FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		1-A	64

HAMPTON HARBOR BRIDGE

STATE OF NEW HAMPSHIRE

HIGHWAY DEPARTMENT

HAMPTON, NEW HAMPSHIRE

LIST OF DRAWINGS

CONTRACT 1 - SCHEDULE "A"

SUBSTRUCTURE

SHEET NO.	TITLE
1-B	GENERAL PLAN AND ELEVATION
2	BORINGS
3	PIERS 1-S TO 6-S, 2-N TO 6-N
4	PIER 1-N & DETAILS
5,5A	ABUTMENTS
6	FENDER SYSTEM

SUPERSTRUCTURE

SHEET NO.	TITLE
7	STRESS SHEET - APPROACH SPANS
8	CROSS SECTIONS - APPROACH SPANS
9	APPROACH GIRDER DETAILS
10	RAILING DETAILS, SCUPPERS AND SHOES
11	ELEVATIONS AND SECTIONS - BASCULE PIER
12	MACHINERY LAYOUT - BASCULE PIER
13	ARCHITECTURAL DETAILS "A" BASCULE PIER
14	ARCHITECTURAL DETAILS "B" BASCULE PIER
15	STRUCTURAL DETAILS "A" BASCULE PIER
16	STRUCTURAL DETAILS "B" BASCULE PIER
17	STRESS SHEET - BASCULE SPAN
18	PLAN AND SECTIONS - BASCULE SPAN

CONTRACT 2 - SCHEDULE "B"

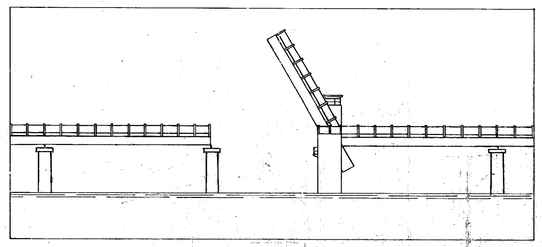
SUPERSTRUCTURE

SHEET NO.	TITLE
19	FLOOR SYSTEM OVER COUNTERWEIGHT
20	CROSS SECTIONS - BASCULE SPAN
21	GIRDERS - BASCULE SPAN
22	COUNTERWEIGHT - TRUNNION TOWER
23	TRUNNION GIRDER AND TRUNNION TOWER
24	TRUNNION GIRDER SECTIONS
25	TRUNNION DETAILS AND ELECTRIC DRIVE
26	OPERATING MACHINERY
27	HAND OPERATION MACHINERY
28	LOCKING MACHINERY
29	BARRIER GATES
30	WIRING DIAGRAM

SUPERSTRUCTURE

SHEET NO.	TITLE
31	ELECTRICAL EQUIPMENT AND SERVICE LIGHTING
32	ELECTRICAL DETAILS
33	HEATING, PLUMBING AND ELECTRICAL LAYOUT
34	UTILITY CONDUIT RUNS AND TRANSFORMER VAULT
35	PLAN AND ELEVATIONS - TOLL HOUSE
36	ARCHITECTURAL DETAILS - TOLL HOUSE
37	STRUCTURAL DETAILS - TOLL HOUSE

NOT IN CONTRACT



PREPARED BY

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS

ENGINEERS, NEW YORK

E. L. Macdonald

APPROVED

D. H. Dickinson

CHIEF ENGINEER

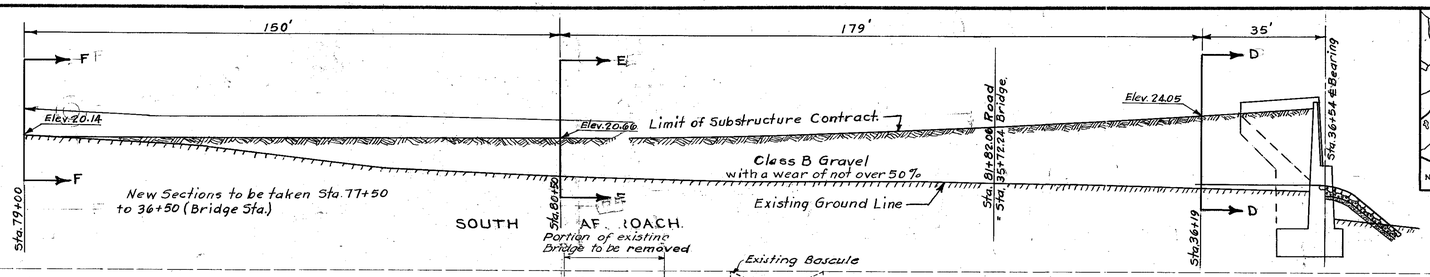
APPROVED

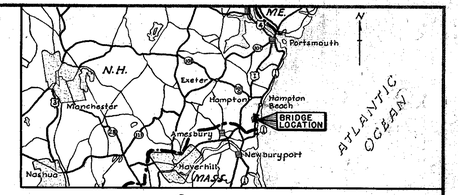
H. E. Foster

COMMISSIONER

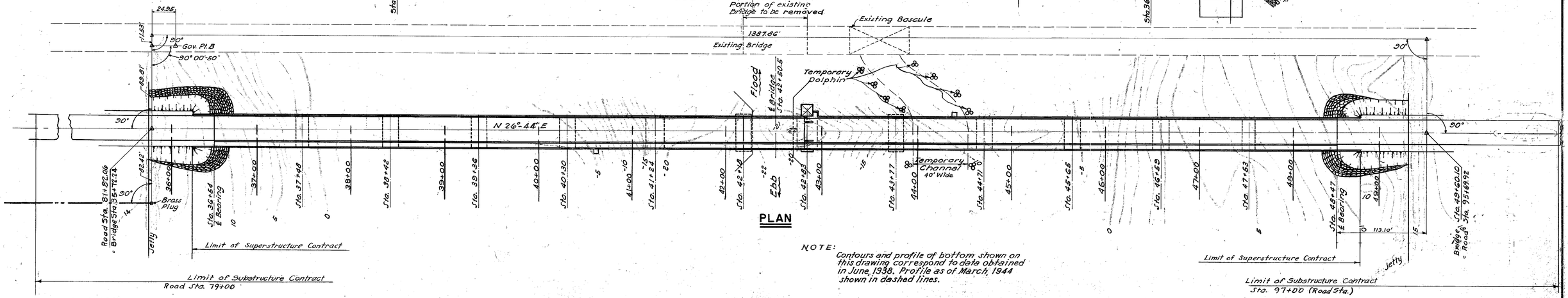
DATE May 6, 1946

FED ROAD DIST. NO.	STATE	F.A. PROJ. NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-3180( )		1-B	64



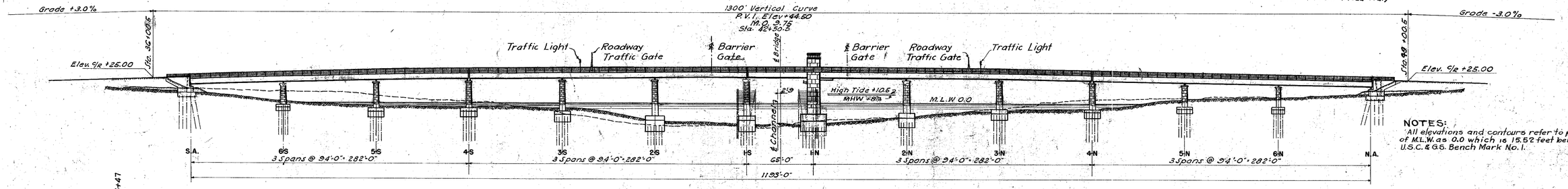


LOCATION MAP



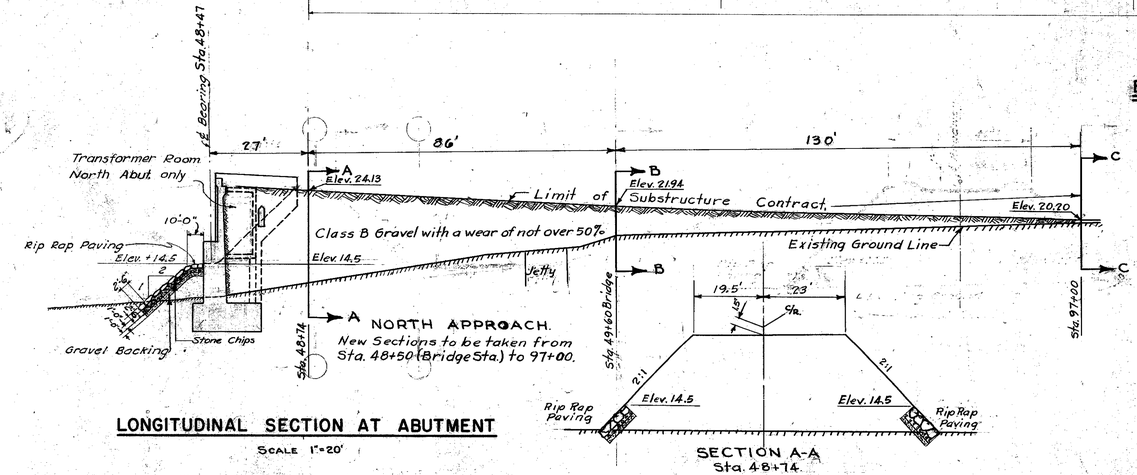
PLAN

NOTE:
Contours and profile of bottom shown on this drawing correspond to data obtained in June, 1938. Profile as of March, 1944 shown in dashed lines.



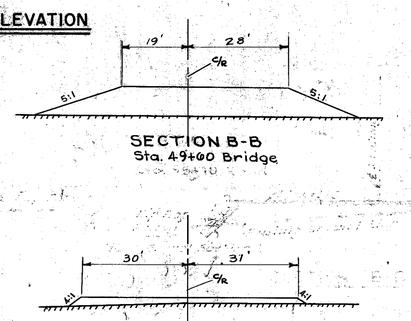
NOTES:
All elevations and contours refer to plane of M.L.W. as 0.0 which is 15.52 feet below U.S.C. & G.S. Bench Mark No. 1.

ELEVATION



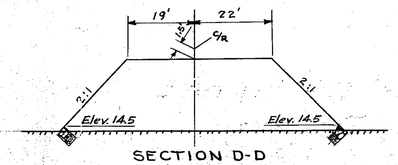
LONGITUDINAL SECTION AT ABUTMENT
SCALE 1"=20'

SECTION A-A
Sta. 48+74

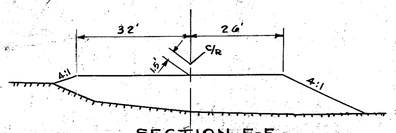


SECTION B-B
Sta. 49+00 Bridge

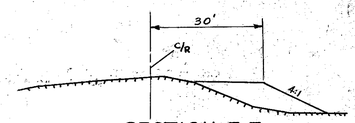
SECTION C-C
Sta. 97+00



SECTION D-D
Sta. 36+19



SECTION E-E
Sta. 80+50



SECTION F-F
Sta. 79+00

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS - NEW YORK

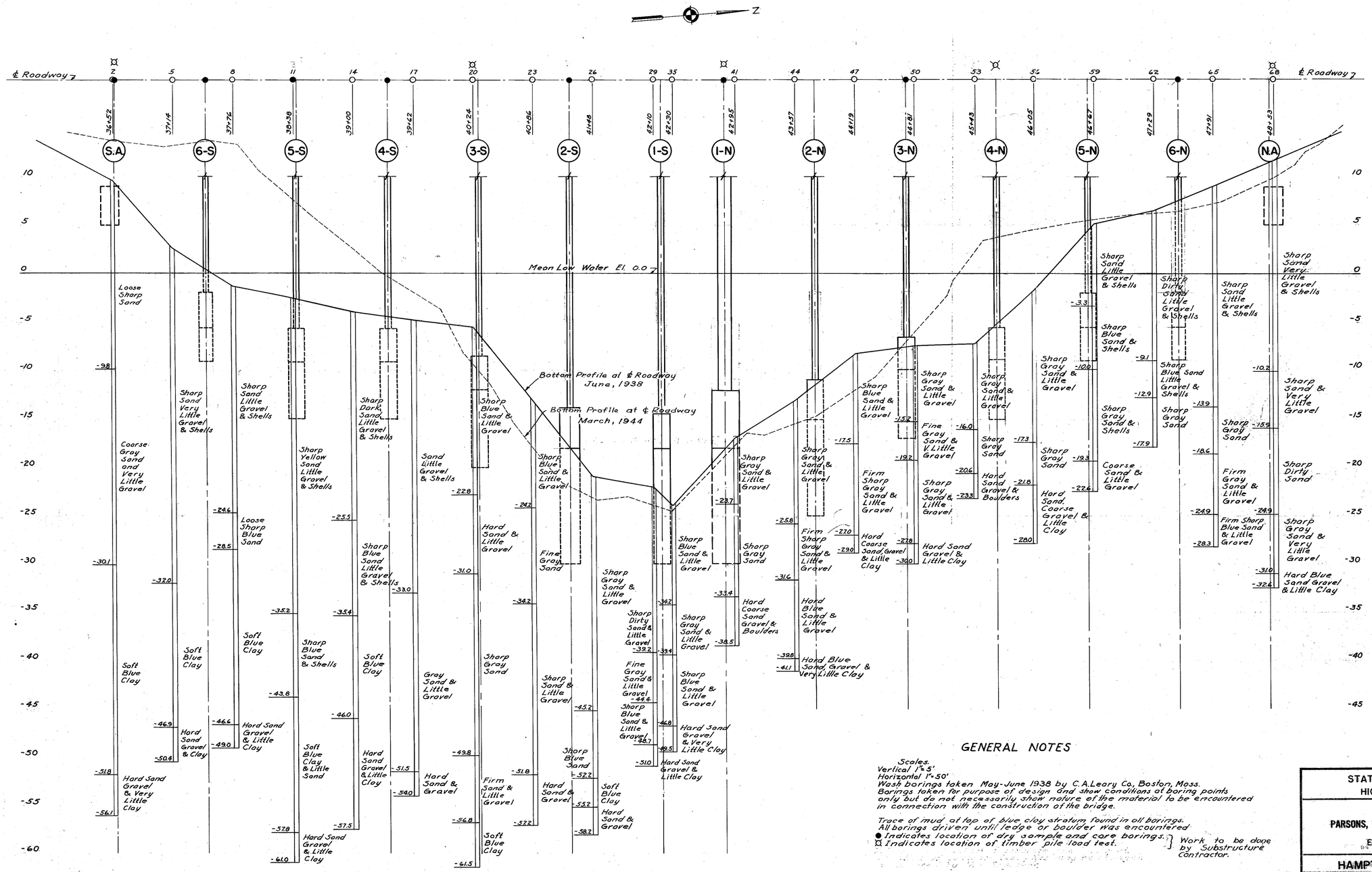
HAMPTON HARBOR BRIDGE
GENERAL PLAN AND ELEVATION

MADE BY A.B.J. TR. A.B.J.
CHECKED BY T.R.
APPROVED
SCALE 1"=50' unless noted
DATE 1946
JOB No. 1600
SHEET No. 1-B

2-13-1-2-1

7-31-46 48+40± RIP-RAP SKETCH

FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		2	64



GENERAL NOTES

Scales.
Vertical 1"=5'
Horizontal 1"=50'
Wash borings taken May-June 1938 by C.A. Leory Co, Boston, Mass.
Borings taken for purpose of design and show conditions at boring points only but do not necessarily show nature of the material to be encountered in connection with the construction of the bridge.

Trace of mud at top of blue clay stratum found in all borings.
All borings driven until ledge or boulder was encountered
● Indicates location of dry sample and core borings.
☒ Indicates location of timber pile load test.

Work to be done by Substructure Contractor.

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK
BATTERY PLACE, NEW YORK

HAMPTON HARBOR BRIDGE
BORINGS

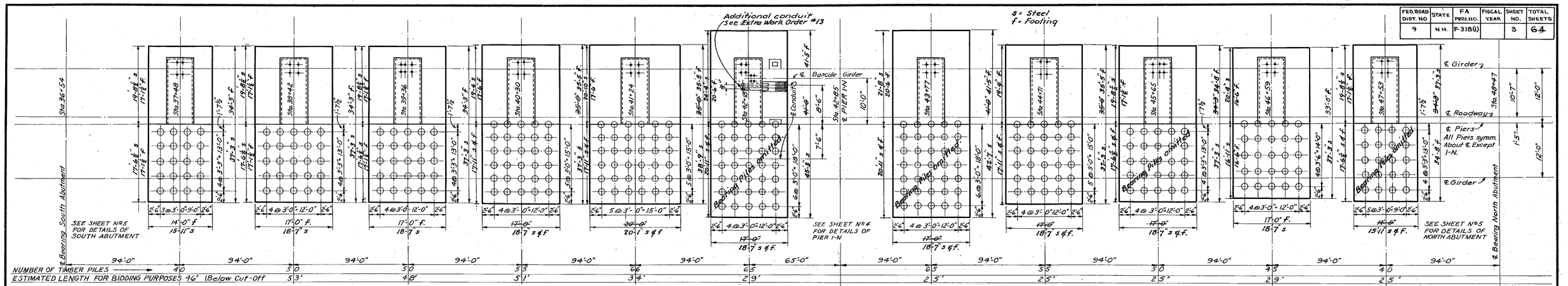
MADE BY M.C.C. TR. M.C.C.
CHECKED BY A.B.J.
APPROVED
SCALE as noted
DATE MARCH 1946
JOB NO. 1600
SHEET NO. 2

3-1-2-1

FED. ROAD DIST. NO	STATE	F.A. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		3	64

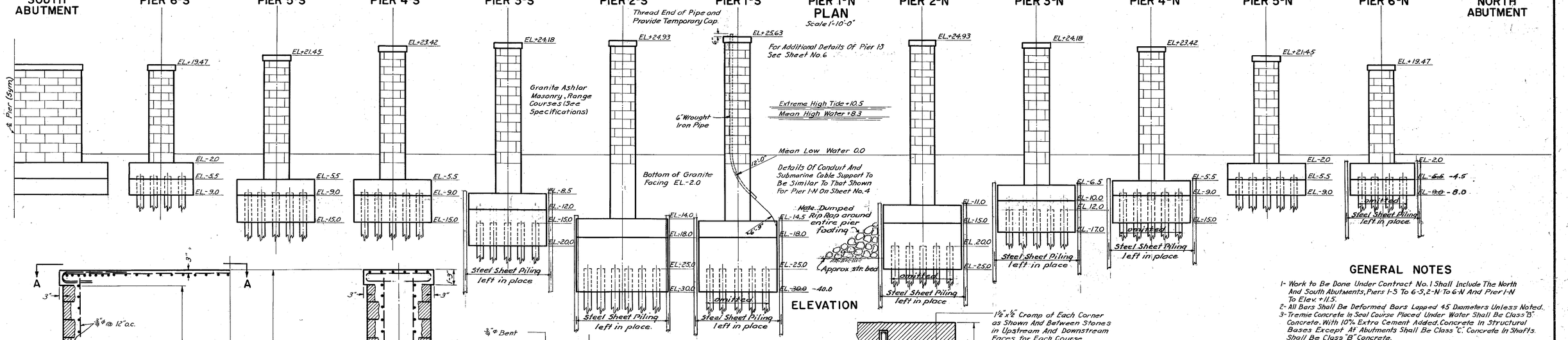
$ = Steel
f = Footing

Additional conduit See Extra Work Order #13

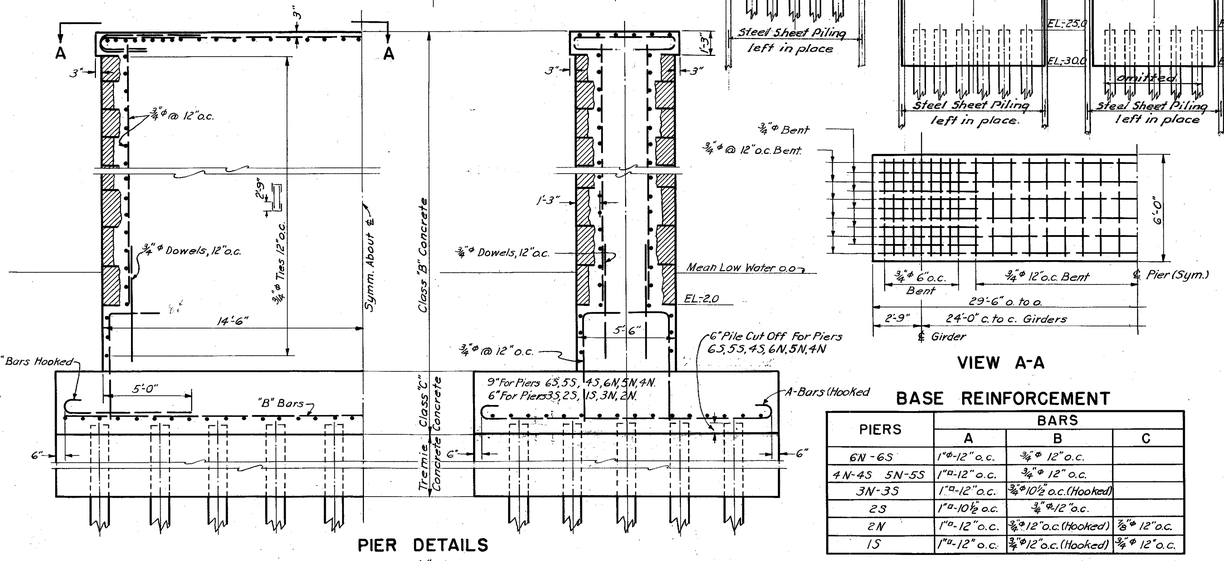


PLAN

Scale 1"=10'-0"



ELEVATION



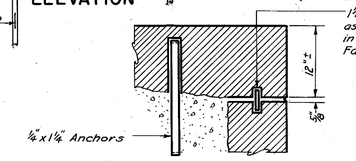
PIER DETAILS

Scale 1/4"=1'-0"

VIEW A-A

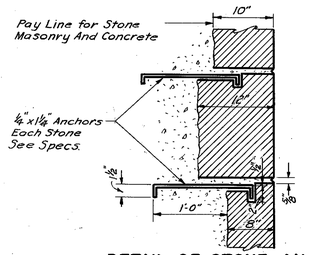
BASE REINFORCEMENT

PIERS	BARS		
	A	B	C
6N-6S	1'-0"-12" o.c.	3/4"ø 12" o.c.	
4N-4S 5N-5S	1'-0"-12" o.c.	3/4"ø 12" o.c.	
3N-3S	1'-0"-12" o.c.	3/4"ø 10 1/2 o.c. (Hooked)	
2S	1'-0"-10 1/2 o.c.	3/4"ø 12" o.c.	
2N	1'-0"-12" o.c.	3/4"ø 12" o.c. (Hooked)	7/8"ø 12" o.c.
1S	1'-0"-12" o.c.	3/4"ø 12" o.c. (Hooked)	3/4"ø 12" o.c.

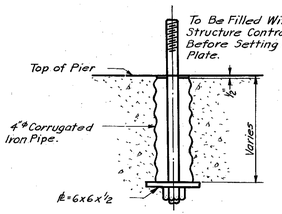


DETAIL AT CORNER OF MASONRY

NOTE:
In Cold Weather The Substructure Contractor Shall Remove Water From Anchor Bolt Holes And (1) Provide Temporary Positive Seal to Exclude Water or (2) Refill Holes With Approved Non-Evaporative Anti-Freeze Solution.



DETAIL OF STONE ANCHOR



ANCHOR BOLT DETAIL

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

GENERAL NOTES

1- Work to Be Done Under Contract No. 1 Shall Include The North And South Abutments, Piers 1-S To 6-S, 2-N To 6-N And Pier I-N To Elev. +11.5.
2- All Bars Shall Be Deformed Bars Lapped 45 Diameters Unless Noted.
3- Tremie Concrete In Seal Course Placed Under Water Shall Be Class "B" Concrete With 10% Extra Cement Added. Concrete In Structural Bases Except At Abutments Shall Be Class "C". Concrete In Shafts Shall Be Class "B" Concrete.
* 4- Anchor Bolts Shall Be Furnished [illegible] And [illegible] Set By The Substructure Contractor In Accordance With Detail Plans To Be Furnished Later.
5- Granite Facing Stones Shall Be Min. 8" And Max. 12" Thick And Shall Be Anchored To The Pier As Specified.
6- For Elevation Of Existing Ground Lines, At Piers See Sheet No. 2.
7- Concrete Surfaces Under Bridge Seats Shall Be Poured 1/4" High - See Specifications.
8- Piles Shall Be Cut Off At Elevations Shown With A Tolerance Of 3' Above And 2' Below The Indicated Elevations. No Pile Shall Project More Than 6" Above The Tremie Seal. Piles At Piers 6-S, 5N, 6-N Shall Have No Tolerance.
9- Suitable keys shall be formed at all construction joints.

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS - NEW YORK

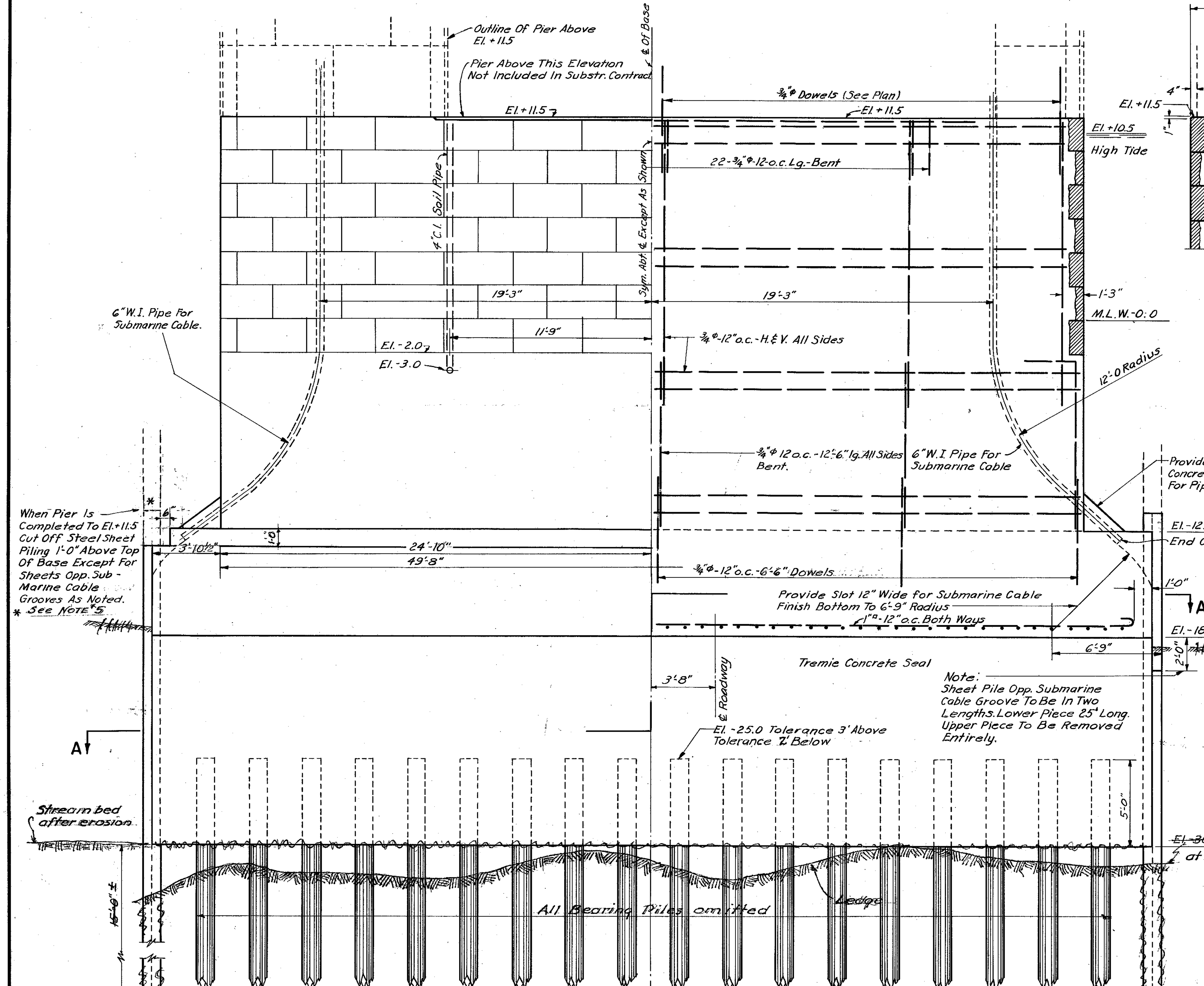
HAMPTON HARBOR BRIDGE
PIERS I-S TO 6-S, 2N TO 6-N

REVISIONS
* Gen. note #4 changed 2/13/47

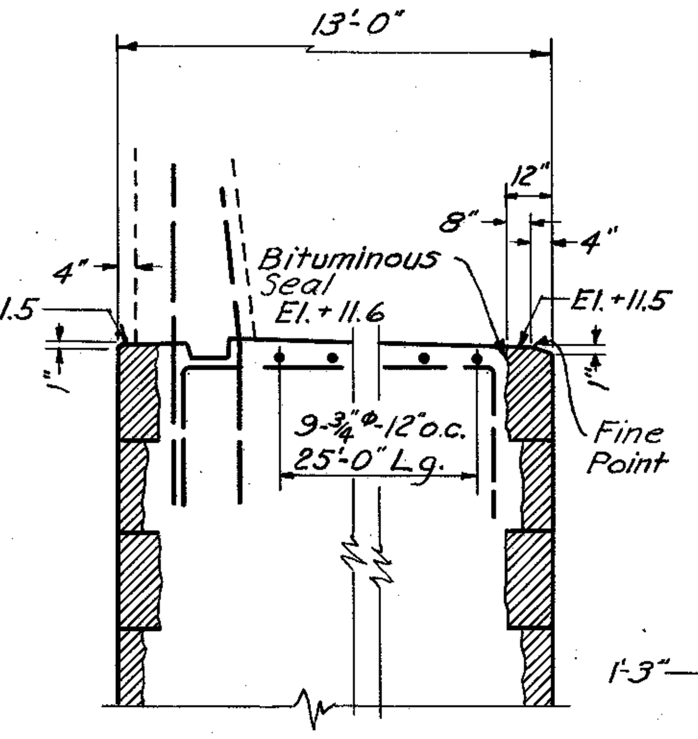
MADE BY A.H.R. TR. H.M.S.
CHECKED BY M.E.F.
APPROVED [signature]

SCALE As Noted
DATE MARCH 1946
JOB No. 1600
SHEET No. 3

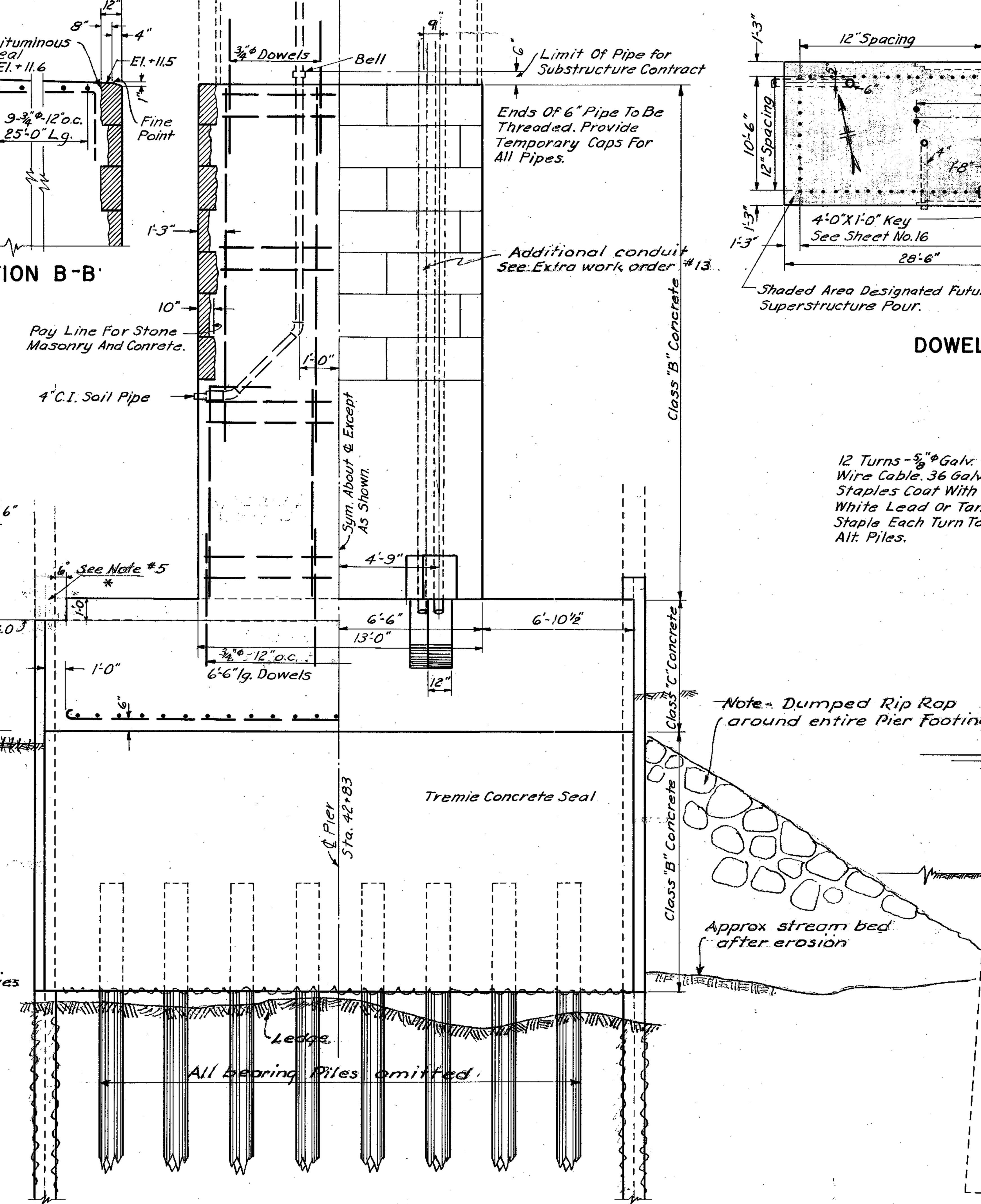
3-1-2-1



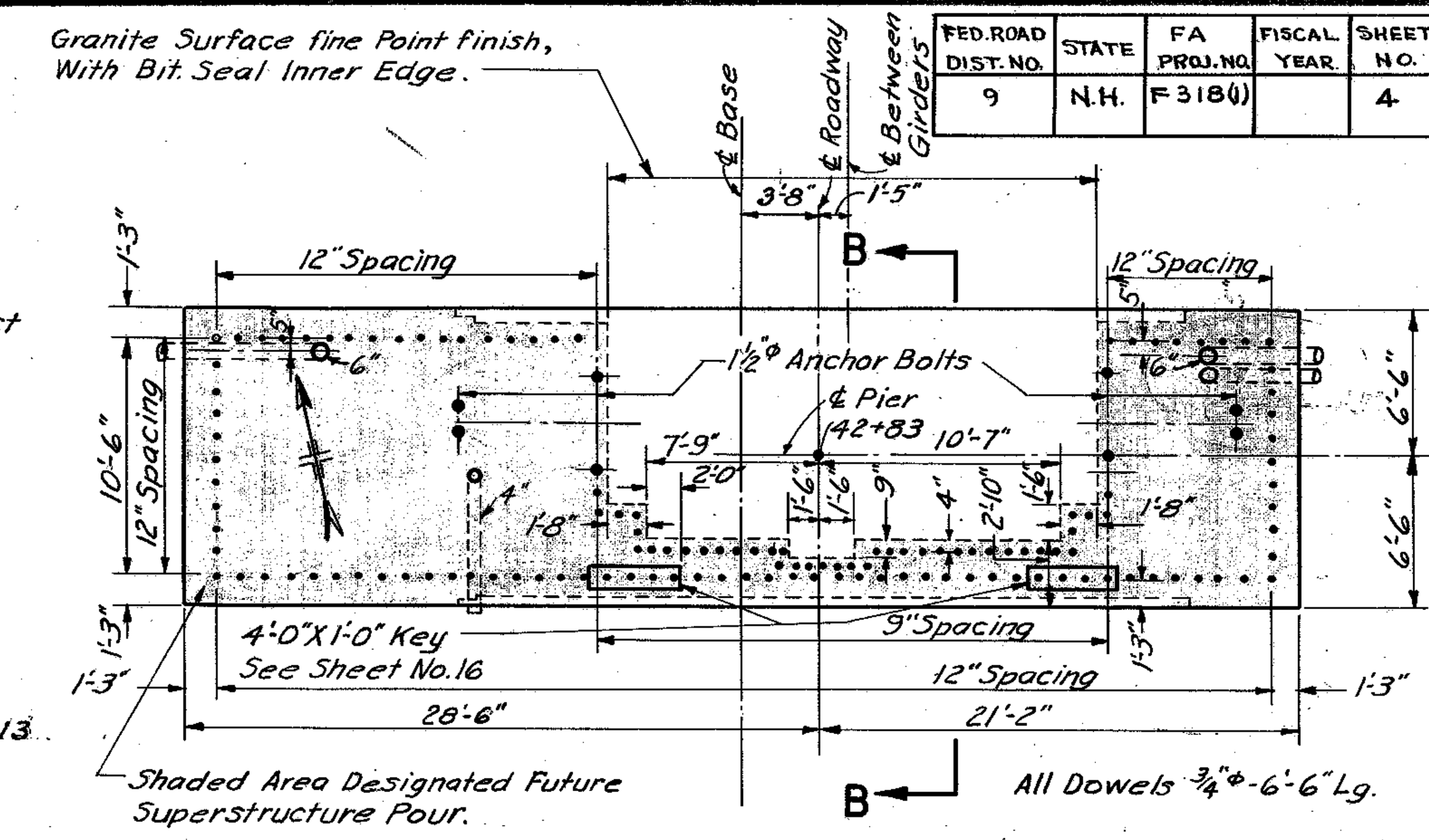
SOUTH ELEVATION
Scale ¼" = 1'-0"



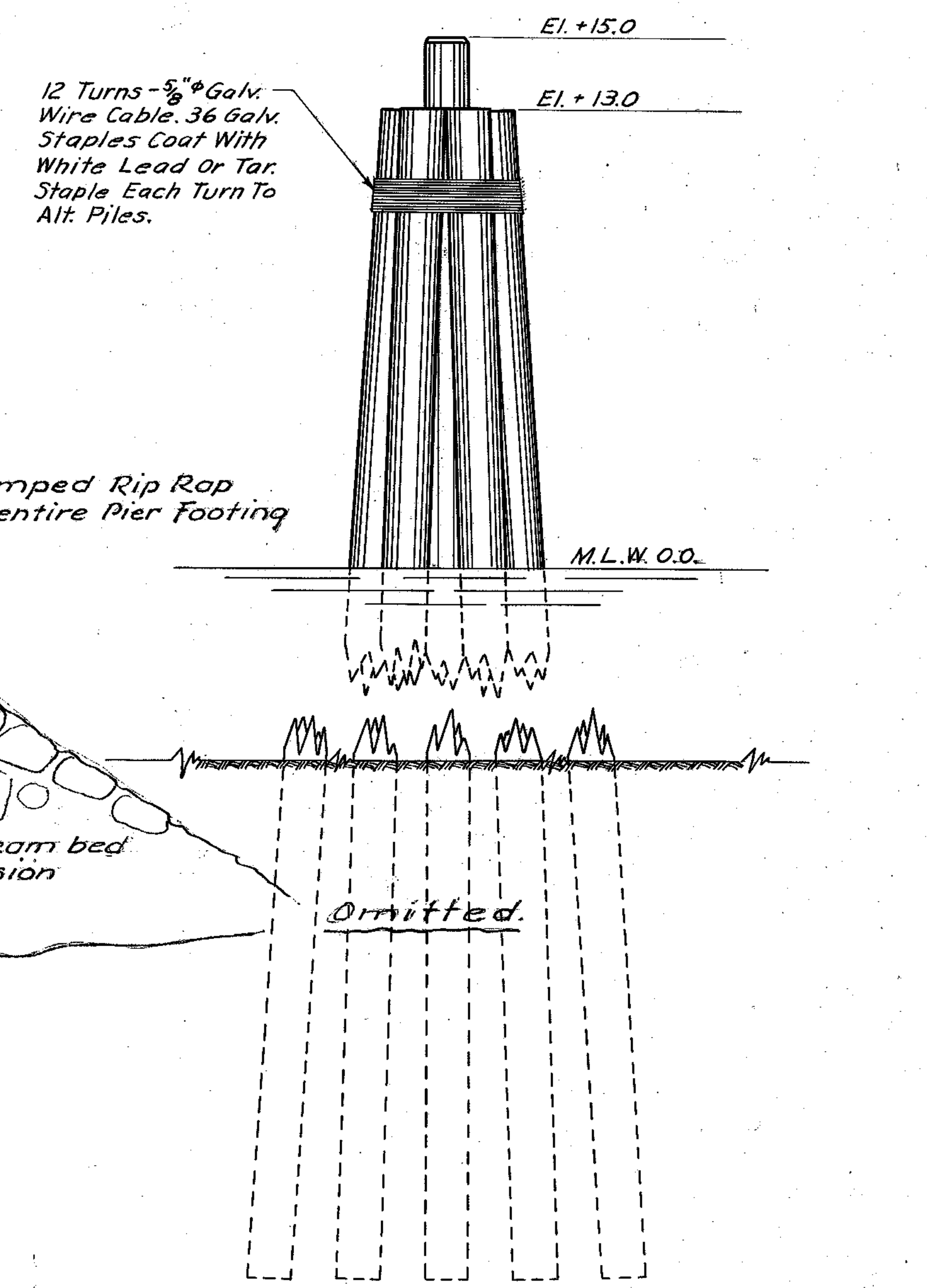
SECTION B-B



EAST ELEVATION
Scale ¼" = 1'-0"

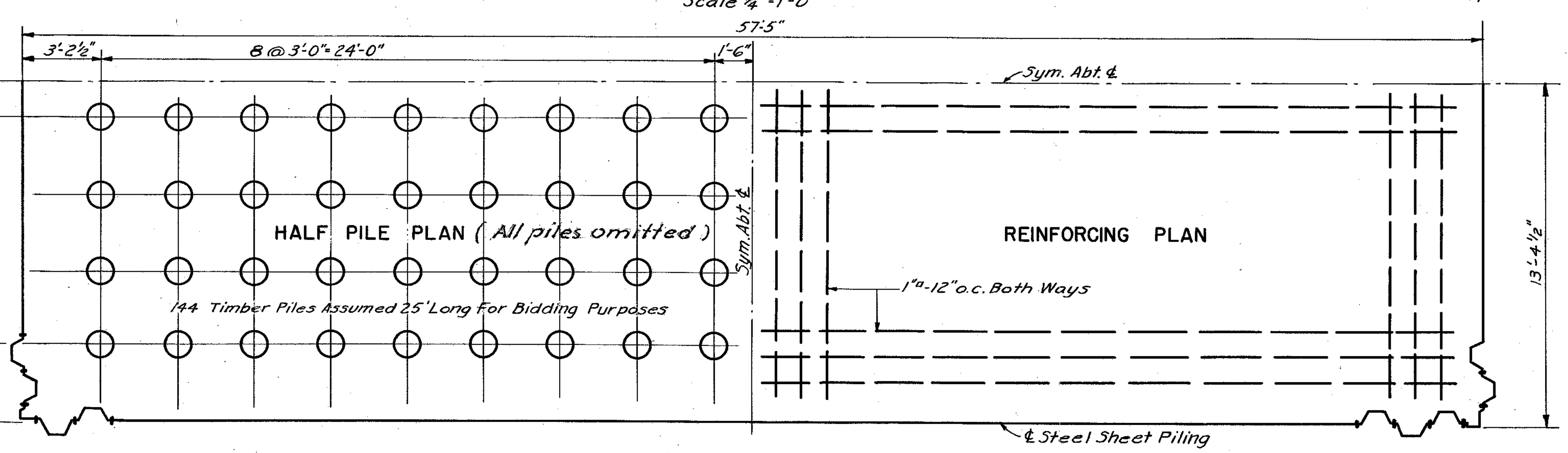


DOWEL PLAN AT EL. + 11.5
Scale ⅛" = 1'-0"



TYPICAL 7 PILE DOLPHIN

This Work To Be Done Under Substructure Contract.



SECTION A-A

NOTES

1. For General Notes See Sheet No. 3
2. Tremie Seal Course Shall Be Deposited In A Single Continuous Pour. Concrete Above El. -18.0 Shall Be Poured In The Dry.
3. Steel Sheet Piling Left In Place Shall Have A Minimum Web Thickness Of ⅜" And A Minimum Section Modulus Of 10.7 In³ Per Ft. Of Wall.
4. For Detail Of Stone Anchor See Sheet No. 3.
* 5. Steel Sheet Piling shall be cut off at Elev. -13.0 on the South side and the South half of the East & West ends.

REVISIONS
* Change Detail for Pile Cut-off.

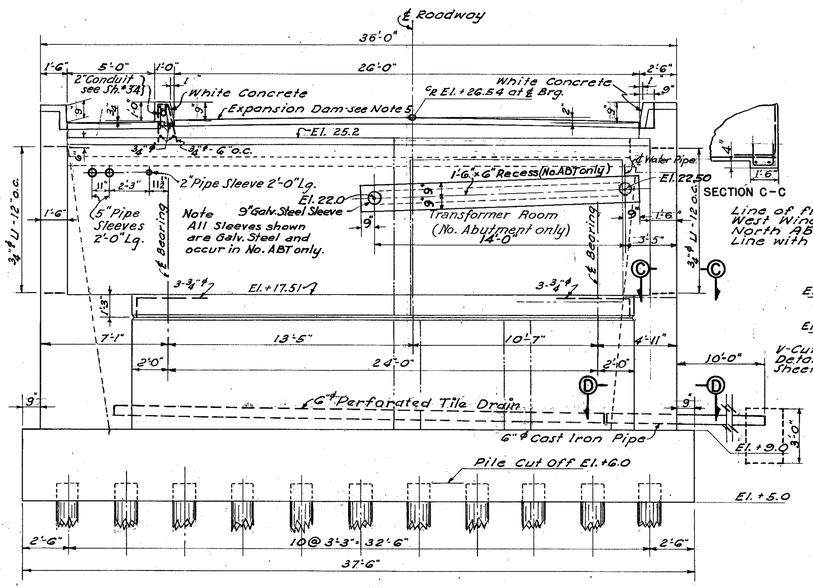
STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS - NEW YORK

HAMPTON HARBOR BRIDGE
PIER I-N AND DETAILS

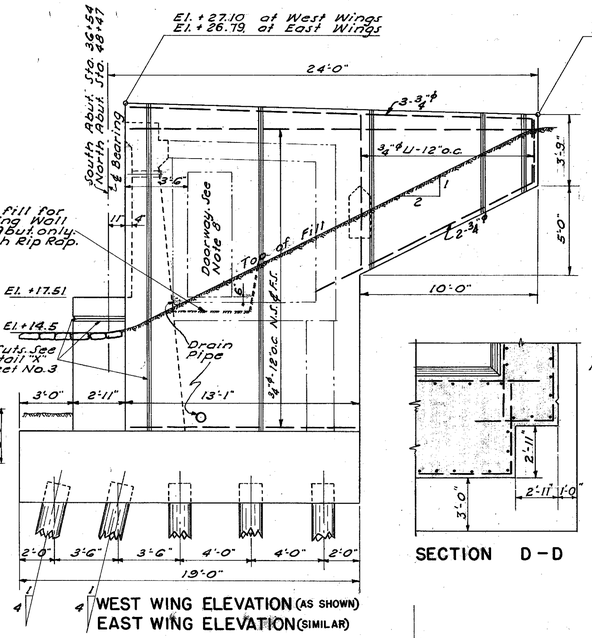
MADE BY I.P.G. TR. H.M.S.	SCALE As Noted
CHECKED BY M.E.F.	DATE MARCH 1946
APPROVED	JOB No. 1600
	SHEET No. 4

3-1-2-1



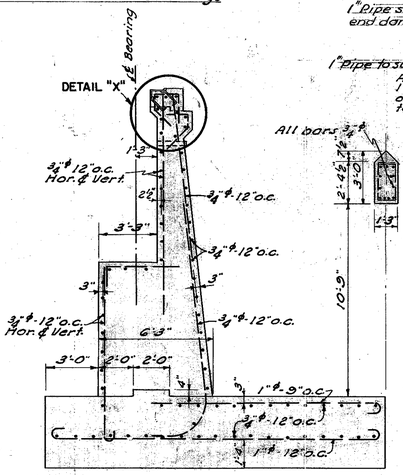
FRONT ELEVATION

SOUTH ABUTMENT (AS SHOWN)
NORTH ABUTMENT (OPP. HAND EXCEPT AS SHOWN)

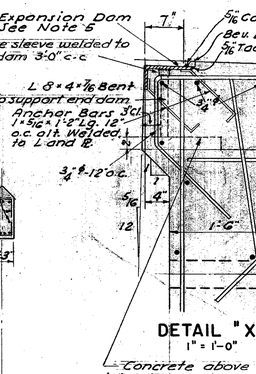


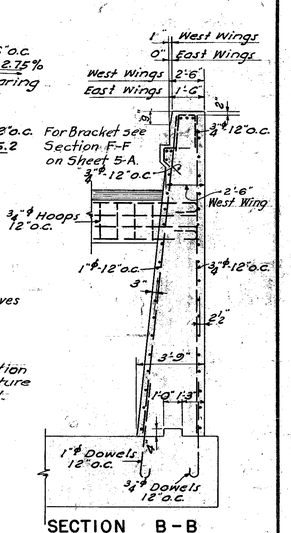
WEST WING ELEVATION (AS SHOWN)
EAST WING ELEVATION (SIMILAR)

SECTION D-D

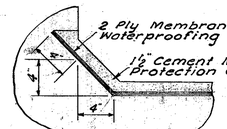


SECTION A-A





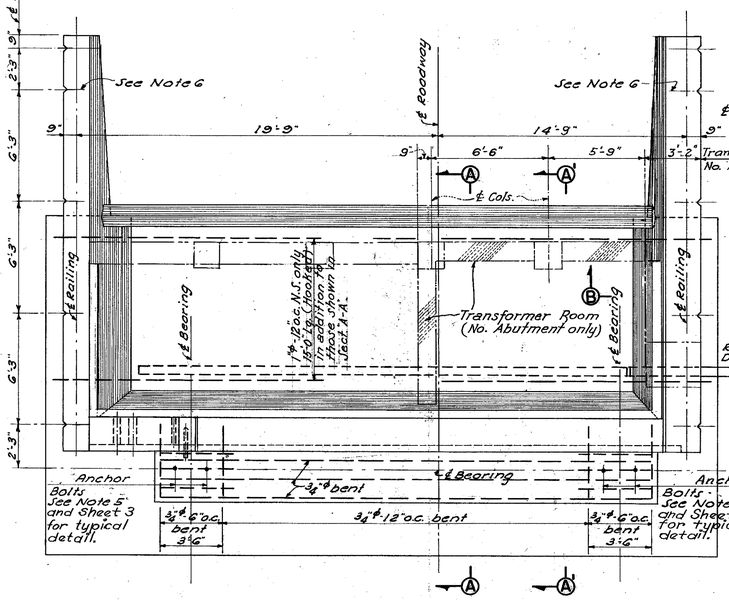
SECTION B-B



WATERPROOFING DETAIL AT CORNERS
1½" = 1'-0"

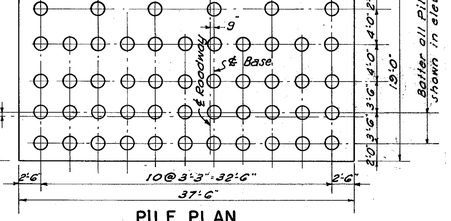
NOTES

1. INSTALL 6" DIA. PIPE SLEEVES FOR CONDUITS IN TRANSFORMER ROOM AS DIRECTED BY THE ENGINEER.
2. ALL BARS SHALL BE DEFORMED BARS LAPPED 50 DIAMETERS UNLESS NOTED.
3. ALL CONCRETE SHALL BE CLASS "B".
4. A TWO COAT PAINT WATERPROOFING SHALL BE APPLIED TO THE ENTIRE BACK FACES OF THE ABUTMENTS INCLUDING THE TOP OF BASE.
5. * ROADWAY AND SIDEWALK EXPANSION DAMS ... SHALL BE FURNISHED AND PLACED BY THE SUPERSTRUCTURE CONTRACTOR. ANCHOR BOLTS FOR THE GIRDER SHOES WILL BE FURNISHED AND PLACED BY THE SUB-STRUCTURE CONTR.
6. * THE STEEL RAILING ON THE BRIDGE WILL BE EXTENDED ALONG THE TOP OF THE ABUTMENT WING WALLS. THE ANCHOR STRAPS FOR RAILING POSTS WILL BE FURNISHED AND PLACED BY THE SUB-STRUCTURE CONTRACTOR.
7. CHAMFER ALL EDGES OF ABUTMENTS ABOVE BASES THUS. — ¾" × ¾"
8. PROVIDE 3'-0" X 7'-0" STEEL DOOR WITH LOUVRES AT TOP AND BOTTOM FOR TRANSFORMER ROOM IN NORTH ABUTMENT. EACH LOUVRED AREA TO BE 288 SQ. IN., ALSO PROVIDE ALL HARDWARE, LOCKS, KEYS AND STRUCTURAL FRAMING.
9. FOR GENERAL NOTES SEE SHEET NO. 3.
10. FOR LOCATION OF ELECTRIC CONDUIT IN TRANSFORMER ROOM SEE SHEET NO. 34.
11. TRANSFORMER SUPPORTS IN TRANSFORMER ROOM TO BE CONSTRUCTED LEVEL. SEE SHEET NO. 34.



PLAN

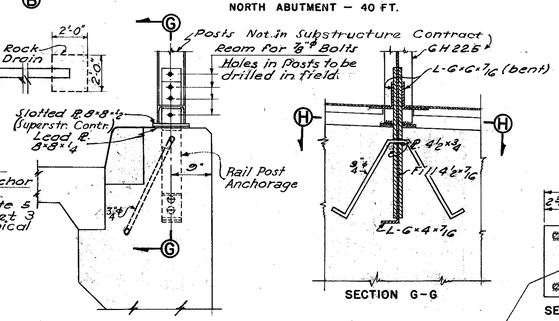
SOUTH ABUTMENT (AS SHOWN)
NORTH ABUTMENT (OPP. HAND EXCEPT AS SHOWN)



PILE PLAN

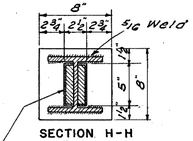
50 TIMBER PILES { 22 BATTERED, 28 VERTICAL }
1/8" = 1'-0"

ESTIMATED LENGTH OF PILES FOR BIDDING PURPOSES
SOUTH ABUTMENT — 62 FT.
NORTH ABUTMENT — 40 FT.



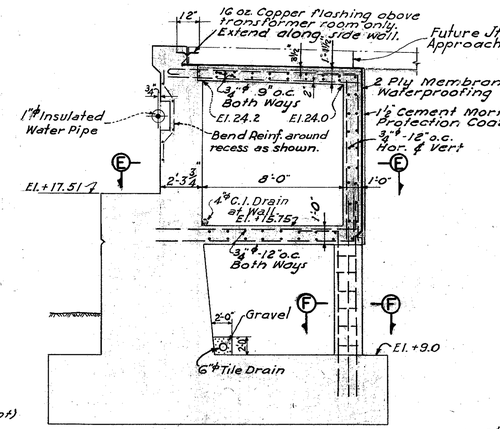
RAILING POST DETAIL
¾" = 1'-0"

SECTION G-G



SECTION H-H
1½" = 1'-0"

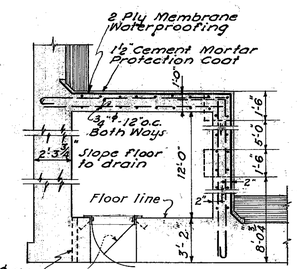
Caulk with Lead (Superstructure Contract)



SECTION A'-A'

NORTH ABUTMENT
ALL DETAILS NOT SHOWN SAME AS SECTION A-A

SECTION F-F



SECTION E-E

REVISIONS.
* Notes 5 & 6 changed 2/13/59
Detail X, Const. Jt. & support for End Dam added. 2/13/59

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

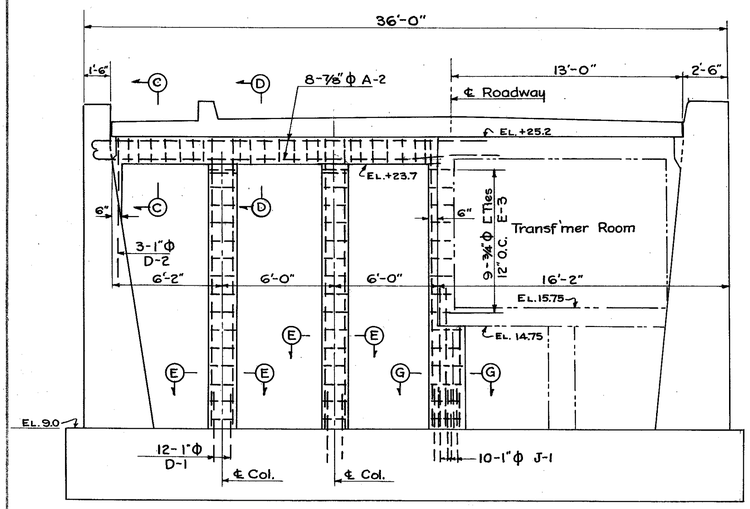
PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS - NEW YORK

HAMPTON HARBOR BRIDGE
ABUTMENTS

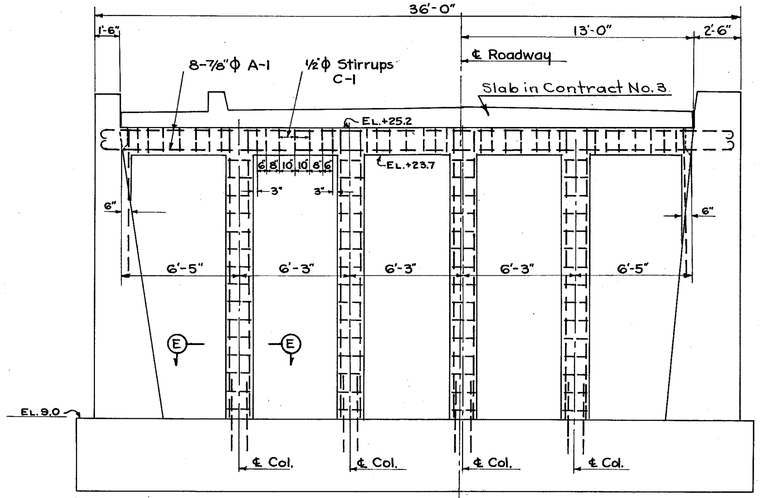
MADE BY M.E.F. TR. M.E.F. A.B.J.	SCALE 1/4" = 1'-0" UNLESS NOTED
CHECKED BY H.A.F. - I.P.G.	DATE MARCH 1959
APPROVED	JOB No. 1600
	SHEET No. 5

2-3-4-2-1

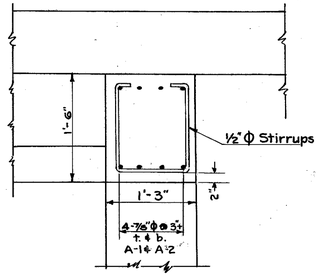
FED. ROAD DIST. NO.	STATE	F. A. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N. H.	F318(1)		5-A	64



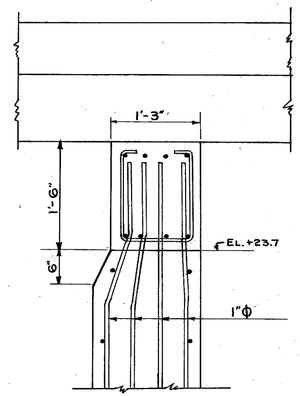
SECTION A-A



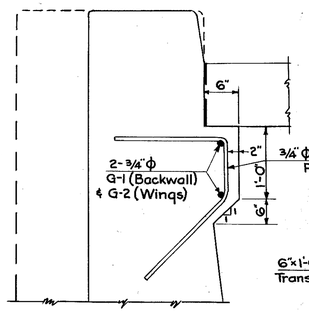
SECTION B-B



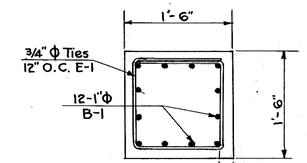
SECTION C-C
1" = 1'-0"



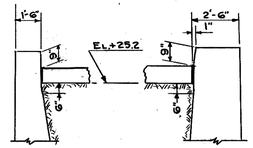
SECTION D-D
1" = 1'-0"



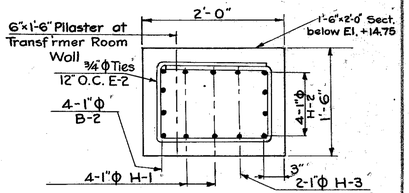
SECTION F-F
1" = 1'-0"



SECTION E-E
1" = 1'-0"

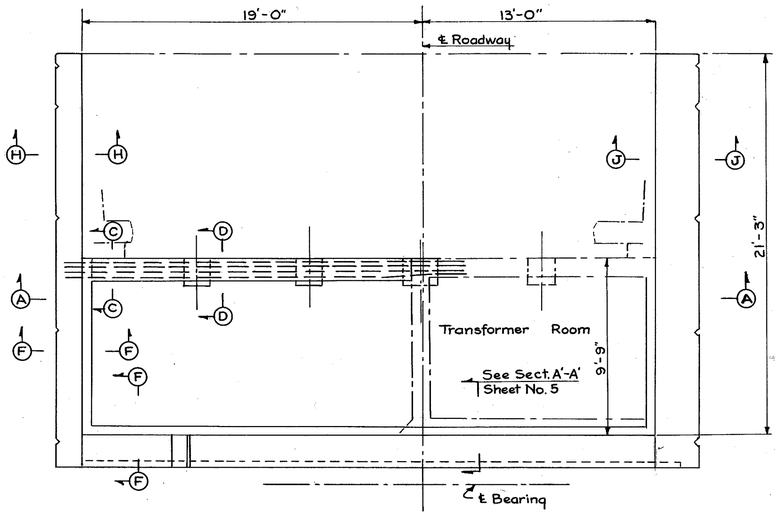


SECTION H-H SECTION J-J

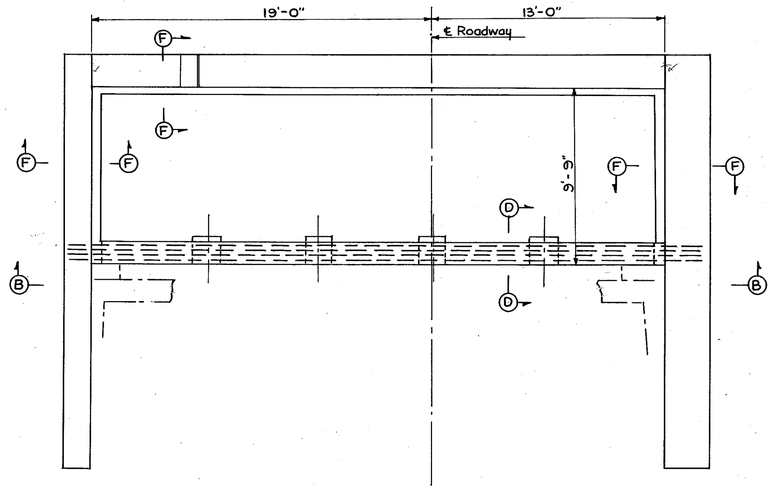


SECTION G-G
1" = 1'-0"

NOTES
ALL CONCRETE SHALL BE CLASS "B"
STEEL SCHEDULE ON FILE IN THE CONCORD OFFICE.



PLAN NORTH ABUTMENT
THE OPPOSITE HAND



PLAN SOUTH ABUTMENT
THE OPPOSITE HAND

SUPPORTS AT ABUTMENTS
SCALE 1/4" = 1'-0"
UNLESS OTHERWISE NOTED

CHECKED
CHECKED
5-24-46 N.P.W.D. Fe

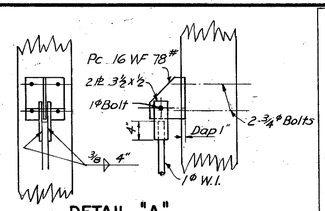
PROJ. NO.	SHEET NO.	TOTAL SHEETS
F 318 (1)	5-A	66

3-1-2-1

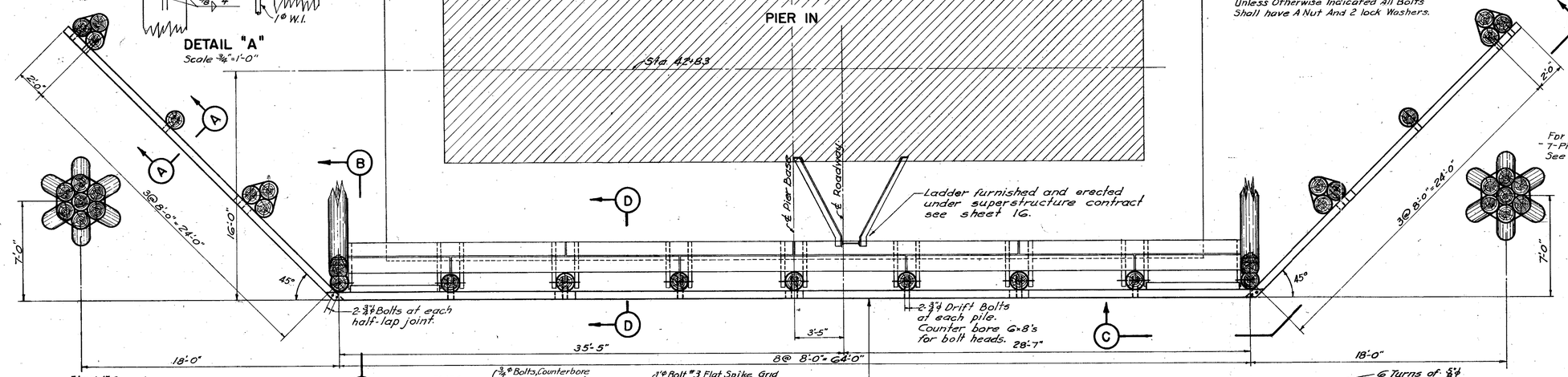
FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		6	64

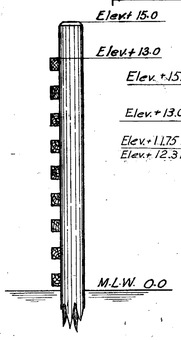
NOTES:
All Piles-55' Y.P. Creosoted Piles.

All Hardware to be galvanized. Fenders to be constructed under substructure contract. For navigation lights mounted on fenders by superstructure contractor see sht. 38. Unless Otherwise Indicated All Bolts Shall have A Nut And 2 lock Washers.

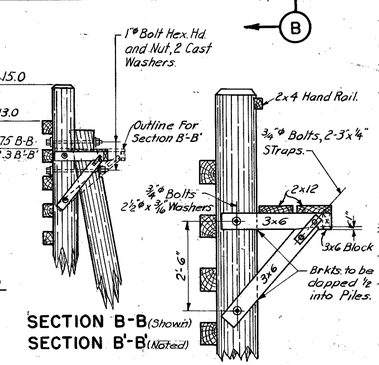


DETAIL "A"
Scale ¾"=1'-0"

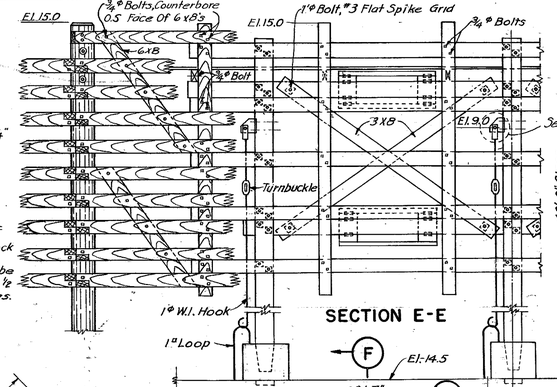




SECTION A-A

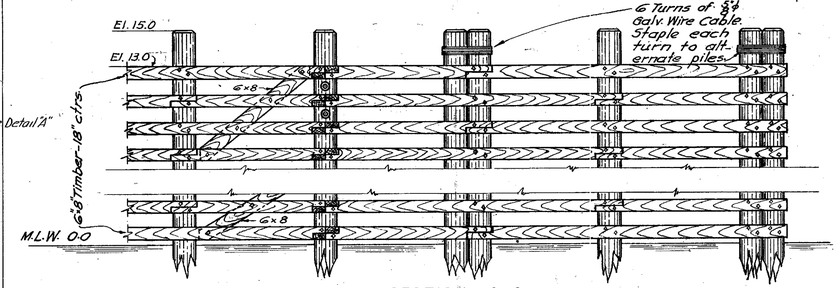


SECTION B-B (Shown)
SECTION B'-B' (Noted)

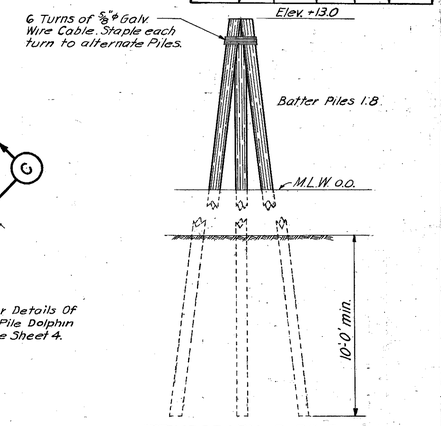


SECTION D-D

SECTION E-E

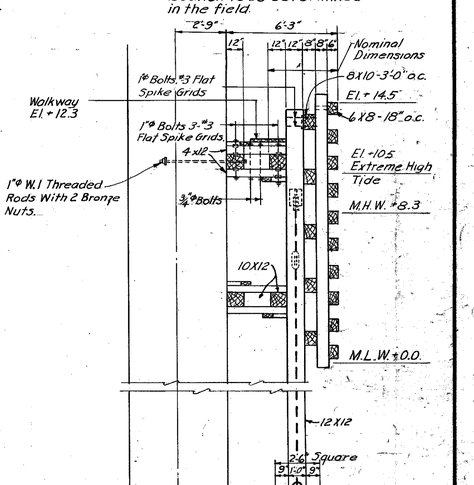


SECTION C-C
DEVELOPED

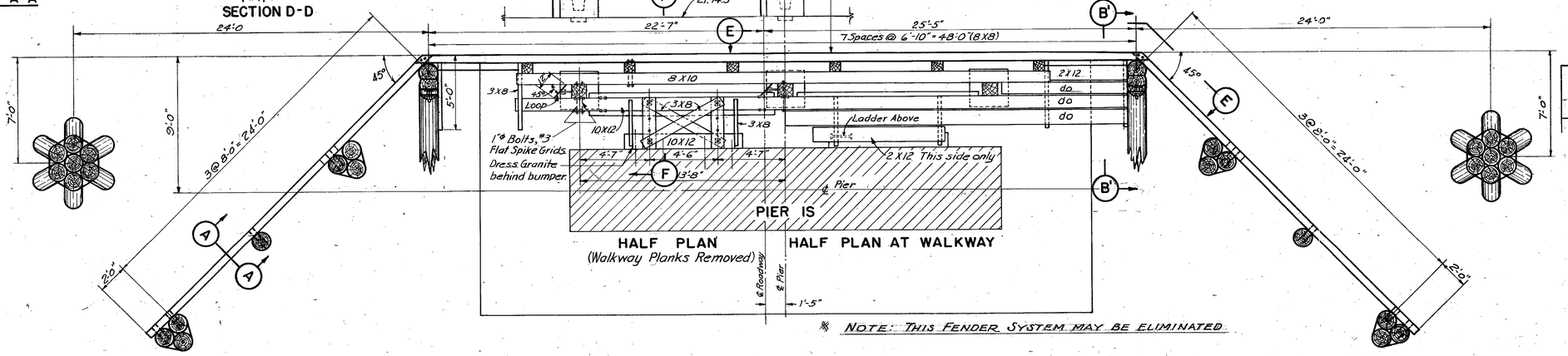


TEMPORARY 3-PILE DOLPHIN

8-required for approximate location see sheet 1. Exact location to be determined in the field.



SECTION F-F



※ NOTE: THIS FENDER SYSTEM MAY BE ELIMINATED

Note:- All work called for on this sheet omitted.

REVISIONS.
※ Added Note. 3/20/47

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

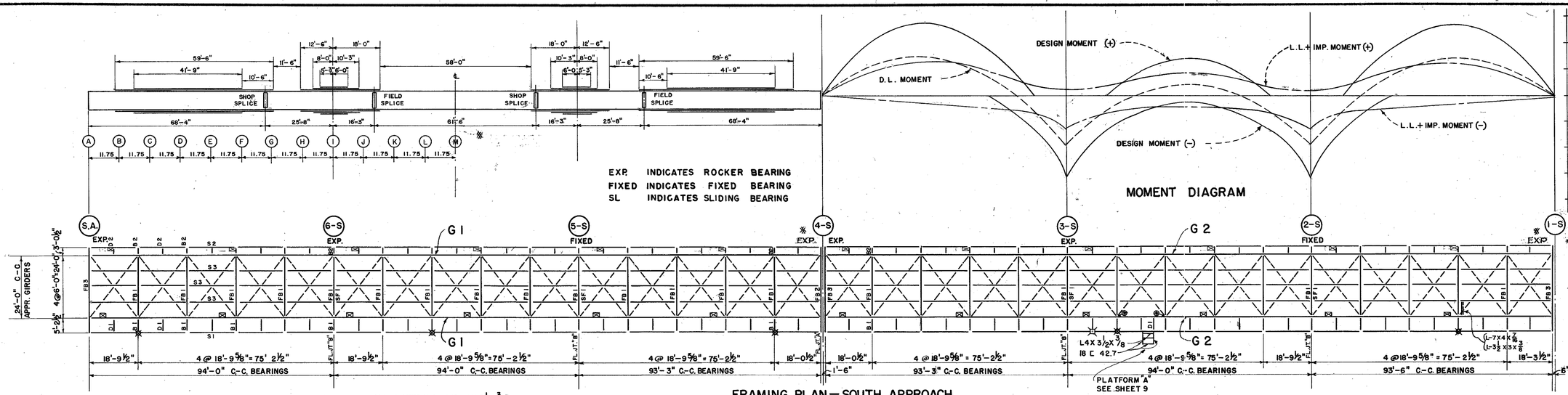
PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK

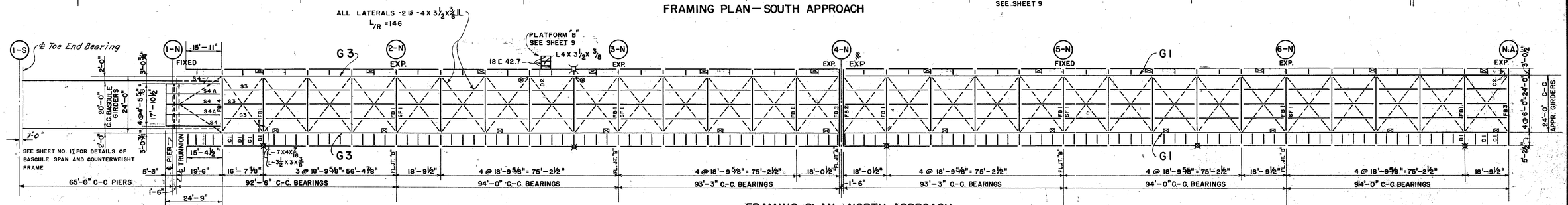
HAMPTON HARBOR BRIDGE
FENDER SYSTEM

MADE BY M.I. TR. S.B.	SCALE 1/4"=1'-0"
CHECKED BY F.W.D.	DATE MARCH 1946
APPROVED	JOB No. 1600
	SHEET No. 6

3-1-2-1

FED. ROAD DIST. NO.	STATE	FA PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		7	64





GIRDER

SECTION		A	B	C	D	E	F	G	H	I	J	K	L	M
FLANGE	LS	6X6X½	6X6X½	6X6X½	6X6X½	6X6X½	6X6X½	6X6X½	6X6X½	6X6X½	6X6X½	6X6X½	6X6X½	6X6X½
	Cov.			14X7/16	14X7/16	14X7/16	14X7/16			14X⅜	14X⅜			
	Cov.			14X7/16	14X7/16	14X7/16				14X⅜				
	Cov.									14X⅜				
WEB PLATE		80X⅜	80X⅜	80X⅜	80X⅜	80X⅜	80X⅜	80X⅜	80X⅜	80X⅜	80X⅜	80X⅜	80X⅜	80X⅜
NET AREA OF FLANGE SQ. IN.	LS	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50
	⅛Web	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
	Cov.			5.25	5.25	5.25	5.25			4.50	4.50			
	Cov.			5.25	5.25	5.25				4.50				
	Cov.									4.50				
	Σ	13.25	13.25	23.75	23.75	23.75	18.50	13.25	13.25	26.75	17.75	13.25	13.25	13.25
MAXIMUM WEB SHEAR KIPS	D.L.	+78.7	+54.0	+29.3	+3.0	-13.0	-44.7	-69.4	-94.1	-119.4	+73.9	+49.2	+16.0	0
	L.L.	+59.7	+46.9	+35.5	+36.7	-39.3	-40.1	-50.8	-61.9	-73.5	+58.4	+47.0	+46.3	+41.0
	I	+10.3	+ 8.2	+ 6.3	+ 6.7	- 7.1	- 7.0	- 8.7	-10.6	-12.2	+ 9.9	+ 8.1	+ 8.1	+ 7.2
	Σ	+148.7	+109.1	+71.1	+46.4	-59.4	-91.8	-128.9	-166.5	-205.1	+142.2	+104.3	+70.4	+48.2
MAX. POSITIVE MOMENT FT. KIPS	D.L.	0	+779	+126.5	+146.6	+1380	+995	+331				-101	+291	+434
	L.L.	0	+533	+890	+1074	+1091	+939	+643				+448	+682	+762
	I	0	+ 88	+147	+176	+178	+153	+105				+ 77	+114	+127
	Σ	0	+1400	+2302	+2716	+2649	+2087	+1079				+424	+1087	+1323
MAX. NEGATIVE MOMENT FT. KIPS	D.L.							+ 232	- 630	-1881	- 873	-144	+ 204	+ 304
	L.L.							- 434	- 584	-1083	- 625	-444	- 421	- 398
	I							- 70	- 93	- 165	- 98	- 71	- 66	- 60
	Σ							- 272	-1307	-3129	-1596	- 659	- 283	- 154
DESIGN MOMENT		0	+1400	+2302	+2716	+2649	+2087	+1215	-1307	-3129	-1596	- 871	+1229	+1400
EFFECTIVE DEPTH FT.		6.43	6.43	6.61	6.61	6.61	6.54	6.43	6.43	6.65	6.53	6.43	6.43	6.43
NET FLG. REQD @ 18 K/□"		0	12.1 □"	19.4 □"	22.8 □"	22.3 □"	17.8 □"	10.5 □"	11.3 □"	26.2 □"	13.6 □"	7.6 □"	10.6 □"	12.1 □"

DESIGN MOMENT = MAX (+) OR (-) MOMENT PLUS ½ THE SMALLER MOMENT

FLOORBEAMS

MARK		END F.B. F.B.2	END F.B. F.B.3	INTERM. F.B. F.B.1	INTERM. F.B. F.B.4
MAX. PANEL LENGTH		18'-0½"	18'-9½"	18'-9⅝"	19'-6"
SECTION		21 WF 103#	27 WF 94#	27 WF 98#	
GROSS S.M.(IN.³)		213.1	233.2	255.3	
MAX. SHEAR IN KIPS	D.L.	10	10	17	18
	L.L.	34	34	34	34
	I	10	10	10	10
	Σ	54	54	61	62
MAX. MOMENT IN FT. KIPS	D.L.	72	74	129	122
	L.L.	179	181	181	182
	I	54	54	54	55
	Σ	305	309	364	359
S.M. REQ'D @ 18 K/□"		204	206	242	240

BRACKETS

MARK		B 1	B 2
MAX. PANEL LENGTH		18'-9⅝"	18'-9⅝"
SECTION		18 WF 47#	
GROSS S.M.		82.3 IN³	
MAX. SHEAR IN KIPS	D.L.	6	9
	L.L.	12	21
	I	—	2
	Σ	18	32
MAX. MOMENT IN FT. KIPS	D.L.	30	30
	L.L.	66	63
	I	—	7
	Σ	96	100
S.M. REQ'D @ 18 K/□"		64	67
STRESS IN TIE ℄		64 K	67 K
NET AREA REQ'D		3.56 □"	3.72 □"
⊛ TIE ℄ USED		9½ X ½	9½ X ½
NET AREA OF TIE ℄		3.75 □"	3.75 □"

SHOE LOADS IN KIPS

	LOADS	END REACTION	INTERIOR REACTION
HOR. VERTICAL	D.L.	78.7	217.5
	L.L.	59.7	121.9
	I	10.3	19.0
	Σ	148.7	358.4
	TRANSV. WIND	13.6	36.5
	LONG. WIND	22.0	22.0

⊠ INDICATES LAMP POST BASE

⊠ LOCATION OF SCUPPERS

FOR LOCATION OF UTILITY CONDUITS SEE SHEET NO. 34

⌘ TRAFFIC LIGHT STANDARD

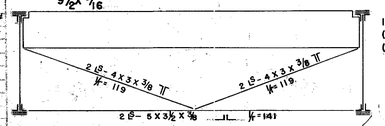
STRINGERS

MARK		FASCIA STRINGERS S 1	FASCIA STRINGERS S 2	ROADWAY STRINGERS S 3	ROADWAY STRINGERS S 4	ROADWAY STRINGERS S 4A
MAX. PANEL LENGTH		18'-9⅝"	18'-9⅝"	18'-9⅝"	19'-6"	19'-6"
SECTION			18 WF 47#		12 WF 50#	12 WF 58#
GROSS S.M.(IN.³)			82.3		64.7	78.1 *
MAX. SHEAR IN KIPS	D.L.	3	5	5	5	5
	L.L.	5	12	15	11	11
	I	—	2	5	3	3
	Σ	8	19	25	19	19
MAX. MOMENT IN FT. KIPS	D.L.	14	22	25	18	18
	L.L.	29	67	68	52	51
	I	—	11	20	16	15
	Σ	43	100	113	86	84**
S.M. REQ'D @ 18 K/□"		30	67	76	57	56

* NET S.M. = 64.0 IN³ less One Line Plate 5

** MAXIMUM MOMENT AT LATERAL CONNECTION.

⊛ D.L. MOMENTS FOR BRACKETS B1 AND B2 ON EACH SIDE OF PLATFORMS "A" AND "B" ARE 13" GREATER THAN IS SHOWN IN THE ABOVE TABLE, MAKE TIE PLATES AT THESE POINTS



TYPICAL SWAY FRAME SF I
SCALE 1"=5'-0"

INTERMEDIATE BRACKETS (D1) & (D2) -18 WF 47 UTILITY SUPPORT (C1)+(C2)-IL 3½X3X⅜

NOTES

MATERIAL: STRUCTURAL CARBON STEEL.

RIVETS: CARBON RIVET STEEL ⅞" ϕ UNLESS NOTED.

CAMBER: GIRDERS SHALL BE CAMBERED FOR FULL DEAD LOAD AND THE VERTICAL CURVE OF THE ROADWAY.

SPECIFICATIONS: 1941 A.A.S.H.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES

LOADING: H-15 LOADING

THIS BRIDGE HAS BEEN CHECKED FOR A SINGLE LANE OF H20 LOADING AND WAS STRENGTHENED FOR THAT LOADING CONDITION.

REVISIONS.
* Bearing at 1-S changed to SL 2/13/47
* Note on field splice removed. S.L. Bearings changed to EXP. 4/30/47

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS-NEW YORK

HAMPTON HARBOR BRIDGE
STRESS SHEET
APPROACH SPANS

MADE BY F.P. TR. T.F.K.
CHECKED BY M.E.F.
APPROVED

SCALE 1"=20' AND AS NOTED
DATE MARCH 1948
JOB No. 1600
SHEET No. 7

2-3-1-2-1

FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		8	64

SECTION C-C

SECTION B-B

DETAIL "A"
SCALE 3/4"=1'-0"

FLOORBEAM FB1
FLOORBEAM FB4

INTERM. RAILING POST CONN.

SECTION E-E
SCALE 1"=1'-0"

DETAIL "X"

FLOOR JOINT "A"
SECTION D-D
SCALE 1"=1'-0"

CONDUIT SUPPORT BETWEEN RAILING POST CONNECTIONS

FLOORBEAM FB2
FLOORBEAM FB3 (SIMILAR EXCEPT AT PIER 1-S)

SECTION N-N

EXPANSION DAM AT ABUTMENT
SCALE 1"=1'-0"

FLASHING DETAIL

FLOOR JOINT "B"
SCALE 1"=1'-0"

JUNCTION BOX SUPPORTS PIER 4N ONLY

SECTION F-F

FB3 AT PIER 1-S
SEE SHEET NO.28 FOR LOCKING MACHINERY

SECTION A-A
SCALE 1"=1'-0"

SWAY FRAME SF1
(AT INTERMEDIATE PIERS)

NOTES-
Material - Structural Carbon Steel Unless noted.
Rivets - 7/8" ϕ unless noted.
Open Holes - 15/16" ϕ unless noted.
For Location Plan of Utility Conduits See Sheet No. 34

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK

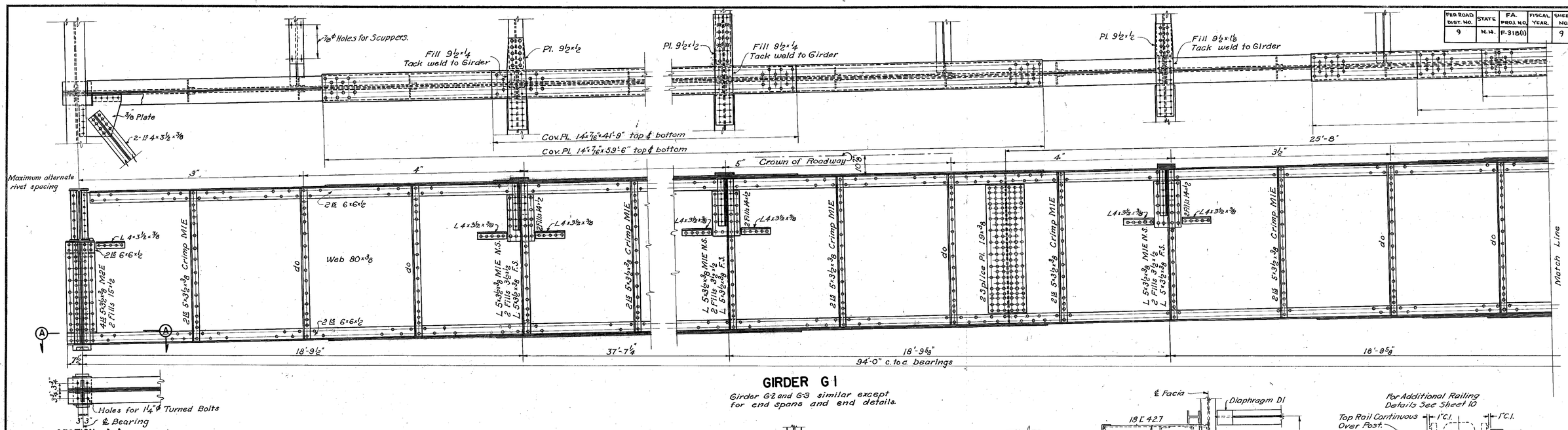
HAMPTON HARBOR BRIDGE

CROSS SECTIONS
APPROACH SPANS

MADE BY M.I. TR. A.D.J. | SCALE 12"=1'-0" UNLESS NOTED
CHECKED BY F.P. | DATE MARCH 1946
APPROVED [illegible] | JOB No. 1600
SHEET No. 8

3-1-2-1

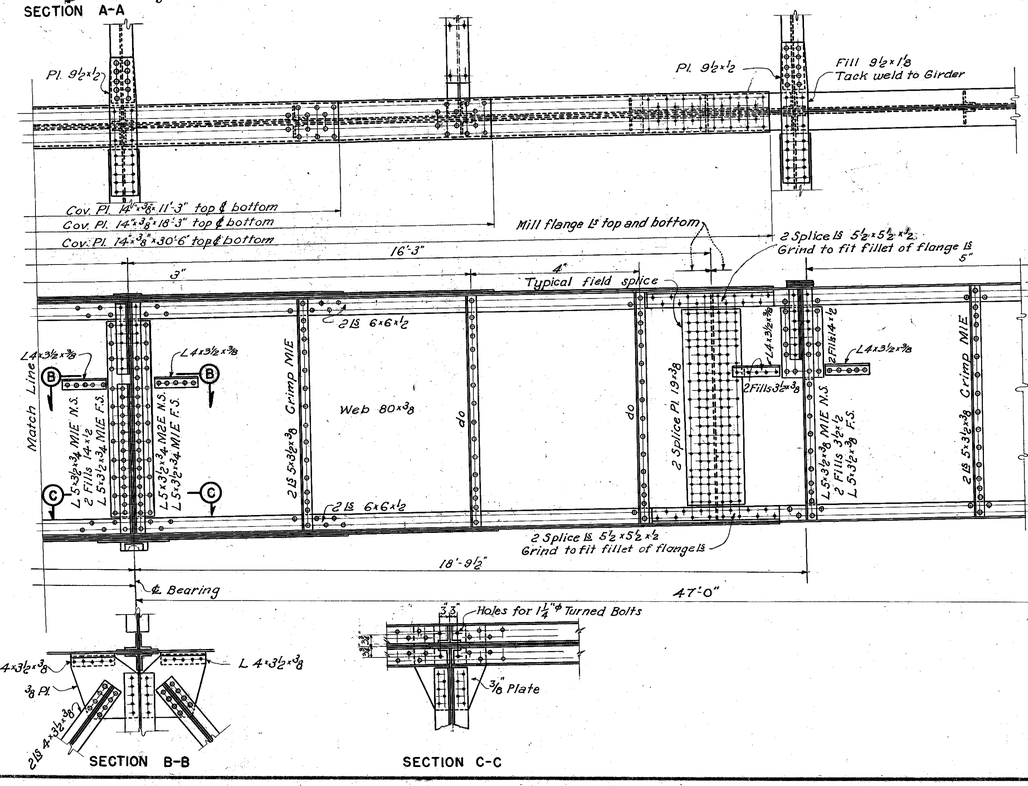
FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		9	64



SECTION A-A

GIRDER G1

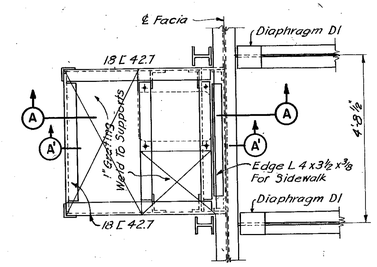
Girder G-2 and G-3 similar except for end spans and end details.



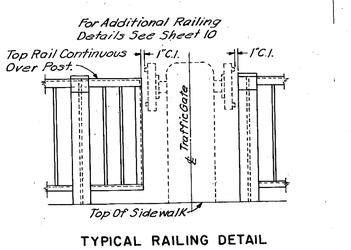
SECTION B-B

SECTION C-C

For end details of Girder G-3 see sheet No. 23.

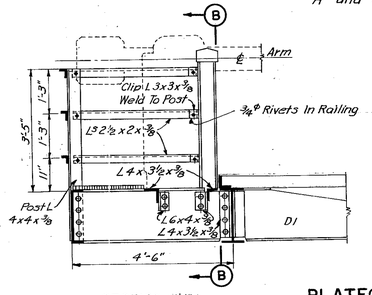


FRAMING PLAN
PLATFORM "A" (SHOWN)
PLATFORM "B" (SIMILAR)

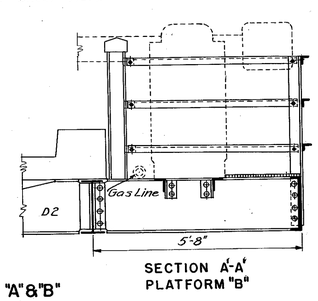


TYPICAL RAILING DETAIL
SECTION "B-B"

NOTE:
For location of Platforms "A" and "B" See Sheet No. 7



SECTION A-A
PLATFORM "A"



SECTION A'-A'
PLATFORM "B"

PLATFORMS "A" & "B"

NOTES-

Material - Structural Carbon Steel.
Rivets - 7/8"ϕ unless noted
Open Holes - 15/16"ϕ unless noted.
See Sheet 7 for location of Cover Plates.
See Sheet 7 for General Notes.
See Sheet 8 for location of Rivet Holes for Conduit Supports.

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS-NEW YORK

HAMPTON HARBOR BRIDGE
APPROACH GIRDER
DETAILS

MADE BY LPC, DC, TR, ORS
CHECKED BY F.P.
APPROVED

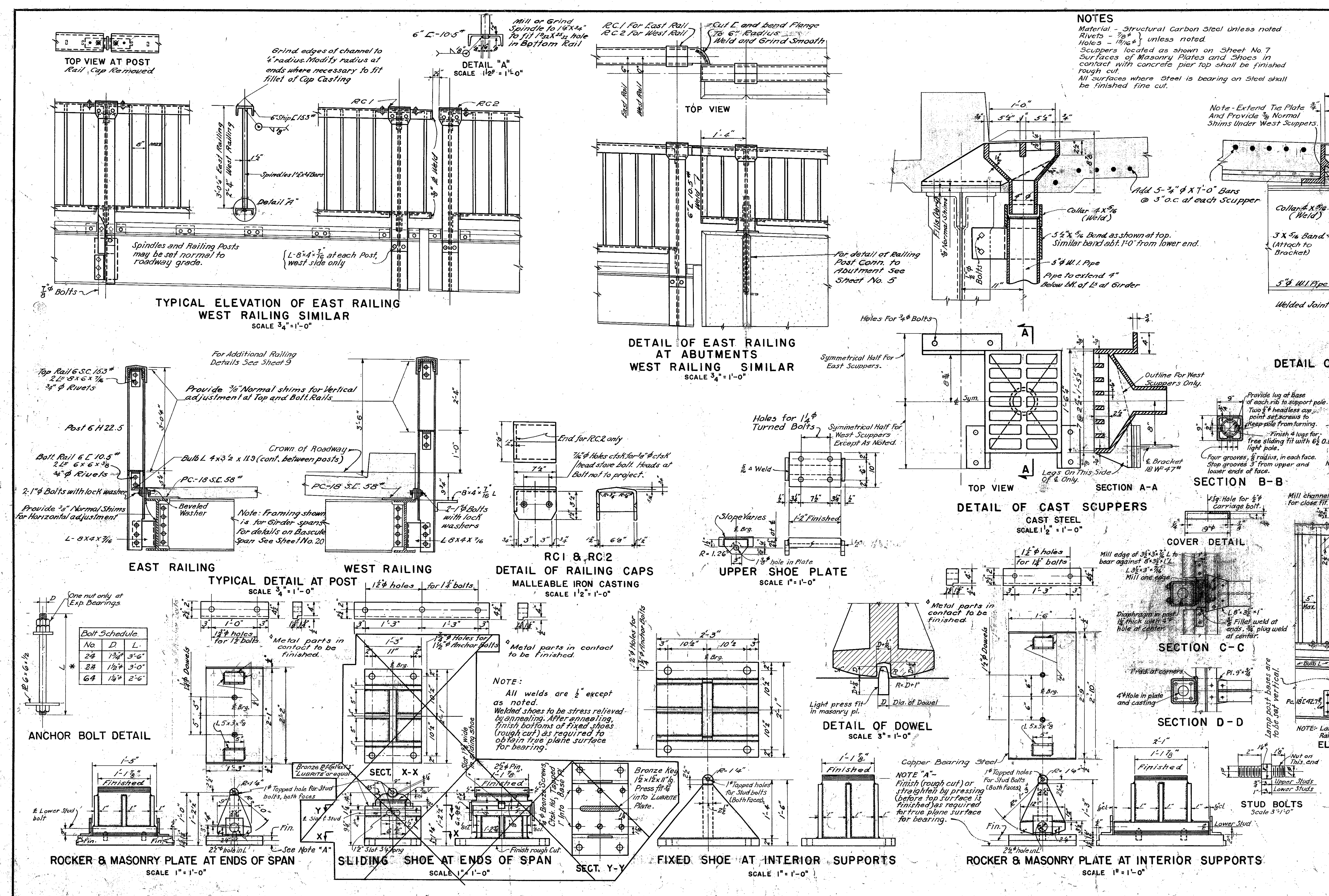
SCALE 1/2"=1'-0"
DATE MARCH 1945
JOB No. 1600
SHEET No. 9

3-1-2-1

FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		10	64

NOTES

Material - Structural Carbon Steel unless noted
Rivets - 7/8"φ } unless noted.
Holes - 15/16"φ }
Scuppers located as shown on Sheet No. 7
Surfaces of Masonry Plates and Shoes in contact with concrete pier top shall be finished rough cut.
All surfaces where Steel is bearing on Steel shall be finished fine cut.



Bolt Schedule

No.	D.	L.
24	1 3/4"	3'-6"
24	1 1/2"	3'-0"
64	1 1/4"	2'-6"

NOTE:
All welds are 1/2" except as noted.
Welded shoes to be stress relieved by annealing. After annealing, finish bottoms of fixed shoes (rough cut) as required to obtain true plane surface for bearing.

NOTE "A" - Finish (rough cut) or straighten by pressing (before top surface is finished) as required for true plane surface for bearing.

REVISIONS
* Change anchor bolt schedule 2/13/47
◊ Side plates for shoes 3/24/47

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

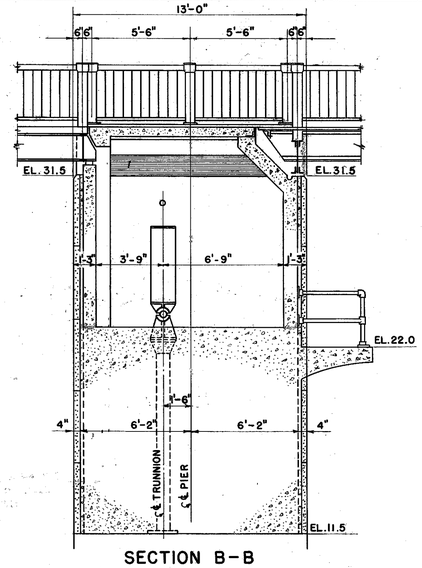
PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS NEW YORK

HAMPTON HARBOR BRIDGE
RAILINGS, SCUPPERS AND SHOES

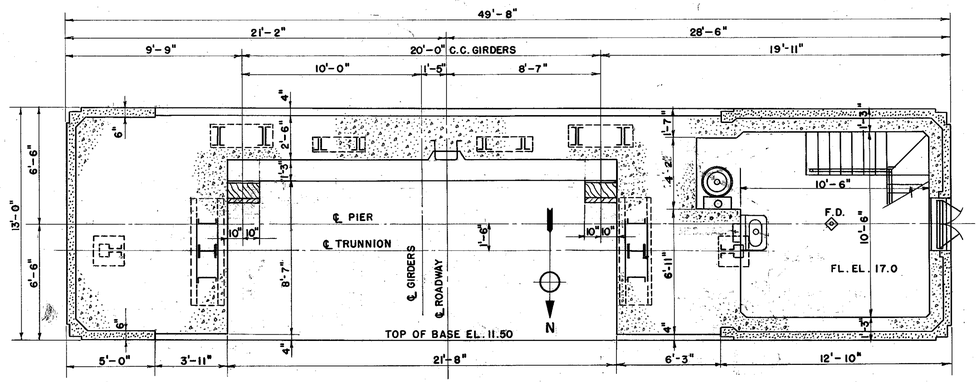
MADE BY M.J. TR. T.F.K.
CHECKED BY F.P.
APPROVED
SCALE AS NOTED
DATE
JOB NO. 1600
SHEET NO. 10

3-A-12-1

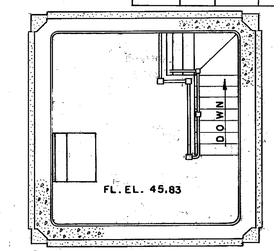
FED. ROAD DIST. NO.	STATE	FA. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		11	64



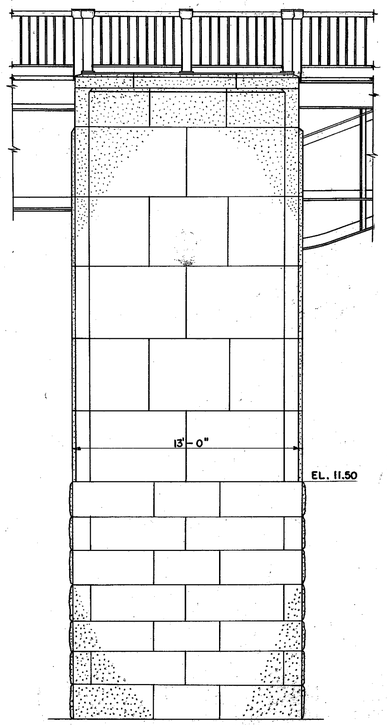
SECTION B-B



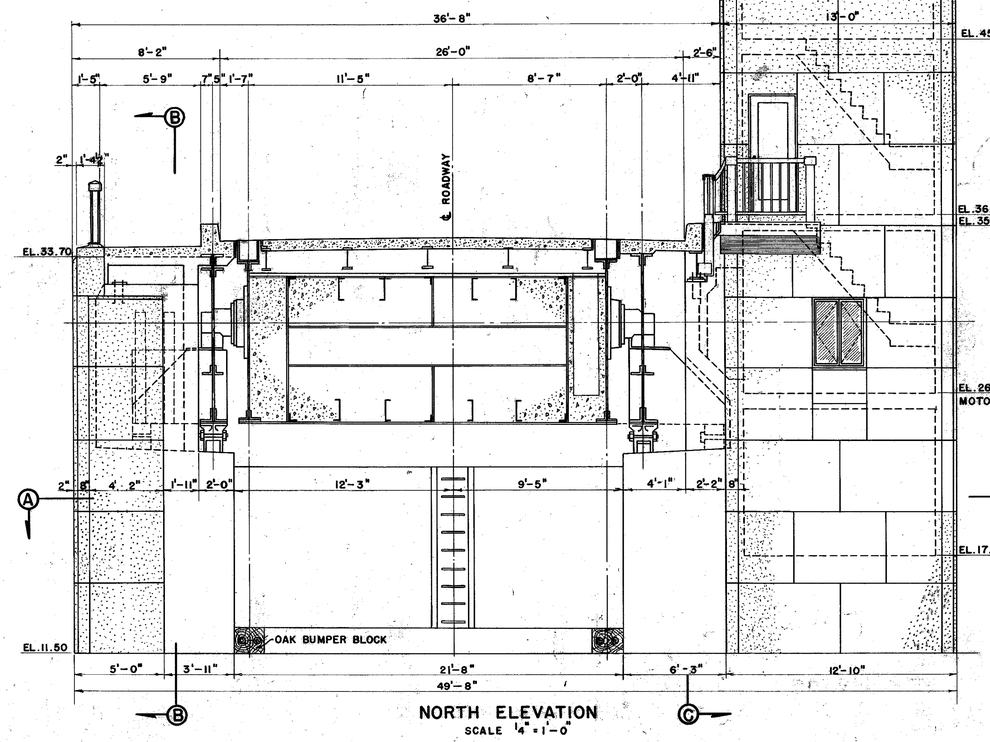
SECTION A-A



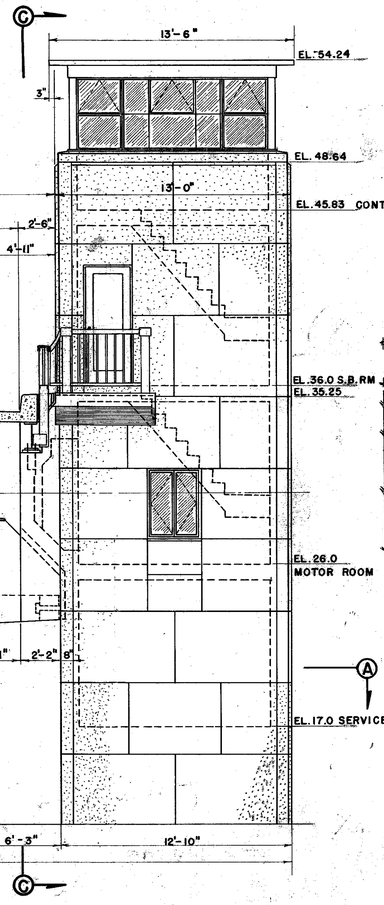
PLAN OF CONTROL ROOM

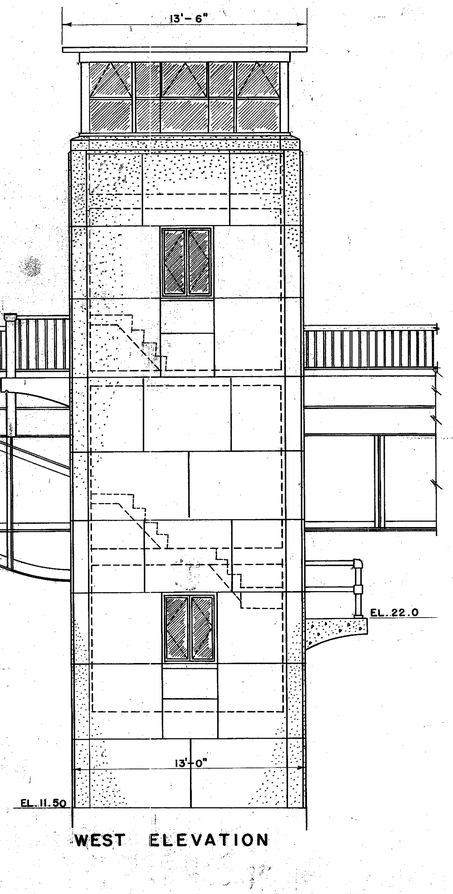


EAST ELEVATION

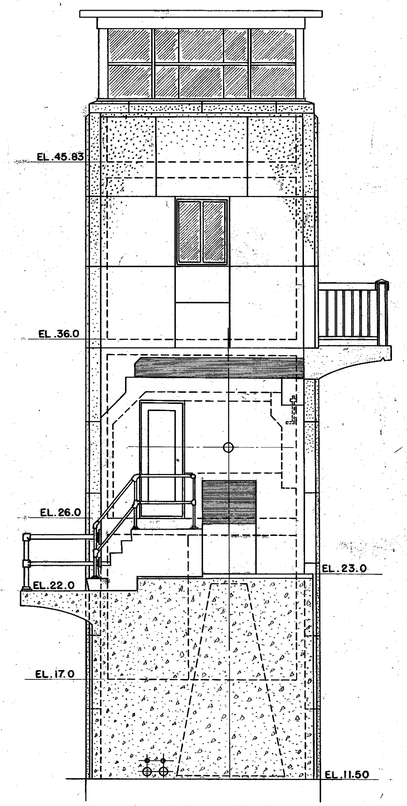


NORTH ELEVATION
SCALE 1/4" = 1'-0"





WEST ELEVATION



SECTION C-C

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

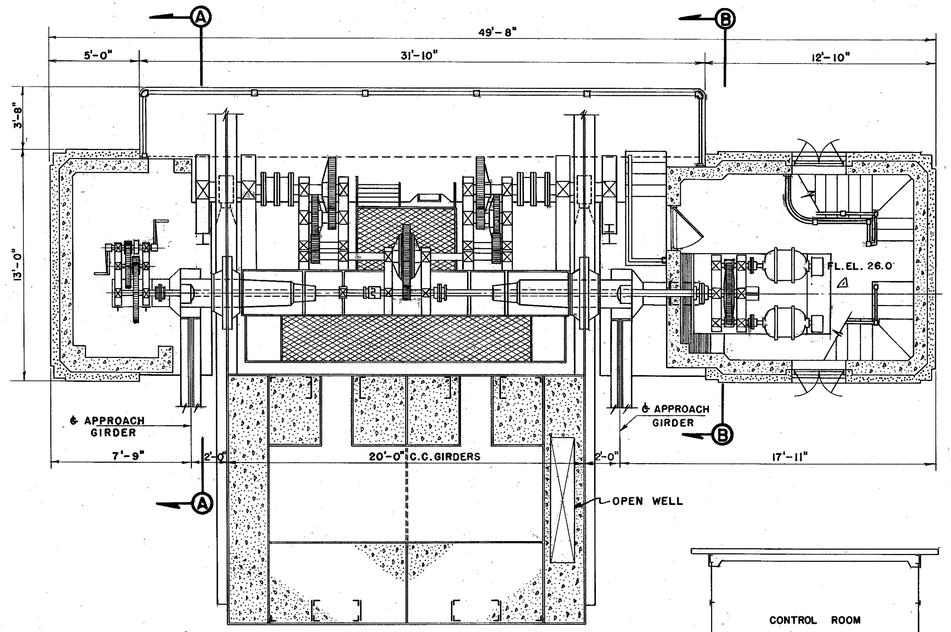
PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK

HAMPTON HARBOR BRIDGE
ELEVATIONS & SECTIONS
BASCULE PIER

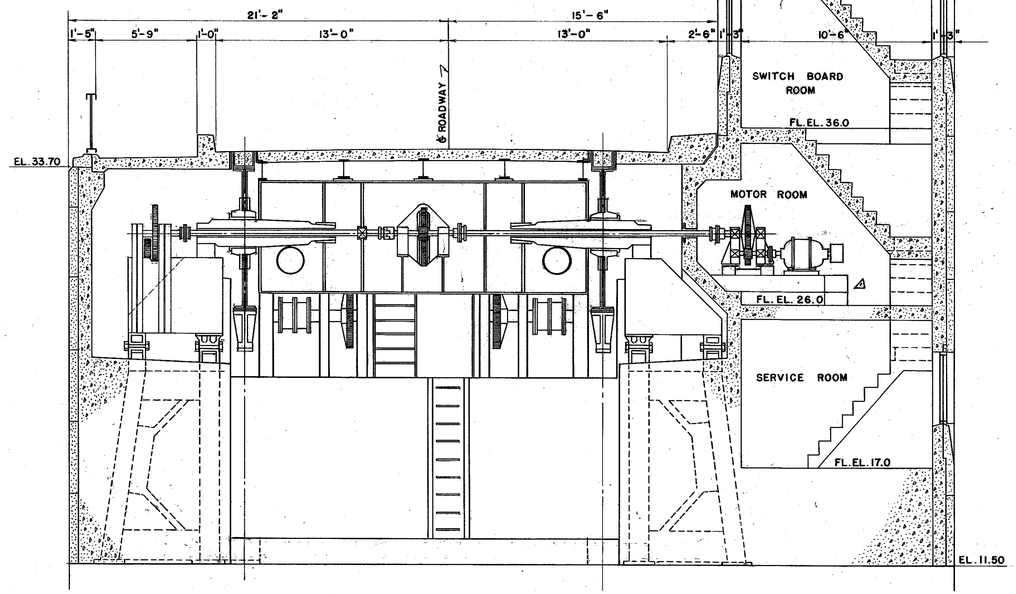
MADE BY R.F.Z. TR. T.F.K.	SCALE 1/4" = 1'-0"
CHECKED BY L.C.T.	DATE MARCH 1946
APPROVED [signature]	JOB No. 1600
	SHEET No. 11

3-1-2-1

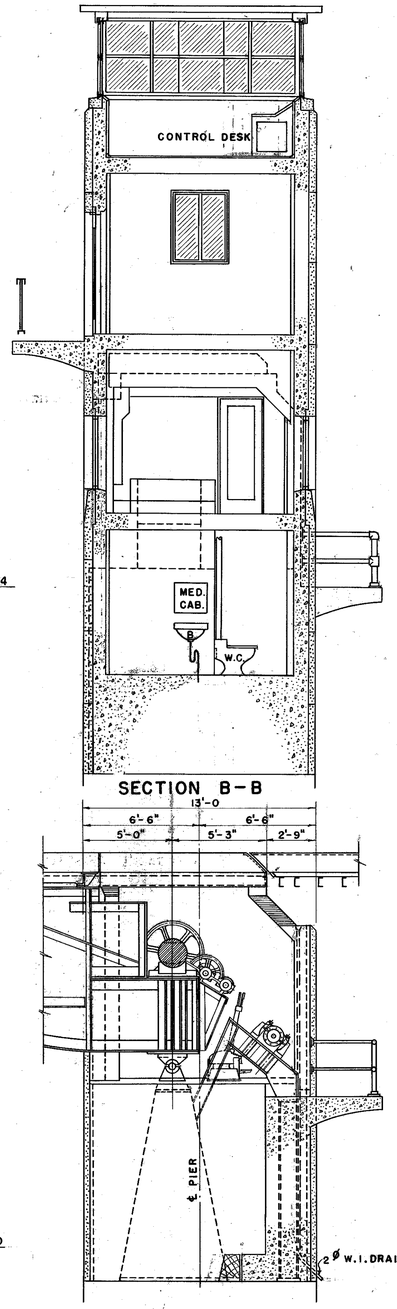
FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		12	64



SECTION PLAN
SCALE 1/4" = 1'-0"

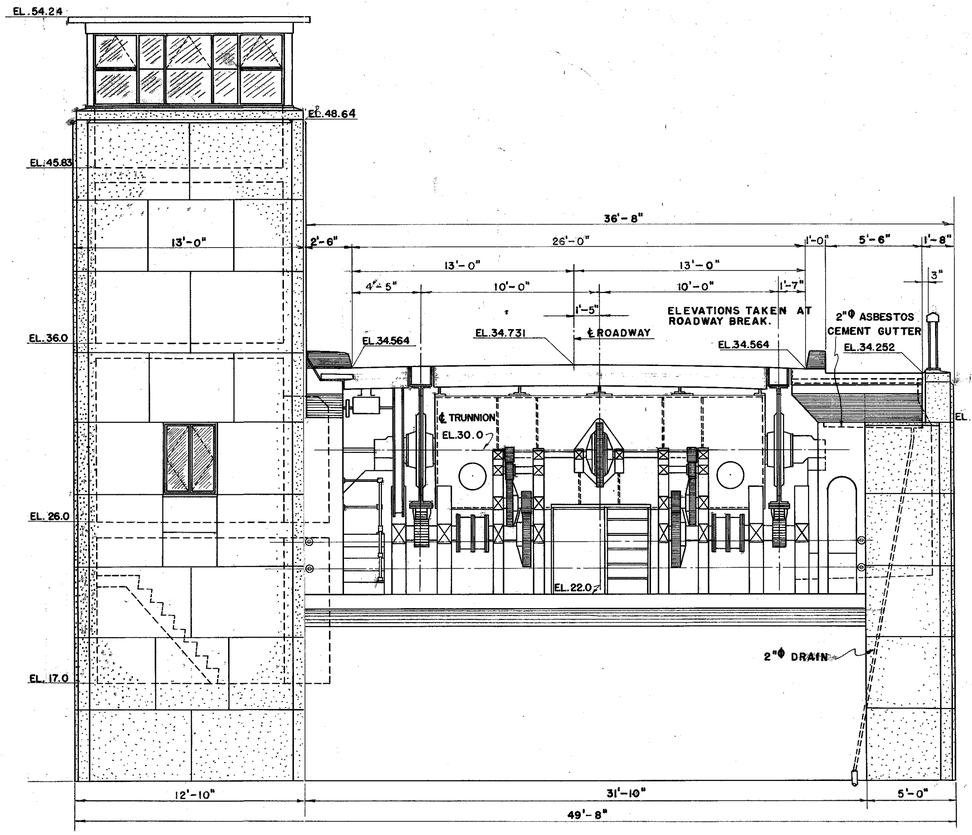


TRANSVERSE SECTION
LOOKING SOUTH
SCALE 1/4" = 1'-0"



SECTION B-B

SECTION A-A



SOUTH ELEVATION

FOR LOCATION OF PLUMBING AND HEATING FACILITIES SEE SHEET NO. 33

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK

HAMPTON HARBOR BRIDGE
MACHINERY LAYOUT
BASCULE PIER

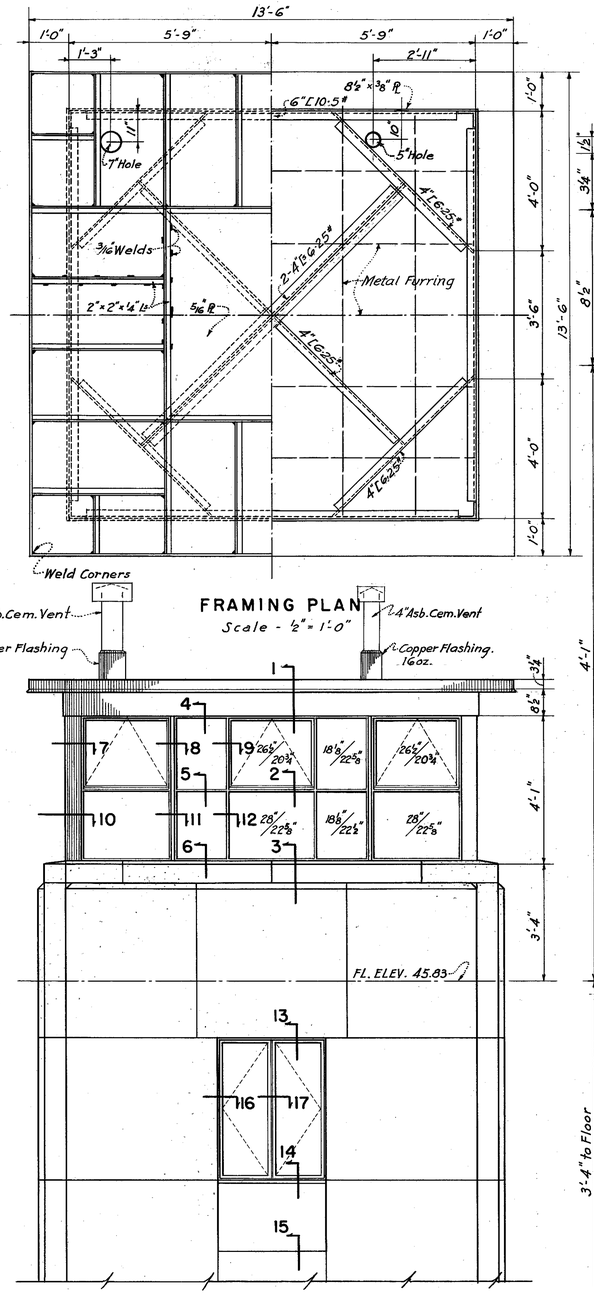
REVISIONS.
Δ Motor base revised 5/11/49.

MADE BY R.F.Z. TR. T.F.K.
CHECKED BY L.C.T.
APPROVED

SCALE 1/4" = 1'-0"
DATE MARCH 1946
JOB No. 1600
SHEET No. 12

3-1-2-1

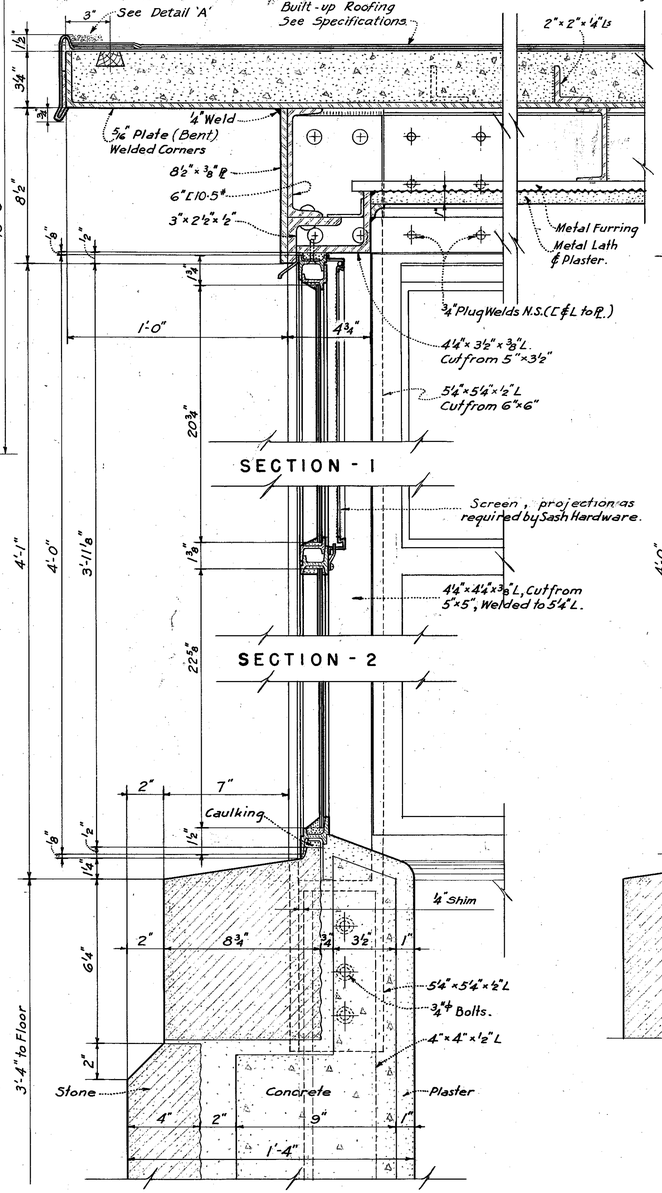
FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		13	64



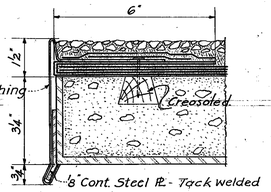
FRAMING PLAN
Scale - ½" = 1'-0"

WEST ELEVATION

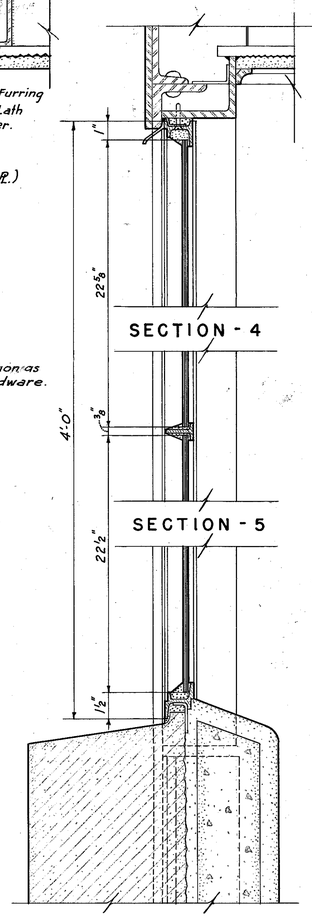
Note - North & South Elevations of Control Tower are same as West Elevation. East Elevation same except that all sashes are Fixed.



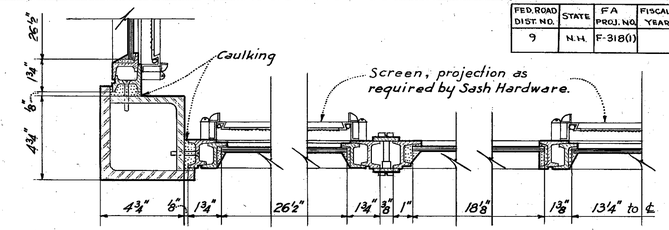
SECTION - 3



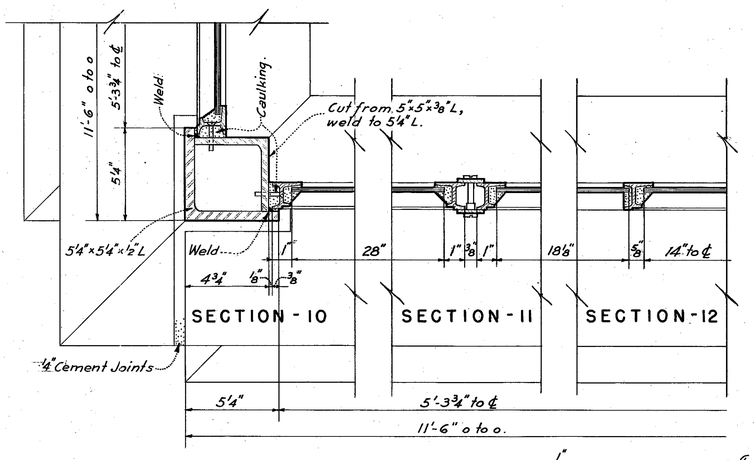
DETAIL 'A'



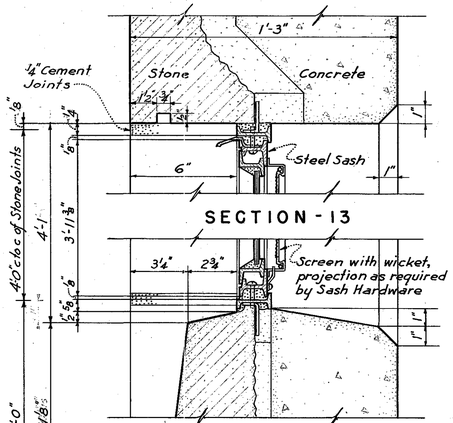
SECTION - 6



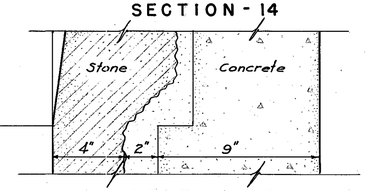
SECTION - 7 SECTION - 8 SECTION - 9



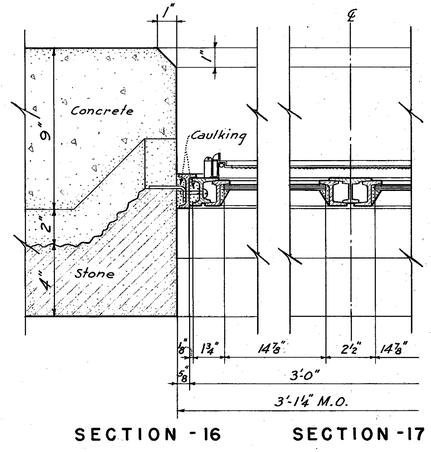
SECTION - 10 SECTION - 11 SECTION - 12



SECTION - 13 SECTION - 14



SECTION - 15



SECTION - 16 SECTION - 17

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK

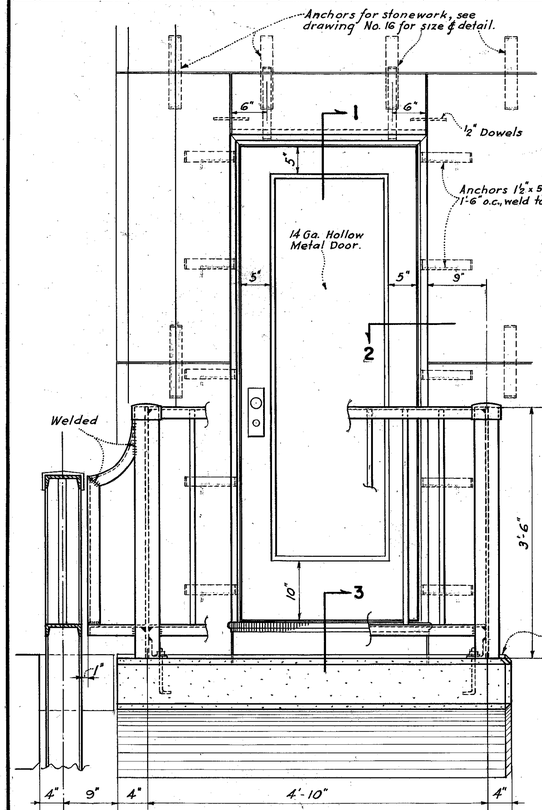
HAMPTON HARBOR BRIDGE
ARCHITECTURAL DETAILS "A"
BASCULE PIER

MADE BY L.J.H. TR. L.J.H.
CHECKED BY L.C.T.
APPROVED

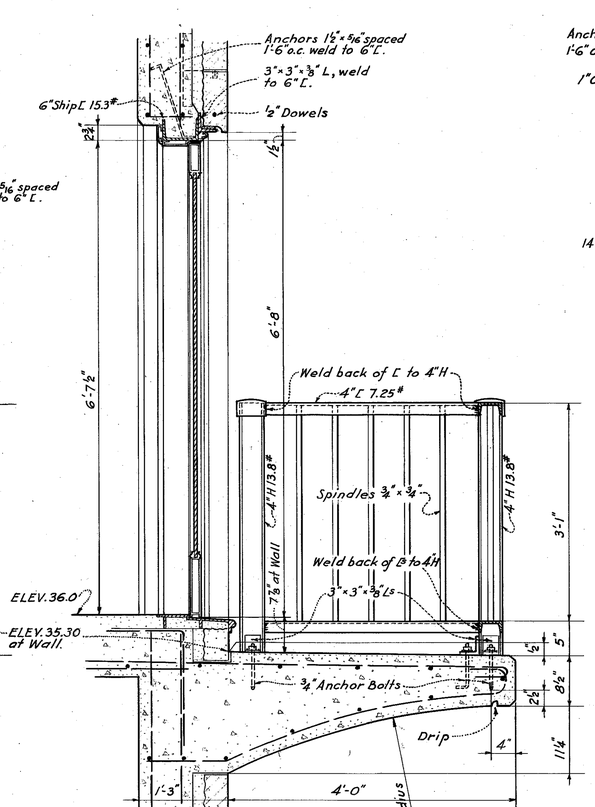
SCALE ½" & 3" = 1'-0"
DATE MARCH 1946
JOB No. 1600
SHEET No. 13

3-1-2-1

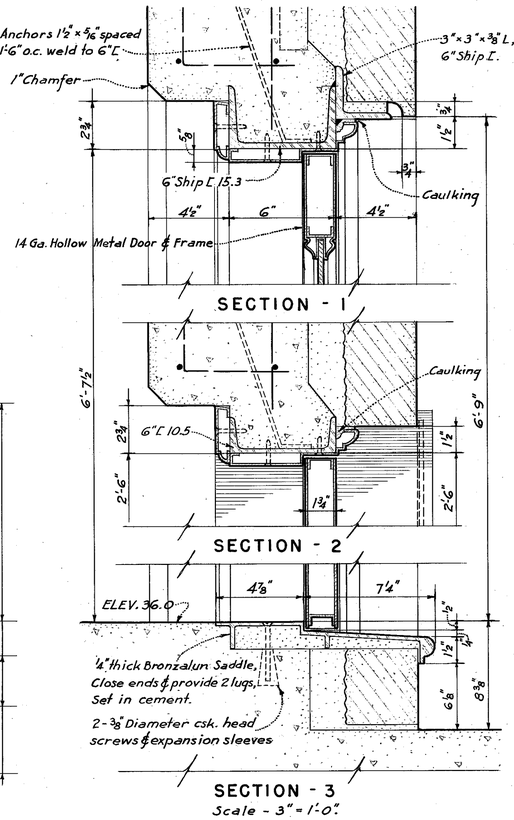
FED. ROAD DIST. NO.	STATE	FA PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		14	64



ELEVATION

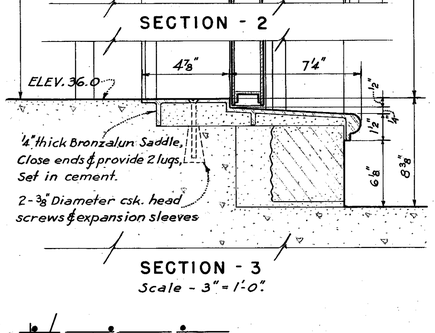


SECTION



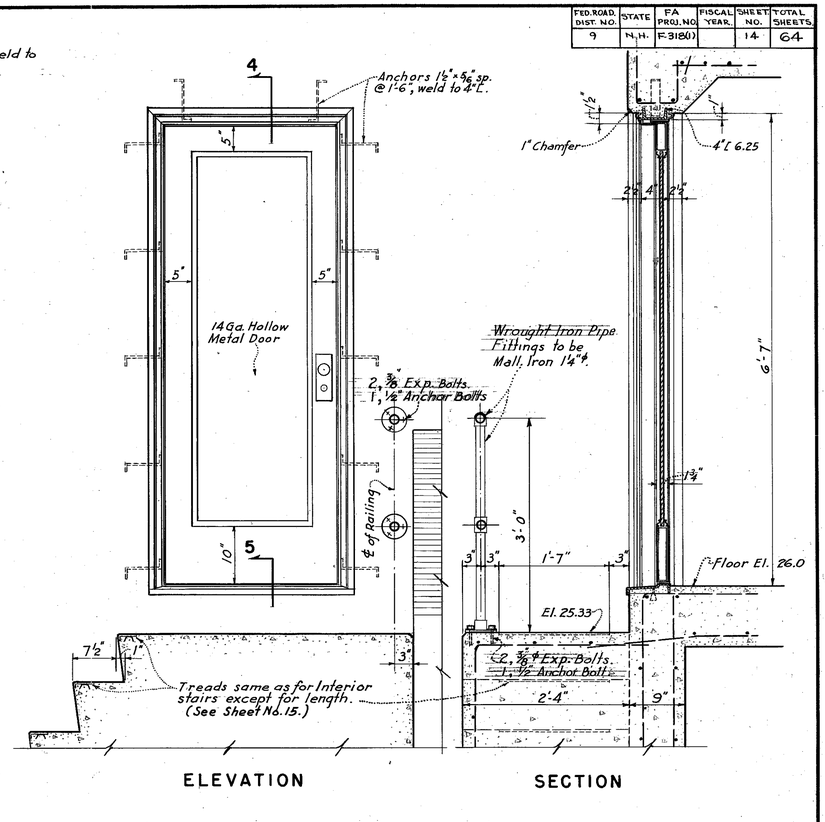
SECTION - 1

SECTION - 2

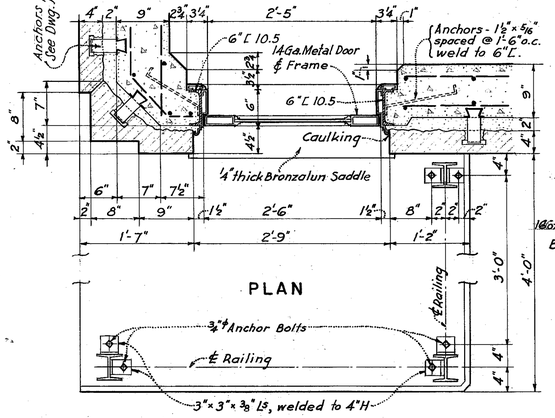


SECTION - 3

Scale - 3" = 1'-0".

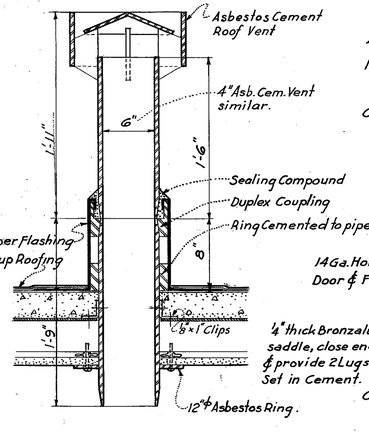


ELEVATION SECTION



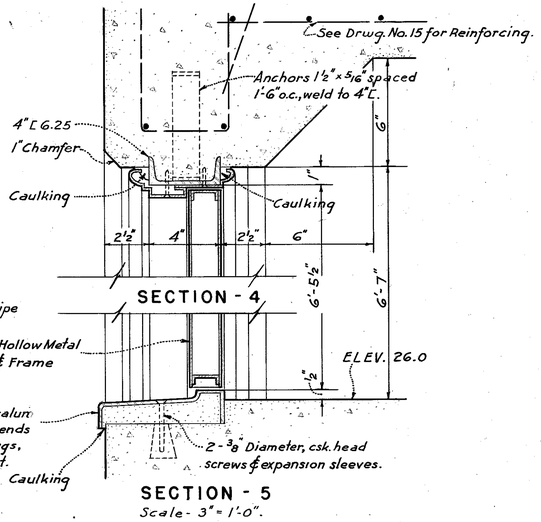
PLATFORM & DOOR TO SWITCH BOARD ROOM.

Scale - 1" = 1'-0".



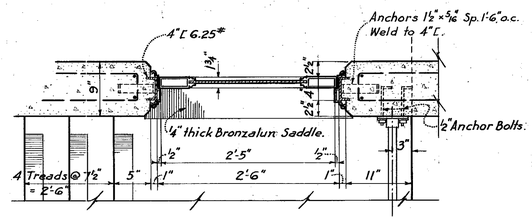
ROOF VENTS

Scale - 1½" = 1'-0".



SECTION - 5

Scale - 3" = 1'-0".



PLAN

DOOR & STAIRS TO MOTOR ROOM.

Scale 1" = 1'-0".

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT.

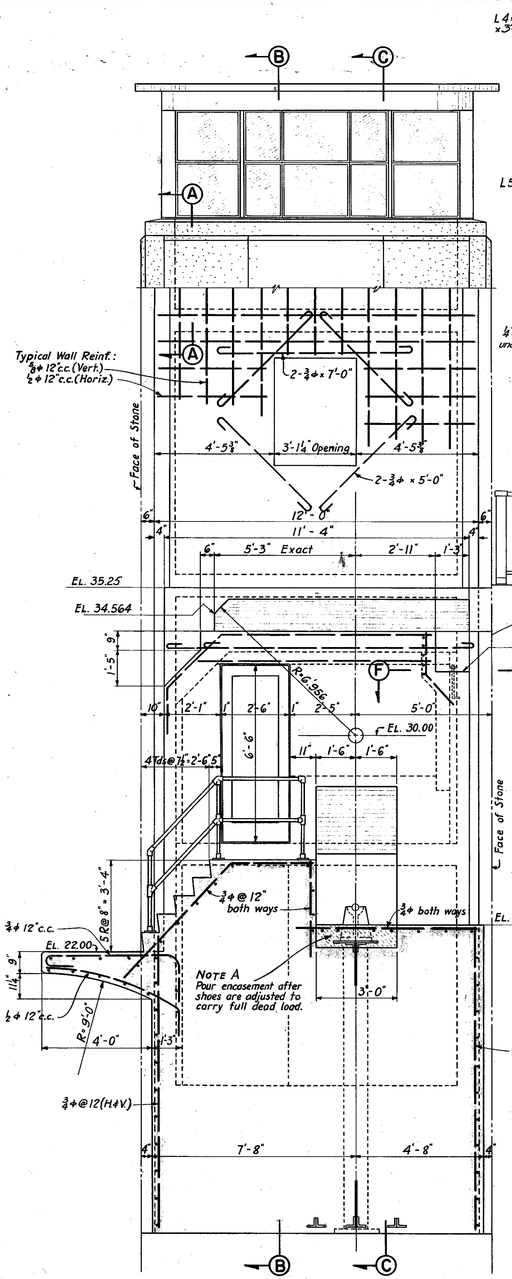
PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK.

HAMPTON HARBOR BRIDGE
ARCHITECTURAL DETAILS "B"
BASCULE PIER

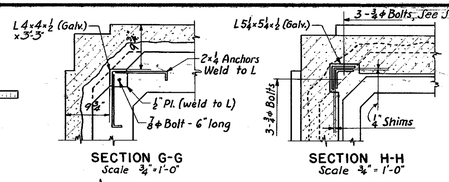
MADE BY R.F.Z. TR. L.J.H.	SCALE 1" & 3" = 1'-0"
CHECKED BY L.C.T.	DATE MARCH 1946
APPROVED	JOB No. 1600
	SHEET No. 14

3-1-2-1

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-3180(1)		15	64

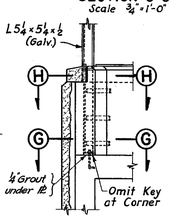


EAST ELEVATION
CONTROL TOWER

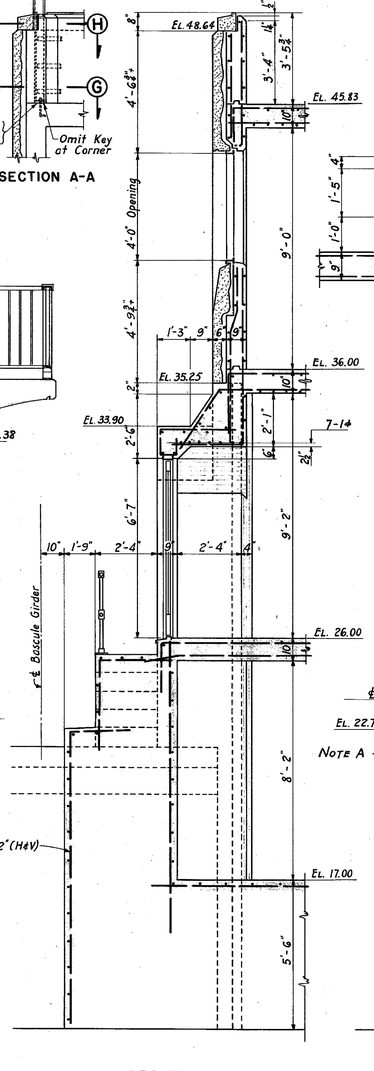


SECTION G-G
Scale ¾"=1'-0"

SECTION H-H
Scale ¾"=1'-0"

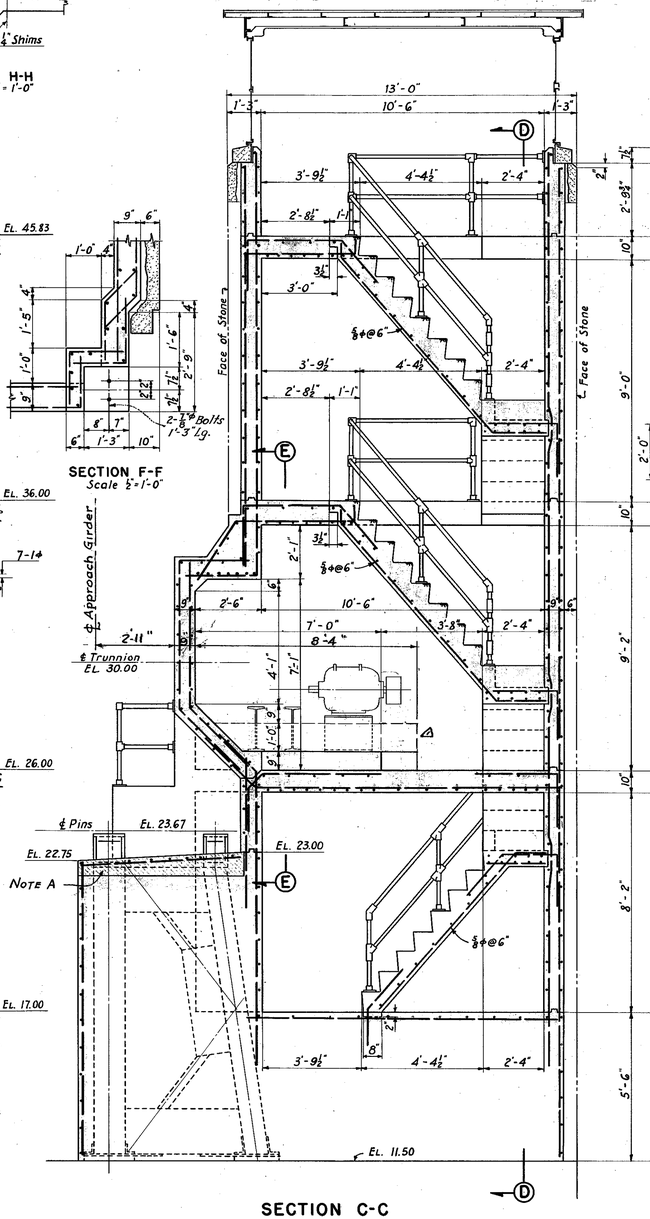


SECTION A-A

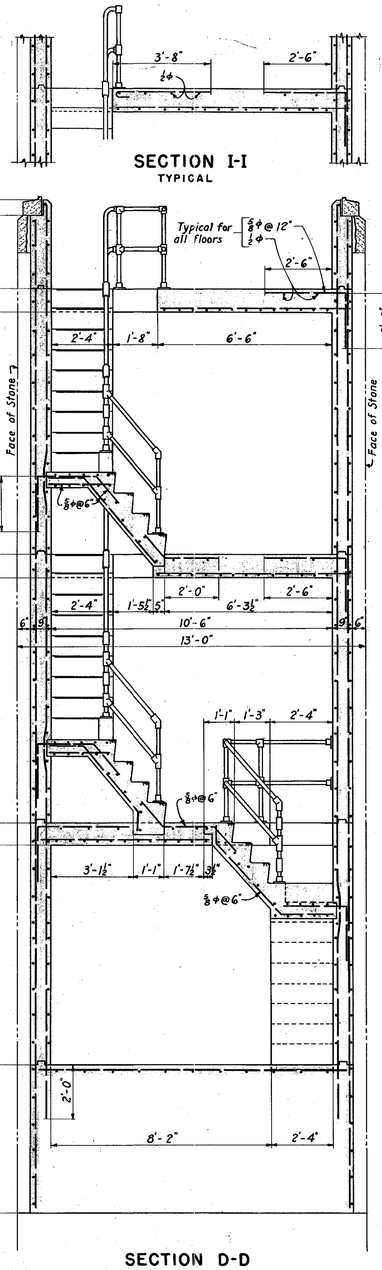


SECTION B-B

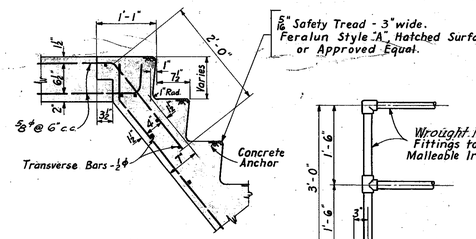
SECTION F-F
Scale ½"=1'-0"



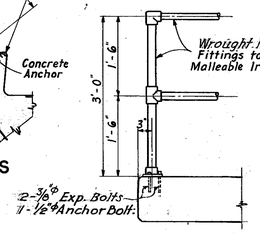
SECTION C-C



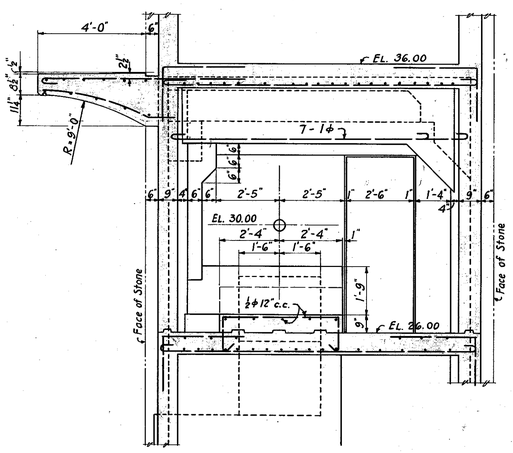
SECTION D-D



DETAIL OF STAIRS
Scale ¾"=1'-0"



DETAIL OF RAILING
Scale ¾"=1'-0"



SECTION E-E

FOR LOCATION OF PLUMBING, HEATING VENTS AND UTILITY CONDUITS SEE SHEET No. 33.

REVISIONS.
Δ Motor base revised. 5/11/49.

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK

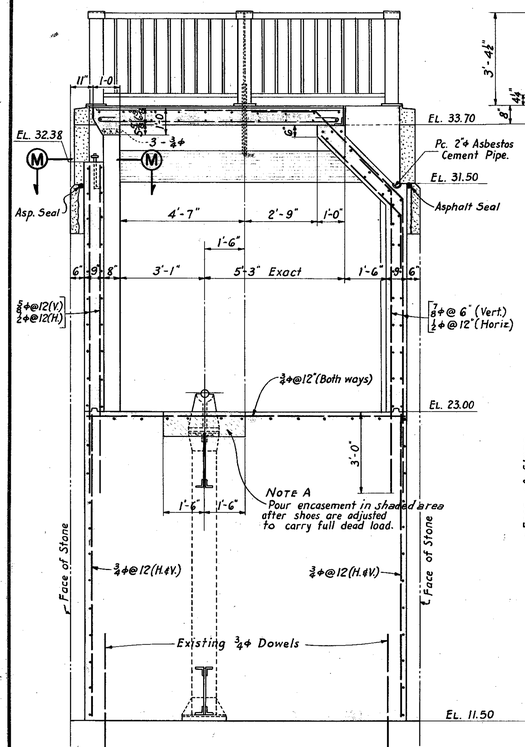
HAMPTON HARBOR BRIDGE
STRUCTURAL DETAILS "A"
BASCULE PIER

MADE BY F.P. TR. F.P.
CHECKED BY L.C.T.
APPROVED

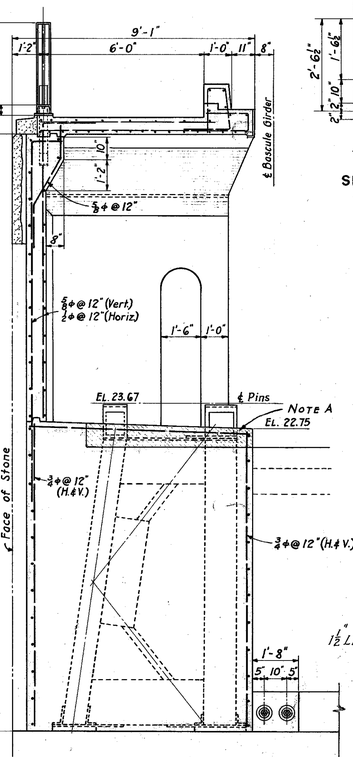
SCALE 3/8" = 1'-0"
DATE MARCH 1946
JOB No. 1600
SHEET No. 15

3-1-2-1

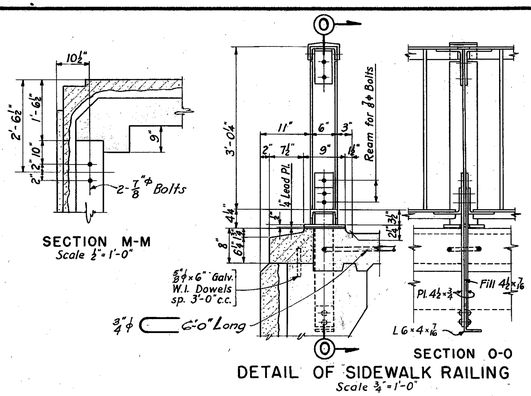
FED. ROAD DIST. NO.	STATE	PROJ. AND PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		16	64



SECTION J-J



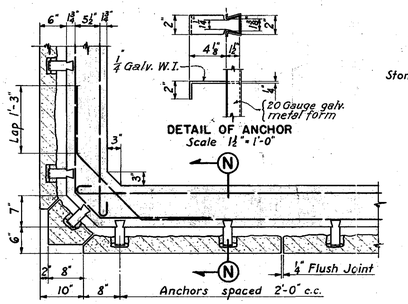
SECTION K-K



SECTION M-M
Scale ½"=1'-0"

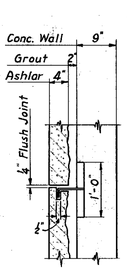
SECTION O-O

DETAIL OF SIDEWALK RAILING
Scale ¾"=1'-0"

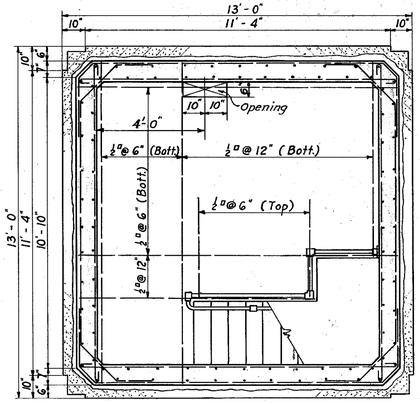


DETAIL OF ANCHOR
Scale 1½"=1'-0"

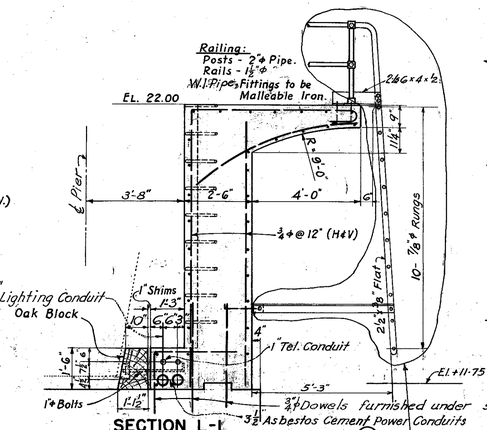
TYPICAL DETAIL OF WALL
Scale ¾"=1'-0"



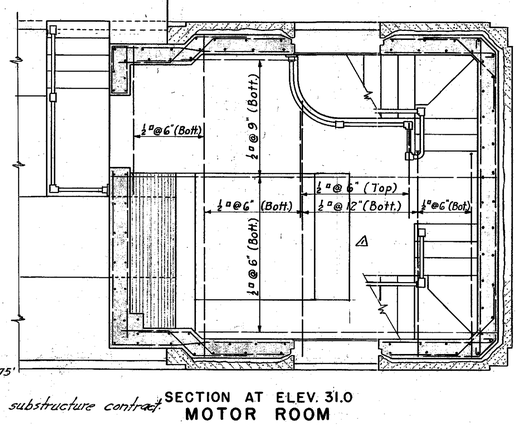
SECTION N-N
Scale ¾"=1'-0"



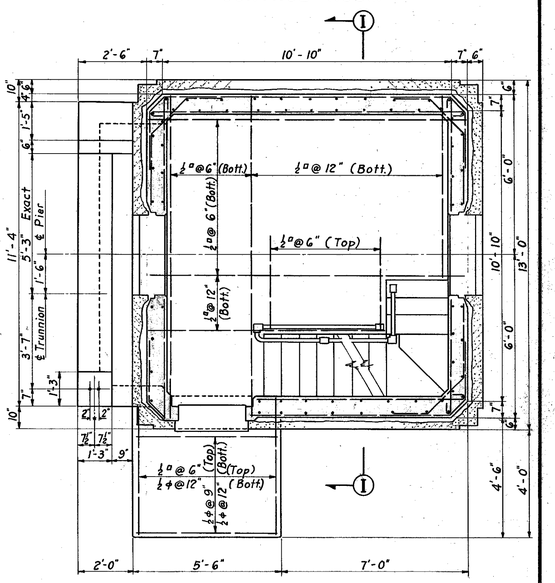
SECTION AT ELEV. 47.0
CONTROL ROOM



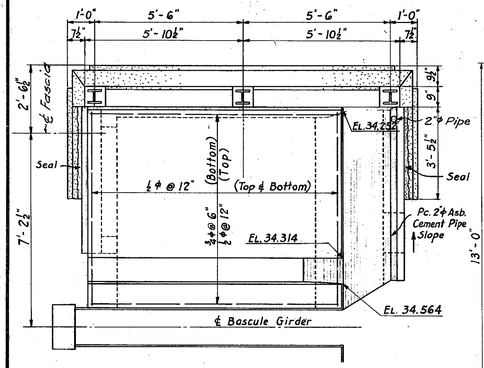
SECTION L-L



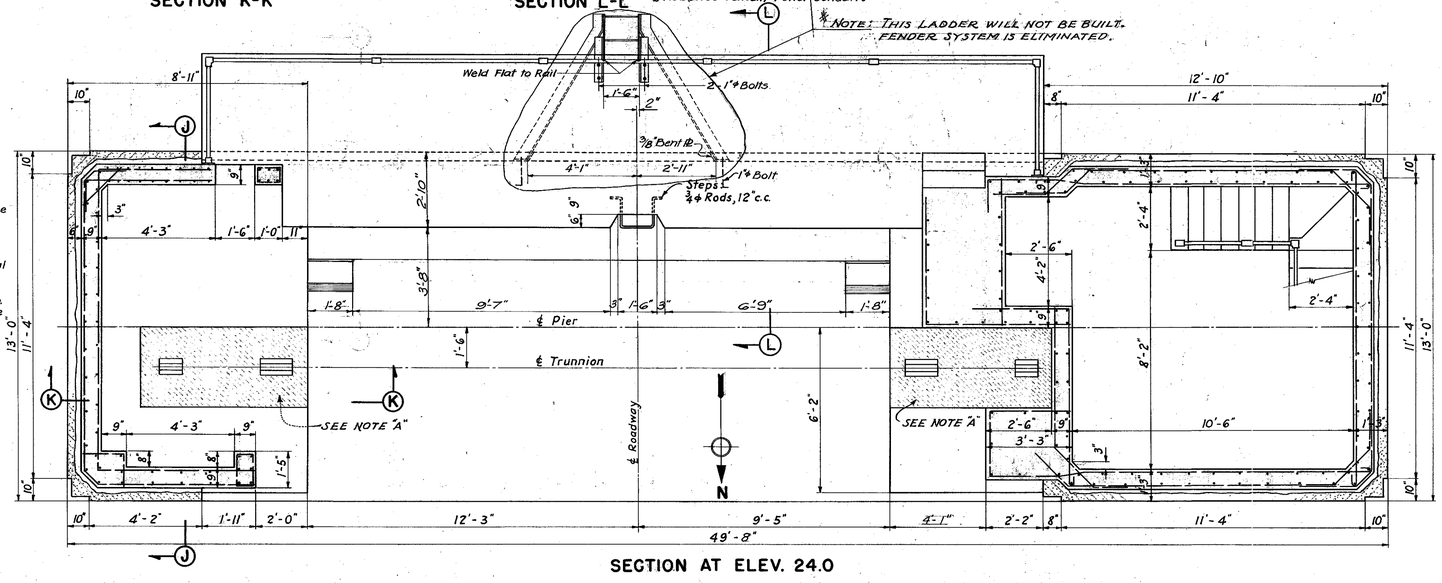
SECTION AT ELEV. 31.0
MOTOR ROOM



SECTION AT ELEV. 41.0
SWITCH BOARD ROOM



PLAN AT SIDEWALK



SECTION AT ELEV. 24.0

For Location of Plumbing, Heating Vents and utility conduits see Sheet No. 33.

REVISIONS
* Added note on ladder 3/20/43
△ Motor base revised 5/11/49

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS NEW YORK

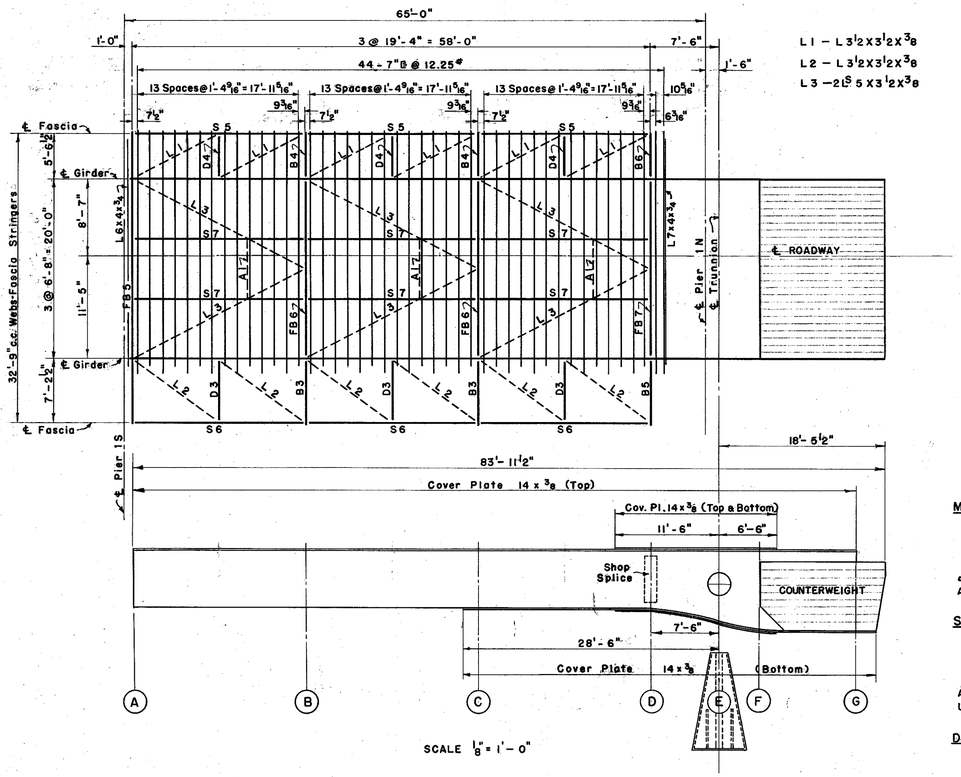
HAMPTON HARBOR BRIDGE
STRUCTURAL DETAILS "B"
BASCULE PIER

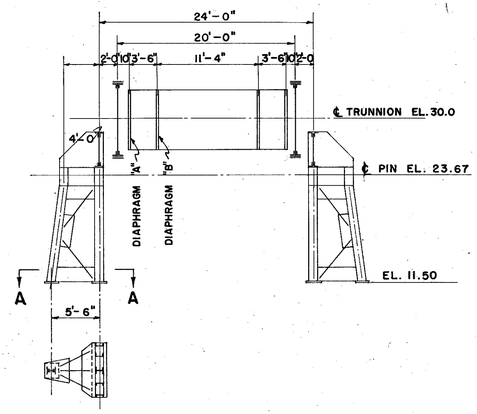
MADE BY F.P. TR. F.P.
CHECKED BY L.C.T.
APPROVED Mud

SCALE 3/8" = 1'-0"
DATE MARCH 1946
JOB No. 1600
SHEET No. 16

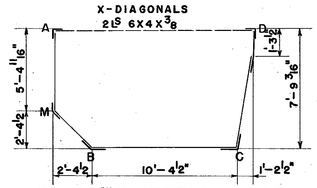
3-21-21

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		17	64





SECTION A-A



COUNTERWEIGHT STRESS CHART

SHEAR	CLOSED POSITION			OPEN POSITION 82°	
	FRAME AB		FRAME CD	FRAME BC	FRAME AD
	WEB A M	WEB M B			
DEAD LOAD	75.0	32.5	107.5 K	98.0	115.0
IMPACT - 20 %	15.0	6.5	21.5	19.6	23.0
TOTAL	90.0	39.0	129.0	117.6	138.0
WEB. REQ'D @ 11 K/□"	8.2 □"	3.5 □"	11.7 □"	10.7 □"	
AREA REQ'D @ 18 K/□"					4.7 NT.
WEB USED SECTION USED	PL 64 X 1/2 = 32 □" GR.	PL 39 X 1/2 = 19.5 □" GR.	PL 78 X 1/2 = 39 □" GR.	PL 124 X 1/2 = 62 □" GR.	4 L 5 - 6 X 4 X 3/8 = 10.0 □" NET

FLANGE STRESS	FLANGE A		FLANGE B			FLANGE C			FLANGE D	
	31° - 05'		CLOSED	82°		34° - 37'			CLOSED	82°
DL	-78.8		+68	-46		+82.1			-68	+40
IMP	-15.8		+13.6	-9.2		+16.4			-13.6	+ 8
TOTAL	-94.6 K		+81.6	-55.2		+98.5 K			-81.6	+48
REVERSAL			+27.6	-27.6					-24.0	+24
TOTAL	-94.6		+109.2	82.8		+98.5			-105.6	+72
AREA REQ. @ 18 K/□"	5.3		6.1	4.6		5.5			5.9	4.0
SECTION USED		GR NET		GR NET			GR NET			GR NET
	L 8 X 8 X 3/4	11.44 9.94	PL 16 X 3/4	12.00 9.00		BENT PL 16 X 3/4	12.00 9.00		L 8 X 8 X 3/4	11.44 9.94
		7.75 5.81		7.75 5.81			7.75 5.81			7.75 5.81
				10.33 7.75			10.33 7.75			
TOTAL		19.19 15.75		30.08 22.56			30.08 22.56			19.19 15.75

+ INDICATES TENSION
- " COMPRESSION

TRUNNION GIRDER

MOMENT AT ℄ BRIDGE (SPAN CLOSED)

DEAD LOAD	810 FT. K.
LIVE LOAD	195
IMPACT	46
TOTAL	1051 FT. K.

d = 6.23 FT. FL'GE. STRESS = 169 K
AREA REQ'D = 169 ÷ 18.0 = 9.4 □" NET

SHEAR

DEAD LOAD	217 K
LIVE LOAD	49
IMPACT	12
TOTAL	278 K

AREA REQ'D @ 11 K/□" = 25.3 "
USE 2 PL. 76 X 3/8 = 57.00 □" GR.

DIAPHRAGM "A"

DEAD LOAD	226 KIPS
LIVE LOAD	49
IMPACT	12
TOTAL	287 KIPS

AREA REQ'D 18 5/8 X 1 1/4 = 23.3 □"

DIAPHRAGM "B"

DEAD LOAD	200 KIPS
LIVE LOAD	13
IMPACT	3
TOTAL	216 KIPS

9 3/4 X 1 3/4 = 17.1 □"

MOMENT AT ℄ BRIDGE (SPAN OPEN)

VERTICAL STRESSES

DEAD LOAD	810 FT. K.
IMPACT	118
TOTAL	928 FT. K.
OPERATING FORCE	40
TOTAL	968 FT. K.

d = 6.23 FT. FL'GE. STRESS = 156 K

HORIZONTAL STRESSES

OPERATING FORCE	46 FT. K.

d = 2.16 FT. FL'GE. STRESS = 21.3 K

HORIZONTAL GIRDER

WEB 26" X 3/8	1.63 GR	1.22 NET
2 L 6 X 6 X 7/16	10.12	8.36
2 PL 12 X 3/8	9.0'	6.75
	20.7	15.84

UNIT STRESSES:-
21300 ÷ 20.75 = 1030 C
21300 ÷ 15.84 = 1350 T

VERTICAL GIRDER

12" OF 3/8 WEB	9.0 GR	6.75 NET
2 L 6 X 6 X 7/16	10.12	8.36
1 PL 26 1/2 X 3/8	9.94	7.32
	29.06 GR.	22.44 NET

UNIT STRESSES:-
156000 ÷ 29.06 = 5380 #/□" C
156000 ÷ 22.44 = 6960 #/□" T

COMBINED UNIT STRESSES:-
1030 + 5380 = 6410 #/□" C
1350 + 6960 = 8310 #/□" T

INNER COLUMN

LOAD ON SHOE

DEAD LOAD	395 KIPS
LIVE LOAD	97
IMPACT	18
TOTAL	510 KIPS
COL. & CONCRETE	25
	535 KIPS

BEARING AREA REQ'D ON CONCRETE

535 @ 500 = 1070 □"
USE BILLET 23 X 72 X 2 = 1656 □"

OUTER COLUMN

DEAD LOAD	3 KIPS
WIND LOAD	161
TOTAL	164 KIPS

f/r = 79 fc = 13.4 K/□"
164 @ 17.20 = 12.2 □" REQ'D
USE 4 L 4 X 3 1/2 X 3/8 = 10.68 □" GR.
℄ 10 X 3/8 = 3.75
14.43 □" GR

BEARING AREA REQ'D AT TOP OF COLUMN

510 @ 20 = 25.5 □" GR

OUTER COLUMN BASE
LOAD ON BASE
BRG. AREA REQ'D ON CONCRETE
164 @ 500 = 328 □" REQ'D
USE BILLET 16 X 20 X 2 = 320 □"

SUPPORTING TOWER

BEARING AT TOP OF COLUMN

EFFECTIVE AREA

1 - 12 WF 45	13.24 □" GR.
2 - PL 24 X 7/16	21.00
2 - 12 C 25	14.64
	48.88 □"

COLUMN AREA REQ'D @ 14.9 = 35.8 □"

1 - 12 WF 45	13.24 □" GR
2 - 12 C 25	14.64
2 - PL (NET) 17 X 7/16	14.88
	42.76 □" GR.

DIAGONALS

STRESS ± 79 K

f/r = 46 fs = 14.5 (COMP) = 18 (TENSION)
-79 @ 14.5 = 5.5 □" REQ'D + 79 @ 18 = 4.4 □" REQ'D

USE 2 L 6 X 4 X 3/8 = 7.22 □" GR. 5.72 □" " NET.

NOTES

MATERIAL - STRUCTURAL CARBON STEEL
RIVETS - CARBON RIVETS STEEL 7/8" ϕ UNLESS NOTED
LOADING - A.A.S.H.O SPECS. 1941 - H - 15 LOADING
BASIC UNIT STRESSES * IN LB. PER SQ. IN.

TENSION	18000
COMPRESSION	15000 - 1/4 (ℓ/r)²
BEARING ON MILLED SECTIONS	20000
BEARING ON CONCRETE	500

* INCREASED 25% FOR WIND STRESSES & MOMENTS

GIRDER

POINT ON GIRDER		A	B		C		D		E		F	G
FLANGES	2 L	6 X 6 X 7/16	6 X 6 X 7/16		6 X 6 X 7/16		6 X 6 X 7/16		6 X 6 X 7/16		6 X 6 X 7/16	6X6X7/16 - 6X3 1/2 X 7/16 (TOP)
	COV.	14 X 3/8 *	14 X 3/8 *		14 X 3/8		14 X 3/8		14 X 3/8		14 X 3/8	14 X 3/8
	COV.						14 X 3/8		14 X 3/8		14 X 3/8	
WEBS	REINF.								80 X 7/16			
	MAIN	78 X 3/8	78 X 3/8		78 X 3/8		78 X 3/8		92.5 X 7/16		103.5 X 7/16	96 X 7/16
	REINF.								80 X 7/16			
NET FLANGE AREA SQ. IN.	1/8 WEB	3.65	3.65		3.65		3.65		5.06		5.65	5.25
	2 L	8.37	8.37		8.37		8.37		8.37		8.37	7.06
	COV.						4.50		4.50		4.50	
	COV.						4.50		4.50		4.50	
	Σ	12.02	12.02		12.02		21.02		22.45		23.02	12.31
SHEAR KIPS	DL.	0	-20.2	-14.1	-40.4	-28.3	-60.5	-42.3	-65.0	-45.5	219.2	107.5
	LL.	+ 51.0	-10.4	+31.2	-24.7	+15.2	-43.0	+ 3.4	-45.1	0		
	IMP	+ 13.7	- 3.1	+ 9.4	- 7.4	+ 4.6	-11.6	+ 1.0	-12.1	0	43.8	21.5
	Σ	+ 64.7	-33.7	+26.5	-72.5	- 8.5	-115.1	-37.9	-122.2	-45.5	263.0	129.0
	REVERS.		-13.3	+13.3								
	DESIGN	+ 64.7	-47.0	+39.8	-72.5		-115.1		-122.2		263.0	129.0
MOMENT IN FT. KIPS	DL.	0	-212	-148	-850	-595	-1910	-1337	-2410		-1525	-376
	L.L.	0		+625		+722		+ 295				
	IMP.	0		+123	-170	+143	-382	+ 59	- 482		305	75
	Σ	0	-212	+600	-1020	+270	-2292	-983	- 2892		1830	551
	REVERS.		-106	+106		+135						
DESIGN MOMENT		0	-318	+706	-1020	+405		2292	2892		1830	551
EFFECTIVE DEPTH		6.27'	6.27'		6.27'		6.38'		7.74'		8.55'	7.82'
FL'GE AREA REQD @ 18 K/□"		0	6.3 □"		9.1 □"		19.9 □"		20.7 □"		11.9 □"	3.9 □"

BRACKETS

MARK		B 3	B 4	B 5	B 6
MAX. PANEL LENGTH		19'-4"	19'-4"	19'-4"	19'-4"
SECTION		3/8 WEB 4 L 5 X 3 1/2 X 7/16			
S.M. AT GIRDER		116.2 NET			
SHEAR IN KIPS	D.L.	4.1	5.3	2.8	3.3
	L.L.	8.6	21.2	5.2	8.4
	IMP.	—	6.3	—	5.4
	Σ	12.7	32.8	8.0	27.1
MOMENT IN FT. KIPS	D.L.	29.0	26.6	18.5	14.9
	L.L.	78.4	90.2	47.1	74.2
	IMP.	—	27.1	—	21.8
	Σ	107.4	143.9	65.6	110.9
S.M. REQ'D. @ 18 K/□"		71.7	95.9	43.6	73.9
STRESS IN TIE PL. KIPS		53.7	71.9	32.8	55.4
TIE PLATE USED		9 X 7/16	9 X 5/8	9 X 7/16	9 X 5/8
NET AREA REQ'D.		2.98□"	4.00□"	1.82□"	3.07□"
NET AREA OF PLATE		3.06□"	4.37□"	3.06□"	4.37□"

DIAPHRAGMS D3 AND D4 — 16" WF 45#

FLOORBEAMS

MARK		FB 5	FB 6	FB 7
MAX. PANEL LENGTH		19'-4"	19'-4"	19'-4"
SECTION		24 WF 74	24 WF 74	WEB 58 X 3/8; 4 L 5 X 3 1/2 X 3/8; TOP COV. PL. 11 X 3/4
SECTION MODULUS		170.4 GROSS	170.4 GROSS	507 NET
SHEAR IN KIPS	D.L.	2.9	5.0	3.4
	L.L.	32.5	30.8	34.8
	IMP.	9.8	9.2	10.4
	Σ	45.2	45.0	48.6
MOMENT IN FT. KIPS	D.L.	1.7	3.9	2.1
	L.L.	139.0	131.0	149.0
	IMP.	42.0	39.3	44.7
	Σ	182.7	174.2	195.8
S.M. REQ'D @ 18 K/□"		122	116	131

STRINGERS

MARK		S 5	S 6	S 7
MAX. PANEL LENGTH		19'-4"	19'-4"	19'-4"
SECTION		WEB 15 1/2 X 3/8; 4 L 4 X 3 1/2 X 3/8	WEB 20 1/2 X 3/8; 2 CH 13 1/2 X 3/4 X 7/16	21 WF 59
SECTION MODULUS		71.2 NET	64.6 NET	119.3 GROSS
SHEAR IN KIPS	D.L.	2.1	1.7	2.1
	L.L.	11.9	4.0	12.8
	IMP.	2.7	—	3.9
	Σ	16.7	5.7	18.8
MOMENT IN FT. KIPS	D.L.	10.6	8.0	10.3
	L.L.	56.2	19.5	96.7
	IMP.	16.9	—	29.0
	Σ	83.7	27.5	136.0
S.M. REQ'D @ 18 K/□"		56	18.3	91

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK

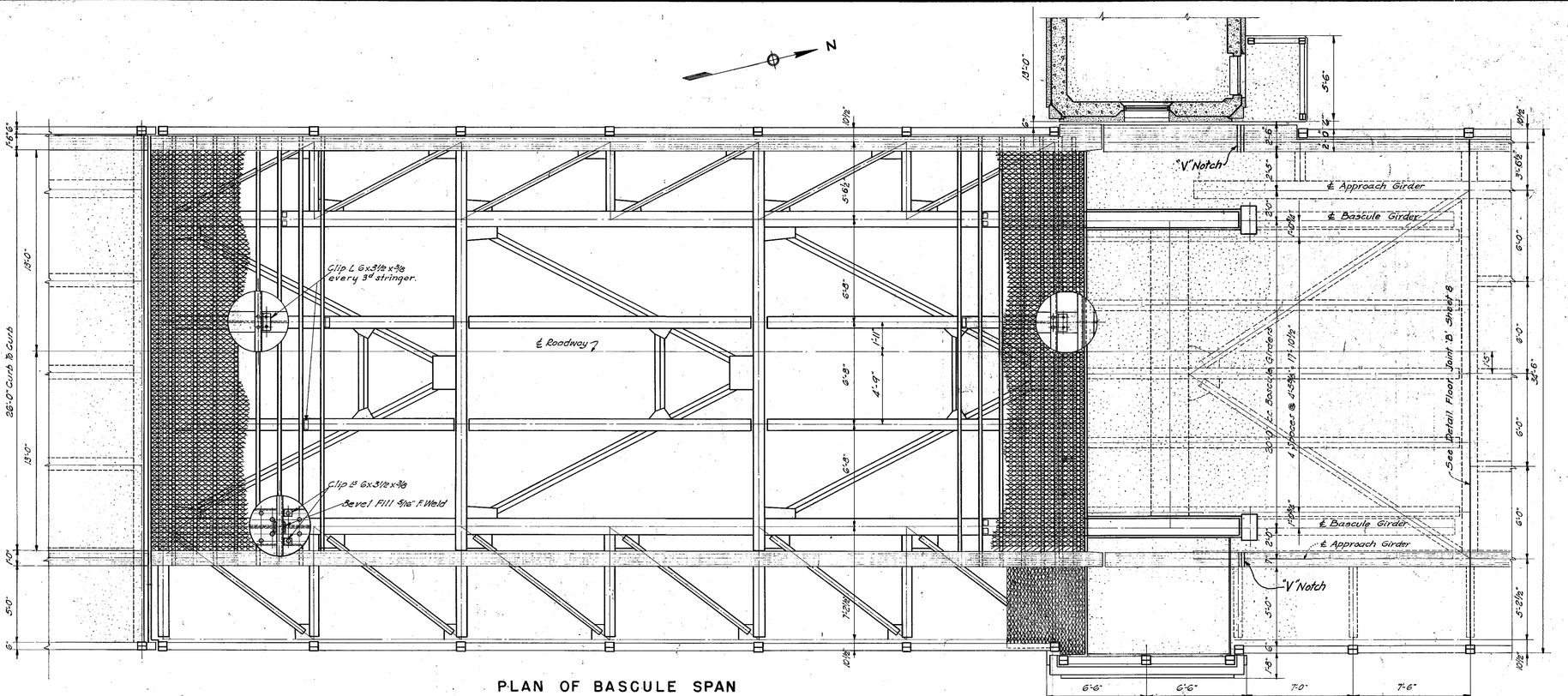
HAMPTON HARBOR BRIDGE
STRESS SHEET
BASCULE SPAN

MADE BY F.P. TR. T.F.K
CHECKED BY M.E.F.
APPROVED

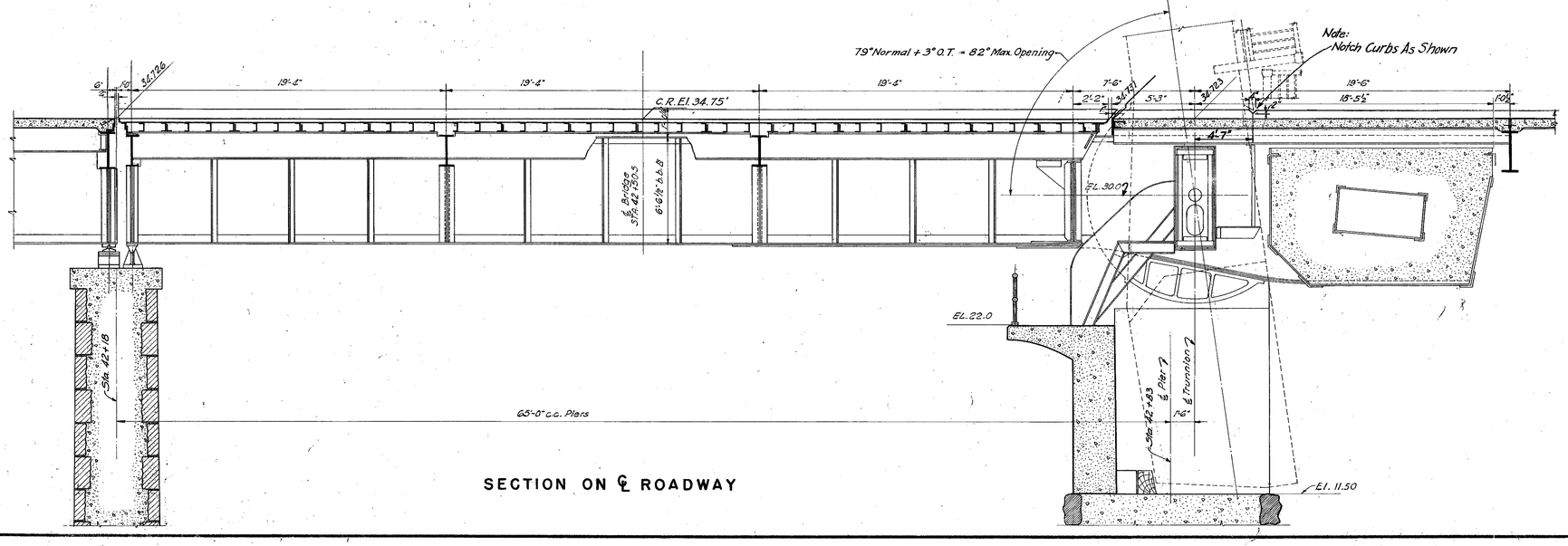
SCALE 1/8" = 1'-0"
DATE MARCH 1946
JOB No. 1600
SHEET No. 17

3-1-2-1

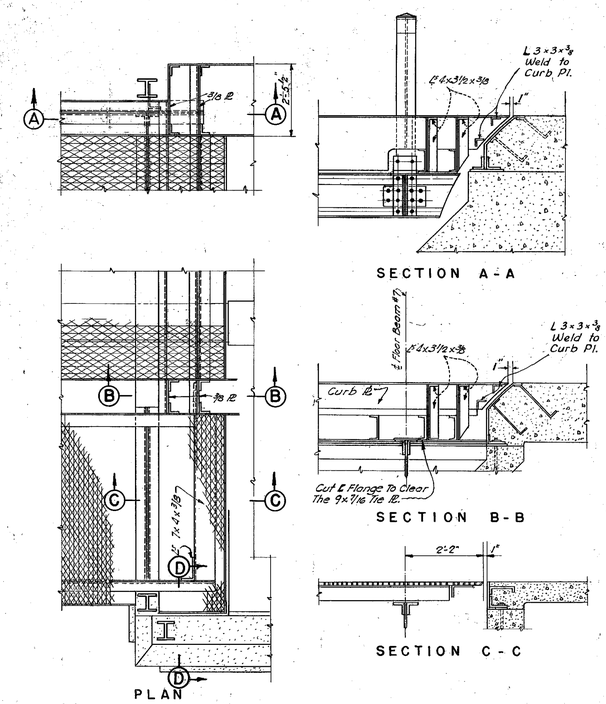
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		18	64



PLAN OF BASCULE SPAN

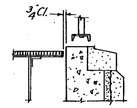


SECTION ON ℄ ROADWAY



ENLARGED VIEWS AT FLOOR BREAK

See Sheet 20 for additional views & sections.



SECTION D-D

NOTES

Material - Structural Carbon Steel
Rivets - 7/8"
Open Holes - 15/16" } Unless Otherwise Shown.

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK

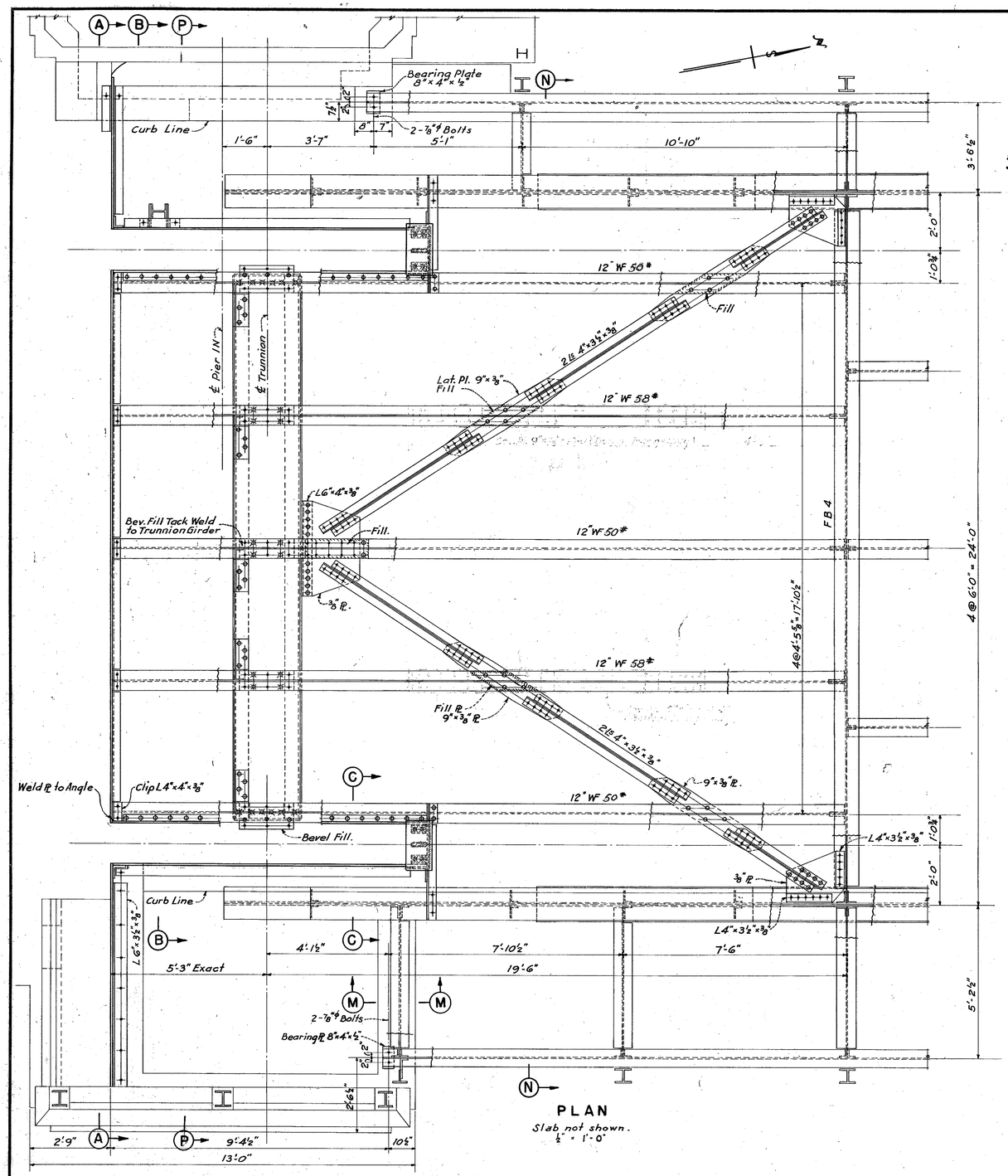
HAMPTON HARBOR BRIDGE
PLAN AND SECTIONS
BASCULE SPAN

MADE BY R.F.Z. TR. R.B.S.
CHECKED BY M.E.F.
APPROVED

SCALE 1/4" & 1/2" = 1'-0"
DATE MARCH 1946
JOB No. 1600
SHEET No. 18

3-1-2-1

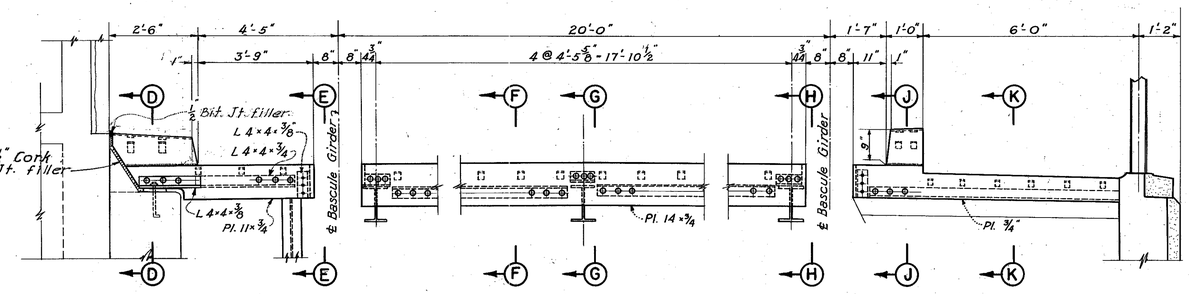
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		19	64



PLAN

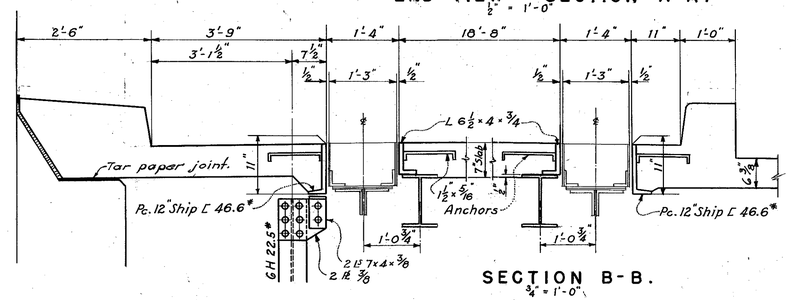
Slab not shown.

½" = 1'-0"



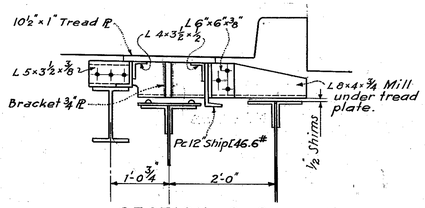
END VIEW SECTION A-A.

½" = 1'-0"



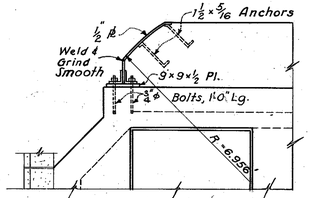
SECTION B-B.

¾" = 1'-0"



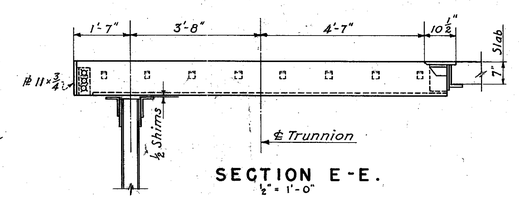
SECTION C-C.

¾" = 1'-0"



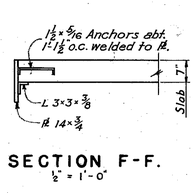
SECTION D-D.

½" = 1'-0"



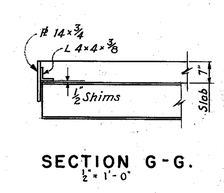
SECTION E-E.

½" = 1'-0"



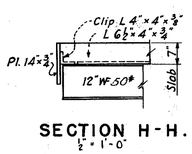
SECTION F-F.

½" = 1'-0"



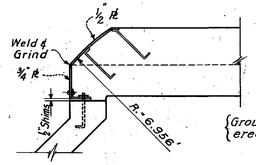
SECTION G-G.

½" = 1'-0"



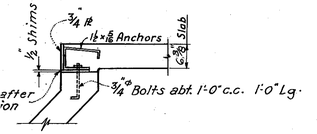
SECTION H-H.

½" = 1'-0"



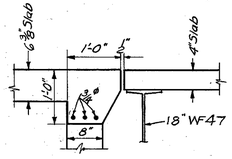
SECTION J-J.

½" = 1'-0"



SECTION K-K.

½" = 1'-0"



SECTION M-M

¾" = 1'-0"

NOTES

Material - Structural Carbon Steel
Rivets - 7/8# } Except as noted.
Open Holes - 15/16# }

For Slab Reinforcement Details See Sections P-P And N-N On Sheet 23

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK

HAMPTON HARBOR BRIDGE
FLOOR SYSTEM
OVER COUNTERWEIGHT

MADE BY D. C. TR. A. R.
CHECKED BY F. P.
APPROVED

SCALE AS NOTED
DATE MARCH 1946
JOB No. 1600
SHEET No. 19

3-1-2-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		20	64

SECTION A – A
SCALE 3/4"=1'-0"

SECTION B – B
SCALE 3/4"=1'-0"

Values of "L"
Girder with One Cover Pl.
13/16 - East Girder.
1/2 - West Girder.
Girder with Two Cover Pls.
1/16 - East Girder.
1/8 - West Girder.
West Fascia Stringer
9/16 Entire Length.

FILLS UNDER ROADWAY CHANNELS
SCALE 3"=1'-0"

FLOORBEAM FB 5

FLOORBEAM FB 6

SECTION F-F

SECTION G-G

SECTION J-J

SECTION H-H

DETAIL "X"
SCALE 1"=1'-0"

Note -
For additional sections thru Floor Break see Sheet 18.

PLAN

NOTES

For Railing Details See Sheet No. 10.
Material - Structural Carbon Steel.
Rivets - 7/8" except as noted
Open Holes - 13/16" except as noted.

INTERMEDIATE RAILING POST CONNECTION

DETAIL "Y"
SCALE 3"=1'-0"

LATERAL CONNECTION AT FLOORBEAM

SECTION C-C

INTERMEDIATE RAILING POST CONNECTION

EAST FASCIA

WEST FASCIA

FASCIA STRINGERS
SCALE 3/4"=1'-0"

SECTION D-D

LATERAL CONNECTION

FLOORBEAM FB 7

LATERAL CONNECTION

SECTION E-E

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK

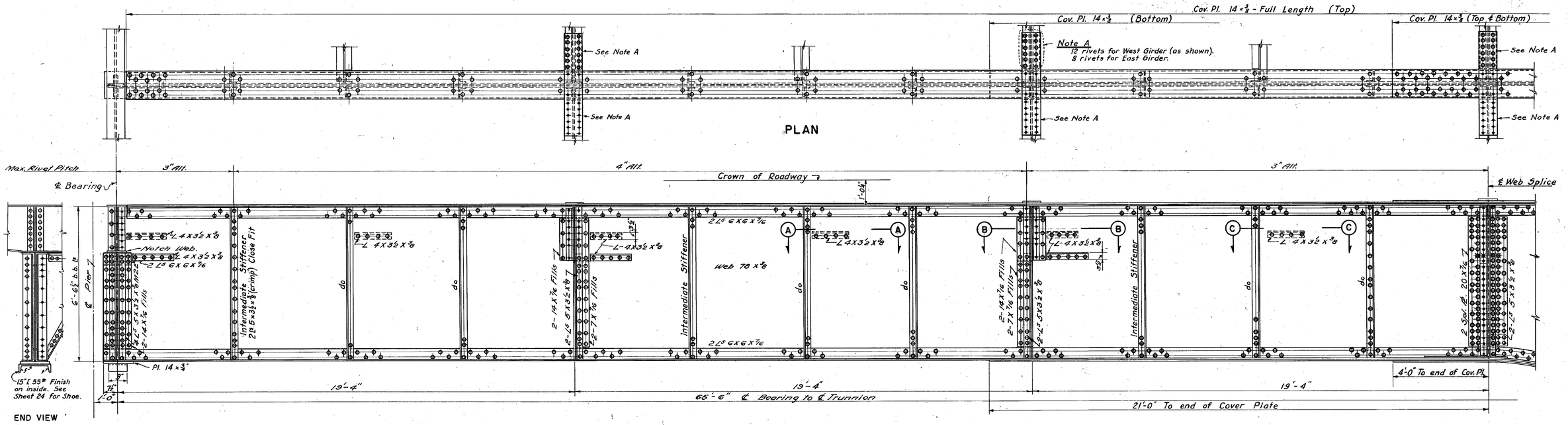
HAMPTON HARBOR BRIDGE
CROSS SECTIONS
BASCULE SPAN

MADE BY A.B.J. TR. A.B.J.
CHECKED BY F.P.
APPROVED Mud.
SCALE 1/2" = 1'-0" UNLESS NOTED
DATE MARCH 1948
JOB No. 1600
SHEET No. 20

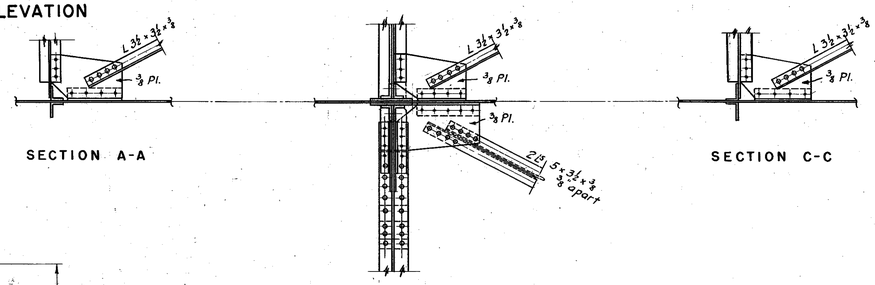
3-1-2-1

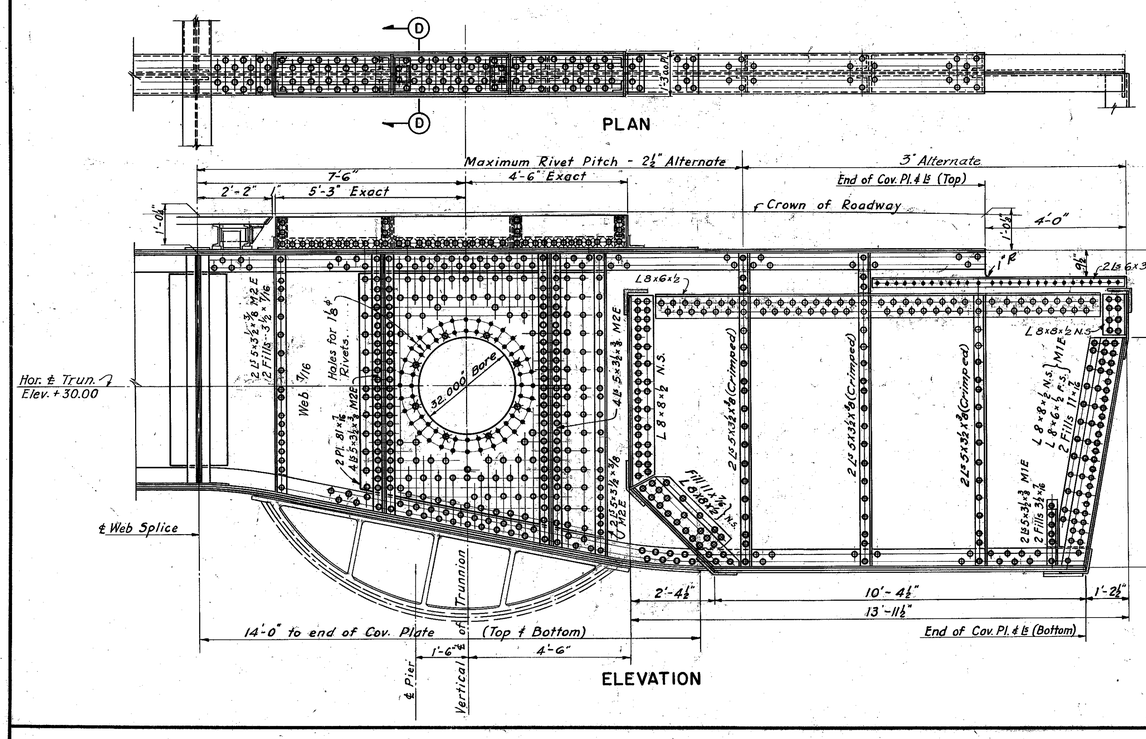
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		21	64

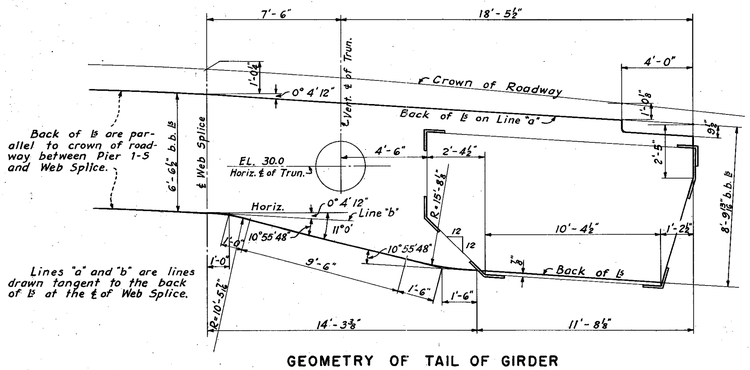
PLAN



ELEVATION







NOTES

Material - Structural Carbon Steel.
Rivets - ⅞" ϕ except as noted.
Open Holes - 15/16" ϕ except as noted.

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK

HAMPTON HARBOR BRIDGE
GIRDERS
BASCULE SPAN

MADE BY A.B.J. TR. T.F.K
CHECKED BY M.E.F.
APPROVED

SCALE 1" & ½" = 1'-0"
DATE MARCH 1946
JOB No. 1600
SHEET No. 21

3-1=2-1

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N. H.	F-318(1)		22	64

DEVELOPED SECTION D-D

DEVELOPED VIEW F-F

TOP VIEW

BOTTOM SECTION E-E

SECTION G-G

SECTION J-J

SECTION H-H

SECTION B-B

SECTION K-K
SCALE 1"=1'-0"

SECTION A-A — AS SHOWN
SECTION C-C — AS NOTED

SECTION L-L
SCALE 3"=1'-0"

CAST IRON BALANCE BLOCK
SCALE 1½"=1'-0"

CONCRETE BALANCE BLOCK
SCALE 1½"=1'-0"

NOTES

Concrete to be made with Punchings providing a weight of about 200 lbs per cu. ft. as required to balance the span.

Concrete edges adjacent to steel shall be finished as shown. (bituminous filler)

Material – structural carbon steel.
Rivets – ⅞ ϕ
Open Holes – 15/16" ϕ.

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS–NEW YORK

HAMPTON HARBOR BRIDGE
COUNTERWEIGHT
TRUNNION TOWER

MADE BY M.E.F. TR. O.R.S.
CHECKED BY F. P.
APPROVED

SCALE 12"=1'-0" UNLESS NOTED
DATE MARCH 1946
JOB No. 1600
SHEET No. 22

3-1-2-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		23	64

SECTION N-N

SECTION X-X

SECTION P-P
DECK OVER COUNTERWEIGHT

SECTION F-F

SECTION G-G
AS SHOWN
SECTION H-H
OPPOSITE HAND

SECTION Z-Z

SOUTH END OF GIRDER G3
AND
TRUNNION TOWER

SECTION K-K

SECTION J-J

TRUNNION GIRDER

TRUNNION SUPPORT
FOR
WEST GIRDER

SECTION THRU TRUNNION TOWER

This Trunnion Support is for East Girder only. See Sheet 27 for complete details.

CS 2 - This shoe not to carry any dead load. It shall be erected with clearance to provide for shortening of the main column under dead load.

NOTES

Material - Structural Carbon Steel except as noted.
Rivets - 7/8" ϕ except as noted.
Open Holes - 15/16" ϕ except as noted.
For Sections A-A, B-B, C-C, D-D, and E-E see Sheet 24.
For Details of Cast Steel Shoes CS1 and CS2 see Sheet 24.

REVISIONS
Change CS1 June 30 1947

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK

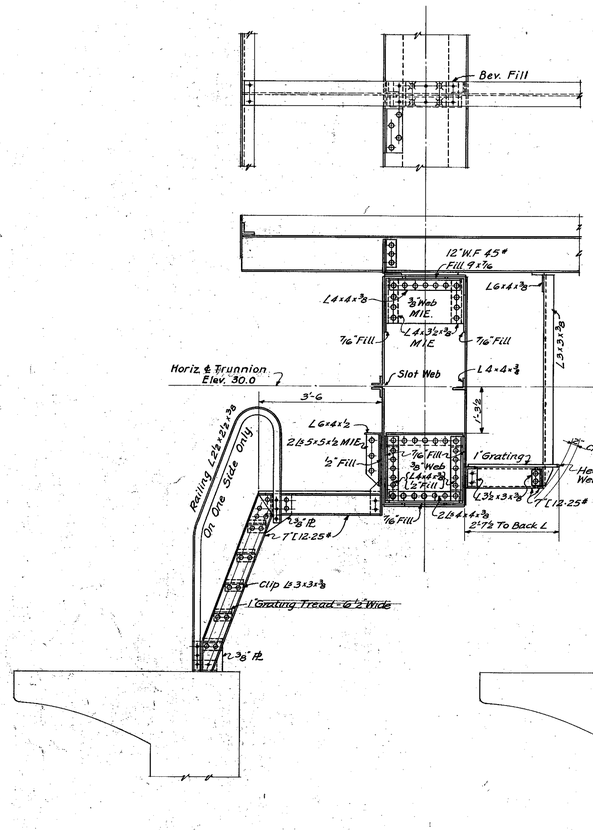
HAMPTON HARBOR BRIDGE
TRUNNION GIRDER
TRUNNION TOWER

MADE BY M. I. TH. O.S.
CHECKED BY F.P.
APPROVED

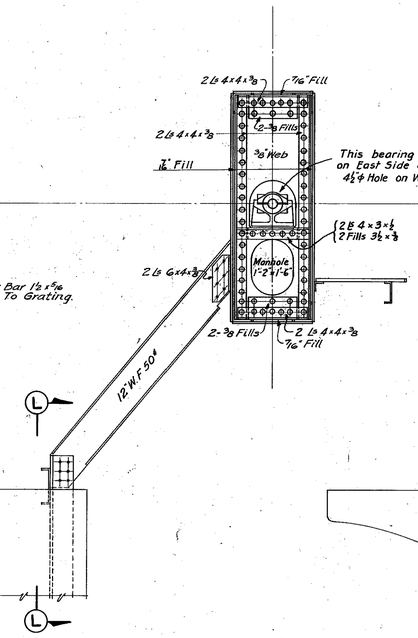
SCALE 1" = 1'-0"
DATE MARCH 1946
JOB No. 1600
SHEET No. 23

3-1-2-1

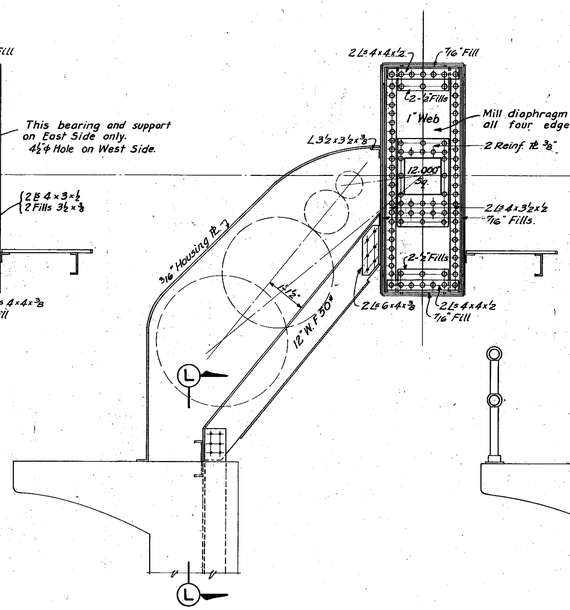
FED. ROAD DIST. NO.	STATE	PROJ. NO.	AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.		F-318(1)		24	64



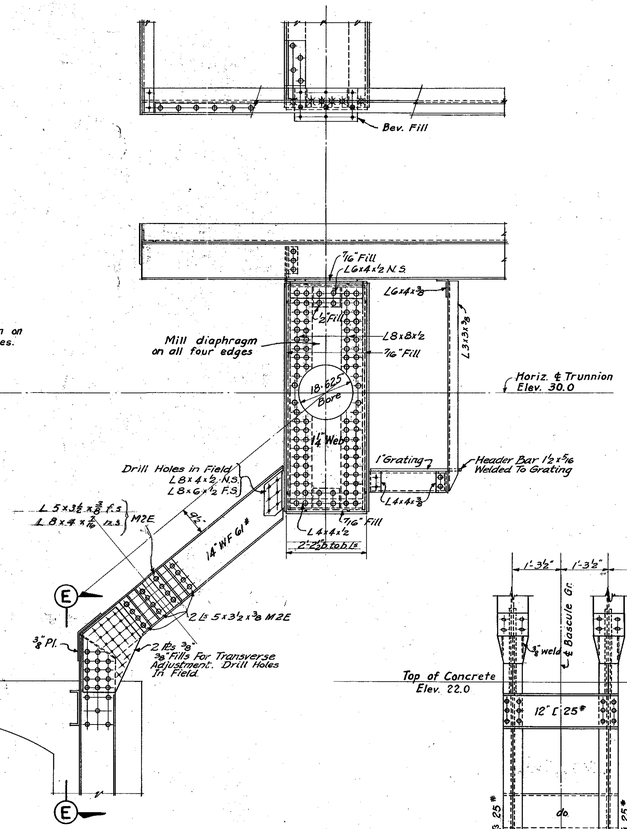
SECTION A-A



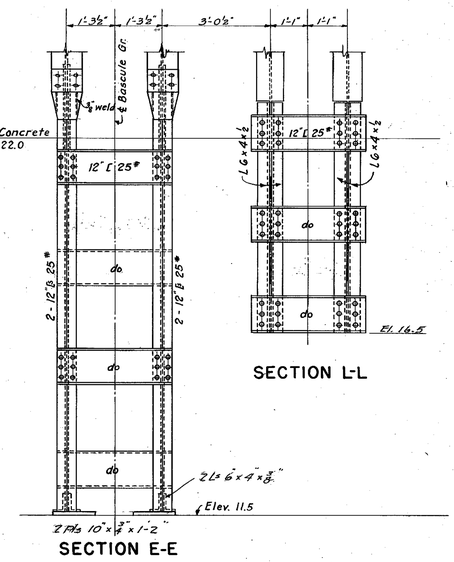
SECTION B-B



SECTION C-C

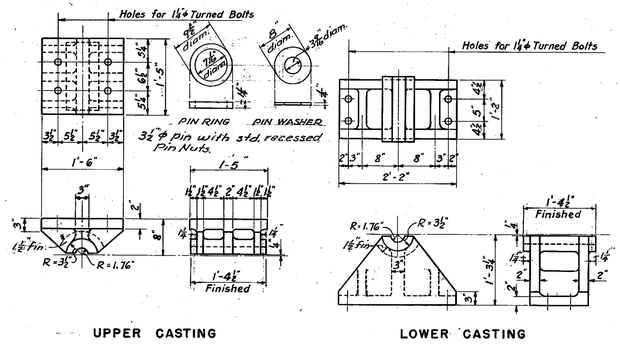


SECTION D-D

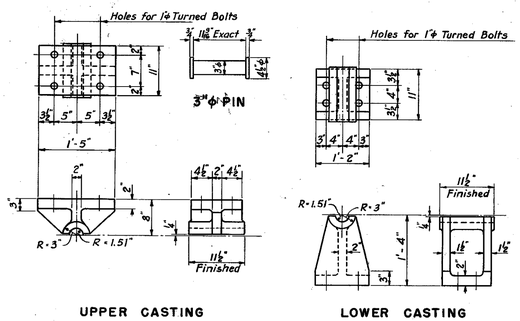


SECTION L-L

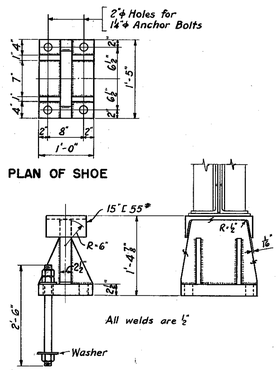
SECTION E-E



CAST STEEL SHOE CS-1



CAST STEEL SHOE CS-2



SHOE FOR BASCULE SPAN AT PIER 1-S

NOTES

Material - Structural Carbon Steel except as noted.
Rivets - 7/8ϕ } except as noted.
Open Holes - 13/16ϕ }
All Castings shall be Cast Steel.
All surfaces where Steel is bearing on Steel shall be finished fine cut.

REVISIONS
Change C.S. Shoe CS-1 June 30/49
Sect E-E change bolt Pls "
" L-L add El. 16.5 "

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK

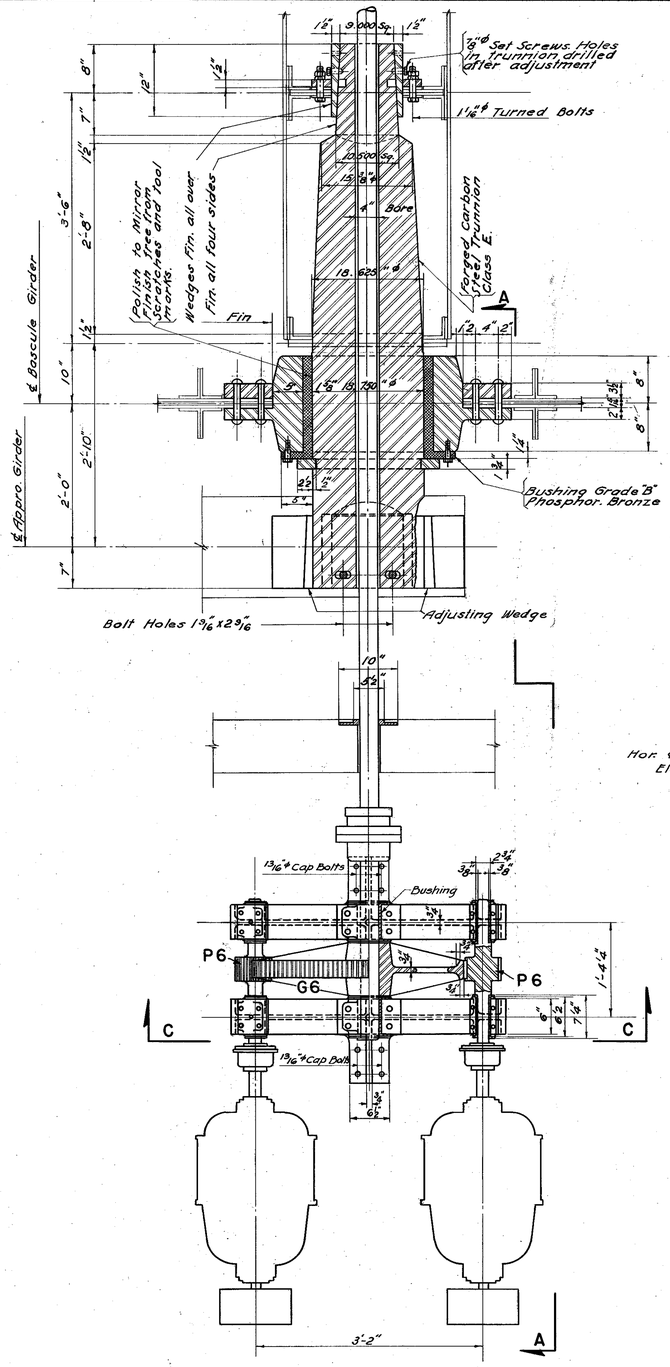
HAMPTON HARBOR BRIDGE
TRUNNION GIRDER
SECTIONS

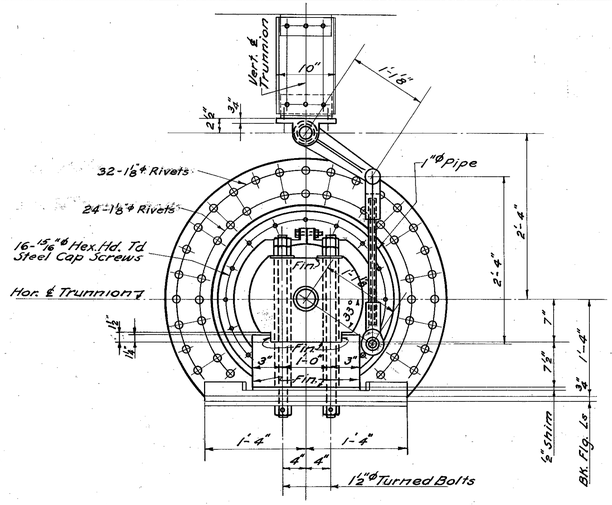
MADE BY M.E.F. TR. S.C.T.
CHECKED BY F.P.
APPROVED

SCALE 1/2" & 3/4" = 1'-0"
DATE MARCH 1948
JOB NO. 1600
SHEET NO. 24

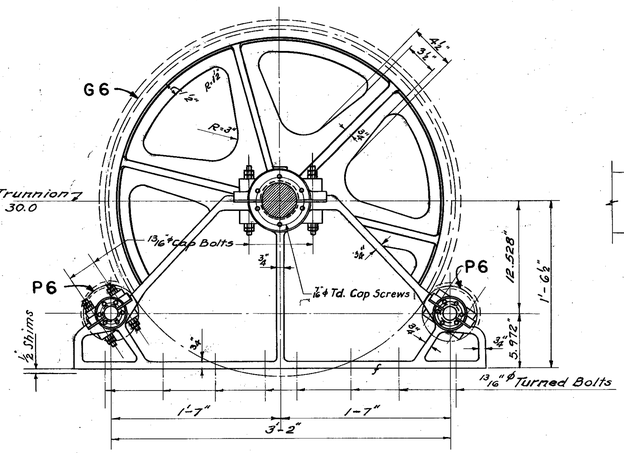
3-1-2-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		25	64

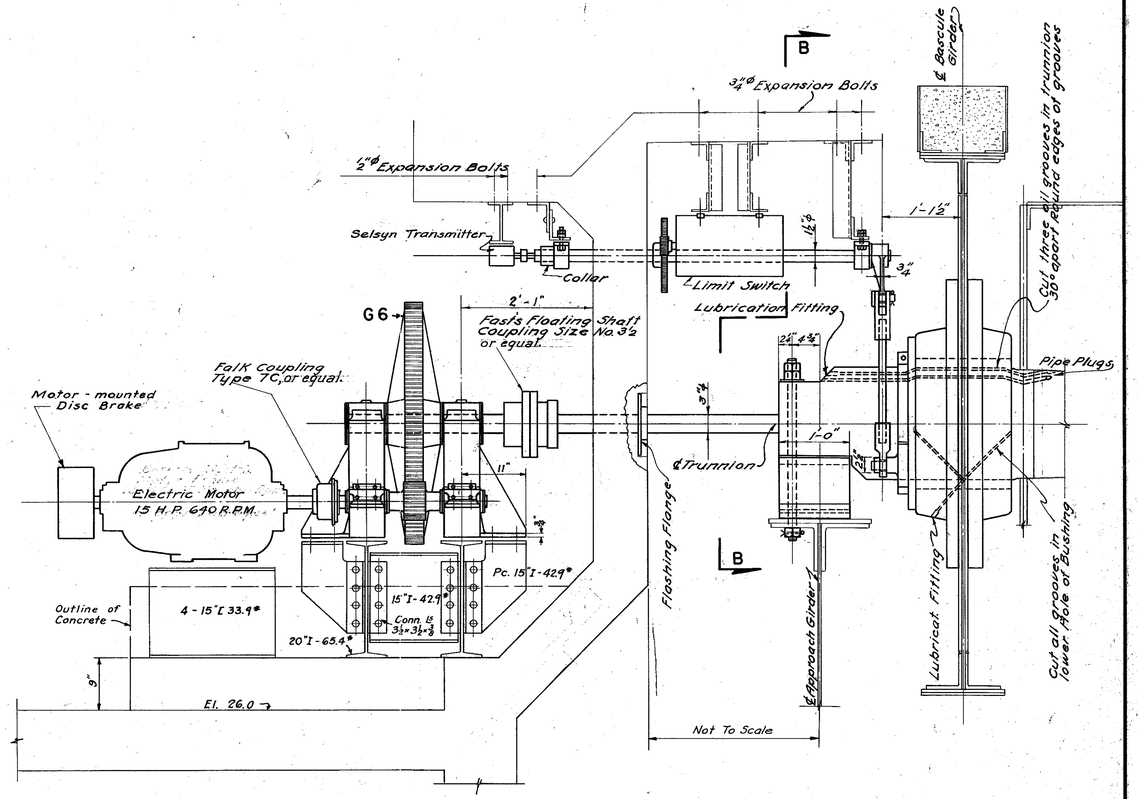




SECTION B-B



SECTION C-C
SCALE 1"=1'-0"



SECTION A-A

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS NEW YORK

HAMPTON HARBOR BRIDGE
TRUNNION DETAILS
ELECTRIC DRIVE

MADE BY A.B.J. TR. T.F.K
CHECKED BY J.O.B.
APPROVED

SCALE 1"=1'-0" AND AS NOTED
DATE MARCH 1946
JOB No. 1600
SHEET No. 25

3-1-2-1

IMPERIAL

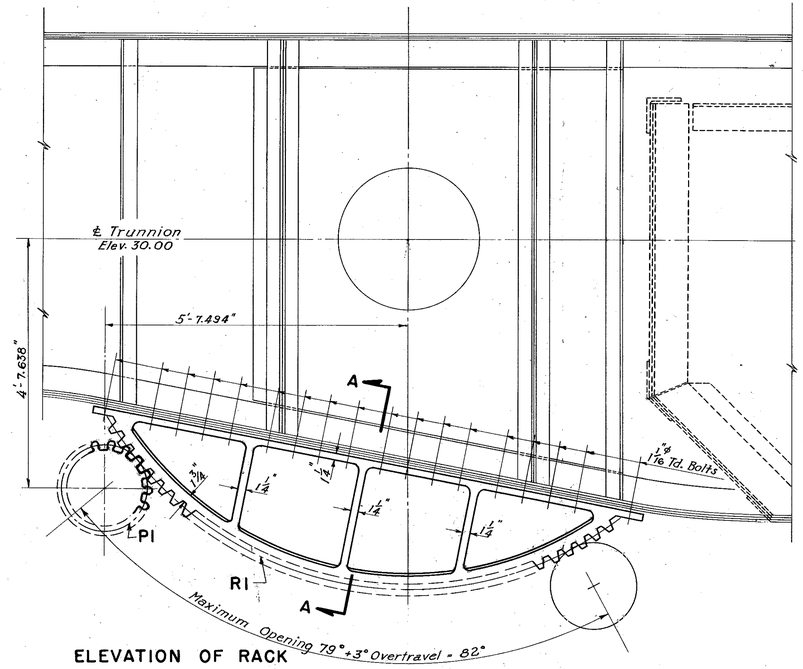
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N. H.	F-318(1)		26	64

TABLE OF GEARS

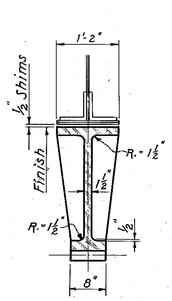
20° INVOLUTE CUT TEETH

GEAR	NO. REQ'D	MATERIAL	NO. TEETH	CIR. PITCH	PITCH DIAMETER	FACE	HUB BORE	HUB DIAM.	HUB LGTH.	KEYS NO.	KEYS SIZE	REMARKS
R 1	2	CAST CARBON STEEL	37	3½"	156.00"	8"						RACK
P 1	2	FORGED—CLASS A	17	3½"	18.939"	8½"						INTEGRAL WITH SHAFT
G 2	2	CAST CARBON STEEL	56	2½"	44.563"	6"	9"	16"	10"	2	2"X 2"	
P 2	2	FORGED—CLASS A	17	2½"	13.528"	6½"						INTEGRAL WITH SHAFT
G 3	2	CAST CARBON STEEL	69	1¾"	38.435"	4"	7"	12"	7¾"	2	1½"X 1½"	
I 3	2	CAST CARBON STEEL	27	1¾"	15.04"	4"	6"	10½"	6¾"	1	1½"X 1½"	
P 3	2	FORGED CLASS A	17	1¾"	9.469"	4½"						INTEGRAL WITH SHAFT
BG 4	2	CAST CARBON STEEL	62	1½"	29.602"	3"	4¼"	7½"	6"	1	1"X 1"	
BP 4	2	FORGED—CLASS E	22	1½"	10.504"	3"						INTEGRAL WITH SHAFT
G 5	1	CAST CARBON STEEL	106	1¼"	42.176"	3½"	5¼"					BUSHED ON 4¼" SHAFT
P 5	1	FORGED—CLASS E	19	1¼"	7.560"	4"						INTEGRAL WITH SHAFT
G 6	1	CAST CARBON STEEL	124	1"	39.470"	3"	3½"	6½"	6"	1	⅞" X ⅞"	
P 6	2	FORGED—CLASS E	19	1"	6.047"	3½"						INTEGRAL WITH SHAFT

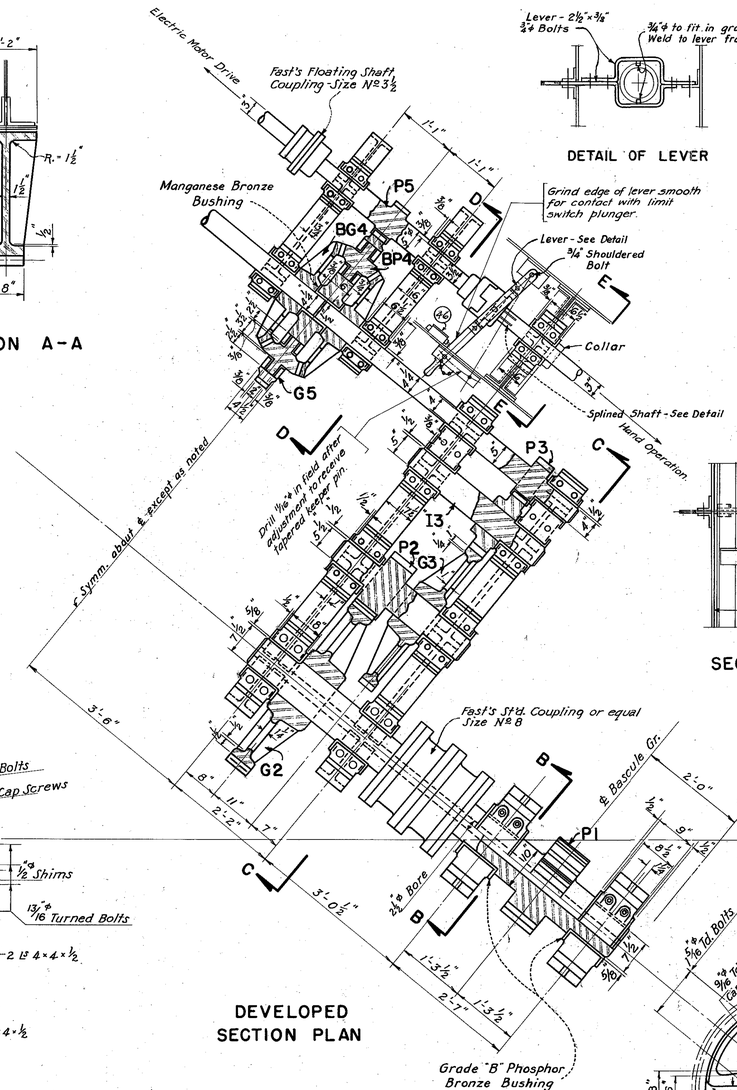
NOTE -
1. All Bushings, except those otherwise noted, are to be Grade "C" Phosphor Bronze.
2. All exposed Gear Assemblies are to be housed within 3/16" plates.
3. Forged - Class "A" to be Structural Alloy Steel. Forged - Class "E" to be Structural Carbon Steel.

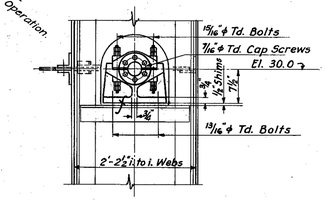


ELEVATION OF RACK

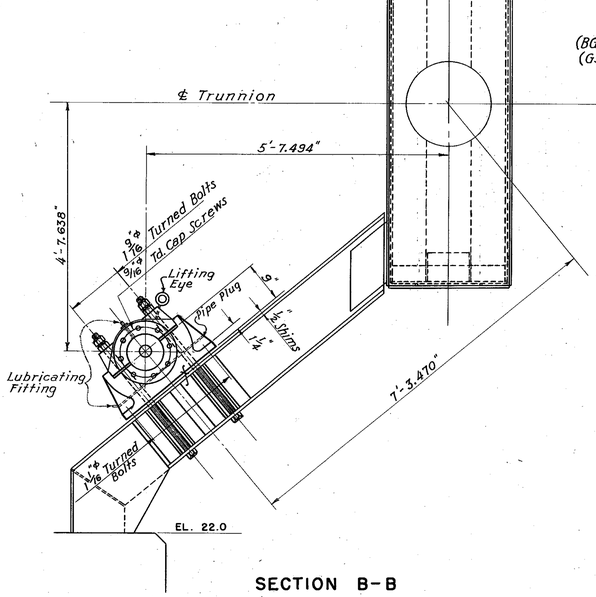


SECTION A-A

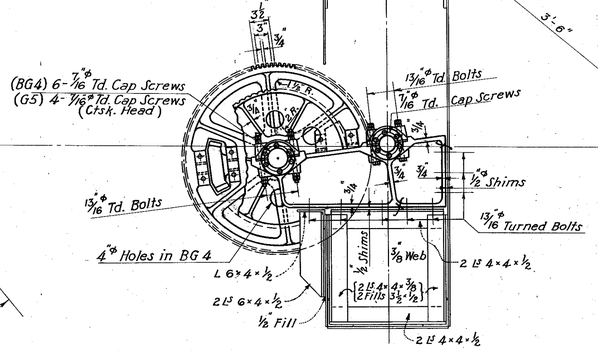




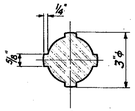
SECTION E-E



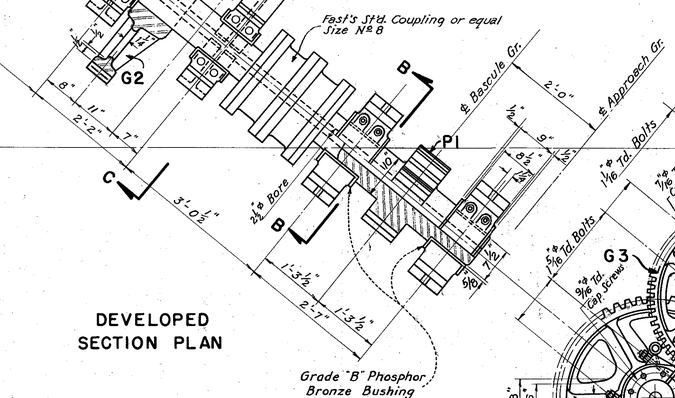
SECTION B-B



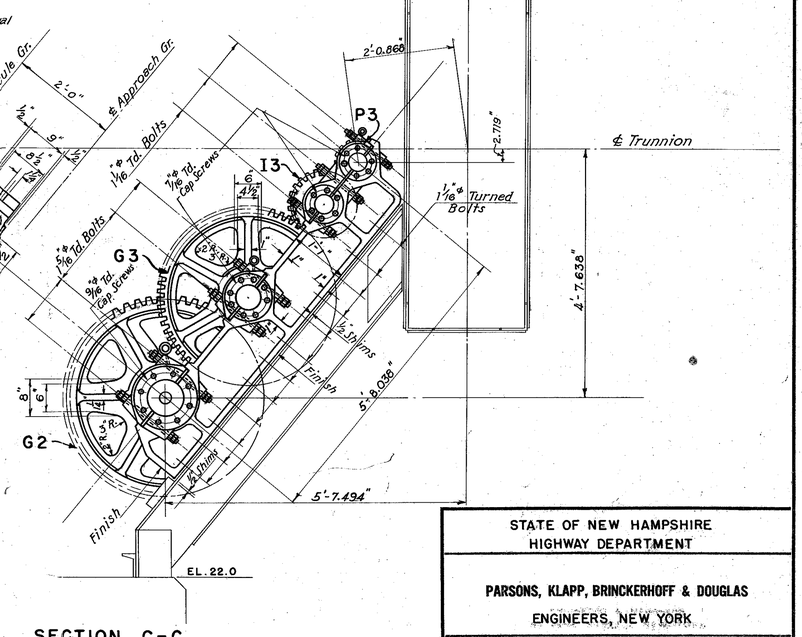
SECTION D-D



SECTION THRU SPLINE SHAFT
Scale - 3"-1'-0"



DEVELOPED SECTION PLAN



SECTION C-C

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK

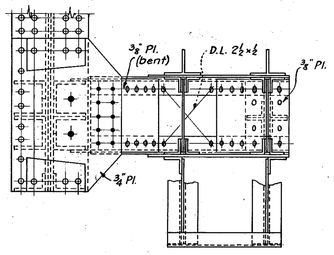
HAMPTON HARBOR BRIDGE
OPERATING MACHINERY

MADE BY F.P. TR. T.F.K.
CHECKED BY J. O. B.
APPROVED

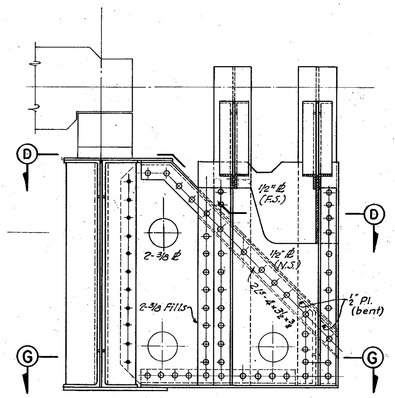
SCALE 3/4" = 1'-0"
DATE MARCH 1946
JOB No. 1600
SHEET No. 26

3-1-2-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-3180)		27	64

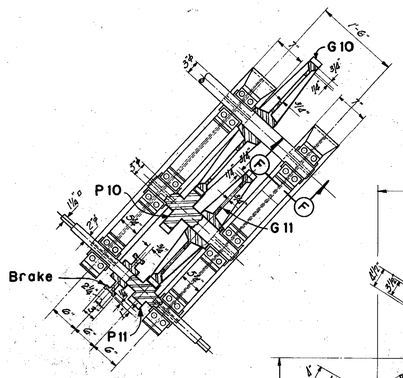


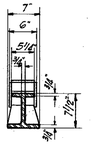
SECTION D-D



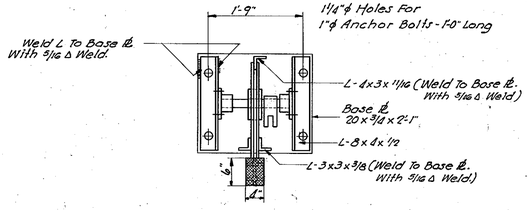
See Sheet 23 for Section G-G.

SECTION A-A





SECTION F-F

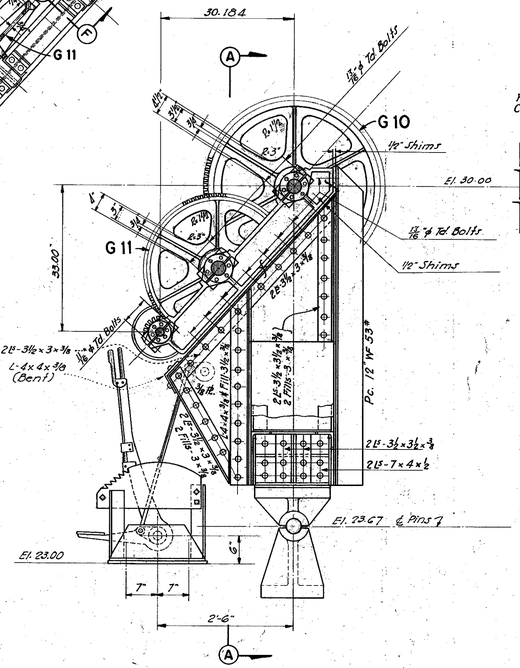


SECTION E-E

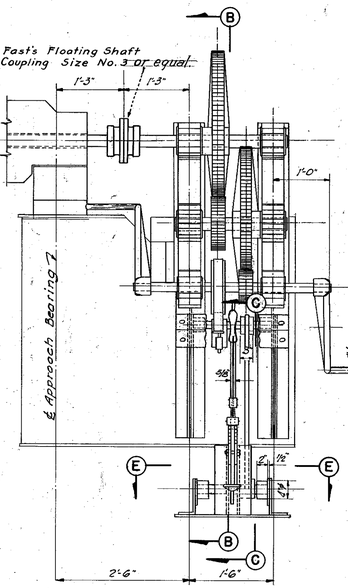
TABLE OF GEARS
20° Involute Cut Teeth

Gear	No. Req'd.	Material	No. Teeth	Cir. Pitch	Pitch Diameter	Face	HUB Bore	HUB Dia.	HUB Lgth.	KEYS No.	KEYS Size	Remarks.
G10	1	Cast Carbon Steel	124	1"	39.470	2½	3½	6½	6	1	⅞x⅞	
P10	1	Forged- Class E	35	1"	11.141	3						Integral With Shaft
G11	1	Cast Carbon Steel	103	1"	32.786	2½	3½	6½	6	1	⅞x⅞	
P11	1	Forged- Class E	19	1"	6.047	3						Integral With Shaft
Brake	1	Cast Carbon Steel	—	—	12"o.d.	3	2½	4	4	1	⅝x⅝	

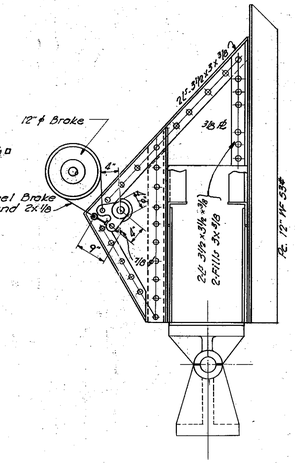
All Bushings Are Grade "C" Phosph. Bronze - ⅜" Thick, Bolted To Bearing With ⅜"ϕ Turned Cap Screws.



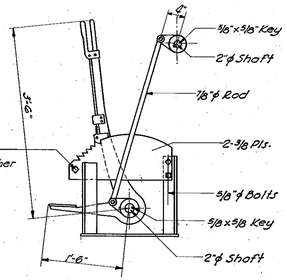
END VIEW



ELEVATION



SECTION B-B



SECTION C-C

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK

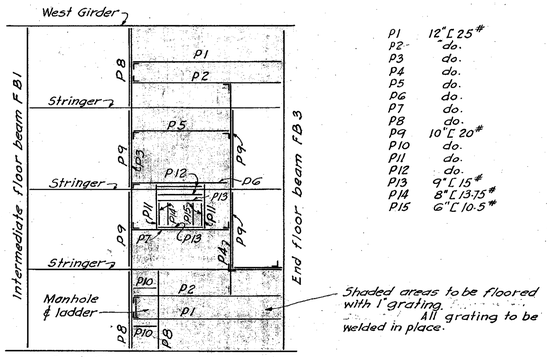
HAMPTON HARBOR BRIDGE
HAND OPERATION
MACHINERY

MADE BY F.P. TR. R.B.J.
CHECKED BY J.O.B.
APPROVED

SCALE ¾" = 1'-0"
DATE MARCH 1946
JOB No. 1600
SHEET No. 27

3-1-2-1

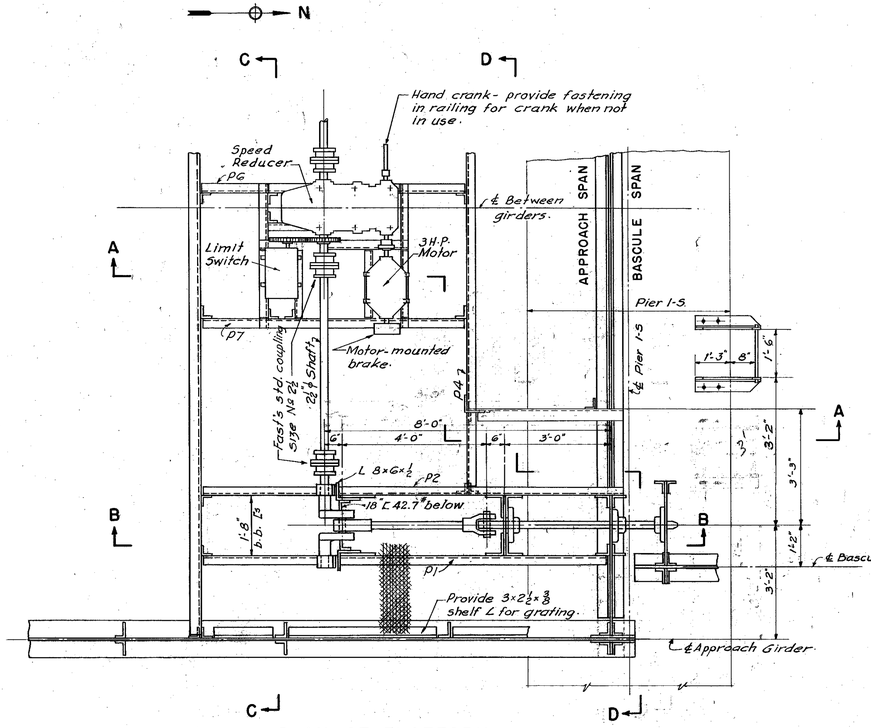
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		28	64



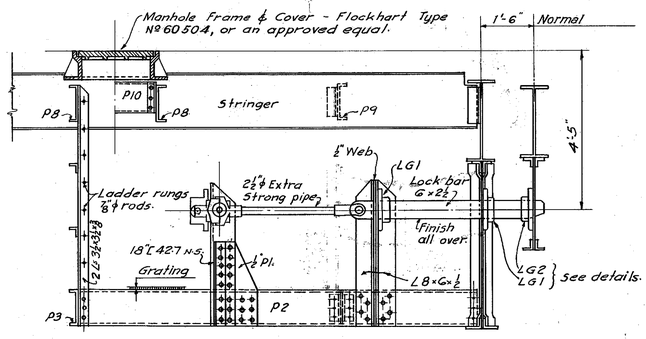
P1	12"ℒ 25#
P2	do.
P3	do.
P4	do.
P5	do.
DG	do.
P7	do.
P8	do.
P9	10"ℒ 20#
P10	do.
P11	do.
P12	do.
P13	9"ℒ 15#
P14	8"ℒ 13.75#
P15	6"ℒ 10.5#

PLATFORM FRAMING

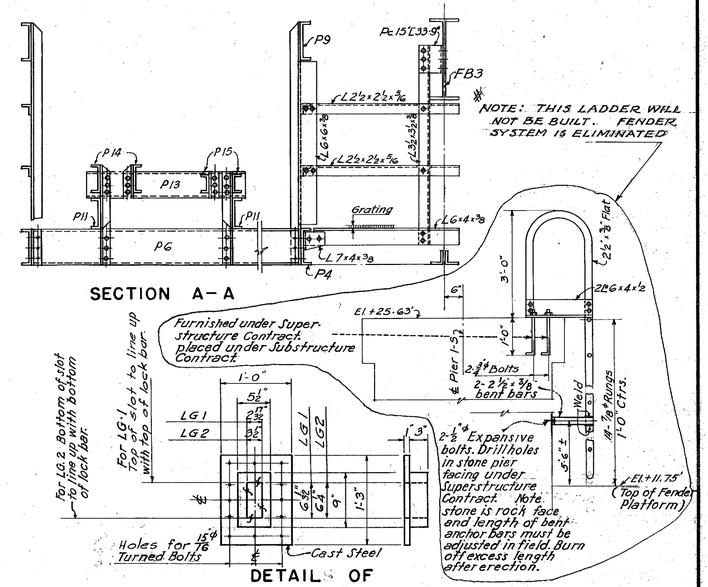
SCALE 3/16" = 1'-0"



PLAN OF PLATFORM

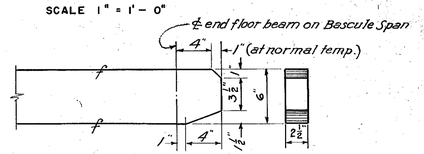


SECTION B-B



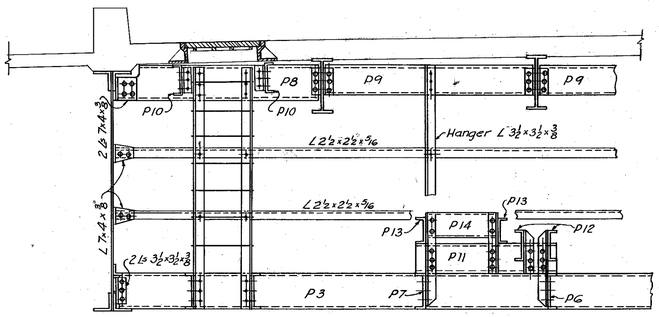
DETAIL OF LOCK BAR GUIDES

SCALE 1" = 1'-0"

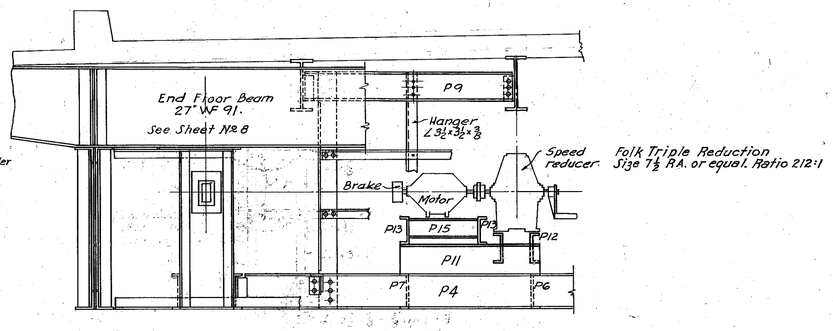


DETAIL OF END OF LOCK BAR

SCALE 1½" = 1'-0"



SECTION C-C



SECTION D-D

REVISIONS

* Added note on ladder 3/22/47.

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

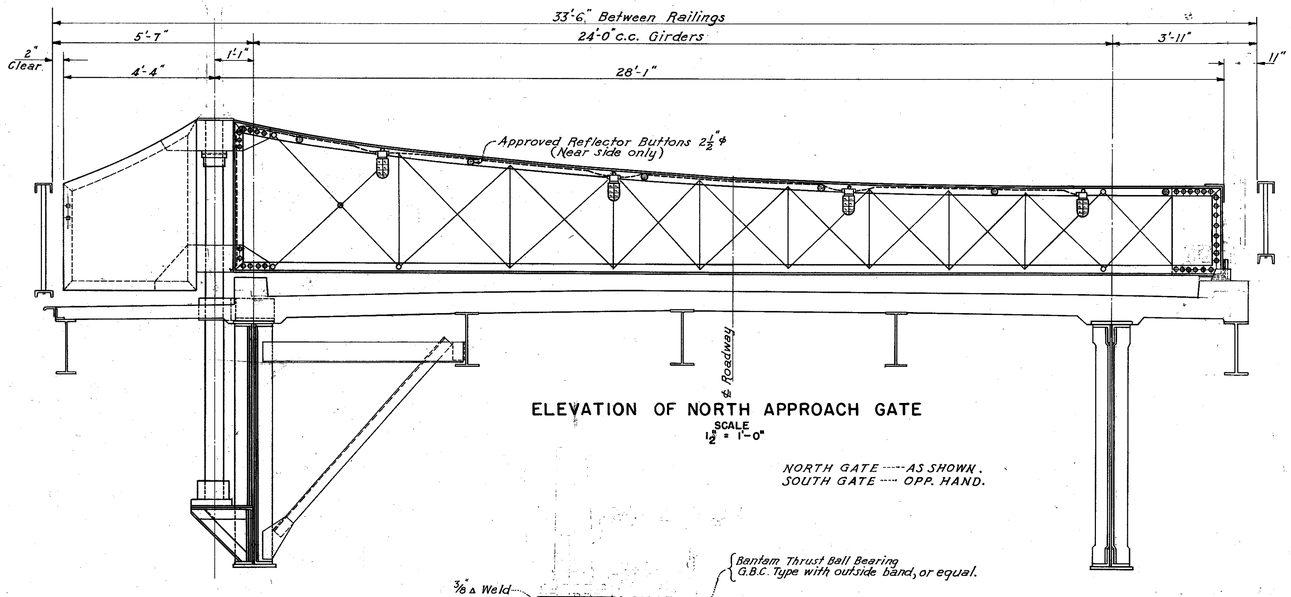
PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS NEW YORK

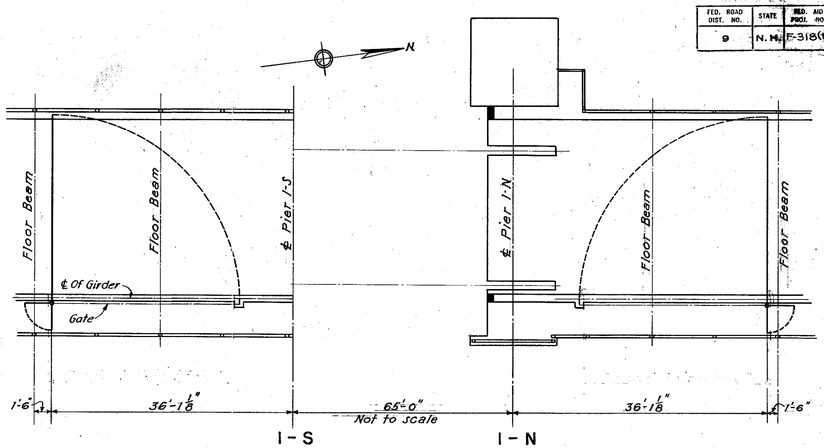
HAMPTON HARBOR BRIDGE
LOCKING MACHINERY

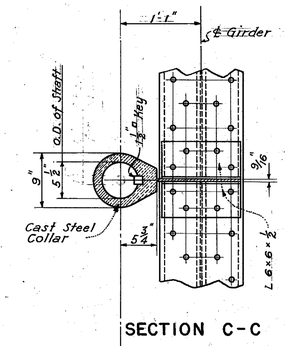
MADE BY F.P. TR. S.B
CHECKED BY J.O.B.
APPROVED

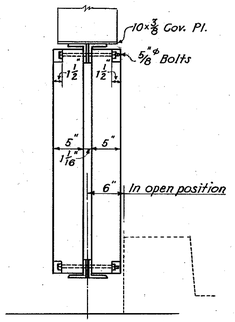
SCALE 1/2" = 1'-0" UNLESS NOTED
DATE MARCH 1946
JOB No.
SHEET No. 28

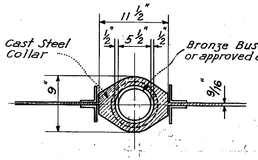
3-1-2-1

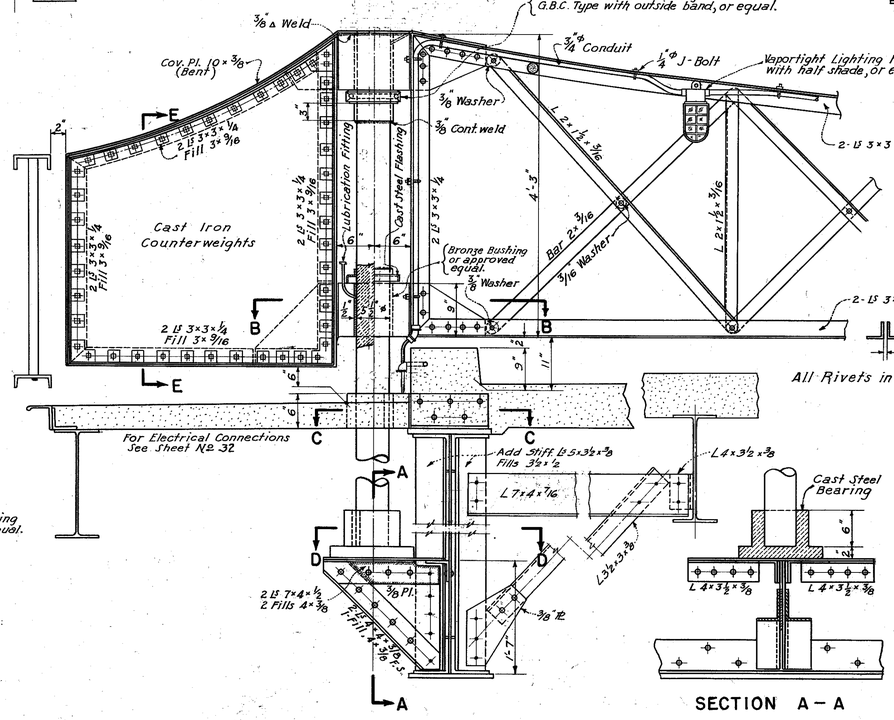












FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N. H.	F-318(1)	—	29	64

ELEVATION OF NORTH APPROACH GATE

SCALE ½" = 1'-0"

NORTH GATE ---- AS SHOWN.
SOUTH GATE ---- OPP. HAND.

PLAN

SCALE 3/32" = 1'-0"

SECTION C-C

SECTION E-E

SECTION B-B

SECTION A-A

DETAIL OF FREE END OF GATE AT SIDEWALK

SECTION F-F

SECTION G-G

SECTION D-D

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

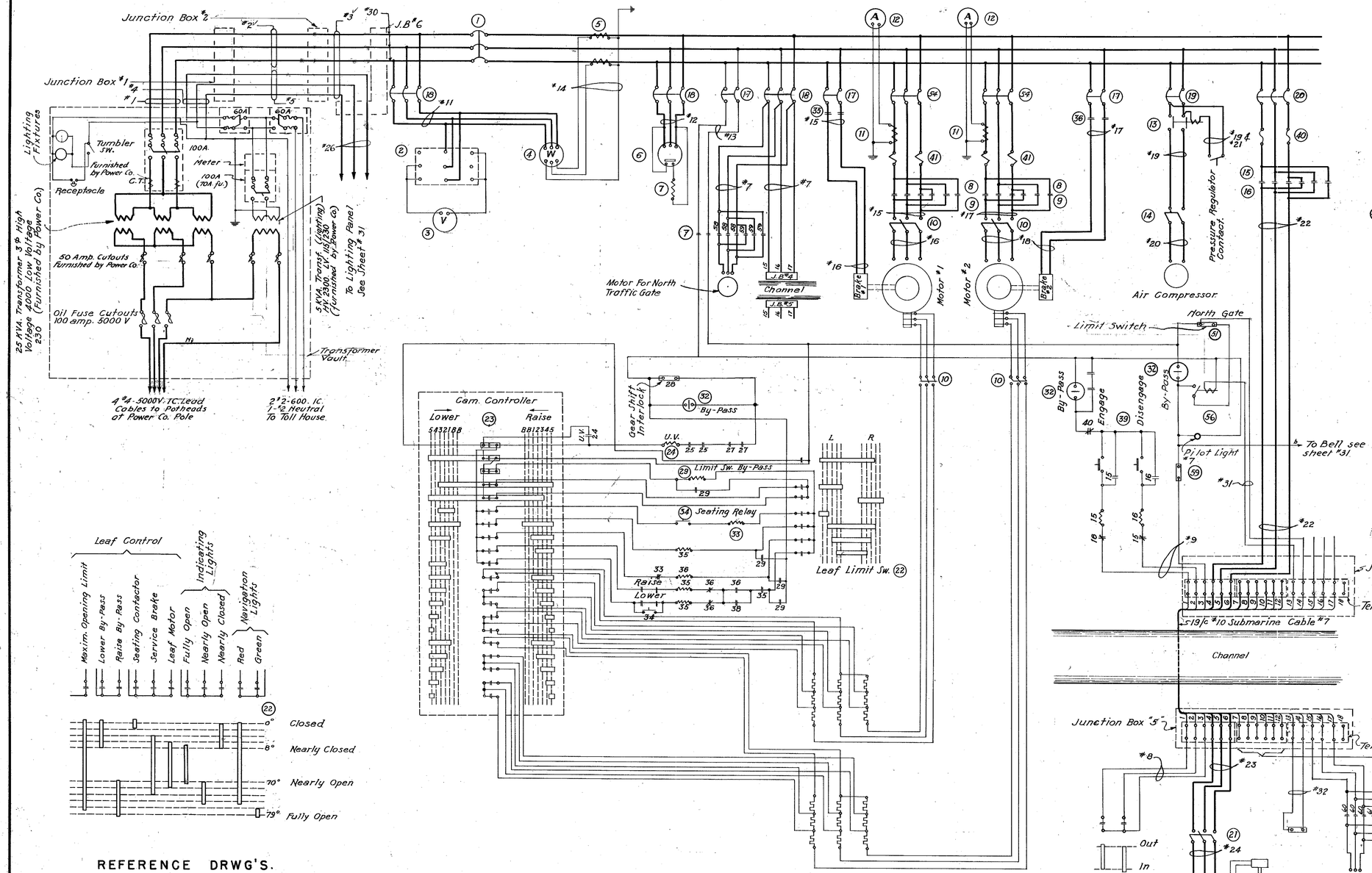
PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS, NEW YORK

HAMPTON HARBOR BRIDGE
BARRIER GATES

MADE BY F.P. TR. A.H.R.
CHECKED BY J.O.B.
APPROVED
SCALE ½" & 1" = 1'-0"
DATE MARCH 1946
JOB No. 1600
SHEET No. 29

3-1-2-1

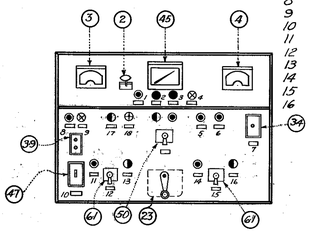
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N. H.	F-318(1)			30	64



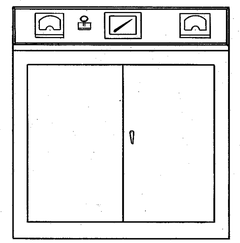
WIRING DIAGRAM

DESIGNATION ON NAME PLATES

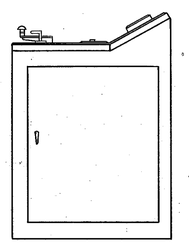
1. Leaf fully open
2. Leaf nearly open
3. Leaf nearly closed
4. Leaf fully closed
5. Brake #1 released
6. Brake #2 released
7. Air Horn
8. Lock Disengaged
9. Lock Engaged
10. Sw. For Elect. Horn
11. N. Traffic Gate Fully Open.
12. Off
13. N. Traffic Gate Fully Closed
14. S. Traffic Gate Fully Open
15. Off
16. S. Traffic Gate Fully Closed.
17. N. & S. Barrier Fully Closed.
18. S. Barrier Fully Closed.



PLAN



CONTROL DESK



SIDE VIEW

SYMBOLS

- Knife Switch
- Contact of Controller, Magnetic Switch etc.
- Closed when Solenoid is energized
- Open when Solenoid is energized
- Limit Switch Contact for interlocking
- Coil of Magnetic Contactor or Relay
- Coil of Overload Relay
- Resistance
- Momentary Contact Push Button
- Normally Closed Push Button
- Air Circuit Breaker
- Red
- Green
- Amber
- White
- Sealed Tumbler Switch
- (7) #22 Denotes Item numbers see sheet #31
- #17 " Conduit "

REFERENCE DRWG'S.

ELECTRICAL EQUIPMENT & SERVICE LIGHTING	SHEET	31.
ELECTRICAL DETAILS	"	32.
HEATING, PLUMBING & ELECTRICAL LAYOUT	"	33.
UTILITY CONDUIT RUNS & TRANSFORMER VAULT	"	34.

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS—NEW YORK

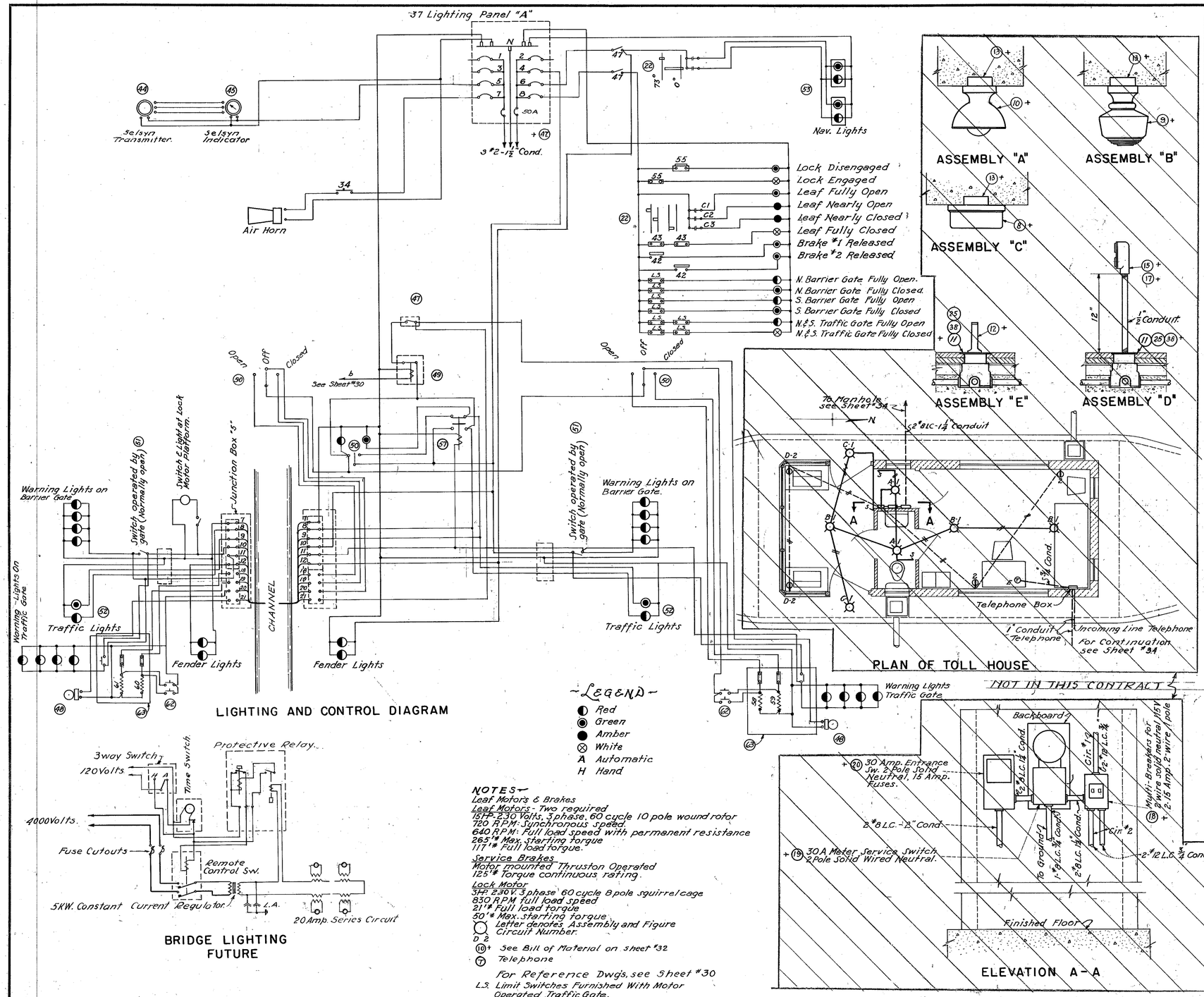
HAMPTON HARBOR BRIDGE
WIRING DIAGRAM

MADE BY R.J. TR. A.H.R.
CHECKED BY J.O.B.
APPROVED

SCALE No Scale
DATE MARCH 1946
JOB No. 1600
SHEET No. 30

3-1-2-1

FED. ROAD DIST. NO.	STATE	PUB. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N. H.	F-318(1)		31	64



LIGHTING AND CONTROL DIAGRAM

ASSEMBLY "A"

ASSEMBLY "B"

ASSEMBLY "C"

ASSEMBLY "D"

ASSEMBLY "E"

PLAN OF TOLL HOUSE

ELEVATION A-A

BRIDGE LIGHTING FUTURE

LEGEND

- Red
- Green
- Amber
- White
- A Automatic
- H Hand

NOTES

Leaf Motors & Brakes

Leaf Motors - Two required
15HP. 230 Volts. 3 phase 60 cycle 10 pole wound rotor
720 RPM: Synchronous speed.
640 RPM: Full load speed with permanent resistance
265'# Max. starting torque
117'# Full load torque.

Service Brakes
Motor mounted Thruston Operated
125'# Torque continuous rating.

Lock Motor
3HP. 230V. 3 phase 60 cycle 8 pole squirrelcage
830 RPM full load speed
21'# Full load torque
50'# Max. starting torque.
Letter denotes Assembly and Figure Circuit Number.
D 2
(10) See Bill of Material on sheet #32
(T) Telephone

For Reference Dwg's, see Sheet #30

L.S. Limit Switches Furnished With Motor Operated Traffic Gate.

LIST OF ELECTRICAL APPARATUS

No.	Req'd	DESCRIPTION	REMARKS
1	1	Air Cir. Breaker 3P Type AE-1B with undervoltage and overcurrent trips.	Power Bus.
2	1	Voltmeter Transfer Switch	
3	1	Voltmeter 0 to 300 scale	
4	1	Wattmeter 0 to 50 KW. scale	
5	2	Current Transformers 150/5 ratio	Wattmeter
6	1	Phase Failure & Phase Reversal Relay	
7	1	Magnetic Contactor 2P ST. 250 V. 50amp. with M.B.O.	Control Circuit
8/9	2	Magnetic Contactor 3P 250 V. 60amp. with M.B.O.-1-norm. open Aux. Contact. Mech. and Elect. Interlock.	Leaf Motor
10	4	3P St. Disc. Switches 60 amp. 250 V.	Leaf Motors
11	2	Current Transformers 100/5 amp. ratio	Ammeters
12	2	Ammeters 250 V. 0-125 amp. scale	Leaf Motors
13	1	Magnetic Starter 2P 30 amp. 208 V.	Air Compressor
14	1	2P. ST. Disc. Switch 30 amp. 250 V.	" "
15/16	1	Magnetic Contactor 3P 250 V. 50 amp. with M.B.O.-1-norm. Open	Reversing Contactors
		Aux. Contact. Mech. & Elect. Interlock	Lock Motor
17	3	General Utility Cir. Breakers 2P 50 amp. 250 V.	Control Cir. And Brake Motors
18	3	" " " " 3P 15 amp. 250 V.	Wattmeter circuit, Phase Reversal Relay, Traffic Gates.
19	1	" " " " 2P 30 amp. 250 V.	Air Compressor
20	1	" " " " 3P 30 amp. 250 V.	Lock Motor
21	1	3P. St. Disc. Switch 30 amp. 250 V.	Lock Motor
22	1	Main Limit Switch - Cam. Type	Leaf Control
23	1	Master Controller - Cam. Type - Hor. Handle	Leaf Control
24	1	Magnetic Contactor 2P. 250 V. 25 amp. with M.B.O.	Leaf Under Voltage Relay
25	2	Overload Relays - Double Coils, Inverse Type	Leaf Motors
26	1	Magnetic Contactor 3P. 250 V. 25 amp. 1-Aux. Contact	Span Brake
27	2	Overload Relay - Single Element Thermostatic	Span Brake
28	1	Limit Switch, Lever Type, 2 Norm. closed Contacts	Hand Operated Interlock
29	1	Magnetic Relay 5 Pole 250 V. 25 amp.	Limit Sw. By-pass
30	1	Magnetic Contactors 3P. 250 V. 25 amp. 1-Aux. Contact.	Span Brake
31	1	Limit Switch - Lever Type 1-Norm. Closed Contact.	Brake Hand Release
32	3	Sealed Tumbler Sw's. SP. 250 Volts, 15 amp.	Control By-pass
33	1	Magnetic Relay 250 V. 15 amp. 1-Norm. Closed & 1-Norm. Open Cirs.	Seating Relay
34	1	Push Button Station. Single Button	Seating Control
35	2	Magnetic Contactor 2P. 250 V. 25 amp. 1-Aux. Contact	Span Brakes
36	1	Magnetic Contactor 2P. 250 V. 25 amp. 1-Aux. Contact	Span Brakes
37	1	Lighting Panel 3 wire solid neutral - 8 Branch Circuits	Lighting
38	1	Sealed Tumbler Switch D.P. 250 V. 15 amp.	Control By-pass
39	1	Push Button Station 2 Buttons - Norm. open	Lock Control
40	1	Overload Relay 2 Element Thermostatic	Lock Motors
41	2	Overload Relays - Double Coil, Inverse Time	Leaf Motors
42	2	Limit Sw. Lever Type 1-Norm. open Contact	Brake Indicating Lights
43	1	Plunger Type Limit Sw. 2-Norm. Closed Contacts	Full Seated Switch
44	1	Selsyn Indicator Transmitter	
45	1	" "	
46	1	Limit Switch - Plunger Type - 2" Travel S.P. 250 V.	Interlock - Hand Operation for location see Sheet #24
47	3	Tumbler Switches S.P. 120 V. 20 amp.	
48	2	Electric Bells Mounted On Traffic Gates.	Traffic Control
49	1	Magnetic Contactor S.P. 120 V. 20 amp.	" "
50	3	Pistol Grip Control Switch 120 V. three way	" "
51	6	Limit Switch Lever Type - Norm. open contact S.P.	" "
52	2	Traffic Light Units Red & Green	
53	2	Navigation Light Units Red & Green	
54	2	General Utility Cir. Breaker 3P. 60 Amp. 250 V.	Leaf Motors.
55	1	Limit Switch - Cam. Type	Lock Control
56	1	Single Pole Magnetic Contactor 30amp. 250 V.	" "
57	1	Magnetic Contactor D.P. 120 V. 20 Amp.	Traffic Lights
58/61	2	Magnetic Contactor 3P. 250 V. 15 Amp. With M.B.O.-1-Norm. Open Aux. Contact. Mech & Elect. Inter Lock.	Reversing Contactors-North & South Traffic Gates.
62	2	Push Button Station - Two Buttons - Raise And Lower.	Traffic Gate Control
63	2	Motor Operated Barrier Gates ½ HP 3P. 230 Volt.	

SPARE PARTS TO BE FURNISHED.

Set of Fuses not less than six of each size.
Set of Contact Fingers for each device.
Set of Spare Brushes for each motor.
One Coil for each size magnetic switch.
Complete Rotor with shaft and slip rings.
One complete Starter Coils for each motor.

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS NEW YORK

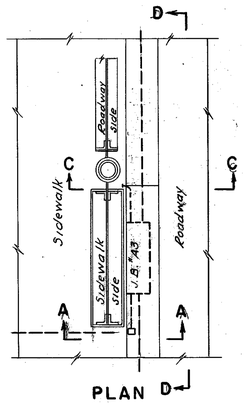
HAMPTON HARBOR BRIDGE
ELECTRICAL EQUIPMENT AND SERVICE LIGHTING

MADE BY R.J. TR. A.R.
CHECKED BY J.O.B.
APPROVED

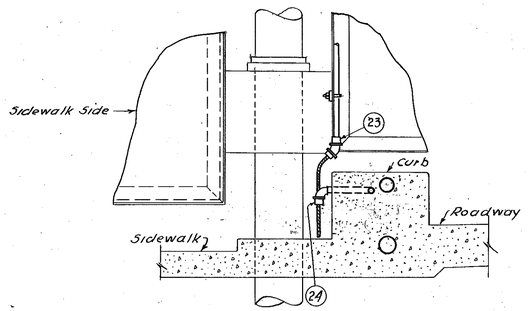
SCALE 1" = 1'-0"
DATE MARCH 1946
JOB No. 1600
SHEET No. 31

3-1-2-1

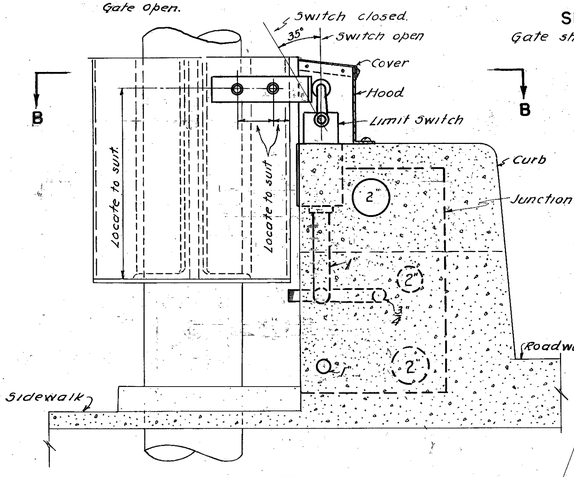
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.	F-318(1)		32	64



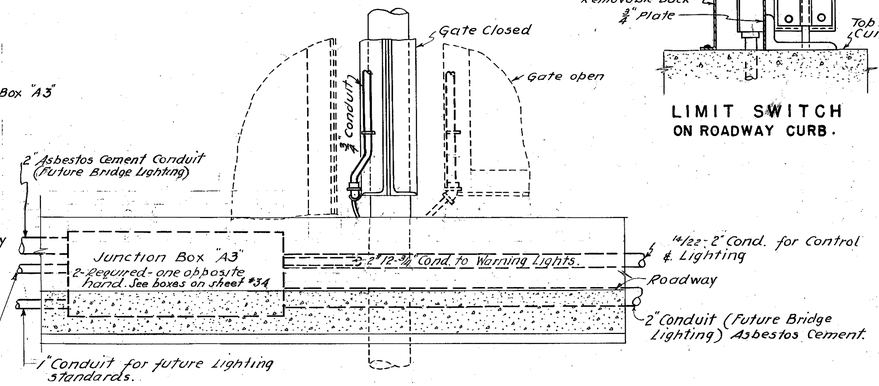
PLAN
Gate open.



SECTION C-C
Gate shown in closed position

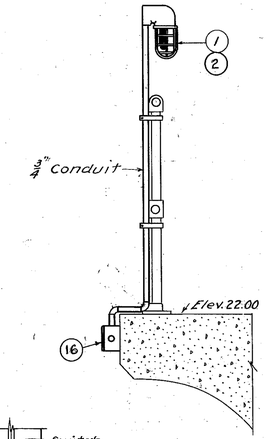


SECTION A-A



SECTION D-D

NOTES:
For Reference Dwg's. see Sheet #30.
All conduit to be rigid steel unless otherwise noted.



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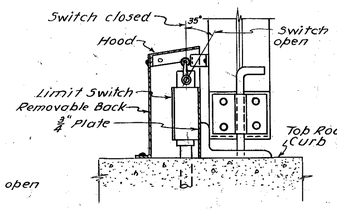
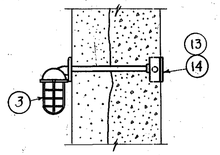


LIMIT SWITCH
ON ROADWAY CURB.



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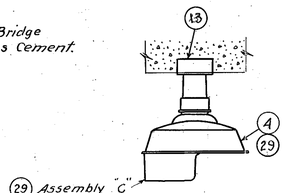
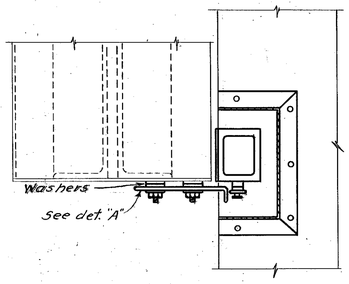


ASSEMBLY "B" & "C"

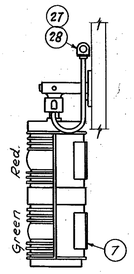
ITEM Nº	Nº REQ'D.	DESCRIPTION	M'F'G.	CAT. Nº
1	2	Vaportight Lighting Fixture	C.H.	VE 289
2	2	Half Shades for Item #1	"	SH. T
3	1	Vaportight Lighting Conduilet	"	VG 1759
4	10	R.L.M. Std. Dome Reflectors	Wheeler	HS 100
5	3	Shallow Dome Reflectors	"	4207-30
6	4	180° Fender Lights	W	1217883
7	2	Duplex Bascule Bridge Marker	"	1217786
8	2	Vaportight Ceiling Fixture - 2-60 watt lamps	R. & S.	1470 F
9	3	Alabax Porcelain Lighting Fixture	P & S.	AL 2020
10	2	" " "	"	AL 2032
11	3	Steel City Floor Box	W	404
12	1	" " No 33 le for Item #11	"	467
13	—	4" Octagon Outlet Boxes	"	54151
14	—	Blank Covers for Item #13	"	54C1
15	2	Condulet	C.H.	E17
16	2	T.C.B. Cast Iron Junction Boxes. 6"×6"×4"	W	10868
17	2	Duplex Attachment Plug Receptacle for Item #15	C.H.	1748
18	1	Multi-Breeker Type "MO" for 2 wire solid neutral 115 V	W	131711
		with 2-15 amp. branches.		
19	1	30 amp. meter Service Switch 115 volts Trumbull	G.E.	973-333
20	1	Type "A" Trumbull 30 amp. 115 volt entrance switch	"	72321SN
20a	2	60 amp. Safety Sw. 3P.S.N. 230 Volt Fusible	"	41322
23	2	45° Angle Connectors	C.H.	CGL 292
24	2	90° " "	"	CGM 292
25	2	Steel City Adjustable Rings for Item #11	W	408
26	2	Junction Box Type "A3"	—	—
27	2	Two Wire Covers for Item #28	C.H.	272
28	2	Condulets	"	E 27
29	2	Half Shades for Dome Reflectors Item #4	Wheeler	HS 100
30	1	Oil Fuse Cutouts, subway type 5000 Volts 100 Amp.	W	—
		three phase gang operated.		
31	1	Metering Transformer Cabinet, size as required	—	—
		by Power Co.		
32	1	100 Amp. Safety Sw. 3P.S.T. 230 Volt fusible.	G.E.	40323
33	1	" " " " 3P.S.N. " " "	G.E.	41323
		solid neutral with 2-15 Amp. branch circuits		
34	1	Type "A" Steel Cabinet 8"×8"×4" hinged cover	W	—
35	6	Junction Boxes Type "A"	—	—
36	1	" " " "A1"	—	—
37	1	" " " "A2"	—	—
38	2	Bronze Cover Plate for Item #11	W	409
39	4	T & B. Cast Iron Junction Boxes 12"×18"×10"	"	10733
40	4	Terminal End Bells for 3 1/2" conduit	J.M.	
41	10	Expansion Coupling for 2" Asbestos Cement Conduit	J.M.	
42	8	Pull Boxes, "PT" Series for 3 1/2" Conduit	A	1236
43	4	" " " " 1 1/2" "	"	1232
44	7	Expansion fitting for 1" Conduit	O.Z.	EX 100
45	1	Control Desk for seminegnetic Control of	G.E.	—
		single-leaf Bascule Bridge see sheet #30		
46	1	Enclosed seminagnetic AC-Control panel for	G.E.	—
		single-leaf Bascule Bridge see sheet #30		
47	1	Type "NLAB" Nofuse Quicklag Panelboard, flush type single	W	NLAB 06
		phase 115/230 Volts, 3-wire mains, with one 50 Amp. 2 pole		3L
		breaker in the mains, and 8-15 amp. 2-wire branch circuits.		
48	2	Safety Switches 60 amp. 230 Volt, three pole, single	G.E.	36362
		throw. Quick make and Quick Break, no fuse		
49	2	Safety Switch 30 Amp. otherwise same as Item #48	G.E.	36362
50	2	Junction Boxes #1 & #2 Type "A" Cabinet 12"×12"×6"	W	—
51	1	" Box #3 " " " 6"×6"×4"	"	—
52	2	" Boxes #4 & #7 " 18"×18"×10"	"	—
53	1	Vapotight Industrial Lighting Conduilet	C.H.	VJ 2289

NOT IN THIS CONTRACT

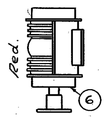
G.E. = General Electric
W. = Westinghouse
C.H. = Crouse Hinds
O.Z. = O.Z. Electric Mf'g. Co.
J.M = Johns Manville
A = Appleton
R.E.S. = Russell & Stoll
P.E.S. = Pass & Seymore



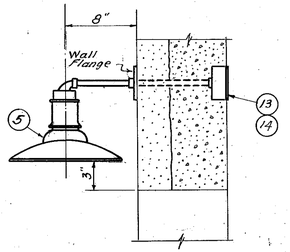
PLAN AT B-B



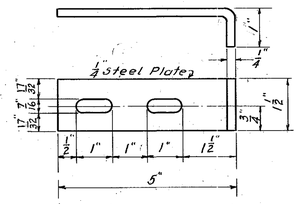
BASCULE
BRIDGE MARKER



180° FENDER LIGHT



ASSEMBLY "A"



DETAIL "A"

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS - NEW YORK

HAMPTON HARBOR BRIDGE
ELECTRICAL DETAILS

MADE BY R.J. TR. R.J.
CHECKED BY J.O.B.
APPROVED

SCALE 3"=1 1/2"=1'-0"
DATE MARCH 1946
JOB No. 1600
SHEET No. 32

3-1-2-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		33	64

PLAN

ELEVATION F-F

DETAIL "A"

PLAN OF CONTROL ROOM EL. 45.83

PLAN OF MOTOR ROOM EL. 26.00

PLAN OF SWITCHROOM EL. 36.00

SECTION C-C

NOTE.
Items marked 134 EDR, 92 EDR etc. are Gas-Fired Radiators equal to Clow-Gasteam Radiators of the sizes given.
See specifications.

SECTION A-A

SECTION E-E

SECTION D-D

SUPPORT FOR SUBMARINE CABLE

SECTION B-B

PLAN AT ELEVATION 24.00

NOTES:
FOR JUNCTION BOXES A3 SEE SHEET NO. 32
FOR REFERENCE DRAWINGS SEE SHEET NO. 30
FOR BILL OF MATERIAL SEE SHEET NO. 32

STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT.

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS-NEW YORK

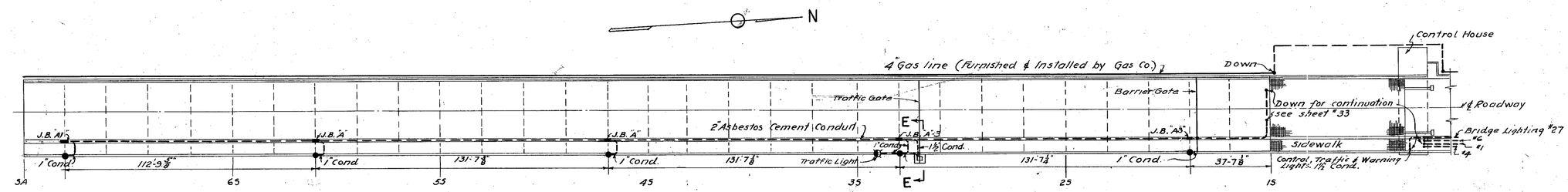
HAMPTON HARBOR BRIDGE
HEATING PLUMBING AND ELECTRICAL LAYOUT

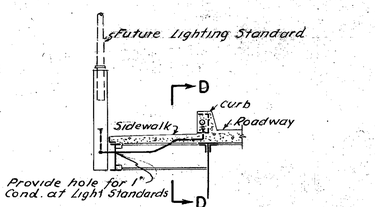
MADE BY R.J. TR. R.T.
CHECKED BY J.O.B.
APPROVED

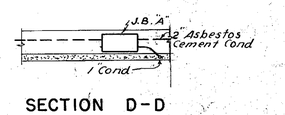
SCALE 1/4" & 1" = 1'-0"
DATE MARCH 1946
JOB No. 1600
SHEET No. 33

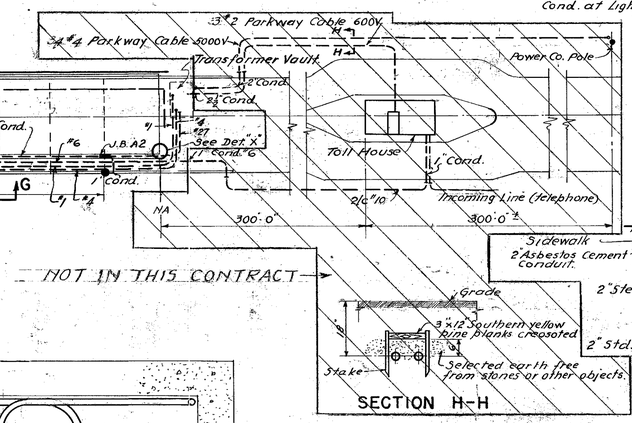
3-1-2-1

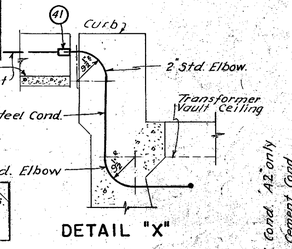
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	N.H.	F-318(1)		34	64



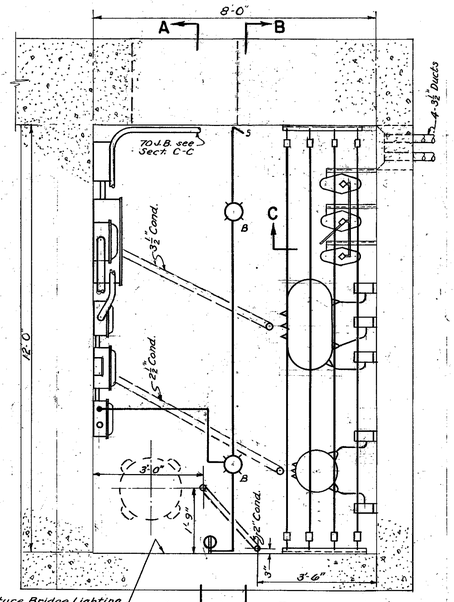


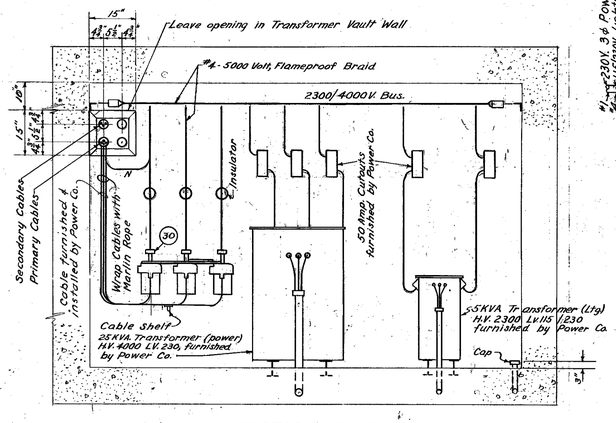


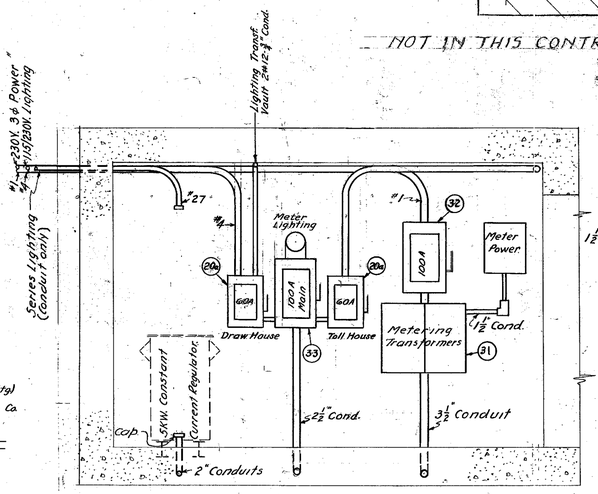




NOT IN THIS CONTRACT

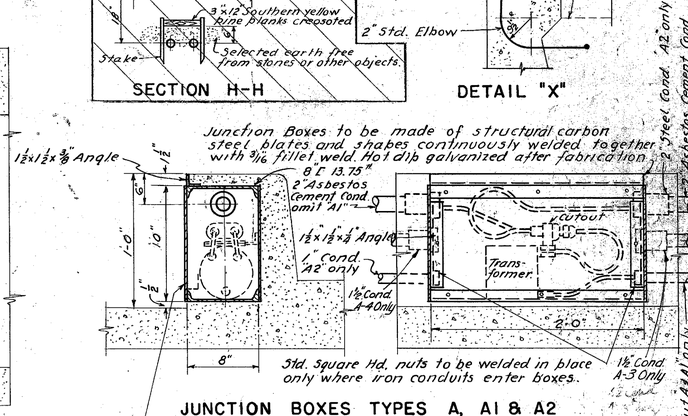




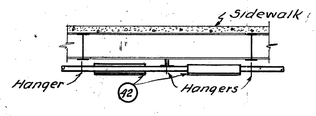


NOTE.
Cable and Electrical Equipment shown dotted for future Bridge Lighting

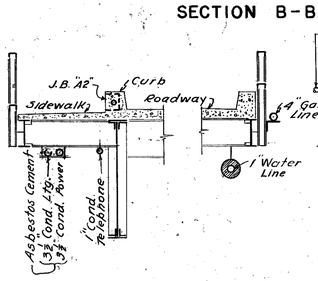
¼" Steel plate cover fastened in place by 8-⅜ ϕ Ctsk. Hd. bronze screws. Provide rubber gasket to seal all edges.

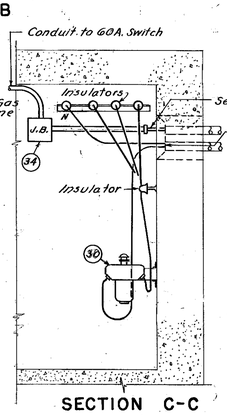


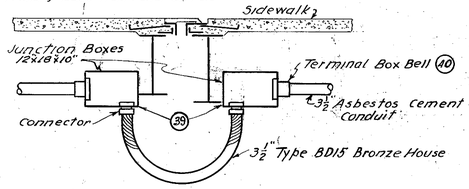
Type "A"	4	Required
" "A1"	1	"
" "A2"	1	"
" "A3"	1	"
" "A4"	1	"

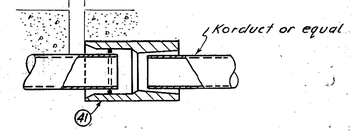


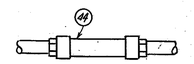
NOTES:
FOR BILL OF MATERIAL SEE SHEET NO. 32
FOR REFERENCE DRAWING SEE SHEET NO. 30











STATE OF NEW HAMPSHIRE
HIGHWAY DEPARTMENT

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS
ENGINEERS-NEW YORK

HAMPTON HARBOR BRIDGE
UTILITY CONDUIT RUNS AND
TRANSFORMER VAULT

MADE BY R.T. TR. R.T.
CHECKED BY J.O.B.
APPROVED

SCALE 1" = 1'-0"
DATE MARCH 1948
JOB No. 1600
SHEET No. 34

3-1-2-1