

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION



SPECIFICATIONS

Design: Load and Resistance Factor Design per AASHTO LRFD Bridge Design Specifications, Eighth Edition 2017.

DESIGN LOADING

Live Load HL - 93 Modified for Strength I

TRAFFIC DATA

Current (2018) AADT 860
Future (2038) AADT 1030
DHV - % of AADT 13%
Design Hour Volume 134
Heavy Trucks (% of AADT) 15%
Heavy Trucks (% of DHV) 10%
Directional Distribution (% of DHV) 60%
18 kip Equivalent P 2.0 62
18 kip Equivalent P 2.5 59
Design Speed (mph) 35

HYDROLOGIC DATA

Drainage Area 35.4 sq mi
Design Discharge (Q50) 1569.0 cfs
Check Discharge (Q100) 1785.9 cfs
Headwater Elevation (Q1.1) 317.97 ft
Headwater Elevation (Q25) 320.28 ft
Headwater Elevation (Q50) 320.64 ft
Headwater Elevation (Q100) 321.00 ft
Discharge Velocity (Q1.1) 3.26 fps
Discharge Velocity (Q25) 5.99 fps
Discharge Velocity (Q50) 6.32 fps
Discharge Velocity (Q100) 6.65 fps

MATERIALS

Concrete:
Curbs & Transition Barriers Class "LP"
Precast Class "P"
All Other Class "A"
Plain Reinforcing Steel ASTM A615, Grade 60
Stainless Reinforcing ASTM A955, Grade 75
GFRP Reinforcing Bars CSA S807-10, ACI 440.1r-15
Prestressing Strands ASTM A882, Grade 270,
Low Relaxation

BASIC DESIGN STRESSES

Concrete:
Class "LP" $f'_c = 5,000$ psi
Class "A" $f'_c = 4,000$ psi
Class "P" $f'_c = 8,000$ psi
..... $f'_{ci} = 6,000$ psi
Plain Reinforcing Steel $f_y = 60,000$ psi
Stainless Reinforcing Steel $f_y = 75,000$ psi
Prestressing Strand $F_\mu = 270,000$ psi

Glass Fiber Reinforced Polymer:
#5 $f_{tu} = 100,000$ psi
#6 $f_{tu} = 100,000$ psi
Minimum Elastic Modulus $E_f = 6,150,00$ psi

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MOUNT VERNON
KENNEBEC
W. MT. VERNON BRIDGE
OVER
ECHO LAKE STREAM
STATE ROUTE 41
FEDERAL AID PROJECT NO. STP-2169(800)
PROJECT LENGTH 0.047 mi.
BRIDGE NO. 2930

UTILITIES

Emera Maine Spectrum (Cable)
Consolidated Communications

MAINTENANCE OF TRAFFIC

Maintain one lane of alternating one - way traffic using a single lane temporary bridge and temporary traffic signals.

PROJECT LOCATION	West Mount Vernon Bridge #2930 in Mount Vernon carrying State Route 41 over Echo Lake Stream, located 0.17 miles east of Echo Lake Rd. Lat./Long. 44° 27' 10" N 70° 0' 51" W
PROGRAM AREA	Bridge
OUTLINE OF WORK	Replacement of West Mount Vernon Bridge #2930 in Mount Vernon with 430' of approach work.

WIN 021698.00

STP-2169(800)

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

APPROVED
[Signature]
COMMISSIONER: *[Signature]*
CHIEF ENGINEER: *[Signature]*

DATE
11-16-18
11-16-18

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

SIGNATURE
[Signature]
P.E. NUMBER
12130
DATE
10/18/2018

BRIDGE
DEVAN EATON, P.E.
JOSH OLUND, P.E.
HNTB
PROJECT RESIDENT
CONTRACTOR
PROJECT COMPLETION DATE

MOUNT VERNON
W. MT. VERNON BRIDGE

TITLE SHEET

SHEET NUMBER
1
OF 28

Date:10/18/2018

Username:

Division:

Filename: 001_Title.dgn



GENERAL NOTES

1. For easements, construction limits and right of way lines, refer to the Right of Way Map.

2. The clearing limits as shown on the Plans are approximate. The exact limits will be established in the field by the Resident. Payment for clearing will be considered incidental to Contract Items.

3. All utility facilities shall be adjusted by the respective utilities unless otherwise noted.

4. Do not excavate for Aggregate Subbase Course where existing material is suitable as determined by the Resident.

5. In areas where the Resident directs the Contractor not to excavate to the subgrade line shown on the Plans, payment for removing existing pavement, grubbing, shaping, ditching, and compacting the existing subbase and layers of new subbase 6 inches or less thick will be made under appropriate equipment rental items.

6. All embankment material, except as otherwise shown, placed below EL 320.64 shall be Granular Borrow meeting the requirements of Subsection 703.19, Material for Underwater Backfill.

7. Construct the riprap shelf at Abutment No. 1 at EL 318.75 and at Abutment No. 2 at EL 319.80.

8. Place loam 2 inches deep on all new or reconstructed sideslopes or as directed by the Resident.

9. Erosion Control Mix may be substituted in those areas normally receiving loam and seed as directed by the Resident. Placement shall be in accordance with Standard Specifications Section 619, Mulch. Payment will be made under Item No. 619.14, Erosion Control Mix.

10. Place a 24-in. wide strip of Temporary Erosion Control Blanket on the sideslopes along the top of the riprap and behind the wingwalls.

11. An NCHRP350 or MASH compliant guardrail end treatment shall be installed concurrently with the placement of each section of beam guardrail. End treatments shall be chosen from the Department's Qualified Products List.

12. Extended-use Erosion Control Blanket, seeded gutters, and riprap downspouts, shall be constructed after paving and shoulder work is completed, where it is apparent that runoff will cause continual erosion. Payment will be made under the appropriate Contract Items.

13. A 3' paved lip shall be placed at all unpaved entrances.

14. Gravel entrances shall be constructed with 14" Aggregate Subbase Course-Gravel or 11" Aggregate Subbase Course-Gravel and 3" Untreated Aggregate Surface Course unless otherwise noted in the plans or directed by the Resident.

15. Protective Coating for Concrete Surfaces shall be applied to the following areas:

All exposed surfaces of concrete curbs,
Fascias down to the drip notch,
All exposed surfaces of Concrete Transition Barriers,
Concrete wearing surfaces,
Top of abutment backwalls and to one foot below the top of backwalls on the back side.

16. Project information referred to below may be accessed at the following MaineDOT web address: <http://www.maine.gov/mdot/contractors/>.

17. The existing bridge plans may be accessed at the MaineDOT web address. The plans are reproductions of the original drawings as prepared for the construction of the bridge. 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.

18. The hydrologic report of the bridge site may be accessed at the MaineDOT web address. The hydrologic report is based on MaineDOT's interpretation of the information obtained for the subject site. No assurance is given that the information or the conclusions of the report or values provided on these Plans will be representative of actual conditions at the time of construction.

19. The project geotechnical report titled: Geotechnical Design Report, Replacement of West Mount Vernon Bridge No. 2390, Route 41 over Echo Lake Stream, MaineDOT WIN 21698.00, Mount Vernon, Maine, October 2018 may be accessed at the MaineDOT web address.

20. Geotechnical information furnished or referred to in this plan set is for the use of the Bidders and the Contractor. No assurance is given that the information or interpretations will be representative of actual subsurface conditions at the construction site. MaineDOT will not be responsible for the Bidders' or Contractor's interpretations of, or conclusions drawn from, the geotechnical information. The boring logs contained in the plan set present factual and interpretive subsurface information collected at discrete locations. Data provided may not be representative of the subsurface conditions between the boring locations.

21. Quantities included for Pay Items measured and paid for by Lump Sum are estimated quantities and are provided by MaineDOT for informational purposes only. Lump Sum pay items will be paid for at the Contract Bid amount, with no addition or reduction in payment to the Contractor if the actual final quantities are different from the MaineDOT provided estimated quantities, except as follows:

a. If a Lump Sum pay item is eliminated, the requirements of Standard Specifications Section 109.2, Elimination of Items, will take precedence.

b. If other Contract Documents specifically allow a change in payment for a Lump Sum pay item, those requirements will be followed.

c. If a design change results in changes to estimated quantities for Lump Sum pay items, price adjustments will be made in accordance with Standard Specifications Section 109.7, Equitable Adjustments to Compensation and Time.

22. Boulders along the northeast quadrant of the project are to remain property of the landowner and shall be relocated or stacked as directed by the Resident. Payment will be made under appropriate labor and rental items.

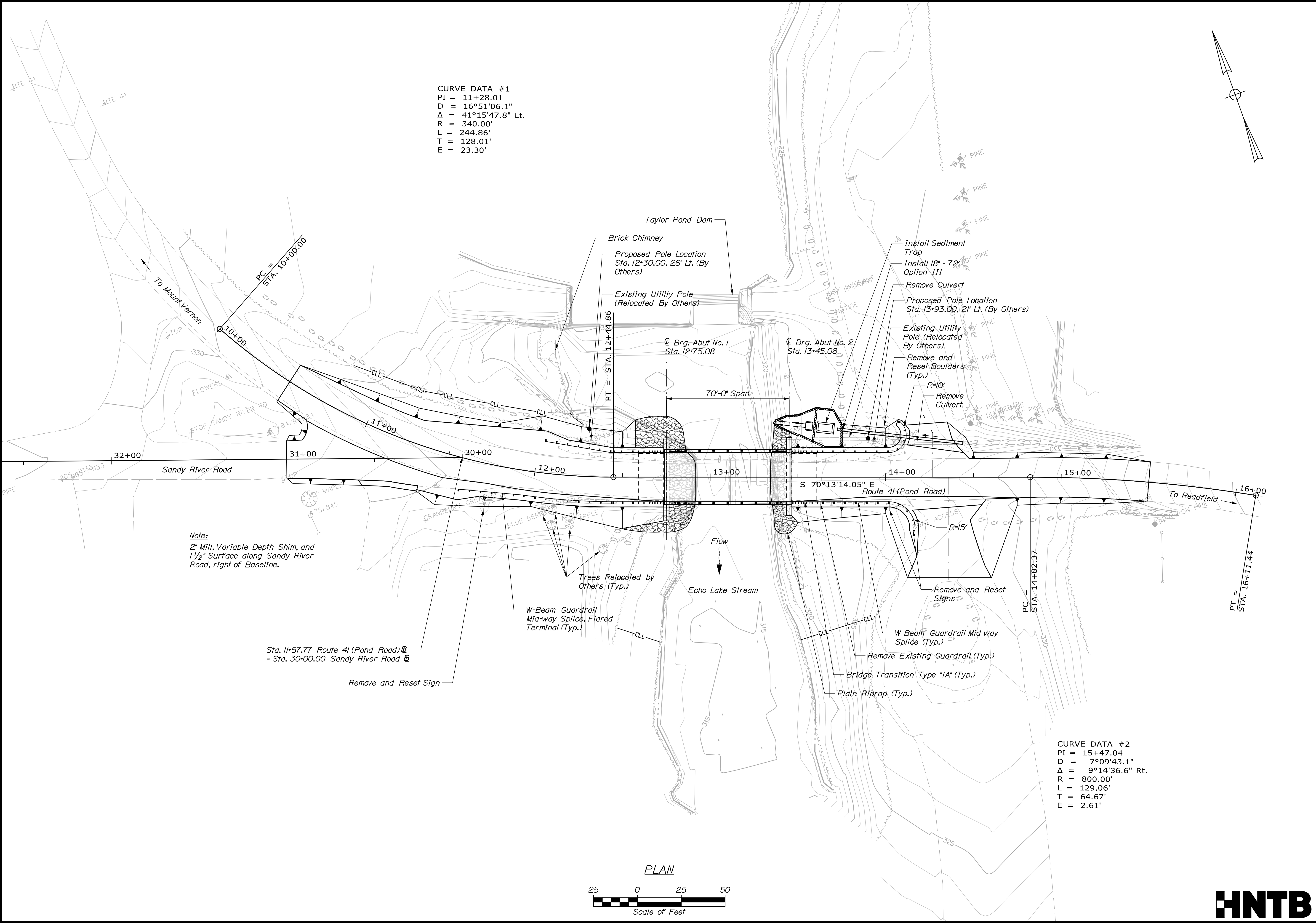
23. Removing and resetting of all regulatory, warning, confirmation, and route marker assembly signs required for construction shall be performed in accordance with Section 645, Highway Signing. Payment will be incidental to Contract Items.

Date:10/18/2018

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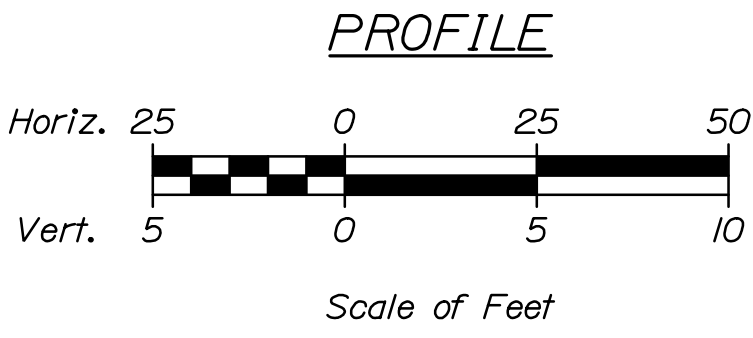
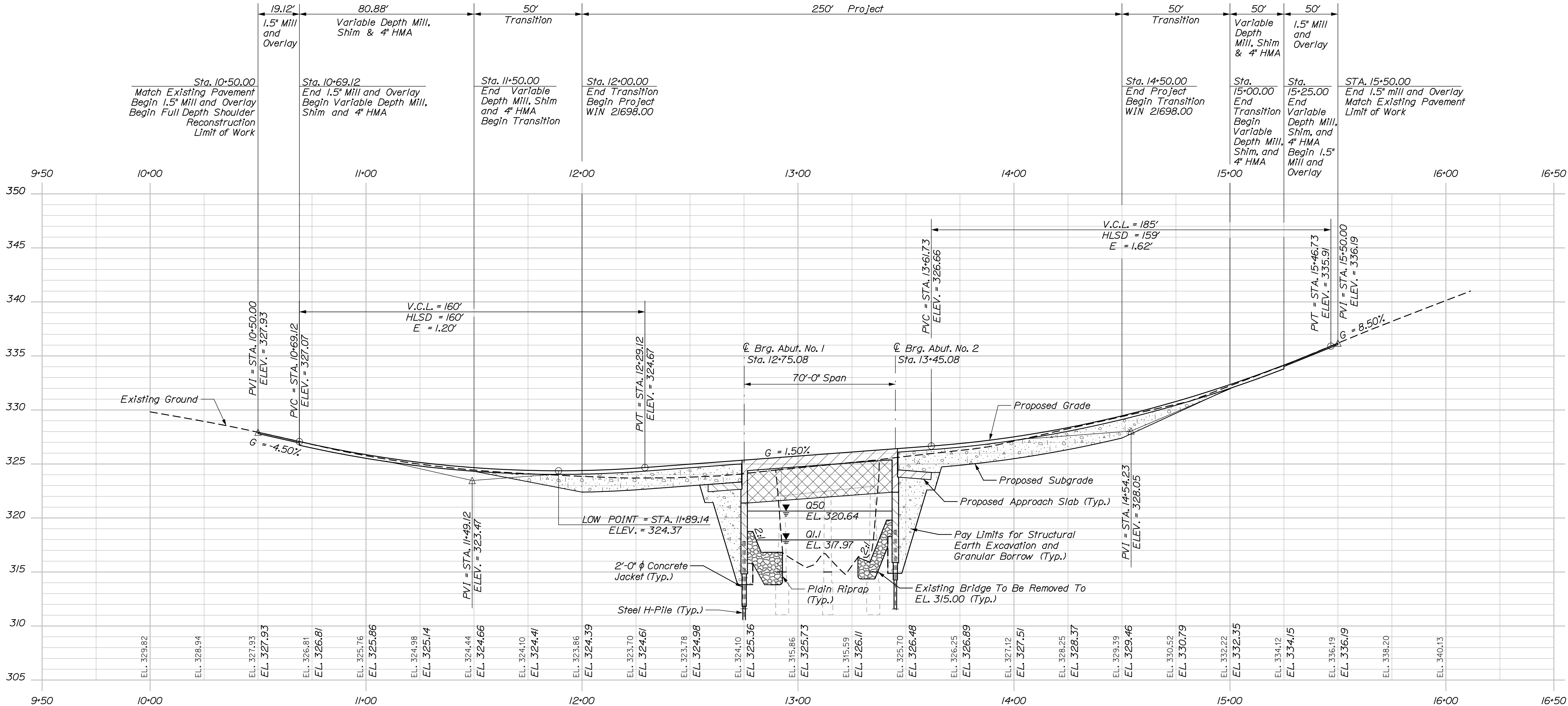
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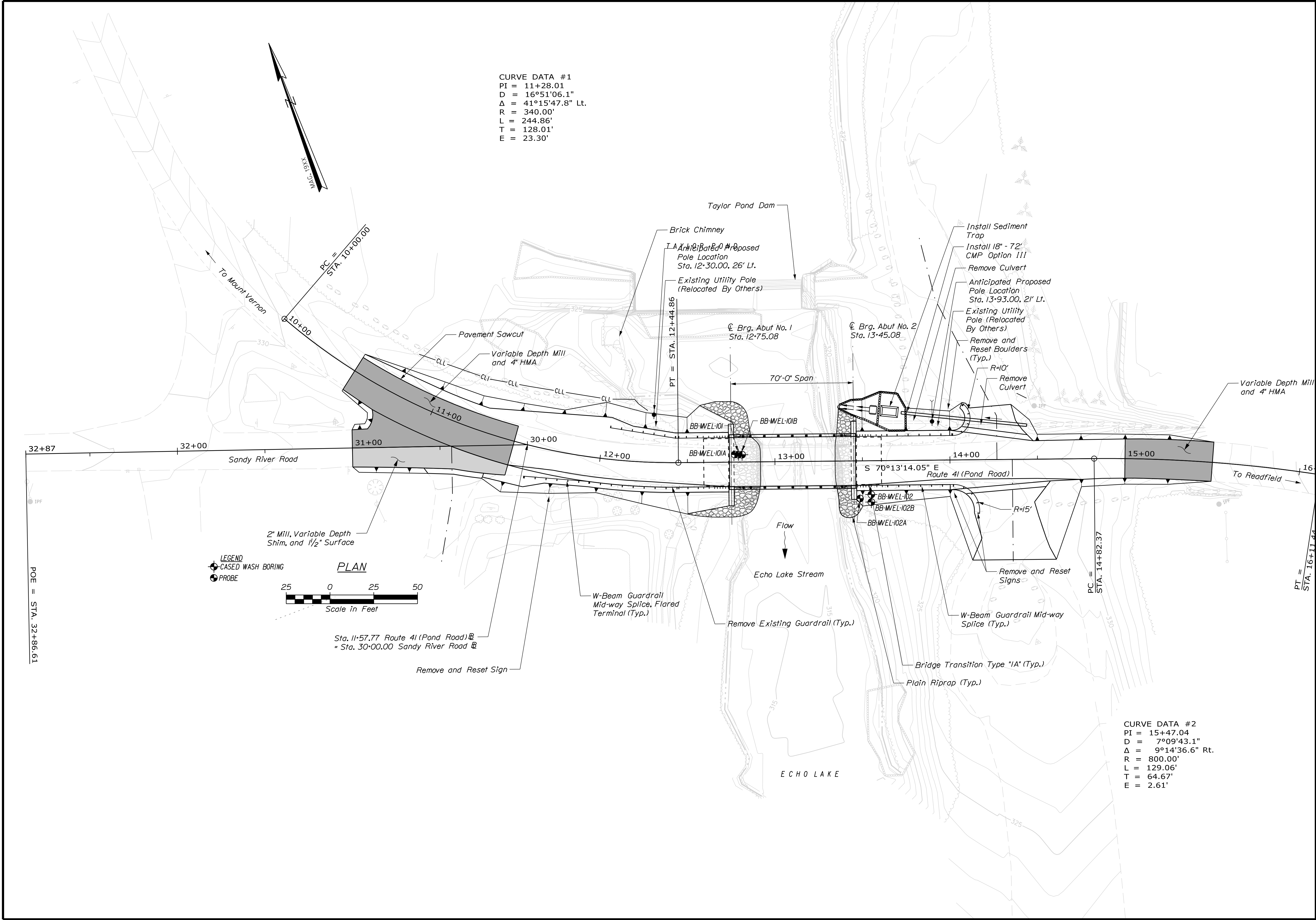


STATE OF MAINE DEPARTMENT OF TRANSPORTATION	STP-2169(800)		BRIDGE NO. 2930		WIN 21698.00		BRIDGE PLANS	
	PROJ. MANAGER	D. EATON	BY	A. Sweet	DATE	10/18	SIGNATURE	
	CHECKED-REVIEWED	R. Hrbt	J. O'Neil			10/18	P.E. NUMBER	
W. MT. VERNON BRIDGE ECHO LAKE STREAM MOUNT VERNON KENNEBEC	DESIGN-DETAILED						DATE	
	DESIGN-DETAILED							
	REVISIONS 1							
	REVISIONS 2							
GENERAL PLAN	REVISIONS 3							
	REVISIONS 4							
	FIELD CHANGES							
SHEET NUMBER		4						
		OF 28						

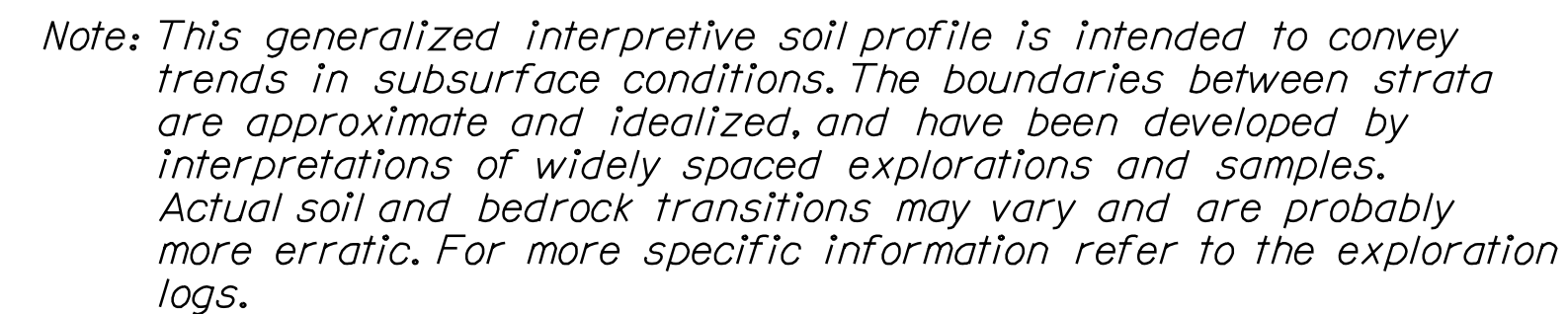




STATE OF MAINE		DATE		BY		D. EATON		PROJ. MANAGER		DESIGN-DETAILED		CHECKED-REVIEWED		DESIGN-DETAILED		DESIGN-DETAILED		REVISIONS 1		REVISIONS 2		REVISIONS 3		REVISIONS 4		FIELD CHANGES	
DEPARTMENT OF TRANSPORTATION		10/18		A. Sweet		J. O'Neil		A. Sweet		J. O'Neil		A. Sweet		J. O'Neil		A. Sweet		J. O'Neil		A. Sweet		J. O'Neil		A. Sweet		J. O'Neil	
STP-2169(800)		SIGNATURE		P.E. NUMBER		DATE		DATE		DATE		DATE		DATE		DATE		DATE		DATE		DATE		DATE		DATE	
BRIDGE NO. 2930		WIN		21698.00		BRIDGE PLANS		W. MT. VERNON BRIDGE		ECHO LAKE STREAM		MOUNT VERNON		KENNEBEC		PROFILE		SHEET NUMBER		5		OF 28		HNTB			



STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		STP-2169(800)		BRIDGE NO. 2930		WIN		21698.00		BRIDGE PLANS	
W. MT. VERNON BRIDGE		ECHO LAKE STREAM		KENNEBEC COUNTY		MOUNT VERNON		BORING LOCATION PLAN		SHEET NUMBER		6	
DESIGN-DETAILED		CHECKED-REVIEWED		DESIGN-DETAILED		REVISIONS 1		REVISIONS 2		REVISIONS 3		REVISIONS 4	
A. SWEET		L. KRUSINSKI		A. BLASDELL		T. WHITE							
BY		DATE		SIGNATURE		P.E. NUMBER		DATE					
JUN 2018		JUN 2018											
FIELD CHANGES													



Maine Department of Transportation Soil/Borehole Exploration Log US CUSTOMARY UNITS				Project: W. Mt. Vernon Bridge #2930 carries Route 41 over Echo Lake Location: Mt. Vernon, Maine				Boring No.: <u>BB-MVEL-101</u> WIN: <u>21698.00</u>			
Driller: MaineDOT		Elevation (ft.): 324.0		Auger ID/OD: 5" Solid Stem		Sampler: Standard Split Spoon		Operator: Daggett/Jones		Datum: NAVD83	
Logged By: B. Willard		Rig Type: CME 45C		Hammer: Wt./Falls: 140-lbs/30-inches		Core Barrel: N/A		Date Start/Finish: 4/5/2017 08:00-14:00		Drilling Method: Cased Wash Boring	
Boring Location: 12+79.2, 4.2 feet L.R.		Casing ID/OD: NW-3"		Water Level#: 4.6 feet bgs.		Hammer Efficiency Factor: 0.854		Hammer Type: Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/>		Definitions: P = Successful Split Spoon Sample U = Unsuccessful Split Spoon Sample Attempt M = Moisture Content, percent LL = Liquid Limit PL = Plasticity Index N/A = Not Applicable W = Weight of 140 lb. Hammer F = Field Note Sheet PP = Pocket Penetration WGP = Weight of Blow or Casing N/A = Unsuccessful Field Note Sheet Attempt	
Sample No.		Pen./Rec. (in.)		Sample Depth (ft.)		Blows 1/6 in. (ft.)		Uncorrected		N/A	
10		24/14		1.00 - 3.00		6/9/5/6		14		20	
20		24/9		5.00 - 7.00		18/19/12/9		31		44	
30		24/10		10.00 - 12.00		18/19/18/17		37		53	
40		24/14		15.00 - 17.00		9/10/9/11		19		27	
50		24/10		20.00 - 22.00		10/12/18/17		28		40	
60		24/10		25.00 - 27.00		17/21/24/22		45		64	
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Maine Department of Transportation										Project: W. Mt. Vernon Bridge #2930 carries Route 41 over Echo Lake Locations Mt. Vernon, Maine		Boring No.: BB-MVEL-102							
Soil/Rock Exploration Log												WIN: 21698.00							
US CUSTOMARY UNITS																			
Driller: Maine Test Boring		Elevation (ft.): 325.3		Auger: 10/000		5" Hollow Stem													
Operator: Nodou		Datum: NAVD83		Sampler: Standard Split Spoon															
Logged By: B. Carroll		Rig Type: Dieckhoff D50 Turbo		Hammer Wt./Fall: 140-lbs/30-inches															
Date Start/Finish: 5/2/2017-5/3/2017		Drilling Method: Cased Wash Boring		Core Barrel: N/A															
Boring Location: 13+54.9, 19.3 feet R/L		Casing (ft.): 104'-4"		Water Level: 7.9 feet bgs.															
Hammer Efficiency Factor: .978		Hammer Type: Automatic 30		Stroke & Cathrod (")															
S = Split Spoon Sample MS = Unconsolidated Split Spoon Sample Attempt U = Thin Wall Split Spoon MS = Unconsolidated Thin Wall Split Spoon Attempt F = Field Core Shear Test. HP = Pocket Penetration MS = Unconsolidated Thin Wall Split Spoon (Test Attempt)		R = Rock Core Sample SSA = Solid Free Auger HSA = Hollow Free Auger RC = Roller Core MB = Weight of Hole, Hammer N = SPT Unconsolidated Core N = Hammer Efficiency Factor = Rig Specific Annual Calibration Value N = Grain Size Analysis N = Corrosion Potential Test		S ₁ = Test Penetration First Two Penetration Stroke Penetration S ₂ = Two Penetration First Two Penetration Stroke Penetration S ₃ = Two Penetration First Two Penetration Stroke Penetration S ₄ = Two Penetration First Two Penetration Stroke Penetration S ₅ = Two Penetration First Two Penetration Stroke Penetration S ₆ = Two Penetration First Two Penetration Stroke Penetration S ₇ = Two Penetration First Two Penetration Stroke Penetration S ₈ = Two Penetration First Two Penetration Stroke Penetration S ₉ = Two Penetration First Two Penetration Stroke Penetration S ₁₀ = Two Penetration First Two Penetration Stroke Penetration S ₁₁ = Two Penetration 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Torque Shear Strength (psi) S ₅₅ = Pocket Torque Shear Strength (psi) S ₅₆ = Pocket Torque Shear Strength (psi) S ₅₇ = Pocket Torque Shear Strength (psi) S ₅₈ = Pocket Torque Shear Strength (psi) S ₅₉ = Pocket Torque Shear Strength (psi) S ₆₀ = Pocket Torque Shear Strength (psi) S ₆₁ = Pocket Torque Shear Strength (psi) S ₆₂ = Pocket Torque Shear Strength (psi) S ₆₃ = Pocket Torque Shear Strength (psi) S ₆₄ = Pocket Torque Shear Strength (psi) S ₆₅ = Pocket Torque Shear Strength (psi) S ₆₆ = Pocket Torque Shear Strength (psi) S ₆₇ = Pocket Torque Shear Strength (psi) S ₆₈ = Pocket Torque Shear Strength (psi) S ₆₉ = Pocket Torque Shear Strength (psi) S ₇₀ = Pocket Torque Shear Strength (psi) S ₇₁ = Pocket Torque Shear Strength (psi) S ₇₂ = Pocket Torque Shear Strength (psi) S ₇₃ = Pocket Torque Shear Strength (psi) S ₇₄ = Pocket Torque Shear Strength (psi) S ₇₅ = Pocket Torque Shear Strength (psi) S ₇₆ = Pocket Torque Shear Strength (psi) S ₇₇ = Pocket Torque Shear Strength (psi) S ₇₈ = 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Sample No.		Pen./Reg. (ft.)		Sample Depth		Blow C/A in. Sample Information		N/A		Elevation (ft.)		Graphic Log		Visual Description and Remarks		Laboratory Testing Results/ ASD/10 and Unified Class			
1D		24/7		0.00 - 2.00		1/2/4/5		6		10		HSA		324.8		Brown, moist, loose, fine to coarse SAND, little silt with organics. (Glacial Till).		-0.5	

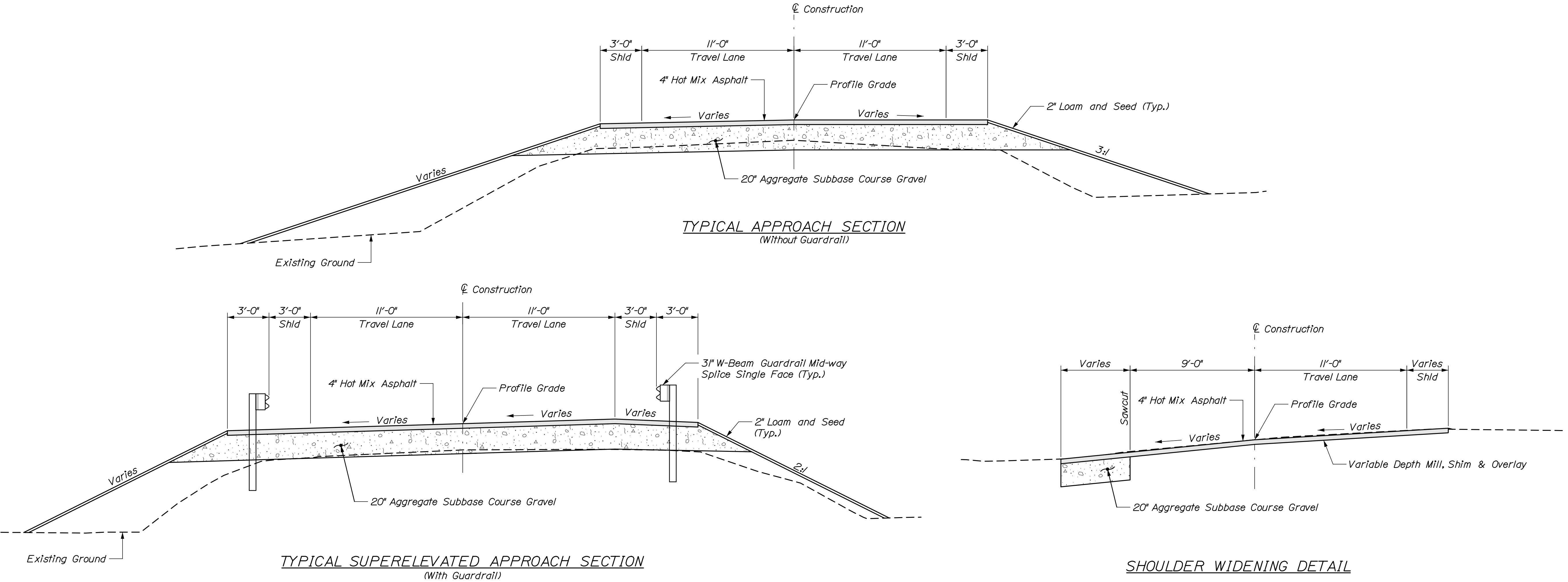
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Date:10/18/2018

Username:

Division:

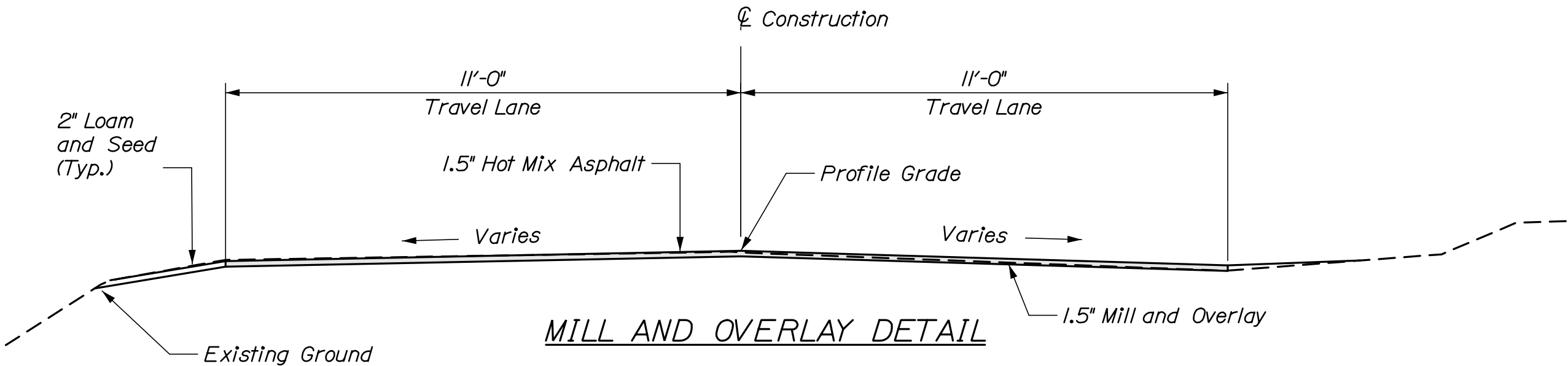
Filename: 010_Typical_Sections.dgn



Route 41 (Pond Road) Super (e)				
Left %	Left %	Station	Right %	Right %
Shoulder	Travelway		Travelway	Shoulder
Match Existing		10+50.00	Match Existing	
-12.0%	-12.0%	10+75.00	6.0%	-1.88%*
-11.0%	-11.0%	11+00.00	6.0%	-2.67%*
-10.0%	-10.0%	11+25.00	6.0%	6.0%*
-9.0%	-9.0%	11+50.00	6.0%	6.0%*
-8.0%	-8.0%	11+75.00	6.0%	-2.0%
-7.0%	-7.0%	12+00.00	6.0%	-2.0%
-6.0%	-6.0%	12+25.00	6.0%	-2.0%
-5.0%	-5.0%	12+50.00	5.0%	1.0%
-4.0%	-4.0%	12+75.00	4.0%	4.0%
-4.0%	-4.0%	13+00.00	4.0%	4.0%
-4.0%	-4.0%	13+25.00	4.0%	4.0%
-4.0%	-4.0%	13+50.00	4.0%	4.0%
-3.0%	-3.0%	13+75.00	3.0%	0.0%
-2.0%	-2.0%	14+00.00	2.0%	-4.0%
-2.0%	-2.0%	14+25.00	1.0%	-4.0%
-2.0%	-2.0%	14+50.00	0.0%	-4.0%
-2.0%	-2.0%	14+75.00	-1.0%	-1.0%
-2.0%	-2.0%	15+00.00	-2.0%	-2.0%
-2.0%	-2.0%	15+25.00	-3.0%	-3.0%
Match Existing		15+50.00	Match Existing	

* Shoulder cross slopes vary as a result of intersection grading/paving

- Notes:
1. See cross sections for limits of existing pavement removal.
 2. The shoulder break location shall transition near the bridge in accordance with Standard Detail 801(10).
 3. The pavement, base and subbase depths as shown on the plans are intended to be nominal.
 4. When superelevated exceeds the slope of the low side shoulder, the low side shoulder pavement shall have the same cross slope as the travelway.
 5. Crowns for both normal and superelevated sections for all courses of subbase and pavement shall be straight.

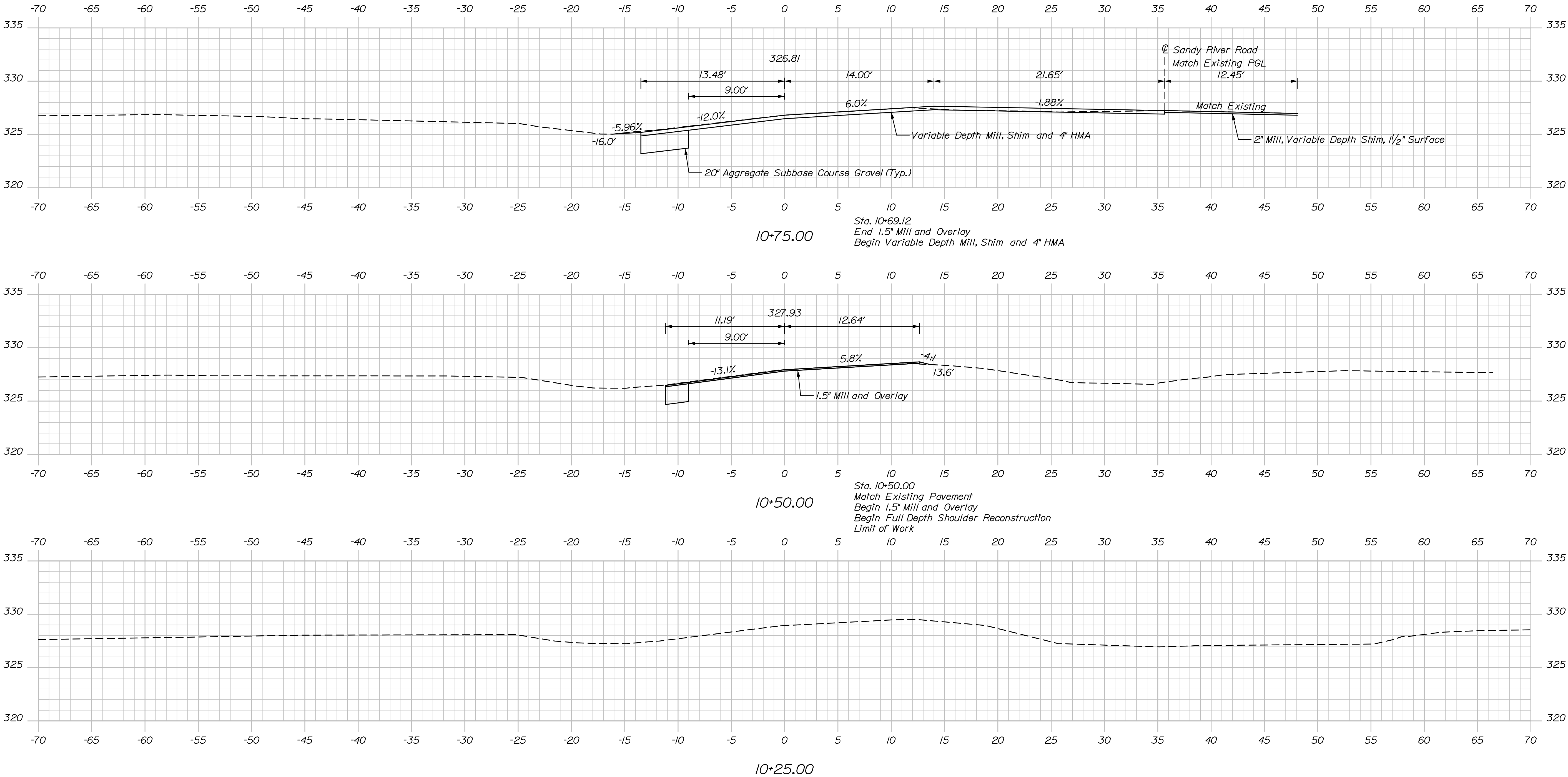


Date:10/18/2018

Username:

Division:

Filename: 011_Xsect1.dgn



PROJ. MANAGER	D. EATON	BY	DATE
CHECKED-REVIEWED	A. Sweet J. O'Neil	S. Scribner J. O'Neil	10/18 10/18
DESIGN-DETAILED			
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

W. MT. VERNON BRIDGE
ECHO LAKE STREAM
MOUNT VERNON

KENNEBEC

CROSS SECTIONS

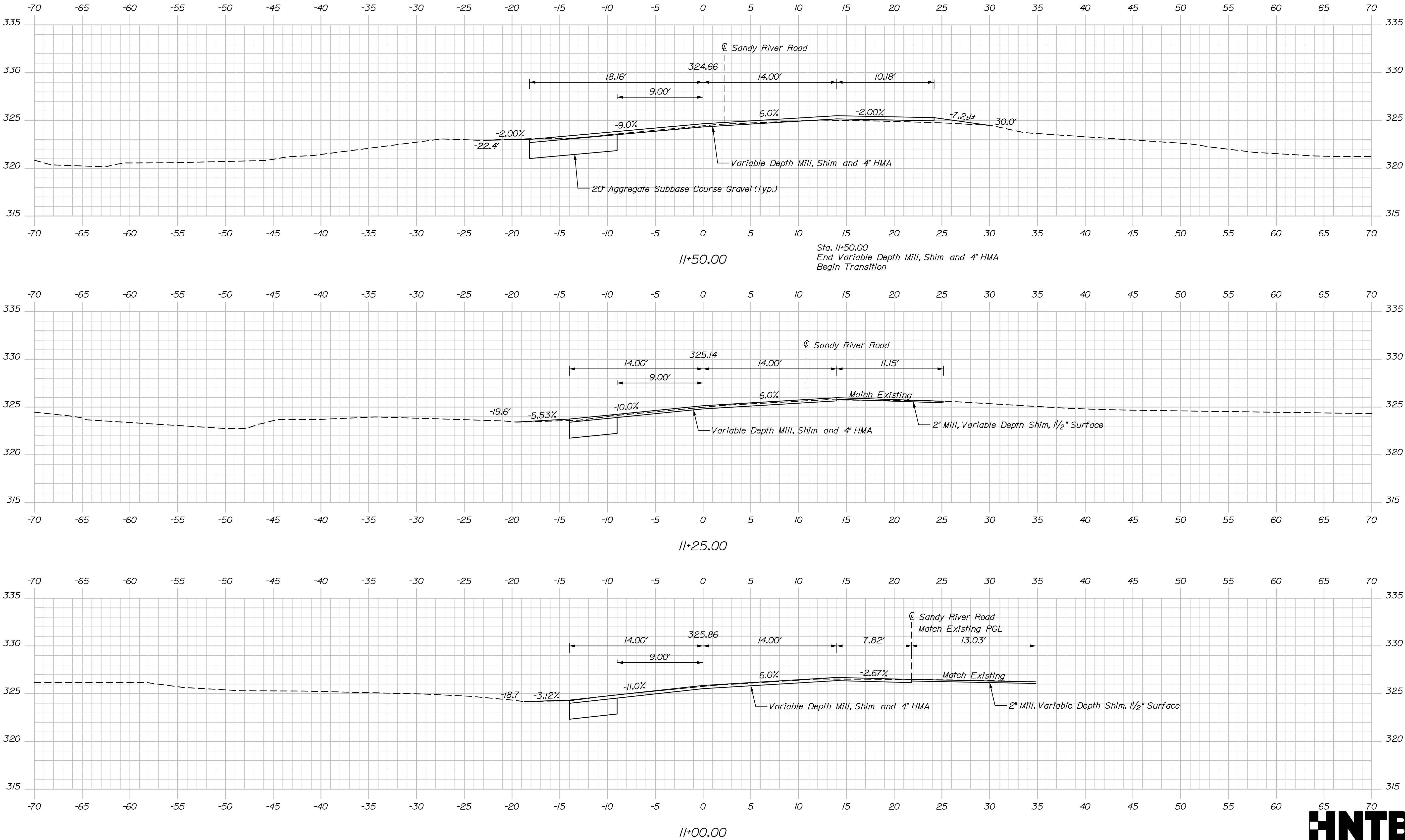


Date:10/18/2018

Username:

Division:

Filename: 012_Xsect2.dgn



STATE OF MAINE DEPARTMENT OF TRANSPORTATION	SIGNATURE		DATE
	P.E. NUMBER		
	BRIDGE NO. 2930		
STP-2169(800)			
WIN 021698.00			
BRIDGE PLANS			

W. MT. VERNON BRIDGE ECHO LAKE STREAM MOUNT VERNON	KENNEBEC	DESIGN-DETAILED	BY	DATE
		CHECKED-REVIEWED	S. Scribner	10/18
		DESIGN-DETAILED	J. O'Neil	10/18
		DESIGN-DETAILED		
		DESIGN-DETAILED		
CROSS SECTIONS		REVISIONS 1		
		REVISIONS 2		
		REVISIONS 3		
		REVISIONS 4		
		FIELD CHANGES		

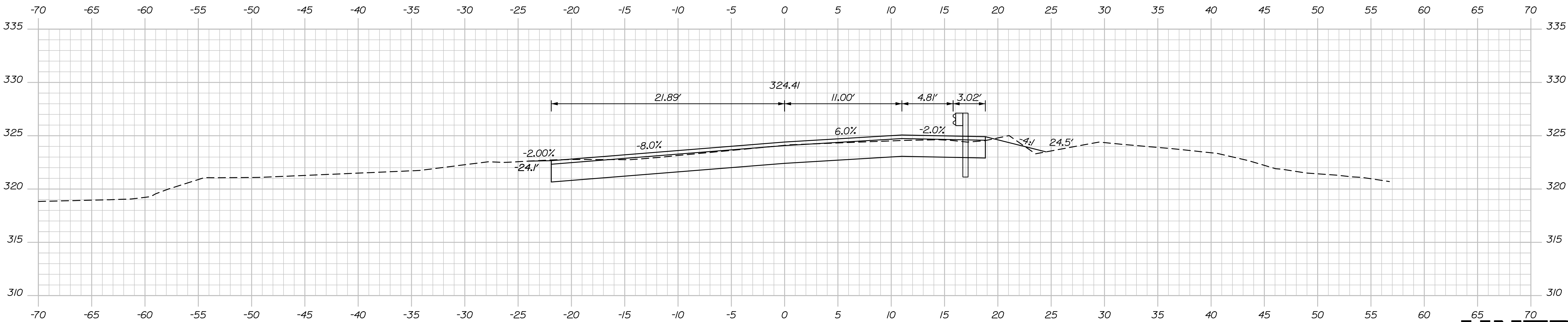
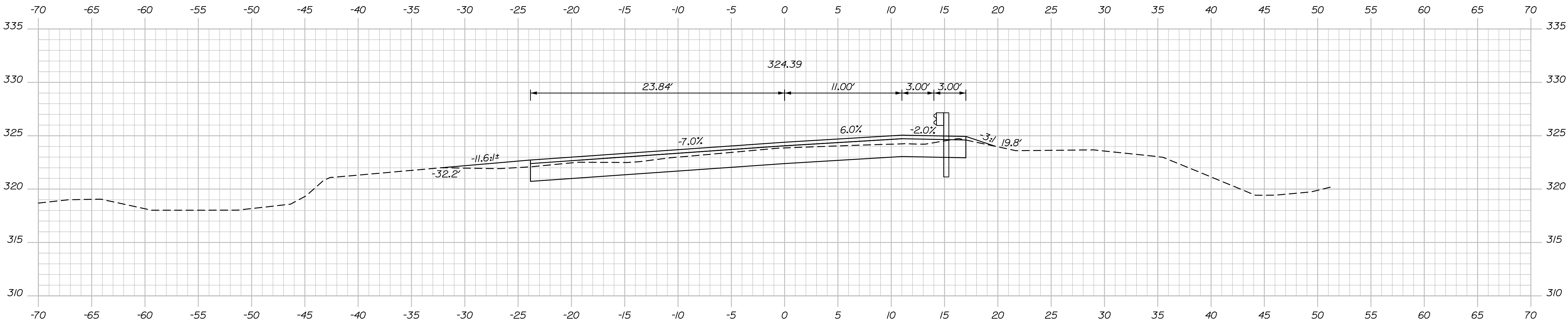
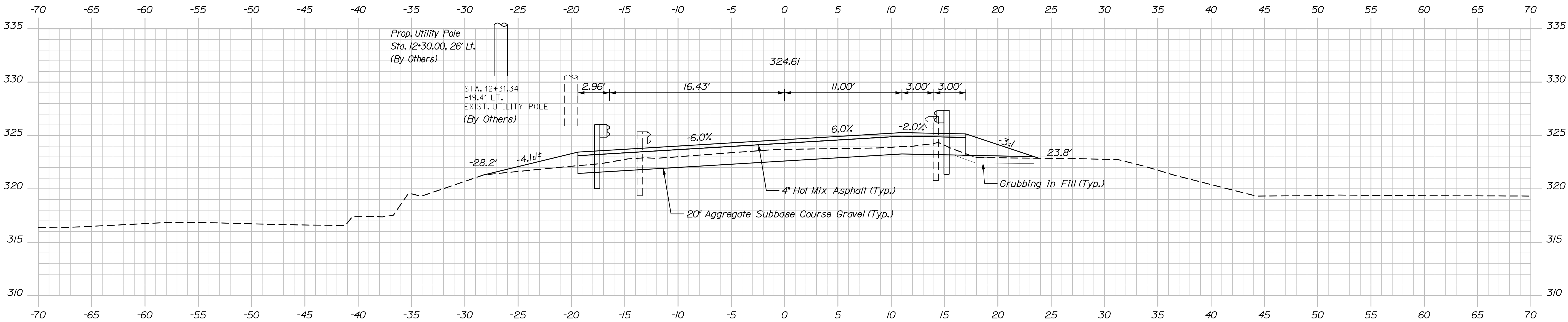
SHEET NUMBER
12
OF 28

Date:10/18/2018

Username:

Division:

Filename: 013_Xsect3.dgn



STATE OF MAINE DEPARTMENT OF TRANSPORTATION	STP-2169(800)	
BRIDGE NO. 2930		WIN
021698.00		BRIDGE PLANS

PROJ. MANAGER	D. EATON	BY	DATE
CHECKED-REVIEWED	A. Sweet	S. Scribner	10/18
DESIGNED-DETAILED	R. Hart	J. Oland	10/18
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE	P.E. NUMBER	DATE

W. MT. VERNON BRIDGE ECHO LAKE STREAM MOUNT VERNON	KENNEBEC
CROSS SECTIONS	

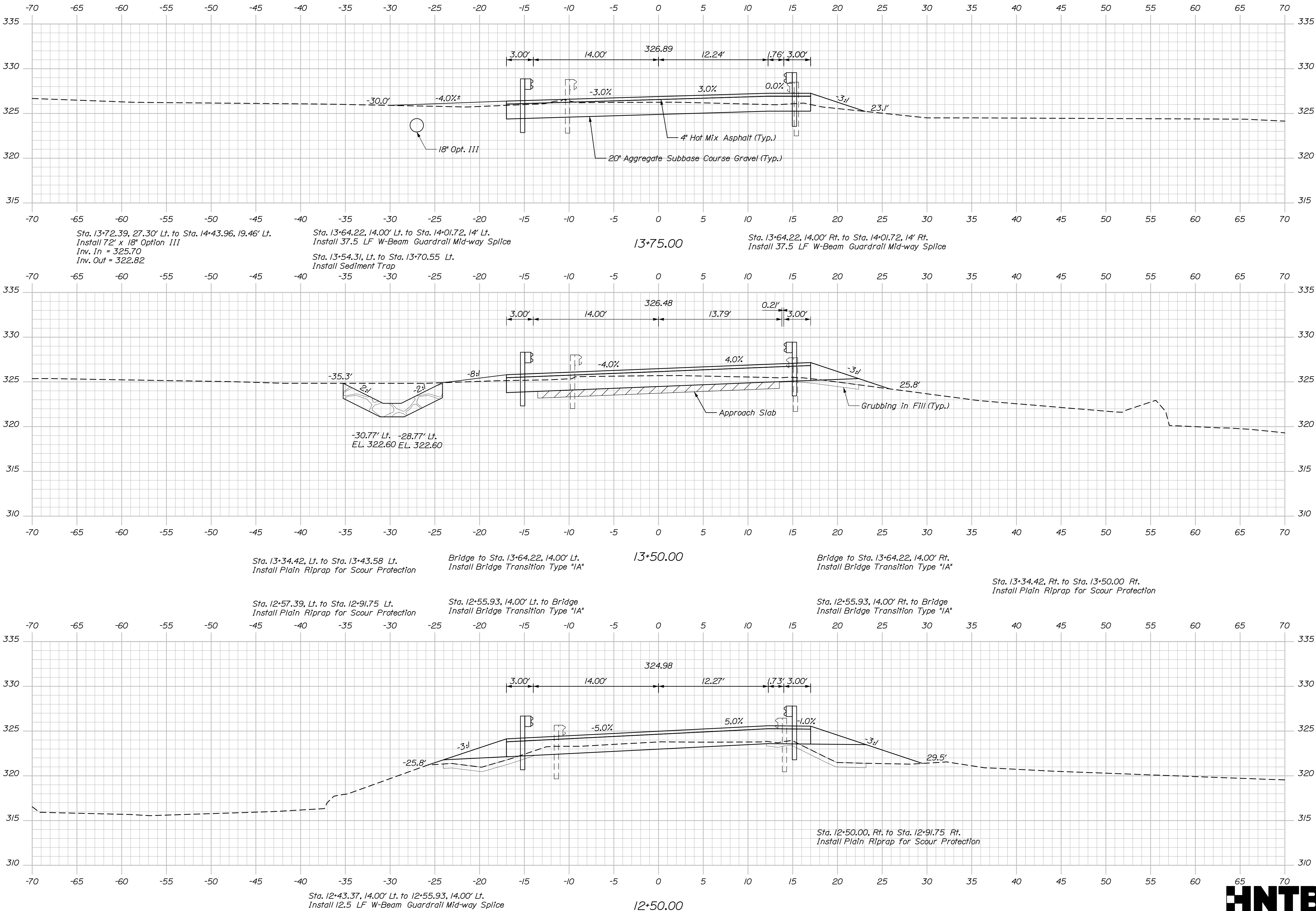
SHEET NUMBER
13
OF 28

Date:10/18/2018

Username:

Division:

Filename: 014_Xsect4.dgn



PROJ. MANAGER	D. EATON	BY	DATE
DESIGN-DETAILED	A. Sweet	S. Scribner	10/18
CHECKED-REVIEWED	R. Hart	J. Oland	10/18
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

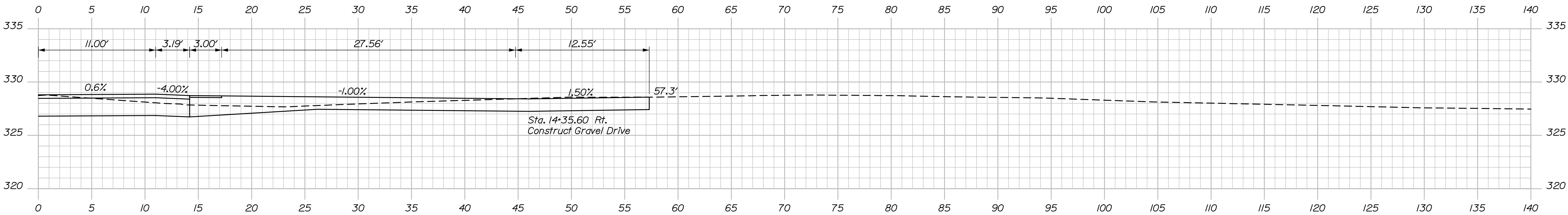
PROJ. MANAGER	D. EATON	BY	DATE
DESIGN-DETAILED	A. Sweet	S. Scribner	10/18
CHECKED-REVIEWED	R. Hart	J. Oland	10/18
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

Date:10/18/2018

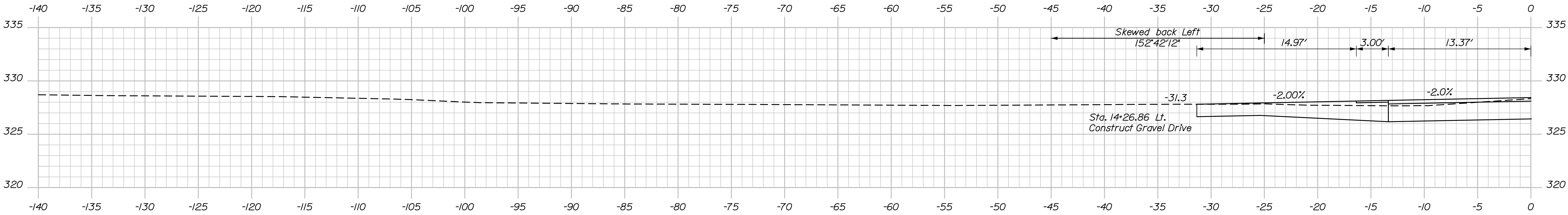
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Division:

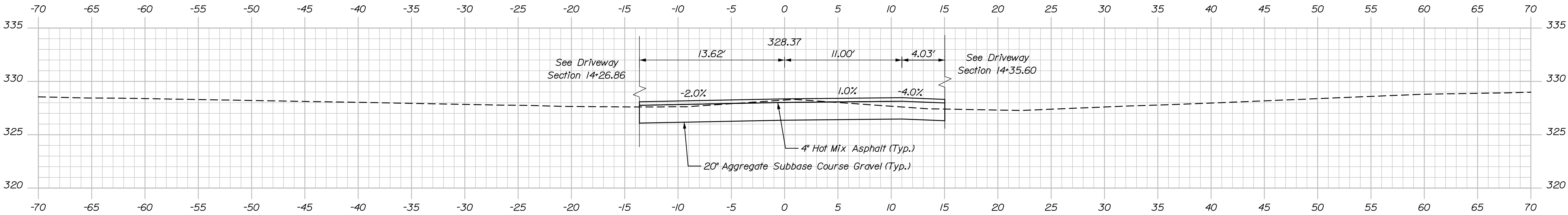
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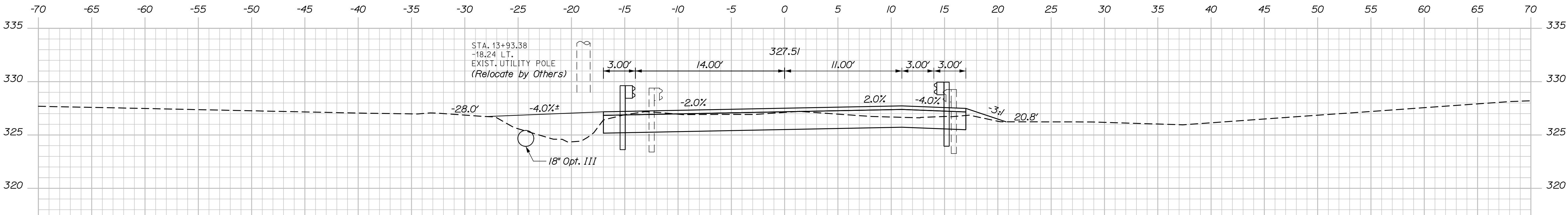
14+35.60



14+26.86



14+25.00



14+00.00



PROJ. MANAGER	D. EATON	BY	DATE
CHECKED-DETAILED	A. Sweet	S. Scribner	10/18
DESIGN-DETAILED	R. Hart	J. Ould	10/18
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

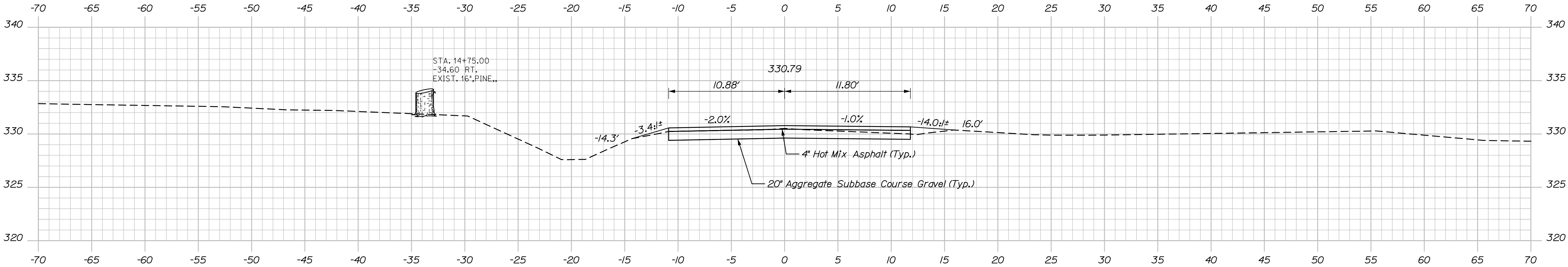
SIGNATURE	P.E. NUMBER	DATE

Date:10/18/2018

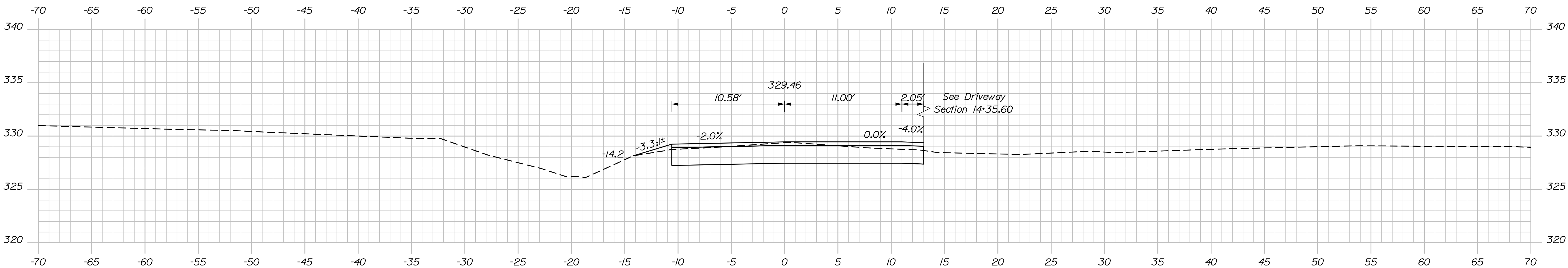
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Division:

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14+75.00



14+50.00

Sta. 14+50.00
End Project
Begin Transition
WIN 21698.00

STATE OF MAINE

DEPARTMENT OF TRANSPORTATION

STP-2169(800)

WIN

021698.00

BRIDGE NO. 2930

BRIDGE PLANS

W. MT. VERNON BRIDGE

ECHO LAKE STREAM

MOUNT VERNON

KENNEBEC

CROSS SECTIONS

SHEET NUMBER

16

OF 28

HNTB

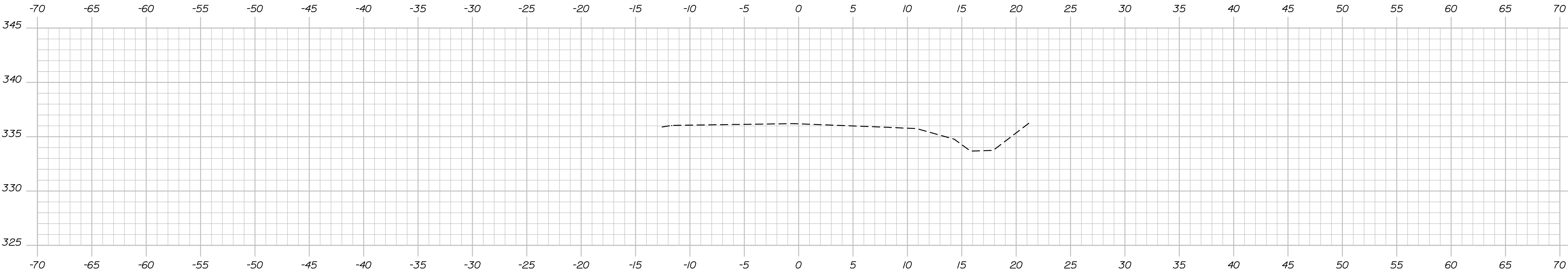
Sta. 14+50.00 to Sta. 14+75.00

Date:10/18/2018

Username:

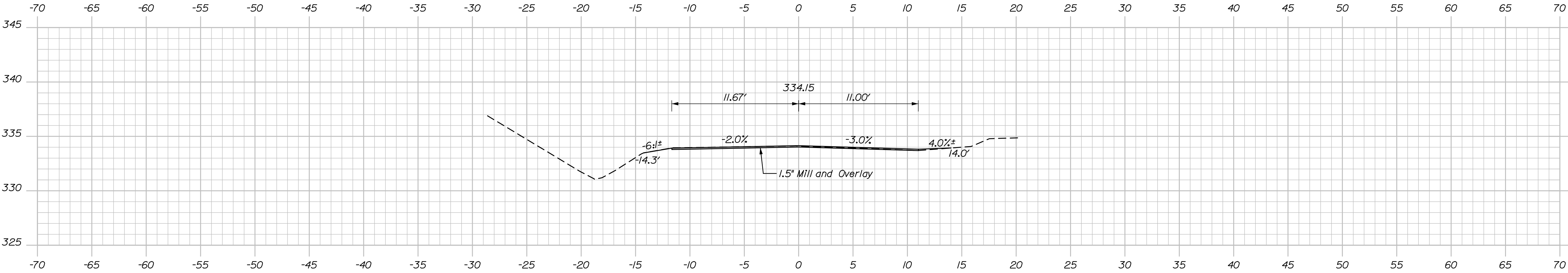
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Filename: 017_Xsect7.dgn



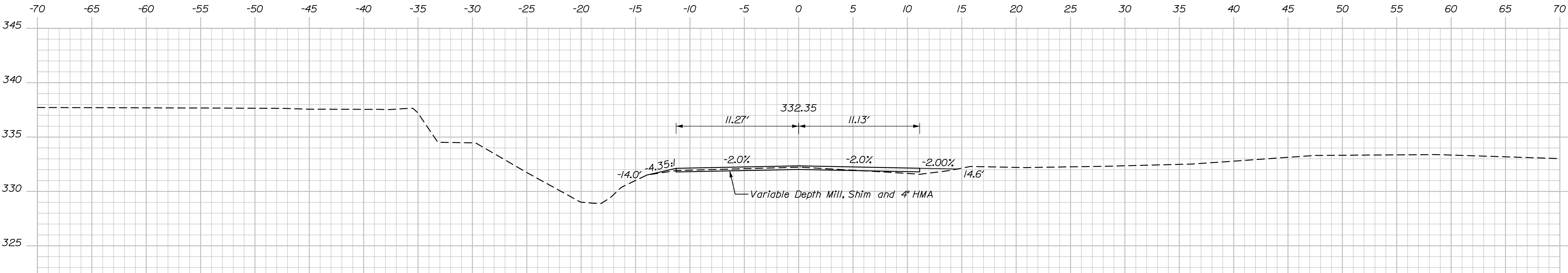
15+50.00

Sta. 15+50.00
End 1.5" Mill and Overlay
Match Existing Pavement
Limit of Work



15+25.00

Sta. 15+25.00
End Variable Depth Mill, Shim and 4" HMA
Begin 1.5" Mill and Overlay



15+00.00

Sta. 15+00.00
End Transition
Begin Variable Depth Mill, Shim, and 4" HMA



STATE OF MAINE	
DEPARTMENT OF TRANSPORTATION	
STP-2169(800)	
BRIDGE NO. 2930	WIN
021698.00	
BRIDGE PLANS	

PROJ. MANAGER	D. EATON	BY	DATE
DESIGN-DETAILED	A. Sweet	S. Scribner	10/18
CHECKED-REVIEWED	R. Hart	J. Oland	10/18
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

W. MT. VERNON BRIDGE	KENNEBEC
ECHO LAKE STREAM	
MOUNT VERNON	
CROSS SECTIONS	

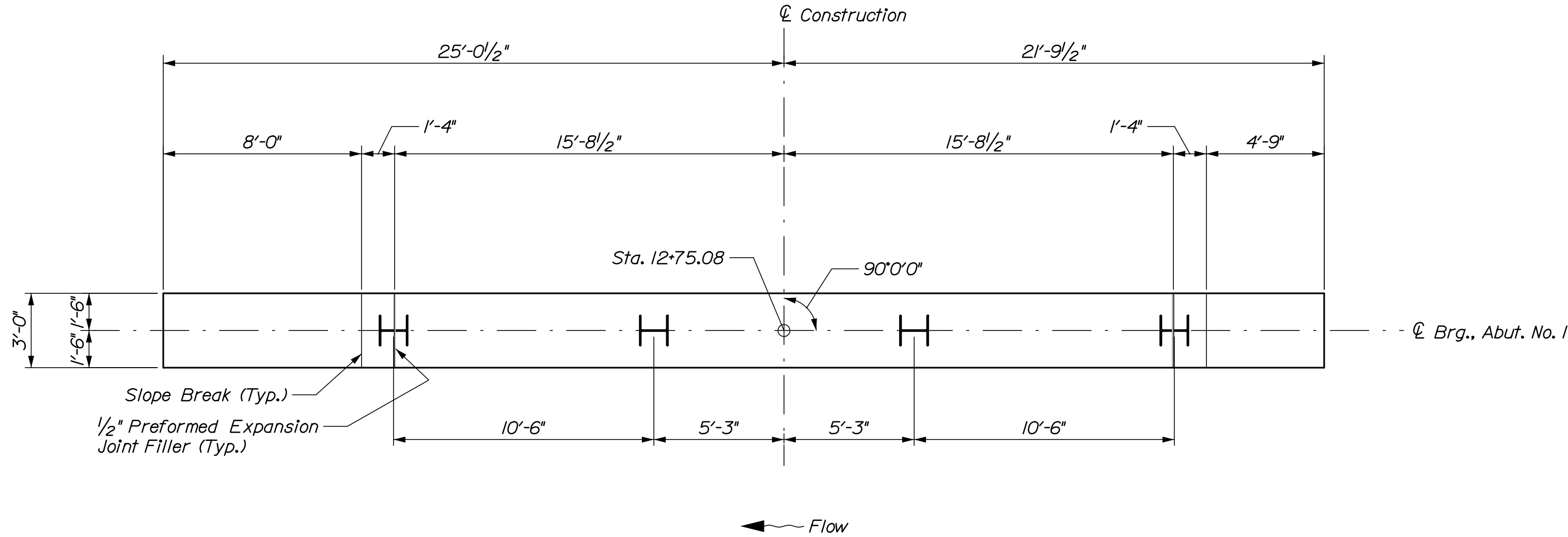
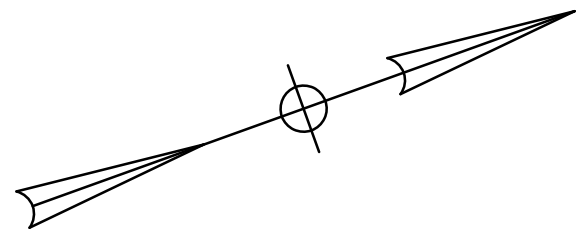
SHEET NUMBER
17
OF 28

Date:10/18/2018

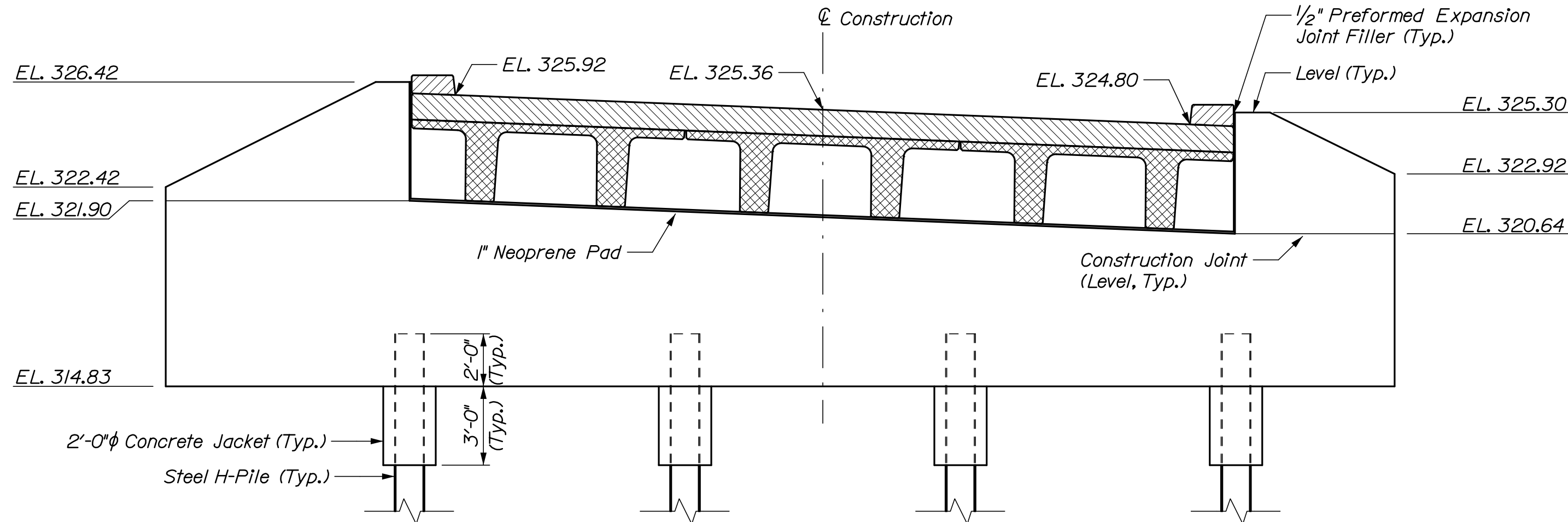
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Division:

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ABUTMENT NO. 1 PLAN



ABUTMENT NO. 1 ELEVATION

ABUTMENT NOTES

1. Reinforcing steel shall have a minimum concrete cover of 2 inches unless otherwise noted.
2. Cover joints where waterstops are not required in accordance with Standard Detail 502(01).
3. Place 4 inch diameter drains in abutment and wingwalls at 10 feet maximum spacing. The exact location will be determined by the Resident.
4. All elevations are provided at centerline of bearing unless otherwise noted.
5. Payment for concrete jacket around the tops of the H-piles will not be paid for directly. Payment shall be incidental to Item 502.219, Structural Concrete Abutment and Retaining Walls. Fill concrete may be used for the concrete jackets.
6. Anchor dowels (bars A90ISS and B90ISS) shall be installed plumb and may either be cast-in or drilled and anchored in accordance with Subsection 503.06. See sheets 20 and 26 for additional information.
7. Place the parapet portions of the wingwalls after erection of the precast units to ensure an accurate match with the superstructure.

PILE NOTES

1. The maximum factored pile load is 365 kips (Strength I Load Combination).
2. Estimate of Piles required (includes 5'-0" contingency):

Abutment No. 1: 4 - HP 14x89 @ 108 ft
Abutment No. 2: 4 - HP 14x89 @ 101 ft
3. H-pile material shall be ASTM A572, Grade 50.
4. Piles shall be driven to the required resistance on or within bedrock in accordance with Standard Specification Section 501.
5. All piles shall be equipped with a pile tip in accordance with Standard Specifications Subsections 501.048, Prefabricated Pile Tips and 711.10 H-Beam Piles, Spliced and Tips.

6. The Contractor shall submit to the Department, for review and acceptance, their proposed pile driving equipment with a completed "Pile and Driving Equipment Data Form", Figure 1, of Standard Section 501 - Foundation Piles. Approval of the proposed pile driving equipment by the Department will be based on Department - conducted wave equation analyses and the criteria specified in Section 501 and Subsection 501.042, Equipment for Driving Piles. If the Department - conducted wave equation analyses show that the proposed driving system(s) is unacceptable, the Contractor shall modify or replace the proposed driving equipment in an amendment of the QCP, at their own expense, until subsequent wave equation analyses by the Department indicate the pile can be driven to the required resistance, without damage or excessive blows.

7. The Contractor shall provide access for the agents of the Department to perform (2) dynamic load tests with signal matching and 24-hour (minimum) restrike, one at each Abutment, as specified in Special Provision 501 - Dynamic Loading Test, to confirm the nominal resistance of the piles. The first dynamic pile load test at each abutment will be completed on the first production pile driven and will include a minimum 24 - hour restrike test. The required nominal resistance for the pile is the factored axial pile load divided by a resistance factor of 0.65 per LRFD Specifications. The Contractor may drive production piles to the preliminary driving criteria, however pile cut-off will not be permitted until completion of restrike testing and establishment of final driving criteria.

8. The Contractor shall preauger each pile location to a depth 20 feet below the top of pile elevation using the following procedures:

Excavate to the bottom of the integral abutment backwall elevation, or deeper if preferred;

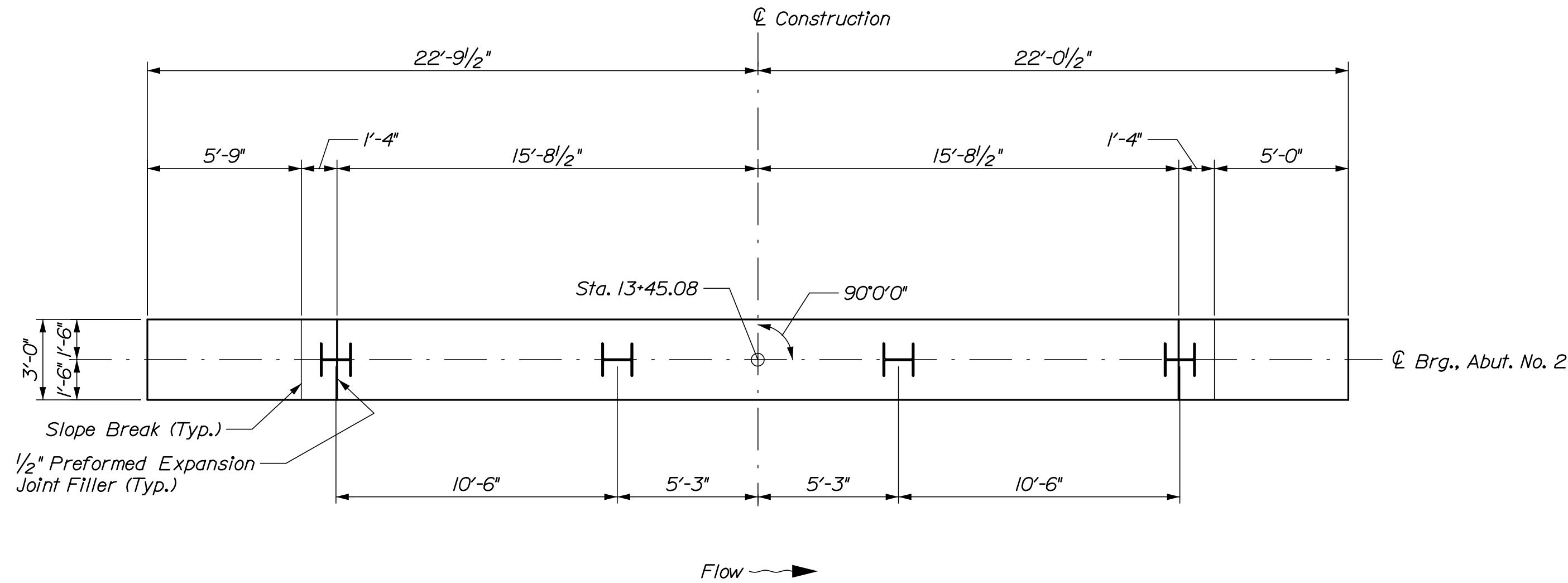
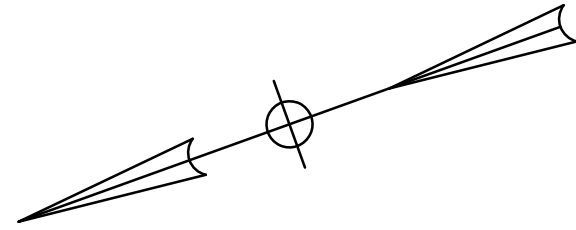
Drill a minimum 24-inch diameter hole to a depth of 20 feet at each pile location using a continuous flight auger that is withdrawn while being spun in the opposite direction (having the effect of loosening the material) or using a drilling auger operated by Kelly bar attachment;

Place temporary casing as needed to prevent hole cave-in;

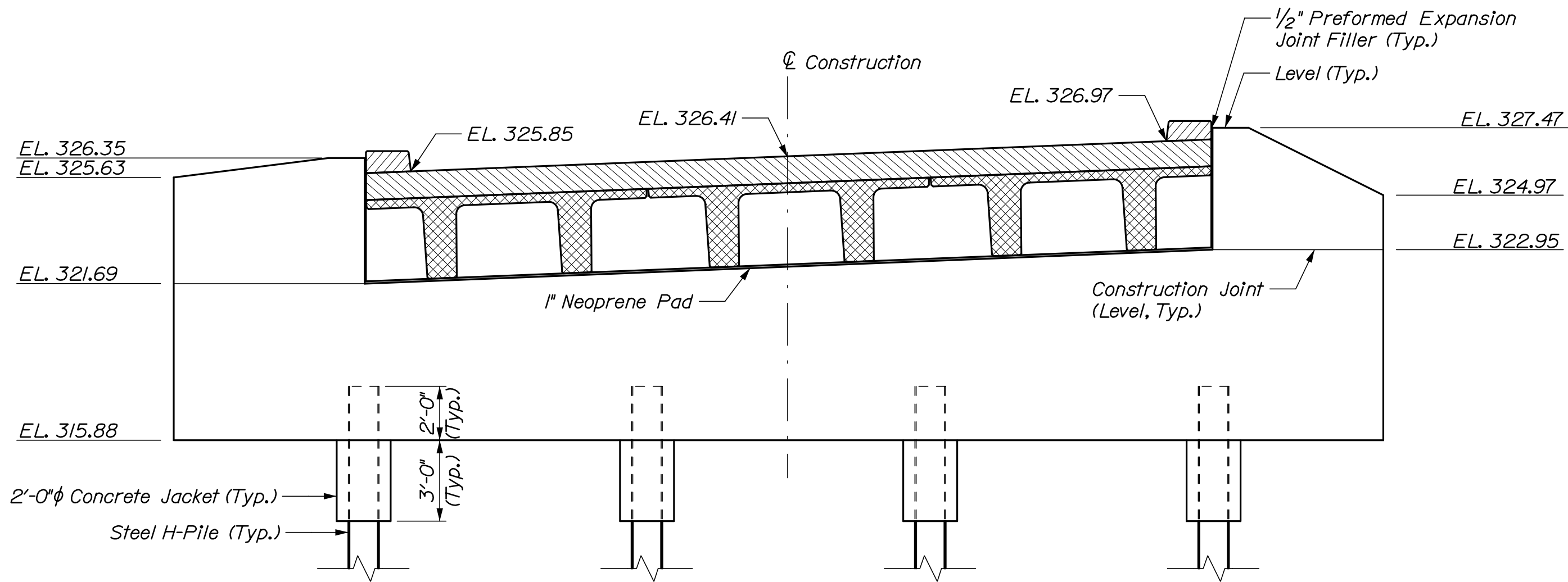
Place sand or pea stone in the excavation;

Drive the piles.

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		STP-2169(800)		WIN		021698.00		BRIDGE NO. 2930		BRIDGE PLANS	
W. MT. VERNON BRIDGE		ECHO LAKE STREAM		KENNEBEC		MOUNT VERNON		ABUTMENT NO. 1		SHEET NUMBER		18	
												OF 28	



ABUTMENT NO. 2 PLAN



ABUTMENT NO. 2 ELEVATION

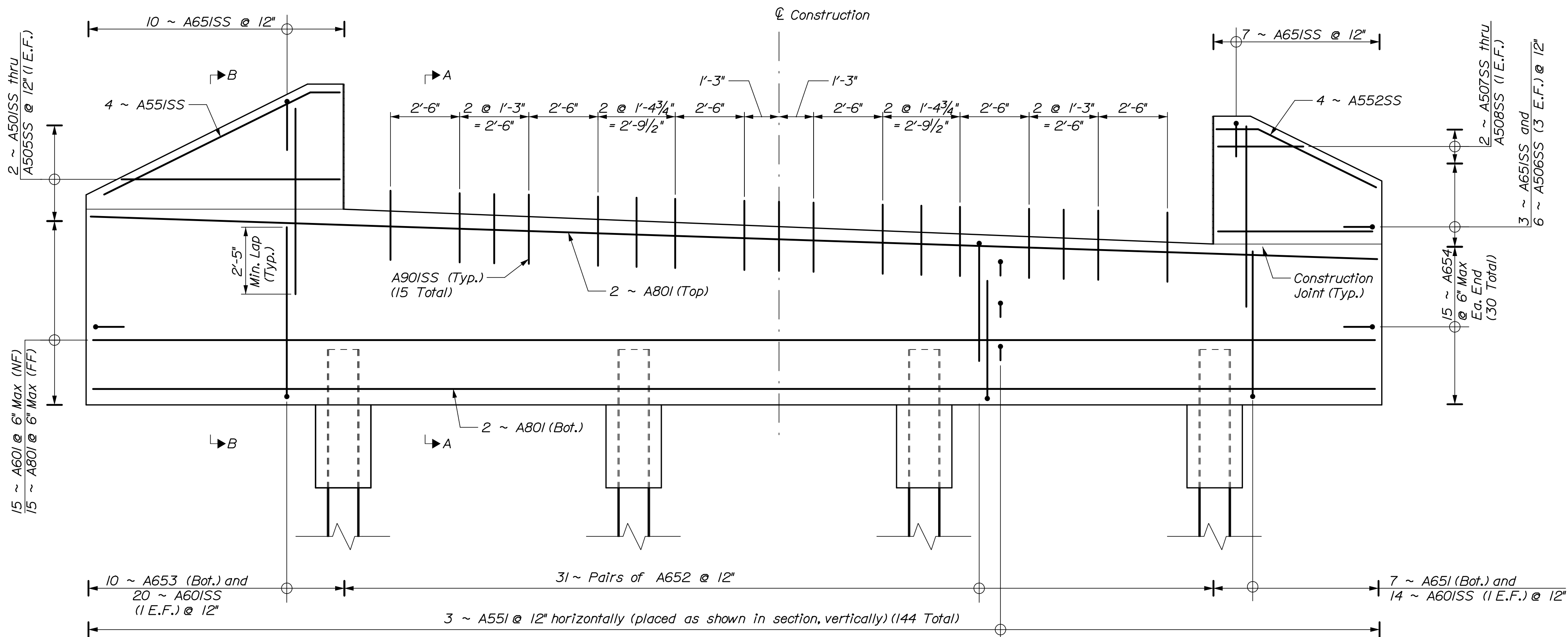
STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		STP-2169(800)		BRIDGE NO. 2930		WIN		021698.00		BRIDGE PLANS	
W. MT. VERNON BRIDGE		ECHO LAKE STREAM		KENNEBEC		MOUNT VERNON		ABUTMENT NO. 2		SHEET NUMBER		19	
DESIGNED-Detailed		CHECKED-Reviewed		DESIGNED-Detailed		REVISIONS 1		REVISIONS 2		REVISIONS 3		REVISIONS 4	
DATE		BY		DATE		DATE		DATE		DATE		DATE	
08/18		P. Bishop		08/18		08/18		08/18		08/18		08/18	
SIGNATURE		P.E. NUMBER		DATE		DATE		DATE		DATE		DATE	
08/18		J. O'Neil		08/18		08/18		08/18		08/18		08/18	
FIELD CHANGES		FIELD CHANGES		FIELD CHANGES		FIELD CHANGES		FIELD CHANGES		FIELD CHANGES		FIELD CHANGES	

Date:10/18/2018

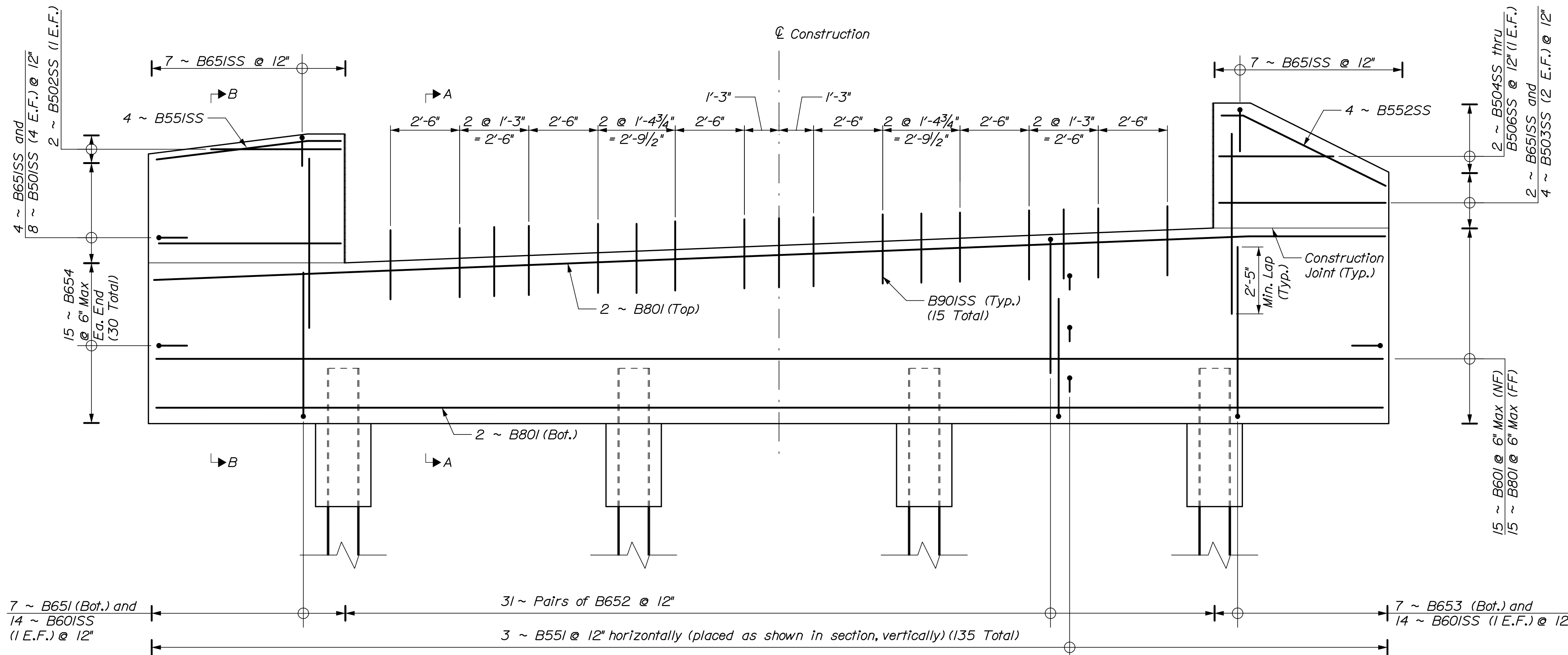
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Division:

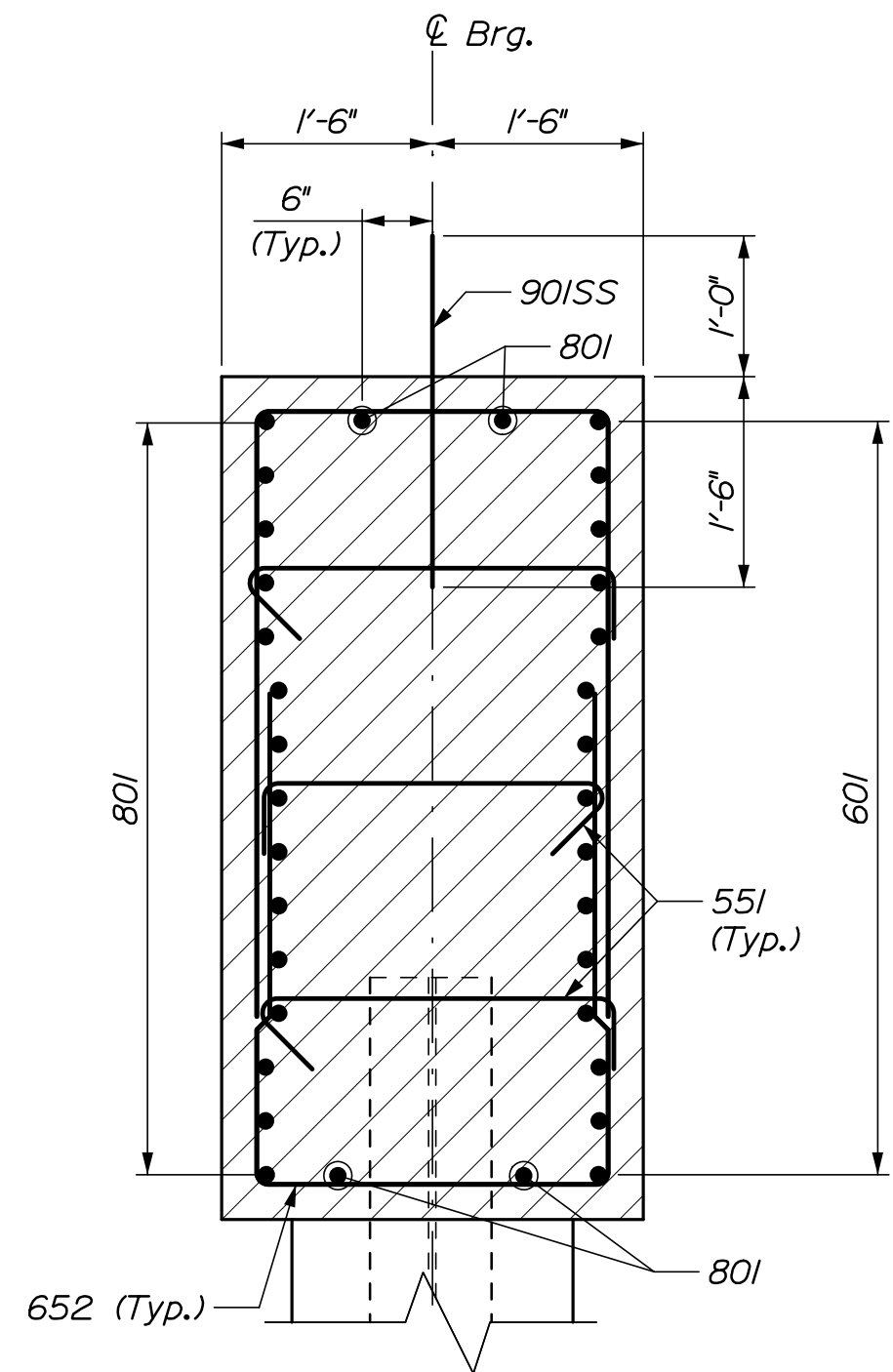
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ABUTMENT NO. 1

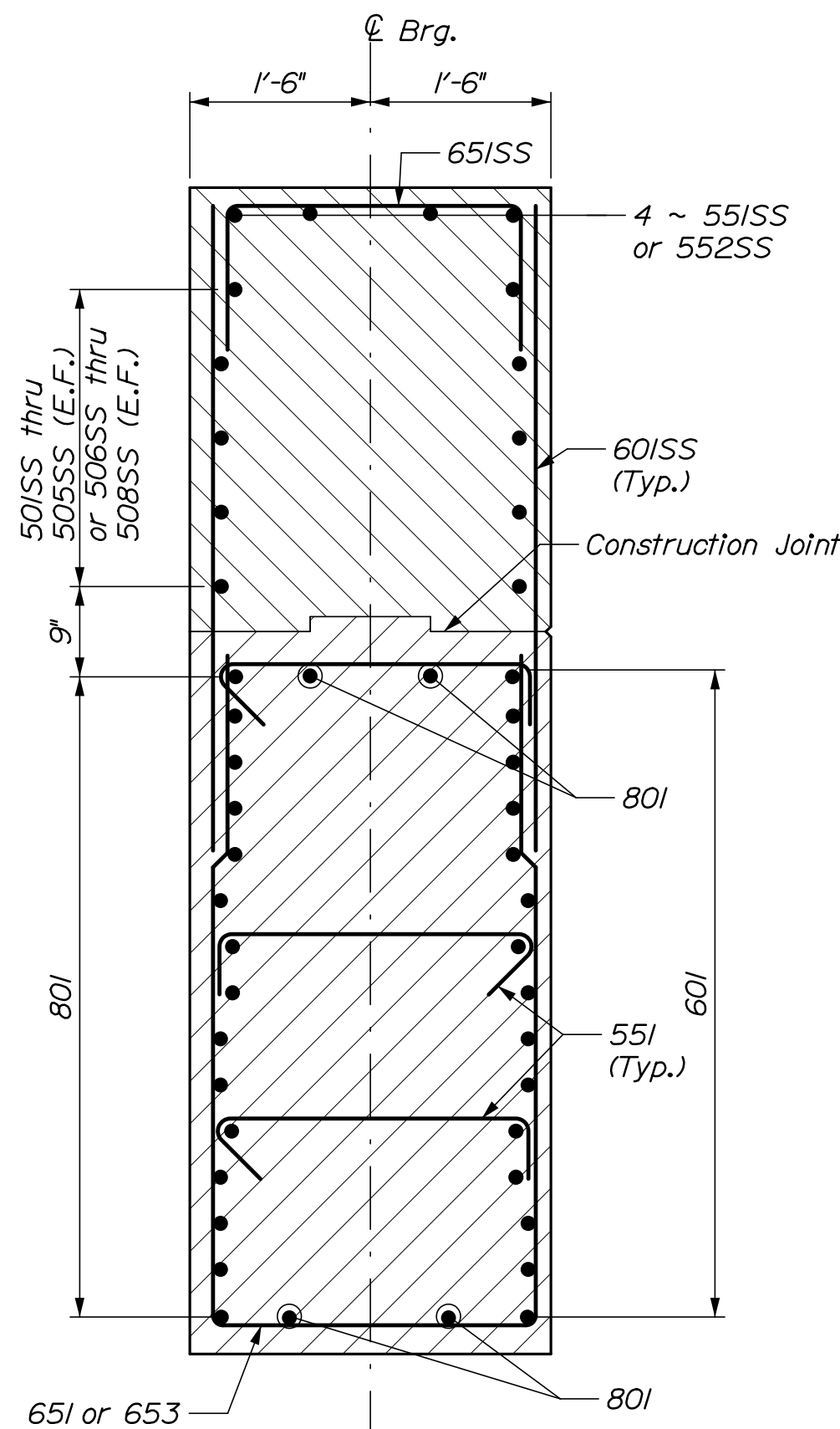


ABUTMENT NO. 2



SECTION A-A
ABUTMENT SECTION

(*A" and "B" prefixes omitted from bar marks)



SECTION B-B
WINGWALL SECTION

(*A" and "B" prefixes omitted from bar marks)

STATE OF MAINE				DEPARTMENT OF TRANSPORTATION			
STP-2169(800)				WIN			
BRIDGE NO. 2930				021698.00			
BRIDGE PLANS							
PROJ. MANAGER		D. EATON	BY	P. Bishop	DATE	08/18	SIGNATURE
CHECKED/REVIEWED		J. Waugh	BY	J. Olund	DATE	08/18	P.E. NUMBER
DESIGN/REVIEWED			BY		DATE		
DESIGN/REVIEWED			BY		DATE		
REVISIONS 1			BY		DATE		
REVISIONS 2			BY		DATE		
REVISIONS 3			BY		DATE		
REVISIONS 4			BY		DATE		
FIELD CHANGES			BY		DATE		
W. MT. VERNON BRIDGE				KENNEBEC			
ECHO LAKE STREAM				MOUNT VERNON			
ABUTMENT REINFORCING							
SHEET NUMBER				20			
				OF 28			

HNTB

Date:10/18/2018

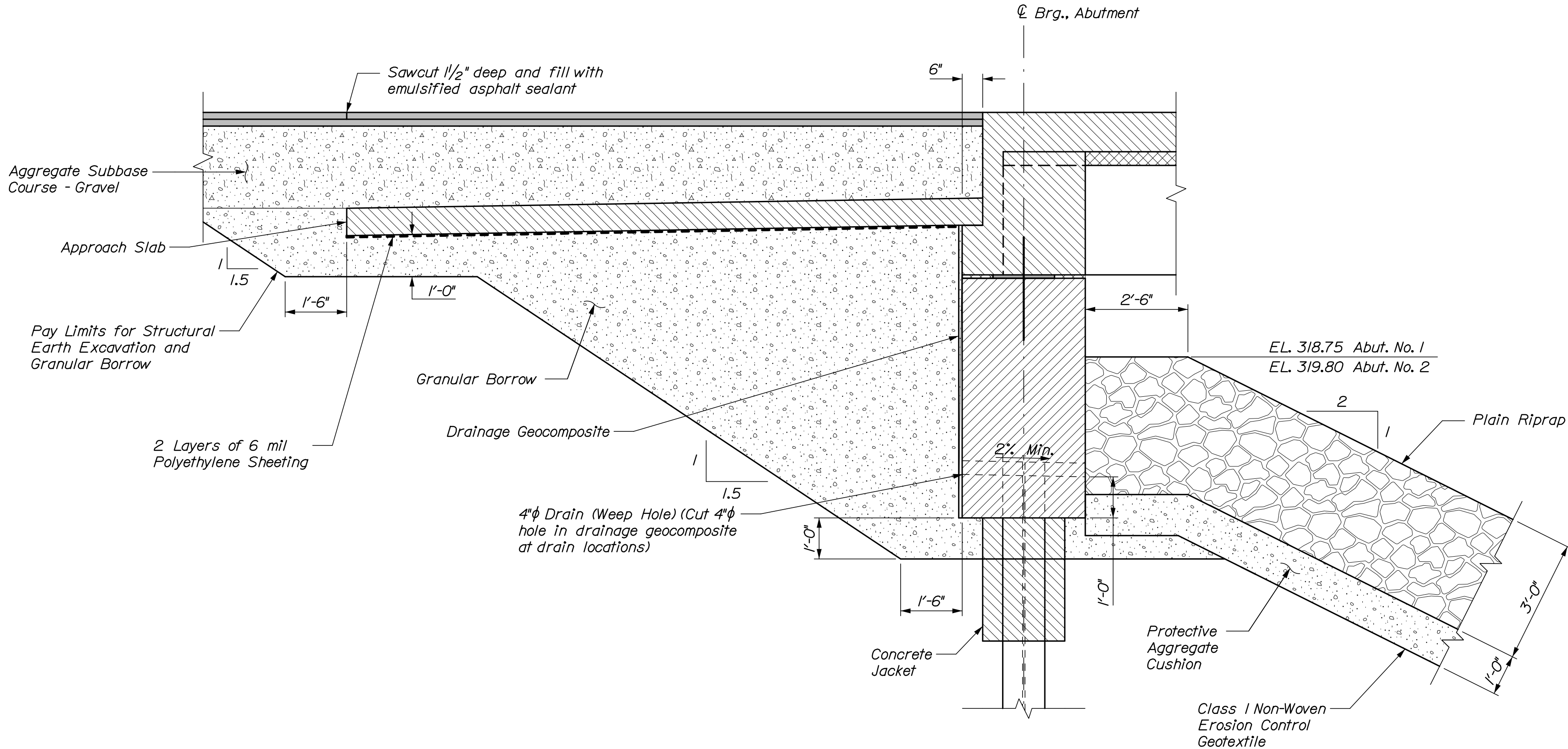
Username:

Division:

Filename: 021_Abut_04.dgn

NOTES:

1. Transverse saw cuts in the pavement at the ends of approach slabs shall be sealed with emulsified asphalt sealing compound conforming to Specification 702.12. The sawcut and emulsified asphalt sealing shall not be paid for directly, but considered incidental to related Contract Items.
2. Install two layers of 6 mil polyethylene sheeting under approach slabs. Payment will be considered incidental to Item No. 502.31, Structural Concrete Approach Slab.



ABUTMENT BACKFILL DETAIL

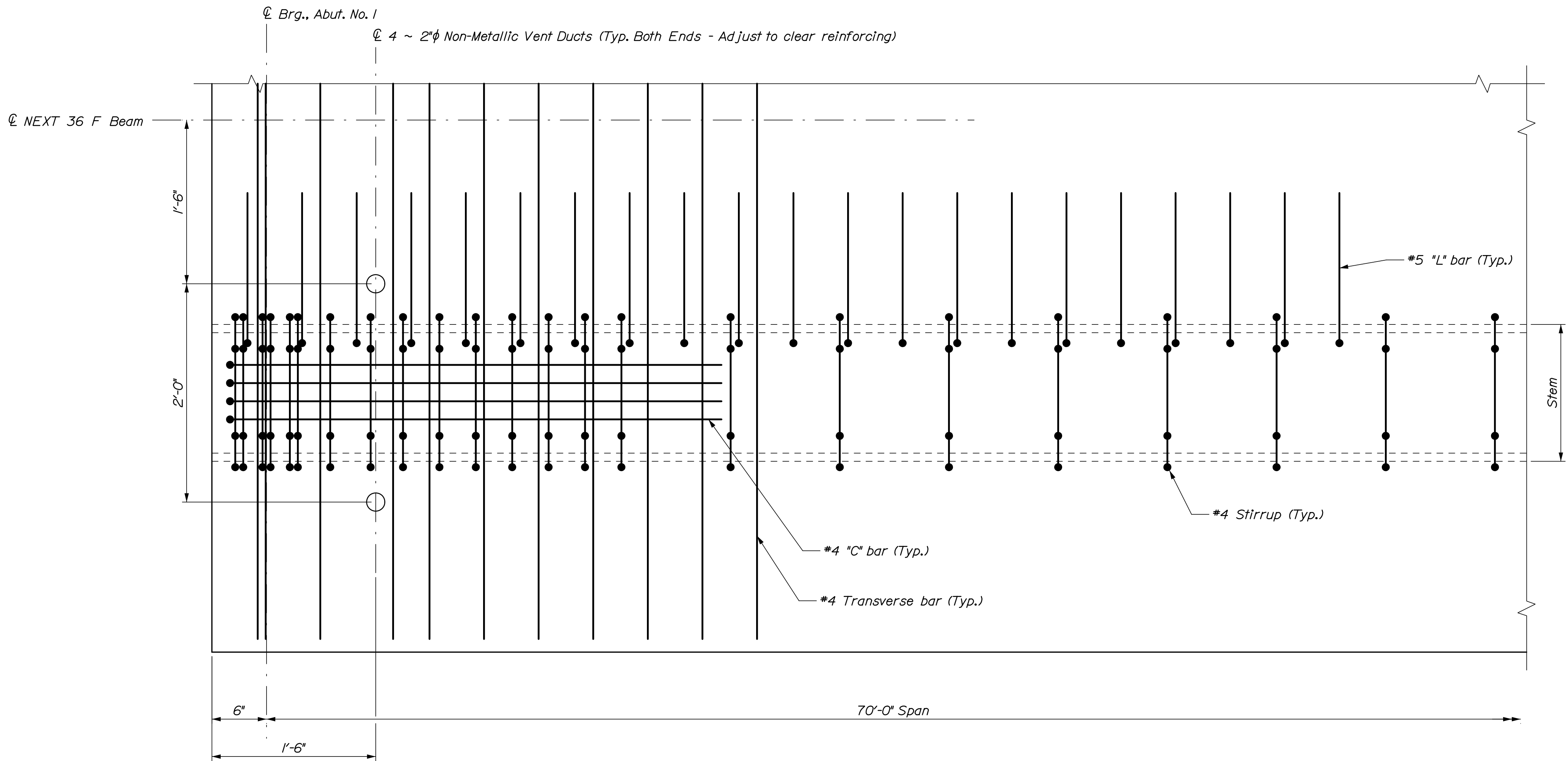
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DEPARTMENT OF TRANSPORTATION						
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BRIDGE NO. 2930					WIN	BRIDGE PLANS
021698.00						
W. MT. VERNON BRIDGE						
ECHO LAKE STREAM						
MOUNT VERNON KENNEBEC						
ABUTMENT DETAILS						
SHEET NUMBER						
21						
OF 28						

Date:10/24/2018

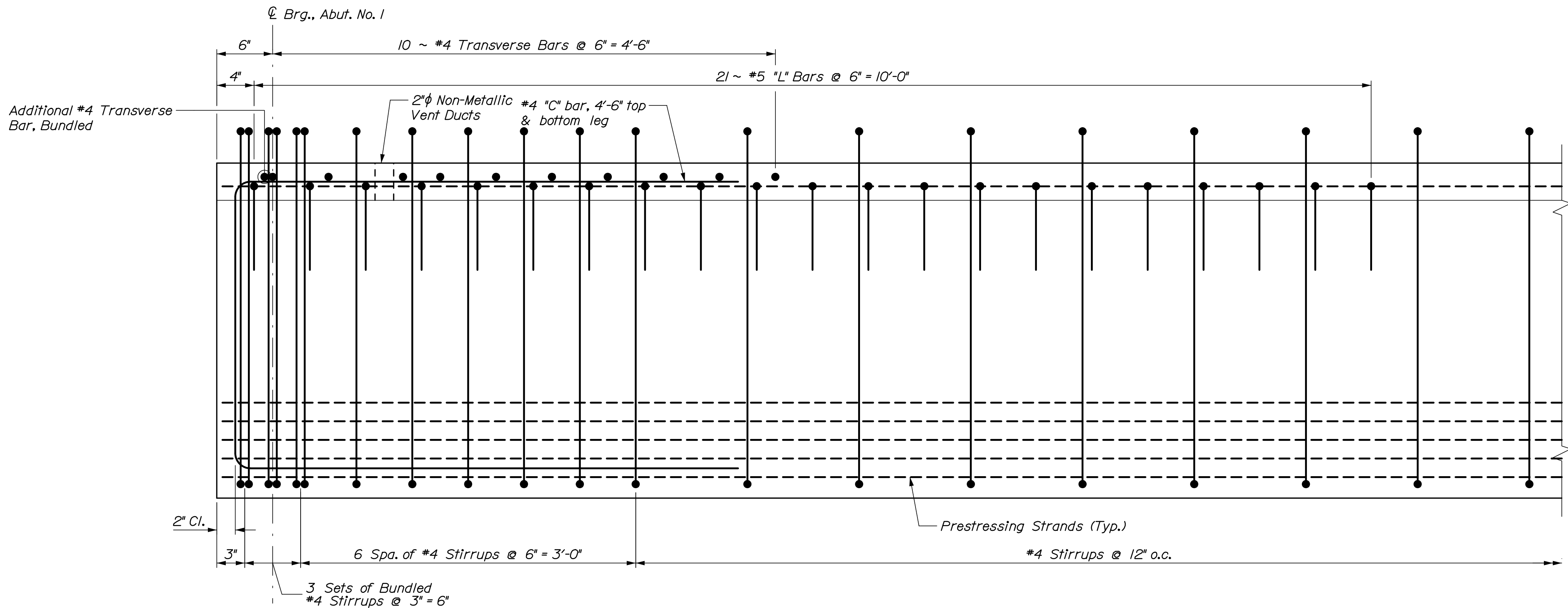
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Filename: 022_Framing_01.dgn



NEXT 36 F BEAM PLAN
(Strands and WWF not shown for clarity)



NEXT 36 F BEAM ELEVATION
(WWF not shown for clarity)

PRECAST NEXT BEAM NOTES

1. NEXT F Beams are a non - proprietary shape developed by PCI Northeast (PCINE). Standardized section properties and details may be found at <http://www.pcine.org>.

2. The estimated camber at release is 1.74 inches; the estimated camber at erection is 3.09 inches, and; the estimated final camber at completion of the project is 2.19 inches.

3. Prestressing strands shall be 0.6 inch diameter, epoxy-coated in accordance with ASTM A882. The tensioning force is 44 kips per prestressing strand, including the top strands.

4. Reinforcing steel shall have a minimum concrete cover of 2 inches unless otherwise noted.

5. The drilling of holes in the prestressed beams and the use of power - actuated tools on the beams will not be permitted.

6. A mat of mild reinforcing steel, #4 bars @ 12 inches in both directions, may be substituted for the welded wire fabric shown on Sheet 23. Reinforcing steel shall be ASTM A955, Grade 75.

7. Girder reinforcement detailed in plan and elevation is typical about the midspan and centerline of each girder.

8. Concrete retarding admixture shall be applied to the form surfaces of the NEXT beam stems that will come in contact with the cast in-place concrete end diaphragms. All such surfaces shall be power washed with water prior to installation to provide a nominal 1/8-inch roughened surface with exposed aggregate. Alternate methods of achieving an equivalent roughened surface may be proposed. Payment for achieving the surface finish will be considered incidental to related Contract Items.

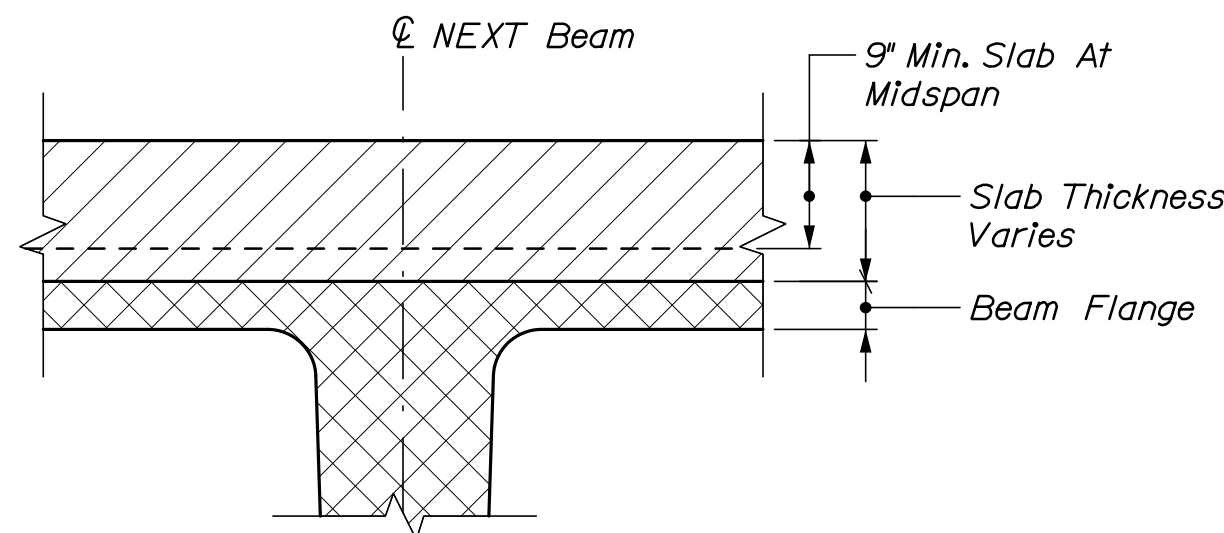
9. Neoprene pads shall be either polychloroprene or natural polyisoprene with a shear modulus of 115 psi, and shall conform to the requirements of Section 18.2 of the LRFD Bridge Construction Specifications, Third Edition. Neoprene pads will not be paid for directly but will be considered incidental to related Contract Items.

10. Neoprene Pad seams perpendicular to the centerline of bearing will be allowed, provided that the seams are located approximately half way between NEXT Beam stems.

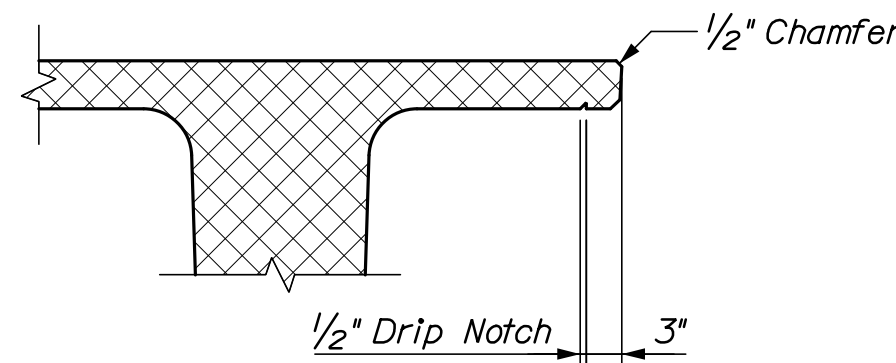
11. A maximum of 12 additional strands per beam (6 per stem) may be debonded for a distance of 6-inches within the bottom 5 rows to reduce the potential for end cracking during release. All 4 top row strands shall be fully bonded.

12. All mild reinforcing bars shall conform to ASTM A955 and all welded fabric shall conform to ASTM A1022.

13. The incorporation of corrosion inhibitor is not required within the concrete mix design.



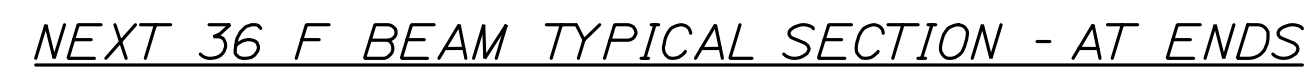
DECK THICKNESS DETAIL
Not to Scale







FASCIA OVERHANG DETAIL
Not to Scale

HNTB

STATE OF MAINE DEPARTMENT OF TRANSPORTATION	STP-2169(800)		BRIDGE NO. 2930		WIN 021698.00		BRIDGE PLANS	
	PROJ. MANAGER	D. EATON	BY	DATE	SIGNATURE	P.E. NUMBER	DATE	
	DESIGN-DETAILED	H. Walton	P. Bishop	08/18				
				CHECKED-REVIEWED	J. Wagh			
				DESIGN-DETAILED				
				REVISIONS 1				
				REVISIONS 2				
				REVISIONS 3				
				REVISIONS 4				
				FIELD CHANGES				
W. MT. VERNON BRIDGE ECHO LAKE STREAM MOUNT VERNON KENNEBEC					GIRDER DETAILS I			
SHEET NUMBER					22			
					OF 28			



-  Strands debonded 25ft
-  Strands debonded 20ft
-  Strands debonded 15ft
-  Strands debonded 10ft

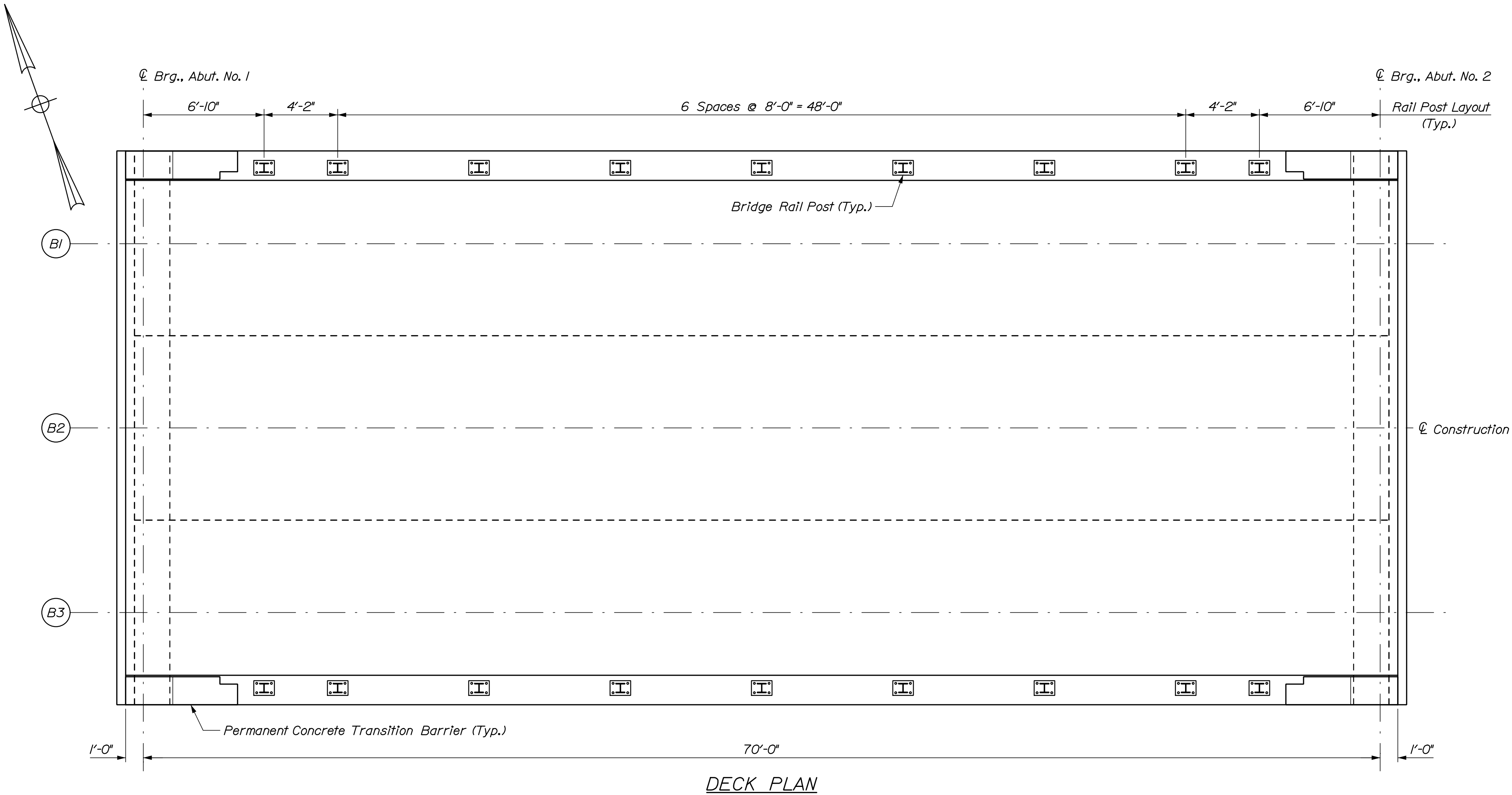
DEAD LOAD DEFLECTIONS (INCH)										
(Deck, Rail, and Curbs)										
℄ Brg. Abut. I	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	℄ Brg. Abut. 2
0.00	0.27	0.52	0.73	0.86	0.90	0.86	0.73	0.52	0.27	0.00

Date:10/18/2018

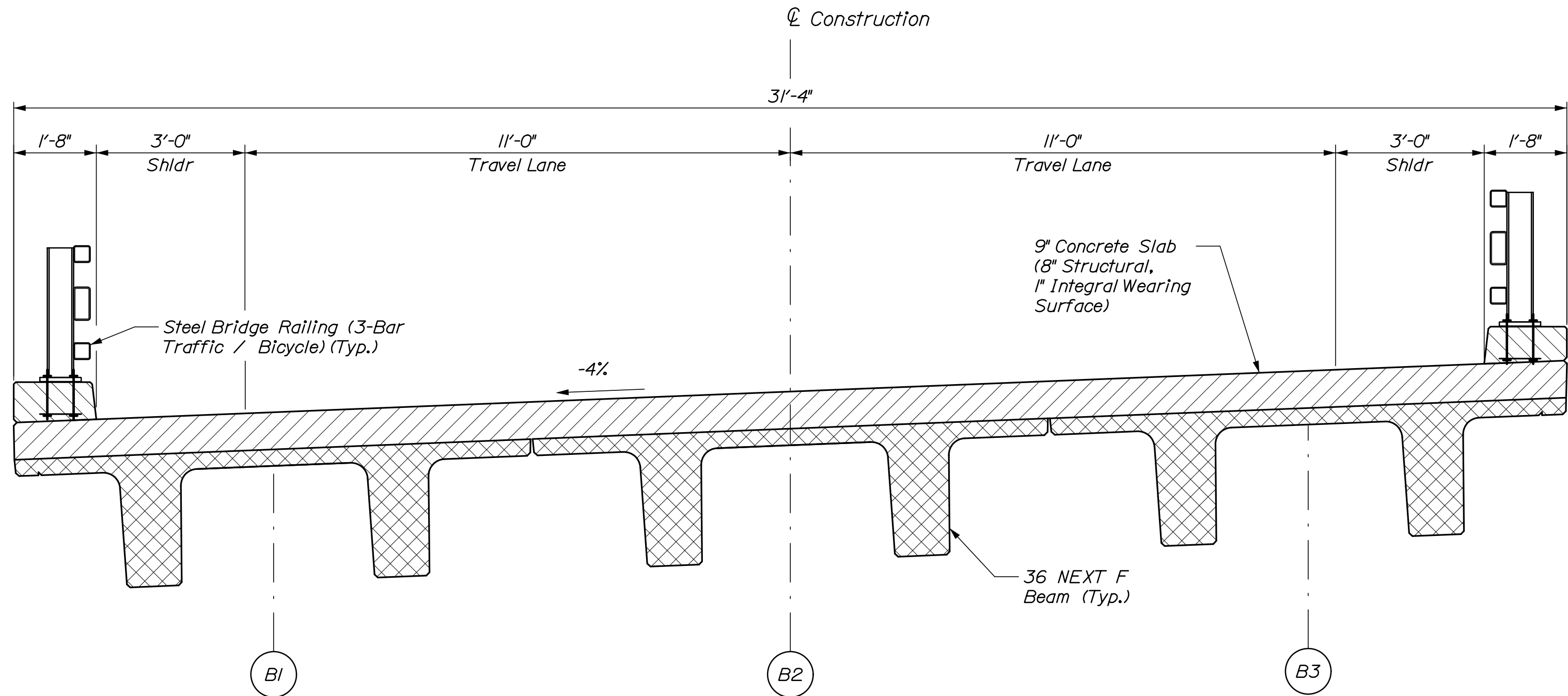
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Division:

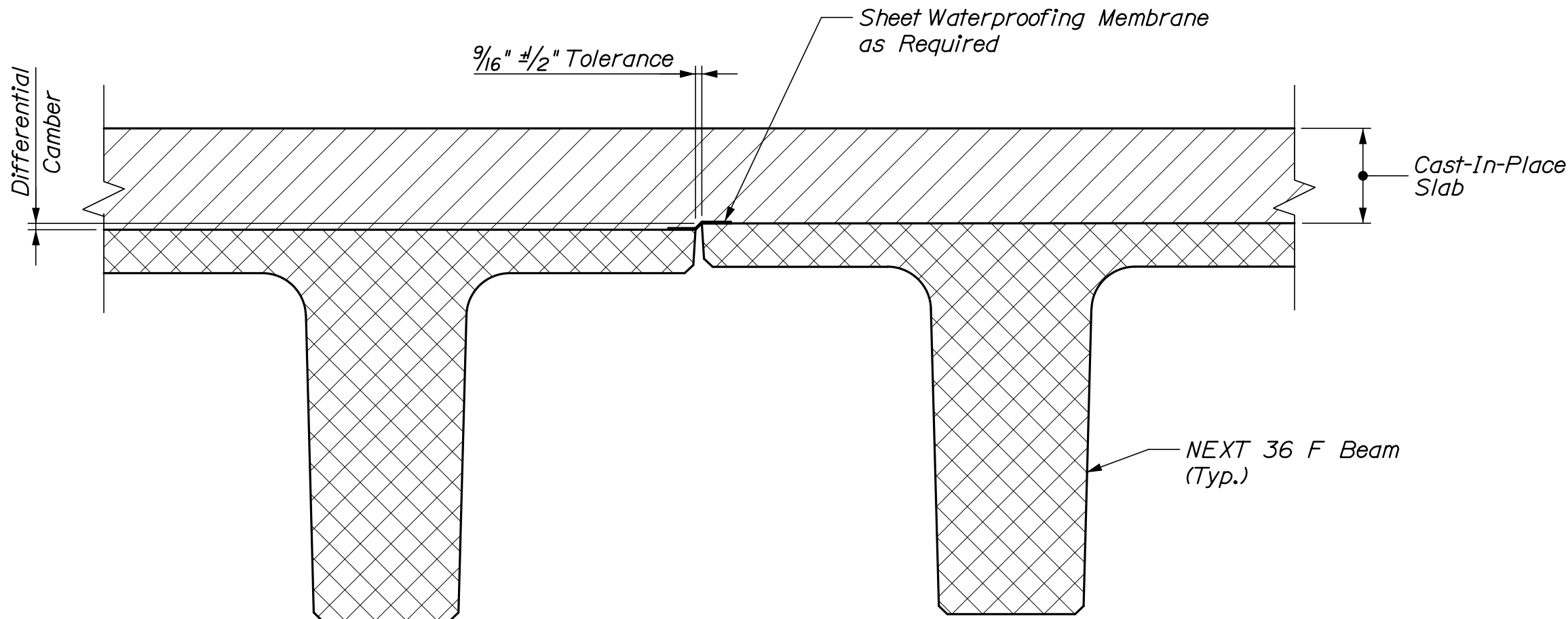
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DECK PLAN



TRANSVERSE SECTION

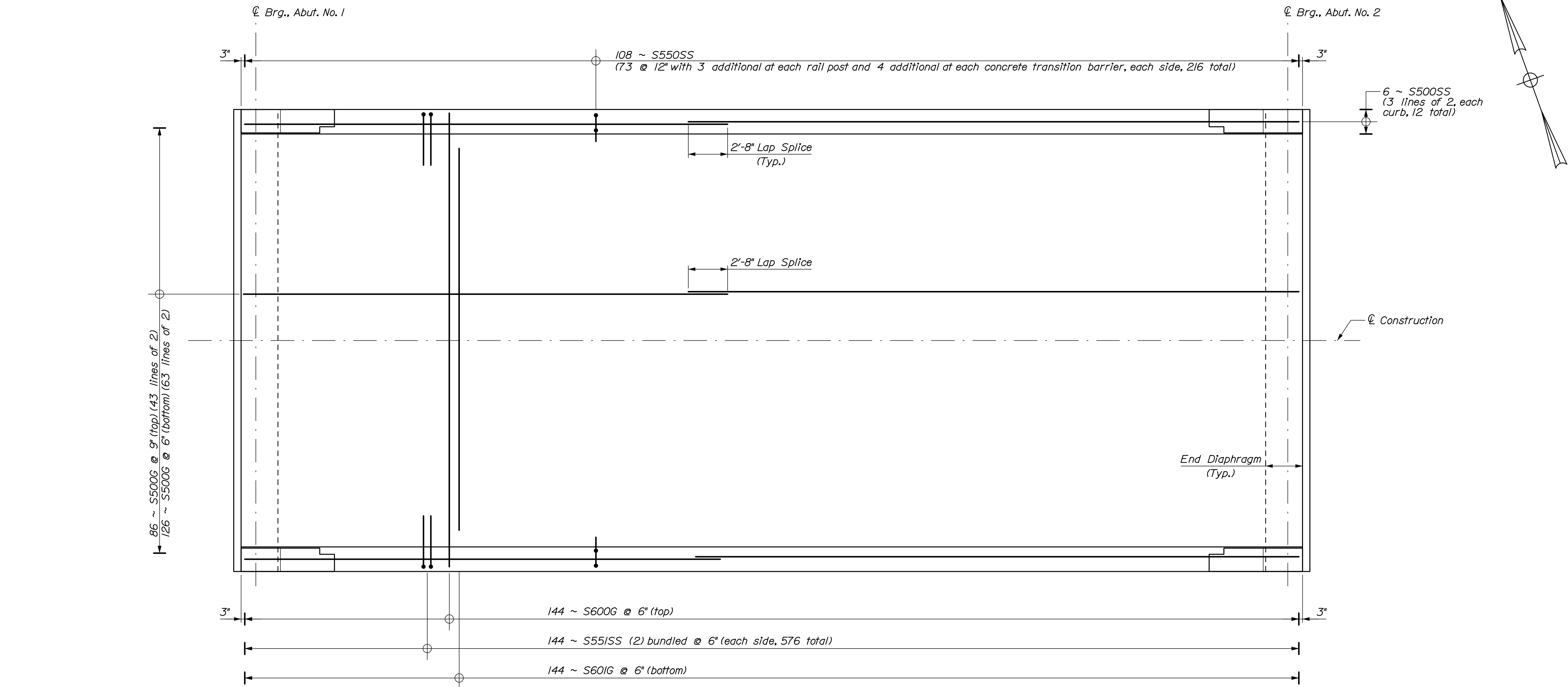


NEXT BEAM GAP FORM DETAIL

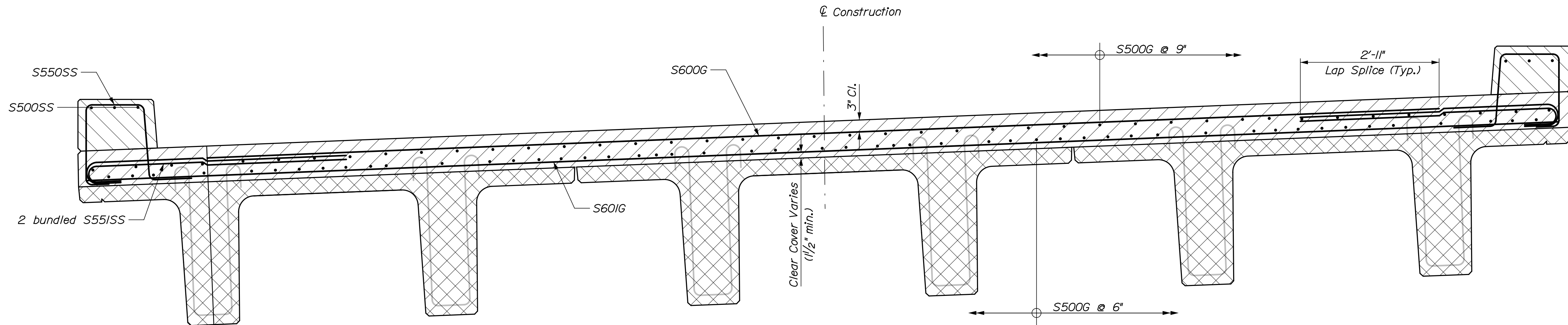
SUPERSTRUCTURE NOTES

1. Form a one inch V-groove on the fascias at the horizontal joint between the curb and slab.
2. Reinforcing bars shall have a minimum concrete cover of 2 inches unless otherwise noted.
3. The superstructure slab and end diaphragm concrete shall be placed in one continuous operation and shall be kept plastic until the entire placement has been made.
4. Payment for End Diaphragm Concrete will be made under Item No. 502.261 Structural Concrete Roadway and Sidewalk Slabs on Concrete Bridges.
5. The Contractor shall install Permanent Concrete Transition Barrier vertical closed stirrups as shown in Standard Details Section 526, prior to the placement of curb concrete.
6. Payment for Sheet Waterproofing Membrane over joints between adjacent NEXT Beams will not be made directly, but will be considered incidental to related Contract Items. Alternate methods of sealing the gap between the flanges may be submitted to the Resident for approval.
7. Payment for Sheet Waterproofing Membrane and mortared chamfer at the joint between the Approach Slab and the End Diaphragm will not be made directly, but will be considered incidental to related Contract Items. See Sheet 26, Section A-A for details.
8. Payment for closed cell foam between the Abutment and End Diaphragm will not be made directly, but will be considered incidental to related Contract Items. See Sheet 26, Section A-A for details.
9. Bars TB651 and TB652 detailed in Standard Detail 526(37) shall be reduced in height by 3-inches to account for the difference in curb height between a bare deck and one with an HMA overlay. The corrected dimensions are provided on the Reinforcing Schedule sheet.
10. All Transition Barrier reinforcing bars shall be stainless steel.

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		STP-2169(800)		BRIDGE NO. 2930		WIN		021698.00		BRIDGE PLANS	
W. MT. VERNON BRIDGE		ECHO LAKE STREAM		KENNEBEC		MOUNT VERNON		SUPERSTRUCTURE PLAN		SHEET NUMBER		24	
OF 28													
PROJ. MANAGER		DESIGNED-Detailed		CHECKED-Reviewed		DESIGNED-Detailed		REVISIONS 1		REVISIONS 2		REVISIONS 3	
D. Eaton		H. Walton		J. Wadsworth									
BY		P. Bishop		J. O'Neil									
DATE		08/18		08/18									
SIGNATURE													
P.E. NUMBER													
DATE													
FIELD CHANGES													



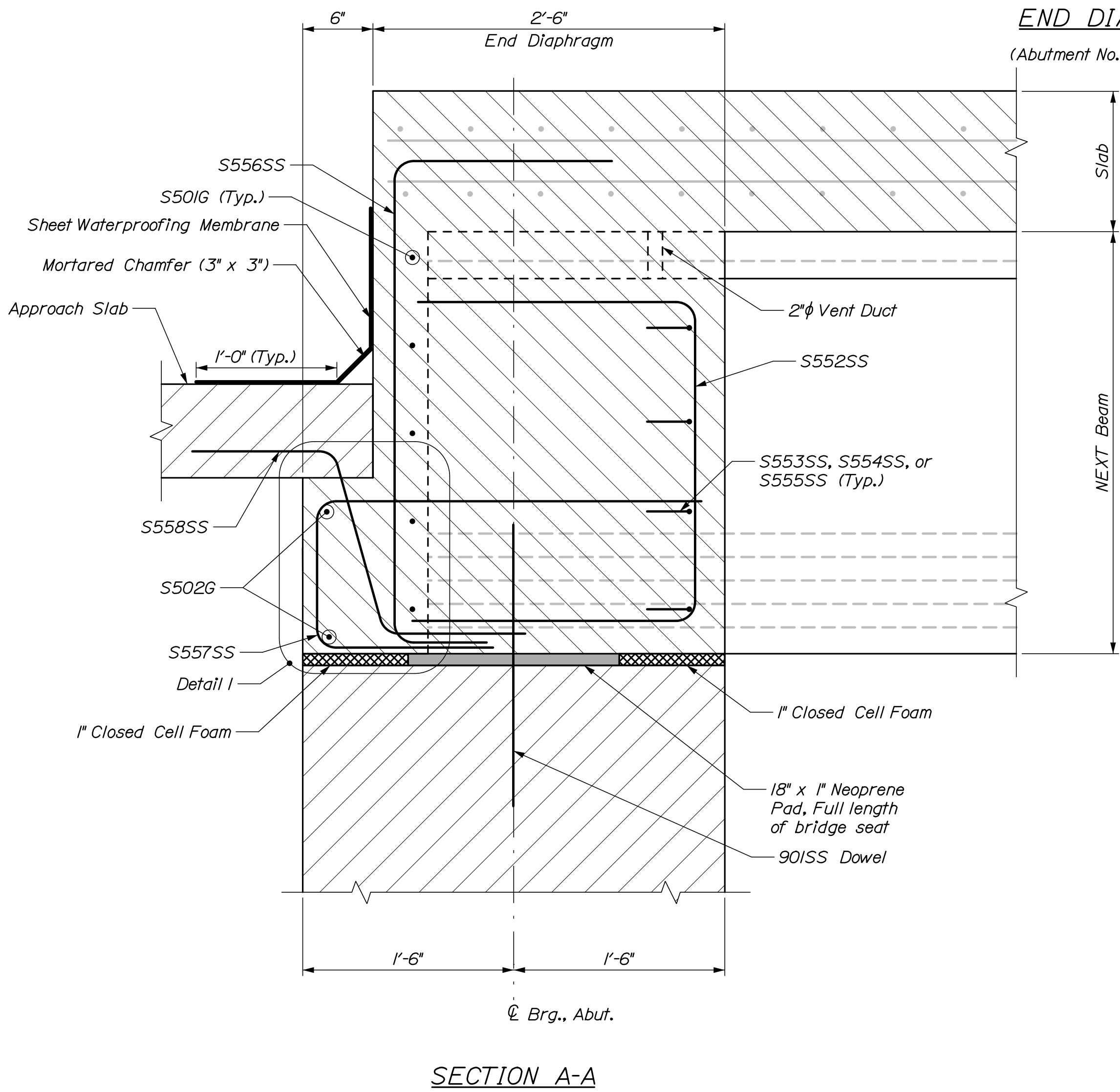
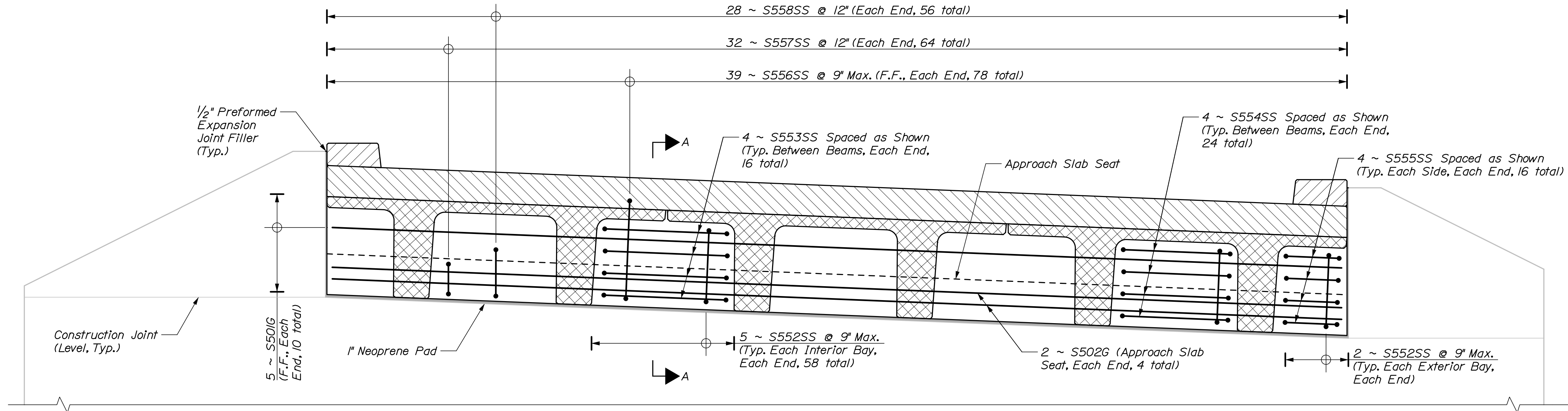
SUPERSTRUCTURE REINFORCING PLAN



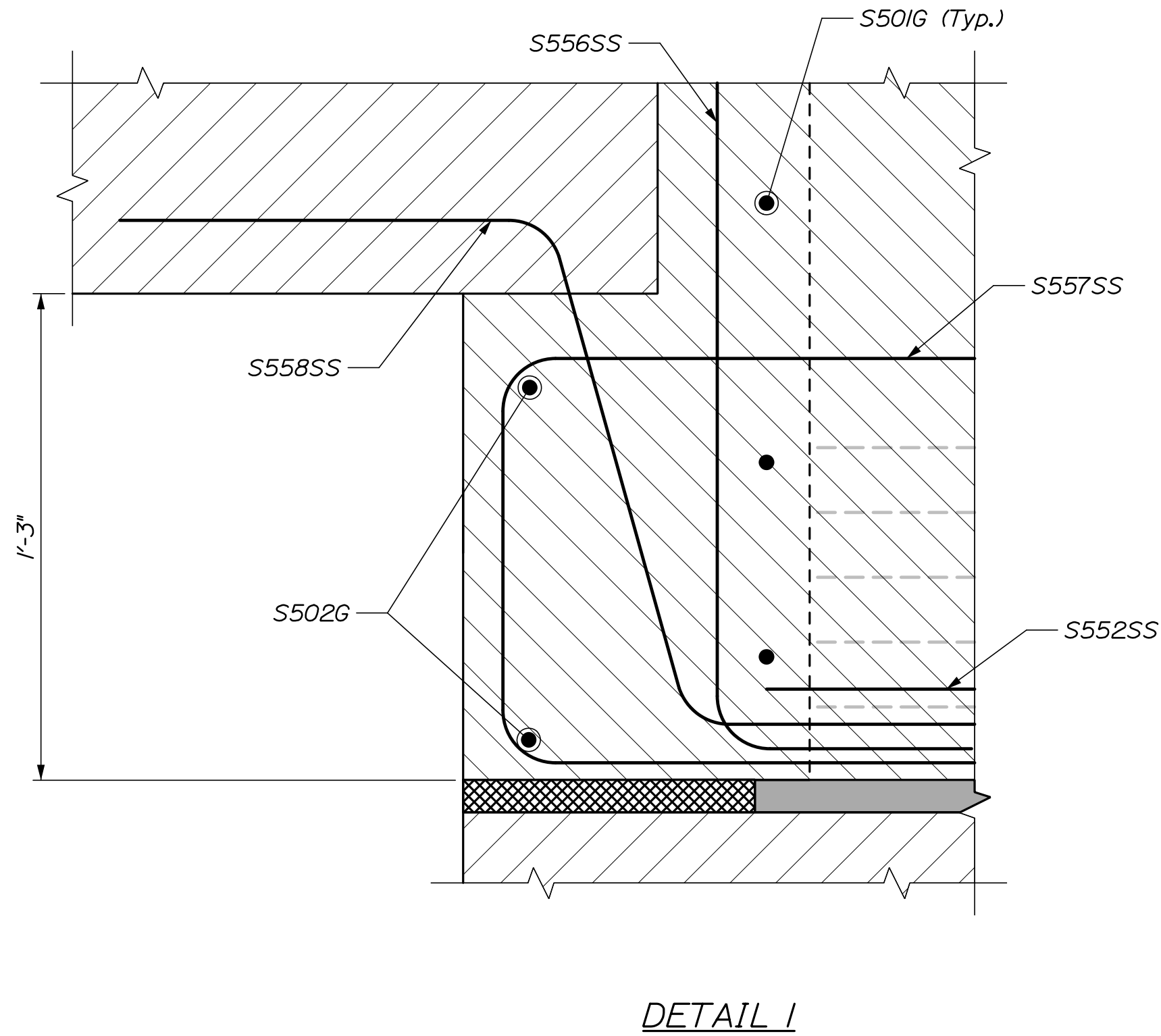
TRANSVERSE REINFORCING SECTION



W. MT. VERNON BRIDGE ECHO LAKE STREAM MOUNT VERNON				STATE OF MAINE DEPARTMENT OF TRANSPORTATION	
KENNEBEC				SIGNATURE	
SUPERSTRUCTURE REINFORCING				P.E. NUMBER	
SHEET NUMBER				BRIDGE NO. 2930	
25				WIN	
OF 28				021698.00	
				BRIDGE PLANS	



END DIAPHRAGM REINFORCEMENT ELEVATION
(Abutment No. 1 Shown Looking Downstation; Abutment No. 2 Opposite Hand)
(901SS Dowels Not Shown For Clarity)



W. MT. VERNON BRIDGE ECHO LAKE STREAM MOUNT VERNON				PROJ. MANAGER		D. EATON	BY	DATE	STATE OF MAINE DEPARTMENT OF TRANSPORTATION				
KENNEBEC END DIAPHRAGM REINFORCING				DESIGN-DETAILED		H. Walton	P. Bishop	08/18					
				CHECKED-REVIEWED		J. Waugh	J. O'Neil	08/18					
				DESIGN2-DETAILED2									
				DESIGN3-DETAILED3									
				REVISIONS 1					P.E. NUMBER				
				REVISIONS 2									
				REVISIONS 3									
				REVISIONS 4					DATE				
				FIELD CHANGES									
SHEET NUMBER										BRIDGE NO. 2930	WIN	021698.00	BRIDGE PLANS
26													
OF 28													

Date:10/24/2018

Username: Devon.C.Eaton

Division: BRIDGE

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