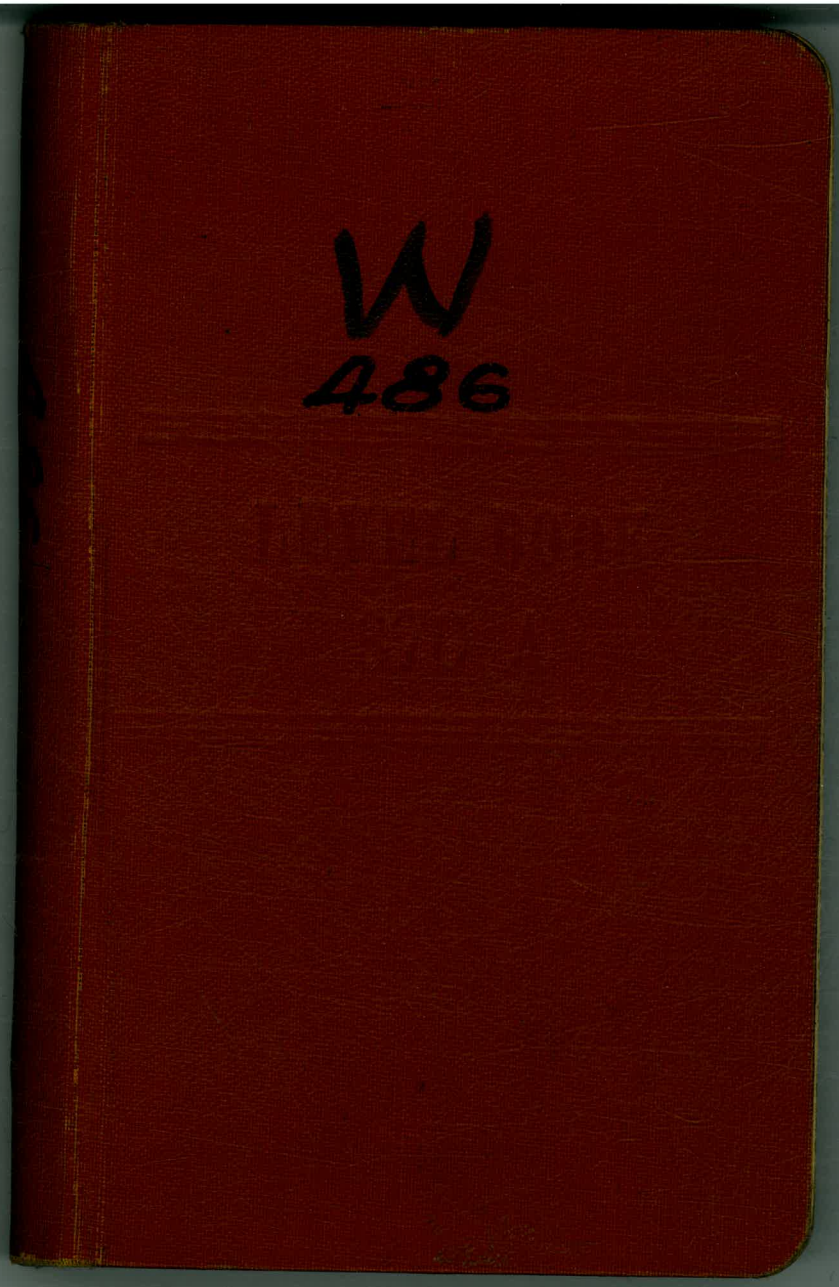
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486

KEUFFEL & ESSER CO.

DRAWING MATERIALS
AND
SURVEYING INSTRUMENTS.
NEW YORK.

CHICAGO. ST. LOUIS. SAN FRANCISCO. MONTREAL.

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
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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
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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.

12/17/34 - 2/5/35

486

Von Seggern, Insp. Concrete

Tunnel Inner Lining 1-27. 78-80

Blank 28-77.

Note Stripping

48 hrs for crown forms.

40 hrs for forms at Springline

24 hrs. for invert forms.

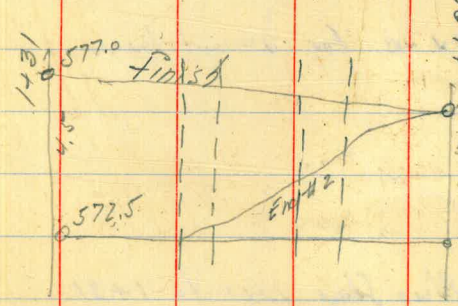
	Plug Sta		1+01	to 1+31	
80'	1st Section	Dates	1+31	to 2+11	Bot. ½
70'	" "		1+31	to 2+02	Top ½
80'	2nd Section		2+11	to 2+91	Bot ½
"	"		2+02	to 2+73	Top Ring
56	3rd Section		2+91	to 3+47	Bot ½
"	"	Jan. 12	2+73	to 3+43	Top Ring
74'	4th Section	Jan 12	3+47	to 4+20.95	Bot. ½
"	"	19	3+43	to 4+13	Top Ring
	5th Sect.	Jan 16	4+20.95	to 5+00	Bot ½
	5th Sec.	Jan. 24	4+13	to 4+79	Top Ring

Dec 17, 1934 #3 12 to 8 am.

Tunnel Plug.

Sta to

Elev. to Elev.



500 sx = 249/250 7sx Batches

Date = 2 sx wasted

6th Sec.	Jan 23	Sta 5+00 to 5+61	Invert
6th Sec	Jan 26	Sta 4+13 to 4+79	Crown
8th Sec	Jan 26	Sta 5+61 to 6+33	Invert
7th Sec	Jan 28-29	Sta 4+79 to 5+54	Crown
8th Sec	Jan 31	Sta 6+33 to 7+00	Invert
8th Sec	Feb.	Sta 5+54 to.	Crown

Dec 17, 1934 #3 Shift 12 to 8

Concrete cove to 7"

2 - 2sx Mixers & plant

2 - Trucks

1 - Rex Pump crete & pipes

1 - Foreman

1 - Mixerman

6 - Laborers. 2 Sand 3 Rock 1 Cement

2 - Truck Drivers

6 - Laborers on conc. pump

1 - Mechanic

3 - Laborers placing conc.

1 - Carpenter.

2 - Clean up laborers

1 - Hopper laborer

Dec 18, 1934 #3

Tunnel Lining

363 Sx Cement

Sta 1+31 to 2+11 = 80'

1, 2, 3 Lifts complete

to 1' below Spr. line.

Dec 18, 1934 #3

2- 2S-x Mixers

2- Trucks.

1- Rex Con pump.

1- Foreman.

1- Mixerman

2- Truck Drivers

9 Laborers 2 Sand 5 Rock 2 Cement

8- Labors at pump

1- Mechanic

Placing

1- Foreman

3. Laborers.

Clean Up

1- Carpenter

1- Laborer

Dec. 19, 1934 #3

Tunnel Plug

Forms. 7 hrs.

1- Foreman.

1- Carpenter.

4- Laborers.

Dec 20, 1934 #3 Shift

Tunnel Lining 12⁰⁰ to 8ᵃᵐ = 7½ hr

Forms

1- Foreman

1- Carpenter

3- Laborer

~~Stripping 1 Laborer~~

3 Laborers

Drilling Anchors

1- Compressor

1- Driller

to 4+40

New Station 4+40

Sand Blasting
1- Mechanic
2- Laborer.

Drilling Drain Holes in Invert.

see Drain on Small above Spr. Line use care in placing 2" pipe.

1- Comp. Outfit

1 Mont

1 Laborer

~~1 Mechanic~~

Dec. 21, 1934 #3

Tunnel Lining

Forms

1- Foreman

2- Carpenters

2- Laborers

Sand Blasting

1- Compressor + Outfit

1- Foreman

1- Mechanic

2- Laborers

Dec 22, 1934 #3

midnite to 8am

Tunnel Plug last lift

Concrete

2- 2sx mixers & plant

2- Trucks

1- Conc Pump

1- Foreman

1- Mixerman

1- Hopperman

8 Laborers. 3 Rock 2 Sand 2 Cement.

2 Truck Drivers

4- Laborers at Pump

1- Mechanic

9- Laborers placing Conc.

421 Sx Cement

35x grout incl.

421
9
412
30
382

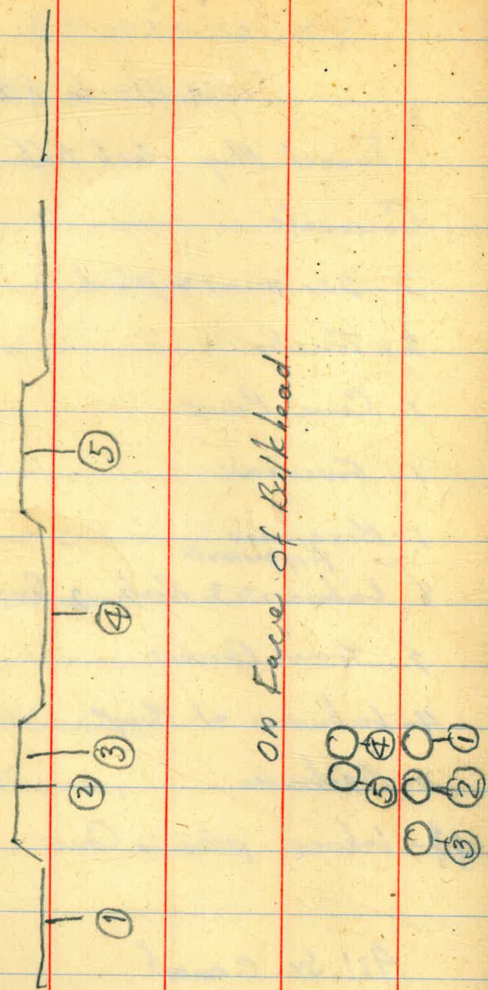
1:2:3
1:2:4

2" Pipe ?

Trowel pipe ?

Dec. 22, 1934 #3 midnite to 8am

Cross Section Tro'l Pipes + connections



upstream
E

On Face of Bulkhead

✓

Dec 23, 1934

#3 Shift midnite to 8am.

Forms for arch ring

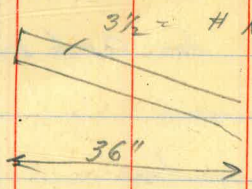
1 - Foreman

2 - Carpenters.

3 - Laborers. ③

Drilling Form Anchors.

1 - Laborer & Elec. Drill.



W =

M =

$f = \frac{M}{S}$

✓25

Dec 26, 1934 midnite to 8 a.m.

Tunnel Lining

Sand Blasting Sta 5+60 to

1 - Compressor & Outfit.

1 - Foreman

1 - Mechanic

2 - Laborers.

26 ✓ #3

Dec. ~~27~~, 1934

#1 midside to Sam.

Tunnel Lining

Concrete

2 - 2sx Mixers

2 - Trucks.

1 - Conv Pump.

1 - Foreman

1 - Mixerman

9 - Laborers. Cement 2 Rock 4 Sand 2

1 Hopperman.

2 - Truck Drivers

3 - Laborer at Pump

4 Laborers. Placing

2 - Laborer Placing

496 Sx cement.

Sta 2+11 to 2+91

Invert finished upstream end of next Lift started So. Side Lift to 2+91

26 ✓ #3

Dec. ~~27~~, 1934 Mudsill to Form

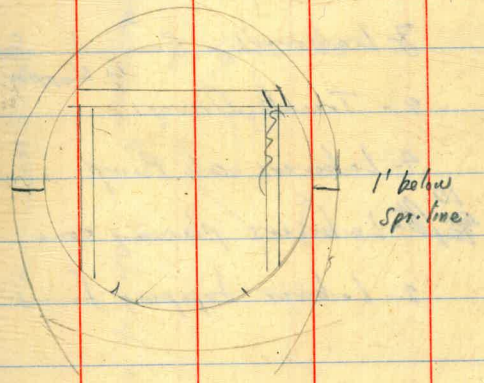
Tunnel Lining

Forms.

4 Carpenters.

4 & Helpers

- Laborers.



(23)

Dec. 27, 1934 #3.

Tunnel Lining

Concrete.

2 - 2 Sx mixers

2 - Trucks

1 - Conc Pump

1 - Foreman

1 Mixerman

8 - Laborers. Cement 2 Sand 2 Rock 3

1 - Hopper.

2 - Truck Drivers

4 - Laborers at Pump.

~~10~~ 8 - Laborers placing conc.

2 - Laborer tapping forms.

200 Sx. cement.

10 Sx. Rejected

210 Sx. Total

Sta 1+31 to 2+02 ~~2+11~~ from spr. Line to ½ pt.

2 a.m. to pipe change to full crown

Sta 1+31 to 1+50 last load from mixer shortly after 4 a.m.

Dec 27, 1934 #3.

Tunnel Lining

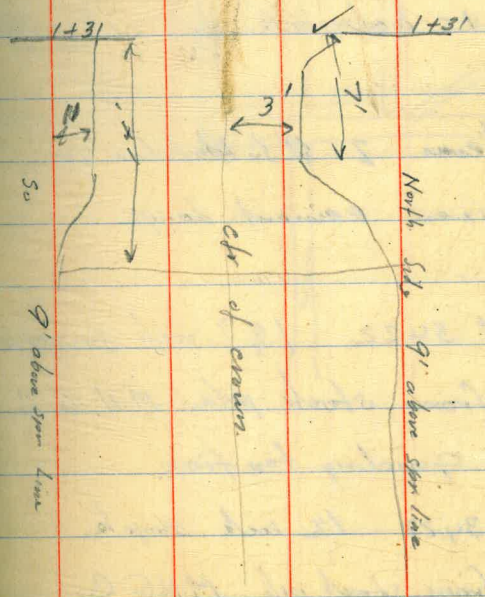
Forms.

3 - Carpenters.

#

Reinf Steel.

2 Steel workers.



Dec 28, 1934 #3
(Dec 29, #1)

Tunnel Lining midnite to 8am.

Forms.

1- Foreman

2- Carpenters

2- Laborers

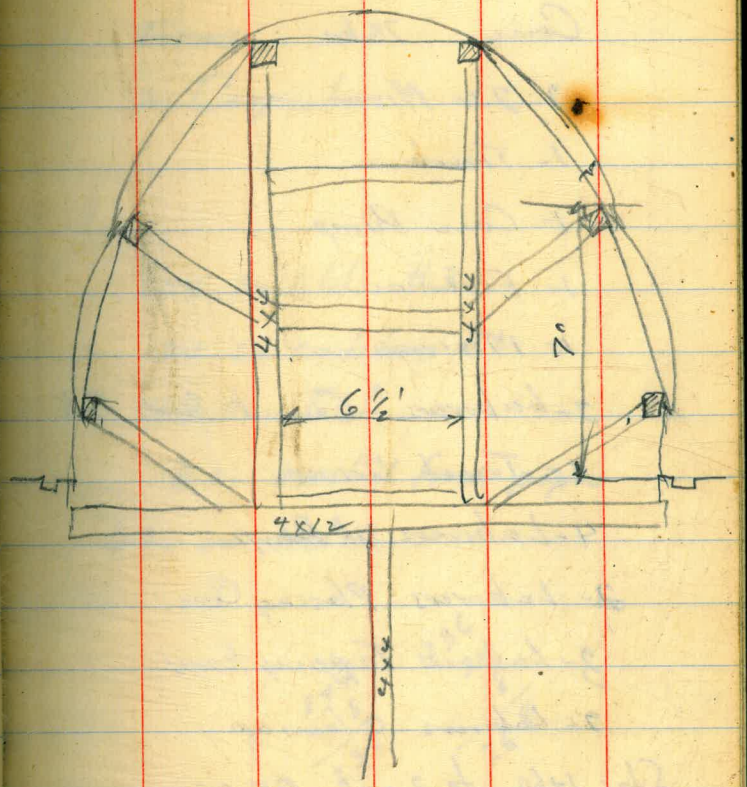
Clean up.

4- Laborers

Mem. 2- 2 Sx Batches in Mixer cement damp.

3422 1½" rock sample from stock pile M.H.G. Co. grading too fine

3423 1½ rock sample from stock pile M.H.G. Co.



✓

Dec. 29, 193x #3. midnite to 8 a.m.

Tunnel Lining = Dec. 30

Conc. 7½ hrs.

2 - 7s Mixer

1 - Truck

1 - Conc. Pump.

1 - Foreman

1 - Mixerman

3 - Laborers. Cement Sand Rock

1 - Truck Driver

4 - Laborers at Pump.

~~2~~ - Laborers Placing Conc.

3 - Laborers Tapping forms.

2 - Laborers Cleaning up.

Sta 1460 to 2+01 on crown

Start 12⁰⁰

Finished 7³⁰

24f Sx. cement

~~4~~ 5x. wasted disconnecting joints of pipe

45f in pipe

✓

10

Dec. 29, 193x

Tunnel Lining

Forms

3 - Carpenters.

247 Sx total #3

24 Sx cont. from #2

268 Sx Total.

8 Sx wasted from pipes

260 Sx Net.

247 − 8 = 236

236 + 24 + 8 = 268

Dec 29 = Dec. 30 Sunday midnite to 8 a.m.

Dec. 31 Monday off duty

Jan. 1 - Tues off duty.

Jan. 2 changed #3 to #1 midnite to 8 a.m.

Jan 2, 1934

1 Sh. ft midnite to 8 a.m

Forms Sta 2+91 to ~~3+97~~ 3+47

1 - Foreman

2 - Carpenters

9 " Helpers

3+47
2+91
56
15
280
56
840 sx

Delay No cement

840 sx required

500 sx on 1st order

100

110

Jan 3, 193x midnite to 8 a.m.

Tunnel Lining

Invert Sta 2+91 to 3+47 = 56'

Concrete Start 12 m. to.

2 - 25x mixers & plant

2 - Trucks 1 - Conc. Pump

1 - Foreman

1 - Mixerman

9 Laborers 2 Cement 4 Rock 2 Sand.
1 - Tamper

2 - Track Drivers

4 Labor at Pump

4 - Laborers 1 - Finisher Placing

496 sx cement to 6m Finish Invert changed to

Mix 25x cement 2 sx cement.

465 Sand 470 Sand - 235

544 1½ 540 - 270

181 pea 180 pea = 180
1190 1190

✓

Jan 3, 1934 midnite to 8am.

Tunnel Lining

Forms.

2 Carpenters

3 — " Helpers.

Drilling Anchor Holes.

1 — Compressor

1 - Laborer.

Sidewall Mix

2½ cement.

			used	
~~490~~ # Sand	= 245		490	= 245
~~540~~ # 1½	= 280		520	= 260
~~160~~ # pea	= 180		180	180
1190			1190	
650			670	
540			520	

✓ #1 12

Jan 4, 1934 midnite to 8am.

Tunnel lining Sta 2+02 to 2+73
02
= 71 feet.
3×10=70

Forms & Cleanup.

1 - Foreman

2 - Carpenter

Laborers 2-2-1-

Placing Conc. delivery pipe

12⁰⁰ to Entire crew.

Jan 5, 1935 #1

midnite to 8 a.m.

Tunnel Lining

Forms, Clean Up & Pipe Changes

1 - Foreman

2 - Carpenters

4 - Laborers

Sta 2+02 to 2+73 for Crown

Jan 6, 1934 - Sunday

off Duty

Jan. 7, 1934 midnite to 8 a.m.

Tunnel Lining

Clean Up Sta 4+00 to 5+00

1 - Foreman

3 - Laborers

1 - Truck

Jan 8, 1935

#1 Midnite to 8 am.

Tunnel Lining

Forms Invert 3+47 to 4+20. 95 = 74'

1- Foreman

2- Carpenters

4- Laborers.

Jan 9, 1934

#1 Shift Midnite to 8 a.m.

Forms

1- Foreman

2- Carpenters

4- Laborers.

✓

Jan. 10, 1935 #1

Tunnel Lining

Forms Sta 2+73 to 3+43 = 70

1- Foreman.

3- Carpenters.

~~3~~ 4- Laborers.

✓

Jan 11, 1935 #1

Tunnel Lining

Forms & Clean Up

1- Foreman

2- Carpenters

4- Laborers.

39 bundles shipped out.

450 sx cement shipped in #1 Shift.

~~256~~

500 sx

156 on trailer #1 shift

244 on truck #2 shift

Jan 12, 1935 #1

Midnite to 8 a.m.

No work. - Showers

Jan 13. 1935 Sunday.

Jan 14, 1935 #1 Shift

14. Midnite to 8 a.m.

Tunnel Lining

Stripping

1 - Foreman

2 - Carpenters

7 - " Helpers.

Clean Up.

2 - Laborers.

Jan. 15, 1935 #1

Midnite to 8 a.m.

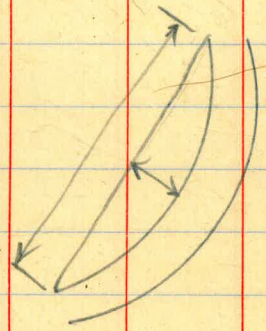
Tunnel Lining Sta 4+21 to 5+00

Forms

1- Foreman

2- Carpenters

4- Laborers



Jan 16, 1935 #1

Midnite to 8 a.m.

Tunnel lining

Stripping Invert

1- Foreman

2- Carpenters

4- Laborers

Jan 17, 1935 #1

Tunnel Lining

Concrete 12:00 to 5:00 = 5

1- Foreman

1- Fireman

Laborers 1-Hyp. 2-con. 3-5-4R.

2- Truck Drivers

4- Laborers at Pump.

5- Laborers.

Sta 4+20.95 to 5+00 Invert

		For Shifts Jan16 #2	Jan16 #3	Jan17 #1
Total	1401 Sx. cement			

Test Cylinders # 3-26-27-28

Jan 17, 1935 #1

Tunnel Lining

Forms. Crown Sta 3+43

2- Carpenters. to 4+15 / 72'

4- " Helpers. 2 hrs.

5:00 to 7:00 = 2 hrs

4 hrs

Jan 18, 1935

#1 Midnite to 8 a.m.

Tunnel Lining

Concrete 12[00] to 5[00] = 5 hrs.

2 - 2 S.K. mixer 2 - Tr. 1 - Pump

1 - Foreman

1 - Fireman

Lab. 1 - H. 2C 4S - 9R.

2 - Truck Drivers

4 - Laborers at pump.

6 Laborers placing conc.

631 Sta 3+43 to 4+13 = 70'

5 x Cement

22
5.5
110
110
1.0 = 12'

Jan 18, 1935

#1 Midnite to 8 a.m.

Forms & Clean up

2 Carpenters.

2 - Laborers 1 -

19

Jan 19, 1935

#1 Midnite to 8 a.m.

Tunnel Lining

Clean Up

1- Foreman

2- Carpenters

4- " Helpers

Jan 20, 1935

Sunday

No work on #1 Shift

Jan 21, 1935

#1 Midnite to 8 a.m.

Forms Invert

1- Foreman

2- Carpenters

4 " Helpers.

Sta. 5+00 to Sta 6+61

450 Sx cement. 950

500 " " 500

950 " " Delivered. 1450

93

1543

Jan 22, 1935.

#1 Shift Midnite to 8am.

500

450

950. Sx cement delivered.

unloaded by mobile

Forms for Arch

1- Foreman

2- Carpenters

3- " Helpers

Caulking seams

1- laborer

2" Rock Sample #3430

per " #3429

Jan 23, 1935 #1 Midnite to 8a.m.

Tunnel Lining Sta 5+00 to 5+61

Concrete 12:00 to 3:00 = 3hrs

2-2S mixers - 2 Trucks 1-C. Pump.

1- Foreman

1- Mixerman

10 Lab. 1-H. 2-C. 3S. 4R.

2- Truck Drivers

4 Laborers at Pump.

6- Laborers Placing

1033 Sx cement for #2 3+ 1 Shifts

12 " " wasted.

1021.

45 Sx at mixer

63 Sx on truck

25 Sx at pump

133 Sx

Crown. Forms

1- Foreman 4hrs. Sta 4+13

2- Carpenters 7hrs. to Sta 4+79 / 66 feet

3 " Helpers 7hrs

1 " 4hrs

870.5 / 1021

✓

Jan 24, 1935

#1 Shift Midnite to 8 a.m.

Tunnel Lining

Crown Forms Sta 4+13 to 4+79

1 - Foreman.

1 - Carpenter.

1 - Laborer

500 Sx cement delivered at midnite

Steel

2 Steel men 2½ hrs

✓

Jan 25, 1935 #1 Shift

Tunnel Lining 12 to 1 = 1 hr.

Reinf. Steel Invert 5+61 to 6+32
5+61
71

1 - Foreman

8 - Steel workers

1 - Truck & Driver

Forms 12 to

1 - Foreman

2 Carpenters

3 " " Helpers.

Jan. 26, 1935 #1 Shift
Midnite to 8 a.m.

Tunnel Lining 5+61 to 6+33 = 72'
72

Invert Forms 7 hrs.
1- Foreman
2- Carpenters
2- " Helpers.

Jan 27 Sunday off duty

Jan 28 1934

#1 Midnite to 8 a.m.

Sta 4+79 to 5+54 = 75'

Forms & pipe
1- Foreman
2- Carpenters
2- " Helpers

1000 sx. cement delivered
Jan 27 #3 & Jan 28 #1

Jan 29, 1934 on duty

#1 Shift Midnite to 8 a.m.

Tunnel lining

No work.

Rock Samples.

3431 - 32 - 33 - 34

(#1 #2 #3) per

1½" rock

Jan 30, 1934

#1 Shift Midnite to 8 a.m.

Tunnel Lining Sta. 6+33 to 7+00

Placing Rewt Steel 11" to 1" = 2 hrs.

1- Foreman

2- Steel workers.

1- Truck & Driver

5- Laborers.

Forms. Invert 6+33 to 7+00

1- Foreman.

2. Carpenters

4- Laborers.

Jan 31, 1935 #1 Shift

Tunnel Lining

Clean up

1- Foreman

2- Lab.

1- Truck

Forms

1 #- Carpenters

1500 ± cement delivered

Feb 1, 1935 #1 Shift

Tunnel Lining

Sta 5754 to 6428½

Crown Forms

1- Foreman

2- Carpenters

4- " Helpers.

Order Clean Out behind forms.

Feb 2, 1935 #1

Tunnel Lining

Clean up

1- Foreman

1- Carpenter

4- Laborers

Feb 3, 1935 Sunday

Off duty

Feb 4, 1935 #1 Sh. #1

Tunnel Lining

Stripping & Clean Up

1- Foreman

1- Carpenter

4- Laborers

Feb. 5, 1935 #1

Tunnel Lining

Arch Forms Sta 6+28½ to 7+00

1- Foreman

2- Carpenters

4- " Helpers.

Dec 20, 1934

Observations on test wells

			Water El.	
# 3	112.5	743.1	630.6	to water
# 6	116 ~~28.0~~ 80.0	702.0 80 / 622	586.0 ~~674.0~~ 622.0	to bottom on 3rd Berm. to water
# 1	69.5	663.4	593.9	to water.
# 5	101	709	608	to water

Dam Stream Toe.

#1 ○ El 663.4 Top of Pipe

Berm at 650

2nd Berm.

○ abandoned

#6 ○ El 702 Top of Pipe.

#3 ○ El 743.1 Top of Pipe

Berm 700

130'

○ Bottom.

#5 ○ El 709 Top of Pipe

Up Stream Toe.

Top of Dam

#5 on scales. Dec 17 #3 slit.

Jan. 10, 1935

2 sx. cement.

460 # Sand.

180 # pea

500 # 1½

1140 Total.

3

3420 3570

3420

150 # diff.

Jan 16, 1935

440 Sand

480 1½

180 pea

1100 Total

Jan 23

476 Sand = 238 ½

428 2" = 214

286 pea = 143

1190

3

3570

2 sx Mix used on Spillway Ext

2 sx Cement

	#a	#b
Sand	466 #	480 #
1½"	458 #	560 #
¾	133 #	150 #
pea	133 #	
	1190	1190
		on scale #3 - 12/17/34 #5
	#4	
Sand	466	466
1½	635	600 60
¾	90	125 # 25
	1191	1191
	#6	
Sand	465	
1½	725	

#5 on scales. Dec 17 #3 slit.

Jan. 10, 1935

2 sx. cement

460# Sand

180# pea

500# 1½

1140 Total.

3

3420 3570

3420

150# diff.

Jan 16, 1934

440 Sand

480 1½

180 pea

1100 Total

Jan 23

476 Sand = 238#

428 2" = 214

286 pea = 143

1190

3

3570

2 sx Mix used on Spillway Ext

2 sx Cement

	#a	#b
Sand	466#	480#
1½"	458#	560#
3/4	133#	150#
pea	133#	
	1190	1190

on scale #3 - mixed #5

#4

Sand	466	466
1½	635	600
3/4	90	125#
	1191	1191

#6

Sand	465
1½	725

Trial Mix #3	Tunnel mix		14 gallons.
	2 sx Cement. ✓		
	465 Sand	233 + 96 = 329	
	544 1½"	(272 on scale) 368	
	181 pea.	+ 96 = 277	
	1190		
Trial #2		Dec. 27	
	2 sx cement	2 sx cement.	
	465 Sand.	~~480~~	
	460 1½"	546 Sand.	
	265 pea & ¾"	100 pea.	
	1190	544 1½".	
Trial #1			
	2 sx cement		
	465 Sand.		
	475 1½"		
	250 pea & ¾"		
	1190		

O.V.S. Overtime Cr. 9 days.

Dec. 17, 1934. #3 Shift 12°° to 8 = 8 hrs.

Dec ~~23~~ 22 Sunday #3 Shift 12°° to 8 = 8 hrs.

Dr.

Dec 13, 14, 15 - 3 days.

cma 474
484. c
485. c
486 c
487 " } Reference Books.

466
467 } Or. Cross Sec + CS for Mo. Cut

C.M.R.
4067- 28 St.

211
160
371

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 14 FEET WIDE. SIDE SLOPES $1\frac{1}{2}$ 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	39.4	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.

MADE IN GERMANY.