K & E

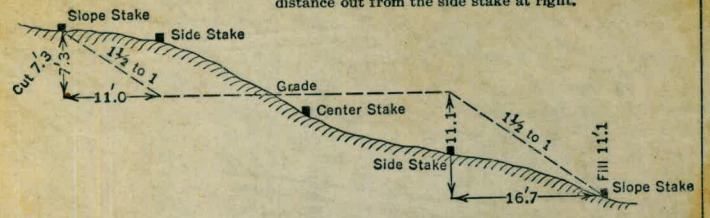
MINING TRANSIT BOOK

F 363 A

DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

Roadway of any Width. Side Slopes 1½ to 1.

In the figure below: opposite 7 under "Cut or Fill" and under .3 read 11.0, the distance out from the side stake at left. Also, opposite 11 under "Cut or Fill" and under .1 read 16.7, the distance out from the side stake at right.



Cut or Fill	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	Cut or Fill
	Distance out from Side or Shoulder Stake										
0	0.0	0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.2	1.4	0
1	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9	1
2	3.0	3.2	3.3	3.5	3.6	3.8	3.9	4.1	4.2	4.4	2
3	4.5	4.7	4.8	5.0	5.1	5.3	5.4	5.6	5.7	5.9	3
4	6.0	6.2	6.3	6.5	6.6	6.8	6.9	7.1	7.2	7.4	4
5	7.5	7.7	7.8	8.0	8.1	8.3	8.4	8.6	8.7	8.9	5
6	9.0	9.2	9.3	9.5	9.6	9.8	9.9	10.1	10.2	10.4	6
7	10.5	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9	7
8	12.0	12.2	12.3	12.5	12.6	12.8	12.9	13.1	13.2	13.4	8
9	13.5	13.7	13.8	14.0	14.1	14.3	14.4	14.6	14.7	14.9	9
10	15.0	15.2	15.3	15.5	15.6	15.8	15.9	16.1	16.2	16.4	10
11	16.5	16.7	16.8	17.0	17.1	17.3	17.4	17.6	17.7	17.9	11
12	18.0	18.2	18.3	18.5	18.6	18.8	18.9	19.1	19.2	19.4	12
13	19.5	19.7	19.8	20.0	20.1	20.3	20.4	20.6	20.7	20.9	13
14	21.0	21.2	21.3	21.5	21.6	21.8	21.9	22.1	22.2	22.4	14
15	22.5	22.7	22.8	23.0	23.1	23.3	23.4	23.6	23.7	23.9	15
16	24.0	24.2	24.3	24.5	24.6	24.8	24.9	25.1	25.2	25.4	16
17	25.5	25.7	25.8	26.0	26.1	26.3	26.4	26.6	26.7	26.9	17
18	27.0	27.2	27.3	27.5	27.6	27.8	27.9	28.1	28.2	28.4	18
19	28.5	28.7	28.8	29.0	29.1	29.3	29.4	29.6	29.7	29.9	19
20	30.0	30.2	30.3	30.5	30.6	30.8	30.9	31.1	31.2	31.4	20
21	31.5	31.7	31.8	32.0	32.1	32.3	32.4	32.6	32.7	32.9	21
22	33.0	33.2	33.3	33.5	33.6	33.8	33.9	34.1	34.2	34.4	22
23	34.5	34.7	34.8	35.0	35.1	35.3	35.4	35.6	35.7	35.9	23
24	36.0	36.2	36.3	36.5	36.6	36.8	36.9	37.1	37.2	37.4	24
25	37.5	37.7	37.8	38.0	38.1	38.3	38.4	38.6	38.7	38.9	25
26	39.0	39.2	39.3	39.5	39.6	39.8	39.9	40.1	40.2	40.4	26
27	40.5	40.7	40.8	41.0	41.1	41.3	41.4	41.6	41.7	41.9	27
28	42.0	42.2	42.3	42.5	42.6	42.8	42.9	43.1	43.2	43.4	28
29	43.5	43.7	43.8	44.0	44.1	44.3	44.4	44.6	44.7	44.9	29
30	45.0	45.2	45.3	45.5	45.6	45.8	45.9	46.1	46.2	46.4	30
31	46.5	46.7	46.8	47.0	47.1	47.3	47.4	47.6	47.7	47.9	31
32	48.0	48.2	48.3	48.5	48.6	48.8	48.9	49.1	49.2	49.4	32
33	49.5	49.7	49.8	50.0	50.1	50.3	50.4	50.6	50.7	50.9	33
34	51.0	51.2	51.3	51.5	51.6	51.8	51.9	52.1	52.2	52.4	34
35	52.5	52.7	52.8	53.0	53.1	53.3	53.4	53.6	53.7	53.9	35
36	54.0	54.2	54.3	54.5	54.6	54.8	54.9	55.1	55.2	55.4	36
37	55.5	55.7	55.8	56.0	56.1	56.3	56.4	56.6	56.7	56.9	37
38	57.0	57.2	57.3	57.5	57.6	57.8	57.9	58.1	58.2	58.4	38
39	58.5	58.7	58.8	59.0	59.1	59.3	59.4	59.6	59.7	59.9	39
40	60.0	60.2	60.3	60.5	60.6	60.8	60.9	61.1	61.2	61.4	40

KEUFFEL & ESSER CO., N. Y.

For Curve Tables see end of book.

582

GROUT BOOK
No. 3

10,360. k, a, ai. oM.

INDEX

INDEX

Hole No. 15-0

Date.

Time	= =	= = =	Depth	Water Pressure	Grout = = =
10:30 A	10:30 A	0-30	0 122.0		150
= FINAL - Grouting =			NIL.		

Cement	Water.		Cement Waste Cu. ft
1			
1:3	2	6 gr	0

15-25 5-1-42

11:30A 0:114.0

4-00PM 12-00M. 8-00
12-00M 7-45a.m. 7-45
7-45 8-00aM 0-15

Note Hole 17-0 is Full of Grout But did not have any pressure as it filled up and sealed off with out having to cap it. Water reappeared along seam Block 13 from Sta 9+30 to 9+50 From axis to down stream toe of Dam.

2 Waste

Cement. Water.

1-3
D. R. Curry
1-3 Cement Water
1-3 1400 4156. 1

16. — 0 5-1-43

10:30A 11:30A 1 - 0 0:108.3 150

= SIGNAL =

3 WASTE 0

11:3 12 36

7-34 5-5-42

8:00 A 11:30 A 3-30 0:25.0 40

Changed to 1:1 to seal open link on

11:30 A 1:45 P 2:15 0:25.0 60

~~= Grouted FINAL = Allen~~

This hole took grout freely and I am sure it would of taken quite a bit more if I would of given it a few more lbs pressure. May get good results by washing out this hole and and drilling another 25' Allen.

4 Wash C. Co. Ft.

Allen Achord -

Mix	Cement	Water.
1:3	192	576
- up stream side of dam -		3
1:1	90	30

7-34- 5=6-4½

8:30A 10:00A 1-30 0,52.0 100

This hole sealed off tight.

Grouted FINAL - Allen

5

Allen Acherd-

WASTE. 4+7

3

For	Cement:	Water-
1:3	3	9

18-0 5-8-42

8:30A	8:30A	0-30	0:106.0	40	
This hole took 6 cu ft of water in 3 min test - leakage showing thru open seam on surface near top of hole - Aldred					
8:30A	9:15A	0-45	0:106.0		30
9:15A	11:50A	1-45	0:106.0		100
	Grouted - FINAL -				

T

19
17/4
3

Waste -

Allen Achord

Pro	Cement	Water	
1:3	6	18	0
1:1	17	17	0

RL

8-25 5-8-42

8:90A 9:00A 0-30 0:30.0 30

This hole ~~took~~ 6 2/3 cu ft of water in 3 min test. a few slight surface leak around top of hole - Allen

11:15A 2:00P 0-45 0:30.0 30

To be washed-out at 4:30-P.

This hole was washed out at 4:42 P - 5-8-42 : 30:0

Allen

7 Waste -

Allen Acheed -

Pro -	Cement	Water -
1:3	9	18 0

Noted

17-25-

5-8-1/2

2:00 P 2:15 P 0-15- 0:106.0 150
This hole

2:15 P 3:15 P 1-0 0:106.0 150
= Grouted - FINAL =

Allen Anchored - 8

WASTE Cwt

Mix Cement WATER- 2
1:3 4 12

16- 39° 5-9-42

8:00 A	9:30	1-30	0:124.0		50
Changed to seal surface leakage.					
9:30	11:30	2-0	0:126.0		100

Grouted FINAL - ALLEN

ALLEN Achord - 9

WASTE -

PT 1:3	CEMENT 62	WATER - 186	
1:1	31	31	2

19- 25 5-2-42-

9:00 A 11:00 A 2-0 0:77.0 100

= Grouted - FINAL =

WASTE -

Allen Achord -

PLACED -

Mix	Cement	Water	
1:3	35	10.5	0

20 - 0

5-12-42

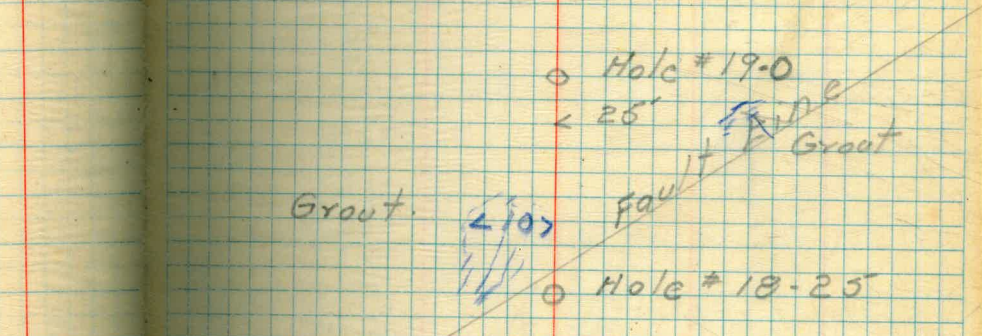
5-12-42				lbs.
A.M	5-13-42			
11°°	5:25 A.M	0:70.5		100
5:25 AM	6:30 AM	0:70.5		150

WASTE.

Allen Rehoused

Mix	Placed Cement	Water	
1:3	1071	3213	
1:1	59	59	5

Adolph Bock, Insp. 8:00 P.M to 8:00 AM



Note Hole #19-0 was drilled to a depth of 12' and grout came out of it so that it had to be capped.

DATE -

Hole-No - 19 - O

5-16-42

Time -	Depth -	W-PR	G-PR
10 30 A	11: 45 A	1-15	0:90.0

125

Grouted = FINAL = Allen

Allen

Achord -

12

WASTE -

PTO -	Placed Cement	WATER -	
1:3	12	36	0

DATE-

Hole-No 18-25 DEPTH 5-7/6-41

Time	Time	Time		W-Pres	G-Pres	
12:90 P	1:00 P	0:30	0:30.0		0	

Changed Pro of cement- to seal small open cracks along face of rock near top of hole.

1:00 P	3:30 P	2:30	0:30.0		55	

13

WASTE

ALLEN Anchored

PRO	CEMENT (PLACED)	WATER	
1:3	18	54	0
1:1	105	105	3

WASTE -

Hole - 12 - 25 - 6 - 1 - 42

Time		Min.	Depth	W - P	G - P
8:30 A	9:30 A	1 - 0	0:97.5		95
9:30 A	12:00 M		2-30		150

Ahhen Achord

Pro	Placed Cement	Water -
1:3	31	93
1:1	101	101

WASTE -

Hole no 12 - 0 6-1-42

Time	Hr. Min	Depth	W.P.	G.P.
1:00 P	1:30	0-30	0:158.0	195

After Anchored

Pto	Planed Cement	Water
1:3	4	12

Pl

Hole-no 13-O 6-1-42

Time	Hr.-min	Depth	Lo-P	G-P.
2:00 P	3:30 P	1-30	0:158.0	195

Hrs eN	Chord			
Pro	Placed-CEMENT	WATET-		
1:3	15	45	1	

16

WASTE-

WASTE.

2-12" 6-8-42

Time		DEPTH	G-P
11:00A	11:20A	0-20	25.0	60.0

ALLEN ACHORD

PTO	PHASE OF CEMENT	WATER
1-3	1	3	0

Jens	2-37 Wn.-M Depth	6-8-1/2 G-P	Allen	Placed	Rehord	WASTE-
			P70	cement	WATER	18
11:20A	11:50 0-30	20.0 60.0	1-3	1	3	0

Hole-No 13-0 DATE 5-19-42

Time Fr —	TO	Hr-Min	Depth	A-Pm	G-Pm.
9:30 A	9:45 A	0-15	0:65:0	45	

At this pressure this hole took 4½ cu ft of water leakage showing around top of hole at edge of Highway.

9:45 A	10:30 A	0:45	0:65:0		45
10:30 A	11:30 A	1-0	0:65:0		95

19 CEMENT

Allen Achord - WASTE.

Mix	Cement	Water	
1:3	6	18	
1:1	8	8	3

Hole No. 12-25 June 3, 1942

			Depth	Grout Pressure
8:00A	11:30A	3:30	0-154	190

Final grouting

Allen Achord

1:3 14 0.42 14 sacks

Hoheho/- 37- 6-8-52

Time		Ft. min	Depth	G-Pr-
9 00 A	10.30 A	1-30	25.0	60.0

21

WASTE CEMENT

Allen Achord-

Pr -	CEMENT	WATER-	
1-3	2	6	0

1-12 ½

6-8-½

Time	Hr. Min.	Depth	G-P
10:30A	10:55	0-25	25.5	60.0

Waste cement

Ahren Pr—	Cement	Achord- Water.
1-3	2	6 0

WASTE

5-12" 6-8-1/2

Time	Hr. Mn	Depth	G-P	Pr	Cement	Water
						0
1.00 P	1.30 P	0-30	20.0	60.0	1-3	1 / 3

Hohenfo 5-37 6-8-42

Time		Hr. Sm	Depth	G-P
12:30 P	1:00 P	0-30	25.0	60.0

Waste

Ahlen Achard

Pr.	Cement	Water	
1-3	1	3	9

0-43

6-19-42

Depth pressure
0-25 50

Final

Allen

Proportion	Cement	Sand	Water	Quantity
3:1	1	0	3	1

3-12.5

6-19-42

Depth. Pressure

0-25 50

Final

Allen

Proportion	Cement	Sand	Water	Q
3:1	1	0	3	1

BP

3-31.5

6-19-92

Depth.	Pressure
0-25	50

Final

Allen

Prop.	Cement	Sand	Water	Q
3:1	1 -	0 -	3	1

4-12.5

6-19-42

Depth P

0-25 50

Final

Allen

Prop	Cement	Sand	Water	Q
3:1	1 -	0 -	3	1

4-375

6-19-42

Depth	P
0-25	50

Final

Allen

Prop.	Cement	Sand	Water	Q	
3.1	1	0	3	1	1 sack Wasted

DL

Cement on Hand -	Sacks	Cement Placed -	Waste.
5-1-42	185		
	300		
5-5-42	300		
5-8-42	216	-36	2.
5-9-42	278		
5-12-42	1408	1165	5
5-14-42	238		
5-16-42	238	135	3
6-1-42	193	141	1
6-3-42	41	14	1

WASTE - CEMENT.
Cu - FT.

Date -	
5-1-42 -	
5-5-42 -	3
5-8-42	2
5-12-42.	5
5-16 -	3

Light.

Washed-out			Water-Tested		
18-25	30.0	5-8-42	5-7-42	20-25	27-0
			5-9-42	19-25	52.0
13-0	60.0	5-18-42	5-12-42	20-0	55.5
			5-14-42	19-0	40.6
			5-19-42	18-25	75.0
			5-26-42	12-25	74.0
			5-26-42	12-0	85.0

1"	.08
2"	.17
3"	.25
4"	.33
5"	.42
6"	.50
7"	.58
8"	.67
9"	.75
10"	.83
11"	.92
12"	1.00

9-0-84

18-25-9

25-0 109-2W 9.23-410

1-0-71 10-0 230

1-20-38 10-23-58

2-0-28 11-0-21

2-20-20 11-23-136

2-39-4 13-25-32

3-0 107 14-0 172

14-25-289

3-20-3 15-0 57

3-38-20 15-25 1463

4-0-80 16-0 40

4-20-322 16-25-254

6-0-28 17-0-47

3-23-49 18-0 43-

5-47-132

6-23-24

6-26-72

7-0-23

7-23-348

8-0 6.04

8-23-1436

13 2/4 / 13 4

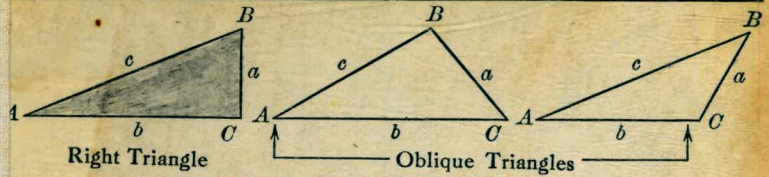
19 3

13 4/3 7

4 1/6

13 6 / 13 1/3

TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\operatorname{cosec} = \frac{c}{a}$

Given	Required	
a, b	A, B, c	$\tan A = \frac{a}{b} = \cot B, c = \sqrt{a^2 + b^2} = a\sqrt{1 + \frac{b^2}{a^2}}$
a, c	A, B, b	$\sin A = \frac{a}{c} = \cos B, b = \sqrt{(c+a)(c-a)} = c\sqrt{1 - \frac{a^2}{c^2}}$
A, a	B, b, c	$B = 90° - A, b = a \cot A, c = \frac{a}{\sin A}$
A, b	B, a, c	$B = 90° - A, a = b \tan A, c = \frac{b}{\cos A}$
A, c	B, a, b	$B = 90° - A, a = c \sin A, b = c \cos A,$

Solution of Oblique Triangles

Given	Required	
A, B, a	b, c, C	$b = \frac{a \sin B}{\sin A}, C = 180° - (A + B), c = \frac{a \sin C}{\sin A}$
A, a, b	B, c, C	$\sin B = \frac{b \sin A}{a}, C = 180° - (A + B), c = \frac{a \sin C}{\sin A}$
a, b, C	A, B, c	$A + B = 180° - C, \tan \frac{1}{2}(A - B) = \frac{(a-b)\tan \frac{1}{2}(A+B)}{a+b}, c = \frac{a \sin C}{\sin A}$
a, b, c	A, B, C	$s = \frac{a+b+c}{2}, \sin \frac{1}{2}A = \sqrt{\frac{(s-b)(s-c)}{bc}}, \sin \frac{1}{2}B = \sqrt{\frac{(s-a)(s-c)}{ac}}, C = 180° - (A+B)$
a, b, c	Area	$s = \frac{a+b+c}{2}$, area $= \sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	area $= \frac{bc \sin A}{2}$
A, B, C, a	Area	area $= \frac{a^2 \sin B \sin C}{2 \sin A}$

REDUCTION TO HORIZONTAL

Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = 5° 10′. From Table, Page IX. cos 5° 10′ = .9959. Horizontal distance = 319.4 × .9959 = 318.09 ft. Horizontal distance also = Slope distance minus slope distance times (1 − cosine of vertical angle). With the same figures as in the preceding example, the following result is obtained. Cosine 5° 10′ = .9959. 1 − .9959 = .0041. 319.4 × .0041 = 1.31. 319.4 − 1.31 = 318.09 ft.

When the rise is known, the horizontal distance is approximately:—the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft., slope distance = 302.6 ft. Horizontal distance $= 302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$ ft.

MADE IN U. S. A.