

W433

433

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IRVING PARK STATION

CHICAGO, ILL.

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INDEX

Inspection Record

Hy. Fill etc

1-29

by Thurston

Wattling?

Note on Sec. Cor. Near Milep - 79.

Blank 30-78.

Hydraulic Fill Data

Designations of Points

- 1 - Summit Pool elev.
beginning and end of shift
- 2 - Av. Beach co-ord. beg. - end
of shift
- 3 - time supply pump - start - stop
- 4 - Av. width of earth blanket beg. - end
each
- 5 - location of jets - time worked
- 6 - force number of men -

3/3/33

- 1 - beg. 575.2 - end 575.7
 2 - E 4975 - E 5075
 3 -
 4 - up. 35 - do. 20-25
 5 - 3 units do - 1 unit up.
 6

3/4/33

- 1 576 +
 2 E 4915 - 4925 E 5087 - 5100
 3 no
 4 upstr. no change down. 35
 5 3 down. S-C-N lost time - 11:00 - 11:45
 6 8 men

3/5/33

- 1 576.5
 2 E 4915 - 4915 E 5085 - 85
 3
 4 20-20 30-30
 5 split down
 6

3/6/33

- | 1 | 2 | 3 | 4 | 5 | 6 |
|-------|------|----|---|------------------|--------|
| 578 - | 5100 | | | U 15-20 S-U 2-30 | 10 men |
| | 4905 | | | d 35-40 N-U 2-30 | |
| | 5090 | NO | | U 15-20 S-D 2-40 | |
| 578+ | 4915 | | | d 40 N-D-3 | |

3/7-8/33

- | | | | | | |
|-------|------|----|-------|----------|-------|
| 580 - | 5100 | | 0-15 | N-U 1:30 | |
| | 5105 | | 15-20 | S-U 2:13 | 8 men |
| | 4905 | NO | d 40 | S-D 2:15 | |
| | 4910 | | 40 | S-N | |
- Power off 1:40 to 1:50

N-U 11:00 to 12:30 out N-D out

3/8-9/33

- | | | | | | |
|-------|------|----|-------|----------|--------|
| 580 - | 5100 | | 20 | U-S 3:00 | |
| | 4915 | | | D-S 3:00 | 10 men |
| | 4925 | NO | 45-45 | D-C 2 | |
- in C 4930

3/9-10/33

- | | | | | | |
|-------|------|----|-------|----------|-------|
| 582 | 5090 | | 20-25 | U-S 3:00 | |
| | 5100 | | | D-C 2:00 | 9 men |
| 582.5 | 4930 | NO | 60-50 | D-N 3:00 | |
| | 4930 | | | | |

3/10-11/33

1	2	3	4	5	6
	5085		30	U-N 3	
582.5+	5070			U-N 3	11
	4930		50	D-C 3	
583+	4940			DN 3	

very great arc in
beach line downstream

5072
4947.5

3-11-33.

v

1	2	3	4	5	6
	5085	-	10'	UN 2	
585+	5085	-		UC 2½	9
	4920	-	0x50	DN 2	
585.5	4920	-		DS 2¼	

Outline of downstream over-
burden, very irregular and
varies in width from 0' at the
north end to 50' at the south
end.

Downstream beach line very
wavy.

Trucks delivered fill to both
embankments.

Thurston.

Mar. 12-1933

11 P.M. to 2 A.M.

No hydraulic operations.

No trucks working.

Shovel #10 working on High Line
to Spillway. All other shovels
not working.

Thurston

3

1	2	3	4	5	6
	5082	-	10'	U.S. 3	
587+	5082	-		DN 2 1/2	9
	4920	-	0040	DC 2	
587.5	4927	-		DS 2 1/2	

Rock and earth from
Spillway to Upstream
Embankment.

Gravel to upper bench
of downstream embank-
ment and material from
borrow pits to lower
bench.

Thurston

Mar. 14-1933, Shift #3.

1	2	3	4	5	6
589-	5077		20'	UN 2 1/2	9
	5077			DN 1 1/2	
589+	4920		30'	DC 2 1/2	
	4925			DS 3	

Earth from Borrow Pits
Went to Upstream & downstream
Embankments.

Material from Spillway
to Upstream Embankment.

Gravel to Upper Bench
of Downstream Embankment
Downstream-north Monitor
masked at 1 P.M. by gravel
dump. So that it could not
operate.

Mar. 15-1933

Shift #3, 4

1	2	3	4	5	6
	5077	-	10		
589.5	5077	-		DC 3	5
	4922	-	?	DS 2 1/2	
	4922			DN 1/2	

Material from Spillway to
Upstream embankment.

Borrow Pits to both up and
downstream embankments.

Gravel to downstream embank.

Started earth blanket at
north end of gravel dump.

Mar. 16 - 1933 - Shift #3.

Light rains. Roads very slippery. No hauling. No jetting.

Shovel #10 & crew working on East Spillway Road.

Shovel #11-crew & 3 men working at shaft.

Core wall excavation stopped at 11 P.M.

591.0 5080
5080
4900
4900

#4 shifted ^{twice} ~~once~~ losing 15 min
#1 & 2 raised pipe " 1 hr. each
#3 held jet against south hillside mostly extending downstream 1/4

591.+ 5075
4920

#4
UAC 2.45
2
DN 1.45
DC 1.45
3
DS 3

1 } 8
2 } D 8 9
3 } 8
4 0

3/20-21/33

X 5072
593.5 S 5090
594- 5075
4910
4930

1
2 D 9
3
4 U

2 shovels on spillway upper level
#10 Dredge 2 to 7 on blanket
2 jackhammers on S.S. rock 1 helper

3/21-22/33

595+	5075 S	#4 U 4
	5110K	#3 D 4 II
	4930	#2 D 4
	4930	#1 D 4

3/22-23/33

5965-

N ^{1/2}	5072	OK
S ^{1/2}	5080	5072
#4	4935	4920
S	4920	4900

#1 pump shut down by 10 pm by order of Con. Rohl

3/23-24/33

598	U 5105	5100	100%
598+	5085		#2 91K II
	D 4910		
	4920		

dragline on outlet tower
1 op, 1 lab, 1 helper, 1 foreman
thrs

3/24-25/33

599 U^{N3} 5075 5090
599+ 5090 9
4920 very arched in center

#2 crew washing rock slope in advance of hand placing Unit #2 not operating in pool Fully 10% rock up to 2 feet in diam going to hydraulic fill mostly round boulders, as is 75% of the rock originating there.

3/25-26/33

600.5 - U 5100 OK
D 4920 11
4930-25

Downstream very irregular wavy

3/26-27/33

601.8
5100 shovel in spoilbank broke down 1:30 am #2-3/2
4900

in building new ramp the getmen could only wet part of the material so with the help (willing) of the night super the fire nozzle connection was set up on previous ramp with good results

3/27-28/33

601 + 5090

4925

#4 11

#3

#2

dragline moved to new ramp
and prepared slope down stream
for rock blanket, starting rock
at 7am.

5 men worked on core wall
trench 2 to 7am

3/28-29/33

602.5 U 5110 #4 90ft 1:30 am
5080
D 4905 all others dark on ice, rain

11pm - 3 loads rocks total 12 cbyd by truck #2
to up str emb. from S side core wall exc.
Material came from borrow "A"
East spillway of core wall

3/29-30/33

603.5 S 5085 5090
N 5110

S-3 4935 } 4925
L-3 4910 }
N-3 4890 } 4890

10 men 1 mechanic

#3 shot down 40 min tractors slow
bad pile of rocks north of #3
#4 shifted once

3/30-31/33

7

603.5 5080 #3

4915 #4

7 men

Unit #4 center up stream 4hr
" #3 netting ramp 4 hr only
dragline sloping after 3am
new ramp

3/31-4-1/33

605.0 U 5080

D 4930

9 men

#4 stopped by 12:00 no dirt

#3 washed ramp

4/1-2/33

605.5 5075

N 4920 & 4905

#5 pump connected to #1
jet 12:30 to 1:30

#3 full time

#4 shifted once

4/2-3/33

NO WORK

4/3-4/33

607.5 U5095

D 4920

11 men

crew

#4 connected to #1 pump washing dirt out
of rock emb. up str. 10 to 11:30

#3 & 5 down stream #4 getting up str. center 12:00

#1 moved to down str. north getting 12 to

4/4-5/33

609.0 U5100

D 4900

10 pm #4 #3 10:45 #5

4/5-6/33

609.5

#4 #3 5 pm #5 6:30

11 men

supply 7-8 #3 shifted north

up str. north truck #3 & 4 went over bank

2 to 7 3 men washing up str. rock

with #1 pump 4-5-3

by 12:00 #5 passed 1 m 100'

rest by 2 am

4940

610 5100

4/6-7/33

8

610.5 U5080

D 4935

supply pump started/stopp. 10:00

#4 & 5 #3 & 1 11 men

611+ 4930

5090

stove passed at 1 am every job

4/7-8/33

612.5 U5080

D 4935

#1 stepped 1:15 am

4930

613+ 5080 4300

#1 #5 #4

#4 blew fuse 12:

#15-28 #25-19

4/23-24/33

11-2 am shovel # 8 west end - 9
9 east - till 1 am
then moved

11-2 two drillers

" welders in shop

1 foreman

6:30 am # 3 unit getting west end

4/24-25/33

on south side # 7 shovel

3 trucks # 34 # 45 # 31 broke down

11 north side

1 jackhammer

8 shovel on west end

1 jackhammer

Swanson

rain at 6 am

4/25-26/33

8 # 11 # 7

11 2 trucks 11 broke down

7 truck # 44 # 39 # 13

60 with # 11 4 yds 12:30

Pond 6:15

9

4/26-27/33

7 shovel # 44 # 39 # 31 1 dump

2 drillers # 31 2 load rock

3 pump 7 men

1 " 3 " SWANSON

7 1/2 load # -3

5-2-3/33

shovel # 7 south core walls

31 3-3-3-3-1 = 13 yds

3 4.5-4.5-4.5-4.5-5 = 23

total 36

5/3-4/33

11

north side

45 X 6 = 27

45 X 7 = 31.5 } 58.5

dragline broke down 11 pm

no work

2 drillers

1 truck

7 shovel in south side

31-35 x 1 = 3.0

42 3.0-3.0 = 6.0 } 9

5/4-5/33

9 shovel cleaning roads 4

dragline on south side 2

7 trucks 2

3 men in shop no rocks 2 foremen 2 drillers (10)

5/5-6/33
dragline on s-core wall
5 lab.
2 drillers
2 truck #31 til 11:30
2 foreman #45 after
#5 2:15

5/6-7/33
4 1/2 shovel after 11:30
rocks 3^N-2-2
#40 truck
5 lab.
2 drill

5/7-8/33
no work

5/8-9/33
#10 dragline s-core wall
2 trucks #34 #45
7 laborers
2 drillers

5/9-10/33
#10 dragline
#45 truck
4 2 comp. 6:15, 9
2 lab.
1 foreman

10
5/10-11/33
2 drillers two lab. on north core exc.
2 drillers 1 lab. south core wall
water liner for grout holes
made 1 hole this shift
no other equipment swan on sop.
raining intermittent

5/11-12/33

5/12-13

5/13-14/

#11 cleaning road
hauled 2 load rock @ 2 yds
water liner crew on south 4 men
1 hole
jackhammer crew on north 3 men

5/14-15/33
no work

5/15-16/33

water line on north side made
1 hole by 11. drill broke
shovel #9 making new road
north of camp

5/16-17/33

shovel #7 & #8 on new road

last shift - layed off -

first shift - on again

5/20-21/33

shovel #9 Tr #15 - #39 1 dump
#8 moved to top of spillway

12:00

shovel #7 & 11 Tr #40 #31 #45

on new road east of dam

1 bulldozer

5/21-22/33

#9 2 trucks 1 dump on
hauling D.G. from N. end

of new road to spillway #31

grade banking turns #39

#8 near east end of spillway

alone

east end #11 side east,

#7 #40 #45 dump on

1 Alcumilan 1 bulldozer

5/22-23/33

no force on duty

2 men in shop

5/23-24/33

no activity

5/24-25/33

no force

5-25-26/33

no force

5/26-27/33

no force

5/27-28/33

no work

5/28-29/33

no work

5/29-30/33

no work - lumber trucks to Ref. camp

going thru 11 pm

5/30-31/33

no work

5/31-1/33

no work

6/1-2/33

no work

6/2-3/33

Rock being placed on downstream

emb. #7 stopped 10 pm

#10 brdn. #9 brdn. #7 brdn.

6/3-4/33

8 stopped 11 pm
7 shovel truck 39 #40
cleaned turning place at upstr.
rock ab. north side #39 - 8 loads
3 - 24 y #40 - 15 @ 3 = 45 y
total 69 yds rock
to downstream emb.

outlet tower - Quarry shop

6/4-5/33

outlet tower 7 men

6/5-6/33

Quarry - outlet tower - same as
Harper Upstr 310 loads downstr. 56

6/6-7/33

As Harper
Up str. rock emb.
#80

6/7-8/33

quarry rock only to upstr & downstr.
outlet tower

6/8-9/33

2:30 am to 6:30 am
extra shift
1 shovel 6 trucks
1 bulldozer 1 dumper

6/9-10/33

Spillway Quarry Outlet T.
spillway equipment

11 shovel

truck # 2317 # 1529 # 17-27

3 men loosening rocks in
spillway

6/10-11/33

spillway

11 shovel

15 - 18 @ 4 1/2 = 81

31 - 3 " " 13.5

23 - 12 " " 54

148.5

6/11-12/33

steel trucks

8 8 drilling 1 foreman

4 Coyote

11-7 4 coyot 2 outside

(11-7 tool shop comp)
7 2 part, comp after 2

till 11:00 comp op.

shop 3 men 1 welder

11-7 2 men in shop

6/12-13/33

Spillway excar.

#11 shov. 3 rent trucks 1 rock truck

#17 hauled 20 loads per shift

total of 90 yds

6/13-14/33

#11 on G70 level (north side)

cleaning road way

truck #4 - 10 loads @ 4 yds

3 men total 40 cbyds

shovel finished by 1:00

6/14-15/33

shovel #7 on spillway

truck #9 25

" #4 26 54 @ 5 =

" #2 3 loads 270

to upstream emb.

6/15-16/33

shovel #7 from spillway to

upstream emb. 8 loads @ 4 1/2

36 cbyds

6/16-17/33

shovel #7 spillway 16 loads

unit #5 stopped 12:00 crew

changed to #4 616.2

shovel runner hurt

6/17-18/33

unit #2 & 3 downstream stopped 1:30 beach out

6/18-19/33

shift started 5:00 am monday

unit #3 washing beach downstream

supply pump started 5:25

stopped 7:00

contract. eng. set out new beach lines

for puddle core 5:00 am

started to lay hand rock below toe wall downstream

1 jet 1 pump 1 lab. 1 fore

no rock from spillway.

6/19-20/33

Spillway new shovel T.M. Morgan

rock 17 loads @ 4 1/2 = 76.5 cbyds

D-E 4947.5 616.6 12:00

U-E 5085 #4 & #5

2 jet men 1 pump man

#4 & #5 upstream

6/20/33

#4 & #5 start 5:00 am

#2 & 3

11:00 pm downstream beach line

to far into puddle core

moved to upstream

#4 & 5

Spillway rock 28 loads @ 4 cbyds = 112

6/21/33

5:00 am unit #4 upstream

#3 downstream

E4950 - 5080 616.8

east end of spillway develops slides

10:00 pm to 12:00

spillway T.M. Morgan #7 #15-29 - #25-20

loads @ 3 1/2 #7 started final grade
side casting material new shovel

from quarry moved to spillway 12:00

Unit #3 & 4 on S-upstream 2 hrs

3 men

5:00 am 6/22/33

Unit #5 - #3 - #4 on upstream

5080 4940 6175 7 men 3 units

6/22-23/33

to 12:00 pm

spillway truck #26-25-24

loads 18-20-21 @ 3 1/2 yd

total 206.5

H.F. Fill Unit 3-4-5 upstr. 2 hrs

" 2 - downstr. 2 "

5:00 " 4-5 upstr.

#3 assembled downstr not started

summit pool low all units shut down 6:40

14

6/23-24/33

spillway

10-12:00 #20-23-25-17 shovel #7-T.M.M.

loads 21-28-25-11 @ 3 1/2 = 297 1/2

H.F. unit #2 & 3 downstream south

10 to 12:00 4 hrs

5:00 am unit #2 & 3 downstream 4 hrs

" #4 & 5 upstr 4 hrs

618.8 5075 - 4940

6/24-25/33

spillway to 12:00

truck #20-23-25-26

loads 12-14-13-15 @ 3 1/2 yds = 189 chyd

H.F. 10- to 12:00

unit #2 & 3 downstr. 2 hrs

pump in upstr sump 10 to 7 am raised water 2'

5:00 unit #2 dn #4 & 5 up.

s.p. 10 pm = 619.4 7 am 619.7

6-25-26/33

spillway 00 new road 700 ft. #8-2 trucks

am #7-1 truck pm

H.F. P.M. no slaking #1 supply pump

to 5:00 #4 & 5 up-2-3 dn. 4 get 2 pump

620.3 5075 4925

6/26-27/33

spillway to 12:00 truck # 79 loads = 276.5
 # 26 # 25 # 24 # 23 # 20 # 18 # 17 # 10 # 9
 7 19 15 10 7 2 4 4 10
 H.F. 10-12 unit # 2 # 4 # 3 dn 2 hrs
 " # 5 up 2 hrs

5-7 am same line up

5:00 am started supply pump # 1

621.8 - 5075 4945

6:00 shifted # 4 up, lost 30 min.

6/27-28/33

H.F. 10 to 12, 10 water low
 Unit # 5' shut dn at 10 pm
 " # 4 5/4 " 11 pm
 " # 3 " " 11 pm

622.A

supply pump started 4:30 to 5:00 am
 raising pool to 622.9

unit # 4 & 5 up # 2 & 3 dn

on south abutment are large piles of refuse
 which are covered by material instead of
 floating into pool for removal

4935 5078

C

6/28-29/33

unit # 3 has gasket trouble
 shut down 11 pm
 supply pump # 1 running since
 7 pm raising w.s. 10 pm. 624.4
 7 am - 625.2 5075 4945 except
 south end

6/29-30/33

unit # 4-5 up 2-3 dn

2 shifted dn center 11:00 to 12:00

7 hrs supply pump # 1 continue

3 stopped 1:30

all unit stopped 2:30

up beach very uneven 5075 ± dn. 4940 in center

627.1 supply pump # 1 continue

5 men 1 foreman 12:00 to 5:00 build bridge
 over core wall on 640 road a.s.

6/30 to 1 July 33

Unit # 4 & 5 up, changed crews 11:00 pm
 to work till 5:00 am

unit # 2 & 3 worked to 12:00 same crew
 11 pm 628.4 7:00 am 629.3 4935 5075

7/1-2/33

same as above

11:00 pm 630.5 3:00 am 631.0 5075 - 4935

7 show up at south abut. 2 trucks new ramp
 to core wall

7/2-3/33

Sunday night dark

5:00 am (3) Unit #4 up s.s.

#5 dn. cent. #3 ss. #2 n.s

#3 get on beach

beach lines being redced on beach up

5073 4945 630.8 supply pump

7/3-4/33

3rd Unit # 4.5 up 2 hr

" 2.3 dn 2 "

(4th)

" 4.5 up

" 2.3 dn. #5 to #3 dn. 5:00 am moved

631.6 632.1
5075 - 4940

road using corewall

5 men 1 fore. cat & mc mill

1 ford truck #54

7/4-5/33

no work

7/5-6/33

Unit # 5 2 dn 2 hr

2-3 up 2 "

(4th) # 5 and #3 dn @ 2 1/2 = 5

2 and top 4 5 hr 2.?

633.0 4945 5075

outlet tower 8 men 1 for

dragline op. help. (truck Ford

1-port. camp total 7 men

7/6-7/33

6th Unit # 5 dn n.2 7th # 3 dn c 5 1/2

" # 4 up. c 2 " # 4 up c 2

3 " s 2 " # 3 dn up 4 1/2

2 " N 0 " # 2 up N 2

Unit #4 to far on beach stopped 12:00 #3 shifted

to da 12:00 pm foul cable lost 1 1/2 hr.

7/7-8/33

(7) Unit # 6 up. N 2 hr. # 4 up. s 2 hr # 5 dn. 2 hr # 3 2 hr

(8th) # 6-7 hr # 3-7 hr # 5-7 hr # 4-5 1/2 hr # 5 working all night

(with old crew) had to be stopped 5:00

working thru

635.8 5075 4945 4950 at unit #4 dn. s.

7/8-9/33

(8th) # 6 and 3 up to 12:00 # 4 and 5 dn to 12:00

(9th) 5:00 am same position supply pump running all night

4940 5075 636.7 5:00 big pump 40 min.
by 2:15 water not up to surface
4 big pump

7/9-10/33

(9th) unit 5 up 20 min 6 up 2 new beach line

" 3 dn 2 hr # 6 dn 2 hr "

(10th) night crew 4 men working unit 5 and six 5

5:00 to 7:00 all units 3-4 dn 6-5 up 2 hr

5090 4930 638.1 6:15 to open

7/10-11/33

6 dn night crew # 5 stopp 10.

3 " to 12 # 4 stopp

night shift # 4-5 up 6-8 dn. 2 1/2 hr each

638.6 5080 4940

7/10-11/33

#8 shovel truck 25 -
making cut in road dust.

McMillan on 670

Bulldozer 4n str. #6 crew

1 dump men spoil placed in spillway

5:00 #4 up. s #3 dn. s #6 on fire hose 1/2 hr
5n mon. 1 1/2

7/11-12/33

#52 truck hauling pdr for
coyote hole 1 driv 4 lats.

5:00 am unit #3 drive washing ramp
with fire hose pool supply pump follow

5085 638.8 4930

7/12-13/33

only work = 6 men on coyote hole
backfilling summit pool 639.2 ^{conting.} supply

7/13-14/33

no h.f. operation

up stream rock fill ready but not
inspected, had to call Mr Wood 5:30
on account young Connolly came to site.

7/14-15/33

no h.f.

#10 dragline truck #43-60 stripped
n. abut. between elev. 650-660, hauling
material to dn. emb.

7/15-16/33

dragline #10 - 1 bulldoz. 1 foreman
3 carp. 2 op. 2 help. hauling and
setting pipes in outlet tunnel

sunday 7:15 first load of rock
from spillway to up rock emb.

6:00 2 men start #6 unit washing
beach - shovel #8 on road 2 trucks
hauling red soil to up beach 7:20

pool 639.4 supply pump continue to 7:00

7/16-17/33

no h.f. one unit intermittently washing
beach

7/17-18

no h.f. unit #5 or 6 wetting down dg
prt under base of new rock lift - shift to
12:00 worked on thru to 5 #6 and #9
shovel 12 truck 1 dump 1 bulldoz. 1 flag. man

7/18-19/33

same line up as 17-18 unit #4 on s-up. 639.0
supply pump going since 5:00

7/19-20/33

Orvany: #9 broke down
#6-12 truck no rock slow work

Tunnel: cement gun chow 10 am
repaired 3:15 running 59 mkr 10 pm
86 51.5

Mr Pl 4 m - com. 4 to 3:30 6 m on to 5:00

7/19-20/33

crushing plant work all night

silt bed # shov. loading out 5:00
to dn and up str emb.

7/20-21/33

in spillway loading boulder #12
shovel 4 trucks total 30 rock

Tunnel concrete 42-85-5-110
panel finished 4:40 meter

bluicing starting with unit #5 dn
#5 up. 5 am 638.9 supply pump
5080 4935 in center 4947

7/21-22/33

@warry #1 C moved from quarry to silt

H.F. unit #3 s.dn to 12:00

5:30 am unit #3 s.dn 639.4 49.30
50.90

6 am #5 up.n. 1 pump. 2 get. 1 form.

7/22-23/33

night up unit #5 clm 6-3

5a #6 #5 639.8 50.70 49.30

7/23-24/33

Tunnel Batch meter at

11 pm 17

7/23-24/33

11:10 truck #12 loading cement
gun at upstream turn end shot
has gear shift locked cannot
dump or move by use of cat
hauling truck out dumped load
and started new load out

1:10 am stove came at 12:45

3 men in mix changed 11:30

30 min. to a load (2 buckets)

2:45 dbow into form to let out

4:00 started again

meter 11 pm 17 - 5 am 34

H.F. no night shift

5:05 unit 5 up.n. 4 up.c. ^{broken 1 hr no} 3 dn.c. 6 dn.n.

supply pump start 5 am 5065 4925 640.5

7/24-25/33

H.F. night #4 up.s #5 up.c. #6 dn.n.

Tunnel conc. 11 pm 149 yds 5: 189

Moving delay 12:25 to wasting 1/2 yd

left in truck

H.F. morning supply pump started 5 am

3 men working on upstr. supply pump

outlet #4 up.s. #5 up.c. #6 dn.n.

5065 4945 641.0 #4 changing to fire

hose to wash 650 elev. dirt layer

7/25-26/33

H.F. unit #4 and 5 up to 12
#4 with firehose washed top
of 650 level 12 to 5 - 2 min
5075 - 4940 642.3 3 hr 2 pu 1 fo
#4 up - 5 #3 dn #6 dn - c

7/26-27/33

H.F. night #4 and 5 up
#6 dn to 12 #5 crew 12 to 5
washing 650 elev. supply pump 5 a
643.4 5065 4940 #6 d #3 d #4 up
Tunnel carpenter crew 1-5 on bulk

7/27-28/33

H.F. #3 dn #4 up #5 up to 12
Tunnel 11 to 5 69 yds no delay
except broken pipe 12:15 to 12:35 (125)
H.F. morning #4 up #3 dn #6 dn
5075 4935 645.0 3 hr 2 pu 1 fo
called Mr Alb. 4:30 took him to silt dep.

7/28-29/33

H.F. night: #4 up #5 up #3 dn
to 12:00 morning #6 dn #3 dn
5070 4940 645.8

7/29-30

Tunnel morning -
H.F. night #4-5 up #3 dn 2 hrs

7/30-31/33

Tunnel concreting 10 pm 49 yds
5 am 144 yds no delay
H.F. morning #4 up - 5 #3 dn - 5 #6 dn - c -^{2m}
supply pump started 5: am
5070 4930 646.6

8/1-33

H.F. night - #4 up #5 up 2 hrs #6 dn 1 1/2 hrs
morning - #4-5 up - #3-6 dn
5070 - 4940 647.3

9/1/33

some rock being placed for new lift
also d.g. unit #3 washing new lift base

9/12/33

new ramp started d.a. str

H.F. 8/9-10/33
 night #4 & 5 up 2 hrs
 #3 & 6 dn 2 1/2
 morning #6 & (3-1) 2 1/2
 #4 & 5 2 1/2

supply pump-up - all night

4940 655.0 5070

8/10-11/33

night #4-5 up 2 hrs #3 dn 2 hrs #6 dn 1 1/2
 morning #4-5 up 2 hrs #3-2 hrs #6-2 hrs #4 crew
 all night washing CCC elev. with fire hose
 5 am dn supply pump started

4945 656.2 5075

8/11-12/33

night: #4 up 1 1/2 hrs #5 up - 2 hrs #6 dn 1 1/2 hrs
 #3 dn 1 1/2 hrs #6 up 2 hrs #4 crew
 morning #5 1 1/2 hrs #4 crew #2 to 5 fire hose conn.
 5075 657.4 4945 pump-up - start 5:30

#1 dn is being dismantled

8/14-15/33

#12 - spillway east end to up ^{1:40 at first land} spillway
 #24-4-3-4-4-4-4-3 43.34
 #23-3-4-4-4-4-4-3-4 33-44 } 105 yd
 #10-4-3-3-4-3

Monday 14th starting rock hauling
 for lift 662 to 675 - Pool 648.0
 #4 and #3 washing dn south abutment

8/14-15/33 (12 to 5)
 spillway to upstream rock emb.
 shovel #12 truck #26 #24 #17 #23
 19 load to 2 am
 10 w 4 9 w 3 4 4 4 3 4 4 4 4 4
 40 27 64 15 2 3 4
 81 cloyds

8/15-16/33 (12 to 5)
 spillway to upstream emb. (rent)
 shovel #12 truck #26 #28 #6
 28 loads @ 3 yds = 84 yds
 3 loads d.g.
 shovel #7 truck #24 (#12 rent)
 on west side hauling to dump.

8/16-17
 Spillway east side
 #12 shovel truck #25-24-26
 #7 " west #12-1 #
 1 portable compr. 3 drillers
 1 bulldoz. 1 dump
 29 loads of @ 3.5 = 102 yds
 8/18 33

#7 shovel west #23 #24
 1 portable 3 drillers
 #8 shovel #25 - 12 - 16 - 14
 1 bulldoz. 1 dump. 1-20 6 loads
 21 yds

8/19-20/33
 spillway east 30
 #12 shovel #23 #24 #17
 #7 shovel #6-12-15 7
 1 portable compressor 3 drillers
 8/20-22/33
 spillway #12 shovel - truck #14-20-23-24 total loads
 1 portable compr. 3 drillers - 28 loads

8/22-23/33
 spillway #12 shovel truck #24-17-20
 1 bulldoz. 1 compr. 3-driller
 upstream emb. 10 w 3 = 30 yds
 8/23-24/33
 spillway #12 shovel truck #18-24-14
 bulldoz. upstr. 1 part compr. 3-drill 7X3 = 21 day
 #11 shovel started 5 am - hauling silt

8/24-25/33
 spillway #12 shovel 2-trucks - 1 compr. 1-bulldoz. 5x3 = 15 yds
 H.F. Sam starting #6 drill #3 drill - supply pump
 Pool 659.4 - 4930 - 5075 - 1-pump 2 jet 1 for
 8/25-26/33
 spillway # truck #39-30-17 (7 fund)
 Compr. 3-drill 1 bulldoz. 5x3 = 15 yds
 H.F. 1070 12.05 H.-am #4 up. #3 dr. 5075-659.4-4930
 both supply pumps going after 1 am
 2 shovels in silt pit

8/26-27/33

Spillway 2 shov. 6 trucks 1-bulld. 1 compr

2 drill. 14 x 3 = 42 yds to up str.

H.F. 26th # 5 up # 6 dn 2 hrs (much d.g.)

27th

8/27-28/33

28th : # 5 up 2 hr # 6 dn 2 hrs

5070 660.2 4935 both pump supply

2-pet. 1 pump 1 for.

8/28-29/33

H.F. 28th - unit # 6 dn lost 1 hr 12-1 = 2 hr

" " 3 " 3 "

" " 4 up 3 "

29th : " " 1 up 1 "

" " 3 dn 1 "

5070 661.0 4940

Spillway 2 shovels - 6 trucks 1 compr 2 drill.

to up str. embc. 4 x 3 = 123 yds many small rocks

& E.P. Ford truck turned over on road # 46

8/29-30/33

H.F. 29th : # 4 up 3 hr # 6 - # 3 3 hr 5065

3-1-1 30th : # 4 up 1 # 6 - # 3 1 each 4945 662.7

Spillway 2 shov. 5 trucks 1 part. 1 bulldoz.

18 x 3 = 54 yd

8/30-31/33

H.F. 30 - # 6 dn 3 # 3 dn 2 # 4 up 3 # 5 up 3

A-2 31 - # 4 d 1 # 3 1 # 6 1 4945 663.9

Spillway 2 shov. 5 trucks 1 bulldoz 4 x 3 = 12 5065

5 men stop on road repair near corewall

8/31-1/33

H.F. 31 # 3 dn 2 1/2 # 6 - 2 # 4 up 2 1/2 # 5 2 1/2

Spillway 2 shov. 6 trucks 1 bulld. 2 x 3 = 6

H.F. 1st : # 3 dn 1 - # 6 dn 1 -

both pumps. Cam 5065 = 6 sec = 4945

8/2-3/33

H.F. 2nd unit # 4 up 2 1/2 # 3 dn 2 1/2

5065 - 662.0 4945 # 5 - 3 1.6 2 1/2

Corewall: 10 men and 1 foreman started
1 am to tear up road and place between
4 and 5 am 5 yd concrete and 1 yd
grout and relaying bridge floor
dragline # 10 stripped north abutment
loading material in two truck dumps
on up stream emb.

9/3/33

Holiday

9/4/33

Holiday

9/5-5/33

H.F. 5th unit # 4 up 2 1/2 # 5 up 3 - # 3 dn 3 - # 6 dn 2 1/2

4th all units 1 hr

5065 - 662.0 - 4945

dragline # 10 - 2 trucks stripping north

abutment 1 to 6

9/6-7/33

H.F. 6th: Unit #4 and 5 up 5 1/2 hrs
" #3 " cdn 5 1/2 "

7th: " #3 " 7 "
" #4 and 5 up 2 "

Unit #3 and 6 sluiced from 1 to 6

2 jet 2 pump. wat start 5 am
#6 crew start #4 6 am

drag line #10 and 1 truck on north emb.
stripping to upper emb.

9/7-8/33

H.F. #3 unit washing top of dn-s. ramp
#4 and 5 worked 1 to 6 altern.

9/8-9/33

no work. Pool finished

9/14/33

#5 upstr. washing dg. blanket
some rock hauled - dn ramp working
crew drill in quarry

9/14-15/33

no hydraulic op.

Bar rock fill began dn str.

9/15-16

rock fill continue - road to 705' d.
started 9/16-17

rock fill carried on

17th no work.

23

9/17-18/33

spillway: no shovel at work #8 idle
#6 & #9 in quarry - rock being dumped on both
up-dam emb - up. then 720 level in spillway cut
3 men crew sluicing up stream top of old fill

9/18-19/33

Spillway road changed to lower level
from spillway 745 to 705 - no rock up. 11:30
1 shovel - 1 truck - 1 bulldoz. - #12 shovel to
silt bed

9/19-20/33

spillway first concrete poured - finished 2 am
no work on hydraulic fill - silt hauled to dn emb.

9/20-21/33

spillway 3 shov. - no hydraulic operation
crew dismantling supply pipe dn

9/21-22/33

spillway: shovel # turned over at west end 720
nobody but - silt hauling to both emb.
steel erected on core wall - 3 men on beach
#5 began to sluice up north emb.

9/22-23/33

spillway growth hole count 3 men 12 to 6

Form setters 4 to 6 1-5 men 1 "

H.F. #4 dn-s - 1 hr. #5 ^{up ok!} ~~dn-s~~ 2 jet - 1 pump
first time dn - units work from barge.

new record
dn = 4960
up = 5050

9/23-24/33

no work after 1 am

9/24-25/33

no work, Sunday - Monday

camp # Unit 3 started by 6:40

both emb. receiving silt

9/25-26/33

to 1 # 3 dn - 3 # 6 2 hrs

5060 - 6724 - 4955 4 men

6 am # 5 up - 2 - 1 hr # 3 dn - 1 hr

spillway trough shovel and 5 trucks

started this 6 am - # 11 working

in bad ground - sandy point toward

9/26-27/33

night # 5 up - 3 hrs - # 3 dn - 3 hrs # 6 dn - 11 - 3 hrs

spillway 17, to 7 am. 1 - for: 4 carp. 4 lab

1 for - 1 unit # 57 1 - truck drive

9/27-28/33

H.F. night # 6 dn # 3 dn 3 hrs

4 up 1 1/2 hr

morning: # 5 1/2 hr 5060 - 4955 / 6735

9/28-29/33

H.F. night all units on up stream bank

by 12 pm (4) morning # 6 dn

supply pump Gen form crew 6 carp. 3 lab. 1 for

2 accidents today

24

9/29-30/33

Night no silt dn only # 3 dn - 3 hrs

4 # 5 up 3 hrs # 6 up 2 hrs

no work in morn. waiting for silt dn

9/30-31/33

no work

9-10/31-1/33

10/2-3/33

night # 3 - 6 dn 4 hr # 4 - 5 up 4 hr

10/3-4/33

5 up 4 hr # 3 - 4 - 6 dn 4 hrs

677.9 - 4955 5060 in places

over limit (# 5 up 3 ft)

678.8

10/4-5/33

until 1 am - 3 units up - 1 dn 1 to 2

units up - 2 dn. after 2 am 2 units dn to 7

5060 679.6 4955

10/5-6/33

to 2 am 4 units @ 4 hrs after 2 - unit 5 hrs # 5 unit

10/6-7/33

to 2 am 4 units after 2 3 dn 5 up all night

4950 682.4 5060

thus till 9 am.

10/8-9/33

683.6

12/11-12/33

11 to 7 shift hydr. fill
1 - foreman
1 - hydr. pumpman
1 - return " "
1 - jet " "
2 - beach lab.
1 - dump " "
18 - truck driv. to (1 am) 7 to 7 am
1 - shov op.
1 - ^{help} McMill op
1 - McMill op
material to dn except 5:10 to 6:10
Pool 683°

12/2-3/33

same crew on hydr. op.
1 - shov - 1 - Mc. M. 9 trucks - 6-4 hr. 4-6 hr.
1 - motor pump required packing 1/2 hr

12-4-5/33

9 trucks to 1 - 6 trucks to 7 am
up stream 11 to 12
dn stream 12

Jan. 5-34

25
First shift 11 to 7 with #11 shovel
equipped with ext. boom and
clam shell bucket exc. sand
dn str. N3C25 having moved
about 50 ft.
boom extension broke off 6 am
after having worked badly
all shift

labor. 1 op. - 1 helper
broke ext. no work Jan 6
Sunday no work 4-7
#11 rigged with haul back
cable operating near south
dn str. this shift Jan 8.
#11 shovel 1 op. 1 helper

1-9-34

#10 on up str. 95 deadman
#11 dn str. 93 slackline
placing material on dn.
N3356 to 3400
1 - fore m. 1 op. 1 helper

1-10-34

same outfit as on last shift
a broken chain caused delay of 1 hour

1-12-34

#10 shovel used as dead man
#11 with slackline buckett removing
material - placing same on dustri
beach - rock rolling from emb.
caused 1 1/2 hrs delay

Jan. 13-34

#11 shovel broke down
after having on previous shift
been moved to upstr. emb.
in order to dredge south
crew worked in shop this shift

1-17-34

Sunday shift

sand removal contin. placing
all material up str.

#11 as slackline } 1-former
#10 as deadman } 1-op.
1-help.

683.3 5065 - 4955 10ft

1-15-34

same as 14th 45 N 3575

1-16-34

with hoist #10 up str. using
clamshell heaving sand to
top of ramp

26

Jan. 17-34

#6 shovel with clamshell
dug out sand on upstr.
emb. 4 hrs (to 3 am)

Jan 18-34

#6 shovel with clamshell
#10 " " } 2 hrs - 6 men
#11 " with dragline }
working to 1 am only
P.O.S. not working 19-20-21-22

Jan. 23-34

Trench dustri. finished
#6 clamshell moved out } 2 hrs
#11 dn. #10 up. slackline outfit }
bulldoz. making runway }
1 foreman 2 shovel crews 1-bulldoz. 1-lab.

same as 23rd

" " 24th

" " 25

Jan. 24-34

" 25-34

" 26-34

70

7

Removing sand Jan 2-34

- #90 as slack line distr.
- #29 as anchor up str.
- #6 with clamshell distr.
- #3 pump
- 1-foreman 5 men (2 shov. crews) 1 jetman

same outfit 1/3/34
 " " 1/4/34
 " " 1/5/34
 " " 1/6/34
 " " 1/7/34
 " " 1/8/34
 " " 1/9/34

same to Jan. 31st removal of sand contin.

to Feb. 5th no work

1 men on pump into Hog box

H.V. Fill

Borrowpit Feb. 8

- 3-8" pumps 1-foreman
- 2-6" " 3-lab.
- 2-monitors 1-pumpman
- 1-12" mud pump 1-jetman
- 1-tractor partly 1-dumpman

- "A" 1-shov. #9 1-shov. crew
- 8-trucks 8-drivers
- 1-tractor 1-drv.

- "B" 1-shov. #6 1-shov. crew
- 4-truck 4-driv.
- 1-tractor 1-op.

note: "B" pit stopped

work at 3am = 1/2 shift to muck silt

H.V. Fill operation continued 2/9/34 ¹²

Borrowpit 8 trucks average
 Fill 3 lengths of pipe on shift reached
 near row of wells - N3650
 #6 pump and 1 monitor
 #10 dragline

supply pump started 6am 683.2 2/13/34

9 trucks Borrowpit "K"
 same Pump crew Road 684.3
 3 pumps

1 hr breakdown - punch in intake
 downstream time to south abutment by 6am
 upstream time 100 ft to go
 Terry as foreman gone - Earl in charge
 found one spot N3225 with sand on limit marks.

Feb. 14/34

Terry on by fill - Earl on site hauling
 on up. only one length of pipe this shift
 dist str. to N3675 - stopped silt hauling 39m
 Road 684.3 ^{10 trucks}
 Borrowpit "K"

Feb. 15-34

same as 14th
 reached upstr. N3500 - distr. N3375

Feb. 16-34

H. F. operation Feb. 26-34

sluicing contin. 1 hour to 72 min
 silt hauling " 3:30 " 3:30 am
 11 tractor & draw. } same as before
 Full pump crew }

same as above

Feb. 27-34

" " "

Feb 28-34

March 1-34

H. F. operation

1-12" Mud pump
 2-Supply pumps 1-2
 4-circulating pump 3-4-5-6
 2-Monitors
 1-shovel #6 removing sand
 1-Fore man
 4-lab.
 1-Pump.
 1-Jet.
 1-shov. crew
 shift 11 to 5

Borrow pit "A"

1-shovel #9
 1-McMillan
 11-Trucks
 1-Bulldoz at top
 1-cletrak
 1-shovel crew
 1-McMillan op
 11-Drivers
 1-Dumpman
 1-Cheker
 shift 11 to 3 am

March 2-34

3:30

Power went off
 3650 3775

March 5-34

Repair to Power line made sat. Sun
 this shift without stoppage of any kind
 upstr. N32-50 distr. 3300 - 689.6

3-6-34

sluicing continued silt hauling to 3 am
 10 trucks hydraulic 12 to 7 am

3-7-34

sluicing continued
 11 trucks

3-8-34

sluicing continued
 11 trucks

3-9-34

lines extended to south abutment
 all shift to downstream - broke down -
 plugged intake 12:30 to 2:30 to engage rock -
 from Pit "A" - 20 trucks hauled to 2:30

691.7

3-10-34

same as above

3-11-34

Sunday no work

3-12-34

same as Saturday

3-13-34

17 trucks to 2:30 upstream only 691.5

3-14-34

17 trucks to 2:30 upstream beach only
 daytime upstream to 2:30 691.4

Hydraulic Fill Operations

March 15-34

March 26-34

operating sand disperser

6pm starting N3500

7am N3325 691

depth 14 to 17 feet 5050

last time 1 1/2 hrs broken down 2950

March 27-34

continued

N3500 to 3440 on E 5015

March 28-

contn. N3270-3100 on E 5015

March 29-34

same

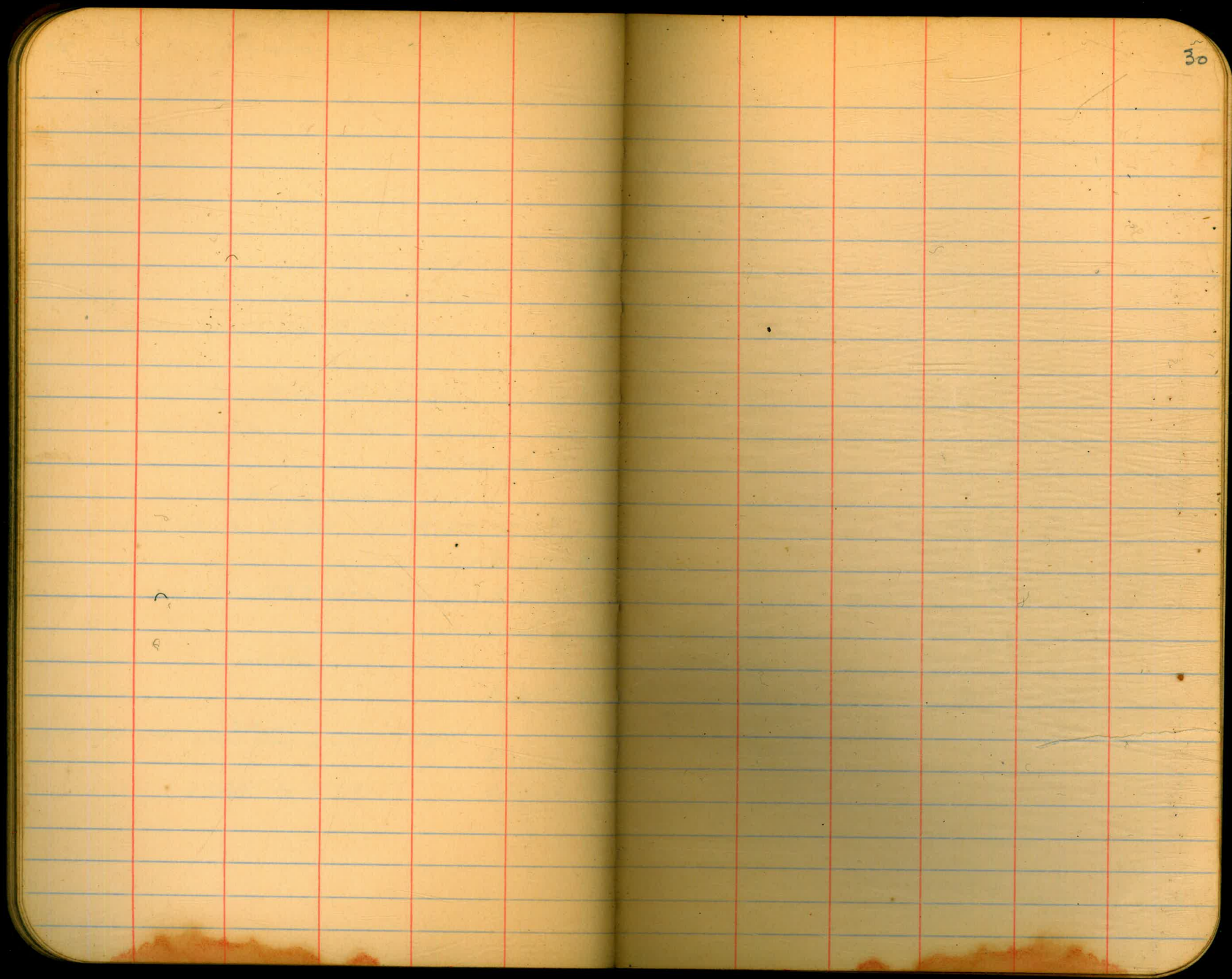
3/30/34

operat. cam gate broken down before 12pm

N3385 to N3415

4/1/34

4/2/34

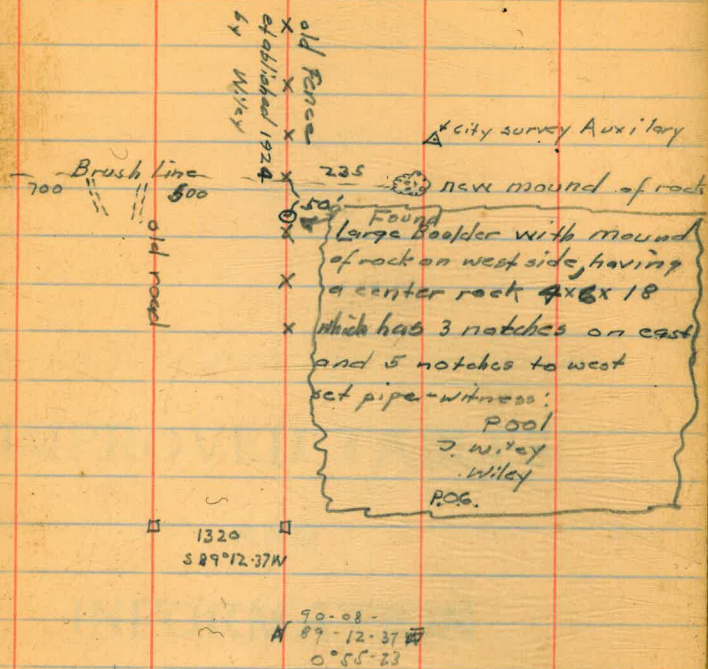


3

5/24/33

79

Condition of sec. cor.



DIRECTIONS FOR USE OF TABLES

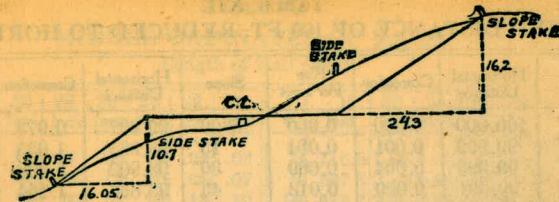
TABLE No. 1.

Distance of slope stake from side or shoulder
stake for any width roadway, slope 1 to 1.
If ground is nearly level, the cut or fill at side
stake is located by the double entry method in
left column and top row. The number in body

IMPROVED TABLES
AND
INFORMATION

TABLE No. 2.

To find Tangent and External for curve of
any other degree, divide by degree of curve and
add correction found in column of corrections.
Degree of curve with a given T may be found
by dividing tangent (or external), opposite T by
given tangent (or external).
The distance from a point on the tangent to
the curve is very nearly the square of the tangent
length divided by twice the radius.



DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

SLOPE 1 1/2 TO 1. ROADWAY OF ANY WIDTH.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0 00	0 15	0 30	0 45	0 60	0 75	0 90	1 05	1 20	1 35	0
1	1 50	1 65	1 80	1 95	2 10	2 25	2 40	2 55	2 70	2 85	1
2	3 00	3 15	3 30	3 45	3 60	3 75	3 90	4 05	4 20	4 35	2
3	4 50	4 65	4 80	4 95	5 10	5 25	5 40	5 55	5 70	5 85	3
4	6 00	6 15	6 30	6 45	6 60	6 75	6 90	7 05	7 20	7 35	4
5	7 50	7 65	7 80	7 95	8 10	8 25	8 40	8 55	8 70	8 85	5
6	9 00	9 15	9 30	9 45	9 60	9 75	9 90	10 05	10 20	10 35	6
7	10 50	10 65	10 80	10 95	11 10	11 25	11 40	11 55	11 70	11 85	7
8	12 00	12 15	12 30	12 45	12 60	12 75	12 90	13 05	13 20	13 35	8
9	13 50	13 65	13 80	13 95	14 10	14 25	14 40	14 55	14 70	14 85	9
10	15 00	15 15	15 30	15 45	15 60	15 75	15 90	16 05	16 20	16 35	10
11	16 50	16 65	16 80	16 95	17 10	17 25	17 40	17 55	17 70	17 85	11
12	18 00	18 15	18 30	18 45	18 60	18 75	18 90	19 05	19 20	19 35	12
13	19 50	19 65	19 80	19 95	20 10	20 25	20 40	20 55	20 70	20 85	13
14	21 00	21 15	21 30	21 45	21 60	21 75	21 90	22 05	22 20	22 35	14
15	22 50	22 65	22 80	22 95	23 10	23 25	23 40	23 55	23 70	23 85	15
16	24 00	24 15	24 30	24 45	24 60	24 75	24 90	25 05	25 20	25 35	16
17	25 50	25 65	25 80	25 95	26 10	26 25	26 40	26 55	26 70	26 85	17
18	27 00	27 15	27 30	27 45	27 60	27 75	27 90	28 05	28 20	28 35	18
19	28 50	28 65	28 80	28 95	29 10	29 25	29 40	29 55	29 70	29 85	19
20	30 00	30 15	30 30	30 45	30 60	30 75	30 90	31 05	31 20	31 35	20
21	31 50	31 65	31 80	31 95	32 10	32 25	32 40	32 55	32 70	32 85	21
22	33 00	33 15	33 30	33 45	33 60	33 75	33 90	34 05	34 20	34 35	22
23	34 50	34 65	34 80	34 95	35 10	35 25	35 40	35 55	35 70	35 85	23
24	36 00	36 15	36 30	36 45	36 60	36 75	36 90	37 05	37 20	37 35	24
25	37 50	37 65	37 80	37 95	38 10	38 25	38 40	38 55	38 70	38 85	25
26	39 00	39 15	39 30	39 45	39 60	39 75	39 90	40 05	40 20	40 35	26
27	40 50	40 65	40 80	40 95	41 10	41 25	41 40	41 55	41 70	41 85	27
28	42 00	42 15	42 30	42 45	42 60	42 75	42 90	43 05	43 20	43 35	28
29	43 50	43 65	43 80	43 95	44 10	44 25	44 40	44 55	44 70	44 85	29
30	45 00	45 15	45 30	45 45	45 60	45 75	45 90	46 05	46 20	46 35	30
31	46 50	46 65	46 80	46 95	47 10	47 25	47 40	47 55	47 70	47 85	31
32	48 00	48 15	48 30	48 45	48 60	48 75	48 90	49 05	49 20	49 35	32
33	49 50	49 65	49 80	49 95	50 10	50 25	50 40	50 55	50 70	50 85	33
34	51 00	51 15	51 30	51 45	51 60	51 75	51 90	52 05	52 20	52 35	34
35	52 50	52 65	52 80	52 95	53 10	53 25	53 40	53 55	53 70	53 85	35
36	54 00	54 15	54 30	54 45	54 60	54 75	54 90	55 05	55 20	55 35	36
37	55 50	55 65	55 80	55 95	56 10	56 25	56 40	56 55	56 70	56 85	37
38	57 00	57 15	57 30	57 45	57 60	57 75	57 90	58 05	58 20	58 35	38
39	58 50	58 65	58 80	58 95	59 10	59 25	59 40	59 55	59 70	59 85	39
40	60 00	60 15	60 30	60 45	60 60	60 75	60 90	61 05	61 20	61 35	40
41	61 50	61 65	61 80	61 95	62 10	62 25	62 40	62 55	62 70	62 85	41
42	63 00	63 15	63 30	63 45	63 60	63 75	63 90	64 05	64 20	64 35	42
43	64 50	64 65	64 80	64 95	65 10	65 25	65 40	65 55	65 70	65 85	43
44	66 00	66 15	66 30	66 45	66 60	66 75	66 90	67 05	67 20	67 35	44
45	67 50	67 65	67 80	67 95	68 10	68 25	68 40	68 55	68 70	68 85	45
46	69 00	69 15	69 30	69 45	69 60	69 75	69 90	70 05	70 20	70 35	46
47	70 50	70 65	70 80	70 95	71 10	71 25	71 40	71 55	71 70	71 85	47
48	72 00	72 15	72 30	72 45	72 60	72 75	72 90	73 05	73 20	73 35	48
49	73 50	73 65	73 80	73 95	74 10	74 25	74 40	74 55	74 70	74 85	49
50	75 00	75 15	75 30	75 45	75 60	75 75	75 90	76 05	76 20	76 35	50

Computed by L. Leland Locke.

2 with lights 4 sect 64}

1 dark on barge 8"

1 stationary - on 8"

Range d 4947.5

lights u 5072

3 men stopped

1:30 ~~5925~~

= 3 D. South, Zagan

Drag # 10 Zagan

631.6

124

14

111

11 48

15.4

572