*403

DIETZGEN

ENGINEERS

LEVEL BOOK

No. 412

W403

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING

Roadway 16 feet wide. Side Slopes 1 on 1.

For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	0
1	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	1
2	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	2
3	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	3
4	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	4
5	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	5
6	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	6
7	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	7
8	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	8
9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	9
10	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	10
11	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	11
12	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	12
13	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	13
14	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	14
15	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	15
16	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	16
17	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	17
18	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	18
19	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	19
20	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	20
21	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	21
22	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	22
23	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	23
24	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	24
25	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	25
26	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	26
27	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	27
28	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	28
29	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	29
30	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	30
31	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	31
32	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	32
33	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	33
34	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	34
35	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	35
36	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	36
37	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	37
38	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	38
39	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9	39
40	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	48.9	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be 30.6+(20—16)÷2 or 2 ft. added to 30.6 =32.6. For slopes of 1 on 1½ see inside of back cover.

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MICROFILMED
JAN 12 1965

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30.6

L.H. Hill - Inspection Notes, Photo

Notations + etc

Sept 30 1932 to April 6 1933.

MICROFILMED
JAN 17 1985

Sept. 30

Quarry tracks (6 in.) 20, 23,
23, 7, 17, 11, 33, 15, 18, 12 [13, 26, 10, 8, 5

2 water lines & crews

5 jackhms & drillers

1 powderman, 5 lab. loading

2 lab. cleaning off for drill hole

1 lab. carrying jkhms & steel

2 lab. muc

reg. crew, 2 compr.

2 runners 2 helpers on #2

Sand & gravel plant

Sand	83	9/29/32
3/4	21	
1 1/2	24	
2	5	

Sand	72	9/30/32
3/4	12	
1 1/2	15	
2 1/2	7	

lost 2 hrs 2n.

Well drill holes

#1 - L. 61' hard blue granite

#2 L. 62' " " "

#3 - L. 62 1st 18' no report balance granite

#4 L 64' Hard granite

#5 - L 66' 2' top soil ~~no log~~ Hard granite

#6 - L 62' 1st 8' bulkes, deep. gnt. bal. granite

#7 L 55' " 13' " " sol. bal. granite

#8 - L 63' " 16' sandstone " "

#9 - L 50' no log lost steel

#10 - L 72' 1st 28' D.S. bal. hard granite

#11 - L 70' " 23' " " " "

#12 - L 90' lost hole act. blast on quarry

#12A L 56' granite complete

#13 AL 29 "

#14

#15

#16 - 2

Oct. 1st

[illegible] [illegible]
not a [illegible], [illegible] cuts
Photo 1 [illegible] from N. at 9.15 a.m. cut 1
Photo 2 view for walls, [illegible] 9.30 a.m. 1
Photo 3 away from N. end 2.30 p.m.
Quarry 17 rock bucks, 1 steel
2 water boxes & crew
4 jackhammers & drills
1 powderman, 6 lab. loading
2 lab. mine
1 lab. carrying steel
rest equip.
Photo 4 upstream from D.S. spill bank 2.30 p.m.

sand	80
3/4"	21
1 1/2	22
2 1/2	7

10/2/32

Speed. 4194

Oct. 3

Photo #5 [illegible] for
tie trench at N. about 11.45 a.m.
Photo #6 downstream
toe wall south from north
about 11.30 a.m.
Quarry 5 jackhammers & drills 17 steels
1 powderman & 6 lab loading
1 lab. carrying steel
2 " mine
Cat 80 electric, 2 compressors
Electrician & 2 helpers on
conduits

sand	73
3/4	16
1 1/2	18
2 1/2	8

10/3/32
lost 1.10 hrs. rock
damaged hopper

Oct. 4

Quarry trucks 1, 4, 10, 3, 15, 11, 5, 18, 23, 20, 9, 33, 24, 8, 7, 17.

2 water boys, 6 men.

6 jackhammers & drillers

1 powderman & lab. loading

Bulldozer & operator

cat 30

2 misc lab.

1 handy mechanic

Oct. 5

Quarry trucks 1, 14, 10, 12, 23, 33, 2, 17, 20, 5, 9, 18, 3, 4, 12

2 water boys & crew 4 men

5 jackhmrs & drillers

1 powderman & lab loading jackhmr holes

1 powderman & 1 lab loading well holes

2 compr's

cat 30 & operator

Bulldozer & operator

~~1 prob~~ 3 lab. misc.

Sand	60	10/5/32
3/4 "	20	
1 1/2 "	30	
2 1/2	10	

Oct. 6

Quarry trucks #1, 8, 14, 20, 17, 53, 9, 5, 15, 23, 12, 26, 18

2 water lines & crews 6 men on

Electrician & helper on #1 Run + Hel.

8 men loading well holes

2 cat outfits hauling out all on the

Cat. 30 quarry

Bulldozer

powderman & Hercules men

2 lab. helping drill well holes

5 men loading holes

2 lab. mine

1 compr.

2 mechanics in new shop

as well drilling blacksmith

sand	63
3/4	17
1 1/2	21
2 1/2	7

Oct. 7

Quarry trucks #17, 21, 9, 18, 20, 16, 14, 24, 5, 10, 23, 1, 11, 12

Cat. 30, Bulldozer

1 powderman 3 lab. loading

4 jackhammers & drillers

2 lab. helping drillers

1 bne. 4 drillers, 2 lab. on water lines

Electrician & helper on #1

Runner & helper on #1

2 lab. mine

2 mechanics in shop

Photo # 1 & 2 tunnel entrance 10:30 A.M.

" 3 & 4 Core trench noon

" 5 tunnel outlet 2 P.M.

sand	25
3/4	17
1 1/2	10
2 1/2	6

Oct 8.

Cifs 1,2,3 Mid 1-2½-5, 10-16, 1:50 PM
Downstream bewall El. 5.5
Sta 3+60 Dect. a, 38 gal
4,5,6 - 12-4, 10-6, 5 a
Sidewalls of drain #3, 8 45 PM
31 gal. water
Quarry trucks #9, 15, 12, 20, 32, 26,
7, 4, 5, 1, 33, 10, 24, 23, 18, 8, 17, 12
+9 down 3 h 45 min
4 jackhammers & drillers
7 men sloping in a m,
Cat 30 & operator
Bulldozer & 1
Cat 60 & Mcmillan
regular shop force - no well drill work

+ 8 - 71	Sand 63	shut down
+ 1 - 32	3½ - 6	at noon
+ 6 - 71	1½ - 9	
+ 9 - 57	2½ - 3	

Oct. 8 (mgt clerk)

Quarry blacksmith force
2 compr. 4 shovels
powderman 5 drillers
12 trucks, 32 steel trucks
mechanic & helper

Speed. 9455

Oct. 10

Photo #1 river flowing over road opp. Chocolate cole 1.30 P.M.

Dyke 568.4
Water surface 64.7 } 2.10 P.M.
Bot. crk. bed 62.7

Photo #2 above dyke looking west from road to tunnel portal

Photo #3 Water flowing over road to gravel plant 2.30 P.M.

Photo #4 Same as above from hill at west end 2.55 P.M.

Photo #5 dyke about 800' above tunnel, water just beginning over 2.55 P.M.

Photo #6 Water rushing into tunnel from gravel plant at 3 P.M.

Quarry 2 shifts on blacksmith
3 drillers in P.M.
all steel crews

Sand 35
3/4 - 7
1 1/2 - 7
2 1/2 - 3

quit at 11 A.M. due to water in river

Oct. 11

Photo #1 Same place as #6 of 10/10/32 - 9.15 A.M.

Photo #2 Dam from site #1. 10 A.M.

Photo #3 D.S. from S. abut site #1, 10:45

Photo #4 Dragline repairing and near plant 11 A.M.

Photo #5 Water running into downstream near 1 P.M.

Photo #6 outlet of tunnel showing water flow 1.30 P.M.

Quarry trucks #14, 23, 38, 24, 32, 44, 17, 12, 4, 15, 7, 20, 3, 8, 5, 1, 9, 18

6 jackhammers & drillers

1 powderman 5 lab. cleaning, loading &

2 watchmen, fire & 6 men

1 lab. carrying steel

1 compr., cat. 30, Bulldozer

2 labs mine.

River gauge - 573.4 11 A.M. Pump operating all day
573.1 3.45 P.M.

Oct. 12

Quarry trucks 2, 10, 8, 20, 24, 11, 18, 38, 4, 14, 17, 6, 9, 5, 23, 32, 15, 3, 1, 25, 33,
1 fore, 6 lab. on water lines
4 skimmers & drillers
powderman, 6 lab. loading & [illegible]
Bulldozer & operator
2 lab. misc.
regular shop force

Oct. 13

Quarry trucks 4, 14, 23, 25, 5, 33, 24, 10, 38, 11, 20, 17, 18, 12, 6, 1, 9, 22 trucks 1st load truck
Bucyrus Walker, summer shovel #6
1 fore, 6 lab. on water lines
4 skimmers & drillers
1 powderman, 5 lab. loading
2 lab. misc.
Bulldozer & operator
cat. 30, 1 compressor
Photo #1 Truck with pump on rock embank. 3 PM
Photo #2

Oct. 14

Quarry trucks 25, 12, 5, 18, 4, 19, 23, 38, 26, 17, 8, 10, 9, 24, 20, 32, 33, 15, 1, 3, 7,

4 jackhammers & drillers

cat. 30, 1 empr.

Bulldozer & operator

2 waterlines & 5 men

1 powderman, 6 lab. loading pumps & fabing

2 lab. misc.

Oct. 15

Quarry trucks 18, 26, 33, 2, 20, 14, 25, 12, 11, 3, 8, 10, 15, 23, 32, 1, 17, 5, 9, 24,

2 empirs, cat. 30

Bulldozer & operator

2 waterlines, 5 lab

5 jkhmrs & drillers

1 powderman 5 men spring & lad

2 lab. misc

Gravel plant bre. 3 lab. setting up pump

bucket loader & operator, 3 trucks

Speed. PM. 4770

Oct. 17

5 lab. excavating for bypass pipe.

7 lab. stripping at S. abut near upst. bwall in P.M.

~~one truck excav. in A.M.~~

Dragline 2 trucks 1 dumpcar on dyke.

7 lab. 1 fre. 2 drillers on one truck excav. in A.M. See Shutin report for P.M.

Shovel, summer, oiler 1 truck

9 carp's, 1 steel man 3 lab. on trust a
4 " in P.M.

2 waterliners 6 men on holes.

Truck driver & 1 lab. delivering reinf. steel

5 lab. loading pickup and setting up same above dyke in P.M.

Oct. 17 (cont.)

Quarry trucks - 18, 31, 1, 38, 23, 10, 24, 17, 15, 25, 9, 6, 3, 26, 12, 20, 32, 8, 11, 2, "32 stel

summer oiler on #2

cat. 30, 1 compr.

Bulldozer, cat & driller

4 shovels & drillers

1 powderman 6 lab. loading

2 waterliners 5 men

2 lab. mine

Dragline, 2 auto car trucks on dyke

Gravel plant fre. 2 men on overhaul

Oct. 18

Quarry trucks 8, 11, 18, 25, 23, 6, 15, 10, 17, 1, 12, 26, 2, 24, 5, 20, 32 Rock trucks 1 steel

4 jackhmrs & drillers

5 lab. on water lines

5 lab. & powderman loading

Bulldozer & operator

Cat & McMillan

1 compr. & cat 30

1 lab. mine.

reg. shop, smithy & compr. free

Handy Andy

Cat 60 Bulldozer & operator

and cat. 60 & McMillan on fill

#1 - 72/5 lost 1 hr, plant

#9 118 send - 3'

#6 84 lost 3 hrs. 3/4 - 6

#8 92 " 1/2. 1 1/2 - 7

2 1/2 - 3

worked 1/2 day

Oct. 19

Quarry trucks 7, 24, 11, 25, 5, 10, 12, 6, 26, 3, 1, 32, 23, 17, 20, 38, 2, 14, 9, 15, steel truck

2 waterlines crew of 5

4 jackhmrs & drillers 2 lab. helping

cat. 30 & compr.

Bulldozer & operator

Cat. & McMillan - Handy Andy

Powderman, 5 laborers loading

2 lab. mine.

regular shop force 2 mechs & helper on truck

5 shovels & crews

Chute #2 stripped ova awaiting 1:30 P.M. steel imp.

" #3 Sheet & Rimf steel, crew all looking W. 1:10 P.M.

#9 - 127

#1 - 73 - 2 1/2 hrs.

2 - 31 - 4 "

6 - 107 2 "

8 - 58

#1 - 86 + 6 - 45 = 324

#8 - 64 + 9 - 127

night shift 10/18/32

Oct. 20

Test cylinder 10/19/32, 7.30 pm;
crewall, cyls #169, 170, 171;
sand samples #172, 123;
Quarry 21 rock trucks, 1 steel
2 empties, cat 30,
Bulldozer & operator
8 jackhammers & drillers
4 lab. helping drillers
1 powderman & lab. loading
1 labor misc.

	Day		night
#2	105	lost 1 hr,	85
#8	6	–	63
#6	57	–	115
#9	88	1/2 hr.	0 overhaul
#1	82		107
	338		370

Sand 53
3/4 – 13
1 1/2 – 26
2 1/2 – 8

Oct. 21

Phot #4 Dam from dam site #1 – 9.20 (?);
Quarry trucks 2, 17, 26, 25, 6, 24, 9, 23, 20,
11, 12, 15, 7, 1, 32, 4, 8, 10, 3, (19 rock tk) 32 & steel
4 jackhammers & drillers
2 waterhaul, 5 lab. (E. end)
powderman, & helper loading
2 lab. misc.
Handy Andy
Cat. 60 & McMillan
Bulldozer & operator
cat. 30

Day	night
#2 146	97
#8 76	53
#1 68 – 2 1/2 hrs	117
#6 82 –	126
#9 0 –	0
372	393

sand – 73 no delays
3/4 – 15
1 1/2 – 22 2 1/2 – 9

Oct 22

Photo #5 9000 gal. cap. pump installed above dyke 8-15 A.M.,

Pump above tunnel entrance

Gen. Electric 100 hp. with Byron Jackson centrif. pump 18-14"

Cap 1000 gal. at 1140 R.P.M.

Photo 6 Quarry looking westerly from quarry shop 10 A.M.

Quarry trucks #7, 3, 26, 6, 1, 20, 15, 25, 12, 8

4, 23, 14, 5, 17, 10, 2, 18, 11, 32 steel

2 waterlines, crew of 5

4 jackhammers & drillers

1 pneumatic & lab. loading cat 30, 1 compr., cat & Jackhammer

1 lab. mine.

#2 - 96 #6 - 121

#8 - 69 #1 - 97 - lost 50 min

Total 383#

Oct 22 (cont)

Night shift 10/20/32 #1 - 92, #2 - 92

#6 - 91, #8 - 52

#9 - 3½ lbs. castings

#6 lost ½ hr.

sand & gravel plant 10/22

Sand 73

3/4 - 14 lost 1.20' separate to crusher

1½ - 20

2½ - 8

Speed. 5120 P.M.

Oct. 24

Quarry trucks 4, 14, 5, 26, 23, 25, 11, 8, 9, 20, 12, 3, 2, 1, 24, 7, 17, 10, 18, ~~6~~ 6 — 32 total

Bulldozer, Cat. 60 & Miller (Hardlady)

Water liner crew. 5 men lagging pipe above quarry

7 pitchmen & drillers

3 laborers helps.

1 powderman, 4 lab. loading

2 compressors

2 lab. service

	Day		night	
*1	74	1½ hrs	63	2½ hr. cartridge & sticks
*2	126		94	
*6	101	½ "	113	
*8	25		62	
*9	53		100	
	379		432	

Oct. 25

Quarry trucks: 11, 16, 33, 8, 2, 13, 14, 20, 29, 12, 1, 18, 26, 10, 7, 25, 3, 9, 5

6 pitchmen & drillers

2 water liners & crew of 5

1 powderman 4 men loading

2 lab. misc.

Bulldozer & operator

Cat. 60 & McMillan

2 compr's, cat. 30

White truck on steel at tunnel portal A. 59-97

	Day	night
*1	108	102 - ½ hr. bucket pr
2	127	114 - 3/4 " electricians
6	37	54
8	60	54
9	53	97
	385	421

Oct. 26

Quarry trucks 2, 25, 8, 18, 17, 5, 12, 33, 14, 11, 24, 7, 1, 20, 16, 13, 21,

1 powderman, 6 lab. loading

2 waterboys, crew of 5

4 jackhamers & drillers

Electrician, 2 helpers on pole

crew arms & digging holes

2 lab. mine

Cat & Mechulleh

Bulldozer & operator

Cat. 30, 2 compres

day		night	
#1 - 125	lost ½ hr.	90	½ hr.
#6 - 81		89	
9 - 34		110	
2 - 80	lost 3 hrs	117	½ hr.
8 - 34		0	cutting
354		406	

grand plant: Sand 77, 3/8 - 18, 1/2 - 32, 2 1/2 - 9 } 7 hr. run

Oct. 27

Quarry trucks 33, 2, 8, 18, 9, 7, 38, 13, 5, 24, 11, 14, 17, 15, 25, 6, 3, 1,

Walsh mer crew clopping in a.m. 5 men

6 jackhamers & drillers

powderman, 4 laborers loading

Electrician, 1 helper on light pole wiring.

Bulldozer & operator

Cat & Mechulleh & operator

Cat. 30, 3 compres

& lab. mine.

Gold amt. of word for city, names & addresses of penalties

#9 - 58	1 hr.	117	½ hr. dinner crew dipper
#1 - 78	½ hr.	94	3/4 hr. trucks
#8 - 12	Sand 83, 3/8 - 16, 1/2 - 17, 2 1/2 - 10	81	
#6 85		89	
#2 118	1 3/4 hrs	0	broken yoke frame
351		376	

Oct. 28

Quarry trucks #25, 3, 5, 6, 12, 7, 9, 15, 18, 10, 2, 11, 29, 33, 26, 13, 20, 8 33 Steel truck

Bulldozer Cletrac & operator

Cat. & McMillan & operator

Cat. 30 & 2 empties

Water line crew laying air pipe above quarry,

1 pneumatic & laborer loading

5 jackhamers & drillers

2 laborers miscellaneous

	day	night
1	77 - 2 hrs	116 stick rock bolts, 1 hr on dipper
2	0	0
6	99 - 3/4	96
8	86	55 dippy shovel 3 hrs broken
9	95	86 trip & pin 1 hr. broken
	357	353

sand	81
3/4	12
1 1/2	15
2 1/2	8

Oct. 28 cont.

Photo #1 & 2 1 P.M. taken to show rock line painted on portal face of tunnel exit. Painted by contractors engineer Steves.

Oct. 29

Quarry trucks #2, 5, 7, 15, 33, 10, 14, 4, 2, 9, 26, 21, 13, 6, 1, 20, 12, 17, 8, 3, 11, 38 total

6 men building road to top of quarry water house and

Bulldozer & operator

Cat. 30, 2 compr's

5 jackhamers & drillers

Cat. 60 & McMillan & operator

powderman 5 lab. loading

2 lab. mess

2 dumpmen, neg. shop force

1	112 lot 1 lb. rubbing	112	1/4 lb. 1/4
2	0	0	
6	135 1/2 lb. dynamite	102	
8	99 lot 2 1/2 lb. changing from	89	
9	57 3 1/2 lbs. nitrogelite	126	
	353	429	

Sand 70
3/4 - 21
1 1/4 - 31
2 1/2 - 12

Oct. 31

Photo #3 Entrance end of tunnel showing wing reinforcing and rock line painted on portal face 9 a.m.

Photo #4 ~~5~~ Stripping oval along N. abut, looking E from downstream travel.

Photo #5 same area from center of downstream travel

Photo #6 Water flowing out of grout pipes under 100 lb pressure 1 p.m.

Photo #1 same as above, from northerly side of core wall looking south. 1.10 p.m.

Photo #2 water bubbling up thru ground press 100 lb. 1.30 p.m.

Photo #3 close up of water bubbling.

Oct. 31 (cont.)

Quarry - trucks 19 32 steel

Water line crew 5 men stopping

7 jackhammers & drillers

Rigger, driller, helper, 2 lab.

2 cat 60s hauling in plant and setting up well machine

1 powderman & lab. loading

2 lab. misc.

Cat & McMillan

Electric bulldozer

Cat. 30, 1 compr.

Electrician & 2 helpers on left line

1 -	108	1½ h. mtr.	91	
2	0		0	
6 -	108		78	¾ - 17
8 -	77		86	1½ - 18
9 -	82		113	2½ 12
	375		368	left 295 on cribs

Quarry - trucks rock 20 32 steel

2 waterlines, 5 men 2 cat

6 jackhammers & drillers

1 powderman 4 lab. loading

well drilling machine, 2 men crane operator 7 to 7

cat 30 on well drill sled, & operator

electric bulldozer & operator

Cat & McMillan, Handy loader

2 lab. misc.

1 -	94	1½ h. electric drill	¾ - 21 1½ - 23 2½ - 18	gravel plant
2 -	110			
6 -	90	1½ h. cable		
8 -	58		Rasmussen 10/29 / same	
9 -	80		go later John Quiksen back	
	432		injury letting in tunnel 10/29	

Harold Nichols broke leg near ankle stepped on rock at cable drain ~~rock~~ and bell rock falling upon leg

Nov 2

Photo #4 down from cole #1, 9.30 a.m.

" #5 showing rock line

on milk wing wall time unknown 10 a.m.

Photo #6 showing repetition

from low stream spot bomb 10.15 a.m.

Quarry trucks 4, 13, 3, 15, 23, 14, 9, 26, 25, 18,

7, 6, 12, 24, 8, 11, 1, 17 19 rock trucks #33 steel

2 comp's, cat 30

cat bulldozer, cat & medullen

Water liner crew ~~stopping~~ (5 men)

Well driller 2 men

6 jackhammers & drillers

1 powderman 4 lab. loading

3 lab. mixe.

1 - 0	hardly stuff	0	3/4"	16
2 - 116		101	1 1/2	18
6 - 85		127 24 hrs work	2 1/2	10
8 - 76		85	lost	2 1/2
9 - 98		119	hrs.	
375		432		

Nov 3

Quarry trucks 19 #32 steel

Water liners 2, crew of four

4 jackhammers & drillers

1 powderman 6 labores loading

2 lab. mixe.

bulldozer & operator

cat-60 & medullen

cat. 30, 1 compr.

1 - 0	23	6 hrs repairs
2 - 95	102	
6 - 90	85	
8 - 79	49	
9 - 84	93	
348	352	

3/4" - 18
1 1/2" - 24
2 1/2" 11
} gravel plant

Nov. 4

Quarry trucks 32, 15, 20, 25, 8, 13, 12, 5, 6, 1, 17, 10, 3, 32 steel

Water line crew, 5 men in bot. quarry

6 jackhamers & drillers

1 powderman, 6 labors loading

Cat. 30, 2 compr's

cat. 60 & McMillan Bench Crush.

Clehoe bulldozer & operator

Well machine, 2 men

2 lab. mine.

2 dumpmen, cat 60 bull & Cat 60 Mac,

Roads cat. 60, compr. 2 jackhamers & drillers

Electrician & helper quarry and mining along

Day	night	
1 - 104	108	1 hr. cable & burned out cutoff
2 - 109	91	
6 - 68	81	½ repairs to drive
8 - 68	91	
9 - 97	109	½ hr repairs to trips
446	480	

Nov. 5

Quarry trucks 24, 10, 14, 13, 2, 23, 3, 7, 26, 10, 20, 11, 12, 9, 8, 17, 5, 25, 6 32 steel

Water line crew

cat. 30, 2 compr's

1 powderman, 6 lab. loading & springing

Welding & 2 drillers

6 jackhamers & drillers

2 lab. mine.

Cat 60 & McMillan

Bulldozer & operator

regular shop force

Day	night
1 - 116	112
2 - 95	113
6 - 64	115
8 - 76	83
9 - 106	96
457	519

Speed. 56-95

Nov. 7

Quarry trucks 15, 23P, 6, 2, 10, 11, 14, 5P, 33, 17, 25, P, 7, 9, 20, 4, 26, 24, 1, 13, 3, 32 steel

6 jackhamers & drillers

2 water lineers, 5 men

Well machine & 2 drillers

2 compr's, cat. 30

Bulldozer & operator

Cat. 60 & McMillan, Handy Andy

3 lab. mine

1 powderman, 5 labreers loading

1 - 111		123
2 - 102		105
6 - 88		130
9 167	3/4 - 25	100
468	1 1/2 - 14	458
	2 1/2 - 10	

Nov. 8

Quarry trucks, rock 20 steel 32

6 jackhamers & drillers

2 water lineers, 5 lab.

2 compr's, cat 30

Bulldozer

Cat & McMillan

3 lab mine

1 powderman 4 lab, loading

1 - 114	1 pr broke dipper stick	123 - rack	
2 - 70	18 elec. trolle	119	3/4 - 26
6 - 115	4 4 cable	155	1 1/2 - 13
9 - 155	taken up nuts boom cable	127	2 1/2 - 9
454		524	

Nov. 9

Quarry trucks 5, 15, 24, 33, 25, 4, 26, 1, 18, 11, 3, 13, 32, 6, 9, 8, 12, 17, 32 steel

Water lines crew on pipe line above quarry, 4 men

1 powderman, 6 lab. loading

7 jackhams + drillers

cat. 30, 2 compr's.

2 lab. mixe

Bulldozer - cat + McMillan

sand - 75
3/4 - 17
1 1/2 - 24
2 1/2 - 10
5 trucks 1 co truck

Day		night	
1 - 108	15 electric	103	1 hr. grids
2 - 150	1 hr. track	137	1 hr. machinery
6 - 132	hoper all 1.25	124	
9 - 100		127	
490		491	

Nov. 10

Photo #1 seam along S. side of entrance cut to tunnel 9.15 a.m.

Tunnel

Entrance showing steel + rock line in background, photo #2 9.30 a.m.

Quarry trucks #33, 5, 11, 23, 15, 1, 24, 25, 7, 26, 4, 8, 2, 9, 18, 32, 14, 10, 6 32 steel

2 water lines + crew of 5, E. end

6 jackhams + drillers

1 powderman, 5 laborers loading

2 lab. mixe

electric bulldozer + operator

cat 60 + McMillan + "

2 compres, cat. 30

sand 47
3/4" 19
1 1/2 25
2 1/2 11

1 - 85	2 hrs. machinery + belts	90	1 hr. boom
2 - 99	1/2 hr. electric	103	1 hr. controls
6 - 110	—	114	1 hr. friction
9 - 131	1.15 hrs cable + crosbeams	121	
426		428	

Nov. 11

Photo #3 rock line at exit portal 2.30 P.M. (11/10/32)
Photo 4 steel " " " " 2.45 P.M.
Photo #5 Dam from dam site #1 9.30 A.M.
" #6 spoiled
Quarry - 20 rock trucks #32 det
Water line over new shoring 5
1 powderman, 6 laborers loading
5 sp hammers & drillers
2 lab. misc.
Bulldozer & operator
Cat & McMillen & operator
1 compr., cat. 30

1 - 88 parallelh.	103	strike 1/2 lb
2 - 118	95	
6 - 102 1/2 lb. trap	134	
9 - 94	98	" "
402	430	

Sand 83
3/4 - 26
1 1/2 - 31
2 1/2 - 14

Nov. 12

G. R. Lindsey fractured spine 11/2/32
fell on back.
Foreman McDaniel injured back
in tunnel 11/3/32
Frank Garcia struck by rock
at gravel injured spine 11/4
Request book for Williams
Plans of tunnel section
Water paint.
21 rock trucks #32 on steel
6 sp hmrs & drillers
1 powderman & lab. loading
3 laborers misc.
Cat. & McMillen, bulldozer with operators
2 compressors, cat. 30, reg. shop free

1 - 102 - 1/2 lb. cracking	74	1 lb. strikes
2 - 78	77	3 lbs track
6 - 130 - 1/2 lb cable	170	
9 - 92	76	
396	397	

Nov. 14

Great machine Cap. 7 cu. yd

Rig - 500 H size, No. 8B

Jaeger 10 sack mixer gas

Quarry trucks 25, 17, 5, 2, 14, 19, 9, 23, 18, 11, 15,
20, 10, 7, 1, 26, 12, 13, 8, 32, 32 total

Water liner crew, 5 men E. side

6 pkmn's & drillers

2 compr's, cat. 30

1 powderman, 5 laborers loading

2 laborers mise

cat & mechanic & operator

bulldozer being repaired by blacksmiths

#1 - 98	108
2 - 137	89 1/4 hrs track
6 - 171 3/4 h. cable	183
9 - 103 1 h. hard 1/2 h. cable	120
509	490

Nov. 14

21 rock trucks #32 steel

1 powderman, 5 laborers

5 pkhammers & drillers

2 lab. helping drillers

2 lab. mise

2 compr's, cat 30

cat & mech. & operator

bulldozer & operator

Water liner crew of 5 in west end of quarry

1 - 81 2 hrs	107 1 1/2 hrs shaft bolts
2 - 104 3/4 h. machinery	112
6 - 108	78
9 - 118	136
411	432

Nov. 16

Quarry 20 rock tubes 1 steel "32
1 powderman, 5 labours loading
6 jackhammers & drillers
2 lab. muse.
Waterline crew of 4 on pipeline
regular force for balance of cons.

day	night
#1 - 115	93 2 hrs first period & taken up bolts
2 - 78	94
6 - 77 1/2 hr rgd. water line	45 6 1/2 hrs saddle
9 - 95	77 1/2 hr cable line
365	259

Nov. 17

Quarry 20, 13, 6, 5, 18, 10, 12, 1, 4, 23, 17, 20, 5, 3, 2, 15, 25, 7, 19 rock tubes 32 steel
1 powderman 7 labours loading
Waterline crew 5 quarry "B"
5 jackhammers & drillers
2 lab's helping drillers
2 lab's muse.

day	night
#1 - 94	104
2 - 81 1/2 hr cable off slive	49
6 - 114	102
9 - 103 1/2 hr cable	58
392	313

Nov. 18

Rock trucks 20 + 82 on steel

1 powderman, 6 lab. loading

6 pshmis + drillers

1 labor helping drillers

2 lab. misc

2 compres, cat 30

cat 60 + mechanic + operator

bulldozer + Operator

Well machine hot down to shop yard

1 - 103	1½ in. cable	133
2 - 64	2 hrs. electrical trouble + cable	138
6 - 96	swing bolt + rad. hose 1¼ hr	71 ½ in track
9 - 74		92
338		439

Nov. 19

Trucks 21 + 32 on steel

Water line crew (5 men & equipment)

6 pshmis + drillers

1 powderman 6 lab. loading

3 lab. misc

Cat + mc. bulldozer

cat. 30, two compres

1 - 116		102
2 - 90	3 hrs shaft bolts + track	128
6 - 130	½ hr. hel pin	85
9 - 82		95
418		410

Speed. 6190 P.M.

Nov. 21

Trucks

5 packers & drillers

2 waterlines, crew of 4 E. portal and

1 powderman, 3 labors, loading

2 lab. misc.

2 compr, cat. 30

Cat & McMillan

elctric bulldozer

Photo #1 overpass Photo #2 begin. of wp at heparlift N. abut. E. end. 9 a.m.

Photo #3 rock line close up north wing wall, 9.30 a.m. entrance to tunnel, Photo #4 W. of core wall 11.

Photo #5 E. of core wall 11.15 a.m.

Gay

Shovel 1-82 ½ in. hoistline 88 truss rod bar

" 2-110 96

" 6-99 102 ¾ in. broken track

" 9-60 107 ½ in. clutch

351 361

Nov. 22

Photo #6 rock pockets in concrete 9 a.m. wall, tunnel entrance south wing pr

Quarry

2 Waterlines & 4 in quarry "B"

1 pkman, driller & helper on excavate

5 pkmen & drillers

1 powderman 6 labors loading

2 lab. misc

Bulldozer & operator

Cat. 60 & McMillan, Handy andy

2 dumpmen Bulldozer & operator

Photo #1 concrete core wall north from S. abut 10.30 a.m.

Photo #2 dam from damsite #1, 10.45 a.m.

1-60 84

2-128 2 in. track 143

6-105 ½ in. cable 90 ½ in. broken pin

9-115 109 ½ in. cable

108 426

Nov. 20

Quarry 20 rock trucks #32 steel
2 waterline crews, 4 men in quarry "B"
1 jackhmr, driller & helper on coyote
6 jkhmrs & drillers
1 powderman, 5 lab. loading
2 lab misc.
cat. 30, 2 compr.
Bulldozer & operator
cat. 20 & 2 drillers

Photo #3 showing outcropping of granite boulders in road cut 640 elev. between east wall & bewall 11.18 hr.

Photo #4 same as above, further east, 11.28 hr.

1 - 71	114	1½ hr contact
2 - 64	97	
6 - 117	131	½ hr contact
9 - 82	94	½ hr contact
434	436	

Nov. 25

Quarry trucks 20 #32 steel
Water line crews, 4 men quarry "B"
6 jkhmrs & drillers
1 powderman, 6 laborers loading.
2 lab misc.
cat. 30, 1 compr.
Electric bulldozer & operator - Cat & mechanic + H.E.
regular shop force
1 jkhmr, driller & helper on coyote

1 - 108	97	½ hr. electric trouble
2 - 114	109	
6 - 98	118	
9 - 102	126	
419	460	

Sand 65
3/4 - 12
1 1/2 - 16
2 1/2 - 6
} 11.2 & 6.2

Sand 77
3/4 - 13
1 1/2 - 18
2 1/2 - 9

Nov. 26

Quarry trucks 20 " 32 steel
Water liner & crew of 4
5 jackhmrs & drillers
1 powderman, 6 lab. loading
2 lab. mine.
1 jackhmr, driller & labrer - coyote
cat. 30, compr.
Detroit bulldozer & operatr
cat 60 & McMillan
regular force in shop & fill

Nov. 28

Quarry 20 trucks 35 steel
1 powderman, 6 laborers loading
2 water liners & 4 at E. end
2 men on coyote
4 jackhmrs & drillers mine
2 lab. mine
bulldozer & operatr
cat & McMillan
cat. 30; 1 compr.

Day	night	
1 - 111	116	1½ hr. cable
2 - 104 2 hrs. track	96	1½ hr. taking up water plant bolts
6 - 139	103	
9 - 120	95	1 hr. caught on slide kept track frame
474	410	

Nov. 29

Quarry 21 trucks *35 steel
6 jackhmrs & drillers
1 powderman & lab. loading
2 water lines & crew E. end
2 lab. misc.
cat & Mc
Bulldozer & operator
cat, 30, 2 compr's

Day	night
1-117	123
2-114	104
6-97	133
9-83	85
421	445

Speed. 6474

Nov 30

Quarry rock trucks *2, 8, 18, 20, 15, 12, 17, 13, 6, 10, 24, 23, 5, 9, 11, 3, 7, 14, 4. *35 steel
Water line crew sloping at E. end
7 drillers with jackhmrs
3 lab. helping drillers
1 powderman, 4 lab. loading
2 lab. misc
bulldozer & operator
cat & McMillan & operator
cat. 30, 2 compr's,

Day	night
1-118	83
2-123	0 2 hrs broken trucks
6-117	44
9-107	83
465	130

sand 8
3/4 - 9
1 1/2 - 20
2 1/2 - 12
3 co. trucks
1 bucket loader
2 cont hrs

Dec. 1

Quarry trucks #2 4, 20, 18, 26, 5, 6, 1, 33, 3, 23, 4, 8, 11, 10, 9, 2, 7, 17, 13, #35 stl

Waterlines crew of 5 on E end

1 powderman + 5 lab. loading

6 jackhammers + drillers + driller

2 lab. helping drillers

cat. 39, 2 compr's

cat 60 + McMillan + operator

bulldozer + operator

2 labs nurse. reg. shop hrs

2 lab. advancing crypts

Shot #1 rock line at S. wing cut about 100' west of ctrl - time 3rd - opening 48

Shot #2

Dec. 2

Quarry

9 jackhammers & drillers

1 powderman, 5 labs loading

2 lab. carrying steel

1 lab. nurse

2 compr's, cat 30

2 Waterlines & crew of 5 at E end

Cletrac bulldozer + operator

Cat. 60 + McMillan

regular shot & fill force

day	night
#1 - 86	51
2 - 140	118
6 - 104	173
9 - 108	138
438	480

sand 58
3/4 - 22
1 1/2 - 32
2 1/2 8

Shot #2 dam from dam site #1 - 10,30 Gm

Dec. 3

Chk. 3 quarry looking well for
near Easterly end 10-45 b.m.
Chk. 4 shovels on W. end of quarry 10-55 b.m.
" 5 dam from waste spoil bank 11-05 a.m.
" 6 Core hole at north abut.
Quarry 20 ind. trucks 35 steel
8 fellows & drillers
1 powderman & lab. loading
Water boiler & crew of 4 at E. end
2 lab. carrying steel
1 lab. mine
cat. 30, 2 compy
ballyhoo & operator
cat 60 & McMullen, 2 on crypto

1 - 89	126	
2 - 96	104	
6 - 148	100	13 lbs away from end
4 - 131	115	Smith cable
464	435	

sand 5-1
3/4 - 25
1 1/2 - 21
2 1/2 - 8

Dec. 5

20 ind. trucks 35 on steel
6 fellows & drillers
1 powderman, 8 lab. loading
1 lab. helping drillers
Water boiler crew of 4 sleeping
1 lab. mine.
cat. 60 & McMullen Handy crew
2 mechanics & helper in auto shop
crypto crew in 80 and starting across out

Dec. 6

Quarry 19 rock trucks "35 steel
2 water lines + 5 men W. end
7 pkmen & drillers
3 lab. helping drillers
1 powderman, 4 lab. loading
1 lab. mine.
Cat + McMullen, Bandy Lindy
2 compr's cat 30
electric bulldozer
regular shop & fill force

Day

1 - 81	2 hrs. motor gear	95	3 hrs. rpg trucks repaired power cable & motor gear
2 - 114		120	2 hrs. cables + track pins & blks
6 - 134		0	8 hrs. motor repair
9 - 137		177	
466		392	

Sand 54
3/4 - 20
1 1/2 - 14
2 1/2 - 7

Dec. 7

Quarry 18 rock trucks "35 steel
2 water lines + 5 carbody end
6 pkmen & drillers
1 powderman, 5 lab. loading
3 labs sloping
1 lab. mine.
Cat 60 + McMullen + operator
Elec. bulldozer & operator
cat. 30, 2 compr's
reg. shop + fill forces

Day

1 - 99	- 0	8 hrs	Gears
2 - 83	82	1 hrs	piston fork shrunken stroke heating guide
6 - 0	- 64	4 hrs	motor repair
9 - 162	165	1 hr.	gear shift lever
8 - 344	136	1 hr.	morning on
	407		

Sand 61
3/4 - 21
1 1/2 - 17
2 1/2 - 18

Dec. 8

Quarry 20 rock trucks - 1 st & 1 pb yderman - 6 lab. loading 7 pluma & stullers 2 lab. over

reg. force on balance of work

Road Mtce - Dec. 8, 1932.

Water truck + blade. -

Dec. 9 - 12, incl, 1932. -

Road Mtce -

No work - RAIN. ✓

Dec. 13, 1932. - Road Mtce

Rpro to road over culvert

✓ 1 Dragline #10 + Crew - 4 hrs

✓ 2 Trks + 2 Drivrs - 4 hrs

✓ 1 Cat 60 + Bdgr + Operator - 4 hrs

✓ 1 Dump m'n - 4 hrs

✓ Note :- 6 - Additional lengths - 24"

✓ "Armco" pipe placed.

New Road Constn

✓ 1 Shovel #7 + Crew - 4 hrs.

✓ Relocation on a higher level of

✓ road to sand + gravel plant. -

Crispin
12/14/32
8:30 P.M.

Dec. 14, 1932. - 7AM - 4 PM.

Road Mtce.

1 Shovel #7 + Crew

New high level road to S.+G. plant.

Copied - 12/14/32 - 3-30 PM.

Dec. 15, 1932 - 7AM - 4 PM. —

✓ Road Mtce:-

1 Sh. #7 + Crew - S.+G. Pit - Road. -

✓ Qurry Mtce - Road

✓ 1 Cat 60 with Mc.M. + Opr. -

✓ 1 Allis-Chal. - 4v - with 10' Blade -

✓ 1 Tr. opr. and 1 Blade m'n for above.

✓ 1 Lab. ditching.

Copied
12/15/32
4:30 PM

Dec. 15/16, 1932 - Thurs. night. 5PM - 2AM

Road to sand + gravel plant:-

1 Port. Compr

2 Jackhmrs

1 A-C. Tractor

1 Trk #52 (part time)

1 Powder m'n

2 Hlprs.

Material - road. culvert,

2 Lgths 40' each - 24" Armco pipe

Sh. #7 not working - this shift. —

Copied
12/16/32
10:00 Am.

Dec. 16, 1932. - 7 AM - 4 PM

Quarry road

✓ 1 - Gallion road Grader

New road to S & G. Plant. -

✓ 1 Sh. #7 & Crew

✓ 2 Trks & 2 Drvrs

✓ 1 Dump m'n

✓ 1 Cat 60 and McM. & Opr.

No road work on night shift. -

Copied
12/17/32
12:00 Noon

Saturday - Dec. 17, 1932 - 7 AM - 4 PM

Qurry Road

✓ 1 Gallion road Grader

- Road still rough and hi-line road to upstream embkt too soft for traffic. -

New road to S & G. Plant

✓ 1 Sh. #7

✓ 1 Port Compr

✓ 2 Jackhmr's

✓ 1 Cat 60 & McM

✓ 2 Trks

—

✓ 1 Sh. Opr. & 1 Oilr

✓ 2 Trk Drvrs

✓ 1 Dump m'n

✓ 1 Cat. Opr

✓ 1 Pondmn

✓ 2 Jackhmr m'n

Copied
12/17/32
1:00 P.M.

Sunday, Dec. 18, 1932 - 7 AM - 4 PM -

Quarry Road. -

1 Tank Trk & Drvr

1 Gallion grader & Opr.

Sand & Gravel Plant Road

1 Sh. #7 & Crew

1 Trk & Drvr

1 Dump min

Opening - 12/19/32 - 9:30 a.m.

Dec. 19

Quarry 20 rock trucks, '35 steel
'32 water
cat. 30, 1 compressor
bulldozer & operator
cat. 60 & 2 medullers
8 shovels & drillers
2 lab's helping drillers
1 powderman, 3 lab's loading
2 waterlines & crew of fire
2 blacksmith aws & men
1 compressorman 3 sig auto shop.

Sand & gravel Plant

12/8/32 sand 60
3/4 - 31
1 1/2 - 17
2 1/2 - 10

12/9/32 sand 51
3/4 - 24
1 1/2 - 21
2 1/2 - 10

10-16 rock foreman

10/17/32 - sand 45
3/4 - 25
1 1/2 - 20
2 1/2 - 8

10/18/32 sand 55
3/4 - 21
1 1/2 - 16
2 1/2 - 8

Dec. 19 (cont.)

Road maintenance - grader
" construction - shovel & fireman, 3 trucks, 2 cont, 1 centis for 3/4 of day.

Day	night	
1 - 70	86	1/2 lb electrical
2 - 116	127	3/4 " kitchen truck
6 - 118	103	1/2 " hoist line
9 - 125 1/2 lb cable	123	1/2 " friction
429	438	

sand	64	gravel plant
3/4 -	25	
1 1/2 -	19	
2 1/2 -	9	

Dec. 20

Quarry 14 rock trucks, 35 steel
cat. 30, 1 compressor
cat. 60 bulldozer & operator
cat. 60 & McMillan
4 jackhammer & drillers
2 laborers with drillers
1 powderman, 4 labs loading
1 water liner & crew of 2
regular & hosp force
3 - 2 man shifts on crypt

sand	60	
3/4 -	34	5 trucks 1 centis
1 1/2 -	22	
2 1/2 -	10	bucket loader & trucks & cents

Dec. 21

sand 60

3/4 28 5 trucks (1 empty)

1 1/2 16

2 1/2 11

bucket loader & 2 trucks 2 stiff

Dec. 22

sand 68

3/4 - 28 5 trucks (1 empty)

1 1/2 - 17 bucket loader 2 trucks

2 1/2 - 10 2 stiffs

Dec. 23

bucket loader & 2 trucks

3 & lifts

Dec 24

Sand. 27

3/4 - 10 4 hrs.

1 1/2 - 8 5 ~~co~~. trucks

2 1/2 - 5

bucket loader, 2 trucks, 2 drill

Dec 25

Dec 26

20 rock trucks "35 steel
6 jackhams & drillers
1 powderman, 5 laborers on powder
2 labs helping drillers
cat 60 bulldozer & operator
cat 60 & bucketer "
Allis Chalmers tractor, 2 compressors
3 men on crusher (3 shifts)
regular shop force
Night day 377
#1-103
2-70 1½ lbs tracks, latch pin & bolt
6-106 1¼ lbs sleeve, carburetor
8-125 ¾ lb latch pin
400

sand 51
3/4 - 29
1 1/2 - 17
2 1/2 - 10
} 5 trucks (2 crews)
2 shifts bucket loader 1 truck

Dec 27

Photo #1 shipping operations at N. abut. 11.6 a.m.

Photo #2 lee wall south looking south from near north abut. 11.08 a.m.

~~Photo #3 shipping area N. abut from rock fill 11.10 a.m.~~

Photo #4 rock embankment dock. Mikay 5. 11.20 a.m.

Photo #5 portion of shipping area N. abut dock of ore wall from rock embankment at 11.30

Photo #6 up st. from dock spoil bank 11.40 a.m.

Same equip at quarry as yest.

7 spliners & drillers

2 lab. helping drillers

Dec 27

1 powderman, 5 lab. on load. wall liners, 5 men

All right trucks until 9 h

Tom.
~~Dec.~~ 10 sand 42
3/4 - 12 4 trucks ~~[illegible]~~
1 1/2 - 14
2 1/2 = 10

Tom.
~~Dec.~~ 11 sand - 42
3/4" - 14
1 1/2 - 20
2 1/2 - 11

Tom.
~~Dec.~~ 12 sand 42
3/4" 11
1 1/2 18
2 1/2 - 10

2 - 8 hr. shifts bucket
loader 1 truck

Jan 13

Photo #1 Entrance portal from end ~~top~~ of sand pile 1.30 P.M.
1.45 P.M.

Photo #2 Dam from downside

" #3 New roads widening from knoll on borrow pit area "A" looking westerly 2.00 P.M.

Photo #4 Shovel excavating for road material at Dam site

Photo #5 Construction of guard barges at exit portal 2.45 P.M.
showing pumps & monitors

Photo #6 Shipping at westerly toe of north abut. 3 P.M.

#1	9 A.M.	1/14/33	
#2	10/15 "	"	
#3	10-30 "	"	
#4	10-45 "	"	same as #6
#5	11 A.M.	"	"

Jan 13

Gravel plant		
Cement	116	#1 shift 1 unit + 4 co. truck
3/4 -	20	#2 " 4 " 1 co. "
1 1/2 -	38	2 hr. shifts
2 1/2 -	22	

Jan 14

Shovel ~~to~~ 2 trucks making crossing of river below gravel plant. Cat 60 McMillan blading surfacing.

Jan 1.4

Sand	64	2 8hr. shifts
3/4"	~~32~~ 4	4 lo. trucks " 1
1 1/2	28	8 " " " 2 3 rent
2 1/2	10	

Jan 14

3/4" -	28	2 8hr. shifts
1 1/2 "	42	trucks same as 11th
2 1/2 -	0	

Jan. 16

3/4 - 18 } 1 1/2 stiffs
1 1/2 - 34 } trucks same as 15th

Jan. 17

No work at gravel plant

Jan 18

Plant 3/4" mat. 16 1 stiff
1 1/2" " 21 same crew

Jan. 19

Plant 3/4" mat. 24 2 stiffs
1 1/2" " 41

Jan 20

Plant 3/4 - 28
1 1/2 - 52

Jan. 21

Photo #1 rock pocket in core wall
S. about 11 a.m.
Photo #2 core wall from S. about 11.15 a.m.

Jan. 23

Photo #3 Dam from site 1 10 a.m. 7" 1/40
" 4 Tun. entrance S. 7/8 10.30 a.m.
" 5 core wall from N. about 11 a.m. 6" fill
" 6 E. from diversh. spoil bank 11.15 a.m.

Jan. 25

Plant 3/4" mat 8
1 1/2" " 16

Jan. 26

Quarry 5 runners & 3 oilers on shovel overhaul.

Cat. 60 bulldozer (Hoisting and) aelis chaining tractor.

1 compressor

4 jackhammers & drillers

1 blacksmith & helper

4 laborers digging trenches for power cables & misc. work

1 compressorman

Night crews

Shovel #7 & crew

2 trucks, 1 dumpman.

Jan. 27

1.30 P.M.

Shots #1 begin clean for hyd. fill pit.

" #2 Blanketing west slope of up. stre. emb. with hyd. fill. ending 2 P.M.

Jan. 27

Quarry trucks 2, 10, 4, 17, 23, 17, 15, 26, 12, 1, 14, 7, 23 rock trucks "32 misc.

4 shovels & crews

7 jackhammers & drillers

1 powderman, 3 helpers loading

4 lab's carrying fuse & help. drillers

1 lab. on trenches for power cables

1 mechanic & helper

1 blacksmith & "

1 compressorman

1 electrician & helpers on pole line to pit #4

2 shovels, 4 trucks 1 cat & mc, 1 foreman

1 dumpman on borrow pit road.

Quarry run

day	night	
#1 - 11½	62	no delays
2 - 128	78	Shovel down 11:45 P.M.
8 - 68 - 2¼ hrs. dep. hinge	84	rain
9 - 80	87	
388	281	lots of dirt in material

Jan. 28

Hydr. fill 12 trucks (8 rent)
1 cat. 60 & McMullen
2 shovels (#6 & 7)
1 foreman (Caldwell)
Carp. & helper on field office
1 fore. 3 labs road ditching
Quarry
1 powderman 6 helpers loading
6 jackhamers & drillers
3 labs helping "
1 mechanic & helper
1 compressorman, 1 blacksmith & helper
Hydr. fill 27th 142 (est.) loads
" " 28th 95-1 "
"

Jan. 29

Hydr. fill 218 loads 4½ hrs
Quarry 1 foreman & labores
ditching and loading 2 ham-
mers well drills on truck.

Jan. 31

Photo #3 overflow of river during 2.30 P.M.

" 4 Tumelavist 3.15 P.M.

2 shovel crews, 1 truck on shovel repairs.

road blade & cat. 30.

1 fore. 3 labs. on pit unwinding

1 shovel, 5 trucks, 1 bulldozer, 1 compr. on repairs to river xing.

1 electrician & 3 labs running pole line to allow for road widening.

1 carpenter at quarry.

3 labs. drilling at quarry

Truck hauled out welding in P.M.

3 lab. installed extent of quarry road above powder house

Feb. 1

Photo #5 Replacing mixing to borrow pit 10.30 A.M.

Crew on above – shovel & crew

1 foreman, 2 lab. Cat 60 Cat 60 & McMillan bulldozer & operator

shovel #6 & ~~operator~~ crew on repairs

road blade & cat. 60 on borrow pit road

Cat. 30 & compr. & 1 man on above road widening. 1 truck G. at pit P.M. labels

Truck #72	Moreland	6 X 9.5 X 2.3	5 cy.
" 70 + 71	"	6 X 10 X 2.25	"
" 7 + 8	"	6 X 11.3 X 3.55	8.92
" 73	Buckeye	6.5 X 9 X 2.35	5 cy.
" 4, 5 + 6	Moreland	6 X 12 X 3.45	9 cy.
" 1, 2, 3	"	6 X 11.4 X 3.5	8.94 cy.
43 + 46	Autocar	6 X 9.4 X 2.95	

3 labs. crew at quarry

Photo #6 Dam from downside 1, 2 P.M.

Feb. 2

Chute 1 Looking N. from 3 cat, 11,15 a.m. 11 E. of 3

Quarry trucks 4, 9, 23, 13, 26, 32, 10, 8, 17

24, 2, 20, 1, 12, 11, 25, 7, 5, 15, 18, 14, 3.

electric bulldozer & operatr

7 jackhammers & drillers

3 labrers helping drillers

1 powderman, 5 labrers on powder

1 lab. misc.

Handy Andy.

1 mechanic & helper

1 compressorman, 1 blksmth & helper

4 shovels & crews.

cat. & bulldozer, 1 dump & 1 labrer at dump

Roads 1 lab. quarry road

shovel carting borrow pit road

cat & blade " " "

1 electrician, 4 helpers wiring " "

1 labrer on borrow pit road

Quarry

	day	night	
Shovel 1	141	107	1/2 hr. swing pin
" 2	129	91 3/4	" hoist friction
" 8	88	112 1/2	" lights
" 9	150	142	
	478	452	

Feb 3

Borrow pit - Trucks 61, 5, 62, 8, 2, 72
63, 9, 1, 70, 71, 6, 4, 10, 73
43 + 44 [illegible] 5 yd

Shovels 6 + 7, cat. 60 + Mcmillan

1 dumpman, 1 bulldozer equip

Quarry

23 rock trucks, 1 truck misc

8 plows + drillers, 3 drillers helpers

1 powderman, 4 labrers loading

1 lab misc, 1 mechanic misc

1 auto mechanic + helper, 1 blacksmith helper

1 compressorman, welding body + labrers

Shovel 1	125		102
2	81		46
8	118	no delays	121
9	144		177
	968		444

Feb 4

A 5 yd Syd. Moreland + Connor

A 5 yd + 1 J.M.Q. Mason

10 yd Large trucks LaPoint + Baxter

8 yd 1 - Sterling #11 Orendorf

1 5 yd J. A. Connor

Borrow pit 70, 62, 63, 11, 71, 73, 2, 72, 8, 61,
3, 64, 74, 5, 6, 4, 7 3 lab mobil. tank + pump
43, 2 shovels cat 60 + mc.

Borrow pit cat. 30 + blade

Quarry road + 60 + " 2 lab

Feb 5

Quarry

Shovel # 1-196		164
2-118	1½ hr. cable	121
8-123		112 ½ hr. friction boom
9-138		135 ½ hr. cable
522		522

Feb. 6

Photo # 2 showing flags marking
line of blanket 9-30 a.m.
Photo # 3 South abut. along core
wall from northabut 10 a.m.
Photo # 4 Shows excavating for keyed
bell material at about coord N. 4100 E 4300

Day	Night	
1-120	108	
2-94	101	No
8-120	73	Delays
9-152	154	
486	436	

Feb. 7

Quarry

Shovel # 1-94	5½ hr. saddle block & boom	3 hrs. 82 broken boom
2-131		81 3¼ hrs saddle block
8-102		112
9-167		165 ½ hr. dippr stick
444		410

Feb. 8

Borrow pit A. Shovel # 6

1 Cat. 60 & McMullen

Trucks # 70, 61, 63, 72, 6, 74, 5, 11, 3, 4, 17

Quarry day

1 - 150	82 lb. electrical
2 - 93 ½ lb. mining	97
8 - 81 1¾ lb. dipper	92 ½ lb. dipper latch
9 - 125 lb. mag.	145
449	416

Feb. 9

Photo # 5 Trucks dumping high fill material on W. side of upstream rock embankment 9.15 a.m.

Photo # 6 Shipping operations south about note rock on lower roads from bench above shovel 9.50 a.m.

Borrow pit trucks 72, 63, 4, 70, 13, 5, 6, 74, 61, 11, 63,

Quarry loading

Shovel - 1 - 126	121
2 - 108 ½ lb. cable	91
8 - 108	116 ¾ lb. latch plate
9 - 181	109 ½ lb. cable
517	437

Feb. 10

Photo #1 dam from crk #1 11:15 A.M.

" 2 monitor stripping water into drch. crk & on wall 1:45 PM

Photo #3 lay stakes W. slope repair end 2 P.M. Cmd E 33 N

Hydr. fill 70, 73, 65, 74

cat. 60 bulldozer, shovel & crew

Roads cat. 30 & blade, gallon gal 2 labors.

Photo #4 dam from drch. spoil bank 2:45 P.M.

Quarry 23 rock trucks 7 truck mix 7 jk hmr & drillers, 2 helpers 1 powderman, 6 helpers

Bal. of crew as usual

Spoil 1	114	1/2 hr. blade	116
2	128	1/2 hr. power drill	131
8	91		140 1/2 hr. drill plat.
9	103	1/2 hr. Gpmm	82 3/4 hr. gunning to
	436	6	494 quarry

Feb. 11

Photo #5 begin brach fr hydraulic fill E. side of core wall 2:15 P.M.

Photo #6 water turned into pond W. side of wall 2:30 P.M.

Fill 7 trucks cat. & mc.

Shovel #6 (1/2 day)

Road cat. 30 & blade, water truck & road grader.

Quarry

Spoil 1	78		127
2	311	3/4 hrs trucks & motor	112 1 hr. generator
6	100		86
8	22	6 hrs. equip. in shade	83
9	120		107
	351		565

Feb 12

Quarry 4 shovels 1, 2, 8 & 9
Rock trucks, 21 - 1 truck mine,
8 pkhms & drillers, 2 helpers
1 elctric & operator
1 powderman, 5 helpers
Cat. 60 bulldozer, 1 dumpman at Elk
Quarry night same as day
except 1 pkhms, 3 powder helpers
No work either shift on hydraulic fill material

shovel 1 -	63	3/4 lbs creature	114 lb. bonnell
2 -	96	3/4 lbs saddle block	122
6 -	92	1 3/4 lbs chain & tracks	97
8 -	81	1 1/2 lbs friction	76
9 -	52	4 1/2 lbs broken heel casting	129
	384		538

Feb. 13

Borrow pit "A" shovel # 8
6 trucks, 1 dragline Cat. 60 bulldozer
electric bulldozer (1/2 day)
Borrow pit "C" 2 shovels 6 & 7
7 trucks 1 Cat 60 & McMullen 1/2 day
night shift quarry
#1 - 114 1/2 lb. dippa
2 - 117 1/2 lb. bucket
9 - 88 3 lbs drive shaft
319

Feb. 14

Borrow pit A Shovel #8

trucks #70, 13, 72, 73, 1, ~~73~~, ~~71~~, 3, 6, 12, 7

Cat & McMillan

Borrow pit C Shovels 6 & 7

Trucks #5, 4, 60, 41, 14, 15, 43, 7

Photo #1 not exposed. Photo #2 hydraulic operations upstream of core wall stripping south abut. ment in background 10.30 a.m.

#3 Same as #2 bank tipped at grade angle

Photo #4 Hydraulic operations at E. Jam S. abut. 1.15 P.M.

Photo #5 same as #4 higher up 1.25 P.M.

Quarry 15 rock trucks, 1 truck mixer,

8 jackhammers & drillers, 3 helpers

1 powderman 3 helpers

Cletrac bulldozer & operator

Quarry Regular shop & fill force

" night

11 men on drilling & powder

16 rock trucks, 1 truck mixer

Cletrac, cat, 60 bulldozer, ditch emb.

Borrow pit night 'A'

trucks #72, 8, 13, 73, 12, 70, 74

Pit "C" 4, 6, 15, 60, 5, 7, 14

2 Shovels Cat & McMillan

Quarry
Day

Shovel 1-130 97 lbs. control drum

2-81 1¼ lbs saddle bolts 128

9-67 4½ lbs drive shaft 164

281 389

Feb. 15

Phots #6 Dam from 800' E. of R.
Abutment 1:45 P.M.
Phots #1 same as above 1000' E 2 P.M.
" 2 upstream hydraulic gauge 2:15 P.M.
" 3 downstream " " 2:20 P.M.
" 4 up the from Washington R. abut. 2:25 P.M.
" 5 Dam from flume 800' W. of core 2:30 P.M.
" 6 " " " 400 E. "
Borrow Pit #1 Shovel #8, cat & McPherson
trucks #7, 8, 13, 6, 14, 12
Spoil bank, power 2 shovels, trucks #15, 3, 73, 70, 5, 74, 1
Quarry 17 rock trucks 16 regd stuff
1 truck mixer 1
1 powderman 5 helpers 5 "
8 drillers, 3 helpers 5 + 2 "
Reg. free ✓

Feb 14

Shovel #1 - 132		112
2 - 101	no delays	96
9 - 150		120
383		328

Feb. 16

Feb. 17

Borrow pit "A" ~~st~~ 2 shovels

trucks 4, 5, 11, 3, 8, 13, 1, 6, 7, 10, 14, 15

Quarry 1 pitman & driller, 1 helper

1 powderman 4 helpers

trucks 25, 10, 17, 23, 18, 20, 2, 24, 6, 8, 12 1 mixer

Cletrac & operator

2 blacksmiths, 2 helpers

~~borrow~~ spoil banks upper & lower

trucks 44, 72, 31, 70, 74, 89, 43

Quarry hauling

"1 - 129

"2 - 105 ½ hr extra

1 night watchman

Feb. 18

Borrow pit "A" 2 shovels cat & mechanic

trucks "1, 8, 6, 13, 7, 4, 14, 5, 15, 16, 10, 3, 74

Spoil banks upper & lower (L.M.)

trucks 1, 72, 71, 33, 39, 43, 24, 31, 42, 40, 41, 34, 26

1 Cat. & McMillan, 2 labs ½ day cleaning

for spoil banks E. of S. cut down site 1

Quarry 11 rock trucks, 1 track mace

1 powderman, 5 helpers, 6 pitmen, 1 helper

Regular shop & dump force

Rock to upstream embank.

Quarry

"1 - 80

"2 - 101

181

Feb. 19

No hauling from borrow pits. No work at quarry except shovel unwrap overhauling equipment, 1 blacksmith & helper, 1 compressman.

Feb. 20

Borrow pits "A" & "D" trucks 1, 4, 8, 14, 15, 17, 21, 10, 11, 18, 6, 5, 7, 19, 13

Spill bank 1, 31, 4, 26, 1, 33, 28,

Borrow pit "D" 19, 23, 73, 74, 72, 20, 40, 24, 2, 18

Photo #1 powder house 9:30 a.m.

" #2 Spillway & road earth 3:30 P.M.

Quarry 6 shovels, 1 helper, 1 powder man, 4 lab. 2 blacksmiths & helpers

Reg. shop force. no loading.

Photo #3 upstr. from downstr. emb. 4 P.M.

Feb. 21

Quarry same force as yesterday

Hydraulic fill material

Shovels 6 & 8 in Pit "A" & 9 in pit "D", & 7 in downst. spoil bank until noon, then moved to spillway. 1 cat 60 bulldozer, 2 cats 60's & 7 mi bulldozers, 1 Elbee bulldozer.

Feb. 22

Photo #4, dam from downside 1, 11 A.M.

5 shovel in working order

spillway RB bucket teeth marks in face of cut. 2:15 P.M.

Photo #5 Borrow pit "C" from junction of borrow pit & gravel plant roads 2:30 P.M.

Quarry 6 jackhammers & drillers, 1 drillers helper, 1 powder-men & 4 helpers.

1 oiler & shovel electrician

2 blacksmiths & helpers

1 compressor man, 1 mechanic

Borrow pits shovels 6 & 8 in "A" & 9 in "D" 7 & 11 in spillway

Cat. 60 bulldozer, 2 cat 60's & 7 mi's

Quarry on bank 1 compressor, Elbee bulldozer 2 jackhammers & drillers, 1 lab.

Feb. 23

Phot. #1 showing depth and note flag line marking top of [illegible] 9:15 a.m.

Phot. #2 north from 3 abut showing flags marking top of ends at upsh. embank. 10 A.M.

Phot. #3 same as above but showing more of puddle on ana 10 a.m.

Same force at quarry 2 drillers, 1 helper, 1 cat. 6D bulldozer, portable compressor on upsh. rock embankment.

Feb. 24

Phot. #4 same as #1 of yest. but width of blanket of 95' instead of 62' 1:15 P.M.

Same force at quarry stripping no auto mechanic or helper.

No hauling of hydraulic fill material. 3 men on stripping upstream rock embankment. Same shop force. 2 laborers digging trench from shop to ditch end of dam.

Feb. 25

Quarry force same as previous. No hauling of hydraulic fill material.

Feb. 26

Sun. - No work

Feb. 27

No work at quarry on rock. No hydraulic fill hauling.

Feb. 28

Same as Feb. 27

March 1

Phot. 5. dam th. emb. after sluicing by monitor look N. from S abut. 1:15 P.M.

Phot. 6. Dam from site 1 2 P.M.

Upth. embank (rock) sloping 6 lab. 2 drillers, 1 powderman, 1 foreman

Bradle upper lift - shovel 11, 1 compr. 1 drill, 1 labor.

Quarry 4 drillers, 1 powderman. 1 compressor, 1 electrician, 1 truck on steel.

March 2

Photo #1 Cut on chec. rock road at 36" culv. (road sta 58+85), 10:30 A.M. showing excav. made by shovel without use of powder. Borrow pits

Photo #2 Resuming haul of hydraulic fill material dash emb. 1 P.M.

Photo #3 Placing surface rock at toe of upstr. rock embankment 1:30 P.M. note slumping & smallness of material covering

Photo #4 Another view of above looking north from south about 1:45 P.M.

Upstr. rock emb. 1 fore, 1 dulla, 8 lab. 1 cat 00 bdd, 00 operator, 1 comp.

Borrow Pit A shovel #6 & crew

" " D " 8 & "

1 cat 00 & 2nd roller

Photo #5 New road to spillway development at dam site #1 East from near camp 2 P.M.

Quarry 6 rock trucks, 1 shovel #2 1 electric bulldozer, 4 jackhammer drillers, 1 powderman, 1 helper 1 shovel electrician, 1 compr. man 2 blacksmiths, 2 helpers.

114 loads of rock

March 3

Quarry. Shovel #2, 8 crew

trucks 3, 8, 11, 2, 12, 14, 4 1 Stel truck #9

1 pkmn, 1 powderman, 1 helper

2 blksmths, 2 helpers, 1 compr. man, 1 shovel elect.

rock emb. 1 fore, 1 dumpman, 9 laborers

2 cat. 60 bulldozers

earth fill 3 shovels, 2 cat mtc, 1 elec bull

in Norrow pits A, C, + D.

Photo #6 Shovel in westerly end of bor

spillway about coord pt. N.1490 E.475-0 3 PM

March 4

Quarry 4 pkmn, 1 powderman, 1 helper

1 shovel elect, 1 Barnhart lady, 2 blksmths,

2 helpers, 1 compr. man,

Photo #1 sloping upstr. rock emb,

note excessive earth in rock 3:30 PM.

March 5

Same crew on upstr. sloping

No hydraulic fill mutual bracing

March 6

Photo # 2 & 3 Dam from flume near axis 1:30 P.M.

Photo # 4 Dam from flume [illegible] 500' W. of axis 2 P.M.

Opt. emb. 1 fore, 8 lab, [illegible] 1 walnut ½ day

Quarry shovel # 2, 5 rock trucks, [illegible] 1 flume, 1 loader, 1 roadman, 2 blacksmiths, 2 helpers, 1 [illegible], 1 comp. man.

March 7

Photos # 5 & 6 from 150' above flume near axis showing keyhauling 10:15 A.M.

Photos # 1. Ch. of C. on dock emb. looking from S. about 1:15 P.M.

Photo # 2 same as above further east 1:15 P.M.

" # 3 same from easterly end of S. about 1:25 P.M.

Photo # 4 same as above looking down 1:30 P.M.

" # 5 keyh. open. north from S. about 2 P.M.

Quarry same crew as yest. [illegible]

Emb. 1 fore, 9 lab. 2 [illegible], walnut ½ d.

March 8

Quarry

1 hook, 1 powderman, 1 helper,
4 drillers, reg. shop force.

Rock emb. 1 fore, 10 labs, 1 cat 6 oxbows
1 water tank (½ time)

Roads reg. road crews

March 9

Quarry rock tools #6, 1, 14, 03, 13, 3, #9 steel
4 plus 1 driller, 1 powderman, 1 helper
reg. shop force.

Rock emb. 1 fore, 11 labs, 2 cat 60 bulldozers

Borrow Pit A shovels 6 & 9 up & downstream embs 66-33

Photo #1 Ladies Club on dish. emb. 2:10 P.M.

Photo #2 same as #1 2:15 P.M.

108 loads of rock from quarry.

March 10

Sample beach N 3450 E 5400

" 2 " N 3750 E 4800

Photo #3 method of placing ~~topk.~~ unsorted fill material 3/10/33, 1:45 P.M. with from 3 out dr. h. emb.

Photo #4 Spillway excavation east from Cont's shop 2 P.M.

Quarry rock trucks #14, 13, 3, 1, 33, #9 max. 81 loads to emb.

~~Photo #5 Construction~~

March 11

Photo #5 dam from site #1, 10 A.M.

" 6 hydraulicing at N. end of dr. h. emb. 10:30 A.M.

Quarry same force as yesterday. Borrow Pits same as previous.

March 12

~~Quarry same force operating as yesterday Stock trucks Borrow Pit force as usual~~

March 12

1 shovel electrician and helper on repairs to shovel #2. No other work except shop forces

March 13

Photo #1 Crush. operations looking easterly from quarry road northwest of entire camp 1:45 P.M.

Photo #2 hydraulic operations at north end of crush. emb. 2:35 P.M.

Shovel #7 moved to crush. spoil bank in P.M. material dumped from cars level of N.W. cor. of dam

March 14

Quarry trucks #3, 4, 2, 12, 1 [illegible] shovel #1 o crew, Elkhac bulldozer, shovel Beth, & helper on #2, regular shop and plant force

114 loads from quarry.

March 15

Quarry no rock hauling to plants, 12 laborers putting in holes in quarry face at Quarry A & B. Reg. plant & shop force.

1 foreman, 6 lab. on upstream emb. also cat 60 bulldozer & oper. shovel 6 in Pit A. shovels #9 in downstr. spoil bank

Chute #3 rock pockets in concrete wall at S. abut w. side 3:30 P.M.

Road shovel #11, 3 plows & drivers, 2 compressors, cat 30, 8 lab's

1 cat 60 bulldozer & Elkhac on dnstr. emb.

March 16

Photo #4 looking west from S. abut east of one wall. note proximity of shovels in left foreground to dist. emb. where material placed 10:15 a.m.

Photo #5 shovel loading in dist. spoil bank note character of material 10:30 a.m.

Photo #6 same as above different angle 10:45 a.m.

Quarry 8 jackhmrs, 5 helpers req. force on balance of work

Photo #1 Spillway near 3:30 P.M. N.E. from cond. BM 6258 N 4400 E 4730

Photo #2 south on spillway from cond. N 4440 E 4780

March 17

Quarry tracks 1, 4, 6, 2, 13, 10 & 9 misc 6 jkhmrs, 1 prod. 2 helpers, 3 labrers req. shovel & shop force. Rock emb. 1 bne, cat 60 bulldozer 6 lab.

Road shovel #11, 2 jkhmrs, 1 compr, cat. 30, 7 drillers & labrers.

Borrow Pit force shovel #7 moved to spillway in a.m. from dist. spoil bank

75 loads from quarry - worked 6 hrs.

March 18

Quarry 7 jackhammers, 1 powder man, 2 helpers loading & spring, 3 lab. mine, 1 truck & driver, rey. shop bar

Photo #3 Geo Co. employee on upstr. emb. from N. abut near cor wall 1:30 P.M.

March 20

2 compressors, 3 jackhammers, 6 laborers bush emb, 2 cat. Co bulldozer

101 loads from quarry

March 21.

Rock emb. 1 compr, 2 pk hmr 3 men
s. about, w. end. 1 cat 60 dropping, 1 dump
man, 1 cat 60 bulldozing.
Quarry 7 pk hmrs & drillers, 2 men
loading & lab. mix. 2 shovels
12 rock trucks, 1 truck mix, 1 allis c. bulldozer
~~Photo 4 Pan from site 1 1:30 PM.~~
~~Photo 5 Crush opens up site from~~
~~dr. sh. spool bank 1:45 PM.~~
~~Photo 6 Dust emb south from N about 2 P.M.~~
Quarry PM. trucks 33, 20, 13, 4, 2, 8, 3, 12, 6, 24, 1,
Photo 1 Dust emb south from N about 3:15 PM
" 2 Spill N.E. from co-ord pts. 3:15
" 3 S.E. from co-ords E 4760 N 4460 4:40 PM.

229 loads
98 + 1 - 96 2 day
131 2 (rt)

March 22

Quarry and borrow pit
forces same as yesterday.
Shift report

	Day		Night
1 -	61	2 3/4 hrs dropped	108
2 -	108	1/2 hr. burn/grade	111
	169		219

61
108

March 23

Photo #5 dam from dam site #1, 10 a.m.

Photo #6 Up. gh. from dn. th. spoil bank. 10:45 a.m.

Quarry - 2 shovels - Reg. shop force trucks #4, 20, 9, 12, 6, 8, 3, 7, 24, 26, X, #32 rented 3 men on powder, 7 jackhmrs, 1 lib. mixer 1 cat (Ellis ch.)

Day	night
#1 - 96	1 - 111
#2 - 108	2 - 102
204	213

March 24

Quarry trucks 12, 20, 1, 8, 24, 26, 2, 3, 7, 2, 4, #32 on steel Ellis ch. bulldozer 8 jackhmrs + drillers, 3 on powder, 1 lib. mixer, 11 rock trucks, 1 mixer, Reg. shop force. Same crew on hy. fill material. Cat + McMullen on road across river below dam.

Shovel loading

day	night
1 - 89	1 - 131
2 102	2 - 97
191	228

March 25

Quarry - 2 shovels

rock trucks - 20, 4, 7, 1, 13, 2, 26, 24, 8, 3

1 Allis Chalmers bulldozer

8 jackhammers, 3 on powder, 2 misc.

Rock emb. - 1 fore, 8 labs on rock, 2 labs here

Quarry loading	Day	Night
shovel -	1 - 96	98
"	2 - 109	97
	205	195

March 26

No hauling from quarry -

5 drillers, 1 foreman, 1 helper

1 runner, 1 oiler, 1 elect. Rez. shop foreman

1 truck driver

1 fore, 2 cat 60

bulldozer finish rock

Borrow pit shovel - 5, 6, cat

& Mc, 3 trucks, 1 dumping on

road to borrow pit via dive ck.

Rock emb. 1 pkm & drill, 1 compr.

1 cat 60 build, 1 fore, 5 labs.

shovel - 9 in ditch spoil bank on

ramp cat 60 & Mc Nelson

March 27

Photo #1 625 elev. gravel left at N. abut. dnstr. emb. 9:15 a.m.

Photo 2 looking core wall S. abut 10:30 a.m.

Photo #3 showing stuff from excav. piling up at core wall S. abut 11:15 a.m.

Photo #4 same as #2 abut 11:30 a.m.

3 & 4 requested by Wood.

Shovel loading quarry

	day	night
#1	102	70
2	89	102
	191	172

March 28

Gravel Plant 3 carps, 1 fore, 3 labs

Rock emb. 1 foreman, 10 lab. on hand placing. 2 cat bulldozers, 1 upstr 1 on dnstr 630' left

Quarry 6 spkmrs, 1 powdman, 2 helpers 2 labs misc, 1 cat (a.c.), 11 rock trucks, 1 truck misc. reg. shop force

Shovel loading quarry

Day	Night
#1 92	5 rain
#2 102	5
194	10

March 29

Gravel Plant 1 fore., 2 carp's, 3 labors, 1 Pioneer rep.

Photo #5 Excav. E. end Spillway note bucket tooth marks. stout coords N. 1330 E. 5150 10 a.m.

Quarry 2 shovels, 1 cat (a. e.)

trucks #7, 1, 13, 6, 2, 24, 20, 11, 4 + 2 steel

8 plows, 2 helpers, 1 pond man, 2 helpers

1 shovel elect., reg shop force

1 fore. 10 lab. on dist. emb.

Quarry loading

Day	Night
Shovel #1 - 99	138
2 - 109	66
208	204

March 30

Rock emb. 1 fore, 1 cat. 60, 7 labors, 1 dumpman, cat 60 on 634 lift

Quarry 7 drillers, 2 shovels, (cat a e.) 10 rock truck, 1 truck misc 1 pond, 2 helpers, 3 labors, reg shop force

Gravel Plant 1 fore., 2 carpenters, 4 labs

Borrow Pit 1 shovel, 1 cat. mc. at "A"

2 shovels on dist. spoil bank

P.M. quarry trucks 1, 20, 11, 6, 2, 24, 3, 4, 13

Quarry loading

Day	Night
Shovel #1 - 79	78
2 - 102	108
181	186

March 31

Quarry 6 jackhmrs, 1 powderman, 3 helpers, 2 labs, albol. cat.

Sand & gravel plant 1 fore, 2 carpe 4 labs.

Phot #6 Grave of Dan Williams located 900 north of Boulder creek gaging sta Elev. about 850

Phot #1 same as above

" 2 N.W. cor. of adobe house occupied by Dan Williams at time of death 1899 about (about 200' west of grave) 900 northerly Boulder wagon road crossing 750 east of eagle road 900 south of northerly line of Indian Res.

Quarry loading

	Night	
#1	0	1-8
#2	104	2 104
		112

April 1

Phot #3 Dam from site #1 9:30 a.m.

Phot #4 Dam from about 600' E. of axis on r. about 9:45 a.m.

Quarry trucks #3, 2 6, 7, 1, 10, 24, 29, 11, 2, 6, 4 #32 mins

Shovels 1 & 2, 4 cat, 6 jackhmrs, 1 powd. 3 helpers, 2 lab mech. 1 mechanic

Wy. shop fore

Rock comb 1 fore, 11 lab 3 cat co bull.

Phot #5 dust, out showing being deposited on dirt r. from 3 about 1:30 P.M.

Phot #6 upstr. from dir. of spill dam 1:45 P.M.

April 2

Full crew working at quarry - no hauling.
Crew on hand placing rock on downstream emb.
Monitors in operations

April 3

Same force at quarry as previous. 11 rock trucks.
1 fore. 3 cats & operators, 1 driller, 1 dumpman, 9 laborers on hand placing rock d'nstr. emb.
Same force on hydraulic fill material.

April 4

Same crew at quarry & rock emb.
Same force on roads & hydraulic fill material

April 5

Same forces working as yesterday -

April 6

Same forces as previous
Photo + 1 cat & scarifier loosening earth on 610 bench. 11 A.M.
610 bench aflr scarifying
R. from S. about 11:15 A.M.

3/22/33

N. 3700. W. S. 595.

	Mud.	Sample	
E 4950	581.	577.5	#1.
5000	581	575.0	2
5065	583.5	582.0	3

N 3550

5065	585	587	4
5000	576.5	575.0	5
4950	583.0	581.0	6

N.

4950	582.0	581.0	7
5000	580.0	580.0	8
5065	586.0	585.0	9

95
7.5
97.5

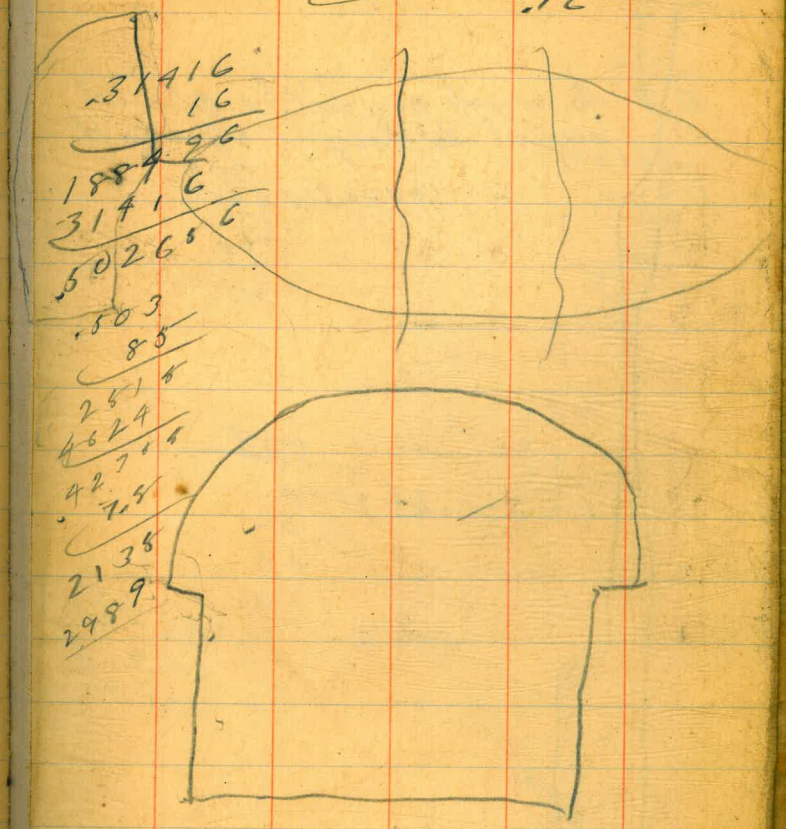
N. 3800. W.S. 580.0

E. 4950	Elev. 565.	#223	238
E. 5000	Elev. 565	#224	239
E. 5075	" 569	#226	240
	N. 3600		
E 5075	Elev. 567	#227	241
E 5000	" 565	#228	242
E 4950	" 566	#230	243
	N. 3400		
E. 4950	Elev. 566.	#231	244
E 5000	566	#232	245
E 5075	566	#233	246

.84
.8

.4
.4
.16

.3141.6
16
.96
1884.6
3141.6
5026.6
.503
85
2514
4624
7.14
42.14
1.5
21.35
2989



5.2
2.0
7.2
.5
6.7 to mark on lathe about equal to height of rod

.00650
20 / 1.3300
120
130
120
100
100

.17
20
3.40
.53
1020
1700
16.00

.00029 / .00650. = 230
58
85
85
60 / 230
180
50

650
97
53
26 / 144
130
140
130
100
78
22

650
18
3250
650
2975

2.25
60
135.00

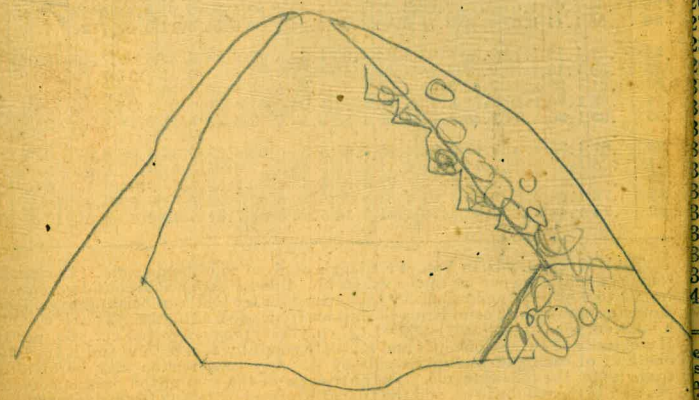
1.3850
4320

9.4
.6
5.64
2.98
2.8
5.076
11.28
16.63

2.820
5.076
5.64
11.98

9.4
.6
5.64
2
112.8

9.4
.6
5.70
2.35
2850
1710
1140
13.395



20/40 2 6/5

Calculation of Earthwork.

Width	HEIGHT 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	.02	.04	.06	.07	.09	.11	.13	.15	.17	.18	.20	.22	.24	.26	.28
2	.04	.07	.11	.15	.18	.22	.26	.30	.33	.37	.41	.44	.48	.52	.56
3	.06	.11	.17	.22	.28	.33	.39	.44	.50	.56	.61	.67	.72	.78	.83
4	.07	.15	.22	.30	.37	.44	.52	.59	.67	.74	.81	.89	.96	1.04	1.11
5	.09	.19	.28	.37	.46	.56	.65	.74	.83	.93	1.02	1.11	1.20	1.30	1.39
6	.11	.22	.33	.44	.56	.67	.78	.89	1.00	1.11	1.22	1.33	1.44	1.55	1.67
7	.13	.26	.39	.52	.65	.78	.91	1.04	1.16	1.30	1.42	1.55	1.68	1.81	1.94
8	.15	.30	.44	.59	.74	.89	1.04	1.19	1.33	1.48	1.63	1.78	1.92	2.08	2.22
9	.17	.33	.50	.67	.83	1.00	1.17	1.33	1.50	1.67	1.83	2.00	2.17	2.33	2.50
10	.18	.37	.56	.74	.93	1.11	1.30	1.48	1.67	1.85	2.04	2.22	2.41	2.59	2.78
11	.20	.41	.61	.82	1.02	1.22	1.43	1.63	1.83	2.04	2.24	2.44	2.65	2.85	3.06
12	.22	.44	.67	.89	1.11	1.33	1.56	1.78	2.00	2.22	2.44	2.67	2.89	3.11	3.33
13	.24	.48	.72	.96	1.20	1.44	1.68	1.92	2.16	2.41	2.65	2.89	3.13	3.37	3.61
14	.26	.52	.78	1.04	1.30	1.55	1.81	2.08	2.33	2.59	2.85	3.11	3.37	3.63	3.89
15	.28	.56	.83	1.11	1.39	1.67	1.94	2.22	2.50	2.78	3.06	3.33	3.61	3.89	4.17
16	.30	.59	.89	1.18	1.48	1.78	2.07	2.37	2.67	2.96	3.26	3.56	3.85	4.15	4.44
17	.31	.63	.94	1.26	1.57	1.89	2.20	2.52	2.83	3.15	3.46	3.78	4.09	4.41	4.72
18	.33	.67	1.00	1.33	1.67	2.00	2.33	2.67	3.00	3.33	3.67	4.00	4.33	4.67	5.00
19	.35	.70	1.06	1.41	1.76	2.11	2.46	2.82	3.17	3.52	3.87	4.22	4.57	4.92	5.28
20	.37	.74	1.11	1.48	1.85	2.22	2.59	2.96	3.33	3.70	4.07	4.44	4.81	5.18	5.56
21	.39	.78	1.17	1.55	1.94	2.33	2.72	3.11	3.50	3.89	4.28	4.67	5.06	5.44	5.83
22	.41	.81	1.22	1.63	2.04	2.44	2.85	3.26	3.67	4.07	4.48	4.89	5.30	5.70	6.11
23	.43	.85	1.28	1.70	2.13	2.56	2.98	3.41	3.83	4.26	4.68	5.11	5.54	5.96	6.39
24	.44	.89	1.33	1.78	2.22	2.67	3.11	3.56	4.00	4.44	4.89	5.33	5.78	6.22	6.67
25	.46	.92	1.39	1.85	2.31	2.78	3.24	3.70	4.17	4.63	5.09	5.56	6.02	6.48	6.94
26	.48	.96	1.44	1.92	2.41	2.89	3.37	3.85	4.33	4.82	5.30	5.78	6.26	6.74	7.24
27	.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
28	.52	1.04	1.55	2.07	2.59	3.11	3.63	4.15	4.67	5.18	5.70	6.22	6.74	7.26	7.78
29	.54	1.07	1.61	2.15	2.68	3.22	3.76	4.30	4.83	5.37	5.91	6.44	6.98	7.52	8.06
30	.56	1.11	1.67	2.22	2.78	3.33	3.89	4.44	5.00	5.55	6.11	6.67	7.22	7.78	8.33
31	.57	1.15	1.72	2.30	2.87	3.44	4.02	4.59	5.17	5.74	6.32	6.89	7.46	8.04	8.61
32	.59	1.18	1.78	2.37	2.96	3.56	4.15	4.74	5.33	5.92	6.52	7.11	7.70	8.30	8.89
33	.61	1.22	1.83	2.44	3.05	3.67	4.28	4.89	5.50	6.11	6.72	7.33	7.94	8.55	9.17
34	.63	1.26	1.89	2.52	3.15	3.78	4.40	5.04	5.67	6.29	6.93	7.56	8.18	8.81	9.44
35	.65	1.30	1.94	2.59	3.24	3.89	4.53	5.18	5.83	6.48	7.13	7.78	8.42	9.08	9.72
36	.67	1.33	2.00	2.67	3.33	4.00	4.66	5.33	6.00	6.67	7.33	8.00	8.67	9.33	10.00
37	.68	1.37	2.06	2.74	3.42	4.11	4.79	5.48	6.17	6.85	7.54	8.22	8.91	9.59	10.28
38	.70	1.41	2.11	2.82	3.52	4.22	4.92	5.63	6.33	7.03	7.74	8.44	9.15	9.85	10.56
39	.72	1.44	2.17	2.89	3.61	4.33	5.05	5.78	6.50	7.22	7.95	8.67	9.39	10.11	10.83
40	.74	1.48	2.22	2.96	3.70	4.44	5.18	5.92	6.67	7.41	8.15	8.89	9.63	10.37	11.11

Table gives cu. yds. in 1 ft. of a triangle of given width and height. Corrections for tenths of width are one tenth the values found under each height considering the widths from 1 to 9 as tenths and similarly the corrections for tenths of height are one tenth the figures opposite width considering the heights from 1 to 9 as tenths. Thus if w =16.2 and h =5.3, cu. yds. =1.48+.028+.089 =1.597 cu. yds. or practically 160 cu. yds. per 100 ft. If w exceeds 40 ft., use one half and multiply result by 2, if both w and h are large use one half of each and multiply result by 4. Any cross-section may be divided into triangles by the following rule. To the triangle of the sum of the outside cuts (or fills) =h, and ½ the roadbed =w, add the triangles formed by taking the distance out to each break in turn (=w's) by the difference between the cuts (or fills) on each side of it (=h's) always subtracting the outer from the inner.

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1½.

For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2	9.4	0
1	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.6	10.7	10.9	1
2	11.0	11.2	11.3	11.5	11.6	11.8	11.9	12.1	12.2	12.4	2
3	12.5	12.7	12.8	13.0	13.1	13.3	13.4	13.6	13.7	13.9	3
4	14.0	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	4
5	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	16.9	5
6	17.0	17.2	17.3	17.5	17.6	17.8	17.9	18.1	18.2	18.4	6
7	18.5	18.7	18.8	19.0	19.1	19.3	19.4	19.6	19.7	19.9	7
8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.1	21.2	21.4	8
9	21.5	21.7	21.8	22.0	22.1	22.3	22.4	22.6	22.7	22.9	9
10	23.0	23.2	23.3	23.5	23.6	23.8	23.9	24.1	24.2	24.4	10
11	24.5	24.7	24.8	25.0	25.1	25.3	25.4	25.6	25.7	25.9	11
12	26.0	26.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct above figures by one-half difference in width of roadbed; thus in example above for 20 ft. roadbed distance will be 41.9+(20—16)÷2 or 2 ft. added to 41.9 =43.9. For slopes of 1 on 1 see inside of front cover.

Made in Germany.