15

Final Topography

LEVEL BOOK

370

W114

Tables for Excavations and Embankments.

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.
ROADWAY 18 FEET WIDE. SIDE SLOPES 1 TO 1.
FOR SINGLE TRACK EXCAVATION.

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

Calculated by Julien A. Hall, M. Am. Soc. C. E.

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12-28-18
Willcomb
Bob
Mixter

Continued from Book 12.

At D-17

		I-H	H.I.		Elev.
		4.85	383.98		379.13
Top of lift over pipe				13.5	370.5
376.9	17.1	38°10'	76-	~~43.2~~	81°0'
Top lift - Concrete 370.5	16.2	36°30'	"	40.8	87°30'
Rock 370.5	15.0'	37.40	"	41.7	89°40'
Top Form 379.3	14.7	41°50'	"	39.3	97°0'
Rock 8 377.2	5.8	54°30'	"	38.1	96°15'
Top Form 379.5	~~6.1~~ 5.1	71°20'	"	35.3	96°45'
Rock 1 377.9	3.7	149°30' ~~160°45~~	"	27.3	98°0
4.1 379.9	3.9	146°40'	"	21.0	105°30'
Seam undercut = Wedge 3x3x6'			"	16.8	101°30'
SW. Cor. 3x3 const joint 9.4 374.6	43.0	67°45'	"	16.5	89°30'
N.W. Cor. Const joint 10.7 373.3	49.6	46°30'	"	15.3	86°0'
N.W. Contraction 5x5' Well.	51.8	27°33'	"	12.3	83°30'
D.S. Form at Cont. joint	62.3	33°50'	"	8.0	86°30'
Rd. 8.0 76+ 7th For	45.3	79°45'	"	6.5	93°0'
"	44.3	80°30'	"	7.0	66°30'

AtD 17

Rd 8.0					
76	6.6	61°0′	78	10.1	359°0′
"	10.7	39°45′	"	10.7	9°30′
"	11.3	25°30′	"	7.1	26°30′
"	13.6	22°	"	4.2	58°
"	11.0	5°30′	"	4.0	156°30′
"	11.5	353°30′	"	5.2	102°
"	10.5	342°	"	8.4	86°
Rd 10.0					
74	13.1	342°30′	"	14.1	85°15′
"	13.8	355°	"	15.4	89°30′
	13.3	358°30′	"	15.8	100°0′
	15.1	12°30′	"	18.8	105°30′
	14.7	25°30′	"	18.9	110°30′
	15.1	24°45′	"	21.2	106°0′
	15.0	29°30′	"	30.1	98°0′
	14.0	30°15′	"	35.0	97°30′
	14.3	39°30′	"	37.0	98°15′
Rd 6.0					
78	~~6.7~~	~~342°30′~~	"	40.2	97°15′
	10.2	353°30′	"	41.0	93°45′

AtD 17

Rd 6.0					
78	43.0	89°0′			
"	42.8	85°30′	80	18.7	106°0′
"	45.2	84°10′	"	16.9	101°30′
End d.s. form					
"	46.0	83°30′	"	15.1	101°30′
"	45.9	80°45′	"	15.0	94°
"	51.9	81°0′	"	14.0	93°30′
Rd 4.0					
80	51.8	81°30′	"	13.7	90°30′
"	49.3	81°40′	"	12.5	89°30′
"	48.9	85°0′	"	11.8	87°0″
"	45.5	85°0′	"	7.1	92°30′
"	44.0	97°0′	"	3.9	138°30′
"	41.0	97°15′	"	6.1	205°
"	40.2	98°30′	"	6.5	210°
"	37.3	98°45′	"	6.0	353°
"	35.0	97°45′	Rd 2.0		
			82	6.9	280°
"	32.1	98°30′	"	11.6	226°30′
"	29.8	98°30′	"	6.2	207°0″
"	18.7	113°	"	4.7	167°30′

AtD17

Rd 2.0

82 ✓	12.0	94°30'	84 ✓	50.9	83°10'	14.8
" ✓	14.0	96°30'	" ✓	49.8	84°45'	
" ✓	14.4	103°30'	" ✓	49.0	86°40'	
" ✓	16.0	103°0'	" ✓	47.5	87°30'	
" ✓	17.7	123°30'	" ✓	47.3	90°15'	
" ✓	21.4	105°30'	" ✓	47.7	91°20'	
" ✓	34.0	97°45'	" ✓	46.6	95°	
" ✓	35.6	99°	" ✓	45.2	98°	
✓ "	41.2	99°	✓ "	42.1	98°	
✓ "	41.8	98°	✓ "	41.6	99°	
✓ "	44.6	97°30	✓ "	37.2	98°55'	
✓ "	46.8	91°	✓ "	35.0	99°10'	
✓ "	45.2	90°45'	✓ "	29.0	103°15'	
✓ "	47.0	85°30'	✓ "	16.0	179°0'	
✓ "	49.0	86°10'	✓ "	12.9	103°20'	
✓ "	50.5	83°40'	✓ "	10.7	106°45'	
✓ "	52.1	81°45'	✓ "	5.3	178°	
84 ✓	53.1	83°10'	✓ "	14.8	228°30'	
				14.8	239°15'	

12-28-18
Willcomb
Bub Mister

E 9

I-8	Set	E 9 -	Point on Rock -		
		9.72	411.52		401.80
I-7		5.35	415.53		410.18
E-9				11.37	400.15
	At	E-9-			
			H.I.		
		5.25	405.40		
Rd 13.4			Rd 11.4		
92 ✓	20.1	166°40'	94 ✓	17.0	66°0'
" ✓	18.0	161°	" ✓	17.7	78°30'
" ✓	17.0	149°30'	" ✓	16.8	90°30'
" ✓	18.0	135°	" ✓	14.7	109
" ✓	14.6	114°30'	" ✓	14.3	114°30'
" ✓	15.4	109°	" ✓	14.5	134°
" ✓	16.0	101°30'	" ✓	12.9	146°
" ✓	16.0	98°	" ✓	15.0	161°30'
" ✓	17.2	86°30'	" ✓	18.0	167°30'
" ✓	18.3	78°30'	Rd 9.4 96	17.4	172°
" ✓	18.7	72°	" ✓	14.3	168°30'
" ✓	20.3	55°	" ✓	11.8	167°30'
94 ✓	18.9	54°	" ✓	11.8	138°30'

At E 9

Rd 9.4				Rd SV	
96 ✓	11.9	116°30'	400 ✓	7.7	195°
" ✓	13.2	104°30'	" ✓	5.0	203°
" ✓	14.3	86°30'	" ✓	3.3	106°
" ✓	14.6	72°30'	" ✓	9.8	108°
" ✓	16.0	49°30'	" ✓	10.2	88°
" ✓	22.2	35°30'	" ✓	9.1	54°30'
Rd 7.4					
98 ✓	25.0	27°0'	" ✓	14.1	32°
" ✓	20.9	34°0'	" ✓	16.2	32°
" ✓	15.4	42°0'	✓ "	19.6	26°
" ✓	12.0	80°0'	✓ "	23.6	21°30'
" ✓	14.0	89°0'	✓ "	27.2	21°30'
" ✓	13.5	100°0'	Rd 3.4 ✓ 402	27.2	17°30'
" ✓	10.9	103°	✓ "	24.6	21°30'
" ✓	9.5	121°	✓ "	18.3	20°15'
" ✓	6.1	161°	✓ "	13.1	18°
" ✓	9.0	176°	✓ "	11.3	23°30'
" ✓	9.7	188°30'	✓ "	6.1	32°
Rd 5.4					
400 ✓	10.9	193°30'	✓ "	5.2	355°

At E.9

Rd 3.4					
402	5.8	316°			
"	3.2	261°			
"	6.4	228°			
Rd 1.4					
404	9.9	249°			
"	9.0	283°			
"	7.8	306°			
"	11.8	320°			
"	13.4	344°			
"	4.7	9°			
"	13.8	13°			
"	18.2	8°30'			
	Set Auxiliary Pt 14.9' Az. 63°26'				
			405.40		
Auxl. Pt.				9.82	395.58
		4.8	400.4		
Rd 10.4					
90	29.5	196°10'	90	22.0	181°30'
90	28.1	192°30'	"	13.9	182°
"	24.4	188°10'	"	14.2	177°

Axial Point from Eq

4

90	12.8	176°30'	90	37.6	27°30'
"	11.8	167°30'	"	38.8	28°
	9.6	164°30'	"	40.0	31°30'
	9.8	153°30'	"	47.1	35°30'
	8.4	139°	12.4 88	46.4	35°30'
	6.3	112°	"	40.7	32°
	5.7	63°30'	"	38.7	28°45'
	7.1	54°30'	"	32.0	24°30'
	9.0	29°	"	27.5	26°
	10.7	30°	"	23.6	21°30'
	13.5	20°30'	"	20.3	25°
	15.2	17°	"	19.7	23°10'
	16.5	20°	"	17.1	23°
	18.6	19°	"	15.6	19°30'
	22.8	18°	"	11.3	29°30'
	26.1	21°30'	"	10.1	31°
	32.8	22°15'	"	7.1	100°
	34.8	24°30'	"	9.6	140°

Auxil Point from EQ

88	10.3	155°	✓
"	10.7	162°	✓
"	14.6	167°	✓
"	14.7	179°	✓
"	22.9	182°	✓

N1.5° 405.15 At EQ

Auxil Point 57.7 55°45'

405.15

Rock # 2.08 95.41 118.2 93.33

N143 95.41 At Auxil Point from EQ 91.1

Rod 5.4

		End Forms				
90	✓	19.3	63°36	90 ✓	14.8	330-45
"	✓	19.0	60°-15	" ✓	15.8	334-30
"	✓	18.8	48°	"	17.8	301-30
"	✓	17.3	47°	"	18.-	300
"	✓	11.5	38-40	"	18.-	294-45
"	✓	11.1	30-45	"	20.8	286-30
"	✓	13.5	17-30	"	23.0	282-45
"	✓	13.-	10°45	"	24.0	278-30
"	✓	18.5	358-40	"	24.8	271
"	✓	18.0	347-30	"	25.8	264-30
"	✓	16.5	338	"	27.5	260-30
"	✓	16.1	334-15			

1/3/19

M = 9541 At Auxil Point from E9

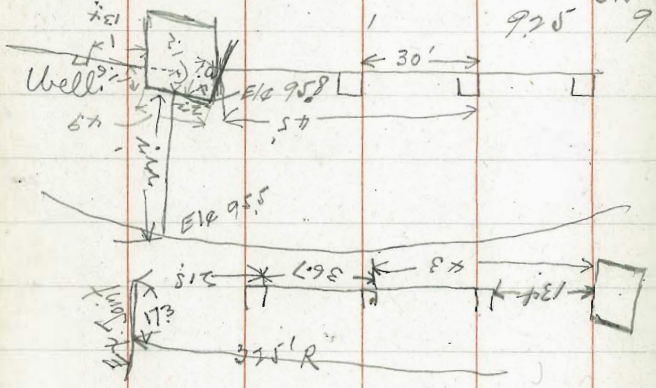
R=34

92	37.0	233-30	92	11.5	36-15
"	30.2	259-45	"	14.5	42°
"	28.3	264-30	"	19.0	45°-30
"	26.5	269-30	"	19.0	59-30
"	26.2	278-15	"	19.8	62-45
"	25.2	28.2			
"	21.2	287-15	R.14 E. Cons. 194	195	62-45
"	19.0	294-45	94	19.2	52
"	18.2	300°	"	19.5	43
"	16.0	303-30	"	18.2	39-15
"	14.5	330-15	"	12.1	33-15
"	16.3	332-15	"	13.5	18-45
"	17.8	343-30	"	13.5	11°
"	19.4	357-30	"	21.8	35-5°
"	13.5	11°15'	"	19.3	345-45
"	13.5	18-45	"	18.1	343-30
"	11.8	29-15	"	17.2	336-30

9541	At Auxil Point from E9		
94	16.0	332-15	
"	14.8	330-30	
"	15.9	333-45	
"	17.8	301	
"	19.0	294-30	
"	20.8	291-30	
"	23.8	288-30	
"	26.7	282-30	
"	28.5	278-30	
"	30.5	263-30	
"	34.0	248	
"	38.4	238	
SE Cor Wall	3x3 14.3	117-38	
3x3 SE Cor Well	37.1	176-15	
Drill hole	18.7	350-35	✓

HI = 4.9

405.05	At E 9	405.05		400.15
Bottom Wood form	19.4	138°45'	14.1	90.0
Top Wood form	20.1'	136°43'	9.6	95.5
Bottom W Form	17.6'	114°20'	9.1	95.0
Top W Form	12.7'	112°-37'	7.7	97.4
				SW Cor 5' Wall
		1	9.25	95.80



HI = 5.0 — 400.15

HI 405.15	At E 9	Sight E17 for Zero H			
		405.15			
Face of Dam		136 48			
Cor. Top left. Contact Rock	20.0	43°12'	✓	9.6	95.55
Top Con.	13.4	111 37 / 68°23'	✓	9.5	95.65
Top Concrete	18.4	7 ; 40 / 108°-20'	✓	9.4	95.75
" "	27.2	46 15 / 133-45		9.50	95.70
Bottom Wood F. Top left on Cor. Contact Rock	42.2	N4 45 / 155-15		9.30	95.85
Corner. Top Concrete.	41.4	N8-30 / 151-30		9.30	95.85
Face dam Bottom W F Corner Conc.	40.6	35 15 / 144-45		9.30	95.85

At E 9 Sight E17 for 180° Az. H

Rd. 3.2				
40.2		405.15	✓	
"	33.5	16°30'	✓	
"	39.5	16°30	✓	
"	40.5	20°	✓	
"	41.7	24-40	✓	

Add 3x3x6 A

HI 5.4 — 405.55

At E 9 Set Auxil Pt. — 400.15

Auxil Pt.	64.2	53°38'	✓	4.50	401.0

Continued page 15

Willcomb Bob-

1/5/19

T.B.M.		0.40	389.92		389.52
△				5.27	384.65

Set on P.C. 225' R curve (Sta. 4+15.16) ℄ Inspection gallery left Abut. Sight North on radial line - Azimuth called 0°0'. Azimuth read to left -

△		1.55	386.20		~~386.20~~
Rd 0.7 86	Bottom Form 19.6	16.6	6°40'	Grout Hole. 24.3	248°40'
Top form 385.5		16.0	6°0'	86 " 25.7	237°
Rd 0.2 86	Form	19.5	323°30'	" 22.4	235°40'
"		16.5	309°30'	" 21.5	232°40'
"		14.6	290°30'	Back forms - " 22.9	226°
"		16.8	265°	" 25.0	220°30'
"		19.1	264°15'	" 29.0	217°20'
"		22.3	252°	" 29.0	215°15'
"		26.8	245°	old Concrete " 32.5	214°

2.2 old Conc. 84		32.7	212°40'	old Conc 82	32.9	210°40'
"		29.3	212°30'	80	33.0	206°
"		27.0	213°15'	"	31.9	208°30'
"		27.1	216°30'	"	30.1	208°
"		23.4	220°20'	"	26.2	208°
"		20.7	224°45'	"	23.2	206°30'
Back form "		19.3	219°30'	"	22.4	208°
"		18.2	222°30'	"	20.9	208°
86 Ring		18.4	229°	"	19.1	206°45'
"		19.2	223°	"	17.4	207°
"		20.1	231°30'	" Forms	16.7	211°
82		18.4	217°			
"		19.5	211°15'			
"		21.1	212°			
"		21.5	215°30'			
"		24.5	215°15'			
"		26.0	210°30'			

Wilcomb
Bub

1/5/19

9

At E 17

E 17 I-H. 4.5 H. 1389.77 385.27

Top of Fillet at Dam

380.3	38.8	69°40'	✓

Top of Fillet

379.4	33.3	78°30'	✓

Top of Fillet at rock

379.4	27.9	95°0'	✓

Top of Fillet #2

~~86~~ 85.3	37.9	106°20'	✓
Rd 38' 86	37.3	106°50'	✓
"	35.5	100°30'	✓

Willcomb Bub Mixter — 1/6/19

On E9-

		I.H. 5.0	H.I. 405.15		400.15	
Set pt.		60'	Azimuth	56°52'		
A				7.44	497.79	
		2.49	400.28			
Rd 4.3 96	37.0	261°30'	96	19.0	350°	
	34.6	265°	"	12.5	1°	
	31.8	280°15'	"	12.6	8°	
	24.7	288°45'	"	11.7	18°30'	
	22.9	289°	"	15.7	31°	
	21.4	290°30'	"	17.9	35°45'	
	19.8	295°30'	"	17.0	55°	
	18.0	298°	"	17.4	60°30'	
	16.5	321°30'	"	19.3	68°30'	
	19.0	337°30'	"	20.5	73°30'	
	22.0	340°	"	24.0	83°	
	22.5	349°	"	25.3	84°15'	

Rd 4.3 96	33.1	84°15'	Rd 0.3 400	38.3	86°30'	
	32.6	87°		41.3	93°30'	
	35.2	91°		40.9	101°45'	
	37.8	91°30'		41.8	103°45'	
	39.1	93°30'	398	40.9	102°	
Rd 2.3 98	39.7	95°30'	96	39.9	102°	
	40.2	93°30'	94	38.4	101°	
	38.0	86°30'	"	40.2	110°	
	37.0	84°15'	96	41.8	108°45'	
	36.6	86°	98	43.5	107°30'	
	37.9	86°30'	400	43.6	107°30'	
	33.0	84°30'	"	44.8	110°	
	24.4	84°30'	98	44.5	109°45'	
0.3 400	26.0	81°	96	44.5	111°15'	
	33.0	84°30'	94	42.0	111°15'	
	34.8	83°30'	"	44.4	113°30'	
	36.0	85°	"	45.8	113°45'	
	36.4	83°30'	96	44.6	113°30'	

98	45.7	113°30′	92	38.1	105°
400	47.3	113°		37.1	101°30′
"	49.1	114°		37.1	99°15′
"	50.3	117°30′		36.4	97°30′
98	50.4	117°		35.6	91°30′
96	48.7	"		31.1	89°30′
94	47.7	116°		29.7	90°30′
"	49.5	117°15′		28.5	91°30′
" Steel	52.8	118°30′		27.3	88°30′
400 Steel	52.7	117°15′		24.5	89°
98 Steel	52.7	117°20′		22.9	79°30′
96 Steel	52.8	118°		21.0	75°30′
Rd 8.3 92 Steel	52.9	118°40′		18.5	73°30′
"	49.7	117°40′		17.3	68°
"	47.1	115°15′	Rd 10.3 90	17.0	69°
"	45.6	116°20′		17.6	73°
"	40.9	111°		18.6	79°
"	38.8	108°30′		22.8	79°15′

90	24.8	91°30′	Rd 17.2 88	53.0	119°20′
"	26.5	"	"	46.5	120°30′
	27.3	95°	"	43.8	119°20′
	29.2	93°45′	"	41.2	115°30′
	29.7	92°	"	41.2	113°30′
	32.4	93°	"	40.5	112°
	35.7	98°	"	38.0	112°20′
	35.9	104°45′	"	35.2	105°30′
	37.8	110°	"	34.2	106°30′
	38.7	109°	"	33.1	100°30′
	40.9	111°	"	31.7	98°
	40.4	111°45′	"	30.9	98°15′
	41.4	114°	"	25.7	96°30′
	44.8	118°30′	"	24.7	94°
	47.0	119°30′	"	22.5	79°30′
	48.8	117°	"	20.3	81°
	50.3	119°	82-4-16 "	18.9	80°
Steel	53.0	118°50′	82-4-16 "	18.0	74°30′

P2-4-6										
88	17.2	72°	98	25.5	288°30′	400	17.8	332	400	22.1	77°
82-4-6										
88	17.4	64°	"	27.2	286°30′	"	19.4	336°	398	22.2	77°45°
Rd 2.3										
98	18.3	62°30′	"	30.9	284°	"	19.6	339			
"	17.2	52°30′		33.8	280°	"	23.7	339°30′			
"	18.1	35°30′		35.3	267°	"	25.1	340°			
"	15.8	31°		38.9	262°	"	25.4	344°30′			
"	13.6	21°30′	R 0.3 400	40.0	262°	"	27.0	348°			
"	13.9	16°	"	36.9	268°	"	24.2	348°30′			
"	12.3	7°	"	36.0	279°	"	19.5	351°30′			
"	19.9	357°30′	"	32.4	285°	"	13.8	0 0			
"	22.9	348°30′	"	29.2	286°	"	14.9	14°			
"	23.1	340°	"	27.2	287°30′	"	13.9	23°			
"	19.6	337°30′	"	25.2	291°	"	15.8	30°30′			
"	17.4	326°	"	21.6	291°	"	18.0	32°30′			
"	17.0	313°	"	20.1	294°30′	"	17.5	51°30′			
"	18.2	298°	"	18.7	298°	"	19.2	55°			
	19.8	295°30′	"	17.2	313°30′	"	19.3	64°			
	21.3	291°	"	16.9	423°	"	19.9	70°			

△			400.28	12.81	387.47	
	From Auxl. pt. #1 set another pt. #2					
	Azimuth 148°15'		20.52'			
			0.26	387.73		
Rd 5.7	steel					
82	39.0	113°	82	20.2	70°30'	
"	38.3	114°30'	"	20.7	61°30	
"	37.0	115°30'	"	19.7	54°	
"	34.5	115°30'	"	19.0	47°	
"	32.1	110°	"	20.0	46°	
"	29.3	102°30'	"	19.6	40°	
"	28.7	100°	+84 "	22.6	30°	
"	27.1	98°15'	Rd 3.7 84	19.5	41°30'	
"	25.9	93°30'	"	20.7	49°	
"	24.4	90°	"	20.8	56°	
"	22.0	85°	"	21.8	61°	
"	21.3	80°30'	"	21.1	77°	
"	20.0	79°		22.8	78°30'	

84	24.5	89°30'	Rd 1.7 86	26.1	91°30'
"	26.3	90°	"	26.6	88°30'
"	26.2	92°	"	26.3	84°
"	27.1	98°15'	"	25.1	84°
"	28.7	100°15'	"	24.5	81°
"	29.3	102°30'	"	24.3	76°30'
"	30.6	107°30'	"	22.3	77°
"	31.4	109°30'	"	23.4	64°30'
"	33.9	110°15'	"	22.2	61°
"	35.1	109°30'	"	23.6	59°
"	35.5	107°15'	"	21.5	52°30'
"	37.4	108° (steel)	"	20.1	45°
Rd 1.7 86	37.2	105° (steel)	"	20.2	40°30'
"	35.7	106°	"	22.8	31°
"	33.8	104°15'			
"	31.4	107°			
"	30.8	102°45'			
"	27.3	98°30'			

1/7/19

Sta 4+15-16 Gallery

Set on P.C. 225' R Curve - (Sta 4+15.16)

℄ Inspection Gallery - Sight North on Radial Line Az.: 0°0'

393.25 1.05 ~~393.25~~ 397.2 401.2

Rd 5.2 88 ✓	17.5	263°45'	88'	28.0	219°30'	90 ✓	19.5	262°30'
" ✓	19.1	263°		29.3	216°30'	" ✓	17.7	263°15'
✓	19.7	259°	3.2 90 ✓	29.0	217°30'	92 ✓	17.7	264°15'
✓	22.7	252°15'	" ✓	28.3	220°	" ✓	20.4	262°15'
✓	24.0	255°	" ✓	27.3	223°	" ✓	22.2	256°30'
✓	27.0	253°30'	" ✓	27.0	225°	" ✓	24.5	260°
✓	28.3	248°45'	" ✓	27.3	227°30'	" ✓	26.6	258°30'
✓	26.8	244°	" ✓ Form	27.7	232°	" ✓	29.8	248°
✓	26.1	236°	" ✓	29.1	241°30	" ✓	27.2	227°30'
✓	24.7	233°	" ✓	29.1	247°30'	" ✓	27.0	224°30'
✓ Forms	25.0	229°10'	" ✓	28.2	250°	" ✓	28.6	218
✓	26.3	227°30'	" ✓	28.4	251°			
✓	26.5	223°30'	" ✓	25.6	259°			
✓	27.2	223°15'	" ✓	22.1	253°			

Cont. from page 7 401.0

H.I. = 515
406.15

At Auxl Pt from E9

Rd 4.2						
40↷	31	275-30	40↷	17.5	341-40	
"	29	274-30	"	10.4	347-30	
"	25.5	277-30	"	11.0	3-0°	
"	24.5	279-45	"	8.8	15°	
"	21.5	276-15	"	8.5	32-30	
"	19.0	279.0	"	10.5	41	
"	15.8	296-45	"	13.0	45	
"	14.3	305-30	"	13.7	60-45	
"	14.7	314-30	"	16.5	61.30	
"	15.5	319-45	"	15.8	73-15	
"	15.3	326-15	"	17.3	83-30	
"	21.5	331.20	"	19.0	90.0	
"	24.0	335-15	"	20.5	87-30	
"	24.7	340-15	"	22.5	89-30	
"	23.5	343-15	"	25.7	81-45	
"	19.6	345	"	30.8	85-15	

At Auxl Point from E9

40↷	31.7	89-15			
"	35.0	91-30			
"	36.0	95			
"	40.8	102°			
Old Con.					
"	41.7	108°-30			
I 7		507	415.25		410.18
E 8-H06				7.46	407.79
417.74					
H.I. = 495	At E 8				407.79
Rd 87					
404	17.3	203-45	404	96	51-15
"	14.4	199-45	"	14.6	38-15
"	14.0	175	Vert about 20' ff	17.5	36-30
"	13.0	174	Vert about 20'	18.9	46-30
"	11.0	174-15			
"	11.7	166-30	Rd 6.7 404	18.9	46-30
"	9.0	157-30	"	17.5	36-30
"	4.6	106-30	"	17.8	33-15

H.-49

A12.74	At E8				407.79
R6.7			Rd 4.7		
✓ 406	13.5	27.0	408 ✓	9.5	247-15
✓ "	17.0	31.0°	" ✓	9.9	233-45
✓ "	53	39-30	" ✓	9.0	219-45
✓ "	35	53-45	" ✓	11.0	198-45
✓ "	40	94-30	" ✓	12.0	193-30
✓ "	34	177	" ✓	10.8	191.0
✓ "	59	171-15	" ✓	11.3	185
✓ "	78	156-45	" ✓	6.5	901
✓ "	88	170.0	" ✓	6.0	21.7
✓ "	84	188-15	" ✓	7.3	275-30
✓ "	107	183	" ✓	3.5	5°-30
✓ "	117	177-45	" ✓	6.5	352-15
✓ "	118	186	" ✓	11.7	19-45
✓ "	113	197-15	Vert about 20 ✓	17.9	25
			R 2.7 ; Vert about 20		
✓ "	13.8	211	410	18.5	20-15
✓ "	143	224-30	" ✓	10.7	13-45
			" ✓	8.0	353-30

A12.74	At E8				407.79
			R.C.		
A10 ✓	5.8	342-30	" 410 ✓	10.9	195
" ✓	5.2	293	" 410 ✓	10.5	195-45
" ✓	6.5	280-45	" " ✓	7.0	200-45
" ✓	7.8	278-15			
" ✓	9.2	249-15			
" ✓	13.0	267-45			
" ✓	10.4	269-45			
" ✓	16.2	277			
" ✓	17.8	282			
" ✓	19.7	276.			
R.C. 410 ✓	7.7	249-15			
" " ✓	9.6	235			
" " ✓	9.6	226-15			
" ✓	7.7	231-45			
R.C. " 410	6.8	217-45			
" " ✓	9.4	207			

1/9/18
Millcomb
Bub
Mixter

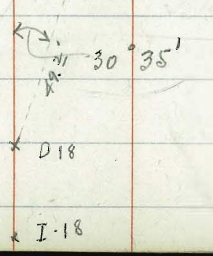
Left Abutment At Auxiliary Point

For tie see below. Sight on D-18
Azimuth = 0° and read to left

H.I.
399.52

5.5								
94	✓	9.2	336°15'	96	✓	15.4	239°	
	✓	7.3	367°		✓	15.3	244°30'	
	✓	9.4	294°		✓	15.5	258°	
	✓	10.5	285°		✓	15.7	264°	
	✓	12.1	283°30'		✓	14.5	276°	
	✓	14.4	276°		✓	12.9	281°	
	✓	15.4	264°30'		✓	12.3	286°	
	✓	15.3	259°30'		✓	11.5	285°	
	✓	15.9	255°		✓	10.8	292°	
	✓	14.9	232°30'		✓	9.9	298°	
	✓	15.1	230°30'		✓	8.4	299°	
	✓	15.3	210°		✓	7.8	308°30'	
	✓	15.7	210°30'		✓	9.0	335°	
3.5								
96	✓	15.0	213°	98	✓	9.5	332°30'	
98	✓	8.2	306°30'					
	✓	11.5	311°					
	✓	12.0	290°					
	✓	14.5	276°					
	✓	15.9	263°					
	✓	15.8	252°30'					
	✓	15.6	241°30'					
	✓	15.9	234°30'					
	✓	15.9	229°					
	✓	15.8	222°30'					
	✓	16.0	221°					

✓ D-18 - to Aux. Pt 49.2'



Willcomb
Bub Mixter

1/13/19

At E8

Set C8 - 5'W

E9		12.24	412.39		400.15
C8-5'W				6.66	405.73

At C8-5'W

I.H. 5.5 H.I. 411.23

Good for 9' higher 7.2

404	32.5'	292°45'	404	23.8	348°30'
9' higher	30.3'	295°	"	25.0	352°
Form	30.1'	296°05'	"	26.1	356°
Overhang. 6'x2'x8			"	29.4	354°30'
6'x2'x6			"	32.4	352°30'
9' higher					
404	27.9'	299°30'	"	35.6	354°15'
9' higher					
"	25.9'	305°30'	"	35.9	358°
7' higher					
	22.8'	309°30'	"	35.3	1°30'
404	20.6'	318°30'	"	32.6	2°
	20.7'	332°30'	"	16.3	7°
	22.1'	339°	"	26.2	14°30'
	23.6'	342°	"	24.5	18°

404'	23.5'	24°	404'	39.0	62°30'
" '	24.6	29°	" '	40.1	67°
			8' higher		
" '	28.2	32°	" '	39.9	70°30'
" '	29.5	35°	" '	44.1	74°30'
Overhang	5x3.5x2'		Overhang 5.2	4x5x2'	
404'	30.3	37°45'	406'	30.9	43°
'	29.5	41°	" '	30.6	42°
'	30.5	42°	" '	31.0	39°45'
Form '	30.4	43°30'	" '	30.2	39°30'
'	29.0	52°15'	" '	30.8	36°30'
'	32.0	56°30'	" '	28.4	35°
'	32.0	57°	" '	28.5	31°30'
	32.8	57°45'	" '	24.6	29°
'	31.9	63°30'	" '	24.0	22°45'
	33.2	64°	" '	24.4	17°45'
'	35.5	62°	" '	26.9	17°45'
'	36.9	64°30'	" '	26.4	8°

406	27.0	5°30′	408	22.0	339
"	32.4	2°	"	23.9	339
"	35.1	2°10′	"	24.2	341°30′
"	36.2	358°30′	"	24.9	341°
"	35.8	354°30′	"	25.7	350°
"	32.5	352°	"	25.9	355°
"	31.5	"	"	26.7	355°30′
"	29.5	354°30′	"	29.3	354°
"	26.3	356°30′	"	30.1	353°
"	25.3	352°	"	32.5	352°
"	23.9	350°	"	36.1	354°30′
"	24.0	341°30′	"	36.4	358°30′
"	22.1	339°	"	35.2	2°15′
	20.5	321°	"	32.2	2°40°
3.2 408	21.3	319°	"	27.7	6°
"	20.7	323°15′	"	27.9	11°
	21.5	335°15′	"	24.7	18°15′

408	24.4	29°	410	24.7	17°45′
"	26.1	31°30′	"	25.9	9°45′
"	27.3	31°	"	28.8	8°30′
"	28.7	31°45′	"	29.7	7°15′
"	28.7	34°30′	"	29.3	5°15′
"	29.8	34°30′	"	32.6	2°30′
"	31.4	37°45′	"	34.7	"
"	31.1	40°30′	"	35.5	1°45′
"	32.7	41°	"	36.4	358°15′
410	32.9	40°	"	36.1	354°30′
"	31.1	36°30′	"	32.6	352°
"	29.5	33°45′	"	31.5	352°45′
"	28.4	"	"	28.9	354°
"	28.6	31°30′	"	27.9	"
"	27.4	31°	"	25.7	350°
"	26.4	31°30′	"	25.0	337°30′
"	24.5	28°	"	22.9	338°45

410	21.7	330°			
"	22.6	324°30'			
"	21.6	319°			
1/24/19	At	CB-5'W-			
		I.H. 5.25	410.98		405.73
Rd- 9.0'					
402 ✓	44.4	77°15'	404	54.5	105°30'
"	45.5	81°10'	"	53.2	105°30'
Overhang	2'x.6'x7'		"	52.6	102°45'
Old Conc 402	44.8'	88°15'	"	51.4	102°45'
"	45.2'	90°30'	"	51.5	101°
"	49.0	99°15'	"	48.6	96°30'
"	50.6	101°30'	"	45.0	89°30'
"	51.5'	105°	"	45.5	81°15'
"	52.8'	105°40'	"	44.3	77°
"	53.7	107°10'	"	44.0	74°30'
Stub-	54.4	106°40'	"	40.0	71°
			Overhang 2x2'x7'		

406- ✓	30.9	43°	408	46.2	78°
"	29.7	47°15'	"	45.5	77°30'
"	32.1	53°30'	"	44.9	75°
"	33.0	56°	"	40.0	71°
"	33.0	60°30'	"	40.6	65°30'
"	34.3	61°20'	"	42.2	62°30'
"	36.6	62°30'	"	38.4	59°
"	39.6	64°	"	37.3	60°
"	40.2	67°	"	36.4	59°
"	40.0	71°	"	34.5	61°15'
"	44.8	75°	"	33.4	60°30'
"	45.3	77°	"	32.8	58°30'
"	45.5	81°	"	33.8	54°
"	45.0	88°30'	"	33.3	53°30'
"	47.5	94°30'	"	33.8	51°
408	45.0	85°30'	"	32.3	52°30'
"	45.5	82°30'	"	31.7	49°30'

408 ✓	33.3	42°	
" ✓	37.0	42°15'	
" ✓	31.3	41°	

1/16/19 Rt About
Elc 380
Set on Curve Z39 19 R. Sta 0+30
Sight on Sta 0+00 for Zero
Azimuth Lt. 1/27/19 Sta. 0+00 = 62's of Right Contraction Joint.

Steel 80 ✓	14.9	144-30	
Con. 80 ✓	14.8	144°30'	
" 80 6' high ✓	15.5	146°-45'	
" 80 6' high ✓	18.4	170°	
80 6' high ✓	18.4	174-30	
80 ✓	15.1	180-30	
86 ✓	14.7	188	
80 ✓	17.1	189-30	
" ✓	10.7	196	

1/16/19 21
Sta Z39 19 R G. Setting Rt 46

✓ 80	11.4	705-30
✓ 80	11.1	709
✓ 82	17.9	705
✓ "	11.1	707-45
✓ "	11.3	196
✓ "	13.6	190
✓ "	16.7	188-30
✓ "	17.1	183-30
5' higher	18.3	181
✓ "	15.1	143
✓ "	15.3	141-30

Willcomb Bub Mixter

1/27/19

At C 18

			I-H 3.7	H.I 415.81		412.11
Rd 11.8						
404 ✓	14.5	26°30'		32.1	63°45'	
✓	15.9	33°45'		33.9	61°45'	
✓	17.4	41°45'		34.5	61°	
✓	19.5	37°45'		36.3	59°	
✓	20.6	41°		37.9	61°	
✓	21.0	44°30'		38.5	61°15'	
✓	19.4	46°		38.7	60°	
✓	18.5	49°		39.2	59°	
✓	20.6	53°30'		41.1	58°15'	
✓	21.4	59°	9.8 406 ✓	41.1	60°	
✓	23.2	64°		42.3	63°15'	
✓	25.6	66°		41.8	64°45'	
✓	29.1	68°		42.3	66°	
✓	30.0	68°15'		40.9	63°45'	
✓	31.3	64°45'		39.7	63°	

✓	38.3	62°	408 ✓	14.1	47°30'
✓	37.1	59°45'	✓	13.5	53°30'
✓	35.8	62°	✓	15.9	55°30'
✓	35.2	62°	✓	18.9	55°15'
✓	32.7	66°30'	✓	19.0	68°45'
✓	32.2	70°30'	✓	19.8	69°30'
✓	29.4	70°30'	✓	22.5	72°30'
✓	28.0	69°30'	✓	26.5	71°30'
✓	25.3	66°30'	✓	27.5	69°30'
✓	23.1	66°30'	✓	28.2	70°30'
✓	22.0	63°45'	✓	28.9	70°15'
✓	20.2	61°45'	✓	30.3	68°
✓	20.8	58°30'	✓	31.8	69°15'
✓	19.9	55°	✓	33.6	65°
✓	18.2	50°15'	✓	33.9	65°
✓	14.6	37°30'	✓	35.1	63°
7.9 408 ✓	13.0	43°	✓	37.3	63°45'

Stpt 9.24' - Azimuth 0°

408	✓	39.9	64°45'	C18 - 9.24' S.			400	✓	28.6	81°30'	✓
5.8 410	✓	39.7	65°30'	On C18-9.24' S				✓	28.9	79°30'	✓
	✓	39.0	66°45'	7.22 ✓	409.15	401.93		✓	29.4	79°30'	✓
	✓	36.1	64°	Rd 9.15 400 ✓	9.6	43°45'		✓	31.2	74°30'	✓
	✓	37.9	66°30'	✓	9.9	47°30'		✓	37.2	74°	✓
	✓	32.3	70°	✓	11.9	56°30'		✓	32.7	73°	✓
	✓	30.6	71°30'	✓	12.9	63°15'		✓	33.9	73°	✓
	✓	28.5	70°45'	✓	14.6	61°		✓	35.1	72°	✓
	✓	28.1	72°	✓	15.6	61°30'		✓	35.0	69°	✓
	✓	26.8	73°45'	✓	17.4	67°		✓	35.3	68°	✓
	✓	25.5	75°30'	✓	15.2	76°30'		✓	37.0	66°30'	✓
	✓	21.9	74°	✓	16.8	78°	7.15 402	✓	37.5	67°45'	✓
	✓	19.7	73°	✓	16.8	80°15'		✓	35.3	69°	✓
	✓	18.6	63°	✓	20.0	82°30'		✓	35.3	71°30'	✓
	✓	15.7	60°15'	✓	23.3	85°		✓	35.0	73°45'	✓
	✓	14.9	63°15'	✓	25.7	84°45'		✓	33.8	73°	✓
	✓	13.2	61°	✓	26.4	83°		✓	32.9	73°	✓

	✓	31.9	74°30'	
	✓	30.8	74°45'	
	✓	29.6	80° ?	
	✓	28.5	81°30'	
	✓	27.6	83°15'	
	✓	27.3	85°	
	✓	25.8	84°30'	
	✓	25.4	85°30'	
	✓	22.8	85°45'	
	✓	19.5	85°	
	✓	16.8	80°	
	✓	14.4	77°15	
	✓	17.0	67°30'	
	✓	14.5	61°45'	
	✓	12.1	67°	
	✓	10.7	61°15'	
	✓	9.6	51°30'	
		6.3	30°30'	

Wilcomb 1/30/19
Bob
Mitter

From E 8 set Aux. Pt. 52.98'

Az. 79°50'

			At Auxl. Pt.		
B.M. E 8			411.91		407.79
Break in U.S. Forms.					
410.6	27.2	266°10'	410	31.4	59°
Rock	32.7	274°30'		31.8	63°30'
410-415 Overhang	5'x2'x4½'			31.7	66°30'
Overhang	4'x2'x2'			32.2	67°30'
410	12.9	20°		31.5	70°
	14.5	26°30'		32.1	70°15'
	15.5	25°45'		30.0	79°
	17.3	29°15'		30.7	83°
	19.5	35°45'		33.0	85°
	21.3	41°30'		36.2	87°30'
	21.9	40°30'		37.0	87°45'
	24.0	45°30'		37.7	88°30'
	25.9	47°30'		37.6	93°30'
	27.8	47°		37.9	98°30'
	27.4	51°30'		38.7	101°

Old Conc. 410	38.4	102°15'	412	31.8	66°
Forms 408	39.9	104°15'		32.2	63°30'
Old Conc. 412	38.4	102°30'		32.6	60°
	38.9	101°30'		30.9	57°15'
	38.0	94°45'		31.0	55°15'
	37.7	88°30'		32.4	48°45'
	36.8	86°45'		29.2	40°45'
	33.4	85°		28.7	43°
	32.6	82°45'		27.4	45°45'
	31.1	83°30'		25.0	44°45'
	30.4	82°		24.3	41°
	30.5	77°45'		22.9	42°30'
	31.1	74°45'		21.4	39°30'
	31.7	72°30'		20.8	39°30'
	32.5	71°30'		19.5	35°45'
	32.5	69°30'		17.9	30°30'
	32.9	68°30'		17.0	27°30'

1/30/19.

412	15.5	25°30'	412	21.0	330°	410	25.0	68°		
	15.2	25°45'		21.3	325°30'		25.5	58°30'		
	13.1	20°		20.0	325°	Ring	24.4	57°		
	14.2	1°		21.8	309°30'	Top- 410.8	24.3	60°		
	18.3	357°		19.9	305°	408	27.0	65°30'		
	20.4	354°		23.0	294°		26.7	60°30'		
	21.0	349°30'		23.0	288°15'		26.2	60°		
	22.2	347°		25.8	281°15'		26.4	57°30'		
	24.0	346°30'		27.9	282°		25.9	54°		
	26.0	348°15'		31.2	276°		27.0	56°30'		
	27.2	346°		32.7	274°30'		29.0	57°		
	27.5	344°		33.7	273°45'		29.2	60°30'		
	28.2	343°30'		40.2	274°30'		30.4	63°15'		
	29.2	337°30'	Excav. only- Overhang	1.5 x 1.5 x 1.2			29.3	68°		
	26.0	332°30'	410	22.5	70°					
	23.6	332°	Ring	23.0	70°15'					
	23.4	328°15'		24.0	67°15'					

At G8 - set C8

At C8 Sight C9 = 0° 0' Read Azimuth to Right

E8		8.27	416.06		407.79	14+16 ✓	30.1	188°30'	414 ✓	29.7	150°15'
Form 416	25.4	252°50'	414 ✓	26.9	215°45'	14+16 ✓	35.1	185°30'	" ✓	31.6	147°45'
Forms + rock						414 ✓	33.8	185°30'	" ✓	34.5	148°30'
"	32.2	247°45'	" ✓	27.3	215°15'	416 ✓	33.9	184°15'	" ✓	35.7	152°
414+16 ✓	31.5	246°15'	" ✓	27.1	210°	416 ✓	33.0	185°	" ✓	35.9	153°
414 ✓	29.1	238°	" ✓	28.8	207°30'	416 ✓	32.3	184°	Face Vert. cliff 14+16 ✓	36.7	151°45'
416 ✓	29.8	237°30'	" ✓	28.5	205°	14+16 ✓	30.4	184°10'	416 ✓	28.9	170°
416 ✓	29.0	235°	" ✓	26.9	204°45'	14+16 ✓	30.0	178°30'	" ✓	30.0	171°30'
414 ✓	28.2	236°	" ✓	26.9	200°30'	414 ✓	24.0	175°	" ✓	30.9	168°30'
414 ✓	27.5	231°30'	" ✓	30.5	199°45'	414 ✓	24.0	171°45'	" ✓	32.3	167°30'
414 ✓	28.3	230°	416 ✓	29.5	206°15'	416 ✓	26.6	176°30'	" ✓	33.7	168°
416 ✓	29.1	228°45'	" ✓	31.1	204°30'	416 ✓	26.3	174°15'	" ✓	34.5	165°30'
416 ✓	28.3	224°	" ✓	29.9	203°15'	414 ✓	27.2	159°15'	" ✓	34.0	162°30'
416 ✓	29.0	222°30'	" ✓	30.0	201°	" ✓	28.5	158°15'	" ✓	35.0	159°30'
416 ✓	28.9	220°	" ✓	31.8	200°30'	" ✓	27.7	155°	14+16 ✓	40.0	140°30'
416 ✓	29.7	219°15'	14+16 ✓	36.5	195°	" ✓	28.1	154°	To 426 Overhang	1X12	X12 ✓
416 ✓	29.4	214°30'	14+16 ✓	37.2	192°45'	" ✓	29.0	156°15'	14+16 ✓	41.1	138°

2/3/19 Sight C9 for Zero Az Rt

		At D8			
14+16 ✓	41.9	134°30'	44 ✓	41.5	106°15'
14+16 ✓	44.3	130°45'	14+16 ✓	40.5	100°
14+16 ✓	42.7	127°15'	14+16 ✓	40.1	97°15'
14+16 ✓	43.0	126°15'	14+16 ✓	40.1	94°
14+16 ✓	42.5	124°30'	End form - Face old Conc. 414 ✓	39.9	91°30'
14+16 ✓	41.1	125°	Forms - 414 ✓	36.4	92°30'
14+16 ✓	38.5	122°	D.S. Face at old conc. 410 ✓	39.9	92°
14+16 ✓	35.9	115°	416 ✓	40.6	93°
414 ✓	37.0	111°	Face old Conc. 416 ✓	44.1	93°45'
416 ✓	36.0	114°45'			
414 ✓	40.4	108°			
416 ✓	40.7	111°			
" ✓	40.8	109°30'			
" ✓	42.1	109°			
" ✓	41.5	106°15'			
414 ✓	41.1	109°30'			
" ✓	41.6	"			

Cont.	Dist.	Az.		Plotted 2/8/19	27
	At D8				
GB	4.34	419.85			415.51
✓ Cor Form.	7.4	7°5'	3.08		416.77
✓ "	13.5	338°15'	3.25		416.6
✓ 18	13.9	330°0			
✓ 18	17.0	1°8			
18	21.8	13½			
✓ 18	23.2	13½			
✓ 18	24.2	16¼			
✓ 18	27.3	16½			
✓ 18	28.7	18°			
✓ 18	30.6	23°			
✓ 18	32.0	26°			
✓	37.2	23°15'	Vert. +9°30' to 7.0		
✓ 18	38.6	25°			
✓ 18	40.5	26°30			
✓ 18	41.2	31°30'			
✓ 18	41.5	33°15'			
18	379	38°			

Plotted 2/12/19. KHR.

2/18/19

At D 8

419.85

At D 8

Platted 2/12/19.

✓ 18	39.4	41° 0'			
✓ 18	38.3	44° 0'			
✓ 18	39.6	45° 0			
✓ ~~19~~	39.8	46° 0	+3°20	+0 4.0	
✓ ~~19~~	41.7	45° 45'	+3°10'	+0 4.0	
✓ 18	41.9	44° 15'	✓ 20	40.8	25 1/2
✓ 18	43.0	45° 0	✓ 20	38 6	23 1/4
✓ 18	45.5	44° 45'	✓ 20	37.1	23° 15'
20 + 18	46.5	44° 45'	✓ 20	32.9	23°
✓ 20	45.3	44° 30'	✓ 20	29.9	18 1/4°
✓ 20	42.6	44 1/2°	✓ 20	28.9	18°
✓ 20	41.9	43 3/4°	✓ 20	27.9	15 1/2
✓ 20	41.2	43 3/4	✓ 20	23.9	14 1/2
✓ 20	39.9	41 1/4	✓ 20	23.2	13°
✓ 20	38.0	38° 0'	✓ 20	21.8	12 3/4
✓ 20	41.6	33 1/4	See topog taken later	14.9	6 1/4
✓ 20	40.6	29°	20 W 14.3		329 1/4

20	14.6	324 1/2			~~415.51~~
68	0.10	415.61		On steel forms upstream center	415.51
				5.17	
				5.14	
410.38				5.19	
5					
415.38				5.23	ft. V Elev
440.20				5.24	410.38
24.82					
				5.28	
2.48				5.26	
				5.22	
				18.3	
				2.3	

Typed Book 7 pg 49.

2-13-19

G8 1032 2583 155

49 209

20 2 19.8 5.37 2045

5.43 20.40

21949.6 3+459.6

20 3+149.6

3+149.6 2 31.00

8	48	48.3
2	38	38.5
8	48	48.3
	5	17.3
18	139	152.4
20	21	32.

Copied

2 38 38
26 264
3 30
3 68 34

Book #7 Pg 56

At E6-20'N.

E6 20N	10.21	36.57			26/36
30	9'	223°	6 57		
	3.8	190°	" 28 contour		
	5.1	130°	30.2	95½	
	7.2	120°	28 30.6	97½	
	8.7	129°	28.5	98¾	
	8.9	135°	22	100	
	10.1	139°	25.3	103¾	
	11.1	132°	24.4	109½	
	12.1	122°	23.0	104½	
	14.3	118°	19.4	121¾	
	16.2	11[illegible]°	16.3	132¼	
	18.3	112½	16.2	139½	
	20.2	103½	15.9	145¼	
	22.1	101¾	13.7	141¾	
	23.9	102¼	13.2	137½	
	28.0	97½	11.5	129¼	
	30.0	94½	10.3	149½	

See pages 42-43 for Corrected Topog

At E6-20'N. Plotted 30

28						
	6.1	154½	A46 ✓	14.4	219½	
	5.4	186¾	" ✓	13.9	214½	
	5.2	214°	" ✓	10.1	221	
	9.0	221°	" ✓	9.0	219	
	10.3	224½	" ✓	5.6	187°	
	12.0	222½	" ✓	6.0	160	
	12.7	23[illegible]	" ✓	9.2	166	
	13.3	233¾	" ✓	13.3	154¾	
	13.7	241½	" ✓	14.3	143¼	
	15.0	238½	" ✓	15.5	145	
	15.0	232¼	" ✓	16.1	140½	
	15.4	233	" ✓	20.9	142	
	15.4	226¾	" ✓	21.4	126¾	
	17.2	229	" ✓	21.9	124¼	
26	17.2	229	" ✓	21.4	121½	
cont.	15.4	226¼	" ✓	24.9	111¾	
	14.3	230	"	25.1	111½	

See Topog Taken at later date

J-B.M.

AEG - 20'N

26	27.0	108°	~~27° 110 3/4~~		
	27.3	106°	24.7	113 1/4	✓
	29.8	101 3/4	24.4	115 1/2	✓
	29.9	101	23.7	119 1/4	✓
	30.9	98 1/2	22.9	121	✓
	31.4	97 1/4	22.1	131°	✓
	31.0	96 1/2	21.5	142 1/4	✓
	31.2	95 1/4	18.9	142	✓
	31.3	94 3/4	17.7	148 1/2	✓
24 cont	31.0	95°	13.9	152 1/4	✓
	31.4	96°	9.3	158 1/2	✓
	31.2	96 1/2	8.3	157 1/2	✓
	31.6	98	5.4	171	✓
	31.5	99	7.8	209	✓
	31.3	100	9.9	220	✓
	30.4	101 1/2	11.5	213	✓
	30.1	105 1/2	12.9	213 1/2	✓

See pages 42-44 for Corrections

See pages 42-44 for Corrections #24

AEG - 20'N

Plotted

#24	16.6	221	✓	
"	16.2	226 3/4	✓	
"	16.9	226 3/4	✓	
"	17.7	227 1/2	✓	

	At D8				
G8	9.98	25.49			155
14	54	284 3/4	11.49		
	49 0	283 3/4	All ✓	29 5	292 1/2
	47 5	282 1/4	" ✓	27 4	292
	45 8	282 3/4	" ✓	25 2	292 1/2
	43 8	280 3/4	" ✓	25 3	296 1/4
	41 1	278 1/4	" ✓	27 4	300 1/4
	41 2	282	" ✓	28 6	312 3/4
	38 2	278 0	" ✓	21 1	311 1/2
	37 5	278 0	" ✓	17 6	314
	38 3	283 1/2	" ✓	15 9	319 1/4
	34 5	290	14 ✓	13 1	338
	30 5	287 0	16 ✓	13 1	338
	33 4	282 1/4	✓ 16	16 5	318 1/2
	33 3	279	✓	17 5	315
	31 5	276 1/2	✓	21 4	311 3/4
	30 4	282	✓	30 4	312 1/2
	29 4	285	✓	31 0	307

	At D8				
			Plotted		
✓	36 1	307 1/4	✓	40 6	296
✓	37 1	300	✓	40 2	293
✓	36 5	297	✓	40 4	294 1/2
✓	39 3	294 1/4	✓	37 1	301
✓	39 0	291 3/4	✓	36 9	306 1/4
✓	40.2	288	✓	36 6	307
✓	39 2	286 0	✓	35 9	308
✓	39 9	284 1/4	✓	36 6	309 1/2
✓	41 9	284 1/4	✓	35 6	313 1/2
✓	44 6	285 3/4	✓	33 3	311
✓	45 5	285	✓	32 2	343 1/4
✓ 16	47 5	286 3/4	✓ 18	30 1	312 3/4
✓ 18	48 4	286 3/4	✓ 20	29 8	313
✓	46 3	286 3/4	✓	35 5	313 1/4
✓	45 5	288 1/4	✓	36 4	310
✓	42 1	287	✓	36 3	308
✓	39 8	286	✓	39 5	304 1/4

	AD8.	Plotted.		
✓ 20	37 4	293 3/4		
✓	41 1	294		
✓	41 8	288 3/4		
✓	45 5	288 3/4		
✓	47 1	"		
✓ 20	50 3	288 1/2		
✓ 22	49.7	290 3/4		
✓	45 3	291		
✓	41 4	290 1/4		
✓	not same as 20			
✓ 24	15 8	321 1/2		
✓ 22	17 2	345 1/2		

342	35.5	42.8 6			39.3 1
	36.7	95 3/4		24.4	112°
	34.0	96°		22.3	107°
	32.4	92 1/2°	334	25.7	129 1/2
	30.0	84 1/4°		26.5	124°
340	24.9	96		30.8	123 1/2
	26.5	94 1/2		31.6	122°
	30.4	90 1/2		35.0	124°
	34.4	99°		35.8	119°
	37.0	97°		35.0	115°
338	37.4	97 1/2		35.5	108 1/4
	35.9	99°		36.2	106 1/2
	36.0	103°		36.1	104 1/2
	36.4	105°		36.6	102 1/4
	34.9	108°		36.4	99°
	33.7	112 1/2	334		
	32.5	117			
	28.6	118°			

See page #3-44

At E6 20'N

7

20'N of E6 1030 36.66 1636

434 11.2 72° 28.2 94½
14.3 85 26.4 93
15.4 85 24.3 95°
16.4 91½ 22.4 99°
17.2 92½ 19.1 97½
19.3 97¼ 14.3 97
add 0.5
20.9 95¼ 430 14.4 112°
23.2 90 17.7 112°
25.8 89 19.4 101°
27.9 90° 22.6 112°½
28.9 91° 24.8 101°
30.7 89° 28.1 96¼
32.9 86½ 29.4 93½
add 0.5 add 0.3
432 ~~43~~ 32.3 87¼ 428 30.9 92°
29.4 91½ 30.0 94°
~~3~~5.5 92¾ 30.2 95°
29.0 93¾ 28.2 97½

Sec pages 43-44

At E6- 20'N

34

428 28.0 99°
24.4 104°
22.9 108°
20.8 109½ 424 30.6 95°
18.7 121 30.4 109½
Form
El 1769 8.97 105° ✓ 30.4 103
26.1 dist
El 2426 Rod 12.4 105¾° / 29.3 106
Rod
El 2389 25.3 12.8 110½ / 25.9 103½
Rod
El 2810 32.5 8.7 110¼ Form 2 25.0 104¾
El 2088 31.5 15.9 110¾ / 24.4 108½
add 0.5
420 20.4 126° 24.3 112
21.4 123½ 22.6 108
21.1 122 21.4 130½
23.6 112°
23.3 109°
On Form 24.9 104½
27.4 109½
27.9 102

Check on Fillet

See pages 43-44

Copied from Book 7

At C18 41211

Sight F18 for 270° Az Left

Set Auxil point dist 41 Az 76°

At Auxil Pt. (226°) Plate set.

Sight C18 Az 256° Az Lt.

C18 766 41977 41211

Note all dist & Az. corrected.

R. 922 410	7.3	188°	410	14.7	109
	7.4	184°		17.0	106½
	6.9	175°		22.0	109
	9.0	158		23.2	115
	8.9	148		25.1	115.5
	9.6	146		26.1	114½
	10.1	130		26.6	109
	9.6	129		28.6	109
	11.0	116		29.1	108
	12.6	108		32.9	109

At Auxil Point from C18

410	35.3	108°	412	6.6	142
	36.3	110°		6.9	132
	37.6	110°		7.4	128
	38.6	113°		8.4	114-30
	39.7	114°		10.2	109
	40.9	113°		11.8	112
	41.4	109°		12.8	106-30
	43.2	109½		14.1	103-30
	44.3	107½		16.0	106
	45.2	107½		16.9	106
	46.5	109		21.7	108
	48.1	109		22.2	103
Top Form. R 647	51.8	El. 413.30 104°		23.2	100
Top Form. R 685	40.2	El. 412.92 129°30		24.3	100
412	7.5	191		24.7	101-30
	7.0	181		25.5	101-30
	4.9	153°		25.3	104-30

	At Auxil	Point	from C18	
412	26.8	106	412	493	107½
	27.0	110	Forms	50.3	106
	28.9	110	R 5.77	525	103
	30.3	105	414	51.2	103
	31.5	107		499	106
	35.5	107		466	106½
	36.2	105		462	105½
	39.8	104-¼		429	105½
	38.2	110		424	104½
	380	112-30		429	102
	39.6	114		382	103
	408	113		377	104
	409	108¼		364	104
	425	108¼		342	106-30
	432	107½		372	106¼
	45.1	107¼		308	104¼
	474	108½		302	98

	At Auxil	Ft	from C18		
414	29.5	98	A14	4.2	160°
	278	103½		3.7	181°
	25.5	102	From R=377	5.1	203
	242	98½	416	3.2	278°
	239	95		24	335
	232	95½		22	00
	222	98½		3.1	20°
	203	97		3.9	76°
	187	96		6.8	72°
	181	98½		8.2	66°
	174	99		10.4	74°
	157	105		9.9	80°
	134	104		10.4	85
	103	91		10.2	90
	73	92		12.5	100°
	63	115		18.0	96-30
	58	132		19.0	94

Old Convert Form

At Anvil Point from C18

A16.			A1977		
	19.8	95°	416	46.6	101-3/4
	20.6	93		44.0	101 3/4
	24.2	92		43.7	105
	24.9	95		45.9	104-3/4
	24.6	98		50.2	104 1/4
	28.7	98-30		51.5	101
	29.9	95-30		52.8	102
	30.6	97 1/4		54.2	102
	30.8	104-30	418	44.3?	103-30
	34.0	105		44.4?	102-30
	34.5	103-30		50.3	99-30
	37.4	102-30		50.8	102
	40.9	102		47.8	102
	41.2	101-30		47.5	100
	42.3	101-30		48.7	97 1/2
	46.6	100		45.4	99 1/4

At Anvil Point from C18

418	43.2	99	418.	17.0	91-30
	42.3	100-30		11.3	88-30
	40.3	100 1/2		10.3	82
	37.1	101		10.4	71-30
	35.7	101-30		8.3	66
	35.1	102		6.9	70
	33.4	103 1/2		4.6	68
	31.5	101 3/4	Old Concrete	3.7	73
	31.0	102 3/4	Old Con Form	3.5	276
	30.7	96 1/4			
	29.7	95 1/2			
	26.3	95°			
	24.5	94°			
	24.5	91°			
	21.1	87 1/4			
	20.5	92-30			
	17.9	90			

20 Notes — Mixter Bub Johnson — Setting — 2064 — Feb 18-19

E7	1031	3.6.67	Aux Pt. for Topog.		26.36
T.P.				11.99	18.68
E7 Pt. 5'S + 45E		Note El. Should be —			24.68

			Fillet	D.S.	Left Δ	
D18	4.75	404.68		✓		401.93
D.S. for work						
12	27 7	54 1/2		✓	12.7	394.0
15	29 5	56 3/4		✓	1.5	405.7
18	23 2	55 1/2		✓	1.8	404.9
7.6	23 2	53		✓	7.6	399.1
20	17 1	62 1/2		✓	2.0	404.7
7.0	19 8	57 1/2		✓	7.0	399.7
1.5	17 7	81°		/	1.5	405.2

At E7 - 5' South

Measure 45' East on 7 line to C7 {55 5W

At C7 {55 5W Sight East on 7 line 5' South for 90° Az left.

At C7 - {55 5W

26.14 (20.14) — 24.68 (18.68)

(cont 4.16) Rod 4.14

2V	1.46				
2V	21.8	245°	2V	10.9	337°
2V	20.6	249°	2V	8.6	7°
2V	19.2	244°	2V	8.0	24°
	17.3	242°		14.0	37°
	16.0	244°		13.7	40°
	14.3	252		13.3	50°
	13.3	260		13.9	56°
	11.3	261		13.8	63°
	11.3	267		15.6	64°
	9.9	274		15.8	71°
	12.5	295	Four	17.8	69 1/2
	9.2	304	(418 cont 424)	17.8	70°
	11.5	316	A24	17.9	66°
	13.5	320	A24	15.8	64°
	14.2	324	A24	15.8	56 1/2
	10.9	332	A24	14.1	55 1/2

At C7 - {55 5W

16	46°		10.0	274°
14	41°		11.6	266°
13 1/2	37 1/2		11.6	262°
13	36°		14.0	260°
10	36°		14.6	252°
9.2	31°		16 4	244 1/2
9.8	22°		18 4	244 1/2
9.9	12°		19 4	248
9.2	4°	420	1	252
9.6	0°	4°	21 4	25.2
11 4	340°		21 5	25.3
10 4	332°		21 3	254°
13 9	325°	4W	16 1	256
14 4	328°		17 5	251°
10 3	309°		15 3	251°
11 0	302°		14 5	254°
10 5	290°		14 0	260°

At C7 - {55 5W

11.9	265°		16 1	56°
10 5	288°		17 6	58°
11 1	296°	420	14 1	65°
10 9	306°	↓	Forms 18 5	69°
14 2	322°	Trench		
14 3	325°	2 - 1 1/2 - 20'		
13 3	326°			
11 0	333°			
11 7	340°			
10 4	359°			
10 0	2°			
10 4	14°			
10 5	27°			
11 8	33°			
14 2	36°			
14 0	40°			
16 2	45°			

M-J-B At pt 5'S & 5' W of E7.
Feb 20-1919

Pt 5'S of E7	Dist.	Chaining East		
	20.67	+10.00	+4.00	+10.33 = 45.00

At 5'S E7

✓	9.88	36.24			26 36 ✓
✓ 16.24 20 cont	21 5	145°	.18 cont	24.7	135° ✓
✓	24 4	135°	.18 cont	26.1	133 ✓
✓	25 8	125½	Fillet. Rod 19.3	El 16.9 26 0	131½ ✓
✓ ~~Rod 25.3~~	~~25 3~~	120	Fillets R.15.9	El 20.3 24 9	123½ ✓
✓ ~~H 4~~	25 3	118½	Fillet. R.12.2	El 24.0 25 3	110½ ✓
✓	24 8	114°	Fillet R.8.5	El 27.7 24 9	104¾ ✓
✓	26 3	112°			
✓ Form 1424 22	26 1	110		9.55	26.69
✓	25 2	114½			
✓	25 1	117°			
✓	24 5	122°			
✓	23 4	139°			
✓	21 6	144½			

At Pt 5'S & 5' W of E7. 40
141

	0.40	27.09			26.69
PP Rock		2.43	27.11 check		2468
Rod 5.09 22	20 5	249°	Rod 4.22.09 ✓	10.0	346
" ✓	19.5	248°	✓ "	9.3	358
" ✓	18.4	243½	✓ "	8.9	10°
" ✓	17.4	243	✓ "	9.2	14°
" ✓	16.1	244½	✓ "	8.1	22°
" ✓	15.7	247½	✓ "	10.2	36°
" ✓	14.9	249	✓ "	12.1	37½
" ✓	13.7	260	✓ "	14.0	39
" ✓	11.4	262	✓ "	13.5	50°
" ✓	11.3	266	✓ "	13.8	60°
" ✓	10.1	271	✓ "	15.8	64°
" ✓	10.7	298	✓ "	15.9	70°
" ✓	10.2	305	✓ "	17.8	70°30
" ✓	14.1	324	Rod 3.09 ✓ ~~24~~	17.8	70°30
" ✓	14.9	328	✓ "	17.4	66°
✓	11.5	338	✓ "	16.0	64°

		5' {S W} C 7							At C7 - {5 5W}		41
		2'		2709							
Rod 309 24 Cont ✓		16.2	46°	Rod 309 24 Cont ✓		10.8	296° ✓	Rod 109 26 ✓		14.6	234
24 ✓		14.2	38°	"		10.0	271° ✓	" ✓		14.1	26.1
" ✓		13.3	36°			11.6	266° ✓	✓		12.3	263
" ✓		9.9	36°			11.7	262° ✓	✓		11.9	265½
" ✓		9.2	31°			13.9	260° ✓	✓		10.5	268
" ✓		9.9	20°	"		14.7	253° ✓	✓		11.0	297
✓		10.0	12°			15.7	249° ✓	✓		11.0	304
" ✓		9.3	3°			15.4	244 3/4 ✓	✓		14.0	322
" ✓		10.9	354°	"		18.4	245° ✓	✓		14.8	330½
" ✓		11.5	348°			19.9	251½ ✓	" Forms ✓		18.5	69°
" ✓		12.4	347°	" Forms		21.3	251 3/4 ✓	Top Form 18.5 +0.8			
" ✓		11.7	342°					✓		13.7	335
" ✓		14.3	332°	Rod 109 26		21.5	253 ✓	✓		13.4	339
" ✓		14.5	328°	"		21.2	254½ ✓	✓		12.3	341½
" ✓		14.1	324°	"		18.2	253½ ✓	✓		12.7	347
" ✓		12.6	317°	"		17.8	251° ✓	✓		11.5	350
" ✓		11.1	304°	"		15.7	250 3/4 ✓	✓		11.0	357°
								✓		10.0	2°
								✓		10.4	12°

Add trench 2 x 1 1/4 x .71 for Concrete & Excavation

Feb 22nd 1919 — M.J.B.

Set up at E6 — "why"

N 70° E 27 ft. from E6

Aux Pt.	27'	110° 0'			
	Set up at Aux Pt				
E6		290° 0'			
G 5	Back Sight 4.86	~~44.17~~	H.I 44.17		39.31
428 Rod 16.17 ✓	28°	234°			
,, ✓	27 2	224½°	428 Rod 16.17		
,, ✓	25 4	222½°	Fillet	15 ft. 168°	~~Roller~~ 429 I
,, ✓	25 6	218½°	,, ✓	16.1	167¾
,, ✓	27 3	217°	✓ ,,	14.9	158½
✓ ,,	27 7	215°	✓ ,,	141	156°
✓ ,,	24 6	211°	✓ ,,	13.9	150°
✓ ,,	22 2	204°	✓ ,,	14.4	145
✓ ,,	18'	197½	✓ ,,	14.9	140°
✓ ,,	18 5	188½	✓ ,,	12.0	126°
✓ ,,	16 9	184½	✓ ,,	10.9	96°
✓ ,,	16 4	177½	✓ ,,	12.7	80°
✓ ,,	15 5	171°	✓ ,,	14.7	81°

N 70° E 27' from E 6 47

M.J.B. 2-22-19

			44.17		
428 ✓ R 16.17	15 7	84½°	~~428~~ 430 Rod 14.17 ✓	40 2	94°
✓ ,,	16 0	83½	,, ✓	39 3	94°
✓ ,,	17 8	83	,, ✓	38 8	93½
✓ ,,	18 1	86°	,, ✓	37 8	93¼
✓ ,,	20 0	86°	,, ✓	37 9	94¼
✓ ,,	20 9	89°	,, ✓	35 8	94°
✓ ,,	25 4	84°	✓	33 8	90°
✓ ,,	27'	84°	✓	32 4	81½
✓ ,,	30 0	83°	✓	31 5	82½
✓ ,,	30 3	85°	✓	30 7	80°
✓ ,,	32 1	84½	✓	29 6	80½
✓ ,,	33 2	91°	✓	29 9	82°
✓ ,,	35 4	94°	✓	29'	84°
✓ ,,	36 5	95°	✓	28 2	79½
✓ ,,	37 0	94°	✓	27 4	78½
✓ ,,	39 1	94½	✓	26 1	79°
			✓	26 7	82°

N 70° E 27' from EG

MJB

44417 2-22-19

Rod	14.17	26°	82½	R14.17	15.8	190°
"	25.8	83½	"	15.2	201°	
"	24.9	83	"	19.6	208°	
"	23.9	84½	"	20.0	217°	
"	17.5	80°	"	22.8	226°	
"	17.1	76½	"	24.0	226	
"	14.6	78½	"	24.7	228	
"	12.8	78½	"	24.1	234°	
"	10.9	97°	"	26.0	238½	
"	10.8	107°	"	32.0	242	
"	12.1	127°	"	34.5	241½	
"	13.8	135°	"	37.2	241	
"	14.0	155°	"	38.9	246	
"	14.4	159°				
"	14.8	166°	1217	32.4	252°	
"	13.8	169°	"	25.8	246°	
"	14.9	182½	"	25.3	243°	

N 70° E 27' from EG 43

MJB

44417 2-22-19

1217	22.6	242°	1217	11.3	94°	
"	21.8	239½	"	12.2	78½	
"	22.5	235°	"	13.0	74.8	
"	21.5	235½	"	13.7	70½	
"	18.4	243°	"	14.5	74°	
"	16.3	236½°	"	16.5	76	
"	17.1	228°	"	17.3	80	
"	16.1	217°	"	17.9	77°	
"	14.7	206°	"	22.1	81°	
"	14.9	193°	"	23.3	77°	
"	14.7	187°	"	25.4	77½	
"	12.3	191°	"	26.9	76½	
"	13.3	165°	"	28.2	76½	
"	12.2	143°	"	28.2	78½	
"	17.8	135°	"	30.0	77°	
"	10.2	115°	"	30.5	79½	
"	10.2	104°	"	31.0	80°	

N 70° E 27' from EG
MJB
2-22-19

			444.17					
✓ 432 1217	33.2	84°	434 1017 ✓	29.6	76½	434 1017 ✓	10.1	103
✓ "	32.9	89°	✓	29.3	77°	✓	9.8	114°
✓ "	35.6	93¾°	✓	28.9	77°	✓	10.4	121°
✓ "	36.5	94¼	✓	28.7	76°	✓	11.8	138°
✓ "	36.9	93°	✓	26.8	76°	✓	12.3	152°
✓ "	39.4	92¾	✓	26.4	74½	✓	11.9	164°
✓ "	42.7	95½	✓	26.1	75°	✓	10.7	180°
			✓	25.5	76½	✓	10.9	192°
✓ 434 1017	42.3	94½	✓	21.3	75°	✓	13.3	198°
✓ "	40.3	93½	✓	20.1	71½	✓	14.6	208
✓ "	37.4	91½	✓	18.3	70½	✓	13.9	216
✓ "	36.4	94¼	✓	14.6	70°	✓	14.2	219
✓ "	35.5	94°	✓	14°	70½	✓	13.5	227½
✓ "	34.0	89½	✓	13.2	73½	✓	14.8	231
✓ "	33.8	89°	✓	11.2	78¼	✓	15.7	242
✓ "	33.2	85°	✓	11.2	66°			
✓ "	31.0	77½	✓	10.2	94°			

Setup at B19	Sight To	Azim Topog Left	abutment	M.J.B. 2-25-19
	Aux Pt. 33' SE B19			
D 19		270° 0'		
Aux Pt	32.98	33° 19'		
Aux Pt B 19	32.98	213° 19'		
C 18	1326 243 1569		427.80	412'
412 Rod 15.80	27.7	271°		
"	27.4	270°	4.14 1380	20.9 262½
"	27.5	262½		21.2 259°
"	24.4	260½		27.9 257°
"	22.0	262°		31.1 257°
"	23.4	270°		31.6 261°
				33.9 269°
414 Rod 13.80	18.8	280½		34.4 269°
	19.7	278°	Cor Forms 1570 414 1380	36.3 274¼
"	19.4	273°		26.3 269°
"	18.6	274°		26.6 267°
"	17.9	265	Form Rock 414 Rod-1380	39.2 264°

1326 243	Aux Pt 33' SE B19				45
Rod 11.80 Form Rock 416	39.6	263½°	Rod 9.80 old conc form 418	8.5	356½
"	36.8	267½°	" conc.	3.8	320°
"	33.9	269°	"	4.3	280°
"	31.2	258½°	"	4.7	266°
"	29.8	255°	"	5.9	255°
"	20.9	255½°	"	9.1	241°
"	11.8	265°	"	10.4	244°
"	11.1	257°	"	11.2	251°
"	7.8	250°	"	20.9	251½
"	6.0	255°	"	28.5	252
"	5.7	262°	"	29.3	253½
"	6.0	280°	"	30.1	256
"	4.9	325°	"	31.3	256½
"	6.3	340°	"	31.9	258½
Face of old concrete	6.5	348°	"	33.3	267°
Face of old concrete & forms	8.4	356½	"	34.9	264°
			"	36.0	263½

Aux PT 33' S.E. B19

427.80 2-25-19

9.80 418	✓	37.3	263¼	420 ✓	12.1	213°
9.80 Form 418	✓	39.6	262¼	✓	9.2	204
	✓		261	✓	7.9	207°
18d Forms 420	✓	40.1	261½	✓	8.3	218°
	✓	34.0	262½	✓	5.8	224°
	✓	32.4	263°	✓	5.1	239°
	✓	32.6	257½	✓	3.7	263°
	✓	32.1	257½	420 old conc ✓	3.1	29.4°
	✓	32.3	254½	old conc & forms 420 ✓	8.7	357½
	✓	29.2	253°			
	✓	29.1	248°	5-8 old conc forms 422 ✓	8.6	0°
	✓	22.7	247°	✓	5.3	231°
	✓	22.5	243°	✓	5.9	215°
	✓	20.4	244°	✓	7.4	208°
	✓	21.0	243°	✓	8.4	205°
	✓	10.5	235°	✓	10.7	206°
	✓	10.5	222°	✓	12.6	204½

Aux PT 33' SE B19

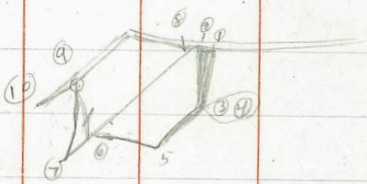
Cold Track 2+22.10

	✓	5.80	14.2	422	210°	
	✓	"	14.2		215°	
	✓	"	12.5		217°	
	✓	"	11.1		222°	
	✓	"	12.3		231°	
	✓	"	12.6		234°	
	✓	"	23.3		240½	
	✓	"	22.8		242½	
	✓	"	29.5		245½	
	✓	"	29.4		250½	
	✓	"	32.6		252	
	✓	"	32.6		255	
	✓	"	33.3		255	
	✓	"	32.8		260½	
	✓	"	37.3		260°	
	✓	Form 4rock	~~43.8~~ 37.9		259½	
	✓	"	43.8		258¼	

Set up at D 18

D 18	4.9	406.8			401.93
① Bott. Fillet dam face	27.9	55½°	✓	12.5	394.3
② Top Fillet face dam	29.5	56¾°	✓	1.7	405.1
③ rock Bottom Fillet	23.3	55°	✓	7.9	398.9
④ Top cor Fillet	23.3	55°	✓	2.3	404.5
⑤ Top + bot fillet + rock	16.9	62½	✓	2.1	404.7
⑥ rock from bottom fillet.	17.7	81°	✓	2.1	404.7
⑦ Top fillet + rock,	16.3	93°	✓	5.1 higher than HI	411.9

Check on Fillet



face ⑧ Top dam fillet	30.2	57°	✓	Add 6.0 to HI	412.8
⑨ bottom fillet.	29.3	90°	✓	Add 5.2 to HI	412.0
⑩ rock+ concrete	28.6	99°	✓		

46 At Axis 27° N70°E

G5	4.57	43.88			3931 Dist.
Top Fillet + face dam ✓	Dist 23.5	Dist ~~166~~ 1/2	8.98	3490	
Bottom Fillet					
✓	22.65	~~166~~ 166 3/4°	11.78	~~34~~ 32	
✓	10.5	164 1/2	9.38	345	
✓	13.7	166 3/4	1218	317	
✓	11.7	172°	1218	31.7	
440 2 / 440 5/2			8.79	35.09	

At C19-7' E Mar 3 48.
Surface Rock.

D 20	13.34	3432				2098
424 1032 ✓	15.1	3°				
444 ✓	19.4	28°		✓	18.2	60 3/4
✓	17.8	34°		✓	32.0	69°
✓	22.0	44°		✓	33.4	64° 3/4
old concrete 424 ✓	36.8	61°		✓	34.4	63 1/4
426 8.37	36.0	61 1/2	Old 428 Conc.	✓	34.8	6 33 1/4
✓	25.6	59 1/2	430 4.37	✓	33.3	64 3/4
✓	18.6	51°		✓	31.5	71°
✓	10.3	45 1/2		✓	24.4	73°
✓	10.9	39°		✓	16.5	73 1/2
426	7.4	19°		✓	17.0	62 1/2
428 6.37 ✓	3.9	41°		✓	11.8	61°
✓	6.5	49°		✓	12.5	70°
✓	7.1	57 1/2		✓	11.3	74°
✓	9.6	56°	43°	✓	4.3	95°
✓	9.8	56	432 2.37	✓	7.7	155°
✓	17.6	56 1/4		✓	9.5	124°

C19 7'E Mar 3rd Surface rock.

432					
✓	9.3	120 1/2	✓	9.7	145 1/4
✓	12.3	107	✓	10.6	155 3/4
✓	17.4	92 1/4	✓	12.9	157 3/4
✓	21.5	85 1/2			
✓	25.9	77 3/4		~~12.2~~	
✓	30.4	74 1/2			
old conc. ✓	31.4	77 3/4			
434					
✓ 032	30.0	80 3/4			
✓	23.9	84			
✓	21.0	91°			
✓	18.9	100 1/4			
✓	19.6	103°			
✓	17.2	103°			
✓	13.4	113°			
✓	13.4	115°			
✓	12.0	122°			
✓	11.1	134 3/4			

C19-7'E Mar 3rd Fillet Left Abut 49

	434.2	Rod		Elev
✓	31.0	00°	12.2	~~22~~ 21.0
✓	20.7	348 3/4	13 3	20.0

At A8-3'N

28.90

At A8-3'N T.P. 11.70 324°54

At T.P. A8-3'N 11.70 144°54

At Auxil Point from A8-3'N

			13.10	rod	15.80
form old cone bottom	2.6	311½		6.1	22.8
"	2.6	"		10.5	18.4
face diam	11.9	285½		5.9	23.0
old c fillet	7.9	293		13.2	15.7
22 contour 69					
1	2.3	260°			
1	2.8	316°	1	29.4	326½
1	7.3	342°	1	31.1	322°
1	9.2	344°	1	34.9	323½°
1	12.9	345°	1	36.6	320°
1	19.8	346°	1	36.0	317°
1	21.9	341°	1	37.4	315¾
1	23.6	339°	1	38.9	316
1	24.6	331½°	1	39.7	315½
1	24.8	327°	1	39.4	314°

28.90

At Auxil Point from A8-3'N

1	41.8	312½	1	31.5	331°
422 49	42.7	313°	1	29.3	328¼
424 49	41.9	313°	1	28.9	328¾
1	38.9	314°	1	27.6	327½
1	37.9	316°	1	24.8	332½
1	36.4	318°	1	23.6	339
1	36.9	319¾		(see 420 cont)	
1	36.7	320½	1	88	342¼°
1	38.3	323°	1	7.0	343°
1	38.1	324°	1	4.0	332°
1	38.9	326°	1	4.5	6½°
1	38.9	326¾	1	3.5	338°
1	38.8	327	426	see 420	
1	37.6	326¾	Auxil 1	24.7	336°
1	37.5	328½	" 1	25.7	330°
1	33.4	330	" 1	27.3	328°
1	31.7	329°	" 1	29.1	329½

2890

NCG
6.21

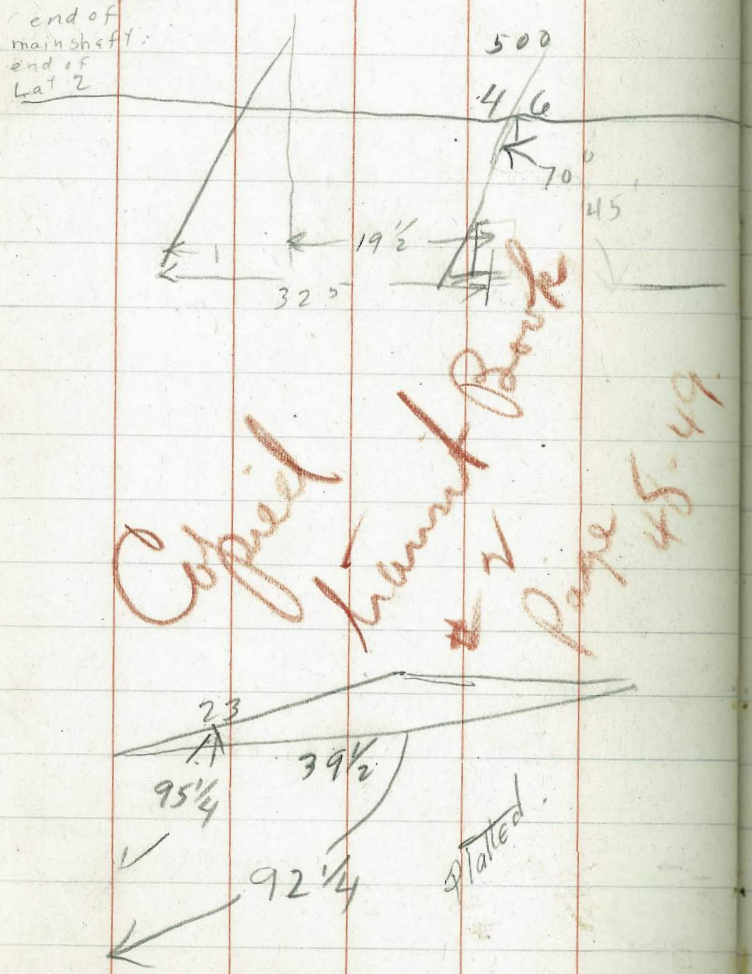
51

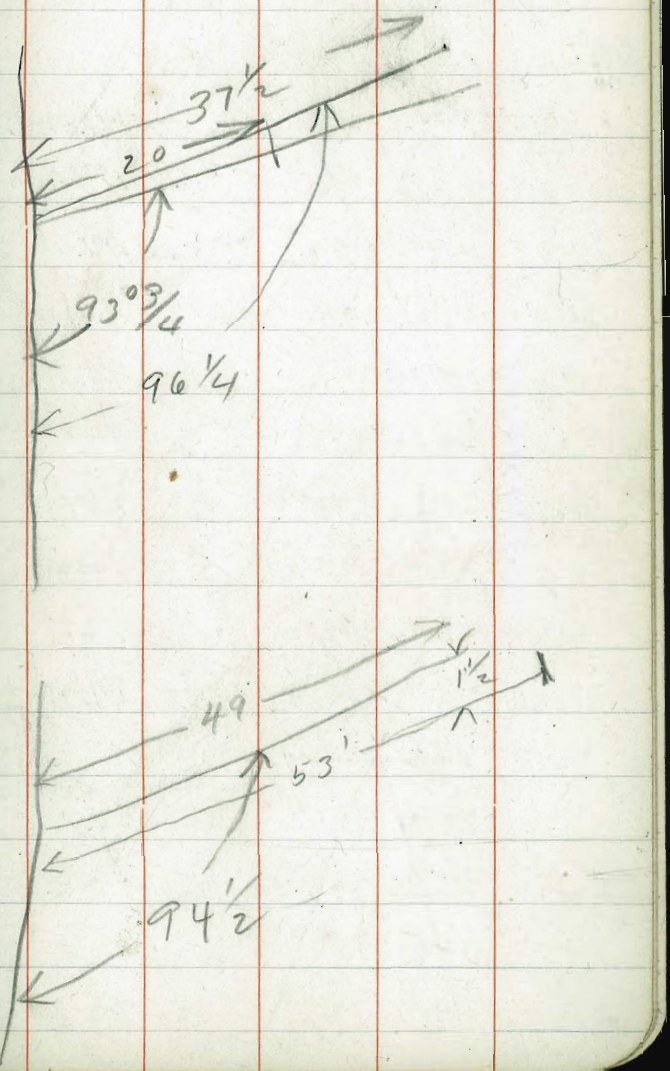
At Auxil Point from AS-3'N

29 Apr 6	1	32.1	331°	428	1	41.3	317½
"	1	33.2	330°	"	1	39.5	321°
"	1	35.1	330½	"	1	38.6	322°
"	1	39.9	329°	"	1	40.9	323½
"	1	39.3	327°	"	1	40.8	324¾
"	1	40.4	325¼	"	1	42.1	327°
"	1	39.5	324°	"	1	40.4	329½
"	1	40.0	323½	"	1	36.8	330½
"	1	37.7	321	"	1	36.4	331¾
"	1	38.3	320½	"	1	31.2	331½
"	1	39.3	320¾	"	1	29.5	334
"	1	39.5	319¼	"	1	27.7	332½
"	1	38.9	318¼	"	1	26.7	334½
"	1	39.7	316¾	"	1	25.4	334
29 Apr 6 conc 09 428	1	42.9	314°				
	1	43.1	315¾				

Tieing in Quarry Datum
Mar 16 - 19

9 17	2.09	75.36		73.27
	4.53		736	68.00





Set up at Aux. Pt 6.21 N. of CC.

Plate 00 sight on BM

BM.	0.86	439.96			439.11
	14.6	356°		40.0	359°
	16.8	355°		40.9	0°
	17.9	355.7°		42.6	2° 1/4
	20.6	354°		44.3	3 1/2
	19.7	347 1/2		46.5	6°
	20.1	348		~~47.9~~	~~7 1/4~~
	20.3	343 1/2	428 cor 120	14.6	35 1/2
	22.6	342 1/2		17.3	346 1/2
	22.3	340 1/2		20.7	351°
	25.7	345 3/4		19.7	346 1/2
	26.1	345 3/4		20.1	345°
	28.7	351°		20.2	338 1/2
	30.1	353°		22.6	339 1/2
	32.4	359°		25.2	345°
	34.3	357°		26.4	344 1/2

CC-621 North

439.97

	29.6	353	430	32.4	350°
	29.7	352 1/2		30.3	342 3/4
	31.8	"		28.5	342
	33.0	355°		27.4	342 1/2
	33.9	357°		26.5	341 1/2
	34.9	357 1/2		25.3	340 1/2
	35.9	357 1/2		24.4	341
	40.2	358 1/2		21.8	335°
	41.3	0°		19.9	333 1/2
	42.7	2°		18.9	338
428	45.0	3 1/2		16.8	337
	46.9	5 1/2		18.4	351 1/2
428 cor 120 forms	48.1	7 1/4	430	15.3	355°
430 10.00	48.0	7 1/2			
	same as 428		8.00 434	15.3	353 1/2
	34.0°	356	432	16.3	352 1/2
430	33.4	350°	"	15.1	338 1/2

Set up at Aux Pt. CG-6-21 North

439.97

437	✓	16.1	333½	6.00 old conc. 434	51°	7½ ✓
	✓	17.9	334	old concrete	48.2	5½ ✓
	✓	18.7	319°		47.5	6° ✓
	✓	19.0	320°	Bottom Fillet 4 old conc	48.1	15.6 Rod 7¼ ✓
	✓	20.6	331½°	car forms	39.5	103 13° ✓
	✓	21.2	332°	434 same as 428 to here		✓
	✓	22.2	337°		35.2	357¼ ✓
	✓	25.6	339½		34.0	354¼ ✓
	✓	26.0	337°		33.3	351° ✓
	✓	27.9	342°		32.4	349½ ✓
	✓	30.0	338		31.1	347 ✓
	✓	31.5	348		30.6	339¼ ✓
	✓	33.6	351°		29.8	337 ✓
	✓	34.4	356¼		28.5	337 ✓
	✓	35.6	357½		27.5	336 ✓
					26.0	337 ✓
					25.5	335 ✓

CG-6-21 North

434	✓	25.0	337¼
	✓	23.7	337
	✓	22.5	335
	✓	20.5	329¼
	✓	19.1	314
	✓	18.7	319½
	✓	18.4	326
	✓	17.7	334°
	✓	16.7	334
	✓	16.1	331°
	✓	14.9	338°
	✓	16.4	351
	✓	14.9	352½

3/17/18 W-B-D

Copied from Cust. Book #17

A+C 19-7E

D 20		1354	43452		420.98
427 R	12.4	65-30	424 ✓	10.4	34°
" R ✓	15.9	65-30	" ✓	10.6	39-45
" R ✓	16.0	61-45	" ✓	11.9	43-30
" " ✓	19.4	59-30	" ✓	10.3	50-15
" " ✓	19.2	54-	" ✓	10.9	55
" " ✓	18.5	50	" ✓	9.8	68
" " ✓	18.7	37-30	" ✓	10.9	71
" " ✓	15.4	22-	" ✓	13.9	83-30
" " ✓	16.3	28-30	" ✓	15.6	84-30
" " ✓	17.0	34-15	" ✓	25.1	76-30
" " ✓	13.1	47-	" ✓	28.2	73-30
" " ✓	13.6	52	" ✓	31.8	68-30
" " ✓	14.6	58	" ✓	33.7	63
424 ✓	16.6	17-30	" ✓	36.7	60
424 ✓	15.6	20-30	old Cone 424 ✓ R=85	37.1	60-30
424 ✓	13.3	13-15	426 ✓	36.5	61°
✓	11.6	22-15			

3/17/18 A+C 19-7E

55

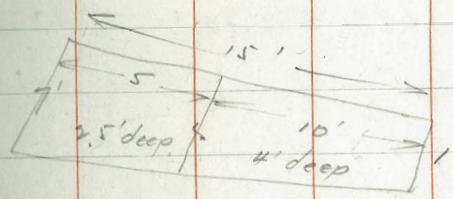
426	✓ 35.9	61°	426 ✓	9.0	48
"	✓ 34.0	63	" ✓	9.7	40-30
"	✓ 31.2	70-45	" ✓	8.5	36-30
"	✓ 29.5	73	" ✓	8.5	29-30
"	✓ 29.1	76	" ✓	8.0	19
"	✓ 27.4	76-45	" ✓	11.5	5
"	✓ 27.0	79-30	426 ✓ R=65	11.8	342
"	✓ 25.5	85-30	428 ✓	8.5	346
"	✓ 24.4	95	" ✓	7.0	16
"	✓ 23.1	97-30	" ✓	4.7	33
"	✓ 18.3	94-15	" ✓	6.6	47
"	✓ 17.2	88	" ✓	6.7	56-30
"	✓ 14.4	85-30	" ✓	6.3	73-30
"	✓ 11.4	85-15	" ✓	9.0	75
"	✓ 9.7	84	" ✓	9.6	85
"	✓ 9.9	76	" ✓	9.2	93-30
"	✓ 9.4	69-30	" ✓	13.3	86
"	✓ 7.6	69	" ✓	15.0	85-30

3/17/19	At	C19-	7E	W-B-D.
428	17.4	89-30		
"	18.2	95		
"	18.2	102-30		
"	19.9	103-30		
"	23.3	98		
"	25.1	97-30		
"	25.6	94-30		
"	27.6	78		
"	30.8	75-30		
"	34.2	62-30		
"	34.9	67-30		

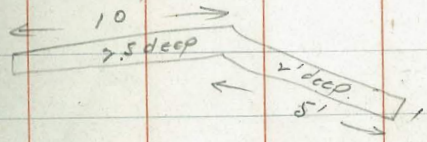
Concrete Yardage to be added in addition to Topog up to El. 412-

56

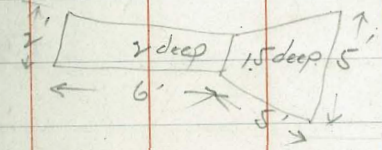
		Cu ft	Cu. yds
5 x 7 x 4	=	140	5.2
4 x 7 x 3		96	3.5
4 x 5 x 2		40	1.5
Add 6 yds for loose rock			6.0
Add 5 yds for " "			5.0



195 7.2



35 1.3



50 2.0

31.7
5
36.7

Total to El. 412.00
412 - 428

3/19/19 Johnson - Bob

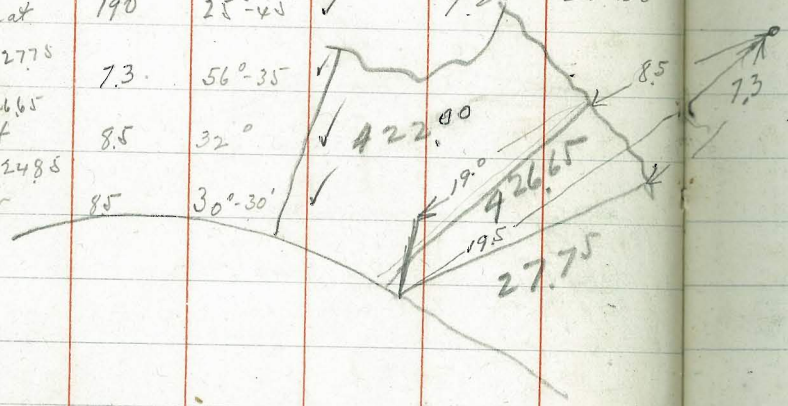
At D19 measure East

14.53 — 32.00
8.00 — 22.53
22.53 — 9.47

Set C19-7' East

At C19-7' East

D21		6.98	434.10			427.12
27.75						
Top Ele Fillet	19.5	26°-30'	✓		17.00	22.00
26.65					7.45	26.65
Top Fill at El	19.4	26°15	✓		6.35	27.75
22.00						
Bottom at	19.0	25°-45'	✓		9.25	24.85
Top at 27.75	7.3	56°-35	✓			
26.65						
Top at	8.5	32°	✓	422.00		
24.85						
Bottom	8.5	30°-30'	✓			



57

Tie to B.m #39 11.

Set on F7 Measure 75 East to C-7

Close to B.m #7

75.00 — 75.00
9.15 + 62.13 = 71.28 + 0.48 = 71.76
3.72 — 3.24

Set on C7 Sight A7

Measure 42.81 on 3°12' left.

At 3'N A8

	5 10 20 90					15 80
Aux Pt.	19 6	316°54	✓			
Top Fillet Rod 5.3	10.9	291 1/4	✓		5.3	15.6
Top Fillet Rod 5.5	15.2	287°	✓		5.5	15.4
Bottom Fillet 12.5	10.9	291 1/4	✓		12.5	08.4
	At	Aux	Pt	19 6 from A8 3'N		
3'N A8	19 6	136°54	120			
		13.4	HI 29.2			15 80
✓ Bottom Fillet	Dist 22	187°	✓	Rod 12.8		16.4
✓ "	4.3	138	✓	13.1		16.1
✓ Top Fillet	5.6	126 1/2	✓	5.2		24.0
✓ Top F	5.3	207°	✓	5.1		24.1
✓ B. Fillet	7.5	287°	✓	4.5		24.7
✓ Bottom Fillet	6.5	338 1/2	✓	4.5		24.7
✓ Top Fillet	"	"	✓	15 ft above HI		30.7
✓ Top Fillet	10.0	260°	✓	1.2 ft above HI		30.4
✓ Bottom Fillet	13.2	306 1/2	✓	1.5 above HI		30.7

Set up on B.M.

✓ C 7		0°0'				
✓ B.M.		5.0	HI 44.10			43.91
✓ Top Fillet	6.6	33°			7.8	36.3
✓ Top Fillet	16.6	347°			8.1	36.0
✓	15.0	22°			7.9	36.r
✓	13.5	38 1/2			7.8	36.3
✓	15.6	44°			3.6	40.5
	18.0	20°			3.9	40.r ✓
✓	Check	LV dist		to Aux Pt		
✓	-1.05	29.58				30.63
✓ Bottom Fillet	2.3	175°			13.3	16.3
✓	4.2	135°			"	
✓ Top Fillet	5.6	121°			5.6	
✓ Top Fillet	5.5	255 1/2			5.3	
✓	7.7	306 1/2			4.9	
✓ Bottom	6.6	37°			4.9	
✓ Top	6.6	37°			1.1 slightly low	

Top Fillet	10.0	319 1/4°			30.7			
		Set up on BM						
C7		0° 0'	BS 5.35	HI 44.46	39.11			
old pt	6'	288 3/4						
Bottom Fillet	4.3'	16°		13.7	30.8			
	7.2	32 1/2		8.3	36.2			
	13.2'	341°		14.1	30.4			
Top Fillet	17.0	346 1/2		8.4	36.1			
Bottom	15.2	20 1/2		8.3				
Top Fillet	18.1	20°		4.3				
Bottom	13.9	38°		8.2				
Top Filled.	15.6	45°		4.4				

Est. Rock Excav

March Estimate

E5						
Aux Pt.	51.35	122° 6'				
Setup at Aux Pt.						
E5	51.33	302° 6				
BM 12.9 Rod	~~51.33~~		52.91	12.32 148 1380	39.11	
440 Cont.						
440	3.7	70°	12.9 HA0	47'	115°	
"	11.6	76 1/2	"	48 4	114 1/4°	
"	13.5	87 1/2	"	47 6	113°	
"	13.0	83°	"	48 9	113°	
"	17.6	87°	12.9 old conc	49 4	110 1/2	
"	20.0	74°	8.9	48 1	108 1/2	
"	26.4	77°		46 7	107°	
"	29.1	91 1/2		41 3	107 3/4	
"	36.4	99°		38 1	106 1/2	
"	38.2	108°		36 5	93 1/2	
"	40.9	109 1/2		35 6	95 1/2	
"	46.2	110 1/2		33 5	92 1/2	

HI 52.91

				rod		
8.9 44	✓	35.7	80	4.9 48	✓ 9.2	39¼
	✓	37.2	74¼		✓ 12.9	32¾
	✓	34.3	72¼		✓ 18.5	42°
	✓	33.6	66½		✓ 21.6	35°
	✓	35.1	61°		✓ 26.3	48°
	✓	33.2	59°		✓ 29.8	42¾
	✓	30.1	63°		✓ 33.6	47¼
	✓	31.7	65°		✓ 32.1	58½
	✓	22.3	66½		✓ 35.9	57½
	✓	20.4	72°		✓ 36.9	61¼
	✓	14.8	63°		✓ 42.9	61½
	✓	13.6	44½		✓ 37.2	87¼
	✓	7.9	55°		✓ 39.8	92°
✓ face concrete derrick base		4.9	50¾		✓ 38.3	104°
✓					✓ 42.6	106¼
face 4.9 top conc. blk		5.3	26°		✓ 44.2	104½
	✓	9.1	33°		✓ 45.4	100°

	✓	46.2	99¼		✓ 16.0	25½
	✓	47.5	104°		✓ 14.9	18°
	✓	50.6	105°			
0.9	52° ✓	47.8	92°			
	✓	44.2	88°			
	✓	41.9	90°			
	✓	43.7	81°			
	✓	38.8	78¼°			
	✓	45.5	58°			
	✓	42.5	53°			
	✓	32.6	56¾			
	✓	37.9	47½°			
	✓	32.9	30°			
	✓	28.7	29°			
	✓	28.5	26½			
	✓	20.9	24¼			

March Estimate

Set up on C 4

E 4		90°0'	H 6.7.3		
		4.10	~~F 7.3~~	~~E 7.1~~	63 21
56.0					
✓	17 3	177°		56.1	136¼
✓	22 2	160°	old Conc	56.9	136°
✓	21.0	158°			
✓	22.6	146°	7.3 ✓	50 8	133°
✓	25 4	132°	✓	44 6	131°
✓	27.7	131°	✓	42 1	123°
✓	31.5	128°	✓	33 9	123°
✓	33 2	132°	✓	26 0	119°
✓	34 0	128°	✓	21 6	122°
✓	38 7	126°	✓	18 6	138°
✓	41 8	128°	✓	15 3	147½°
✓	52 2	142½°	✓	11 8	161°
✓	56 9	139°			
			+50 yds of dirt.		

March Estimate

61

✓	49 3	39.71		34.78
✓	51'	212°20		
✓ cor conc block	11.6	314°20	4.8	
✓ "	24.2	301°¾		

Conc elev S side 435.5

4/2/19 Mixter Buster Bob. Class 3 Top Rock.

HI = 50

	At CA	Sight EA	Az Rt	6321	R=7.2		6921	R=3.2				
	5000	46971		46321	462	26.6	105-15	466	7.1	93-45		
DSF	Set Stake	23.39	3.70	6551	"	34.8	112-30		11.8	67-15		
DSF	Set Stake at	25.47	8.10	61.1	"	34.2	117-0		17.1	68-15		
R=112						41.6	120		19.2	78-45		
Cont 458	15.9	156-	4.60	23.1	111-30		43.0	121-45		21.8	93	
	18.3	126-45	"	20.8	109-30		48.7	130.0		26.1	97	
	21.4	125-15		19.9	106-30	R=5.7						
	23.5	121-30		15.6	110-0	464	48.8	121-45		28.4	101-15	
	24.3	120-30		17.8	108-30		48.0	121-		30.5	98	
	26.9	115		9.7	124-45		44.9	118-30		33.2	101-45	
	28.3	114	R=7.2	10.3	151		38.9	115-15		35.9	104	
	31.9	118	462	7.9	152-30		37.3	112-15		41.0	105-15	
	39.7	123-15		9.1	123-45		26.4	100-		42.7	108-45	
92=R							22.4	96-15	Old Con.	46.9	115	
460	41.8	122-15		9.2	106-30		16.3	86-30	Corner old Con.	48.7	119	
	33.6	118-30		16.8	99-30		14.5	73-30		49.5	123-30	
	33.7	112		18.1	103-15		8.6	97	R=1.2 468	Con. Wall 548	120-15	
	28.8	109-30		21.4	103-15		6.7	120	"	52	120-45	
	26.8	111-30		24.3	106-30							

Hi = 5°	2' Topo @ AFC	Class 4	3 Rt Abut		
46921		46921			
R = 17 468	50.8	118-30			
~~R = 14~~	48.7	114-15			
El = 67.8	Cor. Con.		67.8 71.0		
R = 14	46.8	113-30			
El Top = 71.0	Cor. Cor.				
	43.6	103°			
468	39.0	98			
"	35.3	95-30			
"	28.7	91-45			
"	27.1	88-45			
"	24.9	76-15			
"	20.7	70-45			
"	18.2	63-15			
"	8.3	72-15			

At E5 Sight E4 for Zero

H4		713	51.22		4409
R = 12.3	Cor Block H.W.				
El 38.9	47.3	142-15	√		
R = 165 -			√		
El - Top Fillet = 34.7					
R = 116 Bottom Block			√		
El = 39.6	43.7	131-35			
R = 34.5 El =	47.77		√		
Top Sw Cor Block	42.2	123°			
R = 3.35 El =	47.87		√		
Top Block Cotton	42.7	118-30			
R = 3.3 El = 47.92			√		
SE Cor.	52.7	116.			
			√		

Hi.

At H 19-15'N Sight 019-15'N 90°

	At M 19-15 N. Rock Surface				
019-15 N.	1.97	513 6	448 cont. Surface		4939
41.4 450 cont.	28.5	246°	3.4	17.1	88°
450	28.0	235°		12.3	81½
	20.6	228°		12.0	61°
	19.8	234°		10.7	55°
	14.7	238½		9.3	77°
	10.7	228°		7.0	82°
	8.4	240°		12.5	110°
	6.0	230°		12.2	123°
	6.3	223°		5.2	150°
	7.5	139°		3.6	160°
	8.9	142°		3.6	228°
	13.0	122½		4.6	249°
	14.3	125½		9.1	253
	16.9	116°		8.7	270
	16.5	102°		16.3	253
	20.5	95¾		24.7	241
3			old conc.	28.2	241

	At M 19-15 N. Rock Surface				64
	28.5	246½			3
	26.4	260½		17.2	79 89
	27.7	261¼		19.7	89
54			7.4		
446.0	27.7	281°	444.0	21.9	80½
	26.5	279°		16.1	71°
	26.0	276°		16.1	61
	22.1	264°		11.4	42°
	17.5	267½		8.4	22°
	9.0	277°		11.8	24°
	6.4	289°		13.3	13°
	00	00		16.0	24°
	5.9	6°		14.8	2°
	3.4	33°		10.3	357°
	9.5	28½		10.2	334½
	13.1	54½		13.1	322½
	12.8	68¼		24.2	271°
	14.9	79°		25.9	276½

AT M 19-15'N

HI 51.34

Rock Surface

↓	27.6	290°	↓	13.3	22°
↓	28.7	289½	↓	11.5	26°
			↓	10.3	24½
R=94					
4430 ↓	33.8	306°	↓	13.3	52¾
↓	32.7	307°	↓	14.2	60½
↓	31.2	307½	↓	16.4	61½
↓	21.0	299°	↓	16.7	67°
↓	21.3	303°			
↓	19.0	311½	R=11.4		
↓	21.1	319°	4400 ↓	18.5	63°
↓	20.6	338°	↓	13.4	50°
↓	21.3	345°½°	↓	11.6	34°
↓	21.0	347¼	↓	13.7	29°
↓	18.2	356°	↓	17.7	28°
↓	17.0	355½	↓	18.2	23½°
↓	17.4	24½	↓	16.7	357½
↓	15.1	28°	↓	19.5	358°
			↓	20.4	355¾

AT M 19-15'N

Rock Surface

R=11.4					
cont					
4400 ↓	21.1	343½	↓	44.0	275°
↓	20.2	337	↓	47.9	273°
↓	20.5	328½	cont 40	52°	272°
↓	22.3	305°	4420		
old			9.4		
conc ↓	22.0	301½	42 ↓	33.6	304°
↓	32.0	307½	cont 42 ↓	34.7	303°
↓	33.2	308	↓	34.6	286°
↓	35.4	313°	↓	35.0	273°
↓	36.1	..	↓	34.3	268½
↓	34.2	307°	↓	35.1	263
↓	35.4	304¼	Cut ↓	42.3	259°
↓	34.5	286¼			
conc ↓	34.4	275½			
↓	37.4	274			
↓	38.2	268			
↓	40.4	267½			
↓	41.9	270°			

4/3/19 At 019

Rock Surface

019					
	5.15	41.08			3593
31 cont 38	19 6	256 1/2		78 3	279 1/2
	29 2	263°			
	35 8	265°	5:1 436.0	78 9	283°
	41 0	271°	"	78 0	252 1/2
	44 5	272 1/2		76 6	278
	50°	272 1/4		73 2	276 1/2
	50 5	276 1/2		70 3	279°
	52 5	277°		65 8	281°
	57°	275 1/4		64 1	277 1/4°
	59 3	276 3/4		58 8	278
	65 6	276 1/2		56 4	277°
	68 3	277°		55 8	276°
	68 9	278 1/2		52 3	277°
	72 3	274 3/4		49 8	276 3/4
	76 8	278		49 2	272 1/2
	77 4	279°		42 0	273°

Rock Surface

At 019

		271 1/2		66 3	281 1/4
	38 0	270		70 0	279 1/2
	28 4	267 1/2		77 9	283 1/2
7.1 434.0	28 5	274°	9.1 432.0	79 8	287 1/2
	32 2	275 1/2		77 5	283 1/2
	34 9	272 1/2		71 9	280 1/2
	44 3	272 1/2		67 3	281 3/4
	44 7	273 1/2		64 4	281 1/4
	48 2	272 1/4		62 3	281 1/2
	48 8	276 3/4		58 7	281 1/4
	53 0	276 3/4		57 9	279°
	54 8	"		55 8	278 1/4
	56°	278°		54 2	276°
	58 4	278 1/2		51 5	276 3/4
	61 4	277 3/4		48 4	277°
	62 5	280 1/2		47 3	274 1/4

4/3/19 At O-19

Rock Surface

432	44 9	275 1/4			
	43 9	273°			
	42 7	"			
	41 3	"			
	41 0	276 1/4			

Set on M 19-15'N

Rock Surface

Measure West 27.31 = A 19-15N-23W

Sight O 19-15'N for 90° Lt.

□ 19-15'N		26r	52.01		49.39
			old Con		
444 - R=8°	24r	254-15	444	4.9	244-30
	22.7	248 10		3.0	338-45
	24r	243-30		~~160~~	
Top of flat Steel on Rock	Edge of Steel 17.0	238-30	Steel End	Concrete 7.0	34.7
Edge Steel	17.7	219-45	10'-R.		
Old Con	15.7	214-15	44r	Edge Cut 15.9	Steel 239
" "	11.3	444°	Top-	Edge Cut 19.3	Steel 270-45

4/3/19 Rock Surface

52.01

At A19-15N 2-31W.

End Cut.					
44r	23.5	264-15			
			R 20	Con - Steel	
			450	6.0	180-30
Rod = 6°				Cor. Con	
	End cut				
446.0	27.3	243-15		12.5	185-45
				Con.	
"	26.7	232		20.1	195-45
	Edge Cut Steel Top		Edge Top	Steel	
"	18.0	222-30		22.0	203-15
				End Cut	
"	18.6	214-30		28.8	218°
	Concrete			orig. ground.	
"	15.5	212-15		29.2	225-45
			Rod 11.48	Ele = 4053.	
Con.	13.4	217-30	Auxil Pt	158°	270°
"	6.9	229			
Cor Concrete					
"	3.0	338-30			
End Concrete.	4.4	345-15			
R=40	End Cut				
448	28.1	233-30			
"	27.3	224			
	Top & Edge Steel				
"	19.7	212			
old Concrete					
"	20.0	196			
" "	Cor.				
"	12.0	186			
Con. & Steel					
	4r	182-30			

HI = 46.5

Rock Surface

45.18 — At A19 — 18.11 W. — 40.53

R = 5.18	Rock		R = 9.18	Steel	
440	5.1	300-30	#36	34.7	27-15
Top Edge Steel					
440	7.8	307-30	Con. F.	29.5	29-30
Top Steel			Con. Face		
440	8.2	281-15		17.4	27
			Con.		
440	13.7	279-45	Shot out	13.2	40°
440	20.7	274	Rock	8.9	7°15
			"	7.6	34.7
R = 7.18					
438	20.0	286-15	"	8.3	343-45
Top Steel	End cut				
"	14.1	296	"	8.9	325-45
Top & Edge	Steel.		Edge Steel		
"	1.0	319-30	on Rock	9.5	317-45
			lower edge Steel		
Rock	7.0	310-45		13.4	319-30
			lower Edge Steel		
"	5.8	3°		14.2	305-30
			Lower E.S.		
	5.6	20-45	on Rock	16.3	295-30
	4.9	38-30	" "	20.3	288
	11.2	54-30			
Con. shot out					
	14.8	36-45	Rod=		
Con face					
	18.5	27-45			
Con. face	29.9	29-15			

HI = 3.4

HI = 58.50

At B-21

Sight C-21 for 270° Az o At 68

55.10

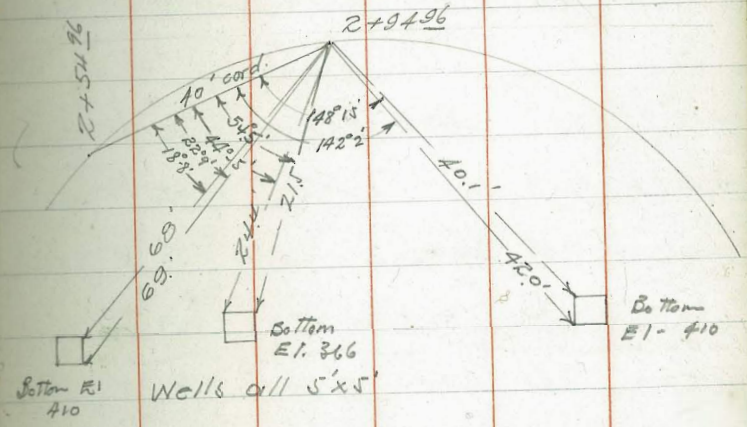
C-21		12.78	58 50		45.72
R = 6.5	End cut		End cut		
452.0	11.7	22°	454	8.8	37-45
452	10.9	36	Rod 2.5		
Top & Edge	Steel				
	19.9	52°	456	7.2	64-30
			End cut		
	22.6	58	"	8.7	77-15
			Top Edge	Steel	
	21.9	66-30	"	19.8	72-45
Con. Face W			Edge Steel		
	23.6	66-15		21.6	84-45
Con Face W			Face Core	Wall	
	28.0	51.0		22.4	80-45
Con. ~~Steel~~	Steel Core		Face Core Wall		
	31.7	45-45		24.5	66-15
Con Steel	Con.		Steel	Con	
	35	39-15		24.8	67-30
R = 4.5	Con W - S.	Core	Steel.		
454	29.3	52°		26.2	61-45
Face Wall	Conn		Con. or	Steel	
	26.0	57-30		27.2	60
Con Con Wall			East face	Core Wall	
	27.2	81		29.6	60-30
Edge Steel					
	21.1	79°	R.o.5		
				East F. C. Wall	
	20.9	68-15	458	28.2	67-15
Top Edge Steel			Con on Steel		
	19.4	63-30		25.5	68-15
			Face on West Side Core Wall		
	9.7	63-15		22.7	79.0

H1=34

58.50	Ft B 21		55.10
Con. Face 458	220	84	
Top + Edge Steel	20.3	80	
Top steel	End cut. 18.4	91°-30	
Nat. G.	7.7	91°-30	

00 Cut for Class 3 El. 62.00

Tie to Wells on Expansion Joints.



Wells all 5'x5'

Plotted

4/7/18 M-j-B

Surface Rock 2675 8449 3524

At M 22 Sight M 00 Turn 9°55' left for dist. 35.24 for Auxil Point

M 22		1.53	470.10		468.57
Auxil Point				12.55	57.55
HI = 5.05					
HI = 6.26.0		At Auxil Point			457.55
		5.05	6.26.0		457.55
Rod 9.6 Rod 10.6					
4520	29.4	39.0	4520	17.5	327-15
	25.1	42-15		19.3	317-30
	21.9	35-45		17.2	310
	20.7	20°		16.6	297-45
	17.7	4°45		15.7	294-15
	16.1	0°-15		14.5	281
	13.6	354-30		18.6	269-30
	11.6	359-30		22.6	264
	13.6	351-15		25.5	263
	13.4	338-30	Wall Old Con	30.6	262-15
	16.6	330-45		31.2	270

At Auxil Pt from M 22

End Con Wall 4520	33.1	278-15				
	35.3					
Rod 10.6 Steel 4520	36.1	279-45	4520	24.6	35-30	
End Con 45.4	34.2	279		29.0	38-45	
Con	31.0	260-45	Rod 8.6 4540	28.4	45-15	
	26.0	264		24.1	39-30	
	27.3	267		20.8	33-15	
	19.3	271-45		19.3	25-45	
	17.7	278-15		21.1	17-30	
	18.8	296-15		18.1	5°	
	20.6	312-30		16.6	358	
	17.8	329-30		13.5	354-15	
	16.6	333-15		14.0	336-30	
	15.3	352-30		18.0	328-15	
	16.6	358-45		14.6	317-15	
	20.6	19-15		14.7	301-30	
	21.7	32		11.7	301-30	

HI = 462.60				
		1	462.60	
R = 8.6				
45400	10.7	279	1	
↓	16.5	265-30		
↓	19.8	268-15		
↓	24.8	262-45		
↓	28.6	263-30		
Con. Wall ↓	31.0	260		
End Con. ↓	33.3	276.		
Steel ↓	34.1	272-15		

4/8/19 Surface Rock Rt About. 71

ATC4 Sight HI for Zero Az

Lt Set Nail 136°6' dist. 8.95

At Auxil. Point 268.

Sight C4 for Zero Az Lt.

C4 Rod = 5.12		9.91	7312		6321
468 ↓	3.1	278-30	468 Cor. Con ↓	41.2	246-45
↓	9.3	196-30	Cor ↓	39.5	248-15
↓	16.1	192-30	Cor. ↓	43.6	258-15
↓	20.7	195-45	Cor m/Wall ↓	47.6	255-45
	21.6	205-30	Rod-3.12 " 470 ↓	47.6	255-45
↓	24.0	206-45	470. ↓	43.6	258-15
↓	24.9	212	" ↓	39.5	248-15
↓	25.9	217	" ↓	41.3	246-45
↓	28.0	224-15	Con Wall ↓	38.0	227-30
↓	30.6	227-30	↓	31.3	217-30
↓	31.2	234-15	↓	28.0	215
Con Wall ↓	38.7	237	↓	25.7	204-30
			↓	20.3	192-15

HI = 731²

4/8/19 Surface Rock

Rod 3.17

470	17.4	188			
"	8.3	190 30			
"	2.7	215.0			

HI = 51 = 87 62

Sub-Master

4/9/19 Surface Rock Lt Abutment

0.26		2.46	92.73		90.27

HI = 927 3 At P 24 Sight P 26 - 180° Lt

Rod 6.73

486.0	6.9	325°	484.0	15.9	8-30
	5.0	10°-30		14.5	352.0
	7.3	23°		12.3	326-15
	8.1	45-15		21.6	318.0°
	14.5	58	R = 10.73 482.0	31.4	314-45
	17.6	40°		25.4	319-15
	18.8	28		15.6	33.6

Rod - 8.73

484.0	25.0	0-15		22.3	34.1
	18.9	17		22.7	1°
			NG	34.3	346-15

4/9/19 Surface Rock Lt About 7r

HI = 927 3
R = 12.73

At P 24

480	44.6	340-45				
	37.7	341-45				
	36.6	325				
	35.0	316-45				
NG	41.2	315				

At M 23 Sight 1726 for 180° Lt 7983

HI = 495
HI = 84.78
R = 6.78

478.0		49.5	84.78			7983
	17.8	38-15	R = 6.78 478.0	38.0	54	
	19.7	55	R = 8.78 476.0	37.9	44-15	
	22.4	81-15		36.4	51	
	27.4	76-15		30.3	55-15	
	29.0	71-30		19.8	38-30	
	33.5	71.0°		18.4		
	38.6	71-45	R = 10.78 474.0	21.5	13-15	
	34.2	67-15		20.1	24-15	
	31.7	61.0		25.3	32-45	
	37.3	54-45		36.5	36.0	
				38.2	31.0°	

HI = 495
HI = 484.78
Rod = 12.78
470.0

Surface Rock.

At N 23

	38.2	77-30			7983
	36.3	79			
	27.0	31-30			
	25.3	25	50 Add to all dist.		
	21.3	18.30			
	26.3	14°			
	23.0	16-45			
I.G.	24.5	1°-45'			

HI = 497
HI = 73.49

At N 22

N 23		194	7349		6857
Rod = 3.49					7155
470.0	21.0	73-15	468	38.0	63.0
	24.0	82-15		30.0	64.0
add ½ Ht.	28.5	82-30		24.0	63.0
	31.3	81-30		19.4	63-15
	40.3	72-30	Rod 7.49 466	19.8	52-45
	39.3	64-30		22.2	53.0
Rod = 5.49					
468.0	38.7	53-15		26.5	57.0

Add 2.5 to all dist. at N 22

HI = 7349	At	N 22			
466	29.8	48.0	462.0	29.0	31°-30'
	31.7	52-45		28.7	26.0
	31.5	57.45		23.0	19-30
	37.8	56.0		24.7	5°-30'
	38.5	42-45	Axil Pt. PDR. ✓	42.13	28°0'
Rod 9.49				Rod.	Ele
464	42.0	32°	F.P.	9.96	463.53
	37.8	40-30			
	36.0	43.0			
	31.5	41-30			
	26.5	48-30			
	23.5	45°			
N.G. Rod = 11.49	19.3	42-15			
462.0	51.2	28-15			
462.0	46.0	25°			
	39.5	30°			
	38.8	33°30'			
	24.5	10°			

Add 0.5 to all dist. at N 22

See next Page

4/9/19 Sub-Mixter

Surface Rock

At Auxil point from MT22

Hl = 6644					
PP.		2.91	6644		46353
Rod 444					
462.0	20.8	233-15	460	42.8	263-45
	24.2	246-30		40.2	259-30
	27.3	253-45		26.5	254-30
	32.5	257-15		19.8	242-45
	31.8	257-45		19.4	233-15
	40.0	257		15.2	223
	44.5	260-30		10.2	215-15
Steel	47.5	256-30		10.7	202-30
O. Rod 644				5.1	216-45
	N.G.				
460	56.8	255-30		9.5	285
Steel	~~49.0~~	~~262-15~~		7.2	287
	54.8	254-45		7.0	304
Steel	47.0	260-30		4.0	304-15
Steel	46.9	262-30		4.0	325
Con Face	45.8	263		5.5	342-15
"	45.9	261-45		4.0	359-15

At Auxil point from MT22

Hl = 6644					
R = 6.44					
460	7.0	13-30	R. 8.44 458	40.8	266-30
"	9.5	32°-15	Con Face	45.2	266-30
"	11.5	48-15	Steel	46.2	266-15
R = 8.44					
458	14.0	39-30	R=10.44 Steel		
	12.5	43-30	456	46.0	271-45
	9.1	18-30	Con F.	44.9	272-45
	5.9	8°	Con F.	45.0	267
	5.4	328-45	456	41.2	270-30
	7.2	323-45		38.2	264-45
	9.0	311 ~~351~~		30.5	265-15
	7.8	288-30		25.8	258-45
	11.1	303-30		22.0	255
	12.8	294-45		15.8	256-15
	14.0	278		17.7	282-0
	11.3	249-45		13.8	292-30
	21.2	247-30		11.0	303-30
	25.8	257-30		7.1	324-30
				5.5	357°
	39.2	262		9.4	17-15
				13.7	40-45

Bub-Mixter
4/9/19

Surface Rock

HI=66.44 At Auxil Point from M 12

Rod 10.44	14.8	336-30			
R. Cor 56	16.8	326-45			
R. Cor 56	15.5	321-45			
R Cor 56	13.5	316.			
R. Cor 56	11.0	312-45			
R Cor 56	9.5	334			
R 8.24	El. = 58.20				
Top Rock	14.5	318			

4/12/19 P-B M-A

Surface Rock.

HI=97.80 At Q 26 Sight 026 for 270° Lt

026		7.53	97.80		90.27
Rod 9.8			490		
488	54.1	335°30'	Rod 7.8	43.0	5°15'
	49.0	338°45'		35.3	21°45'
	45.3	346°15'		30.0	17°45'
	41.4	355°45'		29.0	6°30'
	47.0	358°15'		27.1	359°15'
	57.3	352°30'		33.7	348°

Hold 0.5.70 all dist. to Q 26 set up

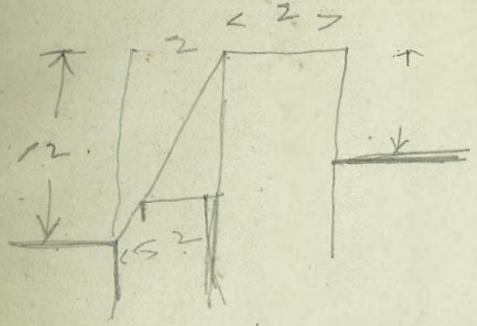
Rod 5.8	18.7	33°45'			
492.	27.2	86°30'			
	38.3	75°30'			
	34.7	52°45'			

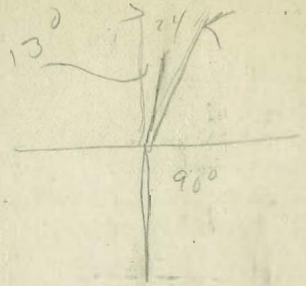
10.44
2.3
8.24.

Index.

List of BM

USGS	Cross in Brass Cap in Boulder West End Spillway	486.569
#1 Nail	in Boulder ½ Way down Slope below West Side below #1	440.24
#2 "	" Ledge 20' above bottom draw below old Diverting Dam	401.22
#4 Bolt	in Flat Ledge W Side Canyon 50'	377.59
#6 Rock	West End Concrete Basin on P.I. 1+70 to C.	494.89
Plug	in Concrete Abutment old core wall	439.11
#3A Bolt	in Rock ledge 75E of N End Diverting Dam	372.66
TBM.	Top ½" dowel Cable Anchor North Side	389.52





DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 14 FEET WIDE. SIDE SLOPES 1½ TO 1.

FOR SINGLE TRACK EMBANKMENT.

	0	.1	.2	.3	.4	.5	.6	7	.8	.9	
0	7.0	7.2	7.3	7.5	7.6	7.8	7.9	8.1	8.2	8.4	0
1	8.5	8.7	8.8	9.0	9.1	9.3	9.4	9.6	9.7	9.9	1
2	10.0	10.2	10.3	10.5	10.6	10.8	10.9	11.1	11.2	11.4	2
3	11.5	11.7	11.8	12.0	12.1	12.3	12.4	12.6	12.7	12.9	3
4	13.0	13.2	13.3	13.5	13.6	13.8	13.9	14.1	14.2	14.4	4
5	14.5	14.7	14.8	15.0	15.1	15.3	15.4	15.6	15.7	15.9	5
6	16.0	16.2	16.3	16.5	16.6	16.8	16.9	17.1	17.2	17.4	6
7	17.5	17.7	17.8	18.0	18.1	18.3	18.4	18.6	18.7	18.9	7
8	19.0	19.2	19.3	19.5	19.6	19.8	19.9	20.1	20.2	20.4	8
9	20.5	20.7	20.8	21.0	21.1	21.3	21.4	21.6	21.7	21.9	9
10	22.0	22.2	22.3	22.5	22.6	22.8	22.9	23.1	23.2	23.4	10
11	23.5	23.7	23.8	24.0	24.1	24.3	24.4	24.6	24.7	24.9	11
12	25.0	25.2	25.3	25.5	25.6	25.8	25.9	26.1	26.2	26.4	12
13	26.5	26.7	26.8	27.0	27.1	27.3	27.4	27.6	27.7	27.9	13
14	28.0	28.2	28.3	28.5	28.6	28.8	28.9	29.1	29.2	29.4	14
15	29.5	29.7	29.8	30.0	30.1	30.3	30.4	30.6	30.7	30.9	15
16	31.0	31.2	31.3	31.5	31.6	31.8	31.9	32.1	32.2	32.4	16
17	32.5	32.7	32.8	33.0	33.1	33.3	33.4	33.6	33.7	33.9	17
18	34.0	34.2	34.3	34.5	34.6	34.8	34.9	35.1	35.2	35.4	18
19	35.5	35.7	35.8	36.0	36.1	36.3	36.4	36.6	36.7	36.9	19
20	37 0	37.2	37.3	37.5	37.6	37.8	37.9	38.1	38.2	38.4	20
21	38.5	38.7	38.8	39.0	39.1	39.3	30.4	39.6	39.7	39.9	21
22	40.0	40.2	40.3	40.5	40.6	40.8	40.9	41.1	41.2	41.4	22
23	41.5	41 7	41.8	42.0	42.1	42.3	42.4	42.6	42.7	42.9	23
24	43.0	43.2	43.3	43.5	43.6	43.8	43.9	44.1	44.2	44.4	24
25	44.5	44.7	44.8	45.0	45.1	45.3	45.4	45.6	45.7	45.9	25
26	46.0	46.2	46.3	46.5	46.6	46.8	46.9	47 1	47.2	47.4	26
27	47.5	47.7	47.8	48.0	48.1	48.3	48.4	48.6	48.7	48.9	27
28	49.0	49.2	49.3	49.5	49.6	49.8	49.9	50.1	50.2	50.4	28
29	50.5	50.7	50.8	51.0	51 1	51.3	51.4	51.6	51 7	51.9	29
30	52.0	52.2	52.3	52.5	52.6	52.8	52.9	53.1	53.2	53.4	30
31	53.5	53.7	53.8	54.0	54.1	54.3	54.4	54.6	54.7	54.9	31
32	55.0	55.2	55.3	55.5	55.6	55.8	55.9	56.1	56.2	56.4	32
33	56.5	56.7	56.8	57.0	57 1	57.3	57 4	57.6	57.7	57.9	33
34	58.0	58.2	58.3	58.5	58.6	58.8	58.9	59.1	59.2	59.4	34
35	59.5	59.7	59.8	60.0	60.1	60.3	60.4	60.6	60.7	60.9	35
36	61.0	61.2	61.3	61.5	61.6	61.8	61.9	62.1	62.2	62.4	36

Calculated by Julien A. Hall, M. Am. Soc. C. E.