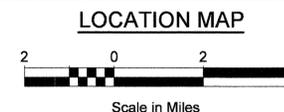
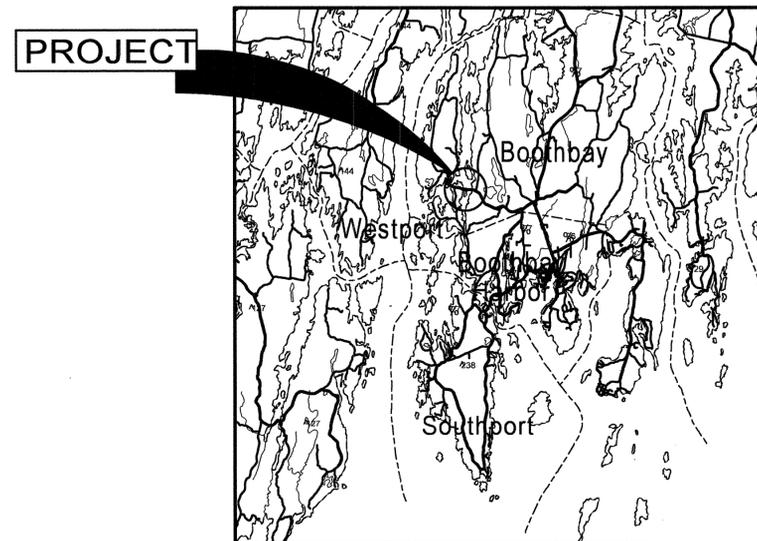


# STATE OF MAINE DEPARTMENT OF TRANSPORTATION



## BOOTHBAY LINCOLN COUNTY KNICKERBOCKER BRIDGE OVER BACK RIVER BARTERS ISLAND ROAD STATE PROJECT NO. 12630.00 PROJECT LENGTH 0.28 mi. BRIDGE REPLACEMENT BRIDGE NO. 2438



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### SPECIFICATIONS

Design: AASHTO LRFD Bridge Design Specifications, Fourth Edition 2007 and Interim Specifications through 2008.

### DESIGN LOADING

Live Load ..... HL - 93 Modified

### TRAFFIC DATA

Current (2005) AADT	1550
Future (2025) AADT	2020
DHV - % of AADT	14
Design Hour Volume	283
% Heavy Trucks (AADT)	8
% Heavy Trucks (DHV)	6
Directional Distribution (DHV)	60
18 kip Equivalent P 2.0	43
18 kip Equivalent P 2.5	43
Design Speed (mph)	40

### HYDROLOGIC DATA

Mean Higher High Water (MHHW)	5.24 ft
Mean High Water (MHW)	4.05 ft
Mean Tide Level (MTL)	-0.35 ft
Mean Low Water (MLW)	-4.75 ft
Mean Lower Low Water (MLLW)	-5.48 ft

### MATERIALS

Concrete (Unless noted otherwise)	Class "A"
Concrete (Curbs, Sidewalks & Transition Barriers)	Class "LP"
Concrete (Seal)	Class "S"
Reinforcing Steel	ASTM A615/A615M, Grade 60
Structural Steel:	
All Material (except as noted)	ASTM A709/A709M, Grade 50W
High Strength Bolts	ASTM A325, Type 3
Prestressing Strand	AASHTO 203 (ASTM A416), Grade 270, Low Relaxation

### BASIC DESIGN STRESSES

Concrete	$f'c = 4,350$ psi
Reinforcing Steel	$f_y = 60,000$ psi
Structural Steel:	
ASTM A 709/A 709M, Grade 50W	$F_y = 50,000$ psi
ASTM A 709/A 709M, Grade 36	$F_y = 36,000$ psi
ASTM A 325	$F_u = 120,000$ psi
Prestressing Strand	$F_u = 270,000$ psi

### UTILITIES

Central Maine Power Company Time/Warner Cable  
Boothbay Region Water District  
Northern New England Telephone Operations, LLC.

### MAINTENANCE OF TRAFFIC

Traffic will be maintained on the existing bridge while a new bridge is being built parallel to the existing bridge except for limited road closures as specified in the Special Provisions. During periods of limited road closure, an off-site detour will be provided.



The seal above is applicable to the Hybrid-Composite Beams as depicted on sheets 34-38.

The LRFD Load Rating Factor for the HCB superstructure is RF=2.63. This is based on load testing to failure of a prototype beam spanning 68'-4" in a simply supported condition. The calculation was performed using the AASHTO Manual for Bridge Evaluation, First Edition, 2008.

STATE OF MAINE	DEPARTMENT OF TRANSPORTATION	DATE	6/11/09
	APPROVED	COMMISSIONER	John D. Doherty
		CHIEF ENGINEER	John Doherty

STATE OF MAINE	ERIK CALDERWOOD	PROFESSIONAL ENGINEER	No. 9099
SIGNATURE	9099	P.E. NUMBER	5/27/09
		DATE	

PROGRAM	BRIDGE	PROJECT MANAGER	MATE BENOIT	DESIGNER	CALDERWOOD ENGINEERING	PROJECT RESIDENT	STEVE PALMER	CONTRACTOR		PROJECT COMPLETION DATE	
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PIN 12630.00

BR-1263(000)X

BOOTHBAY  
KNICKERBOCKER BRIDGE  
TITLE SHEET

SHEET NUMBER  
**1**  
OF 51

Date: \$date\$  
Username: BAUGHMMD  
Division: \$wkgroup\$  
Filename: \$file\$

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	QUANTITY	UNIT
202.19	REMOVING EXISTING BRIDGE (250 CY)	1	LS
203.20	COMMON EXCAVATION	3000	CY
203.21	ROCK EXCAVATION	90	CY
203.2318	DISPOSAL OF SPECIAL WASTE	2	T
203.24	COMMON BORROW	1400	CY
203.25	GRANULAR BORROW	210	CY
206.082	STR EA EXC-MAJOR STRUCTURES	50	CY
206.092	STR RK EXC-MAJOR STRUCTURES	90	CY
304.10	AGGR SUBB COURSE - GRAVEL	3810	CY
403.209	HOT MIX ASPHALT 9.5 MM HMA (INCID.)	20	T
403.210	HOT MIX ASPHALT 9.5 MM HMA	1500	T
409.15	BITUMINOUS TACK COAT APPLIED	270	G
501.231	DYNAMIC LOADING TEST	7	EA
501.70	STEEL PIPE PILES-, DELIVERED - 24" DIA	1500	LF
501.70	STEEL PIPE PILES-, DELIVERED - 26" DIA	1000	LF
501.701	STEEL PIPE PILES, IN PLACE - 24" DIA	1500	LF
501.701	STEEL PIPE PILES, IN PLACE - 26" DIA	1000	LF
501.803	EXPLORATORY DRILLING	270	LF
501.90	PILE TIPS	40	EA
501.91	PILE SPLICES	40	EA
501.92	PILE DRIVING EQUIPMENT MOBILIZATION	1	LS
502.21	STR CONC ABUT & RET WALL	130	CY
502.22	STR CONC ABUT & RET WALL (PLACED UNDERWATER)	120	CY
502.239	STR CONC PIERS (125 CY)	1	LS
502.25	STR CONC SUPERSTR SLAB (470 CY)	1	LS
502.31	STRUCT. CONC APPROACH SLAB (12 CY)	1	LS
502.49	STRUCT. CONC. CURBS AND SW (65 CY)	1	LS
502.56	CONCRETE FILL	50	CY
503.14	EPOXY COAT REIN STEEL FAB&DEL	34,400	LB
503.15	EPOXY COAT REIN STEEL PLACED	34,400	LB
504.905	ROCK ANCHORS (25 LF)	1	LS
506.9106	FUSION BONDED EPOXY	1	LS
507.0831	STEEL BR RAIL, 4 BAR (1090 LF)	1	LS
508.13	MEMBRANE WATERPROOFING (1740 LF)	1	LS
509.72	COMPOSITE BEAM - INSTALLATION ONLY (64 EA)	1	LS
511.07	COFFERDAM; ABUTMENT NO.2	1	LS
512.081	FRENCH DRAINS (44 LF)	1	LS
514.06	CURING BOX FOR CONC CYL	1	EA
515.21	PROTECTIVE COAT FOR CONC SUR (510 SY)	1	LS
520.21	EXPANSION DEVICE - GLAND SEAL	1	EA
520.22	EXPANSION DEVICE - COMPRESSION SEAL	1	EA
523.52	BEARING INSTALLATION	128	EA
523.5402	LAMINATED ELASTOMERIC BEARINGS, EXPANSION	128	EA
526.301	TEMPORARY CONC BARRIER TYPE 1 (100 LF)	1	LS
526.34	PERMANANT CONCRETE TRANSITION BARRIER	4	EA
606.1721	BRIDGE TRANSITION - TYPE 1	4	EA
606.23	GR TY 3C - SINGLE RAIL	725	LF
606.231	GR TY 3C - 15 FOOT RADIUS AND LESS	25	LF
606.265	TERM END- SGL RAIL- GALV STEEL	1	EA
606.353	REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	16	EA
606.79	GUARDRAIL 350 FLARED TERMINAL	7	EA
609.31	CURB TYPE 3	670	LF
609.34	CURB TYPE 5	185	LF
609.35	CURB TYPE 5 - CIRCULAR	50	LF
610.08	PLAIN RIPRAP	220	CY
610.16	HEAVY RIPRAP	840	CY
613.319	EROSION CONTROL BLANKET	500	SY
615.07	LOAM	140	CY
618.1401	SEEDING METHOD NUMBER 2 - PLAN QUANTITY	22	UN
619.1201	MULCH - PLAN QUANTITY	22	UN
619.1401	EROSION CONTROL MIX	270	CY
627.733	WH OR YELL PAINT PVMT MARKING LINE	4800	LF
629.05	HAND LABOR, STRAIGHT TIME	40	HR
631.12	ALL-PURPOSE EXC (INC OPERATOR)	20	HR
631.15	ROLLER EARTH BASE CRS (INC OP)	20	HR
631.171	TRUCK-SMALL (INC OPERATOR)	20	HR
635.31	PRECAST CONCRETE BLOCK GRAVITY WALL	2400	SF
635.40	PRECAST AGGREGATE-FILLED CONCRETE BLOCK GRAVITY WALL	2400	SF
639.18	FIELD OFFICE TYPE A	1	EA
652.35	CONSTRUCTION SIGNS	300	SF
652.39	WORK ZONE TRAFFIC CONTROL	1	LS
655.50	CATHODIC PROTECTION SYSTEM	1	LS
656.75	TEMP. SOIL EROS. AND WATER POLL. CONTROL	1	LS
659.10	MOBILIZATION	1	LS
853.16	BOAT RAMP PLANKS	30	EA
890.01	SPECIAL WORK NO. 1	1	LS

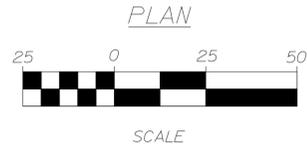
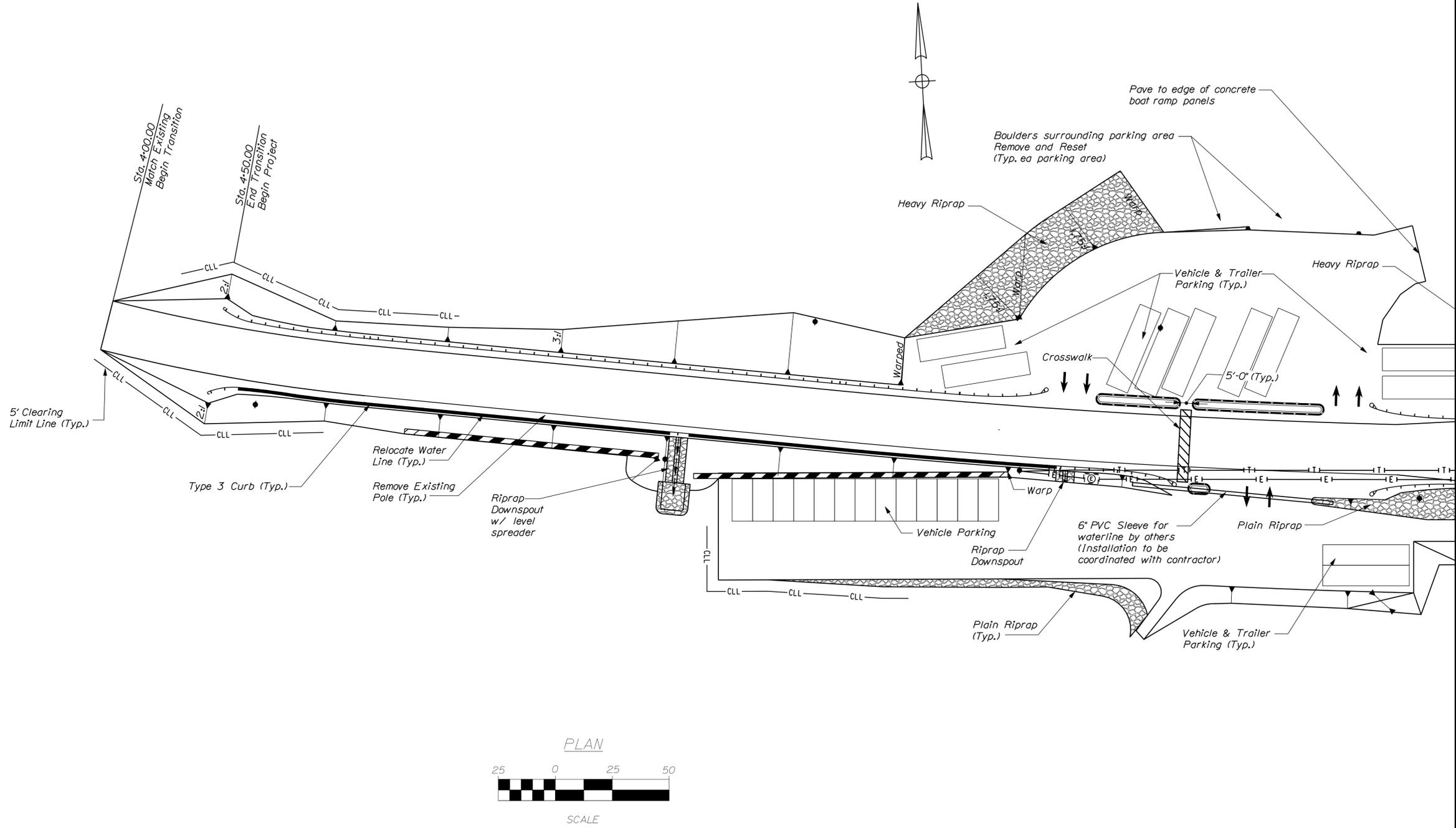
**GENERAL CONSTRUCTION NOTES**

- All Utility Facilities shall be adjusted by the respective Utilities unless otherwise noted.
- For Easements, Construction Limits, and Right-Of-Way lines, refer to Right of Way Map.
- Place a 2' wide strip of Temporary Erosion Control Blanket on the side slopes along the top of the Riprap, behind the Wingwalls and Headwalls.
- All Embankment Material, except as otherwise shown, placed below Elevation 6.00, shall be Granular Borrow meeting the requirements of Subsection 703.19, Material for Underwater Backfill.
- The Clearing Limits as shown on the plans are approximate. The exact limits shall be established in the field by the Resident. Payment for clearing will be incidental to related Contract items.
- Place Loam 2" deep on slopes between Station 4+00 and Station 20+00, unless noted otherwise
- Do not excavate for Aggregate Subbase Course where Existing Material is suitable as determined by the Resident.
- 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" or less thick will be made under appropriate Equipment rental items.
- Stones which cannot be rolled or compacted into the surface of the Shoulder shall be removed by Hand Raking. Payment for Hand Raking will be considered incidental to Item 304.10, Aggregate Subbase Course - Gravel.
- Guardrail 350 Flared Terminals shall be installed concurrently with the placement of each section of Beam Guardrail.
- Extended-use Erosion Control Blanket, Seeded Gutters, Riprap Downspouts, and other Gutters lined with Stone Ditch protection 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 appropriate Contract items.
- Protective Coating for Concrete Surfaces shall be applied to the following areas:  
All exposed Surfaces of Concrete Curbs,  
Fascia down to Drip Notch,  
All exposed Surfaces of Concrete Transition Barriers,  
Top of Abutment Backwalls and to 1' below the top of Backwalls on the back side.
- With the approval of the Resident, 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 Specification 619, Mulch. Payment will be made under Item 619.1401 Erosion Control Mix.
- Project information referred to below may be accessed at the following MaineDOT web address: <http://www.maine.gov/mdot/comprehensive-list-projects/project-information.php>.
- 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.
- The project geotechnical report titled: Geotechnical Design for the Replacement of Knickerbocker Bridge over Back River, Boothbay, Maine; MaineDOT Soils Report No. 2008-02, February 2008, may be accessed at the MaineDOT web address.
- Geotechnical Information furnished or referred to in this plan set is for the Bidder's and Contractor's use. No assurance is given that the information or interpretations will be representative of actual subsurface conditions at the time of construction. The Department shall not be responsible for the Bidder's and 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 boring locations.
- Existing boulders surrounding boat launches and parking areas shall be salvaged and reset around parking areas once final paving is complete. Boulders shall be placed at a maximum 4 feet between boulders. Only boulders measuring approx 3 feet or more in diameter shall be used. Handling and setting of boulders shall be considered incidental to related contract items. No separate payment shall be made.
- After new roadway is open, remove existing pavement from discontinued roadway. Payment shall be made under Item No. 203.20, Common Excavation. Discontinued roadway shall receive 2" of Loam and Seed as directed by the Resident.

**GENERAL CONSTRUCTION NOTES - CONT'D**

- The existing bridge shall be removed by and become the property of the Contractor. The existing bridge is constructed of timber treated with creosote, pentachlorophenol and/or CCA. The steel portions of the existing bridge are coated with a lead based paint system. The Contractor is responsible for the containment, proper management and disposal of all treated timber and lead-contaminated hazardous waste generated by the demolition of existing bridge. The Contractor is responsible for implementing appropriate OSHA mandated personal protection standards related to this process. Once the existing bridge is removed, the Contractor is solely responsible for the care, custody and control of the components of the existing bridge and any hazardous waste generated as a result of the storage, recycling or disposal of the bridge components, including treated timber. The Contractor shall dispose of all components in accordance with all applicable local, state, and federal regulations. Payment for all labor, materials, equipment and other costs required to remove and dispose of the existing bridge will be considered incidental to the bridge removal pay item.
- The existing bridge shall be removed in its entirety except existing timber piles between Station 13+16 to Sta. 15+00 shall be removed to a point 2' below streambed.
- A 4" φ above-ground seasonal waterline is in-place through the limits of the project. The Contractor shall take care to not damage waterline during the construction of the project. Work will be performed on the waterline by it's owner and is to be coordinated with the contractor. The existing seasonal waterline shall remain in use until the new seasonal waterline has been activated.
- Existing guard rail to be removed including all components and bridge transitions shall remain the property of the Department and shall be removed, loaded, transported and unloaded at the MDOT Maintenance Lot on Route 17 in Washington. All costs associated with the work described above shall be incidental to related contract items. Contact either Steve Baker, Crew Supervisor 2 @ 845-3087 / 462-9068 or Mark Sawyer, Crew Supervisor @ 845-3087 / 592-2148 a minimum of 24 hours in advance of delivery

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		BR-1263(000)X		PIN 12630.00		BRIDGE NO. 2438		BRIDGE PLANS	
KNICKERBOCKER BRIDGE		BACK RIVER		LINCOLN COUNTY		BOOTHBAY		ESTIMATED QUANTITIES		SHEET NUMBER	
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STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
**BR-1263(000)X**

BRIDGE NO. 2438  
PIN  
12630.00  
BRIDGE PLANS

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KNICKERBOCKER BRIDGE  
BACK RIVER  
LINCOLN COUNTY  
BOOTHBAY  
**GENERAL PLAN**

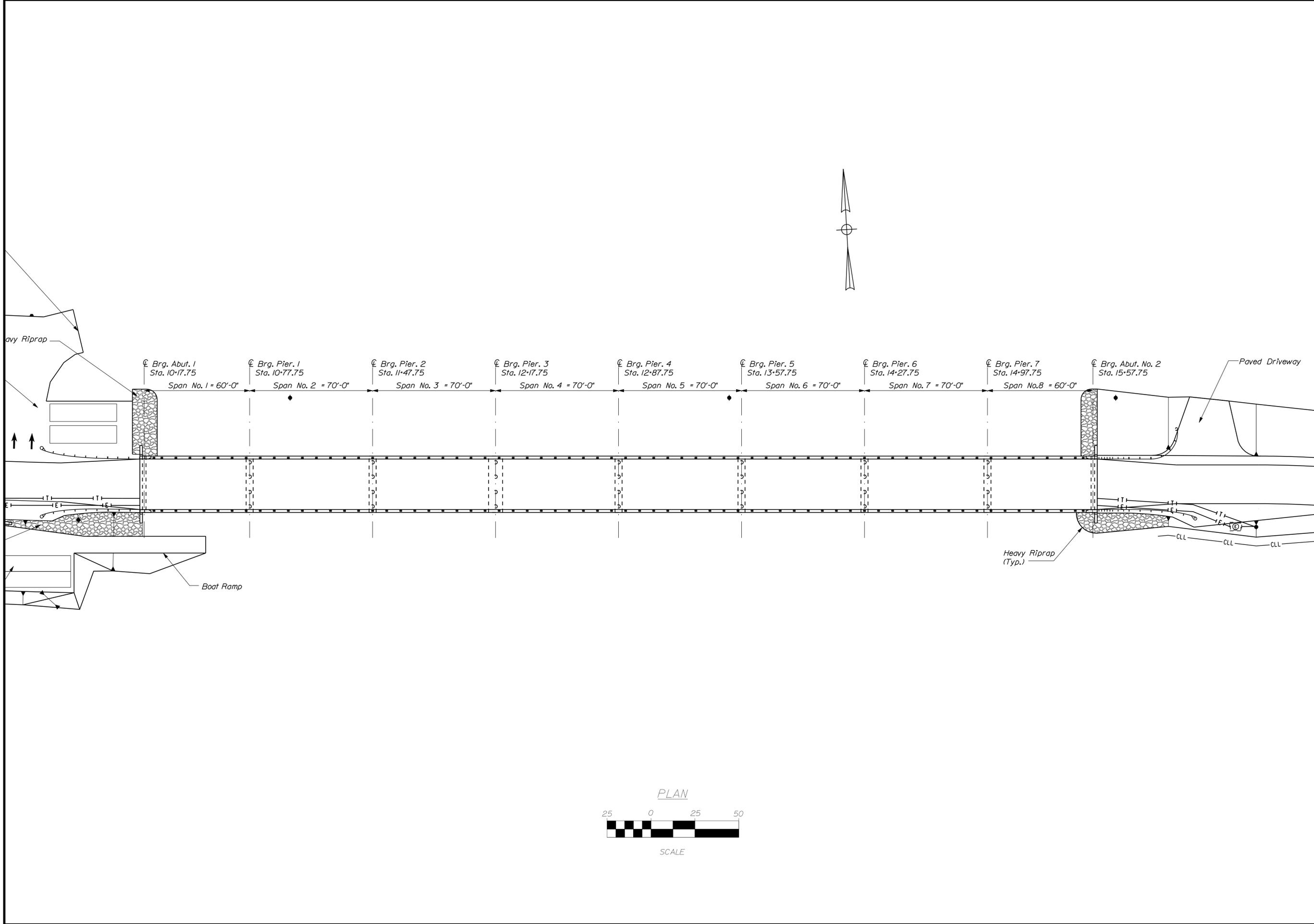
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Date: 11/4/2009

Username: brian.j.nichols

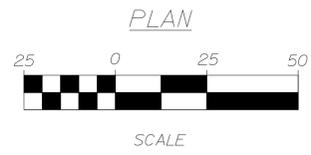
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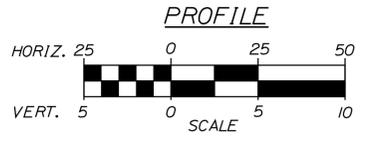
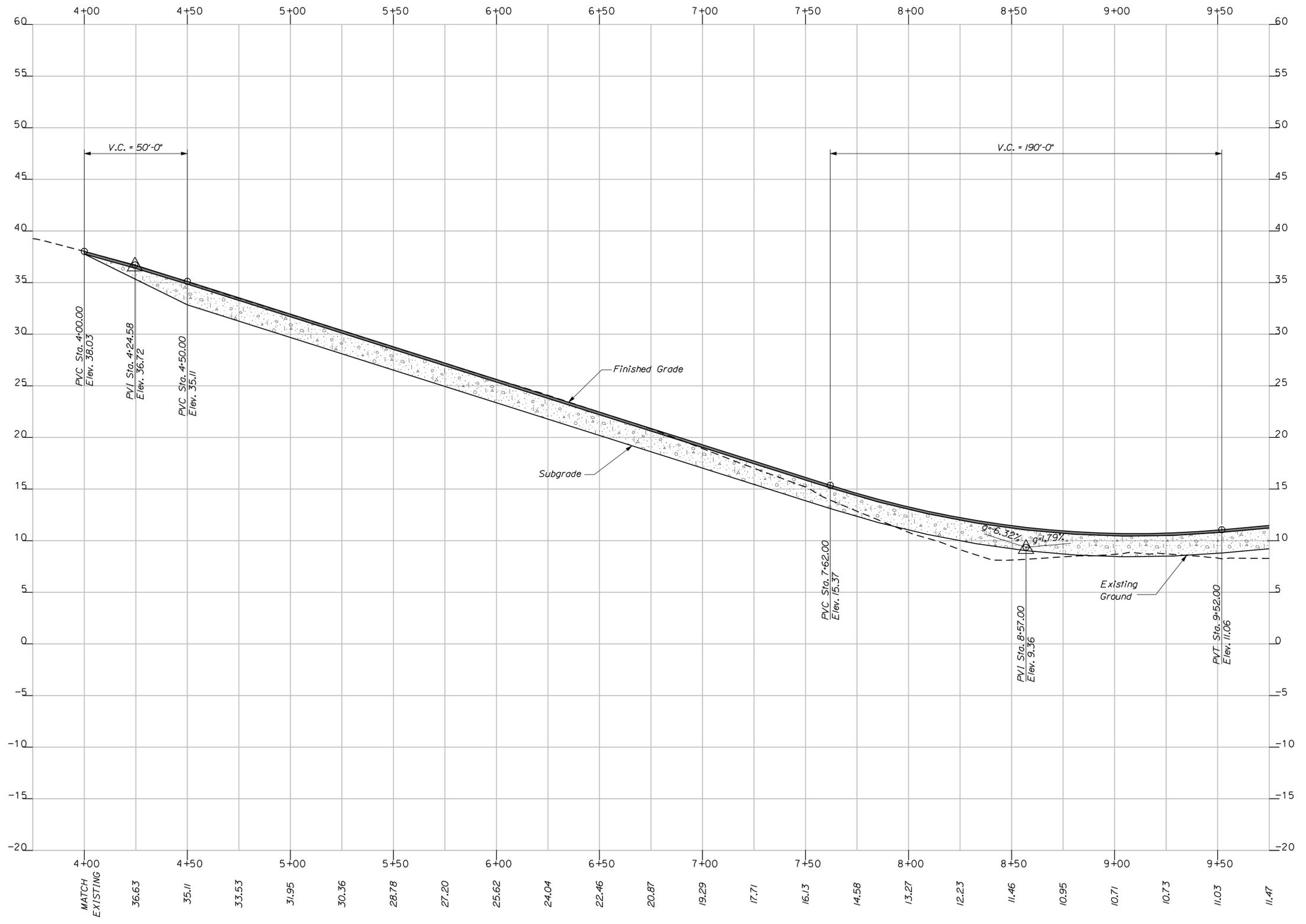


STATE OF MAINE DEPARTMENT OF TRANSPORTATION		BRIDGE NO. 2438		PIN 12630.00		BRIDGE PLANS	
KNICKERBOCKER BRIDGE BACK RIVER BOOTHBAY LINCOLN COUNTY		GENERAL PLAN		SHEET NUMBER <b>4</b>		OF 51	
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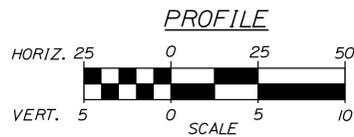
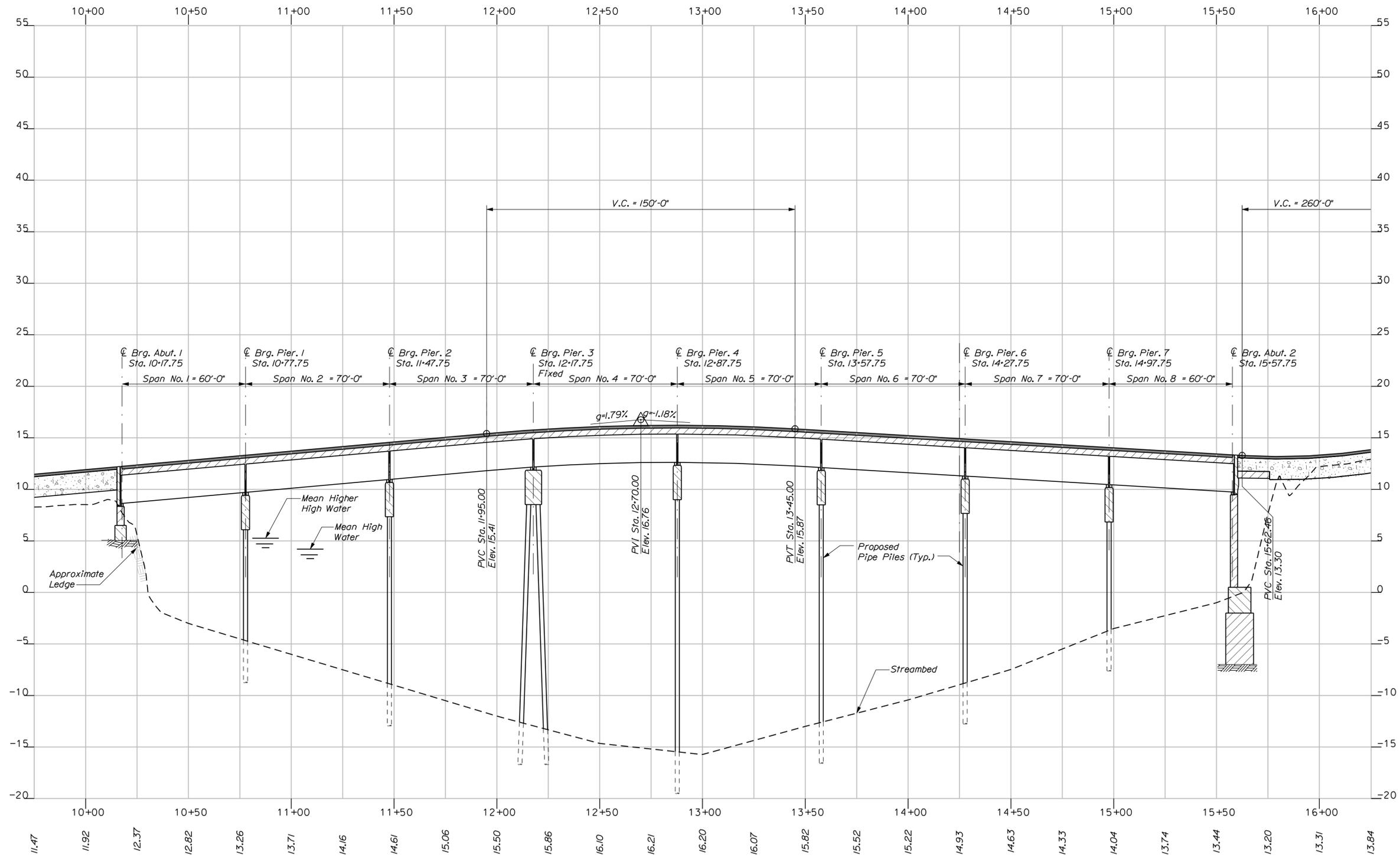
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KNICKERBOCKER BRIDGE BACK RIVER LINCOLN COUNTY BOOTHBAY		STATE OF MAINE DEPARTMENT OF TRANSPORTATION <b>BR-1263(000)X</b>	
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KNICKERBOCKER BRIDGE  
BACK RIVER  
LINCOLN COUNTY  
BOOTHBAY

**PROFILE**

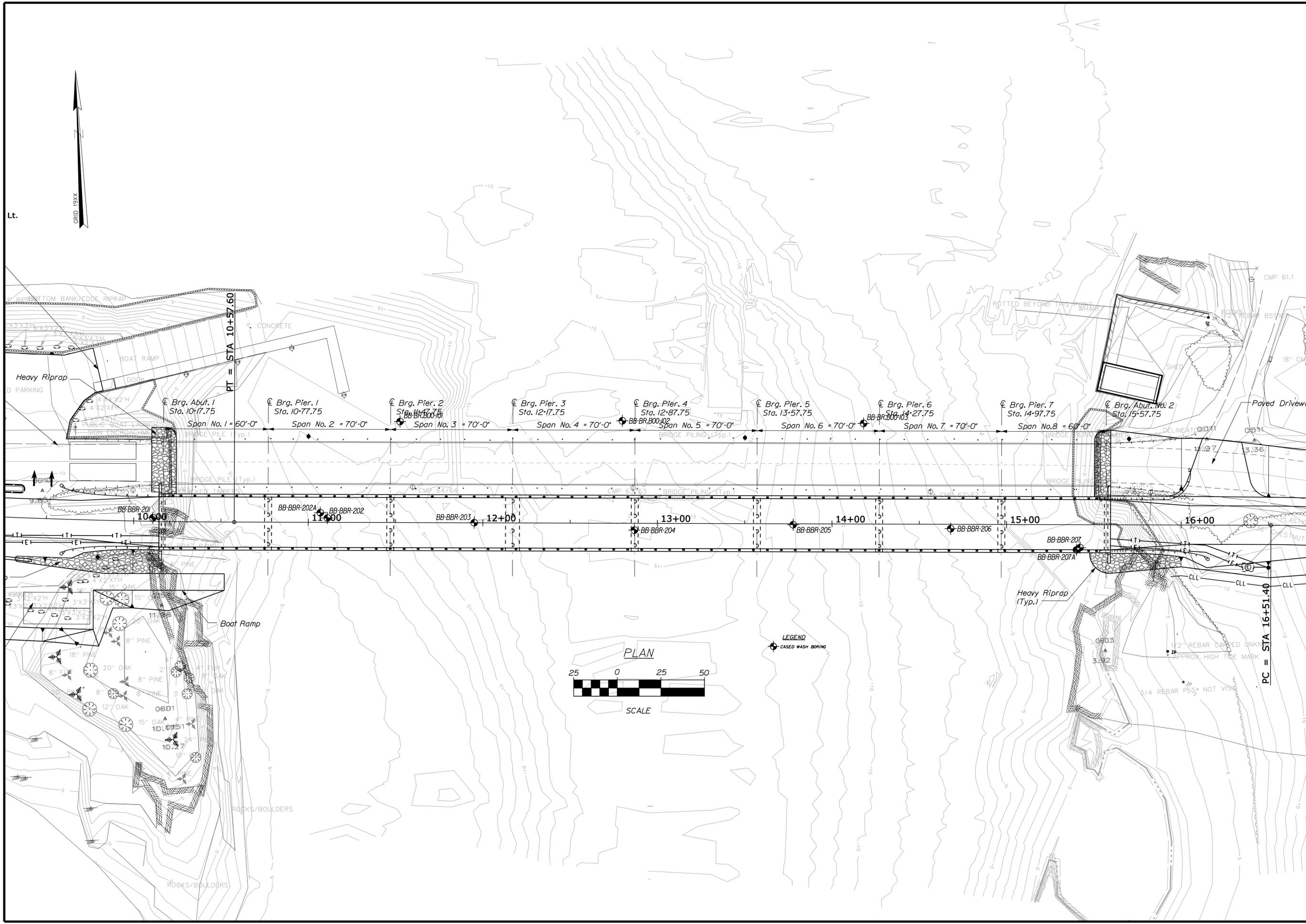
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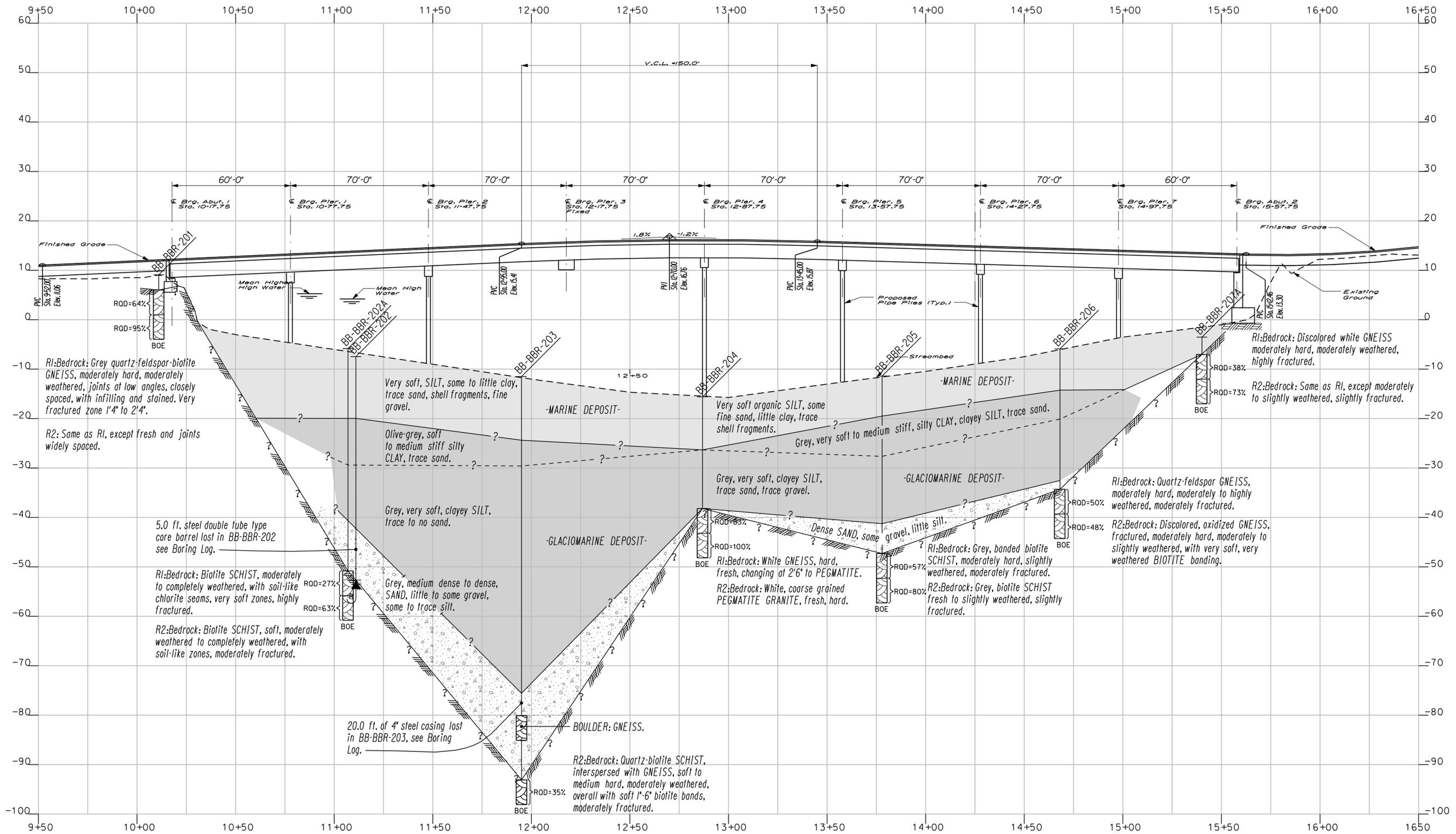
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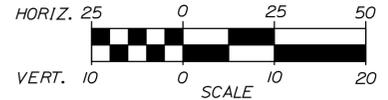
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Division: BRIDGE

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PROFILE



Note: This generalized interpretive soil profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

Borings BB-BR.B00-101, BB-BR.B00-102, BB-BR.B00-103 and BB-BBR-207 are not shown, see Boring Log Sheets.

PROJ. MANAGER	DATE	BY	DATE
W. FRANKHAUSER	FEB 2008	T. WHITE	
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KNICKERBOCKER BRIDGE  
BACK RIVER  
BOOTHBAY LINCOLN COUNTY  
INTERPRETIVE SUBSURFACE PROFILE

SHEET NUMBER

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OF 49

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: Knickerbocker Bridge #2438 over Back River Location: Boothbay, Maine		Boring No.: BB-BRR-201																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Logged By: B. Wilber		Rig Type: CME 45C		Hammer Wt./Fall: CME 340 Auto Hammer/30"																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Date Started/Finished: 9/24/09/12/30/10/00		Drilling Method: Closed Wash Boring		Core Barrels: ND-1-88																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Boring Location: 10411, 2.0' LT.		Casing ID/OD: 4"		Water Level: None Observed																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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<p>Definitions: R = Rock Core Sample S = Split Spoon Sample SA = Solid Stem Auger SA = Hollow Stem Auger SA = Unconfined Compressive Strength Test U = Unconfined Compressive Strength Test W = Water Content Percent M = Unsuccessful Split Spoon Sample Attempt M = Plastic Limit M = Plastic Limit M = Unsuccessful Thin Wall Tube Sample Attempt M = Weight of 140lb. Hammer M = Weight of 140lb. Hammer M = 99% Uncorrected Correction for Hammer Efficiency &amp; Grain Size Analysis M = Unsuccessful In Situ Vane Shear Test Attempt M = Weight of 140lb. Hammer M = 99% Uncorrected Correction for Hammer Efficiency &amp; Grain Size Analysis M = Unsuccessful In Situ Vane Shear Test Attempt M = Weight of 140lb. Hammer M = 99% Uncorrected Correction for Hammer Efficiency &amp; Grain Size Analysis</p>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
<table border="1"> <thead> <tr> <th>Depth (ft.)</th> <th>Pen./Rec. (ft.)</th> <th>Sample Information</th> <th>Visual Description and Remarks</th> <th>Soil Classification</th> <th>Laboratory Testing Results/ASHTO and Unified Class</th> </tr> </thead> <tbody> <tr> <td>0</td> <td></td> <td></td> <td>Brown dry, fine to medium SAND, (topsoil).</td> <td></td> <td></td> </tr> <tr> <td>1</td> <td>60/60</td> <td>3.1 - 8.1 ROD = 64%</td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td></td> <td></td> <td>Top of Bedrock at Elev. 6.2'</td> <td></td> <td></td> </tr> <tr> <td>10</td> <td>60/60</td> <td>8.1 - 13.1 ROD = 95%</td> <td></td> <td></td> <td></td> </tr> <tr> <td>15</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>20</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>25</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>30</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>35</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>40</td> <td></td> <td></td> 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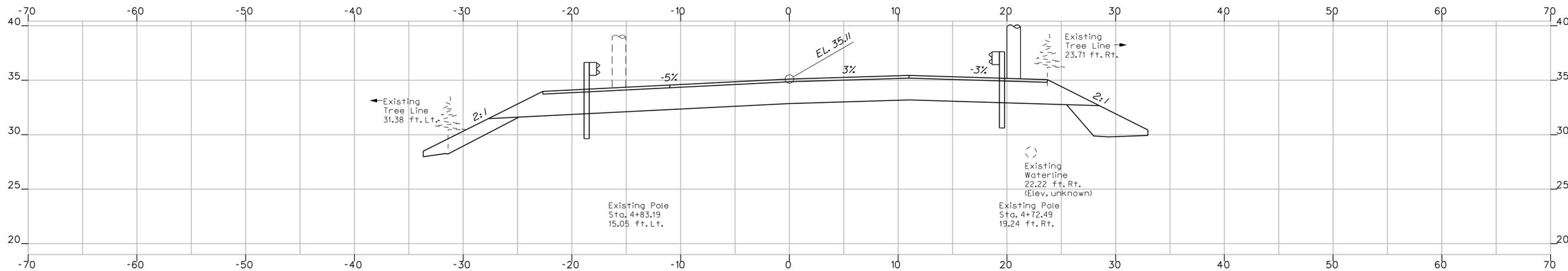


Date: 11/4/2009

Username: brian.j.nichols

Division: BRIDGE

Filename: ... \MSTA\014\_XSMC\0\_dr\_001.dgn



Sta. 4+87.00 to Sta. 7+76.25  
Install 287.5' Type 3c Guardrail

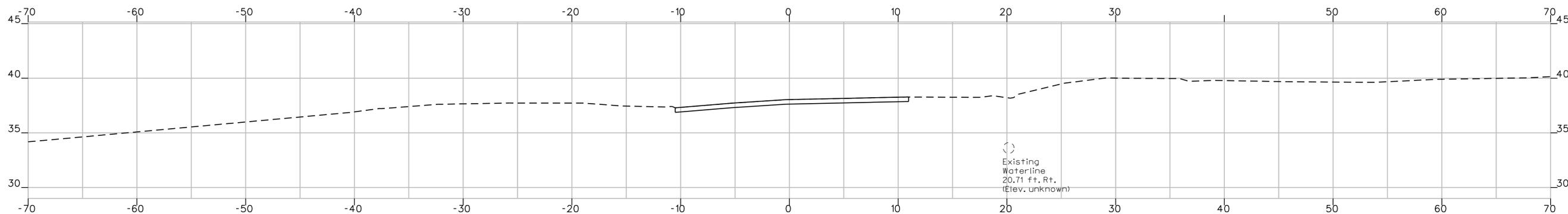
Sta. 4+62.72 to Sta. 6+51.07  
Install 187.3' Type 3 Curb

4+50.00

Begin Project  
End Transition

Sta. 4+86.19 to Sta. 8+35.20  
Install 350 ft. Type 3c Guardrail

Sta. 4+61.58 to Sta. 6+51.07  
Install 190.5' Type 3 Curb  
Sta. 4+70 20' right  
Central Maine Power Co. J/P

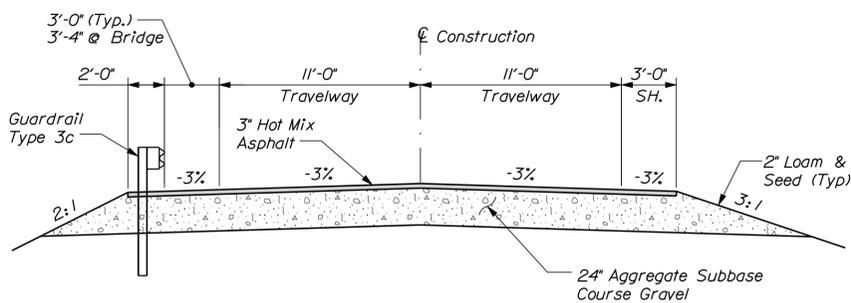


Sta. 4+50.22 to Sta. 4+87.00  
Install Guardrail 350 Flared Terminal

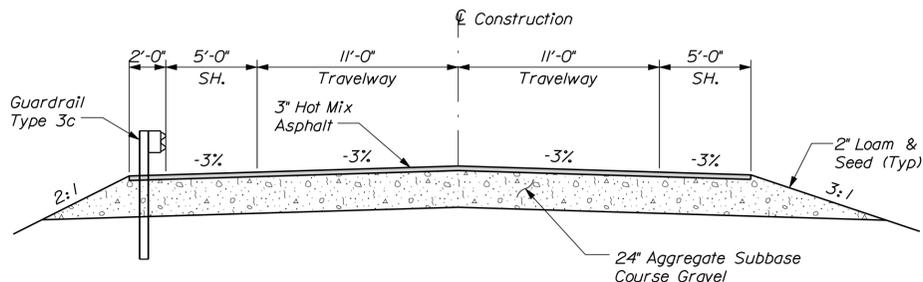
4+00.00

Begin Transition  
Match Existing

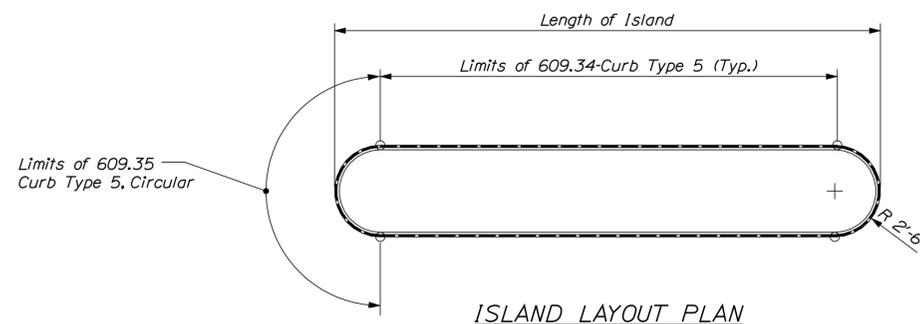
Sta. 4+50.09 to Sta. 4+86.19  
Install Guardrail 350 Flared Terminal



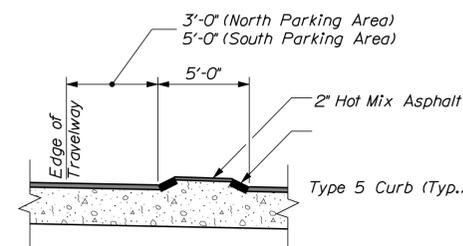
TYPICAL WEST APPROACH SECTION  
From West end of project to 16+00'-/-



TYPICAL EAST APPROACH SECTION  
From 16+00'-/- to East end of project.



ISLAND LAYOUT PLAN



TRAFFIC ISLAND SECTION  
At Boat Ramp Entrances

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
BR-1263(000)X  
PIN 12630.00  
BRIDGE NO. 2438  
BRIDGE PLANS

PROJ. MANAGER	DATE	BY	DATE	SIGNATURE	P.E. NUMBER	DATE
DESIGN DETAILED	FEB 2008	BAN				
CHECKED/REVIEWED		ETC				
DESIGNS DETAILED						
DESIGNS DETAILED						
REVISIONS 1						
REVISIONS 2						
REVISIONS 3						
REVISIONS 4						
FIELD CHANGES						

KNICKERBOCKER BRIDGE  
BACK RIVER  
LINCOLN COUNTY  
BOOTHBAY  
CROSS SECTIONS 4+50.00

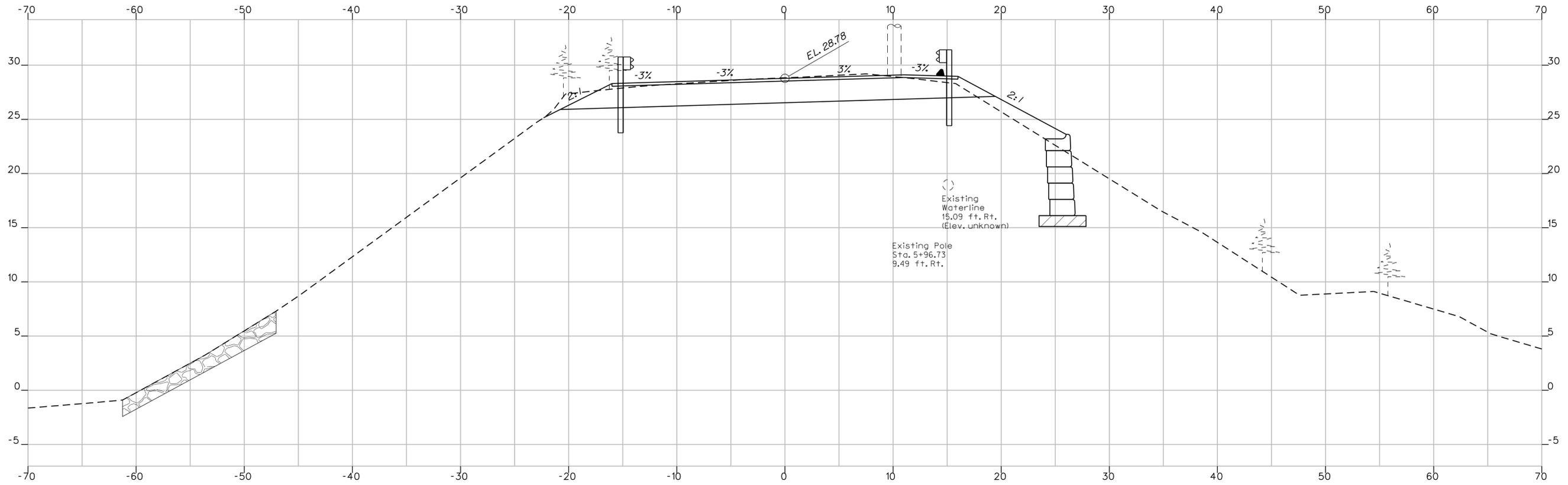
SHEET NUMBER  
**14**  
OF 51

Date: 11/4/2009

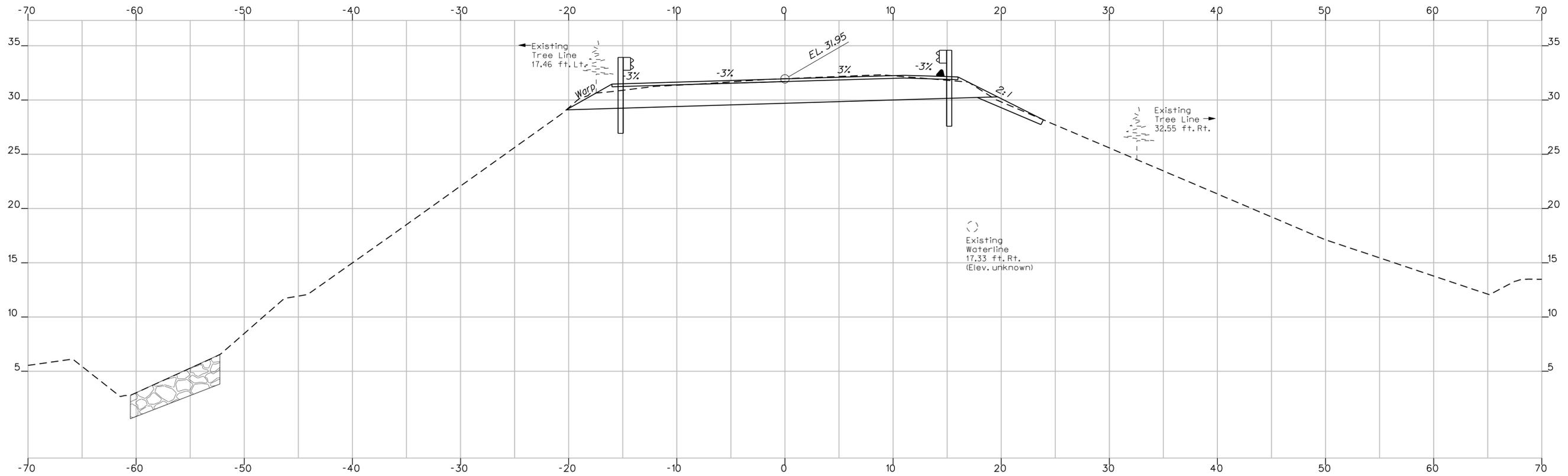
Username: briani\_jnichols

Division: BRIDGE

Filename: ... \MSTA\015\_XSMC\0\_dr\_002.dgn



5+50.00



5+00.00

Sta. 5+35.00  
 Install Retaining Wall  
 112 ft. Length  
 26.00 ft. Rt. for the length of the wall

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
 BR-1263(000)X  
 PIN 12630.00  
 BRIDGE NO. 2438  
 BRIDGE PLANS

DESIGN DETAILED	DATE
CHECKED/REVIEWED	FEB 2008
DESIGNS DETAILED	SIGNATURE
REVISIONS 1	P.E. NUMBER
REVISIONS 2	DATE
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

PROJ. MANAGER  
 KNICKERBOCKER BRIDGE  
 BACK RIVER  
 LINCOLN COUNTY  
 BOOTHBAY

CROSS SECTIONS 5+50.00

SHEET NUMBER

15

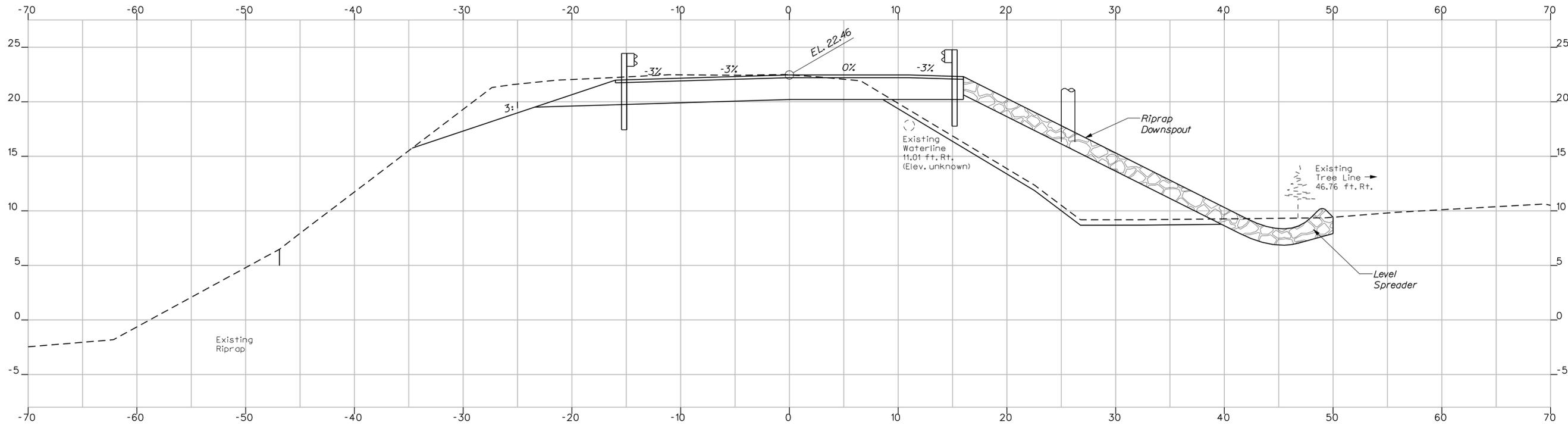
OF 51

Date: 11/4/2009

Username: briani\_jnichols

Division: BRIDGE

Filename: ... \MSTA\016\_XSMC10\_dr\_003.dgn



Sta. 6+59.07 to Sta. 7+76.24  
Install 117.0' Type 3 Curb

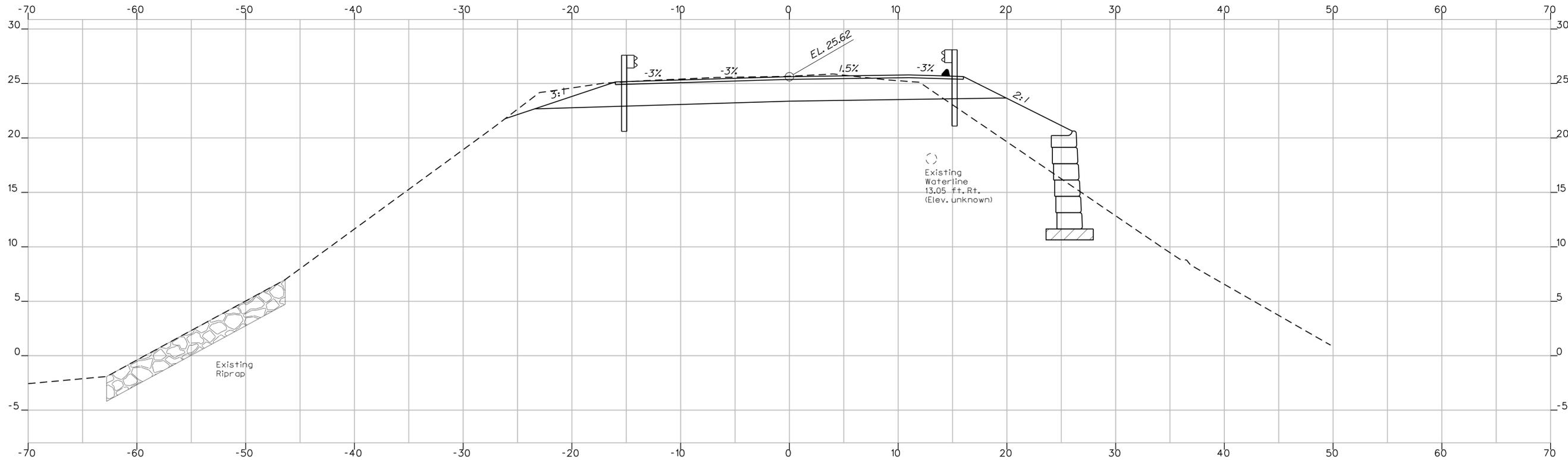
Sta. 6+55 +/-  
Install Riprap Downspout

6+50.00

Sta. 6+59.07 to Sta. 8+21.02  
Install 162.1' Type 3 Curb

Sta. 6+55 +/-  
Install Riprap Downspout

Sta. 6+50 25' right  
Central Maine Power Co. J/P



6+00.00

<b>STATE OF MAINE</b>		<b>DEPARTMENT OF TRANSPORTATION</b>	
<b>BR-1263(000)X</b>		<b>PIN 12630.00</b>	
<b>BRIDGE NO. 2438</b>		<b>BRIDGE PLANS</b>	
	<b>DATE</b>	<b>BY</b>	<b>DATE</b>
DESIGN-REVIEWED	FEB 2008	BIN	SIGNATURE
DESIGNS DETAILED		ETC	P.E. NUMBER
REVISIONS 1			DATE
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			
<b>KNICKERBOCKER BRIDGE</b>			
<b>BACK RIVER</b>			
<b>LINCOLN COUNTY</b>			
<b>BOOTHBAY</b>			
<b>CROSS SECTIONS 6+50.00</b>			
<b>6+00.00</b>			
<b>SHEET NUMBER</b>			
<b>16</b>			
<b>OF 51</b>			

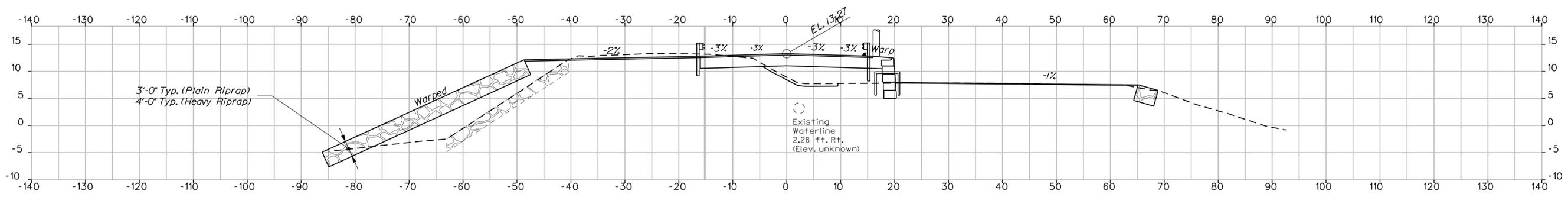


Date: 11/4/2009

Username: briani\_jnichols

Division: BRIDGE

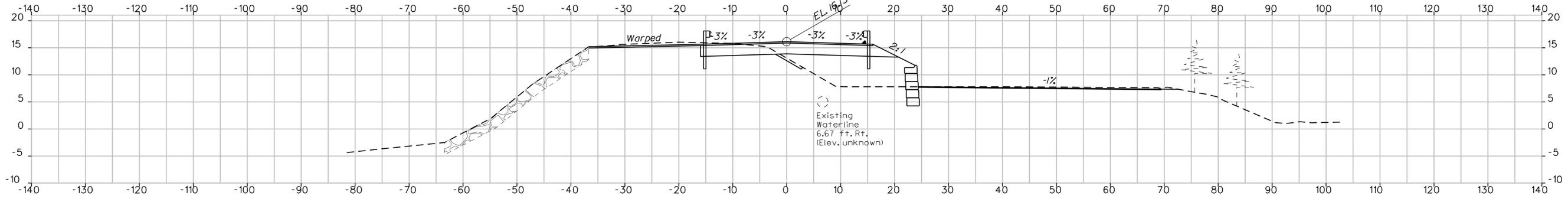
Filename: ... \MSTA\017\_XSMC\0\_dr\_004.dgn



Sta. 8+36.25 to Sta. 8+73.78  
Install 37.35' Island

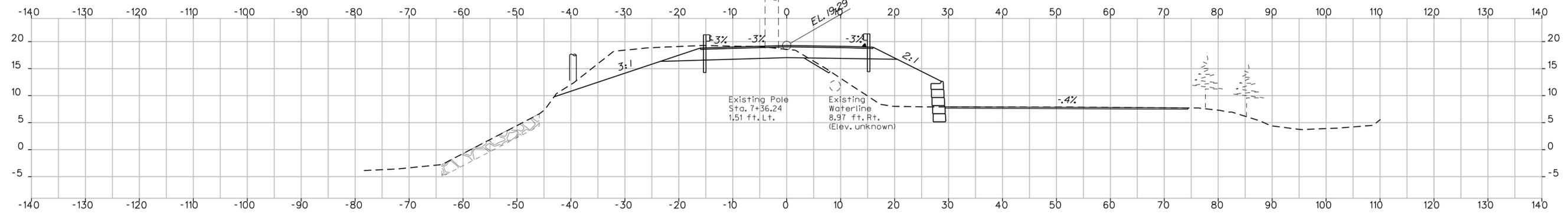
8+00.00

Sta. 8+35.20 to Sta. 8+72.27  
Install Guardrail 350 Flared Terminal  
Sta. 8+23+/-  
Install Riprap Downspout  
Sta. 8+00 16' right  
Central Maine Power Co. J/P  
Sta. 8+40 ±  
Approx 18' rt.  
Install 4'x4'x6'  
Utility Vault



Sta. 7+76.24 to Sta. 8+14.49  
Install Guardrail 350 Flared Terminal

7+50.00



Sta. 7+10 39' Left  
Temporary Utility Poleaaa

7+00.00

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
BR-1263(000)X  
PIN 12630.00  
BRIDGE NO. 2438  
BRIDGE PLANS

PROJ. MANAGER	DATE	BY	NOB	DATE
DESIGN-DETAILED	FEB 2008	BAN	ETC	
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REVISIONS 3				
REVISIONS 4				
FIELD CHANGES				

KNICKERBOCKER BRIDGE  
BACK RIVER  
LINCOLN COUNTY  
BOOTHBAY  
7+00.00  
CROSS SECTIONS  
8+00.00

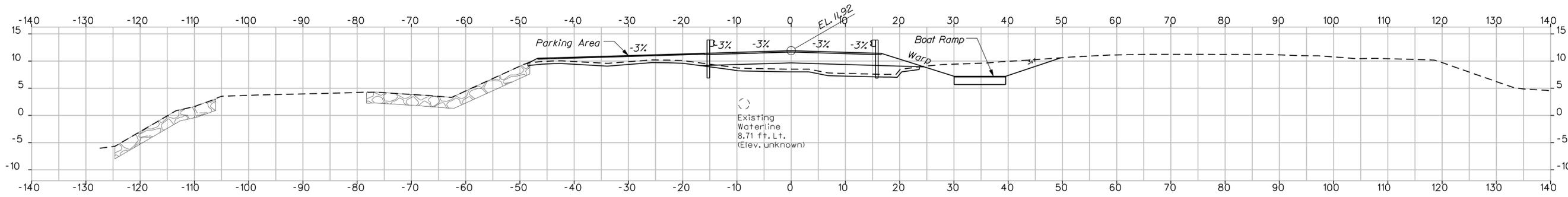
SHEET NUMBER  
17  
OF 51

Date: 11/4/2009

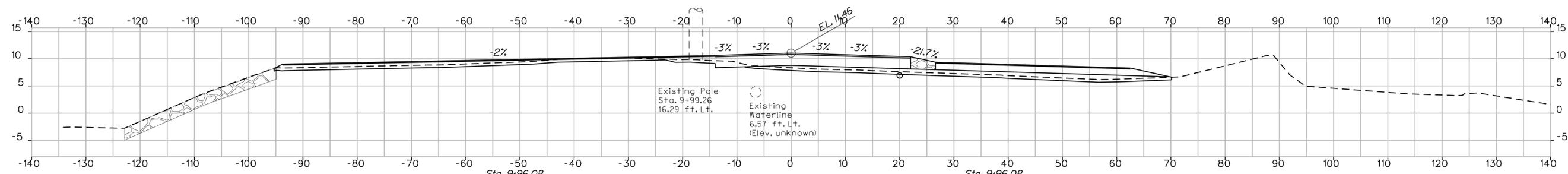
Username: briani.nichols

Division: BRIDGE

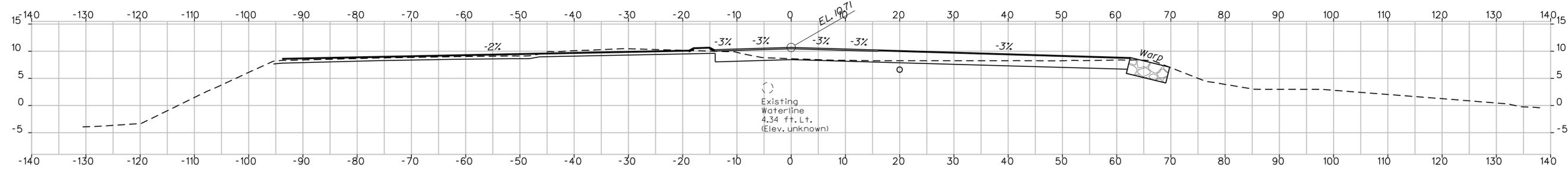
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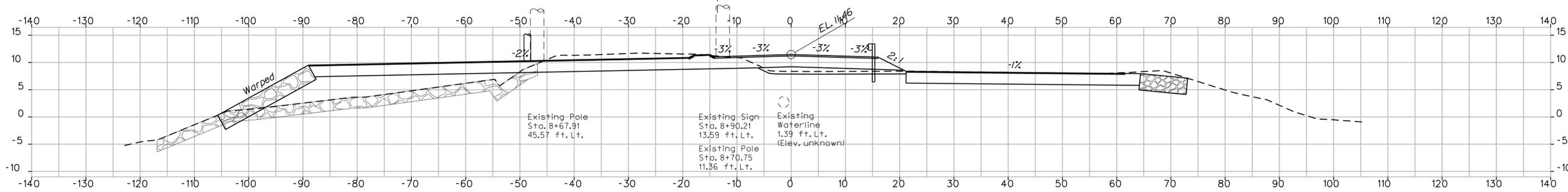
10+00.00  
 Sta. 10+00 20' right  
 Central Maine Power Underground  
 Power Vault



9+50.00  
 Sta. 9+58.66 to Sta. 9+96.08  
 Install Guardrail 350 Flared Terminal  
 Sta. 9+96.08  
 Install Type I Bridge Transition  
 Sta. 9+59.88 to Sta. 9+96.08  
 Install Guardrail 350 Flared Terminal



9+00.00  
 Sta. 9+30.45 to Sta. 9+58.27  
 Install 28' Island



8+50.00  
 Sta. 8+78.80 to Sta. 9+37.17  
 Install 58.37' Island  
 Sta. 8+63 48' left  
 Temporary Utility Pole  
 Sta. 8+78.75 to 8+88.69  
 Install 10' Island  
 Sta. 8+50 +/- to Sta. 9+75 +/-  
 (approx 3' below grade)  
 6" PVC Sleeve for waterline  
 Installation to be by others  
 and coordinated with contractor

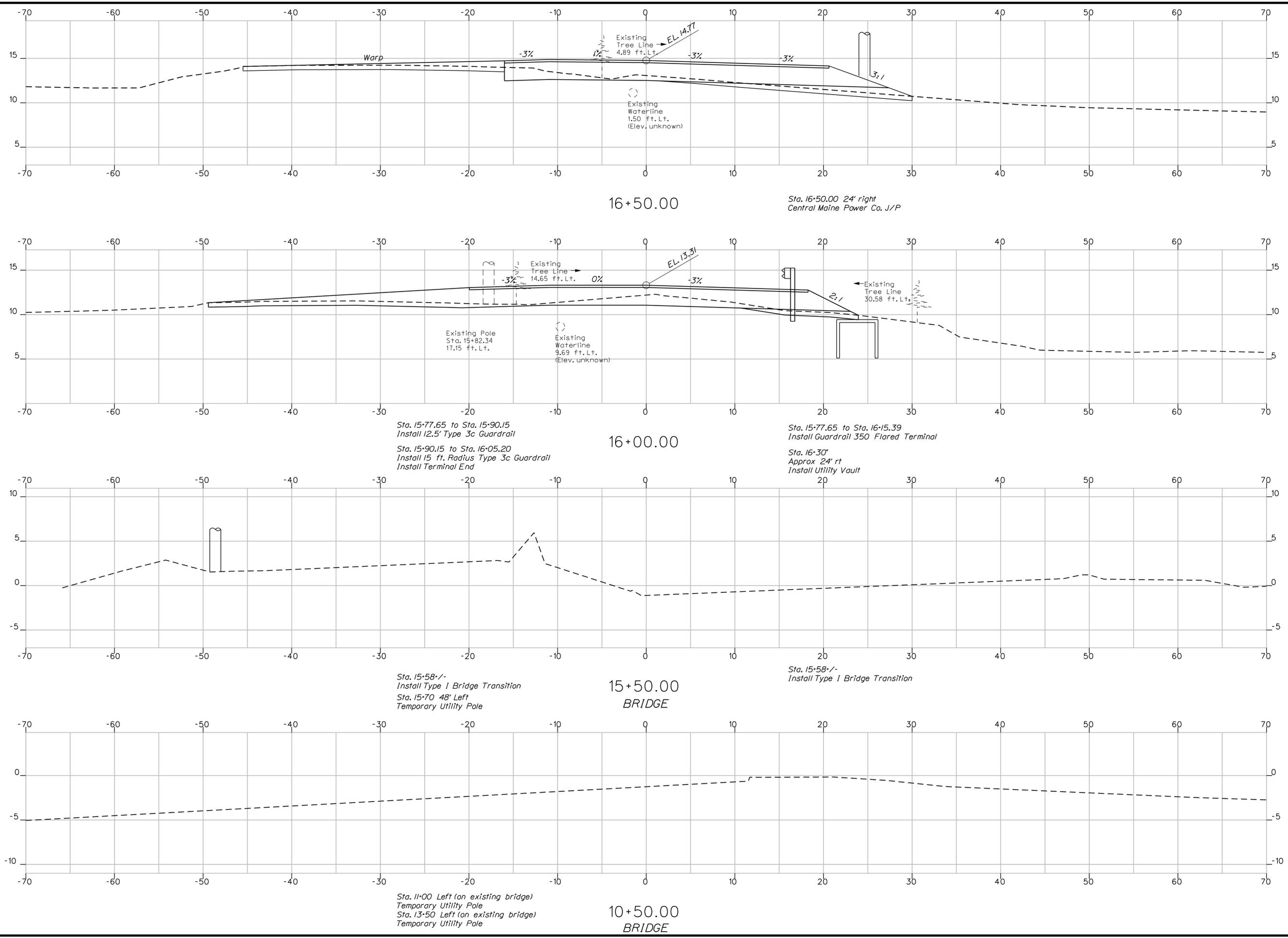
PROJ. MANAGER	DATE	BY	DATE
DESIGN DETAILED	FEB 2008	BAN	
CHECKED-REVIEWED		ETC	
DESIGNS DETAILED			
DESIGNS DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

Date: 11/4/2009

Username: briani.jnichols

Division: BRIDGE

Filename: ... \MSTA\019\_XSMC10\_dr\_006.dgn



<b>STATE OF MAINE</b>		<b>DEPARTMENT OF TRANSPORTATION</b>	
<b>BR-1263(000)X</b>		<b>PIN 12630.00</b>	
<b>BRIDGE NO. 2438</b>		<b>BRIDGE PLANS</b>	

	<b>DATE</b>	<b>BY</b>	<b>DATE</b>
DESIGN/REVIEWED	FEB 2008	BAN	FEB 2008
CHECKED/REVIEWED	ETC	NDB	ETC
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DESIGN/DETAILED	ETC	ETC	ETC
REVISIONS 1	ETC	ETC	ETC
REVISIONS 2	ETC	ETC	ETC
REVISIONS 3	ETC	ETC	ETC
REVISIONS 4	ETC	ETC	ETC
FIELD CHANGES	ETC	ETC	ETC

<b>KNICKERBOCKER BRIDGE</b>	<b>BACK RIVER</b>	<b>LINCOLN COUNTY</b>
<b>BOOTHBAY</b>	<b>10+50.00</b>	<b>CROSS SECTIONS 16+50.00</b>

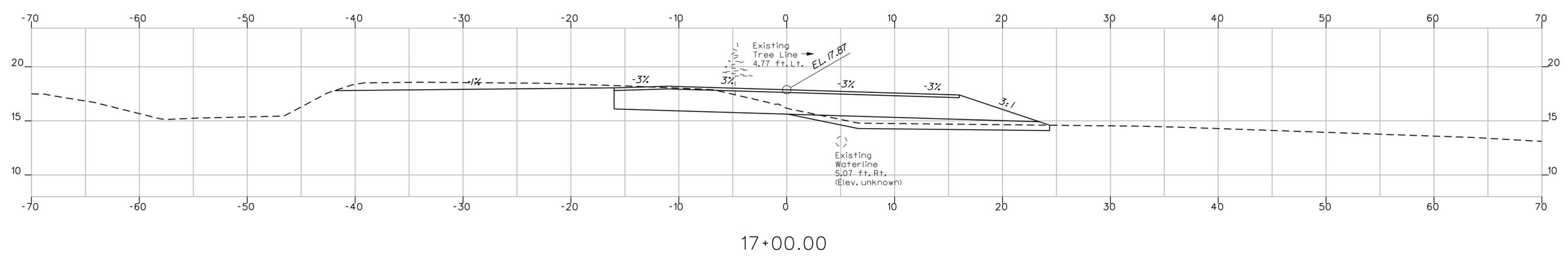
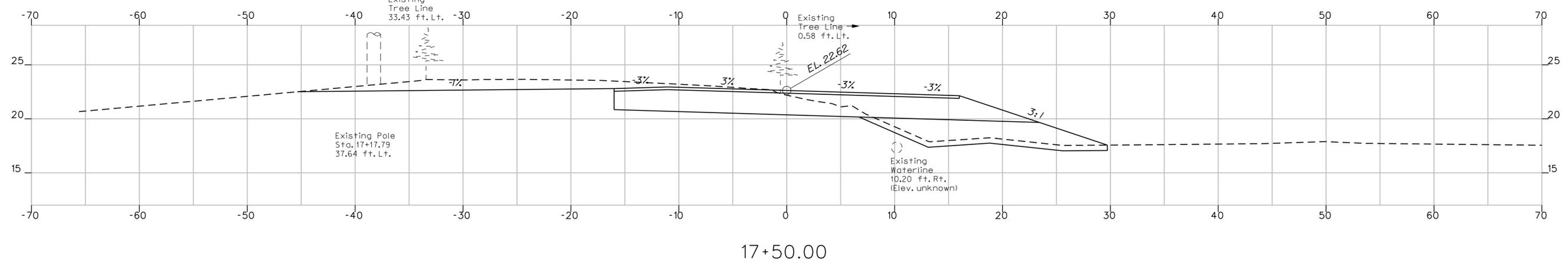
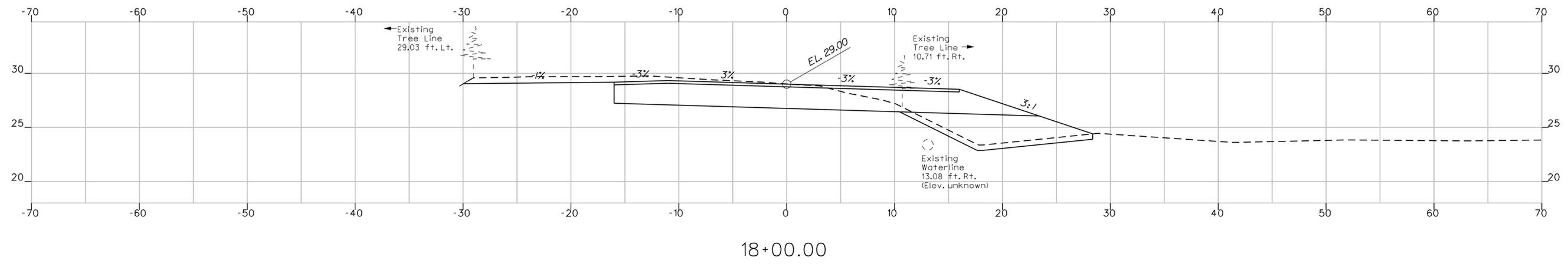
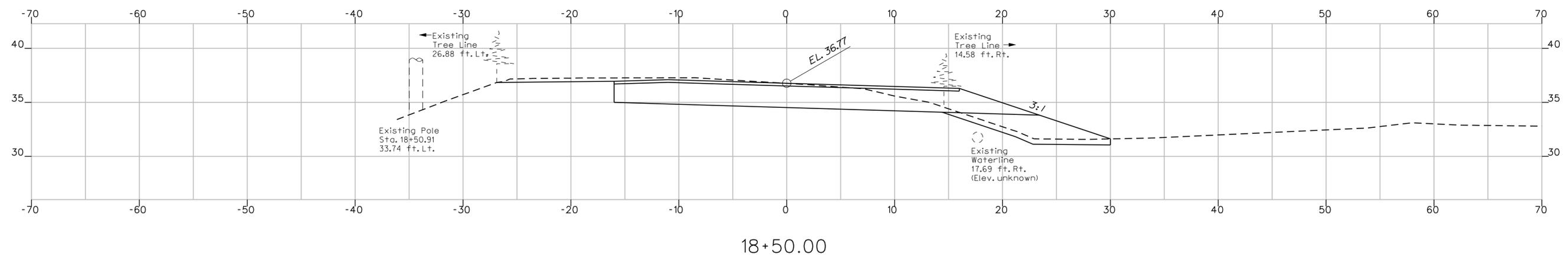
<b>SHEET NUMBER</b>
<b>19</b>
OF 51

Date: 11/4/2009

Username: briani\_jnichols

Division: BRIDGE

Filename: ... \MSTA\020\_XSMC\0\_dr\_007.dgn



STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
**BR-1263(000)X**  
BRIDGE NO. 2498  
PIN 12630.00  
BRIDGE PLANS

PROJ. MANAGER	DATE	BY	NO.	DESCRIPTION
CHECKED-REVIEWED	FEB 2008	BAN		SIGNATURE
DESIGNS DETAILED				P.E. NUMBER
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REVISIONS 4				
FIELD CHANGES				

KNICKERBOCKER BRIDGE  
BACK RIVER  
LINCOLN COUNTY  
BOOTHBAY  
17+00.00 CROSS SECTIONS 18+50.00

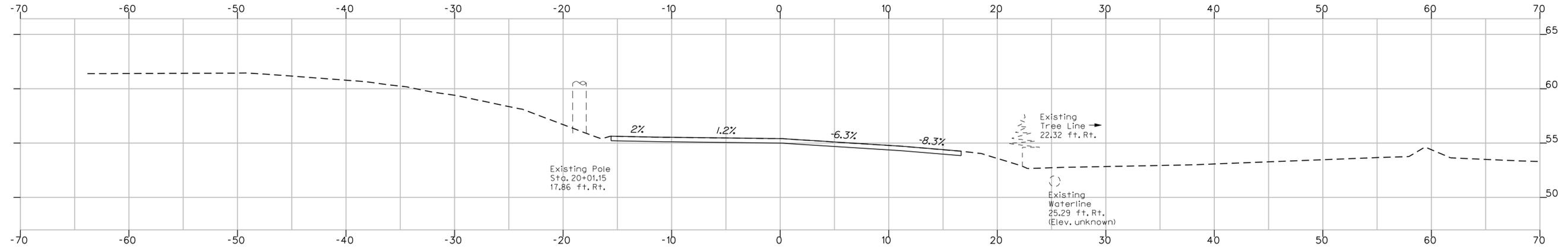
SHEET NUMBER  
**20**  
OF 51

Date: 11/4/2009

Username: brian.j.nichols

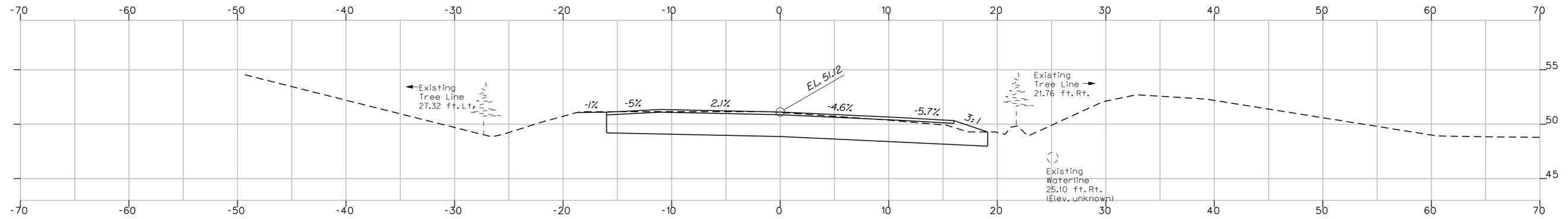
Division: BRIDGE

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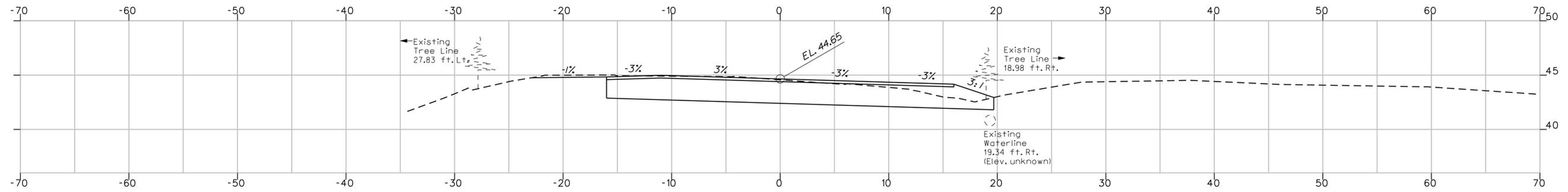
20+00.00

End Transition  
Match Existing



19+50.00

End Project  
Begin Transition



19+00.00

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
BR-1263(000)X  
PIN 12630.00  
BRIDGE NO. 2438  
BRIDGE PLANS

PROJ. MANAGER	DATE	SIGNATURE
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FIELD CHANGES		

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KNICKERBOCKER BRIDGE  
BACK RIVER  
LINCOLN COUNTY  
BOOTHBAY  
19+00.00 CROSS SECTIONS 20+00.00

SHEET NUMBER

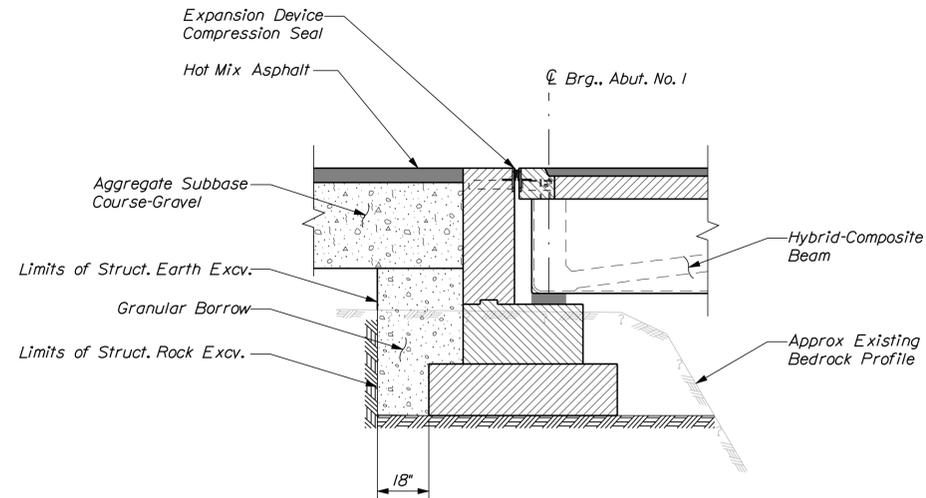
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OF 51

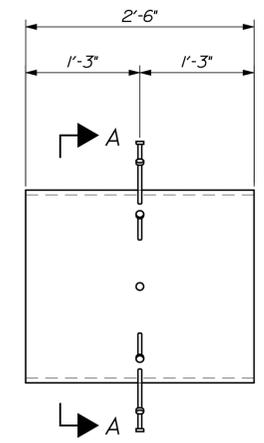
Date: 11/4/2009

Username: briant.jrichols

Filename: ... \022\_Abutment\_TYPICAL\_DETAILS.dgn Division: BRIDGE



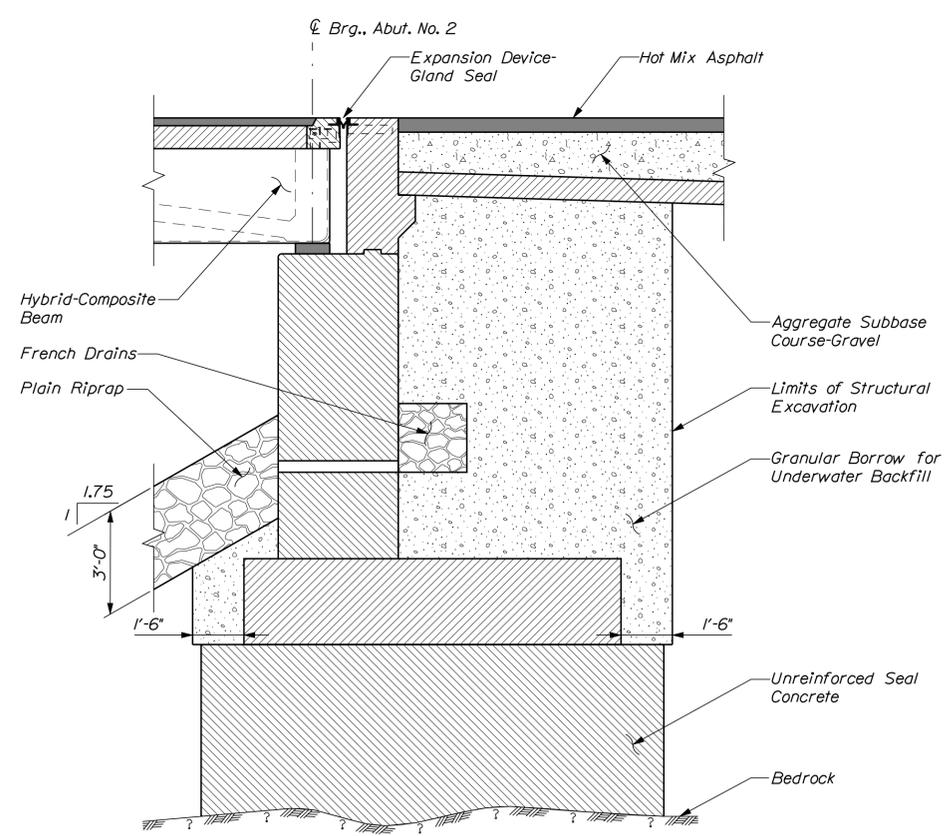
ABUTMENT NO. 1 SECTION



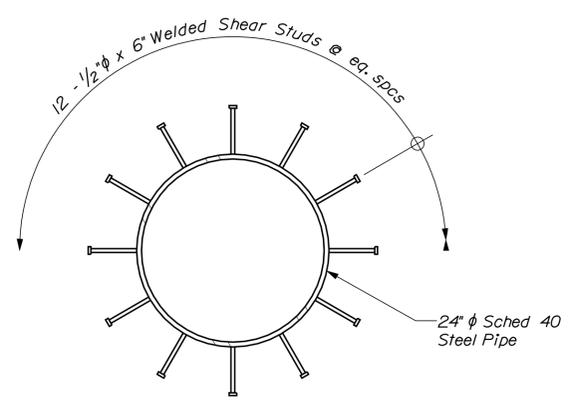
WATERLINE SLEEVE

**ABUTMENT NOTES**

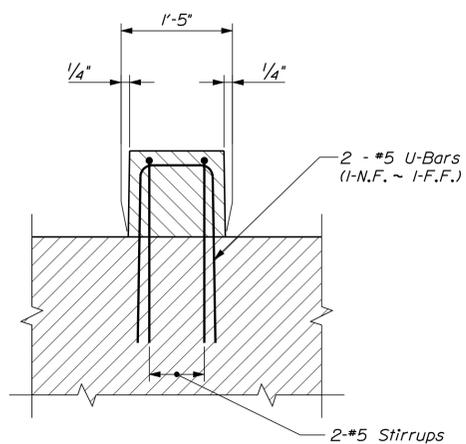
1. The maximum factored applied footing pressure is 1.85 ksf for Abut. No. 1 and 5.15ksf for Abut. No. 2.
2. Structural Earth Excavation, Abutments and Retaining Walls, required more than 12 inches below the bottom of the structure, will be paid for in accordance with Standard Specifications Section 206, Structural Excavation.
3. All Reinforcing Steel shall be epoxy coated unless otherwise noted.
4. Reinforcing steel shall have a minimum concrete cover of 3 inches in the walls and footings unless otherwise noted.
5. Place 4-in. diameter drains in the breastwall and wingwalls at 10-ft maximum spacing. The exact location will be determined by the Resident.
6. The Contractor shall install Transition Barrier vertical closed stirrups, as shown in Standard Details Section 526, prior to the placement of the curb concrete.
7. Cover joints where waterstops are not required in accordance with Standard Details Section 502.
8. Construct French Drains behind the abutments and wingwalls in accordance with Standard Specifications Section 512, French Drains.
9. Abutments, wingwalls and their footings shall be backfilled with Granular Borrow for underwater backfill. Pay limits will be the structural excavation limits in cut areas and a vertical plane located 10 feet behind the walls in fill areas.
10. Abutment concrete or seal concrete shall be placed on bedrock cleaned of loose rock and soil. Each foundation or seal subgrade shall be confirmed to be relatively level. Where the bedrock surface slope exceeds 6H:1V the bedrock surface shall be benched to create level steps or made completely level. The bedrock bearing surface beneath the near face of abutments and wall shall have a level surface of 3 feet minimum, measured perpendicular to the face.
11. Waterline sleeve and the backer plate shall be galvanized after fabrication in accordance with ASTM A123.
12. Waterline sleeve and backer plate shall not be paid for separately, but shall be considered incidental to Abutment concrete pay items.



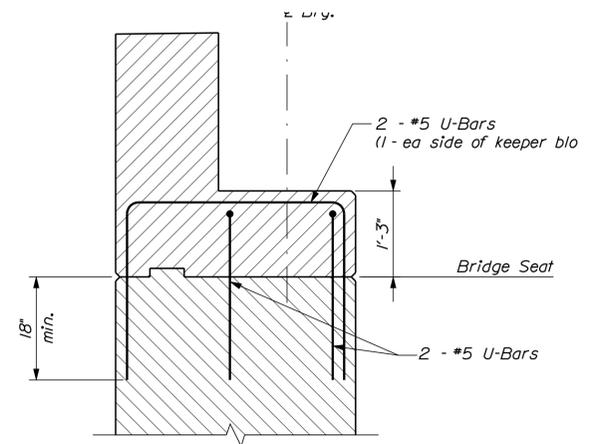
ABUTMENT NO. 2 SECTION



SECTION A-A

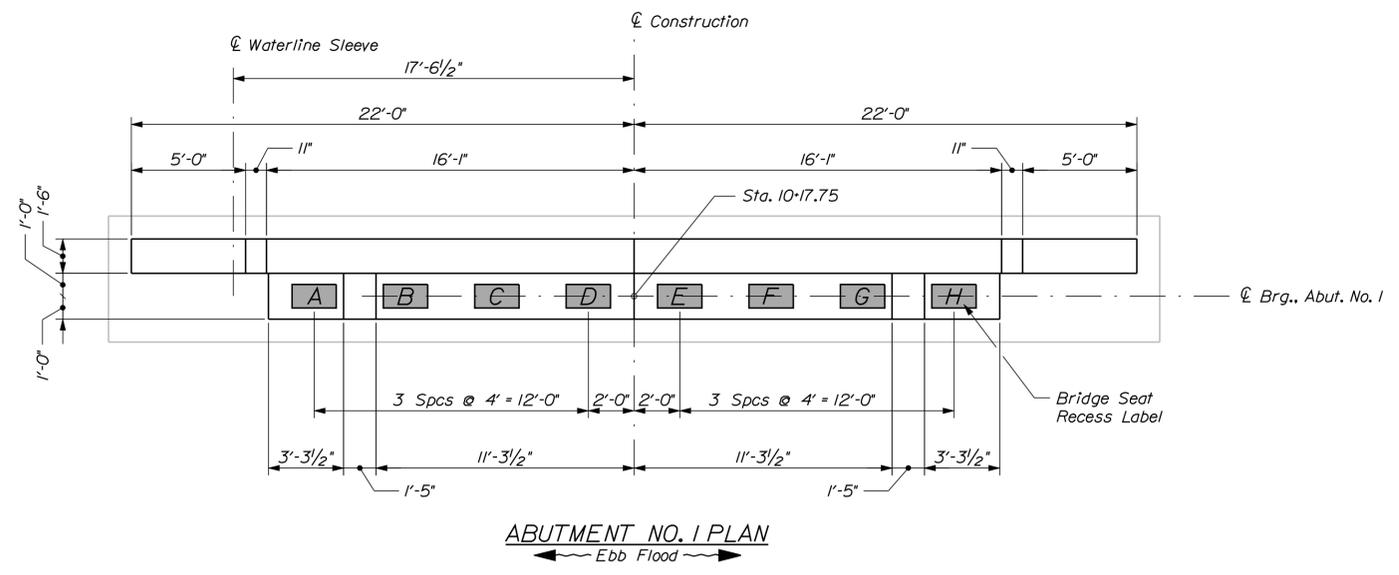
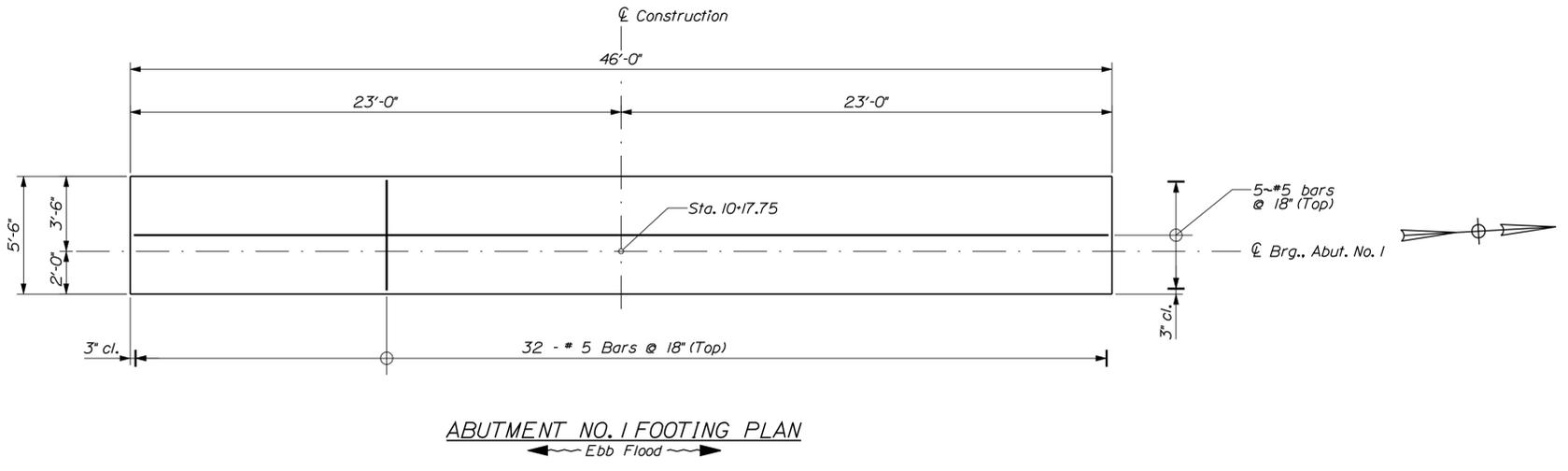


KEEPER BLOCK  
Typ. reinforcing omitted for clarity



BACKWALL SECTION THROUGH  
KEEPER BLOCK  
Typ. reinforcing omitted for clarity

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		BRIDGE NO. 2498		PIN 12630.00		BRIDGE PLANS	
KNICKERBOCKER BRIDGE		BACK RIVER		LINCOLN COUNTY		BOOTHBAY		TYPICAL ABUTMENT DETAILS	
PROJ. MANAGER	CHECKED	DESIGNED	DATE	BY	DATE	SIGNATURE	P.E. NUMBER	DATE	
DESIGNED	REVIEWED	DESIGNED	FEB 2008	BAN					
REVISIONS 1	REVISIONS 2	REVISIONS 3							
REVISIONS 4	FIELD CHANGES								
SHEET NUMBER		22		OF 51					



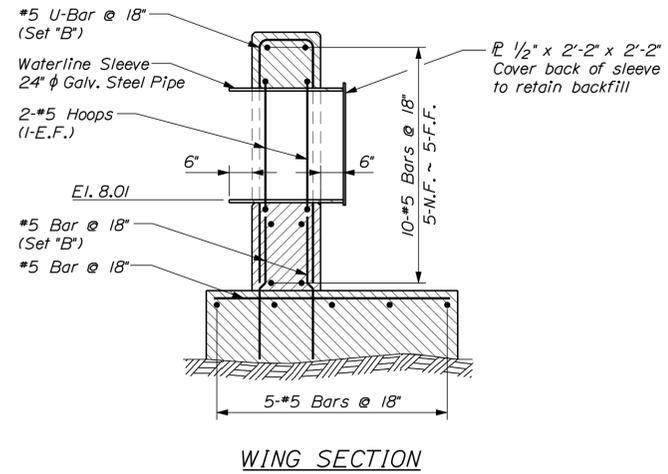
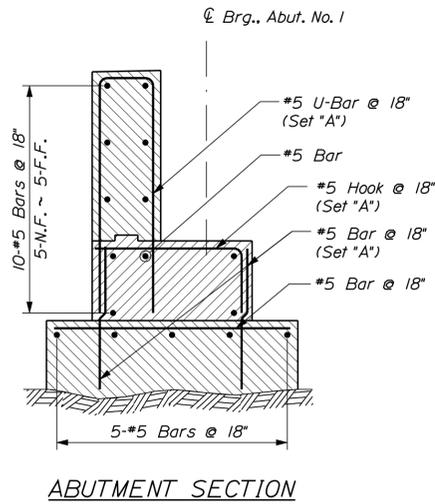
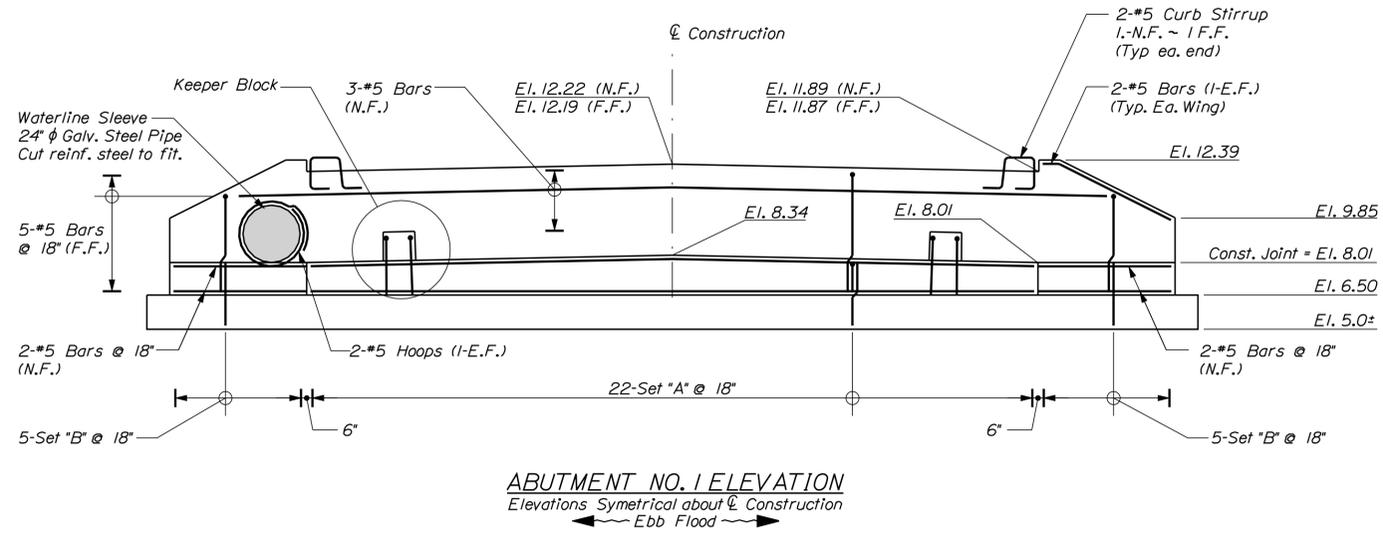
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23

OF 51

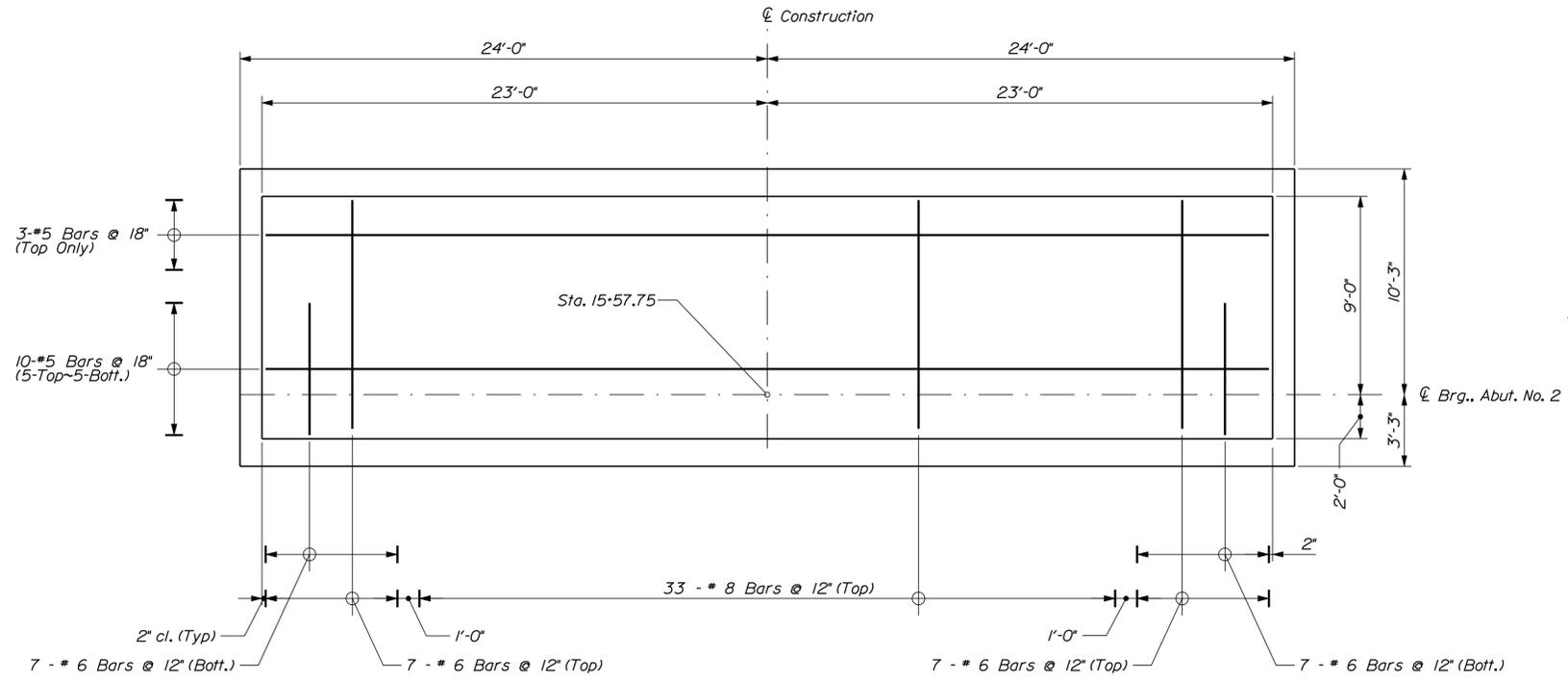
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BACK RIVER  
LINCOLN COUNTY  
BOOTHBAY  
**ABUTMENT NO. 1 PLAN**

STATE OF MAINE DEPARTMENT OF TRANSPORTATION <b>BR-1263(000)X</b>	BRIDGE NO. 2438	PIN 12630.00	BRIDGE PLANS
PROJ. MANAGER	NO. BY	DATE	
DESIGN DETAILED	BAN	FEB 2008	SIGNATURE
CHECKED-REVIEWED			P.E. NUMBER
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FIELD CHANGES			



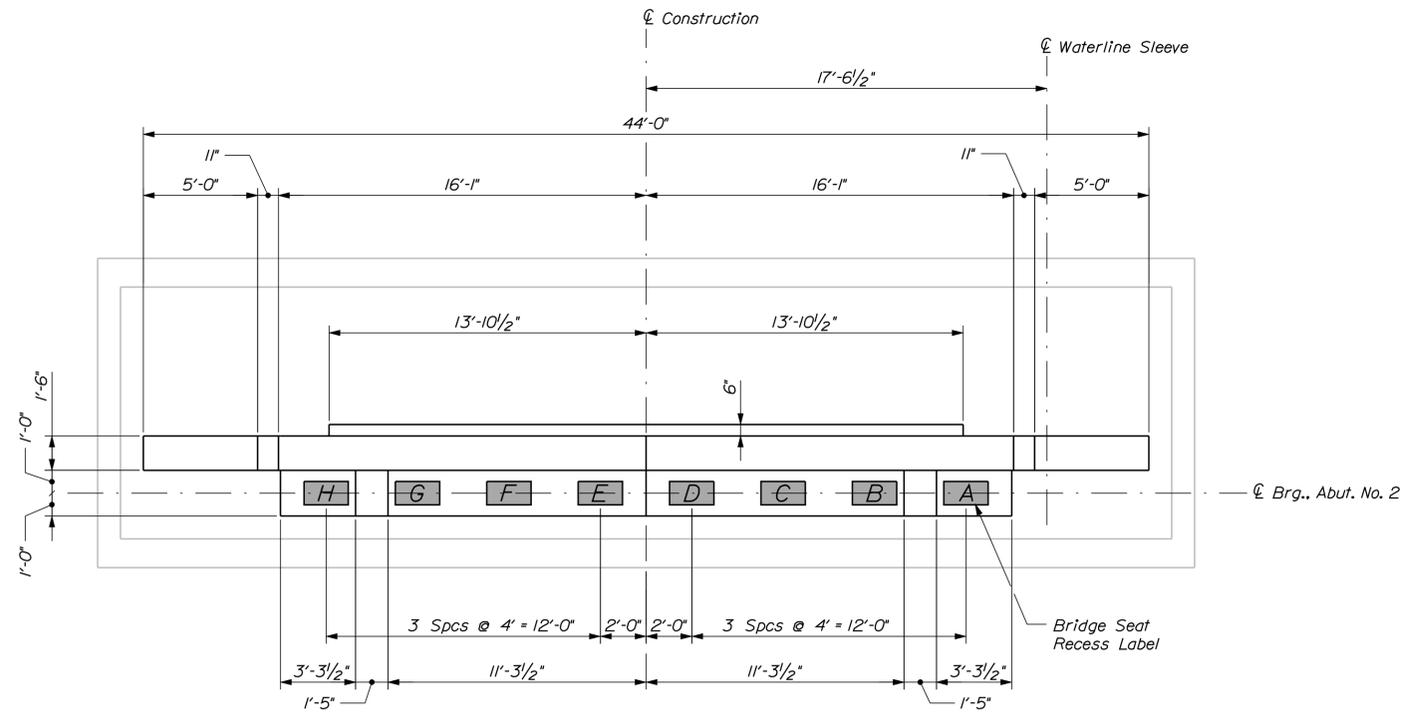
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DESIGN DETAILED	ETC	BAN	FEB 2008
CHECKED-REVIEWED			
DESIGNS DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			





ABUTMENT NO. 2 FOOTING PLAN

← Flood Ebb →



ABUTMENT NO. 2 PLAN

← Flood Ebb →

PROJ. MANAGER	DATE
CHECKED-REVIEWED	FEB 2008
DESIGNED-REVIEWED	
DESIGNS DETAILED	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

NO. 1	BY	DATE
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NO. 3	ETC	
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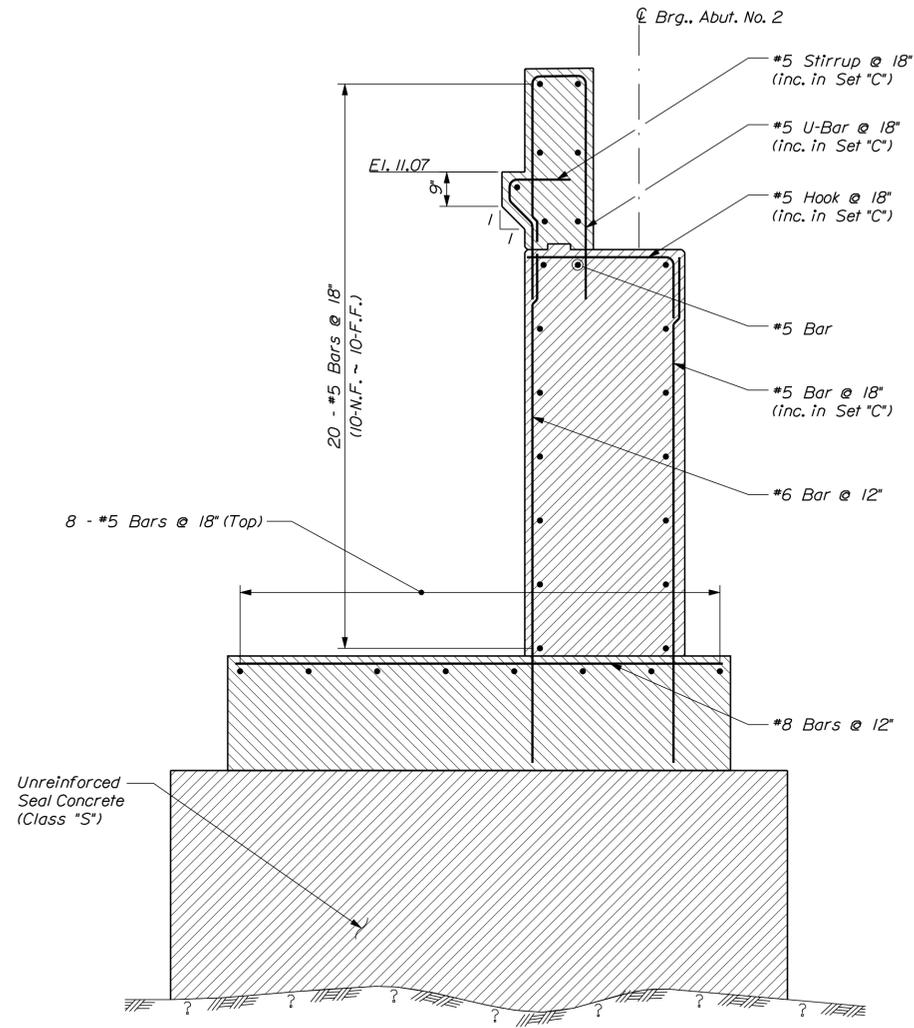
KNICKERBOCKER BRIDGE  
BACK RIVER  
LINCOLN COUNTY  
BOOTHBAY  
ABUTMENT NO. 2 PLAN

SHEET NUMBER

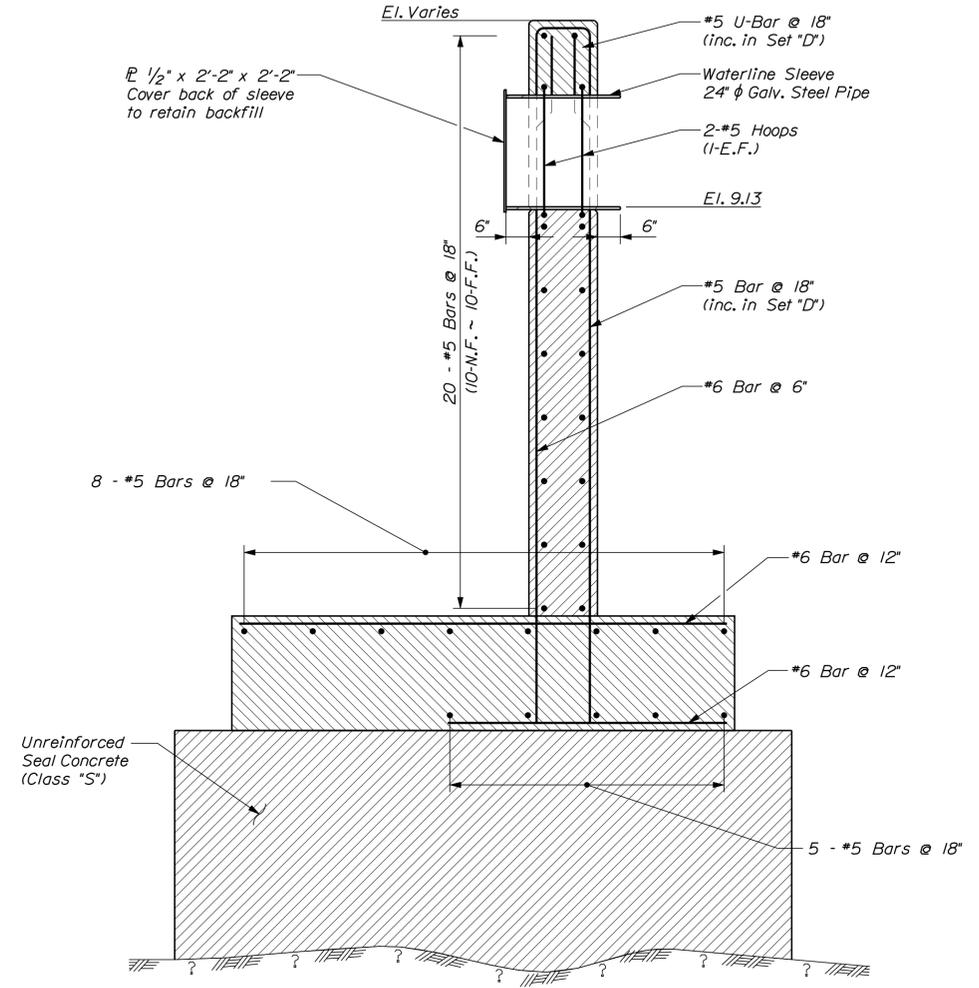
25

OF 51





**ABUTMENT NO. 2 SECTION**  
Keeper Block Omitted



**ABUTMENT NO. 2 WING SECTION**

PROJ. MANAGER	DATE	BY	DATE
DESIGN DETAILED	FEB 2008	BAN	
CHECKED/REVIEWED		ETC	
DESIGNS DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

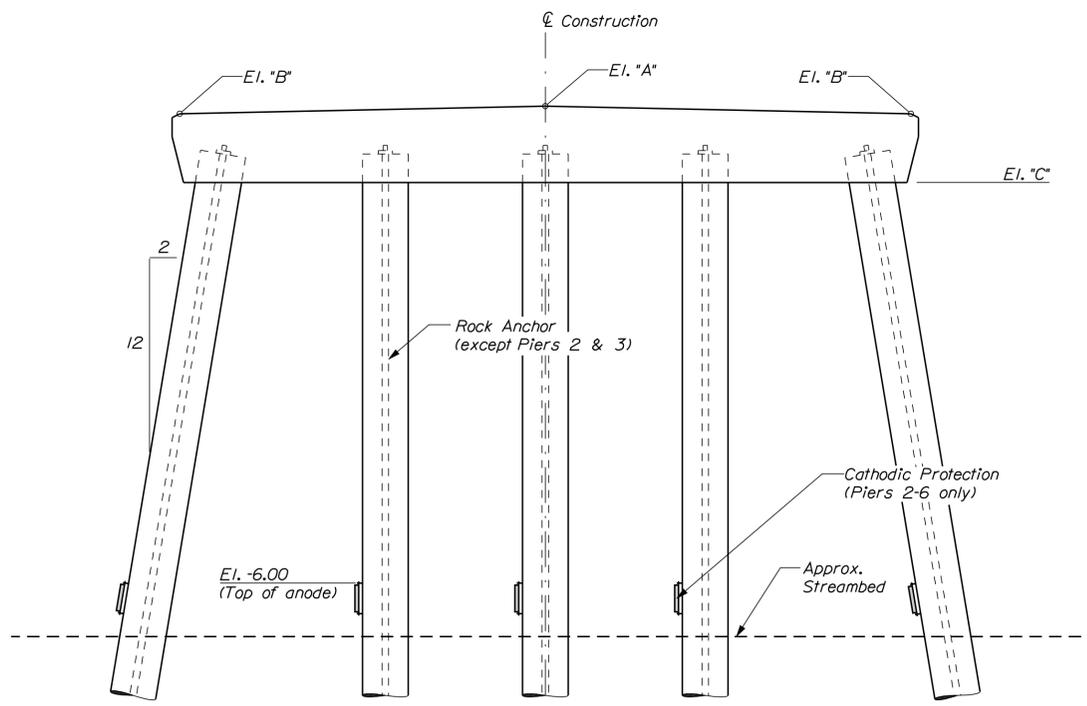
KNICKERBOCKER BRIDGE  
BACK RIVER  
LINCOLN COUNTY  
BOOTHBAY  
ABUTMENT NO. 2 DETAILS

Date: 11/4/2009

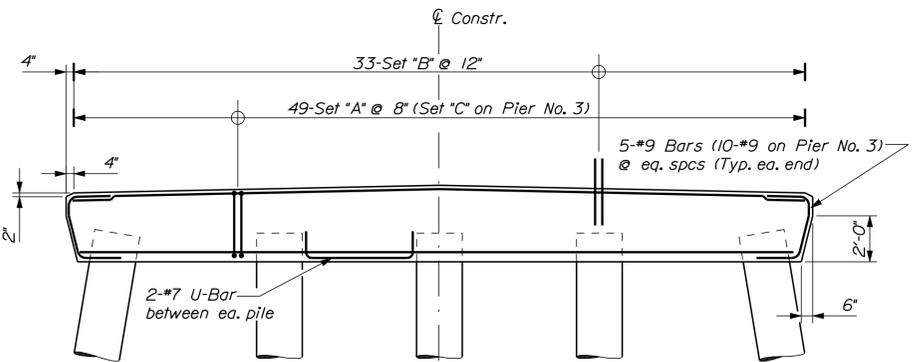
Username: briani.jnichols

Division: BRIDGE

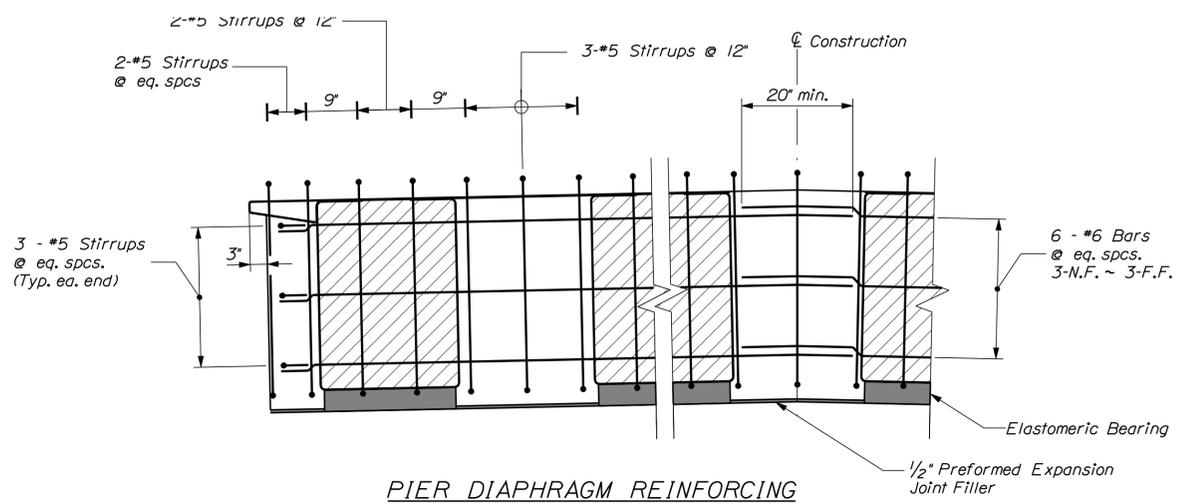
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TYPICAL PIER ELEVATION



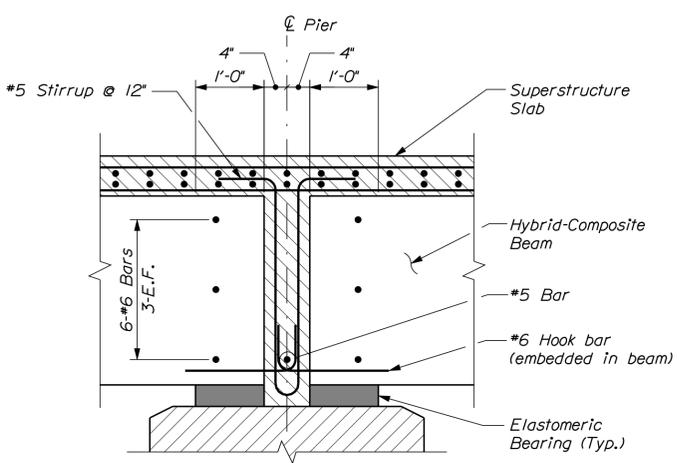
TYPICAL PIER CAP REINFORCEMENT



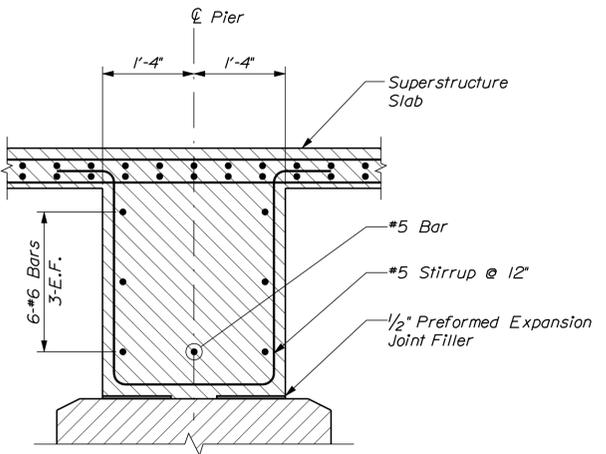
PIER DIAPHRAGM REINFORCING

TABLE OF ELEVATIONS

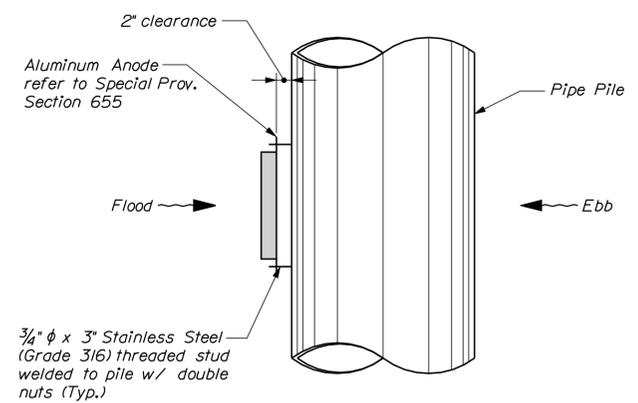
	Elev. "A"	Elev. "B"	Elev. "C"	Pile Cutoff
Pier No. 1	9.41	9.09	6.09	7.34
Pier No. 2	10.66	10.34	7.34	8.59
Pier No. 3	11.87	11.55	8.55	9.80
Pier No. 4	12.32	12.00	9.00	10.25
Pier No. 5	11.82	11.50	8.50	9.75
Pier No. 6	10.99	10.67	7.67	8.92
Pier No. 7	10.16	9.84	6.84	8.09



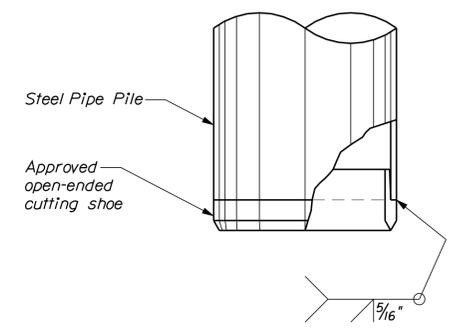
TYPICAL PIER DIAPHRAGM SECTION  
Section taken along beam lines



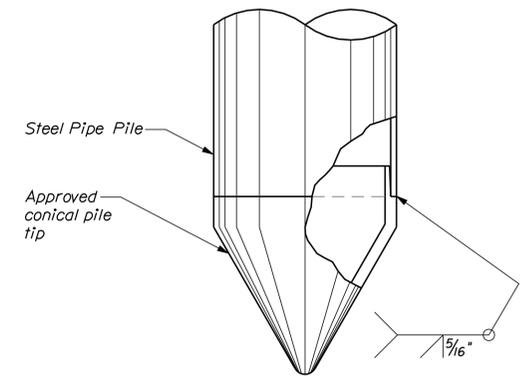
TYPICAL PIER DIAPHRAGM SECTION  
Section taken between beam lines



CATHODIC PROTECTION DETAIL



OPEN ENDED PILE DRIVING SHOE  
ASTM A148 (Fitted on Pipe Piles for Piers 1,4-7)



CONICAL PILE TIP  
Fitted on Pipe Piles for Piers 2&3

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		BRIDGE PLANS	
KNICKERBOCKER BRIDGE		BACK RIVER		LINCOLN COUNTY	
BOOTHBAY		PIER DETAILS		BRIDGE NO. 2498	
PROJECT NO. BR-1263(000)X		PIN 12630.00		DATE	
PROJ. MANAGER	DATE	DESIGN DETAILED	BY	NO. BY	DATE
CHECKED-REVIEWED	FEB 2008	ETC	BAN	1	
DESIGN DETAILED				2	
REVISIONS 1				3	
REVISIONS 2				4	
REVISIONS 3					
REVISIONS 4					
FIELD CHANGES		SIGNATURE		P.E. NUMBER	
SHEET NUMBER		28		OF 51	

NOTES FOR PIER NOS. 1, 4-7

PIER DESIGN CRITERIA

1. Critical AASHTO Load Combination - Strength III
2. Buoyancy: Water level assumed at EL. 6.17
3. Stream flow: Velocity of 8.4 fps skewed at 5° to longitudinal centerline of pier.
4. Wind: 0.070 ksf (factored for Strength III).

PIPE PILE NOTES

1. Pipe Pile material shall be ASTM A252 Grade 3 (Fy = 45 ksi) and meet the requirements of Special Provision Section 711
2. Piles marked with an arrow shall be battered as shown.
3. Piles shall not be out of position shown by more than 2 inches in any direction.
4. Maximum calculated factored axial pile loads: 250 kips Strength III.
5. Estimates of pile lengths are determined from available soils information with no allowance for uncertain bedrock profile:

Pier No. 1:	3 ~ 24" φ x 5/8" @ 40'
	2 ~ 24" φ x 5/8" @ 40'
Pier No. 4:	3 ~ 24" φ x 5/8" @ 50'
	2 ~ 24" φ x 5/8" @ 50'
Pier No. 5:	3 ~ 24" φ x 5/8" @ 50'
	2 ~ 24" φ x 5/8" @ 55'
Pier No. 6:	3 ~ 24" φ x 5/8" @ 50'
	2 ~ 24" φ x 5/8" @ 50'
Pier No. 7:	3 ~ 24" φ x 5/8" @ 35'
	2 ~ 24" φ x 5/8" @ 35'

6. Provisions must be made in order lengths to account for an additional six (6) feet for piles to be subject to dynamic pile testing.
7. Pipe pile and rock anchor installation shall be in accordance with Standard Specification 501, Special Provision 501 and Special Provision 504 - Rock Anchors.
8. All Piles shall be driven open ended and fitted with an approved ast steel pile driving shoe conforming to the strength requirements of ASTM A148, Grade 90-60 and Special Provision 711.
9. The Contractor shall perform and submit a wave equation analysis for review and acceptance by the Resident. The maximum allowable driving stress is 0.90 times Fy. The submittal analyses shall include the proposed stopping criteria based on the wave equation analysis and the proposed driving system. The stopping criteria shall include the blows per inch and the number of l-in. intervals at which pile installation may be terminated. The cost of performing the wave equation analysis will be considered incidental to Item No. 501.92, Pile Driving Equipment Mobilization.

10. The Contractor shall perform (1) dynamic load test at each pier to confirm the nominal resistance of the pile. The required nominal resistance for the pile is the maximum factored axial pile load divided by a resistance factor of 0.65 per LRFD Specifications. Each dynamic load test will be performed on the first production pile driven at each pier location in accordance with Standard Specification 501.

11. Piles shall be driven to sound bedrock and cleaned of soil, or other debris. If cleaning operations disturb bearing material or indicate the pile is not on bedrock, the pile shall be redriven to the criteria established by the dynamic load test, as directed by the Resident. After cleaning pile and redriving if required and before drilling for rock anchors, a grout plug shall be tremied two feet into the bottom of the pipe pile. Grout shall reach 2,000 PSI minimum compressive strength before drilling for rock anchors commences. Costs for the grout plug and re-driving pile shall be incidental to related Contract items.

12. Due to the presence of sloping bedrock at the site, pile walking during driving is possible. Costs for removing and re-driving pile that are out of position shall be incidental to related contract items.

13. Embedment of piles in pier cap may vary +/- three inches from the dimension shown and the actual embedment length will be used in the measurement for payment.

14. The contractor shall be required to support all pipe pile laterally in their final positions until the superstructure is complete and in place. Payment for this work shall be considered incidental to related contract items. No additional payment will be made.

PIPE PILE NOTES, (Cont'd)

15. Pipe piles shall be coated with Fusion Bonded Epoxy (FBE) full length in accordance with Section 506 of the contract documents. The piles shall be colored gray so as to match the concrete. Prior to coating, a color chip shall be supplied by the fabricator for final color selection and approval by the Resident. After driving piles, FBE shall be removed down to the bottom of the pier cap elevation to ensure an adequate bond between the pipe pile and concrete, as approved by the Resident.

16. The Contractor shall drill one cased washboring at the centerline of each Pier, to determine bedrock elevation and bedrock rock properties for the determination of pile order lengths, in accordance with Special Provision Section 501 - Exploratory Drilling. Each boring will be terminated with a 5' bedrock core.

17. Pipe piles shall be driven to the required nominal resistance on or within bedrock.

18. All pipe piles shall be filled with Class A concrete. Concrete for filling pipe piles and reinforcing steel within pipe piles shall be considered incidental to Pay Item 501.701 - Steel Pipe Piles, in place.

19. Pipe Piles marked with an arrow(→) in the individual pier plans shall be battered 6v:1h in the direction(s) shown

ROCK ANCHOR NOTES

1. The rock anchors shall have a 1 3/8" nominal threadbar diameter with a minimum bonded length as shown.
2. Rock anchor design, testing, and installation shall be in accordance with the Post - Tensioning Manual, 6th edition. Rock anchors shall be locked off at 20 kips.
3. Rock anchors shall be solid threaded bar meeting ASTM A722M, Type 11, with a minimum yield strength of 150 ksi.
4. Grout for rock anchor installation shall have a non - shrink additive, a maximum water / cement ratio of 0.45 by weight and a minimum unconfined compressive strength of 4.0 ksi at time of testing.
5. No torch cutting of threadbar is permitted. All anchor rods shall be saw cut in accordance with the manufacturer's recommendations.
6. The Contractor may be required to grout and re-drill areas of poor quality rock to stabilize hole for anchor installation.
7. Plastic sheathing and sleeves shall be polyvinyl chloride. Corrugated sheathing shall have a minimum tensile and compressive strength of 7000 psi. Sleeves shall be shedule 40 PVC plastic pipe conforming to ASTM D1785.
8. A grout plug shall be placed at the bottom of the pile prior to drilling for the anchor rod.
9. Rock anchors shall have double corrosion protection.
10. The design load for the rock anchors is 160 kips.

PIER NOTES

1. Reinforcing steel shall have a minimum concrete cover of 3 inches unless otherwise noted.
2. All reinforcing steel placed in pier caps or in pipe piles shall be epoxy coated unless otherwise noted.

NOTES FOR PIER NOS. 2&3

PIER DESIGN CRITERIA (Pier No. 2)

1. Critical AASHTO Load Combination - Strength III
2. Buoyancy: Water level assumed at EL. 6.17
3. Stream flow: Velocity of 8.4 fps skewed at 5° to longitudinal centerline of pier.
4. Wind: 0.070 ksf (factored for Strength III).

PIER DESIGN CRITERIA (Pier No. 3)

1. Critical AASHTO Load Combination - Strength III
2. Buoyancy: Water level assumed at EL. 6.17
3. Stream flow: Velocity of 8.4 fps skewed at 5° to longitudinal centerline of pier.
4. Wind: 0.070 ksf (factored for Strength III).

PIPE PILE NOTES

1. Pipe Pile material shall be ASTM A252 Grade 3 (Fy = 45 ksi) and meet the requirements of Special Provision Section 711
2. Piles marked with an arrow shall be battered as shown.
3. Piles shall not be out of position shown by more than 2 inches in any direction.
4. Maximum calculated factored axial pile loads: 240 kips (Pier No. 2), & 200 kips (Pier No. 3)
5. Estimates of pile lengths are determined from available soils information with no allowance for uncertain bedrock profile:

Pier No. 2:	3 ~ 26" φ x 5/8" @ 80'
	2 ~ 26" φ x 5/8" @ 80'
Pier No. 3:	6 ~ 26" φ x 7/8" @ 95'
	4 ~ 26" φ x 5/8" @ 95'

6. Provisions must be made in order lengths to account for an additional six (6) feet for piles to be subject to dynamic pile testing.

7. Piles shall be fitted with a closed-ended conical pile tip that meets the requirements of Special Provision 711.

8. The Contractor shall perform and submit a wave equation analysis for review and acceptance by the Resident. The maximum allowable driving stress is 0.90 times Fy. The submittal analyses shall include the proposed stopping criteria based on the wave equation analysis and the proposed driving system. The stopping criteria shall include the blows per inch and the number of l-in. intervals at which pile installation may be terminated. The cost of performing the wave equation analysis will be considered incidental to Item No. 501.92, Pile Driving Equipment Mobilization.

9. The Contractor shall perform (1) dynamic load test at each pier to confirm the nominal resistance of the pile. The required nominal resistance for the pile is the maximum factored axial pile load divided by a resistance factor of 0.65 per LRFD Specifications. Each dynamic load test will be performed on the first production pile driven at each pier location in accordance with Standard Specification 501.

10. Due to the presence of sloping bedrock at the site, pile walking during driving is possible. Costs for removing and re-driving pile that are out of position shall be incidental to related contract items

11. Embedment of piles in pier cap may vary +/- three inches from the dimension shown and the actual embedment length will be used in the measurement for payment.

12. The contractor shall be required to support all pipe pile laterally in their final positions until the superstructure is complete and in place. Payment for this work shall be considered incidental to related contract items. No additional payment will be made.

13. Pipe Piles marked with an arrow(→) in the individual pier plans shall be battered 6v:1h in the direction(s) shown.

PIPE PILE NOTES (Cont'd)

14. Pipe piles shall be coated with Fusion Bonded Epoxy (FBE) full length in accordance with Section 506 of the contract documents. The piles shall be colored gray so as to match the concrete. Prior to coating, a color chip shall be supplied by the fabricator for final color selection and approval by the Resident. After driving piles, FBE shall be removed down to the bottom of the pier cap elevation to ensure an adequate bond between the pipe pile and concrete, as approved by the Resident.

15. The Contractor shall drill one cased washboring at the centerline of each Pier, to determine bedrock elevation for the determination of pile order lengths, in accordance with Special Provision Section 501 - Exploratory Drilling. Each boring will be terminated with a 5' bedrock core.

16. Pipe piles shall be driven to the required nominal resistance on or within bedrock.

PIER NOTES

1. Reinforcing steel shall have a minimum concrete cover of 3 inches unless otherwise noted.
2. All reinforcing steel placed in pier caps or in pipe piles shall be epoxy coated unless otherwise noted.

Date: 11/4/2009

Username: briant.jnichols

Division: BRIDGE

Filename: ... \bridge\msta\029\_Pier\_Notes.dgn

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
BR-1263(000)X  
PIN 12630.00  
BRIDGE NO. 2498  
BRIDGE PLANS

PROJ. MANAGER	DATE	BY	DATE
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REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

KNICKERBOCKER BRIDGE  
BACK RIVER  
LINCOLN COUNTY  
BOOTHBAY  
PIER NOTES

SHEET NUMBER

29

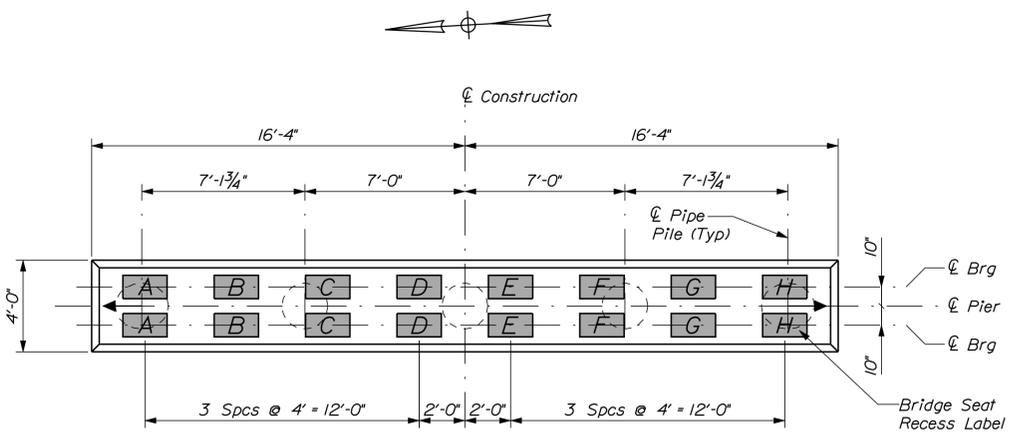
OF 51

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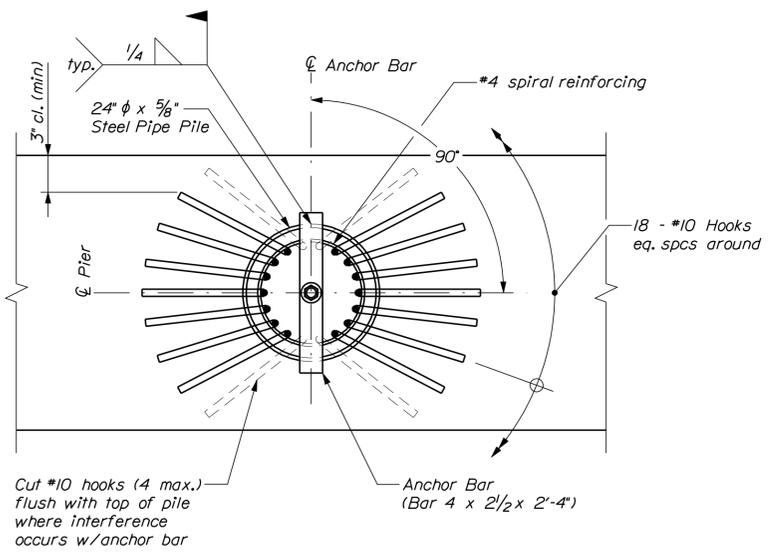
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Division: BRIDGE

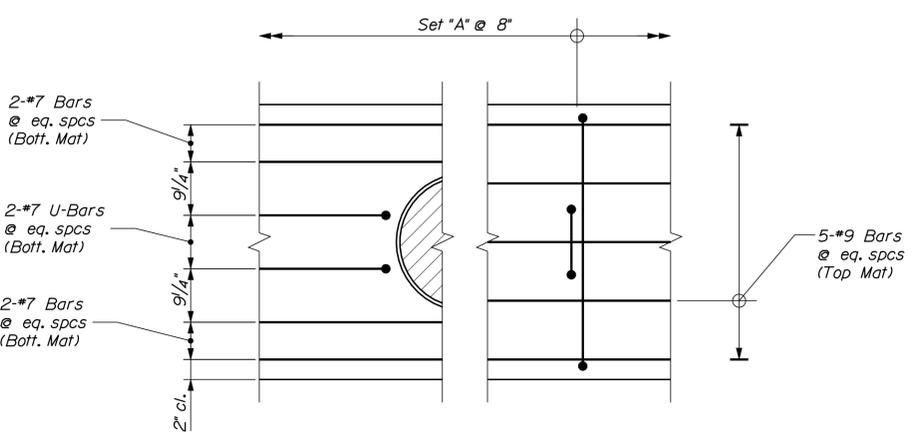
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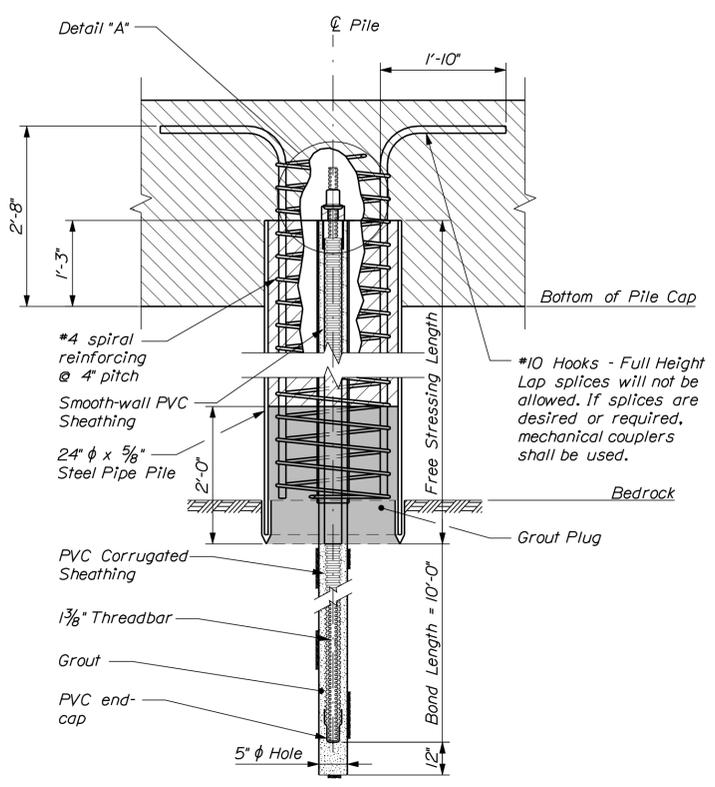
**PIER PLAN**  
Pier No. 1 Shown - Piers 4-7 Typical



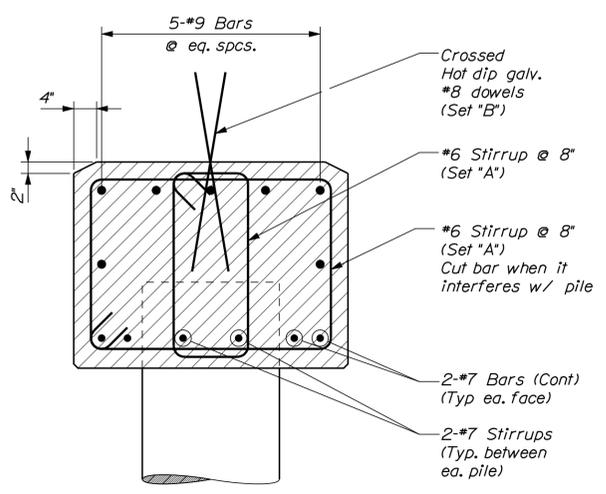
**PILE REINFORCING PLAN**  
Pier No. 1 Shown - Pier Nos. 4-7 Typical



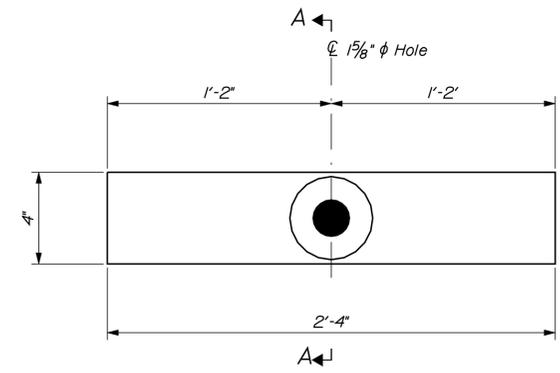
**PIER CAP REINFORCING PLAN**  
Pier No. 1 Shown - Pier Nos. 4-7 Typical



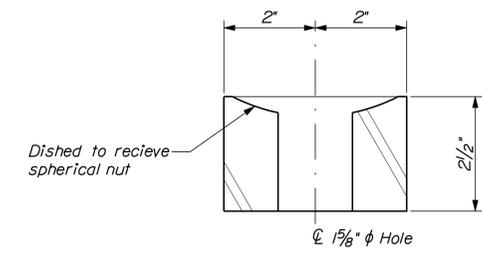
**PILE REINFORCING SECTION & ROCK ANCHOR DETAILS**  
Pier No. 1 Shown - Pier Nos. 4-7 Typical



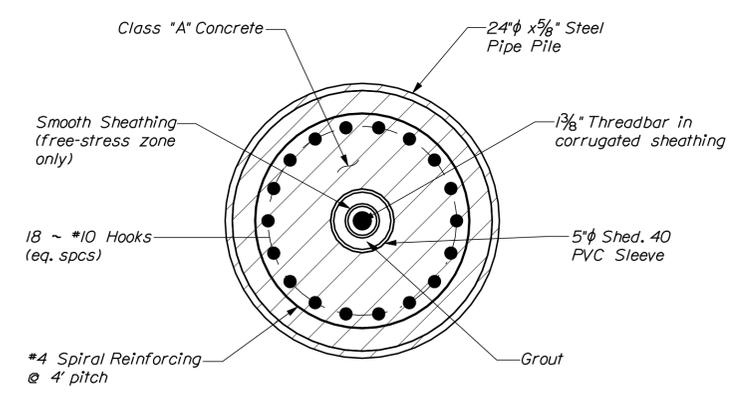
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Pier No. 1 Shown - Pier Nos. 4-7 Typical



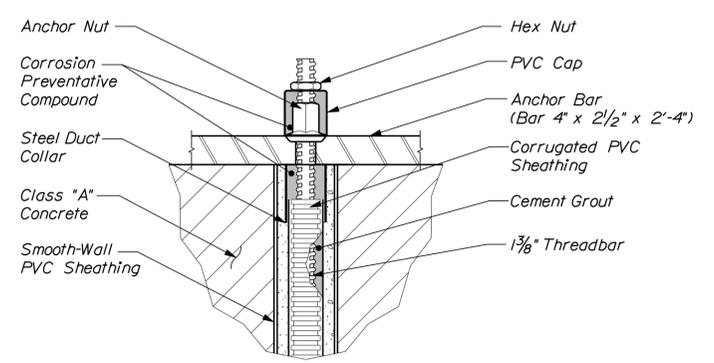
**ANCHOR BAR**



**SECTION "A-A"**



**PIPE PILE SECTION**



**DETAIL "A"**  
Pile Reinforcement Omitted for Clarity

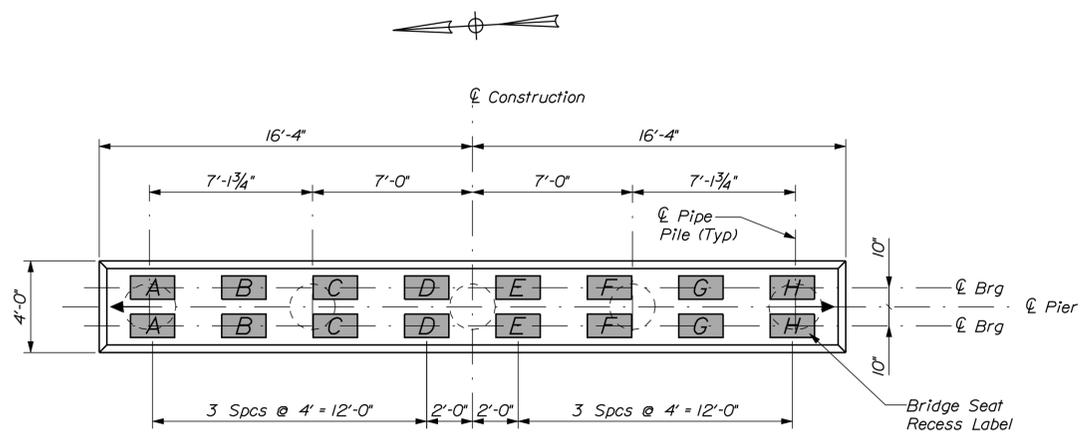
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KNICKERBOCKER BRIDGE		BACK RIVER		LINCOLN COUNTY		BOOTHBAY		PIER NOS. 1 & 4-7 DETAILS	
PROJ. MANAGER	DESIGN DETAILED	CHECKED/REVIEWED	DESIGN DETAILED	DESIGN DETAILED	REVISIONS 1	REVISIONS 2	REVISIONS 3	REVISIONS 4	FIELD CHANGES
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BY	BAN	BY	BAN	BY					
NDB	ETC	NDB	ETC	NDB					
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SHEET NUMBER		30		OF 51					

Date: 11/4/2009

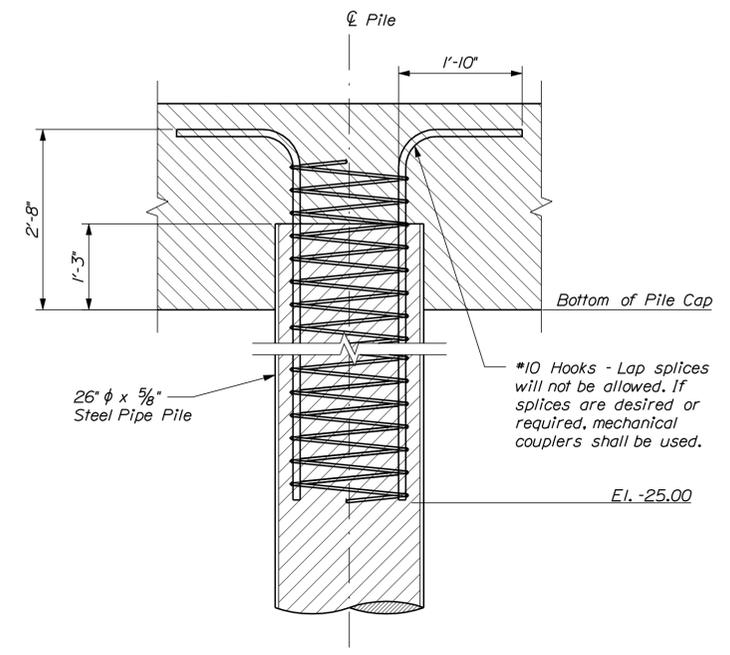
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Division: BRIDGE

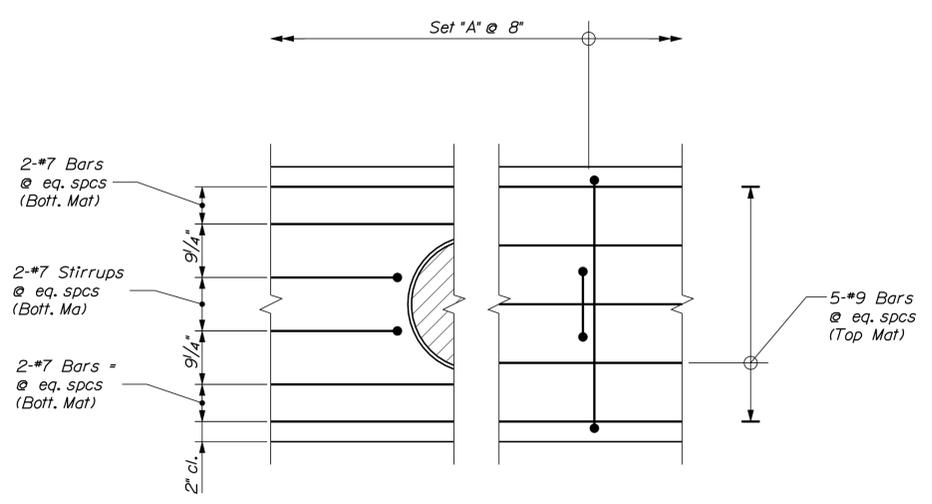
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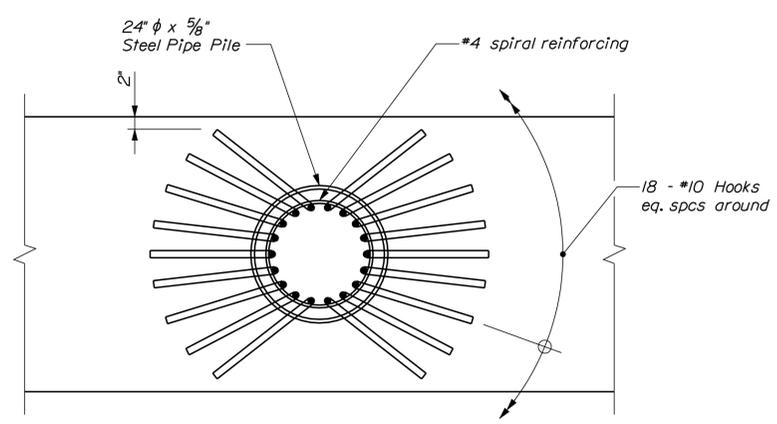
PIER NO. 2 PLAN



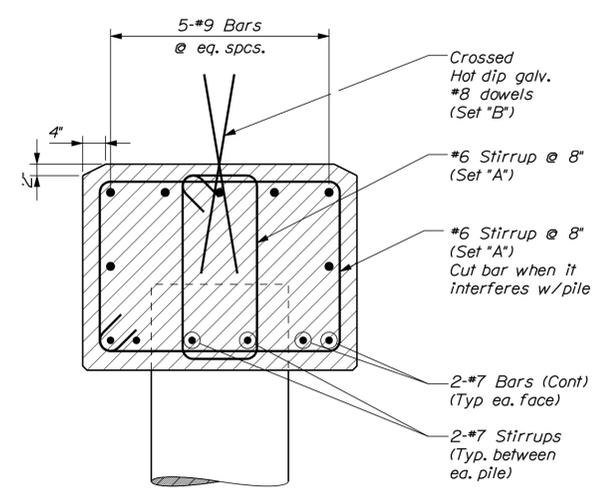
PIER NO. 2 PILE SECTION



PIER CAP REINFORCING PLAN



PILE REINFORCING PLAN



PIER CAP NO. 2 SECTION

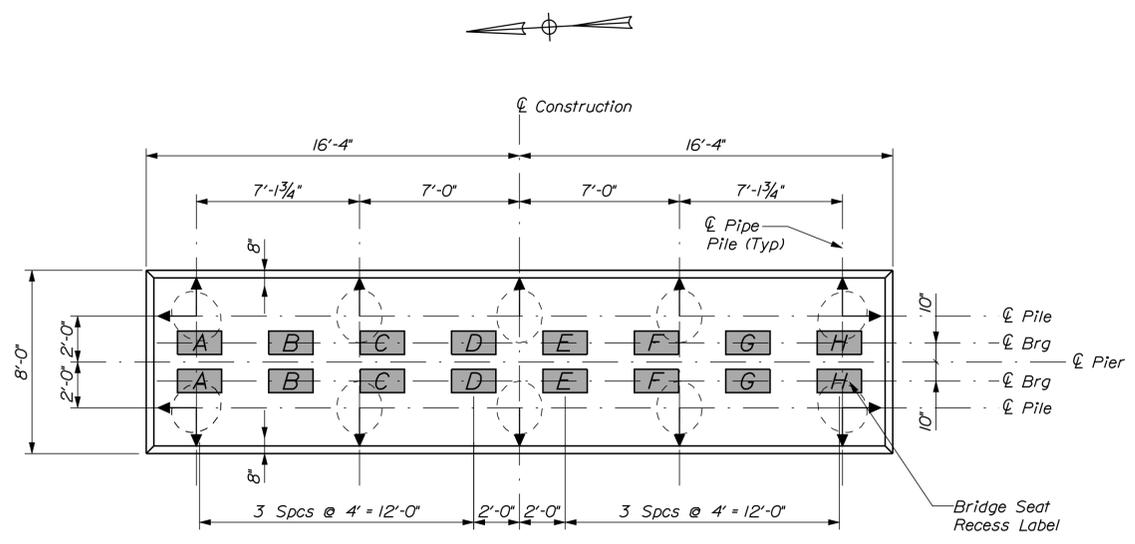
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PROJ. MANAGER	DATE	NOI	BY	SIGNATURE	P.E. NUMBER	DATE	
DESIGN DETAILED	FEB 2008	ETC	BAN				
CHECKED-REVIEWED							
DESIGNS DETAILED							
REVISIONS 1							
REVISIONS 2							
REVISIONS 3							
REVISIONS 4							
FIELD CHANGES							
KNICKERBOCKER BRIDGE BACK RIVER BOOTHBAY				LINCOLN COUNTY PIER NO. 2 DETAILS			
SHEET NUMBER				31			
				OF 51			

Date: 11/4/2009

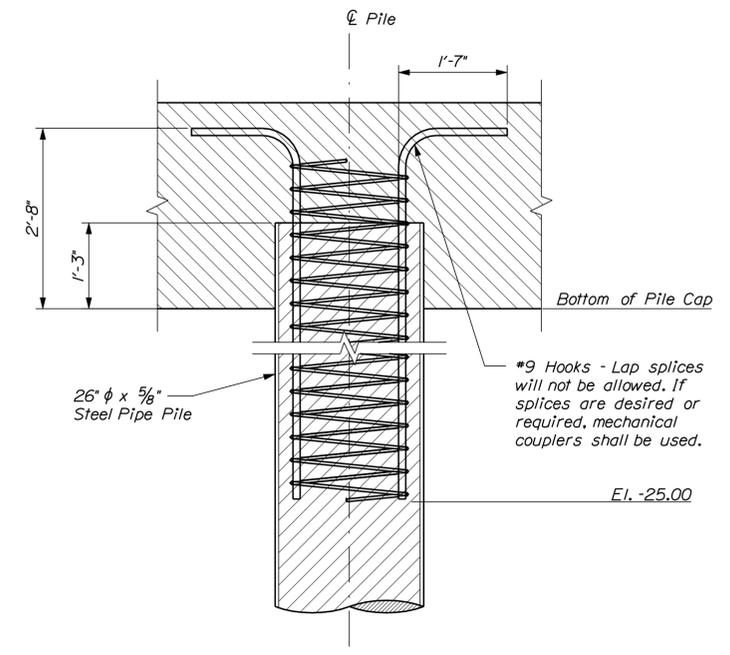
Username: brian.j.nichols

Division: BRIDGE

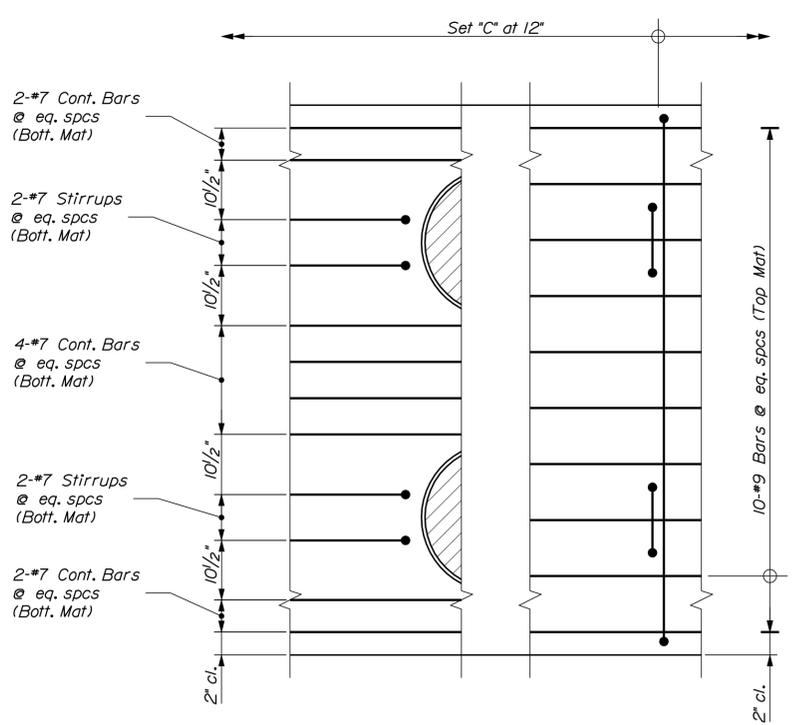
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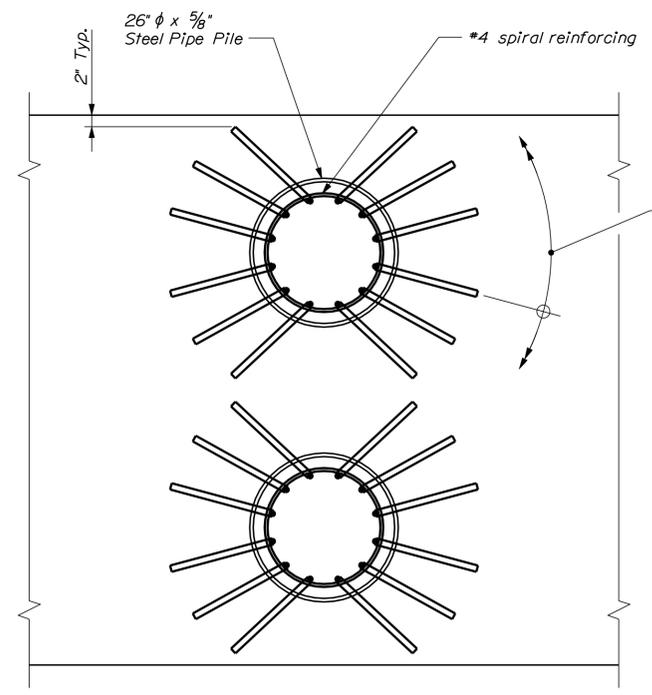
PIER NO. 3 PLAN



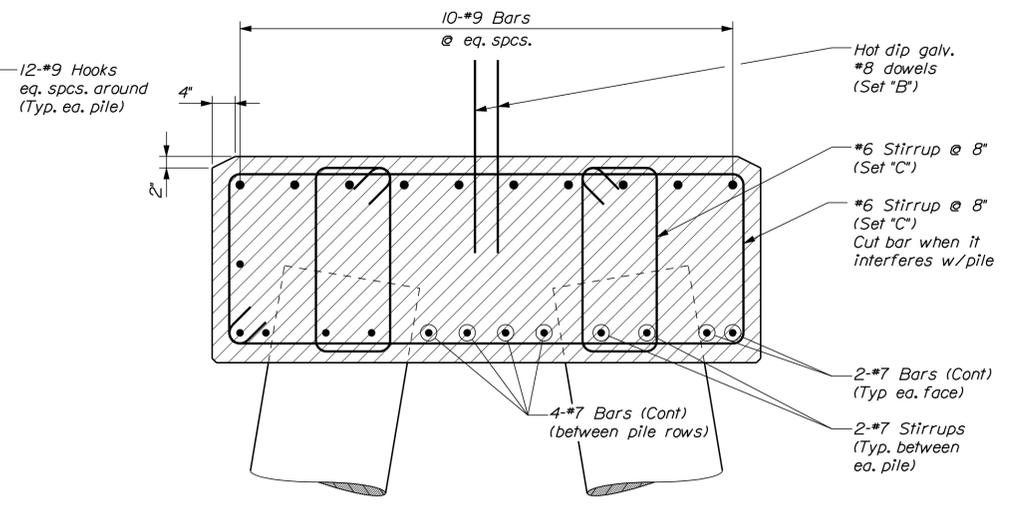
PIER NO. 3 PILE SECTION



PIER CAP NO. 3 REINFORCING PLAN



PILE REINFORCING PLAN



PIER NO. 3 SECTION

STATE OF MAINE DEPARTMENT OF TRANSPORTATION		BR-1263(000)X		BRIDGE NO. 2498		PIN 12630.00		BRIDGE PLANS	
PROJ. MANAGER	DESIGN DETAILED	CHECKED/REVIEWED	DESIGN DETAILED	DESIGN DETAILED	REVISIONS 1	REVISIONS 2	REVISIONS 3	REVISIONS 4	FIELD CHANGES
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
BY	NO.	BY	NO.	BY	NO.	BY	NO.	BY	NO.
KNICKERBOCKER BRIDGE BACK RIVER BOOTHBAY		LINCOLN COUNTY		PIER NO. 3 DETAILS		SHEET NUMBER		32	
								OF 51	



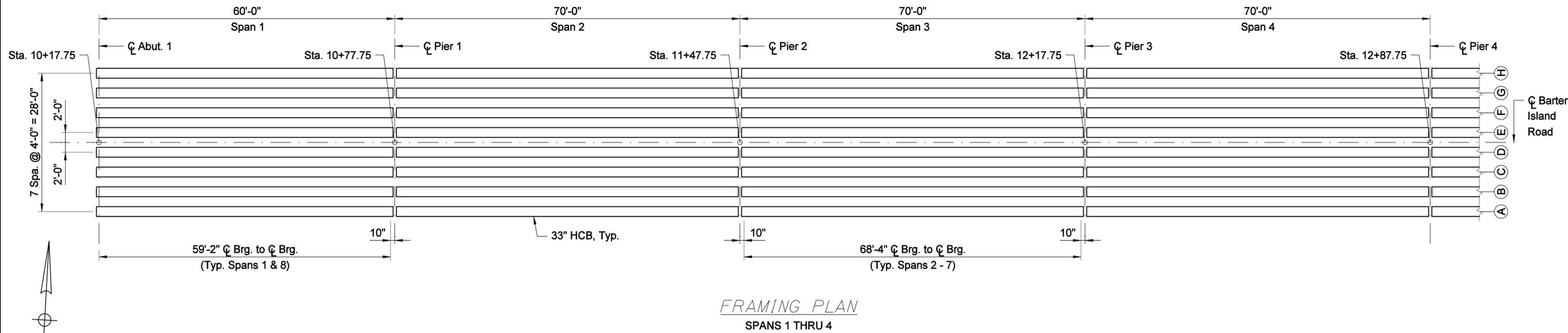


Date: 11/4/2009

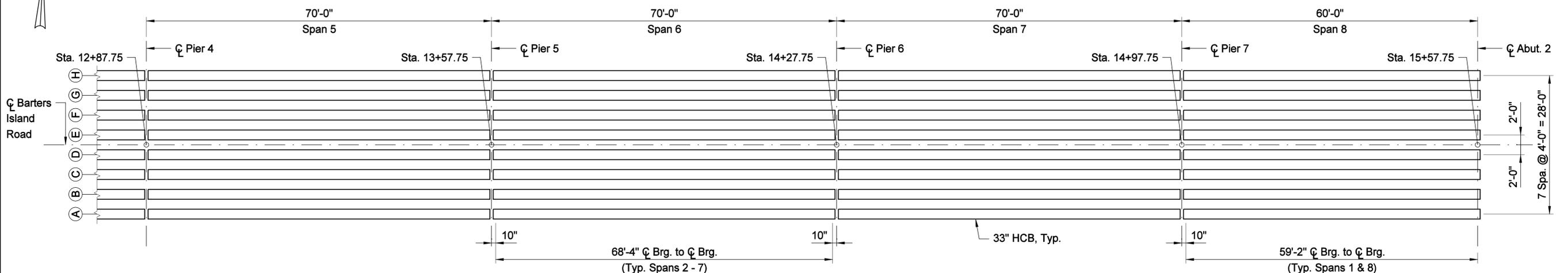
Username: brion.j.nichols

Division: BRIDGE

Filename: ...000\bridge\msto\034\_Framing.dgn



FRAMING PLAN  
SPANS 1 THRU 4



FRAMING PLAN  
SPANS 5 THRU 8

INTERIOR BEAM MOMENT TABLE

	0.4 Ext. Spans	Pier 1 or 7	0.5 Int. Spans	Piers 2 - 6
$I_{HCB}$ [in <sup>4</sup> ]	39,390	11,391	72,227	11,391
$I_c$ [in <sup>4</sup> ]	73,890	18,050	73,358	18,050
$S_{b_{HCB}}$ [in <sup>3</sup> ]	-1,802	-3,525	-1,865	-3,525
$S_{b_c}$ [in <sup>3</sup> ]	-2,402	-4,472	-2,361	-4,472
$S_{t_{HCB}}$ [in <sup>3</sup> ]	4,093	8,266	4,237	8,266
$S_{t_c}$ [in <sup>3</sup> ]	102,092	31,449	47,622	31,449
DC1 [k/ft]	0.610	0	0.610	0
$M_{DC1}$ [k-ft]	257	0	355	0
DC2 [k/ft]	0.221	0.221	0.221	0.221
$M_{DC2}$ [k-ft]	69	-62	67	-65
DW [k/ft]	0.090	0.090	0.090	0.090
$M_{DW}$ [k-ft]	28	-25	27	-26
$M_{LL+I}$ [k-ft]	523	-307	541	-326
$M_U$ [k-ft]	1,364	-653	1,513	-690
$M_R$ [k-ft]	3,167		3,830	

BILL OF MATERIAL

Item	Unit	Total
Erecting Hybrid-Composite Beams	L.S.	1

INTERIOR BEAM REACTION TABLE

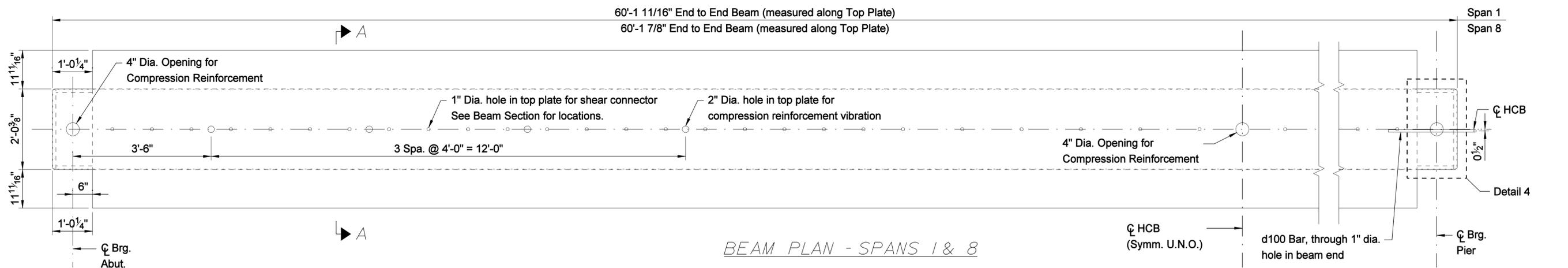
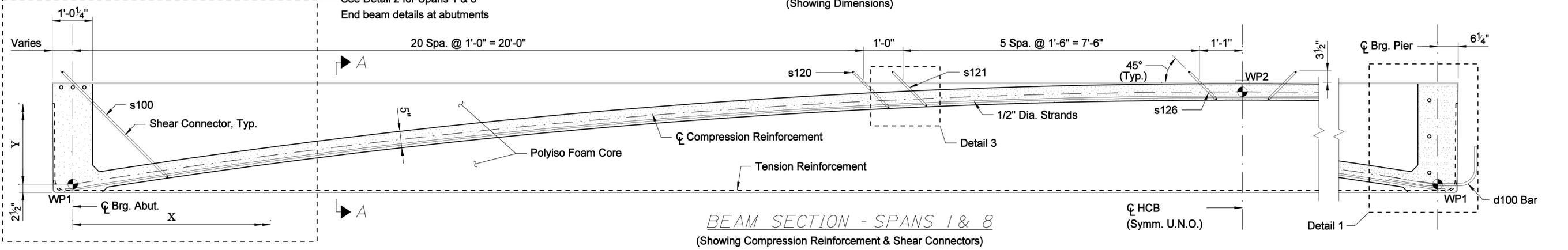
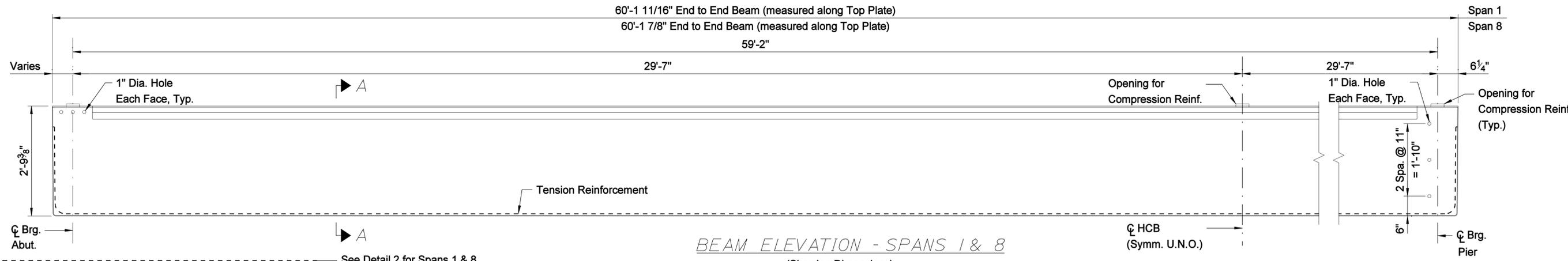
	Abutments	Pier 1 - Span 1 Pier 7 - Span 8	Pier 1 - Span 2 Pier 7 - Span 7	Piers 2 - 6 (Ea. Span)
$R_{DC1}$ [K]	18.1	18.1	20.8	20.8
$R_{DC2}$ [K]	5.5	7.6	7.6	7.6
$R_{DW}$ [K]	2.2	3.1	3.1	3.1
$R_{LL+I}$ [K]	52.5	56.8	57.8	58.1
$R_{Total}$ [K]	78.3	85.6	89.3	89.6

NOTES:

- $I_{HCB}$  Non-composite moment of inertia of beam section, including compression reinforcement. [in<sup>4</sup>].
- $I_c$  Composite moment of inertia of beam section [in<sup>4</sup>].
- $S_{b_{HCB}}$  Non-composite section modulus for the steel tension reinforcement in the bottom of the HCB [in<sup>3</sup>].
- $S_{b_c}$  Composite section modulus for the steel tension reinforcement in the bottom of the HCB [in<sup>3</sup>].
- $S_{t_{HCB}}$  Non-composite section modulus for the top fiber of the compression reinforcement in the HCB [in<sup>3</sup>].
- $S_{t_c}$  Composite section modulus for the top fiber of the compression reinforcement in the HCB [in<sup>3</sup>].
- DC1 Un-factored non-composite dead load [k/ft].
- $M_{DC1}$  Un-factored moment due to non-composite dead load [k-ft].
- DC2 Un-factored long-term composite (superimposed excluding future wearing surface) dead load [k/ft].
- $M_{DC2}$  Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load [k-ft].
- DW Un-factored long-term composite (superimposed future wearing surface only) dead load [k/ft].
- $M_{DW}$  Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load [k-ft].
- $M_{LL+I}$  Un-factored live load moment plus dynamic load allowance (impact) [k-ft].
- $M_U$  LRFD Strength 1 Load Combination Moment (1.25DC + 1.5DW + 1.75LL) [k-ft].
- $M_R$  Moment Capacity [k-ft].

STATE OF MAINE DEPARTMENT OF TRANSPORTATION <b>BR-1263(000)X</b>	BRIDGE NO. 2438 PIN 12630.00 BRIDGE PLANS
KNICKERBOCKER BRIDGE BACK RIVER LINCOLN COUNTY BOOTHBAY	<b>FRAMING PLAN</b>
SHEET NUMBER <h1 style="font-size: 2em; margin: 0;">34</h1>	OF 51

Filename: ...035\_Framing\_HCB-Elev\_1.dgn  
 Division: BRIDGE  
 Username: briam\_jnichols  
 Date: 11/4/2009



**COMPRESSION REINFORCEMENT GEOMETRY**

Spans 1 & 8	
X (in.)	Y (in.)
0	0
35.5	5.32
71.0	10.08
106.5	14.28
142.0	17.92
177.5	21.00
213.0	23.52
248.5	25.48
284.0	26.88
319.5	27.72
355.0	28.00

**CAMBER DATA**  
(Spans 1 & 8 Beams)

STATION [ft]	FRP SHELL SELF WEIGHT		FOR PLACING COMPRESSION REINFORCEMENT		FOR PLACING DECK (NONCOMPOSITE SECTION)		FOR PLACING BARRIER & OVERLAY (COMPOSITE SECTION)		TOTAL DEFLECTION (REQUIRED CAMBER)
	El [k-in <sup>2</sup> ]	DEFL. [in]	El [k-in <sup>2</sup> ]	DEFL. [in]	El [k-in <sup>2</sup> ]	DEFL. [in]	El [k-in <sup>2</sup> ]	DEFL. [in]	
0.00	31,983,537	0.00	31,983,537	0.00	35,312,278	0.00	417,425,132	0.00	0.00
5.92	31,983,537	0.23	31,983,537	0.50	39,912,574	0.34	371,893,253	0.05	1.11
11.83	31,983,537	0.40	31,983,537	0.88	66,677,902	0.61	277,679,033	0.10	2.00
17.75	31,983,537	0.53	31,983,537	1.16	98,217,773	0.80	239,909,644	0.13	3.63
23.67	31,983,537	0.61	31,983,537	1.32	122,110,407	0.91	229,058,604	0.15	3.00
29.58	31,983,537	0.63	31,983,537	1.38	130,902,737	0.95	227,410,022	0.16	3.12
35.50	31,983,537	0.61	31,983,537	1.32	122,110,407	0.91	229,058,604	0.14	2.99
41.42	31,983,537	0.53	31,983,537	1.16	98,217,773	0.80	239,909,644	0.11	2.61
47.33	31,983,537	0.40	31,983,537	0.88	66,677,902	0.61	74,727,858	0.07	1.97
53.25	31,983,537	0.23	31,983,537	0.50	39,912,574	0.34	52,755,933	0.02	1.09
59.17	31,983,537	0.00	31,983,537	0.00	35,312,278	0.00	55,956,335	0.00	0.00

**BILL OF MATERIAL (F.I.O.)**  
(Per beam for spans 1 & 8, 16 each)

ITEM	UNIT	TOTAL
Compression Reinforcement	Cu. Yd.	2.79
Shear Connectors	Lbs.	282
Tension Reinforcement	Ft.	2,700
Arch Reinforcement	Ft.	120
Continuity Bars	Lbs.	9

**NOTES:**

- Work this sheet with sheets 36 thru 37.
- El of beam is normalized to the FRP shell (E = 3,100 ksi).
- El of beam for composite loading includes deck concrete in positive moment areas (0.0L to 0.7L) and deck reinforcement bars in negative moment areas (0.8L to 1.0L). 0.0L is located at abutment, 1.0L is located at pier.
- F.I.O. denotes For Information Only.

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
 BR-1263(000)X  
 BRIDGE NO. 2438  
 PIN 12630.00  
 BRIDGE PLANS

PROJ. MANAGER	DATE	BY	DATE	SIGNATURE	P.E. NUMBER	DATE
DESIGN-DETAILED	FEB 2008	MBR				
CHECKED-REVIEWED		JRH				
DESIGNS DET AILED						
DESIGNS DET AILED						
REVISIONS 1						
REVISIONS 2						
REVISIONS 3						
REVISIONS 4						
FIELD CHANGES						

KNICKERBOCKER BRIDGE  
 BACK RIVER  
 LINCOLN COUNTY  
 BOOTHBAY  
 HYBRID COMPOSITE BEAM DETAILS

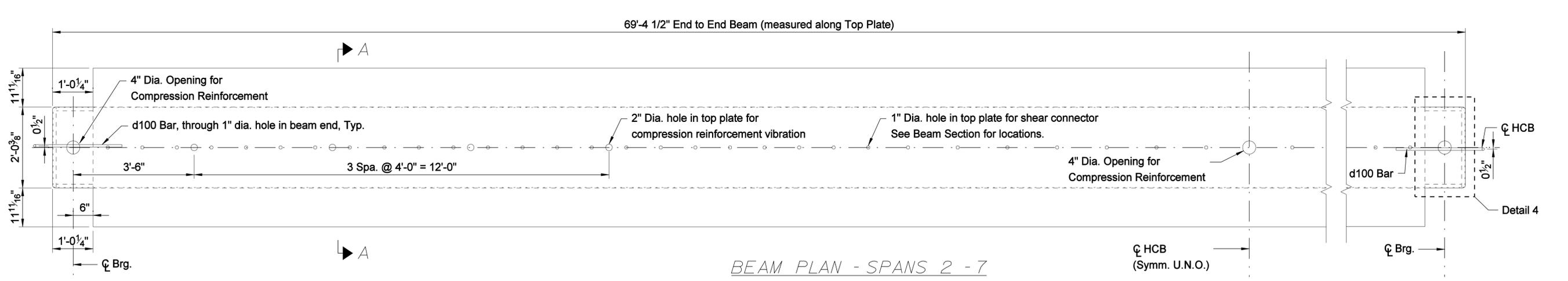
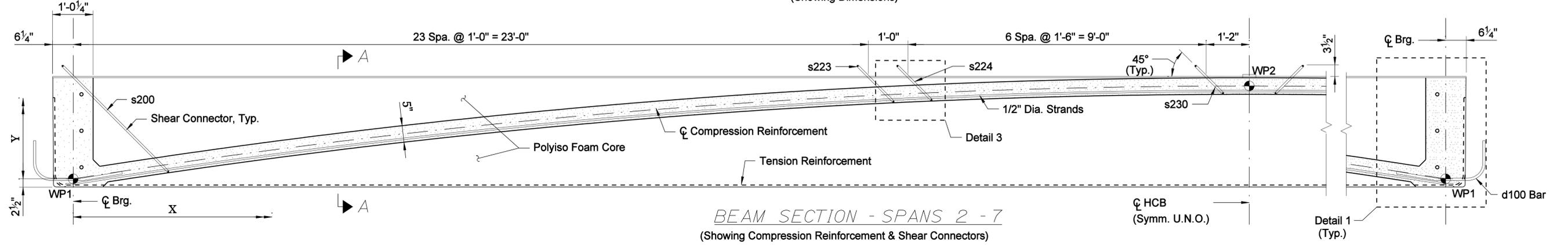
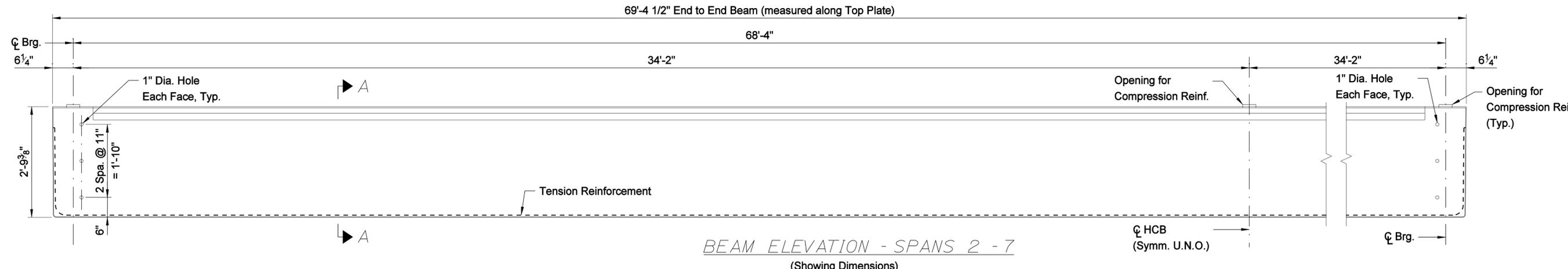
SHEET NUMBER  
**35**  
 OF 51

Date: 11/4/2009

Username: briann\_jnichols

Division: BRIDGE

Filename: ... \036\_Framing\_HCB-Elev\_2.dgn



**COMPRESSION REINFORCEMENT GEOMETRY**

Spans 2 - 7	
X (in.)	Y (in.)
0	0
41.0	5.32
82.0	10.08
123.0	14.28
164.0	17.92
205.0	21.00
246.0	23.52
287.0	25.48
328.0	26.88
369.0	27.72
410.0	28.00

**CAMBER DATA**  
(Spans 2 - 7 Beams)

STATION [ft]	FRP SHELL SELF WEIGHT		FOR PLACING COMPRESSION REINFORCEMENT		FOR PLACING DECK (NONCOMPOSITE SECTION)		FOR PLACING BARRIER & OVERLAY (COMPOSITE SECTION)		TOTAL DEFLECTION (REQUIRED CAMBER)
	EI [k-in <sup>2</sup> ]	DEFL. [in]	EI [k-in <sup>2</sup> ]	DEFL. [in]	EI [k-in <sup>2</sup> ]	DEFL. [in]	EI [k-in <sup>2</sup> ]	DEFL. [in]	
0.00	31,983,537	0.00	31,983,537	0.00	35,312,278	0.00	55,956,335	0.00	0.00
6.83	31,983,537	0.40	31,983,537	0.88	39,912,574	0.60	52,755,933	0.04	1.93
13.67	31,983,537	0.72	31,983,537	1.57	66,677,902	1.09	74,727,858	0.10	3.48
20.50	31,983,537	0.94	31,983,537	2.06	98,217,773	1.43	239,909,644	0.15	4.58
27.33	31,983,537	1.08	31,983,537	2.35	122,110,407	1.63	229,058,604	0.19	5.24
34.17	31,983,537	1.12	31,983,537	2.45	130,902,737	1.69	227,410,022	0.20	5.46
41.00	31,983,537	1.08	31,983,537	2.35	122,110,407	1.63	229,058,604	0.19	5.24
47.83	31,983,537	0.94	31,983,537	2.06	98,217,773	1.43	239,909,644	0.15	4.58
54.67	31,983,537	0.72	31,983,537	1.57	66,677,902	1.09	74,727,858	0.10	3.48
61.50	31,983,537	0.40	31,983,537	0.88	39,912,574	0.60	52,755,933	0.04	1.93
68.33	31,983,537	0.00	31,983,537	0.00	35,312,278	0.00	55,956,335	0.00	0.00

**BILL OF MATERIAL (F.I.O.)**  
(Per beam for spans 2 - 7, 48 each)

ITEM	UNIT	TOTAL
Compression Reinforcement	Cu. Yd.	3.16
Shear Connectors	Lbs.	326
Tension Reinforcement	Ft.	3,085
Arch Reinforcement	Ft.	138
Continuity Bars	Lbs.	9

**NOTES:**

- Work this sheet with sheets 35 thru 38.
- El of beam is normalized to the FRP shell (E = 3,100 ksi).
- El of beam for composite loading includes deck concrete in positive moment areas (0.3L to 0.7L) and deck reinforcement bars in negative moment areas (0.0L to 0.2L and 0.8L to 1.0L).
- F.I.O. denotes For Information Only.

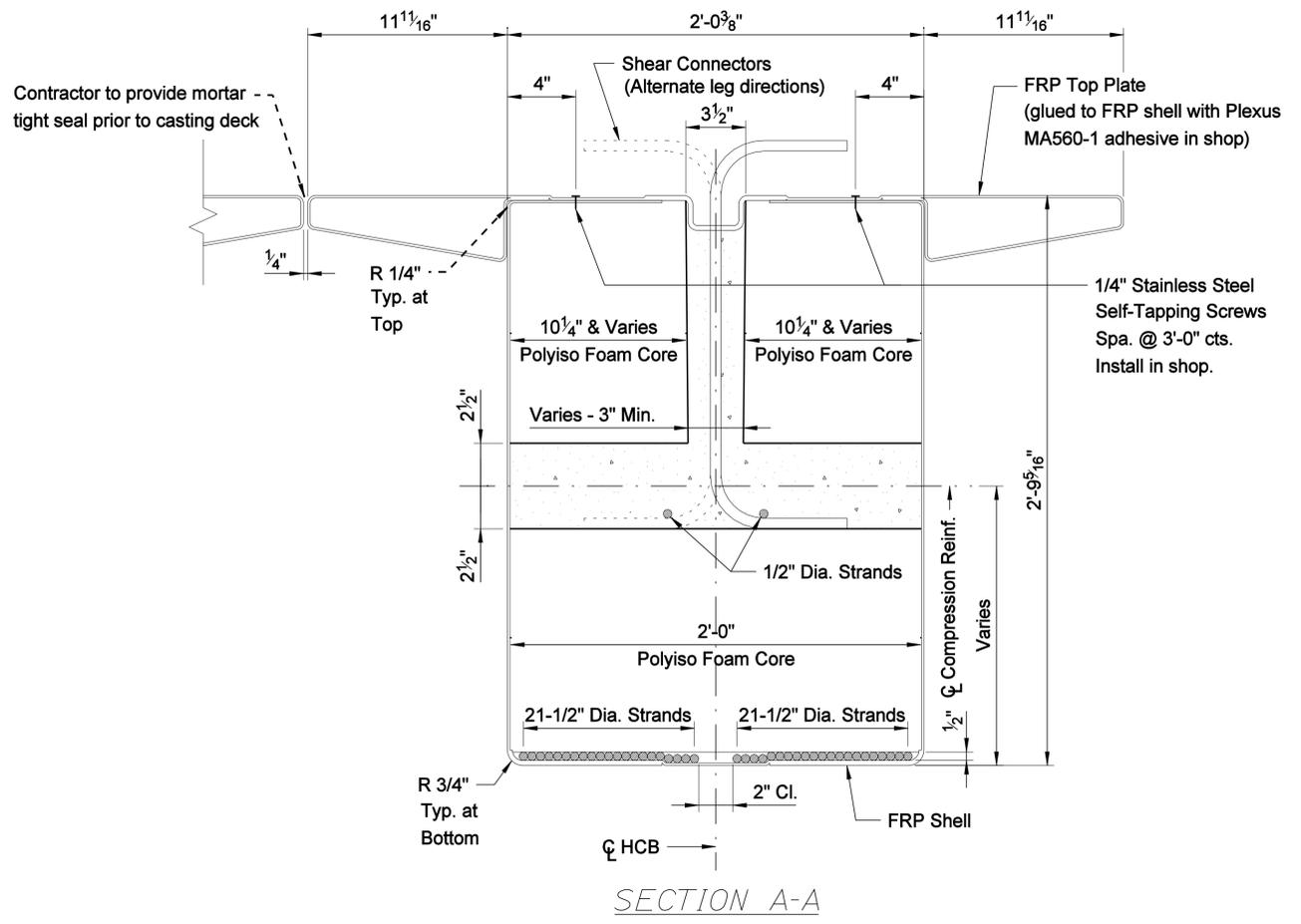
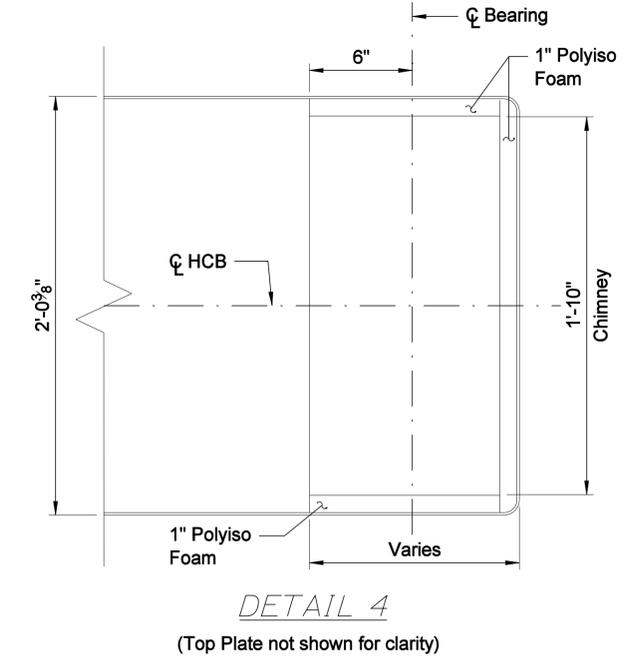
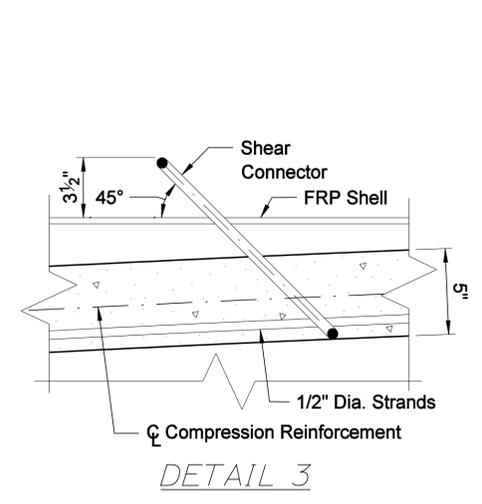
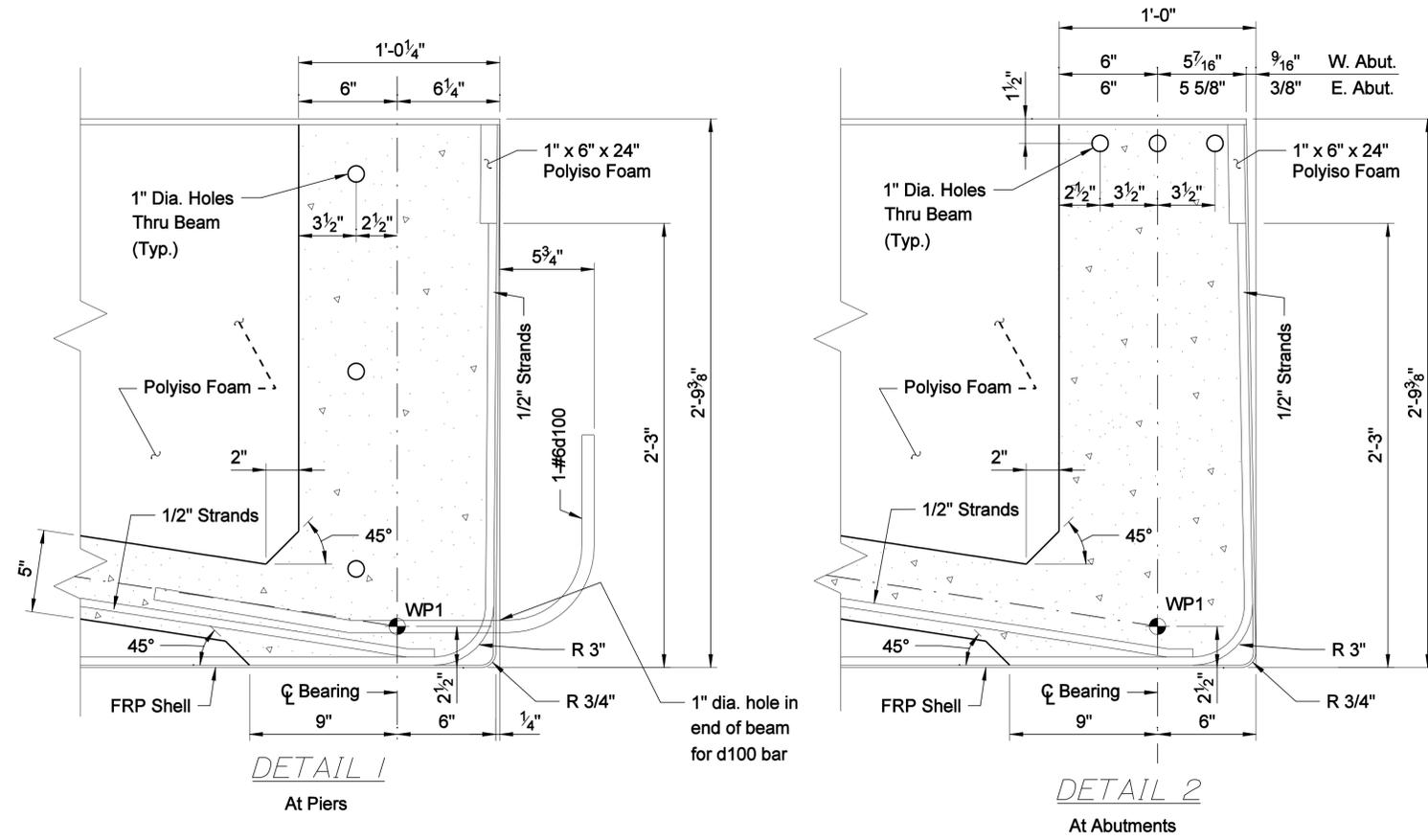
STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
BR-1263(000)X  
BRIDGE NO. 2438  
PIN 12630.00  
BRIDGE PLANS

KNICKERBOCKER BRIDGE  
BACK RIVER  
LINCOLN COUNTY  
BOOTHBAY  
HYBRID COMPOSITE BEAM DETAILS

PROJ. MGR.	DESIGN	CHECKED	DATE
MBR	JRH	JRH	FEB 2008

NO.	BY	DATE	SIGNATURE	P.E. NUMBER	DATE
1					
2					
3					
4					

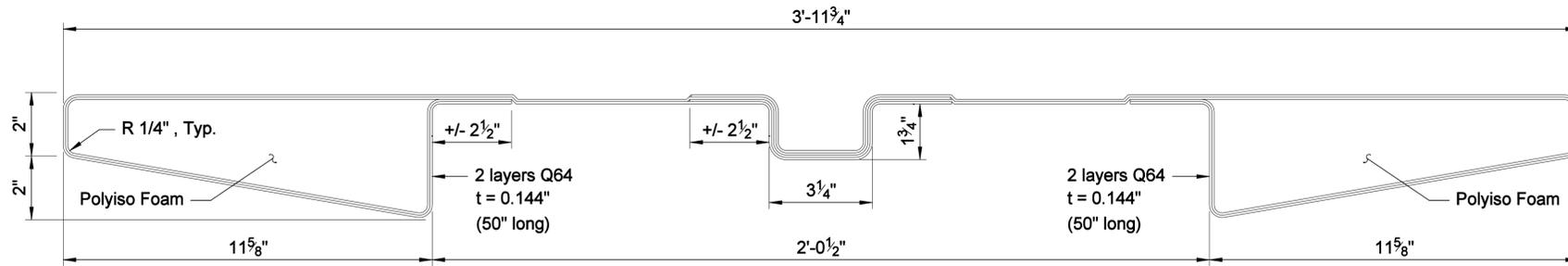
SHEET NUMBER  
**36**  
OF 51



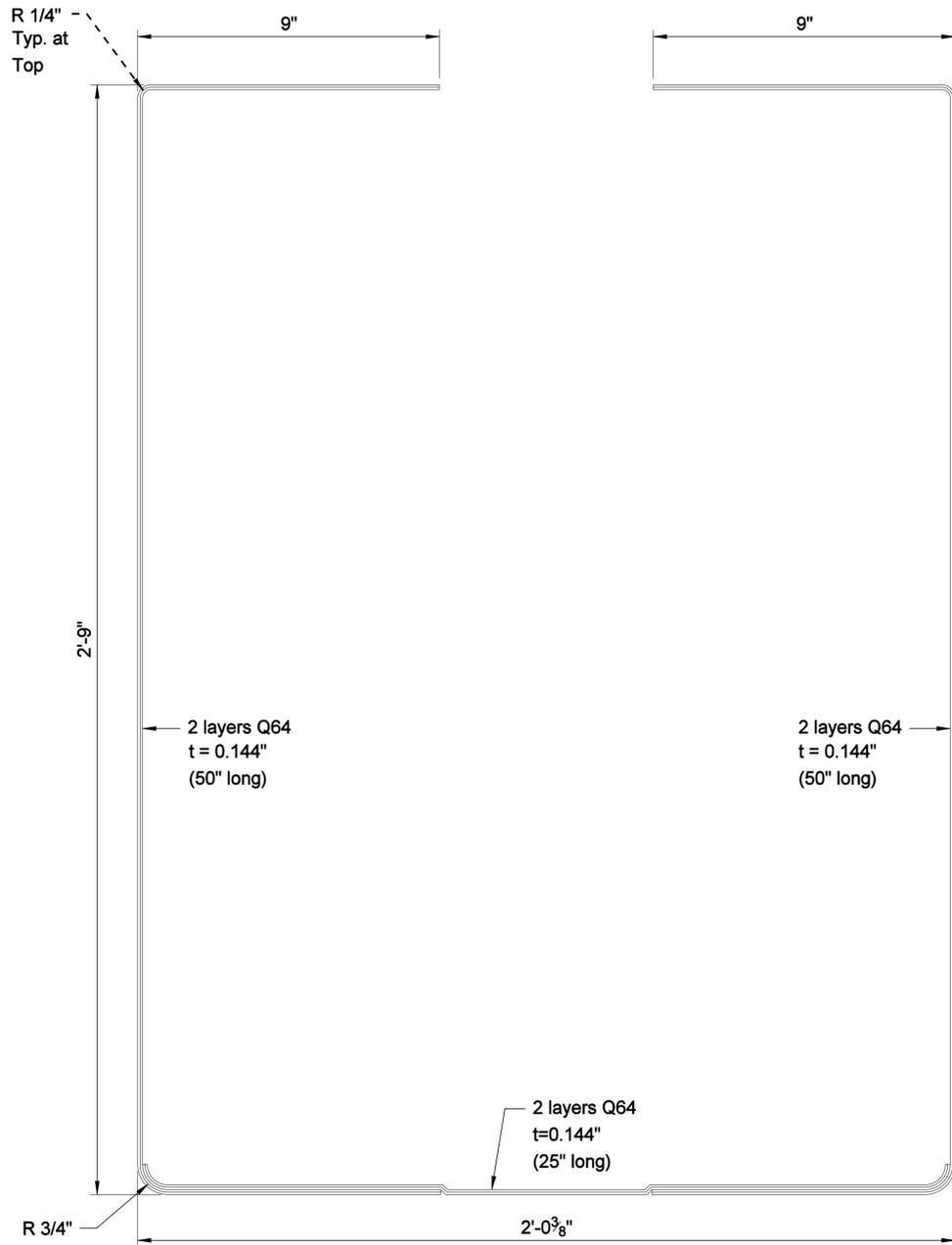
**NOTES:**

1. Work this sheet with sheets 35 thru 38.
2. Cost of Shear Connectors included in Furnishing Hybrid-Composite Beams - 33".
3. The concrete compression reinforcement in the HCB's shall be furnished and installed by the Contractor. The compression reinforcement will not be paid for separately, but shall be included in the cost of Erecting Hybrid-Composite Beams.
4. Compression Reinforcement in the HCB shall be Self-Consolidating Concrete,  $f_c = 6,000$  psi. See Special Provision.
5. Tension reinforcement in the HCB shall be 1/2" Dia. 250 ksi strands, according to ASTM A416 Seven-Wire Prestressing Strand. The strands shall be galvanized in accordance with ASTM A475.
6. Shear Connectors shall be AASHTO M270 Grade 60 and shall be zinc-coated (galvanized) in accordance with ASTM A767.
7. The FRP Shell laminate shall be a glass reinforced, vinyl ester polymer conforming to the requirement of the Special Provisions for Furnishing Hybrid-Composite Beams.
8. Weight of FRP Shell, with steel strands, but without compression reinforcement, is approximately 4,500 lbs for Spans 1 & 8 beams and 5,100 lbs for Spans 2-7 beams.
9. The 0-axis of the quad-weave fabric shall be oriented along the longitudinal axis of the beams in building up the FRP shell.
10. Beam lines A and H shall have 1" dia. holes for pier diaphragms and deck end haunches only on the interior face of the FRP shell.
11. Place shear connectors, arch reinforcement, continuity bars, pier diaphragm bars, and deck end haunch bars prior to placing SCC for compression reinforcement.

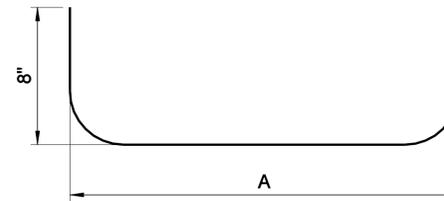
STATE OF MAINE DEPARTMENT OF TRANSPORTATION		BR-1263(000)X	
KNICKERBOCKER BRIDGE BACK RIVER BOOTHBAY		LINCOLN COUNTY	
HYBRID COMPOSITE BEAM DETAILS		BRIDGE NO. 2438	
SHEET NUMBER		PIN 12630.00	
37		BRIDGE PLANS	
OF 51			



FRP TOP PLATE LAYUP

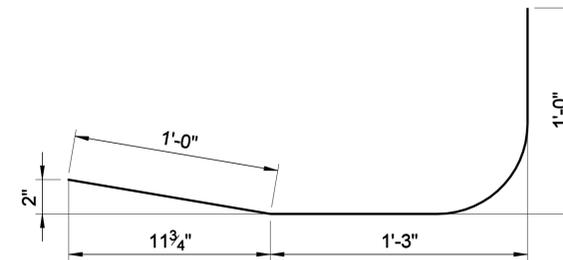


FRP SHELL LAYUP



SHEAR CONNECTORS

(All shear connectors shall be #6 galvanized reinforcement bars)



CONTINUITY BARS

(All continuity bars shall be #6 galvanized reinforcement bars)  
1 per beam in spans 1 & 8, 2 per beam in spans 2 - 7.

NOTES:

1. Work this sheet with sheets 35 thru 37.

SHEAR CONNECTORS

Per Beam, Spans 1 & 8			
Bar	No.	A	Length
s100	2	3'-10"	5'-2"
s101	2	3'-8"	5'-0"
s102	2	3'-6"	4'-10"
s103	2	3'-4"	4'-8"
s104	2	3'-2"	4'-6"
s105	2	3'-0"	4'-4"
s106	2	2'-11"	4'-3"
s107	2	2'-9"	4'-1"
s108	2	2'-7"	3'-11"
s109	2	2'-5"	3'-9"
s110	2	2'-4"	3'-8"
s111	2	2'-2"	3'-6"
s112	2	2'-1"	3'-5"
s113	2	2'-0"	3'-4"
s114	2	1'-10"	3'-2"
s115	2	1'-9"	3'-1"
s116	2	1'-8"	3'-0"
s117	2	1'-7"	2'-11"
s118	2	1'-6"	2'-10"
s119	2	1'-5"	2'-9"
s120	2	1'-4"	2'-8"
s121	2	1'-4"	2'-8"
s122	2	1'-3"	2'-7"
s123	2	1'-2"	2'-6"
s124	2	1'-1"	2'-5"
s125	2	1'-1"	2'-5"
s126	2	1'-1"	2'-5"

SHEAR CONNECTORS

Per Beam, Spans 2 - 7			
Bar	No.	A	Length
s200	2	3'-11"	5'-3"
s201	2	3'-9"	5'-1"
s202	2	3'-7"	4'-11"
s203	2	3'-5"	4'-9"
s204	2	3'-4"	4'-8"
s205	2	3'-2"	4'-6"
s206	2	3'-0"	4'-4"
s207	2	2'-11"	4'-3"
s208	2	2'-9"	4'-1"
s209	2	2'-8"	4'-0"
s210	2	2'-6"	3'-10"
s211	2	2'-5"	3'-8"
s212	2	2'-4"	3'-8"
s213	2	2'-2"	3'-6"
s214	2	2'-1"	3'-5"
s215	2	2'-0"	3'-4"
s216	2	1'-11"	3'-3"
s217	2	1'-10"	3'-2"
s218	2	1'-9"	3'-1"
s219	2	1'-8"	3'-0"
s220	2	1'-7"	2'-11"
s221	2	1'-6"	2'-10"
s222	2	1'-5"	2'-9"
s223	2	1'-4"	2'-8"
s224	2	1'-4"	2'-8"
s225	2	1'-3"	2'-7"
s226	2	1'-2"	2'-6"
s227	2	1'-2"	2'-6"
s228	2	1'-1"	2'-5"
s229	2	1'-1"	2'-5"
s230	2	1'-1"	2'-5"

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
BR-1263(000)X  
PIN 12630.00  
BRIDGE NO. 2438  
BRIDGE PLANS

PROJ. MANAGER	DATE	BY	DATE
DESIGN-DETAILED	FEB 2008	MBR	
CHECKED-REVIEWED		JRH	
DESIGNS-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

KNICKERBOCKER BRIDGE  
BACK RIVER  
LINCOLN COUNTY  
BOOTHBAY  
HYBRID COMPOSITE BEAM DETAILS

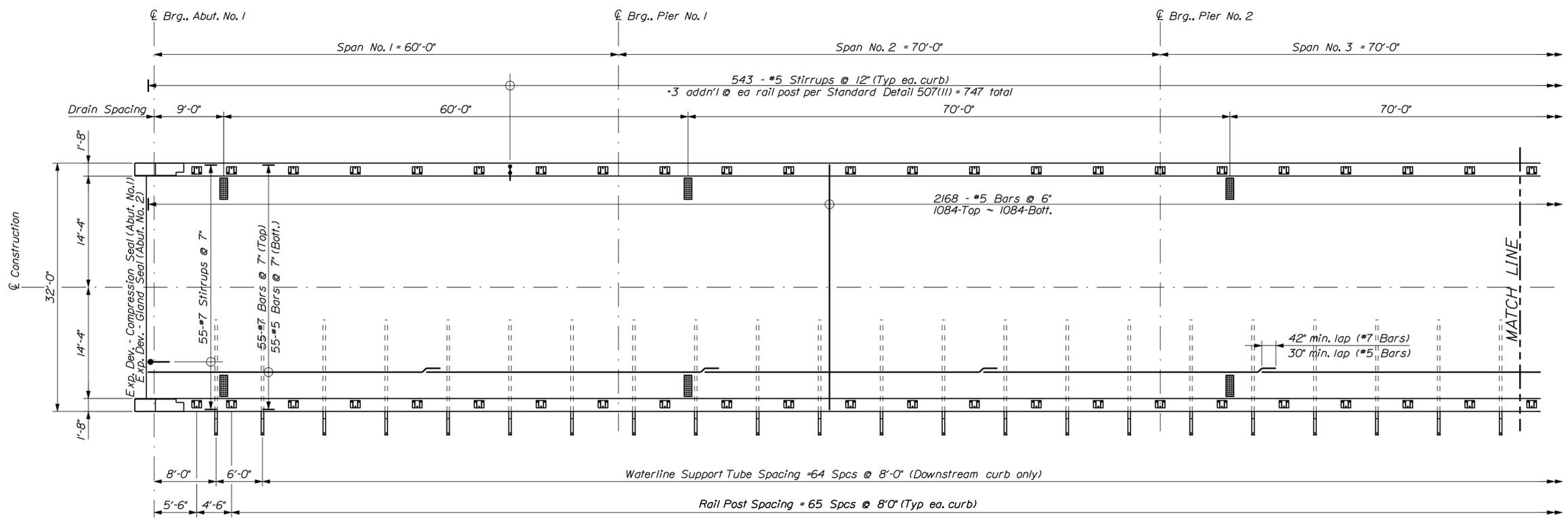
SHEET NUMBER  
**38**  
OF 51

Date: 11/4/2009

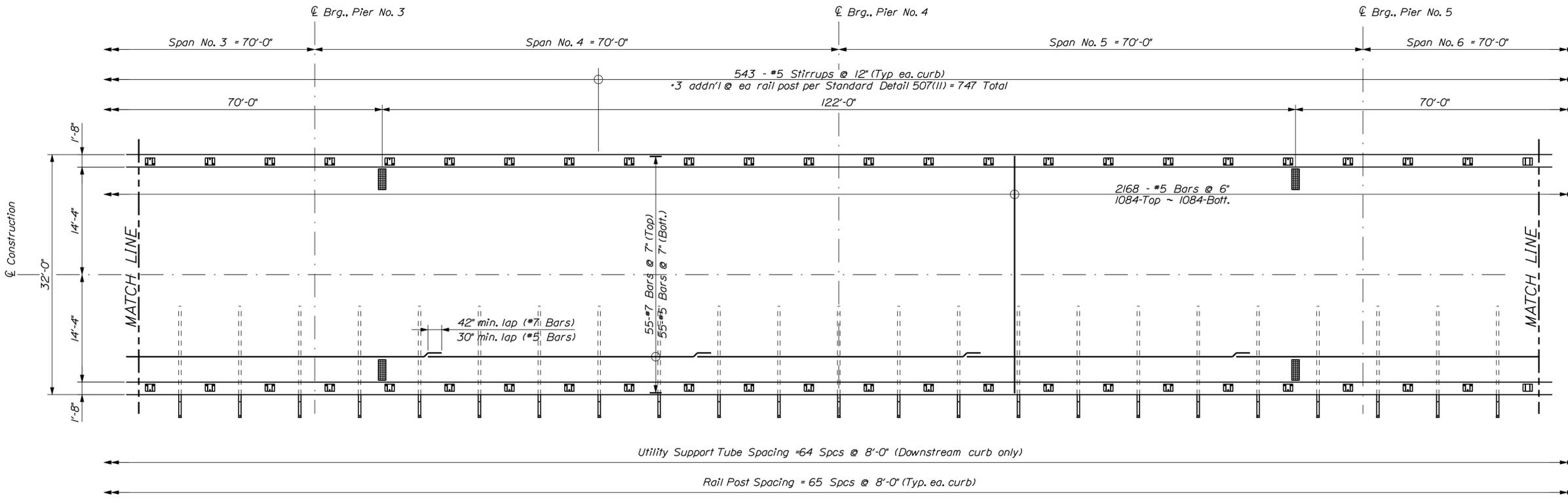
Username: brian.j.nichols

Division: BRIDGE

Filename: ... \039\_Superstructure\_plan.dgn



**SUPERSTRUCTURE PLAN**  
Span Nos. 1-3 shown - Span Nos. 6-8 Opposite Hand



**SUPERSTRUCTURE PLAN**

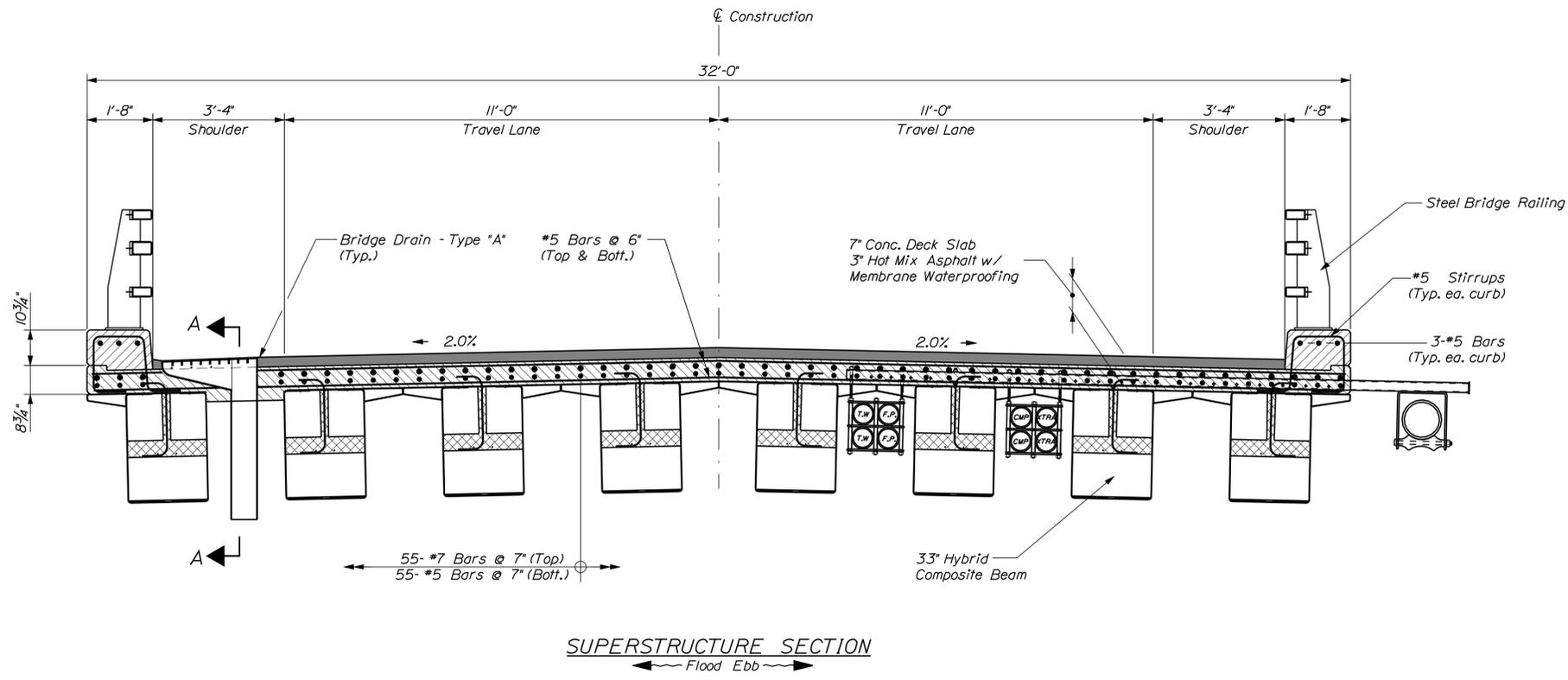
STATE OF MAINE		DEPARTMENT OF TRANSPORTATION	
BR-1263(000)X		BRIDGE NO. 2438	
PIN 12630.00		BRIDGE PLANS	
PROJ. MANAGER	DATE	BY	DATE
DESIGN DETAILED	FEB 2008	BAN	
CHECKED-REVIEWED		ETC	
DESIGNS DETAILED			
DESIGNS DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			
KNICKERBOCKER BRIDGE		SIGNATURE	
BACK RIVER		P.E. NUMBER	
LINCOLN COUNTY		DATE	
BOOTHBAY			
SUPERSTRUCTURE PLAN			
SHEET NUMBER			
39			
OF 51			

Date: 11/4/2009

Username: briani.jnichols

Division: BRIDGE

Filename: ... \040\_Superstructure\_Det\_1.dgn

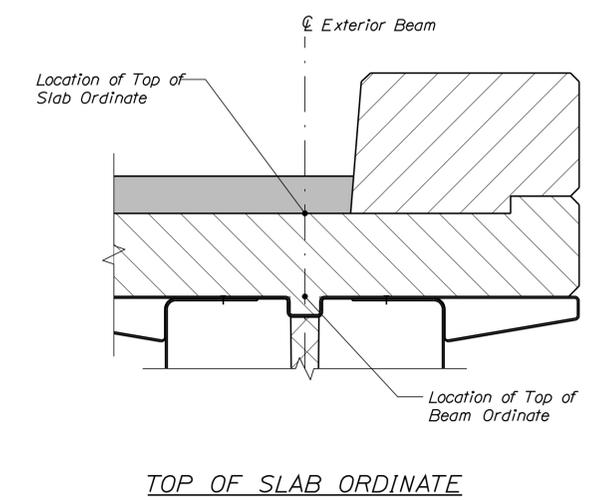
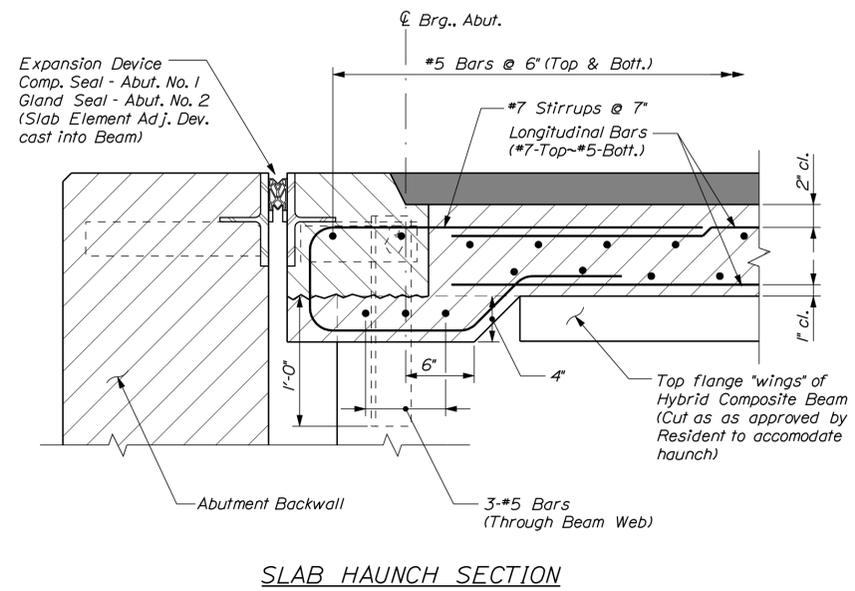
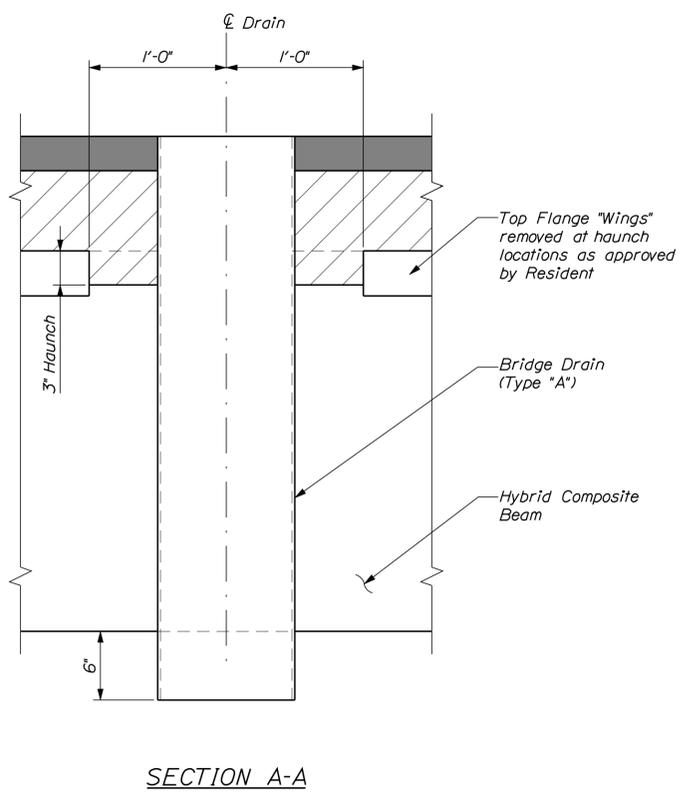


**SUPERSTRUCTURE NOTES**

1. Reinforcing steel shall have a minimum concrete cover of 2 inches unless otherwise noted.
2. Adjust reinforcing steel to fit around the bridge drains in a manner approved by the Resident. Do not cut transverse reinforcing bars.
3. Form a one inch V-groove on the fascias at the horizontal joint between the curb and slab.
4. Unless the superstructure slab concrete is placed in one continuous operation, the initial placement shall begin at a simply supported end of the deck slab and shall terminate 20' either side of the centerline of Piers 3, 4, or 5. The Contractor is allowed no more than two placements to complete the entire superstructure slab, but may select which of these locations to terminate the initial concrete placement sequence. The second placement shall proceed from the end of the previous placement, terminate at the remaining end of the deck slab. Concrete in a placement shall be kept plastic one complete span behind the span being placed. A minimum of 5 days shall elapse between successive partial placements. The superstructure slab concrete placement sequence shall be approved by the Resident.
5. The seal(s) to be furnished shall have minimum Movement Rating(s) as follows:  
 Abutment No. 1 = 1.6 inch  
 Abutment No. 2 = 3.0 inch
6. The Resident shall approve the seals prior to fabrication of the Expansion Device.
7. Provide 3 additional stirrups in the curbs at each Transition Barrier location.
8. The Contractor shall install Transition Barrier vertical closed stirrups, as shown in Standard Details Section 526, prior to the placement of the curb concrete.
9. Contractor shall not cut top flange "wings" to accommodate bridge drains and haunch until concrete has reached a minimum compressive strength of 4,000 psi.
10. After Hybrid Composite Beams have been erected and compression reinforcement has reached a compressive strength of 4,200 PSI, the Contractor shall survey the Top of Beam elevations at intervals indicated in the 'Top of Slab Elevations' Table. The Top of Beam elevations shall be submitted to the Resident before setting screed rails.
11. Top of Curb elevations shall be set at 10' intervals based on bridge finish grade profile. The Contractor shall submit curb elevations one week prior to placing curb.

**TOP OF SLAB ELEVATIONS**

Location	Abut. No. 1	+10'	+20'	+30'	+40'	+50'	Pier No. 1	+10'	+20'	+30'	+40'	+50'	+60'	Pier No. 2	
TOS Elev.	11.69	11.82	11.97	12.14	12.33	12.54	12.76	12.87	13.00	13.16	13.34	13.54	13.77	14.01	
Location	Pier No. 2	+10'	+20'	+30'	+40'	+50'	+60'	Pier No. 3	+10'	+20'	+30'	+40'	+50'	+60'	Pier No. 4
TOS Elev.	14.01	14.13	14.26	14.41	14.59	14.79	15.01	15.22	15.27	15.33	15.39	15.46	15.52	15.60	15.67
Location	Pier No. 4	+10'	+20'	+30'	+40'	+50'	+60'	Pier No. 5	+10'	+20'	+30'	+40'	+50'	+60'	Pier No. 6
TOS Elev.	15.67	15.59	15.51	15.43	15.35	15.28	15.22	15.17	14.98	14.82	14.68	14.56	14.46	14.39	14.34
Location	Pier No. 6	+10'	+20'	+30'	+40'	+50'	+60'	Pier No. 7	+10'	+20'	+30'	+40'	+50'	Abut. No. 2	
TOS Elev.	14.34	14.16	13.99	13.85	13.73	13.64	13.57	13.51	13.35	13.21	13.08	12.97	12.88	12.80	



STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
**BR-1263(000)X**  
 PIN 12630.00  
 BRIDGE NO. 2498  
 BRIDGE PLANS

PROJ. MANAGER	DATE	BY	DATE	NOB	ETC	SIGNATURE	P.E. NUMBER	DATE
DESIGN DETAILED	FEB 2008	BAN						
CHECKED-REVIEWED								
DESIGNS DETAILED								
DESIGNS DETAILED								
REVISIONS 1								
REVISIONS 2								
REVISIONS 3								
REVISIONS 4								
FIELD CHANGES								

KNICKERBOCKER BRIDGE  
 BACK RIVER  
 LINCOLN COUNTY  
 BOOTHBAY  
**SUPERSTRUCTURE DETAILS**

SHEET NUMBER  
**40**  
 OF 51

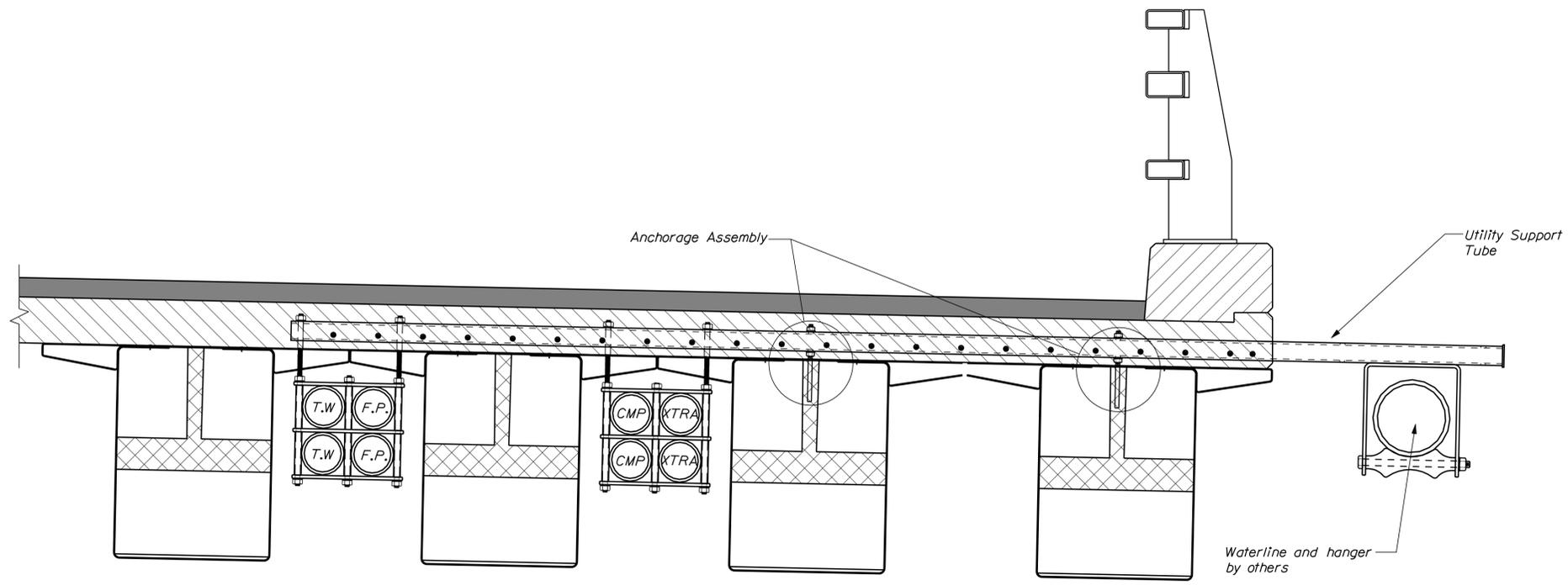


Date: 11/4/2009

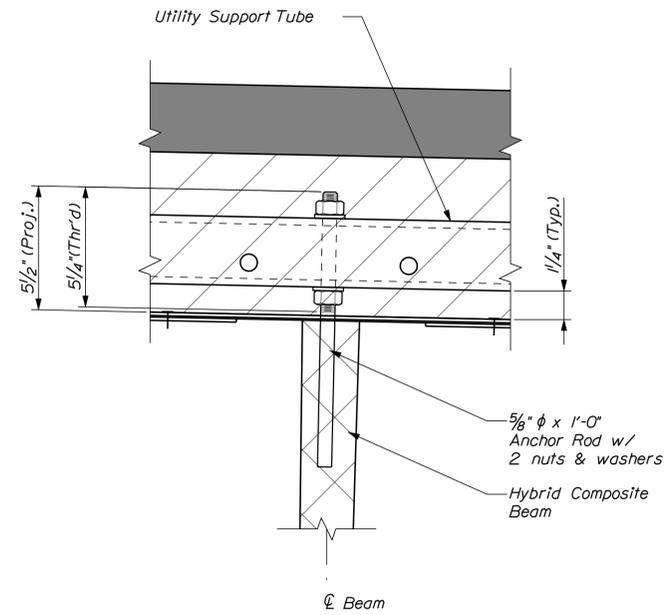
Username: brian.j.nichols

Division: BRIDGE

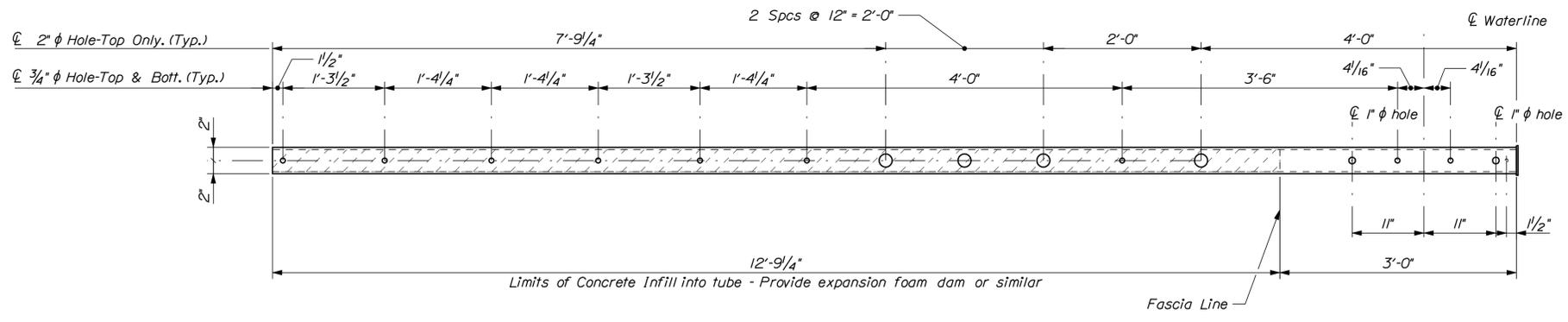
Filename: ... \041\_Superstructure\_Det\_2.dgn



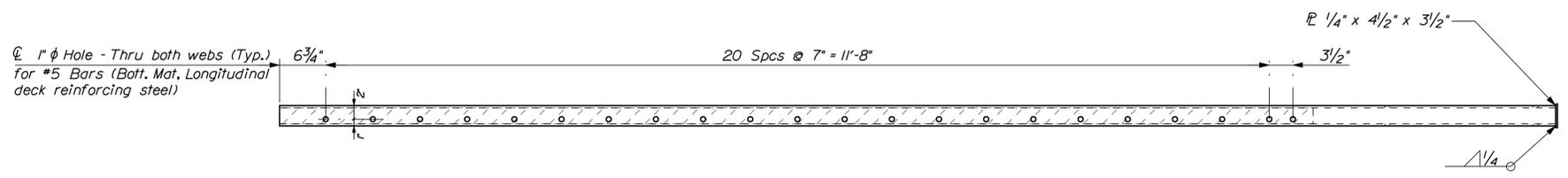
UTILITY SUPPORT



ANCHORAGE ASSEMBLY



UTILITY SUPPORT TUBE PLAN



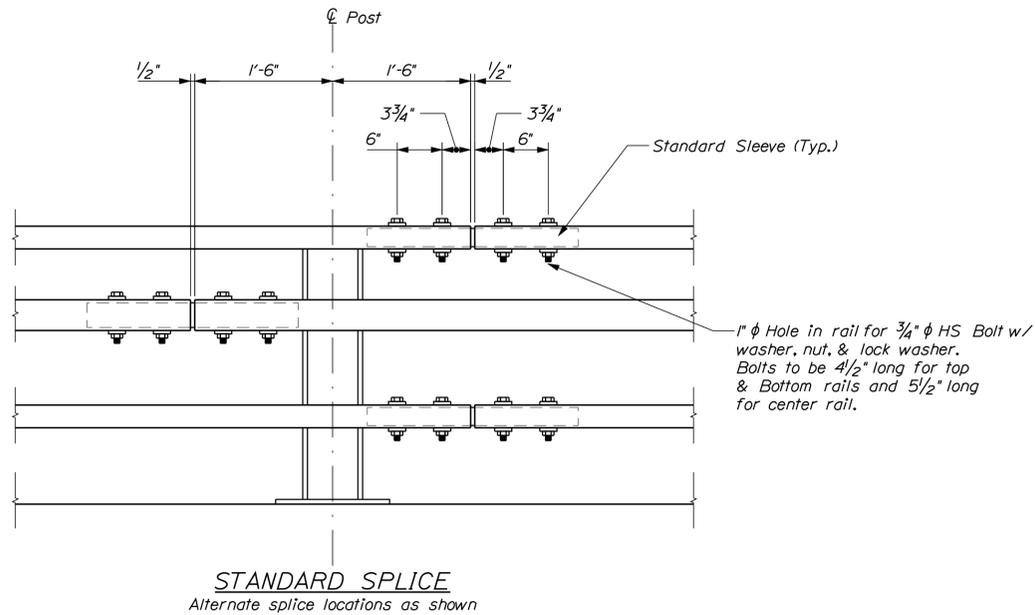
UTILITY SUPPORT TUBE ELEVATION

UTILITY SUPPORT TUBE NOTES

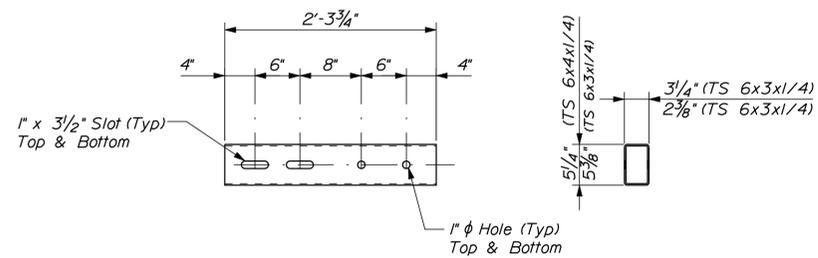
1. Utility Support Tubes shall be HSS 4x3x9/16 ASTM A500 Gr. B. Min. Yield = 46 ksi
2. Anchor Rod shall meet the requirements of ASTM F1554 Gr. 50.
3. All material shall be galvanized in accordance with ASTM A123, except that hardware shall meet the requirements of ASTM A153. All material, except hardware shall be blast cleaned prior to galvanization in accordance with SSPC-SP6
4. Utility Support Tubes and Anchor Rods shall be furnished by others but installed by contractor. Payment for installation of utility support tubes, anchor rods and filling of tubes with concrete to the limits shown, shall not be made directly, but shall be considered incidental to Item No. 502.25 Structural Concrete Superstructure Slab.

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		BRIDGE NO. 2498		BRIDGE PLANS	
KNICKERBOCKER BRIDGE		BACK RIVER		LINCOLN COUNTY		BOOTHBAY	
PROJECT MANAGER		BY		DATE		SIGNATURE	
DESIGN/DETAILED		BAN		FEB 2008		P.E. NUMBER	
CHECKED/REVIEWED		ETC				DATE	
DESIGNS/DETAILED							
REVISIONS 1							
REVISIONS 2							
REVISIONS 3							
REVISIONS 4							
FIELD CHANGES							
SHEET NUMBER		41		OF 51		BR-1263(000)X	





**STANDARD SPLICE**  
Alternate splice locations as shown



**STANDARD SPLICE**

**BRIDGE RAIL NOTES**

1. Venting and pick-up holes in rails and sleeves shall be shown on Fabricator's shop plans.
2. Anchor bolts may be tack welded to anchorage.
3. Post base plates shall be flat after fabrication.
4. Rails shall not be shop spliced.
5. Rails shall be shop or field drilled 1/4" to receive rail bolts.
6. After installation of rail, the exposed rail bolt threads shall be painted with two coats of zinc-rich paint.
7. Slots may be omitted in standard sleeves where bolts are required for one side of splice only.
8. All testing of post to base welds shall conform to AWS D1.5, article 6.7.2.
9. All exposed cut or sheared edges shall be rounded and free of burrs.
10. Rail post shall be set normal to grade.
11. Lengths of rail shall be attached to a minimum of two (2) rail posts and to at least four (4) whenever possible.
12. All parts shall be galvanized after fabrication in accordance with ASTM A123, except that hardware shall meet the requirements of ASTM A153 or ASTM B695, Class 50, Type I. Parts except hardware shall be blast cleaned prior to galvanizing in accordance with SSPC - SP6.

Date: 11/4/2009

Username: brian.j.nichols

Division: BRIDGE

Filename: ... \00\bridge\msta\043\_Rail\_2.dgn

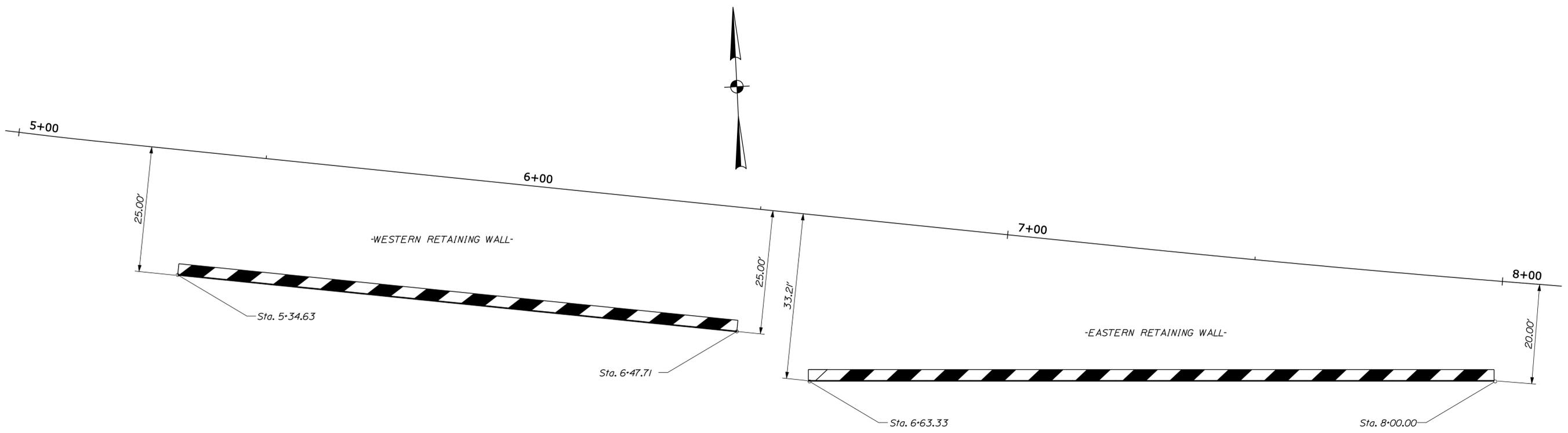
STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
BR-1263(000)X  
PIN 12630.00  
BRIDGE NO. 2498  
BRIDGE PLANS

PROJ. MANAGER	NO. BY	DATE
DESIGN-DETAILED	BAN	FEB 2008
CHECKED-REVIEWED		
DESIGN-DETAILED		SIGNATURE
REVISIONS 1		P.E. NUMBER
REVISIONS 2		DATE
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

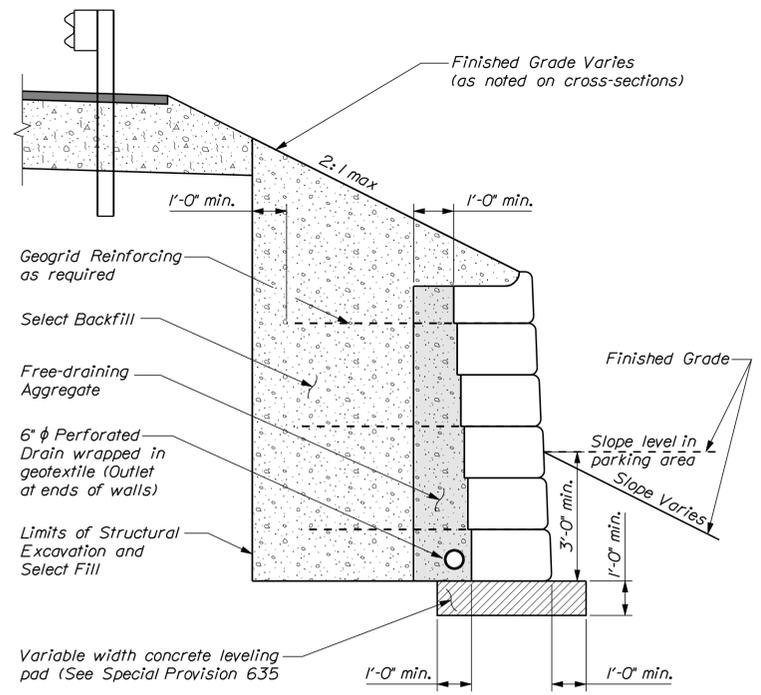
KNICKERBOCKER BRIDGE  
BACK RIVER  
LINCOLN COUNTY  
BOOTHBAY  
PLANS

SHEET NUMBER  
**43**  
OF 51

Filename: ... \00\bridge\msta\044\_Wall\_1.dgn  
 Division: BRIDGE  
 Username: briani.jnichols  
 Date: 11/4/2009



RETAINING WALL PLAN



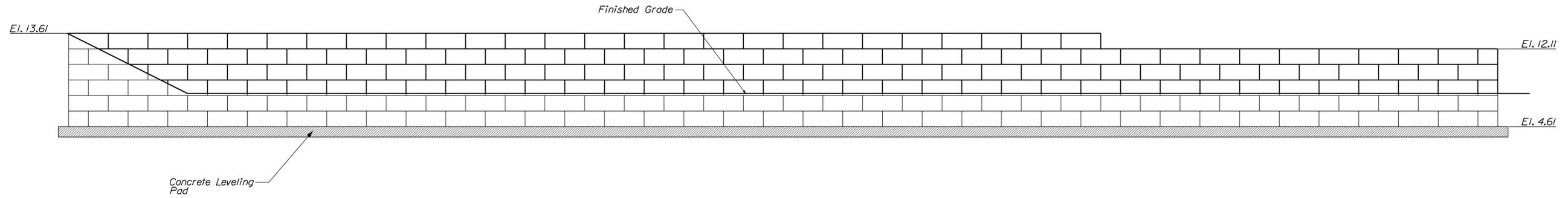
PRECAST CONCRETE BLOCK GRAVITY WALL SECTION (TYPICAL)

PRECAST CONCRETE BLOCK GRAVITY WALL

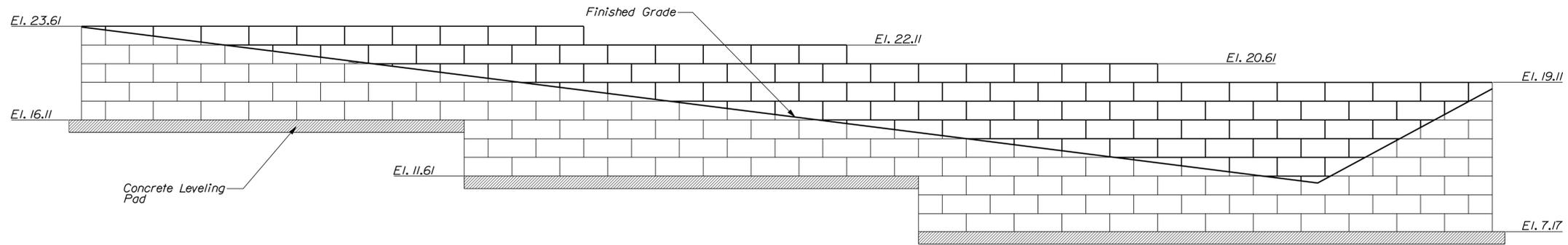
1. The Contractor shall provide a Precast Concrete Block Gravity Wall or a Precast Aggregate-Filled Concrete Block Wall in accordance with Special Provision 635 for the relevant wall system. Precast Concrete Block Gravity Walls shall be designed and stamped by a Licensed Professional Engineer and the design and shop drawings shall be submitted to the Resident for review. Plan details are shown for estimating purposes only.
2. The Precast Concrete Block Gravity Wall system shall be Redi-Rock as produced by a licensed manufacturer or Stone Strong as produced by a licensed manufacturer.
3. Backfill and foundation soil parameters for use in the submitted design shall be in accordance with Special Provision 635.
4. The Precast Concrete Block Gravity Walls shall be designed in accordance with the AASHTO LRFD Bridge Design Specifications, 4th Edition, with 2008 Interims, and Special Provision 635. Traffic loading will be included in the wall design.
5. Guardrail posts shall not be driven or drilled through the geotextile reinforcement. Loss of area due to guardrail posts shall be considered in the wall design calculations.
6. For the strength limit state the applied factored bearing pressure for Precast Concrete Block Gravity Wall shall not exceed a factored bearing resistance of 20 ksf for wall sections bearing on bedrock or 4.5 ksf for wall sections bearing on soil.
7. All blocks at the ends of the wall(s) must be finished on three sides: the front, the top and the exposed end. Blocks with exposed surfaces at the ends and top of the wall must be manufactured for this purpose and must be finished to match the face of the blocks.
8. Piped drainage shall be included in the design of the walls. Wall drainage will be incidental to construction of the wall.
9. A minimum embedment depth of 3.0 feet is required in the design and construction of the Precast Concrete Block Gravity Wall. If founded on bedrock, there are no requirements for embedment for frost protection.
10. The face quantity of Precast Concrete Block Wall will be approved by approval of the shop drawings.
11. If blasting is required at the base of the wall, no water pockets will be left between the drain at the back of the wall and the highway underdrain.

STATE OF MAINE DEPARTMENT OF TRANSPORTATION		BR-1263(000)X	
BRIDGE NO. 2438		PIN 12630.00	
KNICKERBOCKER BRIDGE BACK RIVER LINCOLN COUNTY BOOTHBAY		RETAINING WALL DETAILS	
SHEET NUMBER		44	
OF 51		BRIDGE PLANS	

PROJ. MANAGER	DATE	BY	DATE
DESIGN/DETAILED	FEB 2008	BAN	
CHECKED/REVIEWED			
DESIGNS/DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			



EASTERN RETAINING WALL ELEVATION



WESTERN RETAINING WALL ELEVATION

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
**BR-1263(000)X**  
PIN  
12630.00  
BRIDGE NO. 2438  
BRIDGE PLANS

PROJ. MANAGER	NOI	BY	DATE
CHECKED-REVIEWED	ETC	B.J.N	FEB 2008
DESIGNS DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

KNICKERBOCKER BRIDGE  
BACK RIVER  
LINCOLN COUNTY  
BOOTHBAY  
**RETAINING WALL DETAILS**

SHEET NUMBER  
**45**  
OF 51



TAX MAP R-4  
LOT 102

**CURVE DATA**  
P.I. STA. 3+95.52  
D = 07° - 32' - 20.1"  
Δ = 18° - 21' - 23.1" Lt.  
T = 122.80'  
L = 243.49'  
E = 9.86'  
R = 760.00'

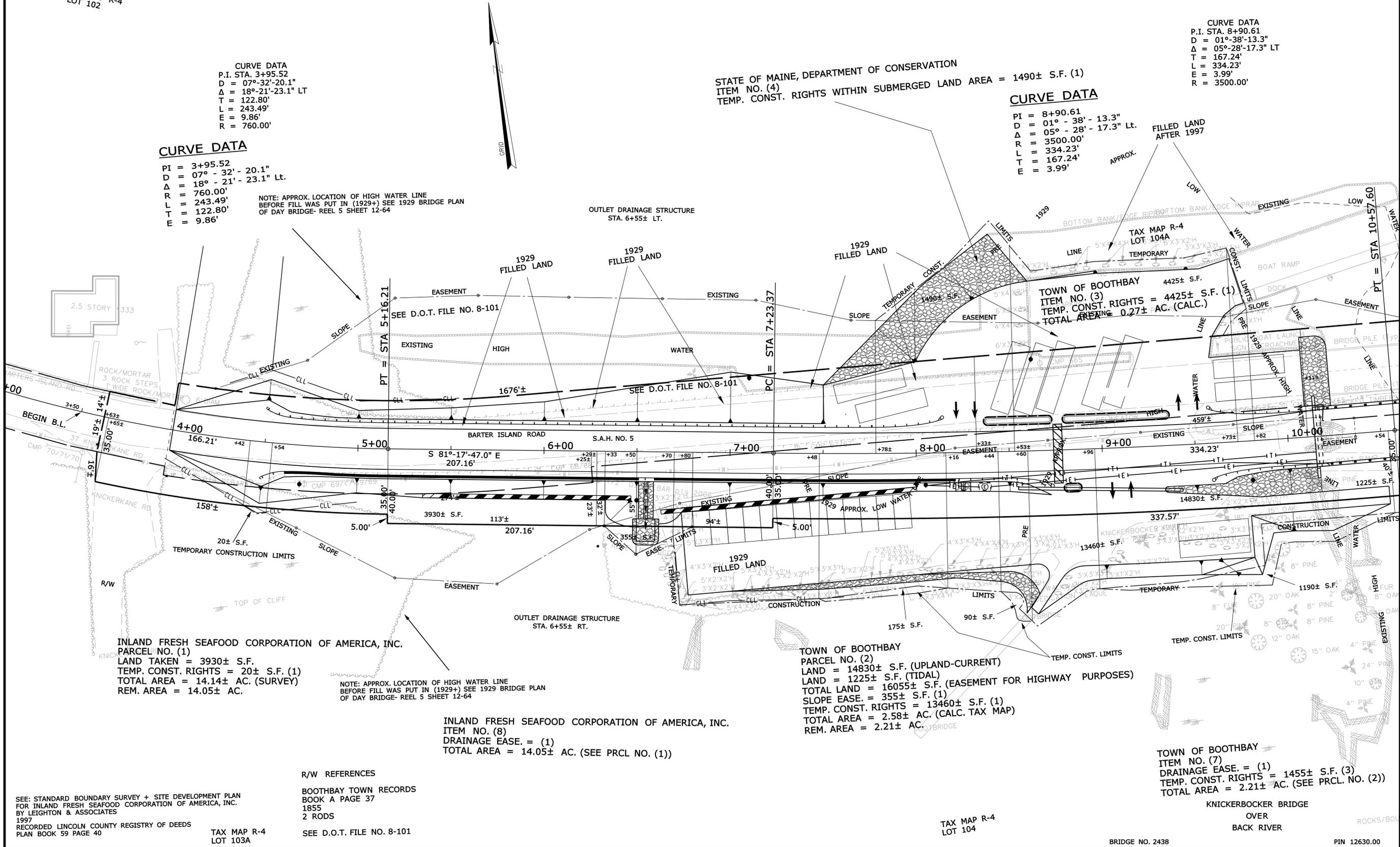
**CURVE DATA**  
PI = 3+95.52  
D = 07° - 32' - 20.1"  
Δ = 18° - 21' - 23.1" Lt.  
R = 760.00'  
L = 243.49'  
T = 122.80'  
E = 9.86'

NOTE: APPROX. LOCATION OF HIGH WATER LINE BEFORE FILL WAS PUT IN (1929+) SEE 1929 BRIDGE PLAN OF DAY BRIDGE- REEL 5 SHEET 12-64

STATE OF MAINE, DEPARTMENT OF CONSERVATION  
ITEM NO. (4)  
TEMP. CONST. RIGHTS WITHIN SUBMERGED LAND AREA = 1490± S.F. (1)

**CURVE DATA**  
PI = 8+90.61  
D = 01° - 38' - 13.3"  
Δ = 05° - 28' - 17.3" Lt.  
R = 3500.00'  
L = 167.24'  
T = 334.23'  
E = 3.99'

CURVE DATA  
P.I. STA. 8+90.61  
D = 01° - 38' - 13.3"  
Δ = 05° - 28' - 17.3" Lt.  
T = 167.24'  
L = 334.23'  
E = 3.99'  
R = 3500.00'



INLAND FRESH SEAFOOD CORPORATION OF AMERICA, INC.  
PARCEL NO. (1)  
LAND TAKEN = 3930± S.F.  
TEMP. CONST. RIGHTS = 20± S.F. (1)  
TOTAL AREA = 14.14± AC. (SURVEY)  
REM. AREA = 14.05± AC.

NOTE: APPROX. LOCATION OF HIGH WATER LINE BEFORE FILL WAS PUT IN (1929+) SEE 1929 BRIDGE PLAN OF DAY BRIDGE- REEL 5 SHEET 12-64

INLAND FRESH SEAFOOD CORPORATION OF AMERICA, INC.  
ITEM NO. (8)  
DRAINAGE EASE. = (1)  
TOTAL AREA = 14.05± AC. (SEE PRCL NO. (1))

TOWN OF BOOTHBAY  
PARCEL NO. (2)  
LAND = 14830± S.F. (UPLAND-CURRENT)  
LAND = 1225± S.F. (TIDAL)  
TOTAL LAND = 16055± S.F. (EASEMENT FOR HIGHWAY PURPOSES)  
SLOPE EASE. = 355± S.F. (1)  
TEMP. CONST. RIGHTS = 13460± S.F. (1)  
TOTAL AREA = 2.58± AC. (CALC. TAX MAP)  
REM. AREA = 2.21± AC.

TOWN OF BOOTHBAY  
ITEM NO. (7)  
DRAINAGE EASE. = (1)  
TEMP. CONST. RIGHTS = 1455± S.F. (3)  
TOTAL AREA = 2.21± AC. (SEE PRCL NO. (2))

R/W REFERENCES

BOOTHBAY TOWN RECORDS  
BOOK A PAGE 37  
1855  
2 RODS

SEE D.O.T. FILE NO. 8-101

SEE: STANDARD BOUNDARY SURVEY + SITE DEVELOPMENT PLAN FOR INLAND FRESH SEAFOOD CORPORATION OF AMERICA, INC. BY LEIGHTON & ASSOCIATES 1997 RECORDED LINCOLN COUNTY REGISTRY OF DEEDS PLAN BOOK 59 PAGE 40

TAX MAP R-4  
LOT 103A

BRIDGE NO. 2438

PIN 12630.00

NOTE: THIS PLAN WAS PREPARED IN CONNECTION WITH THE DEPARTMENT'S ACQUISITION OF REAL PROPERTY FOR TRANSPORTATION PURPOSES. IT CAN NOT BE USED OR RELIED UPON TO ESTABLISH LEGAL BOUNDARIES BETWEEN ADJUTING PROPERTY OWNERS.

SYMBOLS	
(WELL)	GRADING LIMIT LINE
(IRON PIPE OR PIN)	CONSTRUCTION LIMIT LINE
(S.T. (SEPTIC TANK))	PROPERTY LINE
(S.P. (SEWER POINT))	PL
(S.P. (SEWER POINT))	LIMITS OF WRIGHT PORTION
(S.P. (SEWER POINT))	EXISTING RIGHT OF WAY
(S.P. (SEWER POINT))	NEW RIGHT OF WAY
(S.P. (SEWER POINT))	NEW R/W WITHIN EXIST. R/W
(S.P. (SEWER POINT))	CONTROL OF ACCESS

ITEM	TECH	CHECKED	P.N.S.
BASE MAP			
EXIST. R/W		D.W.B.	
PROP. LINES		D.W.B.	
AREAS		D.W.B.	

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016  
RIGHT OF WAY MAP

NO.	DATE	DESCRIPTION	BY
1	10-22-09	ADDED ITEM NO. (7) TO ITEM NO. (12)	D.W.B.

PLAN FILED IN PLAN BOOK	PAGE	COUNTY RECORD			
NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE
4	SEE MAINE TRANSFER OF MANAGEMENT RESPONSIBILITY- SUBMERGED LANDS-M.D.O.C. TO M.D.O.T. DATED 10-31-86	COND.	2/17/09	4100	100

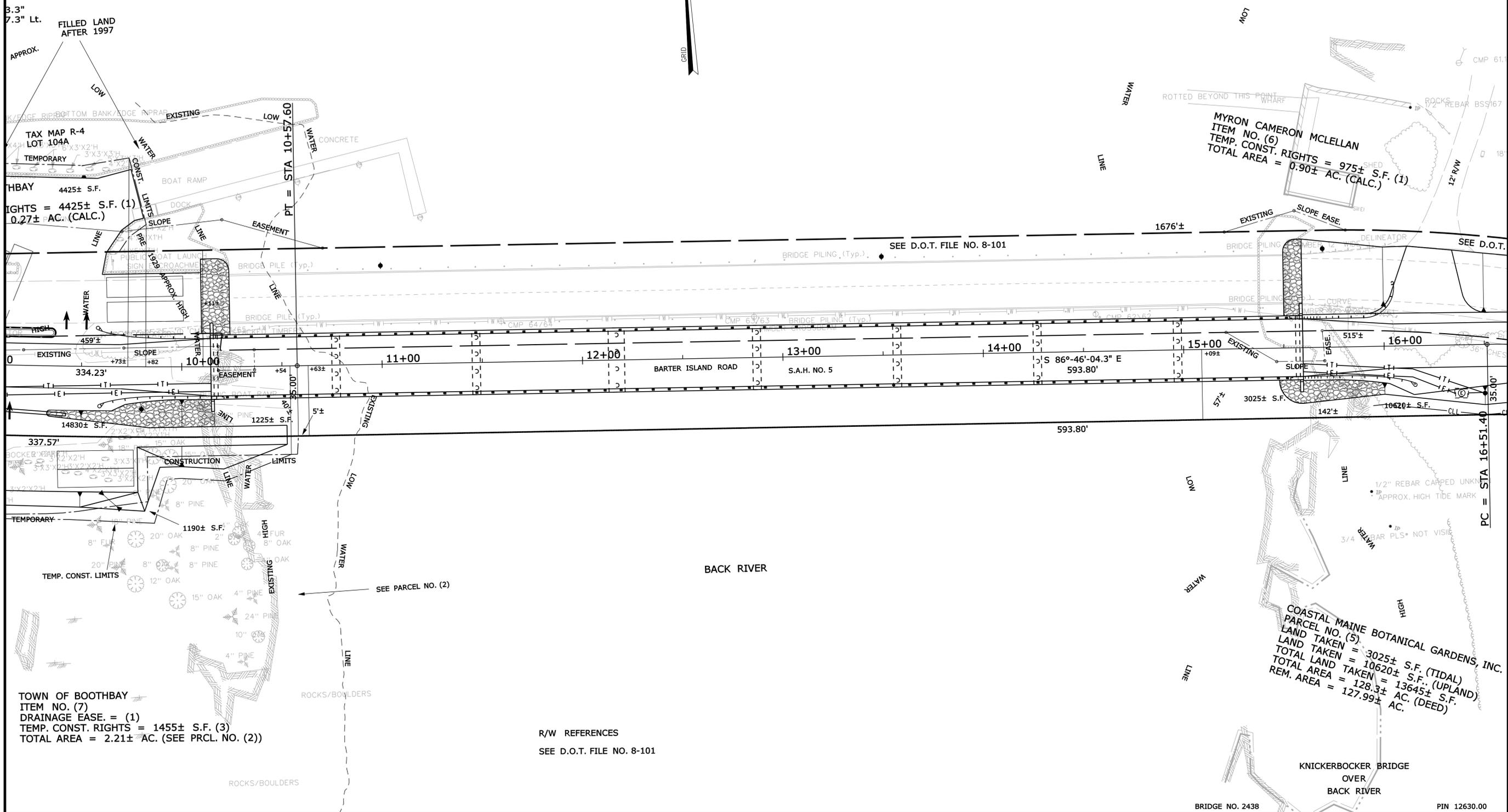
STATE OF MAINE  
REGISTRY OF DEEDS  
COUNTY RECEIVED at \_\_\_\_\_ h \_\_\_\_\_ m \_\_\_\_\_ M and recorded in Plan Book \_\_\_\_\_, Page \_\_\_\_\_  
Attest: \_\_\_\_\_ REGISTER

DAVID A. COLE  
COMMISSIONER  
JOHN E. DORITY  
CHIEF ENGINEER  
DATE \_\_\_\_\_

STATE AID HIGHWAY NO. 5  
BARTER ISLAND ROAD  
BOOTHBAY LINCOLN COUNTY  
STATE PROJECT NO. 12630.00  
NOVEMBER 2008  
SCALE 1" = 25'  
RIGHT-OF-WAY MAP  
SHEET 1 OF 3  
D.O.T. FILE NO. 8-166

SHEET NUMBER  
47  
OF 51

CURVE DATA  
 P.I. STA. 8+90.61  
 D = 01°-38'-13.3"  
 Δ = 05°-28'-17.3" LT  
 T = 167.24'  
 L = 334.23'  
 E = 3.99'  
 R = 3500.00'



3.3" Lt.  
 7.3" Lt.  
 APPROX.  
 FILLED LAND AFTER 1997

TAX MAP R-4  
 LOT 104A  
 TEMPORARY  
 THBAY 4425± S.F.  
 RIGHTS = 4425± S.F. (1)  
 0.27± AC. (CALC.)

EXISTING  
 459±  
 334.23'  
 14830± S.F.

TEMPORARY  
 1190± S.F.  
 8" PINE  
 20" OAK  
 12" OAK  
 15" OAK  
 4" PINE  
 24" PINE  
 10" OAK  
 4" PINE

TOWN OF BOOTHBAY  
 ITEM NO. (7)  
 DRAINAGE EASE. = (1)  
 TEMP. CONST. RIGHTS = 1455± S.F. (3)  
 TOTAL AREA = 2.21± AC. (SEE PRCL. NO. (2))

R/W REFERENCES  
 SEE D.O.T. FILE NO. 8-101

MYRON CAMERON MCLELLAN  
 ITEM NO. (6)  
 TEMP. CONST. RIGHTS = 975± S.F. (1)  
 TOTAL AREA = 0.90± AC. (CALC.)

COASTAL MAINE BOTANICAL GARDENS, INC.  
 PARCEL NO. (5)  
 LAND TAKEN = 3025± S.F. (TIDAL)  
 TOTAL LAND TAKEN = 10620± S.F. (UPLAND)  
 TOTAL AREA = 128.3± AC. (DEED)  
 REM. AREA = 127.99± AC.

NOTE:  
 THIS PLAN WAS PREPARED IN CONNECTION WITH THE DEPARTMENT'S ACQUISITION OF REAL PROPERTY FOR TRANSPORTATION PURPOSES. IT CAN NOT BE USED OR RELIED UPON TO ESTABLISH LEGAL BOUNDARIES BETWEEN ADJUTING PROPERTY OWNERS.

SYMBOLS

○	WELL
---	GRADING LIMIT LINE
---	CONSTRUCTION LIMIT LINE
---	PROPERTY LINE
---	LIMITS OF WRIGHT PORTION
---	EXISTING RIGHT OF WAY
---	NEW RIGHT OF WAY
---	NEW ROW WITHIN EXIST. ROW
---	CONTROL OF ACCESS

CHECKED

ITEM	TECH	DATE
BASE MAP		
EXIST. R/W	D.W.B.	
PROP. LINES	D.W.B.	
AREAS	D.W.B.	

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
 16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016  
 RIGHT OF WAY MAP

REVISIONS

NO.	DATE	DESCRIPTION	BY
1	10-22-09	ADDED ITEM NO. (7) TO ITEM NO. (12)	D.W.B.

PLAN FILED IN PLAN BOOK

NO.	GRANTOR	PAGE	COUNTY RECORD
			INSTRUMENT DATE BOOK PAGE
			COND. 2/17/09 4100 100

STATE OF MAINE  
 REGISTRY OF DEEDS  
 COUNTY RECEIVED \_\_\_\_\_  
 at \_\_\_\_\_ h \_\_\_\_\_ m \_\_\_\_\_ M and recorded in  
 Plan Book \_\_\_\_\_, Page \_\_\_\_\_  
 Attest: \_\_\_\_\_ REGISTER

DAVID A. COLE  
 COMMISSIONER  
 JOHN E. DORITY  
 CHIEF ENGINEER  
 DATE \_\_\_\_\_

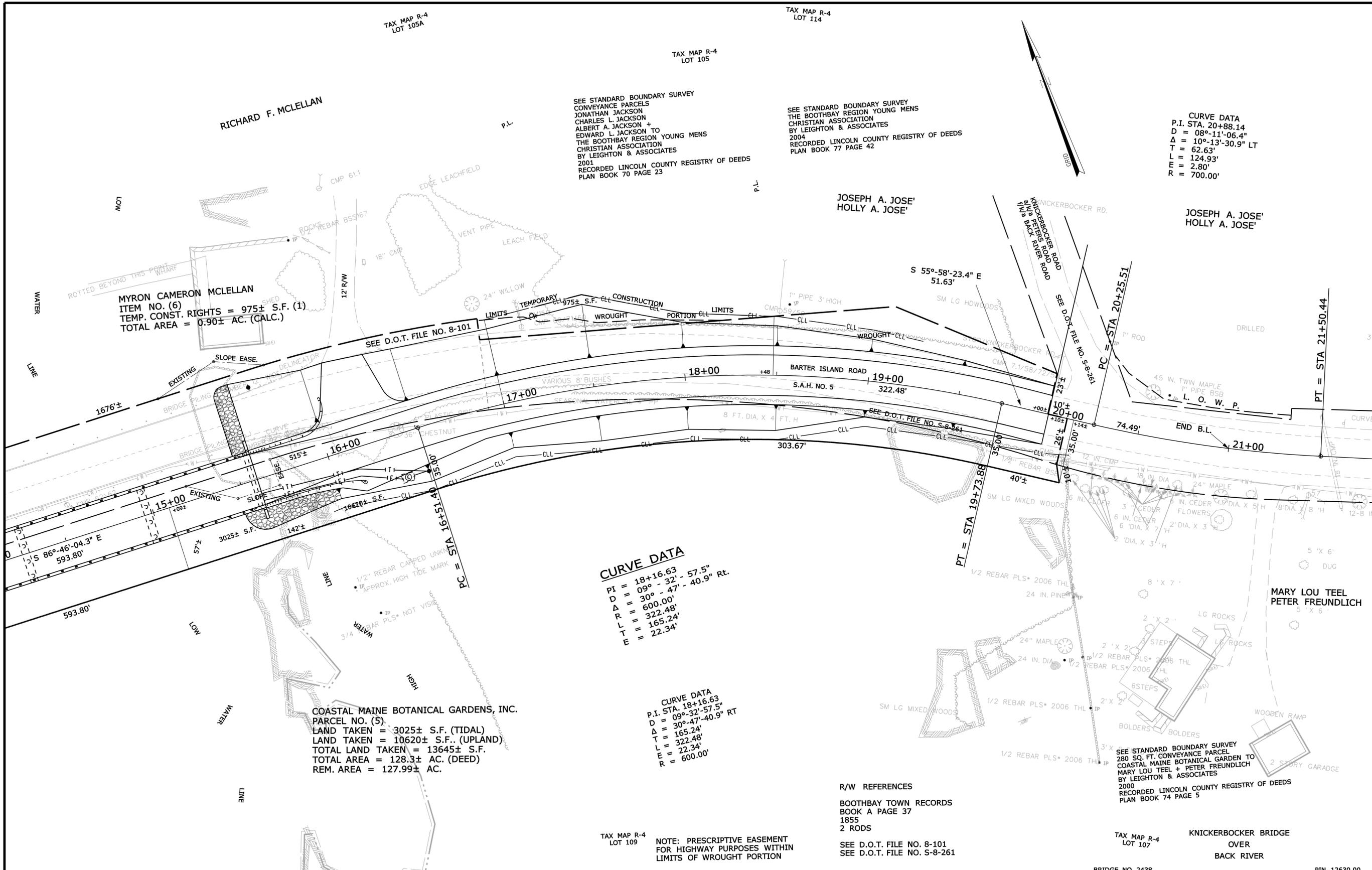
STATE AID HIGHWAY NO. 5  
 BARTER ISLAND ROAD  
 BOOTHBAY LINCOLN COUNTY  
 STATE PROJECT NO. 12630.00  
 NOVEMBER 2008 RIGHT-OF-WAY MAP  
 SCALE 1" = 25' SHEET 2 OF 3  
 D.O.T. FILE NO. 8-166

SHEET NUMBER  
**48**  
 OF 51

Filename: ... \00\ROW\MSTA002\_RWPLAN2.dgn Division: BRIDGE  
 Username: briani.nichols Date: 11/4/2009



Filename: ... \00\ROW\MSTA003\_RWPLAN3.dgn Division: BRIDGE Username: briam.j.nichols Date: 11/4/2009



**NOTE:**  
 THIS PLAN WAS PREPARED IN CONNECTION WITH THE DEPARTMENT'S ACQUISITION OF REAL PROPERTY FOR TRANSPORTATION PURPOSES. IT CAN NOT BE USED OR RELIED UPON TO ESTABLISH LEGAL BOUNDARIES BETWEEN ADJUTING PROPERTY OWNERS.

**SYMBOLS**

(WELL)	GRADING LIMIT LINE
(WELL)	CONSTRUCTION LIMIT LINE
(WELL)	PROPERTY LINE
(WELL)	PL
(WELL)	LIMITS OF WROUGHT PORTION
(WELL)	EXISTING RIGHT OF WAY
(WELL)	NEW RIGHT OF WAY
(WELL)	NEW ROW WITHIN EXIST. ROW
(WELL)	CONTROL OF ACCESS

ITEM	TECH	CHECKED
BASE MAP		
EXIST. R/W	D.W.B.	
PROP. LINES	D.W.B.	
AREAS	D.W.B.	P.N.S.

**STATE OF MAINE**  
**DEPARTMENT OF TRANSPORTATION**  
 16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016  
**RIGHT OF WAY MAP**

REVISIONS		
NO.	DATE	DESCRIPTION
1	10-22-09	ADDED ITEM NO. (7) TO ITEM NO. (12)

PLAN FILED IN	PLAN BOOK	PAGE	COUNTY RECORD
NO.	GRANTOR	INSTRUMENT	DATE
		COND.	2/17/09

STATE OF MAINE  
 REGISTRY OF DEEDS

DAVID A. COLE  
 COMMISSIONER

JOHN E. DORITY  
 CHIEF ENGINEER

DATE \_\_\_\_\_

**STATE AID HIGHWAY NO. 5**  
**BARTER ISLAND ROAD**  
**BOOTHBAY LINCOLN COUNTY**  
**STATE PROJECT NO. 12630.00**

NOVEMBER 2008  
 SCALE 1" = 25'

RIGHT-OF-WAY MAP  
 SHEET 3 OF 3

D.O.T. FILE NO. 8-166

BRIDGE NO. 2438 PIN 12630.00

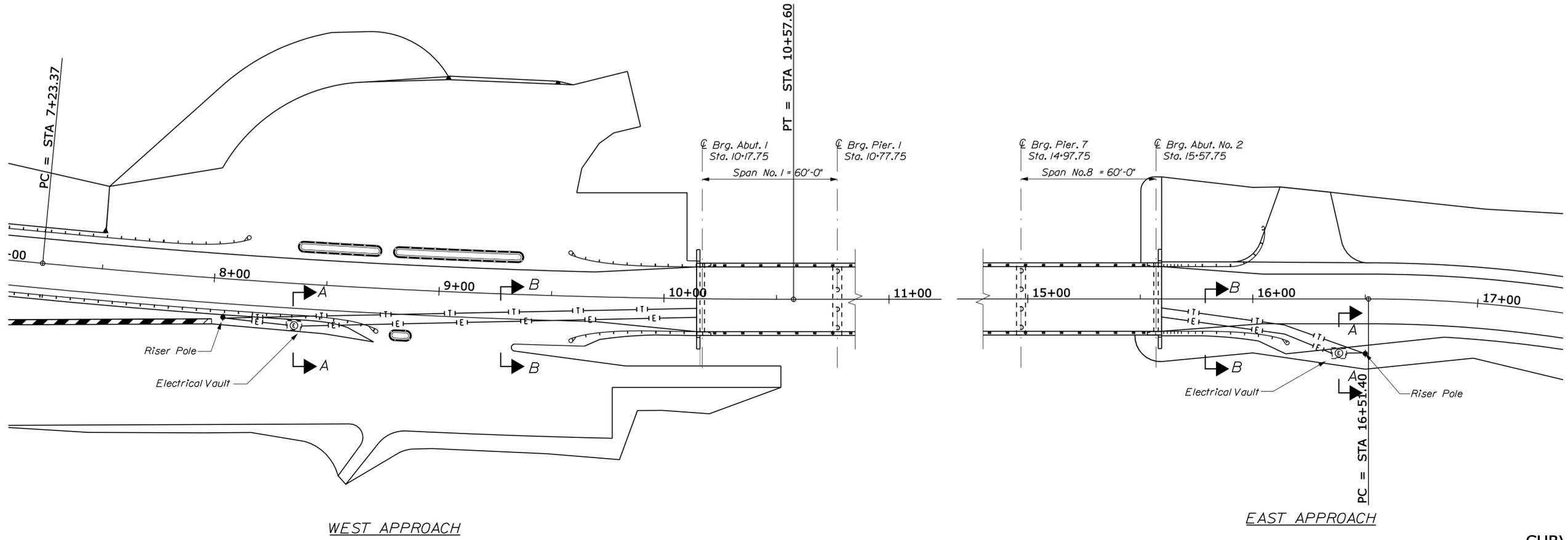
**SHEET NUMBER**  
**49**  
 OF 51

Date: 12/13/2009

Username: brian.j.nichols

Division: BRIDGE

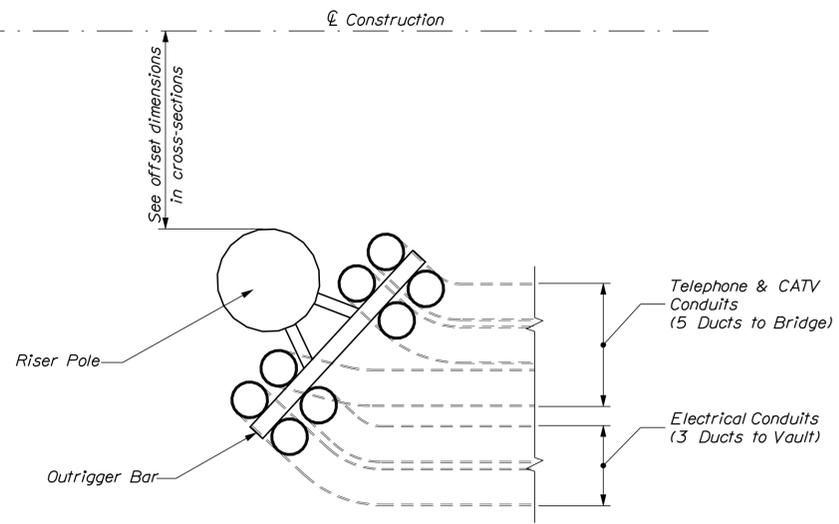
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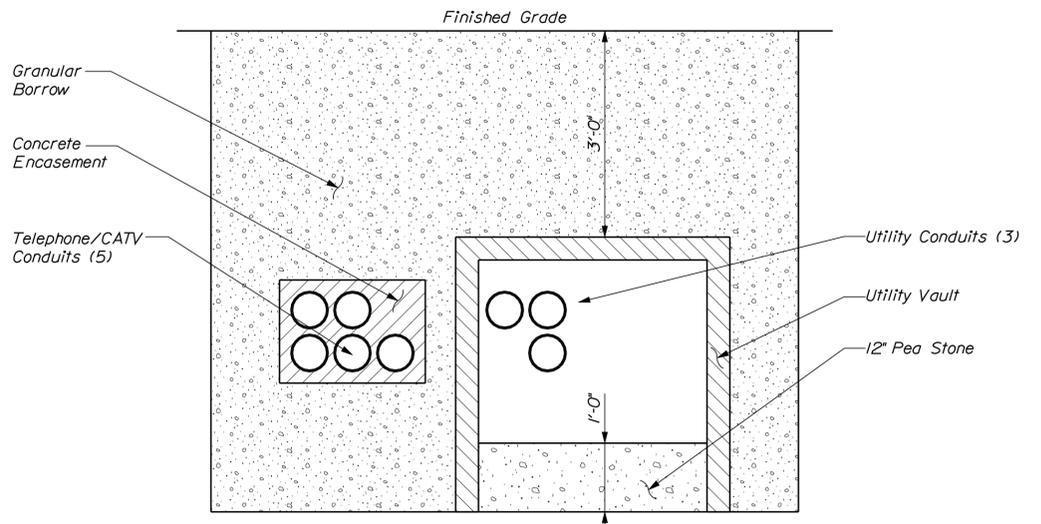
WEST APPROACH

EAST APPROACH

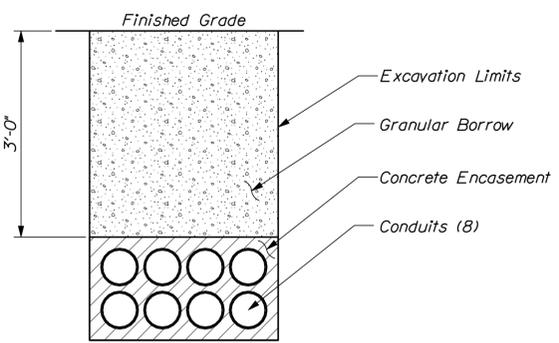
CIP



RISER POLE DETAIL



SECTION A-A



SECTION B-B

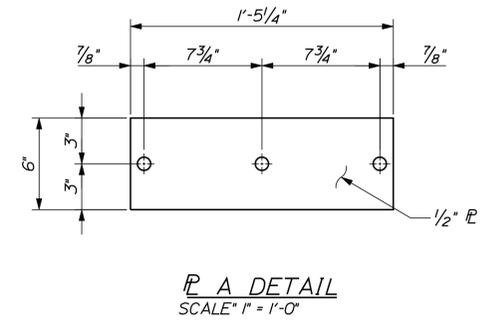
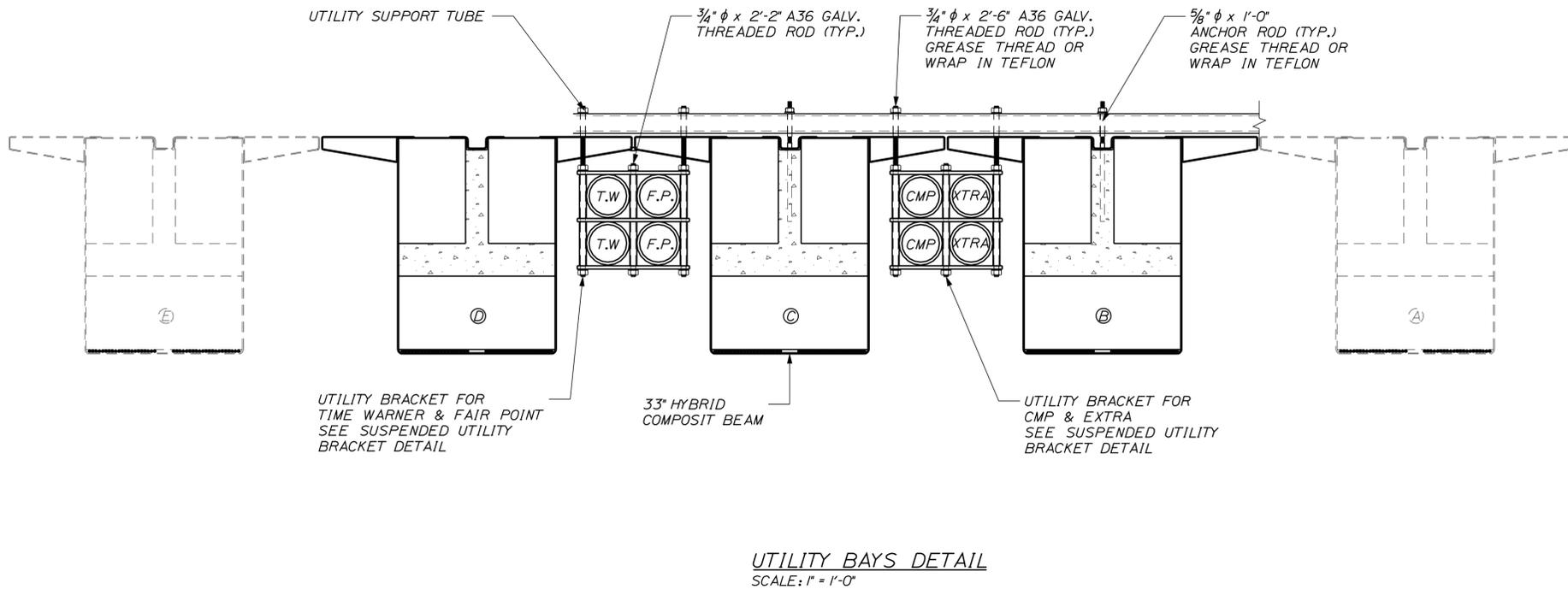
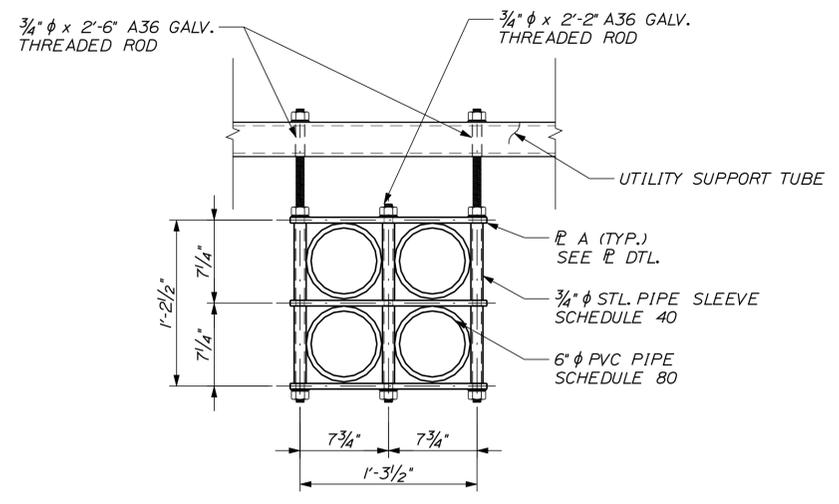
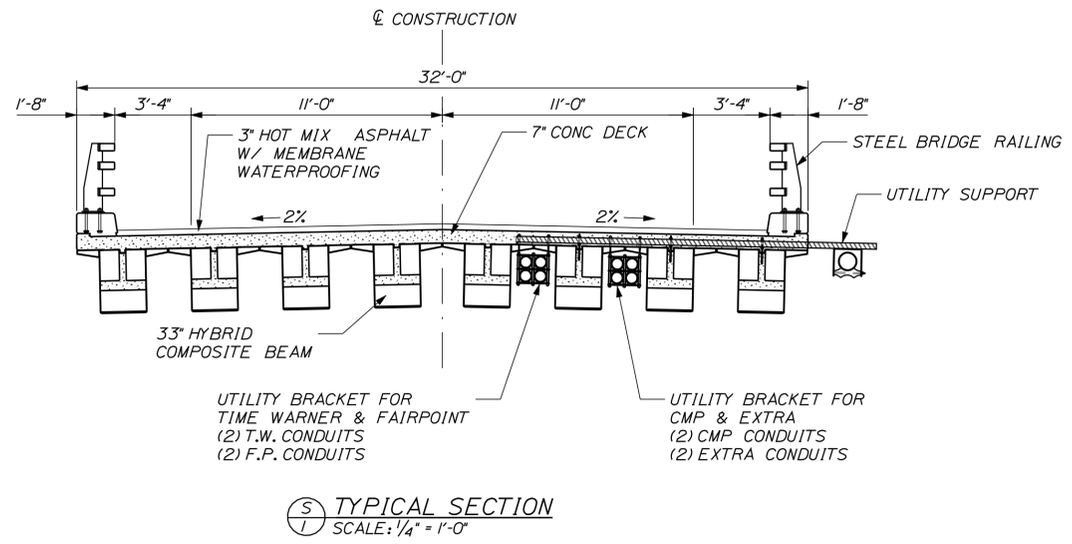
STATE OF MAINE		DEPARTMENT OF TRANSPORTATION	
BR-1263(000)X		BRIDGE NO. 2438	
PIN 12630.00		BRIDGE PLANS	
PROJ. MANAGER	DATE	BY	DATE
DESIGN DETAILED	FEB 2008	BAN	
CHECKED-REVIEWED		ETC	
DESIGNS DETAILED			
DESIGNS DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			
KNICKERBOCKER BRIDGE		SIGNATURE	
BACK RIVER		P.E. NUMBER	
LINCOLN COUNTY		DATE	
BOOTHBAY			
UTILITY DETAILS			
SHEET NUMBER			
50			
OF 51			

Date: 12/3/2009

Username: brion.j.nichols

Division: BRIDGE

Filename: ... \051\_Superstructure\_utility2.dgn



CALDERWOOD ENGINEERING, ETC.  
STRUCTURAL ENGINEERING • DETAILING SERVICES  
222 RIVER RD, RICHMOND, ME 04857 PH/FX (207) 737-2007/(207) 737-2008  
PREPARED FOR: MAINE DOT  
PROJECT NUMBER 01-BR-08

PROJ. MANAGER	DATE	BY	SIGNATURE	P.E. NUMBER	DATE
DESIGN-DETAILED	SEP. 2009	JJH			
CHECKED-REVIEWED					
DESIGN-DETAILED2					
DESIGN-DETAILED3					
REVISIONS 1					
REVISIONS 2					
REVISIONS 3					
REVISIONS 4					
FIELD CHANGES					

KNICKERBOCKER BRIDGE  
OVER BACK RIVER  
LINCOLN COUNTY  
BOOTHBAY  
TYPICAL SECTION WITH  
UTILITY BRACKET

SHEET NUMBER  
**51**  
OF 51

