PUBLIC WORKS ADMINISTRATION
PROJECT NO. N. H. 1037-F., MAINE 1088-F.

PISCATAQUA RIVER BRIDGE

PORTSMOUTH, N. H. TO KITTERY, MAINE

FOR

MAINE-NEW HAMPSHIRE INTERSTATE BRIDGE AUTHORITY

MEMBERS

NEW HAMPSHIRE

FREDERIC E. EVERETT, CHAIRMAN
FRANK E. BROOKS, PORTSMOUTH, CLERK
DR. JAMES J. POWERS, MANCHESTER

MAINE

WILLIAM H. HINMAN, VICE-CHAIRMAN
HOLLIS B. COLE, KITTERY, TREASURER
PAUL C. THURSTON, BETHEL
STILLMAN E. WOODMAN, MACHIAS

HARRINGTON AND CORTELYOU-CONSULTING ENGINEERS
KANSAS CITY, MO.-WASHINGTON, D. C.

NOVEMBER, 1938

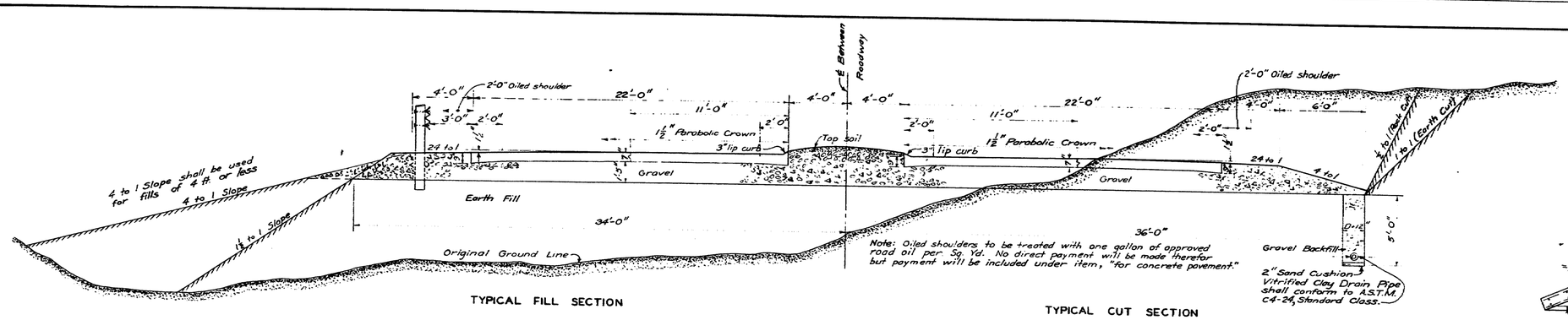
LIST OF DRAWINGS
UNIT III

X	PROJECT MAP		
1	STANDARD CROSS-SECTIONS		
2	PLAN AND PROFILE	STA. 20	TO 32
3	DO	STA. 31	TO 46
4	DO	STA. 45	TO 60
5	DO	STA. 59	TO 74
6	DO	STA. 72	TO 88
7	DO	STA. 86	TO 102
8	B. & M. R. R. TUNNEL	STA. 32 + 07.3	
8-A	RETAINING WALLS-B. & M. R. R. TUNNEL		
9	ELIOT ROAD SUPERSTRUCTURE		
9-A	ELIOT ROAD SUBSTRUCTURE		
10	CROSS-SECTIONS	STA. 21 + 00.0	TO STA. 22 + 39.1
11	DO	STA. 22 + 50.0	TO STA. 25 + 45.0
12	DO	STA. 26 + 00.0	TO STA. 29 + 00.0
13	DO	STA. 30 + 00.0	TO STA. 32 + 00.0
14	DO	STA. 33 + 00.0	TO STA. 36 + 00.0
15	DO	STA. 37 + 00.0	TO STA. 38 + 50.0
16	DO	STA. 39 + 00.0	TO STA. 39 + 27.0
17	CROSS-SECTIONS	STA. 39 + 70.0	TO STA. 40 + 20.0
18	DO	STA. 41 + 00.0	TO STA. 43 + 00.0
19	DO	STA. 43 + 40.0	TO STA. 44 + 20.0
20	DO	STA. 44 + 80.0	TO STA. 47 + 00.0
21	DO	STA. 47 + 55.0	TO STA. 49 + 25.0
22	DO	STA. 50 + 00.0	TO STA. 51 + 90.0
23	DO	STA. 52 + 00.0	TO STA. 53 + 22.0
24	DO	STA. 53 + 59.0	TO STA. 56 + 90.0
25	DO	STA. 57 + 00.0	TO STA. 59 + 00.0
26	DO	STA. 60 + 00.0	TO STA. 62 + 00.0
27	DO	STA. 63 + 00.0	TO STA. 67 + 00.0
28	DO	STA. 68 + 00.0	TO STA. 73 + 00.0
29	DO	STA. 74 + 00.0	TO STA. 78 + 00.0
30	DO	STA. 79 + 00.0	TO STA. 83 + 00.0
31	DO	STA. 84 + 00.0	TO STA. 89 + 00.0
32	DO	STA. 89 + 50.0	TO STA. 90 + 35.0
33	DO	STA. 90 + 70.0	TO STA. 92 + 50.0
34	DO	STA. 93 + 00.0	TO STA. 95 + 50.0
35	DO	STA. 96 + 00.0	TO STA. 97 + 50.0

8-AR RETAINING WALLS - B. & M. R.R. TUNNEL
FQ-1 B. & M. R.R. TUNNEL
FQ-2 DO
FQ-3 DO
FQ-4 DO
FQ-5 DO
FQ-8 CULVERTS, HEADWALLS ETC.
FQ-9 DO

126-137

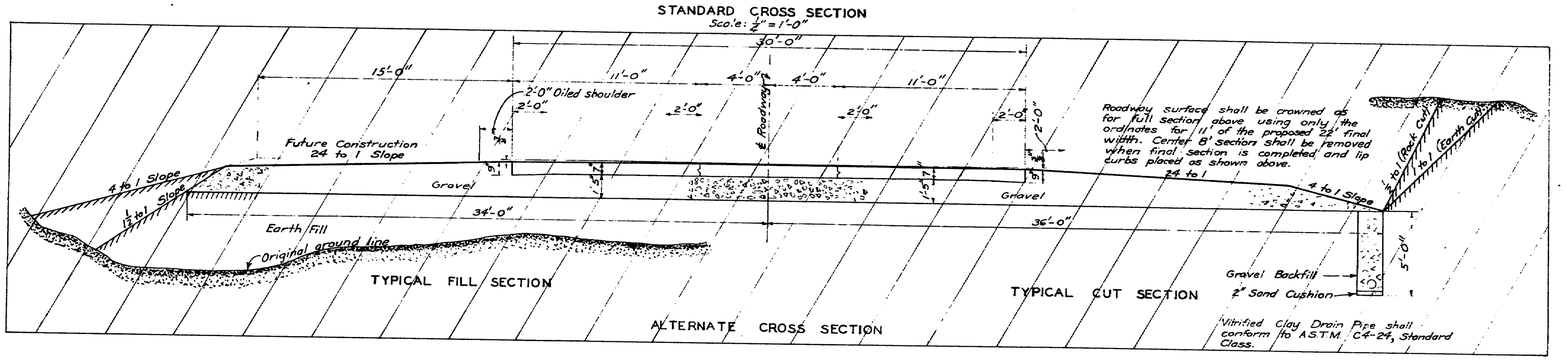
Revised F.M.C.Jr. 3-5-46.



TYPICAL FILL SECTION

TYPICAL CUT SECTION

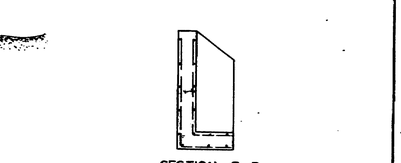
STANDARD CROSS SECTION
Scale: ½" = 1'-0"



TYPICAL FILL SECTION

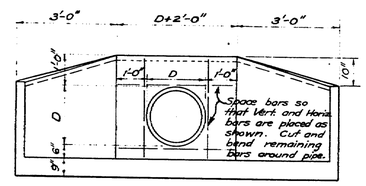
ALTERNATE CROSS SECTION

TYPICAL CUT SECTION



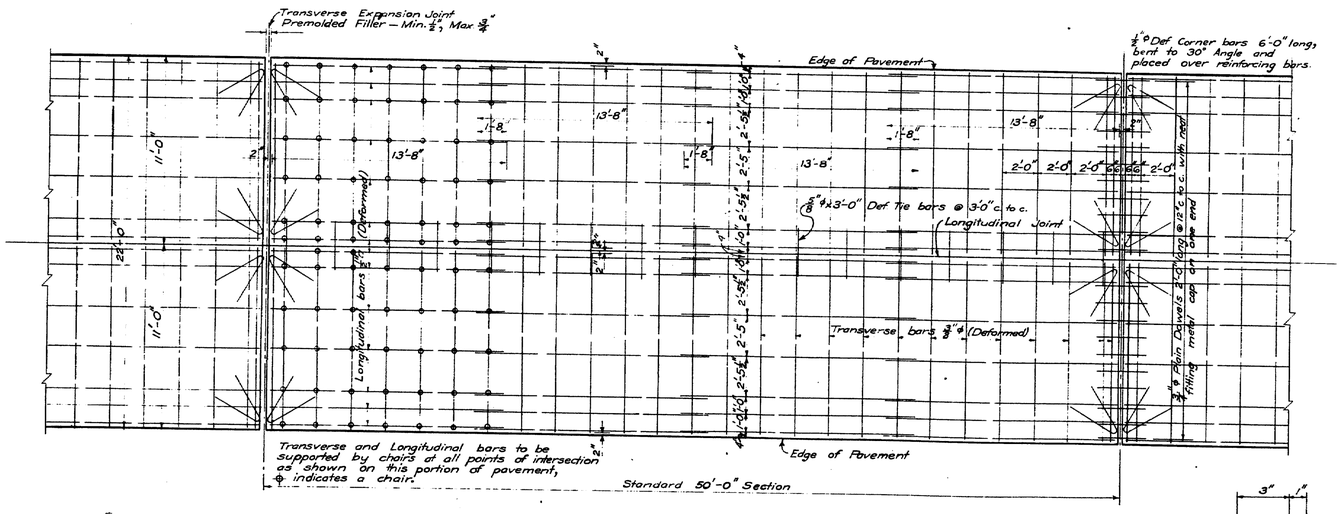
SECTION B-B

PLAN



ELEVATION

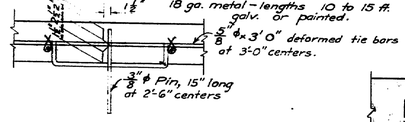
STANDARD CULVERT HEADWALL
Scale: ½" = 1'-0"



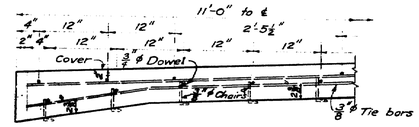
REINFORCING STEEL PLAN
Scale: ½" = 1'-0"



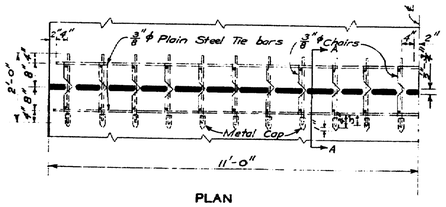
METAL CAP FOR ¾" ϕ TRANSVERSE JOINT DOWELS



LONGITUDINAL JOINT

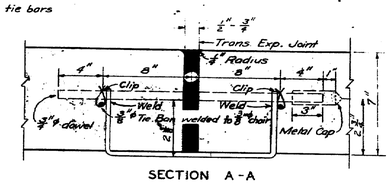


SECTION AT TRANSVERSE JOINT

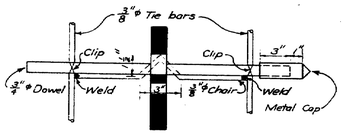


PLAN

TRANSVERSE JOINT DOWEL SPACER ASSEMBLY



SECTION A-A



PLAN — ASSEMBLY DETAIL

P.W.A. PROJECT NO. N.H. 1037-F, MAINE 1088-F.

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.

STANDARD CROSS SECTIONS

SCALE: AS NOTED

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY E.M.N.
TRACED BY R.R.
CHECKED BY

Revised for Const. Record F.H.C. 3-1-45.

126-138

SHEET NO. 1

UNIT III & IV

SHEET NO. 2
UNIT III

STATE OF MAINE

PISCATAQUA RIVER

OLD BRIDGE

To Portsmouth

BOSTON & MAINE R.R.

TO PORTSMOUTH — PROPOSED BRIDGE — N35°-05'-30"E

MRS. EDITH TUCKER HURD

RAYMOND W. DONNELL

HARRY ROBERTS

GEO. G. HICKERSON

Right of Way Line

HIGHWAY LINE B-1

ROAD

Relocate Water Mains

Water Mains

MAIN TRACK

OVERPASS

BOSTON & MAIN R.R.

NAVY YARD SPUR

TO NAVY YARD, E.

BRIDGE STREET

Tunnel under Proposed Bridge

Guard Rail
22+66 to 24+00 L.
23+50 to 24+00 R.
26+70 to 32+88 L.
26+70 to 29+60 R.
30+90 to 34+55 R.

For pavement layout south of Sta. 28+00 see Sheet No. XI with Unit V drawings.

PLAN
SCALE:- 1 in. = 50 FT.

BM Tab at Water Hydrant 70 Ft. N.W. Sta. 20+40 Elev. 22.81

LEVEL Grade Bridge Floor Elev. 47.25

Finished Grade 1.125%

Level Grade Bridge Floor Elev. 48.50

Ground Line

℄ ROAD El. 34.0

200' V.C.

PROFILE
SCALES VERT. 1 in. = 10 FT.
HOR. 1 in. = 50 FT.

Datum = Mean Sea Level
U.S.C.&G.S. Bench Mark

F.W.A. PROJECT NO. N.H. 1037-F, MAINE 1088-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.

PLAN AND PROFILE

SCALE: AS NOTED

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY
TRACED BY
CHECKED BY

SHEET NO. 2

PLATE I — PLAN-PROFILE A.E.P.C. & E.C. STANDARD
KEUFFEL & ESSER CO. NEW YORK

126-139

Revised for Const. Record - F.M.C. 3-2-46

SHEET NO. 3
UNIT III

PLAN
SURVEYED
PLOTTED
QUANTITIES CHECKED
FT. OF WAY CHECKED
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
B.M.'s NOTED
STRUCTURES NOTED AND CHKD

HARRY ROBERTS

MRS. EDITH TUCKER HURD

Intersection & track sta. 32+07.5

"Tunnel" under Proposed Bridge & Road.

Retaining Wall

Retaining Wall

TO PORTLAND

Wall

N23°-25'E

Tangent at intersection

N23°-35'

N23°-25'E

Tangent at intersection

N23°-35'

98.2

N35°-05-30"E

Right of Way Line

Δ = 4°-30'
R = 5729.65
D = 1°-0'
T = 225.12
L = 450
E = 4.42

P.I. 37+38

HIGHWAY

LINE B-1

Right of Way Line

MRS. EDITH TUCKER HURD

CORA WALKER

CHARLIE F. PARKER

House

Barn

House

Guard Rail
30+90 to 34+55 R.
34+00 to 34+55 L.
35+25 to 41+60 L.
35+25 to 41+90 R.
42+60 to 43+40 L.
42+90 to 43+40 R.

ROAD

Rc. 3512.88

N20°-55'-10"W

Wall

Wall

N30°-10'W 38.9 WALL

Rc. 3962.88

N30°-20"E

Sta 39+70

Ins. 30-10.5 cfs. - 24" corr. metal Pipe inside of 36" R.C. pipe when failed - length 264'

LUCY D. BILBRUCK

Sta 41+29 Line B
Elev 40.78

LUCY D. BILBRUCK

AMERICAN LEGION
HENRY WALLINGFORD POST #89

American Legion Hall

Barn

ELIOT ROAD

Intersection Eliot Rd Sta 42+29.7

Relocated Driveway

Driveway

Bridge over Eliot Road

Fence N22°-15'E 66.5'

Old Driveway

Relocated Driveway

WOODS

LOCKE HEIRS

WOODS

N10°-25'-30"E 43+42.5

N39°-35'-30"E

N22°-15'E 76.85'

N44°-39'E

Remains of Fence

15" Conc. Pipe Required, 72' long
44+20
Drop Inlet

15" Conc. Pipe Required, 68' long
Drop Inlet

ELIOT ROAD

79.28

40

41

LINE B

45

50

30

30

30

50

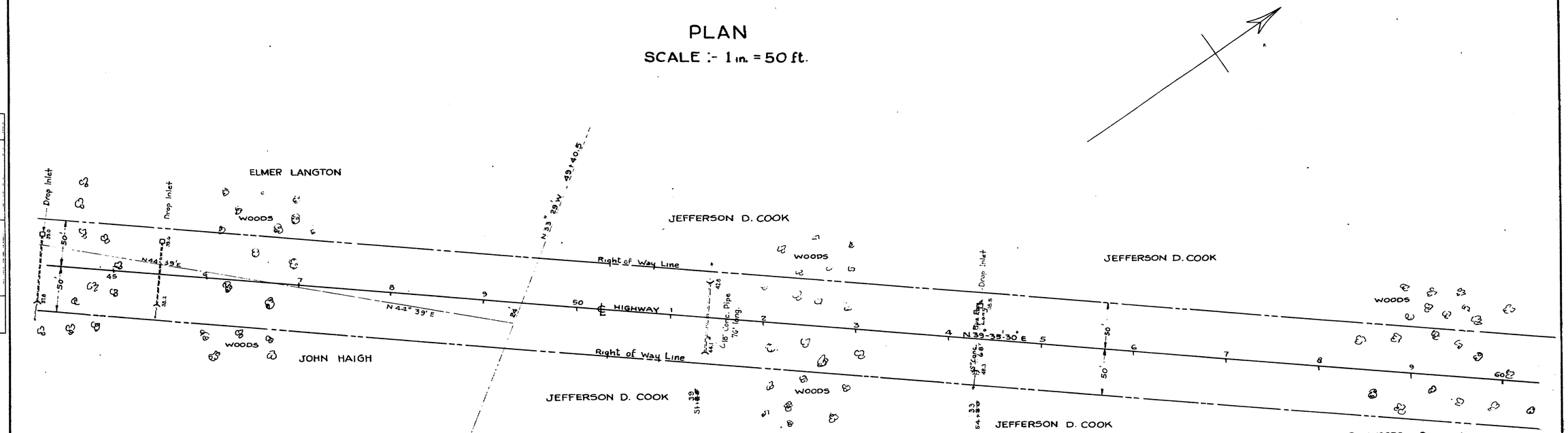
50

50

SHEET NO. 4
UNIT III

PLAN

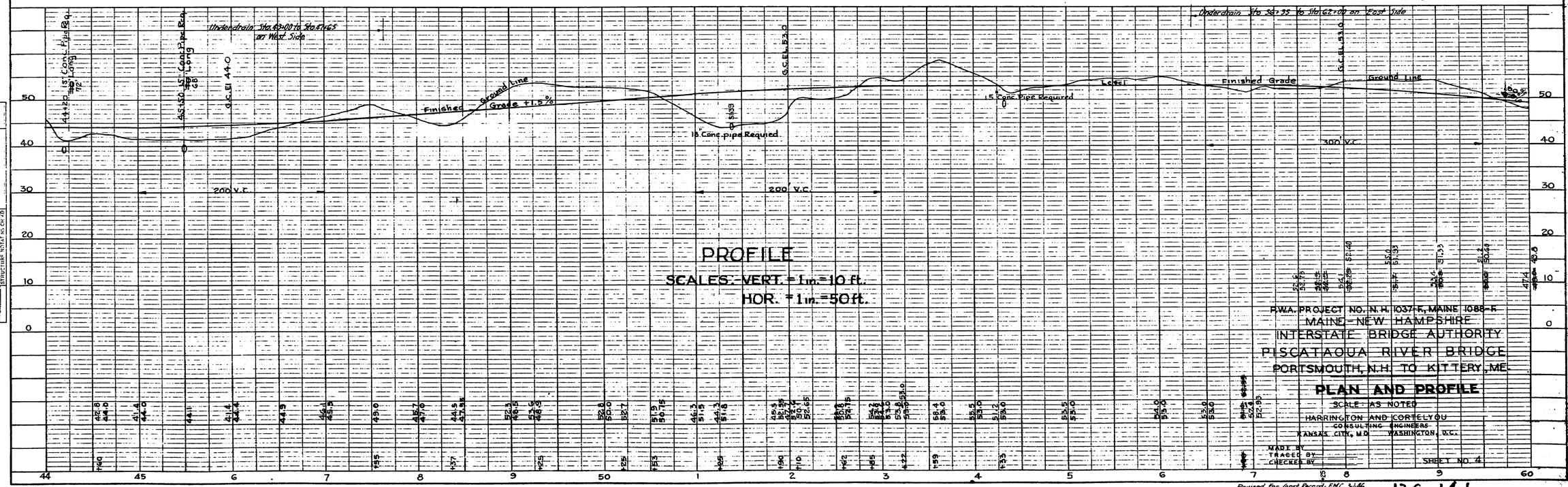
SCALE :- 1 in. = 50 ft.



PLAN
SURVEYED
PLOTTED
NOTE BOOK
NO.
BY
DATE
GRADES CHECKED
ALIGNMENT CHECKED
RT. OF WAY CHECKED

PROFILE

SCALES:- VERT. = 1 in. = 10 ft.
HOR. = 1 in. = 50 ft.



P.W.A. PROJECT NO. N.H. 1037-F, MAINE 1088-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.

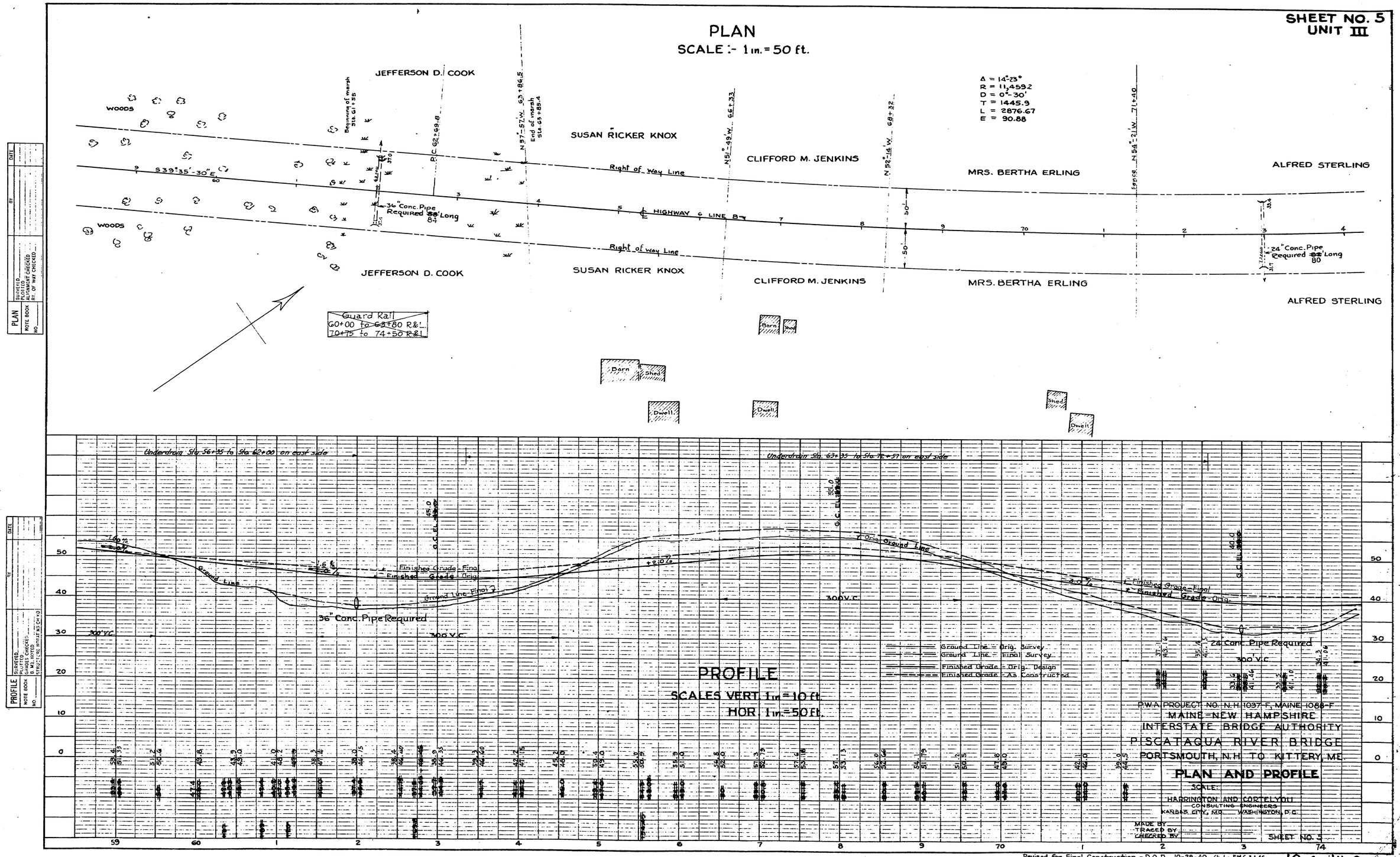
PLAN AND PROFILE

SCALE: AS NOTED
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.
MADE BY
TRACED BY
CHECKED BY
SHEET NO. 4

PLATE 1 — PLAN — PROFILE D. P. W. & R. E. STANDARD
KEUFFEL & ESSER CO. NEW YORK

Revised for Const. Record - FMC 3-1-46.

126-141


SHEET NO. 5
UNIT III
PLAN
SCALE :- 1 in. = 50 ft.
JEFFERSON D. COOK
SUSAN RICKER KNOX
CLIFFORD M. JENKINS
MRS. BERTHA ERLING
ALFRED STERLING
WOODS
Right of Way Line
HIGHWAY 6 LINE B
36" Conc. Pipe Required 84' Long
24" Conc. Pipe Required 80' Long
Guard Rail
60+00 to 63+80 R&L
70+75 to 74+50 R&L
Barn
Shed
Dwell
Underdrain Sta. 56+35 to Sta. 62+00 on east side
Underdrain Sta. 63+35 to Sta. 72+57 on east side
Ground Line
Finished Grade - Final
Finished Grade - Orig.
Ground Line - Final
Orig. Ground Line
36" Conc. Pipe Required
24" Conc. Pipe Required
300' V.C.
Ground Line - Orig. Survey
Ground Line - Final Survey
Finished Grade - Orig. Design
Finished Grade - As Constructed
PROFILE
SCALES VERT. 1 in. = 10 ft.
HOR. 1 in. = 50 ft.
P.W.A. PROJECT NO. N.H. 1037-F, MAINE 1088-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
PLAN AND PROFILE
SCALE:
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.
MADE BY
TRACED BY
CHECKED BY
SHEET NO. 5
PLATE 1 - PLAN - PROFILE O.P.R.&R.E. STANDARD
KEUFFEL & ESSER CO. NEW YORK
Revised for Final Construction - D.O.R. 10-28-40. Ch. by F.M.C. 3-1-46
126-142

SHEET NO. 6
UNIT III

PLAN

SCALE :- 1 in = 50 ft.

A = 14°-23'
R = 11,459.2
D = 0°-30'
T = 1445.9
L = 2876.67
E = 90.88

GEO. H. TABER
ALFRED STERLING
Right of Way Line
Left of Way Line
N83°-05'W. 79+48
80+00
GEO. H. TABER
N82°-30'W
GEO. H. TABER
N83°-22'W. 83+14.5
Con. 1111
85+00
HARRY REMICK
REMICK
MAXWELL S. DANNENBERG
REMICK
S12°-10'E
S81°-30'W
22.51
24" conc. pipe
80' Long
24" conc. pipe
84' Long.
SAMUEL SEWARD
ALFRED STERLING
HIGHWAY
Barn
Shed
Barn
Shed
Guard Rail
70+75 to 74+50 R & L
78+75 to 81+75 R & L
Edge of pavement
Edge of pavement
To Portsmouth

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
FIT OF MAP CHECKED
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
FIT OF MAP CHECKED
NOTE BOOK
NO.
STRUCTURE NO. 4 AT MS. 0+72

G.C. EL. 48.0
G.C. EL. 48.0
Ground Line - Final
Ground Line - Orig.
Finished Grade - Final
Finished Grade - Orig.
+0.9%
24" Conc. Pipe Required
24" Conc. Pipe Required
300' V.C.
300' V.C.
-4.0%

PROFILE

SCALES :- VERT. 1 in. = 10 ft.
HOR. 1 in. = 50 ft.

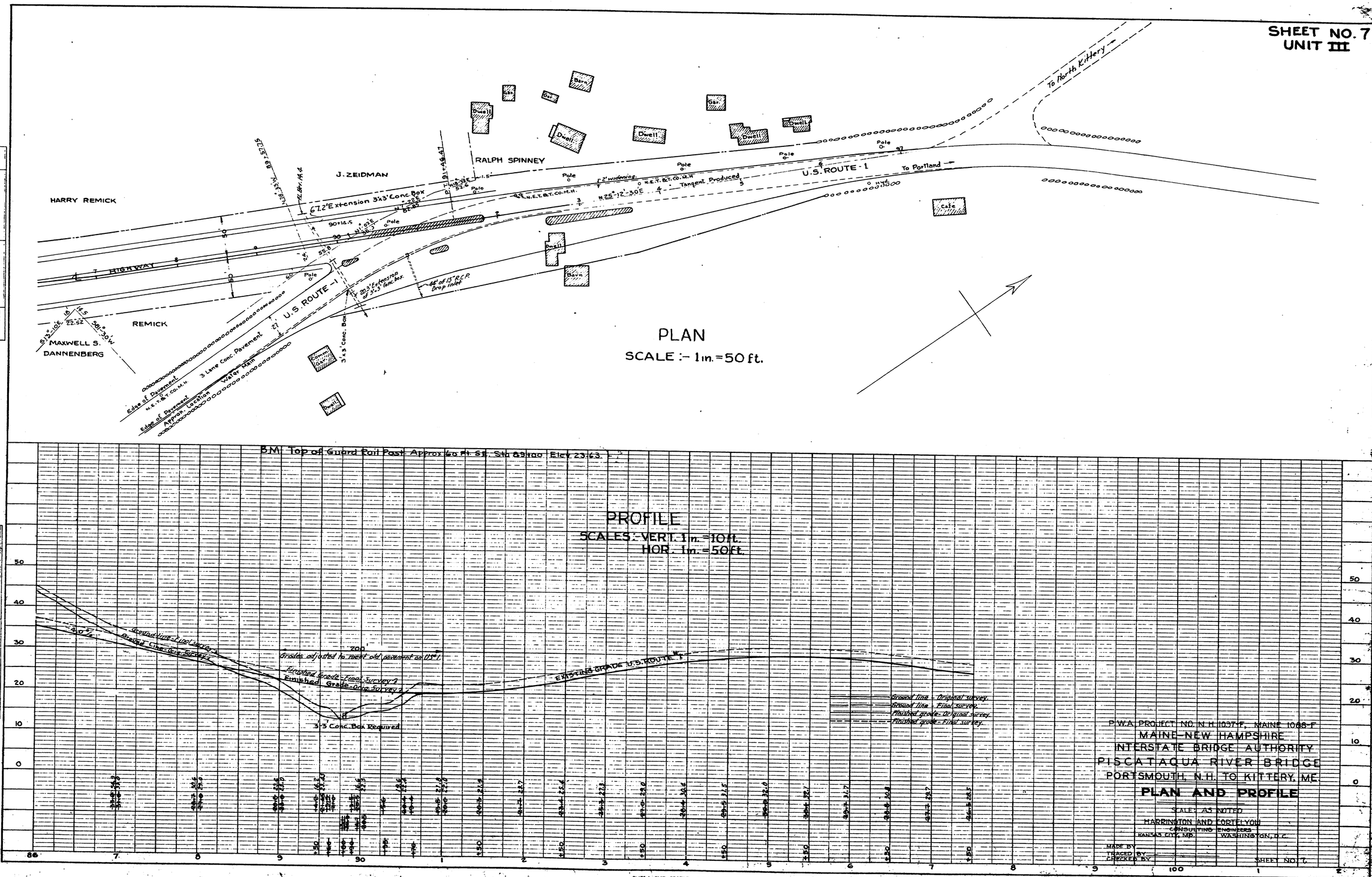
Ground Line - Orig. Survey
Ground Line - Final Survey
Finished Grade - Orig. Design
Finished Grade - As Constructed

P.W.A. PROJECT No N.H. 1037-F, MAINE 1088-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
PLAN AND PROFILE
SCALE
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.
MADE BY
TRACED BY
CHECKED BY
SHEET NO. 6

PLATE I — PLAN — PROFILE O. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO. NEW YORK

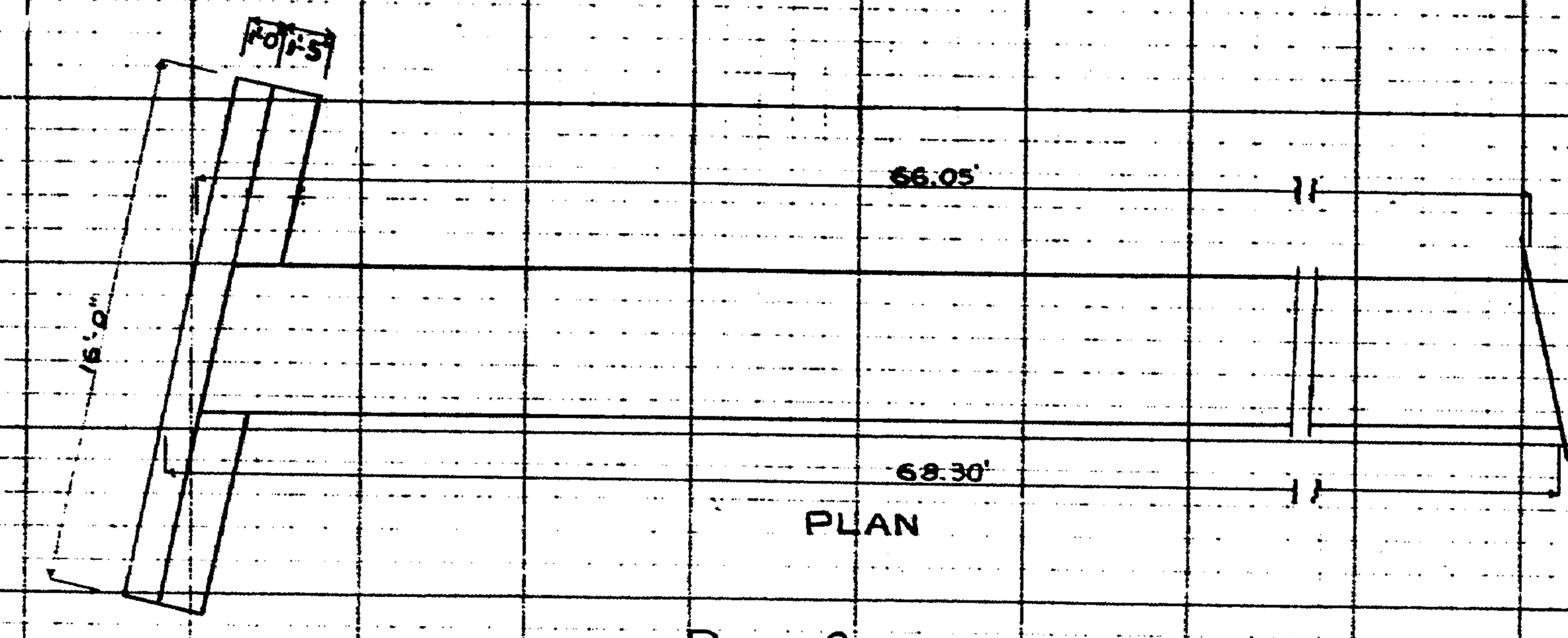
Revised for Final Construction - D.O.R. 10-28-40. Ch. F.M.C. 2-28-46.

126-143


SHEET NO. 7
UNIT III
HARRY REMICK
J. ZEIDMAN
RALPH SPINNEY
REMICK
MAXWELL S. DANNENBERG
HIGHWAY
U.S. ROUTE - 1
To Portland
To North Kittery
Tangent Produced
67.2' Extension 3'x3' Conc. Box
3 Lane Conc. Pavement
Edge of Pavement
Approx. Location
Water Main
3'x3' Conc. Box
44' of 15" R.C.P. Drop Inlet
Dwell
Barn
Gar.
Pole
Cafe
PLAN
SCALE :- 1 in. = 50 ft.
B.M. Top of Guard Rail Post Approx 60 Ft. SE. Sta 89+00 Elev 23.63
PROFILE
SCALES: VERT. 1 in. = 10 ft.
HOR. 1 in. = 50 ft.
Ground line - Final survey
Ground line - Orig. Survey
Grades adjusted to meet old pavement on U.S. 1
Finished Grade - Final Survey
Finished Grade - Orig. Survey
EXISTING GRADE U.S. ROUTE 1
3'-3' Conc. Box Required
Ground line - Original survey
Ground line - Final survey
Finished grade - Original survey
Finished grade - Final survey
P.W.A. PROJECT NO. N.H. 1037-F, MAINE 1068-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
PLAN AND PROFILE
SCALE: AS NOTED
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.
MADE BY
TRACED BY
CHECKED BY
SHEET NO. 7
PLATE I - PLAN - PROFILE O.P.R.&R.E. STANDARD
KEUFFEL & ESSER CO. NEW YORK
Revised For Const. Record F.M.C. 2-28-46.
126-144

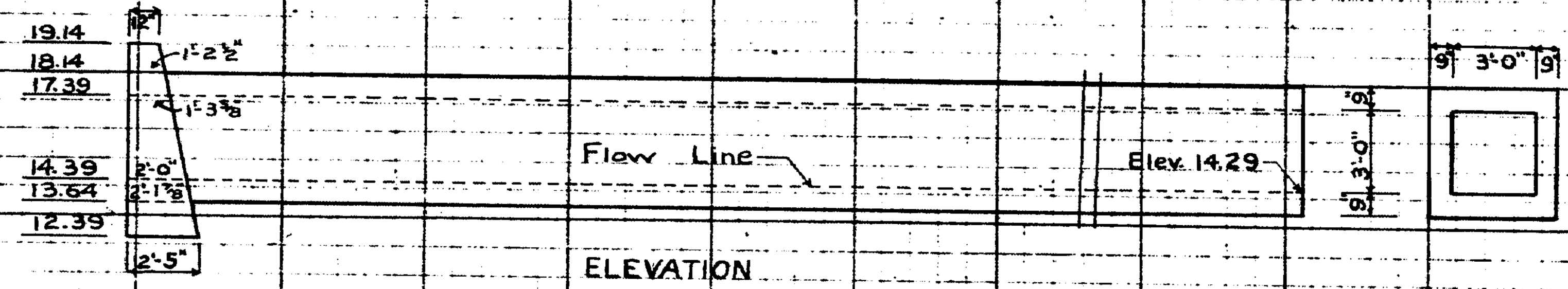
NOTE BOOKS	
BOOK NO.	PAGE NO.

REVISIONS AFTER PROPOSAL		
DATE	STATION	DESCRIPTION

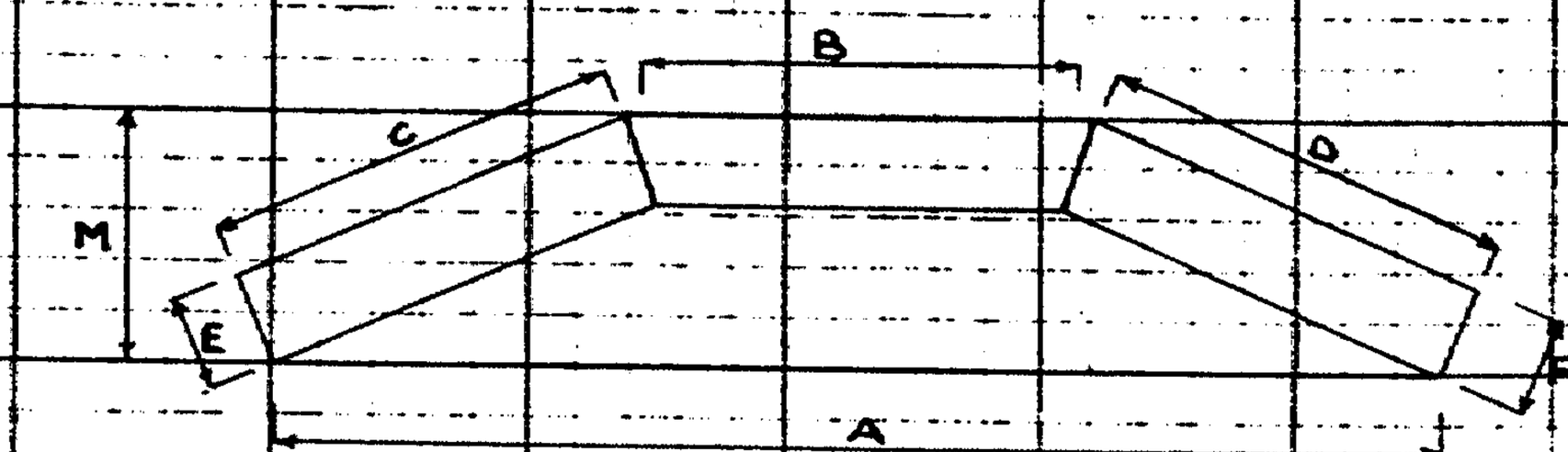


PLAN

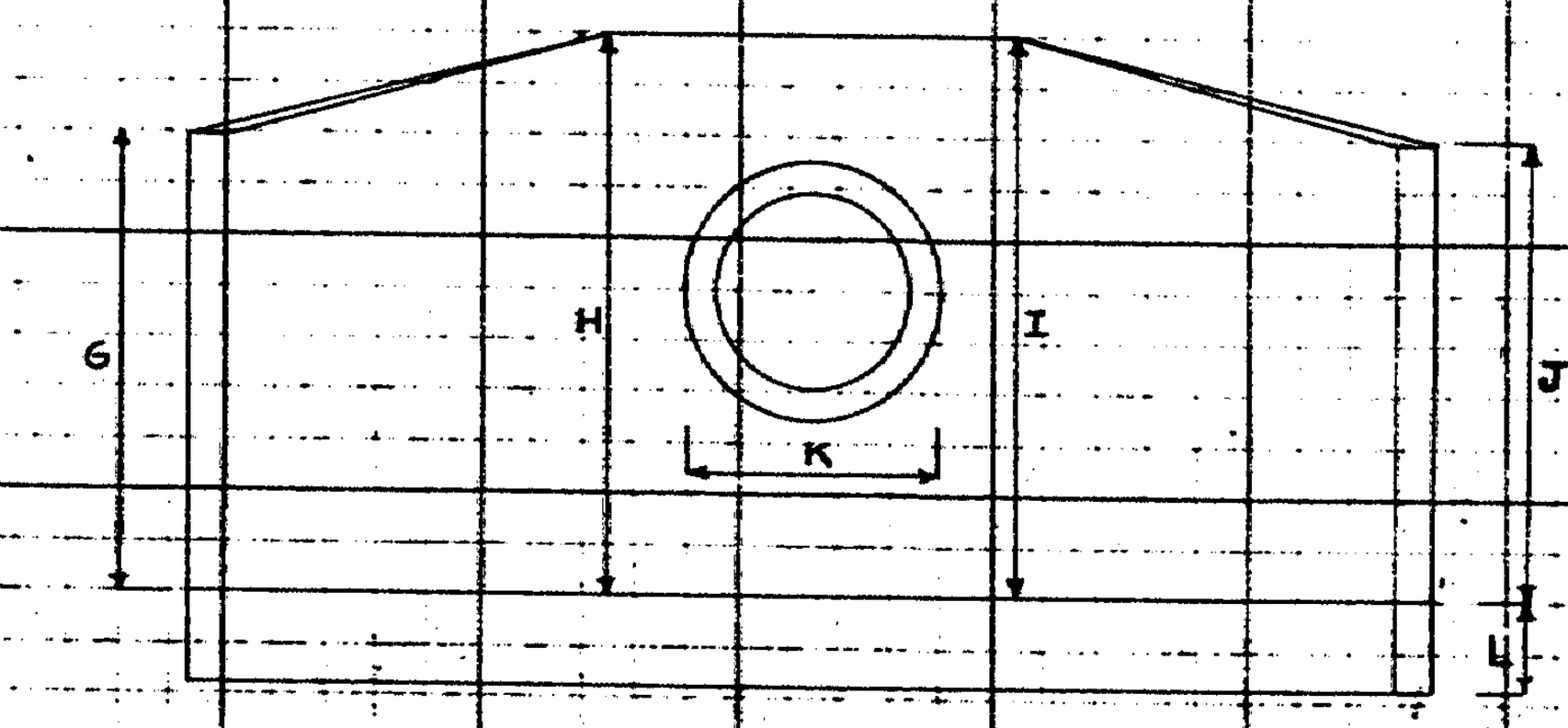
Box Culvert
Sta. 89+90
WEST EXTENSION
Scale 1"=5'



ELEVATION



PLAN



ELEVATION

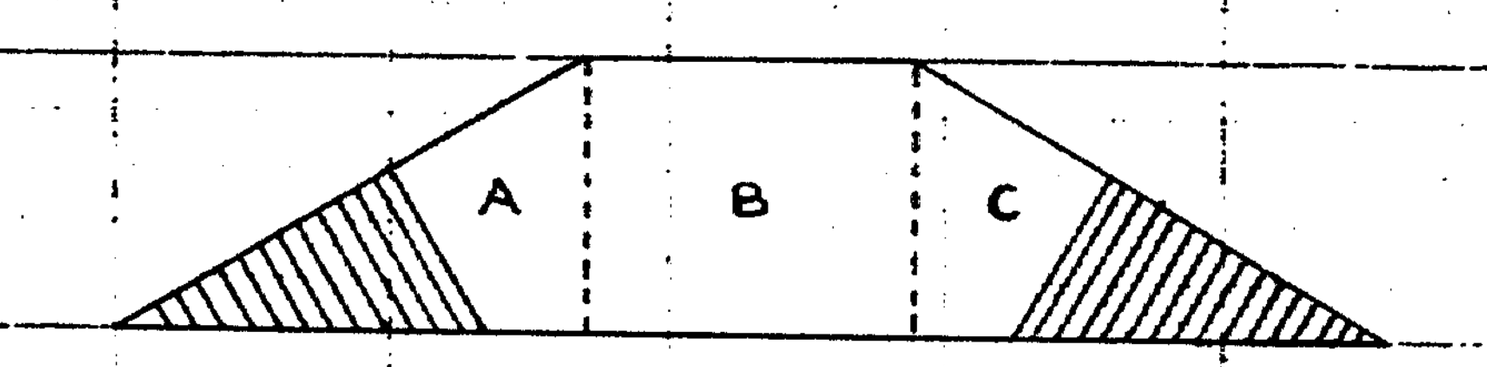
TYPICAL CULVERT HEADWALL

HEADWALL DIMENSIONS				

STATION	44+21	45+50	51+40	51+40	54+30	62+00	62+00	73+00	73+00	80+50	80+50
SIZE	15"	15"	18"	18"	15"	36"	36"	24"	24"	24"	24"
	FOR CONCRETE QUANTITIES										
A	9'-2"	9'-1"	9'-5½"	9'-5"	9'-2"	11'-1¼"	11'-1"	9'-11"	10'-0½"	9'-11½"	9'-11"
B (Av.)	3'-8"	3'-8"	4'-0"	4'-0"	3'-8"	5'-8"	5'-8"	4'-6"	4'-6"	4'-6"	4'-6"
C (Av.)	3.1'	3.1'	3.1'	3.1'	3.1'	3.1'	3.1'	3.1'	3.1'	3.1'	3.1'
D (Av.)	3.1'	3.1'	3.1'	3.1'	3.1'	3.1'	3.1'	3.1'	3.1'	3.1'	3.1'
E	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"
F	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"
G	4'-9½"	4'-6½"	4'-6"	3'-6"	4'-0"	4'-5"	4'-4"	3'-3"	3'-2"	4'-4"	6'-5½"
H	5'-7½"	5'-4½"	5'-4"	4'-4"	4'-10"	5'-3"	5'-2"	4'-1"	4'-0"	5'-2"	7'-3½"
I	5'-7½"	5'-4½"	5'-4"	4'-4"	4'-10"	5'-3"	5'-2"	4'-1"	4'-0"	5'-2"	7'-3½"
J	4'-9½"	4'-6¾"	4'-6"	3'-6"	4'-0"	4'-5"	4'-4"	3'-3"	3'-2"	4'-4"	6'-5½"
K	1'-7½"	1'-7½"	2'-0"	2'-0"	1'-3"	4'-2"	3'-6"	2'-6"	2'-6"	2'-6"	3'-0"
L	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"
M	1'-11½"	1'-11½"	1'-11½"	1'-11½"	1'-11½"	1'-11½"	1'-11½"	1'-11½"	1'-11½"	1'-11½"	1'-11½"
	FOR EXCAVATION QUANTITIES										
A	2'-6"	3'-0"	3'-0"	1'-6"	3'-6"	3'-3"	1'-8"	3'-6"	2'-6"	1'-10"	3'-7"
B	3'-0"	2'-6"	3'-6"	1'-6"	4'-0"	3'-6"	2'-0"	3'-0"	2'-6"	2'-0"	3'-9"
C	3'-6"	2'-6"	3'-0"	1'-6"	4'-0"	3'-6"	2'-0"	3'-6"	2'-6"	1'-11"	3'-9"
D	2'-6"	2'-6"	3'-6"	1'-6"	4'-0"	3'-0"	2'-0"	3'-0"	2'-6"	2'-0"	3'-7"
E	3'-6"	2'-9"	3'-0"	1'-6"	3'-6"	3'-6"	2'-0"	3'-9"	2'-6"	1'-11"	3'-9"
F	2'-6"	3'-0"	3'-0"	1'-6"	3'-6"	3'-0"	2'-0"	3'-0"	2'-6"	2'-0"	3'-5"

SHEET TOTALS
CUT = CU. YDS.
FILL = CU. YDS.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.				



STANDARD FOR HEADWALL EXCAVATION			
PIPE SIZE	A+C	B	VOLUME IN CU.FT. PER FT. DEPTH
15"	25.02	14.53	39.55
18"	25.02	15.84	40.86
24"	25.02	17.82	42.84
36"	25.02	22.45	47.47

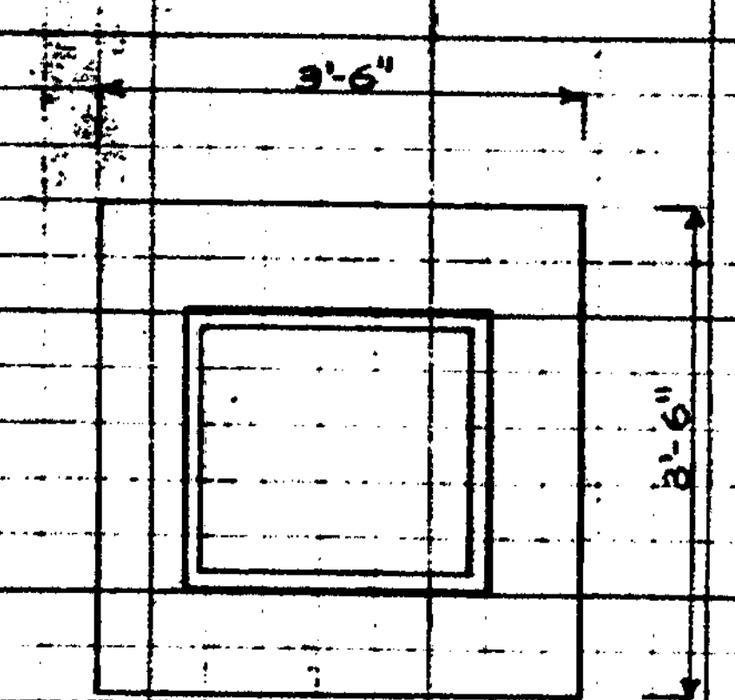
BOX CULVERT CONCRETE QUANTITIES		
SECTION	COMPUTATIONS	CU.FT.
HEADWALL	1.71×6.75×16.00	184.68
SIDEWALLS	2×4.50×0.75×67.175	453.43
TOP	3.00×0.75×67.175	151.14
BOTTOM	3.00×0.75×67.175	151.14
	TOTAL	940.39
DEDUCT	4.50×4.50×1.68	34.02
	TOTAL CU. FT.	906.37
	" CU. YDS.	33.57

REINFORCING STEEL		
SECTION	BARS	WEIGHT @ 0.85#/FT.
BARREL	18-68'-0"×½"□	1040
	135-21'-8"×½"□	2486.6
	68-5'-0"×½"□	867.0
HEADWALL	11-15'-6"×½"□	144.9
	14-5'-0"×½"□	59.5
	24-2'-6"×½"□	51.0
	25-2'-0"×½"□	42.5
	16-0'-10"×½"□	11.3
	16-1'-0"×½"□	13.6
	TOTAL	4717#±

CONCRETE HEADWALL QUANTITIES

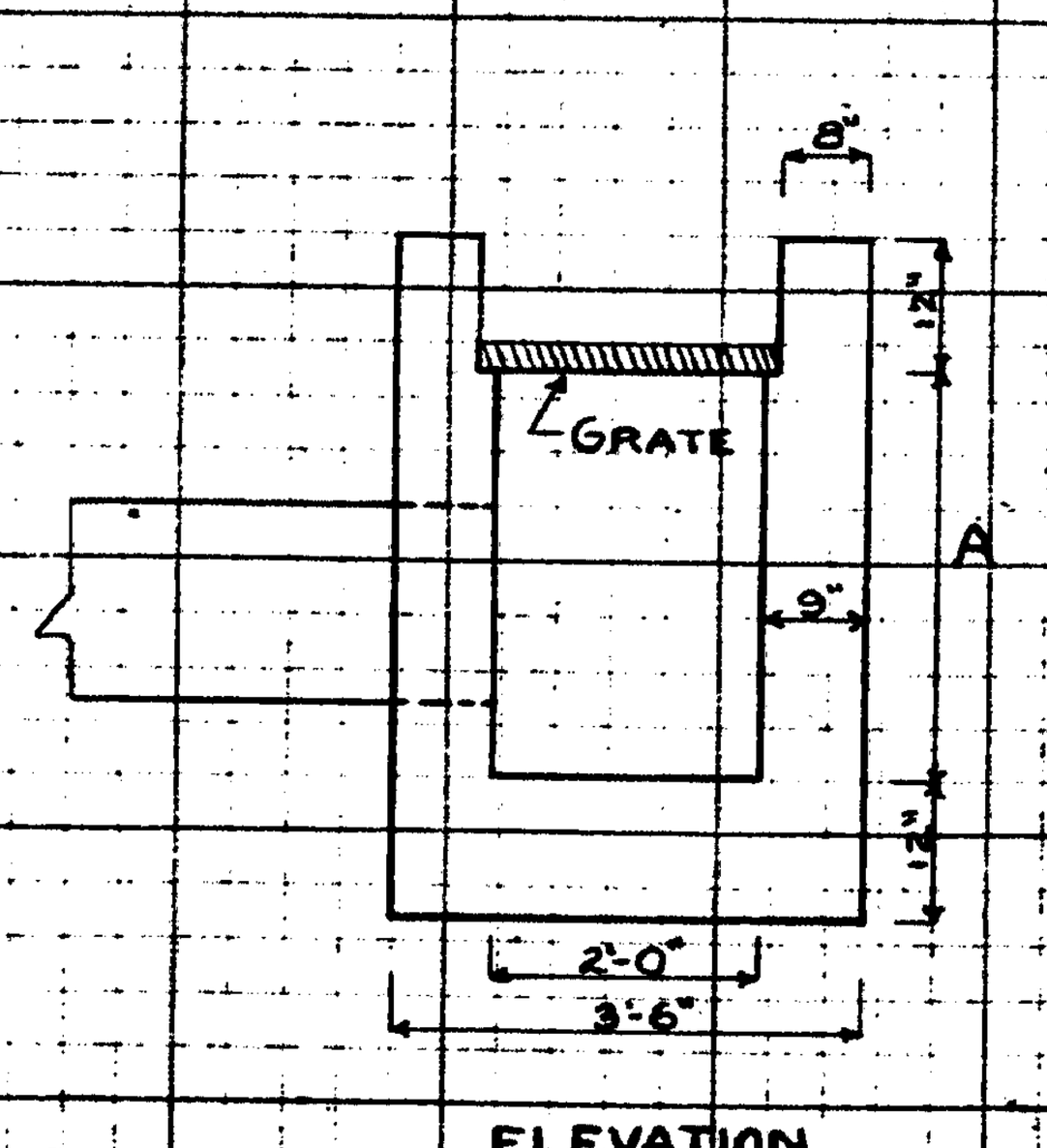
STATION	WING WALLS	WALL	FLOOR	CU.YDS.
44+21 RT.	2×3.1×0.75×5.96 = 27.71 C.F.	3.67×0.75×6.38 − π×0.81²×0.75 = 16.01 C.F.	½(3.67+9.17)×0.75×1.21 = 5.83 C.F.	1.84
45+50 RT.	2×3.1×0.75×5.72 = 26.60 C.F.	6.13×0.75×3.67 − π×0.81²×0.75 = 15.32	½(9.08+3.67)×0.75×1.21 = 5.79 C.F.	1.77
51+40 RT.	2×3.1×0.75×5.67 = 26.36 C.F.	4.00×6.08×0.75 − π×1.0²×0.75 = 15.88	½(9.46+4.00)×0.75×1.21 = 6.11 C.F.	1.79
51+40 LT.	2×4.67×3.1×0.75 = 21.69 C.F.	4.00×5.08×0.75 − π×1.0²×0.75 = 12.88	½(9.42+4.00)×0.75×1.21 = 6.09 C.F.	1.51
54+30 RT.	2×5.17×0.75×3.1 = 24.04 C.F.	3.67×5.58×0.75 − π×0.63²×0.75 = 14.42	½(9.17+3.67)×0.75×1.21 = 5.83 C.F.	1.64
62+00 RT.	2×5.58×0.75×3.1 = 25.95 C.F.	5.67×6.00×0.75 − π×2.08²×0.75 = 15.32	½(11.10+5.67)×0.75×1.21 = 7.67 C.F.	1.81
62+00 LT.	2×5.50×0.75×3.1 = 25.58 C.F.	5.67×5.92×0.75 − π×1.75²×0.75 = 17.96	½(11.08+5.67)×0.75×1.21 = 7.60 C.F.	1.89
73+00 RT.	2×4.42×0.75×3.1 = 20.55 C.F.	4.83×4.5×0.75 − π×1.25²×0.75 = 12.63	½(9.92+4.50)×0.75×1.21 = 6.54 C.F.	1.47
73+00 LT.	2×4.33×0.75×3.1 = 20.13 C.F.	4.75×4.5×0.75 − π×1.25²×0.75 = 12.36	½(10.04+4.50)×0.75×1.21 = 6.60 C.F.	1.45
80+50 RT.	2×5.50×0.75×3.1 = 25.58 C.F.	5.92×4.5×0.75 − π×1.25²×0.75 = 16.31	½(9.96+4.50)×0.75×1.21 = 6.56 C.F.	1.79
80+50 LT.	2×7.63×0.75×3.1 = 35.48 C.F.	8.04×4.5×0.75 − π×1.5²×0.75 = 21.84	½(9.92+4.50)×0.75×1.21 = 6.54 C.F.	2.37
			TOTAL	19.33

HEADWALL EXCAVATION QUANTITIES				
STATION	AVERAGE DEPTH	AREA B	TOTAL AREA × AVERAGE DEPTH	CU.YDS.
44+21 RT.	2.92	3.96×3.67 = 14.53 C.F.	39.55×2.92 = 115.49	4.28
45+50 RT.	2.71	3.96×3.67 = 14.53 "	39.55×2.71 = 107.18	3.97
51+40 RT.	3.17	3.96×4.00 = 15.84 "	40.86×3.17 = 129.53	4.80
51+40 LT.	1.50	3.96×4.00 = 15.84 "	40.86×1.50 = 61.29	2.27
54+30 RT.	3.75	3.96×3.67 = 14.53 "	39.55×3.75 = 148.31	5.49
62+00 RT.	3.29	3.96×5.67 = 22.45 "	47.47×3.29 = 156.18	5.78
62+00 LT.	1.95	3.96×5.67 = 22.45 "	47.47×1.95 = 92.57	3.43
73+00 RT.	3.29	3.96×4.50 = 17.82 "	42.84×3.29 = 140.94	5.22
73+00 LT.	2.50	3.96×4.50 = 17.82 "	42.84×2.50 = 107.10	3.97
80+50 RT.	1.95	3.96×4.50 = 17.82 "	42.84×1.95 = 83.54	3.09
80+50 LT.	3.64	3.96×4.50 = 17.82 "	42.84×3.64 = 155.94	5.78
			TOTAL CU.YDS.	48.08



PLAN

DROP INLETS – CONCRETE QUANTITIES						
STATION	A	BOTTOM	TO GRATE	ABOVE GRATE	DEDUCTION	CU.FT.
44+21L	3'-10¼"	1.0×3.5×3.5	3.85×2×0.75×5.5	2×⅔×1.0×3.50	3.14×1.58²×¼×¾	47.21
45+53L	4'-2"	1.0×3.5×3.5	4.17×2×0.75×5.5	2×⅔×1.0×3.50	3.14×1.58²×¼×¾	49.85
54+30L	3'-1"	1.0×3.5×3.5	3.08×2×0.75×5.5	2×⅔×1.0×3.50	3.14×1.58²×¼×¾	40.86
				TOTAL	CU.FT.	137.92
				"	CU.YDS.	5.11



ELEVATION

TYPICAL DROP INLET

REINFORCING STEEL		
STATION	BARS	WEIGHT in LBS.
44+21	5-4'-6"×½"ϕ	15
	5-5'-0"×½"ϕ	17
	15-3'-0"×⅜"ϕ	17
	8-10'-8"×½"ϕ	57
	6-10'-11"×⅜"ϕ	25
45+53	5-4'-6"×½"ϕ	15
	5-4'-0"×½"ϕ	13
	15-3'-0"×⅜"ϕ	17
	8-9'-8"×½"ϕ	52
	5-10'-11"×⅜"ϕ	21
54+30	5-4'-1"×½"ϕ	14
	5-3'-7"×½"ϕ	12
	13-3'-0"×⅜"ϕ	15
	8-8'-10"×½"ϕ	47
	5-10'-11"×⅜"ϕ	21
	TOTAL	358#

EXCAVATION QUANTITIES – DROP INLETS				
STATION	AVERAGE DEPTH	CONTRACT EXCAVATION	EXTRA EXCAVATION	TOTAL CU.FT.
44+21	5.0'	5.5×5.5×5.0 = 151.25 C.F.	4.0×12.0×5.0 = 240; 2.5×2.28×5.0 = 28.5	419.75
45+53	4.5'	5.5×5.5×4.5 = 136.13 C.F.	4.0×10.0×4.0 = 160.00; 0.3×5.5×1.75 = 2.89	299.02
54+30	4.0'	5.5×5.5×4.0 = 121.00 C.F.	0.75×2.0×8.0 = 12.00; 4.3×4.0×4.0 = 68.80	201.80
			TOTAL CU.YDS.	34.10

EXCAVATION FOR UNDERDRAIN

STATION 56+35 TO 61+60 RT.				
STA.	CUT in FT.	SQ. FT.	AV. SQ. FT.	CU. FT.
61+60	1.6	2.40		
			3.60	36.00
61+50	3.2	4.80		
			5.85	76.05
61+37	4.6	6.90		
			6.90	255.30
61+00	4.6	6.90		
			6.45	645.00
60+00	4.0	6.00		
			6.00	600.00
59+00	4.0	6.00		
			6.00	600.00
58+00	4.0	6.00		
			6.00	390.00
57+35	4.0	6.00		
			5.25	525.00
56+35	3.0	4.50		
		TOTAL	CU. FT.	3127.95
		"	CU. YDS.	115.83

EXCAVATION FOR UNDERDRAIN

STATION 63+85 TO 72+07 RT.				
STA.	CUT in FT.	SQ. FT.	AV. SQ. FT.	CU. FT.
72+07	2.1	3.15		
			3.225	22.58
72+00	2.2	3.30		
			4.50	225.00
71+50	3.8	5.70		
			6.60	66.00
71+40	5.0	7.50		
			7.50	300.00
71+00	5.0	7.50		
			7.50	750.00
70+00	5.0	7.50		
			7.50	750.00
69+00	5.0	7.50		
			7.50	750.00
68+00	5.0	7.50		
			6.90	172.50
67+75	4.2	6.30		
			6.90	172.50
67+50	5.0	7.50		
			7.50	375.00
67+00	5.0	7.50		
			7.50	750.00
66+00	5.0	7.50		
			7.50	750.00
65+00	5.0	7.50		
			7.125	178.13
64+75	4.5	6.75		
			6.225	155.63
64+50	3.8	5.70		
			4.80	240.00
64+00	2.6	3.90		
			3.15	47.25
63+85	1.6	2.40		
		TOTAL	CU. FT.	5704.59
		"	CU.YDS.	211.28

EXCAVATION FOR UNDERDRAIN

STATION 43+00 TO 47+65 Left.				
STA.	CUT in FT.	SQ.FT.	AV. SQ.FT.	CU.FT.
47+65	3.3	4.95		
			4.95	1049.40
45+53	3.3	4.95		
	ALLOW	5 FEET	FOR DROP INLETS	
45+48	3.4	5.10		
			5.025	638.18
44+21	3.3	4.95		
			4.575	553.57
		4.20		
		TOTAL	CU.FT.	2241.15

EXCAVATION FOR UNDERDRAINS

Sta. 72+07 – 72+57				
Sta.	Cut in Ft.	Sq.Ft.	Av. Sq.Ft.	Cu.Ft.
72+07	2.1	3.15		
			1.575	78.75
72+57	0	0		
Sta 61+60 – Sta 62+00				
61+60	1.6	2.4		
			1.2	48.00
62+00	0	0		
Sta. 63+35 – Sta 63+85				
63+35	0	0		
			1.2	60.00
63+85	1.6	2.4		
			Total cu.Ft.	186.75
			Total Cu.yds.	6.91

P.W.A. PROJECT NO. N.H. 1037.F. MAINE 1038-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
CULVERTS, HEADWALLS, DROP INLETS & UNDERDRAINS
UNIT III
SCALE: AS NOTED
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY S.C.O.
TRACED BY
CHECKED BY

126-156

SHEET NO. FQ-8.

SECTIONS PLOTTED BY	DATE
CHECKED	DATE
TEMPLET PLOTTED BY	DATE
CHECKED	DATE
AREAS PLANIM. BY	DATE
CHECKED	DATE
INKED BY	DATE
CHECKED BY	DATE

2000 11-38

Made in Const. Office at Portsmouth, N.H.

PROJ. NO.	SHEET NO.	TOTAL SHT'S

PUBLIC WORKS ADMINISTRATION
PROJECT NO. N. H. 1037-F., MAINE 1088-F.

PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N. H. TO KITTERY, MAINE

FOR

MAINE-NEW HAMPSHIRE INTERSTATE BRIDGE AUTHORITY

MEMBERS

NEW HAMPSHIRE
FREDERIC E. EVERETT, CHAIRMAN
FRANK E. BROOKS, PORTSMOUTH, CLERK
DR. JAMES J. POWERS, MANCHESTER

MAINE
WILLIAM H. HINMAN, VICE-CHAIRMAN
HOLLIS B. COLE, KITTERY, TREASURER
PAUL C. THURSTON, BETHEL
STILLMAN E. WOODMAN, MACHIAS

HARRINGTON AND CORTELYOU-CONSULTING ENGINEERS
KANSAS CITY, MO.-WASHINGTON, D. C.

NOVEMBER, 1938

LIST OF DRAWINGS

UNIT H

~~X PROJECT MAP~~
1 GENERAL PLAN AND ELEVATION
2 SOUTH ABUTMENT
3 PIERS 1 TO 12 INCLUSIVE
4 PIER 13
5 CAISSON DETAILS
6 CAISSON DETAILS-PIERS 15 TO 20, INCLUSIVE
7 PIERS 14, 21 AND 22
8 PIERS 15 AND 20
9 PIERS 16 AND 19
10 PIERS 17 AND 19
11 PIER 23
12 NORTH ABUTMENT

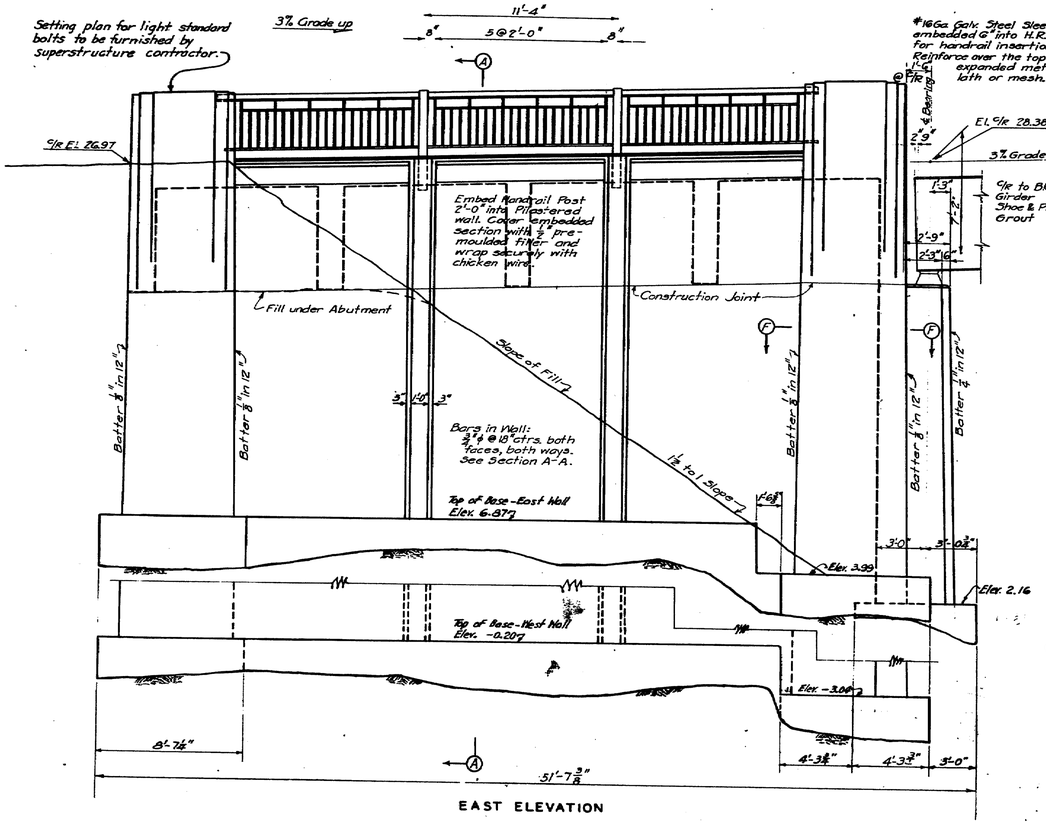
UNIT H

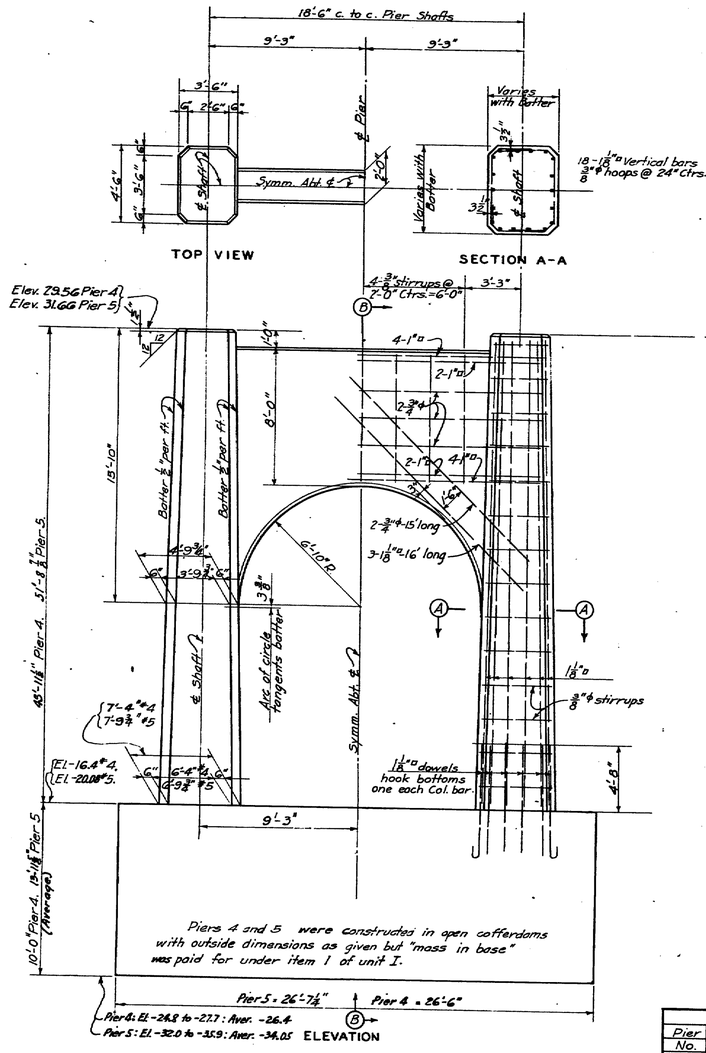
13 70' HIGHWAY GIRDER SPANS
14 90' HIGHWAY GIRDER SPANS
15 LAYOUT R. R. APPROACHES
16 85' R. R. GIRDER SPANS
17 TOWER BENTS-PIERS 13, 21 AND 23
18 TOWER BENTS-PIERS 14, 22, 24, 25 AND 26
19 LIFT SPAN GIRDER SUPPORTS

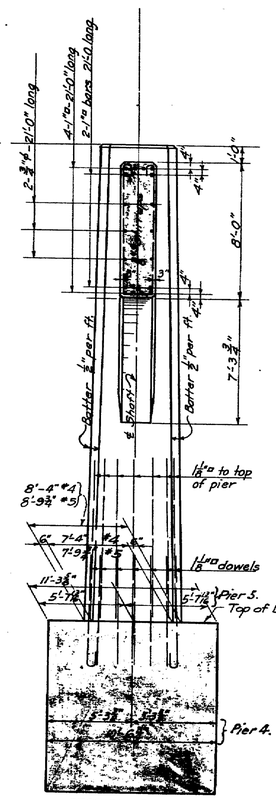
UNIT H

20 STRESS SHEET-TRUSS SPANS
21 CROSS SECTION-TRUSS SPANS
22 224' TRUSS SPANS
23 END DETAILS-TRUSS SPAN
24 LIFTING GIRDER
25 TRUSS SHOES AND GUIDE CASTINGS
26 SHOES, GUIDES, ROPE ANCHORS AND CENTER CASTINGS
27 STRESS SHEET-TOWERS
28 TOWERS-BOTTOM SECTION
29 TOWERS-FLOOR SYSTEM
30 TOWER-BOTTOM SECTION
X-8 TRANSFORMER PLATFORM
X-29 REVISION OF LIFT SPAN UPPER HANGERS
33 SHEAVE GIRDERS
34 SHEATHING DETAILS
35 COUNTERWEIGHT
36 MACHINERY ON TOWERS
37 WIRING DIAGRAM
38 OPERATORS HOUSE

126-157

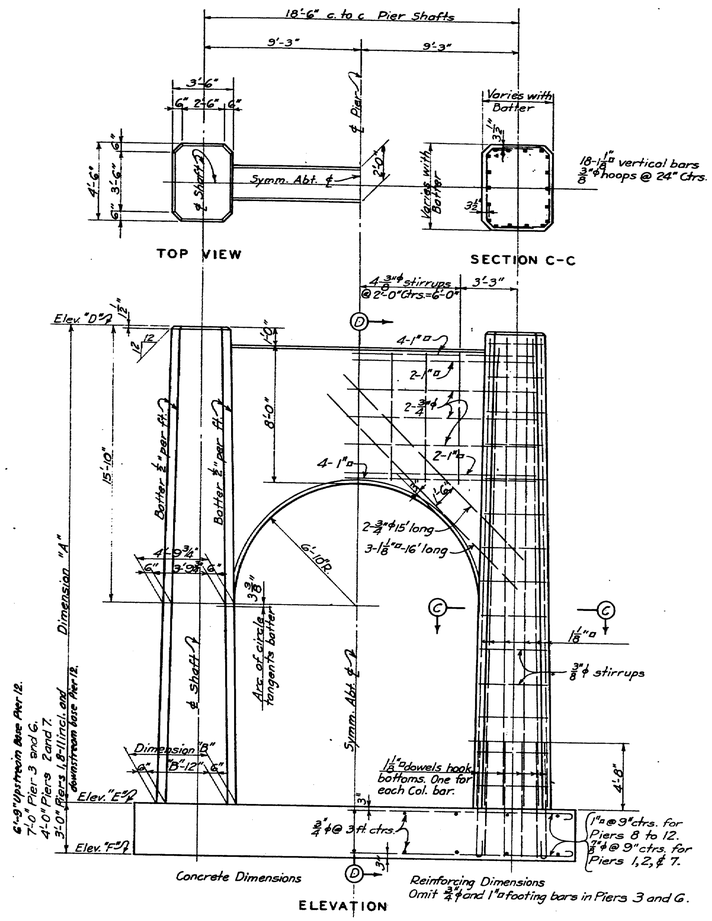

Setting plan for light standard bolts to be furnished by superstructure contractor.
3% Grade up
11'-4"
8"
5 @ 2'-0"
8"
℄ Fir El. 26.97
Embed Handrail Post 2'-0" into Pilastered wall. Cover embedded section with ½" pre-moulded fiber and wrap securely with chicken wire.
Fill under Abutment
Construction Joint
Slope of Fill
1½ to 1 Slope
Batter ¾" in 12"
Bars in Wall: ¾" ϕ @ 18" ctrs. both faces, both ways. See Section A-A.
Top of Base-East Wall Elev. 6.87
Top of Base-West Wall Elev. -0.20
Elev. 3.99
Elev. 2.16
Elev. -3.08
8'-7½"
4'-3½"
4'-3½"
3'-0"
51'-7⅜"
A
EAST ELEVATION
#16 Ga. Galv. Steel Sleeves embedded 6" into H.R. post for handrail insertion. Reinforce over the top with expanded metal lath or mesh.
1'-6" Fir
2'-9"
℄ Bearing
El. ℄ Fir 28.38
3% Grade up
13"
7'-2"
2'-9"
2'-3"
℄ Fir to Bk. Ld. Girder Shoe & Pl. Grout
3'-6⅜"
7'-2"
Close out with Ogee curve
1'-6"
1'-6"
2'-9"
15'-0"
30'-0" Roadway - 2" Parabolic Crown
2" Crown
2" ϕ Fiber lighting conduit.
A-A. Const. Joint
Bars in wall ¾" ϕ @ 12" ctrs. both faces. See Section
See Sect B-B for Col. Steel
Batter ¾" in 12"
Batter ¼" in 12"
Elev. 3.99
Elev. 2.16
Elev. 1.04
Elev. -3.08
2'-6½"
2'-6½"
2'-7½"
2'-7½"
3'-6"
3'-6"
9'
6'-6"
3'-6"
3'-6"
5'-9"
9'-3"
5'-9"
7'-0"
7'-3"
20'-0"
20'-0"
PART NORTH VIEW
Slab steel not shown See Sections and Notes below.
℄ Fir
2'-0"
7'-2"
9'-3"
3'-6"
6" 2'-6" 6"
Const. Joint.
4-1¼" ϕ bars
9'-6" ¾" ϕ stirrups @ 2'-0" = 16'-0"
2'-6" 2'-6" 1'-9"
16'-11"
Symm. Abt. ℄ except as shown.
Provide four 6" ϕ tile weep holes in front wall with ½ cu. yd. stone behind each.
3'-0" 6" 6"
3" 1" 3"
6'-6½"
7'-0"
6'-6½"
2-¾" ϕ Bars
¾" ϕ @ 18" ctrs.
2" ϕ Fiber lighting conduit.
Fascia detail same as on Girder Spans except as shown or noted. See also Sheet No. 12.
Const. Joint.
¾" ϕ both ways, both faces.
3'-0"
3'-0"
3'-0"

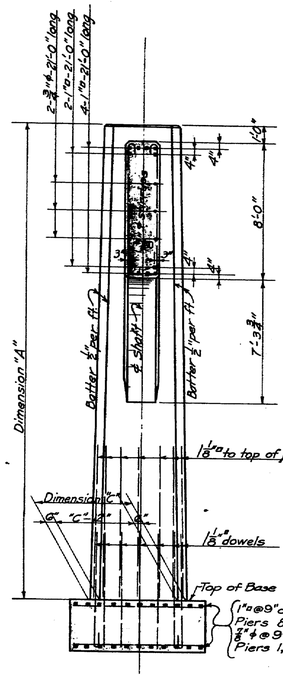


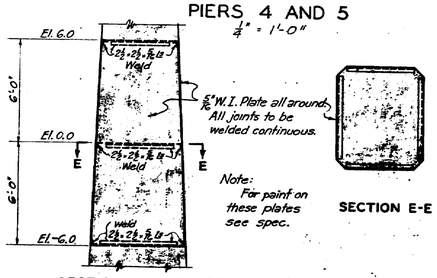


Pier No.	℄ Station	⊄ or ℄ Elev.	Elev. "D"	Elev. "E"	Elev. "F"	Dim. "A"	Dim. "B"	Dim. "C"
1	5+00.05	30.45	23.26	+ 1.51	- 1.49	21.75	5'-3⅜"	6'-3⅜"
2	4+30.05	32.55	25.36	+ 1.67	- 5.67	27.03	5'-9"	6'-9"
3	3+60.05	34.65	27.46	- 13.58	- 20.58	41.04	6'-11"	7'-11"
4	2+90.05	36.75	See Detail	See Detail	See Detail	See Detail	—	—
5	2+20.05	38.85	See Detail	See Detail	See Detail	See Detail	—	—
6	1+50.05	40.95	33.76	- 8.83	-15.83	42.59	7'-0⅛"	8'-0⅛"
7	0+80.05	42.87	35.68	- 3.24	- 7.24	38.92	6'-8⅞"	7'-8⅞"
8	0+10.05	44.45	37.26	+ 3.89	+ 0.89	33.37	6'-3⅜"	7'-3⅜"
9 See Note	0+60.0N	45.67	38.49	+5.50 to +6.00	+2.67 to +6.58	31.00 to 33.98	6'-1" to 6'-5⅞"	7'-1" to 7'-5⅞"
10	1+30.0N	46.55	39.37	+11.60	+11.60	24.77	5'-6⅞"	6'-6⅞"
11	2+00.0N	47.07	39.90	+13.31	+10.31	26.39	5'-8½"	6'-8½"
12 See Note	2+70.0N	47.25	40.09	+8.85 to +10.74	+4.59 to +7.74	24.84 to 28.15	5'-6" to 6'-0"	6'-6" to 7'-0"

For Piers 9 & 12, where two sets of elevations and dimensions are given, the first given is for the upstream half and the second for downstream half of pier. For Pier 9 the top of base was built level for 8ft. at each end and center 10 ft. on slope between and sections. For Pier 12 a separate base was built under each shaft, 8½" by 8'-0" in plan, centered on center lines of shafts.
All elevations "E" for bottom of base are average elevations and all dimensions for height of base are average dimensions. All piers were founded on sound rock and foundation areas as excated had very irregular surfaces.







PIERS 4 AND 5
¾" = 1'-0"

DETAILS OF W. I. SHEATHING PLATES
(For Piers 1 to 7 incl.)

Note: Elevation of bottom of bases may be raised in field from elevation shown according to elevation of top of rock. Footings to be extended approximately 1'-0" into sound rock.

PIERS 1, 2, 3, 6 & 7-12 INCL.
¼" = 1'-0"
All chamfers shown 1½" on side.

For classification of concrete see Spec.
For General Notes on concrete see Sheet 9.
Concrete in Working Chambers to be Class A.
All other Concrete to be Class B.

P.W.A. PROJECT NO. N.H. 1037-F, MAINE 1088-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
PIERS 1 TO 12 INCLUSIVE
SCALE: ⅛" = 1'-0"

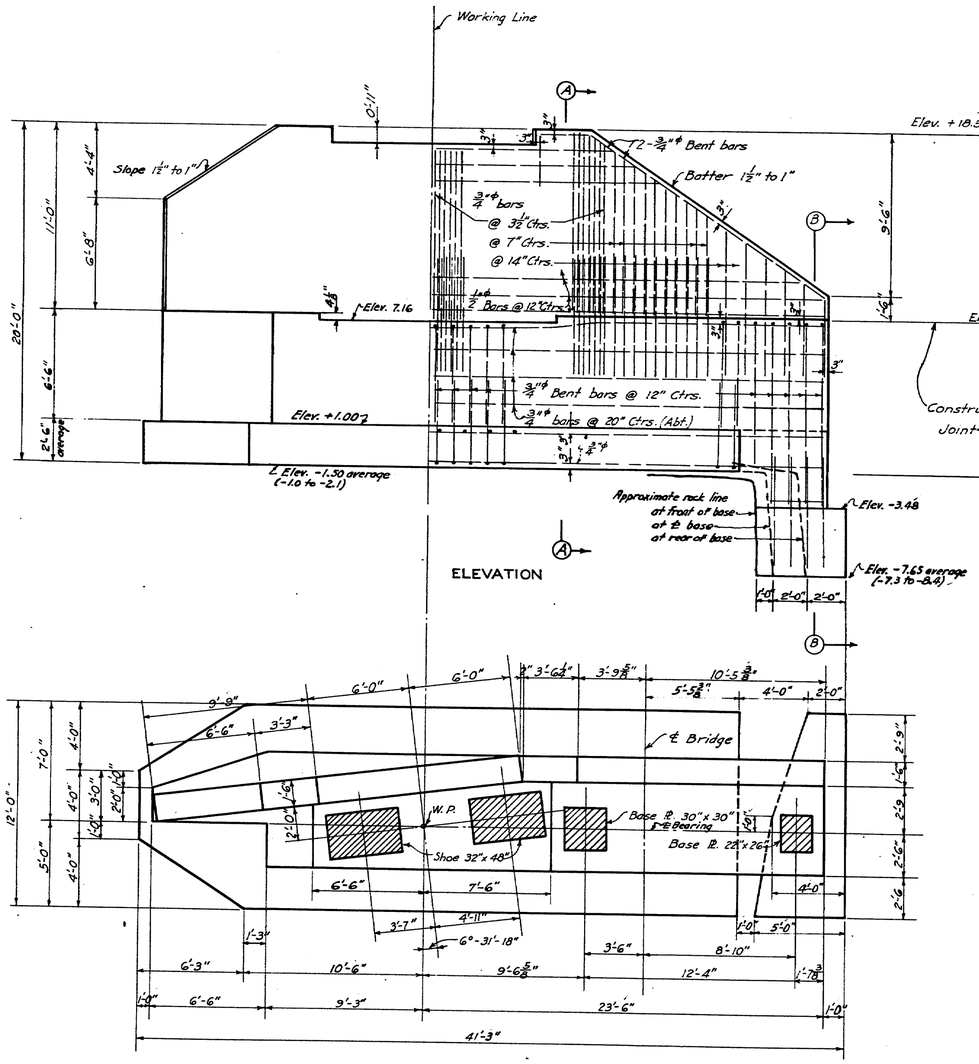
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY D.O.R.
TRACED BY F.M.C. Jr.
CHECKED BY [illegible] 1-18-39

SHEET NO. 3

126-159

Revised (Note on Piers 4 & 5) 3-16-39 F.M.C.
Revised for Cast Around, Etc. 6-7-45.



Note:
For general notes on concrete and reinforcing steel, see Sh. #9. Concrete to be class B.

P.W.A. PROJECT NO. N. H. 1037-F., MAINE 1088-F.
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.

PIER 13

SCALE: ¼"=1'-0"

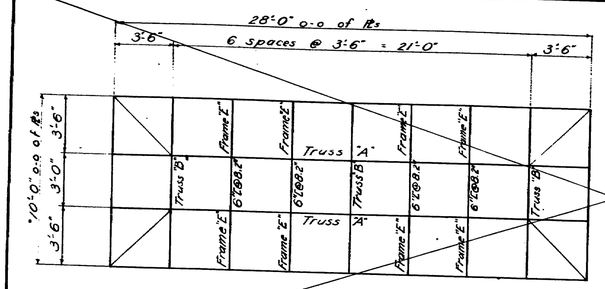
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY H.K.
TRACED BY
CHECKED BY O.P. 1-21-39.

SHEET NO. 4

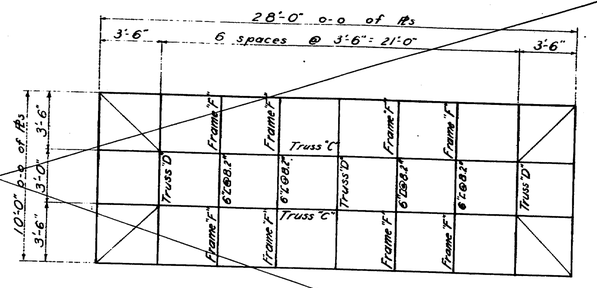
Revised By S.C.D. 4-15-39.
Rev. for Const. Record F.M.C. 8-8-45.

126-160



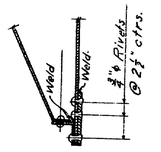
FRAMING PLAN
PIER 4
Scale: $\frac{1}{4}$"=1'-0"

See note on pier details on Sh. No. 3

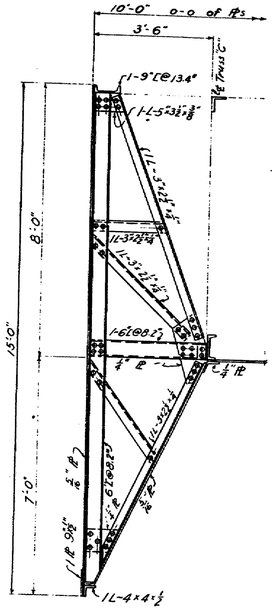


FRAMING PLAN
PIER 5
Scale: $\frac{1}{4}$"=1'-0"

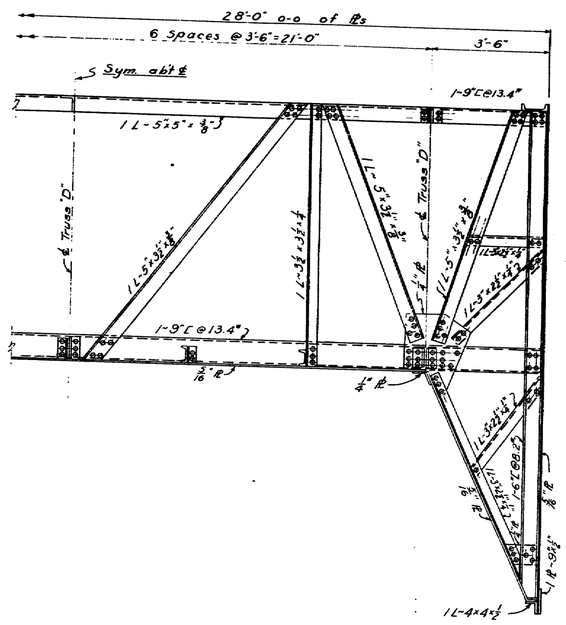
See note on pier details on Sh. No. 3.



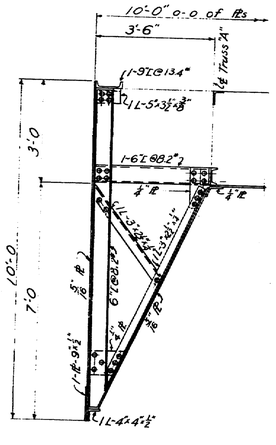
CUTTING EDGE DETAIL
Scale: 1"=1'-0"



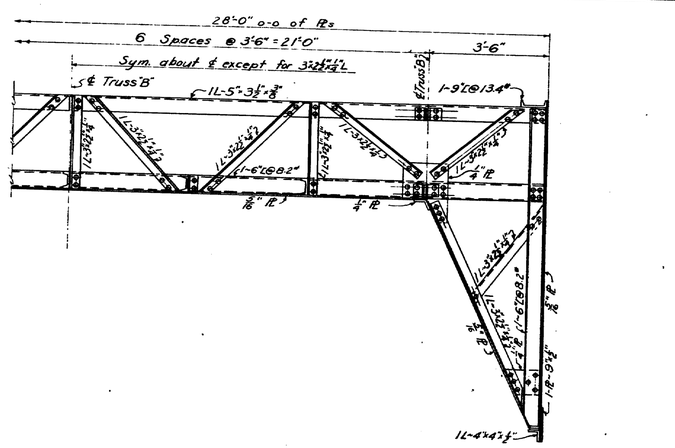
FRAME F
Scale: $\frac{1}{2}$"=1'-0"



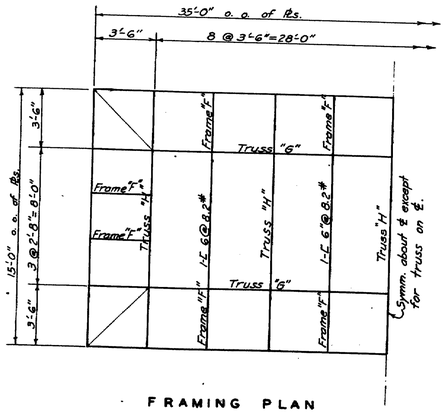
TRUSS C
Scale: $\frac{1}{2}$"=1'-0"



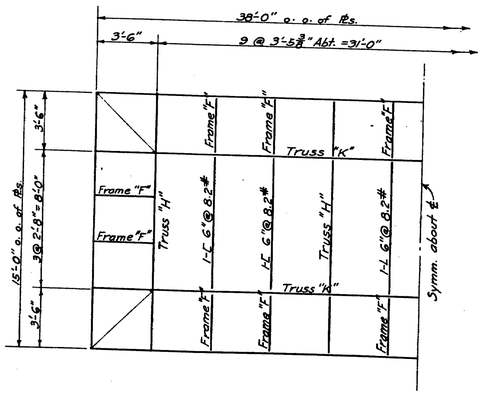
FRAME E
Scale: $\frac{1}{2}$"=1'-0"



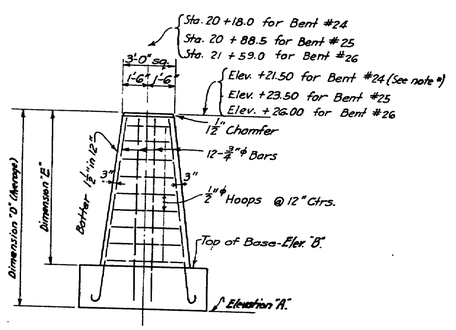
TRUSS A
Scale: $\frac{1}{2}$"=1'-0"



FRAMING PLAN
PIERS 14 AND 22
Scale: $\frac{1}{4}$"=1'-0"



FRAMING PLAN
PIER 21
Scale: $\frac{1}{4}$"=1'-0"



ELEVATION

Note: Truss "B" is to be similar in make-up to Truss "A". Trusses "D" "G" "H" and "K" are to be similar in make-up to Truss "C". Rivets in trusses and frames, and in cutting edges are to be ¾" ø. Rivets securing facing plates to frames and bracing are to be ⅝" ø at not more than 6" ctrs. Facing plates are to be spliced at supporting frames only. Plates shall be crimped, lapped, and welded, both edges. Plates shall be reinforced at all inside corners with 4"x4"x¼" angle of equivalent bent plate.

Concrete in Pedestals to be Class B.

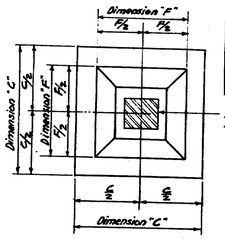
For general notes on concrete see sheet No. 9.

Note: Base Elevations shown are approximate. Bases will be carried to sound rock and shaft details altered according to final elevation of base.

TABLE OF ELEVATIONS & DIMENSIONS.

PED. NO.	ELEVATION "A" HIGH	LOW	AVERAGE	ELEV. "B"	DIM. "C"	DIM. "D"	DIM. "E"	DIM. "F"
* 24 E	−0.2	−2.5	−1.00	4.50	8'-6"	23'-3⅜"	17'-0"	7'-3"
24 W	+1.6	−0.4	+0.20	3.47	7'-10"	21'-3⅜"	18'-0⅜"	7'-6⅜"
25 E	+8.9	+6.8	+7.80	10.30	7'-6"	15'-8⅜"	13'-2⅜"	6'-3⅜"
25 W	+9.9	+8.5	+9.30	11.80	7'-6"	16'-3⅜"	11'-8⅜"	5'-11⅜"
26 E	+15.7	+14.6	+15.46	17.96	7'-6"	10'-6½"	8'-0½"	5'-0⅞"
26 W	+18.9	+18.1	+18.39	20.89	7'-6"	7'-7⅜"	6'-1⅜"	4'-3⅜"

* At Pedestal 24E the top 2 Ft. of pedestal was poured around the steel column.



PLAN
PEDESTALS-BENTS 24 25, & 26
Scale: $\frac{1}{4}$"=1'-0"

P.W.A. PROJECT NO. N.H. 1037-F., MAINE 1088-F.
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
CAISSONS - PIERS 4, 5, 14, 21 & 22
PEDESTALS - BENTS 24, 25, & 26

SCALE: AS SHOWN

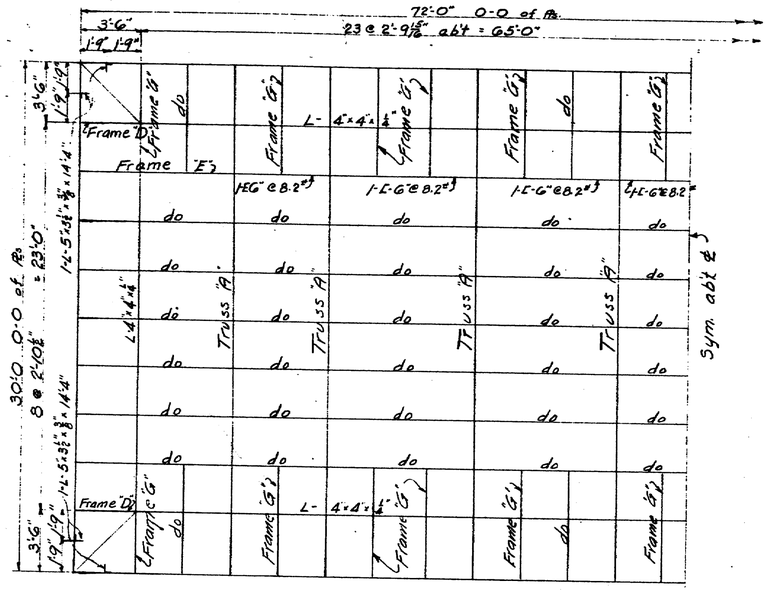
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D. C.

MADE BY D.O.A.K.
TRACED BY L.F.H.
CHECKED BY [illegible] 1-19-39

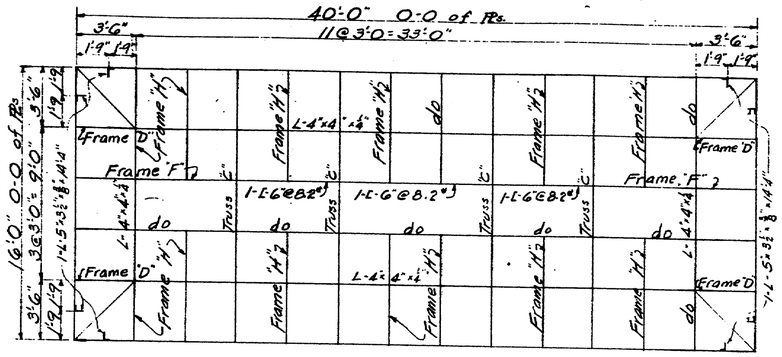
SHEET NO. 5.

126-161

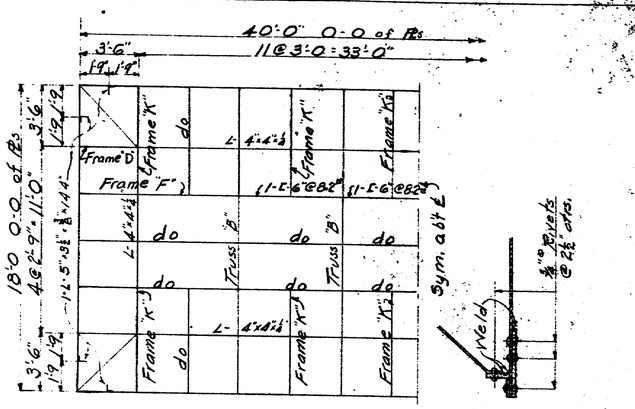
Revised (4.B.S.) 3-16-39 S.C.D.
Rev. for Contr. Record 11/1/45.



FRAMING PLAN - PIERS #17 & #18
Scale ¼"=1'-0



FRAMING PLAN - PIERS #16 & #19
Scale ¼"=1'-0"

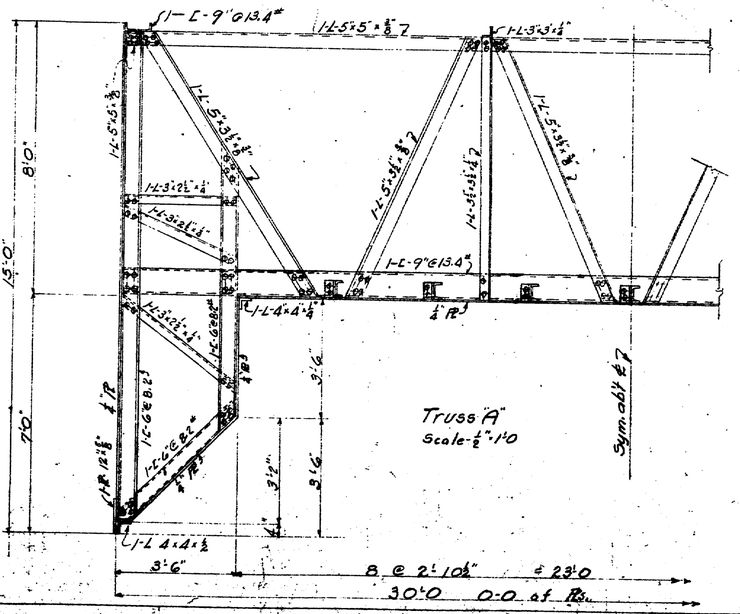


FRAMING PLAN - PIERS #15 & #20
Scale ¼"=1'-0"

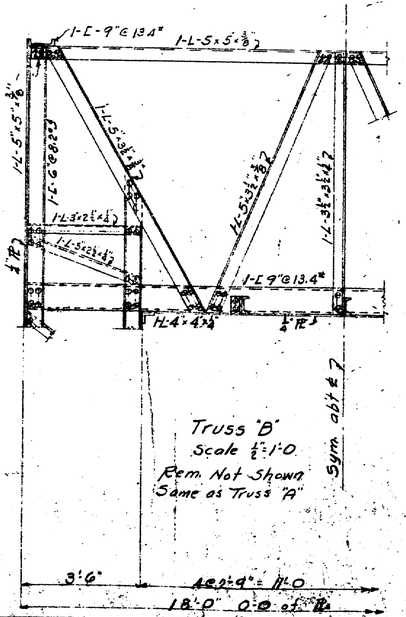
Cutting Edge Detail
Scale 1"=1'-0

Rivets in trusses, frames, and in cutting edges are to be ¾" ø. Rivets securing facing plates to frames and bracing are to be ⅞" ø at not more than 6" ctrs.

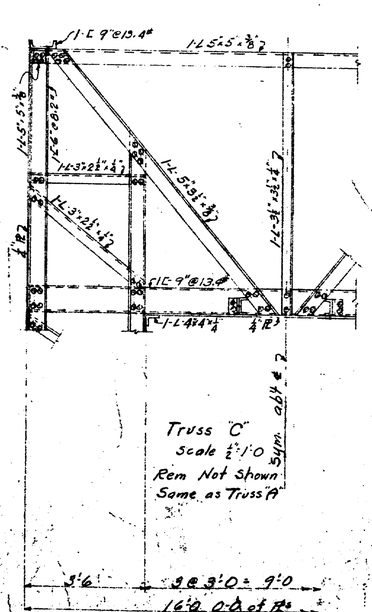
Facing plates are to be spliced at supporting frames only. Plates shall be crimped, lapped, and welded both edges. Plates shall be reinforced at all inside corners with 4"x4"x½" angle or equivalent bent plate.



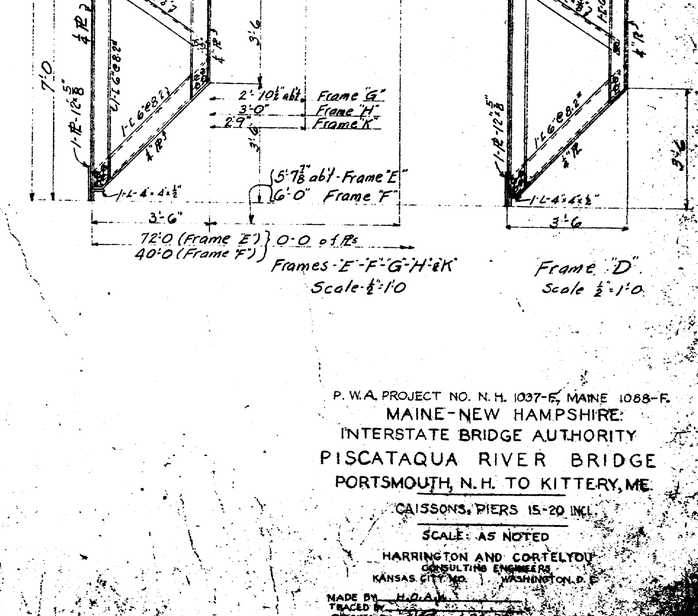
Truss "A"
Scale ½"=1'-0



Truss "B"
Scale ½"=1'-0
Rem. Not Shown
Same as Truss "A"



Truss "C"
Scale ½"=1'-0
Rem. Not Shown
Same as Truss "A"



Frames "E" "F" "G" "H" & "K"
Scale ½"=1'-0

Frame "D"
Scale ½"=1'-0

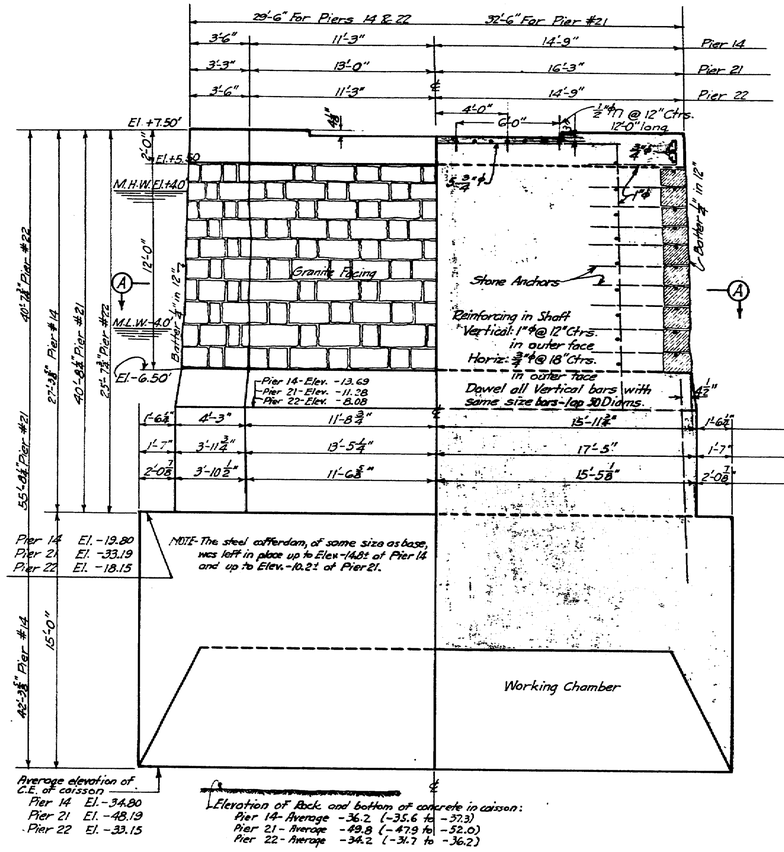
P.W.A. PROJECT NO. N.H. 1037-F, MAINE 1088-F.
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
CAISSONS, PIERS 15-20 INCL.

SCALE: AS NOTED

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

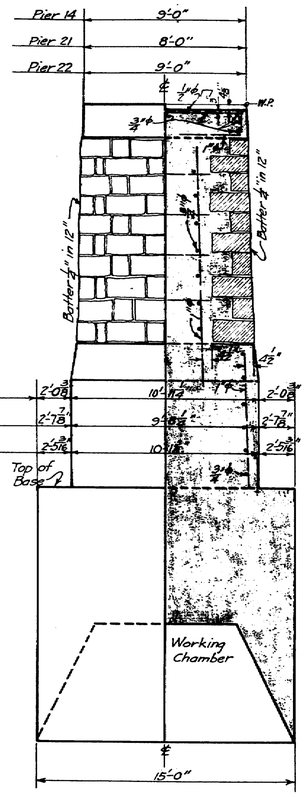
MADE BY H.O.A.M.
TRACED BY
CHECKED BY

SHEET NO. 126-152

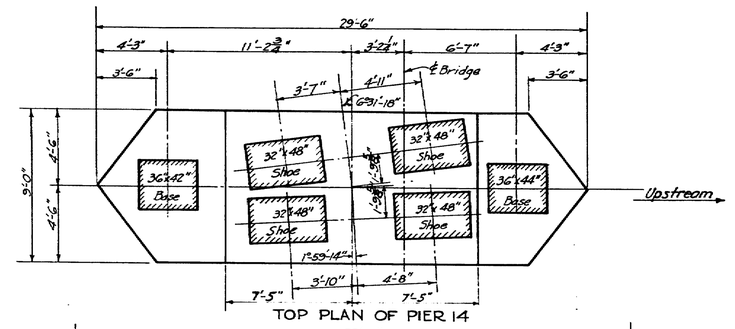


HALF ELEVATION

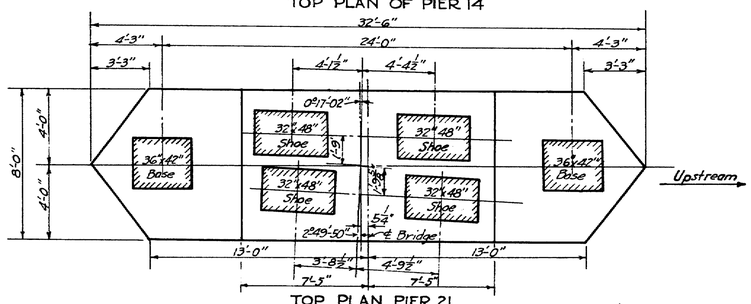
HALF ℄ SECTION



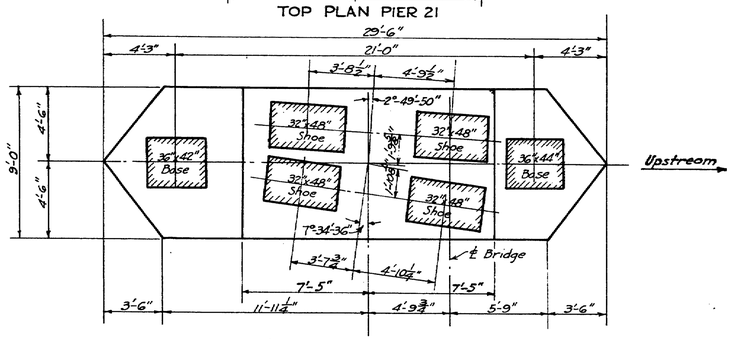
HALF END ELEVATION — HALF ℄ END SECTION



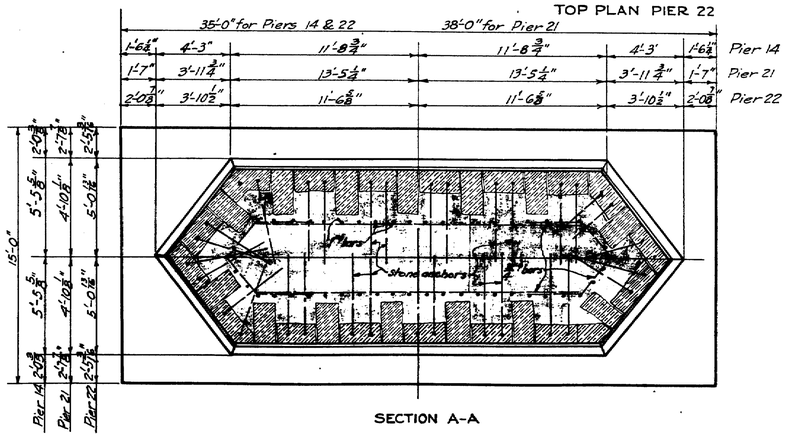
TOP PLAN OF PIER 14



TOP PLAN PIER 21



TOP PLAN PIER 22



SECTION A-A

For General Notes see Sheet No. 9
Concrete in Working Chambers to be Class A.
All other Concrete to be Class B.
For Caisson details see Sheet No. 5.

P.W.A. PROJECT NO. N.H. 1037-F., MAINE 1088-F.

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY

PISCATAQUA RIVER BRIDGE

PORTSMOUTH, N.H. TO KITTERY, ME.

PIERS 14, 21 & 22.

SCALE: 1/4" = 1'-0"

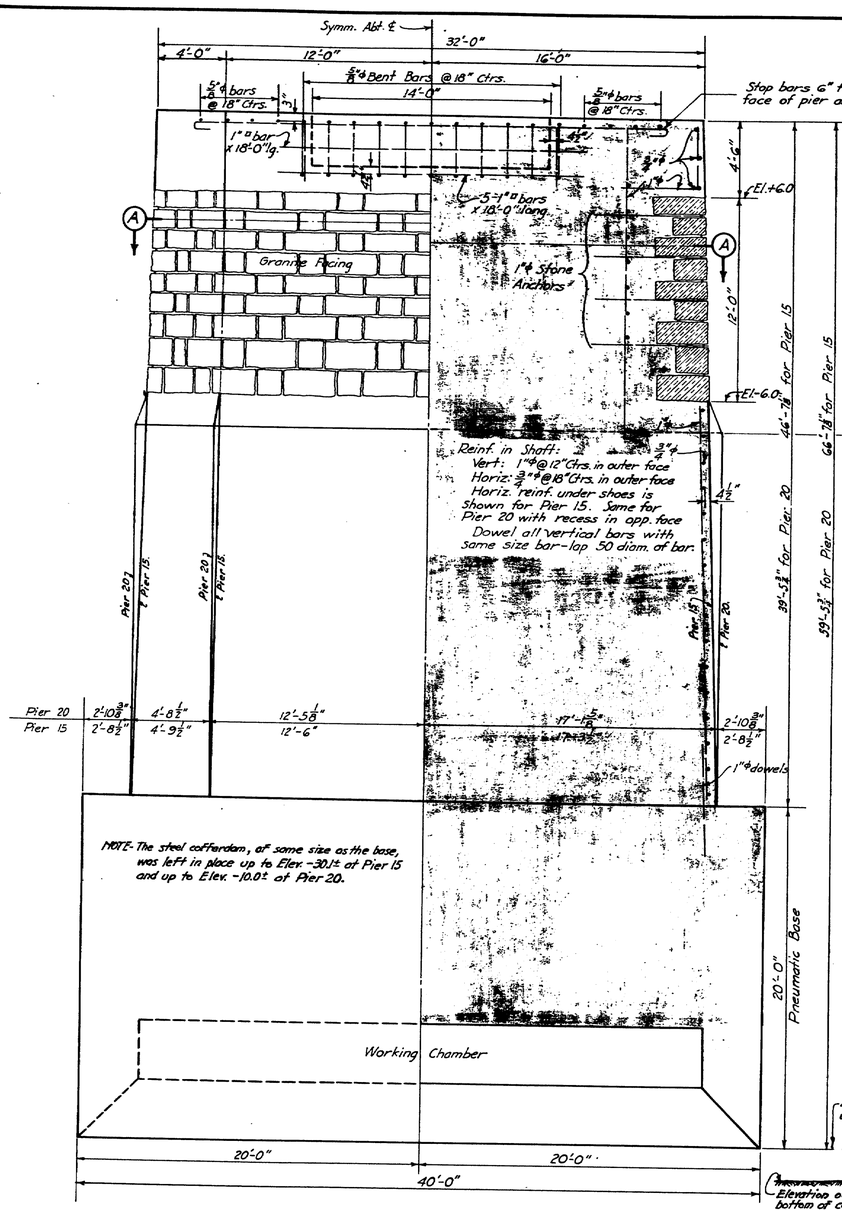
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY H.C.S.
TRACED BY L.S.F.
CHECKED BY D.P. 1-18-39.

SHEET NO. 7

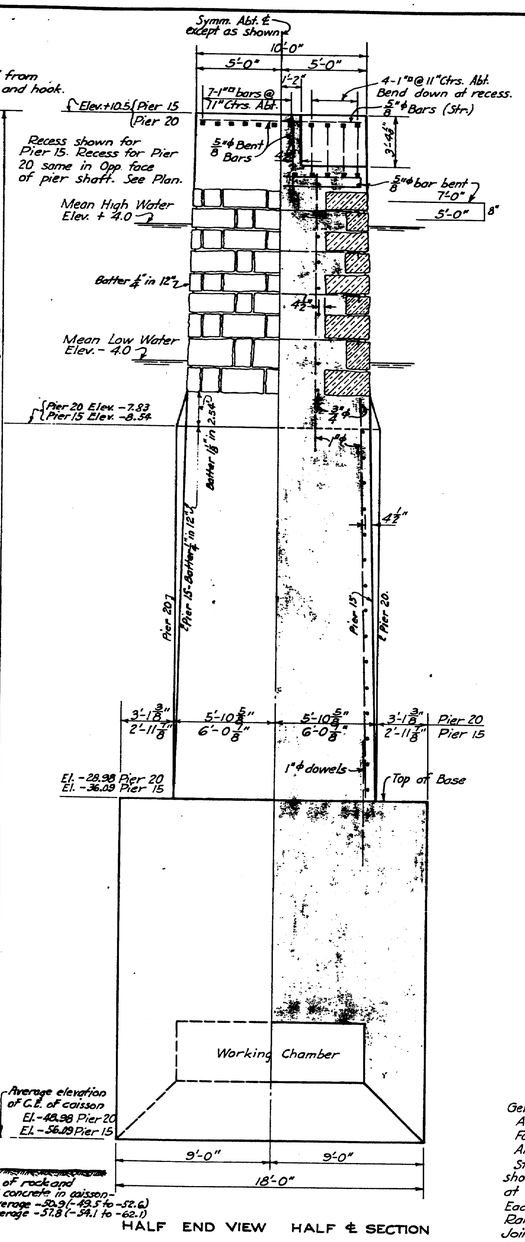
Revised by S.C.D. 4-20-39.
Revised for Const. Record F.M.C. 8-11-43.

126-163

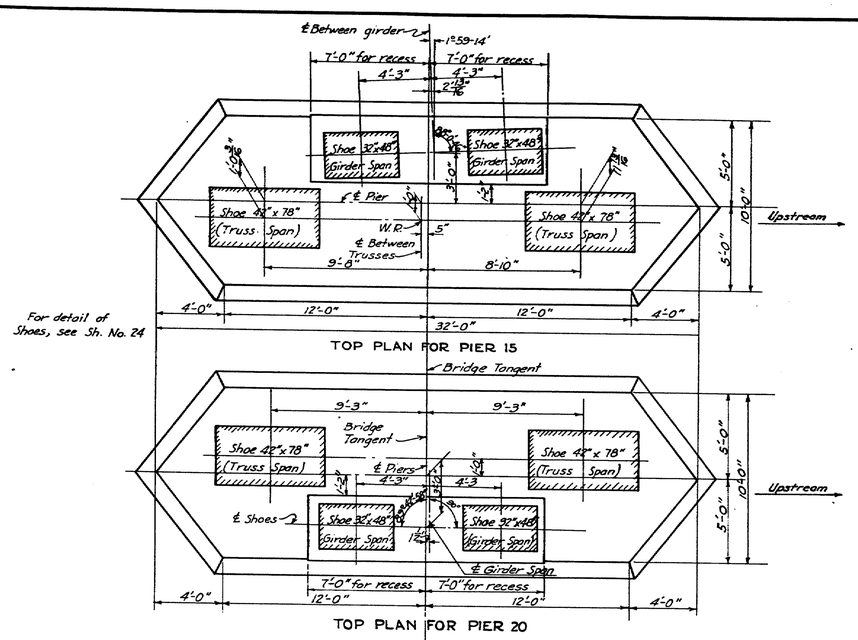


HALF ELEVATION

HALF ℄ SECTION

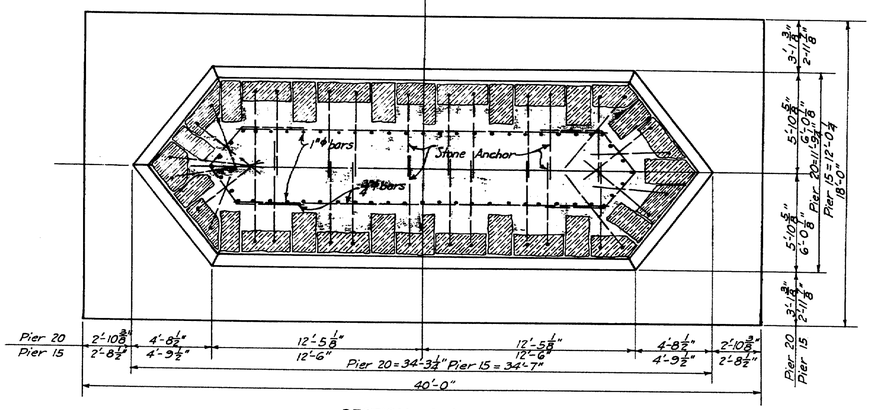


HALF END VIEW HALF ℄ SECTION



TOP PLAN FOR PIER 15

TOP PLAN FOR PIER 20



SECTION A-A

General Notes:
All dimensions are for Pier 15 and 20 unless noted.
For details of Pneumatic Caissons, see Sh. No. 6.
All corners of exposed concrete to be chamfered 1½".
Stonework: Stones shall be laid approximately as shown. Heights shall vary from 12" to 16" with larger stones at bottom. Provide 1" ϕ hangers - 2 for each stretcher. Each stretcher shall have 2 holes for suitable lewises. Rake joints back 2" from face and point with ½" lead wool. Joints shall be ¾" with ¼" ± tolerance.
For Gen'l. Notes on Concrete, see Sh. No. 9.
Concrete in Working Chambers to be Class A.
All other Concrete to be Class B.

P.W.A. PROJECT NO. N.H. 1037-F., MAINE 1088-F.
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.

PIERS 15 AND 20

SCALE: ¼"=1'-0"

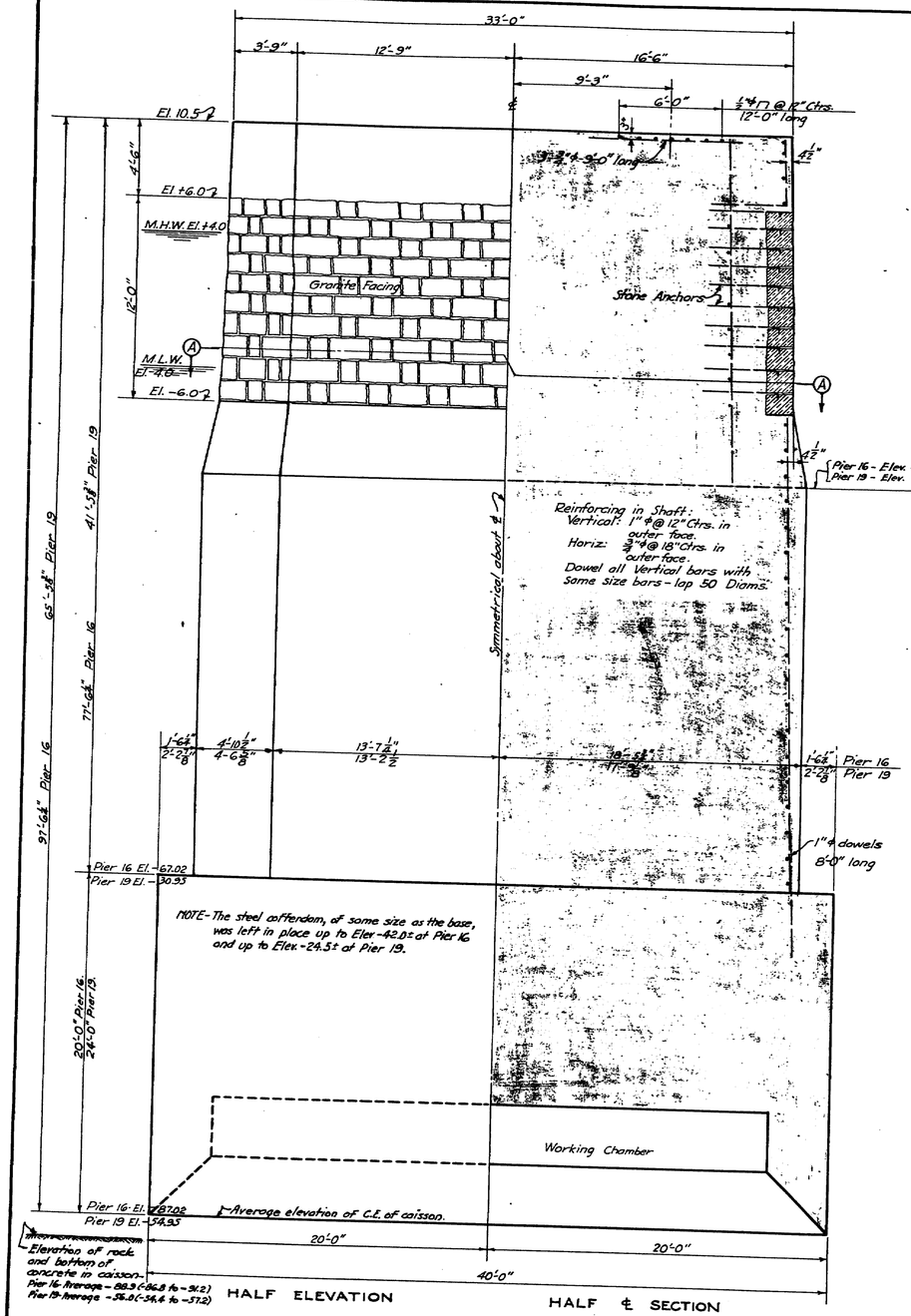
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

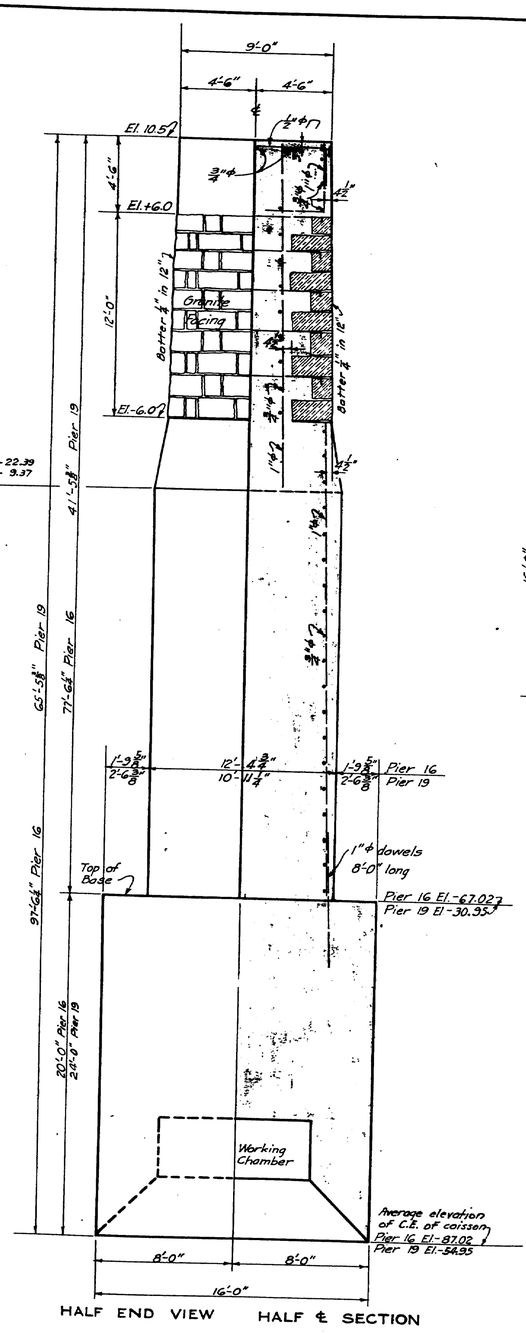
MADE BY F.M.C. Jr.
TRACED BY L.S.F.
CHECKED BY D.D.C. & B.P. 1-26-39.

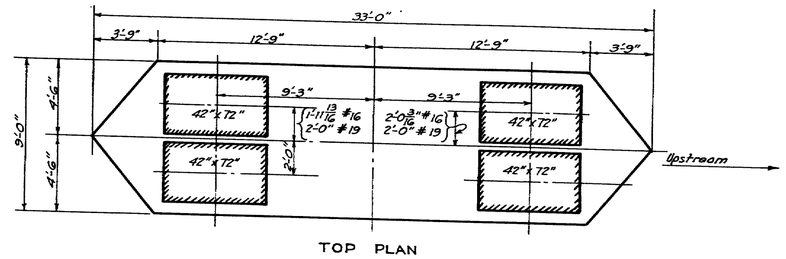
SHEET NO. 8

Revised by S.C.D. 4-20-39.
Revised for Const. Record F.M.C. 8-16-43.

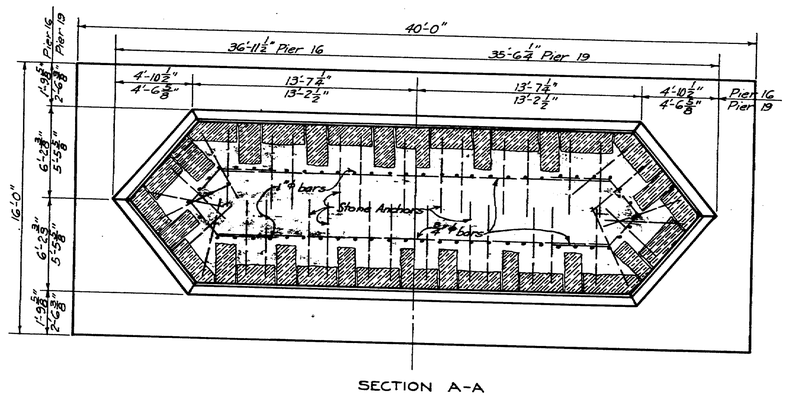
126-164







TOP PLAN



SECTION A-A

GENERAL NOTES

For proportioning and mixing and placing of concrete see specifications.
Reinforcing metal shall be in lengths as great as is practicable. Splices shall be staggered where possible. Lap bars 50 diameters at all splices. Except where otherwise shown bends shall have a radius of not less than 3 diameters of the bar, and hooks a total length of not less than 16 diameters of the bar. Bars shall be accurately placed before concreting is started, and shall be held in place by approved metal chairs or other approved method, so as to give the spacing and cover shown. For "Classes of concrete, see specifications.
See Sheet No. 6, for details of pneumatic caissons.
Stonework: Stones shall be laid approximately as shown. Heights shall vary from 12" to 16" with larger stones at bottom. Provide 2-1" ϕ anchors for each stretcher and 2 holes for suitable lewises. Rake joints back 2" from face and point up with ½" lead wool. Joints shall be ¾" with ¼" ± tolerance.
Chamfer all corners of exposed concrete 1½ inches.
Concrete in Working Chamber to be Class A.
All other Concrete to be Class B.

P.W.A. PROJECT NO. N. H. 1037-F, MAINE 1088-F.
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
PIERS 16 AND 19

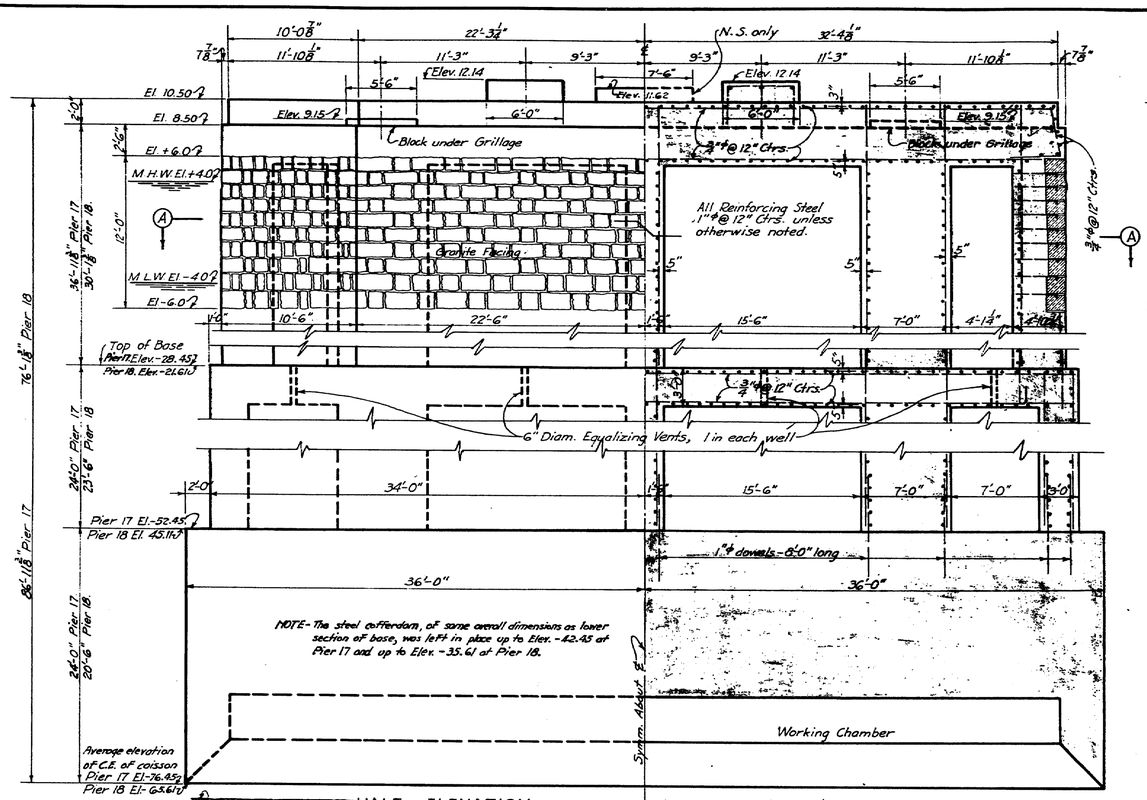
SCALE: 1/4" = 1'-0"

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY D.O.P.
TRACED BY L.S.F.
CHECKED BY D.P. 1-21-39.

Revised For Const. Record F.M.C. 8-17-45.

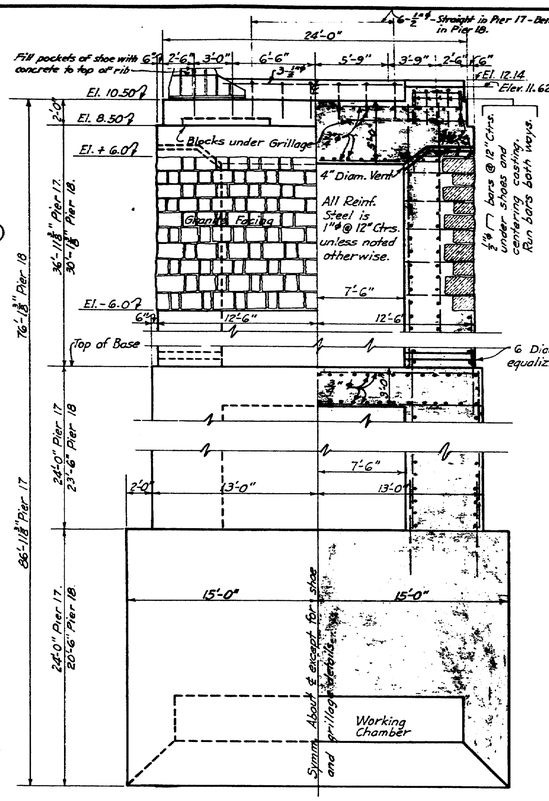
SHEET NO. 9
126-165



HALF ELEVATION

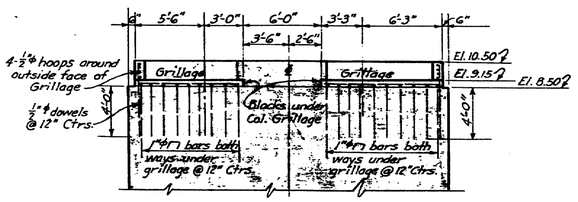
Elevation of rock and bottom of concrete in caisson.
Pier 17 Average -77.1 (-76.8 to -81.5)
Pier 18 Average -67.0 (-64.1 to -70.0)

HALF ℄ SECTION



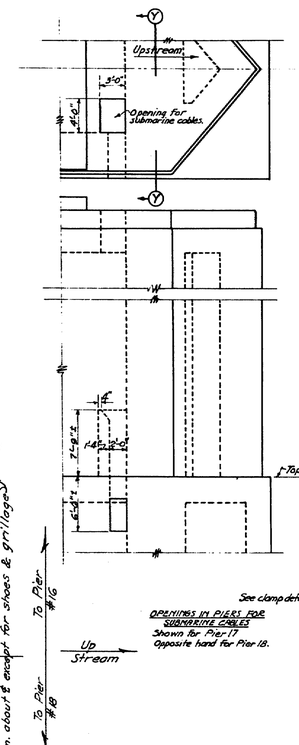
HALF END VIEW

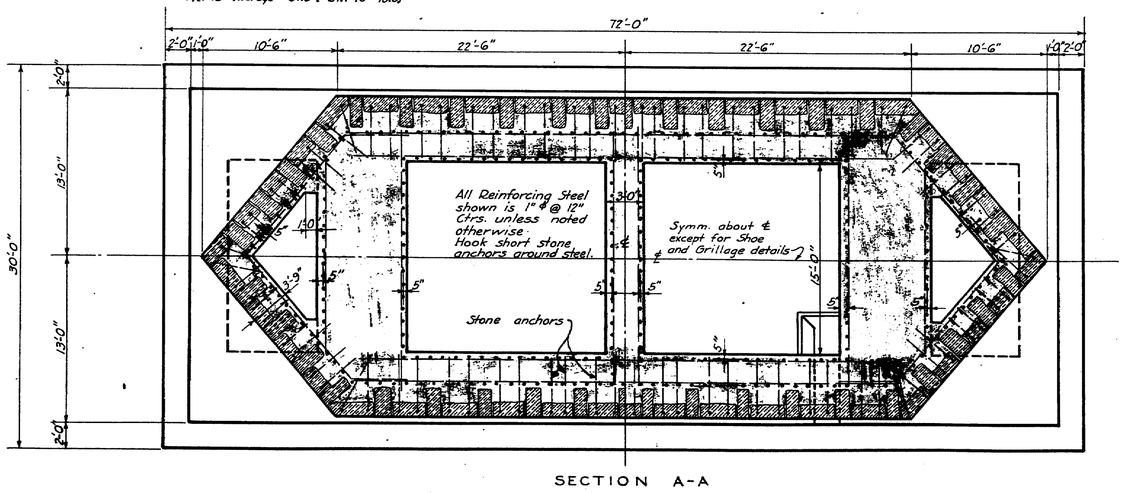
HALF SECTION C-C



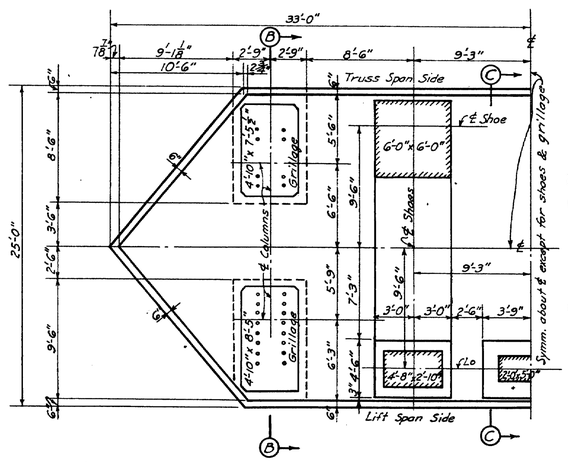
SECTION B-B

Grillage furnished by Superstructure Contractor. Placed by Substructure Contractor with Column Anchors before last 10 feet is poured. Holes will be left in top plate of Grillage for grouting. Grout shall completely fill all voids in the Grillage. Concrete in Working Chamber to be Class A. All other Concrete to be Class B.





SECTION A-A



HALF TOP PLAN PIER NO. 17

Pier No. 18 is the same but opposite hand.

For General Notes see Sheet No. 9.
For General Notes on Concrete, see Sh. No. 9.

P.W.A. PROJECT NO. N. H. 1037 F., MAINE 1088-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.

PIERS NO. 17 AND 18

SCALE: 3/16"=1'-0"

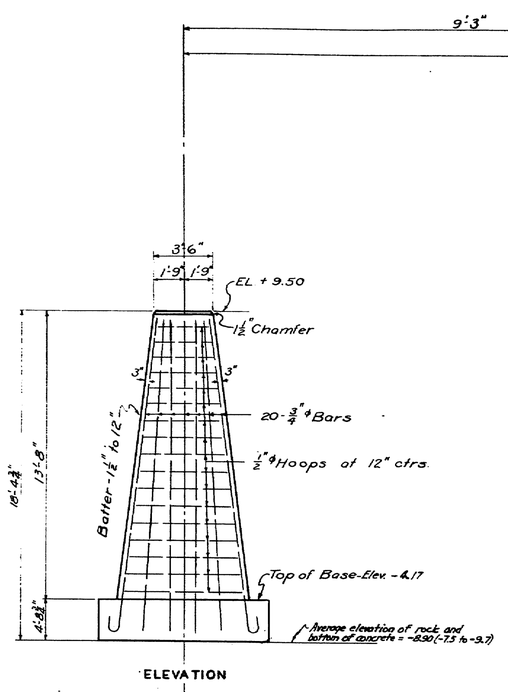
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY D.O.P.
TRACED BY L.S.F.
CHECKED BY D.P. 1-27-39

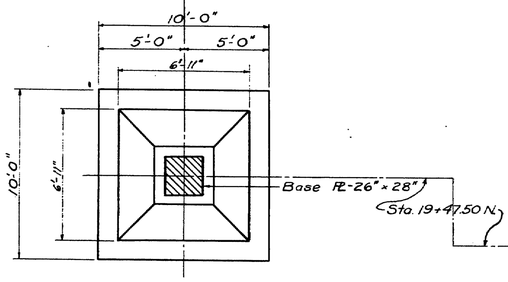
SHEET NO. 10

Revised for Cost Record FHC 8-23-43.

126-166



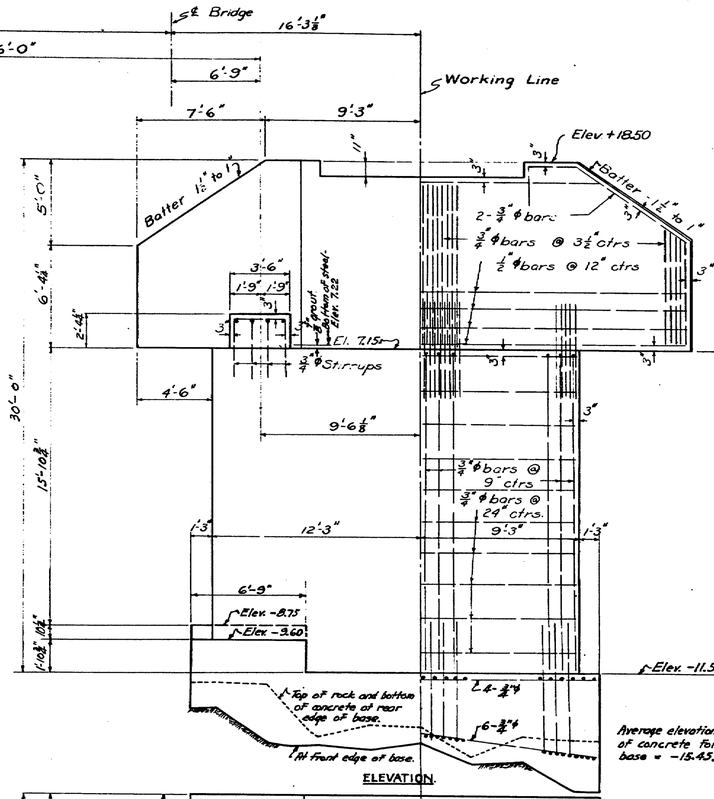
ELEVATION



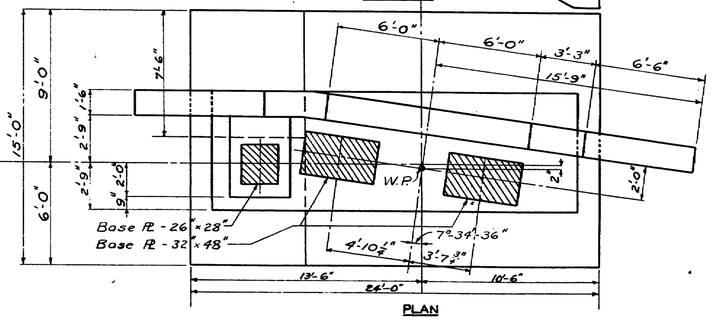
PLAN

WEST PEDESTAL - PIER 23

Scale: ¼" = 1'-0"



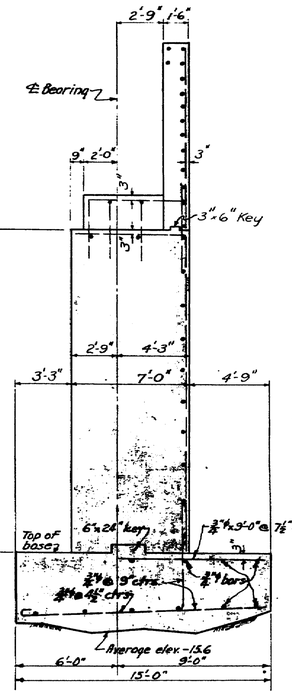
ELEVATION.



PLAN

PIER 23

Scale: ¼" = 1'-0"



SECTION ON WORKING LINE

P.W.A.

FEDERAL EMERGENCY ADMINISTRATION OF PUBLIC WORKS

PORTSMOUTH-KITTERY BRIDGE

PROJECT I.O. N.H. 1037-F, MAINE 1088-F

PROJECT SIGNS - WOOD

The size and dimensions of signs shall be as follows:

Type	Length	Width	Lettering Height Top Line	2nd Line	4th Line	5th Line
A	5'-0"	3'-0"	4½"	3"	2"	1"
B	7'-6"	4'-6"	6¾"	4½"	3"	1½".

See Specifications

Note: For General Notes on concrete and reinforcing steel, see Sh. #9. Concrete to be Class B.

P.W.A. PROJECT NO. N.H. 1037-F., MAINE 1088-F.

MAINE-NEW HAMPSHIRE INTERSTATE BRIDGE AUTHORITY

PISCATAQUA RIVER BRIDGE

PORTSMOUTH, N.H. TO KITTERY, ME.

PIER 23

SCALE: ¼" = 1'-0"

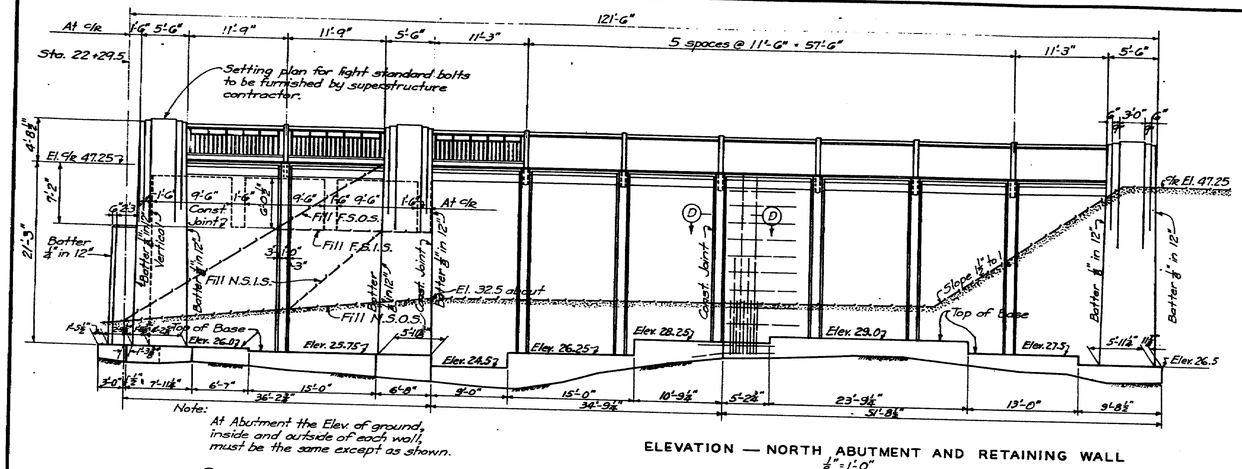
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY H.K.
TRACED BY R.R.
CHECKED BY D.B. 1-20-39

SHEET NO. 11

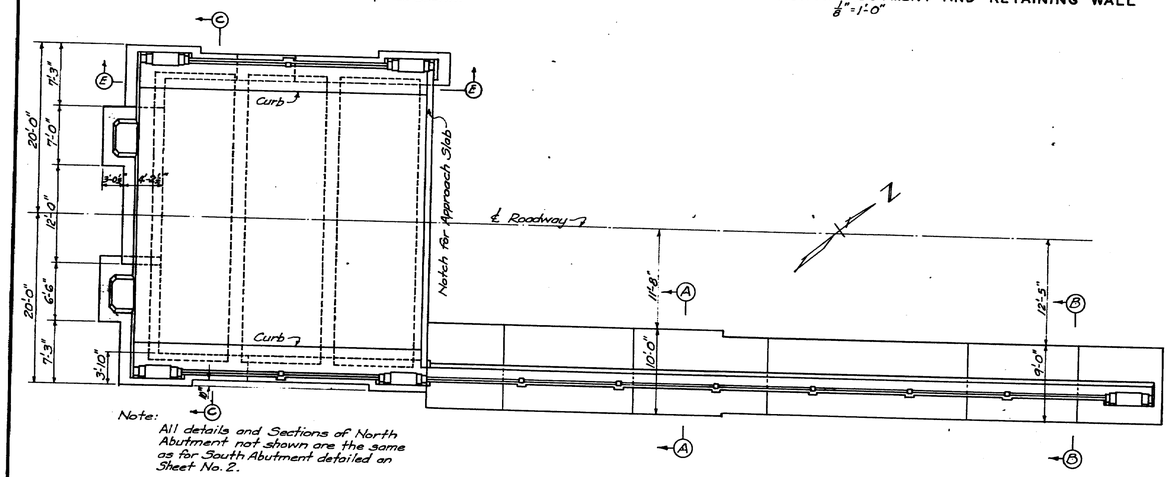
Revised by S.C.D. 4-20-39.
Revised for Const. Record P.M.L. 8-27-45.

12.6-167



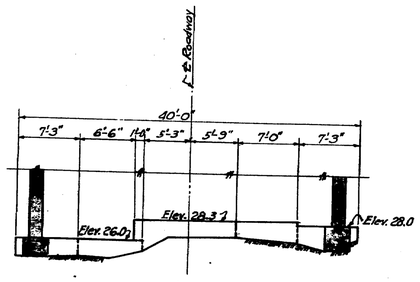
Note:
At Abutment the Elev of ground, inside and outside of each wall must be the same except as shown.

ELEVATION — NORTH ABUTMENT AND RETAINING WALL
⅛"=1'-0"

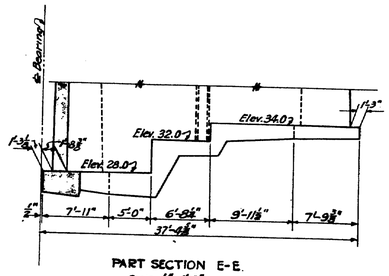


Note:
All details and Sections of North Abutment not shown are the same as for South Abutment detailed on Sheet No. 2.

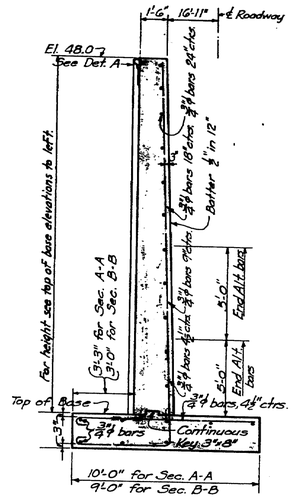
PLAN — NORTH ABUTMENT AND RETAINING WALL
⅛"=1'-0"



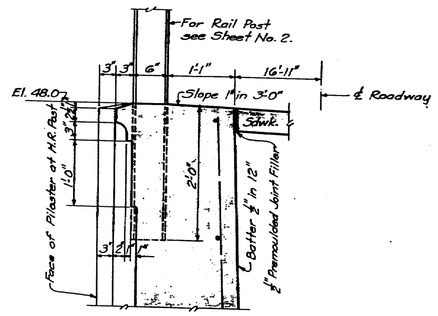
PART SECTION C-C
Scale: ⅛"=1'-0"



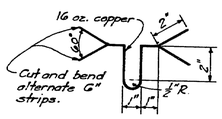
PART SECTION E-E.
Scale ⅛"=1'-0"



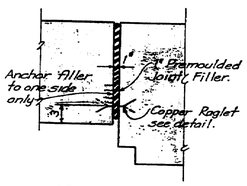
SECTION A-A & B-B
⅛"=1'-0"



DETAIL "A"
1"=1'-0"



RAGLET DETAIL
3"=1'-0"



SECTION D-D
1"=1'-0"
Other const. joint similar.

GENERAL NOTES

For proportioning, mixing, and placing of concrete see Specifications. Splices shall be staggered where possible. Lap bars 50 diameters at all splices. Except where otherwise shown, bends shall have a radius of not less than 3 diameters of the bar and hooks a total length of not less than 16 diameters of the bar. Bars shall be accurately placed before concreting is started, and shall be held in place by approved metal chairs or other approved method, so as to give the spacing and cover shown. For classes of concrete see specifications.
All concrete in Abutments and Retaining Walls to be Class B.

P.W.A. PROJECT NO. N. H. 1037-F, MAINE 1088-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.

NORTH ABUTMENT AND RETAINING WALL

SCALE: AS NOTED

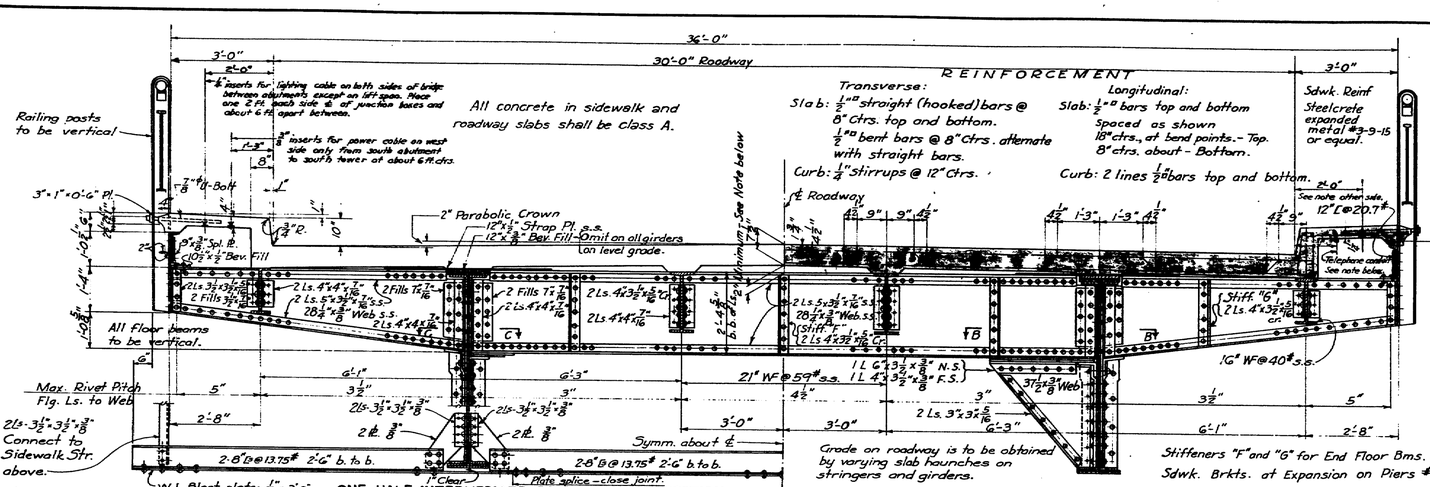
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D. C.

MADE BY C.S., D.O.B.
TRACED BY D.O.B.
CHECKED BY D.B. 1-27-39

SHEET NO. 12

Rev. 2& 1-26-39.
Revised for Const. Record F.N.C. 8-29-45.

12.6-168



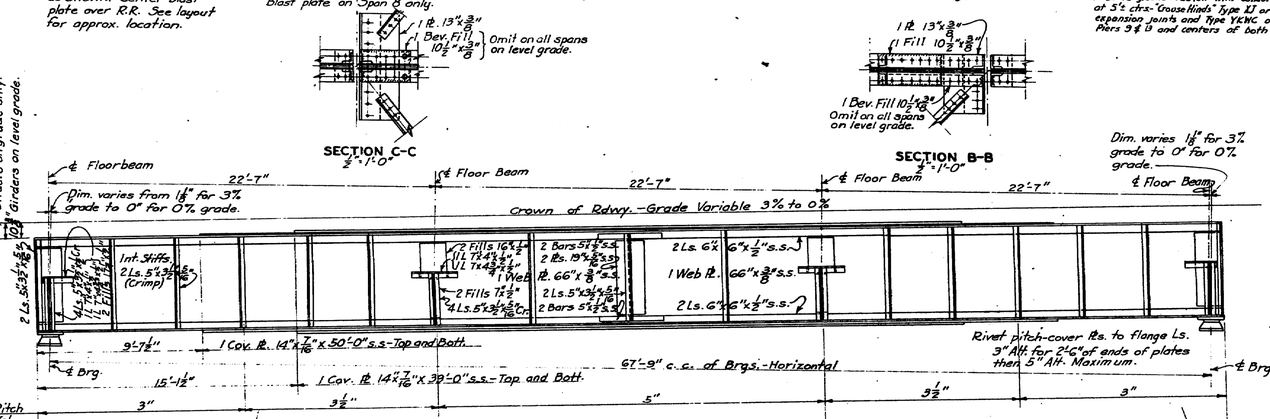
ONE HALF INTERMEDIATE ROADWAY CROSS SECTION
Scale 1/2" = 1'-0"
Dimensions vary for sections on horizontal curve. Details shown are for tangent section. Blast plate on Span 8 only.

ONE HALF END ROADWAY CROSS SECTION
Dimensions vary for sections on horizontal curve. Details are shown for tangent section.

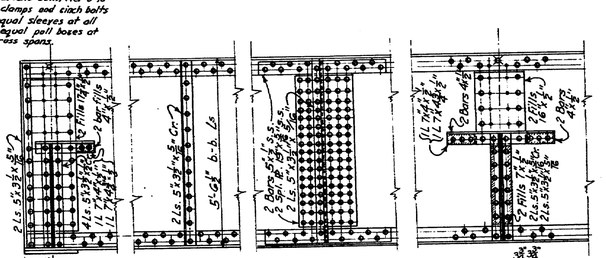
SECTION D-D
Bottom lateral support for all spans.
Scale 1" = 1'-0"

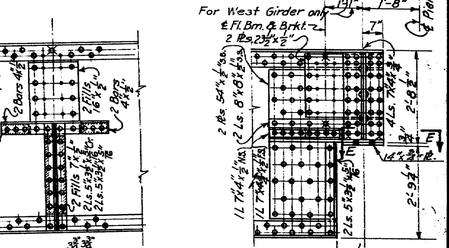
EXPANSION JOINT DETAILS
Scale: 1" = 1'-0"

Telephone conduit - 1" sherardized conduit on east side only from Pier 8 to Operator's House - Extend down Pier 8 to 5' above ground - Fasten with conduit clamps and cinch bolts at 5'± ctrs - "Crouse Hinds" Type XJ or equal sleeves at all expansion joints and Type YSCNG or equal pull boxes at Piers 3 & 13 and centers of both truss spans.



Note: All handrail posts are to be located on the arc of the horizontal curve and handrail panels are to be made on chords between posts. The 12" ℄ Fascia stringer shall be built on chords between brackets, and fills as required used at H/R posts. Curbs and walk fascias are to be built on the horizontal curve.





General Notes:
For details and location of roadway drains, see sheet No. 14.
For location of light posts see sheet No. 1
For details of light posts on girder spans, see Sh. No. 18.
7/8" ø rivets, 15/16" holes unless noted.
Material shall be carbon steel unless noted.
Silicon steel designated as s.s.
For typical handrail details and Section A-A see roadway cross section sheet No. 21.
Detail of North End of girders, spans 24, 25 & 26 similar to North End girders span 23, see sheet No. 14.
Detail of North End of girders, span 27 same as for typical spans shown on this sheet.
Detail of South Ends of girders, spans 24, 25, 26 & 27 similar to details of North end of span 13 shown on this sheet.
Sheared edges of all plates more than 1/2" thick shall be milled.
All stiffener angles shall be finished to bear top and bottom. Camber girders for D.L. only.

P.W.A. PROJECT NO. N.H. 1037-F MAINE 1088-F

MAINE-NEW HAMPSHIRE INTERSTATE BRIDGE AUTHORITY

PISCATAQUA RIVER BRIDGE, PORTSMOUTH, N.H. TO KITTERY, ME.

70' HIGHWAY GIRDER SPANS

SCALE: AS NOTED

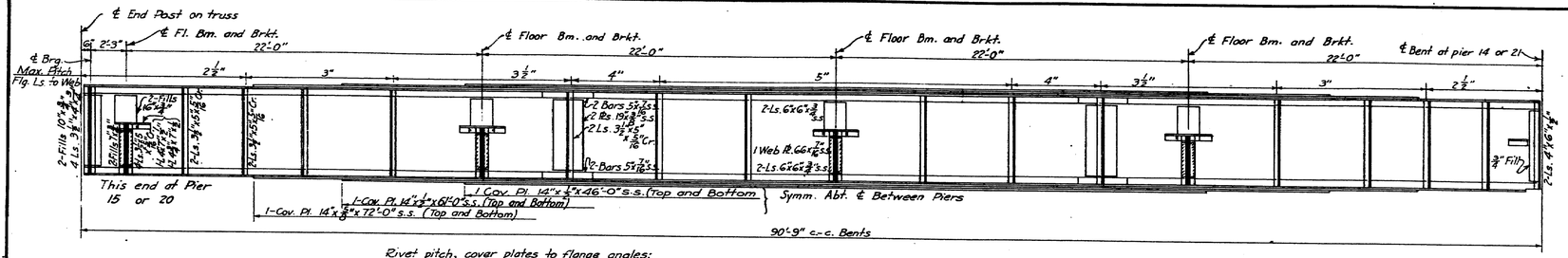
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY H.K.
TRACED BY L.S.F.
CHECKED BY J.H.C. - H.R.K. 3-14-31

SHEET NO. 13

REVISED BY: O.R. 3-18-31
Revised for Coast Record F.M.C. 6-24-40.

126-188



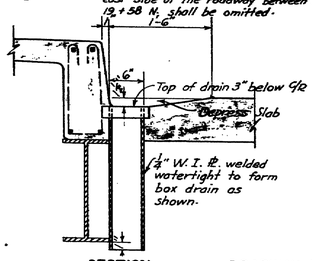
Rivet pitch, covar plates to flange angles: 3" Alt. centers for 2'-6" at ends; 5" maximum Alt. centers elsewhere.

ELEVATION OF GIRDER

Scale: 1/4"=1'-0"

Details shown are typical for spans between piers 14 and 15 and 20 and 21. Main material shown is same for all spans, piers 13 to 15 and 20 to 23.

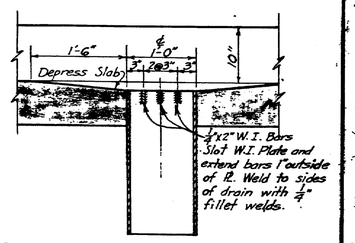
Note: Drains are to be located at about the ℄ between floorbeams on alternate sides of the roadway and at about 44' to 56' on centers, except that all drains on the east side of the roadway between stations 3+05 N. to 3+70 N. and 18+81 N. to 19+58 N. shall be omitted.



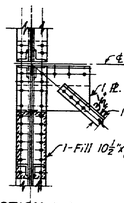
SECTION

ROADWAY DRAINS

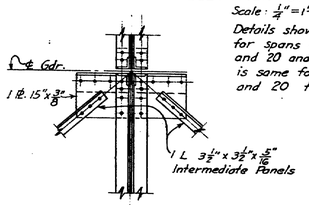
Scale: 1"=1'-0"



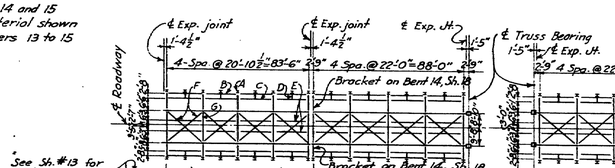
SECTION



SECTION A-A



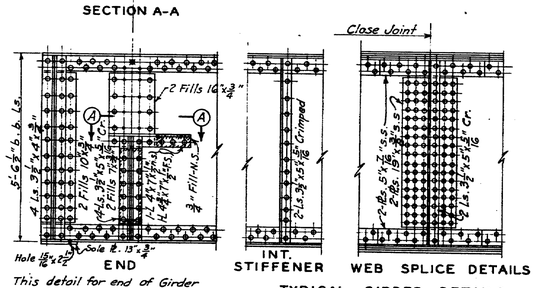
SECTION B-B



PLAN

Scale: 1"=40'-0"

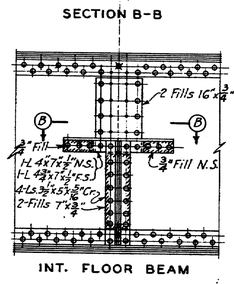
Note: For details of 70'-6" spans see sheet #13.



This detail for end of Girder at Pier 15 or 20

TYPICAL GIRDER DETAILS

Scale: ½"=1'-0"



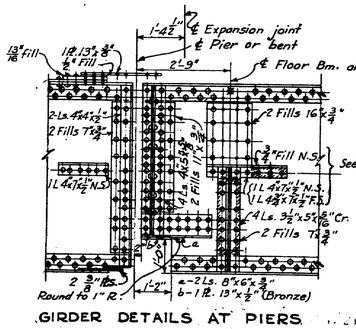
Note: Provide W.I. Blast Plates ¼"x 3'-0" over R.R. tracks on girder spans 14, 15, 21, 22 and 23. Plates to be located just below bottom of floorbeams at points between bents and connected to transverse girder webs at bents. Where plates intersect the longitudinal girders they are to be fastened to the girder webs. Provide W.I. Plates on the bottom flanges of all girders, curb stringers, walk fascia beams and cantilever brackets where exposed to direct blast. Use W.I. rivets for all such connections.

Typical details of blast plates on truss spans are shown on Sh. No. 21.

"A"- Hand Rail Posts - 6'-H @ 18#
"B"- Fascia Beams - 12" I @ 20.7# (Splice at Sdwk. Brkts.)
"C"- Curb Stringer - 16" WF @ 40# s.s.
"D"- Int. H.R. Post support - 8" I @ 13.75#
"E"- Roadway Stringers - 21" WF @ 59# s.s.
"F"- Lateral Bracing - (1-L 3½"x3½"x½" End Panel)/(1-L 3½"x3½"x 5/16" Int. Panels)
"G"- Floor Beams - Shown in cross-section on sheet #13.

For lateral support to roadway stringers see Sec. D-D, sheet #13.

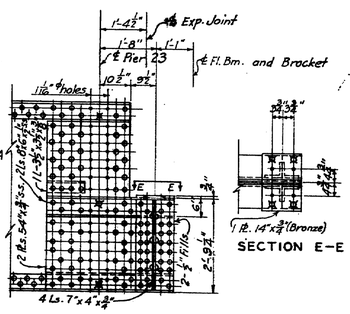
"x" in diagrams showing girdar connection at ends indicates points of which knee braces are required at end floorbeams.



GIRDER DETAILS AT PIERS 14, 21 AND 22

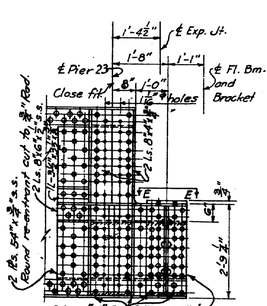
Details shown are typical for all piers noted above.

Scale: ½"=1'-0"



NORTH END, EAST GIRDER, SPAN 28

Scale: ½"=1'-0"

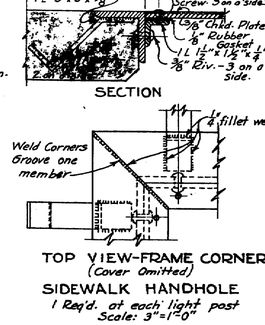


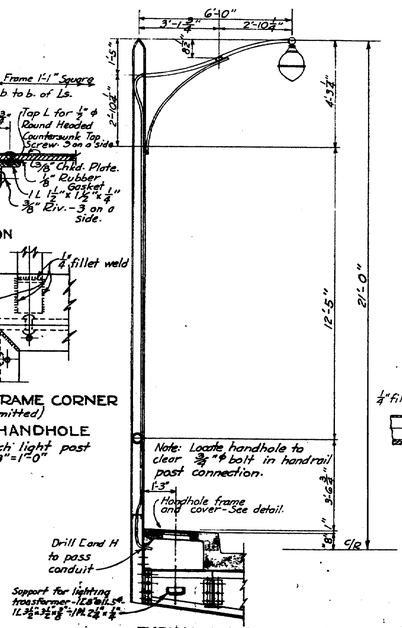
NORTH END, WEST GIRDER, SPAN 23

Scale: ½"=1'-0"

See Sheet No. 17 for connection of girder to column cap plate.

Details of Girders at Pier 13 are similar to those shown above, See Sh. No. 17.

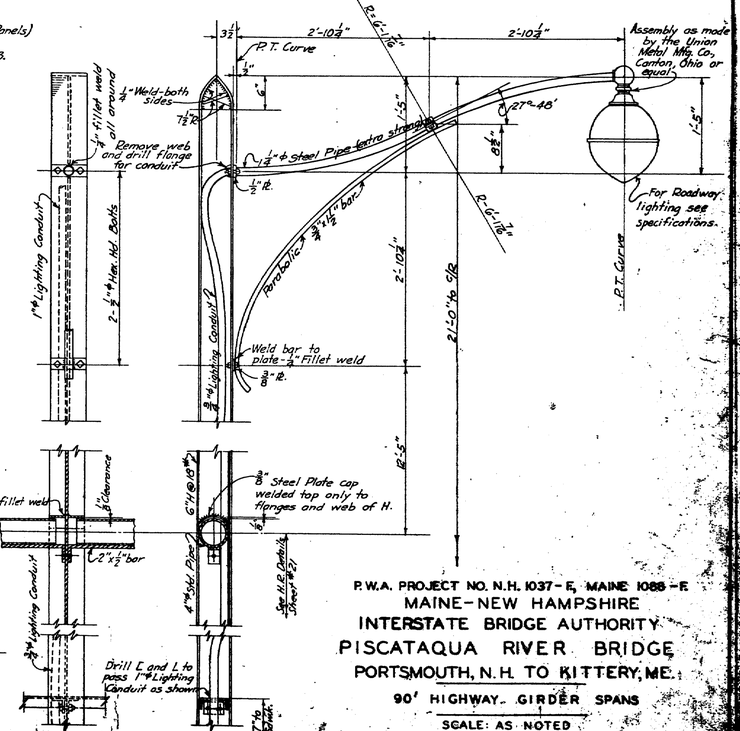




TYPICAL LIGHT POST ON STEEL SPANS

For light poles to be used on abutments, See Specifications.

Scale: ⅜"=1'-0"



DETAILS - LIGHT POST

Scale: 1"=1'-0"

General Notes:

For End Floor Beams see roadway cross-section sheet No. 13.
For Int. " " " " " " " " 13.
For general plan and elevation see sheet No. 1.
All material carbon steel unless noted; s.s. denotes silicon steel.
Rivets: ⅞" ø; Holes, ⅞" ø unless noted.
All medium steel above railroad tracks to be copper bearing.
Sheared edges of all plates more than ½" thick shall be rmilled.
All stiffener angles shall bear top and bottom. See sheet 13 for typical details of Expansion joints. For location of light posts see Sh. #1.

P.W.A. PROJECT NO. N.H. 1037-E, MAINE 1088-E

MAINE-NEW HAMPSHIRE INTERSTATE BRIDGE AUTHORITY

PISCATAQUA RIVER BRIDGE

PORTSMOUTH, N.H. TO KITTERY, ME.

90' HIGHWAY GIRDER SPANS

SCALE: AS NOTED

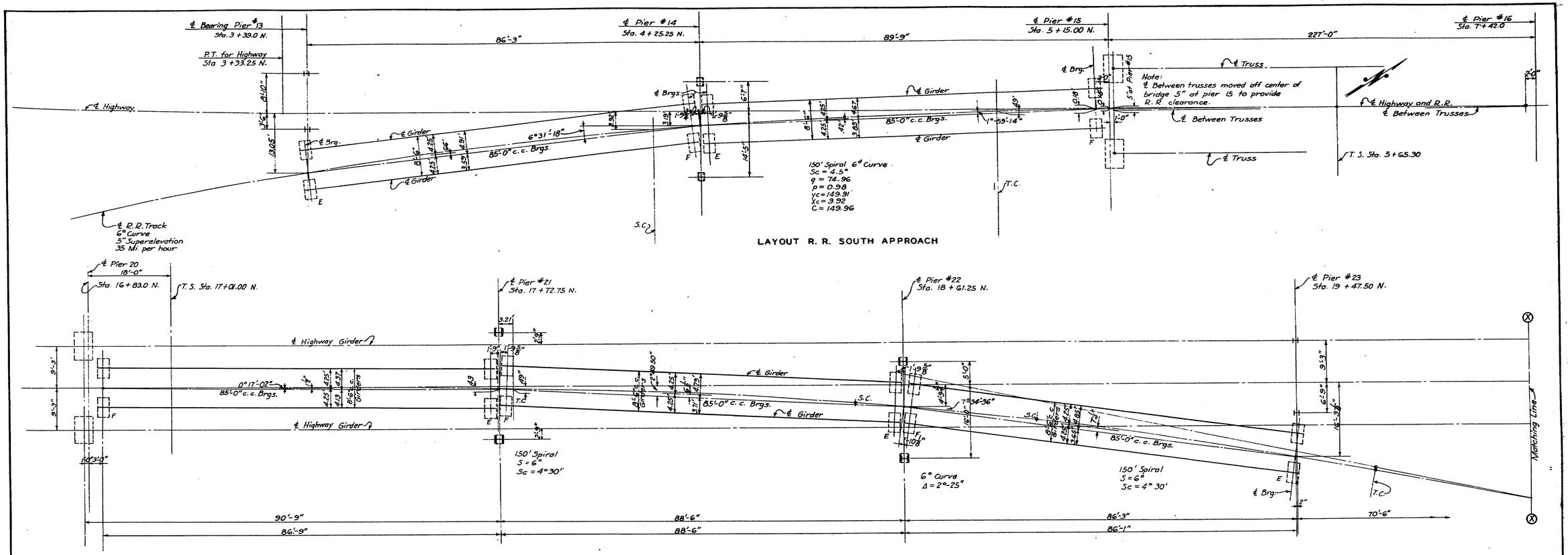
HARRINGTON AND CORTELYOU CONSULTING ENGINEERS KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY GS
TRACED BY L.S.C.
CHECKED BY [illegible] 2-15-49

SHEET NO. 14

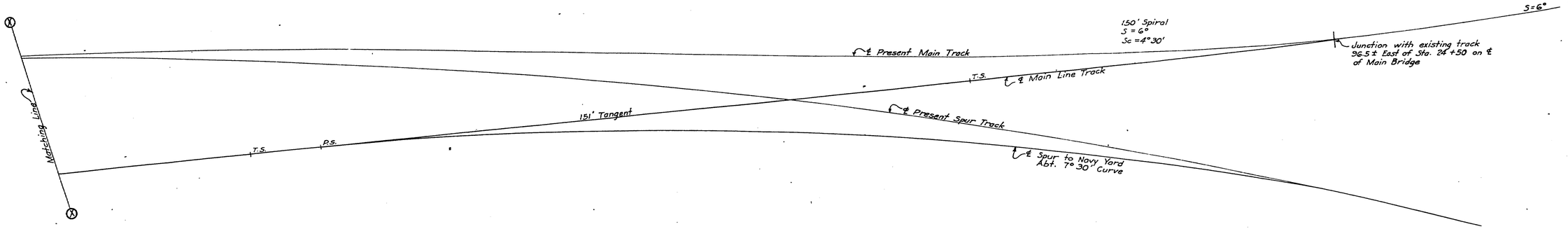
Revised by S.C.O. 7-18-49
Revised, For Const. Roadway Plans

126



LAYOUT R. R. SOUTH APPROACH

LAYOUT R. R. NORTH APPROACH



P.W.A. PROJECT NO. N. H. 1037 - F, MAINE 1088 - F

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY

PISCATAQUA RIVER BRIDGE

PORTSMOUTH, N. H. TO KITTERY, ME.

LAYOUT R. R. APPROACHES

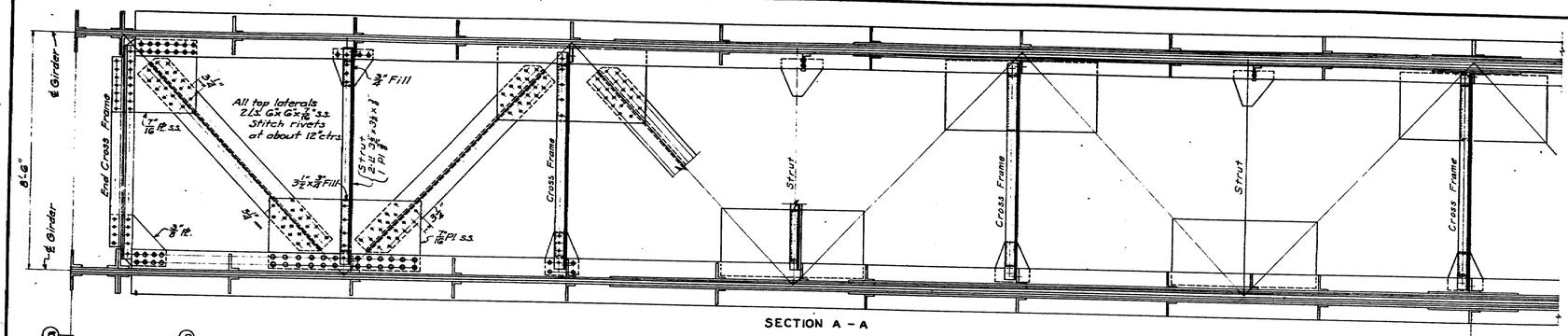
SCALE:

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

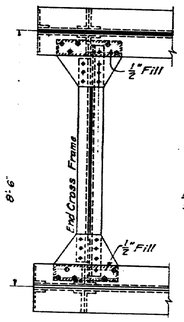
MADE BY J.N.W.
TRACED BY S.F.
CHECKED BY W.E.W 12-23-38

SHEET NO. 15

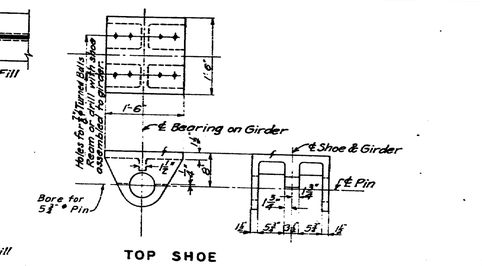
126 - 171



SECTION A - A

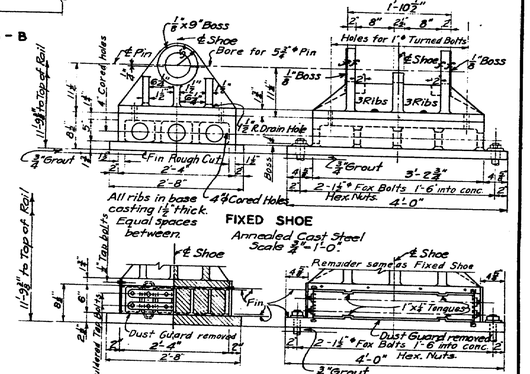


VIEW B - B



TOP SHOE

Annealed Cast Steel
Scale: 3/4" = 1'-0"



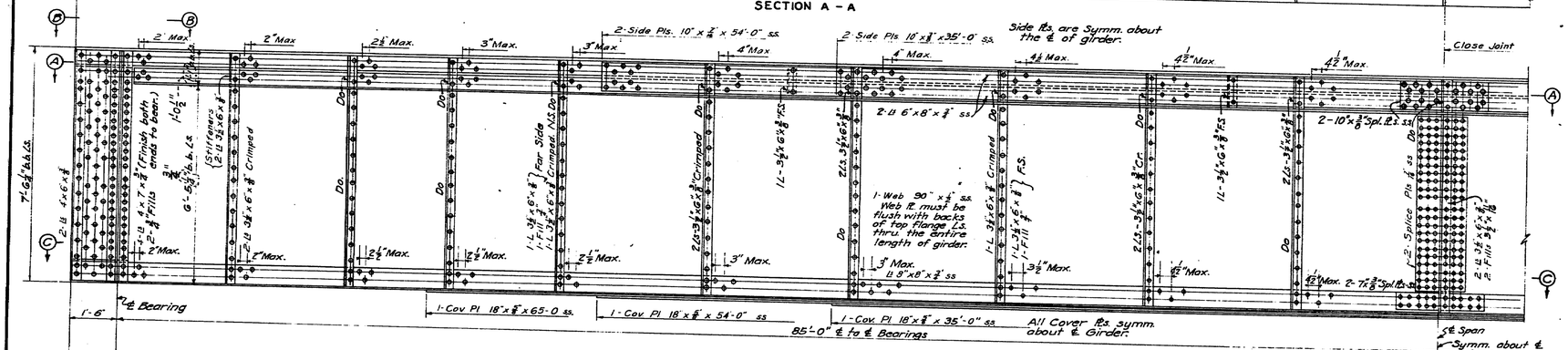
FIXED SHOE

Annealed Cast Steel
Scale 3/4" = 1'-0"

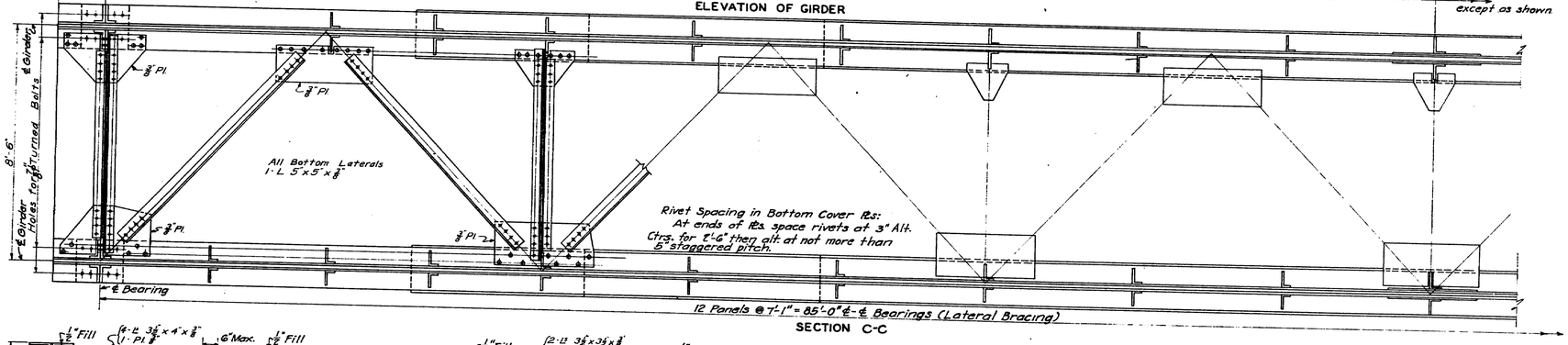
EXPANSION SHOE

Scale: 3/4" = 1'-0".

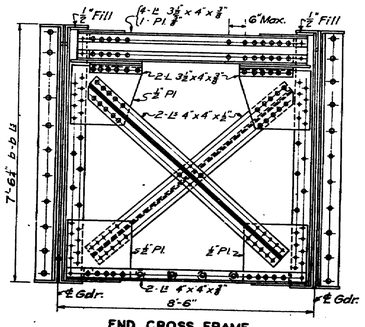
6 Rollers - 6" Fin. Dia. x 3 1/2" } Forged or Rolled Steel.
36" long @ 4" ctrs.
4 Side Bars 2"x 2 1/2" }
4 Tooth Bars 2 1/2" x 3" Finish all over. } Carbon Steel.
4 Dust Guards 7 3/4" x 4 3/4"
1 Base Plate 32" x 2 3/4" x 4'-0" Fin. (1 side)
Note: All fillets on Castings to be 3/4" Rad.
Provide a maximum of 1/32" clearance at bottom of dust guard and at tongues. Tight Fit at corners.



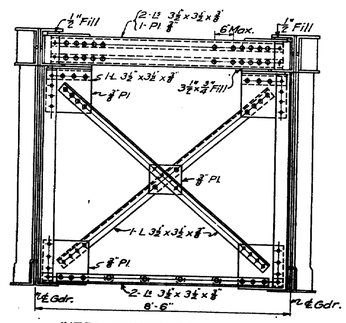
ELEVATION OF GIRDER



SECTION C-C



END CROSS FRAME



INTERMEDIATE CROSS FRAME

General Notes:

All stiffener angles shall be finished to bear top and bottom.

See special note regarding finish of top of web plate on girders.

Material: Carbon steel (Copper Bearing) except shoes and material marked s.s.

s.s. denotes silicon steel.

All rivets 7/8" ϕ, holes 15/16", unless noted otherwise.

Girders shall be cambered for D. L. only.

P.W.A. PROJECT NO. N. H. 1037 - F., MAINE 1088-F

MAINE - NEW HAMPSHIRE INTERSTATE BRIDGE AUTHORITY

PISCATAQUA RIVER BRIDGE

PORTSMOUTH, N. H. TO KITTERY, ME.

85 - 0 RAILWAY GIRDER SPANS

SCALE: 1/2" = 1'-0", UNLESS NOTED

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D. C.

MADE BY C.S.
TRACED BY L.G.C.
CHECKED BY S.G.D. 3-18-39

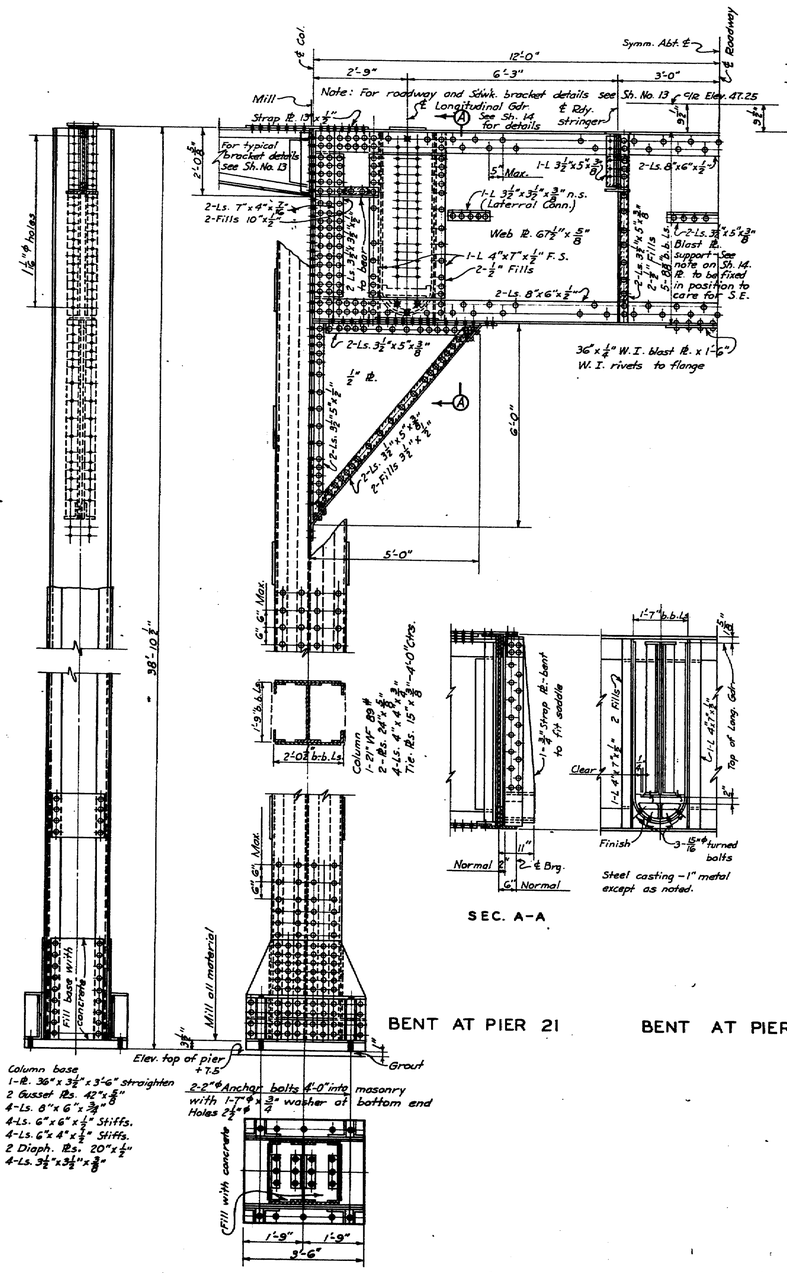
SHEET NO. 18

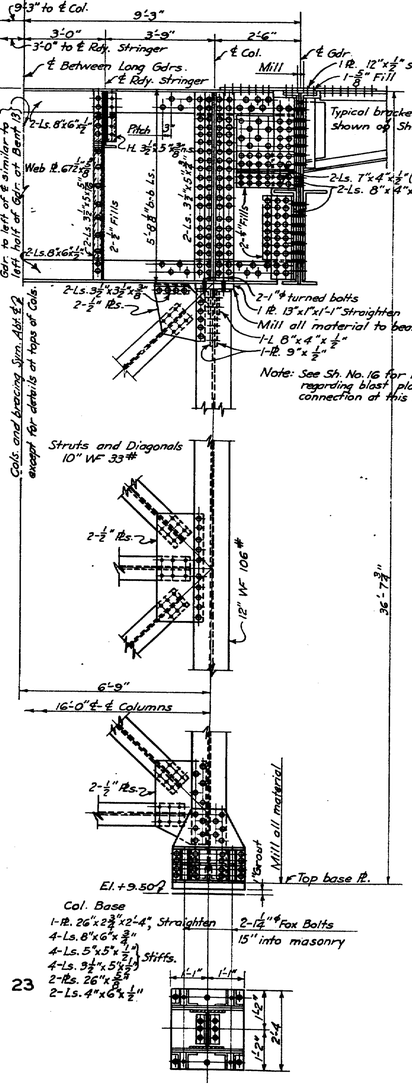
Revised for Govt. Record F.M.C. 8-30-45.
" " " F.M.C. jr. 6-9-65 (2-...)

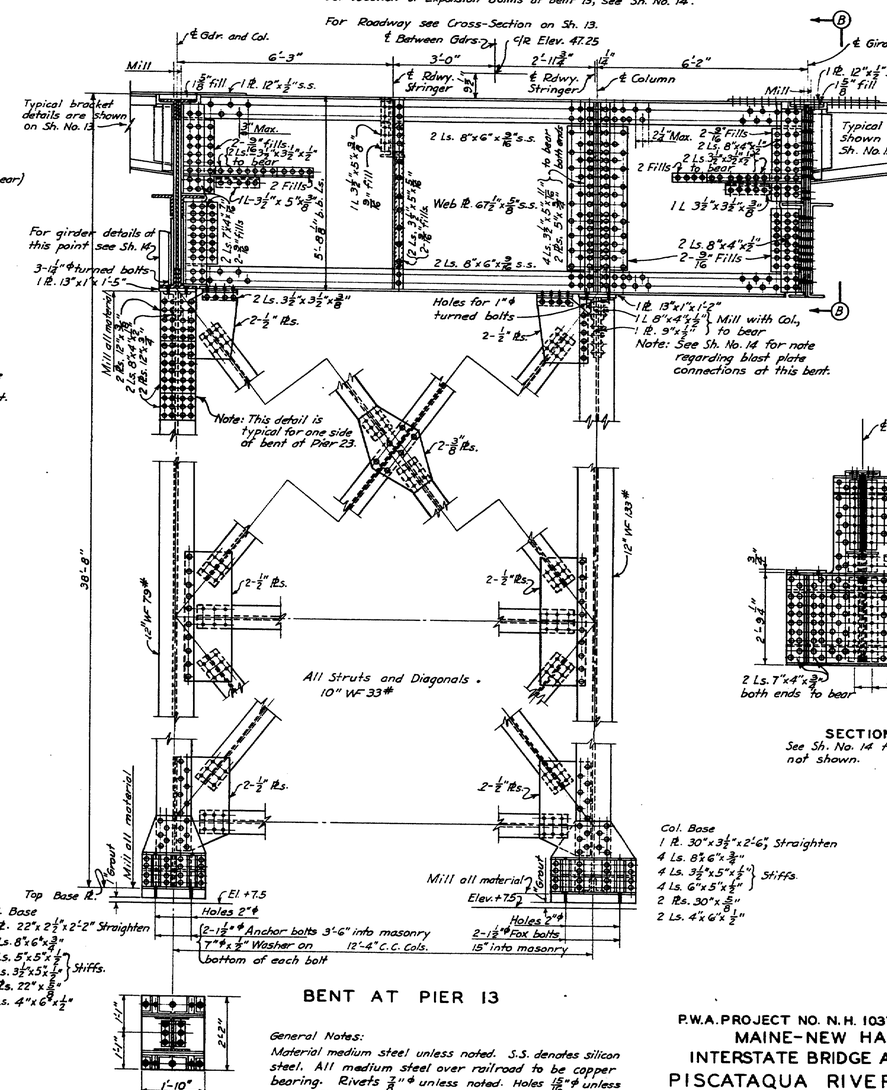
126-172

For typical details of expansion joints see Sh. No. 13 and for location on Bent 23 see Sh. No. 14. See Sh. No. 14 for details of longitudinal girders.

For typical details of Expansion Joints see Sh. No. 13.
For location of Expansion Joints at bent 13, see Sh. No. 14.







SECTION B-B
See Sh. No. 14 for girder details not shown.

Col. Base
1 Pl. 30"x 3 1/2"x 2'-6" Straighten
4 Ls. 8"x 6"x 3/8"
4 Ls. 3 1/2"x 5"x 1/2" } Stiffs.
4 Ls. 6"x 5"x 1/2"
2 Pls. 30"x 5/8"
2 Ls. 4"x 6"x 1/2"

General Notes:
Material medium steel unless noted. S.S. denotes silicon steel. All medium steel over railroad to be copper bearing. Rivets 7/8" ℄ unless noted. Holes 1 1/16" ℄ unless noted. Sheared edges of all plates more than 1/2" thick shall be milled. For details of bents at piers 14, 22, 24, 25 and 26, see Sh. No. 18.

P.W.A. PROJECT NO. N.H. 1037-F., MAINE 1088-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
TOWER BENTS-PIERS 13, 21 & 23

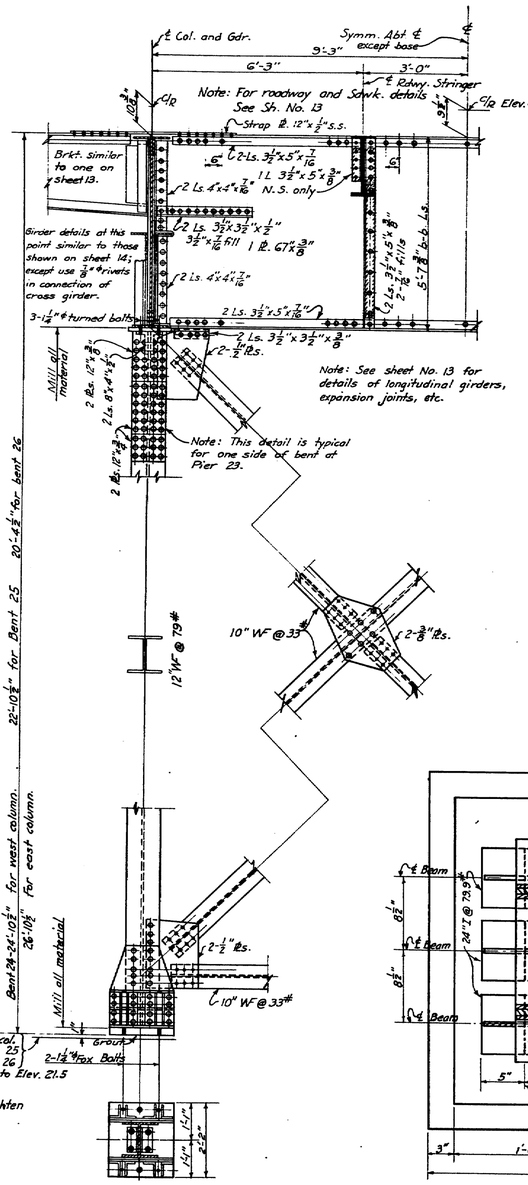
SCALE: 1/2" = 1'-0"

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D. C.

MADE BY G.S.
TRACED BY L.S.F.
CHECKED BY H.C.H. 3-29-39

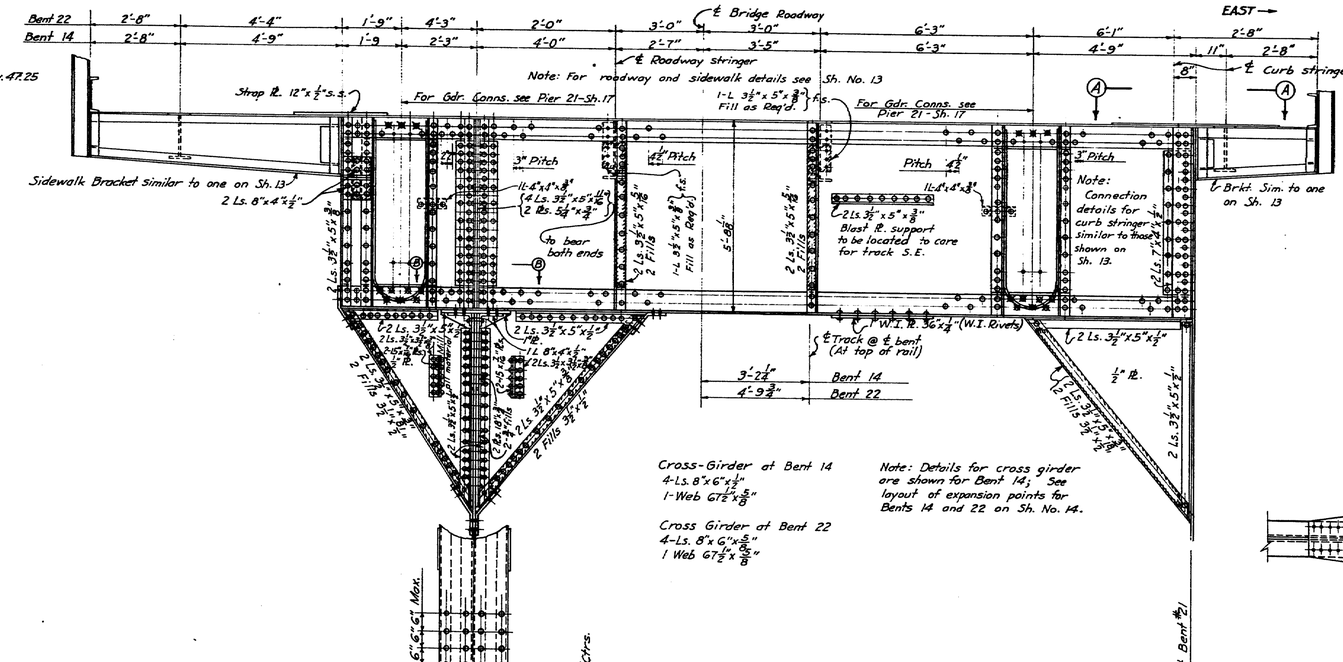
SHEET NO. 17

126-173



For grillage under east column Bent 24, see detail.

BENT AT PIERS 24. 25 & 26

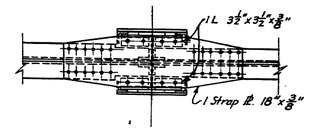


Cross-Girder at Bent 14
4-Ls. 8"x6"x½"
1-Web GT 12"x⅝"

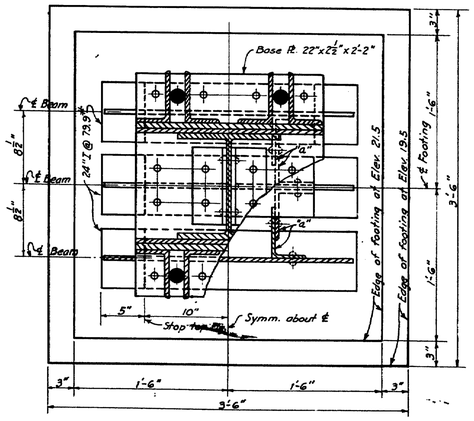
Cross Girder at Bent 22
4-Ls. 8"x6"x⅝"
1 Web GT 12"x⅝"

Note: Details for cross girder are shown for Bent 14; See layout of expansion points for Bents 14 and 22 on Sh. No. 14.

BENT AT PIERS 14 AND 22



SEC. A-A



GRILLAGE UNDER EAST COL.- BENT 24

Details not shown otherwise are the same as those for the west Col.
Angles "a" { 6"x4"x7/16"x1'-0" to be used each side of base and located at ℄ of 24" I. 8 Ls. "a" Req'd.
Scale: 1½"=1'-0"

PART SECTION B-B

Col. base similar to base at Pier 21. Detail on Sh. 17.
Base Pl. 36"x3½"x3'-8".

Note:
See Sh. No. 17 for General Notes covering details on this sheet.

P.W.A. PROJECT NO. N. H. 1037-F. MAINE 1088-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
TOWER BENTS - PIERS 14, 22, 24, 25 & 26

SCALE: ½"=1'-0"

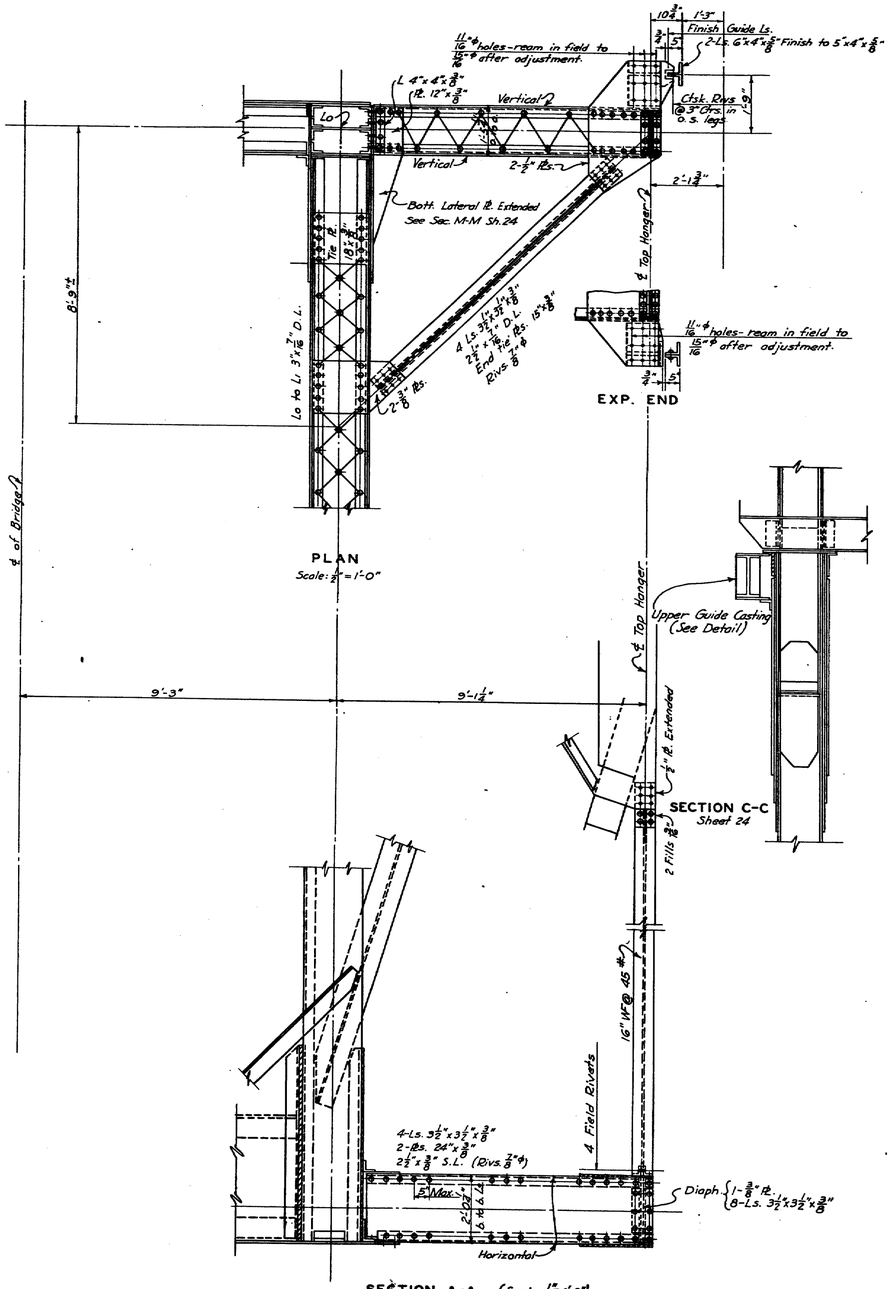
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D. C.

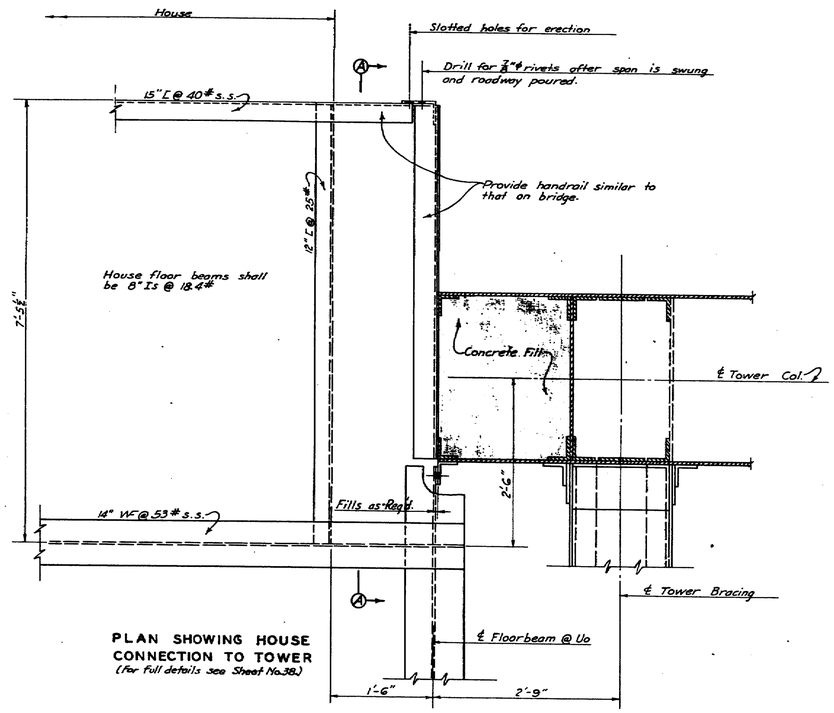
MADE BY C.S.
TRACED BY L.S.F.
CHECKED BY J.C.H. 3-27-39

SHEET NO. 18

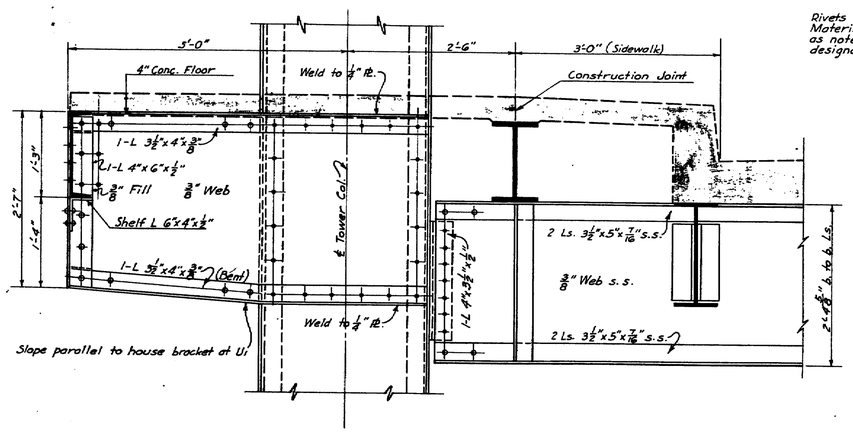
Revised per S.C.D. 4-14-39
Revised for Grant Record 7-7-41. C.D.30-45.

126-174





PLAN SHOWING HOUSE CONNECTION TO TOWER
(For full details see Sheet No. 38.)



SEC. A-A

Rivets ⅞" ϕ
Material carbon steel except as noted. Silicon steel designated as "s.s."

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.

LIFT SPAN GUIDE-SUPPORT

SCALE:

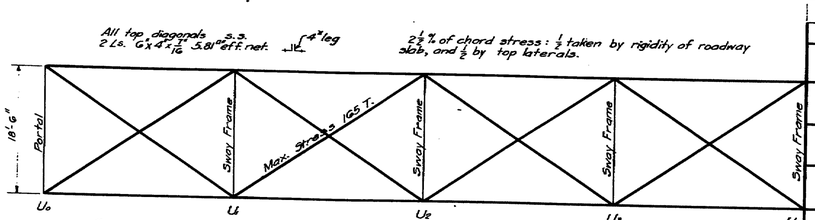
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY V.L.P.
TRACED BY L.S.F.
CHECKED BY [illegible] 4-3-29

Revised for Const. Record P.R.C.B-1045.

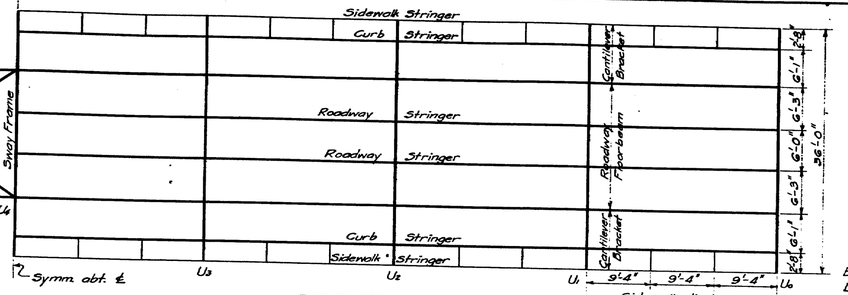
SHEET NO. 19

126-175

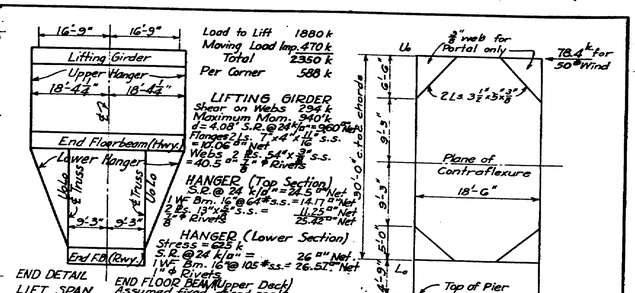


30# Wind Load, with live load, panel concentration 17.4 k

TOP LATERALS



TOP FLOOR SYSTEM



END DETAIL LIFT SPAN

Load to Lift 1880 k
Moving Load Imp. 470 k
Total 2350 k
Per Corner 588 k

LIFTING GIRDER
Shear on Webs 294 k
Maximum Mom. 940'k
d = 4.08 S.R. @ 24 k/in = 980 in²
Flanges 2 Ls. 7"x4"x 11/16" s.s.
= 17.06 in² Net
Webs 2 Pls. 54"x 3/8" s.s.
= 40.5 in² - # Rivets

HANGER (Top Section)
S.R. @ 24 k/in² = 24.5 in² Net
1 W. Bm. 16"@ 64.4 #/ft. s.s. = 14.17 in² Net
2 Pls. 13"x 3/8" s.s. = 11.25 in² Net
Rivets 25.42 in² Net

HANGER (Lower Section)
Stress = 258 k
S.R. @ 24 k/in² = 26 in² Net
1 W. Bm. 16"@ 105 #/ft. s.s. = 26.57 in² Net
Rivets

END FLOOR BEAM (Upper Deck)
Assumed fixed at end posts.
Max. Mom. at End Post

	Axial Stress
D.L. = 52 k	Hanger = 187 k
L.L. & Imp. = 152 k	30# Wind = 36 k
Hanger = 36 k	223 k
30# Wind = 36 k	
140 k	

PORTAL
Detail for Sway Frame similar.

Design Assumptions:
(1) Pt. of contraflexure in the column is midway between the upper and lower brackets.
(2) The shoe is fixed at the top of pier.
(3) The moment of L_0 is divided ¼ to the Floorbeam, ¾ to the shoe.

Max. Mom. in Vertical	= 362 ft.k.
Mom. at L_0	= 560 ft.k.
In Floor Beam	= 140 ft.k.
Mom. at Top of Pier in one shoe	= 605 ft.k.
Transferred Wind	= 82 k.

For 30# wind with live load the stresses are 67% of the above.

Bending in Top Chords:
D.L. 50 Ft.k.
H.W.L.L. 134
Tot. 184 Ft.k.

U_0U_1
D.L. 0
L.L. 0
For Mom. S.R. @ 18.0 = 4.89 in² net

U_1U_3
D.L. GG4C
R.R.L.L. 8.33
Sdwk. 37
H.W.L.L. 236
Tot. 1710C
f = 18.53 #/in² f = 19.34 #/in² allowed

U_3U_4
D.L. 884C
R.R.L.L. 1087
Sdwk. 49
H.W.L.L. 310
Tot. 2330C
f = 19.01 #/in² f = 19.39 #/in² allowed

a. 2 Pls. 28"x ⅜"	42.00 in²	a. 2 Pls. 28"x ⅜"	42.00 in²
b. 2 Pls. 28"x ⅜"	42.00	b. 2 Pls. 28"x ⅜"	42.00
d. 2 Ls. 4"x4"x ⅜"	7.50 C.	d. 2 Ls. 4"x4"x ⅜"	7.50
e. 1 Cov. Pl. 18"x ⅜"	C.75	e. 1 Cov. Pl. 18"x ⅜"	C.75
f. 2 Ls. 8"x4"x ⅜" s.s.	16.88	f. 2 Ls. 8"x4"x ⅜" s.s.	16.88
	143.13 in²		115.13 in²

a. 2 Pls. 28"x ⅜"	21.00 in²		
d. 2 Ls. 4"x4"x ⅜"	5.72		
e. 1 Cov. Pl. 18"x ⅜"	6.79		
f. 2 Ls. 4"x4"x ⅜" c.s.	5.72		
	39.19 in²		

a. 2 Pls. 28"x ⅜"	21.00 in²		
b. 2 Pls. 28"x ⅜"	21.00		
d. 2 Ls. 4"x4"x ⅜"	5.72		
e. 1 Cov. Pl. 18"x ⅜"	6.79		
f. 2 Ls. 4"x4"x ⅜" c.s.	5.72		
	60.24 in²		

U_0L_0
Piers 16 to 19 Except Lift Span
D.L. 47 c
L.L. 80
H.W.L.L. 80
Tot. 194 c

U_0U_1
D.L. 5G2C
R.R.L.L. 72.4
Sdwk. 20.4
H.W.L.L. 139.6
Tot. 232.4C
S.R. @ 18.25 = 84.0 in² gr.

U_1L_1
D.L. 405 T.
R.R.L.L. 85.4
Sdwk. 24
H.W.L.L. 179.3
Tot. 693.7T.
S.R. @ 240 - 13.53 in² net

L_0L_1
D.L. 37 T.
R.R.L.L. 288
Tot. 325 T.
S.R. @ 240 - 4.76 in² net

U_1L_2
D.L. 82C
R.R.L.L. 11
H.W.L.L. 17.3
Tot. 110C
S.R. @ 13.35 = 12.70 in² gr.

L_1L_2
D.L. 243C
Sdwk. 39.9
H.W.L.L. 11.9
Tot. 294.8C
S.R. @ 17.32 = 43.4 in² gr.

U_2L_2
D.L. 387 T.
R.R.L.L. 501
Sdwk. 21
H.W.L.L. 138
Tot. 1047 T.
S.R. @ 240 = 43.6 in² net.

Where lateral and longitudinal forces are combined with dead and live loads, 25% increase in unit stress is allowed.

U_2U_3 Same as U_1L_1

L_2L_3
D.L. 830 T.
R.R.L.L. 103.9
Sdwk. 4.6
H.W.L.L. 28.9
Tot. 2204 T.
S.R. @ 240 = 91.7 in² net.

U_3U_4 Same as U_1L_1

U_3L_3
D.L. 81T
R.R.L.L. 10.1
H.W.L.L. 2.7
Tot. 194C
S.R. @ 45.6 in² Laced
S.R. @ 240 = 21.4 in² net.

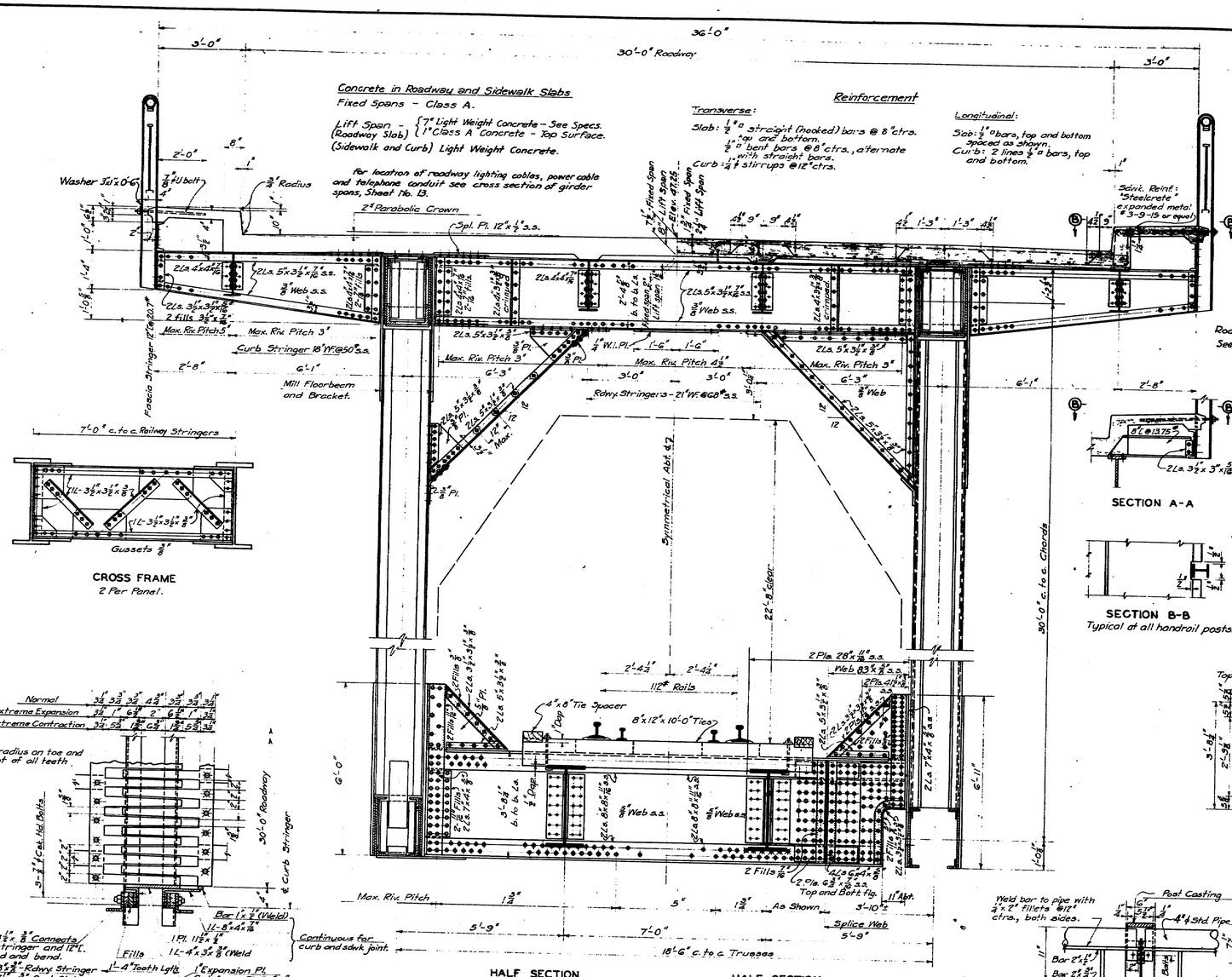
L_3L_4
2 Ls. - 18"@ 45.6 in² Laced
26.7 G. on 20"
2 Ls. - 18"@ 25.4 in² Laced
14.4 G. on 20"

U_4L_3 Same as U_1L_1

L_3L_2
4 Ls. 4"x4"x ⅜"
2 Pls. 20"x ⅜"
Net 12.82 in²
18.44 in²
49.12
67.56 in²
Gr. 24.67
47.56

U_3L_2
4 Ls. 4"x4"x ⅜"
2 Pls. 24"x ⅜"
Gr. 21.76 in²
T2.00
F2.50 in²
116.26 in²
Net 15.01 in²
58.50
19.12
92.63 in²

L_2L_1
Gr. 21.76 in²
Net 15.01 in²
Gr. 24.67
Net 17.66
Gr. 21.84
Net 14.44
Gr. 21.84
Net 14.44
Gr. 21.84
Net 14.44



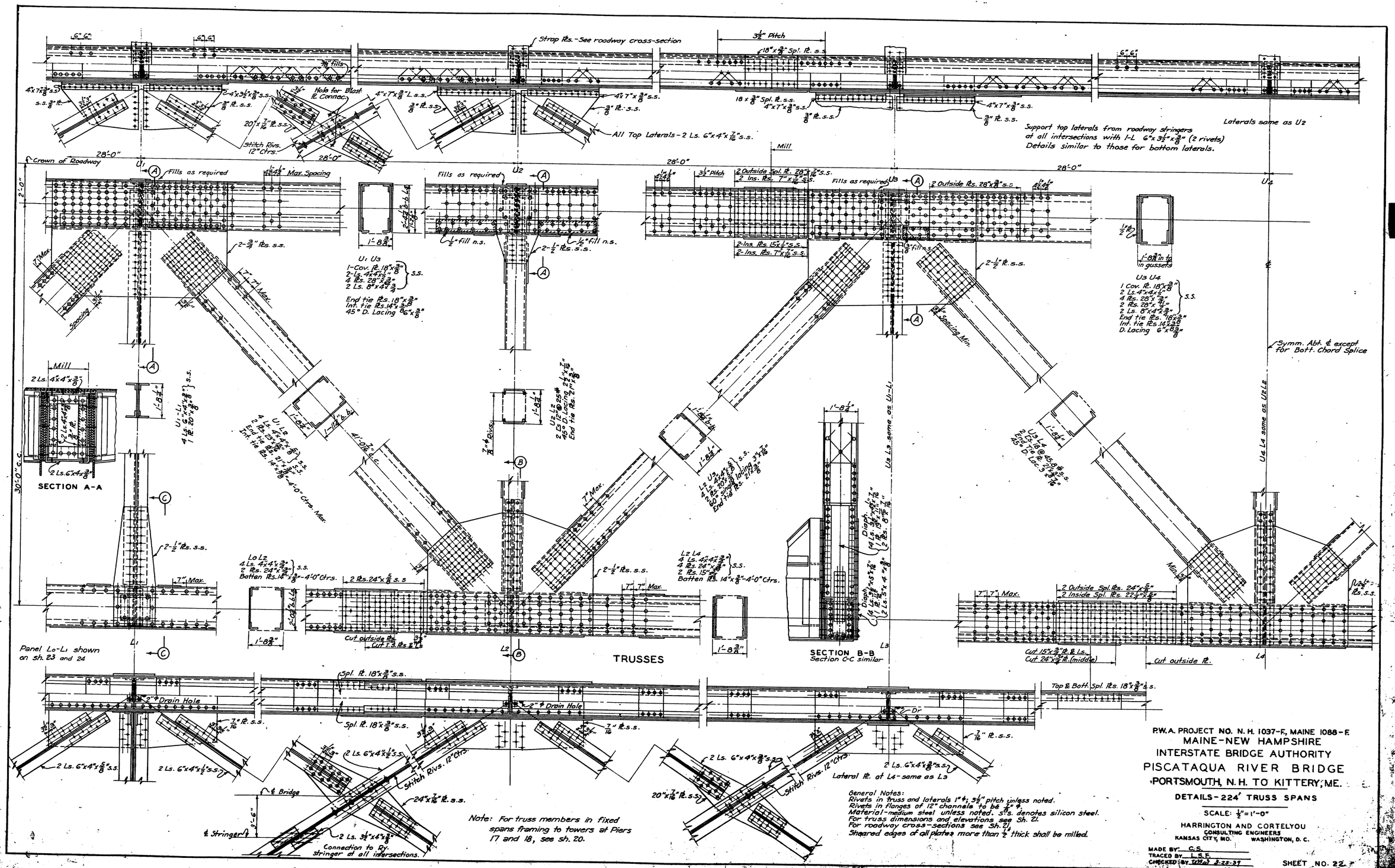
General Notes:
⅞" ø rivets in roadway floor system, and railway floorbeams and stringers; ¾" ø rivets in truss connections. Material shall be medium steel unless noted. Silicon steel designated as s.s. Medium steel parts of roadway floorbeams, roadway stringers, sway frames, top laterals and blast plate supports, shall be copper bearing. Sheared edges of all plates more than ½" thick shall be milled.

P.W.A. PROJECT NO. N. H. 1037-F., MAINE 1088-F.
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N. H. TO KITTERY, ME.
CROSS SECTION - TRUSS SPANS
SCALE: ½" or as noted.

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY V.L.P.
TRACED BY F.M.C.Jr.
CHECKED BY V.L.P. 3-30-39
REVISED BY V.L.P. 7-11-39
Revised for Const. Board of Public Works

SHEET NO. 23
126-177



General Notes:
Rivets in truss and laterals 1" ϕ; 3½" pitch unless noted.
Rivets in flanges of 12" channels to be ⅞" ϕ.
Material-medium steel unless noted. S.S. denotes silicon steel.
For truss dimensions and elevations see Sh. 21.
For roadway cross-sections see Sh. 21.
Sheared edges of all plates more than ½" thick shall be milled.

P.W.A. PROJECT NO. N. H. 1037-F, MAINE 1088-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.

DETAILS-224' TRUSS SPANS

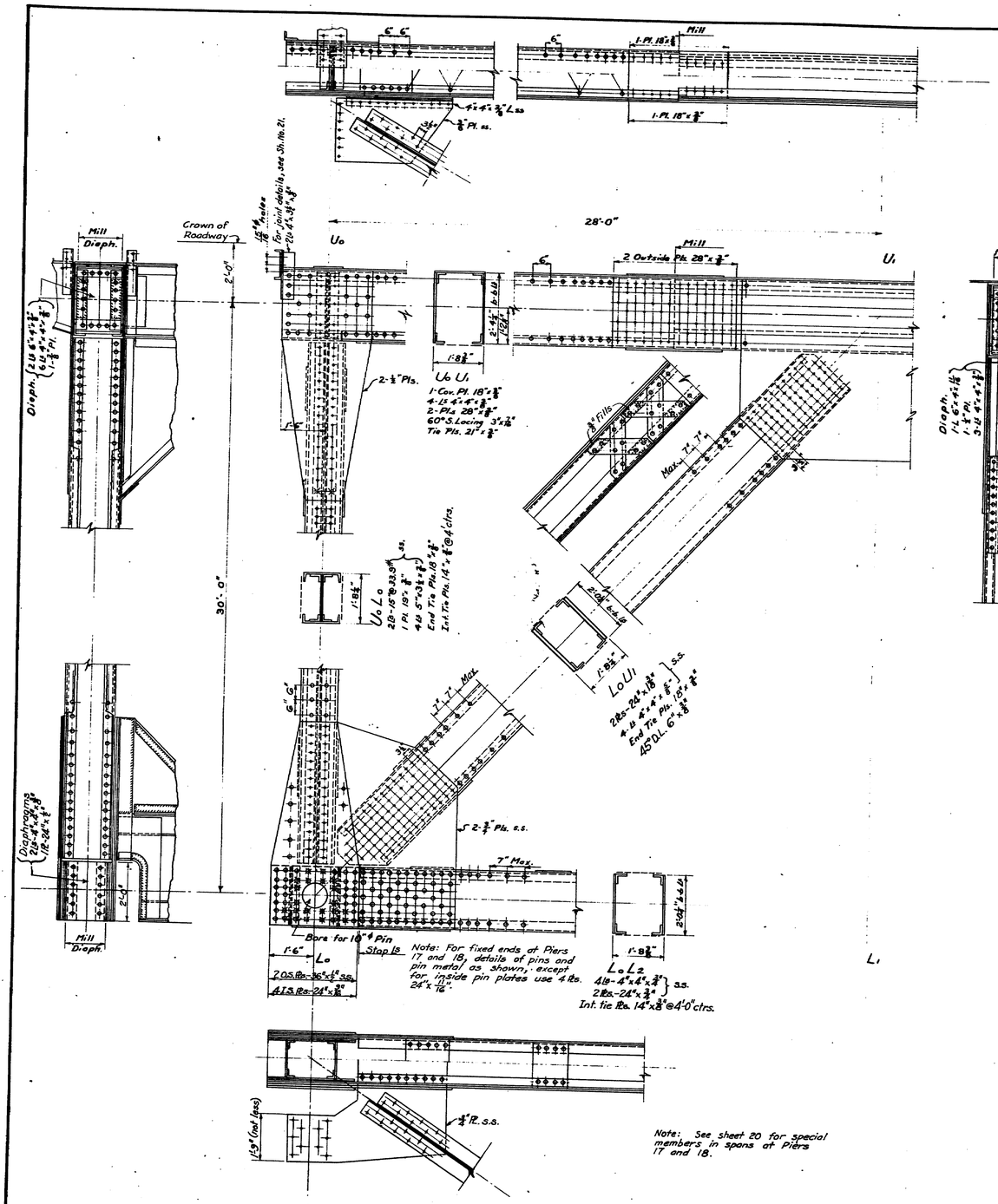
SCALE: ½"=1'-0"

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D. C.

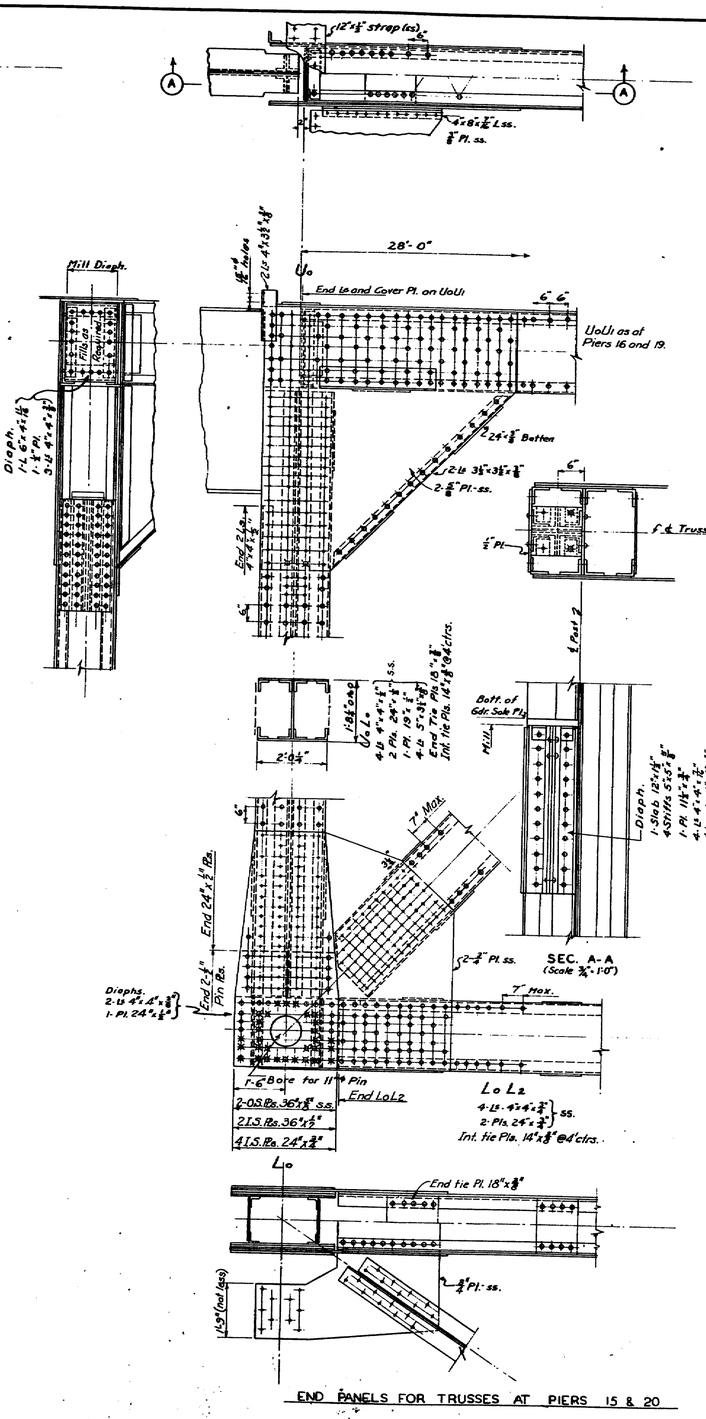
MADE BY: C.S.
TRACED BY: L.S.F.
CHECKED BY: [illegible] 3-25-39

SHEET NO. 22

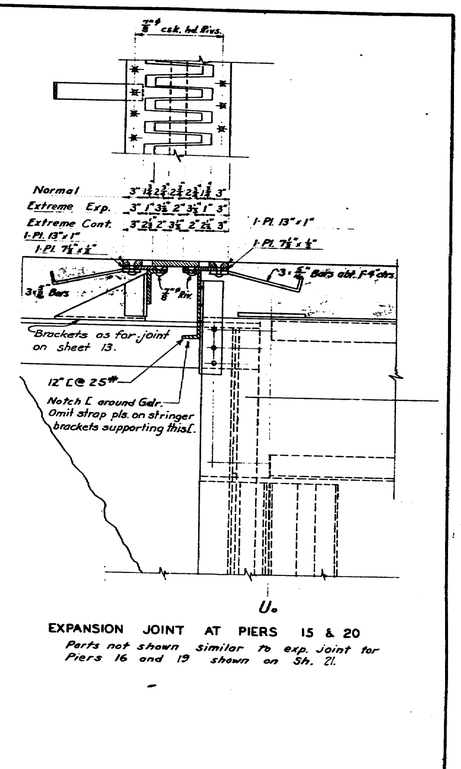
126-178



END PANELS FOR TRUSSES AT PIERS 16 & 19
END PANELS FOR LIFT SPAN, *Except as modified on Sh. No. 24*



END PANELS FOR TRUSSES AT PIERS 15 & 20



EXPANSION JOINT AT PIERS 15 & 20

Parts not shown similar to exp. Joint for Piers 16 and 19 shown on Sh. 21.

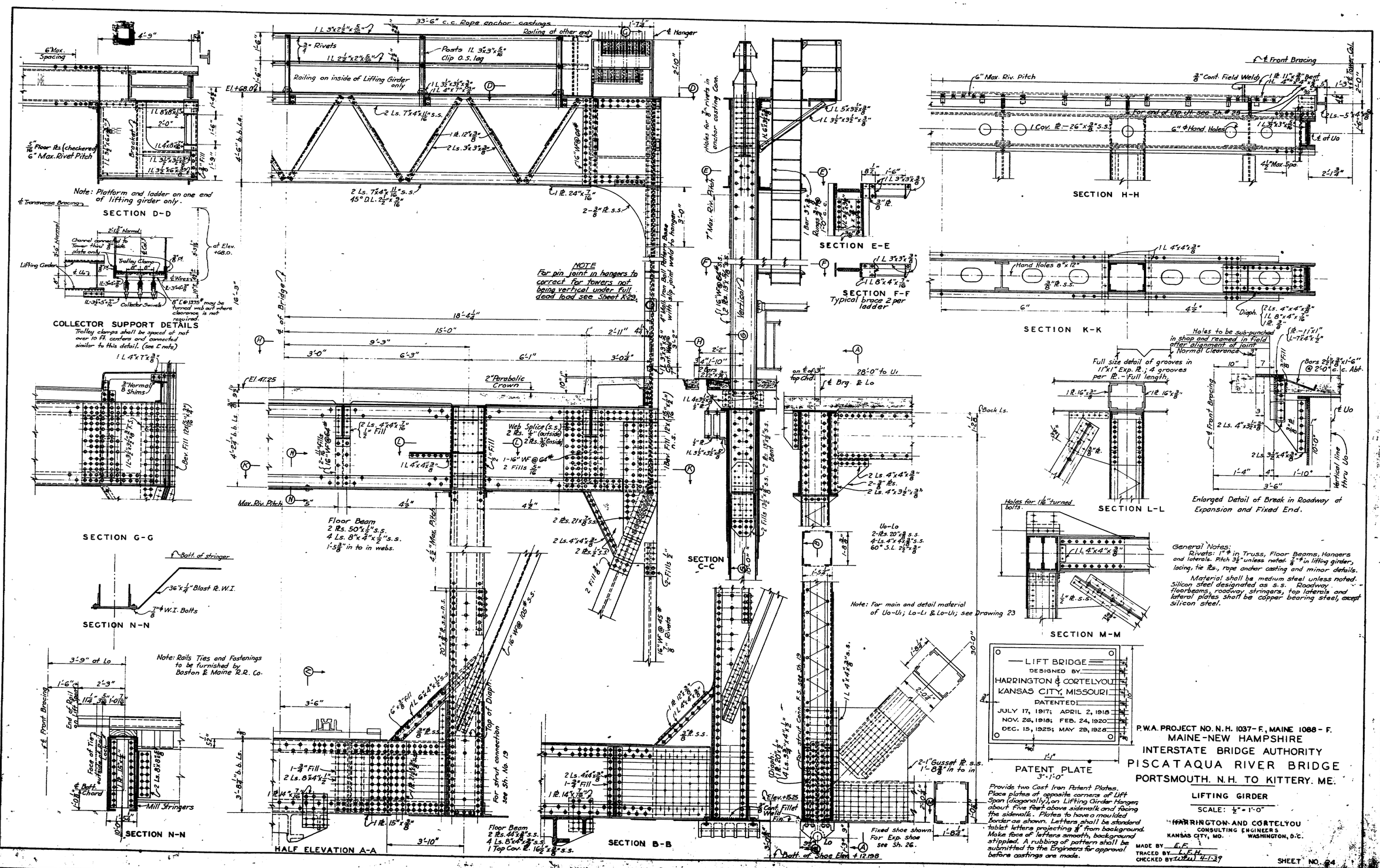
Gen. Notes:
Rivets in Truss and Laterals 1⅛" ø, pitch 3⅛" unless noted.
Rivets for expansion Joint ⅞" ø.
Material medium steel unless noted. SS denotes silicon steel.
For Truss dimensions and elevations see sh. 21.
For roadway cross section see sh. 21.
For remainder of Truss sections see sh. 22.
Sheared edges of all plates more than ½" thick shall be milled.

P.W.A. PROJECT NO. N.H. 1037-F, MAINE 1088-F.
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
END DETAILS - TRUSS SPANS
SCALE: ½"=1'-0"

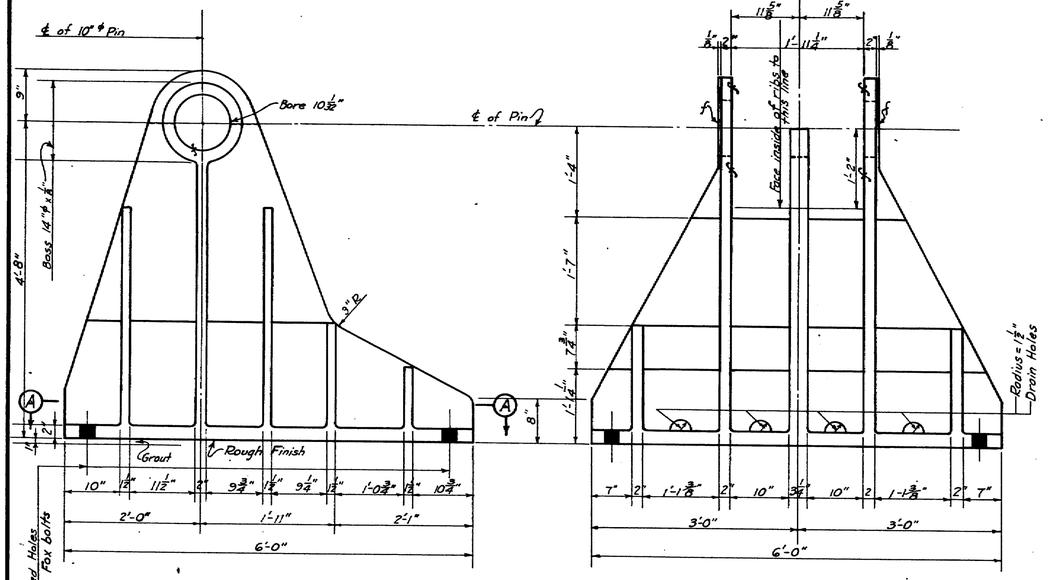
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY C.S.
TRACED BY L.P.M.
CHECKED BY [illegible] 5-27-39

SHEET NO. 23.
126-17

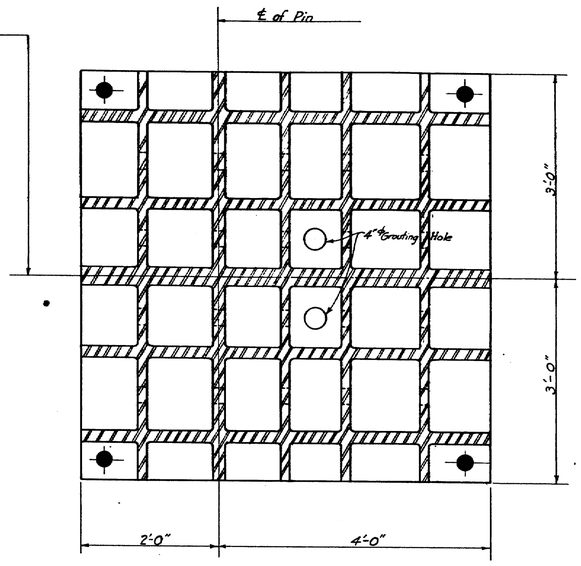


SECTION D-D
Note: Platform and ladder on one end of lifting girder only.
COLLECTOR SUPPORT DETAILS
Trolley clamps shall be spaced at not over 10 ft. centers and connected similar to this detail. (See C note)
SECTION G-G
SECTION N-N
Note: Rails Ties and Fastenings to be furnished by Boston & Maine R.R. Co.
HALF ELEVATION A-A
Floor Beam
2 Pls. 50"x1/2"s.s.
4 Ls. 8"x4"x1/2"s.s.
1'-5 3/8" in to in webs.
NOTE
For pin joint in hangers to correct for towers not being vertical under full dead load see Sheet K-29.
SECTION B-B
SECTION C-C
SECTION E-E
SECTION F-F
Typical brace 2 per ladder
SECTION H-H
SECTION K-K
SECTION L-L
SECTION M-M
Enlarged Detail of Break in Roadway at Expansion and Fixed End.
Note: For main and detail material of Uo-U1; Lo-L1 & Lo-U1; see Drawing 23
General Notes:
Rivets: 1" ϕ in Truss, Floor Beams, Hangers and laterals. Pitch 3 1/2" unless noted. 7/8" ϕ in lifting girder, lacing, tie Pls., rope anchor casting and minor details.
Material shall be medium steel unless noted. Silicon steel designated as s.s. Roadway floorbeams, roadway stringers, top laterals and lateral plates shall be copper bearing steel, except silicon steel.
LIFT BRIDGE
DESIGNED BY
HARRINGTON & CORTELYOU
KANSAS CITY, MISSOURI
PATENTED:
JULY 17, 1917; APRIL 2, 1918
NOV. 26, 1918; FEB. 24, 1920
DEC. 15, 1925; MAY 29, 1928
PATENT PLATE
3"=1'-0"
Provide two Cast Iron Patent Plates. Place plates at opposite corners of Lift Span (diagonally), on Lifting Girder Hanger, about five feet above sidewalk and facing the sidewalk. Plates to have a moulded border as shown. Letters shall be standard tablet letters projecting 1/8" from background. Make face of letters smooth, background stippled. A rubbing of pattern shall be submitted to the Engineers for approval before castings are made.
P.W.A. PROJECT NO. N.H. 1037-F., MAINE 1088-F.
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH. N.H. TO KITTERY. ME.
LIFTING GIRDER
SCALE: 1/2"=1'-0"
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.
MADE BY E.F.
TRACED BY L.F.H.
CHECKED BY
SHEET NO. 24
126-180

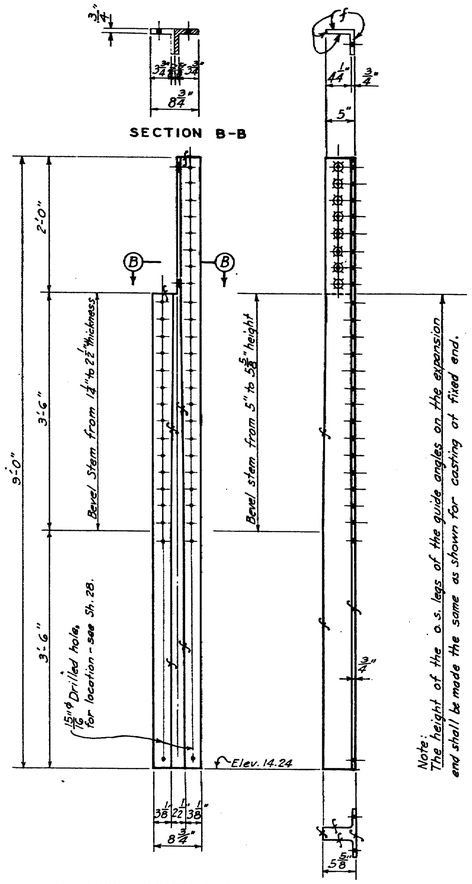


END ELEVATION

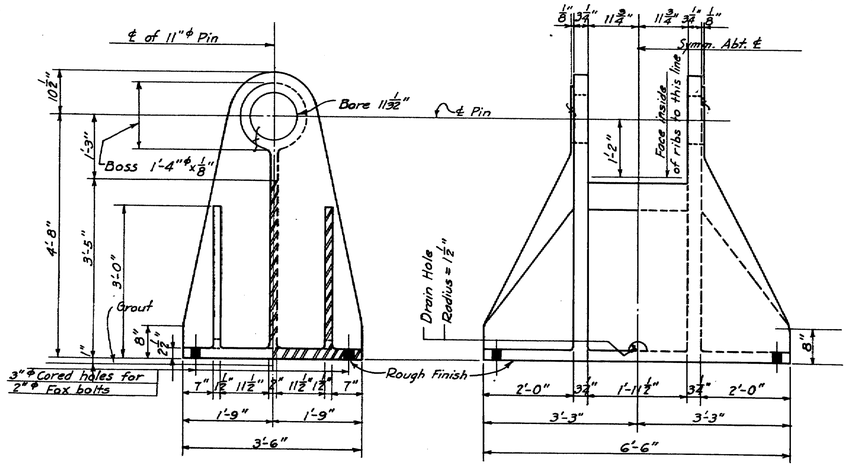
SIDE ELEVATION
FIXED SHOES-TRUSS SPANS-PIERS 17 AND 18
Scale: 1"=1'-0"
4 Shoes Required



SECTION A-A

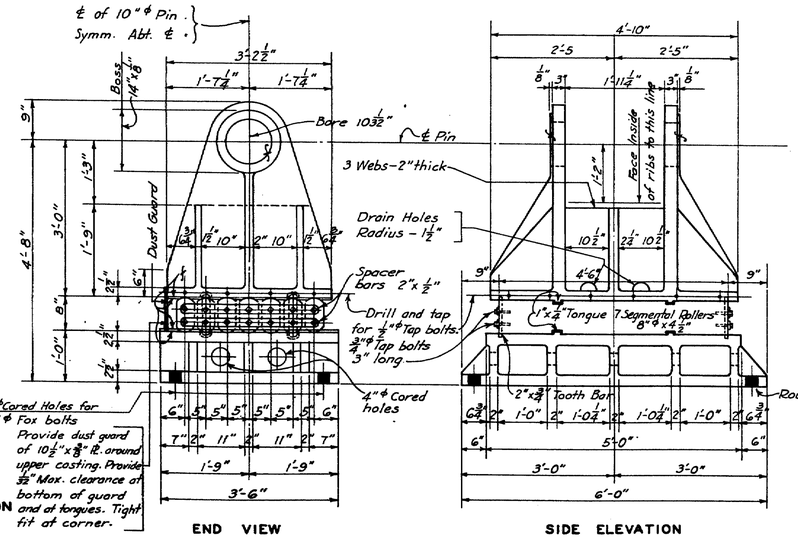


SPAN GUIDE CASTING FOR TOWER AT FIXED END
(See note for expansion end)
Scale: 1"=1'-0"



HALF END VIEW HALF SECTION AT ℄ HALF SIDE ELEV. HALF TRANSVERSE SECTION AT ℄

FIXED SHOES-TRUSS SPANS-PIERS 15 AND 20
4 REQ'D.
Scale: 3/4"=1'-0"



END VIEW SIDE ELEVATION

EXPANSION SHOES-TRUSS SPANS-PIERS 16 AND 19
Scale: 3/4"=1'-0"

Note:
Fox bolts and nuts shall be structural carbon steel. All fox bolts shall extend 12" into masonry and each bolt shall have a 3/4" cut washer and one nut.
All castings shall be cast steel, annealed.
All pins shall be forged steel, annealed.
All finished material shall be coated with white lead and tallow in the shop.
Fillets on castings shall be 3/4".

P.W.A. PROJECT NO. N.H. 1037-F MAINE 1088-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
TRUSS SHOES AND GUIDE CASTINGS
SCALE: AS NOTED

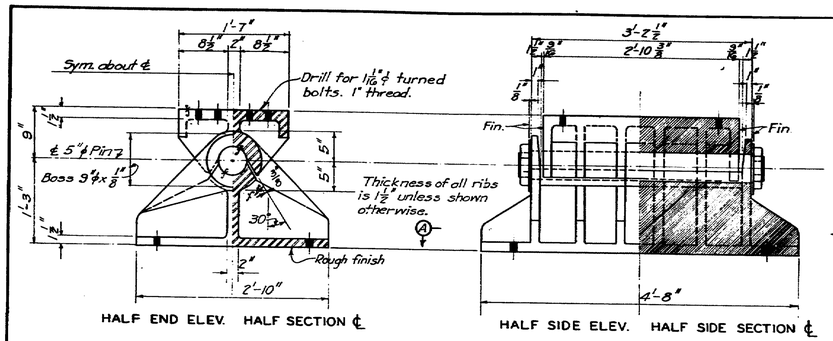
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY H.K.
TRACED BY L.S.F.
CHECKED BY A.C.B. 3-15-39

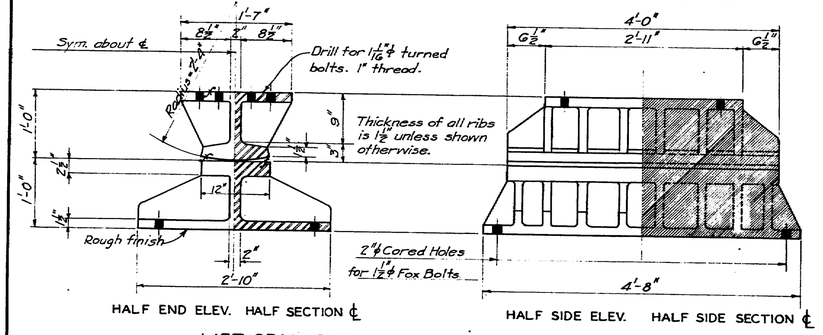
SHEET NO. 25

Dust Guard(s) and Fox Bolts) Revised 3-15-39 S.C.D.

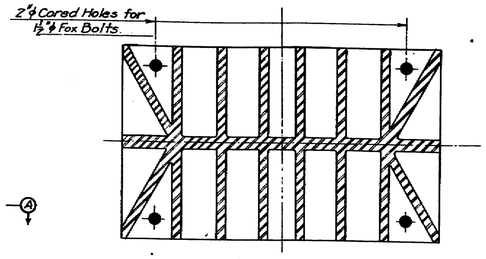
126-181



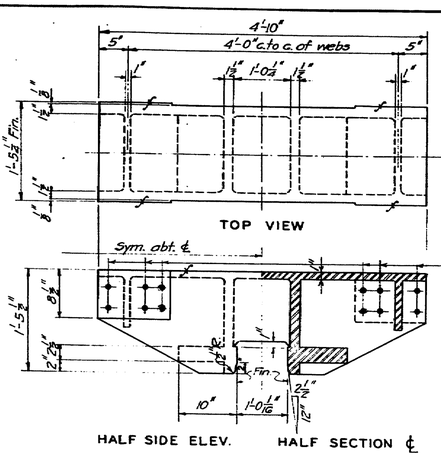
LIFT SPAN SHOE CASTING - FIXED END - PIER 18



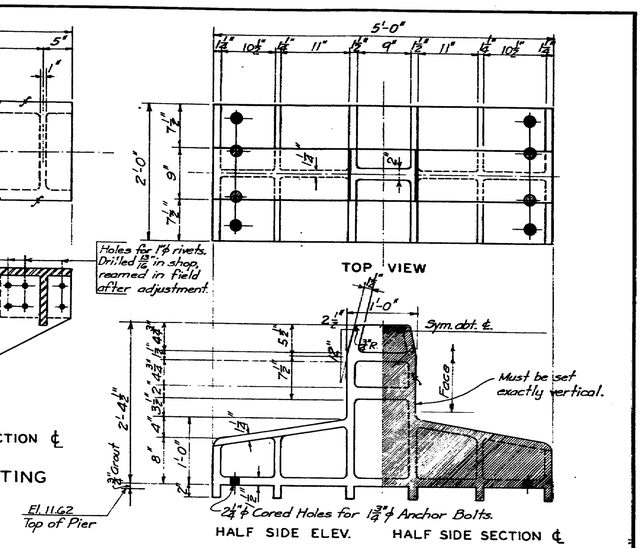
LIFT SPAN SHOE CASTING - EXPANSION END - PIER 17

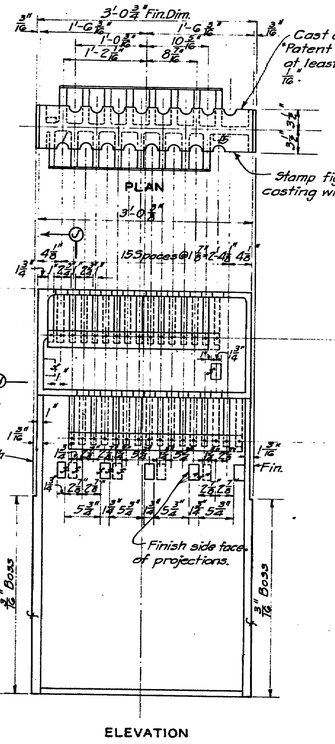


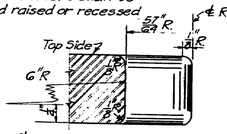
SECTION A-A

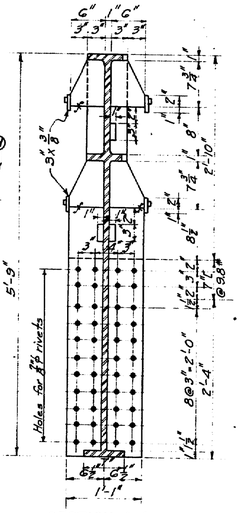


UPPER CENTERING CASTING



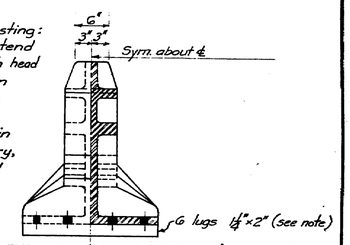




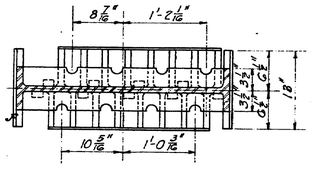


ROPE ANCHOR CASTING
Cast Steel
4 Reqd. for Lifting Girder
4 Reqd. for Counterweight

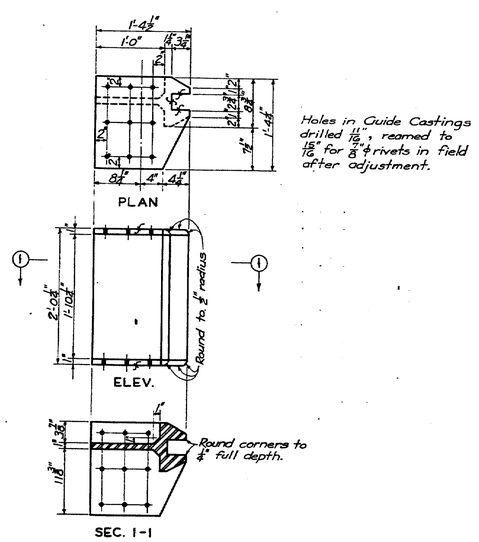
Notes for Centering Casting:
Anchor bolts shall extend 4'-0" into masonry, with head and 8"x3"x3"x⅝" washer on bottom, nut and lock washer on top.
Lugs shall be set in grooves in the masonry, and carefully grouted after adjustment.



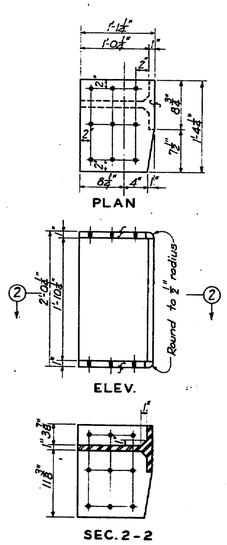
LOWER CENTERING CASTING



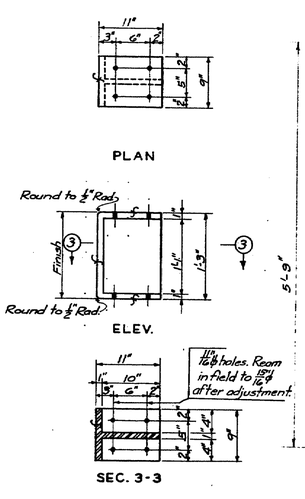
Note: All castings on this sheet shall be cast steel, annealed. All pins shall be forged steel, annealed. All fox bolts shall extend 12" into masonry and have a ½" washer and one nut each. All finished surfaces shall be coated with white lead and tallow in the shop.



LIFT SPAN GUIDE CASTING
FIXED END
AT L0



LIFT SPAN GUIDE CASTING
EXPANSION END
AT L0



LIFT SPAN GUIDE CASTING
AT L10

P.W.A. PROJECT NO. N. H. 1037-F., MAINE 1088-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
SHOES. GUIDES. ROPE ANCHOR AND CENTERING CASTINGS
SCALE: 1" = 1'-0"

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D. C.

MADE BY H.O.A.K.
TRACED BY L.F.H. & F.M.G.
CHECKED BY [illegible] 4-1-39

SHEET NO. 26.

126-182

LONGITUDINAL SHEAVE GIRDERS

Bearing Load 667K Uniform Load 600#/'
Reactions: Front Column 594K Rear Column 87K
Web Req'd @ 11 K/□" Fr. Col. = 54.0□" • • = 7.9□"
Used: Web 51 x 5/8 • • = 31.88□" • • = 31.88□"
2-Pls. 34 x 5/8 • • 42.50 • • 0
74.38□" 31.88□"
Extend 34 x 5/8 Pls. from ℄ Bearing to front end of gdrs.
Mom. = 881'K d = 46.8" S.R. @ 18K = 12.5□" net

BOTTOM FLANGE
1/8 web = 4.00□" net
2 Ls 8 x 8 x 5/8 = 19.22□" gross = 14.22□" •
18.22□" •
TOP FLANGE
1/8 web = 4.00□"
2 Ls 8 x 8 x 5/8 = 19.22□" gross

Stiffeners: Effective bearing area required
At sheave bearing 24.9□"
At front bearing 22.0□"
At rear bearing 3.2□"

LONGITUDINAL BRACING

Diagonals above point G
Max. Stress ℓ r ℓ/r fc. allow ft. allow
157K T or C 208" 2.43" 85.5 13.18 K/□" 18 K/□"
Section 4 Ls 5 x 3½ x 3/8 = 12.20□" gross = 9.20□" net
7/16" Batten Pls.
Stress value = 161K C. or 166K T.
2'-4½"± Battens must clear elevator well.
End connection 20 rivets.

Diagonals between points D and G
Max. Stress ℓ r ℓ/r fc. allow ft. allow
183K T or C 208" 2.97" 70 13.77 K/□" 18 K/□"
Section 4 Ls 6 x 3½ x 3/8 = 13.68□" gross = 10.68□" net
7/16" Batten Pls.
Stress value = 188K C or 192K T.
2'-4½"± Battens must clear elevator well.
End connection 24 rivets.

Diagonals below point D
Max. Stress ℓ r ℓ/r fc. allow ft. allow
388K T or C 198" 5.24" 38" 14.64 K/□" 18.0 K/□"
Section 2-15" [@ 50# = 29.28□" gross = 21.03□" net
7/16" Batten Pls.
Stress value = 428K C or 378K T
End connection 48 rivets.
2'-4½"±

Horizontal at point D
Max. Stress ft. allow
288K T, 288K C, 133K Wind 18.0 K/□"
Section
3/4" Batt. 8 Ls 4" x 3½" x ½" = 28.00□" gross = 20.00□" net.
Sec. Reqd. 18.70□" Net
3/8" Batt. 2'-4½"

Horizontal Struts at point E and above.
Max. Stress ℓ r ℓ/r fc. allow ft. allow
117 T or C 147" 1.90" 77.5" 13.50 K/□" 18.0 K/□"
Section 4 Ls 4" x 3½" x 3/8" = 10.68□" gross = 7.68□" net
Stress value = 144K C or 139K T.
3/16" Batten Pls. End Conn. 16 rivets.
Battens must clear elevator well.
Horizontal Struts at points A and C
Use 4 Ls 4 x 3½ x 3/8 at C, 2 Ls 8 x 6 x 11/16 at A.

NOTE: 1/4" sheathing plates, inside and outside, will be welded to the longitudinal bracing after the load is on the tower. Plates will be welded to struts and diagonals and to the edges of main column plates. Lengths of sheathing plates will be arranged so that horizontal joints will fall on the horizontal struts of the longitudinal bracing.

TRANSVERSE BRACING

Struts DD, EE, Diagonals CD, DE, EF
Section Area r ℓ(Max) ℓ/r fc. allow
2-18" [42.7# 24.96□" 6.64" 659" 99" 12.54 K/□"
Stress value = 314K
End Tie Pls. 12 x 3/8, Single Lacing 2½ x 3/8
1'-6"

Strut CC
Section Area
4 Ls 4 x 4 x 3/8 11.44□"
End Tie Pls. (T & B) 12 x 3/8, Single Lacing 2½ x 3/8
End Tie Pls. (web) 3/8" } To match
Single Lacing (web) 3 x 3 x 3/8 Ls } lifting gdr.
Battens for lacing - 12 x 3/8 Pl.
4'-6" b.b. Ls; 1'-6" a to a

For details between points F & G see Sh. 34

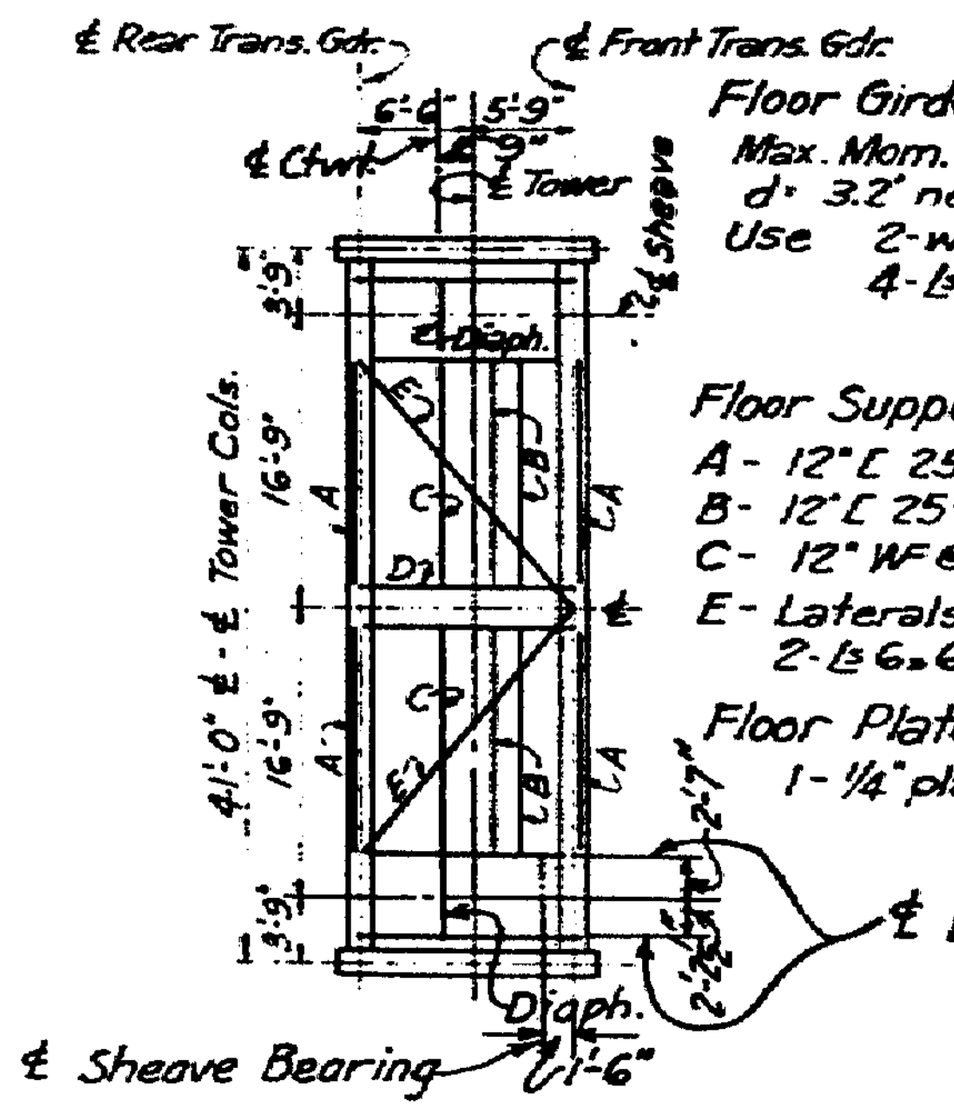
FRONT TRANSVERSE GIRDER

Shear Moment d S.R. @ 24 K/□" Web reqd. @ 14 K/□"
1137.4 4630'K 6.88' 28.00□" • 81.1□"
Use
Web Pl. - 2 Pls. 90 x ½ ss Gr. Area 90.00□" 1/8 web = 11.25□"
Flange - 2 Ls 8 x 4 x 11/16 ss • • 15.56 Net Area = 11.44□"
2 Pls. 11 x 3/8 ss • • 8.25 • • 6.00□"
1'-6" a to a. SILICON STEEL 28.69□" Net

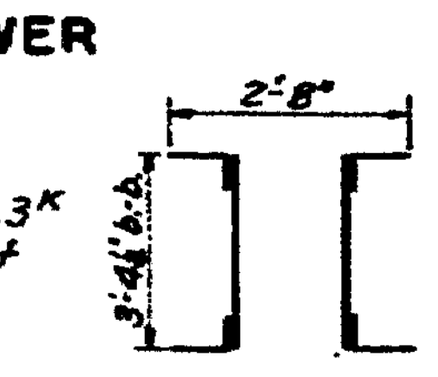
REAR TRANSVERSE GIRDER

Shear Moment d S.R. @ 18 K/□" Web req'd. @ 11 K/□"
191.3K 1059'K 7.33 8.00□" 17.4□"
Use
Web Pl. - 2 Pls. 90 x 7/16 Gr. Area = 78.75□" 1/8 web = 9.85□"
Flange - 2 Ls 4 x 4 x 7/16 • • 6.62□" 4.87
1'-6" a & a 14.72□" Net

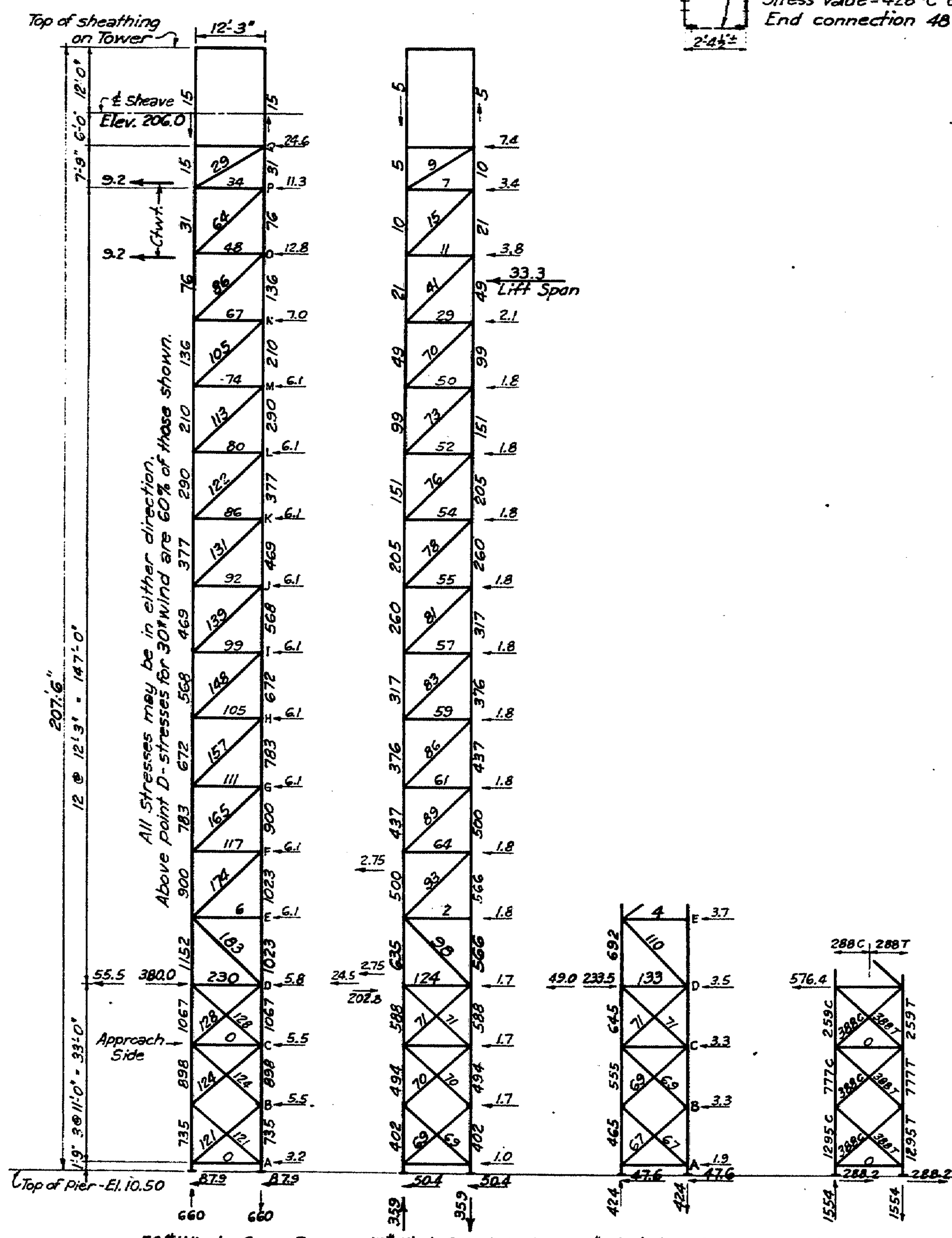
FRAMING AT TOP OF TOWER



Floor Girder D
Max. Mom. = 79.6'K End Shear = 29.3K
d = 3.2' net S.R. @ 18 K/□" = 1.38□" net
Use 2-web Pls. 40 x 3/8
4-Ls 5 x 3½ x 3/8

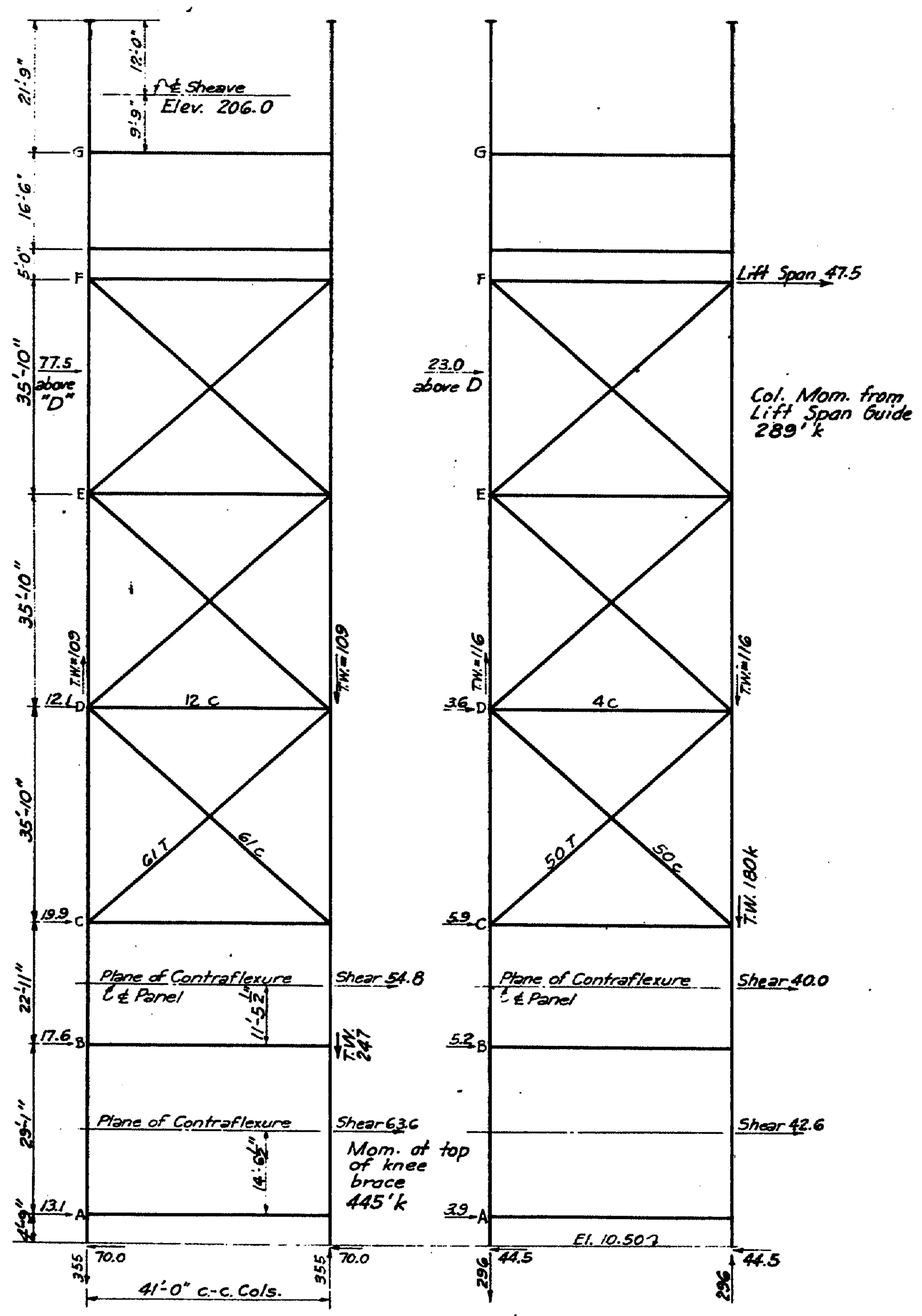


Floor Supports
A - 12" [25#
B - 12" [25# built up as req'd. to support motors.
C - 12" WF @ 40#
E - Laterals at Top Flange of Transverse Gdrs.
2-Ls 6 x 6 x 7/16 ⊤
Floor Plate
1 - 1/4" plate with linoleum surface.
℄ Long Sheave Girders



50# Wind - Span Down 15# Wind - Span Raised 30# Wind - Span Down Live Load on Truss Span

LONGITUDINAL BRACING



50# Wind - Span Down 15# Wind - Span Up

FRONT TRANSVERSE BRACING

FRONT TOWER COLUMNS

SECTION AT ELEVATION 191.0	Direct only Span moving	50# Transv. Wind	50# Long. Wind	15# Transv. Wind	15# Long. Wind	Section
D.L. and Impact	1149	902	902	1149	1149	a. 2-Pls. 57 x 5/8
Wind	Negligible					b. 1-Pl. 28 x 5/8
Total Direct	1149	902	902	1149	1149	c. 2 Ls 4 x 4 x 3/8
Bending				289'K		d. 2 Ls 4 x 4 x 3/8
fd	10.95 K/□"	8.58 K/□"	8.58 K/□"	10.95 K/□"	10.95 K/□"	e. 2 Ls 3½ x 3½ x 3/8
fb				2.70		
Total unit stress	10.95 K/□"	8.58 K/□"	8.58 K/□"	13.65 K/□"	10.95 K/□"	
Allowable f	14.73 K/□"	18.41 K/□"	18.41	18.41	18.41	

SECTION AT ELEVATION 23.5	Direct only Span moving	50# Transv. Wind	50# Long. Wind	15# Transv. Wind	15# Long. Wind	Section
D.L. and Impact	1465	1218	1218	1465	1465	a. 2-Pls. 73¾ x 5/8
Wind		317	735	268	402	b. 1-Pl. 28 x 5/8
Total Direct	1465	1535	1953	1733	1867	c. 2 Ls 4 x 4 x 3/8
Bending		445'K		298'K		d. 2 Ls 4 x 4 x 3/8
fd	11.60 K/□"	12.16 K/□"	15.47 K/□"	13.72 K/□"	14.78 K/□"	e. 2 Ls 3½ x 3½ x 3/8
fb		‡ 3.38		2.23		‡ f. 2 Pls. 8" x 5/8
Total unit stress		15.50 K/□"	15.47	15.95	14.78	
Allowable f *	14.60 K/□"	18.25 K/□"	18.25	18.25	18.25	

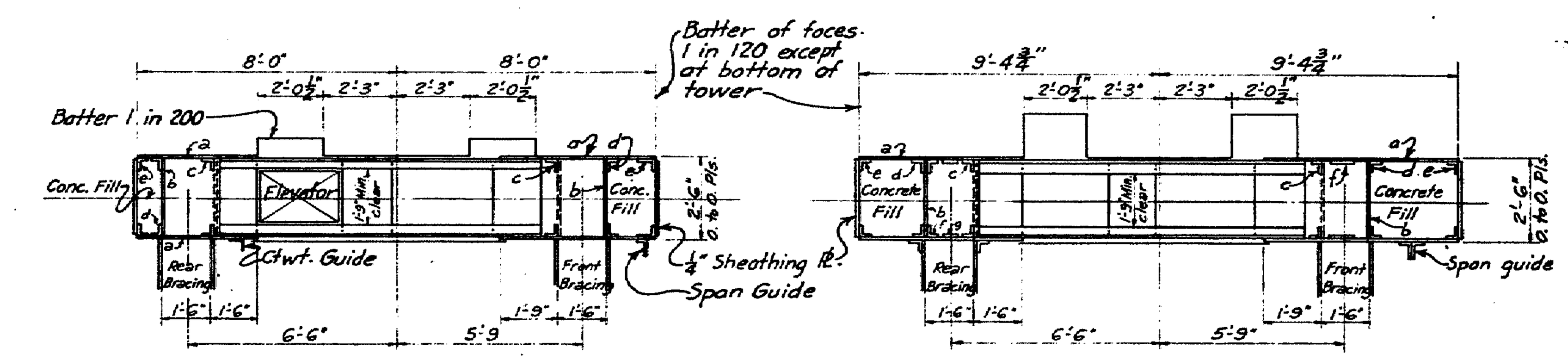
* Max. stress 17.84 k/□" for 70% of 50# Transv. and Long wind acting simultaneously
‡ Pls. "f" extend from Elev. 40 to Elev. 53 only

REAR TOWER COLUMNS

SECTION AT ELEVATION 191.0	Direct only Span moving	50# Transv. Wind	50# Long. Wind	15# Transv. Wind	15# Long. Wind	Section
D.L. and Impact	219	157	157	219	219	a. 2-Pls. 45 x 5/8
Wind	Negligible					b. 1-Pl. 28 x 5/8
Total Direct	219	157	157	219	219	c. 2 Ls 4 x 4 x 3/8
Bending						d. 2 Ls 4 x 4 x 3/8
fd	2.43 K/□"	1.74 K/□"	1.74 K/□"	2.43 K/□"	2.43 K/□"	e. 2 Ls 3½ x 3½ x 3/8
fb						
Total unit stress	2.43 K/□"	1.74 K/□"	1.74	2.43 K/□"	2.43 K/□"	
Allowable f	14.73 K/□"	18.41	18.41	18.41	18.41	

SECTION AT ELEVATION 23.5	Direct only Span moving	30# Wind	30# Wind	15# Transv. Wind	15# Long. Wind	Section
D.L., L.L. & Impact	480	1754	1754	480	480	a. 2-Pls. 61¾ x 5/8
Wind		169	460	93	402	b. 1-Pl. 28 x 5/8
Total Direct	480	1923	2214	573	882	c. 2 Ls 4 x 4 x 3/8
Bending		237'K		132'K		d. 2 Ls 4 x 4 x 3/8
fd	3.68 K/□"	14.75 K/□"	16.98 K/□"	4.39 K/□"	9.84 K/□"	e. 2 Ls 3½ x 3½ x 3/8
fb		1.76		0.98		f. 2 Ls 4 x 4 x 5/8
Total unit stress	3.68	16.51	16.98	5.37	9.84	g. 2-Pls. 8 x 5/8
Allowable f	14.59 K/□"	18.24	18.24	18.24	18.24	

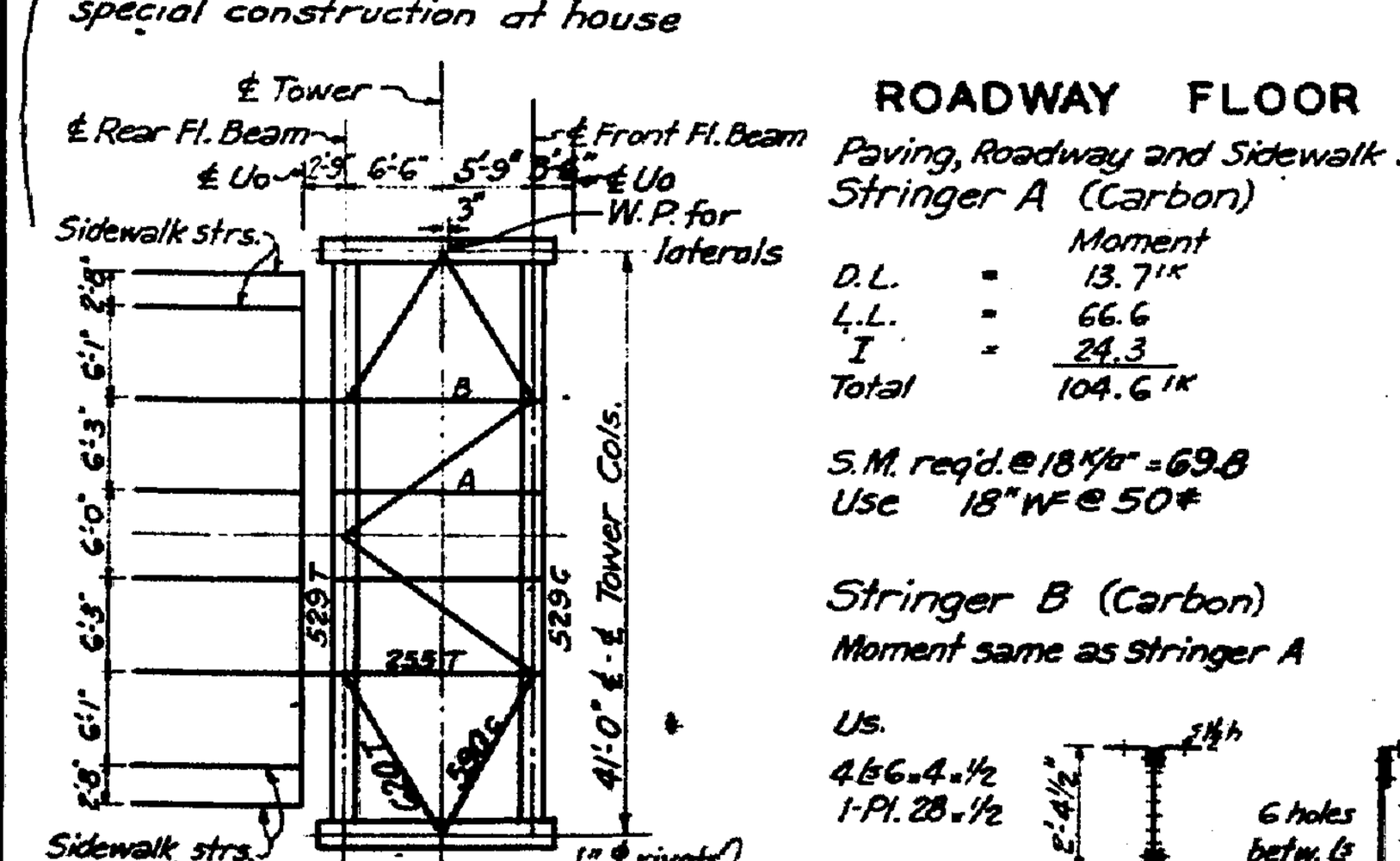
* Max. Stress 18.06 k/□" for 70% of 30# Transv. and Long. Wind acting simultaneously.
2 Ls. "f" extend from top of pier to Elev. 48 Abt.
2 Pls. "g" extend from top of pier to Elev. 36 Abt.



SECTION AT ELEVATION 191.0 SECTION AT ELEVATION 23.5

Note: Elevator in one Col. only, above roadway.
Ladder in opposite column, full height.

See Sh. 20 for special construction at house



ROADWAY FLOOR SYSTEM BRACING

Paving, Roadway and Sidewalk Slabs as for truss span. For curb, see Sh. 29

Stringer A (Carbon)

	Moment
D.L. =	13.7'K
L.L. =	66.6
I =	24.3
Total	104.6'K

S.M. req'd. @ 18 K/□" = 69.8
Use 18" WF @ 50#

Stringer B (Carbon)
Moment same as Stringer A
Us.
4 Ls 6 x 4 x ½
1-Pl. 28 x ½
fd = 10.62 k/□"
fb = 5.60
16.22 k/□"
6 holes betw. Ls at center
4'-3" b-b. Ls.
1'-6" a to a.

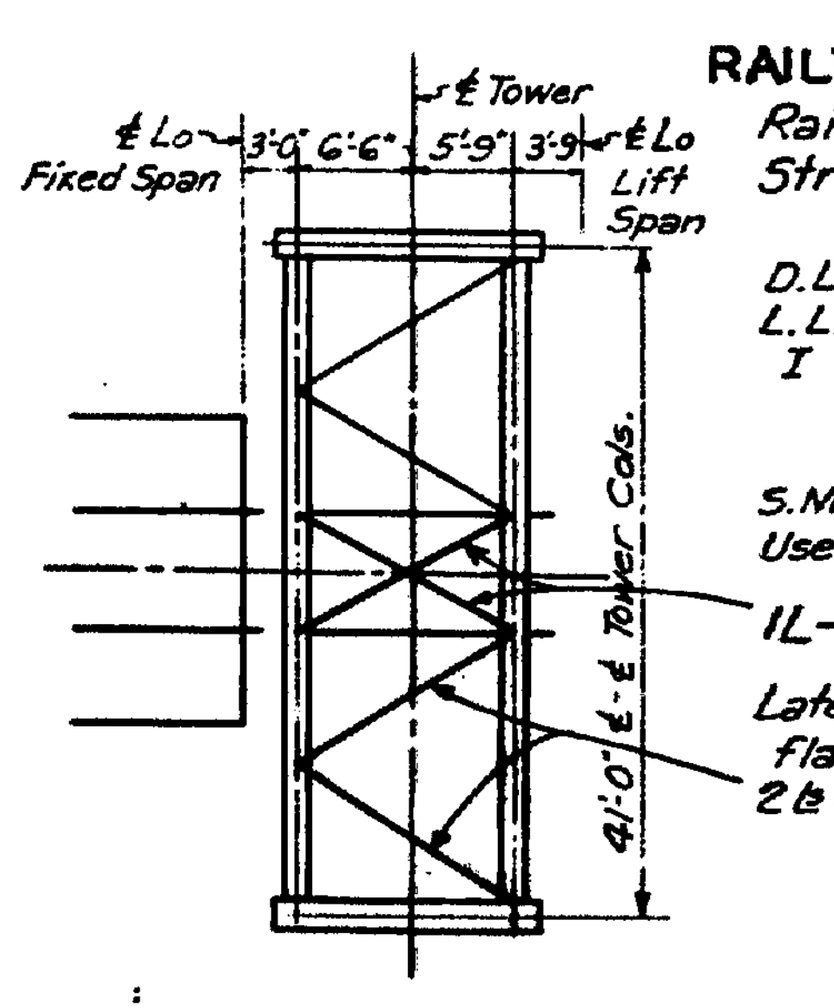
Laterals in end panels
4 Ls 8 x 6 x 5/8, 1 Pl. 28 x 5/8
Laterals in center panels (bott. flange only)
2 Ls 6 x 4 x ½

Floor Beams - Front and Rear (Silicon Steel)

	Moment	End Shear
D.L.	264'K	24.2K
L.L.	610	46.8
I	223	17.1
Sidewalk	8	2.1
	1105'K	90.2K

fd = 7.57 K/□"
fb = 15.23
Total = 22.80 K/□"

Use double web beam 2-Pls. 50 x 9/16
Flange - 4 Ls 8 x 4 x 3/4
Vertical Diaphs. at stringers and close to curb. No lacing or tie plates.
Lateral plates connect to both angles
For knee-braces see Sh. 29.



RAILWAY FLOOR SYSTEM AND BRACING

Railway Deck same as on Truss Spans

Stringer

	Moment
D.L. =	8'K
L.L. =	151
I =	151
	310'K

S.M. req'd. @ 18 K/□" = 207
Use 27" WF @ 91#
1L - 6" x 4" x 3/8"
Laterals at bottom flange of Fl. Beam
2 Ls 6 x 4 x 3/8

Floor Beams - Front and Rear (Silicon Steel)

	Moment	End Shear
D.L. (Str.)	86'K	3.3K
D.L. (Beam)	61	6.0
L.L.	1345	79.2
I	1048	61.7
	2510'K	150.2K

d = 5.1' Web S.R. reqd. @ 14 K/□" = 10.7□"
Use 2-Pls. 64½ x 3/8 = 48.38□"
Flange - S.R. req'd. @ 24 K/□" = 20.5□" net
Bott. Flange
Use 2 Ls 8 x 4 x 13/16 = 18.18□" gr. = 14.93□" net
1/8 web = 6.00
20.93□" net
Top Flange
Use 1-Cov. Pl. 16 x 3/8 = 6.00□" gr.
2 Ls 4 x 4 x 13/16 = 11.68
17.68□" gr.
5'-4¾" b.b. Ls.
1'-6" o. to o.
For knee-braces - see Sh. 29

WIND LOAD ON TOWER BASE

Load on One Pier - Shears and Moments at Elev. +12.25

	Shear	Moments
15# Transv. Wind - Span Up	127K	16,050'k
30# " " - " Down	159K	16,500'K
50# " " - " "	264K	28,200'K
15# Long. " - " Up	202K	8,800'K
30# " " - " Down	190K	10,200'K
50# " " - " "	352K	16,200'K

Span Guides:
El. 14 to El. 195
2-Ls. 5" x 4" x 5/8"
1-L only above El. 176
Counterweight Guides:
1-L 7" x 4" x 5/8"

VERTICAL LOADS ON TOWER BASE

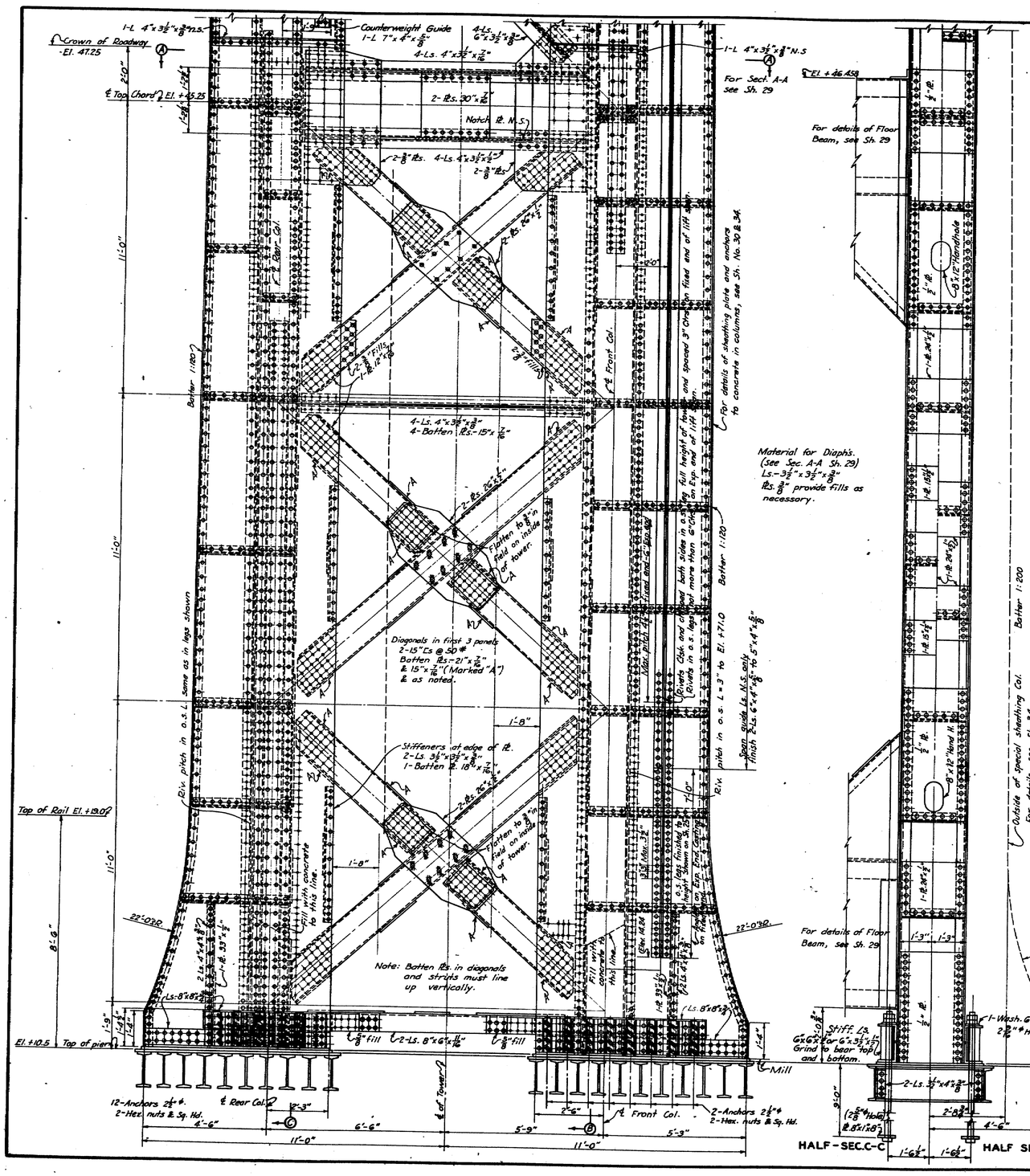
Load on One Pier
Dead Load = 3390K
Moving Load Impact = 490K
Live Load = 255K
4135K

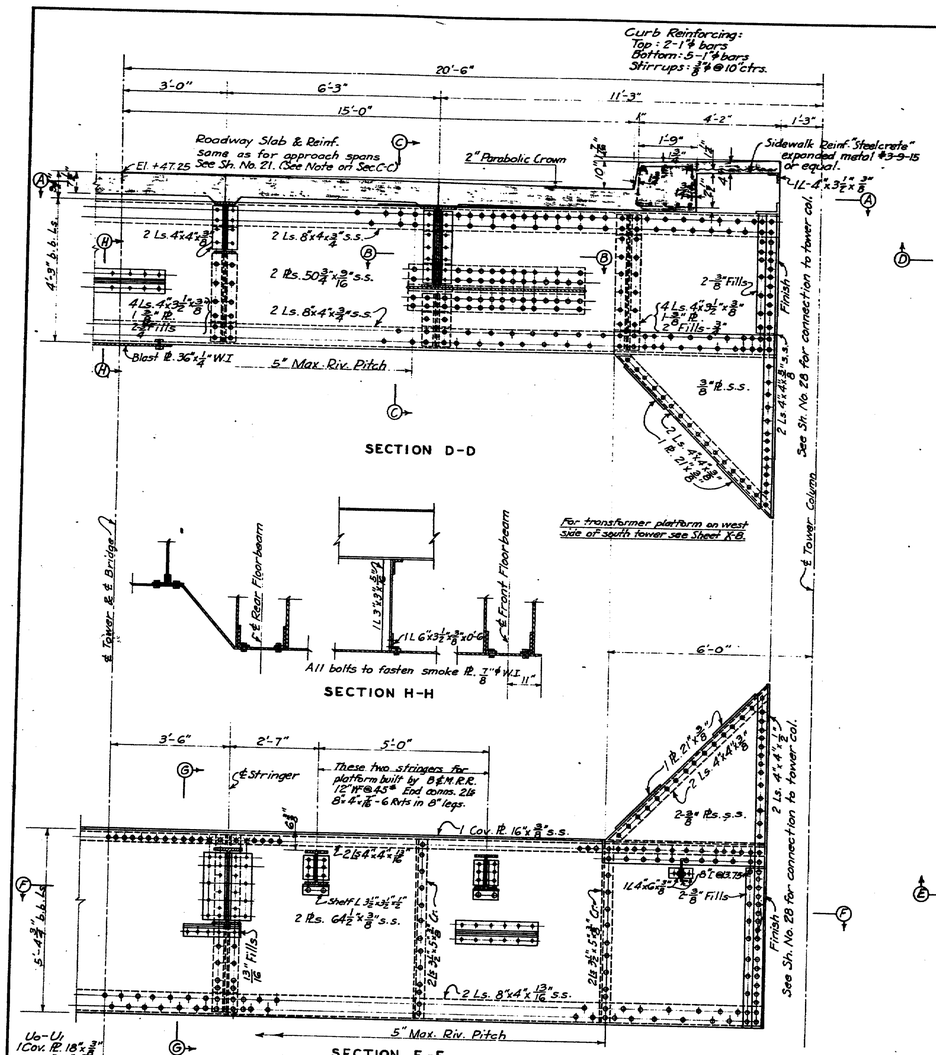
Moment from L.L. on Approach Span = 38,000'K

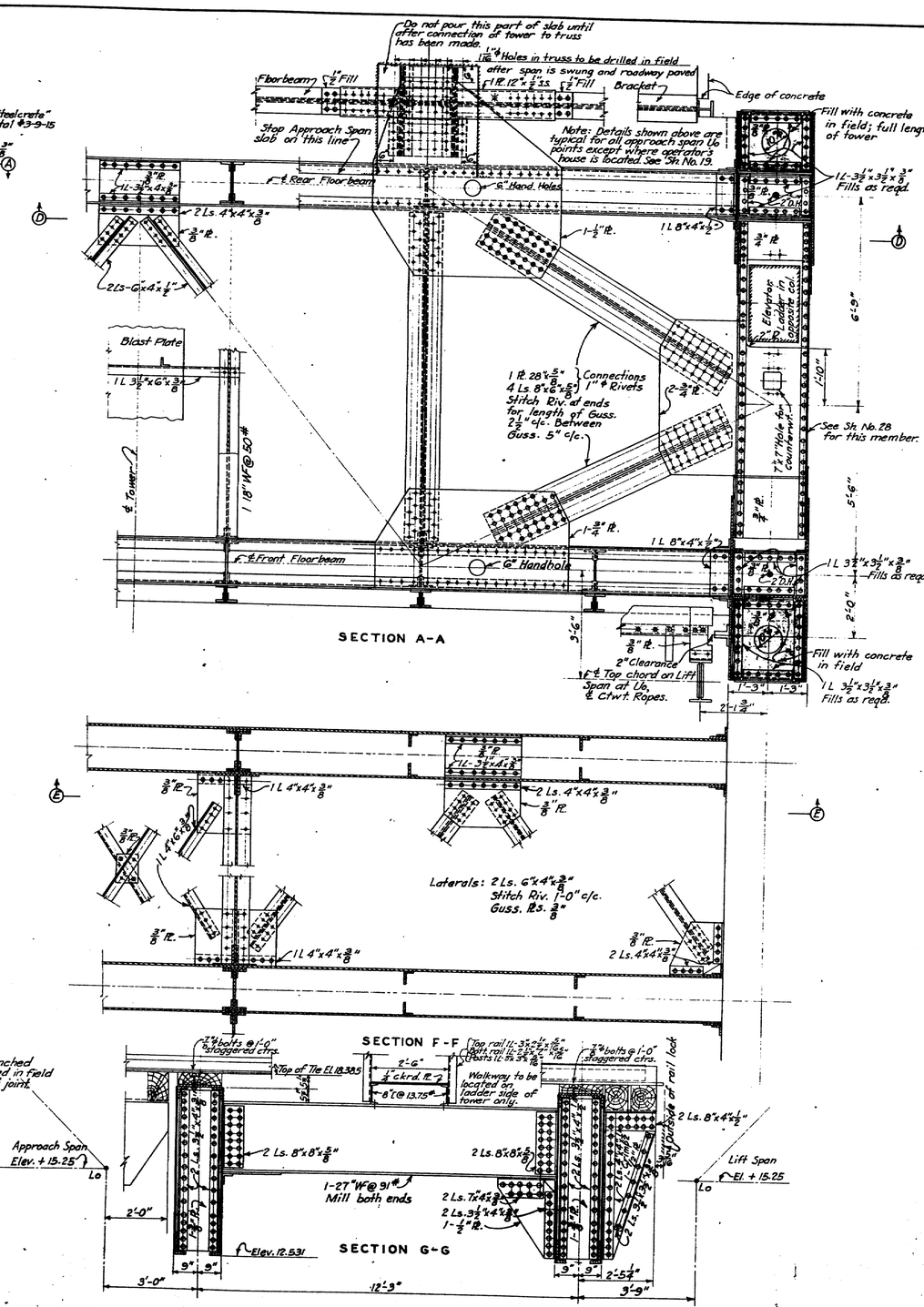
Rivets: 7/8" ϕ unless noted.
Material, Medium steel, unless noted.
Silicon steel noted s.s.

P.W.A. PROJECT NO. N. H. 1037 - F., MAINE 1088 - F.
MAINE - NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
STRESS SHEET - TOWERS
SCALE: 1" = 20'-0"
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.
MADE BY C.S.
TRACED BY E.T.L.
CHECKED BY [signature] 1-24-39
SHEET NO. 27

126-183


1-L 4"x3½"x⅜" N.S.
℄ Crown of Roadway El. 47.25
Counterweight Guide 1-L 7"x4"x⅝"
4-Ls. 4"x3½"x⅜"
2-Pls. 30"x⅞"
Notch Pl. N.S.
2-⅜" Pls. 4-Ls. 4"x3½"x⅜"
2-⅜" Pls.
℄ Top Chord El. +45.25
11'-0"
Batter 1:120
2-Pls. 66"x½"
℄ Front Col.
⅜" Fills
1-Pl. 12"x⅜"
⅜" Fills
4-Ls. 4"x3½"x⅜"
4-Batten Pls.-15"x⅞"
2-Pls. 62"x⅝"
Flatten to ⅜" in field on inside of tower.
C-A
Diagonals in first 3 panels 2-15" Cs @ 50#
Batten Pls.-21"x⅞" & 15"x⅞" (Marked "A") & as noted.
Rivets pitch in o.s.L. same as in legs shown
1'-8"
Stiffeners at edge of Pl. 2-Ls. 3½"x3½"x⅜" 1-Batten Pl. 18"x⅞"
2-Pls. 24"x⅝"
Flatten to ⅜" in field on inside of tower.
Top of Rail El. +130.7
8'-6"
22'-0 3/8"
Fill with concrete to this line.
2-Ls. 4"x3½"x⅜"
1-Pl. 33"x⅜"
Ls. 8"x8"x⅝"
Note: Batten Pls. in diagonals and struts must line up vertically.
El. +10.5 Top of pier
1'-9"
1'-4½"
1'-4"
⅜" Fill
2-Ls. 8"x6"x11/16"
⅜" Fill
Mill
12-Anchors 2¼"ø 2-Hex. nuts & Sq. Hd.
℄ Rear Col.
4'-6"
6'-6"
11'-0"
℄ of Tower
2'-6"
℄ Front Col.
2-Anchors 2¼"ø 2-Hex. nuts & Sq. Hd.
5'-9"
5'-3"
11'-0"
1-L 4"x3½"x⅜" N.S.
For Sect. A-A see Sh. 29
℄ El. +46.458
For details of Floor Beam, see Sh. 29
2'-1"
1-Pl. 24"x½"
Manhole 9"x12" Handhole
For details of sheathing plate and anchors to concrete in columns, see Sh. No. 30 & 34.
Material for Diaphs. (See Sec. A-A Sh. 29)
Ls.-3½"x3½"x⅜"
Pls. ⅜" provide fills as necessary.
Batter 1:10
Rivets Chk. and clinched both sides in o.s. legs finished flush 2-Ls. 6"x4"x⅝" to 5"x4"x⅝"
Rivets pitch in o.s. L=3" to El. +71.0
Span Guide Ls. N.S. only finish 2-Ls. 6"x4"x⅝" to 5"x4"x⅝"
Rivets pitch in o.s. L=3" to El. +71.0
1'-10"
Max. pitch 24"
1-Pl. 24"x½"
1-Pl. 13½"
1-Pl. 24"x⅝"
Splice Pl. 24"x½"
Splice





General Notes:
All ϕ rivets unless noted. Material shall be medium steel unless noted. Silicon steel designated as S.S. Roadway floorbeams, roadway stringers, top laterals, lateral plates, and blast plate supports shall be copper bearing steel, except silicon steel.
Sheared edges of all plates over ½" thick shall be milled.
For typical slab reinforcing steel detail see Sh. No. 21.
For details of tower connections for this sheet see Sh. No. 28.

P.W.A. PROJECT NO. N.H. 1037-F, MAINE 1038-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
TOWERS-FLOOR SYSTEM
SCALE: 1/2" = 1'-0"

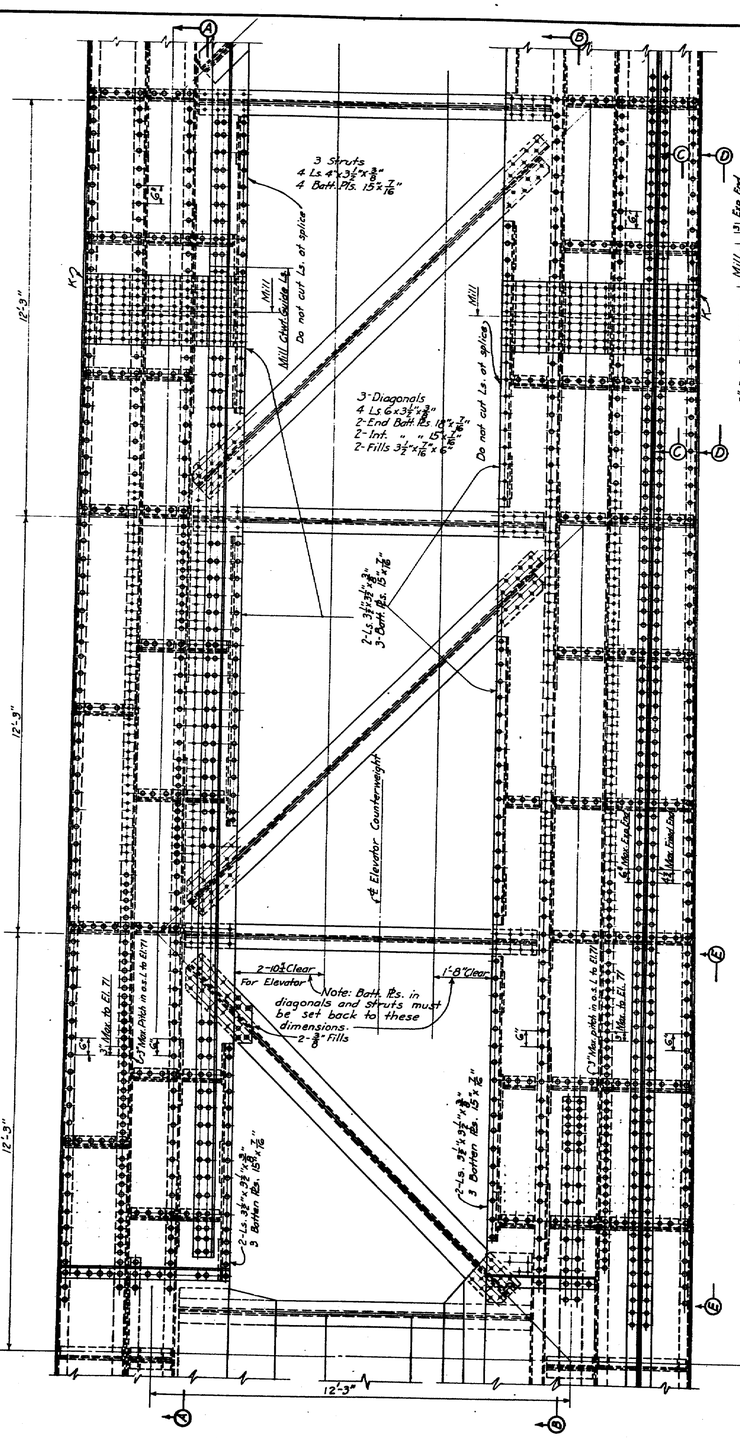
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

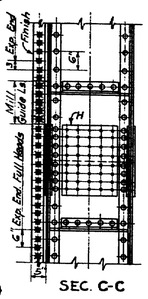
MADE BY E.F.
TRACED BY L.G.C. & L.S.F.
CHECKED BY A.C.D. 4-26-39

SHEET NO. 29

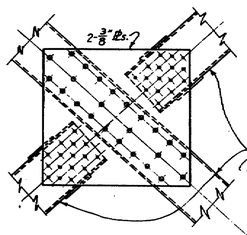
Revised By S.C.D. 5-1-39
Rev. For Const. Record F.N.C. 9-31-45.

126-185



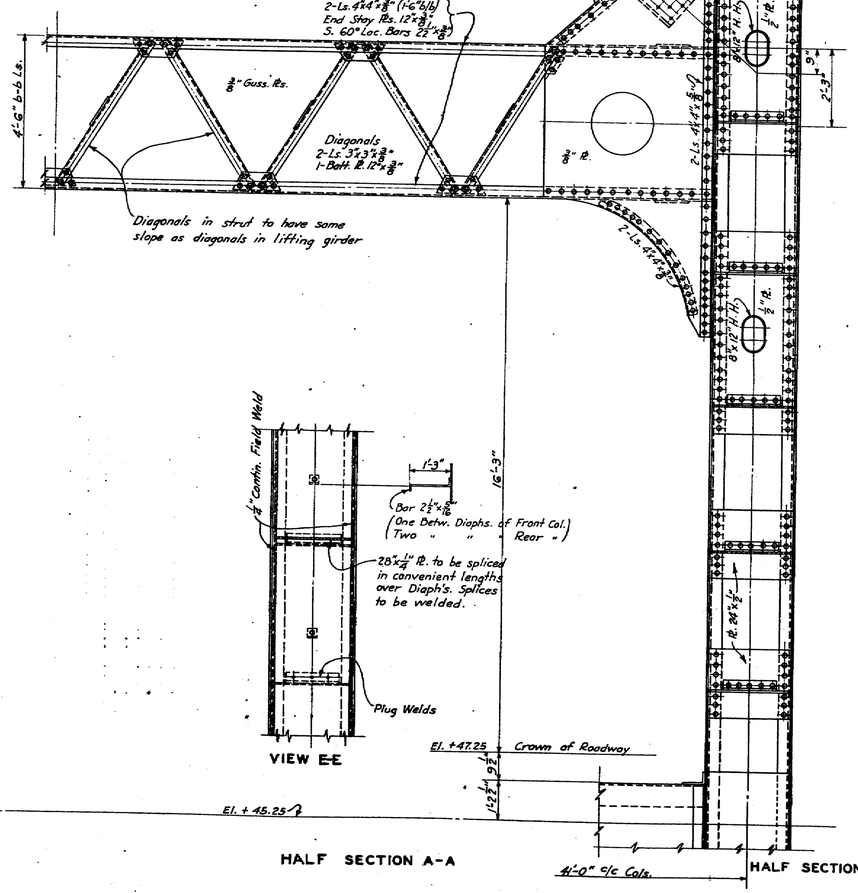


SEC. C-C VIEW D-D



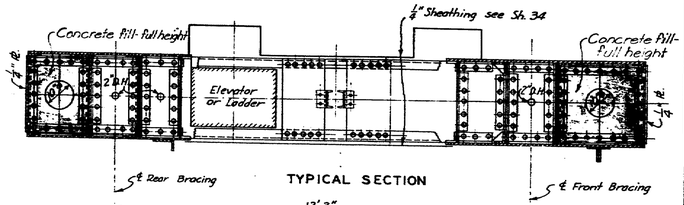
Diaphragms in Tower Cols. Ls. 3½"x3½"x⅜" ⅜" Fills as necessary.

Diaphragms in front tower Cols. above point 6 shall be spaced as shown on this sheet. In the rear tower Cols. above point G diaphragms shall be at panel points and at center of panels, except at splices space as shown on this sheet.



HALF SECTION A-A HALF SECTION B-B

VIEW E-E

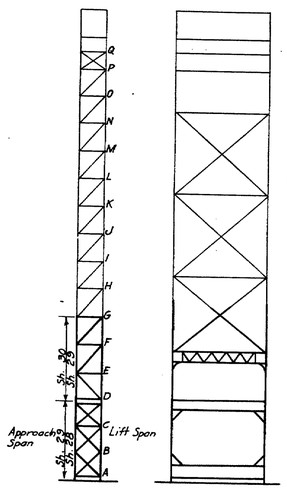


Rear Column

Main Material		Splice Material	
a	2-Pls. Variable x ⅝"	g	7/16"-Pls.
b	1-Pl. 28"x⅝"	h	4-Pls. 20½"x⅜"
c	4-Ls. 4"x4"x⅜"	k	1-Pl. 28"x⅜"
d	2-Ls. 3½"x3½"x⅜"		
f	1-L 7"x4"x⅝" (Chwt. Guide)		

Front Column

Main Material		Splice Material	
A	2-Pls. Variable x ⅝"	G	7/16"-Pls.
B	1-Pl. 28"x⅝"	H	4-Pls. 20½"x⅜"
C	4-Ls. 4"x4"x⅜"	K	1-Pl. 28"x⅜"
D	2-Ls. 3½"x3½"x⅜"		
F	2-Ls. 5"x4"x⅝" (Span Guide) (Plane from 6"x4"x⅜")		



General Notes:
Rivets: ⅞"ϕ
Material Carbon Steel
Sheared edges of all plates more than ½" thick, shall be milled.
Work this sheet with Sh. No. 28 and Sh. No. 29.
For details of sheathing plates see Sh. No. 34.

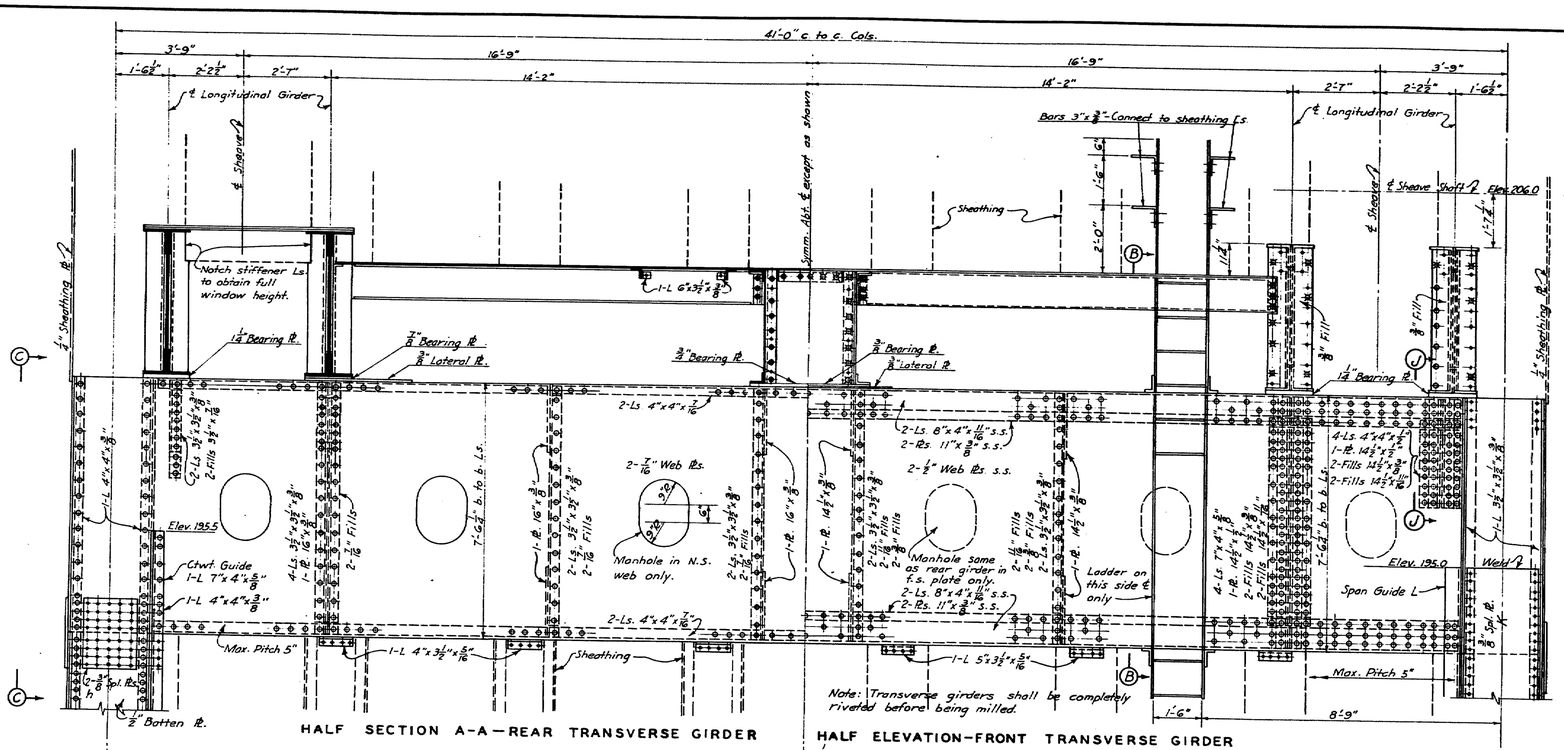
P.W.A. PROJECT NO. N.H. 1037-F., MAINE 1088-F.
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
TOWER-BOTTOM SECTION
SCALE: ½"=1'-0"

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY E.F.
TRACED BY L.S.F.
CHECKED BY W.L.P. 4-26-39

SHEET NO. 30

126-186



General Notes:
All material medium steel except as noted; "s.s" denotes silicon steel. Rivets ⅞"ø except as noted. Stiffeners at bearing points shall be milled to bear, and all bearing surfaces shall be finished to provide full bearing. Sheared edges of all plates more than ½" thick shall be milled.

P.W.A. PROJECT NO. N.H. 1037-F, MAINE 1038-F.

MAINE-NEW HAMPSHIRE INTERSTATE BRIDGE AUTHORITY

PISCATAQUA RIVER BRIDGE

PORTSMOUTH, N.H. TO KITTERY, ME.

TOWERS-SHEAVE GIRDERS

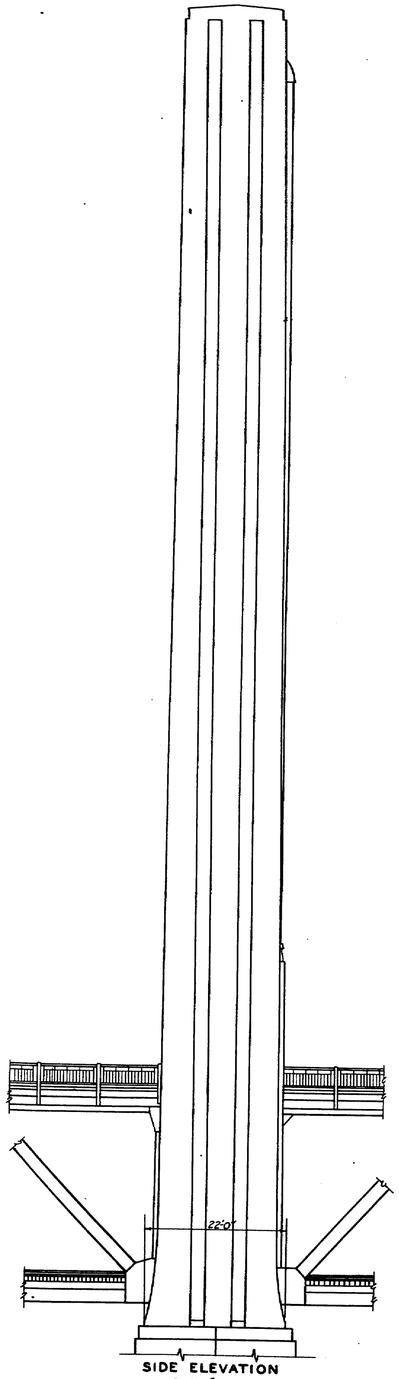
SCALE: ½" = 1'-0"

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D. C.

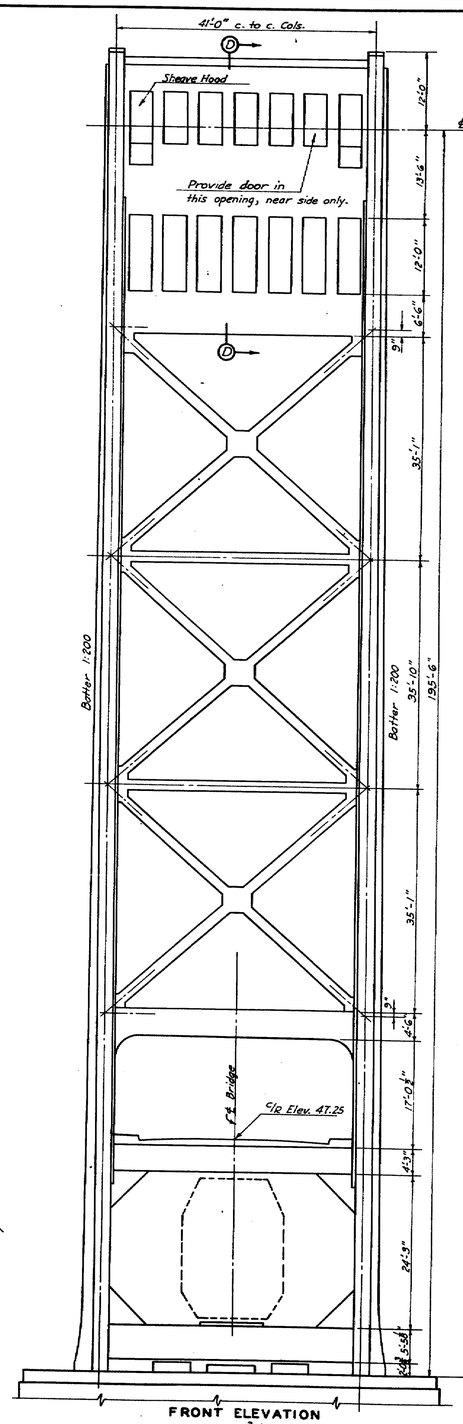
MADE BY V. L. P.
TRACED BY L. S. F.
CHECKED BY S.C.D. 6-8-39

SHEET NO. 33

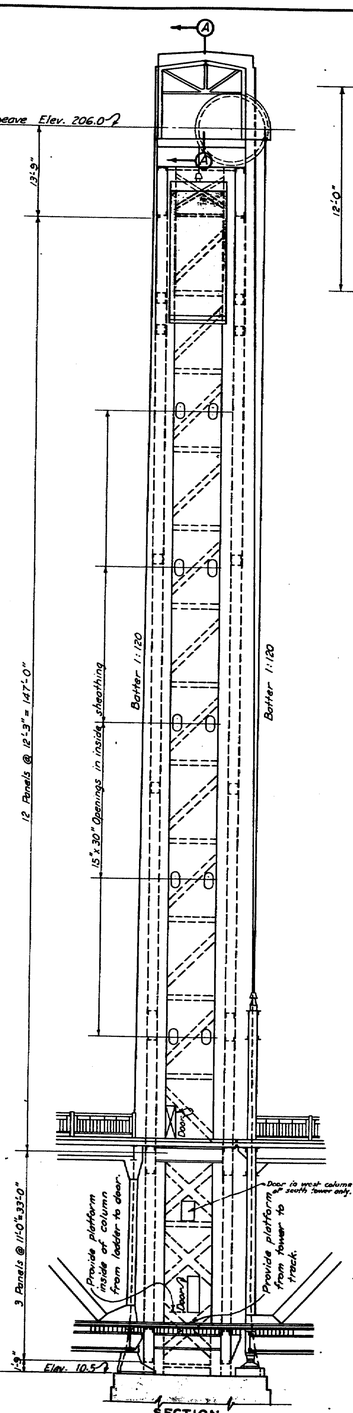
126-187



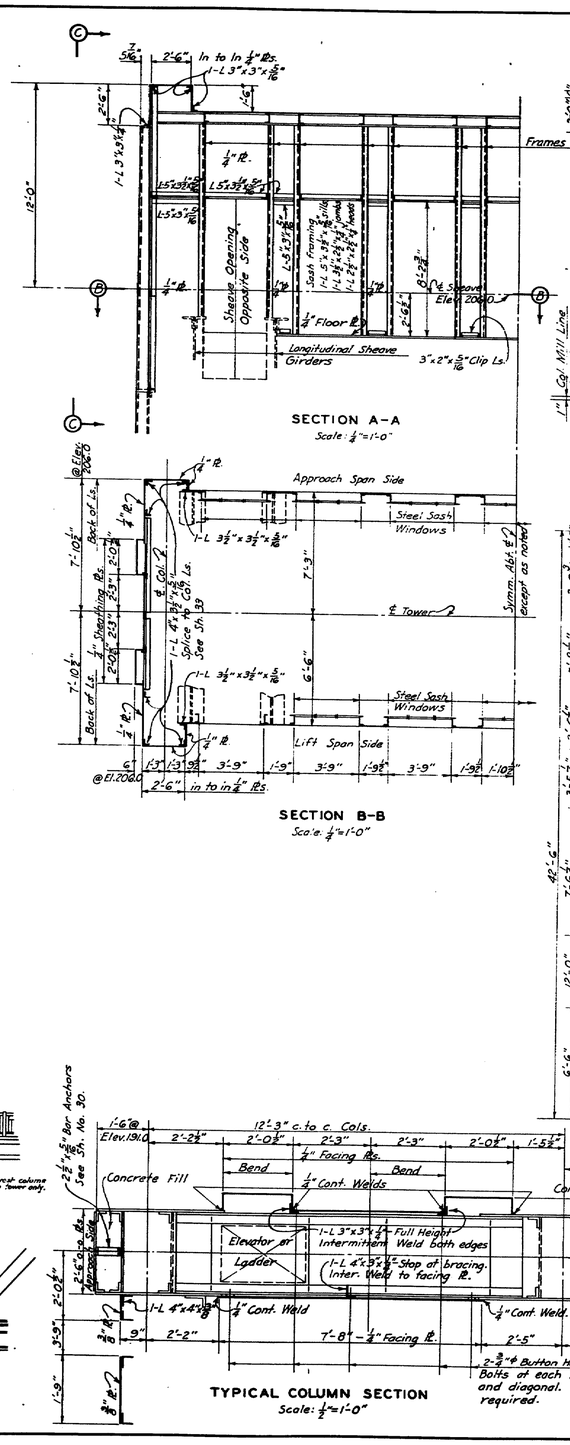
SIDE ELEVATION
Scale: $\frac{3}{32}$"=1'-0"



FRONT ELEVATION
Scale: $\frac{3}{32}$"=1'-0"

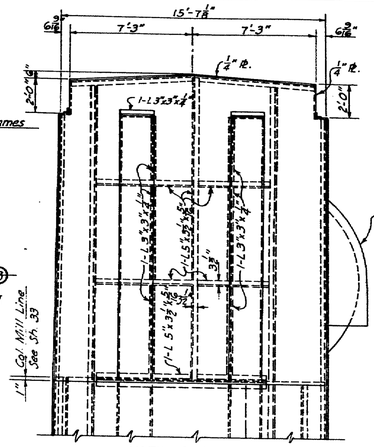


SECTION
Scale: $\frac{3}{32}$"=1'-0"

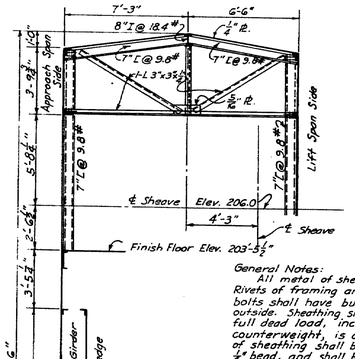


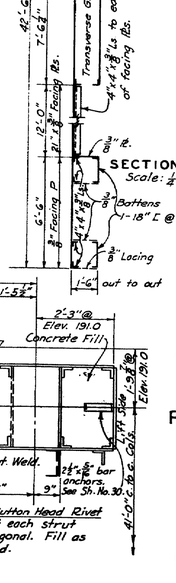
SECTION A-A
Scale: ¼"=1'-0"

SECTION B-B
Scale: ¼"=1'-0"



VIEW C-C
Scale: ¼"=1'-0"





SECTION D-D
Scale: ¼"=1'-0"

TYPICAL COLUMN SECTION
Scale: ½"=1'-0"

General Notes:
All metal of sheathing shall be of carbon steel. Rivets of framing and supports shall be ⅞" ℄. Rivet bolts shall have button heads, placed with heads outside. Sheathing shall not be placed until after full dead load, including that of lift span and counterweight, is on the tower. All exterior joints of sheathing shall be welded, using a continuous ¼" bead, and shall be ground smooth. Other joints and connections, except as shown or noted otherwise, shall have ¼"x1" welds at not more than 4" ctrs. The method and materials for welding, and the means of supporting sheathing plates prior to welding, shall be submitted to the Engineers for approval before commencing work. All doors shall be equipped with suitable hinges and Yale cylinder locks. Steel sash windows in openings in machinery house shall be No. 3516 "Fenestra" steel sash as manufactured by the Detroit Steel Products Co., or equal. Glazing shall be ⅛" glass, double strength, class B.

P.W.A. PROJECT NO. N.H. 1037-F, MAINE 1088-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.

SHEATHING DETAILS

SCALE: AS NOTED

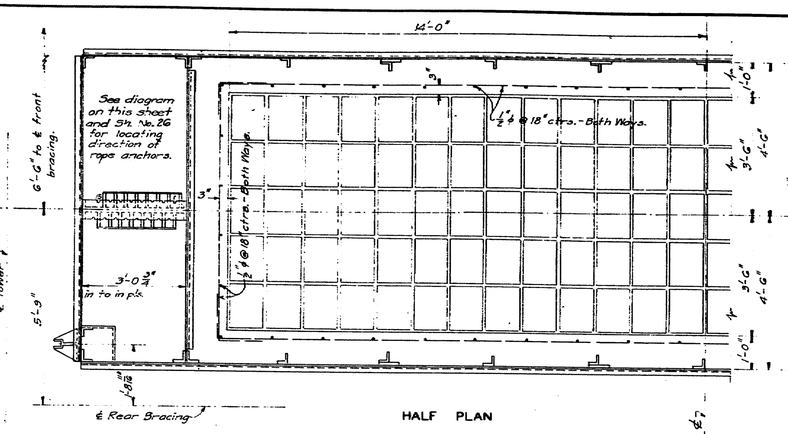
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D. C.

MADE BY V.L.P.
TRACED BY L.S.F.
CHECKED BY D.W.R. 5-4-39

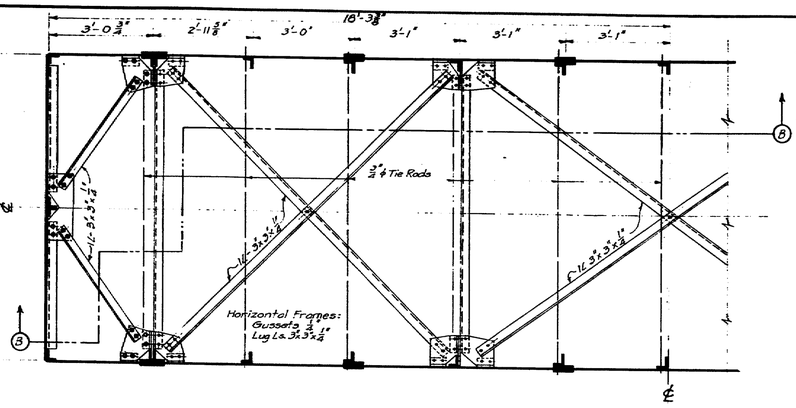
SHEET NO. 34

Revised for Const. Record F.N.C. 8-31-43.

126-188



HALF PLAN



HALF SECTION

Counterweight Data:

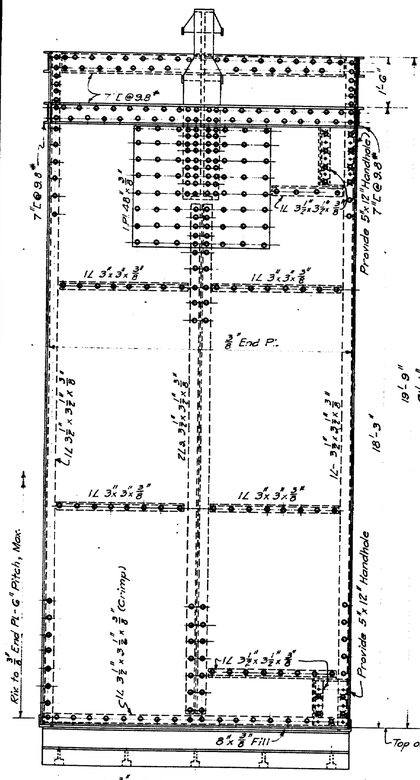
The counterweight is designed for an assumed weight of moving span of 1,680,000#. This weight includes an allowance of 102,000# for future wearing surface.

For Present Construction:
Required weight of one counterweight 893 940#

Counterweight Steel	53 206
Two Rope Anchor Castings	3 634
Balance Blocks - 25# @ 180#	45 720
Concrete - 52.52 cu.Ft. @ 150.66#	791 371
Total 1 counterweight as built	893 931#

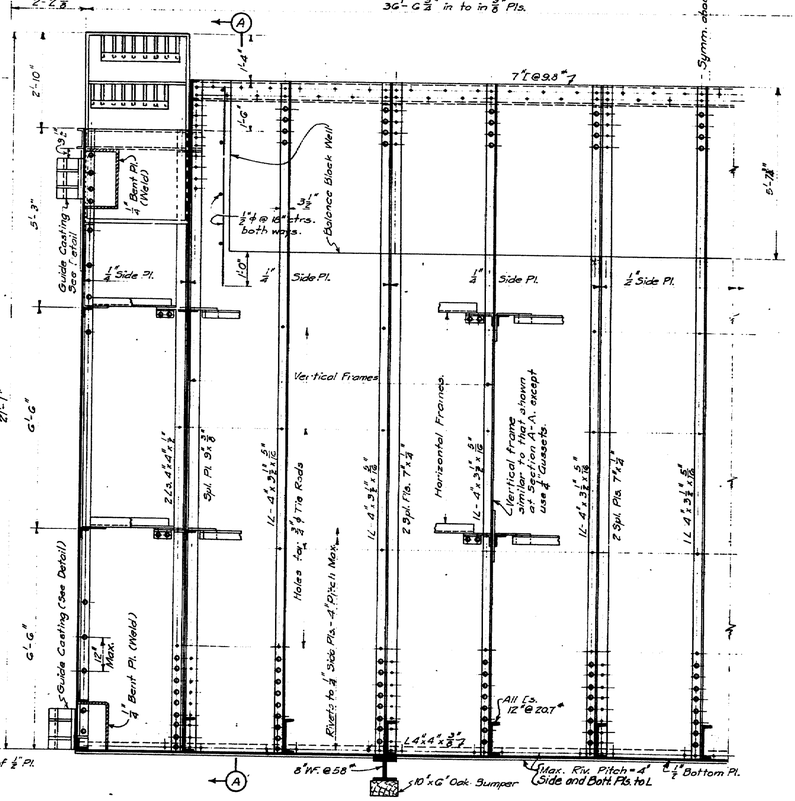
Balance block well has sufficient capacity to provide for future wearing surface.

Note: Provide drainage for handholes and balance block recess.

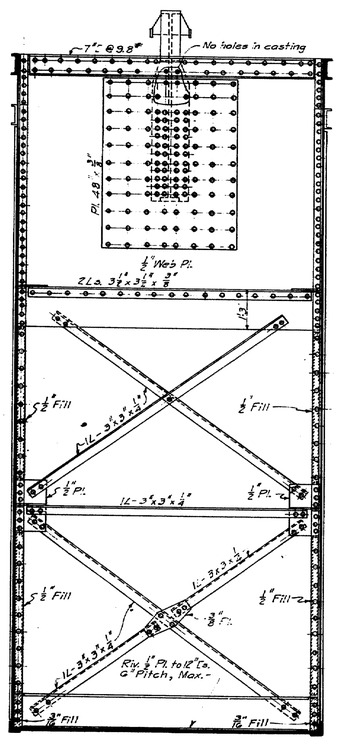


10-2 7/8" Bolts with Cast Washers
Recess bolts 2".

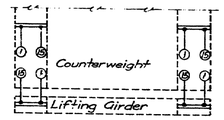
END ELEVATION



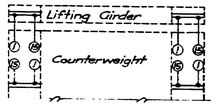
HALF SECTION B-B



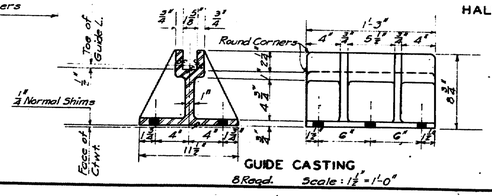
SECTION A-A



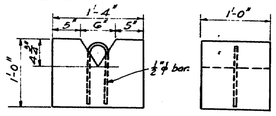
The rope anchor castings shall be placed on the lifting girder and counterweight in the positions indicated in this diagram in order that all counterweight ropes will be the same length.
Numbers shown are erection marks only.



ERECTION DIAGRAM
ROPE ANCHOR CASTINGS



GUIDE CASTING
8 Reqd. Scale: 1½" = 1'-0"



BALANCE BLOCK
Net Weight 180#
Scale: 1" = 1'-0"

General Notes:
Rivets ⅞" ϕ, open holes 15/16" ϕ, unless noted.
All metal carbon steel.
Concrete Class - See Spec.
Surfaces which will be in contact with concrete shall not be painted.
The counterweight is designed for pouring of concrete when suspended from the counterweight ropes. The first pour shall be 6 Ft. deep. Not less than 3 days after the completion of the first pour, the remainder of the concrete may be placed.

P.W.A. PROJECT NO. N.H. 1037-F, MAINE 1088-F.
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.

COUNTERWEIGHT

SCALE: 1/2" = 1'-0"

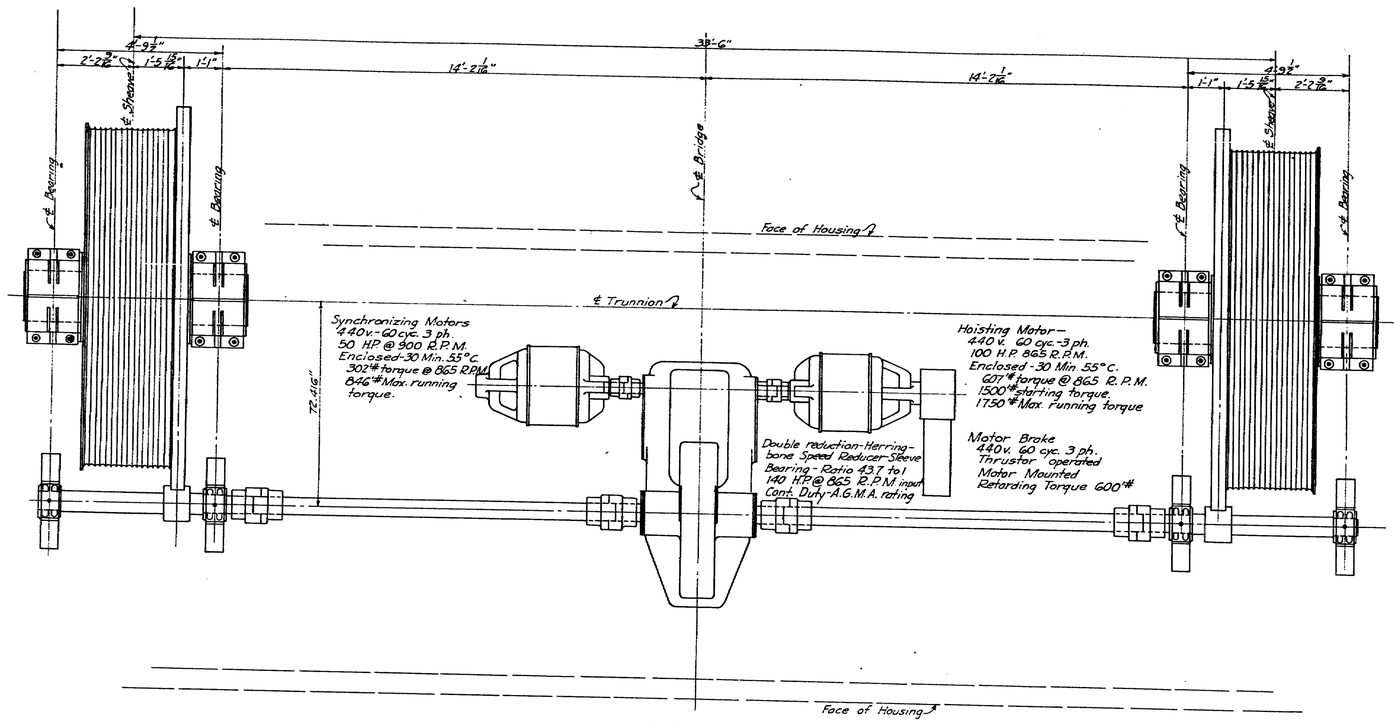
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY V.L.P.
TRACED BY L.F.H & F.M.C.Jr.
CHECKED BY D.O.R. 3-28-39

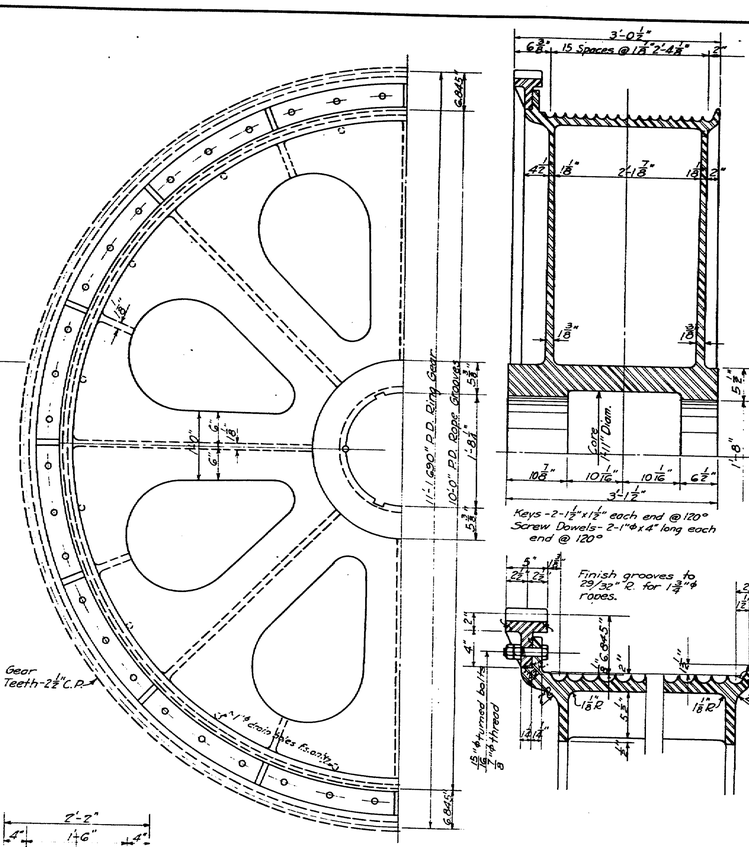
SHEET NO. 35.

Revised for Const. Record F.M.C. 9-1-45.

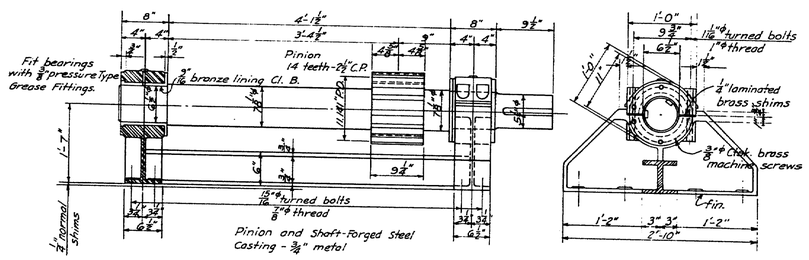
126-189



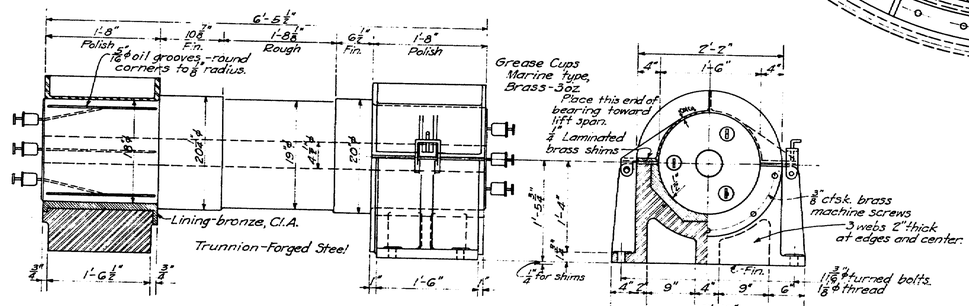
PLAN
1/8" = 1'-0"



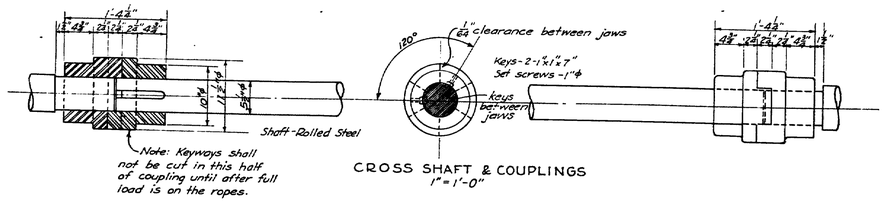
SHEAVE & RING GEAR
1"=1'-0"



PINION SHAFT & BEARINGS
1"=1'-0"



TRUNNION AND BEARINGS
1"=1'-0"



CROSS SHAFT & COUPLINGS
1"=1'-0"

GENERAL NOTES:

Castings shall be of steel. All contact surfaces shall be finished.

Journals and bearings shall be polished and shall show no trace of tool cuts.

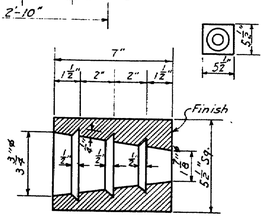
Gear teeth shall be standard 20° involute machine cut teeth of a depth of 0.687 C.P.

The fit of hubs on shafts shall conform to the specifications of the American Standards Association for tight fit: The sheaves shall be forced on their shafts with a pressure of not less than 200 tons.

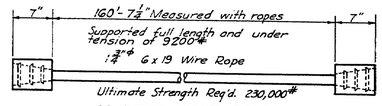
Provide one portable grease compressor of 2 l oz. capacity for pressure fittings.

Protect the teeth of the pinions with a guard of 16 ga. metal. supported from the bearing frame.

All holes in supports for bearings shall be subpunched and reamed to a driving fit after machinery is assembled and adjusted.



ROPE SOCKET
Forged Steel 128 Req'd.
Scale: 3"=1'-0"



COUNTERWEIGHT ROPES
64 Req'd.

P.W.A. PROJECT NO. N.H. 1037-F. MAINE 1088-F
MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.

MACHINERY ON TOWERS

SCALE: AS NOTED

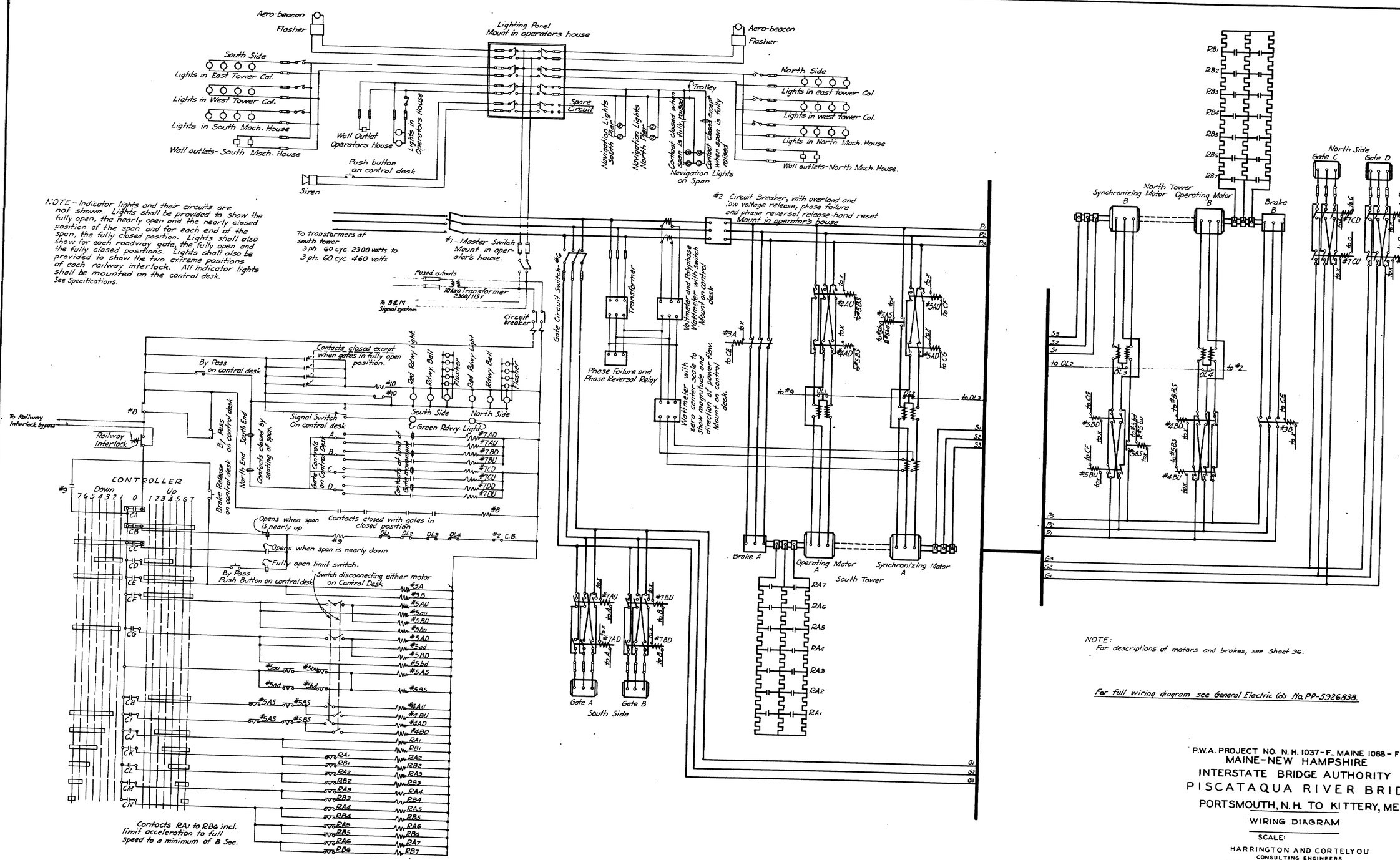
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D.C.

MADE BY T.J.C.
TRACED BY T.J.C.
CHECKED BY [illegible]

SHEET NO. 36

Revised By S.C.D. 5-1-39
Revised Per Const. Board F.M.C. 9-1-45.

126-190



P.W.A. PROJECT NO. N. H. 1037-F.. MAINE 1088-F

MAINE-NEW HAMPSHIRE

INTERSTATE BRIDGE AUTHORITY

PISCATAQUA RIVER BRIDGE

PORTSMOUTH, N. H. TO KITTERY, ME.

WIRING DIAGRAM

SCALE:

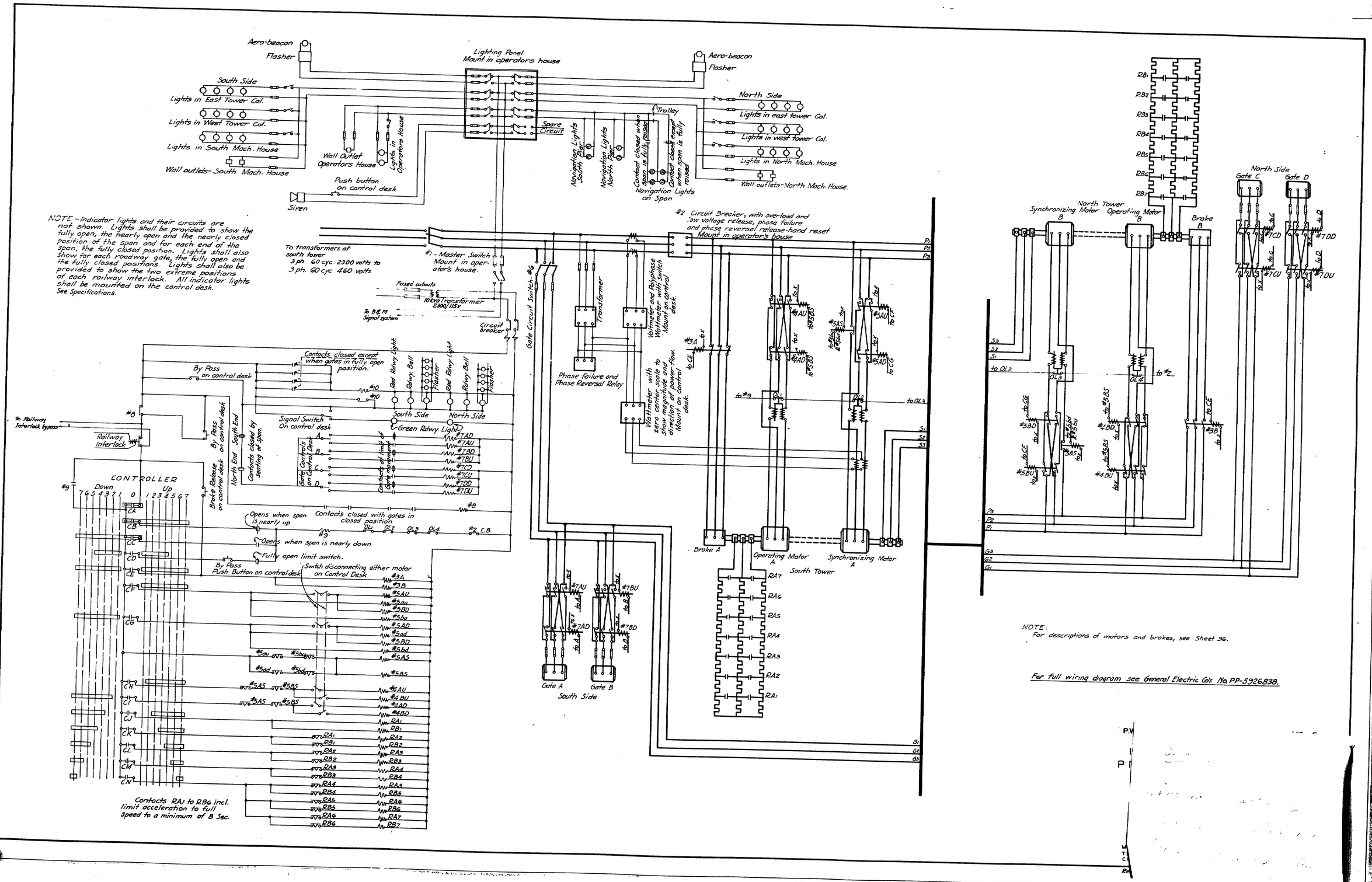
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO. WASHINGTON, D. C.

MADE BY T. J. C.
TRACED BY T. J. C.
CHECKED BY

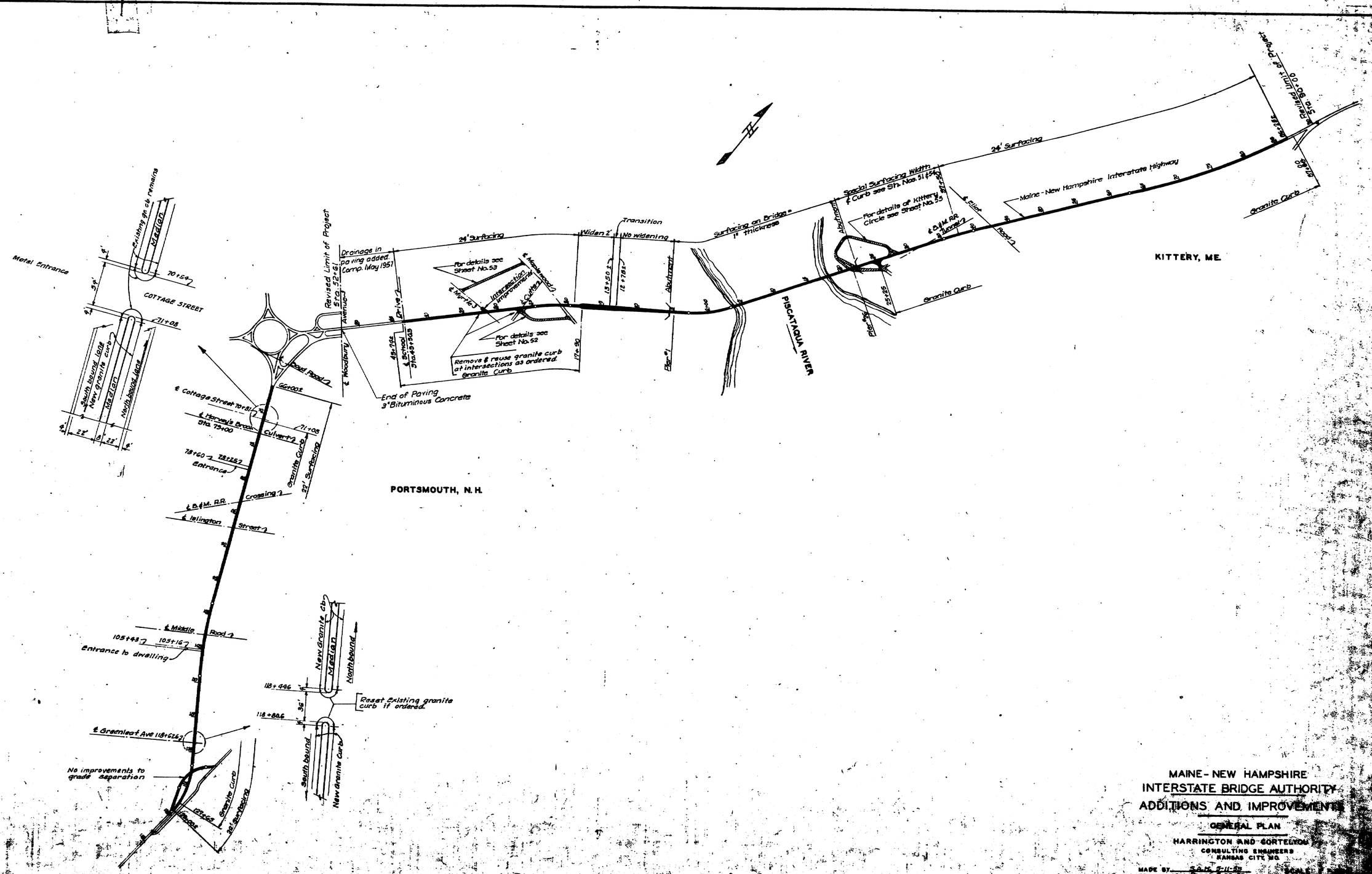
SHEET NO. 37

Revised for Const. Record F.H.C. 9-6-43.

126-191



Aero-beacon
Flasher
Lighting Panel
Mount in operators house
South Side
Lights in East Tower Col.
Lights in West Tower Col.
Lights in South Mach. House
Wall outlets- South Mach. House
Wall Outlet
Operators House
Lights in Operators House
Push button
on control desk
Siren
Spare Circuit
Navigation Lights South Pier
Navigation Lights North Pier
Contact closed when span is fully raised
Contact closed except when span is fully raised
Navigation Lights on Span
Trolley
North Side
Lights in east tower Col.
Lights in west tower Col.
Lights in North Mach. House
Wall outlets-North Mach. House
NOTE - Indicator lights and their circuits are not shown. Lights shall be provided to show the fully open, the nearly open and the nearly closed position of the span and for each end of the span, the fully closed position. Lights shall also show for each roadway gate, the fully open and the fully closed positions. Lights shall also be provided to show the two extreme positions of each railway interlock. All indicator lights shall be mounted on the control desk. See Specifications.
To transformers at south tower
3 ph 60 cyc 2300 volts to
3 ph. 60 cyc 460 volts
#1 - Master Switch
Mount in operator's house.
Fused cutouts
10 kva Transformer 2300/115v
To B&M Signal system
Circuit breaker
Gate Circuit Switch-#6
Transformer
Phase Failure and Phase Reversal Relay
Voltmeter and Polyphase Wattmeter with switch Mount on control desk.
Wattmeter with zero center scale to show magnitude and direction of power flow. Mount on control desk.
#2 Circuit Breaker, with overload and low voltage release, phase failure and phase reversal release-hand reset
Mount in operator's house
Contacts closed except when gates in fully open position.
By Pass on control desk
Red Rdwy Light
Rdwy Bell
Flasher
South Side
North Side
Green Rdwy Light
Signal Switch On control desk
To Railway Interlock bypass
Railway Interlock
Brake Release on control desk
By Pass on control desk
North End
South End
Contacts closed by seating of span.
Gate Controls on Control Desk
Contacts at limit of Gate movement
CONTROLLER
Down
Up
Opens when span is nearly up
Contacts closed with gates in closed position
Opens when span is nearly down
Fully open limit switch.
By Pass Push Button on control desk
Switch disconnecting either motor on Control Desk
Contacts RA1 to RB6 incl. limit acceleration to full speed to a minimum of 8 Sec.
Gate A
Gate B
South Side
Brake A
Operating Motor A
Synchronizing Motor A
South Tower
North Tower
Synchronizing Motor B
Operating Motor B
Brake B
North Side
Gate C
Gate D
NOTE:
For descriptions of motors and brakes, see Sheet 36.
For full wiring diagram see General Electric Co's No. PP-5926838.

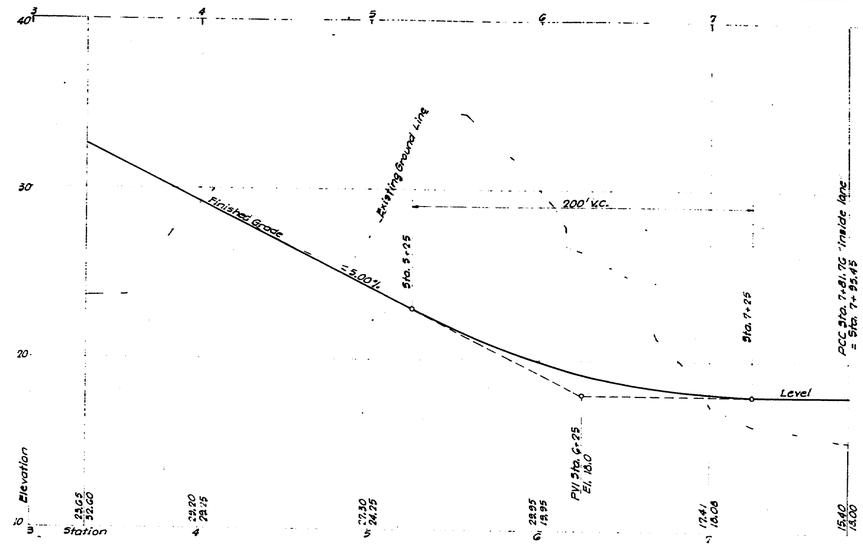


MAINE - NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
ADDITIONS AND IMPROVEMENTS

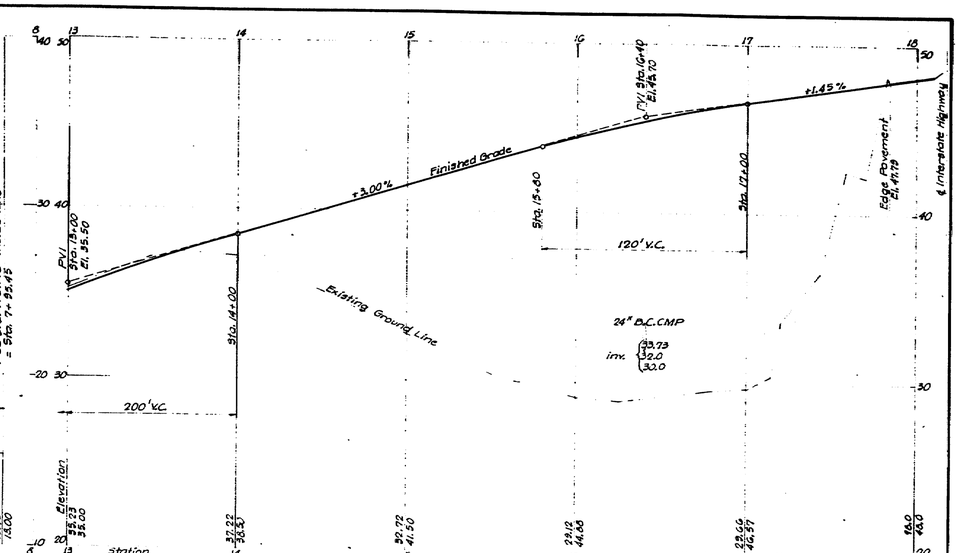
GENERAL PLAN

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

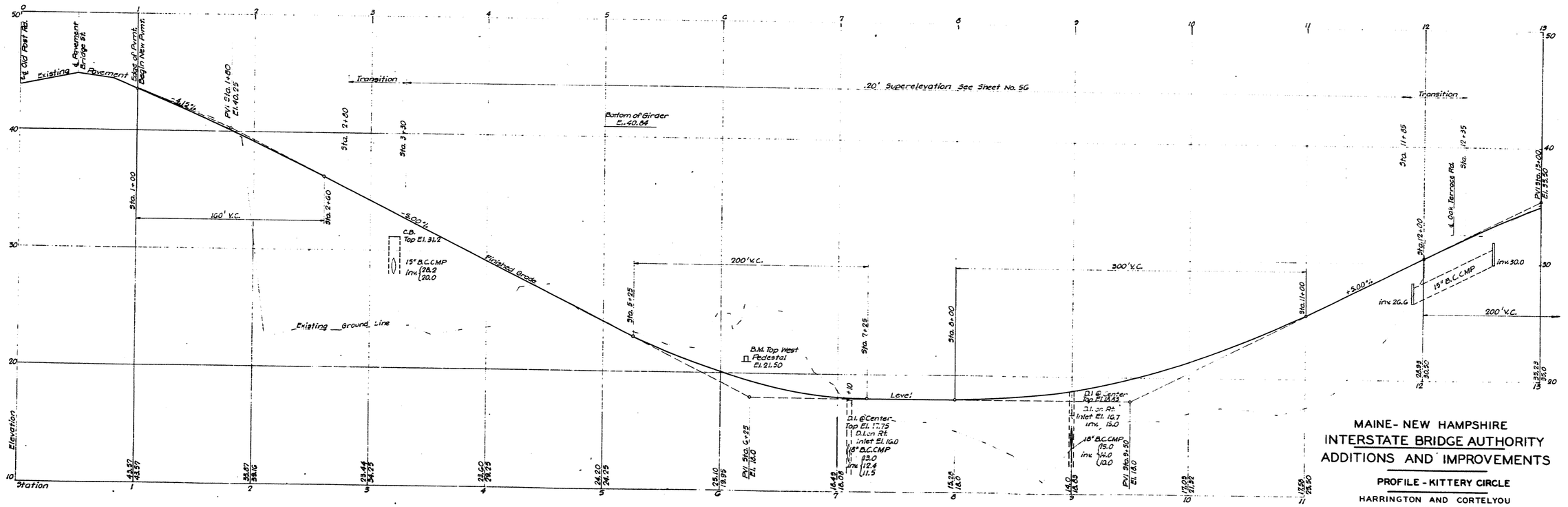
MADE BY S.A.H. 5-11-53
TRACED BY [illegible] 5-25-53
CHECKED BY [illegible]
SCALE
SHEET
Revised for Const. Record K.K.D. 1-20-58



PROFILE - "INSIDE LANE"



PROFILE - "OUTSIDE LANE"



PROFILE - "OUTSIDE LANE"

MAINE - NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
ADDITIONS AND IMPROVEMENTS

PROFILE - KITTERY CIRCLE

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

MADE BY F.N.L.
TRACED BY SAH 4-14-55
CHECKED BY EMN 4-18-55
Revised SAH 5-4-55
Revised SAH 5-25-55

SCALE: VERT. 1" = 4'
HOR. 1" = 40'

SHEET NO. 57

126-193

CORPS OF ENGINEERS

U. S. ARMY

PORTSMOUTH HARBOR AND PISCATAQUA RIVER, ME. & N.H.
REMOVAL OF OBSTRUCTION
GENERAL PLAN
SCALE IN FEET

50 0 50 100 150

PLAN
SCALE IN FEET
1" = 50'

VICINITY MAP
SCALE IN FEET
200 0 200 400

LOCATION MAP
SCALE IN MILES
25 0 25 50

NOTES:

Soundings are in feet and tenths and are referred to the plane of M.L.W.
Hydrography from surveys of Sept 1960, June 1963, March 1964, June 1965 and Oct 1965
Topography from U.S.C.&G.S. Hydrography Surveys and previous U.S.E.D. surveys
B.M. 5 1928 is a standard disk stamped "5 1928" set in top horizontal face of water table on south face of building No. 2 (Naval Shipyard) about 5' from southeast corner of building. Elev. 23.89' above M.L.W.
Coordinates are on the Mercator Grid System for the State of Maine (West Zone)
Field books: R & H 1825, 1826, 1836, 1837, 1922, 2069, 2105, 2106, 2322 & 2323

REVISION	DATE	DESCRIPTION	BY
2	12-8-65	Cable locations added, Disposal Area shifted, Amendment No.6	
1	12-8-65	See sheet 2 for changes by Amendment No. 1	

U.S. ARMY ENGINEER DIVISION, NEW ENGLAND
CORPS OF ENGINEERS
WALTHAM, MASS.

DR. BY	TR. BY	CK. BY
H.L.C.	H.L.C.	

PROJECT ENGINEER
CHIEF R&W SECTION
SUBMITTED
CHIEF, PLANN & RPTS BRANCH
APPROVED
CHIEF ENGINEERING DIV.
DATE OCT. 1965

SCALE AS SHOWN | SPEC. NO. CIV. ENG.-19-016-66-1

DRAWING NUMBER
1697-D-8-3

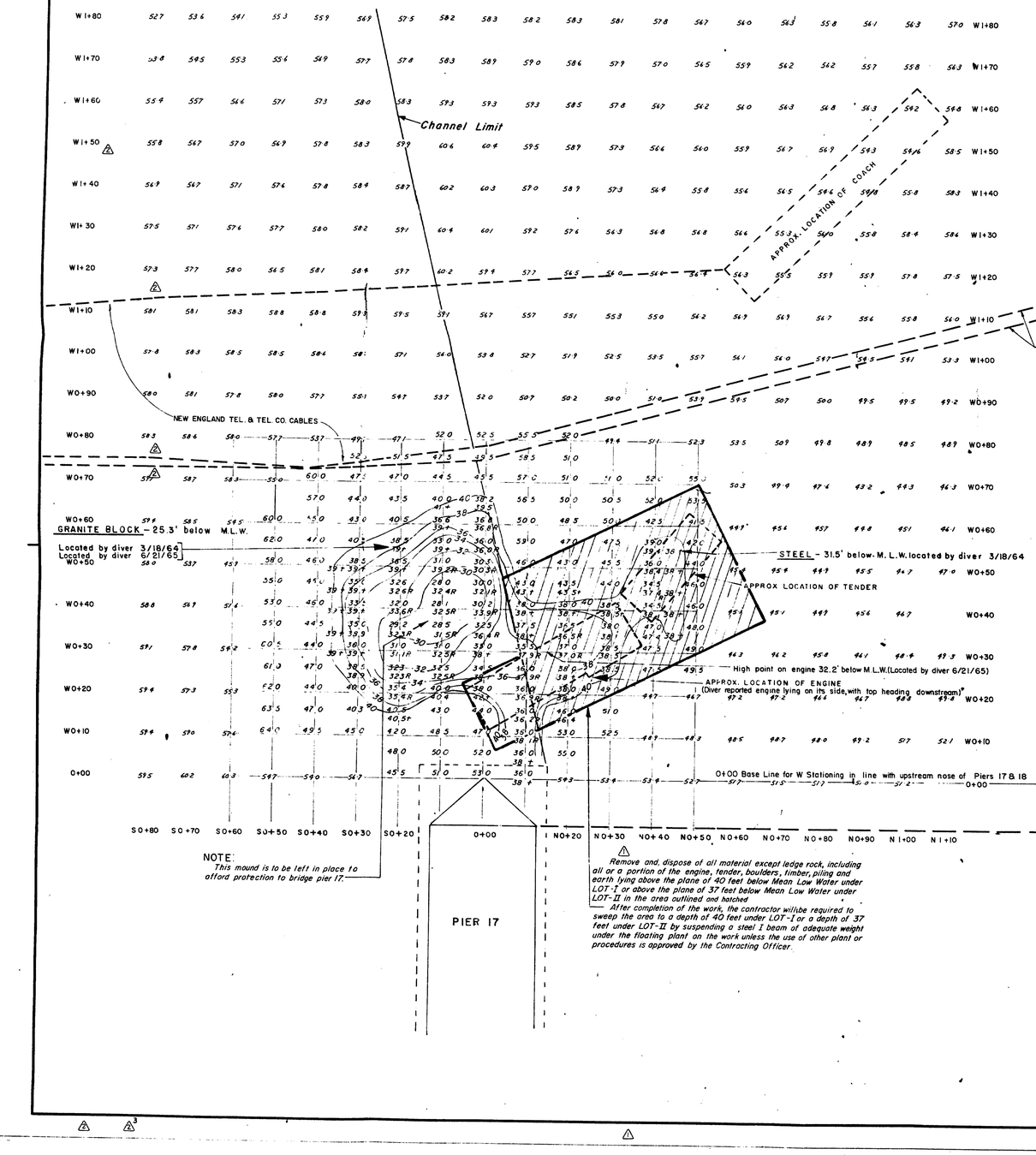
SHEET 1 OF 2

SAFETY PAYS

136:92

CORPS OF ENGINEERS

U. S. ARMY



New England Tel. & Tel. Co.
2 Cables, 5 inches in diameter, 2 to 4 feet apart. Diver reports cables are lying on the river bottom in most areas except in main channel where they are 3 to 4 feet above the bottom.

Permits have been issued to the New England Tel. and Tel. Co. for other cables in the vicinity and upstream of the two-level bridge which may cause interference with the work under this contract. These cables are shown on sheet 1. The contractor shall make all necessary arrangements with the owner of the cables and shall so conduct his operations that no damage is done to cables.

NOTE:
This mound is to be left in place to afford protection to bridge pier 17.

Remove and dispose of all material except ledge rock, including all or a portion of the engine, tender, boulders, timber, piling and earth lying above the plane of 40 feet below Mean Low Water under LOT-I or above the plane of 37 feet below Mean Low Water under LOT-II in the area outlined and hatched
After completion of the work, the contractor will be required to sweep the area to a depth of 40 feet under LOT-I or a depth of 37 feet under LOT-II by suspending a steel I beam of adequate weight under the floating plant on the work unless the use of other plant or procedures is approved by the Contracting Officer.

LEGEND

Sounding — 16.4
Probing — 17.4R — Refusal
Sounding — 14.7
Probing — 20.0 — Refusal not reached

Approx. Location Maine – New Hampshire Interstate Bridge Authority underwater cables on natural bottom
3 cables for bridge operation
1 cable for railroad signals

NOTES:

For general notes see Sheet 1.
Probings from survey of March 12-18 1964, by E. Byram, and are in feet and tenths and are referred to the plane of Mean Low Water.
B.M. PARK 1963. Elevation 10.00' M. L. W. on the west shore line of the Piscataqua River, at Prescot Park, Portsmouth N. H. A standard Corps of Engineers bronze disk stamped, B.M. PARK 1963. Elevation above Mean Low Water is 10 feet. Set vertical in east face of granite retaining wall along east side of Prescot Park, 4.2' below top of wall 197.0' northwest by northwest corner of bridge to Pierce's Island.
Probings taken with a 3/4" pointed pipe forced down by one man.
Field books: R. & H. 2069 & 2076

SAFETY PAYS

2	12-8-65	Cable locations added, Disposal area shifted, Amendment No.6
1	12-8-65	Notes revised to incorporate changes by Amendment No.1

U.S. ARMY ENGINEER DIVISION, NEW ENGLAND
CORPS OF ENGINEERS
WALTHAM, MASS.

DR. BY H.L.C. | TR. BY H.L.C. | K. BY

Jesse G. La Prade
DIVISION ENGINEER

L. W. Fogarty
CHIEF, R. & H. SECTION

SUBM. BY (G) Jr. ENGR.
CHIEF, PLANS & SPEC'S BRANCH

PORTSMOUTH HARBOR AND PISCATAQUA RIVER, ME. & N.H.

REMOVAL OF OBSTRUCTION
DETAILED SOUNDINGS AND PROBINGS
SCALE IN FEET
10 0 10 20 30

APPROVED J. W. Leslie
CHIEF ENGINEER, U.S.A.

DATE OCT. 1965

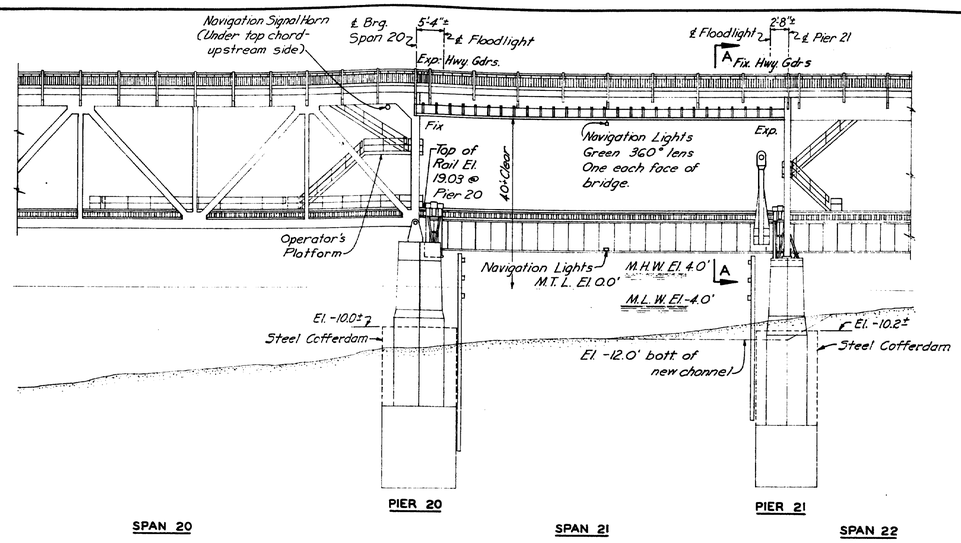
SCALE 1" = 10' | SPEC. NO CIV ENG 19-016-66-1

DRAWING NUMBER
1697-D-8-3

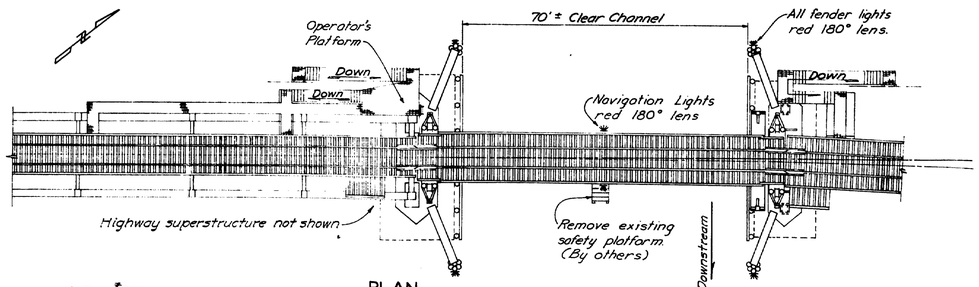
SHEET 2 OF 2

136:93

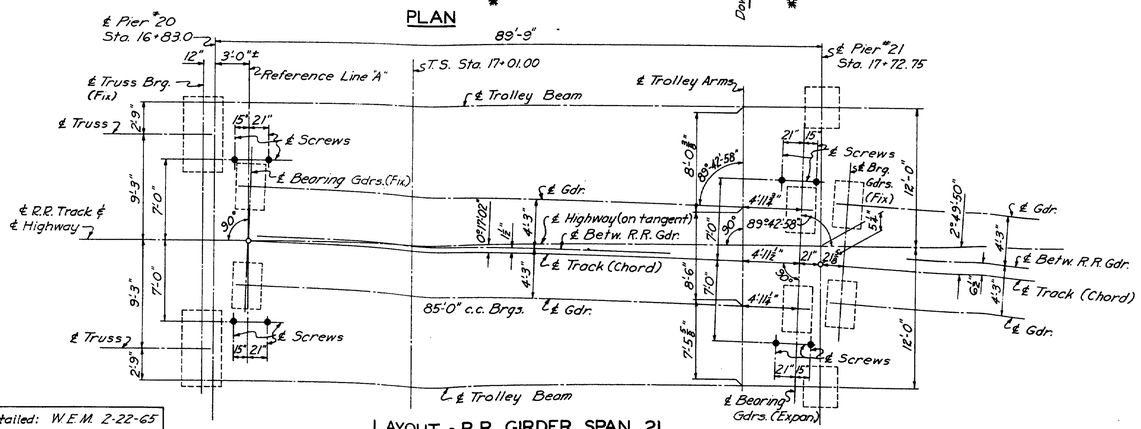
Louraine paints TRUFLEX ☆ SILKY ☆ HIDE-WHITE ☆ RYPLEX



ELEVATION



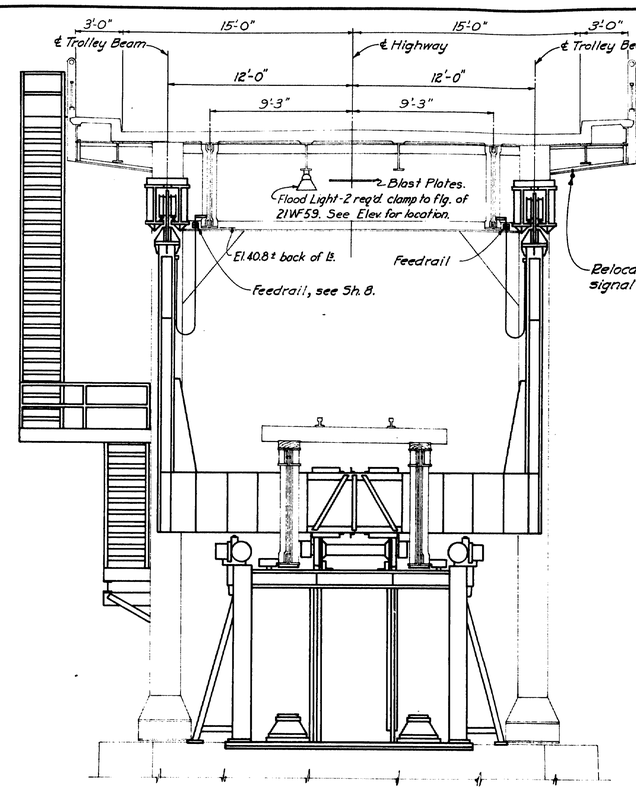
PLAN



Detailed: W.E.M. 2-22-65
Checked: M.E.H. 9-8-65

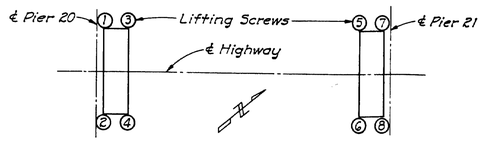
LAYOUT - R.R. GIRDER SPAN 21

No Scale



SECTION A-A

Span shown in raised position.
Scale: 1/4"=1'-0"



Normal Operating Loads For Lifting Screws				
Screw	Raising Span * *		Translating Span *	
No.	Torque	Tension	Tension	Uplift
1 & 2	17 k"	33 k	78 k	—
3 & 4	13 k"	24 k	29 k	11 k
5 & 6	13 k"	26 k	82 k	—
7 & 8	18 k"	36 k	43 k	10 k
Max. Design Loads - D.L.+ 30% d H.W. + 2½" Ice.				
6	14 k"	27 k	90 k #	—
8	19 k"	38 k	46 k #	11 k #

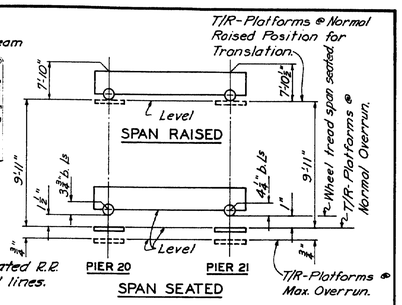
Design speed of Screws = 24 R.P.M.

* D.L. + 20% I.
** D.L. only.

Includes 20% D.L. Imp.

RAILROAD WHEEL REACTIONS

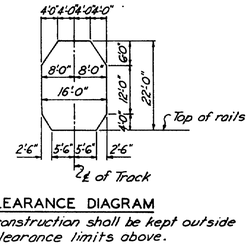
Total dead load per wheel at top of rail for Span 21 = 52 k at Pier 20 and 58 k at Pier 21.



OPERATION OF LIFTING PLATFORMS

GENERAL NOTES:

All structural steel shall be ASTM A36-63T unless otherwise noted. Design stress = 20,000 #/in².
All dimensions are for a temperature of 60° F. with full dead load on the structure.



CLEARANCE DIAGRAM

New construction shall be kept outside the clearance limits above.

Bench Marks:
Pier 18 Top of S.E. bolt of N.E. Grillage El. 12.484
Pier 20 West End Pier 20 (+ mark) El. 10.502
Pier 22 N.E. Anchor Bolt Pier 22 El. 9.427

SPECIFICATIONS:

Design of alterations to existing construction: AREA 1935.
Design of new construction: AREA 1964 with AREA 1935 live load impact.
Live Load: Coopers E72.

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
OPEN CHANNEL FOR SMALL CRAFT

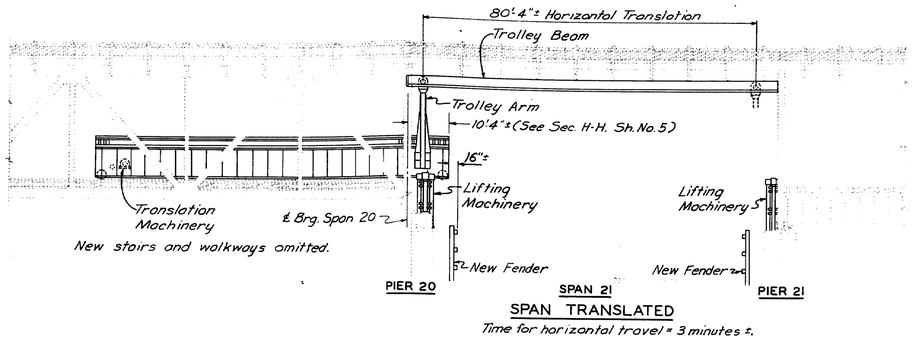
GENERAL PLAN AND ELEVATION

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

SCALE: 1"= 15' AND AS NOTED | DATE: SEPT. 1965 | SHEET 1

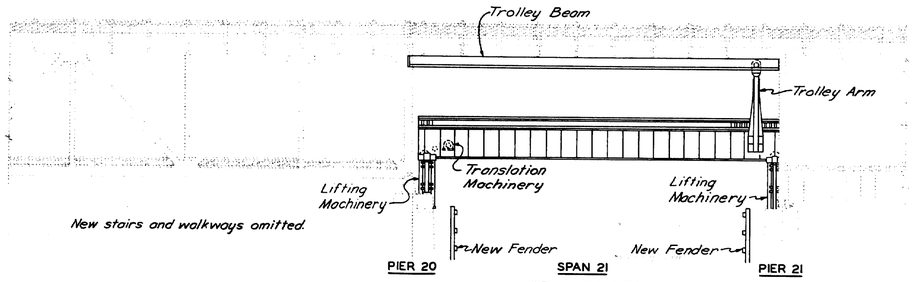
136:103

touraine paints TRUFLEX ☆ SILKY ☆ TITLE WHITE ☆ RYPLEX



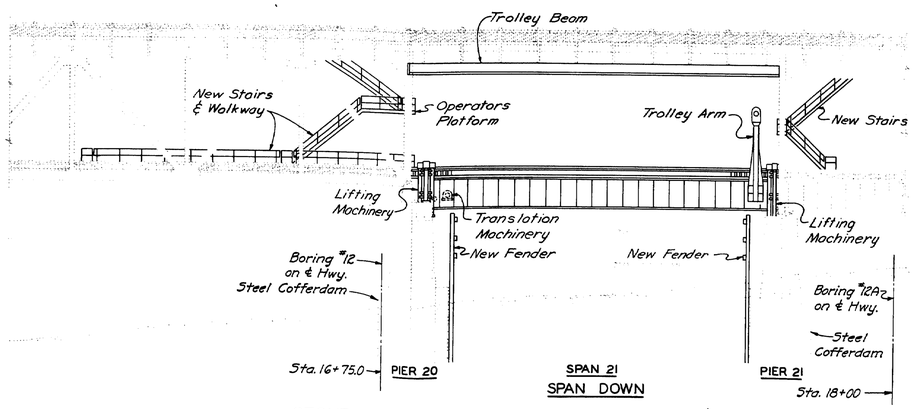
SPAN TRANSLATED

Time for horizontal travel = 3 minutes ±.



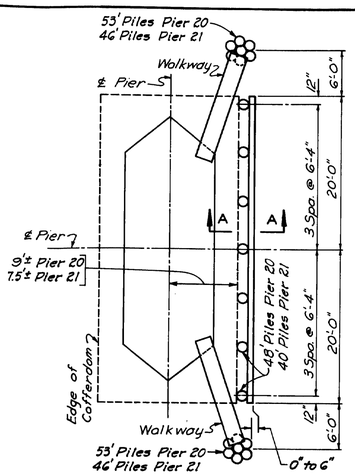
SPAN RAISED

Time for vertical travel = 5 minutes ±.



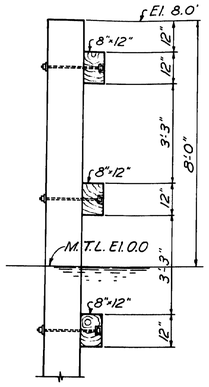
SPAN DOWN

SEQUENCE OF OPERATION



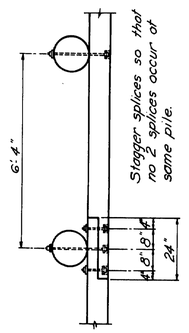
PLAN

Plan detailed at Pier 20, plan at Pier 21 opposite hand and as shown. Scale: $\frac{1}{8}$"=1'-0"



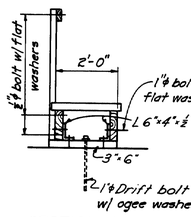
SECTION A-A

Scale: $\frac{1}{2}$"=1'-0"



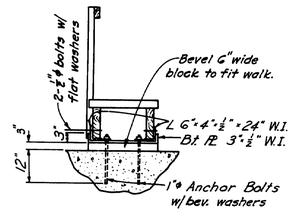
TOP VIEW

Scale: $\frac{1}{2}$"=1'-0"



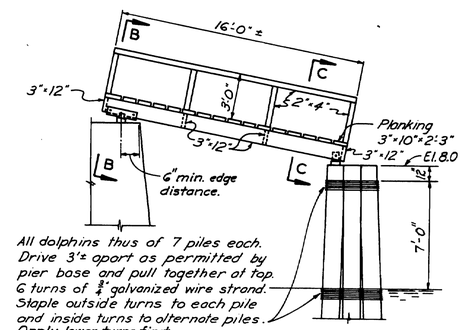
SECTION C-C

Scale: $\frac{1}{2}$"=1'-0"



SECTION B-B

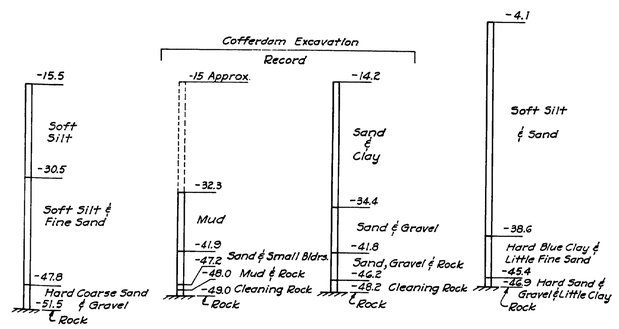
Scale: $\frac{1}{2}$"=1'-0"



All dolphins thus of 7 piles each. Drive 3'± apart as permitted by pier base and pull together at top. 6 turns of ¾" galvanized wire strand. Staple outside turns to each pile and inside turns to alternate piles. Apply lower turns first.

WALKWAY DETAILS

Scale: $\frac{1}{4}$"=1'-0"



NOTES:

All piling and timber (except walkway railing and planking) to be creosoted. All hardware to be galvanized. See Specifications.

For length of piles see plan.

All bolts in fenders shall be 1"ϕ with ogee or csk. cup washers as indicated.

Nail walkway with 50d spikes.

Wrought Iron shall conform to ASTM A42-63 and A207-63T.

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY

PISCATAQUA RIVER BRIDGE

PORTSMOUTH, N.H. TO KITTERY, ME.
OPEN CHANNEL FOR SMALL CRAFT

SEQUENCE OF OPERATION AND FENDERS

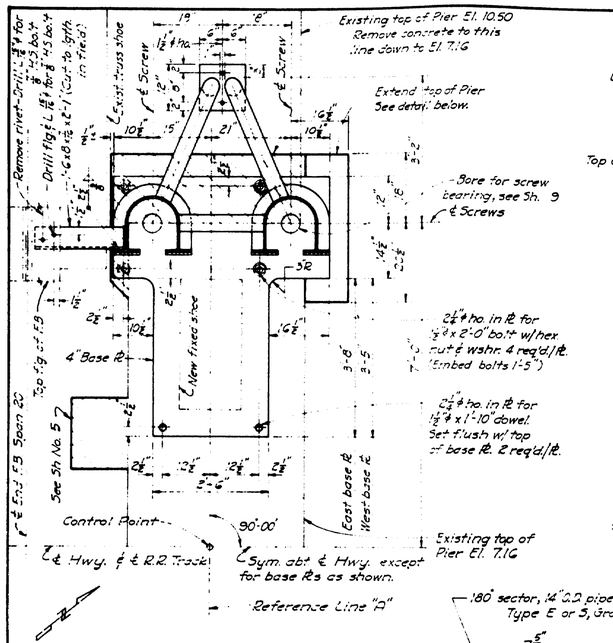
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

Detailed: W.E.M. 3-10-65
Checked: M.R.H. 9-8-65

SCALE: 1"= 15' AND AS NOTED. DATE: SEPT. 1965 SHEET 2

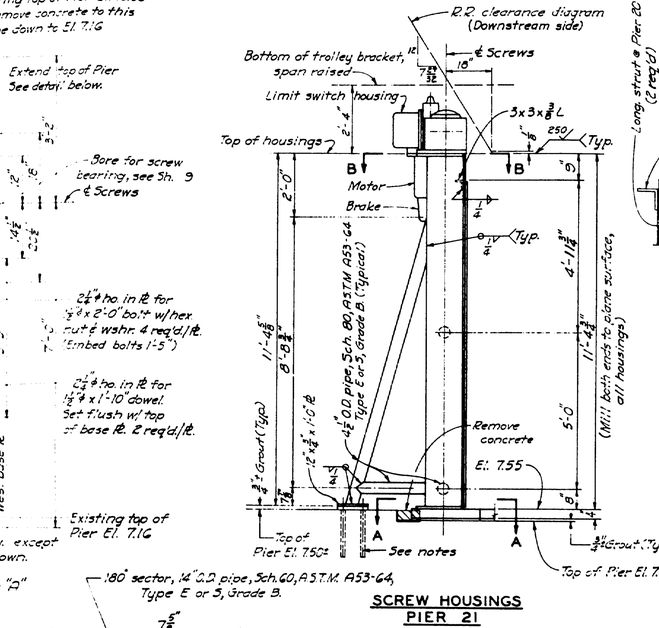
136:104

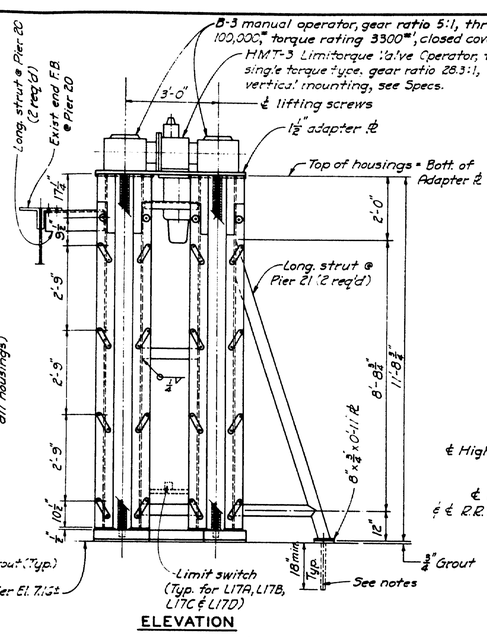
touraine paints TRUFLEX ☆ SILKY ☆ TITLE WHITE ☆ FYPLEX



PART PLAN - PIER 20

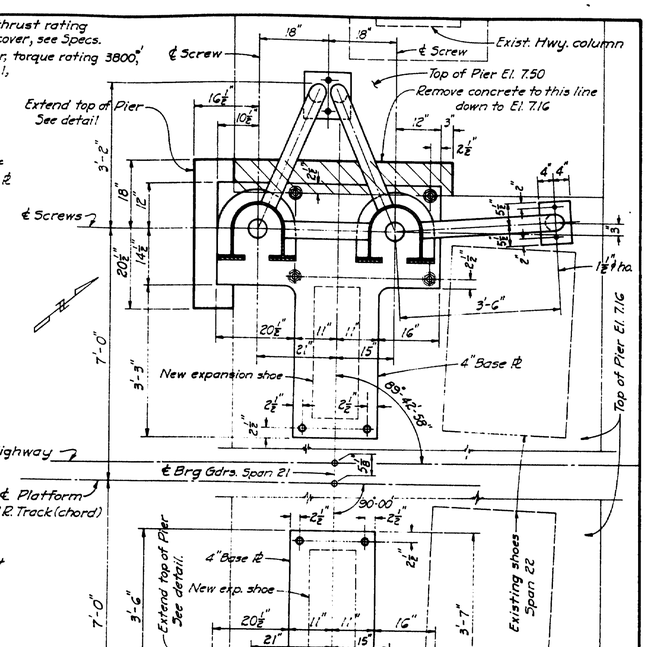
Lifting platform and machinery not shown.





ELEVATION

Anchor bolts for 4" base ℄s not shown.
Scale: ½"=1'-0"

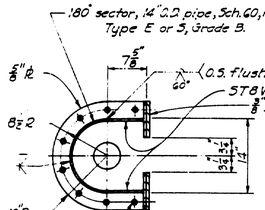


PLAN - PIER 21

Details and dimensions not shown same as for Pier 20.

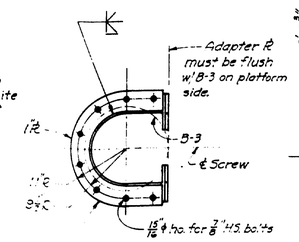
SCREW HOUSINGS PIER 21

Scale: ½"=1'-0"



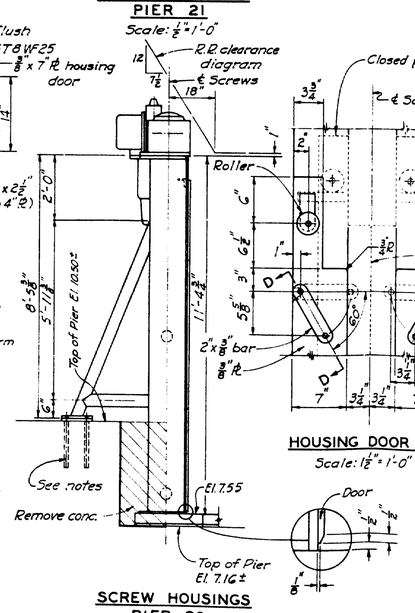
SECTION A-A

Scale: 1"=1'-0"



SECTION B-B

B-3 adapter ℄ not shown.
Scale: 1"=1'-0"

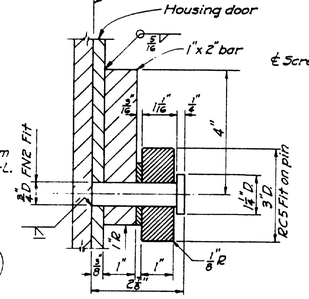


SCREW HOUSINGS PIER 20

Details not shown same as for Pier 21.
Scale: ½"=1'-0"

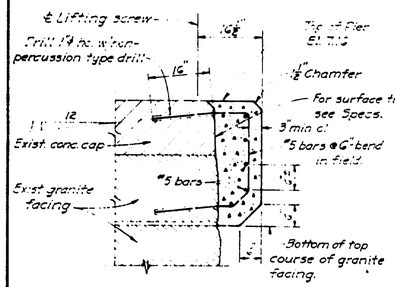
HOUSING DOOR DETAILS

Scale: 1½"=1'-0"



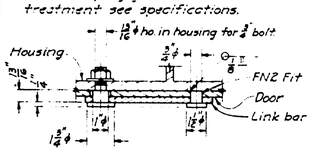
SECTION C-C

Scale: ½"=1"
Pin, roller & washer shall be stainless steel A.S.T.M. A276-63, type 302.



PIER TOP REVISIONS

For epoxy grout for dowels and surface treatment see specifications.



SECTION D-D

Scale: 3"=1'-0"

Shoulder bolts & pins shall be stainless steel A.S.T.M. A276-63, type 302. Holes in link bar shall be 1/32" for 1" ø bolt & 65/64" for ¾" ø pin.

NOTES:

For grout to be used under base ℄s and bracing; epoxy grout for anchor bolts and reinforcing; and epoxy coating of concrete surfaces, see specifications.

All anchor bolts for screw housing braces shall be 1" ø with hex. nut and washer, embed min. 1'-6". For all anchor bolts drill concrete ⅛" larger than bolt diameter and grout as per specs.

All structural steel shall be ASTM A36-63T unless otherwise noted. All H.S. bolts shall be ASTM A325-64. See specs. for installation of H.S. bolts.

Top surface of all 4" base ℄s for screw housings and shoes shall be a true plane surface.

1½" adapter ℄ for B-3 operators shall be fabricated by the mfg. of the B-3 units and shall preferably be a single plate.

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
OPEN CHANNEL FOR SMALL CRAFT

LIFTING MACHINERY

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

Detailed: G.E.G. 3-17-65
Checked: M.R.H. 9-8-65

SCALE: ¾"=1'-0" AND AS NOTED. DATE: SEPT. 1965 SHEET 3

136:105

touraine paints TRUFLEX ☆ SILKY ☆ TRUE WHITE ☆ RYPLEX

LATERAL SUPPORT

STIFFENER

SECTION F-F

ELEVATION

PART SECTION K-K

SECTION G-G

SECTION H-H

SHOULDER BOLT
No Scale

BOTTOM FLG. BRACING
Scale: 1½"=1'-0"

SECTION D-D

SECTION C-C

SECTION B-B

TROLLEY BEAM

PLAN

ELEVATION

TROLLEY ARM

SECTION A-A

SECTION E-E

SECTION J-J
Scale: 1"=1'-0"

SECTION I-I
Scale: 1"=1'-0"

TROLLEY HEAD DETAILS
Scale: 1½"=1'-0"

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
OPEN CHANNEL FOR SMALL CRAFT

TROLLEY ARM AND BEAM

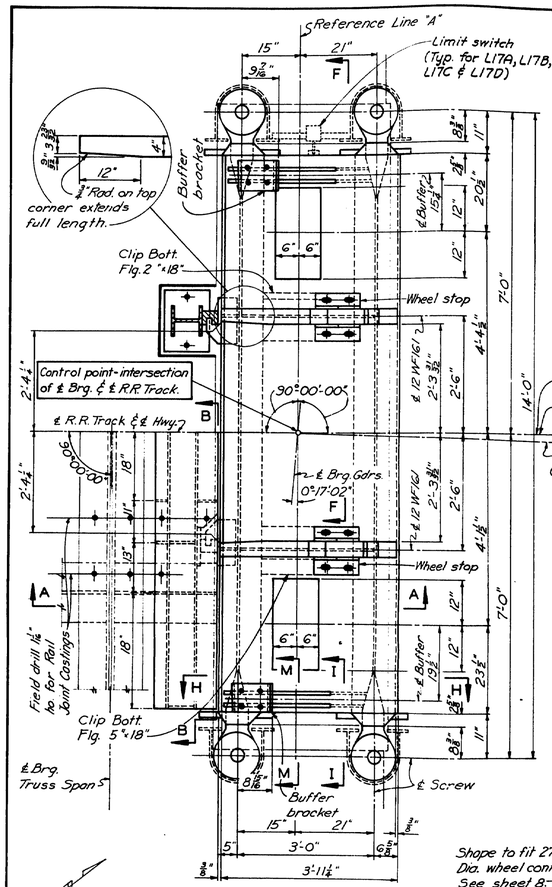
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

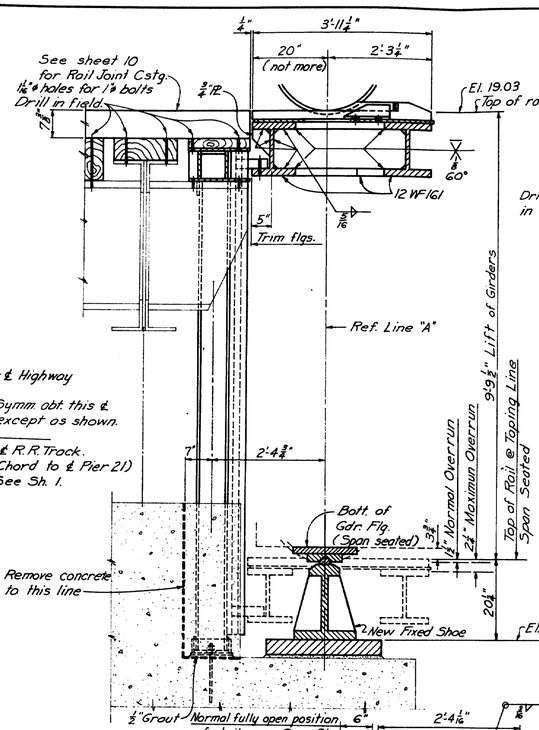
DATE: SEPT. 1965

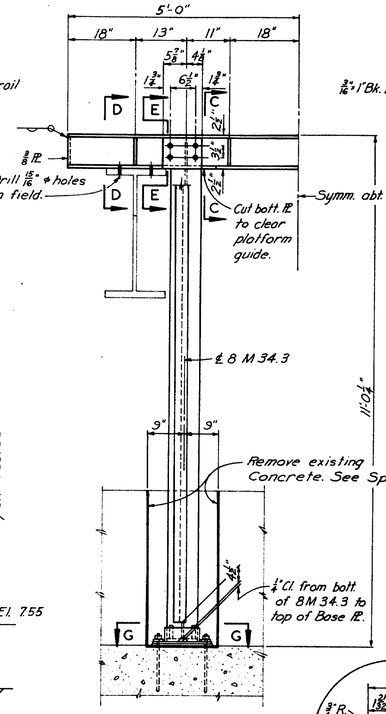
SHEET 4

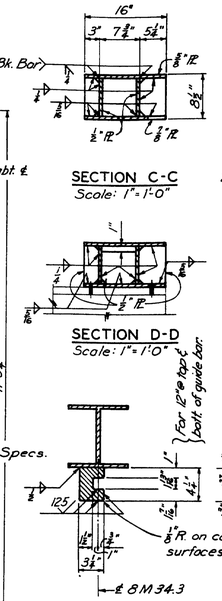
SCALE: 1"=1'-0" AND AS NOTED.

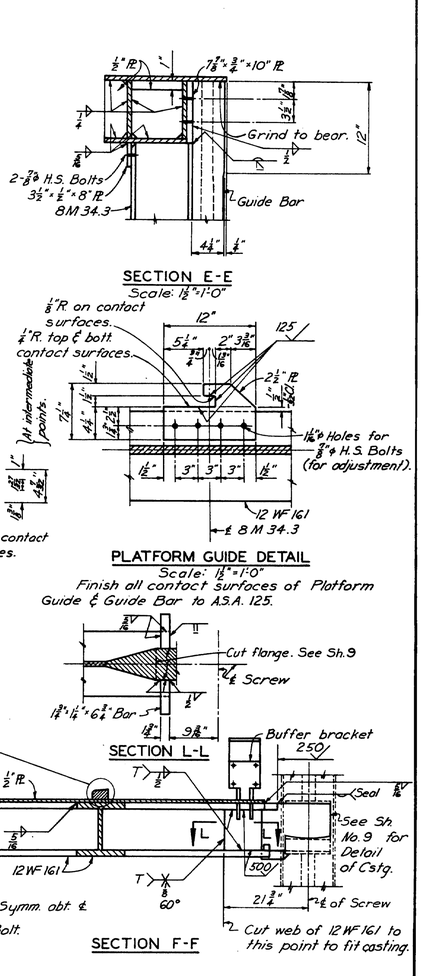
136:108

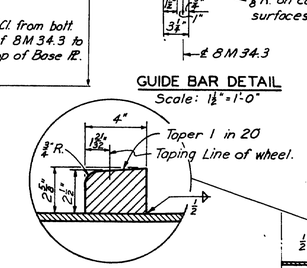


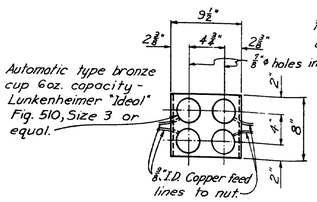


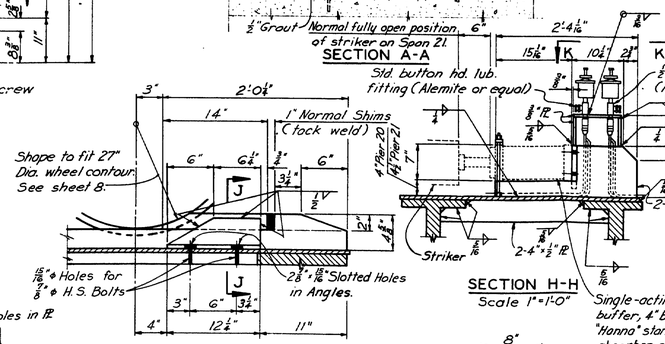


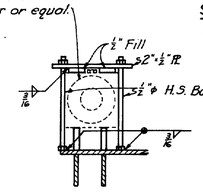












NOTES:
All holes are 15/16" ø for ⅞" ø H.S. Bolts except as shown.
All structural steel shall be ASTM A36-63T.
Symbol —⟨T on welds indicates test. See sheet 4.
Use washers against slotted holes.

MAINE-NEW HAMPSHIRE INTERSTATE BRIDGE AUTHORITY

PISCATAQUA RIVER BRIDGE

PORTSMOUTH, N.H. TO KITTERY, ME.

OPEN CHANNEL FOR SMALL CRAFT

LIFTING PLATFORM - PIER 20

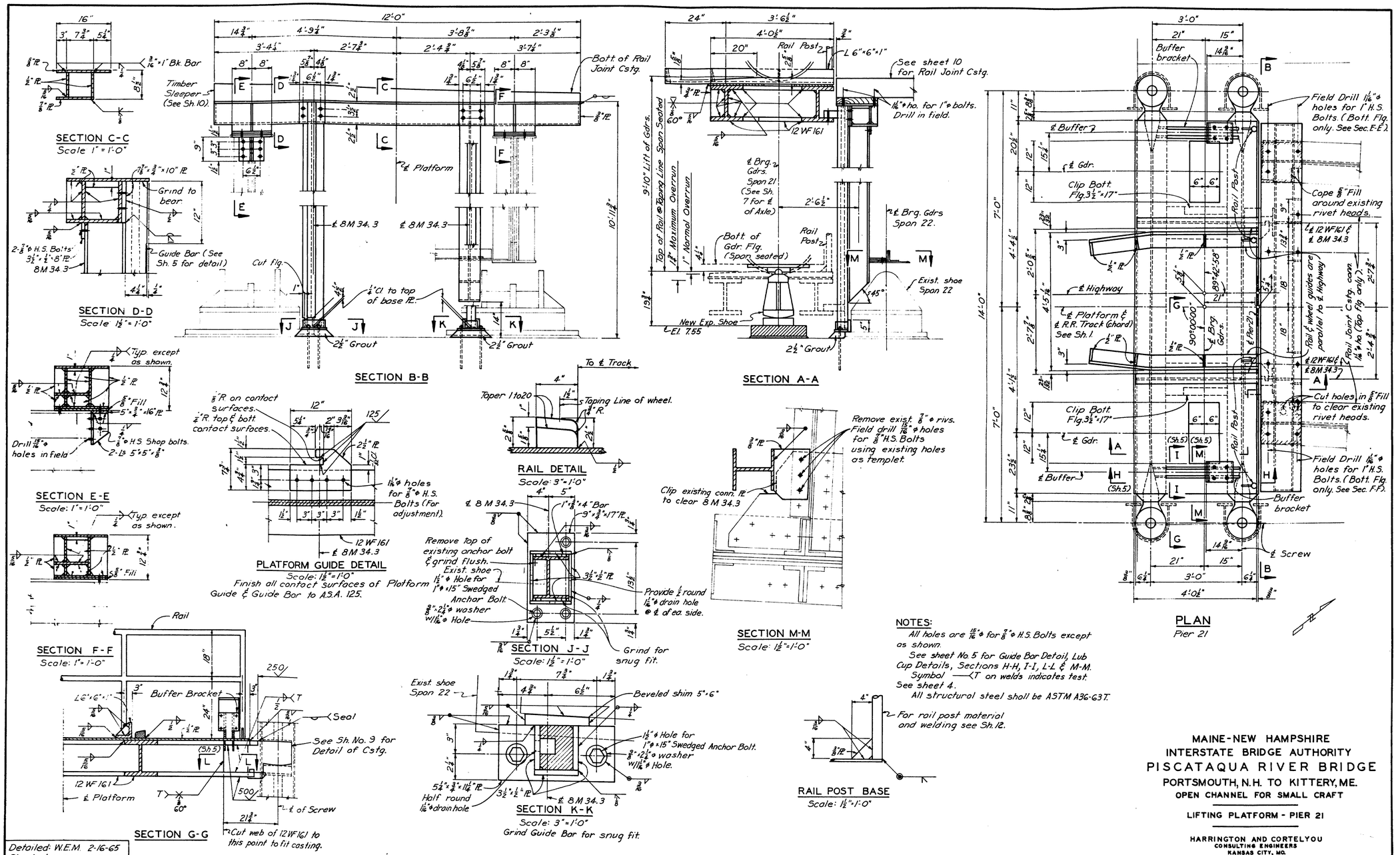
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

Detailed: W.E.M. 2-8-65
Checked: M.R.H. 9-8-65

SCALE: ¾"=1'-0" AND AS NOTED. DATE: SEPT. 1965 SHEET 5

136:107

touraine paints TRUFLEX ☆ SILKY ☆ TRUE WHITE ☆ RYPLEX



NOTES:

All holes are 15/16"ø for ⅞"ø H.S. Bolts except as shown.

See sheet No. 5 for Guide Bar Detail, Lub Cup Details, Sections H-H, I-I, L-L ℄ M-M.

Symbol —⟨T on welds indicates test. See sheet 4.

All structural steel shall be A.S.T.M. A36-63T.

Detailed: W.E.M. 2-16-65
Checked: M.R.H. 9-8-65

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY

PISCATAQUA RIVER BRIDGE

PORTSMOUTH, N.H. TO KITTERY, ME.

OPEN CHANNEL FOR SMALL CRAFT

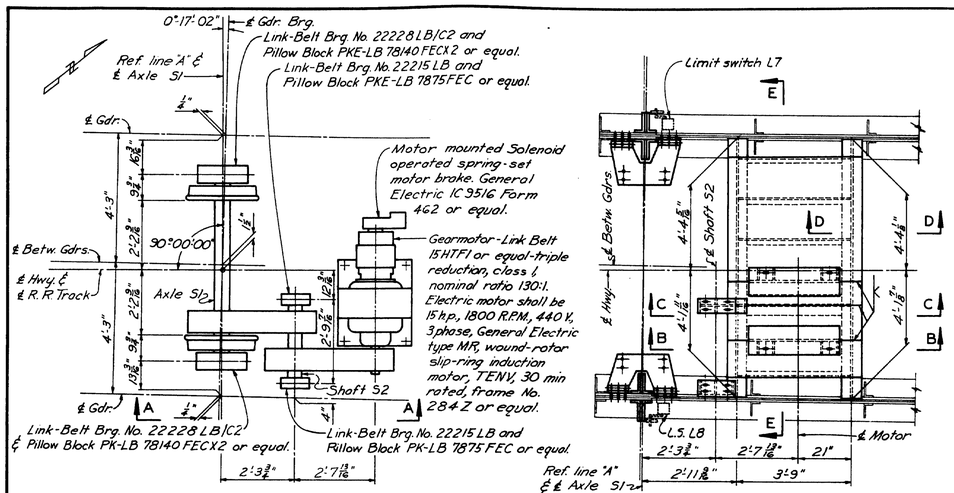
LIFTING PLATFORM - PIER 21

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

SCALE: ¾" = 1'-0" AND AS NOTED. DATE: SEPT. 1965 SHEET 6

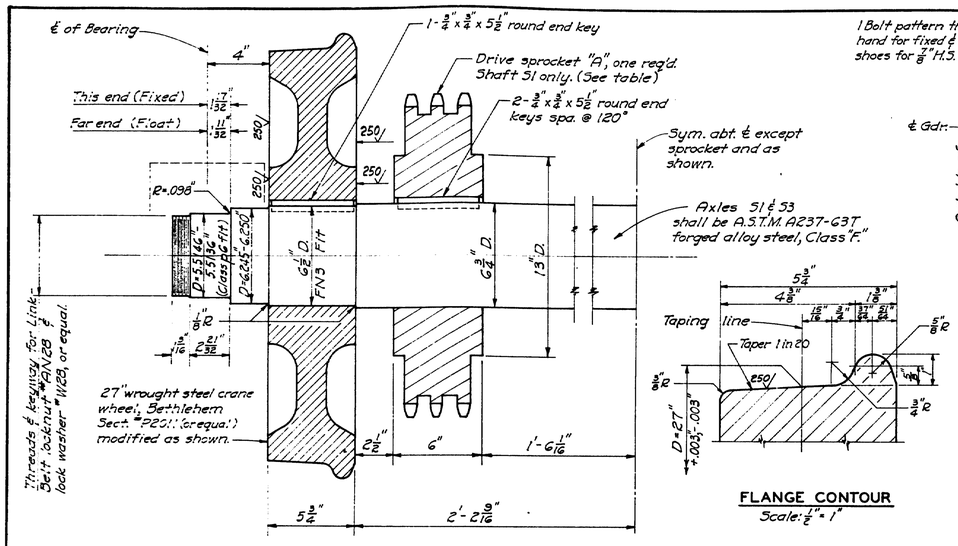
136:108

touraine paints TRUFLEX ☆ SILKY ☆ TRUE WHITE ☆ RYPLEX



136:109

touraine paints TRUFLEX ☆ SILKY ☆ TRUE WHITE ☆ RYPLEX

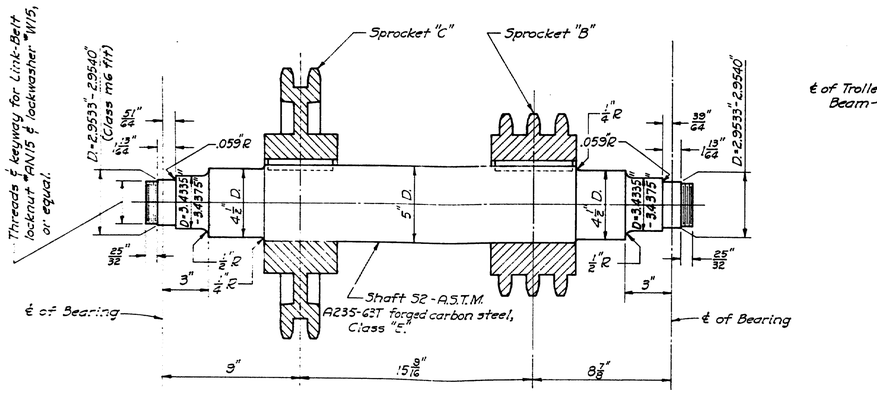


RAILROAD WHEEL ASSEMBLY

Axle 51 shown, axle 53 same except omit sprocket.

FLANGE CONTOUR

Scale: 1" = 1"



SHAFT S2

One req'd.

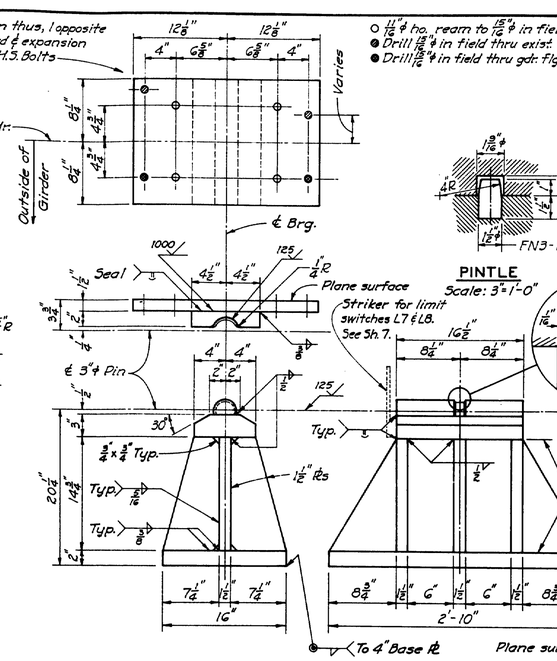
SPROCKET TABLE

Mark	Width	No. Teeth	Pitch Diameter	Root Diameter	Outside Diameter	Hub Bore	Hub Diameter	Hub Length	Keys
A	Triple	42	20.072"	19.197"	20.916"	6¾"	13"	6"	2-¾" x ¾" x 5½"
B	Triple	23	11.016"	10.141"	11.813"	5"	9"	5½"	2-⅝" x ⅝" x 5"
C	Double	35	16.732"	15.859"	17.567"	5"	9"	4¾"	2-¾" x ¾" x 4¼"
D	Double	20	9.569"	8.714"	10.371"	# 2½"	7 13/16"	4¾"	1-1" x 1" x 4¼"

To match gearmotor; center hub on gearmotor shaft extension.

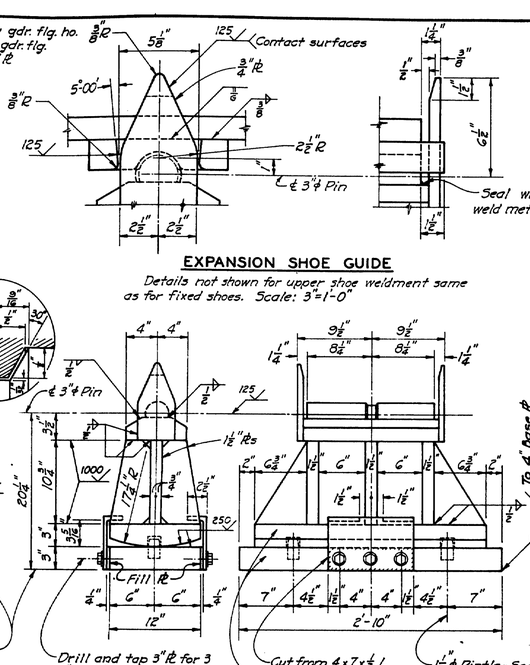
All sprockets shall be Link Belt 2C-120, Type "C", or equal, cast steel, 1½" pitch and shall have FN1 Fit on shafts. Multiple keys are spaced @ 120°. Keys shall be round end, w/o set screws.

Detailed: G.E.G. 4-9-65
Checked: M.R.H. & F.M.C. Jr. 9-8-65



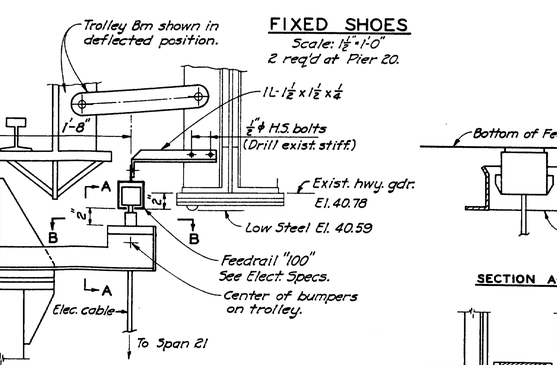
PINTLE

Scale: 3" = 1'-0"



EXPANSION SHOE GUIDE

Details not shown for upper shoe weldment same as for fixed shoes. Scale: 3" = 1'-0"

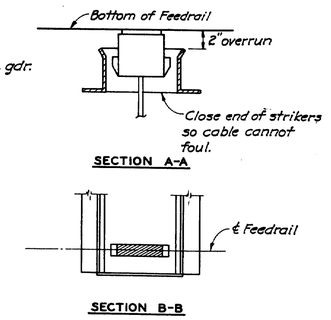


FIXED SHOES

Scale: 1½" = 1'-0"
2 req'd at Pier 20.

FEEDRAIL DETAILS

Scale: 1½" = 1'-0"
Details of trolley and strikers are schematic only, see Elec. Specs.



EXPANSION SHOES

Scale: 1½" = 1'-0"
2 req'd at Pier 21.

NOTES:

All material for shoes shall be A.S.T.M. A36-G3T except as shown. Shoes shall be welded as shown to 4" base pls after final positioning of lifting machinery. Expansion shoes must be positioned in field so as to be truly vertical at 60°F under full dead load.

See Sh. No. 7 for bearings ℄ pillow blocks, ℄ other translation machinery. Shaft end details for bearings ℄ pillow blocks are nominal requirements from Link-Belt catalogues. Dimensions, toleronces and finishes shall be verified before fabrication of axles ℄ shafts, and shown on shop drawing.

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
OPEN CHANNEL FOR SMALL CRAFT

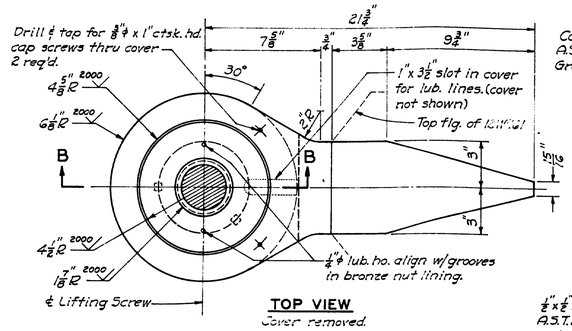
RAILROAD WHEELS AND SHOES

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

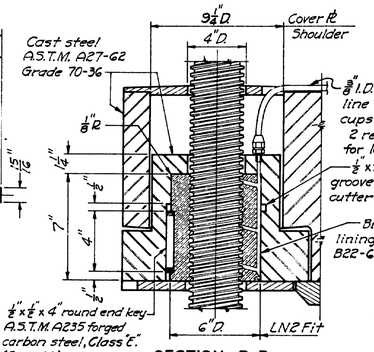
SCALE: 3" = 1'-0" AND AS NOTED. DATE: SEPT. 1965 SHEET 8

136:110

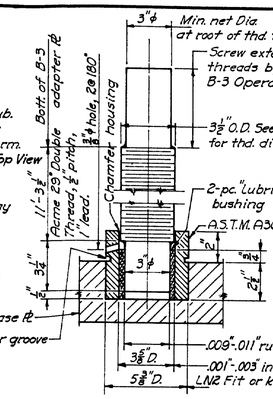
touraine points TRUFLEX ☆ SILKY ☆ TRIPLE WHITE ☆ RYPLEX



TOP VIEW
Cover removed.

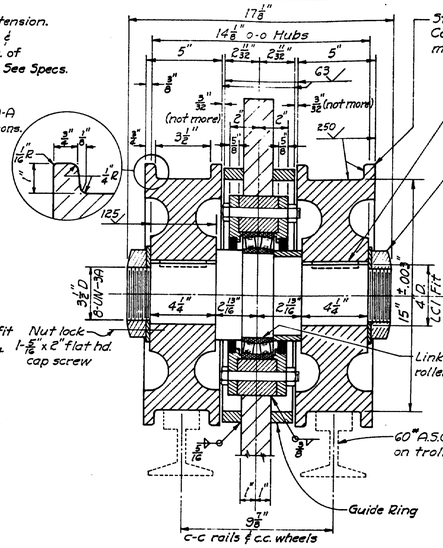


SECTION B-B



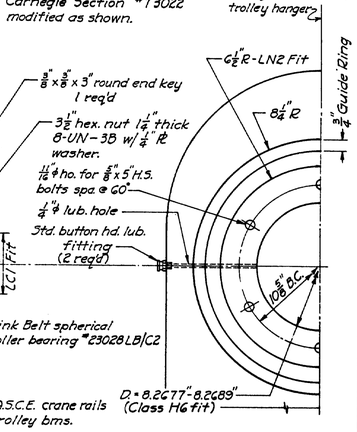
LIFTING SCREW & BEARING

Lifting screws shall be A.S.T.M. A235-G3T forged carbon steel, Class "E", 8 req'd, 4 w/ right hand thd. ℄ 4 w/ left hand thd. See specifications for screw rotation. Lubrite bushings shall be A.S.T.M. B22-G1, Alloy D bronze.

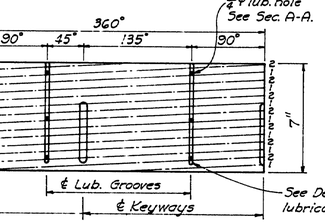


Std. 15" wrought steel crane wheel Carnegie Section #T3022 modified as shown.

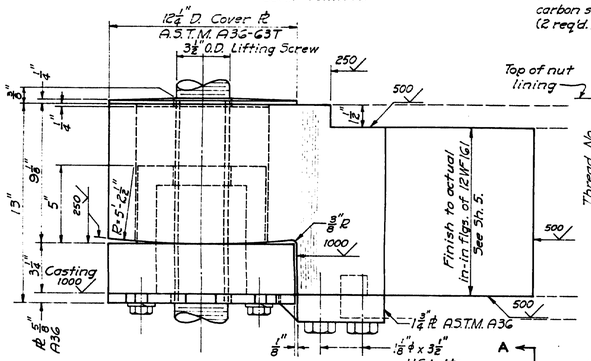
Sym. about ℄ of trolley hanger



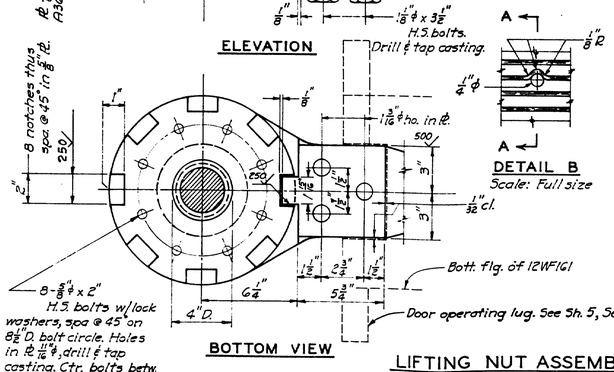
BEARING HOUSING
Side ℞'s ℄ bearing removed. See also Sh. No. 4



DEVELOPED VIEW OF EXTERIOR OF BRONZE NUT LINING



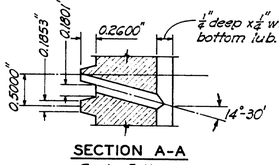
ELEVATION



BOTTOM VIEW

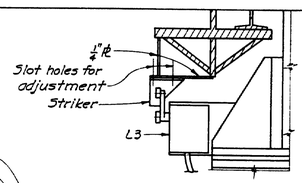
DETAIL B
Scale: Full size

LIFTING NUT ASSEMBLY
8 req'd – 4 w/right hand thd. ℄ 4 w/ left hand thd.

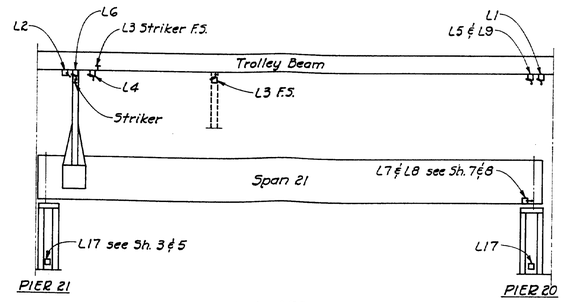


SECTION A-A
Scale: Full size

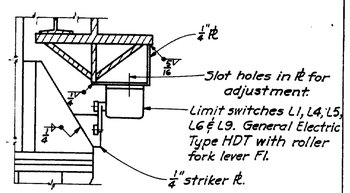
Notes:
For location of lubrication cups see Sh. 5. High strength bolts shall comply with requirements given in structural steel specs. ℄ as shown.



LIMIT SWITCH L3

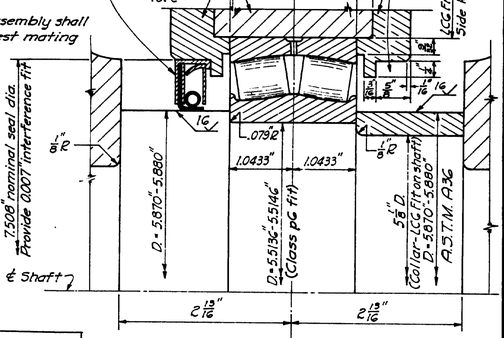


GENERAL ARRANGEMENT OF LIMIT SWITCHES
Suggested locations shown, see specs. For electrical diagrams see Sh. 15.
No Scale



TRANSLATION LIMIT SWITCHES
Suggested mounting details shown except for L5, L2. See specifications. Mount limit switches on exterior side of trolley beams.

TROLLEY WHEEL ASSEMBLY
2 Req'd.
Wheels for each assembly shall be paired to the closest mating of tread diameters.



TROLLEY BEARING DETAILS
Trolley shaft and keys shall be ASTM A325-G3T forged carbon steel, Class "E".

Detailed: G.E.G. 2-17-65
Checked: F.M.C. jr. 9-8-65

MAINE-NEW HAMPSHIRE INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
OPEN CHANNEL FOR SMALL CRAFT

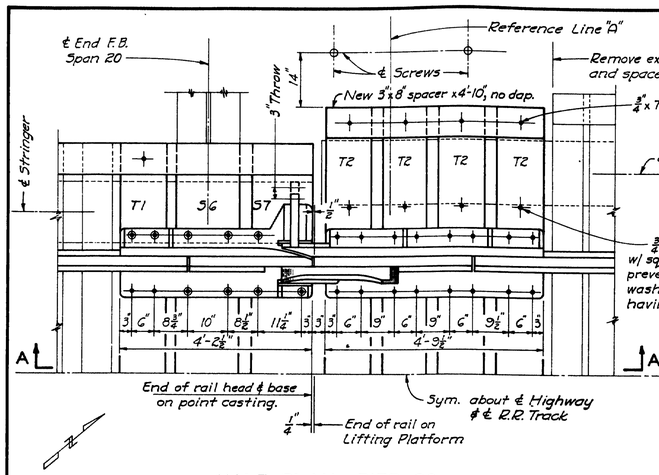
LIFTING NUT AND TROLLEY WHEELS

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

SCALE: 3"=1'-0" AND AS NOTED. DATE: SEPT. 1965 SHEET 9

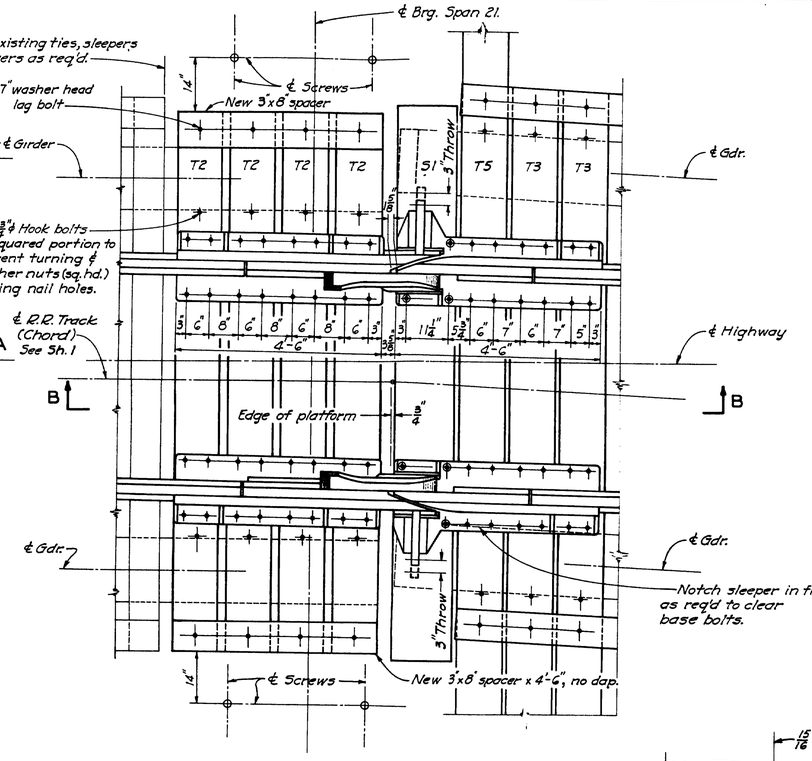
136:111

touraine paints TRUFLEX ☆ SILKY ☆ TRIPLE WHITE ☆ RYPLEX



HALF PLAN - PIER 20

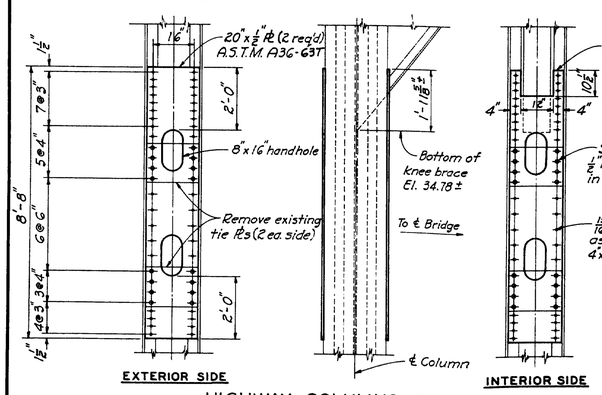
✦ Base ho. 1 1/16" ϕ for 1" bolts.
✺ Base ho. 1 3/8" ϕ for fiber bushings, 1 5/32" I.D. x 1 1/16" O.D., and fiber washers ¼" x 2½" dia. against steel surfaces. 1" ϕ bolts.



PLAN - PIER 21

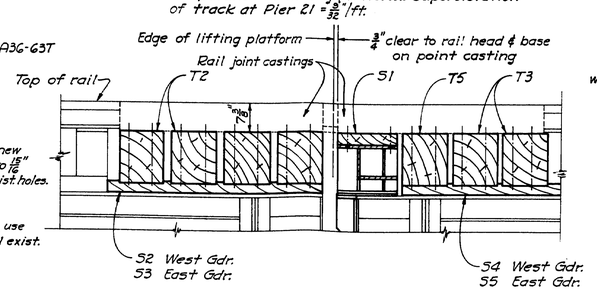
All ties under rail joint castings shall be set parallel to lifting platform. Superelevation of track at Pier 21 = 8/32" / ft.

SECTION A-A

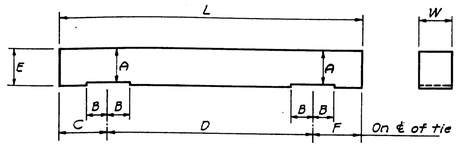


HIGHWAY COLUMNS - PIER 21

Add Pl's to both columns. Erect Pl's with 1" ϕ H.S. bolts. Pl's are identical except for knee brace cope.
Scale: ½" = 1'-0"

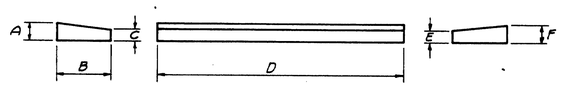


SECTION B-B

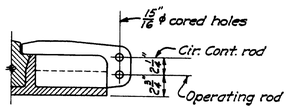


TIE DIMENSIONS								
Mark	L	E	W	A	B	C	D	F	No. Req'd.
T1	10'-0"	12"	12"	10 15/16"	8 1/8"	18"	7'-0"	18"	1
T2	11'-8"	14"	12"	13½"	7¼"	17½"	8'-6"	20½"	8
T3	17'-0"	14"	12"	13 5/16"	9"	21"	8'-6"	6'-9"	2
T4	15'-0"	12"	12"	11⅛"	8⅛"	18"	7'-0"	6'-6"	8
T5	20'-0"	14"	12"	13 5/16"	9"	4'-9"	8'-6"	6'-9"	1
T6	17'-0"	14"	12"	13⅝"	9"	21"	8'-6"	6'-9"	7

TIES



SLEEPER DIMENSIONS							
Mark	A	B	C	D	E	F	No. Req'd.
51	5 3/16"	16"	5 3/16"	12'-0"	2"	2"	1
52	4 5/16"	14"	3 13/16"	4'-7"	3 1/16"	4 5/16"	1
53	1 15/16"	14"	1 15/16"	4'-7"	1 5/16"	1 15/16"	1
54	4 5/16"	14"	4 5/16"	13'-10"	4 11/16"	5¼"	1
55	2 3/16"	14"	2"	13'-10"	1 3/16"	2 1/16"	1
56	5 1/16"	16"	5 1/16"	10'-0"	5 1/16"	5 1/16"	1
57	2 1/16"	16"	2 1/16"	10'-0"	2 1/16"	2 1/16"	1
58	2 1/16"	14"	2 1/16"	4'-10"	2 1/16"	2 1/16"	2



LOCK BAR

Scale: 1½" = 1'-0"
Lock bars shall be furnished with castings.

SLEEPERS

Notes:

Existing rail on structure is 112# RE OH BSCO 1939. Rail joint castings shall be of manganese steel, as made by Conley Frog and Switch Co. of Memphis, Tenn. or equal. Their patterns No. 1331-A, 1332-A, 1333-A and 1334-A shall be modified to fit the above rail and as shown on the plans. Base holes shall be cored and spindled smooth. Where base bolts pass thru structural steel use fiber bushings, fiber washers, and steel washers under bolt heads ℄ nuts. Holes in ties and steel supports for casting base bolts shall be drilled in the field after alignment of track and joint castings.

Work sheets 10 and 11 together for complete deck plan.

Bolt new sleepers to top girder flgs. with ⅞" ϕ bolts w/ flat washers through existing holes in flgs. Dap ties for bolt heads where req'd.

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
OPEN CHANNEL FOR SMALL CRAFT

RAIL AND DECK MATERIALS

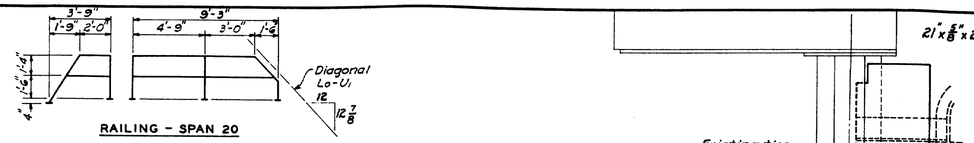
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

Detailed: G.E.G. 3-23-65
Checked: M.R.H. 9-8-65

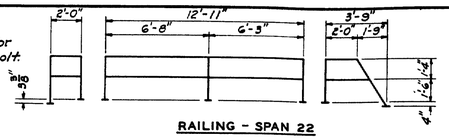
SCALE: ¾" = 1'-0" AND AS NOTED. DATE: SEPT. 1965 SHEET 10

136:112

touraine paints TRUFLEX ☆ SILKY ☆ TRIPLE WHITE ☆ RYPLEX



RAILING - SPAN 20



RAILING - SPAN 22

NOTE:
Pipe handrail & 5/8" Pls. shall be included in bid item for "Structural and Miscellaneous Steel."

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
OPEN CHANNEL FOR SMALL CRAFT

RAIL AND DECK MATERIALS

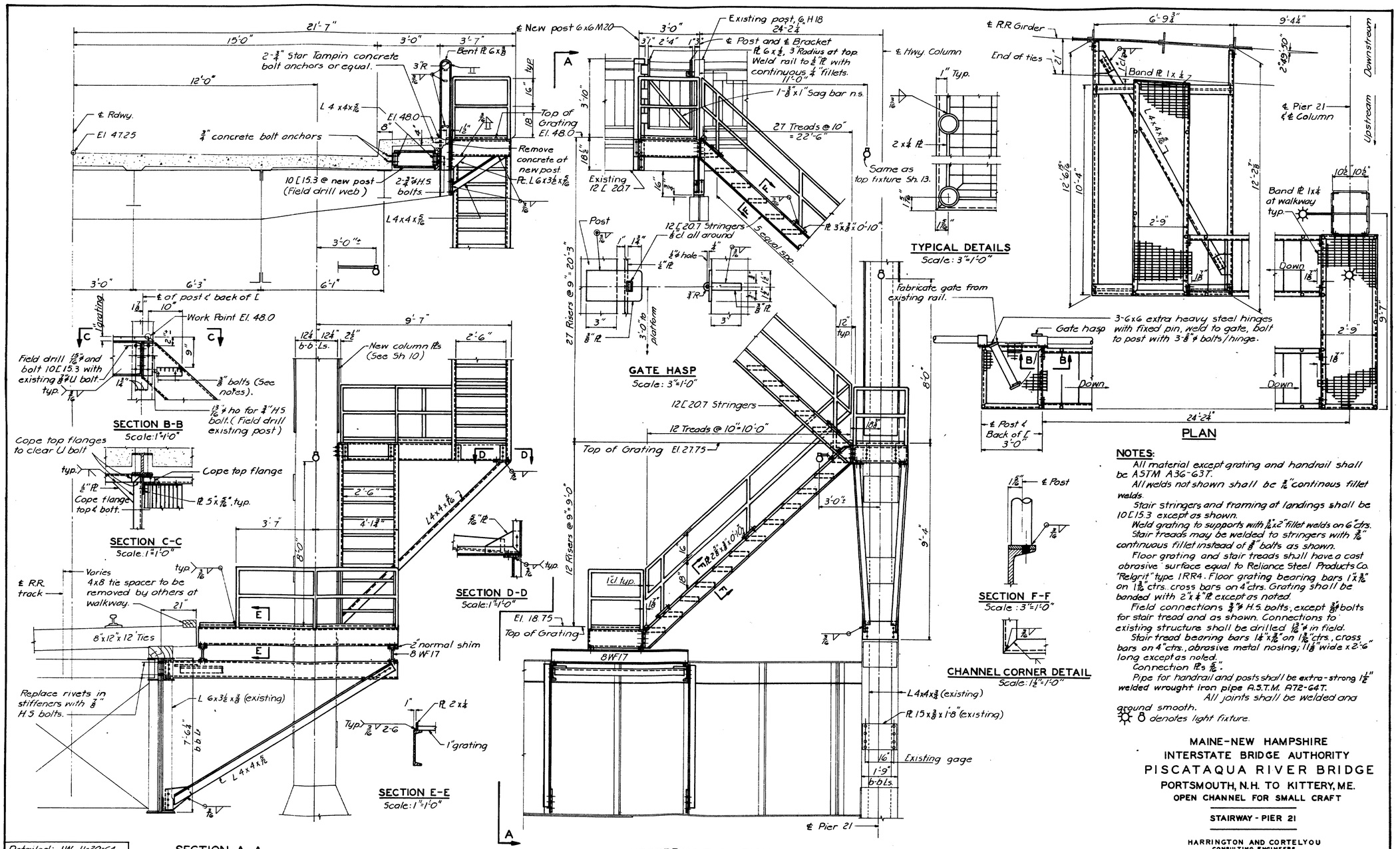
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

Detailed: G.E.G. 9-7-65
Checked: M.R.H. 9-8-65

SCALE: 3/4" = 1'-0" AND AS NOTED DATE: SEPT. 1965 SHEET 11

136:113

touraine paints TRUFLEX ☆ SILKY ☆ TRIPLE WHITE ☆ RYPLEX



NOTES:

All material except grating and handrail shall be A5TM A36-637.

All welds not shown shall be ¼" continous fillet welds.

Stair stringers and framing at landings shall be 10 [15.3 except as shown.

Weld grating to supports with ⅜"x2" fillet welds on 6" ctrs.

Stair treads may be welded to stringers with ⅜" continous fillet instead of ⅜" bolts as shown.

Floor grating and stair treads shall have a cast obrasive surface equal to Reliance Steel Products Co. "Relgrit" type 1RR4. Floor grating bearing bars 1"x⅛" on 1⅛" ctrs. cross bars on 4" ctrs. Grating shall be banded with 2"x ¼" PL except as noted.

Field connections ¾" ϕ H.S. bolts, except ⅞" ϕ bolts for stair tread and as shown. Connections to existing structure shall be drilled 13/16" ϕ in field.

Stair tread bearing bars 1¼"x⅛" on 1⅛" ctrs., cross bars on 4" ctrs., abrasive metal nosing; 1⅛" wide x 2'-6" long except as noted.

Connection PLs ⅝".

Pipe for handrail and posts shall be extra-strong 1½" welded wrought iron pipe A.S.T.M. A72-64T.

All joints shall be welded and ground smooth.

☼ ☼ denotes light fixture.

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
OPEN CHANNEL FOR SMALL CRAFT

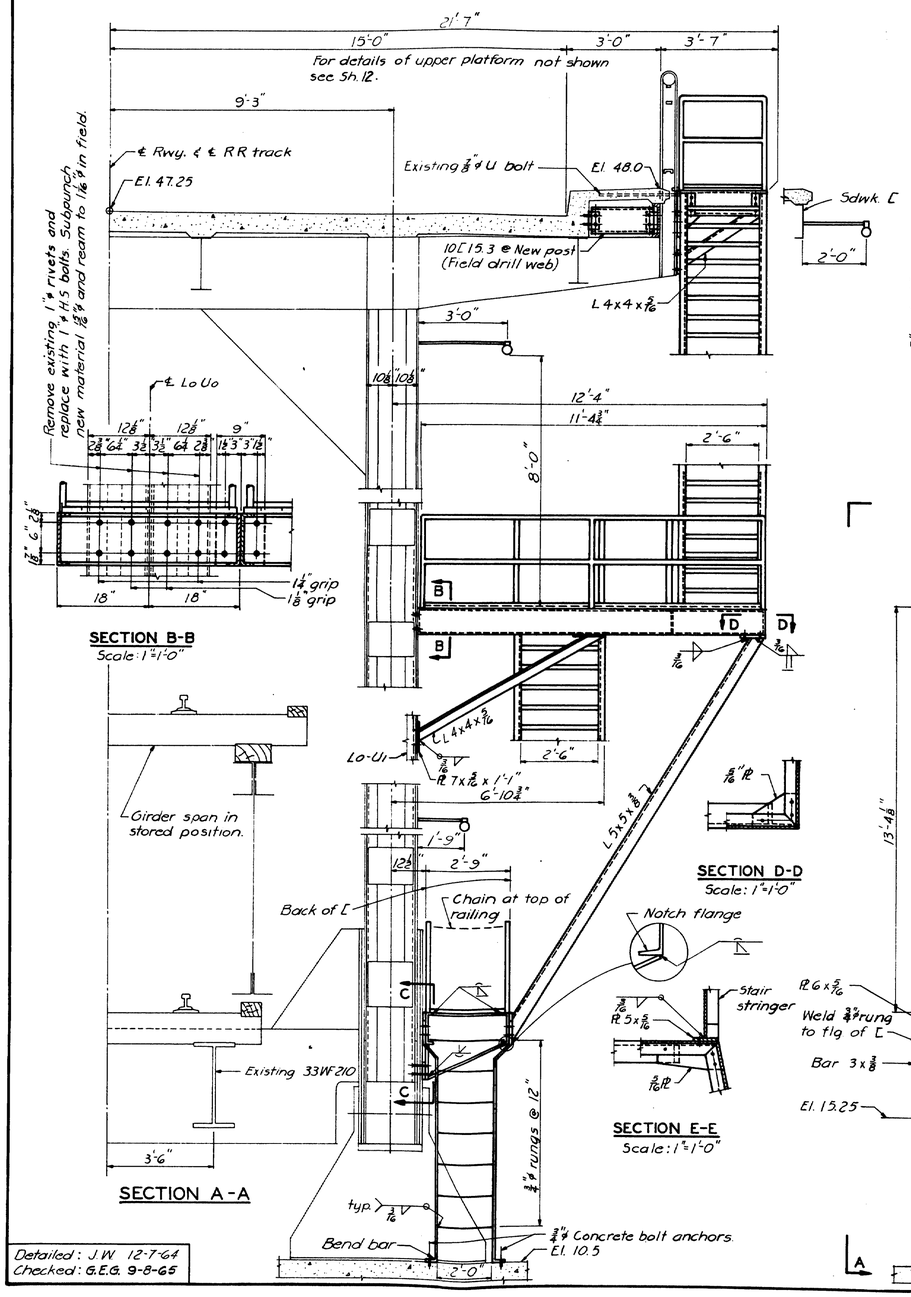
STAIRWAY - PIER 21

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

SCALE: ½"= 1'-0" AND AS NOTED. DATE: SEPT. 1965 SHEET 12

136:114

touraine paints TRUFLEX ☆ SILKY ☆ TRUE WHITE ☆ RYPLEX



NOTES:

For General Stairway notes see Sheet 12.
Work Sheets 13 and 14 together.
Provide chain with 1⅛" x ¼" ϕ links with hook and eye-bolt at end of walkway as shown.
For typical details of grating and handrail location and welding to supports see Sheet 12.
8 denotes light fixtures.

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
OPEN CHANNEL FOR SMALL CRAFT

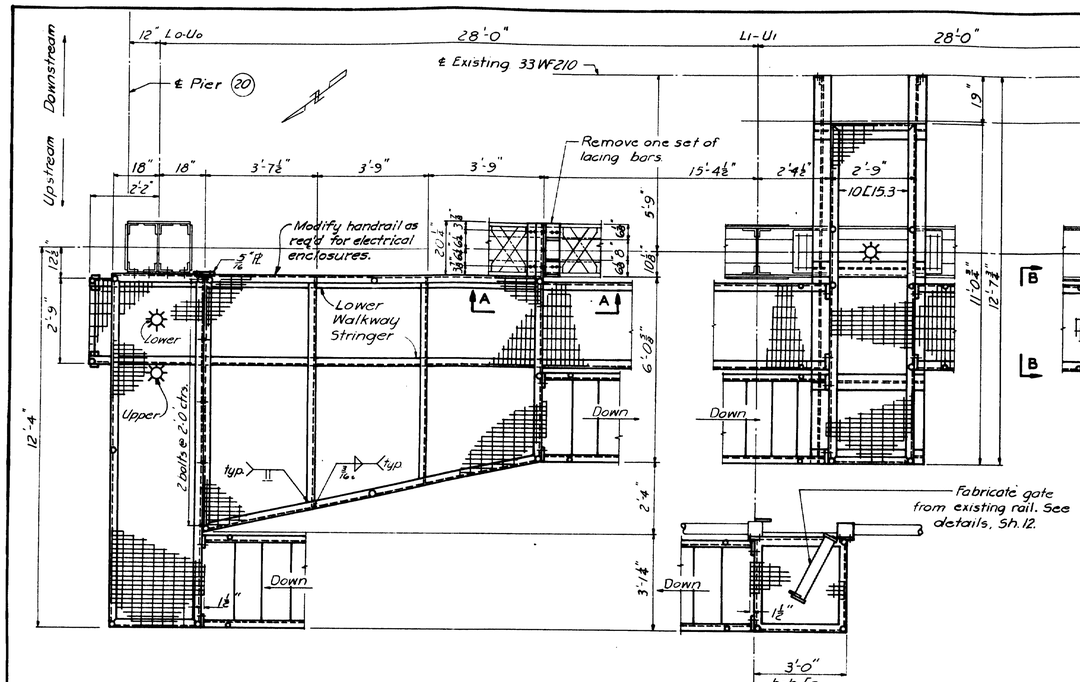
STAIRWAY - PIER 20

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

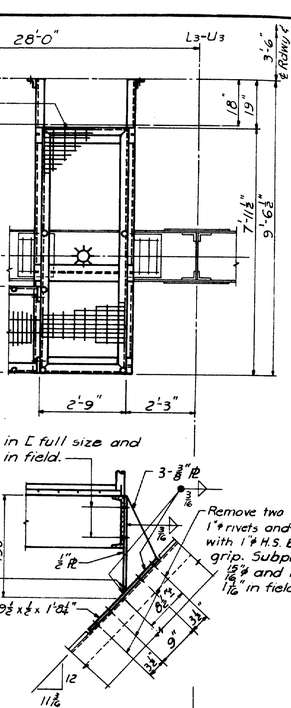
SCALE: ½" = 1'-0" AND AS NOTED. DATE: SEPT. 1965 SHEET 13

136:115

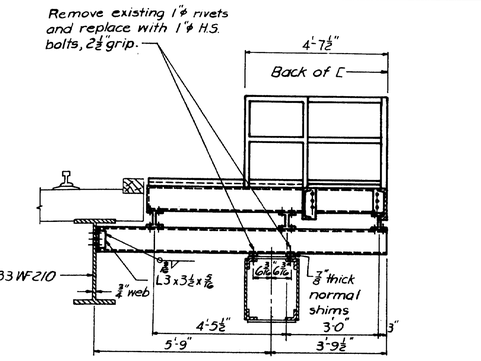
touraine paints TRUFLEX ☆ SILKY ☆ TRIPLE WHITE ☆ RYPLEX



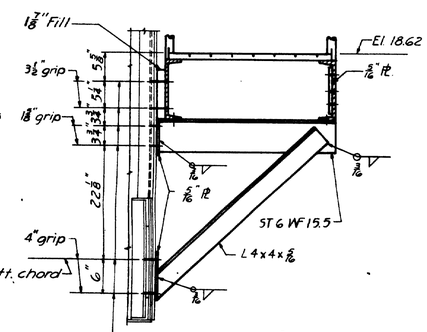
PLAN



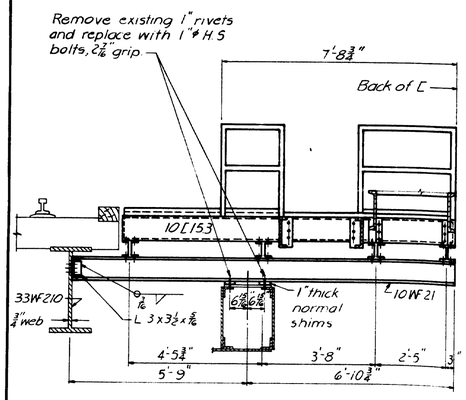
SECTION A-A
Scale: 1"=1'-0"



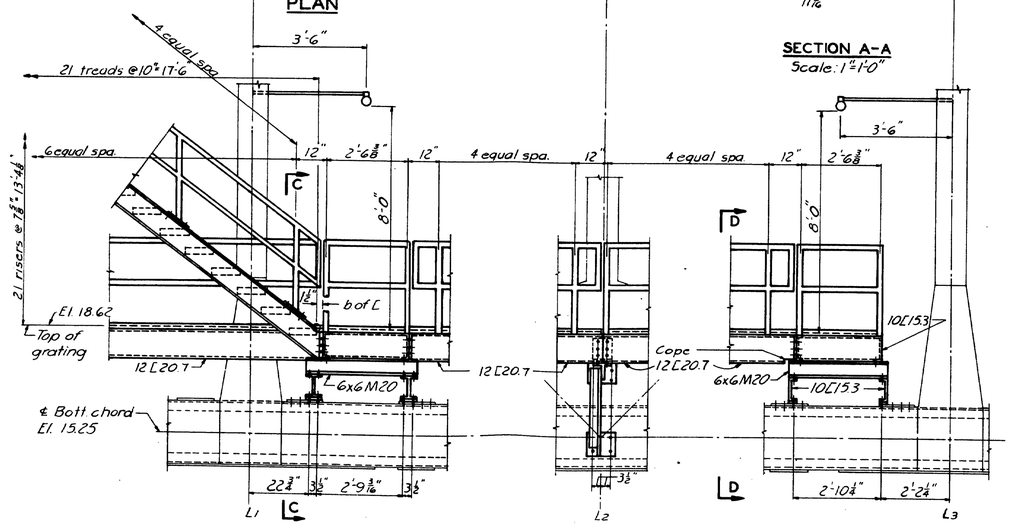
SECTION D-D



SECTION B-B
Scale: 1"=1'-0"



SECTION C-C



UPSTREAM ELEVATION AT L1 L2 & L3

NOTES:

For General Stairway notes see Sheet 12.
Work sheets 13 and 14 together.
For typical details of grating and handrail location and welding to supports see Sheet 12.
☼ ☾ denotes light fixture.

Detailed: J.W. 12-7-64
Checked: G.E.G. 9-8-65

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
OPEN CHANNEL FOR SMALL CRAFT

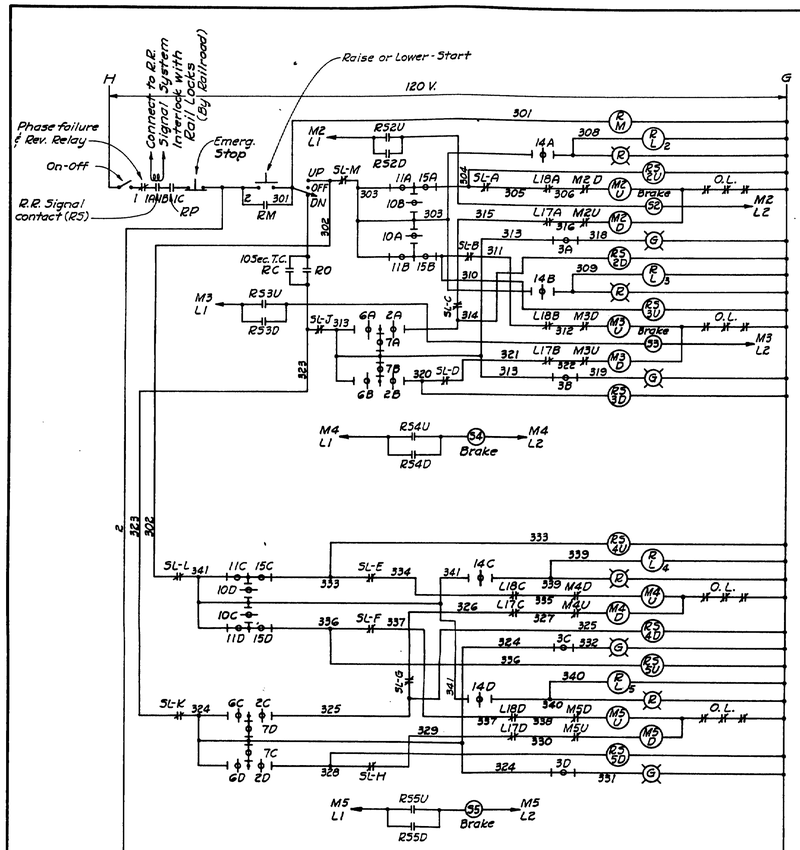
OPERATOR'S PLATFORM PIER 20

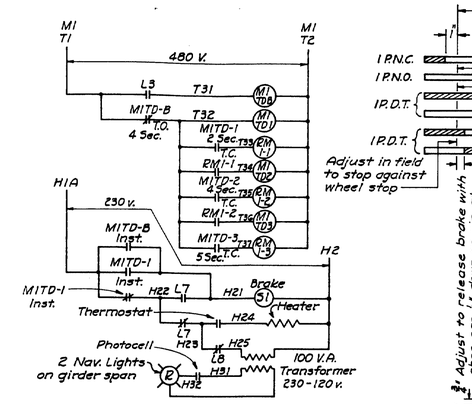
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

SCALE: ½"=1'-0" AND AS NOTED. DATE: SEPT. 1965 SHEET 14

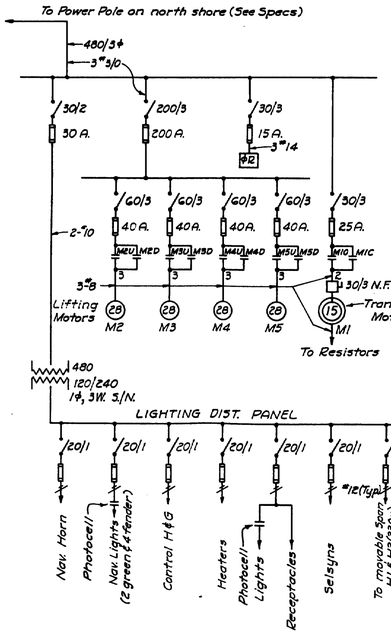
136:116

touraine paints TRUFLEX ☆ SILKY ☆ TRIPLE WHITE ☆ RYPLEX



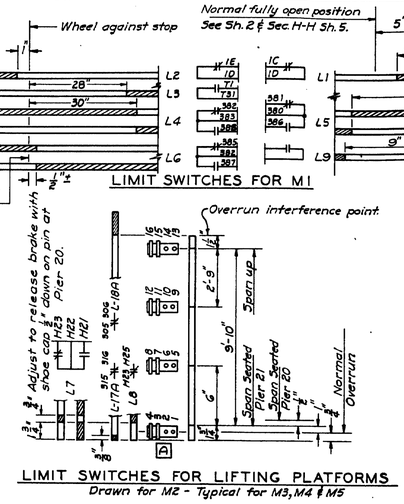


CONTROL CIRCUIT ON SPAN 21



ONE LINE POWER RISER DIAGRAM

Brakes on lifting motors 480 v.
Brakes for hor. translation motor 230 v.
Limit switches L3, L7 & L8 on movable span.
All limit switches and relays are shown with span seated and no power on control circuits.
Limit switches A, B, C & D are special switches in the Limitorque Operators.



For general arrangement of limit switches see Sh. 9.

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
OPEN CHANNEL FOR SMALL CRAFT

ELECTRICAL DIAGRAMS

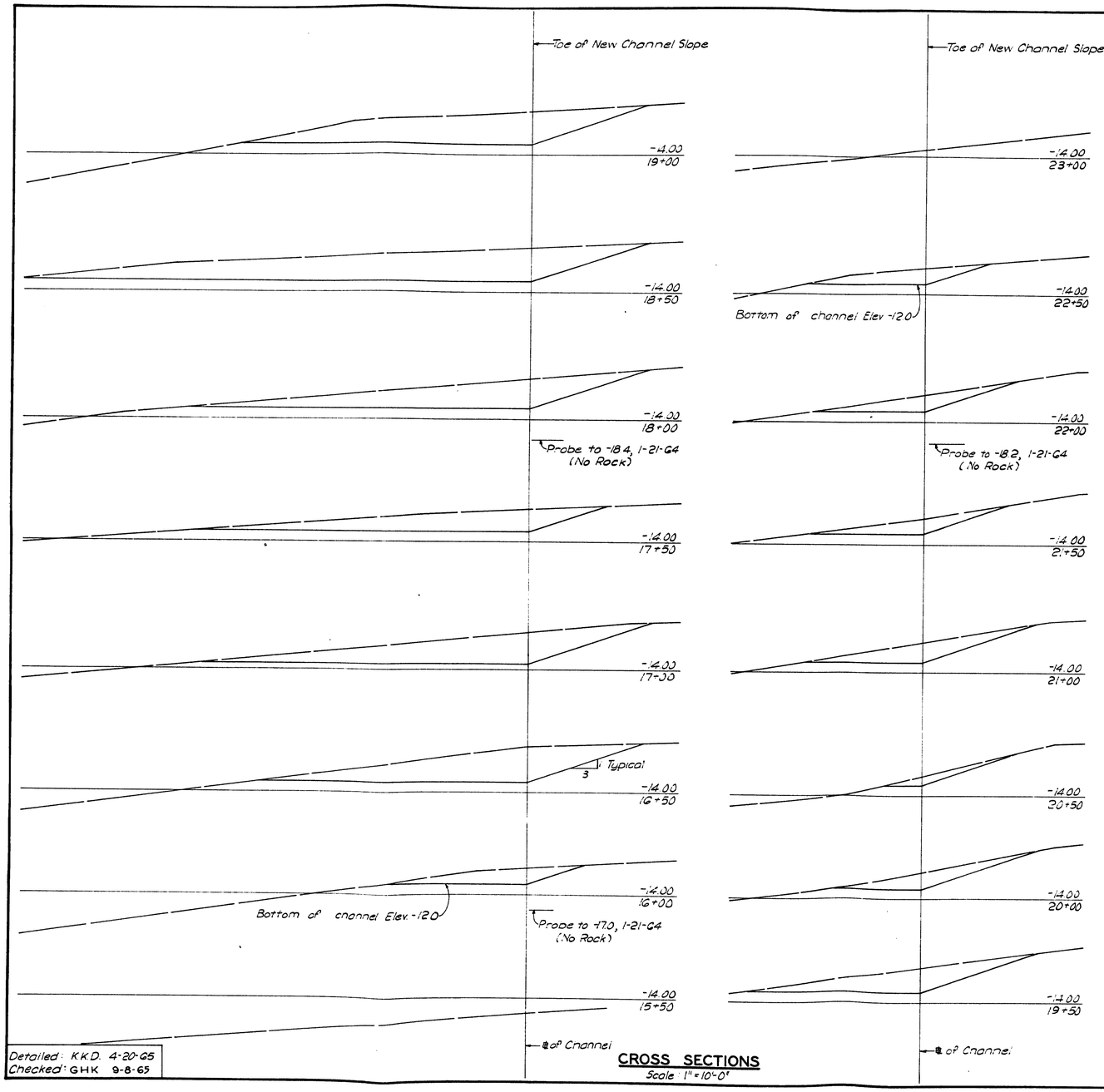
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

DATE: SEPT. 1965

SHEET 15

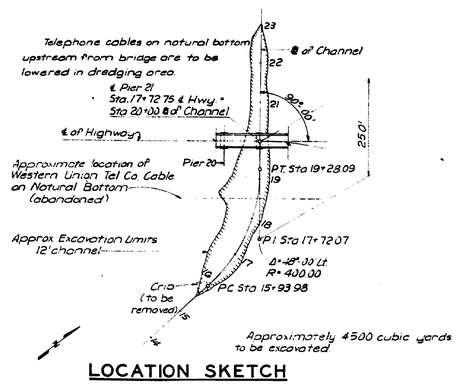
136:117

touraine paints TRUFLEX ☆ SILKY ☆ TRIPLE WHITE ☆ TYPLEX



Detailed: K.K.D. 4-20-65
Checked: GHK 9-8-65

CROSS SECTIONS
Scale: 1" = 10'-0"



LOCATION SKETCH
Scale
0' 50' 100'

Notes:
Datum: Mean Tide = El 0.0
Cross sections are normal to Base Line.

This sheet included for information only. Channel work is by others. See Spec's.

MAINE-NEW HAMPSHIRE
INTERSTATE BRIDGE AUTHORITY
PISCATAQUA RIVER BRIDGE
PORTSMOUTH, N.H. TO KITTERY, ME.
OPEN CHANNEL FOR SMALL CRAFT

DREDGING

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS
KANSAS CITY, MO.

SCALE: AS NOTED
DATE: SEPT. 1965
SHEET 16

136:118

touraine paints TRUFLEX ☆ SILKY ☆ TRIPLE WHITE ☆ RYPLEX

INDEX OF SHEETS

SHEET NO. 1	TITLE PAGE		
2-7	BRIDGE SHEETS		
STANDARD NO. CS-1	REVISED	NOV.	15, 1979
" " CS-2	APPROVED	MAY	2, 1979
" " CS-3	REVISED	NOV.	15, 1979
" " CS-4	APPROVED	MAY	2, 1979
" " CS-5	REVISED	NOV.	15, 1979
" " CS-6	APPROVED	MAY	2, 1979
" " CS-11	REVISED	NOV.	15, 1979
" " CS-12	APPROVED	MAY	2, 1979
" " CS-13	"		"

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N.H.			

STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

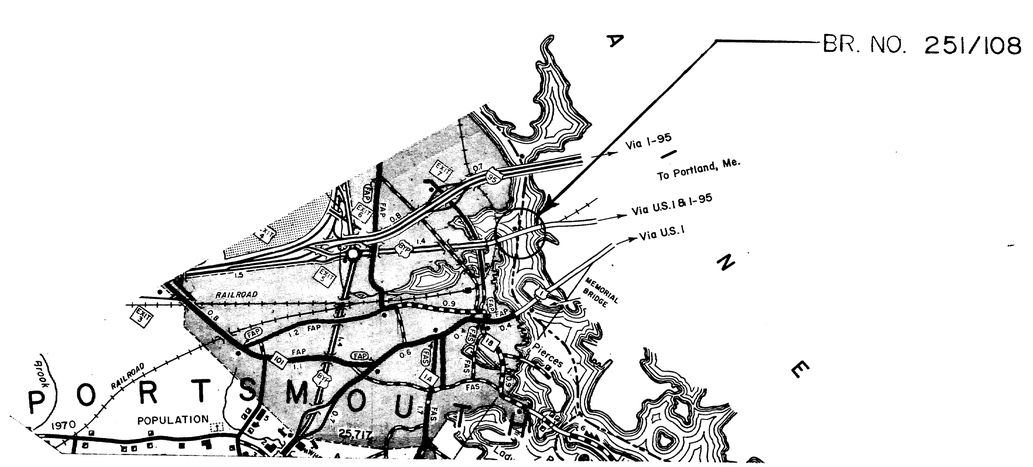
PLANS OF PROPOSED

SIDEWALK REHABILITATION PROJECT
FOR MAINE-N.H. INTERSTATE BRIDGE AUTHORITY

N.H. PROJECT NO. P-3525

THIS PROJECT TO BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS DATED 1974

3



LAYOUT
SCALE 1" = 1/2 MILE

CITY OF PORTSMOUTH, N.H.
COUNTY OF ROCKINGHAM

TOWN OF KITTERY, ME.
COUNTY OF YORK

RECOMMENDED FOR APPROVAL: DATE _____

_____
DEPUTY COMMISSIONER AND CHIEF ENGINEER

APPROVED:

_____
COMMISSIONER

DEC 11 1979

CONVENTIONAL SIGNS

STATE LINE		R O W LINE	
TOWN LINE		SURVEY LINE	
FENCE		CULVERT	
STONE WALL		POWER POLE	
UNFENCED PROPERTY		TELEPHONE POLE	
TRAVELED WAY		TELEGRAPH POLE	
RAILROAD		JOINT POWER & TEL. POLE	
RETAINING WALL		GROUND ELEVATION (LEFT)	
SEWER MANHOLE	S	GRADE ELEVATION (RIGHT)	
HYDRANT		SLOPE LINE	
LEDGE		CATCH BASIN	
BRUSH LINE		DROP INLET	
SWAMP		BOUND	
PROPERTY PARCEL NO.	(2)	CLEARING & GRUBBING AREA	(E)

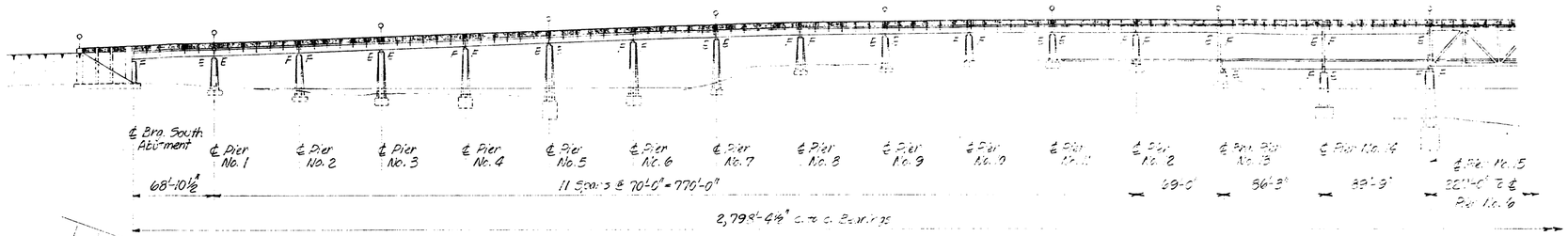
		DATE
DRAWN BY	DEP	12/79
CHECKED BY	JFK	12/79

BRUNING 44-510 33166

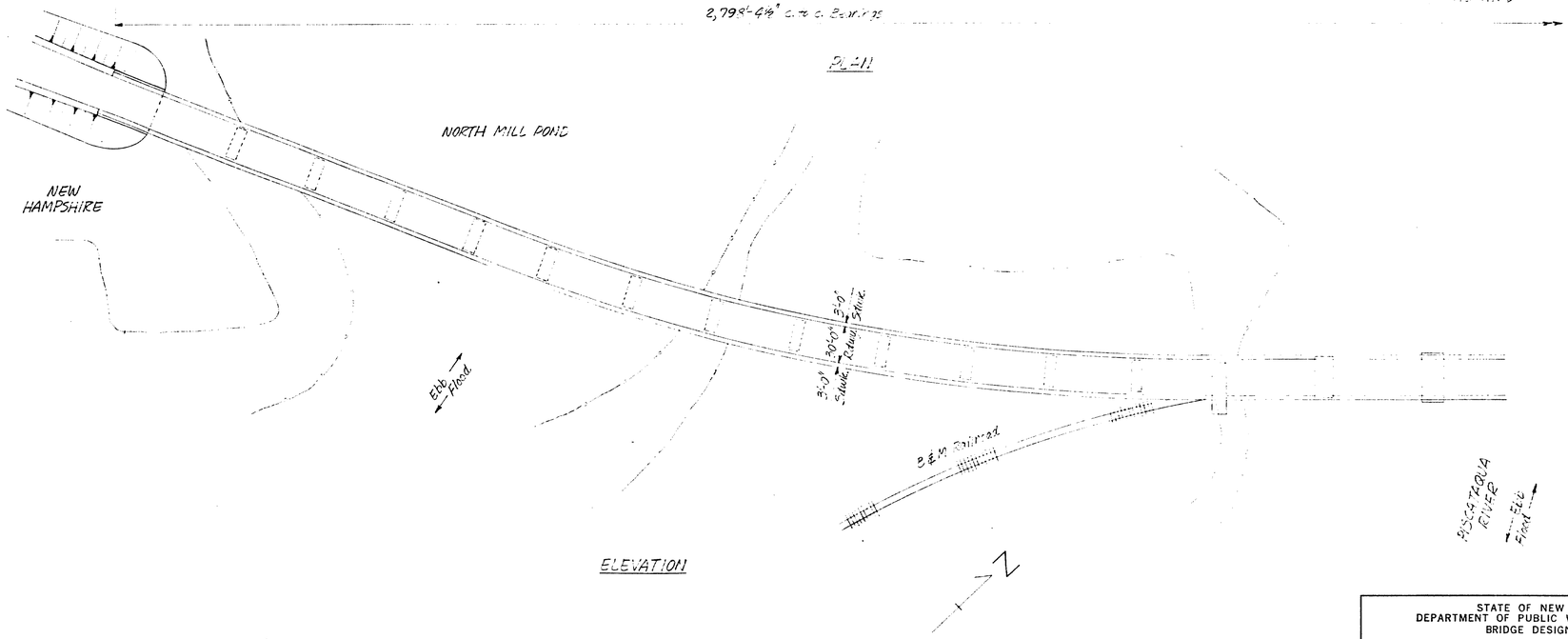
174-3

PROJ. NO.	SHEET NO.	TOTAL SHEETS
P-3525	1	7

FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				



PLAN



ELEVATION

Sheet Scale: 1"=50'-0"

△	DESCRIPTION	BY	DATE
	REVISIONS		

STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BRIDGE DESIGN DIVISION

TOWN DOVER, N.H.-KITTERY, ME. BRIDGE NO. 251/108
FEDERAL PROJECT _____ STATE PROJECT P-3525
LOCATION U.S. 1 BYPASS OVER PISCATAQUA RIVER
(MAINE-N.H. INTERSTATE BRIDGE AUTHORITY)

GENERAL PLAN AND ELEVATION - PART I

	BY	DATE		BY	DATE
DESIGNED			CHECKED		
DRAWN			CHECKED		
TRACED	JFK	7/73	CHECKED	JFM	7/73
QUANTITIES			CHECKED		

REVIEWED BY _____

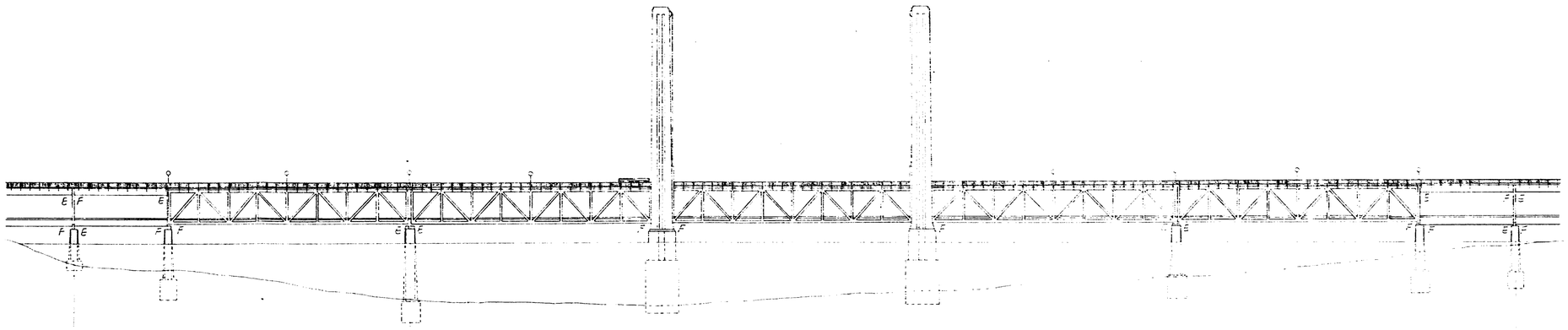
BRIDGE SHEET NO. 1 OF 6
FILE NUMBER 2-14-1-1

PROJ. NO.	SHEET NO.	TOTAL SHEETS
P-3525	2	7

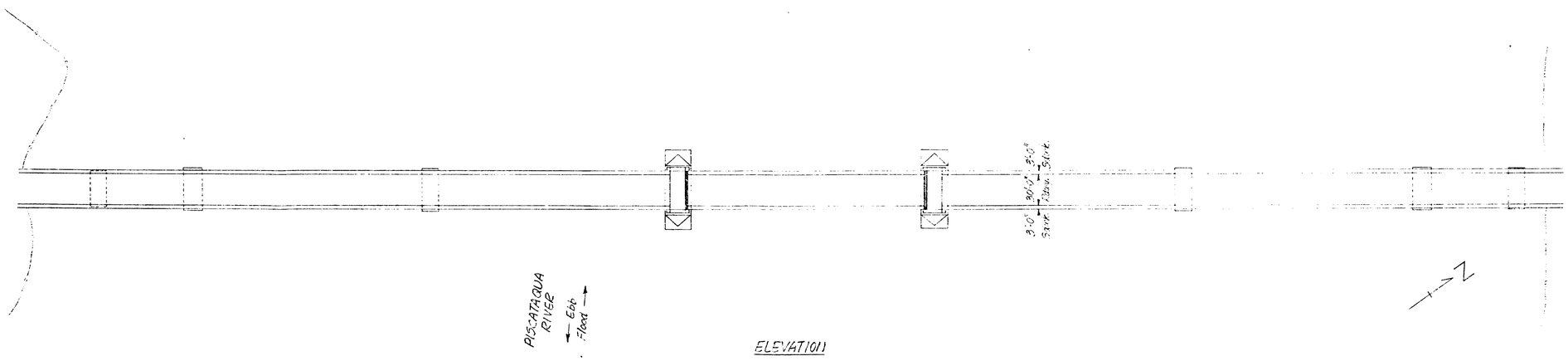
174-4

BRUNING 40-107 31682

FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				



PLAN



ELEVATION

Approximate Low Water Line

BRUNING 40-107 31662

Sheet Scale: 1"=50'-0"

△	DESCRIPTION	BY	DATE
	REVISIONS		

STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BRIDGE DESIGN DIVISION

TOWN PORTS, N.H. - KITTERY, ME. BRIDGE NO. 251/108
FEDERAL PROJECT ——— STATE PROJECT P-3525
LOCATION U.S.1 BYPASS OVER PISCATAQUA RIVER (MAINE-N.H. INTERSTATE BRIDGE AUTHORITY)

GENERAL PLAN AND ELEVATION - PART II

	BY	DATE
DESIGNED		
DRAWN		
TRACED	JFK	7/79
QUANTITIES		

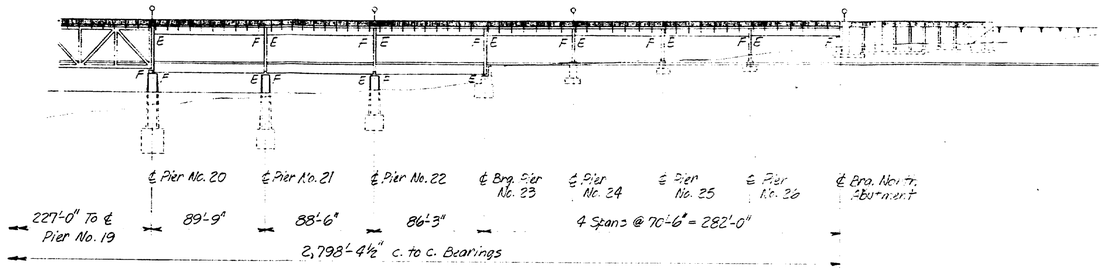
	BY	DATE
CHECKED		
CHECKED		
CHECKED	JFM	7/79
CHECKED		

BRIDGE SHEET NO. 2 OF 6
FILE NUMBER 2-14-1-1

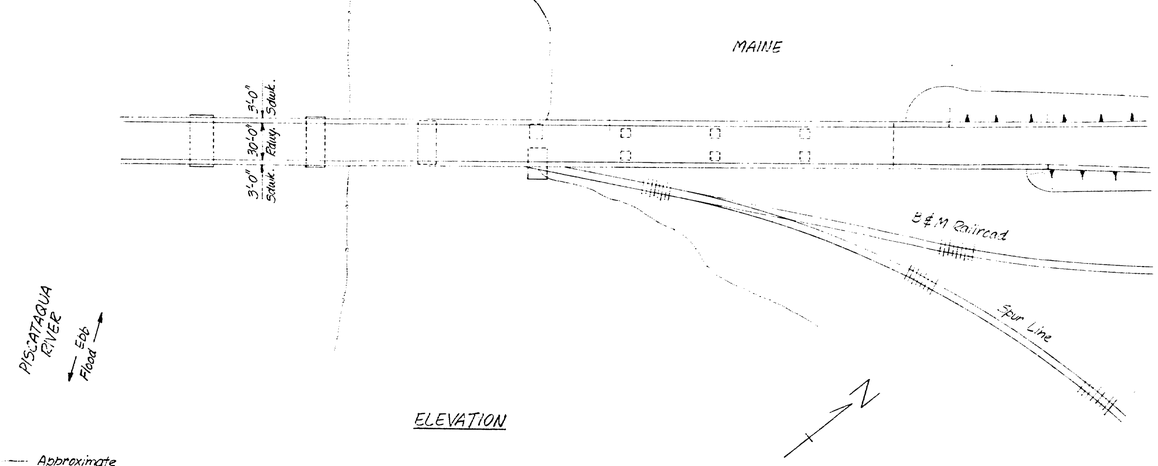
REVIEWED BY	PROJ. NO.	SHEET NO.	TOTAL SHEETS
	P-3525	3	7

174-5

FED. ROAD DIV. NO	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N. H.				



PLAN



ELEVATION

BRUNING 40 107 31662

Sheet Scale: 1"=50'-0"

△	DESCRIPTION	BY	DATE
	REVISIONS		

STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BRIDGE DESIGN DIVISION

TOWN PORTS, N.H. - KITTERY, ME. BRIDGE NO. 251/168
FEDERAL PROJECT ——— STATE PROJECT P-3525
LOCATION U.S. 1 BYPASS over PISCATAQUA RIVER
MAINE-N.H. INTERSTATE BRIDGE AUTHORITY)

GENERAL PLAN AND ELEVATION - PART III

	BY	DATE
DESIGNED		
DRAWN		
TRACED	JFK	7/79
QUANTITIES		

	BY	DATE
CHECKED		
CHECKED		
CHECKED	JFM	7/79
CHECKED		

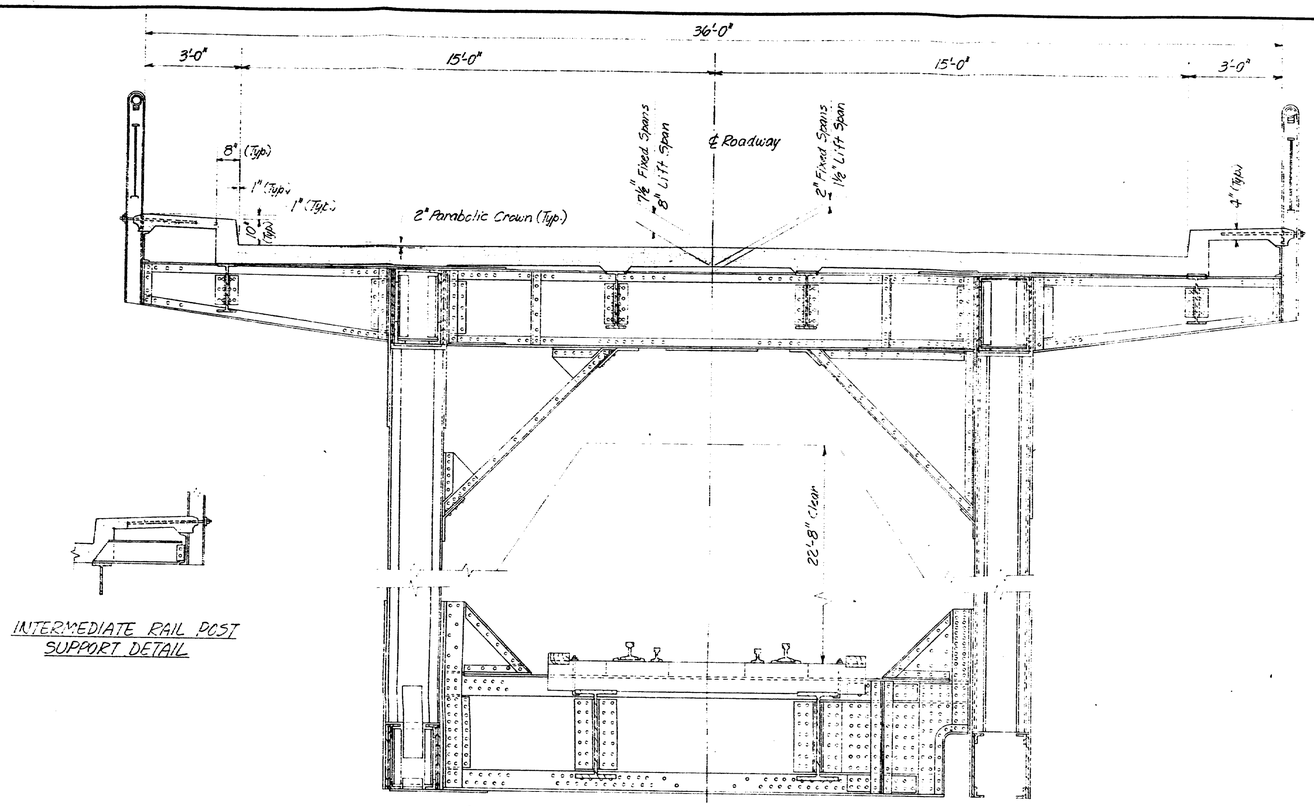
BRIDGE SHEET NO. 3 OF 6
FILE NUMBER 2-14-1-1

REVIEWED BY

PROJ. NO.	SHEET NO.	TOTAL SHEETS
P-3525	4	7

14-6

FED. ROAD DIV. NO	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				

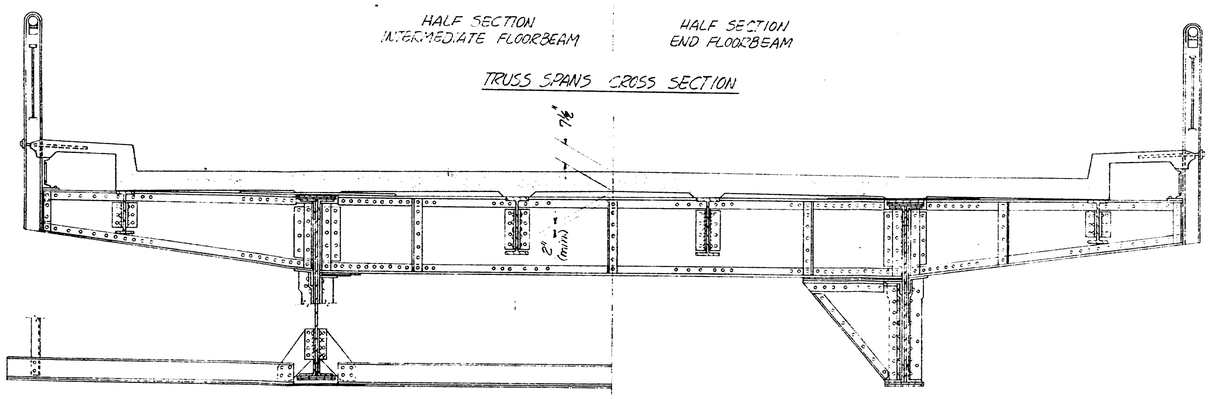


INTERMEDIATE RAIL POST SUPPORT DETAIL

HALF SECTION INTERMEDIATE FLOORBEAM

HALF SECTION END FLOORBEAM

TRUSS SPANS CROSS SECTION



HALF SECTION INTERMEDIATE

HALF SECTION END

GIRDER SPANS CROSS SECTION

Sheet Scale : 1/2" = 1'-0"

△	DESCRIPTION	BY	DATE
	REVISIONS		

STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BRIDGE DESIGN DIVISION

TOWN PORTS.N.H.-KITTERY ME. BRIDGE NO. 25, 108

FEDERAL PROJECT _____ STATE PROJECT P-3525

LOCATION U.S. 1 BYPASS OVER PISCATAQUA RIVER (MAINE-N.H. INTERSTATE BRIDGE AUTHORITY)

SUPERSTRUCTURE CROSS SECTIONS

	BY	DATE		BY	DATE
DESIGNED			CHECKED		
DRAWN			CHECKED		
TRACED	JFK	9/79	CHECKED	JFM	9/79
QUANTITIES			CHECKED		

BRIDGE SHEET NO. 4 OF 6

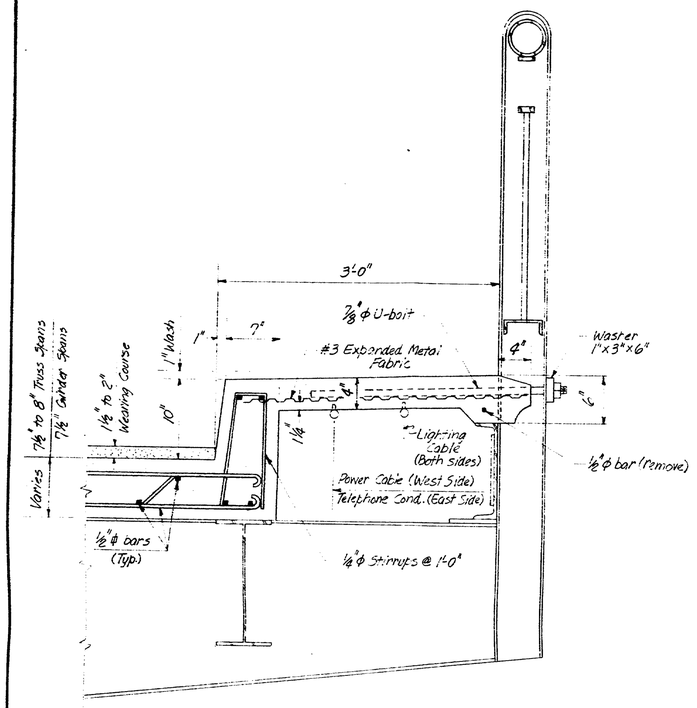
FILE NUMBER 2-14-1-1

REVIEWED BY _____ PROJ. NO. P-3525 SHEET NO. 5 TOTAL SHEETS 7

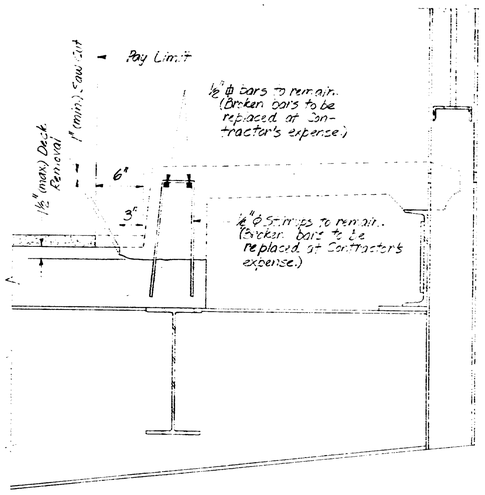
174-7

BRUNING 40-107 31682

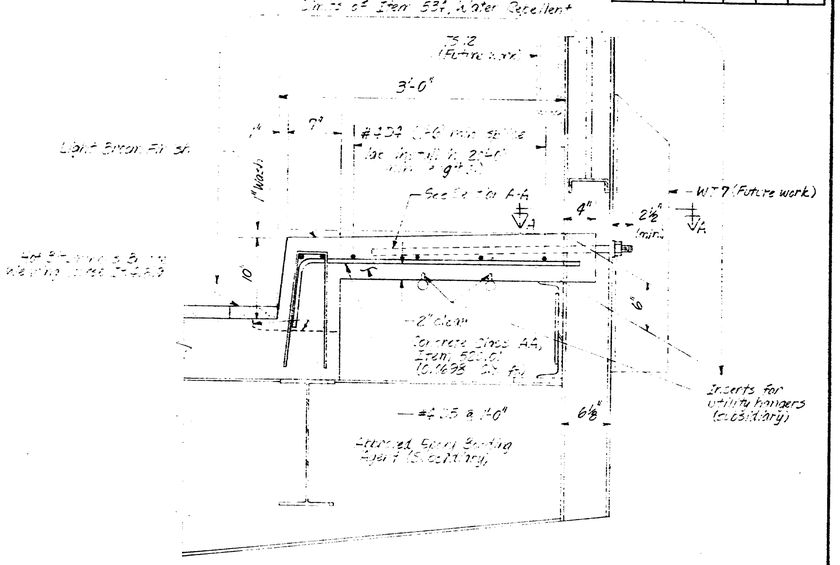
FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				



EXISTING SIDEWALK SECTION



EXISTING SIDEWALK SECTION (REMOVAL)



RECONSTRUCTED SIDEWALK

NOTE:
Specifications: AASHTO 1977 4th Interims.
LHDM #4 '76 as amended.

SUMMARY OF BRIDGE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
403.9	Hot Bituminous Bridge Wearing Course	29.0	Ton
502	Removal of Existing Bridge Structure	1	Unit
520.01	Concrete Class AA	355.0	C.Y.
534	Water Repellent	92	Gal.
544	Reinforcing Steel	28,713	Lb.
550.1	Structural Steel (Estimated Wt. = 6,400 Lb.)	1	Unit
566.1	Neoprene Joint Seal	37.0	L.F.
520.012	Concrete Class AA (Lightweight Aggregate)	34.0	C.Y.
520.1	Concrete Class A (Counterweight)	5.3	C.Y.
ϕ 606.416	Moving Portable Concrete Barrier, Double-Faced	6,500	L.F.

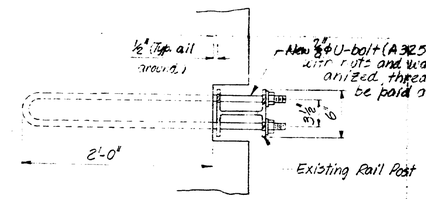
SUMMARY OF MISCELLANEOUS ITEM QUANTITIES

	ITEM NO.	DESCRIPTION	QUANTITY	UNIT
*	618.109	Uniformed Officers and Flagmen	—	—
	619.1	Maintenance of Traffic Including Dust Laying	1	Unit
*	619.2	Construction Signs and Warning Devices	—	—
	692	Mobilization	1	Unit
*	698.3	Field Office (Modified)	—	—
	1002	Repairs or Replacements as Needed	—	Dollars

* Furnished by Interstate Bridge Authority.
ϕ 500' furnished by State of New Hampshire Dept. of Public Works & Highways.

NOTES

1. THE WORK SHALL BE PLANNED AND PROSECUTED SO THAT A 24' MINIMUM ROADWAY WILL BE MAINTAINED AT ALL TIMES TO ALLOW CONTINUOUS FLOW OF TWO WAY TRAFFIC.
2. REMOVAL OF EXISTING BRIDGE STRUCTURE, ITEM 502, SHALL INCLUDE:
   A. REMOVING ALL SIDEWALK CONCRETE TO THE LIMITS SHOWN WITH THE EXCEPTION OF THE CONCRETE 1'-0" EACH SIDE OF THE JOINTS HAVING RECENTLY INSTALLED NEOPRENE SEALS. THE NEOPRENE SEAL JOINTS OCCUR AT THE N. H. ABUTMENT AND AT PIERS 1 THRU 14.
   B. REMOVING THE EXPANDED METAL FABRIC, THE 1/2" DIAMETER LONGITUDINAL BAR AND THE 7/8" DIAMETER U-BOLTS. THE EXISTING 1/4" DIAMETER STIRRUPS AND 1/2" SQUARE LONGITUDINAL BARS ARE TO REMAIN.
   C. REMOVING THE WEARING COURSE ADJACENT TO THE SIDEWALKS TO THE LIMITS SHOWN.
   D. CARE SHALL BE TAKEN DURING THE REMOVAL WORK NOT TO DAMAGE THE EXISTING UTILITY CONDUITS AND CABLES. TEMPORARY SUPPORT OF THE UTILITIES SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE SUBSIDIARY IN COST.
   E. THE REMOVAL WORK SHALL BE PERFORMED IN ACCORDANCE TO SECTION 511.
3. ALL EXPOSED SURFACES TO BE IN CONTACT WITH NEW CONCRETE SHALL BE COATED WITH AN APPROVED EPOXY BONDING AGENT JUST PRIOR TO POURING THE NEW SIDEWALKS. THE NEW SIDEWALKS SHALL BE PLACED IN ONE CONTINUOUS POUR WITHIN ANY ONE SPAN.
4. THE CONTRACTOR SHALL ERECT PORTABLE CONCRETE BARRIER TO PROTECT TRAFFIC FROM OPENINGS CREATED BY THE SIDEWALK REMOVAL. THIS BARRIER SHALL BE LEFT IN PLACE UNTIL THE NEW SIDEWALK CONCRETE HAS CURED 3 DAYS.
5. ITEM 520.1, CONCRETE CLASS A, SHALL CONSIST OF CASTING OF ADDITIONAL COUNTERWEIGHT CONCRETE TO BALANCE THE INCREASED SIDEWALK DEAD LOAD ON THE LIFT SPAN. SEE THE PROSECTION OF THE WORK FOR ADDITIONAL INFORMATION.
6. ITEM 1002, REPAIRS OR REPLACEMENTS AS NEEDED, IS TO BE USED FOR ANY UNANTICIPATED WORK ASSOCIATED WITH EITHER THE SIDEWALK REPLACEMENT OR THE EXPANSION JOINT RECONSTRUCTION. THIS ITEM IS NOT INTENDED FOR GENERAL USE OVER THE TOTAL STRUCTURE.
7. ITEM 520.012, CONCRETE CLASS AA (LIGHTWEIGHT AGGREGATE), SHALL BE PLACED EXCLUSIVELY IN THE LIFT SPAN SIDEWALKS. SEE THE SPECIAL PROVISIONS FOR SPECIFICATION DETAILS.



SECTION A-A

Sheet Scale: 1½" = 1'-0"

△	DESCRIPTION	BY	DATE
	REVISIONS		

STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BRIDGE DESIGN DIVISION

TOWN PORTS, N.H.-KITTERY, ME. BRIDGE NO. 251/108
FEDERAL PROJECT ——— STATE PROJECT 2-3505
LOCATION U.S. BYPASS OVER PISCATAQUA RIVER
(N.H.-M.E. INTERSTATE BRIDGE AUTHORITY)

SIDEWALK RECONSTRUCTION DETAILS

	BY	DATE
DESIGNED	JEM	7/79
DRAWN	JEM	7/79
TRACED	JFK	9/79
QUANTITIES		
REVIEWED BY		

	BY	DATE
CHECKED	JFK	9/79
CHECKED	JFK	9/79
CHECKED	JFM	9/79
CHECKED		

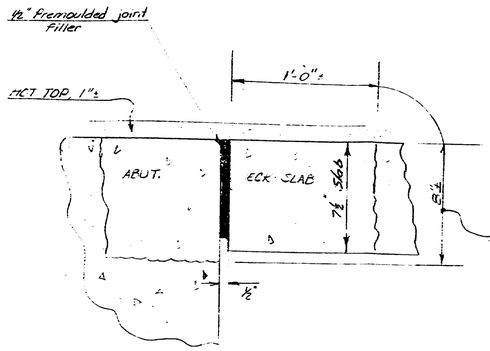
BRIDGE SHEET NO. 5 OF 6
FILE NUMBER 2-14-1-1

PROJ. NO.	SHEET NO.	TOTAL SHEETS
2-3505	6	7

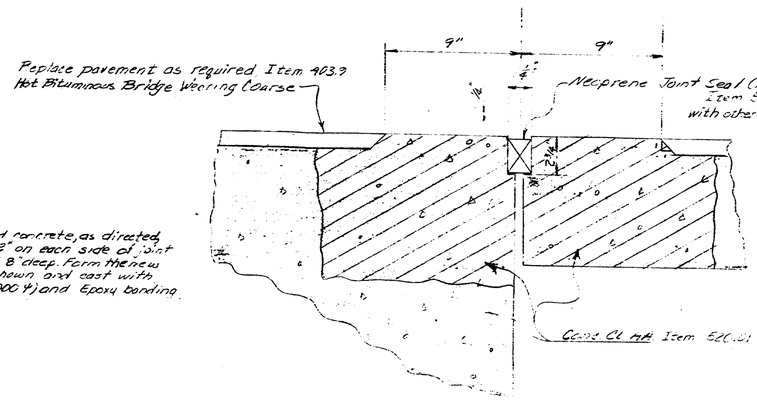
174-8.

BRUNING 40-107 31862

FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				



FIXED END JOINT - EXISTING
SCALE: 3"=1'-0"



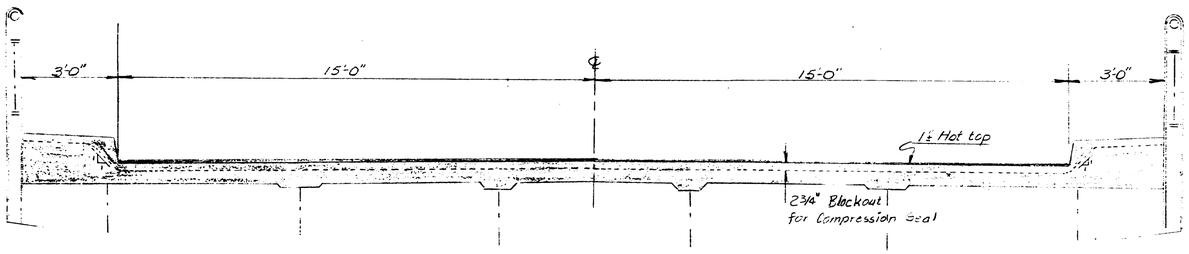
NORTH ABUTMENT
FIXED END JOINT - REHABILITATED
SCALE: 3"=1'-0"

COMPRESSION SEAL NOTES

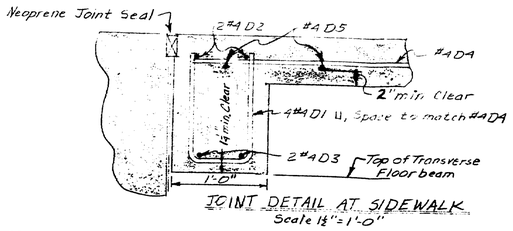
1. Care shall be taken not to damage the existing reinforcement in the bridge deck, bridge curb and the abutment backwall. Damaged bars shall be replaced at the contractor's expense.

2. The neoprene joint seal shall be supplied and installed in one continuous length set on approved elastomeric adhesive for installation according to manufacturer's recommendations. Seal the top outside end of the seal to the face of rail post and trim out the bottom portion of the seal at a 45° angle.

3. After the steel has been completely primed and sandblasted, coat the top of the floor beam with an approved epoxy paint (Cost to be subsidiary)



DECK CROSS SECTION
SCALE: ½"=1'-0"



JOINT DETAIL AT SIDEWALK
Scale 1½"=1'-0"

Sheet Scale: As Noted

Δ	DESCRIPTION	BY	DATE
	REVISIONS		

STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BRIDGE DESIGN DIVISION

TOWN PORTSMOUTH-KITTERY ME. BRIDGE NO. 251/102
FEDERAL PROJECT _____ STATE PROJECT P3525
LOCATION U.S.1 BYPASS OVER PISCATAQUA RIVER (MAINE-N.H. INTERSTATE BRIDGE AUTHORITY)

COMPRESSION SEAL AT NORTH ABUTMENT

	BY	DATE		BY	DATE
DESIGNED	DEP	7-79	CHECKED	JFK	7-79
DRAWN	DEP	7-79	CHECKED	JFK	7-79
TRACED			CHECKED		
QUANTITIES			CHECKED		

BRIDGE SHEET NO. 6 OF 6
FILE NUMBER 2-14-1-1

REVIEWED BY _____ PROJ. NO. P3525 SHEET NO. 7 TOTAL SHEETS 7

174-9

INDEX OF SHEETS

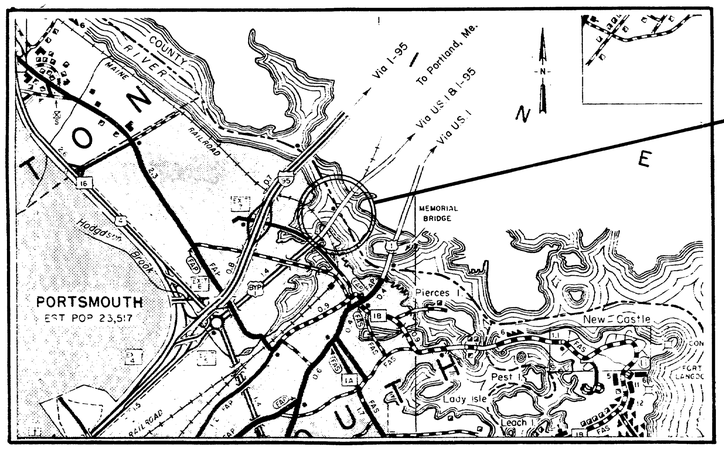
SHEET NO. 1	TITLE PAGE		
2-6	BRIDGE SHEETS		
STANDARD NO.	CS-1	REVISED	NOV. 15, 1979
" "	CS-3	"	"
" "	CS-5	"	"
" "	CS-11	"	"
STANDARD NO.	CS-2	APPROVED	MAY 2, 1979
	CS-4	"	"
	CS-6	"	"
	CS-12	"	"
	CS-13	"	"

STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PLANS OF PROPOSED
BRIDGE PAINTING PROJECT
FOR MAINE-NH INTERSTATE BRIDGE AUTHORITY

N.H. PROJECT NO. P-3653

THIS PROJECT TO BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS DATED 1974



LAYOUT
SCALE 1 Inch = 1/2 Mile

CITY OF PORTSMOUTH, NEW HAMPSHIRE

TOWN OF KITTERY, MAINE

COUNTY OF ROCKINGHAM

COUNTY OF YORK

RECOMMENDED FOR APPROVAL: DATE _____

DEPUTY COMMISSIONER AND CHIEF ENGINEER

APPROVED: John A. Clements
COMMISSIONER

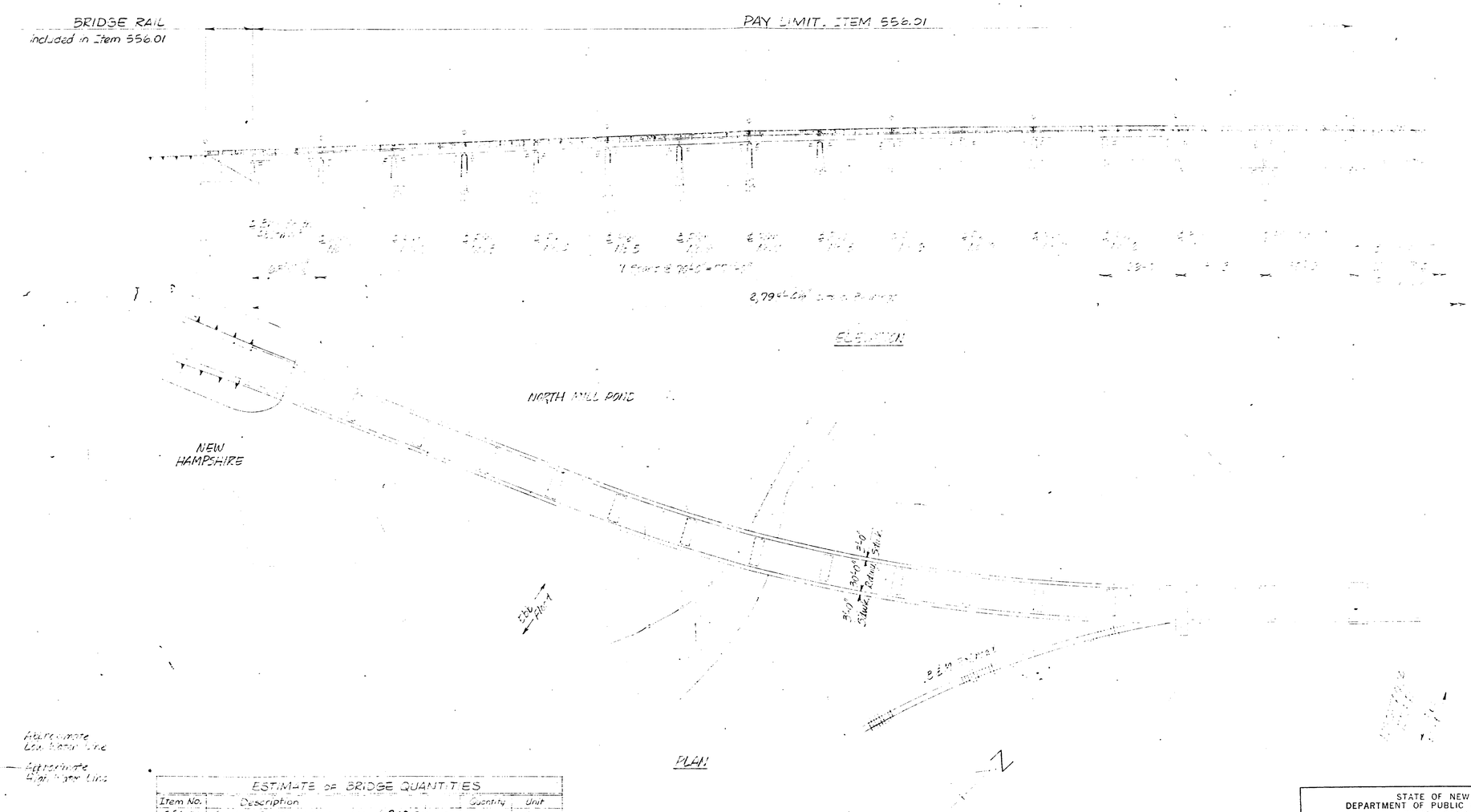
CONVENTIONAL SIGNS

STATE LINE		RIGHT LINE	
TOWN LINE		SURVEY LINE	
FENCE		CULVERT	
STONE WALL		POWER POLE	
[illegible]		TELEPHONE POLE	
[illegible]		TELEGRAPH POLE	
RAILROAD		JOINT POWER & TEL POLE	
[illegible]		GROUND ELEVATION (LEFT)	
[illegible]		GRADE ELEVATION (RIGHT)	
[illegible]		SLOPE LINE	
[illegible]		CATCH BASIN	
[illegible]		DROP INLET	
SWAMP		BOUND	
PROPERTY PARCEL NO.	2	CLEARING & GRUBBING AREA	E

J Schuyler Zoller 4-1-80
J Kieronski 4-2-80

PROJ. NO.	SHEET NO.	TOTAL SHEETS
P-3653	1	6

174-10



Approximate Low Water Line

Approximate High Water Line

ESTIMATE OF BRIDGE QUANTITIES			
Item No.	Description	Quantity	Unit
556.01	[illegible] 910 [illegible] *		[illegible]
556.02	[illegible] 3700 [illegible] *		[illegible]
556.03	[illegible] 590 [illegible] *		[illegible]

Mobilization and Maintenance of Traffic are Subsidiary

* Approximate weights for estimating [illegible]

STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BRIDGE DESIGN DIVISION

TOWN [illegible] BRIDGE NO. [illegible]
FEDERAL PROJECT [illegible] STATE PROJECT P-3653
LOCATION [illegible]

[illegible]

	BY	DATE		BY	DATE	BRIDGE SHEET NO.
DESIGNED			CHECKED			1 OF 5
DRAWN			CHECKED			FILE NUMBER
TRACED	[illegible]	[illegible]	CHECKED	[illegible]	[illegible]	
QUANTITIES			CHECKED			

△	DESCRIPTION	BY	DATE
	REVISIONS		

REVIEWED BY

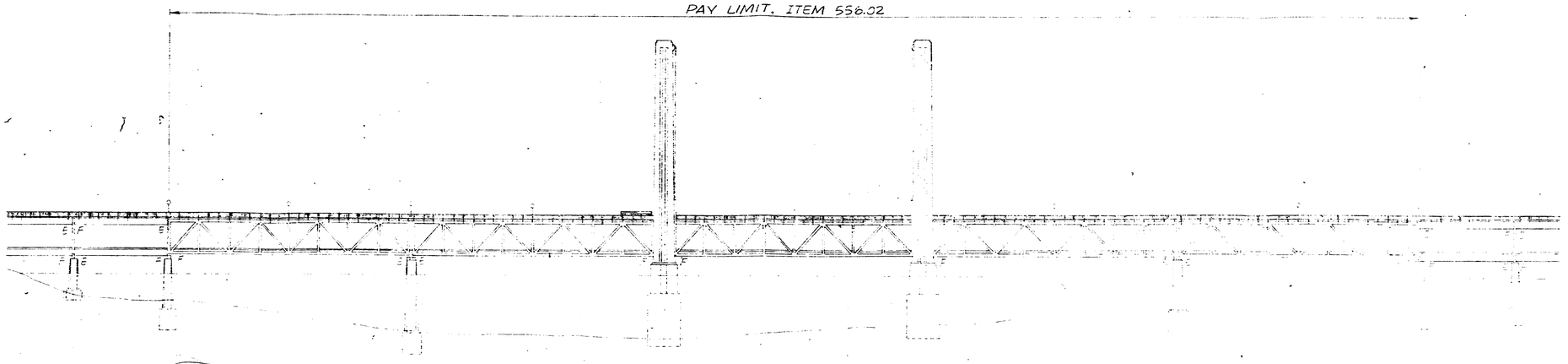
PROJ. NO.	SHEET NO.	TOTAL SHEETS
P-3653	[illegible]	6

174-11

BRUNING 40-107 31662

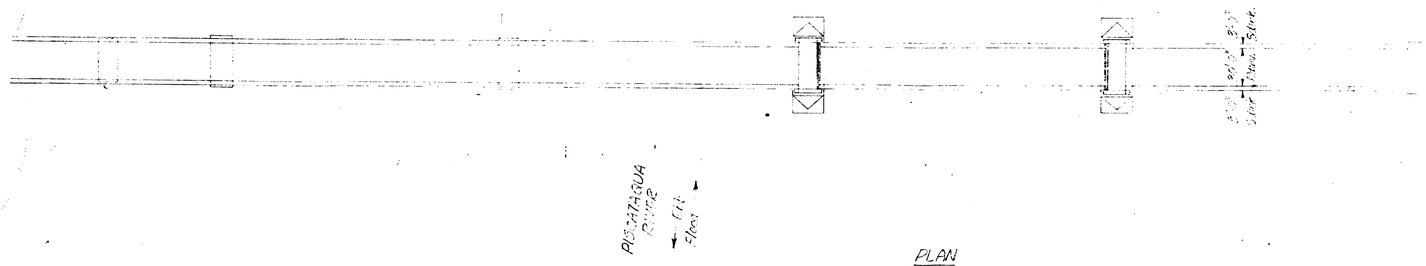
FED. ROAD DIV. NO.	STATE	PROJ.	F.-SCA YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				

PAY LIMIT, ITEM 556.02



2,798'-4½" c. to c. Bearings

ELEVATION



PLAN

Approximate Low Water Line

Sheet Scale: 1"=50'-0"

△	DESCRIPTION	BY	DATE
	REVISIONS		

STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BRIDGE DESIGN DIVISION

TOWN _____ BRIDGE NO. _____
FEDERAL PROJECT _____ STATE PROJECT 3653
LOCATION _____

	BY	DATE		BY	DATE
DESIGNED			CHECKED		
DRAWN			CHECKED		
TRACED			CHECKED		
QUANTITIES			CHECKED		
REVIEWED BY					

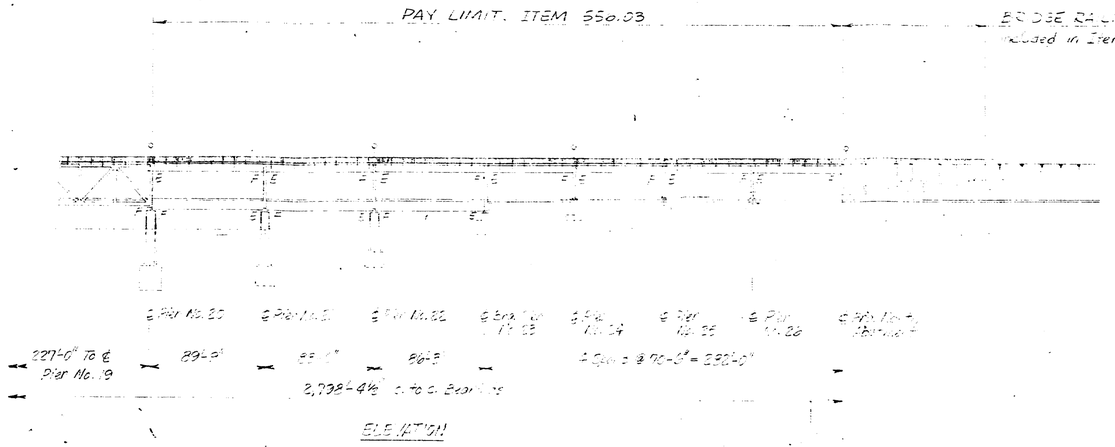
BRIDGE SHEET NO. 05 5
FILE NUMBER

-3653 6

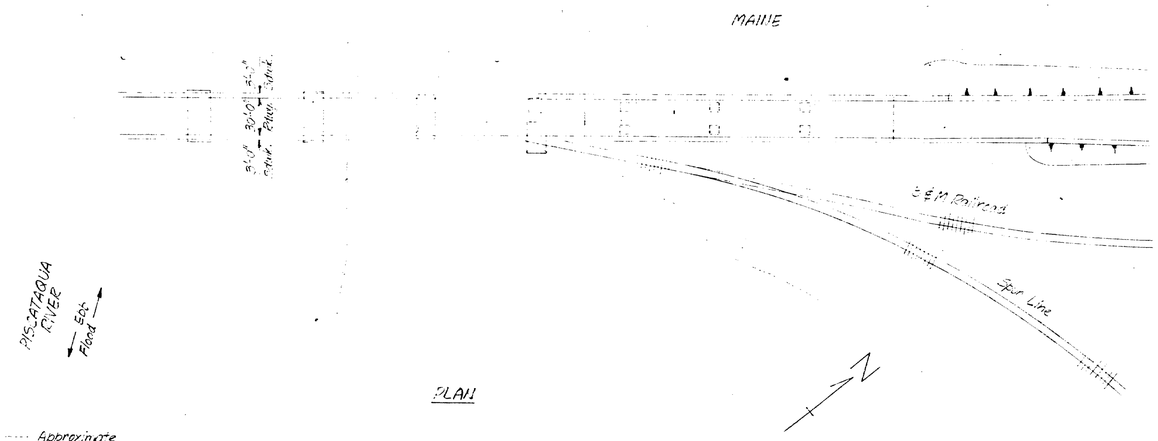
174-12

BRUNING 40-107 31682

PAY LIMIT. ITEM 550.03



ELEVATION



PLAN

Approximate Low Water Line

Approximate High Water Line

BRUNING 40-107-31662

Sheet Scale: 1"=50'-0"

	DESCRIPTION	BY	DATE
Δ			

REVISIONS

STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BRIDGE DESIGN DIVISION

TOWN [illegible] BRIDGE NO. [illegible]
FEDERAL PROJECT [illegible] STATE PROJECT 3653
LOCATION [illegible]

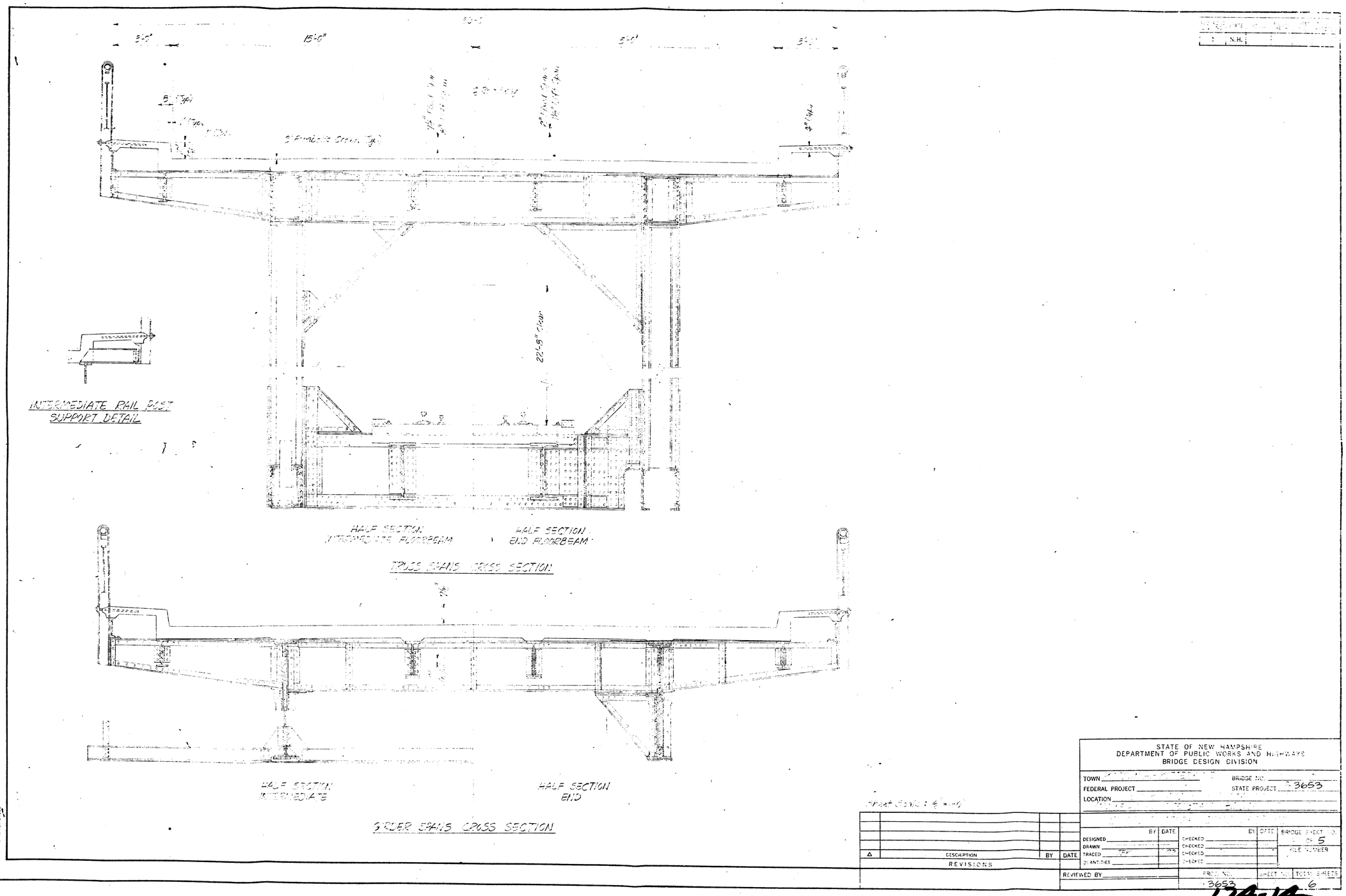
GENERAL PLAN, ELEVATION AND PLAN

	BY	DATE		BY	DATE
DESIGNED			CHECKED		
DRAWN			CHECKED		
TRACED	EK	7/72	CHECKED		
QUANTITIES			CHECKED		

BRIDGE SHEET NO. 2 OF 5
FILE NUMBER [illegible]

REVIEWED BY [illegible]
PROJ. NO. F-3653
SHEET NO. 4
TOTAL SHEETS 6

174-13



STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BRIDGE DESIGN DIVISION

TOWN
FEDERAL PROJECT
LOCATION
BRIDGE NO.
STATE PROJECT 3653

	BY	DATE		BY	DATE	BRIDGE SHEET NO.
DESIGNED			CHECKED			OF 5
DRAWN			CHECKED			FILE NUMBER
TRACED			CHECKED			
QUANTITIES			CHECKED			

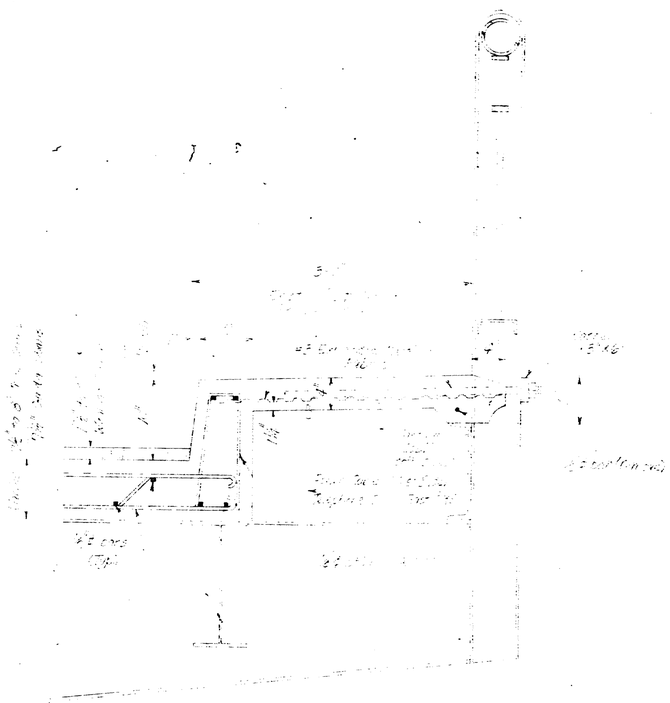
Δ	DESCRIPTION	BY	DATE
	REVISIONS		

REVIEWED BY

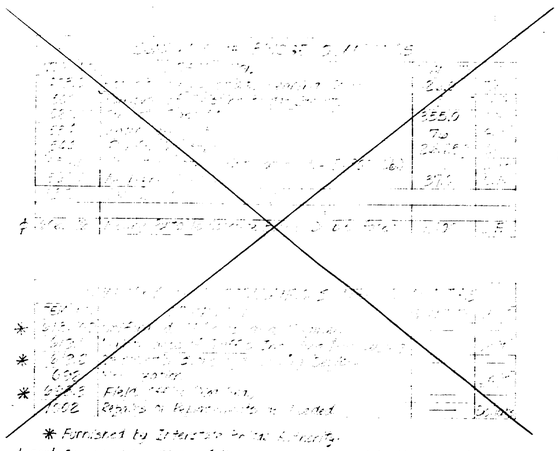
PROJ. NO. 3653 | SHEET NO. | TOTAL SHEETS 6

174-14

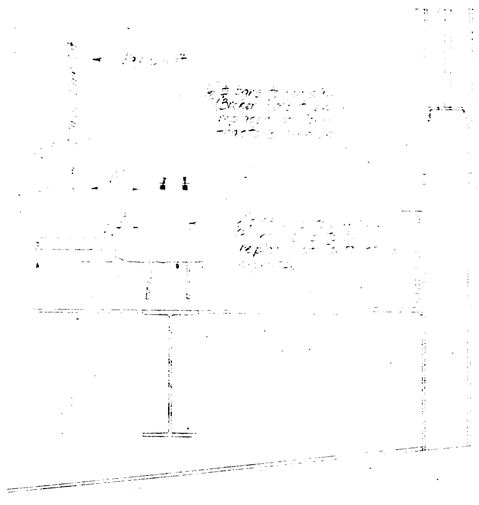
BRUNING 40 107 31662



EXISTING SIDEWALK SECTION



* Furnished by Interstate Paving Company.
¢ 500' furnished by State of New Hampshire Dept. of Public Works & Highways.



EXISTING SIDEWALK SECTION (REMOVAL)

NOTES

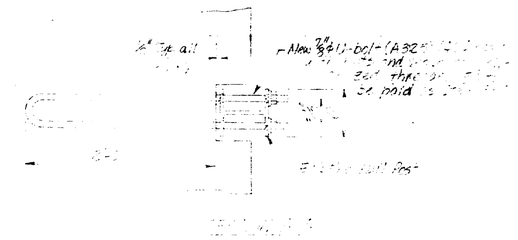
1. THE WORK SHALL BE PLANNED AND PROSECUTED SO THAT A 24' MINIMUM ROADWAY WILL BE MAINTAINED AT ALL TIMES TO ALLOW CONTINUOUS FLOW OF TWO WAY TRAFFIC, EXCEPT AS HEREIN PERMITTED.
2. REMOVAL OF EXISTING ENDPOST STRUCTURE, CURB SOIL SHALL INCLUDE:
   a. REMOVING ALL CAST IRON CONCRETE TO THE LIMITS SHOWN ON THE CONSTRUCTION OF THE CAST IRON CONCRETE AND THE CONCRETE 12" - 0" EACH SIDE OF THE JOINTS EXISTING EXISTING INSTALLED NEOPRENE SEALS. THE NEOPRENE SEAL COVERS UNDER AT THE E. B. ABUTMENT AND AT ITEM 1 PART 1.
   b. REMOVING THE EXISTING MESH FABRIC, THE CAST IRON/STEEL CONCRETE SEAL AND THE CAST PLATES, THE EXISTING 1/4" DIAMETER STIRRUPS AND ALL SURFACE CONCRETE BARS ARE TO REMAIN.
   c. REMOVING THE WEARING COURSE ADJACENT TO THE SIDEWALKS TO THE LIMITS SHOWN.
   d. CARE SHALL BE TAKEN DURING THE REMOVAL WORK NOT TO DAMAGE THE EXISTING UTILITY CONDUITS AND CABLES. ANY DAMAGE OCCURRING AS THE RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED BY AND SHALL BE SATISFACTORY TO OWNER.
   e. THE REMOVED ITEMS SHALL BE DISPOSED IN ACCORDANCE WITH FEDERAL AID.
3. ALL CONCRETE SURFACES TO BE IN CONTACT WITH NEW CONCRETE SHALL BE CLEANED WITH PRESSURE WASHER. ANY LOOSE CONCRETE OR MATERIAL OR CONCRETE THAT IS NOT SUITABLE SHALL BE REMOVED TO SOUND CONCRETE AND REPLACED AS DIRECTED BY THE ENGINEER.
4. THE CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE IS PROVIDED AT ALL TIMES DURING CONSTRUCTION AND SHALL PROVIDE TEMPORARY DRAINAGE AS REQUIRED BY THE ENGINEER.
5. THE CONTRACTOR IS RESPONSIBLE TO PROTECT, IN PLACE, ANY EXISTING AND PROPOSED ITEMS ASSOCIATED WITH BRIDGE OR ROADWAY APPURTENANCES. ANY DAMAGE OCCURRING AS THE RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED BY AND SHALL BE SATISFACTORY TO OWNER.



REMOVAL OF [illegible]

For Information Only !

This sheet is included for informational purposes only. All work on this sheet shall be by others.



NO.	DESCRIPTION	BY	DATE
Δ			

REVISIONS

STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BRIDGE DESIGN DIVISION

TOWN _____ BRIDGE NO. _____
FEDERAL PROJECT _____ STATE PROJECT 3653
LOCATION _____

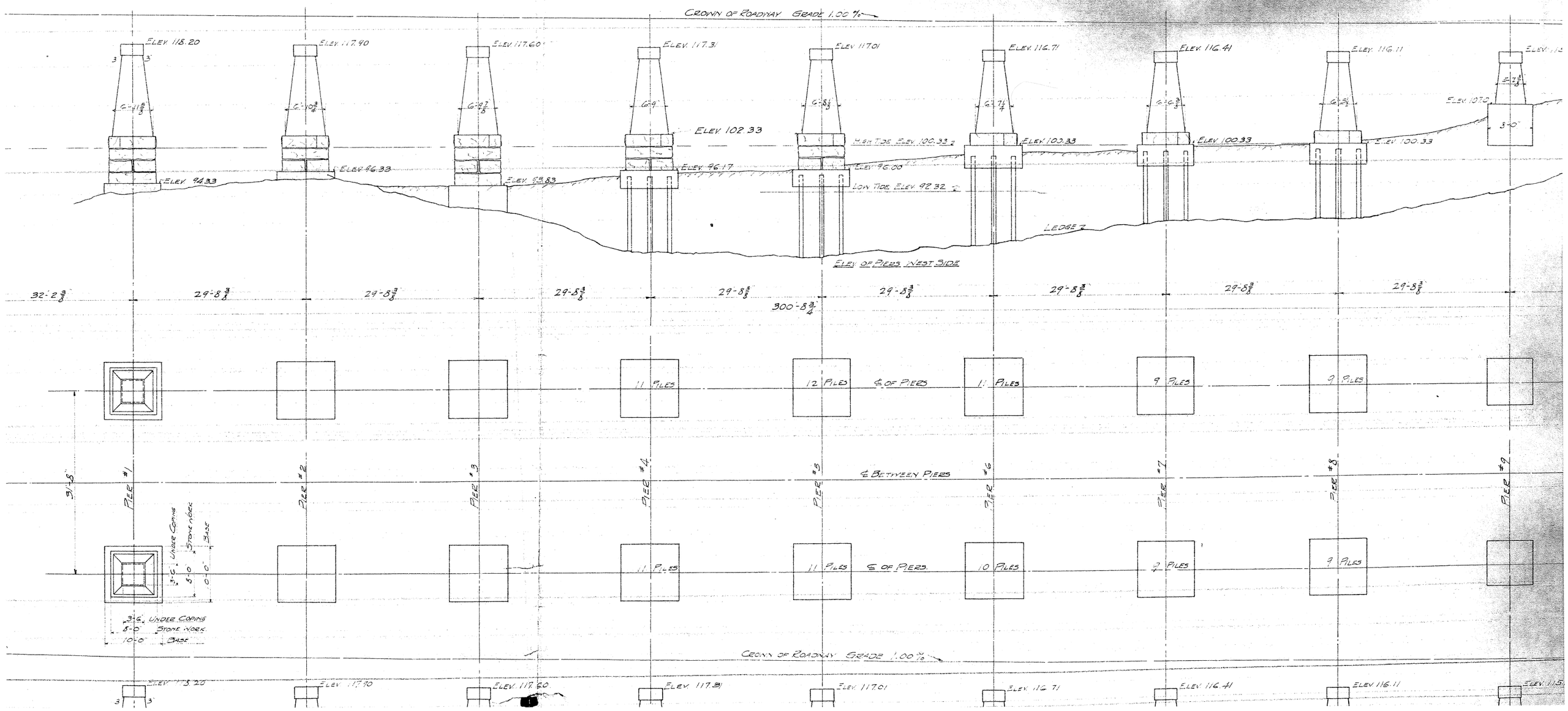
	BY	DATE		BY	DATE
DESIGNED			CHECKED		
DRAWN			CHECKED		
TRACED			CHECKED		
QUANTITIES			CHECKED		

REVIEWED BY _____

BRIDGE SHEET NO. 5
F.A.S. NUMBER _____
F.P.O. NO. 3653 SHEET NO. 5 OF 6 SHEETS

174-15

BRUNING 40-107 31662



CROWN OF ROADWAY GRADE 1.00 %
ELEV. 118.20
ELEV. 117.90
ELEV. 117.60
ELEV. 117.31
ELEV. 117.01
ELEV. 116.71
ELEV. 116.41
ELEV. 116.11
ELEV. 102.33
HIGH TIDE ELEV. 100.33
ELEV. 100.33
ELEV. 100.33
ELEV. 100.33
ELEV. 107.0
ELEV. 94.33
ELEV. 96.33
ELEV. 93.83
ELEV. 96.17
ELEV. 96.00
LOW TIDE ELEV. 92.32
LEDGE
ELEV. OF PIERS WEST SIDE
32'-2 3/8"
29'-8 3/8"
29'-8 3/8"
29'-8 3/8"
29'-8 3/8"
29'-8 3/8"
29'-8 3/8"
29'-8 3/8"
29'-8 3/8"
300'-8 3/4"
11 PILES
12 PILES
℄ OF PIERS
11 PILES
9 PILES
9 PILES
31'-8"
PIER #1
PIER #2
PIER #3
PIER #4
PIER #5
PIER #6
PIER #7
PIER #8
PIER #9
℄ BETWEEN PIERS
3'-6" UNDER COPING
8'-0" STONE WORK
10'-0" BASE
11 PILES
11 PILES
℄ OF PIERS
10 PILES
9 PILES
9 PILES
3'-6" UNDER COPING
8'-0" STONE WORK
10'-0" BASE
CROWN OF ROADWAY GRADE 1.00 %
ELEV. 118.20
ELEV. 117.90
ELEV. 117.60
ELEV. 117.31
ELEV. 117.01
ELEV. 116.71
ELEV. 116.41
ELEV. 116.11