

23-51

Project 23-51

Equations + P.I. Location

6/15/23

Carley - Transit

Eck - Head chair

Briggs - Rear chair

5+0  
38+28.68

△ Edge of Paving

P.I. 38+20<sup>00</sup> Δ=0°-52' R

P.I. 36+14.3 Δ=0°-50' L

P.I. 29+12.3=29+02.2 Δ=5°-04' L

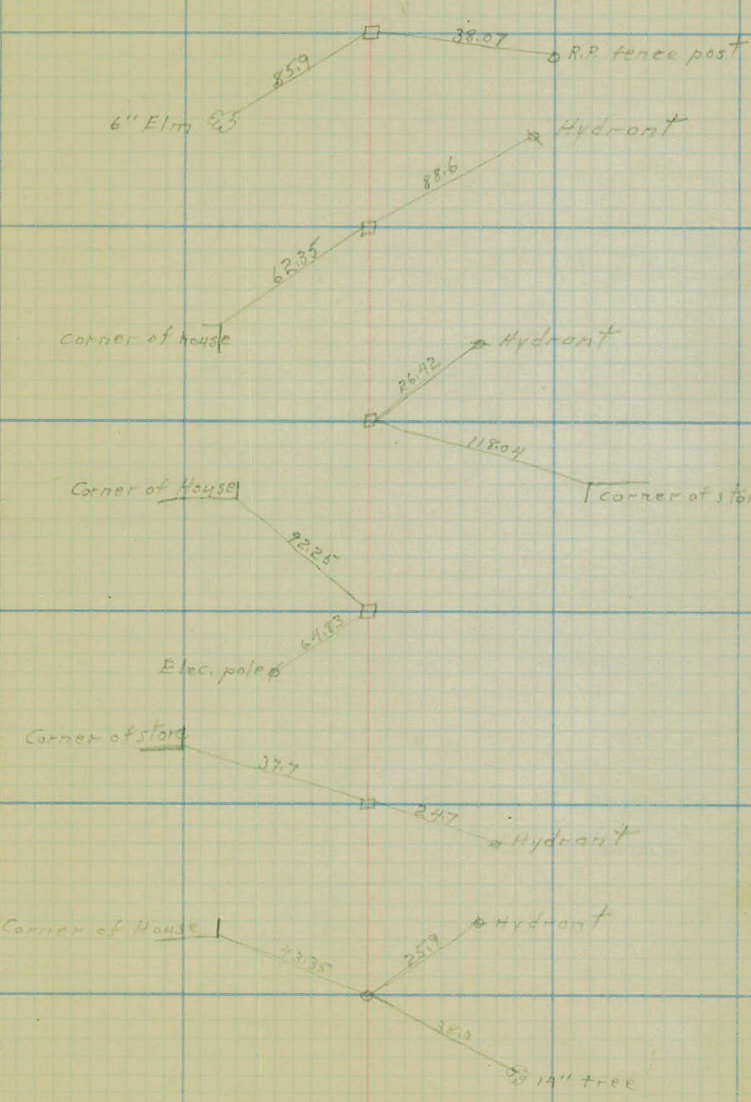
P.I. 22+83.5=23+30 Δ=0°-14' L

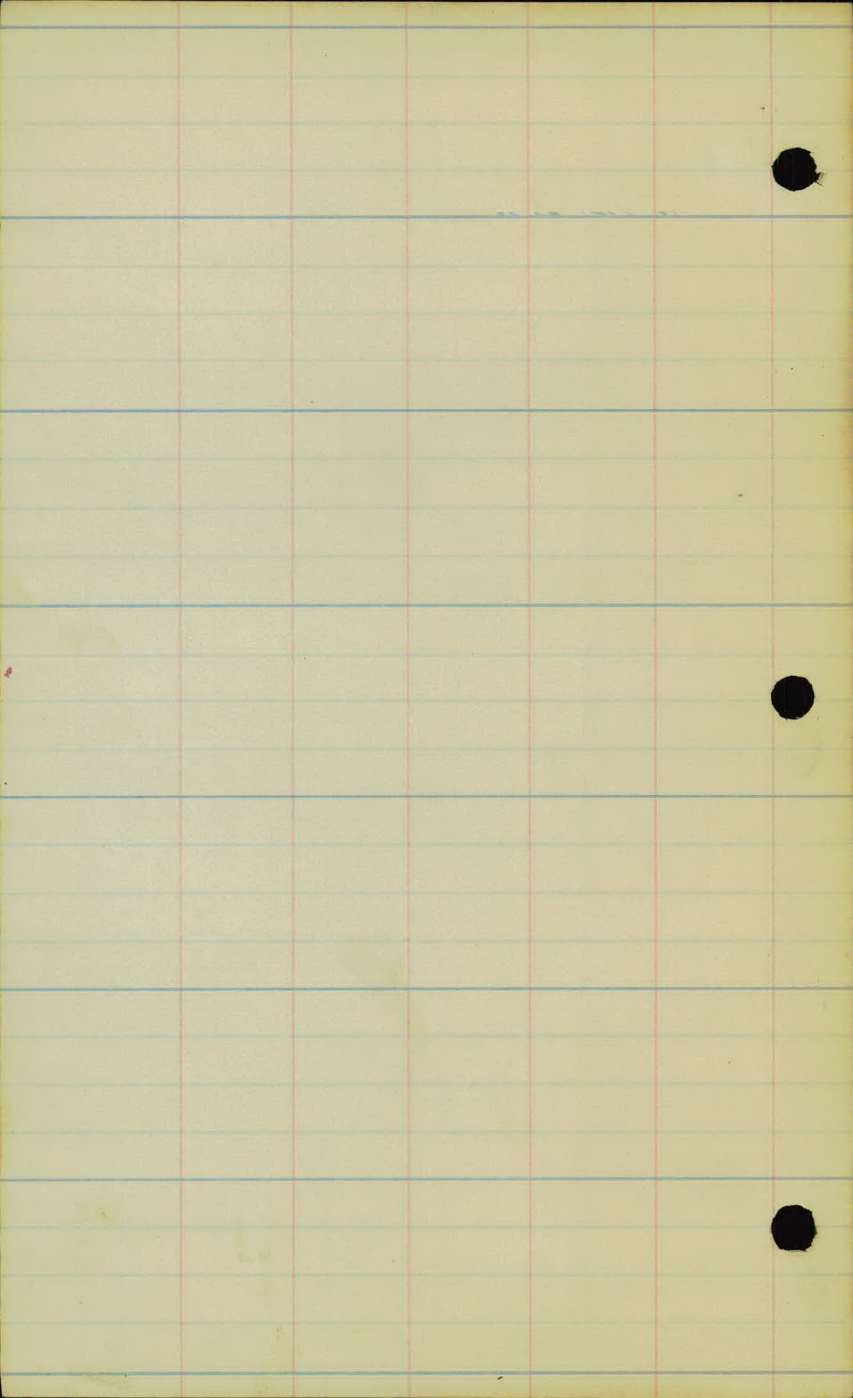
P.I. 18+84.8=18+50 Δ=0°-12' R

P.I. 7+22 Δ=33°-21' R

1+36.5

Sheet #2 of 2 sheets  
Edge of paving





sheet #1 of 3 sheets

± Levels -  
Project R3-51  
Sta 12 - 38+20.8'

6/15/23

M.W. Carley Ints.  
Persons Rod.

6/15/23

sta + H.I - Rod Elev  
B.M. 8.58 254.85 ✓ (246.27) ✓

12 7.4 247.5

13 4.9 250.0

14 1.3 253.6

T.P. 12.21 266.60 ✓ 0.46 254.39 ✓

15 8.1 258.5

16 3.5 263.1

T.P. 11.37 277.42 ✓ 0.55 266.05 ✓

17 8.9 268.5

18 3.9 273.5

18 + 84.8 = 18 + 50 0.1 277.3

T.P. 10.86 288.17 ✓ 0.11 277.31 ✓

19 8.6 279.6

+ 65 5.8 282.4

20 5.0 283.2

21 2.4 285.8

T.P. 12.00 299.25 ✓ 0.92 287.25 ✓

22 10.5 288.8

22 + 83.5 = 23 + 30 7.0 292.3

B.M. 11.30 294.75 ✓

24 4.4 294.9

T.P. 11.17 309.46 ✓ 0.96 298.29 ✓

2 Levels - project # 23-51

Nail in tele pole R of sta 11+73

Top of hydrant R of sta 22+90

6/15/23

St. 1 14.2 - Rod Elev

11.17 309.46 ✓

25 9.8 • 299.7

26 4.9 • 304.6

27 0.3 • 309.2

T.P. 11.35 320.46 ✓ 0.35 309.11 ✓

28 6.8 • 313.7

29 2.5 • 318.0

29 + 12.3 = 29 + 02.2 2.3 • 318.2

T.P. 10.24 328.91 ✓ 2.29 318.17 ✓

30 6.9 • 321.5

+ 10 6.3 • 322.1

+ 40 6.4 • 322.0

31 5.2 • 323.2

32 3.6 • 324.8

+ 60 3.7 • 324.7

33 1.4 • 327.0

T.P. 9.43 336.44 ✓ 1.40 327.01 ✓

34 3.0 • 328.4

35 6.3 • 330.1

36 5.0 • 331.4

+ 30 4.6 • 331.8

37 4.6 • 331.8

38 5.3 • 331.1

+ 28.8 5.25 • 331.19

B.M. 201 200 334.43 ✓

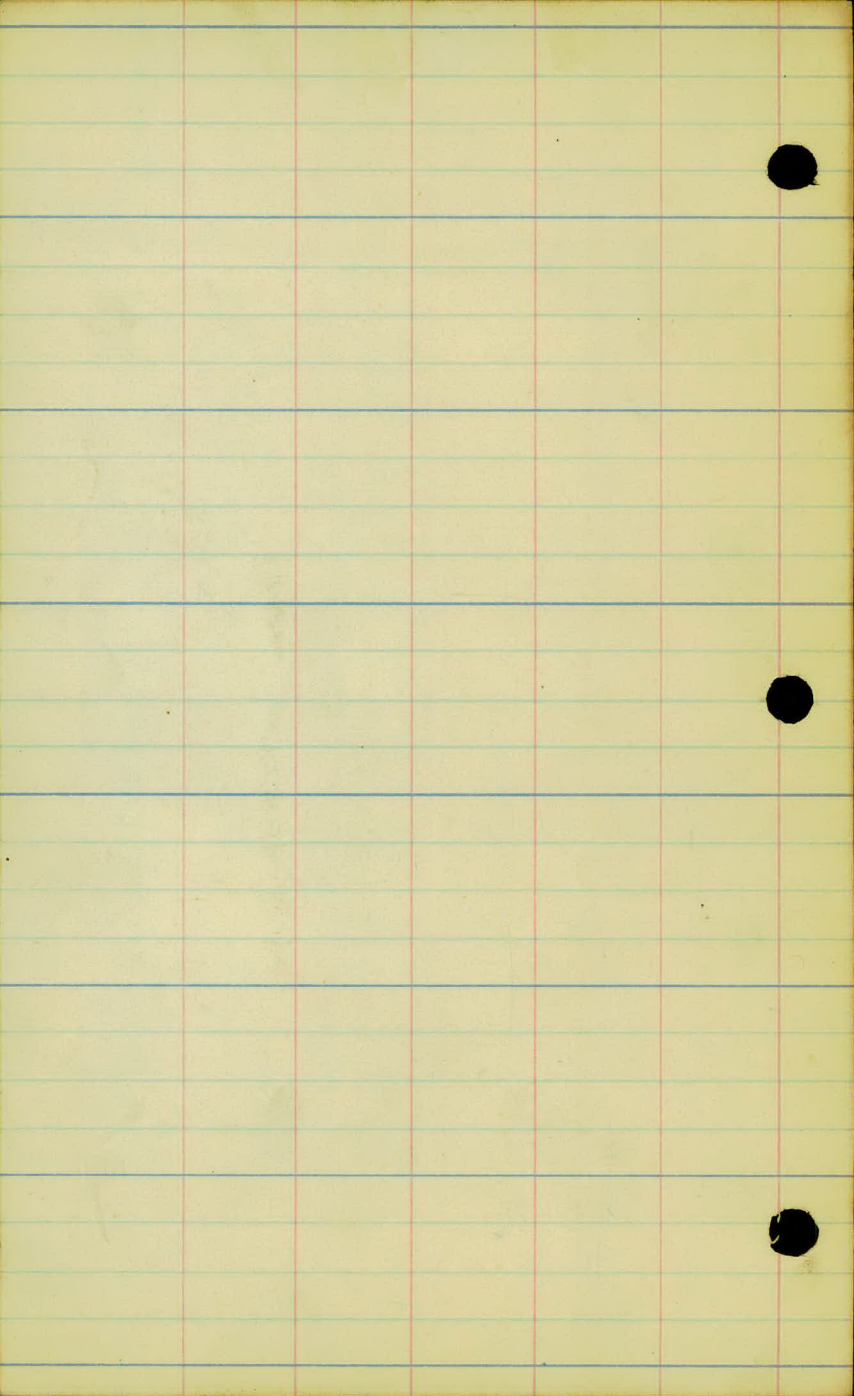
Sheet #3 of 3 sheets

4 levels project #23-51

4 of roads

Edge of paving

Top of hydrant h of sta 38+00



6/15/23

Xsections project #23-51

Carley - Recording  
Persons - Hand Level  
Briggs - Tape  
Eck - Rods

Sta + H.I. - Elev

B.M. 8.60 225.14

216.54

1 +36.5 End of paving 13.7 211.4

1 + 38 Begging of <sup>13.5</sup> 23.51 211.6

2 10.2 214.9

+67 8.6 216.5

3 7.1 218.0

4 2.8 222.3

T.P. 11.32 234.42 20.4 223.10

+72 10.0 224.4

5 8.9 225.5

+73 5.3 229.1

6 3.9 230.5

+80 1.6 232.8

T.P. 10.92 244.38 0.96 233.46

Xsections - R3-51

Top of hydrant R of sta 1+38

	F <sub>1</sub>	S.W.	S.W.						
	$\frac{9.5}{33}$	$\frac{9.5}{30}$	$\frac{12.0}{25}$	$\frac{12.1}{18}$	$\frac{13.6}{14}$	$\frac{13.8}{12}$	$\frac{12.5}{22}$	$\frac{8.0}{27}$	$\frac{8.0}{33}$

	F	S.W.	S.W.						
	$\frac{9.6}{33}$	$\frac{9.6}{30}$	$\frac{12.1}{22}$	$\frac{12.1}{17}$	$\frac{13.5}{13}$	$\frac{11.3}{16}$	$\frac{12.5}{22}$	$\frac{8.1}{27}$	$\frac{8.1}{33}$

	F <sub>1</sub>								
	$\frac{9.8}{33}$	$\frac{9.8}{29}$	$\frac{10.8}{25}$	$\frac{10.8}{17}$	$\frac{11.2}{16}$	$\frac{10.6}{16}$	$\frac{11.0}{25}$	$\frac{10.7}{33}$	

		S.W.	S.W.						
	$\frac{15.1}{33}$	$\frac{17.8}{28}$	$\frac{9.2}{24}$	$\frac{9.2}{19}$	$\frac{9.6}{12}$	$\frac{9.0}{11}$	$\frac{10.0}{27}$	$\frac{12.1}{23}$	$\frac{12.9}{33}$

	S.W.	S.W.							
	$\frac{8.7}{33}$	$\frac{9.6}{29}$	$\frac{7.6}{23}$	$\frac{7.8}{19}$	$\frac{8.4}{15}$	$\frac{7.5}{10}$	$\frac{7.7}{17}$	$\frac{8.4}{33}$	

	S.W.	S.W.							
	$\frac{0.0}{33}$	$\frac{0.0}{31}$	$\frac{2.7}{24}$	$\frac{2.6}{18}$	$\frac{3.7}{13}$	$\frac{2.9}{8}$	$\frac{3.4}{12}$	$\frac{4.2}{19}$	$\frac{4.5}{33}$

	S.W.	S.W.							
	$\frac{9.9}{33}$	$\frac{9.4}{26}$	$\frac{9.6}{22}$	$\frac{10.4}{14}$	$\frac{9.8}{12}$	$\frac{10.3}{14}$	$\frac{10.8}{17}$	$\frac{10.1}{21}$	$\frac{10.7}{33}$

	S.W.								
	$\frac{8.7}{33}$	$\frac{8.8}{27}$	$\frac{8.7}{18}$	$\frac{9.1}{11}$	$\frac{9.1}{12}$	$\frac{9.6}{15}$	$\frac{8.7}{21}$	$\frac{9.3}{33}$	

	S.W.	S.W.							
	$\frac{5.2}{33}$	$\frac{5.9}{26}$	$\frac{6.0}{21}$	$\frac{6.8}{17}$	$\frac{6.8}{14}$	$\frac{6.3}{13}$	$\frac{5.5}{24}$	$\frac{5.7}{31}$	$\frac{5.7}{33}$

	S.W.	S.W.						S.W.	S.W.	
	$\frac{3.1}{33}$	$\frac{4.3}{25}$	$\frac{4.3}{20}$	$\frac{5.4}{15}$	$\frac{4.8}{11}$	$\frac{5.0}{15}$	$\frac{5.5}{20}$	$\frac{5.4}{22}$	$\frac{4.0}{26}$	$\frac{4.0}{32}$

	$\frac{10.3}{33}$	$\frac{1.4}{25}$	$\frac{1.5}{18}$	$\frac{2.2}{14}$	$\frac{2.2}{11}$	$\frac{2.3}{13}$	$\frac{2.6}{20}$	$\frac{2.4}{24}$	$\frac{2.4}{33}$
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Sta + H.I. - Elev

10.92 244.38

7 8.4 236.0

+22 P.I. 7.8 236.6

8 5.0 239.4

+33 4.5 239.9

9 2.2 242.2

TB 6.95 249.37 19.6 242.42

+38 6.3 243.1

10 5.4 244.0

+86 4.3 245.1

11 4.1 245.3

B.M. 3.12 246.25 246.27

+50 2.9 246.5



Sta	Elev
20	283.2
19	279.6
Sta 18 + 84.8 = 18 + 50	
+47	275.0
18	273.5
17	268.5
125	264.1
16	263.1
15	258.5
14	253.6
13	250.0
12	247.5

↓	↓	SW	↓	↓	↓	↓	↓	↓
-1.5	-0.2	-0.8	-1.5	-0.5	-0.5	-1.2	-0.5	-1.0
33	31	21	15	11	15	20	28	33

↓	SW	↓	↓	↓	↓	↓	↓
0.0	+0.2	-0.1	+0.2	-0.6	-1.0	-0.5	-1.0
33	23	19	15	12	17	24	33

↓	SW	↓	↓	↓	↓	↓	↓
-0.4	-0.5	-0.5	-0.4	-1.2	+2.0	+5.0	+7.1
33	24	15	12	18	26	30	33

↓	SW	↓	↓	↓	↓	↓	↓
-1.5	0.0	-0.5	-1.0	-1.8	+2.0	+5.0	+6.1
33	20	17	14	20	28	30	33

↓	SW	↓	↓	↓	↓
-0.5	0.0	-0.4	-1.0	-1.5	+2.0 +5.3
33	23	18	14	22	29 33

↓	↓	↓	↓	↓	↓	↓
-1.0	-0.5	-0.5	-0.4	-1.0	-2.0	-1.5
33	22	16	11	12	26	33

↓	↓	SW	↓	↓	↓	↓
-1.0	-3.5	-0.4	-0.6	-4.0	-4.0	-4.1
33	26	20	16	23	30	33

↓	↓	↓	↓	↓	↓	↓	↓
-8.1	-4.5	-0.8	-0.5	-2.0	-5.0	-6.1	-8.9
33	26	18	14	19	27	30	33

↓	↓	↓	↓	↓	↓	↓	↓	
-6.1	-5.0	-2.0	-0.5	-0.5	-2.0	-4.0	-3.5	-3.7
33	29	19	13	13	18	26	30	33

↓	↓	↓	↓	↓	↓	↓	↓	↓
-3.0	-3.0	-1.5	-0.6	-1.1	-3.2	-5.0	-6.0	-4.0
33	29	21	15	10	16	22	30	33

SW	SW	↓	↓	↓	↓	↓	↓
-0.5	-0.5	+8.8	-1.0	-0.8	-6.0	-6.9	-6.9
35	30	25	15	10	24	29	33

Sta + H.I. - Elev

31 223.2

30 221.5

29 + 12.3 = 29 + 02.2 318.2

29 318.0

28 313.7

27 309.2

26 304.6

25 299.7

+ 39 296.1

24 294.9

Equation  
22 + 83.5 = 22 + 30 292.3

22 288.8

21 285.8

S.W. ✓ -1.0 31	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
	-1.2	-0.7	-1.5	-0.5	0.0	+0.2	-1.5	-1.0	-0.5	-0.5	
	33	25	18	13	8	12	17	23	28	33	
S.W. +0.5 28	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
	+1.0	+0.5	+1.0	-0.5	-0.5	-0.4	-1.5	-0.5	+0.5	+2.0	+2.0
	33	28	22	18	13	13	16	20	29	30	33
S.W. +0.5 26	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
	+0.5	+0.5	+0.2	-1.0	-0.4	-0.7	-1.0	-2.0	-0.3	-0.3	
	33	26	23	20	14	10	15	18	23	33	
S.W. +0.5 26	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
	+0.5	+0.5	0.0	-1.0	-0.5	-0.8	-2.0	-0.5	-1.0		
	33	26	21	19	13	12	19	24	33		
S.W. +2.0 25	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
	+4.0	+2.0	-1.2	-0.5	-1.0	-2.1	-1.5	0.0	-0.5		
	33	25	16	12	13	18	25	30	33		
S.W. +1.5 24	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
	+1.0	+1.0	-1.0	-0.5	-0.9	-1.9	-1.0	+1.0			
	33	20	17	12	15	19	27	33			
S.W. +1.1 26	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
	+4.0	+1.1	+1.1	-1.6	-0.6	-1.0	-2.0	+3.5	+8.2		
	33	26	22	15	12	14	19	28	33		
S.W. 0.0 25	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
	0.0	-0.5	-1.5	-0.6	-0.9	-1.0	+3.0	+4.1			
	33	22	18	12	13	18	26	33			
S.W. -0.5 27	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
	-1.0	-1.6	-1.5	-0.6	-1.0	-1.5	+0.5	-0.6			
	33	21	17	12	14	19	24	33			
S.W. -0.7 26	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
	-1.0	-0.9	-0.9	-0.5	-1.0	-1.7	-2.0				
	33	21	17	12	14	19	33				
	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
	-1.5	-1.0	-2.0	-1.0	-0.5	-1.1	-1.0	-1.0			
	33	24	17	12	9	17	25	33			
	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
	-1.3	-0.7	-1.5	-1.0	-0.9	-1.5	-0.6	-0.5			
	33	23	17	12	13	18	27	33			
	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
	-2.0	-0.5	-0.3	-1.5	-1.2	-1.0	-1.5	-1.0	-0.5		
	33	29	23	19	15	15	20	27	33		

Sta

Elev

+288

331.9

331.2

38

334.1 .

37

331.8 .

36

331.4 .

35

330.1 .

34

328.4 .

33

327.0 .

32

324.8 .

$$\begin{array}{ccccccc} \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ +1.0 & +0.5 & -0.5 & -0.6 & -0.5 & -1.7 & -0.5 \\ \hline 33 & 27 & 20 & 12 & 10 & 26 & 33 \end{array}$$

$$\begin{array}{ccccccc} \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ +1.5 & +1.4 & -0.3 & -0.5 & 0.0 & -0.5 & -1.0 \\ \hline 33 & 20 & 15 & 12 & 10 & 19 & 33 \end{array}$$

$$\begin{array}{ccccccc} \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ +9.0 & +1.0 & +1.0 & -1.0 & -0.9 & -0.8 & -1.2 & -2.0 \\ \hline 33 & 30 & 23 & 19 & 15 & 14 & 31 & 33 \end{array}$$

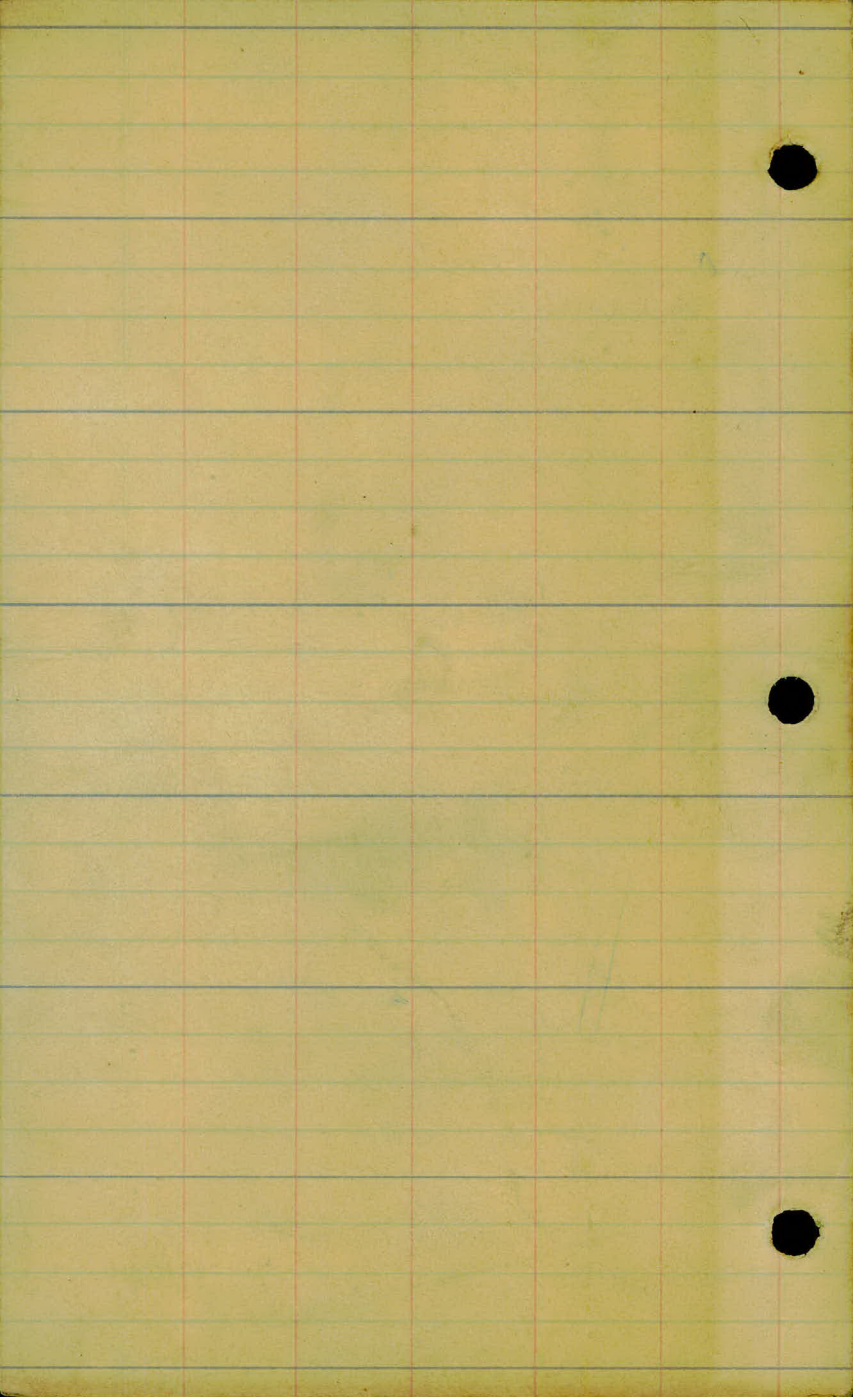
$$\begin{array}{ccccccc} \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 0.0 & 0.0 & 0.0 & 0.0 & -1.0 & -1.0 & -1.0 \\ \hline 33 & 24 & 15 & 25 & 33 & & \end{array}$$

$$\begin{array}{cccccccc} \text{SW} & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ -0.5 & 1.0 & -0.5 & 1.5 & -2.0 & -0.9 & -0.5 & -2.0 & -1.0 & +2.0 \\ \hline 29 & 33 & 29 & 23 & 17 & 13 & 12 & 16 & 23 & 33 \end{array}$$

$$\begin{array}{cccccccc} \text{SW} & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ -1.0 & -1.0 & -1.0 & -1.2 & -2.0 & -0.7 & -0.5 & -1.4 & -2.0 & -1.5 & +0.2 \\ \hline 28 & 33 & 28 & 23 & 18 & 11 & 12 & 16 & 20 & 25 & 33 \end{array}$$

$$\begin{array}{cccccccc} \text{SW} & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ -0.5 & -0.5 & -1.0 & -2.0 & -1.1 & -1.0 & -1.6 & -1.2 & +2.5 \\ \hline 29 & 33 & 23 & 20 & 15 & 13 & 19 & 25 & 33 & \end{array}$$

$$\begin{array}{cccccccc} \text{SW} & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ -0.5 & -0.5 & -0.5 & -1.0 & -1.5 & -0.5 & -0.4 & -1.4 & -1.0 & -0.7 & +0.7 \\ \hline 32 & 33 & 27 & 22 & 19 & 15 & 12 & 17 & 24 & 29 & 33 \end{array}$$



U2448