W293

Final Cross Sections

#293

Our Leather Bound Engineers Note Books are carried in the following rulings:

No. 380 LEVEL BOOK. Left and Right Hand Page the same as Left Hand Page of this Book.

No. 382 FIELD BOOK. Left Hand Page as in this Book, Right Hand Page 4 x 4 to the inch, Center Line Red.

No. 384 MINING TRANSIT BOOK. Left Hand Page as in this Book, Right Hand Page 8x8 to the inch, Center Line Red.

No. 385 FIELD BOOK. Left Hand Page as in this Book, Right Hand Page 8 vertical and 4 horizontal lines to the inch, Center Line Red.

We also carry the Note Books listed above, bound in extra strong Fabri-Hide (otherwise the same quality of book), which can be furnished at a somewhat lower price.

In ordering Fabri-Hide covered books, add the letter *"F"* to catalog number.

THE FREDERICK POST CO.

ENGINEERING and DRAFTING SUPPLIES

IRVING PARK STATION

CHICAGO, ILL.

O.R.-S.D. 2nd. Main Pipe Line.
City Datum. 1

INDEX.

Final Cross Sections - Trench Excavation - Schedule I.

Page	Description
1-58	Sta. 790+09.4 - Sta. 805+12.05. Standard 4.5o Trench.
59	Summary Excavation Schedule I
61	Summary Backfill Schedule I.
62	Pavement removed and replaced. Sch. I.

O.R.-S.D. 2nd. Main Pipe Line
Final Gross Sections-Schedule I.
Sta. 790+09.4 to Sta. 855+12.05

1/22/30 Clear+Warm
Converse - Notes
Hill - Grades
Elliott - "
Simpson - Sick
Walton

Sta	Grade Elev.	Dist	L.C.	℄	R.C.	End Area	Av. Area	Cu yds
	Contd. from Book #292. Page 79.							
	Standard 4.5o Trench.							
790+09.4	360.8	365.5		4.7	4.7	4.7	21.15	
			15.6				22.275	12.87
+25	358.0	363.7			5.2		23.40	
			25.				23.40	21.67
+50	353.7	358.9			5.2		23.40	
			50.				21.60	40.00
791	345.0	349.4			4.4		19.80	
			25.				22.05	20.42
+25	340.6	346.0			5.4		24.30	
			5.0				26.11	4.84
								99.80

Chd. T.M.M.
Calc. M.D.E.
W.H.S.
P.C.L.
Calc M.D.E.

Sta	Grade	Elev	Dist	L.C.	℄	R.C
+30	339.7	345.9		6.2	6.2	6.2
			6.			
+36	338.6	343.8			5.2	
			31.			
+67	332.8	338.7			5.9	
			33.			
79+	326.6	332.2			5.6	
			25.			
+25	322.0	326.8			4.8	
			25.			
+50	315.7	321.0			5.3	
			15.			

27.91

25.66 5.70

23.40

24.97 28.67

26.55

25.88 31.63

25.20

23.40 21.67

21.60

22.73 21.05

23.85

22.05 12.25

Chd. T.M.M. & A.C.L.

Calc. W.14 S. M.D.E.

M.D.E.

Calc. M.D.E. 120.97

+65	312.0	316.5		4.5			
			16.				
+81	308.0	311.8		3.8			
			8.2				
+89.2	308.0	308.0		0.0			
			41.3				
793+30.5	308.0	308.0		0.0			
			19.5				
+50	308.0	310.5		2.5			
			21.				
+71	308.0	312.3		4.3			
			29.				

			20.25				
			18.68	11.07			
			17.10				
			8.55	2.60			
			0.0				
			0.	0.0			
			0.0				
			5.62	4.06			
			11.25				
			15.30	11.90			
			19.35				
Chd. T.M.M.			22.05	23.68			
Calc. M.D.E.			ALL.	Calc. M.D.E.			
				53.31			

794	309.8	315.3		5.5	24.75
			50.		22.73 42.09
+50	312.9	317.5		4.6	20.70
			50.		20.25 37.50
795	316.1	320.5		4.4	19.80
			50.		22.50 41.67
+50	319.2	324.8		5.6	25.20
			25.		23.62 21.87
+75	322.2	327.1		4.9	22.05
			25.		22.50 20.83
796	325.2	330.3		5.1	22.95
			20.		21.83 16.17

W.A.C.L.

calc. - W.H.S.
M.D.E

Calc M.D.E
180.13

+20	327.7	332.3		4.6
			10.	
+30	328.9	333.9		5.0
			20.	
+50	331.3	336.8		5.5
			50.	
797	337.4	343.4		6.0
			50.	
+50	343.4	348.6		5.2
			50.	
798	347.3	353.1		5.8
			32.	

20.70

21.60 ~~21.83~~ (8.00) ~~8.09~~

22.50

23.62 17.50

24.75

25.88 (47.91) ~~47.93~~

27.00

25.20 46.67

23.40

24.75 45.83

26.10

21.15 25.07

Chd. T.M.M.
Calc M.D.E.
✓ - W.H.S.

P.A.C.L.

Calc M.D.E.
190.98

+32	349.7	353.3			3.6
			18.		
+50	351.2	356.5			5.3
			50.		
799	355.0	360.8			5.8
			25.		
+25	357.0	362.5			5.5
			25.		
+50	358.9	366.3		6.2 / 2.30	7.4
			20.		
+70	360.5	365.5			5.0
			19.9		

	16.20		
		20.03	13.35
	23.85		
		24.97	46.24
	26.10		
		25.43	23.55
	29.75		
		27.71	25.66
6.2 / 2.30	30.67		
		26.58	19.69
	22.50		
		22.05	16.25

Chd. T.M.M.
calc. - W.H.S.
~M.D.E

A.C.L.

Calc M.D.E
144.74

+89.9	362.0	366.8		4.8
			10.1	
800	362.0	367.3		5.3
			19.9	
+19.9	362.0	366.9		4.9
			30.	
+49.9	361.1	366.6		5.5
			29.9	
+79.8	358.4	364.3		5.9
			13.2	
+93	356.7	362.0		5.3
			16.4	

21.60

22.73 8.50

23.85

22.95 16.92

22.05

23.90 26.00

24.75

25.65 28.41

26.55

25.20 12.32

23.85

25.42 15.44

Chd. T. M. M.
Calc. M. D. E
✓ - W. H. S.

ALL.
M. A. E
107.59

801+09.4	354.0	360.0			6.0
			15.6		
+25	351.2	356.8			5.6
			25.0		
+50	346.8	352.1			5.3
			25.		
+75	342.3	348.3			6.0
			15.		
+90	339.6	346.3		6.7 / 2.3	6.7
			10.		
802	337.8	346.8		8.2 / 2.8	9.0
			12.		

	27.00			
		26.10	15.08	
	25.20			
		24.525	22.71	
		~~24.57~~	~~22.75~~	
	23.85			
		25.43	23.55	
	27.00			
		28.82	16.01	
7.5 / 2.63	30.64			
		36.09	13.37	
9.0 / 3.0	41.55			
		36.65	16.29	
				107.01

Chd. T.M.M. calc. - W.H.S. - M.A.E.

ALL. Calc M.A.E.

						End Area	Av. End Ar.	cu. yds.
+12	335.6	342.6		7.0 / 2.5	7.0	7.0 / 2.5	31.75	
			9.0				30.06	10.06
802 +21.04 = 800 + 66.20	334.0	340.3		6.3 / 2.33	6.3	6.3 / 2.33	28.37	
			0.0				28.37	0.0
800+66.20	334.0	340.3		6.3 / 2.33	6.3	6.3 / 2.33	28.37	
			8.8				29.82	9.72
+75	332.7	339.6		6.9 / 2.48	6.9	6.9 / 2.48	31.26	
			25				29.13	26.97
801	329.2	335.2			6.0		27.00	
			25				24.75	22.92
+25	325.6	330.6			5.0		22.50	
			25				21.83	20.21
								89.88

Chd. T.M.M. Calc. M.D.E. - W.H.S.

A.C.L. Calc. M.D.E. 109.88

+50	323.0	327.7		4.7	
			50.		
802	317.8	322.5		4.7	
			14.6		
+14.6	316.3	321.3		5.0	
			10.4		
+25	315.2	321.0	Wood Stave Pipe	5.8	
			50.		
+75	312.4	318.1		5.7	
			25.		
803	311.8	316.0		5.0	
			17.		

21.15			
	21.15	39.17	
21.15			
	21.825	11.80	
22.50			
	24.30	9.36	
26.10			
	25.88	47.93	
25.65			
	24.08	22.30	
22.50			
	22.28	19.03	
			144.59

Chd. T.M.M. — F.A.C.L.
calc. W.K.S. — Calc. M.D.B
M.D.E.

+17	310.0	314.9		4.9	4.9	4.9	22.05		
			7.0					17.95	4.65
+24	309.7	Pipe 313.2		2.6/2.25	3.5	2.7/2.25	13.84		
			26.					14.74	14.19
+50	308.2	Pipe 312.3	Wood Stave Pipe	2.8/2.25	4.1	2.9/2.25	15.64		
			25.					18.28	16.93
+75	306.8	Pipe 311.6		3.7/2.25	4.8	5.3/2.25	20.93		
			25.					21.94	20.31
804	305.4	Pipe 310.6		4.7/2.25	5.2	5.3/2.25	22.95		
			10.					23.52	8.71
+10	304.8	310.1		4.8/2.25	5.3	6.0/2.25	24.08		
			5.					26.51	4.91

Chd. T.M.M.
Calc M.D.S.
W, H.S.

A.C.L.
Calc on 8.6°

69.70

+15	304.3	310.6		6.8 / 2.45	6.3	6.3 / 2.33	28.95		
			24.8					30.86	28.35
+39.8	301.7	308.9		7.2 / 2.55	7.2	7.2 / 2.55	32.76		
			7.2					31.52	8.41
+47	300.6	307.3		6.7 / 2.43	6.7	6.7 / 2.43	30.28		
			3					26.47	2.94
+50	300.1	304.7		4.6 / 2.25	4.6	6.4 / 2.35	22.66		
			15					25.28	14.04
+65	297.7	303.7		6.0 / 2.25	6.0	6.8 / 2.45	27.90		
			20					28.60	21.19
+85	294.6	301.1		6.5 / 2.38	6.5	6.5 / 2.38	29.31		
			15					28.16	15.64

Wood Stave Pipe

Chd. T.M.M. — A.C.L.

calc. W.H.S. — calc. M.N.E.

M.N.E. — Total 90.57

805	292.2	298.2		6.0 / 2.25	6.0	6.0 / 2.25	27.00	
			35.1				27.00	35.10
+35.1	286.8	292.8		6.0 / 2.25	6.0	6.0 / 2.25	27.00	
			22.9				28.88	24.49
+58	285.0	291.8		6.8 / 2.45	6.8	6.8 / 2.45	30.76	
			7.				30.52	7.91
+65	284.4	291.1		6.7 / 2.43	6.7	6.7 / 2.43	30.28	
			10.				24.36	9.02
+75	284.4	288.5			4.1		18.45	
			25.				15.98	14.80
806	284.4	287.4			3.0		13.50	
			20.				18.67	13.83

Chd. T.M.M. — Calc. M.L.C. — W.H.S.

R.C.L. — Calc. M.L.C. — 105.15

806+20	284.4	289.7			5.3		23.85		
			5.					29.35	5.44
+25	284.4	292.0		7.6 / 2.65	7.6	7.6 / 2.65	34.84		
			10.					37.53	13.90
+35	284.4	292.7		8.3 / 2.83	8.3	9.4 / 3.10	40.23		
			29.9					36.45	40.37
+64.9	286.1	292.7		8.6 / 2.9	6.6	7.0 / 2.5	32.67		
			35.1					25.17	32.72
807	290.2	293.1		6.0 / 2.25	2.9	3.9 / 2.25	17.66		
			35.					16.03	20.78
+35	294.3	297.0		3.7 / 2.25	2.7	3.7 / 2.25	14.40		
			30.					17.60	19.56

Chd. T.M.M. — A.C.L.

Calc. W. H.S. — M.O.E

Calc. m.d.c. 132.77

+65	296.0	300.0		6.0/2.25	4.0		4.5/2.25	20.81		
			35.					20.53	26.61	
808	296.0	299.5		5.5/2.25	3.5		5.5/2.25	20.25		
			50.					21.53	39.87	
+50	296.1	300.0		5.4/2.25	3.9		7.4/2.6	22.81		
			50.					21.34	39.52	
809	296.1	300.0		4.6/2.25	3.9		4.4/1.8 6.6/2.0 6.8/2.45	19.87		
			50.					21.57	39.94	
+50	296.1	300.3		6.8/2.45 6.6/2.0	5.0/1.8	4.2	5.4/1.7 7.0/1.9 7.4/2.6	23.27		
			50.					23.17	42.91	
810	296.1	300.1		8.1/2.78 7.8/2.3	5.2/2.0	4.0	5.0/1.8 7.8/2.0 8.1/2.78	23.07		
			50.					22.53	41.72	

Chd. T.M.M.
Calc. M.D.S
W.H.S

A.C.L.
Calc. M.D.S

230.57

+50	296.2	299.8		8.2/2.80	8.0/2.2	4.8/2.0	3.6	4.7/1.8	8.0/2.0	8.3/2.83	21.99	
			25.								20.90	19.35
+75	296.2	299.7		8.0/2.75	7.7/2.2	4.7/2.0	3.5	4.7/2.0	6.0/2.25		19.80	
			25.								19.19	17.77
811	296.2	299.4		8.3/2.83	8.0/2.2	4.2/2.0	3.2	4.1/2.0	7.3/2.25	7.6/2.65	18.59	
			50.								17.13 M.R.E.	31.72
											~~17.14~~	~~31.74~~
											15.60 A.C.L.	
+50	296.2	298.9		7.0/2.5		3.8/2.0	2.7	3.6/1.7	5.0/2.0	6.0/2.25	15.67 ch. 1/1/30	L.M.H. M.R.E.
			30. Note - X sec. ends here. →				?/2.25				15.57	
											~~15.08~~	17.30
											~~15.9+~~	
+80	296.2	298.7		2.6/2.65		3.6/2.0	2.5	3.5/1.6	6.1/2.0	6.4/2.35	15.47 ch. 1/1/30	L.M.H. M.R.E.
											" A.C.L.	
			20.								14.52	
											~~14.58~~	10.76
											13.56	
817	296.3	298.3		7.6/2.65	7.0/2.3	3.4/1.8	2.0	3.3/2.0	4.4/2.25		+3.62	
			50.								11.38	
											~~11.41~~	21.07
											A.C.L.	
											Chd. TM.M.	
											calc. W.H.S.	calc M.R.E.
												117.97

	+50	296.3	297.6		6.0/2.25	2.4/2.0	1.3	2.4/2.0	3.5/2.25	9.19		
				50.							10.42	19.30
813		296.3	298.2		6.5/2.38	2.7/2.0	1.9	3.0/1.8	4.4/2.25	11.66 A.C.L. ch. 4/1/30 L.H.H. M.D.E.		
				50.							13.32	24.67
	+50	296.3	298.9		7.1/2.53	3.6/2.0	2.6	3.6/1.8	7.2/2.55	14.99 A.C.L. ch. 4/1/30 L.H.H. M.D.E.		
				35.							16.96	21.99
	+85	296.4	300.1		8.7/2.93	4.5/2.0	3.7	4.5/2.0	8.3/2.83	18.93 A.C.L.		
				29.9							24.76	27.92
814	+14.9	298.0	303.6		9.5/3.13	6.8/2.0	5.6	6.7/1.8	9.4/2.5	9.4/3.1 30.59		
				35.1							28.85	37.51
	+50	301.9	307.2		6.4/2.35		5.3	6.4/2.2	8.7/2.4	8.7/2.93 27.12		
				50.							29.36 A.C.L.	54.37
										Chd. T.M.M. Calc M.R.C. W.H.S.	M.D.E.	185.26

815	307.4	313.1		10.3/3.33	10.0/2.6	6.8/2.0	5.7	6.7/2.0	9.3/2.5	9.3/3.08	31.6	
			42.2								28.38	49.36
+42.2	312.0	316.9		7.7/2.68	6.0/2.0		4.9	6.0/2.0	7.1/2.53		25.15	
			30.								27.35	30.39
+72.2	313.8	319.3		9.4/3.1	9.0/2.6	6.8/1.8	5.5	6.7/2.0	7.5/2.63		29.55 L.H.H.	
			27.8								33.61	34.61
816	314.0	320.6		11.4/3.6	11.0/3.0	8.3/1.8	6.6	8.0/1.8	9.0/3.0	9.7/3.05	37.68 L.H.H.	
			50.								40.90	75.74
+50	314.4	322.2		11.7/3.68	11.2/3.0	9.5/2.0	7.8	8.9/2.0	10.8/3.0	10.8/3.45	49.11 L.H.H	
			15.								46.26	25.70
+65	314.5	322.7		13.0/4.0	13.0/3.0	9.4/2.0	8.2	9.6/1.8	10.7/2.5	10.7/3.43	48.4.0	
			5.								40.07	7.42

Chd. Tm. m.
calc. w. H.S
M.D.E

A.L.L.
Calc M.D.E

198.42 218.22

+70	314.5	321.5		7.0 / 2.5	7.0
			7.		
+77	314.6	320.4			5.8
			8.2		
+85.2	314.7	320.6	↑		5.9
			14.8		
817	314.8	320.8	Pavement		6.0
			19.		
+19	315.0	320.6	↓		5.6
			7.		
+26	315.0	321.0		6.0 / 2.25	6.0
			4.		

7.0 / 2.5	31.75		
	0		
	28.93	7.50	0
	26.10		
	0		
	26.32	7.99	0
	26.55		
	1		
	26.78	14.68	
	27.00		
	0		
	26.10	18.37	
	25.20		
	1		
	26.10	6.77	
6.0 / 2.25	27.00		
	1		
	33.26	4.93	
		~~4.78~~	

Chd. T.M.M. Calc. M.D.S. ✓ - W.H.S.

A.C.L. Calc. M.A.B.

60.24

+30	315.0	323.6		9.6 / 3.15	8.6	7.0 / 2.5	39.52	
			5.				42.33	7.84
+35	315.1	324.0		11.0 / 3.50	8.9	8.8 / 2.95	45.15	
			4.				53.72	7.96
+39	315.1	327.0		11.9 / 3.73	11.9	11.9 / 3.73	62.28	
			11.				61.16	24.92
+50	315.2	326.8		11.6 / 3.65	11.6	11.6 / 3.65	60.04	
			30.				51.39	57.10
+80	315.4	324.4		9.0 / 3.0	9.0	9.0 / 3.0	42.75	
			20.				33.93	25.13
818	315.6	322.0		6.4 / 2.35	6.4	3.1 / 2.25	25.11	
			15.				26.06	14.48

Wood Stake Pipe

Chd. T.M.M. A.C.L.

Calc. W.H.S. M.A.S. M.B.C.

137.43

+15	314.9	320.9		6.0 / 2.25	6.0
			45.		
+60	313.0	317.9			4.9
			29.9		
+89.9	310.2	315.0			4.8
			20.1		
819+10	307.3	312.5			5.2
			15.		
+25	305.1	310.7			5.6
			10.		
+35	303.7	319.7			6.0
			15.		

Wood Stave Pipe

6.0 / 2.25	27.00		
		24.52	40.87
	22.05		
		21.83	24.17
	21.60		
		22.50	16.75
	23.40		
		24.30	13.50
	25.20		
		26.10	9.67
	27.00		
		27.00	15.00

Chd. T.M.M.
Calc M.D.E.
W.H.S.

A.C.L.
M.D.E.

119.96

+50	301.5	307.5			6.0
			35.		
+85	296.5	301.4			4.9
			15.		
820	294.3	299.4	Stave Pipe		5.1
			30.0		
+30	290.0	296.0			6.0
			Wood 10.0		
+40	288.5	295.8		7.3 / 2.58	7.3
			10.		
+50	287.1	293.8		6.7 / 2.43	6.7
			35.1		

27.00

24.53 31.80

22.05

22.50 12.50

22.95

24.97 27.74

27.00

30.14 11.16

7.3 / 2.58 — 33.28

31.78 11.77

6.7 / 2.43 — 30.28

33.38 43.39

Chd. T.M.M. — M.C.L.

calc. - W.H.S. — M.R.E.

M.R.E.

138.36

+85.1	282.1	290.0	Wood Stake	4.9	7.9 / 2.73	7.9	7.9 / 2.73	36.47	29.91	5.93
+90	281.5	286.2		10.	8.5 / 2.88	5.4 / 1.8 4.7	5.0 / 1.8	7.2 / 2.55 23.36	23.93	8.86
821	280.5	285.4		15.	7.7 / 2.68	5.5 / 1.8 4.9	6.0 / 2.25	24.49	27.31	15.17
+15	279.0	285.4		35.	7.5 / 2.63	6.4	6.4 / 2.35	30.13	26.54	34.90
+50	277.7	282.5		50.	6.0 / 2.25	4.8	4.8 / 2.25	22.95	19.40	35.93
822	275.7	279.0		50.	4.2 / 2.25	3.3	3.3 / 2.25	15.86	15.58	28.85

Chd. T.M.M. A.C.L.
Calc. M.R.E. M.R.E.
V. - W.H.S. 128.64

+50	273.8	277.0		50.	4.0 / 2.25	3.2	3.2 / 2.25	15.30	15.87	29.39
823	271.9	275.3		50.	4.4 / 2.25	3.4	3.4 / 2.25	16.43	16.84	31.19
+50	269.9	273.0		6.	6.8 / 2.45 ; 3.8 / 1.2	3.1	3.8 / 2.25	17.25	15.26	3.39
+56	269.9	272.8	↑	4.	3.0 / 2.25	2.9	3.0 / 2.25	13.28	22.02	3.26
+60	269.9	276.7	Wood Stave Pipe	15.	6.8 / 2.45	6.8	6.8 / 2.45	30.76	28.88	16.04
+75	269.8	275.8		15.	6.0 / 2.25	6.0	6.0 / 2.25	27.00	25.88	14.38

Chd. T.M.M.
Calc - W.H.S.
M.N.E.

A.C.L.
M.N.E.

97.65

+90	269.8	275.3			5.5		24.75		
			Wood Stake Pipe					23.85	53.00
			60						
824+50	269.7	274.8			5.1		22.95		
								22.27	8.25
			10						
+60	269.7	274.5			4.8		21.60		
								18.28	0.68
			1						
+61	269.7	272.8		3.0 / 2.25	3.1	4.1 / 2.25	19.96		
								16.93	27.59
			44						
825+05	269.6	273.2		3.6 / 2.25	3.6	6.0 / 2.25	18.90		
								17.78	19.49
			22						
+27	269.6	273.0		3.4 / 2.25	3.4	4.6 / 2.25	16.65		
								19.80	0.73
			1						

Chd. T.M.M. R.L.L.
Calc. M.R.S. M.R.S.
✓ - W.H.S.

104.74

+28	269.6	274.7	↑ 2.	Stone Pipe	5.1 / 2.25	5.1	5.1 / 2.25	22.95	25.89 / 1.92
+30	269.6	276.0	20.		6.4 / 2.35	6.4	6.4 / 2.35	28.84	30.78 / 22.80
+50	269.5	276.2	50.		7.9 / 2.73	6.7	7.5 / 2.63	~~32.76~~ 32.70 W.M.S. M.A.E.	34.18 / 63.30
826	269.4	277.1	12.	Wood	7.8 / 2.7	7.7	7.8 / 2.7	~~35.61~~ 35.65 A.C.L.	35.50 / 15.78
+12	269.4	276.8	27.9		7.4 / 2.6	7.4	8.6 / 2.9	35.38 35.35	34.63 / 35.78
+39.9	269.4	276.5	20.1		7.2 / 2.55	7.1	8.3 / 2.83	33.90	32.83 / 29.49 A.C.L. M. A.E. 164.02

Chd. T.M.M. Calc. W.H.S. M.A.E.

+60	268.5	275.4		6.8 / 2.45	6.9	7.4 / 2.6	31.76			
			9.9					30.53	11.19	
+69.9	268.1	274.6		6.5 / 2.38	6.5	6.5 / 2.38	29.31			
			29.8					28.71 / 29.97	31.69 / 33.01	
+99.7	264.3	270.8	Pipe	6.5 / 2.38	6.5	5.5 / 2.25	28.12 / 30.50			
			30.3					29.31 / 31.75	32.89 / 35.63	
827+30	259.3	266.3	Stone	7.0 / 2.5	7.0	6.0 / 2.25	30.50 / 33.00			
			20.					28.75 / 30.00	21.30 / 22.22	
+50	255.9	261.9	Wood	6.0 / 2.25	6.0	6.0 / 2.25	27.00			
			15.					27.12	15.07	
+65	253.4	259.4		7.0 / 2.5	6.0	5.2 / 2.25	27.23			
			35.					25.14	32.59	

Chd. T.m.m. A.C.L.
Calc. m.B. M.D.E.
✓ W.H.S.

~~149.77~~ 144.73

828	247.6	253.1		5.5 / 2.25	5.5	4.0 / 2.25	23.06		
			10.3					21.66	8.26
+10.3	245.8	250.4		5.1 / 2.25	4.6	3.7 / 2.25	20.25		
			29.4 Pipe					23.62	25.72
+39.7	239.7	245.7		6.0 / 2.25	6.0	6.0 / 2.25	27.00		
			17.3 Stake					32.35	20.73
+57	234.6	242.6		9.5 / 3.13	8.0	7.0 / 2.5	37.69		
			11.5 Wood					35.15	14.97
+68.5	231.3	238.9		8.2 / 2.8	7.6	5.2 / 2.25	32.62		
			30.4					33.01	37.17
+70.1	230.7	238.2		8.2 / 2.8	7.5	5.5 / 2.25			

Chd. T.M.M.
Calc. - W.H.S.
- M.D.E

Calc M.D.E
A.L.L
10.6.85

8	+98.9	222.3	229.8		8.0 / 2.75	7.5	6.3 / 2.33	33.40			
				13.1					0 / 27.95	0 / 13.56	
	829+12	219.6	224.6		5.0 / 2.25	5.0	5.0 / 2.25	22.50			
				9.					0 / 21.83	0 / 7.28	
	+21	217.8	222.5	Pipe		4.7		21.15			
				7.3					0 / 24.07	0 / 6.51	
	+28.3	216.3	222.3	Stone		6.0		27.00			
				29.7					0 / 29.38	0 / 32.32 ~~32.92~~	
	+58	212.9	219.9	Wood	7.0 / 2.5	7.0	7.0 / 2.5	31.75			
				7.					0 / 29.37	0 / 7.61	
	+65	212.5	218.5			6.0		27.00			
				7.					24.75	6.42	

Chd. T.M.M. D.C.L.
Calc. M.M.E. Calc M.M.E.
✓ - W.H.S. 73.70 ✓

1/23/30
Clear + Cool.

Converse - Notes
Hill - Grades
Elliott - π
Simpson -
Walton -

	+72	212.2	217.2		5.0		22.50	
				16.1			23.40	13.95
	+88.1	211.5	216.9		5.4		24.30	
				11.9			25.65	11.31
	830	211.5	217.5	Pipe	6.0		27.00	
				15.	Stave		25.43	19.13
	+15	211.6	216.9		5.3		23.85	
				15.	Wood		25.42	14.12
	+30	211.6	217.6		6.0		27.00	
				20.			27.46	20.34
	+50	211.7	217.9	6.2 / 2.3	6.2	6.2 / 2.3	27.91	
				40.			28.61	42.39

Chd. T.M.M.
calc. W.H.S.
M.R.E.

A.C.L.
M.R.E.
11 G. 24

	+90	211.7	218.2		6.5 / 2.38	6.5	6.5 / 2.38	29.31
				10.				27.03 / 10.01
	831	211.8	217.3			5.5		24.75
				15.				23.85 / 13.25
	+15	211.8	216.9			5.1		22.95
				5.				26.37 / 4.88
	+20	211.8	218.4		6.6 / 2.4	6.6	6.6 / 2.4	29.79
				30.				28.85 / 32.06
	+50	211.9	218.1		6.2 / 2.3	6.2	6.2 / 2.3	27.91
				5.				27.45 / 5.08
	+55	211.9	217.9		6.0 / 2.25	6.0	6.0 / 2.25	27.00
				10.				28.16 / 10.43

Wood Stave Pipe

Chd. T.M.M.
Calc M.N.E
W.H.S

A.C.L.
M.N.E

75.71

	+65	211.9	218.4		6.5 / 2.38	6.5	6.5 / 2.38	29.31
				35.			0 / 29.79	0 / 38.62
	832	212.0	218.7		6.7 / 2.43	6.7	6.7 / 2.43	30.28
				50.			0 / 29.56	0 / 54.74
Pipe	+50	212.1	218.5		6.4 / 2.35	6.4	6.4 / 2.35	28.84
Stake				25.			0 / 27.92	0 / 25.85
Wood	+75	212.2	218.2		6.0 / 2.25	6.0	6.0 / 2.25	27.00
				10.			0 / 24.98	0 / 9.25
	+85	212.2	217.3		5.1 / 2.25	5.1	5.1 / 2.25	22.95
				15.			0 / 23.40	0 / 13.00
	833	212.2	217.5			5.3		23.85
				12.5			0 / 25.88	0 / 11.98

Chd. T.M.M.
calc - W.H.S.
M.N.S.

P.L.L
Calc M.N.S.
15344

+12.5	212.2	218.4		6.2 / 2.3	6.2	6.2 / 2.3	27.91		
			37.5					27.45	38.13
+50	214.4	220.4		6.0 / 2.25	6.0	6.0 / 2.25	27.00		
			10.					27.00	10.00
+60	215.0	221.0	Stake Pipe		6.0		27.00		
			10.					26.10	9.67
+70	215.6	Top Pipe 221.2	Wood	5.6	5.6	5.6	25.20		
			30.					24.64	27.38
834	217.3	Top Pipe 223.1		5.0	5.8	4.8	24.08		
			12.5					24.64	11.41
+12.5	218.1	T. Pipe 224.1		5.0	6.0	5.4	25.20		
			15.5					25.43	14.60

Chd. T.M.M. Calc. M.A.E. ✓ - W.H.S.

P.C.L. M.A.S.

111.19

		T. Pipe							
+28	219.4	225.1		5.7	5.7	5.7	25.65		
			7.					27.52	7.13
+35	220.0	226.9		6.3 / 2.33	6.9	6.0 / 2.25	29.40		
			15.					27.92	15.51
+50	221.2	227.3	Stave Pipe	6.0 / 2.25	6.1	5.3 / 2.25	26.44		
			40.					26.61	39.42
+90	224.6	230.8	Wood	6.2 / 2.3	6.2	5.7 / 2.25	26.78		
			14.7					28.53	15.53
835 +04.7	225.8	232.5		6.7 / 2.43	6.7	6.7 / 2.43	30.28		
			15.3					28.64	16.23
+20	227.7	233.7		6.0 / 2.25	6.0	6.0 / 2.25	27.00		
			14.5					26.33	14.14

Chd. T.M.M.
Calc. M.D.E.

R.L. 107.96
108.46

+34.5	229.5	235.2		5.7 / 5.25	5.7
			15.5		
+50	232.6	237.7			5.1
			13.9 Pipe		
+63.9	235.4	240.3			4.9
			18.1 Stake		
+82	240.5	245.2			4.7
			10.8 Wood		
+97.8	243.6	248.2			4.6
			22.2		
836+15	251.7	256.6			4.9
			5.9		

5.7 / 2.25	25.65	
	24.30	13.95
	22.95	
	22.50	11.58
	22.05	
	21.60	14.98
	21.15	
	20.93	8.37
	20.70	
	21.37	17.58
	22.05	
	23.01	5.03
		70.99

Chd. T.M.M.
Calc. W.K.S.
M.A.E.
A.C.L.

+20.9	253.9	259.3		5.4 / 2.25	5.4	5.1 / 2.25	23.96		
			16.3					22.44	13.55
+37.7	260.6	265.4		5.1 / 2.25	4.8	3.9 / 2.25	20.93		
			13.8					22.00	11.24
+51	265.7	270.9	Stone Pipe	6.0 / 2.25	5.2	4.1 / 2.25	23.06		
			14.4					24.06	12.83
+65.4	270.9	276.6	Wood	6.4 / 2.35	5.7	4.5 / 2.25	25.07		
			14.6					26.33	14.24
+80	274.9	281.1		6.6 / 2.4	6.2	5.5 / 2.25	27.58		
			14.3					26.61	14.09
+94.3	278.9	284.7		5.8 / 2.25	5.8	5.4 / 2.25	25.65		
			15.7 ~~1.4~~					27.97	16.26 ~~1.45~~

Chd. T.M.M.
Calc. - W.H.S.
M.A.E

A.C.L.
Calc M.A.E

~~67.40~~ 82.21

~~+95.7~~	~~279.2~~	~~285.2~~		~~6.0~~ / 2.25	~~6.0~~	~~5.6~~ / 2.25		
			~~14.3~~					
837+10	281.9	288.6		6.7 / 2.43	6.7	6.7 / 2.43	30.28	
			15.2				27.06	15.23
+25.2	284.9	290.2	Stone pipe	5.3 / 2.25	5.3	5.3 / 2.25	23.85	
			11.8				25.15 ~~25.05~~	10.99 ~~10.95~~
+37	286.3	292.3	Wood	6.0 / 2.25	6.0	5.5 / 2.25	26.44	
			18.				24.75	16.50
+55	288.4	293.6		5.4 / 2.25	5.2	4.7 / 2.25	23.06	
			10.				23.73	8.79
+65	289.2	294.8		5.6 / 2.25	5.6	4.9 / 2.25	24.41	
			35.				22.84	29.61

Chd. T.M.M.
calc.-W.H.S.
M.R.E.
A.C.L.
M.R.E.
81.12

838	292.0	296.9		4.7 / 2.25	4.9	4.4 / 2.25	21.26		
			20.					21.43	15.87
+20	293.6	298.4		4.8 / 2.25	4.8	4.8 / 2.25	21.60		
			5.					20.02	3.71
+25	294.0	Pipe 298.1	Stake Pipe	4.1 / 2.25	4.1	4.1 / 2.25	18.45		
			10.					18.68	6.92
+35	294.8	Pipe 299.0	Wood	4.7	4.2	4.2	18.90		
			29.8					21.88	29.15
+64.8	298.5	304.0		6.0	5.5	5.1	24.86		
			11.2					26.10	10.83
+76	300.4	306.9		6.0	6.5	5.3	27.34		
			12.					26.72	11.88

Chd. T.M.M.
calc. W.H.S.
M.A.E

ACL
M.A.E
73.36

+88	302.4	308.4		6.0	6.0	5.2	26.10		
			5.					27.07	5.01
+93	303.2	309.4		6.0 / 2.25	6.2	6.5 / 2.38	28.03		
			Pipe 7.					26.16	6.78
839	304.4	309.8		5.4	5.4	5.4	24.30		
			Stake 4.					24.53	3.63
+04	304.8	310.3		5.5	5.5	5.5	24.75		
			Wood 6.					27.22	6.05
+10	305.5	312.7		6.0 / 2.25	7.2	6.0 / 2.25	29.70		
			10.					31.07	11.51
+20	306.6	314.3		6.7 / 2.43	7.7	6.5 / 2.38	32.44		
			10.					29.05	10.76 ~~10.77~~

Chd. T.M.M.
Calc - W.H.S.
M.A.E

D.L.L.
M.N.G.A

43.74

+30	307.6	313.3		5.7	5.7	5.7	25.65	
			20.				26.32	19.50
+50	309.8	315.8		6.0	6.0	6.0	27.00	
			20.1				25.88	19.27
+70.1	312.0	317.5	Pipe	5.5	5.5	5.5	24.75	
			19.9	Stake			24.52	18.07
+90	313.3	318.7		5.4	5.4	5.4	24.30	
			10.	Wood			25.65	9.50
840.	314.0	320.0			6.0		27.00	
			10.				23.85	8.83
+10	313.9	318.5			4.6		20.70	
			20.				21.26	15.75

Std. T.M.M.
calc. - W.H.S.
M.B. & E

P.C.L.

90.92

+30	313.6	318.2		5.6 / 2.25	4.6	4.6 / 2.25	21.82	
			12.				24.70	10.98
+42	313.0	319.4		6.4 / 2.35	6.4	5.3 / 2.25	27.58	
			33. Pipe				28.65	35.02
+75	311.3	318.1		7.3 / 2.58	6.8	5.4 / 2.25	29.72	
			8. Stone				27.69	8.20
+83	310.9	316.6			5.7		25.65	
			11. Wood				26.10	10.63
+94	310.3	316.2			5.9		26.55	
			6.				24.02	5.34
841	310.0	314.4		5.9 / 2.25	4.4	4.4 / 2.25	21.49	
			12.				23.37	10.39

Chd. T.M.M.
Calc. W.H.S.
M.E.

A.C.L.

80.56

+12	309.4	314.9		7.0 / 2.5	5.5	4.5	25.25		
			3.					24.10	2.68
+15	309.2	314.3			5.1		22.95		
			35					24.97	32.37
+50	307.4	313.4			6.0		27.00		
			50					~~26.13~~ 29.63	54.87
842	304.8	311.9		7.1 / 2.53	7.1	7.1 / 2.53	32.26		
			50					27.83	51.54
+50	305.7	310.9			5.2		23.40		
			30					26.12	29.02
+80	306.2	312.6		6.4 / 2.35	6.4	6.4 / 2.35	28.84		
			20					27.47	20.35

Stake Pipe

Wood

Chd. T.M.M.
calc. - W.H.S.
- W.D.E.

P.C.L. 190.83

~~190.83~~

843	306.6	312.4			5.8		26.10		
			12.0					30.21	13.43
+12	306.8	314.3		7.5 / 2.63	7.5	7.5 / 2.63	34.32		
			Pipe 38.0					33.03	46.49
+50	307.5	314.5		7.0 / 2.5	7.0	7.0 / 2.5	31.75		
			Stone 32.0					30.53	36.18
+82	307.6	314.1		6.5 / 2.38	6.5	6.5 / 2.38	29.31		
			Wood 5.0					32.37	5.99
+87	307.6	315.9		7.3 / 2.58	8.3	7.0 / 2.5	35.43		
			13.0					34.84	16.77
844	307.6	315.6		7.6 / 2.65	8.0	6.4 / 2.35	34.25		
			8.0					32.13	9.5

Chd. T.M.M.
calc - W.H.S.
M.B.E.

A.C.L.

128.38

+08	307.7	314.7		6.4 / 2.35	7.0	6.2 / 2.3	30.00		
			9.0				26.47	8.82	
+17	307.7	312.8		5.1	5.1	5.1	22.95		
			Pipe 25.0				21.38	19.80	
+42	307.8	312.2		4.4	4.4	4.4	19.80		
			Stave 5.0				24.60	4.56	
+47	307.8	314.7		6.3 / 2.33	6.9	6.0 / 2.25	29.40		
			Wood 7.0				28.48	7.38	
+54	307.8	314.3		6.0 / 2.25	6.5	5.5 / 2.25	27.56		
			6.0				24.35	5.41	
+60	307.8	312.5		4.7	4.7	4.7	21.15		
			6.0				23.75	5.28	

Chd. T.M.M.
calc- W.H.S.
M.D.E.
A.L.L.
51.25

+66	307.8	313.9		7.1 / 2.53	6.1	4.1 / 2.25	26.34		
			10.0					24.59	9.11
+76	307.9	313.3		6.0 / 2.25	5.4	3.5 / 2.25	22.84		
			11.0					25.86	10.54
+87	307.9	314.8		6.7 / 2.43	6.9	5.1 / 2.25	28.88		
			6.0					(3.57) 29.02	6.56
+93	307.9	315.1		6.8 / 2.45	7.2	5.5 / 2.25	30.16		
			12.0					25.99	11.55
845 +05	308.0	313.0		4.4 / 2.25	5.0	5.0 / 2.25	21.82		
			7.0					22.50	5.83
+12	308.0	313.6		4.2 / 2.25	5.6	5.2 / 2.25	23.18		
			8.0					21.04	6.23

Wood Stake Pipe

Chd. T.M.M. calc. w.H.S. - M.E.

A.C.L. 49.82

+20	308.0	312.2		4.2	4.2	4.2	18.90			
			6.0					21.71	4.82	
+26	308.0	314.0		5.0 / 2.25	6.0	4.8 / 2.25	24.52			
			24.0					24.13	21.45	
+50	308.1	313.9		4.8 / 2.25	5.8	4.7 / 2.25	23.74			
			12.0					25.37	11.28	
+62	307.2	313.9		5.0 / 2.25	6.7	5.6 / 2.25	27.00			
			8.0					22.00	6.52	
+70	306.6	310.2		4.3 / 2.25	3.6	3.6 / 2.25	16.99			
			8.0					23.00	6.81	
+78	306.0	312.9		6.0 / 2.25	6.9	6.0 / 2.25	29.02			
			17.0					28.91	18.20	69.08

Steel Pipe

Wood

Chd. T.M.M.
calc - W.H.S.
ACL.
ON R.B.

+95	304.7	311.5		6.0 / 2.25	6.8	6.0 / 2.25	28.80	29.42	32.58
			29.9						
846+24.9	301.4	308.0		7.4 / 2.6	6.6	6.0 / 2.25	30.04	30.83	33.68
			29.5						
+54.4	296.1	303.3		7.5 / 2.63	7.2	6.0 / 2.25	31.62	36.31	35.50
			26.4						
+80.8	290.4	299.1		8.7 / 2.93	8.7	8.7 / 2.93	40.99	40.76	15.40
			10.2						
+91	288.6	297.4		8.8 / 2.95	8.8	8.1 / 2.78	40.53	37.95	12.65
			9.0						
847	287.0	294.7		7.7 / 2.68	7.7	7.7 / 2.68	35.38	33.37	12.83
			10.4					A.C.L.	142.64

Wood Style Pipe

Chd. T.M.M.
Calc - W.H.S.
M.D.E.

+10.4	285.2	292.2		7.2 / 2.55	7.0	6.4 / 2.35	31.25		
			14.6				27.55	0	14.90 / 0
+25	283.6	288.9			5.3		23.85		
			15.2				23.85	0	13.43 / 0
+40.2	281.9	287.2	Pipe		5.3		23.85		
			14.8 Stave				25.42	0	13.93 / 0
+55	281.3	287.3			6.0		27.00		
			15.2 Wood				28.16	0	15.85 / 0
+70.2	280.7	287.2		6.5 / 2.38	6.5	6.5 / 2.38	29.31		
			29.8				32.34	0	35.69 / 0
84.8	280.5	288.2		7.7 / 2.68	7.7	7.7 / 2.68	35.38		
			16.0				33.57	0	19.89 / 0

Chd. T.M.M. A.C.L.
calc. W.H.S.
M.D.E.

113.69

+16	280.4	287.4		7.0 / 2.5	7.0	7.0 / 2.5	31.75	30.29	43.75
			39.0						
+55	280.1	286.5		6.4 / 2.35	6.4	6.4 / 2.35	28.84	25.45	18.85
			20.0 Pipe						
+75	280.0	284.9		4.9	4.9	4.9	22.05	25.21	9.34
			10.0 Stake						
+85	277.2	283.5		6.3 / 2.33	6.3	6.3 / 2.33	28.37	29.32	10.86
			10.0 Wood						
+95	274.3	281.0		6.7 / 2.43	6.7	6.7 / 2.43	30.28	30.77	35.07
			22.0						
849 +17	268.1	275.0		6.9 / 2.48	6.9	6.9 / 2.48	31.26	25.53 ~~29.53~~	31.20
			33.0					A.C.L.	39.07

Chd. T.M.M.
calc - W.H.S.
M.A.E.

+50	258.7	263.1			4.4		19.80	
			17.0				19.80	12.47
+67	253.9	258.3			4.4		19.80	
			15.0	Stave Pipe			20.48	11.38
+82	249.7	254.4			4.7		21.15	
			13.0	Stave			25.95	12.49
+95	246.0	252.8			6.8	6.8 / 2.45	30.76	
			15.0	Wood			27.98	15.54
850+10	245.7	251.3			5.6		25.20	
			15.0				24.98	13.88
+25	245.3	250.8			5.5		24.75	
			25.0				22.50	20.83

Chd. T.M.M. calc - W.H.S. - M.O.E.

A.C.L. 86.59

+50	244.7	249.2			4.5			20.25	
			50.0					20.70	38.33
851	243.6	248.3	Steel Pipe		4.7			21.15	
			50.0					23.62	43.74
+50	242.4	248.2	Wood		5.8			26.10	
			20.0					28.93	21.43
+70	241.9	248.9		7.0 / 2.5	7.0	7.0 / 2.5		31.75	
			5.0					29.67	5.49
+75	241.8	247.3		7.5 / 2.63	7.5 / 1.5	5.5 / 1.0	5.5	6.0 / 2.25	27.60
			8.0					29.31	8.68
+83	241.6	248.0		7.9 / 2.73	8.0 / 1.5	6.6 / 1.0	6.4	6.4 / 2.35	31.01
			2.0					29.23	2.17

Chd. T.M.M.
Calc. W.H.S.
M. R. [illegible]

A.C.L.
119.84

+85	241.6	247.7	6.1 / 2.28	6.1	6.1 / 2.28 27.45
			11.0		29.10 11.86
+96	241.3	248.1	6.8 / 2.45	6.8	6.8 / 2.45 30.76
			4.0		27.08 4.01
852	241.2	246.4		5.2	23.40
			10.0		23.18 8.59
+10	241.0	246.1		5.1	22.95
			10.0		19.80 7.33
+20	244.2	247.9		3.7	16.65
			10.0		20.25 7.50
+30	247.4	252.7		5.3	23.85
			8.0		26.46 7.84

Chd. T.M.M. ✓ A.C.L. 47.13

Calc- W.H.S. ✓ M.A.S.

+38	250.0	255.8		8.5/2.88	5.8	5.8/2.25	29.07					
			10.0					(28.85)	29.11	10.69		
+48	253.3	258.8		8.6/2.9	8.4/2.3	6.5/1.6	5.5	6.5/2.38	(28.64)	29.16		
			19.0						(29.66)	29.92	20.87	
+67	259.4	264.7		10.0/3.25	10.0/3.0	7.0/2.3	5.3	6.3/1.5	9.5/2.30	9.5/3.13	30.68	
			8.0								32.59	
											(32.80) 32.53	9.66 ~~9.78~~
+75	262.0	268.3		10.4/3.35	10.4/2.4	7.5/2.0	6.3	7.1/1.7	9.1/3.03	~~35.33~~ ~~34.38~~ (34.51)		
			25.0								32.24	
											~~31.65~~ 32.18	29.85 ~~30.73~~
853	272.2	278.2		9.8/3.2	9.6/2.8	6.2/2.0	6.0	7.0/2.2	9.0/3.0	29.97		
			25.0								(32.73) 34.65	30.39 ~~30.31~~
+25	282.4	289.7		9.0/3.0	8.4/2.5	6.9/2.0	7.3	8.5/2.0	8.6/2.9	(35.50) 39.33		
			25.0					Chd: TM.M.			(32.86) 34.77	30.43 A.C.L. ~~132.37~~ 131.80
								Calc M.A.E.				

+50	293.6	299.7		8.5 / 2.88	8.1 / 2.5	6.4 / 1.7	6.1	7.4 / 2.6	30.22
			1.0						31.69 — 1.17
+51	294.0	301.4		8.4 / 2.85	8.1 / 2.5	6.3 / 2.0	7.4	7.7 / 2.68	33.16
			11.0						33.22 — 13.53
+62	299.0	306.3		7.3 / 2.58			7.3	7.3 / 2.58	33.28
			10.4						34.59 — 13.32
+72.4	303.6	311.4		7.8 / 2.7			7.8	7.8 / 2.7	35.91
			13.9						31.01 — 15.96
+86.3	309.3	315.1		5.8			5.8	5.8	26.10
			8.7						25.87 — 8.34
+95	312.1	317.8					5.7		25.65
			5.6						22.73 — 4.71
									Chd. M.M. calc. M.D. — A.C.L. 57.03

Wood Stave Pipe

854+00.6	314.0	318.4			4.4		19.80	
			14.5				19.57	10.51
+15.1	317.6	321.9			4.3		19.35	
			4.9				21.38	4.02
+20	318.4	323.6	Pipe		5.2		23.40	
			9.9				22.50	8.25
+29.9	320.2	325.0	Stave		4.8		21.60	
			20.1				21.99	16.3
+50	323.0	327.9	Wood	5.7	4.9	4.4	22.39	
			16.0				21.38	12.67
+66	325.2	329.5		5.2	4.3	4.3	20.36	
			9.0				21.80	7.27

Cal. M.M.
Calc M.M.E.

A.C.L.

59.13
58.95

+75	326.5	330.7		7.3 / 2.58	6.8 / 1.0	4.2 / 0.5	4.2	4.2 / 2.25	23.24		
			15.0						23.64	13.13	
+90	328.6	333.8	Wood Stave Pipe 10.0	7.1 / 2.53			5.2	4.0 / 2.25	24.07 / 24.04		
									20.05 / 23.38	7.42	
855	~~329.5~~	334.6		5.4 / ~~6.10~~ / 2.25			~~5.1~~ 4.5	3.4 / ~~4.10~~ / 2.25	~~20.03~~ / ~~22.72~~		
Revised →	330.1		3.5						19.57	19.80	2.57
			~~12.05~~ 8.55							~~28.38~~ 25.91	~~12.67~~ 8.21
+12.05	330.6	~~333.9~~ ~~337.8~~		7.6 / ~~8.7~~ / ~~2.95~~ 2.70			6.3 / ~~7.2~~	5.8 / 6.7 / ~~2.45~~ 2.25	32.26 / 34.04		
End Schedule #1.										V.A.C.L. ~~33.22~~ 31.33	
855+035	330.6	335.0		5.3 / 2.25			4.4	3.3 / 2.25	19.57		

Total cu. Yds. in ~~6173.75~~ (6170.40) A.C.L.
Book 293 =
additions not checked.

Figured Twice A.C.L.
cu. Yds. 6170.40 checked
Additions checked
in the Book
10/18/30 [illegible]

Chd. T.M.M.
Calc. M.S.C.

339.35
1.85
341.20
5.6
335.6

Summary
Excavation - 12" Main Pip Line

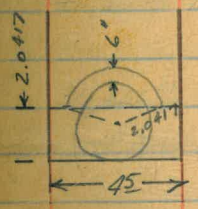
11/21/30 P.B. 59

Book No	Page	Cuyards Excavation	
285	77	10,034.02	- 6.55 cuyds
286	79	13 292.24	
287	78	15 304.02	
288	71	10 196.86	
289	78	8 946.48	
289A	10	2 968.13	
290	73	8 741.25	
291	44	11 343.34	
292	79	12 545.22	
293	58	6 170.40	
		99 541.96	
Add (See note)		1 429.24	
		100,971.20	
Excavated by City Forces		6.55	
Total Excavation		100,964.65	cuyds.

Note. For Backfill summary see Page 61.

Note. All trench excavation computations in these field books 285 - 293 inclusive are based on width of trench taken "Inside Diameter of pipe + 18". Correction to be added because outside diameter of pipe should have been used as basis for width of trench computation, Total 54" trench (page 69) = 44,547.81 cy. X $\frac{55}{54}$ = 45,372.74 C.Yds, an addition of 824.93 Cu.yds. Total of 58" trench (page 69) = 35,051.10 Cu.yds. X $\frac{59}{58}$ = 35655.41, an addition of 604.31 Cu.yds, total addition to be made because of 1" additional width 604.31 + 824.93 = 1429.24 cy.

Areas of Western Pipe & Steel Company backfill to be used for computations of final backfill schedule I



4.5 × 2.0417 = 9.18765
Segment = 4.52683

54" Trench 13.71448
+1" .17007
55" Trench = 13.88455 Sq. ft.

The above calc. by A.C.L. copied from original sheets by M.D.E. 11/25/30
Calculations of Area by P.B = 13.8843 Sq. ft.

4.8333 X 2.20835 = 10.67362
Segment 5.47115
58" Trench 16.14477
+1" .18402
59" Trench = 16.32879

The above calc. by A.C.L, copied from original sheets by M.D.E 11/25/30.
Calculations of Above area by P.B = 16.32875 s.f.

Otay Res. San Diego 2nd Main Pipe Line

Backfill Schedule I. 61

Nov. 13, 1930.

Summary.

55" Trench backfill (page 69)	23,891.91 C.Y.
59" Trench backfill (page 69)	15,888.07
Portal Cuts backfill (page 70)	2,013.68
Deep Cuts backfill (page 68)	2,459.58
Total backfill Schedule I	44,252.74 C.Y. ✓

checked Main Office 11/21/30 P.B.

Otay Reservoir San Diego 2nd Main Pipe Line

Pavement Replaced

Schedule I

Oct 21, 1930 LV

These notes taken from City Street Insp. Dann's final report & by M.D.G 11/24/30

St. Name	Sta.	Mile	Kind	Sq. Feet Relaid	O.K'd for Estimate	Sq. Feet of 4x4 Mesh
54th St.	817+02	15.5	Concrete	201.	201.	402.
Brdway.	754+39	14.3	Concrete	558.	558.	1116.
Ridge Way	652+51	12.4	Concrete	1000.	300.	592.
Bonita Ave.	470+23	8.9	"	224.	224.	448.
Bach Ave.	704+09	13.3	"	533.	533.	1066.
Imperial	678+51	12.9	Asphalt	160 base 261 top	Ave. 210	—
65th St.	683+72	13.0	"	194 base 211 top	Ave. 203	—
Overlap of steel mesh total						226
					2229	3850 253 4103 Ave.

Extra W.O. #3 - 264 Sq. ft. concrete sidewalk Imperial Ave.

Extra W.O. #2 - 4103 Sq. ft. 4"x4" Steel mesh

Extra W.O. #1 - Excavation at Sta. 525+00 $38.75

* Note: on steel mesh, prior agreement between contractor & main office was on basis of 3 rolls of 4"x4" mesh 7' wide & 200' long = 4200 □' at $0.0521 □' + $0.02 per □' for footage that was to be laid, balance not laid to be taken into stock of Department at equivalent price of mesh in place

4200 □' in 3 rolls
− 3850 □' Laid
350 □' Bal. not laid but delivered to Chollas 10/27/30

$\frac{350 \times .0521}{.0721} = 253$ □' at equivalent price of mesh in place

Summary

E.W.O. #1 - Excavation at sta 525+00	= $38.75
E.W.O. #2 - 4103 □' of 4"x4" Mesh @ $0.0721	= 295.82
E.W.O. #3 - 264 □' of side walk @ $0.20	= 52.80
	$387.37
+ 15% of $387.57	= 58.10
Pavement relaid 2229 □' @ $0.45	= 1003.05
	$1448.52

Otay Reservoir San Diego 2nd Main Pipe Line.

Backfill Schedule I

Book #	Sta. to Sta.		Excavation	W.P. & Steel Co.	Backfill	Hazard Co. Backfill
293	855+12.05	790+09.4	6,170.4	6,617.5 × 13.9445	= 3,417.69	2,752.71
292	790+09.4	680+17.5	11,713.63	10,728.6 × 13.9445 ÷ 27	= 5,540.92	6,172.71
291	680+17.5	630+00	5,984.31	5,017.5 × 13.9445 ÷ 27	= 2,591.35	3,392.96
290	630+00	536+09	8,746.5	8,970.9 × 13.9445 ÷ 27	= 4,633.14	4,113.36
289+289A	536+09	430+50	11,932.97	10,439. × " "	= 5,391.36	6,541.61
288	430+50	331+00	10,196.86	9,750.0 × 16.4176 ÷ 27	= 6,050.19	4,146.67
287	331+00	299+09.7	3,623.3	3,196.3 × " "	= 1,943.54	1,679.76
✡	299+09.7 Exit #4	298+17.4		92.3 × 1.5326	=	141.46
✡	286+99 Entr. #4	285+44		155.0 × 1.5326	=	237.55
287	285+44	225+92	6,350.2	5,795.2 × 16.4176 ÷ 27	= 3,523.83	2,826.37
✡	225+92 Exit #3	224+30.2		179.64 × 1.5326	=	275.32
✡	205+10.7 Entr #3	204+18.7		92. × 1.5326	=	141.00
286	209+18.7	192+76.2	1,416.82	1,142.5 × 16.4176 ÷ 27	694.71	722.11
✡	192+76.2 Exit #2	192+31.5		44.7 × 1.5326		68.51
✡	171+95.5 Entr. #2	171+14		85.0 × 1.5326		130.27
✡	170+72 Exit #1	167+75.1		296.9 × 1.5326		455.03
✡	145+83.1 Entr #1	142+25		365.5 × 1.5326		560.17
286	142+25	135+77	717.26	608.8 × 16.4176 ÷ 27	= 390.19	347.07
	135+77	129+30	See pages 64 to 66			993.03
286	129+30	77+83.2	5,155.78	4,932.7 × 16.4176 ÷ 27	= 2,999.37	2,156.41
	77+83.2	74+00.44	See page 66 to 68			1,463.15
285	74+00.44	1+70.0	7,590.88	7,060.4 × 16.4176 ÷ 27		3,297.74

✡ Portal Cuts.

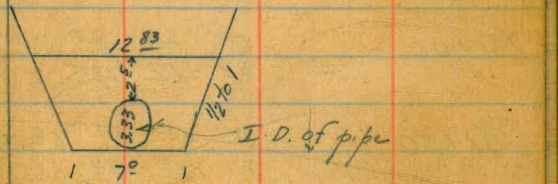
Total Backfill 42,614.97 Cu. Yds

Foreward to page 69

Cub. yds. A.S. Ctrd. Lbs. ÷ Mass. Spec.

Note; For standard trench backfill this formula was used, Cu. Yds backfill = [Total Cu. Yds Excavation) − (Lineal ft. of excavation × pipe Co. Bkfl.) / 27 Lineal ft. of excavation does not include trestles, pipe Co. backfill based on Drawings W.D. 206+207.

For tunnel entrance + exit trenches, 2½' of cover over pipe, this formula was used, Cu. Yds. backfill = (Lineal ft. of backfill × Cu. Yds per lineal ft.), in which the backfill is carried to the outside wall of tunnel wells.



Total backfill $\frac{12.83 + 7.0}{2} \times 5.83 = 57.80$

Pipe Co. backfill −16.42

41.38

$\frac{41.38}{27}$ = 1.5326 Cu. Yds. per Lin. ft.

Otay Res. S.D. 2nd Main Pipeline
Backfill Sta. 129+30 to 135+77

For original ground use Book 291 p. 40
For final ground use " p47 (64)

Sta.		End Area	Average Area	Cu. Yds
129+30	0 0 3 6 4 8 4 0 0 2.41 2.41 0 2.41 2.41	20.79		
			31.75	23.52
129+50	0 0 2 7 2 8 4 2 1 2 0 7 5 10 4 0 6 5	42.73		
			54.21	50.19
129+75	0 0 2 6 6 6 4 6 4 0 3 0 0 3 0 10 12 13 5 6 2 0 5 5 5	65.70		
			59.53	55.12
130+00	0 0 0 3 5 7 4 9 2 6 0 5 0 5 10 11 3 0 4 4	53.35		
			59.60	55.19
130+25	0 5 0 6 7 1 4 6 3 0 0 8 0 5 10 14 3 0 4 2 5	65.85		
			62.83	58.18
130+50	0 0 0 3 6 5 4 3 3 2 0 7 0 2 5 9 5 13 3 0 4 2 5	59.82		
			57.96	42.93
130+70	0 0 0 7 5 8 4 6 2 9 0 5 10 13 4 0 4	56.10		
			59.05	34.99
130+86	0 0 0 9 2 6 6 2 4 3 3 1 0 6 0 2 9 9 9 12 12 2 0 4 4	62.00		
			63.46	32.91
131+00	0 0 0 3 5 9 4 2 3 1 1 0 2 5 12 13 5 2 0 4 3 5	64.92		
			68.94	127.67
131+50	0 4 6 6 9 6 5 3 3 1 1 0 7 13 5 13 5 6 0 4 3	72.95		
			69.77	129.20
132+00	0 3 8 6 4 6 0 4 3 1 3 1 1 0 5 11 11 5 4 0 5 5 4	66.60		
			61.99	57.40
132+25	0 0 2 1 2 7 6 0 4 8 3 2 1 3 0 4 8 12 13 5 3 0 4 4	57.38		
			57.16	46.57
		56.95		

132+47	$0^{0}\ 1^{6}\ 2^{2}\ 6^{4}\ 4^{4}\ 3^{2}\ 0^{6}\ 0^{0}$ $6^{5}\ 7^{5}\ 11\ 13\ 4\ 0\ 5\ 4$	56.95
		69.55 66.97
132+73	$0^{0}\ 2^{3}\ 3^{2}\ 7^{4}\ 7^{3}\ 3^{8}\ 1^{5}\ 0^{0}$ $6\ 8^{5}\ 13\ 14\ 6\ 0\ 4\ 4$	82.15
		76.40 76.40
133+00	$0^{0}\ 2^{0}\ 2^{9}\ 6^{7}\ 6^{1}\ 3^{6}\ 1^{7}\ 0^{0}$ $7^{5}\ 8\ 13\ 13\ 5\ 0\ 3\ 3$	70.65
		68.03 125.98
133+50	$0^{0}\ 2^{1}\ 3^{8}\ 6^{5}\ 5^{9}\ 4^{7}\ 2^{4}\ 0^{0}$ $5\ 6\ 12\ 13\ 35\ 0\ 3\ 4$	65.40
		55.12 102.07
134+00	$0^{0}\ 1^{4}\ 3^{0}\ 4^{5}\ 4^{2}\ 2^{9}\ 1^{0}\ 0^{0}$ $5^{7}\ 7\ 12^{5}\ 12^{5}\ 3\ 0\ 3\ 4^{0}$	44.83
		47.67 30.01
134+17	$0^{0}\ 0^{5}\ 4^{2}\ 5^{3}\ 4^{7}\ 3^{8}\ 1^{6}\ 0^{0}$ $2^{5}\ 5\ 11^{5}\ 11^{5}\ 2\ 0\ 4\ 3^{5}$	50.50
		45.52 21.92
134+30	$0^{0}\ 1^{1}\ 5^{1}\ 4^{6}\ 3^{0}\ 1^{6}\ 0^{0}$ $2^{5}\ 6\ 11^{5}\ 3\ 0\ 3\ 3$	40.55
		45.98 64.08
134+67.63	$0^{0}\ 2^{5}\ 4^{3}\ 5^{5}\ 4^{1}\ 3^{0}\ 0^{9}\ 0^{0}$ $7^{5}\ 9^{5}\ 12\ 12^{5}\ 2\ 0\ 4\ 3$	51.40
		46.95 26.10
134+82.64	$0^{0}\ 4^{4}\ 4^{0}\ 3^{0}\ 0^{4}\ 0^{0}$ $8\ 9\ 2\ 0\ 5\ 4$	42.50
		39.02 21.56
134+97.56	$0^{0}\ 0^{4}\ 6^{4}\ 3^{4}\ 3^{2}\ 0^{3}\ 0^{0}$ $2^{5}\ 7\ 9\ 6\ 0\ 5\ 5$	35.55
		40.95 22.43
135+12.35	$0^{0}\ 1^{4}\ 6^{3}\ 7^{0}\ 7^{0}\ 3^{8}\ 3^{6}\ 0^{8}\ 0^{0}$ $25\ 6^{5}\ 10\ 10^{2}\ 9\ 5\ 0\ 6\ 7$	46.35
		54.34 45.59
135+35	$0^{0}\ 1^{2}\ 7^{1}\ 4^{3}\ 3^{6}\ 3^{7}\ 3^{8}\ 0^{5}\ 0^{0}$ $2^{5}\ 7\ 8^{5}\ 4^{5}\ 0\ 5\ 9\ 8^{5}\ 2^{5}$	62.32
		57.38 31.88
		52.45

Otay Reservoir

Sta.

135+50 — 0.0 3.5 5.0 4.5 3.8 3.6 3.6 2.4 0.0
5 9 9 6 0 5 7.5 6.5 3

135+77 — 0.0 4.4 4.7 5.0 0.0
2.41 2.41 0 2.41 2.41

Western P. & S. Co Backfill $\frac{(647.0)(16.4176)}{27}$ =

Backfill Sta 74+00 to 77+83.2

Sections taken from Field book #285 pages 71 to 78

74+00.44 — 0.0 5.3 5.6 5.3 0.0
2.41 2.41 0 2.41 2.41
29.03

74+29.47 — 0.0 0.9 8.0 7.2 7.2 3.0 0.8 0.0
4 9.5 10 0 1 8 5 3.5
14.73

74+44.20 — 0.0 5.8 7.2 7.2 7.2 3.7 3.0 1.3 0.0
8.5 10 10 0 1.5 8 8 5 2.5
14.77

74+58.97 — 0.0 2.5 3.3 8.8 7.5 6.3 6.3 3.0 2.9 1.2 0.0
3 8.5 14 17.5 10 0 1 7 6.5 4.5 2.5
8.01

74+66.98 — 0.0 2.0 2.4 9.6 7.2 6.4 3.0 2.6 1.2 0.0
3 7 12 20 10 0 7 6.5 4.7 3
6.02

74+73 — 0.0 1.8 8.2 7.0 6.6 3.1 2.2 0.0
3.5 12.5 14.5 10 0 7 6.5 4
10.

74+83 — 0.0 8.3 6.5 5.8 2.9 1.0 0.0
12 15 1 0 5 6 3
5.8

San Diego 2nd Main Pipeline

Backfill Cont.

End Area	Ave. Area	Cu. yds.
52.45		
	37.58	37.58
22.70		

Total all backfill 1386.44 Cu. yds.
− 393.41
Total Hazard & Co. 993.03 Cu. yds Backfill. See p. 68

Calc. M. A. E.

Chkd by Main office.

74+88⅝	0 0 1⅝ 8⅝ 6⅞ 5⅞ 2¼ 0⅝ 0		109.75
11.2	7 12 12½ 2 0 6 5½ 5		
		120.33	49.91
75+00	0 0 2 0 11⅜ 9¼ 5⅜ 1⅝ 0½ 0		130.92
18.8	7½ 13 13½ 6 0 6 5½ 5		
		142.73	99.38
75+18⅝	0 0 1⅝ 2½ 14⅝ 4⅞ 1¼ 0		154.53
31.2	6 9½ 15½ 15½ 0 6 5½		
		152.90	176.68
75+50	0 0 1⅞ 2 0 14⅞ 5½ 1⅞ 0⅝ 0		151.28
50	4 10 14½ 14⅞ 0 6 5 3½		
		141.89	262.76
76+00	0 0 2⅝ 3¼ 15½ 6 0 2¼ 1 0		132.50
9.	6 6½ 12 13½ 0 5 5 4		
		138.38	46.13
76+09	0 0 2¼ 3⅝ 14½ 18 0 7⅜ 2¼ 1⅞ 0		144.25
9.	5 6½ 11½ 11½ 15 0 6 6 5		
		129.95	43.32
76+18	0 0 2⅛ 4⅞ 12⅝ 6⅝ 2¼ 0		115.65
32	4½ 5½ 11 11 0 6 6		
		109.39	129.65
76+50	0 0 2⅛ 3½ 11⅝ 5½ 1½ 0		103.13
25	6 6½ 11 10½ 0 6 6		
		124.50	115.28
76+75	0 0 2⅜ 2½ 14⅞ 6⅛ 1⅝ 0		145.88
31.25	5 7 13 12½ 0 7½ 6		
		136.04	157.45
77+06 25/75	0 0 2½ 2⅝ 12⅞ 5⅞ 1⅞ 0		126.20
6.75	7½ 8½ 12 12 0 7 6		
		122.45	30.61
77+13	0 0 2 0 3½ 12⅝ 5⅛ 2⅛ 0		118.70
8.20	7 8 12½ 13 0 5½ 5½		
		120.68	36.65
77+21⅜	0 0 2½ 3½ 12⅞ 5 0 1⅞ 0		122.65
14.9	6½ 9 13 15 0 6 5½		
		122.35	67.52
			122.05

77+36.1	0.0	1.1	2.7	3.0	11.0	9.3	5.6	1.9	1.6	1.2	0.0
	3	9	9.5	14.5	15	10	0	6	6	4	2.5
77+50.9	0.0	4.8	4.8	6.9	12.4	10.9	6.4	4.0	3.9	3.8	0.0
10.1	2.5	9	14	19	20	15	0	6	4.2	3.5	2.5
77+61	0.0	2.8	7.2	7.2	12.8	6.5	2.7	4.3	0.0		
22.2	3	3.5	10	18.5	20	0	6	3	2		
77+83.2	0.0	6.0	8.0	6.2	5.0	0.0					
	2.41	2.41	2.91	0	2.41	2.41					

Sta 74+00.44 to 77+83.2

Western P.+S. Co Backfill (382.76) / 27

- 122.05

125.52 68.80

129.00

111.93 41.87

94.85

62.78 51.62

30.71

Total of all backfill 1695.90 Cu. Yds

(16.4176) - 232.75 Cu. Yds

Hazard Co. Backfill 1463.15 Cu. Yds

Calc. M.D.E Chkd by Main office.

Note; These computations were based on W.P.&S.Co backfill area of 16.4176 c.f., this area [16.2387] should have been used, computations thus:

Total of all backfill page 66 1386.44

Total " " this page 1695.90

Total all backfill Deep cuts 3082.34 c.y.

W.P.S.Co. $\frac{(382.76 + 647.) \times 16.2387}{27}$ - 622.76

2,459.58 c.y

Total backfill of Deep Cuts →

Backfill Schedule I.

forwarded from page 63.

54" Trench

Book #	Sta	to Sta	Excavation	Lineal ft. of excavation
293.	855+12.5	790+09.4	6,170.4	6,617.5
292	790+09.4	680+17.5	11,713.63	10,728.6
291	680+17.5	630+00	5,984.31	5,017.5
290	630+00	536+09	8,746.5	8,970.9
289+289A	536+09	430+50	11,932.97	10,439
		Total	44,547.81	41,773.5

58" Trench

Book #	Sta	to Sta	Excavation	Lin. ft. Exc.
288	430+50	331+00	10,196.86	9,950.0
287	331+00	299+09.1	3,623.3	3,196.3
"	285+44	225+92	6,350.2	5,795.2
286	209+18.2	192+76.2	1416.82	1192.5
"	192+25	185+77	717.26	608.8
"	129+30	77+83.2	5,155.78	4,932.7
285	74+00.99	1+70	7,590.88	7,060.4
			35,051.10	32,685.9

Continued p. 70

Hazard Co. Backfill
2,752.71
6,172.71
3,392.96
4,113.36
6,541.61
22,973.35 Cu.yds. original figures
918.06 Addition
23,891.41 Cu.yds total backfill of 55" trench

Note: Original field calculations based on 54" trench width, should have been 55" (see page 59), also W.P.+S.Co. Area was based on W.D. 206 instead of [13.8843] as shown on page 60. Computation = 45,372.74 C.Y. excavation — $\frac{41,773.5 \times 13.8843}{27}$, W.P.+S. backfill = 23,891.41 cu.yds of backfill an increase of 918.06 C.Y. to be added.

Hazard Co. Backfill.
4,146.67
1,679.76
2,826.37
722.11
347.07
2,156.41
3,297.74
15,176.13 Cu.yds original figures.
711.94 Addition
15,888.07 Cu.yds total backfill of 59" trench

Note; Original field calculations based on 58" trench width, should have been 59" (See page 59), also W.P.+S.Co. area was based on W.D. 207 instead of [16.3287] as shown on page 60. Computation = 35,051.10 Cu.yds. excavation — $\frac{32,685.9 \times 16.3287}{27}$, W.P.+S.Co. backfill = 15,888.07 Cu.yds. of backfill, an increase of 711.94 Cu.yds

Backfill Schedule I (cont. from p. 69)

Tunnel Portal Cuts.

Sta.	to Sta.	Lin. feet of backfill	Hazard Co. Backfill.
299+09	298+17	92.3	141.46
286+99	285+44	155.	237.55
225+92	224+30	179.64	275.32
205+10	204+18	92.	141.00
192+76	192+31	44.7	68.51
171+95	171+14	85.	130.27
170+72	167+75	296.9	455.03
145+83	142+25	365.5	560.17
		1311.04	2,009.31 Cu. Yds. original field figures.
			4.37 Addition (see note)
			2,013.68 Cu. Yds total backfill of Portal Cuts.

Note: original field computations based on W.D. drawing 207 for W.P. Steel Co. backfill. [16.3287], as shown on page 60, should have been used. Thus, Total backfill area, $\frac{57.80 - 16.3287}{27}$ = 2,013.68 an increase of 4.37 Cu. Yds.

B.M. 339.35
4.15
~~343.50~~
6.5
8-5 339.0 330.1 C. 8.9
1.7
703.5 338.8 330.6 C 8.2
~~349.80~~
C.2
337.3 330.6 C. 6.7
343.5
4.6
338.9 C. 8.3

IMPROVED TABLES

AND

INFORMATION

9.3
31
62
56
11.8

34.63
12.05
22.58

9.3
36
57
37
94

8.6
2
66
53
11.9

8.5
31
54
19
23

8.8
29
59
26
85

9.5
24
71
13
84

99
36
63
13
83

8.9
26
63
27
9.0

10.4

2.6
330.6
26
328.0

Wrong % of grade 821+15 to 823+50
Should be 3.85 %

Why short grade at 828+70
" " " " 836+94.
850+50 · Graded Street - only 4.4 cut.

3.9
3213
3252
3204
48

3 50
821+15
235

398
9.06
705
2010
2115
1950
1880
700

1626
10.4
6504
1626
16910.4

3.8
2010

3256
1.7
3239
17
280