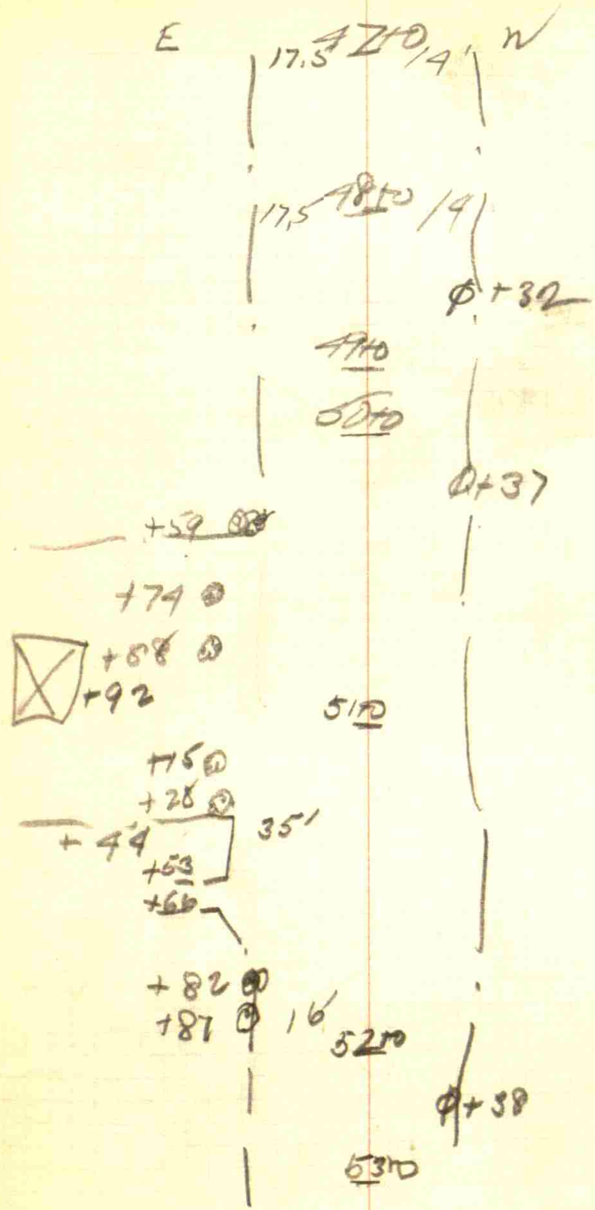
128 36
51 24
180.00




S
N
35 270
+34
+58
28+0
+06
29+0
+18
+11
+40
+52
+63
30+0
+76
+10
39 31+0
6
32+0
+91
Bridge
63
33+0

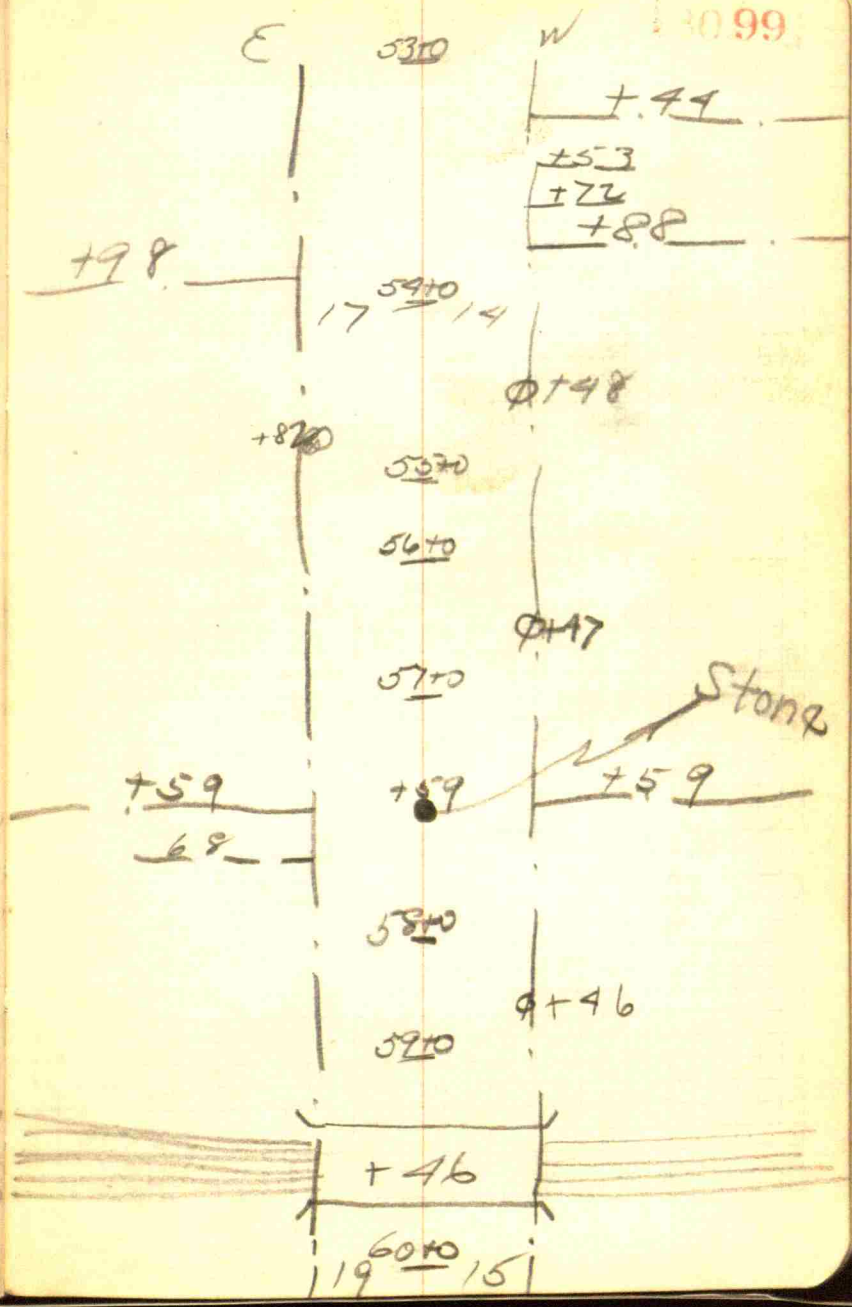

S
N
33+0
+35
+52
+61
+76
+89
34+0
+00
33+10
+61
+91
35+0
0+10
36+0
39
+21
+69
0+69
37+0
+54
27'
38+0
+59
21'
+80

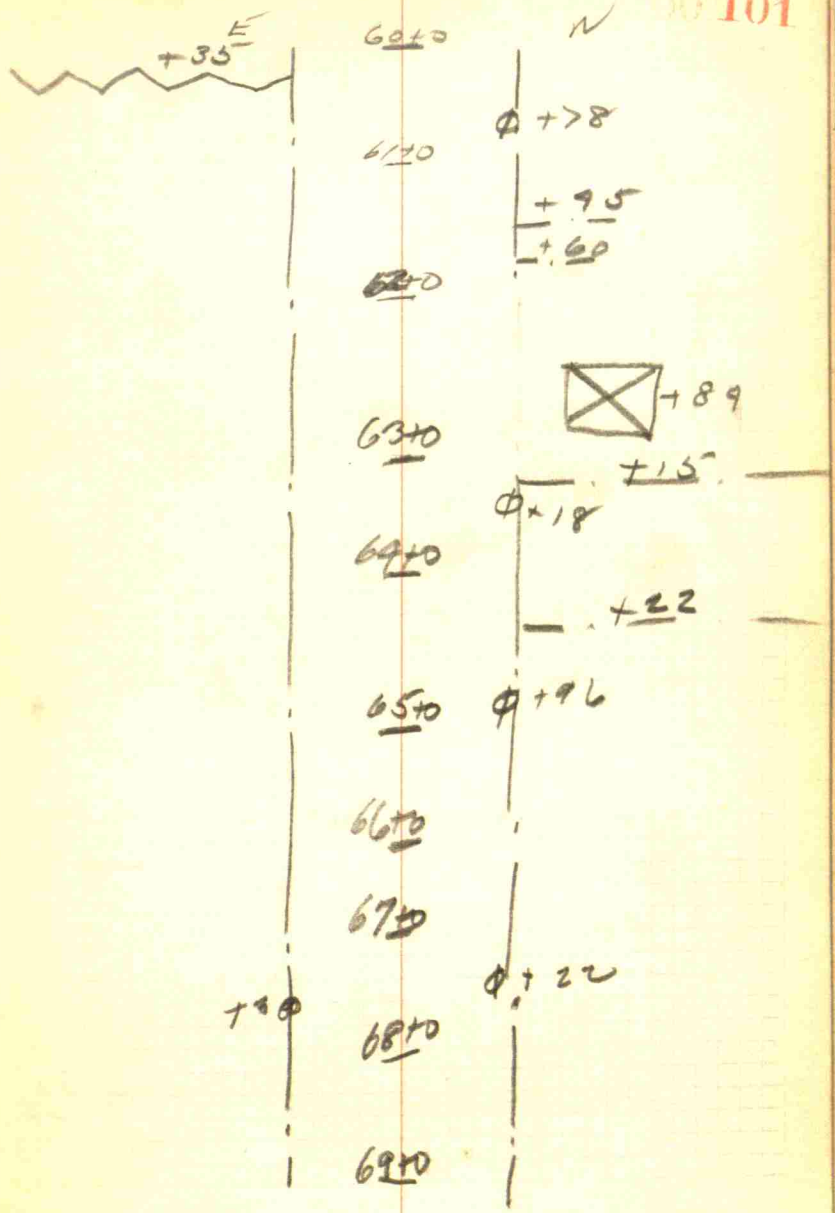

E
38+0
W
+25
Ø
Ø+25
39+0
40+0
Ø+20
41+0
42+0
Ø+16
+24
43+0
+28
+57
+84
+00
+35
44+0
Ø+17
+52
+37
17
15+0
17
Ø
+55
46+0
21' C.M.P.
+26
Ø
+56
21'
47+0

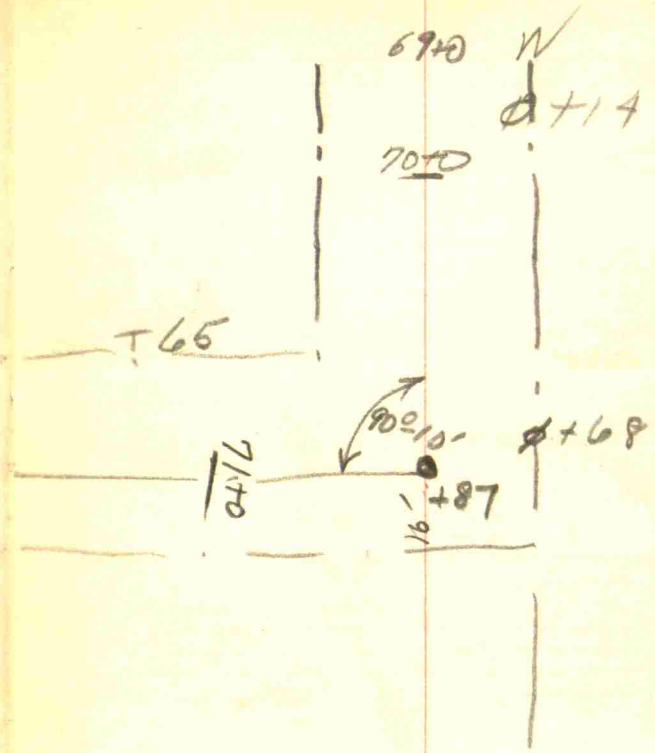

E
17.5 47+0 14'
W
17.5 48+0 14'
φ+32
49+0
50+0
φ+37
+59
+74
+88
+92
51+0
+15
+28
35'
+44
+53
+66
+82
+87
16
52+0
φ+38
53+0

L. 98

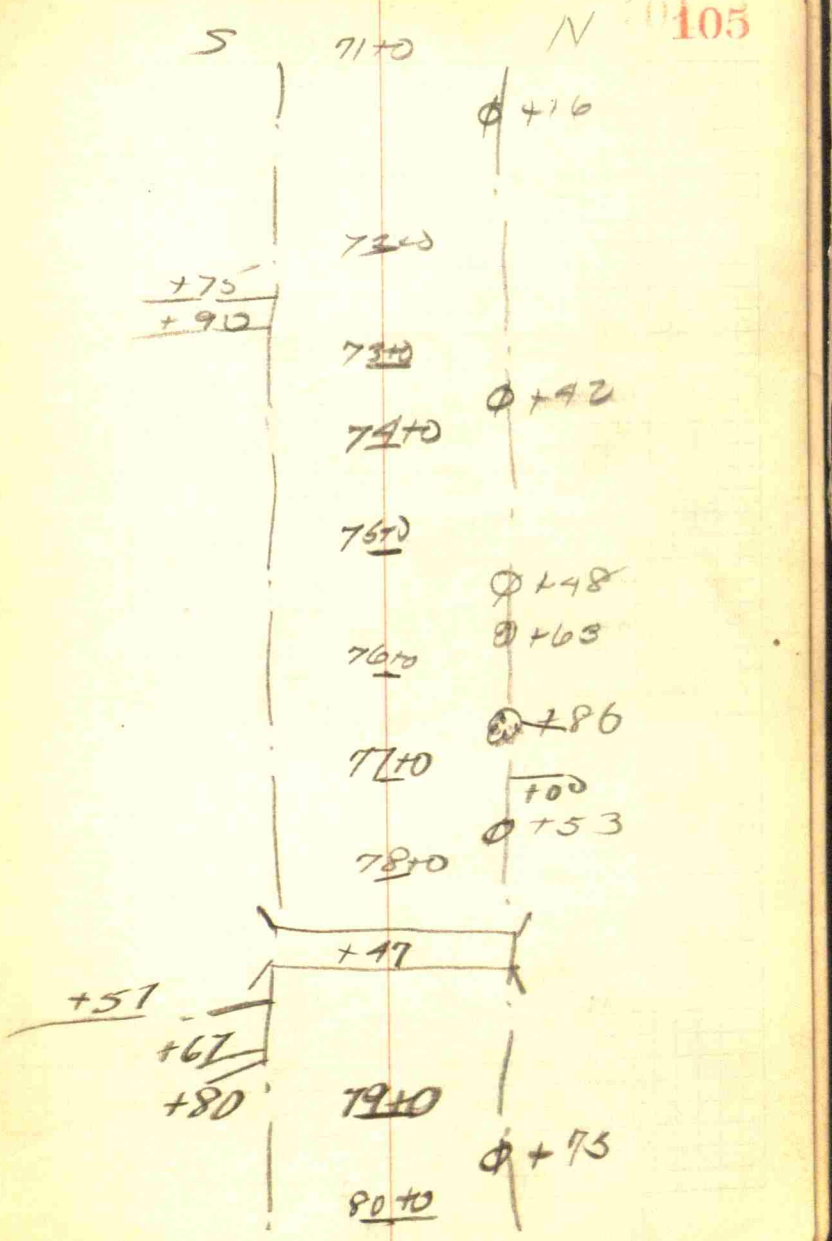
L. 99


E
W
53+0
+44
+53
+72
+88
+98
17
59+0
14
Φ+48
+82
53+0
56+0
Φ+47
57+0
Stone
+59
+59
+59
68
58+0
Φ+46
59+0
+46
19
60+0
15

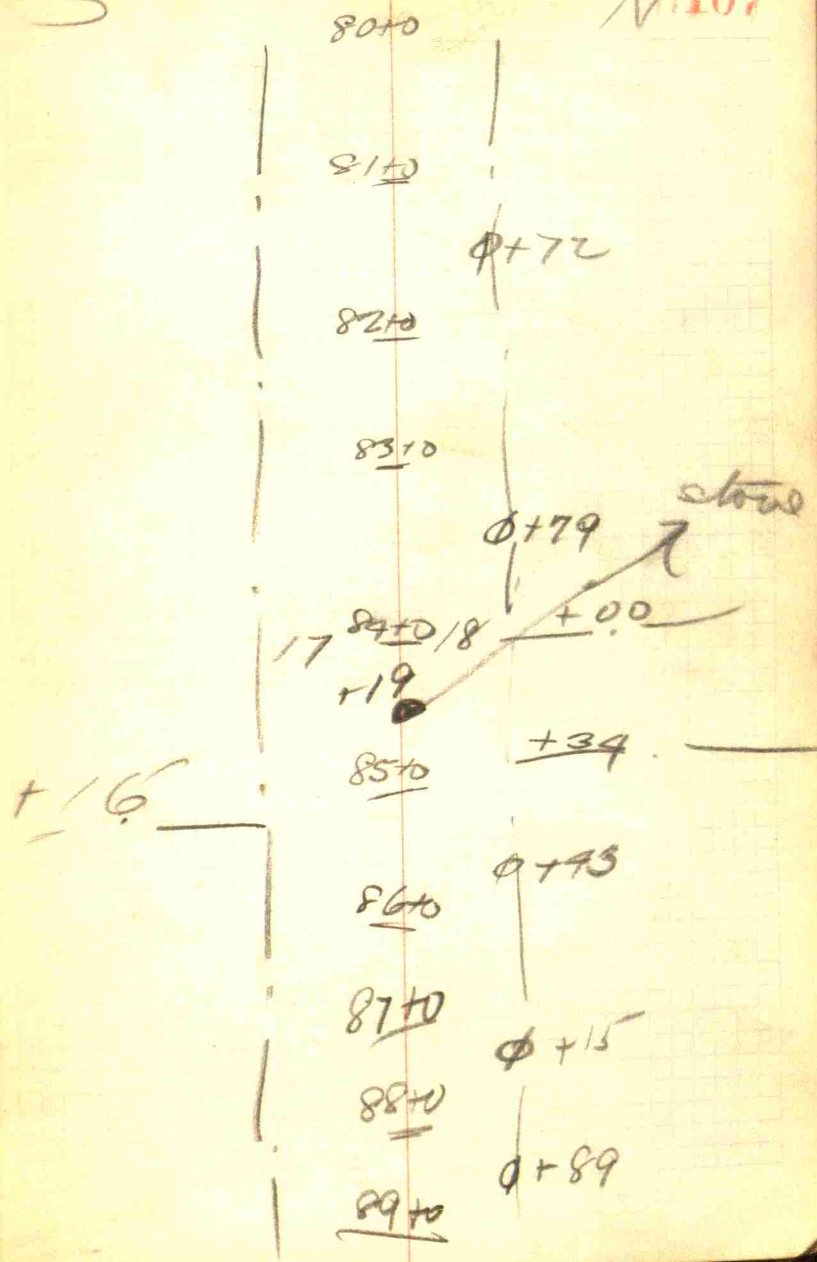

E
+35
60+0
N
+28
61+0
+95
+60
62+0
+89
63+0
+15
+18
64+0
+22
65+0
+96
66+0
67+0
+22
+80
68+0
69+0



100
87
13

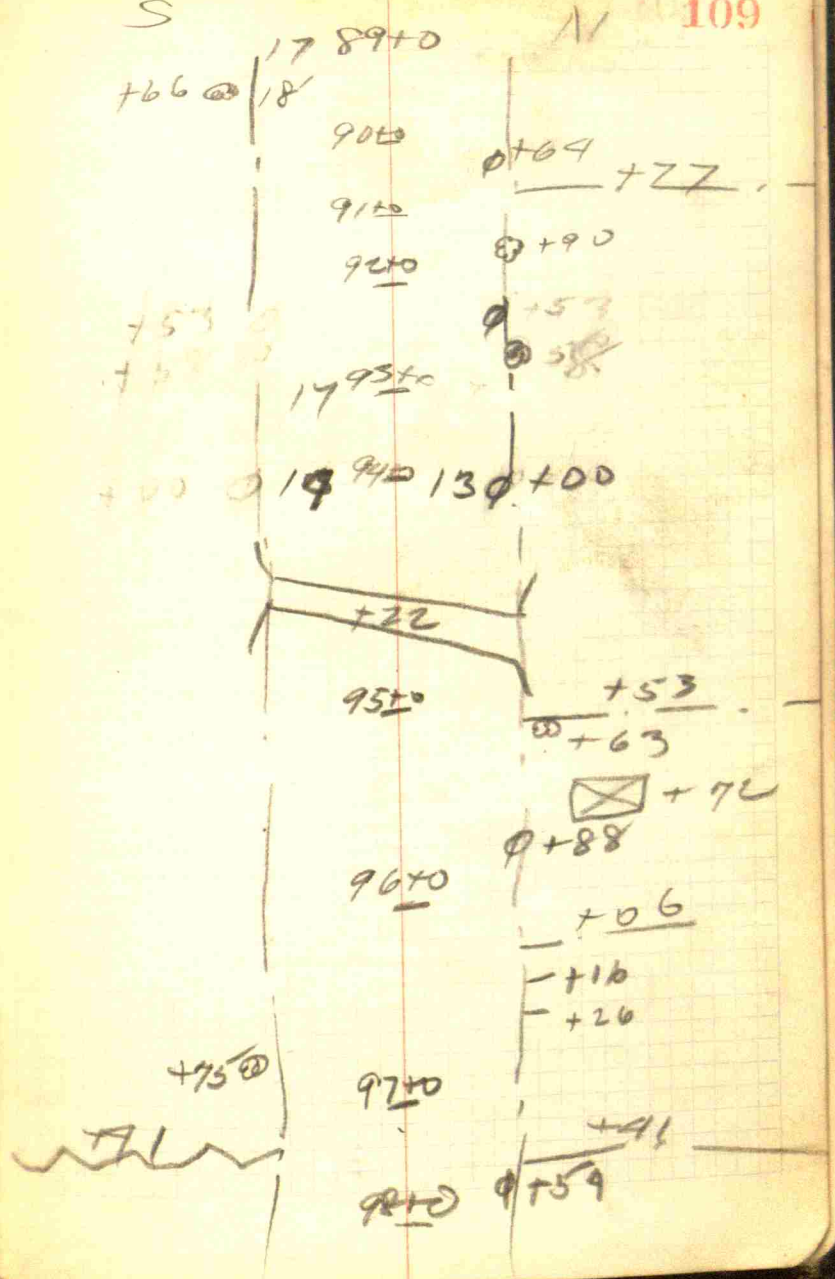

S
N
71+0
Ø +16
72+0
+75
+90
73+0
Ø +42
74+0
75+0
Ø +48
Ø +63
76+0
Ø +86
77+0
+00
Ø +53
78+0
+47
+51
+67
+80
79+0
Ø +73
80+0

5

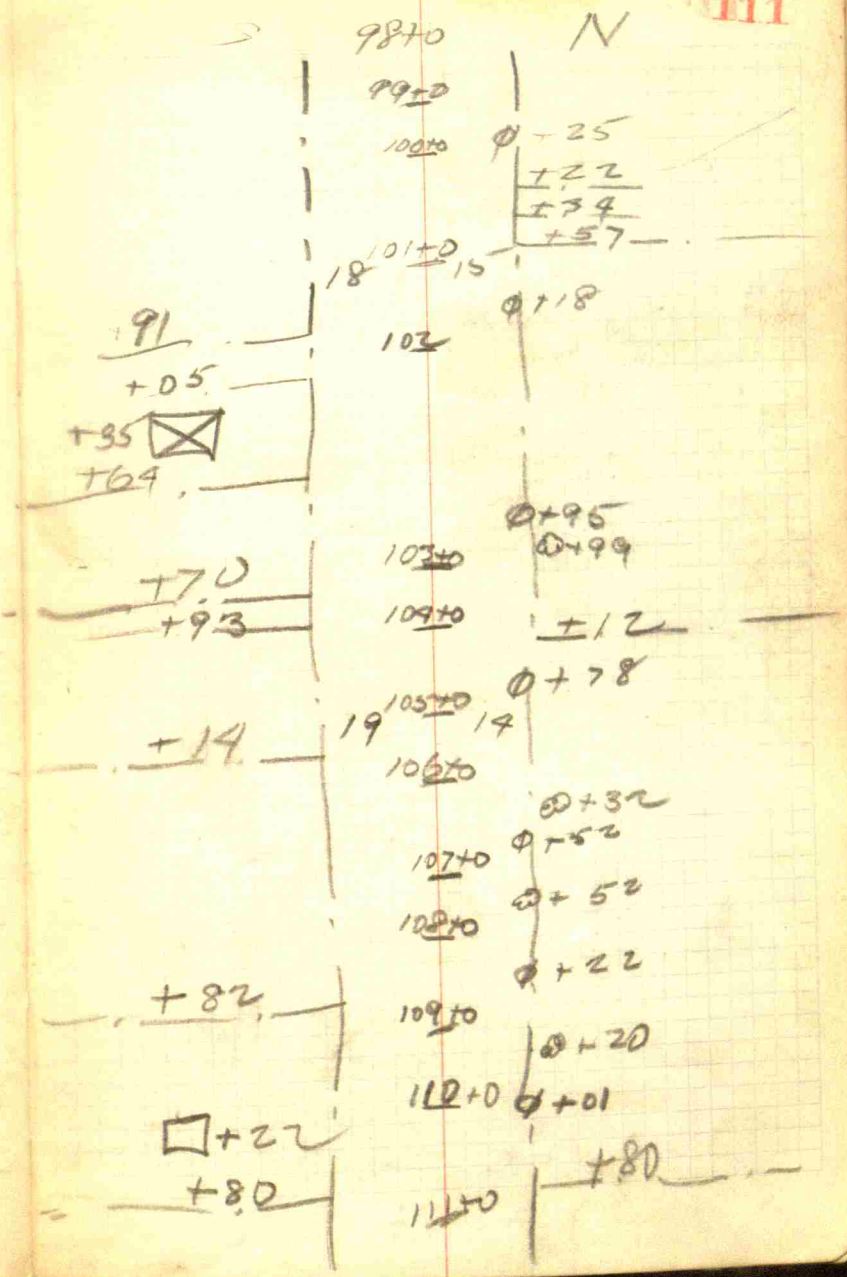

80+0
81+0
0+72
82+0
83+0
stone
0+79
17
84+0
18
+00
+19
+34
85+0
+16
0+43
86+0
87+0
0+15
88+0
0+89
89+0

108

109


S
N
89+0
+66
18
90+0
+64
+77
91+0
+90
92+0
+53
95+0
+22
95+0
+53
+63
+72
+88
96+0
+06
+16
+26
+75
97+0
+41
+59

Continued on page 120.



Ditch for
Chas. O. Rauth

0+0 is 60' So of N. hdwall
and it is 6' more to end
of present tile.

	Stk	Gd.	Top tile 10"
0+0 ✓	66.~~42~~ .33	65.86	62.60
1+0 ✓	66.~~66~~ .63	6606	
⊕ 2+0 ✓	65.~~75~~ 74	6520	
3+0 ✓	65.~~14~~ .12	6455	
4+0 ✓	65.~~6~~ 63	65.04	
5+0 ✓	65.54 51	6479	
⊙ 6+0 ✓	~~66.66~~ 65.60	6518	
7+0 ✓	66.~~22~~ .15	6564	
8+0 ✓	6688	6650	
9+0 ✓	66~~08~~ 66	6609	
9+50 ✓	65.88	6525	
10+0 ✓	65.86	6530	
11+0 ✓	65.66	6527	
12+0 ✓	65.46	65.00	

B.T.1. on West end of
North Hdwall of Culvert
Sta. 64+60 — EL. 67.49

Fl. line of tile N. side
of ~~State~~ Rd.
EL. 61.20
New Grade Tile 59.58

6500
6260
240

Arm #1

0+0 = 6+0

	Same as 6+0	
	Stk	Gd
1+0	65.85	65.25
2+0	66.08	65.50
3+0	66.70	66.03
4+0	66.85	66.22
5+0	66.60	65.85
6+0		

Pond. 65.00

Ann # 2

0+0 = 9+50

0+0			
1+0	V	6600	6524
2+0	V	6536	6474
3+0	V	6638	6552
4+0	V	6638	6573
5+0	V	6591	6522
6+0	V	6598	6547
7+0			63.50
8+0			

64.80 Fl. pond tile at Sta about 5+50

Pond at 6+0 to 8+0

65.40 T.J. Water

64.70 Bottom (shallow)

Charles O. Ranch
Lebanon Ind.

6540

6470

6572
6260

6540

59.52
1.60

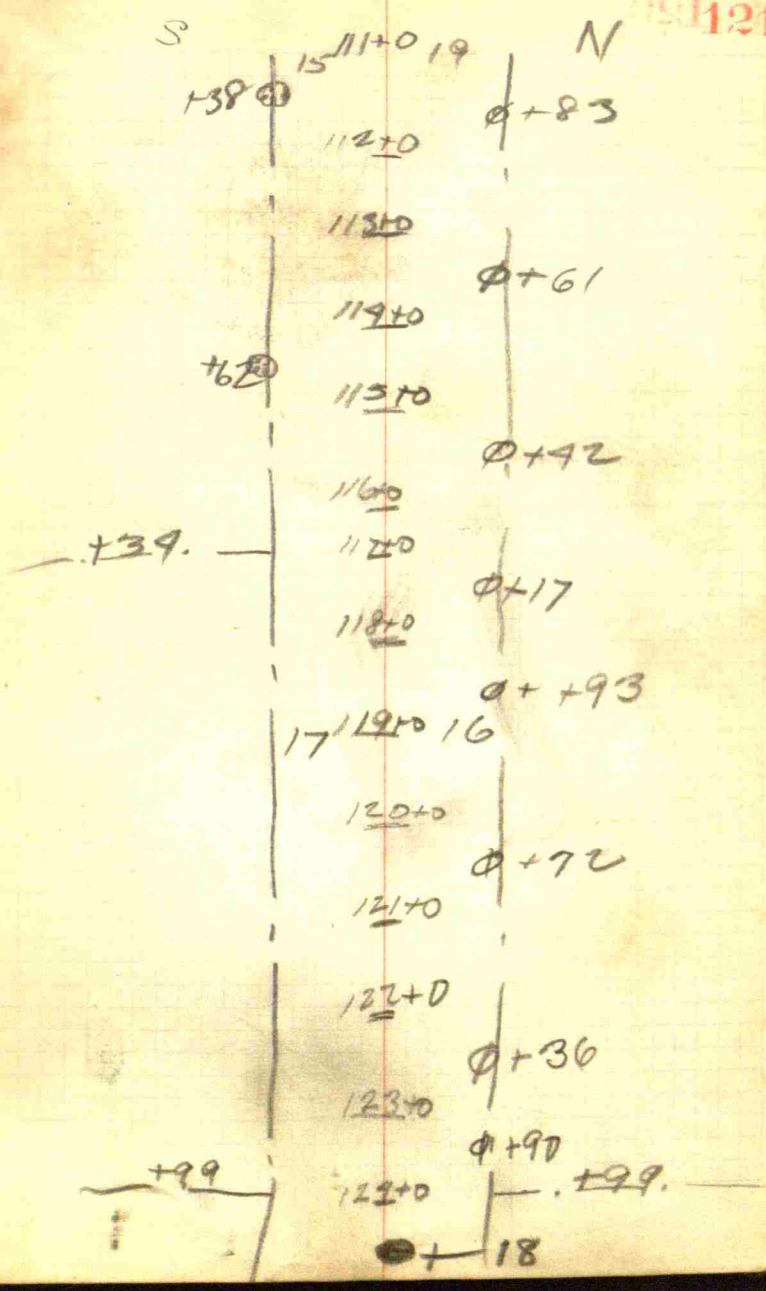
60.12

Sub Am to Am #2

0+0 = 2+0

1+0	6568	65.01
2+0	6710	6661
3+0		65.00
4+0	6690	6622
5+0	6682	6621
6+0	6630	6562
7+0	6645	6572

Pond at 3+0 - 65.00


S
N
15
111+0
19
+38
112+0
Ø+83
113+0
Ø+61
119+0
+62
113+0
Ø+42
116+0
+34.
117+0
Ø+17
118+0
Ø+93
17
119+0
16
120+0
Ø+72
121+0
122+0
Ø+36
123+0
Ø+90
+99
122+0
+99.
18

WATERS-ROAD

Sta.									
0+0	Stk. 99.24	10 ft. 98.54	10' 98.11	12. 98.36	30' 98.12	30' 98.24	38' 98.82		
1+0	Stk. 97.58	9' 97.21	9' 96.80	12 97.11	30 96.85	30' 97.25	44' 96.62		
2+0	40' E. 94.97	Stk. 95.02	9' 96.09	9' 95.55	12 95.90	29' 95.67	29' 96.00	40' 94.54	
3+0	60' E 93.20	Stk. 94.30	8' 95.04	8' 94.73	12 94.96	29' 94.86	29' 94.91	39' 94.13	
~~3+41~~									
4+0	Stk. 93.70	5' E. 93.73	5' 93.58	10' 93.05	16' 94.02	20' 94.00	40' 93.85	45' 93.05	
5+0	5' E. 94.43	Stk. 94.32	6' 94.11	16' 94.15	25' 94.06	30' 93.99	39' 93.91	45' 92.79	
~~5+85~~									
6+0	56' E. 93.72	41' 94.83	29' 94.09	20' 94.16	Stk. W. 94.53				
7+0	Stk. 93.90	20' 93.38	29' 93.61	16 93.78	5' 92.79	96' 91.89			
8+0	—	Stk. 94.22	20' 93.89	25' 93.20	30' 94.25	46' 93.29	40' 93.04	80' 93.00	
9+0	Stk. 94.32	20' 94.67	20' 93.75	27' 94.34	42' 94.38	40' 93.36	54' 94.44		
10+0	12 9306	8 9239	Stk 9363	9 9385	19 9336	20 9375	45 9196		
11+0	7 9266	5 9258	Stk 9356	3 9328	16 9337	20 9299	23 9245	30 9287	50 9136
12+0	9 9338	5 9268	Stk 9381	11 9386	17 9367	20 9196	22 9335	47 9302 (± 25)	
13+0	8 91.73	5 91.32	Stk 92.73	9 92.61	16 92.49	22 9091	30 92 [illegible]	50 9096 (± 30)	33
14+0	5 92.10	1.01 91.76	Stk 92.02	6 92.51	12 92.55	23 92.59	28 91.58	31 92 [illegible] (± 30)	50 92. [illegible]
15+0	4 93.27	1 92.38	Stk 92.70	5 92.72	13 92.91	22 93.15	92.27	92.96	38 92.85 ; 40 91.95
16+0	4 9189	1 9115	Stk 9133	9 9170	12 9186	21 9187	30 9083	51 9121	
17+0	5 9050	1 9019	Stk 9033	5 9134	13 9143	20 9125	27 9002	30 9062	66 9029
18+0	5 9016	1 8989	Stk 8997	6 9099	13 9105	20 9077	28 8967	30 9002	43 9012
19+0	5 9023	1 8961	Stk 8997	6 9087	13 9109	20 9076	27 8951	30 9059	50 9035
20+0	5 9091	1 8968	Stk 8978	5 9066	13 9094	20 9073	27 9053	30 9136 (± 35)	53 9100
21+0	4 8816	1 8720	Stk 8735	5 8824	13 8861	21 8844	26 8623	88.83	50 88.22
22+0	8656	Stk 8532	6 8655	14 8673	20 8677	26 8528	30 87.05	50 8655	

0 93.51
0 91.29
0 88.50

B.M. on S.E. [illegible] of concrete Railing [illegible] drain Sta. 0-15
El. 100.00 — 0 94.30 ... 9 90.49

about 15' to ℄ of Rd

STA.	STK				℄				
23+0	8552	8465	85.33	85.35	85.49	8425	85.45	84.94	
24+0	8162	8412	8504	8489	8361	8140	8114		
25+0		8122	8273	8396	8439	8457	8203	8129	
26+0		8253	8262	8363	8397	8137	8080		
27+0	8388	8251	8343	8420	8431	8328	8206	8250	
28+0	8519	8340	8359	8449	8473	8480	8387	8679	
29+0	8979	8479	8450	8472	8481	8466	8389	8365	
30+0	8471	8306	8361	8403	8420	8372	8265		
31+0	8229	8110	8292	8325	8216	8069	8025		
32+0	8127	8188	8179	8288	8501	8245	8089	8088	
33+0	8043	8160	8218	8277	8299	8140	8025	7972	
34+0	8177	8125	8178	8276	8316	8319	8320	8720	
36+0 [35+0?]	8269	8177	8312	8359	8371	8385	8335	8900	
36+0	8188	8235	8363	℄	8429	8419	8263	8300	8417
37+0	8143	8159	8410	8503	8476	8235	8203		
	5' cut	Stk	Ditch	Berm	℄	Berm	Ditch	Stk	5' cut
38+0	8482	8405	8458	8657	8659	8586	8372	8382	
39+0	8910	8818	8699	8780	8795	8745	8543	8609	8584
40+0	8846	8773	8744	8870	8886	8849	8687	8807	8815
41+0	9023	8982	8904	9036	9048	9027	8900	9018	8998
42+0	9275	9100	9073	9161	9175	9106	9094	9399	9404
40+0 [43+0?]	9201	9140	9065	9150	9213	9003	9109	9313	9332
44+0	9092	9010	8940	9012	9062	9019	8946	9039	9092
45+0	8928	8900	8768	8825	8842	8848	8725	8830	8811
46+0	8636	8652	8622	8755	8752	8753	8570	8605	8637
47+0	8584	8605	8600	8745	8748	8745	8608	8666	8648

⊙ 85.98

Noon
⊙ 8770

⊙ 8754

B.M. N.W. Cor. Wing of [illegible] Bridge Sta 37+63
Elev. 85.62

Sta	5' out	Stk	Ditch	Berm	℄	Berm	Ditch	Stk	5' out
48+0	8670	8663	8631 (5)	8762 (11)	8768	8760 (25)	8626 (30)	8716	8705
49+0	8820	8835	8690 (7)	8893 (11)	8809	8825 (26)	8711 (30)	8828	8823
50+0	8997	8989	8875 (8)	9021 (11)	9011	8990 (27)	8890 (30)	8994	9013
51+0	8908	9016	8880 (7)	~~8915~~	8915	8882 (25)	8746 (30)	8843	8857
52+0	8763	8771	8721 (7)	8800 (12)	8803	8780 (25)	8647 (30)	8745	8756
53+0	8685	8685	8622 (6)	8738 (11)	8743	8713 (25)	8596 (30)	8662	8667
54+0	8678	8670	8545 (6)	8653 (11)	8665	8654 (26)	8530 (29)	8613	8621
55+0	8532	8536	8456 (8)	8618 (12)	8630	8593 (26)	8472 (30)	8580	8531
56+0	8473	8479	8401 (7)	8556 (12)	8571	8548 (25)	8437 (30)	8522	8520
57+0	8382	8385	8386 (7)	8476 (12)	8478	8483 (26)	8390 (30)	8504	8505
58+0	8368	8362	8305 (7)	8430 (13)	8435	8406 (28)	8362 (40)	8352	
59+0	8220	8275	8254 (7)	8469 (13)	8490	8464 (26)	8336 (32)	8318	8289
60+0	8306	8315	8294 (6)	8450 (13)	8450	8156 (26)	8262 (40)	8301 (45)	
61+0	8927	8462	8362 (5)	8468 (10)	8480	8381 (30)	8415 (40)	8398 (95)	
62+0	8595	8594	8465 (6)	8584 (10)	8570	8569 (26)	8511 (30)	8620	8622
63+0	8982	9021	8652 (6)	8863 (10)	8887	8880 (25)	8695 (30)	8901	8972
64+0	8845	8875	8720 (6)	8979 (10)	8970	8975 (29)	8782 (31)	8870	8906
65+0	8883	8915	8800 (5)	8962 (11)	8964	8970 (25)	8800 (31)	8865	8902
66+0	9174	9159	8954 (6)	9092 (11)	9093	9072 (25)	8950 (30)	9062	9087
67+0	8988	9011	8860 (6)	9014 (11)	9012	9015 (25)	8876 (30)	8954	8980
68+0	8850	8832	8845 (6)	9016 (12)	9005	9006 (25)	8856 (31)	8856	8878
69+0	8996	9001	8914 (7)	9056 (13)	9028	9038 (27)	8920 (32)	8944	8964
70+0	9171	9185	9015 (6)	9154 (14)	9151	9140 (28)	9010 (30)	9096	9098
71+0	9135		9275 (8)	9335 (19)	9357	9310 (28)	9322 (32)	9390	
72+0	9373	9371	9270 (7)	9385 (14)	9430	9410 (29)	9327 (39)	9439	9437

⊙ 8649
⊙ 8887
⊙ 9307

B.M. on NE cor of E rail of Bridge
Sta 59+76 — El. 89.47

Sta	5' out	Stk	Ditch	Burm	℄
73+0	9353	9354	9246	9338	9392
74+0	9171	9203	9165	9267	9305
75+0	9156	9194	9067	9185	9228
76+0	9035	9070	8910	9020	9056
77+0	8809	8917	8790	8900	8930
78+0	8752	8758	8720	8860	8876
79+0	8646	8691	8620	8771	8794
80+0	8646	8682	8610	8703	8735
81+0	8605	8637	8546	8706	8720
82+0	8552	8585	8545	8682	8710
83+0	8602	8620	8576	8682	8722
84+0	8693	8702	8652	8779	8794
85+0	8905	8959	8795	8891	8931
86+0	9091	9082	9027	9017	9056
87+0	8955	8936	8841	9000	9045
88+0	8955	8941	8839	8982	9030
89+0	9020	9018	8864	9024	9050
90+0	8965	8990	8875	9039	9063
91+0	9110	9020	8802	8941	8988
92+0	8665	8636	8500	8643	8660
93+0	8950	8930	8365	8520	8538
94+0	8428	8432		8582	8629
95+0	8422	8457	8403	8602	8643
96+0	8737	8710	8516	8661	8675
97+0	8740	8750	8617	8765	8792

8640

Burm	Ditch	Stk	5' out
9344	9297	9326	9373
9281	9136	9237	9262
9188	9056	9274	9302
9030	8879	9145	9137
8890	8779	8878	8874
8857	8706	8760	8768
8745	8502	8690	8715
8712	8532	8663	8694
8699	8526	8590	8573
8687	8515	8579	8578
8710	8570	8615	8617
8662	8729	8715	
8894	8797	8955	8924
9020	8845	9015	8974
9002	8854	8969	8940
8991	8817	8914	8906
8997	8833	8944	8924
8926	8888	8951	8956
8988	8743	9079	9072
8629	8499	8690	8610
8496	8440	8425	8430
8575	8287	8387	8385
8616	8441	8532	8490
8642	8565	8695	8726
8781	8639	8780	8780

℄ Bridge
Sta 78+
EL. 88.36

⊙ 87.74

○ 9045

⊙ 86.58
℄ Bridge
Sta 94+
86.54

⊙ for site
S.E. Cor of C Parker's
front step
EL. 88.17

Sta	5' out	Stk	Ditch	Berm	℄
98+0	8696	8720	8641^{3}	8817^{10}	8843
99+0	8732	8748	8693^{3}	8807^{9}	8880
100+0	8902	8900	8796^{3}	8895^{6}	8931
101+0	9083	9084	8872^{3}	9007^{8}	9040
102+0	9180				9198
103+0	9201	9200	9031^{2}	9170^{8}	9224
104+0	9123	9102	9015^{2}	9181^{9}	9229
105+0	9115	9047	9031^{1}	9202^{10}	9225
106+0	9196	9185	9047^{2}	9210^{10}	9260
107+0	9206	9198	9072^{2}	9222^{9}	9259
108+0	9284	9255	9152^{2}	9306^{10}	9321
109+0	9495	9470	9315^{2}	9452^{10}	9495
110+0	9972	9860	9653^{3}	9741^{10}	9760
111+0	9960	9882	9705^{3}	9807^{10}	9830
112+0	9571	9557	9430^{3}	9587^{10}	9617
113+0	9419	9432	9297^{3}	9477^{10}	9493
114+0	9380	9400	9220^{3}	9368^{10}	9380
115+0	9225	9252	9109^{3}	9290^{10}	9305
116+0	9197	9190	9048^{3}	9216^{10}	9242
117+0	9171	9160	9022^{4}	9142^{9}	9175
118+0	9055	9001	8865^{2}	9003^{11}	9024
119+0	8945	8936	8720^{4}	8862^{10}	8882
120+0	8675	8690	8601^{4}	8742^{11}	8757
121+0	8547	8689	8494^{4}	8703^{13}	8709
122+0	8532	8561	8421^{5}	8644^{11}	8680

Berm	Ditch	Stk	5' out
8820^{21}	8664^{29}	8758^{33}	8731
8859^{22}	8721^{29}	8782^{33}	8748^{40}
8896^{25}	8787^{29}	8905^{32}	8889^{40}
9014^{24}	8880^{29}	9080^{32}	9074
9162^{25}	8995^{30}	9157^{34}	9141
9176^{23}	9040^{30}	9180^{32}	9187
9179^{23}	9031^{30}	9125^{32}	9111
9170^{23}	9015^{29}	9150^{31}	9112
9210^{22}	9082^{29}	9192^{31}	9149
9216^{22}	9105^{30}	9223^{32}	9160
9286^{23}	9150^{29}	9264^{32}	9226
9431^{23}	9311^{29}	9439^{32}	9380
9710^{23}	9624^{29}	9862	9770
9787^{25}	9754^{30}	9956^{32}	9887
9575^{23}	9447^{29}	9570^{33}	9548
9463^{24}	9337^{30}	9435^{32}	9400
9352^{23}	9233^{30}	9345	9344
9265^{25}	9551^{31}	9236^{32}	9200^{40}
9205^{23}	9055^{30}	9151^{32}	9098
9156^{24}	9009^{30}	9016^{35}	9060
9005^{24}	8885^{31}	9036^{33}	9020
8853^{24}	8741^{30}	8857^{36}	8845
8730^{23}	8589^{30}	8665^{36}	8642
8680^{25}	8512^{31}	8575^{40}	
8627^{24}	8439^{30}	8496^{35}	8481

⊙ 92.28

⊙ 97.42

⊙ 93.01

⊙ 87.59

110+50
100.38 5' out
100.09 Stk
99.34 3
99.41 10
99.66 ℄
99.14 33
98.46 30
100.57 40

Sta	5'out	Stk	Ditch	Berm	℄	Berm	Ditch	Stk	5'out
98+0	8696	8720	8641 [3]	8817 [10]	8843	8870 [21]	8664 [29]	8758 [33]	8731
99+0	8732	8748	8643 [3]	8807 [9]	8880	8859 [22]	8721 [29]	8782 [33]	8748 [40]
100+0	8902	8900	8796 [3]	8845 [6]	8931	8896 [25]	8787 [29]	8905 [32]	8889 [40]
101+0	9083	9084	8872 [3]	9007 [8]	9040	9014 [24]	8880 [29]	9080 [32]	9074
102+0	9180				9198	9162 [25]	8995 [30]	9157 [34]	9141
103+0	9201	9200	9031 [2]	9170 [8]	9224	9176 [23]	9040 [30]	9180 [32]	9187
104+0	9123	9102	9015 [2]	9181 [9]	9224	9179 [23]	9031 [30]	9125 [32]	9111
105+0	9115	9097	9031 [2]	9202 [10]	9225	9170 [23]	9015 [29]	9150 [31]	9112
106+0	9146	9185	9047 [2]	9210 [10]	9260	9210 [22]	9082 [29]	9192 [31]	9149
107+0	9206	9198	9072 [2]	9225 [9]	9259	9216 [22]	9105 [30]	9223 [32]	9160
108+0	9284	9255	9152 [2]	9306 [10]	9321	9286 [23]	9150 [29]	9264 [32]	9226
109+0	9495	9470	9315 [2]	9452 [10]	9495	9431 [23]	9311 [29]	9439 [32]	9380
110+0	9972	9860	9653 [3]	9741 [10]	9760	9710 [23]	9624 [29]	9862 [32]	9770
111+0	9960	9882	9705 [3]	9807 [10]	9832	9787 [23]	9754 [30]	9956 [32]	9887
112+0	9571	9557	9430 [3]	9587 [10]	9617	9573 [23]	9447 [29]	9570 [33]	9548
113+0	9419	9432	9297 [3]	9427 [10]	9493	9463 [24]	9337 [30]	9435 [32]	9400
114+0	9380	9400	9220 [3]	9368 [10]	9380	9352 [23]	9235 [30]	9345	9344
115+0	9225	9252	9109 [3]	9290 [12]	9305	9265 [25]	9551 [31]	9236 [32]	9200 [40]
116+0	9197	9190	9048 [3]	9216 [10]	9242	9205 [23]	9055 [30]	9151 [32]	9098
117+0	9171	9160	9022 [4]	9142 [9]	9175	9156 [20]	9009 [30]	9016 [35]	9060
118+0	9055	9001	8865 [7]	9003 [11]	9024	9005 [29]	8885 [31]	9036 [33]	9020
119+0	8945	8936	8720 [4]	8862 [11]	8882	8853 [24]	8741 [30]	8856 [36]	8845
120+0	8675	8690	8601 [4]	8742 [11]	8757	8730 [23]	8589 [30]	8665 [36]	8642
121+0	8547	8689	8494 [4]	8703 [13]	8709	8680 [25]	8512 [31]	8575 [40]	
122+0	8532	8561	8421 [5]	8644 [11]	8680	8627 [24]	8459 [30]	8496 [35]	8481

⊙ 92.28

⊙ 97.42

⊙ 93.01

⊙ 87.59

110+50
5'out 100.38
Stk 100.09
99.34 [3]
99.41 [10]
99.66 ℄
99.14 [23]
98.46 [30]
100.57 [40]

Sta	5' out	Stk	Ditch	Berm	℄
123+0	8543	8600	837½	8530	8559
124+0	8327	8321	8275	8440	8522
124+18			50' N	8520	8509

B Mon & End of Concrete
head wall Sta. 124+25

EL. 85.86

Berm	Ditch	Stk	5' out
8501	8352	8466	8470
8465	8221	8270	
50' S	8487		

Survey For Bob Parker

Sta.	Top Stk	ground	Top Pile	⊙ 98.74
0+0	93.88	93.24	90.00	
1+0	93.70	93.25		
2+0	94.56	93.88		
3+0	94.23	93.70		
4+0	94.90	94.34		
5+0	96.90	95.92		
6+0	97.44	97.03		
7+0	97.95	97.69		
8+0	98.70	97.96		
9+0	98.74	98.22		
10+0	99.31	98.57		
11+0	99.66	98.94		
12+0	98.81	98.23		
13+0	98.48	97.91		
14+0	97.74	97.20		

 Spangler Drain

64+60	67.71	6052	7.19	
62+11	66.13	6024	5.89	
61+93	65.79	5993	6.86	
60+0	64.13	5951	4.62	
58+0	63.55	5907	4.48	
56+0	63.08	-0-	63.08	5863
54+0	62.80	5819	4.61	
52+20'	64.63	-0-	5779	6.84
49+79	64.49	5717	7.32	
48+43	63.08	5683	6.25	
46+0	61.86	5622	5.64	
44+50	60.88	5585	5.03	

Station	El Stake	Grade	
56+0	63.08	58.38	4.70
58+0	63.55	58.66	4.89
60+0	64.13	58.94	5.19
61+93	65.79	59.21	6.58
64+60	67.71	59.58	8.13

W. 158 E.

3.61
3.65 3.95
3.11 - 4.51
3.77 4.08
+4.51 4.53
4.31 4.15
3.10 SUM-7.01
SUM-6.39 3.65
3.50

3.61
1.00

6.39
4.61
1.78

7.01
4.60
2.41

3.60

47.10

Natural Trigonometrical Ratios.

Angle.	Sine.	Tan.	Sec.	Cosec.	Cotg.	Cosin.		Angle.	Sine.	Tan.	Sec.	Cosec.	Cotg.	Cosin.	
° ′								° ′							
0	0	0	1.	∝	∝	1.	90	8	.1392	.1405	1.0088	7.185	7.115	.99027	82
10	.0029	.0029		343.8	343.8	I.	50	10	.1421	.1435	1.0102	7.040	6.968	.98986	50
20	.0058	.0058		171.9	171.9	.99998	40	20	.1449	.1465	1.0107	6.900	6.827	.98944	40
30	.0087	.0087		114.6	114.6	.99996	30	30	.1478	.1495	1.0111	6.766	6.691	.98902	30
40	.0116	.0116	1.0001	85.94	85.94	.99993	20	40	.1507	.1524	1.0115	6.636	6.561	.98858	20
50	.0145	.0145	1.0001	68.76	68.75	.99989	10	50	.1536	.1554	1.0120	6.512	6.435	.98814	10
1	.0175	.0175	1.0002	57.30	57.29	.99985	89	9	.1564	.1584	1.0125	6.394	6.314	.98769	81
10	.0204	.0204	1.0002	49.11	49.10	.99979	50	10	.1593	.1614	1.0129	6.277	6.197	.98723	50
20	.0233	.0233	1.0003	42.98	42.96	.99973	40	20	.1622	.1644	1.0134	6.166	6.084	.98676	40
30	.0262	.0262	1.0003	38.20	38.19	.99966	30	30	.1650	.1673	1.0139	6.059	5.976	.98629	30
40	.0291	.0291	1.0004	34.38	34.37	.99958	20	40	.1679	.1703	1.0144	5.955	5.871	.98580	20
50	.0320	.0320	1.0005	31.26	31.24	.99949	10	50	.1708	.1733	1.0149	5.855	5.769	.98531	10
2	.0349	.0349	1.0006	28.65	28.64	.99939	88	10	.1736	.1763	1.0154	5.759	5.671	.98481	80
10	.0378	.0378	1.0007	26.45	26.43	.99929	50	10	.1765	.1793	1.0160	5.665	5.576	.98430	50
20	.0407	.0407	1.0008	24.56	24.54	.99917	40	20	.1794	.1823	1.0165	5.575	5.485	.98378	40
30	.0436	.0437	1.0010	22.93	22.90	.99905	30	30	.1822	.1853	1.0170	5.488	5.396	.98325	30
40	.0465	.0466	1.0011	21.49	21.47	.99892	20	40	.1851	.1883	1.0176	5.403	5.309	.98272	20
50	.0494	.0495	1.0012	20.23	20.21	.99878	10	50	.1880	.1914	1.0181	5.320	5.226	.98218	10
3	.0523	.0524	1.0014	19.11	19.08	.99863	87	11	.1908	.1944	1.0187	5.241	5.145	.98163	79
10	.0552	.0553	1.0015	18.10	18.07	.99847	50	10	.1937	.1974	1.0193	5.164	5.066	.98107	50
20	.0581	.0582	1.0017	17.20	17.17	.99831	40	20	.1965	.2004	1.0199	5.089	4.989	.98050	40
30	.0610	.0612	1.0019	16.38	16.35	.99813	30	30	.1994	.2035	1.0205	5.016	4.915	.97992	30
40	.0640	.0641	1.0020	15.64	15.60	.99795	20	40	.2022	.2065	1.0211	4.945	4.843	.97934	20
50	.0669	.0670	1.0022	14.96	14.92	.99776	10	50	.2051	.2095	1.0217	4.877	4.773	.97875	10
4	.0698	.0699	1.0024	14.34	14.30	.99756	86	12	.2079	.2126	1.0223	4.810	4.705	.97815	78
10	.0727	.0729	1.0027	13.76	13.73	.99736	50	10	.2108	.2156	1.0230	4.745	4.638	.97754	50
20	.0756	.0758	1.0029	13.23	13.20	.99714	40	20	.2136	.2186	1.0236	4.682	4.574	.97692	40
30	.0785	.0787	1.0031	12.75	12.71	.99692	30	30	.2164	.2217	1.0243	4.620	4.511	.97630	30
40	.0814	.0816	1.0033	12.29	12.25	.99668	20	40	.2193	.2247	1.0249	4.560	4.449	.97566	20
50	.0843	.0846	1.0036	11.87	11.83	.99644	10	50	.2221	.2278	1.0258	4.502	4.390	.97502	10
5	.0872	.0875	1.0038	11.47	11.43	.99619	85	13	.2250	.2309	1.0263	4.445	4.331	.97437	77
10	.0901	.0904	1.0041	11.10	11.06	.99594	50	10	.2278	.2339	1.0270	4.390	4.275	.97371	50
20	.0929	.0934	1.0043	10.76	10.71	.99567	40	20	.2306	.2370	1.0277	4.336	4.219	.97304	40
30	.0958	.0963	1.0046	10.43	10.39	.99540	30	30	.2334	.2401	1.0284	4.284	4.165	.97237	30
40	.0987	.0992	1.0049	10.13	10.08	.99511	20	40	.2363	.2432	1.0291	4.232	4.113	.97169	20
50	.1016	.1022	1.0052	9.839	9.788	.99482	10	50	.2391	.2462	1.0299	4.182	4.061	.97100	10
6	.1045	.1051	1.0055	9.567	9.514	.99452	84	14	.2419	.2493	1.0306	4.133	4.011	.97030	76
10	.1074	.1080	1.0058	9.309	9.255	.99421	50	10	.2447	.2524	1.0314	4.086	3.962	.96958	50
20	.1103	.1110	1.0061	9.065	9.010	.99390	40	20	.2476	.2555	1.0321	4.039	3.914	.96887	40
30	.1132	.1139	1.0065	8.834	8.777	.99357	30	30	.2504	.2586	1.0329	3.994	3.867	.96815	30
40	.1161	.1169	1.0068	8.614	8.556	.99324	20	40	.2532	.2617	1.0337	3.949	3.821	.96742	20
50	.1190	.1198	1.0072	8.405	8.345	.99290	10	50	.2560	.2648	1.0345	3.906	3.776	.96667	10
7	.1219	.1228	1.0075	8.206	8.144	.99255	83	15	.2588	.2679	1.0353	3.864	3.732	.96593	75
10	.1248	.1257	1.0079	8.016	7.953	.99219	50	10	.2616	.2711	1.0361	3.822	3.689	.96517	50
20	.1276	.1287	1.0082	7.834	7.770	.99182	40	20	.2644	.2742	1.0369	3.782	3.647	.96440	40
30	.1305	.1317	1.0086	7.661	7.596	.99144	30	30	.2672	.2773	1.0377	3.742	3.606	.96363	30
40	.1334	.1346	1.0090	7.496	7.429	.99106	20	40	.2700	.2805	1.0386	3.703	3.566	.96285	20
50	.1363	.1376	1.0094	7.337	7.269	.99067	10	50	.2728	.2836	1.0394	3.665	3.526	.96206	10
							82								74
	Cosin.	Cotg.	Cosec.	Sec.	Tan.	Sine.	Angle.		Cosin.	Cotg.	Cosec.	Sec.	Tan.	Sine.	Angle.