

TABLE XIII—CORRECTIONS FOR TANGENTS AND EXTERNALS

These corrections are to be added to the approximate values, found by dividing the tangent, or external, for a 1° curve (Table VIII) by the degree of curve, in order to obtain the true tangents, or externals. Intermediate values may be obtained by interpolation.

FOR TANGENTS ADD

Central Angle	DEGREE OF CURVE													
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°
10°	.03	.06	.09	.13	.16	.19	.22	.25	.28	.31	.34	.38	.42	.46
15°	.04	.10	.14	.19	.24	.29	.34	.39	.45	.51	.53	.58	.63	.68
20°	.06	.13	.19	.26	.32	.39	.45	.51	.58	.65	.72	.79	.84	.90
25°	.08	.16	.24	.33	.40	.49	.58	.67	.75	.83	.90	.99	1.06	1.14
30°	.10	.19	.29	.39	.49	.59	.69	.79	.89	.99	1.09	1.20	1.29	1.39
35°	.11	.22	.34	.47	.58	.69	.80	.91	.92	1.04	1.29	1.42	1.54	1.66
40°	.13	.26	.40	.53	.67	.80	.93	1.06	1.20	1.34	1.49	1.64	1.79	1.94
45°	.15	.30	.44	.60	.76	.91	1.06	1.21	1.37	1.52	1.70	1.87	2.04	2.21
50°	.17	.34	.51	.68	.85	1.02	1.19	1.36	1.54	1.72	1.91	2.10	2.29	2.48
55°	.19	.38	.57	.76	.95	1.14	1.32	1.52	1.72	1.92	2.14	2.35	2.56	2.77
60°	.21	.42	.63	.84	1.05	1.27	1.49	1.71	1.94	2.17	2.38	2.60	2.83	3.07
65°	.23	.46	.69	.93	1.16	1.40	1.64	1.88	2.13	2.38	2.63	2.88	3.13	3.39
70°	.25	.51	.76	1.02	1.28	1.54	1.80	2.06	2.33	2.60	2.88	3.16	3.44	3.72
75°	.27	.56	.83	1.12	1.40	1.69	1.98	2.27	2.57	2.87	3.16	3.47	3.78	4.09
80°	.30	.61	.91	1.22	1.53	1.84	2.15	2.46	2.78	3.10	3.44	3.78	4.12	4.46
85°	.33	.66	1.00	1.33	1.68	2.02	2.36	2.70	3.05	3.40	3.77	4.14	4.55	4.89
90°	.36	.72	1.09	1.45	1.83	2.20	2.57	2.94	3.32	3.70	4.10	4.50	4.91	5.32
95°	.39	.79	1.19	1.55	2.00	2.40	2.80	3.20	3.61	4.02	4.40	4.98	5.38	5.83
100°	.43	.86	1.30	1.74	2.18	2.62	3.06	3.50	3.95	4.40	4.88	5.37	5.85	6.34
110°	.51	1.03	1.56	2.08	2.61	3.14	3.67	4.21	4.76	5.31	5.86	6.43	7.01	7.60
120°	.62	1.25	1.93	2.52	3.16	3.81	4.45	5.11	5.77	6.44	7.12	7.80	8.50	9.22

FOR EXTERNALS ADD

Central Angle	DEGREE OF CURVE													
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°
10°	.001	.003	.004	.006	.007	.008	.009	.011	.012	.014	.015	.017	.018	.020
15°	.003	.007	.010	.014	.018	.023	.027	.032	.037	.043	.049	.053	.057	.061
20°	.006	.011	.017	.022	.028	.034	.038	.045	.051	.057	.063	.070	.076	.083
25°	.009	.018	.027	.036	.046	.056	.065	.074	.083	.093	.106	.120	.127	.135
30°	.013	.025	.038	.051	.065	.078	.090	.103	.116	.129	.149	.170	.179	.188
35°	.018	.035	.054	.072	.086	.109	.131	.153	.175	.197	.213	.230	.247	.264
40°	.023	.046	.070	.093	.117	.141	.172	.203	.234	.265	.277	.290	.315	.341
45°	.030	.060	.093	.119	.153	.184	.216	.254	.289	.325	.351	.378	.411	.445
50°	.037	.075	.116	.151	.189	.227	.266	.305	.345	.384	.425	.467	.508	.550
55°	.046	.093	.142	.188	.236	.283	.332	.381	.420	.479	.530	.582	.641	.700
60°	.056	.112	.168	.225	.283	.340	.398	.457	.516	.575	.636	.697	.774	.851
65°	.067	.135	.204	.273	.343	.412	.483	.554	.625	.697	.711	.845	.922	1.01
70°	.080	.159	.240	.321	.403	.485	.568	.652	.735	.819	.906	.994	1.08	1.17
75°	.095	.182	.286	.383	.480	.578	.678	.777	.877	.977	1.07	1.18	1.29	1.39
80°	.110	.220	.332	.445	.558	.671	.787	.903	1.02	1.13	1.25	1.38	1.50	1.62
85°	.128	.259	.391	.524	.657	.790	.926	1.06	1.20	1.34	1.47	1.62	1.76	1.91
90°	.149	.299	.450	.603	.756	.910	1.07	1.22	1.38	1.54	1.70	1.87	2.03	2.20
95°	.174	.350	.522	.706	.885	1.06	1.25	1.43	1.62	1.80	1.99	2.18	2.38	2.58
100°	.200	.401	.604	.809	1.01	1.22	1.43	1.64	1.85	2.06	2.28	2.50	2.73	2.96
110°	.268	.536	.806	1.08	1.35	1.63	1.91	2.20	2.48	2.76	3.05	3.35	3.66	3.96
120°	.360	.721	1.08	1.45	1.82	2.19	2.57	2.95	3.33	3.72	4.11	4.50	4.91	5.32

18
19

169+83±
178+56±

Access opening curb into 28"

No.	Location	Length
1	67+50 ±	7'-1"
2	71+00 ±	6'-4"
3	78+94 ±	6'-6"
4	89+20 ±	6'-6"
5	92+20 ±	6'-6"
	95+35 ±	
SPEC. CITY OPENING TO REMOVE 28" G.V. INSTALL 4" B.O.		
6	98+80 ±	6'-6"
7	102+17 ±	do
8	106+40 ±	do
9	111+80 ±	do
10	120+33 ±	do
11	129+76 ±	do
CUT TO CLEANING TOOL 137+63 ± ALLOW TO BE REMOVED		
13	138+45 ±	6'-6"
14	143+86 ±	6'-0"
15	153+24 ± (alleyway str)	
16	160+35 ±	6'-6"
17	166+35 ±	

Start from Civic Center 63550 17 mi. start
at job 63562, same job 63579
63579
17 up to + incl. 9/28

Force		Equipmt	
No.	Uses	No.	Types
1 - Supt	8	2 - Pick up trucks	8
1 - Foreman		1 - Flat rock w/ mallet	
1 - Trnk.		1 - Welding outfit	
3 - Equipmt op		1 - Compressor	
3 - Cem. fin.		1 - Water wagon	
1 - Welder		2 - " pumps	
1 - Mifer man		1 - lining unit	
7 - Laborers		1 - elect. gen.	

8:00 - 6:30 Tues Sept 26, 50 Jan

28" Cement lining now in place from beginning of access @ sta. 78+94 ± (middle of 6' section of 28" pipe removed) ~~to date~~ approx 1170 l.f. and #3.

Working S. w/ cement lining unit from a point approx sta 81+75 between access opens # 3 and # 4 to open # 3 @ sta. 78+94 ± (middle of section of 28" pipe removed) ~~to date~~ lined to date: approx 1400 l.f.

Mix for another lining per batch
4 sack Colton cement
1 sack " plastic "
5 sack fine sand

Remarks:

Telephone no. of field office is Greeley 7-4857
Rud Simmell, trunk.

1825
~~235~~
 350

17
 16
 33

Tools Equipment

No.	Des	No.	Type	Des
1- Supt	8	2- picks	up	8
1- Foreman		1- Shot	ruler	
1- Tools		w/	meter	
3- Equip		1- Weld'g	outfit	
3- Cmp		1- Water	pump	
1- Welder		1- Lining	unit	
1- Mch		Elect	gen	
7- Subs		1- slip	hook	
		2- water	pumps	0
		1- weld'g	outfit	
		1- compressor		

see on beg'g. opening covered overnight or when no one working inside. pipe during day.

8:00-4:30 Weds Sept 27 50 - Fair

Working N. w/ cement lining unit from approx. ~~Sta. 81+75~~ ^{Sta. 81+75} between ^{access} access of hrs #3 + 4 1/2" cement lining placed today 350 l. l.
 To date: 1750 l. l. (Sta. 84+50)

Re-excavated pit for access opening #5 (covered in) cut out segment of 28" line w/ cut'g. torch @ opening #5. Repairs made to 1" water E. of 28" line (riser broken off when struck by truck)

Visitors: Mr. Robt. Sargent
 Am. Pipe & Constr. Co.
 Genl. Supt.

1750
1000
750

89+20
67+20
2195

1750
450
1300

33
14
47

Force

Equipment

- | <u>No.</u> | <u>Qty</u> | <u>Description</u> |
|------------|------------|--------------------|
| 1-Sept | 9 1/2 | gals up |
| 1-Form | 1 | Flat rock |
| 1-Tank | 1 | Van w/ mix |
| 3-Eqmt | 1 | Shrink unit |
| 1-Mix | 1 | Elect gen |
| 3-Cem | 1 | Skid loader |
| 1-Welder | 1 | hand wind |
| 7-Subs | | |

89+20
67+20
2195

- 2. water pumps
- 1- weld'g outfit
- 1- compressor

Accidents:

Overturned elect. weld'g mach.
no one injured
delays closing up opening # 2
until new machine can be
brought in or repairs made

8:00 - 6:00 Thurs Sept 28, 50 Fair
Work'g. N. w/ cement
lining unit from upper sta.
84+19 to working sta. 89+20
(access opening # 4.)
1/2" cement lining placed
today: 450 l. approx.
To date: 2200 l. (sta. 89+20)
Hand joint'g lining between
openings. # 2 & # 3 - completed
between # 1 & # 2

City forces: Completed
weld'g. butt straps on
segment of pipe put in
line in place of 28" gate valve
@ approx sta ~~95+00~~ 95+35 installed
4" B.O. @ same location

47
16
63

10 da. report
End of mo. (no report) be sure to
submit no. of feet today report

Tools Equipment

No.	Qty	No.	Type	Value
1-Supt	8	2-Pile caps	8	
1-Job		1-Steel tracks		
1-Tools		1-Van w/ equip		
3-Equipment		1-Insulator		
1-Refersop		1-Elect gen.		94+20
3-Can fu		1-Steel loads		67+25
1-Welder		1-Welding outfit		27
7-Sales		2-Water pumps	0	
		1-Compressor		98+80
		1-hand winch		3+50

98+80
3
95 30

96+25
67+25
29 00

99+20
5 00

94 20

95+25
67+25
28 00

97 10

92+20
67+25
24 95

2 00

93+20
67+25
25 95

89+20
96+20
94+20

8:00 - 4:30 Fri. Sept 29 50 - Jani
Working N. by center
lining unit from approx. sta.
89+20 (opng. #4) to approx. sta.
94+20 (approx. 200'
N. of opng. #5)
1/2" cement lining placed
today: 500 l
To date: 2700 l. (approx. sta. 94+20)

Hard point of lining between
opng. #2 + #3 completely
and between #3 + #4
Welded butt straps @ opng. #2

City forces plain
cost'g over segment of pipe
put in line in place of 28"
gte value @ approx. sta. 95+35

63
0
63

Force		Equip	
No.	Qty	No.	Type
1. Supt	6 1/2	2. Pile up	6 1/2
1. Fore		1. Van w/mtr	
3. Equip		1. Sump pump	
1. Mixer		1. Elect gen	
3. Cement		1. Skip load	
6. Sals		Hand work	

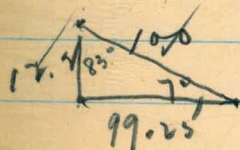
8:00-3:00 Sat Sept 30, 50 - Jan
Working N. w/ cement
lining unit from approx. sta
94+20 to approx sta 96+25.

1/2" cem. lining placed today approx 200 ft
To date: approx. 2900 ft
(approx. sta. 96+25)
Completed sand pointing, lining
between gages # 3 & 4.

$$\begin{array}{r} 471 + 25 \\ 67 + 25 \\ \hline 354 \end{array}$$

$$\begin{array}{r} 95 + 25 \\ 67 + 25 \\ \hline 28 \end{array}$$

$$\begin{array}{r} 96 + 25 \\ 67 + 25 \\ \hline 900 \end{array}$$



sin 7°

$$\begin{array}{r} 17.2 \\ 12.2 \\ \hline 29.4 \\ 29.4 \\ 22 \\ \hline 148.8 \\ 100.00 \\ \hline 9989.40 \end{array}$$

$$\begin{array}{r} 99.25 \\ 99.25 \\ \hline 496.25 \\ 99.25 \\ 52.50 \\ \hline 893.25 \\ 9840.5625 \\ 148.84 \\ \hline 9989.40 \end{array}$$

63
14
77

Tools		Equipmt	
No.	Qty	No.	Type/Qty
1. Supt	8	2. Pick up	8
1. Tool		1. Flat rock	
1. Tank		1. Van w/min	
3. Equip of		1. Lining unit	
1. miter of		1. Electrode	
3. Camp fan		1. Slings load	
1. welder		1. Welding outfit	
7. Subs		1. Hand wheel	

98+80
96+25

2

98+80
67+25

31

8:00 - 4:30 Mon Oct 7, 50 - Jan
Working N. w/ cement
lining unit from approx
sta 96+25 to approx sta 98+80

1/2" cen. lining placed
today approx: 250 l.p.
To date approx: 3150 l.p.
(to sta. 98+80 ±) (approx # 6 ✓)
Completed sand pointing lining between
openings # 3 + # 4, ~~pointing~~
pointing between 4 + 5
Welded add. welding ^{on} @
out steps opening # 1. Closed M.H.

Ran out of sand

City forces: backfilled
pit @ approx sta. 95+35 (28"
valve removed)
Remains to install # 3 + 4

~~Force~~
Force

Liming

77
192

Equip

No.	Qty	Use	Type	Qty
1-Suapt	10	2. Pickups		10,
1-Jack	1	1-Flat rack		
1-Tank	8	1-Van w/pump		
3-Equip op	10	1-Lim unit		
1-mix op	1	1-Elect. gen.		
3-Cem for	9	1-Slip load		
1-Welder	8	1-Weld outfit		
7-Lab	10	1-Hand wind		
		2-Water pumps		2

$$\begin{array}{r} 106+40 \\ 98+40 \\ \hline 760 \end{array}$$

$$\begin{array}{r} 3150 \\ 760 \\ \hline 3910 \end{array}$$

$$\begin{array}{r} 106+40 \\ 67+25 \\ \hline 3915 \end{array}$$

City forces: Rebuild g.
truss # 3 and # 4.

Visitor: Mr. Thompson
Am. Pipe.

8:00 - 6:30 Tues Oct 3, 10 - Jani
Work'g. N. w/ cement
liming unit from sta 98+80±
(opng # 6) thru opng # 7
@ sta. 102+17± to sta. 106+40±
(opng # 8)

1/2" liming placed today approx:
760 l.f.
To date approx: 3915± l.f.
(sta. 106+40± opng # 8)

Completed hand pointing liming
between opng # 4 and # 5
Started between opng # 5 & # 6
Cut out opng # 9 @ sta
111+80 - line full of water @
this point
Weld g. segment back into
line @ opng # 3

92
20
112

Tools		Equipment	
No.	Qty	No.	Type
1	Sust	2	Backups
1	Tool	1	Flat rock
1	Truck	1	Van w/ min
3	Equip	1	Lining unit
1	Miscrop	1	Electrician
3	Cement	1	Spig lock
1	Welder	1	Welding outfit
7	Tools	1	Hand winch
		1	Water pump

108+15
106+40
175

39+15
175
4090

108+15
67+25
4090

8:00-4:30 Weds Oct 4, 50 - Fair
Working S. w/ cement
lining unit from sta 108+15±
to sta. 106+40± (opening # 8)

1/2" cement lining placed today approx ¹⁷⁵⁴
To date approx: 4100 l.
(Sta 108+15±)

Completed
sand pointing lining between
openings #5 and #6. Started
lining between opening #6 & 7
Running water from inside opening
9
~~Cut out opening #~~ Completed
segment back into line @
opening # 3

city forces: rebuild g. trestles
3, 4, 5

118
-14

104

Tools		Equipment	
No.	Qty	No.	Type/Qty
1. Supt	1	2. Pile up	1
1. Iron		1. Flat rack	
1. Truck		1. Van w/ mixer	
3. Equip of		1. lining unit	
1. mixer op		1. Eech gun	
2. Cement		1. Skip loader	
1. Welder		1. Weld outfit	
7. Labor		1. Hand truck	4

City notes: Rebuild'g. trestles # 3, 4, 5
Welded & patches on segment of
pipe @ sta. 98+80± (opng # 6)

41.00

455

455

small
ties @ sta 98+80±
and 111+80±

8:00 - 4:30 Thurs Oct 5 1950 - Jan
~~Monday~~ - Working S. w/ cement
lining unit from sta 113+90±
to sta 111+80± (opng # 9)

Afternoon - Working N. from sta.
109+35± to sta 111+80± (opng # 9)
Section between ^{sta} 108+15 and
sta. 109+35 (exposed portion
of pipe across trestle # 3) as
well as stretch from 113+90±
to 117+25 (which will take in
exposed portion of pipe
across trestles # 4 and # 5)
will be lined in night
after pipe has cooled.

AMOUNT
DONE

1" cement lining placed today approx: 4550 ft.
To date approx: 4555 ft. ^{sta.}

Cut out access opng # 10, 11, 12
Welded back segment into line
@ sta. 89+20 (opng # 4)

15
1141
turn in
release
Jones Equipt

126
15
141

No.	Des	No.	Type	Des
1- Supt	1	1- Pickups	1	
1- Truck		1- Weld'g outfit	1	
2- Cement				
1- Welder				
3- Lbs				

455
455
5010

117+25
67+21
50 00

1- Supt	10	2- Pick ups	12
1- Foreman	1	1- Van w/ pump	
3- Equipt op		1- Lining unit	
1- Mixer op		1- Elect gen	
4- Lbs		1- Hand wind	
		1- Water truck	
		1- Water wagon	

8:00 - 4:30 Fri Oct 6, 1950 - Fair
Day: No lining done during day - will line across trestles in cool of night.
 Welded back segments into line @ sta 92+20 (open ± 5) and @ sta 102+17 (open ± 6)
 Hand pointing lining complete to sta 108+15±
 Pumping water from line, hand cleaning along Res Drive.

6:00 PM 6:00 AM
Night: Working N. w/ cement lining unit from sta 108+15± to sta 109+35± and from 113+90± to 117+25± ✓?

Today - 1/2" line lining placed approx: 455
 To date: approx: 5010 (sta.)
 117+25

Started using City
car # 3021 today
30

Force		Equipmt	
No.	Hrs	No.	Type
1- Supt	8	2- Pele up	8
1- Trk		1- Flat road	
1- Foreman		1- Van w/mfr	
3- Equipmt op		1- Lining unit	
1- mfr op		1- Elect gen	
2- Cem fin		1- Skip loader	
1- Welder		1- Welding outfit	
1- Truck driver		1- Hand wheel	
7- Labs.		2- Water pumps	
		1- Water truck	

120+35
117+25

310

5010
310

5320

8:00-4:30 Mon Oct 9, 1950 - Fin
Work. N. w/ cement lining
unit from sta. 117+25± to
sta. 120+35± ? ← ? (opening # 10)
120+33 ✓

AMT. 1/2" cement lining placed today:
DONE approx. 310 l.

To date approx. 5320 l. (sta. 120+33 opening # 10)

Hard joint'g. lining between
stas. 108+15± and 117+25±.
Welded back segments of 28" pipe
@ sta. 98+80± (opening # 6) and @ sta 102+17±
(opening # 7)

Pumping water from line hand
cleaning interior of pipe along
Res Drive

Backfilled openings # 1, 2, 3, 4
City forces: work'g. on truss
3. (truss supports)

Force		Equip	
No.	lbs	No.	lbs
1-Supr	8	2-pick ups	8
1-Truck		1-Flat rack	
1-Tool		1-Jack w/mul	
3-Equiprop		1-Lin. unit	
1-Mixerop		1-Elect gen	
2-Cen. jr		1-Slip lead	
1-Welder		1-Weld'g outfit	
1-Trade		1-Water truck	
7-Labs			

$$\begin{array}{r} 5320 \\ 415 \\ \hline 5735 \end{array}$$

$$\begin{array}{r} 124+50 \\ 120+35 \\ \hline 415 \end{array}$$

$$\begin{array}{r} 137+63 \\ 67+25 \\ \hline 200 \\ 70 \\ 70 \\ \hline 138+25 \\ 66 \\ \hline 204 \end{array}$$

$$\begin{array}{r} 138+25 \\ 137+63 \\ \hline 201 \\ 70 \\ 70 \\ \hline 200 \\ 70 \\ \hline 270 \end{array}$$

(30)

10 da. report
Oct 12 City Holiday - 1 1/2 times

8:4:30 Tue Oct 10, 50 - Fri
Working S. w/ cement lining
unit from sta. 124+50± to sta
120+35± (copy #10)

APPT?
DONE? ✓
1" cem. lining placed today approx: 415 l.f.
To date approx: 5735 l.f.

Hand pointing lining between sta.

113+90± and 117+25±

Welded back segments of 28" pipe
@ sta 106+40 (copy #8) also? etc

Hand cleaning pipe complete
to 30" P.V. on Res. Pines note. mecha.
cleaner from sta. 67+5± to station #12 @ sta.
137+63, or approx 705± l.f. Hand cleaned from 137+63 to
30" P.V. @ 138+25±. Total cleaned to date approx. 7105± l.f.
City forces: work on truck
3 and 4 (Cradle Supports)

Force		Equipment	
No	Qty	No.	Type/Qty
1. Supt	10	2. Pickups	10
1. Trk	8	1. Flatbed	
1. Trk	10	1. van w/ truck	
3. Equip		1. Linig unit	
1. Man op		1. Electrode	
2. Cam	8	1. Strip lead	
1. Welder		1. Welding outfit	8
1. Trk	10	1. Water tank	
7. Subs			

$$\begin{array}{r} 5735 \\ 440 \\ \hline 6175 \end{array}$$

$$\begin{array}{r} 138+25 \\ 440 \\ \hline 133+85 \\ \hline 77 \end{array}$$

8:00 - 6:30 Weds Oct 11, 50 - Fri
 Working S. w/ cement lining
 unit from sta. 138+25± (30" P.V.)
 to 133+85± (through #12)

AMT }
 DONE } 1" V. cen. linig placed today approx: 440
 To date approx: 6175 l.f.

Hand
 Hand pointing lining between
 sta 117+25± to sta 120+35± (cong #10)
 completed. Started pointing
 lining between 120+35± and
 124+50±

Welded back segments of 28"
 pipe @ sta 111+80± (cong #9)

City forces: working on trestle
 #3 (cable supports)

O.T. 1 day
(today)

Columbus Day

<u>Force</u>		<u>Equipment</u>	
No	hrs	No	hrs
1-Supt	10	2-pickups	10
1-Job	✓	1-fat rock	
1-Fork	8	1-rod w/mixer	
3-Engines	10	1-Lining unit	
1-Mixer	✓	1-Electgen	
2-Cleaner	8	1-Weld'g outfit	8
1-Welder	1	1-Whitcomb tank	10
7-Labors	10	1-Compressor	8

26
83
109

8:00-6:30 Thurs Oct. 10 - Fri
Working S. w/ cement lining
unit from sta 133+85± to sta
129+76± (open #11) and from
sta. 124+50± to open #11.

AMT
000000
1/2 cement lining placed today approx 935
To date approx: 7100 lf.

Hand pointing lining between
Sta 120+35± and 124+50± and
from 133+85± to 138+25±

Welded back segment of 28"
pipe @ sta 120+35± (open #10)

Excavat'g for open #13 @
Sta. (N. of 31" P.V. on Res Drive

City forces: not working today
(Columbus Day)

$$\begin{array}{r} 133+85 \\ 129+76 \\ \hline 4+09 \end{array}$$

$$\begin{array}{r} 124+76 \\ 12+50 \\ \hline 5+26 \\ 4+09 \\ \hline 9+35 \end{array}$$

$$\begin{array}{r} 6175 \\ 935 \\ \hline 7110 \end{array}$$

$$\begin{array}{r} 138+25 \\ 67+25 \\ \hline 7100 \end{array}$$

(31)

Tools		Equipment	
No.	Qty	No.	Type
1. Supt	8	2. pipe	8
1. Form		1. flat rule	
1. Tank		1. Welding outfit	
3. Equipment		1. Compressor	
1. Wire sp.			
2. Cam pin			
1. Welder			
7. Sibs			

140mm
12gal

120
17
20

8:00 - 4:30 Fri Oct 13, 50 - Fri
 ANT } Today - none
 ONE } To date approx: 7100+ l.
 (from 30" P.V. @ sta. 127+25± to 30"
 P.V. @ sta. 138+25±)

Hand painting lining from
 sta. 12+00± to 13.3+85±
 completed.

Welded back segment of 24" pipe
 @ opng. # 11 (sta. 129+76±) and
 completed weld'g. back segment
 @ sta. 137+63± (opng. # 12) ~~at~~
 across 4 ft. 4" plug placed in
 line @ top of pipe @ sta. 137+62±
 (sta. 138+45±)
 Elevat'g. for opng. # 13 and
 started elevation for opng. @ 30"
 P.V. @ sta. 172+77 (Eigh. St)
 Backfilled opng. 5 to 11 incl.

City forces working on
 truss # 4 (cable support,
 & iron rollers.)

Inve		Equipmt	
no.	Qty	no	Type
T-Sight	8	1-Pick ups	8
1-Tank		1-Hitchhike	
1-Slip of		1-Compressor	
6-Sales		1-Slip holder	

20

8. 4 1/2 ✓ Mon Oct 16, 50 - Fri
 AMT } 1/2" cem. lining placed today; none
 DONE } To date work: 7106 ±
 (from 30" P.V. sta. 67+25 ± to 30"
 P.V. @ sta. 138+25 ±)

Hand it over to for opening
 @ 8th St. and # 14 (sta. 143+86 ±)
 Backfilled opening # 11 (sta. 129+76 ±)
 and # 12 (sta. 137+63 ±)

City forces: working 1st trench
 # 4 (12" dia. collars)

High lined 1" service from
 corp. code to side of 30" P.V. @
 sta. 178+77 ± (Eggs 5 ±) to meter
 in orchard @ sta. 175+02 ±
 Selling 28" line from P.V. @ 67+25 ±
 to P.V. @ sta. 138+25 ±

Tools		Equipment	
No.	Qty	No.	Type
1	Saw	2	Jack up's
1	Wrench	1	Wild'g outfit
6	Tools	1	Compressor
1	Welder		

8-4 1/2 ✓ Tues Oct 17, 50 - Fri
 AMT (1/2" cen. lining placed today: 0
 DONE! To date approx: 7100 ft
 (from 30" P.V. sta 67+25± to
 30" P.V. @ sta 138+25±)

Hand excavation for opening #
 14 (sta 143+86±) #15 (sta.)

Preparing discharge pipe
 to cross 8th St into drainage
 ditch from opening just S. of 30" P.V.
 This will not be placed, however,
 until clearing starts - have
 permit from County for crossing
 8th St.

Removed B.O. valve & discharge
 pipe @ approx sta 136+75± to
 unplug opening.

City forces: Drilling line from
 sta 127+25± to 138+25±
 well's 8" allows to 10 min a trial

Tests: Samples taken of water
 for purity & taste @ sta 71+21±
 (A.V.) 114+80± (B.O. outside) and @
 129+61 (A.V.) In to lab about 10:00 AM

June		August	
No.	Use	No.	Type Use
1. Susst	8	2. picks up	8
1. Truck			
1. Truck			
3. Subs			

Waiting for results of quantity tests
from City

8:00 - 4 1/2 Weds Oct 18, 52 - Jan
 AMT } 1/2 in. lining placed today - 0
 DWS } To date approx 71.00 ± 2
 (from 30" P.V. sta 67+25 ± to 30" P.V.
 @ sta 128+25 ±)

Removed B.O. valve + discharge
 pipe @ approx. sta 136+75 to
 replace leaking gasket.

City forces. Draining line from
 order for A.P. to replace leaking
 gasket on B.O. Line drained
 from high point on line @
 129+61 ± to 30" P.V. @ 138+25 ±.
 Working on trestle ± 4 collars
 + cradle supports, turning 38" pipe

Tools		Equipmt	
No.	Qty	No.	Type
1	Sept	2	Piles
1	Foreman	3	Water pumps
5	Jobs		

Rec. word from Dodson water
O.K. - 9:30 AM

8-4 1/2" Thurs Oct 19, 50 - Fri
 AMT } 1/2" can lining placed today - 0
 cont } To date approx 7100 + 2 ft.
 (from 30" P.V. sta 67+25 to 30" P.V. @
 sta 138+25 ±)

Draining line from 30" P.V. @
 138+25 ± to 30" P.V. @ 8th St.
 Started 12:30 P.M.

City forces - Blowing off line
 @ B.O.B. check'g air valves etc.
 Closed 1" S.O. on side of line @
 Potomac St. and @ ^{S.O.} Allegheny St.
 Paradise Hill area being served
 by 8" S.O. along @ Winchester St.

Tools		Equipment	
No.	Qty	No.	Typical
1. Sigs	8	2. Pickups	8
1. Tool		4. Water pumps	
1. Tank		1. Weld'g outfit	
1. Welder		1. Truck tractor	
8. Sels		w/A pump	
1. Equip box			

used 3 ^{and 4} radios etc.

Large amt. of scale + rust discharged from 28" line. This operation will be repeated once more. Excavating for access openings for lining equip. City force: working on trestle + 45' Operate @ 30" P.V. for cleaning operation.

8-4 1/2 Fri Oct 20, 10 - Fri
 AMT } 1/2" cum lining plant today - none
 done } To date approx: 7100+ l.f.
 Cleaning pipe today: 4050+ l.f.
 To date approx: 11,150+ l.f.

Entered cleaning tool @ opening #13 (Sta. 138+45±) Segment placed in line + sealed w/metal straps + rubber gaskets. 8" discharge valve installed @ bulkhead @ opening in line @ 8th St. 8" discharge line to concrete drainage ditch N. side of 8th St. Turned water back into line @ 30" P.V. (Sta. 138+25±) @ 12:25 P.M. Tool moved thru line without jamming up @ any point ^{to} bulkhead @ 8th St. 55 min. later or 1:20 P.M. No apparent leaks developed.

actual
(8 hrs) O.T. - 8 hrs
today - $\frac{8}{8}$
due \rightarrow 2 das

No.	Des	No.	Equip	No.	Type	No.
1	Supt	4	ins pipe	4	ins	
1	Ironman	2	water pump			
1	Welder					
6	labs					

$$\begin{array}{r} 19.25 \\ 71.50 \\ \hline 90.75 \\ 71.00 \\ \hline 19.75 \end{array}$$

$$\begin{array}{r} 7.05 \\ 1.41 \\ \hline 8.46 \end{array}$$

$$\begin{array}{r} 11.20 \\ 10.00 \\ \hline 1.20 \end{array}$$

$$\begin{array}{r} 14.1 \\ .06 \\ \hline 14.16 \end{array}$$

8:00 - 12:30 Sat Oct 21, 50 - Fri
AMT } $\frac{1}{2}$ " cem. lining placed today - 0
done } To date approx 7100 + l.
Cleaning pipe today (2nd shift)
4050 + l.
To date approx: 11,150 + l.

Entered cleaning tool @ opening #13
(Sta 138+45⁺) segment of 28" pipe
placed back into line & welded
in place w/ butt straps. 8"
discharge + valve + bulkhead
@ opening in 28" line @ 8th St.
1" discharge line relaid to
concrete drainage ditch N. side of 8th St.
Turned water into 28" line @ 30' P.V.
(Sta 138+25⁺) @ 10:45 A.M. Took
move of three $\frac{44 \times 11 \times 1}{12}$

Tools		Equipmt	
No.	lbs	No.	Type lbs
1- Supt	8 1/2	2- Pile wgs	8 1/2
1- Form		1- Flat rack	
1- Truck		1- Van	
3- Equip box		incl. water sign	
1- mix up		1- Lin g unit	
1- Welder		1- Boring outfit	
1- Tdr		1- Water pump	
7- Tools		1- Water truck	
		1- Compressor	

$$\begin{array}{r} 138+25 \\ 210 \\ \hline 140+35 \end{array}$$

8:00 - 5:00 Mon Oct 23 SD - Jan
 AMT } 1/2" cem. lining placed today approx 210
 done } To date approx: 7310

Work's N. w/ cement lining unit
~~from~~ ^{toward} opening #14 (sta. 143+86±) from
 30" P.V. @ sta. 138+25± to sta.
 140+35

Cut out segments of 28" pipe for
 access openings #14 (sta. 143+86±)
 and #15 (sta. 153+24±)

Hand excavation for access openings
 #16 & 17.

City forces - on 2 iron saddles
 bracket #5. Checked 8" G.V.
 ea. side of 28" line @ Potomac St.
 for leakage into 28" line

Tools		Equipment	
No.	Qty	No.	Type
1	10	2	pick ups 10
1	1	1	flat rock
1	8	1	band saw
3	10	elect gen + motor	
1	1	1	Truck tractor
2	8	w/ Air gun	
1	10		
7		1	Water pump
		1	Compressor
		1	Water truck
		1	Lining unit

$$\begin{array}{r} 143+86 \\ 3 \\ \hline 146+88 \end{array}$$

$$\begin{array}{r} 148+75 \\ 1+6+75 \\ \hline 200 \end{array}$$

$$\begin{array}{r} 143+86 \\ 140+35 \\ \hline 351 \end{array}$$

$$\begin{array}{r} 7310 \\ 550 \\ \hline 7860 \end{array}$$

$$\begin{array}{r} 143+86 \\ 67+25 \\ \hline 7661 \end{array}$$

8:00 - 6:30 Tues Oct 24, 00 - Fri
 AMT } 1/2" cem lining placed today approx: 550
 DAW } To date approx: 7860 l.f.

Worked N. w/ cement lining unit
 from sta. 140+35± to spring # 14
 (sta 143+86) and from sta 148+75±
 S. to sta. 146+75±

Hand jointing lining from
 30" PV @ sta 138+25± to sta 140+35±
 Mixed it water for cement pump.
 Pumping water from line
 @ sta. 156+50±

City forces - none today

Force		Equipmt	
No	lbs	No	Type lbs
1 - Supt	8	2 - pick ups	8
1 - Jumper		1 - flat rack	
1 - Truck		1 - Van (incl)	
3 - Equip op		elect gen + unit	
1 - Wiper op		1 - Skid loader	
2 - Com fr		1 - Compressor	
1 - Tar.		1 - Water truck	
1 - Welder		1 - Lining unit	
9 - Total			

$$\begin{array}{r} 146+75 \\ 143+86 \\ \hline 289 \end{array}$$

$$\begin{array}{r} 7860 \\ 290 \\ \hline 8150 \end{array}$$

$$\begin{array}{r} 148+75 \\ 67+25 \\ \hline 9150 \end{array}$$

8- 4 1/2 Wds Oct 25 - Jan
 AMT } 1/2" cem lining placed today approx: 2900/ day
 To date approx: 8150+ l.f.
 (From sta. 67+25 to sta 148+75)

Working S w/ cement lining unit
 from sta 146+75 to opening # 14
 (sta. 143+86)

Hand joint'g. lining from sta 140+35
 to opening # 14 (sta. 143+86)
 and from 148+75

Hand excavation for access opening
 welded ^{short} M.W. opening in 28" pipe
 @ sta 138+45. Cut out segment of 28"
 pipe for opening # 16 (sta. 160+35)
 City forces - covering 28" pipe
 over trench w/ hot tar application

Free		Equip	
No	Des	No	Type / Des
1	Supt	8	2. pitmen
1	Form	1	flat rock
1	Truck	1	Van (incl)
3	Equip op		elect gen smit
1	Truck op	1	Sharp blade
2	Cem fm	1	Compressor
1	Tdr	1	Water truck
1	Welder	1	Lining unit
2	Sales	1	Weld outfit

$\begin{array}{r} 153+25 \\ 148+75 \\ \hline 450 \\ 8150 \\ \hline 8600 \end{array}$	$\begin{array}{r} 153+25 \\ 67+25 \\ \hline 8600 \end{array}$
--	---

8-41 ✓ Thurs Oct 26, 50 - Fri
 AMT) $\sqrt{}$ cem lining placed today approx 450
 DONE To date approx: 8600+ l.f.

Working N. w/ cement lining unit
 from sta. 148+75± to spring # 15
 (Sta. 153+24±)

Hard pointing lining from sta 143+86±
 to sta. 148+75±

Welded back segment of 28" pipe
 @ spring #14 (sta 143+86±)

Handled excavation for access spring
 #17

City force - covering 28"
 pipe across bridge w/ ~~block~~
 the application of hot tar

Force		Equipmt	
No.	lbs	No.	Type/Spec
1-Engine	8	2	pick up trucks 8
1-Tower		1	flat rack
1-Truck		1	Van (incl)
3. Equip box			elect gen & misc
1-Motor op		1	Compressor
2. Cam for		1	Water truck
1-Truck		1	Line's unit
1-Welder		1	Weld outfit
7-Subs		1	Truck tractor w/ A frame
		1	Hand truck

$$\begin{array}{r} 156+50 \\ 153+24 \\ \hline 89 \end{array}$$

$$\begin{array}{r} 8600 \\ 321 \\ \hline 89 \end{array}$$

$$\begin{array}{r} 156+50 \\ 67+24 \\ \hline 89 \end{array}$$

8-4 1/2 Tr Over 27, 10 - Jan
 AMT } 1/2" cm lining placed today approx: 325
 DONE } To date approx: 8925⁺ lf.

Working S. w/ cement lining unit
 from sta 156+50[±] to opening #15 (sta.
 153+24[±])

Hand jointing lining from sta 148+75[±]
 to opening #15 (sta 153+24[±])

Completed welding back segment
 of 28" pipe @ opening #14 (sta 143+86[±])
 Hand excavation for access opening
 #17 & 18.

City forces - none today.

Visitors - Mr. Sargent, Mr. Thompson
 Ann Pipe.

Force		Equipmt	
No.	Qty	No.	Type
1. Supt	11	2. Pulley trucks	11
1. Foreman		1. Flat rods	↓
3. Equip. op		1. Van (incl)	↓
1. Miller op		1. Compressor	8
2. Cement		1. Water truck	11
1. Trencher	↓	1. Lining unit	↓
1. Walker	8	1. Tractor	↓
3. Sales	↓	w/ A frame	
4. "	11	1. Boring outfit	8
		1. Hand wheel	↓

$$\begin{array}{r} 8925 \\ 575 \\ \hline 9500 \end{array}$$

$$\begin{array}{r} 160+35 \\ 156+50 \\ \hline 385 \\ 190 \\ \hline 575 \end{array}$$

$$\begin{array}{r} 162+25 \\ 160+35 \\ \hline 190 \end{array}$$

$$\begin{array}{r} 162+25 \\ 67+25 \\ \hline 9500 \end{array}$$

7:30 - ~~7:30~~ Mon Oct 30, 50 - Fri.
 AMT) / cement lining placed today approx: 575
 DONE) To date approx: 9500 + 2. f

Working N. w/ cement lining unit
 from sta 156+50± to opening # 16 (sta
 160+35) and from 167+25± S.
 toward opening # 16

Hand pumpg. lining from sta 153+24±
 (opening # 15) to sta 156+50.

Cut out segment of pipe for access
 opening # 17. (sta 166+35±)

Hand excavation for access opening # 18
 (sta 169+83±)

Applied cool ten joints to butt straps &
 affected areas of old pipe @ access opening
 # 13 and # 14.

City forces - none today

Tools		Equipment	
No.	Qty	No.	Type/Qty
1	Supr	2	Pickups 8
1	Iron	1	Flat rack
3	Equip top	1	Van (inval)
1	Mech op	1	Compa
2	Cam fu	1	Water trailer
1	Tdr.	1	Ling unit
1	Welder	1	Truck tractor
2	Sals	1	Weld outfit
		1	Water pump

$$\begin{array}{r} 166+35 \\ 162+25 \\ \hline 410 \end{array}$$

$$\begin{array}{r} 9500 \\ 410 \\ \hline 9910 \end{array}$$

$$\begin{array}{r} 166+35 \\ 67+25 \\ \hline 9910 \end{array}$$

$$\begin{array}{r} 178+78 \\ 168+50 \\ \hline 1028 \end{array}$$

~~New Est. done~~
~~Est~~

9-4/1 ✓ Tue Oct 31 50 Jan

AMT } 1/2" cam lin. placed today approx: 410
done } To date w/ approx: 9910 + 21.

Pipe Cleaned to date approx: 11,150 +.

Working N. w/ cement lining unit from
sta. 167+25 to opening # 17 (sta 166+35)

Hand pointing lining from sta 156+50
to sta 160+35 (opening # 16)

Welded back segment of 28" pipe @
opening # 15 (sta. 153+24) ~~These~~
~~ripplars are fixed~~

Hand excavation for opening # 18 (sta
169+83) Pumping water from ~~low~~
~~line~~ @ approx. sta 167+80
(pipe H posed @ this pt.)

Tools		Equipment	
No.	Qty	No.	Qty
1. Supt	1	2. Pickups	1
1. Saw		1. Flat rock	
3. Equipment		1. Van (fuel)	
1. Mixer op		1. Water truck	
2. Cement		1. Liner unit	
1. Tds		1. Truck tractor	
1. Welder		1. Water pump	
7. Jobs		1. Hand wheel	

8-4:30 Wed, Nov 1, 50 Jan
 AMT 1/2" cem. lining placed today: approx 215
 DONE! To date: approx. 10,125'±

Working S w/ cement lining unit
 from sta. 168+50± to sta. 166+35± (open
 #17)

Hand pointing lining from sta 160+35±
 to sta 162+25±.

Backfilled across open pit # 13
 (sta. 138+45±)

Pumping water from hole cut
 into 28" line @ sta. 172+50±

$$\begin{array}{r}
 168+50 \\
 166+35 \\
 \hline
 215 \\
 10125 \\
 \hline
 9910
 \end{array}$$

$$\begin{array}{r}
 168+50 \\
 67+25 \\
 \hline
 10125
 \end{array}$$

$$\begin{array}{r}
 178+78 \\
 67+25 \\
 \hline
 11053
 \end{array}$$

$$\begin{array}{r}
 177+78 \\
 67+25 \\
 \hline
 11053
 \end{array}$$

$$\begin{array}{r}
 177+78 \\
 168+50 \\
 \hline
 9228
 \end{array}$$

Force		Equipmt	
No.	Qty	No.	Type
1- Supt	1	2- Pick ups	8
1- Fore	1	1- Hat rack	
3- Engineer		1- Van lined	
1- Mixer		1- Water truck	
2- Cen. fan		1- Lin'g unit	
1- Tar		1- Truck truck	
1- Welder		1- Water pump	
7- Sals		1- Hand shovel	
		1- Weld'g outfit	
		1- Ship board	

$$\begin{array}{r} 178+78 \\ 169+83 \\ \hline 895 \end{array}$$

$$\begin{array}{r} 10,125 \\ 1,333 \\ \hline 10,258 \end{array}$$

$$\begin{array}{r} 1683 \\ 169+83 \\ 67+25 \\ \hline 10,258 \end{array}$$

$$\begin{array}{r} 178+78 \\ 67+25 \\ \hline 1,153 \\ 10,258 \\ \hline 895 \end{array}$$

8- 4/2 Thursday, 50 - Jan
 AMT } 1/2" cen. lin'g placed today approx: 133 l /
 DONE } To date: approx. 10,258 + l /

Working w/ cement lining unit
 from sta 168+50± to sta. 169+83 (along #18)

Hand joint'g. lining from sta
 162+25± to 166+35±

Backfilled access way #14 (sta 143+8±)

Pumping water from line between
 stas 172+50± and sta 178+00±
 Weld'g back segments of 26" pipe @
 hole #19

Delays difficulty encountered
 in get mixer + elect gen van
 into position @ hole #18.

Items		Equip	
No.	lbs	No.	Type lbs
1. Sept	8	2. pulleys	8
1. Box		1. flat rack	
3. Lines of		1. Val (inl)	
1. Whip of		1. Water tr	
2. Cen fu		1. Linig. unit	
1. Tdr		1. Tract tractor	
1. Welder		1. Water pump	
6. Sals		1. Weld' outfit	
		1. Slip loader	

$$\begin{array}{r} 17725 \\ 16983 \\ \hline 742 \end{array}$$

$$\begin{array}{r} 10258 \\ 242 \\ \hline 10500 \end{array}$$

$$\begin{array}{r} 17725 \\ 6725 \\ \hline 11050 \end{array}$$

8-4' ✓ Tri Nov 3, 50 - Jan
 AMT? 1/2" cen line plant today; approx 232
 done! To date; approx. = 10,500 l/.

Working S. w/ cement lining unit from
 sta. 172+25⁺ to sta. 169+83⁺ (open #18)

Hand joint'g. lining from sta 166+35⁺
 to sta 168+50⁺

Pumping water from line between
 sta 172+50 and sta 178+00. Open
 cut into 28" line for hose @ sta
 172+50⁺ and sta 177+00⁺

Painted with coal tar paint affected
 straps and affected areas of pipe @
 open # 15 and 16.

Welding back segment of pipe @
 access open # 17 (Sta. 166+35⁺)

Tools		Equip	
No.	Qty	No.	Type
1 - Supt	1	2 - Pick up	1
1 - Fore		1 - Flat rock	
3 - Liner up		1 - Van (incl.)	
1 - Mixer of		1 - Liner unit	
2 - Cement		1 - tread outfit	
1 - Tdr			
1 - Well			
6 - Sals			

$$\begin{array}{r} 176+76 \\ 177+21 \\ \hline 653 \end{array}$$

$$\begin{array}{r} 10,500 \\ 11,653 \\ \hline 153 \end{array}$$

8-1/2" from Nov. 6, 50 - Jan
 AMT } 1/2" cement lining placed today approx: 653
 DONE } To date approx: 11,153[±]
 (sta. 67+25[±] to 178+77.5[±]) 1[±] reach!

Work'g. N. w/ cement lining unit
 from sta 172+25[±] to 178+77.5 (end of
 lining 1[±] reach.)

Hand pointing lining from sta 168+50
 to sta 177+25[±]

Completed weld'g. back segment
 of pipe @ access opening #17 (sta 166+35[±])

Backfilled access opening pit #
 15 (sta 153+24[±])

City Jones - work'g
 #3, 4, 5 - from cuttells - trestles

O.T 16
 today 8
 due - 3 days.

Force		Equipmt	
No.	Hrs	No.	Type
1 - Supt	8	2 - Pickups	8
1 - Forem		1 - Grader	
3 - Lin op		1 - Van (incl)	
1 - Mkr op		1 - Survey unit	
2 - Cam fm		1 - Welding outfit	
1 - Tdr.		1 - Tractor	
1 - Welder		w/ A fence	
6 - Labor			

Electrician Day

8 - 4:30 Tues Nov 7, 52 - Jan
 AMT (Today - Replaced approx 15 ft
 done) 1/2" cen lining which fell
 during course of operation yesterday.
 To date - approx. 11, 153' l.
 (Sta 67+25± to sta 178+77.5± (1st
 reach).

Hand pointing lining from sta
 172+25± to sta. 175+00±.

Welded back segment of pipe
 @ access opening # 18 (sta 169+83)

Painted butt straps, etc
 opening # 17, 18

Force		Equipment	
No.	Hrs	No.	Type
1-Supt	8	1-Pick up	8
1-Skipper		1-Flat rack	
2-Crew		1-Weld'g outfit	
1-Trencher		1-Skip loader	
1-Welder			
3-Labs			

8-4:30 Weds. Nov 8, 10 - Fair
 Backfilled access opening pits
 #s 16, 17, 18.
 Restored tunnels @ sta 169+50±.

Hand pointed lining from
 sta 175+00± to SPV @ sta 178+77±
 Hand pointing now complete
 for 12th reach.

Welded back segment of pipe
 @ access opening # 19 (sta 178+56±)
 Closed M.H. opening. Installed
 4" plug @ top of pipe (sta 178+56±)
 in order to complete hand working.
 on 1/2" cement lining
 Painted to coat the pipe + affected area
 also @ opening cut into line to pump water
 City press - working cutwaters
 trestle # 3, 4, 5.

Force		Equip	
No.	Des	No.	Type
1	Supr	1	pick up truck
1	Skyp	1	Skyp loader
2	Labs		

Thurs Nov 9, 50

Backfilled access way # 19
(Sta. 178+56[±])

- Final cleanup of job. -
Work now complete from 30"
P.V. @ Sta. 177+25[±] to 30" P.V.
@ Sta. 178+77[±]. This is
work for first reach only. Six
additional reaches will be
done at a later date after
new portions of line are
laid in.

City force - started filling 28"
line from 30" P.V. @ Sta. 178+25[±] to
30" P.V. @ Sta. 178+78[±] (afternoon)
Working on actuals truss
#3, 4, 5.

0

0

Bacteriological

— Mon Nov 13, 1900 - Law

Samples of water taken from
^{20' line}
for tests of taste + bacteria
~~count~~ ^{from} between 30" P.V. @
sta. 138+25[±] and 30" P.V. @ Eighth St.

Samples taken for taste
@ stas. 143+69[±], A.V. @ Allegheny
St, B.O. @ trestle # 8, and

@ sta. 174+97[±]. All showed
only ^{very} faint line taste.

Samples taken for bacteria
~~count~~ @ sta. 143+69[±] and 174+97[±]

^{@ 10:00 AM}
Bacteria test requires 48 hrs
for initial results.

89+20⁺ (gang #4) - pick up sm sect. of pipe
chunks of mortar, sacks
hand work req.

Note: Large chunk of mortar
under large tree S.E. of line
also badly skinned bark.

92+20 (gang #5) -

78+94 (line # 3) - pick up loose
 butt straps, chunks of
 mortar, small amt. of
 hand work req. Note on tree^{5'0}
 badly damaged. Small
 amt. to other trees.

71+00± (open # 7) - pick up wind
 chunks of mortar. Some
 hand work req. No

71+00± apparent damage

67+50 (open # 1) pick up lumber
 cem sacks, clean off top
 of chamber - no apparent
 damage.

from table:

1:1 mix produces approx 1.4 c.f.
 65 sacks sand used

1.4		
260	3.3 c.y. ✓	
65	27	91
91.0 c.f.	81	100
	81	19

288	3.43 = 1/2 gal c.f.
100.000	
864	
1360	
1152	
(1/4 c.y) 2080	
3.43 x 6.8 = 23.324	per day
23.32 x 13 batches = 303.2	for day

Pipe I.D. = 28" (1/2" lining)
 makes pipe I.D. = 27 1/2" = 2.29 AU

2.29	.288	93.7	.288
3.14	27.00	25.92	93.7
916	1080	864	2016 ✓
229	2160	2088	864
687	2088		2592

7.1926 ft. in circumference

.04
 2.876 c.f. per l.f. 1/2" lining

.287645	3.19 = 3.2 c.y.	27186.28	per 300 ft
300		81	
862800		57	
		27	
		250	
		243	

3.2 c.y.
 45 gal per c.f. ← NOTE

128
 174.0 for cement mix

X 2 (for cleanup, etc)

288 gal per 300 ft. say 300 gal

∴ 1/2 gal + 1/2 gal = 1 gal per l.f. actually

which checks w/ amt. used
 (300 gal) between sta. 117+25
 and sta 120+25
 (Oct. 9, 1950)

Bonita Pipe Line - relining
 Change Time to -
 24-11-9

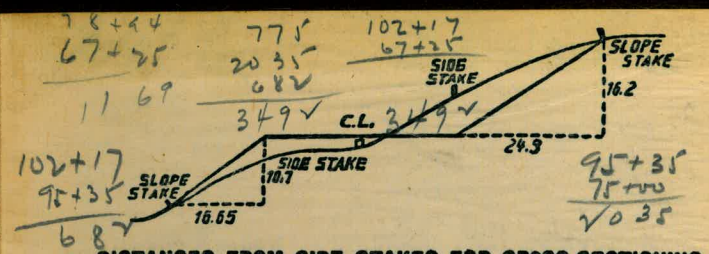
American Pipe
 Bill Dowdy - Supt
 Lon Olding - cleaning sub
 (natl. water man)
 John Day - foreman
 Reed Linnell - trink.

Phone (field office) -
 Dudley 7-4851

Please Return to
 City of San Diego Water Dept
 Room 903 Civic Center
 Telephone F-7511 Ext. 313

J. Kenyon 269

Dodson - sanitation
 c/o Mr. Westly's office



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

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 NEW YORK CHICAGO BOSTON SAN FRANCISCO