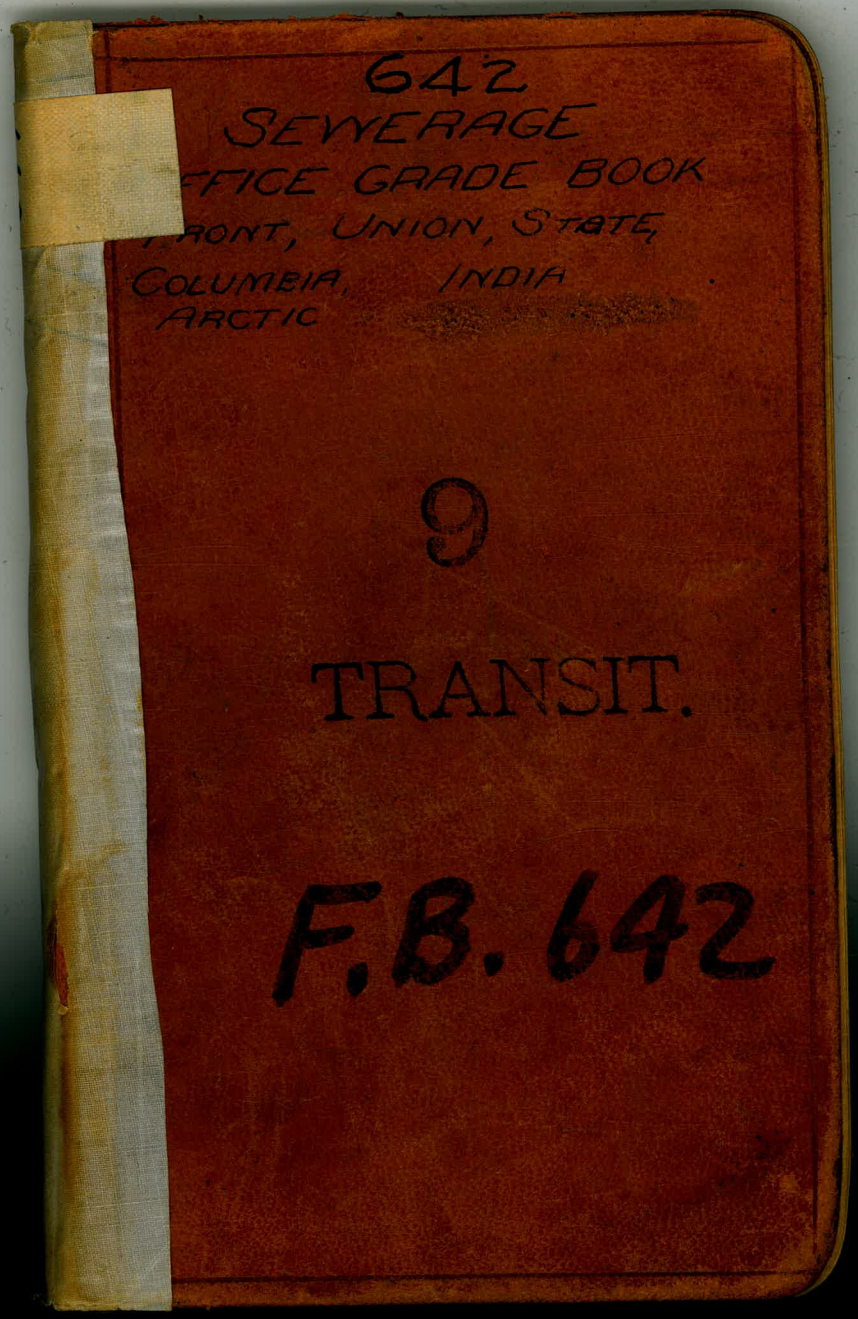
642
SEWERAGE
FFICE GRADE BOOK
RONT, UNION, STATE,
COLUMBIA, INDIA
ARCTIC
9
TRANSIT.
F.B. 642

642

showing the difference of latitude and parture in running 80 chains at any course from 1 to 60 minutes.

Minutes.	Lks.	Minutes.	Lks.	Minutes.	Lks.
1	2 1/3	21	49	41	95 2/3
2	4 2/3	22	51 1/3	42	98
3	7	23	53 2/3	43	100 1/2
4	9 1/3	24	56	44	102 2/3
5	11 2/3	25	58 1/3	45	105
6	14	26	60 2/3	46	107 1/3
7	16 1/3	27	63	47	109 2/3
8	18 2/3	28	65 1/3	48	112
9	21	29	67 2/3	49	114 1/3
10	23 1/3	30	70	50	116 2/3
11	25 2/3	31	72 1/3	51	119
12	28	32	74 2/3	52	121 1/3
13	30 1/3	33	77	53	123 2/3
14	32 2/3	34	79 1/3	54	126
15	35	35	81 2/3	55	128 1/3
16	37 1/3	36	84	56	130 1/3
17	39 2/3	37	86 1/3	57	133
18	42	38	88 2/3	58	135 1/3
19	44 1/3	39	91	59	137 2/3
20	46 2/3	40	93 1/3	60	140

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STATIONERS AND PRINTERS,

SAN FRANCISCO, CAL.

Table for Running on Slopes.

In the following table the first column shows the angle, the second, the number of links to be added to a chain on the slopes, to make one chain, horizontal measurement.

Angle.	Cor. in links	Angle.	Cor. in links.	Angle.	Cor. in links.	Angle.	Cor. in links
°		°		°		°	
4	0·24	11	1·88	18	5·14	25	10·54
5	0 38	12	2·24	19	5 76	26	11·26
6	0·55	13	2·63	20	6·42	27	12·24
7	0·76	14	3·06	21	7·11	28	13·37
8	0·98	15	3·53	22	7·85	29	14·34
9	1·24	16	4·02	23	8·64	30	15·47
10	1·55	17	4·56	24	9·47	35	22·07

Index

Page	Street	Boundaries
2--16	Front	I-Juniper
17--23	Union	I--150'S Ash
24--30	State	H--75'S Ash
32--38	Columbia	H-25'S Ash
39--45	India	H--25'S Ash
46--52	Arctic	H--Ash.

Station Numbers in parentheses are approximate

Front St Roof

Sta	Elev	Grade	Cut		
0	+2.0	-3.57			
+00					
+00.5	6.16	-3.54	9.70	9 8 3/8	
+10.0	6.60	-1.84	8.44	8 5 1/4	
+21.3	6.91	-0.90	7.81	7 9 3/4	
HI=1	7.07	0.0	7.07	7 0 7/8	K
+25	7.46	0.35	7.11	7' 1 3/8"	
+50	7.78	0.70	7.08	7'1"	
+75	7.85	1.06	6.79	6'9 1/2"	
2	8.92	1.41	7.51	7'6 1/2"	
+25	8.65	1.76	6.89	6'10 3/4	
+50	9.04	2.11	6.93	6'11 1/4"	
+75	9.82	2.46	7.36	7'4 3/8"	
3	9.94	2.82	7.12	7'1 1/2"	
+25	10.28	3.17	7.11	7'1 3/8"	
+50	10.40	3.52	6.88	6'10 5/8"	
+75	10.84	3.87	6.97	6'11 1/8"	
4	10.69	4.22	6.47	6'5 1/4	& L.T.
+25	10.99	4.58	6.41	6'4 7/8"	
+50	11.69	4.93	6.76	6'9 1/8	
+75	12.05	5.28	6.77	6'9 1/4	

1.41 02

105
11
2.6

1
50

410
210
105
0

N Line L

H Street

Front

Sta	Elev	Grade	Cut		
5	11.92	5.63	6.29	6' 3½	N.L. 14
+25	13.19	5.98	7.21	7' 2½	
+50	13.40	6.34	7.06	7' 0¾	
+75	13.92	6.67	7.25	7' 3"	
6	14.17	7.04	7.13	7' 1⅝	
+25	14.44	7.39	7.05	7' 0⅝	
+50	14.63	7.75	6.88	6' 10⅝	1.410
+75	15.12	8.10	7.02	7' 0¼	
7	15.35	8.45	6.90	6' 10¾	
+25	15.50	8.80	6.70	6' 8¾"	
+50	15.79	9.15	6.64	6' 7⅝"	
+75	16.20	9.51	6.69	6' 8¼	
8	16.49	9.86	7.03	7' 0⅜	S.L. G
+20	17.25	10.14	7.11	7' 1¾"	
+40	17.48	10.42	7.06	7' 0¾"	S.L.
+60	17.45	10.70	6.75	6' 9"	
+80	17.53	11.00	6.53	6' 6¼	N.L. GX
9+05	17.89	11.20	6.69	6' 8¼	
+30	17.90	11.39	6.51	6' 6¼	
+55	18.02	11.59	6.43	6' 5⅛	
80	18.03	11.79	6.24	6' 2⅞	

Front

Sta	Elev	Grade	cut		
10+05	17.90	11.99	5.91	5' 10 7/8"	
+30	17.80	12.18	5.62	5' 7 1/2"	
+55	17.77	12.38	5.39	5' 4 1/2"	
80	17.74	12.58	5.16	5' 1 1/4"	
11+05	17.90	12.78	5.12	5' 1 1/2"	
+30	14.14	12.97	5.17	5' 2"	
+55	14.54	13.17	5.37	5' 4 3/8"	
+80	19.27	13.37	5.90	5' 10 3/4"	S2F
12	19.83	13.53	6.30	6' 3 5/8"	
+20	20.20	13.68	6.52	6' 6 1/4"	
+40	20.42	13.84	6.58	6' 7"	F St.
+60	20.32	14.00	6.32	6' 3 7/8"	
+85	20.60	14.49	6.31	6' 3 3/4"	N.F. X
D+10	20.92	14.99	5.93	5' 11 1/4"	
+35	21.12	15.48	5.64	5' 7 3/4"	
+60	21.57	15.97	5.60	5' 7 1/4"	
+85	22.15	16.47	5.68	5' 8 1/4"	
14+10	22.95	16.96	5.99	5' 11 7/8"	
+35	23.99	17.45	6.54	6' 6 1/2"	
+60	24.77	17.95	6.82	6' 9 7/8"	

Front

Sta	Elev	Grade	cut		
+85	25.44	18.44	7.00	7' 0"	
15+10	25.94	18.93	7.01	7' 0⅛"	
+35	26.49	19.43	7.06	7' 0¾"	
+60	27.06	19.92	7.13	7' 1⅝"	82 E
+80	27.43	20.32	7.51	7' 6⅛"	
16+1	27.32	20.71	6.61	6' 7¾"	E
+20	27.34	21.10	6.24	6' 2⅞"	
Extra 0	27.94	21.39	6.55	6' 6⅝"	
+40	28.34	21.50	6.44	6' 10¼"	NL E
+65	28.19	21.68	6.51	6' 6⅛"	
+90	28.73	21.86	6.87	6' 10⅝"	
17+15	29.10	22.04	7.06	7' 0¾"	
+40	29.21	22.22	6.99	6' 11⅞"	
+65	29.31	22.40	6.91	6' 10⅞"	
+90	29.53	22.59	6.96	6' 11½"	D 297
18+15	29.67	22.77	6.90	6' 10¾"	100
+40	29.39	22.95	6.44	6' 5⅜"	
+65	29.35	23.13	6.22	6' 2⅝"	
+90	29.78	23.31	6.47	6' 5⅝"	
19+25	30.07	23.56	6.51	6' 6⅛"	SA S
+50	29.50	23.74	4.76	4' 9¼"	

the Extra Plug is a correction the transit-man who put in the Plugs in as directed therefore the correction was necessary J.B. Mendenhall Trans.

Front

Sta	Elev	Grade	Cut		
19+75	29.84	23.92	5.92	5' 11"	D Sk
20	30.02	24.10	5.92	5' 11"	
+25	29.04	24.29	4.75	4' 9"	
+50	30.52	24.47	6.05	6' 0 5/8"	N 2 28
+75	31.74	24.65	7.13	7' 1 5/8"	
21	31.66	24.83	6.83	6' 10"	
+25	31.39	25.01	6.38	6' 4 3/8"	
+50	31.34	25.19	6.19	6' 2 1/4"	
+75	31.34	25.37	6.01	6' 0 1/4"	
22	31.35	25.55	5.80	5' 9 5/8"	72 37 / 1 03
+25	31.44	25.73	5.75	5' 9"	
+50	31.41	25.91	5.50	5' 6"	
+75	31.54	26.09	5.46	5' 5 1/2"	
23	31.53	26.28	5.25	5' 3	
+20	31.75	26.42	5.33	5' 4	L 2 6
+40	30.77	26.57	4.20	4' 1 3/4"	
+60	31.25	26.71	4.54	4' 6 1/2"	6 11
+80	31.65	26.85	4.80	4' 9 5/8"	
24	31.58	27.00	4.58	4' 7"	N 6 x
+25	31.97	27.26	4.71	4' 8 3/4"	

Front

Sta	Elev	Grade	Cut		
24+50	31.91	27.53	4.38	4' 4 5/8"	
+75	32.17	27.79	4.38	4' 4 5/8"	
25	32.82	28.05	4.27	4' 3 1/4"	
+25	32.52	28.32	4.20	4' 2 3/4"	
+50	32.97	28.58	4.39	4' 4 5/8"	10526/100
+75	33.04	28.84	4.20	4' 2 3/4"	
26	32.82	29.10	3.72	3' 8 5/8"	
+25	33.24	29.37	3.87	3' 10 1/2"	
+50	33.60	29.63	3.97	3' 11 5/8"	
+75	38.84	29.89	3.45	3' 5 3/8"	
27	33.86	30.16	3.70	3' 8 3/4"	S L B
+20	35.02	30.37	4.65	4' 7 3/4"	
+40	36.12	30.58	5.54	5' 6 1/2"	B
+60	36.95	30.79	6.16	6' 1 7/8"	
+80	36.66	31.0	7.66	7' 7 7/8"	R L B X
28+05	40.13	31.75	8.38	8' 4 5/8"	
+30	41.02	32.50	8.52	8' 6 1/4"	
+55	41.90	33.25	8.65	8' 7 3/4"	9.52/100
+80	42.77	34.00	8.77	8' 9 1/4"	
29+04	43.44	34.75	8.73	8' 8 5/8"	

Front

Sta	Elev	Surface	Cut		
29+30	43.94	35.50	8.47	8' 5 5/8"	
+35	44.38	36.25	8.13	8' 1 5/8"	
+80	44.59	37.00	7.59	7' 7 1/8"	
30+05	44.66	37.75	6.91	6' 10 7/8"	
+30	45.06	38.50	6.56	6' 6 3/4	
+55	45.56	39.25	6.31	6' 3 3/4"	
+80	46.79	40.0	6.79	6' 9 1/2	SL A
31	46.75	40.26	6.49	6' 5 7/8"	
+20	46.07	40.53	7.54	7' 6 1/2	A SL
+40	47.65	40.79	6.86	6' 10 3/8"	
+60	48.79	41.05	7.74	7' 8 7/8"	SL A
+85	49.27	41.38	7.89	7' 10 3/4	
32+10	49.76	41.71	8.05	8' 0 5/8"	
+35	50.24	42.04	8.20	8' 2 3/8"	
+60	50.48	42.37	4.11	4' 1 3/4"	SL
+85	50.56	42.70	7.86	7' 10 3/4"	
33+10	50.66	43.03	7.63	7' 7 3/4	
+35	50.58	43.36	7.22	7' 2 5/8	
+60	50.64	43.68	6.96	6' 11 1/2"	
+85	50.69	44.01	6.64	6' 8 1/8	

SL Ash

Trans-St Nof D.

Sta	Elev	Grade	Cut		
34+10	50.90	44.34	6.56	6' 6¾"	
+35	50.87	44.67	6.20	6' 2⅜"	
+60	51.34	45.00	6.34	6' 4⅝"	SL Hok
+80	51.67	45.24	6.43	6' 5⅛"	
35	51.02	45.48	5.54	5' 6½"	Ash
+20	50.86	45.71	5.15	5' 1¾"	
+40	51.25	45.95	5.30	5' 3⅝"	NL Ash
+65	51.87	46.25	5.62	5' 7½"	
+90	53.17	46.55	6.62	6' 7½"	
36+15	53.46	46.84	6.62	6' 7½"	
+40	52.50	47.14	5.36	5' 4⅜"	
+65	49.64	47.44	2.20	2' 2⅜"	
+90	48.63	47.73	0.90	0' 10¾"	
37+15	48.25	48.03	0.22	0' 2⅜"	1134 Cut
+40	48.59	48.33	0.26	0' 3⅛"	
+65	49.57	48.63	0.94	0' 11¼"	
+90	51.02	48.93	2.09	2' 1⅛"	
38+15	52.40	49.23	3.17	3' 2"	
+40	53.53	49.52	4.01	4' 0⅛"	
+60	54.54	49.76	4.78	4' 9⅜"	

SL Line Beech

Irons St Nor D

Sta.	Elev.	Grade	Cut		
+80	55.42	50.00	5.42	5' 9 7/8"	
39	57.54	50.33	7.21	7' 2 1/2"	
+20	58.94	50.67	8.27	8' 3 1/4"	
+45	59.49	51.08	8.41	8' 4 3/4"	
+70	60.07	51.50	8.57	8' 6 7/8"	
+95	60.74	51.92	8.82	8' 9 7/8"	
40+20	60.68	52.33	8.35	8' 4 1/4"	
+45	61.87	52.75	9.12	9' 1 1/2"	
+70	61.89	53.17	8.72	8' 8 5/8"	
+95	59.41	53.58	5.83	5' 9 3/4"	
41+20	56.76	54.00	2.76	2' 9 1/8"	
+45	55.29	54.42	0.81	0' 9 3/4"	
+70	55.75	54.83	0.92	0' 11"	
+95	56.23	55.25	0.98	0' 11 3/4"	
42+20	56.55	55.67	0.88	0' 10 5/8"	
+40	56.71	56.00	0.71	0' 8 1/2"	
+60	57.07	56.33	0.74	0' 8 7/8"	
+80	57.62	56.67	0.95	0' 11 3/8"	
43	58.23	57.00	1.23	1' 2 3/4"	X
+25	63.06	58.37	4.69	4' 8 1/4"	

1.6667
1000

Beech

S L Beech

N

S line Cedar

Cedar Lt

N L ine Cedar 55.00

Transit St No 8

Sta	Elev	Grade Elev		
+50	67.95	59.75	8.20	8' 2 3/4"
43+75	70.57	61.13	9.44	9' 5 1/4"
44	71.26	62.50	8.76	8' 9 1/8"
+25	71.45	63.88	7.97	7' 11 5/8"
+50	73.69	65.25	8.44	8' 5 1/4"
+75	75.32	66.63	8.69	8' 8 1/4"
45	76.78	68.00	8.79	8' 9 1/2"
+25	78.05	69.38	8.67	8' 8"
+50	78.89	70.75	8.14	8' 1 3/4"
+75	79.30	72.13	7.17	7' 2"
46	79.47	73.50	5.97	5' 11 5/8"
+20	79.33	74.00	5.33	5' 4"
+40	80.09	74.50	5.59	5' 7 5/8"
+60	80.84	75.00	5.84	5' 10 1/4"
+80	80.74	75.50	5.24	5' 2 7/8"
47+05	80.96	76.13	4.83	4' 10 1/8"
+30	81.06	76.85	4.21	4' 2 1/2"
+55	81.94	77.48	4.50	4' 6"
+80	82.25	78.00	4.25	4' 3"
48+05	82.01	78.63	3.38	3' 4 5/8"

6.60 / 100

20.75 / 100

X

S S Rate

Rate Sh.

N S Rate

Transit-St-Nof D

Sta	Elev	Grade	cut	
+30	82.24	79.35	2.93	2'11⅛"
+55	82.80	79.97	2.83	2'10"
+80	83.92	80.50	3.42	3'5"
49+05	84.70	81.13	3.57	3'6⅞"
+30	85.25	81.75	3.50	3'6
+55	86.26	82.38	3.88	3'10⅝"
+80	86.94	83.00	3.94	3'11¾"
50	87.64	83.50	4.14	4'1½"
+20	88.74	84.00	4.74	4'8⅞"
+40	89.44	84.50	4.94	4'11¾"
+60	89.99	85.00	4.99	4'11⅞"
+85	91.06	85.33	5.73	5'8⅝"
51+10	91.55	86.66	4.89	4'10¾"
+35	92.63	87.50	5.13	5'1⅛"
+60	93.80	88.33	5.47	5'5½"
+85	95.08	89.17	5.91	5'10⅞"
52+10	96.41	89.99	6.42	6'5"
+35	98.44	90.83	7.61	5'7⅞"
+60	99.01	91.67	7.34	7'4⅝"
+85	99.79	92.50	7.29	7'3½"

9.5 / 100

3.33333 / 100

L Line & Elev

& Elev St.

N Line & Elev

From St Nof B

Sta	Elev	Grade	Cut	
53+10	99.87	93.33	6.54	6'6½"
+35	100.46	94.17	6.28	6'3⅜"
+60	102.02	95.00	7.02	7'0¼"
+80	103.09	95.26	7.83	7'10"
54	104.27	95.52	8.65	8'7¾"
+20	103.45	94.78	7.67	7'8"
+40	102.77	96.33	6.44	6'5¼"
+65	101.52	96.61	4.91	4'10¾"
+90	102.11	96.87	5.24	5'2¾"
55	102.49	97.16	5.33	5'4"
+40	103.06	97.44	5.62	5'7½"
+65	103.23	97.72	5.51	5'6⅛"
+90	104.09	98.00	6.09	6'1⅛"
56+15	105.79	100.17	5.62	5'7½"
+40	108.19	102.33	5.86	5'10⅜"
+65	110.40	104.50	5.90	5'10¾"
+90	112.81	106.67	6.14	6'1¾"
57+15	115.70	108.83	6.87	6'10½"
+40	117.11	111.00	6.11	6'1⅜"
+60	117.41	111.50	5.91	5'10¾"

1.113
100

96.33
95.78
.55

20
5
100

S Line Tie 101.3

Tie St.

N Line Tie
Flust tank

St Grade 104.00

S Line Grade 117.50

Trans-St-No 8

Sta.	Elev.	Grade cut				
+80	117.79	112.00	5.79	5	9 1/2	2.5-60
25	118.00	112.50	5.50	5	6	
+20	118.33	113.00	5.33	5	4	
+45	120.79	115.50	5.29	5	3 5/8	X
+70	123.73	118.00	5.73	5	8 3/4	
+95	126.11	120.50	5.61	5	7 3/4	
59+20	129.04	123.00	6.04	6	1/2	
+45	131.57	125.50	6.07	6	7/8	
+70	134.44	128.00	6.44	6	5 1/4	
+95	137.22	130.50	6.72	6	8 5/8	
60+20	139.87	133.00	6.87	6	10 1/2	
+45	142.44	135.50	6.94	6	11 1/4	
+70	144.86	138.00	6.86	6	10 3/8	
+95	147.71	140.50	7.21	7	2 1/2	
61+20	150.92	143.00	7.32	7	3 7/8	X
+40	151.05	144.00	7.05	7	5/8	
+60	151.70	145.00	6.70	6	8 3/8	
+80	152.30	146.00	6.30	6	3 5/8	
62	153.14	147.00	6.14	6	1 3/4	X
+25	154.64	148.83	5.81	5	9 3/4	

Grape St

N line Grape

S line Hawthorn 150.50

Hawthorn St

N line Hawthorn

Front St - N of D

Sta	Elev	Grad	cut		
62 +50	156.30	150.67	5.63	5	7 5/8
+75	158.99	152.50	5.89	5	10 3/4
63	160.43	154.33	6.10	6	1 1/4
+25	162.14	156.17	5.97	5	11 5/8
+50	164.32	158.00	6.32	6	3 7/8
+75	166.24	159.83	6.45	6	5 3/8
64	168.24	161.67	6.57	6	6 7/8
+25	170.48	163.50	6.99	6	11 7/8
+50	172.70	165.33	7.37	7	4 1/2
+75	174.80	167.17	7.63	7	7 5/8
65	176.98	169.00	7.98	7	9 3/4
+20	177.34	169.25	8.14	8	1 3/4
+40	177.87	169.50	8.37	8	4 1/2
+60	178.31	169.75	8.56	8	6 3/4
+80	178.26	170.00	8.26	8	3 1/4
66+00	176.60	171.00	5.60	5	7 1/4
+30	175.16	172.00	3.16	3	1 7/8
+55	174.72	173.00	1.72	1	8 3/16
+80	175.00	174.00	1.00	1	0
67+05	177.90	176.00	2.90	2	10 3/4

Sta 62+88.4

Sline Sway 176.50

Sway St

N line Sway

Grass-St Proj A

Sta	Elev	Inv	cut	
+35	180.16	176.00	4.16	4 3/4
+35	182.40	177.00	5.40	5 4 3/4
+80	184.04	178.00	6.04	6 0 1/2
68+05	185.41	179.00	6.41	6 4 7/8
+30	186.80	180.00	6.80	6 9 5/8
+35	187.96	182.50	5.46	5 5 1/2
+80				
Total length of proj			68+01	

Rail 14

Flush Tank Grade 186.64
S Line Jumper

Union St N of D

Sta	Elev	Grade	Cut	
0	4.14	-4.00	8.14	8' 8 7/8
+10	4.78	-3.33	8.33	8' 9
+20	4.96	-3.09	8.05	8' 0 5/8
+31	5.23	-2.64	7.87	7' 10 1/2
+40	5.33	-2.18	7.51	7' 6 1/8
+50	5.35	-1.73	7.08	7' 1
+56=1+56	5.46	-1.50	6.96	6' 11 1/2
+25	6.19	-1.11	6.30	6' 3 5/8"
+50	5.39	-0.71	6.10	6' 1 1/4"
+74	6.90	-0.32	6.22	6' 2 5/8"
2	6.21	+0.07	6.14	6' 1 5/8"
+24	6.54	0.46	6.08	6' 1"
+50	6.97	0.86	6.11	6' 1 1/8"
+75	7.26	1.25	6.01	6' 0 1/8"
3	7.65	1.64	6.01	6' 0 1/8"
+24	8.04	2.04	6.01	6' 0 1/8"
+50	8.23	2.43	5.90	5' 10 3/4"
+74	8.68	2.82	5.86	5' 10 3/8"
4	9.26	3.21	6.05	6' 0 5/8"
+24	9.94	3.61	6.33	6' 4"
+50	10.29	4.00	6.29	6' 3 1/2"
+74	10.87	4.39	6.48	6' 5 3/4"
5	11.03	4.78	6.25	6' 3"

56
15
41

PC

0+41 N of D St

PT

SE H

10.3 Street Grade

H St

N of H St

Union St - N of D

Sta.	Elev	Grade	cut		
5+25	11.84	5.18	6.66	6' 7 7/8"	
+50	12.10	5.57	6.43	6' 5 1/8"	
+75	12.36	5.96	6.40	6' 4 3/4"	
6	12.86	6.36	6.50	6' 6"	
+25	13.35	6.75	6.60	6' 7 1/4"	
+50	13.45	7.14	6.31	6" 3 1/4"	
+75	14.43	7.53	6.90	6' 10 3/4"	
7	14.80	7.93	6.87	6' 10 1/2"	
+25	14.59	8.32	6.27	6' 3 1/4"	
+50	14.97	8.71	6.26	6' 3 1/4"	
+75	15.50	9.11	6.39	6' 4 5/8"	
8	15.96	9.50	6.46	6' 5 3/4"	×
+37.5	16.45	9.93	6.52	6' 6 1/4"	
+75	16.92	10.36	6.57	6' 6 7/8"	
9	16.96	10.66	6.30	6' 3 7/8"	
+25	17.47	10.93	6.54	6' 6 1/2"	
+50	17.77	11.22	6.55	6' 6 5/8"	
+75	18.14	11.51	6.63	6' 7 5/8"	
10	18.48	11.79	6.69	6' 8 1/4"	
+25	18.68	12.08	6.60	6' 7 1/4"	

157.47/100

1.1406:1.00

SZG 9.5.1 x 16.3 Street-Grade

GSt-

NZ Gst-

Union St N of D

Sta	Elev	Grade	Cut	
10+50	18.93	12,37	6.56	6' 6¾"
+75	19,57	12,65	6.92	6' 11"
11	19,80	12,94	6.86	6' 10⅜"
+25	20,12	13.23	6.89	6' 10⅝"
+50	20.38	13.51	6.87	6' 10½"
+75	20,42	13.80	6.62	6' 7½"
12+12.5	20.70	14.23	6.47	6' 5⅝"
+50	20.84	14.66	6 1.8	6' 2⅛"
+75	21.60	14.95	6.66	6' 7⅛"
13	21.74	15,23	6.51	6' 6⅛"
+25	22.17	15.52	6.65	6' 7¾"
+50	22.47	15.81	6.66	6' 7⅞"
+75	22.43	16.09	6.34	6' 4⅛"
14	22.59	16.38	6.21	6' 2½"
+25	22.60	16.67	5.93	5' 11⅛"
+50	22.83	16.95	5.88	5' 10⅝"
+75	23.17	17.24	5.93	5' 11⅛"
15	23.61	17.53	6.08	6' 1"
+25	23.71	17.81	5.90	5' 10⅜"
+50	24.13	18.00	6.13	6' 1⅝"

1.1466.00

L Z F St 20.5 Grade
F St
N Z F St

L Z E St 18.00 X 26.00 Grade

Union St. Nod D

Sta	Elev	Grade	Cut	
15+87.5	23.71	18.26	5.45	5' 5 3/8"
16+25	24.41	18.53	5.88	5' 10 5/8"
+50	24.74	18.70	6.04	6' 0 1/2"
+75	24.87	18.88	5.99	5' 11 7/8"
17	25.14	19.05	6.09	6' 1 1/8"
+25	25.06	19.23	5.83	5' 11 1/8"
+50	25.12	19.40	5.72	5' 8 5/8"
+75	25.26	19.58	5.68	5' 7 1/8"
18	25.14	19.75	5.39	5' 4 3/4"
+25	25.15	19.93	5.22	5' 2 5/8"
+50	25.25	20.10	5.15	5' 1 3/4"
+75	25.84	20.28	5.56	5' 6 3/4"
19	26.34	20.45	5.93	5' 11 1/8"
+25	26.92	20.63	6.29	6' 3 1/2"
+50	26.27	20.80	5.47	5' 5 5/8"
+75	27.33	20.98	6.35	6' 4 1/4"
20	27.04	21.15	5.89	5' 10 3/4"
+25	26.02	21.33	4.69	4' 8 1/4"
+50	28.24	21.50	6.74	6' 8 3/4"
+75	28.93	21.68	7.15	7' 1 3/4"

E St-

N 2 E St-

+

S 2° 2 St-

27.3 Grade

20+12.5 2 St-

N 2 2 St-

Union St - N of D

Sta	Elev	Grade	cut	
21	29.01	21.85	7.16	7' 1 7/8"
+25	28.73	22.03	6.70	6' 8 3/4"
+50	28.26	22.20	6.06	6' 0 3/4"
+73	27.99	22.38	5.61	5' 7 3/8"
22	27.19	22.55	4.64	4' 7 5/8"
+25	27.25	22.73	4.52	4' 6 1/4"
+50	27.42	22.90	4.52	4' 6 1/4"
+75	27.56	23.08	4.48	4' 5 3/8"
23	27.36	23.25	4.11	4' 1 7/8"
+20	27.70	23.39	4.31	4' 3 3/4"
+40	27.14	23.53	3.61	3' 7 1/4"
+60	27.22	23.67	3.55	3' 6 5/8"
+80	27.59	23.81	3.78	3' 9 3/8"
24	28.13	23.95	4.18	4' 2 1/8"
+25	27.88	24.13	3.75	3' 9
+50	27.99	24.30	3.69	3' 8 3/4"
+74	28.31	24.48	3.83	3' 10"
25	28.61	24.65	3.96	3' 11 1/2"
+25	28.99	24.83	4.16	4' 1 7/8"
+50	29.04	25.00	4.04	4' 1"

x

Pitch

82 Cut - 29.0 Cut

Cut -

82 Cut -

x 25.00

29.56 − 26.52 = 3.04

7.8 − 1.7 = .61 ; .61 − 3.05

31.39 − 30.78 = .61

Union St N. of 2.

Sta	Elev	Grade	Cut.	
25+75	29.42	25.76	3.66	3' 7 7/8
26	30.55	26.52	4.03	4' 0 3/8
+25	32.23	27.28	4.95	4' 11 3/8
+50	33.99	28.04	5.95	5' 11 3/4
+75	35.75	28.80	6.95	6' 11 3/4
27	36.98	29.56	7.42	7' 5"
+20	37.64	30.17	7.47	7' 5 5/8
+40	37.47	30.78	6.69	6' 8 1/4
+60	38.01	31.39	6.62	6' 7 1/2
+80	38.66	32.00	6.66	6' 7 7/8
28+05	39.32	32.40	6.92	6' 11"
+30	39.69	32.80	6.49	6' 10 3/4
+55	40.37	33.20	7.17	7' 2"
+80	40.41	33.60	6.81	6' 9 3/4
29+05	40.40	34.00	6.40	6' 9 5/8
+30	40.99	34.41	6.58	6' 7
+55	40.76	34.80	5.96	5' 11 1/2
+80	40.68	35.21	5.47	5' 5 5/8
30+05	40.68	35.61	5.07	5' 0 7/8

SZB

B St

N Z B St

37.5 Street Grade

Union St. Road.

Sta	Elev	Grade Cut.		
30+30	40.99	36.01	4.98	4' 11 3/4
+55	41.25	36.41	4.84	4' 10 1/8
+80	41.89	36.81	5.08	5' 1"
31	41.20	37.13	4.07	4' 0 7/8
+20	42.33	37.45	4.78	4' 9 3/4
+40	41.57	37.72	3.85	3' 10 1/4
+60	42.24	37.99	4.25	4' 3"
+85	42.91	38.32	4.59	4' 7 1/8
32+10	43.25	38.66	4.59	4' 7 1/8
+35	43.27	38.99	4.28	4' 3 3/4
+60	43.99	39.33	4.66	4' 7 7/8
+85	44.49	39.66	4.83	4' 10"
33+10	45.30	40.00	5.30	5' 3 5/8
+35	Total length of pipe 92+56			
+60				
+85				
34+10				
+35				
+60				

1.60029 / 100

S. Line of A. St. Sta 42.7 Grade

A. St. x 37.45

N. Line A. St.

47.29
44.00
3.29

Thurston Ave. 44.50

S. Line of Ash

State St - N of H

Sta	Elev	Grade	Cut -	
0				
+ 9.5				
+ 19				
+ 28.5				
+ 38				
+ 47.5				
+ 57				
+ 24 -	9.53	3.43	6.10	6' 1 1/4
+ 5 -	9.84	3.87	5.97	5' 11 5/8
+ 7 -	10.83	4.80	6.03	6' 0 3/8
2	10.34	4.73	5.61	5' 7 3/8
+ 25 -	10.76	5.17	5.59	5' 7 1/8
+ 50	10.64	5.60	5.04	5' 0 1/2
+ 75 -	11.57	6.03	5.48	5' 5 3/4
3	12.18	6.47	5.71	5' 8 1/2
+ 25 -	12.73	6.99	5.74	5' 4 7/8
+ 50	12.79	7.33	5.40	5' 8 3/4
+ 75 -	13.41	7.77	5.64	5' 7 5/8
4	13.94	8.20	5.78	5' 9 3/4

State St - N of H

Curve to State

		Grade	Cut -	notes at Vinonain
0				
+ 9	7.53	-4.50	12.03	12 3/8
+ 19	7.66	-3.82	11.48	11 5 3/4
+ 28	7.89	-3.07	10.96	10 11 1/2
+ 38	7.65	-2.39	10.04	10 1/2
+ 47	7.37	-1.43	9.00	9 00
+ 57	8.08	-0.95	9.03	9 3/8
+ 66	8.14	+0.20	7.94	7 11 1/4
+ 76	8.87	0.46	8.39	8 4 3/4
+ 80 = 1	8.86	1.24	7.62	7 7 1/2
1 + 05 - 1 + 25	9.40	3.49	5.97	5 11 5/8

7.63 - 1.00

N. of H.

Sta. St- W.M.H

Sta	Elev	Grade	Cut-	
11+37.5	14.56	8.85	5.71	5' 8½
+75-	15.01	9.50	5.51	5' 6⅛
5-	15.29	9.66	5.63	5' 7⅝
+25-	15.46	9.83	5.63	5' 7⅝
+50	15.78	9.99	5.79	5' 9½
+75-	16.05	10.16	5.89	5' 10⅝
6	16.36	10.32	6.04	6' 0½
+25-	16.42	10.49	5.93	5' 11⅛
+50	16.60	10.65	5.95	5' 11⅜
+75-	16.57	10.81	5.76	5' 9⅛
7	16.64	10.98	5.66	5' 7⅛
+25-	16.51	11.14	5.37	5' 4½
+50	16.82	11.31	5.51	5' 6⅛
+75-	16.71	11.47	5.24	5' 2⅞
8+12.5	16.95	11.72	5.23	5' 2¾
+37.5	16.54	11.96	4.58	4' 7"
+75-	16.31	12.12	4.09	4' 1⅛
9	16.18	12.29	3.89	3' 10⅝
+25-	16.17	12.45	3.72	3' 8⅝
+50	16.58	12.62	3.96	3' 11½

NZ Sd1-

SZ F1-
F1-
NZ F1s-

Stake 21 – N of H

Sta	Elev	Grade	cut	
9+75	16.99	12.78	4.21	4' 2½
10	17.42	12.95	4.47	4' 5⅝
+25	17.64	13.11	4.53	4' 6⅜
+50	17.77	13.27	4.50	4' 6"
+75	18.14	13.44	4.70	4' 8¾
11	18.31	13.60	4.71	4' 8½"
+25	18.48	13.77	4.71	4' 8½
+50	18.55	13.94	4.61	4' 7⅜
+87.5	18.54	14.19	4.35	4' 4¼
12+25	19.08	14.43	4.65	4' 7¾
+50	19.22	14.59	4.63	4' 7⅝
+75	19.42	14.76	4.66	4' 7⅞
13	19.80	14.92	4.88	4' 10⅝
+25	20.41	15.09	5.32	5' 3⅞
+50	20.50	15.25	5.25	5' 3"
+75	20.66	15.42	5.24	5' 2⅞
14	20.92	15.58	5.34	5' 4⅛
+25	21.13	15.74	5.41	5' 4⅞
+50	21.39	15.91	5.48	5' 5¾
+75	21.39	16.07	5.32	5' 3⅞

S 7 E 21-
E 21-
N 7 E 21-

Station 15 to 19

Sta	Elev	Grade Cut		
15	21.55	16.24	5.31	5' 3 3/4
+25	21.91	16.40	5.51	5' 6 1/8
+50	22.17	16.56	5.61	5' 7 1/8
+75	23.23	16.73	6.50	6' 6"
16	22.76	16.89	5.87	5' 10 1/2
+25	21.99	17.06	4.93	4' 11 1/8
+50	22.69	17.23	5.46	5' 5 1/2
+75	22.95	17.39	5.56	5' 6 3/4
17	22.84	17.56	5.28	5' 3 1/8
+25	22.69	17.72	4.97	4' 11 3/8
+50	22.90	17.89	5.01	5' 0 1/8
+75	23.24	18.05	5.19	5' 2 1/4
18	23.49	18.22	5.27	5' 3 1/4
+25	23.56	18.38	5.18	5' 2 1/8
+50	23.68	18.54	5.14	5' 1 3/4
+75	23.61	18.71	4.90	4' 10 3/4
19	23.75	18.87	4.88	4' 10 5/8
+20	24.05	19.00	5.05	5' 0 5/8
+40	23.72	19.13	4.59	4' 7 1/8
+60	24.73	19.58	5.15	5' 1 3/4

.65 75' 1.08

St 2 St

19+54 19.55
+60 19.58
+80 19.59

St Steel

NZ St

St 2 C St

C St

Stake 21-100 ft

Sta	Elev	Grade	Cut	
19+80	23.99	19.68	4.31	4' 3¾
20	25.23	19.98	5.25	5' 3
+25	24.74	20.07	4.67	4' 8
+50	24.90	20.16	4.74	4' 8¾
+75	24.98	20.25	4.73	4' 8¾
21	25.09	20.34	4.75	4' 9
+25	24.86	20.43	4.43	4' 5¼
+50	24.91	20.52	4.39	4' 4¾
+75	24.98	20.68	4.30	4' 3¼
22	25.28	20.84	4.44	4' 5¼
+25	25.37	21.01	4.37	4' 4½
+50	25.45	21.17	4.28	4' 3¾
+75	25.56	21.34	4.22	4' 2¾
23	25.63	21.50	4.13	4' 1½
+20	26.68	21.95	4.73	4' 8¾
+40	27.67	22.34	5.28	5' 3¾
+60	28.77	22.84	5.93	5' 11¼
+80	29.45	23.29	6.16	6' 1¾
24+03	30.91	23.85	7.06	7' 0¾
+30	31.70	24.41	7.29	7' 3½

NZ Cut

1 2
5½
6½

SZ B

B Cut

NZ B Cut

Stake St N of H

Sta	Elev	Grade	Cut	
24+55	32.41	24.97	7.44	7' 5 1/4
+60	32.88	25.53	7.35	7' 4 1/4
25+05	33.64	26.09	7.55	7' 6 5/8
+30	34.49	26.64	7.85	7' 10 1/4
+55	35.26	27.20	8.06	8' 0 3/4
+80	35.75	27.76	7.99	7' 11 7/8
26+05	35.80	28.32	7.48	7' 5 3/4
+30	35.12	28.88	6.24	6' 2 7/8
+55	35.27	29.44	5.83	5' 10"
+80	35.53	30.00	5.53	5' 6 3/8
27	35.65	30.13	5.52	5' 6 1/4
+20	36.48	30.24	6.22	6' 2 5/8
+40	36.13	30.39	5.74	5' 8 7/8
+60	36.81	30.52	6.29	6' 3 1/2
+80	36.58	30.68	5.90	5' 10 3/4
28+10	36.47	30.85	5.62	5' 7 1/2
+35	36.83	31.02	5.81	5' 9 3/4
+60	37.24	31.18	6.06	6' 0 1/4
+85	37.88	31.34	6.54	6' 6 1/2
29+10	38.58	31.51	7.07	7' 0 7/8

2.2368 : 100
1

A 2 A St

A St

N 2 A St

29.25
27.60
2.25

Stan St N of H

Sta	Elev	Grad cut		
29+35	38.48	31.67	6.81	6' 9¾
+60	35.82	31.84	3.98	3' 11¾
+84	33.83	32.00	1.83	1' 10"
30+10				
+35				
+60				

Total length of pipe 29+70

301.3
27.60
2.3

8.13
32.82
41.05
38.05
3.00

Flush Tank 41.05

St St 41.75 38.05
32.55

4.08
33.14
43.22
38.05
5.17

Columbia N of H

131
56
75

Sta	Elev	Grade	Cut-		
0	4.84	-5.00	9.84	9	10 1/4
+10	4.61	-4.36	8.97	8	11 5/8
+20	4.59	-3.73	8.32	8	3 7/8
+30	4.58	-3.09	7.67	7	8
+40	4.52	-2.45	6.97	6	11 3/4
+50	5.19	-1.82	7.01	7	1/8
56=1	5.26	-1.50	6.76	6	9 1/8 X
+25	5.07	-0.96	6.03	6	3/8
+50	5.13	-0.42	5.55	5	6 5/8
+75	6.80	+0.12	6.68	6	8 1/8 level
2	7.06	+0.67	6.39	6	4 3/4
+25	7.49	1.21	6.28	6	3 3/8
+50	7.74	1.75	5.99	5	11 7/8
+75	8.10	2.29	5.41	5	9 7/8
3	4.62	2.83	5.79	5	9 1/2
+25	8.96	3.37	5.59	5	8 1/8
+50	9.69	3.92	5.77	5	9 1/4

2 1999 1000

P C

N Z H ft - 17

131 in Curve End of last Rod Reading

Columbia St- N of H

Sta	Elev	Grade	Cut-		
3+75-	9.81	4.46	5.35	5' 4 1/4	
4	9.98	5.00	4.98	4' 11 3/4	x
+37.5	10.77	5.22	5.55	5' 6 5/8	
+75-	10.43	5.45	4.98	4' 11 3/4	
5-	11.56	5.60	5.96	5' 11 1/2	
+25-	11.55	5.74	5.81	5' 9 7/8	
+50	11.41	5.89	5.52	5' 6 1/4	
+75-	11.84	6.04	5.80	5' 9 5/8	
6	12.20	6.19	6.01	6' 0 1/8	
+25-	12.26	6.34	5.92	5' 11"	
+50	12.32	6.49	5.83	5' 10	
+75-	12.60	6.64	5.96	5' 11 1/2	
7	12.83	6.79	6.04	6' 0 1/2	
+25-	12.76	6.94	5.82	5' 9 7/8	
+50	13.04	7.09	5.95	5' 11 3/8	
+75-	13.32	7.23	6.09	6' 1/4	
8+12.5	13.68	7.46	6.22	6' 2 5/8	
+50	13.00	7.68	5.32	5' 3 1/8	
+75	12.99	7.43	5.16	5' 1 7/8	
9	13.02	7.98	5.04	5' 0 1/2	

5.85-74
100

42 G St-
G St-
N2 G St-

I. Line F. St.
F. St.
I. Line F. St.

Columbia St. N. of E.

Sta.	Elev.	Grade	Cut.	
9+25	13.05	8.13	4.92	4'11
+50	13.34	8.28	5.10	5' 1 1/4
+75	13.76	8.43	5.33	5' 4"
10	14.04	8.57	5.47	5' 5 5/8
+25	13.84	8.72	5.12	5' 1 1/2
+50	14.53	8.87	5.66	5' 8
+75	14.34	9.02	5.32	5' 3 7/8
11	14.62	9.17	5.45	5' 5 3/8
+25	14.54	9.32	5.22	5' 2 5/8
+50	14.71	9.47	5.24	5' 4 1/8
+87.5	14.69	9.69	5.00	5' 0
12+25	15.11	9.91	5.20	5' 2 3/8
+50	15.36	10.06	5.30	5' 3 5/8
+75	15.59	10.21	5.38	5' 4 7/8
13	16.16	10.36	5.80	5' 9 5/8
+25	16.44	10.51	5.97	5' 11 5/8
+50	16.46	10.66	5.80	5' 9 5/8
+75	16.58	10.81	5.77	5' 9 1/4
14	16.415	10.96	5.49	5' 5 7/8
+25	16.66	11.11	5.55	5' 6 5/8

5-95-74
100

S. Line of E. St.
E. St.
N. Line of E. St.

Columbia St N of L.

Sta	Elev.	Grade	Cut.		
14+50	16.81	11.26	5.65	5' 7 3/4	
+75	66.72	11.40	5.32	5 3 7/8	
15	16.60	11.55	5.05	5' 0 5/8	.5.95 74 1 CD
+25	16.53	11.70	4.83	4' 10 1/4	S. Line of D. St.
+50	16.75	11.85	4.90	4' 10 3/4	
+75	17.96	12.00	5.96	5 11 1/2	× D. St.
16	17.73	12.09	5.64	5' 7 3/4	
+25	16.71	12.19	4.52	4' 6 1/4	
+50	17.58	12.28	5.30	5 3 5/8	N. Line of D. St.
+75	18.21	12.37	5.84	5' 10 1/8	
17	18.56	12.47	6.09	6' 1 1/8	
+25	14.83	12.56	6.27	6' 3 1/4	
+50	19.25	12.65	6.60	6' 7 1/4	
+75	19.21	12.74	6.47	6' 5 5/8	
18	19.00	12.84	6.16	6' 1 7/8	.3726;100
+25	14.83	12.93	5.90	5' 10 3/4	
+50	20.05	13.02	7.03	7' 0 3/8	
+75	19.98	13.12	6.86	6' 10 3/8	
19	20.29	13.21	7.08	7' 1	
+20	21.08	13.28	7' 80	7' 9 5/8	S. Line of C. St.

Columbia St. N. of H.

Sta	Elev.	Grade	Cut.		
19+40	20.74	13.36	7.38	7' 4 3/8	
+60	21.03	13.43	7.60	7' 7 1/4	C. L.
+80	19.91	13.51	6.40	6' 4 3/4	
20	20.55	13.58	6.97	6' 11 5/8	N. Line C. St.
+25	20.49	13.68	6.81	6' 9 3/4	
+50	20.63	13.77	6.86	6' 10 3/8	
+75	20.58	13.86	6.72	6' 8 5/8	
21	20.88	13.96	6.92	6' 11	
+25	20.61	14.05	6.56	6' 6 3/4	
+50	20.45	14.14	6.31	6' 3 3/4	
+75	20.21	14.23	5.98	5' 11 3/4	3726.100
22	18.65	14.33	4.32	4' 3 7/8	
+25	17.10	14.42	2.68	2' 8 1/8	
+50	17.36	14.51	2.85	2' 10 1/4	
+75	17.72	14.61	3.11	3' 1 3/8	
23	17.51	14.70	2.81	2' 9 3/4	S. Line of B. St.
+20	19.42	14.77	5.05	5' 0 5/8	B. St.
+40	19.59	14.85	4.74	4' 8 7/8	
+60	19.83	14.92	4.91	4' 10 7/8	
+80	19.70	15.00	4.70	4' 8 3/8	N. Line of B. St.

Columbia North of A St.

Sta	Elev	Grade Cent.		
24+05	19.58	15.58	4.00	4.00
+30	20.23	16.17	4.06	4' 0 3/4
+55	21.14	16.75	4.39	4' 4 5/8
+80	21.84	17.33	4.51	4' 6 1/8
25+05	21.48	17.92	3.56	3' 6 3/4
+30	22.48	18.50	3.98	3' 11 3/4
+55	23.15	19.08	4.07	4' 0 7/8
+80	24.44	19.67	4.77	4' 9 1/4
26+05	24.99	20.25	4.74	4' 8 7/8
+30	25.53	20.83	4.70	4' 8 5/8
+55	25.89	21.42	4.47	4' 5 1/2
+80	26.59	22.00	4.59	4' 7 1/8
27	26.40	22.16	4.24	4' 2 7/8
+20	26.84	22.32	4.52	4' 6 1/4
+40	26.19	22.47	3.72	3' 8 5/8
+60	27.64	22.63	5.01	5' 0 1/8
+85	28.50	22.83	5.67	5' 8"
28+10	29.38	23.03	6.35	6' 4 1/4
+35	30.17	23.22	6.95	6' 11 7/8
+60	30.62	23.42	7.20	7' 2 3/4

2.3333.00

7.89+.00

S. Line of A. St.

A. St

N. Line of A. St.

30.85
1.50
28.45

Columbia St N of 24

Sta	Elev	Grade	Cut	
28+85	31.01	23.60	7.39	7'4 3/4
29+10	30.93	23.82	7.11	7'1 7/8
+35	30.44	24.01	6.43	6'5 5/8
+60	29.40	24.21	5.19	5'2 1/4
+85	28.44	24.41	4.03	4'0 3/8
30+10	28.69	24.60	4.09	4'1 1/8
+35	29.02	24.80	4.22	4'2 1/2
+60	~~29.96~~	~~25.00~~	4.96	

Total length of pipe 29+96

30.05
29.93

32.01
2.17
34.20
30.70
3.50

30.70

Flush tank 25 Lof 8 Z Ash 31.20
S. Line of Ash Flush Tank

India st. N of H.

Sta	Elev	Grade	Cut		
0	1,69	-5.50	7.19	7	2¼
+98	1,67	-5.28	6.36	6	11½
+49.6	1,70	-5.08	6,79	6	9½
+27,4	1,70	-4,88	6.58	6	7
+57.2	1.86	-4.68	6 5'4	6	6½
+99.0	1,57	-4.47	5'.98	5'	11¾
+58.4	1,59	-4,27	6,86	6	3⅛
+72=1	2,16	-4.07	6.16	6	1⅞
		-4.00			
+25	2.12	-3.67	5'.79	5	9½
+50	2.63	-3.33	5,96	5'	11½
+75	3.43	-3.00	6.43	6'	5¼
2	4.01	-2.67	6.68	6'	8⅛
+25	4.53	-2.33	6.86	6'	10⅜
+50	4.76	-2.00	6.76	6'	9¼
+75	5.11	-1.67	6.78	6'	9⅜
3	5.59	-1.33	6.92	6'	11
+25	6.11	-1.00	7.11	7'	1⅜
+50	6.00	-.67	6.67	6'	8"
+75	6.49	-.33	6.82	6'	10
4					

PC

PT

-4.00 N to H St

5.43

1.33 3/4 0

4 3 2 1
3 5
5 7

India St N of H.

Sta	Elev	Grade	ens		
H	6.47	-.00	6.47	6' 5 7/8	
+37.5	6.84	.50	6.34	6' 4 1/8	
+75	7.21	1.00	6.21	6' 2 1/2	
5	7.60	1.13	6.47	6' 5 5/8	"
+25	7.83	1.26	6.57	6' 6 7/8	"
+50	7.68	1.39	6.29	6' 3 1/2	"
+75	7.75	1.52	6.23	6 2 1/4	"
6	7.54	1.66	5.88	5 10 5/8	"
+25	7.50	1.79	5.71	5' 8 1/2	"
+50	7.70	1.92	5.78	5' 9 3/8	"
+75	7.36	2.05	5.31	5' 3 3/4	"
7	7.37	2.18	5.19	5' 2 1/4	"
+25	7.41	2.31	5.10	5' 1 1/4	"
+50	7.63	2.44	5.19	5' 2 1/4	"
+75	7.46	2.57	4.89	4 10 3/4	
8+12,5	8,25	2.77	5.48	5' 5 3/4	
+50	8.32	2.97	5.36	5' 4 3/8	
+75	8.77	3.10	5.67	5' 8	
9	8.93	3.23	5.70	5' 8 3/8	
+25	9.26	3.36	5.90	5' 10 3/4	

52.69 / 50

S Z G
G S1 -
N Z G1 -

S Z F
F S1 -
N Z F1 -

India 21- Nof H

Star	Elev	Grade	Cut-	
9+75-0	9.24	3.49	5.79	5' 9½
+75-	9.35	3.62	5.73	5' 8⅝
10	9.50	3.76	5.74	5' 8⅞
+25-	9.55	3.89	5.66	5' 8"
+50	9.57	4.02	5.55	5' 6⅝
+75-	9.41	4.15	5.26	5' 3⅛
11	9.44	4.28	5.16	5' 1⅞
+25-	9.57	4.41	5.16	5' 1¼
+50	9.59	4.52	5.05	5' 0⅝
+87.5-	9.27	4.74	4.63	4' 7⅝
12+25-	9.67	4.94	4.73	4' 8⅝
+50	9.95	5.07	4.88	4' 10⅝
+75-	9.85	5.20	4.65	4' 7¾
13	9.66	5.33	4.33	4' 4
+25-	10.11	5.46	4.65	4' 7¾
+50	10.56	5.59	4.97	4' 11⅝
+75-	10.70	5.72	4.98	4' 11¾
14	10.81	5.85	4.96	4' 11½
+25-	11.10	5.99	5.11	5' 1⅜
+50	11.26	6.12	5.14	5' 1⅝

S 2 E 21-
E 21-
N 2 E 21-

Indica di Nivellamento

Sta	Elev	Grade	Cut-	
14+75	11.30	6.25	5.05	5' 0 5/8
15	11.97	6.38	5.59	5' 7 1/8
+25	12.43	6.57	5.92	5' 11
+50	12.70	6.64	6.06	6' 0 3/4
+75	13.43	6.77	6.66	6' 8
16	13.26	6.90	6.36	6' 4 3/8
+25	12.24	7.04	5.20	5' 2 3/8
+50	13.64	7.17	6.47	6' 5 3/8
+75	14.14	7.30	6.84	6' 10 3/8
17	14.61	7.43	7.24	7' 3 3/8
+25	14.88	7.56	7.32	7' 3 7/8
+50	15.23	7.69	7.54	7' 6 1/2
+75	15.39	7.82	7.57	7' 6 7/8
18	15.60	7.95	7.65	7' 7 3/4
+25	15.72	8.08	7.64	7' 7 5/8
+50	15.72	8.22	7.50	7' 6"
+75	15.94	8.35	7.63	7' 7 5/8
19	16.22	8.48	7.74	7' 8 7/8
+20	16.20	8.58	7.62	7' 7 1/2
+40	16.78	8.69	7.49	7' 5 7/8

SZ Dd-

Dd-

12 Dd-

SZ bd-

201.49 25.

India 11-11 of 11

Sta	Elev	Grade	Cut	
19+60	16.63	8.79	7.84	7'10 1/8
+80	15.38	8.90	6.48	6'5 3/4
20	16.46	9.00	7.46	7'5 1/2
+25	16.49	9.13	7.36	7'4 3/8
+50	16.61	9.27	7.34	7'4 1/8
+75	16.12	9.40	6.72	6'8 5/8
21	15.99	9.53	6.30	6'3 5/8
+25	15.74	9.66	6.08	6'1
+50	15.72	9.79	5.93	5'11 1/8
+75	15.61	9.92	5.69	5'8 1/4
22	15.64	10.05	5.59	5'7 1/8
+25	15.34	10.18	5.16	5'1 7/8
+50	15.26	10.31	4.95	4'11 7/8
+75	15.41	10.45	4.96	4'11 1/8
23	15.26	10.58	4.68	4'8 1/8
+20	15.16	10.68	4.48	4'5 3/4
+41	17.04	10.78	6.26	6'3 1/8
+60	17.16	10.89	6.27	6'3 1/4
+80	17.33	11.00	6.33	6'4
24+03	17.57	11.26	6.31	6'3 3/4

X
X
X
X

L. Sl-

NZ L Sl-

L Z B Sl

B Sl-

NZ B Sl

Stoppage Sept 27/88

Grader given the second time,

Svärja St-väg IV

Sta	Elev	Grad	Cut-		
24+80	17.83	11,51	6 .32	6 2 5/8	X
+55	15.23	11 .77	3 .46	3' 5 1/2	
+80	15.38	12.03	3 .35	3' 4 1/4	
25+05	15.67	12.29	3 .38	3' 4 3/8	
+30	16.69	12.54	4 .15	4' 1 3/4	
+55	16.98	12.80	4 .14	4' 2 1/8	
+80	17.25	13.06	4 .19	4' 2 1/4	
26+05	17.61	13.32	4 .29	4' 3 1/2	
+30	17.95	13.57	4 .38	4' 4 5/8	
+55	18.17	13.83	4 .34	4' 4 1/8	
+80	18.80	14.09	4 .71	4' 8 1/2	
27	18.77	14.29	4 .48	4' 5 3/4	
+20	19.94	14.50	5 .44	5' 5 1/4	
+40	19.07	14.70	4 .37	4' 4 1/2	
+60	20.19	14.91	5 .28	5' 3 3/8	
+85	20.74	15.17	5 .57	5' 6 7/8	
28+10	21.17	15.43	5 .74	5' 8 3/4	
+35	21.48	15.68	5 .80	5' 9 5/8	
+60	21.55	15.94	5 .61	5' 7 3/4	
+85	21.36	16.20	5 .16	5' 1 7/8	
+					

1,0294 cm/1m

A2 A1-

A1-

A2 A1-

India St W of H

Sta	Elev	Grade	cut		
29+10	21.57	16.45	5.12	5 1½	
+85	22.00	16.71	5.29	5 3/2	
+60	22.32	16.97	5.35	5 4/4	
+85	22.55	17.23	5.32	5 3/8	
30+10	22.32	17.48	4.84	4' 10⅜	
+35	22.24	17.74	4.50	4'6"	
+60		18.00			

Total length of pipe 30+13 ×

30+60

1,024.1.08

22.37
5.01
27.38
23.23
4.15

Flynch Corner 21.73 23.23
A2 A1

3007 total length

Arctic St N of H

Sta.	Elev	Grade	Cut-	
0	0.21	-6.00	6.21	2 2½
+10	0.23	-5.73	5.96	5 11½
+20	0.35	-5.45	5.80	5 9 5/8
+30	0.30	-5.18	5.48	5 5 7/8
+40	0.40	-4.90	5.30	5 3 5/8
+50	0.47	-4.64	5.11	5 1 3/8
+55	-0.02	-4.50	4.52	4 6¼
1	-0.04	-4.50	4.46	4 5½
+25	-0.07	-4.39	4.32	4 3 7/8
+50	+0.70	-4.27	4.97	4 11 5/8
+75	0.88	-4.16	5.04	5 0½
2	1.06	-4.05	5.11	5 1 3/8
+25	1.35	-3.94	5.29	5 3½
+50	1.68	-3.82	5.50	5 6"
+75	1.97	-3.71	5.68	5 8¼
3	1.94	-3.60	5.54	5 7"
+25	2.37	-3.48	5.95	5 11 3/4
+50	2.60	-3.37	5.97	5 11 7/8
+75	2.48	-3.26	5.74	5 8 7/8

R line H St

45 1/16 1/10

Arctic Li-Nd 4

Sta	Elev	Grade cut-		
4	2.73	-3.15	5.88	5'10⅝
+37.5	3.39	-2.98	6.37	6'4½
+75	3.48	-2.81	6.29	6'3½
5	3.42	-2.69	6.11	6'1⅜
+25	3.59	-2.58	6.17	6'2
+50	3.89	-2.47	6.36	6'4⅜
+75	4.18	-2.36	6.54	6'6½
6	4.19	-2.24	6.43	6'5⅛
+25	4.10	-2.14	6.24	6'2⅜
+50	4.29	-2.03	6.32	6'3⅛
+75	4.48	-1.91	6.39	6'4⅝
7	4.67	-1.80	6.47	6'5⅝
+25	4.90	-1.69	6.59	6'7¼
+50	5.12	-1.57	6.69	6'8¼
+75	5.26	-1.45	6.71	6'8⅜
8+12.5	5.59	-1.28	6.87	6'10½
+50	5.60	-1.11	6.71	6'8½
+75	5.68	-1.00	6.68	6'8¼
9	5.87	-0.89	6.76	6'9⅛
+25	5.61	-0.77	6.38	6'4⅝

45 1/6 1.50

47 S Grade 4.00 - 9.50

6.00

42 FS-

F S1-

N2 FS-

Arctic St- N of H

Sta	Elev	Grade out-		
9+50	5.96	-0.66	6.62	6' 7 1/2
+75	6.12	-0.55	6.67	6' 8
10	6.32	-0.44	6.76	6' 9 1/4
+25	6.57	-0.32	6.89	6' 10 3/4
+50	6.57	-0.21	6.78	6' 9 3/4
+75	6.70	-0.10	6.80	6' 9 5/8
11	6.83	+0.02	6.81	6' 9 3/4
+25	6.95	0.13	6.82	6' 9 7/8
+50	7.22	0.24	6.98	6' 11 3/4
+75	7.36	0.41	6.95	6' 11 3/8
12+25	7.70	0.58	7.12	7' 1 1/2
+50	8.02	0.69	7.33	7' 4
+75	8.14	0.81	7.33	7' 4
13	8.48	0.92	7.56	7' 6 3/4
+25	8.50	1.03	7.47	7' 5 5/8
+50	8.70	1.14	7.56	7' 6 3/4
+75	8.75	1.26	7.49	7' 5 7/8
14	8.76	1.37	7.39	7' 4 3/4
+25	8.86	1.48	7.38	7' 4 5/8
+50	9.15	1.60	7.55	7' 6 5/8

7.576 1.50

1 Z E St- Grade 7.60 7.80

E St-

N Z E St-

Arctic St – N of H

Sta	Elev	Grade	Cut	Inches
14+75	9.42	1.71	7.71	7' 4½
15	9.31	1.82	7.49	7' 5⅞
+25	9.95	1.92	8.01	4' 8¼
+50	9.62	2.05	7.57	7' 6⅞
+75	10.53	2.16	8.37	4' 4½
16	10.56	2.27	8.29	4' 3½
+25	10.42	2.39	8.03	4' 0⅜
+50	10.59	+2.50	8.09	4' 1¼
+75	10.44	2.59	8.29	4' 3½
17	10.76	2.67	8.09	4' 1¼
+25	10.55	2.76	7.79	7' 9½
+50	10.60	2.84	7.76	7' 9¼
+75	10.71	2.93	7.78	7' 9⅜
18	10.96	3.01	7.95	7' 11¾
+25	11.22	3.10	8.12	8' 1½
+50	11.26	3.18	8.08	4' 1
+75	10.81	3.27	7.56	7' 6¾
19	11.93	3.36	7.57	7' 6⅞
+20	11.10	3.42	7.68	7' 8¼
+40	11.12	3.49	7.63	7' 7⅝

.4576 : 1.00

.3424 : 1.00

x

St D 11 10.5

St 11

N St D 11

1.44
14.54
16.08
11.36
4.53

.3424) 1.0272

St C 11 – 10+ St C 11 – 12.07

Arctic St- N of R

Sta	Elev	Grad	Cut-	
19+60	11.29	3.56	7.73	7 8 3/4
+80	10.99	3.63	7.36	7 4 3/4
20	11.07	3.70	7.37	7 4 1/2
+25	11.08	3.78	7.30	7 3 5/8
+50	11.19	3.87	7.32	7 3 7/8
+75	11.27	3.95	7.32	7 3 7/8
21	11.45	4.04	7.41	7 4 7/8
+25	11.47	4.13	7.34	7 4 1/8
+50	11.36	4.21	7.16	7 1 7/8
+75	11.26	4.30	6.96	6 11 1/2
22	11.36	4.38	6.98	6 11 3/4
+25	11.54	4.47	7.07	7 0 7/8
+50	11.61	4.55	7.06	7 0 3/4
+75	11.60	4.64	6.96	6 11 1/2
23	11.51	4.73	6.78	6 9 3/4
+20	11.44	4.79	6.65	6 7 7/8
+40	11.58	4.86	6.72	6 8 3/4
+60	11.92	4.93	6.99	6 11 7/8
+80	11.78	5.00	6.78	6 9 3/4 x
24+01	11.42	5.15	6.27	6 3 1/4

3+24+11.42

6 St-

N 2 St-

6.28
11.05
17.33
12.50
3.33

S 2 St- 12.5-

R St-

N 2 R St-

Arctic St. N of H

Sta	Elev.	Grade	Cut -		
24+30	11.42	5.29	6.13	6	1 5/8
+55	11.44	5.44	6.00	6	00
+80	11.56	5.59	5.97	5	11 3/4
25+05	11.41	5.74	5.67	5	8
+30	11.59	5.88	5.71	5	8 1/2
+55	11.40	6.03	5.37	5	4 1/2
+80	11.63	6.18	5.45	5	5 3/4
26+05	11.47	6.32	5.15	5	1 3/4
+30	11.70	6.47	5.23	5	2 3/4
+55	11.94	6.62	5.32	5	3 7/8
+80	12.66	6.76	5.90	5	10 1/4
27	13.12	6.88	6.24	6	2 7/8
+20	13.44	7.00	6.44	6	5 1/4
+40	13.42	7.12	6.30	6	3 5/8
+60	13.79	7.23	6.56	6	6 3/4
+85	13.72	7.38	6.34	6	4 1/4
28+10	14.11	7.53	6.58	6	7
+35	1427	7.68	6.59	6	7 1/4
+60	14.65	7.82	6.83	6	10
+85	15.15	7.97	7.18	7	2 1/4

5882 11 P

16.48 − 13.50 = 2.98

19.94 − 13.50 = 6.44

L2 A1 − 14.00

A L1 −

A2 A1 −

Arctic St. prof H

Sta	Elev	Grade	Cut-		
29+10	15.37	8.12	7.25	7	3
+35	15.56	8.26	7.30	7	3 5/4
+60	15.87	8.41	7.46	7	5 1/2
+85	16.09	8.55	7.54	7	6 1/2
30+10	16.39	8.70	7.69	7	8 1/4
+35	16.50	8.85	7.65	7	7 7/4
+60	16.64	9.00	7.64	7	6 1/4

Total length of pipe 30+20

S 82 1/2 E

S I A St

Flush tons - Sta 30+64
16.8

82.5 N June 17

27.60
24.30
3.30

24.30
8045
25,1045 +50
8045
25,9090 −1
8045
26.7135 +50
8045
27.5180 −2
88
27.5968

0
+10
+15
+30
+42 N & Ash
+50
+57
+67 Y I Y
+92

23.38
23.50
25
23.75

205) 3.30 (.0160
205
1250
1230
2000
1845

34,23
10.30
23.93
30
23.63

25
5

23.63

21.609
8045
4
3.2180
.016
3.2340
.080

TRAVERSE TABLE FOR TRANSIT BOOK,

From 1° to 90° for a distance of 100.

Degrees.	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		Degrees.
	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	
0			100.00	0.44	100.00	0.87	99.99	1.31	89
1	99.98	1.75	99.98	2.18	99.97	2.62	99.95	3.05	88
2	99.94	3.49	99.92	3.93	99.91	4.36	99.88	4.80	87
3	99.86	5.23	99.84	5.67	99.81	6.10	99.79	6.54	86
4	99.76	6.98	99.73	7.41	99.69	7.85	99.66	8.28	85
5	99.62	8.72	99.58	9.15	99.54	9.58	99.50	10.02	84
6	99.45	10.45	99.41	10.89	99.36	11.32	99.31	11.75	83
7	99.25	12.19	99.20	12.62	99.14	13.05	99.09	13.49	82
8	99.03	13.92	98.97	14.35	98.90	14.78	98.84	15.21	81
9	98.77	15.64	98.70	16.07	98.63	16.50	98.56	16.93	80
10	98.48	17.36	98.40	17.79	98.33	18.22	98.25	18.65	79
11	98.16	19.08	98.08	19.51	97.99	19 94	97.90	20.36	78
12	97.81	20.79	97.72	21.22	97.63	21.64	97.53	22.07	77
13	97.44	22.50	97.34	22.92	97.24	23.34	97.13	23.77	76
14	97.03	24.19	96.92	24.62	96.81	25.04	96.70	25.46	75
15	96.59	25.88	96.48	26.30	96.36	26.72	96.25	27.14	74
16	96.13	27.56	96.00	27.98	95.88	28.40	95.76	28.82	73
17	95.63	29.24	95.50	29.65	95.37	30.07	95.24	30.49	72
18	95.11	30.90	94.97	31.32	94.83	31.73	94.69	32.14	71
19	94.55	32.56	94.41	32.97	94.26	33.38	94.12	33.79	70
20	93.97	34.20	93.82	34.61	93.67	35.02	93.51	35.43	69
21	93.36	35.84	93.20	36.24	93.04	36.65	92.88	37.06	68
22	92.72	37.46	92.55	37.86	92.39	38.27	92.22	38.67	67
23	92.05	39.07	91.88	39.47	91.71	39.87	91.53	40.27	66
24	91.35	40.67	91 18	41.07	91.00	41.47	90.81	41.87	65
25	90.63	42.26	90.45	42.66	90 26	43 05	90.07	43.44	64
26	89.88	43.84	89.69	44.23	89.49	44.62	89.30	45.01	63
27	89.10	45.40	88.90	45.79	88.70	46.17	88.50	46.56	62
28	88.29	46.95	88.09	47.33	87.88	47.72	87.67	48.10	61
29	87.46	48.48	87.25	48.86	87.04	49 24	86.82	49.62	60
30	86.60	50.00	86.38	50.38	86.16	50.75	85.94	51.13	59
31	85.72	51.50	85.49	51.88	85.26	52.25	85.04	52.62	58
32	84.80	52.99	84.57	53.36	84.34	53.73	84.10	54.10	57
33	83.87	54.46	83.63	54.83	83.39	55.19	83.15	55.56	56
34	82.90	55.92	82 66	56.28	82.41	56.64	82.16	57.00	55
35	81.92	57.36	81.66	57.71	81.41	58.07	81.16	58.42	54
36	80.90	58.78	80.64	59.13	80.39	59.48	80.13	59.83	53
37	79.86	60.18	79.60	60.53	79.34	60.88	79.07	61.22	52
38	78.80	61.57	78.53	61.91	78.26	62.25	77.99	62.59	51
39	77.71	62.93	77.44	63.27	77.16	63.61	76.88	63.94	50
40	76.60	64.28	76.32	64.61	76.04	64.94	75.76	65.28	49
41	75.47	65.61	75.18	65.93	74.90	66.26	74.61	66.59	48
42	74.31	66.91	74.02	67.24	73.73	67.56	73.43	67.88	47
43	73.14	68.20	72.84	68.52	72.54	68.84	72.24	69.15	46
44	71.93	69.47	71.63	69.78	71.33	70.09	71.02	70.40	45
45	70.71	70.71							
Degrees.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Degrees.
	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		

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