

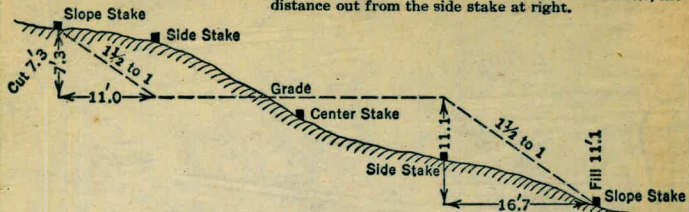
MISSION BAY

72

DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

Roadway of any Width. Side Slopes 1/2 to 1.

In the figure below: opposite 7 under "Cut or Fill" and under .3 read 11.0, the distance out from the side stake at left. Also, opposite 11 under "Cut or Fill" and under .1 read 16.7, the distance out from the side stake at right.



MISSION BAY - GENERAL

Book No 72

Tue #3
Wed #4
Thur #5
Fri #6

Cut or Fill	Distance out from Side or Shoulder Stake										Cut or Fill
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0.0	0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.2	1.4	0
1	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9	1
2	3.0	3.2	3.3	3.5	3.6	3.8	3.9	4.1	4.2	4.4	2
3	4.5	4.7	4.8	5.0	5.1	5.3	5.4	5.6	5.7	5.9	3
4	6.0	6.2	6.3	6.5	6.6	6.8	6.9	7.1	7.2	7.4	4
5	7.5	7.7	7.8	8.0	8.1	8.3	8.4	8.6	8.7	8.9	5
6	9.0	9.2	9.3	9.5	9.6	9.8	9.9	10.1	10.2	10.4	6
7	10.5	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9	7
8	12.0	12.2	12.3	12.5	12.6	12.8	12.9	13.1	13.2	13.4	8
9	13.5	13.7	13.8	14.0	14.1	14.3	14.4	14.6	14.7	14.9	9
10	15.0	15.2	15.3	15.5	15.6	15.8	15.9	16.1	16.2	16.4	10
11	16.5	16.7	16.8	17.0	17.1	17.3	17.4	17.6	17.7	17.9	11
12	18.0	18.2	18.3	18.5	18.6	18.8	18.9	19.1	19.2	19.4	12
13	19.5	19.7	19.8	20.0	20.1	20.3	20.4	20.6	20.7	20.9	13
14	21.0	21.2	21.3	21.5	21.6	21.8	21.9	22.1	22.2	22.4	14
15	22.5	22.7	22.8	23.0	23.1	23.3	23.4	23.6	23.7	23.9	15
16	24.0	24.2	24.3	24.5	24.6	24.8	24.9	25.1	25.2	25.4	16
17	25.5	25.7	25.8	26.0	26.1	26.3	26.4	26.6	26.7	26.9	17
18	27.0	27.2	27.3	27.5	27.6	27.8	27.9	28.1	28.2	28.4	18
19	28.5	28.7	28.8	29.0	29.1	29.3	29.4	29.6	29.7	29.9	19
20	30.0	30.2	30.3	30.5	30.6	30.8	30.9	31.1	31.2	31.4	20
21	31.5	31.7	31.8	32.0	32.1	32.3	32.4	32.6	32.7	32.9	21
22	33.0	33.2	33.3	33.5	33.6	33.8	33.9	34.1	34.2	34.4	22
23	34.5	34.7	34.8	35.0	35.1	35.3	35.4	35.6	35.7	35.9	23
24	36.0	36.2	36.3	36.5	36.6	36.8	36.9	37.1	37.2	37.4	24
25	37.5	37.7	37.8	38.0	38.1	38.3	38.4	38.6	38.7	38.9	25
26	39.0	39.2	39.3	39.5	39.6	39.8	39.9	40.1	40.2	40.4	26
27	40.5	40.7	40.8	41.0	41.1	41.3	41.4	41.6	41.7	41.9	27
28	42.0	42.2	42.3	42.5	42.6	42.8	42.9	43.1	43.2	43.4	28
29	43.5	43.7	43.8	44.0	44.1	44.3	44.4	44.6	44.7	44.9	29
30	45.0	45.2	45.3	45.5	45.6	45.8	45.9	46.1	46.2	46.4	30
31	46.5	46.7	46.8	47.0	47.1	47.3	47.4	47.6	47.7	47.9	31
32	48.0	48.2	48.3	48.5	48.6	48.8	48.9	49.1	49.2	49.4	32
33	49.5	49.7	49.8	50.0	50.1	50.3	50.4	50.6	50.7	50.9	33
34	51.0	51.2	51.3	51.5	51.6	51.8	51.9	52.1	52.2	52.4	34
35	52.5	52.7	52.8	53.0	53.1	53.3	53.4	53.6	53.7	53.9	35
36	54.0	54.2	54.3	54.5	54.6	54.8	54.9	55.1	55.2	55.4	36
37	55.5	55.7	55.8	56.0	56.1	56.3	56.4	56.6	56.7	56.9	37
38	57.0	57.2	57.3	57.5	57.6	57.8	57.9	58.1	58.2	58.4	38
39	58.5	58.7	58.8	59.0	59.1	59.3	59.4	59.6	59.7	59.9	39
40	60.0	60.2	60.3	60.5	60.6	60.8	60.9	61.1	61.2	61.4	40

KEUFFEL & ESSER CO., N. Y.

MICROFILMED

JAN 7 1965

The paper in this book No. 375A
is made of 50% high grade rag stock
with a WATER RESISTING surface sizing.

72

Pages

INDEX

Date

1- 53 Grades deck slab - MORENA BR. 1-25-52

MORENA BLVD BRIDGE

1-24-52

GRADES TOP OF DECK SLAB

NOTE: Chords \pm N. Abut - Pier 1
 $= 8.125$
 Chords Piers 1-2 $= 10.125$

STA	+	H.I.	-	TOP OF GIRDER ELEV.	TOP OF DECK ELEV. WITH CAMBER
B.M.	5.300	36.772		31.472	

GIRDER "A" EAST.

\pm Bear. N. Abut.					
14+21.41			30.93	31.42	31.42
+29.54				31.563	31.605
+37.66				31.715	31.757
+45.78				31.865	31.907
+53.91				32.009	32.051
+62.04				32.149	32.191
+70				32.	32.300
+70.16				32.267	32.272
+78.28				32.335	32.339
\pm Pier 1.				32.482	32.497
+86.41			32.00		

GIRDER "B"

\pm Bear. N. Abut.					
14+22.42			31.03	31.52	31.52
+30.54		5.06		31.67	31.707
+38.67		4.88		31.82	31.855
+46.79		4.724		31.97	32.015
+54.92		4.597		32.108	32.145
+63.05		4.484		32.242	32.268

GRADES MORENA BRIDGE CONTD.

STA	+	H.I.	-	TO P OF GIRDER ELEV.	TOP OF DECK ELEV.	TO DECK WITH CAMBER
-----	---	------	---	----------------------	-------------------	---------------------

GIRDER "B" CONTD.

+70		H.I. 37.606	4.387			32.985
14+71.17		+70	5.226		32.365	32.97
					390	395
+79.29			5.084	5.095	32.478	32.49
± PIER 1					507	522
+87.42			4.979	4.988	32.578	32.59
					619	633

GIRDER "C"

± BEARING N. ABUT				0	0	0
14+23.44				31.14	31.62	31.62
+31.56					77	815
					31.776	31.81
+39.69					927	995
					31.927	31.99
+47.81					071	150
					32.072	32.145
+55.94					220	277
					32.21	32.247
+64.06					362	388
					32.342	32.344
+70						32.470
+72.19					32.462	32.462
					488	495
+80.31					604	619
± PIER 1					32.578	32.587
+88.44					715	730
					32.672	32.687

GIRDER "D"

± N. ABUT.				0	0	0
14+24.45				31.225	31.715	31.715
+32.57			4.855		880	917
					31.875	31.912
+40.70			4.672		030	100
					32.025	32.093

GRADES MORENA BRIDGE CONTD

STA	+	H.L.	-	TOP GIRDER ELEV	TOP DECK ELEV.	TOP DECK WITH CAMBER
GIRDER "D" CONTD.						
14+48.82				4.520	¹⁸⁵ 32.775	²⁵³ 32.240
+56.95				4.395	³²⁰ 32.91	³⁷¹ 32.367
+65.07				4.285	⁴⁶⁰ 32.44	⁴⁸⁷ 32.467
+70				4.217		32.555
+73.20		#1 37.606		5.025 5.029	⁵⁵⁵ 32.56	⁵⁵⁰ 32.565
+81.32				4.8	⁷⁰⁰ 32.668	⁷¹³ 32.603
PIER 1				4.781	⁸¹⁵ 32.767	⁸²⁵ 32.752
+89.45				32.28		

GIRDER "E"						
EN. ABUT.				0	0	0
14+25.55				31.245	31.735	31.735
+33.67				4.835	⁸⁶⁷ 31.895	⁹³⁷ 31.932
+41.80				4.654	⁹⁵⁰ 32.045	¹¹⁸ 32.413
+49.92				4.494	¹⁹² 32.187	²⁷⁸ 32.273
+58.05				4.377	³³⁸ 32.328	³⁹⁵ 32.385
+66.17				4.270	⁴⁷¹ 32.457	⁵⁰³ 32.482
+70		37.606		4.217		32.555
+74.30				5.000	⁶⁰⁰ 32.575	⁶²⁵ 32.58
+82.42				4.876 4.885	⁷¹⁵ 32.688	⁷³⁰ 32.698
PIER 1				4.769 4.780	⁸²² 32.778	⁸³⁷ 32.794
+90.55				32.289		

GRADES MORENA BRIDGE CONTD.

STA	+	H.I.	-	TOP OF GIRDER ELEV.	TOP DECK ELEV	TOP DECK WITH CAMBER
GIRDER "F"						
EN. ABUT.				0	0	0
14+26.56				31.19	31.67	31.67
+34.68		4.897			⁸³⁷ 31.832	⁸⁷⁵ 31.87
+42.81		4.727			⁹⁷⁷ 31.972	⁰⁴⁵ 32.04
+50.94		4.572			¹²⁷ 32.122	²⁰² 32.195
+59.06		4.442			²⁷² 32.267	³³ 32.32
+67.18		4.337			⁴¹ 32.34	⁴³⁵ 32.445
+70		4.286				32.480
+75.31					32.506	32.51
+83.43					⁵³¹ 32.615	⁵⁵⁵ 32.628
EN PIER 1					⁶⁴⁵	⁶⁶⁰
+91.56				32.19	⁷⁵⁰ 32.707	⁷⁶⁵ 32.722
GIRDER "G"						
EN. ABUT.				0	0	0
14+27.58				31.13	31.61	31.61
+35.70		4.96			⁷⁷⁵ 31.77	⁸¹² 31.807
+43.83		4.79			⁹¹⁵ 31.91	⁹⁸³ 31.978
+51.96		4.637			⁰⁶¹ 32.056	¹³⁵ 32.13
+60.08		4.512			²⁰⁴ 32.194	²⁶⁰ 32.25
+68.20		4.405			³⁴ 32.32	³⁶⁷ 32.377
+70		4.382				32.390
+76.33					⁴⁶¹ 32.436	⁴⁶⁵ 32.44

GRADES MORENA BRIDGE CONTD.

STA	+	H. I.	-	TOP OF GIRDER ELEV.	TOP DECK ELEV.	TOP DECK WITH CAMBER
-----	---	-------	---	---------------------	----------------	----------------------

GIRDER "G" CONTD.

		37.606				
14+84.45			5.017		32.542 ⁵⁷⁴	32.557 ⁵⁸⁹
± PIER 1						
+92.58			4.913	32.15	32.634 ⁶⁷⁷	32.65 ⁶⁹³

GIRDER "H"

14+28.59				⁰ 31.055	⁰ 31.545	⁰ 31.525
+36.71					⁷¹⁰ 31.705	⁷⁴⁷ 31.742
+44.84					⁸⁵⁰ 31.848	⁹¹⁸ 31.913
+52.96					⁹²⁵ 31.99	⁹⁶⁹ 32.064
+61.09					¹³⁸ 32.128	¹⁹⁵ 32.185
+69.21					²⁷² 32.252	²⁷⁸ 32.278
+70						32.310
+77.34					32.366	32.37
+85.46					³⁵¹ 32.47	³⁹⁵ 32.486
± PIER 1					⁵⁰² 32.47	⁵¹⁸ 32.486
+93.59				32.08	⁶⁰⁵ 32.566	⁶²⁰ 32.577

GRADES MORENA BRIDGE CONTD.

1-24-52 (6)

STA	+	H.I.	-	TOP OF GIRDER ELEV	TOP DECK TOP DECK ELEV WITH CAMBER L. PIERS	
						30.82
B.M.	8.768	39.133		30.365	Pier 5	39.133
TP	5.465	39.112	6.123	33.010		31.139, 14.3
	5.352	38.362				8.29
		GIRDER A 1-2				7.90
14+96.54				32.522	32.602	30.82
15+06.66				32.604	32.684	31.283
+10.00			5.602	32.765	32.760	33.62
+16.78				32.76	32.774	
+26.91				32.815	32.85	39.133
+37.03				32.865	32.896	5.525
+47.16				32.915	32.936	33.608
+51.00			5.372	32.975	32.930	
+57.28				32.965	32.97	
PIER 2				3.005		
+67.41				32.527	33.017	39.133
						5.525
		GIRDER B PIER 1-2				33.608
14+97.55		38.362		37.606	4.871	9
15+07.67			4.791	4.77		39.133
+10			5.522			9.06
+17.79			5.460			30.073
+27.92			5.382			
+38.04			5.338			5.63
+48.17			5.297			
+51			5.282			
+58.29		41-38.580	5.797	5.515		
			5.78	5.49		
PIER 2			5.435	5.445		
+68.42			32.59	33.705	33.105	

GRADES MORENA BRIDGE CONTO.
 STA + H.I. - TOP OF GIRDER ELEV. TOP OF DECK ELEV. WITH CAMBER

GIRDER "C" PIERS 1-2

14	14+98.57				82	83
					32.78	32.79
15	15+08.69				90	90.7
	+10				32.86	32.867
	+18.81				32.72	32.930
	+28.94				32.94	32.954
	+39.06				96	99.4
	+49.19				33.03	068
	+51				32.91	33.928
	+59.31				08	103
	PIER 2				33.04	33.973
	+69.44				132	153
					33.04	33.713
					33.14	33.100
					33.14	33.148
					183	188
					32.67	33.14
					234	234

GIRDER "D" PIERS 1-2

14	14+99.58	38.362	5.442		81	920
		37.606	4.686		32.81	32.99
15	15+09.70				998	998
	+10		5.282 ✓		52.958	32.258
	+19.82		5.320 ✓		33.010	33.010
	+29.95		5.206 ✓		33.028	33.043
	+40.07		5.162 ✓		068	083
	+50.20	H1 38.580	5.120 ✓		12	156
	+51		5.112 ✓		17	20
	+60.32		5.330	5.360	33.73	33.76
	PIER 2		5.304	5.315	22	242
	+70.45		5.258	5.270	33.78	33.202
					33.230	33.250
					33.23	33.246
					27	276
					322	322
					33.222	33.222

GRADES MORENA BRIDGE CONTD.

STA	+	H. I.	-	TOP OF GIRDER ELEV.	TOP OF DECK ELEV. WITH GAMBER
-----	---	-------	---	---------------------	-------------------------------

38.362

GIRDER "E" PIERS 1-2

		37.606	4.676	4.670	92	32.93
15+00.68					32.88	32.89
+10			5.362	✓	33.004	33.000
+10.80			5.357		32.968	32.965
					33.007	33.005
+20.92			5.272	✓	071	09
					33.654	33.65
+31.05			5.202	✓	128	160
					33.085	33.12
+41.17			5.156	✓	175	206
+51			5.112	✓	33.135	33.166
+51.30	38.580	5.330	5.365		227	33.250
					33.187	33.208
+61.42			5.298	5.305	277	282
PIER 2					33.227	33.242
+71.55			5.252	5.260	328	328
					33.285	33.288

GIRDER "F" PIERS 1-2

15+01.69					847	857
+10					32.867	32.817
+11.81					32.91	32.91
					32.89	32.89
+21.94					93	93
					32.958	32.97
+32.06					33.048	084
					33.008	33.044
+42.18					098	13
+51					33.058	33.09
+52.31					33.145	33.165
					33.11	33.13
+62.43					14	17
PIER 2					20	204
+72.56					33.16	33.164
					25	25
			32.68		33.24	33.24

GRADES MORENA BRIDGE CONTD.

STA	+	H.I.	-	TOP OF GIRDER ELEV.	TOP DECK ELEV.	TOP DECK WITH CANEER	H.I. = 38.362	W. END B. WALL N. ABUT
		38.362						
							B.M.	- 6.890 31.472

GIRDER "G" PIERS 1-2

37.606

15+02.70				4.822	772	784		
+10				5.522 ✓	32.732	32.742		
+12.83				5.510 ✓	32.842	32.840		
+22.96				460 5.430	32.842	32.843		
+33.08				73 ✓ 5.358	32.922	32.904		
+43.20				27 ✓ 5.312	33.02	33.050		
+51				5.277	32.98	33.01		
+53.33	38.580			5.495 5.525	33.06	33.085		
+63.45				5.490 5.500	33.03	33.05		
PIER 2				5.455 5.465	33.03	33.085		
+73.58				5.410 5.415	33.13	33.17		

GIRDER "H" PIERS 1-2

15+03.71					692	708		
+10					32.658	32.668		
+13.84					32.750	32.750		
+23.97					32.737	32.737		
+34.00					32.80	32.815		
+44.21					32.85	32.887		
+51					32.90	32.922		
+54.34					32.98	33.000		
+64.46					32.98	32.973		
PIER 2					33.013	33.047		
+74.59					33.007	33.067		
				32.54	33.093	33.053		

GRADES MORENA BRIDGE CONTD

STA	+	H.I.	-	TOP OF GIRDER ELEV.	TOP DECK ELEV. WITH GANBER L.P.119
B.M.	8.600	38.965		30.365	Pier 6

30.965
 7.897

 38.202
 2.885

 4.917

GIRDER "A" PIERS 2-3

15+77.53				108 33.968	118 33.978
+87.66				158 33.118	164 33.194
+91		5.760			38.205
+97.79		5.715		33.170	38.410
16+07.91		5.653		210 33.220	250 33.272
+18.03		5.603		260 33.270	312 33.322
+28.16		5.562		310 33.360	362 33.349
+32		5.550			33.415
+38.28		5.565		33.370	33.990
PIER 3				410 33.420	430 33.422
+48.41					

202
 39

 862
 15

 877

GIRDER "B" PIERS 2-3

15+78.54	H1 38.580	5.368	5.385	146 33.150	206 33.166
+88.67		5.308	5.345	246 33.200	272 33.232
+91		5.680	5.340		33.285
+98.79		5.625		33.257	33.300
16+08.92		5.565		297 33.300	340 33.360
+19.04		5.515		348 33.350	450 33.410
+29.17		5.477		448 33.400	490 33.450
+32		5.465			33.500
+39.29				33.460	33.490
PIER 3				500 33.510	520 33.510
+49.42					

GRADE 3 MORENA BRIDGE CONTD.

STA	H.I.	TOP OF GIRDER ELEV.	TOP DECK ELEV.	TOP DECK WITH CAMBER
	38.965			
GIRDER "C" PIERS 2-3				
15+79.57			33.244	33.255
+89.69			33.297	33.320
+91	5.595			33.370
+99.81	5.537		33.324	33.388
16+09.94	5.475		33.344	33.358
+20.06	5.425		33.447	33.500
+30.19	5.385		33.442	33.540
+32	5.38			33.585
+40.31			33.544	33.568
± PIER 3			33.641	33.620
+50.44			33.641	33.620

GIRDER "D" PIERS 2-3

H.I. 38.580

15+80.58	5.197	5.210	33.382	33.313
+90.70	5.130	5.195	33.383	33.410
+91	5.515			33.450
16+00.82	5.450		33.424	33.476
+10.95	5.39		33.488	33.537
+21.07	5.34		33.535	33.587
+31.20	5.30		33.581	33.627
+32	5.295			33.670
+41.32	5.295		33.644	33.656
± PIER 3			33.681	33.687
+51.45			33.681	33.687

GRADES MORENA BRIDGE CONTD.

STA	+	H.I.	-	TOP OF GIRDER ELEV.	TOP DECK ELEV.	TOP DECK WITH CAMBER
		38.965				
GIRDER "E" PIERS 2-3						
		38.580	5.190	5.202	380	390
15+81.68			5.130	5.180	33.340	33.350
+91			5.125			
+91.80			5.515	5.180		33.450
			5.510		33.390	33.415
					480	455
16+01.92			5.443		33.440	33.482
					480	455
+12.05			5.383		33.490	33.542
					580	582
+22.17			5.332		33.540	33.593
+32			5.290			33.675
+32.30			5.290		33.592	33.634
					632	674
+42.42					33.642	33.662
↳ PIER 3						
+52.55					33.699	33.699
					733	733

GIRDER "F" PIERS 2-3

					300	310
15+82.69					33.260	33.270
+91			5.600			33.365
+92.82			5.590		33.310	33.337
					350	377
+02.93			5.521		33.362	33.404
					400	444
+13.06			5.460		33.412	33.464
					452	504
+23.18			5.410		33.463	33.515
+32			5.375			33.590
+33.31					33.514	33.556
					554	596
+43.43					33.564	33.584
↳ PIER 3					604	624
+53.56					33.615	33.615
					655	655

GRADES MORENA BRIDGE CONTD.

STA	+	H.I.	-	TOP OF GIRDER ELEV.	TOP DECK ELEV.	TOP DECK WITH CAMBER
		38.965				
GIRDER "G" PIERS 2-3						
		38.580		5.348	222	232
15+83.71				5.300	33.192	33.192
+91				5.282		
+93.84				5.685		33.280
				5.667	33.232	33.258
16+03.95				5.600	272	288
					323	365
+14.08				5.542	33.283	33.325
					370	423
+24.20				5.490	33.330	33.383
+32				5.505		424
+34.33				5.453	33.384	33.436
						476
+44.45					33.430	33.477
Q Pier 3					475	517
+54.58					525	545
				33.046	33.485	33.505
					576	576
					33.536	33.536

GIRDER "H" PIERS 2-3

15+84.72					144	154
+91					33.104	33.114
+94.85						33.195
16+04.96					33.154	33.180
					194	220
+15.09					245	287
					33.205	33.247
+25.21					295	347
+32					33.255	33.307
+35.34					346	398
					33.306	33.358
+45.46						33.425
Q Pier 3					33.357	33.409
+55.59					397	440
					447	467
				32.968	33.407	33.427
					498	498
					33.458	33.458

GRADES MORENA BRIDGE CONT.

Sta.	+ H.I.	-	top of Girder Elev.	top deck Elev.	top deck with Camber
------	--------	---	---------------------------	-------------------	-------------------------

GIRDER "A" PIERS 3-4

16+58.41				513	513
16+58.53				33.473	33.473
+68.66				563	610
				33.523	33.570
+78.78					688
				33.575	33.648
+88.91					723
				33.625	33.703
+99.03					768
				33.675	33.748
17+09.16					812
				33.725	33.772
+19.28					Notch.
Q Pier 4 17+19.41				33.775	33.775
+29.41			33.337	33.827	33.827

GIRDER "B" PIERS 3-4

16+59.42					600
16+59.54				33.560	33.560
+69.67					698
				33.610	33.658
+79.79					775
				33.662	33.735
+89.92					830
				33.713	33.790
17+00.04					876
				33.763	33.837
+10.17					900
				33.814	33.860
+20.29					Notch
Q Pier 4 17+20.42				33.864	33.864
+30.42			33.425	33.915	33.915

GRADES MORENA BRIDGE

Contd.
top of
deck
top of
deck
with Camber

Sta. + H.I. -

GIRDER "C" PIERS 3-4

16+60.44					690
16+60.56				33.650	33.650
+70.69					787
				33.700	33.747
+80.81					864
				33.750	33.824
+90.94					920
				33.802	33.880
17+01.06					965
				33.852	33.925
1 +11.19					990
				33.902	33.950
+21.31					Match
Q Pier 4	17+21.44			33.932	33.953
+31.44					
				33.524	34.004
					34.004

GIRDER "D" PIERS 3-4

16+61.45					778
16+61.57				33.738	33.738
+71.70					875
				33.788	33.835
+81.82					952
				33.840	33.912
+91.95					34.008
				33.890	33.968
17+02.07					053
				33.940	34.013
+12.20					078
				33.990	34.038
+22.32					Match
Q Pier 4	17+22.45			34.042	34.042
+32.45					
				33.602	34.092
					34.092

GRADES MORENA BRIDGE Contd.

Sta.	+	H.I.	-	top of Girder Elev.	top of Deck Deck	top of deck With Camber
------	---	------	---	---------------------------	------------------------	----------------------------

GIRDER "E" PIERS 3-4

16+62.55						784
16+62.67				33.744	33.744	880
+72.80				33.722	33.840	958
+82.92				33.845	33.978	34.013
+93.05				33.895	33.973	958
17+03.17				33.945	34.018	984
1 +13.30				33.997	34.044	Match
+23.42				34.041	34.047	
↳ Pier 4 17+23.55						
+33.55				33.608	34.036	34.028

GIRDER "F" PIERS 3-4

16+63.56						706
16+63.68				33.666	33.668	803
+73.81				33.716	33.763	880
+83.93				33.767	33.840	935
+94.06				33.817	33.895	980
17+04.18				33.865	33.940	34.006
+14.31				33.921	33.966	Match
+24.43 17+24.56				33.976	33.970	
↳ Pier 4						
+34.56				33.54	34.020	34.020

GRADES MORENA BRIDGE

Sta.	+	H.L.	-	Contd. top of Girder Elev.	top of Deck	top of deck with Camber
------	---	------	---	-------------------------------------	----------------	----------------------------

GIRDER "G" PIERS 3-4

16+64.58						627
16+64.70				33.587	33.587	
+74.83				33.637	33.637	724
+84.95				33.688	33.760	800
+95.08				33.738	33.816	856
17+05.20				33.790	33.868	902
+15.33				33.841	33.887	927
+25.45	17+25.58			33.892	33.890	Match
Q Pier 4 +35.58			33.45	33.941	33.940	

GIRDER "H" PIERS 3-4

16+65.59						557
16+65.71				33.516	33.510	
+75.84				33.566	33.606	606
+85.96				33.616	33.683	723
+96.09				33.666	33.738	778
17+06.21				33.716	33.784	824
+16.34				33.762	33.810	850
+26.46	17+26.59			33.812	33.812	Match
Q Pier 4 +36.59			33.373	33.863	33.863	

GRADES MORENA BRIDGE Center top of deck

Sta. + H.L. - top of girder Elev top of deck With Camber

GIRDER "A" PIERS 4-5

17+39.53			33.87	33.898
+49.66			33.92	33.968
+53				
+59.78			33.980	34.036
+69.91			34.030	34.087
+80.03			34.080	34.127
1	+90.16		34.130	34.160
+94				
18+00.28			34.180	34.190
4	Q Pier 5			
+10.41		33.742	34.232	34.232

GIRDER "B" PIERS 4-5

17+40.54			33.966	34.026 33.986
+50.67			34.016	34.056
+53				
+60.79			34.067	34.124
+70.92			34.118	34.175
1	+81.04		34.168	34.215
+91.17			34.218	34.248
+94				
18+01.29			34.268	34.278
4	Q Pier 5			
+11.42		33.83	34.320	34.320

GRADES MORENA BRIDGE Contd top of deck
top of
Girder Elev. deck with Camber

Sta. + H.L. -

GIRDER "C" PIERS 4-5

17+41.56			34.03	34.074
+51.69			34.122	34.145
+53				
+61.81			34.156	34.213
+71.94			34.207	34.264
+82.06			34.257	34.304
1 +92.19			34.308	34.338
+94				
18+02.31			34.358	34.368
Q Pier 5				
+12.44		33.93	34.413	34.410

GIRDER "D" PIERS 4-5

17+42.57			34.143	34.163
+52.70			34.193	34.227
+53				
+62.82			34.245	34.296
+72.95			34.295	34.352
1 +83.07			34.345	34.392
+93.20			34.395	34.425
+94				
18+03.32			34.446	34.456
Q Pier 5				
+13.45		34.007	34.497	34.497

GRADES MORENA BRIDGE ^{top of deck} _{top of deck with Camber}

Sta. + H.L. - ^{top of Girder Elev.}

GIRDER "E" PIERS 4-5

17+43.67			34.155	34.170
+53				
+53.80			34.200	34.210
+63.92			34.250	34.307
+74.05			34.300	34.360
+84.17			34.350	34.398
+94				
+94.30			34.400	34.432
18+04.42			34.452	34.462
Q Pier 5				
+14.55		34.013	34.500	34.505

GIRDER "F" PIERS 4-5

17+44.68			34.070	34.090
+53				
+54.81			34.120	34.160
+64.93			34.172	34.230
+75.06			34.222	34.280
+85.18			34.273	34.320
+94				
+95.31			34.324	34.354
18+05.43			34.374	34.384
Q Pier 5				
+15.56		33.945	34.425	34.425

1-25-52

GRADES MORENA BRIDGE Cont. top of deck

Sta.	+	H.L.	-	top of Girder Elev.	top of deck	With Camber
------	---	------	---	---------------------------	----------------	-------------

GIRDER "G" PIERS 4-5

17+45.70				33.992	34.012	
+53						
+55.83				34.042	34.084	
+65.95				34.093	34.150	
+76.08				34.143	34.200	
+86.20				34.194	34.240	
+94						
+96.33				34.245	34.275	
18+06.45				34.295	34.305	
Q. Pier 5						
+16.58			33.856	34.346	34.346	

GIRDER "H" PIERS 4-5

17+46.71				33.914	34.234	
+53						
+56.84				33.964	34.264	
+66.96				34.015	34.072	
+77.09				34.065	34.122	
+87.21				34.116	34.163	
+94						
+97.34				34.167	34.197	
18+07.46				34.217	34.227	
Q. Pier 5						
+17.59			33.778	34.268	34.268	

GRADES MORENA BRIDGE
 top of
 Girder
 Elev. Contd. top of deck
 top of
 deck with Camber

Sta.

GIRDER "A" PIERS 5-6

18+20.53			34.283	34.303
+30.66			34.283	34.373
+34				
+40.78			34.364	34.440
+50.91			34.425	34.422
+61.03			34.485	34.532
+71.16			34.535	34.565
+75				
+81.28			34.585	34.595
Q Pier 6				
+91.41		34.145	34.625	34.635

GIRDER "B" PIERS 5-6

18+21.54			34.370	34.390
+31.67			34.420	34.460
+34				
+41.79			34.470	34.530
+51.92			34.523	34.580
+62.04			34.573	34.620
+72.17			34.624	34.654
+75				
+82.29			34.674	34.684
Q Pier 6				
+92.42		34.235	34.725	34.725

GRADES MORENA BRIDGE

Sta.	+	H.L.	-	Cont'd top of Girder Elev.	top of deck	top of deck with Camber
------	---	------	---	-------------------------------------	----------------	----------------------------

GIRDER "E" PIERS 5-6

18+24.67				34.550	34.574	
+34						
+34.80				34.600	34.644	
+44.92				34.650	34.712	
+55.05				34.700	34.762	
+65.17				34.750	34.802	
+75						
+75.30				34.800	34.827	
+85.42				34.850	34.867	
Q. Pier 6						
+95.55			34.418	34.900	34.928	

GIRDER "F" PIERS 5-6

18+25.68				34.476	34.496	
+34						
+35.81				34.520	34.566	
+45.93				34.570	34.634	
+56.06				34.620	34.684	
+66.18				34.670	34.724	
+75						
+76.31				34.720	34.754	
+86.43				34.780	34.790	
Q. Pier 6						
+96.56			34.35	34.830	34.830	

GRADES MORENA BRIDGE Contd.

Sta.	+	H.I.	-	top of Girder Elev.	top of deck	top of deck with Camber
------	---	------	---	---------------------------	----------------	----------------------------

Checked

GIRDER "G" PIERS 5-6

18+26.70					34.337	34.417
+34						
+36.83					34.441	34.467
+46.95					34.491	34.555
+57.08					34.541	34.605
+67.20					34.600	34.656
+75						
+77.33					34.629	34.680
+87.45					34.701	34.716
Q Pier 6						
+97.58			34.26	34.751	34.750	

GIRDER "H" PIERS 5-6

18+27.71					34.321	34.340
+34						
+37.84					34.370	34.410
+47.96					34.421	34.480
+58.09					34.471	34.527
+68.21					34.521	34.568
+75						
+78.34					34.571	34.602
+88.46					34.618	34.628
Q Pier 6						
+98.59			34.183	34.673	34.673	

GRADES MORENA BRIDGE

Sta.	+	H.I.	-	Contd. top of Girder Elev.	top of deck with Camber
------	---	------	---	-------------------------------------	-------------------------------

GIRDER "A" PIERS 6-7

Fix Jt					
19+01.53				34.688	34.688
+11.66				34.705	34.705
+21.78				34.720	34.720
+31.91				34.840	34.918
+42.03				34.880	34.960
+52.16				34.940	34.988
+62.28				34.980	34.990
Q Pier 7					
+76.00			34.57	35.060	35.060

GIRDER "B" PIERS 6-7

L 19+02.54				34.710	34.776
+12.67				34.820	34.873
+22.79				34.870	34.950
+32.92				34.920	35.006
+43.04				34.970	35.050
+53.17				35.020	35.075
+63.29				35.070	35.076
Q Pier 7					
+76.00			34.653	35.143	35.143

GRADES MORENA BRIDGE

Sta.	+ H.L.	-	top of Girder Elev.	top of deck	top of deck with camber
------	--------	---	---------------------	-------------	-------------------------

GIRDER "C" PIERS 6-7

19+03.56			34.865	34.865	
+13.69			34.815	34.862	
+23.81			34.944	35.040	
+33.94			35.075	35.025	
+44.06			35.205	35.146	
+54.19			35.185	35.145	
+64.31			35.165	35.168	
& Pier 7					
+76.00		34.747	35.225	35.227	

GIRDER "D" PIERS 6-7

19+04.57			34.955	34.953	
+14.70			35.085	35.050	
+24.82			35.154	35.127	
+34.95			35.105	35.183	
+45.07			35.155	35.228	
+55.20			35.245	35.253	
+65.32			35.255	35.256	
& Pier 7					
+76.00		34.82	35.310	35.310	

GRADES MORENA BRIDGE

Sta.	+	H.I.	-	Cont'd. top of Girder Elev.	top of deck	top of deck with Camber
------	---	------	---	--------------------------------------	----------------	----------------------------

GIRDER "E" PIERS 6-7

19+05.67				34.86	34.260	
+15.80				35.018	35.456	
+25.92				35.060	35.133	
+36.05				35.14	35.120	
+46.17				35.140	35.234	
+56.30				35.212	35.260	
+66.42				35.252	35.262	
Q Pier 7						
+76.00			34.82	35.310	35.310	

GIRDER "F" PIERS 6-7

19+06.68				34.882	34.880	
+16.81				34.932	34.976	
+26.93				34.982	35.055	
+37.06				35.032	35.110	
+47.18				35.082	35.156	
+57.31				35.134	35.180	
+67.43				35.184	35.184	
Q Pier 7						
+76.00			34.747	35.227	35.227	

1-25-52

GRADES MORENA BRIDGE Contd.
 top of top of
 Girder ELEV. deck with Camber

Sta.

+

H.I.

-

Checked

GIRDER "G" PIERS 6-7

19+07.70				34.800	34.802
+17.83				34.802	34.900
+27.95				34.900	34.976
+38.08				34.950	35.030
+48.20				35.000	35.077
+58.33				35.050	35.096
+68.45				35.100	35.105
Q Pier 7					
+76.00			34.650	35.140	35.143

GIRDER "H" PIER 6-7

19+08.71				34.720	34.724
+18.84				34.770	34.800
+28.96				34.820	34.898
+39.09				34.870	34.953
+49.21				34.920	35.000
+59.34				34.970	35.024
+69.46				35.020	35.027
Q Pier 7					
+76.00			34.57	35.060	35.060

GRADES MORENA BRIDGE Center
 top of top of
 Girders deck
 Elev. with Camber

Sta.

+

H.I.

-

GIRDER "A" PIERS 7-8

19+86.12				35.110	35.130
+96					
+96.25				35.114	35.223
20+06.37				35.212	35.263
+16.50				35.227	35.313
+26.62				35.313	35.360
+36.75				35.344	35.424
+37					
+46.87				35.414	35.424
Q Pier #8					
20+57.00			34.975	35.415	35.465

GIRDER "B" PIERS 7-8

19+86.12				35.193	35.213
+96					
+96.25				35.244	35.286
20+06.37				35.227	35.352
+16.50				35.345	35.402
+26.62				35.396	35.443
+36.75				35.447	35.477
+37					
+46.87				35.497	35.507
Q Pier #8					
20+57.00			35.058	35.546	35.548

Contd.

GRADES MORENA BRIDGE

Sta.	+	H.I.	-	top of girder elev	top of deck	top of deck with Camber
------	---	------	---	--------------------	-------------	-------------------------

GIRDER "C" PIERS 7-8

19+86.12					35.271	35.297
+96						
+96.25					35.320	35.372
20+06.37					35.373	35.436
+16.50					35.420	35.486
+26.62					35.440	35.527
+36.75					35.531	35.561
+37						
+46.87					35.581	35.591
Q Pier #8						
20+57.00				35.192	35.632	35.632

GIRDER "D" PIERS 7-8

19+86.12					35.360	35.380
+96						
+96.25					35.411	35.453
20+06.37					35.422	35.519
+16.50					35.512	35.569
+26.62					35.563	35.610
+36.75					35.614	35.644
+37						
+46.87					35.664	35.674
Q Pier #8						
20+57.00				35.225	35.715	35.715

GRADES MORENA BRIDGE

Cont'd

Sta.	+	H.L.	-	top of Girder Elev.	top of deck	top of deck with Camber
------	---	------	---	---------------------------	----------------	----------------------------

GIRDER "E" PIERS 7-8

19+86.12					35.324	35.380
+96						
+96.25					35.411	35.453
20+06.37					35.442	35.512
+16.50					35.477	35.537
+26.62					35.522	35.610
+36.75					35.614	35.644
+37						
+46.87					35.644	35.674
Q Pier #8						
20+57.00				35.225	35.715	35.715

GIRDER "F" PIERS 7-8

19+86.12					35.273	35.297
+96						
+96.25					35.322	35.370
20+06.37					35.375	35.436
+16.50					35.422	35.486
+26.62					35.480	35.527
+36.75					35.531	35.561
+37						
+46.87					35.581	35.591
Q Pier #8						
20+57.00				35.142	35.632	35.632

GRADES MORENA BRIDGE

Sta.	+ H.I.	-	top of Girder Elev.	top of deck	top of deck with Cambar
------	--------	---	---------------------------	----------------	----------------------------

GIRDER "G" PIERS 7-8

19+86.12				35.192	35.213
+96					
+96.25				35.248	35.286
20+06.37				35.238	35.352
+16.50				35.348	35.482
+26.62				35.376	35.493
+36.75				35.440	35.477
+37					
+46.87				35.437	35.507
Q Pier 8					
20+57.00			35.058	35.540	35.546

GIRDER "H" PIERS 7-8

19+86.12				35.116	35.130
+96					
+96.25				35.161	35.202
20+06.37				35.218	35.269
+16.50				35.261	35.319
+26.62				35.313	35.360
+36.75				35.369	35.394
+37					
+46.87				35.419	35.424
Q Pier 8					
20+57.00			34.975	35.468	35.465

GRADES MORENA BRIDGE

Sta	+	H.L.	-	top of Girder Elev.	top of deck	top of deck with Camber
-----	---	------	---	---------------------------	----------------	----------------------------

GIRDER "A" PIERS 8-9

20+67.12				35.515	35.535	
+77						
+77.25				35.592	35.608	
+87.37				35.617	35.674	
+97.50				35.665	35.725	
21+07.62				35.718	35.765	
+17.75				35.769	35.799	
+18						
+27.87				35.819	35.829	
Q Pier #9						
21+38.00			35.380	35.810	35.870	

GIRDER "B" PIERS 8-9

20+67.12				35.538	35.618	
+77						
+77.25				35.649	35.691	
+87.37				35.700	35.757	
+97.50				35.751	35.809	
21+07.62				35.801	35.846	
+17.75				35.852	35.882	
+18						
+27.87				35.902	35.912	
Q Pier #9						
21+38.00			35.463	35.959	35.953	

GRADES MORENA BRIDGE

Sta.	+	H.I.	-	top of Girder Elev.	top of deck	top of deck with camber
GIRDER "C" PIERS 8-9						
20+67.12				35.436	35.702	
+77						
+77.25				35.732	35.775	
+87.37				35.761	35.811	
+97.50				35.835	35.892	
21+07.62				35.865	35.922	
+17.75				35.936	35.966	
+18						
+27.87				35.981	35.996	
↳ Pier 9						
21+38.00				35.557	36.127	36.127

GIRDER "D" PIERS 8-9

20+67.12				35.761	35.785	
+77						
+77.25				35.816	35.828	
+87.37				35.867	35.924	
+97.50				35.918	35.975	
21+07.62				35.968	36.015	
+17.75				36.019	36.049	
+18						
+27.87				36.069	36.079	
↳ Pier 9						
21+38.00				35.630	36.120	36.120

GRADES MORENA BRIDGE

Sta	+	H.L.	-	top of Girder Elev.	top of deck	top of deck with Camber
-----	---	------	---	---------------------------	----------------	----------------------------

GIRDER "E" PIERS 8-9

20+67.12				35.765	35.785	
+77						
+77.25				35.816	35.858	
+87.37				35.867	35.924	
+97.50				35.918	35.975	
21+07.62				35.968	36.015	
+17.75				36.019	36.049	
+18						
+27.87				36.069	36.079	
Q. Pier 9						
21+38.00			35.630	36.120	36.120	

GIRDER "F" PIERS 8-9

20+67.12				35.682	35.702	
+77						
+77.25				35.733	35.715	
+87.37				35.784	35.841	
+97.50				35.835	35.892	
21+07.62				35.885	35.932	
+17.75				35.936	35.966	
+18						
+27.87				35.986	35.996	
Q. Pier 9						
21+38.00			35.557	36.037	36.037	

Sta.	+	H. I.	GRADES MORENA BRIDGE		
			-	top of Girder Elev.	top of deck with Camber

GIRDER "G" PIERS 8-9

20+67.12				35.538	35.618
+77					
+77.25				35.649	35.691
+87.37				35.700	35.757
+97.50				35.751	35.808
21+07.62				35.801	35.848
+17.75				35.852	35.882
+18					
+27.87				35.902	35.912
Q Pier 9					
21+38.00			35.463	35.952	35.953

GIRDER "H" PIERS 8-9

20.67.12				35.515	35.535
+77					
+77.25				35.560	35.608
+87.37				35.617	35.674
+97.50				35.668	35.725
21+07.62				35.718	35.765
+17.75				35.763	35.799
+18					
+27.87				35.819	35.829
Q Pier 9					
21+38.00			35.380	35.870	35.870

Contd.

GRADES MORENA BRIDGE

Sta.	+ H.I.	-	top of Girder Elev.	top of deck	top of deck with Camber
------	--------	---	---------------------------	----------------	----------------------------

GIRDER "A" PIERS 9-10

Fix JT.				35.921	35.921
21+48.12					
+58.25				35.971	36.018
+68.37				36.022	36.085
+78.50				36.072	36.150
+88.62				36.123	36.196
+98.75				36.174	36.221
22+08.87				36.224	36.224
↳ Pier 10					
22+19.00			35.785	36.275	36.275

GIRDER "B" PIERS 9-10

21+48.12				36.004	36.004
+58.25				36.054	36.101
+68.37				36.105	36.178
+78.50				36.155	36.233
+88.62				36.206	36.279
+98.75				36.257	36.304
22+08.87				36.307	36.307
↳ Pier 10					
22+19.00			35.868	36.358	36.358

Contd.

GRADES MORENA BRIDGE

Sta	+	H.I.	-	top of Girder Elev.	top of deck	top of deck with Camber
-----	---	------	---	---------------------------	----------------	----------------------------

GIRDER "C" PIERS 9-10

21+48.12				36.286	36.288	
+58.25				36.138	36.185	
+68.37				36.183	36.262	
+78.50				36.232	36.317	
+88.62				36.230	36.363	
+98.75				36.341	36.388	
22+08.87				36.331	36.391	
@ Pier 10						
22+19.00			35.962	36.442	36.442	

GIRDER "D" PIERS 9-10

21+48.12				36.171	36.171	
+58.25				36.221	36.268	
+68.37				36.272	36.345	
+78.50				36.322	36.400	
+88.62				36.373	36.446	
+98.75				36.424	36.471	
22+08.87				36.474	36.474	
@ Pier 10						
22+19.00			36.035	36.525	36.525	

GRADES MORENA BRIDGE

Sta.	+	H.I.	-	top of Girder Elev.	top of deck	top of deck with Camber
------	---	------	---	---------------------------	----------------	----------------------------

GIRDER "E" Piers 9-10

2	21	+48.12		36.171	36.171	
		+58.25		36.221	36.228	
		+68.37		36.272	36.285	
		+78.50		36.322	36.400	
		+88.62		36.372	36.496	
		+98.75		36.424	36.471	
2	22	+08.87		36.474	36.474	
		Q Pier 10				
2	22	+19.00		36.035	36.523	36.525

GIRDER "F" Piers 9-10

2	21	+48.12		36.081	36.088	
		+58.25		36.136	36.185	
		+68.37		36.183	36.262	
		+78.50		36.232	36.317	
		+88.62		36.280	36.363	
		+98.75		36.341	36.388	
2	22	+08.87		36.391	36.391	
		Q Pier 10				
2	22	+19.00		35.962	36.442	36.442

GRADES MORENA BRIDGE

Sta.	+	H.I.	-	top of Girder Elev.	top of deck	top of deck with Camber
------	---	------	---	---------------------------	----------------	----------------------------

GIRDER "G" Piers 9-10

2	21+48.12				36.024	36.024
	+58.25				36.059	36.101
	+68.37				36.105	36.178
	+78.50				36.155	36.233
	+88.62				36.204	36.279
	+98.75				36.257	36.304
2	22+08.87				36.307	36.307
	Q Pier 10					
2	22+19.00			35.868	36.358	36.358

GIRDER "H" Piers 9-10

2	21+48.12				35.921	35.921
	+58.25				35.971	36.018
	+68.37				36.022	36.095
	+78.50				36.072	36.150
	+88.62				36.123	36.196
	+98.75				36.174	36.221
2	22+08.87				36.224	36.224
	Q Pier 10					
2	22+19.00			35.785	36.275	36.275

GRADES MORENA BRIDGE

Sta.	+ H.I.	-	top of Girder Elev.	top of deck	top of deck with Camber
------	--------	---	---------------------------	----------------	----------------------------

GIRDER "A" Piers 10-11

2	22+29.12			36.325	36.335
	+39				
	+39.25			36.376	36.402
	+49.37			36.427	36.469
	+59.50			36.478	36.530
	+69.62			36.528	36.586
	+79.75			36.579	36.621
	+80				
2	+89.87			36.620	36.649
	@ Pier 11				
2	23+00		36.190	36.680	36.680

GIRDER "B" Piers 10-11

2	22+29.12			36.408	36.418
	+39				
	+39.25			36.453	36.485
	+49.37			36.510	36.552
	+59.50			36.561	36.613
	+69.62			36.611	36.663
	+79.75			36.662	36.704
	+80				
2	+89.87			36.712	36.732
	@ Pier 11				
2	23+00		36.273	36.763	36.763

GRADES MORENA BRIDGE

Sta.	+	H.L.	-	top of Girder Elev.	top of deck	top of deck with Camber
------	---	------	---	---------------------------	----------------	----------------------------

GIRDER "C" Piers 10-11

2	22+29.12				36.492	36.502
	+39					
	+39.25				36.527	36.537
	+49.37				36.592	36.636
	+59.50				36.645	36.677
	+69.62				36.697	36.747
	+79.75				36.746	36.788
	+80					
2	+89.87				36.796	36.816
	Q Pier 11					
2	23+00			36.367	36.847	36.847

GIRDER "D" Piers 10-11

2	22+29.12				36.575	36.585
	+39					
	+39.25				36.621	36.652
	+49.37				36.677	36.713
	+59.50				36.728	36.780
	+69.62				36.778	36.830
	+79.75				36.823	36.871
	+80					
2	+89.87				36.873	36.893
	Q Pier 11					
2	23+00			36.440	36.930	36.930

Cont'd

GRADES MORENA BRIDGE

Sta.	+	H. I.	-	top of Girder Elev.	top of deck	top of deck with Camber
------	---	-------	---	---------------------------	----------------	----------------------------

GIRDER "E" Piers 10-11

2	22+29.12			36.575	36.585	
	+39					
	+39.25			36.626	36.652	
	+49.37			36.677	36.713	
	+59.50			36.728	36.780	
	+69.62			36.778	36.830	
	+79.75			36.827	36.871	
	+80					
2	+89.87			36.879	36.899	
	± Pier 11					
2	23+00		36.440	36.930	36.930	

GIRDER "F" Piers 10-11

2	22+29.12			36.492	36.502	
	+39					
	+39.25			36.543	36.569	
	+49.37			36.594	36.636	
	+59.50			36.645	36.697	
	+69.62			36.695	36.747	
	+79.75			36.746	36.798	
	+80					
2	+89.87			36.796	36.816	
	± Pier 11					
2	23+00		36.367	36.847	36.847	

GRADES MORENA BRIDGE

STA	+	H. I.	-	TOP DECK	TOP DECK
				ELEV	WITH CURB

GIRDER "G" PIERS 10-11

2	22+29.12			36.408	36.413
	+39				
	+39.25			36.459	36.485
	+49.37			36.510	36.532
	+59.50			36.561	36.613
	+69.62			36.611	36.663
	+79.75			36.662	36.704
	+80				
2	+89.87			36.712	36.732
	↳ Pier 11				
2	23+00	36.273		36.763	36.763

GIRDER "H" PIERS 10-11

	22+29.12			36.325	36.335
	+39				
	+39.25			36.376	36.402
	+49.37			36.427	36.462
	+59.50			36.478	36.530
	+69.62			36.528	36.580
	+79.75			36.579	36.621
	+80				
2	+89.87			36.629	36.649
	↳ Pier 11				
2	23+00	36.190		36.680	36.680

GRADES MORENA BRIDGE CONTD

STA	+ H.I.	-	FLEV. top deck	FLEV. with camber
-----	--------	---	----------------	-------------------

GIRDER "A" PIERS 11-12

23+10.12			36.731	36.736
+20.25			36.781	36.801
+30.37			36.832	36.868
+40.50			36.882	36.929
+50.62			36.933	36.969
+60.75			36.984	37.007
+70.87			37.034	37.033
Q Pier 12				
23+81.00			37.085	37.085

GIRDER "B" PIERS 11-12

23+10.12			36.814	36.813
+20.25			36.864	36.889
+30.37			36.915	36.951
+40.50			36.965	37.012
+50.62			37.016	37.052
+60.75			37.067	37.087
+70.87			37.117	37.122
Q Pier 12				
23+81.00	36.678		37.168	37.168

GRADES MORENA BRIDGE CONTD.
top deck top deck

57A + H.L. - ELEV. with Comp

GIRDER "C" PIERS 11-12

223+10.12	36.898	36.903
+20.25	36.948	36.968
+30.37	37.000	37.035
+40.50	37.049	37.088
+50.62	37.100	37.136
+60.75	37.151	37.171
+70.87	37.201	37.206
Q Pier 12		
223+81.00	36.772	37.252, 37.252

GIRDER "D" PIERS 11-12

223+10.12	36.981	36.986
+20.25	37.031	37.051
+30.37	37.082	37.118
+40.50	37.132	37.179
+50.62	37.183	37.219
+60.75	37.234	37.254
+70.87	37.284	37.289
Q Pier 12		
223+81.00		37.335

GRADES MORENA BRIDGE CONTD.

STA + H.I. - ELEV ^{top deck} ^{top deck} _{with Cam}

GIRDER "E" Piers 11-12

2	23+10.12		36.981	36.986
	+20.25		37.031	37.051
	+30.37		37.082	37.118
	+40.50		37.132	37.179
	+50.62		37.183	37.219
	+60.75		37.234	37.254
2	+70.87		37.284	37.289
	Q Pier 12			
2	23+81.00	36.845	37.335	37.335

GIRDER "F"

2	23+10.12		36.898	36.903
	+20.25		36.948	36.968
	+30.37		37.000	37.035
	+40.50		37.049	37.096
	+50.62		37.100	37.134
	+60.75		37.151	37.171
2	+70.87		37.201	37.206
	Q Pier 12			
2	23+81.00	36.772	37.252	37.252

Contd.

(79)

GRADES MORENA BRIDGE

Sta.	+	H.L.	-	Elev	with Cam
				top deck	top deck

GIRDER "G" Piers 11-12

23+10.12				36.814	36.819
+20.25				36.864	36.859
+30.37				36.915	36.951
+40.50				36.965	37.012
+50.62				37.016	37.052
+60.75				37.067	37.087
+70.87				37.117	37.122
Q Pier 12					
23+81.00		36.678		37.168	37.168

GIRDER "H"

23+10.12				36.731	36.736
+20.25				36.781	36.801
+30.37				36.832	36.861
+40.50				36.882	36.929
+50.62				36.933	36.969
+60.75				36.984	37.024
+70.87				37.034	37.039
Q Pier 12					
23+81.00		36.595		37.085	37.085

GRADES MORENA BRIDGE

top deck top deck

Sta. + H.I. - Elev with Center

GIRDER "A" Pier 12 - Abut

23+89.05			37.125	37.130
+97.10			37.166	37.182
24+05.15			37.206	37.236
+13.20			37.247	37.283
+21.25			37.288	37.330
+29.30			37.328	37.365
+37.35		36.878	37.368	37.388

GIRDER "B" Pier 12 - Abut

23+89.07			37.208	37.213
+97.14			37.249	37.265
24+05.21			37.289	37.319
+13.28			37.330	37.372
+21.35			37.371	37.413
+29.42			37.411	37.448
+37.49		36.961	37.451	37.471

GRADES MORENA BRIDGE
top deck top deck

Sta. + H.I. - Elev With Cumber

GIRDER "C" Pier 12 - Abut.

23+89.09			37.292	37.297
+97.18			37.333	37.349
24+05.28			37.373	37.403
+13.37			37.414	37.456
+21.46			37.455	37.497
+29.56			37.495	37.532
+37.65		37.055	37.535	37.555

GIRDER "D" Pier 12 - Abut.

23+89.11			37.375	37.380
+97.23			37.416	37.432
24+05.34			37.456	37.486
+13.45			37.497	37.539
+21.57			37.538	37.580
+29.68			37.578	37.615
+37.80		37.128	37.618	37.638

GRADES MORENA BRIDGE
 +top deck top deck

Sta. + H.I. - Elev. With Center

GIRDER "E" Pier 12 - Abut.

23+89.14		37.375	37.380
+97.27		37.416	37.432
24+05.41		37.456	37.480
+13.54		37.497	37.533
+21.68		37.538	37.580
+29.82		37.578	37.615
+37.95	37.128	37.618	37.638

GIRDER "F" Pier 12 - Abut.

23+89.16		37.292	37.297
+97.32		37.333	37.349
24+05.47		37.373	37.403
+13.63		37.414	37.456
+21.79		37.455	37.497
+29.95		37.495	37.532
+38.10	37.055	37.535	37.555

Contd.

53

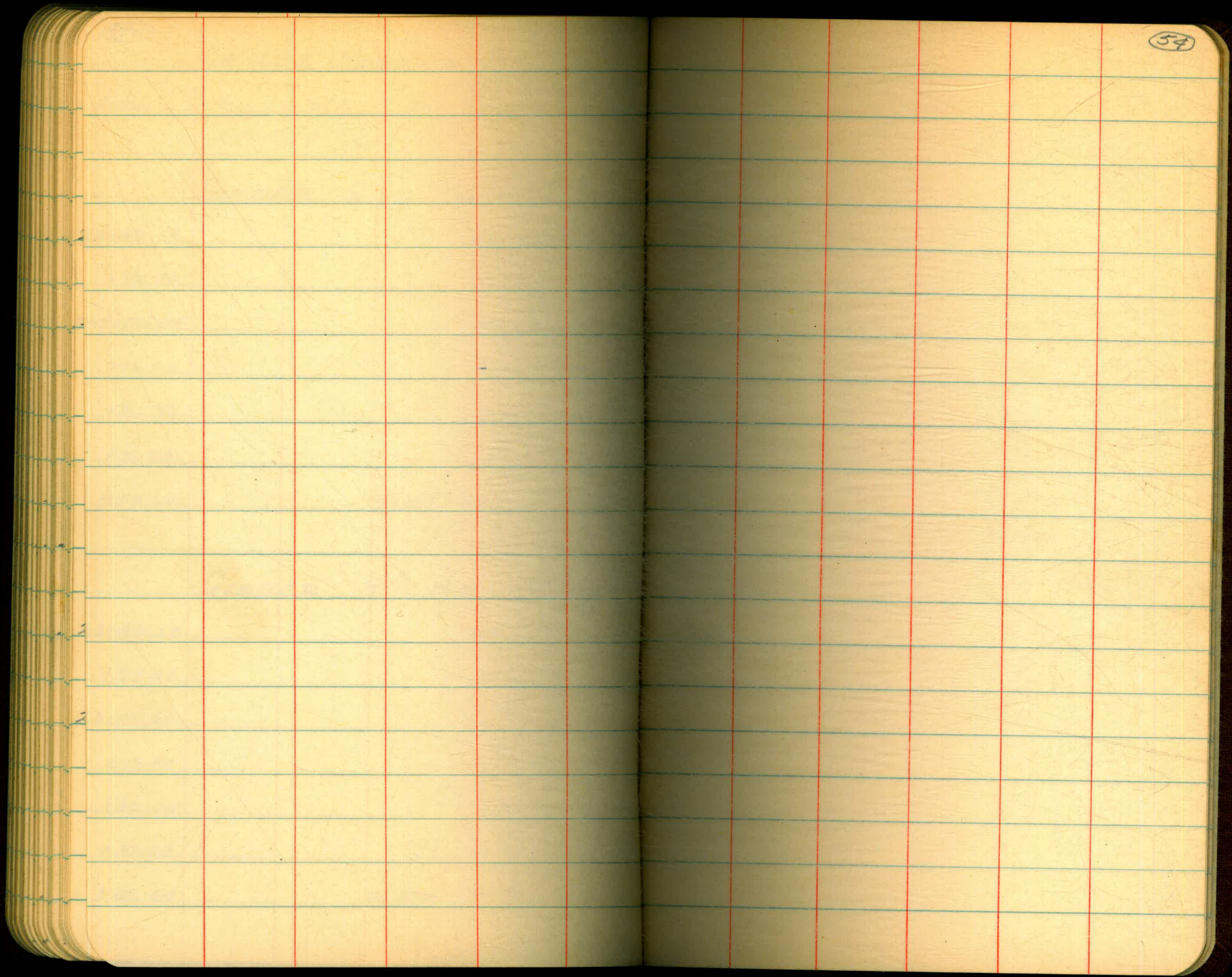
GRADES MORENA BRIDGE
top deck top deck
Sta. + H.L. - Elev. with Contd.

GIRDER "G" Pier 12 - Abut.

23+89.18			37.208	37.213
+97.36			37.249	37.265
24+05.54			37.289	37.319
+13.72			37.330	37.372
+21.90			37.371	37.413
+30.08			37.411	37.448
+38.26	36.961		37.451	37.471

GIRDER "H" Pier 12 - Abut.

23+89.20			37.125	37.130
+97.40			37.166	37.182
24+05.60			37.206	37.236
+13.80			37.247	37.289
+22.00			37.288	37.330
+30.20			37.328	37.365
+38.40	36.878		37.368	37.388



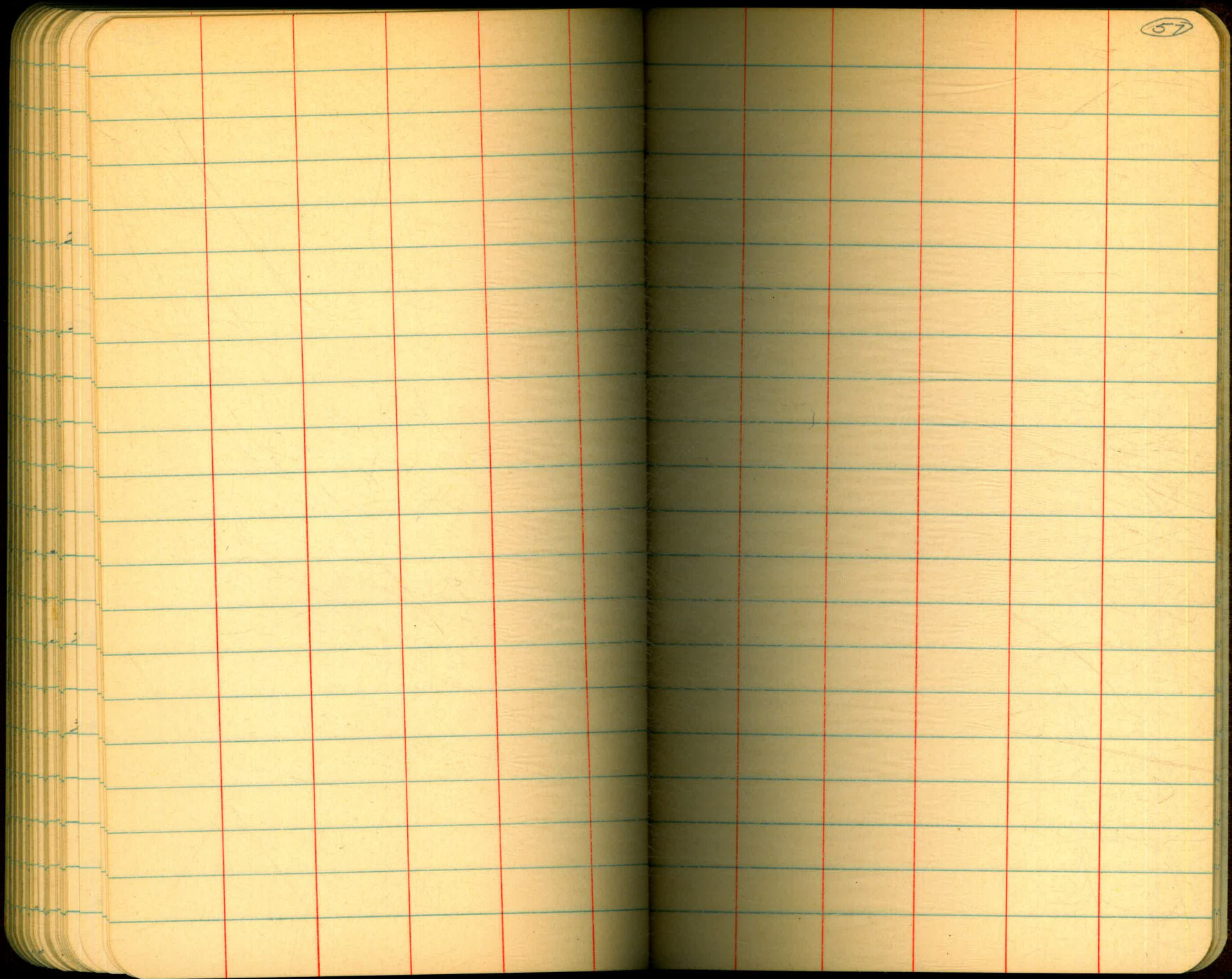
The image shows an open notebook with two facing pages. Both pages are cream-colored and feature light blue horizontal ruling. Each page has two vertical red margin lines, one on the left and one on the right, creating a central column and two side columns. The pages are otherwise blank. In the top right corner of the right page, the number '55' is handwritten in black ink. The notebook's binding is visible in the center, and the left edge shows the stacked pages of the notebook.

2

1

2

2



2

2

2

2

2

2

2

2

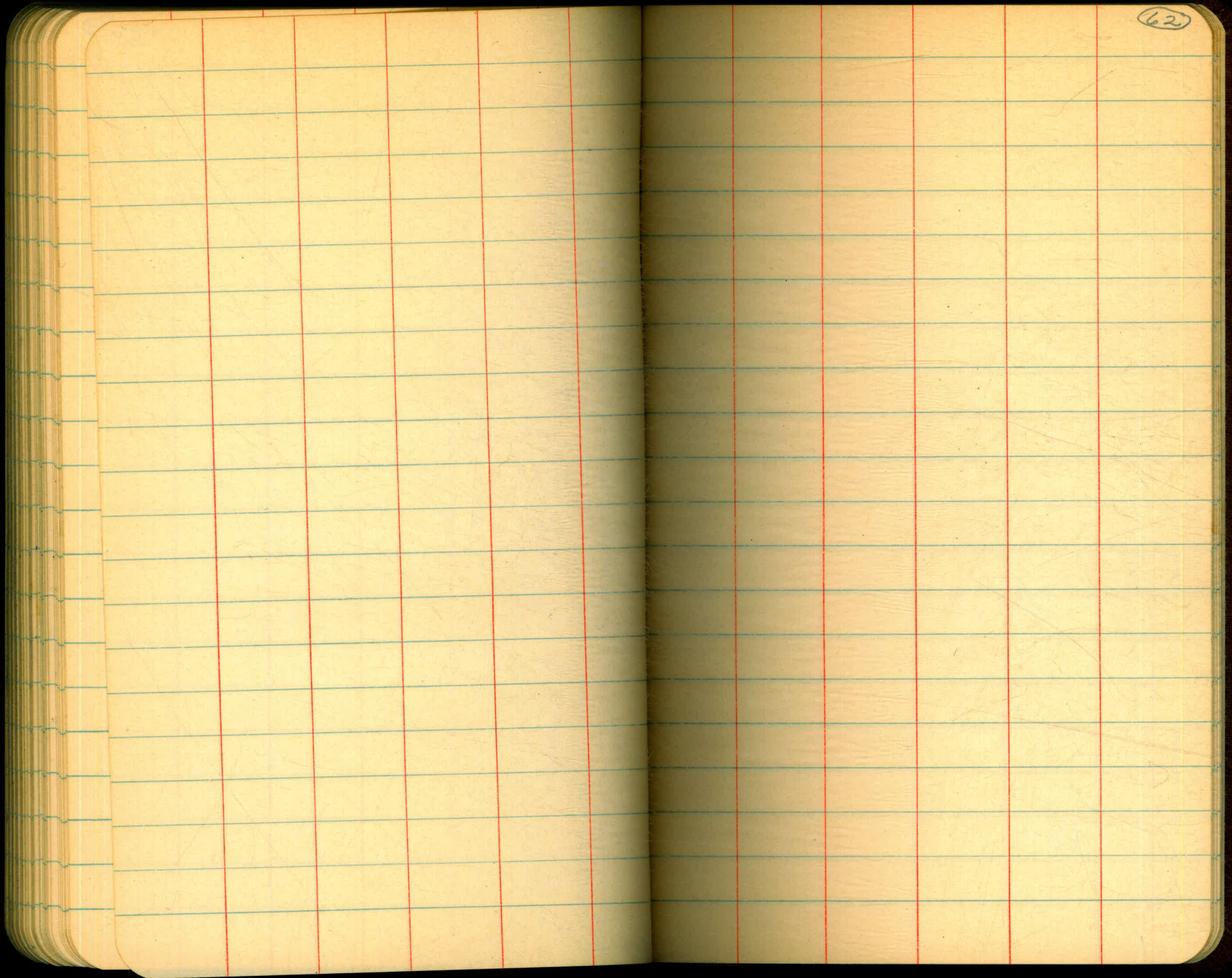
2

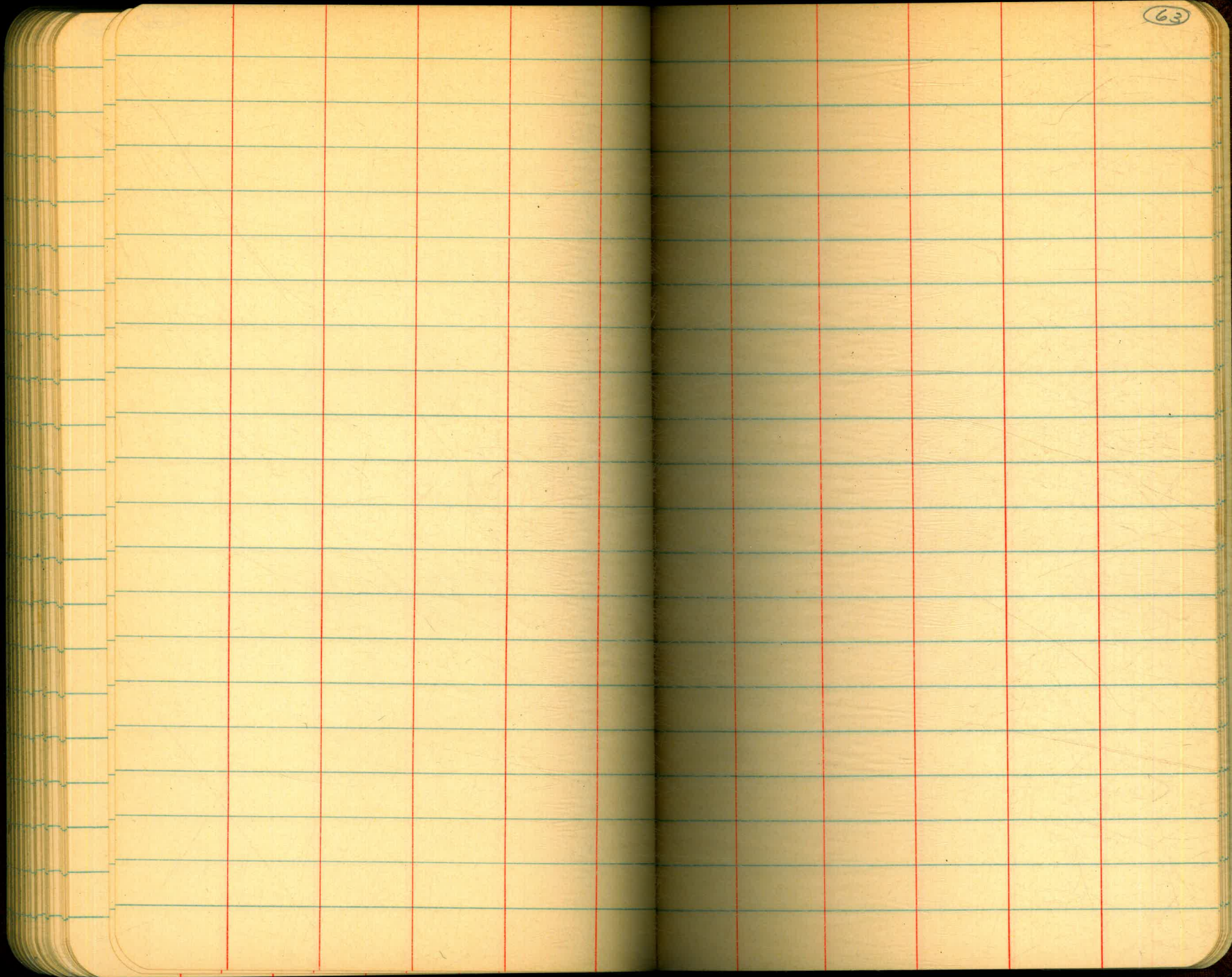
2

2

2

The image shows an open notebook with two facing pages. The pages are cream-colored and feature light blue horizontal ruling. Vertical red lines create margins on both pages. The right page has the number '67' written in the top right corner. The notebook is bound in the center, and the left edge shows the stacked pages of the notebook.

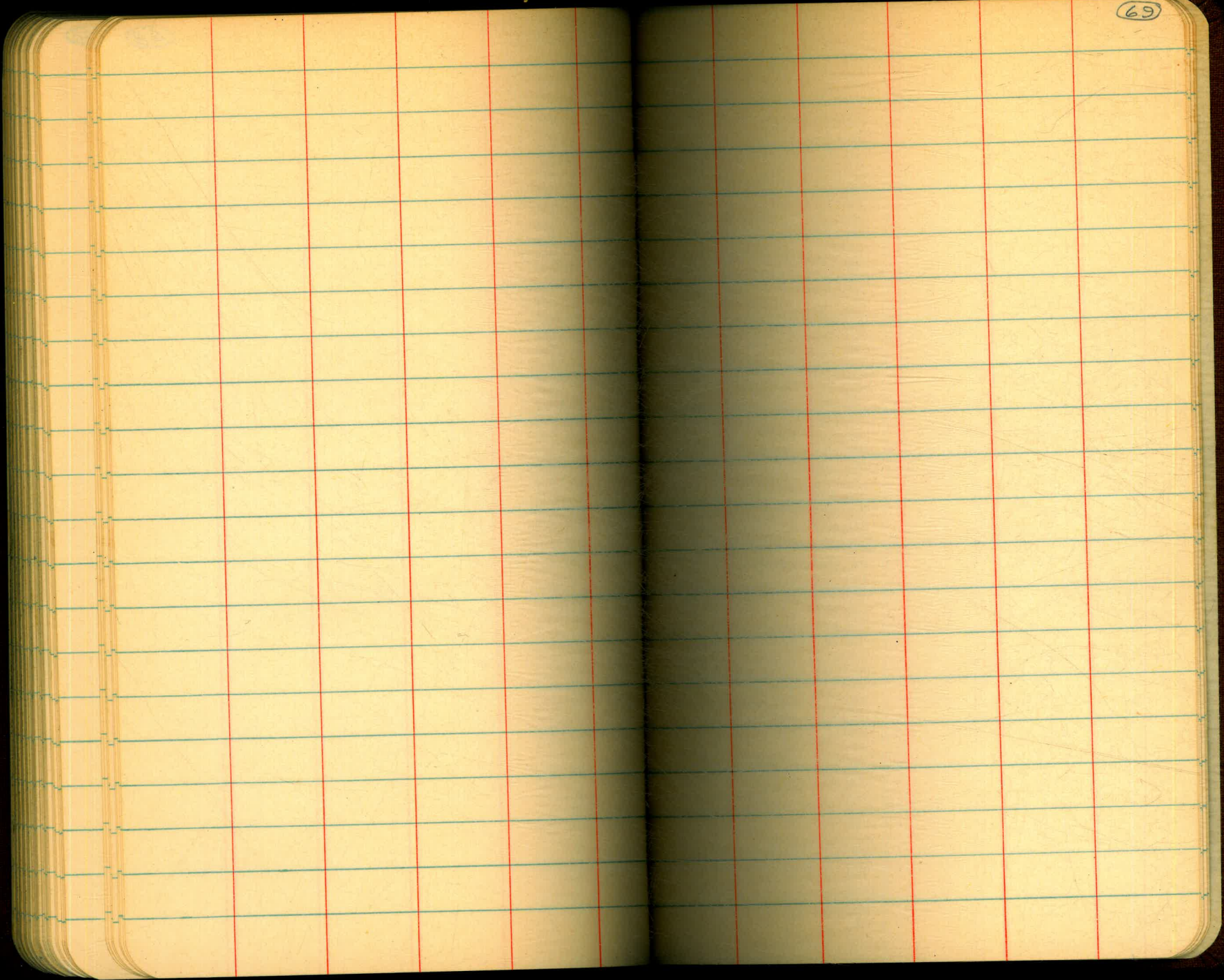




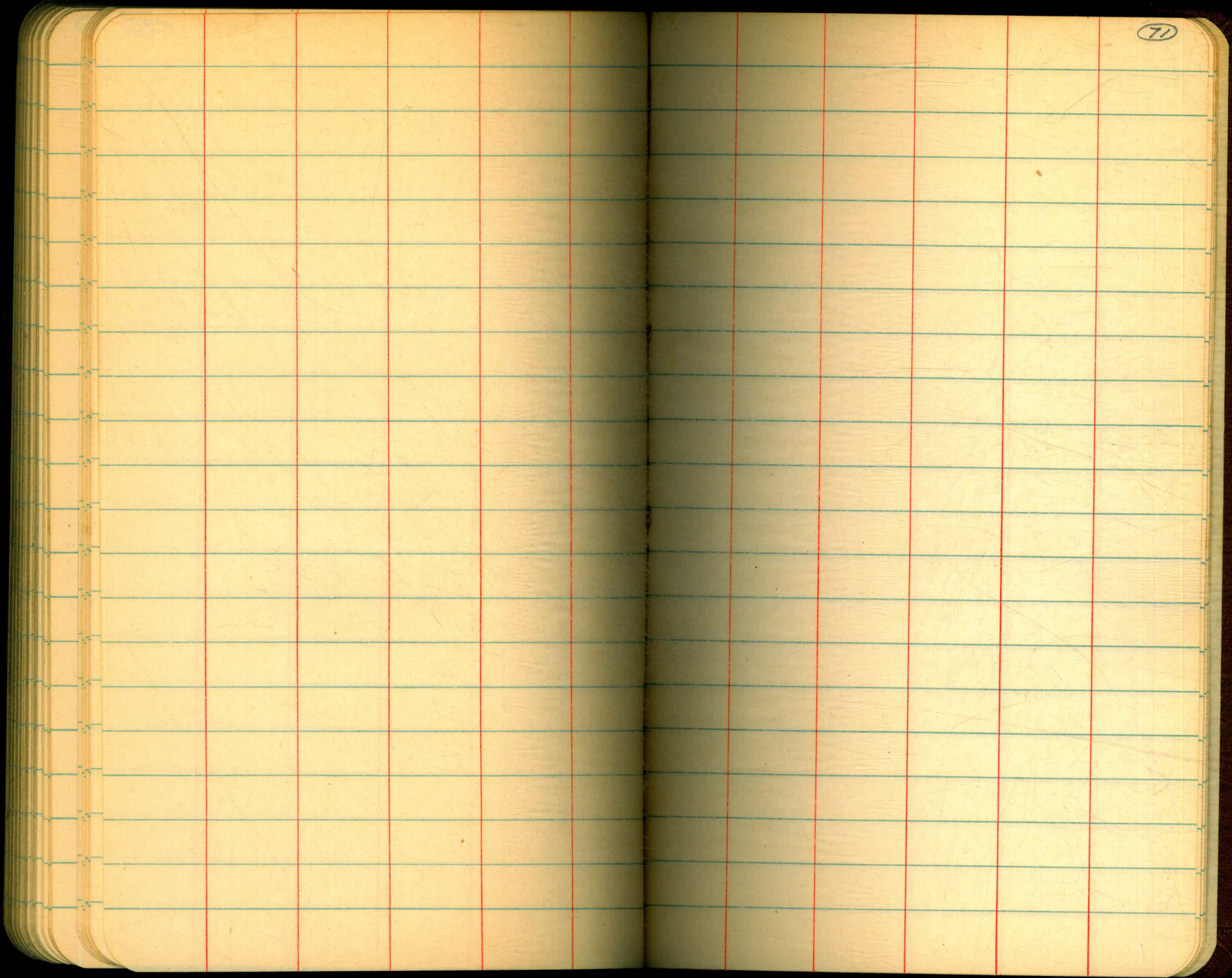
The image shows an open notebook with two facing pages. The pages are cream-colored and feature light blue horizontal ruling. Vertical red lines create margins on both pages. The right page has the number '65' written in the top right corner. The notebook is bound in the center, and the left edge shows the stacked pages of the notebook.

66

The image shows an open notebook with two facing pages. The pages are cream-colored and feature light blue horizontal ruling. Each page has two vertical red margin lines, one on each side of the central gutter. The notebook is bound in the center, and the pages are slightly aged. In the top right corner of the right page, the number '68' is handwritten in black ink. The notebook is set against a dark background.

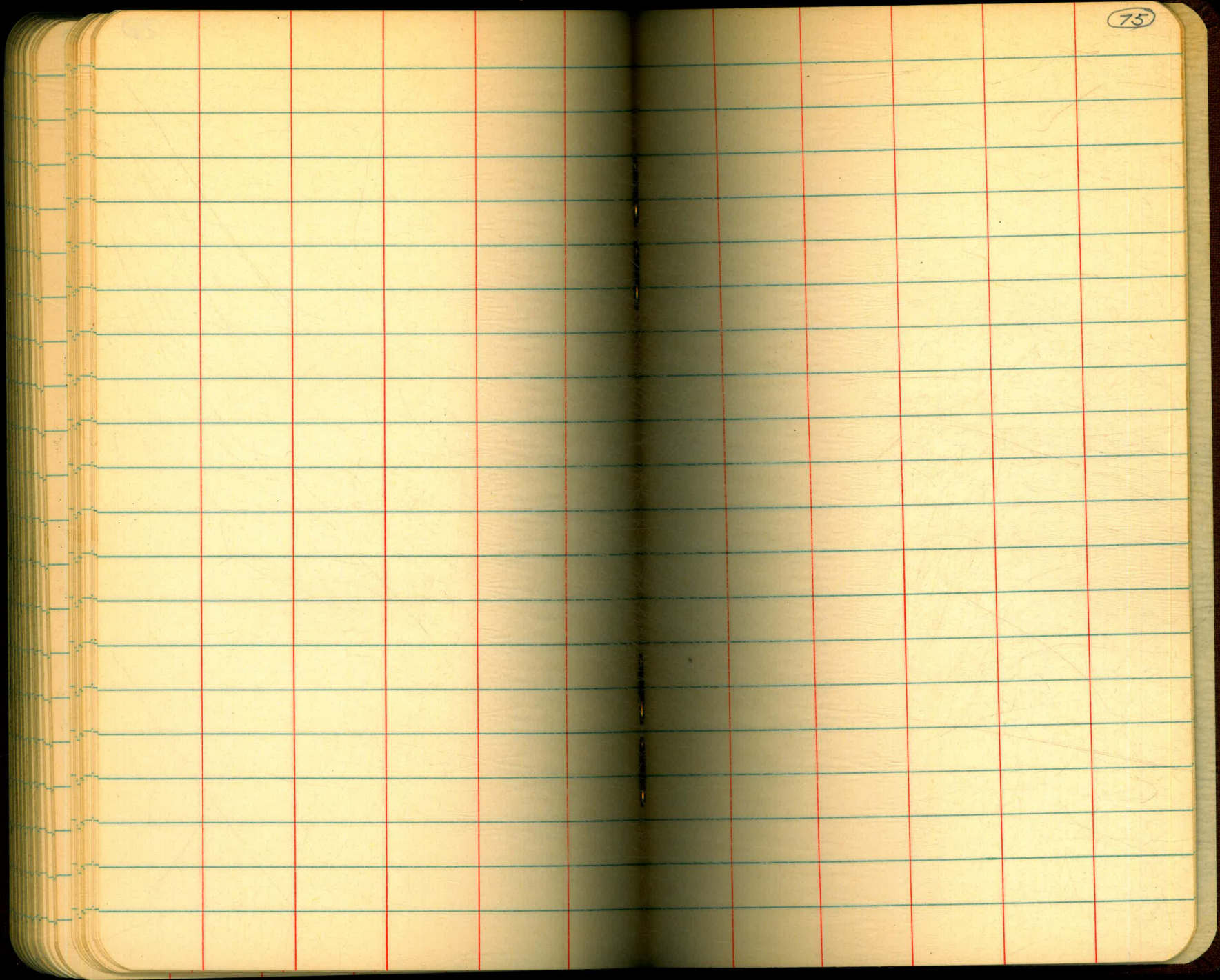


The image shows an open notebook with two facing pages. Both pages are cream-colored and feature light blue horizontal ruling. Each page has two vertical red margin lines, one on the left and one on the right, creating a central column and two side columns. The pages are otherwise blank. In the top right corner of the right page, the number '70' is handwritten in black ink. The notebook's binding is visible in the center, and the dark cover is seen at the edges.



The image shows an open notebook with two facing pages. The pages are cream-colored and feature light blue horizontal ruling. Each page has two vertical red margin lines, one on each side of the central gutter. The notebook is bound in a dark, possibly black or dark brown, cover that is visible at the edges. The pages are blank, with no writing or markings other than the page number '73' in the top right corner of the right page.

The image shows an open notebook with two facing pages. Both pages are cream-colored and feature a grid of horizontal green lines and vertical red lines, creating a ledger-style layout. The right page is numbered '79' in the top right corner. The notebook is bound in the center, and the pages appear slightly aged with some minor discoloration and faint smudges. The background is dark, making the notebook stand out.



The image shows an open notebook with two facing pages. Both pages are cream-colored and feature light blue horizontal ruling. Each page has two vertical red margin lines, one on each side of the central gutter. The right page is numbered '76' in the top right corner. The notebook is bound in the center, and the edges of the pages are visible on the left side.

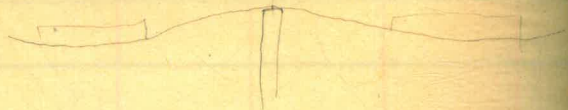
The image shows an open notebook with two facing pages. Both pages are cream-colored and feature light blue horizontal ruling. Each page is divided into two columns by two vertical red margin lines. The pages are otherwise blank, with no handwriting or printed text. The notebook's dark cover is visible at the edges, and the page number '78' is circled in the top right corner of the right page.

+ 7.108
 31.472

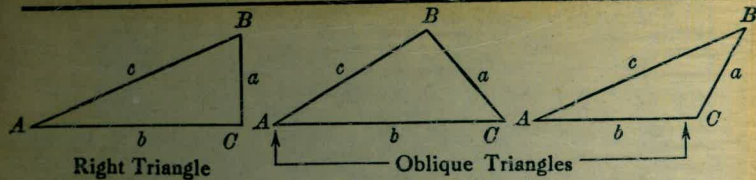
 HI. 38.580

31.478
 6.128

 37.606



TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\operatorname{cosec} = \frac{c}{a}$

Given	Required	Formulas
a, b	A, B, c	$\tan A = \frac{a}{b} = \cot B$, $c = \sqrt{a^2 + b^2} = a \sqrt{1 + \frac{b^2}{a^2}}$
a, c	A, B, b	$\sin A = \frac{a}{c} = \cos B$, $b = \sqrt{(c+a)(c-a)} = c \sqrt{1 - \frac{a^2}{c^2}}$
A, a	B, b, c	$B = 90^\circ - A$, $b = a \cot A$, $c = \frac{a}{\sin A}$
A, b	B, a, c	$B = 90^\circ - A$, $a = b \tan A$, $c = \frac{b}{\cos A}$
A, c	B, a, b	$B = 90^\circ - A$, $a = c \sin A$, $b = c \cos A$

Solution of Oblique Triangles

Given	Required	Formulas
A, B, a	b, c, C	$b = \frac{a \sin B}{\sin A}$, $C = 180^\circ - (A + B)$, $c = \frac{a \sin C}{\sin A}$
A, a, b	B, c, C	$\sin B = \frac{b \sin A}{a}$, $C = 180^\circ - (A + B)$, $c = \frac{a \sin C}{\sin A}$
a, b, C	A, B, c	$A + B = 180^\circ - C$, $\tan \frac{1}{2}(A - B) = \frac{(a - b) \tan \frac{1}{2}(A + B)}{a + b}$ $c = \frac{a \sin C}{\sin A}$
a, b, c	A, B, C	$s = \frac{a + b + c}{2}$, $\sin \frac{1}{2}A = \sqrt{\frac{(s - b)(s - c)}{bc}}$ $\sin \frac{1}{2}B = \sqrt{\frac{(s - a)(s - c)}{ac}}$, $C = 180^\circ - (A + B)$
a, b, c	Area	$s = \frac{a + b + c}{2}$, $\text{area} = \sqrt{s(s - a)(s - b)(s - c)}$
A, b, c	Area	$\text{area} = \frac{bc \sin A}{2}$
A, B, C, a	Area	$\text{area} = \frac{a^2 \sin B \sin C}{2 \sin A}$

REDUCTION TO HORIZONTAL

Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = 5° 10'. From Table, Page IX. $\cos 5^\circ 10' = .9959$. Horizontal distance = 319.4 × .9959 = 318.09 ft.
 Horizontal distance also = Slope distance minus slope distance times (1 - cosine of vertical angle) With the same figures as in the preceding example, the following result is obtained. $\cos 5^\circ 10' = .9959$. $1 - .9959 = .0041$. $319.4 \times .0041 = 1.31$. $319.4 - 1.31 = 318.09$ ft.
 When the rise is known, the horizontal distance is approximately: — the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft. slope distance = 302.6 ft. Horizontal distance = $302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$ ft.