

23-67

5267

Castle Avenue Survey <sup>2000</sup>  
Alignment Sta 0+00 - 80+76.8

R.E. Huston Transit  
Koopman } chains  
Mearns }  
Walsh } st. artist  
Maloney } R. Flag.

Job 23-67

(1 of 2)

# Castle Ave Survey

1142.6 Sec Line

414002 P.O.T

20400 P.O.T

15452 P.O.T

3' Offset Right

104202 P.O.T

N89°36'E

0400 = Sta 77+16.1 On Old White Bear Rd

h

E

R

(0 of 2)

W 372' Tree

W 300' Double Tree

L 66

112' Tree

W 225' T.P.

+453' A St.

3' Offset

L 60

70° 31'

774762 Old White Beam Rd =  
0+00 Castle Ave

Old White Beam Rd

844932 ORI

744962 ORI

② of 2

3-16-23

Ang. L.  $\frac{1}{2}$  Ang. R

80 + 26.9 East line Margaret St.

73 + 57.4 East line Helen St.

N 88° 40' E. ✓

71 + 31.7 P.I. 37° 09'

65 + 57.3 P.O.T.

N 51° 31' E ✓

56 + 84.2  $\frac{1}{2}$  St.

50 + 61.4 P.O.T.

46 + 84.9 E.C. 10° Curve left

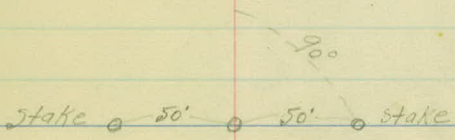
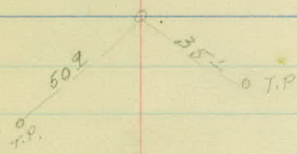
45 + 02.4 P.I. 38° 05'

43 + 04.1 ✓ B.C. 10° Curve left

N 89° 36' E

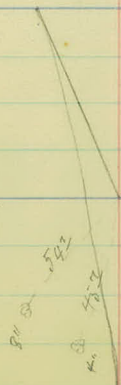
Castle Ave

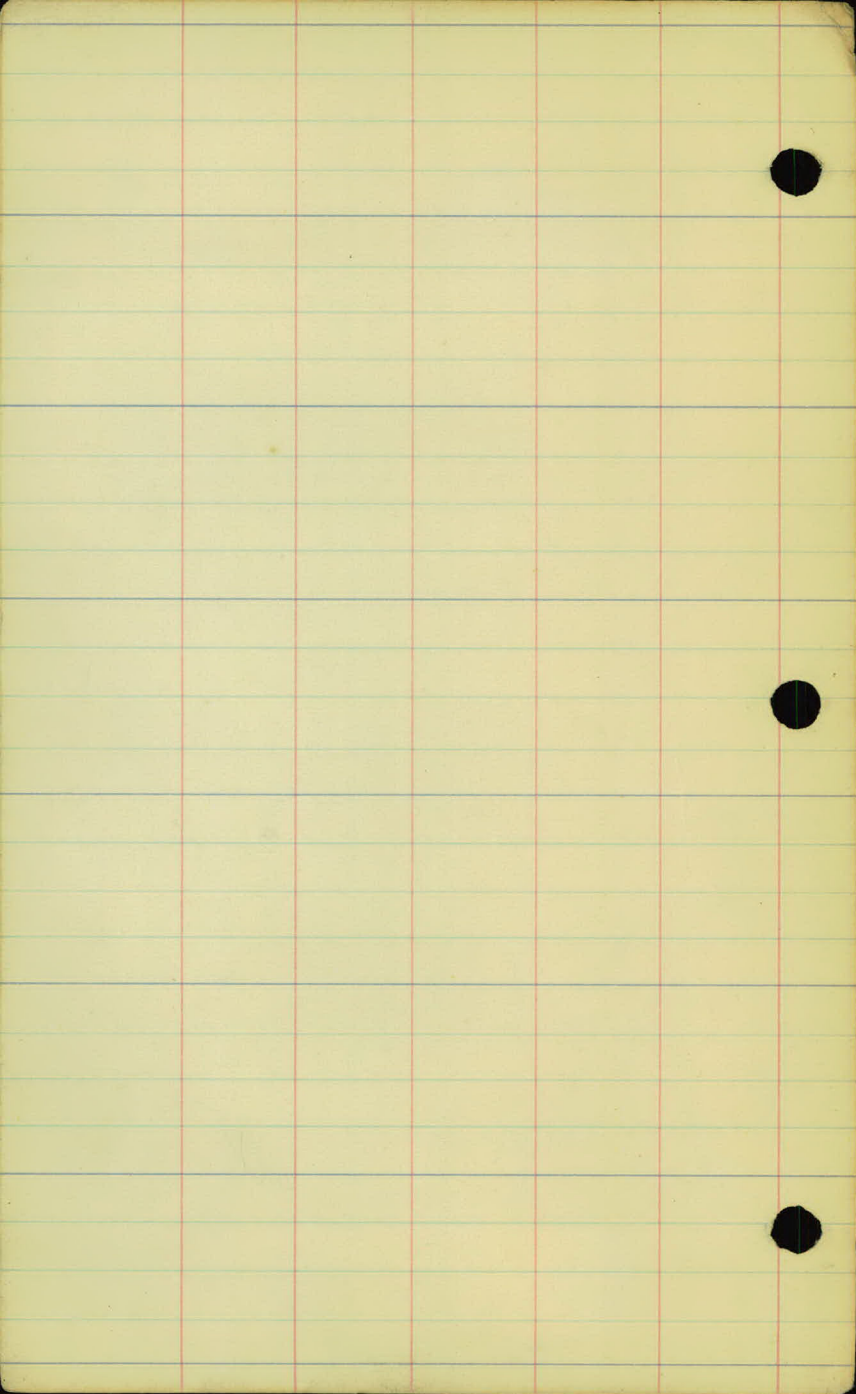
1/2  
0



Sta.	Net.
43+04.1	= 0°00'
44+00	= 4°48'
45+00	= 9°48'
46+00	= 14°48'
+849	= 19°02 1/2'

10° Curve left.  
 $\Delta = 38°05'$   
 S.T. = 148.01 ✓  
 Length 380.82 ✓  
 43+04.1 = B.C. ✓  
 46+849 = E.C. ✓





Castle Avenue.

Artificial Topography

R.F. Austin Recorder.  
3 Kodak chains.  
Walsb

Job 23-67

Castle Ave.

## Artificial Topography

R. B. Austin. Recorder

Skogglyn } chair

Walsh.

A

R. ① 978 22:00

31' E

+67 2 R

+84 E.P. 5' L

+52 1000 260

+13 T.O. 31' L

+18 E.P. 26 R

+77 T.O. 38'

+75 T.O. 34'

+10 T.O. 34'

+95 T.O. 34'

+94 E.P. 31' R

+61 T.O. 30'

+77

+50 T.O. 38'

34' 34'

+52 E.P. 31'

37' 35'

+17 E.P. 27'

33' 35'

+10 T.O. 34'

+10 T.O. 31'

+10 T.O. 34'

31' 38'

14:00

+45 7 1/2 1/2

+20 X X X 29'

+15.7

15:50

(2 of 8)

Castle Ave.

A

+130 Tree 28' L

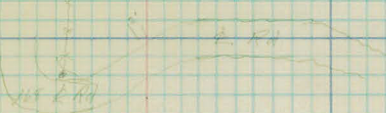
+17 Tree 28' R

+47 End Fence

+30 E.R. 17'

28400

+130 E.R. 41' 1/2 W



+130 E.R. 17' L  
 +137 End Fence  
 +131 Tree 35' L  
 +121 Tree 26' L

+151 T.R. 25' R

+120 Tree 18' L

27400

+117 Tree 16' L

+118 Tree 31'  
 +126 Tree 30'  
 +119 T.R. 27'  
 +110 Tree 21'  
 +107 Tree 25' R

+104 Tree 25' L

26400

+190 E.R. 17' L  
 +171 Tree 30'  
 +160 Tree 35' L  
 +142 Tree 38'E  
 +147 Tree 37'

+129 Tree 24' R

+156 Tree 35' L

+107 Tree 18' R 25400  
 +125 T.R. 35' R  
 +125 End Fence

+121 E.R. 17' W

+144 Tree 26' R

+112 T.R. 24' R  
 24400

+109 Tree 30'

+103 Tree 34'E

+112 Tree 30' L

+130 T.R. 35'

+184 Tree 29' L  
 +170 E.R. 18' L

+177 Tree 17' 23400  
 +125 Tree 23'

+112 Tree 30' L

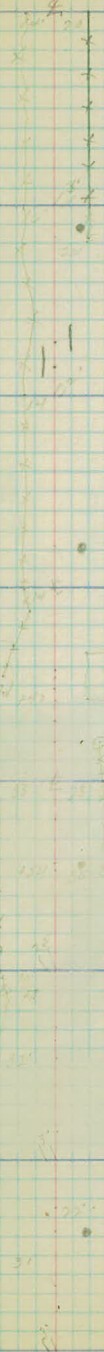
+148 T.R. 32'

+118 Tree 24' L  
 +107 Tree 31 22400



(3 of 8)

Castle Ave



+89 A.P. 15' R  
 +88 E.P. 20' R  
 +79 G.P. 10' - 55' L

35100  
 +89 A.P. 15' R  
 +88 E.P. 20' R  
 +79 G.P. 10' - 12' R  
 34100

+86 G.P. 15' L  
 +85 End Frame  
 +84 End Frame

+77 E.P. 16' R  
 33100  
 +84 G.P. 15' L  
 +85 End Frame  
 +86 G.P. 15' L

+80 T.P. 20' L  
 +81 T.P. 20' L  
 +82 T.P. 20' L  
 +83 End Frame

+87 T.P. 20' L  
 32100  
 +80 T.P. 20' L  
 +81 T.P. 20' L  
 +82 T.P. 20' L  
 +83 End Frame  
 +84 G.P. 15' L  
 31100

+87 End Frame  
 +86 T.P. 30' L

+84 G.P. 15' R  
 30100  
 +87 End Frame  
 +88 E.P. 10' R  
 +85 T.P. 30' L  
 +84 T.P. 30' L  
 29100

(4) of (8)

Castle Ave.



⑤ of 8

3-17-23

Castle Ave.

Castle Hrc

Cleaning Sta. 53+50 - 54+00 (10x20) R

W 54+50 - 55+00 (10x20)

52+00

50+00

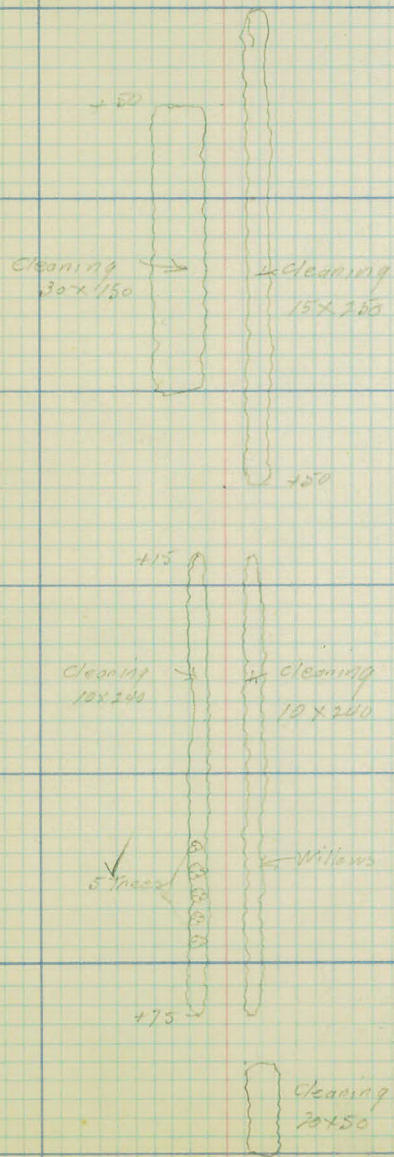
49+00

48+00

47+00

46+00

45+00



② of 8

Castle Are.

+12 Trace 36'  
 +13 Trace 36'  
 +14 Trace 36'  
 +15 Trace 36'  
 +16 Trace 36'

② of 8

65100

+18 Trace 36'  
 +19 Trace 37'

Condition  
 +11 31.00/18'R

67101

+24 Trace 37'

+26 Trace 37'

+18 Trace 37'

+20 Trace 31' 66100

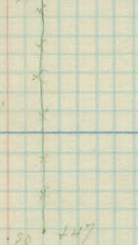
+26 Trace 37'

+25 37'

+25 37'

65100

+25 37' end



66100

+24 Trace 31'

+45 Trace 32'

20 247

+18 Trace 32'

63100

+18 Trace 36'

+19 Trace 36'

+93 Trace 31'R

+40 Trace 36'

+35 Trace 35' ✓

+31 " 36'

+23 Trace 33' ✓

+14 Trace 36'L

62100

+69 Trace 31'R

+25 Trace 31'R

61100

(1 of 8)

Castle Ave.

+37 End 22' L

(1 of 8)

75100

+38 F.P. 22' R  
+39 Trace 23' R

45 Concrete Sidewalk

45 Concrete Sidewalk

+41 Trace 22' R 77100

+40 End Sidewalk 25' L  
+49 F.P. 22' L

+25' 25'

+45 Trace 23' R  
+50 End side Walk 25' R  
45

See End School Wall 42' 2

78400

90°  
2' Wall  
Slope Wall

+45 End School Wall 31' L  
+49 F.P. 20' R

+313 P.I.

+90 End Fence 30' R

+100 F.P. 19' R 77100

+47 Trace 37'

+50

+102 Trace 30' R

+48 Trace 37'

6'

77100

+49 Trace 37' L

14'

+51 Trace 36' L

+105 Trace 30'

+57 Trace 36' L

1'

70100

+108 Trace 30' R

+21' 415 Fence Cap

67100

+58 Trace 36'

+59 Trace 36'

+60 Trace 36'

+111 Trace 30' R

+112 Trace 30' R

68100

(8.048)

3-19-23

Castle Ave.

Castle Ave

804.00

+60 End 20' L  
+61 Trace 20'  
+62 Trace 20' L

+63 End, MK

+63 End Side Walk

+61 Trace 20'  
+62 Trace 20'  
+67 Trace 20'  
+63 Trace 20'

79,500

+65 Trace 21' L

+67 End, 20' L

+64 Trace 20' R

+68 Trace 20'

+64 E.R. 21' L

25' 20'

+67 Trace 20'

78,400

+68 Trace 20'

+69 Trace 20' L

+70 Trace 20'

+69 Trace 20'

+71 Trace 20'

+72 Trace 20'

+73 Trace 20'

77,400

+74 Trace 20' L

+75 Trace 20'

+74 Trace 20' R

\* concrete  
sidewalk 4' wide

+76 Trace 20'

+77 End 21'

+78 Trace 20' L

+75 Trace 20'

+79 Trace 20'

+76 Trace 20'

+80 Trace 20'

+77 Trace 20'

+78 Trace 20'

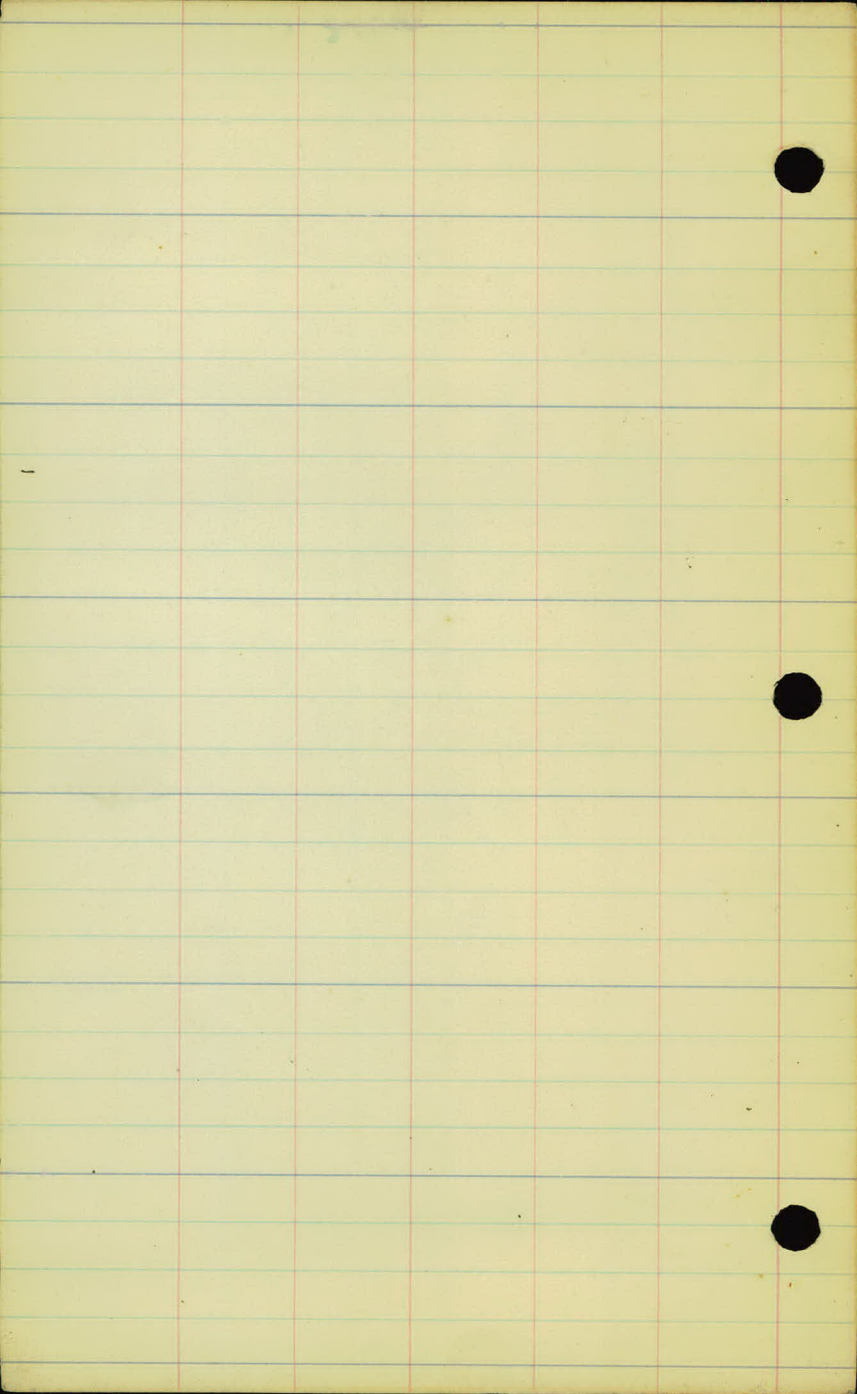
+81 Trace 20' L

+81 Trace 20' 76,400

+82 Trace 20'

+82 Trace 20' R

75,400



"C" Line Levels 8 sheets  
Castle Ave.

R.H. } 9-16-23  
W.M.D. }

Job 23-67

"C" Line Levels Sheet #1 of 8

Station	B.S.	I.I.	F.S.	Rod	Elev
					248.57
	8.55	257.12 ✓			
			(8.51)		248.61 ✓
0+00				11.1	246.0 ✓
(+8.5) + 35				11.0	246.1 ✓
1+00				10.5	246.6 ✓
2+00				9.5	247.6 ✓
3+00				5.0	252.1 ✓
4+00				0.5	256.6 ✓
			0.29 ✓		256.85 ✓
	12.21	269.04 ✓			
5+00				5.8	263.2 ✓
6+00				0.7	268.3 ✓
			0.64		268.40 ✓
	12.40	280.80 ✓			
7+00	<u>33.16</u>			6.2	272.6 ✓
	97				
8+00	<u>32.19</u>			3.2	277.6 ✓
			0.04		280.76 ✓
	11.68	292.44 ✓			
9+00			.97	11.1	281.3 ✓
10+00				6.7	285.7 ✓
11+00				5.2	287.2 ✓
12+00				4.1	288.3 ✓
13+00				4.1	288.3 ✓
14+00	280.76			4.3	288.1 ✓
	248.57				
	<u>32.19</u>				

"C" Line Levels

B.M. Telepole W.B.P 80+25.25' L Elev 248.57

B.M. Telepole 0+12.52' R "C" Line

R.J.L.  
W. Mead } 3-16-23

T.P. on rock 2' L of 3+98

T.P. on rock 2' L of 6+00

T.P. on rock 5' L of 8+50

"C" Line Levels Sheet #2 of 8

Station	B.S.	H.I.	F.S.	Rod	Elev
		292.43			
15+00	11.68		0.22	1.5	290.9 ✓
	3.50	295.72 ✓			292.28 ✓
16+00				3.8	291.9 ✓
17+00				4.4	291.3 ✓
18+00				6.3	289.4 ✓
+50			7.96		287.76 ✓
19+00				8.8	286.9 ✓
20+00				10.4	285.3 ✓
+50				12.1	283.6 ✓
			11.61		284.11 ✓
	0.78	284.89 ✓			
21+00				3.6	281.3 ✓
+65				6.8	278.1 ✓
22+00				8.7	276.2 ✓
<del>23+00</del>			13.04		271.85 ✓
	0.45	272.30 ✓			
23+00				11	271.2 ✓
+35	16.41			2.3	270.0 ✓
24+00				4.9	267.4 ✓
25+00				9.9	262.4 ✓
TR			11.86		260.44 ✓
	0.49	260.93 ✓	3673		
			1641		
25+70			22032	3.1	257.6 ✓
					280.76
					260.44
					220.32

"C" Line Levels

T.P. Top of stake 15+45

R.L. } 3-16-23  
W.M.C.D. }

B.M. Tele pole 35' R 11+50

T.P. 20+30.5' L on rock

T.P. on top of stake 10' L of C

T.P.

"C" Line Levels Sheet # 3 of 8

Station	BS	I.I.	F.S.	rod	Elev
		260.93 ✓			
26+00				4.6	256.3 ✓
+75	0.49			7.3	253.6 ✓
27+00				8.1	252.8 ✓
+70				9.4	251.5 ✓
28+00				9.8	251.1 ✓
29+00				10.9	250.0 ✓
30+00				12.6	248.3 ✓
			11.86		249.07 ✓
	2.29	251.36			
30+85				2.2	249.2 ✓
31+00	2.78			2.3	249.1 ✓
+45				2.2	249.0 ✓
32+00				2.9	248.5 ✓
+30				3.3	248.0 ✓
33+00				5.3	246.0 ✓
			6.89		244.47 ✓
34+00				6.1	245.2 ✓
+03				6.0	245.3 ✓
+22				5.6	245.7 ✓
35+00				5.5	245.8 ✓
36+00				5.2	246.1 ✓
37+00				5.8	245.5 ✓
38+00				5.8	245.5 ✓
			4.87		246.49 ✓
	3.60	250.09	6.73		260.44
			2.78		46.49
			13.95		13.95

"C". Line Levels

R.H.  
W.M.C.D. } 3-16-23

T.P. top of stake 31+00 10' L

B.M. Tele pole 10' R 33+20

T.P. Top of stake 36+00

"C" Line Levels Sheet #4 of 8

Station	B.S.	I.I.	F.S.	Red	Elev
		250.09 ✓			
39+00				48	245.3 ✓
40+00	360			36	246.5 ✓
41+00				37	246.4 ✓
+17				4.5	245.6 ✓
42+00				5.0	245.1 ✓
43+00				5.3	244.8 ✓
+04'				5.0	245.1 ✓
44+00				5.0	245.1 ✓
45+00				5.0	245.1 ✓
+30				6.2	243.9 ✓
+50				4.7	245.4 ✓
			3.75 ✓		246.34 ✓
	347	249.81 ✓			
46+00	7.07			27	247.1 ✓
46+84.9				36	246.2 ✓
47+00				3.8	246.0 ✓
48+00				4.4	245.4 ✓
+50				5.0	244.8 ✓
49+00				5.3	244.6 ✓
50+00				5.0	244.8 ✓
51+00				4.9	244.9 ✓
52+00				4.5	245.3 ✓
53+00				4.6	245.2 ✓
			3.70 ✓		246.11 ✓
	7.63	255.74 ✓	745		246.49
			707		46.11
			.38		.38

"C" Line Levels

R.L.  
WMCD } 3-16-23

BC.

TP on P.L.

EC.

TP

"C" Line Levels Sheet #3 of 8

Station	B.S.	I.I.	F.S.	Prod.	Elev
		255.74			✓
54+00				9.1	246.6 ✓
55+00	9.63			7.7	248.0 ✓
56+00				7.0	248.7 ✓
56+84				6.3	249.4 ✓
57+00				6.1	249.6 ✓
58+00				5.2	250.5 ✓
59+00				3.9	251.8 ✓
60+00				2.3	253.4 ✓
			9.21		255.53 ✓
	11.67	267.20			✓
61+00				9.6	257.6 ✓
62+00				5.9	261.3 ✓
63+00				0.6	266.6 ✓
			0.29		266.91 ✓
	11.35	278.26			✓
64+00	32.65			9.3	268.9 ✓
	.71				
65+00	31.94			8.2	270.0 ✓
	12.5			7.4	270.8 ✓
			3.79		274.47 ✓
66+00				3.7	274.5 ✓
			0.21		278.05 ✓
	11.56	289.61			✓
67+00			.71		✓
				9.5	280.1 ✓
68+00		278.85		6.4	283.2 ✓
		246.11			
69+00		31.94		2.4	287.2 ✓

C" Lipe Levels

R.I.L }  
W.M.C.D } 3-16-23

T.P. on rock 12' E 60+50

T.P. 63+09 on rock

B.M. Tele Pole 65+00 50' Left

T.P.

"C" Line Levels Sheet #6 of 8

Station	B.S.	H.I.	F.S.	Rod	Elev
	11.56	289.61			✓ 289.21
	11.81	301.02	0.40		✓
70+00				5.2	292.8 ✓
71+00				1.2	299.5 ✓
			0.35		300.67 ✓
	5.26	305.93			
72+00				3.7	302.2 ✓
+ 31.7				2.9	303.0 ✓
73+00				3.6	302.3 ✓
+ 3.0				3.5	302.4 ✓
74+00				4.1	301.1 ✓
75+00				7.9	298.0 ✓
76+00				11.3	294.6 ✓
			12.69		293.24 ✓
	0.62	293.86			
77+00	29.25			2.3	291.5 ✓
	17.68				
78+00	11.57			4.6	289.2 ✓
79+00				5.5	288.3 ✓
(+75) + 9.5				5.5	288.3 ✓
80+00				4.7	289.2 ✓
+ 26.8				5.0	288.8 ✓
			4.24		289.62 ✓
			17.68		278.05 ✓
					11.57

"C" Line Levels

Check Levels

TP

R.I.L }  
W.M.C.D } 3-16-23

TP

B.M. 80126<sup>8</sup> on Elec Pole 25 R

"C" Line Levels Sheet #7 of 8

Station	B.S.	I.I.	F.S.	Rod	Elev
Check Levels					293.24
	12.39	305.63			
			7.38		298.25
	0.09	298.34			
			12.65		285.69
	<u>0.93</u>	<u>286.62</u>			
			17.16		274.46
	0.04	274.50			
			13.02		261.48
	0.15	261.63			
			12.13		249.50
	0.61	250.11			
			3.72		246.39
	4.90	251.39			
			4.61		246.68
	7.52	254.20			
			0.67		253.53
	12.83	266.36			
			0.97		265.69
	12.66	278.35			
			0.29		278.06
	11.70	289.76			
			2.02		287.72
	8.53	296.25			
			12.19		284.06
	0.21	284.27			

R.I.L }  
W.M.C.D } 3-17-23

BM. Elev 294.47

TP

TP

TP  
TP

TP

"C" Level Levels Sheet 8 of 8

BS. H.I. F.S. Elev

284.27

1223

272.04

041 272.45

1276

259.69

112 260.81

1225

278.56

"C" Line Culverts

R.I.L }  
W.M.C.D } 3-16-83

Job 23-67

# "C" Line Culverts

Station 18" x 18" Woodbox Culvert Length 16'

34+03

$\frac{2411}{50}$  L  $\frac{2428}{6.5}$   $\frac{2430}{95}$  R  
 2453

Flows Left abanded

34+22 2' x 4' Woodbox Culvert Length 24'

$\frac{2404}{7}$  L  $\frac{2409}{7}$   $\frac{2411}{17}$  R  
 245.7

Flows Left

41+17 36" Corrigated Iron pipe Length 24'  
Concrete Bulkhead Flows Left

$\frac{2405}{50}$  L  $\frac{2408}{1.5}$   $\frac{2410}{9}$  R  
 2456

49+00 30" Corrigated Iron Pipe Length 21'

$\frac{2413}{50}$  L  $\frac{2416}{8}$   $\frac{2417}{13}$  R  
 2446

C. Cross Sections

10.5 sheets

R.L.  
W.M.C.D.  
W.M.  
R.W.

Job 23-67

## "C" Line Cross Sections

Station	Elev	R.I.L. W.M.C.D. W.M. R.W.
0+00	246.0	} 3-19-23
+35	246.1	
1+00	246.6	
2+00	247.6	
3+00	252.1	
4+00	256.6	
5+00	263.2	
6+00	268.3	
7+00	272.6	
8+00	277.6	
9+00	281.3	
10+00	285.7	

$$\frac{+0.7}{33}$$

$$\frac{-0.7}{33}$$

$$\frac{-0.2}{33} \frac{0.0}{22} + \frac{+1.0}{13} + \frac{+0.9}{02}$$

$$\frac{-0.1}{9} \frac{0.0}{20} + \frac{+1.0}{33}$$

$$\frac{-0.4}{33}$$

$$+ \frac{+1.5}{5} + \frac{+1.5}{12} + \frac{+1.2}{22} \frac{0.0}{28} - \frac{0.5}{33}$$

$$\frac{-1.0}{33}$$

$$+ \frac{+2.2}{5} + \frac{+3.0}{12} + \frac{+2.0}{22} + \frac{+1.2}{26} + \frac{+0.2}{33}$$

$$\frac{-2.8}{23} + \frac{+1.3}{4}$$

$$+ \frac{+0.5}{3} + \frac{+1.0}{10} + \frac{+1.0}{19} + \frac{+1.3}{33}$$

$$\frac{-1.0}{33} + \frac{+0.3}{3}$$

$$+ \frac{+0.6}{21} + \frac{+1.0}{9} + \frac{+0.5}{16} + \frac{+1.3}{11} + \frac{+1.5}{33}$$

$$\frac{+2.9}{33} + \frac{+3.0}{28} + \frac{+0.9}{4} \frac{0.0}{2}$$

$$+ \frac{+0.7}{7} - \frac{0.6}{17} + \frac{+0.3}{19} + \frac{+0.3}{33}$$

$$\frac{-0.5}{33} + \frac{+0.5}{3}$$

$$+ \frac{+0.5}{8} \frac{0.0}{18} + \frac{+0.8}{20} + \frac{+1.6}{33}$$

$$\frac{-0.5}{33} + \frac{+0.7}{1}$$

$$+ \frac{+0.8}{9} + \frac{+0.8}{19} + \frac{+1.3}{20} + \frac{+2.2}{33}$$

$$+ \frac{+1.0}{33} + \frac{+0.3}{1}$$

$$+ \frac{+0.4}{5} + \frac{+0.8}{11} + \frac{+0.4}{22} + \frac{+1.0}{22} + \frac{+1.7}{33}$$

$$\frac{-1.7}{33}$$

$$+ \frac{+0.5}{3} + \frac{+0.3}{2} + \frac{+1.1}{14} + \frac{+0.3}{33} + \frac{+1.1}{24} + \frac{+0.7}{33}$$

$$\frac{-1.5}{33} \frac{0.0}{12}$$

$$\frac{0.0}{3} \frac{0.4}{4} + \frac{+0.4}{15} \frac{0.0}{26} + \frac{+1.1}{28} + \frac{+3.1}{33}$$

"C" Line Cross Sections

Station	Elev.	
11+00	287.2	RIL W.M.C.D W.M RW } 3-19-23
12+00	288.3	
13+00	288.3	
14+00	288.1	
15+00	290.9	
+46	291.3	
16+00	291.9	
+50	291.4	
17+00	291.3	
+45	291.4	
18+00	289.4	
+75	287.9	
19+00	286.9	
20+00	285.3	
+50	283.6	
21+00	281.3	
+65	278.1	

$$1 \quad -\frac{2.0}{33} - \frac{1.0}{22} + \frac{0.2}{4} + \frac{0.0}{5} + \frac{1.2}{15} + \frac{0.8}{27} + \frac{1.6}{29} + \frac{1.6}{33}$$

$$-\frac{1.5}{33} - \frac{0.5}{20} + \frac{0.6}{5} + \frac{1.1}{13} + \frac{0.4}{24} + \frac{1.3}{27} + \frac{2.1}{33}$$

$$-\frac{3.9}{33} - \frac{3.0}{9} + \frac{0.7}{9} + \frac{0.4}{17} - \frac{1.0}{20} - \frac{1.1}{33}$$

$$-\frac{0.2}{33} - \frac{0.7}{20} - \frac{0.7}{3} + \frac{1.0}{9} + \frac{0.2}{19} - \frac{1.0}{22} - \frac{1.0}{33}$$

$$+\frac{2.2}{33} + \frac{2.0}{20} + \frac{1.3}{15} + \frac{0.3}{12} + \frac{2.8}{23} + \frac{2.5}{25} - \frac{0.2}{8} - \frac{0.4}{19} + \frac{0.0}{25} + \frac{0.6}{33}$$

$$-\frac{1.3}{33} + \frac{0.7}{13} + \frac{0.2}{6} + \frac{0.2}{7} + \frac{0.0}{19} + \frac{0.2}{21} + \frac{0.5}{33}$$

$$-\frac{1.5}{33} - \frac{2.2}{15} - \frac{0.7}{9} - \frac{0.4}{6} - \frac{0.2}{11} - \frac{0.0}{22} + \frac{0.7}{26} + \frac{1.1}{33}$$

$$+\frac{2.5}{33} + \frac{1.7}{18} + \frac{1.0}{14} + \frac{0.4}{7} + \frac{0.2}{7} - \frac{0.6}{10} - \frac{1.2}{22} - \frac{1.5}{33}$$

$$+\frac{3.0}{33} + \frac{3.5}{20} - \frac{1.4}{16} - \frac{1.4}{11} + \frac{0.0}{5} + \frac{0.5}{9} + \frac{0.0}{15} + \frac{0.2}{25} - \frac{1.5}{33}$$

$$-\frac{0.0}{33} - \frac{0.2}{15} - \frac{0.1}{7} - \frac{0.2}{5} - \frac{0.6}{11} - \frac{0.5}{13} - \frac{2.7}{26} - \frac{3.0}{33}$$

$$+\frac{2.4}{33} + \frac{2.3}{23} + \frac{0.0}{27} + \frac{0.0}{10} - \frac{0.5}{6} - \frac{0.5}{9} - \frac{0.2}{11} - \frac{1.0}{26} - \frac{2.0}{33}$$

$$+\frac{1.3}{33} - \frac{0.2}{15} - \frac{0.2}{8} - \frac{0.2}{6} + \frac{0.0}{11} - \frac{1.0}{20} - \frac{2.8}{27} - \frac{3.4}{33}$$

$$-\frac{2.2}{33} - \frac{1.8}{22} - \frac{1.4}{14} - \frac{0.7}{8} - \frac{0.4}{10} - \frac{0.1}{13} + \frac{0.0}{25} + \frac{0.8}{33}$$

$$+\frac{3.5}{33} + \frac{4.0}{23} + \frac{1.0}{19} + \frac{0.0}{14} - \frac{0.7}{9} - \frac{0.3}{7} - \frac{0.3}{11} + \frac{0.7}{15} + \frac{0.8}{23} + \frac{4.4}{26} + \frac{5.0}{33}$$

$$+\frac{1.5}{33} + \frac{1.8}{30} - \frac{0.4}{18} - \frac{0.2}{11} - \frac{0.5}{9} + \frac{0.5}{11} + \frac{0.8}{15} + \frac{0.8}{33}$$

$$+\frac{1.2}{33} + \frac{1.5}{23} - \frac{0.6}{16} - \frac{0.3}{13} - \frac{0.9}{11} + \frac{0.3}{6} + \frac{1.4}{26} + \frac{1.6}{33}$$

Road

## "C" Line Cross Section

Station	Elev
22+00	276.2
23+00	271.2
+35	270.0
24+00	267.4
25+00	262.4
+70	257.8
26+00	256.2
+75	253.6
27+00	252.8
+70	251.5
28+00	251.1
29+00	250.0

RIL  
 W.M.C.D.  
 W.M.  
 R.W. } 3-19-23

$$+ \frac{16}{33} + \frac{19}{22} - \frac{00}{19} \frac{00}{17} - \frac{05}{9} - \frac{02}{9} + \frac{04}{12} + \frac{13}{23} + \frac{16}{33}$$

$$- \frac{10}{33} - \frac{05}{11} - \frac{04}{7} - \frac{04}{10} - \frac{05}{16} - \frac{20}{20} - \frac{20}{33}$$

$$+ \frac{10}{33} + \frac{08}{21} - \frac{02}{17} - \frac{04}{9} - \frac{07}{10} - \frac{03}{13} - \frac{03}{21} - \frac{05}{33}$$

$$+ \frac{16}{33} + \frac{43}{21} + \frac{03}{14} - \frac{02}{9} - \frac{06}{8} - \frac{02}{8} + \frac{07}{12} + \frac{25}{18} + \frac{20}{33}$$

$$+ \frac{50}{33} + \frac{50}{23} \frac{00}{15} \frac{00}{10} - \frac{07}{9} - \frac{04}{7} + \frac{33}{17} + \frac{33}{33}$$

$$+ \frac{04}{33} \frac{00}{23} - \frac{10}{17} + \frac{04}{8} \frac{00}{6} - \frac{03}{10} + \frac{03}{12} + \frac{07}{33}$$

$$- \frac{36}{33} - \frac{32}{26} - \frac{00}{9} - \frac{02}{8} - \frac{07}{15} - \frac{16}{19} - \frac{11}{22}$$

$$- \frac{65}{33} - \frac{55}{23} - \frac{00}{10} - \frac{00}{7} - \frac{26}{15} - \frac{32}{33}$$

$$- \frac{53}{33} - \frac{50}{21} - \frac{40}{17} - \frac{03}{8} - \frac{04}{9} - \frac{22}{14} - \frac{22}{33}$$

Driveway

$$- \frac{07}{33} + \frac{05}{20} \frac{00}{17} - \frac{01}{10} - \frac{02}{16} + \frac{02}{19} \frac{00}{33}$$

$$+ \frac{16}{33} + \frac{16}{25} - \frac{05}{21} \frac{00}{10} \frac{00}{12} + \frac{06}{18} + \frac{05}{33}$$

$$+ \frac{40}{33} + \frac{35}{22} + \frac{07}{17} + \frac{02}{13} - \frac{02}{9} \frac{00}{4} + \frac{05}{10} + \frac{06}{14} + \frac{22}{17} + \frac{15}{33}$$

## "C" Line Cross Section

Station	Elev	
30+00	248.3	R/L W.M.C.D W.P.I R.W.) 3-19-23
+85	49.2 249.1	
31+00	49.1 249.0	
+45	49.2 249.1	
32+00	48.5 248.4	
+20	48.1 248.0	
33+00	46.1 246.0	
34+00	45.3 245.2	
35+00	45.9 245.8	
36+00	46.2 246.1	
37+00	45.6 245.5	
38+00	45.6 245.5	

$$-\frac{40}{33} - \frac{40}{23} \frac{00}{10} - \frac{08}{9} - \frac{30}{15} - \frac{30}{33}$$

$$-\frac{10}{33} - \frac{09}{27} \frac{00}{16} - \frac{03}{10} \quad \frac{00}{9} + \frac{08}{16} + \frac{00}{33}$$

$$+\frac{40}{33} + \frac{40}{24} + \frac{48}{22} + \frac{08}{16} - \frac{01}{10} + \frac{02}{8} + \frac{50}{14} + \frac{58}{33}$$

$$+\frac{85}{33} + \frac{85}{26} + \frac{20}{19} \frac{00}{16} - \frac{02}{7} + \frac{02}{9} + \frac{30}{20} + \frac{90}{30} + \frac{88}{33}$$

$$+\frac{30}{33} + \frac{28}{20} - \frac{03}{13} + \frac{02}{10} + \frac{21}{15} + \frac{10}{27} + \frac{05}{33}$$

$$+\frac{07}{39} - \frac{07}{14} \frac{00}{15} - \frac{02}{9} - \frac{10}{16} - \frac{15}{33}$$

$$-\frac{27}{33} - \frac{28}{15} - \frac{02}{9} - \frac{04}{8} - \frac{22}{13} - \frac{25}{33}$$

$$-\frac{15}{39} - \frac{40}{36} \frac{40}{34} - \frac{15}{26} - \frac{25}{23} - \frac{30}{14} - \frac{01}{5} - \frac{03}{9} - \frac{31}{16} - \frac{38}{33}$$

$$-\frac{10}{33} - \frac{10}{21} - \frac{12}{14} - \frac{02}{9} - \frac{01}{8} - \frac{12}{12} - \frac{17}{20} - \frac{17}{33}$$

$$-\frac{13}{33} - \frac{12}{15} - \frac{15}{8} - \frac{05}{5} - \frac{05}{11} - \frac{15}{15} - \frac{07}{18} - \frac{07}{33}$$

$$-\frac{15}{33} - \frac{15}{15} - \frac{15}{8} - \frac{02}{5} - \frac{04}{12} - \frac{15}{14} - \frac{20}{20} - \frac{15}{22} - \frac{14}{33}$$

$$-\frac{20}{33} - \frac{20}{20} - \frac{20}{15} - \frac{00}{6} + \frac{02}{6} - \frac{03}{10} - \frac{23}{13} - \frac{17}{18} - \frac{15}{21} - \frac{12}{33}$$

## "C" Line Cross Section

Station	Elev	
39+00	245.3	R/L W.M.C.D. V.M. R.W. } 3-19-83
40+00	246.5	
41+00	246.4	
+17	245.6	
42+00	245.1	
43+00	244.8	
44+00	245.1	
45+00	245.1	
+30	243.9	
+50	245.4	
46+00	247.1	
47+00	246.0	

$$-\frac{0,7}{33} - \frac{0,5}{22} - \frac{0,3}{12} - \frac{0,4}{5} - \frac{0,2}{6} - \frac{1,7}{8} - \frac{1,9}{16} - \frac{1,7}{33}$$

$$-\frac{1,5}{33} - \frac{1,3}{23} - \frac{0,5}{14} - \frac{0,0}{10} - \frac{0,6}{8} - \frac{0,8}{13} - \frac{1,0}{23} - \frac{1,0}{33} \text{ Drive way}$$

$$-\frac{1,2}{33} - \frac{1,0}{25} - \frac{1,4}{17} + \frac{0,2}{12} - \frac{0,2}{5} - \frac{1,0}{7} - \frac{1,6}{14} - \frac{0,4}{22} - \frac{0,0}{33}$$

$$\frac{0,0}{33} - \frac{0,0}{18} + \frac{0,2}{10} + \frac{0,4}{5} + \frac{0,4}{33}$$

$$\frac{0,0}{33} - \frac{0,0}{22} + \frac{0,3}{13} + \frac{0,1}{5} + \frac{0,2}{33}$$

$$\frac{0,0}{33} - \frac{0,0}{19} - \frac{0,0}{14} + \frac{0,2}{6} - \frac{0,0}{5} - \frac{0,0}{21} - \frac{0,0}{33}$$

$$-\frac{0,2}{40} - \frac{0,2}{33} - \frac{0,7}{8} - \frac{0,6}{10} + \frac{0,4}{13} + \frac{1,0}{21} + \frac{1,0}{27} + \frac{1,6}{28} + \frac{1,6}{40}$$

$$-\frac{0,9}{40} - \frac{1,0}{33} - \frac{1,0}{16} - \frac{2,0}{12} - \frac{2,0}{9} - \frac{1,3}{7} - \frac{0,5}{4} - \frac{0,5}{4} - \frac{0,5}{9} - \frac{0,5}{16} - \frac{2,0}{19} - \frac{2,0}{23} - \frac{1,2}{26} - \frac{1,0}{40}$$

$$-\frac{0,6}{40} - \frac{0,6}{33} - \frac{0,5}{25} - \frac{2,2}{22} - \frac{2,2}{16} - \frac{0,3}{9} + \frac{0,5}{8} - \frac{1,5}{12} - \frac{1,5}{19} - \frac{1,0}{24} - \frac{1,0}{40}$$

## "C" Line Cross Section

Station	Elev	
48+00	245.4	R/L W/MOD W/M R/W } 3-19-23
+50	244.8	
49+00	244.6	
50+00	244.8	
51+00	244.9	
52+00	245.3	
53+00	245.2	
54+00	246.6	
55+00	248.0	
56+00	248.7	
+84	249.4	
57+00	249.6	

$$\frac{-0.7}{40} - \frac{0.7}{33} - \frac{1.2}{21} - \frac{1.2}{15} - \frac{0.3}{11} + \frac{0.5}{11} - \frac{1.0}{15} - \frac{1.0}{26} - \frac{1.0}{40}$$

Drive way

$$-\frac{1.1}{40} - \frac{0.6}{21} - \frac{0.0}{7} - \frac{0.2}{10} - \frac{1.0}{17} - \frac{2.0}{21} - \frac{1.4}{40}$$

$$-\frac{1.7}{40} - \frac{1.6}{19} - \frac{0.9}{12} - \frac{0.2}{11} - \frac{1.0}{13} - \frac{0.6}{21} - \frac{2.0}{23} - \frac{2.0}{24} - \frac{0.5}{27} - \frac{0.4}{40}$$

$$-\frac{1.5}{40} - \frac{1.5}{15} - \frac{0.3}{7} - \frac{0.2}{5} - \frac{0.2}{13} - \frac{1.6}{16} - \frac{1.6}{18} - \frac{0.5}{21} - \frac{0.6}{40}$$

$$-\frac{1.0}{40} - \frac{1.0}{16} - \frac{0.0}{6} - \frac{0.0}{7} - \frac{1.5}{13} - \frac{1.5}{16} - \frac{1.0}{19} - \frac{0.8}{40}$$

$$-\frac{1.3}{40} - \frac{1.3}{15} - \frac{0.0}{7} - \frac{0.1}{5} - \frac{0.1}{10} - \frac{0.5}{16} - \frac{0.5}{14} - \frac{0.0}{19} - \frac{0.7}{40}$$

$$-\frac{1.1}{40} - \frac{1.0}{13} - \frac{0.0}{8} - \frac{0.0}{9} - \frac{1.3}{13} - \frac{1.3}{14} - \frac{0.5}{17} - \frac{1.0}{40}$$

$$-\frac{1.1}{40} - \frac{1.1}{18} - \frac{1.6}{13} - \frac{1.6}{11} - \frac{0.4}{8} - \frac{0.4}{9} - \frac{4.0}{14} - \frac{4.0}{16} - \frac{1.4}{17} - \frac{1.0}{40}$$

$$-\frac{1.2}{40} - \frac{1.3}{15} - \frac{1.6}{13} - \frac{1.6}{11} - \frac{0.0}{6} - \frac{1.0}{12} - \frac{4.0}{14} - \frac{4.0}{16} - \frac{1.2}{17} - \frac{1.2}{40}$$

$$-\frac{1.5}{40} - \frac{1.4}{32} - \frac{1.7}{18} - \frac{1.7}{14} - \frac{0.5}{11} - \frac{0.2}{8} - \frac{2.0}{20} - \frac{2.5}{20} - \frac{1.2}{22} - \frac{1.3}{40}$$

center of cross road

$$\text{Road} \quad -\frac{0.0}{40} - \frac{0.0}{16} - \frac{0.0}{6} - \frac{0.6}{10} - \frac{2.4}{13} - \frac{2.4}{14} - \frac{1.6}{15} - \frac{1.4}{40}$$

## "C" Line Cross Section

Station	Elev
58+00	250.5
59+00	251.8
60+00	253.4
61+00	257.6
62+00	261.3
63+00	266.6
64+00	268.9
65+00	270.0
+ 25	270.8
66+00	274.5
67+00	280.1
68+00	283.2

RIL  
 W.M.C.D. } 3-20-23  
 R.W.

$$\frac{-17}{40} - \frac{16}{16} - \frac{25}{15} - \frac{25}{14} - \frac{04}{8} - \frac{01}{6} - \frac{23}{12} - \frac{23}{14} - \frac{17}{18} - \frac{14}{40}$$

$$\frac{-18}{40} - \frac{20}{16} - \frac{26}{15} - \frac{26}{14} - \frac{20}{18} - \frac{02}{6} - \frac{01}{4} - \frac{22}{10} - \frac{24}{12} - \frac{20}{15} - \frac{15}{40}$$

$$\frac{-05}{40} - \frac{08}{17} - \frac{11}{16} - \frac{11}{15} - \frac{25}{18} - \frac{00}{7} + \frac{04}{4} - \frac{07}{11} - \frac{04}{15} - \frac{00}{40}$$

$$\frac{00}{40} - \frac{05}{29} - \frac{10}{17} - \frac{01}{11} - \frac{00}{3} - \frac{00}{13} - \frac{00}{30} + \frac{02}{40}$$

$$\frac{+30}{40} + \frac{30}{30} - \frac{11}{16} - \frac{11}{14} + \frac{00}{9} + \frac{02}{9} + \frac{05}{14} + \frac{20}{19} + \frac{35}{35} + \frac{34}{40}$$

$$\frac{+30}{40} + \frac{18}{24} - \frac{05}{18} - \frac{00}{10} - \frac{00}{5} - \frac{03}{10} - \frac{02}{16} + \frac{02}{19} + \frac{05}{26} + \frac{20}{35} + \frac{23}{40}$$

$$\frac{+13}{40} + \frac{10}{32} - \frac{10}{24} - \frac{11}{18} - \frac{02}{10} - \frac{00}{6} - \frac{00}{15} + \frac{10}{20} + \frac{34}{40}$$

$$- \frac{05}{40} + \frac{10}{35} - \frac{00}{10} + \frac{01}{9} + \frac{07}{20} + \frac{07}{40} \leftarrow \text{Center of } 15^{\text{th}} \text{ N.W.}$$

Center of 15<sup>th</sup> S + NW.Center of 15<sup>th</sup> S + N.W.  $\rightarrow + \frac{07}{40} + \frac{04}{20}$ 

$$\frac{00}{14} - \frac{03}{35} - \frac{00}{40}$$

$$\frac{+10}{40} + \frac{05}{27} - \frac{06}{22} - \frac{05}{14} + \frac{02}{12} - \frac{03}{5} - \frac{02}{8} - \frac{10}{14} - \frac{10}{16} + \frac{02}{20} + \frac{06}{40}$$

$$+ \frac{05}{40} + \frac{10}{28} + \frac{05}{21} + \frac{07}{13} - \frac{06}{5} - \frac{04}{10} - \frac{09}{13} - \frac{09}{17} - \frac{00}{20} - \frac{00}{40}$$

$$+ \frac{04}{40} - \frac{00}{26} - \frac{10}{24} - \frac{10}{20} - \frac{00}{12} - \frac{00}{7} - \frac{14}{14} - \frac{14}{16} - \frac{00}{19} + \frac{10}{40}$$

## "C" Line Cross Section

Station	Elev	
69+00	287.2	R/L W.M.C.D. RW } 3-20-23
+55	287.7 290.2	
70+00	292.8	
71+00	299.8	
72+00	302.2	
+31.7	303.0	GR. ELEV.
73+00	302.3	302.4
+30	302.4	302.4 Center of Helen St
74+00	301.1	301.1
75+00	298.0	297.9
76+00	294.6	294.7
+25	294.1	293.9
+35	294.0	293.6
77+00	291.5	291.5
78+00	289.2	289.2

$$\begin{array}{r}
 -\frac{22}{40} - \frac{24}{27} - \frac{17}{23} - \frac{17}{14} + \frac{0.2}{12} \\
 -\frac{04}{40} - \frac{10}{28} - \frac{00}{13} + \frac{0.2}{11} \\
 + \frac{0.2}{40} + \frac{0.3}{25} + \frac{0.6}{18}
 \end{array}$$

$$\begin{array}{r}
 -\frac{0.1}{3} - \frac{3.0}{10} - \frac{3.8}{15} - \frac{4.2}{40} \\
 -\frac{0.3}{11} - \frac{2.2}{17} - \frac{2.8}{14} - \frac{1.0}{23} - \frac{1.5}{40} \\
 -\frac{0.2}{70} - \frac{0.9}{21} - \frac{0.5}{33} - \frac{0.7}{40}
 \end{array}$$

$$+ \frac{1.8}{40} + \frac{2.1}{33} + \frac{0.4}{31} - \frac{0.0}{23} + \frac{0.4}{11}$$

$$-\frac{0.4}{5} - \frac{0.5}{13} - \frac{1.0}{15} - \frac{1.0}{16} - \frac{0.2}{19} - \frac{0.6}{40}$$

stone wall retaining

$$+ \frac{3.5}{40} + \frac{1.5}{33} + \frac{0.8}{27} + \frac{1.0}{15}$$

$$-\frac{0.1}{7} - \frac{1.2}{14} - \frac{1.3}{25} - \frac{1.0}{28} - \frac{1.2}{40}$$

Wall

$$\left[ 2' \times \frac{2.5}{40} + \frac{2.0}{34} \right]$$

$$-\frac{0.1}{15} - \frac{1.0}{17} - \frac{1.0}{28} - \frac{0.5}{30} - \frac{0.5}{40}$$

$$+ \frac{1.5}{40}$$

$$\frac{0.0}{17} - \frac{0.5}{28} - \frac{2.0}{40}$$

$$+ \frac{0.4}{40} + \frac{0.5}{28}$$

$$-\frac{1.0}{30} - \frac{1.6}{40}$$

$$+ \frac{1.0}{40} + \frac{1.0}{27} - \frac{0.0}{24} - \frac{0.0}{21}$$

$$-\frac{0.7}{13} - \frac{0.4}{20} - \frac{0.0}{29} + \frac{0.5}{33} + \frac{0.5}{40}$$

$$+ \frac{1.0}{40} + \frac{0.5}{27} - \frac{0.6}{20} - \frac{0.6}{16}$$

$$-\frac{0.5}{15} - \frac{0.0}{20} + \frac{0.5}{29} + \frac{2.5}{36} + \frac{2.8}{40}$$

$$+ \frac{0.5}{40} - \frac{0.5}{27} - \frac{0.0}{22} - \frac{1.0}{13}$$

$$\frac{0.0}{12} + \frac{0.3}{16} + \frac{1.1}{29} + \frac{4.8}{40}$$

$$+ \frac{0.5}{40} - \frac{0.0}{21} - \frac{0.8}{15}$$

$$-\frac{0.4}{13} - \frac{0.0}{16} + \frac{0.4}{19} + \frac{1.0}{29} + \frac{5.0}{40}$$

$$+ \frac{0.4}{40} - \frac{0.0}{21} - \frac{0.0}{15}$$

$$-\frac{0.5}{14} - \frac{0.0}{20} + \frac{0.8}{29} + \frac{0.8}{40}$$

$$+ \frac{0.3}{40} - \frac{0.0}{21} - \frac{0.0}{15}$$

$$-\frac{0.1}{11} - \frac{0.0}{20} + \frac{0.6}{27} + \frac{0.6}{40}$$

$$\frac{0.0}{40} + \frac{0.5}{27} - \frac{0.6}{25} - \frac{0.4}{22} - \frac{0.7}{15}$$

$$\frac{0.0}{17} + \frac{0.6}{24} + \frac{0.6}{29} + \frac{3.0}{40}$$

## "C" Line Cross Section

Station	Elev	Gr. Elev.	
79+00	288.3	288.3	R/L WOOD RW } 320-23
+95	288.3	288.3	
80+00	289.1		
+26.8	288.8	End of Line	

Sheet # 9

$$\frac{+0.4}{40} \quad \frac{00}{32} \quad \frac{00}{27} \quad - \frac{08}{15} \quad - \frac{02}{20} + \frac{05}{25} + \frac{05}{29} + \frac{10}{36} + \frac{1.0}{40}$$

Center of Margaret St N.E. +  $\frac{03}{40}$   $\frac{00}{40}$

'C' Line Cross Sections

Sheet 7/10

Castle Ave.

7401 1200 14'

U 2459