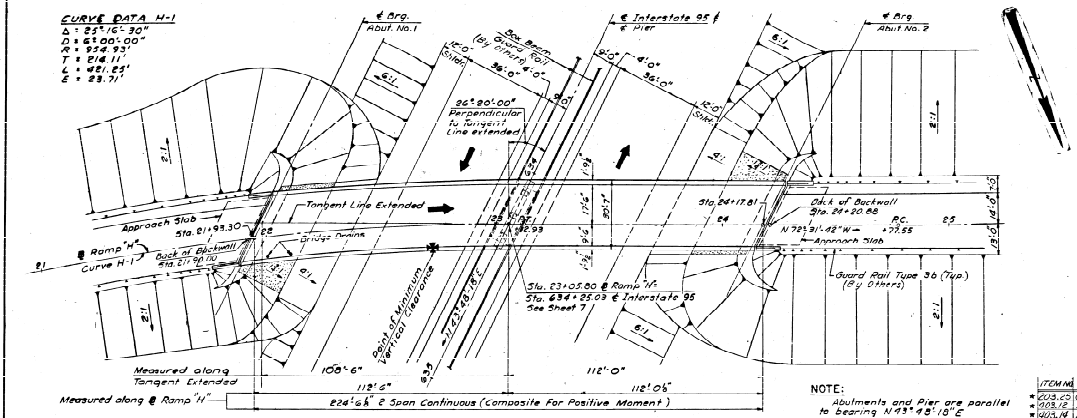
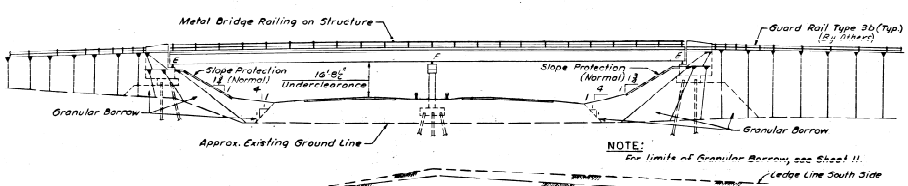
B.P.R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-95-1(6)	41	172



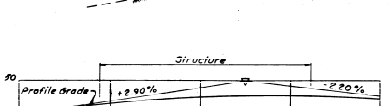
NOTE:
Abutments and Pier are parallel to bearing N 43° 45' 10" E

PLAN
1" = 20'

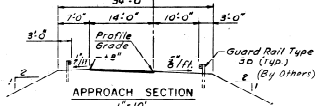


NOTE:
For limits of Granular Borrow, see Sheet 11.

ELEVATION
1" = 20'



PROFILE - RAMP "H"
Hor. 1" = 50'
Vert 1" = 10'



APPROACH SECTION
1" = 10'
(At Station 21+50)

SECTION INTERSTATE 95
1" = 20'

SPECIFICATIONS

DESIGN:
A.A.S.H.O. Standard Specifications for Highway Bridges 1965

CONTRACT:
State of Maine, State Highway Commission, Standard Specifications for Highways and Bridges, Revision of June 1968.

LOADING:
H.S. 20-44

FOUNDATIONS:
Abutments - 10BP42 End Bearing Piles, 46 Ton Capacity.
Pier - 10BP42 End Bearing Piles, 46 Ton Capacity.

ALLOWABLE STRESSES:
Concrete (n=10) ~ fc = 1200 p.s.i.
Reinforcing Steel ~ fs = 20,000 p.s.i.
Structural Steel, A.S.T.M. Designation A441.
Beam Main Material ~ fs = 21,000 p.s.i. ¾" and under; fs = 20,000 p.s.i. over ¾" to 1½" inclusive; fs = 19,000 p.s.i. over 1½". All other Structural Steel A.S.T.M. Designation A36, fs = 20,000 p.s.i.

CONCRETE CLASSIFICATION:
All concrete shall be Class "A", except slope protection which shall be Class "Y".

* MEMBRANE WATERPROOFING
Bituminous material for waterproofing shall be asphalt, conforming to Subsection 702.07 of the Special Provisions and shall be Type "B".

BRIDGE QUANTITIES

	ITEM NO.	DESCRIPTION	FINAL QUANTITY	QUANTITY	UNIT
*	203.20	Granular Borrow		6,700	C.Y.
*	403.18	Hot Bituminous Pavement Grading C (Sidewalks, Drives, Etc.		55	Ton
*	403.14	Asphalt Cement Hot Dist. Surface Pavements		6	Gal.
*	403.09	Hot Bituminous Pavement		79	Ton
	501.21	Steel H-Beam Piles 42 lbs/ft.	2246.1	2440	L.F.
	502.31	Structural Concrete - Abutments & Retaining Walls	191.7	194	C.Y.
	502.23	Structural Concrete - Piers	59.2	60	C.Y.
	502.262	Struct. Conc. Roadway & Sidewalk Slabs On Steel Bridges (Ramp "H" Over I-95)	1	1	L.S.
	502.312	Structural Concrete Approach Slabs (Ramp "H" Over I-95)		1	L.S.
	503.12	Reinforcing Steel, Fabricated & Delivered	84,155	83,900	Lbs.
	503.13	Reinforcing Steel, Placing	84,155	83,900	Lbs.
	504.06	Structural Steel, Furnished & Delivered (Ramp "H" Over I-95)	1	1	L.S.
	504.17	Structural Steel, Erection (Ramp "H" Over I-95)	1	1	L.S.
	505.062	Shear Connectors (Ramp "H" Over I-95)	1	1	L.S.
	509.10	Field Painting, Structural Steel (Ramp "H" Over I-95)	1	1	L.S.
	507.02	Bridge Railing	433.3	434	L.F.
*	508.10	Membrane Waterproofing		680	S.Y.
	512.22	Slope Protection - Portland Cement Concrete	248.2	249	S.Y.
	514.06	Curing Box for Concrete Cylinders	1	1	Ea.
	515.50	Protective Coating for Concrete Surfaces	287	290	S.Y.
	609.13	Vertical Bridge Curb - Type I	504.1	506	L.F.
*	616.07	Bituminous Hand Sealing - Green		260	S.Y.
	639.09	Field Office, Type B	1	1	Ea.
		Oil Retarding Admixture	167	160	Gal. per Cu. Yd. Concrete

* Not a part of this Contract
*Paid Under Roadway Items

NOTE:
Estimated Quantity of Structural Steel - 240,000 Lbs.
Estimated Quantity of Shear Connectors - Studs - 2160
Estimated Quantity of Concrete Item 502.262 - 183 C.Y.
Estimated Quantity of Concrete Item 502.312 - 28 C.Y.

The weight of structural steel members is based on nominal sizes and does not include the weight of welds, nuts, bolts, washers or rivets.

INDEX OF SHEETS

1. GENERAL PLAN AND QUANTITIES
2. FOUNDATION SURVEY
3. FOUNDATION SURVEY
4. FOUNDATION SURVEY
5. ABUTMENT NO. 1
6. ABUTMENT NO. 2 & WINGWALL ELEVATIONS
7. PIER
8. STRUCTURAL STEEL & BLOCKING
9. STEEL DETAILS
10. SUPERSTRUCTURE
11. SLOPE PROTECTION
12. REINFORCING STEEL

STANDARD DETAIL SHEETS

B0101-70 BEARING PEDESTALS
B0104-66 DIAPHRAGMS, ARMORED JOINT, SHEAR CONNECTORS, DRAIN
B0105-64 EXPANSION DAMS
B0106-69 ALUMINUM RAILING (Rev. 10/25/70)

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
NEW YORK BOSTON KANSAS CITY

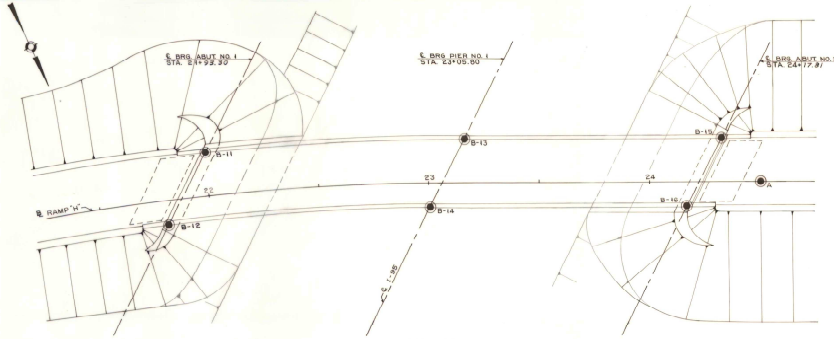
Revised to Bonds Feb. 1970 J.C. Reynolds

DESIGN - S.M. DETAIL J.M.M.	BRIDGE NO.
TRACE -	SHEET NO.
CHECK - R.E.K.	PLAN -

STATE HIGHWAY COMMISSION
BRIDGE DIVISION
RAMP "H"
OVER
INTERSTATE ROUTE 95
IN THE TOWN OF
KITTERY
YORK COUNTY
GENERAL PLAN AND QUANTITIES
SHEET 1 OF 12 AUGUSTA, MAINE

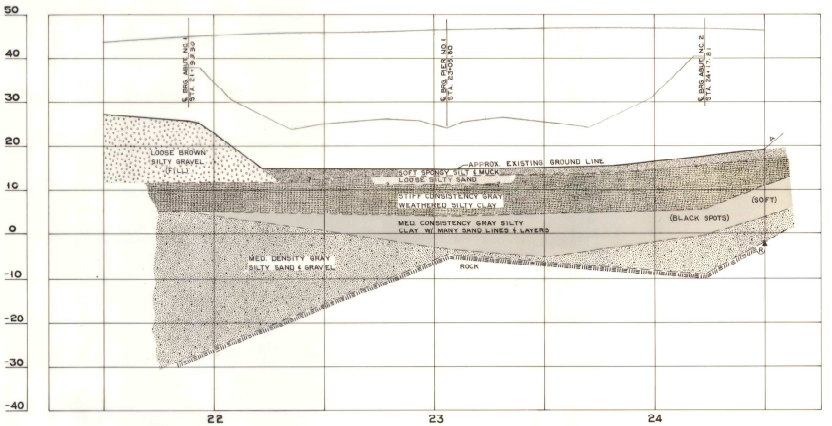
KITTERY (6)

B.P.R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-95-1(4)	#3	172



PLAN

SCALE: 1" = 20'

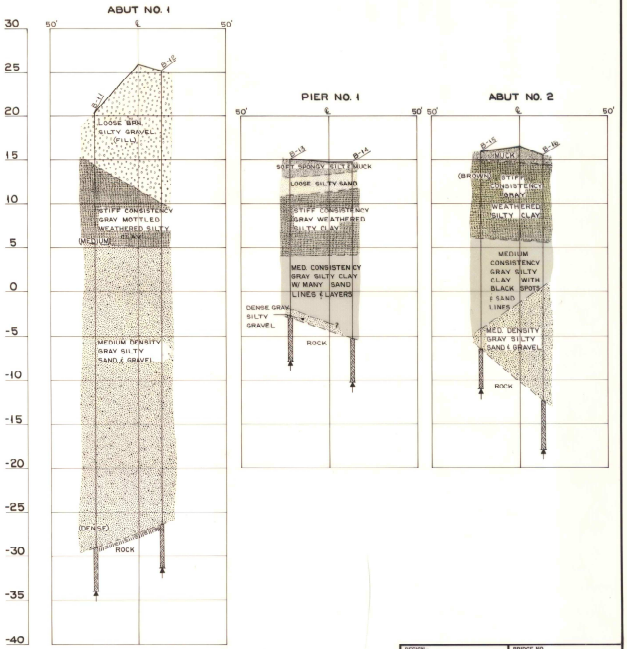


PROFILE

SCALE: 1" = 20' HORIZ.
1" = 10' VERT.

TRANSVERSE SECTIONS

SCALE: 1" = 25' HORIZ.
1" = 5' VERT.



DESIGN— TRACE— CHECK—	BRIDGE NO. SURVEY— PLOT—

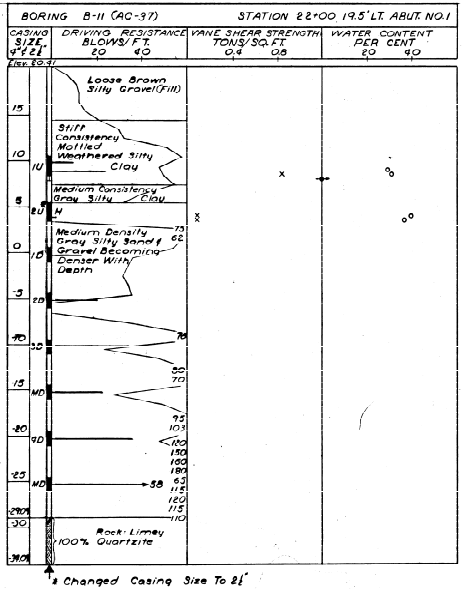
STATE HIGHWAY COMMISSION
BRIDGE DIVISION

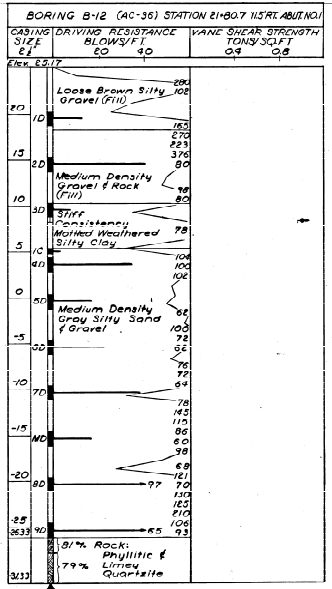
RAMP H
OVER
I-95
IN THE TOWN OF
KITTERY
YORK COUNTY
FOUNDATION SURVEY

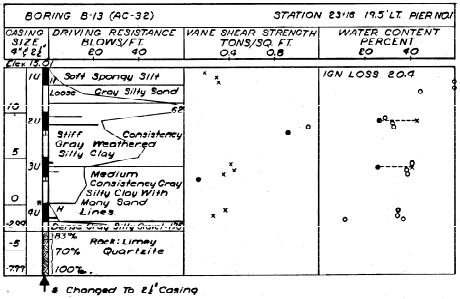
SHEET 2 OF 12 AUGUSTA, MAINE

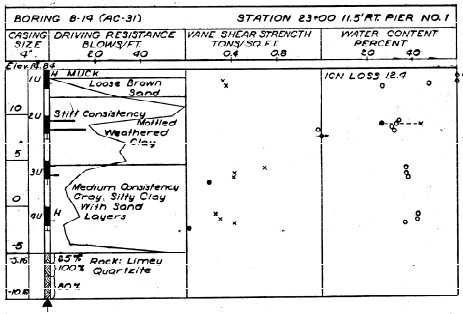
KITTERY (4)

B.P.R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	T-95-1(6)	44	172









BORING NOTES

- All samples and vanes are made ahead of casing
- Number of blows required to drive extra heavy casing one foot with 400 ft. lbs. of energy per blow
- Location of sample or sample attempt
- Number & type of dry sample
- 1D 3" & H sampler # 1290's
- 1C 2½" O.D. 16ga. seamless tubing
- 1U 3" O.D. 16 ga. seamless tubing
- MD Unsuccessful sample: attempt and type of sample
- Number of blows required to drive spoon or tubing one foot with 350 ft. lbs. of energy per blow
- H Sampling spoon or seamless tubing driven by static weight of drill rods and hammer
- Field vane test
- Bottom of boring (may not be bottom of soil strata)
- Refusal of drill rods or casing (may not be ledge)
- Locations cored by diamond bit and per cent recovery of rock

SHEAR NOTES

- Field vane shear strengths
- Laboratory vane shear strengths
- One half unconfined compressive strengths.
- Shear strengths in excess of capacity of equipment

WATER CONTENT NOTES

- Natural water contents, given as per cent of dry weight
- Plastic and liquid limits
- Ignition losses are given as per cent of dry weight.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
NEW YORK BOSTON BRIDGE CITY

DESIGN- DETAIL: SHR.	BRIDGE NO.
DRAWN-	SHEET-
CHECK- G.U.J.	PLOT-

STATE HIGHWAY COMMISSION
BRIDGE DIVISION

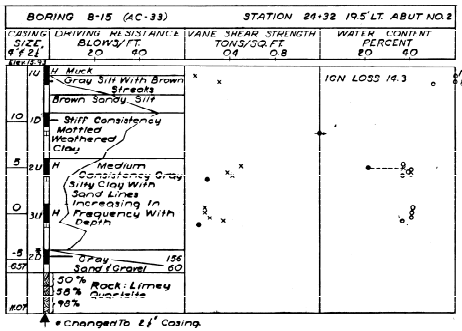
RAMP "H"
OVER
INTERSTATE ROUTE 95
IN THE TOWN OF
KITTERY
YORK COUNTY
FOUNDATION SURVEY

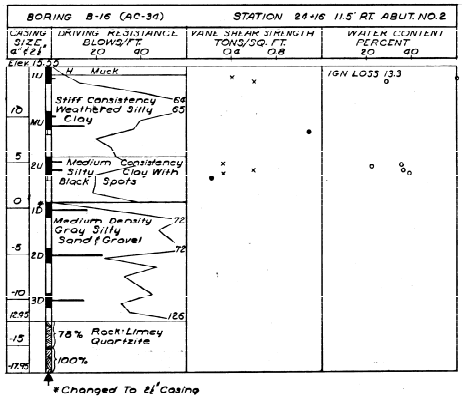
SHEET 3 OF 12 AUGUSTA, MAINE

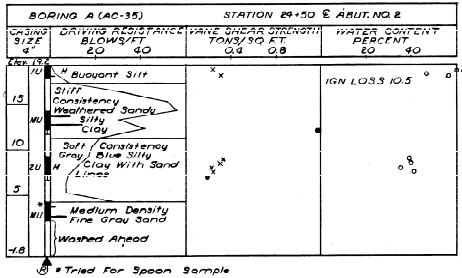
KITTERY (2)

FORM 44-302

REV. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-95-1(4)	4	12







DESIGN-	DETAIL- S.H.R.	DRILLING NO.
TRACE-		SURVEY-
CHECK- G.U.A.		PLOT-

STATE HIGHWAY COMMISSION
BRIDGE DIVISION

RAMP "H"

OVER

INTERSTATE ROUTE 95

IN THE TOWN OF

KITTERY

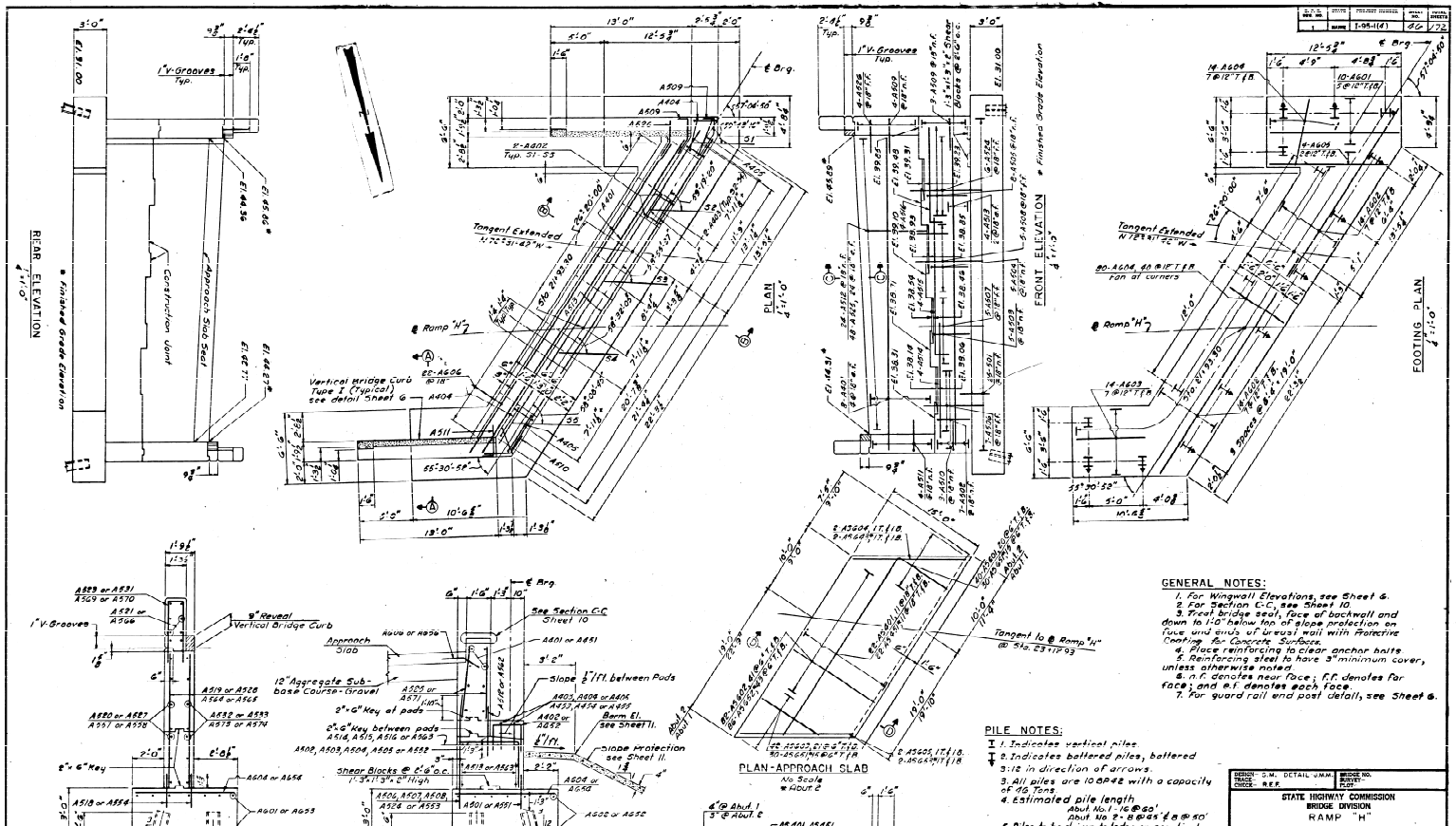
YORK COUNTY

FOUNDATION SURVEY

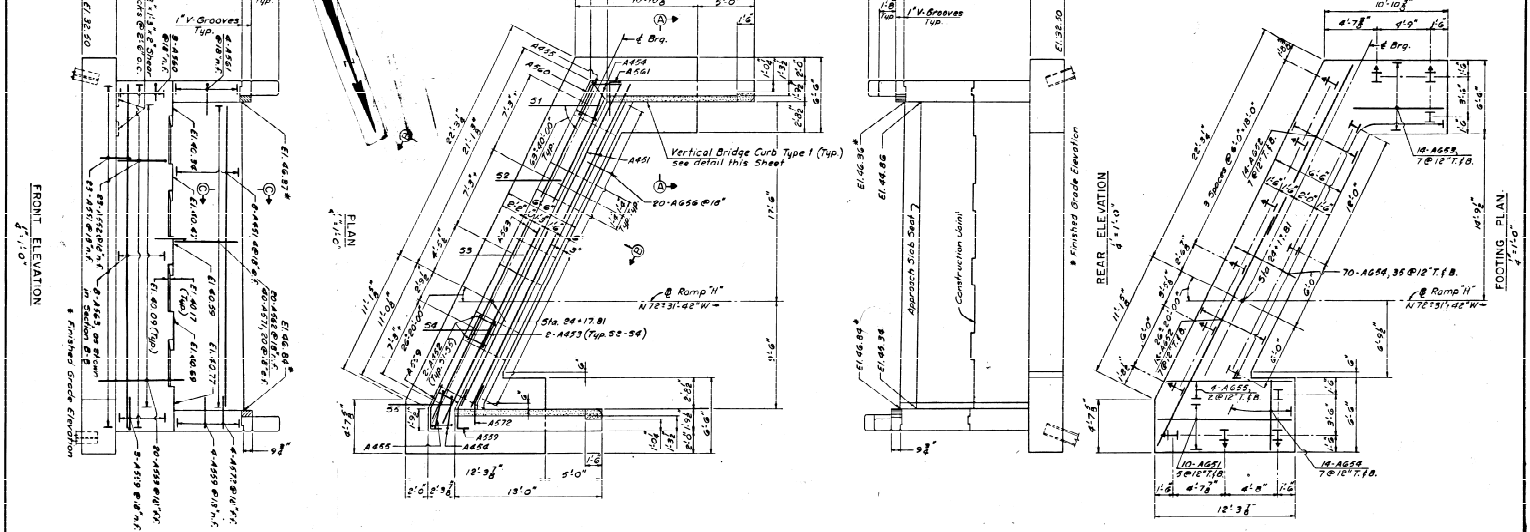
SHEET 4 OF 12 AUGUSTA, MAINE

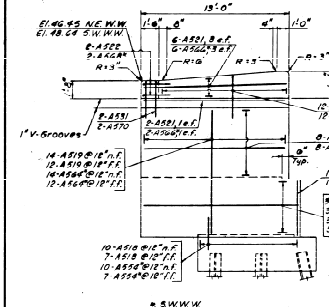
HOWARD, NEETH ES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
NEW YORK BOSTON KANSAS CITY

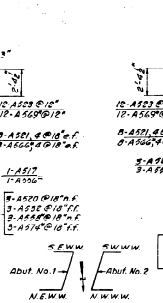
KITTERY (4)

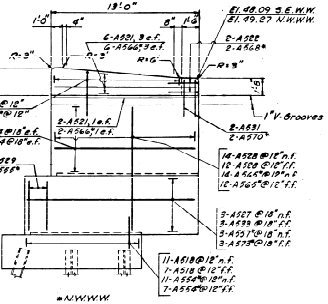

REAR ELEVATION
1/4"=1'-0"
FRONT ELEVATION
1/4"=1'-0"
PLAN
1/4"=1'-0"
FOOTING PLAN
1/4"=1'-0"
SECTION A-A
3/8"=1'-0"
SECTION B-B
3/8"=1'-0"
SECTION D-D
1/4"=1'-0"
PLAN-APPROACH SLAB
No Scale
GENERAL NOTES:
1. For Wingwall Elevations, see Sheet 6.
2. For Section C-C, see Sheet 10.
3. Front bridge seat, face of backwall and down to 1'-0" below top of slope protection on face and ends of breast wall with Protective Coating for Concrete Surfaces.
4. Place reinforcing to clear anchor bolts.
5. Reinforcing steel to have 3" minimum cover, unless otherwise noted.
6. n.f. denotes near face; f.f. denotes far face; and e.f. denotes each face.
7. For guard rail end post detail, see Sheet 6.
PILE NOTES:
1. Indicates vertical piles.
2. Indicates battered piles, battered 3:12 in direction of arrows.
3. All piles are 10 BP 42 with a capacity of 40 Tons.
4. Estimated pile length
Abut. No. 1 - 16 @ 50'
Abut. No. 2 - 8 @ 45' & 8 @ 50'
5. Piles to be driven to ledge or practical refusal to develop end bearing.
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
NEW YORK BOSTON KANSAS CITY
DESIGN: G.M. DETAIL: J.M.M.
TRACE: REF.
CHECK: REF.
BRIDGE NO.
SUBUNIT
PLATE
STATE HIGHWAY COMMISSION
BRIDGE DIVISION
RAMP "H"
OVER
INTERSTATE ROUTE 95
IN THE TOWN OF
KITTERY
YORK COUNTY
ABUTMENT NO. 1
SHEET 5 OF 12 AUGUSTA, MAINE
KITTERY (4)

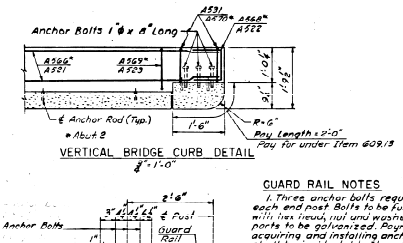
F.A. NO.	STATE	PROJECT NO.	TOTAL SHEETS
I	MAINE	I-95-1(6)	67 / 72

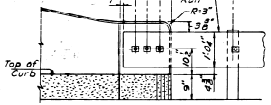












NOTES

1. For General Notes, see Sheet 5.
2. For Sections A-A and B-B, see Sheet 3.
3. For Section C-C, see Sheet 10.
4. For Pile Holes, see Sheet 5.
5. For Approach Slab Details, see Sheet 5.

GUARD RAIL NOTES

1. Three anchor bolts required to each end post. Bolts to be furnished with lex. head, nut and washer. All parts to be galvanized. Payment for acquiring and installing anchor bolts shall be incidental to Item 502.21 (Structural Concrete, Abutments and Retaining Walls.
2. For detail of anchorage, see Standard Details Guard Rail, Aug. 1969. (6)
3. Concrete in Guard Rail End Post shall be paid for under Item 502.21 Structural Concrete, Abutments and Retaining Walls.

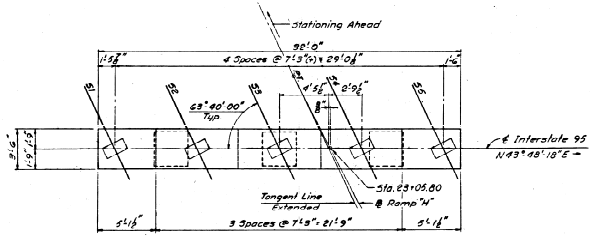
DESIGN - S.M. DETAIL J.M.M.	BRIDGE NO.
TRACE -	SURVEY NO.
CHECK - R.E.F.	PLOT -

STATE HIGHWAY COMMISSION
BRIDGE DIVISION
RAMP "H"
OVER
INTERSTATE ROUTE 95
IN THE TOWN OF
KITTERY
YORK COUNTY
ABUTMENT NO. 2 & WINGWALL ELEVATIONS
SHEET 6 OF 12 AUGUSTA, MAINE

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
NEW YORK BOSTON KANSAS CITY

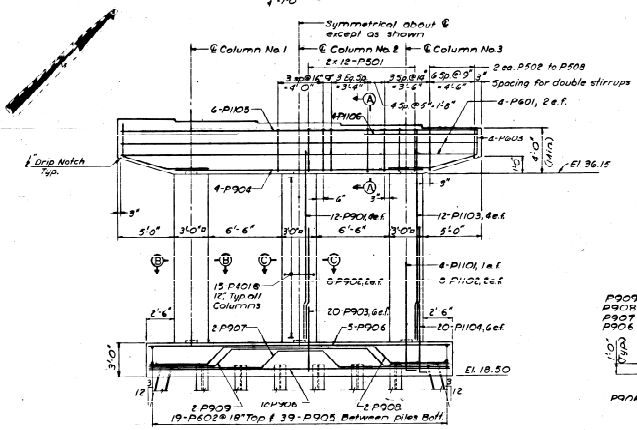
KITTERY (d)

F.A. NO. SHEET NO.	STATE	FED. HWY. DESIGNATION	PROJ. NO.	TOTAL SHEETS
1	MAINE	I-95-1(4)	68	172

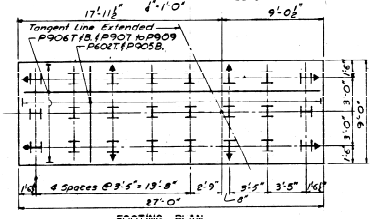


PLAN
1"=10'

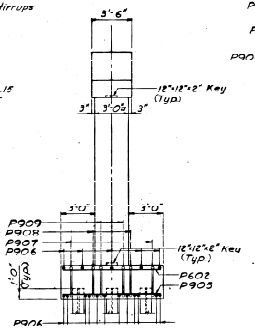
BEARING PAD ELEVATIONS				
S1	S2	S3	S4	S5
40.92	40.74	40.58	40.36	40.15



ELEVATION
1"=1'-0"

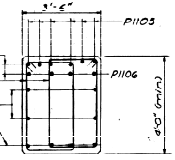


FOOTING PLAN
1"=1'-0"

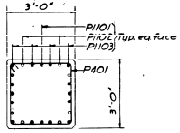


END ELEVATION
1"=1'-0"

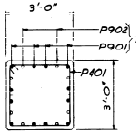
CHAMFER DETAIL
No Scale



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



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



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

NOTES:

1. Dress bearing pad area 1" larger all around than masonry plates to exact elevations shown.
2. Reinforcing steel to have 2" minimum cover except 3" for footings.
3. Place reinforcing to clear anchor bolts.
4. All exposed corners to have ¾" chamfer, see detail this sheet.

PILE NOTES:

1. Indicates vertical piles.
2. Indicates battered piles, battered 3:12 in direction of arrows.
3. All piles are 10BP42 with a capacity of 45 Tons.
4. Estimated pile length 24 @ 30'
5. Piles to be driven to ledge or practical refusal to develop end bearing.

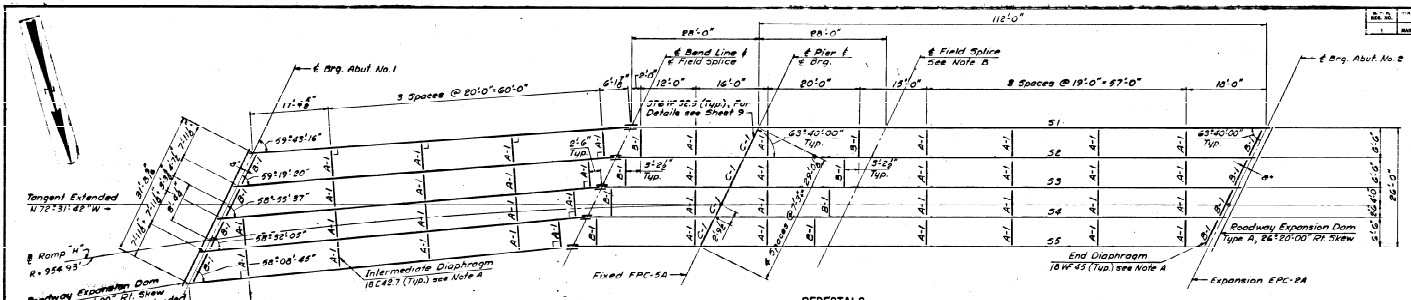
DESIGN—E.F.K. & I.S. DETAIL SHR	BRIDGE NO.
DETAIL	STRUCTURE
CHECK G.U.J.	PLOT

STATE HIGHWAY COMMISSION
BRIDGE DIVISION
RAMP "H"
OVER
INTERSTATE ROUTE 95
IN THE TOWN OF
KITTERY
YORK COUNTY
PIER
SHEET 7 OF 12 AUGUSTA, MAINE

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
NEW YORK BOSTON KANSAS CITY

KITTERY (4)

R. C. & R. REV. NO.	DATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1		MAINE I 95-1 (4)	49	176



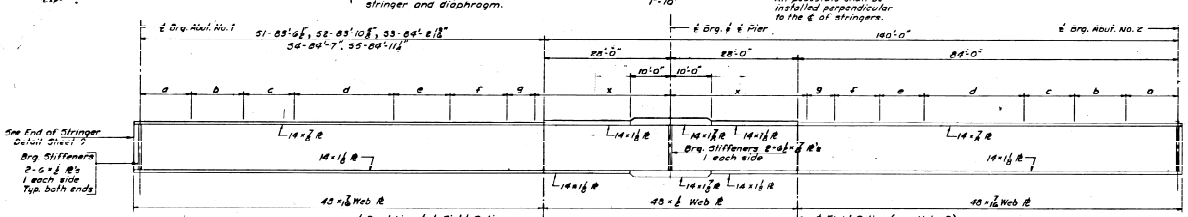
ERECTION DIAGRAM
1" = 10'

NOTE

Indicates 90° angle between stringer and diaphragm.

PEDESTALS

EPC-5A, 10 Required.
EPC-9A, 5 Required.
All pedestals shall be installed perpendicular to the ℄ of stringers.



TYPICAL STRINGER ELEVATION
No Scale

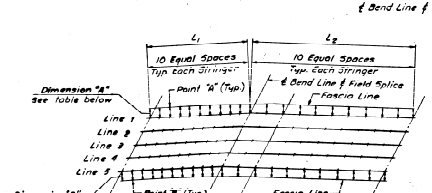
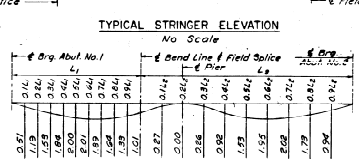


DIAGRAM OF BLOCKING POINTS
No Scale



DEAD LOAD DEFLECTION DIAGRAM
ALL DEFLECTIONS IN INCHES

NOTE

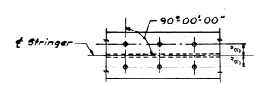
All beams to be cambered for dead load deflections shown and the effects of vertical curvature.

NOTE A

The position of the diaphragm within the overall vertical depth and the diaphragm connections shall conform to the Standard Details except as follows:
1. $G = \frac{3}{8}$"
2. $N = \frac{5}{16}$" Continuous Fillet weld.
3. Substitute proper dimensions for diaphragm depth when positioning intermediate diaphragm.
4. $G = \frac{1}{2}$" Connection plate for end diaphragm.
5. See Erection Diagram for diaphragm size.

NOTE B

At the contractor's option, the field splice may be shop welded or shop bolted. For details, see Sheet 9.



SHEAR CONNECTORS
No Scale

STUDS FOR SPAN 1 & 2			
2 Studs 5" × ½" ϕ			
a	19 Spaces @ 7" = 11'-1"	e	16 Spaces @ 10'-11"-8"
b	17 Spaces @ 8'-11½"	f	17 Spaces @ 8'-11½"
c	13 Spaces @ 10'-10½"	g	7 Spaces @ 7'-14'-1"
d	20 Spaces @ 13'-2'-6"	x	None

NOTE

Total number of studs required - 2160

SHEAR CONNECTOR SPACING SCHEDULE
Typical Each Stringer

REFERENCES

Blocking Detail - See Sheet 9.
Diaphragms - See Standard Details BD 104-66 and Sheet 9.
Pedestals - See Standard Details BD 101-70 and Sheet 9.
Expansion Dam - See Standard Details BD 105-66 and Sheet 10.
Shear Connectors - See Standard Details BD 104-66 and this Sheet.
Splice Details - See Sheet 9.
For additional steel details, see Sheet 9.

SPECIFICATIONS

Fabrication and Erection: State of Maine Standard Specifications, Highways and Drifiges, Revision of June 1968.

Design and Details: A.A.S.H.O. Standard Specifications for Highway Bridges of 1965.

Materials: Flanges, Bearing Stiffeners and Web for Beams shall conform to A.S.T.M. designation A-441. All other Structural Steel shall conform to A.S.T.M. designation A-36, unless otherwise noted on Standard Details.

Welding: Specifications for Welded Highway and Railway Bridges, American Welding Society, (AWS-D 2.0-69) as modified by the appropriate Supplemental Specifications.

BOTTOM OF SLAB ELEVATION AT BLOCKING POINTS AND DIMENSIONS "A" AND "B"

	℄ Brg. Abut. No. 1	SPAN NO. 1								SPAN NO. 2								℄ Brg. Abut. No. 2
		0.1L₁	0.2L₁	0.3L₁	0.4L₁	0.5L₁	0.6L₁	0.7L₁	0.8L₁	0.9L₁	℄ Bend Line & ℄ Splice	0.1L₂	0.2L₂	0.3L₂	0.4L₂	0.5L₂	0.6L₂	0.7L₂	0.8L₂	0.9L₂
Point A	45.11	45.59	45.47	45.61	45.74	45.85	45.94	46.01	46.06	46.10	46.12	46.13	46.15	46.19	46.23	46.25	46.25	46.21	46.15	45.89
Line 1	45.46	45.90	45.47	45.41	45.13	45.05	45.98	46.01	46.01	46.11	46.13	46.15	46.17	46.21	46.26	46.28	46.26	46.18	46.05	45.79
Line 2	44.77	44.94	45.12	45.27	45.41	45.54	45.64	45.73	45.80	45.87	45.92	45.98	45.99	46.07	46.15	46.21	46.22	46.19	46.10	45.95
Line 3	44.39	44.57	44.76	44.93	45.00	45.22	45.34	45.44	45.53	45.61	45.66	45.73	45.81	45.91	46.03	46.12	46.16	46.13	46.12	45.86
Line 4	44.00	44.19	44.40	44.57	44.74	44.89	45.03	45.15	45.25	45.34	45.43	45.51	45.61	45.74	45.89	46.02	46.11	46.15	46.15	45.98
Line 5	43.60	43.81	44.02	44.21	44.39	44.56	44.70	44.84	44.96	45.07	45.17	45.27	45.40	45.56	45.74	45.90	46.03	46.11	46.14	46.12	46.08
Point B	43.50	43.70	43.94	44.13	44.31	44.48	44.62	44.75	44.85	44.95	45.04	45.16	45.30	45.47	45.65	45.81	45.95	46.08	46.04	45.98
Dim. A	1'-11½"	2'-1⅝"	2'-2⅝"	2'-2⅝"	2'-2½"	2'-2½"	2'-2⅜"	2'-2⅜"	2'-2⅜"	2'-2⅜"	1'-11½"	2'-2½"	2'-3⅛"	2'-3⅛"	2'-3⅛"	2'-3⅜"	2'-3⅜"	2'-3⅜"	2'-3½"	2'-3½"
Dim. B	2'-3⅜"	2'-0⅝"	1'-10¼"	1'-9⅝"	1'-8⅜"	1'-9⅛"	1'-10⅛"	2'-0⅛"	2'-1⅝"	2'-2⅝"	3'-1½"	2'-2⅞"	2'-1⅝"	2'-3⅛"	2'-3⅛"	2'-3⅜"	2'-3⅜"	2'-3⅜"	2'-3½"	2'-3½"

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
NEW YORK BOSTON KANSAS CITY

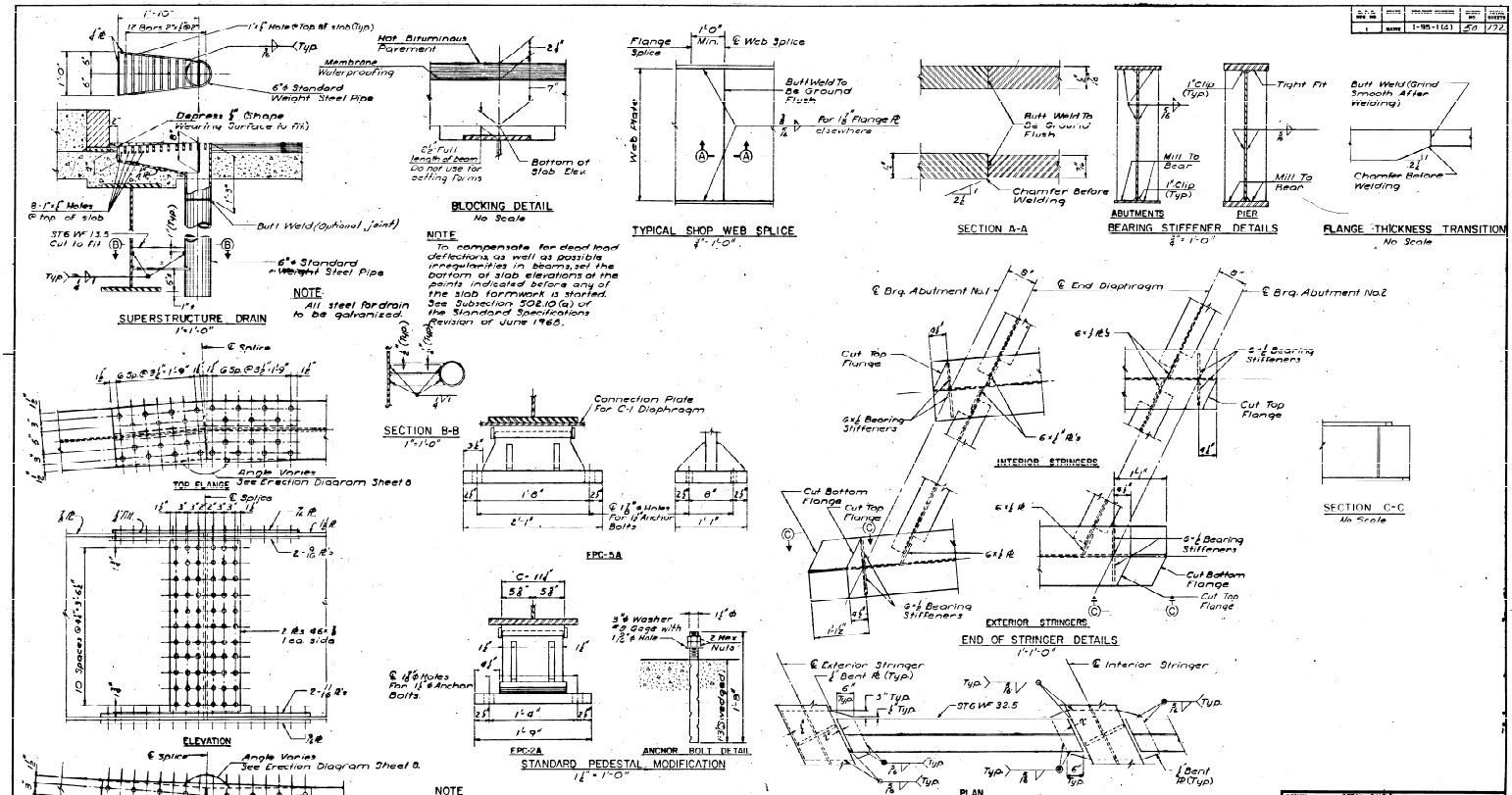
DESIGN - S.M. DETAIL - J.M.M. TRACE - CHECK - R.E.F.	BRIDGE NO. 30 FEET PLOT

STATE HIGHWAY COMMISSION
BRIDGE DIVISION
RAMP "H"
OVER
INTERSTATE ROUTE 95
IN THE TOWN OF
KITTERY
YORK COUNTY
STRUCTURAL STEEL & BLOCKING
SHEET 8 OF 12 AUGUSTA, MAINE

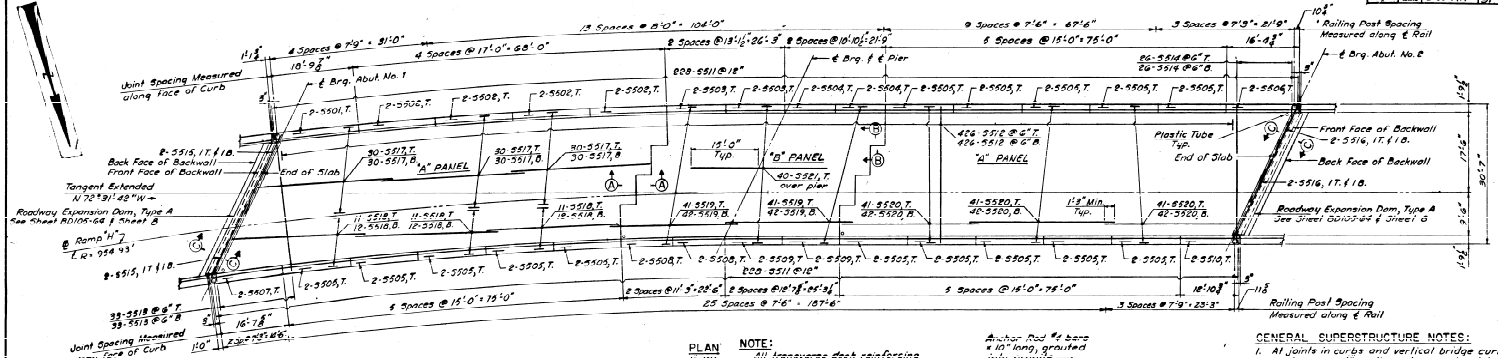
KITTERY (4)

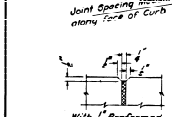
REVISED 66-208

F.A. RTE. NO.	SECTION	PROJECT NUMBER	PHASE	SHEET NO.	TOTAL SHEETS
1	NAME	I-95-1(4)		50	172

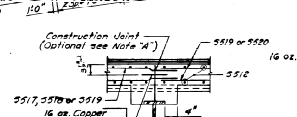


REV. NO.	REVISE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	T-95-1(4)	67	72

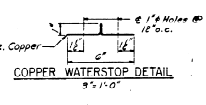




1"-V-GROOVES
3" = 1'-0"



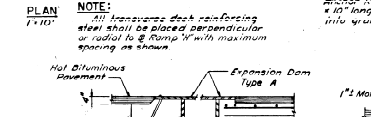
SECTION A-A
3/8" = 1'-0"



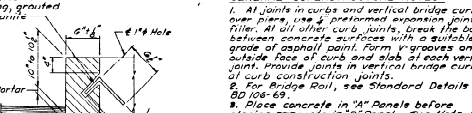
SECTION B-B
3/8" = 1'-0"

PLAN
1" = 10'

NOTE:
All transverse deck reinforcing steel shall be placed perpendicular or radial to ℄ Ramp "H" with maximum spacing as shown.



SECTION C-C
3/8" = 1'-0"



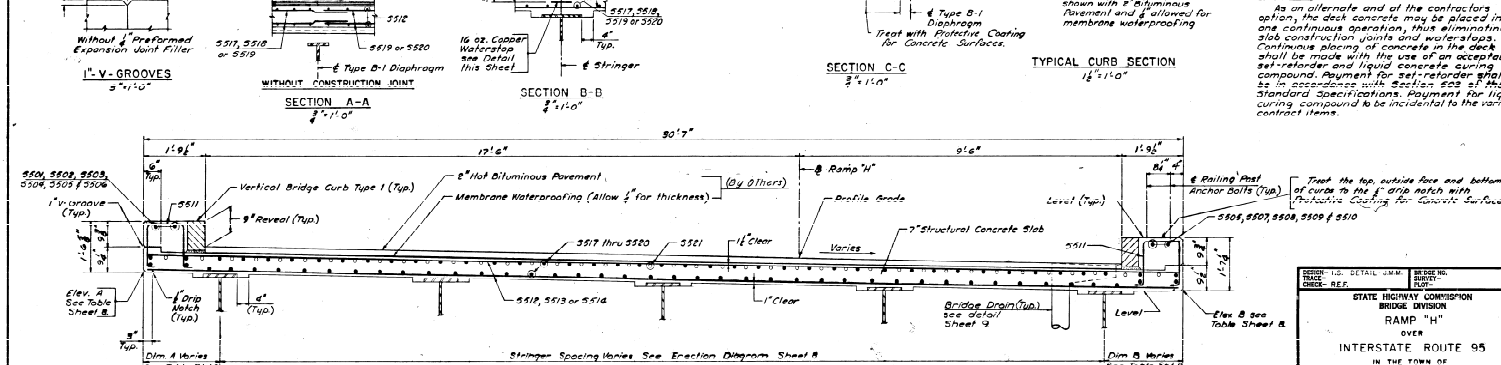
TYPICAL CURB SECTION
1½" = 1'-0"

GENERAL SUPERSTRUCTURE NOTES:

1. At joints in curbs and vertical bridge curbs over piers, use ½" preformed expansion joint filler. All other curb joints, break the bond between concrete surfaces with a suitable grade of asphalt paint. Form V-grooves on outside face of curb and slab at each vertical joint. Provide joints in vertical bridge curb at curb construction joints.
2. For Bridge Rail, see Standard Details BD 106-69.
3. Place concrete in "A" Panels before placing concrete in "B" Panel. See Note A.
4. Vertical bridge curb will be paid for under Item 609.13.
5. Reinforcing steel to have 2" minimum cover unless otherwise shown.

NOTE "A"

As an alternate and at the contractor's option, the deck concrete may be placed in one continuous operation, thus eliminating slab construction joints and waterstops. Continuous placing of concrete in the deck shall be made with the use of an acceptable set-retarder and liquid concrete curing compound. Payment for set-retarder shall be in accordance with Section 609.5 of the Standard Specifications. Payment for liquid curing compound to be incidental to the various contract items.



TRANSVERSE SECTION
3/8" = 1'-0"

BRIDGE DRAIN NOTES:

1. Two bridge drains on north side of Span No. 1.
2. The exact position of drains is to be determined in the field. Drains shall clear the abutment by five feet. For approximate location, see Sheet 1.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
NEW YORK BOSTON KANSAS CITY

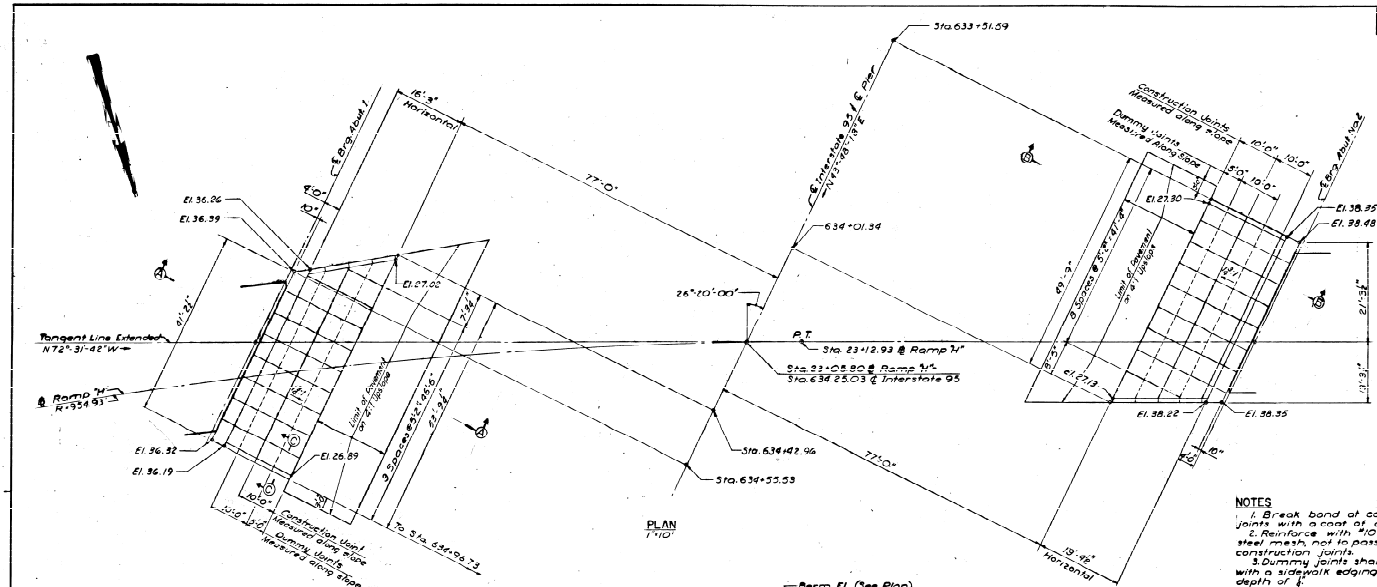
DESIGN - I.C.; DETAIL - J.M.M.; TRACE -; CHECK - REF.
BR DWG NO.; SURVEY; PLOT

STATE HIGHWAY COMMISSION
BRIDGE DIVISION
RAMP "H"
OVER
INTERSTATE ROUTE 95
IN THE TOWN OF
KITTERY
YORK COUNTY
SUPERSTRUCTURE
SHEET 10 OF 12 AUGUSTA, MAINE

KITTERY (4)

REVISED 56-323

REV. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-95-1(4)	52	72



NOTES

1. Break bond at construction joints with a coat of asphalt paint.
2. Reinforce with #10 gage 6" x 6" steel mesh, not to pass through construction joints.
3. Dummy joints shall be made with a sidewalk edging tool to a depth of ¼".

DESIGN - G.U.J. DETAIL - S.H.R.
TRACE -
CHECK - R.D.E

BRIDGE NO.
SURVEY -
PLOT -

STATE HIGHWAY COMMISSION
BRIDGE DIVISION

RAMP "H"
OVER
INTERSTATE ROUTE 95
IN THE TOWN OF
KITTERY
YORK COUNTY

SLOPE PROTECTION

SHEET 11 OF 12 AUGUSTA, MAINE

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
NEW YORK BOSTON KANSAS CITY

KITTERY (4)

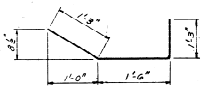
STATE	STATION	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
ME.	MAINE	I-95-1(4)	53	112

MARK	SIZE	NUMBER	LENGTH	INCR	LOCATION
ABUTMENT NO.1					
STRAIGHT BARS					
A501	4	8	31'-10"		Backwall
A511	5	25	2'-10"		Footing
A506	5	7	7'-4"		Stem
A507	5	5	7'-8"		"
A508	5	5	8'-0"		"
A512	5	24	3'-6"		"
A513	5	4	33'-10"		"
A514	5	4	12'-0"		Stem
A517	5	1	4'-0"		Wingwall
A518	5	35	3'-0"		"
A519	5	26	9'-3"		"
A520	5	3	13'-10"		"
A521	5	28	12'-8"		Wingwall
A524	5	6	8'-10"		Stem
A525	5	28	9'-8"		Backwall
A527	5	3	15'-0"		Wingwall
A528	5	26	11'-0"		"
A529	5	3	5'-6"		"
A532	5	3	11'-9"		"
A533	5	3	12'-3"		Wingwall
A601	6	10	12'-0"		Footing
A602	6	28	22'-0"		"
A603	6	14	6'-0"		
				6"	2 groups of 7 "
A604	6	94	6'-0"		"
A605	6	4	11'-0"		Footing
BENT BARS					
A402	4	10	5'-1"		Pads
A403	4	6	5'-0"		"
A404	4	8	6'-4"		"
A405	4	8	6'-10"		Pads
A502	5	7	7'-7"		Stem
A503	5	5	8'-0"		"
A504	5	5	8'-6"		"
A505	5	8	8'-8"		Stem
A509	5	7	4'-0"		Stem & Backwall
A510	5	3	3'-9"		Stem
A511	5	4	3'-9"		Backwall
A515	5	4	17'-10"		Stem
A516	5	4	11'-8"		Stem
A522	5	4	9'-1"		Wingwall
A523	5	26	9'-11"		Wingwall
A524	5	4	3'-0"		Backwall
A531	5	4	8'-1"		Wingwall
A606	6	22	3'-6"		Approach Slab Seat
APPROACH SLAB					
STRAIGHT BARS					
A5401	4	22	30'-8"		
			9'-11"	6"	2 groups of 11 Approach Slab
A5601	6	40	3'-0"		
			18'-6"	18"	2 groups of 20 " "
A5602	6	82	14'-6"		" "
A5603	6	42	3'-0"		
			18'-6"	6 3/8"	2 groups of 21 " "
A5604	6	2	17'-6"		" "
A5605	6	2	17'-8"		Approach Slab
ABUTMENT NO. 2					
STRAIGHT BARS					
A451	4	8	31'-6"		Backwall
A551	5	23	3'-0"		Footing
A553	5	20	8'-0"		Stem
A554	5	33	9'-1"		Wingwall
A555	5	3	5'-0"		"
A556	5	1	4'-6"		"
A557	5	3	14'-11"		"
A558	5	3	14'-0"		Wingwall
A562	5	20	9'-6"		Stem
A563	5	8	32'-0"		Stem
A564	5	26	10'-6"		Wingwall
A565	5	26	11'-0"		Wingwall

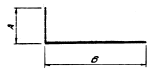
MARK	SIZE	NUMBER	LENGTH	INCR	LOCATION
ABUTMENT NO. 2 CONTINUED					
STRAIGHT BARS					
A568	5	32	18'-6"		Wingwall
A571	5	40	5'-2"		Backwall
A572	5	2	13'-2"		Wingwall
A574	5	3	12'-0"		Wingwall
A651	6	10	11'-4"		Footing
A652	6	28	20'-0"		"
A653	6	14	5'-3"		
			8'-3"	6"	2 groups of 7 "
A654	6	84	6'-0"		"
A655	6	4	11'-0"		Footing
BENT BARS					
A452	4	10	4'-11"		Pads
A453	4	6	4'-8		"
A454	4	6	6'-4"		"
A455	4	6	6'-10"		"
A456	4	1	5'-0"		"
A457	4	1	6'-11"		Pads
A550	5	39	8'-3"		Stem
A559	5	7	4'-0"		"
A560	5	3	3'-9"		Stem
A561	5	4	3'-9"		Backwall
A566	5	8	3'-1"		Wingwall
A569	5	24	7'-11"		"
A570	5	4	8'-1"		Wingwall
A572	5	4	2'-0"		Backwall
A656	6	80	3'-6"		Approach Slab
APPROACH SLAB					
STRAIGHT BARS					
A5451	4	22	28'-6		Approach Slab
A5651	6	60	3'-0"		
			18'-6"	3 3/8"	4 groups of 15 " "
A5652	6	86	14'-6"		" "
A5653	6	4	16'-0"		Approach Slab Seat
PIER					
STRAIGHT BARS					
P801	6	4	31'-8"		Cap
P802	6	19	8'-6"		Footing
P901	9	13	17'-6"		Column
P902	9	8	10'-0"		Column
P903	9	20	5'-6"		Footing
P904	9	4	22'-0"		Cap
P905	9	39	6'-9"		Footing
P906	9	17	26'-6"		Footing
P1102	11	16	10'-0"		Column
P1103	11	24	18'-0"		Column
P1105	11	6	31'-8"		Cap
P1106	11	8	18'-0"		Cap
BENT BARS					
P401	4	45	11'-3"		Column Ties
P501	5	40	12'-1"		Cap
P502	5	4	12'-0"		"
P503	5	4	11'-8"		"
P504	5	4	11'-5"		"
P505	5	4	11'-1"		"
P506	5	4	10'-10"		"
P507	5	4	10'-6 1/2"		"
P508	5	4	10'-2"		"
P603	6	8	10'-8"		Cap
P909	9	2	28'-6"		Footing
P908	9	2	28'-6"		"
P909	9	2	28'-6"		Footing

MARK	SIZE	NUMBER	LENGTH	INCR	LOCATION
PIER CONTINUED					
BENT BARS					
P1101	11	8	11'-5"		Footing
P1104	11	30	8'-0"		Footing
SUPERSTRUCTURE					
STRAIGHT BARS					
S501	5	2	18'-6"		Safety Walk
S502	5	8	16'-9"		" "
S503	5	4	18'-9"		" "
S504	5	4	10'-6"		" "
S505	5	30	14'-8"		" "
S506	5	2	16'-0"		" "
S507	5	2	16'-6"		" "
S508	5	4	10'-11"		" "
S509	5	4	12'-3"		" "
S510	5	2	18'-7"		Safety Walk
S512	5	832	30'-3"		Slab Transverse
S513	5	66	6'-3"		
			28'-6"	9 3/8"	2 groups of 33 " "
S514	5	58	21'-9"		
			28'-6	12 3/8"	2 groups of 26 " "
S515	5	6	19'-9"		Slab Longitudinal
S516	5	4	11'-4"		" "
S517	5	180	29'-8		" "
S518	5	89	31'-2"		" "
S519	5	166	22'-6"		" "
S520	5	249	31'-0"		" "
S521	5	40	30'-0"		Slab Longitudinal
	5	31	3'-0"		wall in splicing dowel bars must be no shorter
BENT BARS					
S511	5	456	4'-3"		Safety Walk

For Individual Bar Sizes CO Sheet # 31A



A509 & A559



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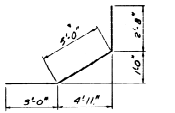
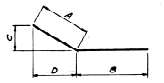


P603



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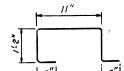
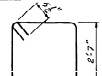
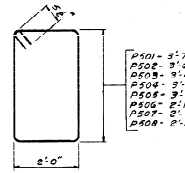


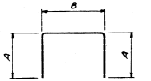
S511



P401



P501 THRU P508



A402 THRU A405, A452 THRU A455, A522, A523, A531, A568, A569 & A570

Bar	A	B
A402	1'-8"	1'-9"
A403	1'-8"	2'-8"
A404	1'-6"	3'-0"
A405	1'-6"	3'-6"
A452	1'-8"	1'-9"
A453	1'-8"	2'-8"
A454	1'-8"	3'-0"
A455	1'-6"	3'-6"
A522	1'-8"	7"
A523	4'-6"	11"
A531	3'-9"	7"
A568	1'-3"	7"
A569	4'-6"	11"
A570	3'-0"	7"

Bar	A	B
A502	3'-9"	3'-10"
A503	3'-6"	4'-9"
A504	3'-9"	4'-3"
A505	3'-9"	4'-11"
A511	1'-3"	2'-8"
A515	1'-10"	16'-0"
A516	1'-10"	9'-6"
A552	3'-3"	4'-0"
A561	1'-3"	2'-6"
P1101	1'-8"	8'-0"
P1104	1'-8"	6'-8"

Note: Bar #A552, 9'-9 1/8" was in error. Should read 6'-0" Bars were cut to this size

Bar	A	B	C	D	Length
P907	9'-6 3/8"	3'-5"	2'-7"	2'-5"	28'-6"
P908	9'-6 3/8"	3'-5"	12'-7"	2'-5"	28'-6"
P909	9'-6 3/8"	3'-5"	10'-7"	2'-5"	28'-6"

P907 THRU P909

Bar	A	B	C	D
A510	1'-5"	8'-6"	1'-0"	8 3/8"
A526	1'-6"	11'-0"	6"	1'-5"
A560	1'-3"	21'-6"	1'-0"	8 3/8"
A572	1'-6"	1'-6"	6"	1'-5"
A606	1'-9"	1'-9"	1'-3"	1'-3"
A656	1'-9"	1'-9"	1'-3"	1'-3"

NOTES.
1. All dimensions are to the ℄ of bars.
2. All reinforcing bars shall be intermediate grade or grade 60 steel.

Revised By Bath, Dy 7C Wednesday, Feb 1980

DESIGN —	DETAIL — J.M.M.	BRIDGE NO.
TRACE —		SURVEY
CHECK — G.U.J.		PLOT

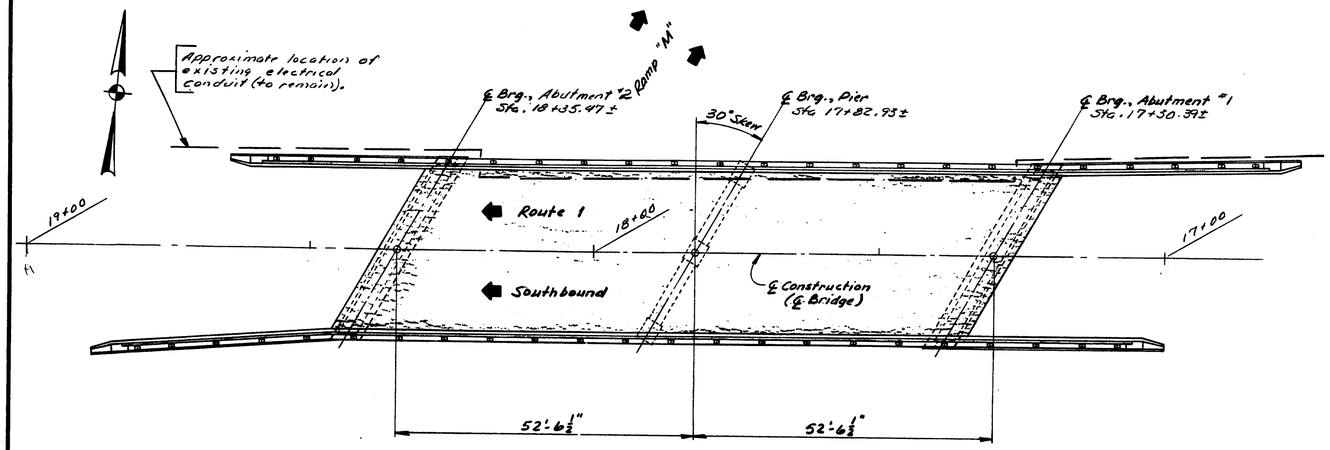
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
NEW YORK BOSTON KANSAS CITY

STATE HIGHWAY COMMISSION
BRIDGE DIVISION
RAMP "H"
OVER
INTERSTATE ROUTE 95
IN THE TOWN OF
KITTERY
YORK COUNTY
REINFORCING STEEL

SHEET 12 OF 12 AUGUSTA, MAINE

KITTERY (4)

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	BH-01-1(75)	1	18



PLAN

SPECIFICATIONS

DESIGN: Load Factor Design per AASHTO Standard Specifications for Highway Bridges 1989.

CONTRACT: State of Maine, Department of Transportation, Standard Specifications, Highways and Bridges, Revision of July 1988.

DESIGN LOADING

LIVE LOAD HS25

MATERIALS

CONCRETE: . . . . . Class "A"
REINF. STEEL: . . ASTM A615, Gr. 60
STRUCTURAL STEEL:
H.S. Bolts . . . ASTM A325, Type 1

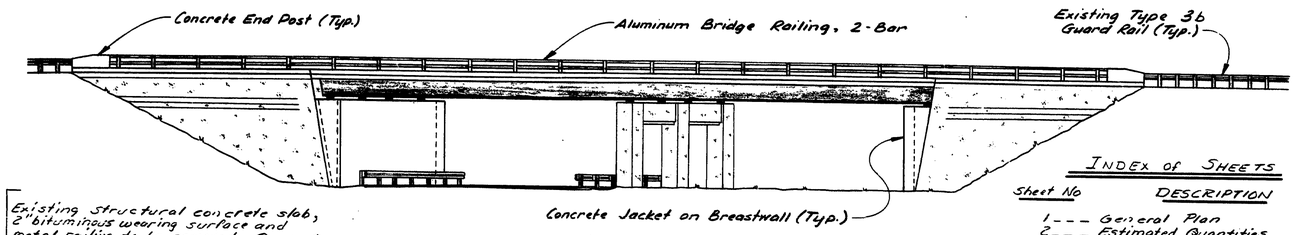
BASIC DESIGN STRESSES

CONCRETE: . . . . . f'_c = 3000 psi
REINF. STEEL: . . . f_y = 60,000 psi
STRUCTURAL STEEL:
H.S. Bolts . . . . F_v = 25,000 psi

TRAFFIC DATA

AADT 1990 8740
AADT 2010 13,980
DHV 1538
T % 4
D % 100
18 Kip P2.0 269
18 Kip P2.5 264

Plans of the existing bridge are available for the Contractor's reference at the Bridge Design Office in Augusta. The plans are reproductions of original drawings as prepared for the construction of the bridge and it is very unlikely that the plans will show any construction field changes or any alterations which may have been made to the bridge during its life span.



ELEVATION

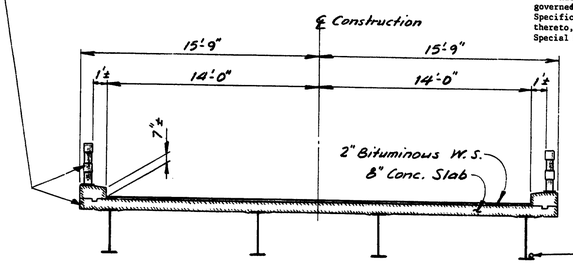
Existing structural concrete slab, 2" bituminous wearing surface and metal railing to be removed. Payment will be made under Item 202.10 Removing Existing Superstructure. (Property of Contractor).

INDEX OF SHEETS

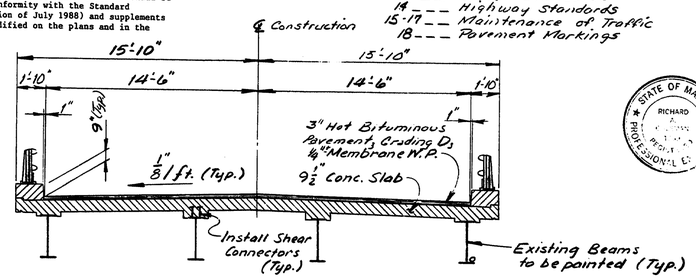
Sheet No	DESCRIPTION
1	General Plan
2	Estimated Quantities
3	Sequence of Construction
4	Cross-Sections
5-7	Abutment Details
8-9	Superstructure Details
10	Reinforcing Steel Schedule
11-13	Bridge Standards
14	Highway Standards
15-17	Maintenance of Traffic
18	Pavement Markings

NOTE:

All work contemplated under this contract shall be governed by and in conformity with the Standard Specifications (Revision of July 1988) and supplements thereto, except as modified on the plans and in the Special Provisions.



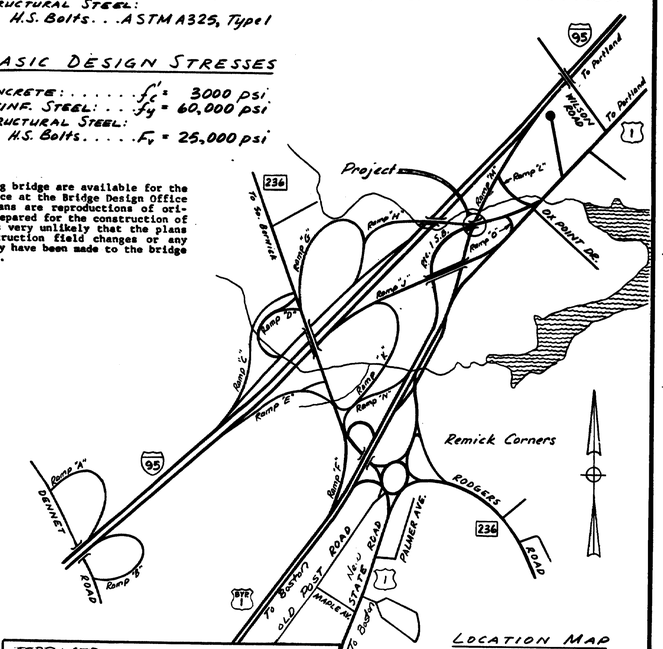
EXISTING TRANSVERSE SECTION



PROPOSED SECTION

Approximate location of existing electrical conduit (to remain).

AS-BUILT 1991 John Ayers



LOCATION MAP

500 0 500 1000 1500
Scale of Feet
(1" = 700')

BRIDGE No 6222 303

APPROVED:
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

COMMISSIONER — DATE 4-17-85

CHIEF ENGINEER — DATE 4-17-85

UNITED STATES
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION 1

APPROVED: 107-303

DIVISION ADMINISTRATOR — DATE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

U.S. ROUTE 1 S.B.
OVER
I-95 RAMP "M"
IN THE TOWN OF
KITTERY
YORK COUNTY
GENERAL PLAN

SHEET 1 OF 18 AUGUSTA, MAINE

PROJECT	DESIGN ENGINEER	MEB	BY	DATE
PLANS	DESIGN - DETAILED		D. Dameron	May 84
	CHECKED		WED	4-85
	REVISIONS FIELD CHANGES			

BRUNING 44-132-4570-1

F.A.H.S. RDS. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	BH-01-1(75)	2	18

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
202.10	Rem. Existing Superstructure - Prop. of Contractor	1	LS
202.17	Removing Existing Structural Concrete	1	LS
403.10	Hot Bituminous Pavement, Grading D	150	T
403.121	Hot Bituminous Pavement, Grading E (Shimming)	195	T
409.15	Bituminous Tack Coat, Applied	26	G
502.21	Structural Concrete, Abuts & Retaining Walls	80	C.Y.
502.26	Struc. Conc. Rdwy & Sidewalk Slabs on Steel Bridges	1	L.S.
502.4911	Silica Fume Additive (6240#)	1	L.S.
503.12	Reinforcing Steel Fab & Delivered	33,000	Lb
503.13	Reinforcing Steel Placing	33,000	Lb
505.08	Shear Connectors	1	L.S.
506.17	Surface Preparation of Existing Structural Steel	1	L.S.
506.172	Field Painting Existing Structural Steel	1	L.S
507.092	Aluminum Bridge Railing, 2 Bar	354	L.F.
508.13	Membrane Waterproofing	1	L.S.
514.06	Curing Box for Concrete Cylinders	1	Ea.
515.21	Protective Coating for Concrete Surfaces	1	L.S.
518.21	Rehabilitation of Structural Concrete - Substructure	25	S.F.
526.301	Temporary Concrete Barrier, Type 1	1	L.S.
606.364	Guard Rail, Remove, Modify and Reset	425	L.F.
606.367	Replace Unusable Existing Guard Rail Posts	6	Ea.
606.77	Breakaway Cable Terminal	1	Ea.

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
615.07	Loam	10	C.Y.
616.08	Sodding	20	S.Y.
618.14	Seeding Method No 2	2	UN
619.12	Mulch	2	UN
627.61	4" Solid White Pavement Marking Line	300	L.F.
627.62	4" Broken White Pavement Marking Line	500	L.F.
627.63	4" Solid Yellow Pavement Marking Line	300	L.F.
627.67	Removing Pavement Markings	150	S.F.
627.69	Temp 4" Plastic Pave. Marking Line, Yellow or White	1500	L.F.
639.18	Field Office Type "A"	1	EA
639.22	Testing Facilities Bituminous Mixes	1	LS
639.23	Testing Facilities Concrete	1	LS
652.30	Flashing Arrow Board	1	Ea.
652.31	Type I Barricade	20	EA
652.33	Drum	5	EA
652.34	Cone	10	EA
652.35	Construction Signs	360	S.F.
652.361	Maintenance of Traffic Control Devices	1	LS
652.38	Flagger	300	M.H.
659.10	Mobilization	1	LS

Estimate of Lump Sum Quantities

502.26	Struc. Conc. Rdwy & Sidewalk Slab on Steel Bridges	126	C.Y.
505.08	Shear Connectors	1208	EA

PROJECT DESIGN ENGINEER: MLB	BY	DATE
DESIGN - DETAILED	T.T.N.	2-85
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS

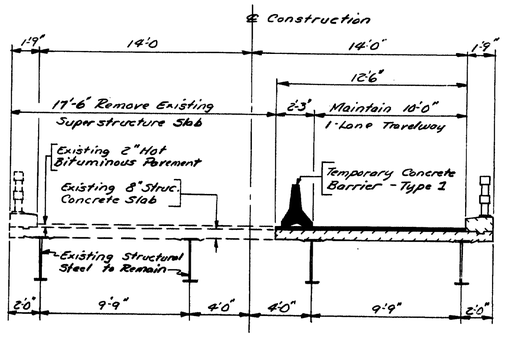
107-304 30A

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

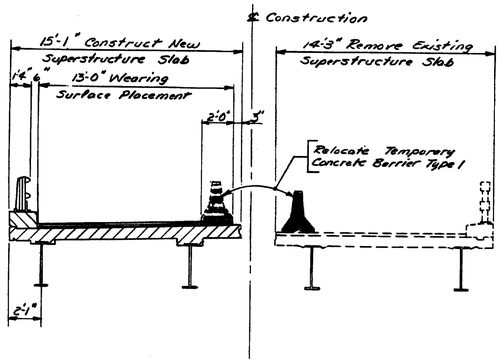
U.S. ROUTE 1 S.B.
OVER
I-95 RAMP "M"
IN THE TOWN OF
KITTERY
YORK COUNTY
ESTIMATED QUANTITIES

SHEET 2 OF 18 AUGUSTA, MAINE

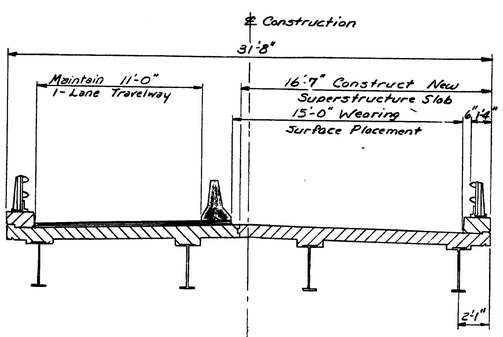
F.H.W.A. REGN. NO.	STATE	PROJECT NUMBER	SHEET NO	TOTAL SHEETS
1	MAINE	BH-01-1(75)	3	18



STAGE-1



STAGE-2



STAGE-3

SEQUENCE OF CONSTRUCTION

STAGE-1
Install traffic control devices,
Maintain 10'-0" one lane travelway,
Remove 17'-6" of existing superstructure slab, curb, railing and bituminous wearing surface.

STAGE-2
Install shear connectors,
Construct 15'-1" new superstructure slab, curb & railing,
Place membrane waterproofing & 13'-0" of 3" hot bituminous pavement wearing surface,
Relocate traffic control devices,
Maintain 11'-0" one lane travelway,
Remove 14'-3" of existing superstructure slab, curb, railing and bituminous pavement.

STAGE-3
Install shear connectors,
Construct 16'-7" new superstructure slab, curb & railing.
Place Membrane Waterproofing & 15'-0" of 3" hot bituminous pavement.

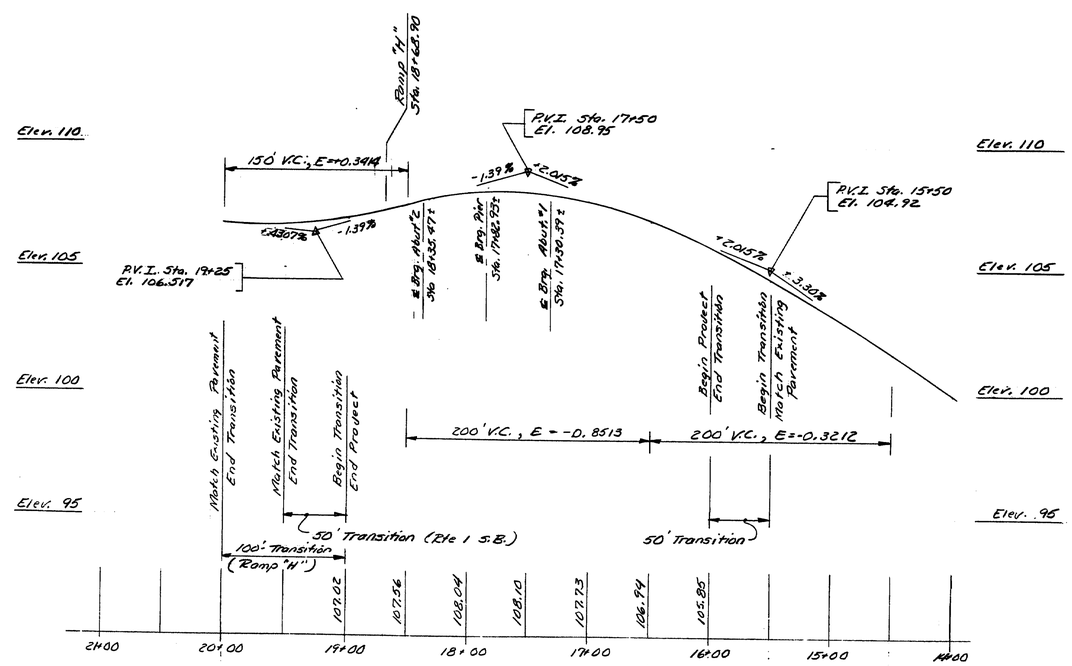
GENERAL CONSTRUCTION NOTES

1 --- Place loam 2" deep, on slopes between station 15+50± and station 19+50± as directed by the Engineer.

2 --- Sodded gutters shall be constructed, after paving and shoulder work is completed, where it is apparent that runoff will cause continual erosion.

3 --- Clearing will be as directed by the Engineer. Payment shall be incidental to related contract items.

4 --- All joints between existing and proposed hot bituminous pavement shall be butted unless otherwise directed by the Engineer. Payment will be considered incidental to related contract items.



PROFILE ALONG ℄ CONSTRUCTION RTE. 1 S.B.

107-305

305

M.D.O.T. Field Survey Book No 9920

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

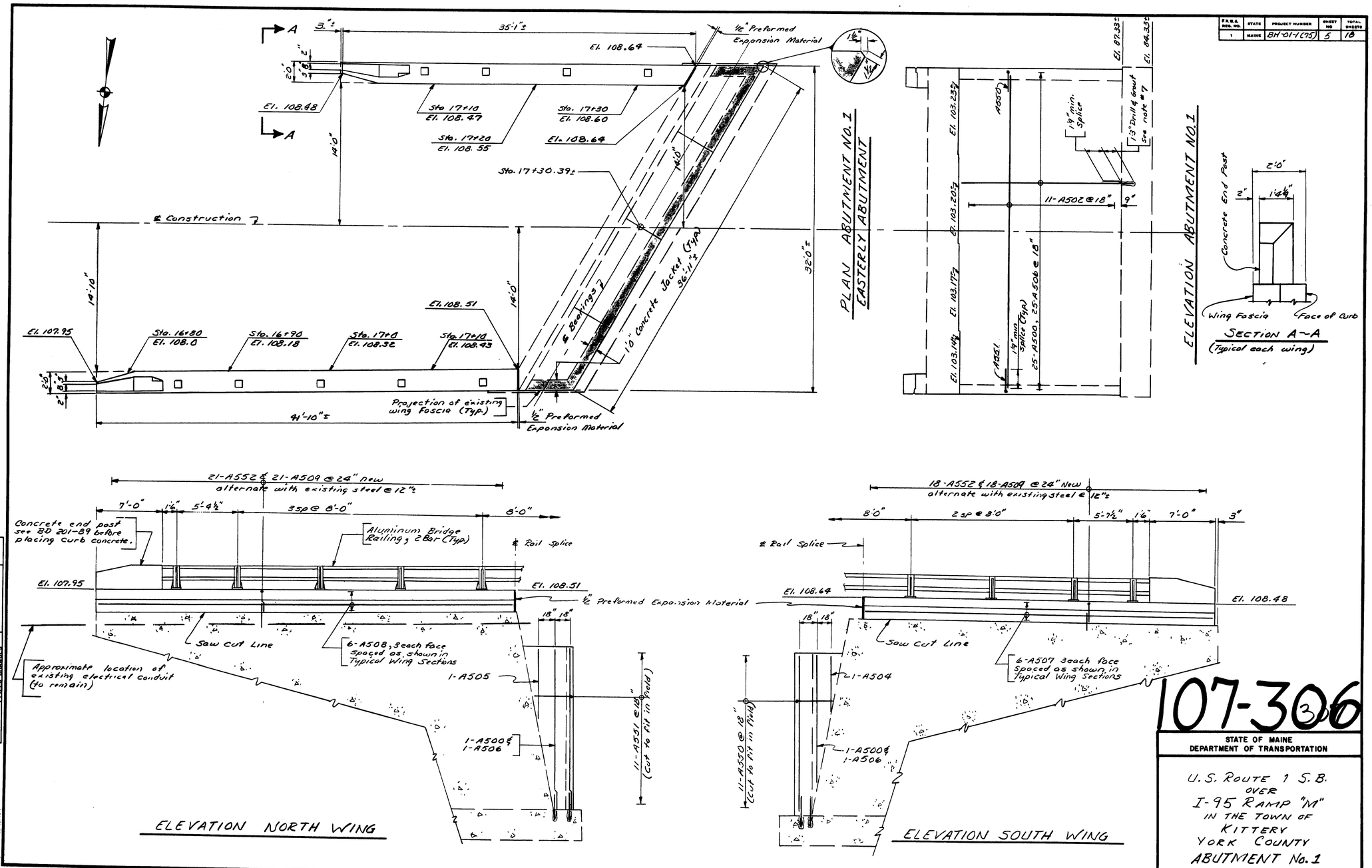
U.S. ROUTE 1 S.B.
OVER
I-95 RAMP "M"
IN THE TOWN OF
KITTERY
YORK COUNTY
SEQUENCE OF CONSTRUCTION

SHEET 3 OF 18 AUGUSTA, MAINE

PROJECT	DESIGN ENGINEER MDB	BY	DATE
PLANS	DESIGN - DETAILED	R.F.W. / R.V.N.	7-84
	CHECKED	WBD	4-85
	REVISIONS		
	FIELD CHANGES		

DRAWING 44-132-45710-1

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO	TOTAL SHEETS
1	MAINE	BH-01-1(95)	5	18



PROJECT DESIGN ENGINEER	BY	DATE
PLANS — DESIGN - DETAILED	R.V.N.	2-85
CHECKED	R.V.N.	1-85
REVISIONS	W.B.D.	4-86
FIELD CHANGES		

BRUNING 44-132 45710-1

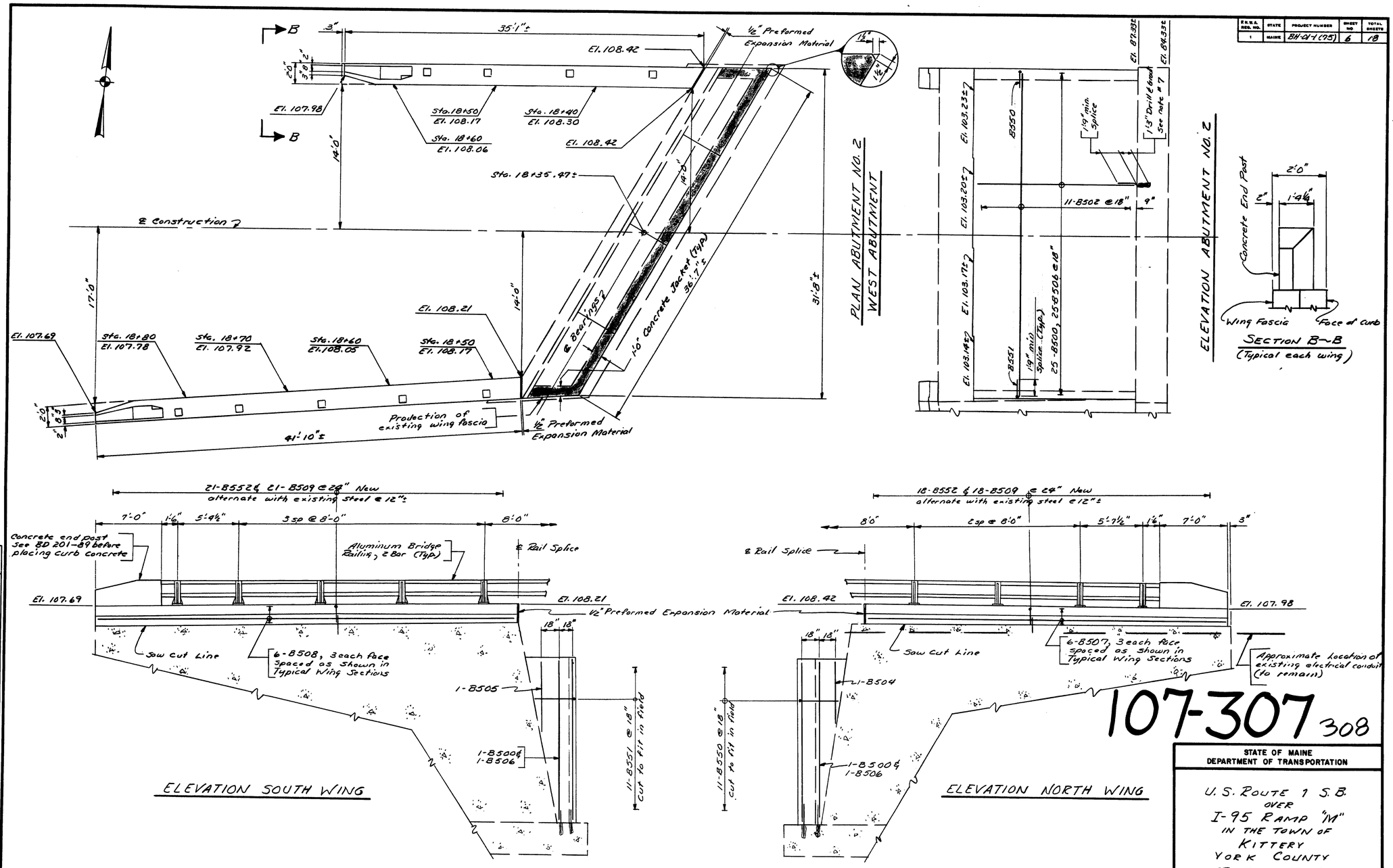
107-306

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

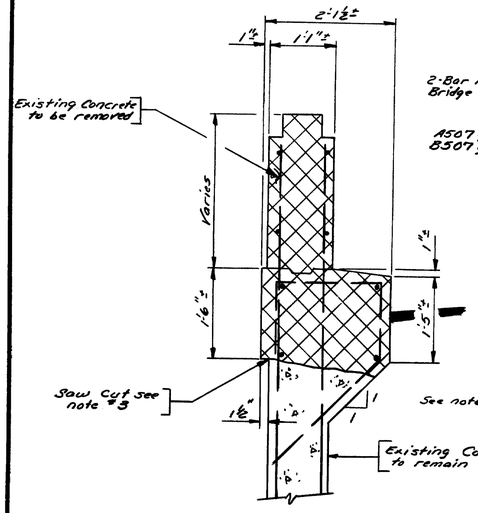
U.S. ROUTE 1 S.B.
OVER
I-95 RAMP "M"
IN THE TOWN OF
KITTERY
YORK COUNTY
ABUTMENT No. 1

SHEET 5 OF 18 AUGUSTA, MAINE

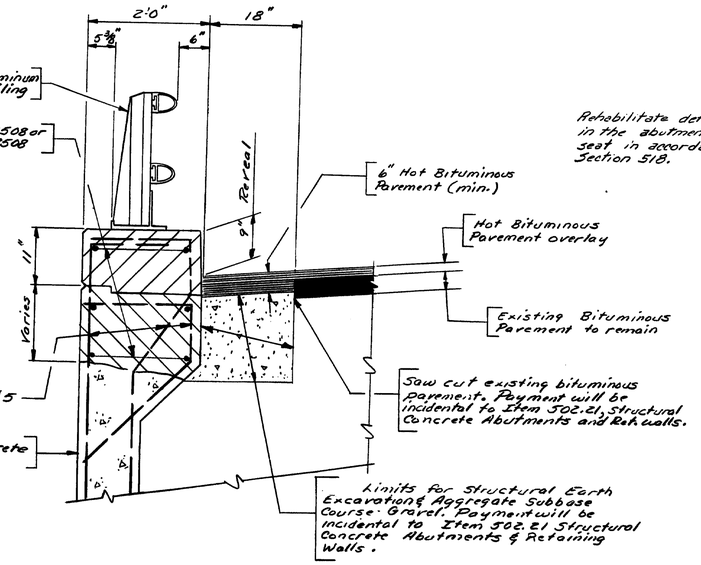
F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO	TOTAL SHEETS
1	MAINE	BH-01-1 (95)	6	18



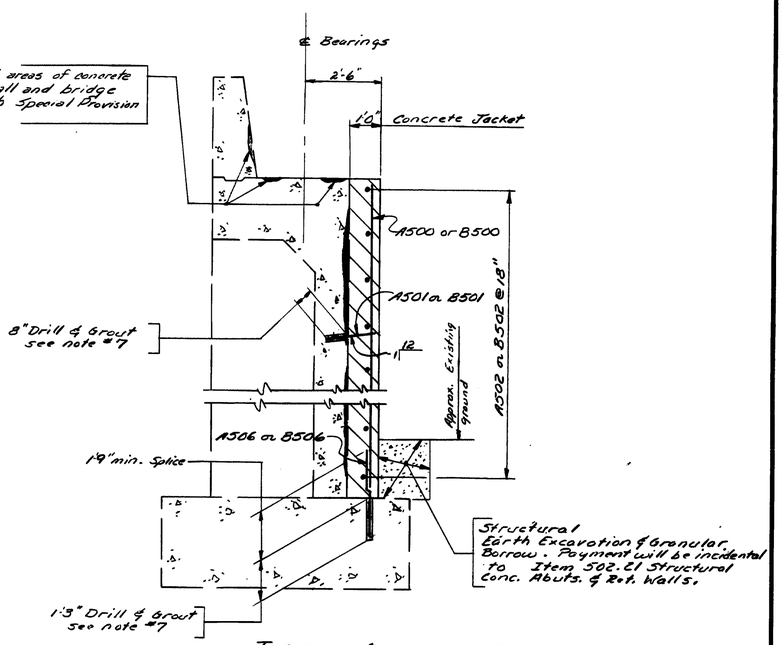
F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	BH-01-1(75)	7	18



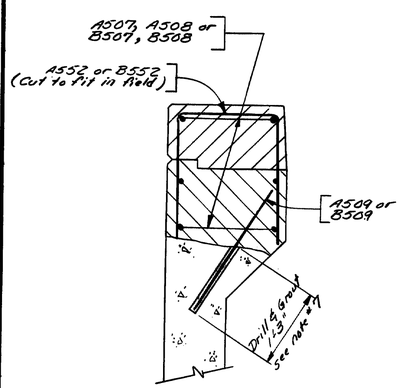
TYPICAL EXISTING WING SECTION



TYPICAL NEW WING SECTION
(Existing Vertical Reinforcing Steel)



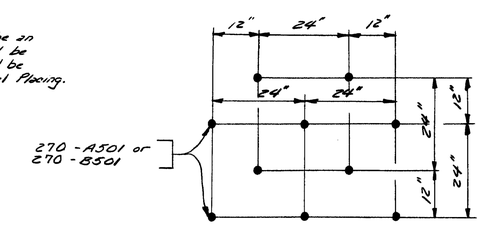
TYPICAL ABUTMENT SECTION



TYPICAL NEW WING SECTION
(New Vertical Reinforcing steel)

ABUTMENT NOTES

1. Reinforcing steel shall have two inches minimum cover unless otherwise indicated.
2. Protective coating for concrete surfaces shall be applied to all exposed surfaces of new concrete curbs and all exposed surfaces of concrete end posts.
3. Remove the existing 2'-1½" wide structural concrete curbs and 1'-1½" wide structural concrete rail on wings down 1'-6½" to the coping as shown on the plans. Saw cut the existing face of wings 1" deep before removing the tops of the wings as shown in the Typical Existing Section. Payment will be made under Item 202.17 Removing Existing Structural Concrete, which will include the saw cut.
4. The existing concrete shall be removed so as not to damage the existing vertical reinforcing steel. Any damaged vertical reinforcing steel shall be replaced at the contractors expense.
5. The existing reinforcing steel shall be bent to fit into the new concrete as shown in the sections. Payment for this work shall be incidental to Item 503.13 Reinforcing steel Placing.
6. Existing reinforcing steel that has been exposed from concrete removal that will been an exposed surface shall be removed to 2" below the finished surface and the holes shall be filled with an approved non-shrink grout.
7. Material used to grout the reinforcing steel shall be an approved non-shrink grout. No seperate payment will be made for drilling and grouting, and all such work will be considered incidental to Item 503.13, Reinforcing Steel Placing.
8. All concrete for wing curbs, end posts and concrete jacket will be paid for under Item 502.21, Structural Concrete Abutments and Retaining walls.
9. Remove all deteriorated concrete in the breastwall area, as directed by the Engineer, prior to placement of concrete jacket. Payment for all labor & equipment will be incidental to Item 502.21, Structural Concrete Abutments and Retaining Walls.
10. All curb, end post, and Jacket concrete for the abutments shall contain a Silica Fume Additive.



ELEVATION DOWEL LAYOUT
(Typical all concrete surfaces to be jacketed)

309

PROJECT DESIGN ENGINEER M.C.G.	BY	DATE
PLANS DESIGN - DETAILED	R VU	1-85
CHECKED	R W N	1-85
REVIEWED	W B D	4-85
FIELD CHANGES		

BRUNING 46-132 4577(0-)

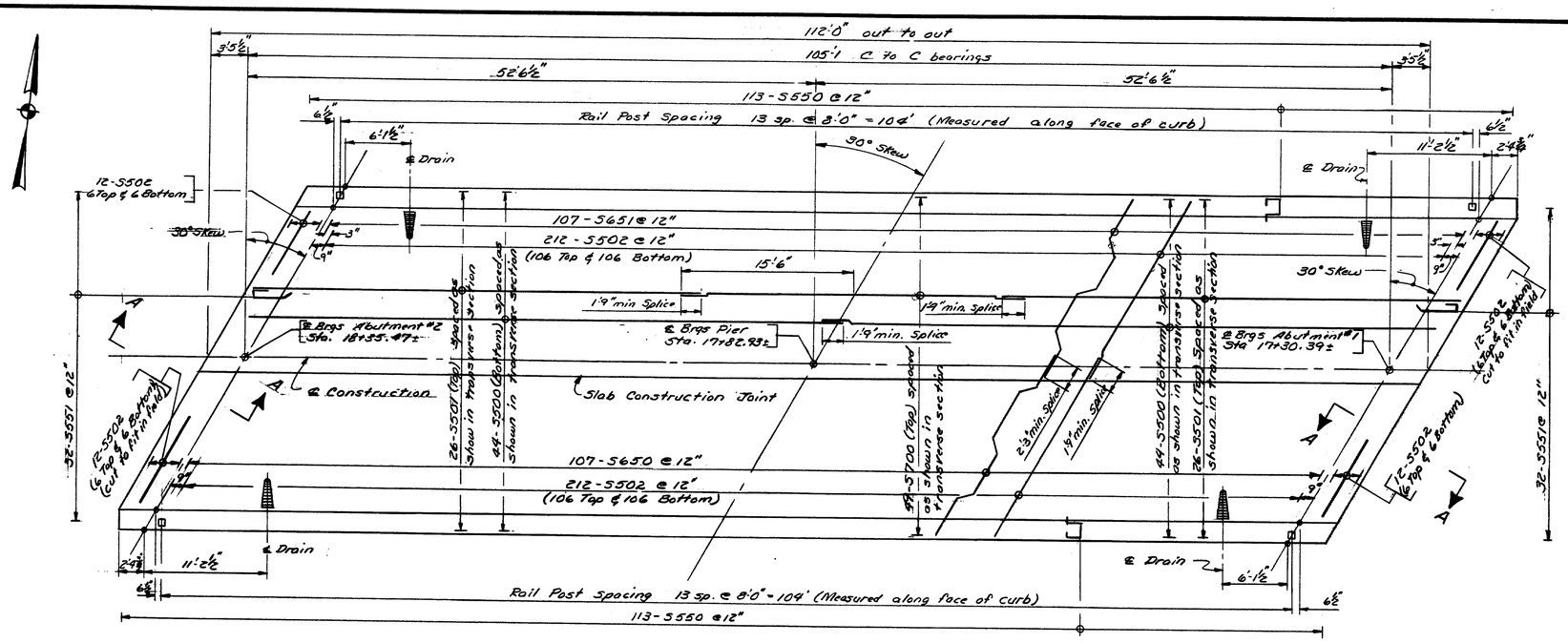
107-308

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

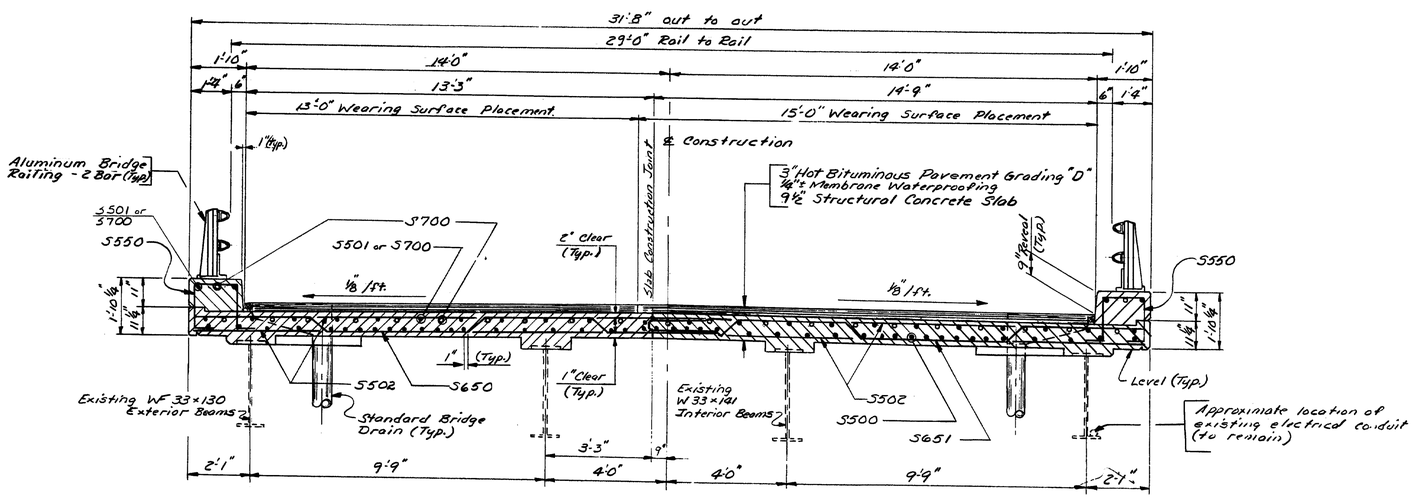
U.S. ROUTE 1 S.B.
OVER
I-95 RAMP "M"
IN THE TOWN OF
KITTERY
YORK COUNTY
ABUTMENT SECTIONS

SHEET 7 OF 18 AUGUSTA, MAINE

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO	TOTAL SHEETS
1	MAINE	BH-01-1 (175)	8	18



SUPERSTRUCTURE SLAB PLAN



TRANSVERSE SECTION

SUPERSTRUCTURE NOTES

1. Form a 1" V-groove on the fascia at the horizontal joint between the curb and slab.
2. Reinforcing steel shall have a minimum cover of 2" unless otherwise indicated.
3. Adjust reinforcing steel to fit around the drains in a manner approved by by the Engineer. Do not cut transverse reinforcing bars.
4. The superstructure slab concrete shall be placed in one continuous operation and the concrete shall be kept plastic the entire length of placement.
5. Protective coating for concrete surfaces shall be applied to the following areas:
   - Top and face of concrete curbs.
   - Fascia down to the drip notch.
6. All curb concrete shall contain a Silica Fume Additive.

PROJECT DESIGN ENGINEER	MER	BY	DATE
PLANS DESIGN - DETAILED		R.K.K.	10-94
CHECKED		WBD	4-95
REVISIONS			
FIELD CHANGES			

BRUNING 44-132 4571D-1

107-309

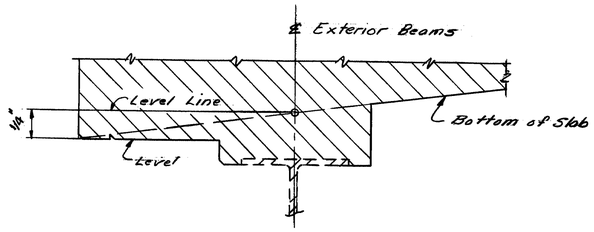
310

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

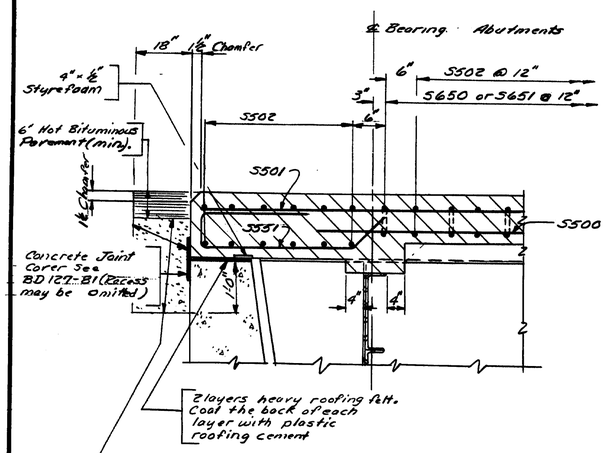
U.S. ROUTE 1 S.B.
OVER
I-95 RAMP "M"
IN THE TOWN OF
KITTERY
YORK COUNTY
SUPERSTRUCTURE SLAB

SHEET 8 OF 18 AUGUSTA, MAINE

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO	TOTAL SHEETS
1	MAINE	BR-01-1(75)	9	18

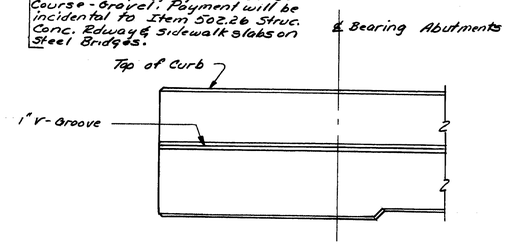


EXTERIOR HAUNCH DETAIL

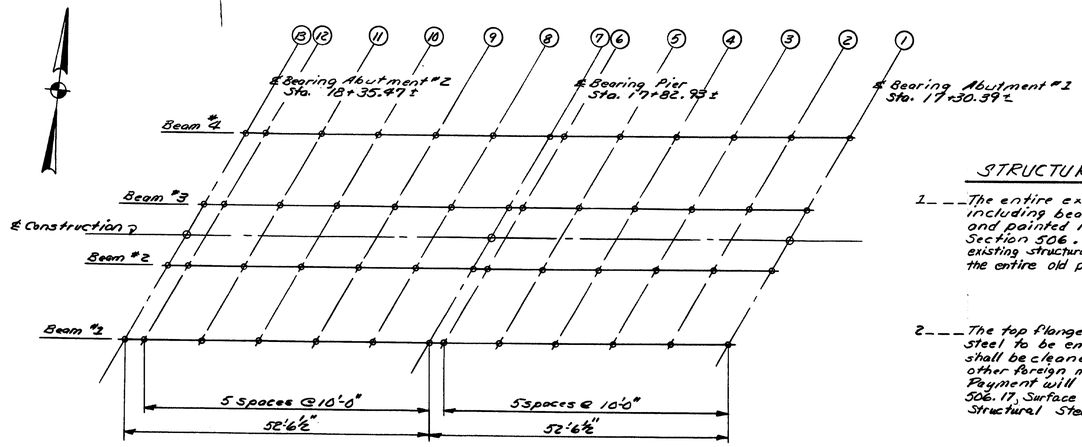


SECTION A~A

Pay Limits for Structural Earth Excavation & Aggregate Subbase Course - Gravel. Payment will be incidental to Item 502.26 Struc. Conc. Rdway & Sidewalk Slabs on Steel Bridges.



FASCIA DETAIL



BLOCKING LAYOUT

STRUCTURAL STEEL NOTES

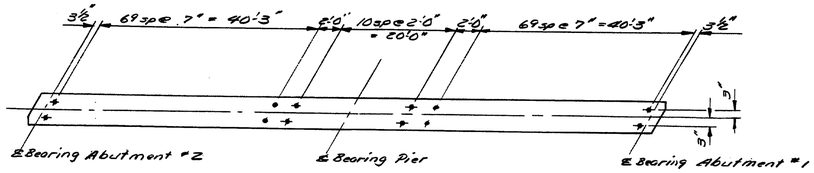
1 - - - The entire existing structural steel, including bearings, shall be cleaned and painted in accordance with Section 506. The surface preparation of the existing structural steel will require removal of the entire old paint system.

2 - - - The top flanges of the existing structural steel to be embedded in the new concrete, shall be cleaned of all paint, rust, and other foreign matter before placing concrete. Payment will be included under Item 506.17, Surface Preparation of Existing Structural Steel.

BOTTOM OF SLAB ELEVATIONS

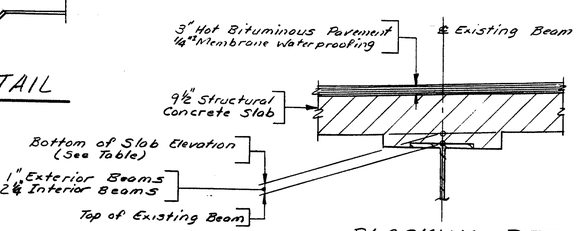
Beam \ Points	13	12	11	10	9	8	7	6	5	4	3	2	1
4	106.64	106.67	106.77	106.85	106.89	106.91	106.92	106.93	106.94	106.93	106.90	106.83	106.74
3	106.68	106.71	106.83	106.91	106.97	107.00	107.02	107.02	107.04	107.05	107.02	106.97	106.89
2	106.63	106.66	106.79	106.88	106.94	106.98	107.01	107.01	107.04	107.05	107.04	106.99	106.92
1	106.46	106.49	106.62	106.73	106.80	106.85	106.89	106.90	106.93	106.95	106.95	106.91	106.85

NOTE: Bottom of slab elevations are adjusted to compensate for dead load deflections and vertical curvature.

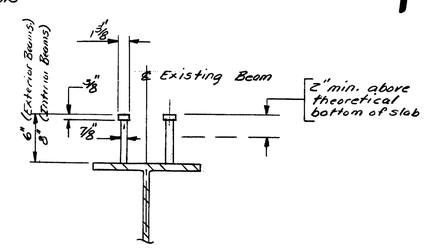


SHEAR CONNECTOR LAYOUT

Double studs 302 per beam, Total = 1208
604-6" Shear Connectors, 604-8" Shear Connectors



BLOCKING DETAIL



SHEAR CONNECTOR DETAIL

107-310
311

PROJECT DESIGN ENGINEER MES	BY	DATE
PLANS DESIGN - DETAILED	R.V.N.	12-86
CHECKED	WBD	4-85
REVISIONS		
FIELD CHANGES		

DRAWING 44-132-4710-1

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

U.S. ROUTE 1 S.B.
OVER
I-95 RAMP "M"
IN THE TOWN OF
KITTERY
YORK COUNTY
BOTTOM OF SLAB ELEVATIONS
& MISCELLANEOUS DETAILS
SHEET 9 OF 18 AUGUSTA, MAINE

REINFORCING STEEL SCHEDULE

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	BH-01-1(75)	10	18

STRAIGHT BARS

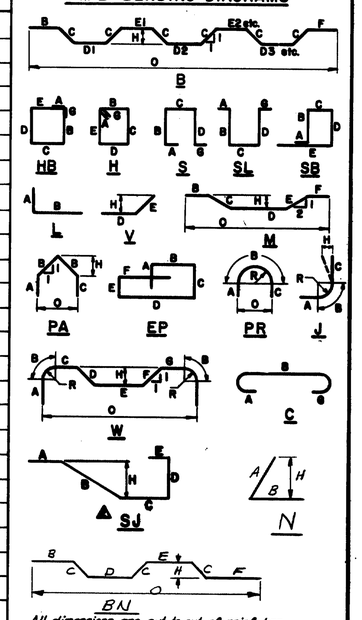
MARK	NO.	LENGTH	LOCATION	MARK	NO.	LENGTH	LOCATION	MARK	NO.	LENGTH	LOCATION
			-ABUTMENT #1-				~ ABUTMENT #2 ~				~SUPERSTRUCTURE~
A500	27	15'-8"	vertical	B500	27	15'-8"	vertical	S500	88	55'-0"	Longitudinal
A501	270	1'-6"	dowel, vertical	B501	270	1'-6"	dowel, vertical	S501	52	39'-0"	Longitudinal
A502	11	36'-7"	longitudinal	B502	11	36'-4"	longitudinal	S502	472	19'-0"	Transverse
A504	1	8'-0"	vertical	B504	1	8'-0"	vertical				
A505	1	9'-0	vertical	B505	1	9'-0"	vertical				
A506	27	3'-0"	dowel, vertical	B506	27	3'-0"	dowel, vertical				
A507	6	34'-4"	horizontal wing	B507	6	34'-4"	horizontal wing				
A508	6	40'-10"	horizontal wing	B508	6	40'-10"	horizontal wing				
A509	39	2'-4"	wing dowel	B509	39	2'-4"	wing dowel				
								S900	49	31'-0"	longitudinal
			-END Post-								
EP400	24	2'-0"	End Post								
EP405	24	1'-10"	End Post								

BENT BARS

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
					- ABUTMENT No 2 -									
A550	11	5'-9"	N	1'-9"	4'-0"						1'-6"			Breastwall
A551	11	5'-9"	V				4'-0"	1'-9"			1'-6"			"
A552	39	5'-4"	S	—	1'-10"	1'-8"	1'-10"			—				Wings
					~ ABUTMENT No 2 ~									
B550	11	5'-9"	N	1'-9"	4'-0"						1'-6"			Breastwall
B551	11	5'-9"	V				4'-0"	1'-9"			1'-6"			"
B552	39	5'-4"	S	—	1'-10"	1'-8"	1'-10"			—				Wings
					~SUPERSTRUCTURE~									
S550	226	5'-11"	S	0'-6"	1'-7"	1'-9"	1'-7"			0'-6"				Curb
S551	64	5'-8"	SJ	—	0'-8"	2'-8"	0'-7"	1'-9"			0'-5¼"			End of Slab
S650	107	20'-2"	BN		4'-7"	0'-9¼" ×3	5'-5⅛"	4'-2⅛"	3'-7½"		0'-6½"	19'-6"		Transverse
S651	107	19'-8"	BN		4'-7"	0'-9¼" ×3	5'-5⅛"	4'-2⅛"	3'-1½"		0'-6½"	19'-0"		Transverse
					~ END POST ~									
EP401	16	4'-11"	S	—	2'-0"	0'-11"	2'-0"			~				End Post
EP402	8	4'-6"	S	—	2'-0"	0'-6"	2'-0"			~				"
EP500	16	7'-10"	S	—	5'-6"	0'-7"	1'-9"			—				End Post
EP501	16	6'-8"	SJ	—	3'-1"	2'-7"	1'-0"	—			0'-8"			"
EP502	16	4'-7"	S	—	1'-10"	0'-11"	1'-10"			—				"
EP503	8	4'-2"	S	—	1'-10"	0'-6"	1'-10"			—				"
MARK	NO.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION

107-311

TYPE-BENDING DIAGRAMS



All dimensions are out to out of reinf. bar

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 318.

Reinforcing Bar: ASTM A615 Grade 60

GENERAL NOTES

1. First digit(s) following the letter of the Mark indicates size of reinf. bar.
   - Mark (A502) bar size - #5
   - Mark (P1001) bar size - #10
   - Mark (S603) bar size - #6
2. Each truss bar, Type B, may be replaced by two (2) straight bars (one top & one bottom) of the same bar size as the truss bar. Payment in either case shall be based on truss bars as scheduled on plans.

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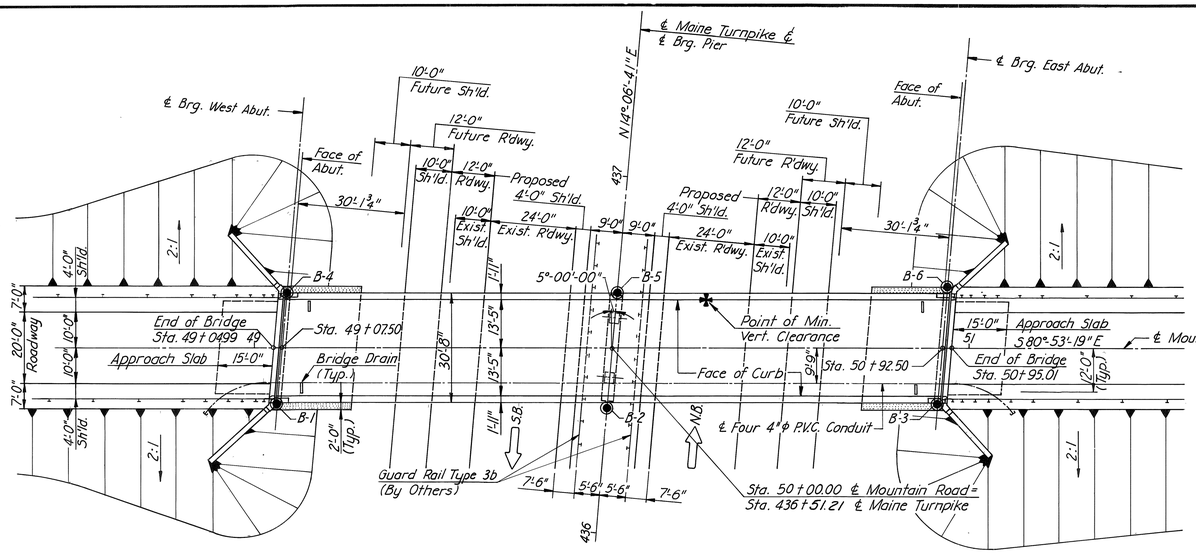
REVISIONS	DATE
2 New Bent Bar Type SJ	9-26-83
1 Revised ACI Standard	5-12-83

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

U.S. ROUTE 1 S.B
OVER
I-95 RAMP "M"
IN THE TOWN OF
KITTERY
YORK COUNTY
REINFORCING STEEL SCHEDULE

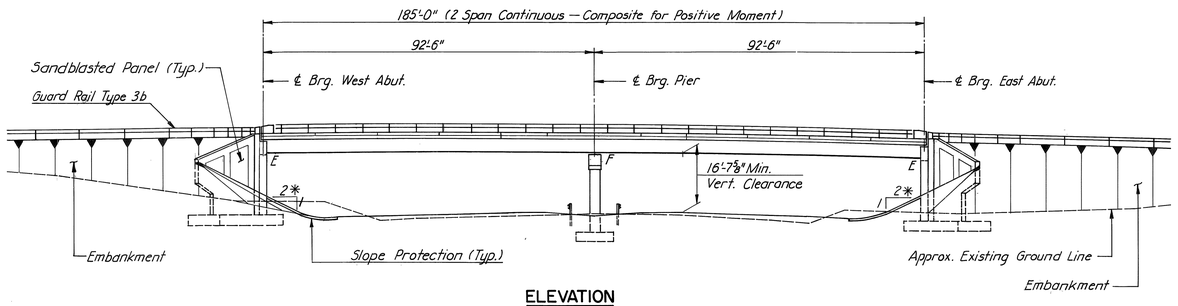
SHEET 10 OF 18 AUGUSTA, MAINE

PLANS	BY	DATE
DESIGN - DETAIL	RYN	2-85
CHECKED	RYN	2-85
REVISIONS	WJD	4-85
FIELD CHANGES		



PLAN

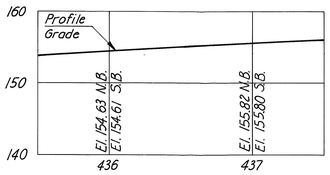
1" = 20'



ELEVATION

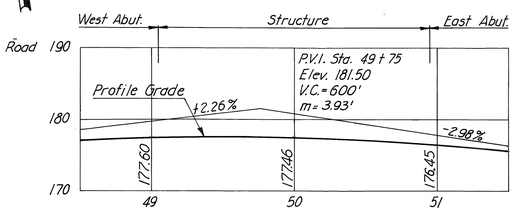
1" = 20'

* Normal to Maine Turnpike



PROFILE-MAINE TURNPIKE

Hor. 1" = 50'
Vert. 1" = 10'



PROFILE-MOUNTAIN ROAD

Hor. 1" = 50'
Vert. 1" = 10'

SPECIFICATIONS

DESIGN
A.A.S.H.O. Standard Specifications for Highway Bridges 1969 with interim specifications.

CONTRACT
State of Maine, State Highway Commission Standard Specifications, Highways and Bridges, revision of June 1968.

LIVE LOADING

HS 20-44 as modified for military loading.

FOUNDATIONS

Abutments and Piers: Design Capacity - 2.5 Tons per square foot.

ALLOWABLE STRESSES

Concrete (n = 10) ~ fc = 1200 p.s.i.
Reinforcing Steel, A.S.T.M. Designation A615 Grade 60, fs = 24,000 p.s.i.
Structural Steel, A.S.T.M. Designation A572-50 for main beam material, fs = 27,000 p.s.i. over Pier - all other A.S.T.M. Designation A36, fs = 20,000 p.s.i.

CONCRETE CLASSIFICATION

All concrete shall be Class "A".

BRIDGE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
203.25	Granular Borrow	710	C.Y.
203.26	Gravel Borrow	65	C.Y.
206.08	Structural Earth Excavation - Abuts. & Retaining Walls	300	C.Y.
206.09	Structural Rock Excavation - Abuts. & Retaining Walls	140	C.Y.
206.10	Structural Earth Excavation - Piers	70	C.Y.
206.11	Structural Rock Excavation - Piers	30	C.Y.
403.12	Bituminous Concrete Surface Course	65	Ton
502.21	Structural Concrete, Abuts. & Retaining Walls	425	C.Y.
502.23	Structural Concrete, Piers	52	C.Y.
502.2601	Structural Concrete, Roadway & Sidewalk Slabs		
	on Steel Bridges	1	L.S.
502.3101	Structural Concrete, Approach Slabs	1	L.S.
503.12	Reinforcing Steel, Fabricated & Delivered	82,870	Lbs.
503.13	Reinforcing Steel, Placing	82,870	Lbs.
504.7001	Structural Steel, Fabricated & Delivered	1	L.S.
504.7101	Structural Steel, Erection	1	L.S.
505.0801	Shear Connectors	1	L.S.
506.1401	Field Painting, Structural Steel	1	L.S.
507.08	Bridge Railing	359	L.F.
508.10	Membrane Waterproofing	560	S.Y.
512.06	French Drains	190	C.Y.
513.09	Slope Protection - Portland Cement Concrete	170	S.Y.
514.06	Curing Box for Concrete Cylinders	1	Each
515.20	Protective Coating for Concrete Surfaces	160	S.Y.
609.13	Vertical Bridge Curb - Type 1	380	L.F.
634.20	4" Conduit	920	L.F.

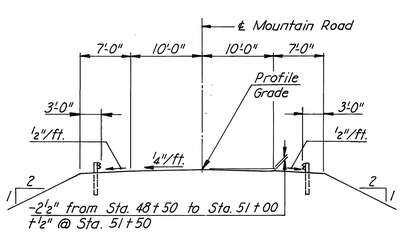
NOTE:
Estimated Quantity of Structural Steel, Fab., Del., Erected & Painted: A572 = 47,600 Lbs ; A36 = 133,600 Lbs.
Estimated Quantity of Shear Connectors = 1,580 Each (1,550 Lbs.)
Estimated Quantity of Concrete Item 502.2601 = 170 C.Y.
Estimated Quantity of Concrete Item 502.3101 = 20 C.Y.

INDEX OF SHEETS

1. GENERAL PLAN
2. BORING DETAILS
3. FOOTING PLAN
4. WEST ABUTMENT
5. EAST ABUTMENT
6. ABUTMENT AND WINGWALL DETAILS
7. PIER
8. STRUCTURAL STEEL AND BLOCKING POINTS
9. STRUCTURAL STEEL DETAILS
10. UTILITY DETAILS
11. SUPERSTRUCTURE DETAILS
12. DECK JOINT AND MISCELLANEOUS CONCRETE DETAILS
13. SLOPE PROTECTION AND APPROACH SLAB
14. REINFORCING STEEL SCHEDULE
15. REINFORCING STEEL SCHEDULE

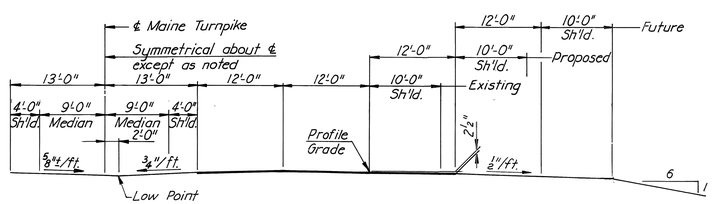
STANDARD SHEETS

ALUMINUM RAILING
GUARD RAIL



APPROACH SECTION MOUNTAIN ROAD

1" = 10'



HALF SECTION-MAINE TURNPIKE

1" = 10'

LEGEND

◉ Indicates Boring Location.
For Boring Details, see Sheet 2.

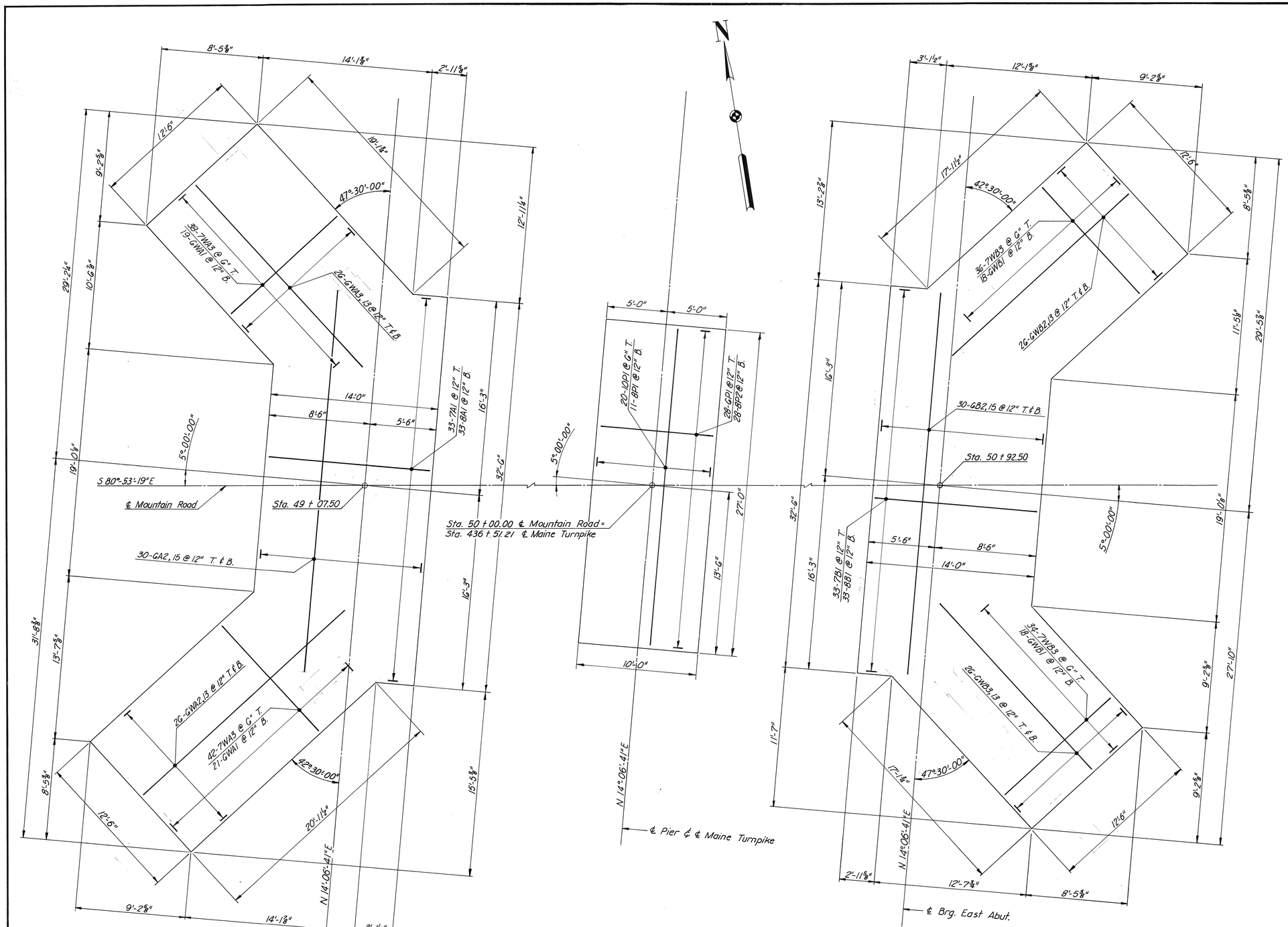
NO.	REVISION	BY	DATE		BY	DATE
				MADE	L.B.P.	5-72
				TRACED		
				CHECKED	J.V.B.	7-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY
MAINE TURNPIKE
SECTION 1-YORK TO PORTLAND

MOUNTAIN ROAD OVER MAINE TURNPIKE
GENERAL PLAN

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

SCALE: As Shown
As Built
SHEET NO. 1 of 15



FOUNDATION NOTES:

1. For abutment and wingwall details, see Sheets 4, 5 & 6.
2. All reinforcing steel to have 3" clearance except as noted.
3. All dimensions shown are at top of footing.

NO.	REVISION	BY	DATE		BY	DATE
				MADE	L.B.P.	5-72
				TRACED	L.B.P. J.G.V.	5-72
				CHECKED	J.H.S.	6-72
				IN CHARGE OF	J.P.W.	

FOOTING PLAN

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

SECTION 1-YORK TO PORTLAND

MOUNTAIN ROAD OVER MAINE TURNPIKE

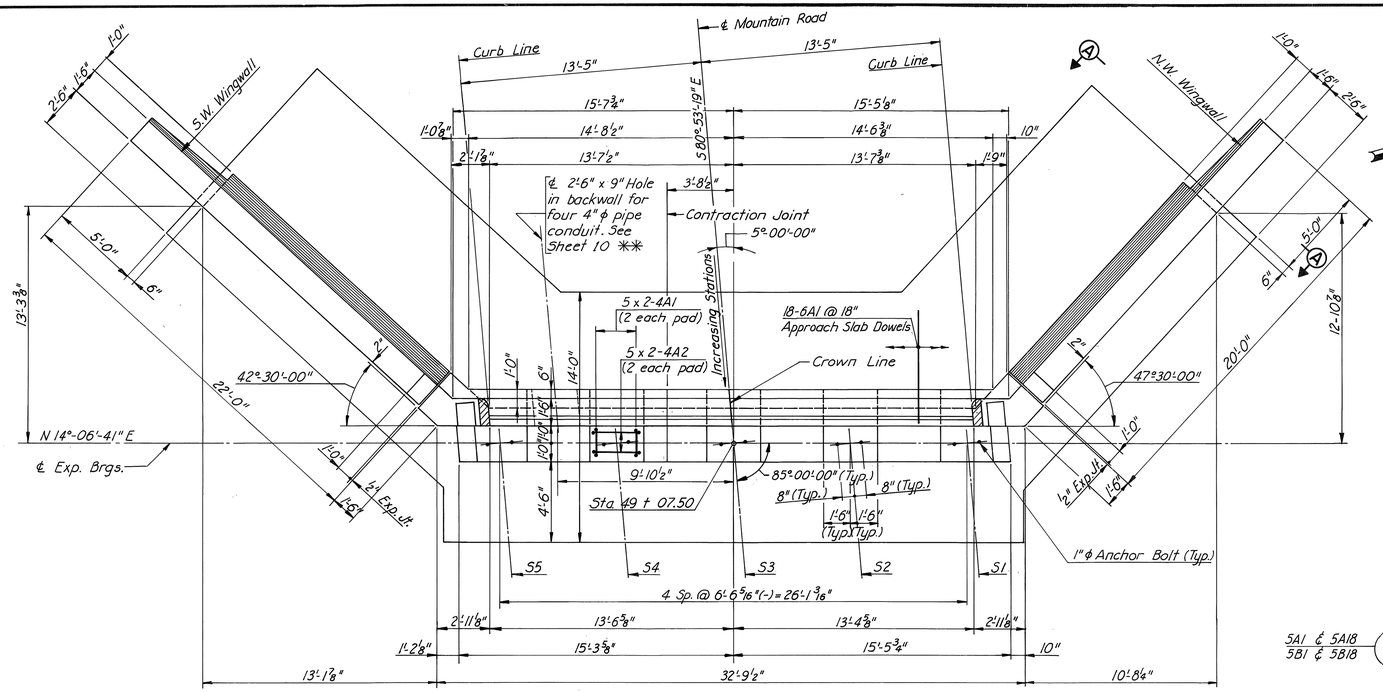
FOOTING PLAN

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

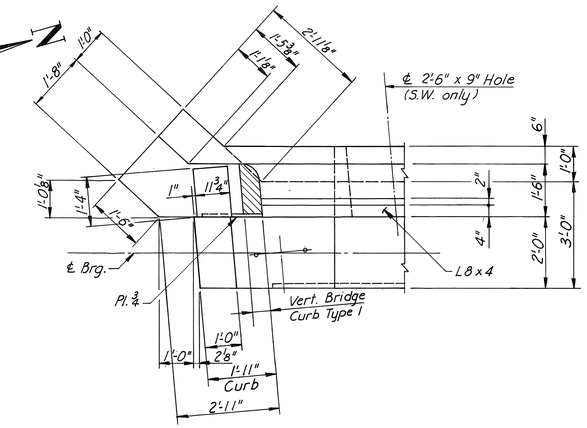
SCALE: 1/4" = 1'-0"

As Built

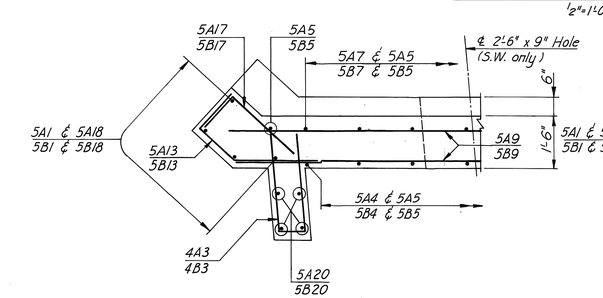
SHEET NO. 3 of 15



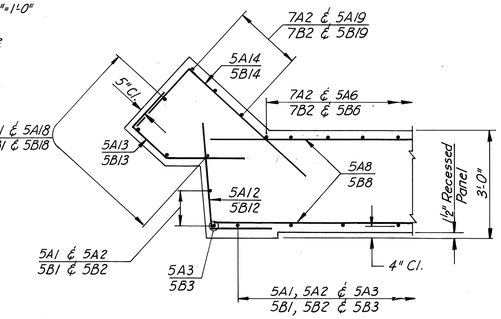
PLAN
¼" = 1'-0"



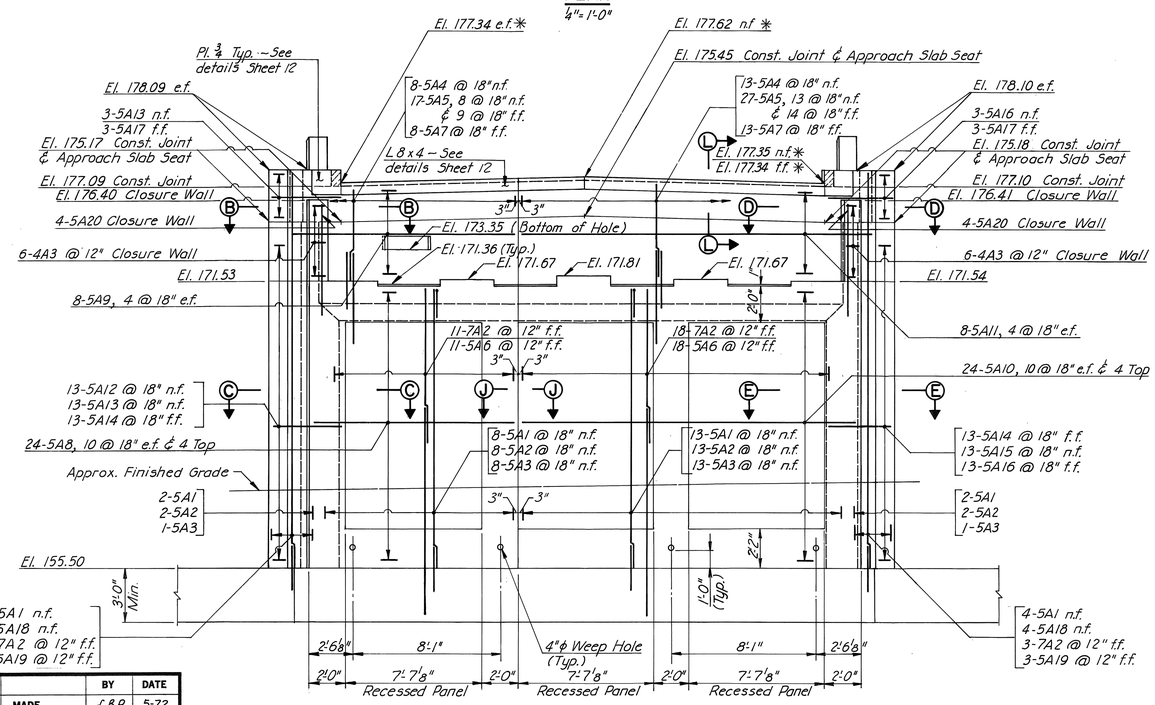
S.W. AND N.E. CORNER DETAIL
½" = 1'-0"



SECTION B-B
½" = 1'-0"



SECTION C-C
½" = 1'-0"



ELEVATION
¼" = 1'-0"

** Cut backwall steel as necessary in the field 2" clear of hole. Fill with concrete after four 4" ϕ pipe conduits are placed.

* Finished Grade Elevations

GENERAL NOTES:

1. Top portion of abutment backwalls shall not be placed until after superstructure concrete is placed.
2. Reinforcing steel to have 2" minimum cover unless otherwise shown.
3. Place reinforcing steel in bridge seats to clear anchor bolts.
4. n.f. denotes near face; f.f. denotes far face and e.f. denotes each face.
5. For Footing Plans, see Sheet 3.
6. For details of Expansion, Contraction and Construction Joints and Abutment and Wingwall details, see Sheet 6.
7. Dress bearing pad areas 1" larger all around than masonry plates to exact elevations shown.
8. For Bearing Pedestals and Anchor Bolt details, see Sheet 9. Bearing Pedestals shall be placed normal to stringers.
9. For Sections A-A, D-D and E-E, see Sheet 5.
10. Chamfer all exposed edges of concrete ½".
11. Break bond at vertical contraction joints by a method to be approved by the Engineer.
12. Waterstops are not required in horizontal construction joints in abutment backwall.
13. For Section J-J and End Post Details on Backwall, see Sheet 12.
14. For Section L-L and additional joint details, see Sheet 12.

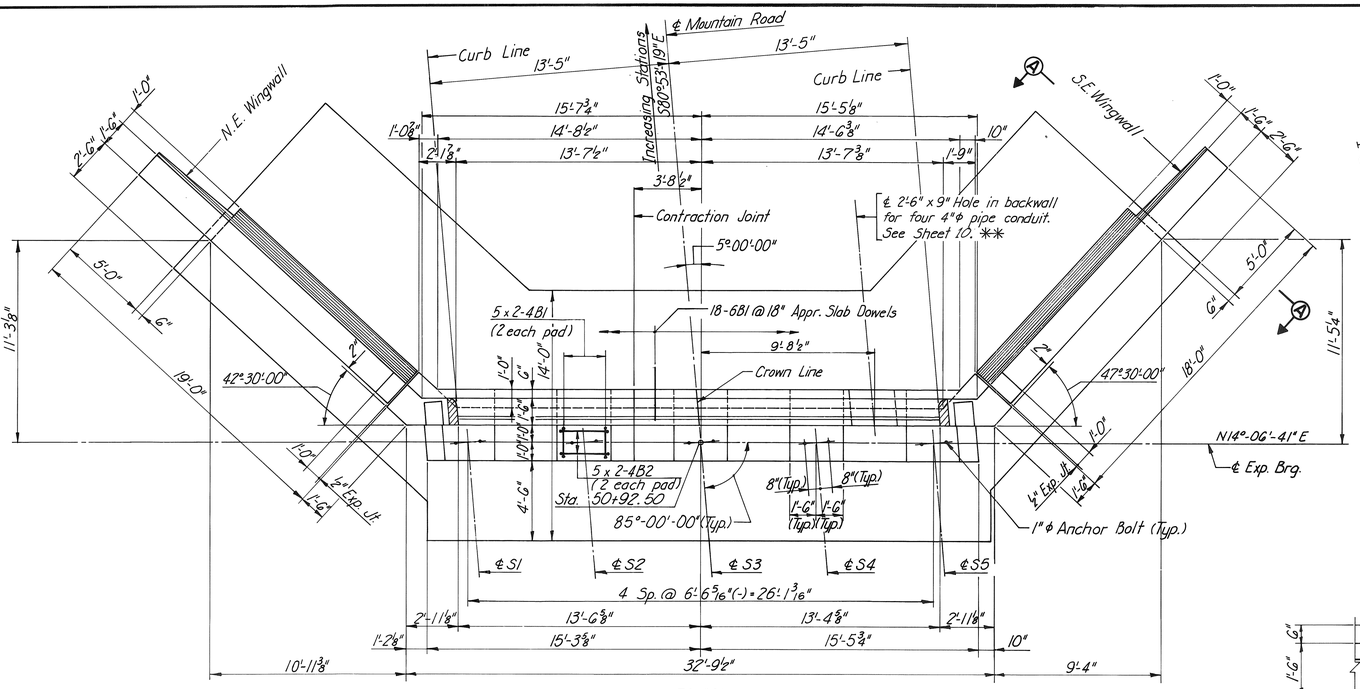
NO.	REVISION	BY	DATE		BY	DATE
				MADE	J.B.P.	5-72
				TRACED		
				CHECKED	J.H.S.	6-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY
MAINE TURNPIKE
SECTION 1-YORK TO PORTLAND

MOUNTAIN ROAD OVER MAINE TURNPIKE
WEST ABUTMENT

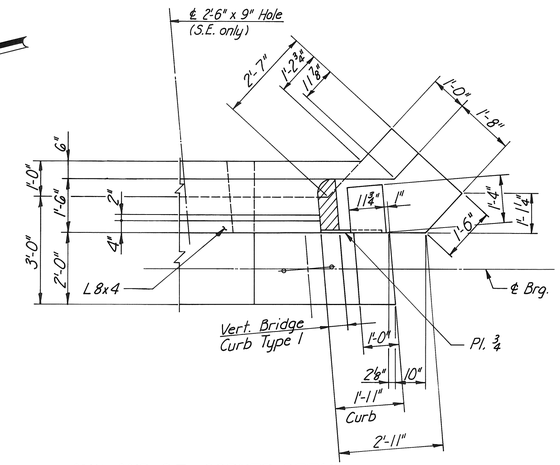
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

SCALE: As Shown
As Built
SHEET NO. 4 of 15



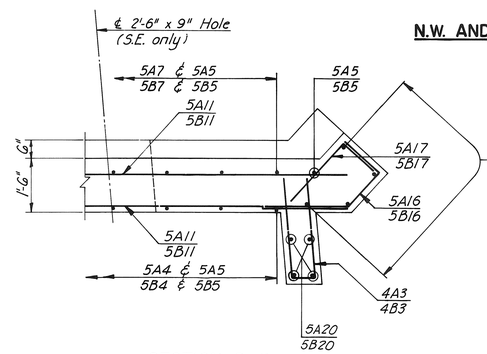
PLAN

¼" = 1'-0"



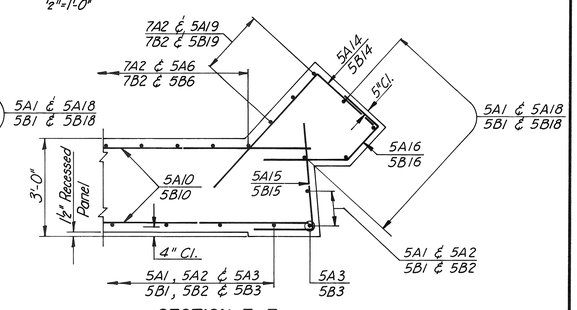
N.W. AND S.E. CORNER DETAIL

½" = 1'-0"



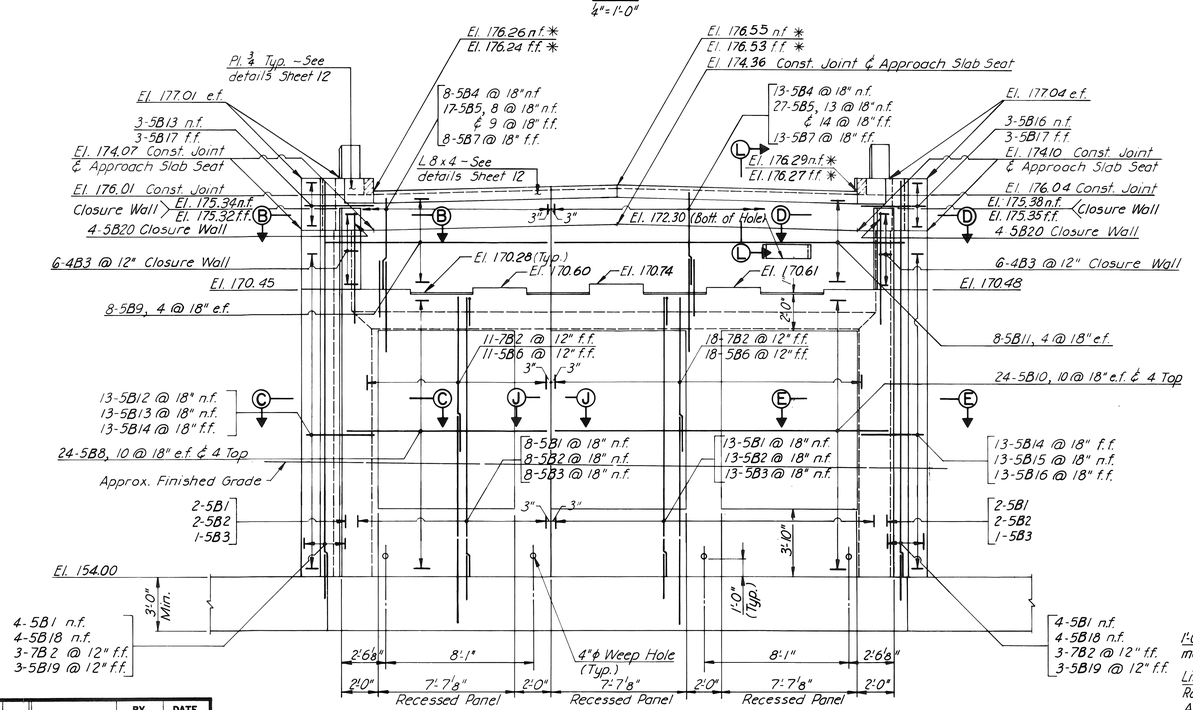
SECTION D-D

½" = 1'-0"



SECTION E-E

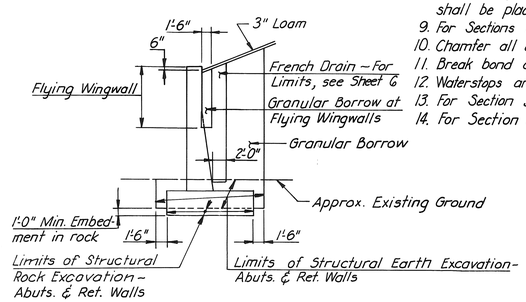
½" = 1'-0"



ELEVATION

¼" = 1'-0"

* Finished Grade Elevations



SECTION A-A

No Scale

NOTE: For payment limits at Abutments, see Sheet 13.

GENERAL NOTES:

1. Top portion of abutment backwalls shall not be placed until after superstructure concrete is placed.
2. Reinforcing steel to have 2" minimum cover unless otherwise shown.
3. Place reinforcing steel in bridge seats to clear anchor bolts.
4. n.f. denotes near face; f.f. denotes far face and e.f. denotes each face.
5. For Footing Plans, see Sheet 3.
6. For details of Expansion, Contraction and Construction Joints and Abutment and Wingwall details, see Sheet 6.
7. Dress bearing pad areas 1" larger all around than masonry plates to exact elevations shown.
8. For Bearing Pedestals and Anchor Bolt details, see Sheet 9. Bearing Pedestals shall be placed normal to stringers.
9. For Sections B-B and C-C, see Sheet 4.
10. Chamfer all exposed edges of concrete ½".
11. Break bond at vertical contraction joints by a method to be approved by the Engineer.
12. Waterstops are not required in horizontal construction joints in abutment backwall.
13. For Section J-J and End Post Details on Backwall, see Sheet 12.
14. For Section L-L and additional joint details, see Sheet 12.

** Cut backwall steel as necessary in the field 2" clear of hole. Fill with concrete after four 4"φ pipe conduits are placed.

NO.	REVISION	BY	DATE		BY	DATE
				MADE	L.B.P.	6-72
				TRACED	L.B.P. J.G.V.	6-72
				CHECKED	J.H.S.	6-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

SECTION 1-YORK TO PORTLAND

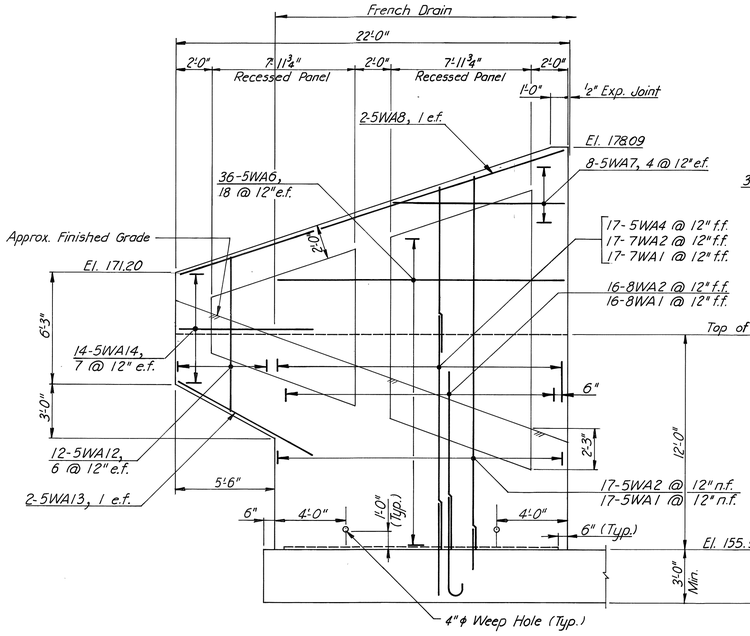
MOUNTAIN ROAD OVER MAINE TURNPIKE

EAST ABUTMENT

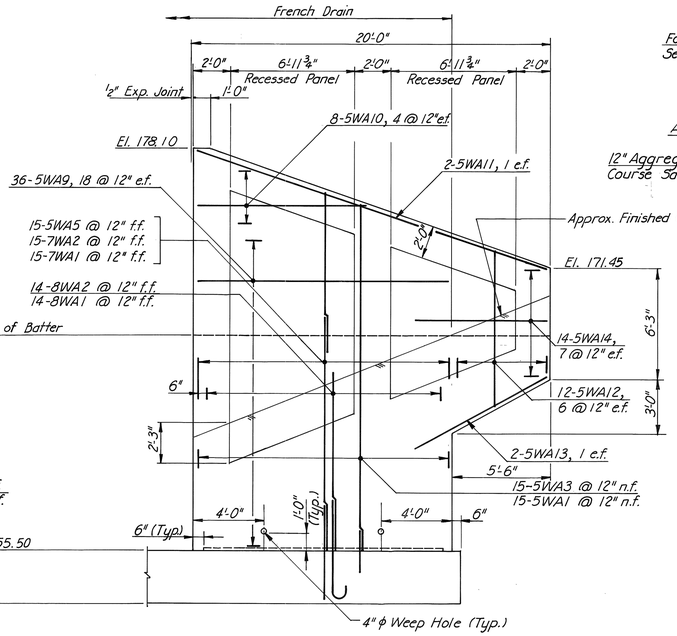
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

SCALE: As Shown
As Built

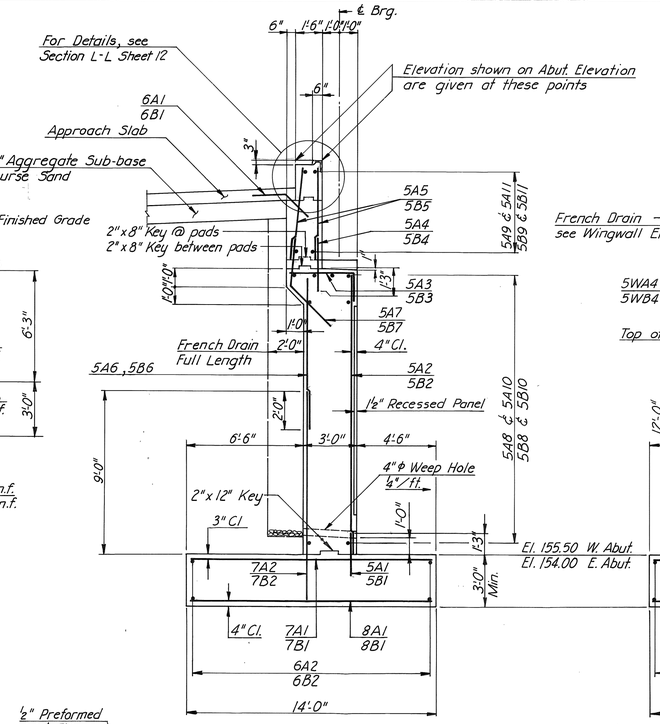
SHEET NO. 5 of 15



SOUTHWEST

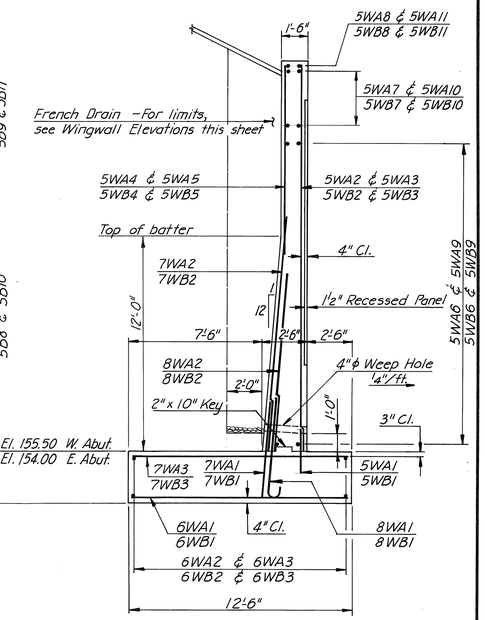


NORTHWEST



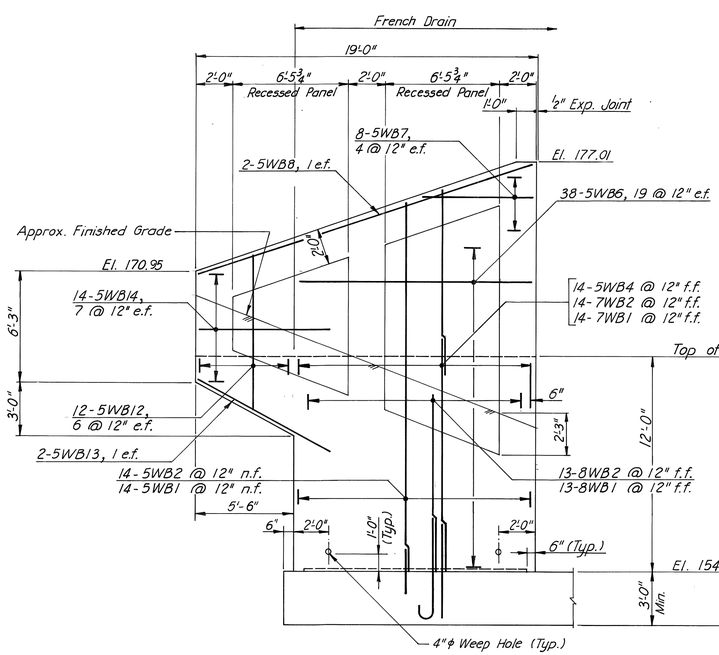
TYPICAL ABUTMENT SECTION

¼"=1'-0"

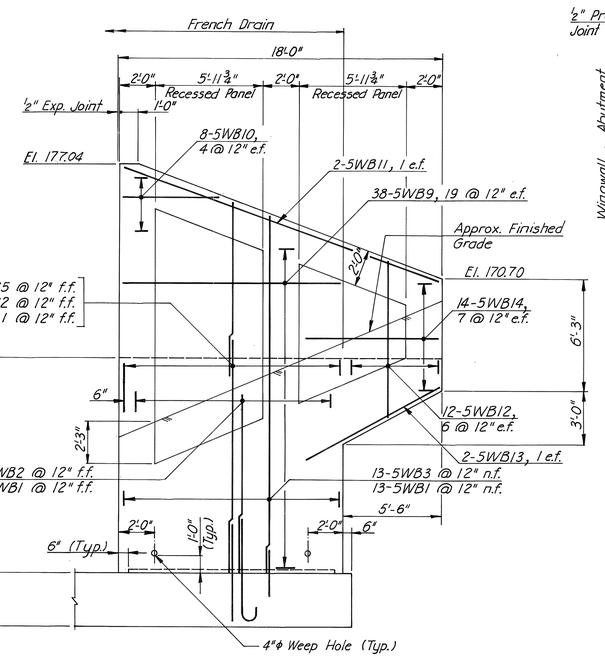


TYPICAL WINGWALL SECTION

¼"=1'-0"



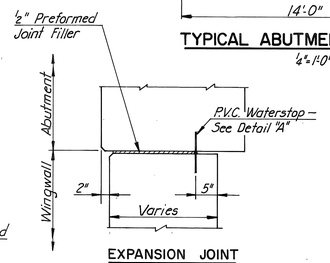
NORTHEAST



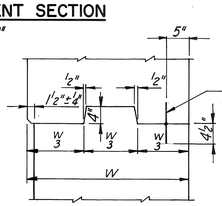
SOUTHEAST

WINGWALL ELEVATIONS

¼"=1'-0"



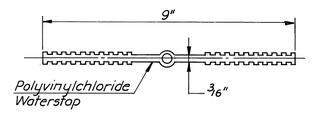
EXPANSION JOINT



CONTRACTION JOINT

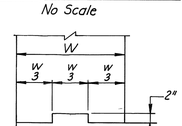
VERTICAL JOINT DETAILS

No Scale



DETAIL "A"

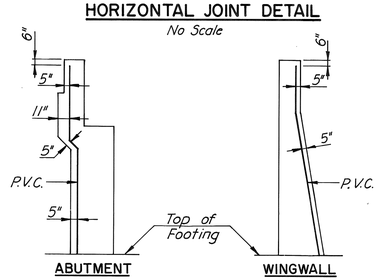
No Scale



CONSTRUCTION JOINT

HORIZONTAL JOINT DETAIL

No Scale



LIMITS OF P.V.C. WATERSTOP

No Scale

NO.	REVISION	BY	DATE		BY	DATE
				MADE	L.B.P.	6-72
				TRACED		
				CHECKED	J.H.S.	6-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

SECTION 1-YORK TO PORTLAND

MOUNTAIN ROAD OVER MAINE TURNPIKE

ABUTMENT AND WINGWALL DETAILS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

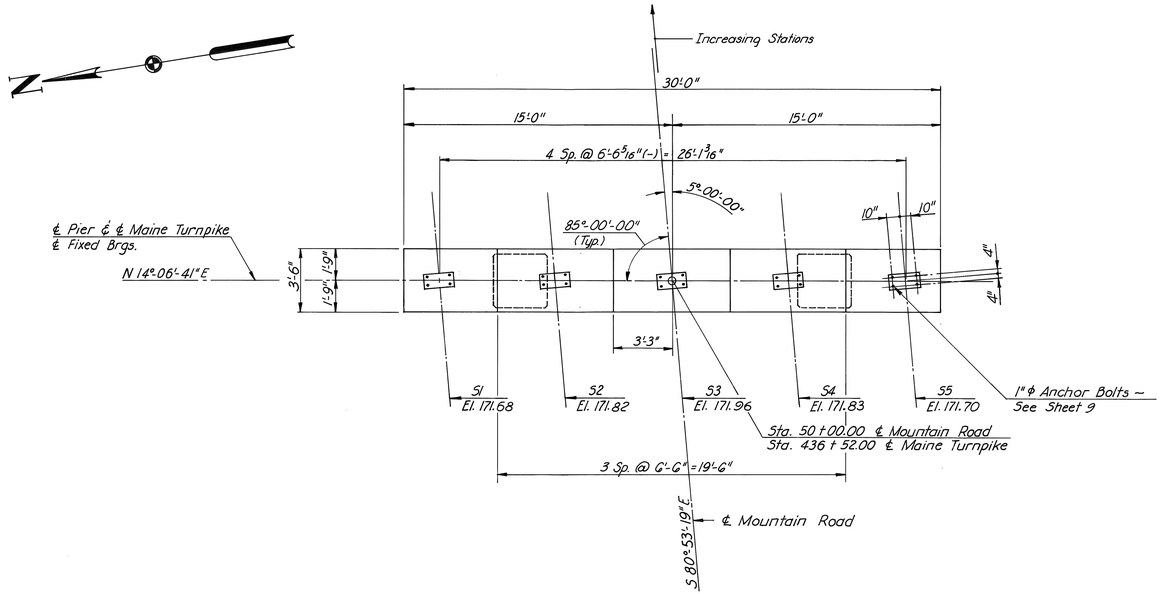
CONSULTING ENGINEERS

BOSTON

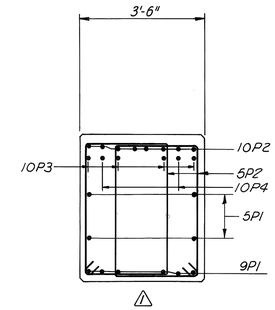
SCALE: As Shown

As Built

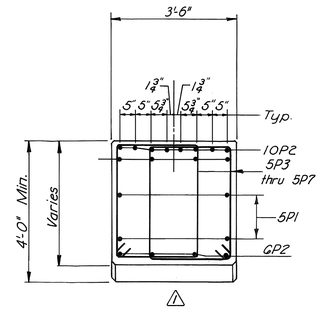
SHEET NO. 6 of 15



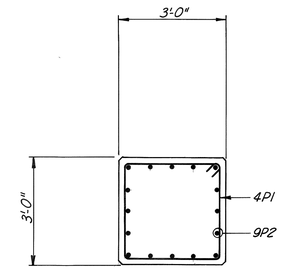
PLAN
1/4" = 1'-0"



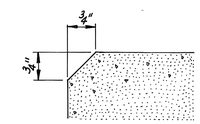
SECTION F-F
1/2" = 1'-0"



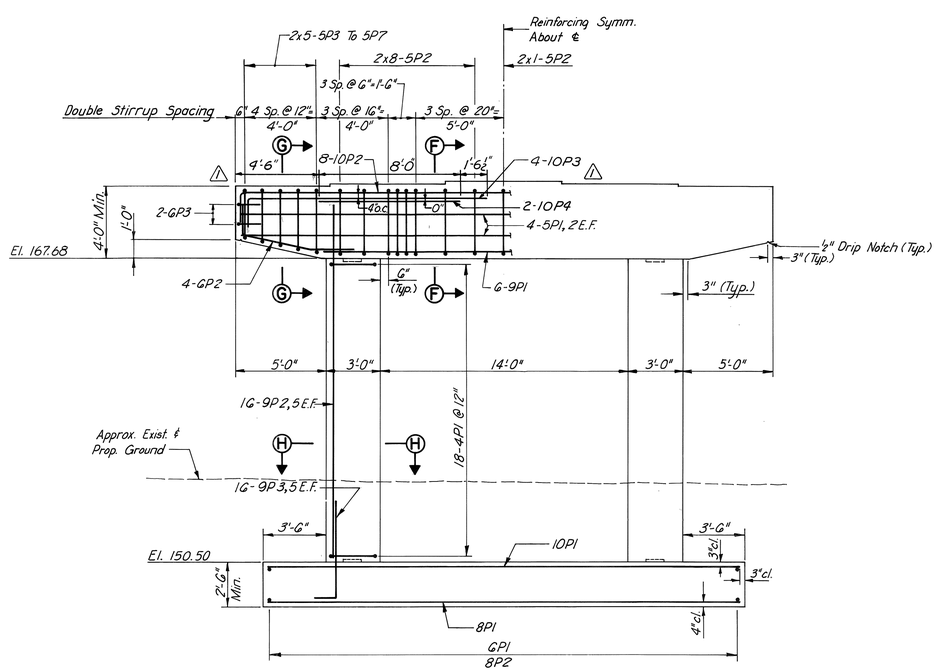
SECTION G-G
1/2" = 1'-0"



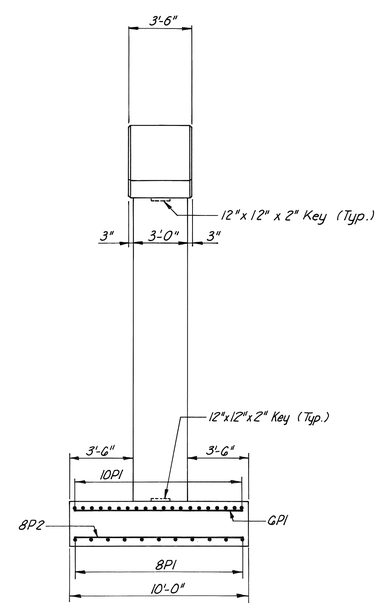
SECTION H-H
1/2" = 1'-0"



CHAMFER DETAIL
Half Size



ELEVATION
1/4" = 1'-0"



END ELEVATION
1/4" = 1'-0"

NOTES:

1. Dress bearing pad areas 1" larger all around than masonry plates to exact elevation shown.
2. Reinforcing steel to have 2" minimum cover except as noted.
3. Place reinforcing steel to clear anchor bolts.
4. For Footing Plan, see Sheet 3.
5. For bearing pedestals and anchor bolt details, see Sheet 9. Bearing pedestals shall be placed normal to stringers.

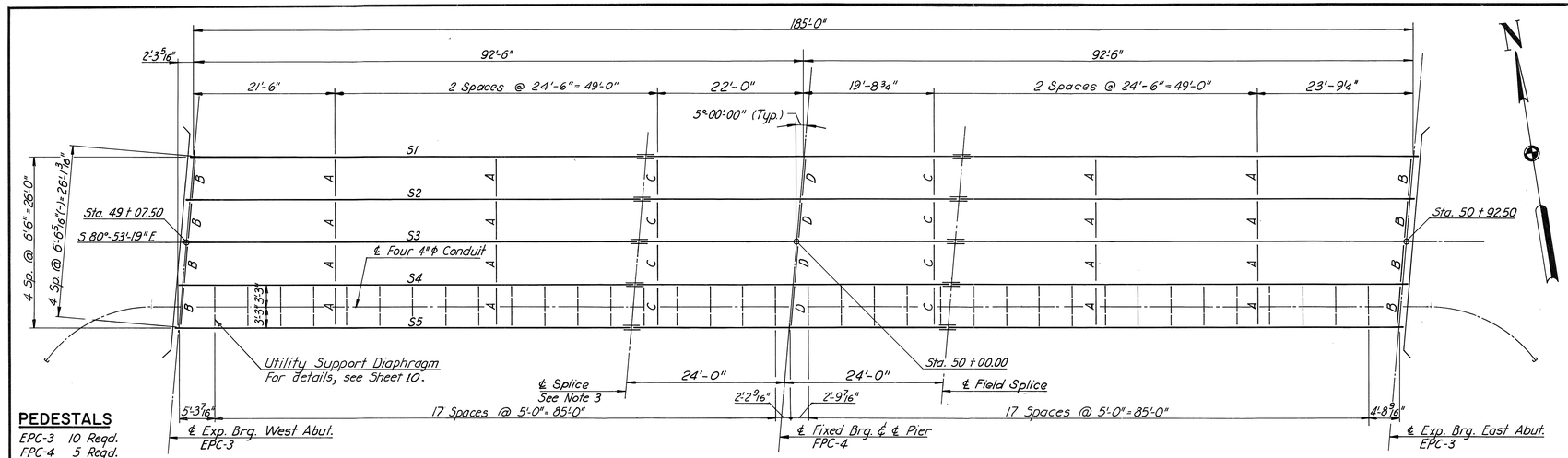
NO.	REVISION	BY	DATE		BY	DATE
				MADE	A.B.P.	5-72
				TRACED		
1	Cap Bm. Steel	I.S.	2/73	CHECKED	J.H.S.	6-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY
MAINE TURNPIKE
SECTION 1-YORK TO PORTLAND

MOUNTAIN ROAD OVER MAINE TURNPIKE
PIER

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

SCALE: As Shown
As Built
SHEET NO. 7 of 15

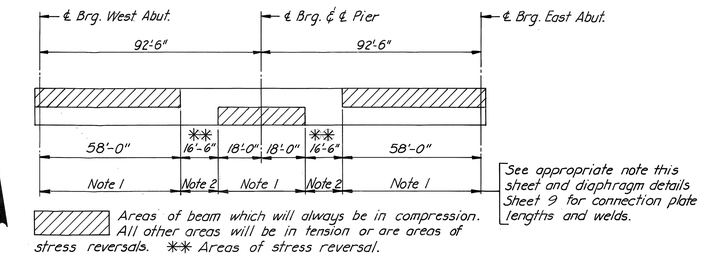


ERECTION DIAGRAM

1" = 10'

PEDESTALS

EPC-3 10 Reqd.
FPC-4 5 Reqd.



BEAM STRESS TYPE DIAGRAM

No Scale

REFERENCE

Blocking Details – see Sheet 9.
Diaphragms – see Sheet 9
Pedestals – see Sheet 9.
Shear Connectors – see Sheet 9.
Armored Joint – see Sheet 12.
For additional steel details - see Sheets 9 & 10

SPECIFICATIONS

Fabrication and Erection: State of Maine Standard Specifications, Highways and Bridges, Revision of June 1968.

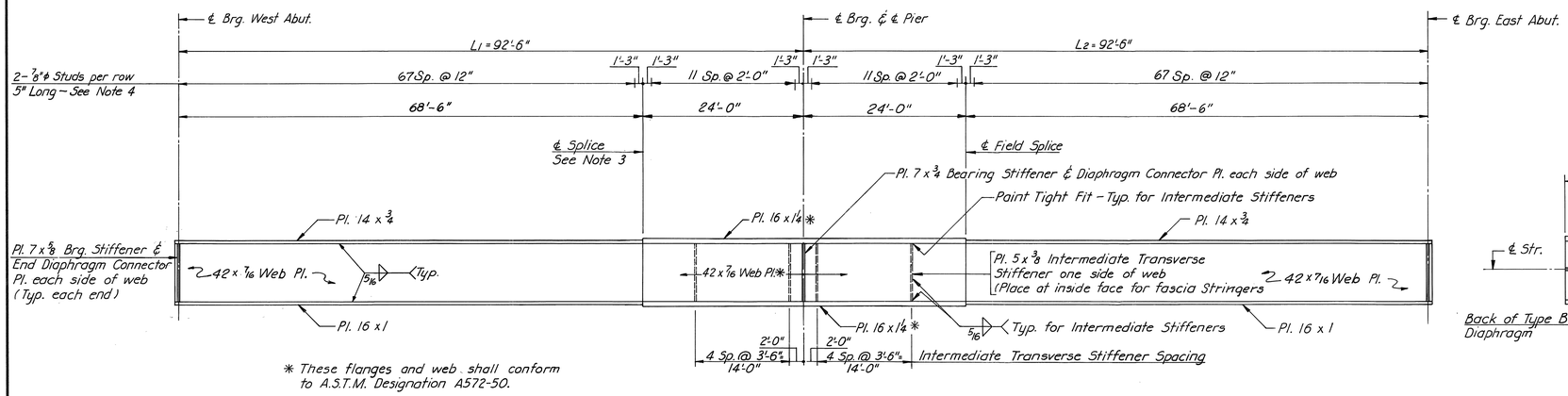
Design and Details: A.A.S.H.O. Standard Specifications for Highway Bridges 1969 with interim specifications.

Materials: All structural steel shall conform to A.S.T.M. Designation A36 except as noted on Typical Stringer Elevation.

Welding: Specifications for Welded Highway and Railway Bridges, American Welding Society, A.W.S.-D2.0-69 as modified by the appropriate special provisions.

NOTES

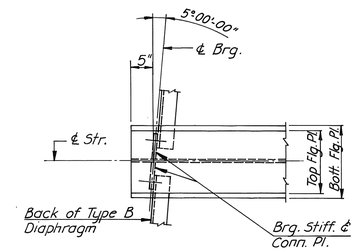
1. Weld to web and compression flange, paint tight fit at tension flange.
2. Weld to web only, paint tight fit at top and bottom flange.
3. At the Contractors option a shop bolted or field bolted splice may be used.
4. Spacing may be varied on S1 & S5 as required to clear bridge drains providing total number of shear connectors indicated remains unchanged.
5. A maximum of one shop welded web splice will be allowed in the positive moment section of the girders. No shop welded flange splices will be allowed. Location of shop web splices is subject to the approval of the Engineer.



* These flanges and web shall conform to A.S.T.M. Designation A572-50.

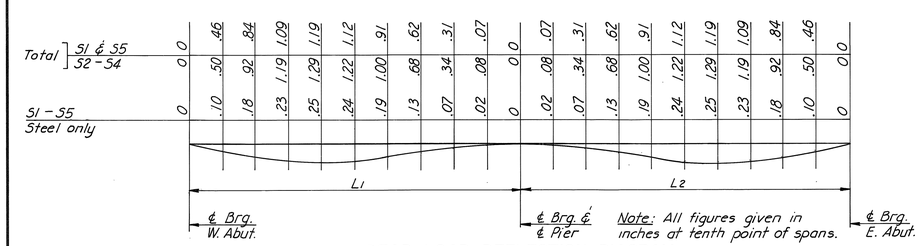
TYPICAL STRINGER ELEVATION

No Scale



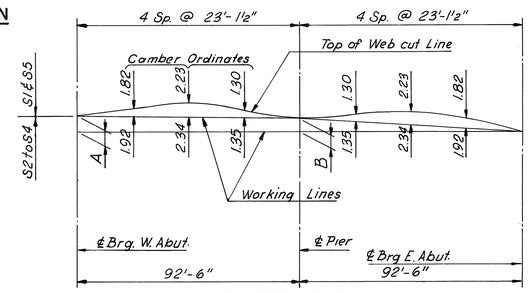
END OF STRINGER DETAIL

¾" = 1'-0"



DEAD LOAD DEFLECTION DIAGRAM

No Scale



CAMBER DIAGRAM

No Scale

DIMENSION SCHEDULE		
	A	B
S1	1.09	0.92
S2	1.07	0.91
S3	1.07	0.91
S4	1.06	0.90
S5	1.05	0.90

NOTES:

Camber ordinates shown include total dead load deflection and V.C. correction.
All dimensions are horizontal or vertical.
Camber ordinates are in inches.
Dimensions A & B are in feet.

BOTTOM OF SLAB ELEVATIONS AT BLOCKING POINTS

Stringer No.	℄ Brg. W. Abut.	SPAN 1 .1L1	.2L1	.3L1	.4L1	.5L1	.6L1	.7L1	.8L1	.9L1	℄ Pier	SPAN 2 .1L2	.2L2	.3L2	.4L2	.5L2	.6L2	.7L2	.8L2	.9L2	℄ Brg. E. Abut.
S1	176.54	176.58	176.62	176.64	176.64	176.62	176.59	176.54	176.48	176.42	176.37	176.31	176.27	176.21	176.15	176.08	175.99	175.88	175.75	175.61	175.45
S2	176.67	176.72	176.76	176.78	176.78	176.77	176.73	176.68	176.62	176.56	176.51	176.46	176.41	176.36	176.30	176.23	176.14	176.03	175.90	175.75	175.60
S3	176.81	176.86	176.90	176.92	176.92	176.90	176.87	176.82	176.76	176.70	176.65	176.59	176.55	176.50	176.44	176.37	176.28	176.17	176.04	175.90	175.74
S4	176.67	176.72	176.76	176.78	176.78	176.77	176.73	176.68	176.63	176.57	176.51	176.46	176.42	176.37	176.31	176.24	176.15	176.04	175.91	175.77	175.61
S5	176.53	176.58	176.62	176.64	176.64	176.62	176.59	176.55	176.49	176.44	176.38	176.33	176.28	176.23	176.17	176.10	176.01	175.90	175.78	175.64	175.48

NO.	REVISION	BY	DATE		BY	DATE
				MADE	K.B.P.	5-72
				TRACED	K.B.P. H.S.	6-72
				CHECKED	J.B.M.	7-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY
MAINE TURNPIKE
SECTION 1–YORK TO PORTLAND

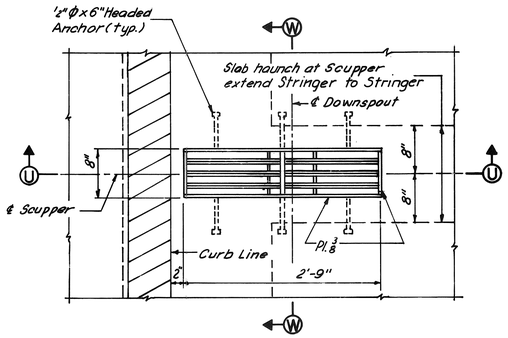
MOUNTAIN ROAD
OVER
MAINE TURNPIKE

STRUCTURAL STEEL AND BLOCKING POINTS

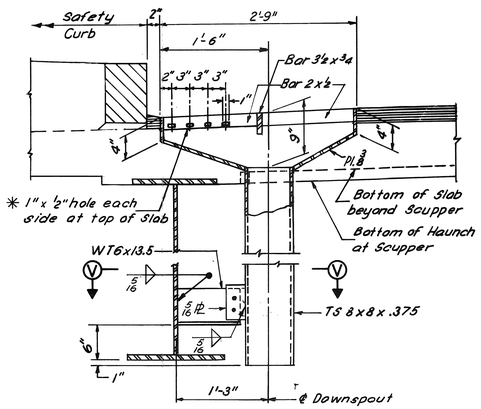
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

SCALE: As Shown
As Built

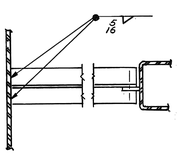
SHEET NO. 8 of 15



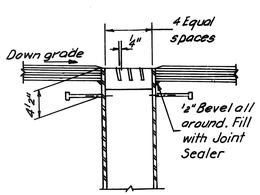
PLAN



SECTION U-U



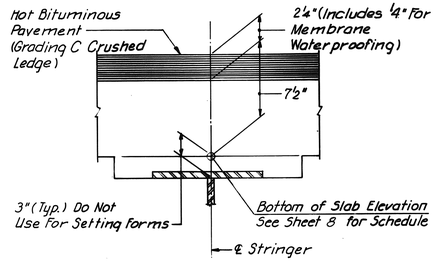
SECTION V-V



SECTION W-W

SCUPPER DETAILS

1" = 1'-0"

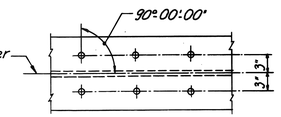


BLOCKING DETAIL

No Scale

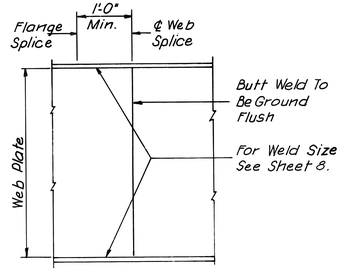
NOTE:

To compensate for dead load deflections, as well as possible irregularities in beams, set the bottom of slab elevations at the points indicated before any of the slab formwork is started. See Subsection 502.10 (a) of the Standard Specifications, Revision of June 1968.



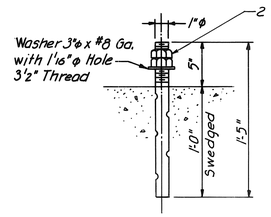
SHEAR CONNECTORS

No Scale



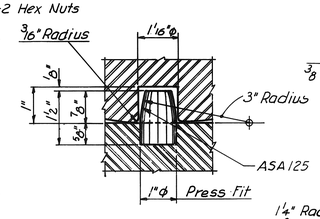
TYPICAL SHOP WEB SPLICE

3/4" = 1'-0"



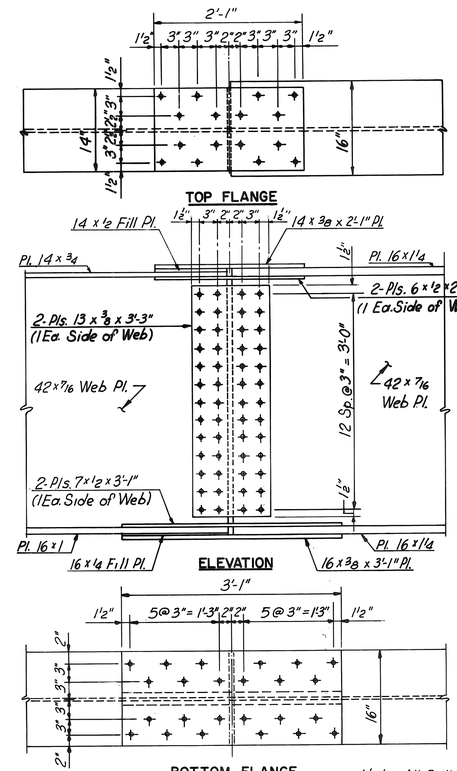
ANCHOR BOLT DETAIL

No Scale



PINTLE DETAIL

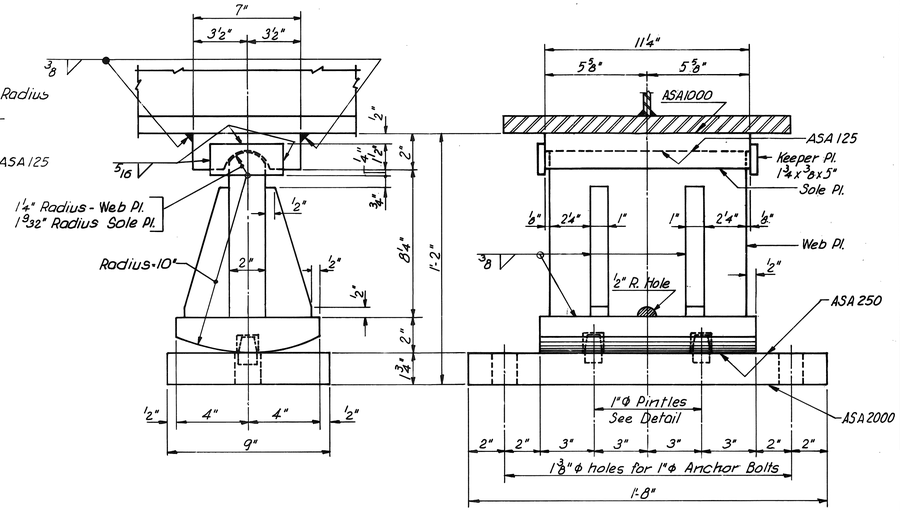
No Scale



TYPICAL SPLICE DETAIL

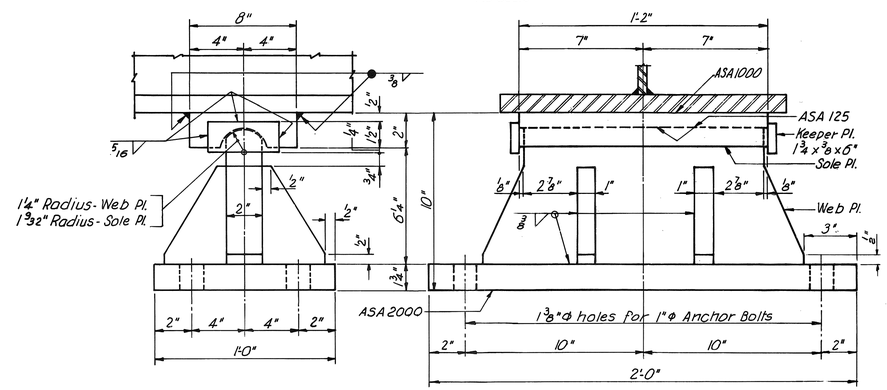
1" = 1'-0"

Note: All Bolts to be 7/8" Φ high Strength Bolts and all holes to be 15/16" Φ.



EXPANSION PEDESTAL - EPC-3

No Scale



FIXED PEDESTAL - FPC-4

No Scale

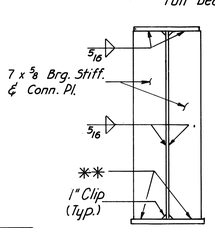
NOTES:

1. Bearing pedestal to be placed normal to centerline stringer.
2. At the location of bearing pedestals the concrete bridge seats shall be dressed one inch larger all around than size of masonry plates and to exact elevations shown on the plans. If dressed areas are below the surface of the surrounding bridge seat, a small channel shall be cut to the edge of the bridge seat for drainage where required by the Engineer. Channels shall have a minimum width of 2", and minimum slope of 1/2" per foot. No seperate payment for this work will be made as it shall be considered incidental to contract items.

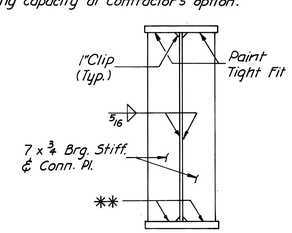
SCUPPER NOTES:

1. All welds to be continuous 5/16" bead or fillet welds.
2. All steel shall conform to A. S.T.M. Designation A36. Galv. after fabrication.
3. Edge of scupper adjacent to curb to be depressed 1/2" below finished grade. Shape wearing surface to fit.
4. * Do not cover with membrane waterproofing.

** Full penetration groove weld or mill for full bearing capacity at Contractor's option.



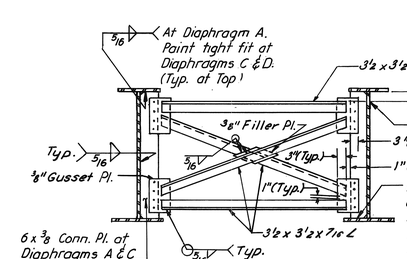
ABUTMENTS



PIER

BEARING STIFFENER DETAILS

3/4" = 1'-0"

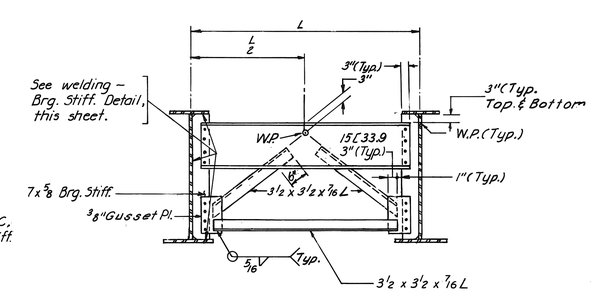


DIAPHRAGMS A, C & D

(As Noted)

1/2" = 1'-0"

Note: All Bolts to be 7/8"Φ High Strength Bolts and all holes to be 15/16"Φ.



DIAPHRAGM B

1/2" = 1'-0"

NO.	REVISION	BY	DATE		BY	DATE
				MADE	P.S. H.S.	6-72
				TRACED		
				CHECKED	J.B.M.	7-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

SECTION 1-YORK TO PORTLAND

MOUNTAIN ROAD OVER MAINE TURNPIKE

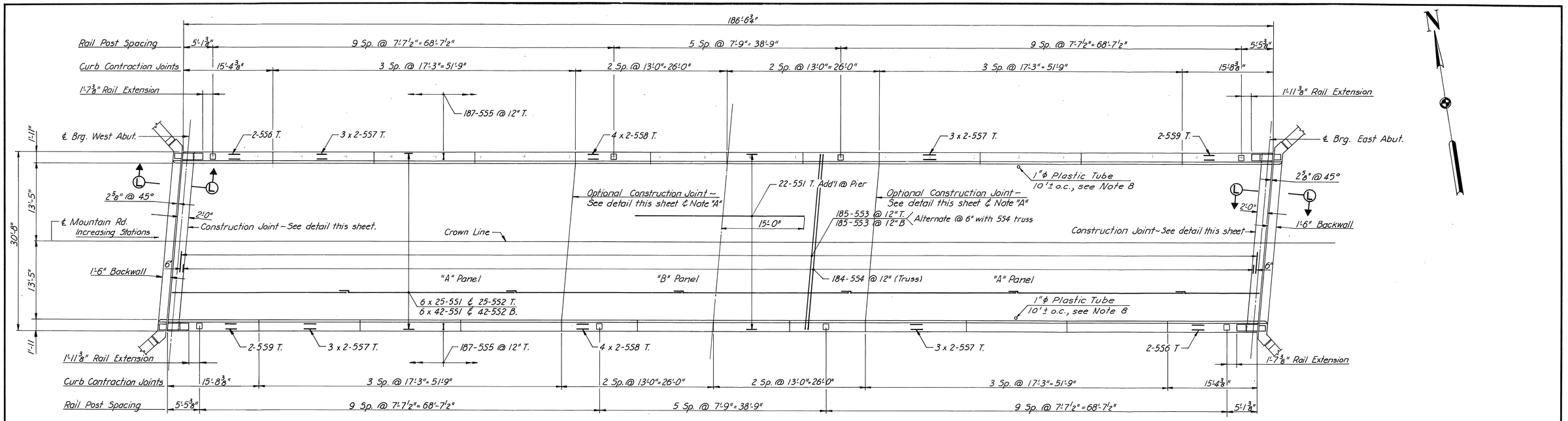
STRUCTURAL STEEL DETAILS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

SCALE: As Shown

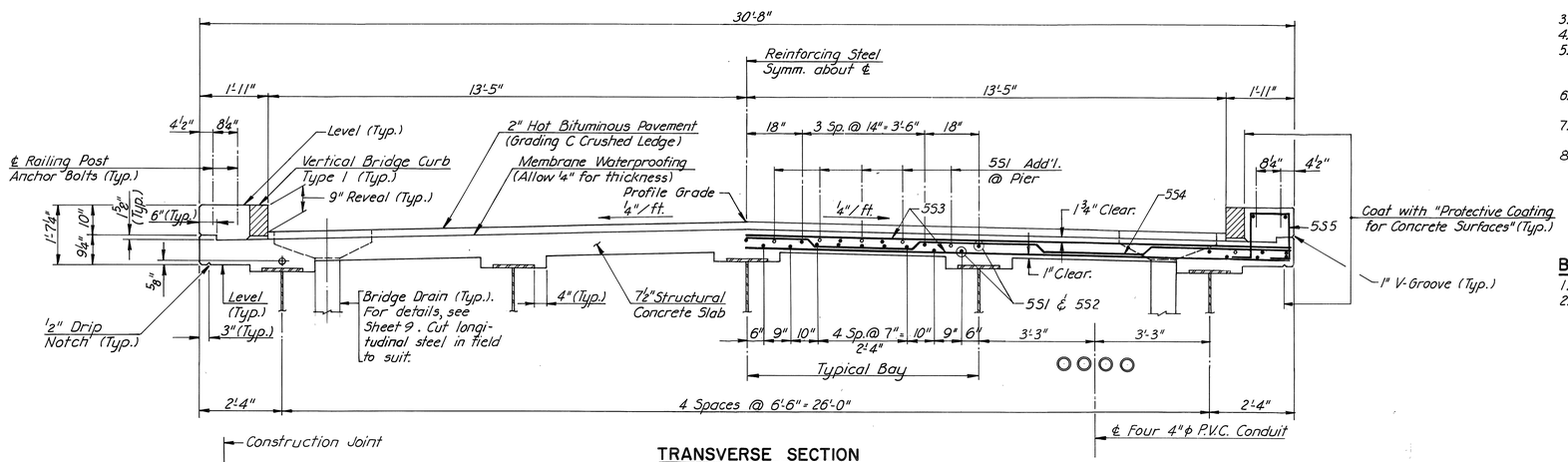
As Built

SHEET NO. 9 of 15



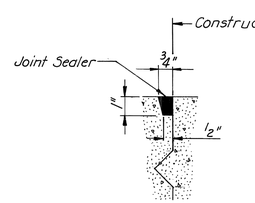
PLAN

1/8" = 1'-0"



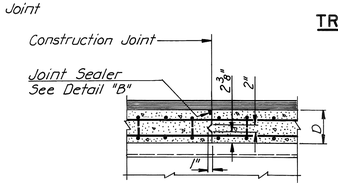
TRANSVERSE SECTION

1/2" = 1'-0"



DETAIL "B"

3" = 1'-0"



CONSTRUCTION JOINT DETAIL

3/4" = 1'-0"

GENERAL SUPERSTRUCTURE NOTES

1. At all contraction joints in concrete curbs, break the bond between the concrete surfaces by a method to be approved by the Engineer. Form a 1" V-Groove on the outside faces of curbs at each curb joint. Provide a joint in the Vertical Bridge Curb at each contraction joint in the concrete curbs. Chamfer exposed edges of concrete 1/2" unless noted.
2. Do not break the bond between the concrete surfaces of vertical construction joints in superstructure slabs. Form a 1" V-Groove on the outside faces of slabs at each construction joint.
3. For bridge rail, see Standard Detail Sheet .
4. Vertical Bridge Curb will be paid for under Item 609.13.
5. For 1" V-Groove, End Post Detail on Superstructure, Section L-L, deck joint details at Abutments and Typical Curb Section, see Sheet 12.
6. Reinforcing steel to have 2" minimum cover unless otherwise shown.
7. Place concrete in "A" Panels before placing concrete in "B" Panel. See Note "A".
8. Plastic tubes to be placed to outlet inside of fascia stringer.

BRIDGE DRAIN NOTES

1. One bridge drain each side at both abutments (4 required).
2. Drains shall be placed so that they are at least 5'-0" clear of abutment, exact position to be determined in the field. For approximate location, see Sheet 1.

NOTE "A"

As an alternate and at the contractors option, the deck concrete may be placed in one continuous operation thus eliminating slab construction joints and joint sealer. Continuous placing of concrete in the deck shall be made with the use of an acceptable set-retarder. Payment for set-retarder shall be in accordance with Section 502 of the Standard Specifications.

NO.	REVISION	BY	DATE		BY	DATE
				MADE	S.B.P.	6-72
				TRACED		
				CHECKED	J.H.S.	6-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

SECTION 1-YORK TO PORTLAND

MOUNTAIN ROAD OVER MAINE TURNPIKE

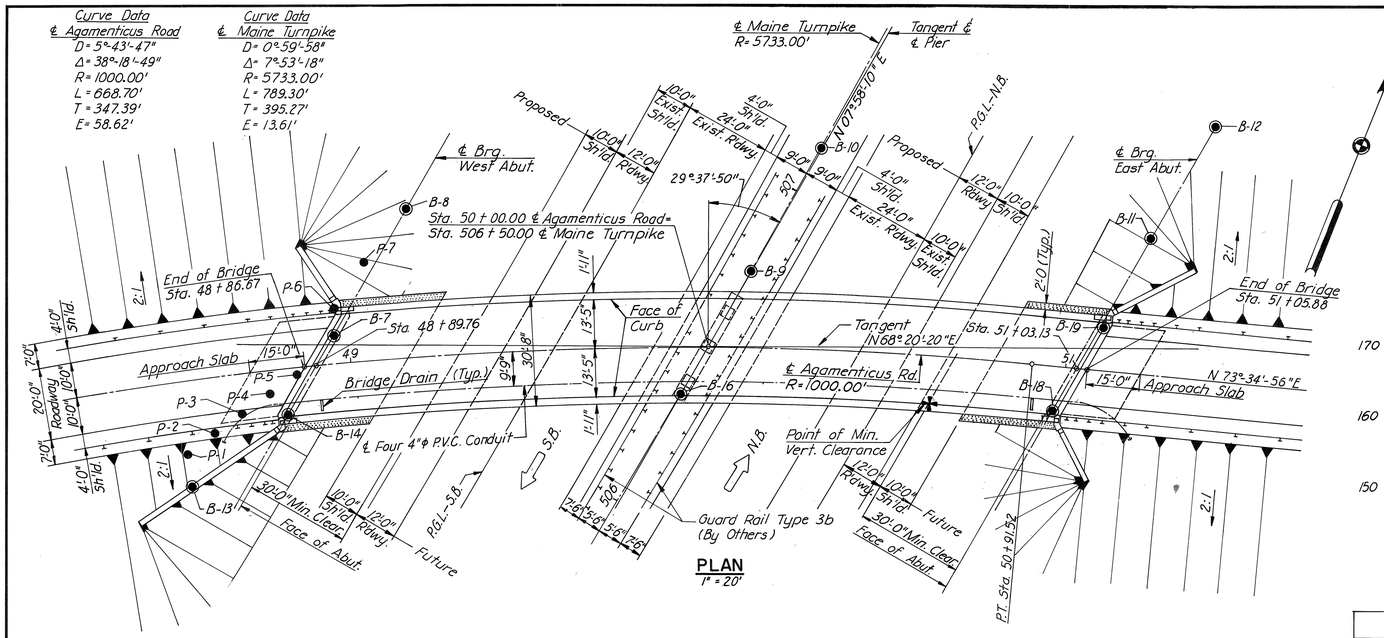
SUPERSTRUCTURE DETAILS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

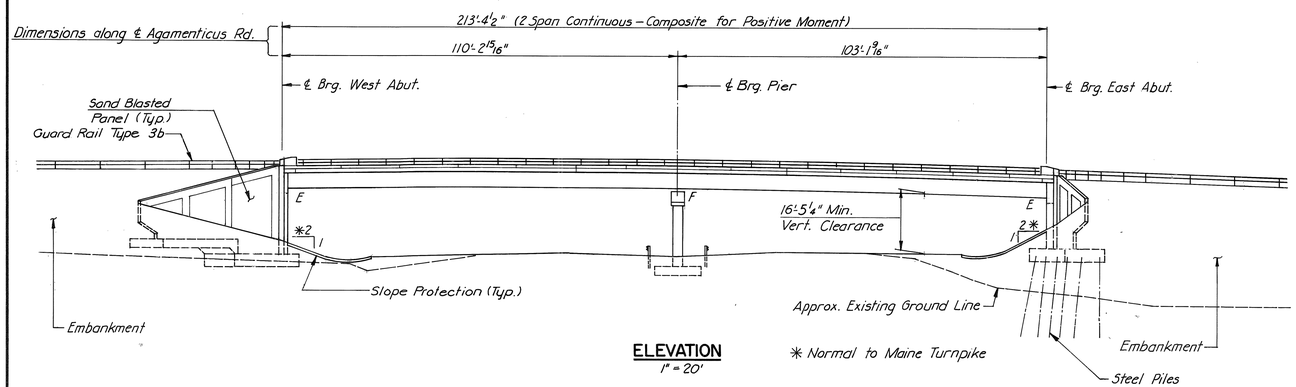
SCALE: As Shown

As Built

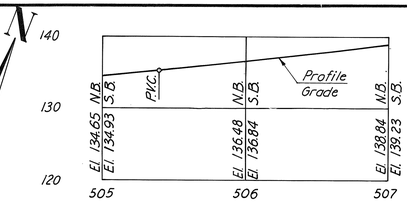
SHEET NO. 11 of 15



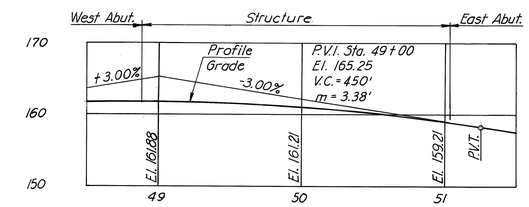
PLAN
1" = 20'



ELEVATION
1" = 20'



PROFILE - MAINE TURNPIKE
Hor. 1" = 50'
Vert. 1" = 10'



PROFILE - AGAMENTICUS ROAD
Hor. 1" = 50'
Vert. 1" = 10'

SPECIFICATIONS

DESIGN
A.A.S.H.O. Standard Specifications for Highway Bridges 1969 with interim specifications.

CONTRACT
State of Maine, State Highway Commission Standard Specifications, Highways and Bridges, revision of June 1968.

LIVE LOADING
HS 20-44 as modified for military loading.

FOUNDATIONS
West Abutment: Design Capacity - 3.0 Tons per square foot.
Pier: Design Capacity - 2.0 Tons per square foot.
East Abutment: HP 12 x 53 Pile Foundation - Design Capacity 70 Tons.

ALLOWABLE STRESSES
Concrete (n=10) - fc = 1200 p.s.i.
Reinforcing Steel, A.S.T.M. Designation A615 Grade 60, fs = 24,000 p.s.i.
Structural Steel, A.S.T.M. Designation A572-50 for main beam material, fs = 27,000 p.s.i. over Pier - all other A.S.T.M Designation A36, fs = 20,000 p.s.i.

CONCRETE CLASSIFICATION
All concrete shall be Class "A".

BRIDGE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
203.25	Granular Borrow	1480	C.Y.
203.26	Gravel Borrow	95	C.Y.
206.08	Structural Earth Excavation - Abuts. & Ret. Walls	170	C.Y.
206.09	Structural Rock Excavation - Abuts. & Ret. Walls	40	C.Y.
206.10	Structural Earth Excavation - Piers	140	C.Y.
206.11	Structural Rock Excavation - Piers	10	C.Y.
403.12	Bituminous Concrete Surface Course	74	Ton
501.21	Steel H-beam Piles 53 lbs./ft.	825	L.F.
502.21	Structural Concrete, Abuts. & Ret. Walls	600	C.Y.
502.23	Structural Concrete, Piers	75	C.Y.
502.2602	Structural Concrete, Roadway & Sidewalk Slabs		
	on Steel Bridges	1	L.S.
502.3102	Structural Concrete, Approach Slabs	1	L.S.
503.12	Reinforcing Steel, Fabricated & Delivered	114,820	Lbs.
503.13	Reinforcing Steel, Placing	114,820	Lbs.
504.7002	Structural Steel, Fabricated & Delivered	1	L.S.
504.7102	Structural Steel, Erection	1	L.S.
505.0802	Shear Connectors	1	L.S.
506.1402	Field Painting, Structural Steel	1	L.S.
507.08	Bridge Railing	417	L.F.
508.10	Membrane Waterproofing	640	S.Y.
512.06	French Drains	210	C.Y.
513.09	Slope Protection - Portland Cement Concrete	190	S.Y.
514.06	Curing Box for Concrete Cylinders	1	Each
515.20	Protective Coating for Concrete Surfaces	170	S.Y.
609.13	Vertical Bridge Curb - Type 1	431	L.F.
634.20	4" Conduit	1040	L.F.

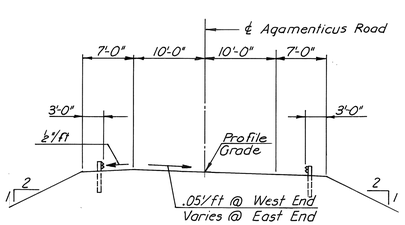
NOTE:
Estimated Quantity of Structural Steel, Fab., Del., Erected & Painted: A572 = 67,500 Lbs.; A36 = 218,500 Lbs.
Estimated Quantity of Shear Connectors = 1,844 Each (1,802 Lbs.)
Estimated Quantity of Concrete Item 502.2602 = 193 C.Y.
Estimated Quantity of Concrete Item 502.3102 = 20 C.Y.

INDEX OF SHEETS

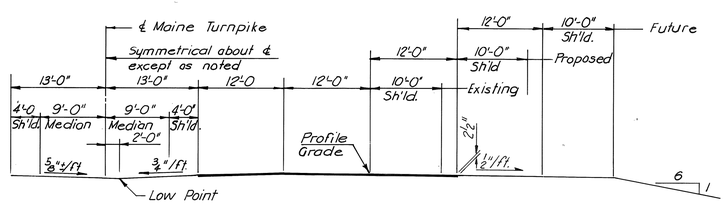
1 GENERAL PLAN
2 BORING DETAILS
3 FOOTING PLAN
4 WEST ABUTMENT
5 WEST ABUTMENT AND WINGWALL DETAILS
6 EAST ABUTMENT
7 EAST ABUTMENT AND WINGWALL DETAILS
8 PIER
9 STRUCTURAL STEEL AND BLOCKING POINTS
10 STRUCTURAL STEEL DETAILS
11 STRUCTURAL STEEL AND UTILITY DETAILS
12 SUPERSTRUCTURE DETAILS
13 DECK JOINT AND MISCELLANEOUS CONCRETE DETAILS
14 SLOPE PROTECTION AND APPROACH SLABS
15 REINFORCING STEEL SCHEDULE
16 REINFORCING STEEL SCHEDULE

STANDARD SHEETS

ALUMINUM RAILING
GUARD RAIL



APPROACH SECTION AGAMENTICUS ROAD
1" = 10'



HALF SECTION - MAINE TURNPIKE
1" = 10'

LEGEND
◉ Indicates Boring Location.
For Boring Details, see Sheet 2.
● Indicates Probe Location.
For Probe Details, see Sheet 2.

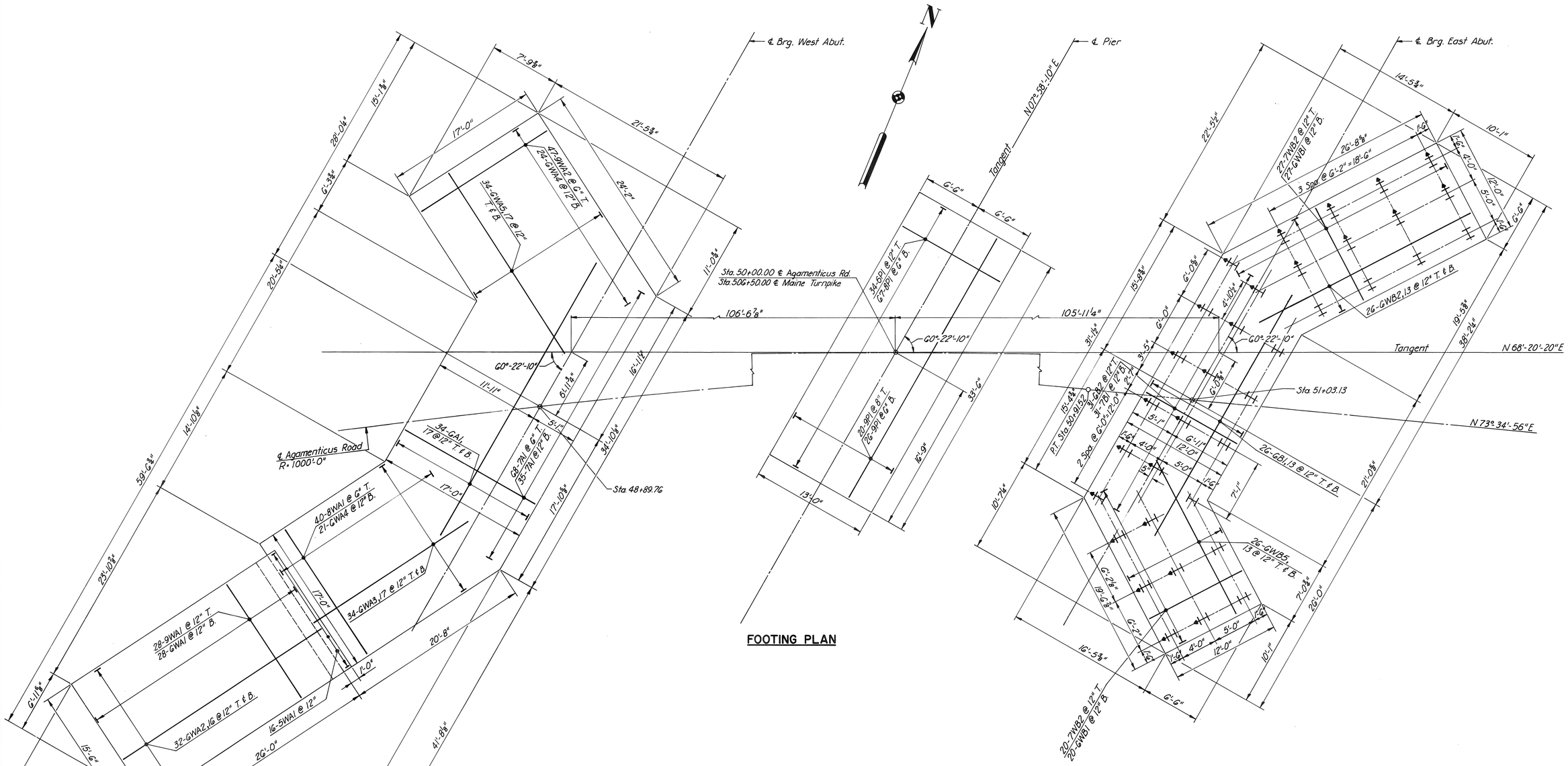
NO.	REVISION	BY	DATE		BY	DATE
				MADE	J.B.P.	8-72
				TRACED		
				CHECKED	R.B.H.	8-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY
MAINE TURNPIKE
SECTION 1-YORK TO PORTLAND

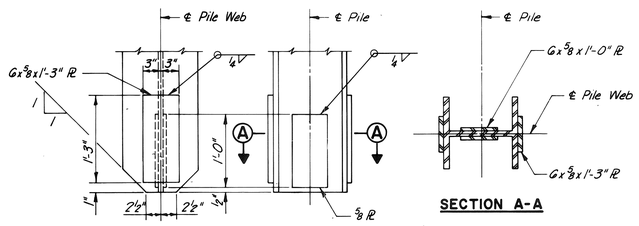
AGAMENTICUS ROAD OVER MAINE TURNPIKE
GENERAL PLAN

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

SCALE: As Shown
As Built
SHEET NO. 1 of 16



FOOTING PLAN



PILE TIP REINFORCEMENT

No Scale

SECTION A-A

Note:
Plates may be shop or field welded and shall be placed symmetrically about ℄ as indicated.

FOUNDATION NOTES:

1. ⊥ Indicates vertical piles.
2. ⊥ Indicates battered piles, battered in direction of arrow at 3 on 12.
3. Piles for East Abutment are HP12x53 with a total capacity of 70 tons.
4. Piles to be driven to ledge or practical refusal.
5. For abutment and wingwall details, see Sheets 4 thru 7
6. All dimensions shown are at bottom of footing.
7. All reinforcing steel to have 3" clearance except as noted.
8. Alternate types of pointed pile tips may be used if they are equal to or better than the pointed reinforced pile tip shown if approved by the Engineer.
9. Estimated driven lengths of piles are estimated from available soils information with no allowance for pile cut-offs and no allowance for uncertain pile penetration.
10. Estimated driven pile length: 35 @ 23'±.

NO.	REVISION	BY	DATE		BY	DATE
				MADE	L.B.P.	8-72
				TRACED	J.G.V.	9-72
				CHECKED	R.B.H.	10-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

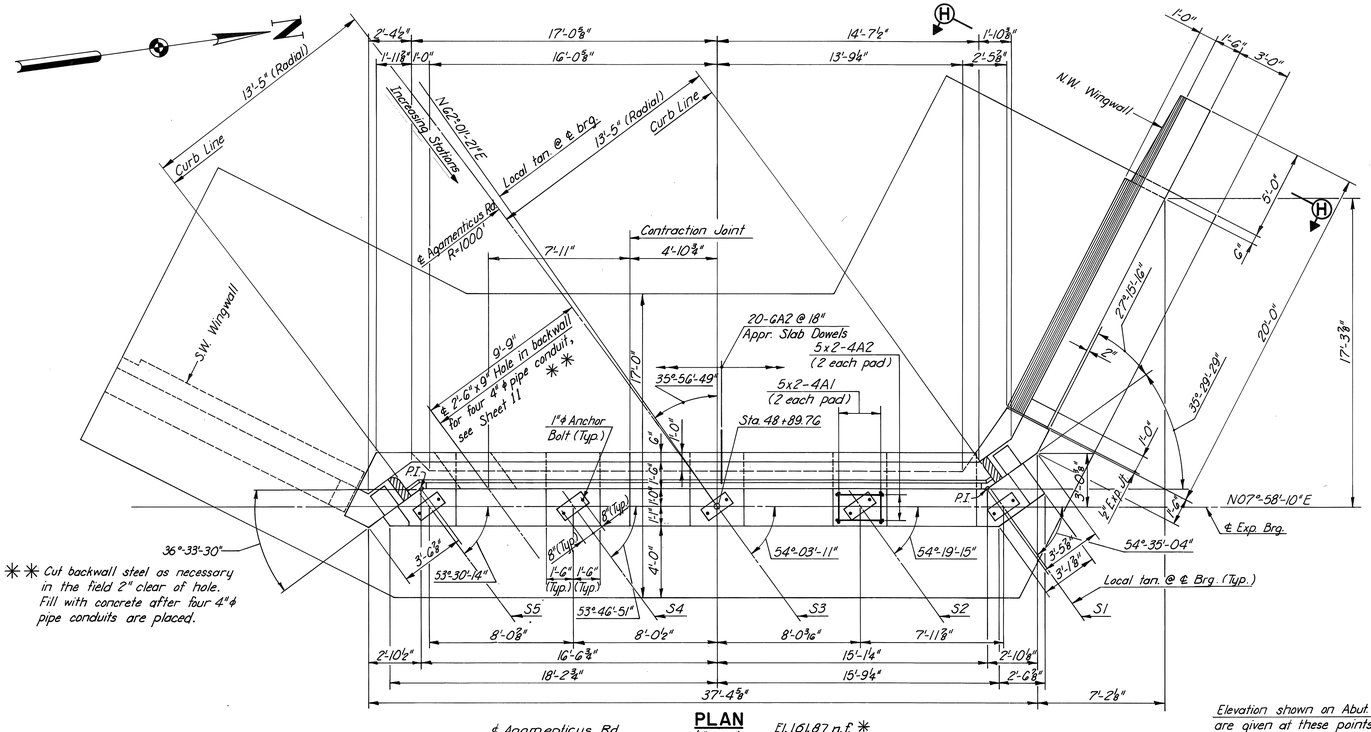
SECTION 1-YORK TO PORTLAND

AGAMENTICUS ROAD OVER MAINE TURNPIKE

FOOTING PLAN

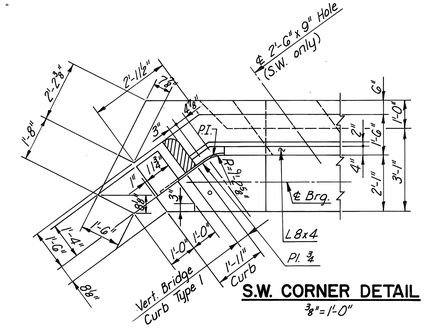
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

SCALE: 3/16" = 1'-0"
As Built
SHEET NO. 3 of 16

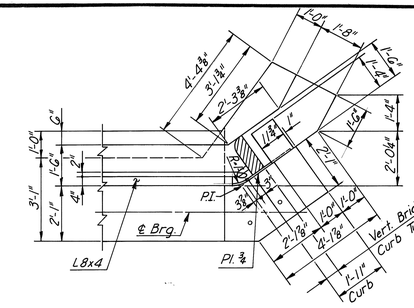


✱✱ Cut backwall steel as necessary in the field 2" clear of hole. Fill with concrete after four 4" ϕ pipe conduits are placed.

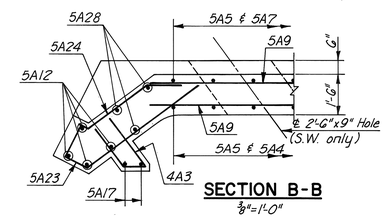
PLAN
¼"=1'-0"



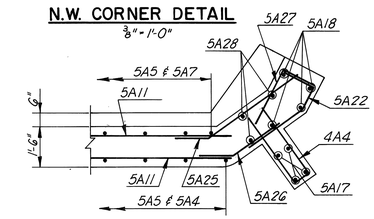
S.W. CORNER DETAIL
⅜"=1'-0"



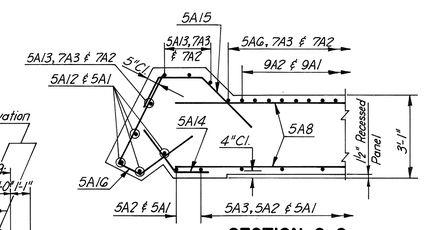
N.W. CORNER DETAIL
⅜"=1'-0"



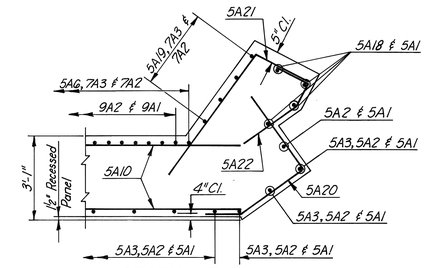
SECTION B-B
⅜"=1'-0"



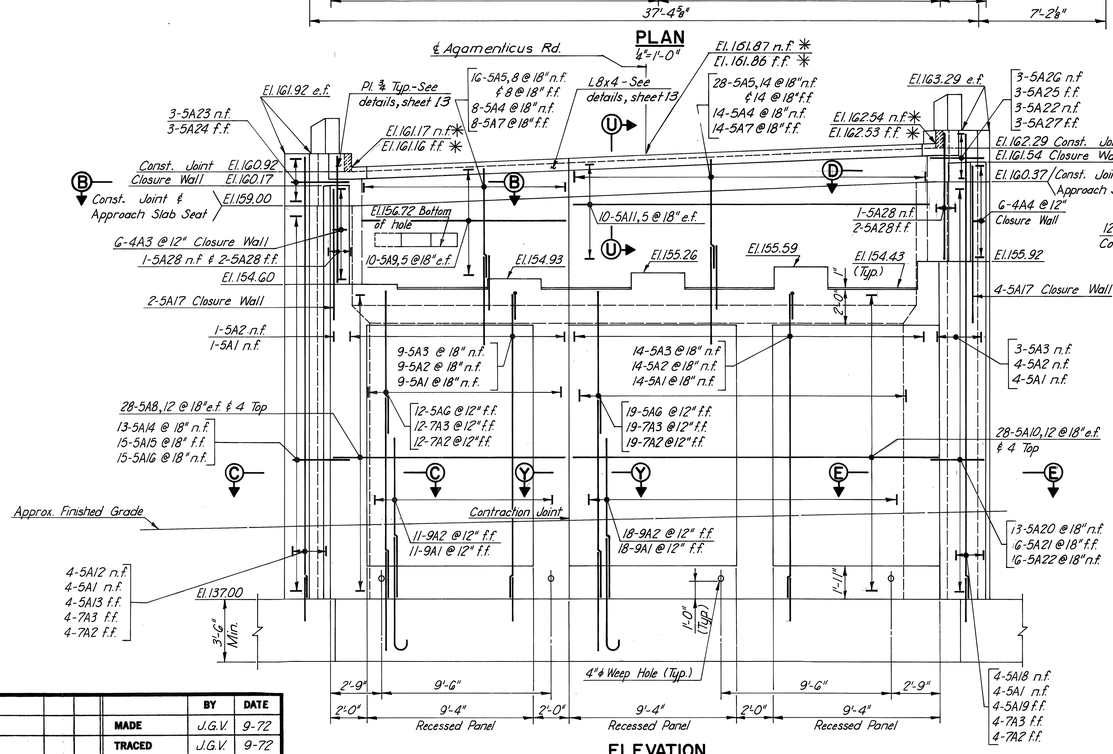
SECTION D-D
⅜"=1'-0"



SECTION C-C
⅜"=1'-0"

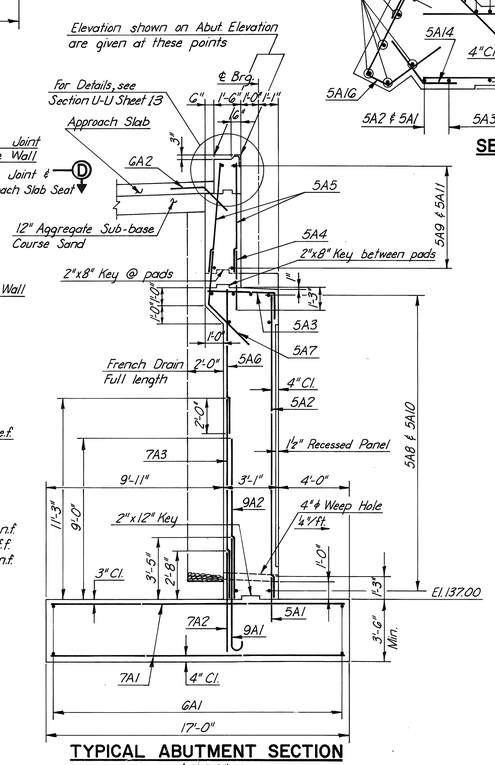


SECTION E-E
⅜"=1'-0"



ELEVATION
¼"=1'-0"

✱ Finished Grade Elevations.



TYPICAL ABUTMENT SECTION
¼"=1'-0"

GENERAL NOTES:

1. Top portion of abutment backwalls shall not be placed until after superstructure concrete is placed.
2. Reinforcing steel to have 2" minimum cover unless otherwise shown.
3. Place reinforcing steel in bridge seats to clear anchor bolts.
4. n.f. denotes near face; f.f. denotes far face and e.f. denotes each face.
5. For Footing Plan, see Sheet 3 .
6. For details of Expansion, Contraction and Construction Joint, see Sheet 7.
7. For Wingwall Details, see Sheet 5 .
8. Dress bearing pad areas 1" larger all around than masonry plates to exact elevations shown.
9. For Bearing Pedestals and Anchor Bolt details, see Sheet 10. Bearing Pedestals shall be placed normal to stringers.
10. Chamfer all exposed edges of concrete ½".
11. Break bond at vertical contraction joints by a method to be approved by the Engineer.
12. Waterstops are not required in horizontal construction joints in abutment backwall.
13. For Section Y-Y and End Post Details on Backwall, see Sheet 13.
14. For Section U-U and additional joint details, see Sheet 13.
15. For Section H-H, see Sheet 5 .

NO.	REVISION	BY	DATE		BY	DATE
				MADE	J.G.V.	9-72
				TRACED	J.G.V.	9-72
				CHECKED	R.B.H.	10-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

SECTION 1-YORK TO PORTLAND

AGAMENTICUS ROAD OVER MAINE TURNPIKE

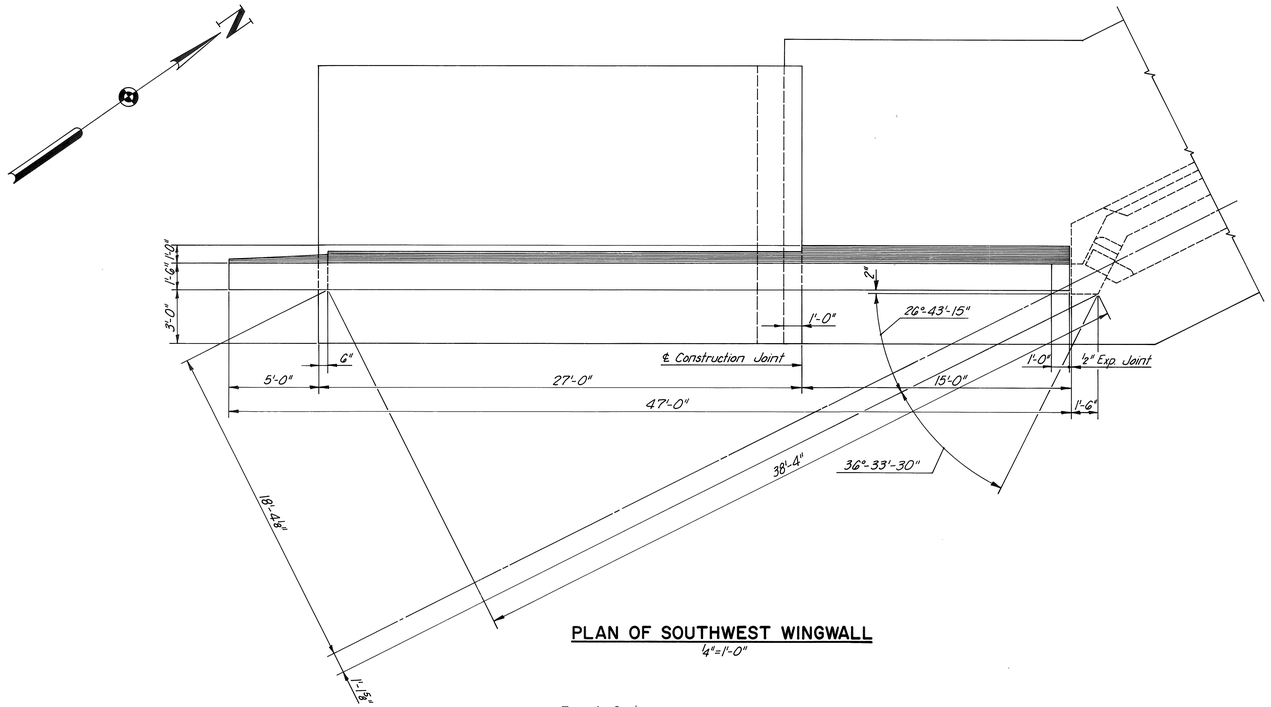
WEST ABUTMENT

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

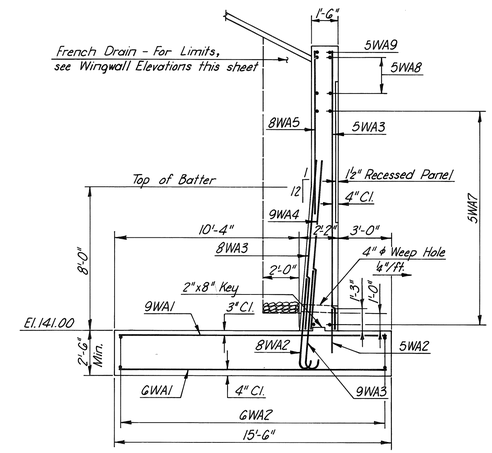
SCALE: As Shown

As Built

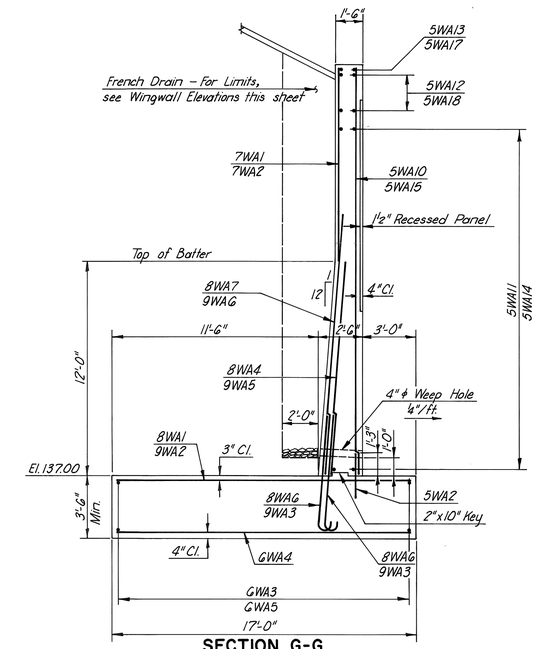
SHEET NO. 4 of 16



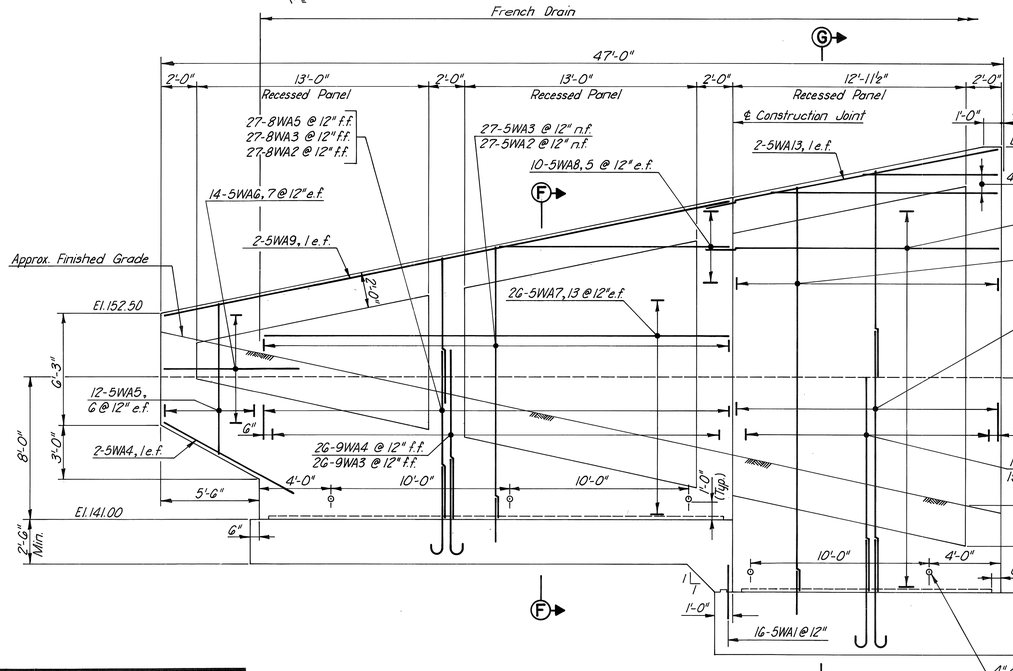
PLAN OF SOUTHWEST WINGWALL
¼"=1'-0"



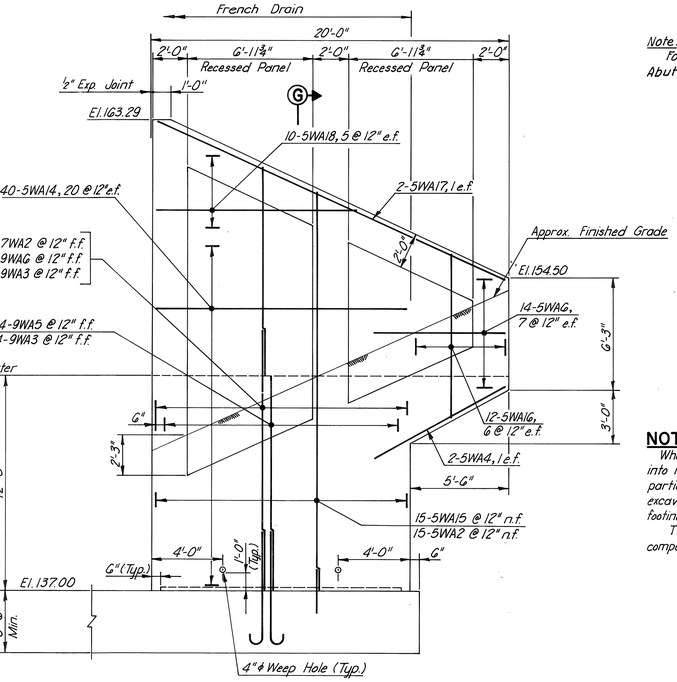
SECTION F-F
¼"=1'-0"



SECTION G-G
¼"=1'-0"



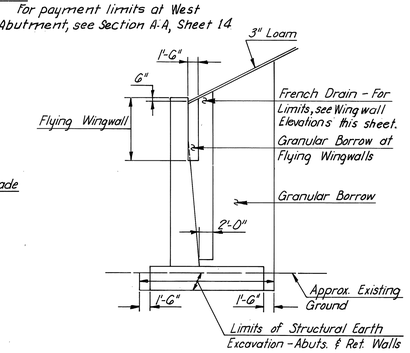
SOUTHWEST



NORTHWEST

WINGWALL ELEVATIONS
¼"=1'-0"

Note:
For payment limits at West Abutment, see Section A-A, Sheet 14



SECTION H-H
No Scale

NOTE:
Where rock is encountered, the bottom of footing shall be set 1'-0" min. into rock. In no case shall the foundation rest partially on rock and partially on soil. Where this condition occurs, rock peaks shall be excavated to a depth of 1'-0" min. below the bottom of the proposed footing and backfilled with good compacted gravel.
The foundation must be set either all on rock or all on compacted gravel.

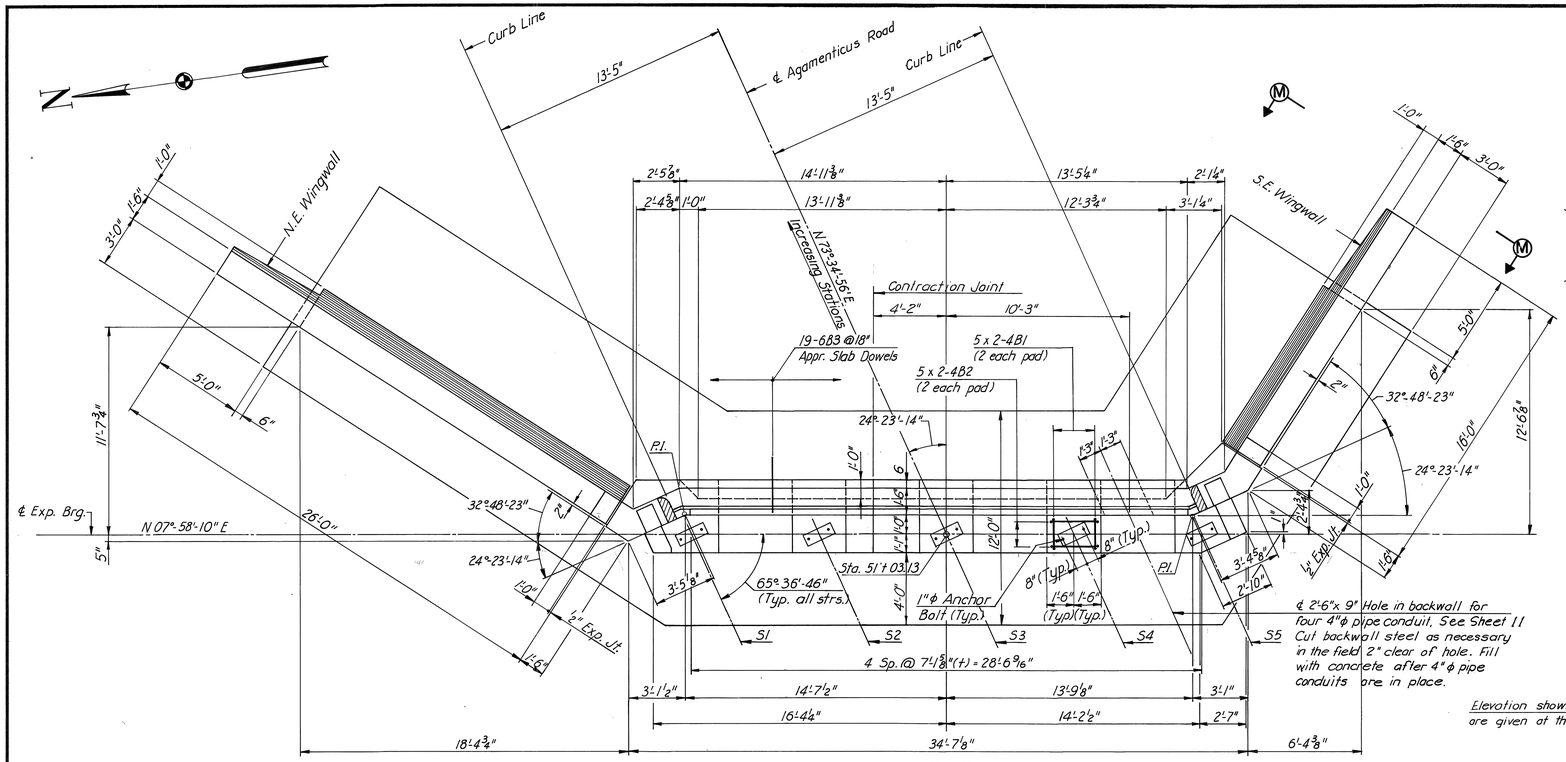
NO.	REVISION	BY	DATE		BY	DATE
				MADE	J.G.V.	9-72
				TRACED	J.G.V.	9-72
				CHECKED	R.B.H.	10-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY
MAINE TURNPIKE
SECTION 1-YORK TO PORTLAND

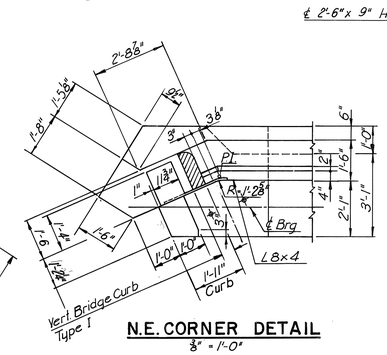
AGAMENTICUS ROAD OVER MAINE TURNPIKE
WEST ABUTMENT & WINGWALL DETAILS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

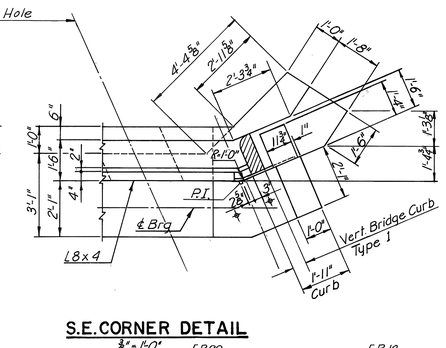
SCALE: As Shown
As Built
SHEET NO. 5 of 16



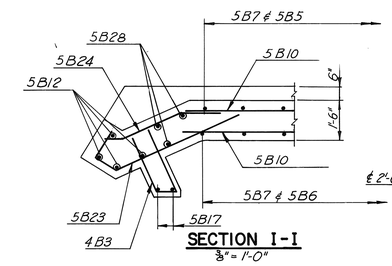
PLAN
1/4" = 1'-0"



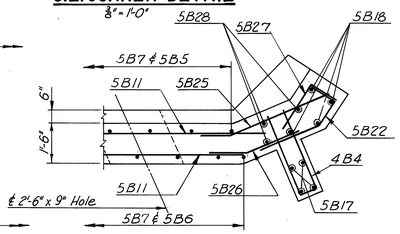
N.E. CORNER DETAIL
3/8" = 1'-0"



S.E. CORNER DETAIL
3/8" = 1'-0"



SECTION I-I
3/8" = 1'-0"



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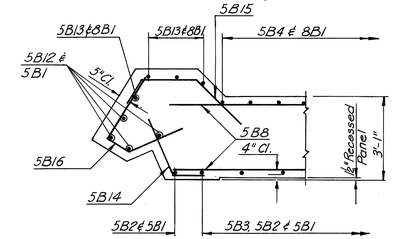

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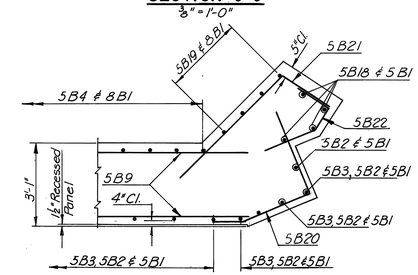
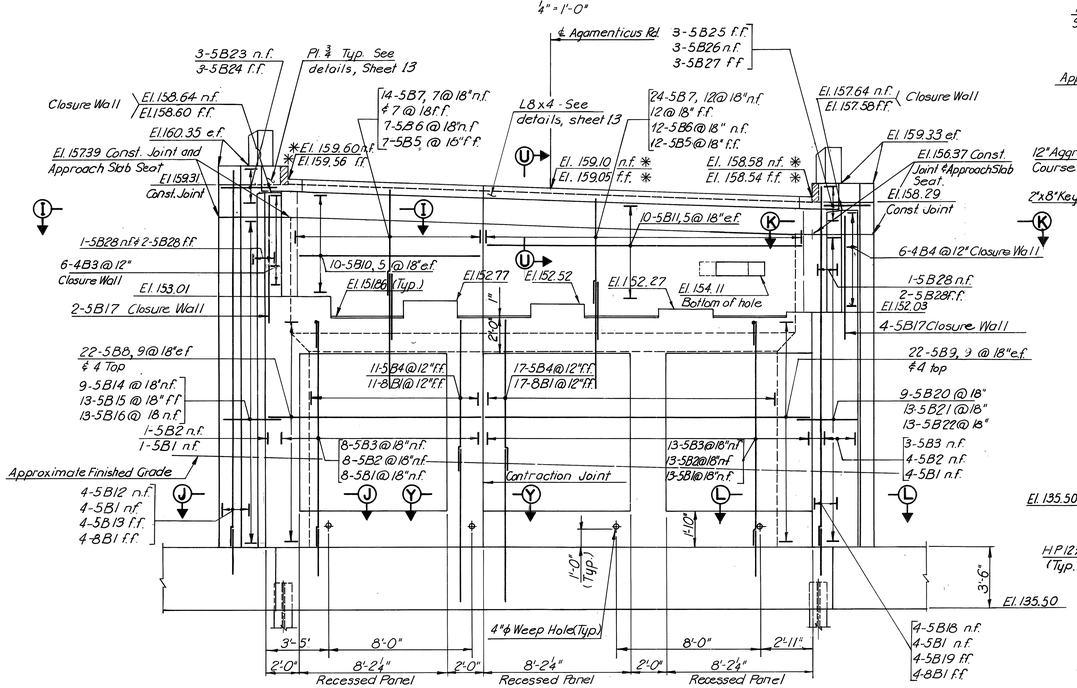
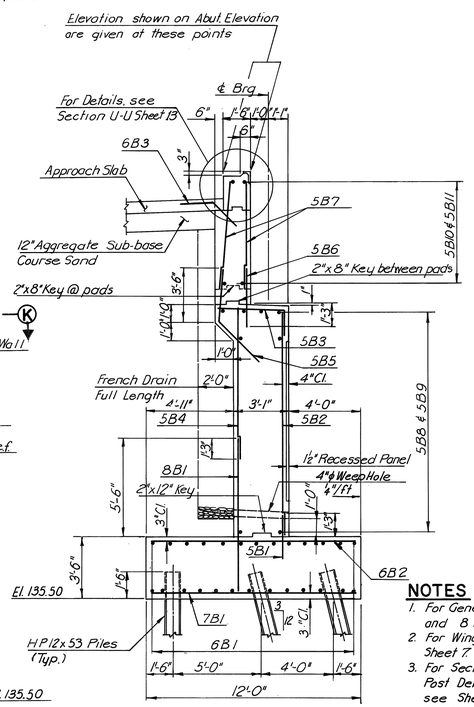


SECTION L-L
3/8" = 1'-0"



ELEVATION
1/4" = 1'-0"

* Finished Grade elevations



TYPICAL ABUTMENT SECTION
4" = 1'-0"

NOTES

1. For General Notes, see 1 thru 6 and 8 thru 12 Sheet 4.
2. For Wingwall Details, see Sheet 7.
3. For Section Y-Y and End Post Details on Backwall, see Sheet 13.
4. For Section U-U and additional joint details, see Sheet 13.
5. For Section M-M, see Sheet 7.

NO.	REVISION	BY	DATE		BY	DATE
				MADE	E.F.	10-72
				TRACED		
				CHECKED	R.B.H.	10-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

SECTION 1-YORK TO PORTLAND

AGAMENTICUS ROAD OVER MAINE TURNPIKE

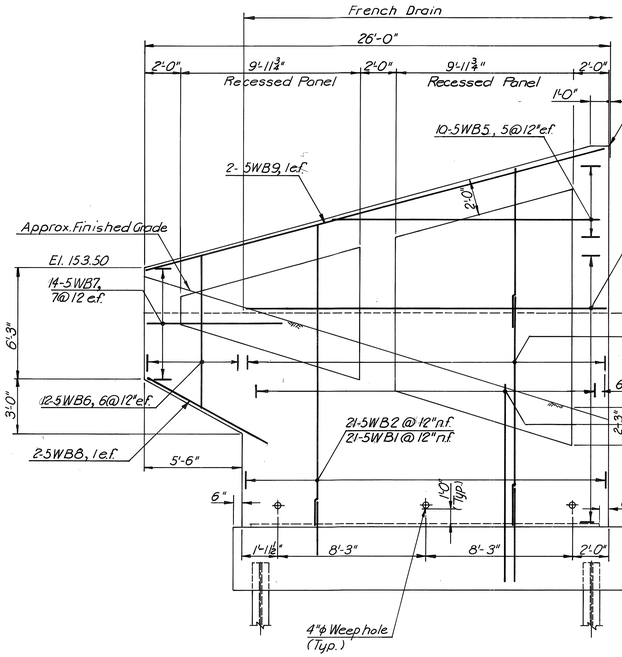
EAST ABUTMENT

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

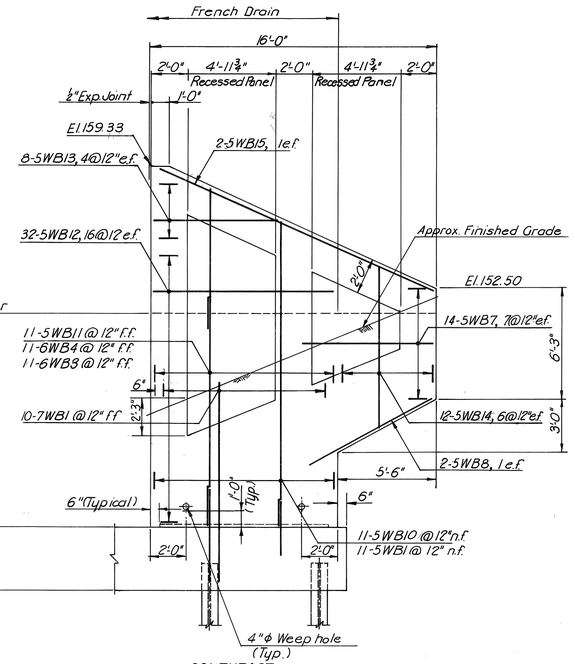
SCALE: As Shown

As Built

SHEET NO. 6 of 16

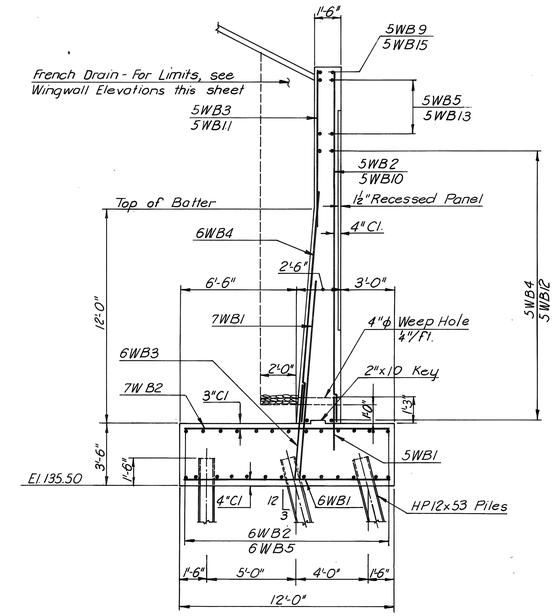


NORTHEAST

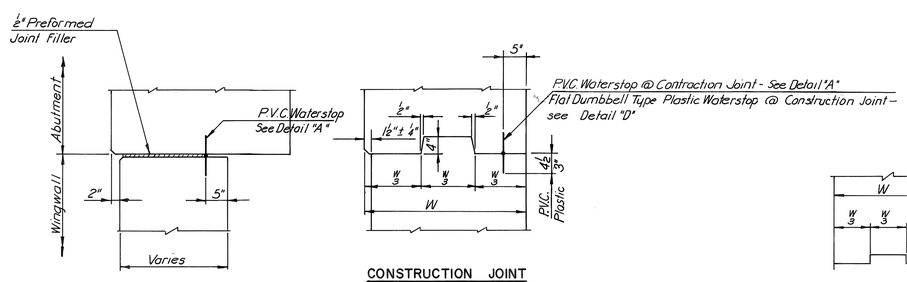


SOUTHEAST

WINGWALL ELEVATIONS
4"=1'-0"



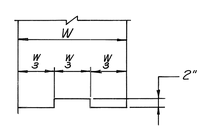
TYPICAL WINGWALL SECTION
4"=1'-0"



EXPANSION JOINT

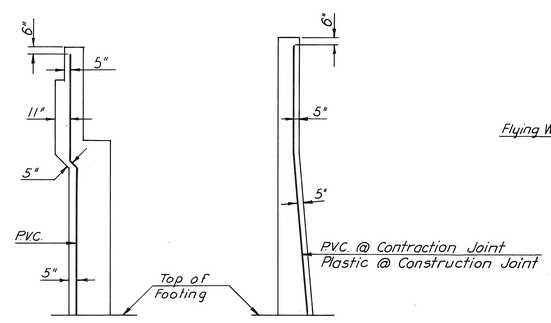
CONSTRUCTION JOINT AND CONTRACTION JOINT

VERTICAL JOINT DETAILS
No Scale



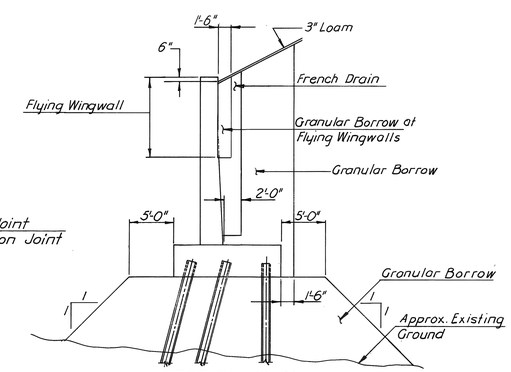
CONSTRUCTION JOINT

HORIZONTAL JOINT DETAIL
No Scale



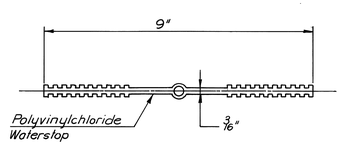
ABUTMENT WINGWALL

LIMITS OF WATERSTOP
No Scale

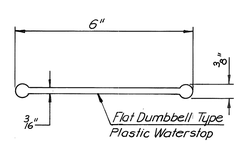


SECTION M-M
No Scale

NOTE:
For Payment Limits at East Abutment, see Section B-B Sheet 14.



DETAIL "A"
No Scale



DETAIL "D"
No Scale

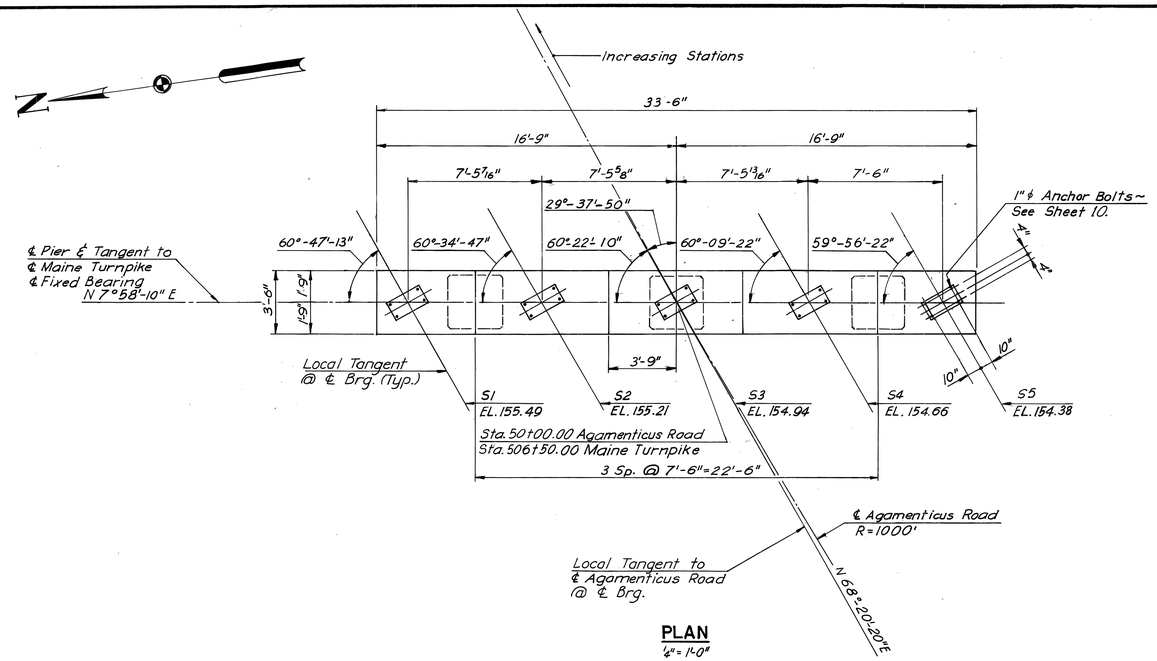
NO.	REVISION	BY	DATE		BY	DATE
				MADE	E.F.	9-72
				TRACED		
				CHECKED	R.B.H.	10-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY
MAINE TURNPIKE
SECTION 1-YORK TO PORTLAND

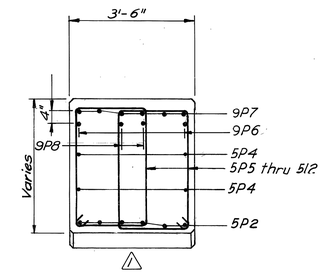
AGAMENTICUS ROAD OVER MAINE TURNPIKE
EAST ABUTMENT AND WINGWALL DETAILS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

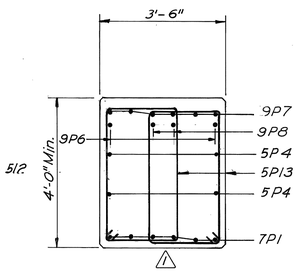
SCALE: As Shown
As Built
SHEET NO. 7 of 16



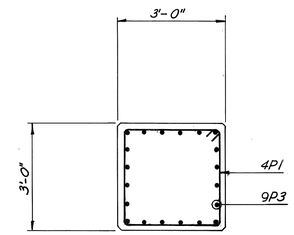
PLAN
1/4" = 1'-0"



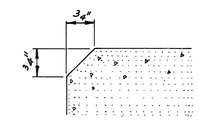
SECTION N-N
1/2" = 1'-0"



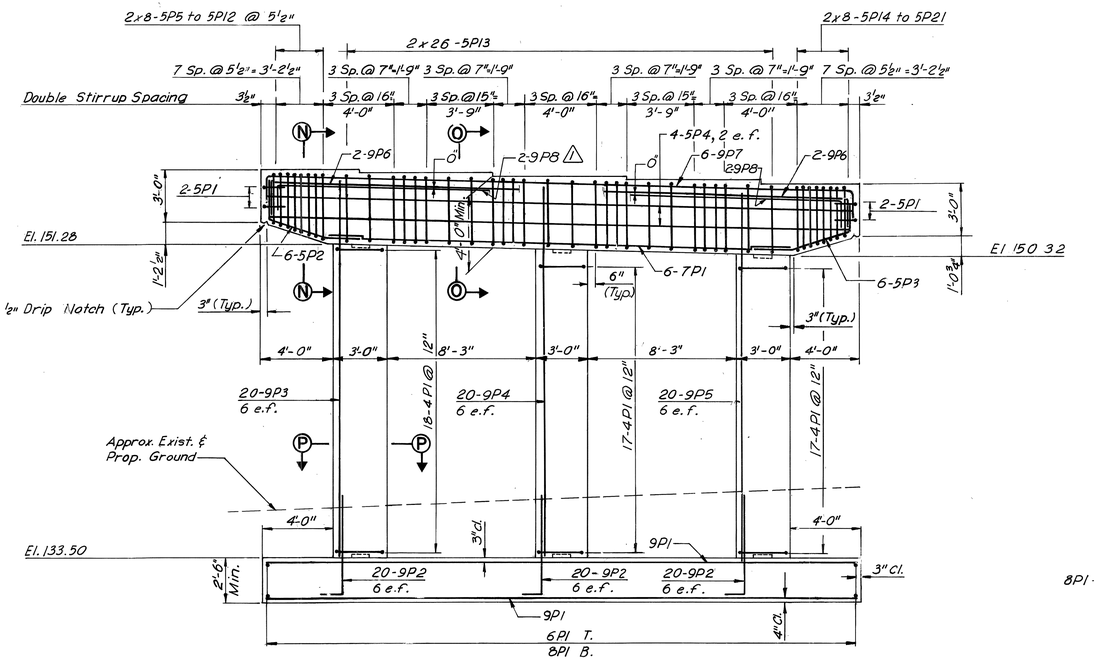
SECTION O-O
1/2" = 1'-0"



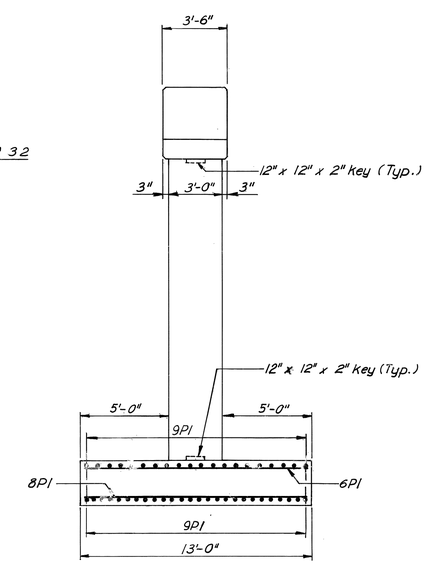
SECTION P-P
1/2" = 1'-0"



CHAMFER DETAIL
Half Size



ELEVATION
1/4" = 1'-0"



END ELEVATION
1/4" = 1'-0"

NOTES:

1. Dress bearing pad areas 1" larger all around than masonry plates to exact elevation shown.
2. Reinforcing steel to have 2" minimum cover except as noted.
3. Place reinforcing steel to clear anchor bolts.
4. For Footing Plan, see Sheet 3.
5. For bearing pedestals and anchor bolt details, see Sheet 10. Bearing pedestals shall be placed normal to stringers.

NO.	REVISION	BY	DATE		BY	DATE
				MADE	M.P.	10-72
				TRACED		
1	Cap Bm Steel	I.S.	2/13	CHECKED	R.B.H.	11-72
				IN CHARGE OF	J.P.W.	

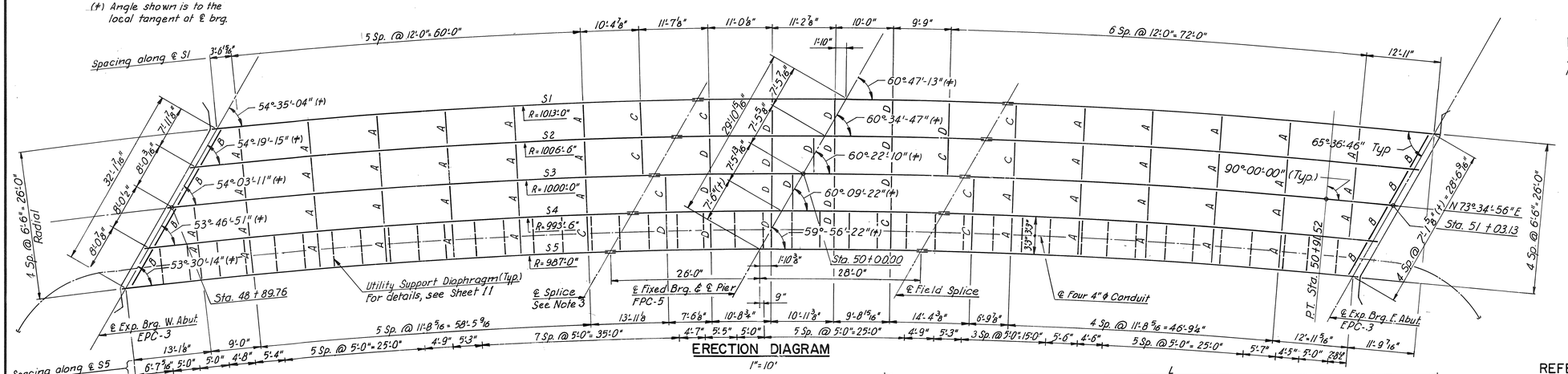
MAINE TURNPIKE AUTHORITY
MAINE TURNPIKE
SECTION 1-YORK TO PORTLAND

AGAMENTICUS ROAD OVER MAINE TURNPIKE
PIER

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

SCALE: As Shown
As Built
SHEET NO. 8.01 of 16

(+) Angle shown is to the local tangent at ℄ brg.

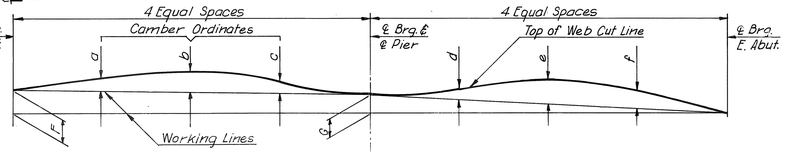


ERECTION DIAGRAM

1" = 10'

PEDESTALS

EPC-3 10 Req'd
FPC-5 5 Req'd



CAMBER DIAGRAM

No Scale

DIMENSION SCHEDULE			CAMBER ORDINATE SCHEDULE					
			SPAN 1			SPAN 2		
Stringer	F	G	a	b	c	d	e	f
S1	2.91	2.14	3.85	4.88	3.18	2.28	3.68	3.01
S2	2.82	2.11	3.90	4.95	3.21	2.33	3.75	3.05
S3	2.74	2.08	3.88	4.89	3.19	2.34	3.75	3.02
S4	2.66	2.05	3.86	4.89	3.20	2.37	3.77	3.03
S5	2.57	2.02	3.74	4.74	3.14	2.35	3.68	2.96

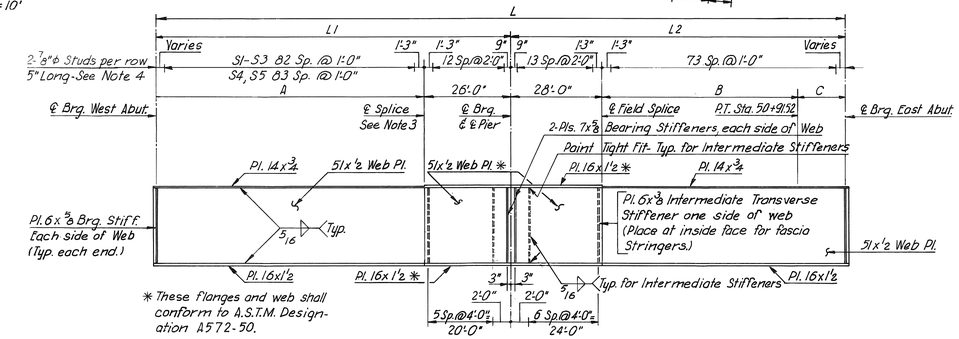
NOTES:

Camber ordinates shown include total dead load deflection, V.C. correction and camber loss due to heat-curving the girders.

Camber ordinates are in inches. Dimensions F & G are in feet.

All dimensions are horizontal or vertical

See schedule on Sheet 10 for that portion of camber included for camber loss due to heat-curving the girders.



* These flanges and web shall conform to A.S.T.M. Designation A572-50.

TYPICAL STRINGER ELEVATION

No Scale

STRINGER DIMENSION SCHEDULE						
Stringer	A	B	C	L1	L2	L
S1	83'-7 15/16"	57'-3 3/8"	17'-6 1/8"	109'-7 9/16"	102'-10"	212'-5 9/16"
S2	83'-11 3/8"	60'-5"	14'-6 3/4"	109'-11 3/8"	102'-11 3/4"	212'-11 1/2"
S3	84'-2 15/16"	63'-6 3/16"	11'-7 3/8"	110'-2 15/16"	103'-1 9/16"	213'-4 1/2"
S4	84'-6 5/16"	66'-7 7/16"	8'-8"	110'-6 5/16"	103'-3 7/16"	213'-10"
S5	84'-10 5/16"	69'-8 13/16"	5'-8 11/16"	110'-10 5/16"	103'-5 1/2"	214'-3 13/16"

REFERENCE

Blocking Details — see Sheet 10.
Diaphragms — see Sheet 10.
Pedestals — see Sheet 10.
Shear Connectors — see Sheet 10.
Armored Joint — see Sheet 13.
For additional steel details - see Sheets 10 & 11

SPECIFICATIONS

Fabrication and Erection: State of Maine Standard Specifications, Highways and Bridges, Revision of June 1968.

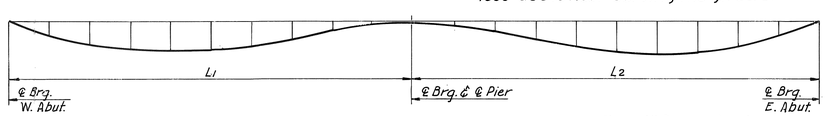
Design and Details: A.A.S.H.O. Standard Specifications for Highway Bridges 1969 with interim specifications.

Materials: All structural steel shall conform to A.S.T.M. Designation A36 except as noted on Typical Stringer Elevation.

Welding: Specifications for Welded Highway and Railway Bridges, American Welding Society, A.W.S.-D2.0-69 as modified by the appropriate special provisions.

NOTES

1. Weld to web and compression flange, paint tight fit at tension flange.
2. Weld to web only, paint tight fit at top and bottom flange.
3. At the Contractors option a shop bolted or field bolted splice may be used.
4. Spacing may be varied on S5 as required to clear bridge drains providing total number of shear connectors indicated remains unchanged.
5. A maximum of one shop welded web splice will be allowed in the positive moment section of the girders. No shop welded flange splices will be allowed. Location of shop web splices is subject to the approval of the Engineer.
6. The contractor may, at his option, weld the diaphragm connector plates and intermediate transverse stiffener plates to the flanges before or after the girder has been curved.
7. The fabricator may, at his option, flame-cut the flanges or heat bend the girders to obtain the required radius.



DEAD LOAD DEFLECTION DIAGRAM

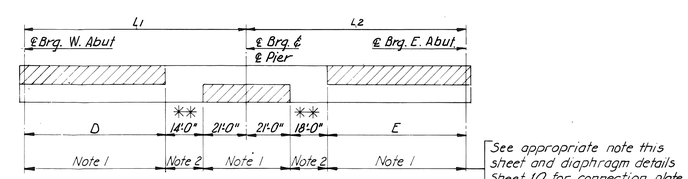
No Scale

Note: All figures given in inches at tenth point of spans.

DEAD LOAD DEFLECTION SCHEDULE

	Stringer	℄ Brg.	SPAN 1 .1L1	.2L1	.3L1	.4L1	.5L1	.6L1	.7L1	.8L1	.9L1	℄ Pier	SPAN 2 .1L2	.2L2	.3L2	.4L2	.5L2	.6L2	.7L2	.8L2	.9L2	℄ Brg.
Total	S1	0	0.70	1.28	1.68	1.86	1.79	1.52	1.11	0.64	0.22	0	0.04	0.26	0.55	0.84	1.05	1.13	1.05	0.81	0.45	0
	S2	0	0.72	1.33	1.74	1.92	1.85	1.57	1.13	0.65	0.23	0	0.04	0.28	0.59	0.89	1.11	1.19	1.11	0.86	0.47	0
	S3	0	0.68	1.26	1.65	1.82	1.76	1.49	1.07	0.61	0.21	0	0.05	0.27	0.58	0.87	1.08	1.16	1.08	0.83	0.45	0
	S4	0	0.67	1.23	1.62	1.78	1.72	1.45	1.05	0.60	0.21	0	0.05	0.27	0.57	0.86	1.06	1.14	1.05	0.81	0.45	0
	S5	0	0.59	1.09	1.43	1.57	1.52	1.28	0.93	0.53	0.18	0	0.05	0.25	0.51	0.77	0.95	1.02	0.94	0.73	0.40	0
Steel Only	S1	0	0.17	0.32	0.42	0.46	0.45	0.38	0.28	0.16	0.06	0	0.01	0.06	0.14	0.21	0.26	0.28	0.26	0.20	0.11	0
	S2	0	0.18	0.32	0.42	0.47	0.45	0.38	0.28	0.16	0.06	0	0.01	0.07	0.14	0.21	0.27	0.29	0.27	0.21	0.11	0
	S3	0	0.17	0.31	0.40	0.44	0.43	0.36	0.26	0.15	0.05	0	0.01	0.07	0.14	0.21	0.26	0.28	0.26	0.20	0.11	0
	S4	0	0.16	0.30	0.39	0.43	0.41	0.35	0.25	0.14	0.05	0	0.01	0.07	0.14	0.21	0.26	0.28	0.26	0.20	0.11	0
	S5	0	0.15	0.27	0.36	0.39	0.38	0.32	0.23	0.13	0.05	0	0.01	0.06	0.13	0.19	0.24	0.26	0.24	0.18	0.10	0

DIMENSION SCHEDULE		
Stringer	D	E
S1	74'-7 15/16"	63'-10"
S2	74'-11 3/8"	63'-11 3/4"
S3	75'-2 15/16"	64'-1 9/16"
S4	75'-6 9/16"	64'-3 7/16"
S5	75'-10 5/16"	64'-5 1/2"



Areas of beam which will always be in compression. All other areas will be in tension or are areas of stress reversals. ** Areas of stress reversal.

BEAM STRESS TYPE DIAGRAM

No Scale

BOTTOM OF SLAB ELEVATIONS AT BLOCKING POINTS

Stringer No.	℄ Brg W. Abut.	SPAN 1 .1L1	.2L1	.3L1	.4L1	.5L1	.6L1	.7L1	.8L1	.9L1	℄ Pier	SPAN 2 .1L2	.2L2	.3L2	.4L2	.5L2	.6L2	.7L2	.8L2	.9L2	℄ Brg E. Abut.
S1	161.71	161.76	161.78	161.78	161.74	161.66	161.56	161.43	161.28	161.11	160.94	160.79	160.65	160.49	160.32	160.13	159.92	159.68	159.41	159.12	158.80
S2	161.38	161.44	161.47	161.47	161.44	161.37	161.27	161.14	161.00	160.83	160.67	160.53	160.39	160.23	160.07	159.88	159.67	159.43	159.16	158.87	158.56
S3	161.05	161.12	161.15	161.16	161.13	161.07	160.97	160.85	160.71	160.55	160.39	160.26	160.12	159.97	159.80	159.62	159.41	159.18	158.91	158.62	158.31
S4	160.72	160.79	160.83	160.84	160.82	160.76	160.67	160.56	160.43	160.27	160.12	159.98	159.85	159.70	159.54	159.36	159.16	158.92	158.66	158.37	158.06
S5	160.39	160.46	160.50	160.52	160.50	160.45	160.37	160.26	160.13	159.99	159.84	159.71	159.58	159.43	159.27	159.09	158.89	158.66	158.40	158.12	157.82

NOTE:
Elevations shown are finished bottom of slab elev. adjusted for dead load deflection plus 50% of the camber loss due to heat bending girders, less the deflection due to steel weight. For location of points, see Blocking Detail sheet 10.

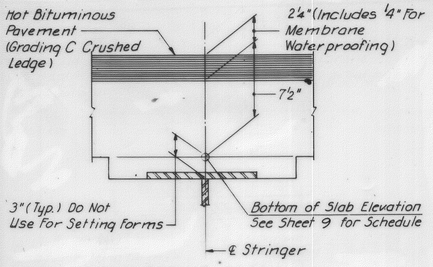
NO.	REVISION	BY	DATE		BY	DATE
				MADE	P.S.	9-72
				TRACED		
				CHECKED	R.B.H.	10-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY
MAINE TURNPIKE
SECTION 1-YORK TO PORTLAND

AGAMENTICUS ROAD OVER MAINE TURNPIKE
STRUCTURAL STEEL AND BLOCKING POINTS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

SCALE: As Shown
As Built
SHEET NO. 9 of 16

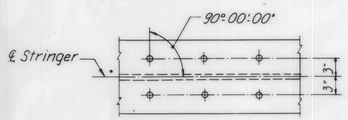


BLOCKING DETAIL

No Scale

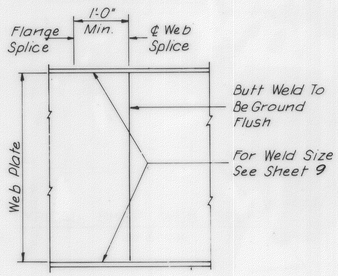
NOTE:

To compensate for dead load deflections, as well as possible irregularities in beams, set the bottom of slab elevations at the points indicated before any of the slab formwork is started. See Subsection 502.10 (a) of the Standard Specifications, Revision of June 1968.



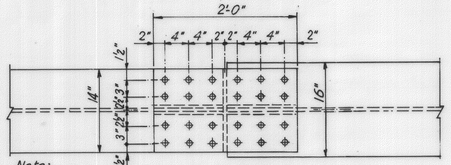
SHEAR CONNECTORS

No Scale



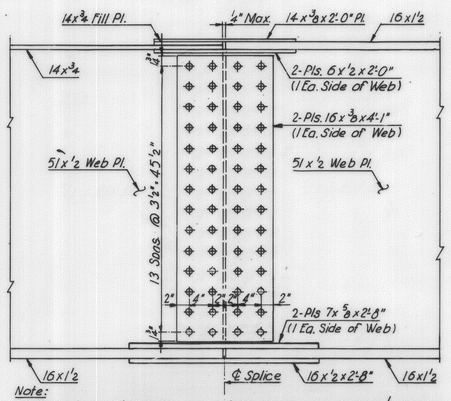
TYPICAL SHOP WEB SPLICE

No Scale



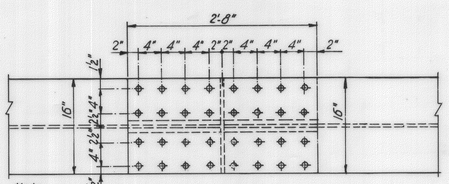
Note:
All Bolts to be 1⅛"φ High Strength Bolts and all holes to be 15/16"φ

TOP FLANGE



Note:
All Bolts to be 1"φ High Strength Bolts and holes to be 1 1/16"φ.

ELEVATION



Note:
All Bolts to be ⅞"φ High Strength Bolts and all holes to be 15/16"φ

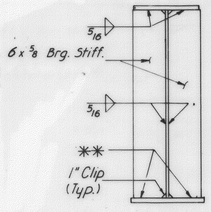
BOTTOM FLANGE

TYPICAL SPLICE DETAIL

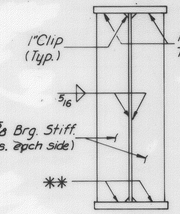
1"=1'-0"

CAMBER LOSS DUE TO HEAT CURVING GIRDERS (inches)						
STRINGER	SPAN 1			SPAN 2		
	a'	b'	c'	d'	e'	f'
S1	0.59	0.70	0.56	0.34	0.54	0.48
S2	0.59	0.70	0.56	0.34	0.54	0.49
S3	0.59	0.70	0.56	0.35	0.55	0.49
S4	0.60	0.71	0.56	0.36	0.55	0.49
S5	0.60	0.71	0.56	0.36	0.55	0.50

** Full penetration groove weld or mill for full bearing capacity at Contractor's option.



ABUTMENTS

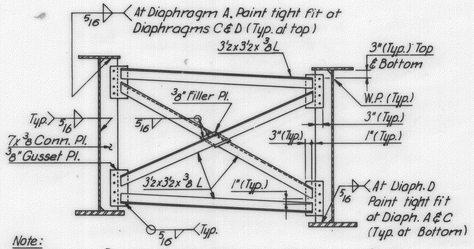


PIER

BEARING STIFFENER DETAILS

¾"=1'-0"

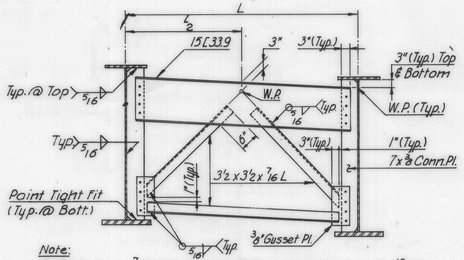
NOTE: Bearing stiffeners at abutments shall be positioned and welded after the girder has been curved.



Note:
All bolts to be ⅞"φ High Strength Bolts and all holes to be 15/16"φ.

DIAPHRAGMS A, C & D

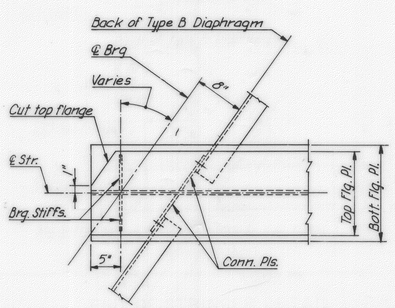
Scale: ½"=1'-0"



Note:
All Bolts to be ⅞"φ High Strength Bolts and all holes to be 15/16"φ.

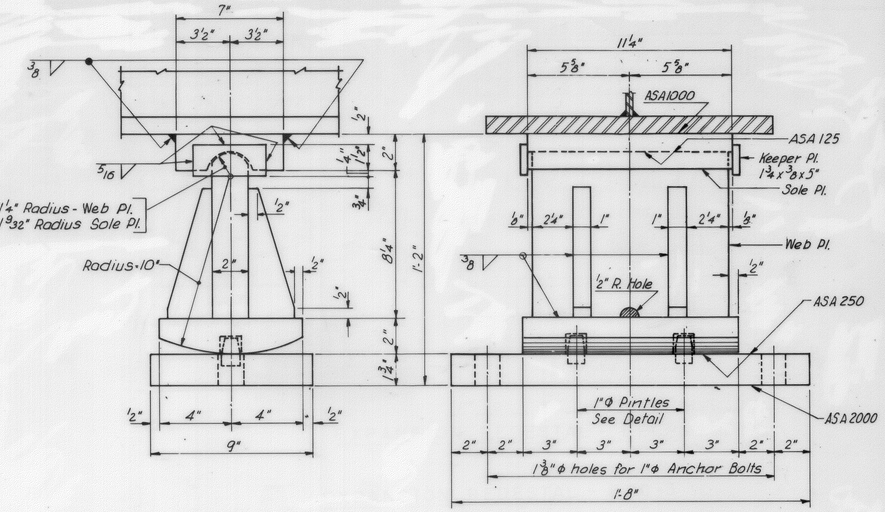
DIAPHRAGM B

Scale: ½"=1'-0"



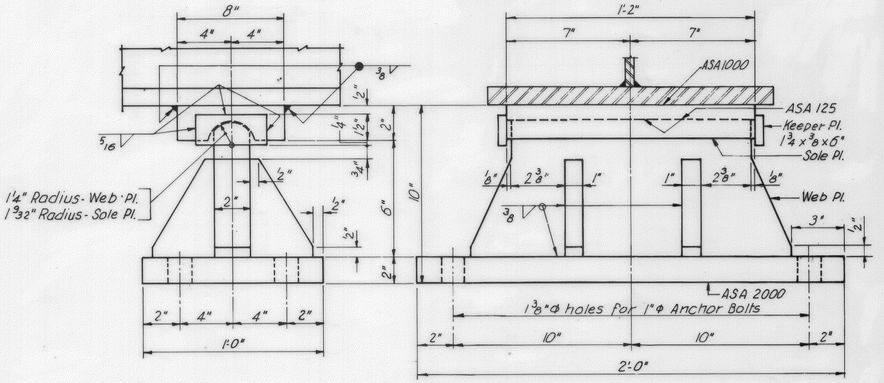
END OF STRINGER DETAIL

Scale: 1"=1'-0"



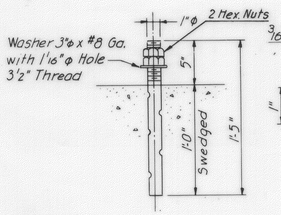
EXPANSION PEDESTAL - EPC-3

No Scale



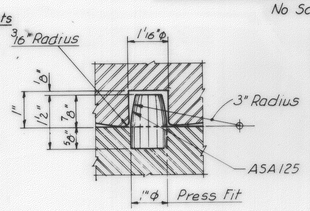
FIXED PEDESTAL - FPC-5

No Scale



ANCHOR BOLT DETAIL

No Scale



PINTLE DETAIL

No Scale

NOTES:

1. Bearing pedestal to be placed normal to centerline stringer.
2. At the location of bearing pedestals the concrete bridge seats shall be dressed one inch larger all around than size of masonry plates and to exact elevations shown on the plans. If dressed areas are below the surface of the surrounding bridge seat, a small channel shall be cut to the edge of the bridge seat for drainage where required by the Engineer. Channels shall have a minimum width of 2", and minimum slope of ½" per foot. No separate payment for this work will be made as it shall be considered incidental to contract items.

NO.	REVISION	BY	DATE		BY	DATE
				MADE	P.S.	8-72
				TRACED		
				CHECKED	R.B.H.	8-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

SECTION 1-YORK TO PORTLAND

AGAMENTICUS ROAD OVER MAINE TURNPIKE

STRUCTURAL STEEL DETAILS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

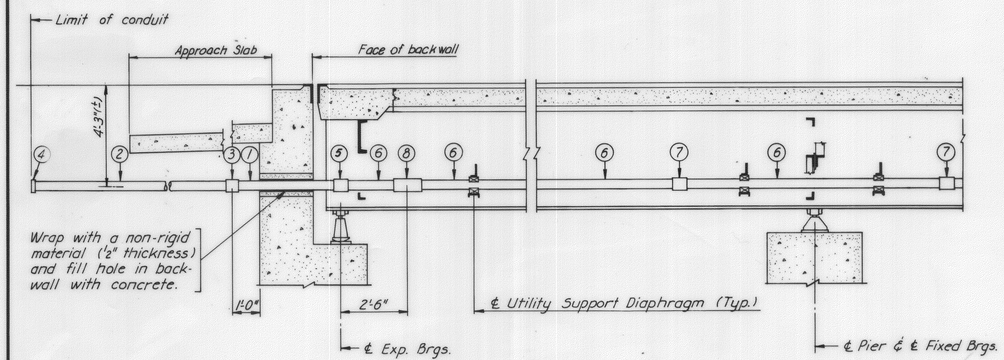
SCALE: As Shown

As Built

SHEET NO. 10 of 16

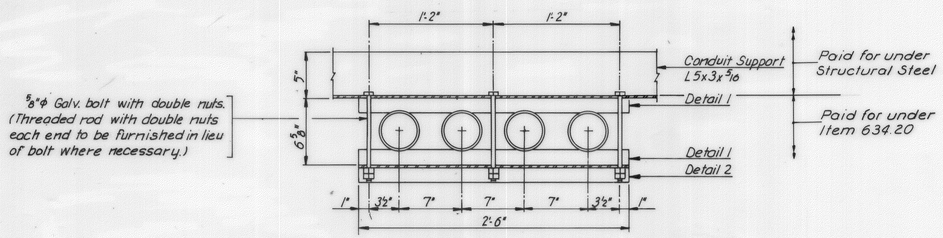
LEGEND:

1. Steel pipe, galvanized (4"ϕ)
2. Steel pipe sweep, galvanized (See detail this sheet.)
3. Threaded pipe coupling, galvanized
4. Pipe cap, galvanized
5. Straight adaptor, galvanized, to connect steel pipe to P.V.C. conduit.
6. Heavy wall rigid P.V.C. conduit (4"ϕ)
7. Heavy wall P.V.C. coupling
8. Heavy wall expansion coupling



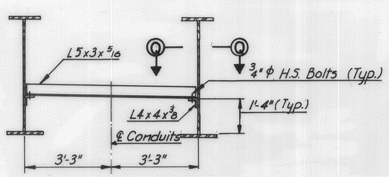
TYPICAL LONGITUDINAL SECTION

No Scale



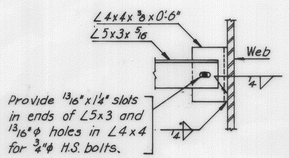
BASIC ATTACHMENT DETAIL FOR 4"ϕ P.V.C. CONDUIT

Scale: 1½"=1'-0"



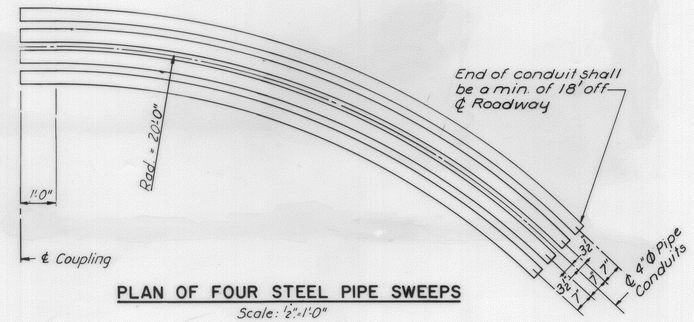
UTILITY SUPPORT DIAPHRAGM

Scale: ⅜"=1'-0"



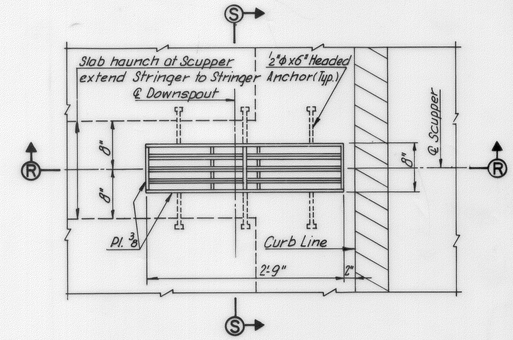
SECTION Q-Q

Scale: 1½"=1'-0"

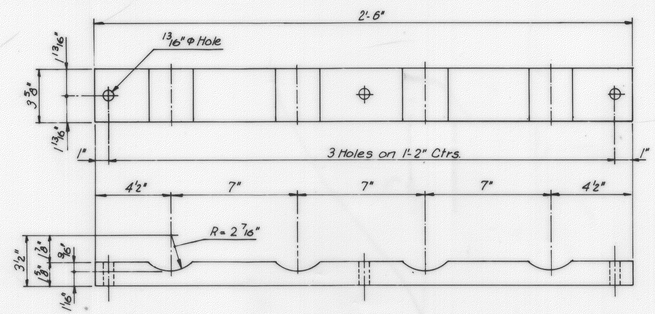


PLAN OF FOUR STEEL PIPE SWEEPS

Scale: ½"=1'-0"



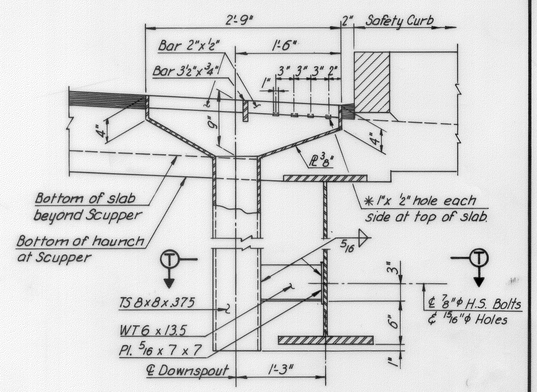
PLAN



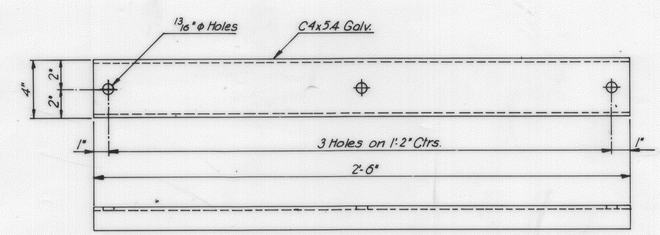
DETAIL 1

WOOD SEPARATOR

Scale: 3"=1'-0"

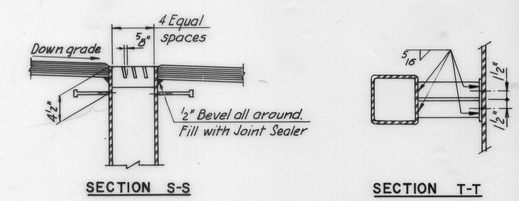


SECTION R-R



DETAIL 2

Scale: 3"=1'-0"



SECTION S-S

SECTION T-T

SCUPPER DETAILS

1"=1'-0"

SCUPPER NOTES:

1. All welds to be continuous 5/16" bead or fillet welds.
2. All steel shall conform to A.S.T.M. Designation A36 Galv. after fabrication.
3. Edge of scupper adjacent to curb to be depressed ½" below finished grade. Shape wearing surface to fit.
4. * Do not cover with membrane waterproofing.

UTILITY NOTES:

Select conduit lengths so that coupling locations do not coincide with hanger locations.

Nuts on all hanger bolts or rods are to be tightened to a snug assembly only and locked. Threads are to be crimped.

For Utility Support Diaphragm spacing, see Erection Diagram, Sheet 9

NO.	REVISION	BY	DATE		BY	DATE
				MADE	P.S.	8-72
				TRACED		
				CHECKED	R.B.H.	8-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

SECTION 1-YORK TO PORTLAND

AGAMENTICUS ROAD OVER MAINE TURNPIKE

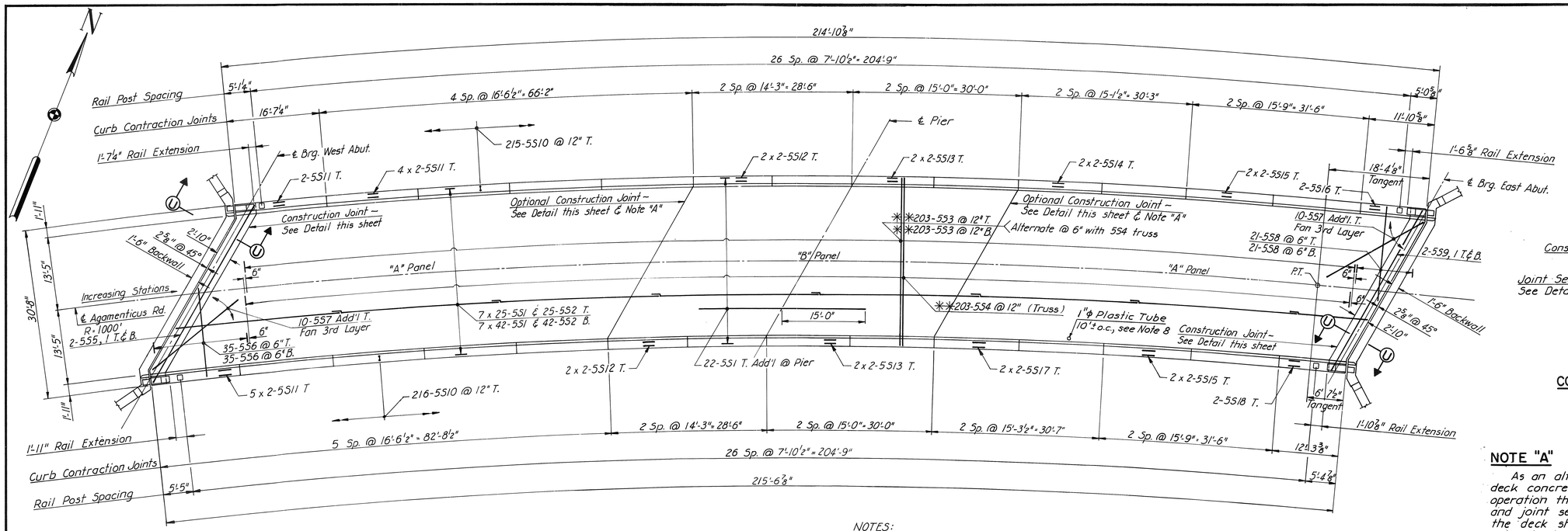
STRUCTURAL STEEL AND UTILITY DETAILS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

SCALE: As Shown

As Built

SHEET NO. 11 of 16



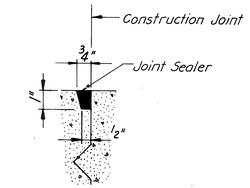
PLAN
1" = 10'

NOTES:

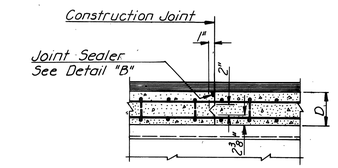
All horizontal dimensions are measured along fascia lines.

All transverse reinforcing in curved portion of bridge shall be placed radial.

** Spacing of these bars is along North fascia.



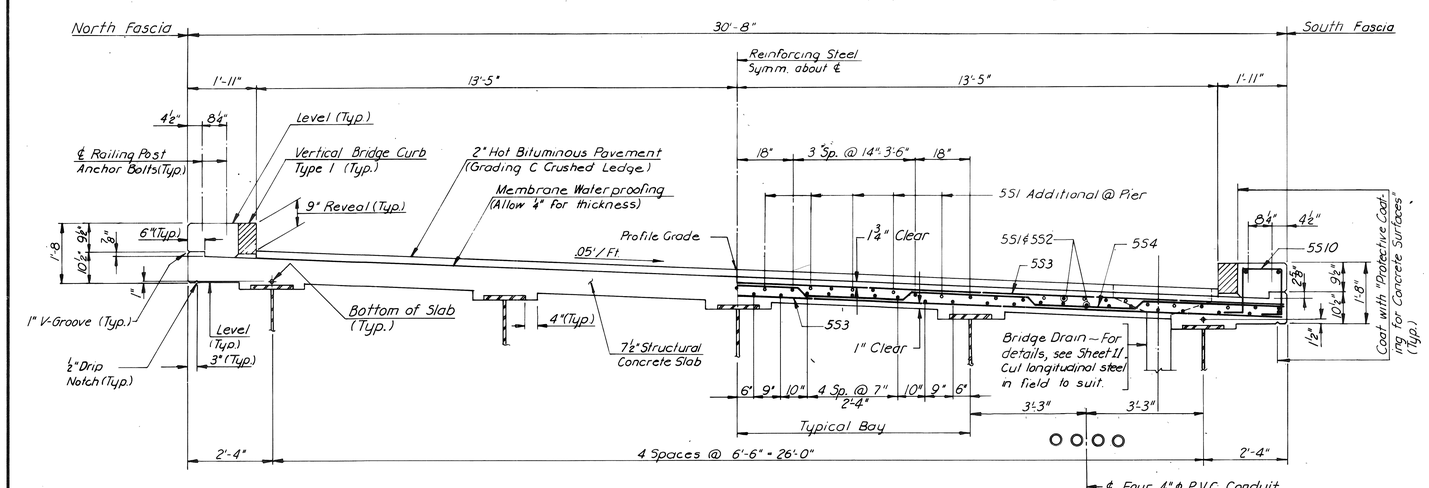
DETAIL "B"
3" = 1'-0"



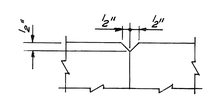
CONSTRUCTION JOINT DETAIL
¾" = 1'-0"

NOTE "A"

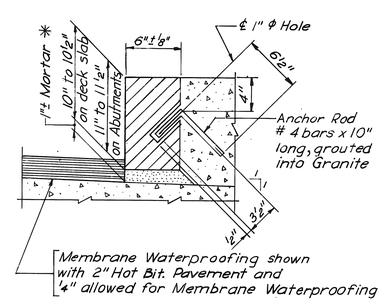
As an alternate and at the contractors option, the deck concrete may be placed in one continuous operation thus eliminating slab construction joints and joint sealer. Continuous placing of concrete in the deck shall be made with the use of an acceptable set-retarder. Payment for set-retarder shall be in accordance with Section 502 of the Standard Specifications.



TRANSVERSE SECTION
½" = 1'-0"



1" V-GROOVE
3" = 1'-0"



TYPICAL CURB SECTION
1½" = 1'-0"

* Mortar for bedding and for joints in granite curbs shall contain an approved non-shrink additive.

GENERAL SUPERSTRUCTURE NOTES

1. At all contraction joints in concrete curbs, break the bond between the concrete surfaces by a method to be approved by the Engineer. Form a 1" V-Groove on the outside faces of curbs at each curb joint. Provide a joint in the Vertical Bridge Curb at each contraction joint in the concrete curbs. Chamfer exposed edges of concrete ½" unless noted.
2. Do not break the bond between the concrete surfaces of vertical construction joints in superstructure slabs. Form a 1" V-Groove on the outside faces of slabs at each construction joint.
3. For bridge rail, see Standard Detail Sheet.
4. Vertical Bridge Curb will be paid for under Item 609.13.
5. For End Post Detail on Superstructure, Section U-U, and deck joints details at Abutments, see Sheet 13.
6. Reinforcing steel to have 2" minimum cover unless otherwise shown.
7. Place concrete in "A" Panels before placing concrete in "B" Panel. See Note A.
8. Plastic tubes to be placed to outlet inside of fascia stringer.

BRIDGE DRAIN NOTES

1. One bridge drain South side at both abutments (2 required).
2. Drains shall be placed so that they are at least 5'-0" clear of abutment, exact position to be determined in the field. For approximate location, see Sheet 1

NO.	REVISION	BY	DATE		BY	DATE
				MADE	L.B.P.	8-72
				TRACED		
				CHECKED	R.B.H.	10-72
				IN CHARGE OF	J.P.W.	

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

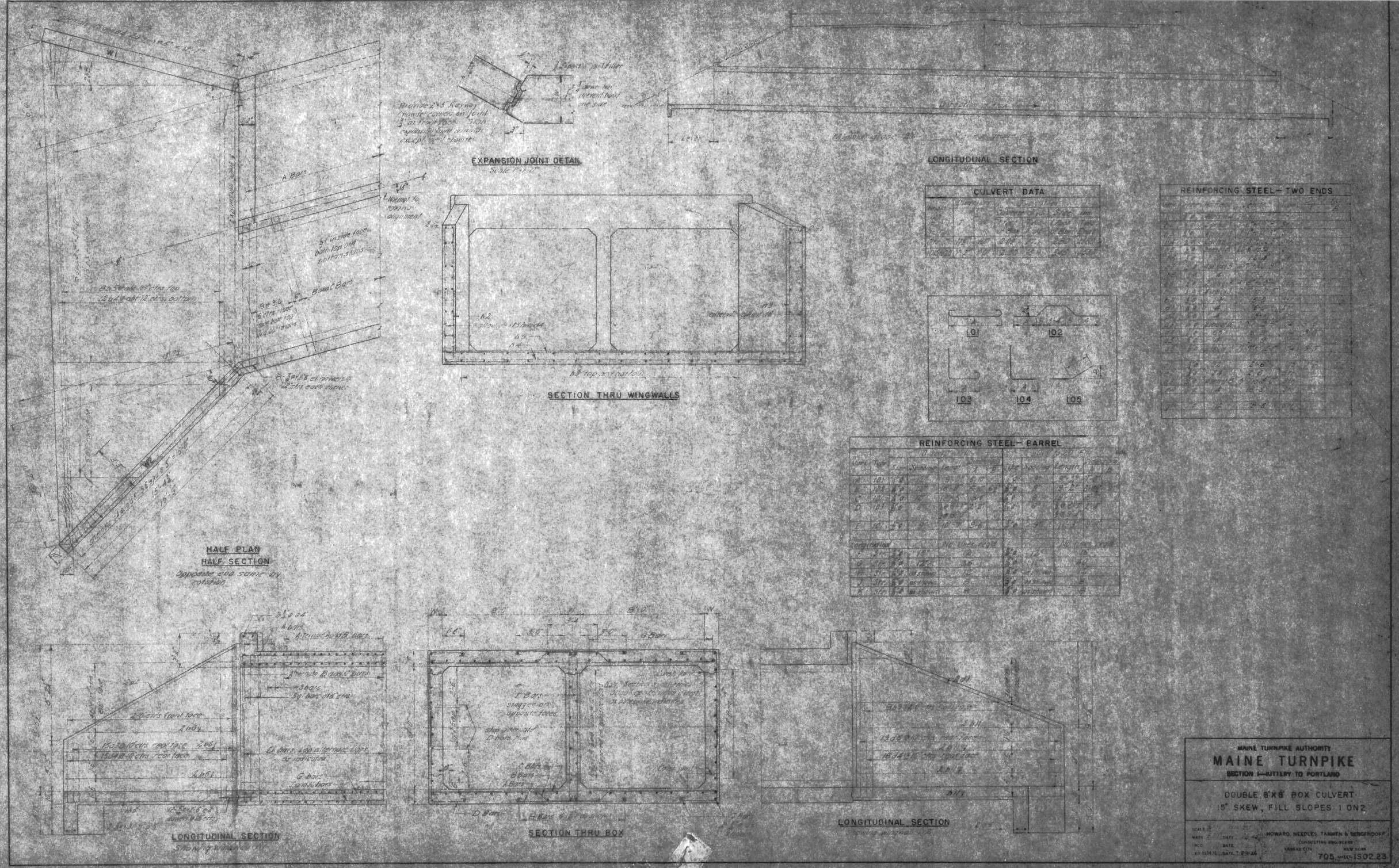
SECTION 1-YORK TO PORTLAND

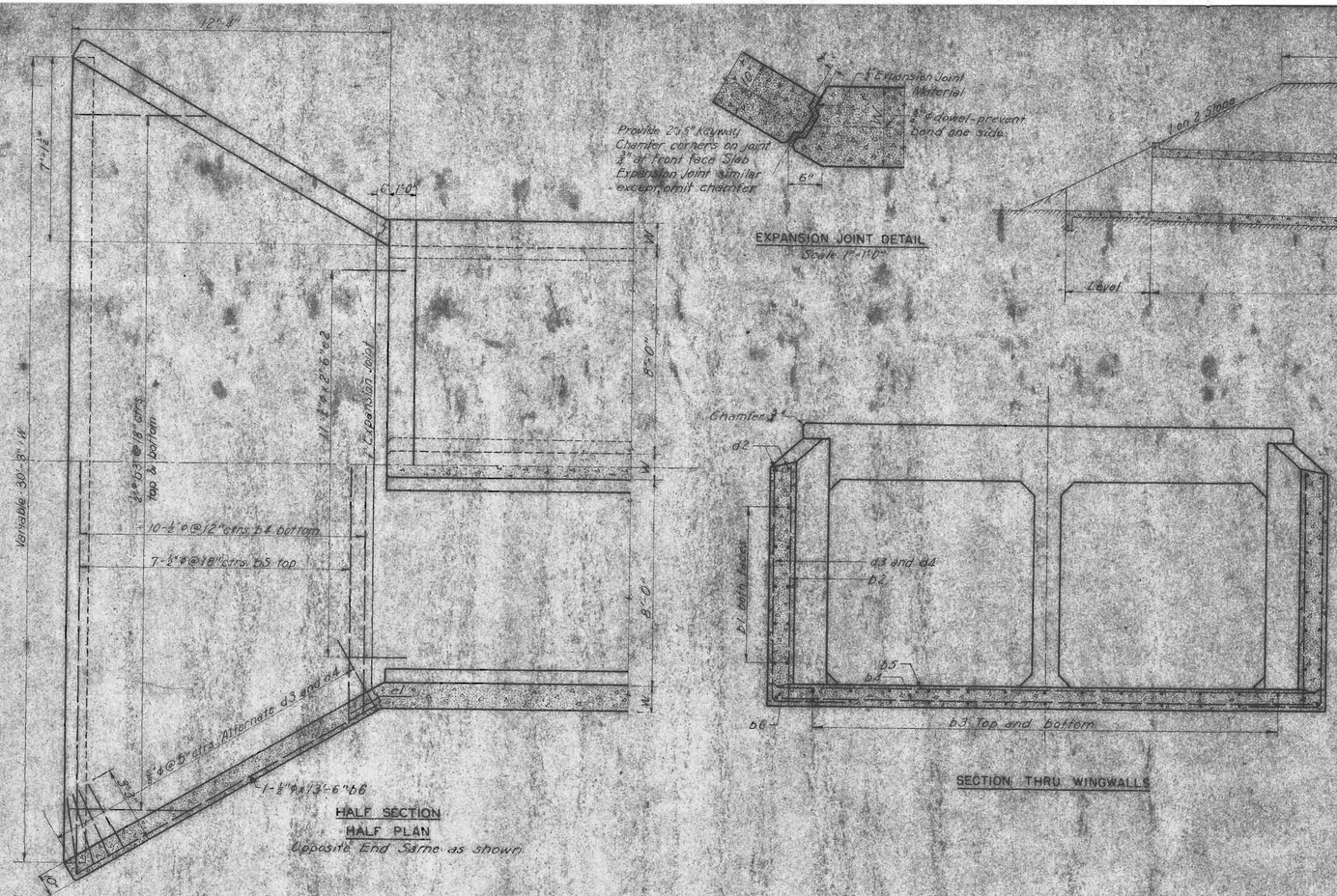
AGAMENTICUS ROAD OVER MAINE TURNPIKE

SUPERSTRUCTURE DETAILS

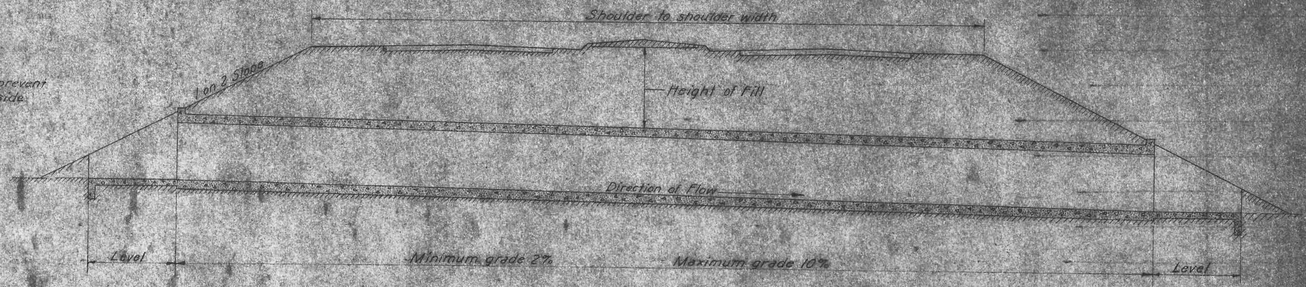
HOWARD NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
BOSTON

SCALE As Shown
As Built
SHEET NO. 12 of 16


EXPANSION JOINT DETAIL
LONGITUDINAL SECTION
SECTION THRU WINGWALLS
CULVERT DATA
REINFORCING STEEL - TWO ENDS
REINFORCING STEEL - BARREL
HALF PLAN
HALF SECTION
LONGITUDINAL SECTION
SECTION THRU BOX
LONGITUDINAL SECTION
MAINE TURNPIKE AUTHORITY
MAINE TURNPIKE
SECTION 1—KITTERY TO PORTLAND
DOUBLE 8'X8' BOX CULVERT
15° SKEW, FILL SLOPES 1 ON 2
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY
NEW YORK
705 SHEET 1S02.23



EXPANSION JOINT DETAIL
Scale 1"=1'-0"



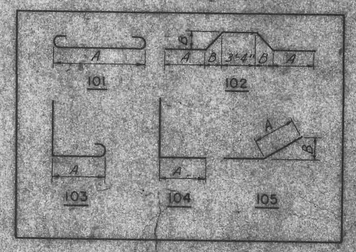
LONGITUDINAL SECTION
1"=10'

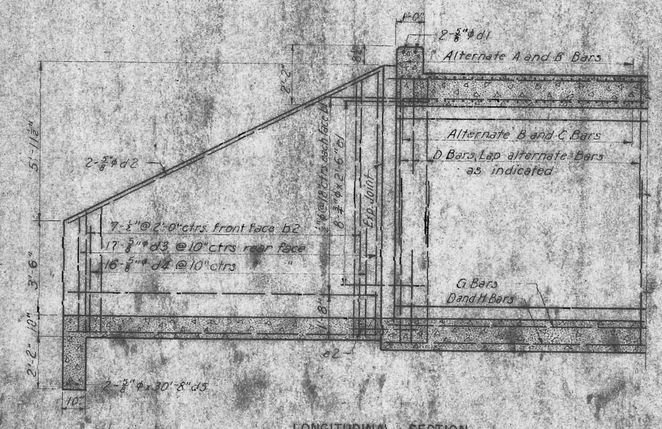
SECTION THRU WINGWALLS

REINFORCING STEEL - BARREL																							
Mark	Type	0 to 10' Fill					10.5' to 20' Fill					20.5 to 30' Fill					30.5' to 40' Fill						
		Size	Spacing	Length	Dimensions A	B	Size	Spacing	Length	Dimensions A	B	Size	Spacing	Length	Dimensions A	B	Size	Spacing	Length	Dimensions A	B		
A	101	1"ø	12"	9'-0"	6'-10"		1"ø	9"	9'-2"	7'-0"		1"ø	7"	9'-3"	7'-1"		⅞"ø	6"	9'-1"	7'-2"			
B	102	⅞"ø	12"	18'-6"	6'-10"	6'-1"	⅞"ø	9"	19'-2"	6'-10"	9"	⅞"ø	7"	19'-8"	6'-10"	11"	⅞"ø	6"	20'-0"	6'-8"	14"		
C	101	⅞"ø	12"	19'-5"	18'-1"		⅞"ø	9"	19'-11"	18'-1"		⅞"ø	7"	20'-2"	18'-10"		⅞"ø	6"	20'-5"	19'-1"			
D	103	⅞"ø	6"	⅞"ø 6'-1"	2'-2"		⅞"ø	6"	⅞"ø 6'-7"	2'-4"		⅞"ø	6"	⅞"ø 6'-10"	2'-5"		⅞"ø	6"	⅞"ø 7'-2"	2'-6"			
				½"ø 18'-10"					½"ø 9'-1"					½"ø 9'-10"					½"ø 9'-10"	2'-6"			
E	101	⅞"ø	9"	10'-7"	9'-6"		⅞"ø	9"	11'-3"	9'-11"		⅞"ø	9"	11'-7"	10'-3"		⅞"ø	6"	12'-1"	10'-9"			
Longitudinal				No. lines req'd.					No. lines req'd.					No. lines req'd.					No. lines req'd.				
F	Str.	⅞"ø	15"	12			⅞"ø	12"	16			⅞"ø	12"	16			⅞"ø	15"	12				
G	Str.	⅞"ø	12"	36			⅞"ø	11"	40			⅞"ø	10"	44			⅞"ø	12"	36				
H	Str.	⅞"ø	as shown	12			⅞"ø	as shown	12			⅞"ø	as shown	12			⅞"ø	as shown	12				
J	Str.	⅞"ø	as shown	8			⅞"ø	as shown	8			⅞"ø	as shown	8			⅞"ø	as shown	8				
K	Str.	⅞"ø	as shown	8			⅞"ø	as shown	8			⅞"ø	as shown	8			⅞"ø	as shown	8				

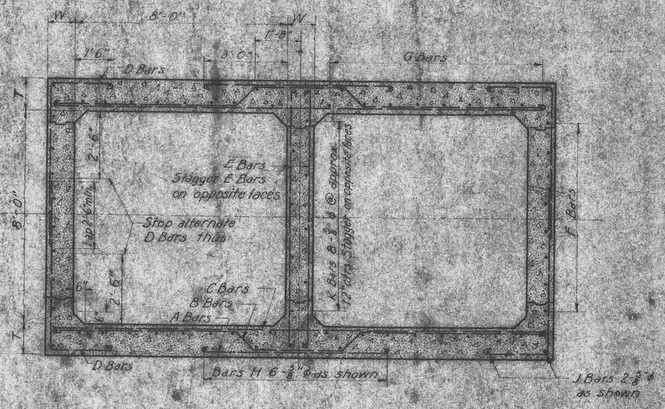
REINFORCING STEEL - TWO ENDS						
Mark	Size	No. Req'd	Length	Type	Dimensions A	B
b1	⅞"ø	16 8 sets of 2	13'-6" 2'-7" to 12'-9"	Str.		
b2	⅞"ø	4 sets of 7	4'-6" to 9'-9"	Str.		
b3	⅞"ø	32 8 sets of 3	11'-5" 4'-7" to 9'-9"	Str.		
b4	⅞"ø	2 sets of 10	19'-1" to 32'-3"	Str.		
b5	⅞"ø	2 sets of 7	19'-7" to 32'-2"	Str.		
b6	⅞"ø	4	13'-6"	Str.		
d1	⅞"ø	4	12'-3"	Str.		
d2	⅞"ø	8	14'-7"	Str.		
d3	⅞"ø	4 sets of 17	7'-0" to 12'-3"	104	3'-0"	
d4	⅞"ø	64	6'-0"	104	3'-0"	
d5	⅞"ø	4	30'-8"	Str.		
e1	⅞"ø	32	2'-6"	103	1'-3"	7½"
e2	⅞"ø	28	2'-6"	Str.		

CULVERT DATA						
Depth of Fill	Dimensions T	W	Quantities Concrete cu. yd. 1 Foot of Box	Two Ends	Steel lbs. 1 Foot of Box	Two Ends
0 to 10'	11½"	10"	2.09	36.5	280	3285
10.5 to 20'	1'-2"	1'-0"	2.57	36.7	346	3283
20.5 to 30'	1'-4"	1'-1"	2.90	36.7	407	3283
30.5 to 40'	1'-7"	1'-2"	3.37	36.5	472	3285





LONGITUDINAL SECTION



SECTION THRU BOX

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

SECTION 1 - KITTERY TO PORTLAND

DOUBLE 8'x 8' BOX CULVERT
FILL SLOPES 1 ON 2

SCALE ⅛"=1'-0" & 1"=10'
MADE C.V. DATE 3-4-46
CHK'D R.S.G. DATE 4-7-46
TRD B.H.N. DATE 6-6-46

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

705 SHEET 1 OF 2, 3 4