

NEW HAMPSHIRE HISTORIC PROPERTY DOCUMENTATION

OSSIPEE BRIDGES 137/297 & 137/299

NH ROUTE 16 OVER BEARCAMP RIVER

NH State No. 744

LOCATION: NH Route 16 & 25 over Bearcamp River, 2.5 miles south of Ossipee-Tamworth town line, Ossipee, Carroll County, New Hampshire.
USGS Ossipee Lake, NH Quadrangle, 1998.
UTM Coordinates: 19.324524.4851668
State Plane Coordinates (NAD 83 feet): x 1,112,416.93, y 473,235.54

DATE BUILT: 1955

BUILDER: New Hampshire Highway Department (NHHD)

ENGINEER: Harold E. Langley, Bridge Engineer, Robert J. Prowse, Assistant Bridge Engineer, NHHD

CONTRACTOR: Peter Salvucci & Sons, Inc., Waltham, MA

OWNER / USE: NHDOT / State highway bridges

SIGNIFICANCE: Ossipee Bridges 137/297 and 137/299, also known as Bearcamp River Bridge and Bearcamp River Relief Bridge, are examples of a continuous I-beam stringer deck highway bridge of an uncommon design that combined simple and continuous beam design. They were designed by Harold E. Langley, Bridge Engineer, and Robert J. Prowse, Assistant Bridge Engineer, noted engineers in the history of the NHHD and may have been the first of their type designed by the department. The bridges retain features representative of mid-20th c. bridges of the type, specifically the H-pile bents of double batter-pile design, the combined open-grid shoulder/steel curb/open-grid sidewalk assembly, and the original steel angle railings. Although these features were once common they may have seen limited use in New Hampshire; the number of intact examples remaining is unknown. The bridges therefore possess distinctive engineering characteristics, represent significant work of two engineers important to New Hampshire bridge engineering history, and may have played an important role in the development of a specialized bridge type in New Hampshire. The bridges retain integrity of location, setting, association, feeling, design, materials and workmanship. They were determined eligible for listing in the National Register under Criteria C. For further information see: Individual Inventory Forms OSS0030 & OSS0031 and associated Determination of Eligibility form (dated 2/26/2013) on file at New Hampshire Division of Historical Resources, Concord.

PROJECT INFORMATION: Ossipee Bridges 137/297 and 137/299 were documented in accordance with the standards of the New Hampshire Division of Historical Resources (NHDHR) and the Historic American Engineering Record in May 2017 by Historic Documentation Company Inc. (HDC), Portsmouth, RI, for the NHDOT Bureau of Environment. The documentation fulfills the Section 106 Memorandum of Agreement between Federal Highway Administration, NH Department of Transportation and the NH State Historic Preservation Office, dated January 18, 2017. The report was written and compiled by Richard M. Casella, Engineering Historian, Historic Documentation Company. Rob Tucher Photographic Documentation, High Bridge, NJ, conducted the large-format black and white film photography.

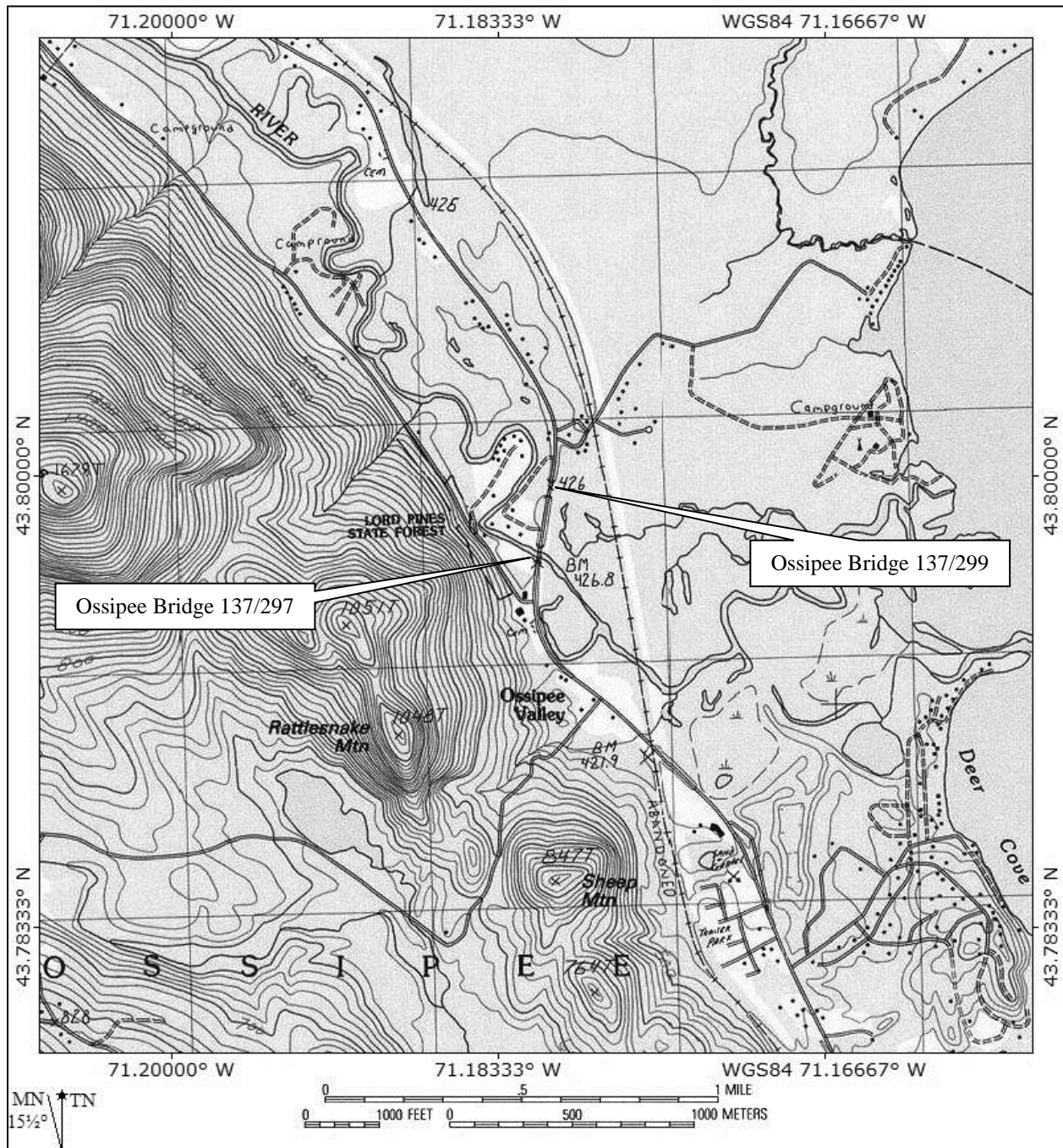


FIGURE 1: Location Map. (USGS Quad: Ossipee Lake, NH 1998).



FIGURE 2: Location Map Detail (Microsoft Bing aerial mapping, 2016).

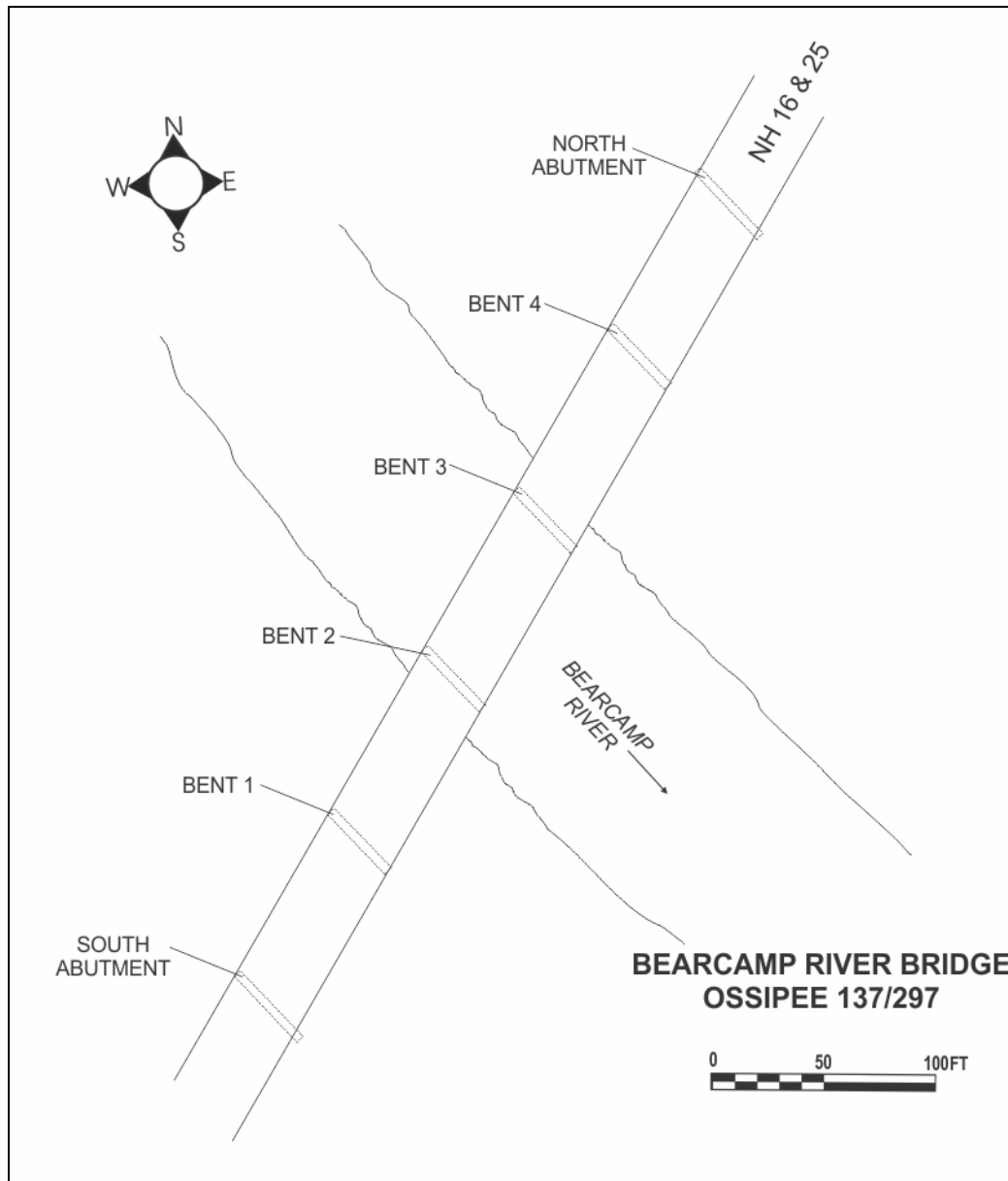


FIGURE 3: Bearcamp River Bridge, Site Sketch

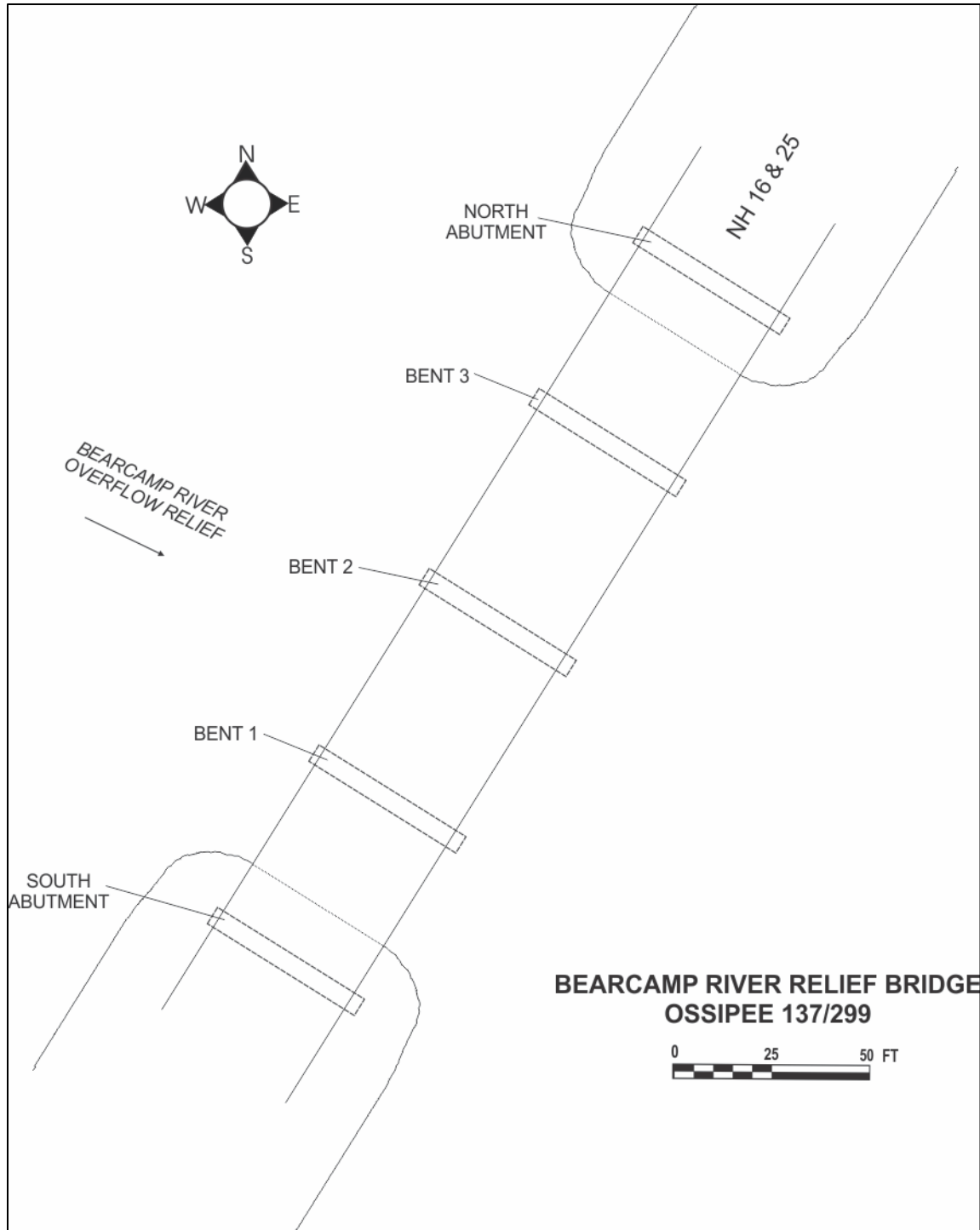


FIGURE 4: Bearcamp River Relief Bridge, Site Sketch

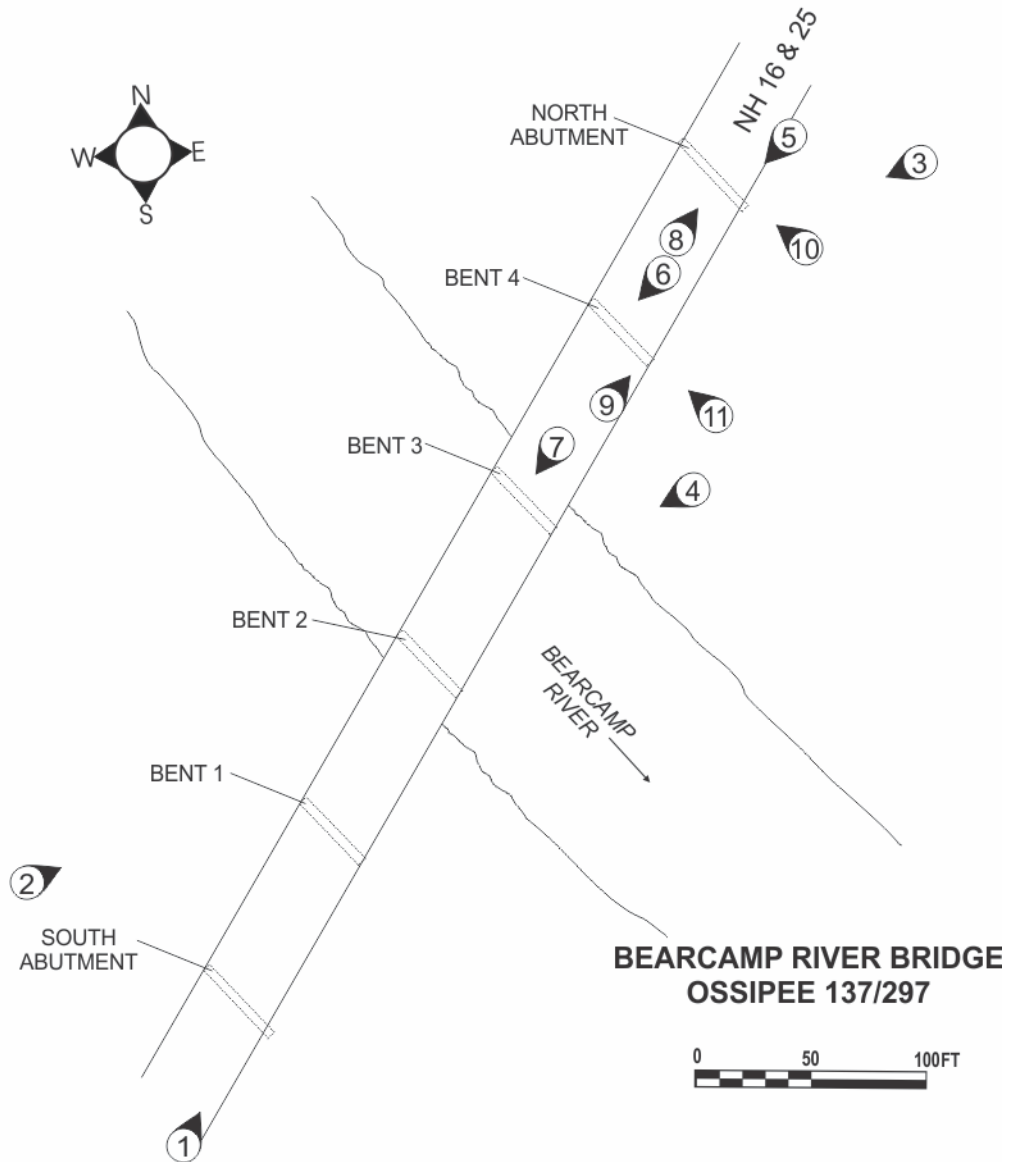
INDEX TO PHOTOGRAPHS

OSSIPEE BRIDGES 137/297 & 137/299
NH ROUTE 16 OVER BEARCAMP RIVER
Ossipee, Carroll County, New Hampshire.
New Hampshire State No. 744
Photographer: Rob Tucher
May 2017

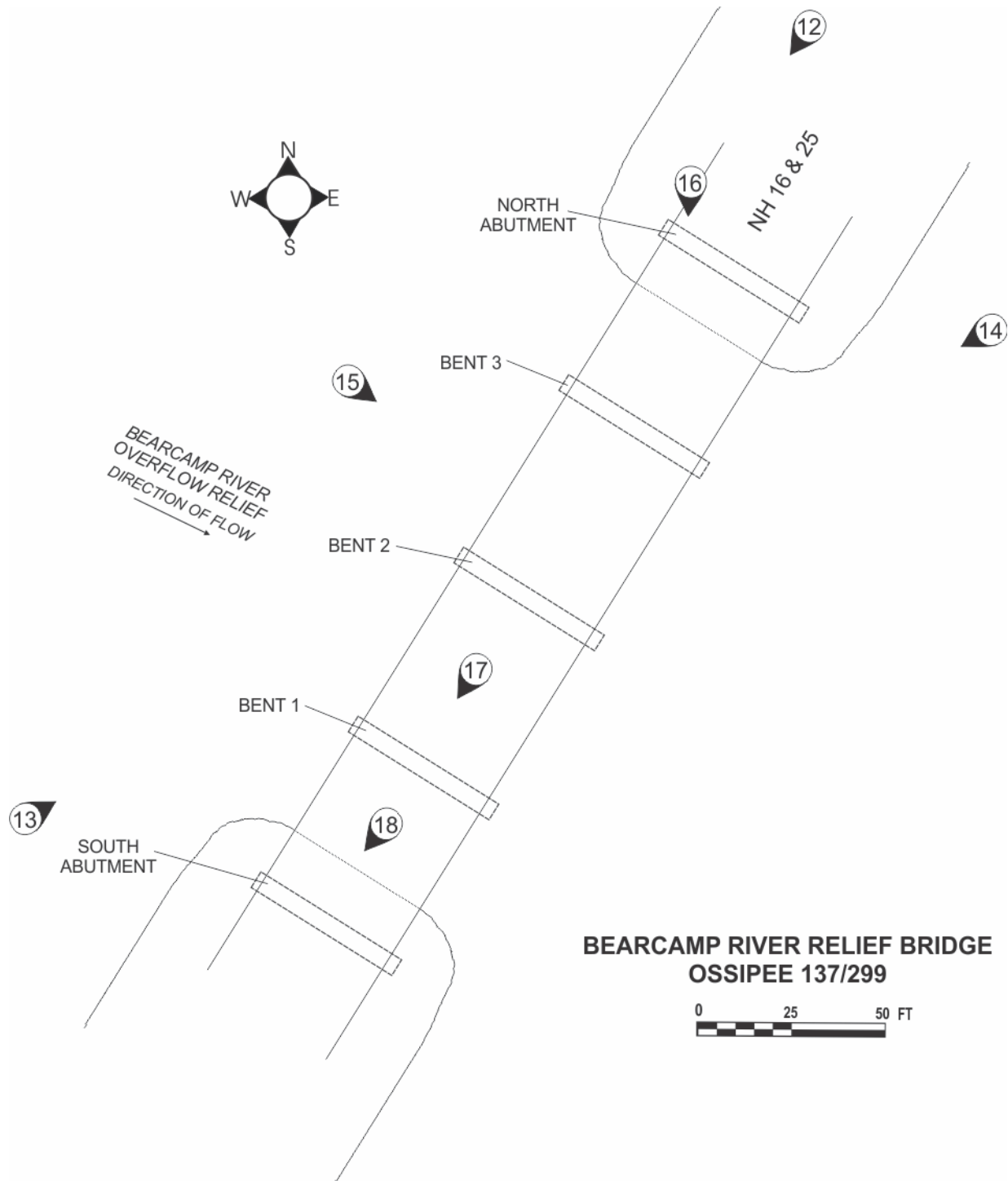
- | | |
|------------|--|
| NH-744-1 | Bearcamp River Bridge, south approach and view of deck showing slightly arched profile of superstructure most apparent in railing. Looking north. |
| NH-744-2 | Bearcamp River Bridge, oblique view of west (upstream) side of bridge. Looking northeast. |
| NH-744-3 | Bearcamp River Bridge, oblique view of east (downstream) side of bridge. Looking southwest. |
| NH-744-4 | Bearcamp River Bridge, oblique view of east (downstream) side of bridge in context with river channel. Looking southwest. |
| NH-744-5 | Bearcamp River Bridge, north approach, view of deck showing steel grate curb drains and sidewalk. Looking southwest. |
| NH-744-6 | Bearcamp River Bridge, bent 4, elevation, showing battered H-piles, concrete cap girder, rolled I-beam stringers with diaphragm bracing. Looking southwest. |
| NH-744-7 | Bearcamp River Bridge, bent 3, elevation, showing battered H-piles, concrete cap girder, rolled I-beam stringers with diaphragm bracing. Looking southwest. |
| NH-744-8 | Bearcamp River Bridge, north abutment elevation, showing rolled I-beam stringers with diaphragm bracing. Looking northeast. |
| NH-744-9 | Bearcamp River Bridge, bent 4, east side, showing battered H-piles, concrete cap girder equipped with flood-escape ladder rungs and the steel-grate sidewalk and curb assembly above. Looking northeast. |
| NH-744-10 | Bearcamp River Bridge, north abutment, east side, showing abutment back wall, bearing, sidewalk assembly and railing. Looking northwest. |
| NH-744-11: | Bearcamp River Bridge, bent 4, east side, showing detail of welded splice joint joining stringers over bent bearings, made to exact specifications to allow the stringers to function structurally as both simple and continuous beams. Looking northwest. |

- NH-744-12: Bearcamp River Relief Bridge, north approach with Bearcamp River Bridge visible in distance. Looking southwest.
- NH-744-13: Bearcamp River Relief Bridge, oblique view of west (upstream) side of bridge. Looking northeast.
- NH-744-14: Bearcamp River Relief Bridge, oblique view of east (downstream) side of bridge. Looking southwest.
- NH-744-15: Bearcamp River Relief Bridge, west (upstream) elevation showing bents 2 and 3. Looking southeast.
- NH-744-16: Bearcamp River Relief Bridge, deck view, showing railing, open grate drains and expansion joint visible at right of asphalt patch. Looking south.
- NH-744-17: Bearcamp River Relief Bridge, bent 1, and underside of deck showing stringers and diaphragms. Looking southwest.
- NH-744-18: Bearcamp River Relief Bridge, south abutment elevation, showing rolled I-beam stringers with diaphragm bracing. Looking southwest.

OSSIPEE BRIDGES 137/297 & 137/299
NH ROUTE 16 OVER BEARCAMP RIVER
NH STATE No. 744
KEY TO PHOTOGRAPHS 1-11
BEARCAMP RIVER BRIDGE



OSSIPEE BRIDGES 137/297 & 137/299
NH ROUTE 16 OVER BEARCAMP RIVER
NH STATE No. 744
KEY TO PHOTOGRAPHS 12-18
OVERFLOW RELIEF BRIDGE





NH-744-1: Bearcamp River Bridge, south approach and view of deck showing slightly arched profile of superstructure most apparent in railing. Looking north.



NH-744-2: Bearcamp River Bridge, oblique view of west (upstream) side of bridge. Looking northeast.



NH-744-3: Bearcamp River Bridge, oblique view of east (downstream) side of bridge. Looking southwest.



NH-744-4: Bearcamp River Bridge, oblique view of east (downstream) side of bridge in context with river channel. Looking southwest.



NH-744-5: Bearcamp River Bridge, north approach, view of deck showing steel grate curb drains and sidewalk. Looking southwest.



NH-744-6: Bearcamp River Bridge, bent 4, elevation, showing battered H-piles, concrete cap girder, rolled I-beam stringers with diaphragm bracing. Looking southwest.



NH-744-7: Bearcamp River Bridge, bent 3, elevation, showing battered H-piles, concrete cap girder, rolled I-beam stringers with diaphragm bracing. Looking southwest.



NH-744-8: Bearcamp River Bridge, north abutment elevation, showing rolled I-beam stringers with diaphragm bracing. Looking northeast.



NH-744-9: Bearcamp River Bridge, bent 4, east side, showing battered H-piles, concrete cap girder equipped with flood-escape ladder rungs and the steel-grate sidewalk and curb assembly above. Looking northeast.



NH-744-10: Bearcamp River Bridge, north abutment, east side, showing abutment back wall, bearing, sidewalk assembly and railing. Looking northwest.



NH-744-11: Bearcamp River Bridge, bent 4, east side, showing detail of welded splice joint joining stringers over bent bearings, made to exact specifications to allow the stringers to function structurally as both simple and continuous beams. Looking northwest.



NH-744-12: Bearcamp River Relief Bridge, north approach with Bearcamp River Bridge visible in distance. Looking southwest.



NH-744-13: Bearcamp River Relief Bridge, oblique view of west (upstream) side of bridge. Looking northeast.



NH-744-14: Bearcamp River Relief Bridge, oblique view of east (downstream) side of bridge. Looking southwest.



NH-744-15: Bearcamp River Relief Bridge, west (upstream) elevation showing bents 2 and 3. Looking southeast.



NH-744-16: Bearcamp River Relief Bridge, deck view, showing railing, open grate drains and expansion joint visible at right of asphalt patch. Looking south.



NH-744-17: Bearcamp River Relief Bridge, bent 1, and underside of deck showing stringers and diaphragms. Looking southwest.



NH-744-18: Bearcamp River Relief Bridge, south abutment elevation, showing rolled I-beam stringers with diaphragm bracing. Looking southwest.

INDEX TO ORIGINAL DRAWINGS

OSSIPEE BRIDGES 137/297 & 137/299
NH ROUTE 16 OVER BEARCAMP RIVER
Ossipee, Carroll County, New Hampshire.
New Hampshire State No. 744

Bearcamp River Bridge, Drawing 1-12

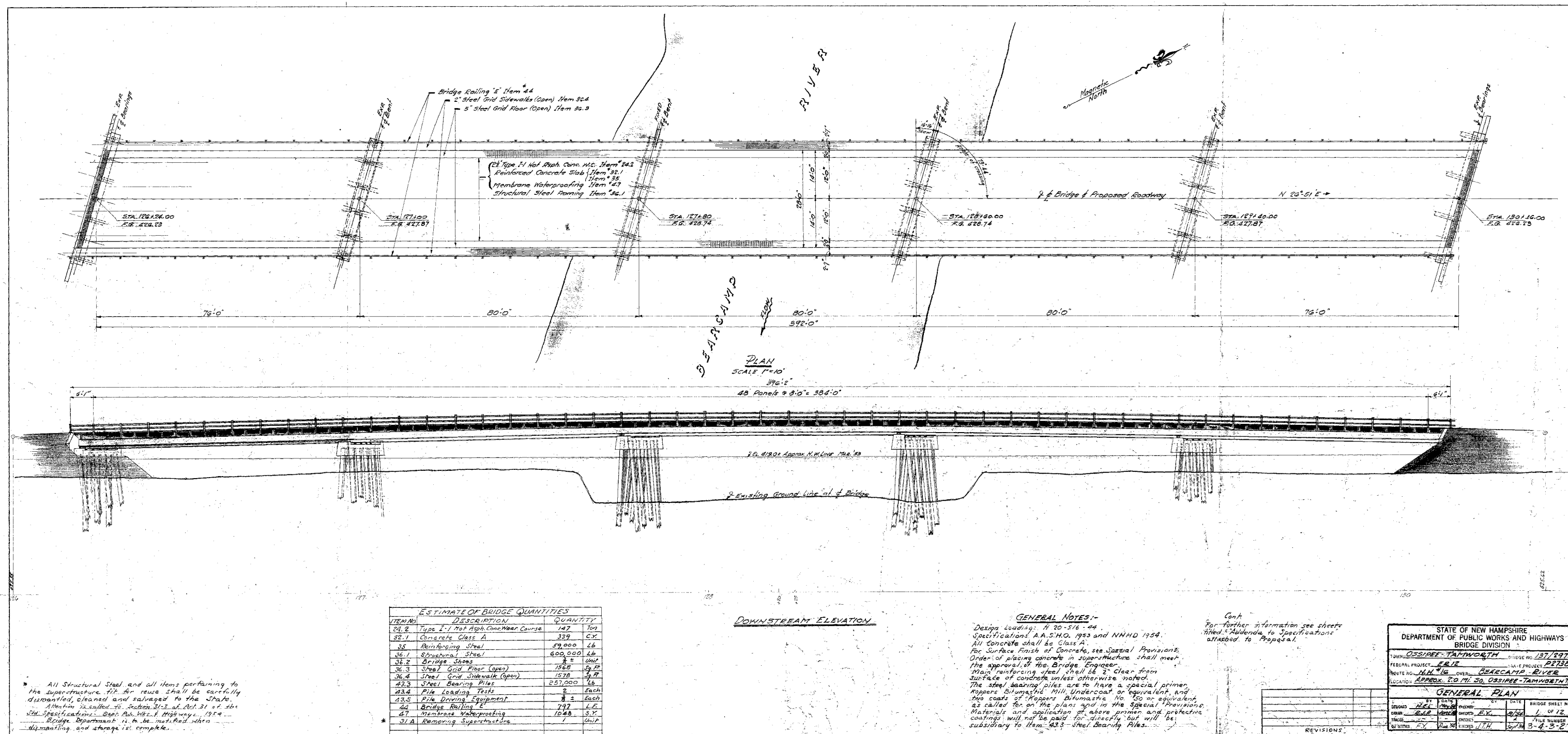
NH-744_DRAWING-01	Ossipee-Tamworth Bridge No. 137/297, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Bearcamp River. General Plan, Sheet 1 of 12, June 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-2.
NH-744_ DRAWING-02	Ossipee-Tamworth Bridge No. 137/297, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Bearcamp River. Borings, Sheet 2 of 12, July 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-2.
NH-744_DRAWING-03	Ossipee-Tamworth Bridge No. 137/297, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Bearcamp River. Layout of Steel Bearing Piles, Sheet 3 of 12, July 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-2.
NH-744_ DRAWING-04	Ossipee-Tamworth Bridge No. 137/297, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Bearcamp River. Abutment Details, Sheet 4 of 12, July 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-2.
NH-744_ DRAWING-05	Ossipee-Tamworth Bridge No. 137/297, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Bearcamp River. Reinforcing Steel - Abutments, Sheet 5 of 12, July 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-2.
NH-744_ DRAWING-06	Ossipee-Tamworth Bridge No. 137/297, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Bearcamp River. Typical Bent Details, Sheet 6 of 12, July 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-2.

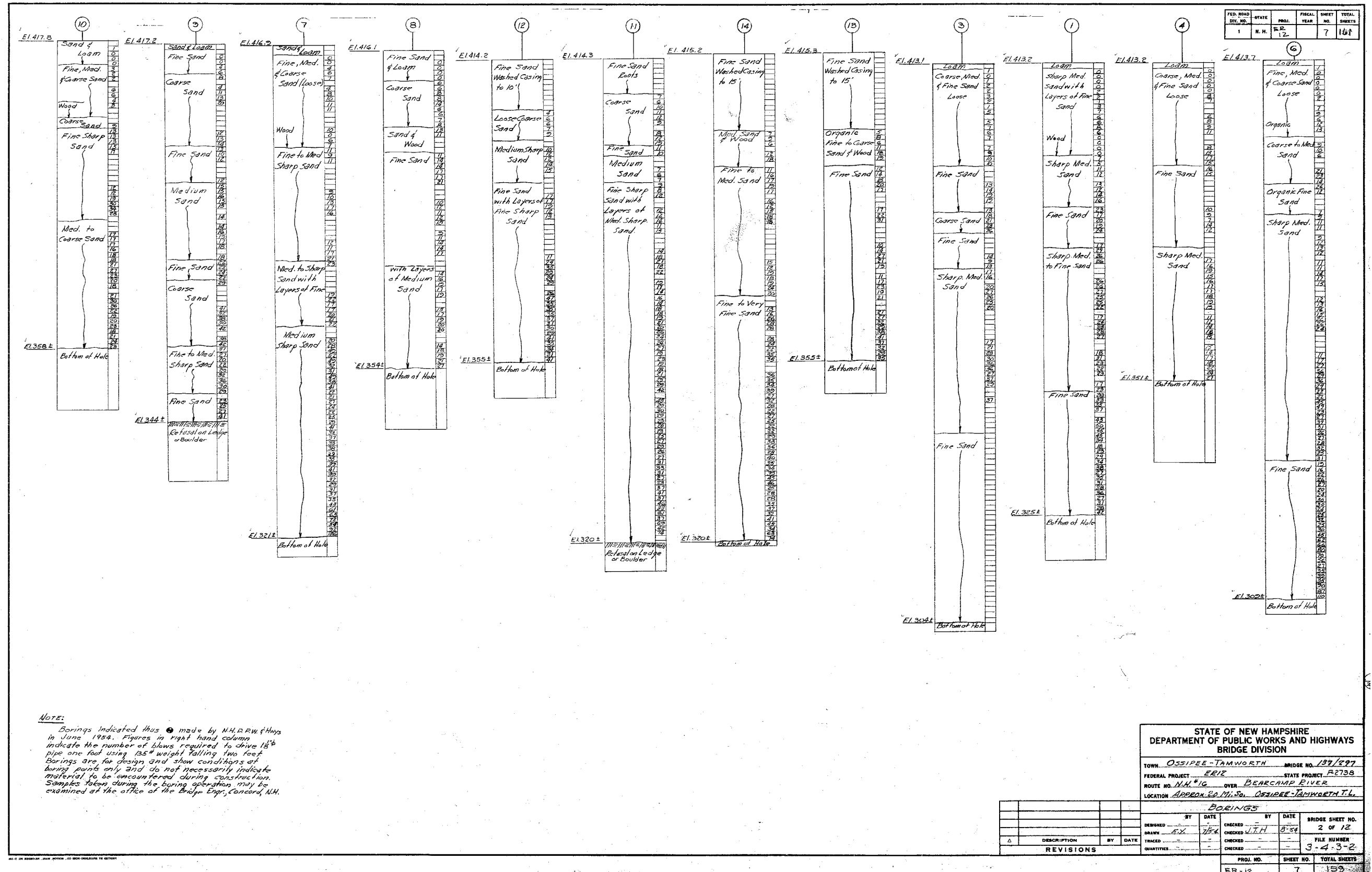
NH-744_ DRAWING-07	Ossipee-Tamworth Bridge No. 137/297, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Bearcamp River. Bent Cap Reinforcing, Sheet 7 of 12, July 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-2.
NH-744_ DRAWING-08	Ossipee-Tamworth Bridge No. 137/297, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Bearcamp River. Bridge Shoe Details, Sheet 8 of 12, July 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-2.
NH-744_ DRAWING-09	Ossipee-Tamworth Bridge No. 137/297, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Bearcamp River. Framing Plan, Sheet 9 of 12, July 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-2.
NH-744_ DRAWING-10	Ossipee-Tamworth Bridge No. 137/297, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Bearcamp River. Typical Transverse Section & Details, Sheet 10 of 12, July 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-2.
NH-744_ DRAWING-11	Ossipee-Tamworth Bridge No. 137/297, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Bearcamp River. Expansion Details, Sheet 11 of 12, July 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-2.
NH-744_ DRAWING-12	Ossipee-Tamworth Bridge No. 137/297, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Bearcamp River. Slab Reinforcement, Sheet 12 of 12, July 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-2.

Bearcamp River Relief Bridge, Drawing 13-24

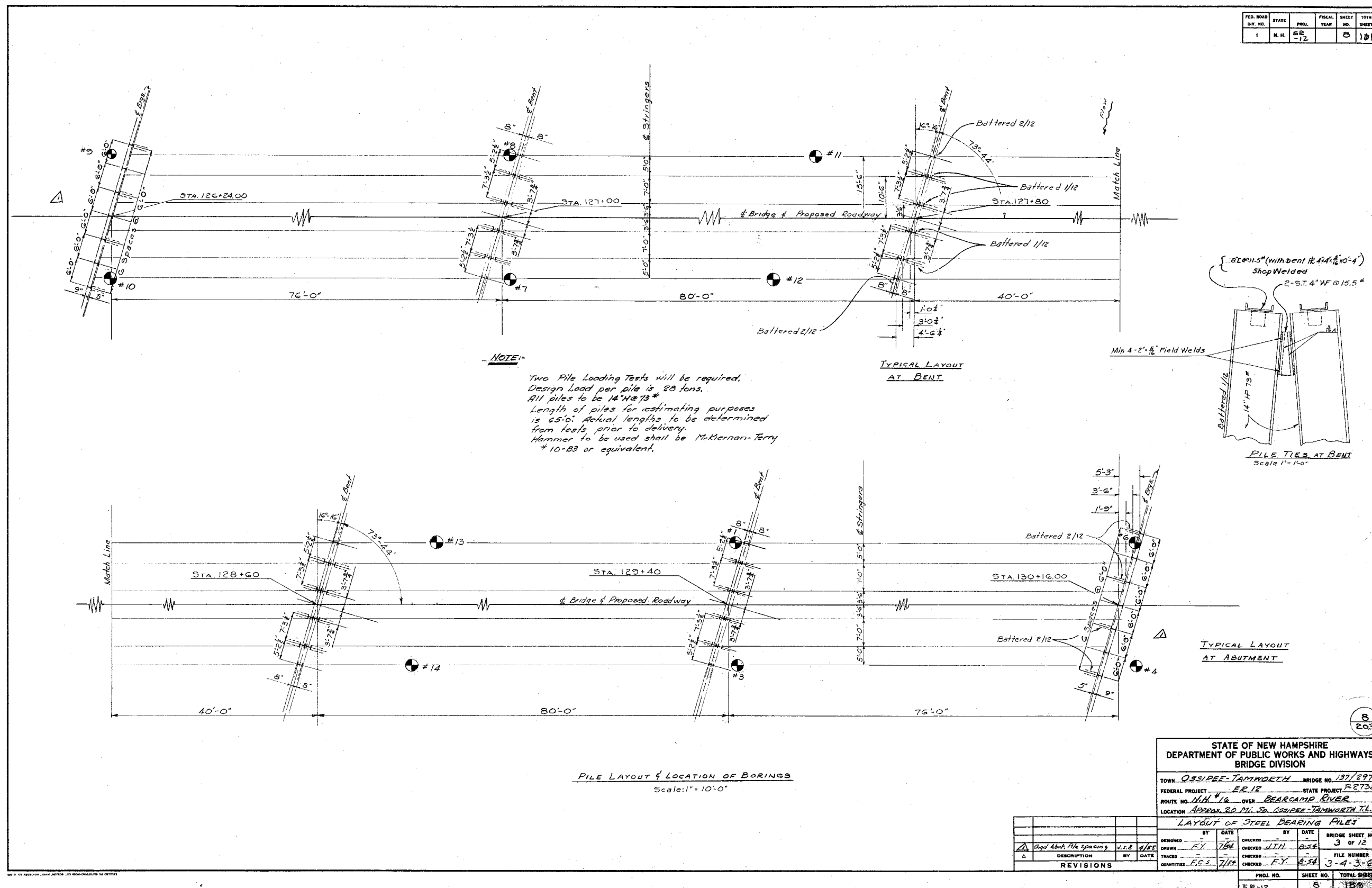
NH-744_ DRAWING-13	Ossipee-Tamworth Bridge No. 137/299, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Relief Structure. General Plan, Sheet 1 of 12, August 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-5.
NH-744_ DRAWING-14	Ossipee-Tamworth Bridge No. 137/299, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Relief Structure. Borings, Sheet 2 of 12, August 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-5.
NH-744_ DRAWING-15	Ossipee-Tamworth Bridge No. 137/299, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Relief Structure. Layout of Steel Bearing Piles, Sheet 3 of 12, August 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-5.
NH-744_ DRAWING-16	Ossipee-Tamworth Bridge No. 137/299, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Relief Structure. Abutment Details, Sheet 4 of 12, August 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-5.
NH-744_ DRAWING-17	Ossipee-Tamworth Bridge No. 137/299, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Relief Structure. Abutment Reinforcing Details - Abutments, Sheet 5 of 12, August 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-5.
NH-744_ DRAWING-18	Ossipee-Tamworth Bridge No. 137/299, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Relief Structure. Typical Bent Details, Sheet 6 of 12, August 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-5.
NH-744_ DRAWING-19	Ossipee-Tamworth Bridge No. 137/299, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Relief Structure. Bent Cap Reinforcement, Sheet 7 of 12, August 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-5.

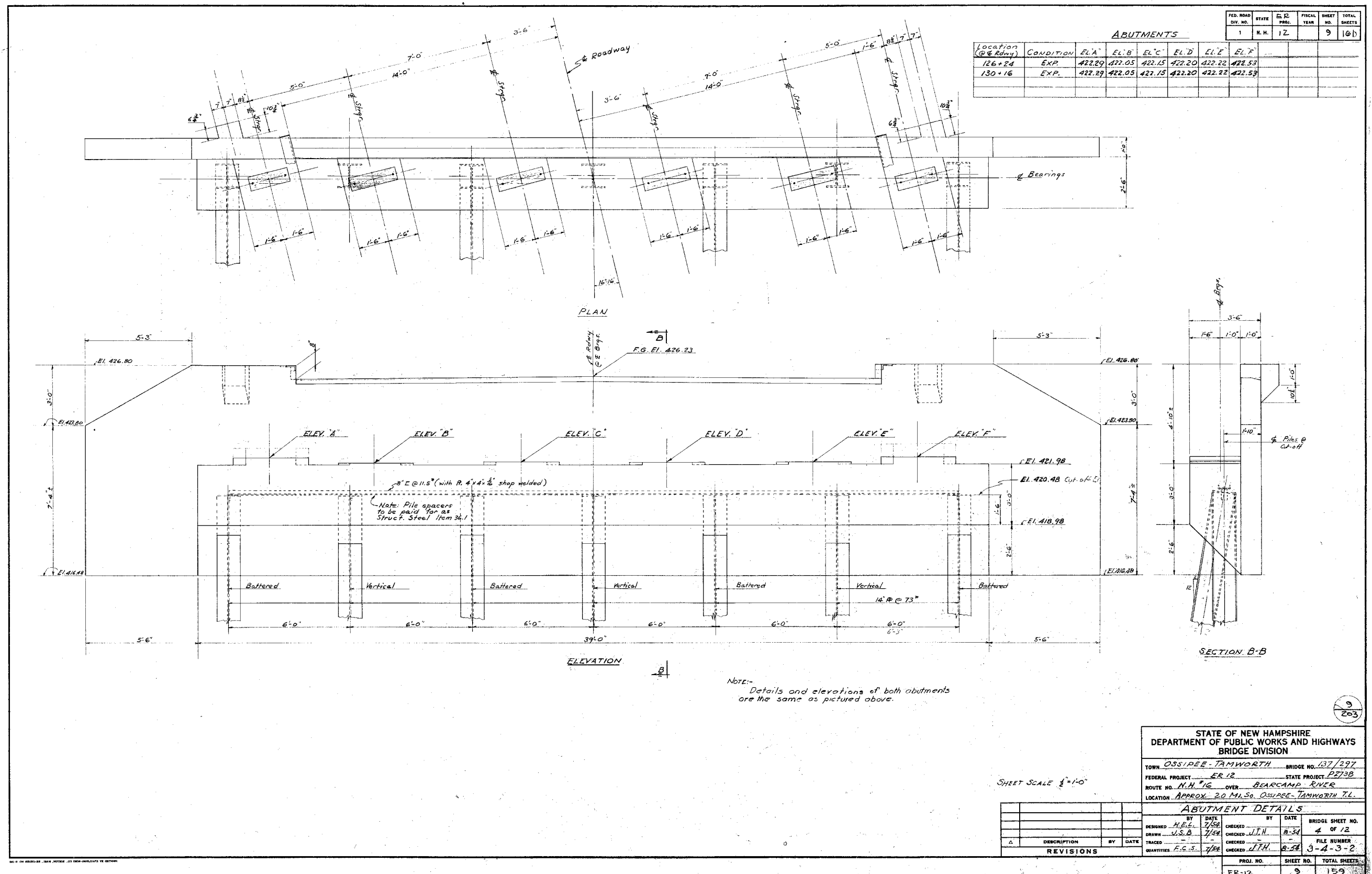
NH-744_ DRAWING-20	Ossipee-Tamworth Bridge No. 137/299, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Relief Structure. Bridge Shoe Details, Sheet 8 of 12, August 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-5.
NH-744_ DRAWING-21	Ossipee-Tamworth Bridge No. 137/299, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Relief Structure. Framing Plan, Sheet 9 of 12, August 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-5.
NH-744_ DRAWING-22	Ossipee-Tamworth Bridge No. 137/299, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Relief Structure. Typical Transverse Section & Details, Sheet 10 of 12, August 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-5.
NH-744_ DRAWING-23	Ossipee-Tamworth Bridge No. 137/299, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Relief Structure. Expansion Details, Sheet 11 of 12, August 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-5.
NH-744_ DRAWING-24	Ossipee-Tamworth Bridge No. 137/299, Federal Project No. ER-12, State Project No. P-2738, N.H. Route 16 over Relief Structure. Slab Reinforcement, Sheet 12 of 12, August 1954. Original drawing on file at NH Department of Transportation, Concord. Plan File 3-4-3-5.

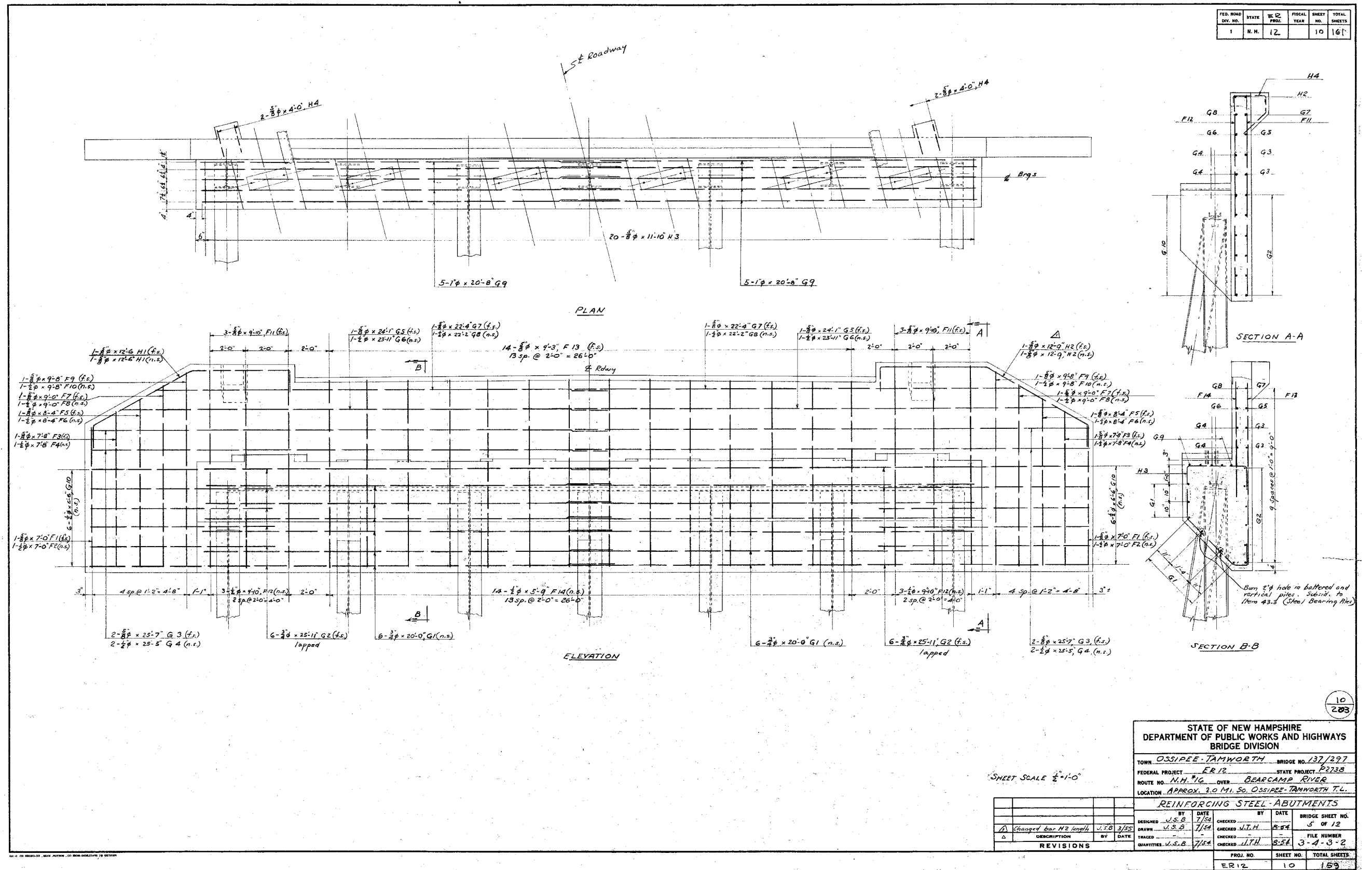




FED. ROAD DIST. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N. H.	ER-12		8	100

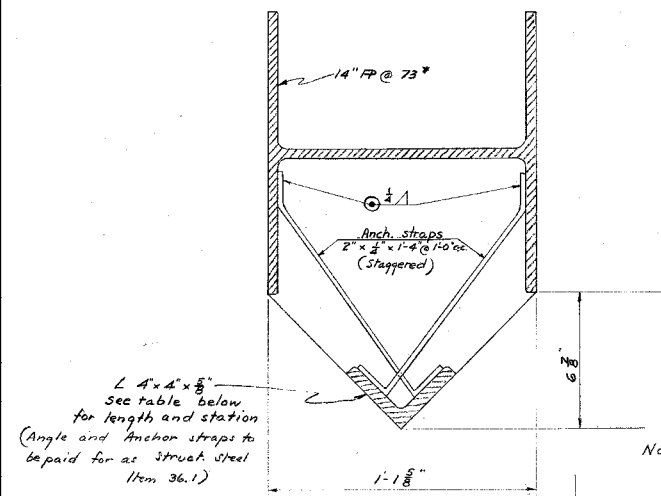






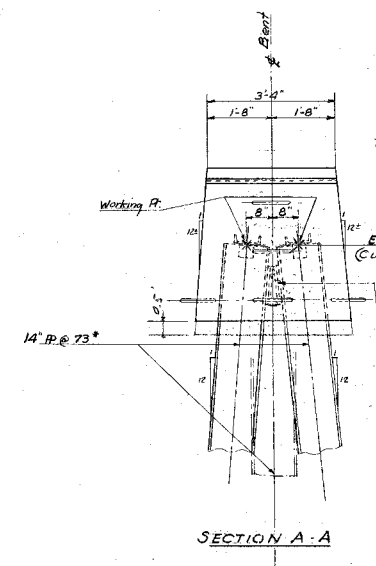
FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N. H.	FR- 12		11	160

NOTE: Nose Piling to be used on upstream side only. See table for lengths and stations.

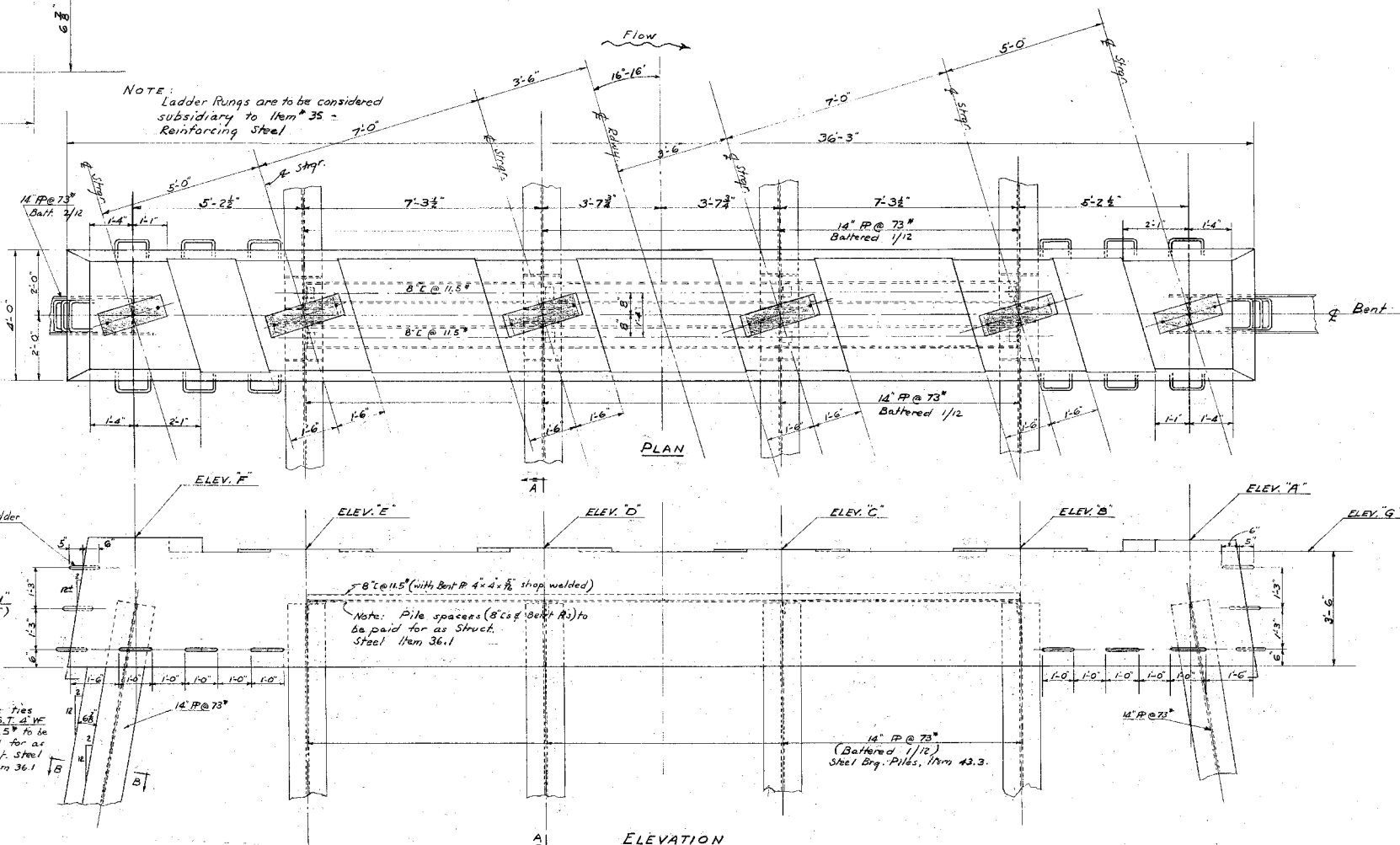


Station	Approx. Ground Line El.	Length of 2" x 4" x 8"
127+04.52	415.3 ±	5'-0" ±
127+84.52	405.2 ±	16'-0" ±
128+64.52	405.3 ±	16'-0" ±
129+44.52	414.1 ±	7'-0" ±

NORMAL SECTION OF NOSE
PILING B-B
Scale 3" = 1'-0"



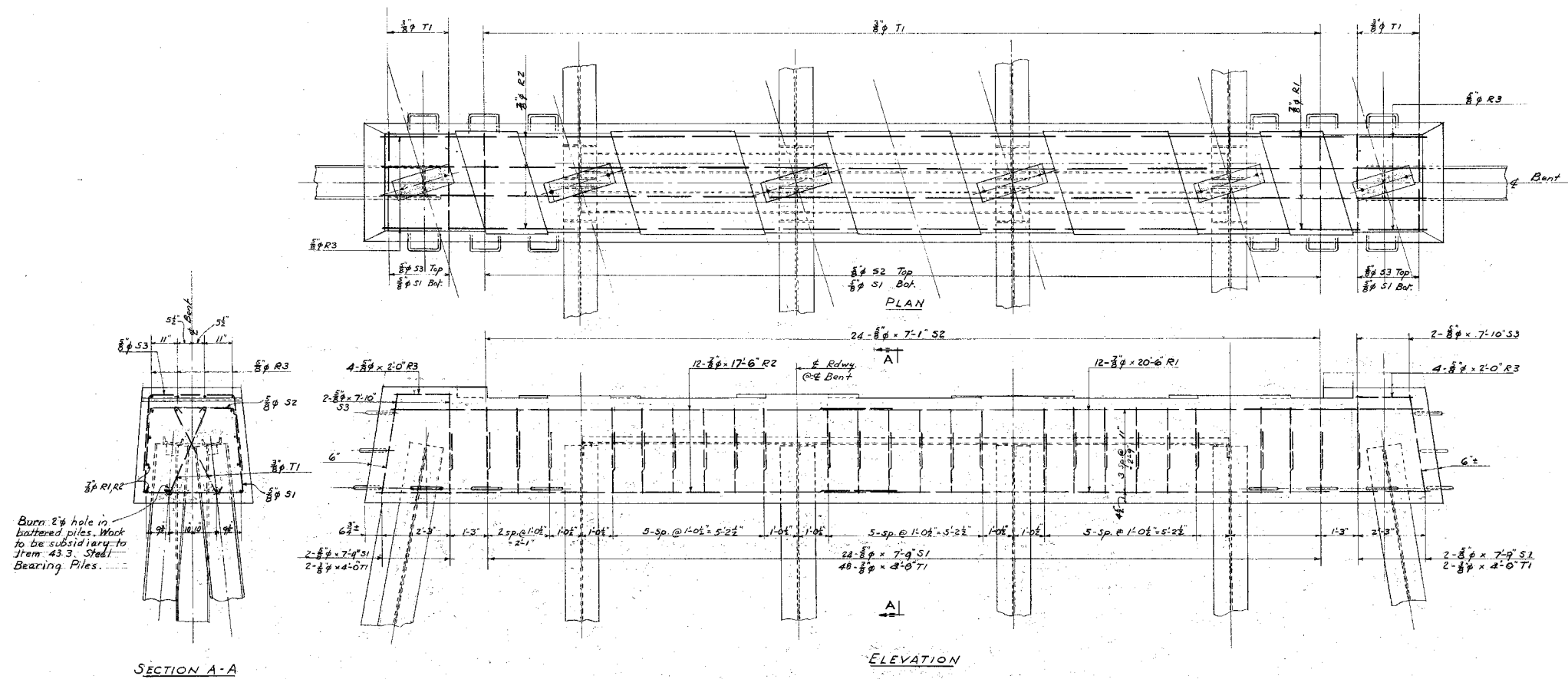
NOTE: Ladder Rungs are to be considered subsidiary to Item # 35 - Reinforcing Steel 7.0



<u>BENTS</u>									
<u>Location</u> <u>(# Row)</u>	<u>CONDITION</u>	<u>EL.A"</u>	<u>EL.B"</u>	<u>EL.C"</u>	<u>EL.D"</u>	<u>EL.E"</u>	<u>EL.F"</u>	<u>EL.G"</u>	<u>EL.H"</u>
127+00	EXP	423.97	423.72	423.77	423.83	423.82	424.12	423.65	422.15
127+80	FIXED	424.89	424.84	424.68	424.69	424.66	424.92	424.56	423.06
128+60	EXP	424.94	424.66	424.69	424.65	424.63	424.89	424.56	423.06
129+40	EXP	424.12	423.92	423.83	423.79	423.72	423.97	423.65	422.15

<p align="center">STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DIVISION</p>									
TOWN		<u>OSISPEE - TAMWORTH</u> BRIDGE NO. <u>137/297</u>							
FEDERAL PROJECT		<u>ER-12</u>				STATE PROJECT <u>P 2739</u>			
ROUTE NO.		<u>N.H. 17</u> OVER <u>BEARCAPM RIVER</u>							
LOCATION		<u>APPROX. 3.0 MI. SO. OSSIPEE - TAMWORTH T.L.</u>							
<p align="center"><u>TYPICAL BENT DETAILS</u></p>									
DESIGNED		BY	DATE	BY		DATE	BRIDGE SHEET NO.		
DRAWN		<u>M.E.L.</u>	<u>7/54</u>	CHECKED	<u>JTH</u>	<u>8-54</u>	<u>6 of 12</u>		
TRACKED		<u>S.S.O.</u>		CHECKED					
QUANTITIES		<u>P.C.S.</u>	<u>7/59</u>	CHECKED	<u>JTH</u>	<u>8-54</u>	FILE NUMBER	<u>3-4-3-2</u>	
		PROJ. NO.		SHEET NO.		TOTAL SHEETS			
		<u>ER-12</u>		<u>11</u>		<u>159</u>			

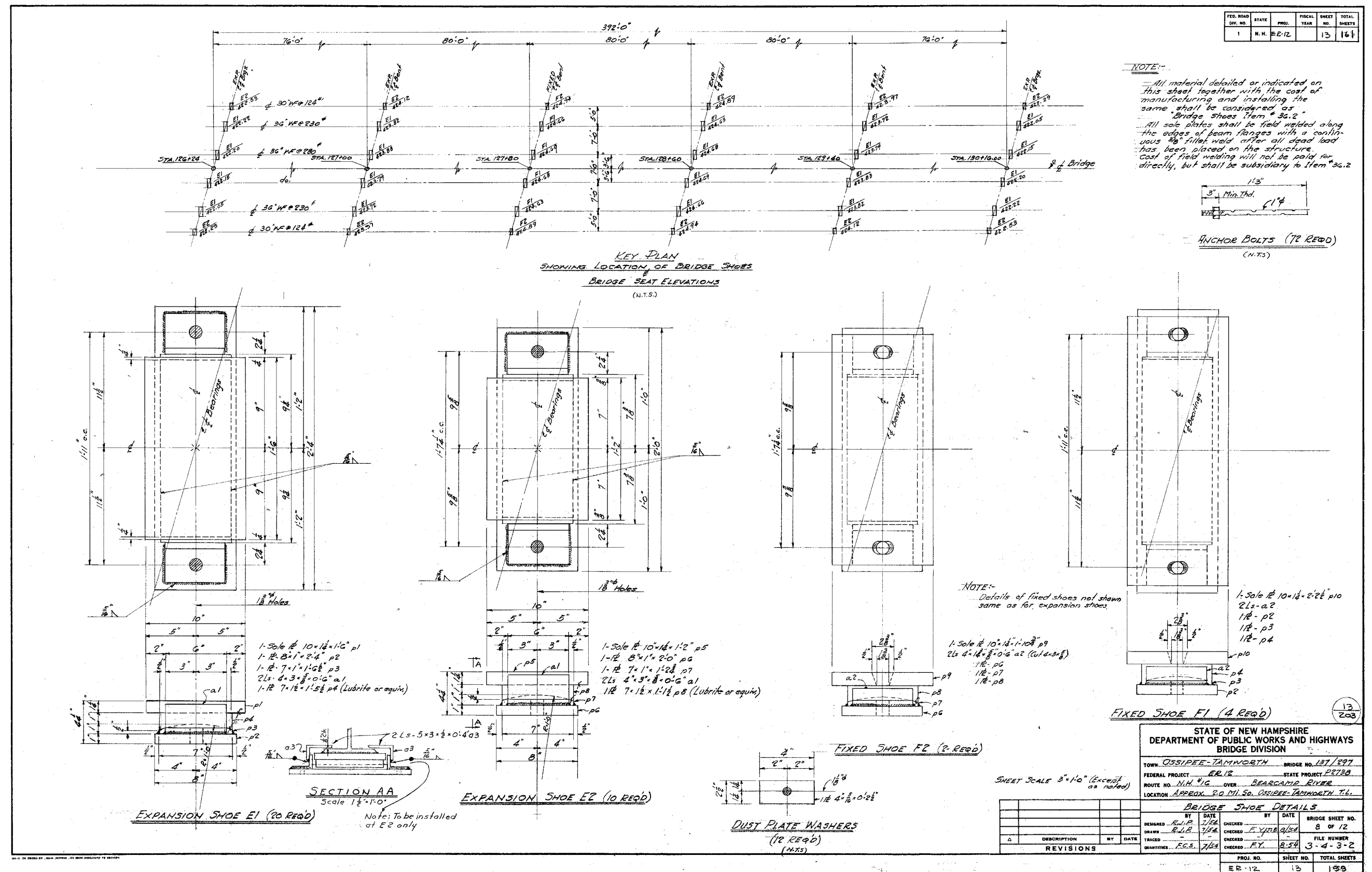
FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N. H.	BR-12		12	160

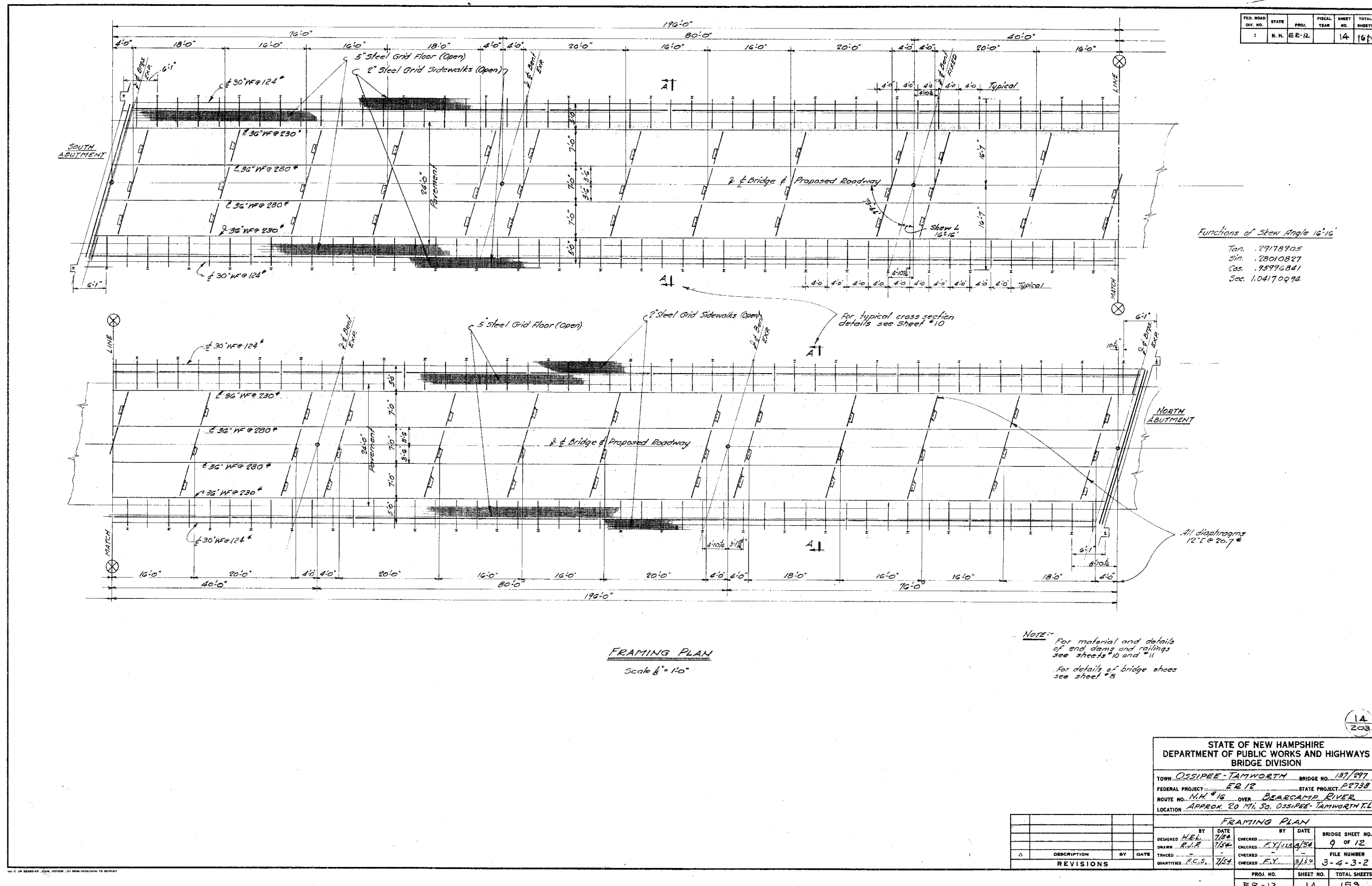


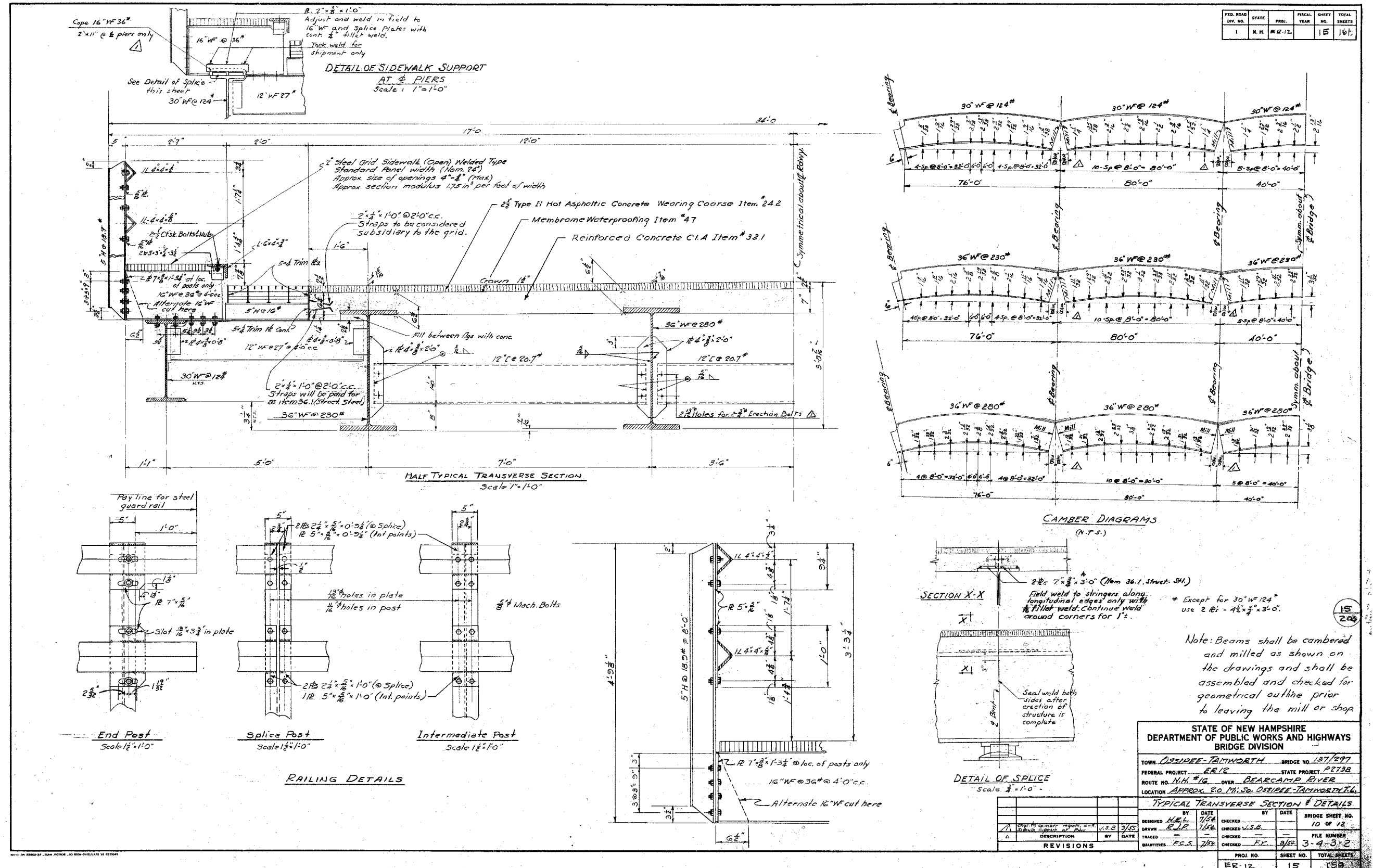
Sheet Scale 1/4" = 1'-0" except
as otherwise noted

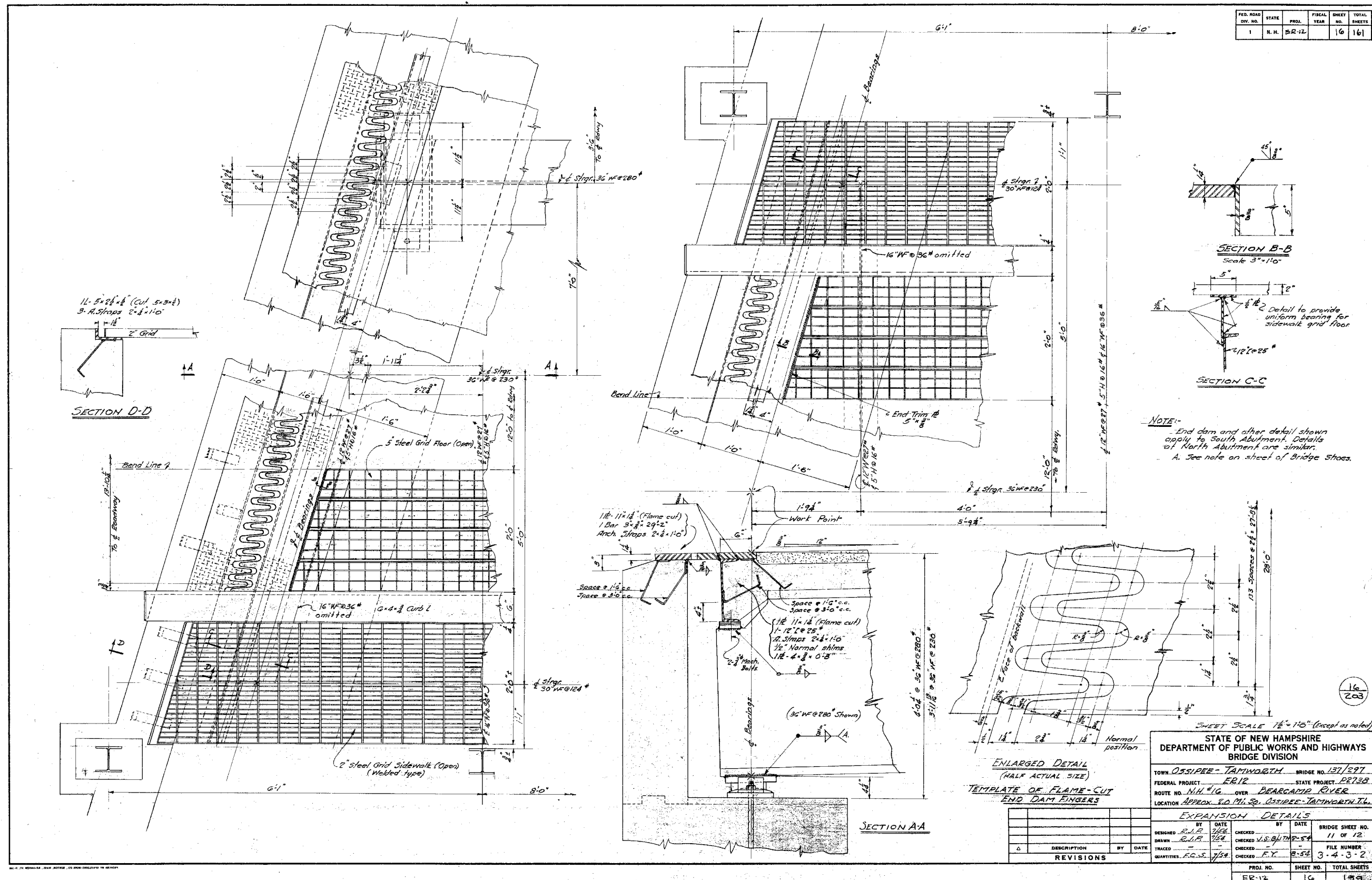
REVISIONS	DESCRIPTION	BY	DATE
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

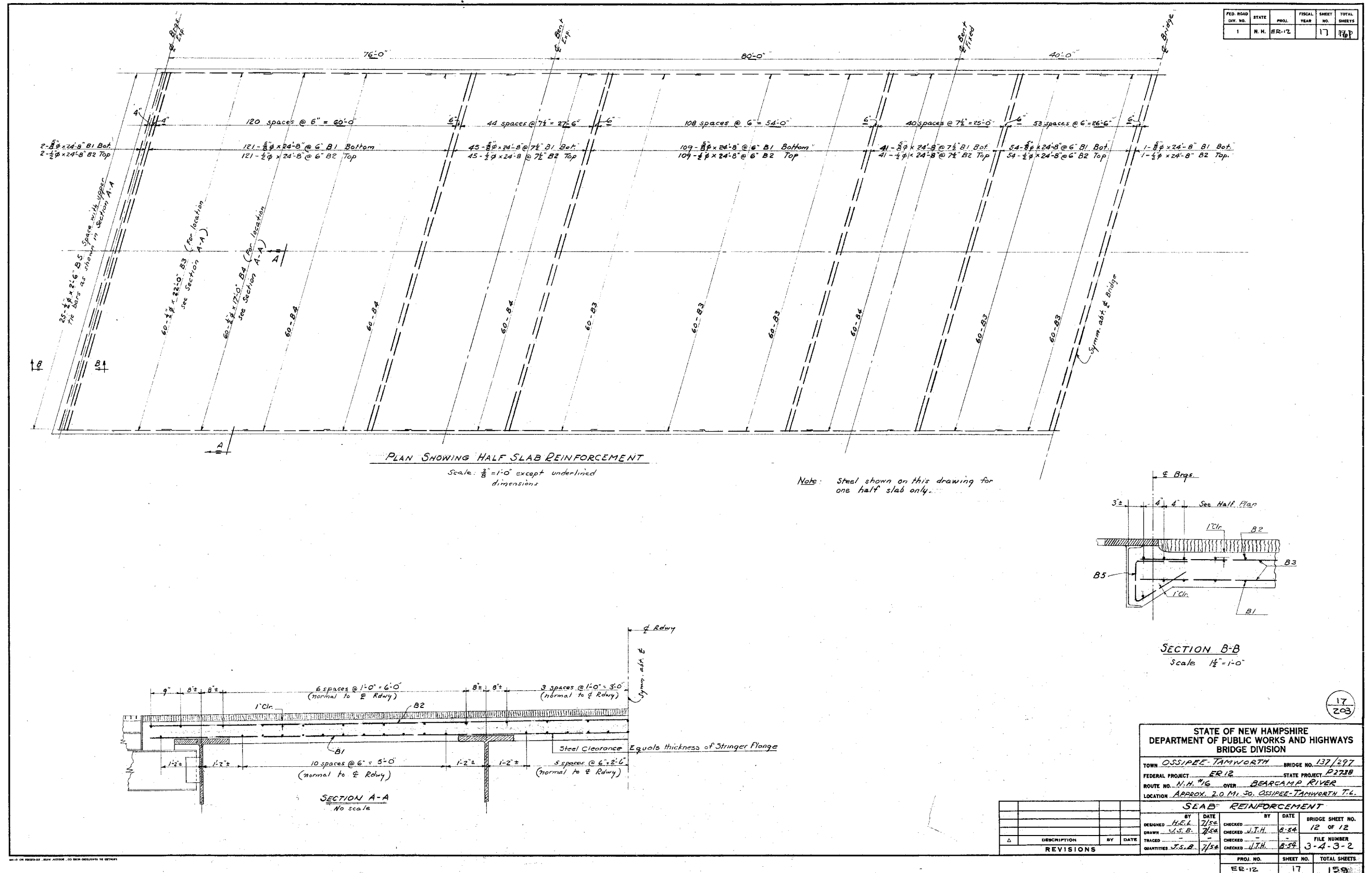
STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DIVISION			
TOWN <u>OSSIPEE-TAMWORTH</u> BRIDGE NO. <u>137/297</u>			
FEDERAL PROJECT <u>BR-12</u>		STATE PROJECT <u>P-2738</u>	
ROUTE NO. <u>N.H. 16</u> OVER <u>BEARCAMP RIVER</u>			
LOCATION <u>APPROX 2.0 MI. SO. OSSIPEE-TAMWORTH T.L.</u>			
BENT CAP REINFORCING			
DESIGNED <u>J.S.B.</u>	BY <u>J.T.H.</u>	DATE <u>8-54</u>	BRIDGE SHEET NO. <u>7 OF 12</u>
DRAWN <u>V.S.B.</u>	CHECKED <u>J.T.H.</u>	DATE <u>8-54</u>	FILE NUMBER <u>3-4-3-2</u>
QUANTITIES <u>J.S.B.</u>	CHECKED <u>J.T.H.</u>	DATE <u>8-54</u>	
PROJ. NO. <u>BR-12</u>		SHEET NO. <u>12</u>	TOTAL SHEETS <u>159</u>

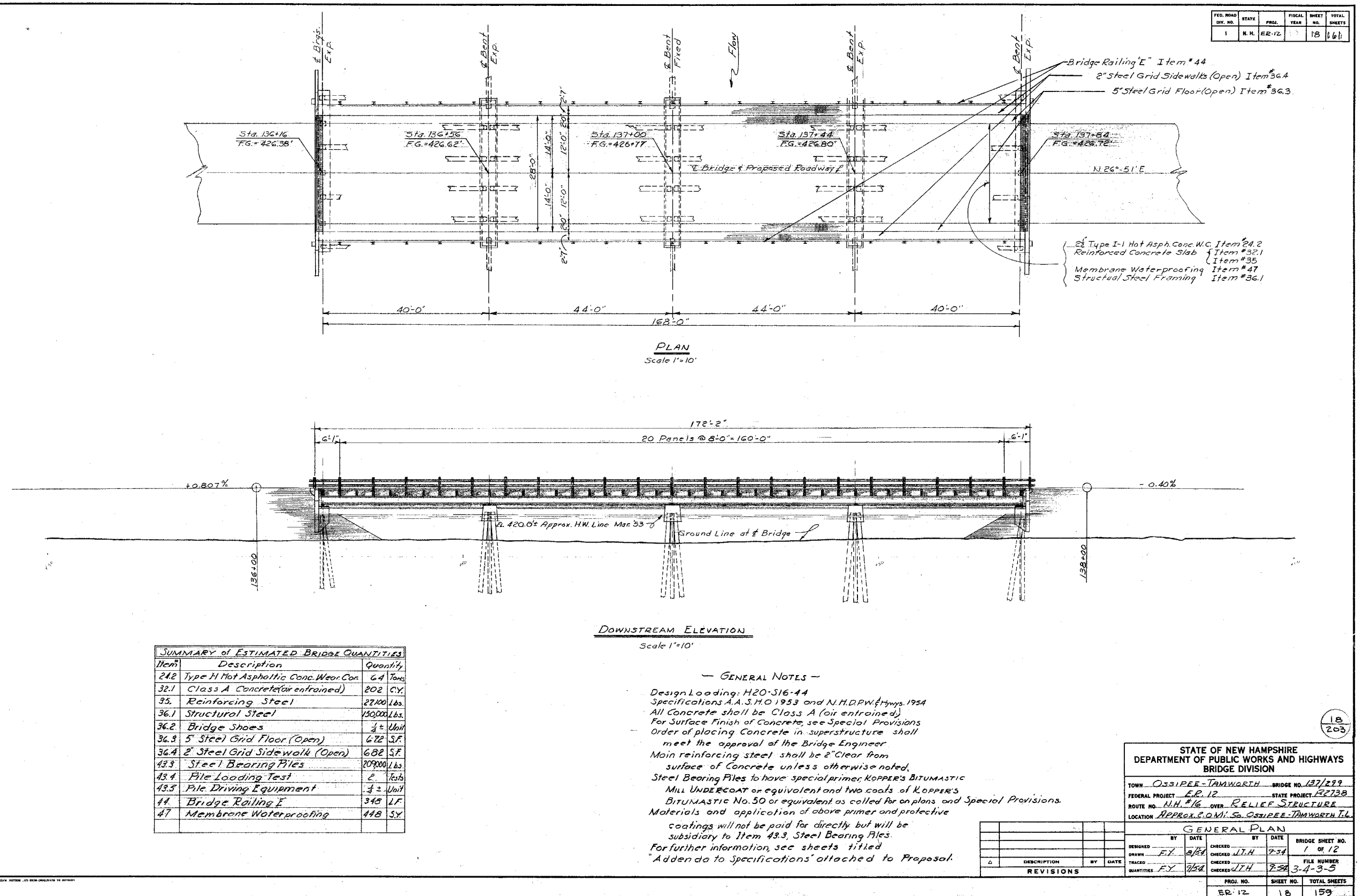


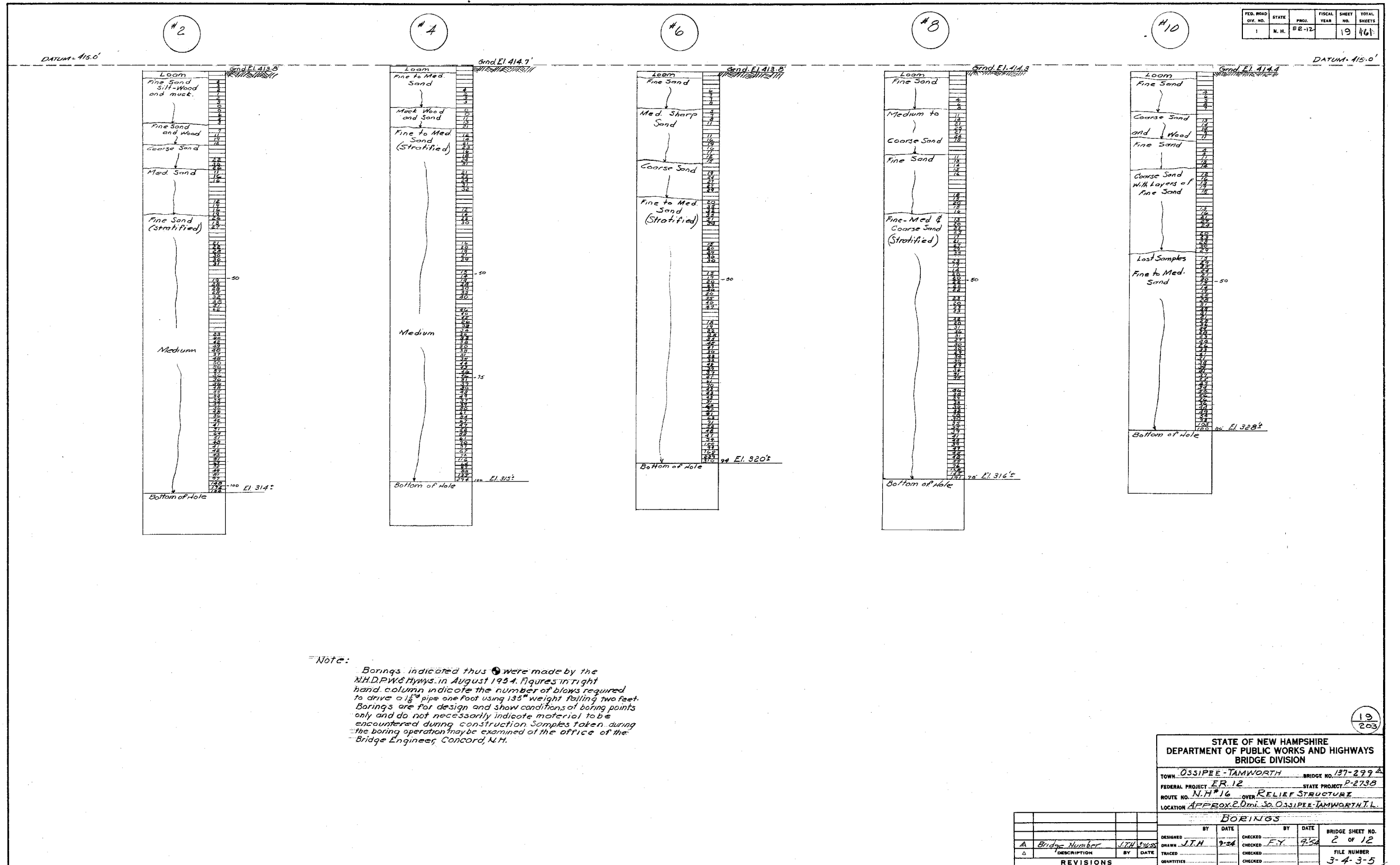




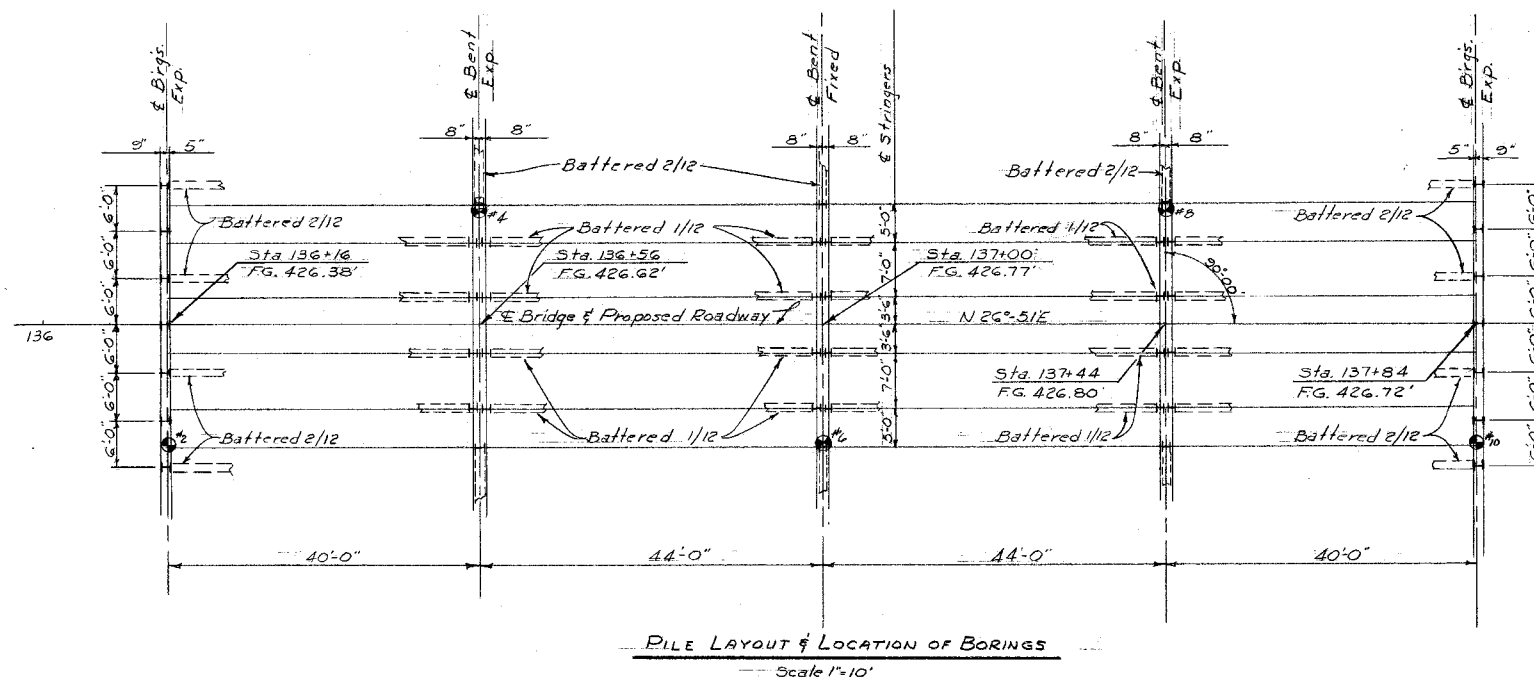






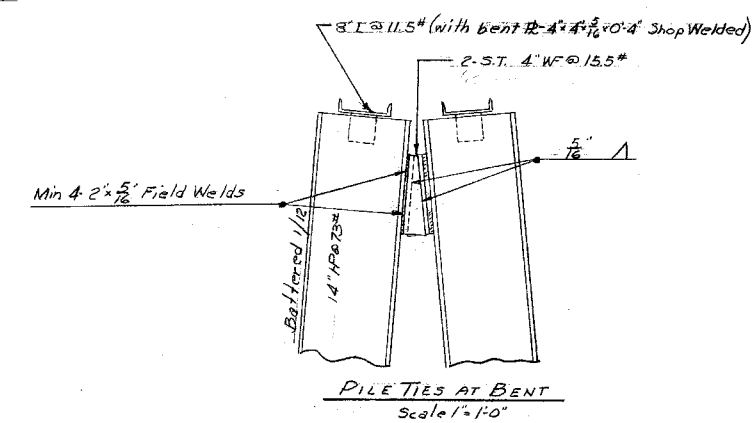


FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N. H.	ER-12		20	161



PILE LAYOUT & LOCATION OF BORINGS
Scale 1"=10'

NOTE: Two Pile Loading Tests will be required
Design Load per pile is 28 tons.
All piles to be 14" H @ 73"
Length of piles for estimating purposes
is 65'-0". Actual lengths to be determined
from tests prior to delivery.
Hammer to be used shall be McKiernan-Terry
#10-B3 or equivalent.

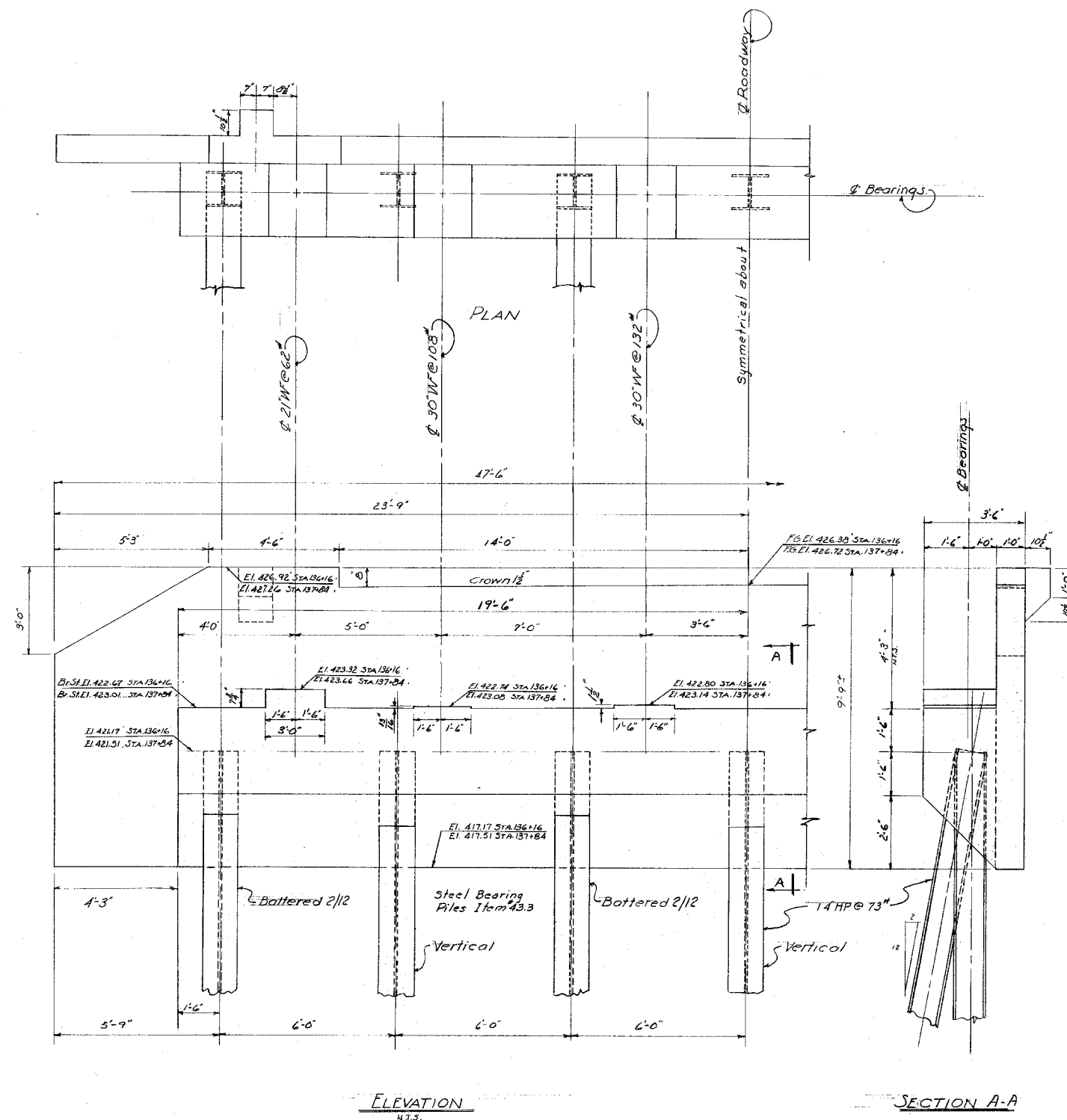


20
203

STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DIVISION			
TOWN	OSSIPEE-TAMWORTH BRIDGE NO. 137/299		
FEDERAL PROJECT	ER-12	STATE PROJECT	P-2735
ROUTE NO.	N.H. #16	OVER	RELIEF STRUCTURE
LOCATION	APPROX. 2.0 MI. SO. OSSIPEE-TAMWORTH T.L.		

				LAYOUT OF STEEL BEARING PILES			
		BY		DATE		BRIDGE SHEET NO.	
						3 OF 12	
		DESIGNED		DATE		CHECKED	
		DRAWN		F.X. 8-54		J.T.H. 7-54	
		TRACED				CHECKED	
		QUANTITIES		E.G.S. 8-54		F.X. 8-54	
						FILE NUMBER	
						3-4-3-5	
REVISIONS							
Δ		DESCRIPTION		BY		DATE	
</							

FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N. H.	ER-12		21	161

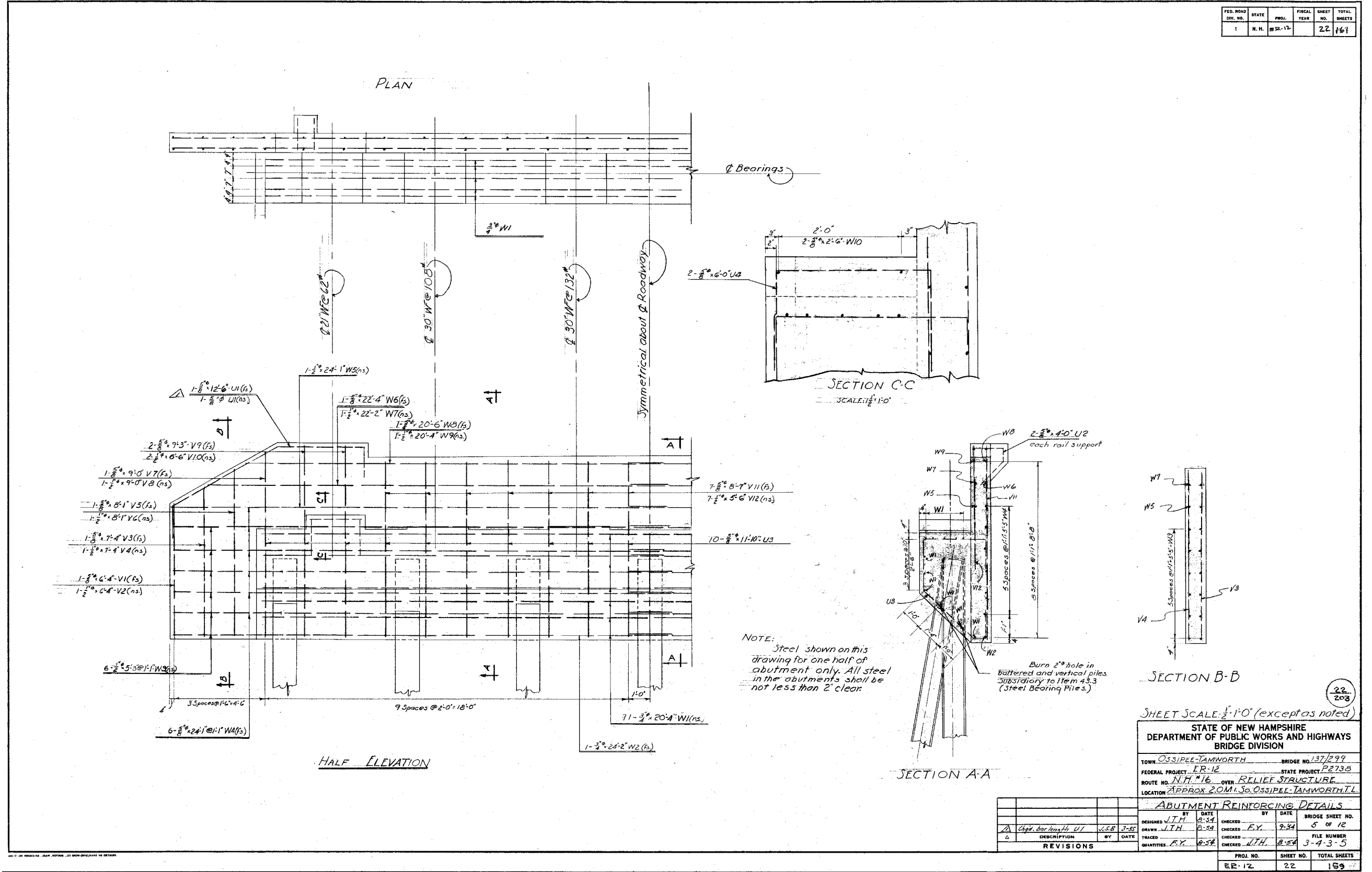


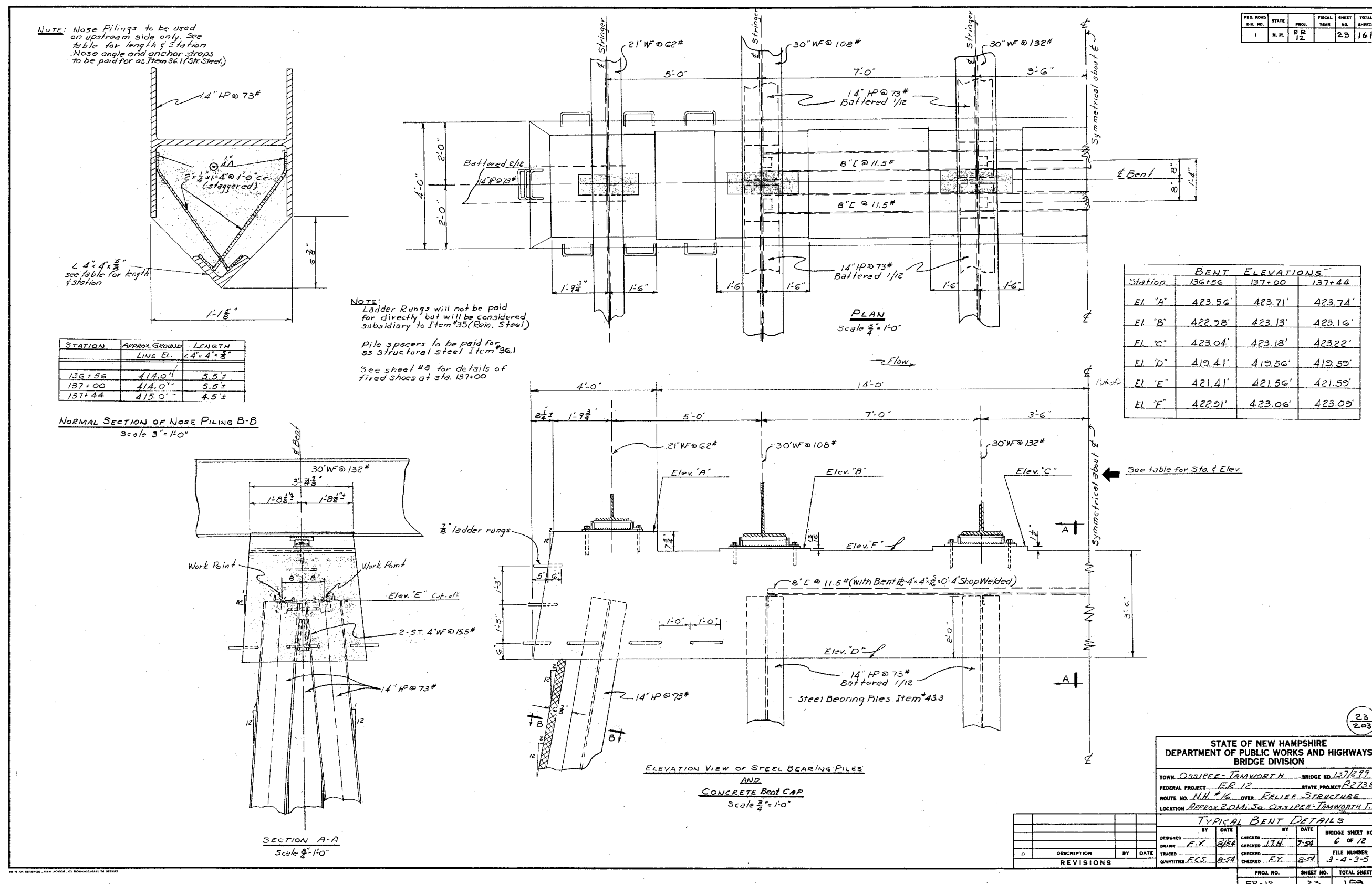
SHEET SCALE: 1/2"=1'-0" (except note)

STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DIVISION			
TOWN	OSSIPEE-TAMMERTON		
FEDERAL PROJECT	ER-12	STATE PROJECT	P2738
ROUTE NO.	N.H. 16	OVER	RELIEF STRUCTURE
LOCATION	APPROX. 2.0mi So OSSIPEE-TAMMERTON		

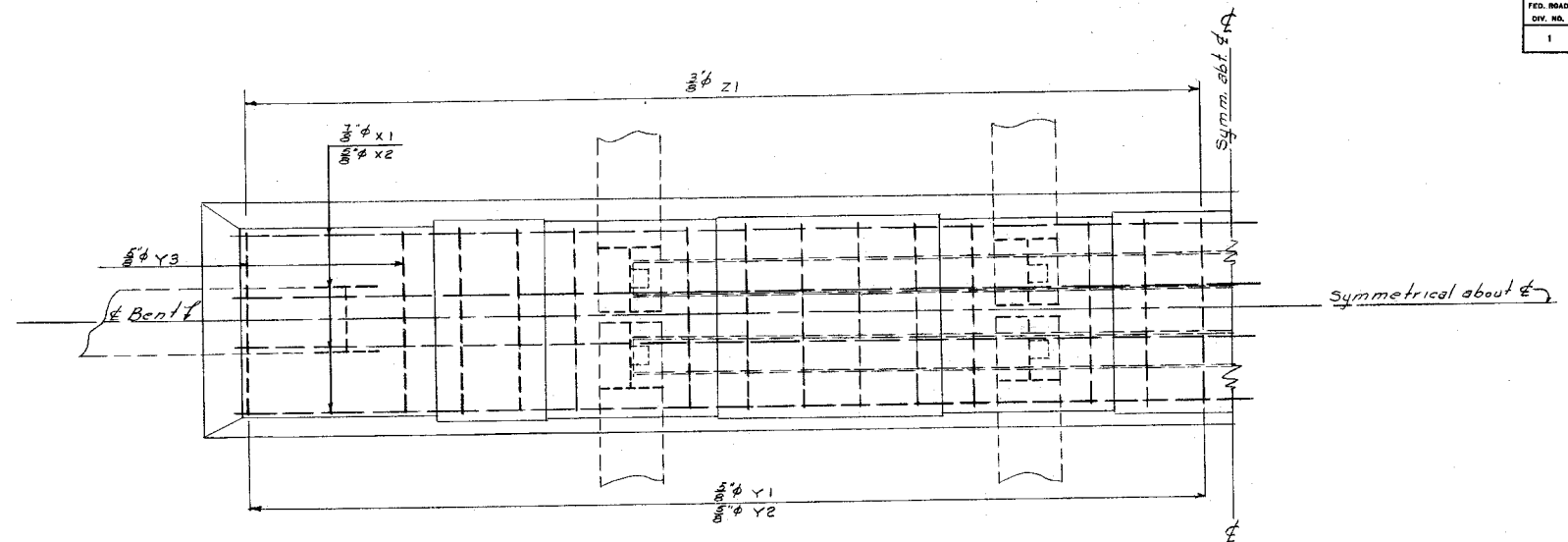
REVISIONS				ABUTMENT DETAILS			
NO.	DESCRIPTION	BY	DATE	BY	DATE	BRIDGE SHEET NO.	
1						4	OF 12
2						FILE NUMBER	
3						3-4-3-5	
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62							
63							
64							
65							
66							
67							
68							
69							
70							
71							
72							
73							
74							
75							
76							
77							
78							
79							
80							
81							
82							
83							
84							
85							
86							
87							
88							
89							
90							
91							
92							
93							
94							
95							
96							
97							
98							
99							
100							

FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N. H.	12-12		22	161



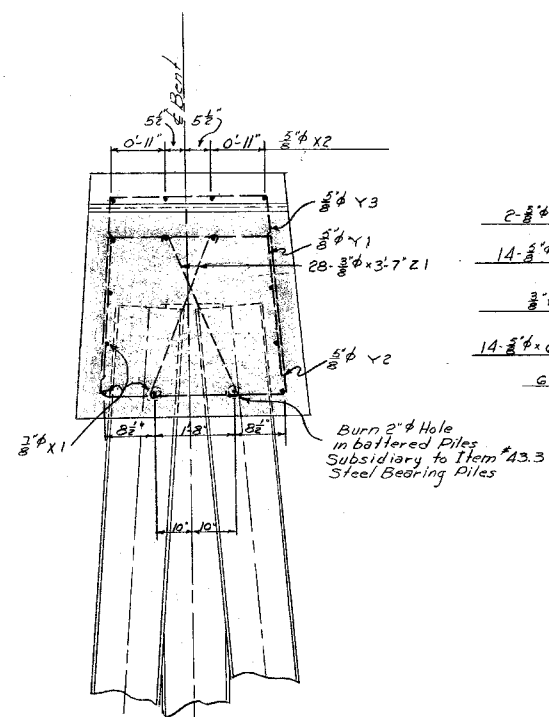


FED. ROAD DIV. NO.	STATE	F.P. PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.	12		24	164

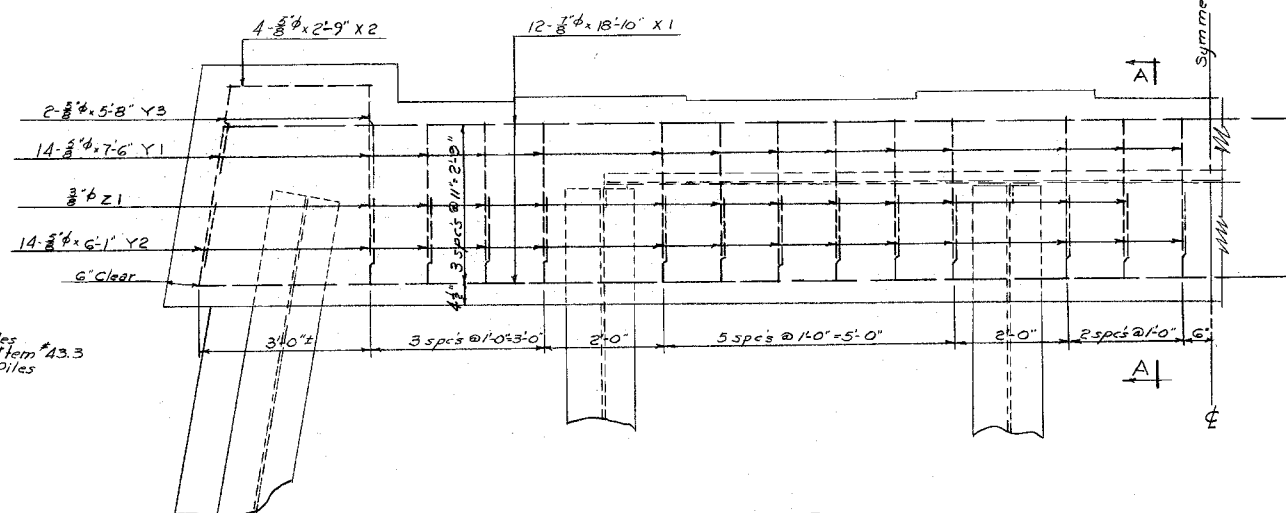


PLAN
Scale 3/4" = 1'-0"

NOTE:
Reinforcing steel shown on this drawing
for one half bent cap only.



SECTION A-A
Scale 3/4" = 1'-0"



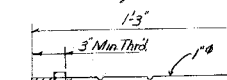
HALF ELEVATION OF BENT CAP REINFORCEMENT
Scale 3/4" = 1'-0"

STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DIVISION					
TOWN <u>OSSIPEE-TAMWORTH</u>		BRIDGE NO. <u>137/299</u>			
FEDERAL PROJECT <u>ER 12</u>		STATE PROJECT <u>R2733</u>			
ROUTE NO. <u>NH #16</u>		OVER <u>RELIEF STRUCTURE</u>			
LOCATION <u>APPROX. 2.0 MI. S. OSSIPEE-TAMWORTH, L.</u>					
BENT CAP REINFORCEMENT					
DESIGNED BY <u>F.Y.</u>	DATE <u>8/31</u>	CHECKED BY <u>J.T.H.</u>	DATE <u>7-54</u>	BRIDGE SHEET NO. <u>7 OF 12</u>	
DRAWN BY <u>F.Y.</u>	DATE <u>8/31</u>	CHECKED BY <u>J.T.H.</u>	DATE <u>7-54</u>	FILE NUMBER <u>3-4-3-5</u>	
TRACED BY <u>F.Y.</u>	DATE <u>8-31</u>	CHECKED BY <u>J.T.H.</u>	DATE <u>7-54</u>		
QUANTITIES BY <u>F.Y.</u>	DATE <u>8-31</u>	CHECKED BY <u>J.T.H.</u>	DATE <u>7-54</u>		
PROJ. NO. <u>ER 12</u>		SHEET NO. <u>24</u>		TOTAL SHEETS <u>159</u>	

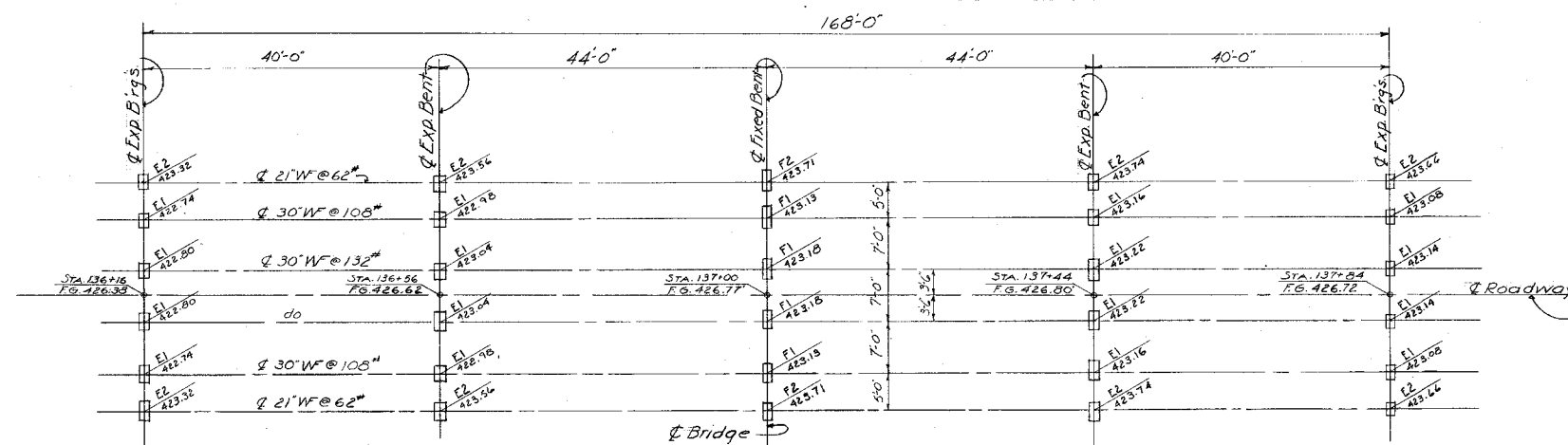
FED. ROAD DIV. NO.	STATE	PRJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.	12		25	161

NOTE:

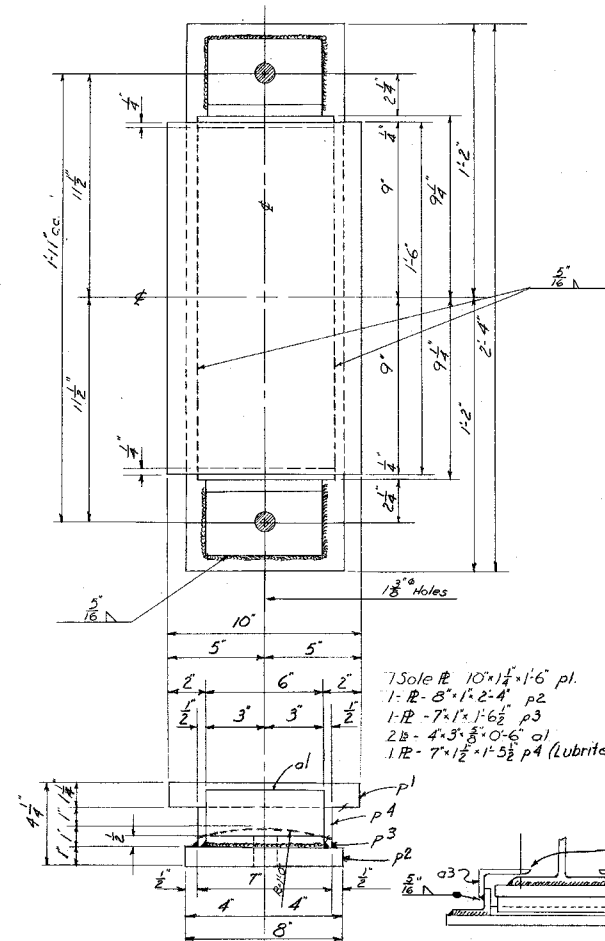
All material detailed or indicated on this sheet together with the cost of manufacturing and installing the same shall be considered as Bridge Shoes Item # 36.2.
All sole plates shall be field welded along the edges of beam flanges with a continuous $\frac{1}{8}$ " fillet weld after all dead load has been placed on the structure. Cost of field welding will not be paid for directly, but shall be subsidiary to Item # 36.2.



ANCHOR BOLTS (60 REQD)
(N.T.S.)



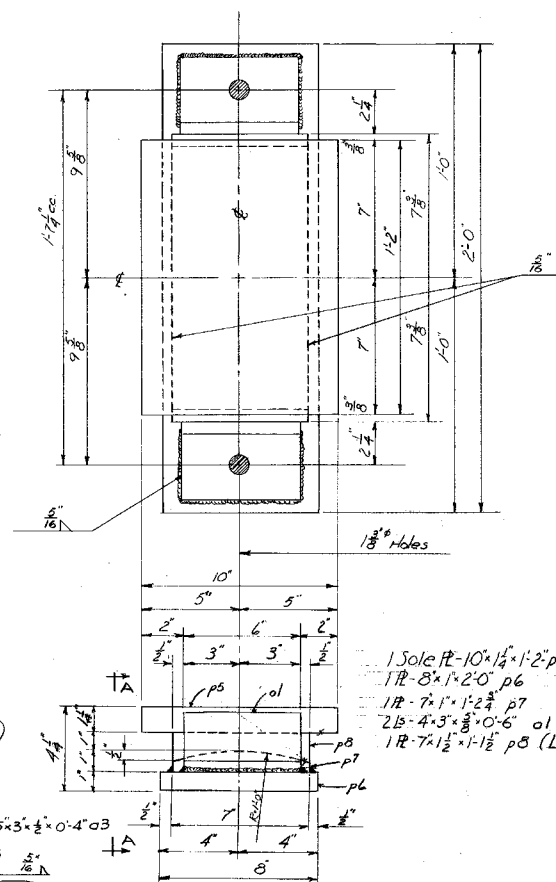
KEY PLAN
SHOWING LOCATION OF BRIDGE SHOES
&
BRIDGE SEAT ELEVATIONS
SCALE: 1"=10'



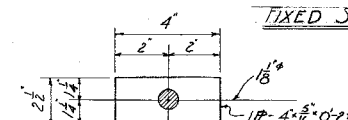
EXPANSION SHOE E1 (16 REQD)

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

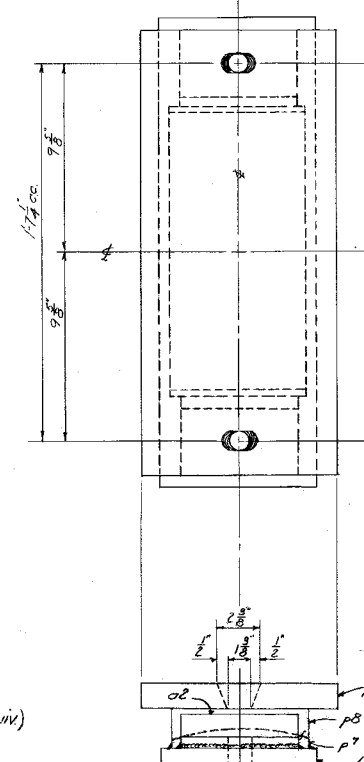
Note: To be installed at E2 only.



EXPANSION SHOE E2 (8 REQD)



DUST PLATE WASHERS
(12 REQD)
(N.T.S.)



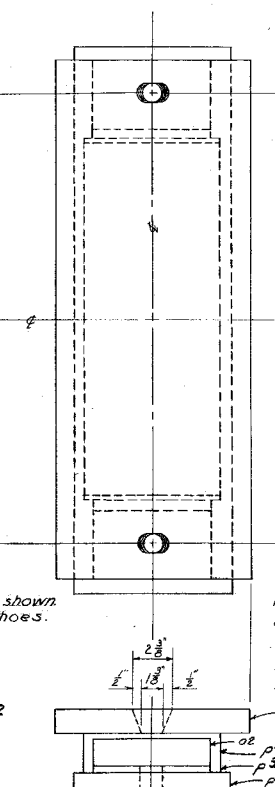
FIXED SHOE F1 (4 REQD)

NOTE: Details of Fixed shoes not shown. Same as for expansion shoes.

1 Sole PL 10" x 1 1/4" x 1-10 3/4" p7
2B-4" x 1 1/4" x 5/8" x 0-6" (Cut 4" x 3" x 8") a2
1R-p6
1R-p7
1R-p8

SHEET SCALE: 3"=1'-0" (except as noted)

REVISIONS	BY	DATE
1	HEH	8-24
2	WTH	8-24
3	WTH	8-24
4	WTH	8-24



FIXED SHOE F2 (2 REQD)

1 Sole PL 10" x 1 1/4" x 2-2 1/2" p10
2B-a2
1R-p2
1R-p3
1R-p4

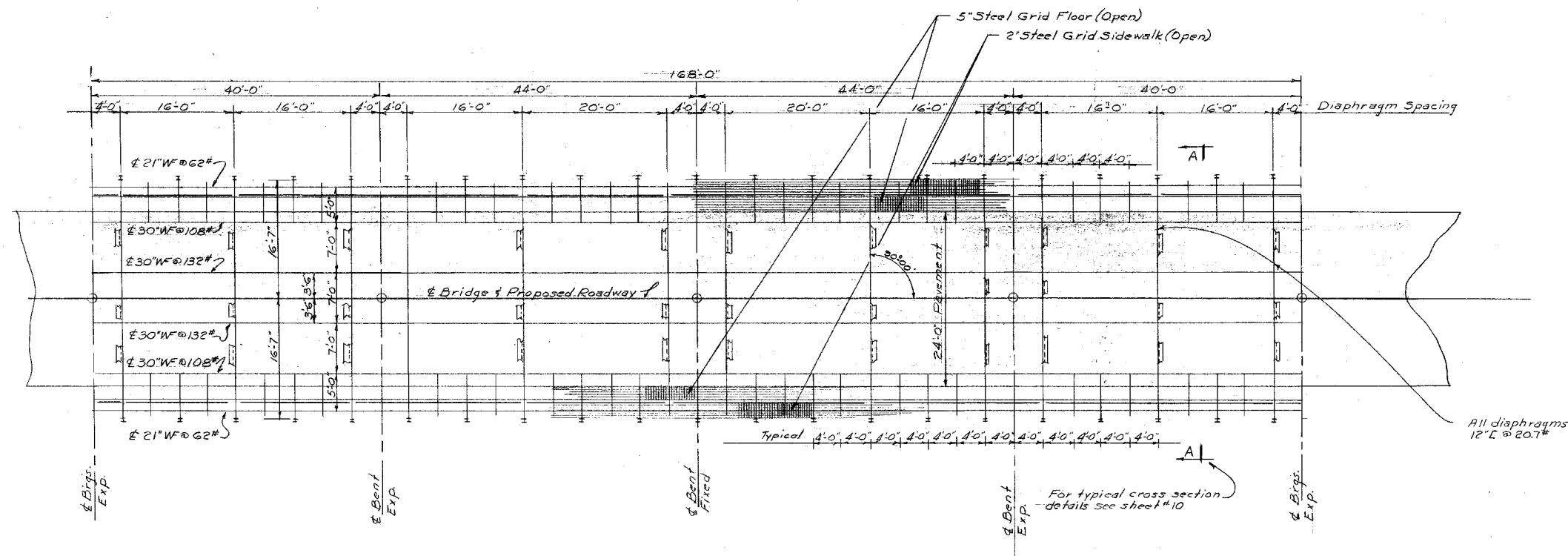
STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BRIDGE DIVISION

TOWN OSSIPEE-TAMWORTH BRIDGE NO. 137-299
FEDERAL PROJECT ER-12 STATE PROJECT P2738
ROUTE NO. NH-16 OVER RELIEF STRUCTURE
LOCATION APPROX. 2.0 mi. So. OSSIPEE-TAMWORTH, I.L.

BRIDGE SHOE DETAILS

DESIGNED	BY	DATE	CHECKED	BY	DATE	BRIDGE SHEET NO.
HEH	HEH	8-24	WTH	WTH	8-24	8 OF 12
TRACED	BY	DATE	CHECKED	BY	DATE	FILE NUMBER
WTH	WTH	8-24	WTH	WTH	8-24	3-4-3-5
QUANTITIES	BY	DATE	CHECKED	BY	DATE	TOTAL SHEETS
WTH	WTH	8-24	WTH	WTH	8-24	25

FED. ROAD DIV. NO.	STATE	EST. PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N. H.	12		26	161

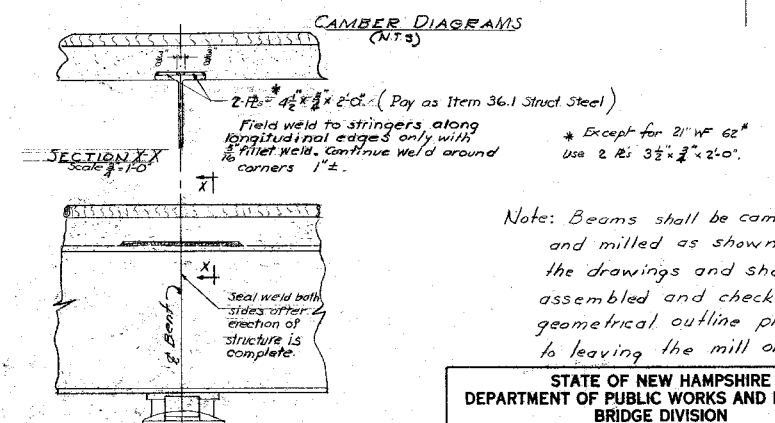
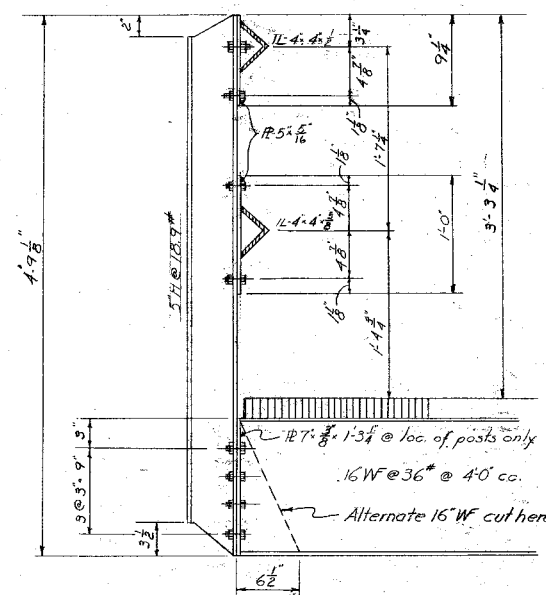
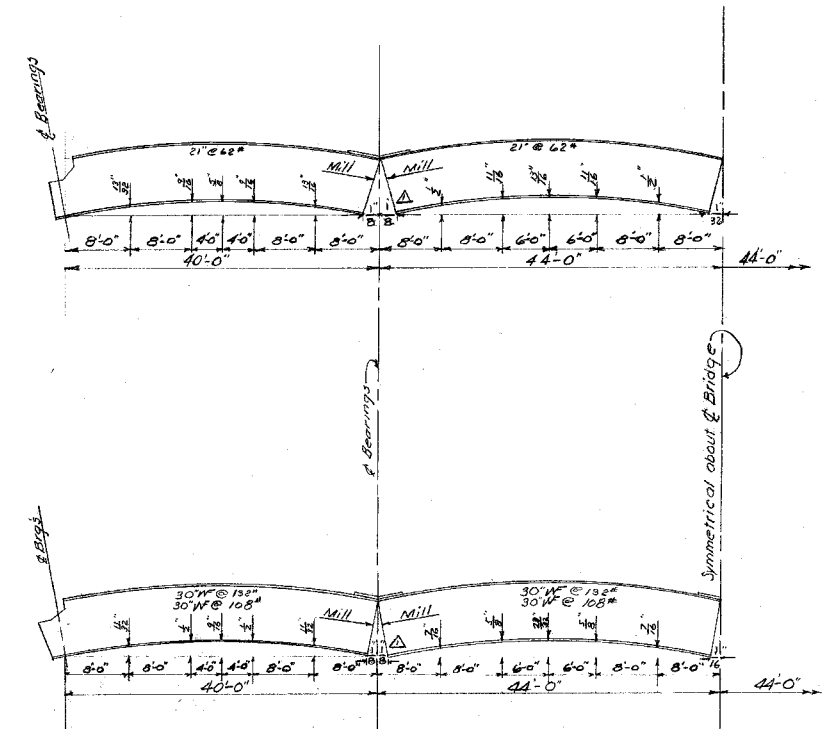


NOTE
For materials and details of
end dams and railings see sheets #1 and #10
For details of bridge shoes see sheet # 8

26
203

STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DIVISION			
TOWN <u>OSSIPEE-TAMWORTH</u>		BRIDGE NO. <u>137/299</u>	
FEDERAL PROJECT <u>ER-12</u>		STATE PROJECT <u>R2738</u>	
ROUTE NO. <u>N.H. # 16</u>		OVER <u>RELIEF STRUCTURE</u>	
LOCATION <u>APPROX. 2.0 MI. SO. OSSIPEE-TAMWORTH T.L.</u>			

FRAMING PLAN			
BY	DATE	BY	DATE
DESIGNED <u>EY</u>	<u>8-58</u>	CHECKED <u>JTH</u>	<u>7-59</u>
DRAWN <u>EY</u>	<u>8-58</u>	CHECKED <u>EY</u>	<u>8-59</u>
QUANTITIES <u>ECS</u>	<u>8-59</u>	CHECKED <u>EY</u>	<u>8-59</u>
REVISIONS		BRIDGE SHEET NO. <u>9 OF 12</u>	
		FILE NUMBER <u>3-4-3-5</u>	
		PROJ. NO. <u>ER-12</u>	
		SHEET NO. <u>26</u>	
		TOTAL SHEETS <u>159</u>	



Note: Beams shall be cambered and milled as shown on the drawings and shall be assembled and checked for geometrical outline prior to leaving the mill or shop.

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

TOWN OSSIPEE-TAMWORTH BRIDGE NO. 137/222
FEDERAL PROJECT ER-12 STATE PROJECT P2938
ROUTE NO. NH#16 OVER RELIEF STRUCTURE
LOCATION APPROX. 2.0 MI. So. OSSIPEE-TAMWORTH T.L.

					TYPICAL TRANSVERSE SECTION & DETAILS								
					BY	DATE	CHECKED	BY	DATE	BRIDGE SHEET NO.			
Δ	Change to Channel segment and add 20' bridge deck			U.S.B.	3/55	DESIGNED	W.H.	8-54	CHECKED	F.Y.	8-54	10 OF 12	
Δ	DESCRIPTION			BY	DATE	TRACED	QUANTITIES	F.C.S.	8-54	CHECKED	F.Y.	8-54	FILE NUMBER 3-4-3-5
REVISIONS													
PROJ. NO. 27 SHEET NO. 155 TOTAL SHEETS													
28 P. 12 27 155													

