STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

SPECIFICATIONS

Design: Load and Resistance Factor Design per AASHTO LRFD Bridge Design Specifications, Ninth Edition 2020.

DESIGN LOADING

Live Load ..... HL - 93 Modified for Strength I

TRAFFIC DATA

Current (2019) AADT	18940
Future (2039) AADT	20030
DHV - % of AADT	11%
Design Hour Volume	2203
Heavy Trucks (% of AADT)	7%
Heavy Trucks (% of DHV)	4%
Directional Distribution (% of DHV)	56%
18 kip Equivalent P 2.0	803
18 kip Equivalent P 2.5	765
Design Speed (mph)	45

HYDROLOGIC DATA

Mean Lower Low Water (MLLW)	-3.2 ft
Mean Low Water (MLW)	-3.0 ft
Mean Tide Level (MLT)	0.6 ft
Mean High Water (MHW)	4.2 ft
Mean Higher High Water (MHHW)	4.6 ft

MATERIALS

Concrete:	
Curbs & Pleasant Cove Deck	Class "LP"
Precast NEBT Beams	Class "P"
Seals	Class "S"
All Other	Class "A"
Reinforcing Steel:	
Plain Reinforcing Steel	ASTM A 615/A 615M, Grade 60
Stainless Reinforcing Steel	ASTM A 955, Grade 75
Prestressing Strands	ASTM 1114 Grade 240, Low Relaxation
Structural Steel:	
All Material (except as noted)	ASTM A 709, Grade 50 (metallized)
High Strength Bolts	ASTM F 3125, Grade A 325, Type 1

BASIC DESIGN STRESSES

Concrete, Class "A"	f'c = 4,000 psi
Concrete, Class "S"	f'c = 3,000 psi
Concrete, Class "P"	f'c = 8,000 psi f'ci = 6,000 psi
Concrete, Class "LP"	f'c = 5,000 psi
Plain Reinforcing Steel	f y = 60,000 psi
Stainless Reinforcing Steel	f y = 75,000 psi
Prestressing Strand	F μ = 240,000 psi
Structural Steel:	
ASTM A 709, Grade 50	F y = 50,000 psi
ASTM F 3125, Grade A 325, Type 1	F μ = 120,000 psi

WOOLWICH
SAGADAHOC COUNTY
STATION 46 BRIDGE
OVER
MCRR AND
BACK RIVER CREEK MARSH
BRIDGE NO. 3039
AND
PLEASANT COVE BRIDGE
OVER
BACK RIVER CREEK MARSH
BRIDGE NO. 6667
U.S. ROUTE 1
FEDERAL AID PROJECT NO. 2392900
PROJECT LENGTH 0.459 mi.

HNTB

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UTILITIES

Central Maine Quebec Railway	Maine Fiber	Consolidated Communications
Central Maine Power	Firstlight	Bath Water District

MAINTENANCE OF TRAFFIC

Maintain two way traffic on temporary on-site detours.

PROJECT LOCATION	On U.S. Route 1 in Woolwich, Station 46 Bridge #3039 over Maine Central Railroad and the Kennebec River Estuary and Pleasant Cove Bridge #6667 over Kennebec River Estuary. Lat./Long. 43°55'21" N 69°47'51" W
PROGRAM AREA	Bridge
OUTLINE OF WORK	Bridge Replacements

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
APPROVED — DATE 8-31-21
COMMISSIONER: — DATE 8-24-2021
CHIEF ENGINEER:

STATE OF MAINE — TIMOTHY R. COTE No. 10671 — REGISTERED PROFESSIONAL ENGINEER

SIGNATURE — DATE
P.E. NUMBER 10671 — 08/23/2021

PROJECT INFORMATION

PROGRAM	BRIDGE
PROJECT MANAGER	Devon Eaton, PE
DESIGNER	Tim Cote, PE
CONSULTANT	HNTB
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

WIN 023929.00 & 023929.01

2392900

STATION 46 BRIDGE
PLEASANT COVE BRIDGE

TITLE SHEET

SHEET NUMBER 1 OF 183

Date:8/23/2021
Username:
Division:
Filename601_Title Sheet.dgn

ITEM NO.	DESCRIPTION	UNIT	WIN 023929.00 Station 46	WIN 023929.01 Pleasant Cove	Total Qty
202.13	Removing Existing Railings, Retained by Department	LF	1290	0	1290
202.19	Removing Existing Bridge (Structural Steel = 500 T, Concrete 1300 CY)	LS	1	0	1
202.2006	Remove and Reset Gazebo	LS	1	0	1
202.202	Removing Pavement Surface	SY	490	400	890
203.20	Common Excavation	CY	3000	16600	19600
203.24	Common Borrow	CY	4050	470	4520
203.25	Granular Borrow	CY	2200	480	2680
206.082	Structural Earth Excavation - Major Structures, Plan Quantity	CY	2700	580	3280
209.29	Vertical Drainage Wicks	LF	0	314000	314000
304.10	Aggregate Subbase Course - Gravel	CY	2400	31200	33600
403.2081	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (Polymer Modified)	TON	520	710	1230
403.209	Hot Mix Asphalt 9.5 mm Nominal Maximum Size (sidewalks, drives, islands, & incidentals)	TON	65	3	68
403.2131	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (Base and Intermediate Base Course, Polymer Modified)	TON	1570	3030	4600
409.15	Bituminous Tack Coat, Applied	GAL	650	980	1630
461.131	Temporary Pavement	TON	360	500	860
501.239	Dynamic Load Test - Providing For	EA	5	2	7
501.46	Steel H-beam Piles 73lb/ft, delivered	LF	0	1190	1190
501.461	Steel H-beam Piles 73lb/ft, in place	LF	0	1190	1190
501.54	Steel H-beam Piles 117 lb/ft, delivered	LF	8120	0	8120
501.541	Steel H-beam Piles 117 lb/ft, in place	LF	8120	0	8120
501.90	Pile Tips	EA	84	14	98
501.91	Pile Splices	EA	84	28	112
501.92	Pile Driving Equipment Mobilization	LS	0.5	0.5	1
502.219	Structural Concrete, Abutments and Retaining Walls (1,285 CY)	LS	0.86	0.14	1
502.22	Structural Concrete Abutments (placed under water)	CY	930	0	930
502.239	Structural Concrete Piers (590 CY)	LS	1	0	1
502.24	Structural Concrete Piers (placed under water)	CY	860	0	860
502.26	Structural Concrete Roadway and Sidewalk Slab on Steel Bridges (740 CY)	LS	1	0	1
502.261	Structural Concrete Roadway and Sidewalk Slab on Concrete Bridges (115 CY)	LS	0	1	1
502.31	Structural Concrete Approach Slab (60 CY)	LS	0.5	0.5	1
502.49	Structural Concrete Curbs and Sidewalks (92 CY)	LS	0.86	0.14	1
502.77	FRP Bridge Drain - Type G	EA	6	0	6
503.12	Reinforcing Steel, Fabricated and Delivered	LB	86800	0	86800
503.13	Reinforcing Steel, Placing	LB	86800	0	86800
503.17	Mechanical/Welded Splice	EA	318	0	318
503.26	Stainless Steel Reinforcement, Fabricated and Delivered	LB	385800	67700	453500
503.27	Stainless Steel Reinforcement, Placing	LB	385800	67700	453500
504.702	Structural steel fabricated and delivered, welded (1,490,000 lbs)	LS	1	0	1
504.71	Structural steel erection (1,490,000 lbs)	LS	1	0	1
505.08	Shear Connectors (9520 EA)	LS	1	0	1
506.9104	Thermal Spray Coating - Shop Applied	LS	1	0	1
507.0821	Steel Bridge Railing, 3 Bar (1426 LF)	LS	0.88	0.12	1
507.0822	Steel Approach Railing, 3 Bar	EA	4	4	8
508.14	High Performance Waterproofing Membrane (3150 SY)	LS	0.87	0.13	1
510.10	Special Detour, 32' Roadway Width Vehicular and Pedestrian Traffic Not Separated (Station 46)	LS	1	0	1
510.10	Special Detour, 32' Roadway Width Vehicular and Pedestrian Traffic Not Separated (Pleasant Cove)	LS	0	1	1
511.07	Cofferdam (Abutment 1)	LS	1	0	1
511.07	Cofferdam (Pier 1)	LS	1	0	1
511.07	Cofferdam (Pier 2)	LS	1	0	1
511.07	Cofferdam (Pier 3)	LS	1	0	1
511.07	Cofferdam (Abutment 2)	LS	1	0	1
511.07	Cofferdam (Abutment 1)	LS	0	1	1
511.07	Cofferdam (Abutment 2)	LS	0	1	1
512.081	French Drains (170 LF)	LS	1	0	1
515.21	Protective Coating for Concrete Surfaces (770 SY)	LS	0.86	0.14	1
520.21	Expansion Device - Gland Seal (90 LF)	EA	2	0	2
523.52	Bearing Installation	EA	25	0	25
523.5551	Pot or Disc Bearings, Fixed	EA	3	0	3
523.5552	Pot or Disc Bearings, Expansion	EA	22	0	22
524.40	Protective Shield (1,950 SY)	LS	1	0	1
526.301	Portable Concrete Barrier, Type 1 (210LF)	LS	0.62	0.38	1
527.34	Work Zone Crash Cushion	UNIT	4	4	8
535.61	Prestressed Structural Concrete I-Girders (433 LF)	LS	1	0	1
603.17	18 Inch Culvert Pipe Option 1	LF	88	0	88
603.179	18 Inch Culvert Pipe Option 111	LF	45	0	45
603.2891	96 Inch Reinforced Concrete Pipe Class III	LF	0	16	16
604.092	Catch Basin Type BI-C	EA	3.7	0	3.7
605.11	12 Inch Underdrain Type C	LF	190	0	190
605.12	15 Inch Underdrain Type C	LF	340	0	340
606.1301	31" W-Beam Guardrail - Mid-Way Splice - Single Faced	LF	330	1400	1730
606.1303	31" W-Beam Guardrail - Mid-Way Splice, 15' Radius and Less	LF	0	25	25
606.1304	31" W-Beam Guardrail - Mid-Way Splice, Over 15' Radius	LF	25	72	97
606.1305	31" W-Beam Guardrail - Mid-Way Splice Flared Terminal	EA	0	4	4
606.1306	31" W-Beam Guardrail - Mid-Way Splice Tangent Terminal	EA	1	0	1
606.1721	Bridge Transition Type 1	EA	4	4	8
606.259	Anchorage Assembly	EA	1	1	2
606.353	Reflectorized Flexible Guardrail Marker	EA	3	12	15
606.356	Underdrain Delineator Post	EA	1	0	1
606.78	Low Volume Guardrail End	EA	0	1	1
607.183	Chain Link Snow Fence, 33"(96 LF)	LS	1	0	1
609.31	Curb Type 3	LF	570	0	570
610.08	Plain Riprap	CY	850	1750	2600
610.18	Stone Ditch Protection	CY	32	0	32
613.319	Erosion Control Blanket	SY	360	810	1170
615.07	Loam	CY	150	310	460
618.14	Seeding Method Number 2	UNIT	24	50	74
619.12	Mulch	UNIT	24	50	74
619.14	Erosion Control Mix	CY	300	600	900
620.58	Erosion Control Geotextile	SY	2200	2300	4500
620.66	Drainage Geocomposite	SY	0	93	93
626.421	24-inch Diameter Foundation	LF	14	0	14

ITEM NO.	DESCRIPTION	UNIT	WIN 023929.00 Station 46	WIN 023929.01 Pleasant Cove	Total Qty
627.733	4" White or Yellow Painted Pavement Marking Line	LF	4700	5200	9900
627.75	White or Yellow Pavement & Curb Marking	SF	84	780	864
627.77	Removing Existing Pavement Marking	SF	0	1850	1850
627.78	Temporary Pavement Marking Line, White or Yellow	LF	4800	8500	13300
629.05	Hand Labor, Straight Time	HR	40	20	60
631.10	Air Compressor (including operator)	HR	20	10	30
631.11	Air Tool (including operator)	HR	20	10	30
631.12	All Purpose Excavator (including operator)	HR	40	20	60
631.14	Grader (including operator)	HR	20	10	30
631.172	Truck-Large (including operator)	HR	20	20	40
631.22	Front End Loader (including operator)	HR	20	10	30
631.32	Culvert Cleaner (including operator)	HR	20	10	30
634.160	Highway Lighting	LS	1	0	1
639.18	Field Office, Type A	EA	0.5	0.5	1
639.26	Instrumentation - Geotechnical	LS	0	1	1
643.72	Temporary Traffic Signal at: Route 1 and Nequasset Road	LS	0	1	1
645.292	Regulatory, Warning, Confirmation and Route Marker Assembly Signs Type II	SF	7	25	32
652.312	Type III Barricades	EA	4	4	8
652.33	Drum	EA	40	25	65
652.34	Cone	EA	40	25	65
652.35	Construction Signs	SF	230	370	600
652.361	Maintenance of Traffic Control Devices	LS	0.5	0.5	1
652.38	Flaggers	HR	600	450	1050
656.75	Temporary Soil Erosion and Pollution Control	LS	0.5	0.5	1
659.10	Mobilization	LS	0.8	0.2	1
	ITEMS SPECIFIC TO RETAINING WALL BID ALTERNATES (BID ONE)				
674.10	Prefabricated Concrete Modular Gravity Wall	SF	1700	0	1700
677.20	MSE Wall	SF	1700	0	1700

BATH WATER DISTRICT

ITEM NO.	DESCRIPTION	UNIT	WIN 023929.00 Station 46	WIN 023929.01 Pleasant Cove	Total Qty
502.565	Concrete Fill	CY	3	0	3
803.01	Test Pits	EA	2	0	2
822.3152	16x6 Tapping Sleeve and Valve	EA	1	0	1
822.322	6-Inch Ductile Iron Pipe	LF	5	0	5
822.3701	16-Inch Ductile Iron Water Main	LF	40	0	40
823.3113	16" Insertion Valve and Valve Box	EA	1	0	1
824.3010	Hydrant Assembly	EA	1	0	1
825.33	1" Corporation Stop	EA	1	0	1
825.331	1" Curb Stop	EA	1	0	1
825.43	1" Copper Service Pipe	LF	6	0	6
825.64	20" HDPE Pipe	LF	250	0	250
827.33	Trench Insulation	LF	40	0	40

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE NO. 3039 & 6667

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	B. Grenier	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ESTIMATED QUANTITIES

SHEET NUMBER

2

OF 183

Filename: 002_Estimated Quantities.dgn Division: Username: Date:8/25/2021

GENERAL CONSTRUCTION NOTES:

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

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

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

4. All embankment material, except as otherwise shown, placed below EL. 8.2 shall be Granular Borrow meeting the requirements of Standard Specifications Subsection 703.19, Material for Underwater Backfill.

5. The clearing limits as shown on the Plans are approximate. The exact limits will be established in the field by the Resident. Single trees and stump removal shall be considered clearing.

6. Clearing limits shall be 10 ft. beyond and parallel to the construction slope lines or as shown on the plans unless otherwise authorized by the Resident. Payment for clearing will be considered incidental to contract items.

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

8. A MASH Compliant guardrail end treatment shall be installed concurrently with the placement of each section of beam guardrail.

9. Where it is apparent that runoff will cause continual erosion, extended use Erosion Control Blankets, seeded gutters, riprap downspouts, and other gutters lined with Stone Ditch Protection shall be constructed after paving and shoulder work is completed. Payment will be made under the appropriate Contract Items.

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

All exposed surfaces of concrete curbs,
Fascias down to the drip notch,
Top of abutment backwalls and wingwalls, and
To one foot below the ground on vertical walls against earth.

11. Erosion Control Mix may be substituted in those areas normally receiving loam and seed as directed by the Resident. Placement shall be in accordance with Standard Specifications Section 619, Mulch. Payment will be made under Pay Item 619.14, Erosion Control Mix.

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

13. 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 lifespan.

14. The reports on hydrology and/or hydraulics applicable to the bridge site may be accessed at the MaineDOT web address. The hydrologic report is based on the designer's interpretation of the information obtained for the subject site. No assurance is given that the information or the conclusions of the report will be representative of actual conditions at the time of construction.

15. The project geotechnical reports titled here may be accessed at the MaineDOT web address:

Geotechnical Design Report, Titled Geotechnical Report Station 46 Bridge No. 3039, MaineDOT WIN 23929.00, Woolwich, ME dated August 2021

Geotechnical Design Report, Titled Geotechnical Report Pleasant Cove Bridge No. 6667, MaineDOT WIN 23929.01, Woolwich, ME dated August 2021.

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

17. The existing bridges shall be removed by and become the property of the Contractor, except that all aluminum bridge rail, rail posts, and associated hardware which are to be removed shall be carefully salvaged by the Contractor and will remain the property of the Department. Payment for bridge rail removal will be made under Pay Item 202.13, Removing Existing Railings Retained by Department. 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 lead-contaminated hazardous waste generated by the process of demolishing the 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 lead-coated steel. The Contractor shall recycle or reuse the steel in accordance with the Maine Department of Environmental Protection's "Maine Hazardous Waste Management Regulations," Chapter 850. A copy of this regulation is available at MaineDOT's offices on Child Street in Augusta. 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.

18. The Contractor shall submit a Bridge Demolition Plan to the Resident at least 10 business days prior to the start of demolition work. The plan shall outline the methods and equipment to be used to remove and dispose of all materials included in the existing bridge. No work related to the removal of the bridge shall be undertaken by the Contractor until the MaineDOT has reviewed the Bridge Demolition Plan for appropriateness and completeness. Payment for all work necessary for developing, submitting and finalizing the Demolition Plan will be considered incidental to the bridge removal pay item.

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

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

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

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

20. No existing drainage shall be abandoned, removed or plugged without prior approval of the Resident.

21. Inlets and outlets of all culverts shall be riprapped unless otherwise noted on the Plans or directed by the Resident. Inlet and outlet protection shall follow Standard Details 802(05) Roadway Culvert End Slope Treatment and 802(09) Energy Dissipater Riprap Apron.

22. Residential paved entrances shall be constructed with 2 inches of hot mix asphalt and 12 inches of aggregate subbase course gravel.

23. Commercial paved entrances shall be constructed with 3 inches of Hot Mix Asphalt and 11 inches of Aggregate Subbase Course Gravel.

24. Remove and reset, and remove and dispose of signs shall be performed in accordance with section 645 - Highway Signing and as directed by the Resident. Payment will be incidental to the Contract.

25. Where called for on the Plans, and where new pavement joins existing pavement, the existing pavement shall be sawcut along a smooth line to a neat, even, vertical joint as directed by the Resident. Broken or raveled edges will not be permitted. All work necessary for the preparation of this joint will be considered incidental to the related contract items.

26. Driveway entrances to the Taste of Maine shall be maintained at all times unless approved by the Resident.

27. Temporary fill shall be placed for utility pole relocation at locations shown on the plans. Material shall be quantified and paid for as common borrow and shall be placed to elevation 5.00. Removal of material at the end of the project will be considered incidental.

28. Foundations associated with lights being removed and reset in the Taste of Maine parking lot shall be removed and disposed. Payment is incidental to Item 634.160 Highway Lighting.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	B. Greiner	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

GENERAL NOTES

SHEET NUMBER

3

OF 183

Username: Division: Date:8/25/2021

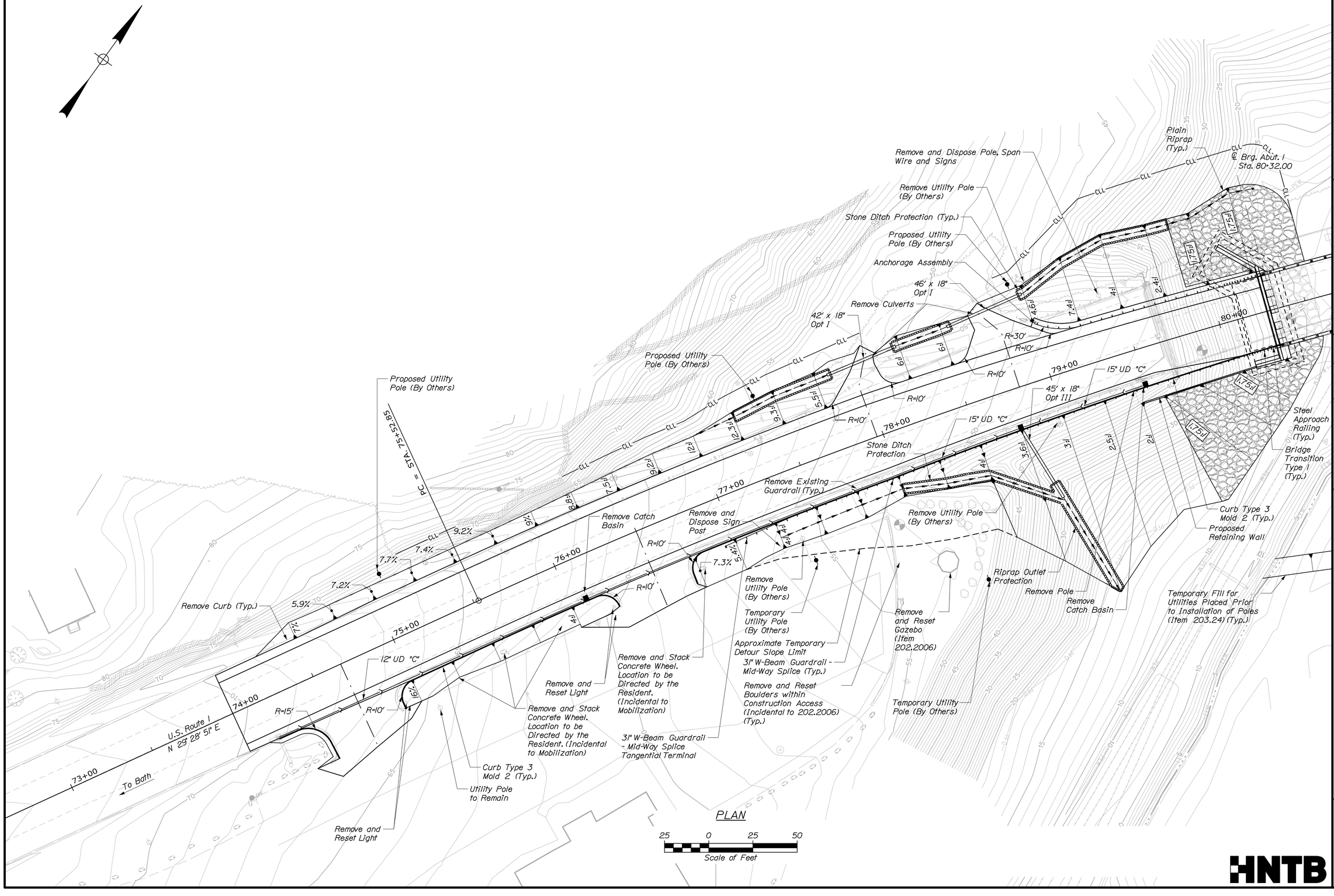
Filename: 003_GeneralNotes.dgn

Username:

Date:8/25/2021

Division:

Filename: 004_GeneralPlan_01.dgn



HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	A.Sweet	08\21
CHECKED-REVIEWED	P. Bishop	08\21
DESIGN2-DETAILED2	L.Driscoll	
DESIGN3-DETAILED3	T. Cote	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

GENERAL PLAN 1

SHEET NUMBER

4

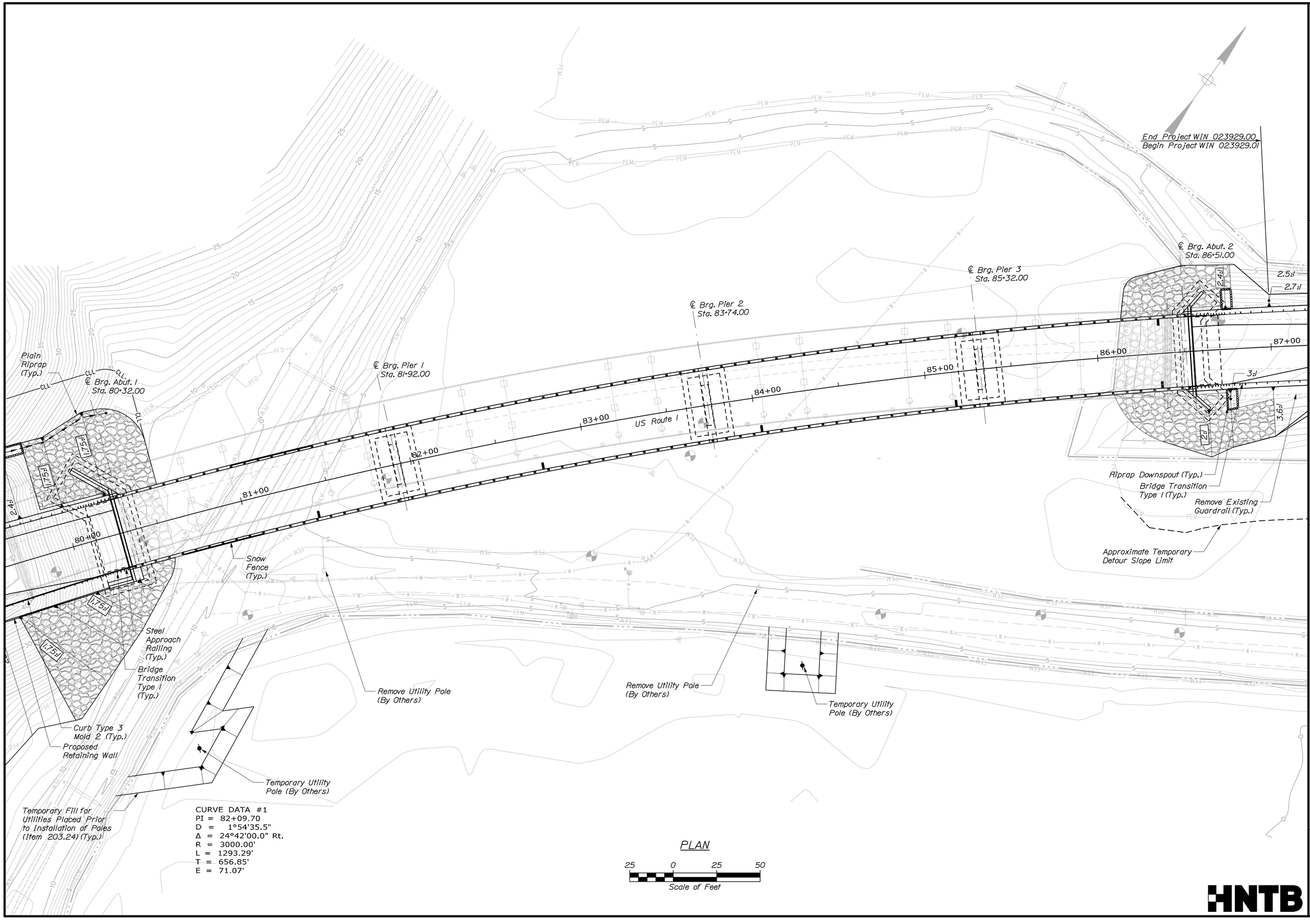
OF 183

Username:

Division:

Date:8/25/2021

Filename: 005_GeneralPlan_02.dgn



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

			SIGNATURE	DATE
PROJ. MANAGER	D. Elston, P.E.			
DESIGN-DETAILED	A.Sweet	08\21	P.E. NUMBER	
CHECKED-REVIEWED	L.D'Iriscoll	08\21		
DESIGN2-DETAILED2				
DESIGN3-DETAILED3				
REVISIONS 1				
REVISIONS 2				
REVISIONS 3				
REVISIONS 4				
FIELD CHANGES				

STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

GENERAL PLAN 2

SHEET NUMBER

5

OF 183

HNTB

Username:

Division:

Filename: 006_GeneralPlan_03.dgn

Date:8/25/2021

End Project WIN 023929.00
Begin Project WIN 023929.01

℄ Brg. Abut. 2
Sta. 86+51.00

3/4" W-Beam Guardrail - Mid-Way Splice (Typ.)

3/4" W-Beam Guardrail - Mid-Way Splice Flared Terminal (Typ.)

2.5:1
2.7:1
2.3:1
2.5:1
2.4:1
3:1
3:1
3.5:1
4:1

86+00
87+00
88+00
89+00
90+00
91+00
92+00
93+00

U.S. Route 1
℄ Route 1

3:1
3.6:1
2:1
4:1
2.0%
4:1
5:1
4.7:1
4.5:1
4.6:1
4.8:1
4.7:1
4.8:1
4:1
3:1

Riprap Downspout (Typ.)
Bridge Transition Type I (Typ.)
Remove Existing Guardrail (Typ.)
Approximate Temporary Detour Slope Limit

CURVE DATA #1
PI = 82+09.70
D = 1°54'35.5"
Δ = 24°42'00.0" Rt.
R = 3000.00'
L = 1293.29'
T = 656.85'
E = 71.07'

PT = STA. 88+46.14

PLAN

25 0 25 50
Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	A.Sweet	P. Bishop	08\21
CHECKED-REVIEWED	L.Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

GENERAL PLAN 3

SHEET NUMBER

6

OF 183

Date:8/25/2021

Username:

Division:

Filename: 007_General Plan_04.dgn

Plain Riprap (Typ.)

Sta. 94+49.22 Route 1
= Sta. 500+00.00 George Wright Road

Bridge Transition Type I (Typ.)

℄ Brg. Abut. 1
Sta. 96+12.50

℄ Stream Channel

℄ Brg. Abut. 2
Sta. 96+97.50

Remove Existing
Guardrail (Typ.)

Remove Existing Culvert

Plain Riprap (Typ.)

85'-0"

90° Skew
(Typ.)

3:1

4:1

2:1

1.75:1

CLL

3:1 W-Beam Guardrail - Mid-Way Splice Flared Terminal

U.S. Route 1

3:1 W-Beam Guardrail -
Mid-way Splice (Typ.)

Plain Riprap (Typ.)

93+00 94+00 95+00 96+00 97+00 98+00 99+00

℄ Route 1

N54°10'50.75"E

8' Guardrail Posts in Reduced
Berm Section (Typ.)

500+00

R= 35'

R= 40'

R= 32'

R= 37'

S62°03'39.98"E

George Wright Road

501+00

Remove Existing
Guardrail (Typ.)

2.0%

PC = STA. 501+10.68

Low Volume
Guardrail End

16' x 96" RCP

R = 75'

Remove Utility
Pole (By Others)

PT = STA. 502+51.87

Approximate Temporary
Detour Slope Limit (Typ.)

George Wright Road ℄

502+00

503+00

N71°42'53.14"E

504+00

CURVE DATA #1
GEORGE WRIGHT ROAD
PI = 501+85.37
D = 32°44'25.6"
Δ = 46°13'26.9" Lt.
R = 175.00'
L = 141.18'
T = 74.69'
E = 15.27'

PLAN

25 0 25 50
Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

		DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	B. Grenier	08\21
CHECKED-REVIEWED	L. Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

BY: P. Bishop, T. Cote

SIGNATURE

P.E. NUMBER

DATE

STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

GENERAL PLAN 4

SHEET NUMBER

7

OF 183

Plain Riprap (Typ.)

CLL

1.75:1

2:1

Plain Riprap (Typ.)

2.4:1

3:1

3.6:1

5.7:1

Anchored End

R= 15'

PC = STA. 104+15.82

℄ Route 1

99+00

100+00

101+00

U.S. Route 1

102+00

To Wiscasset

103+00

104+00

105+00

106

8' Guardrail Posts in Reduced Berm Section (Typ.)

13:1 Flare

2.2:1

2.6:1

Remove Existing Guardrail (Typ.)

31" W-Beam Guardrail - Mid-Way Splice Flared Terminal

16' x 96" RCP

PLAN

25 0 25 50

Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	B. Greiner	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

GENERAL PLAN 5

SHEET NUMBER

8

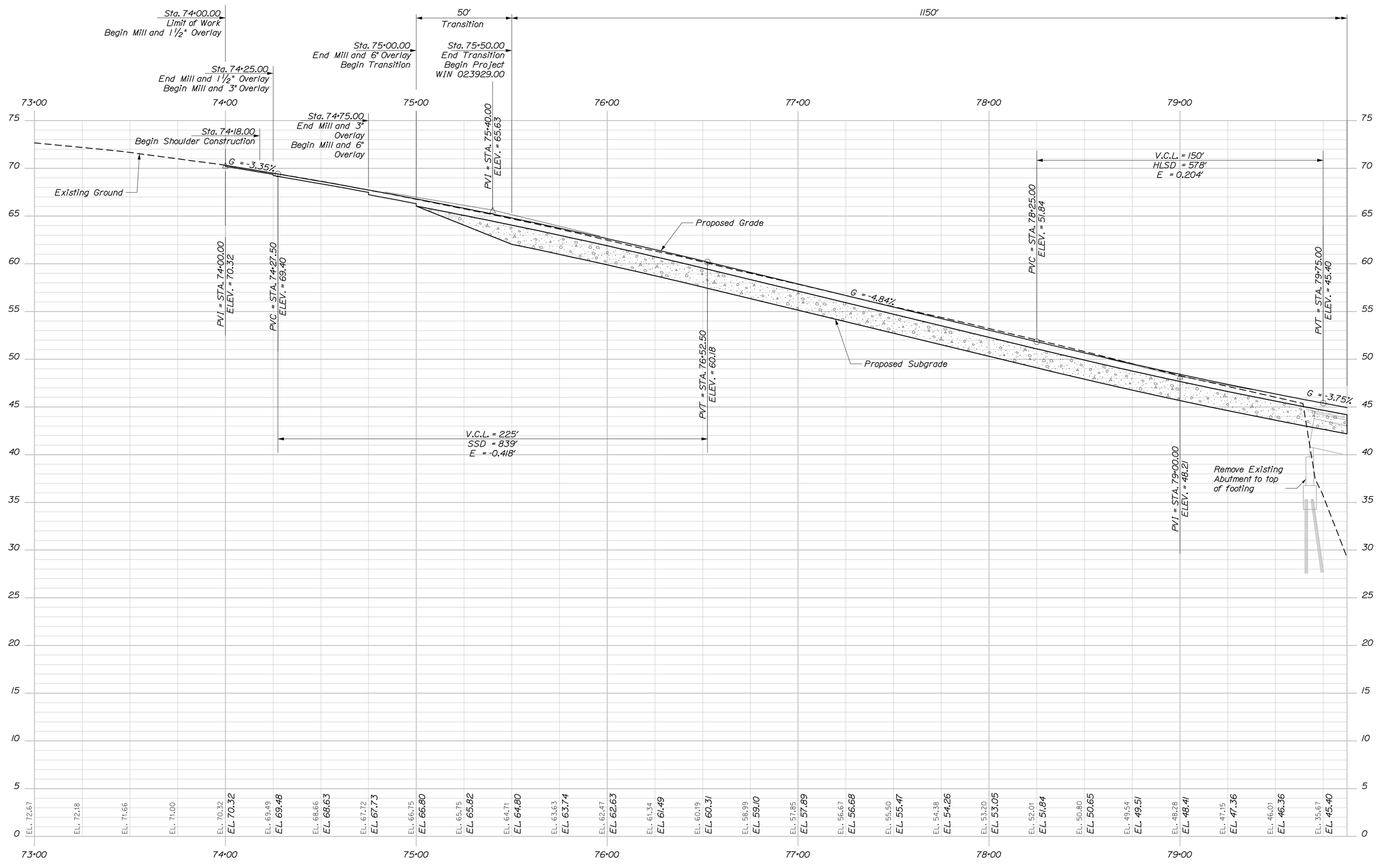
OF 183

Username:

Date:8/25/2021

Division:

Filename: 008_General Plan_05.dgn



ROUTE 1 PROFILE

Horiz. 25 0 25 50

Vert. 5 0 5 10

Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	A.Sweet	P. Bishop	08\21
CHECKED-REVIEWED	L.Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

P.E. NUMBER

SIGNATURE

DATE

STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

PROFILE 1

SHEET NUMBER

9

OF 183

Filename: 009_Profile_01.dgn Division: Username: Date:8/25/2021

Username:
Division:
Date:8/25/2021
Filename: 010_Profile_02.dgn

80+00 81+00 82+00 83+00 84+00 85+00 86+00

1150'

℄ Brg. Abut. 1 Sta. 80+32.00 | ℄ Brg. Pier 1 Sta. 81+92.00 | ℄ Brg. Pier 2 Sta. 83+74.00 | ℄ Brg. Pier 3 Sta. 85+32.00 | ℄ Brg. Abut. 2 Sta. 86+51.00

160'-0" | 182'-0" | 158'-0" | 119'-0"

V.C.L. = 175'
SSD = 1356'
E = -0.186'

PVC = STA. 80+55.50
ELEV. = 42.38

PVI = STA. 81+43.00
ELEV. = 39.10

PVT = STA. 82+30.50
ELEV. = 35.07

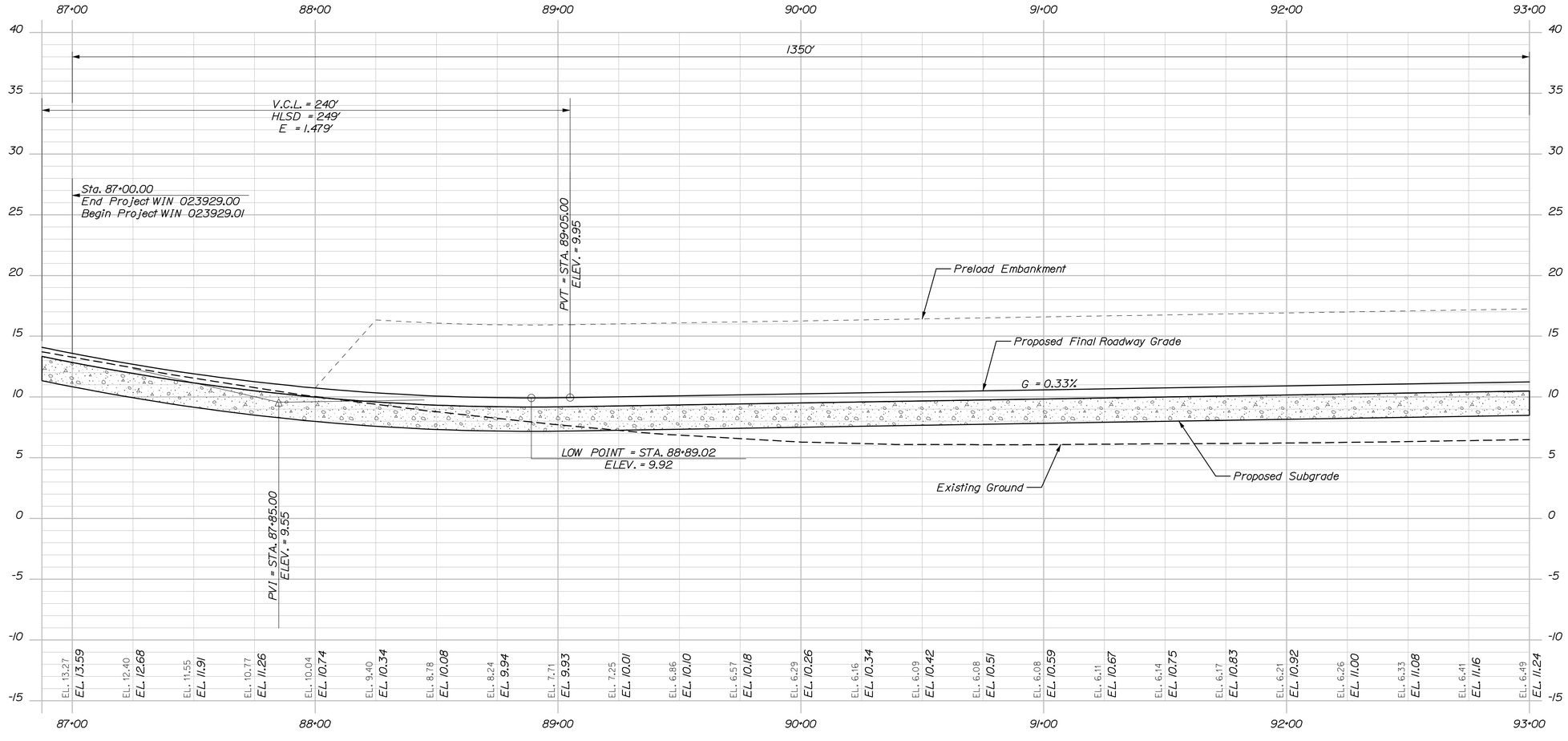
V.C.L. = 240'
HLSD = 249'
E = 1.479'

PVC = STA. 86+65.00
ELEV. = 15.08

Proposed Grade
G = -3.75%
G = -4.60%
Proposed Subgrade
Existing Ground
Granular Borrow (Typ.)
Pay Limits for Structural Earth Excavation
EL. 15.0
1.75'
French Drain (Typ.)
Remove existing pier to existing bedrock to facilitate abutment construction
Existing Waterline
Remove Existing Concrete Crash Walls to 1'-0" below existing grade
Railroad Clearance Envelope
22'-2" Min. Clearance
Existing Railroad
H-Pile (Typ.)
Concrete Seal (Typ.)
MHW EL. 4.2
(See Note 1)
Observed EL. 2.9
(See Note 1)
Remove Existing Piers to 2'-0" below existing grade, unless otherwise noted (Typ.)
Existing Waterline
Plain Riprap (Typ.)
EL. 5.0
2.1'
Approach Slab (Typ.)
Granular Borrow (Typ.)
Remove Existing Abutment to bedrock
Pay Limits for Structural Earth Excavation

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 -5 -10 -15

| | | |



ROUTE 1 PROFILE

Horiz. 25 0 25 50

Vert. 5 0 5 10

Scale of Feet

HNTB

Username:

Division:

Date:8/25/2021

Filename: 011_Profile_03.dgn

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	A.Sweet	P. Bishop	08\21
CHECKED-REVIEWED	L.Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

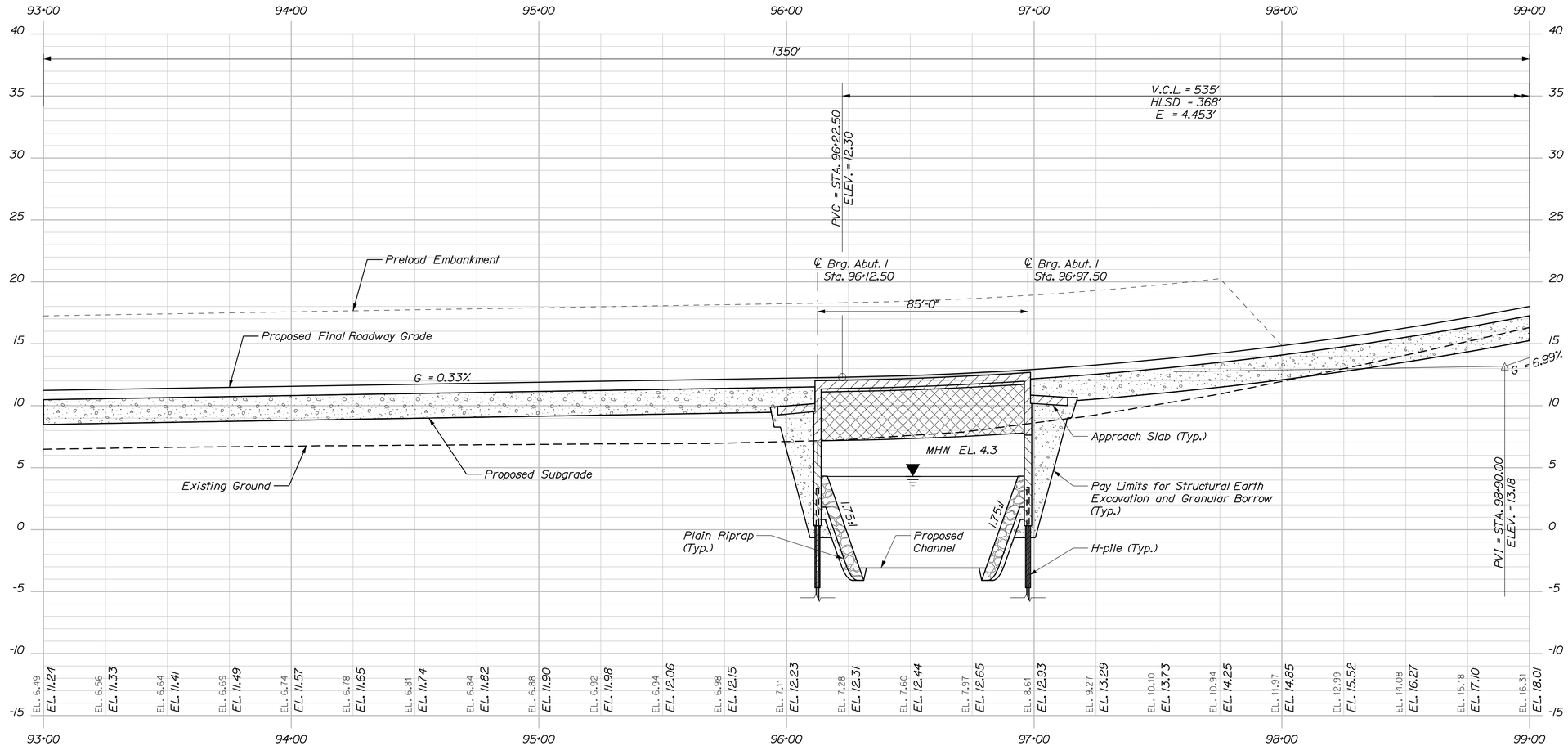
PROFILE 3

SHEET NUMBER

11

OF 183

Filename: 012_Profile_04.dgn Division: Username: Date:8/25/2021



ROUTE 1 PROFILE

Horiz. 25 0 25 50

Vert. 5 0 5 10

Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE PLANS

BRIDGE NO.3039 & 6667

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	B. Greiner	BY	DATE
CHECKED-REVIEWED	L. Driscoll	P. Bishop	08\21
DESIGN2-DETAILED2		T. Cote	08\21
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

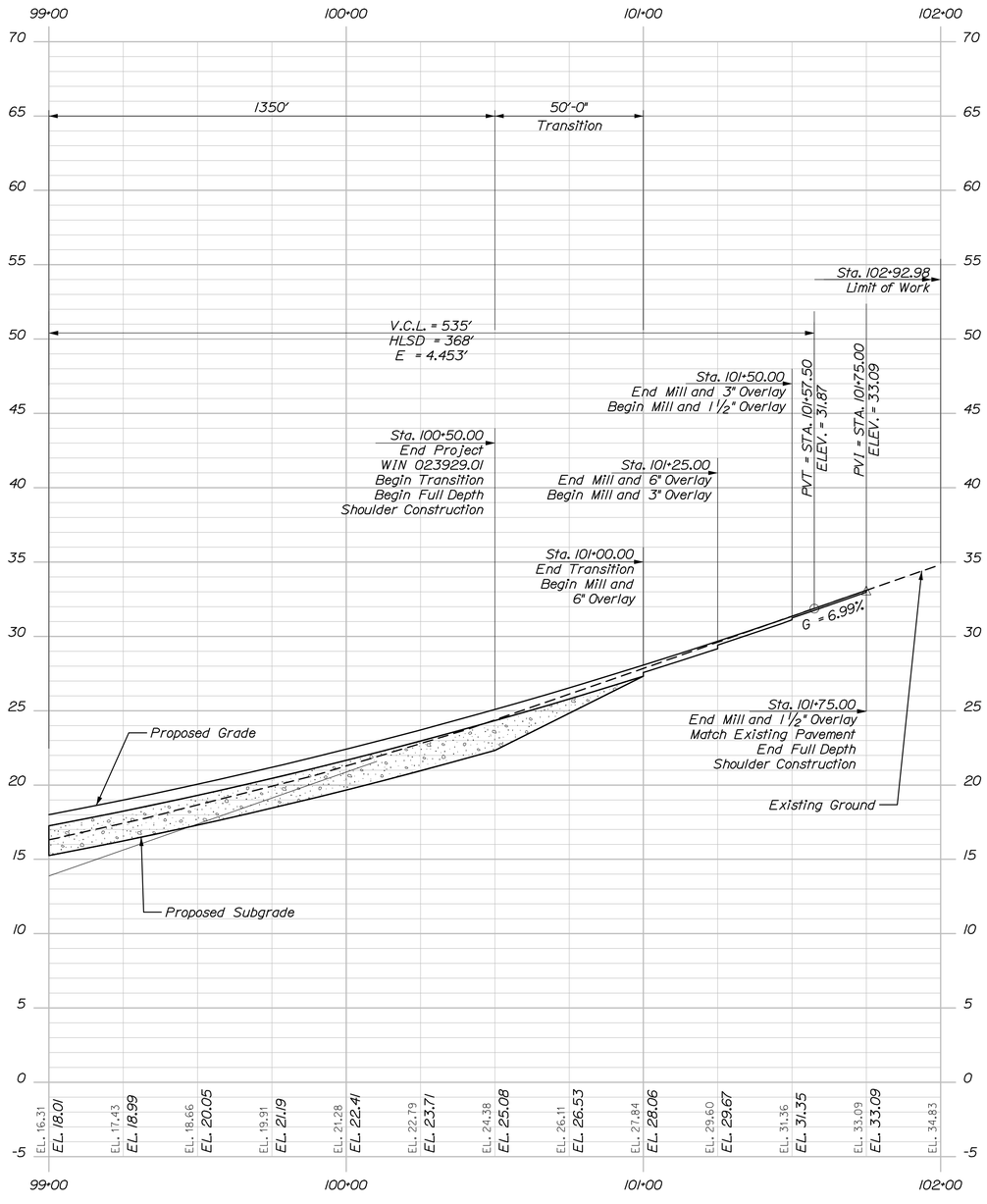
STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

PROFILE 4

SHEET NUMBER

12

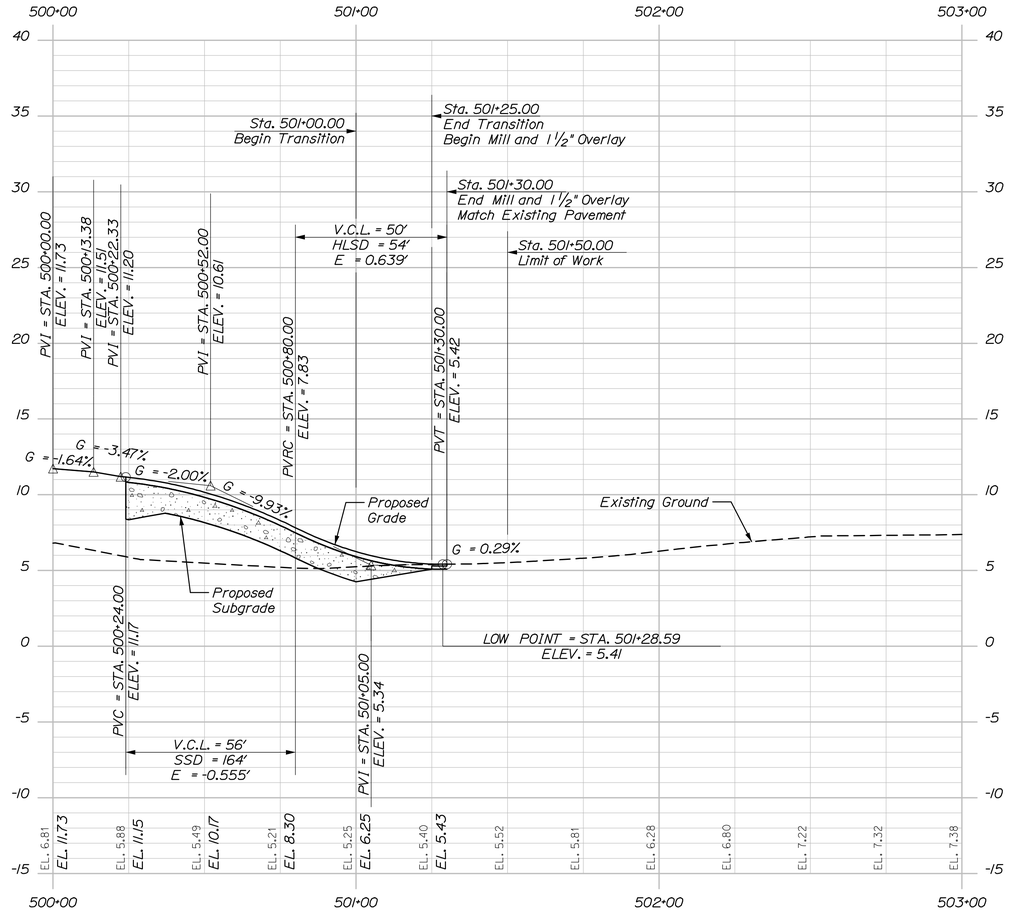
OF 183



ROUTE 1 PROFILE

Horiz. 25 0 25 50
Vert. 5 0 5 10

Scale of Feet



GEORGE WRIGHT ROAD PROFILE

Horiz. 25 0 25 50
Vert. 5 0 5 10

Scale of Feet

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	B. Grenier	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

PROFILE 5

SHEET NUMBER

13

OF 183

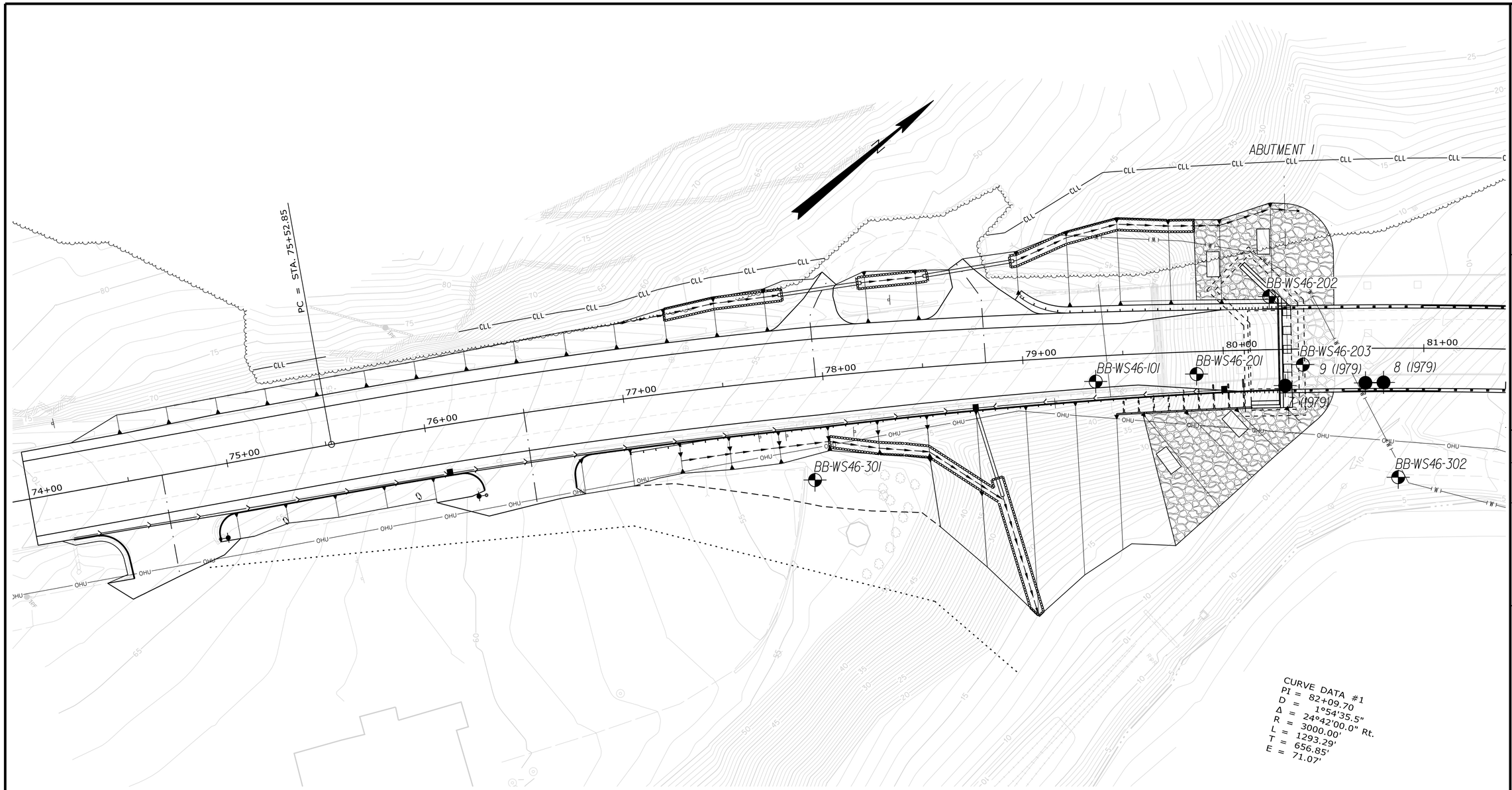
HNTB

Username:

Division:

Date:8/25/2021

Filename: 013_Profile_05.dgn



NOTES

1) Base map developed from electronic files (3DTopo_2Idec09.dgn, Contours.dgn, Alignments.dgn, Topo-BothBridges.dgn, Topo_HNTB.dgn, and Bridge_Combined.dgn) provided by HNTB on April 27, 2021.

2) The as-drilled locations of the BB-WS46-100, -200, AND -300 series test borings and CPT-WS46-101 AND SCPT-WS46-200 series Cone Penetration Tests were surveyed and provided by MaineDOT in an electronic file (001_Borings_28 OCTOBER 19.dgn and 20 MAY BORINGS ONLY.dgn).

3) Borings CB-15-78 and CB-16-78 were drilled in 1978, and probe borings 4 through 9 were drilled in 1979 and were included in Geotechnical Report entitled "Soils Report 79-12, Woolwich-Sagadahoc County, Station 46 Bridge 26-1 (48)" dated March 1979.

BORING LOCATION PLAN LEGEND

- BB-WS46-105 — Locations and designations of 100 series borings performed by New England Boring Contractors of Hermon, Maine between October 7 and October 22, 2019.
- BB-WS46-207 — Locations and designations of 200 series borings performed by New England Boring Contractors of Hermon, Maine between March 22 and April 7, 2021.
- BB-WS46-305 — Locations and designations of 300 series borings performed by New England Boring Contractors of Hermon, Maine between March 22 and May 19, 2021.
- CB-16-78, 9 (1979) — Locations and designation of historic explorations provided in 1979 Geotechnical Report.
- CPT-WS46-101 — Location and designation of 100 series Cone Penetrometer Test (CPT) performed by Summit Geoengineering Services, Inc. of Rockland, Maine on October 14, 2019.
- SCPT-WS46-203 — Location and designation of 200 series Cone Penetrometer Test (CPT) performed by Summit Geoengineering Services, Inc. of Rockland, Maine on March 24, 2021. (S indicates seismic testing was performed)

PLAN

25 0 25 50
Scale in Feet

PREPARED BY:

GZA

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

Bridge No. 3039

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	E. TOME	B. CARDALI	05/2021
CHECKED-REVIEWED	C. SNOW	A. BLASDELL	05/2021
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

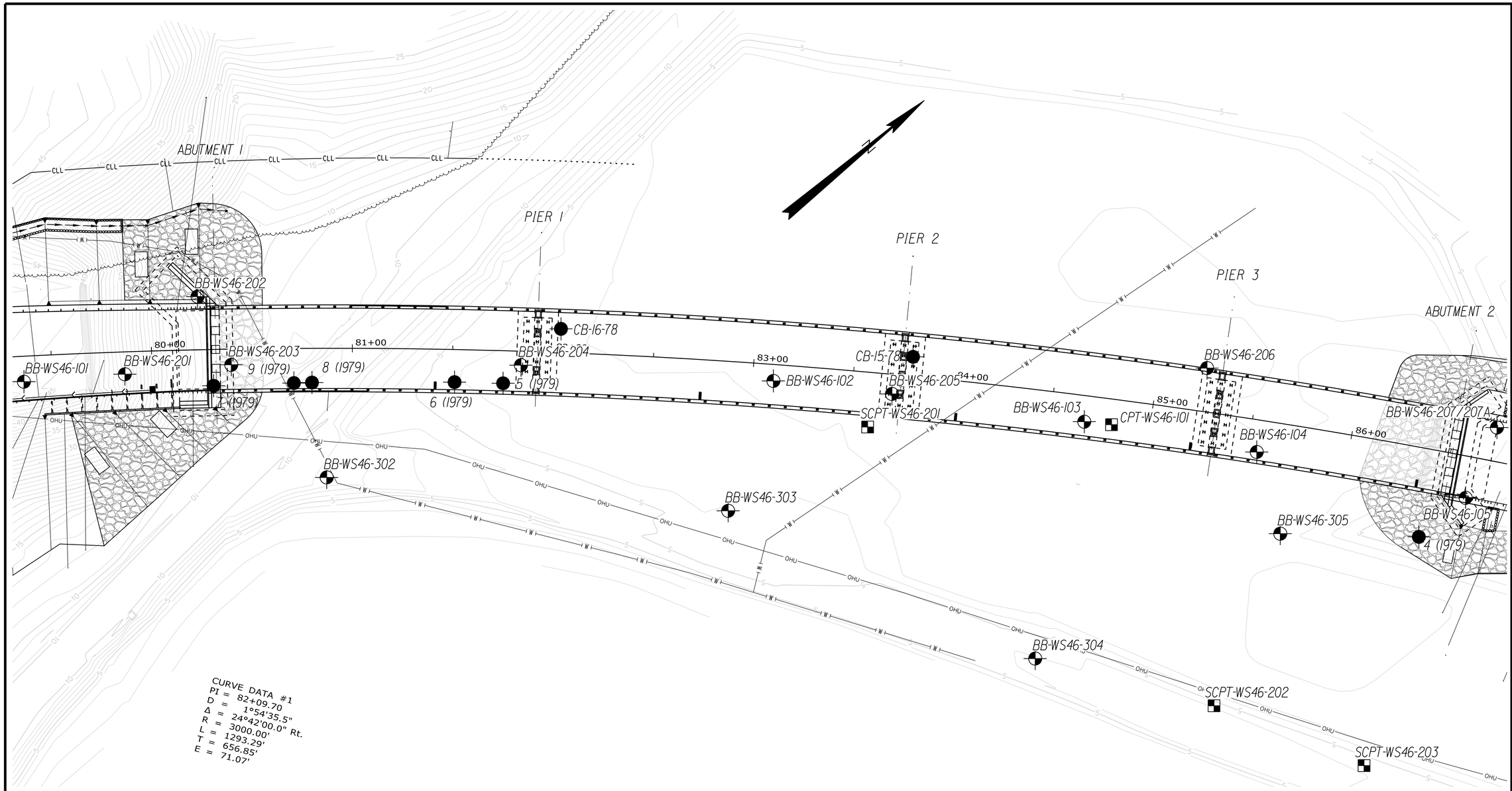
STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

BORING LOCATION PLAN 1

SHEET NUMBER

14

Filename: ...\BLP\Woolwich - 001_BLP.dgn Division: HIGHWAY Username: common Date:8/19/2021



NOTES

1) Base map developed from electronic files (3DTopo_21dec09.dgn, Contours.dgn, Alignments.dgn, Topo-BothBridges.dgn, Topo_HNTB.dgn, and Bridge_Combined.dgn) provided by HNTB on April 27, 2021.

2) The as-drilled locations of the BB-WS46-100, -200, AND -300 series test borings were surveyed and provided by MaineDOT in an electronic file (001_Borings_28 OCTOBER 19.dgn and 20 MAY BORINGS ONLY.dgn).

3) Borings CB-15-78 and CB-16-78 were drilled in 1978, and probe borings 4 through 9 were drilled in 1979 and were included in Geotechnical Report entitled "Soils Report 79-12, Woolwich-Sagadahoc County, Station 46 Bridge 26-1(48)" dated March 1979.

BORING LOCATION PLAN LEGEND

BB-WS46-105	Locations and designations of 100 series borings performed by New England Boring Contractors of Hermon, Maine between October 7 and October 22, 2019.
BB-WS46-207	Locations and designations of 200 series borings performed by New England Boring Contractors of Hermon, Maine between March 22 and April 7, 2021.
BB-WS46-305	Locations and designations of 300 series borings performed by New England Boring Contractors of Hermon, Maine between March 22 and May 19, 2021.
CB-16-78, 9 (1979)	Locations and designation of historic explorations provided in 1979 Geotechnical Report.
CPT-WS46-101	Location and designation of 100 series Cone Penetrometer Test (CPT) performed by Summit Geoengineering Services, Inc. of Rockland, Maine on October 14, 2019.
SCPT-WS46-203	Location and designation of 200 series Cone Penetrometer Test (CPT) performed by Summit Geoengineering Services, Inc. of Rockland, Maine on March 24, 2021. (S) indicates seismic testing was performed)

PLAN

25 0 25 50

Scale in Feet

PREPARED BY:

GZA

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

Bridge No. 3039

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	**	
DESIGN-DETAILED	E. TOME	05/2021
CHECKED-REVIEWED	C. SNOW	A. BLASDELL 05/2021
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

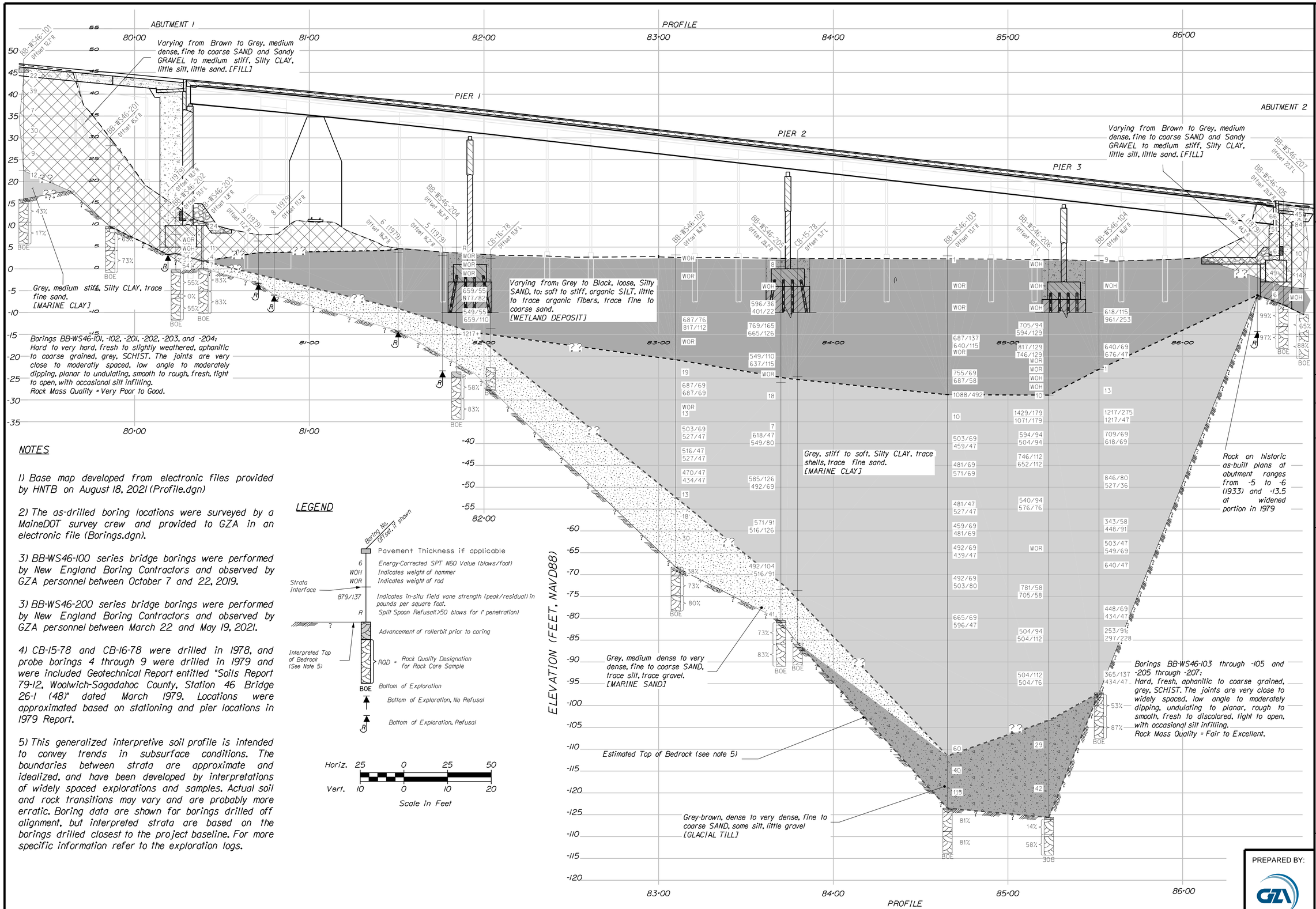
STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

BORING LOCATION PLAN 2

SHEET NUMBER

15

Filename: ...\BLP\Woolwich - 002_BLP.dgn Division: HIGHWAY Username: common Date:8/19/2021



NOTES

1) Base map developed from electronic files provided by HNTB on August 18, 2021 (Profile.dgn)

2) The as-drilled boring locations were surveyed by a MaineDOT survey crew and provided to GZA in an electronic file (Borings.dgn).

3) BB-WS46-100 series bridge borings were performed by New England Boring Contractors and observed by GZA personnel between October 7 and 22, 2019.

3) BB-WS46-200 series bridge borings were performed by New England Boring Contractors and observed by GZA personnel between March 22 and May 19, 2021.

4) CB-15-78 and CB-16-78 were drilled in 1978, and probe borings 4 through 9 were drilled in 1979 and were included Geotechnical Report entitled "Soils Report 79-12, Woolwich-Sagadahoc County, Station 46 Bridge 26-1 (48)" dated March 1979. Locations were approximated based on stationing and pier locations in 1979 Report.

5) 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 and rock transitions may vary and are probably more erratic. Boring data are shown for borings drilled off alignment, but interpreted strata are based on the borings drilled closest to the project baseline. For more specific information refer to the exploration logs.

LEGEND

Division: Bridge
Filename: ...\ISP\Woolwich_ISP 8 19 2021.dgn
Date: 8/19/2021
Username: BMC

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE PLANS

Bridge No. 3039

	BY	DATE
DESIGN-DETAILED	B. CARDALI	5/2021
CHECKED-REVIEWED	A. BLASDELL	5/2021
DESIGN2-DETAILED2	E. TOME	
DESIGN3-DETAILED3	C. SNOW	
PROJ. MANAGER		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

INTERPRETIVE SUBSURFACE PROFILE

PREPARED BY:

GZA

SHEET NUMBER

16

Filename: ...\Boring Logs Border S46.dgn Division: HIGHWAY Username: common Date:7/26/2021

Maine Department of Transportation — BB-WS46-101

Soil/Rock Exploration Log — US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine
Boring No.: BB-WS46-101
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.): 46.0	Auger ID/OD: 4.25" SSA
Operator:	Brad Enos	Datum: NAVD 88	Sampler: Standard Split-spoon
Logged By:	L. Navarrete	Rig Type: Track B53 Mobile	Hammer Wt./Fall: 140#/30"
Date Start/Finish:	10/7/19-10/7/19	Drilling Method: Drive & Wash	Core Barrel: NX
Boring Location:	Sta. 79+35.8, 12.7 RT	Casing ID/OD: 3"/3.5"/4"/4.5"	Water Level ▼: 24.4

Hammer Efficiency Factor: 0.895 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample; WO = Unsuccessful Split Spoon Sample Attempt; U = Thin Wall Tube Sample; WU = Unsuccessful Thin Wall Tube Sample Attempt; V = Field Vane Shear Test; PP = Pocket Penetrometer; WOR = Weight of Rods or Casing; WOH = Weight of Hammer; Efficiency Factor = Hammer Efficiency Factor (%); N/A = Unsuccessful Test (see Test Attempt); R = Rock Core Sample; SSA = Solid Stem Auger; HSA = Hollow Stem Auger; RC = Roller Cone; WOH = Weight of 140lb. Hammer; WOR/C = Weight of Rods or Casing; N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency; N_{uncorr} = SPT N-uncorrected for Hammer Efficiency; q_p = Pocket Penetrometer Shear Strength (psf); q_u = Unconfined Compressive Strength (psf); $S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf); N-uncorrected = Raw Field SPT N-value; Hammer Efficiency Factor = Rig Specific Annual Calibration Value; WC = Water Content, percent; LL = Liquid Limit; PL = Plastic Limit; PI = Plasticity Index; G = Grain Size Analysis; C = Consolidation Test

Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows/ 6 in. Pen. Resistance or RQD (if R)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA	45.0		ASPHALT — 1.0	
	10	24/12	1.0 - 3.0	10-10-5-11	15	22				Brown, medium dense, fine to coarse SAND, little gravel, trace organic silt, (Fill).	
5											
	20	24/10	5.0 - 7.0	2-14-12-12	26	39				Brown, dry, dense, Gravelly, fine to coarse SAND, little organic silt, (Fill).	q_p = 19-5-2627 A-1-b, SP-SM WC=10.6
10											
	30	24/14	10.0 - 12.0	1-2-3-11	5	7				Grey, moist, medium stiff, Silty CLAY, little fine to coarse sand, (Fill).	Pr=9 LL=31 PL=22 A-4, CL WC=23.3
15											
	40	24/10	15.0 - 17.0	8-11-9-4	20	30	63			Brown, wet, medium dense, sandy GRAVEL, little organic silt, (Fil).	q_p = 19-5-2629 A-1-a, GP-GM WC=10.6
							38				
							39				
20							34				
							13				
	50	24/0	20.0 - 22.0	3-3-3-4	6	9	RC			No recovery.	
22.5										——23.5	
25										Grey, moist, medium stiff, Silty CLAY, (Marine Clay).	WC=26.1
	60	24/14	25.0 - 27.0	1-2-2-3	4	6					
	70	6/6	29.8 - 30.3	41-36	R			16.2			
30	R1	60/60	30.3 - 35.3	RQD = 43%				15.7		Moist, very dense, fine to coarse SAND, (Marine Sand). — 29.8 — 30.3	
										Spoltspoon refusal at 30.3', probable rock, advanced roller bit to 30.3 and set up to core at 30.3'. R1: Very hard to hard, fresh to slightly weathered, medium grained, grey, SCHIST. Primary joints are very close to moderately spaced, low angle, undulating, rough, fresh, open, with slit infilling. Secondary joints are extremely close to moderately spaced, high angle to vertical, undulating, rough, fresh to discolored, partialy open to open. Rock Mass Quality = Poor Recovery = 100% Rock Core Times (min/sec): 30.3-31.3' (2:09), 31.3-32.3' (1:53), 32.3-33.3' (2:37), 33.3-34.3' (1:12), 34.3-35.3' (1:32)	
35	R2	60/60	35.3 - 40.3	RQD = 17%						R2: Very hard to hard, fresh to slightly weathered, medium grained, SCHIST. Primary joints are close to moderately spaced, low angle, undulating, rough, fresh, partialy open to open. Secondary joints are close to moderately spaced, moderately dipping, planar, rough to smooth, fresh to discolored, partialy open to open. Rock Mass Quality = Very Poor Recovery = 100% Rock Core Times (min/sec): 35.3-36.3' (1:32), 36.3-37.3' (1:03), 37.3-38.3' (1:17), 38.3-39.3' (1:58), 39.3-40.3' (1:32)	
40								5.7		——40.3 — Bottom of Exploration at 40.3 feet below ground surface.	
45											
50											

Remarks:
1. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.
2. Automatic hammer NEBC =CYII Energy Transfer Ratio = 0.895.
3. Water level measured immediately after removal of casing.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual. * Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1 — Boring No.: BB-WS46-101

Maine Department of Transportation — BB-WS46-201

Soil/Rock Exploration Log — US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine
Boring No.: BB-WS46-201
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.): 28.2	Auger ID/OD: -
Operator:	Brad Enos	Datum: NAVD 88	Sampler: Standard Split-spoon
Logged By:	L. Navarrete	Rig Type: Track B-53 Mobile	Hammer Wt./Fall: 140#/30"
Date Start/Finish:	3/22/21-3/22/21	Drilling Method: Drive & Wash	Core Barrel: NQ
Boring Location:	Sta. 79+86.4, 11.7 RT	Casing ID/OD: 3"/3.5"/4"/4.5"	Water Level ▼: Not Encountered

Hammer Efficiency Factor: 0.818 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions: D = Split Spoon Sample; WO = Unsuccessful Split Spoon Sample Attempt; U = Thin Wall Tube Sample; WU = Unsuccessful Thin Wall Tube Sample Attempt; V = Field Vane Shear Test; PP = Pocket Penetrometer; WOR/C = Weight of Rods or Casing; WOH = Weight of Hammer; N/A = Unsuccessful Test (see Test Attempt); R = Rock Core Sample; SSA = Solid Stem Auger; HSA = Hollow Stem Auger; RC = Roller Cone; WOH = Weight of 140lb. Hammer; Efficiency Factor = Rig Specific Annual Calibration Value; N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency; N_{uncorr} = SPT N-uncorrected for Hammer Efficiency; q_p = Pocket Penetrometer Shear Strength (psf); q_u = Unconfined Compressive Strength (psf); $S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf); N-uncorrected = Raw Field SPT N-value; Hammer Efficiency Factor = Rig Specific Annual Calibration Value; WC = Water Content, percent; LL = Liquid Limit; PL = Plastic Limit; PI = Plasticity Index; G = Grain Size Analysis; C = Consolidation Test

Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows/ 6 in. Pen. Resistance or RQD (if R)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	10	24/2	0.0 - 2.0	1-5-3-7	8	11	41			Brown, moist, medium dense, GRAVEL, some fine to coarse sand, some silt, (Fill).	
							28				
5							17				
	20	24/9	4.0 - 6.0	6-4-1-1	5	7	42			Brown, moist, loose, silty fine to medium SAND, trace gravel, (Fill).	G=21-5-1479 A-4(01), SM WC=23.3
							38				
10							RC				
	30	24/10	9.0 - 11.0	5-2-2-3	4	5				Brown, moist, loose, silty fine to coarse SAND, (Fill).	
15							26				
	40	24/10	14.0 - 16.0	1-2-2-1	4	5	35				
							46				
							47				
20							51				
							ND	9.7		Brown, wet, medium stiff, SILT, little fine to coarse sand, trace gravel, (Fill).	
	R1	60/55	19.0 - 24.0	RQD=63%						Casing refusal at 18.5', probable top of rock. Advanced roller bit to 19.0', consistent dark grey rock fragments in wash return, setup to core at 19.0'. R1: Very hard, fresh to slightly weathered, aphanitic to coarse grained, grey, SCHIST. Joints are extremely close to moderately spaced, horizontal to low angle, stepped to planar,rough to smooth, fresh to discolored, tight to open. Rock Quality = Fair Recovery = 92% Rock Core Time (min/sec): 19-20' (02:17), 20-21(03:17), 21-22' (02:06), 23-24' (02:11).	
25										——18.5	
	R2	59/59	24.0 - 28.9	RQD=73%						R2: Very Hard to medium hard, fresh to slightly weathered, aphanitic to coarse-grained, grey/black, SCHIST. Joints are extremely close to moderately spaced, low angle to moderately dipping planar to undulating, fresh to discolored, very tight to open. Rock Quality = Fair Recovery = 100% Rock Core time (min/sec): 24-25' (01:32), 25-26' (02:19), 26-27' (01:09), 27-28' (1:00), 28-28.9' (01:15).	
30								-0.7		——28.9 — Bottom of Exploration at 28.9 feet below ground surface.	
35											
40											
45											
50											

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC =123 Energy Transfer Ratio = 0.818.
3. Cored into pavement with 5" thin wall bit. Pavement on bridge deck 3" thick concrete deck 9" thick. Ground level 15.8' below top of bridge deck.
4. Water level measured immediately after removal of casing.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual. * Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1 — Boring No.: BB-WS46-201

Maine Department of Transportation — BB-WS46-202

Soil/Rock Exploration Log — US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine
Boring No.: BB-WS46-202
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.): 11.7	Auger ID/OD: 4.25" OD
Operator:	Tom Schaefer	Datum: NAVD 88	Sampler: Standard Split-spoon
Logged By:	B. Woodman	Rig Type: Track B-53 Mobile	Hammer Wt./Fall: 140#/30"
Date Start/Finish:	04/09/2021-04/09/2021	Drilling Method: Drive & Wash	Core Barrel: NQ
Boring Location:	Sta. 80+23.6, 26.5' LT.	Casing ID/OD: 3"/3.5"/4"/4.5"	Water Level ▼: 0.5

Hammer Efficiency Factor: 0.852 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions: D = Split Spoon Sample; WO = Unsuccessful Split Spoon Sample Attempt; U = Thin Wall Tube Sample; WU = Unsuccessful Thin Wall Tube Sample Attempt; V = Field Vane Shear Test; PP = Pocket Penetrometer; WOR/C = Weight of Rods or Casing; WOH = Weight of Hammer; N/A = Unsuccessful Test (see Test Attempt); R = Rock Core Sample; SSA = Solid Stem Auger; HSA = Hollow Stem Auger; RC = Roller Cone; WOH = Weight of 140lb. Hammer; Efficiency Factor = Rig Specific Annual Calibration Value; N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency; N_{uncorr} = SPT N-uncorrected for Hammer Efficiency; q_p = Pocket Penetrometer Shear Strength (psf); q_u = Unconfined Compressive Strength (psf); $S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf); N-uncorrected = Raw Field SPT N-value; Hammer Efficiency Factor = Rig Specific Annual Calibration Value; WC = Water Content, percent; LL = Liquid Limit; PL = Plastic Limit; PI = Plasticity Index; G = Grain Size Analysis; C = Consolidation Test

Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows/ 6 in. Pen. Resistance or RQD (if R)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	10	24/3	0.0 - 2.0	Push	-		SSA			Brown, wet, coarse Sandy GRAVEL with wood fragments, (Fill).	
	20	24/6	2.0 - 4.0	Push	-					Brown, wet, fine to coarse SAND, little gravel, trace silt, (Fill).	G=21-5-1480 A-1-b, SW-SM WC=15.1
5	30	24/5	4.0 - 6.0	WOR-WOH-WOR-WOR	-					Top 2"- Brown, wet, fine to coarse SAND, little gravel, trace silt, (Fill). Bottom 3"- Olive brown, sandy SILT, (Fill).	
	40	24/0	6.0 - 8.0	WOH-WOH-WOH-WOH			RC			No recovery.	
10	50	24/7	8.0 - 10.0	14-14-24-23	38	54		3.7		——8.0 — Olive brown, wet, very dense, fine to medium SAND, little silt, trace gravel, (Marine Sand).	
	60	23/15	10.0 - 11.9	8-20-18-35/5"	38	54				Brown wet, very dense, fine to coarse SAND, some gravel, trace silt, (Marine SAND).	G=21-5-1481 A-2-4(0), SP-SM WC=23.3
15	R1	60/54	12.5 - 17.5	RQD = 55%			ND	-0.2		——11.9 — Spilt spoon refusal at 11.9'. Roller cone to 12.5'. Consistent dark grey rock fragments in wash return. Set up to core at 12.5'. R1: 12.5'-19.4' Hard slightly weathered to decomposed, medium to coarse grained, grey and white, GRANITE. Joints are extremely close to close moderately dipping to high angle, undulating, rough, discolored, open. 14'-17.5': Very hard, fresh to slightly weathered, grey, SCHIST with quartz. Joints are very close to close, low angle to moderately dipping, undulating, rough, discolored, open to wide, with silt infilling. Rock Quality = Fair Recovery = 90% Rock Core Times (min/sec): 12.5'-13.5' (0:23), 13.5'-14.5' (1:38), 15.5'-16.5' (1:20), 16.5'-17.5' (1:41). R2: Very hard, fresh to slightly weathered, grey, SCHIST. Joints are very close, low angle to moderately dipping, undulating, rough, open. Rock Quality = Very Poor Recovery = 54% Rock Core Times (min/sec): 17.5'-18.4' (1:30). R3: 18.4'-19.4': Very hard, fresh, aphanitic to fine grained, grey, SCHIST. Joints are close, low angle, undulating, rough, fresh, open. 19.4'-23.4': Very hard, decomposed to discolored, fine to coarse-grained, grey, GRANITE. Primary joints are extremely close to moderately spaced, moderately dipping to vertical, undulating, rough, discolored to decomposed, open to wide. Secondary joints are close, horizontal, undulating, rough, fresh, wide. Rock Quality = Far Recovery = 54% Rock Core Times (min/sec): 18.4'-19.4' (3:09), 19.4'-20.4' (2:13), 20.4'-21.4' (2:37), 21.4'-22.4' (2:49), 22.4'-23.4'(2:56).
20	R2	60/60	17.5 - 18.4	RQD = 0%							
	R3	60/00	18.4 - 23.4	RQD = 55%							
25								-11.7		——23.4 — Bottom of Exploration at 23.4 feet below ground surface.	
30											
35											
40											
45											
50											

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC=1 Energy transfer ratio = 0.852.
3. Water level measured immediately after removal of casing.
4. Samples 10 and 20 pushed with drill head, no N values recorded.
5. Sample 40 no recovery in 2" SS, 3" spoon used to collect sample for description.
6. Core through bridge deck with 5" mix will pavement on bridge 3" thick, concrete 9" thick. Ground level 32 ft below top of bridge deck.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual. * Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1 — Boring No.: BB-WS46-202

Maine Department of Transportation — BB-WS46-203

Soil/Rock Exploration Log — US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine
Boring No.: BB-WS46-203
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.): 10.8	Auger ID/OD: -
Operator:	Tom Schaefer	Datum: NAVD 88	Sampler: Standard Split-spoon
Logged By:	B. Woodman	Rig Type: Truck B53 Mobile	Hammer Wt./Fall: 140#/30"
Date Start/Finish:	03/24/2021 - 03/29/2021	Drilling Method: Drive & Wash	Core Barrel: NQ
Boring Location:	Sta. 80+39.6, 7.8' RT	Casing ID/OD: 3"/3.5"/4"/4.5"	Water Level ▼: 1.4 ft.

Hammer Efficiency Factor: 0.852 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions: D = Split Spoon Sample; WO = Unsuccessful Split Spoon Sample Attempt; U = Thin Wall Tube Sample; WU = Unsuccessful Thin Wall Tube Sample Attempt; V = Field Vane Shear Test; PP = Pocket Penetrometer; WOR/C = Weight of Rods or Casing; WOH = Weight of Hammer; N/A = Unsuccessful Test (see Test Attempt); R = Rock Core Sample; SSA = Solid Stem Auger; HSA = Hollow Stem Auger; RC = Roller Cone; WOH = Weight of 140lb. Hammer; Efficiency Factor = Rig Specific Annual Calibration Value; N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency; N_{uncorr} = SPT N-uncorrected for Hammer Efficiency; q_p = Pocket Penetrometer Shear Strength (psf); q_u = Unconfined Compressive Strength (psf); $S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf); N-uncorrected = Raw Field SPT N-value; Hammer Efficiency Factor = Rig Specific Annual Calibration Value; WC = Water Content, percent; LL = Liquid Limit; PL = Plastic Limit; PI = Plasticity Index; G = Grain Size Analysis; C = Consolidation Test

Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows/ 6 in. Pen. Resistance or RQD (if R)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	10	24/6	0.0 - 2.0	WOH-WOH-17-75	17	24	RC			Brown, wet, medium dense, fine to coarse SAND, little silt, trace gravel, trace organic material, (Fill).	G=21-5-1482 A-1-b, SP-SM WC=21.6
5	20	24/3	5.0 - 7.0	10-5-3-2	8	11				Brown, wet, medium dense, fine to coarse SAND, little silt, little gravel, (Fill).	
	30	24/4	7.0 - 9.0	2-2-1-1	3	4				Olive-brown, wet, very loose, fine to coarse SAND, little silt, little gravel, (Fill).	
10	40	20/5	9.0 - 10.7	3-2-3-16/2"	5	7		1.8		——9.0 — Olive-brown/grey, moist, loose, fine to coarse SAND, some silt, trace gravel, (Marine Sand).	
	R1	60/60	11.0 - 16.0	RQD = 83%			ND	0.1		——10.7 — Split spoon refusal at 10.7' roller cone to 11.0'. Set up to core at 11.0'. R1: Hard, slightly weathered to weathered, fine to coarse grained, grey, SCHIST. Primary joints are close to moderately spaced, low angle, undulating, rough, open, weathered with Silt in filling. Rock Quality = Good Recovery = 100% Rock Core Times (min/sec): 11-12' (1:40), 12-13' (1:59), 13-14' (01:55), 14-15' (2:00), 15-16' (02:13)	q_p=1259 ksf
15	R2	60/60	16.0 - 21.0	RQD = 83%				-10.2		R2: Very hard to hard, fresh to slightly weathered, fine to coarse grained, grey, SCHIST. Joints are extremely close to moderately dipping, undulating, rough, open, with little silt infilling. Rock Quality = Good Recovery = 100% Rock Core Times (min/sec): 16-17' (01:38), 17-18' (01:30),18-19' (01:34), 19-20' (01:45), 20-21' (01:07)	
20										——21.0 — Bottom of Exploration at 21.0 feet below ground surface.	
25											
30											
35											
40											
45											
50											

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC=0.852 Energy transfer ratio = 0.852.
3. Cored into pavement with 5" thin wall bit. Pavement on bridge deck 3" thick, concrete deck 9" thick. Ground level 30.9' below top of bridge deck.
4. Water level measured immediately after removal of casing.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual. * Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1 — Boring No.: BB-WS46-203

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE PLANS

Bridge No. 3039

	BY	DATE
PROJ. MANAGER		
DESIGN-DETAILED	E. TOME	
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

BORING LOGS 1

PREPARED BY: GZA

SHEET NUMBER
17

Usernome: common Date:7/26/2021

Division: HIGHWAY

Filename: ...\Boring Logs Border S46.dgn

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-204
WIN: 23929.00

Driller:	New England Boring	Elevation (ft.)	4.1	Auger ID/OD:	-
Operator:	Tom Schaefer	Datum:	NAVD 88	Sampler:	Standard Spilltspoon
Logged By:	B. Woodman	Rig Type:	Truck B53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	03/22/2021 - 03/24/2021	Drilling Method:	Drive & Wash	Core Barrel:	NQ
Boring Location:	Sta. 81+84.2, 6.9 RT	Casing ID/OD:	3"/3.5"/4"/4.5"	Water Level *:	1.0 ft.
Hammer Efficiency Factor:	0.852	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(ave)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*SPT-N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in. Pen. Strength or RQD (if applicable)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	6/5	0.0 - 0.5	69/6"	-		PUSH			Dark brown, wet, fine to coarse SAND, little Organic Silt, with wood fragments. (Wetland Deposit). Probable cobble 0.5'-0.7'. Dark brown, wet, very soft, Organic SILT, some fine to coarse sand, trace organics, (Wetland Deposit).	
	2D	24/6	1.0 - 3.0	WOR-WOR-WOH-WOH	-						
	3D	24/0	3.0 - 5.0	WOR-WOR-WOR-WOR	-					No Recovery	
5	4D	24/6	5.0 - 7.0	WOR-WOR-WOR-WOR	-					Brown, moist, Organic SILT, little fine gravel, trace organic fibers, (Wetland Deposit).	O-21-S-1483 WC=50.6
10	5D V1	24/24	10.0 - 12.0 Vane	Push thru vane S_u=543/53 psf	-		RC			Brown, wet, medium stiff, Organic SILT, trace fine sand, trace organics, (Wetland Deposit). 65x130 mm vane row torque reading: V1: 24/2 in-lbs V2: 21/3 in-lbs.	•21-S-1484 PI=24 LL=108 PL=60 WC=95.1
	V2		11.0 - 11.6 12.0 -	S_u=577/82 psf	-						
15	6D V3	24/17	15.0 - 17.0 Vane	Push thru vane S_u=659/110 psf	-					Dark brown, wet, medium stiff, Organic SILT, little organics, trace fine sand, (Wetland Deposit). 65x130 mm vane row torque reading: V3: 20/2 in-lbs V4: 24/4 in-lbs.	
	V4		16.0 - 16.6 17.0 -	S_u=659/110 psf	-						
20	7D V5	24/24	20.0 - 22.0 Vane	Push thru vane S_u=1373 psf	-			-15.9		Grey, wet, very stiff, Silty CLAY, trace fine to medium sand, (Marine Clay). 65x130 mm vane row torque reading: V5: 150 in-lbs. MV1: Could not advance vane.	O-21-S-1485 WC=35.7
	MV1		21.0 - 21.6 22.0 -	-				-19.9			
25	8D	24/24	25.0 - 27.0	WOR-WOR-WOR-WOR						Grey, wet, very soft, Silty CLAY, (Marine Clay).	•21-S-1486 PI=18 LL=37 PL=19 WC=37.9
								-24.5		Roller cone resistance increased at 28.6'. Grey, wet, gravelly, fine to coarse SAND, little silt, (Glacial Till).	
	9D	2/2	29.7 - 29.9	50/2"	R		ND	-25.8		Split spoon refusal at 27.9'. Advanced roller cone to 30.0'. Set up to core.	
30	R1	60/58	30.0 - 35.0	RQD = 58%						R1: Very hard to hard, fresh to slightly weathered, fine to medium grained, grey, SCHIST. Joints are very close to moderately spaced, low angle, undulating, rough, fresh to slightly weathered, open, with some silt in filling. Rock Quality = Fair Recovery = 97% Rock Core Times (min/sec): 30-31' (1:40), 31-32' (1:59), 32-33' (1:55), 33-34' (2:00), 34-35'(2:13)	
35	R2	60/59	35.0 - 40.0	RQD = 83%				-35.9		R2: Very hard to hard, fresh to slightly weathered, fine grained, grey, SCHIST. Joints are close to moderately spaced, low angle to moderately dipping, undulating, rough fresh to slightly weathered, open. Rock Quality = Good Recovery = 98% Rock Core Times (min/sec): 35-36' (01:38), 36-37' (01:30), 37-38' (01:34), 38-39' (01:45), 39-40' (01:07)	
40								-40.0		Bottom of Exploration at 40.0 feet below ground surface.	
45											
50											

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC#023 Energy transfer ratio = 0.852.
3. Cored into pavement with 5" thin wall bit. Pavement on bridge deck 3" thick, concrete deck 9" thick. Ground level 31.0' below top of bridge deck.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1
Boring No.: BB-WS46-204

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-102
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.)	3.2	Auger ID/OD:	-
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Standard Spilltspoon
Logged By:	L. Navarrete	Rig Type:	Track B53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	10/7/19-10/9/19	Drilling Method:	Drive & Wash	Core Barrel:	NX
Boring Location:	Sta. 83+10.4, 8.2 RT	Casing ID/OD:	3"/3.5"/4"/4.5"	Water Level *:	1.0
Hammer Efficiency Factor:	0.895	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(ave)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*SPT-N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in. Pen. Strength or RQD (if applicable)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/1	0.0 - 2.0	WOH-WOH-WOH-WOH			PC			Grey/black, wet, very loose, fine to coarse SAND, some organic silt, (Wetland Deposit).	
	2D	24/0	5.0 - 7.0	WOR-WOR-WOR-WOR						No recovery.	
10	1U	24/18	10.0 - 12.0	PUSH			PUSH			Grey, moist to wet, Organic SILT, trace organic fibers, (Wetland Deposit).	
15	3D V1	24/14	15.0 - 17.0 Vane	Push thru vane S_u=687/76 psf						Grey, moist to wet, medium stiff, Organic SILT, trace organic fibers, (Wetland Deposit). 65x130mm vane raw torque readings: V1: 85/20 in-lbs V2: 220/30 in-lbs	
	V2		16.0 - 16.6 17.0 -	S_u=817/112 psf							
20	4D	24/13	20.0 - 22.0	WOR-WOR-WOR-WOR				-20.8		Grey, moist to wet, Organic SILT, trace organic fibers, (Wetland Deposit).	WC=83.7
								-24.0		Grey, wet, very stiff, Silty CLAY, (Marine Clay).	
25	2U	24/15	25.0 - 27.0	PUSH							
	5D	24/24	27.0 - 29.0	4-5-8-9	13	19		-24.8			
								-28.0		Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x130mm vane row torque readings: V3: 300/30 in-lbs V4: 300/30 in-lbs	A-7, CH LL=53 PI=24 PI=29 WC=37.8
30	6D V3	24/24	30.0 - 32.0 Vane	Push thru vane S_u=687/69 psf							
	V4		31.0 - 32.0	S_u=687/69 psf							
35	7D	24/20	35.0 - 37.0	WOR-WOR-WOR-WOR						Grey, wet, Silty CLAY, (Marine Clay).	
40	8D V5	24/19	40.0 - 42.0 Vane	Push thru vane S_u=503/69 psf						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x130mm vane row torque readings: V5: 220/30 in-lbs V6: 230/20 in-lbs	A-7, CL LL=44 PI=22 PI=22 WC=40.9
	V6		41.0 - 41.6 42.0	S_u=527/47 psf							
45	9D V7	24/22	45.0 - 47.0 Vane	Push thru vane S_u=536/47 psf						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x130mm vane row torque readings: V7: 225/20 in-lbs V8: 230/28 in-lbs	
	V8		46.0 - 46.6 47.0	S_u=527/47 psf							
50	10D V9	24/22	50.0 - 52.0 Vane	Push thru vane S_u=370/47 psf						Grey, wet, soft, Silty CLAY, (Marine Clay). 65x130mm vane row torque readings: V9: 205/20 in-lbs V10: 190/20 in-lbs	
	V10		51.0 - 51.6 52.0	S_u=434/47 psf							
55	11D	24/12	55.0 - 57.0	6-4-5-4	9	13		-52.3		Top 6": Grey, wet, Silty CLAY, (Marine Clay).	
							22	-55.5		Bottom 6": Grey, wet, medium dense, fine to coarse SAND, trace gravel, (Marine Sand).	
							27				
							28				
60	12D	24/4	60.0 - 62.0	5-6-6-6	12	18	28			Grey, wet, medium dense, fine to coarse SAND, trace organic silt, (Marine Sand).	
							8				
							25				
							45				
							58				
65	13D	24/8	65.0 - 67.0	9-9-11-12	20	30	79			Grey, wet, medium dense, fine to medium SAND, trace gravel, trace organic silt, (Marine Sand).	G-19-S-2634 A-1-b, SP WC=18.7
							17				
							32				
							84				
70	14D	14/9	70.0 - 71.2	11-17-110/2"	R		112 103	-68.0		Top 12": Grey, wet, fine to coarse SAND, trace organic silt, (Marine Sand).	
	R1	24/24	71.5 - 73.5	RQD = 38%				-71.2		Bottom 2": Grey, wet, fine to coarse SAND, little gravel, trace organic silt.	
										Split spoon refusal at 71.2', probable top of rock. Roller cone to 73.5'. Consistent dark grey rock. Rock core times: 71.5-72.5' (1:48), 72.5-73.5' (1:45)	
75	R2	54/50	73.5 - 78.0	RQD = 73%						R1: Very hard, fresh, aphanitic to coarse grained, grey, SCHIST. Joints are close to moderately spaced, moderately dipping, planar, rough to smooth, fresh, tight to partially open.	

Remarks:
1. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.
2. Automatic hammer NEBC #019 Energy Transfer Ratio = 0.895
3. Cored into pavement with 6" thin wall bit. Pavement on bridge deck 3" thick, concrete deck 10" thick. Ground level 26.2' below top of bridge deck.
4. Water level measured immediately after removal of casing.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 2
Boring No.: BB-WS46-102

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-102
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.)	3.2	Auger ID/OD:	-
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Standard Spilltspoon
Logged By:	L. Navarrete	Rig Type:	Track B53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	10/7/19-10/9/19	Drilling Method:	Drive & Wash	Core Barrel:	NX
Boring Location:	Sta. 83+10.4, 8.2 RT	Casing ID/OD:	3"/3.5"/4"/4.5"	Water Level *:	1.0
Hammer Efficiency Factor:	0.895	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(ave)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*SPT-N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in. Pen. Strength or RQD (if applicable)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
75										Rock Mass Quality = Poor Recovery = 93% Rock Core Times (min/sec): 71.5-72.5' (1:48), 72.5-73.5' (1:45)	
	R2	54/50	73.5 - 78.0	RQD = 73%				-78.3		R2: Very hard, fresh, aphanitic to coarse grained, grey, SCHIST. Joints are very close to moderately spaced, moderately dipping, planar, rough to smooth, fresh, tight to partially open. Rock Mass Quality = Fair Recovery = 100% Rock Core Times (min/sec): 73.5-74.5' (1:38), 74.5-75.5' (1:38), 75.5-76.5' (1:51), 76.5-77.5' (1:23), 77.5-78.0' (0:47)	
80										R3: Very hard, fresh, aphanitic to coarse grained, grey, SCHIST. Joints are close to moderately spaced, moderately dipping, planar, smooth, fresh, tight to open. Rock Mass Quality = Good Recovery = 100% Rock Core Times (min/sec): 78.0-79.0' (1:53), 79.0-80.0' (1:26), 80.0-81.0' (1:45), 810-81.5' (0:45)	
	R3	42/42	78.0 - 81.5	RQD = 80%							
85								-81.5		Bottom of Exploration at 81.5 feet below ground surface.	
90											
95											
100											

Remarks:
1. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.
2. Automatic hammer NEBC #019 Energy Transfer Ratio = 0.895
3. Cored into pavement with 6" thin wall bit. Pavement on bridge deck 3" thick, concrete deck 10" thick. Ground level 26.2' below top of bridge deck.
4. Water level measured immediately after removal of casing.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 2 of 2
Boring No.: BB-WS46-102

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE PLANS

Bridge No. 3039

	BY	DATE
PROJ. MANAGER		
DESIGN-DETAILED	E. TOME	
CHECKED-REVIEWED	R. CARROLL	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

BORING LOGS 2

PREPARED BY:

GZA

SHEET NUMBER

18

Filename: ...\Boring Logs Border S46.dgn
Division: HIGHWAY
Username: common
Date:7/26/2021

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-205
WIN: 23929.00

Driller:	New England Boring	Elevation (ft.):	2.0	Auger ID/OD:	-
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Standard Split-spoon
Logged By:	L. Navarrete	Rig Type:	Track B-53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	3/23/2021-3/24/2021	Drilling Method:	Drive & Wash	Core Barrel:	NX
Boring Location:	Sta. 83+70.0, 9.7' RT	Casing ID/OD:	3"/3.5"/4"/4.5"	Water Level *:	4.5 ft.

Hammer Efficiency Factor: 0.818 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
W = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOR = Weight of Drive Parson
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(ff)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor/60*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in. Pocket Penetrometer Strength or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
			Sample Information								
0	1D	24/19	0.0 - 2.0	4-4-2-1	6	8	18			Top 17": Dark brown/grey, wet, loose, fine to coarse SAND, some organic silt, trace gravel, little organic fibers and wood fragments, trace glass, (Fill).	
							14	0.5			
							7	-1.5		Bottom 2": Dark brown/grey, wet, organic SILT, (Wetland Deposit).	
							10				
							8				
5	2D	24/17	5.0 - 7.0	WOH-WOH-WOH-WOH	-		RC			Dark brown/black, wet, very soft, Organic SILT, little organic fibers and wood fragments, (Wetland Deposit).	
	3D VT	24/14	10.0 - 12.0 10.0 - 11.0	Push thru vane						Dark grey, wet, soft to medium stiff, Organic SILT, trace fine sand, trace organic fibers, (Wetland Deposit).	•21-S-1487 PI=24, LL=153 PL=58, WC=92.7
	V2		11.0 - 11.6	S_u=393/22 psf						65x130 mm vane row torque reading: V1: 260/15 in-lbs. V2: 175/10 in-lbs.	
	1U		12.0 - 13.0 - 15.0	PUSH						Black, wet, organic SILT (Wetland Deposit).	
15	4D VT-3	24/19	15.0 - 17.0 15.0 - 16.0	Push thru vane						Dark grey, wet, medium stiff, Organic SILT, trace fine sand, (Wetland Deposit). 65x130 mm vane row torque reading: V3: 285/6 in-lbs. V4: 290/55 in-lbs.	
	V4		16.0 - 16.6	S_u=665/126 psf							
			17.0 -				30				
20	2U	24/23	20.0 - 22.0	PUSH			RC			Dark grey, wet, medium stiff, Organic SILT, (Wetland Deposit).	
	V5		22.6 - 23.0	S_u=549/110 psf						65x130 mm vane row torque reading: V5: 20/4 in-lbs. V6: 275/50 in-lbs.	
	V6		23.6 - 24.0	S_u=637/115 psf							
25	5D	24/24	25.0 - 27.0	WOR-WOR-WOR-WOR			40			Dark grey, wet, organic Clayey SILT, trace organic fibers, (Wetland Deposit).	
							39				
							29	-26.0		Color change in wash return indicating probable strata change at 28'.	-28.0
30	MV1 6D	24/24	30.0 - 30.1 30.0 - 32.0	WOH-6-7-9	13	18	RC			Grey, wet, very stiff, Silty CLAY, (Marine Clay).	•21-S-1488 WC=30.4
35	3U	24/24	35.0 - 37.0	PUSH						Grey, wet, medium stiff, Silty CLAY, (Marine Clay).	
	MV2 7D	24/24	37.0 - 37.0 39.0	11-2-3-4	5	7					
40	8D V7	24/24	40.0 - 42.0 40.9 -	push thru vane S_u=618/47 psf				-38.0		Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x130 mm vane row torque reading: V7: 270/20 in-lbs.	-40.0 •21-S-1489 WC=41.3
	V8		41.0 - 41.8 - 42.0	S_u=549/80 psf						V8: 240/35 in-lbs.	
45											
50	9D V9	24/24	50.0 - 52.0 50.9 -	push thru vane S_u=580/108 psf						Grey, wet, soft to medium stiff, Silty CLAY, (Marine Clay). 65x130 mm vane row torque reading: V9: 255/55 in-lbs. V10: 215/30 in-lbs.	•21-S-1490 Gs PI=23 LL=42 PL=19 WC=38.7
	V10		51.0 - 51.6 - 52.0	S_u=492/69 psf							
55											
60	10D V11	24/24	60.0 - 62.0 60.9 -	Push thru vane S_u=573/81 psf						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x130 mm vane row torque reading: V11: 250/40 in-lbs.	•21-S-1491 WC=37.2
	V12		61.0 - 61.6 - 62.0	S_u=516/126 psf						V12: 225/55 in-lbs.	
65											
70	11D V13	24/24	70.0 - 72.0 70.9 -	Push thru vane S_u=492/104 psf						Grey, wet, soft to medium stiff, Silty CLAY, (Marine Clay). 65x130 mm vane row torque reading: V13: 215/45 in-lbs. V14: 225/40 in-lbs.	•21-S-1492 WC=36.8
	V14		71.0 - 71.6 - 72.0	S_u=516/91 psf							
74											

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBH023 Energy transfer ratio = 0.818.
3. Cored into pavement with 5" thin wall bit. Pavement on bridge deck 3" thick, concrete deck 9" thick. Ground level 24.5' below top of bridge deck.
4. Water level measured immediately after removal of casing.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 2
Boring No.: BB-WS46-205

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-205
WIN: 23929.00

Driller:	New England Boring	Elevation (ft.):	2.0	Auger ID/OD:	-
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Standard Split-spoon
Logged By:	L. Navarrete	Rig Type:	Track B-53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	3/23/2021-3/24/2021	Drilling Method:	Drive & Wash	Core Barrel:	NX
Boring Location:	Sta. 83+70.0, 9.7' RT	Casing ID/OD:	3"/3.5"/4"/4.5"	Water Level *:	4.5 ft.

Hammer Efficiency Factor: 0.818 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
W = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOR = Weight of Drive Parson
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(ff)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor/60*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in. Pocket Penetrometer Strength or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
			Sample Information								
75								-73.4		Roller bit resistance and wash return indicate probable strata change at 75.4'.	-75.4
							27				
80	12D	24/12	80.0 - 82.0	19-15-15-22	30	41	32			Grey, wet, medium dense, GRAVEL, some fine to coarse sand, little silt, (Marine Sand).	•21-S-1493 A-1-b, GW
							60				
							74	-80.5		Casing refusal at 82.5', probable top of rock. Roller coned to 83.0'. Consistent dark grey rocks in wash return. Set up to core at 83.0'.	-82.5
85	R1	60/58	83.0 - 88.0	RQD = 73%			NX			R1: Very hard to hard, fresh, aphanitic to coarse grained, grey, SCHIST. Primary joints are very close to moderately spaced, horizontal to low angle, planar, smooth, fresh, tight to partially open. Secondary joints are very close to moderately spaced, moderately dipping to high angle, planar, fresh, very tight to tight. One vertical joint. Rock Quality = Fair Recovery = 97% Rock Core Times (min/sec): 83-84' (01:13), 84-85' (02:47), 85-86' (04:27), 86-87' (04:27), 87-88' (02:07) R2: Very hard to hard, fresh, aphanitic to medium grained, grey, SCHIST. Primary joints are very close to widely spaced, moderately dipping to high angle, planar, smooth to rough, fresh, very tight to tight, with silt in filling. Secondary joints are moderately spaced, horizontal to low angle, planar, smooth, fresh, tight. Rock Quality = Good Recovery = 100% Rock core times (min/sec): 88-89' (01:48), 89-90' (01:34), 90-91' (02:16), 91-92' (02:20), 92-93' (02:45)	
90								-91.0			
95	R2	60/60	88.0 - 93.0	RQD = 83%							-93.0
100										Bottom of Exploration at 93.0 feet below ground surface.	

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBH023 Energy transfer ratio = 0.818.
3. Cored into pavement with 5" thin wall bit. Pavement on bridge deck 3" thick, concrete deck 9" thick. Ground level 24.5' below top of bridge deck.
4. Water level measured immediately after removal of casing.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 2 of 2
Boring No.: BB-WS46-205

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-103
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.):	4.25	Auger ID/OD:	4.25"
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Standard Split-spoon
Logged By:	L. Navarrete	Rig Type:	Track B53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	10/16/19-10/22/19	Drilling Method:	Drive & Wash	Core Barrel:	NX
Boring Location:	Sta. 84+80.7, 12.7 RT	Casing ID/OD:	3"/3.5"/4"/4.5"	Water Level *:	1.0

Hammer Efficiency Factor: 0.895 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
W = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOR = Weight of Drive Parson
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(ff)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor/60*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in. Pocket Penetrometer Strength or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
			Sample Information								
0	1D	24/10	0.0 - 2.0	1-1-WOH	1	1	RC			Black, wet, soft, Organic SILT, some fine to coarse sand, little organic fibers and wood fragments, (Wetland Deposit).	
5	2D	24/13	6.0 - 8.0	WOR-WOR-WOR-WOR						Black, wet, very soft, Organic SILT, trace organic fibers, (Wetland Deposit).	WC=104.1
	3D	24/12	11.0 - 13.0	WOR-WOR-WOR-WOR			65			Black, wet, very soft, Organic SILT, trace organic fibers, (Wetland Deposit).	
15							69				
							33				
							RC				
	1U	24/24	16.0 - 16.0	PUSH			63			Black, wet, Organic SILT, trace organic fibers.	
							50				
	V1		18.6 - 19.0	S_u=687/137 psf			44			65x130mm vane row torque readings: V1: 300/60 in-lbs	
	V2		19.6 - 20.0	S_u=640/115 psf			46			V2: 280/50 in-lbs	
20	4D	24/20	21.0 - 23.0	WOR-WOR-WOR-WOR			45			Black, wet, medium stiff, Organic SILT, trace organic fibers, (Wetland Deposit).	A-7, OH LL=88 PL=57 PI=31 WC=79.9
							61				
							37				
							32				
25							36				
							27				
	5D V3	24/22	26.0 - 28.0 26.6 -	Push thru vane			64			Black, wet, medium stiff, Organic SILT, trace organic fibers, (Wetland Deposit). 65x130mm vane row torque readings: V3: 330/30 in-lbs	
	V4		27.0 - 28.0	S_u=757/69 psf S_u=687/58 psf			44			V4: 300/25 in-lbs	
30							46				
							63				
							70				
	6D V5	24/22	31.0 - 33.0 31.6 -	Push thru vane			106	-28.8		Top 10": Black, wet, stiff, Organic SILT, trace organic fibers, (Wetland Deposit). 65x130mm vane row torque readings: V5: 425/215 in-lbs	
35	MV		32.0 - 32.8	S_u=1088/492 psf			195	-31.8		Bottom 12": Grey, stiff, Silty CLAY, trace shells, (Marine Clay).	
							210				
							175				
							140				
	7D MV	24/24	36.0 - 38.0 36.0 -	WOH-2-5-6	7	10	RC	-34.0		Grey, wet, stiff, Silty CLAY, trace shells, (Marine Clay).	
			36.2 -								
40											
	8D V6	24/24	41.0 - 43.0	Push thru vane						Grey, wet, soft to medium stiff, Silty CLAY, (Marine Clay). 65x130mm vane row torque readings: V6: 220/30 in-lbs	WC=43.4
	V7		42.0 - 42.8 - 43.0	S_u=459/47 psf						V7: 200/20 in-lbs	
45											
	2U	24/24	45.0 - 47.0	PUSH						Grey, wet, soft to medium stiff, Silty CLAY, (Marine Clay). 65x130mm vane row torque readings: V8: 210/30 in-lbs V9: 250/30 in-lbs	
	V8		47.6 - 48.0	S_u=481/69 psf							
	V9		49.6 - 50.0	S_u=571/69 psf							
50	9D	24/24	51.0 - 53.0	WOR-WOR-WOR-WOR						Grey, wet, soft to medium stiff, Silty CLAY, (Marine Clay).	A-7, CL LL=41 PL=21 PI=20 WC=40.7
55											
	10D V10	24/24	56.0 - 58.0	Push thru vane						Grey, wet, soft to medium stiff, Silty CLAY, (Marine Clay). 65x130mm vane row torque readings: V10: 210/20 in-lbs	WC=40.0
	V11		57.0 - 57.8 - 58.0	S_u=527/47 psf						V11: 230/20 in-lbs	
60											
	11D V12	24/24	61.0 - 63.0 61.6 -	Push thru vane						Grey, wet, soft, Silty CLAY, trace shells, (Marine Clay). 65x130mm vane row torque readings: V12: 200/30 in-lbs	A-6, CL LL=32 PL=19 PI=13 WC=33.0
	V13		62.0 - 62.8 - 63.0	S_u=481/69 psf						V13: 210/30 in-lbs	
65											
	12D V14	24/24	66.0 - 68.0 66.9 -	Push thru vane						Grey, wet, soft, Silty CLAY, trace shells, (Marine Clay). 65x130mm vane row torque readings: V14: 215/30 in-lbs	
	V15		67.0 - 67.8 - 68.0	S_u=439/47 psf						V15: 190/20 in-lbs	
70											
	3U		70.0 - 72.0	PUSH						Grey, wet, soft to medium stiff, Silty CLAY, trace fine sand, trace shells, (Marine Clay). 65x130mm vane row torque readings: V16: 215/30 in-lbs V17: 220/35 in-lbs	
	V16		72.6 - 73.0	S_u=492/69 psf							
	V17		73.6 - 74.0	S_u=503/80 psf							
74											

Remarks:

1. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.
2. Automatic hammer NEBC #278 Energy Transfer Ratio = 0.895
3. Cored into pavement with 6" thin wall bit. Pavement on bridge deck 3" thick, concrete deck 8" thick. Ground level 18.5' below top of bridge deck.
4. Water level measured immediately after removal of casing.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 2
Boring No.: BB-WS46-103

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-103
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.):	3.0	Auger ID/OD:	4.25"
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Standard Split-spoon
Logged By:	L. Navarrete	Rig Type:	Track B53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	10/16/19-10/22/19	Drilling Method:	Drive & Wash	Core Barrel:	NX
Boring Location:	Sta. 84+80.7, 12.7 RT	Casing ID/OD:	3"/3.5"/4"/4.5"	Water Level *:	1.0

Hammer Efficiency Factor: 0.895 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
W = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOR = Weight of Drive Parson
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(ff)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor/60*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in. Pocket Penetrometer Strength or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
			Sample Information								
75	13D	24/24	76.0 - 78.0	WOR-WOR-WOR-WOR						Grey, wet, soft to medium stiff, Silty CLAY, (Marine Clay).	A-6, CL LL=34 PL=19 PI=15 WC=43.6
80	14D V18	24/24	81.0 - 83.0 82.0 -	Push thru vane S_u=665/69 psf						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x130mm vane row torque readings: V18: 290/30 in-lbs V19: 260/20 in-lbs	WC=39.8
			82.6 - 83.0	S_u=596/47 psf							
85											
90											
95											
100											
105	15D	24/24	107.5 - 109.5	WOR-WOR-WOR-WOR			46			Grey, wet, soft, Silty CLAY, trace fine sand, (Marine Clay).	WC=23.4
110	16D	24/4	111.0 - 113.0 -	WOR/21"-5	40	60	40			Grey, wet, soft, Silty CLAY, trace fine sand, (Marine Clay).	
							19				
							30				
115							50	-111.5			-114.5
	17D	24/11	116.0 - 118.0	7-14-13-20	27	40	68			Grey-brown, wet, dense, fine to coarse SAND, some silt, little gravel, (Glacial Till).	
120							86				
							64				
							70				
							164				
							297				
125	18D	24/11	121.0 - 123.0	43-45-32-49	77	115	283			Grey-brown, wet, very dense, fine to coarse SAND, some gravel, some silt, (Glacial Till).	G•19-S-2644 A-1-b, SM WC=9.2
							RC				
130											
	19D B1	6/6 58/58	126.0 - 126.5 - 131.3	20-74/0"- 8"/0 - 8"/0			NX	-123.5		Grey, wet, very dense, fine to coarse SAND, little silt, little gravel. Consistent dark grey rock fragments in wash return. Advance roller bit to 126.5'. Set up to core at 126.5'.	-126.5
135	R2	63/63	131.3 - 136.6	RQD = 81%				-133.5		R1: Hard, fresh, aphanitic to coarse grained, grey, SCHIST. Joints are very close to moderately spaced, moderately dipping, planar, rough, fresh, tight to open. Rock Mass Quality = Good Recovery = 100% Rock Core Times (min:sec): 126.5-127.5': (3:41); 127.5-128.5': (2:55); 128.5-129.5' (2:57); 129.5-130.5' (2:49); 130.5-131.3': (2:32) R2: Very hard, fresh, aphanitic to coarse grained, grey, SCHIST. Joints are very close to moderately spaced, moderately dipping, planar, rough, fresh, tight to open. Rock Mass Quality = Good Recovery = 100% Rock Core Times (min:sec): 131.3-132.3': (2:06); 132.3-133.3': (2:30); 133.3-134.3': (1:49); 134.3-135.3': (1:45); 135.3-136.3': (1:51); 136.3-136.5': (0:20)	
140										Bottom of Exploration at 136.5 feet below ground surface.	-136.5

Remarks:

1. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.
2. Automatic hammer NEBC #278 Energy Transfer Ratio = 0.895
3. Cored into pavement with 6" thin wall bit. Pavement on bridge deck 3" thick, concrete deck 8" thick. Ground level 18.5' below top of bridge deck.
4. Water level measured immediately after removal of casing.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 2 of 2
Boring No.: BB-WS46-103

PREPARED BY:

GZA

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE PLANS

Bridge No. 3039

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

BORING LOGS 3

SHEET NUMBER
19

	BY	DATE
PROJ. MANAGER	E. TOME	
DESIGN-DETAILED	E. TOME	
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-206
WIN: 23929.00

Driller:	New England Boring	Elevation (ft.)	2.1	Auger ID/OD:	-
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Standard Split-spoon
Logged By:	L. Navarrete	Rig Type:	Tractor B-53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	4/08/2021 - 04/09/2021	Drilling Method:	Drive & Wash	Core Barrel:	NQ
Boring Location:	Sta. 85+23.9, 21.7' LT	Casing ID/OD:	3"/3.5"/4"/4.5"	Water Level ▼:	1.8

Hammer Efficiency Factor: 0.818 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
W = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOR = Weight of Rod Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(r)}$ (psf) = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*SPT-N-uncorrected
T_p = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in.; Pocket Shear Strength or RQD (%)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/0	0.0 - 2.0	WOH-WOH-WOH-WOH	-		PUSH			No Recovery	
5	2D	24/8	5.0 - 7.0	WOH-WOH-WOH-WOH	-					Dark grey, wet, very soft, Organic SILT, trace fine sand, trace organic fibers, (Wetland Deposit).	OH 21-S-1494 WC-106.6
10	3D	24/12	10.0 - 12.0	WOR-WOH-WOH-WOH	-	54				Dark grey, wet, very soft, Organic SILT, trace fine sand, trace organic fibers, (Wetland Deposit).	
						30					
						42					
						28					
						35					
15	4D V1 V2	24/13	15.0 - 17.0 16.0 - 16.6 17.0 -	Push thru vane S_u=1320/194 psf S_u=594/129 psf	- - -	RC				Black, wet, medium stiff, Organic SILT, trace fine sand, trace organic fibers, (Wetland Deposit). V1: 1900/25 in-lbs V2: 1600/35 in-lbs.	OH 21-S-1495 PI=43 LL=93 PL=50 WC=85.4
20	5D V3 V4	24/20	20.0 - 22.0 21.0 - 21.6 22.0 - 24.0	Push thru vane S_u=1520/194 psf S_u=746/129 psf	- - -					Black, wet, medium stiff, Organic SILT, trace fine sand, some organic fibers, little wood fragments, (Wetland Deposit). V3: 2200/35 in-lbs. low V4: 2000/35 in-lbs.	21-S-1496 WC-82.9
	6D	24/24	22.0 - 24.0	WOR-WOR-WOR-WOH	-	78				Black, wet, Organic SILT, trace fine sand, little organic fibers, little wood fragments.	
						78					
	7D	24/24	24.0 - 26.0	WOR-WOR-WOR-WOR		70				Dark grey, wet, Organic SILT, some to little fine sand, trace organic fibers, trace wood fragments.	
25						66				Note: Sand content increased to some in bottom 12 inches of sample.	21-S-1497 OH
	8D	24/24	26.0 - 28.0	WOR-WOH-WOH-WOH	-	72				Dark grey, wet, Organic SILT, trace fine sand, trace organic fibers, trace wood fragments.	PI=44 LL=94 PL=50 WC=85.8
						71					
	9D	24/3	28.0 - 30.0	WOR-WOH-WOH-WOH	-	70				Dark grey to grey, wet, organic Clayey SILT, trace fine sand.	
30						60					
	10D MV1	24/21	30.0 - 32.0 30.9 - 31.0	WOH-1-6-11	-	RC		-28.8		Top 10": Dark grey, wet, organic Clayey SILT, (Wetland Deposit). Could not shear vane.	
										Bottom 11": Grey, wet, stiff, Silty CLAY, (Marine Clay).	-30.9
35	11D V5 V6	24/20	35.0 - 37.0 35.9 - 36.9 36.9 - 37.0	Push thru vane S_u=1429/179 psf S_u=1071/179 psf	-			-37.9		Grey, wet, stiff, Silty CLAY, (Marine Clay). 65x110 mm vane raw torque reading: V5: 32/4 ft-lbs V6: 24/4 ft-lbs	21-S-1498 CL PI=22 LL=46 PL=24 WC=41.3
40	12D V7 V8	24/24	40.0 - 42.0 40.9 - 41.0 41.0 - 42.0	Push thru vane S_u=1349/194 psf S_u=504/94 psf	-					Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x110 mm vane raw torque reading: V7: 160/25 in-lbs V8: 135/25 in-lbs	
45	13D V9 V10	24/24	45.0 - 47.0 46.9 - 47.0 47.0 - 47.0	Push thru vane S_u=2463/192 psf S_u=652/192 psf	-					Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x110 mm vane raw torque reading: V9: 200/30 in-lbs V10: 175/30 in-lbs	
50											
55	14D V11 V12	24/24	55.0 - 57.0 56.0 - 56.6 56.6 - 57.0	Push thru vane S_u=540/94 psf S_u=576/76 psf	-					Dark, grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x110 mm vane raw torque reading: V11: 145/25 in-lbs V12: 155/20 in-lbs	21-S-1499 WC=41.3
60											
65	15D	24/24	65.0 - 67.0	WOR-WOR-WOR-WOR	-					Dark grey, wet, medium stiff, Silty CLAY, (Marine Clay).	21-S-1500 CL PI=16 LL=37 PL=21 WC=37.4
70											

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC#023 Energy transfer ratio = 0.818.
3. Cored into pavement with 5" thin wall bit. Pavement on bridge deck 3" thick, concrete deck 9" thick. Ground level 19.0' below top of bridge deck.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
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Page 1 of 1
Boring No.: BB-WS46-206

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-206
WIN: 23929.00

Driller:	New England Boring	Elevation (ft.)	2.1	Auger ID/OD:	-
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Standard Split-spoon
Logged By:	L. Navarrete	Rig Type:	Tractor B-53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	4/08/2021 - 04/09/2021	Drilling Method:	Drive & Wash	Core Barrel:	NQ
Boring Location:	Sta. 85+23.9, 21.7' LT	Casing ID/OD:	3"/3.5"/4"/4.5"	Water Level ▼:	1.8

Hammer Efficiency Factor: 0.818 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
W = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOR = Weight of Rod Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(r)}$ (psf) = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*SPT-N-uncorrected
T_p = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in.; Pocket Shear Strength or RQD (%)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
75	16D V13 V14	24/24	75.0 - 77.0 75.6 - 76.0 76.0 - 76.6 76.6 - 77.0	Push thru vane S_u=781/58 psf S_u=705/58 psf						Dark grey, wet, medium stiff, Silty CLAY, trace fine sand, (Marine Clay). 65x110 mm vane raw torque reading: V13: 210/35 in-lbs V14: 190/15 in-lbs	
80											
85	17D V15 V16	24/24	85.0 - 87.0 85.6 - 86.0 86.0 - 86.6 86.6 - 87.0	Push thru vane S_u=1344/194 psf S_u=504/112 psf						Dark grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x110 mm vane raw torque reading: V15: 170/25 in-lbs V16: 135/30 in-lbs	21-S-1501 WC-36.8
90											
95	18D V17 V18	24/24	95.0 - 97.0 95.6 - 96.0 96.0 - 96.6 96.6 - 97.0	Push thru vane S_u=1344/194 psf S_u=504/76 psf						Dark grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x110 mm vane raw torque reading: V17: 135/30 in-lbs V18: 135/20 in-lbs	
100								-103.4		Increased roller bit resistance at 105.5', probable strata change.	
105								-105.5			
110	19D	24/14	110.0 - 112.0	6-12-9-12	21	29				Grey, wet, medium dense, fine to coarse SAND, some silt, little gravel, (Glacial Till).	21-S-1502 A-2-4(0), SM
						5					
115						19				Casing refusal at 115.0'. Set up to core. Core barrel action indicates probable sand, gravel, and cobble layer.	
						46					
						20					
120	20D	24/9	120.0 - 122.0	7-10-21-25	31	42				Grey, wet, dense, Silty fine to coarse SAND, (Glacial Till).	
						300					
						23					
						83					
125						93					
						62					
						54					
						80					
						155					
						190					
						224					
						311					
130						220					
						306		-125.6			
	R1	36/36	128.2 - 131.2	RQD = 14%		ND				Casing refusal at 127.7'. Rotor coned ahead to 128.2'. Consistent dark grey rock fragments in wash, set up to core at 128.2'. R1: From 128.2 to 130.8': Hard to very soft, fresh to moderately weathered, aphanitic to fine grained, grey, SCHIST. Primary joints are extremely close to close, moderately dipping to high angle, planar, smooth, fresh to decomposed, light to open with fine sand in filling. Secondary joints are close to moderately spaced, low angle, undulating, rough, fresh to discolored, moderately wide. 130.8-131.2': Rock is decomposed to fine to coarse sand and gravel size pieces. Recovery = 100% Rock Quality = Very Poor Rock Core Times (min/sec): 128.2-129.2' (03:09), 129.2-130.2' (03:17), 130.2-131.2' (03:33) R2: Hard, fresh to slightly weathered, aphanitic to fine grained, grey, SCHIST. Joints are very close to moderately spaced, moderately dipping, planar to stepped, smooth, fresh to discolored, tight. Recovery= 100% Rock Quality = Fair Rock Core Times (min/sec): 131.2-132.2'(02:52), 132.2-133.2' (03:10), 133.2-134.2'(03:10), 134.2-135.2' (03:00), 135.2-135.9' (03:04)	-127.7
135	R2	56/56	131.2 - 135.9	RQD = 58%				-133.8			
140										Bottom of Exploration at 135.9 feet below ground surface.	-135.9
145											

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC#023 Energy transfer ratio = 0.818.
3. Cored into pavement with 5" thin wall bit. Pavement on bridge deck 3" thick, concrete deck 9" thick. Ground level 19.0' below top of bridge deck.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 2 of 2
Boring No.: BB-WS46-206

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-104
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.)	3.0	Auger ID/OD:	4.25"
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Standard Split-spoon
Logged By:	L. Navarrete	Rig Type:	Track B53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	10/9/19-10/15/19	Drilling Method:	Drive & Wash	Core Barrel:	NX
Boring Location:	Sta. 85+54.6, 15.9 RT	Casing ID/OD:	3"/3.5"/4"/4.5"	Water Level ▼:	1.0

Hammer Efficiency Factor: 0.895 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
W = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOR = Weight of Rod Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(r)}$ (psf) = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*SPT-N-uncorrected
T_p = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in.; Pocket Shear Strength or RQD (%)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	3-4-2-1	6	9	7			Black, moist, loose, fine to coarse SAND, some organic silt, little organic fibers, (Wetland Deposit). Note: sample increased in silt content with depth.	
							3				
							4				
5							6				
	2D	24/8	5.0 - 7.0	WOH-WOH-WOH-WOH			8			Black, moist, Organic SILT, trace fine to coarse sand, little organic fibers, (Wetland Deposit).	
							7				
							8				
10							11				
							17				
							17				
	3U	24/24	10.0 - 12.0	Push thru vane			38			Black, moist, medium stiff, Organic SILT, trace fine to coarse sand, little organic fibers, (Wetland Deposit). 65x130mm vane raw torque readings: V1: 270/50 in-lbs V2: 420/170 in-lbs	
	V1		12.6 - 13.0	S_u=618/115 psf			26				
	V2		13.6 - 14.0	S_u=961/253 psf			29				
15							31				
	4D	24/22	15.0 - 17.0	WOR-WOR-WOR-WOR			36			Black, moist, Organic SILT, little organic fibers, (Wetland Deposit).	
							38				
							32				
							25				
20							27				
	5D V3 V4	24/21	20.0 - 22.0 20.6 - 21.6 21.6 - 22.0	Push thru vane S_u=640/69 psf S_u=676/47 psf			37 55			Black, wet, medium stiff, Silty CLAY, trace fibers, (Wetland Deposit). 65x130mm vane raw torque readings: V3: 280/30 in-lbs V4: 295/20 in-lbs	A-7, OH LL=101 PL=59 PI=42 WC=83.4
							37				
							53				
25							45				
	6D	24/24	25.0 - 27.0	1/12"-2-4	1	1	60			Top 12": Black, wet, soft, Organic SILT, little fine to coarse sand, trace organic fibers, (Wetland Deposit).	
							79	-23.0			-26.0
							44			Bottom 12": Grey, wet, medium stiff, Silty CLAY, (Marine Clay).	
							75				
							122				
30	MV 6D	24/24	30.0 - 30.2 30.0 - 32.0	3-4-5-6	9	13	RC			Grey, wet, stiff, Silty CLAY, (Marine Clay).	WC=32.0
35	7D V5 V6	24/24	35.0 - 37.0 35.6 - 36.6 36.6 - 37.0	Push thru vane S_u=1217/275 psf S_u=1217/47 psf						Grey, wet, stiff, Silty CLAY, trace shells, (Marine Clay). 65x130mm vane raw torque readings: V5: 530/120 in-lbs V6: 540/20 in-lbs	
								-34.0			-37.0
40	8D V7 V8	24/24	40.0 - 42.0 40.6 - 41.0 41.0 - 42.0	Push thru vane S_u=709/69 psf S_u=618/69 psf						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x130mm vane raw torque readings: V7: 310/30 in-lbs V8: 270/30 in-lbs	
45	2U	24/24	45.0 - 47.0	PUSH						Grey, wet, Silty CLAY, (Marine Clay).	
50	9D V9 V10	24/24	50.0 - 52.0 50.6 - 51.0 51.0 - 51.6	Push thru vane S_u=1846/80 psf S_u=527/36 psf						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x130mm vane raw torque readings: V9: 370/35 in-lbs V10: 230/15 in-lbs	A-7, CL LL=41 PL=23 PI=18 WC=40.6
55	10D	24/24	55.0 - 57.0	WOR-WOR-WOR-WOR						Grey, wet, soft, Silty CLAY, trace fine sand, trace shells, (Marine Clay). 0.5"-1.0" seam of sand at bottom of sample.	
60											
65	11D V11 V12	24/24	60.0 - 60.6 60.6 - 61.6 61.6 - 62.0	Push thru vane S_u=343/58 psf S_u=448/91 psf						Grey, wet, soft, Silty CLAY, trace shells, (Marine Clay). 65x130mm vane raw torque readings: V11: 150/25 in-lbs V12: 195/40 in-lbs	
70	12D V13 V14	24/24	65.0 - 67.0 65.6 - 66.0 66.0 - 66.6 66.6 - 67.0	Push thru vane S_u=503/47 psf S_u=549/69 psf						Grey, wet, medium stiff, Silty CLAY, trace shells, (Marine Clay). 65x130mm vane raw torque readings: V13: 220/20 in-lbs V14: 240/30 in-lbs	WC=7.4
75	13D V15 MV	24/24	70.0 - 72.0 70.6 - 71.0 71.0 - 71.1	Push thru vane S_u=1642/47 psf						Grey, wet, medium stiff, Silty CLAY, trace shells, (Marine Clay). 65x130mm vane raw torque readings: V15: 280/20 in-lbs	

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.
2. Automatic hammer NEBC #019 Energy Transfer Ratio = 0.895.
3. Cored into pavement with 6" thin wall bit. Pavement on bridge deck 3" thick, concrete deck 10" thick. Ground level 15.2' below top of bridge deck.
4. Water level measured immediately after removal of casing.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 2
Boring No.: BB-WS46-104

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-104
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.)	3.0	Auger ID/OD:	4.25"
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Standard Split-spoon
Logged By:	L. Navarrete	Rig Type:	Track B53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	10/9/19-10/15/19	Drilling Method:	Drive & Wash	Core Barrel:	NX
Boring Location:	Sta. 85+54.6, 15.9 RT	Casing ID/OD:	3"/3.5"/4"/4.5"	Water Level ▼:	1.0

Hammer Efficiency Factor: 0.895 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
W = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOR = Weight of Rod Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(r)}$ (psf) = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*SPT-N-uncorrected
T_p = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in.; Pocket Shear Strength or RQD (%)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
75	14D	24/24	75.0 - 77.0	WOR-WOR-WOR-WOR						Grey, wet, soft, Silty CLAY, (Marine Clay).	
80											
	15D V16 V17	24/24	80.0 - 80.6 80.6 - 81.6 81.6 - 82.0	Push thru vane S_u=448/69 psf S_u=434/47 psf						Grey, wet, soft, Silty CLAY, (Marine Clay). 65x130mm vane raw torque readings: V16: 195/30 in-lbs V17: 190/20 in-lbs	A-6, CL LL=34 PL=19 PI=15 WC=39.6
85											
	16D V18 V19	24/17	85.0 - 85.6 85.6 - 86.6 86.6 - 87.0	Push thru vane S_u=253/87 psf S_u=297/228 psf						Grey, wet, soft, Silty CLAY, (Marine Clay). 65x130mm vane raw torque readings: V18: 110/40 in-lbs V19: 130/100 in-lbs	
90	17D	24/24	90.0 - 92.0	WOR-WOR-WOR-WOR						Grey, wet, soft, Silty CLAY, (Marine Clay).	
95											
	18D V20 V21	24/24	95.0 - 97.0 95.6 - 96.6 96.6 - 97.0	Push thru vane S_u=365/87 psf S_u=434/47 psf						Grey, wet, soft, Silty CLAY, trace shells, (Marine Clay). 65x130mm vane raw torque readings: V20: 160/60 in-lbs V21: 190/20 in-lbs	
100								-97.2			
	19D RT	8/8 60/54	100.0 - 100.7 100.7 - 105.7	23-100/2"- RQD = 53%				-97.7		Top 2": Grey, wet, Silty CLAY, (Marine Clay).	-100.2
										Bottom 6": Brown, dry, very dense, fine to coarse SAND, trace gravel, (Glacial Till).	
										Consistent dark grey rock fragments in wash return. Set up to core at 100.7'.	-100.7
105	R2	60/60	105.7 - 110.7	RQD = 87%						R1: Hard, fresh, aphanitic to coarse grained, grey, SCHIST. Primary joints are very close to moderately spaced, moderately dipping, planar to undulating, rough, fresh, tight to partially open. Secondary joints are moderately spaced, low angle, fresh, moderately wide, with silt infilling. Rock Mass Quality = Fair Recovery = 90% Rock Core Times (min/sec): 100.7-101.7' (2:20), 101.7-102.7' (2:00), 102.7-103.7' (1:41), 103.7-104.7' (2:03), 104.7-105.7' (2:37) R2: Hard, fresh to moderate to coarse grained, grey, SCHIST. Joints are close to moderately spaced, moderately dipping, planar to undulating, rough, fresh, tight to partially open. Rock Mass Quality = Good Recovery = 100% Rock Core Times (min/sec): 105.7-106.7' (3:24), 106.7-107.7' (1:03), 107.7-108.7' (1:14), 108.7-109.7' (1:42), 109.7-110.7' (1:35)	
110								-107.7			-110.7
										Bottom of Exploration at 110.7 feet below ground surface.	
115											
120											
125											

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.
2. Automatic hammer NEBC #019 Energy Transfer Ratio = 0.895.
3. Cored into pavement with 6" thin wall bit. Pavement on bridge deck 3" thick, concrete deck 10" thick. Ground level 15.2' below top of bridge deck.
4. Water level measured immediately after removal of casing.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 2 of 2
Boring No.: BB-WS46-104

Filename: ...\Boring Logs Border S46.dgn
Division: HIGHWAY
Username: common
Date:7/26/2021

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

Bridge No. 3039

BRIDGE PLANS

PROJ. MANAGER			DATE
DESIGN-DETAILED	E. TOME	BY	
CHECKED-REVIEWED	R. CARROLL		SIGNATURE
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			P.E. NUMBER
REVISIONS 1			
REVISIONS 2			DATE
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH
SAGADAHOC COUNTY

BORING LOGS 4

PREPARED BY:

SHEET NUMBER

20

Filename: ...\Boring Logs Border S46.dgn Division: HIGHWAY Username: common Date:7/26/2021

Maine Department of Transportation — Boring No.: BB-WS46-105

Soil/Rock Exploration Log — US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.): 13.8	Auger ID/OD: 4.25"
Operator:	Brad Enos	Datum: NAVD 88	Sampler: Standard Splitspoon
Logged By:	L. Navarrete	Rig Type: Track B-53 Mobile	Hammer Wt./Fall: 140#/30"
Date Start/Finish:	10/15/19-10/15/19	Drilling Method: Drive & Wash	Core Barrel: NX
Boring Location:	Sta. 86+616, 20.6 RT	Casing ID/OD: 3"/3.5"/4"/4.5"	Water Level *: 12.4
Hammer Efficiency Factor:	0.895	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐	

Definitions:
D = Split Spoon Sample; SSA = Solid Stem Auger; WC = Water Content, percent
MD = Unsuccessful Split Spoon Sample Attempt; HSA = Hollow Stem Auger; LL = Liquid Limit
U = Thin Wall Tube Sample; RC = Roller Cone; PL = Plastic Limit
MU = Unsuccessful Thin Wall Tube Sample Attempt; WOH = Weight of 140lb. Hammer; PI = Plasticity Index
V = Field Vane Shear Test, PP = Pocket Penetrometer; WOR/C = Weight of Rods or Casing; G = Grain Size Analysis
WH = Unsuccessful Field Vane Shear Test Attempt; WOP = Weight of One Person; C = Consolidation Test

R = Rock Core Sample; q_u = Peak-Remolded Field Vane Undrained Shear Strength (psf); q_p = Pocket Torvane Shear Strength (psf)
SSA = Solid Stem Auger; $S_{u(FV)}$ = Lab Vane Undrained Shear Strength (psf); WC = Water Content, percent
HSA = Hollow Stem Auger; q_u = Unconfined Compressive Strength (tsf); LL = Liquid Limit
RC = Roller Cone; N-uncorrected = Raw Field SPT N-value; PL = Plastic Limit
WOH = Weight of 140lb. Hammer; Hammer Efficiency Factor = Rig Specific Annual Calibration Value; PI = Plasticity Index
WOR/C = Weight of Rods or Casing; N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency; G = Grain Size Analysis
WOP = Weight of One Person; N_{60} = Hammer Efficiency Factor/80%-uncorrected; C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in.; Shear Strength (psf); or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA	13.0		ASPHALT & CONCRETE — 0.8	
5	10	24/15	1.0 - 3.0	2-3-20-24-16	44	66				Brown, dry, dense, sandy fine to coarse GRAVEL, little organic silt, (Fill).	D•19-S-2650 A-1-a, GM WC=3.7
	20	24/14	4.0 - 6.0	10-21-13-14	34	51				Brown, dry, dense, fine to coarse SAND, little gravel, little organic silt, little asphalt, (Fill).	
10										Auger advancement indicates probable transition to silty material.	
	30	24/17	9.0 - 11.0	WOH-2-2-2	4	6	18			Top 12": Black, moist, Organic SILT, trace fine sand, (Fill). Bottom 5": Brown, fine to coarse SAND, trace organic silt, (Fill).	
							19				
							40				
15							50			Grey, wet, dense, fine to coarse GRAVEL, little fine to coarse sand, little organic silt, (Fill).	
	40	24/2	14.0 - 16.0	5-16-17-8	33	49	108				
							48				
							110				
							78				
20							57	-4.0		Roller bit advancement and wash return indicate probable transition at 17.8'.	
	50	24/21	19.0 - 21.0	2-2-2-3	4	6	60			Black, wet, medium stiff, Organic SILT, trace fine sand, (Wetland Deposit).	WC=62.2
							66				
							60	-8.2			
25	R1	60/60	22.5 - 27.5	RQD = 99%			NX			Increased roller bit resistance at 22.0', probable top of rock. Advanced roller bit to 22.5' and set up to core. R1: Hard, fresh, medium to coarse grained, grey, SCHIST. Joints are close to moderately spaced, low angle, dipping, planar to undulating, rough to smooth, fresh to discolored, tight to partially open. Rock Mass Quality = Excellent Recovery = 100% Rock Core Times (min/sec): 22.5-23.5' (1:33), 23.5-24.5' (2:02), 24.5-25.5' (2:06), 25.5-26.5' (1:40), 26.5-27.5' (2:26) R2: Hard, fresh, medium to coarse grained, grey, SCHIST. Primary joints are close to moderately spaced, horizontal, planar, smooth, fresh, tight to partially open. Secondary joints are close to moderately spaced, moderately dipping, planar, smooth, fresh, tight to partially open. Rock Mass Quality = Excellent Recovery = 100% Rock Core Times (min/sec): 27.5-28.5' (3:02), 28.5-29.5' (1:34), 29.5-30.5' (1:27), 30.5-31.5' (1:42), 31.5-32.5' (4:13)	q_p=624 ksf
	R2	60/60	27.5 - 32.5	RQD = 97%			NX	-18.7			
30											
35											
40											
45											
50								-32.5		Bottom of Exploration at 32.5 feet below ground surface.	

Remarks:
1. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.
2. Automatic hammer NEBC *.919 Energy Transfer Ratio * 0.895
3. Water level measured immediately after removal of casing.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1 — Boring No.: BB-WS46-105

Maine Department of Transportation — Boring No.: BB-WS46-207

Soil/Rock Exploration Log — US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.): 14.5	Auger ID/OD: -
Operator:	Tom Schaefer	Datum: NAVD 88	Sampler: Standard Splitspoon
Logged By:	B. Woodman	Rig Type: Track B-53 Mobile	Hammer Wt./Fall: 140#/30"
Date Start/Finish:	04/08/2021-04/08/2021	Drilling Method: Drive & Wash	Core Barrel: NQ
Boring Location:	Sta. 86+71.4, 16.7' LT	Casing ID/OD: 3"/3.5"/4"/4.5"	Water Level *: 12.8'
Hammer Efficiency Factor:	0.852	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐	

Definitions:
D = Split Spoon Sample; SSA = Solid Stem Auger; WC = Water Content, percent
MD = Unsuccessful Split Spoon Sample Attempt; HSA = Hollow Stem Auger; LL = Liquid Limit
U = Thin Wall Tube Sample; RC = Roller Cone; PL = Plastic Limit
MU = Unsuccessful Thin Wall Tube Sample Attempt; WOH = Weight of 140lb. Hammer; PI = Plasticity Index
V = Field Vane Shear Test, PP = Pocket Penetrometer; WOR/C = Weight of Rods or Casing; G = Grain Size Analysis
WH = Unsuccessful Field Vane Shear Test Attempt; WOP = Weight of One Person; C = Consolidation Test

R = Rock Core Sample; q_u = Peak-Remolded Field Vane Undrained Shear Strength (psf); q_p = Pocket Torvane Shear Strength (psf)
SSA = Solid Stem Auger; $S_{u(FV)}$ = Lab Vane Undrained Shear Strength (psf); WC = Water Content, percent
HSA = Hollow Stem Auger; q_u = Unconfined Compressive Strength (tsf); LL = Liquid Limit
RC = Roller Cone; N-uncorrected = Raw Field SPT N-value; PL = Plastic Limit
WOH = Weight of 140lb. Hammer; Hammer Efficiency Factor = Rig Specific Annual Calibration Value; PI = Plasticity Index
WOR/C = Weight of Rods or Casing; N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency; G = Grain Size Analysis
WOP = Weight of One Person; N_{60} = Hammer Efficiency Factor/80%-uncorrected; C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in.; Shear Strength (psf); or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							RC	14.0		Asphalt — 0.5	
5	10	24/10	1.0 - 3.0	14-12-20-32	32	45	SPT			Dark brown, dry, dense, fine to coarse SAND, some gravel, (Fill). Roller cone advancement indicates cobbles and gravel from 3.0'-4.0'.	
	20	21/3	4.0 - 5.8	44-40-19-36/3"	59	84				Brown, dry, very dense, fine to coarse SAND, some gravel, little silt, (Fill).	D•21-S-1503 A-1-b, SM WC=3.1
10											
	30	24/10	10.0 - 12.0	4-3-4-37	7	10				Brown, moist, stiff, Clayey SILT, some fine to coarse sand, little gravel, (Fill).	•21-S-1504 A-4(0) WC=33.3
15											
	40	24/0	15.0 - 17.0	4-5-5-7	10	14				Brown, wet, medium dense, fine to coarse SAND, some gravel, some silt, (Fill).	
20								-4.5		Roller core resistance decreased and wash return changed color. Probable strata change at 19'.	
	50	24/0	20.0 - 22.0	WOH-WOH-WOH-WOH				-19.0		Brown, moist, Organic SILT, some organic fibers, (Wetland Deposit).	
25								-10.3		Roller core resistance increases at 24.9', probable top of rock. Roller cored to 25.0' and set up to core. R1: Hard to soft, fresh to slightly weathered, fine to coarse grained, grey, SCHIST. Joints are very close to moderately spaced, moderately dipping undulating rough fresh to discolored, with silt infilling, open. Rock Quality = Fair Recovery = 95% Rock Core Times (min/sec): 25'-26' (1:17), 26'-27' (1:04), 27'-28' (1:10), 28'-29' (1:10), 29'-30' (1:16) R2: Hard fresh, aphanitic to medium grained, grey, SCHIST. Joints are very close to moderately spaced, moderately dipping, undulating, rough, fresh to weathered, open, with silt infilling. Rock Quality = Good Recovery = 100% Rock Core Times (min/sec): 30'-31' (1:38), 31'-32' (1:03), 32'-33' (1:10), 33'-34' (1:24), 34'-35' (1:09)	q_p=651 ksf
	R1	60/57	25.0 - 30.0	RQD = 65%			NQ	-20.5			
30	R2	60/60	30.0 - 35.0	RQD = 88%							
35								-35.0		Bottom of Exploration at 35.0 feet below ground surface.	
40											
45											
50											

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic Hammer NEBC*1 Energy transfer ratio = 0.852.
3. Water level measured immediately after removal of casing.
4. No Recovery in Samples 40 and 50, descriptions based on recovery from a 3" spoon.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1 — Boring No.: BB-WS46-207

Maine Department of Transportation — Boring No.: BB-WS46-301

Soil/Rock Exploration Log — US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.): 54.0	Auger ID/OD: 4"
Operator:	Tom Schaefer	Datum: NAVD 88	Sampler: Standard Splitspoon
Logged By:	L. Navarrete	Rig Type: Track B-53 Mobile	Hammer Wt./Fall: 140#/30"
Date Start/Finish:	04/12/2021-04/13/2021	Drilling Method: Drive & Wash	Core Barrel: NQ
Boring Location:	Sta. 77+91.1, 74.4' RT	Casing ID/OD: 3"/3.5"/4"/4.5"	Water Level *: 11.9
Hammer Efficiency Factor:	0.852	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐	

Definitions:
D = Split Spoon Sample; SSA = Solid Stem Auger; WC = Water Content, percent
MD = Unsuccessful Split Spoon Sample Attempt; HSA = Hollow Stem Auger; LL = Liquid Limit
U = Thin Wall Tube Sample; RC = Roller Cone; PL = Plastic Limit
MU = Unsuccessful Thin Wall Tube Sample Attempt; WOH = Weight of 140lb. Hammer; PI = Plasticity Index
V = Field Vane Shear Test, PP = Pocket Penetrometer; WOR/C = Weight of Rods or Casing; G = Grain Size Analysis
WH = Unsuccessful Field Vane Shear Test Attempt; WOP = Weight of One Person; C = Consolidation Test

R = Rock Core Sample; q_u = Peak-Remolded Field Vane Undrained Shear Strength (psf); q_p = Pocket Torvane Shear Strength (psf)
SSA = Solid Stem Auger; $S_{u(FV)}$ = Lab Vane Undrained Shear Strength (psf); WC = Water Content, percent
HSA = Hollow Stem Auger; q_u = Unconfined Compressive Strength (tsf); LL = Liquid Limit
RC = Roller Cone; N-uncorrected = Raw Field SPT N-value; PL = Plastic Limit
WOH = Weight of 140lb. Hammer; Hammer Efficiency Factor = Rig Specific Annual Calibration Value; PI = Plasticity Index
WOR/C = Weight of Rods or Casing; N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency; G = Grain Size Analysis
WOP = Weight of One Person; N_{60} = Hammer Efficiency Factor/80%-uncorrected; C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in.; Shear Strength (psf); or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	10	24/18	0.0 - 2.0	1-1-16-12	21	30	SSA	54.0		Top 8": Brown, moist, fine to medium SAND, trace coarse sand, some silt, (Fill). Bottom 10": Black to brown, moist, GRAVEL, some fine to coarse sand, little silt, (Fill).	
5	20	24/18	2.5 - 4.5	10-4-5-7	9	13				Brown, moist, very stiff, sandy SILT, little gravel, with asphalt fragments, (Fill).	D•21-S-1505 A-4(0), SM WC=21.1
	30	24/17	5.0 - 7.0	3-2-7-6	9	13				Brown, moist, Sandy SILT, trace gravel, with asphalt fragments, (Fill).	
10	40	24/14	7.0 - 9.0	7-5-4-3	9	13	RC			Top 6": Black, moist, loose to medium loose, GRAVEL, some fine to coarse sand, (Fill). Bottom 8": Dark brown, moist, loose to medium loose, fine to coarse SAND, some silt, trace gravel, with asphalt fragments, (Fill).	
	50	24/5	9.0 - 11.0	5-2-5-17	7	10				Dark brown, moist, medium dense, fine to coarse SAND, some silt, little gravel, (Fill).	
15	60	24/9	11.0 - 13.0	6-2-3-8	5	7	S			Top 5": Dark brown, wet, fine to coarse SAND, some gravel, some silt, (Fill). Bottom 4": Brown, wet, fine to coarse SAND, some silt, little gravel, (Fill).	•21-S-1506 A-2-4(0), SM
	70	24/4	13.0 - 15.0	2-2-1-1	3	4	11			Brown, wet, loose, Silty SAND, (Fill).	
							8				
20	80	23/3	15.0 - 16.9	WOH-WOH-25/5"			9				
							6/22	37.1		Top 2.5": Wood pieces & fragments. Bottom 0.5": Grey, moist, fine to coarse SAND, some gravel, (Fill). Auger refusal at 16.9', metal shaving in wash offset 4-feet to the east. See BB-WS46-301A for details.	
25								-16.9		Bottom of Exploration at 16.9 feet below ground surface.	

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic Hammer NEBC*1 Energy transfer ratio = 0.852.
3. Water level measured immediately after removal of casing.
4. Sample 10 did not have recovery in 2" SS. 3" spoon used to collect sample for description.
5. Sample 20 had poor recovery in 2" SS. 3" spoon used to collect sample for description.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1 — Boring No.: BB-WS46-301

Maine Department of Transportation — Boring No.: BB-WS46-301A

Soil/Rock Exploration Log — US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.): 54.0	Auger ID/OD: -
Operator:	Tom Schaefer	Datum: NAVD 88	Sampler: Standard Splitspoon
Logged By:	L. Navarrete	Rig Type: Track B-53 Mobile	Hammer Wt./Fall: 140#/30"
Date Start/Finish:	04/12/2021-04/13/2021	Drilling Method: Drive & Wash	Core Barrel: NQ
Boring Location:	Sta. 77+91.1, 74.4' RT	Casing ID/OD: 3"/3.5"/4"/4.5"	Water Level *: 11.9
Hammer Efficiency Factor:	0.852	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐	

Definitions:
D = Split Spoon Sample; SSA = Solid Stem Auger; WC = Water Content, percent
MD = Unsuccessful Split Spoon Sample Attempt; HSA = Hollow Stem Auger; LL = Liquid Limit
U = Thin Wall Tube Sample; RC = Roller Cone; PL = Plastic Limit
MU = Unsuccessful Thin Wall Tube Sample Attempt; WOH = Weight of 140lb. Hammer; PI = Plasticity Index
V = Field Vane Shear Test, PP = Pocket Penetrometer; WOR/C = Weight of Rods or Casing; G = Grain Size Analysis
WH = Unsuccessful Field Vane Shear Test Attempt; WOP = Weight of One Person; C = Consolidation Test

R = Rock Core Sample; q_u = Peak-Remolded Field Vane Undrained Shear Strength (psf); q_p = Pocket Torvane Shear Strength (psf)
SSA = Solid Stem Auger; $S_{u(FV)}$ = Lab Vane Undrained Shear Strength (psf); WC = Water Content, percent
HSA = Hollow Stem Auger; q_u = Unconfined Compressive Strength (tsf); LL = Liquid Limit
RC = Roller Cone; N-uncorrected = Raw Field SPT N-value; PL = Plastic Limit
WOH = Weight of 140lb. Hammer; Hammer Efficiency Factor = Rig Specific Annual Calibration Value; PI = Plasticity Index
WOR/C = Weight of Rods or Casing; N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency; G = Grain Size Analysis
WOP = Weight of One Person; N_{60} = Hammer Efficiency Factor/80%-uncorrected; C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in.; Shear Strength (psf); or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
										Offset 4 feet from BB-WS46-301. See BB-WS46-301 for soil descriptions from 0-18' bgs.	
0							RC				
5											
10											
15											
20											
25											
30											
35											
40											
45											
50											

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic Hammer NEBC*1 Energy transfer ratio = 0.852.
3. Water level measured immediately after removal of casing.
4. Sample 10 did not have recovery in 2" SS. 3" spoon used to collect sample for description.
5. Sample 20 had poor recovery in 2" SS. 3" spoon used to collect sample for description.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1 — Boring No.: BB-WS46-301A

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00
Bridge No. 3039

BRIDGE PLANS

PROJ. MANAGER			
DESIGN-DETAILED	E. TOME	BY	DATE
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH
SAGADAHOC COUNTY

BORING LOGS 5

PREPARED BY:
GZA

SHEET NUMBER
21

Filename: ...\Boring Logs Border S46.dgn Division: HIGHWAY Username: common Date:7/26/2021

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-302
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.): 9.1	Auger ID/OD: 4.25" OD
Operator:	Brad Enos	Datum: NAVD 88	Sampler: Standard Spilloon
Logged By:	E. Tome	Rig Type: Track B-53 Mobile	Hammer Wt./Fall: 140#/30"
Date Start/Finish:	05/19/21-05/19/21	Drilling Method: Drive & Wash	Core Barrel: NQ2
Boring Location:	Sta. 80+87.2, 64.3' RT	Casing ID/OD: 3"/3.5"/4"/4.5"	Water Level **: 1.75'
Hammer Efficiency Factor:	0.818	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐	

Definitions:
D = Split Spoon Sample; SSA = Solid Stem Auger; HSA = Hollow Stem Auger; U = Thin Wall Tube Sample; WO = Unsuccessful Split Spoon Sample Attempt; V = Field Vane Shear Test, FP = Pocket Penetrometer; WOR/C = Weight of Rods or Casing; WV = Unsuccessful Field Vane Shear Test Attempt; R = Rock Core Sample; RC = Roller Cone; WOH = Weight of 140lb. Hammer; N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency; $N_{uncorrected}$ = Raw Field SPT N-value; Hammer Efficiency Factor = Rig Specific Annual Calibration Value; S_p = Peak/Remolded Field Vane Undrained Shear Strength (psf); S_{ur} = Lab Vane Undrained Shear Strength (psf); q_u = Unconfined Compressive Strength (tsf); $N_{uncorrected}$ = Raw Field SPT N-value; WC = Water Content, percent; LL = Liquid Limit; PL = Plastic Limit; PI = Plasticity Index; G = Grain Size Analysis; C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in. Soil Strength or RQD (%)	$N_{uncorrected}$	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
				Sample Information							
0	10	18/12	0.0 - 1.5	3-5-5-50/0"	10	14	SSA	8.9		Top 2": Brown, dry, fine to coarse SAND, with roots, (Topsoil).	
								8.7		Bottom 10": Grey/brown, dry, medium dense, fine to coarse SAND, some gravel, (Fill). Brown, moist, loose, fine to coarse SAND, some silt, gravel in tip, (Fill). Intermittent resistance of solid stem auger from 1.0'-5.0' indicates probable cobbles and boulders throughout.	0.2
	20	24/12	2.0 - 4.0	3-4-3-3	7	10				Top 3": Brown, moist, loose, fine to coarse SAND, trace silt, trace gravel, (Fill).	
5								4.8		Bottom 6": Grey, wet, loose, silty fine to medium SAND, with organic fibers, (Wetland Deposit). Dark grey, wet, medium stiff, Clayey SILT, some fine sand, with organic fibers, (Wetland Deposit).	4.3
	30	24/9	4.0 - 6.0	1-2-4-2	6	8				Casing refusal at 8.0', increased roller bit resistance from 8.0'-8.5', probable cobble/boulder.	
	40	24/24	6.0 - 8.0	3-4-4-3	8	11	RC			Top 2": Grey, wet, Silty CLAY, (Wetland Deposit). Bottom 12": Dark brown, wet, very soft, organic SILT, with organic material, (Wetland Deposit).	
10											
	50	24/14	9.0 - 11.0	WOH-WOH-1-2	1	1					
	60 V1	24/19	14.0 - 16.0	Push thru vane S_u=1116/281 psf						Dark brown, wet, very soft, organic SILT, with organic material, (Wetland Deposit). 10x110 mm vane row torque reading: V1: >300/75 in-lbs	
	MV1		15.0					-6.5			15.6
15								-8.1		MV1: Could not advance vane. Increased roller bit resistance from 15.6'-17.2', wash return indicates probable sand and gravel.	17.2
							RC			Increased resistance at 17.2', probable top of rock. Advanced roller bit to 18.6' and set up to core.	
	R1	60/60	18.6 - 23.6	RQD = 83%						R1: Hard, slightly weathered, fine to coarse grained, grey, SCHIST. Joints are very close to close, horizontal to moderately dipping, undulating, rough, discolored, partially open to moderately wide. Rock Quality = Good Recovery = 100% Rock Core Times (min/sec): 18.6-19.6' (3:21), 19.6-20.6' (2:33), 20.6-21.6' (2:05), 21.6-22.6' (2:13), 22.6-23.6' (2:20)	
20											
	R2	60/48	23.6 - 28.6	RQD = 70%						R2: Hard, fresh to slightly weathered, fine to coarse grained, grey, SCHIST. Joints are very close to moderately spaced, low angle to moderately dipping, undulating rough, tight to partialy open. Rock Quality = Fair Recovery = 100% Rock Core Times (min/sec): 23.6-24.6' (2:03), 24.6-25.6' (1:54), 25.6-26.6' (1:47), 26.6-27.6' (1:55), 27.6-28.6' (1:42)	
25											
	R3	12/12	28.6 - 29.6	RQD = 0%				-20.5		R3: Hard, moderately weathered, fine to coarse grained, grey, SCHIST. Joints are extremely close to very close, low angle, undulating, rough, open. Rock Quality = Very Poor Recovery = 100% Rock Core Times (min/sec): 28.6-29.6' (1:10)	29.6
30										Bottom of Exploration at 29.6 feet below ground surface.	
35											
40											
45											
50											

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic Hammer NEBC#1 Energy transfer ratio = 0.818.
3. Water level measured immediately after removal of casing.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
** Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1
Boring No.: BB-WS46-302

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-303
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.): 4.4	Auger ID/OD: 4"
Operator:	Tom Schaefer	Datum: NAVD 88	Sampler: Standard Spilloon
Logged By:	L. Navarrete	Rig Type: Track B-53 Mobile	Hammer Wt./Fall: 140#/30"
Date Start/Finish:	04/14/2021-04/15/2021	Drilling Method: Drive & Wash	Core Barrel: NQ
Boring Location:	Sta. 82+92.3, 74.3' RT	Casing ID/OD: 3"/3.5"/4"/4.5"	Water Level **: 2.4
Hammer Efficiency Factor:	0.852	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐	

Definitions:
D = Split Spoon Sample; SSA = Solid Stem Auger; HSA = Hollow Stem Auger; U = Thin Wall Tube Sample; WO = Unsuccessful Split Spoon Sample Attempt; V = Field Vane Shear Test, FP = Pocket Penetrometer; WOR/C = Weight of Rods or Casing; WV = Unsuccessful Field Vane Shear Test Attempt; R = Rock Core Sample; RC = Roller Cone; WOH = Weight of 140lb. Hammer; N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency; $N_{uncorrected}$ = Raw Field SPT N-value; Hammer Efficiency Factor = Rig Specific Annual Calibration Value; S_p = Peak/Remolded Field Vane Undrained Shear Strength (psf); S_{ur} = Lab Vane Undrained Shear Strength (psf); q_u = Unconfined Compressive Strength (tsf); $N_{uncorrected}$ = Raw Field SPT N-value; WC = Water Content, percent; LL = Liquid Limit; PL = Plastic Limit; PI = Plasticity Index; G = Grain Size Analysis; C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in. Soil Strength or RQD (%)	$N_{uncorrected}$	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
				Sample Information							
0	10	24/8	0.0 - 2.0	5-12-7-9	19	27	SSA	4.4		Dark brown, moist, medium dense, fine to coarse SAND, some gravel, some silt, (Fill)	
								3.4		Top 4": Dark brown, moist, fine to coarse SAND, some gravel, some silt, some wood fragments, (Fill).	1.4
	20	24/9	2.0 - 4.0	2-3-5-3	8	11				Bottom 5": Grey/brown, moist, silty, fine to medium SAND, trace roots, (Wetland Deposit).	3.0
5											
	30	24/9	5.0 - 7.0	WOH-WOH-WOH-WOH						Grey, wet, Clayey SILT, trace fine sand, trace roots, (Wetland Deposit).	
							SSA				
	40	24/15	10.0 - 12.0	Push thru vane			RC			55x110 mm vane row torque reading:	
	V1		12.6 - 13.0	S_u=889/112 psf						V1: 225/30 in-lbs	
	V2		13.6 - 14.0	S_u=746/112 psf						V2: 200/30 in-lbs	
15											
	50	24/24	15.0 - 17.0	Push thru vane						Dark brown, wet, medium stiff, Organic SILT, trace fine sand, trace organic fibers, (Wetland Deposit). 55x110 mm vane row torque reading:	
	V3		17.6 - 18.0	S_u=875/147 psf						V3: 235/40 in-lbs	
	V4		18.6 - 19.0	S_u=893/170 psf						V4: 240/45 in-lbs	
20											
	60	24/22	20.0 - 22.0	WOH-WOH-WOH-WOH						Dark brown, wet, medium stiff, Organic SILT, (Wetland Deposit).	
25											
	70 V5	24/2	25.0 - 27.0	Push thru vane S_u=762/170 psf						Dark brown, wet, medium stiff, Organic SILT, trace fine sand, (Wetland Deposit). 55x110 mm vane row torque reading: V5: 205/50 in-lbs	
	V6		25.6 - 26.6	S_u=1022/170 psf						V6: 275/45 in-lbs	
			26.6 - 27.0					-24.1			-28.5
							108			Wash return color change at 28.5', possible strata change.	
30							90				
	80		30.0 - 32.0	2-5-5-6	10	14	55			Grey, wet, stiff, Silty CLAY, trace fine sand, (Marine Clay)	
	MV1		31.0 - 31.0	-	-		84			MV1: Could not advance vane.	
							100				
							58				
35							76				
	90 MV2	24/24	35.0 - 37.0	WOH-WOH-WOH-WOH	-		65 RC			Dark grey, wet, Silty CLAY, (Marine Clay). MV2: Could not advance vane.	
								-32.6			-37.0
40											
	100 V7	24/24	40.0 - 42.0	Push thru vane S_u=728/147 psf						Dark grey, wet, medium stiff, Silty CLAY, trace shells, (Marine Clay). 55x110 mm vane row torque reading: V7: 195/40 in-lbs	
	V8		41.0 - 41.6	S_u=746/129 psf						V8: 200/35 in-lbs	
			41.6 - 42.0								
45											
50											
	110 V9	24/24	50.0 - 52.0	Push thru vane S_u=562/76 psf	-					Dark grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane row torque reading: V9: 145/20 in-lbs	
	V10		51.0 - 51.6	S_u=504/80 psf						V10: 135/15 in-lbs	
			51.6 - 52.0								
55											
60											
	120 V11	24/24	60.0 - 62.0	Push thru vane S_u=432/78 psf						Dark grey, wet, soft, Silty CLAY, (Marine Clay). 55x110 mm vane row torque reading: V11: 125/20 in-lbs	
	V12		61.0 - 61.6	S_u=464/58 psf						V12: 125/15 in-lbs	
			61.6 - 62.0								
65											
70											
	130	24/24	70.0 - 72.0	Push thru vane						Top 18": Dark grey, wet, medium stiff, Silty CLAY, rare 1/8" sand seam at 71.0'. 55x110 mm vane row torque reading:	
	V13 MV3		71.6 - 72.0	S_u=634/76 psf				-67.1			-71.5
										Bottom 6": Grey, wet, Silty fine SAND, some gravel, (Marine Sand). V13: 200/30 in-lbs MV3: Could not advance vane.	
75											

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic Hammer NEBC#1 Energy transfer ratio = 0.852.
3. Water level measured immediately after removal of casing.
4. Well installed to 20' bgs., 10' of 2" ID PVC screen, 12.8' of 2" ID PVC riser, sand backfill to 8' bgs., bentonite chips from 8'bgs. to 5' bgs., sand backfill from 5' bgs. to ground surface. 3" stand pipe with cap at ground surface.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
** Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 2
Boring No.: BB-WS46-303

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-303
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.): 4.4	Auger ID/OD: 4"
Operator:	Tom Schaefer	Datum: NAVD 88	Sampler: Standard Spilloon
Logged By:	L. Navarrete	Rig Type: Track B-53 Mobile	Hammer Wt./Fall: 140#/30"
Date Start/Finish:	04/14/2021-04/15/2021	Drilling Method: Drive & Wash	Core Barrel: NQ
Boring Location:	Sta. 82+92.3, 74.3' RT	Casing ID/OD: 3"/3.5"/4"/4.5"	Water Level **: 2.4
Hammer Efficiency Factor:	0.852	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐	

Definitions:
D = Split Spoon Sample; SSA = Solid Stem Auger; HSA = Hollow Stem Auger; U = Thin Wall Tube Sample; WO = Unsuccessful Split Spoon Sample Attempt; V = Field Vane Shear Test, FP = Pocket Penetrometer; WOR/C = Weight of Rods or Casing; WV = Unsuccessful Field Vane Shear Test Attempt; R = Rock Core Sample; RC = Roller Cone; WOH = Weight of 140 lb. Hammer; N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency; $N_{uncorrected}$ = Raw Field SPT N-value; Hammer Efficiency Factor = Rig Specific Annual Calibration Value; S_p = Peak/Remolded Field Vane Undrained Shear Strength (psf); S_{ur} = Lab Vane Undrained Shear Strength (psf); q_u = Unconfined Compressive Strength (tsf); $N_{uncorrected}$ = Raw Field SPT N-value; WC = Water Content, percent; LL = Liquid Limit; PL = Plastic Limit; PI = Plasticity Index; G = Grain Size Analysis; C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in. Soil Strength or RQD (%)	$N_{uncorrected}$	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
				Sample Information							
70	140	24/13	75.0 - 77.0	3-3-5-8	8	11				Grey, wet, medium dense, fine to coarse SAND, trace gravel, (Marine Sand).	
										Grey, wet, loose, fine to coarse SAND, trace gravel, (Marine Sand).	
80	150	24/6	79.0 - 81.0	3-4-1-5	5	7	RC				
								-78.1			-82.5
	R1	60/50	83.0 - 88.0	RQD = 58%			ND			Increased roller cone resistance at 82.5', probable top of rock. Roller cone to 83.0' and set up to core. R1: Hard, fresh aphanitic to medium grained, grey, SCHIST. Joints are very close to moderately spaced, moderately dipping, planar, smooth, fresh, very light to, light, with some silt infilling. Rock Quality = Fair Recovery = 83% Rock Core Times (min/sec): 83'-84' (03:40), 84'-85' (01:46), 85'-86' (01:50), 86'-87' (01:35), 87'-88' (01:52)	
85											
										R2: Hard, fresh, aphanitic to medium grained, grey, SCHIST. Joints are very close to moderately spaced, moderately dipping, planar, smooth fresh, very light to light. Rock Quality = Good Recovery = 97% Rock Core Times (min/sec): 88'-89' (02:45), 89'-90' (01:06), 90'-91' (01:46), 91'-92' (01:41), 92'-93' (01:51)	
90	R2	60/58	88.0 - 93.0	RQD = 87%							
								-88.6			-93.0
95										Bottom of Exploration at 93.0 feet below ground surface.	
100											

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic Hammer NEBC#1 Energy transfer ratio = 0.852.
3. Water level measured immediately after removal of casing.
4. Well installed to 20' bgs., 10' of 2" ID PVC screen, 12.8' of 2" ID PVC riser, sand backfill to 8' bgs., bentonite chips from 8'bgs. to 5' bgs., sand backfill from 5' bgs. to ground surface. 3" stand pipe with cap at ground surface.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
** Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 2 of 2
Boring No.: BB-WS46-303

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

Bridge No. 3039

WIN 23929.00

BRIDGE PLANS

PROJ. MANAGER			
DESIGN-DETAILED	E. TOME	BY	DATE
CHECKED-REVIEWED			
DESIGN2-DETAILED2		SIGNATURE	
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2		P.E. NUMBER	
REVISIONS 3			
REVISIONS 4		DATE	
FIELD CHANGES			

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

BORING LOGS 6

PREPARED BY:
GZA

SHEET NUMBER
22

Filename: ...\Boring Logs Border S46.dgn Division: HIGHWAY Username: common Date:7/26/2021

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-304
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.): 5.6	Auger ID/OD: -
Operator:	Brad Enos	Datum: NAVD 88	Sampler: Standard Spilltspoon
Logged By:	L. Navarrete	Rig Type: Track B-53 Mobile	Hammer Wt./Fall: 140#/30"
Date Start/Finish:	04/01/2021 - 04/05/2021	Drilling Method: Drive & Wash	Core Barrel: NQ
Boring Location:	Sta. 84+57.1, 133.1' RT	Casing ID/OD: 3"/3.5"/4"/4.5"	Water Level ▼: 3.5

Hammer Efficiency Factor: 0.818 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of Jar Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(rc)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor•N(Uncorrected)
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 (in.) Pen. Resistance or RQD (if)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/3	0.0 - 2.0	2-10-10-10	20	27	SSA			Black, moist, medium dense, fine to coarse SAND, some silt, little gravel, little organic fibers, little roots, (Fill).	
	2D	24/1	4.0 - 6.0	1-2-1-2	3	4				Brown, moist, loose fine to coarse SAND, some gravel, some silt, (Fill).	
							PUSH	-1.4			
										-7.0	
	3U V1	24/22	9.0 - 11.0 9.6 - 10.0	Push thru vane S_u=1580/205 psf	-					Grey/brown, wet, stiff to medium stiff, Organic SILT, little to trace fine sand, little organic fibers, (Wetland Deposit). 55x110 mm vane row torque reading. V1: 200/55 in-lbs V2: 255/45 in-lbs	
	V2		10.6 - 11.0	S_u=951/170 psf							
							RC				
	4U V3	24/22	14.0 - 16.0 15.6 - 16.0	Push thru vane S_u=1230/147 psf	-					Dark grey, wet, medium stiff, Organic SILT, trace fine sand, little organic fibers, (Wetland Deposit). 55x110 mm vane row torque reading: V3: 250/40 in-lbs	
	V4		15.0 - 15.6	S_u=817/147 psf						V4: 230/40 in-lbs	
	5U V5	24/12	19.0 - 21.0 20.0 - 21.0	Push thru vane S_u=1063/147 psf	-					Black wet, stiff to medium stiff, Organic SILT, trace fine sand, little organic fibers, (Wetland Deposit). 55x110 mm vane row torque reading: V5: 285/40 in-lbs	
	V6		20.0 - 20.8	S_u=893/147 psf						V6: 240/40 in-lbs	
	6U V7	24/23	24.0 - 26.0 24.6 - 25.0	Push thru vane S_u=1859/328 psf	-					Dark grey, wet, medium stiff, Organic SILT, trace fine sand, little organic fibers, (Wetland Deposit). 55x110 mm vane row torque reading: V7: 260/35 in-lbs	
	V8		25.0 - 25.6	S_u=857/147 psf						V8: 230/40 in-lbs	
	7U V9	24/24	29.0 - 31.0 29.6 - 30.0	Push thru vane S_u=1987/328 psf	-					Dark grey, wet, medium stiff, Organic SILT, trace fine sand, little organic fibers, little wood, (Wetland Deposit). 55x110 mm vane row torque reading: V9: 320/45 in-lbs	
	V10		30.0 - 30.2	S_u=1429/223 psf						V10: 322/5 in-lbs	
								-25.0		Bottom 2-inches of 70 contained silty clay.	
	8U V11	24/24	34.0 - 36.0 34.6 - 35.0	Push thru vane S_u=2000 psf	-					Grey, wet, very stiff, Silty CLAY, (Marine Clay). 55x110 mm vane row torque reading: V11: 50+ ft-lbs Could not shear vane.	
	9U V12	24/24	39.0 - 41.0 40.0 - 41.0	Push thru vane S_u=982/179 psf	-					Grey, wet, very stiff, Silty CLAY, (Marine Clay). 55x110 mm vane row torque reading: V12: 28/4 ft-lbs	
								-35.4			
										-41.0	
	10U V14	24/24	44.0 - 46.0 45.0 - 46.0	Push thru vane S_u=652/94 psf	-					Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane row torque reading: V14: 205/25 in-lbs	
	V15		45.0 - 45.8	S_u=652/94 psf						V15: 175/25 in-lbs	
	11U V16	24/24	49.0 - 51.0 50.0 - 51.0	Push thru vane S_u=634/94 psf						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane row torque reading: V16: 170/25 in-lbs	
	V17		50.0 - 50.6	S_u=705/129						V17: 190/35 in-lbs	
	12U V18	24/24	54.0 - 56.0 54.6 - 55.0	Push thru vane S_u=670/76 psf						Dark grey, wet, medium stiff, Silty CLAY, trace shell fragments, (Marine Clay). 55x110 mm vane row torque reading: V18: 180/20 in-lbs	
	V19		55.0 - 55.8	S_u=558/94 psf						V19: 150/25 in-lbs	
	13U V20	24/24	59.0 - 61.0 59.6 - 60.0	Push thru vane S_u=652/58 psf						Dark grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane row torque reading: V20: 175/15 in-lbs	
	V21		60.0 - 60.6	S_u=558/58 psf						V21: 150/15 in-lbs	
	14U V22	24/24	69.0 - 71.0 69.6 - 70.0	Push thru vane S_u=522/76 psf						Dark grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane row torque reading: V22: 140/20 in-lbs	
	V23		70.0 - 70.6	S_u=540/76 psf						V23: 145/20 in-lbs	
72											

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic Hammer NEBC•01 Energy transfer ratio = 0.818.
3. Water level measured immediately after removal of casing.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
▼ Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-304
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.): 5.6	Auger ID/OD: -
Operator:	Brad Enos	Datum: NAVD 88	Sampler: Standard Spilltspoon
Logged By:	L. Navarrete	Rig Type: Track B-53 Mobile	Hammer Wt./Fall: 140#/30"
Date Start/Finish:	04/01/2021 - 04/05/2021	Drilling Method: Drive & Wash	Core Barrel: NQ
Boring Location:	Sta. 84+57.1, 133.1' RT	Casing ID/OD: 3"/3.5"/4"/4.5"	Water Level ▼: 3.5

Hammer Efficiency Factor: 0.818 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of Jar Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(rc)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor•N(Uncorrected)
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 (in.) Pen. Resistance or RQD (if)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
72											
	15U V24	24/24	79.0 - 81.0 80.0 - 80.6	Push thru vane S_u=1062/36 psf						Dark grey, wet, stiff to medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane row torque reading: V24: 285/10 in-lbs	
	V25		80.0 - 81.0	S_u=728/36 psf						V25: 195/10 in-lbs	
	16U V26	24/24	89.0 - 91.0 90.0 - 91.0	Push thru vane S_u=616/84 psf						Dark grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane row torque reading: V26: 165/25 in-lbs	
	V27		90.0 - 90.6	S_u=504/76 psf						V27: 135/20 in-lbs	
	17U MV1	24/22	99.0 - 101.0	2-3-WOH-WOH	-					Top 11": grey, wet, Silty CLAY, (Marine Clay).	
								-94.0			
										Bottom 11": grey, brown, wet, Silty, fine to coarse SAND, (Marine Sand). MV1: Could not advance vane.	
								-99.6			
	18U	24/12	104.0 - 106.0	3-19-44-18	63	86				Brown, wet, very dense, fine to coarse SAND, some silt, little gravel, (Marine Sand).	
	19U	24/14	109.0 - 111.0	15-11-12-16	23	31	27			Grey, wet, medium dense, fine to coarse SAND, trace silt, (Marine Sand).	
							46				
							80				
							69				
							75				
	20D R1	7/5 60/57	114.0 - 119.7	50-50/1" RQD = 45%	-		ND	-109.0		Grey, wet, fine to medium SAND, little gravel, trace silt, (Marine Sand).	
								-114.6		Split-spoon refusal at 114.6', roller cone to 114.7' and set up to core. R1: Hard, fresh to slightly weathered aphanitic to medium grained, grey, SCHIST. Joints are extremely close to moderately spaced, to moderately dipping, stepped to planar, smooth to rough, fresh to discolored, very tight to tight. Recovery = 95% Rock Quality = Fair Rock Core Times (min/sec): 114.7'-115.7' (02:43), 115.7'-116.7' (02:01), 116.7'-117.7' (02:14), 117.7'-118.7' (02:11), 118.7'-119.7' (02:13) R2: Hard, fresh to slightly weathered aphanitic to medium grained, grey, SCHIST. Joints are extremely close, to moderately dipping, planar, smooth, fresh, very tight to tight. Recovery = 100% Rock Quality = Fair Rock Core Times (min/sec): 119.7'-120.7' (01:30), 120.7'-121.7' (01:50), 121.7'-122.7' (02:06), 122.7'-123.7' (01:16), 123.7'-124.7' (01:51)	
	R2	60/60	119.7 - 124.7	RQD = 66%				-119.1			
								-124.7		Bottom of Exploration at 124.7 feet below ground surface.	
140											

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic Hammer NEBC•01 Energy transfer ratio = 0.818.
3. Water level measured immediately after removal of casing.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
▼ Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Station 46 Bridge 3039 Replacement
Location: Woolwich, Maine

Boring No.: BB-WS46-305
WIN: 23929.00

Driller:	New England Boring Contractors	Elevation (ft.): 2.9	Auger ID/OD: -
Operator:	Tom Schaefer	Datum: NAVD 88	Sampler: Standard Spilltspoon
Logged By:	L. Navarrete	Rig Type: Track B-53 Mobile	Hammer Wt./Fall: 140#/30"
Date Start/Finish:	4/15/2021-4/19/2021	Drilling Method: Drive & Wash	Core Barrel: NQ
Boring Location:	Sta. 85+72.8, 54.3' RT	Casing ID/OD: 3"/3.5"/4"/4.5"	Water Level ▼: 0.1'/0.0"

Hammer Efficiency Factor: 0.852 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of Jar Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(rc)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor•N(Uncorrected)
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows / 6 (in.) Pen. Resistance or RQD (if)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	WOH-WOH-WOH-WOH	-		SSA			Black, wet, very soft, Organic SILT, trace fine sand, little roots, some wood, (Wetland Deposit).	
	2D	24/23	5.0 - 7.0	WOH-WOH-WOH-WOH	-		RC			Dark brown, wet, very soft, Organic SILT, little to trace organic fibers, (Wetland Deposit).	G•21-S-1507 WC=106.7
	3U	24/20	8.0 - 10.0	PUSH	-					3U: Dark brown, wet, medium stiff, Organic SILT, (Wetland Deposit).	
	V1		10.6 - 11.0	Push thru vane S_u=839/147 psf						55x110 mm vane row torque reading: V1: 225/40 in-lbs	
	V2		11.6 - 12.0	S_u=705/147 psf						V2: 190/40 in-lbs	
	4U V3	24/23	15.0 - 17.0 15.6 - 16.0	Push thru vane S_u=1295/170 psf						Dark brown, wet, medium stiff, Organic SILT, (Wetland Deposit). 55x110 mm vane row torque reading: V3: 250/45 in-lbs	•21-S-1508 OH PL=45 LL=94 PI=49 WC=83.8
	V4		16.0 - 16.8	S_u=875/170 psf						V4: 235/45 in-lbs	
								-18.6			
	5U V5	24/23	20.0 - 22.0	Push thru vane S_u=1295/179 psf						Top 18": Dark/brown, wet, stiff Organic SILT, trace fine sand, trace organic fibers. 55x110 mm vane row torque reading: V5: 29/4 ft-lbs	•21-S-1509 WC=31.0
								-21.5			
	MV1			-						Bottom 5": Grey, wet, Silty CLAY, (Marine Clay). MV1: Could not advance vane.	
	MU1	24/6	25.0 - 27.0	PUSH						Grey, wet, Silty CLAY, (Marine Clay).	
	5D MU2	17/17 17/3	27.0 - 28.4 27.0 - 28.4	WOH-WOH-WOH/5"-PUSH						Grey, wet, very stiff, Silty CLAY, (Marine Clay).	•21-S-1510 CL PL=12 LL=28 PI=16 WC=22.3
								-25.5			
	6D R1	0/0 60/60	30.0 - 30.0 30.0 - 35.0	50/0 RQD = 69%						Roller cone from 28.4' to 30.0', dark grey, rock in wash returns, split spoon refusal at 30.0'. Set up to core at 30.0'. R1: Hard, fresh, aphanitic to medium grained, grey, SCHIST. Primary joints are extremely close to moderately spaced, moderately dipping, planar, smooth, fresh to discolored, very tight to tight. One vertical joint. Joint is planar, fresh, tight. Recovery: 100% Rock Quality = Fair Rock Core Times (min/sec): 30-31' (02:10), 31-32' (01:01), 32-33' (01:23), 33-34' (01:31), 34-35' (01:40)	
	R2	46/43	35.0 - 38.8	RQD = 57%						R2: Very hard to hard, fresh, aphanitic to medium grained, grey, SCHIST. Primary joints are very close to close moderately dipping, undulating to planar, smooth, fresh, tight to moderately wide. One horizontal joint. Joint is planar, smooth, discolored, partially open. One high angle joint, Joint is planar, smooth, fresh, tight to open. Recovery: 95% Rock Quality = Fair Rock Core Times (min/sec): 35-36' (01:34), 36-37' (01:47), 37-38' (01:22), 38-38.8' (01:09)	
	R3	14/14	38.8 - 40.0	RQD = 100%				-37.1		R3: Hard, fresh, aphanitic to medium grained, grey, SCHIST. Joints are moderately, spaced moderately dipping planar, smooth, fresh, tight. Recovery: 100 % Rock Quality = Excellent Rock Core Times (min/sec): 38.8-39' (0:56), 39-40' (01:33)	
								-40.0		Bottom of Exploration at 40.0 feet below ground surface.	
50											

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic Hammer NEBC•1 Energy transfer ratio = 0.852.
3. Water level measured immediately after removal of casing.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
▼ Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE PLANS

Bridge No. 3039

	BY	DATE
×1	R. CARDALI	

SIGNATURE

P.E. NUMBER

DATE

PROJ. MANAGER	E. TOME
DESIGN-DETAILED	E. TOME
CHECKED-REVIEWED	
DESIGN2-DETAILED2	
DESIGN3-DETAILED3	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

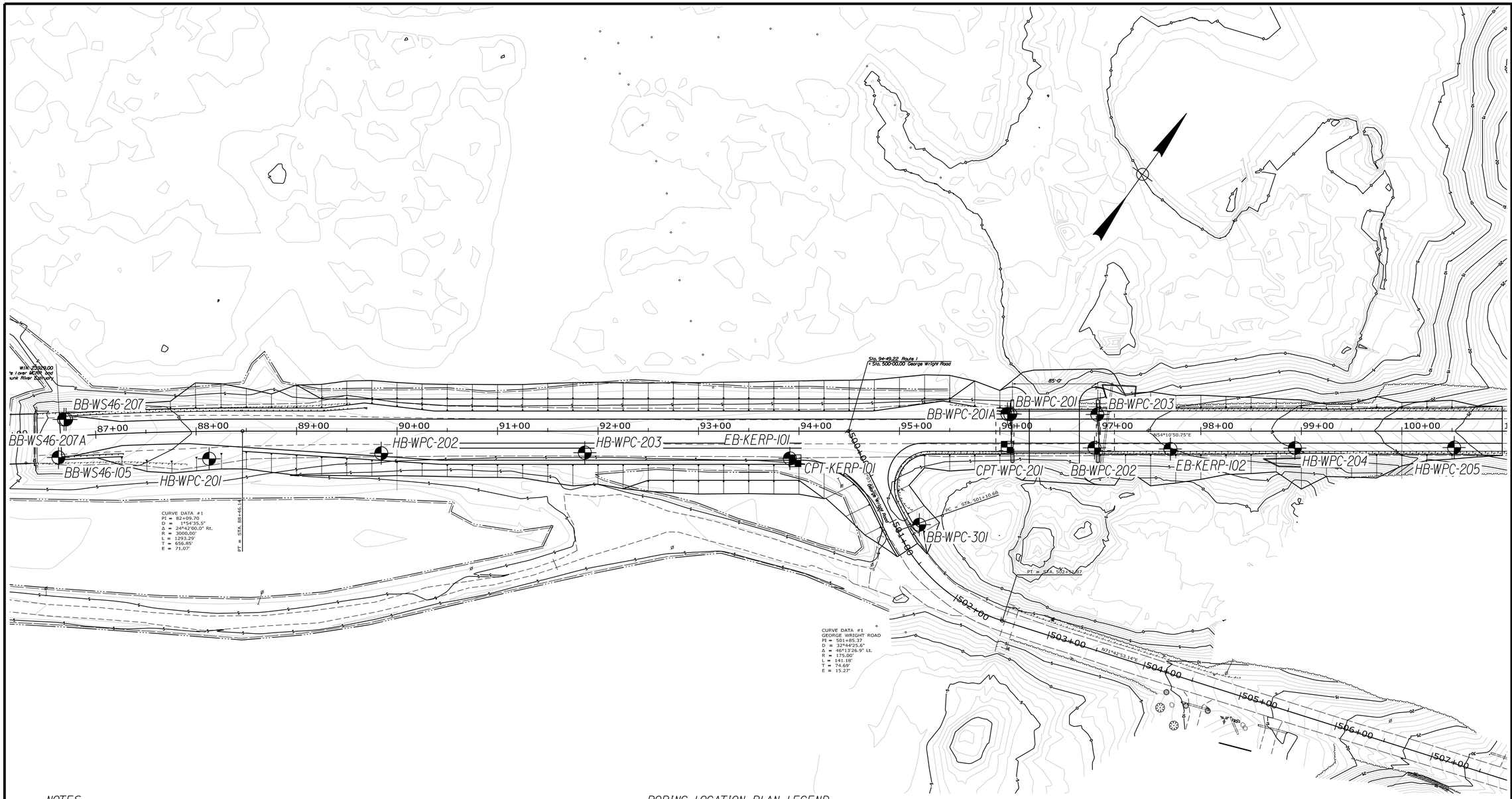
STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

BORING LOGS 7

PREPARED BY:

SHEET NUMBER
23

Filename: ...\BLP\Woolwich - BLP Scaled.dgn Division: HIGHWAY Username: common Date:7/26/2021



NOTES

1) Base map developed from electronic files (3DTopo_2Idec09.dgn, Contours.dgn, and Alignments.dgn) provided by HNTB on April 27, 2021 and from electronic file (Bridge.dgn) provided by HNTB on May 27, 2021.

2) The as-drilled locations of the EB-KERP-100 series test borings, BB-WS46-105 test boring, and CPT-KERP-100 series cone penetration tests were surveyed and provided by MaineDOT in an electronic file (001_Borings_28 OCTOBER 19.dgn).

3) The as-drilled locations of the BB-WPC-200, BB-WPC-300, and HB-WPC-200 series test borings and the CPT-WPC-200 series cone penetration test were surveyed and provided by MaineDOT in an electronic file (WOOLWICH 23929.00 BORINGS 19 MAY 21.DGN).

BORING LOCATION PLAN LEGEND

EB-KERP-102	Locations and designations of 100 series borings performed by New England Boring Contractors of Hermon, Maine between October 22 and October 26, 2019.
BB-WPC-203	Locations and designations of 200 series bridge borings performed by New England Boring Contractors of Hermon, Maine between March 31 and April 7, 2021.
BB-WPC-301	Locations and designations of 300 series bridge borings performed by New England Boring Contractors of Hermon, Maine between March 31 and April 7, 2021.
HB-WPC-205	Locations and designations of 200 series highway borings performed by New England Boring Contractors of Hermon, Maine between March 31 and April 1, 2021.
CPT-KERP-101	Location and designation of 100 series Cone Penetrometer Test (CPT) performed by Summit Geoengineering Services, Inc. of Rockland, Maine on October 14, 2019.
CPT-WPC-201	Location and designation of 200 series Cone Penetrometer Test (CPT) performed by Summit Geoengineering Services, Inc. of Rockland, Maine on March 25, 2021.

PLAN

50 0 50 100
Scale in Feet

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392901

WIN
23929.01

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER		
DESIGN-DETAILED	E. TOME	05/2021
CHECKED-REVIEWED	C. SNOW	A. BLANSDELL 05/2021
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

EXPLORATION LOCATION PLAN

PREPARED BY:

GZA

SHEET NUMBER

24

PROFILE

ELEVATION (FEET, NAVD88)

Varying from: Brown to Grey, medium dense to very dense, fine to coarse SAND, little gravel, trace to some silt to: Gravel, Trace to little fine to coarse sand, trace silt. [FILL]

Brown to Black, soft to stiff, organic SILT, trace fine to coarse sand, trace gravel, with organic fibers and wood fragments. [WETLAND DEPOSIT]

Grey, very stiff to stiff, Silty CLAY, trace shells, trace to some fine sand. [MARINE CLAY]

Grey, stiff to soft, Silty CLAY, trace shells, trace to some fine sand. [MARINE CLAY]

Grey, very dense, Gravelly fine to coarse SAND, little silt. [GLACIAL TILL]

Borings EB-KERP-101 THROUGH -102, BB-WS46-105, BB-WPC-201 through -203, and HB-WPC-201 through -205:

Rock Quality = Good to Excellent. Hard to very hard, fresh, aphanitic to coarse grained, grey, SCHIST. The joints are very close to moderately spaced, low angle to high angle, planar to undulating, smooth to rough, fresh to discolored, tight to open.

Horiz. 50 0 50 100

Vert. 10 0 10 20

Scale in Feet

NOTES

1) Base map developed from electronic files provided by HNTB on April 27, 2021 (Profile.dgn)

2) The as-drilled boring locations were surveyed by a MaineDOT survey crew and provided to GZA in an electronic file (Borings.dgn).

3) 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 and rock transitions may vary and are probably more erratic. Boring data are shown for borings drilled off alignment, but interpreted strata are based on the borings drilled closest to the project baseline. For more specific information refer to the exploration logs.

LEGEND

- Boring No. / Offset, if shown
- Pavement Thickness if applicable
- 6 — Energy-Corrected SPT N60 Value (blows/foot)
- WOH — Indicates weight of hammer
- WOR — Indicates weight of rod
- Strata Interface
- 879/137 — Indicates in-situ field vane strength (peak/residual) in pounds per square foot.
- R — Split Spoon Refusal(>50 blows for 1" penetration)
- Advancement of rollerbit prior to coring
- Interpreted Top of Bedrock (See Note 3)
- RQD = Rock Quality Designation for Rock Core Sample
- BOE — Bottom of Exploration

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392901

WIN 23929.01

BRIDGE PLANS

Bridge No. 3039

	BY	DATE
DESIGN-DETAILED	B. CARIDALI	05/2021
CHECKED-REVIEWED	A. BLASDELL	05/2021
PROJ. MANAGER	E. TOME	
DESIGN2-DETAILED2	C. SNOW	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

INTERPRETIVE SUBSURFACE PROFILE

PREPARED BY: GZA

SHEET NUMBER 25

Division: Bridge
Filename: ...\ISP\Woolwich_ISP - Scaled.dgn
Date:7/26/2021
Username: BMC

Usernome: common

Division: HIGHWAY

Filename: ...\Boring Logs Border.dgn

Date:7/23/2021

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: HB-WPC-201
WIN: 23929.01

Driller: New England Boring	Elevation (ft.): 8.6	Auger ID/OD: -	
Operator: Brad Enos	Datum: NAVD 88	Sampler:	Standard Spilspoon
Logged By: L. Navarrete	Rig Type: Truck B53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish: 3/25/2021 - 3/25/2021	Drilling Method: Drive & Wash	Core Barrel:	NQ
Boring Location: Sta. 88+12.7, 27.4' RT	Casing ID/OD: 4"/4.5"	Water Level *1:	7.4
Hammer Efficiency Factor: 0.818	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
R = Rock Core Sample
SSA = Solid Stem Auger
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(61.5)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*WOH-uncorrected
T_v = Pocket Penetrometer Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows/ (6 in.) Shear Strength or RQD (if)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/15	0.0 - 2.0	30-31-16-12	47	64	SSA			Top 12": Asphalt	
							RC	7.6		Bottom 6": Brown, dry, fine coarse SAND, little silt, trace gravel, (Fill).	1.0
	2D	24/12	2.0 - 4.0	9-8-8-8	16	22				Brown, dry, medium dense, fine coarse SAND, little gravel, little silt, trace asphalt pieces, (Fill).	G•21-S-1511 A-1-b, SP-SM WC=6.0
5	3D	24/10	4.0 - 6.0	1-4-2-2	6	8				Top 5": Brown, moist, fine to coarse SAND, little silt, little gravel, (Fill). Bottom 5": Grey, moist, fine to medium SAND, some silt, (Wetland Deposit).	
	4D	24/6	9.0 - 11.0	8-4-59-15	63	86				Brown, wet, Sandy GRAVEL, trace silt, (Fill).	•21-S-1512 A-1-a, GP-GM
10							164				
							110	-3.4		-12.0	
							52				
	5D	24/1	14.0 - 16.0	2-2-1-2	3	4	41			Brown, wet, stiff, gravelly SILT, (Wetland Deposit).	
15	MV1						91				
							46				
							48				
							73				
							RC				
20	6D V1	24/24	19.0 - 21.0	Push thru Vane S_u=1044/275 psf						Black, wet, stiff, organic SILT, trace organic fibers, (Wetland Deposit). 65x110 mm vane row torque reading: V1: 38/10 ft-lbs	•21-S-1513 OH PI=35 LL=94 PL=59 WC=70.6
	V2		20.0 - 20.8 - 21.0	S_u=1016/247 psf						V2: 37/9 ft-lbs	
25	7D V3	24/24	24.0 - 26.0	Push thru Vane S_u=1181/223 psf						Black, wet, stiff, organic SILT, trace fine sand, trace organic fibers (Wetland Deposit). 65x110 mm vane row torque reading: V3: 23/5 ft-lbs	
	V4		25.0 - 25.6 - 26.0	S_u=1205/268psf						V4: 27/6 ft-lbs Wash return indicates at 28.0 and color change to grey incressed gravel content.	
								-19.4		-28.0	
30	8D V5	24/24	29.0 - 30.4 - 30.0	4-6-34/5"	R			-21.8		Grey, wet, very stiff, Silty CLAY, trace gravel, (Glacial Till). 65x110 mm vane row torque reading: Could not turn.	•21-S-1514 (GT) PI=11 LL=27 PL=16 WC=22.5
	R1	60/60	30.4 - 31.0 - 36.0	RQD = 88%			NX			Refusal at 30.4', probable top of rock, roller cone to 31.0'. Consistent dark greyrock in wash, set up to core at 31.0'. R1: Very hard to hard, fresh aphanitic to medium gravel, grey, SCHIST. Primary joints are very close to moderately spaced, moderately dipping, planar, smooth, fresh, tight with silt infilling secondary joints are close to moderately spaced, low angle, planar, rough, fresh, tight to partialy open. One vertical joint, joint is planar, fresh, very tight. Rock Quality = Good Recovery = 100% Rock Core Times (minisec): 31-32' (02:04), 32-33' (01:56), 33-34' (02:40), 34-35' (01:40), 35-36' (03:43) R2: Very hard to hard, fresh, aphanitic to medium grained, grey, SCHIST. Joints are very close to moderately spaced, planar, smooth, fresh, tight. Rock Quality = Excellent Recovery = 100% Rock Core Times (minisec): 36-37' (3:13), 37-38' (3:52), 38-39' (1:56), 39-40' (2:20), 40-41' (2:33).	
35	R2	60/60	36.0 - 41.0	RQD = 95%							
								-32.4		-41.0	
40										Bottom of Exploration at 41.0 feet below ground surface.	
45											
50											

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC•023 Energy transfer ratio = 0.818.
3. Water level measured immediately after removal of casing.
4. 65x130 mm had one upper corner _____ during V1 & V2.
5. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
*- Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1
Boring No.: HB-WPC-201

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: HB-WPC-202
WIN: 23929.01

Driller: New England Boring Contractors	Elevation (ft.): 5.8	Auger ID/OD: -	
Operator: Brad Enos	Datum: NAVD 88	Sampler:	Standard Spilspoon
Logged By: L. Navarrete	Rig Type: Truck B53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish: 3/25/2021 - 3/25/2021	Drilling Method: Drive & Wash	Core Barrel:	NQ
Boring Location: Sta. 89+84.3, 22.0' RT	Casing ID/OD: 4"/4.5"	Water Level *1:	4.6
Hammer Efficiency Factor: 0.818	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
R = Rock Core Sample
SSA = Solid Stem Auger
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(61.5)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*WOH-uncorrected
T_v = Pocket Penetrometer Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows/ (6 in.) Shear Strength or RQD (if)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/19	0.0 - 2.0	24-18-18-19	36	49	RC			Top 12": Asphalt	
								4.8		Bottom 7": Brown, wet, gravelly fine to coarse SAND, trace silt, (Fill).	1.0 G•21-S-1515 A-1-b, SP-SM WC=3.4
5	2D	24/18	4.0 - 6.0	3-5-9-11	14	19				Brown, dry, medium dense, fine to coarse SAND, little silt (Fill). Bottom 2": grey, wet, Silty CLAY.	
							62			Intermittent roller bit resistance from 6.0'-9.0' indicating probable cobbles and boulders.	
							70				
							67			Grey/brown, wet, dense, GRAVEL, some fine to coarse sand, little silt, with probable cobbles, (Fill).	
10	3D	24/8	9.0 - 11.0	157-47-2-3	49	67	43	-4.2		-10.0	
							40			Inferred transition to Wetland Deposit based on reduced blow counts.	
							50				
							93				
							93				
15	4D	24/24	14.0 - 16.0	WOH-WOH-2-4	2	3	RC			Black, wet, soft, organic SILT, trace fine sand, little organic fibers, (Wetland Deposit).	•21-S-1516 WC=70.5
	1U	24/23	18.0 - 20.0	PUSH						Black, wet, stiff, organic SILT, (Wetland Deposit).	
20	V1		20.6 - 21.0	S_u=1116/299psf						65x110 mm vane row torque reading: V1: 1300/80 in-lbs.	
	V2		21.6 - 22.0	S_u=1429/312 psf						V2: 32/7 ft-lbs.	
25	5D V3	24/24	24.0 - 25.0 - 26.0	Push thru vane S_u=1161/223 psf						Black, wet, stiff, organic SILT, trace fine to coarse SAND, little organic fibers, (Wetland Deposit). 65x110 mm vane row torque reading: V3: 26/5 ft-lbs.	•21-S-1517 OH PI=31 LL=85 PL=49 WC=64.5
	V4		25.0 - 25.6 - 26.0	S_u=1161/223 psf						V4: 26/5 ft-lbs.	
							RC	-26.7		-32.5	
30	6D V5	24/24	29.0 - 31.0 - 29.0	Push thru vane S_u=1116/179						Black, wet, stiff, organic SILT, trace fine sand, trace organic fibers, (Wetland Deposit). 65x110 mm vane row torque reading: V5: 23/4 ft-lbs.	
	V6		30.0 - 30.6 - 31.0	S_u=1116/179 psf						V6: 23/4 ft-lbs.	
35	7D V7	24/24	34.0 - 36.0 - 34.0	Push thru vane S_u=2000/439psf	2	3				Grey, wet, very stiff, Silty CLAY, trace fine sand, (Marine Clay). 65x110 mm vane row torque reading: V7: 349/71 ft-lbs.	•21-S-1518 CL PI=13 LL=33 PL=18 WC=23.9
	MV1		35.0 - 35.0 - 36.1	-							
										Grey, wet, very stiff, Silty CLAY, (Marine Clay).	
40	2U	24/24	39.0 - 41.0	PUSH							
	8D V8	24/24	41.0 - 43.0 - 43.0	Push thru vane S_u=2000/343psf						Grey, wet, stiff to very stiff, Silty CLAY, (Marine Clay). 65x110 mm vane row torque reading: V8: 50/12 ft-lbs.	
	V9		42.0 - 42.8 - 43.0	S_u=2000/357psf						V9: 47.5/8 ft-lbs.	
45								-39.2		-45.0	
50	9D V10		49.0 - 51.0 - 49.6	Push thru vane S_u=728/94 psf						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x110 mm vane row torque reading: V10: 190/25 in-lbs.	•21-S-1519 CL PI=26 LL=49 PL=23 WC=42.2
	V11		50.0 - 50.6 - 51.0	S_u=634/94 psf						V11: 170/25 in-lbs.	
55											
	3U	24/24	59.0 - 61.0	PUSH						Grey, wet, medium stiff, Silty CLAY, (Marine Clay).	
60											
	10D V12		62.0 - 64.0 - 64.0	Push thru vane S_u=787/94 psf						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x110 mm vane row torque reading: V12: 210/25 in-lbs.	
	V13		63.0 - 63.6 - 64.0	S_u=652/94 psf						V13: 175/25 in-lbs.	
65											
70	11D V14		69.0 - 71.0	Push thru vane S_u=446/119 psf						Grey, wet, soft, Silty CLAY, (Marine Clay). 65x110 mm vane row torque reading: V14: 125/30 in-lbs.	•21-S-1520 WC=38.7
	V15		70.0 - 70.9 - 71.0	S_u=446/112 psf						V15: 120/30 in-lbs.	

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC•023 Energy transfer ratio = 0.818.
3. Water level measured immediately after removal of casing.
4. 65x130 mm had one upper corner bent during V1 & V2.
5. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
*- Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 2
Boring No.: HB-WPC-202

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: HB-WPC-202
WIN: 23929.01

Driller: New England Boring Contractors	Elevation (ft.): 5.8	Auger ID/OD: -	
Operator: Brad Enos	Datum: NAVD 88	Sampler:	Standard Spilspoon
Logged By: L. Navarrete	Rig Type: Truck B53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish: 3/25/2021 - 3/25/2021	Drilling Method: Drive & Wash	Core Barrel:	NQ
Boring Location: Sta. 89+84.3, 22.0' RT	Casing ID/OD: 4"/4.5"	Water Level *1:	4.6
Hammer Efficiency Factor: 0.818	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
R = Rock Core Sample
SSA = Solid Stem Auger
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(61.5)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*WOH-uncorrected
T_v = Pocket Penetrometer Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows/ (6 in.) Shear Strength or RQD (if)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
70								-72.7		Interpreted strata change at 78.5' based on increased roller bit resistance and wash return. Grey, wet, medium dense, fine to medium SAND, some gravel, some silt, (Glacial Till).	
	12D	24/5	79.0 - 81.0	8-8-10-8	18	25				-78.5	G•21-S-1521 A-2-4(0), SM
80										Grey, wet, fine to coarse SAND, some gravel, some silt, (Glacial Till).	
	13D R1	5/5 60/60	84.0 - 84.4 - 89.5	100/5" RQD = 47%	R		NX	-78.6		Spilspoon refusal at 84.4', Roller cone to 84.5', probable top of rock. Consistent dark grey rock in wash. Set up to core at 84.5' R1: Very hard to hard, fresh, aphanitic to coarse grained, grey, SCHIST. Primary joints are very close to close, moderately dipping to planar, rough to smooth, fresh, tight to partially open, with silt in filling. Secondary joints are close to moderately spaced, planar, rough, fresh, very tight to open, with silt in filling. One vertical joint is stepped, smooth, fresh, tight. Rock Quality = Poor Recovery = 100% Rock Core Time (minisec): 84.5-85.5' (01:49), 85.5-86.5' (01:53), 86.5-87.5 (02:09), 87.5-88.5' (02:14), 88.5-89.5' (02:45) R2: Very hard to hard, fresh to slightly weathered, aphanitic to medium grained, grey, SCHIST. Primary joints are very close to moderately spaced, Undulating to planar, smooth, fresh, tight. Secondary joints are very close to moderately spaced, low angle, undulating, rough, fresh to decomposed, very tight to open, with silt and sand in filling. Rock Quality = Poor Recovery = 93% Rock Core Time (minisec):89.5-90.5' (01:54), 90.5-91.5' (01:48), 91.5-92.5' (01:46), 92.5-93.5' (03:35), 93.5-94.0' (0: 51)	
85	R2	54/50	89.5 - 94.0	RQD = 36%							
90								-88.2			
95											
100								-94.0		Bottom of Exploration at 94.0 feet below ground surface.	

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC•023 Energy transfer ratio = 0.818.
3. Water level measured immediately after removal of casing.
4. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

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Page 2 of 2
Boring No.: HB-WPC-202

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392901

WIN 23929.01

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER		
DESIGN-DETAILED	E. TOME	
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

BORING LOGS 1

PREPARED BY:

GZA

SHEET NUMBER
26

Usernome: common Date:7/23/2021

Division: HIGHWAY

Filename: ...\Boring Logs Border.dgn

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: HB-WPC-203
WIN: 23929.01

Driller:	New England Boring Contractors	Elevation (ft.):	5.4
Operator:	Brad Enos	Datum:	NAVD 88
Logged By:	L. Navarrete	Rig Type:	Track B-53 Mobile
Date Start/Finish:	3/29/2021 - 3/31/2021	Drilling Method:	Drive & Wash
Boring Location:	Sta. 91+86.9, 21.5' RT	Casing ID/OD:	4"/4.5"
Auger ID/OD:			
Sampler:	Standard Spiltspoon		
Hammer Wt./Fall:	140#/30"		
Core Barrel:	NX		
Water Level *:			

Hammer Efficiency Factor: 0.818 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
W = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
VO = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(LAB)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*ROTH-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows/ (6 in.) Pen. Resistance or RQD (if)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
							SSA	4.4		Top 12": Asphalt	
	1D	24/14	1.0 - 3.0	14-10-9-7	19	26				Brown, damp, medium dense, Sandy GRAVEL, trace silt, (Fill).	C=21-S-1522 %-f=5, GP-GM WC=2.3
	2D	11/7	4.0 - 4.9	23-51/3"	-					Brown, wet, very dense, GRAVEL, some fine to coarse sand, little silt, (Fill). Note: Auger action, indicates splitspoon refusal on probable cobble.	
								-2.6			
	3D	24/1	9.0 - 11.0	WOR-1-2-2	3	4	RC			Black, wet, soft, organic SILT, (Wetland Deposit).	
	1U	24/23.5	13.0 - 15.0	PUSH	-					Black, wet, medium stiff, organic SILT, (Wetland Deposit).	S_u(DSS)= 588 psf
	4D V1	24/24	15.0 - 17.0	Push thru vane S_u=537/179						Black, wet, stiff, organic SILT, trace fine sand, trace organic fibers, (Wetland Deposit). 55x110 mm vane raw torque reading: V1: 24/4 ft-lbs.	
	V2		16.0 - 17.0	S_u=937/179 psf						V2: 21/4 ft-lbs.	
	5D V3	24/20	19.0 - 21.0	WOR-WOR-WOH-1 Push thru vane						Black, wet, stiff, organic SILT, trace fine sand, trace organic fibers, (Wetland Deposit). 55x110 mm vane raw torque reading: V3: 270/50 in-lbs.	•21-S-1523 OH Pi=32 LL=81 PL=49 WC=65.1
	V4		20.0 - 20.8 - 21.0	S_u=1007/357 psf S_u=1040/187 psf						V4: 280/50 in-lbs.	
	6D V5	24/20	24.0 - 26.0	Push thru vane						Black, wet, stiff, organic SILT, trace fine sand, trace organic fibers, (Wetland Deposit). 55x110 mm vane raw torque reading: V5: 25/4 ft-lbs.	
	V6		25.0 - 25.9 - 26.0	S_u=1116/179 psf						V6: 25/4 ft-lbs.	
	2U	24/21	29.0 - 31.0	PUSH						Black, wet, organic SILT, (Wetland Deposit).	
	7D V7	24/17	31.0 - 33.0	Push thru vane S_u=982/179 psf						Black, wet, organic SILT, trace fine sand, trace organic fibers, (Wetland Deposit). 55x110 mm vane raw torque reading: V7: 22/4 ft-lbs.	S_u(DSS)= 623 psf
	V8		32.0 - 32.6 - 33.0	S_u=1116/223 psf						V8: 25/5 ft-lbs.	
	8D	24/21	33.0 - 35.0	WOR-WOR-WOH-WOH						Black, wet, organic SILT, trace fine sand, trace organic fibers, (Wetland Deposit).	
	9D	24/24	35.0 - 37.0	WOR-WOR-WOR-2						Black, wet, organic SILT, trace fine sand, trace organic fibers, (Wetland Deposit).	•21-S-1524 OH Pi=36 LL=76 PL=40 WC=65.7
	10D	24/22	37.0 - 39.0	WOR-WOR-WOH-WOH						Black, wet, organic Clayey SILT, trace fine sand, trace organic fibers, (Wetland Deposit).	
	11D	24/19	39.0 - 41.0	WOR-WOH-5-6	5	7				Top 12": Black, wet, organic SILT, trace organic fibers, (Wetland Deposit).	
								34.6		Bottom 12": Grey, wet, Silty CLAY, (Marine Clay).	
								-40.0			
	12D	24/24	44.0 - 46.0	1-3-4-5	7	10				Grey, wet, stiff, Silty CLAY, (Marine Clay).	•21-S-1525 WC=33.0
								41.6			
								-47.0			
	3U	24/24	49.0 - 51.0	PUSH						Grey, wet, Silty CLAY, (Marine Clay).	S_u(DSS)= 684 psf
	13D V9	24/24	51.0 - 53.0	Push thru vane S_u=705/192 psf						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane raw torque reading: V9: 190/30 in-lbs	
	V10		52.0 - 52.8 - 53.0	S_u=558/192 psf						V10: 150/30 in-lbs.	
	14D VII	24/24	54.0 - 56.0	Push thru vane S_u=448/58 psf						Grey, wet, soft, Silty CLAY, (Marine Clay). 55x110 mm vane raw torque reading: V11: 120/15 in-lbs.	
	V12		55.0 - 55.8 - 56.0	S_u=393/36 psf						V12: 105/10 in-lbs.	
	15D V13	24/20	59.0 - 61.0	Push thru vane S_u=504/74 psf	-					Dark, grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane raw torque reading: V13: 135/25 in-lbs.	•21-S-1526 CL Pi=27 LL=47 PL=20 WC=41.0
	V14		60.0 - 60.9 - 61.0	S_u=504/74 psf						V14: 135/20 in-lbs.	
	16D V15	24/24	64.0 - 66.0	Push thru vane S_u=504/58 psf						Dark grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane raw torque reading: V15: 135/15 in-lbs.	•21-S-1527 WC=42.8
	V16		65.0 - 65.9 - 66.0	S_u=558/76 psf						V16: 150/20 in-lbs.	
	17D V17	24/24	74.0 - 76.0	Push thru vane S_u=830/58 psf						Dark grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane raw torque reading:	

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC#023 Energy transfer ratio = 0.818.
3. Water level measured immediately after removal of casing.
4. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: HB-WPC-203
WIN: 23929.01

Driller:	New England Boring Contractors	Elevation (ft.):	5.4
Operator:	Brad Enos	Datum:	NAVD 88
Logged By:	L. Navarrete	Rig Type:	Track B-53 Mobile
Date Start/Finish:	3/29/2021 - 3/31/2021	Drilling Method:	Drive & Wash
Boring Location:	Sta. 91+86.9, 21.5' RT	Casing ID/OD:	4"/4.5"
Auger ID/OD:			
Sampler:	Standard Spiltspoon		
Hammer Wt./Fall:	140#/30"		
Core Barrel:	NX		
Water Level *:			

Hammer Efficiency Factor: 0.818 — Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
W = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
VO = Unsuccessful Field Vane Shear Test Attempt
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$S_{u(LAB)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*ROTH-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows/ (6 in.) Pen. Resistance or RQD (if)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	V18		74.6 - 75.0 - 75.6 - 76.0	S_u=763/58 psf						V17: 225/15 in-lbs. V18: 205/15 in-lbs.	
	4U	24/24	79.0 - 81.0	PUSH						Dark grey, wet, medium stiff, Silty CLAY, (Marine Clay).	S_u(DSS)= 809 psf
	18D V19		81.0 - 82.0 - 82.6 - 83.0	Push thru vane S_u=576/112 psf						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane raw torque reading: V19: 155/30 in-lbs.	
	V20		82.0 - 82.6 - 83.0	S_u=504/94 psf						V20: 135/25 in-lbs.	
	19D	24/24	88.7 - 90.7	WOR-WOR-WOR-WOR						Dark grey, wet, medium stiff, Silty CLAY, (Marine Clay).	•21-S-1528 WC=30.4
								-91.3			
	R1	43/43	98.0 - 101.6	RQD = 35%				NX		Increased roller bit resistance at 96.7', probable top of rock. Roller cone increased in resistance at 97.1'. Dark grey rock in wash return. Advanced roller cone to 98.0', set up to core. R1: Hard, fresh to slightly weathered, aphanitic to fine grained, grey, SCHIST. Primary joints are extremely close to moderately spaced high angle to vertical, planar, smooth, fresh, very tight to tight with silt in filling. Secondary joints are very close to close, low angle to moderately dipping planar, rough, fresh, tight with silt filling. Rock Quality = Poor Recovery = 100% Rock Core Times (min/sec): 98-99' (01:52), 99-100' (02:23), 100-101' (02:40), 101-101.6' (02:16) R2: Hard, fresh, aphanitic to fine grained, grey, SCHIST. Primary joints are very close to close, low angle to moderately dipping, planar, rough to smooth, fresh to decomposed, tight, with silt in filling. One vertical joint, joint is undulating to planar, smooth, fresh to decomposed, tight, with silt infilling. Rock Quality = Poor Recovery = 98% Rock Core Times (min/sec): 101.6-102.6' (01:52), 102.6-103.6' (02:22), 103.6-104.6' (02:21), 104.6-105.5' (02:05) R3: Hard, fresh, aphanitic to fine grained, grey, SCHIST. Primary joints are very close to close, low angle, planar, rough to smooth, fresh, tight, with silt infilling. One high angle joint joint is stepped to planar, smooth, fresh, tight, with silt infilling. Rock Quality = Poor Recovery = 96% Rock Core Times (min/sec): 105.5-106.5' (02:19), 106.5-107.5' (03:21), 107.5-108.4' (03:46) Bottom of Exploration at 108.4 feet below ground surface.
	R2	47/46	101.6 - 105.5	RQD = 38%							
								-103.0			
	R3	35/33.6	105.5 - 108.4	RQD = 44%							
								-108.4			

Remarks:

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2. Automatic hammer NEBC#023 Energy transfer ratio = 0.818.
3. Water level measured immediately after removal of casing.
4. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392901

WIN 23929.01

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER		
DESIGN-DETAILED	E. TOME	
CHECKED-REVIEWED	R. CARROLL	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

BORING LOGS 2

PREPARED BY:

GZA

SHEET NUMBER

27

Filename: ...\Boring Logs Border.dgn Division: HIGHWAY Username: common Date:7/23/2021

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: EB-KERP-101
WIN: 23148.00

Driller: New England Boring Contractors	Elevation (ft.): 5.3	Auger ID/OD:	4.25" OD SSA
Operator: Brad Enos	Datum: NAVD 88	Sampler:	Standard Split-spoon
Logged By: L. Navarrete	Rig Type: Track Mobile B-53	Hammer Wt./Fall:	140#/30"
Date Start/Finish: 10/23/19-10/26/19	Drilling Method: Drive & Wash	Core Barrel:	NX
Boring Location: Sta. 93+91.0, 27.1' Rt	Casing ID/OD: 4"/4.5"	Water Level *:	4.2'

Hammer Efficiency Factor: 0.895 Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample; SSA = Solid Stem Auger; R = Rock Core Sample; S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf); T_v = Pocket Torvane Shear Strength (psf)
WO = Unsuccessful Split Spoon Sample Attempt; HSA = Hollow Stem Auger; RC = Roller Cone; $S_{u(r)}$ = Lab Vane Undrained Shear Strength (psf); WC = Water Content, percent
U = Thin Wall Tube Sample; WOH = Weight of 140lb. Hammer; N-uncorrected = Raw Field SPT N-value; q_u = Unconfined Compressive Strength (tsf); LL = Liquid Limit
W = Unsuccessful Thin Wall Tube Sample Attempt; WOR/C = Weight of Rods or Casing; Hammer Efficiency Factor = Rig Specific Annual Calibration Value; PL = Plastic Limit
V = Field Vane Shear Test; WOR = Weight of Rods; N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency; PI = Plasticity Index
WI = Unsuccessful Field Vane Shear Test Attempt; RQD = Length of Core Pieces > 4" / Length of Run; N_{60} = Hammer Efficiency Factor•N-uncorrected; G = Grain Size Analysis; C = Correlation Test

Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in. / Pocket Penetrometer Strength (tsf) or RQD (%)	N-uncorrected	N60	Casing or Core Barrel	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	3-4-7-2	11	16	SSA	+5.3		Brown, wet, medium dense, GRAVEL; trace fine to coarse sand, trace silt, (FILL).	G=19-5-2823 A-1-a, GP WC=3.0
5	2D	24/12	4.0 - 6.0	14-14-7-10	21	31	RC			Brown, wet, dense, Sandy GRAVEL, trace silt, (FILL).	G=19-5-2824 A-1-a, GW-GM WC=11.3
								-1.7			
										-7.0	
10	3D	24/15	9.0 - 11.0	3-1-2-2	3	4				Black, wet, Organic SILT, trace fine to coarse sand, trace gravel, with organic fibers, (Wetland Deposit).	
							35				
							40				
							38				
							35				
15	4D	24/18	14.0 - 16.0	WOH-WOH-WOH-2			PUSH			Black, wet, Organic SILT, trace fine sand, with organic fibers, with wood fragments, (Wetland Deposit).	
	1U	24/24	19.0 - 21.0	PUSH						Black, wet, medium stiff, Organic SILT, trace fine sand, with organic fibers, with wood fragments, (Wetland Deposit). 65x130mm vane raw torque readings! V1: 500/100 in-lbs V2: 540/120 in-lbs	S_u(DSS)=525 psf
20	V1		21.6 - 22.0	S_u=1145/228 psf							
	V2		22.6 - 23.0	S_u=1217/275 psf							
	5D	24/24	24.0 - 26.0	WOH-WOH-1-2	1	1				Black, wet, stiff, Organic SILT, trace fine sand, with organic fibers, (Wetland Deposit).	
25	MV		26.0 - 26.2							Could not advance vane.	
	6D	24/19	29.0 - 31.0	Push thru vane						Dark brown, wet, stiff, Organic SILT, trace fine sand, with organic fibers, (Wetland Deposit). 65x130mm vane raw torque readings! V3: 500/95 in-lbs V4: 570/100 in-lbs	
	V4		30.0 - 30.6	S_u=1217/228 psf							
30			30.6 - 31.0								
	7D	24/24	34.0 - 36.0	Push thru vane						Dark brown, wet, stiff, Organic SILT, trace fine sand, with organic fibers, (Wetland Deposit). 65x130mm vane raw torque readings! V5: 540/100 in-lbs V6: 490/95 in-lbs	PI=30 LL=82 PL=52 A-7, OH WC=64.8
	V5		34.6 - 35.0	S_u=1121/217 psf							
35	V6		35.6 - 36.0								
	8D	24/24	39.0 - 41.0	Push thru vane						Dark brown, wet, stiff, Organic SILT, little fine sand, with organic fibers, (Wetland Deposit). 65x130mm vane raw torque readings! V7: 500/85 in-lbs V8: 480/100 in-lbs	
	V7		39.6 - 40.0	S_u=1145/195 psf							
40	V8		40.6 - 41.0	S_u=1099/228 psf							
								-38.7		-44.0	
	9D	24/24	44.0 - 46.0	Push thru vane						Grey, wet, stiff, Clayey SILT, some fine sand, (Marine Clay). 65x130mm vane raw torque readings! V9: 570/70 in-lbs	
45	V9		44.6 - 45.0	S_u=1217/169 psf			236				
	MV		45.0 - 45.2				170				
							145				
							153				
							RC				
50	2U	24/24	49.0 - 51.0	PUSH						Grey, wet, stiff, Clayey SILT, trace fine sand, (Marine Clay).	S_u(DSS)=1,000 psf
	10D	24/24	51.0 - 53.0	WOR-WOR-WOR-WOR						Grey, wet, Silty CLAY, some fine sand, (Marine Clay).	
	11D	24/24	54.0 - 56.0	Push thru vane						Brown, wet, stiff, Silty CLAY, (Marine Clay). 65x130mm vane raw torque readings! V10: 450/20 in-lbs V11: 540/40 in-lbs	PI=12 LL=32 PL=20 A-6, CL WC=31.3
55	V10		55.6 - 56.0	S_u=1030/47 psf							
	V11		55.6 - 56.0	S_u=1217/91 psf							
								-52.7		-58.0	
	12D	24/24	59.0 - 61.0	Push thru vane						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x130mm vane raw torque readings! V12: 420/20 in-lbs V13: 350/30 in-lbs	
60	V12		60.6 - 61.0	S_u=961/47 psf							
	V13		60.6 - 61.0	S_u=802/69 psf							
	13D	24/14	64.0 - 66.0	Push thru vane						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x130mm vane raw torque readings! V14: 310/20 in-lbs V15: 280/20 in-lbs	
65	V14		64.6 - 65.0	S_u=709/47 psf							
	V15		65.6 - 66.0	S_u=665/47 psf							
	3U	24/24	69.0 - 71.0	Push thru vane						Grey, wet, medium stiff, Silty CLAY, (Marine Clay).	
70											
	V16		71.6 - 72.0	S_u=618/69 psf						65x130mm vane raw torque readings! V16: 270/20 in-lbs V17: 500/60 in-lbs	
	V17		72.6 - 73.0	S_u=1145/137 psf							
75	14D	24/24	74.0 - 76.0	WOR-WOR-WOR-WOR							

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2. Automatic hammer NEBC *0.19 Energy Transfer Ratio = 0.895
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WIN: 23148.00

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Operator: Brad Enos	Datum: NAVD 88	Sampler:	Standard Split-spoon
Logged By: L. Navarrete	Rig Type: Track Mobile B-53	Hammer Wt./Fall:	140#/30"
Date Start/Finish: 10/23/19-10/26/19	Drilling Method: Drive & Wash	Core Barrel:	NX
Boring Location: Sta. 93+91.0, 27.1' Rt	Casing ID/OD: 4"/4.5"	Water Level *:	4.2'

Hammer Efficiency Factor: 0.895 Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

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Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in. / Pocket Penetrometer Strength (tsf) or RQD (%)	N-uncorrected	N60	Casing or Core Barrel	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
80	150	24/24	79.0 - 81.0	WOR-WOR-WOR-WOR						Grey, wet, medium stiff, Silty CLAY, (Marine Clay).	
85	16D	24/24	84.0 - 86.0	Push thru vane						Brown, wet, medium stiff, Silty CLAY, (Marine Clay). 65x130mm vane raw torque readings! V18: 100/30 in-lbs V19: 240/30 in-lbs	PI=19 LL=39 PL=20 A-6, CL WC=37.2
	V18		84.0 - 85.0	S_u=228/69 psf							
	V19		85.0 - 85.6	S_u=549/69 psf							
			85.6 - 86.0								
90	17D	24/24	89.0 - 91.0	Push thru vane						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x130mm vane raw torque readings! V20: 280/20 in-lbs V21: 320/20 in-lbs	
	V20		90.0 - 90.6	S_u=640/47 psf							
	V21		90.6 - 91.0	S_u=733/47 psf							
95	18D	24/24	94.0 - 96.0	Push thru vane						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x130mm vane raw torque readings! V22: 250/20 in-lbs V23: 270/20 in-lbs	
	V22		94.6 - 95.0	S_u=537/47 psf							
	V23		95.0 - 95.6	S_u=618/47 psf							
			95.6 - 96.0								
100	19D	24/24	99.0 - 101.0	Push thru vane						Grey, wet, medium stiff to stiff, Silty CLAY, (Marine Clay). 65x130mm vane raw torque readings! V24: 450/25 in-lbs V25: 350/20 in-lbs	PI=16 LL=38 PL=22 A-6, CL WC=30.5
	V24		99.6 - 100.0	S_u=1030/58 psf							
	V25		100.0 - 101.0	S_u=802/47 psf							
105	20D	24/24	104.0 - 106.0	Push thru vane						Dark grey, wet, stiff, Silty CLAY, (Marine Clay). 65x130mm vane raw torque readings! V26: 470/15 in-lbs V27: 450/15 in-lbs	
	V26		104.6 - 105.0	S_u=1077/36 psf							
	V27		105.0 - 106.0	S_u=1030/36 psf							
110	21D	24/24	109.0 - 111.0	Push thru vane						Dark grey, wet, stiff, Silty CLAY, (Marine Clay). 65x130mm vane raw torque readings! V28: 500/10 in-lbs V29: 510/10 in-lbs	
	V28		109.6 - 110.0	S_u=1145/22 psf							
	V29		110.0 - 110.6	S_u=1167/22 psf							
			110.6 - 111.0								
115	22D	24/24	114.0 - 116.0	Push thru vane						Dark grey, wet, medium stiff, Silty CLAY trace shells, (Marine Clay). 65x130mm vane raw torque readings! V30: 420/10 in-lbs V31: 410/10 in-lbs	
	V30		114.6 - 115.0	S_u=967/22 psf							
	V31		115.0 - 115.6	S_u=939/22 psf							
			115.6 - 116.0								
120	23D	24/24	119.0 - 121.0	WOR-WOR-WOR-WOR						Grey, wet, medium stiff, Silty CLAY trace shells, (Marine Clay).	PI=22 LL=47 PL=25 A-7, CL WC=45.1
125	24D	24/24	124.0 - 126.0	WOR-WOR-WOR-WOR						Dark grey, wet, soft, Silty CLAY trace shells, (Marine Clay).	
130											
135	25D	24/24	134.0 - 136.0	WOR-WOR-WOR-WOR						Grey, wet, medium stiff, Silty CLAY, (Marine Clay).	
140											
145	26D	24/24	144.0 - 146.0	WOR-WOR-WOR-WOR						Grey, wet, medium stiff, Silty CLAY, (Marine Clay).	
								-141.7		-147.0	
150	27D	8/8	149.0 - 149.5	12-79/0"			NX			Drill action suggests sand and gravel encountered at 147.0'.	
	RI	60/60		RQD = 92%				-144.2		Grey, wet, very dense, Gravelly fine to coarse SAND, little silt, (Glacial Till).	

Remarks:

1. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.
2. Automatic hammer NEBC *0.19 Energy Transfer Ratio = 0.895
3. Water level measured immediately after removal of casing.
4. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation
Soil/Rock Exploration Log
US CUSTOMARY UNITS
Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine
Boring No.: EB-KERP-101
WIN: 23148.00

Driller: New England Boring Contractors	Elevation (ft.): 5.3	Auger ID/OD:	4.25" OD SSA
Operator: Brad Enos	Datum: NAVD 88	Sampler:	Standard Split-spoon
Logged By: L. Navarrete	Rig Type: Track Mobile B-53	Hammer Wt./Fall:	140#/30"
Date Start/Finish: 10/23/19-10/26/19	Drilling Method: Drive & Wash	Core Barrel:	NX
Boring Location: Sta. 93+91.0, 27.1' Rt	Casing ID/OD: 4"/4.5"	Water Level *:	4.2'

Hammer Efficiency Factor: 0.895 Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample; SSA = Solid Stem Auger; R = Rock Core Sample; S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf); T_v = Pocket Torvane Shear Strength (psf)
WO = Unsuccessful Split Spoon Sample Attempt; HSA = Hollow Stem Auger; RC = Roller Cone; $S_{u(r)}$ = Lab Vane Undrained Shear Strength (psf); WC = Water Content, percent
U = Thin Wall Tube Sample; WOH = Weight of 140 lb. Hammer; N-uncorrected = Raw Field SPT N-value; q_u = Unconfined Compressive Strength (tsf); LL = Liquid Limit
W = Unsuccessful Thin Wall Tube Sample Attempt; WOR/C = Weight of Rods or Casing; Hammer Efficiency Factor = Rig Specific Annual Calibration Value; PL = Plastic Limit
V = Field Vane Shear Test; PP = Pocket Penetrometer; WOR = Weight of Rods; N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency; PI = Plasticity Index
WI = Unsuccessful Field Vane Shear Test Attempt; RQD = Length of Core Pieces > 4" / Length of Run; N_{60} = Hammer Efficiency Factor•N-uncorrected; G = Grain Size Analysis; C = Correlation Test

Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows / 6 in. / Pocket Penetrometer Strength (tsf) or RQD (%)	N-uncorrected	N60	Casing or Core Barrel	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
150			149.5 - 154.5							Lightspoon refusal at 149.5', probable top of rock. Advance rotor bit to 149.5' and set up to core.	
	R1	60/60	154.5 - 159.5	RQD = 93%				-149.5		R1: Hard, fresh, aphanitic to coarse grained, grey, SCHIST. Joints are close to moderately spaced, moderately dipping, undulating to planar, rough to smooth, fresh, partially open to open. Rock Quality = Excellent Recovery = 100% Rock Core Times (minsec): 149.5-150.5' (1:44), 150.5-151.5' (1:39), 151.5-152.5' (1:11), 152.5-153.5' (1:27), 153.5-154.5' (1:44) R2: Hard, fresh, aphanitic to coarse grained, grey, SCHIST, Joints are close, low angle, planar, smooth, discolored, partially open to open. Rock Quality = Excellent Recovery = 100% Rock Core Times (minsec): 154.5-155.5' (1:15), 155.5-156.5' (1:28), 156.5-157.5' (1:19), 157.5-158.5' (1:33), 158.5-159.5' (1:42)	
155											
								-154.2			
160											
165											
170											
175											
										-159.5 Bottom of Exploration at 159.5 feet below ground surface.	

Remarks:

1. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.
2. Automatic hammer NEBC *0.19 Energy Transfer Ratio = 0.895
3. Water level measured immediately after removal of casing.
4. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392901

WIN 23929.01

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER		
DESIGN-DETAILED	E. TOME	
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

BORING LOGS 3

SHEET NUMBER
28

PREPARED BY:
GZA

Filename: ...\Boring Logs Border.dgn Division: HIGHWAY Username: common Date:7/23/2021

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: BB-WPC-201
WIN: 23929.01

Driller:	New England Boring Contractor	Elevation (ft.):	6.6	Auger ID/OD:	4"
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Standard Spilltspoon
Logged By:	L. Navarrete	Rig Type:	Track B-53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	04/16/2021-04/17/2021	Drilling Method:	Drive & Wash	Core Barrel:	NQ
Boring Location:	Sta. 96+10.3, 16.9' RT	Casing ID/OD:	4"/4.5"	Water Level *:	5.3
Hammer Efficiency Factor:	0.818	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of Dre Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(rl)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*ECI*Cb-uncorrected
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows/.5ft or Pen. Resistance or RQD (in)	N-uncorrected	%Q	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA	5.9		7": Asphalt — 0.7'	
	10	24/12	1.0 - 3.0	21-26-19-12	45	61				Brown, dry, very dense, fine to coarse SAND, some gravel, little silt, (Fill).	
	20	24/12	3.0 - 5.0	15-12-24-36	36	49				Brown, dry, medium dense, gravely fine to coarse SAND, little silt, (Fill). (Bottom 4" wet)	•21-S-1531 A-1-b, SM WC=9.2
5	30	24/11	5.0 - 7.0	30-11-11-9	22	30	62			Brown, wet, dense, fine to coarse SAND, some gravel, little silt, (Fill).	
	40	24/9	7.0 - 9.0	7-16-18-11	34	46	134				
	50	24/9	9.0 - 11.0	10-14-16-11	30	41	70			Grey, wet, dense, fine to coarse SAND, little gravel, little silt, (Fill).	
10							50				
	60	24/7	11.0 - 13.0	12-17-23-8	40	55	120			Black/grey, wet, very dense, sandy GRAVEL, trace silt, (Fill).	•21-S-1532 A-1-a, GP-GM WC=10.1
	70	24/10	13.0 - 15.0	14-8-8-15	16	22	90			Black/grey, wet, medium dense, fine to coarse SAND, little gravel, little silt, (Fill).	
15							82				
							40	-9.4			
							88			Roller bit advancement increased from 15.0'-15.8', probable cobbles. Probable transition to organic silt at 16.0'. — 16.0	
							30				
							50				
	80	24/16	19.0 - 21.0	2-1-3-3	4	5	46			Black, wet, medium stiff, Organic SILT, some fine sand, trace organic fibers, (Wetland Deposit).	•21-S-1533 A-4(0) WC=52.7
20							RC				
	1U	24/24	24.0 - 26.0	PUSH						1U: Black, wet, stiff, organic SILT SS=110 mm vane row torque reading:	
	V1		26.6 - 27.0	S_u=1964/312 psf						V1: 44/7/ft-lbs	
	V2		27.6 - 28.0	S_u=1652/312 psf						V2: 37/7 ft-lbs	
	90 1-3	24/19	29.0 - 31.0	Push thru vane S_u=1562/268 psf						Black, wet, stiff, Organic SILT, some fine sand, little organic fibers, (Wetland Deposit). SS=110 mm vane row torque reading:	•21-S-1534 OH PI=29 LL=78 PL=49 WC=58.8
25	V4		29.6 - 30.0	S_u=1652/268 psf						V3: 35/6 ft-lbs V4: 37/6 ft-lbs	
			30.0 - 31.0								
	100 V5	24/24	34.0 - 36.0	Push thru vane S_u=1667/402 psf	-					Black, wet, stiff, Organic SILT, some fine sand, little organic fibers, (Wetland Deposit). SS=110 mm vane row torque reading: V5: 36/9 ft-lbs	
	V6		34.0 - 35.0	S_u=1518/268 psf	-					V6: 34/6 ft-lbs	
30	110	24/24	35.0 - 36.0	WOR-1-2-2	3	4				Black, wet, Organic SILT, some fine sand, little organic fibers, (Wetland Deposit).	
			36.0 - 38.0								
	120	24/7	38.0 - 40.0	WOR-3-2-1	5	7				Grey, wet, medium stiff, organic CLAYEY SILT, trace fine sand, trace wood fragments, (Wetland Deposit).	
35											
	130	24/24	40.0 - 42.0	1-2-2-2	4	5				Grey, wet, organic CLAYEY SILT, some to little fine sand, trace organic fibers, trace wood fragments, (Wetland Deposit).	•21-S-1535 WC=49.6
	140	24/0	42.0 - 44.0	WOH-WOH-1-2						No Recovery	
								-37.4			
40	150	24/16	44.0 - 46.0	8-4-12-10	16	22				Grey, wet, very stiff, Silty CLAY, little fine sand, trace wood fragments, (Marine Clay). — 44.0	•21-S-1536 A-4(0)
								-42.4			
45	160 V7	24/24	49.0 - 51.0	Push thru vane S_u=987/112 psf						Grey, wet, medium stiff, Silty CLAY, trace wood fragments, (Marine Clay). — 49.0 SS=110 mm vane row torque reading: V7: 205/30 in-lbs	G•21-S-1537 WC=30.2
	V8		49.8 - 50.0	S_u=875/112 psf						V8: 230/30 in-lbs	
			50.0 - 51.0								
50											
	2U V9	24/24	54.0 - 56.0	PUSH S_u=763/112 psf						2U: Grey, wet, medium stiff, Silty CLAY, (Marine Clay). SS=110 mm vane row torque reading: V9: 205/30 in-lbs	
	V10		55.0 - 55.8	S_u=839/147 psf						V10: 225/40 in-lbs	
			55.8 - 56.0								
55											
	170 V11	24/24	59.0 - 61.0	Push thru vane S_u=763/170 psf						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). SS=110 mm vane row torque reading: V11: 205/45 in-lbs	•21-S-1538 CL PI=21 LL=41 PL=20 WC=34.4
	V12		60.0 - 60.6	S_u=705/87 psf						V12: 190/50 in-lbs	
			60.6 - 61.0								
60											
	180 MV1	24/24	64.0 - 66.0	WOH-WOH-WOH-WOH	-					Grey, wet, Silty CLAY, (Marine Clay). MV1: Could not shear vane (Probable high sand content.)	
65											
	190 V13	24/24	69.0 - 71.0	Push thru vane S_u=875/187 psf						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). SS=110 mm vane row torque reading: V13: 235/50 in-lbs	•21-S-1539 WC=35.8
	V14		69.9 - 70.6	S_u=687/170 psf	-					V14: 687/170 in-lbs	
			70.6 - 71.0								
70											
	200 V15	24/24	74.0 - 76.0	Push thru vane S_u=687/147 psf			RC			Grey, wet, medium stiff, Silty CLAY, trace fine sand, (Marine Clay).	

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC4023 Energy transfer ratio = 0.818.
3. Water level measured immediately after removal of casing.
4. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

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Page 1 of 2
Boring No.: BB-WPC-201

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: BB-WPC-201
WIN: 23929.01

Driller:	New England Boring Contractor	Elevation (ft.):	6.6	Auger ID/OD:	4"
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Standard Spilltspoon
Logged By:	L. Navarrete	Rig Type:	Track B-53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	04/16/2021-04/17/2021	Drilling Method:	Drive & Wash	Core Barrel:	NQ
Boring Location:	Sta. 96+10.3, 16.9' RT	Casing ID/OD:	4"/4.5"	Water Level *:	5.3
Hammer Efficiency Factor:	0.818	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of Dre Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(rl)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*ECI*Cb-uncorrected
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows/.5ft or Pen. Resistance or RQD (in)	N-uncorrected	%Q	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
70	V16		74.6 - 75.0	S_u=839/147 psf						Note: 1/8" fine sand seam in bottom 2" of spoon. SS=110 mm vane row torque reading: V16: 225/40 in-lbs	
			75.6 - 76.0								
								-69.9		Increased roller bit resistance at 76.5'. Advanced roller bit to 79.0'. During advancement of 3" casing, casing sheared and could not be retrieved. Offset 5' and advanced roller bit to depth. See BB-WPC-201A log for details. — 76.5	
75								-72.4		Bottom of Exploration at 79.0 feet below ground surface. — 79.0	
80											
85											
90											
95											
100											

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC4023 Energy transfer ratio = 0.818.
3. Water level measured immediately after removal of casing.
4. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

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Page 2 of 2
Boring No.: BB-WPC-201

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: BB-WPC-201A
WIN: 23929.01

Driller:	New England Contractor	Elevation (ft.):	6.6	Auger ID/OD:	
Operator:		Datum:	NAVD 88	Sampler:	Standard Spilltspoon
Logged By:	L. Navarrete	Rig Type:	Track B-53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	04/07/2021-04/08/2021	Drilling Method:	Drive & Wash	Core Barrel:	NQ
Boring Location:	Sta. 96+10.3, 16.9' RT	Casing ID/OD:	4"/4.5"	Water Level *:	5.3
Hammer Efficiency Factor:	0.818	Hammer Type:	Automatic ☐ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of Dre Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(rl)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*ECI*Cb-uncorrected
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows/.5ft or Pen. Resistance or RQD (in)	N-uncorrected	%Q	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
70							RC			See BB-WPC-201 for soil descriptions from 0'-76.5' bgs. Advanced Roller bit to 76.6'; roller cone resistance increased. Dark grey rock in wash. advanced roller cone to 76.7'. Set up to core at 76.7'	
	R1	33/33	76.6 - 79.4	RQD = 12%	-		NQ	-70.0		— 76.6	
										R1: from 76.7 to 78.8' Hard, fresh to slightly weathered aphanitic to medium grained, grey, SCHIST. Primary joints are extremely close to close, moderately dipping, planar, rough to smooth, fresh to decomposed, very tight to tight. Secondary joints are very close to moderately spaced low angle, undulating, rough, fresh, tight to moderately wide, grey, SCHIST. From 78.8' to 79.1' Rock is fractured to gravel and coarse sand size pieces. From 79.1' to 79.5': Hard, fresh, aphanitic to fine grained, grey, SCHIST. Joints are close, low angle to moderately dipping, planar, rough, tight. Rock Quality = Very Poor Recovery = 100% Rock Core time (min/sec): 76.7'-77.7' (01:23), 77.7'-78.7'(01:19), 78.7'-79.5' (01:10) R2: Hard, fresh, aphanitic to fine grained, grey, SCHIST. Primary joints are close, moderately dipping, planar, smooth, fresh tight. Secondary joints are close to moderately spaced, low angle, inducting to planar, rough to smooth, tight to partially open. Rock Quality = Good Recovery = 93% Rock Core time (min/sec): 79.5'-80.5' (01:02), 80.5'-81.5' (01:46), 81.5'-82.5' (01:47), 82.5'-83.5' (02:13), 83.5'-84.0' (02:43) R3: Hard, fresh, aphanitic to fine grained, grey, SCHIST. Joints are close to moderately spaced, moderately dipping to high angle, planar, smooth, fresh, tight, Rock Quality = Good Recovery = 98% Rock Core time (min/sec): 84.0'-85.0' (01:54), 85.0'-86.0' (02:06), 86.0'-87.0' (02:00), 87.0'-87.5' (01:30)	
75	R2	54/51	79.5 - 84.0	RQD = 78%	-						
80											
	R3	42/41	84.0 - 87.5	RQD = 88%	-			-80.9			
85											
90										— 87.5 Bottom of Exploration at 87.5 feet below ground surface.	
95											
100											

Remarks:

1. Offset of BB-WPC-201
2. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1
Boring No.: BB-WPC-201A

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392901

WIN
23929.01

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER		
DESIGN-DETAILED	E. TOME	
CHECKED-REVIEWED	R. CARROLL	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

BORING LOGS 4

PREPARED BY:

GZA

SHEET NUMBER

29

Usernome: common Date:7/23/2021

Filename: ...\Boring Logs Border.dgn Division: HIGHWAY

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: BB-WPC-202
WIN: 23929.01

Driller:	New England Contractor	Elevation (ft.):	7.6	Auger ID/OD:	4.25"
Operator:	Matt Grass	Datum:	NAVD 88	Sampler:	Standard Spiltspoon
Logged By:	B. Woodman	Rig Type:	Track B-53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	03/31/2021-04/02/2021	Drilling Method:	Drive & Wash	Core Barrel:	NQ
Boring Location:	Sta. 96+94.1, 16.7' RT	Casing ID/OD:	3"/3.5"/4"/4.5"	Water Level *:	1.7'
Hammer Efficiency Factor:	0.852	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
q_u = Peak/Extended Field Vane Undrained Shear Strength (psf)
$S_{u(rt)}$ = Lab Vane Undrained Shear Strength (psf)
q_c = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*SPT-N-uncorrected
T_{pp} = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Pocket Penetrometer Strength or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
				Sample Information							
0											
	10	24/12	1.0 - 3.0	9-8-8-7	16	23					
5											
	20	24/14	5.0 - 7.0	10-11-10-22	21	30	13				
							19				
							21				
10							119/5				
							SPN				
15											
20											
	40	24/0	20.0 - 22.0	1-5-4-4	9	13					
25											
	50	24/24	25.0 - 27.0	1-1-2-3	3	4					
30											
	60	24/3	30.0 - 32.0	3-3-4-3	7	10					
35											
	70	24/24	35.5 - 37.5	WOH-2-3-5	5	7					
40											
	80	24/24	40.0 - 42.0	5-7-6-10	13	18					
45											
	90	24/24	45.0 - 47.0	WOH-1-4-3	5	7					
50											
	100	24/24	50.0 - 52.0	WOR-WOR-WOR-WOR							
55											
	110 V1	24/24	55.0 - 57.0	Push thru vane S_u=604/110 psf							
	V2		56.0 - 56.6 - 57.0	S_u=645/110 psf							
60											
	120 V3		60.6 - 61.0	Push thru vane S_u=783/110 psf							
	V4		61.6 - 62.0	S_u=892/110 psf							
65											
70											
	130 V5	24/24	70.0 - 72.0	Push thru vane S_u=687/110 psf							
	V6		71.0 - 71.6 - 72.0	S_u=687/110 psf							
75											

Asphalt — 1.0

Brown, dry, medium dense, fine to coarse SAND, little gravel, trace silt, (Fill). — G•21-S-1540 A-1-b, SP-SM WC=6.4

Brown, dry, medium dense, gravelly fine to coarse SAND, trace silt, (Fill).

Brown, wet, medium dense, fine to coarse SAND, little gravel, trace silt, (Fill).

Intermittent roller bit resistance from 12.5'-19.6' indicating probable cobbles and boulders.

19.6

Based on roller bit advancement and change in wash return color from brown to black, probable strata change at 19.6'. No Recovery.

12.0

Dark brown, moist, medium stiff to stiff, sandy Organic SILT, (Wetland Deposit). — G•21-S-1541 A-5

Dark brown, moist, loose, sandy Organic SILT, (Wetland Deposit).

Top 22": Dark brown, moist, loose, sandy Organic SILT, (Wetland Deposit).

29.7

Bottom 2": Grey, moist, medium stiff, Silty CLAY, little fine sand, (Marine Clay). — 37.3

Grey, moist, very stiff, Silty CLAY, little fine sand, (Marine Clay).

Grey, moist, medium stiff, Silty CLAY, little fine sand (Marine Clay). — •21-S-1542 GL Pl=18 LL=42 PL=24 WC=33.5

39.4

47.0

Grey, moist, medium stiff, Silty CLAY, (Marine Clay).

Grey, moist, medium stiff, Silty Clay, (Marine Clay). 65x130 mm vane row torque reading: V1: 28.5/4 ft-lbs — •21-S-1543 GL Pl=27 LL=48 PL=21 WC=41.3

V2: 32.5/4 ft-lbs.

Grey, moist, medium stiff, Silty CLAY, (Marine Clay) 65x130 mm vane row torque reading: V3: 25/4 ft-lbs

V4: 25/4 ft-lbs

Grey, moist, medium stiff, Silty CLAY, (Marine Clay) 65x130 mm vane row torque readings: V5: 25/4 ft-lbs — •21-S-1544 WC=35.3

V6: 25/4 ft-lbs

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC#1, energy transfer ratio = 0.852
3. Water level measured immediately after removal of casing.
4. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 2
Boring No.: BB-WPC-202

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: BB-WPC-202
WIN: 23929.01

Driller:	New England Contractor	Elevation (ft.):	7.6	Auger ID/OD:	4.25"
Operator:	Matt Grass	Datum:	NAVD 88	Sampler:	Standard Spiltspoon
Logged By:	B. Woodman	Rig Type:	Track B-53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	03/31/2021-04/02/2021	Drilling Method:	Drive & Wash	Core Barrel:	NQ
Boring Location:	Sta. 96+94.1, 16.7' RT	Casing ID/OD:	3"/3.5"/4"/4.5"	Water Level *:	1.7'
Hammer Efficiency Factor:	0.852	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
q_u = Peak/Extended Field Vane Undrained Shear Strength (psf)
$S_{u(rt)}$ = Lab Vane Undrained Shear Strength (psf)
q_c = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*SPT-N-uncorrected
T_{pp} = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Pocket Penetrometer Strength or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
				Sample Information							
75											
	140	24/14	80.0 - 82.0	WOH-WOH-WOH-WOH							
80											
							NQ	-75.2		Top 6": Grey, moist, Silty CLAY, (Marine Clay). Bottom 18": Grey, moist, Silty CLAY, some fine sand, (Marine Clay).	•21-S-1545 A-4(0)
										Increased roller bit resistance at 82.8'. Probable top of rock. Advanced roller bit to 84' and set up to core.	
85								-82.8			
	R1	41/48	85.0 - 88.4	RQD = 59%						R1: Hard, fresh to slightly weathered, fine to medium grained, gray and black, SCHIST with quartz. Joints are very close to close, moderately dipping to high angle, undulating, rough, open with silt infilling. Recovery = 91% Rock Quality = Fair Rock Core Times (min/sec): 84-85' (2:28), 85-86' (1:38), 86-87' (1:58), 87-88' (2:24), 88-88.4' (1:04)	
	R2	61/61	88.4 - 93.5	RQD = 62%						R2: Hard, fresh to slightly weathered, fine to medium grained, SCHIST with quartz. Joints are very close to moderately spaced, undulating, rough, open. Recovery = 100% Rock Quality = Fair Rock Core Times (min/sec): 88.4-89.4' (2:09), 89.4-90.4' (2:12), 90.4-91.4' (1:25), 91.4-92.4' (1:50), 92.4-93.4' (1:46), 93.4-93.5' (0:10)	
90								-85.9			
								-93.5		Bottom of Exploration at 93.5 feet below ground surface.	
95											
100											

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC#1, energy transfer ratio = 0.852
3. Water level measured immediately after removal of casing.
4. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 2 of 2
Boring No.: BB-WPC-202

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: BB-WPC-203
WIN: 23929.01

Driller:	New England Contractor	Elevation (ft.):	8.0	Auger ID/OD:	
Operator:	Tom Schaffer	Datum:	NAVD 88	Sampler:	Standard Spiltspoon
Logged By:	B. Woodman	Rig Type:	Track B-53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	04/06/2021-04/07/2021	Drilling Method:	Drive & Wash	Core Barrel:	NX
Boring Location:	Sta. 96+97.0, 16.5' RT	Casing ID/OD:	3"/3.5"/4"/4.5"	Water Level *:	5.3
Hammer Efficiency Factor:	0.852	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
q_u = Peak/Extended Field Vane Undrained Shear Strength (psf)
$S_{u(rt)}$ = Lab Vane Undrained Shear Strength (psf)
q_c = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*SPT-N-uncorrected
T_{pp} = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Pocket Penetrometer Strength or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
				Sample Information							
0											
	10	16/10	1.0 - 2.3	71-62-76/4"	-						
	20	3/3	3.0 - 3.3	52/3"	-						
5											
	30	8/6	5.5 - 6.2	107-35/2"	-						
	40	24/7	8.0 - 10.0	8-7-8-6	15	21					
10											
	50	24/0	10.0 - 12.0	4-16-7-3	23	33					
	60	24/3	13.0 - 15.0	5-1-1-3	2	3					
15							SPN				
	70	24/6	15.0 - 17.0	5-1-1-1	2	3	RC				
20											
	80	24/10	20.0 - 22.0	3-2-2-1	4	6					
25											
	90	24/16	25.0 - 27.0	WOH-WOH-3-2							
30											
	100	24/9	30.0 - 32.0	WOH-WOH-WOH-1	-						
35											
	110	24/24	35.0 - 37.0	WOH-WOH-WOH-1							
40											
	120	24/24	40.0 - 42.0	2-2-6-4	8	11					
45											
	130	24/24	45.0 - 47.0	WOH-5-5-6	10	14					
50											
	140	24/24	50.0 - 52.0	WOH-WOH-WOH-4	-						
55											
	150	24/24	55.0 - 57.0	WOR-WOR-WOR-WOR	-						
60											
	160 V1	24/24	60.0 - 62.0	Push thru vane S_u=841/110 psf							
	V2		61.0 - 61.6 - 62.0	S_u=879/110 psf							
65											
	170 V3	24/24	65.0 - 67.0	Push thru vane S_u=632/124 psf							
	V4		66.0 - 66.6 - 67.0	S_u=714/124 psf							
70											
	180 V5	24/24	70.0 - 72.0	Push thru vane S_u=687/137 psf							
	V6		71.0 - 71.6 - 72.0	S_u=714/124 psf							
75											

Asphalt — 0.9

Brown, dry, fine to coarse SAND, some gravel, trace silt, with probable cobbles, (Fill). — G•21-S-1546 A-1-b, SM WC=3.2

Brown, dry, fine to coarse SAND, some gravel, trace silt, with probable cobbles, (Fill).

Brown, dry, fine to coarse SAND, some gravel, trace silt, with probable cobbles, (Fill). — 6.5

Intermittent roller bit resistance from 6.5'-8.0' indicating probable cobbles and boulders.

Brown, wet, medium dense, fine to coarse SAND, some gravel, trace silt, (Fill). — 8.0

Black/brown, wet, medium dense, GRAVEL, (Fill).

12.5

Dark brown, wet, soft, organic SILT, little sand, (Wetland Deposit).

Dark brown, wet, soft, organic SILT, little sand, little gravel, (Wetland Deposit).

Dark brown, moist, medium stiff, Sandy SILT, little organics, (Wetland Deposit). — G•21-S-1547 A-5

Dark brown, moist, soft, Sandy SILT, some organic fibers, with wood fragments from 25.9'-26.2', (Wetland Deposit).

Dark brown, moist, soft, Sandy SILT, trace organics, (Wetland Deposit). — •21-S-1546 ML PI=NP WC=44.8

Dark brown, moist, soft, Sandy SILT, trace organic fibers, (Wetland Deposit).

Dark brown, moist, soft, Sandy SILT, trace organic fibers, (Wetland Deposit).

Top 27": Dark brown to grey, wet, stiff, Sandy SILT, trace organic fibers, (Wetland Deposit).

33.7

Bottom 3": Grey, wet, Silty CLAY, trace fine sand, (Marine Clay). — 41.7

Grey, wet, stiff, Silty CLAY, trace fine sand, (Marine Clay) — •21-S-1549 WC=26.5

46.0

54.0

Grey, moist, Silty CLAY, trace gravel, (Marine Clay).

Grey, wet, Silty CLAY, (Marine Clay). — •21-S-1550 WC=35.3

Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x130 mm vane row torque reading: V1:31/4 ft-lbs — •21-S-1551 GL Pl=25 LL=49 PL=19 WC=38.1

V2: 32/4 ft-lbs.

Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x130 mm vane row torque reading: V3:23/4.5 ft-lbs.

V4: 26/4.5 ft-lbs.

Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 65x130 mm vane row torque reading: V5: 25/5 ft-lbs.

V6: 26/4.5 ft-lbs.

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC#1, energy transfer ratio = 0.852
3. Water level measured immediately after removal of casing.
4. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 2
Boring No.: BB-WPC-203

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: BB-WPC-203
WIN: 23929.01

Driller:	New England Contractor	Elevation (ft.):	8.0	Auger ID/OD:	
Operator:	Tom Schaffer	Datum:	NAVD 88	Sampler:	Standard Spiltspoon
Logged By:	B. Woodman	Rig Type:	Track B-53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	04/06/2021-04/07/2021	Drilling Method:	Drive & Wash	Core Barrel:	NX
Boring Location:	Sta. 96+97.0, 16.5' RT	Casing ID/OD:	3"/3.5"/4"/4.5"	Water Level *:	5.3
Hammer Efficiency Factor:	0.852	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
q_u = Peak/Extended Field Vane Undrained Shear Strength (psf)
$S_{u(rt)}$ = Lab Vane Undrained Shear Strength (psf)
q_c = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*SPT-N-uncorrected
T_{pp} = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Pocket Penetrometer Strength or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
				Sample Information							
75											
								-67.5		Increased roller bit resistance at 75.5' indicates intrata break, probable Glacial Till.	
80											
								-75.5			
	R1	56/56	79.8 - 84.5	RQD = 11%			NR	-71.3		Increased roller bit resistance at 79.3', probable top of rock. Roller cone to 79.8'. Set up to core at 79.8'. R1: Hard, fresh to slightly weathered, fine to medium grained, grey, SCHIST with quartz. Joints are very close to close, moderately dipping to high angle, undulating, rough, open. Rock Quality = Very Poor Recovery = 100% Rock Core time (min/sec): 79.8'-80.8' (2:50), 80.8'-81.8' (1:30), 81.8'-82.8' (1:50), 82.8'-83.8' (1:40, 83.8'-84.5' (2:01)	
85								-79.3			
	R2	36/36	84.5 - 87.5	RQD = 53%						R2: Hard, fresh to slightly weathered, fine to medium grained, SCHIST with quartz. Joints are very close to close, moderately dipping, undulating, rough, open, with some silt infilling. Rock Quality = Fair Recovery = 100% Rock Core time (min/sec): 84.5-85.5' (1:46), 85.5-86.5' (1:54), 86.5-87.5' (1:34)	
	R3	36/36	87.5 - 90.5	RQD=44%				-82.5		R3: Hard, fresh to slightly weathered, fine to medium grained, grey, SCHIST with quartz.Joints are close, low angle to moderately dipping, undulating, rough, open. Rock Quality = Poor Recovery = 100% Rock Core time (min/sec): 87.5'-88.5' (1:30), 88.5'-89.5' (1:43), 89.5'-90.5' (1:30)	
90								-90.5		Bottom of Exploration at 90.5 feet below ground surface.	
95											
100											

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC#1, energy transfer ratio = 0.852
3. Water level measured immediately after removal of casing.
4. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 2 of 2
Boring No.: BB-WPC-203

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392901
WIN 23929.01
BRIDGE PLANS

PROJ. MANAGER			DATE
DESIGN-DETAILED	E. TOME	BY	
CHECKED-REVIEWED	B. CARROLL		
DESIGN2-DETAILED2			SIGNATURE
DESIGN3-DETAILED3			
REVISIONS 1			P.E. NUMBER
REVISIONS 2			
REVISIONS 3			DATE
REVISIONS 4			
FIELD CHANGES			

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

BORING LOGS 5

PREPARED BY:
GZA

SHEET NUMBER
30

Filename: ...\Boring Logs Border.dgn Division: HIGHWAY Username: common Date:7/23/2021

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: EB-KERP-102
WIN: 23148.00

Driller: New England Boring Contractors	Elevation (ft.): 10.0	Auger ID/OD: 4.25" OD SSA	
Operator: Brad Enos	Datum: NAVD 88	Sampler: Standard Spilltspoon	
Logged By: L. Navarrete	Rig Type: Track Mobile B-53	Hammer Wt./Fall: 140#/30"	
Date Start/Finish: 10/22/19-10/23/19	Drilling Method: Drive & Wash	Core Barrel: NX	
Boring Location: Sta. 97+69.7, 17.8' Rt	Casing ID/OD: 4"/4.5"	Water Level *1: 3.2'	
Hammer Efficiency Factor: 0.895	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
W = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
S_u = Peak-Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(rt)}$ = Lab Vane Undrained Shear Strength (psf)
N = uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*ROT*N-uncorrected
T_w = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Spoon Strength or RQD (/)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	10	24/8	0.5 - 2.5	9-12-12-11	24	36	SSA	9.5		ASPHALT 0.5	
										Brown, dry, dense, Sandy GRAVEL, trace silt, (Fill).	C=19-5-2836 A-1-a, GP-GM WC=2.4
5	20	12/8	4.0 - 5.0	2-50/6"	--		SPN			Brown, moist, very dense, fine to coarse SAND, some silt, little fine gravel, (Fill).	C=19-2-2837 A-2-4(0), SM WC=17.2
10	30	24/9	9.0 - 11.0	5-6-4-6	10	15				Brown, wet, medium dense, Sandy GRAVEL, trace silt, (Fill).	C=19-5-2838 A-1-a, GP-GM WC=9.0
										Roller bit action indicates gravel and cobbles from 12.0'-17.6'.	
15	40	24/6	14.0 - 16.0	21-8-7-11	15	22				Grey-orange, wet, medium dense, GRAVEL, little fine to coarse sand, (Fill).	
								-17.6			
20	50	24/10	19.0 - 21.0	7-2-2-2	4	6		-7.6		Black, wet, stiff, Organic SILT, trace fine sand, (Wetland Deposit).	
25	TU	24/24	24.0 - 26.0	PUSH						Black, wet, stiff, Organic SILT, trace fine sand, with organic fibers, (Wetland Deposit).	
	V1		26.6 - 27.0	S_u=1145/332 psf						65x130mm raw vane torque readings: V1: 500/145 in-lbs V2: 480/130 in-lbs	
	V2		27.6 - 28.0	S_u=1099/297 psf							
30	60	24/24	29.0 - 31.0	WOH-WOH-2-3	2	3				Brown, wet, stiff, Organic SILT, trace fine sand, with organic fibers, (Wetland Deposit).	PI=37 LL=93 PL=56 A-7, OH WC=62.9
35	MV1 *2	24/24	34.0 - 34.1 36.0 - 36.0	WOH-1-3-3	4	6				Black, wet, stiff, Organic SILT, trace fine sand, with organic fibers, (Wetland Deposit). Wood fragment in spoon tip.	
								-27.5			
40	BD MV2	24/21	39.0 - 41.0 39.9 - 39.1	3-5-7-7	12	18				Grey, wet, very stiff, Silty CLAY, (Marine Clay).	
								-34.0			
45	90	24/24	44.0 - 46.0	1-1-3-1	4	6		-44.0		Grey, wet, medium stiff, Silty CLAY, (Marine Clay).	PI=14 LL=32 PL=18 A-6, CL WC=28
	MV3 100 *1	3/3 6/6 60/60	49.0 - 49.3 49.3 - 49.5 49.5 - 54.5	1-50/0" RQD = 78%			HW-NX	-39.5		Hammer action indicates bedrock at 49.5'. Set up to core at 49.5'.	
50								-49.5		R1: Very hard, fresh, aphanitic to coarse grained, grey, SCHIST. Primary joints are close, low angle, undulating, rough, fresh, partially open. Secondary joint is moderately dipping, planar, smooth, fresh, partially open. Rock Mass Quality = Good Recovery = 100/ Rock Core Times (min/sec): 49.5-50.5' (1'56), 50.5-51.5' (1'48), 51.5-52.5' (1'07), 52.5-53.5' (1'50), 53.5-54.5' (1'26)	
55	R2	60/60	54.5 - 59.5	RQD = 78%						R2: Very hard, fresh, aphanitic to coarse grained, grey, SCHIST. Joints are close to moderately spaced, moderately dipping, planar, smooth, fresh to discolored, tight to open. Rock Quality = Good Recovery = 100/ Rock Core Times (min/sec): 54.5-55.5' (2'00), 55.5-56.5' (1'29), 56.5-57.5' (1'03), 57.5-58.5' (1'26), 58.5-59.5' (1'16)	
60								-59.5		Bottom of Exploration at 59.5 feet below ground surface.	
65											
70											

Remarks:
1. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.
2. Automatic hammer NEBC *019 Energy Transfer Ratio = 0.895
3. Water level measured immediately after removal of casing.
4. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1
Boring No.: EB-KERP-102

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: HB-WPC-204
WIN: 23929.01

Driller: New England Contractor	Elevation (ft.): 15.2	Auger ID/OD: 4"	
Operator: Matt Grass	Datum: NAVD 88	Sampler: Standard Spilltspoon	
Logged By: B. Woodman	Rig Type: Track B-53 Mobile	Hammer Wt./Fall: 140#/30"	
Date Start/Finish: 03/30/2021-03/31/2021	Drilling Method: Drive & Wash	Core Barrel: NX	
Boring Location: Sta. 98+93.6, 16.9' RT	Casing ID/OD: 4"/4.5"	Water Level *1: NA	
Hammer Efficiency Factor: 0.852	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
W = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
S_u = Peak-Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(rt)}$ = Lab Vane Undrained Shear Strength (psf)
N = uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*ROT*N-uncorrected
T_w = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Spoon Strength or RQD (/)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	10	24/14	0.5 - 2.5	10-13-15-18	18	26	SSA	14.7		Asphalt 0.5	
										Brown, dry, medium dense, fine to coarse SAND, some gravel, little silt, (Fill).	C=21-5-1529 A-1-b, SM WC=4.0
5	20	24/19	5.0 - 7.0	4-4-7-10	11	16	24			Brown, dry, medium dense, fine to coarse SAND, little gravel, little silt, (Fill).	
							52				
							62				
							65				
10	30	24/7	10.0 - 12.0	16-7-6-8	13	18	28			Brown and light brown, wet, medium dense, fine to coarse SAND, some gravel, trace silt, (Fill).	
							93				
							87				
							132/1			Intermittent roller bit resistance from 12.6'-13.8' indicating probable cobbles and boulders.	
15	40	24/9	15.0 - 17.0	5-7-19-24	26	37	-			Brown, wet, dense, fine to coarse SAND, some silt, little gravel, (Fill).	
							29	-2.3			
							75			Interpreted strata change at 17.5' based on increased roller bit advancement and change in wash return.	
							112	-17.5			
20	50	24/14	20.5 - 22.5	5-4-3-5	7	10	21			Dark brown, moist, stiff, Sandy organic SILT, (Wetland Deposit).	
							33				
							23				
							25	-8.8		Interpreted strata change at 24.0' based on change in wash return color from dark brown to grey.	
							31	-24.0			
25	60	7/5	25.4 - 26.0	5-37/1"			RC	-10.4		Grey, wet, Silty CLAY, (Glacial Till). Spilltspoon refusal at 25.6'. Probable top of rock.	
								-25.6		Roller cone to 25.8'. Based on roller cone resistance, bedrock appears highly fractured. Advanced roller bit to 27'. Set up to core at 27'.	
	R1	60/59	27.0 - 32.0	RQD = 98%			NX			R1: Hard, fresh to slightly weathered, fine grained, grey, SCHIST. Joints are close to widely spaced, moderately dipping, undulating, rough, open. Rock Quality = Excellent Recovery = 98/ Rock Core Times (min/sec): 27'-28' (1:37), 28'-29' (1:38), 29'-30' (1:44), 30'-31' (1:43), 31'-32' (1:32)	
30											
	R2	60/60	32.0 - 37.0	RQD = 73%						R2: Hard, fresh to slightly weathered, fine to medium grained, grey, SCHIST. Joints are very close to wide, moderately dipping, undulating, rough, open, with little silt infilling. Rock Quality = Fair Recovery = 100/ Rock Core Times (min/sec): 32'-33' (0:50), 33'-34' (1:29), 34'-35' (1:31), 35'-36' (2:18), 36'-37' (1:49)	
35								21.8			
								-37.0		Bottom of Exploration at 37.0 feet below ground surface.	
40											
45											
50											
55											
60											
65											
70											

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC*1, energy transfer ratio = 0.852
3. Water level measured immediately after removal of casing.
4. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
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Page 1 of 1
Boring No.: HB-WPC-204

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: HB-WPC-205
WIN: 23929.01

Driller: New England Boring Contractor	Elevation (ft.): 23.8	Auger ID/OD: -	
Operator: Matt Grass	Datum: NAVD 88	Sampler: Standard Spilltspoon	
Logged By: B. Woodman	Rig Type: Track B-93 Mobile	Hammer Wt./Fall: 140#/30"	
Date Start/Finish: 03/29/2021-03/30/2021	Drilling Method: Drive & Wash	Core Barrel: NX	
Boring Location: Sta. 100+52.2, 16.4' RT	Casing ID/OD: 4"/4.5"	Water Level *1: 8.9	
Hammer Efficiency Factor: 0.852	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
W = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
S_u = Peak-Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(rt)}$ = Lab Vane Undrained Shear Strength (psf)
N = uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*ROT*N-uncorrected
T_w = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Spoon Strength or RQD (/)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	10	24/6	1.5 - 3.5	11-12-16-11	28	40		22.9		Asphalt 0.9	
										Brown, dry, dense, fine to coarse SAND, little gravel, trace silt, (Fill).	
5	20	24/9	5.0 - 7.0	8-16-17-15	33	47	67			Brown, moist, dense, gravelly fine to coarse SAND, some silt, (Fill).	C=21-5-1530 A-1-b, SM WC=6.6
							68				
							14				
							17				
10	30	24/6	10.0 - 12.0	2-1-1-1	2	3	28			Olive-brown, moist, very loose, Silty fine to coarse SAND, some clay, trace gravel, (Fill).	
							22				
							25				
							25				
15	40	24/5	15.0 - 17.0	WOH-WOH-2-5	-		29			Olive-brown, wet, very soft, Silty CLAY, some medium to coarse sand, trace gravel, (Fill).	
							42				
							47				
							40				
							60	3.8			
20	50	24/8	20.0 - 22.0	7-8-8-8	16	23	76	-20.0		Olive-brown, moist, stiff, Clayey SILT, trace fine sand, trace gravel, (Wetland Deposit).	
							66				
							64				
							88				
							125	-1.2			
25	60	24/17	25.0 - 27.0	33-38-41-29	79	112	RC	-25.0		Very Brown, Moist, Very Dense, Fine To Coarse SAND, some silt, trace gravel, (Glacial Till).	
								4.9			
								-28.7		Roller cone resistance increased at 28.7'. Probable top of rock. Rig chatter indicates highly fractured rock. Roller cone to 30'. Set up to core at 30'.	
	R1	60/60	30.0 - 35.0	RQD = 37%			NX			R1: Hard, fresh to slightly weathered, fine to coarse grained, white and grey, SCHIST. Joints are extremely close to moderately spaced, low angle to moderately dipping, undulating, rough, open, with some silt infilling. Rock Quality = Poor Recovery = 100/ Rock Core Times (min/sec): 30'-31' (1:20), 31'-32' (1:24), 32'-33' (1:28), 33'-34' (1:21), 34'-35' (1:16)	
30											
	R2	60/48	35.0 - 40.0	RQD = 58%						R2: Hard, fresh to slightly weathered, fine to coarse grained, white and grey, SCHIST. Joints are close to moderately spaced, low angle to moderately dipping, undulating, rough, open, with sand and silt infilling. Rock Quality = Fair Recovery = 80/ Rock Core Times (min/sec): 35'-36' (0:43), 36'-37' (1:00), 37'-38' (1:12), 38'-39' (1:04), 39'-40' (1:10)	
35								16.2			
								-40.0		Bottom of Exploration at 40.0 feet below ground surface.	
40											
45											
50											
55											
60											
65											
70											

Remarks:
1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC*1, energy transfer ratio = 0.852
3. Water level measured immediately after removal of casing.
4. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
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Page 1 of 1
Boring No.: HB-WPC-205

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392901

WIN
23929.01

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	E. TOME	
DESIGN-DETAILED	B. CARROLL	
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

BORING LOGS 6

PREPARED BY:
GZA

SHEET NUMBER
31

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: BB-WPC-301
WIN: 23929.01

Driller:	New England Boring	Elevation (ft.):	4.8	Auger ID/OD:	-
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Standard Spilspoon
Logged By:	L. Navarrete	Rig Type:	Truck B-53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	03/31/2021 - 04/01/2021	Drilling Method:	Drive & Wash	Core Barrel:	NQ
Boring Location:	Sta. 501+15.4, 22.0' LT	Casing ID/OD:	4"/4.5"	Water Level *:	3.5
Hammer Efficiency Factor:	0.818	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
UW = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
S_u = Peak/Remolded Field vane Undrained Shear Strength (psf)
$S_{u(LAB)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*N(Unc)-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows/ (6 in.) Shear Strength or RQD (if)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-3-5-4	8	11	SSA			Brown, moist, medium dense, silty, fine to coarse SAND, trace gravel, some organic fibers, (Fill).	
5	2D	24/7	4.0 - 6.0	2-10-7-9	17	23				Brown, wet, medium dense, GRAVEL, some fine to coarse sand, some silt, (Fill).	
							170				
							195				
							123				
10	3D	24/6	9.0 - 11.0	14-36-10-4	46	63	16			Grey, wet, dense, fine to coarse SAND, little gravel, little silt, (Fill).	
							26				
							17				
							20	-7.7			
							28			-12.5	
15	MV1 4D	24/0	14.0 - 14.0 to 16.0	2-1-1-1	2	3	RC			Interpreted change in material based on wash return and roller bit advancement. MV1: Could not advance vane. No Recovery.	
20	5D V1	24/24	19.0 - 21.0	Push thru Vane S_u=1562/312 psf	-					Black, wet, stiff, organic SILT, little to trace fine sand, little organic fibers, (Wetland Deposit). 65x110 mm vane row torque reading: V1: 35/7 ft-lbs	
	V2		20.0 - 21.0	S_u=1652/268 psf						V2: 37/6 ft-lbs	
25	6D V3	24/24	24.0 - 26.0	Push thru Vane S_u=1250/223 psf						Black, wet, stiff, organic SILT, little to trace, fine sand, little organic fibers, (Wetland Deposit). 65x110 mm vane row torque reading: V3: 28/5 ft-lbs	
	V4		25.0 - 26.0	S_u=1250/223 psf						V4: 25/4 ft-lbs	
30	7D V5	24/24	29.0 - 31.0	Push thru Vane S_u=1339/179 psf						Black, wet, stiff, organic SILT, trace fine sand, trace organic fibers, (Wetland Deposit). 65x110 mm vane row torque reading: V5: 30/5 ft-lbs	
	V6		30.0 - 31.0	S_u=1116/223 psf						V6: 25/4 ft-lbs	
35	8D V7	24/24	34.0 - 36.0	Push thru Vane S_u=1116/223 psf						Black, wet, stiff, organic SILT, trace fine sand, trace organic fibers, (Wetland Deposit). 65x110 mm vane row torque reading. V7: 25/4 ft-lbs	
	V8		34.5 - 36.0	S_u=1116/223 psf						V8: 25/4 ft-lbs	
40	9D V9	24/24	39.0 - 41.0	Push thru Vane S_u=1161/223 psf						Dark grey, stiff, organic SILT, trace fine sand, (Wetland Deposit) 65x110 mm vane row torque reading: V9: 26/4 ft-lbs	
	V10		40.0 - 41.0	S_u=1161/223 psf						V10: 26/4 ft-lbs	
								-37.7		-42.5	
45	10D V11		44.0 - 44.4 to 45.0	BOH-2-6-5 S_u=802/267 psf						Grey, wet, stiff, Silty CLAY, trace organic fibers, (Marine Clay). 55x110 mm vane row torque reading: V11: 27/8 ft-lbs	
	MV2									MV2: Could not advance vane.	
50	11D V12	24/24	49.0 - 51.0	Push thru Vane S_u=1429/223 psf						Grey, wet, stiff, Silty CLAY, trace fine sand, trace organic fibers, (Marine Clay). 55x110 mm vane row torque reading: V12: 32/4 ft-lbs	
	V13		49.9 - 50.0 to 51.0	S_u=1116/223 psf						V13: 25/4 ft-lbs	
55	12D V14	24/17	54.0 - 56.0	Push thru Vane S_u=804/89 psf						Grey, wet, medium stiff, Silty CLAY, trace fine sand, (Marine Clay). 55x110 mm vane row torque reading: V14: 18/2 ft-lbs	
	V15		54.9 - 55.0 to 56.0	S_u=839/94 psf						V15: 225/25 in-lbs	
60	13D V16	24/24	59.0 - 61.0	Push thru Vane S_u=594/94 psf						Dark grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane row torque reading: V16: 160/25 in-lbs	
	V17		60.0 - 61.0	S_u=558/76 psf						V17: 150/20 in-lbs	
65	14D V18	24/24	64.0 - 66.0	Push thru Vane S_u=523/76 psf						Dark grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane row torque reading: V18: 140/20 in-lbs	
	V19		65.0 - 66.0	S_u=504/94 psf						V19: 135/25 in-lbs	
70	15D V20	24/24	69.0 - 71.0	Push thru Vane S_u=1920/268 psf						Dark grey, wet, stiff, Silty CLAY, with occasional sand seams, (Marine Clay). 55x110 mm vane row torque reading: V20: 43/6 ft-lbs	
	V21		70.0 - 71.0	S_u=1205/268 psf						V21: 27/6 ft-lbs	

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC4023 Energy transfer ratio = 0.818.
3. Water level measured immediately after removal of casing.
4. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: Pleasant Cove Bridge (Kennebec Estuary Project)
Location: Woolwich, Maine

Boring No.: BB-WPC-301
WIN: 23929.01

Driller:	New England Boring	Elevation (ft.):	4.8	Auger ID/OD:	-
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Standard Spilspoon
Logged By:	L. Navarrete	Rig Type:	Truck B-53 Mobile	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	03/31/2021 - 04/01/2021	Drilling Method:	Drive & Wash	Core Barrel:	NQ
Boring Location:	Sta. 501+15.4, 22.0' LT	Casing ID/OD:	4"/4.5"	Water Level *:	3.5
Hammer Efficiency Factor:	0.818	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
UW = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
S_u = Peak/Remolded Field vane Undrained Shear Strength (psf)
$S_{u(LAB)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*N(Unc)-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows/ (6 in.) Shear Strength or RQD (if)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
80	16D V22	24/24	79.0 - 81.0	Push thru Vane S_u=558/172 psf						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane row torque reading: V22: 150/30 in-lbs	
	V23		80.0 - 80.6 - 81.0	S_u=558/94 psf						V23: 150/25 in-lbs	
85											
90	17D V24	24/24	89.0 - 91.0	Push thru Vane S_u=778/76 psf						Grey, wet, medium stiff, Silty CLAY, (Marine Clay). 55x110 mm vane row torque reading: V24: 195/20 in-lbs	
	V25		90.0 - 90.6 - 91.0	S_u=763/58 psf						V25: 205/15 in-lbs	
95											
100	18D V26	24/24	99.0 - 101.0	Push thru Vane S_u=1116/58 psf						Dark grey, wet, stiff, Silty CLAY, (Marine Clay). 55x110 mm vane row torque reading: V26: 300/15 in-lbs	
	V27		100.0 - 100.6 - 101.0	S_u=1295/45 psf						V27: 291/1 ft-lbs	
105											
110	19D R1	9/9 60/60	106.0 - 106.8 - 111.8	20-50/3" RQD = 34%	R		NX	-101.4		Top 2": grey, wet, Silty CLAY, (Marine Clay).	
								-102.0		Bottom 7": Grey, wet, sandy GRAVEL, trace silt, (Glacial Till). -106.2	
										Spilspoon refusal at 106.8'. Probable top of rock. R1: Hard, fresh to slightly weathered, aphanitic to medium grained, grey, SCHIST. Primary joints are extremely close to close, moderately dipping to high angle, planar, rough to smooth, fresh to decomposed, very light to light. Secondary joints are very close, low angle, undulating to planar, rough to smooth, fresh, light. One vertical joint, joint is indurating, discolored, light. Rock Rating = Poor Recovery = 108/ Rock Core Times (min:sec): 106.8-107.8': (07:16), 107.8-108.8': (05:05), 108.8-109.8': (03:24), 109.8-110.8' (03:35), 110.8-111.0' (03:49) -106.8	
115								-107.0		Bottom of Exploration at 111.8 feet below ground surface. -111.8	
120											
125											

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit tests if available, rather than the Maine DOT Standard based percentages passing specific grain sizes.
2. Automatic hammer NEBC4023 Energy transfer ratio = 0.818.
3. Water level measured immediately after removal of casing.
4. Field Vane Shear Tests in Organic SILT may be higher than the actual undrained shear strengths due to the presence of organic fibers.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392901

WIN
23929.01

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	E. TOME	
DESIGN-DETAILED	E. TOME	
CHECKED-REVIEWED	R. CARDALI	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

BORING LOGS 7

PREPARED BY:

GZA

SHEET NUMBER
32

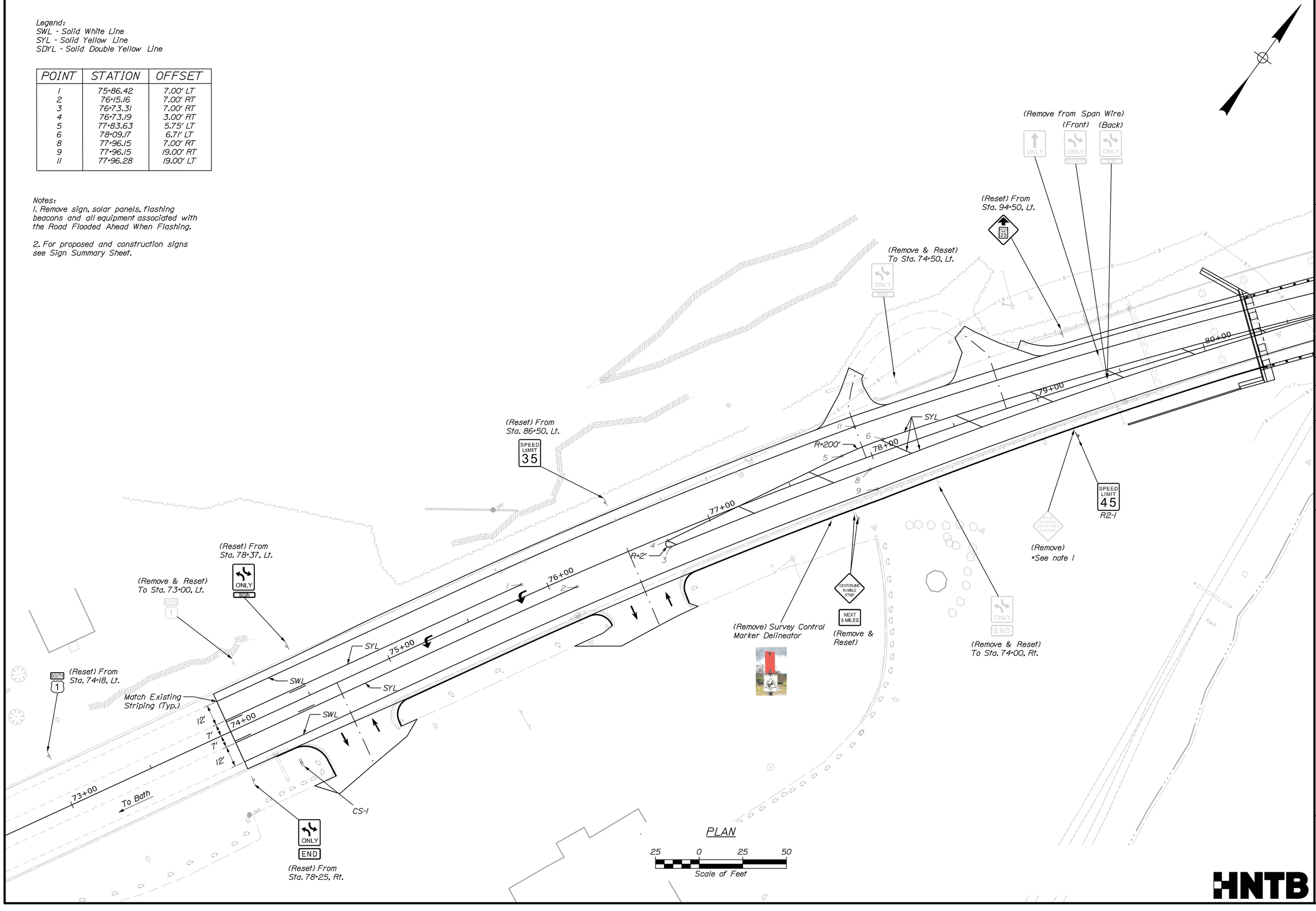
Filename: ..\Boring Logs Border.dgn Division: HIGHWAY Username: common Date:7/23/2021

Legend:
SWL - Solid White Line
SYL - Solid Yellow Line
SDYL - Solid Double Yellow Line

POINT	STATION	OFFSET
1	75+86.42	7.00' LT
2	76+15.16	7.00' RT
3	76+73.31	7.00' RT
4	76+73.19	3.00' RT
5	77+83.63	5.75' LT
6	78+09.17	6.71' LT
8	77+96.15	7.00' RT
9	77+96.15	19.00' RT
11	77+96.28	19.00' LT

Notes:
1. Remove sign, solar panels, flashing beacons and all equipment associated with the Road Flooded Ahead When Flashing.

2. For proposed and construction signs see Sign Summary Sheet.



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	A.Sweet	08\21	DATE
CHECKED-REVIEWED	L.D'riscoll	08\21	BY
DESIGN2-DETAILED2			P. Bishop
DESIGN3-DETAILED3			T. Cote
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

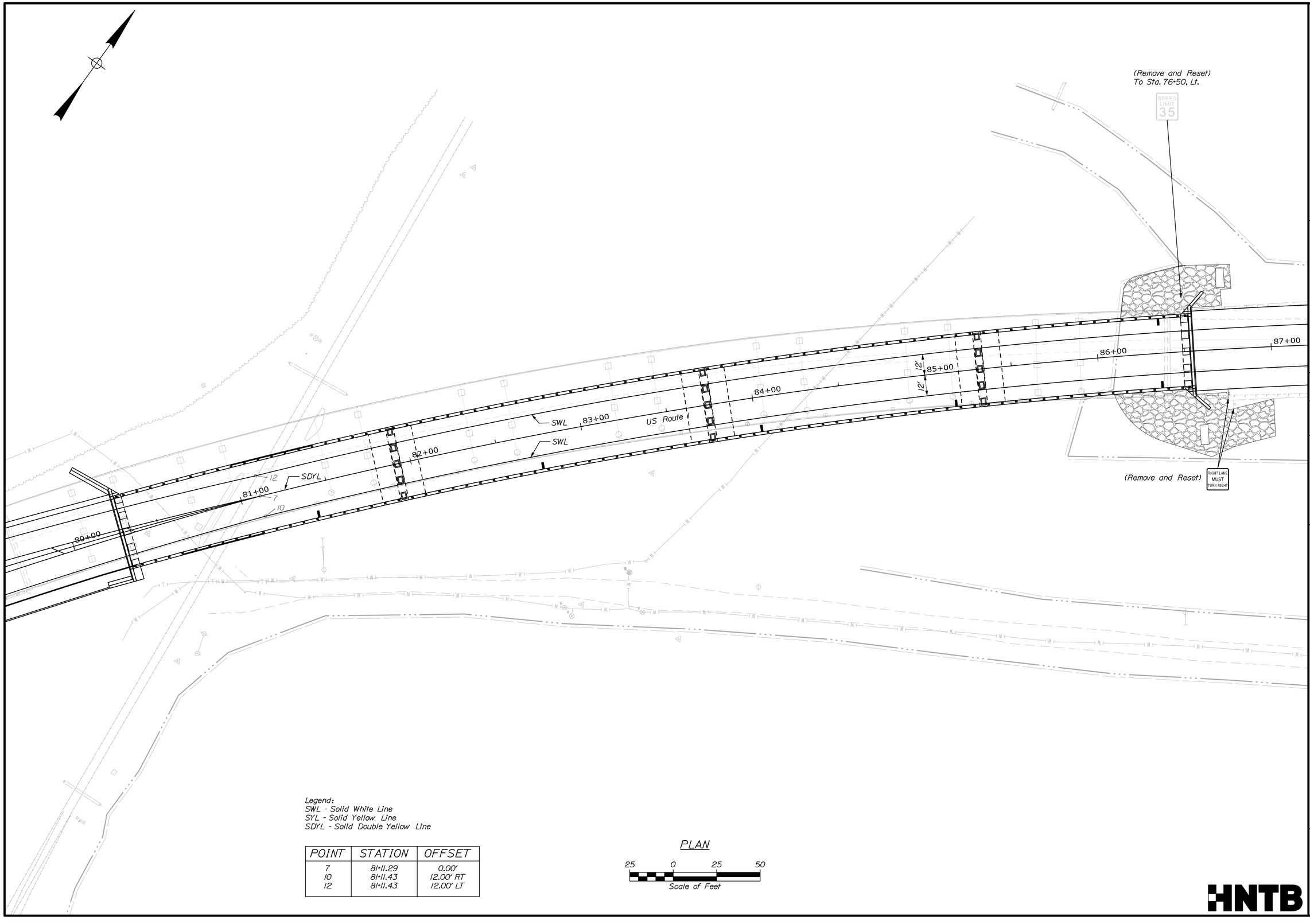
STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

SIGNING & STRIPING PLAN 1

SHEET NUMBER
33
OF 183

HNTB

Username:
Division:
Date:8/25/2021
Filename: 033_Striping Plan_01.DGN



Legend:
SWL - Solid White Line
SYL - Solid Yellow Line
SDYL - Solid Double Yellow Line

POINT	STATION	OFFSET
7	81+11.29	0.00'
10	81+11.43	12.00' RT
12	81+11.43	12.00' LT

PLAN

25 0 25 50

Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	A.Sweet	P. Bishop	08\21
CHECKED-REVIEWED	L.D'riscoll	T. Cote	08\21
DESIGN2-DETAILED2	ALED2		
DESIGN3-DETAILED3	ALED3		
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

SIGNING & STRIPING PLAN 2

SHEET NUMBER

34

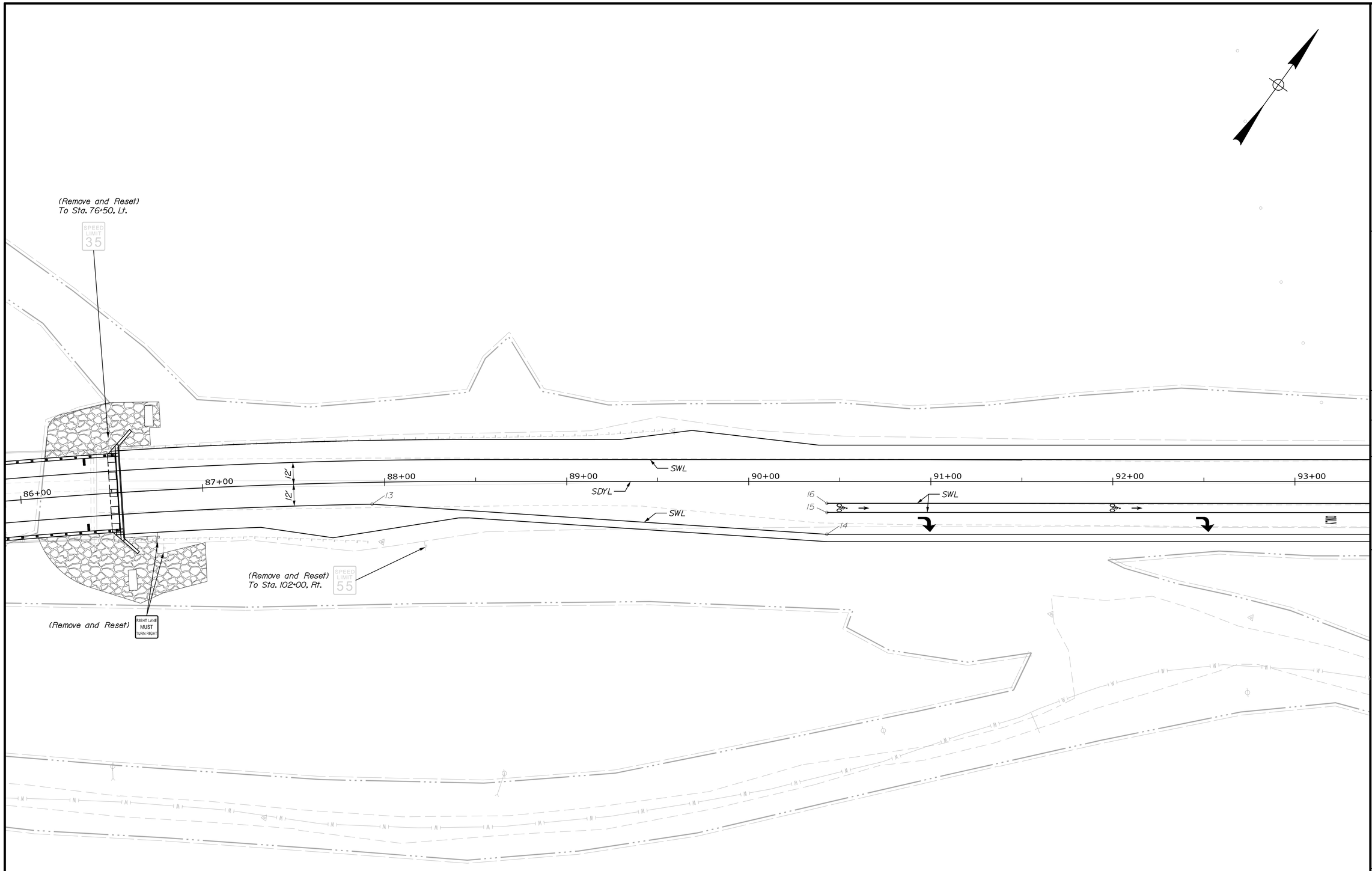
OF 183

Username:

Date:8/25/2021

Division:

Filename: 034_Striping Plan_02.DGN



POINT	STATION	OFFSET
13	87+92.90	12.00' RT
14	90+42.91	29.00' RT
15	90+42.91	17.00' RT
16	90+42.91	12.00' RT

Legend:
SWL - Solid White Line
SYL - Solid Yellow Line
SDYL - Solid Double Yellow Line

PLAN

25 0 25 50
Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	A.Sweet	08\21
CHECKED-REVIEWED	L.Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

SIGNING & STRIPING PLAN 3

SHEET NUMBER

35

OF 183

Username:

Date:8/25/2021

Division:

Filename: 035_Striping Plan_03.DGN

Date:8/25/2021
Username:
Division:
Filename: 036_Striping Plan_04.DGN

(Remove and Reset)
to Sta. 79+25, Lt.

93+00 94+00 95+00 96+00 97+00 98+00 99+00

SWL
12.00'
SDYL
R=35'
+36
Stopbar
R=78'
S62°03'39.98"E
N54°10'50.75"E
N71°42'53.14"E
500+00
501+00
502+00
503+00
504+00
17
18
19
20
21
22
23
24
STOP
(Remove and Reset) From
Sta. 500+76, Lt. to Sta. 500+59, Lt.
Match Existing
Striping (Typ.)
11.59'
8.65'

POINT	STATION	OFFSET
17	94+02.74	12.00' RT
18	94+02.74	17.00' RT
19	94+02.74	29.00' RT
20	500+75.42	11.00' RT
21	501+00.00	11.00' RT
22	501+00.00	11.00' LT
23	500+75.08	11.00' LT
24	95+23.67	12.00' RT

Legend:
SWL - Solid White Line
SYL - Solid Yellow Line
SDYL - Solid Double Yellow Line

PLAN
25 0 25 50
Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01
BRIDGE NO.3039 & 6667

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER		
DESIGN-DETAILED	P. Bishop	08\21
CHECKED-REVIEWED	T. Cote	08\21
D. Eaton, P.E.		
DESIGN2-DETAILED2	A.Sweet	
DESIGN3-DETAILED3	L.Driscoll	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

SIGNING & STRIPING PLAN 4

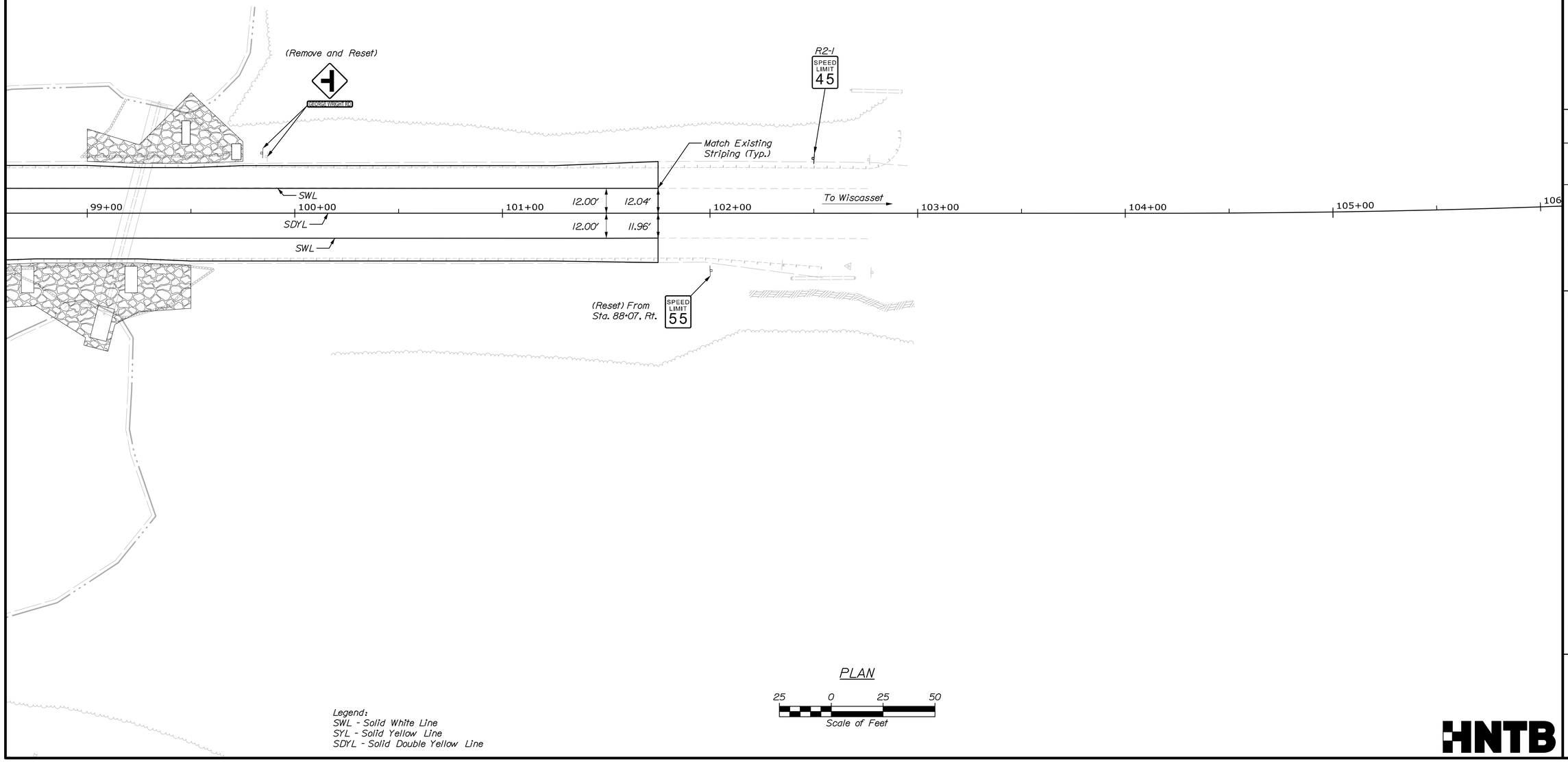
SHEET NUMBER
36
OF 183

Date:8/25/2021

Username:

Division:

Filename: 037_Striping Plan_05.DGN



PLAN

25 0 25 50

Scale of Feet

Legend:
SWL - Solid White Line
SYL - Solid Yellow Line
SDYL - Solid Double Yellow Line

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	A.Sweet	08\21
CHECKED-REVIEWED	L.Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

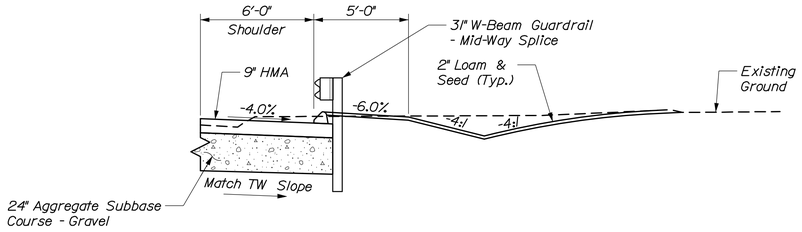
STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

SIGNING & STRIPING PLAN 5

SHEET NUMBER

37

OF 183



U.S. ROUTE I - SWALE
TYPICAL SECTION
With Guardrail

NOTES:

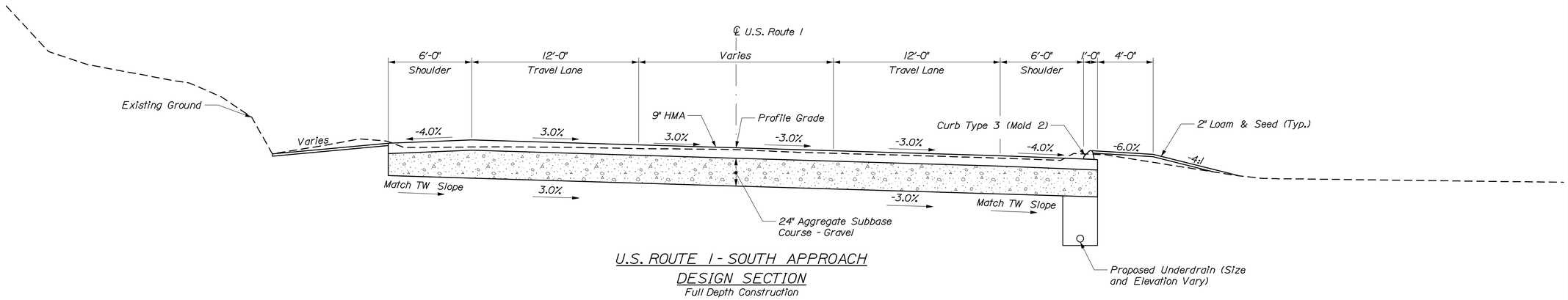
1. The pavement, base and subbase depths as shown on the plans are intended to be nominal.

2. When superelevation exceeds the slope of the low side shoulder, the low side shoulder's pavement shall have the same cross slope as the travelway.

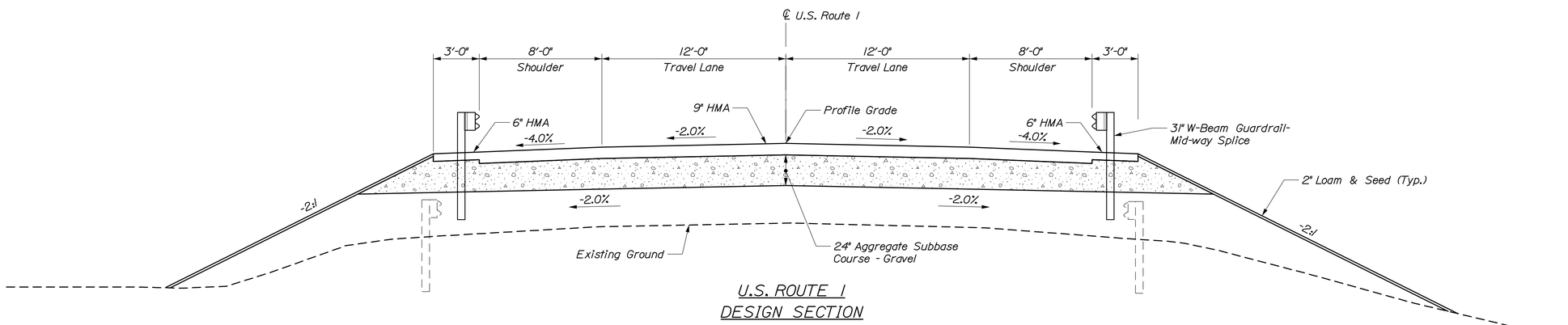
3. Crowns for the normal and superelevation sections for all courses of subbase and pavement shall be straight, unless otherwise noted on the plans.

4. The algebraic difference between shoulder and travel lane cross slopes "rollover" shall not exceed 8%.

Woolwich Route 1 Superelevation Table				
Lt. Shoulder	Lt. Travelway	Station	Rt. Travelway	Rt. Shoulder
Match Existing			Match Existing	
-2.2%	-2.2%	74+00.00	-2.4%	-2.4%
-3.7%	-2.2%	74+21.00	-2.0%	-3.7%
-4.0%	-2.1%	74+25.00	-2.0%	-4.0%
-4.0%	-1.2%	74+50.00	-2.0%	-4.0%
-4.0%	-0.3%	74+75.00	-2.0%	-4.0%
-4.0%	0.5%	75+00.00	-2.0%	-4.0%
-4.0%	1.4%	75+25.00	-2.0%	-4.0%
-4.0%	2.0%	75+43.00	-2.0%	-4.0%
-4.0%	2.3%	75+50.00	-2.3%	-4.0%
-4.0%	3.0%	75+70.00	-3.0%	-4.0%
↓	↓	-	↓	↓
-4.0%	3.0%	79+75.00	-3.0%	-4.0%
-4.0%	3.0%	80+00.00	-3.0%	-3.0%
↓	↓	-	↓	↓
-4.0%	3.0%	86+75.00	-3.0%	-3.0%
↓	↓	-	↓	↓
-4.0%	3.0%	87+00.00	-3.0%	-4.0%



U.S. ROUTE 1 - SOUTH APPROACH
DESIGN SECTION
Full Depth Construction



U.S. ROUTE 1
DESIGN SECTION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	A. Sweet	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

TYPICAL SECTIONS
STATION 46

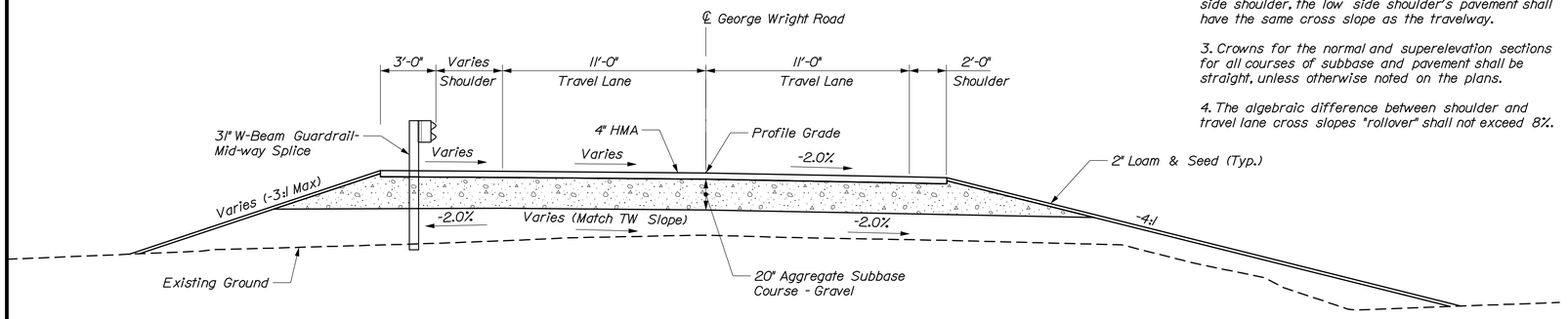
SHEET NUMBER

38

OF 183

HNTB

Filename: 038_Typical Sections.dgn Division: Username: Date:8/25/2021



GEORGE WRIGHT ROAD
DESIGN SECTION

NOTES:

1. The pavement, base and subbase depths as shown on the plans are intended to be nominal.

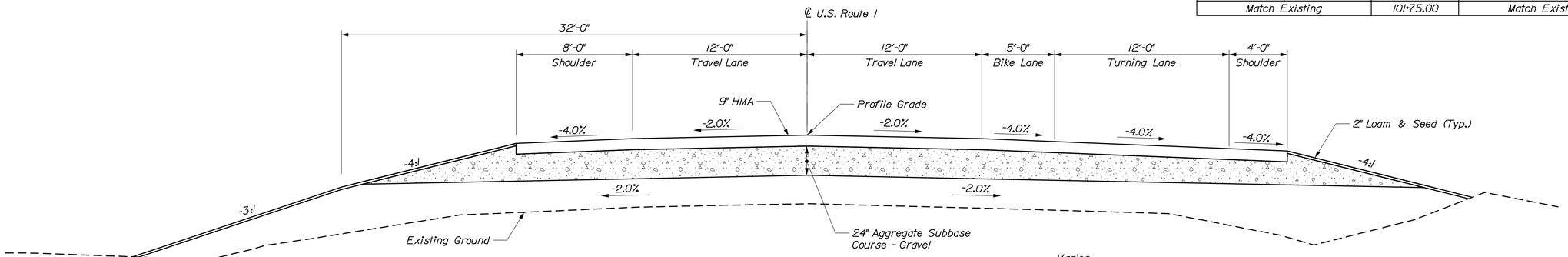
2. When superelevation exceeds the slope of the low side shoulder, the low side shoulder's pavement shall have the same cross slope as the travelway.

3. Crowns for the normal and superelevation sections for all courses of subbase and pavement shall be straight, unless otherwise noted on the plans.

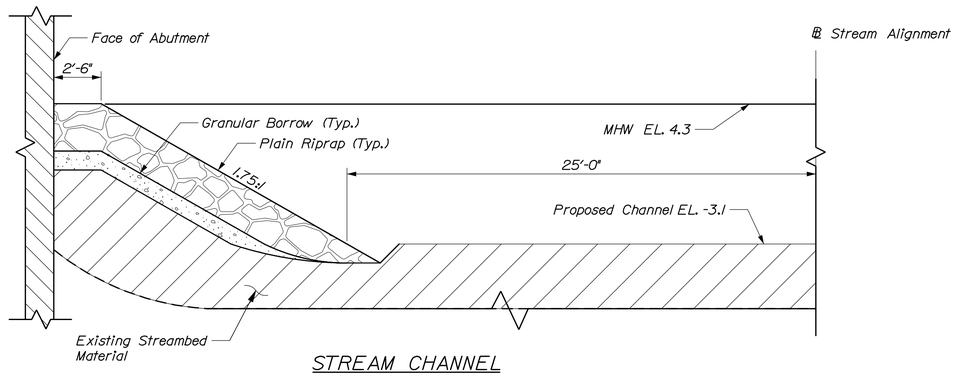
4. The algebraic difference between shoulder and travel lane cross slopes "rollover" shall not exceed 8%.

Woolwich Route 1 Superelevation Table

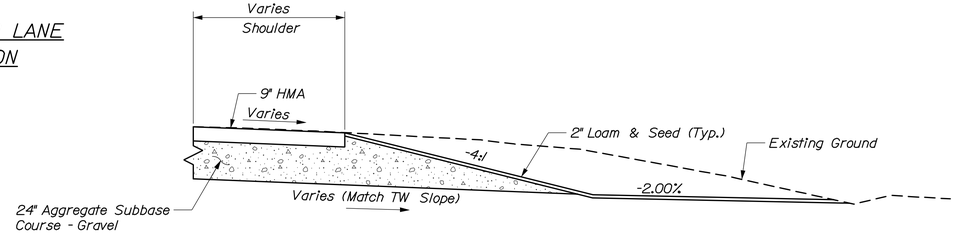
Lt. Shoulder	Lt. Travelway	Station	Rt. Travelway	Rt. Shoulder
-4.0%	3.0%	87+00.00	-3.0%	-4.0%
-4.0%	3.0%	87+25.00	-3.0%	-4.0%
-4.0%	3.0%	87+50.00	-3.0%	-4.0%
-4.0%	3.0%	87+75.00	-3.0%	-4.0%
-4.0%	3.0%	88+00.00	-3.0%	-4.0%
-4.0%	2.4%	88+25.00	-2.4%	-4.0%
-4.0%	2.0%	88+40.00	-2.0%	-4.0%
-4.0%	1.8%	88+50.00	-2.0%	-4.0%
-4.0%	1.1%	88+75.00	-2.0%	-4.0%
-4.0%	0.5%	89+00.00	-2.0%	-4.0%
-4.0%	-0.1%	89+25.00	-2.0%	-4.0%
-4.0%	-0.8%	89+50.00	-2.0%	-4.0%
-4.0%	-1.4%	89+75.00	-2.0%	-4.0%
-4.0%	-2.0%	90+00.00	-2.0%	-4.0%
↓	↓	-	↓	↓
-4.0%	-2.0%	99+75.00	-2.0%	-4.0%
-4.0%	-2.0%	100+00.00	-2.0%	-4.0%
-4.0%	-2.0%	100+25.00	-2.0%	-4.0%
-4.0%	-2.0%	100+50.00	-2.0%	-4.0%
-4.0%	-2.0%	100+75.00	-2.0%	-4.0%
-4.0%	-2.0%	101+00.00	-2.0%	-4.2%
-4.0%	-2.0%	101+25.00	-2.0%	-5.2%
-4.0%	-2.0%	101+50.00	-2.0%	-6.2%
Match Existing		101+75.00	Match Existing	



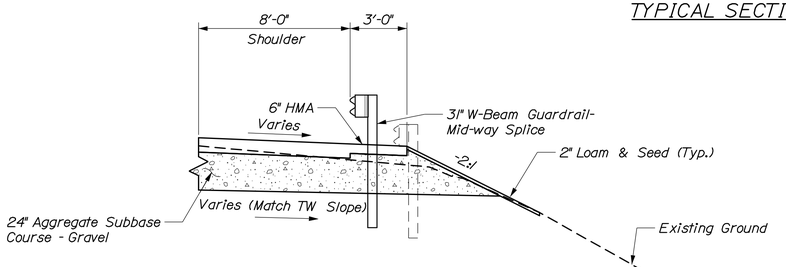
U.S. ROUTE 1 - TURN LANE
DESIGN SECTION



STREAM CHANNEL
HALF DESIGN SECTION



U.S. ROUTE 1 - DAYLIGHT
TYPICAL SECTION



U.S. ROUTE 1 - FULL DEPTH
SHOULDER CONSTRUCTION
With Guardrail

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00 & 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

PROJ. MANAGER	D. Elston, P.E.		
DESIGN-DETAILED	A. Sweet	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

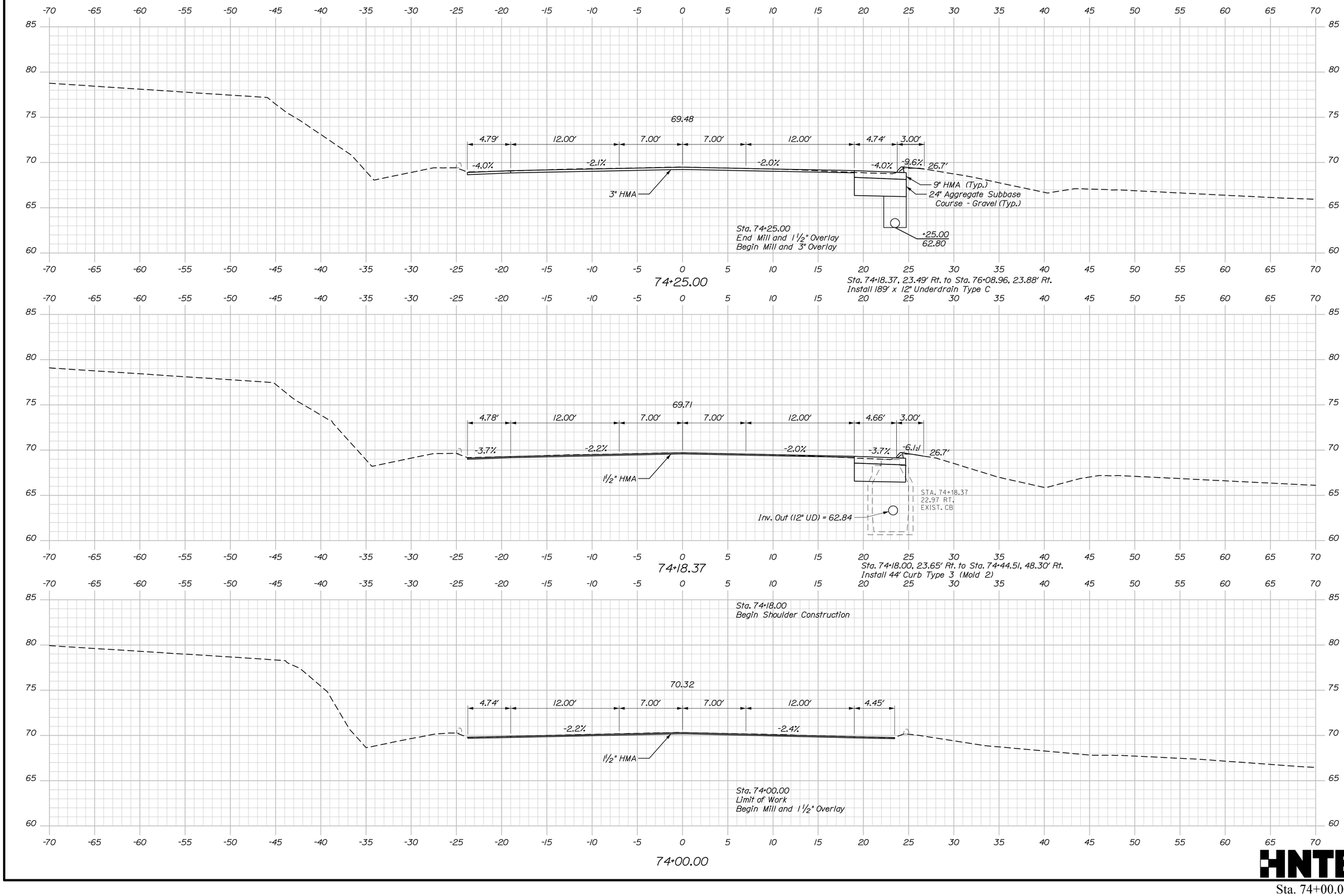
DATE

STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

TYPICAL SECTIONS
PLEASANT COVE

SHEET NUMBER
39
OF 183

Username:
Date:8/25/2021
Division:
Filename: 039_TypicalSections_Pleasant Cove.dgn



Sta. 74+00.00 to Sta. 74+25.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE PLANS

BRIDGE NO.3039

	SIGNATURE	P.E. NUMBER	DATE
PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	A. Sweet		
CHECKED-REVIEWED	L. Driscoll		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

	BY	DATE
D. Eaton, P.E.	D. Burton	08\21
A. Sweet	T. Cote	08\21
L. Driscoll		

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

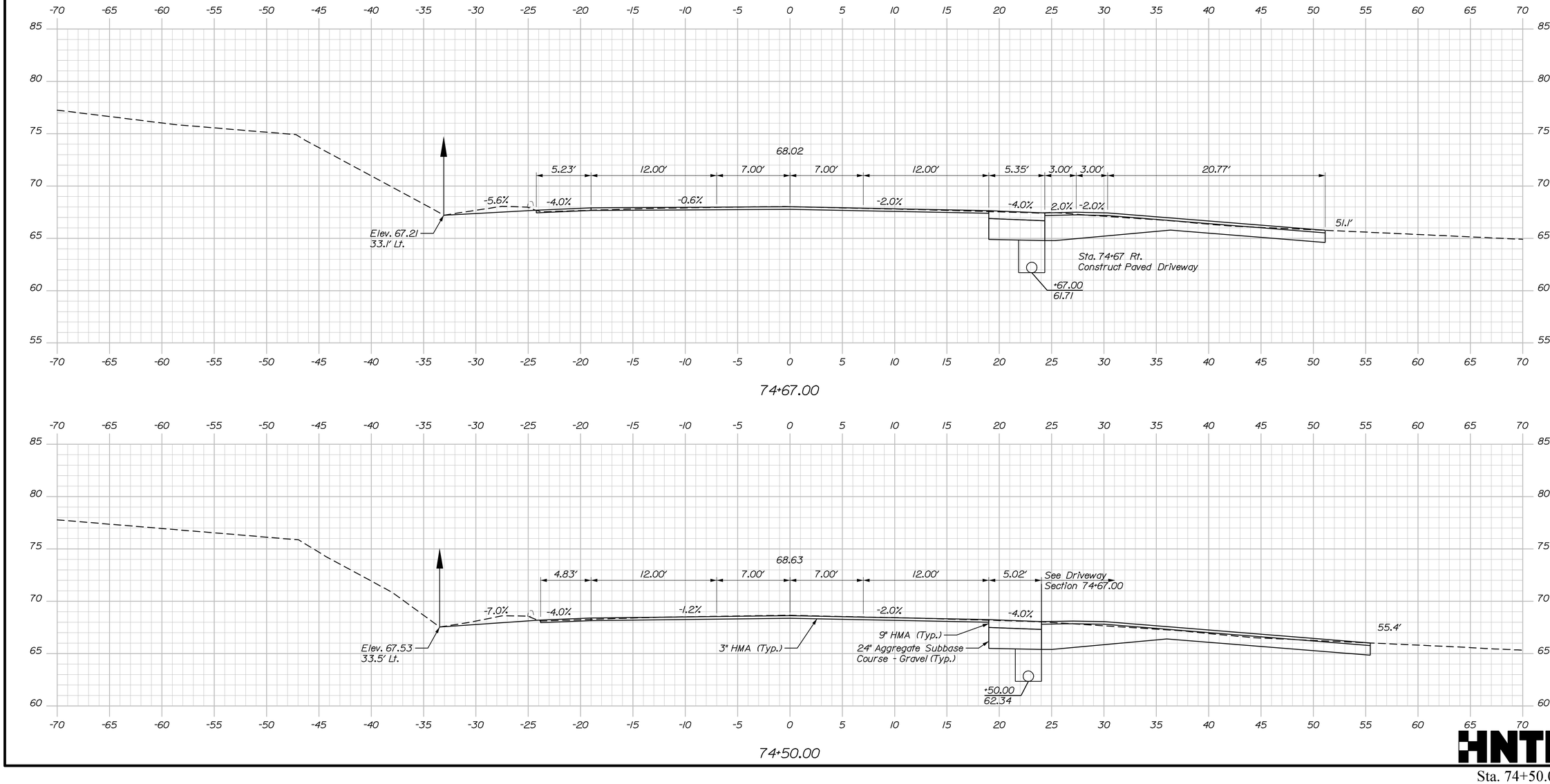
SHEET NUMBER

40

OF 183

HNTB

Date:8/25/2021
Username:
Division:
Filename: Xsections.dgn



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	A. Sweet	08\21
CHECKED-REVIEWED	L. Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

SHEET NUMBER

41

OF 183

HNTB

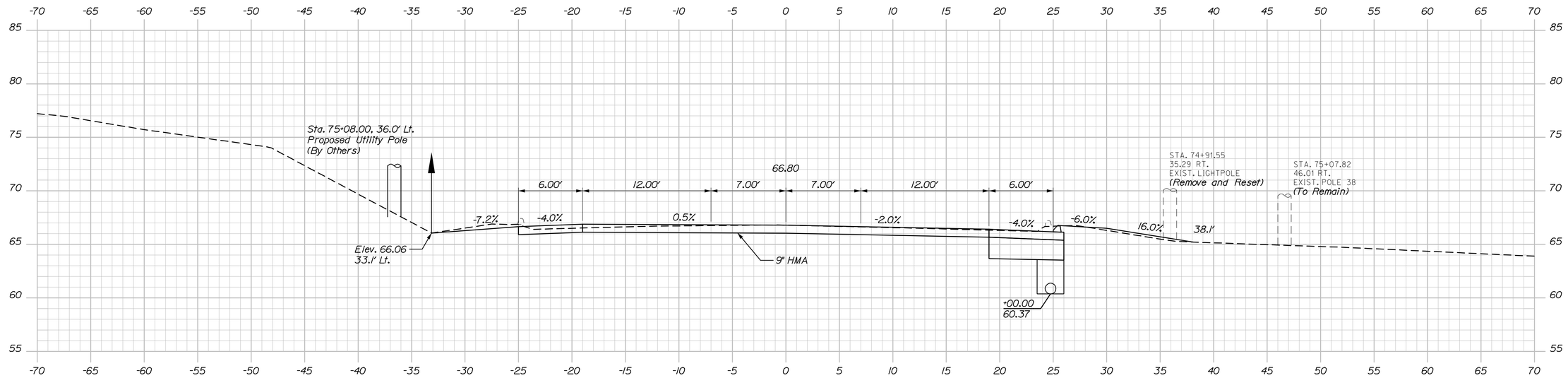
Sta. 74+50.00 to Sta. 74+67.00

Date:8/25/2021

Username:

Division:

Filename: Xsections.dgn



Sta. 74+75.00 to Sta. 75+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

	BY	DATE
D. Eaton, P.E.	D. Burton	08\21
A. Sweet	T. Cote	08\21
L. Driscoll		

SIGNATURE

P.E. NUMBER

DATE

PROJ. MANAGER	
DESIGN-DETAILED	
CHECKED-REVIEWED	
DESIGN2-DETAILED2	
DESIGN3-DETAILED3	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

SHEET NUMBER

42

OF 183

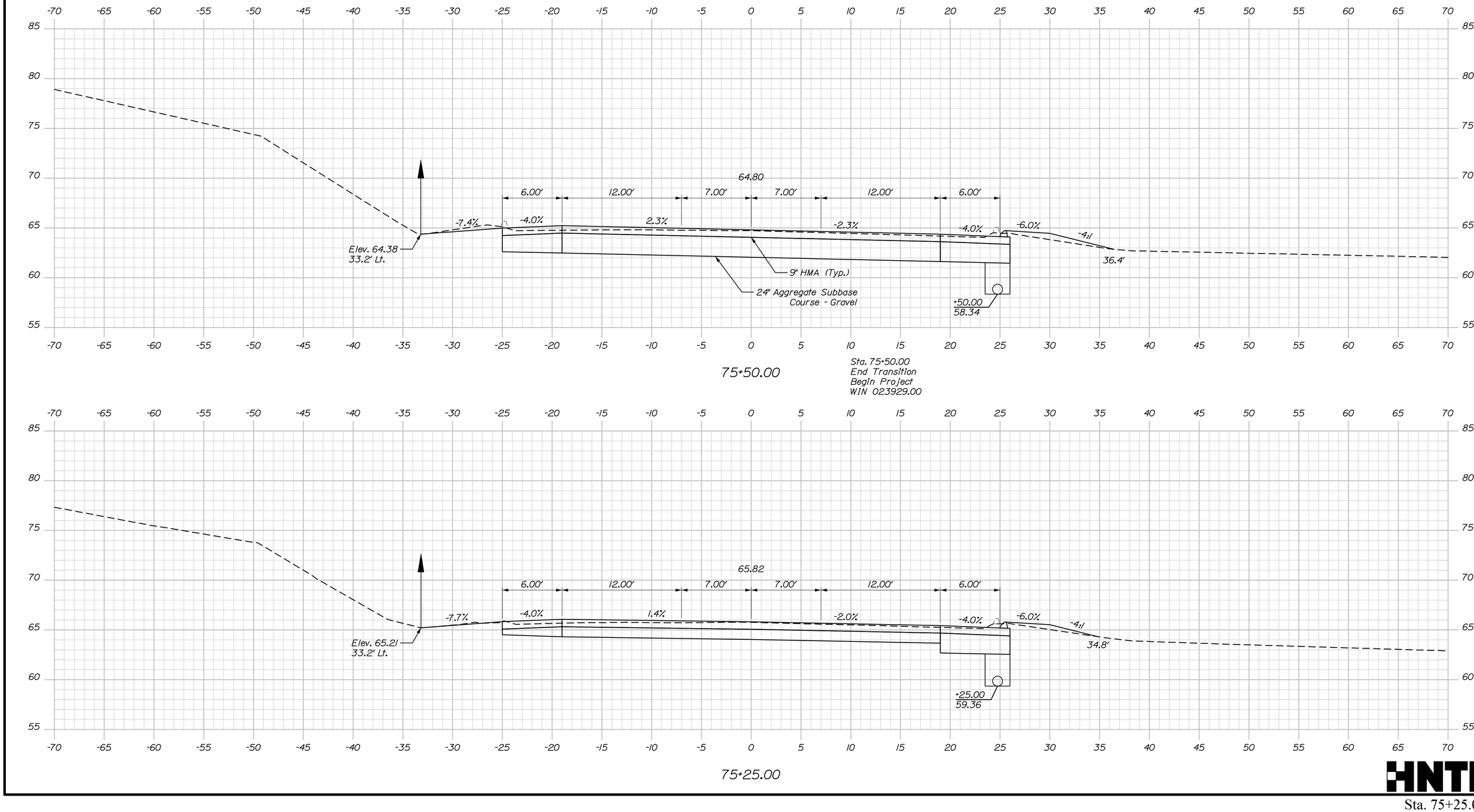
HNTB

Date:8/25/2021

Username:

Division:

Filename: Xsections.dgn



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039 BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	A. Sweet	08\21
CHECKED-REVIEWED	L. Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

SHEET NUMBER

43

OF 183

HNTB

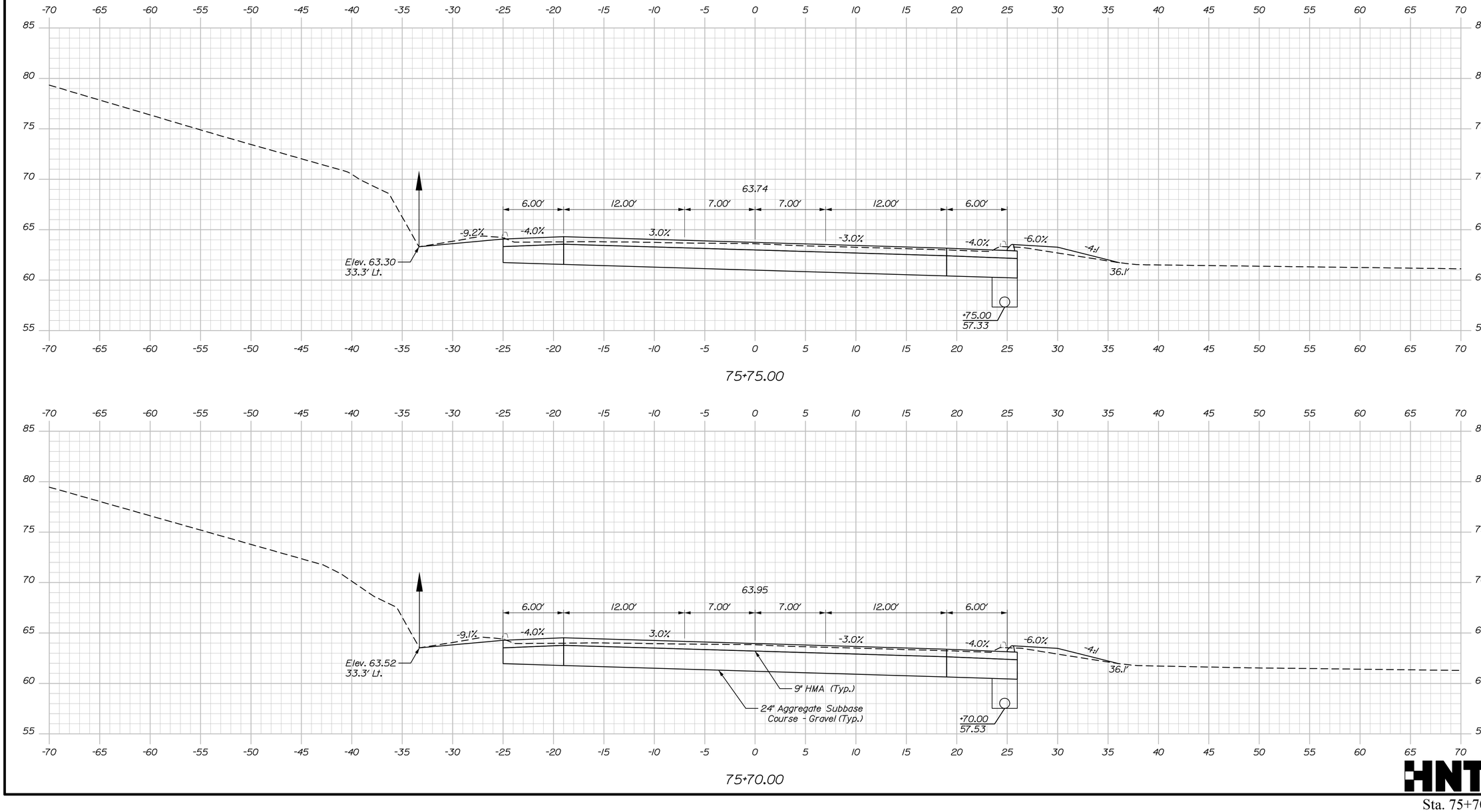
Sta. 75+25.00 to Sta. 75+50.00

Date:8/25/2021

Username:

Division:

Filename: Xsections.dgn



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039 BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	A. Sweet	08\21
CHECKED-REVIEWED	L. Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

SHEET NUMBER

44

OF 183

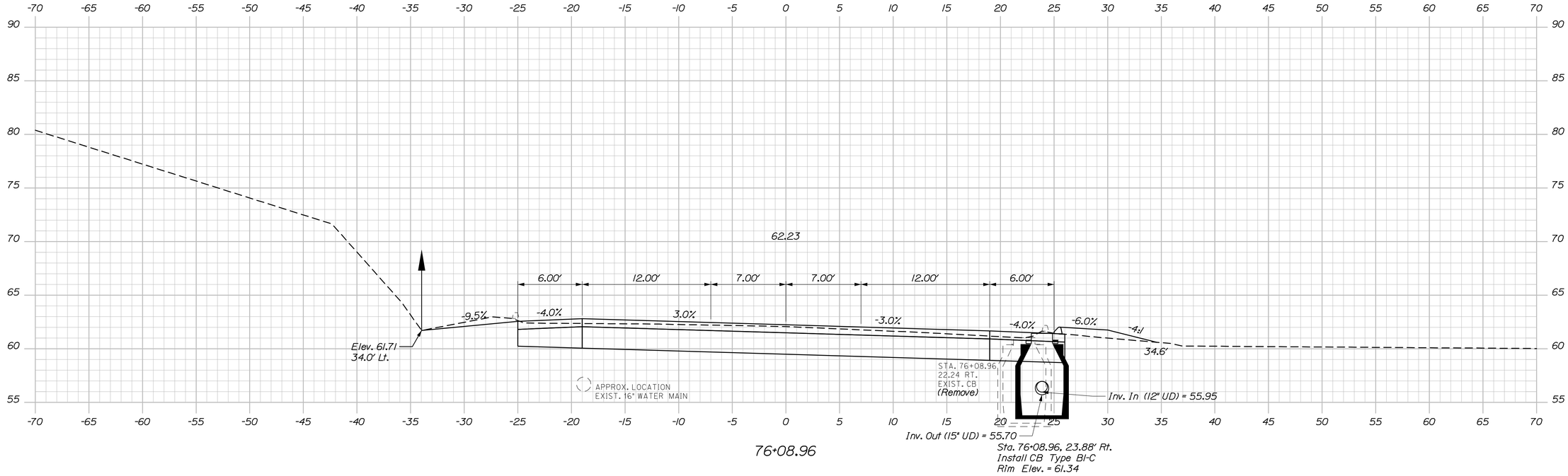
HNTB

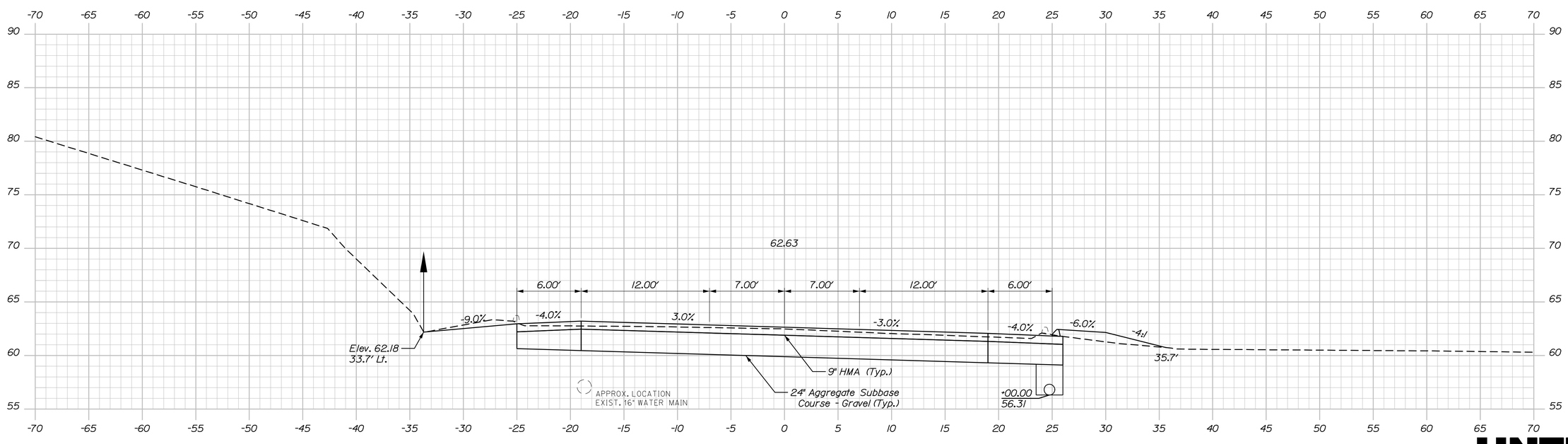
Sta. 75+70.00 to Sta. 75+75.00

Username: Date:8/25/2021

Division:

Filename: Xsections.dgn





STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	A. Sweet	D. Burton	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

SHEET NUMBER

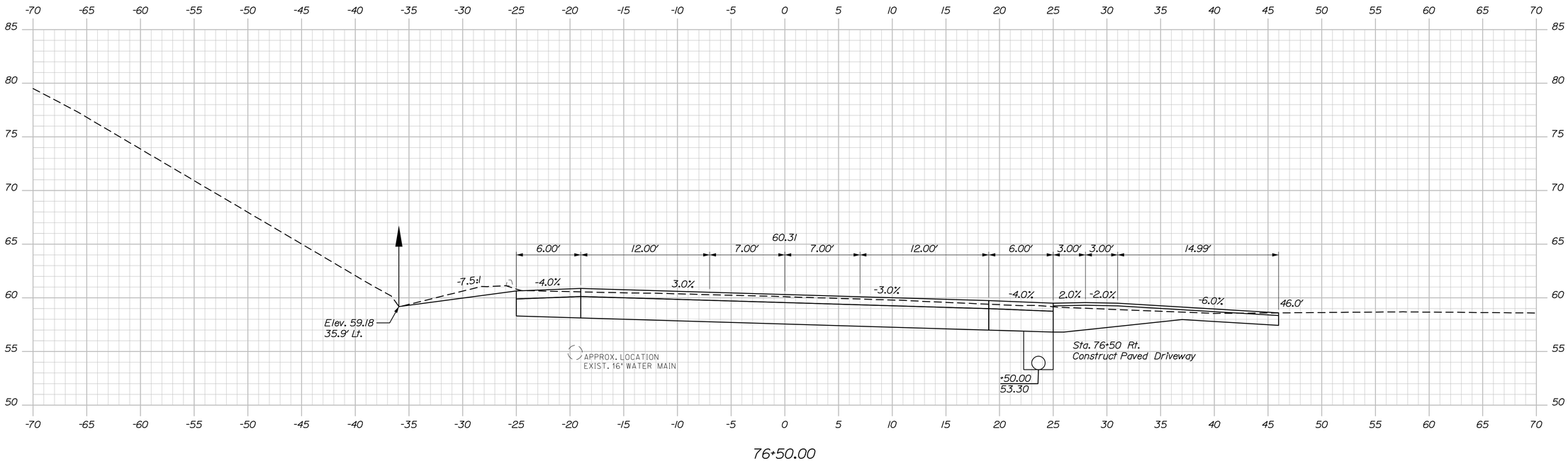
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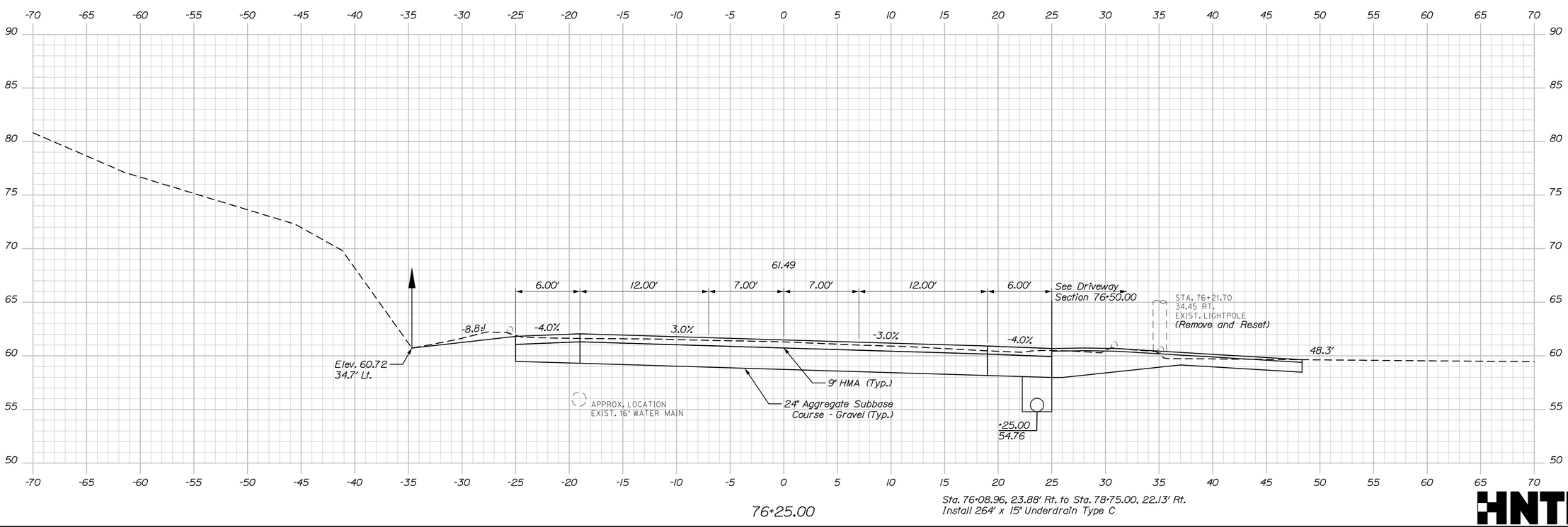
OF 183

HNTB

Sta. 76+00.00 to Sta. 76+08.96

Username:
Date:8/25/2021
Division:
Filename: Xsections.dgn





STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	A. Sweet	BY	DATE
CHECKED-REVIEWED	L. Driscoll	D. Burton	08\21
DESIGN2-DETAILED2		T. Cote	08\21
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

SHEET NUMBER

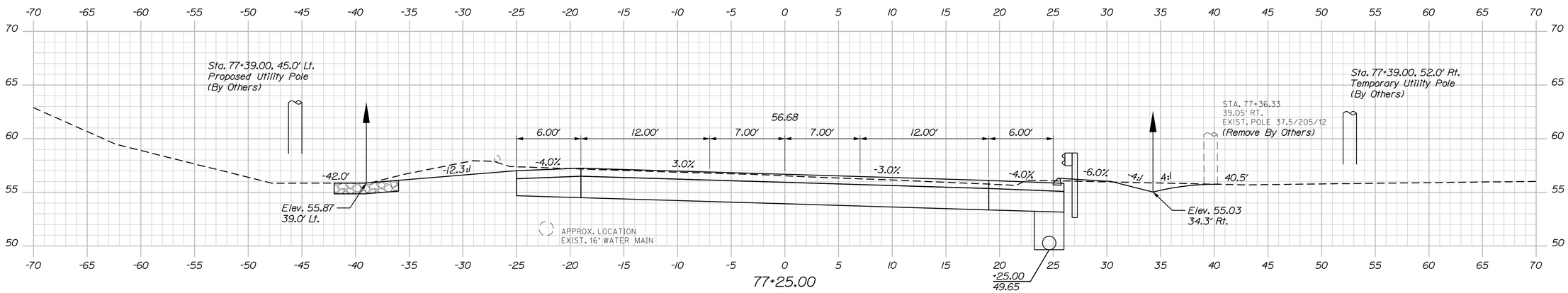
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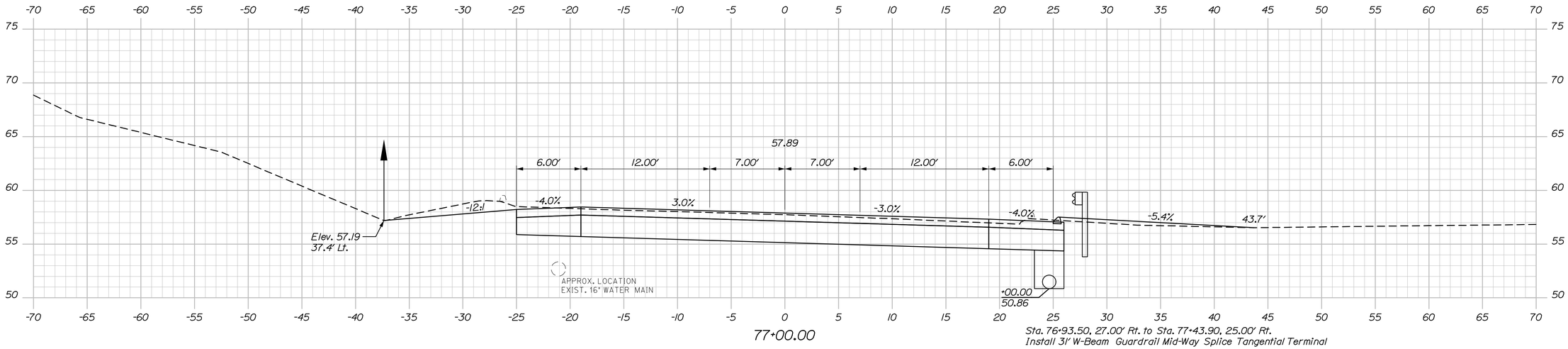
OF 183

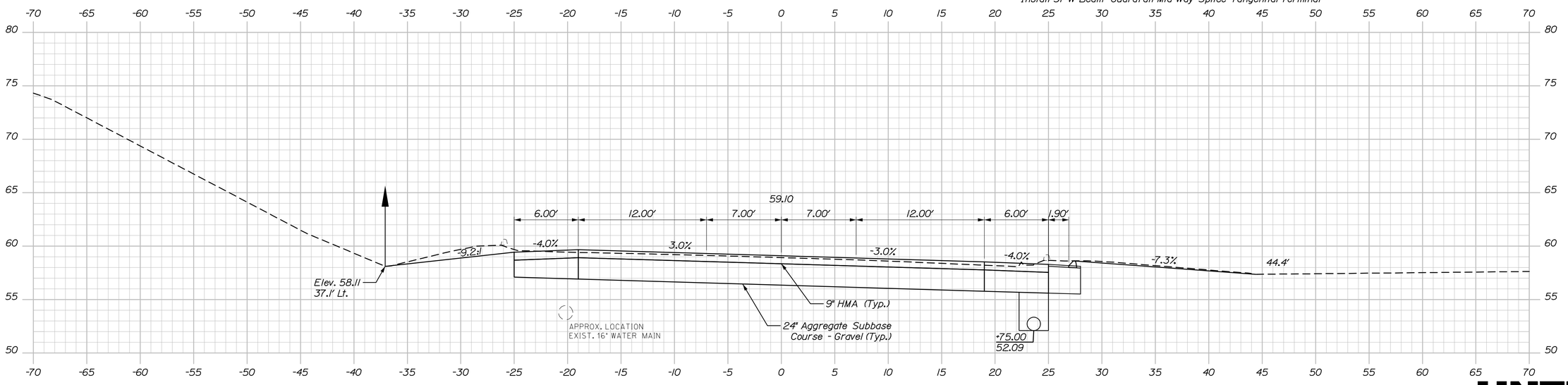
HNTB

Sta. 76+25.00 to Sta. 76+50.00

Date:8/25/2021
Username:
Division:
Filename: Xsections.dgn







STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE PLANS

BRIDGE NO.3039

PROJ. MANAGER	D. Easton, P.E.	BY	DATE
DESIGN-DETAILED	A. Sweet	D. Burton	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

SHEET NUMBER

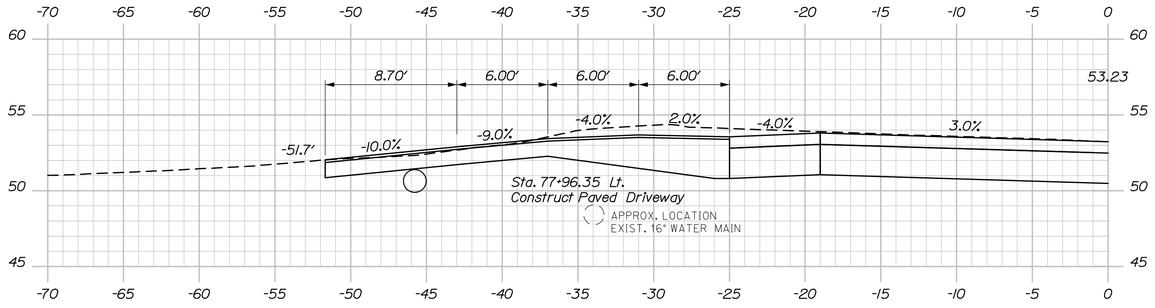
47

OF 183

HNTB

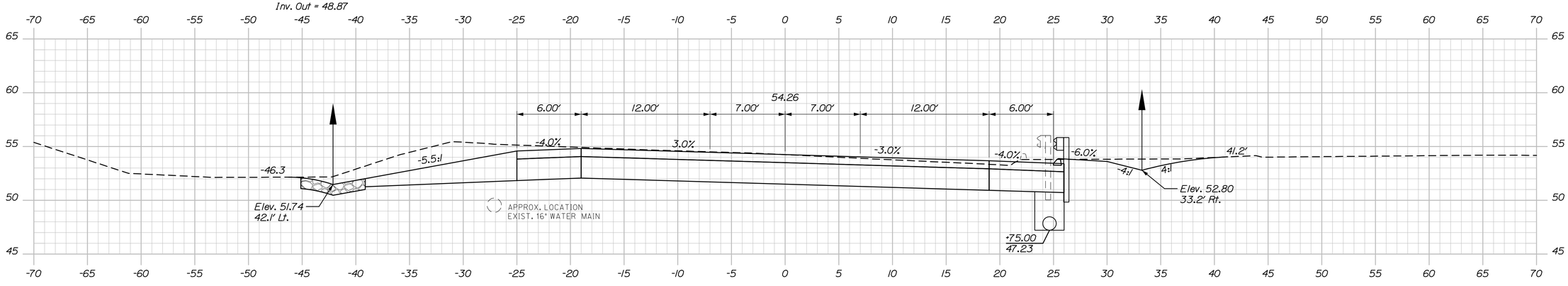
Sta. 76+75.00 to Sta. 77+25.00

Date:8/25/2021
Username:
Division:
Filename: Xsections.dgn



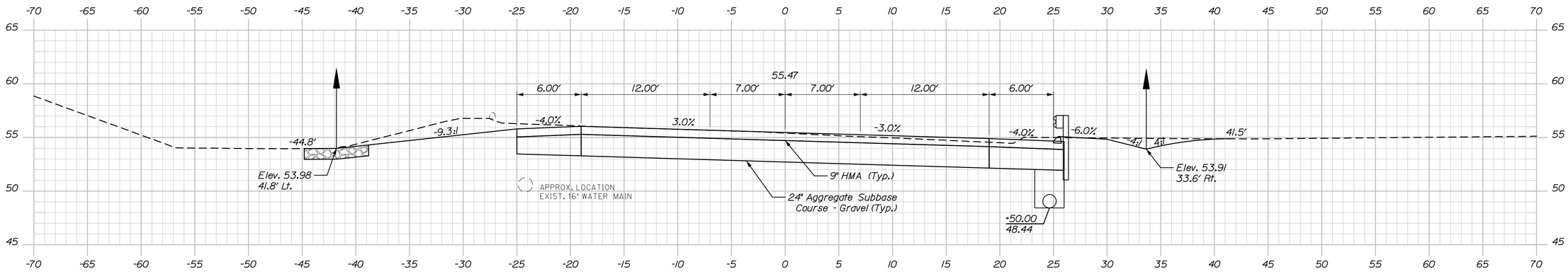
Sta. 77+71.91, 42.41' Lt.
to Sta. 78+23.14, 44.59' Lt.
Install 42' X 18" C.P. Opt. I
Inv. In = 51.09
Inv. Out = 48.87

77+96.35



77+75.00

Sta. 77+43.90, 25.00' Rt.
to Sta. 79+98.95, 20.50' Rt.
Install 31' W-Beam Guardrail Mid-Way Splice (Total Length = 253.125 LF)



77+50.00

Sta. 77+50.00 to Sta. 77+96.35

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039 BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	A. Sweet	08\21
CHECKED-REVIEWED	L. Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

SHEET NUMBER

48

OF 183

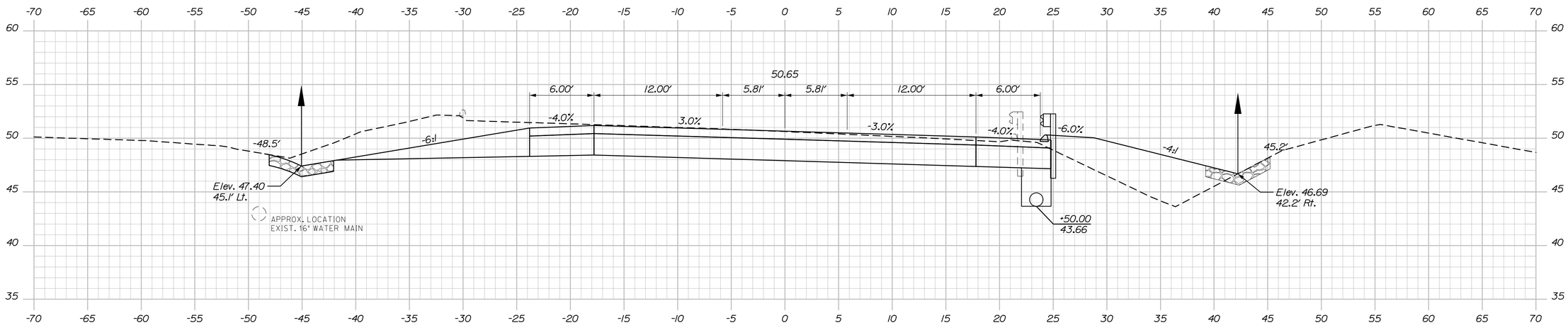
HNTB

Date:8/25/2021

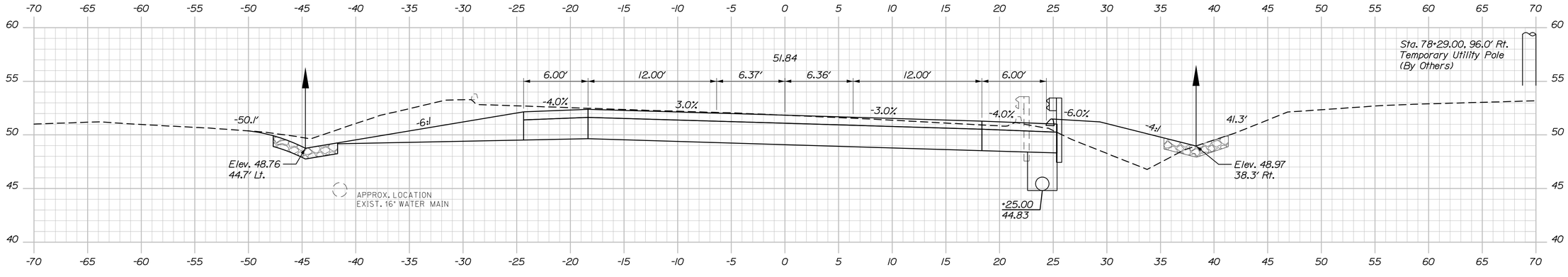
Username:

Division:

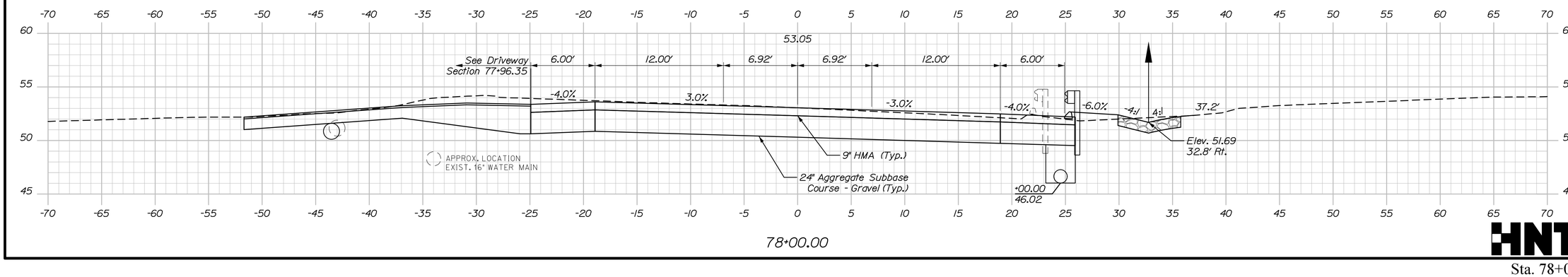
Filename: Xsections.dgn



78+50.00



78+25.00



78+00.00

Sta. 78+00.00 to Sta. 78+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	A. Sweet	08\21
CHECKED-REVIEWED	L. Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1	D. Burton	08\21
REVISIONS 2	T. Cote	08\21
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

SHEET NUMBER

49

OF 183

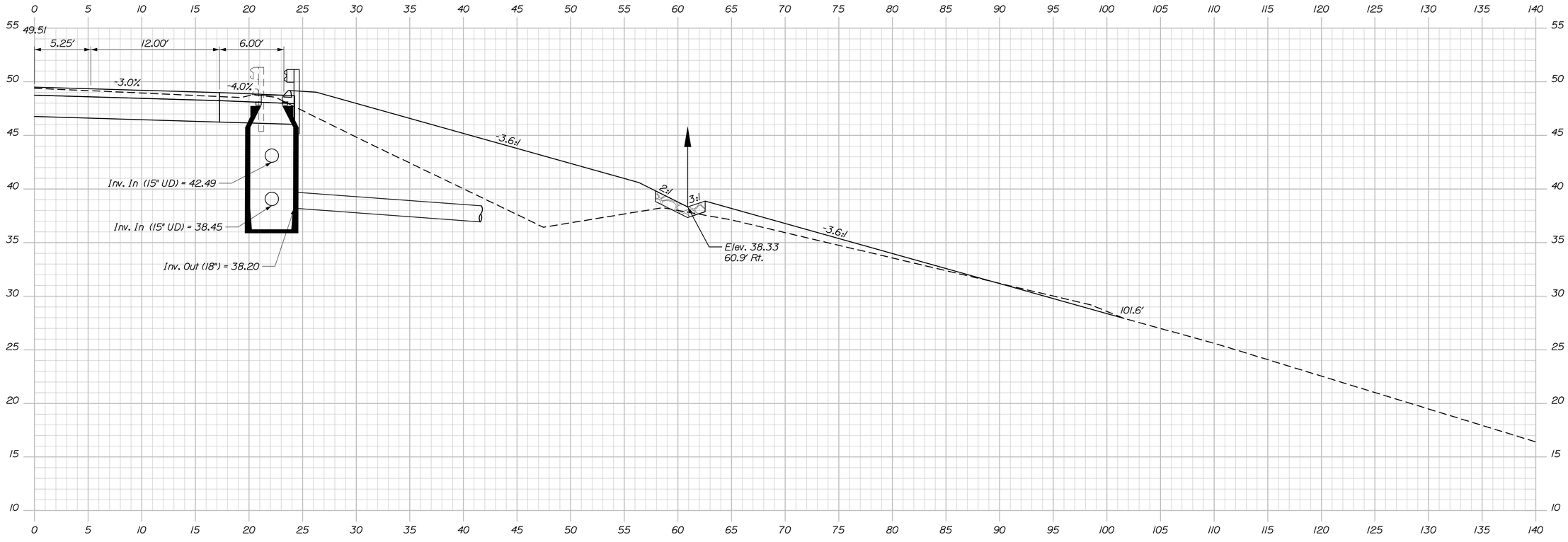
HNTB

Date:8/25/2021

Username:

Division:

Filename: Xsections.dgn

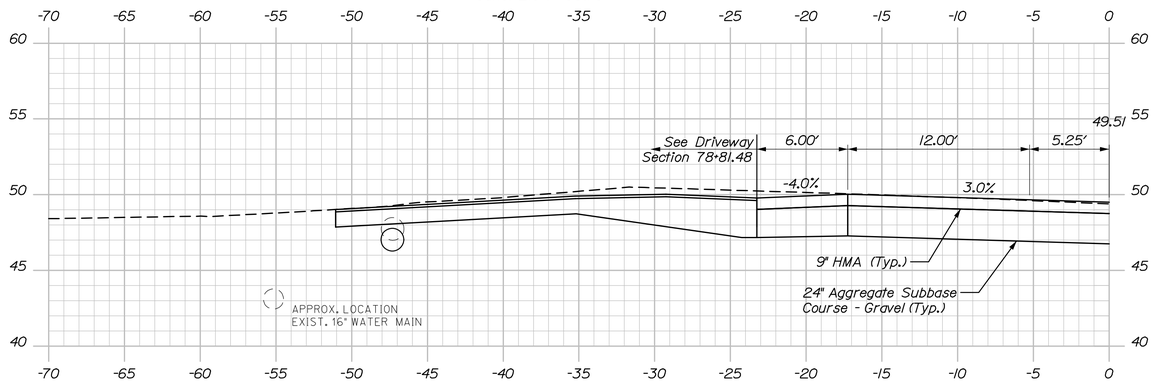


Sta. 78+75.00, 22.13' Rt.
Install CB Type BI-C
Rim Elev. = 48.67

Sta. 78+75.00, 22.13' Rt.
to Sta. 78+85.51, 67.04' Rt.
Install 45' x 18" Option III
Outlet Elev. = 35.73

78+75.00 RT

Sta. 78+75.00, 22.13' Rt. to Sta. 79+50.00, 20.08' Rt.
Install 75' x 15" Underdrain Type C



Sta. 78+53.75, 45.39' Lt.
to Sta. 78+98.67, 49.66' Lt.
Install 46' X 18" C.P. Opt. I
Inv. In = 47.21
Inv. Out = 45.23

78+75.00 LT

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	A. Sweet	D. Burton	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

SHEET NUMBER

50

OF 183

HNTB

Sta. 78+75.00 to Sta. 78+75.00

Username:

Division:

Date:8/25/2021

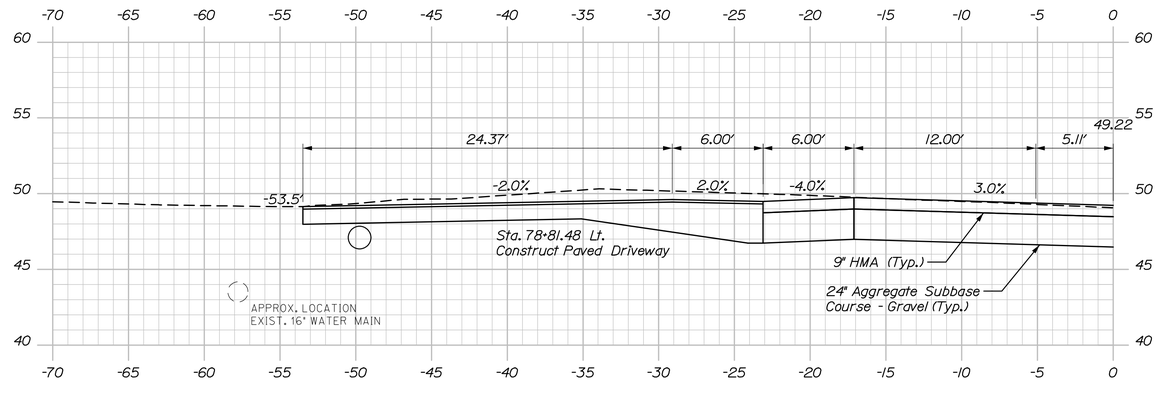
Filename: Xsections.dgn

Username:

Date:8/25/2021

Division:

Filename: Xsections.dgn



78+81.48

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	A. Sweet	D. Burton	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

SIGNATURE

P.E. NUMBER

DATE

2392900

WIN 23929.00

BRIDGE NO.3039 BRIDGE PLANS

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

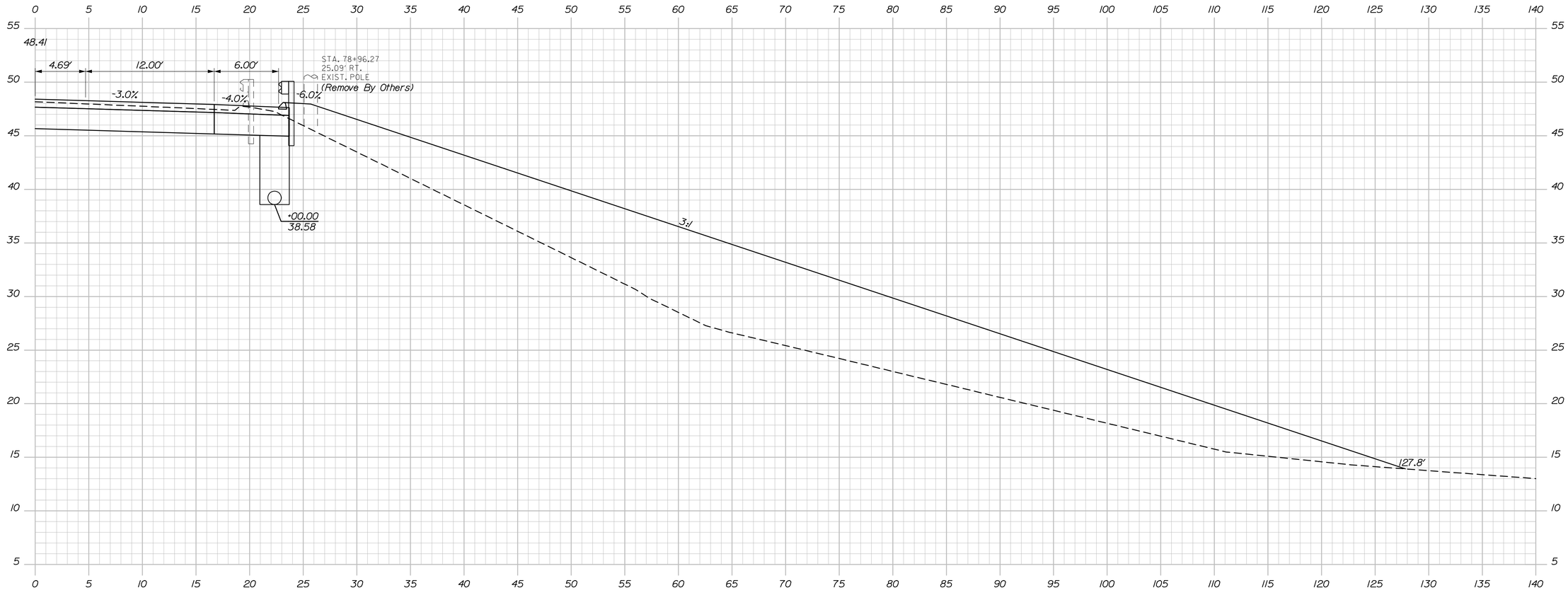
SHEET NUMBER

51

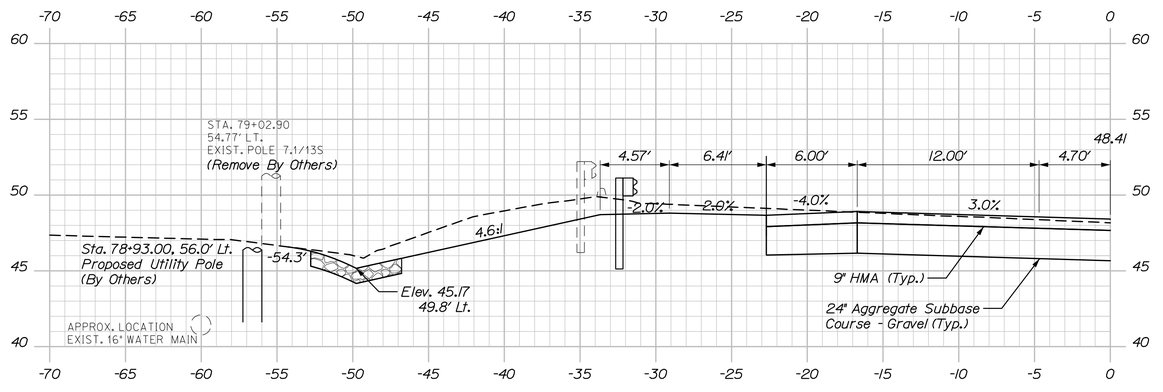
OF 183

HNTB

Sta. 78+81.48 to Sta. 78+81.48



79+00.00 RT



79+00.00 LT

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	A. Sweet	D. Burton	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

SHEET NUMBER

52

OF 183

HNTB

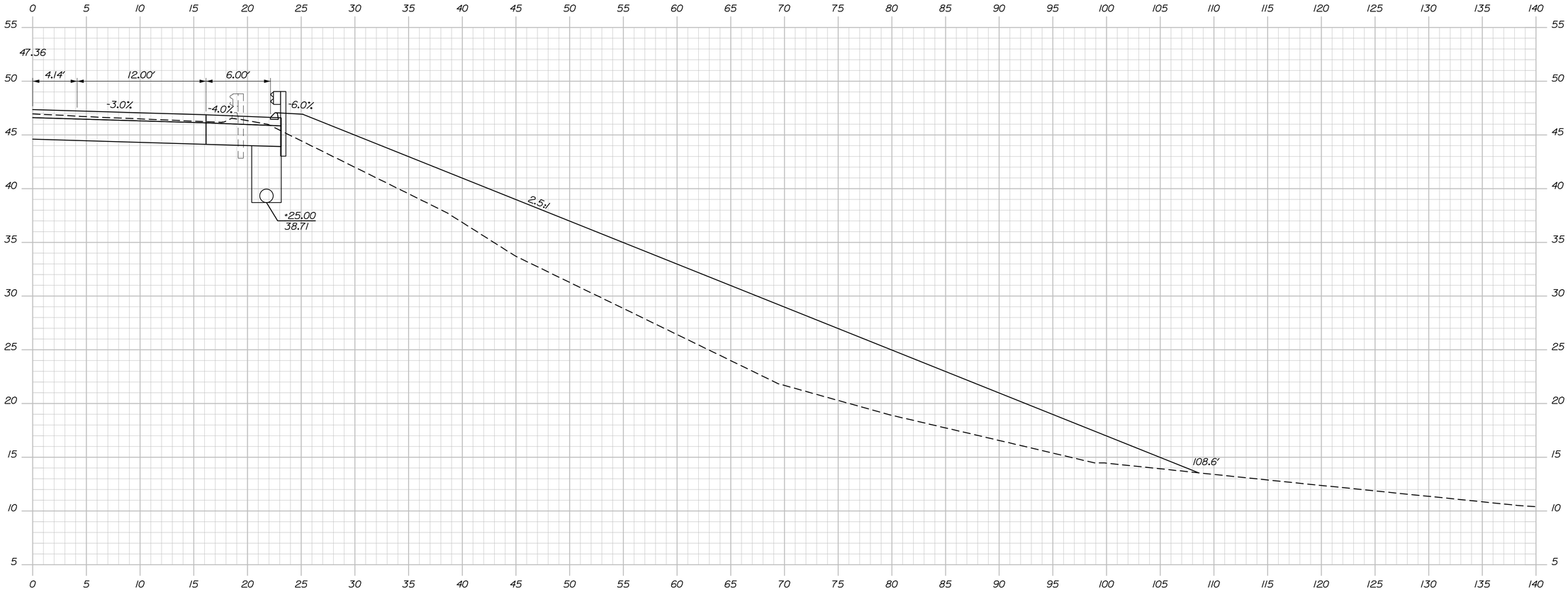
Sta. 79+00.00 to Sta. 79+00.00

Username:

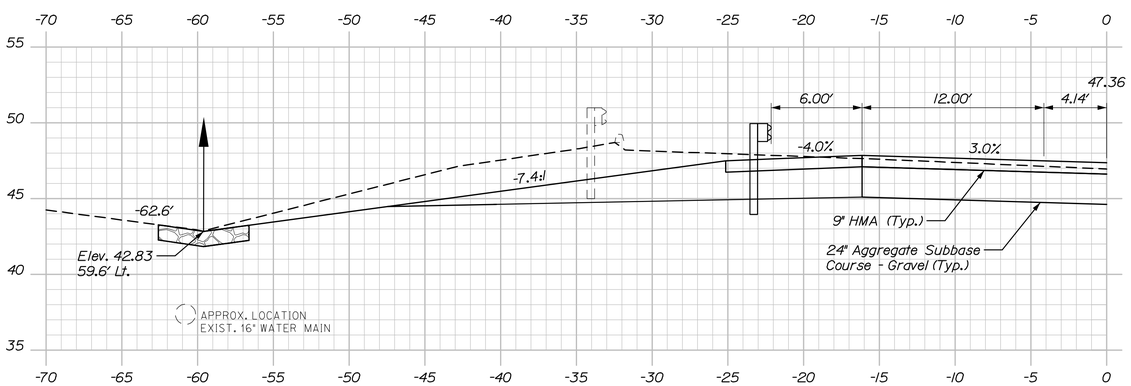
Division:

Date:8/25/2021

Filename: Xsections.dgn



79+25.00 RT



79+25.00 LT

Sta. 79+01.94, 30.31' Lt. to Sta. 79+24.94, 22.14' Lt. Install 31' W-Beam Guardrail Mid-Way Splice, 40' Radius w/ Anchorage Assembly (Total Length = 25 LF)

Sta. 79+24.94, 22.14' Lt. to Sta. 79+99.40, 20.49' Lt. Install 31' W-Beam Guardrail Mid-Way Splice (Total Length = 75 LF)

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Easton, P.E.	BY	DATE
DESIGN-DETAILED	A. Sweet	D. Burton	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

SHEET NUMBER

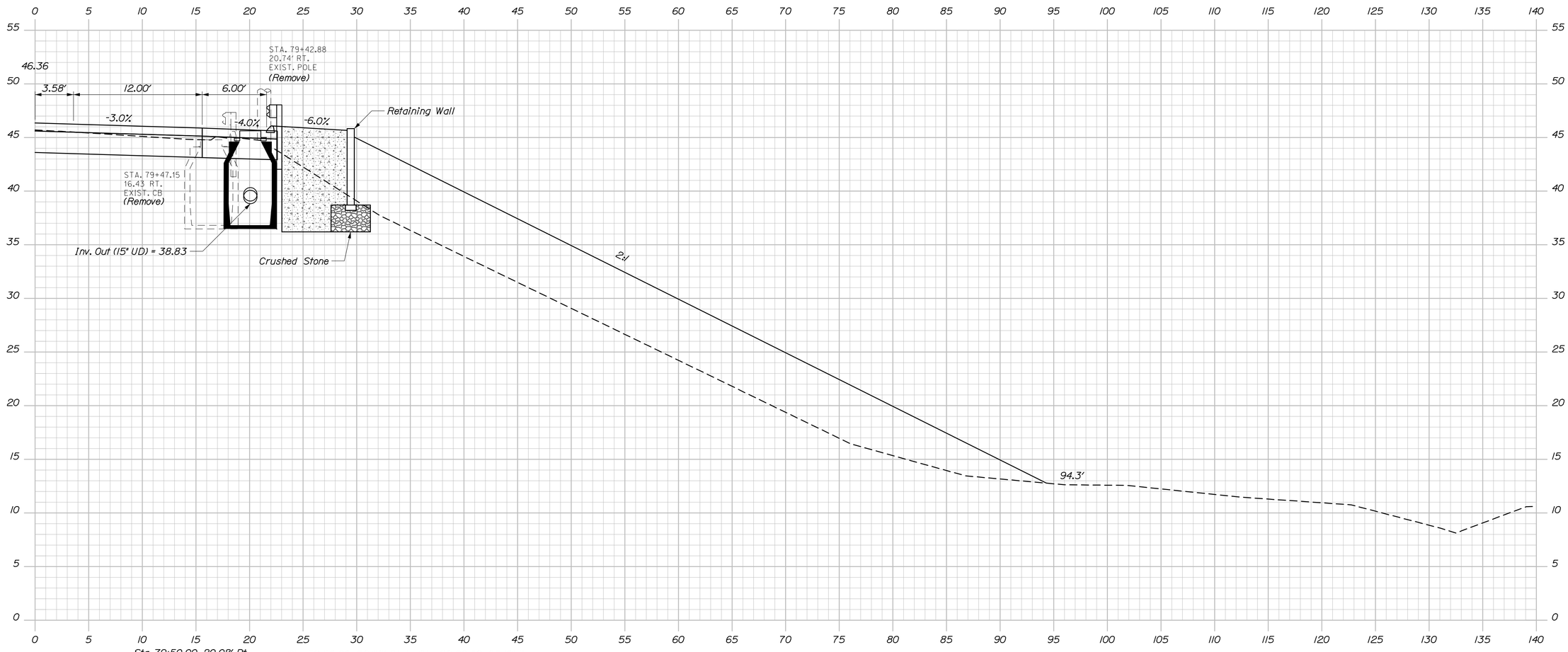
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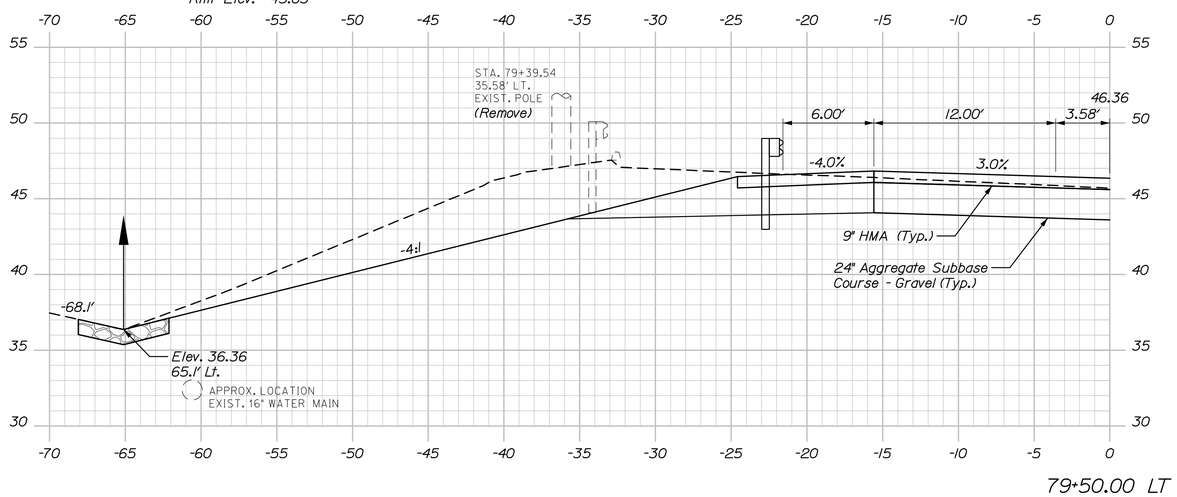
OF 183

HNTB

Sta. 79+25.00 to Sta. 79+25.00

Filename: Xsections.dgn Division: Username: Date:8/25/2021





STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	A. Sweet	D. Burton	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

SHEET NUMBER

54

OF 183

HNTB

Sta. 79+50.00 to Sta. 79+50.00

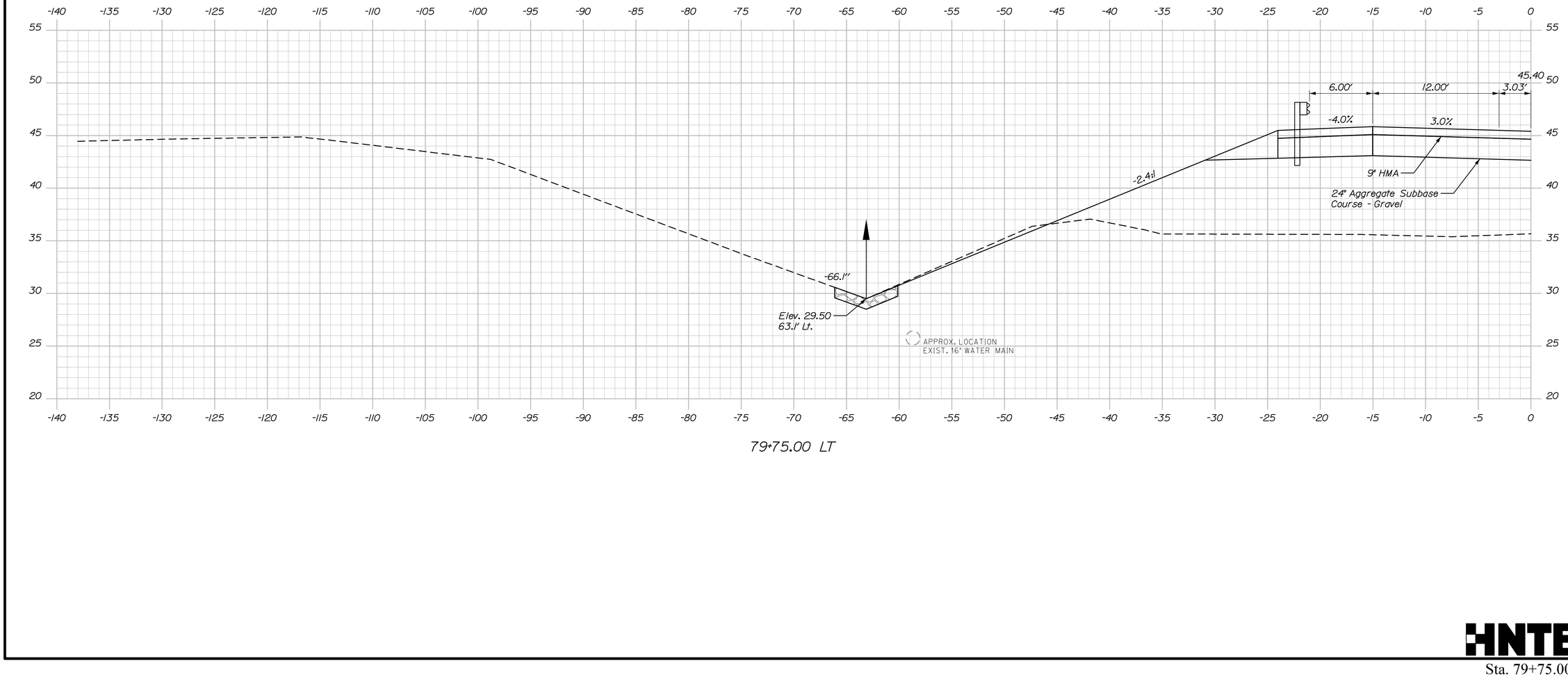
Filename: Xsections.dgn Division: Username: Date:8/25/2021

Date:8/25/2021

Username:

Division:

Filename: Xsections.dgn



79+75.00 LT

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	A. Sweet	D. Burton	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

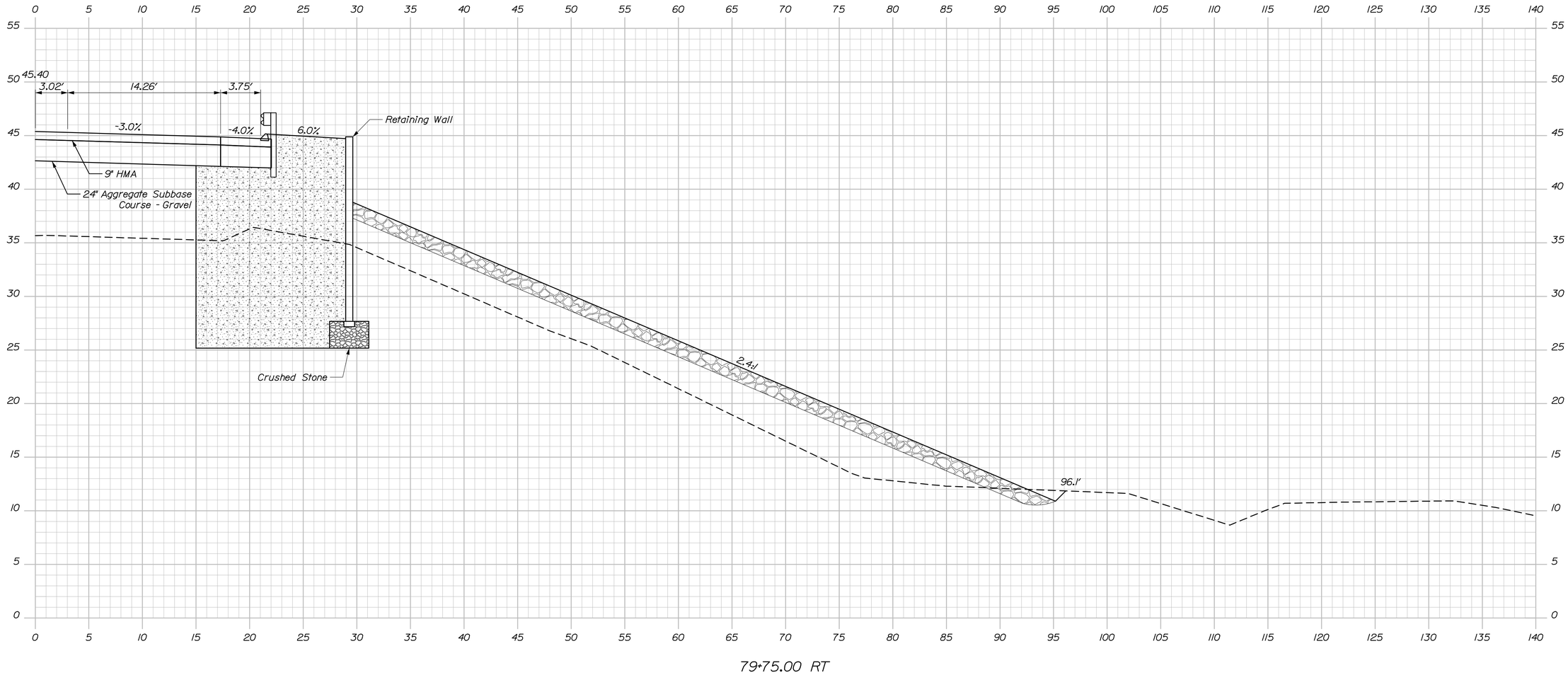
SHEET NUMBER

55

OF 183

HNTB

Sta. 79+75.00 to Sta. 79+75.00



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	A. Sweet	08\21
CHECKED-REVIEWED	L. Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

SHEET NUMBER

56

OF 183

HNTB

Sta. 79+75.00 to Sta. 79+75.00

Date:8/25/2021

Username:

Division:

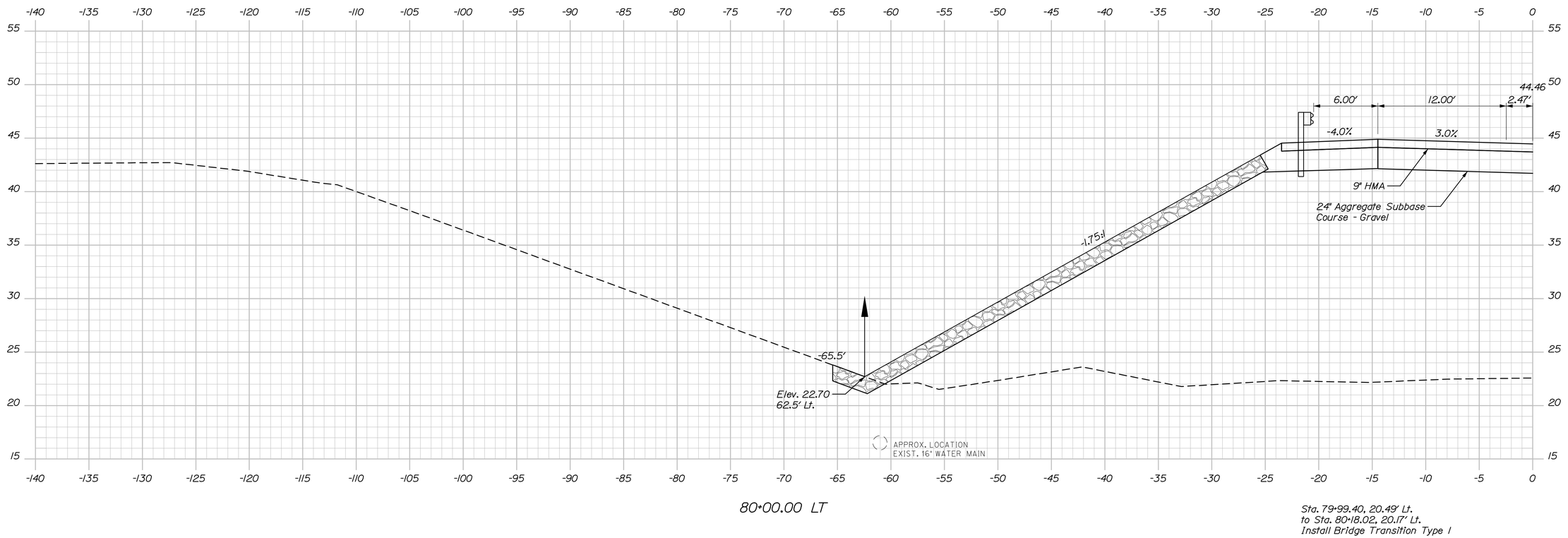
Filename: Xsections.dgn

Date:8/25/2021

Username:

Division:

Filename: Xsections.dgn



80+00.00 LT

Sta. 79+99.40, 20.49' Lt.
to Sta. 80+18.02, 20.17' Lt.
Install Bridge Transition Type I

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	A. Sweet	08\21
CHECKED-REVIEWED	L. Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

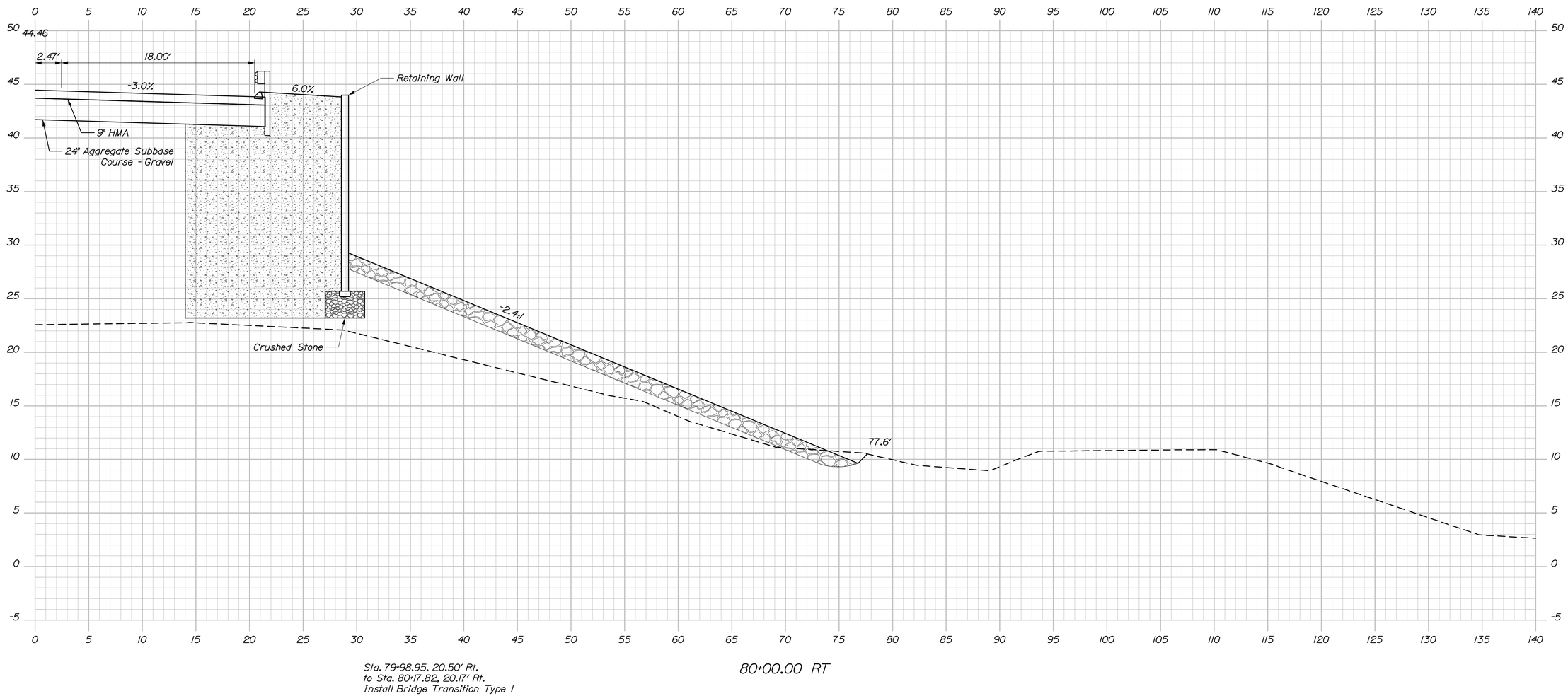
CROSS SECTIONS

SHEET NUMBER

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Sta. 80+00.00 to Sta. 80+00.00



Sta. 79+98.95, 20.50' Rt.
to Sta. 80+17.82, 20.17' Rt.
Install Bridge Transition Type I

80+00.00 RT

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Elston, P.E.		
DESIGN-DETAILED	A. Sweet	08\21	
CHECKED-REVIEWED	L. Driscoll	08\21	
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

BY | DATE

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

CROSS SECTIONS

SHEET NUMBER

58

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HNTB

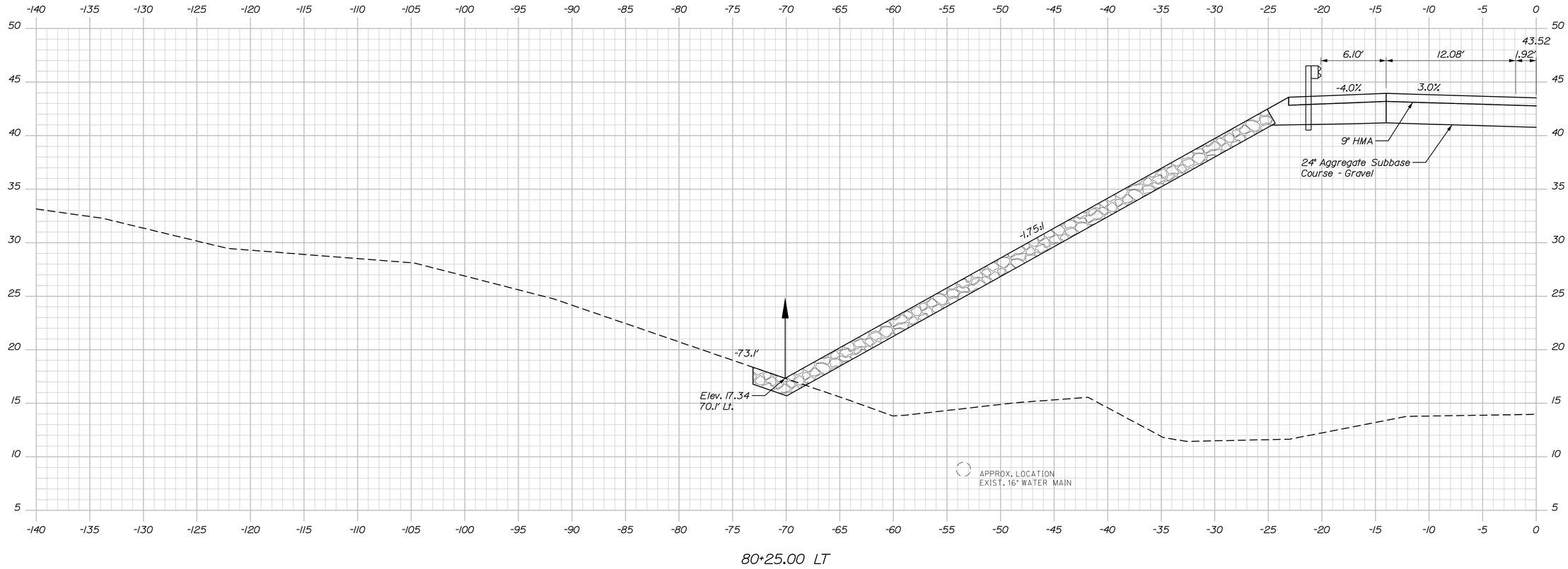
Date:8/25/2021

Username:

Division:

Filename: Xsections.dgn

Sta. 80+00.00 to Sta. 80+00.00



80+25.00 LT

Sta. 80+25.00 to Sta. 80+25.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

	SIGNATURE	P.E. NUMBER	DATE
PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	A. Sweet		
CHECKED-REVIEWED	L. Driscoll		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

BY	DATE
D. Burton	08\21
T. Cote	08\21

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

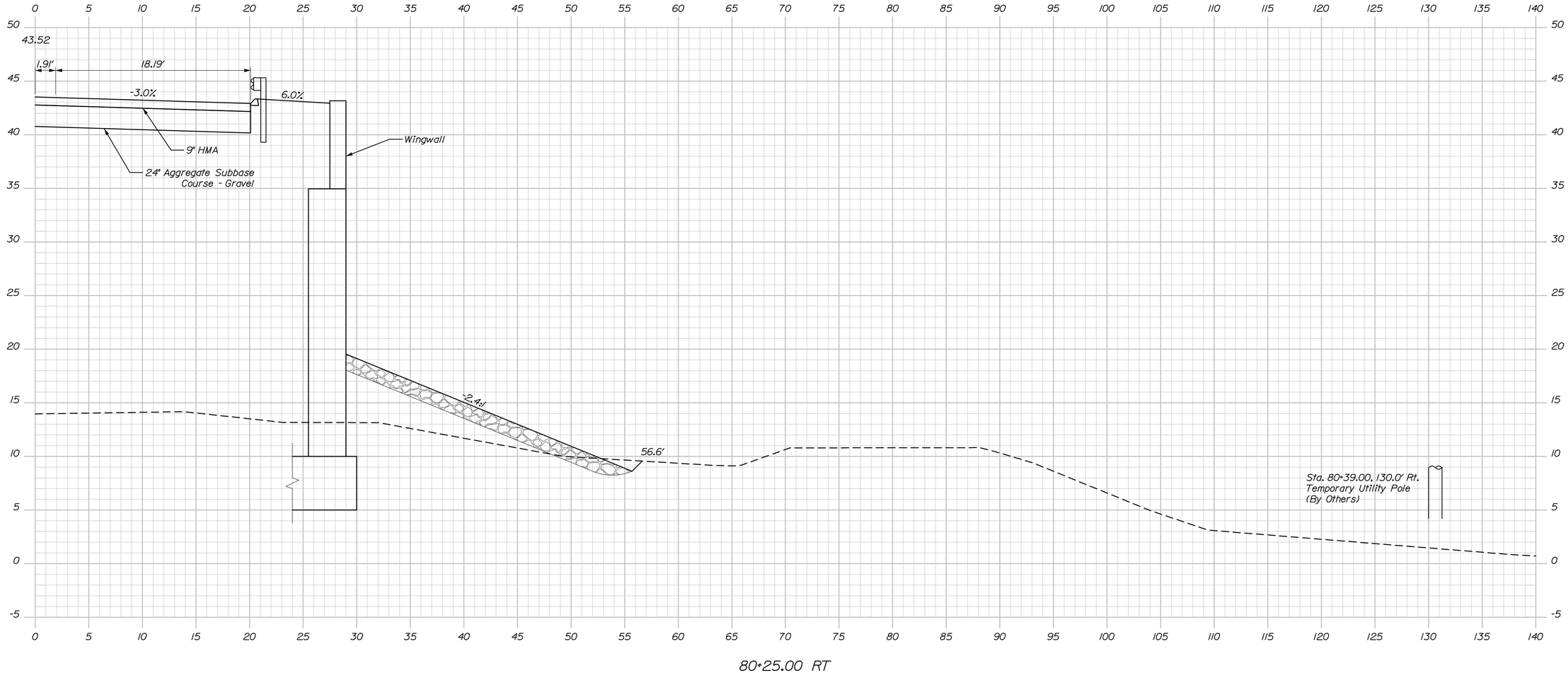
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HNTB

Filename: Xsections.dgn Division: Username: Date:8/25/2021



80+25.00 RT

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	A. Sweet	08\21
CHECKED-REVIEWED	L. Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS

SHEET NUMBER

60

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HNTB

Sta. 80+25.00 to Sta. 80+25.00

Filename: Xsections.dgn Division: Username: Date:8/25/2021

Username:

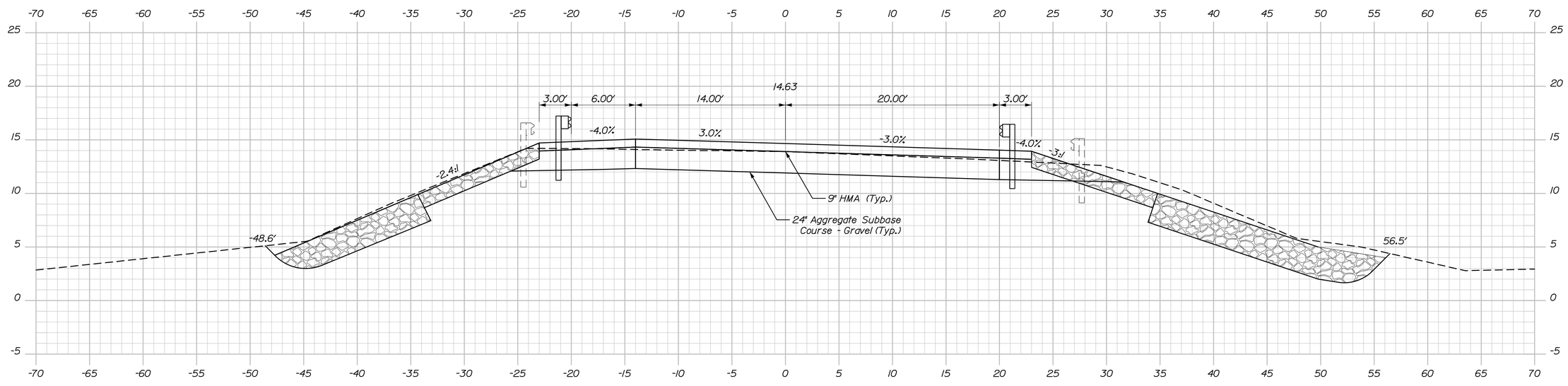
Date:8/25/2021

Division:

Filename: Xsections.dgn

Sta. 86+83.60, 20.00' Lt.
to Sta. 89+29.39, 20.00' Lt.
Install 31' W-Beam Guardrail
Mid-Way Splice (Total Length = 246.875 LF)

Sta. 86+84.04, 20.00' Rt.
to Sta. 87+31.23, 20.00' Rt.
Install 31' W-Beam Guardrail
Mid-Way Splice (Total Length = 46.875 LF)



Sta. 86+75.72, Lt.
Install Riprap Downspout

Sta. 86+64.98, 20.00' Lt.
to Sta. 86+83.60, 20.00' Lt.
Install Bridge Transition Type I

86+75.00

Sta. 86+65.17, 20.00' Rt.
to Sta. 86+84.04, 20.00' Rt.
Install Bridge Transition Type I

Sta. 86+76.05, Rt.
Install Riprap Downspout

HNTB

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	A. Sweet	D. Burton	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

SIGNATURE

P.E. NUMBER

DATE

2392900

WIN 23929.00

BRIDGE NO.3039 BRIDGE PLANS

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

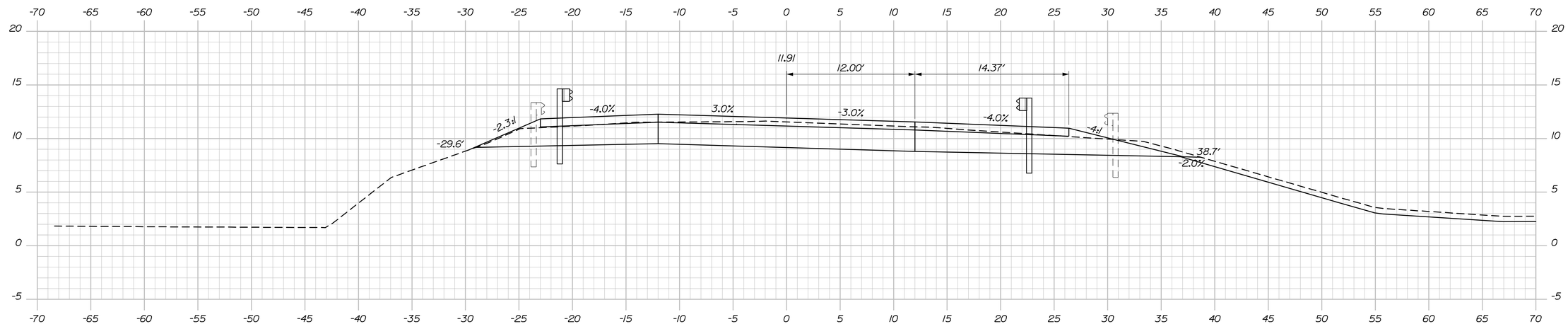
CROSS SECTIONS

SHEET NUMBER

61

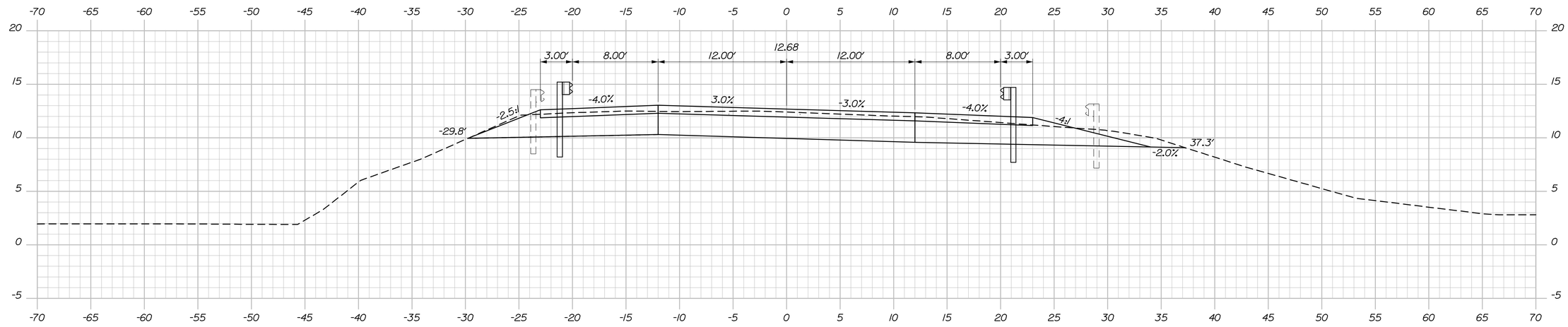
OF 183

Sta. 86+75.00

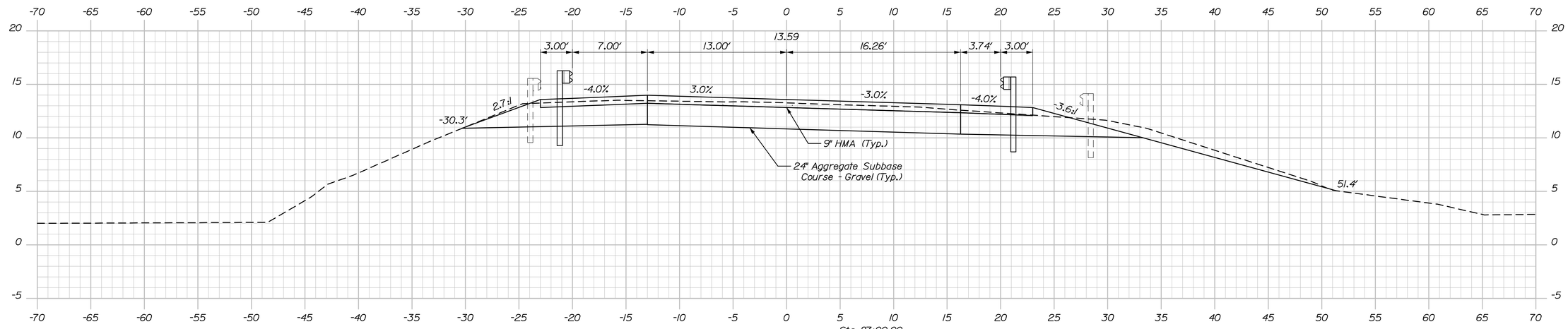


87+50.00

Sta. 87+31.23, 20.00' Rt
to Sta. 87+70.99, 23.00' Rt
Install 31' W-Beam Guardrail
Mid-Way Splice Flared Terminal



87+25.00



Note:
Grubbing and pavement removal is shown on Preload Cross Sections.

87+00.00

Sta. 87+00.00
End Project WIN 023929.00
Begin Project WIN 023929.01

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Elston, P.E.	
DESIGN-DETAILED	B. Grenier	08\21
CHECKED-REVIEWED	L. Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS
ROUTE 1

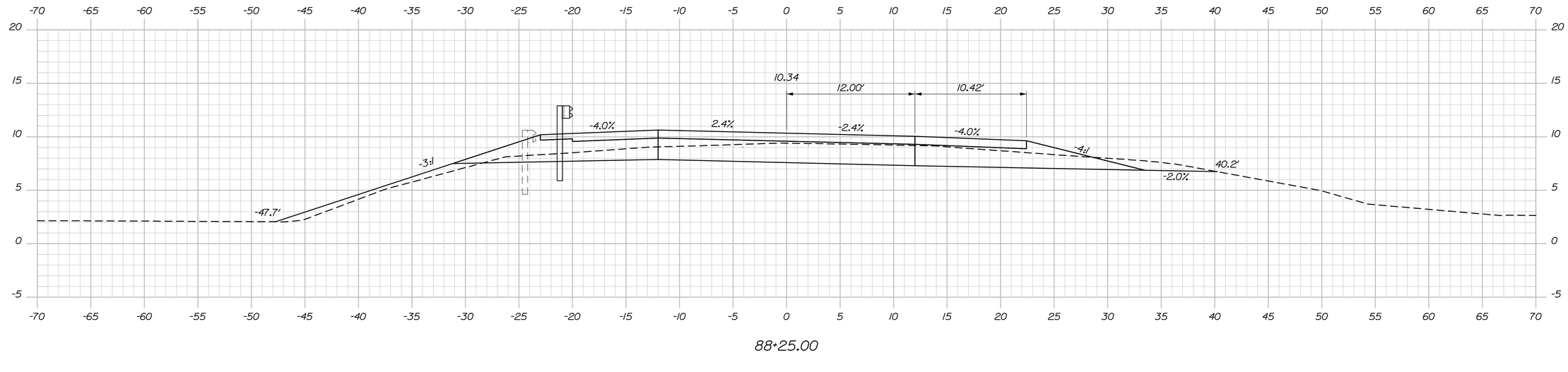
SHEET NUMBER

62

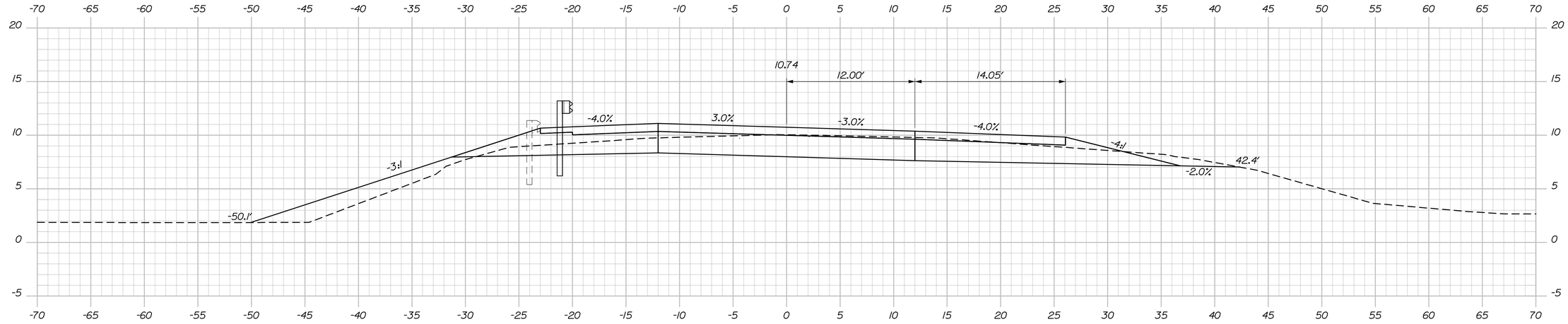
OF 183

Filename: XSection - Pleasant Cove.dgn Division: Username: Date:8/25/2021

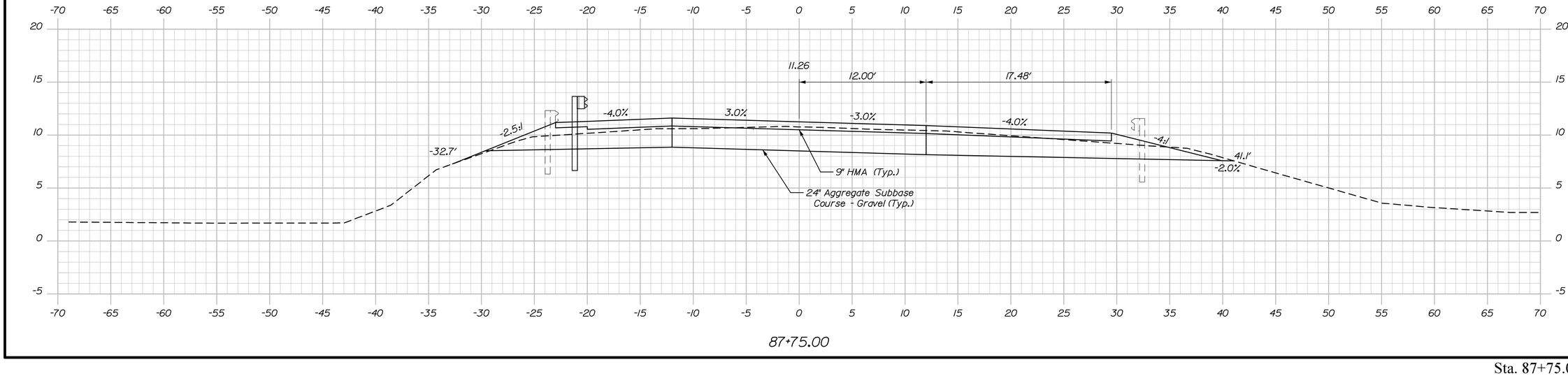
Sta. 87+00.00 to Sta. 87+50.00



88+25.00



88+00.00



87+75.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	B. Greiner	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS
ROUTE 1

SHEET NUMBER

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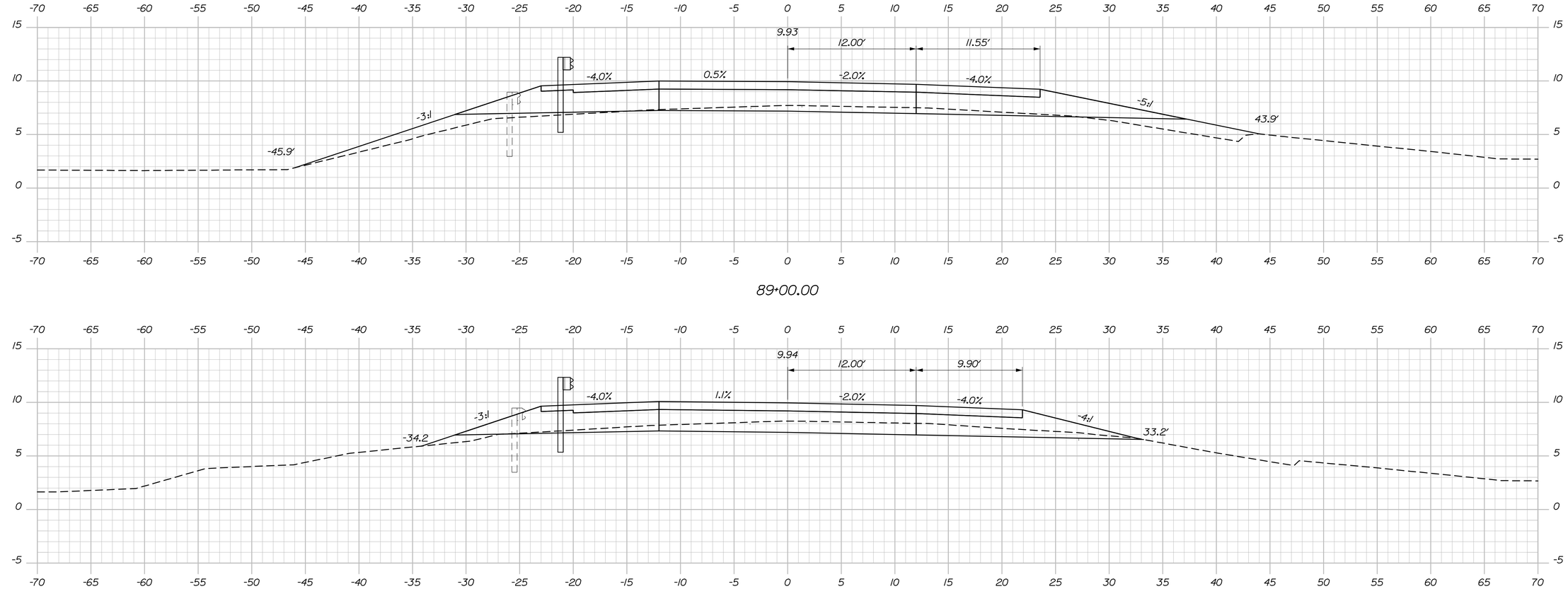
Sta. 87+75.00 to Sta. 88+25.00

Username:

Division:

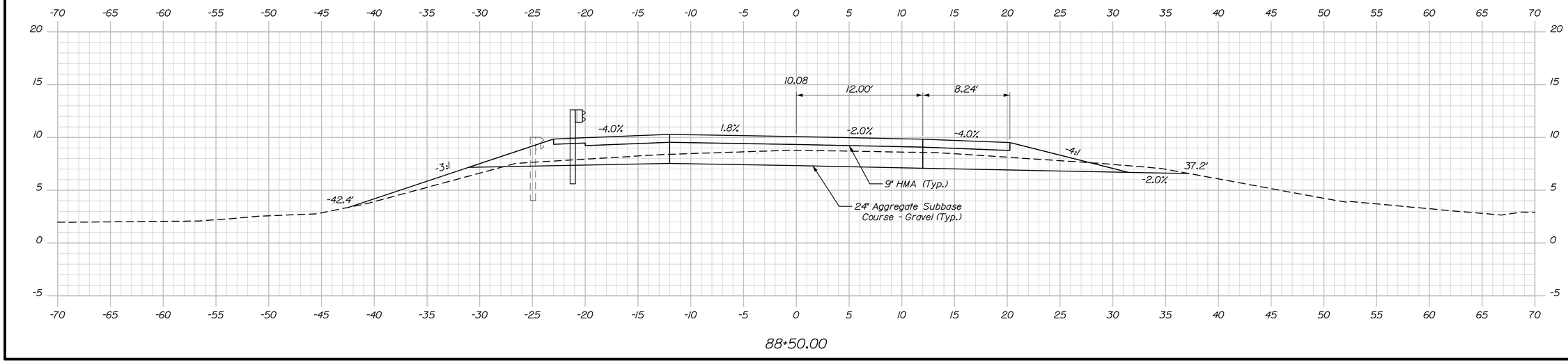
Date:8/25/2021

Filename: XSection - Pleasant Cove.dgn



89+00.00

88+75.00



88+50.00

Sta. 88+50.00 to Sta. 89+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Elston, P.E.	
DESIGN-DETAILED	B. Grenier	08\21
CHECKED-REVIEWED	L. Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS
ROUTE 1

SHEET NUMBER

64

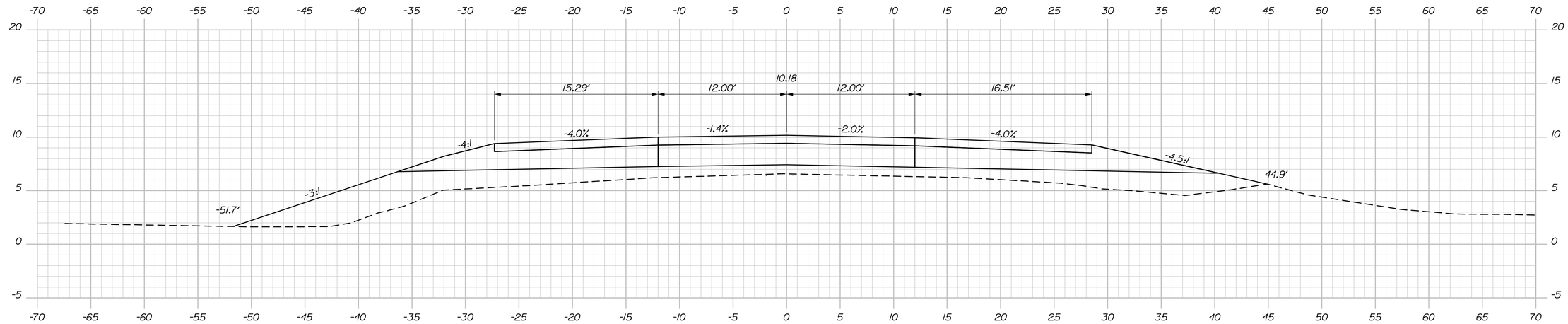
OF 183

Username:

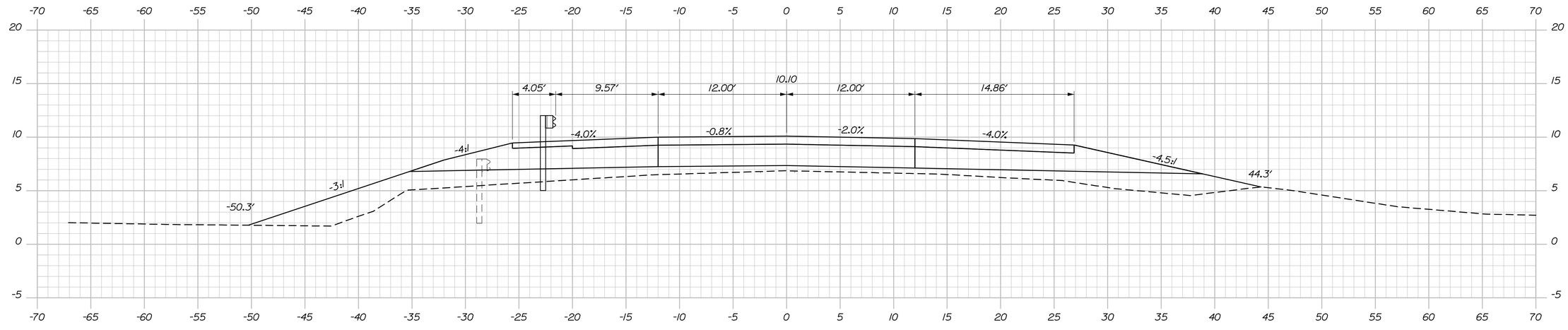
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Division:

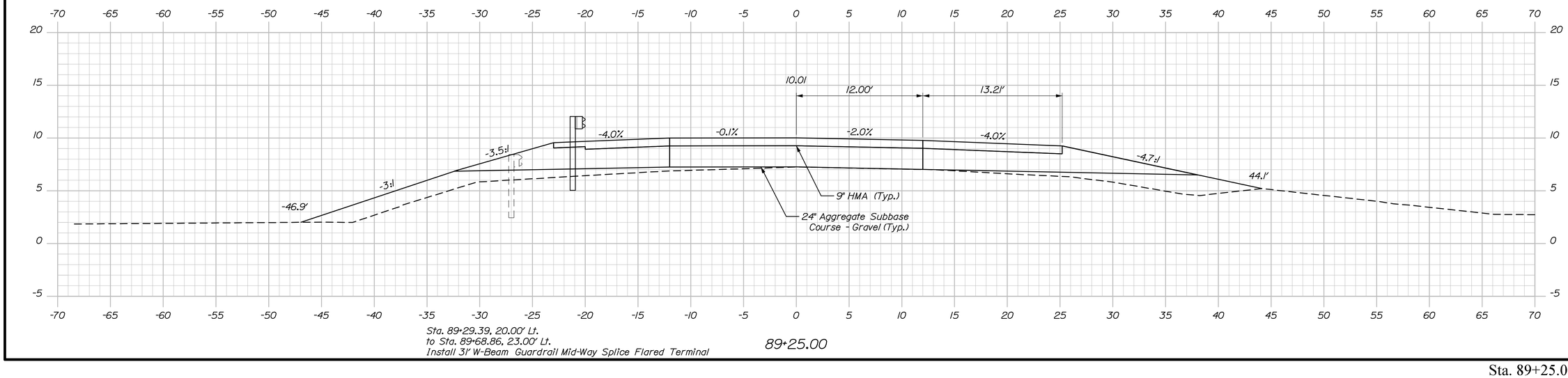
Filename: XSection - Pleasant Cove.dgn



89+75.00



89+50.00



Sta. 89+29.39, 20.00′ Lt.
to Sta. 89+68.86, 23.00′ Lt.
Install 31′ W-Beam Guardrail Mid-Way Splice Flared Terminal

89+25.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	B. Greiner	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

CROSS SECTIONS
ROUTE 1

SHEET NUMBER

65

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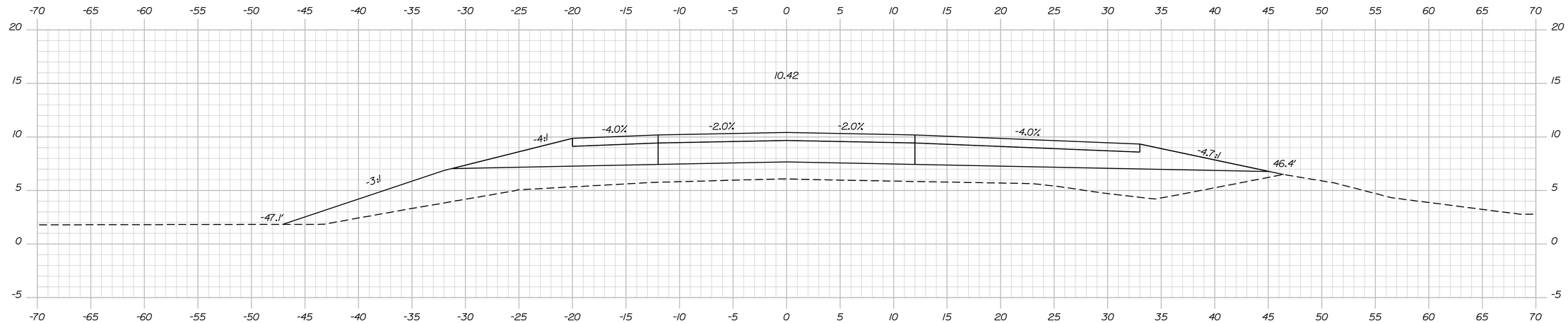
Sta. 89+25.00 to Sta. 89+75.00

Username:

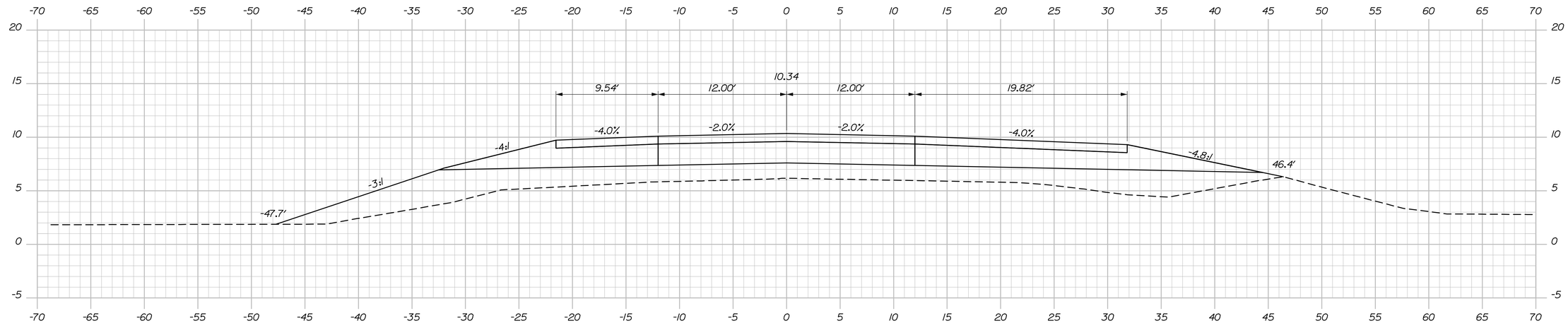
Division:

Date:8/25/2021

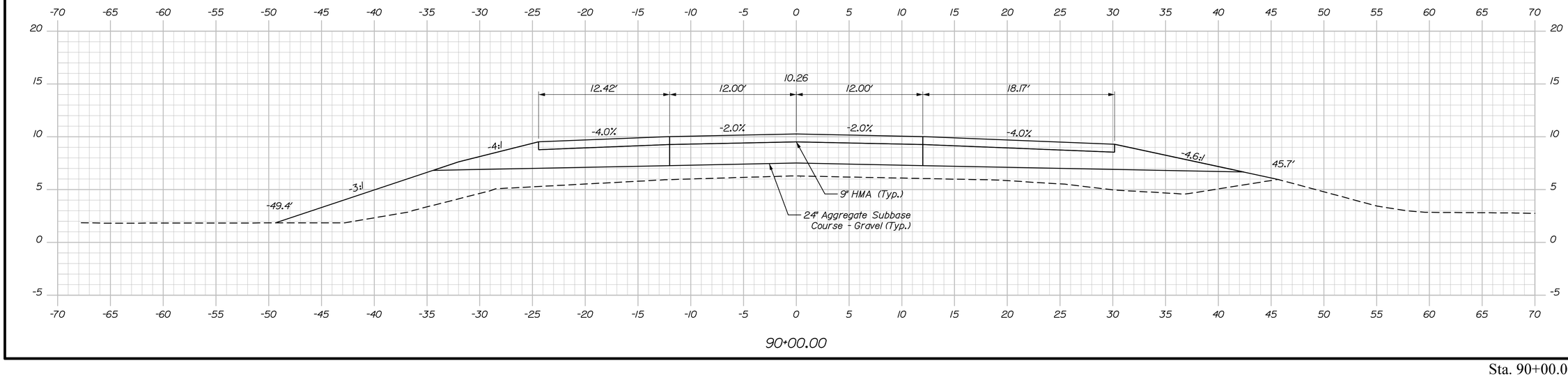
Filename: XSection - Pleasant Cove.dgn



90+50.00



90+25.00



90+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	B. Grenier	BY	DATE
CHECKED-REVIEWED	L. Driscoll	P. Bishop	08\21
DESIGN2-DETAILED2		T. Cote	08\21
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

CROSS SECTIONS
ROUTE 1

SHEET NUMBER

66

OF 183

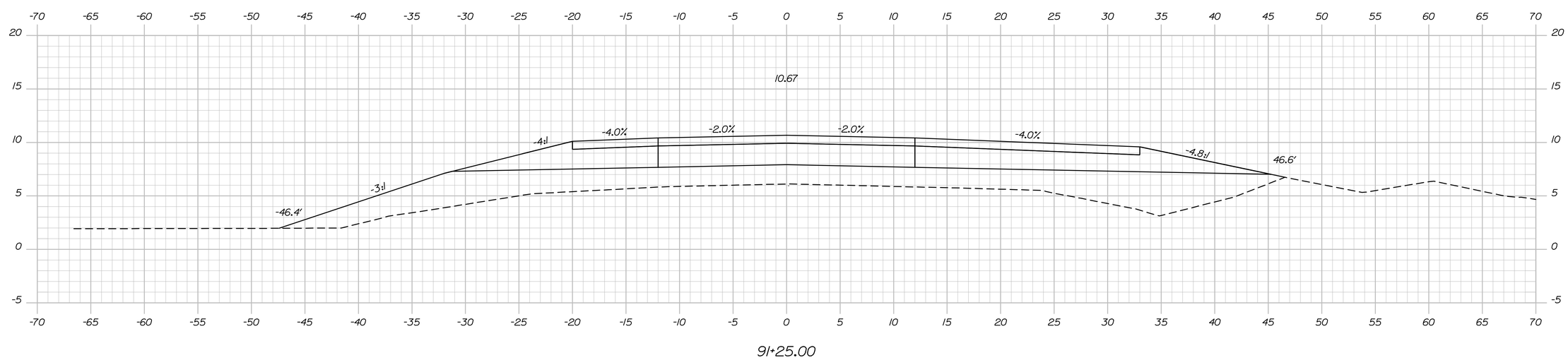
Sta. 90+00.00 to Sta. 90+50.00

Username:

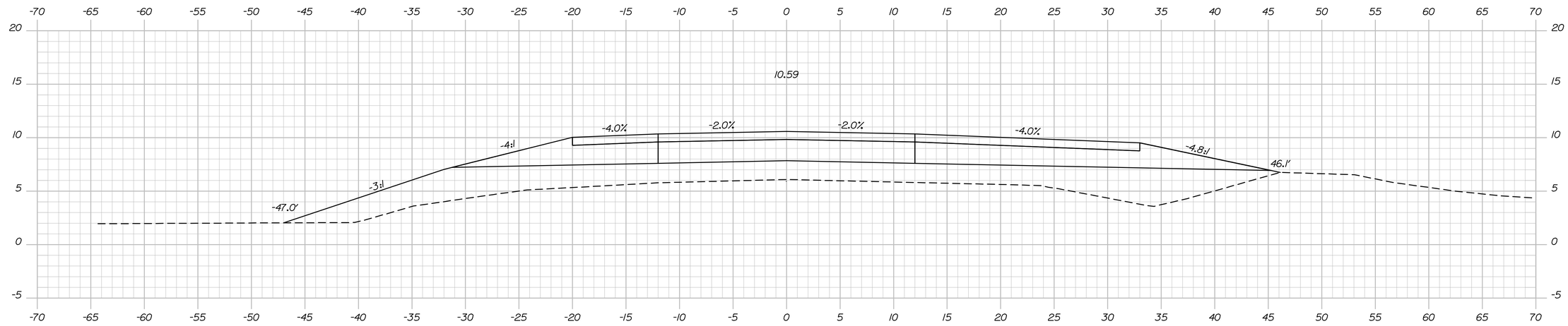
Division:

Date:8/25/2021

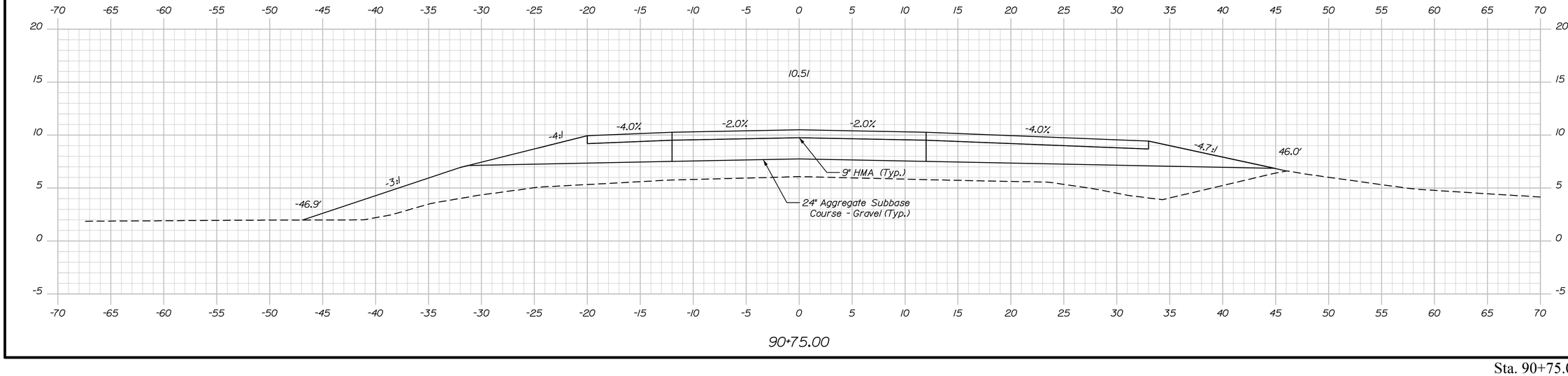
Filename: XSection - Pleasant Cove.dgn



91+25.00



91+00.00



90+75.00

Sta. 90+75.00 to Sta. 91+25.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	B. Greiner	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

CROSS SECTIONS
ROUTE 1

SHEET NUMBER

67

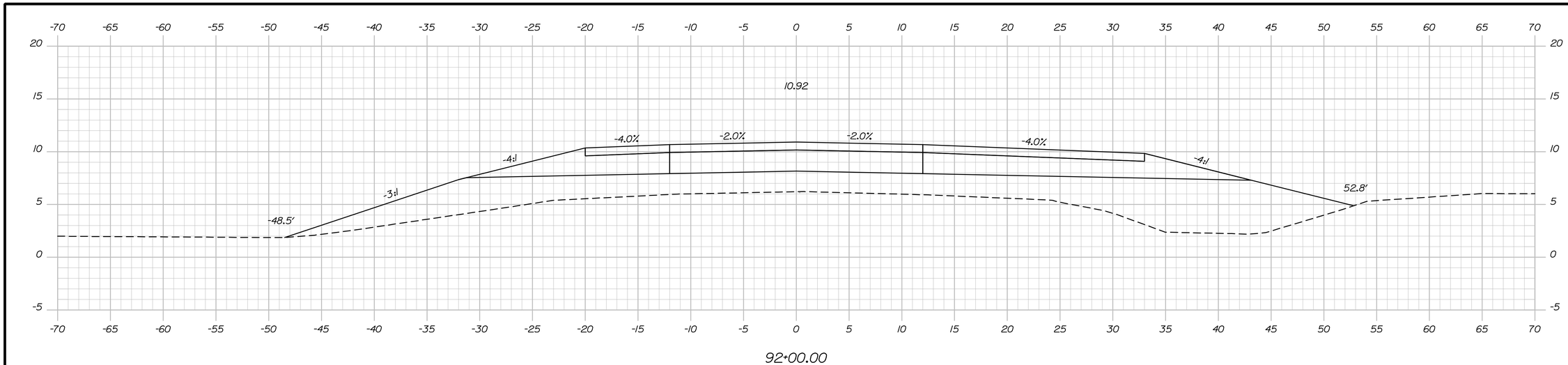
OF 183

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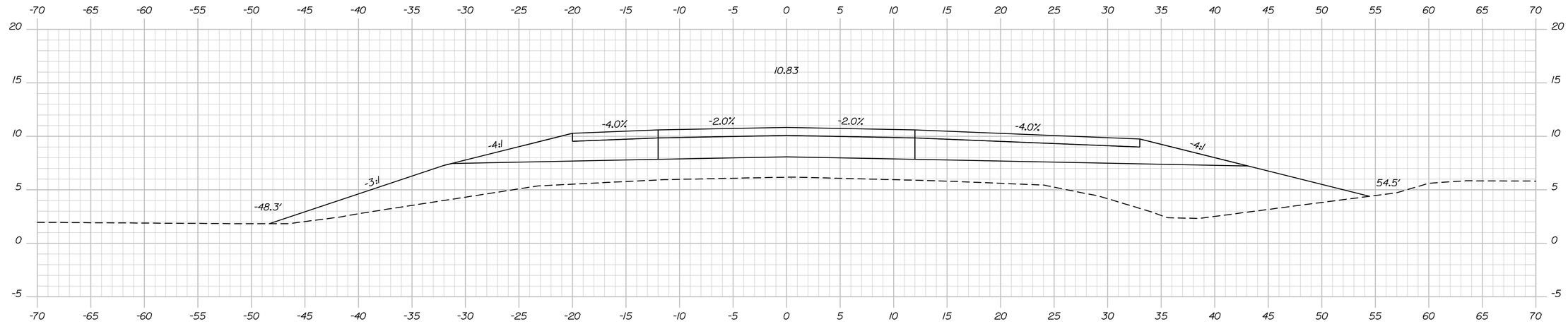
Division:

Date:8/25/2021

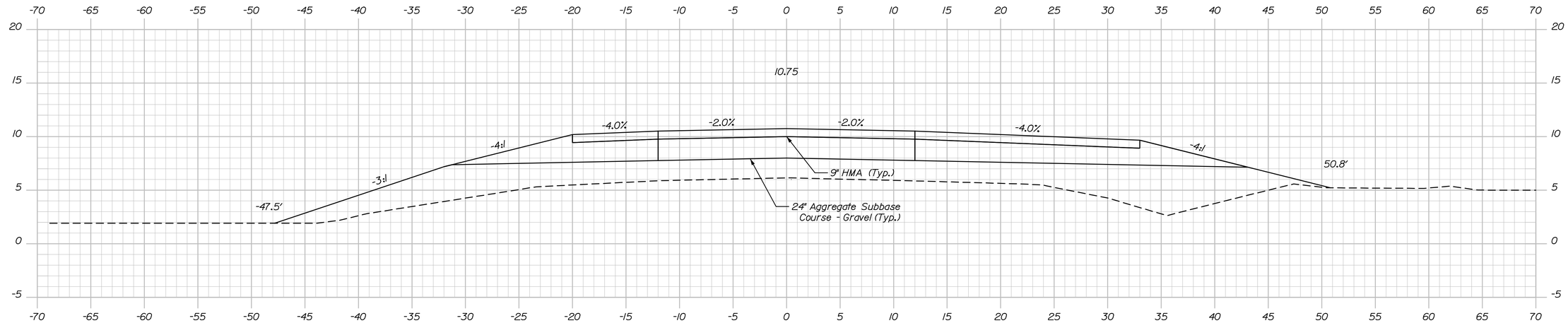
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92+00.00



91+75.00



91+50.00

Sta. 91+50.00 to Sta. 92+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE PLANS

BRIDGE NO.6667

	SIGNATURE	P.E. NUMBER	DATE
PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	B. Grenier		
CHECKED-REVIEWED	L. Driscoll		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

BY	DATE
P. Bishop	08\21
T. Cote	08\21

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

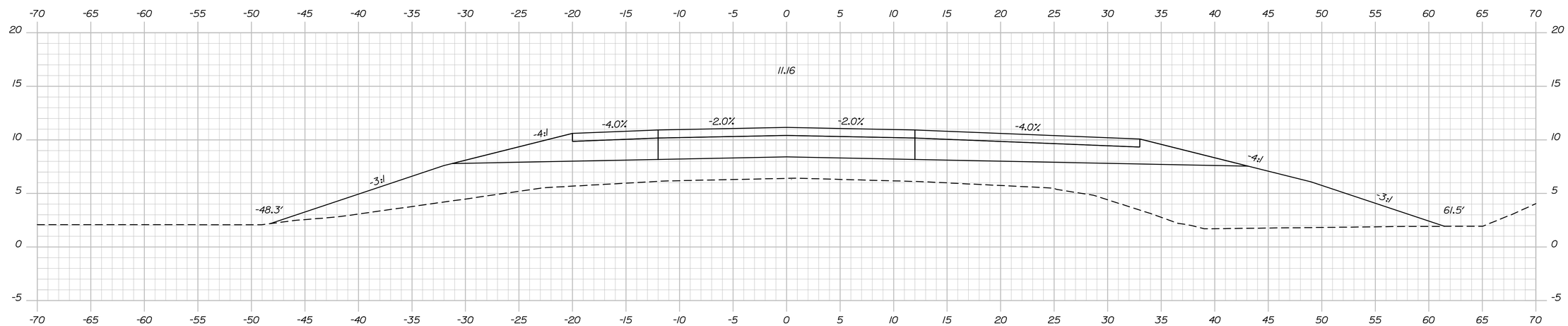
CROSS SECTIONS
ROUTE 1

SHEET NUMBER

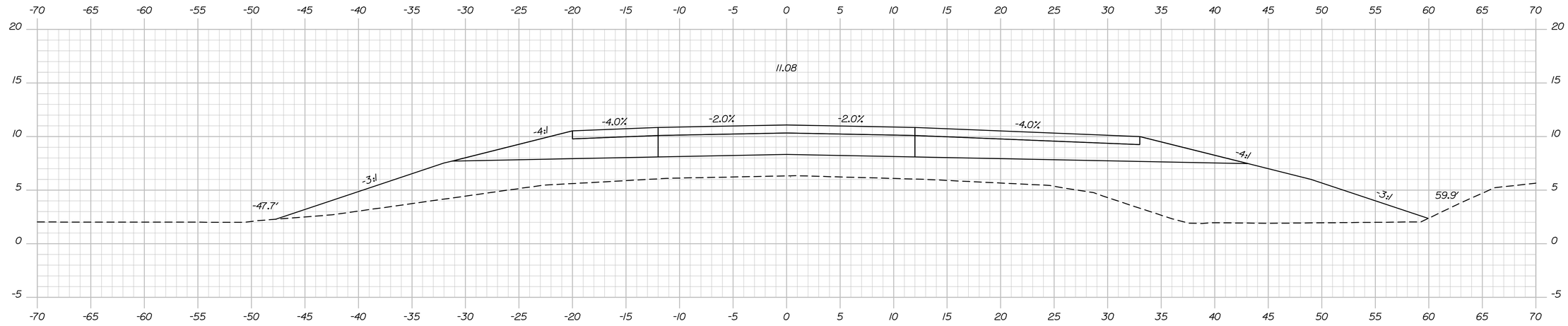
68

OF 183

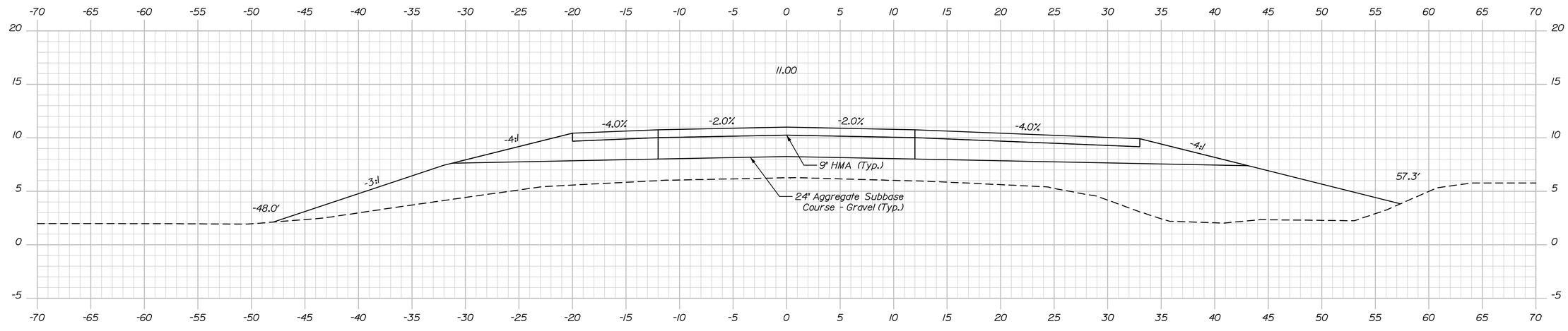
Filename: XSection - Pleasant Cove.dgn Division: Username: Date:8/25/2021



92+75.00



92+50.00



92+25.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

PROJ. MANAGER	D. Elston, P.E.		
DESIGN-DETAILED	B. Grenier	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS
ROUTE 1

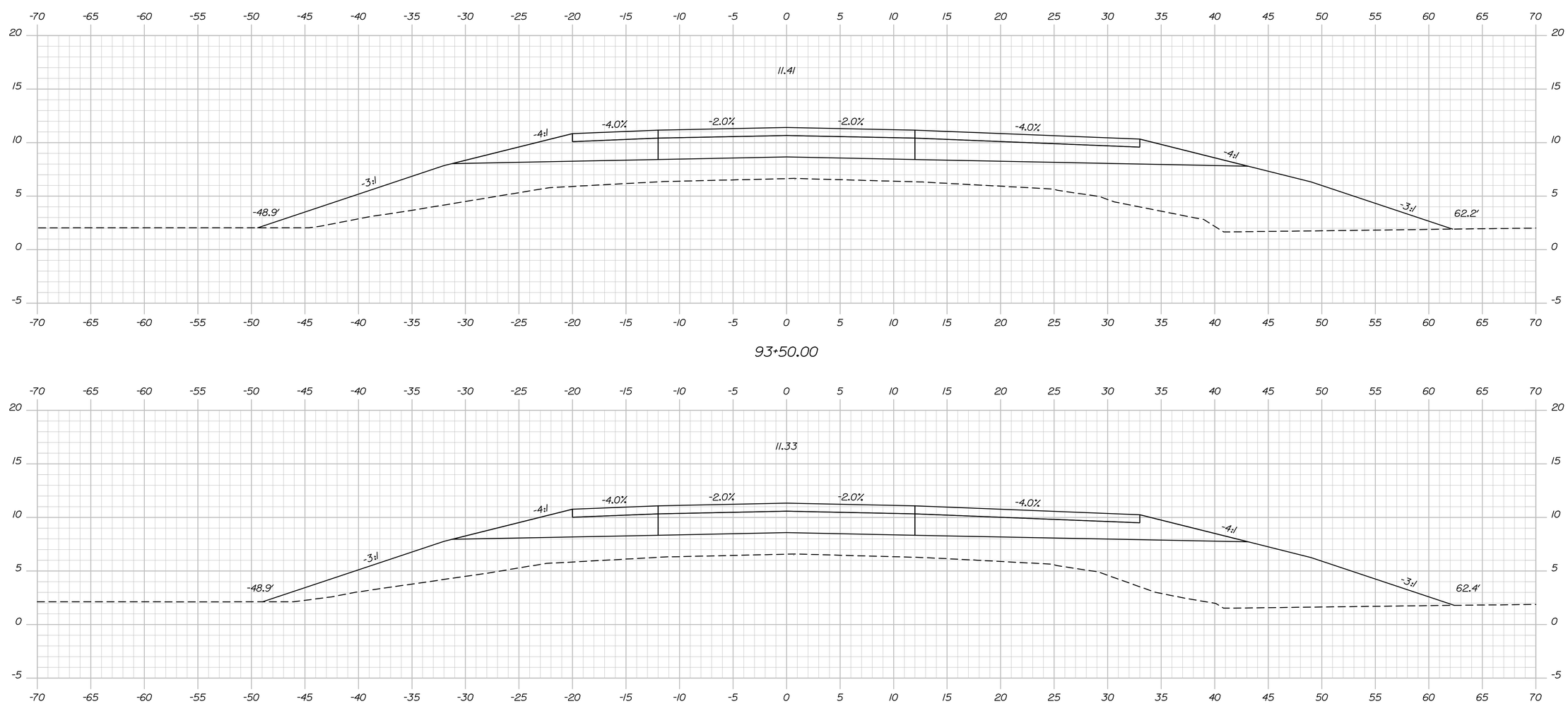
SHEET NUMBER

69

OF 183

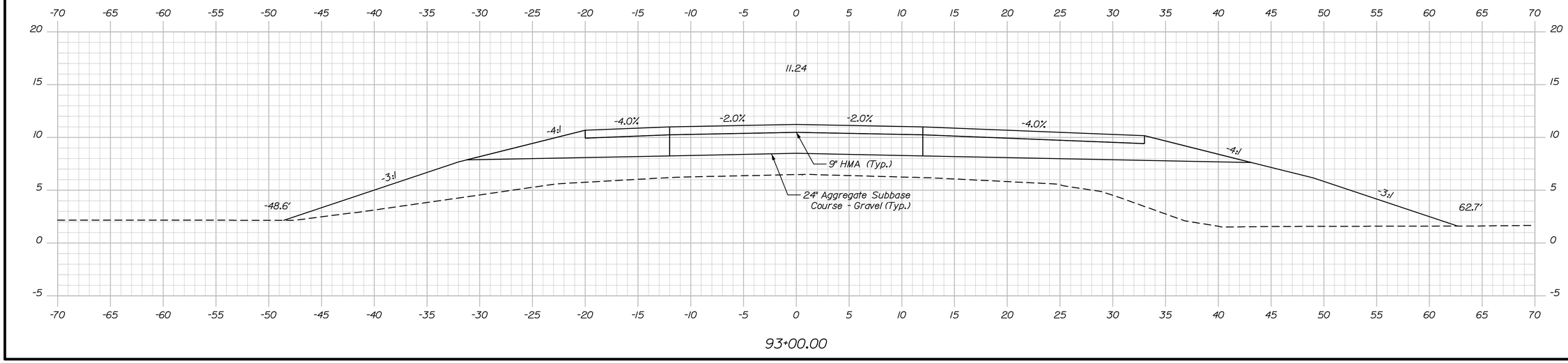
Sta. 92+25.00 to Sta. 92+75.00

Filename: XSection - Pleasant Cove.dgn Division: Username: Date:8/25/2021



93+50.00

93+25.00



93+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	B. Grenier	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS
ROUTE 1

SHEET NUMBER

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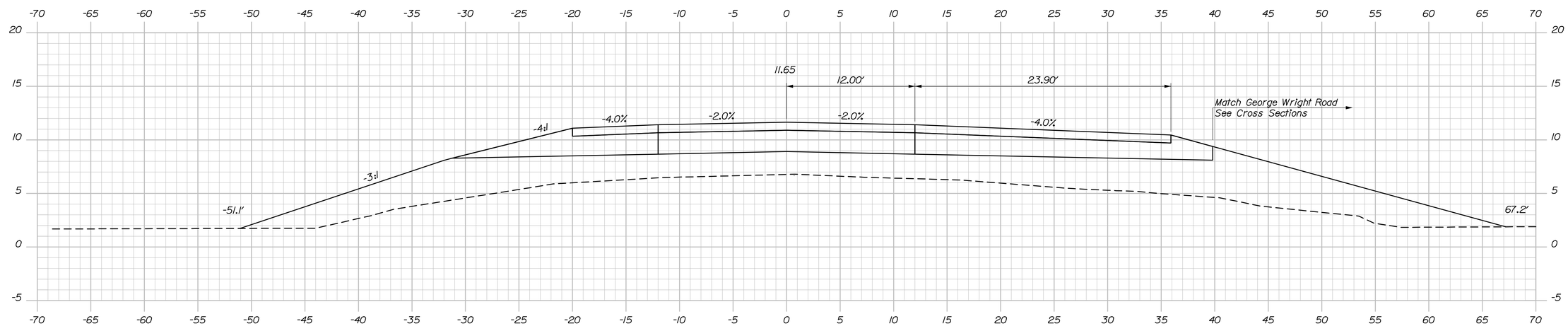
Date:8/25/2021

Username:

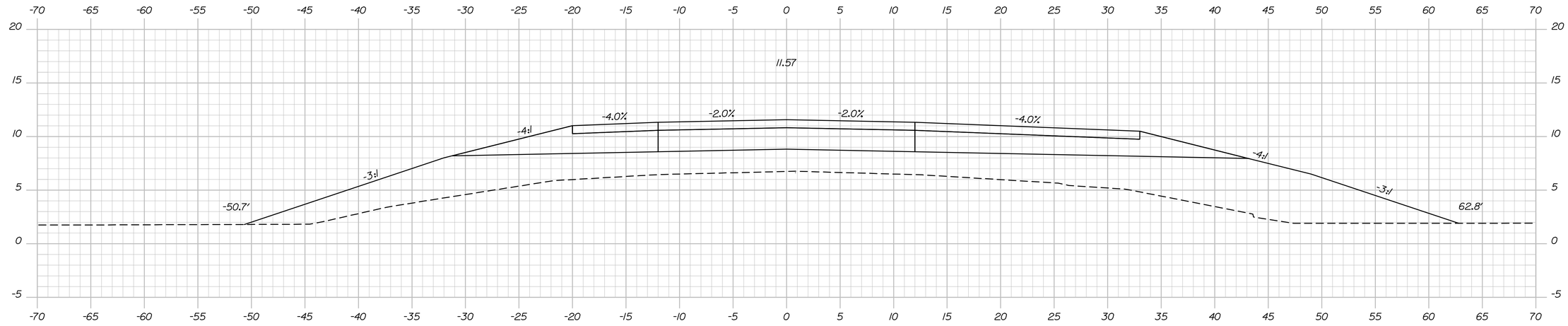
Division:

Filename: XSection - Pleasant Cove.dgn

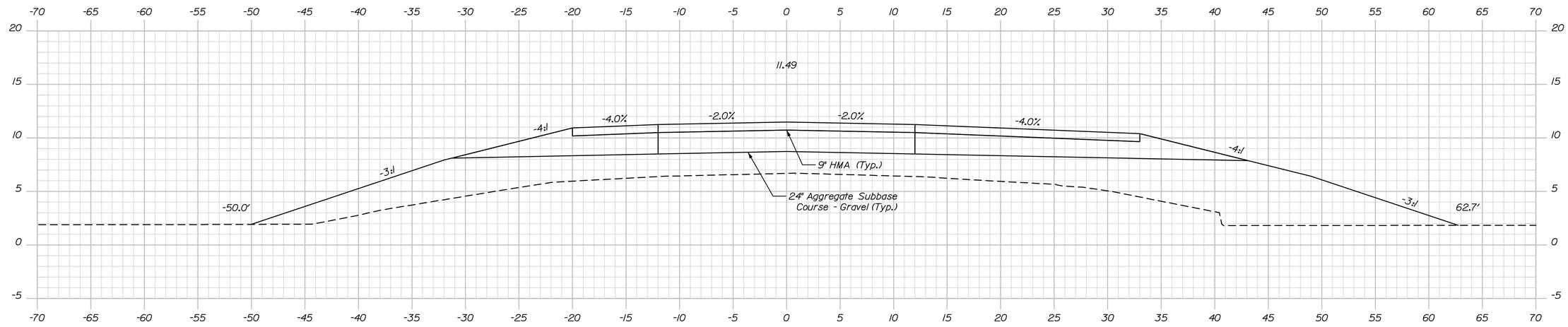
Sta. 93+00.00 to Sta. 93+50.00



94+25.00



94+00.00



93+75.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

PROJ. MANAGER	D. Elston, P.E.		
DESIGN-DETAILED	B. Grenier	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS ROUTE 1

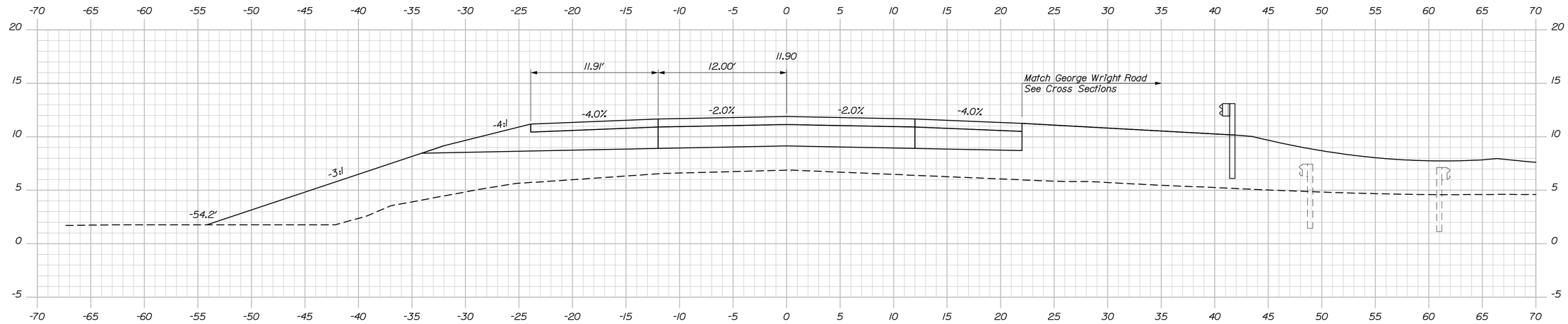
SHEET NUMBER

71

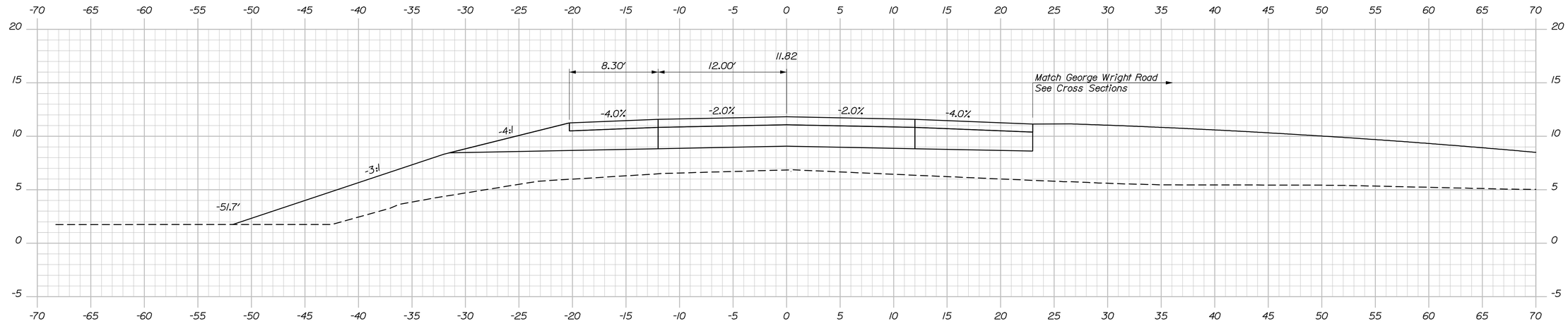
OF 183

Sta. 93+75.00 to Sta. 94+25.00

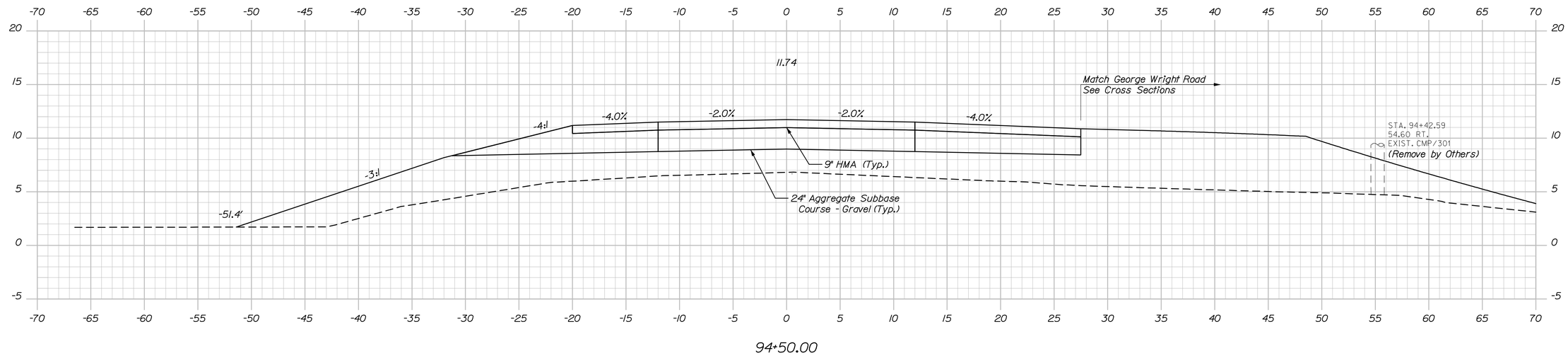
Filename: XSection - Pleasant Cove.dgn Division: Username: Date:8/25/2021



95+00.00



94+75.00



94+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	B. Greiner	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

CROSS SECTIONS
ROUTE 1

SHEET NUMBER

72

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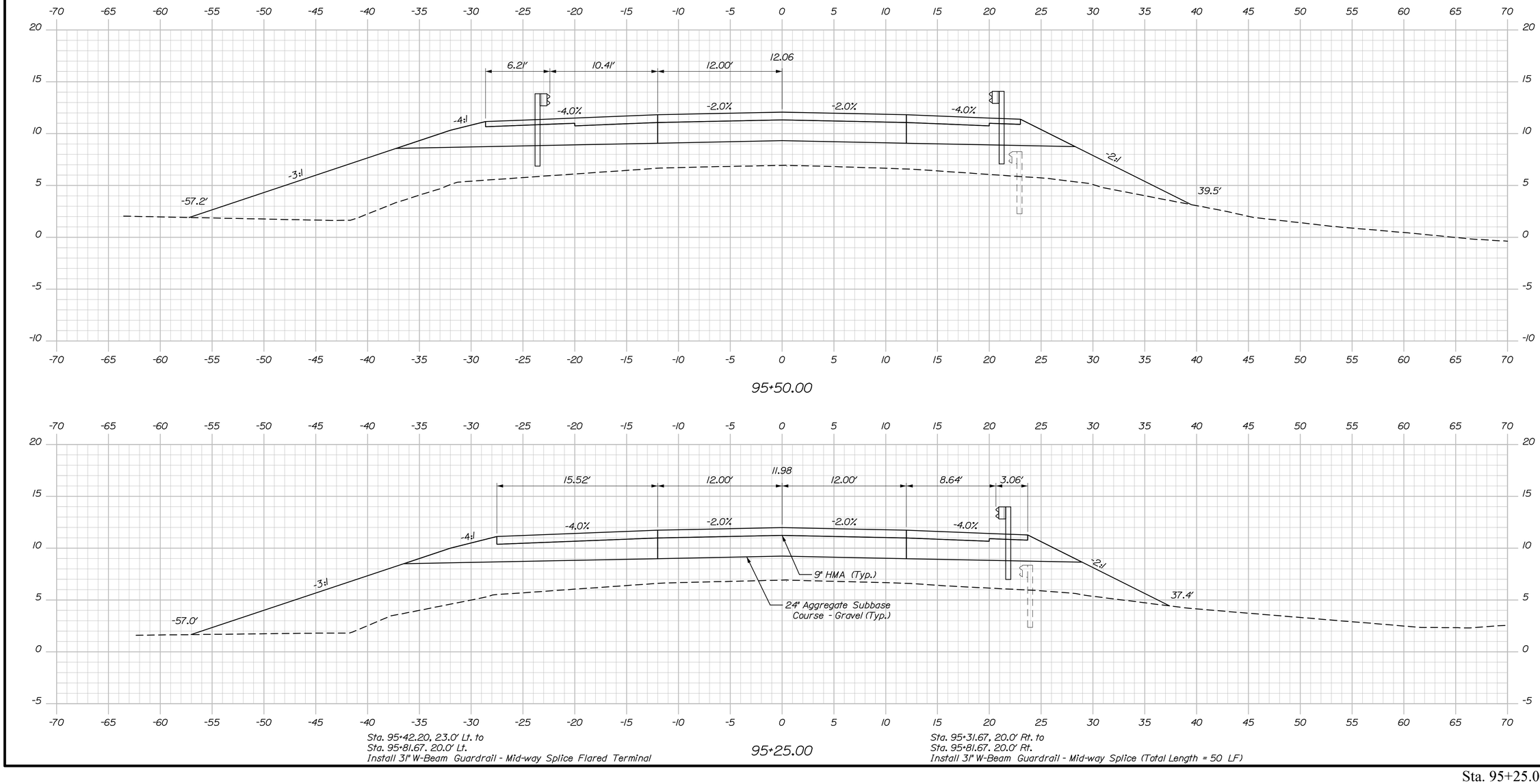
Sta. 94+50.00 to Sta. 95+00.00

Username:

Division:

Filename: XSection - Pleasant Cove.dgn

Date:8/25/2021



Sta. 95+42.20, 23.0' Lt. to Sta. 95+81.67. 20.0' Lt.
Install 31" W-Beam Guardrail - Mid-way Splice Flared Terminal

Sta. 95+31.67, 20.0' Rt. to Sta. 95+81.67. 20.0' Rt.
Install 31" W-Beam Guardrail - Mid-way Splice (Total Length = 50 LF)

Sta. 95+25.00 to Sta. 95+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	B. Grenier	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS
ROUTE 1

SHEET NUMBER

73

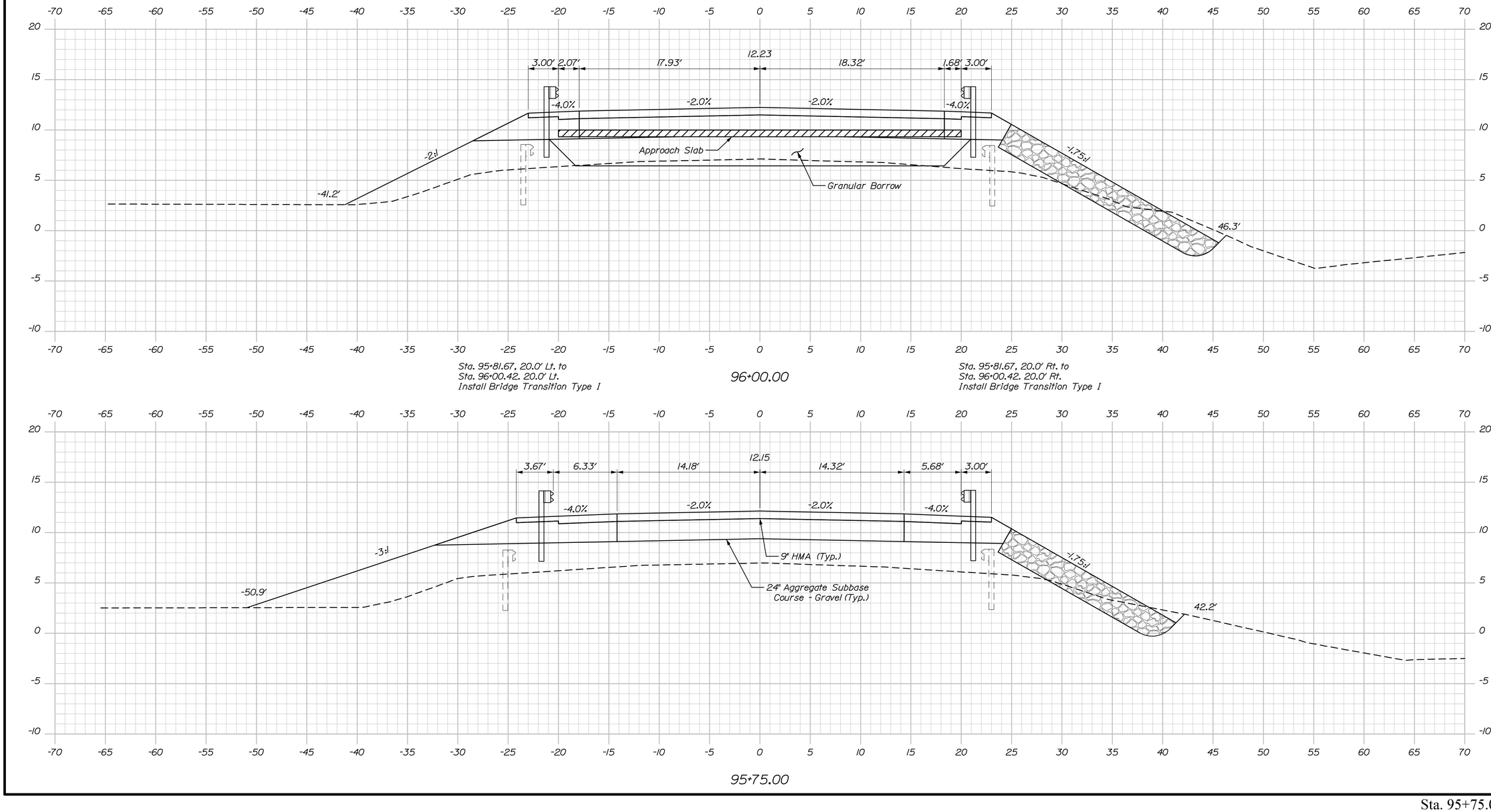
OF 183

Username:

Division:

Date:8/25/2021

Filename: XSection - Pleasant Cove.dgn



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

			DATE
PROJ. MANAGER	D. Eaton, P.E.	BY	
DESIGN-DETAILED	B. Grenier	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS ROUTE 1

SHEET NUMBER

74

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Sta. 95+75.00 to Sta. 96+00.00

Username: Division:

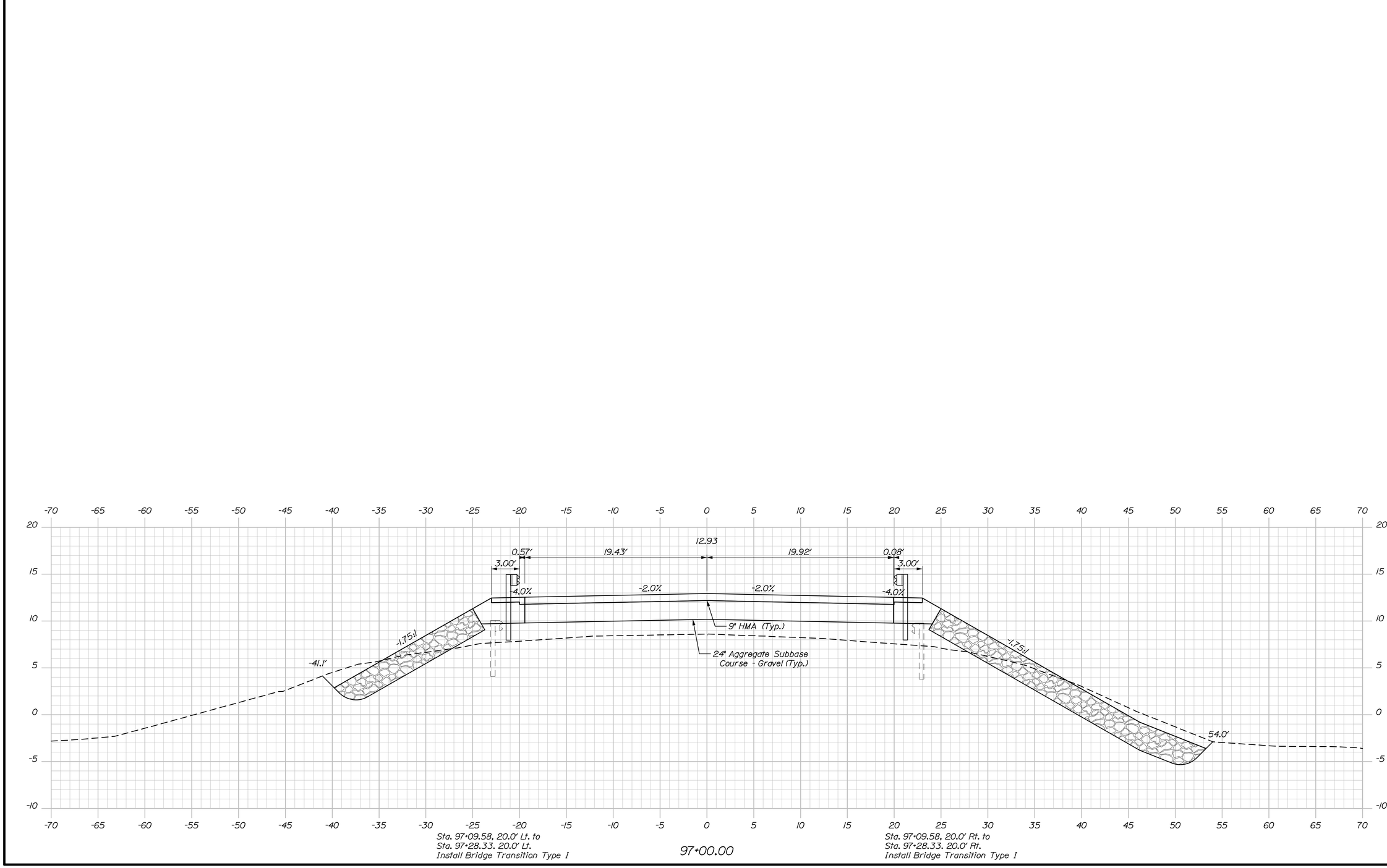
Filename: XSection - Pleasant Cove.dgn Date:8/25/2021

Username:

Date:8/25/2021

Division:

Filename: XSection - Pleasant Cove.dgn



PROJ. MANAGER	D. Elston, P.E.	BY	DATE
DESIGN-DETAILED	B. Grenier	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

SIGNATURE

P.E. NUMBER

DATE

2392900

WIN
23929.01

BRIDGE NO.6667

BRIDGE PLANS

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

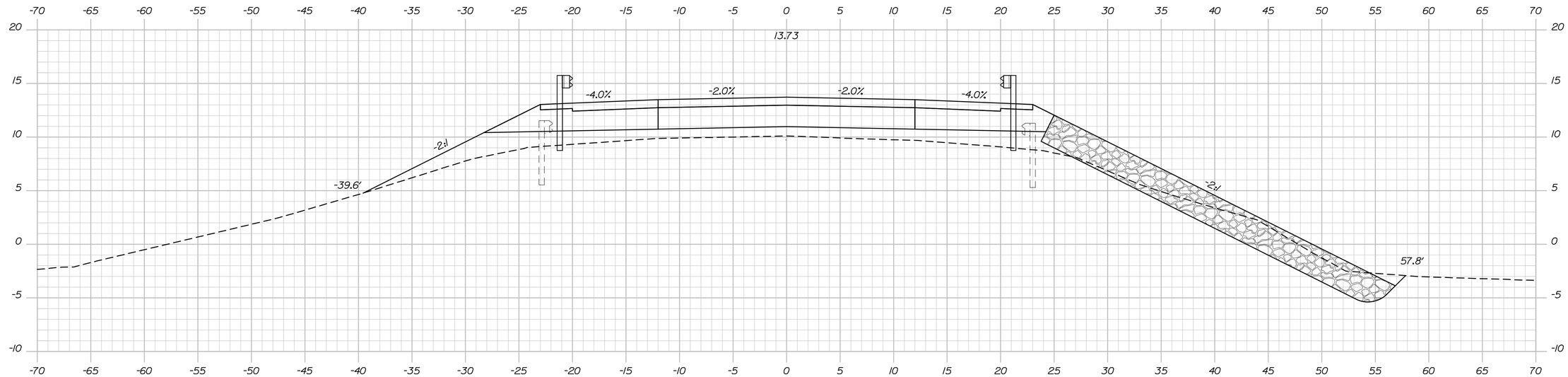
CROSS SECTIONS
ROUTE 1

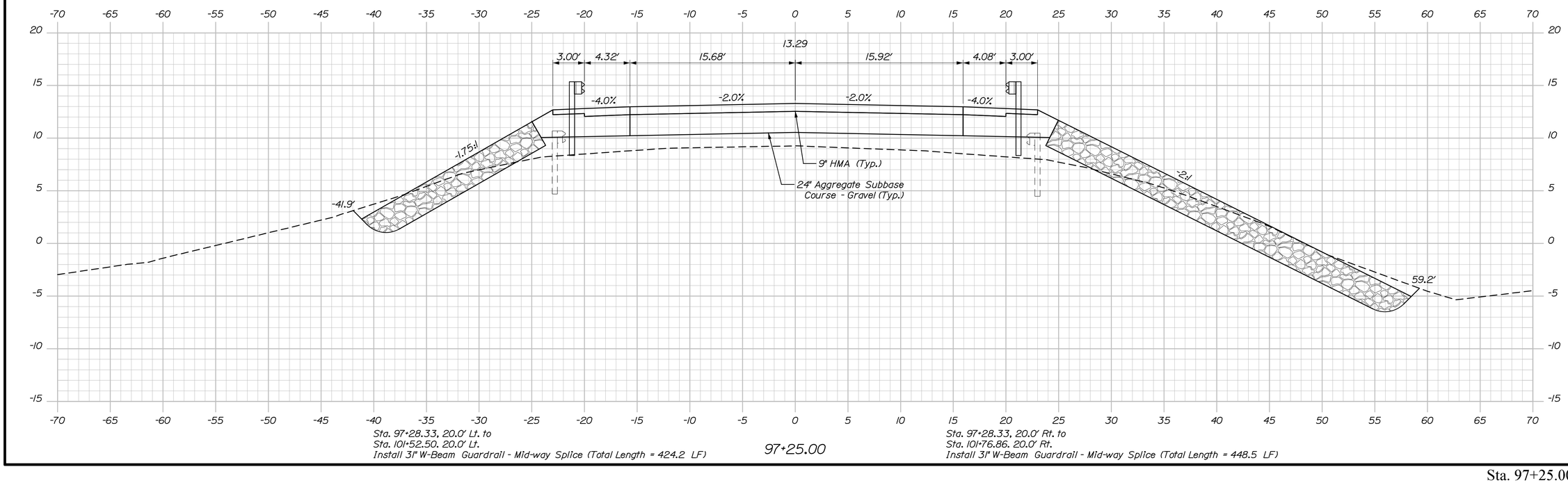
SHEET NUMBER

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Sta. 97+00.00





Sta. 97+28.33, 20.0' Lt. to
Sta. 101+52.50. 20.0' Lt.
Install 31" W-Beam Guardrail - Mid-way Splice (Total Length = 424.2 LF)

Sta. 97+28.33, 20.0' Rt. to
Sta. 101+76.86. 20.0' Rt.
Install 31" W-Beam Guardrail - Mid-way Splice (Total Length = 448.5 LF)

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	B. Grenier	P. Bishop 08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote 08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS
ROUTE 1

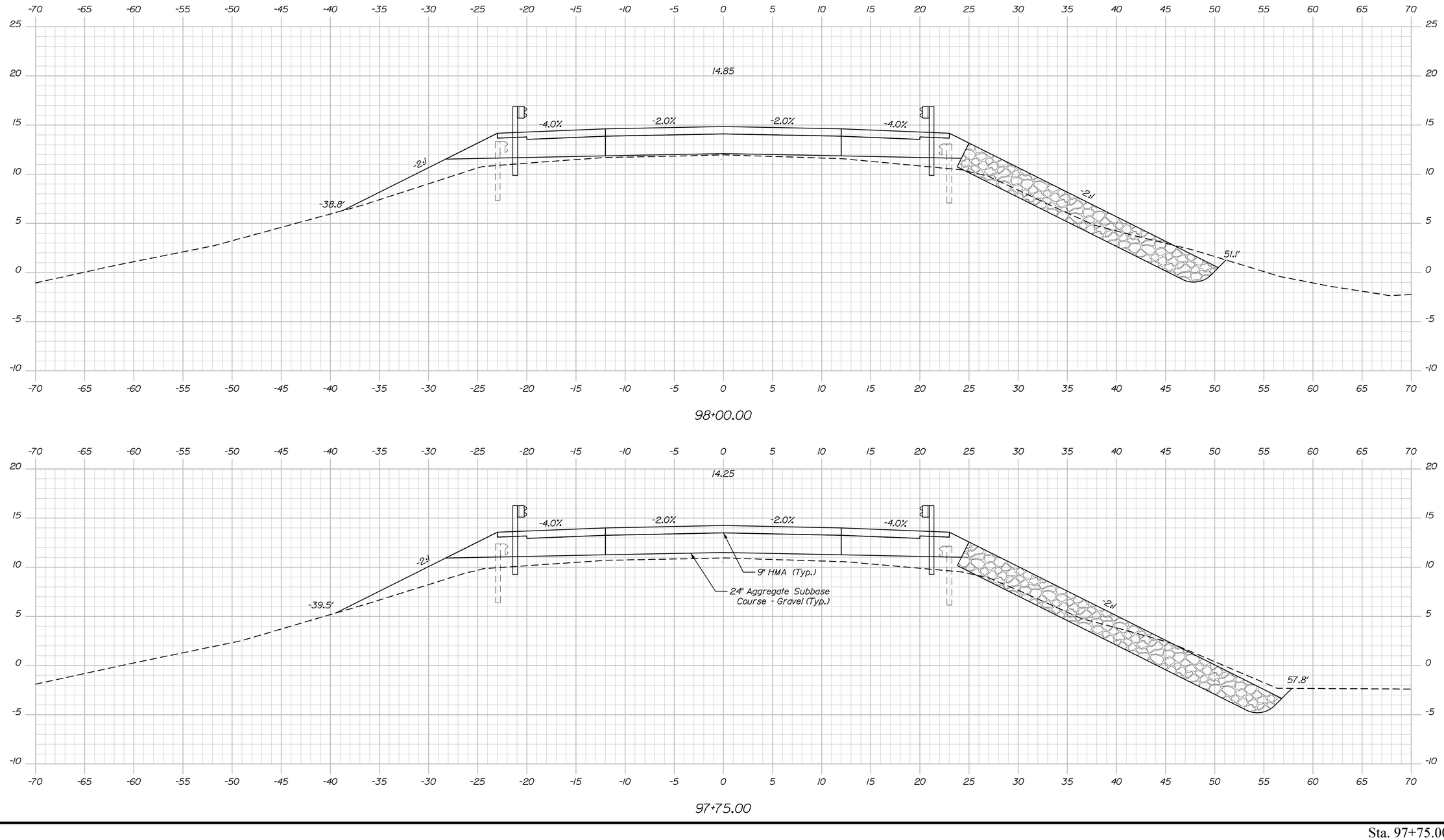
SHEET NUMBER

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Sta. 97+25.00 to Sta. 97+50.00

Filename: XSection - Pleasant Cove.dgn Division: Username: Date:8/25/2021



Sta. 97+75.00 to Sta. 98+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667 BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	B. Grenier	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS
ROUTE 1

SHEET NUMBER

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Username: Division: Date:8/25/2021

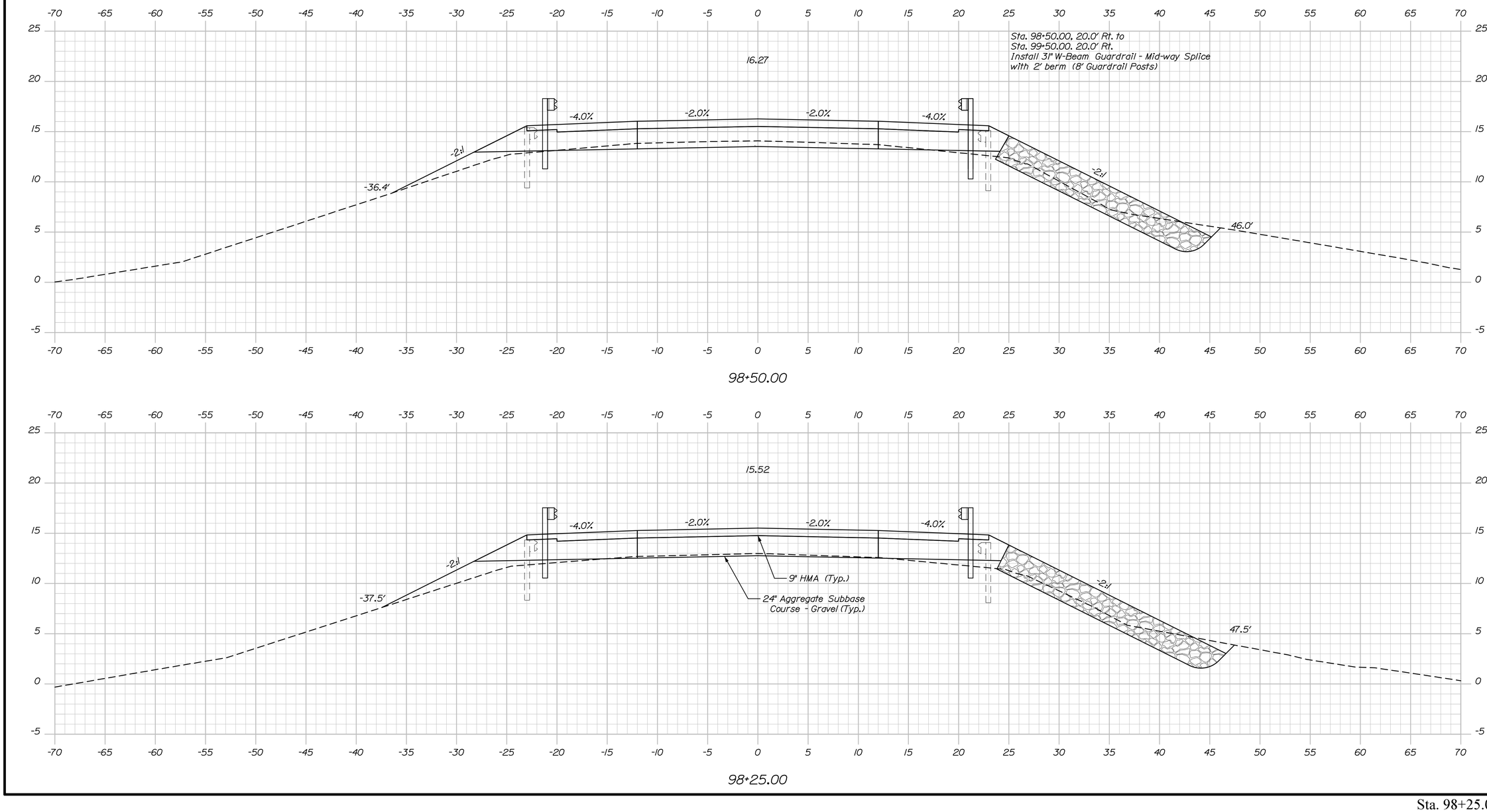
Filename: XSection - Pleasant Cove.dgn

Username:

Division:

Date:8/25/2021

Filename: XSection - Pleasant Cove.dgn



Sta. 98+25.00 to Sta. 98+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667 BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	B. Grenier	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

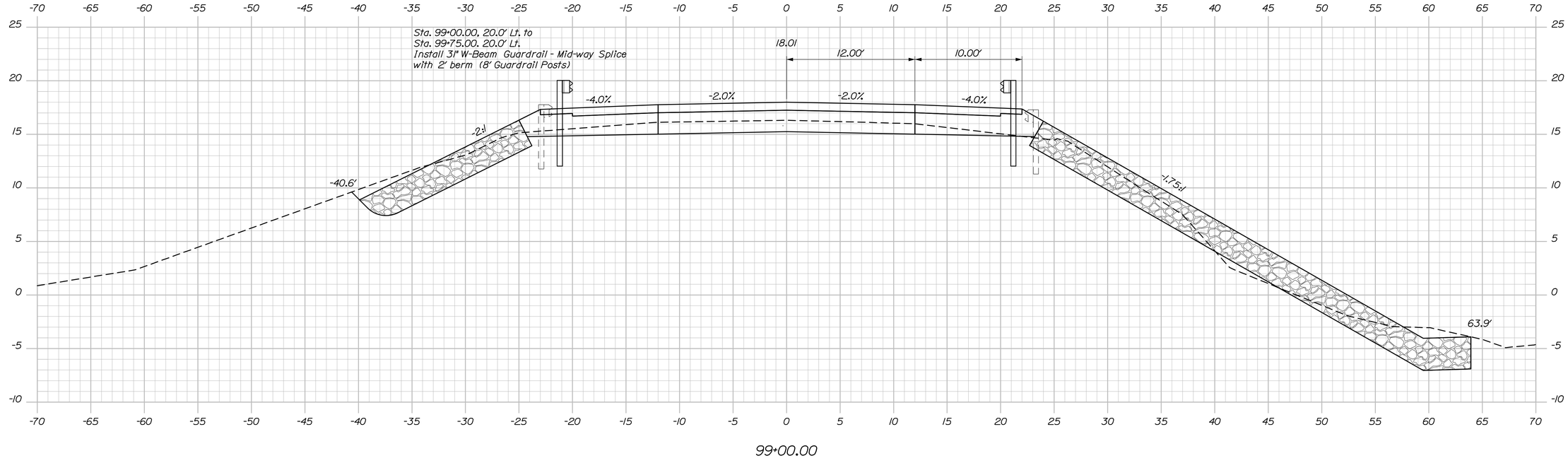
PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

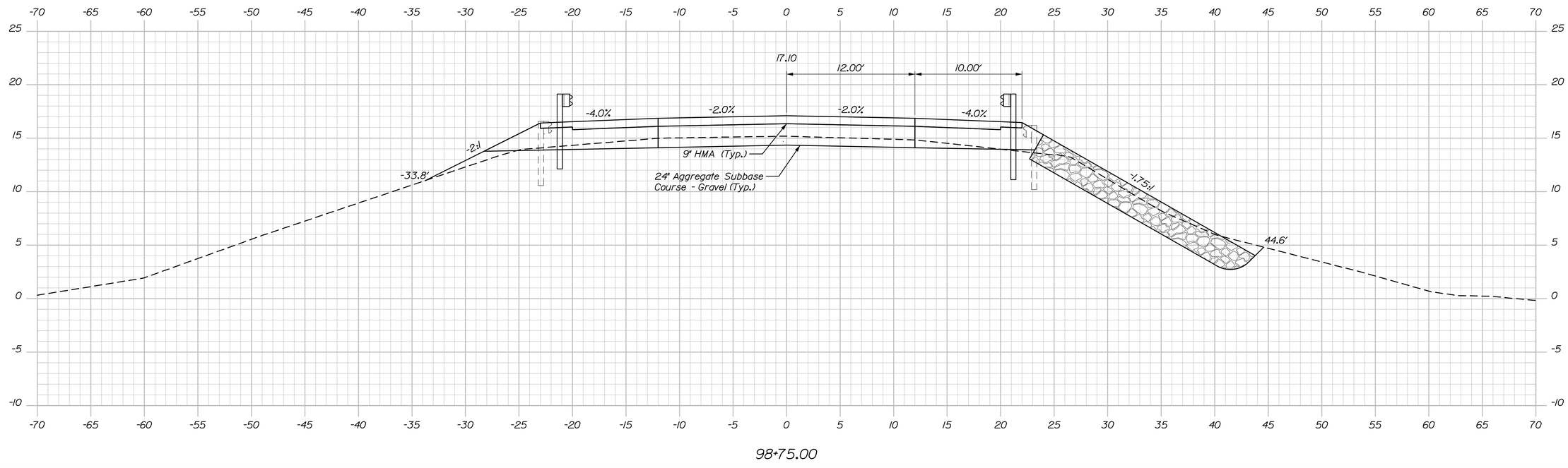
CROSS SECTIONS
ROUTE 1

SHEET NUMBER

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

BRIDGE NO.6667

WIN
23929.01

BRIDGE PLANS

	D. Eaton, P.E.	BY	DATE
PROJ. MANAGER	B. Grenier	P. Bishop	08\21
DESIGN-DETAILED	L. Driscoll	T. Cote	08\21
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS ROUTE 1

SHEET NUMBER

79

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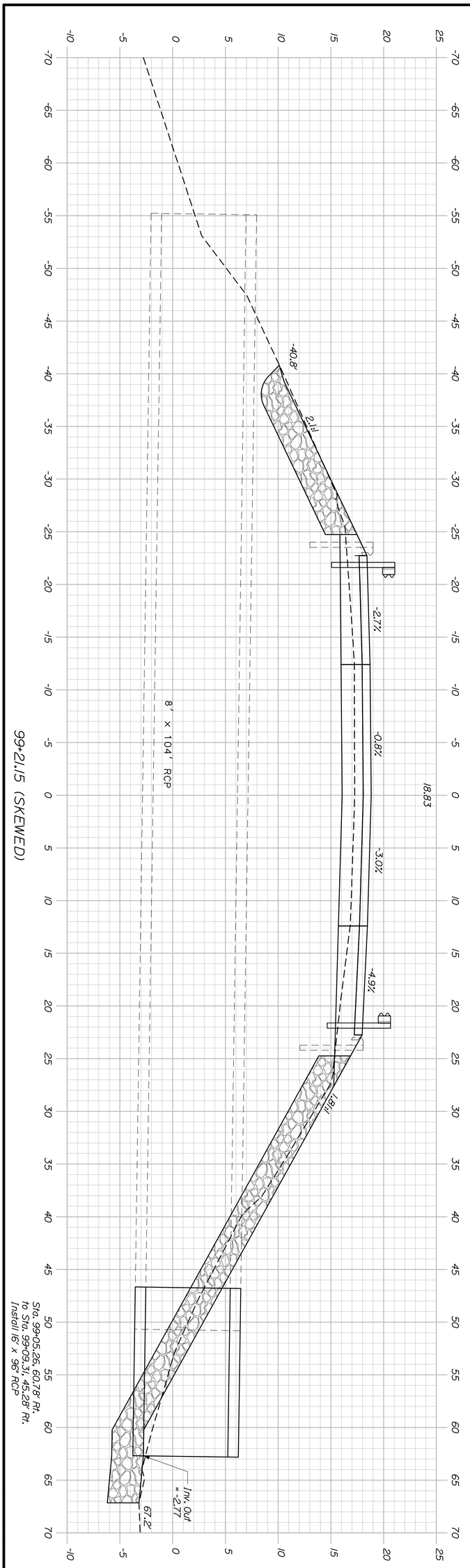
Sta. 98+75.00 to Sta. 99+00.00

Date:8/25/2021

Username:

Division:

Filename: XSection - Pleasant Cove.dgn



Sta. 99+21.15 to Sta. 99+21.15

SHEET NUMBER 80 OF 183

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS
ROUTE 1

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	B. Grenier	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

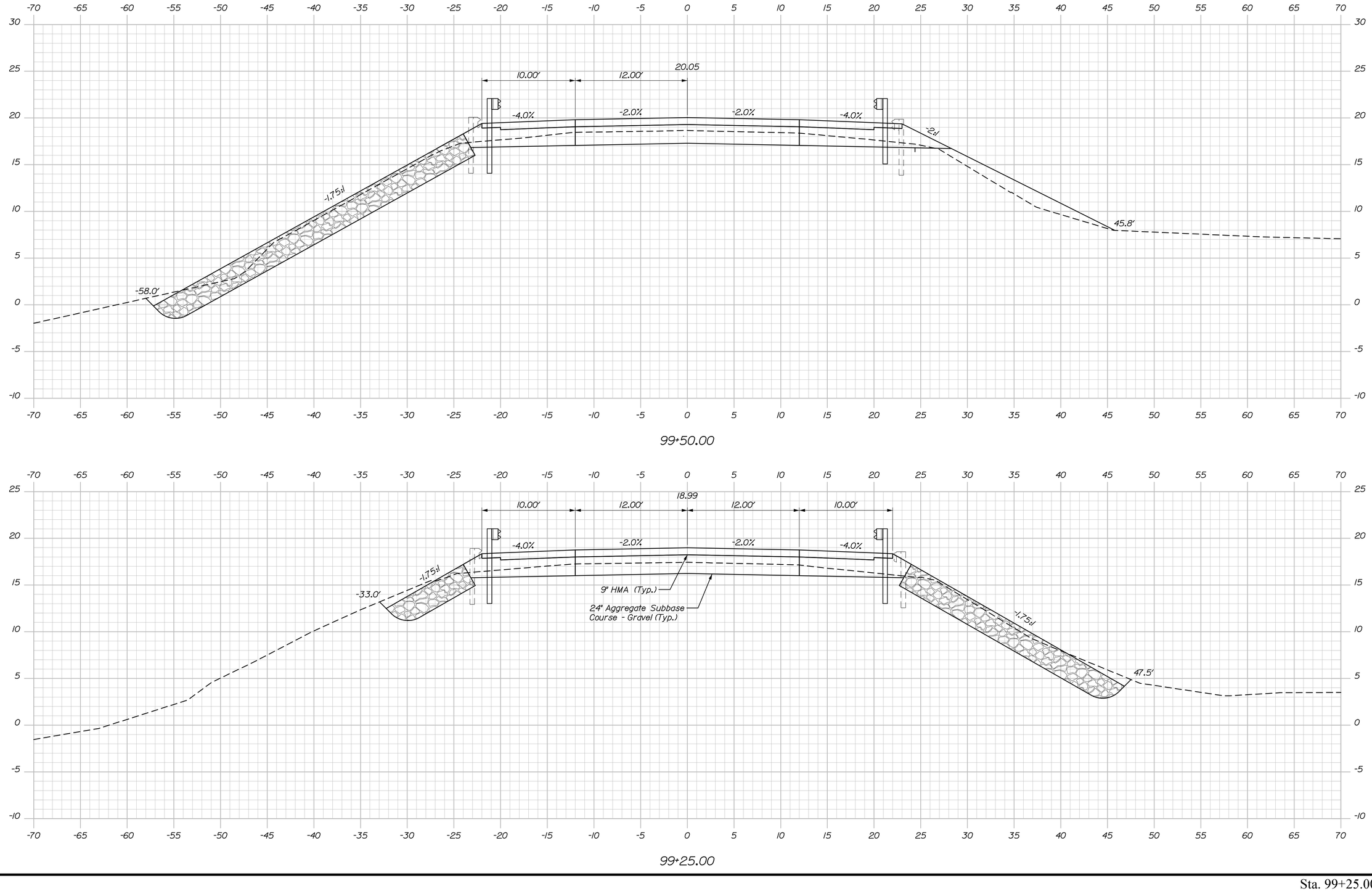
P.E. NUMBER

DATE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

BRIDGE NO.6667 WIN 23929.01 BRIDGE PLANS



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

		DATE
PROJ. MANAGER	D. Elston, P.E.	
DESIGN-DETAILED	B. Grenier	08\21
CHECKED-REVIEWED	L. Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

BY: P. Bishop, T. Cote

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS ROUTE 1

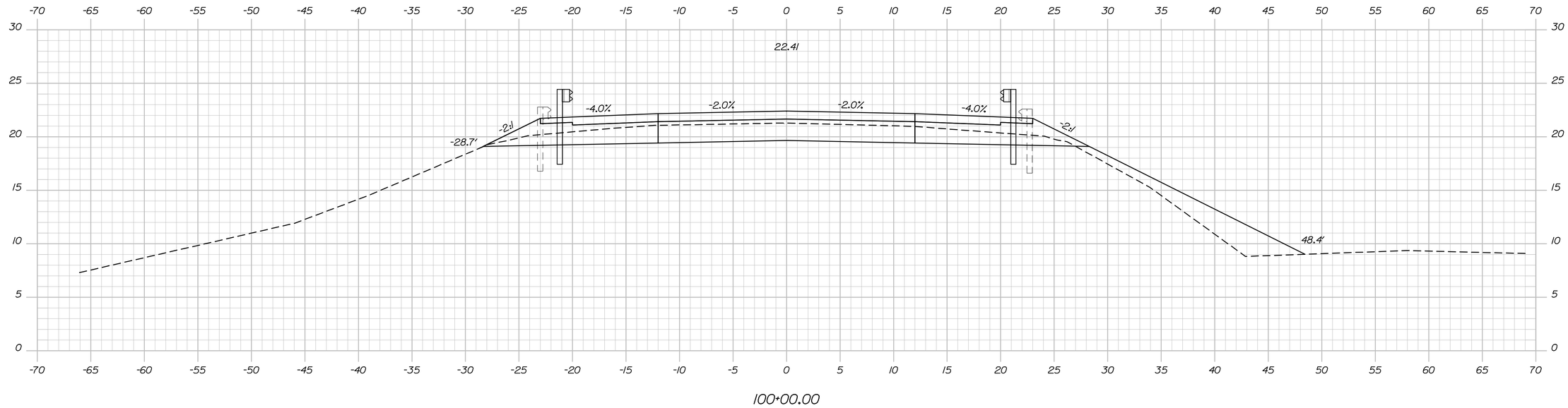
SHEET NUMBER

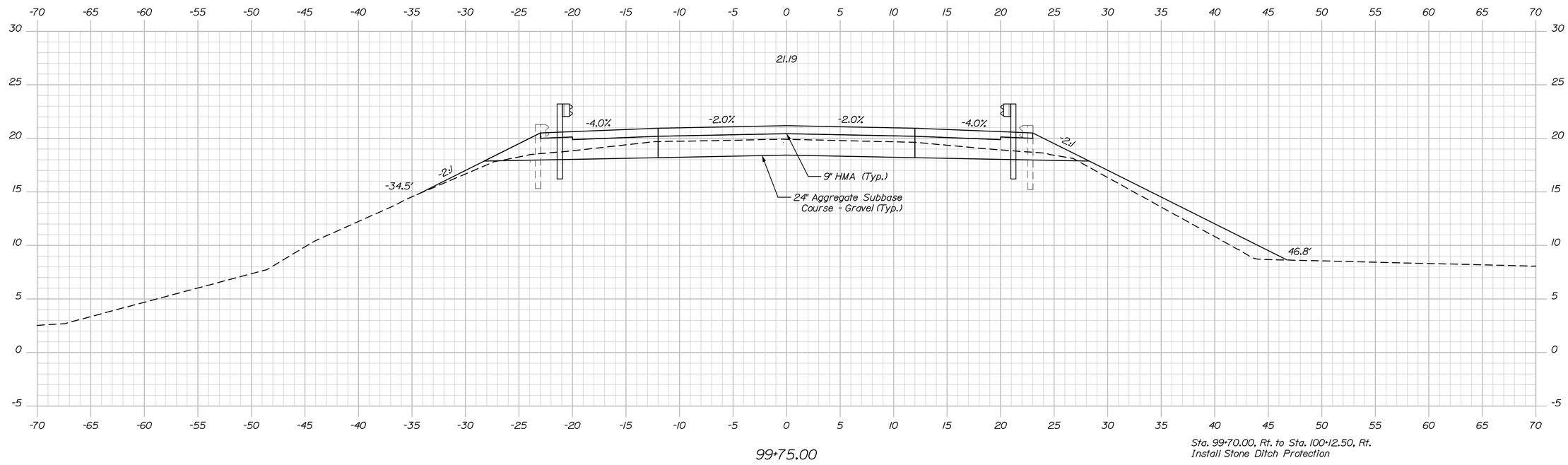
81

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Filename: XSection - Pleasant Cove.dgn Division: Username: Date:8/25/2021

Sta. 99+25.00 to Sta. 99+50.00





STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Elston, P.E.	
DESIGN-DETAILED	B. Greiner	08\21
CHECKED-REVIEWED	L. Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS ROUTE 1

SHEET NUMBER

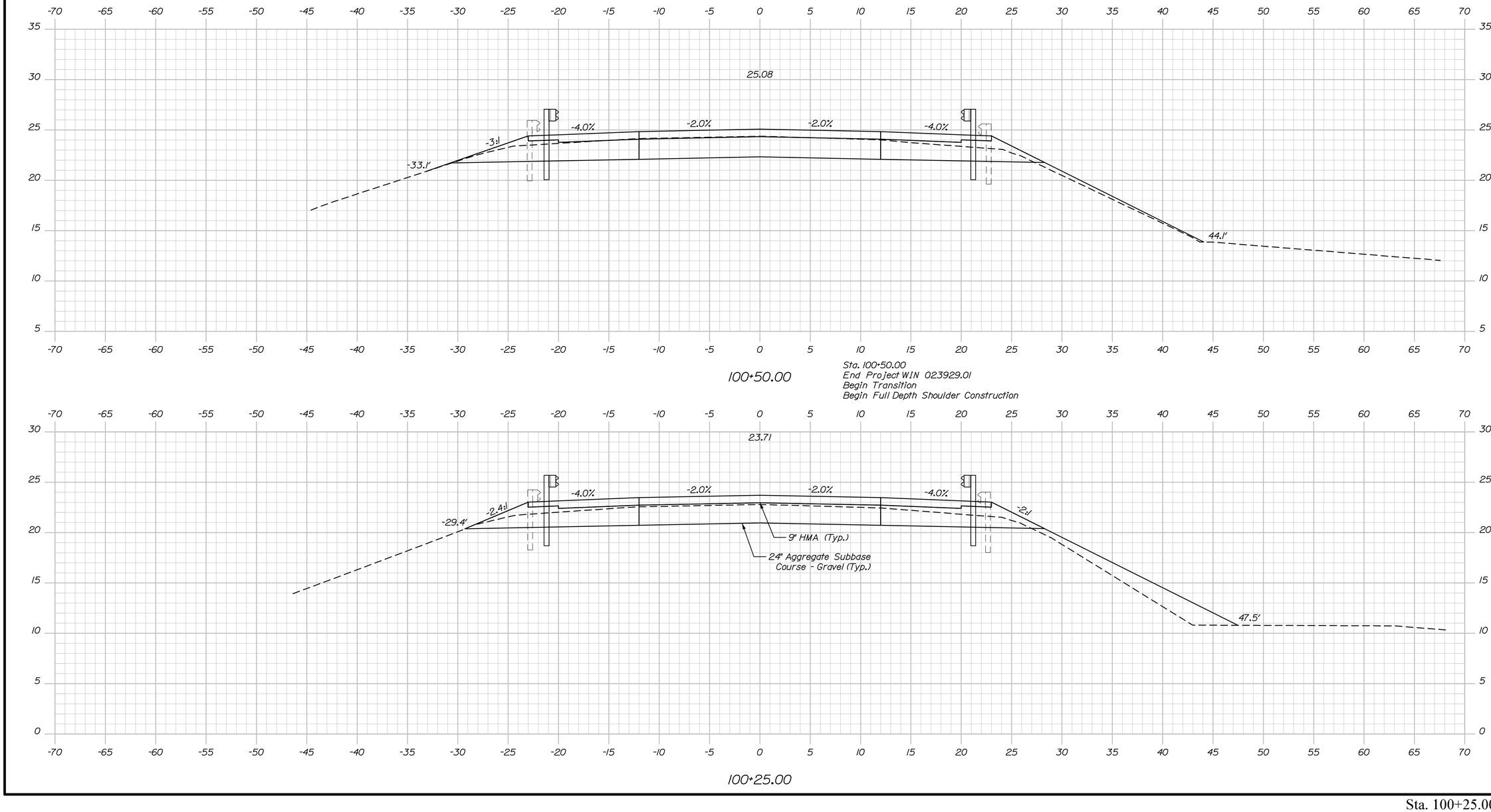
82

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Filename: XSection - Pleasant Cove.dgn Division: Username: Date:8/25/2021

Sta. 99+75.00 to Sta. 100+00.00

Date:8/25/2021
Username:
Division:
Filename: XSection - Pleasant Cove.dgn



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	B. Grenier	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

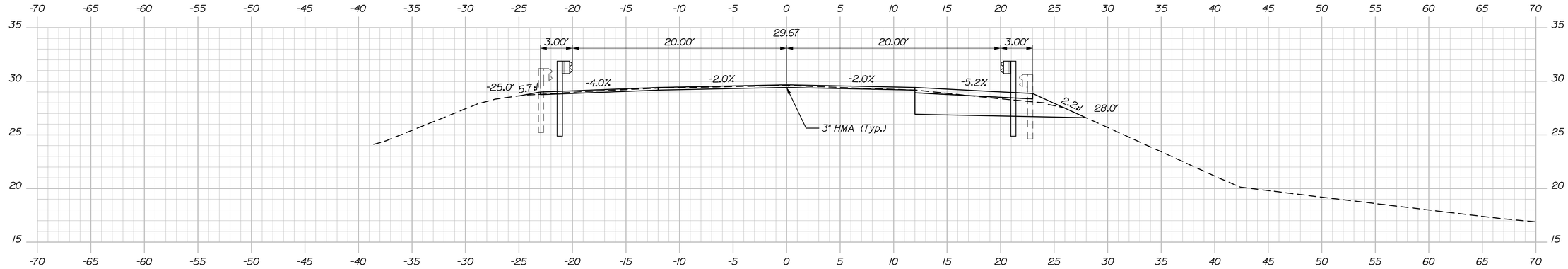
CROSS SECTIONS
ROUTE 1

SHEET NUMBER

83

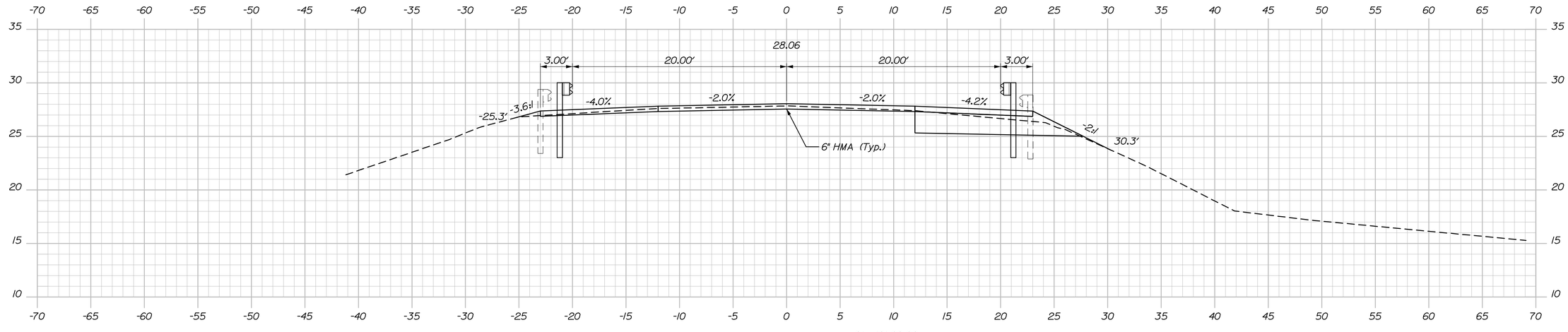
OF 183

Sta. 100+25.00 to Sta. 100+50.00



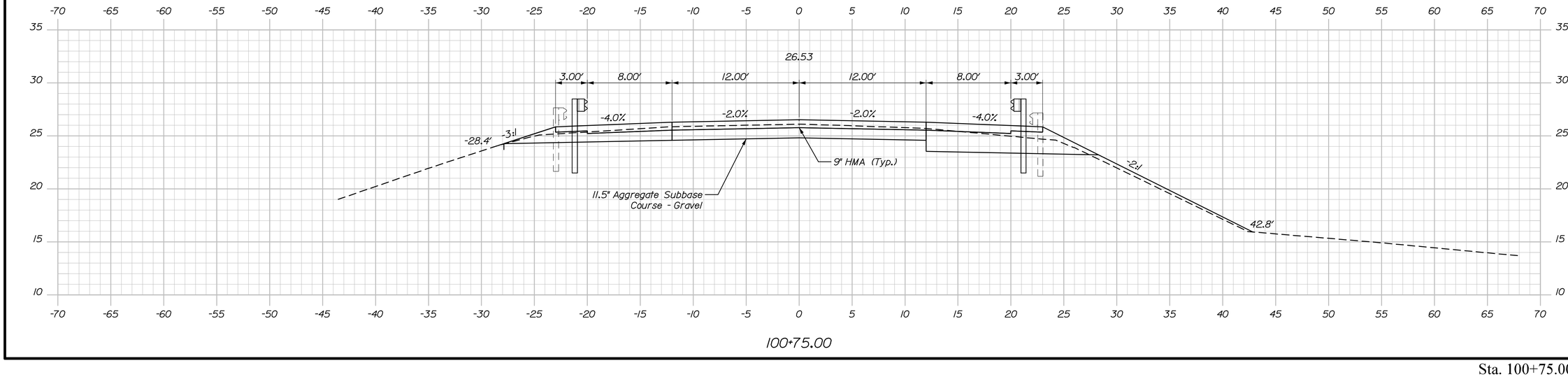
101+25.00

Sta. 101+25.00
End Mill and 6" Overlay
Begin Mill and 3" Overlay



101+00.00

Sta. 101+00.00
End Transition
Begin Mill and 6" Overlay



100+75.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	B. Grenier	08\21
CHECKED-REVIEWED	L. Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

CROSS SECTIONS
ROUTE 1

SHEET NUMBER

84

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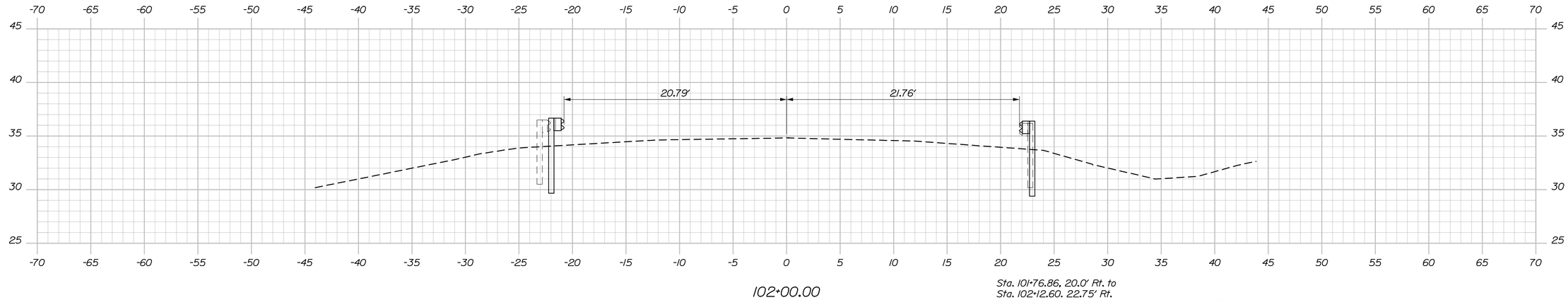
Sta. 100+75.00 to Sta. 101+25.00

Date:8/25/2021

Username:

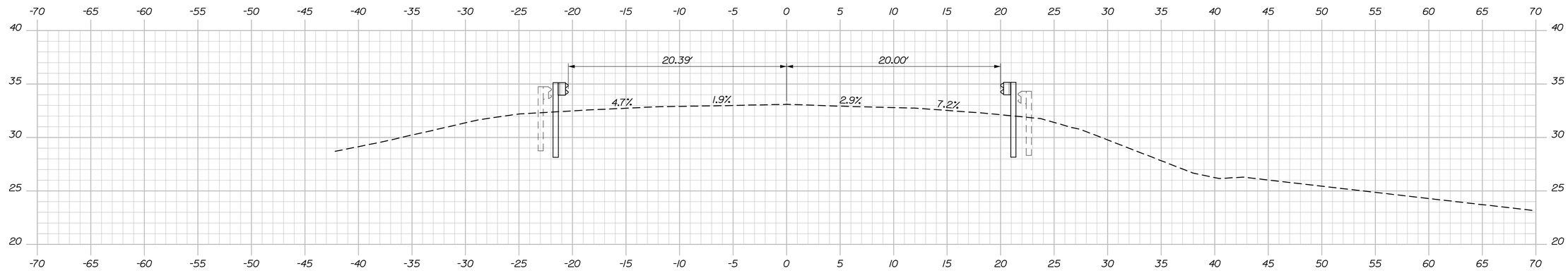
Division:

Filename: XSection - Pleasant Cove.dgn



102+00.00

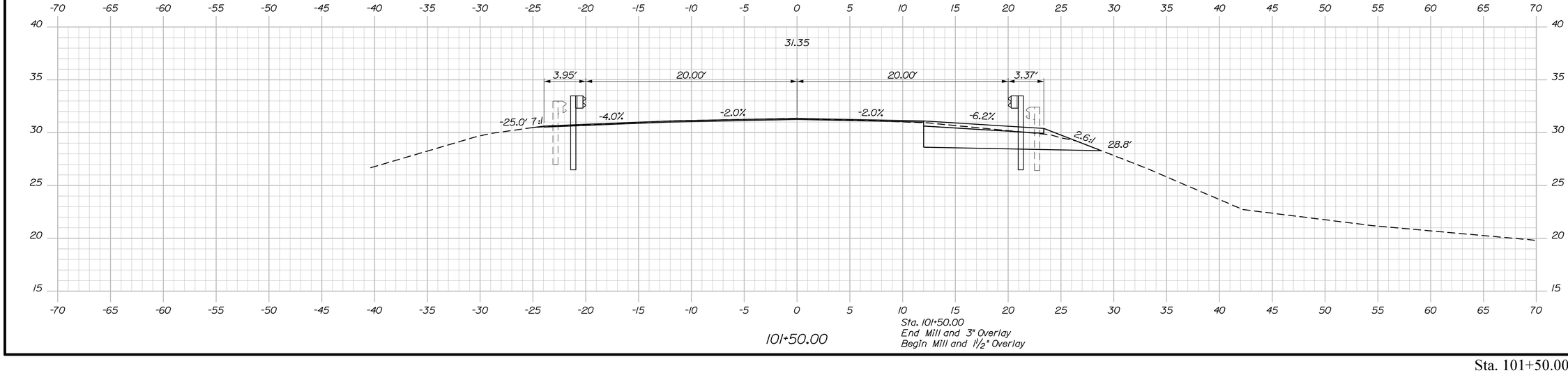
Sta. 101+76.86, 20.0' Rt. to
Sta. 102+12.60. 22.75' Rt.
Install 31" W-Beam Guardrail - Mid-way Splice (Total Length = 35.8 LF)



Sta. 101+52.50 20.0' Lt. to
Sta. 102+78.32 22.00' Lt.
Install 31" W-Beam Guardrail - Mid-way Splice (Total Length = 125.8 LF)

101+75.00

Sta. 101+75.00
End Mill and 1½" Overlay
Match Existing Pavement
End Full Depth Shoulder Construction



101+50.00

Sta. 101+50.00
End Mill and 3" Overlay
Begin Mill and 1½" Overlay

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	B. Grenier	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS
ROUTE 1

SHEET NUMBER

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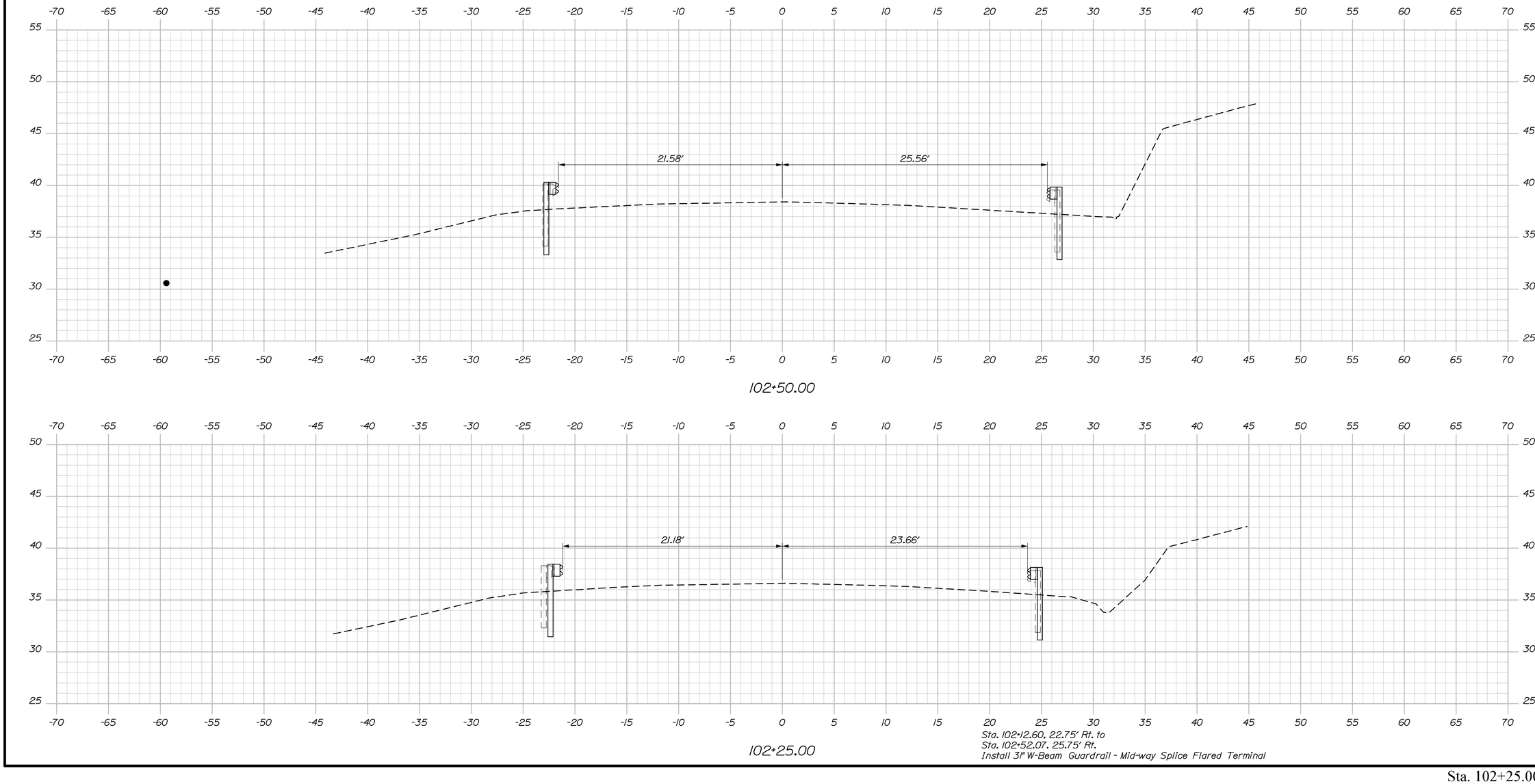
Date:8/25/2021

Username:

Division:

Filename: XSection - Pleasant Cove.dgn

Sta. 101+50.00 to Sta. 102+00.00



Sta. 102+25.00 to Sta. 102+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667 BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	B. Grenier	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS
ROUTE 1

SHEET NUMBER

86

OF 183

Username:

Date:8/25/2021

Division:

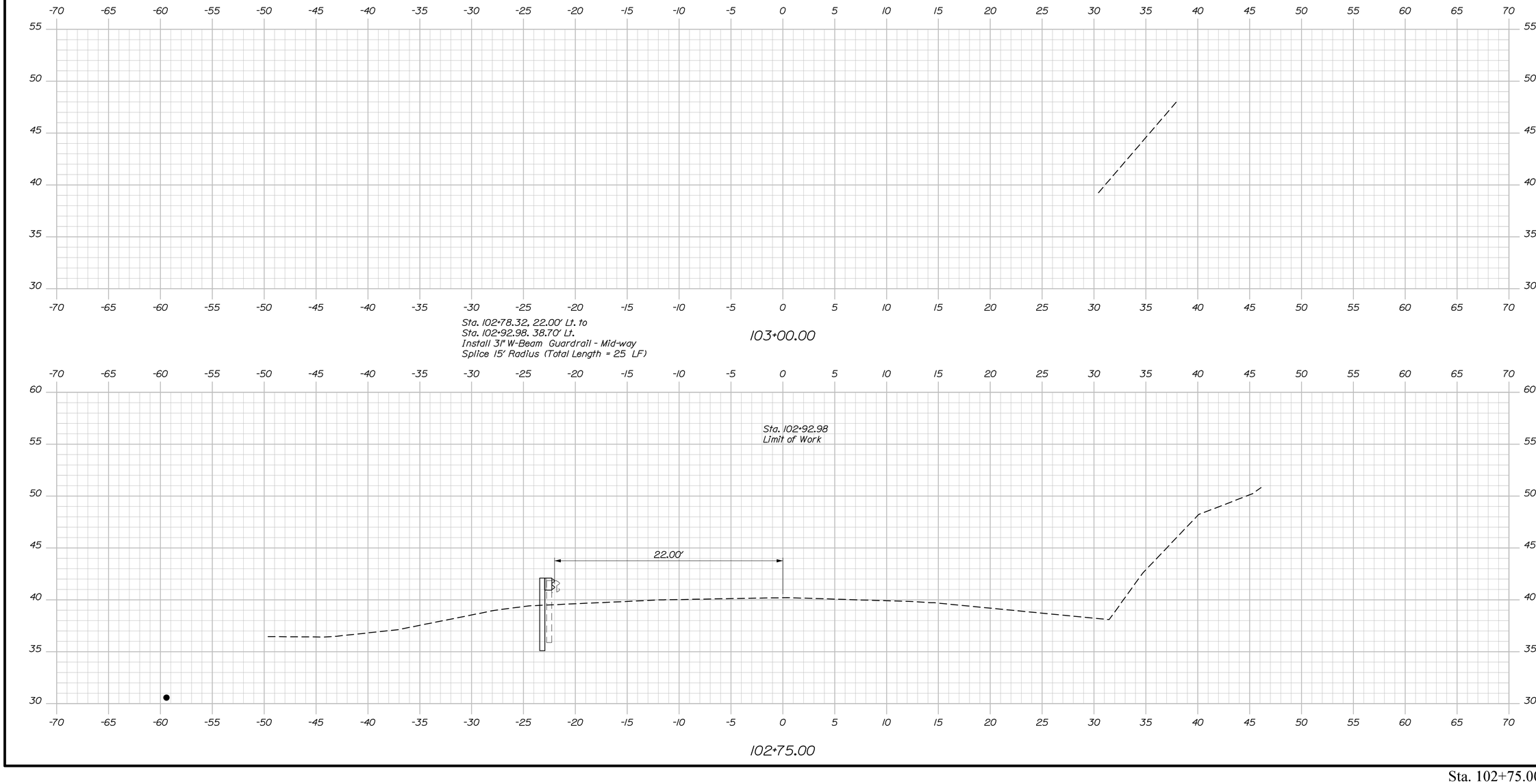
Filename: XSection - Pleasant Cove.dgn

Username:

Division:

Date:8/25/2021

Filename: XSection - Pleasant Cove.dgn



PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	B. Grenier	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN
23929.01

BRIDGE NO.6667

BRIDGE PLANS

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS
ROUTE 1

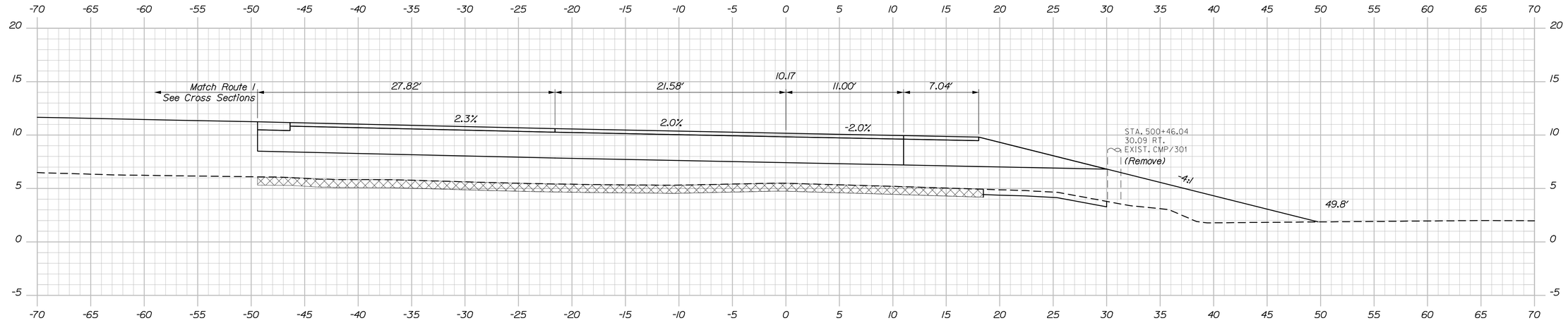
SHEET NUMBER

87

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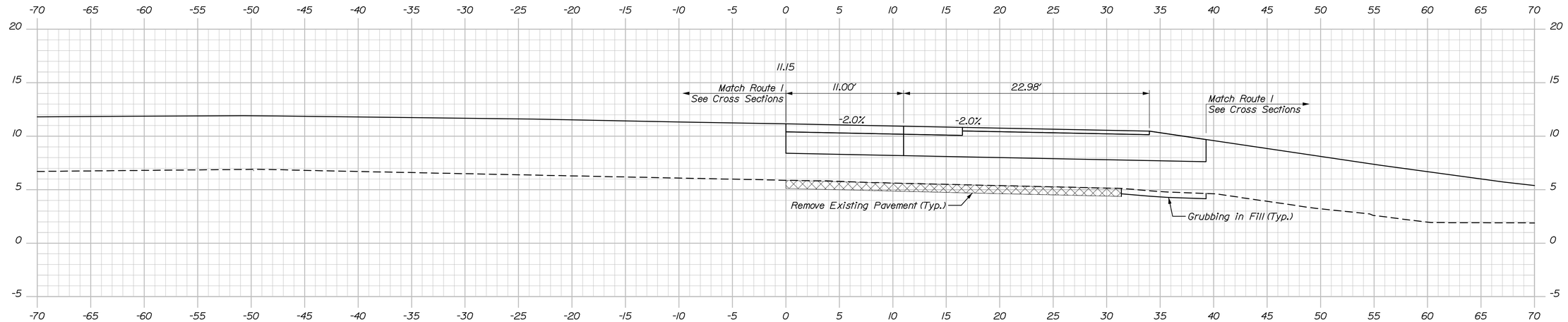
Sta. 102+75.00 to Sta. 103+00.00

Sta. 95+31.67, 20.0 Rt. to
Sta. 500+66.02, 20.75' Lt.
Install 31" W-Beam Guardrail - Mid-way
Splice 35' Radius (Total Length = 50 LF)

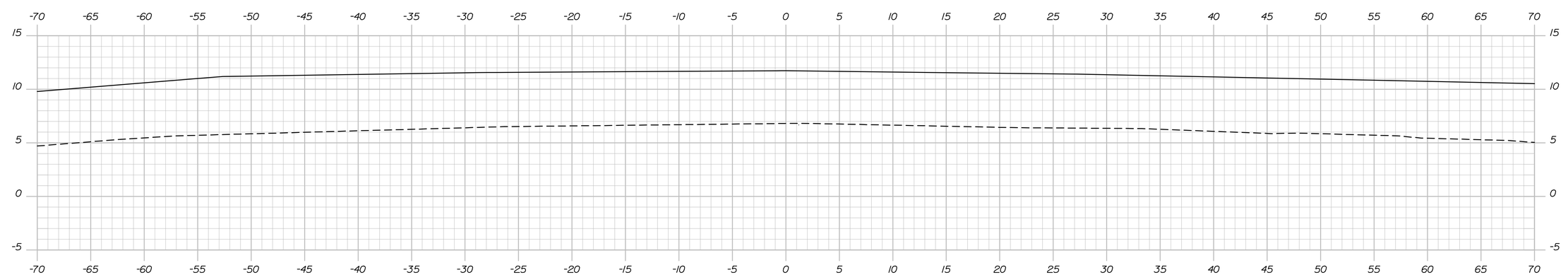


500+50.00

Sta. 500+66.02, 20.75' Lt. to
Sta. 500+86.48, 13.82' Lt.
Install 31" W-Beam Guardrail - Mid-way
Splice 40' Radius (Total Length = 21.875 LF)



500+25.00



500+00.00

Sta. 500+00.00 to Sta. 500+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

SIGNATURE

P.E. NUMBER

DATE

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	B. Grenier	08\21
CHECKED-REVIEWED	L. Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS
GEORGE WRIGHT ROAD

SHEET NUMBER

88

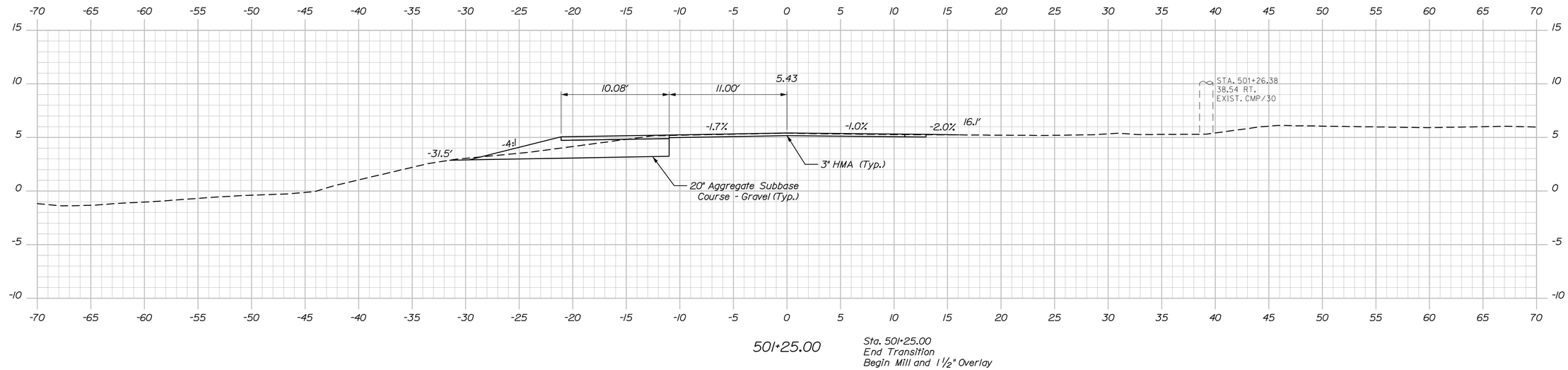
OF 183

Date:8/25/2021

Username:

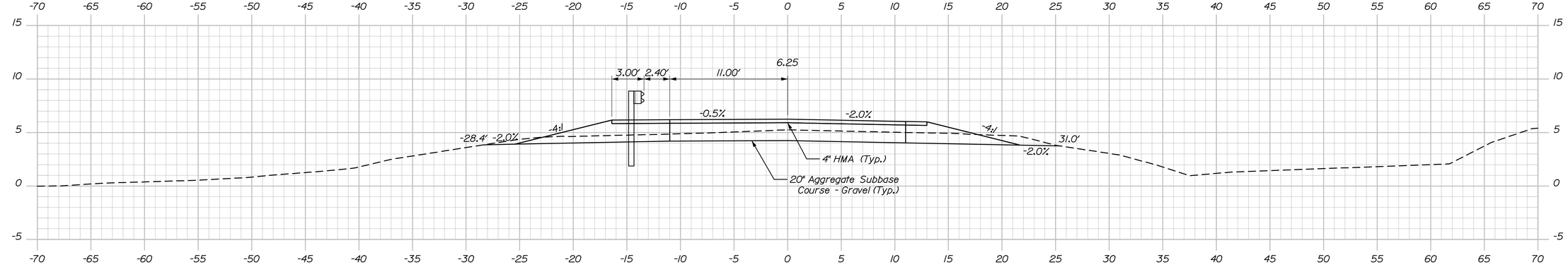
Division:

Filename: XSection - Pleasant Cove.dgn



501+25.00

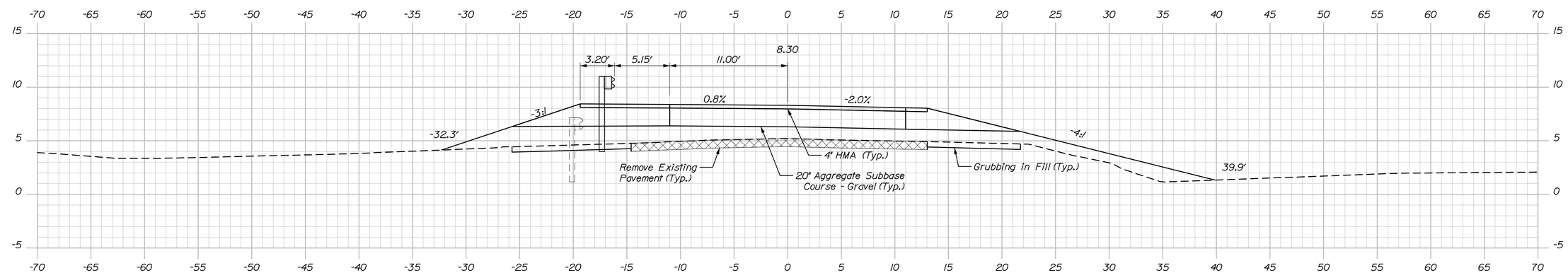
Sta. 501+25.00
End Transition
Begin Mill and 1 ½" Overlay



Sta. 500+86.48, 13.82' Lt. to Sta. 501+24.83, 15.93' Lt.
Install Low Volume Guardrail End - Type 3

501+00.00

Sta. 501+00.00
End Project WIN 023929.01
Begin Transition



500+75.00

Sta. 500+75.00 to Sta. 501+25.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.6667

BRIDGE PLANS

SIGNATURE

P.E. NUMBER

DATE

PROJ. MANAGER	D. Elston, P.E.	
DESIGN-DETAILED	B. Grenier	BY
CHECKED-REVIEWED	L. Driscoll	P. Bishop 08\21
DESIGN2-DETAILED2		T. Cote 08\21
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

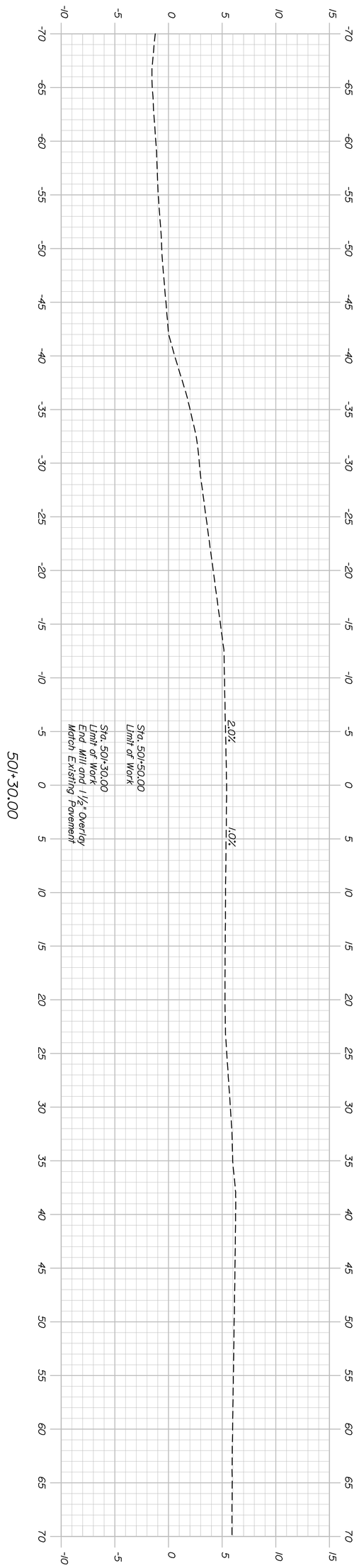
CROSS SECTIONS
GEORGE WRIGHT ROAD

SHEET NUMBER

89

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Filename: XSection - Pleasant Cove.dgn Division: Username: Date:8/25/2021



Sta. 501+30.00 to Sta. 501+30.00

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

CROSS SECTIONS
GEORGE WRIGHT ROAD

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	B. Grenier	P. Bishop	08\21
CHECKED-REVIEWED	L. Driscoll	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

BRIDGE NO.6667 WIN 23929.01 BRIDGE PLANS

Username:

Division:

Date:8/25/2021

Filename: 091_MOT_Intersection Plan.dgn

Approx. Existing Edge of Pavement (Typ.)

12" SYL Spaced @ 55' O.C. (Typ.)

12.0'
6.0'
6.0'
12.0'

139+00 140+00 141+00 142+00 143+00 144+00 145+00

SYL DWL SWL

US Route 1

W3-3
W16-8P
NEQUASSET RD

R3-8
ONLY

340' Route 1 NB & SB Lane Shift | 165' Left Turn Lane Taper | 275' Storage

Match Existing Striping

Striping Legend:
SWL - Solid White Line
SYL - Solid Yellow Line
SDYL - Solid Double Yellow Line
DWL - Dotted White Line

W3-3

175'

Cover Stop Sign

Nequasset Rd.

SDYL

Approx. Location of Existing Poles (Typ.)

100' Storage | 165' Left Turn Lane Taper | 330' Route 1 NB & SB Lane Shift

R3-8

W3-3
W16-8P
NEQUASSET RD

SWL SDYL

146+00 147+00 148+00 149+00 150+00 151+00 152+00

12.0' 12.0' 12.0' DWL 12.0' 6.0' 6.0' 12.0'

SYL SWL

US Route 1

Approx. Existing Edge of Pavement (Typ.)

12" SYL Spaced @ 55' O.C. (Typ.)

275' Storage

Nequasset Rd.

225'

Cover Stop Sign

W3-3

PLAN

25 0 25 50
Scale of Feet

340' Route 1 NB & SB Lane Shift

Match Existing Striping

153+00 154+00

SWL SYL SWL 12.0' 12.0'

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

PROJ. MANAGER	D. Elston, P.E.		DATE
DESIGN-DETAILED	C. Helmick	BY	08\21
CHECKED-REVIEWED	L.D'Iriscoll	C. Helmick	08\21
DESIGN2-DETAILED2		A. Stephens	
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ROUTE 1/NEQUASSET RD
TRAFFIC CONTROL PLAN

SHEET NUMBER

91

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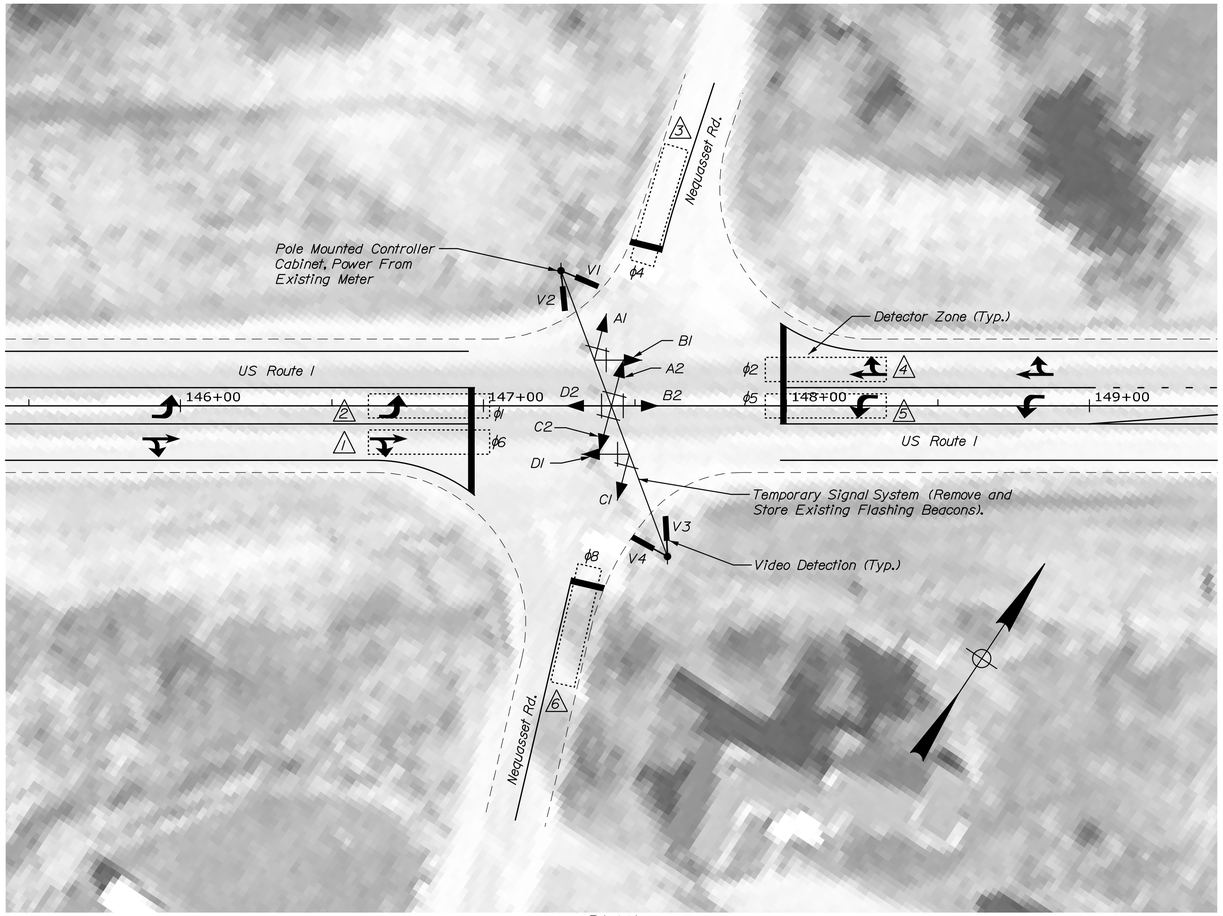
Filename: 092_MOT_SignalPlan.dgn Division: Username: Date:8/25/2021

TEMPORARY SIGNAL NOTES

1. All work shall be completed in conformance with the latest revisions of the State of Maine Department of Transportation Standard Specifications for Highway and Bridge, MaineDOT Standard Details, Supplemental Specifications, and Special Provisions for this contract, the Manual on Uniform Traffic Control Devices, the National Electrical Code, and any requirements of the power company.
2. Locations of any existing utilities are approximate. The Contractor is responsible for finding exact locations of existing utilities prior to construction. In accordance with MRSA Title 23 Section 3360-A the Contractor shall contact dig-safe and appropriate authorities prior to any subsurface activities.
3. The Contractor shall notify utility companies at least 48 hours before any operations are conducted that could potentially conflict with aerial utilities.
4. Any relocations or adjustments of existing utility facilities will be made by the respective utilities in coordination with the work of the Contractor.
5. The Contractor will be responsible for the removal and/or relocation of existing power meters and pedestals if required. This work will be incidental to Item 643.72 as applicable to the location of the work.
6. New signal heads are not required, however all signal heads shall be equipped with 5-inch louvered back plates, including 3-inch retroreflectivity tethered to span wire.
7. Contractor furnished equipment: the traffic signal, controllers, cabinets, vehicular detection and various other equipment items shown on the plans shall be furnished and installed by the Contractor.
8. The bottom of the housing of signal faces shall be at least 17 feet but not more than 19 feet above the pavement grade at the center of the road.
9. Signal heads shall be covered and fully functional two weeks prior to implementation.
10. The Contractor shall remove and store existing equipment and signs and return the intersection to its original configuration upon completion of the detour.
11. The Contractor is responsible for ensuring that the existing span wire is acceptable for signals.
12. Signal heads and system must meet all MaineDOT and MUTCD standards including signal height and bottom tethers.
13. The Contractor shall be responsible for submitting any temporary signal layouts to the resident for approval.

LIST OF WORK ITEMS

EQUIPMENT AND WORK ITEMS	QUANTITY
FURNISH AND INSTALL POLE MOUNT CABINET AND CONTROLLER COMPLETE WITH ALL ANCILLARY EQUIPMENT AND WIRING INCLUDING FIELD MONITORING UNIT WITH INTEGRATION INTO CLOUD BASED CENTRAL MANAGEMENT SYSTEM	1
FURNISH AND INSTALL ONE-WAY 3-SECTION, 12-INCH TRAFFIC SIGNAL HEADS WITH LED MODULES, TUNNEL VISORS, AND 5-INCH LOUVERED BACK PLATE WITH 3-INCH RETROREFLECTIVITY TETHERED TO SPAN WIRE	6
FURNISH AND INSTALL ONE-WAY 5-SECTION, 12-INCH TRAFFIC SIGNAL HEADS WITH LED MODULES, TUNNEL VISORS, AND 5-INCH LOUVERED BACK PLATE WITH 3-INCH RETROREFLECTIVITY TETHERED TO SPAN WIRE	2
FURNISH AND INSTALL NON-INVASIVE STOP BAR VEHICLE DETECTION SYSTEM FOR 4 APPRACHES, COMPLETE (INCIDENTAL TO TEMPORARY SIGNAL ITEM 643.72)	1
IMPLEMENT LOCAL AND SYSTEM SIGNAL TIMINGS	-

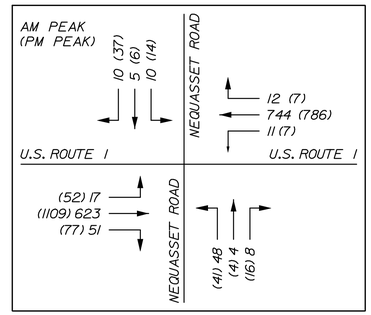


PLAN

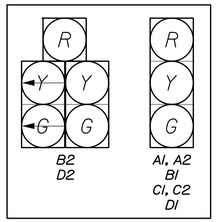
25 0 25 50

Scale of Feet

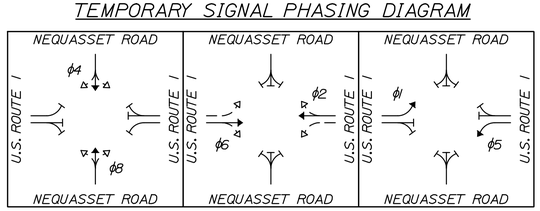
DETOUR VOLUMES



TEMPORARY SIGNALS



TEMPORARY SIGNAL PHASING DIAGRAM



U.S. ROUTE 1 AND NEQUASSET RD TEMPORARY SIGNAL TIMING SCHEDULE

ITEM/PHASE	φ1	φ2	φ3	φ4	φ5	φ6	φ7	φ8	TIME OF DAY
MOVEMENT	U.S. ROUTE 1 EB LT	U.S. ROUTE 1 WB TH/RT	-	NEQUASSET RD SB LT/TH/RT	U.S. ROUTE 1 WB LT	U.S. ROUTE 1 EB TH/RT	-	NEQUASSET RD NB LT/TH/RT	-
MINIMUM INITIAL	3.0	5.0	-	3.0	3.0	5.0	-	3.0	-
PASSAGE TIME	3.0	3.0	-	3.0	3.0	3.0	-	3.0	-
MAXIMUM 1	14.0	75.0	-	11.0	14.0	75.0	-	11.0	ALL
MAXIMUM 2	-	-	-	-	-	-	-	-	-
YELLOW	5.0	4.0	-	3.0	5.0	4.0	-	3.0	-
ALL RED	2.0	2.0	-	3.0	2.0	2.0	-	3.0	-
RECALL	S	0	-	S	S	0	-	S	-
DETECTOR	V4	V1	-	V3	V1	V4	-	V2	-
FLASH	Y	Y	-	R	Y	Y	-	R	-
DUAL ENTRY	N	Y	-	N	N	Y	-	N	-

NOTES:
S = SOFT RECALL
MAX = MAX RECALL
C-MAX = COORDINATED MAX
0 = RECALL OFF
PR = PRESENCE
MAX1 = FREE OPERATION
MAX2 = UNDER COORDINATION
Y = YELLOW
R = RED
D = DARK

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO.3039 & 6667

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Easton, P.E.	
DESIGN-DETAILED	A. Greenlow	08\21
CHECKED-REVIEWED	L.Driscoll	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

ROUTE 1/NEQUASSET RD
TEMPORARY SIGNAL PLAN

SHEET NUMBER

92

OF 183

PROPOSED SIGN SUMMARY

ITEM NUMBER	IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR		TOTAL AREA IN SQUARE FEET	POST
		WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACKGROUND	LEGEND BORDER		
645.292	CS-1	30"	24"	TRUCK & BUS ENTRANCE	4"	3"	N/A	2	WHITE	BLACK	5.00 (10.00)	Metal Post
645.292	R2-1	30"	36"	SPEED LIMIT 45	TEXT DIMENSIONS SHALL CONFORM TO "STANDARD HIGHWAY SIGNS"			2	COLORS SHALL CONFORM TO "STANDARD HIGHWAY SIGNS"		7.50 (15.00)	Wood Post

CONSTRUCTION SIGN SUMMARY

ITEM NUMBER	IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR		TOTAL AREA IN SQUARE FEET
		WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACKGROUND	LEGEND BORDER	
652.35	R3-8	30"	30"	ONLY	TEXT DIMENSIONS SHALL CONFORM TO "STANDARD HIGHWAY SIGNS"			2	COLORS SHALL CONFORM TO "STANDARD HIGHWAY SIGNS"		6.25 (12.50)
652.35	R4-11	30"	30"	MAY USE FULL LANE				2			6.25 (12.50)
652.35	W3-3	30"	30"					4			6.25 (25.00)
652.35	W16-8P	30"	8"	NEQUASSET RD				2			1.67 (3.34)

*Construction Sign Summary is not a comprehensive list of construction signs required for the project. See MaineDOT Standard Details as well as MUTCD for additional construction signs needed on the project.

Username:

Division:

Date:8/25/2021

Filename: 093_Sign Summary.dgn

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

SIGNATURE

P.E. NUMBER

DATE

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	C. Helmick	BY	DATE
CHECKED-REVIEWED	L. Driscoll	C. Helmick	08\21
DESIGN2-DETAILED2		A. Stephens	08\21
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

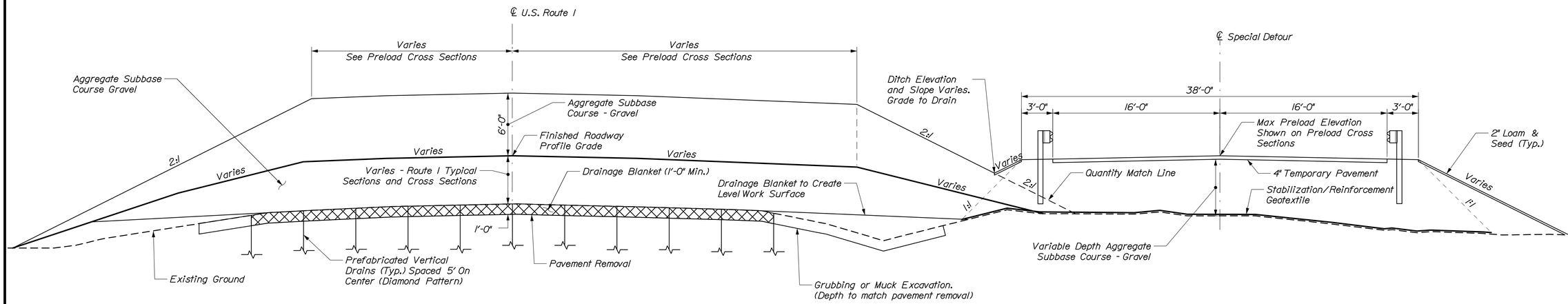
STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

SIGN SUMMARY

SHEET NUMBER

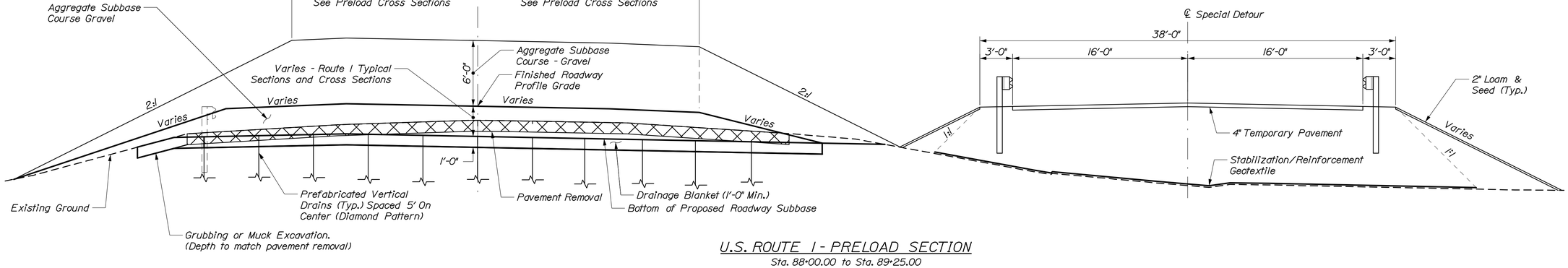
93

OF 183



U.S. ROUTE 1 - PRELOAD SECTION

Sta. 89+25.00 to Sta. 98+00.00



U.S. ROUTE 1 - PRELOAD SECTION

Sta. 88+00.00 to Sta. 89+25.00

PREFABRICATED DRAIN AND INSTRUMENTATION CONSTRUCTION SEQUENCE

1. Remove pavement.
2. Excavate where necessary and scarify subgrade. Note that the top of the installed drainage blanket must be at or below bottom of proposed pavement section.
3. Place 12" minimum thickness of Aggregate Subbase Course - Gravel to serve as drainage blanket.
4. Install Prefabricated Vertical Drains making sure to omit drains where Vibrating Wire Piezometers are (VWP) proposed.
5. Install VWPs.
6. Install Settlement Plates (SPs) and VWP wiring at SP locations.
7. Gather baseline SP and VWP readings.
8. Construct remainder of preload using Aggregate Subbase Course - Gravel.
9. Refer to SP 639 - Geotechnical Instrumentation for details regarding instrumentation; and SP 209 - Prefabricated Vertical Drains (PVD) for additional details regarding PVD installation.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

	SIGNATURE	P.E. NUMBER	DATE
PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	GZA		
CHECKED-REVIEWED	GZA		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

BY	DATE
P. McKechnie	08\21
GZA	08\21

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

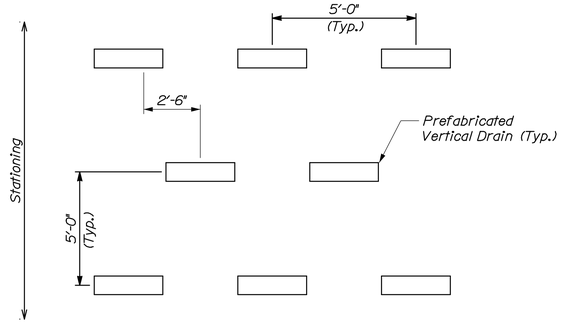
PRELOAD TYPICAL SECTION

SHEET NUMBER

94

OF 183

Filename: 094_Preload TypicalSections_Pleasant Cove.dgn Division: Username: Date:8/25/2021



PREFABRICATED VERTICAL DRAIN PLAN (TYP.)

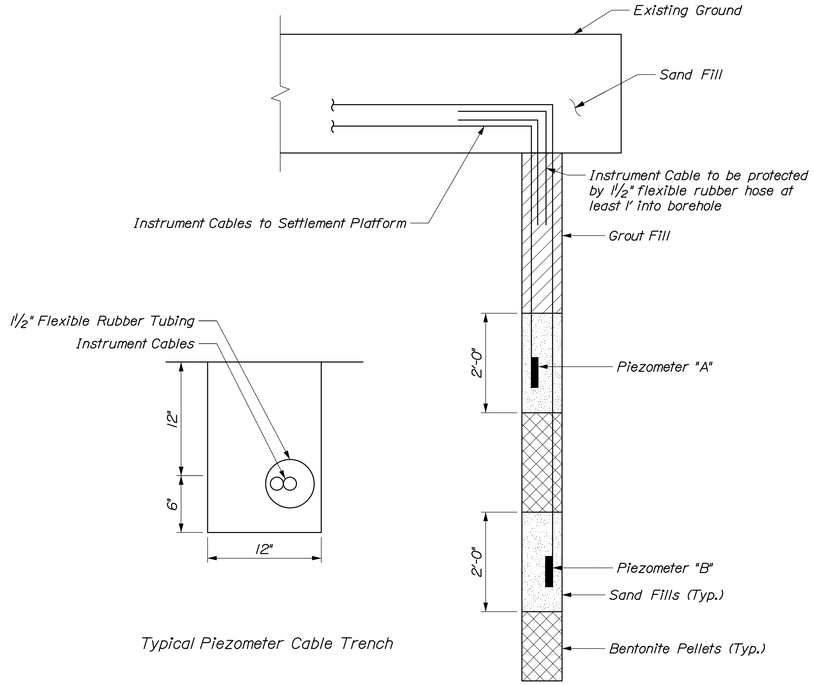
N.T.S

SUMMARY OF ESTIMATED PVD LENGTH AND LIMITS				
STATION	ESTIMATED INSTALLATION GRADE (FT)	ESTIMATED PVD TIP ELEVATION (FT)	ESTIMATED PVD LENGTH (FT)	LIMITS OF WICK DRAIN INSTALLATION
88+00	12	-20	32	25 LT to 35 RT
88+50	9	-37	46	25 LT to 35 RT
89+00	8	-50	58	25 LT to 35 RT
89+50	7	-70	77	25 LT to 35 RT
90+00	7	-80	87	25 LT to 35 RT
90+50	6	-83	89	25 LT to 35 RT
91+00	6	-86	92	25 LT to 35 RT
91+50	6	-89	95	25 LT to 35 RT
92+00	7	-95	102	25 LT to 35 RT
92+50	7	-107	114	25 LT to 35 RT
93+00	7	-120	127	25 LT to 35 RT
93+50	7	-133	140	25 LT to 35 RT
94+00	7	-139	146	25 LT to 35 RT
94+50	7	-123	130	25 LT to 35 RT
95+00	7	-107	114	25 LT to 35 RT
95+50	7	-90	97	25 LT to 35 RT
96+00	7	-73	80	25 LT to 35 RT
96+50	8	-73	81	25 LT to 35 RT
97+00	9	-68	77	25 LT to 30 RT
97+50	10	-45	55	25 LT to 30 RT
98+00	12	-33	45	25 LT to 30 RT

INSTRUMENTATION NOTES:

1. *The Contractor shall protect and maintain the installed instrumentation using a precast manhole to surround each settlement pipe and protect it from damage during earthwork operations. Contractor shall replace damaged equipment at no additional cost to the Department.*

2. *Contractor shall clearly mark the locations of all proposed Prefabricated Vertical Drains and shall omit the prefabricated drains proposed at locations of proposed Vibrating Wire Piezometers.*

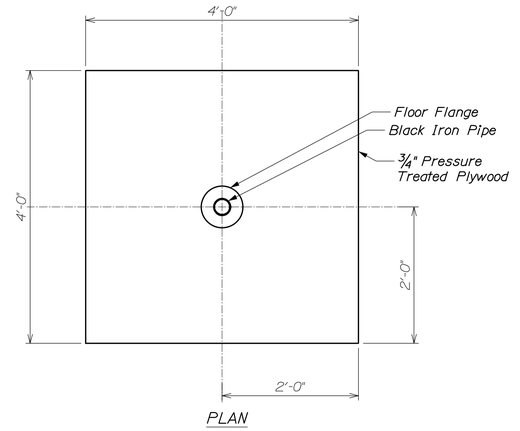


Typical Piezometer Cable Trench

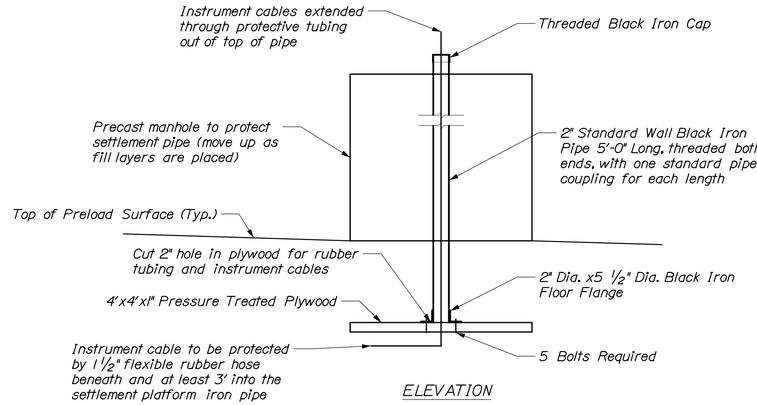
PIEZOMETER DETAIL

N.T.S

SUMMARY OF PIEZOMETER LOCATIONS			
PIEZOMETER ID	STATION	OFFSET	ELEVATION (FT)
PZ-1A	89+00	0	-12
PZ-1B	89+00	0	-43
PZ-2A	91+50	5 RT	-12
PZ-2B	91+50	5 RT	-25
PZ-2C	91+50	5 RT	-60
PZ-2D	91+50	5 RT	-76
PZ-3A	92+75	5 RT	-12
PZ-3B	92+75	5 RT	-25
PZ-3C	92+75	5 RT	-60
PZ-3D	92+75	5 RT	-76
PZ-3E	92+75	5 RT	-95
PZ-4A	94+00	5 RT	-12
PZ-4B	94+00	5 RT	-25
PZ-4C	94+00	5 RT	-60
PZ-4D	94+00	5 RT	-76
PZ-4E	94+00	5 RT	-95
PZ-5A	95+85	0	-20
PZ-5B	95+85	0	-60
PZ-6A	97+25	0	-20
PZ-6B	97+25	0	-60



PLAN



ELEVATION

SETTLEMENT PLATFORM DETAIL

N.T.S

SUMMARY OF SETTLEMENT PLATFORM LOCATIONS		
SETTLEMENT PLATE ID	STATION	OFFSET
SP-1	89+00	0
SP-2	91+50	5 RT
SP-3	92+75	5 RT
SP-4	94+00	5 RT
SP-5	94+75	5 RT
SP-6	94+75	40 RT
SP-7	95+85	0
SP-8	97+25	0
SP-9	97+80	0

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	GZA	08\21
CHECKED-REVIEWED	GZA	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

PRELOAD INSTRUMENTATION

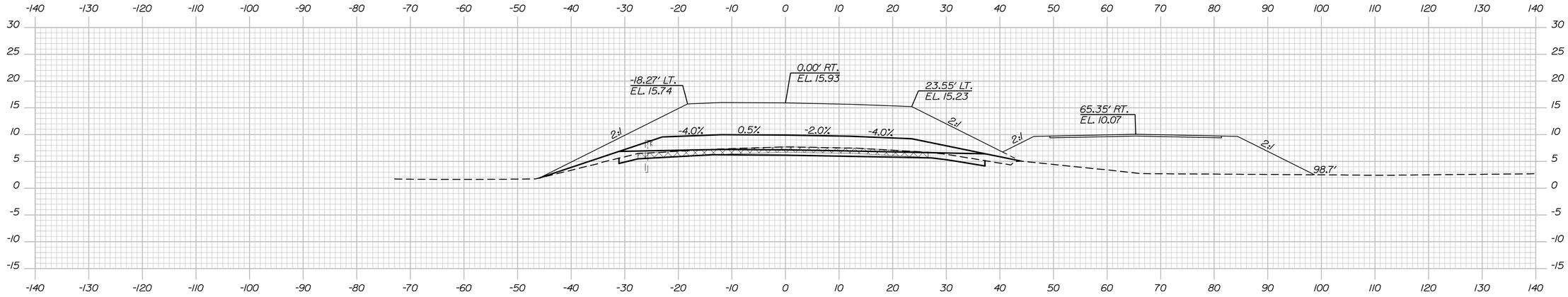
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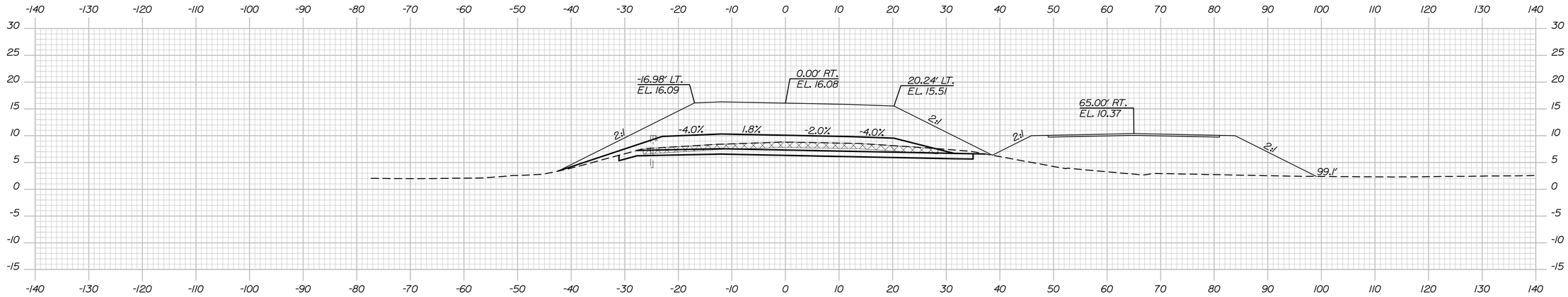
OF 183

HNTB

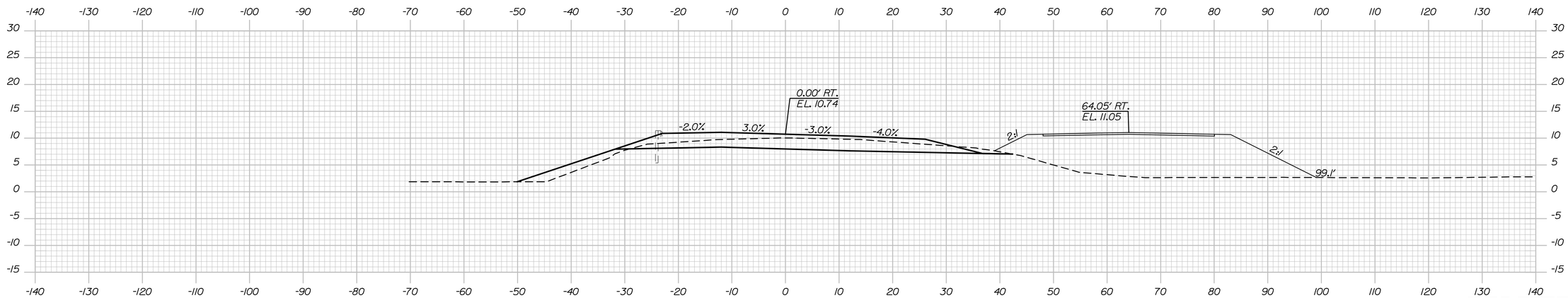
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89+00.00



88+50.00



88+00.00

Special detour shown conceptually.
See Special Provision 510.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

PROJ. MANAGER	D. Edson, P.E.		
DESIGN-DETAILED	GZA	P. McKechnie	08\21
CHECKED-REVIEWED	GZA	GZA	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

PRELOAD CROSS SECTIONS

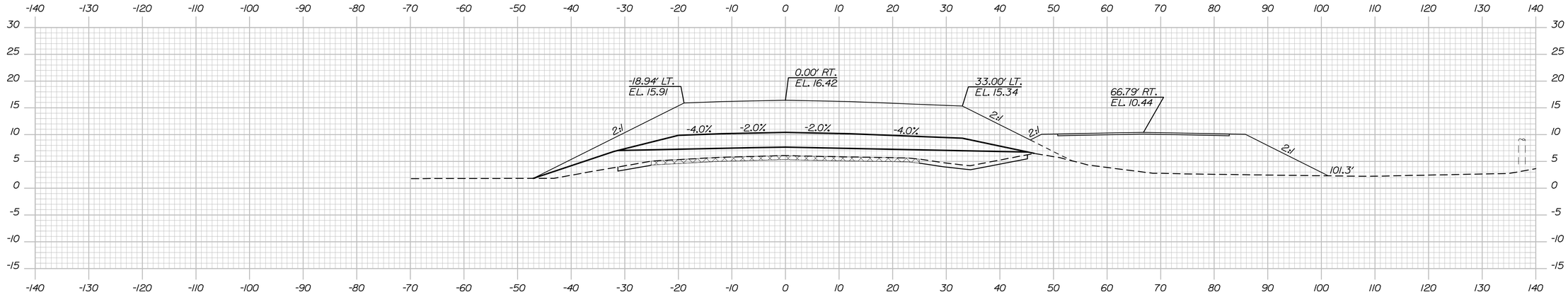
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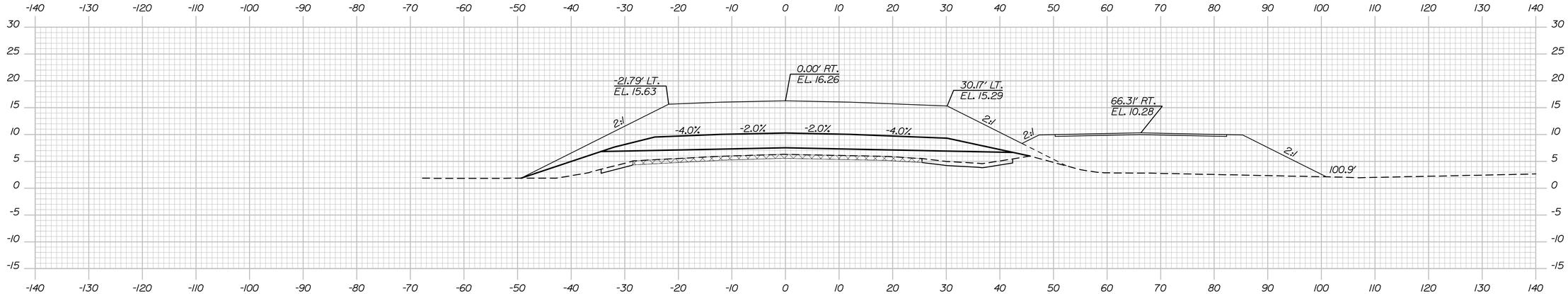
OF 183

Sta. 88+00.00 to Sta. 89+00.00

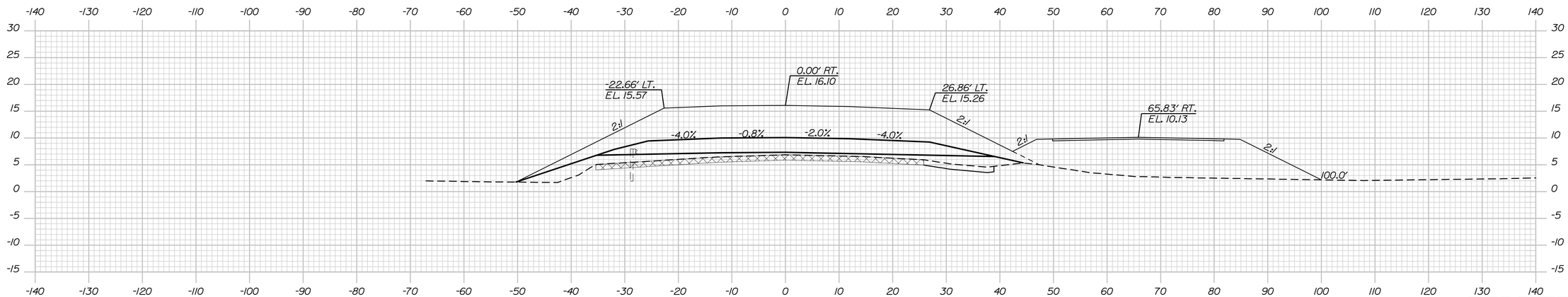
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Division:
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90+50.00



90+00.00



89+50.00

Special detour shown conceptually.
See Special Provision 510.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	GZA	P. McKeothing	08\21
CHECKED-REVIEWED	GZA	GZA	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

PRELOAD CROSS SECTIONS

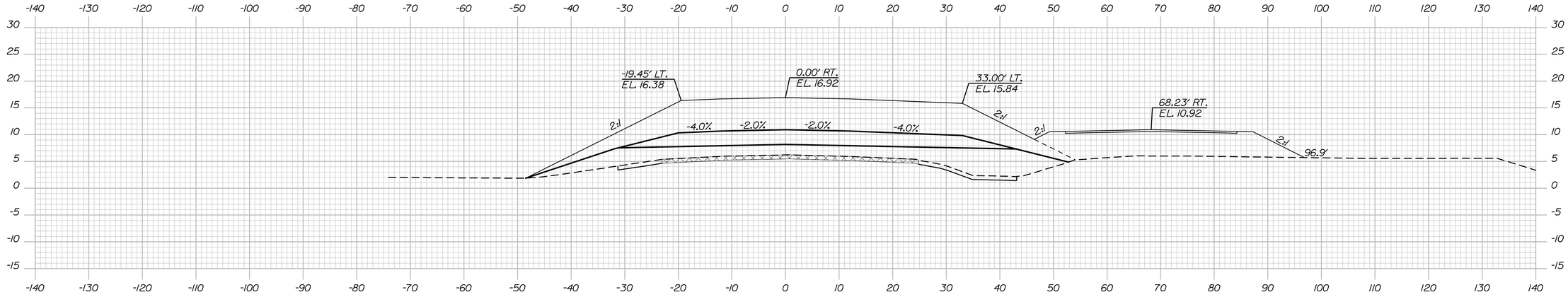
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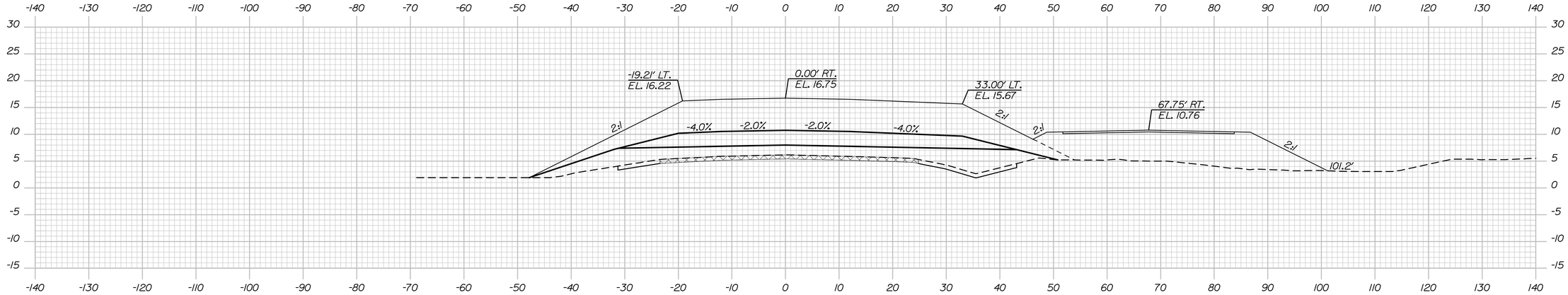
OF 183

Sta. 89+50.00 to Sta. 90+50.00

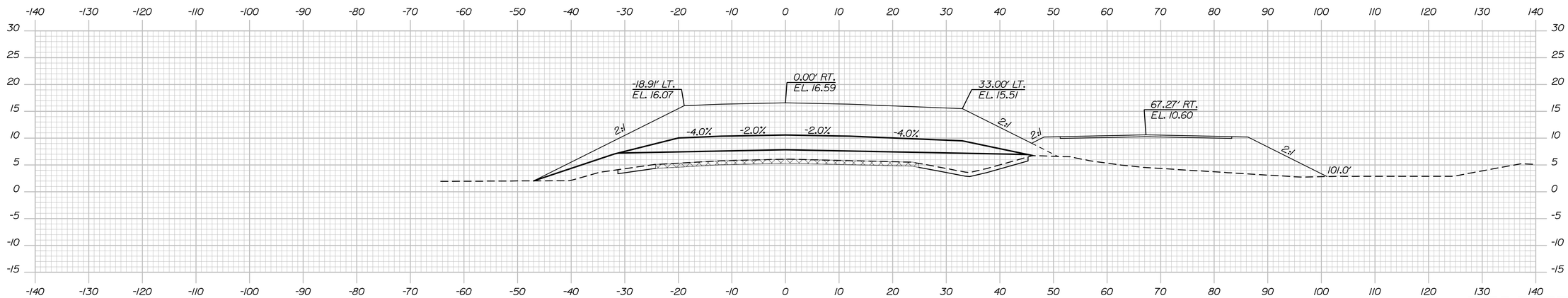
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92+00.00



91+50.00



91+00.00

Special detour shown conceptually.
See Special Provision 510.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE PLANS

BRIDGE NO. 6667

PROJ. MANAGER	D. Edson, P.E.	BY	DATE
DESIGN-DETAILED	GZA	P. McKeothing	08\21
CHECKED-REVIEWED	GZA	GZA	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

PRELOAD CROSS SECTIONS

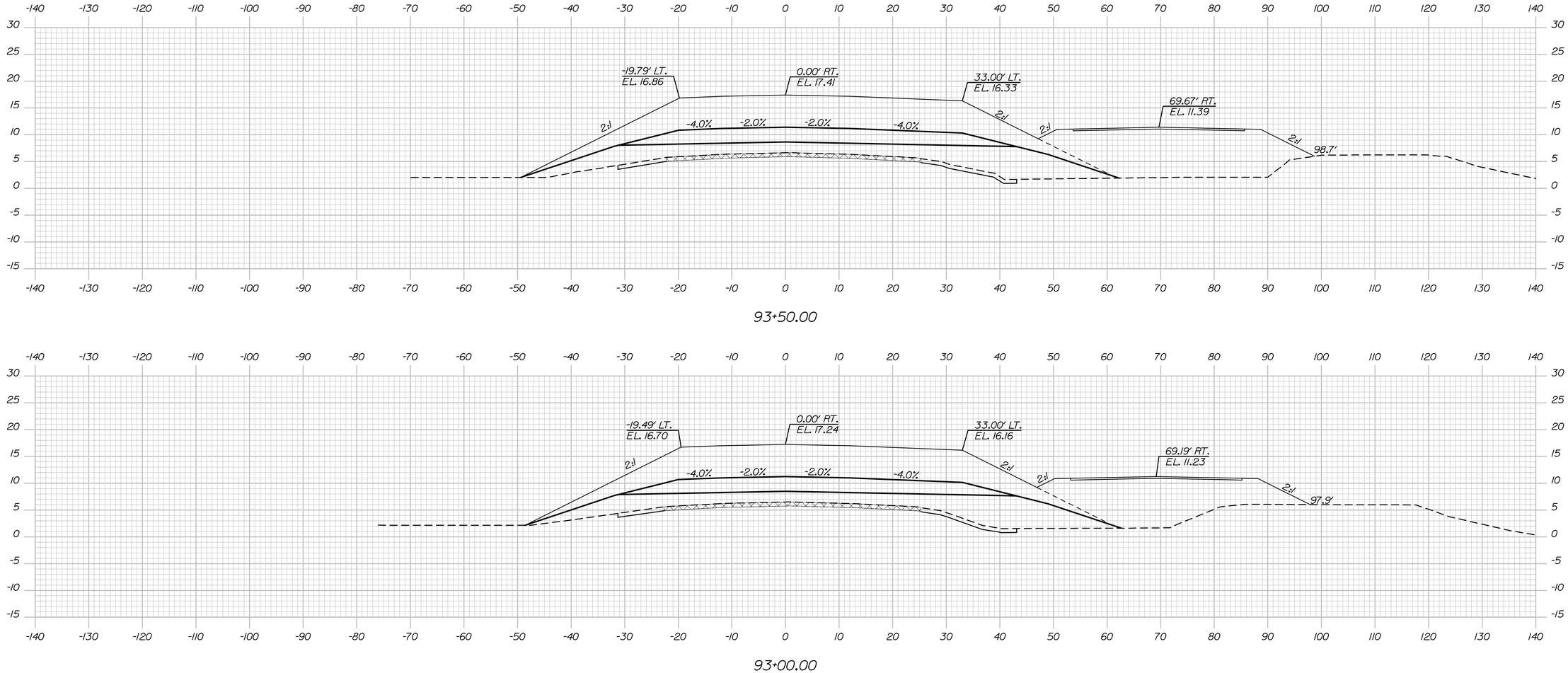
SHEET NUMBER

98

OF 183

Sta. 91+00.00 to Sta. 92+00.00

Filename: Xsections_Preload.dgn Division: Username: Date:8/25/2021



93+50.00

93+00.00

92+50.00

Special detour shown conceptually.
See Special Provision 510.

HNTB

Sta. 92+50.00 to Sta. 93+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

	SIGNATURE	P.E. NUMBER	DATE

	BY	DATE
D. Elston, P.E.	P. Mckeothnie	08\21
	GZA	08\21

PROJ. MANAGER	
DESIGN-DETAILED	GZA
CHECKED-REVIEWED	GZA
DESIGN2-DETAILED2	
DESIGN3-DETAILED3	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

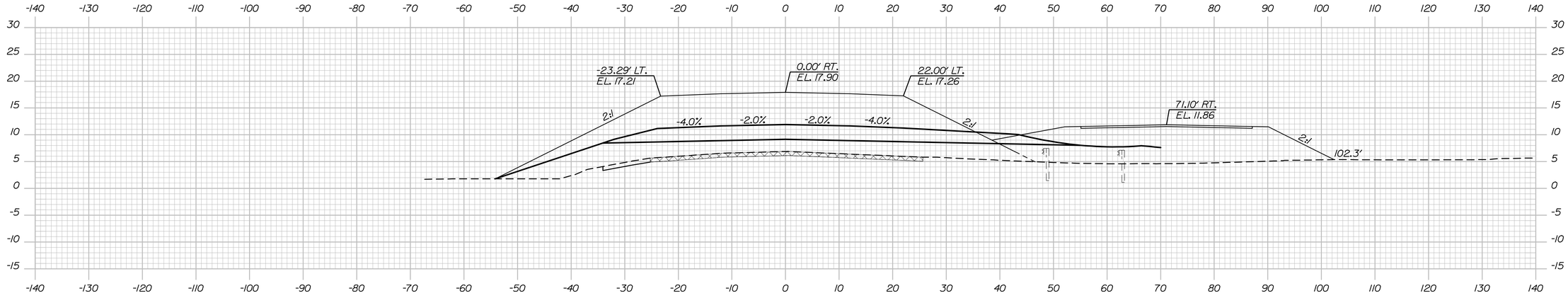
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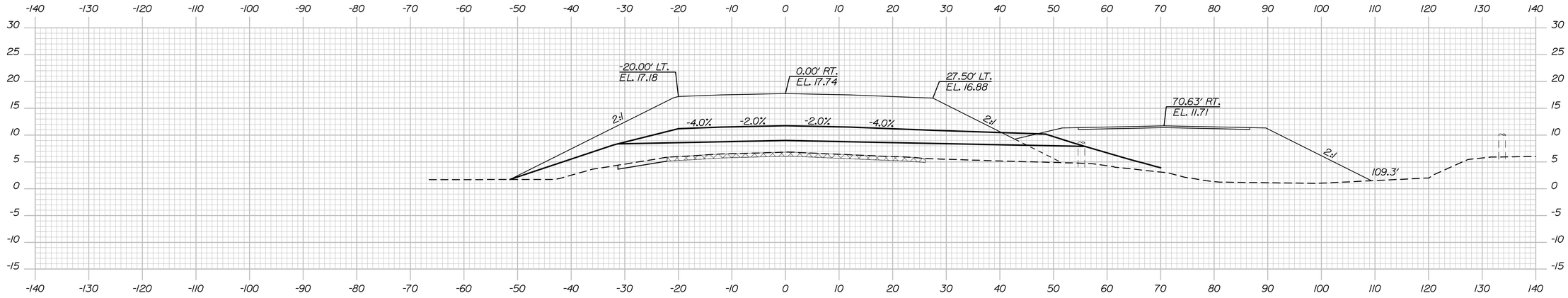
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OF 183

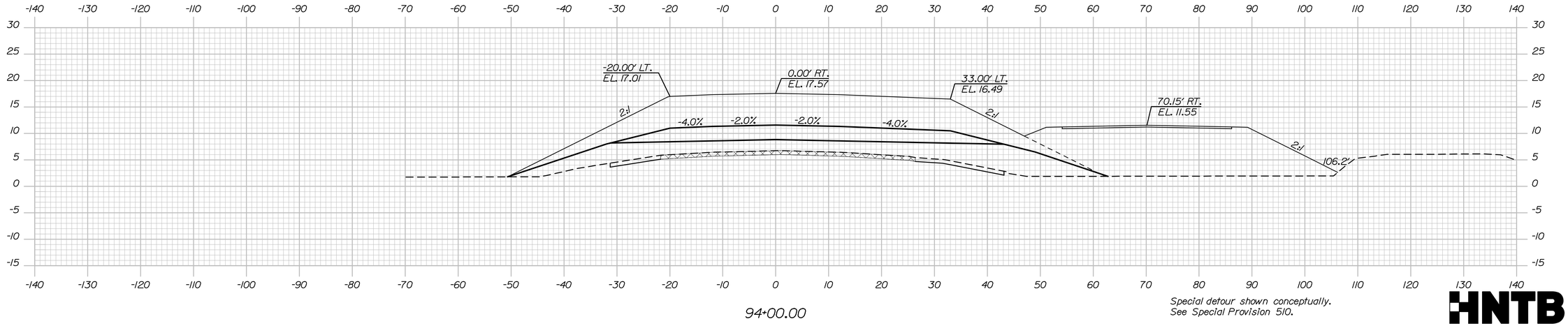
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Division:
Filename: Xsections_Preload.dgn



95+00.00



94+50.00



94+00.00

Special detour shown conceptually.
See Special Provision 510.

HNTB

Sta. 94+00.00 to Sta. 95+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

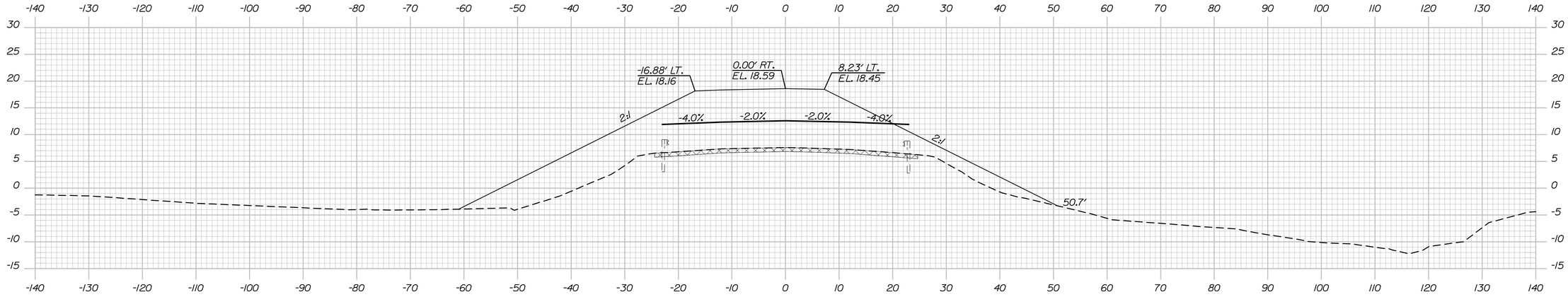
	SIGNATURE	P.E. NUMBER	DATE
PROJ. MANAGER			
DESIGN-DETAILED	D. Elston, P.E.		
CHECKED-REVIEWED	P. McKeechnie		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

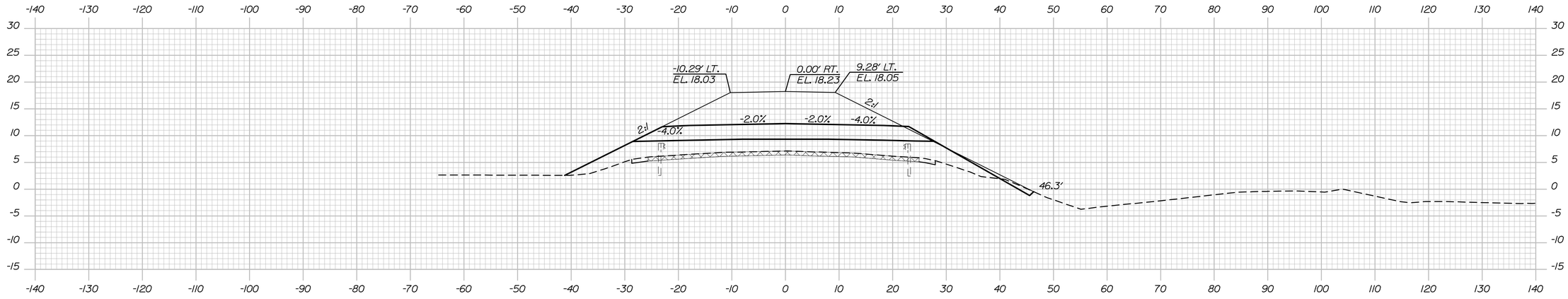
PRELOAD CROSS SECTIONS

SHEET NUMBER
100
OF 183

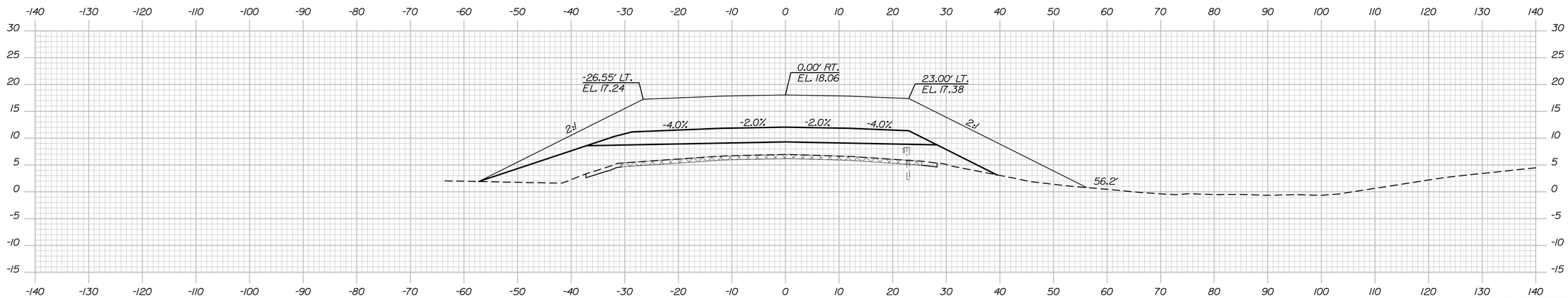
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Division:
Username:
Date:8/25/2021



96+50.00



96+00.00



95+50.00

Temporary detour not shown
(Contractor designed)

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

PROJ. MANAGER	D. Edson, P.E.	BY	DATE
DESIGN-DETAILED	GZA	P. McKechnie	08\21
CHECKED-REVIEWED	GZA	GZA	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

PRELOAD CROSS SECTIONS

SHEET NUMBER

101

OF 183

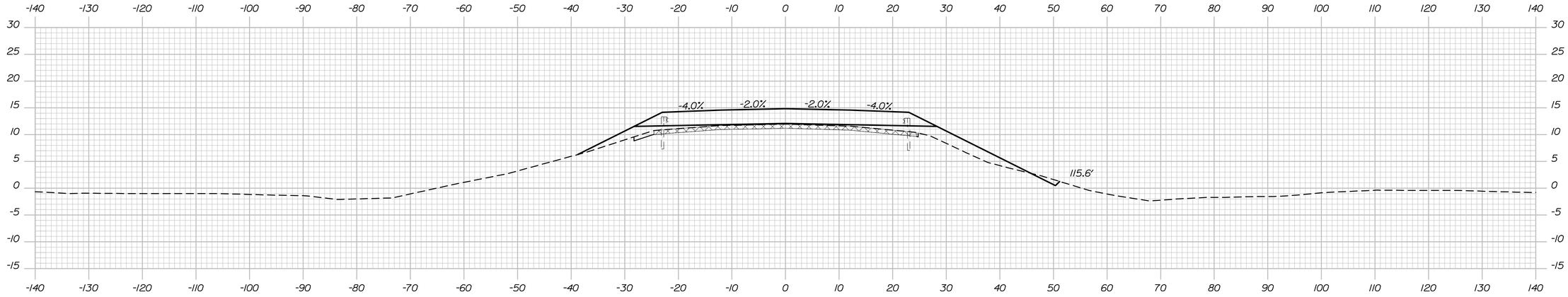
Date:8/25/2021

Username:

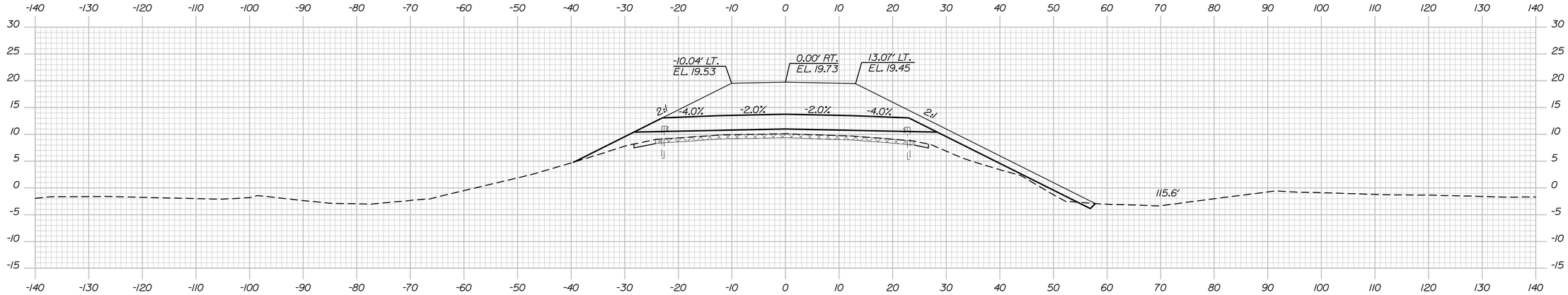
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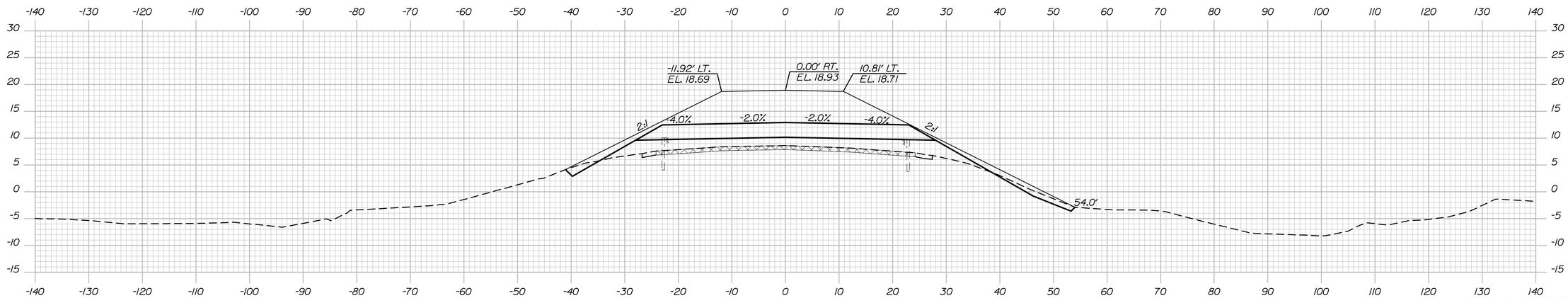
Sta. 95+50.00 to Sta. 96+50.00



98+00.00



97+50.00



97+00.00

Temporary detour not shown
(Contractor designed)

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	GZA	P. McKeothnie	08\21
CHECKED-REVIEWED	GZA	GZA	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

PRELOAD CROSS SECTIONS

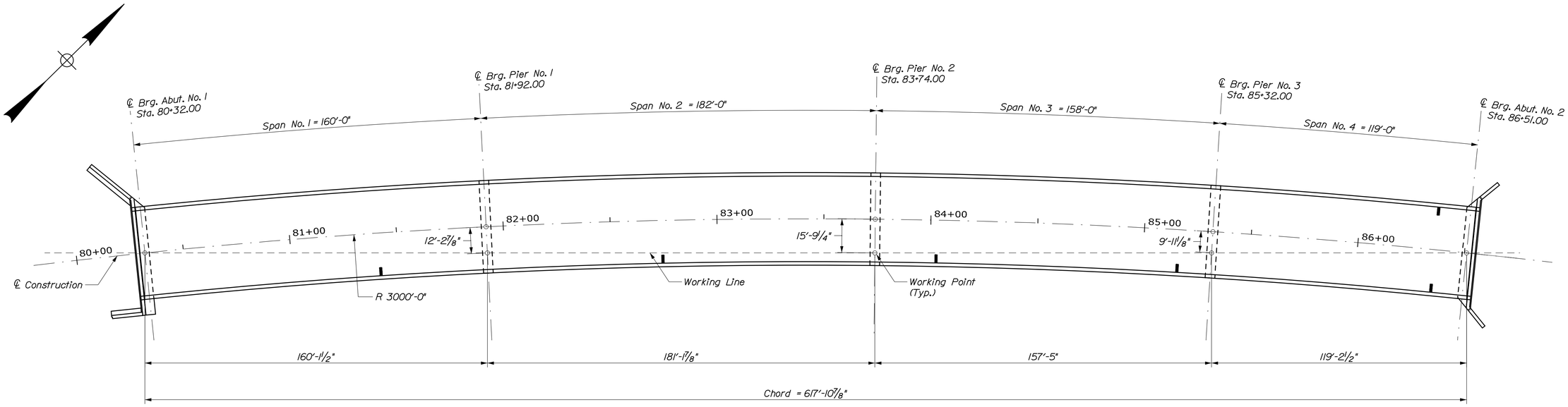
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102

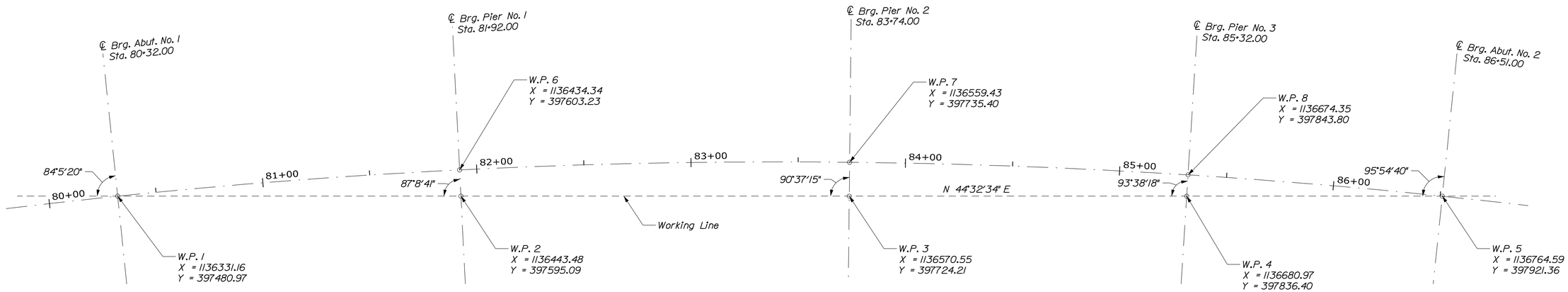
OF 183

Sta. 97+00.00 to Sta. 98+00.00

Filename: Xsections_Preload.dgn
Division:
Username:
Date:8/25/2021



GEOMETRIC LAYOUT PLAN



LAYOUT COORDINATES PLAN

LEGEND

W.P. = Working Point

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

SIGNATURE

P.E. NUMBER

DATE

PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	B. Grenier	08\21
CHECKED-REVIEWED	K.Brayley	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

GEOMETRIC LAYOUT PLAN

SHEET NUMBER

103

OF 183

Date:8/25/2021

Username:

Division:

Filename: 103_Bridge Geometric Layout Plan.dgn

ABUTMENT NOTES

1. Reinforcing steel shall have a minimum concrete cover of 3 inches unless otherwise noted.

2. Cover joints where waterstops are not required in accordance with Standard Detail 502 (01).

3. Place drains with a 4 inch diameter in breastwall and wingwalls at 10 feet maximum spacing. The exact location will be determined by the Resident.

4. Abutments, wingwalls, and their footings shall be backfilled with Granular Borrow. Pay limits will be the structural excavation limits in cut areas and a vertical plane located 10 feet behind the walls in fill areas.

5. The maximum factored applied footing pressure is as follows:

   Abutment No. 1: 25 ksf
   Abutment No. 2: 25 ksf

6. It is assumed that the Contractor will place seals after preparing the bedrock surface in accordance with Standard Specification Section 511, Cofferdams. If the Contractor elects to prepare the bedrock surface in the dry, refer to notes 7 through 12.

7. When the bedrock protrudes above the bottom of the footing shown, the footing may be raised, and vertical reinforcing may be cut in the field with the approval of the Resident. The minimum allowable footing thickness is shown on the Plans. Payment for adjusting footing depth and adjusting reinforcing steel will be considered incidental to related Contract Items. No separate payment will be made.

8. At the option of the Resident, bedrock which protrudes above a horizontal plane 12 inches below the proposed footing elevation may be removed. Payment for bedrock removal shall be made under Item No. 206.092, Structural Rock Excavation - Major Structures.

9. A Concrete Leveling Pad may be constructed between the bottom of the footing and the top of the prepared bedrock surface. Concrete for leveling pads shall be Class "S" Concrete conforming to the requirements of Section 502 Structural Concrete. Leveling pad shall have a minimum thickness of 6 inches. Unless otherwise specified, concrete for leveling pads shall be accepted under Method "C" requirements.

10. Abutment concrete or a Concrete Leveling Pad shall be placed on bedrock cleaned of all weathered rock, loose fractured rock and soil. The bedrock subgrade shall be confirmed to be relatively level. Where the bedrock slope exceeds 4H:1V, the bedrock surface shall be benched to create level steps, made completely level, or dowels may be installed in accordance with an approved design submittal. The Resident shall approve the bedrock subgrade prior to the placement of the abutment concrete.

11. Prior to placing abutment concrete or Concrete Leveling Pad, the bedrock subgrade shall be washed with high-pressure water and air.

12. The abutment bearing pedestal elevations shown are based on bearing heights presented on the "BEARING DETAILS" sheet. Adjustments to the pedestal elevations, if necessary, shall be made in accordance with Note 1 on the "BEARING LAYOUT" sheet.

SEAL COFFERDAM NOTES

1. When sheet piling is used for seal cofferdams, appropriate rolled corners shall be used, and the inside face of the sheet piling shall be at, or outside of, the seal concrete dimensions shown.

2. The seal concrete placement dimensions shown represent the minimum seal size necessary to meet design requirements and are not based on the use of any particular sheet pile section. Where variable seal depths are used due to sloping bedrock a minimum seal depth of 6 inches shall be maintained.

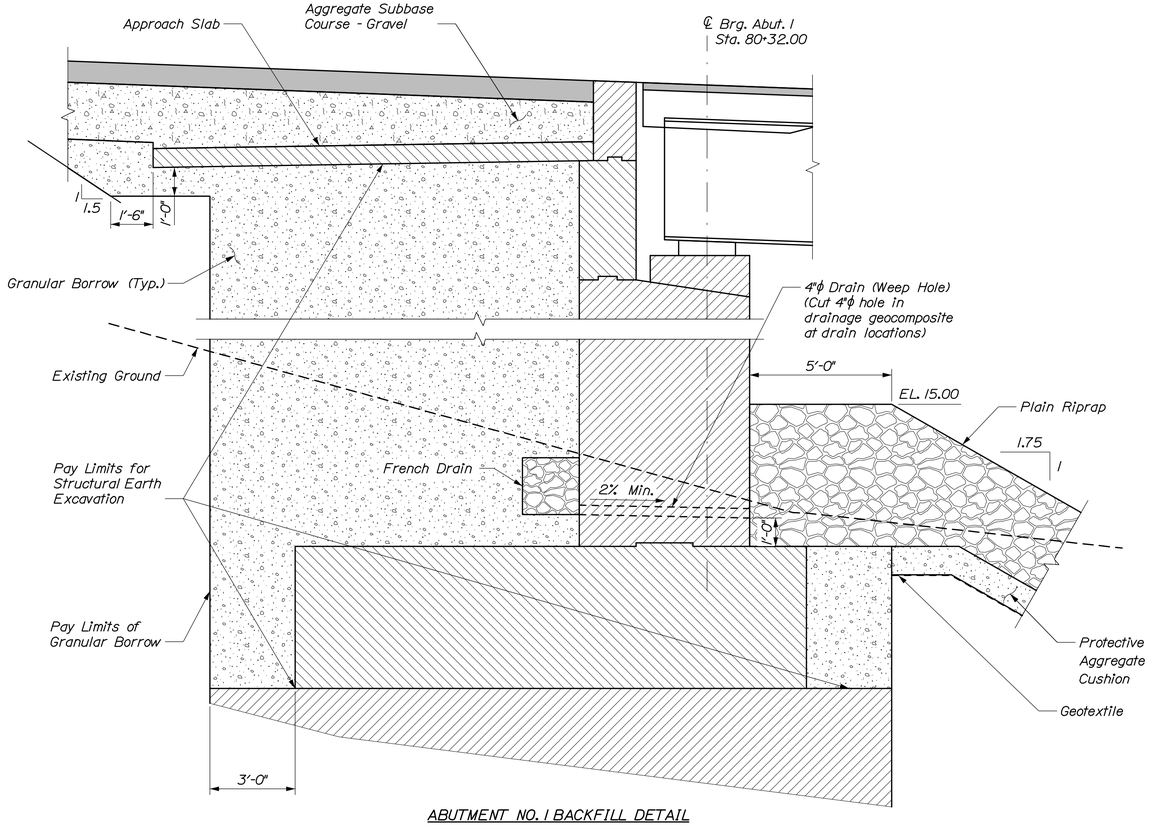
3. The horizontal pay limit for seal concrete will be to the dimensions shown on the plans. No additional payment will be made for concrete placed outside these limits.

4. The depth of the seal is set for a water elevation of 4.7 (MHHW + Storm Surge). If the water elevation at the time of construction is higher, the depth of the seal shall be adjusted.

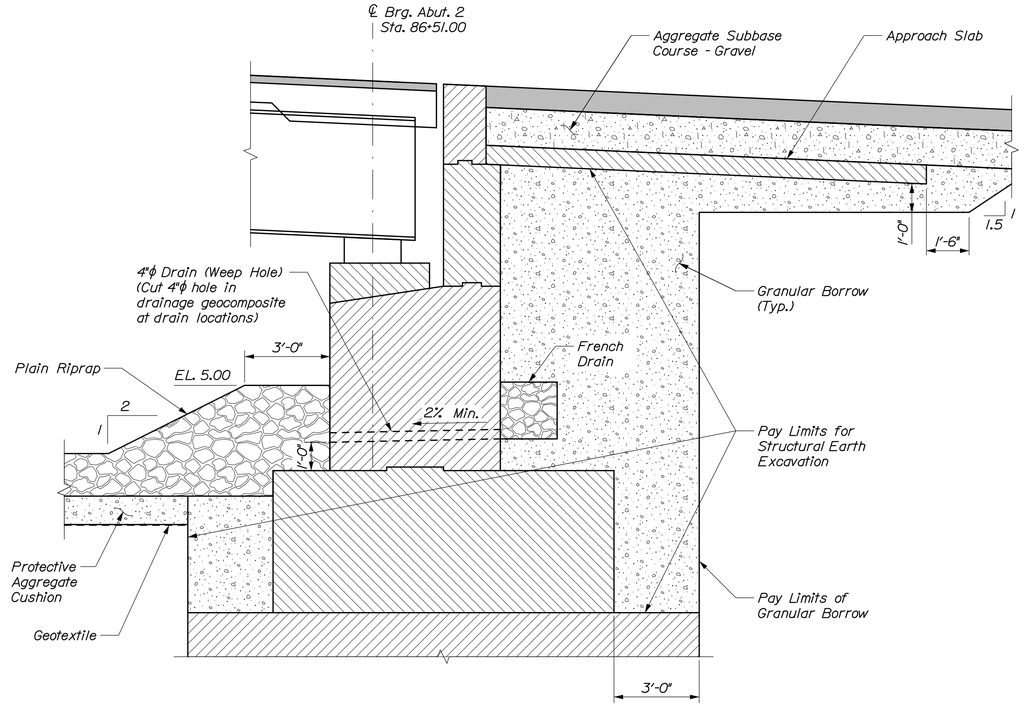
5. The method of placing dowels in the seal concrete shall be approved by the Resident. The anchoring material shall be one of the products listed on the MaineDOT Qualified Products List of Grout Materials.

6. Abutment seal concrete shall be placed on bedrock cleaned of weathered rock, loose fractured bedrock, boulders and soil. Where the bedrock inclination is steeper than 4H:1V, the bedrock shall be benched in steps to create an effective lope of less than 4H:1V. Cofferdam excavation inspection and reporting shall be in accordance with Standard Specifications Section 511, Cofferdams. At a minimum, the inspection shall include bedrock elevation measurements and sediment measurements, taken at a minimum of 10 evenly distributed plan locations, and a final inspection by the Contractor.

7. Each seal shall be cored full depth in at least 4 locations to ensure that the seal is satisfactorily placed. Each core run shall sample the bedrock interface and a minimum of 1 foot of bedrock. Seal core locations will be approved by the Department. Seal concrete cores will be a minimum 3 inch outer diameter and be stored in boxes and labeled. In the event that voids, unsuitable interface materials such as soil, or other defects are indicated, the Contractor shall correct the defects in a manner approved by the Department. For each core that reveals a defect, 2 additional cores shall be taken in approximately the same area in locations approved by the Department. All core holes shall be filled using non-shrink grout selected from the MaineDOT Qualified Products List of Grout Materials. The cost of coring and repairs will be considered incidental to related pay items.



ABUTMENT NO. 1 BACKFILL DETAIL



ABUTMENT NO. 2 BACKFILL DETAIL

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

		DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	Y. Peng	08\21
CHECKED-REVIEWED	K. Broyley	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

BY: P. Bishop, T. Cote

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

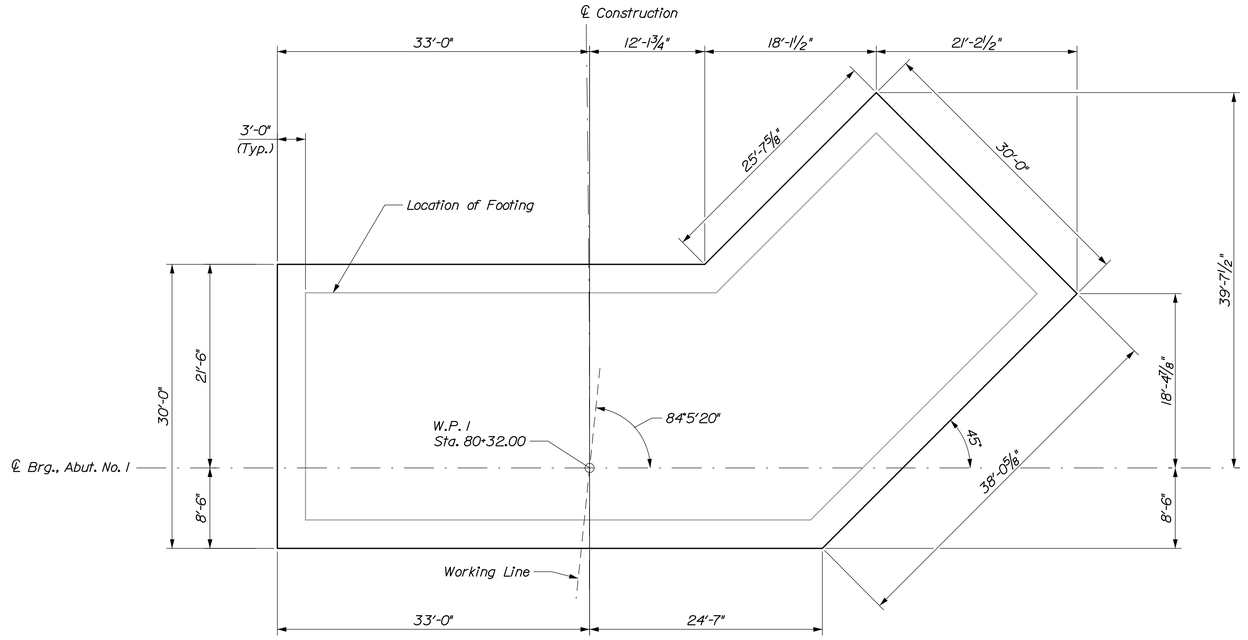
ABUTMENT NOTES

SHEET NUMBER

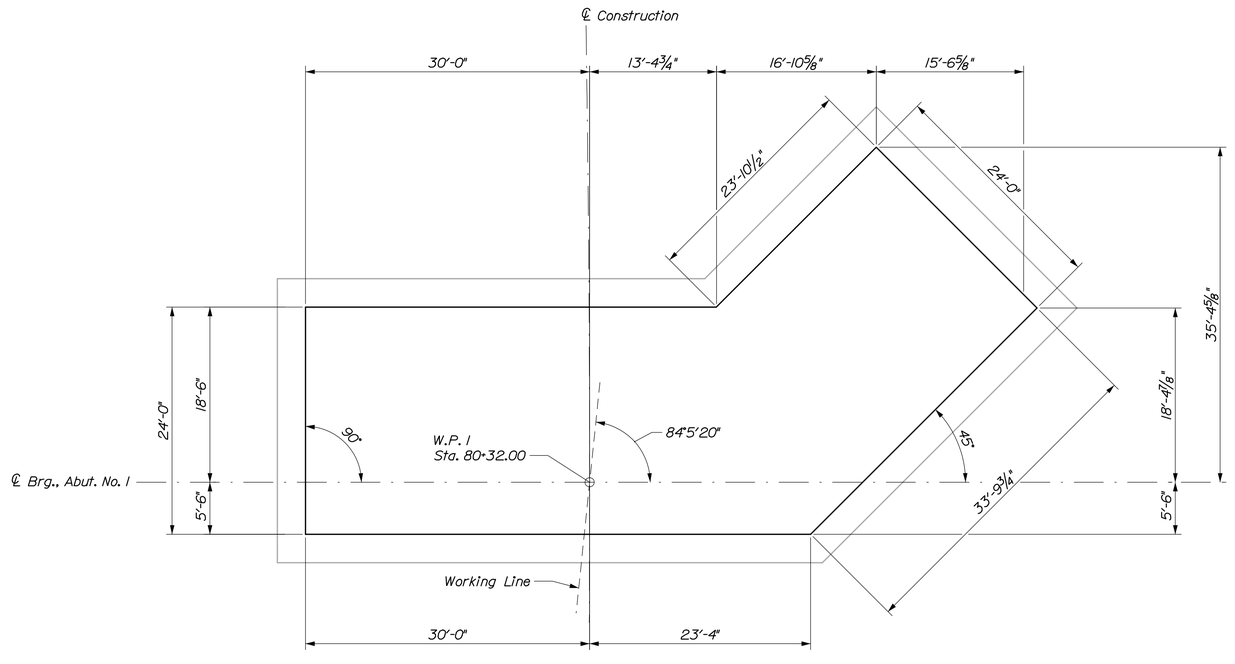
104

OF 183

Filename: 104_Abutment Notes.dgn Division: Username: Date:8/25/2021



ABUTMENT NO. 1 SEAL PLAN



ABUTMENT NO. 1 FOOTING PLAN

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039 BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY
DESIGN-DETAILED	Y. Peng	P. Bishop 08\21
CHECKED-REVIEWED	K. Broyley	T. Cote 08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

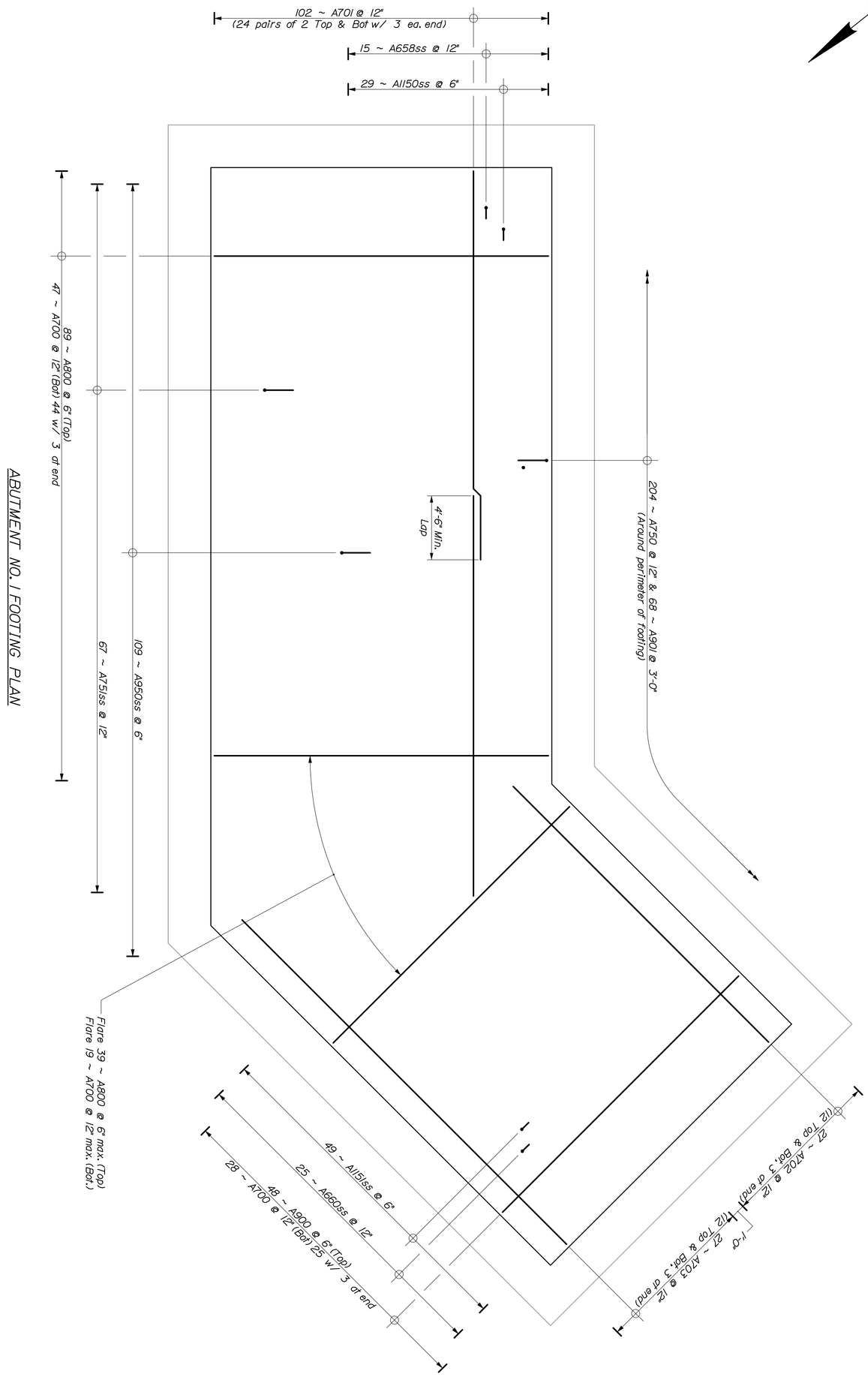
DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT NO. 1
SEAL AND FOOTING PLAN

SHEET NUMBER
105
OF 183

Filename: 105_Abutment 1 Foundation Plan.dgn Division: Username: Date:8/25/2021



ABUTMENT NO. 1 FOOTING PLAN

Note:
1. Wingwall footing transverse reinforcing bars clear cover may be increased by up to 2 inches to avoid conflict with abutment footing transverse reinforcing bars.

HNTB

SHEET NUMBER 106 OF 183

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT NO. 1
FOOTING REINFORCING

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	Y. Peng	P. Bishop	08\21
CHECKED-REVIEWED	K. Brayley	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

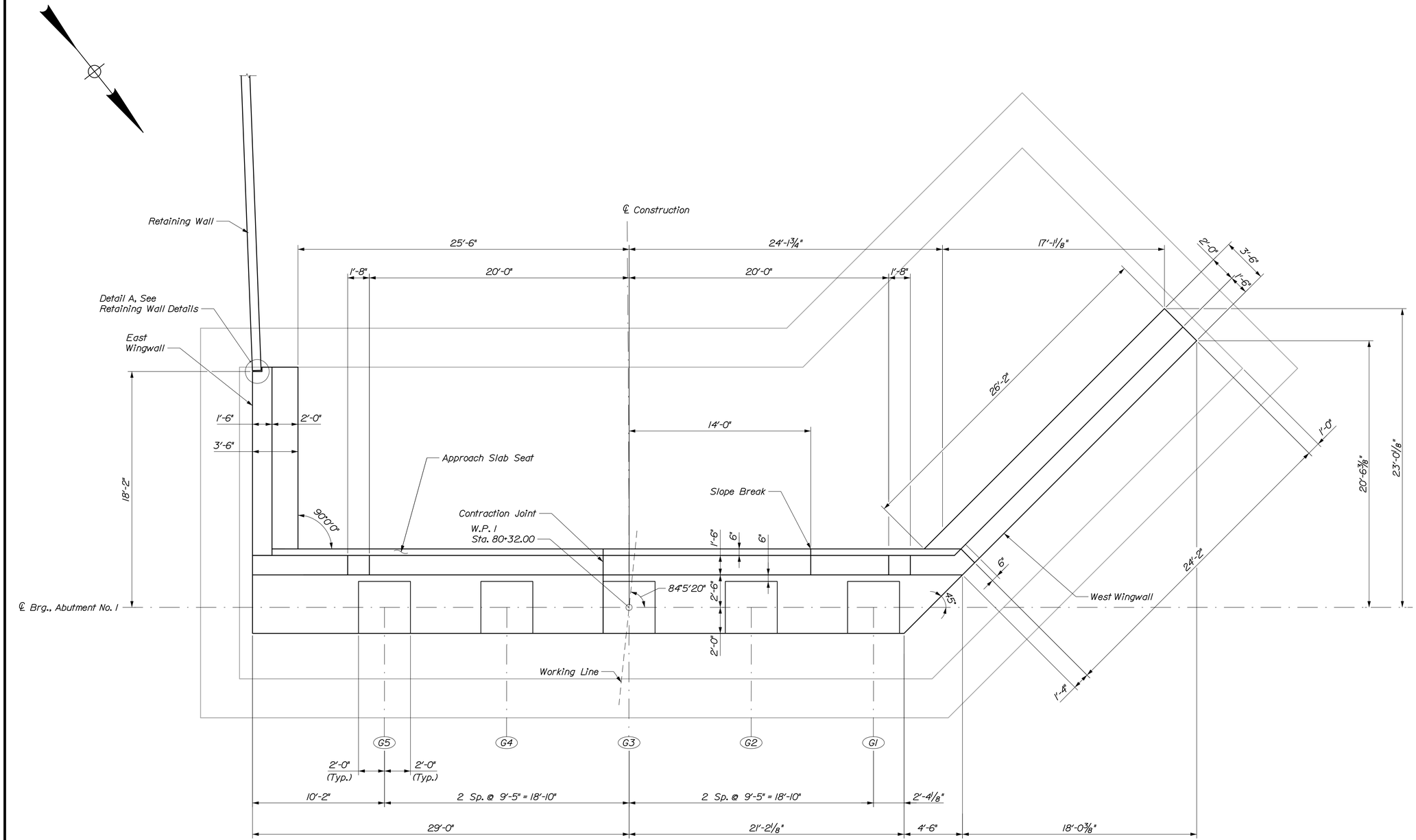
P.E. NUMBER

DATE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

BRIDGE NO.3039 WIN 23929.00 BRIDGE PLANS



ABUTMENT NO. 1 PLAN

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	Y. Peng	08\21
CHECKED-REVIEWED	K. Brayley	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT NO. 1 PLAN

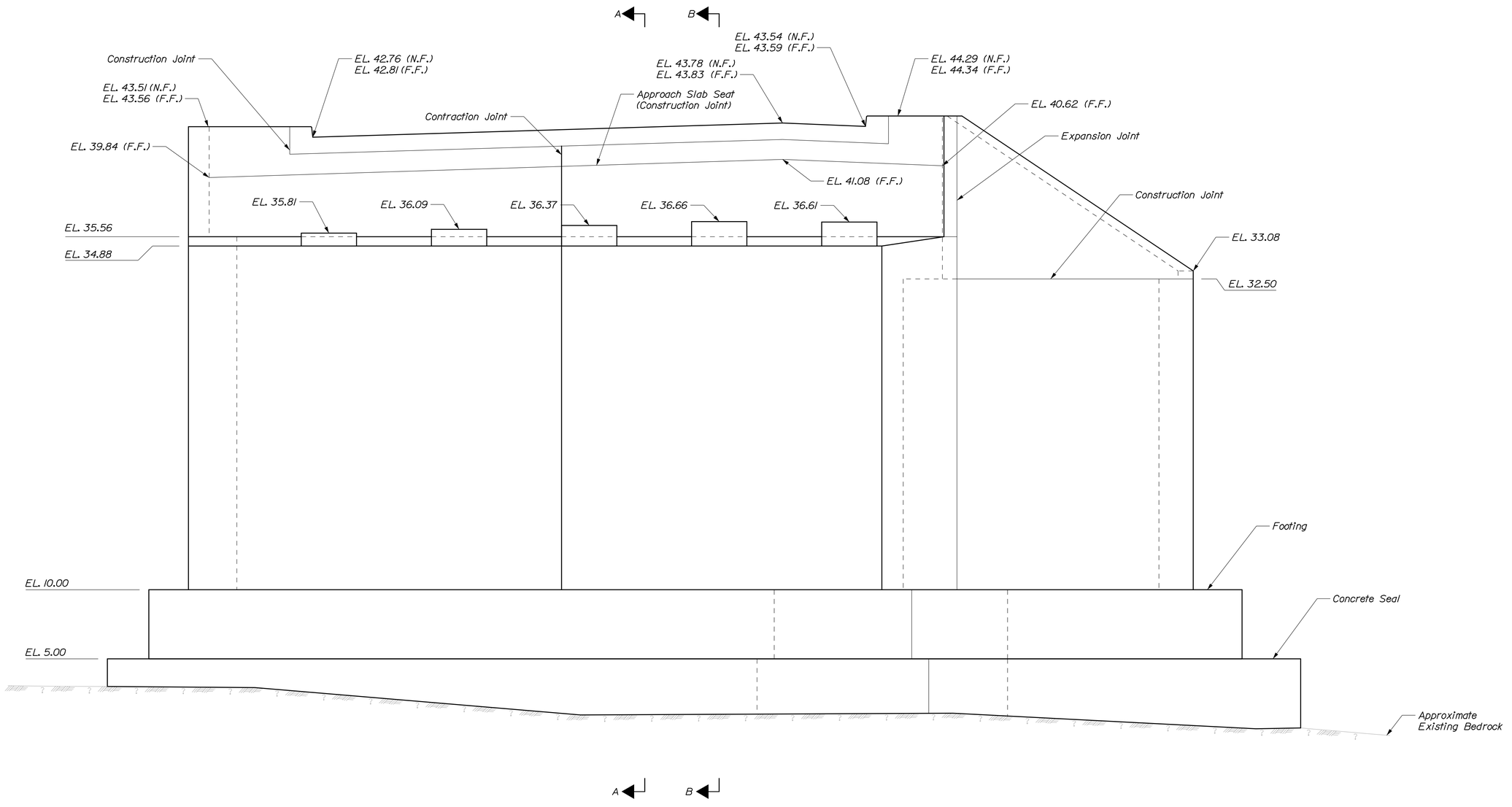
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OF 183

HNTB

Filename: 107_Abutment 1 Plan.dgn Division: Username: Date:8/25/2021



ABUTMENT NO. 1 ELEVATION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	Y. Peng	BY	DATE
CHECKED-REVIEWED	K. Brayley	P. Bishop	08\21
DESIGN2-DETAILED2		T. Cote	08\21
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT NO. 1
ELEVATION

SHEET NUMBER

108

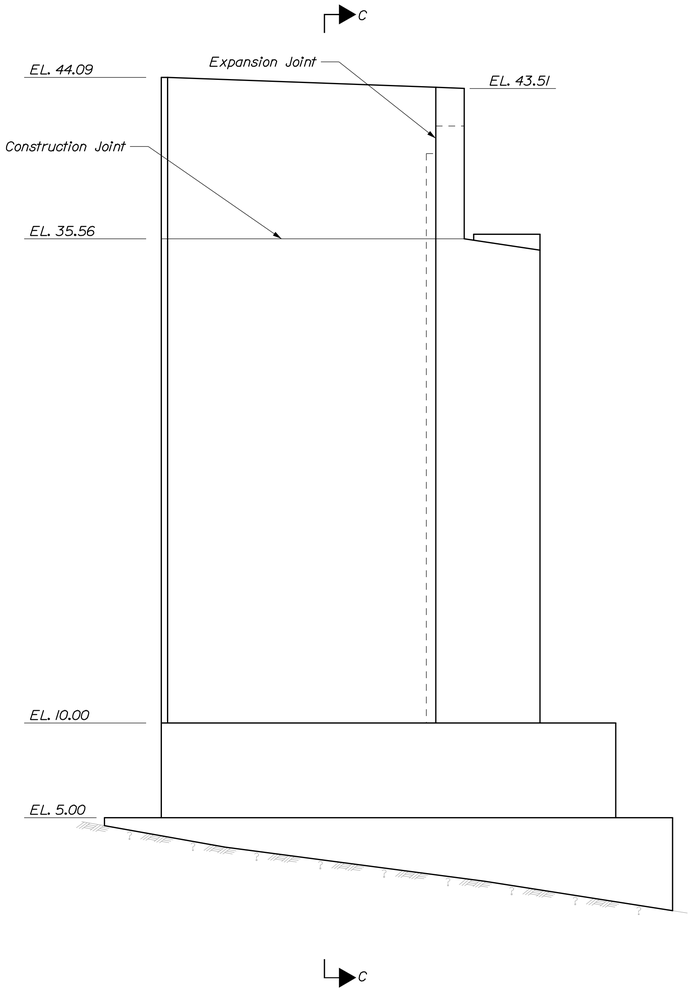
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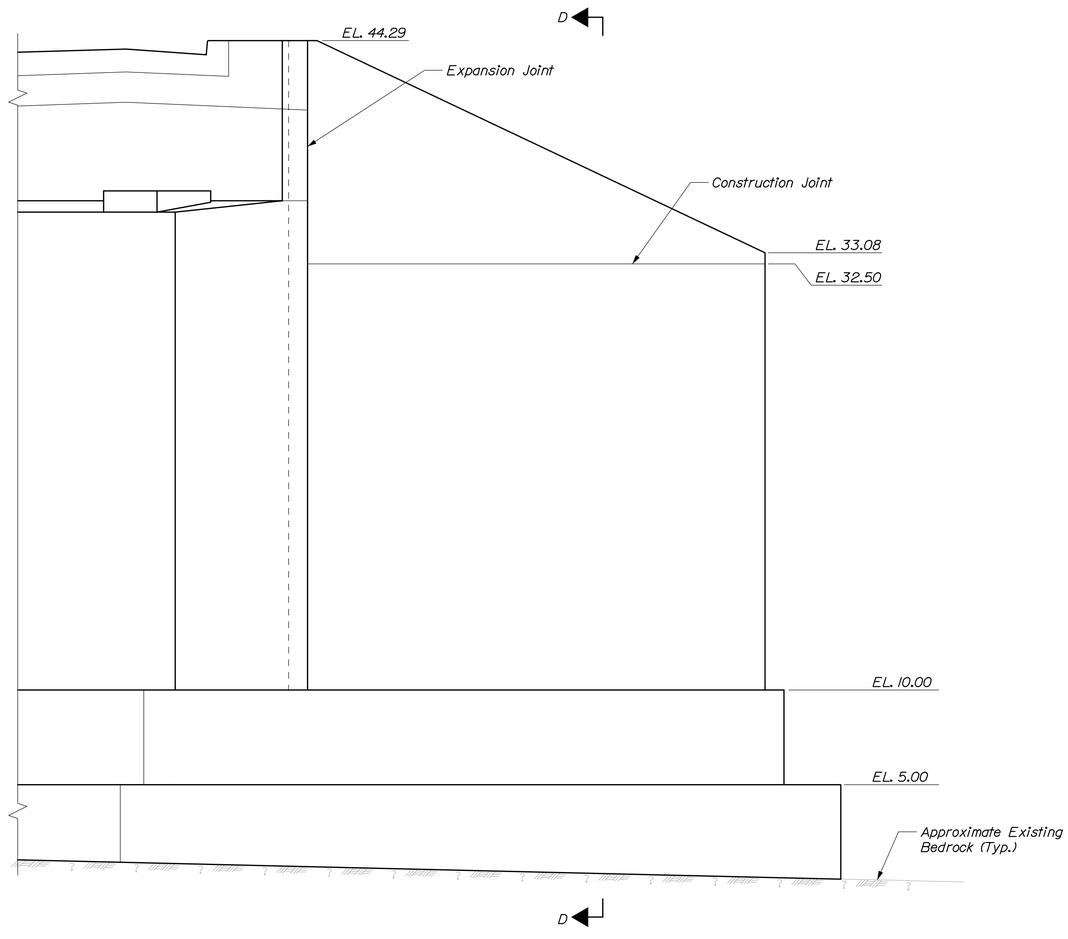
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Filename: 108_Abutment 1 Elevation.dgn

Date:8/25/2021



EAST WINGWALL ELEVATION



WEST WINGWALL ELEVATION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	Y. Peng	P. Bishop	08\21
CHECKED-REVIEWED	K. Brayley	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT NO. 1 WINGWALLS

SHEET NUMBER

109

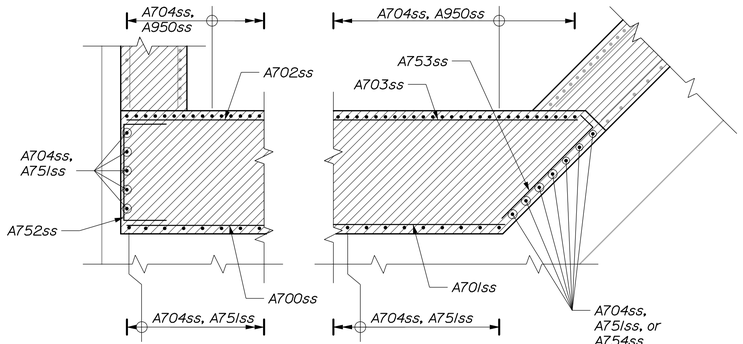
OF 183

Username:

Division:

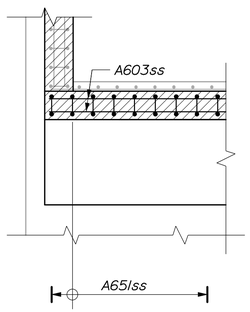
Date:8/25/2021

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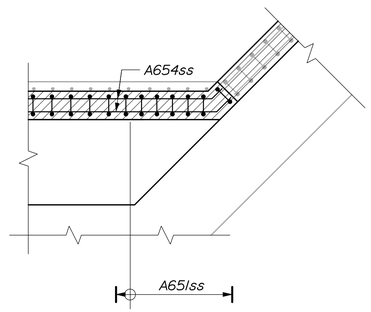


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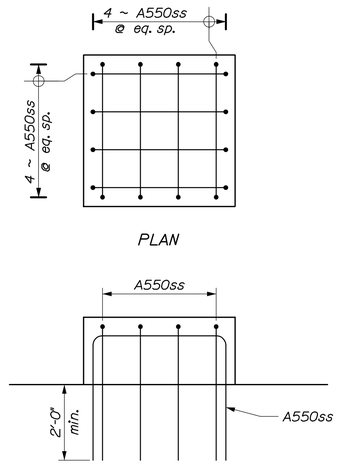
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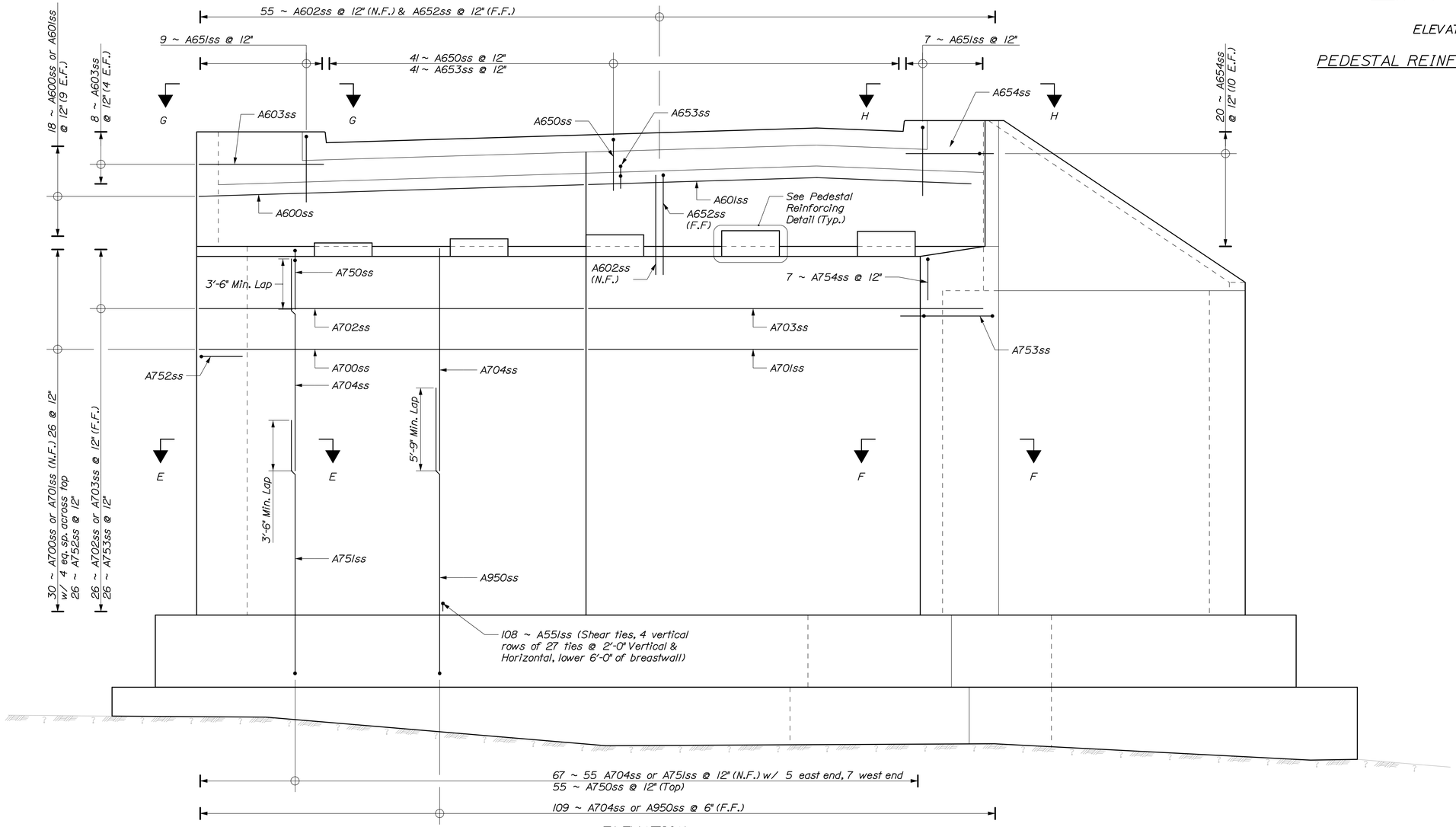
SECTION G-G



SECTION H-H



PEDESTAL REINFORCING DETAIL



ELEVATION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	Y. Peng	BY	P. Bishop
CHECKED-REVIEWED	K. Brayley	DATE	08\21
DESIGN2-DETAILED2		BY	T. Cote
DESIGN3-DETAILED3		DATE	08\21
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT NO. 1 REINFORCING

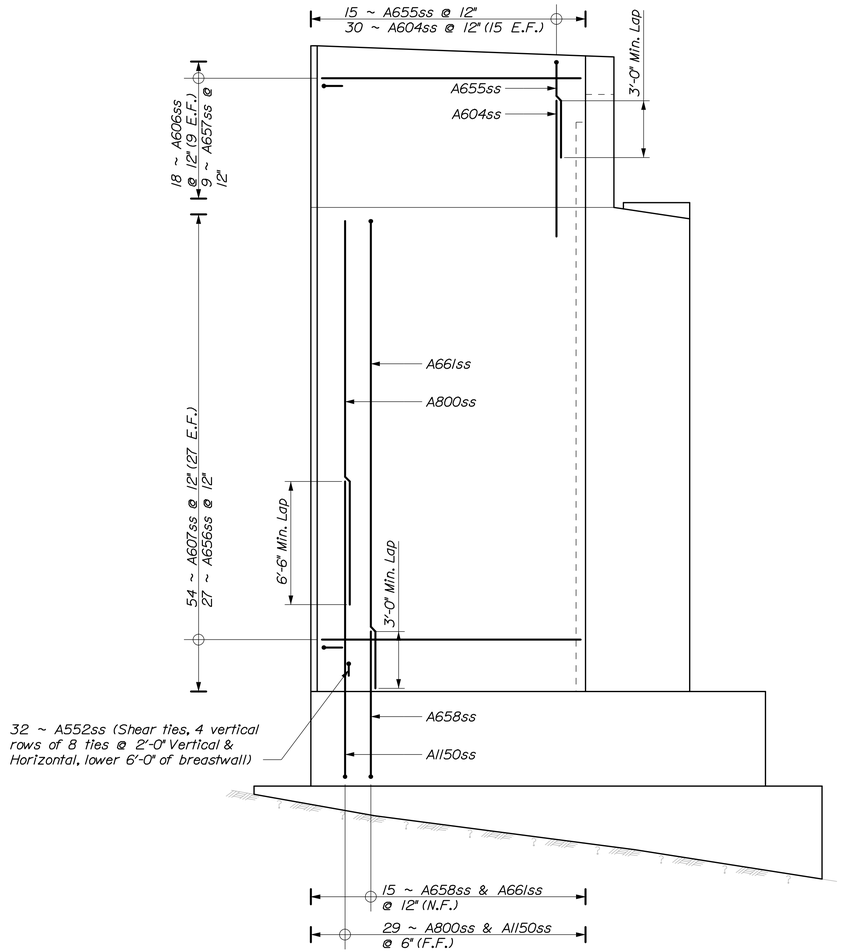
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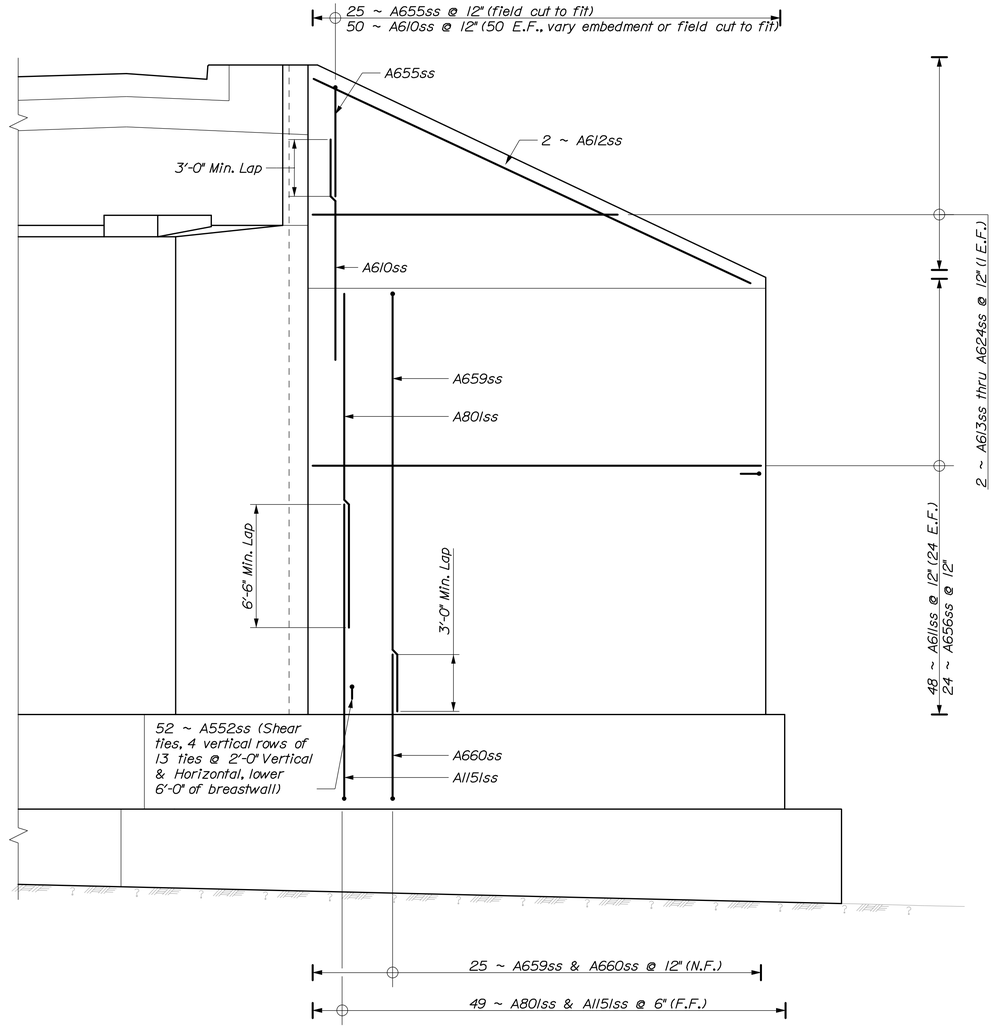
OF 183

HNTB

Filename: 110_Abutment 1 Reinforcing.dgn Division: Username: Date:8/25/2021



ABUTMENT NO. 1 EAST WINGWALL ELEVATION



ABUTMENT NO. 1 WEST WINGWALL ELEVATION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

	BY	DATE
P.E.		
D. Eaton, P.E.		
PROJ. MANAGER	P. Bishop	08\21
DESIGNED	Y. Peng	08\21
DESIGN-DETAILED	T. Cote	
CHECKED-REVIEWED	K. Brayley	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

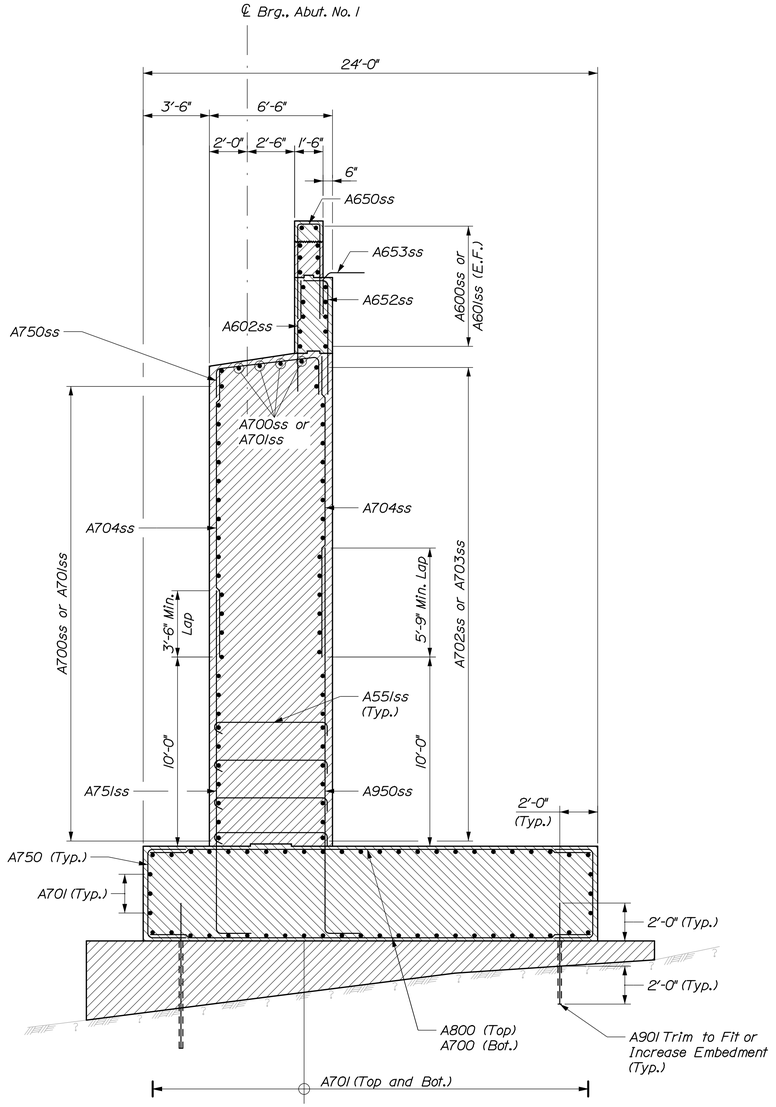
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SHEET NUMBER

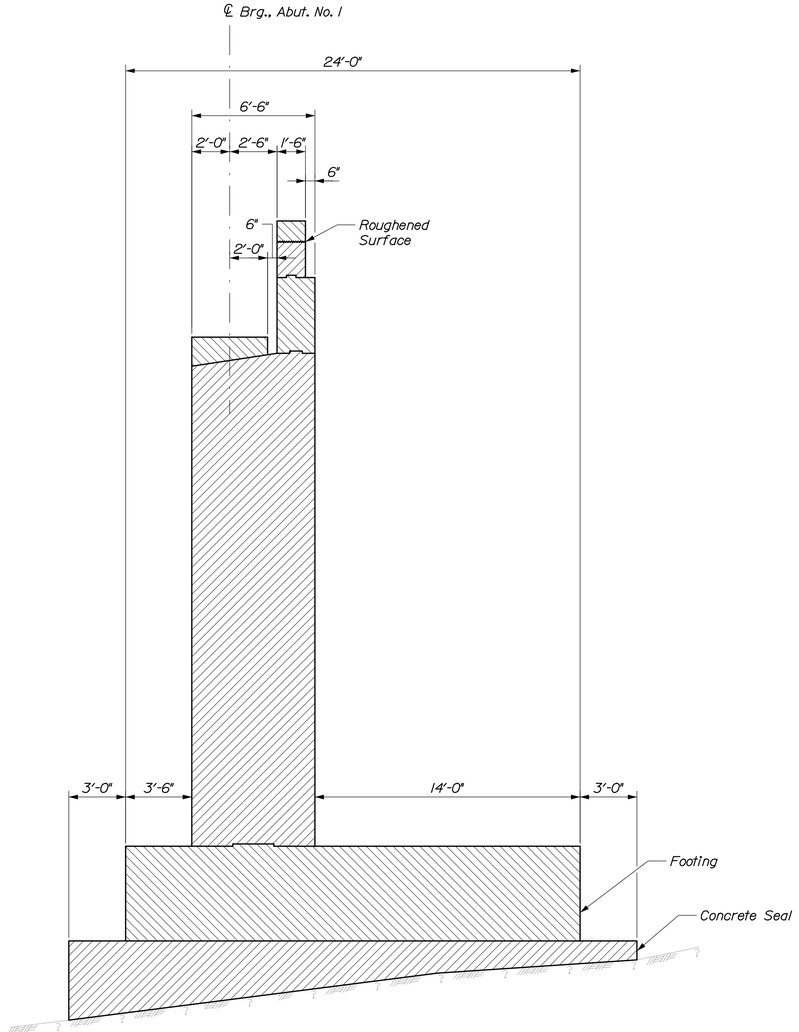
111

OF 183

Filename: 111_Abutment 1 Wingwall Reinforcing.dgn Division: Username: Date:8/25/2021



SECTION A-A



SECTION B-B
(Abutment reinforcing not shown for clarity)

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039 BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	Y. Peng	P. Bishop	08\21
CHECKED-REVIEWED	K. Brayley	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT NO. 1 SECTIONS I

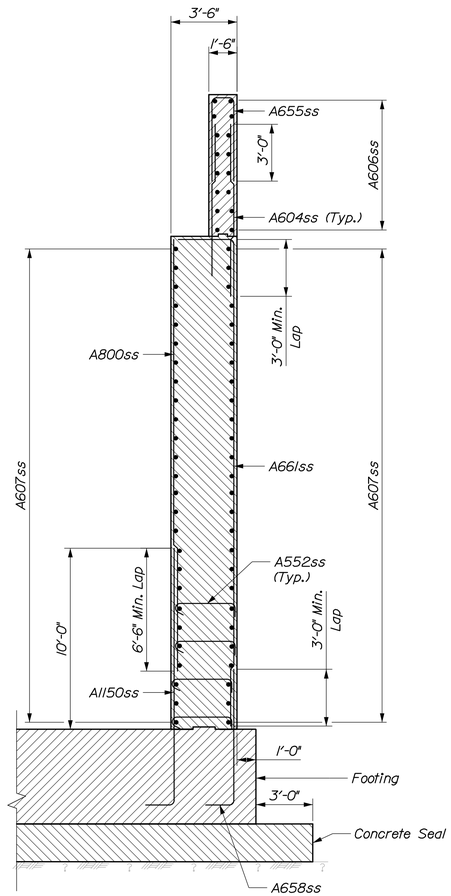
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112

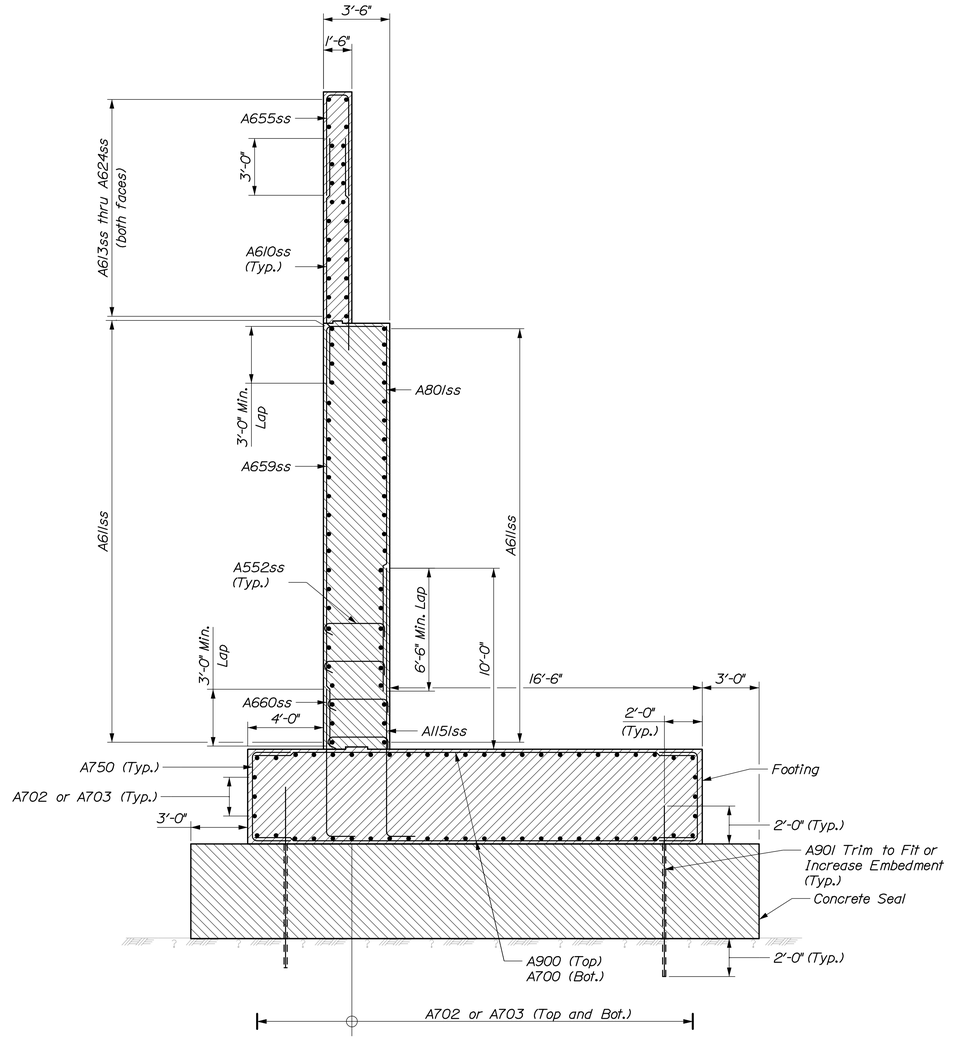
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Filename: 112_Abutment 1 Sections 1.dgn Division: Username: Date:8/25/2021



SECTION C-C



SECTION D-D

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039 BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	Y. Peng	P. Bishop	08\21
CHECKED-REVIEWED	K. Brayley	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

ABUTMENT NO. 1 SECTIONS II

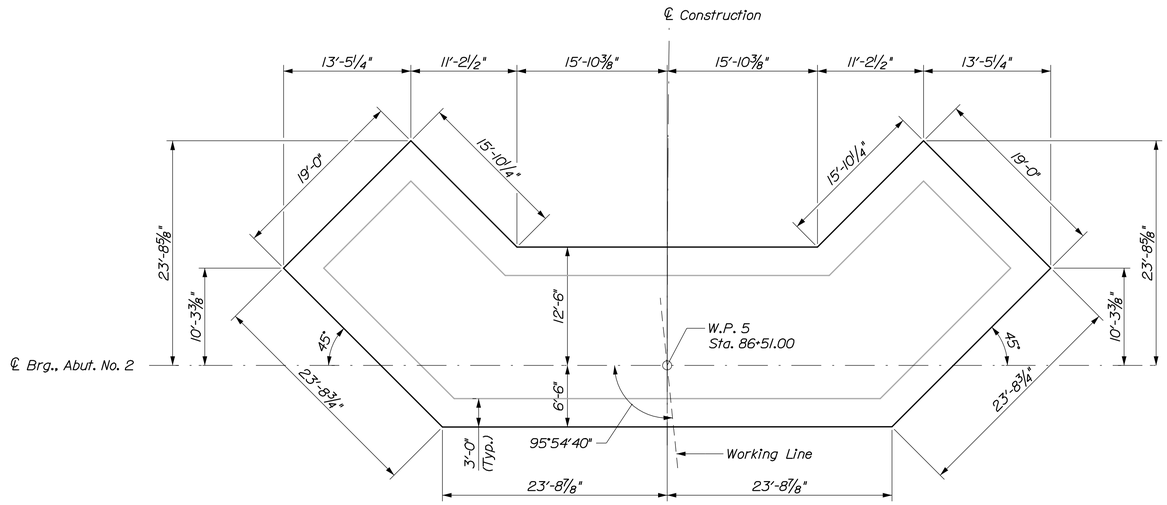
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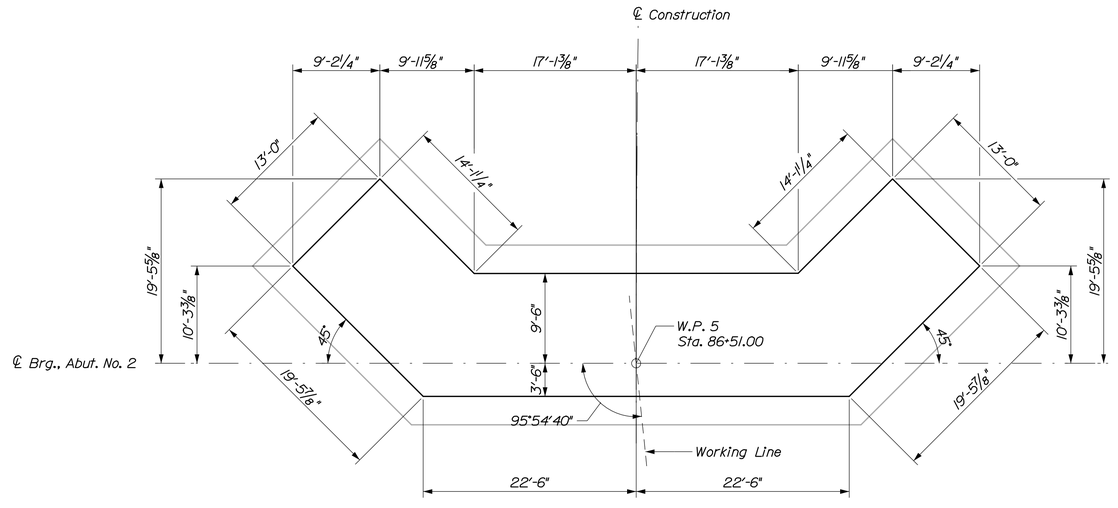
OF 183

HNTB

Filename: 113_Abutment 1 Sections 2.dgn Division: Username: Date:8/25/2021



ABUTMENT NO. 2 SEAL PLAN



ABUTMENT NO. 2 FOOTING PLAN

Filename: 114_Abutment 2 Foundation Plan.dgn Division: Username: Date:8/25/2021

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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BRIDGE NO.3039 BRIDGE PLANS

			DATE
PROJ. MANAGER	D. Eaton, P.E.	BY	
DESIGN-DETAILED	Y. Peng	P. Bishop	08\21
CHECKED-REVIEWED	K. Brayley	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT NO. 2 SEAL AND FOOTING PLAN

SHEET NUMBER

114

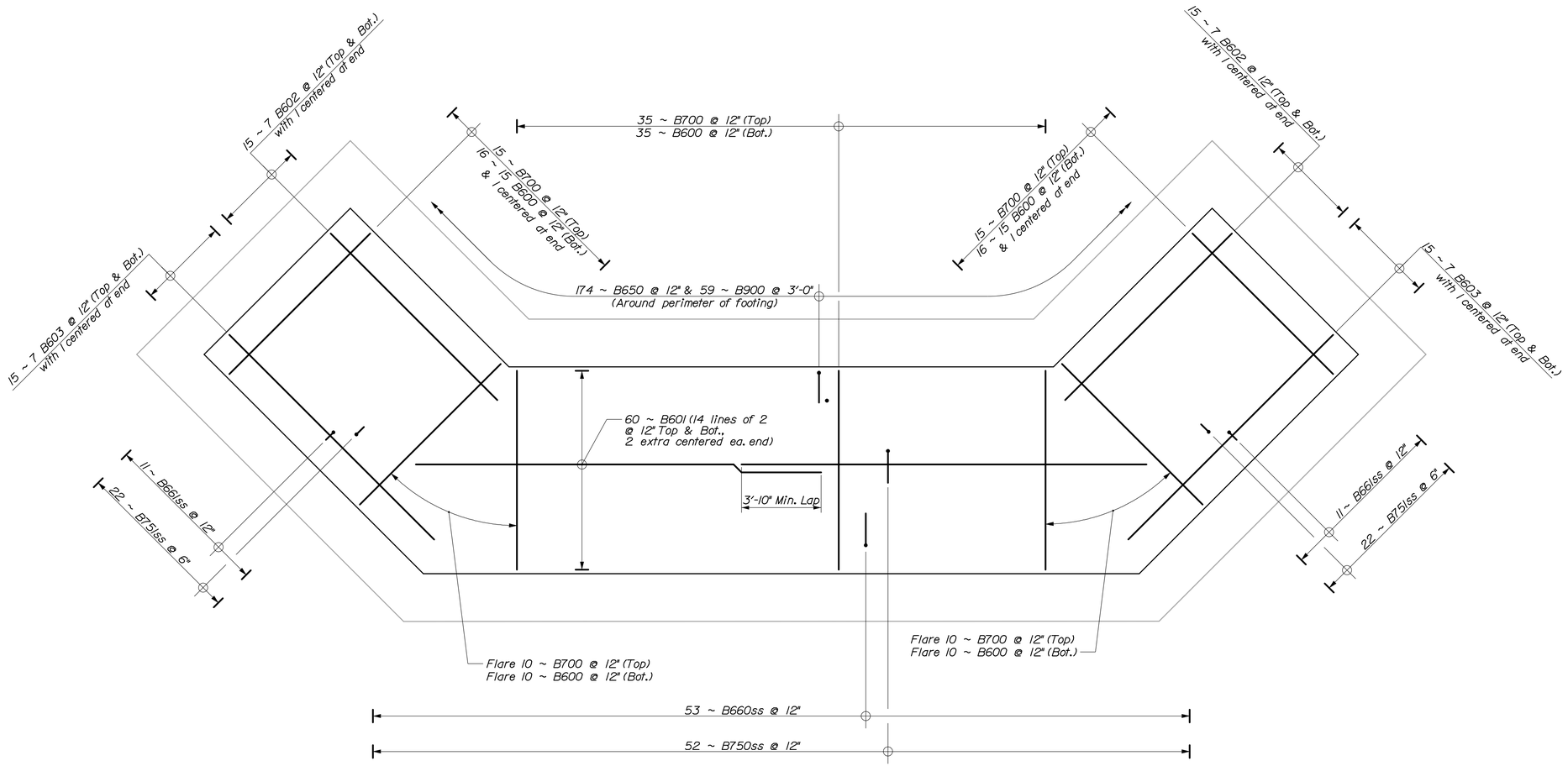
OF 183

HNTB

Filename: 115_Abutment 2 Foundation Reinforcing Plan.dgn Division: Username: Date:8/25/2021

Note:

1. Wingwall footing transverse reinforcing bars clear cover may be increased by up to 2 inches to avoid conflict with abutment footing transverse reinforcing bars.



ABUTMENT NO. 2 FOOTING REINFORCING PLAN

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BRIDGE NO.3039 BRIDGE PLANS

	BY	DATE
P.E.		
Dsgn.	P. Bishop	08\21
Drwn.	T. Cote	08\21
Chkd.		

SIGNATURE

P.E. NUMBER

DATE

PROJ. MANAGER	D. Eaton, P.E.
DESIGN-DETAILED	Y. Peng
CHECKED-REVIEWED	K. Brayley
DESIGN2-DETAILED2	
DESIGN3-DETAILED3	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

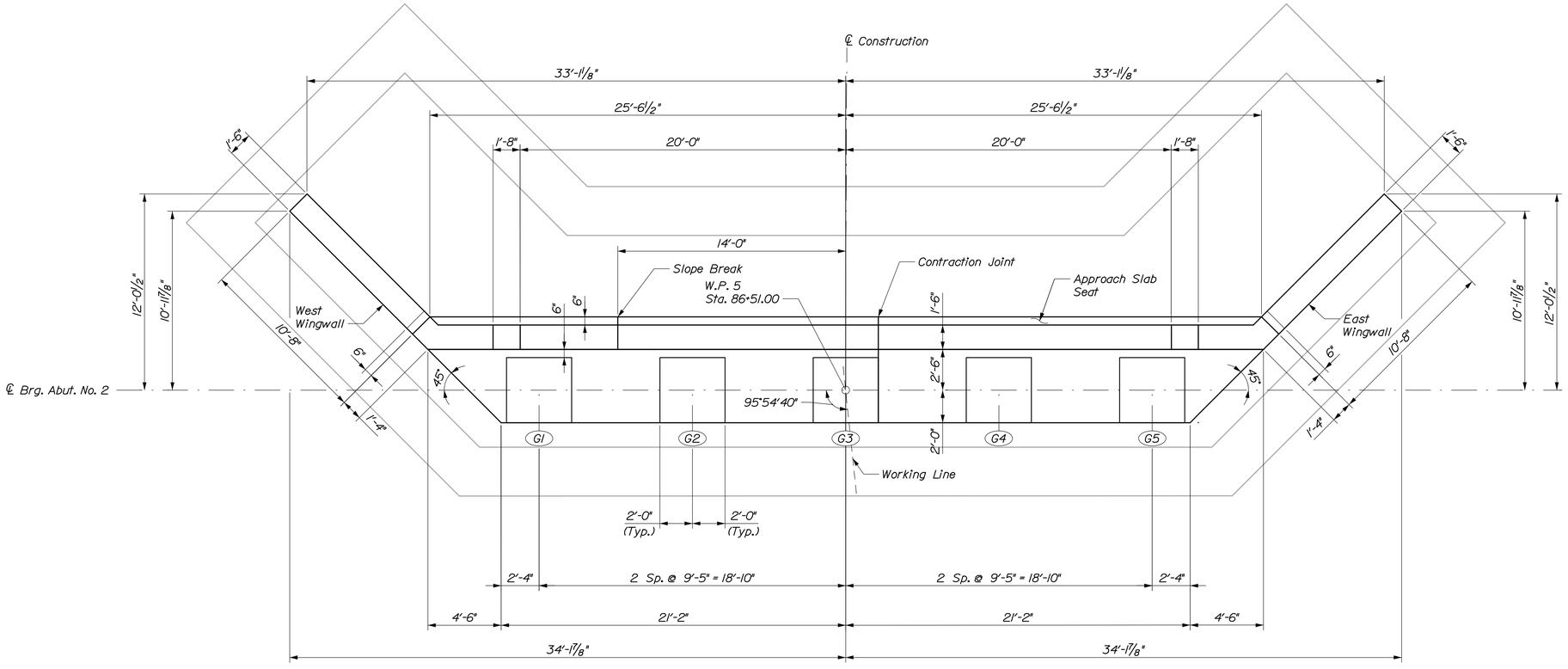
STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT NO. 2 FOOTING REINFORCING

SHEET NUMBER

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ABUTMENT NO. 2 PLAN

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
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CHECKED-REVIEWED	K. Brayley	T. Cote	08\21
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DESIGN3-DETAILED3			
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REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT NO. 2 PLAN

SHEET NUMBER

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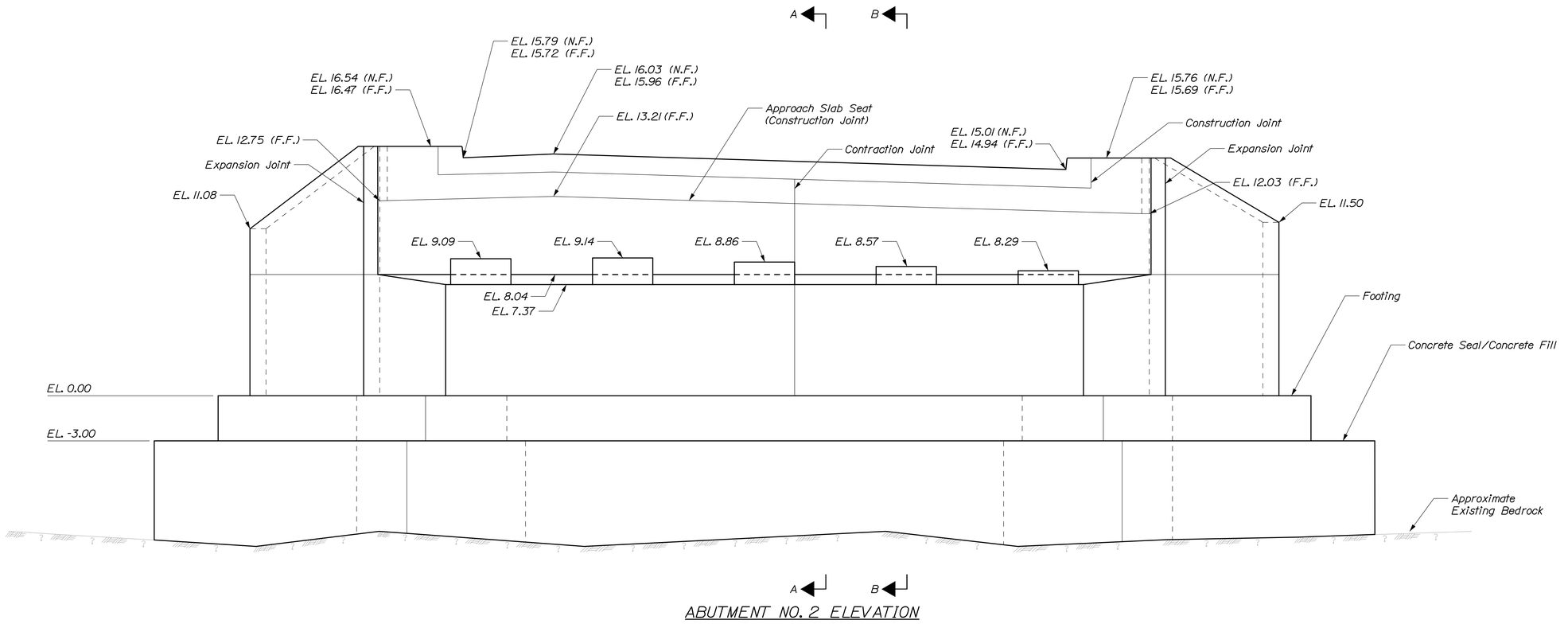
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Username:

Date:8/25/2021

Division:

Filename: 116_Abutment 2 Plan and Elevation.dgn



ABUTMENT NO. 2 ELEVATION

HNTB

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DEPARTMENT OF TRANSPORTATION

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BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	Y. Peng	BY	DATE
CHECKED-REVIEWED	K. Brayley	P. Bishop	08\21
DESIGN2-DETAILED2		T. Cote	08\21
DESIGN3-DETAILED3			
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REVISIONS 2			
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REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT NO. 2
ELEVATION

SHEET NUMBER

117

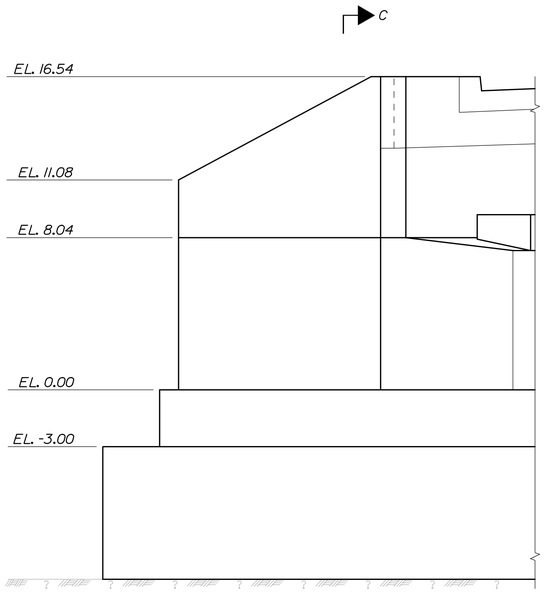
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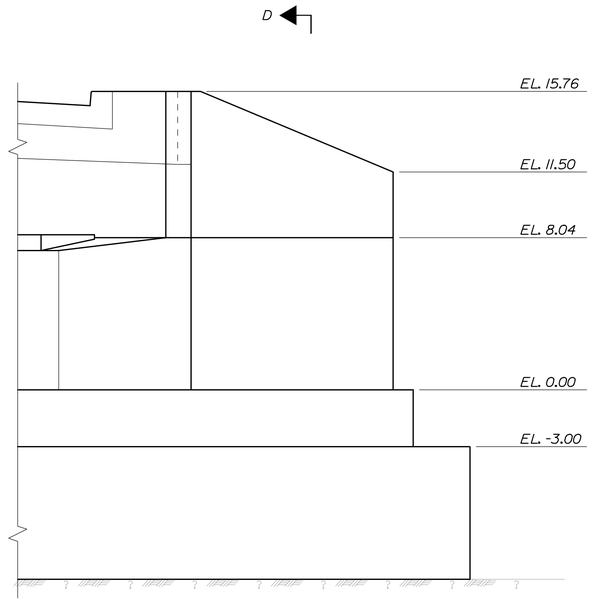
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Division:

Filename: 117_Abutment 2 Elevation.dgn



WEST WINGWALL ELEVATION



EAST WINGWALL ELEVATION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	Y. Peng	P. Bishop	08\21
CHECKED-REVIEWED	K. Brayley	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
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REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT NO. 2
WINGWALLS

SHEET NUMBER

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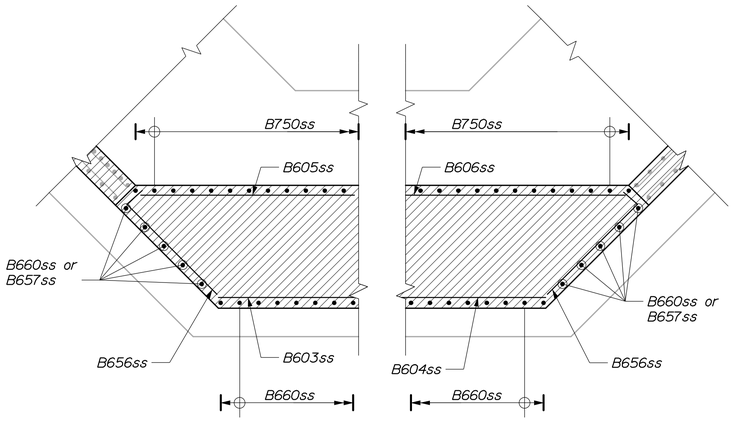
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Username:

Date:8/25/2021

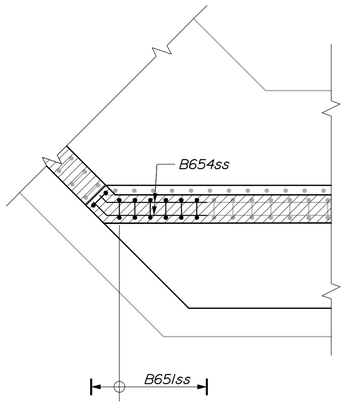
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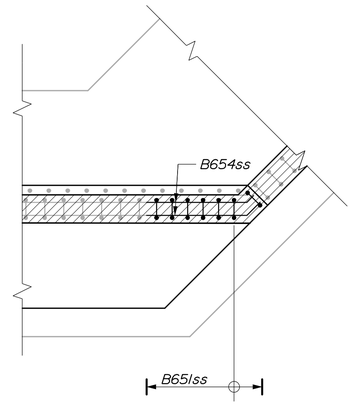


SECTION E-E

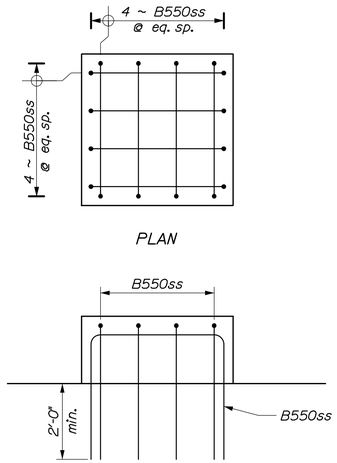
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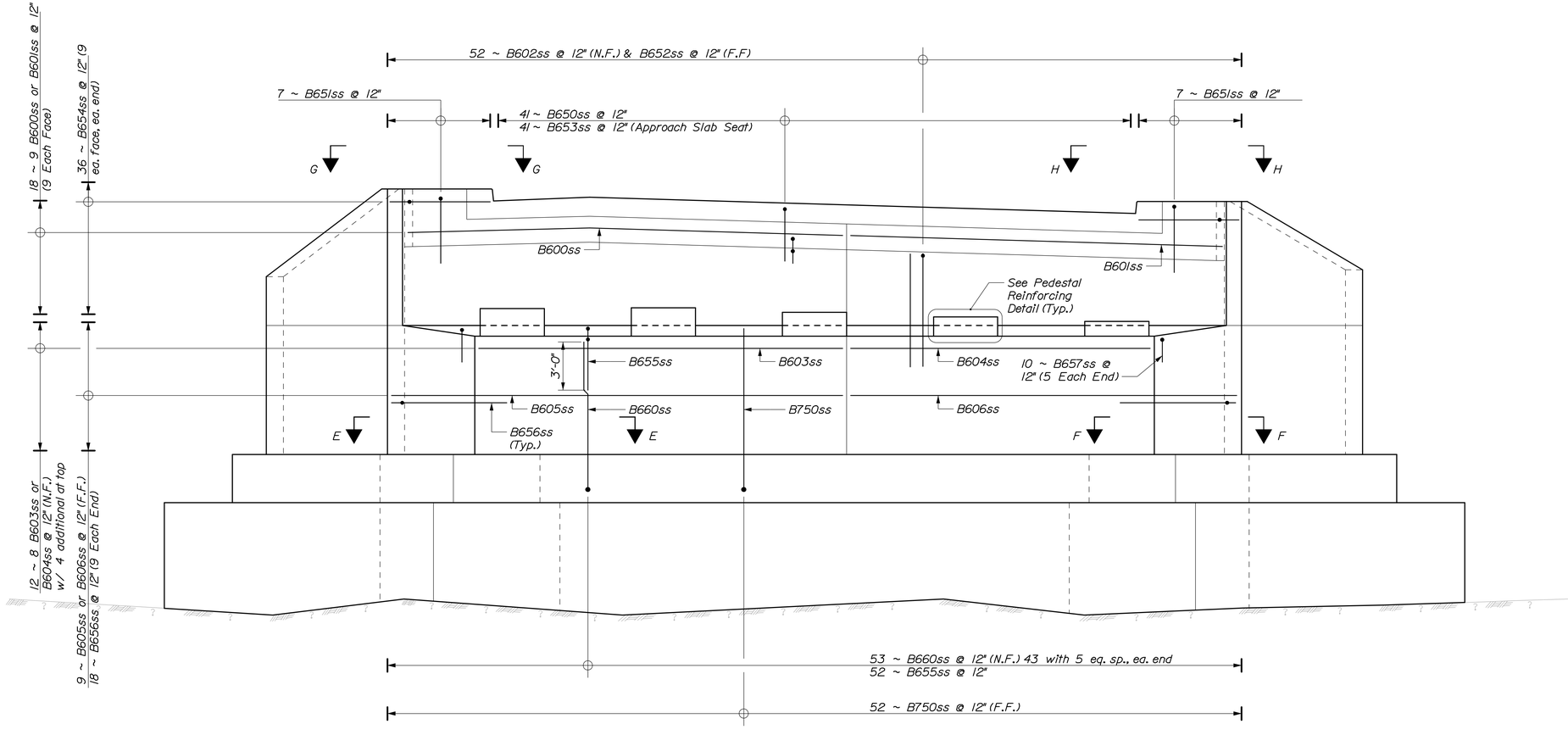
SECTION G-G



SECTION H-H



PEDESTAL REINFORCING DETAIL



ABUTMENT NO. 2 ELEVATION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

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BRIDGE PLANS

BRIDGE NO.3039

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	Y. Peng	BY	DATE
CHECKED-REVIEWED	K. Brayley	P. Bishop	08\21
DESIGN2-DETAILED2		T. Cote	08\21
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT NO. 2 REINFORCING

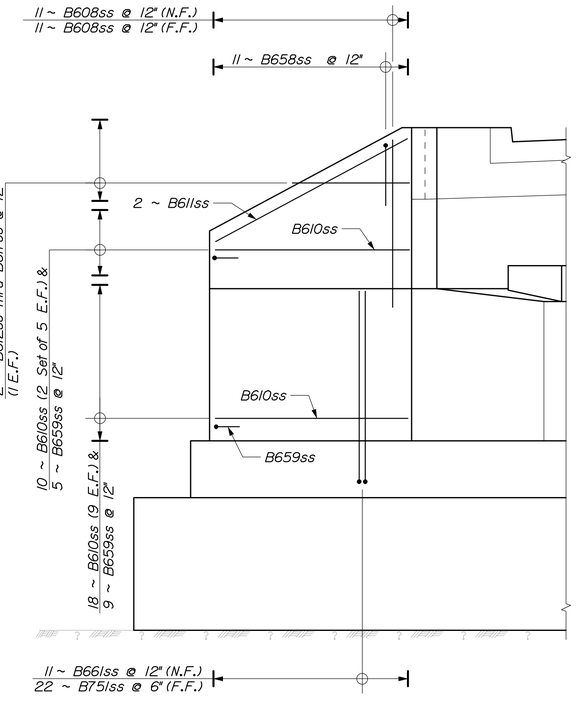
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119

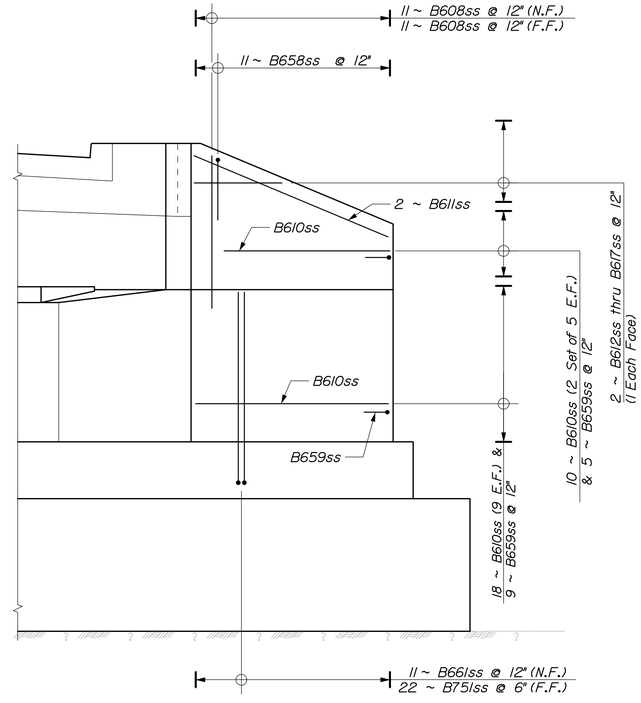
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Filename: 119_Abutment 2 Reinforcing.dgn Division: Username: Date:8/25/2021



ABUTMENT NO. 2 WEST WINGWALL ELEVATION



ABUTMENT NO. 2 EAST WINGWALL ELEVATION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039 BRIDGE PLANS

			DATE
PROJ. MANAGER	D. Eaton, P.E.	BY	
DESIGN-DETAILED	Y. Peng	P. Bishop	08\21
CHECKED-REVIEWED	K. Brayley	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT NO. 2 WINGWALL REINFORCING

SHEET NUMBER

120

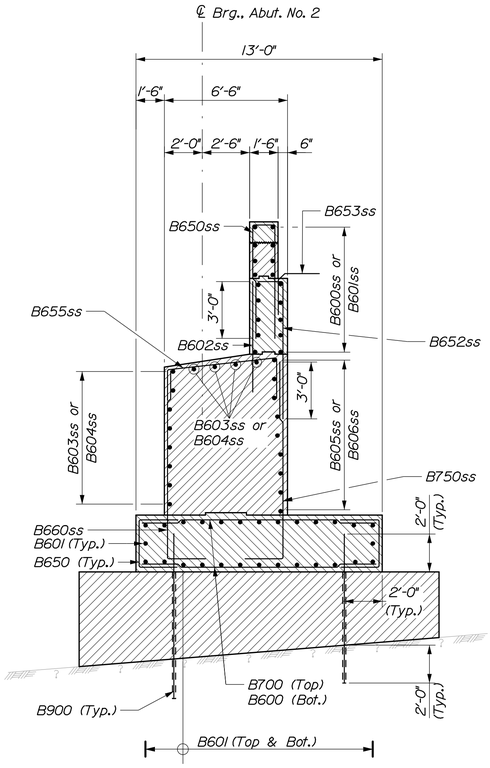
OF 183

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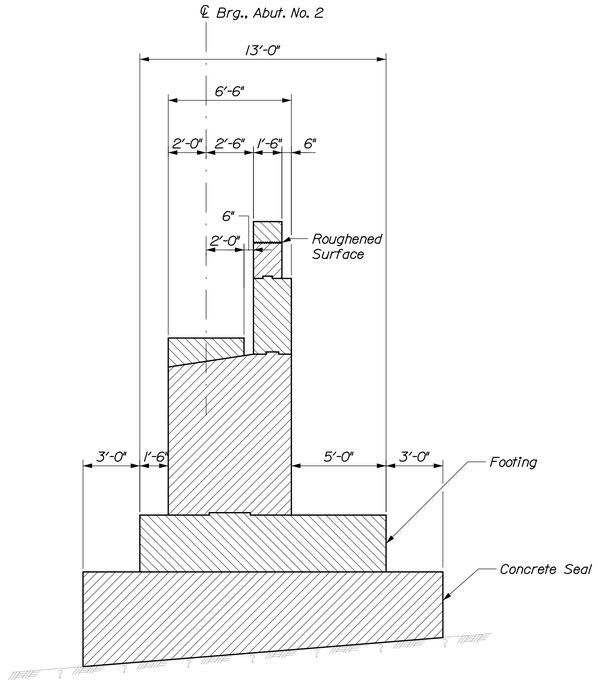
Username: Date:8/25/2021

Division:

Filename: 120_Abutment 2 WingwallReinforcing.dgn



SECTION A-A



SECTION B-B

(Abutment reinforcing not shown for clarity)

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	Y. Peng	P. Bishop	08\21
CHECKED-REVIEWED	K. Brayley	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT NO. 2
SECTIONS I

SHEET NUMBER

121

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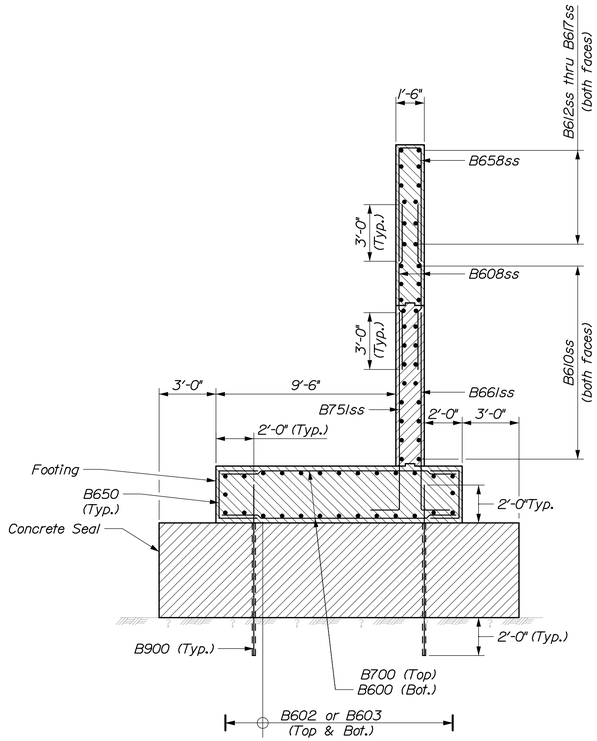
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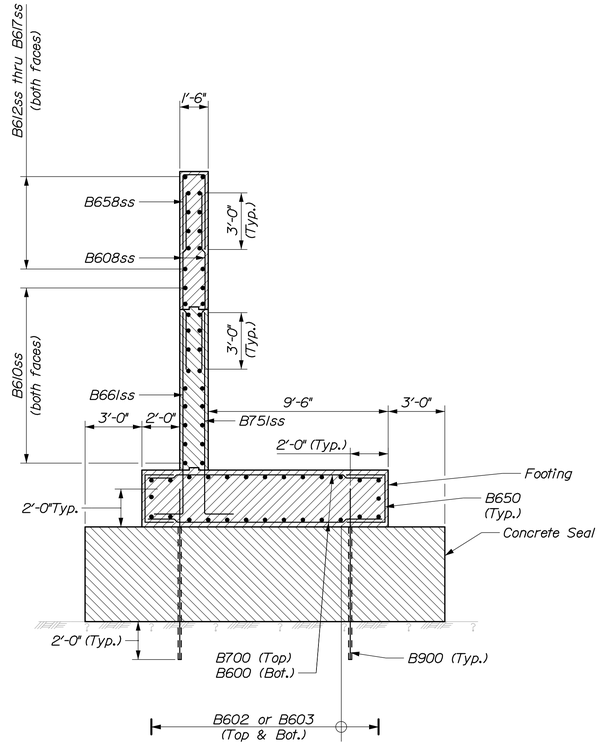
Date:8/25/2021

Division:

Filename: 121_Abutment 2 Sections 1.dgn



SECTION C-C



SECTION D-D

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	Y. Peng	P. Bishop	08\21
CHECKED-REVIEWED	K. Brayley	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

SIGNATURE

P.E. NUMBER

DATE

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WIN 23929.00

BRIDGE NO.3039 BRIDGE PLANS

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT NO. 2 SECTIONS II

SHEET NUMBER

122

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Filename: 122_Abutment 2 Sections 2.dgn Division: Username: Date:8/25/2021

PIER NOTES

1. Reinforcing steel shall have a minimum concrete cover of 3 inches unless otherwise noted.

2. The pier bearing pedestal elevations shown are based on bearing heights presented on the "BEARING DETAILS" sheet. Adjustments to the pedestal elevations, if necessary, shall be made in accordance with Note 1 on the "BEARING LAYOUT" sheet.

PILE NOTES

1. The maximum factored pile load at the controlling Limit State and required nominal resistance (Rn) are as follows:

   Pier No. 1: 286 kips (Rn = 440 kips) (Strength I)
   Pier No. 2: 524 kips (Rn = 524 kips) (Extreme Event II)
   Pier No. 3: 268 kips (Rn = 412 kips) (Strength I)

2. Estimate of piles required:

   Pier No. 1: 28-HP 14 x 117 @ 40 ft
   Pier No. 2: 28-HP 14 x 117 @ 115 ft
   Pier No. 3: 28-HP 14 x 117 @ 136 ft

   The order lengths of piles shall include an additional 5 feet of length for each test pile to accommodate dynamic pile testing equipment and an additional 10 feet of length for variable bedrock.

3. Piles marked with an arrow shall be battered in the direction of the arrow as follows and as indicated on sheets 111, 115, and 119:

   Pier No. 1: 4 in/ft in the transverse direction and 2 in./ft. in the longitudinal direction
   Pier No. 2: 3 in/ft

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

5. The Contractor shall provide access for the agents of the Department to perform five (5) dynamic load test with signal matching and restrike, as specified in Special Provision 501 - Dynamic Load Test, to confirm the nominal resistance of the piles. The dynamic pile load tests will be completed on the first battered and first plumb production piles driven at Pier 1 and Pier 2, and on one plumb pile at pier 3. The required nominal resistances for the piles at Pier 1 and Pier 3 are the maximum factored axial pile load divided by 0.65 for the controlling Strength Limit State. The required nominal resistance for the piles at Pier 2 is the factored axial pile load divided by 1.0 for the controlling Extreme Limit State. The Contractor may drive production piles to the preliminary driving criteria, however pile cut-off will not be permitted until completion of restrike testing and establishment of final driving criteria.

6. All piles shall be equipped with an APF HP-77600 Hard Bite cast steel pile tip (or equivalent) installed in accordance with 510.048, Prefabricated Pile Tips.

7. H-pile material shall be ASTM A572, Grade 50.

8. H-pile splices shall be in accordance with Standard Detail 501(03).

SEAL COFFERDAM NOTES:

1. When sheet piling is used for seal cofferdams, appropriate rolled corners shall be used, and the inside face of the sheet piling shall be at or outside of the seal concrete dimensions shown.

2. The seal concrete placement dimensions shown represent the minimum seal size necessary to meet design requirements and are not based on the use of any particular sheet pile section.

3. The horizontal Pay Limit for seal concrete will be to the dimensions shown on the Plans. No additional payment will be made for concrete placed outside these Limits.

4. The depth of seal is set for a water elevation of 4.7 (MHHW + Storm Surge). If the water elevation at the time of construction is higher, the depth of seal shall be adjusted.

PIER DESIGN CRITERIA

1. Controlling AASHTO Load Combination - Extreme Event 1 Limit State.

2. Buoyancy - Water level assumed at Elevation 4.3.

3. Stream flow - Velocity of 0.1 fps skewed at 0 degrees to longitudinal centerline of pier.

4. Wind - 115 mph or 0.051 ksf, Strength III Limit State.

5. Seismic Zone 2 for Extreme Event 1 Limit State.

   S_{ds} = 0.35
   S_{d1} = 0.190

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
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REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

PIER NOTES

SHEET NUMBER

123

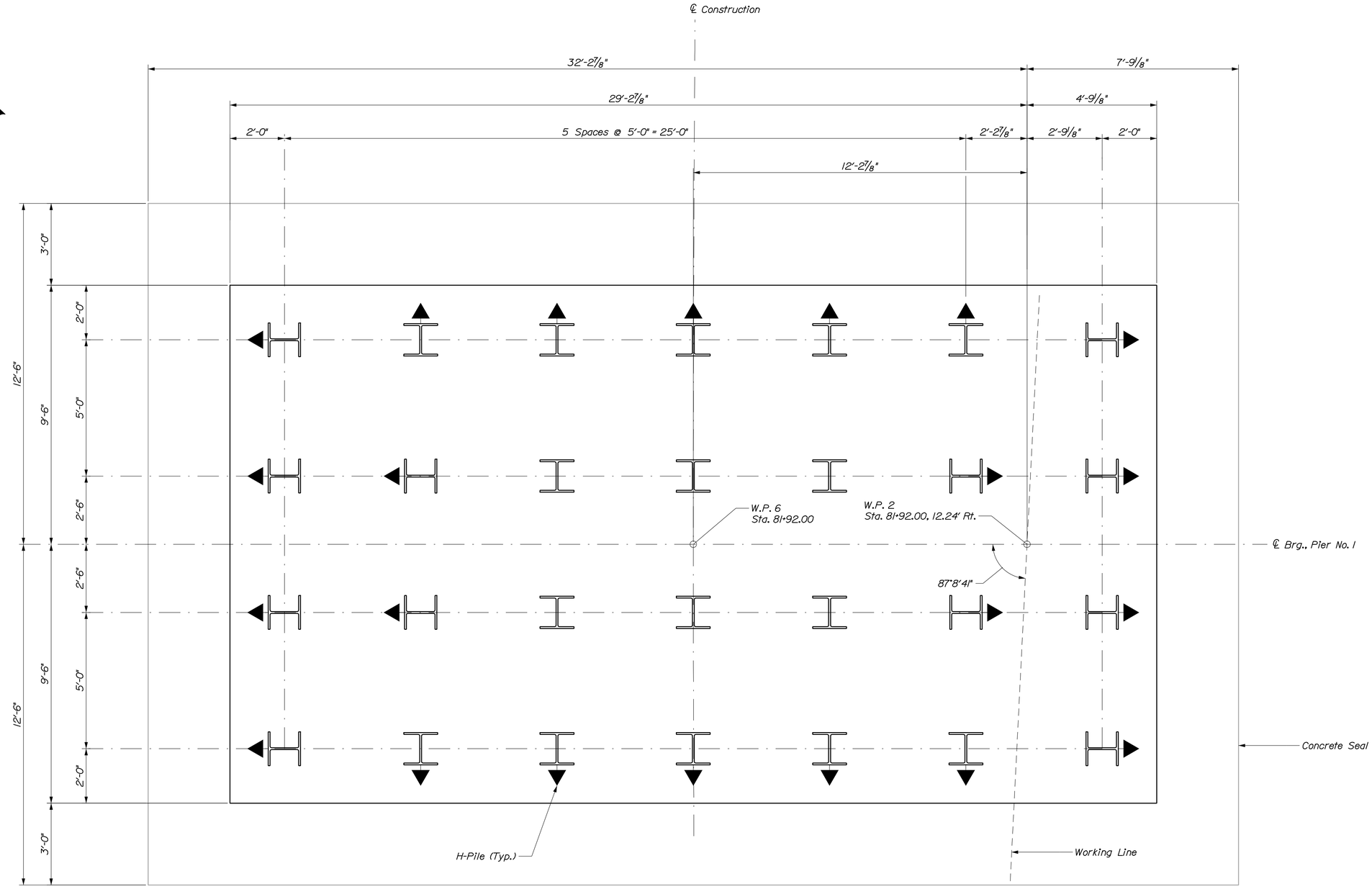
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Username:

Division:

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Filename: 123_Pier Notes.dgn



PIER NO. 1 SEAL & FOOTING PLAN

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
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FIELD CHANGES			

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STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

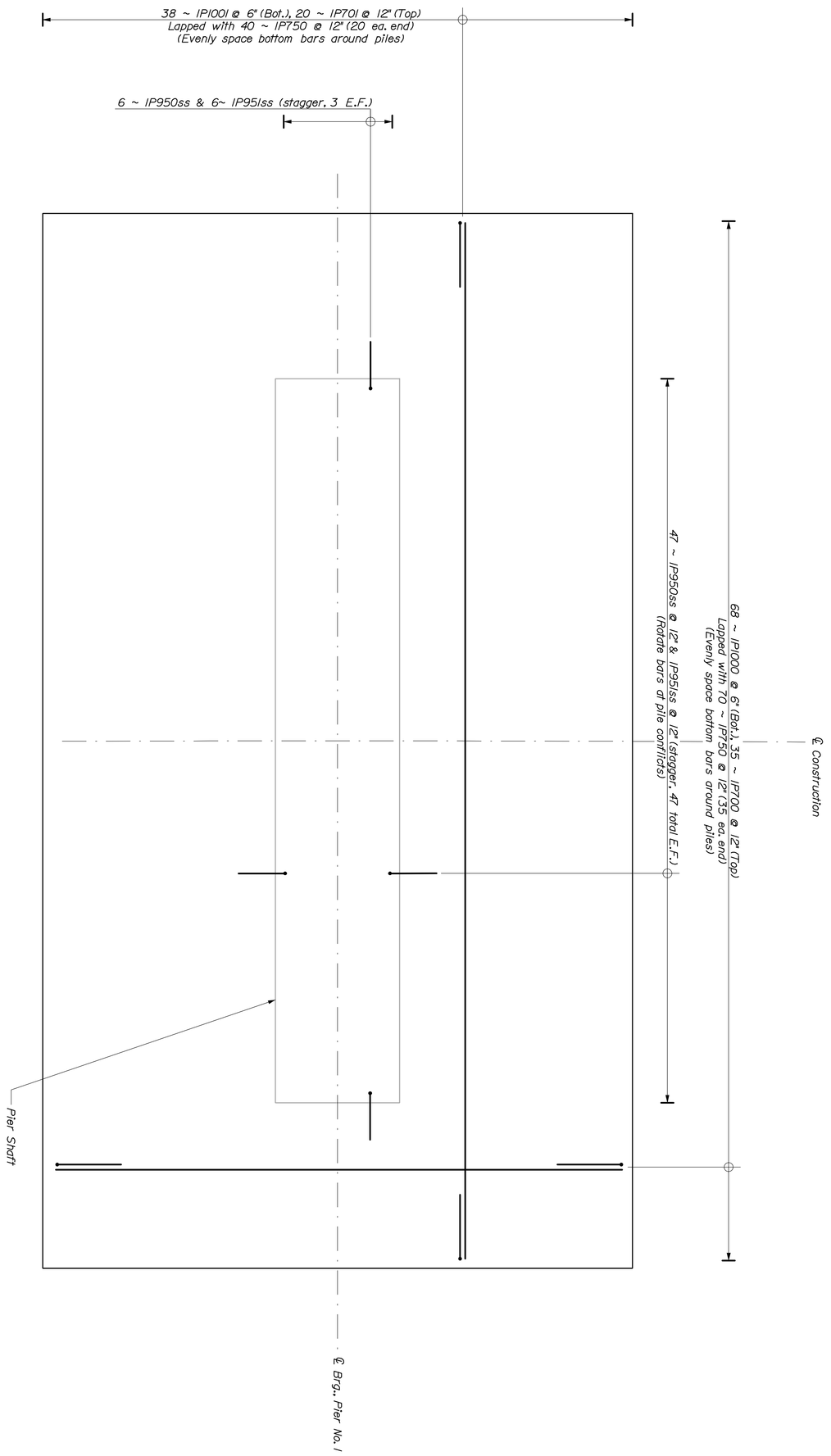
PIER NO. 1
SEAL AND FOOTING PLAN

SHEET NUMBER

124

OF 183

Filename: 124_Pier No. 1 Foundation Plan.dgn Division: Username: Date:8/25/2021



PIER NO. 1 FOUNDATION REINFORCING PLAN

(Pier Shaft Screened For Clarity)

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SHEET NUMBER 125 OF 183

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

PIER NO. 1
FOUNDATION REINF. PLAN

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	Y. Peng	P. Bishop	08\21
CHECKED-REVIEWED	K. Brayley	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

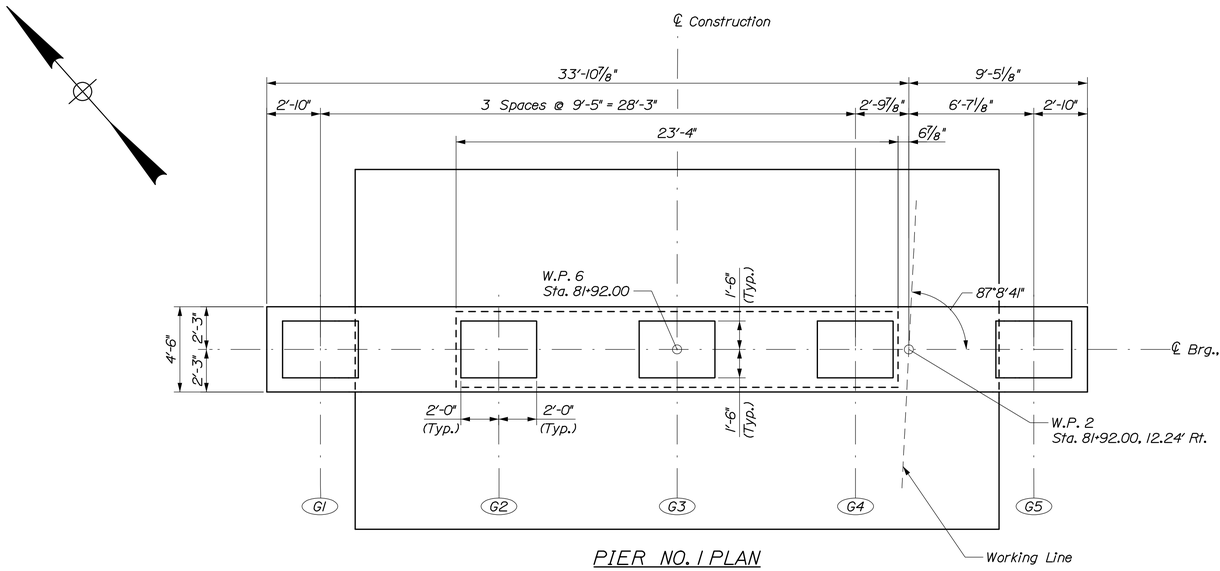
P.E. NUMBER

DATE

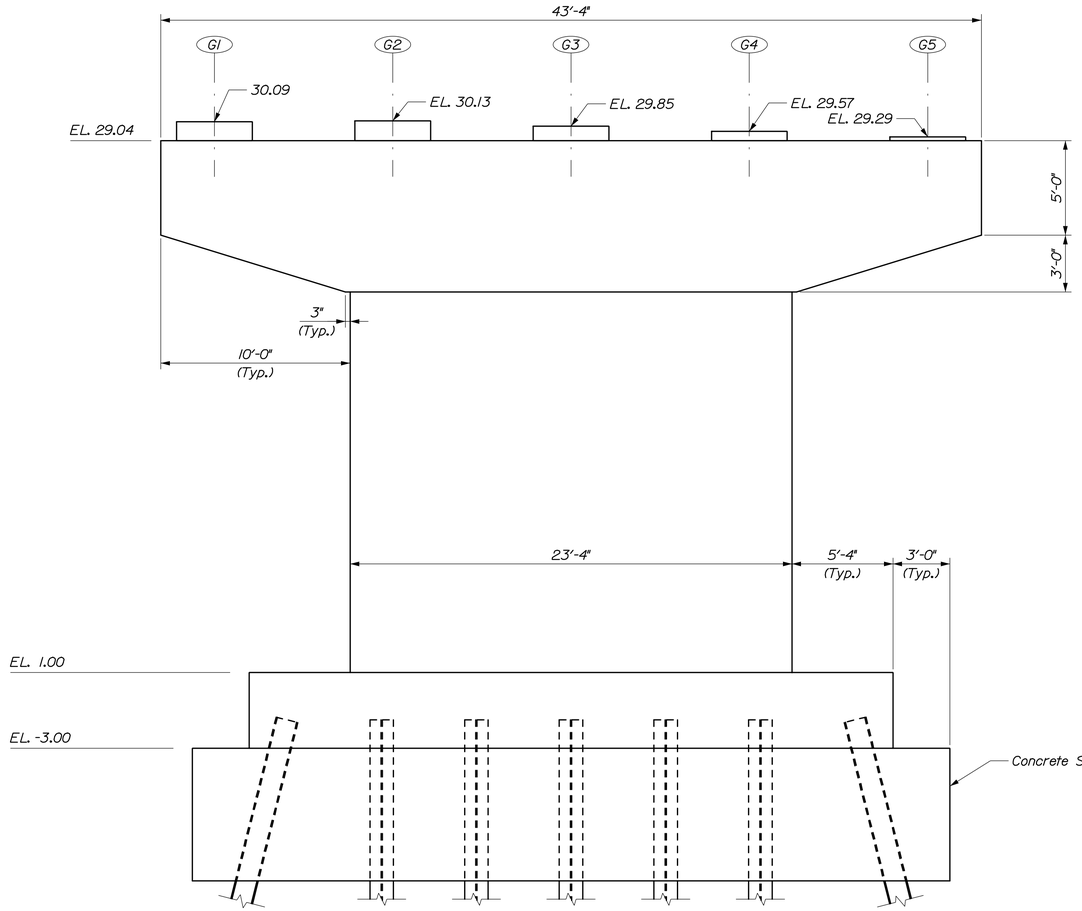
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

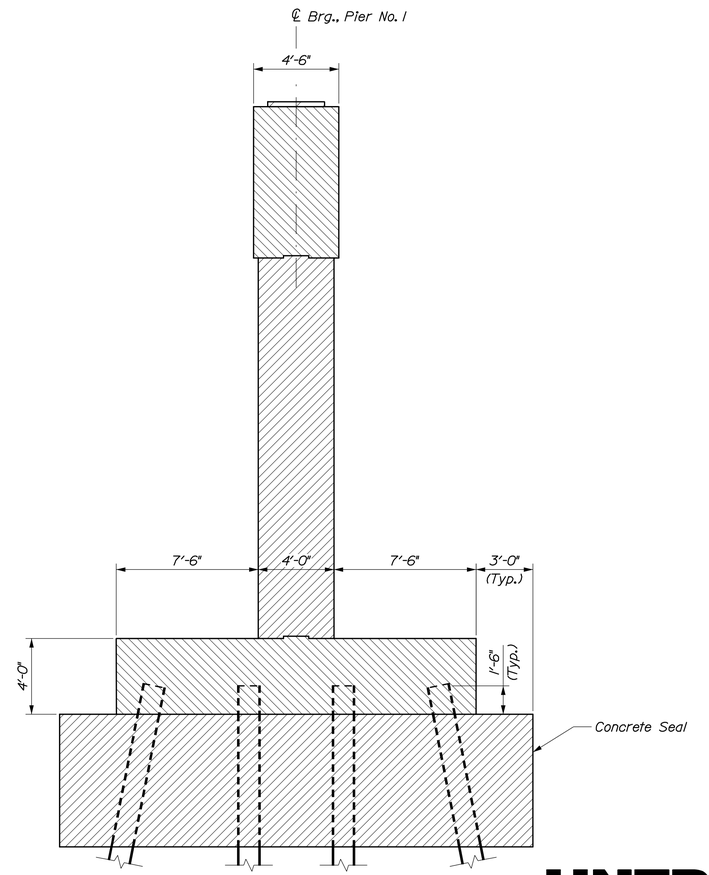
BRIDGE NO.3039 WIN 23929.00 BRIDGE PLANS



PIER NO. 1 PLAN



PIER NO. 1 ELEVATION



SECTION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

	BY	DATE
P.E.	P. Bishop	08\21
Approved by	T. Cote	08\21
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	Y. Peng	
CHECKED-REVIEWED	K. Brayley	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

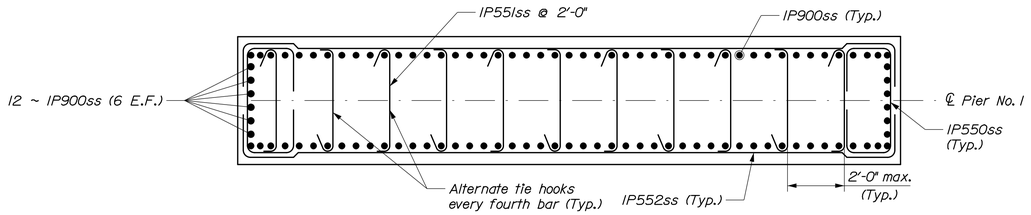
PIER NO. 1
PLAN AND ELEVATION

SHEET NUMBER

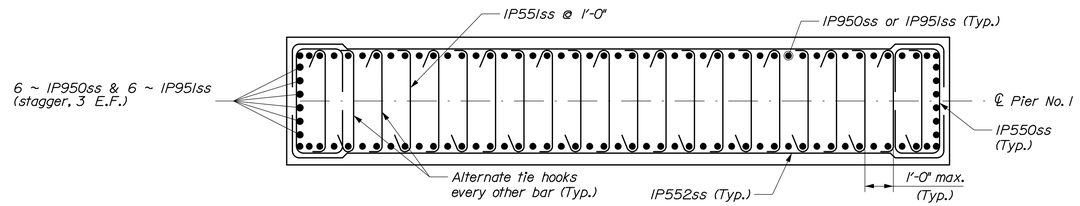
126

OF 183

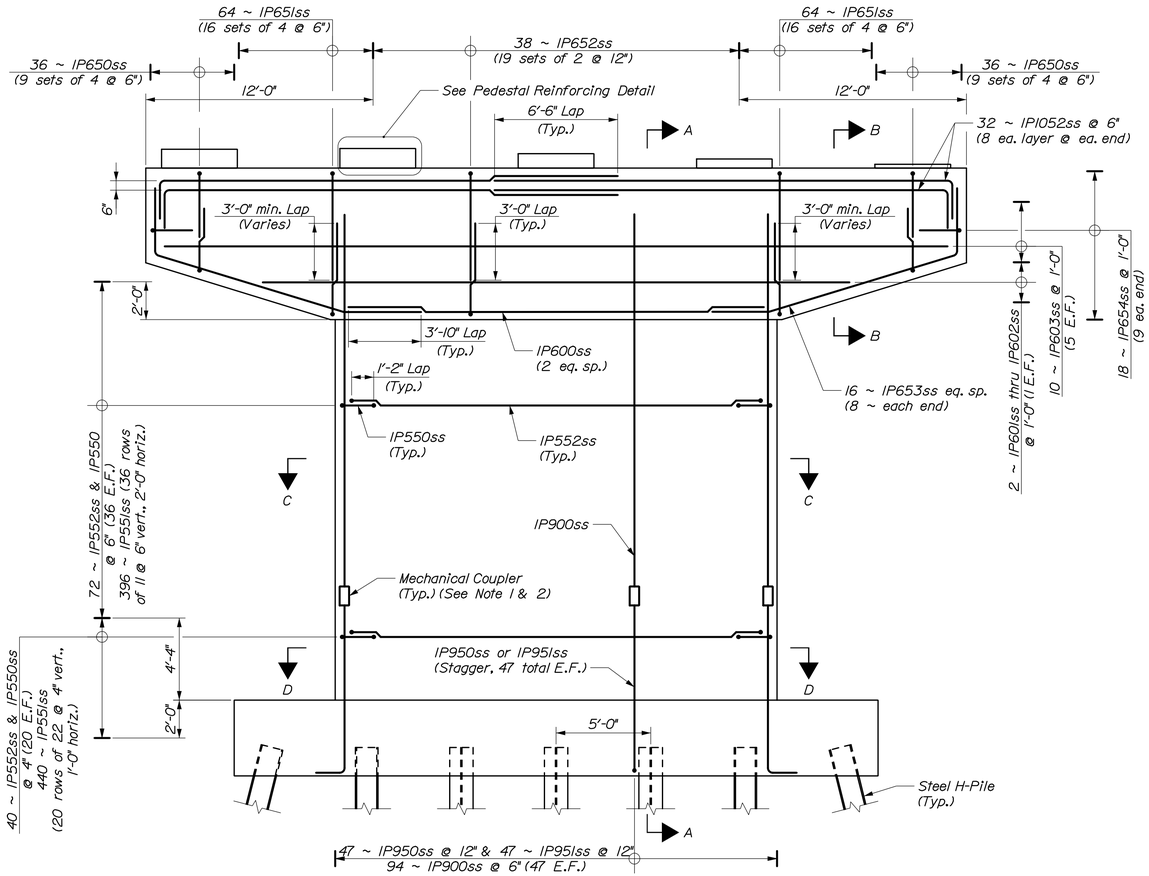
Filename: 126_Pier No. 1 Plan and Elevation.dgn Division: Username: Date:8/25/2021



SECTION C-C



SECTION D-D

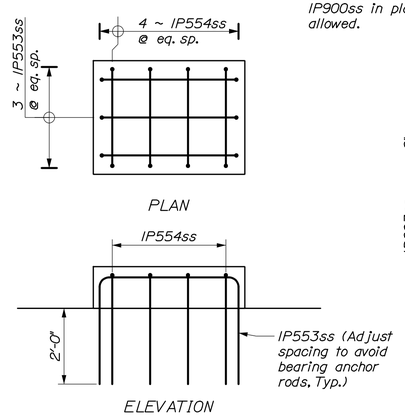


PIER NO. 1 ELEVATION

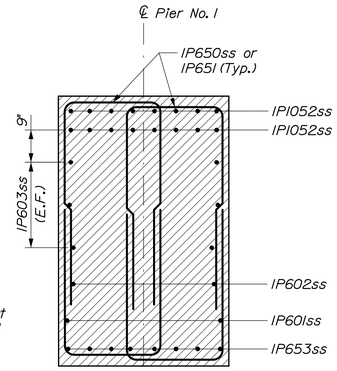
Note:

1. Mechanical splices shall be staggered, alternate IP950ss and IP951ss to achieve stagger.

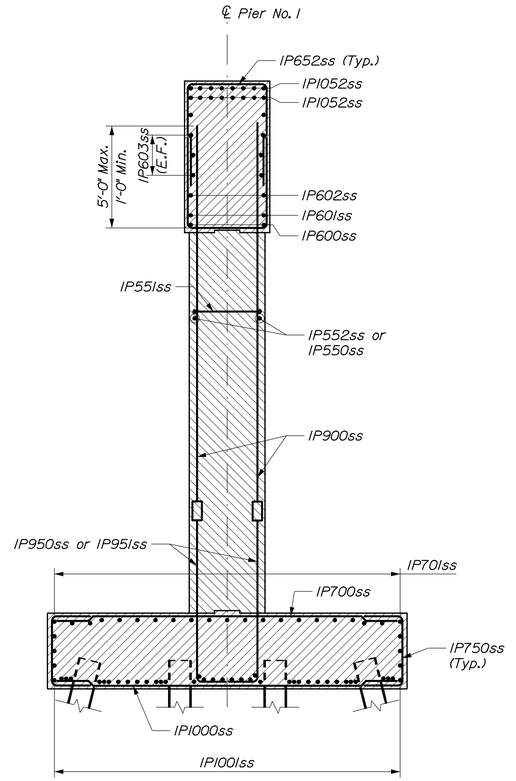
2. The Contractor may combine bars IP950ss/IP951ss and IP900ss in place of mechanical couplers. Lap splices are not allowed.



PEDESTAL REINFORCING DETAIL



SECTION B-B



SECTION A-A

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE PLANS

BRIDGE NO.3039

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	Y. Peng	P. Bishop	08\21
CHECKED-REVIEWED	K. Brayley	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

PIER NO. 1 REINFORCING

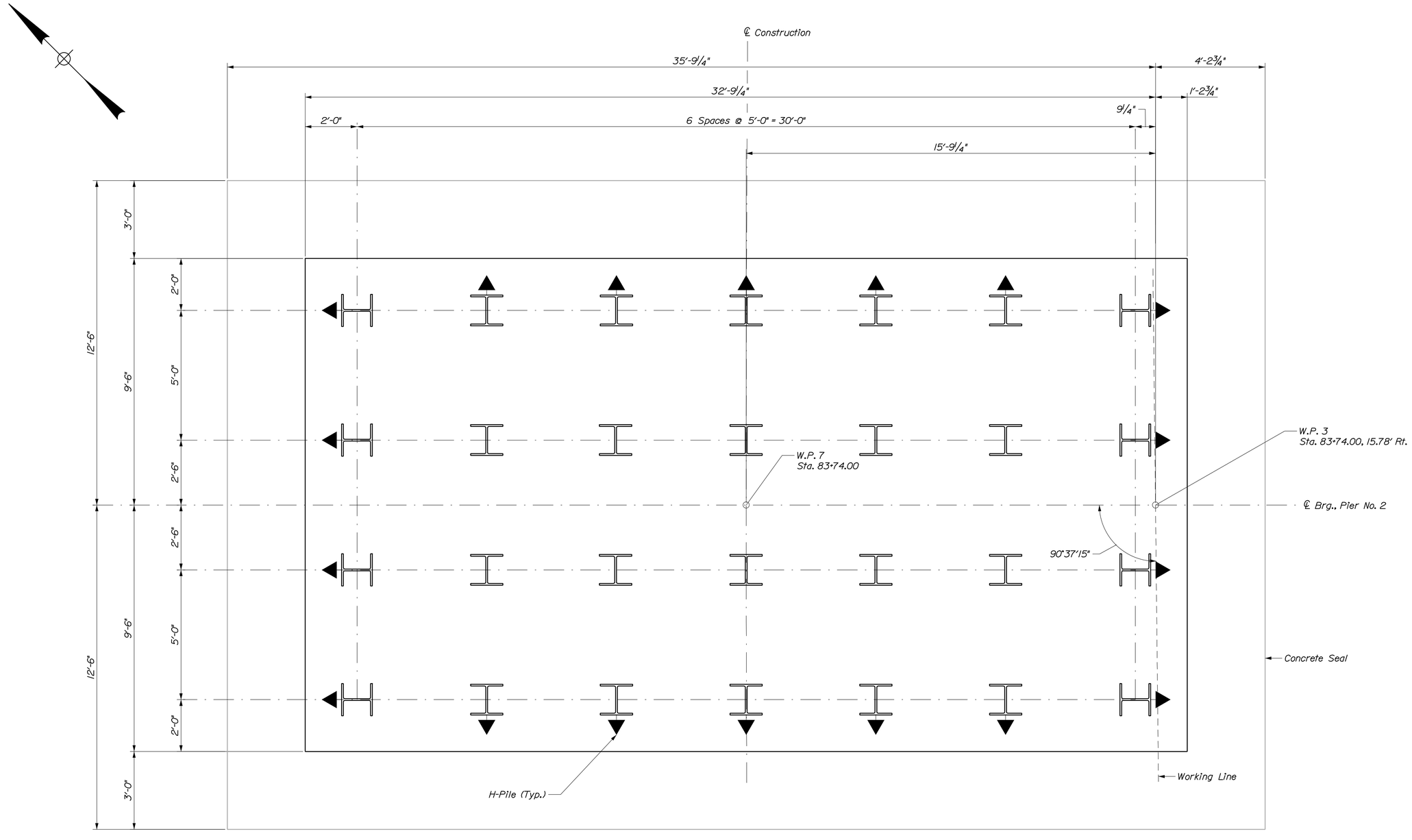
SHEET NUMBER

127

OF 183

HNTB

Filename: 127_Pier No. 1 Reinforcing.dgn Division: Username: Date:8/25/2021



PIER NO. 2 SEAL & FOOTING PLAN

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	Y. Peng	P. Bishop	08\21
CHECKED-REVIEWED	K. Brayley	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

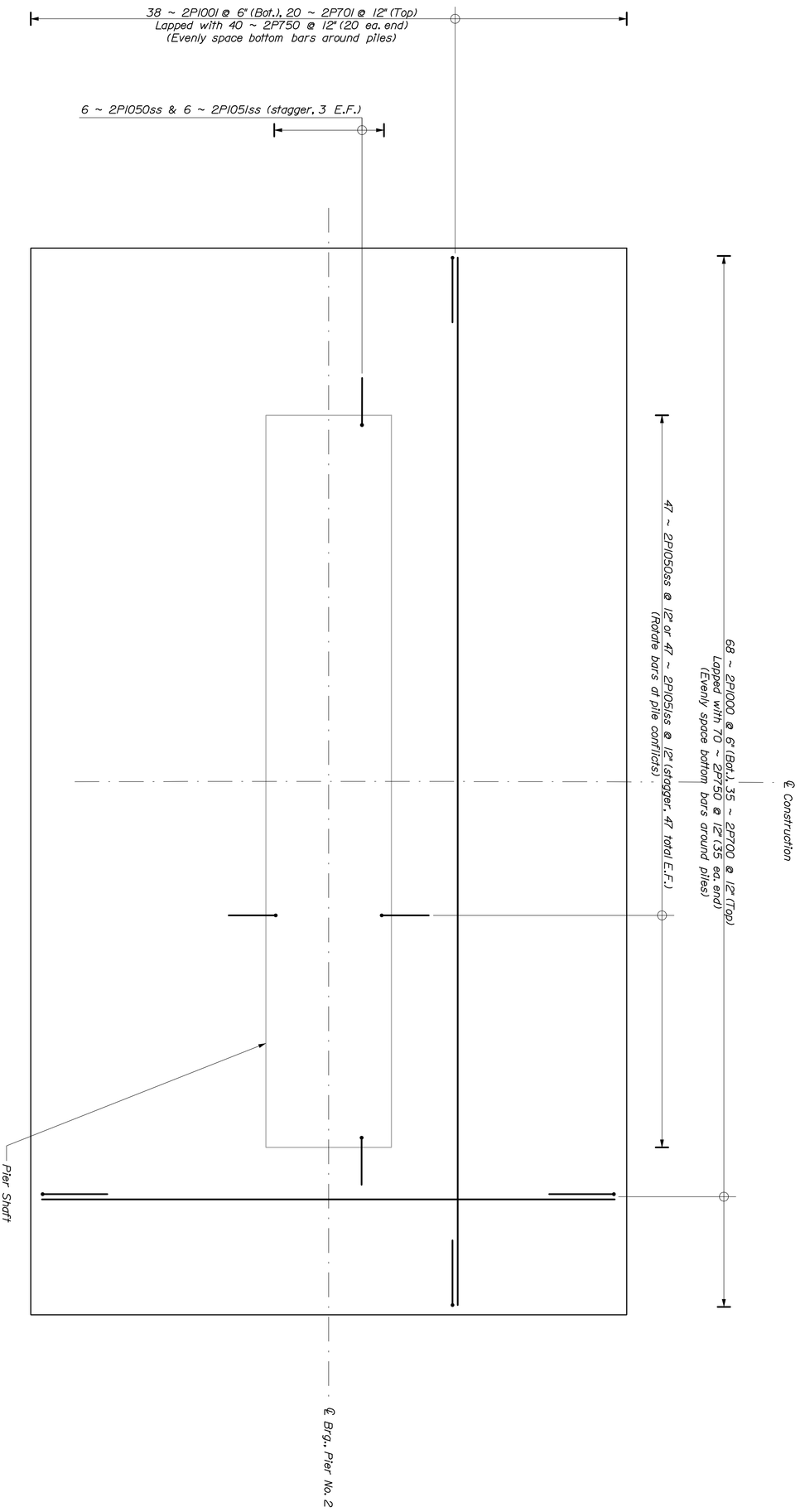
STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

PIER NO. 2
SEAL AND FOOTING PLAN

SHEET NUMBER
128
OF 183

HNTB

Username:
Date:8/25/2021
Division:
Filename: 128_Pier No. 2 Foundation Plan.dgn



PIER NO. 2 FOUNDATION REINFORCING PLAN

(Pier Shaft Screened For Clarity)

HNTB

SHEET NUMBER 129 OF 183

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

PIER NO. 2
FOUNDATION REINF. PLAN

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	Y. Peng	P. Bishop	08\21
CHECKED-REVIEWED	K. Brayley	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

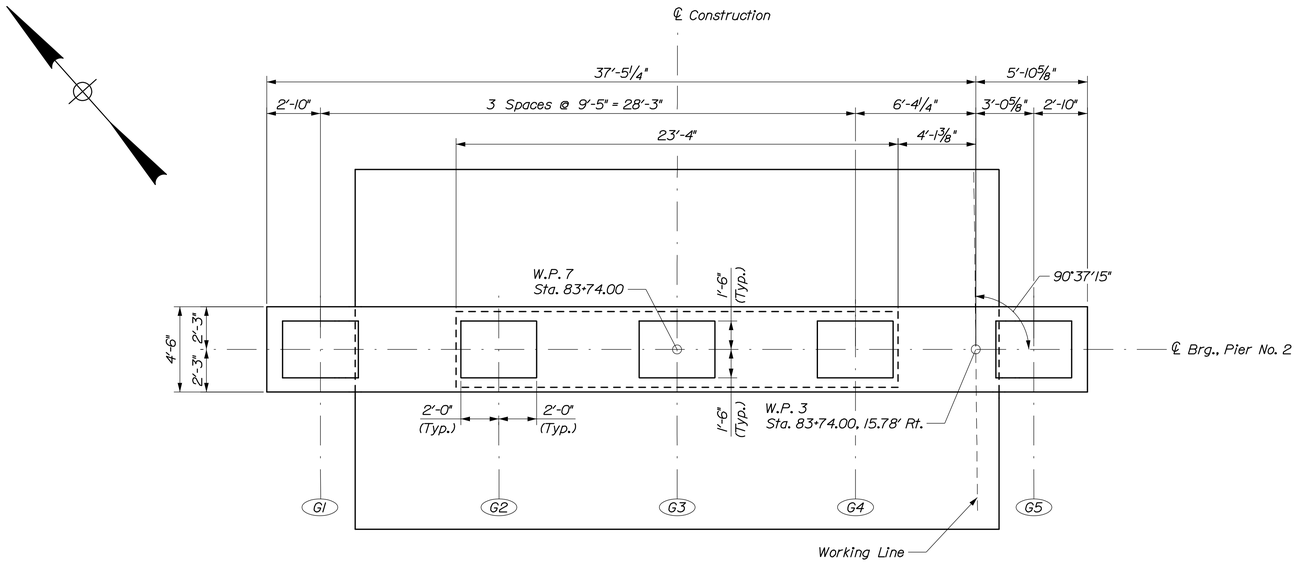
P.E. NUMBER

DATE

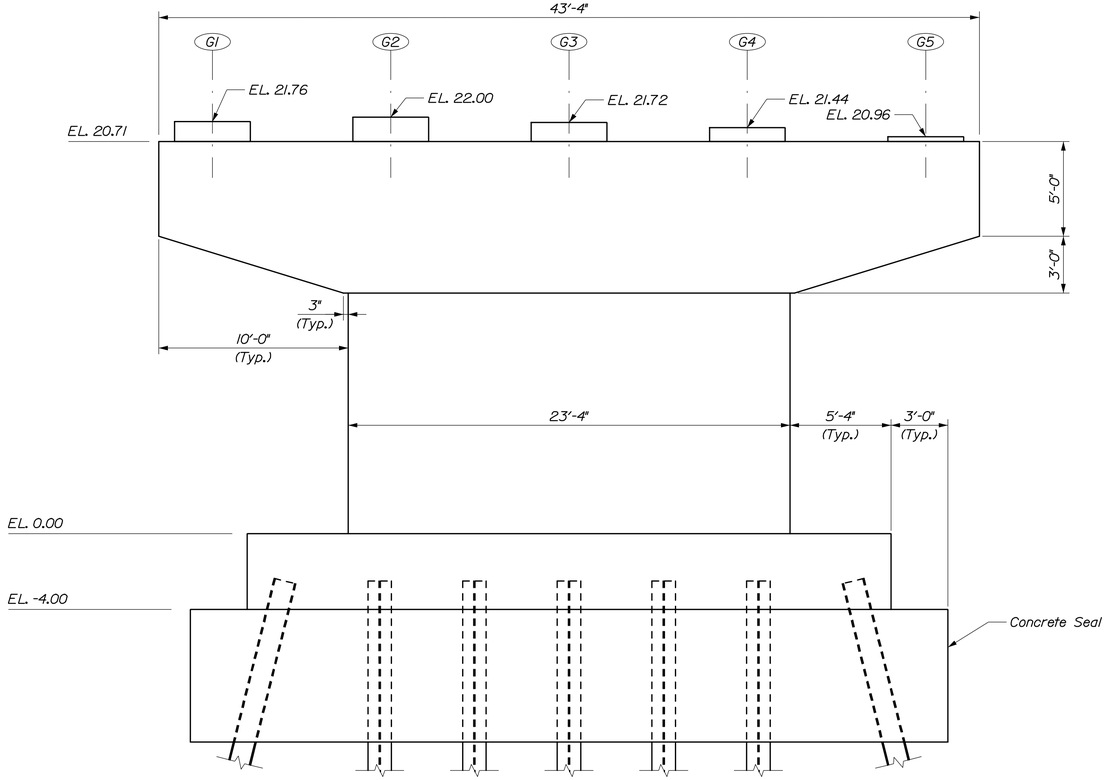
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

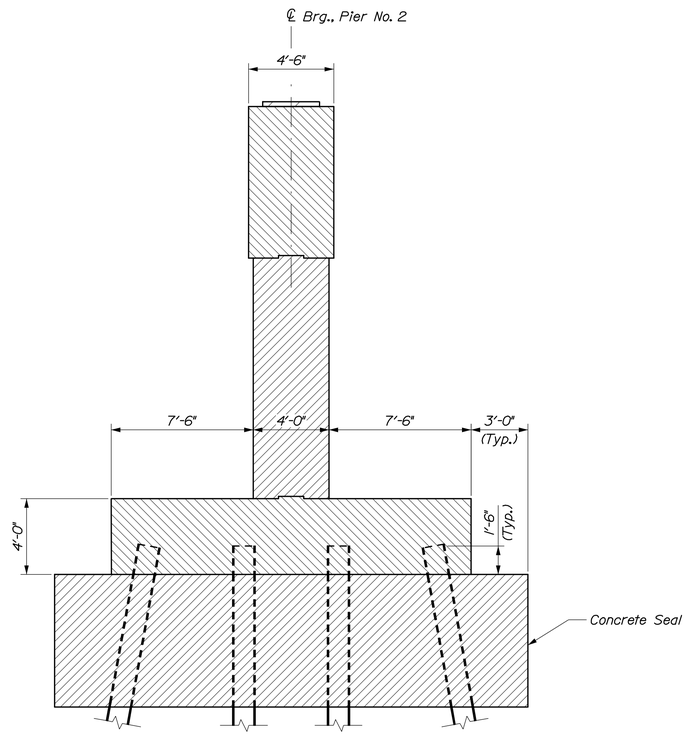
BRIDGE NO.3039 WIN 23929.00 BRIDGE PLANS



PIER NO. 2 PLAN



PIER NO. 2 ELEVATION



SECTION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

	BY	DATE
P.E.	P. Bishop	08\21
PROJ. MANAGER	T. Cote	08\21
DESIGN-DETAILED	D. Easton, P.E.	
CHECKED-REVIEWED	Y. Peng	
DESIGN2-DETAILED2	K. Brayley	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

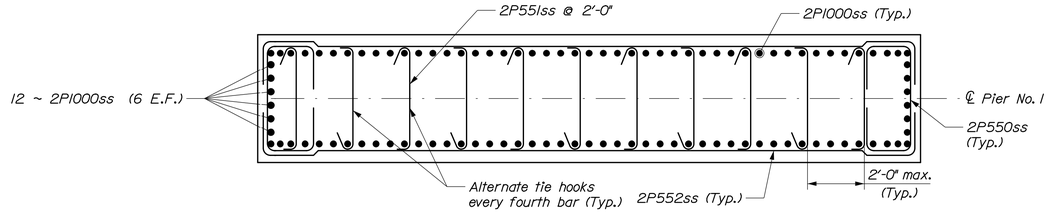
PIER NO. 2 PLAN AND ELEVATION

SHEET NUMBER

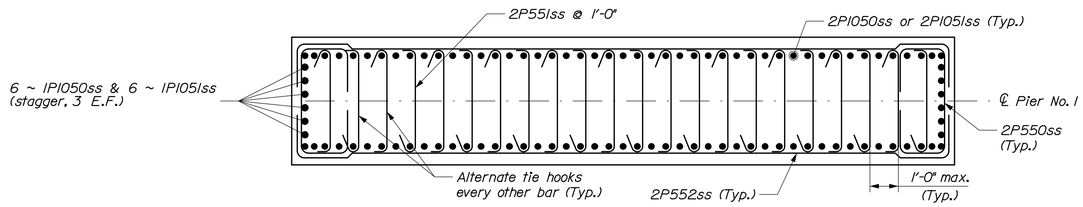
130

OF 183

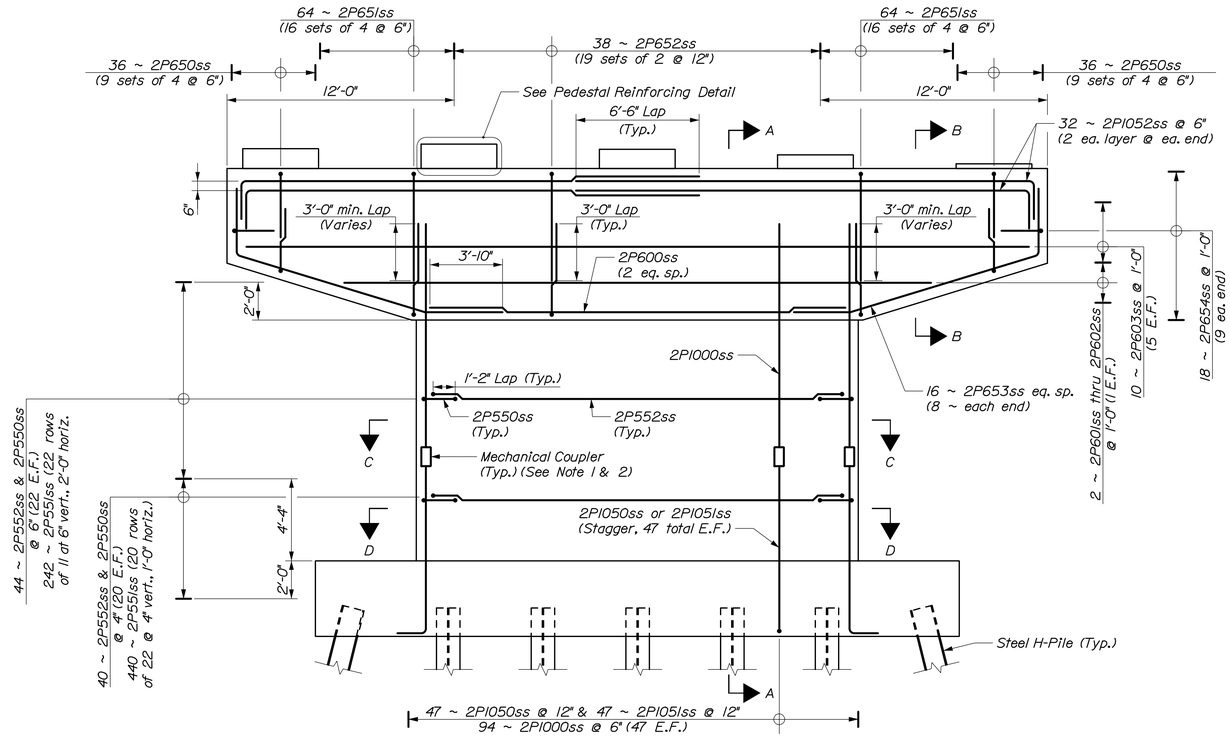
Filename: 130_Pier No. 2 Plan and Elevation.dgn Division: Username: Date:8/25/2021



SECTION C-C



SECTION D-D

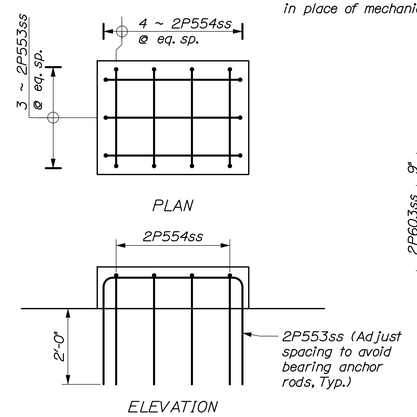


PIER NO. 2 ELEVATION

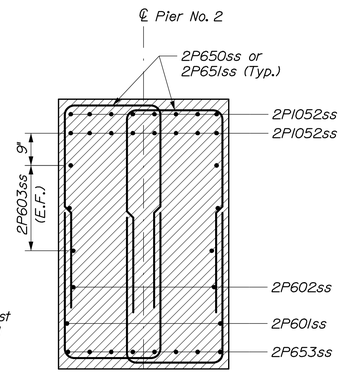
Note:

1. Mechanical splices shall be staggered, alternate 2P1050ss and 2P1051ss to achieve stagger.

2. The Contractor may combine bars 2P1050ss/2P1051ss and 2P1000ss in place of mechanical couplers. Lap splices are not allowed.



PEDESTAL REINFORCING DETAIL



SECTION B-B

SECTION A-A

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE PLANS

BRIDGE NO.3039

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	Y. Peng	08\21
CHECKED-REVIEWED	K. Broyley	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

P.E. NUMBER

SIGNATURE

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

PIER NO. 2
REINFORCING

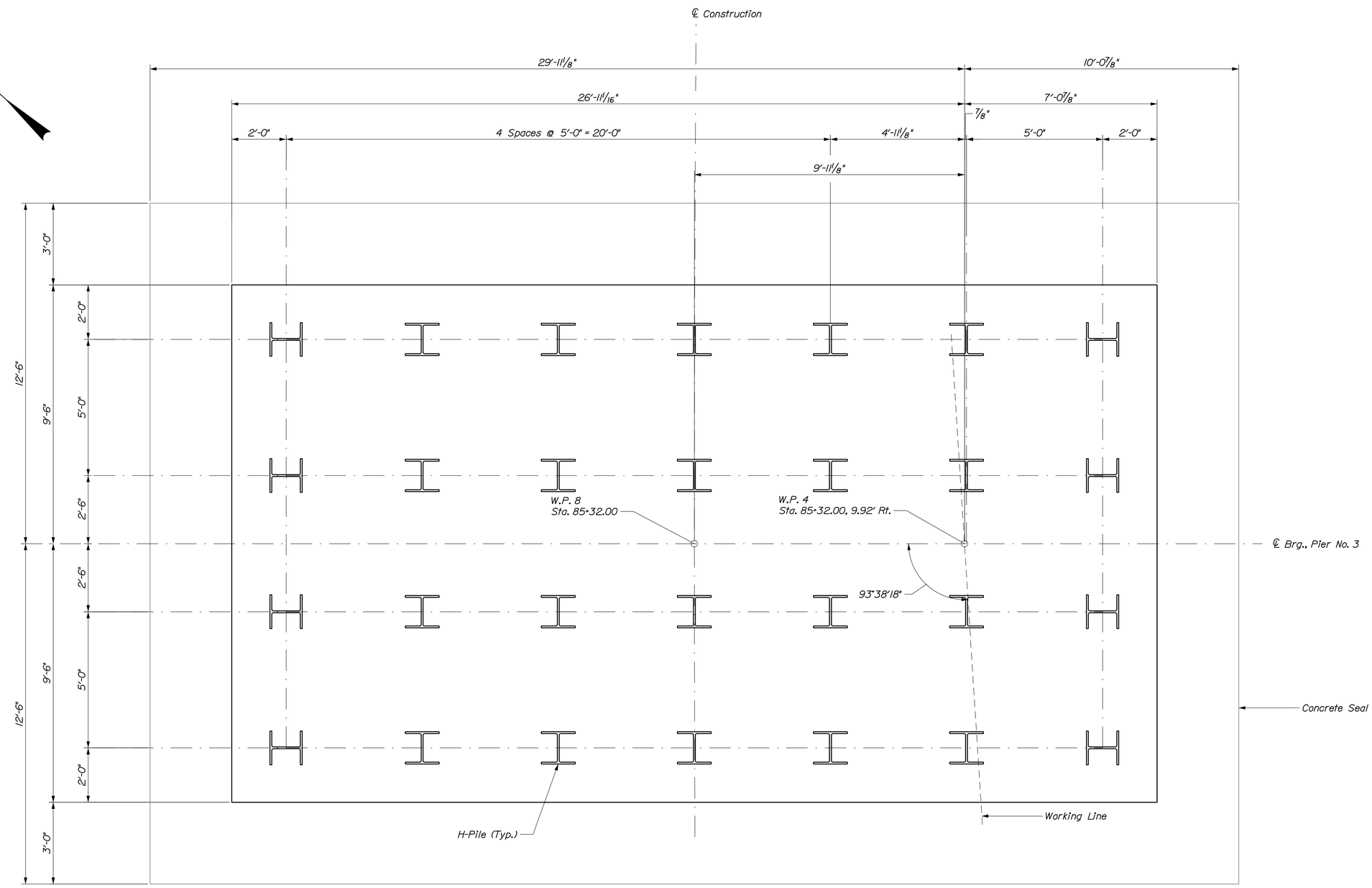
SHEET NUMBER

131

OF 183

HNTB

Filename: 131_Pier No. 2 Reinforcing.dgn Username: Division: Date:8/25/2021



PIER NO. 3 SEAL & FOOTING PLAN

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

			DATE
PROJ. MANAGER	D. Eaton, P.E.	BY	
DESIGN-DETAILED	Y. Peng	P. Bishop	08\21
CHECKED-REVIEWED	K. Brayley	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

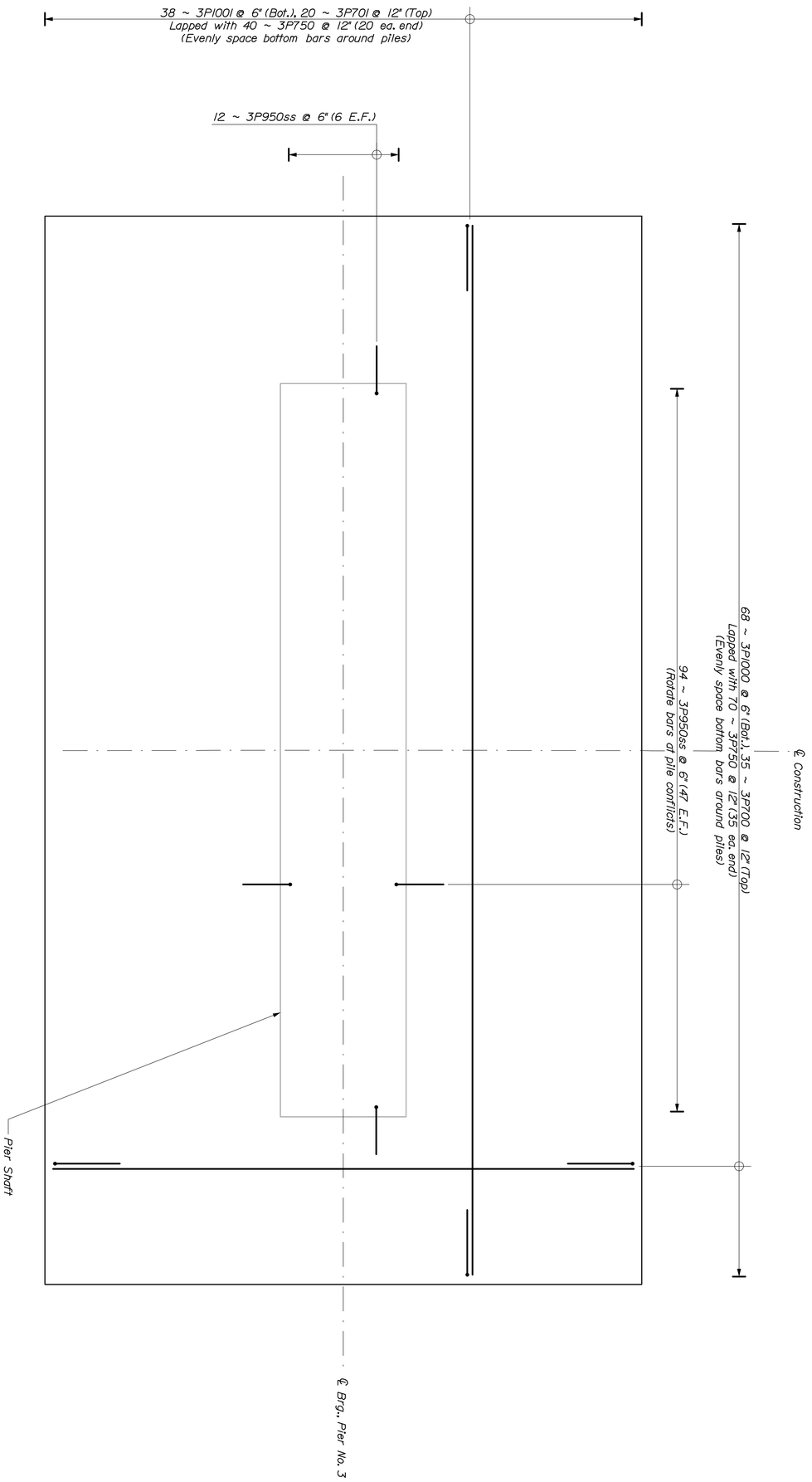
DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

PIER NO. 3
SEAL AND FOOTING PLAN

SHEET NUMBER
132
OF 183

Username:
Date:8/25/2021
Division:
Filename: 132_Pier No. 3 Foundation Plan.dgn



PIER NO. 3 FOUNDATION REINFORCING PLAN

(Pier Shaft Screened For Clarity)

HNTB

SHEET NUMBER 133 OF 183

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

PIER NO. 3 FOUNDATION REINF. PLAN

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	Y. Peng	P. Bishop	08\21
CHECKED-REVIEWED	K. Brayley	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

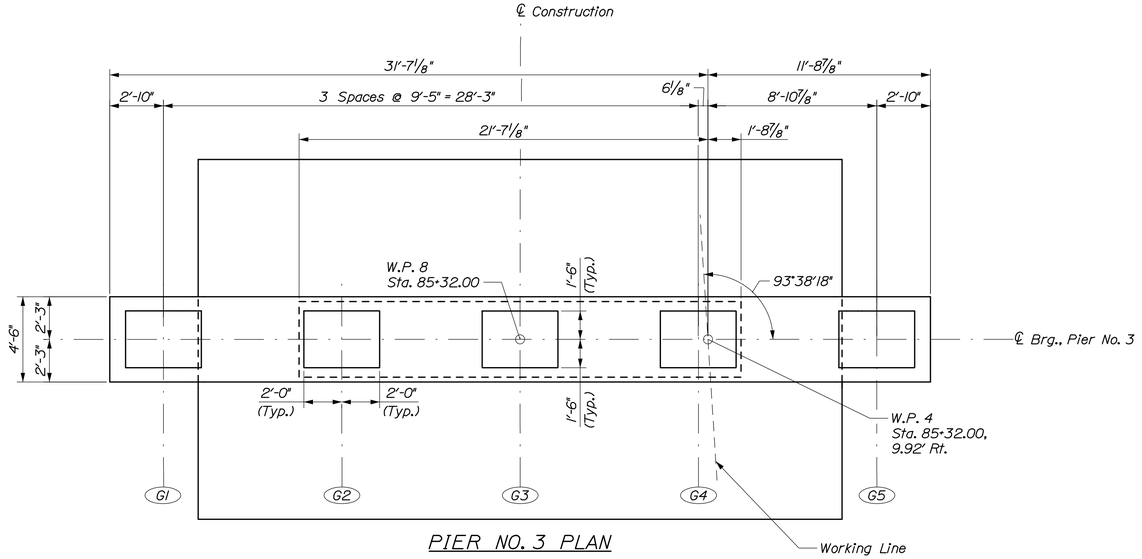
P.E. NUMBER

DATE

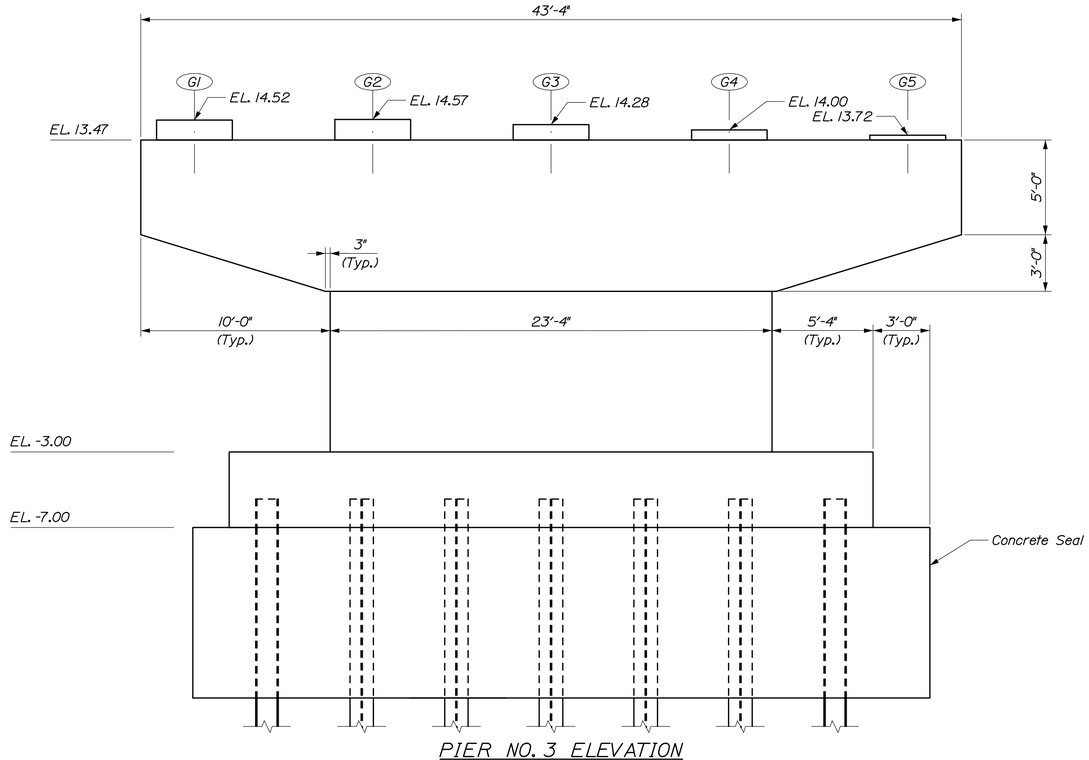
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

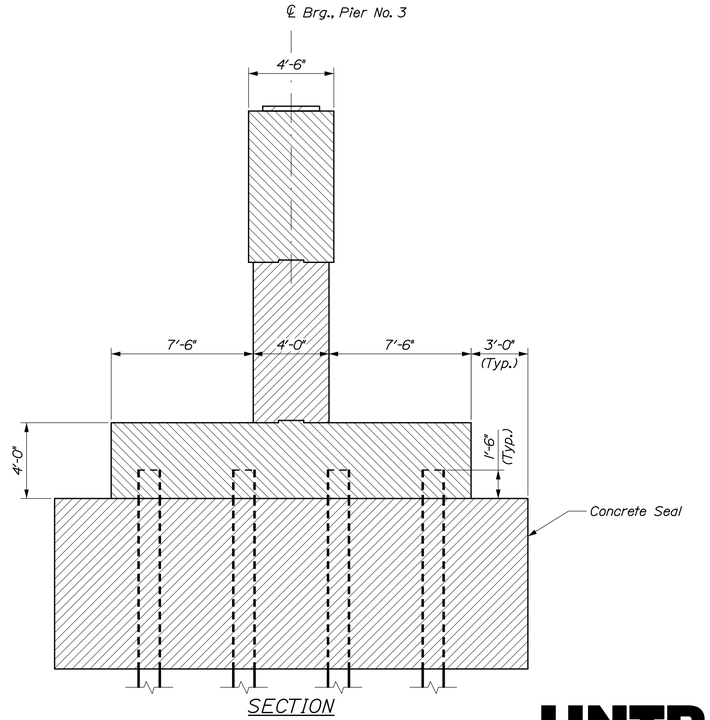
BRIDGE NO.3039 WIN 23929.00 BRIDGE PLANS



PIER NO. 3 PLAN



PIER NO. 3 ELEVATION



SECTION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	Y. Peng	P. Bishop	08\21
CHECKED-REVIEWED	K. Broyley	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

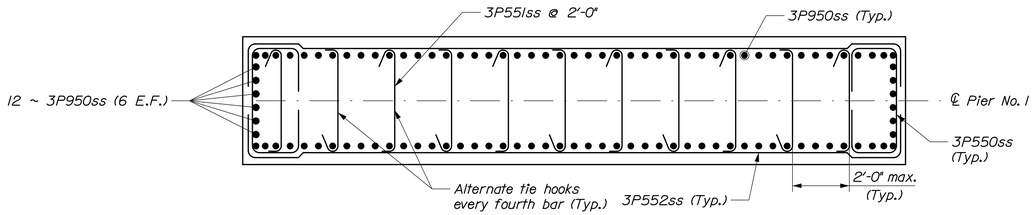
PIER NO. 3 PLAN AND ELEVATION

SHEET NUMBER

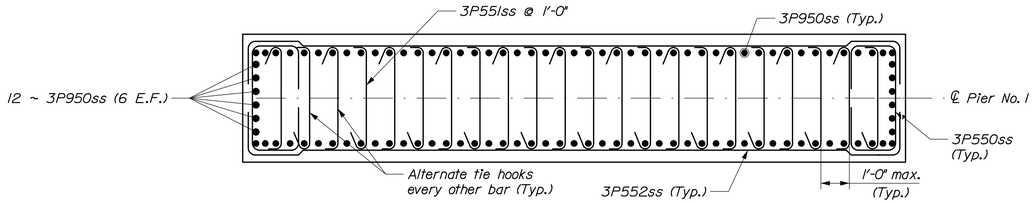
134

OF 183

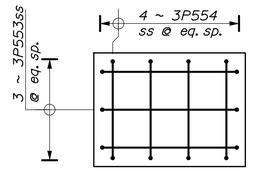
Filename: 134_Pier No. 3 Plan and Elevation.dgn Division: Username: Date:8/25/2021



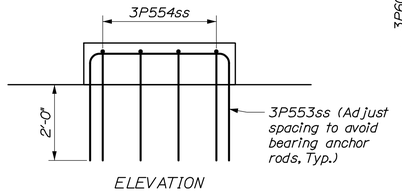
SECTION C-C



SECTION D-D

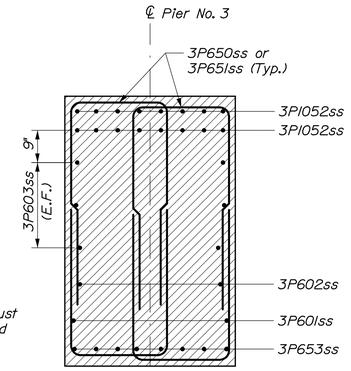


PLAN

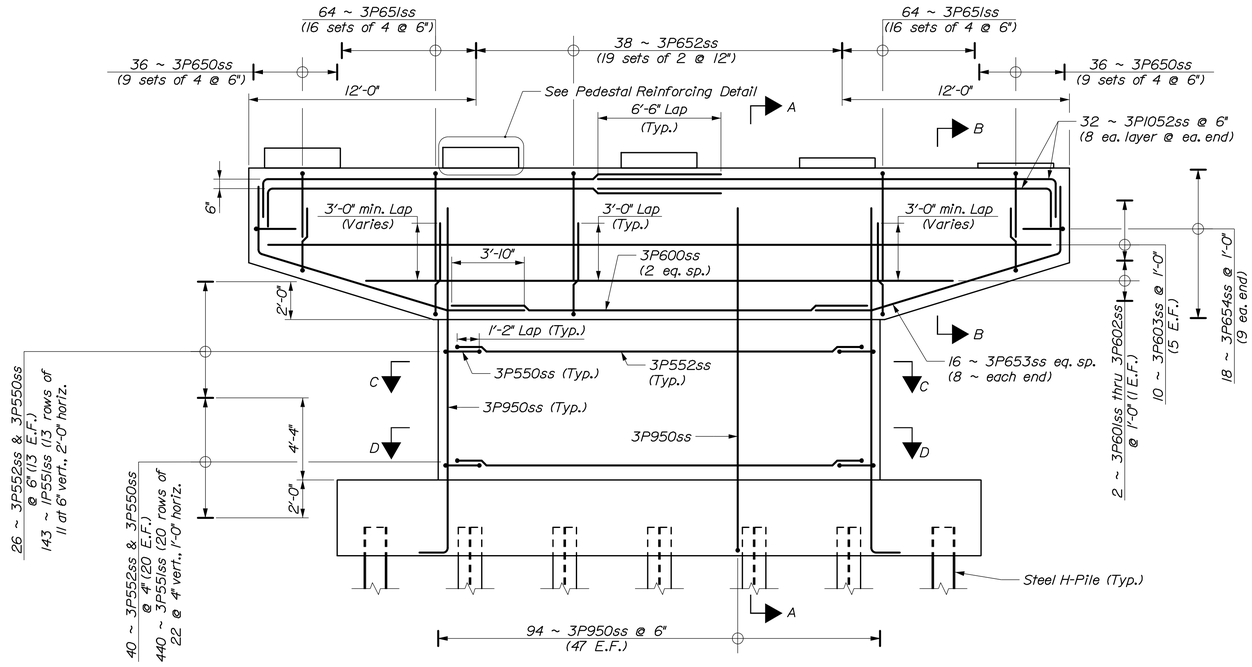


ELEVATION

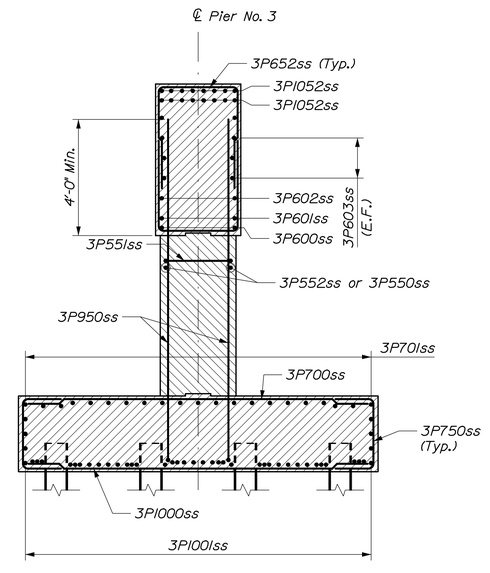
PEDESTAL REINFORCING DETAIL



SECTION B-B



PIER NO. 3 ELEVATION



SECTION A-A

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	Y. Peng	BY	P. Bishop
CHECKED-REVIEWED	K. Broyley	BY	T. Cote
DESIGN2-DETAILED2	K. Broyley	DATE	08\21
DESIGN3-DETAILED3		DATE	08\21
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

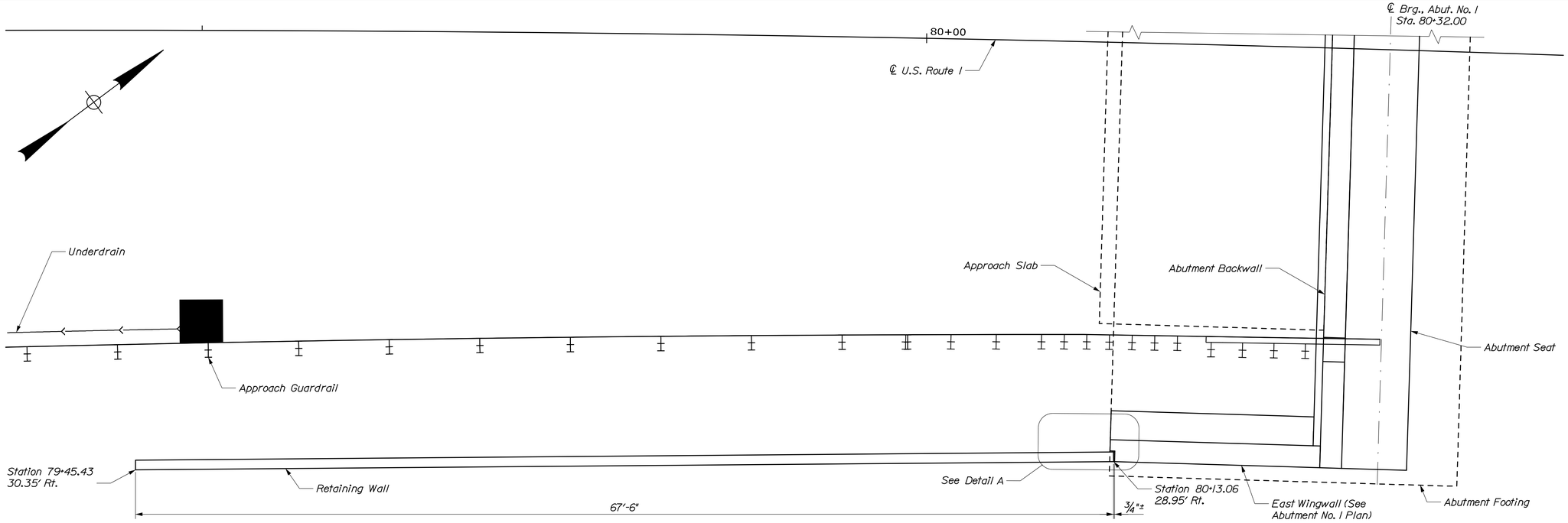
PIER NO. 3 REINFORCING

SHEET NUMBER

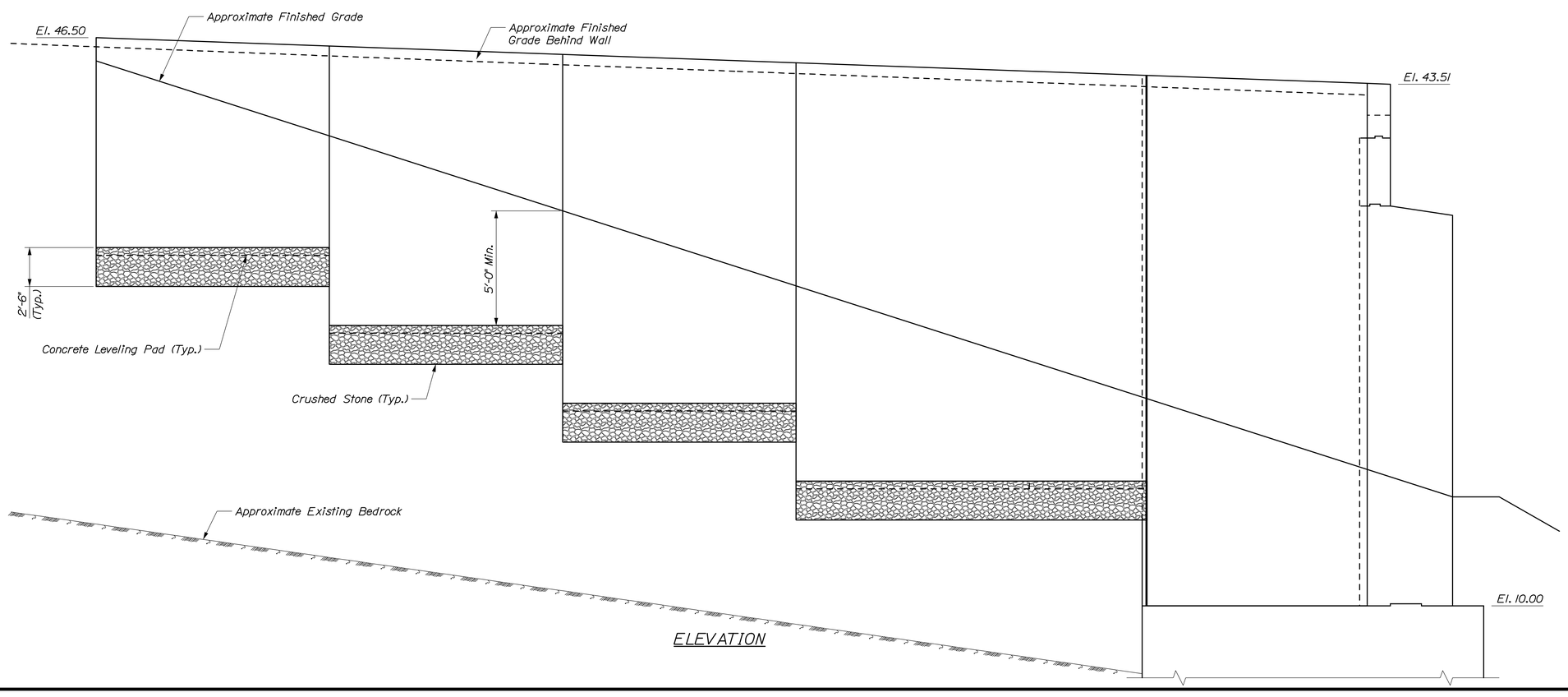
135

OF 183

Filename: 135_Pier No. 3 Reinforcing.dgn Division: Username: Date:8/25/2021



PLAN



ELEVATION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.			
DESIGN-DETAILED	B. Grenier			
CHECKED-REVIEWED	K. Brayley			
DESIGN2-DETAILED2				
DESIGN3-DETAILED3				
REVISIONS 1				
REVISIONS 2				
REVISIONS 3				
REVISIONS 4				
FIELD CHANGES				

BY	DATE
P. Bishop	08\21
T. Cote	08\21

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

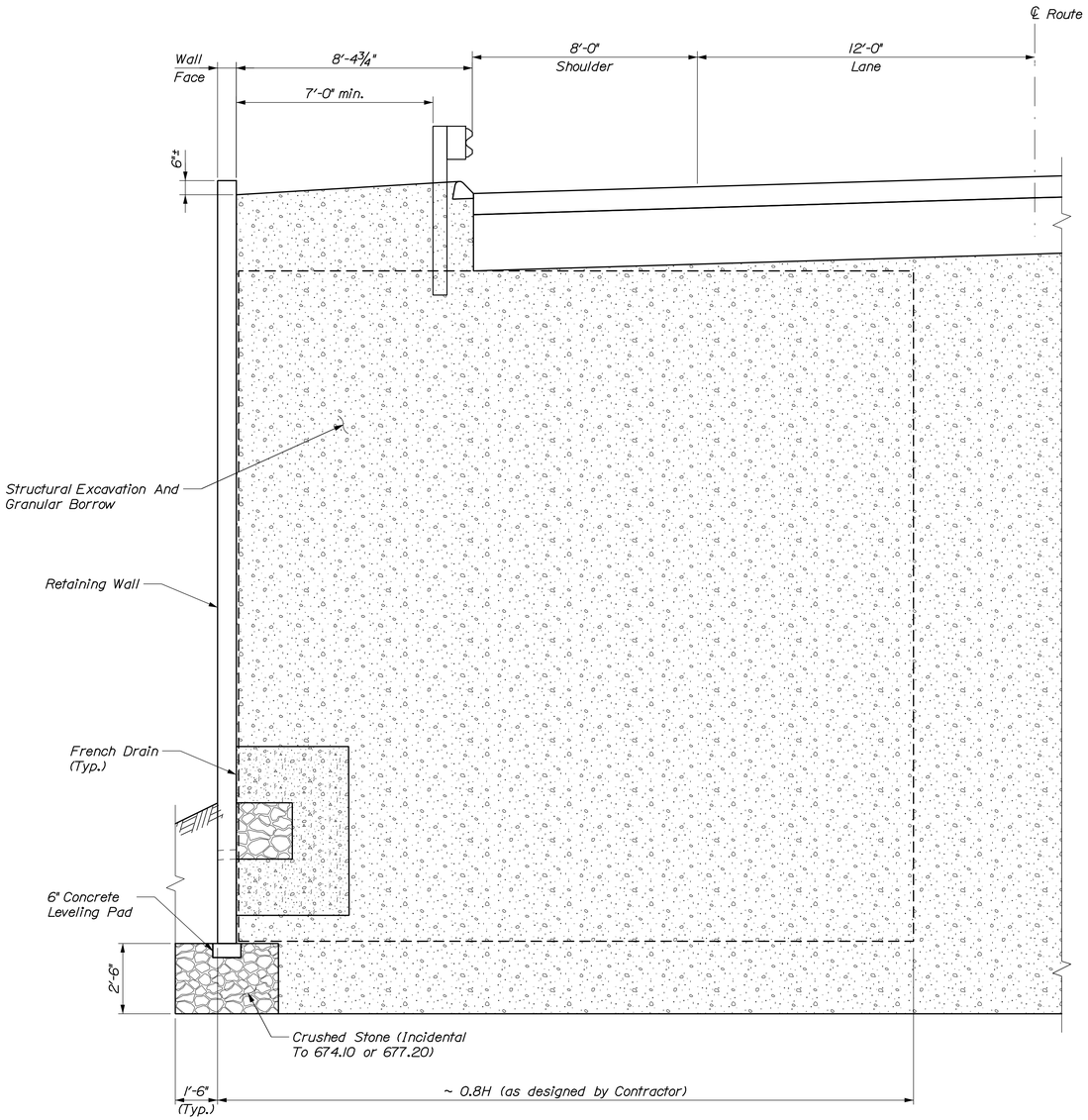
RETAINING WALL PLAN AND ELEVATION

SHEET NUMBER

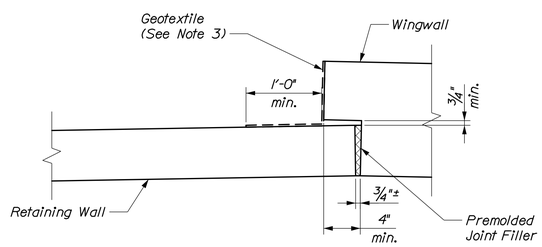
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SECTION
(Looking South)



DETAIL A

NOTES:

1. Contractor shall select and design wall type based on geometry and allowable bearing pressures provided on these plans. Plans and details are provided for estimating purposes only. Wall type shall be one of the following: Precast Concrete Modular Gravity Wall (PCMG) or Mechanically Stabilized Earth (MSE) wall. Contractor shall submit bid based on one wall type.

2. Excavation shall be performed using care so as not to disturb the soft clays and silt where present.

3. A geotextile separation fabric shall be placed over the prepared subgrade and crushed stone placed to the bottom of the retaining wall elevation. The geotextile shall be class 1 material conforming to Standard Specification 722.02. Wrap fabric around sides and over the top of the stone prior to placing. Work shall be considered incidental to selected wall type items.

4. Nonwoven drainage geotextile and leveling pads shall be incidental to selected wall type items and shall meet the requirements of 722.02.

5. Crushed stone under retaining wall base shall be a ¾" gradation in conformance with Standard Specification 703.02 Coarse Aggregate for Concrete and considered incidental to selected retaining wall type.

6. All embankment material, except otherwise shown, placed below the pay limit elevation of the retaining wall shall be gravel borrow meeting the requirements of subsection 703.02.

7. Unsuitable foundation materials encountered below the bottom of the reinforced fill zone shall be removed as directed by the Resident or their Geotechnical Representative and replaced with Gravel Borrow meeting the requirements of subsection 703.20, Gravel Borrow. Excavation of unsuitable foundation material will be measured for payment under pay item 203.20 common excavation. Placement of Gravel Borrow shall be measured for payment under Pay Item 203.26, Gravel Borrow.

8. All leveling pads shall be constructed from Class A Concrete. Payment for concrete leveling pad shall be considered incidental to the selected wall type items.

9. Construct French Drains behind the MSE Wall in accordance with Standard Specification 512, French Drains. Place 4" diameter weep holes through the wall at 10 ft maximum spacing.

10. For design bearing pressures for the Strength and Service Limit States, see Figures A and B in Section 5.5 of the Geotechnical Design Report.

MSE WALL NOTES:

11. The Contractor shall provide a Mechanically Stabilized Earth (MSE) retaining wall in accordance with Standard Specification 677, Mechanically Stabilized Earth Retaining Wall. The MSE retaining wall shall be designed in accordance with Section 11.10 of the AASHTO LRFD Bridge Design Specifications, 8th Edition, 2020 with latest interims and the wall manufacturers recommendations. All design computations and shop drawings shall be stamped by a licensed Professional Engineer and the design shall be submitted to the Department for review. Plan details are shown for estimating purposes only.

12. The factored bearing pressure for MSE walls shall not exceed the factored bearing resistance shown in Figures A and B in Section 6.4 of the Geotechnical Report.

13. Topsoil, granular fill, and organic soils shall be removed entirely within the reinforced soil zone as shown in the plans.

14. Concrete facing panel finish shall be smooth Class "P" concrete. The Contractor shall submit samples of the smooth concrete finish to the Resident for approval prior to casting.

15. Reinforcing Straps shall be stainless steel. Reinforcing bars shall be stainless steel meeting Standard Specification 503.

T-WALL NOTES:

16. The Contractor shall provide a Prefabricated Concrete Modular Gravity (PCMG) wall in accordance with Standard Specification 674. All design computations and shop drawings shall be stamped by a licensed Professional Engineer and the design shall be submitted to the Department for review. Plan details are shown for estimating purposes only.

17. Select precast units from the MaineDOT Qualified Product List of Proprietary Retaining Wall Systems and submit to Resident for Approval.

18. The factored bearing pressure for PCMG walls shall not exceed the factored bearing resistance shown in Figures A and B in Section 6.4 of the Geotechnical Report.

19. The PCMG wall shall consist of Class P concrete meeting Standard Specification 502 and stainless steel reinforcing meeting Standard Specification 503.

20. Clear protective coating shall be applied to exposed surfaces of T-wall panels and shall be paid for under item 515.202 Clear Protective Coating for Concrete Surfaces.

21. Prior to placing top rows of T-wall, the Contractor must locate all proposed guardrail posts and mark them on back face of wall to ensure no conflicts exist for future post installation.

STATE OF MAINE
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BRIDGE PLANS

BRIDGE NO.3039

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	B. Grenier	08\21
CHECKED-REVIEWED	K. Brayley	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

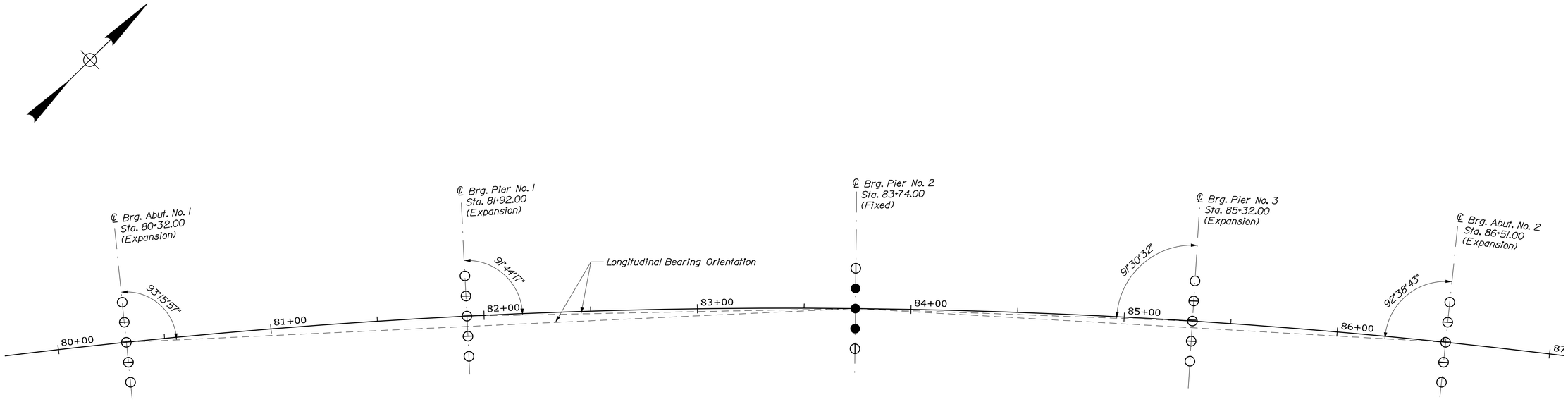
STATION 46 BRIDGE
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RETAINING WALL DETAILS

SHEET NUMBER
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Filename: 137_Retaining Wall - Details 1.dgn Division: Username: Date:8/25/2021



BEARING LAYOUT PLAN

LEGEND

- ○ Non-Guided Expansion
- ⊖ Guided Longitudinal Expansion
- ◐ Guided Radial Expansion
- ● Fixed

DISC BEARING NOTES:

1. The actual dimension "H" shall be the responsibility of the Contractor. Dimensions and sizes of plates not shown are dependent on design loads, capacity, and the manufacturer of the bearings. The shop drawings, prepared by the manufacturer, shall provide all pertinent bearing information. The final bearing pedestal elevations shall be determined by the Contractor and submitted with the shop drawings for approval prior to construction of the substructure units.

2. Masonry plates shall be placed on $\frac{1}{8}$-inch thick preformed pads in accordance with the specifications.

3. All steel, unless otherwise specified, shall meet the requirements of ASTM A709, Grade 50.

4. At the Contractor's option, bearing anchorage shall either be anchor rods with washers and double nuts, or anchor bolts with couplers. Anchor rods and anchor bolt couplers shall be cast into substructure unit concrete, field drilling will not be permitted.

5. Anchorage spacing shall be coordinated with the bearing manufacturer.

6. Anchor rods shall meet the requirements of ASTM F1554, Grade 105 and shall be swedged on the embedded portion of the rod.

7. Heavy hex nuts for anchor rods shall meet the requirements of ASTM A563, Grade D or DH.

8. Anchor bolts, rods, shear pins, washers, and nuts shall be galvanized in accordance with ASTM A153. Payment for galvanizing will be considered incidental to the disc bearing pay items, no separate payment will be made.

9. For all bearings, all steel shall be coated in accordance with Standard Specification Section 506, Shop Applied Protective Coating - Steel (Thermal Spray Coating or Hot Dip Galvanizing). Payment for Coatings for Disc Bearings will be considered incidental to Item No. 523.551, Pot or Disc Bearings, Fixed or Item No. 523.5552 Pot or Disc Bearings, Expansion as applicable.

10. The abbreviation "PTFE" indicates polytetrafluoroethylene.

11. All PTFE, including guide and restraint surfaces, shall be unfilled.

12. PTFE minimum bearing pressure shall be 1 ksi under total service loading and 3 ksi under total strength loading.

13. Average compressive stresses on the disc shall be calculated using the minimum plan area of the unstressed disc, excluding the area of any holes.

14. The design temperature range shall be 150°F (-30°F to 120°F). Bearings shall be designed with a thermal load factor of 1.2.

15. Design of the sole plates and masonry plates is the sole responsibility of the Bearing Manufacturer. Payment will be considered incidental to the disc bearing pay items, no separate payment will be made.

16. Sole plates shall be beveled according to the grade defined at each substructure location in the Disc Bearing Design Table.

17. Strength Limit State rotations shown in the Disc Bearing Design Table do not include an allowance for uncertainties of 0.005 radians, as defined in AASHTO LRFD Bridge Design Specifications, 9th Edition 2020.

18. Longitudinal horizontal forces do not include friction forces at expansion bearings.

19. All bearings shall be marked prior to shipping. The marks shall include the bearing location on the bridge, and a direction arrow that points upstation. All marks shall be permanent and shall be visible after the bearing is installed.

20. Bearing installation shall be in strict conformance with the Standard Specifications and the manufacturer's recommendations.

21. In the Disc Bearing Setting Corrections Table, a negative value for Dimension "X" indicates a direction away from the nearer expansion joint. A positive value for Dimension "X" indicates a direction toward the nearer expansion joint.

22. Temperatures shown in the Disc Bearing Setting Corrections Table are those of the steel girders and not necessarily the ambient air temperature.

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SIGNATURE

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PROJ. MANAGER	D. Eaton, P.E.	BY
DESIGN-DETAILED	J. Waugh	P. Bishop
CHECKED-REVIEWED	B. Grenier	T. Cote
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

DATE
08\21
08\21

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

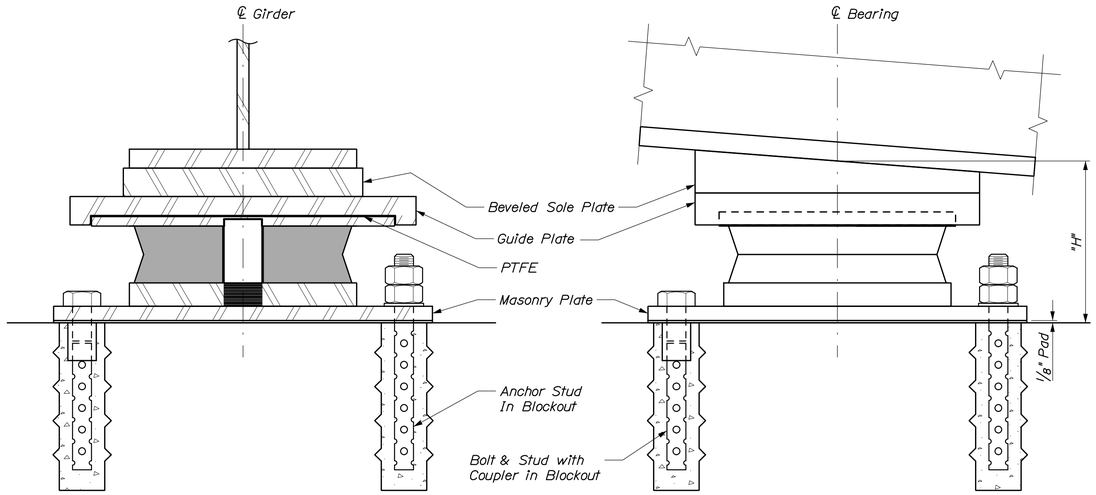
BEARING LAYOUT

SHEET NUMBER

138

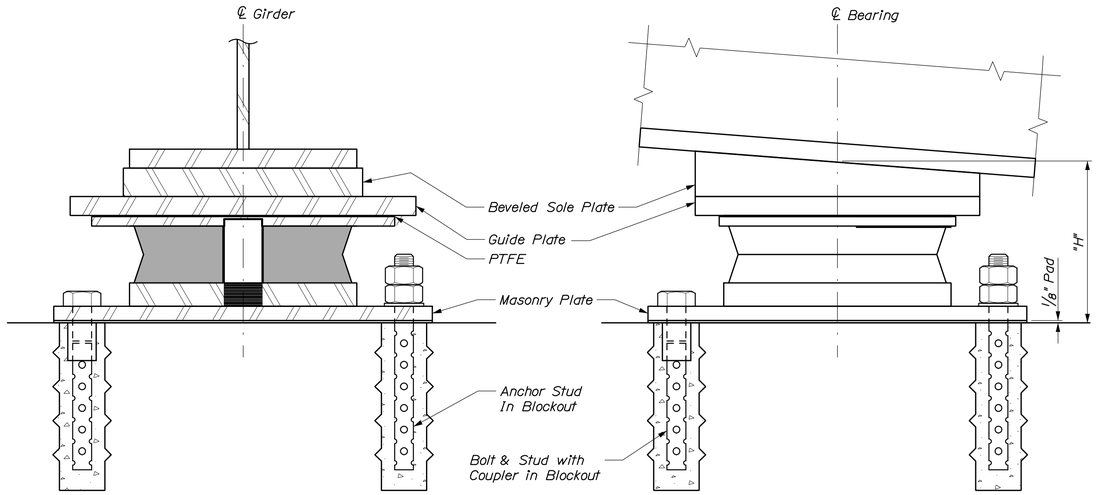
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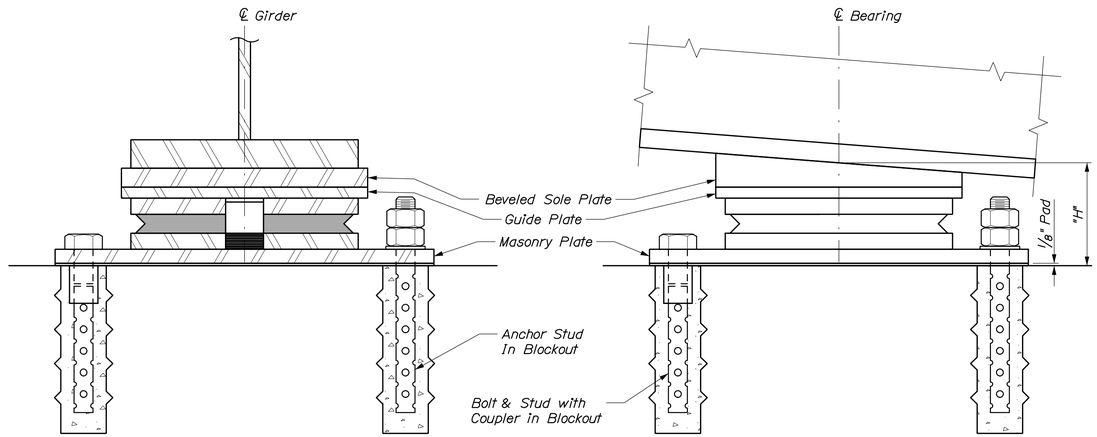
~ TRANSVERSE SECTION ~ ~ LONGITUDINAL ELEVATION ~

UNI-DIRECTIONAL BEARING



~ TRANSVERSE SECTION ~ ~ LONGITUDINAL ELEVATION ~

EXPANSION BEARING



~ TRANSVERSE SECTION ~ ~ LONGITUDINAL ELEVATION ~

FIXED BEARING

DISC BEARING DESIGN TABLE

Location	Girder	Bearing Type	Design Loads Per Bearing (kips)											Dim "H" (in.) (See Note 1)	Design Rotation		Total Long. Movement (in.)	Sole Plate Bevel (%)
			Vertical					Horizontal										
			Strength	Extreme Event	Service			Strength		Extreme		Service			Strength	Service		
			Total Load	Total Load	Dead Load *	Max. Live Load **	Min. Live Load **	Long.	Trans.	Long.	Trans.	Long.	Trans.		Rotation (radians)	Rotation (radians)		
Abut. No. 1	1 & 5	Non-Guided	380	168	118	110	-23	0	0	0	0	0	0	11.38	0.0062	0.0054	4.00	-3.75
	2, 3, 4	Guided, Longitudinally	386	170	116	114	-12	0	15	0	38	0	12	11.38	0.0049	0.0042	4.00	-3.75
Pier No. 1	1 & 5	Non-Guided	893	463	382	200	-33	0	0	0	0	0	0	11.38	0.0037	0.0033	2.13	-4.41
	2, 3, 4	Guided, Longitudinally	926	489	400	204	-14	0	32	0	268	0	21	11.38	0.0031	0.0027	2.13	-4.41
Pier No. 2	1 & 5	Guided, Radially	820	410	329	197	-46	36	0	198	0	28	0	11.38	0.0038	0.0034	-	-4.60
	2, 3, 4	Fixed	847	431	343	201	-25	36	32	198	268	28	21	9.00	0.0029	0.0026	-	-4.60
Pier No. 3	1 & 5	Non-Guided	700	344	274	171	-31	0	0	0	0	0	0	11.38	0.0027	0.0023	1.85	-4.60
	2, 3, 4	Guided, Longitudinally	742	370	287	183	-21	0	32	0	268	0	21	11.38	0.0022	0.0020	1.85	-4.60
Abut. No. 2	1 & 5	Non-Guided	284	123	80	87	-21	0	0	0	0	0	0	11.38	0.0038	0.0032	3.24	-4.60
	2, 3, 4	Guided, Longitudinally	316	130	80	102	-14	0	13	0	17	0	10	11.38	0.0030	0.0026	3.24	-4.60

* Tabulated Dead Loads include DC1, DC2, and DW loads.
** Tabulated Live Loads include IM loading and multiple presence factors.

DISC BEARING SETTING CORRECTIONS TABLE

	Dimension "X" (inches)					
	15 °F	30 °F	45°F	60 °F	75 °F	90 °F
Abut. No. 1	-13/16	-3/8	0	3/8	13/16	1 3/16
Pier No. 1	-7/16	-3/16	0	3/16	7/16	5/8
Pier No. 2	-	-	-	-	-	-
Pier No. 3	-3/8	-3/16	0	3/16	3/8	9/16
Abut. No. 2	-5/8	-5/16	0	5/16	5/8	1

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BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	J. Waugh	P. Bishop	08\21
CHECKED-REVIEWED	B. Graner	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

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KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

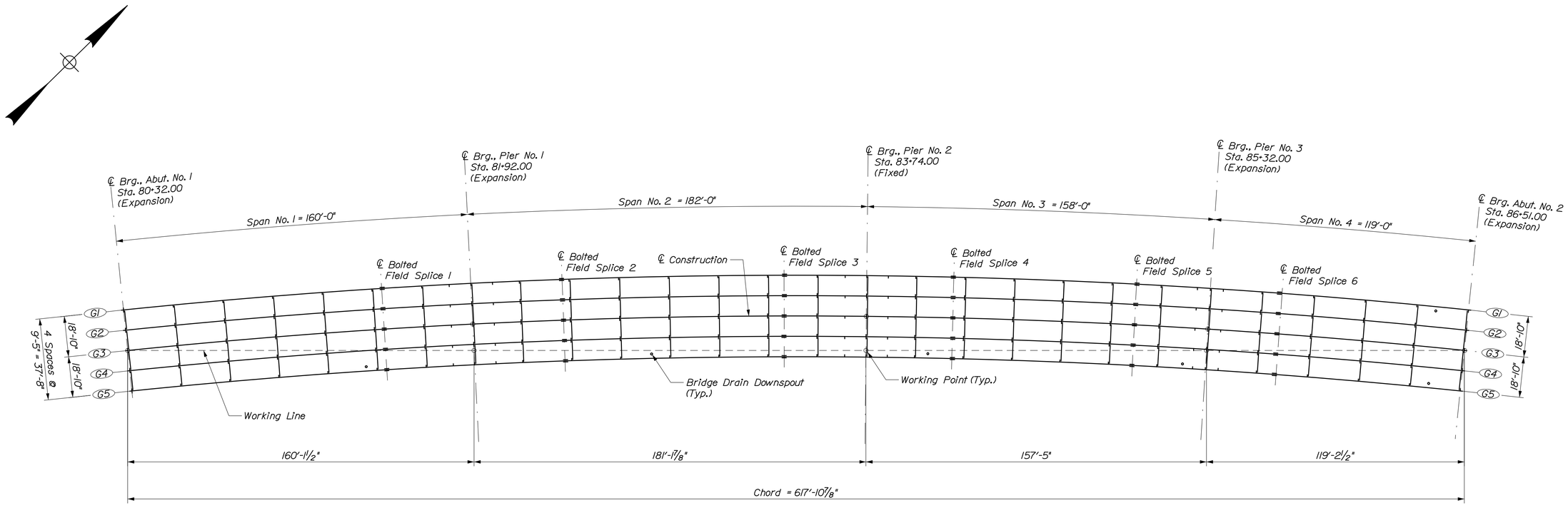
BEARING DETAILS

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Division:
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FRAMING LAYOUT PLAN

STRUCTURAL STEEL NOTES:

1. Camber ordinates, as shown, are computed to compensate for all dead load deflections and for the curvature of the finished grade profile.

2. No transverse butt-weld splices will be allowed in the flange plates or web plates within 10 feet or 10% of the span length (whichever is greater) from the points of maximum negative moment or maximum positive moment. Butt-weld splices in flanges shall be not less than 1 foot from transverse butt-welds in the web plates and no transverse web or flange butt-welds shall be located within 1 foot of other transverse welds (e.g. connection plates to web welds) on either flange or web. No transverse butt-weld splices will be allowed in areas of stress reversal.

3. Sections of flange plates or web plates between transverse shop splices or between a transverse shop splice and a field splice shall be at least 20 feet in length unless otherwise shown on the Plans.

4. Bearing stiffeners shall be plumb after erection and dead loading of the structure. Intermediate web stiffeners may be either plumb or normal to the top flange.

5. Intermediate crossframe or diaphragm connection plates may be either plumb or normal to the top flange and shall be 1/2-inch thick.

6. All connection plates shall be welded to the top and bottom flanges using 5/16-inch fillet welds.

7. Filler plates shall be steel conforming to the requirements of ASTM A709, Grade 36 or Grade 50.

8. At locations marked with an asterisk (*), the designated diaphragms shall be changed to a Type D diaphragm as required to accommodate the Contractor's deck placement sequence. No extra compensation will be allowed for any diaphragms so substituted, and any additional costs will be considered incidental to the Contract items.

9. Crossframes shall be detailed and fabricated to fit under total steel dead load.

10. All bolted connections shall be made using 7/8-inch diameter ASTM F3125 Grade A325, Type 1 bolts. Bolts shall be installed with heads down at all bottom flange connections and heads up at all top flange connections. Bolt threads shall be excluded from the shear plane of the field splice connections.

11. Girders shall be metallized in accordance with Standard Specification Section 506.

12. All crossframes are radial.

13. All bolts, nuts, and washers shall be hot dip galvanized in accordance with ASTM A153.

14. Structural steel was designed with a vertical construction load of 50 lb/sf and a lateral wind velocity of 30 mph.

15. At the Contractor's option, the Diaphragms, Cross Frames and Field Splices may be Hot-Dipped Galvanized in accordance with Standard Specifications Section 506, Shop Applied Protective Coating, as approved by the Resident. Payment will be considered incidental to Item 506.9104, Thermal Spray Coating (Shop Applied), no separate payment will be made.

16. At the Contractor's option, all Structural Steel may be Hot-Dipped Galvanized in accordance with Standard Specifications Section 506, Shop Applied Protective Coating, as approved by the Resident. Double Hot-Dipped galvanizing shall be approved by the Resident. Payment will be considered incidental to Item 506.9104, Thermal Spray Coating (Shop Applied), no separate payment will be made.

17. A minimum of two adjacent girders and adjoining cross frames shall be erected in a given span prior to erecting the following span. At no time shall more than two girder segments of a single girder be erected without being connected to an adjacent girder through the use of cross frames.

18. Field splice fill plates to be as shown in the Fill Plate Dimensions Table on this sheet.

FILL PLATE DIMENSIONS TABLE

Field Splce	Thickness	Width	Length
FS1 Top	3/4"	29"	1'-4"
FS1 Bottom	7/8"	30"	1'-7"
FS2 Top	7/8"	29"	1'-4"
FS2 Bottom	7/8"	30"	1'-7"
FS3 Top	3/4"	29"	1'-4"
FS3 Bottom	3/4"	30"	1'-7"
FS4 Top	1"	24"	1'-4 1/2"
FS4 Bottom	1"	25"	1'-4 1/2"
FS5 Top	5/8"	24"	1'-4"
FS5 Bottom	5/8"	25"	1'-7"
FS6 Top	5/8"	24"	1'-4"
FS6 Bottom	5/8"	25"	1'-7"

For fill plate locations, see Structural Steel Details IV sheet.

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BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	N. Boert	P. Bishop	08\21
CHECKED-REVIEWED	B. Grenier	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

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STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

FRAMING PLAN LAYOUT

SHEET NUMBER

140

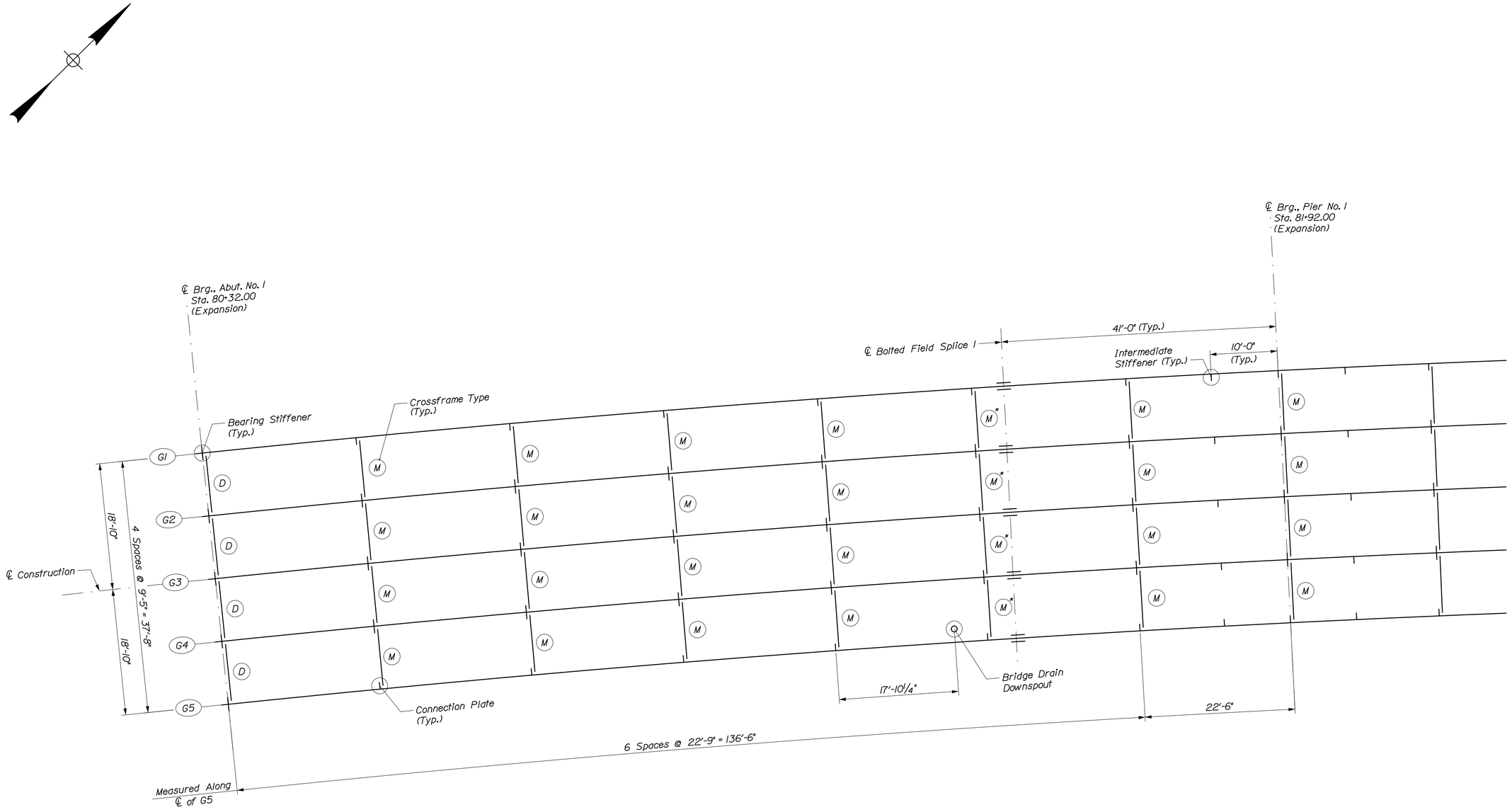
OF 183

Date:8/25/2021

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Filename: 140_Framing Layout Plan.dgn



FRAMING PLAN - SPAN NO. 1

STATE OF MAINE
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BRIDGE PLANS

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DESIGN-DETAILED	N. Baert	P. Bishop	08\21
CHECKED-REVIEWED	B. Grenier	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
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REVISIONS 4			
FIELD CHANGES			

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STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

FRAMING PLAN
SPAN NO. 1

SHEET NUMBER

141

OF 183

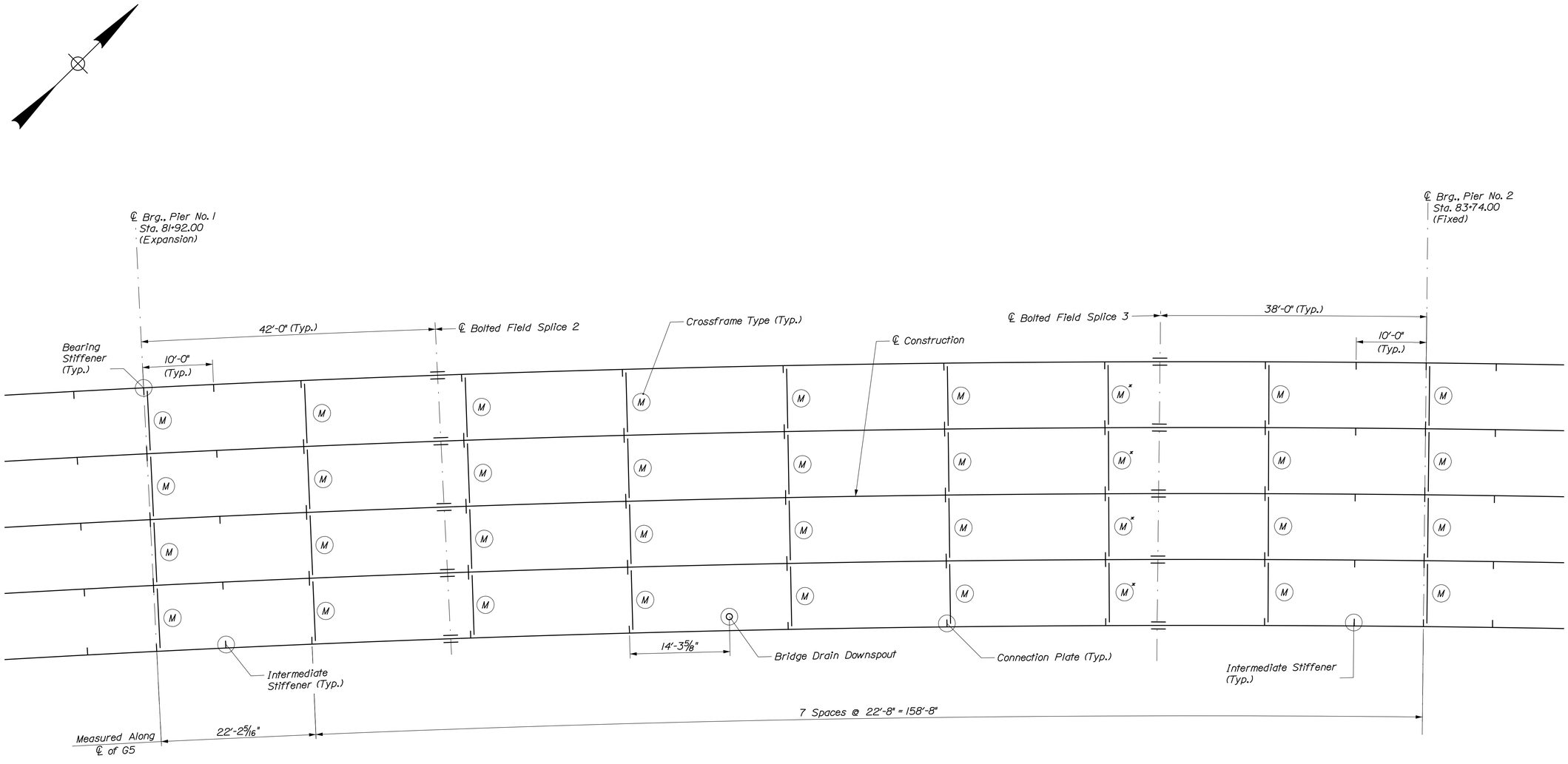
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FRAMING PLAN - SPAN NO.2

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BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	N. Baert	08\21
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DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

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STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
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FRAMING PLAN
SPAN NO. 2

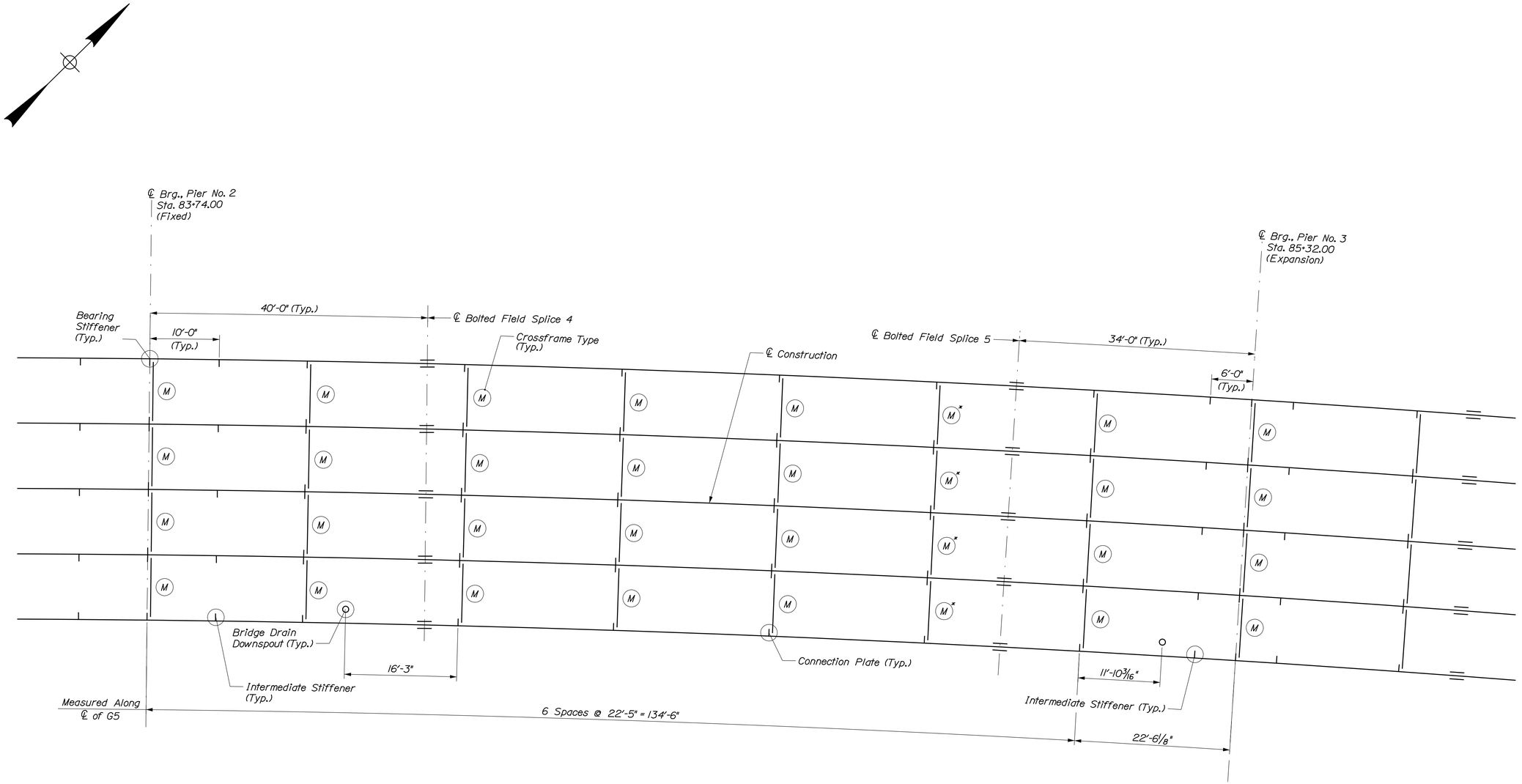
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FRAMING PLAN - SPAN NO.3

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PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	N. Baert	08\21
CHECKED-REVIEWED	B. Grenier	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
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STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

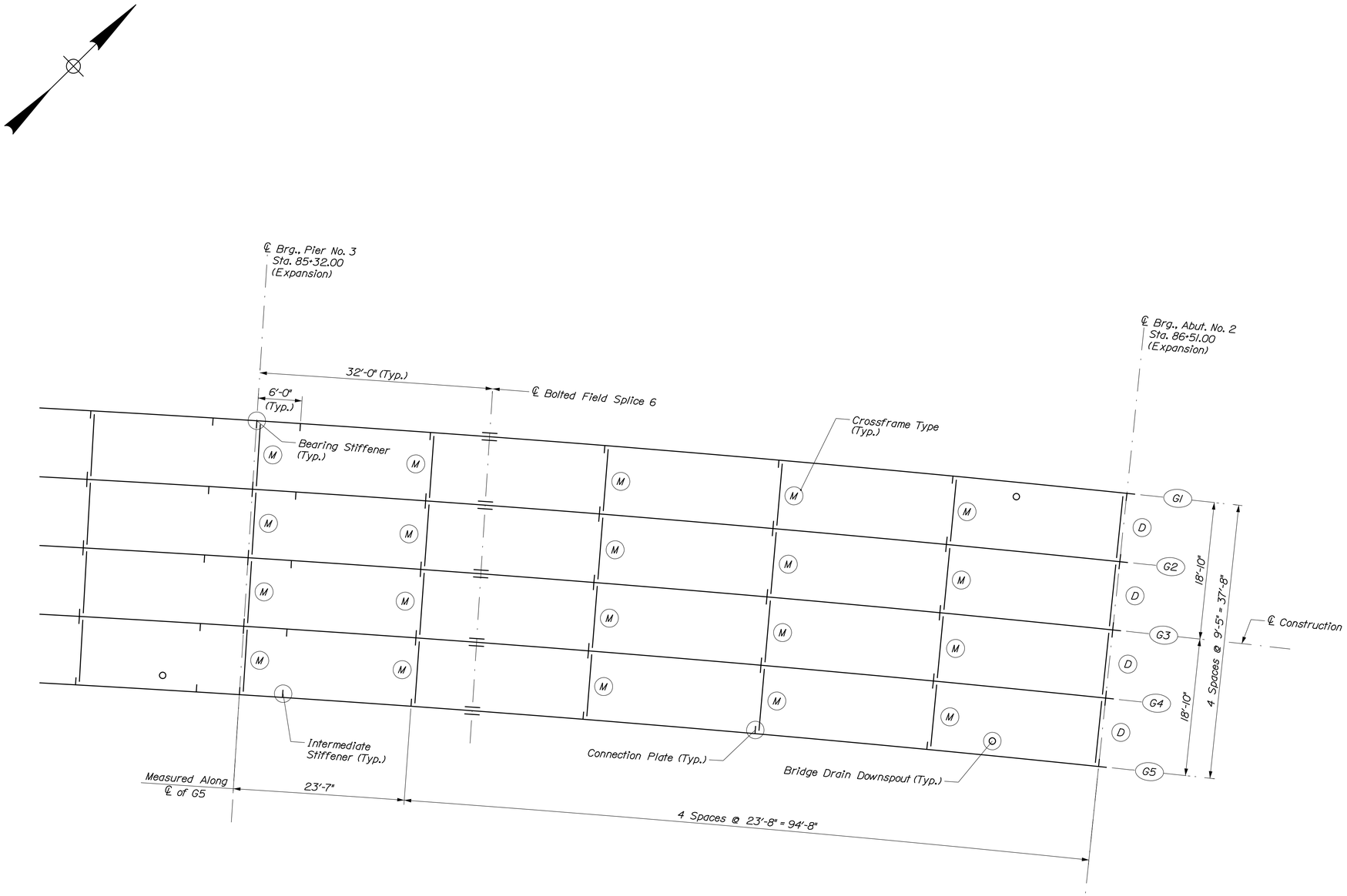
FRAMING PLAN
SPAN NO. 3

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FRAMING PLAN - SPAN NO. 4

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BRIDGE PLANS

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DESIGN-DETAILED	P. Bishop	08\21
CHECKED-REVIEWED	T. Cote	08\21
DESIGN2-DETAILED2	N. Baert	
DESIGN3-DETAILED3	B. Grener	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

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STATION 46 BRIDGE
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WOOLWICH SAGADAHOC COUNTY

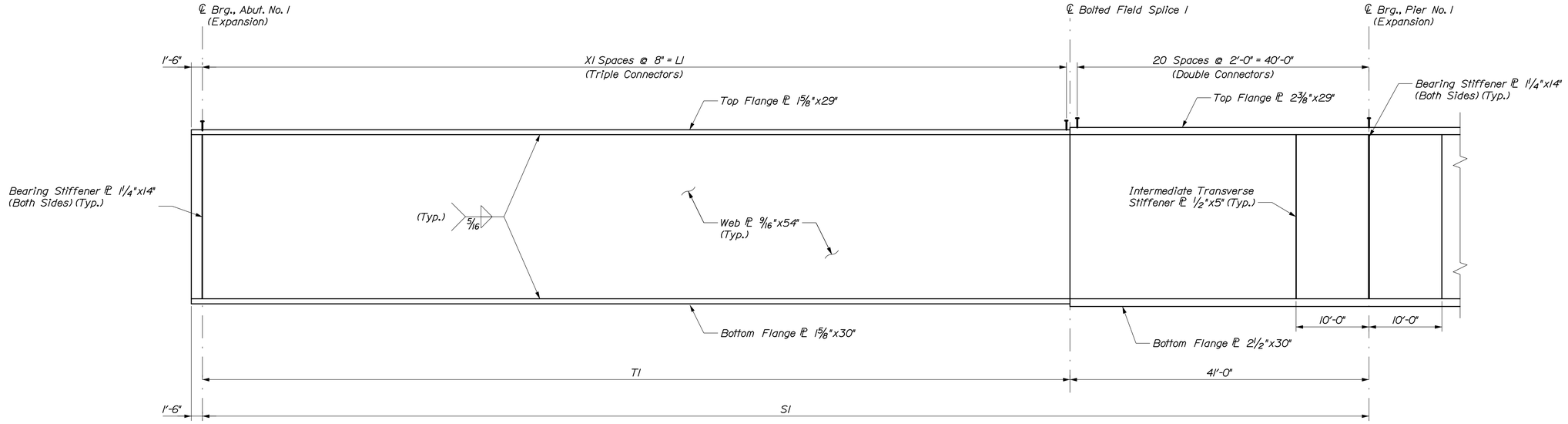
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SPAN NO. 4

SHEET NUMBER

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OF 183

Filename: 144_Framing Plan Span 4.dgn Division: Username: Date:8/25/2021

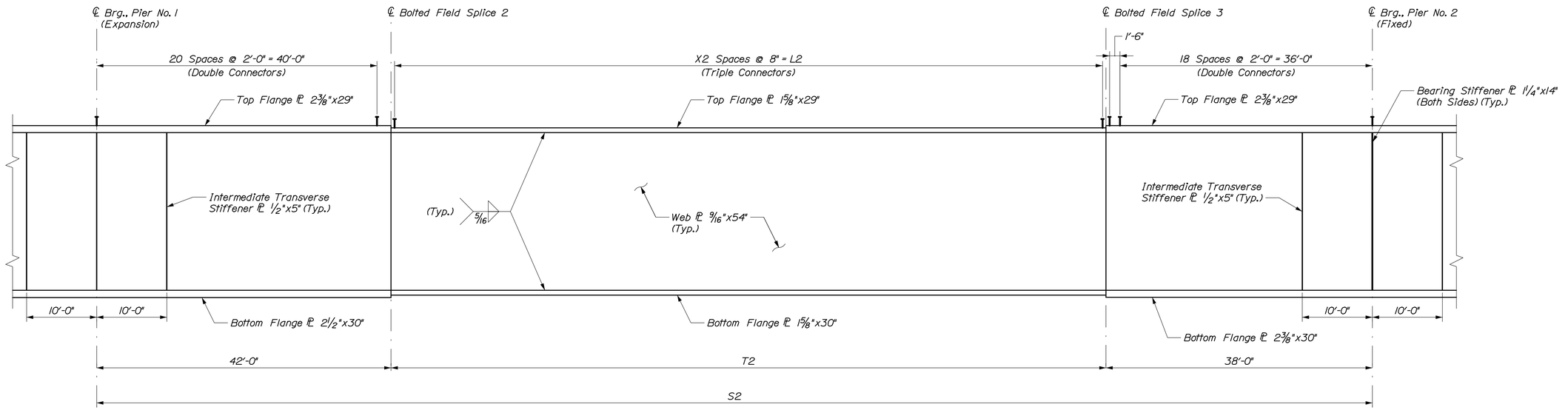


GIRDER ELEVATION - SPAN NO. 1

TABLE OF GIRDER DIMENSIONS									
Girder	S1	S2	S3	S4	T1	T2	T3	T4	RADIUS
G1	161'-0"	183'-1 11/16"	159'-0"	119'-9"	120'-0"	103'-1 11/16"	85'-0"	87'-9"	3018'-10"
G2	160'-6"	182'-6 7/8"	158'-6"	119'-4 1/2"	119'-6"	102'-6 7/8"	84'-6"	87'-4 1/2"	3009'-5"
G3	160'-0"	182'-0"	158'-0"	119'-0"	119'-0"	102'-0"	84'-0"	87'-0"	3000'-0"
G4	159'-6"	181'-5 1/8"	157'-6"	118'-7 1/2"	118'-6"	101'-5 1/8"	83'-6"	86'-7 1/2"	2990'-7"
G5	159'-0"	180'-10 5/16"	157'-0"	118'-3"	118'-0"	100'-10 5/16"	83'-0"	86'-3"	2981'-2"

* Note: Girder dimensions are measured horizontally along the centerline of the respective girder without account for vertical grade.

SHEAR CONNECTOR DIMENSION TABLE									
Girder	X1	L1	X2	L2	X3	L3	X4	L4	Total Qty.
G1	179	119'-4"	154	102'-8"	127	84'-8"	104	86'-8"	1919
G2	179	119'-4"	153	102'-0"	126	84'-0"	103	85'-10"	1910
G3	178	118'-8"	153	102'-0"	126	84'-0"	103	85'-10"	1907
G4	177	118'-0"	152	101'-4"	125	83'-4"	102	85'-0"	1895
G5	177	118'-0"	151	100'-8"	124	82'-8"	102	85'-0"	1889



GIRDER ELEVATION - SPAN NO. 2

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

			DATE
PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	N. Baert	P. Bishop	08\21
CHECKED-REVIEWED	B. Grenier	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

GIRDER ELEVATIONS
SPAN NO. 1 AND 2

SHEET NUMBER

145

OF 183

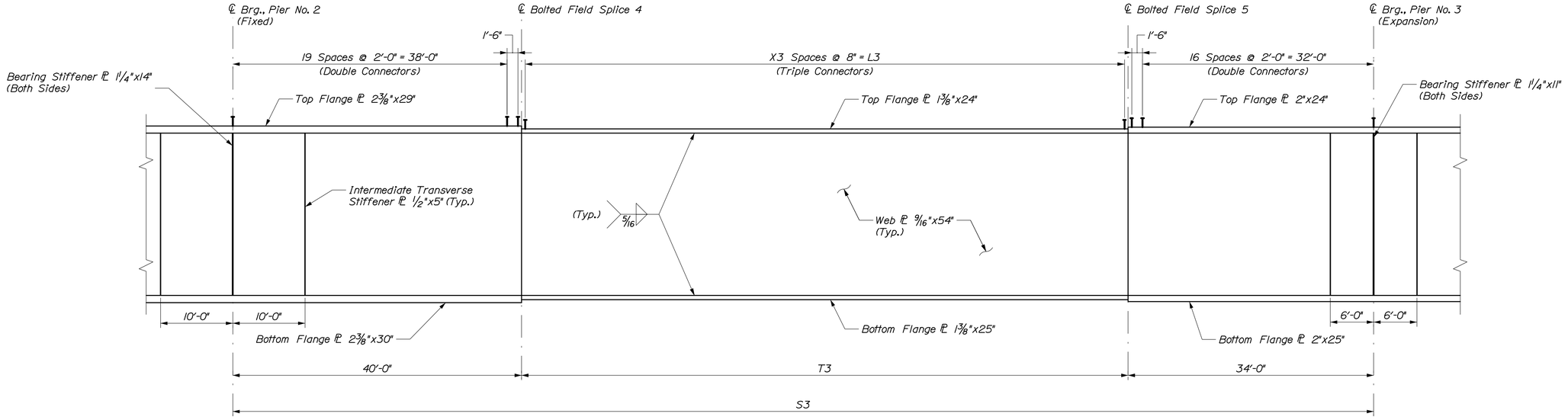
HNTB

Date:8/25/2021

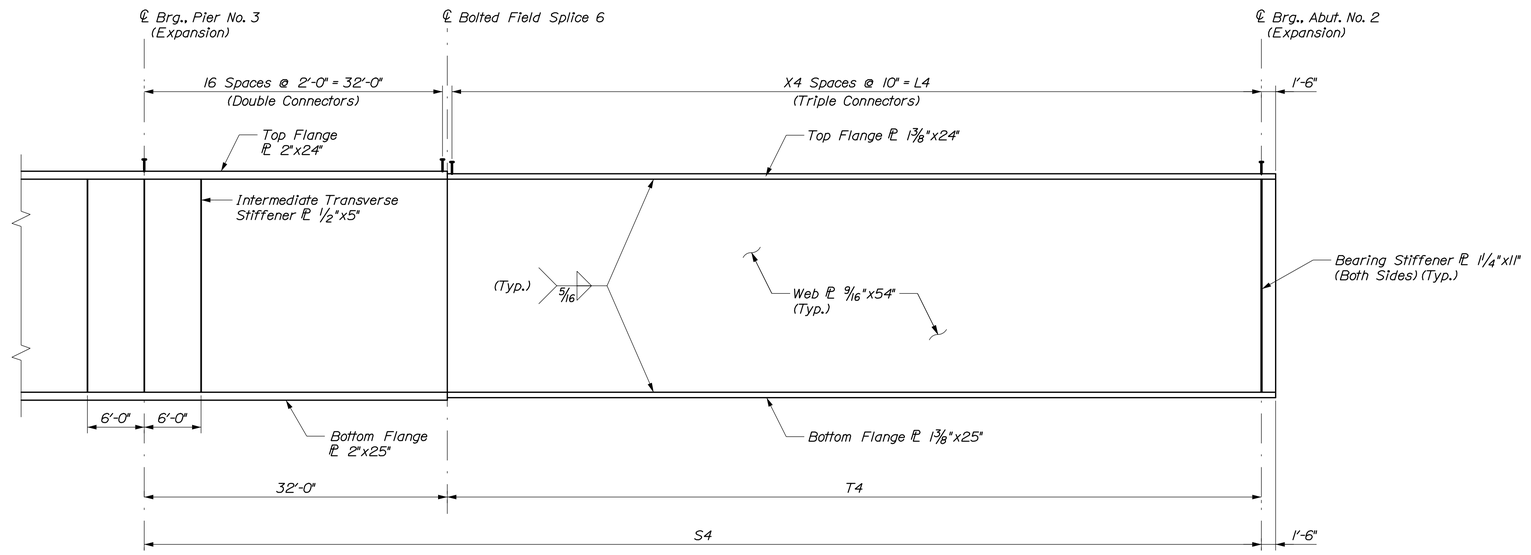
Username:

Division:

Filename: 145_Girder Elevations - Spans 1 and 2.dgn



GIRDER ELEVATION - SPAN NO. 3



GIRDER ELEVATION - SPAN NO. 4

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	N. Baert	P. Bishop	08\21
CHECKED-REVIEWED	B. Grenier	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

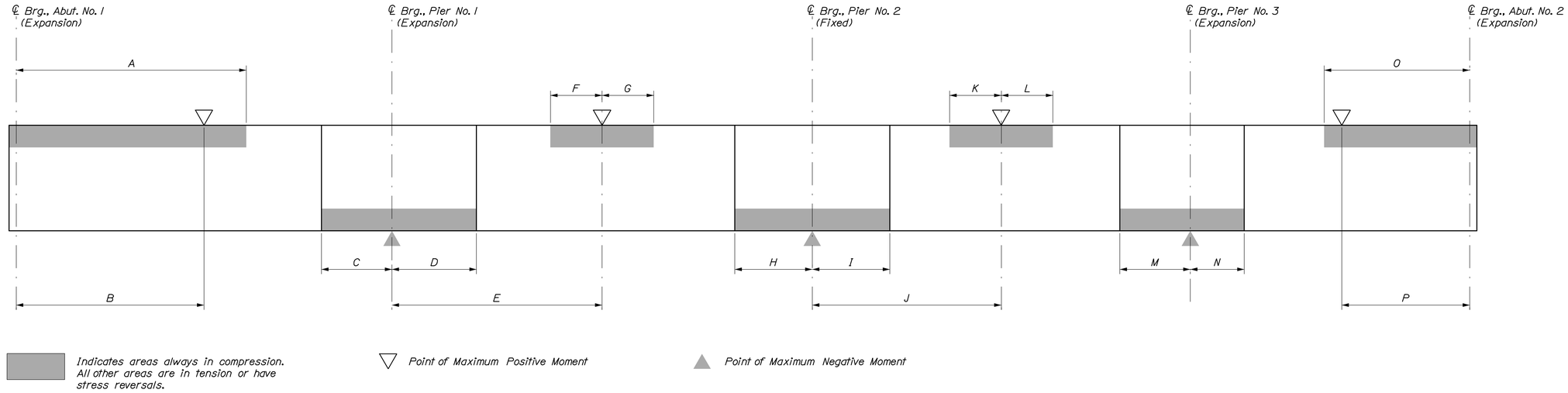
GIRDER ELEVATIONS
SPAN NO. 3 AND 4

SHEET NUMBER

146

OF 183

Filename: 146_Girder Elevations - Spans 3 and 4.dgn Division: Username: Date:8/25/2021



GIRDER STRESS DIAGRAM

STRESS DIAGRAM DIMENSIONS					
Girder	1	2	3	4	5
"A"	94'-3"	95'-5"	96'-7"	95'-2"	93'-5"
"B"	64'-5"	64'-2"	64'-0"	63'-10"	63'-7"
"C"	29'-9"	29'-2"	29'-1"	28'-10"	28'-10"
"D"	31'-11"	31'-7"	31'-8"	31'-2"	30'-8"
"E"	91'-7"	91'-4"	91'-0"	90'-9"	90'-5"
"F"	13'-0"	15'-6"	18'-4"	17'-0"	15'-0"
"G"	28'-3"	28'-3"	28'-0"	27'-4"	26'-7"
"H"	24'-7"	25'-6"	26'-1"	25'-2"	23'-3"
"I"	26'-3"	26'-10"	17'-9"	26'-5"	24'-8"
"J"	79'-6"	79'-3"	79'-0"	78'-9"	78'-6"
"K"	0'-5/8"	1'-8"	1'-9"	1'-9"	0'-8"
"L"	8'-9"	18'-5"	19'-3"	17'-4"	7'-10"
"M"	22'-1"	21'-9"	22'-0"	21'-6"	21'-6"
"N"	20'-1"	20'-0"	20'-0"	19'-10"	19'-8"
"O"	53'-0"	56'-0"	59'-0"	56'-7"	51'-7"
"P"	47'-11"	47'-9"	47'-8"	47'-6"	47'-4"

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

SIGNATURE

P.E. NUMBER

DATE

			DATE
PROJ. MANAGER	D. Eaton, P.E.	BY	
DESIGN-DETAILED	N. Baert	P. Bishop	08\21
CHECKED-REVIEWED	B. Grenier	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

STRUCTURAL STEEL DETAILS I

SHEET NUMBER

147

OF 183

Filename: 147_Structural Steel Details 1.dgn Division: Username: Date:8/25/2021

TABLE OF DEFLECTIONS ~ GIRDER 1 (Inches)

	℄ Abut. 1	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Brg. Pier 1	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Brg. Pier 2
Steel Dead Load	0.00	-0.492	-0.900	-1.188	-1.308	-1.260	-1.068	-0.780	-0.456	-0.168	0.00	-0.096	-0.336	-0.624	-0.852	-0.972	-0.936	-0.756	-0.492	-0.204	0.00
Fluid Dead Load	0.00	-0.996	-1.836	-2.412	-2.664	-2.568	-2.196	-1.596	-0.948	-0.360	0.00	-0.120	-0.516	-1.008	-1.428	-1.644	-1.560	-1.236	-0.756	-0.288	0.00
Superimposed Dead Load	0.00	-0.324	-0.588	-0.768	-0.840	-0.804	-0.684	-0.492	-0.288	-0.108	0.00	-0.036	-0.168	-0.324	-0.480	-0.552	-0.516	-0.408	-0.240	-0.084	0.00

	℄ Brg. Pier 2	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Brg. Pier 3	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Abut. 2
Steel Dead Load	0.00	0.000	-0.096	-0.228	-0.336	-0.396	-0.396	-0.312	-0.180	-0.060	0.00	-0.048	-0.132	-0.240	-0.336	-0.396	-0.420	-0.384	-0.288	-0.156	0.00
Fluid Dead Load	0.00	-0.108	-0.384	-0.720	-1.032	-1.164	-1.104	-0.864	-0.516	-0.180	0.00	-0.096	-0.300	-0.552	-0.780	-0.936	-0.984	-0.900	-0.696	-0.384	0.00
Superimposed Dead Load	0.00	-0.024	-0.120	-0.228	-0.312	-0.360	-0.348	-0.264	-0.156	-0.048	0.00	-0.024	-0.084	-0.156	-0.240	-0.276	-0.288	-0.276	-0.204	-0.120	0.00

TABLE OF DEFLECTIONS ~ GIRDER 2 (Inches)

	℄ Abut. 1	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Brg. Pier 1	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Brg. Pier 2
Steel Dead Load	0.00	-0.480	-0.876	-1.140	-1.272	-1.236	-1.044	-0.768	-0.444	-0.156	0.00	-0.096	-0.348	-0.624	-0.852	-0.960	-0.924	-0.744	-0.480	-0.192	0.00
Fluid Dead Load	0.00	-1.032	-1.908	-2.484	-2.748	-2.664	-2.268	-1.656	-0.972	-0.360	0.00	-0.144	-0.588	-1.116	-1.560	-1.776	-1.692	-1.344	-0.816	-0.300	0.00
Superimposed Dead Load	0.00	-0.312	-0.552	-0.720	-0.804	-0.768	-0.648	-0.480	-0.276	-0.096	0.00	-0.036	-0.156	-0.324	-0.456	-0.516	-0.492	-0.396	-0.240	-0.084	0.00

	℄ Brg. Pier 2	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Brg. Pier 3	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Abut. 2
Steel Dead Load	0.00	-0.012	-0.096	-0.228	-0.348	-0.408	-0.396	-0.312	-0.192	-0.060	0.00	-0.048	-0.132	-0.240	-0.336	-0.396	-0.408	-0.372	-0.288	-0.144	0.00
Fluid Dead Load	0.00	-0.132	-0.444	-0.804	-1.116	-1.272	-1.212	-0.948	-0.576	-0.192	0.00	-0.108	-0.336	-0.600	-0.852	-1.020	-1.068	-0.972	-0.756	-0.420	0.00
Superimposed Dead Load	0.00	-0.024	-0.108	-0.204	-0.312	-0.348	-0.324	-0.252	-0.156	-0.048	0.00	-0.024	-0.084	-0.156	-0.216	-0.264	-0.276	-0.252	-0.192	-0.108	0.00

TABLE OF DEFLECTIONS ~ GIRDER 3 (Inches)

	℄ Abut. 1	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Brg. Pier 1	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Brg. Pier 2
Steel Dead Load	0.00	-0.468	-0.864	-1.128	-1.248	-1.200	-1.020	-0.744	-0.432	-0.156	0.00	-0.096	-0.348	-0.612	-0.852	-0.960	-0.912	-0.732	-0.480	-0.192	0.00
Fluid Dead Load	0.00	-1.044	-1.908	-2.508	-2.760	-2.664	-2.280	-1.668	-0.972	-0.360	0.00	-0.156	-0.612	-1.152	-1.608	-1.812	-1.728	-1.368	-0.828	-0.312	0.00
Superimposed Dead Load	0.00	-0.288	-0.528	-0.708	-0.768	-0.756	-0.636	-0.456	-0.264	-0.084	0.00	-0.036	-0.156	-0.312	-0.444	-0.516	-0.480	-0.384	-0.228	-0.084	0.00

	℄ Brg. Pier 2	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Brg. Pier 3	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Abut. 2
Steel Dead Load	0.00	-0.012	-0.108	-0.228	-0.348	-0.408	-0.396	-0.312	-0.192	-0.060	0.00	-0.048	-0.132	-0.240	-0.324	-0.384	-0.408	-0.372	-0.288	-0.144	0.00
Fluid Dead Load	0.00	-0.132	-0.456	-0.828	-1.152	-1.308	-1.248	-0.972	-0.588	-0.204	0.00	-0.108	-0.336	-0.624	-0.864	-1.056	-1.104	-0.996	-0.768	-0.420	0.00
Superimposed Dead Load	0.00	-0.024	-0.108	-0.204	-0.288	-0.336	-0.324	-0.240	-0.156	-0.048	0.00	-0.024	-0.084	-0.156	-0.204	-0.252	-0.276	-0.240	-0.192	-0.108	0.00

TABLE OF DEFLECTIONS ~ GIRDER 4 (Inches)

	℄ Abut. 1	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Brg. Pier 1	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Brg. Pier 2
Steel Dead Load	-0.456	-0.840	-1.092	-1.092	-1.212	-1.164	-0.984	-0.732	-0.420	-0.144	0.00	-0.096	-0.336	-0.600	-0.828	-0.936	-0.900	-0.720	-0.468	-0.192	0.00
Fluid Dead Load	-0.984	-1.812	-2.388	-2.388	-2.616	-2.532	-2.148	-1.572	-0.924	-0.348	0.00	-0.156	-0.588	-1.104	-1.536	-1.740	-1.656	-1.296	-0.792	-0.300	0.00
Superimposed Dead Load	-0.288	-0.528	-0.684	-0.684	-0.756	-0.732	-0.624	-0.444	-0.252	-0.084	0.00	-0.036	-0.156	-0.312	-0.444	-0.504	-0.480	-0.372	-0.228	-0.084	0.00

	℄ Brg. Pier 2	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Brg. Pier 3	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Abut. 2
Steel Dead Load	0.00	-0.012	-0.096	-0.228	-0.336	-0.396	-0.384	-0.312	-0.192	-0.060	0.00	-0.048	-0.132	-0.240	-0.324	-0.384	-0.396	-0.360	-0.276	-0.144	0.00
Fluid Dead Load	0.00	-0.120	-0.432	-0.792	-1.092	-1.248	-1.188	-0.924	-0.564	-0.192	0.00	-0.108	-0.324	-0.588	-0.816	-0.984	-1.044	-0.948	-0.732	-0.408	0.00
Superimposed Dead Load	0.00	-0.024	-0.108	-0.204	-0.288	-0.324	-0.312	-0.240	-0.144	-0.048	0.00	-0.024	-0.072	-0.144	-0.204	-0.252	-0.276	-0.240	-0.192	-0.108	0.00

TABLE OF DEFLECTIONS ~ GIRDER 5 (Inches)

	℄ Abut. 1	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Brg. Pier 1	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Brg. Pier 2
Steel Dead Load	0.00	-0.432	-0.792	-1.044	-1.140	-1.104	-0.948	-0.684	-0.408	-0.144	0.00	-0.096	-0.324	-0.588	-0.792	-0.900	-0.864	-0.696	-0.456	-0.180	0.00
Fluid Dead Load	0.00	-0.876	-1.608	-2.112	-2.328	-2.256	-1.920	-1.404	-0.828	-0.312	0.00	-0.132	-0.516	-0.972	-1.356	-1.536	-1.464	-1.152	-0.708	-0.264	0.00
Superimposed Dead Load	0.00	-0.276	-0.516	-0.672	-0.744	-0.720	-0.600	-0.444	-0.252	-0.084	0.00	-0.036	-0.156	-0.312	-0.444	-0.504	-0.480	-0.372	-0.228	-0.084	0.00

	℄ Brg. Pier 2	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Brg. Pier 3	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Abut. 2
Steel Dead Load	0.00	-0.012	-0.096	-0.228	-0.336	-0.384	-0.384	-0.300	-0.180	-0.060	0.00	-0.036	-0.120	-0.216	-0.312	-0.360	-0.372	-0.348	-0.252	-0.132	0.00
Fluid Dead Load	0.00	-0.108	-0.372	-0.684	-0.960	-1.092	-1.044	-0.816	-0.492	-0.168	0.00	-0.096	-0.276	-0.504	-0.708	-0.852	-0.900	-0.816	-0.636	-0.348	0.00
Superimposed Dead Load	0.00	-0.024	-0.108	-0.204	-0.288	-0.336	-0.324	-0.240	-0.156	-0.048	0.00	-0.024	-0.072	-0.144	-0.204	-0.252	-0.276	-0.240	-0.192	-0.108	0.00

BOTTOM OF SLAB ELEVATIONS

GIRDER	℄ Brg. Abut. 1	0.10 x L	0.20 x L	0.30 x L	0.40 x L	0.50 x L	0.60 x L	0.70 x L	0.80 x L	0.90 x L	℄ Brg. Pier 1	0.10 x L	0.20 x L	0.30 x L	0.40 x L	0.50 x L	0.60 x L	0.70 x L	0.80 x L	0.90 x L	℄ Brg. Pier 2
G1	42.55	42.05	41.53	40.98	40.38	39.73	39.04	38.32	37.58	36.83	36.10	35.30	34.51	33.73	32.93	32.12	31.27	30.40	29.51	28.63	27.76
G2	42.61	42.12	41.61	41.06	40.46	39.82	39.12	38.40	37.65	36.89	36.15	35.36	34.58	33.80	33.01	32.20	31.35	30.475	29.58	28.69	27.82
G3	42.32	41.84	41.33	40.78	40.18	39.53	38.84	38.11	37.36	36.61	35.87	35.08	34.30	33.52	32.73	31.92	31.07	30.193	29.30	28.41	27.54
G4	42.04	41.55	41.04	40.48	39.88	39.24	38.55	37.82	37.08	36.33	35.59	34.79	34.01	33.23	32.44	31.63	30.78	29.904	29.01	28.12	27.25
G5	41.76	41.26	40.74	40.18	39.58	38.93	38.24	37.52	36.78	36.04	35.31	34.51	33.72	32.94	32.14	31.33	30.48	29.609	28.72	27.84	26.97

BOTTOM OF SLAB ELEVATIONS

GIRDER	℄ Brg. Pier 2	0.10 x L	0.20 x L	0.30 x L	0.40 x L	0.50 x L	0.60 x L	0.70 x L	0.80 x L	0.90 x L	℄ Brg. Pier 3	0.10 x L	0.20 x L	0.30 x L	0.40 x L	0.50 x L	0.60 x L	0.70 x L	0.80 x L	0.90 x L	℄ Brg. Abut. 2
G1	27.76	27.05	26.35	25.66	24.96	24.25	23.51	22.76	22.00	21.24	20.50	19.96	19.43	18.91	18.38	17.85	17.31	16.75	16.18	15.61	15.02
G2	27.82	27.11	26.41	25.72	25.03	24.32	23.59	22.83	22.07	21.30	20.55	20.01	19.49	18.97	18.45	17.92	17.38	16.82	16.25	15.67	15.08
G3	27.54	26.82	26.13	25.44	24.75	24.04	23.31	22.55	21.78	21.02	20.27	19.73	19.21	18.69	18.17	17.64	17.10	16.54	15.97	15.39	14.79
G4	27.25	26.54	25.85	25.16	24.46	23.75	23.02	22.26	21.50	20.73	19.99	19.45	18.92	18.40	17.88	17.35	16.81	16.25	15.68	15.10	14.51
G5	26.97	26.26	25.56	24.86	24.17	23.46	22.72	21.97	21.21	20.45	19.70	19.17	18.64	18.12	17.59	17.06	16.52	15.96	15.39	14.81	14.23

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE PLANS

BRIDGE NO.3039

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	N. Baert	08\21
CHECKED-REVIEWED	B. Greiner	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

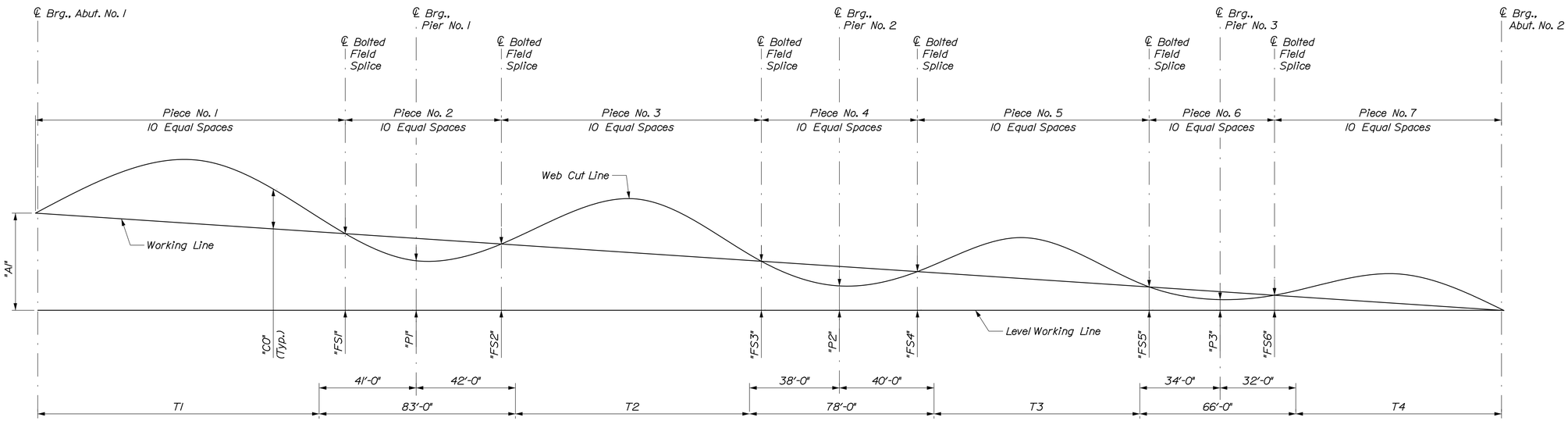
STRUCTURAL STEEL DETAILS II

SHEET NUMBER

148

OF 183

Filename: 148_Structural Steel Details 2.dgn Division: Username: Date:8/25/2021



CAMBER DIAGRAM

TABLE OF CAMBER DIMENSIONS (Inches)											
GIRDER	"A1"	"FS1"	"P1"	"FS2"	"FS3"	"P2"	"FS4"	"FS5"	"P3"	"FS6"	GIRDER
G1	27.531	23.029	21.078	19.283	14.612	12.739	10.973	7.112	5.474	4.065	G1
G2	27.531	23.028	21.078	19.285	14.612	12.739	10.975	7.113	5.474	4.066	G2
G3	27.531	23.022	21.078	19.284	14.610	12.739	10.975	7.113	5.474	4.065	G3
G4	27.531	23.016	21.078	19.283	14.608	12.739	10.974	7.112	5.474	4.064	G4
G5	27.531	23.009	21.078	19.281	14.604	12.739	10.972	7.110	5.474	4.061	G5

TABLE OF CAMBER ORDINATES "CO" (Inches)																				
GIRDER	℄ Brg. Abut. 1	0.10 x L	0.20 x L	0.30 x L	0.40 x L	0.50 x L	0.60 x L	0.70 x L	0.80 x L	0.90 x L	FS1	0.10 x L	0.20 x L	0.30 x L	0.40 x L	0.50 x L	0.60 x L	0.70 x L	0.80 x L	0.90 x L	FS2
G1	0.000	1.281	2.438	3.383	4.014	4.174	3.980	3.443	2.557	1.358	0.000	-0.298	-0.576	-0.889	-1.035	-1.194	-1.016	-0.879	-0.606	-0.310	0.000
G2	0.000	1.272	2.421	3.359	3.987	4.146	3.954	3.421	2.543	1.351	0.000	-0.297	-0.577	-0.891	-1.037	-1.197	-1.018	-0.879	-0.606	-0.309	0.000
G3	0.000	1.243	2.366	3.283	3.896	4.053	3.865	3.346	2.487	1.322	0.000	-0.287	-0.558	-0.863	-1.006	-1.163	-0.987	-0.851	-0.585	-0.298	0.000
G4	0.000	1.209	2.302	3.194	3.791	3.944	3.763	3.258	2.423	1.289	0.000	-0.274	-0.533	-0.827	-0.964	-1.116	-0.945	-0.815	-0.559	-0.284	0.000
G5	0.000	1.169	2.228	3.093	3.670	3.819	3.645	3.157	2.349	1.251	0.000	-0.258	-0.504	-0.785	-0.917	-1.064	-0.899	-0.774	-0.529	-0.268	0.000

TABLE OF CAMBER ORDINATES "CO" (Inches)																				
GIRDER	FS2	0.10 x L	0.20 x L	0.30 x L	0.40 x L	0.50 x L	0.60 x L	0.70 x L	0.80 x L	0.90 x L	FS3	0.10 x L	0.20 x L	0.30 x L	0.40 x L	0.50 x L	0.60 x L	0.70 x L	0.80 x L	0.90 x L	FS4
G1	0.000	0.504	0.917	1.303	1.477	1.595	1.500	1.301	0.955	0.507	0.000	-0.307	-0.614	-0.856	-1.022	-1.150	-1.023	-0.881	-0.605	-0.325	0.000
G2	0.000	0.507	0.921	1.307	1.480	1.598	1.502	1.302	0.955	0.508	0.000	-0.311	-0.622	-0.867	-1.035	-1.165	-1.035	-0.891	-0.611	-0.328	0.000
G3	0.000	0.500	0.908	1.287	1.456	1.571	1.476	1.280	0.939	0.499	0.000	-0.308	-0.615	-0.857	-1.023	-1.152	-1.023	-0.879	-0.603	-0.323	0.000
G4	0.000	0.490	0.888	1.259	1.424	1.534	1.441	1.249	0.916	0.486	0.000	-0.301	-0.602	-0.839	-1.002	-1.127	-1.001	-0.860	-0.590	-0.316	0.000
G5	0.000	0.476	0.862	1.221	1.379	1.485	1.394	1.208	0.885	0.470	0.000	-0.293	-0.585	-0.816	-0.975	-1.098	-0.974	-0.836	-0.573	-0.307	0.000

TABLE OF CAMBER ORDINATES "CO" (Inches)																				
GIRDER	FS4	0.10 x L	0.20 x L	0.30 x L	0.40 x L	0.50 x L	0.60 x L	0.70 x L	0.80 x L	0.90 x L	FS5	0.10 x L	0.20 x L	0.30 x L	0.40 x L	0.50 x L	0.60 x L	0.70 x L	0.80 x L	0.90 x L	FS6
G1	0.000	0.276	0.513	0.723	0.842	0.902	0.857	0.739	0.543	0.290	0.000	-0.210	-0.418	-0.600	-0.702	-0.804	-0.734	-0.628	-0.434	-0.231	0.000
G2	0.000	0.282	0.524	0.737	0.858	0.919	0.872	0.753	0.553	0.296	0.000	-0.214	-0.426	-0.612	-0.716	-0.820	-0.748	-0.640	-0.442	-0.236	0.000
G3	0.000	0.279	0.519	0.730	0.849	0.909	0.863	0.745	0.547	0.293	0.000	-0.211	-0.421	-0.605	-0.708	-0.812	-0.740	-0.633	-0.438	-0.233	0.000
G4	0.000	0.274	0.509	0.716	0.832	0.891	0.845	0.729	0.536	0.287	0.000	-0.207	-0.412	-0.591	-0.692	-0.793	-0.723	-0.619	-0.428	-0.228	0.000
G5	0.000	0.266	0.493	0.693	0.806	0.863	0.819	0.707	0.519	0.278	0.000	-0.200	-0.398	-0.573	-0.672	-0.771	-0.702	-0.601	-0.415	-0.221	0.000

TABLE OF CAMBER ORDINATES "CO" (Inches)											
GIRDER	FS6	0.10 x L	0.20 x L	0.30 x L	0.40 x L	0.50 x L	0.60 x L	0.70 x L	0.80 x L	0.90 x L	℄ Brg. Abut. 2
G1	0.000	0.349	0.669	0.921	1.067	1.123	1.087	0.921	0.668	0.357	0.000
G2	0.000	0.354	0.678	0.935	1.082	1.139	1.102	0.934	0.678	0.362	0.000
G3	0.000	0.349	0.669	0.922	1.068	1.124	1.087	0.921	0.669	0.358	0.000
G4	0.000	0.340	0.652	0.898	1.040	1.094	1.059	0.897	0.651	0.348	0.000
G5	0.000	0.327	0.627	0.864	1.001	1.053	1.019	0.864	0.627	0.335	0.000

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	N. Ebert	08\21	
CHECKED-REVIEWED	B. Grehler	08\21	
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

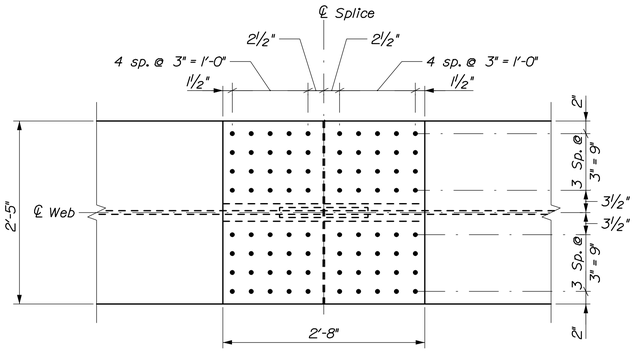
STRUCTURAL STEEL DETAILS III

SHEET NUMBER

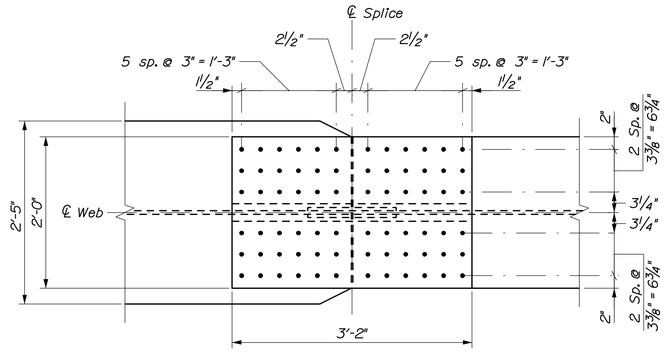
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OF 183

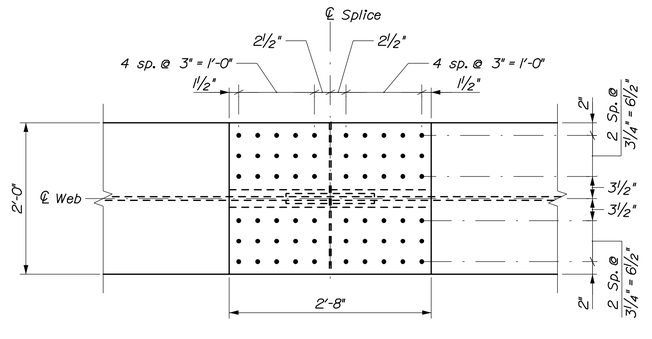
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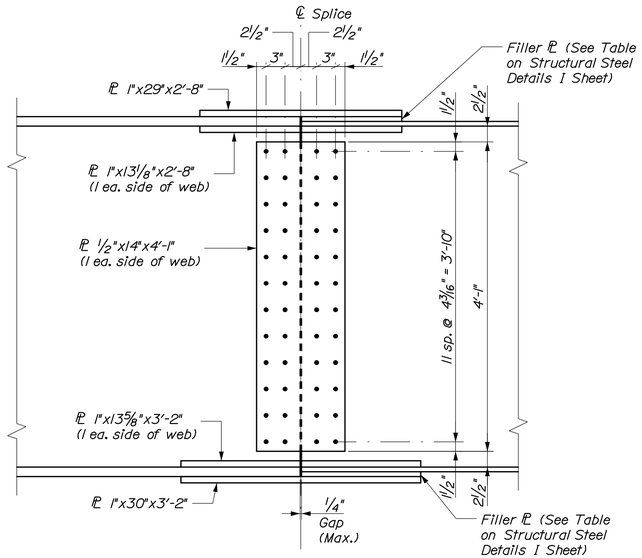
PLAN - TOP FLANGE



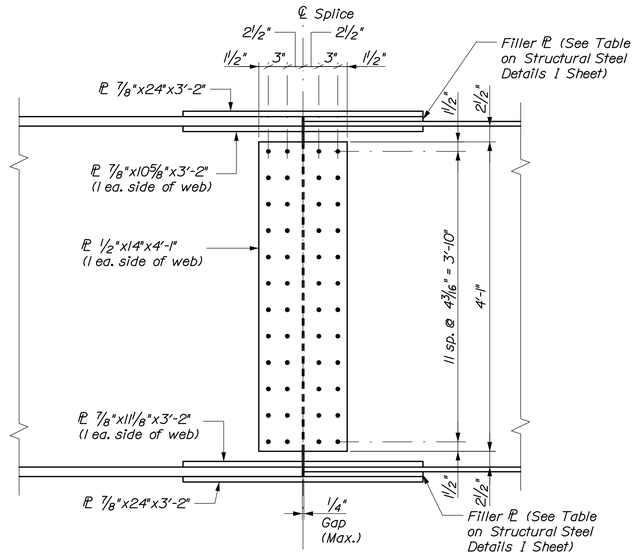
PLAN - TOP FLANGE



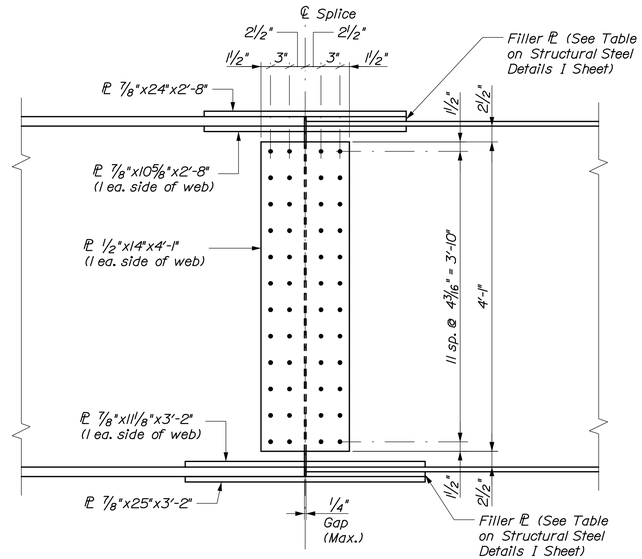
PLAN - TOP FLANGE



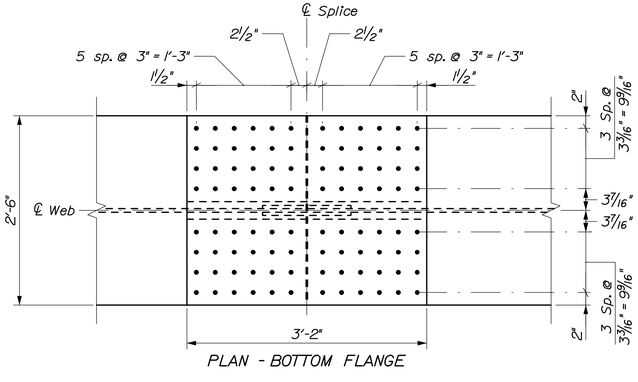
ELEVATION



ELEVATION



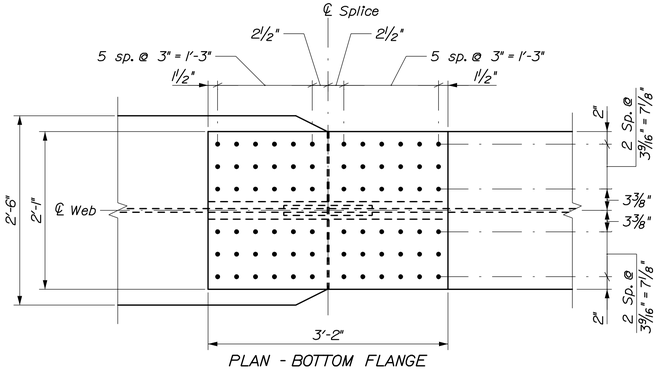
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PLAN - BOTTOM FLANGE

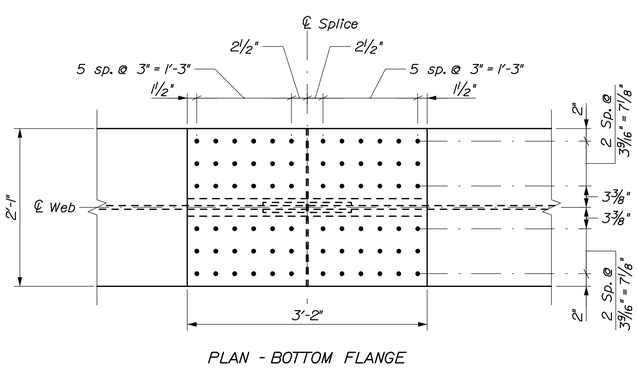
BOLTED FIELD SPLICE (FS1 - FS3)

(Field Splice 1 Shown, Field Splice 3 Similar, Field Splice 2 Similar, Opposite Hand)



PLAN - BOTTOM FLANGE

BOLTED FIELD SPLICE (FS4)



PLAN - BOTTOM FLANGE

BOLTED FIELD SPLICE (FS5 - FS6)

(Field Splice 6 Shown, Field Splice 5 Similar, Opposite Hand)

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

			DATE
PROJ. MANAGER	D. Eaton, P.E.	BY	
DESIGN-DETAILED	N. Baert	P. Bishop	08\21
CHECKED-REVIEWED	B. Grenier	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

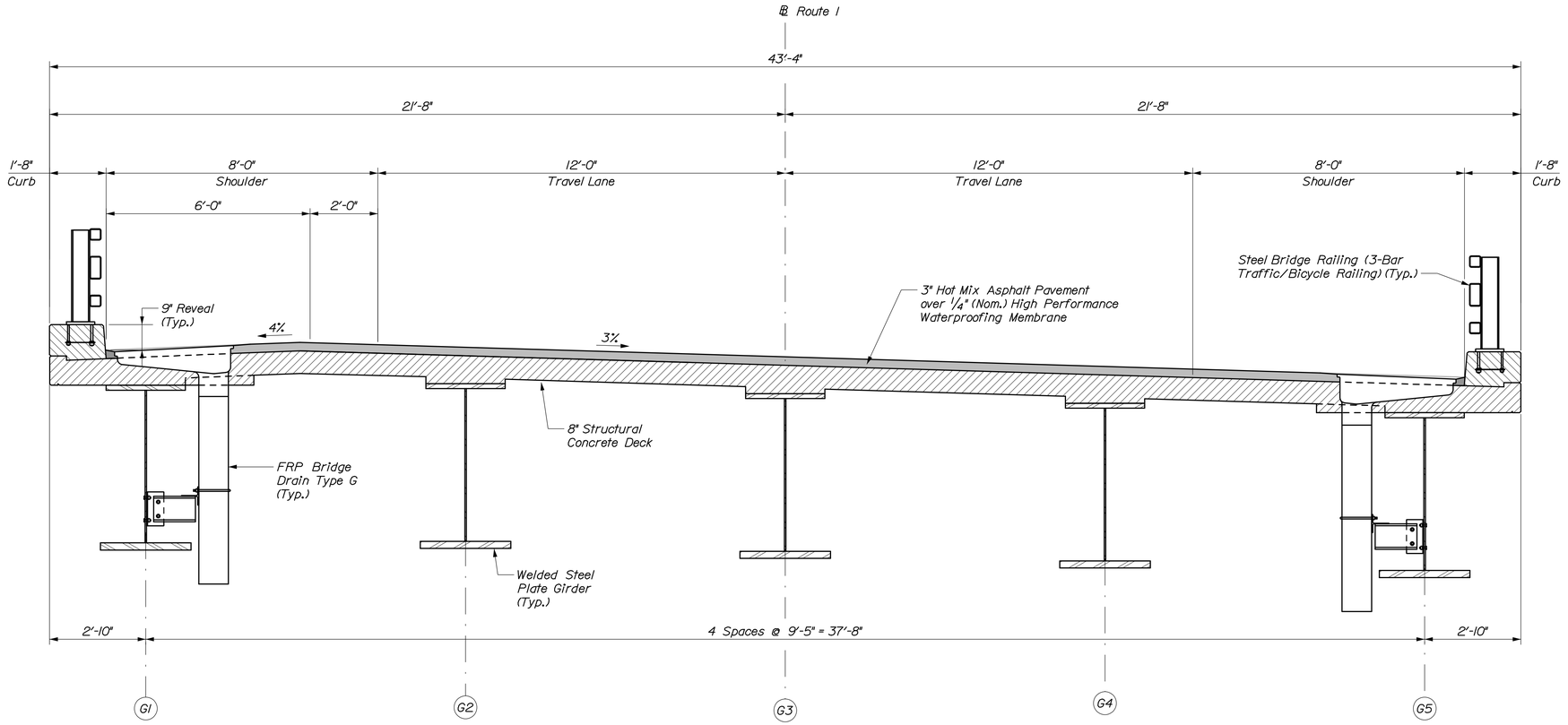
STRUCTURAL STEEL DETAILS IV

SHEET NUMBER

150

OF 183

Filename: 150_Structural Steel Details 4.dgn Division: Username: Date:8/25/2021



TRANSVERSE SECTION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	N. Baert	P. Bishop	08\21
CHECKED-REVIEWED	B. Grenier	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

TRANSVERSE SECTION

SHEET NUMBER

151

OF 183

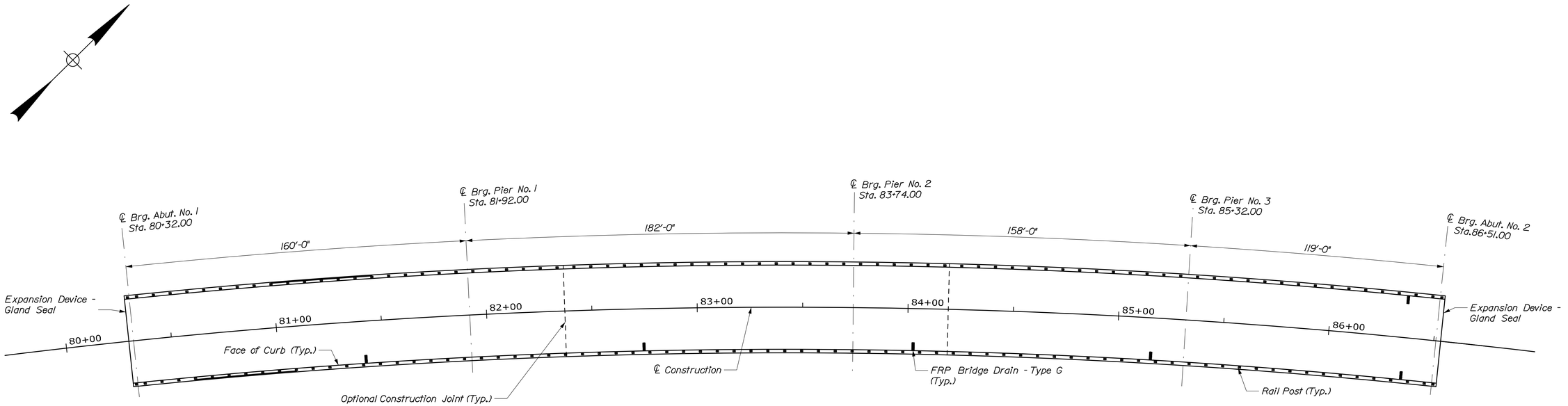
HNTB

Username:

Division:

Date:8/25/2021

Filename: 151_Transverse Section.dgn



SUPERSTRUCTURE PLAN

SUPERSTRUCTURE NOTES:

1. Form a one inch V-groove on the fascias at the horizontal joint between the curb and slab.

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

3. Transverse reinforcing shall be placed radially along the fascia at the spacing shown in the superstructure reinforcing plans.

4. Adjust reinforcing steel to fit around the bridge drains in a manner approved by the Resident. Do not cut transverse reinforcing bars.

5. Unless the superstructure slab concrete is placed in one continuous operation, the initial placement shall start at a simply supported end of the deck slab and shall terminate at the completion of a positive moment section. Successive placements shall proceed from the end of the previous placement, terminate at the completion of a positive moment section, and include two or more spans. 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.

6. The expansion device seals to be furnished shall have minimum Movement Ratings as follows:

   Abutment No. 1 = 4"
   Abutment No. 2 = 3¼"

7. Expansion device opening shall be set to 2½ inch(es) at 45 degrees and adjusted for temperature in the field at the time of installation in accordance with MaineDOT Standard Detail 520(08).

8. The theoretical blocking used for design of the structure is 4⅜ inch(es) at the centerline of bearings of the abutments and piers. Refer to Standard Detail 502(03) for blocking details.

9. The use of Precast Concrete Deck Panels will not be allowed on this project.

10. The Expansion Dam sliding plate shall be fabricated to allow for ⅛" transverse movement due to curvature of the bridge.

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	N. Boert	P. Bishop	08\21
CHECKED-REVIEWED	B. Grenier	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

SUPERSTRUCTURE PLAN

SHEET NUMBER

152

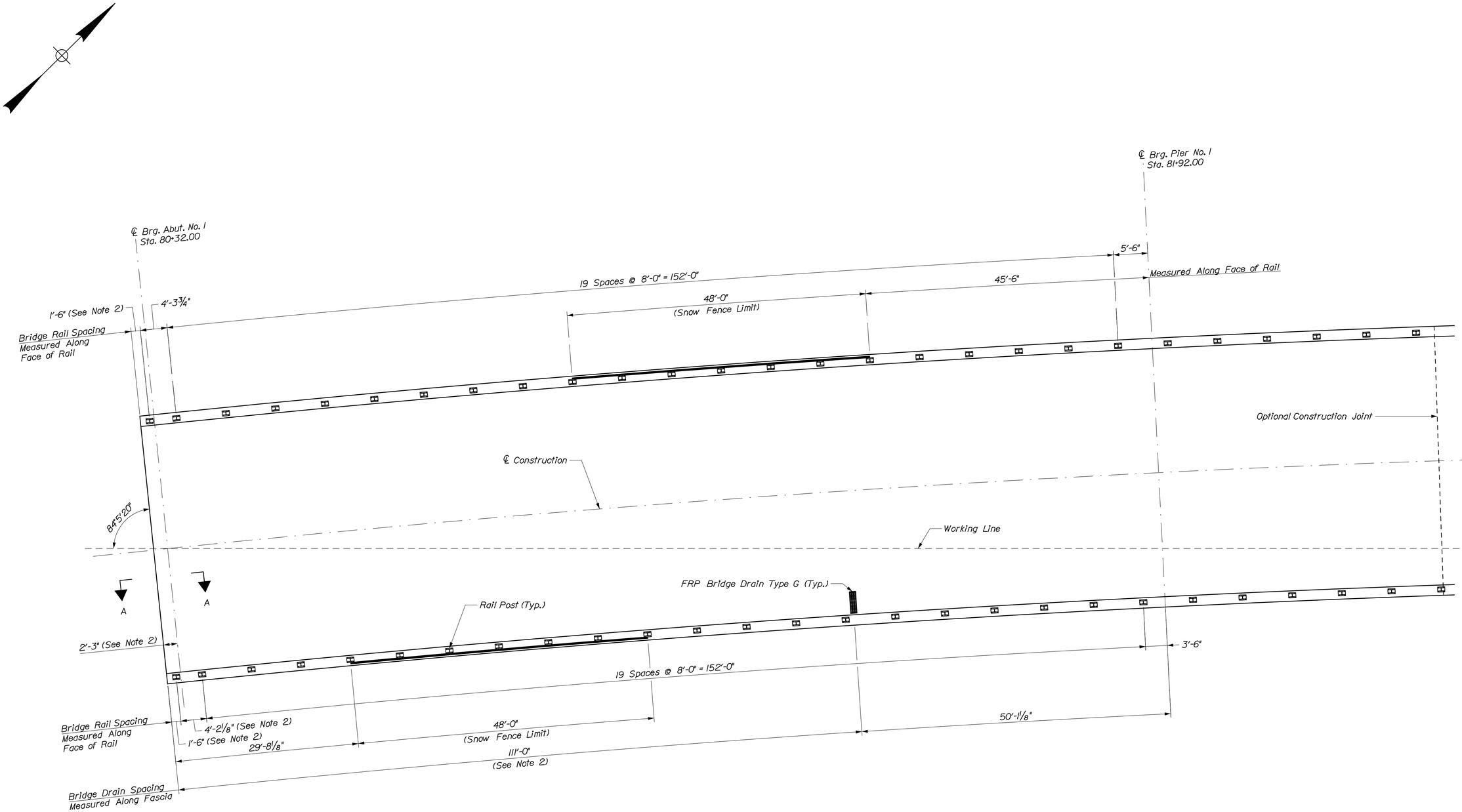
OF 183

Username:

Division:

Filename: 152_Superstructure Plan.dgn

Date:8/25/2021



NOTES:

1. For Section A-A, see Sheet 158.

2. Length of slab and section is measured at 45° F. Dimension shall be adjusted for temperature in the field at the time of installation in accordance with MaineDOT Standard Detail 520(08).

SUPERSTRUCTURE SLAB PLAN - SPAN NO. 1

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	N. Boert	08\21
CHECKED-REVIEWED	B. Grenier	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

SUPERSTRUCTURE PLAN
SPAN NO. 1

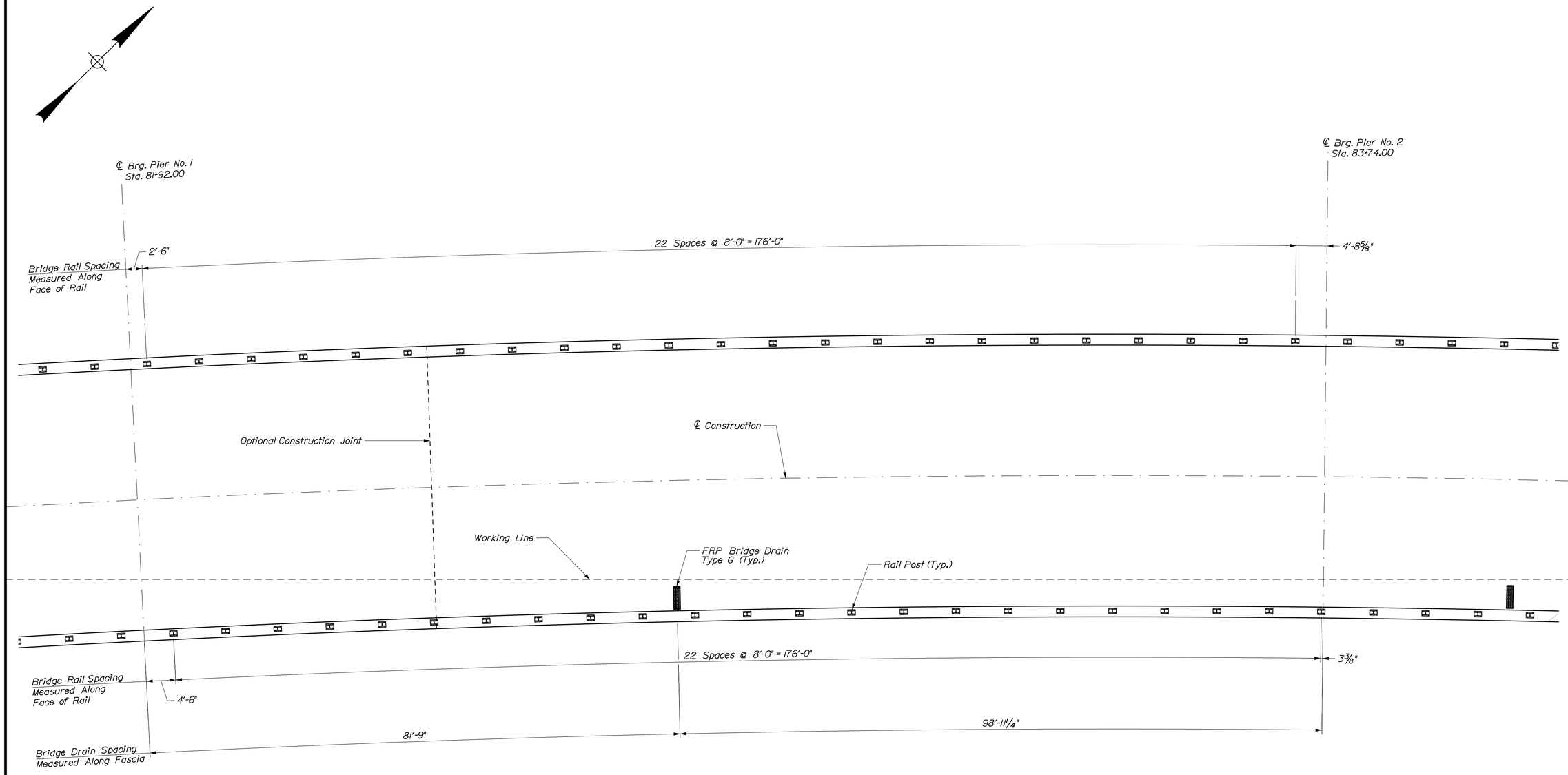
SHEET NUMBER

153

OF 183

HNTB

Filename: 153_Superstructure Plan Span 1.dgn Division: Username: Date:8/25/2021



SUPERSTRUCTURE SLAB PLAN - SPAN NO. 2

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

SIGNATURE

P.E. NUMBER

DATE

			DATE
PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	N. Boert	P. Bishop	08\21
CHECKED-REVIEWED	B. Greiner	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

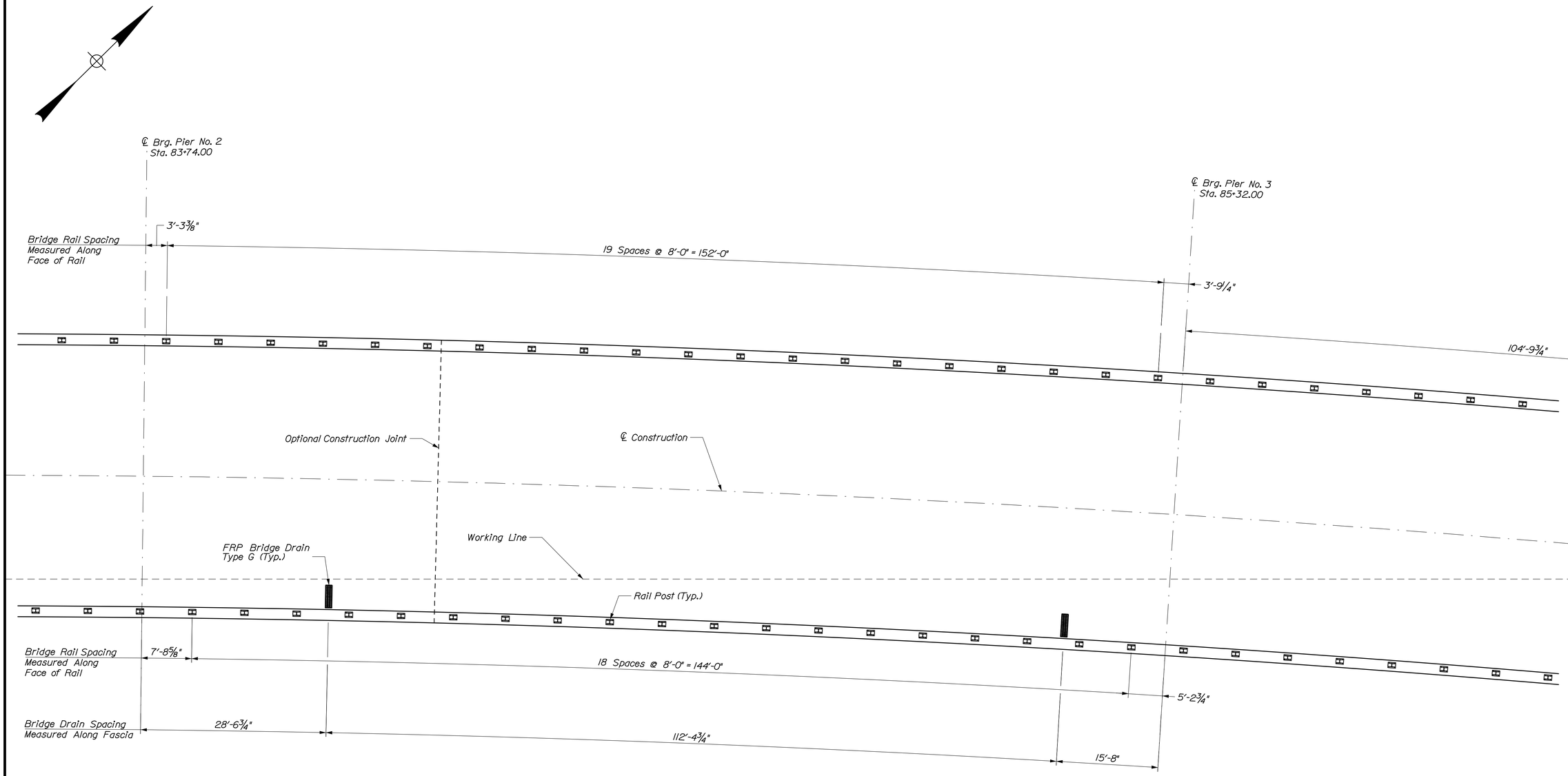
SUPERSTRUCTURE PLAN
SPAN NO. 2

SHEET NUMBER

154

OF 183

Filename: 154_Superstructure Plan Span 2.dgn Division: Username: Date:8/25/2021



SUPERSTRUCTURE SLAB PLAN - SPAN NO. 3

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

			DATE
PROJ. MANAGER	D. Eaton, P.E.	BY	
DESIGN-DETAILED	N. Baert	P. Bishop	08\21
CHECKED-REVIEWED	B. Grenier	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
SAGADAHOC COUNTY
WOOLWICH

SUPERSTRUCTURE PLAN
SPAN NO. 3

SHEET NUMBER

155

OF 183

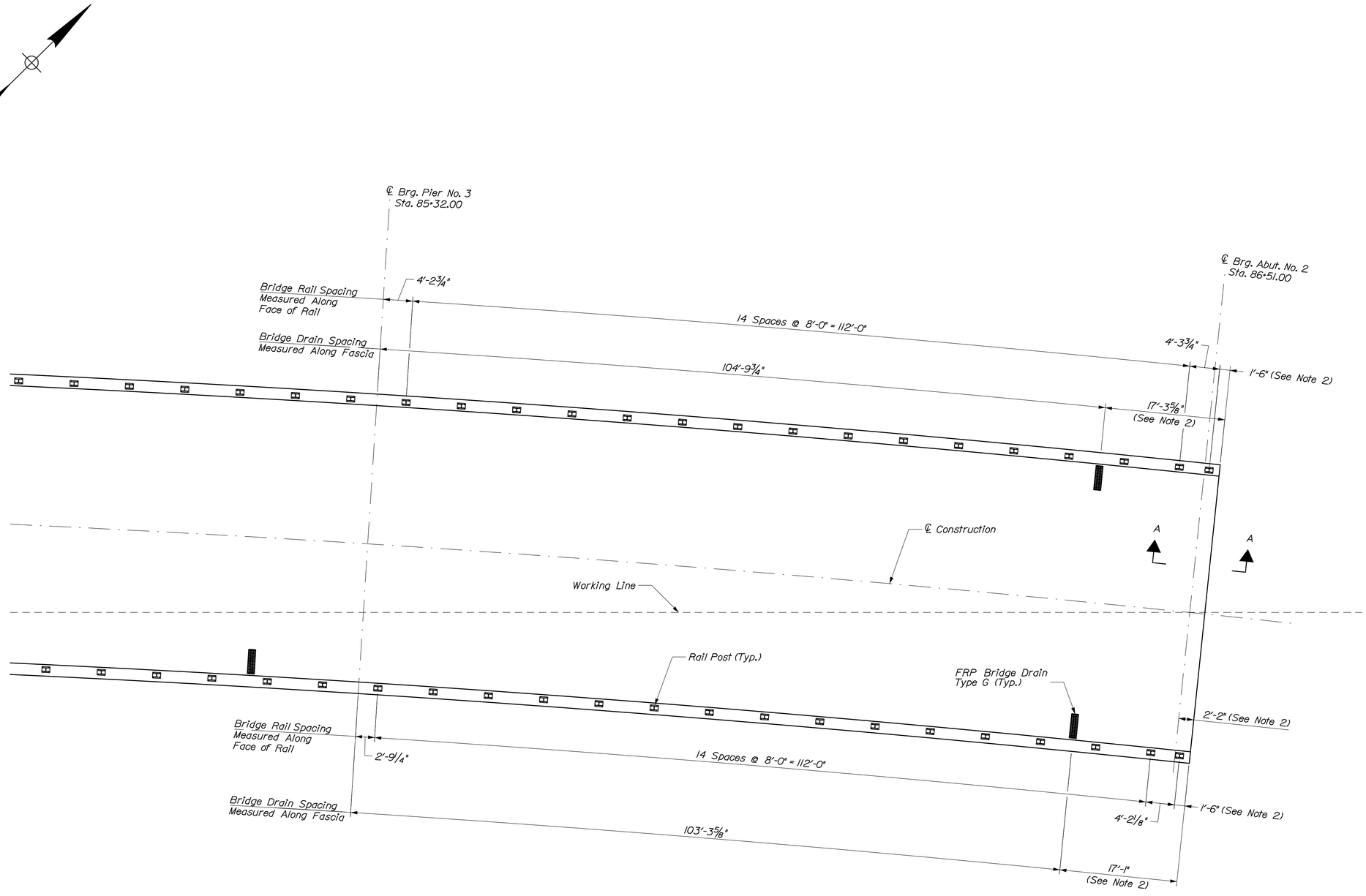
HNTB

Username:

Division:

Date:8/25/2021

Filename: 155_Superstructure Plan Span 3.dgn



SUPERSTRUCTURE SLAB PLAN - SPAN NO. 4

NOTES:

1. For Section A-A, see Sheet 158.

2. Length of slab and section is measured at 45° F. Dimension shall be adjusted for temperature in the field at the time of installation in accordance with MaineDOT Standard Detail 520(08).

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	N. Baert	P. Bishop	08\21
CHECKED-REVIEWED	B. Grenier	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

SUPERSTRUCTURE PLAN
SPAN NO. 4

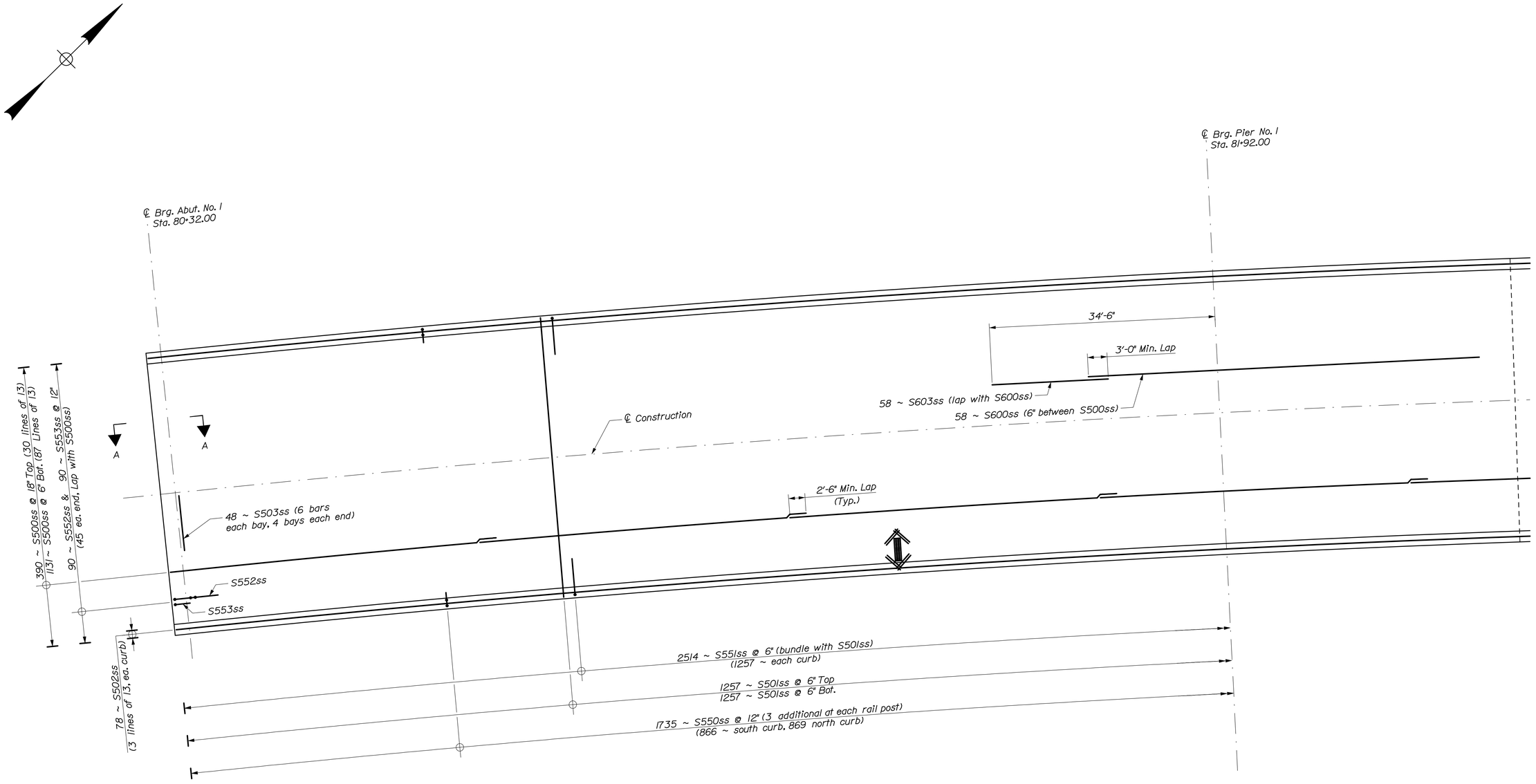
SHEET NUMBER

156

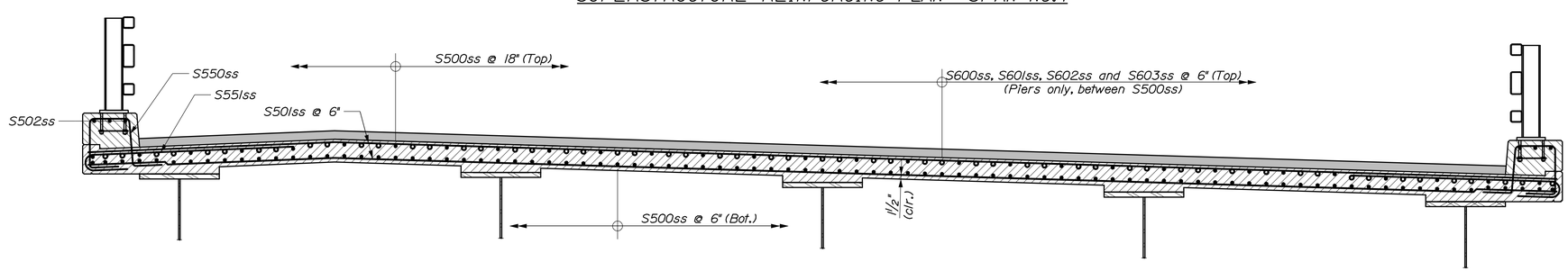
OF 183

HNTB

Filename: 156_Superstructure Plan Span 4.dgn Division: Username: Date:8/25/2021



SUPERSTRUCTURE REINFORCING PLAN - SPAN NO. 1



TRANSVERSE REINFORCING SECTION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Elston, P.E.	BY	DATE
DESIGN-DETAILED	N. Baert	P. Bishop	08\21
CHECKED-REVIEWED	B. Grenier	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

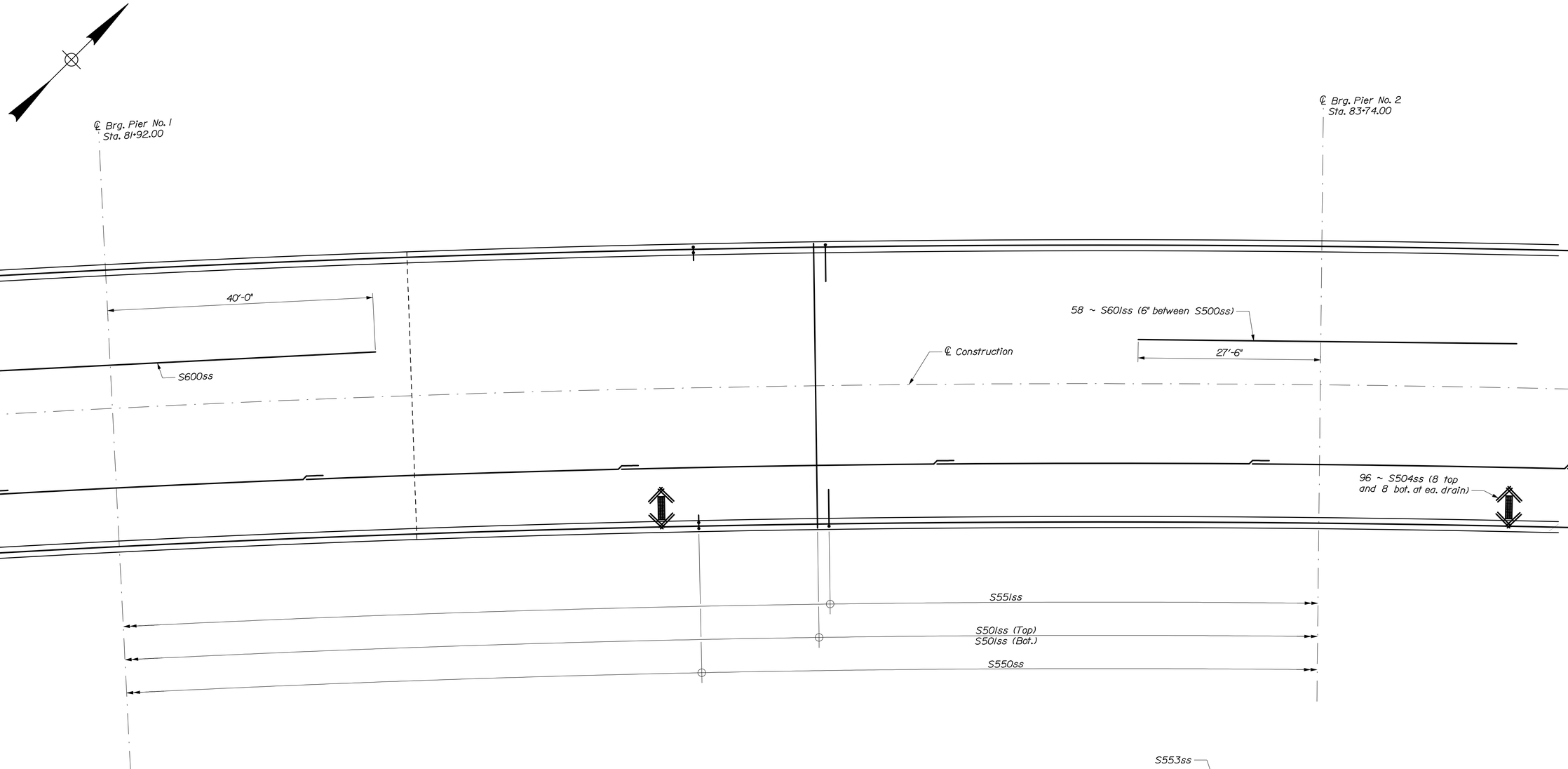
SUPERSTRUCTURE REINFORCING SPAN NO. 1

SHEET NUMBER

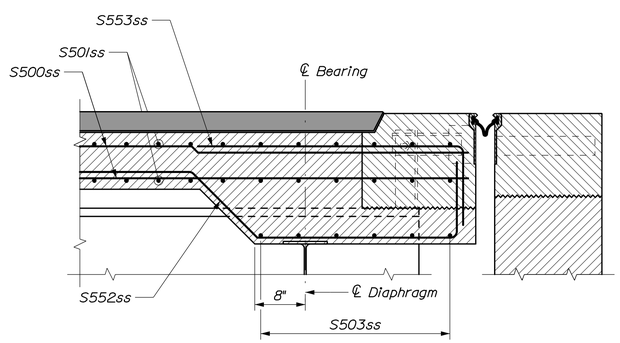
157

OF 183

Filename: 157_Superstructure Reinforcing Plan Span 1.dgn Division: Username: Date:8/25/2021



SUPERSTRUCTURE REINFORCING PLAN - SPAN NO. 2



SECTION A-A
THICKENED END SLAB DETAIL

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	N. Baert	P. Bishop	08\21
CHECKED-REVIEWED	B. Greiner	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

SUPERSTRUCTURE
REINFORCING SPAN NO. 2

SHEET NUMBER

158

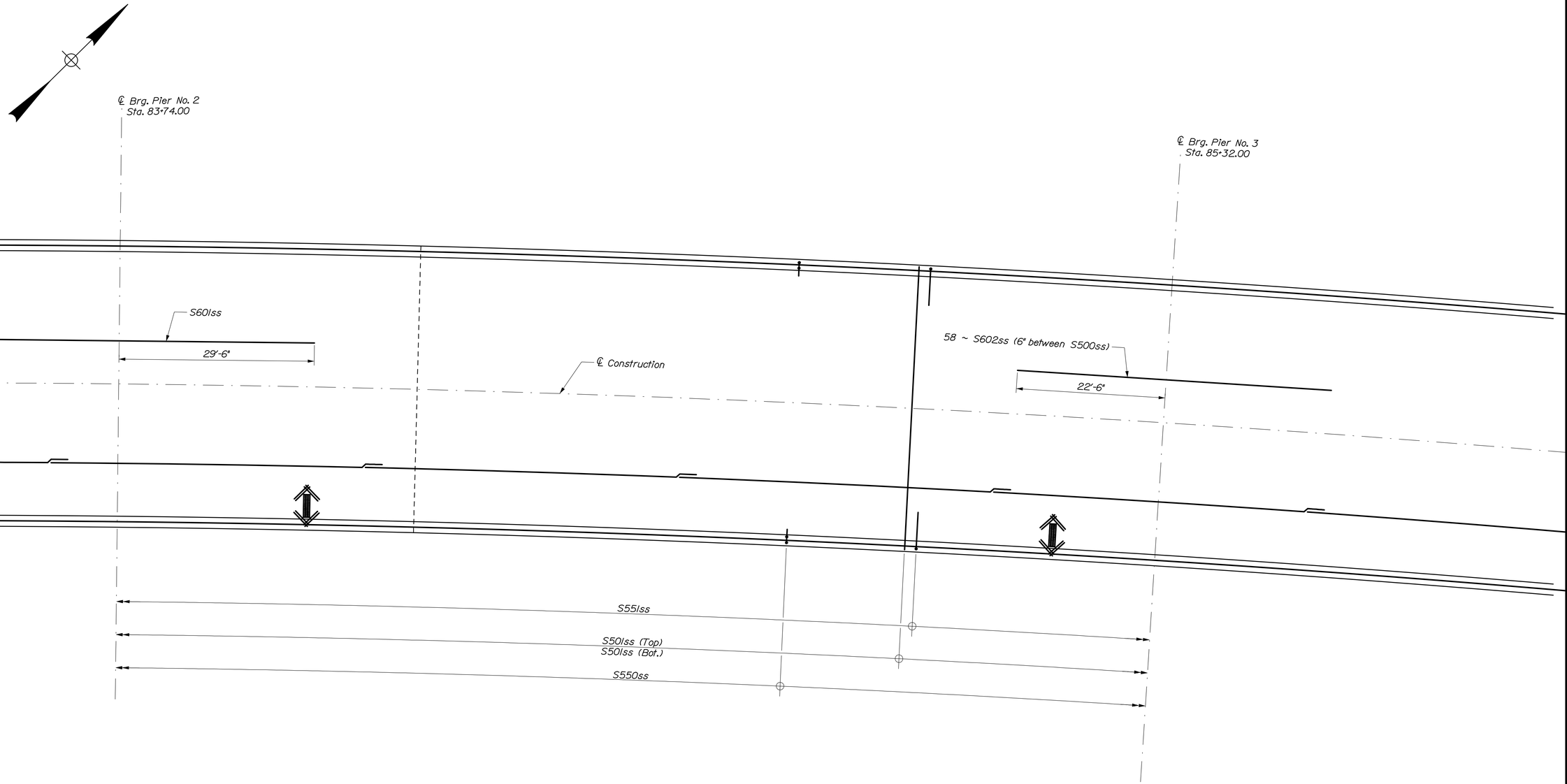
OF 183

Date:8/25/2021

Username:

Division:

Filename: 158_Superstructure Reinforcing Plan Span 2.dgn



SUPERSTRUCTURE REINFORCING PLAN - SPAN NO. 3

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	N. Boert	P. Bishop	08\21
CHECKED-REVIEWED	B. Grener	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

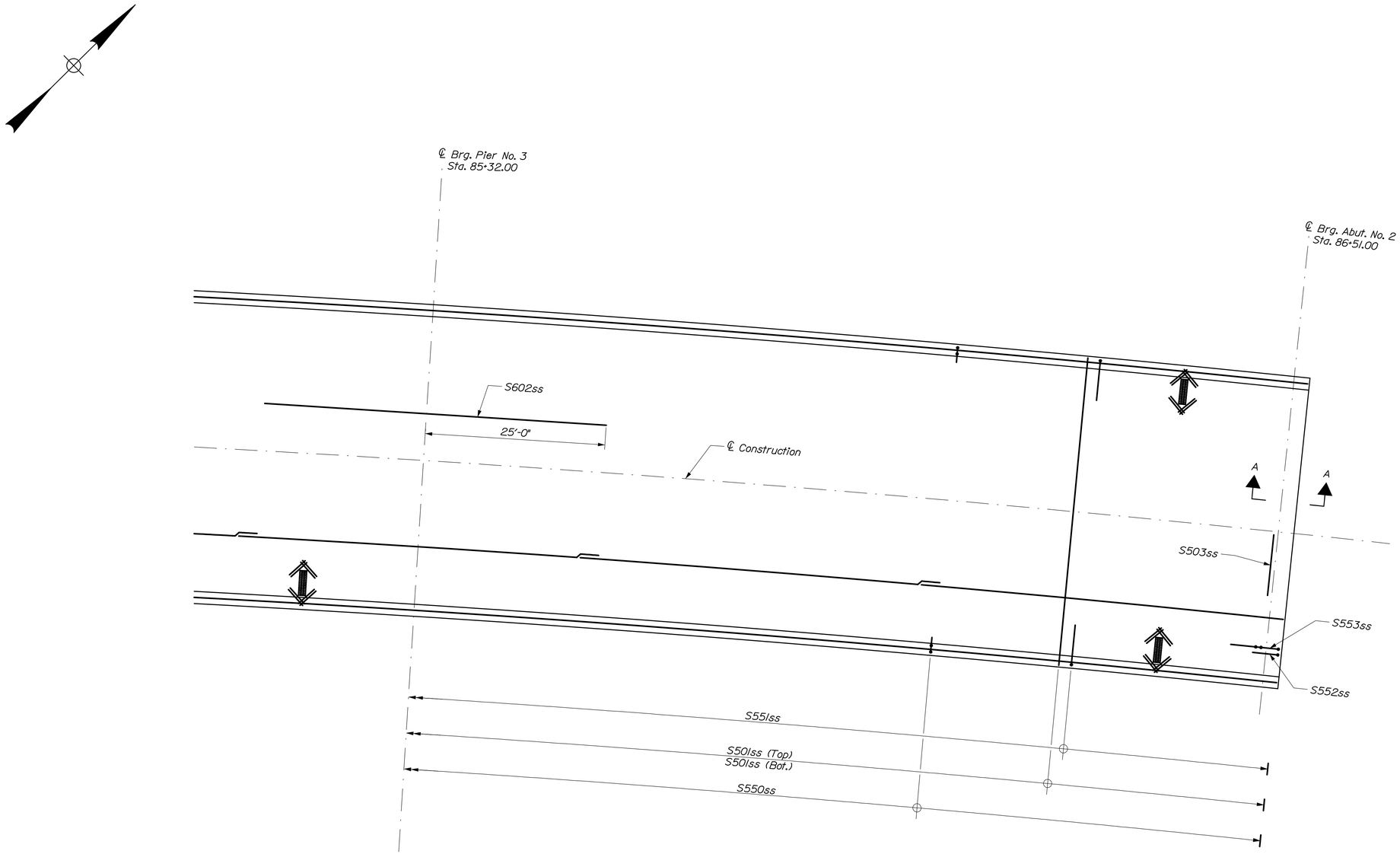
SUPERSTRUCTURE
REINFORCING SPAN NO. 3

SHEET NUMBER

159

OF 183

Filename: 159_Superstructure Reinforcing Plan Span 3.dgn Division: Username: Date:8/25/2021



SUPERSTRUCTURE REINFORCING PLAN - SPAN NO. 4

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039 BRIDGE PLANS

	BY	DATE
P.E.		
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	N. Boert	08\21
CHECKED-REVIEWED	T. Cote	08\21
DESIGN2-DETAILED2	B. Grener	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

SUPERSTRUCTURE
REINFORCING SPAN NO. 4

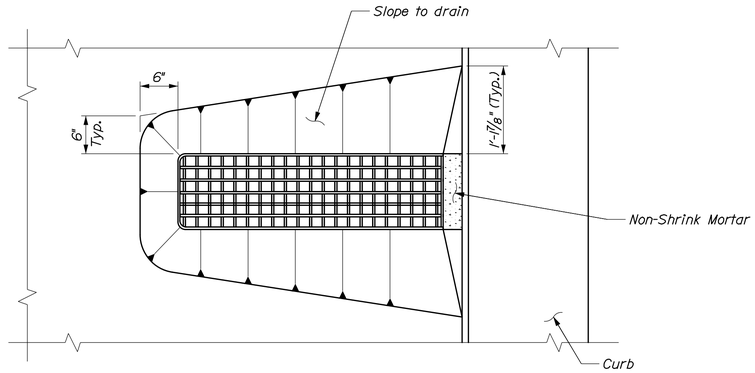
SHEET NUMBER

160

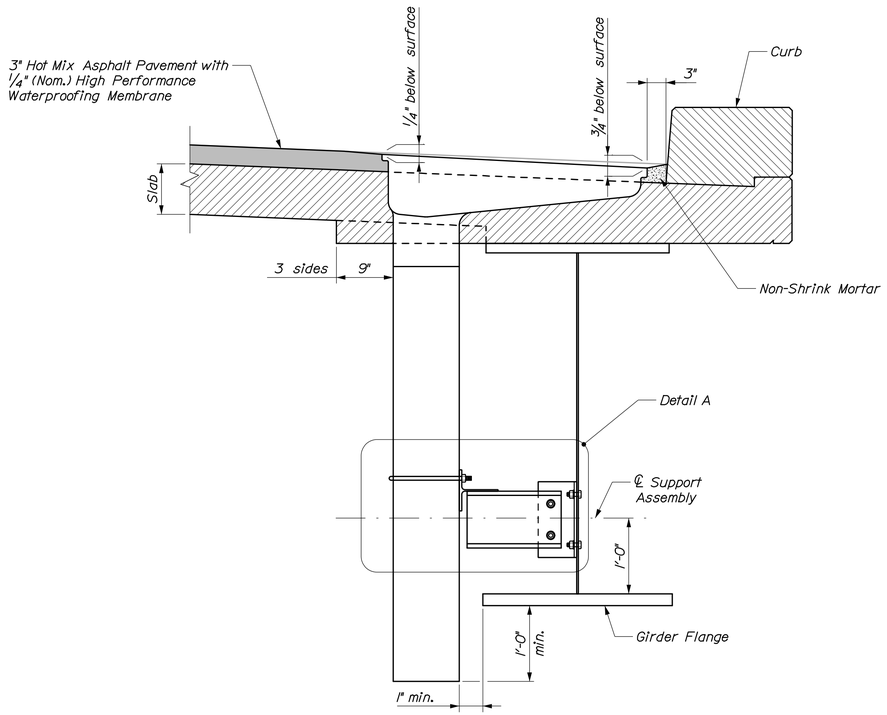
OF 183

HNTB

Filename: 160_Superstructure Reinforcing Plan Span 4.dgn Division: Username: Date:8/25/2021



BRIDGE DRAIN PLAN



BRIDGE DRAIN ELEVATION

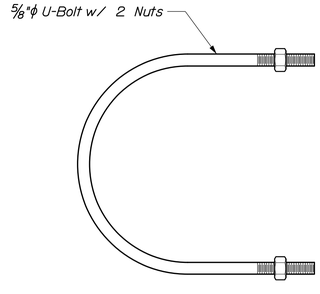
BRIDGE DRAIN NOTES

1. FRP Bridge Drains shall be designed and detailed based on the dimensions for the bridge drain details shown, and in accordance with Special Provisions Section 502, Fiber Reinforced Polymer Bridge Drains and Downspouts.

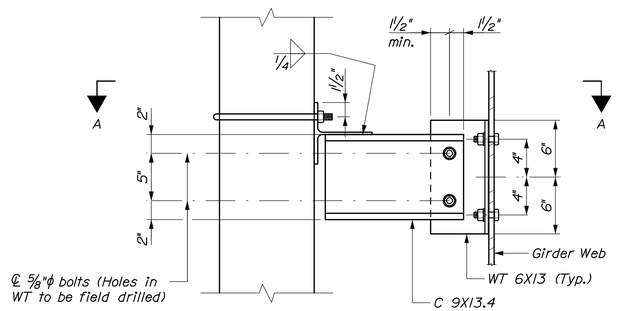
2. Shear connectors welded to the top flange of the steel beams may require adjustment to clear the bridge drains. No extra payment will be made for needed adjustments to the studs.

3. The drain support assembly and all associated hardware shall be galvanized in accordance with Standard Specification 506.

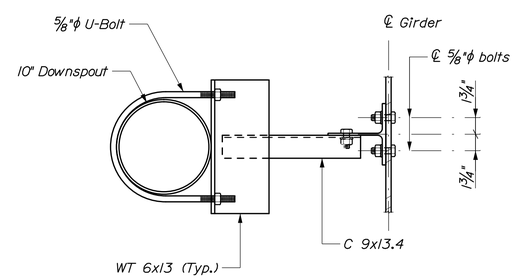
4. Non-Shrink Mortar shall be selected from the Qualified Products List. Payment Shall be incidental to Item 502.77, FRP Bridge Drain - Type G.



U-BOLT DETAIL



DETAIL A



SECTION A-A

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	N. Boert	P. Bishop	08\21
CHECKED-REVIEWED	B. Grener	T. Cote	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

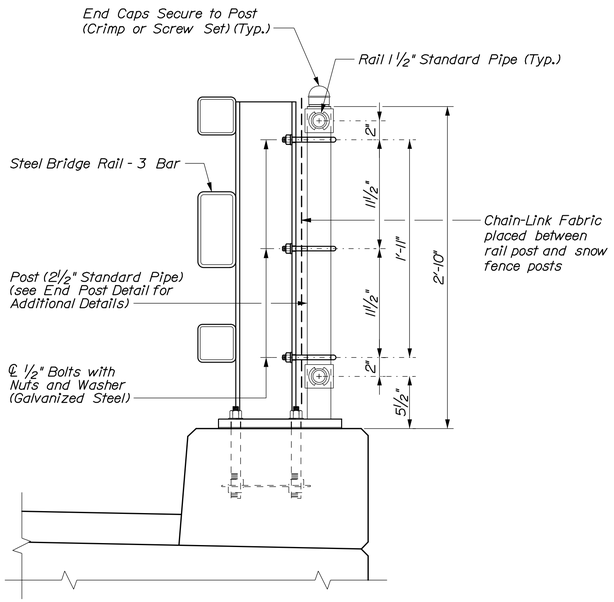
BRIDGE DRAIN DETAILS

SHEET NUMBER

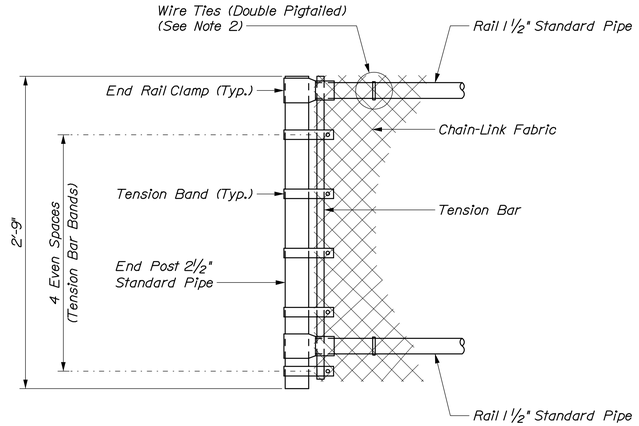
161

OF 183

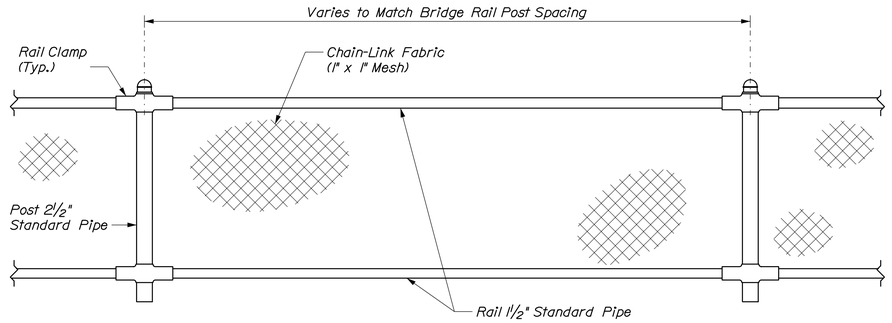
Filename: 161_Bridge Drain Details.dgn Division: Username: Date:8/25/2021



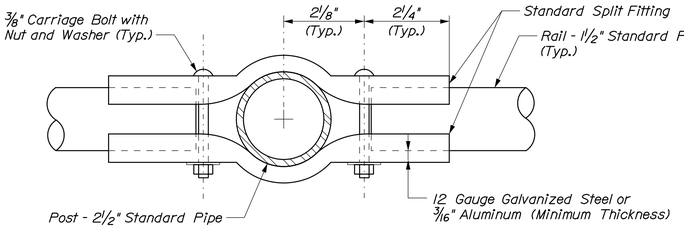
SNOW FENCE CONNECTION DETAIL



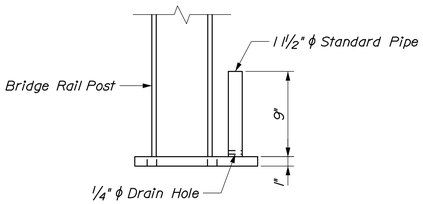
END POST DETAIL



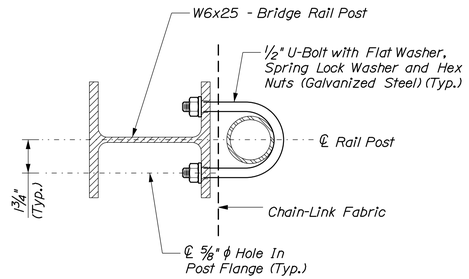
ELEVATION - SNOW FENCE



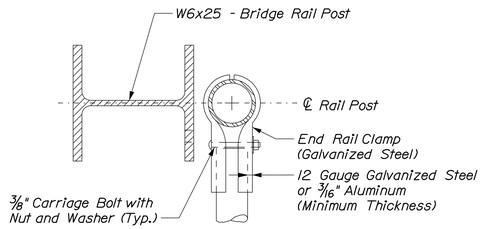
RAIL CLAMP DETAIL



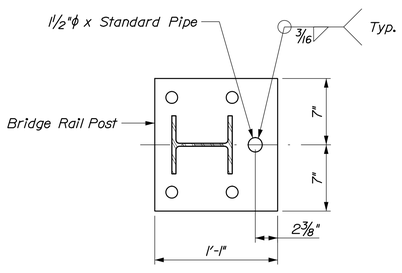
MODIFIED BASE PLATE ELEVATION



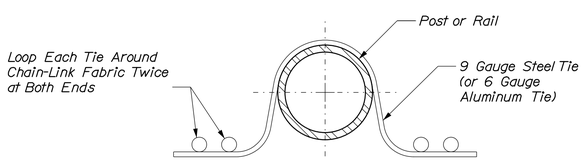
U-BOLT CONNECTION DETAIL
(At Interior Post)



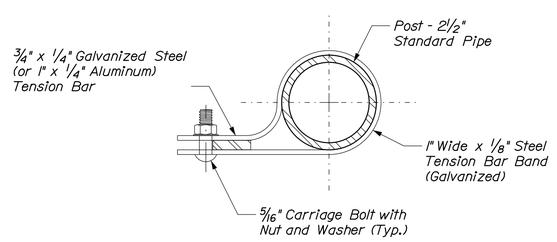
END POST DETAIL
(U-Bolt Not Shown)



MODIFIED BASE PLATE DETAIL



DOUBLE PIGTAILED TIE



TENSION BAND DETAIL

SNOW FENCE NOTES

1. Chain-Link fence shall conform to Section 710.03 and Special Provision Section 607. The size of wire mesh (fabric) shall be 1".

2. Wire ties shall be standard round 9 gauge zinc- or aluminum-coated steel or 6 gauge aluminum alloy conforming to ASTM F626. All ties shall be wrapped around chain-link fabric twice (double pigtailed) at both ends. Space ties @ 6" o.c. to bottom rail and @ 12" o.c. to all posts and other rails. Mechanical/Power fastened fence ties acceptable.

3. Post and rail pipe shall be hot-dip galvanized. All pipe shall be schedule 40, standard weight. Nominal pipe sizes are shown.

4. Tension bars, bar bands, boulevard and end rail clamps shall be steel or aluminum alloy conforming to AASHTO M181 (ASTM F626). Steel components shall be hot-dip galvanized in accordance with AASHTO M111 (ASTM A123) or AASHTO M232 (ASTM A153) as applicable.

5. All bolts and nuts shall be steel conforming to ASTM A307 and ASTM A563 grade A respectively. Washers shall be hardened steel commercial type A plain and shall meet the dimensional requirements of ANSI B18.22. All bolts, nuts and washers shall be hot-dip galvanized in accordance with AASHTO M111 (ASTM A123) or AASHTO M232 (ASTM A153) as applicable.

6. Rail may be field cut (sawn) to fit post spacing. Repair galvanizing on cut edges in accordance with ASTM A780.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE NO.3039

BRIDGE PLANS

SIGNATURE

P.E. NUMBER

DATE

	BY	DATE
D. Eaton, P.E.	P. Bishop	08\21
PROJ. MANAGER	T. Cote	08\21
DESIGN-DETAILED		
CHECKED-REVIEWED	B. Grenier	
DESIGN2-DETAILED2	L. Driscoll	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

SNOW FENCE DETAILS

SHEET NUMBER
162
OF 183

Date:8/25/2021
Username:
Division:
Filename: 162_Snow Fence Details.dgn

Username:

Division:

Filename: 163_Reinforcing Schedule 1.dgn

Date:8/25/2021

STRAIGHT BARS

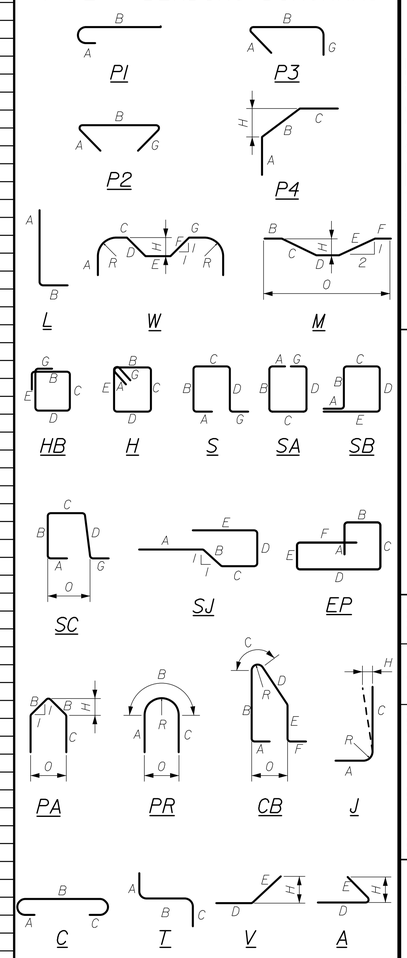
MARK	QTY.	LENGTH	LOCATION
Abutment No. 1 (Plain Rebar)			
A700	94	23'- 6"	Footing Transverse (Bot.)
A701	102	28'- 10"	Footing Long. (Top & Bot.)
A702	27	27'- 4"	Footing Long. (Top & Bot.)
A703	27	33'- 4"	Footing Long. (Top & Bot.)
A800	128	23'- 6"	Footing Transverse (Top)
A900	48	23'- 6"	Footing Transverse (Top)
A901	68	9'- 0"	Footing Dowel
Abutment No. 1 (Stainless Steel)			
A600ss	18	26'- 6"	Backwall Horizontal Bar
A601ss	18	27'- 2"	Backwall Horizontal Bar
A602ss	55	7'- 10"	Backwall Vertical Bar
A603ss	8	8'- 5"	Backwall Curb Horiz. Bar
A604ss	30	9'- 3"	Wingwall Top Vert. Bar
A606ss	18	13'- 4"	Wingwall Horiz. Bar
A607ss	54	13'- 4"	Wingwall Stem Horiz. Bar
A610ss	50	13'- 0"	Wingwall Top Vert. Bar
A611ss	48	23'- 8"	Wingwall Stem Horizontal Bar
A612ss	2	23'- 11"	Wingwall Top Diagonal. Bar
A613ss	2	2'- 9"	Wingwall Horiz. Bar
A614ss	2	4'- 8"	Wingwall Horiz. Bar
A615ss	2	6'- 7"	Wingwall Horiz. Bar
A616ss	2	8'- 6"	Wingwall Horiz. Bar
A617ss	2	10'- 5"	Wingwall Horiz. Bar
A618ss	2	12'- 4"	Wingwall Horiz. Bar
A619ss	2	14'- 3"	Wingwall Horiz. Bar
A620ss	2	16'- 2"	Wingwall Horiz. Bar
A621ss	2	18'- 1"	Wingwall Horiz. Bar
A622ss	2	20'- 0"	Wingwall Horiz. Bar
A623ss	2	21'- 11"	Wingwall Horiz. Bar
A624ss	2	23'- 10"	Wingwall Horiz. Bar
A700ss	30	26'- 6"	Stem Horizontal Bar
A701ss	30	22'- 8"	Stem Horizontal Bar
A702ss	26	26'- 6"	Stem Horizontal Bar
A703ss	26	27'- 2"	Stem Horizontal Bar
A704ss	176	15'- 4"	Stem Vertical Bar
A800ss	29	21'-10"	Stem Vertical Bar
A801ss	49	18'-9"	Stem Vertical Bar
Abutment No. 2 (Plain Rebar)			
B600	87	12'-6"	Footing Transverse (Bot.)
B601	60	25'-11"	Footing Long. (Top & Bot.)
B602	30	17'-0"	Footing Long. (Top & Bot.)
B603	30	19'-0"	Footing Long. (Top & Bot.)
B700	93	12'-6"	Footing Transverse (Top)
B900	59	11'-0"	Footing Dowel
Abutment No. 2 (Stainless Steel)			
B600ss	18	27'- 2"	Backwall Horizontal Bar
B601ss	18	23'- 2"	Backwall Horizontal Bar
B602ss	52	7'- 6"	Backwall Vertical Bar
B603ss	12	22'- 8"	Stem Horizontal Bar
B604ss	12	18'- 8"	Stem Horizontal Bar
B605ss	9	27'- 1"	Stem Horizontal Bar
B606ss	9	23'- 1"	Stem Horizontal Bar
B608ss	44	11'- 11"	Wingwall Top Vert. Bar
B610ss	56	10'- 2"	Wingwall Horiz. Bar. Bar
B611ss	4	11'- 6"	Wingwall Top Diag. Bar
B612ss	4	1'- 4"	Wingwall Horiz. Bar
B613ss	4	3'- 1"	Wingwall Horiz. Bar
B614ss	4	4'- 10"	Wingwall Horiz. Bar
B615ss	4	6'- 7"	Wingwall Horiz. Bar
B616ss	4	8'- 4"	Wingwall Horiz. Bar
B617ss	4	10'- 1"	Wingwall Horiz. Bar

BENT BARS

MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
Abutment No. 1 (Plain Rebar)														
A750	204	6'-10"	S	0"	1'-2"	4'-6"	1'-2"			0"				Footing End U-Bar
Abutment No. 1 (Stainless Steel)														
A550ss	40	11'- 0"	S	0"	3'-9"	3'-6"	3'-9"			0"				Pedestal
A551ss	108	7'- 4"	P3	6"	6'-0"					10"				Abut. Stem Tie
A552ss	84	4'- 4"	P3	6"	3'-0"					10"				Wingwall Stem Tie
A650ss	41	11'- 8"	S	0"	5'-4"	1'-0"	5'-4"			0"				Backwall Top U-Bar
A651ss	16	13'- 2"	S	0"	6'-1"	1'-0"	6'-1"			0"				Backwall Top U-Bar
A652ss	55	10'- 1"	L	8'-7"	1'-6"									Backwall Vertical L-Bar
A653ss	41	5'- 4"	P4	2'-3"	10"	2'-3"					7"			Approach Slab Pin
A654ss	20	6'- 0"	V				5'-2"	10"			7"			Backwall Curb Horiz. Bar
A655ss	40	10'- 0"	S	0"	4'-6"	1'-0"	4'-6"			0"				Wingwall Top U-Bar (25 West, 15 East)
A656ss	51	5'- 0"	S	0"	1'-0"	3'-0"	1'-0"			0"				Wingwall End U-Bar (24 West, 27 East)
A657ss	9	6'- 0"	S	0"	2'-6"	1'-0"	2'-6"			0"				Wingwall End U-Bar
A658ss	15	9'- 3"	L	8'-3"	1'-0"									Footing Vertical L-Bar
A659ss	25	25'- 3"	L	22'-3"	3'-0"									Wingwall Vertical L-Bar
A660ss	25	9'- 3"	L	8'-3"	1'-0"									Footing Vertical L-Bar
A661ss	15	31'- 4"	L	28'-4"	3'-0"									Stem Vertical L-Bar
A750ss	55	13'- 6"	S	0"	3'-9"	6'-0"	3'-9"			0"				Seat Top U-Bar
A751ss	67	19'- 5"	L	18'-3"	1'-2"									Footing Vertical L-Bar
A752ss	26	8'- 4"	S	0"	1'-2"	6'-0"	1'-2"			0"				Stem End U-Bar
A753ss	26	8'- 0"	L	7'-2"	10"									Stem End L-Bar
A754ss	7	7'- 3"	L	3'-9"	3'-6"									Abutment Seat West End
A950ss	109	22'- 1"	L	20'-6"	1'-7"									Footing Vertical L-Bar
All50ss	29	16'- 9"	L	14'-9"	2'-0"									Footing Vertical L-Bar
All51ss	49	16'- 9"	L	14'-9"	2'-0"									Footing Vertical L-Bar
Abutment No. 2 (Plain Rebar)														
B650	174	4'-6"	S	0"	1'-0"	2'-6"	1'-0"			0"				Footing End U-Bar
Abutment No. 2 (Stainless Steel)														
B550ss	40	11'- 0"	S	0"	3'-9"	3'-6"	3'-9"			0"				Pedestal
B650ss	41	13'- 4"	S	0"	6'-2"	1'-0"	6'-2"			0"				Backwall Top U-Bar
B651ss	14	14'- 10"	S	0"	6'-11"	1'-0"	6'-11"			0"				Backwall Top U-Bar
B652ss	52	9'- 9"	L	8'-3"	1'-6"									Backwall Vertical L-Bar
B653ss	41	5'- 4"	P4	2'-3"	10"	2'-3"					7"			Approach Slab Pin
B654ss	36	5'- 10"	V				5'-0"	10"			7"			Backwall Curb Horiz. Bar
B655ss	52	14'- 2"	S	0"	4'-1"	6'-0"	4'-1"			0"				Seat Top U-Bar
B656ss	18	8'- 0"	L	7'-2"	10"									Stem End L-Bar
B657ss	10	6'- 9"	L	3'-3"	3'-6"									Footing Vertical L-Bar
B658ss	22	10'- 0"	S	0"	4'-6"	1'-0"	4'-6"			0"				Wingwall Top U-Bar
B659ss	28	3'- 0"	S	0"	1'-0"	1'-0"	1'-0"			0"				Wingwall End U-Bar
B660ss	53	10'- 10"	L	9'-10"	1'-0"									Footing Vertical L-Bar
B661ss	22	11'- 9"	L	10'-9"	1'-0"									Footing Vertical L-Bar
B750ss	52	11'- 7"	L	10'-5"	1'-2"									Footing Vertical L-Bar
B751ss	44	11'- 11"	L	10'-9"	1'-2"									Footing Vertical L-Bar

MARK | QTY. | LENGTH | TYPE | A | B | C | D | E | F | G | H | O | R | LOCATION

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, AC1 440.1r-15

GENERAL NOTES

1. The first two digits following the letter(s) of the mark indicate the size of the bar:

   Mark 'A502' = bar size #5
   Mark 'P805' = bar size #8
   Mark 'S650' = bar size #6
   Mark 'S650ss' = bar size #6 Stainless Steel
   Mark 'S600G' = bar size #6 GFRP

2. Each crank bar, Type B, may be replaced by two (2) straight bars (one top and one bottom) of the same bar size as the crank bar. Payment in either case shall be based on crank bars as schedule on the plans.

3. Bar marks ending with 'G' indicate GFRP. Bar marks ending with 'ss' indicate stainless steel. All other bars are plain (uncoated).

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE PLANS

BRIDGE NO.3039

PROJ. MANAGER	D. EATON					
DESIGN-DETAILED	H. Walton	P. Bishop	08/18			
CHECKED-REVIEWED	J. Waugh	J. Olund	08/18			
DESIGN2-DETAILED2						
DESIGN3-DETAILED3						
REVISIONS 1						
REVISIONS 2						
REVISIONS 3						
REVISIONS 4						
FIELD CHANGES						

SIGNATURE

P.E. NUMBER

DATE

STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

REINFORCING STEEL SCHEDULE I

SHEET NUMBER

163

OF 183

Username:

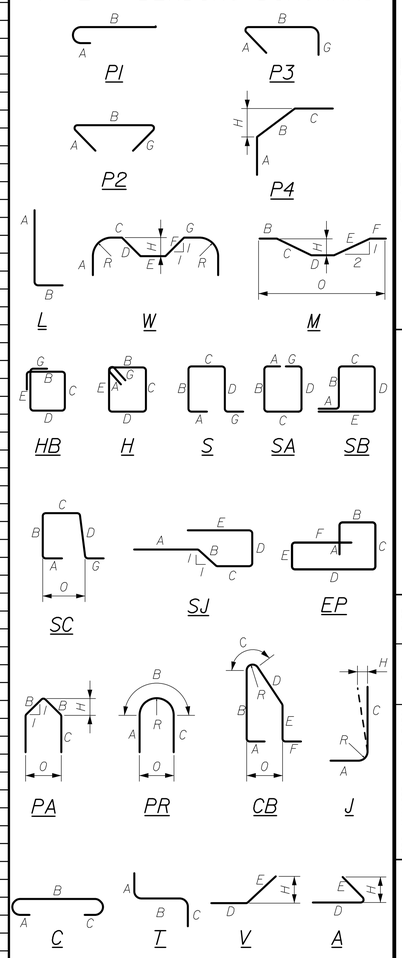
Division:

Filename: 164_Reinforcing Schedule 2.dgn

Date:8/25/2021

STRAIGHT BARS				BENT BARS														
MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
Pier No. 1 (Plain Rebar)				*Pier No. 1 (Plain Rebar)*														
1P700	*35*	*18'-6"*	*Footing Longitudinal (Top)*	*1P750*	*110*	*5'-10"*	*S*	*0"*	*1'-2"*	*3'-6"*	*1'-2"*			*0"*				*Footing End U-Bar*
1P701	*20*	*33'-6"*	*Footing Transverse (Top)*	*Pier No. 1 (Stainless Steel)*														
				1P550ss	*112*	*8'-6"*	*SA*	*10"*	*1'-8"*	*3'-6"*	*1'-8"*			*10"*				*Stem Horizontal End U-Bar*
1P1000	*68*	*18'-6"*	*Footing Longitudinal (Bot.)*	*1P551ss*	*836*	*4'-10"*	*P3*	*6"*	*3'-6"*					*10"*				*Stem Horizontal Ties*
1P1001	*38*	*33'-6"*	*Footing Transverse (Bot.)*	*1P552ss*	*112*	*24'-6"*	*S*	*0"*	*10"*	*22'-10"*	*10"*			*0"*				*Stem Horizontal*
Pier No. 1 (Stainless Steel)				*1P553ss*	*15*	*9'-10"*	*S*	*0"*	*3'-2"*	*3'-6"*	*3'-2"*			*0"*				*Pedestal U-Bar*
1P600ss	*2*	*22'-10"*	*Cap Horizontal*	*1P554ss*	*20*	*8'-11"*	*S*	*0"*	*3'-2"*	*2'-6"*	*3'-2"*			*0"*				*Pedestal U-Bar*
1P601ss	*2*	*29'-6"*	*Cap Horizontal*															
1P602ss	*2*	*36'-2"*	*Cap Horizontal*	*1P650ss*	*72*	*11'-4"*	*S*	*0"*	*4'-5"*	*2'-6"*	*4'-5"*			*0"*				*Cap Vertical Stirrup*
1P603ss	*10*	*42'-10"*	*Cap Horizontal*	*1P651ss*	*128*	*13'-0"*	*S*	*0"*	*5'-3"*	*2'-6"*	*5'-3"*			*0"*				*Cap Vertical Stirrup*
				1P652ss	*38*	*14'-6"*	*S*	*0"*	*5'-3"*	*4'-0"*	*5'-3"*			*0"*				*Cap Vertical Stirrup*
1P900ss	*106*	*13'-3"*	*Stem Vertical*	*1P653ss*	*16*	*18'-5"*	*P4*	*3'-10"*	*10'-1"*	*4'-6"*					*9'-9"*			*Cap Cantilever Horizontal*
Pier No. 2 (Plain Rebar)				*1P654ss*	*18*	*6'-0"*	*S*	*0"*	*1'-0"*	*4'-0"*	*1'-0"*			*0"*				*Cap Horizontal End U-Bar*
2P700	*35*	*18'-6"*	*Footing Longitudinal (Top)*															
2P701	*20*	*33'-6"*	*Footing Transverse (Top)*	*1P950ss*	*53*	*13'-7"*	*L*	*11'-9"*	*1'-10"*									*Footing/Stem Vertical L-Bar*
				1P951ss	*53*	*17'-7"*	*L*	*15'-9"*	*1'-10"*									*Footing/Stem Vertical L-Bar*
2P1000	*68*	*18'-6"*	*Footing Longitudinal (Bot.)*	*1P1052ss*	*32*	*26'-11"*	*L*	*25'-1"*	*1'-10"*									*Cap Primary Top Horizontal*
2P1001	*38*	*33'-6"*	*Footing Transverse (Bot.)*	*Pier No. 2 (Plain Rebar)*														
Pier No. 2 (Stainless Steel)				*2P750*	*110*	*5'-10"*	*S*	*0"*	*1'-2"*	*3'-6"*	*1'-2"*			*0"*				*Footing End U-Bar*
2P600ss	*2*	*22'-10"*	*Cap Horizontal*	*Pier No. 2 (Stainless Steel)*														
2P601ss	*2*	*29'-6"*	*Cap Horizontal*	*2P550ss*	*84*	*8'-6"*	*SA*	*10"*	*1'-8"*	*3'-6"*	*1'-8"*			*10"*				*Stem Horizontal End U-Bar*
2P602ss	*2*	*36'-2"*	*Cap Horizontal*	*2P551ss*	*682*	*4'-10"*	*P3*	*6"*	*3'-6"*					*10"*				*Stem Horizontal Ties*
2P603ss	*10*	*42'-10"*	*Cap Horizontal*	*2P552ss*	*84*	*24'-6"*	*S*	*0"*	*10"*	*22'-10"*	*10"*			*0"*				*Stem Horizontal*
				2P553ss	*15*	*9'-10"*	*S*	*0"*	*3'-2"*	*3'-6"*	*3'-2"*			*0"*				*Pedestal U-Bar*
2P1000ss	*106*	*9'-9"*	*Stem Vertical*	*2P554ss*	*20*	*8'-11"*	*S*	*0"*	*3'-2"*	*2'-6"*	*3'-2"*			*0"*				*Pedestal U-Bar*
Pier No. 3 (Plain Rebar)							*S*											
3P700	*35*	*18'-6"*	*Footing Longitudinal (Top)*	*2P650ss*	*72*	*11'-4"*	*S*	*0"*	*4'-5"*	*2'-6"*	*4'-5"*			*0"*				*Cap Vertical Stirrup*
3P701	*20*	*33'-6"*	*Footing Transverse (Top)*	*2P651ss*	*128*	*13'-0"*	*S*	*0"*	*5'-3"*	*2'-6"*	*5'-3"*			*0"*				*Cap Vertical Stirrup*
				2P652ss	*38*	*14'-6"*	*S*	*0"*	*5'-3"*	*4'-0"*	*5'-3"*			*0"*				*Cap Vertical Stirrup*
3P1000	*68*	*18'-6"*	*Footing Longitudinal (Bot.)*	*2P653ss*	*16*	*18'-5"*	*P4*	*3'-10"*	*10'-1"*	*4'-6"*					*9'-9"*			*Cap Cantilever Horizontal*
3P1001	*38*	*33'-6"*	*Footing Transverse (Bot.)*	*2P654ss*	*18*	*6'-0"*	*S*	*0"*	*1'-0"*	*4'-0"*	*1'-0"*			*0"*				*Cap Horizontal End U-Bar*
Pier No. 3 (Stainless Steel)																		
3P600ss	*2*	*22'-10"*	*Cap Horizontal*	*2P1050ss*	*53*	*10'-7"*	*L*	*8'-9"*	*1'-10"*									*Footing/Stem Vertical L-Bar*
3P601ss	*2*	*29'-6"*	*Cap Horizontal*	*2P1051ss*	*53*	*13'-4"*	*L*	*11'-6"*	*1'-10"*									*Footing/Stem Vertical L-Bar*
3P602ss	*2*	*36'-2"*	*Cap Horizontal*	*2P1052ss*	*32*	*26'-11"*	*L*	*25'-1"*	*1'-10"*									*Cap Primary Top Horizontal*
3P603ss	*10*	*42'-10"*	*Cap Horizontal*	*Pier No. 3 (Plain Rebar)*														
Deck (Stainless Steel)				*3P750*	*110*	*5'-10"*	*S*	*0"*	*1'-2"*	*3'-6"*	*1'-2"*			*0"*				*Footing End U-Bar*
S500ss	*1521*	*50'-8"*	*Primary Longitudinal*	*Pier No. 3 (Stainless Steel)*														
S501ss	*2514*	*43'-0"*	*Primary Transverse*	*3P550ss*	*66*	*8'-6"*	*SA*	*10"*	*1'-8"*	*3'-6"*	*1'-8"*			*10"*				*Stem Horizontal End U-Bar*
S502ss	*78*	*50'-8"*	*Curb Longitudinal*	*3P551ss*	*583*	*4'-10"*	*P3*	*6"*	*3'-6"*					*10"*				*Stem Horizontal Ties*
S503ss	*48*	*9'-0"*	*Deck End Transverse*	*3P552ss*	*66*	*24'-6"*	*S*	*0"*	*10"*	*22'-10"*	*10"*			*0"*				*Stem Horizontal*
S504ss	*96*	*3'-0"*	*Drain Diagonal*	*3P553ss*	*15*	*9'-10"*	*S*	*0"*	*3'-2"*	*3'-6"*	*3'-2"*			*0"*				*Pedestal U-Bar*
				3P554ss	*20*	*8'-11"*	*S*	*0"*	*3'-2"*	*2'-6"*	*3'-2"*			*0"*				*Pedestal U-Bar*
S600ss	*58*	*59'-0"*	*Deck Longitudinal Over Pier*															
S601ss	*58*	*57'-0"*	*Deck Longitudinal Over Pier*	*3P650ss*	*72*	*11'-4"*	*S*	*0"*	*4'-5"*	*2'-6"*	*4'-5"*			*0"*				*Cap Vertical Stirrup*
S602ss	*58*	*47'-7"*	*Deck Longitudinal Over Pier*	*3P651ss*	*128*	*13'-0"*	*S*	*0"*	*5'-3"*	*2'-6"*	*5'-3"*			*0"*				*Cap Vertical Stirrup*
S603ss	*58*	*19'-0"*	*Deck Longitudinal Over Pier*	*3P652ss*	*38*	*14'-6"*	*S*	*0"*	*5'-3"*	*4'-0"*	*5'-3"*			*0"*				*Cap Vertical Stirrup*
Approach Slab (Stainless Steel)				*3P653ss*	*16*	*18'-5"*	*P4*	*3'-10"*	*10'-1"*	*4'-6"*					*9'-9"*			*Cap Cantilever Horizontal*
AS501ss	*32*	*30'-0"*	*Approach Slab Tansverse*	*3P654ss*	*18*	*6'-0"*	*S*	*0"*	*1'-0"*	*4'-0"*	*1'-0"*			*0"*				*Cap Horizontal End U-Bar*
AS502ss	*32*	*10'-4"*	*Approach Slab Tansverse*															
				3P950ss	*106*	*18'-1"*	*L*	*1'-10"*	*16'-3"*									*Footing/Stem Vertical L-Bar*
AS601ss	*158*	*15'-2"*	*Approach Slab Longitudinal*	*3P1052ss*	*32*	*26'-11"*	*L*	*25'-1"*	*1'-10"*									*Cap Primary Top Horizontal*
				Deck (Stainless Steel)														
				S550ss	*1735*	*5'-9"*	*SC*	*10"*	*1'-5"*	*1'-3"*	*1'-5"*			*10"*		*1'-4"*		*Curb Stirrup*
				S551ss	*2514*	*5'-7"*	*C*	*7"*	*5'-0"*	*0"*								*Deck Overhang*
				S552ss	*90*	*7'-1"*	*SJ*	*2'-6"*	*1'-0"*	*2'-7"*	*1'-0"*							*Bottom Deck End Stirrup Long.*
				S553ss	*90*	*3'-9"*	*L*	*2'-9"*	*1'-0"*									*Top Deck End Stirrup Long.*
MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, ACI 440.1r-15

GENERAL NOTES

1. The first two digits following the letter(s) of the mark indicate the size of the bar:

   Mark 'A502' = bar size #5
   Mark 'P805' = bar size #8
   Mark 'S650' = bar size #6
   Mark 'S650ss' = bar size #6 Stainless Steel
   Mark 'S600G' = bar size #6 GFRP

2. Each crank bar, Type B, may be replaced by two (2) straight bars (one top and one bottom) of the same bar size as the crank bar. Payment in either case shall be based on crank bars as schedule on the plans.

3. Bar marks ending with 'G' indicate GFRP. Bar marks ending with 'ss' indicate stainless steel. All other bars are plain (uncoated).

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.00

BRIDGE PLANS

BRIDGE NO.3039

		BY	DATE
PROJ. MANAGER	D. EATON		
DESIGN-DETAILED	H. Walton	P. Bishop	08/18
CHECKED-REVIEWED	J. Waugh	J. Olund	08/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

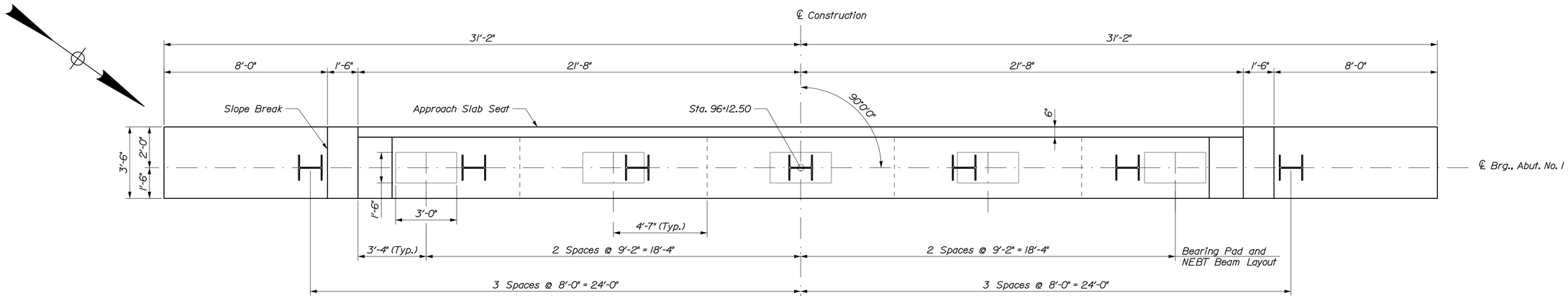
STATION 46 BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

REINFORCING STEEL SCHEDULE II

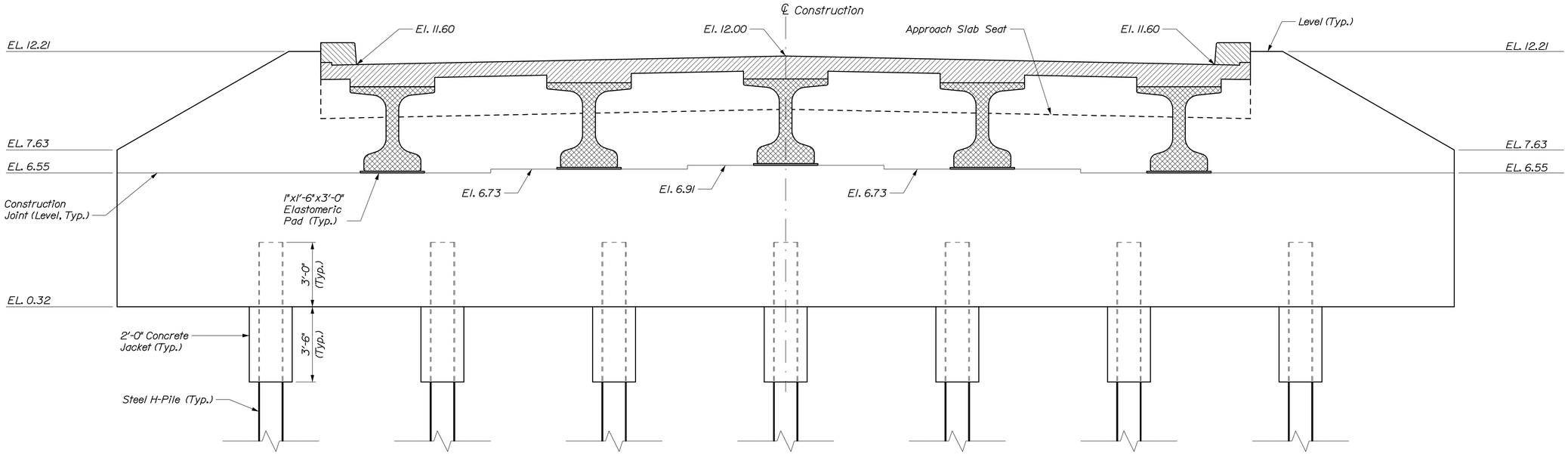
SHEET NUMBER

164

OF 183



ABUTMENT NO. 1 PLAN



ABUTMENT NO. 1 ELEVATION

ABUTMENT NOTES

1. Reinforcing steel shall have a minimum concrete cover of 3 inches unless otherwise noted.

2. Cover joints where waterstops are not required in accordance with Standard Detail 502(01).

3. Place 4 inch diameter drains in abutment and wingwalls at 10 feet maximum spacing. The exact location will be determined by the Resident.

4. Construct Drainage Geocomposite behind the abutments and wingwalls in accordance with Special Provision Section 620, Geotextiles - Drainage Geocomposite.

5. Abutments and wingwalls shall be backfilled with Granular Borrow for Underwater Backfill. Pay limits will be the structural excavation limits as shown on the "Abutment Details" sheet.

6. All elevations are provided at centerline of bearing unless otherwise noted.

7. Payment for concrete jacket around the tops of the H-piles will not be paid for directly. Payment shall be incidental to Item 502.219, Structural Concrete Abutment and Retaining Walls. Fill concrete may be used for the concrete jackets.

PILE NOTES

1. The maximum factored pile load is 302 kips (Strength I Load Combination).

2. Estimate of Piles required:

   Abutment No. 1: 7 - HP 14x73 @ 85 ft
   Abutment No. 2: 7 - HP 14x73 @ 85 ft

   The order lengths of piles shall include an additional 5 feet of length for each test pile to accommodate dynamic pile testing equipment. The pile lengths given include 5 feet to 10 feet of additional length to account for variable bedrock.

3. H-pile material shall be ASTM A572, Grade 50.

4. Piles shall be driven to required resistance on or within bedrock in accordance with Standard Specification 501.

PILE NOTES (CONTINUED)

5. 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.

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

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	H. Walton	08\21
CHECKED-REVIEWED	N. Baert	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3	A. Stephens	
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

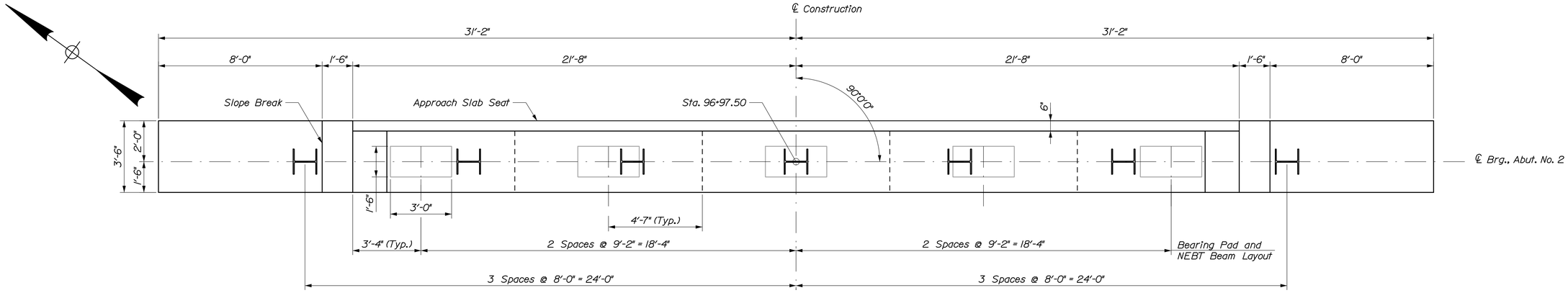
DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

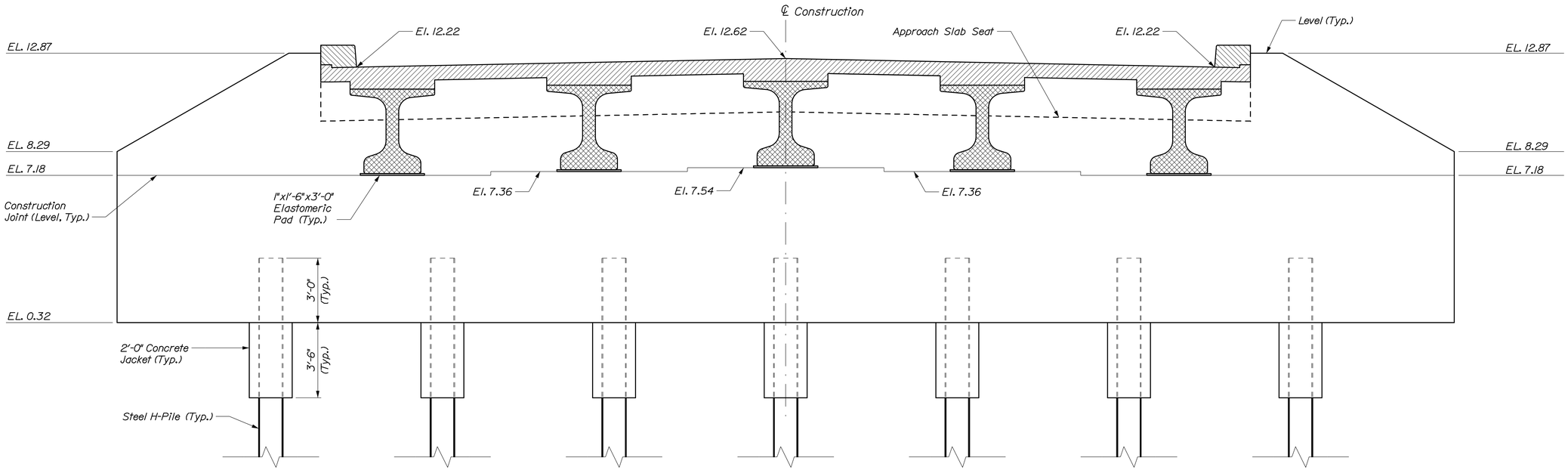
ABUTMENT NO. 1

SHEET NUMBER
165
OF 183

Username:
Division:
Date:8/25/2021
Filename: 165_Abutment 1.dgn



ABUTMENT NO. 2 PLAN



ABUTMENT NO. 2 ELEVATION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

P.E. NUMBER			
DATE			
SIGNATURE			
PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	H. Walton	BY	DATE
CHECKED-REVIEWED	N. Boert	P. Bishop	08\21
DESIGN2-DETAILED2		A. Stephens	08\21
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTEMENT NO. 2

SHEET NUMBER

166

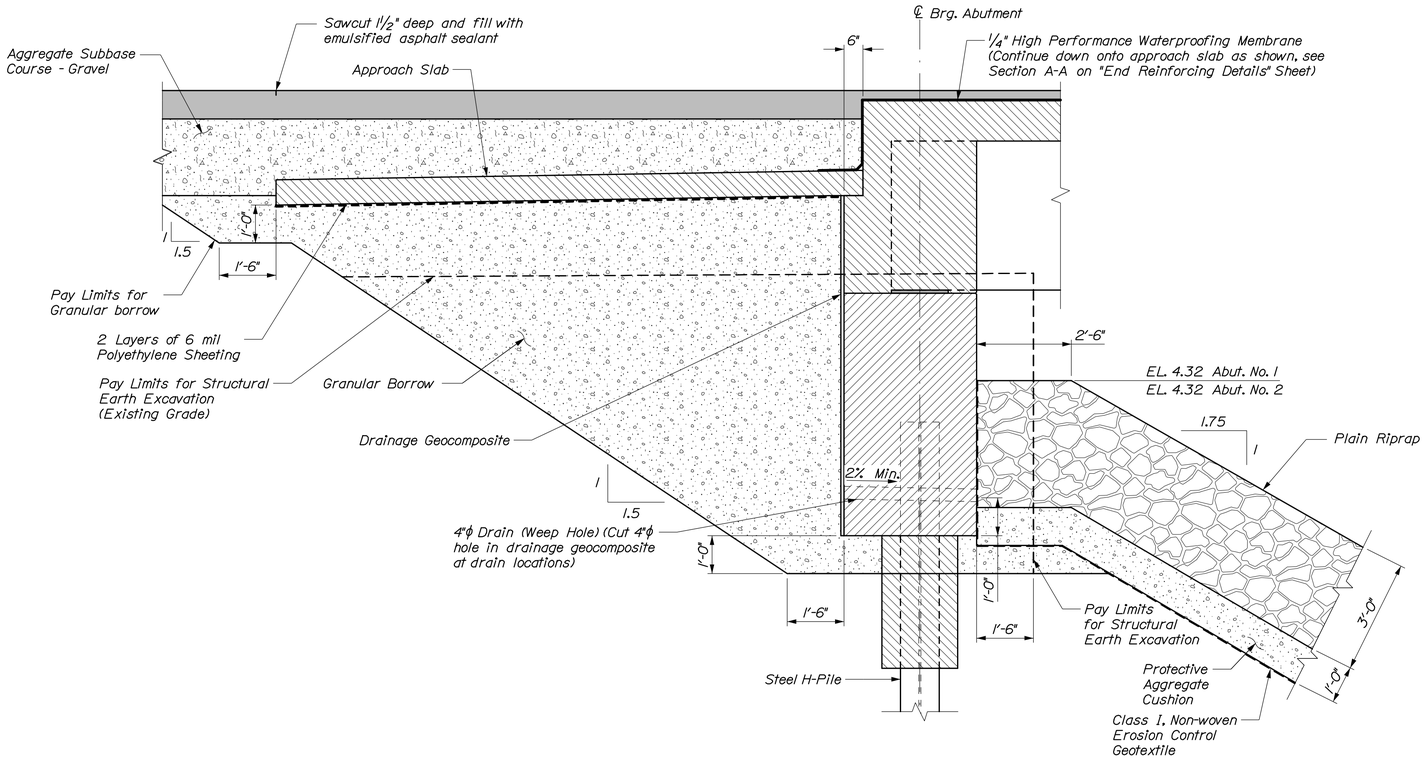
OF 183

Date:8/25/2021

Username:

Division:

Filename: 166_Abutment 2.dgn



ABUTMENT BACKFILL DETAIL

NOTES:

1. Transverse saw cuts in the pavement at the ends of approach slabs shall be sealed with emulsified asphalt sealing compound conforming to Specification 702.12. The sawcut and emulsified asphalt sealing shall not be paid for directly, but considered incidental to related contract items.

2. Install two layers of 6 mil polyethylene sheeting under approach slabs. Payment will be considered incidental to Item No. 502.31, Structural Concrete Approach Slab.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	H. Walton	P. Bishop	08\21
CHECKED-REVIEWED	N. Boert	A. Stephens	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT DETAILS

SHEET NUMBER

167

OF 183

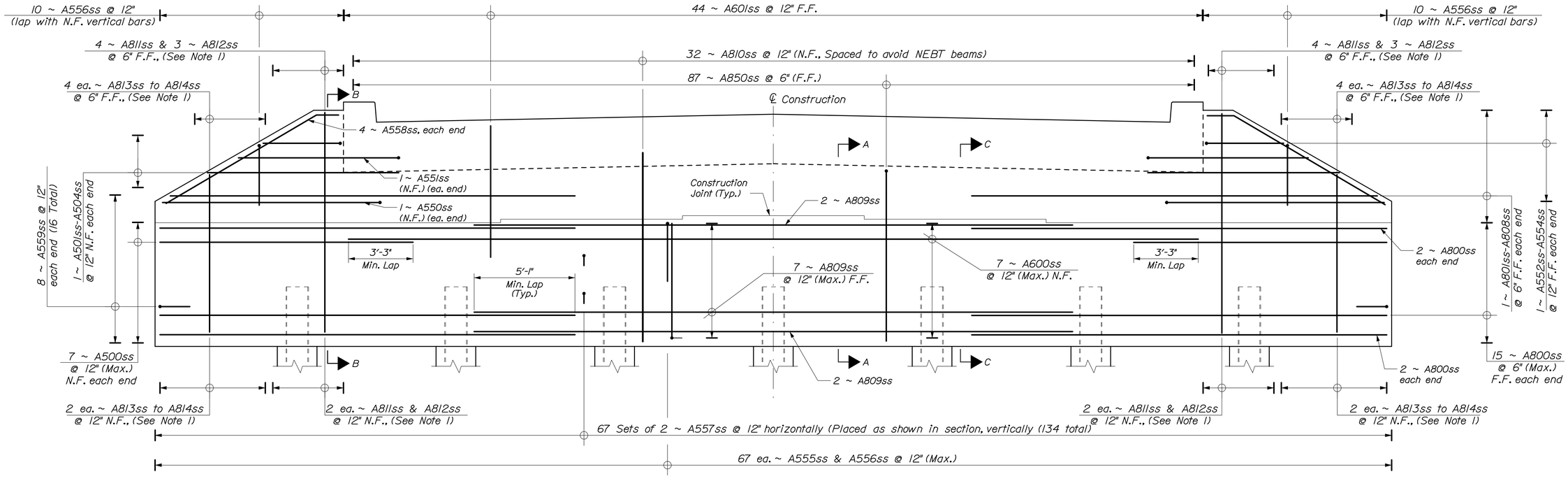
HNTB

Date:8/25/2021

Username:

Division:

Filename: 167_Abutment Details.dgn



ABUTMENT NO. 1

(See Sheet 164 for additional bars within the end diaphragm)
(Abutment 1 shown, Abutment 2 similar)

NOTES

1. A811ss through A814ss reinforcing bars shall be placed a maximum of 4" from the top of section.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	H. Walton	08\21
CHECKED-REVIEWED	N. Boert	08\21
DESIGN2-DETAILED2	A. Stephens	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

ABUTMENT REINFORCING

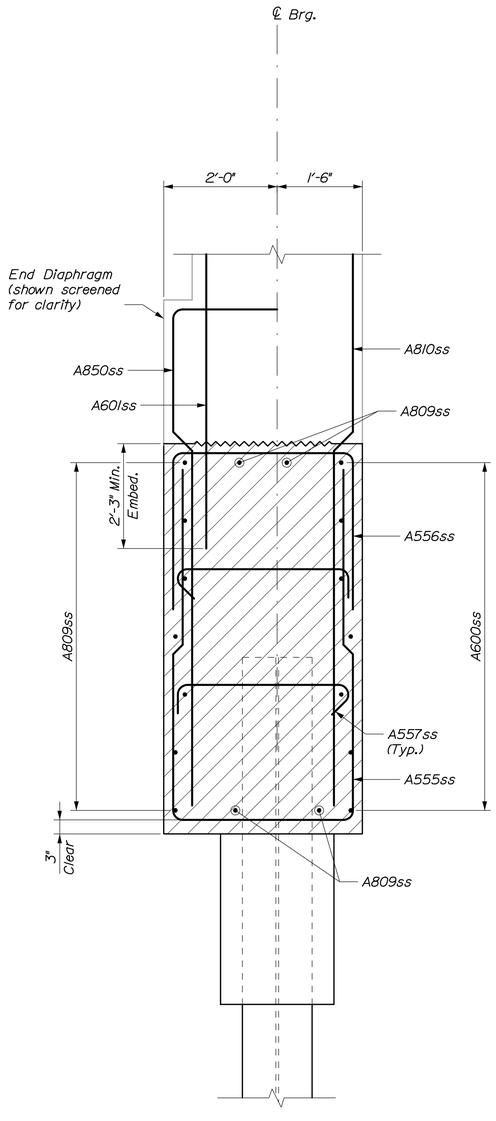
SHEET NUMBER

168

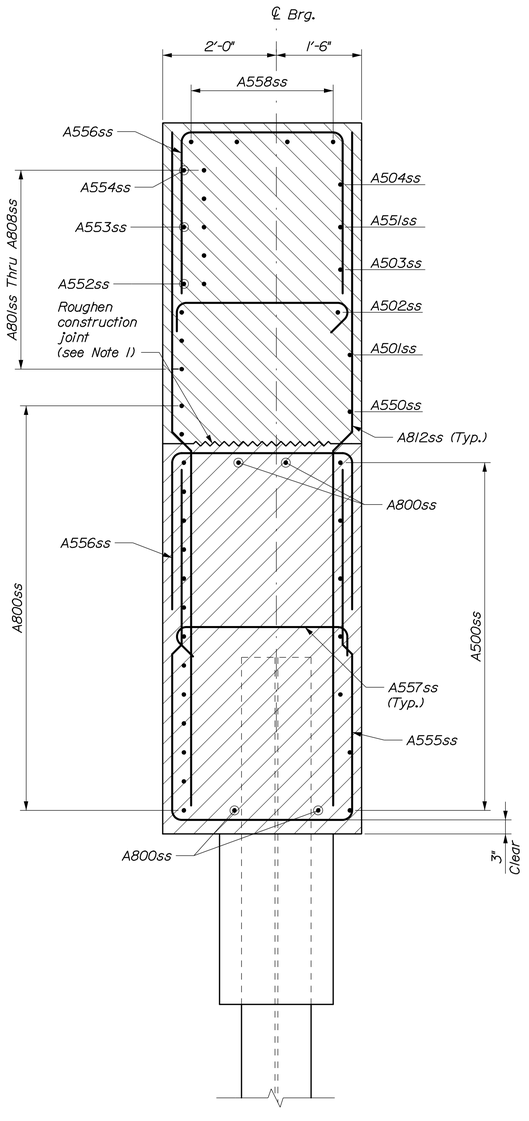
OF 183

HNTB

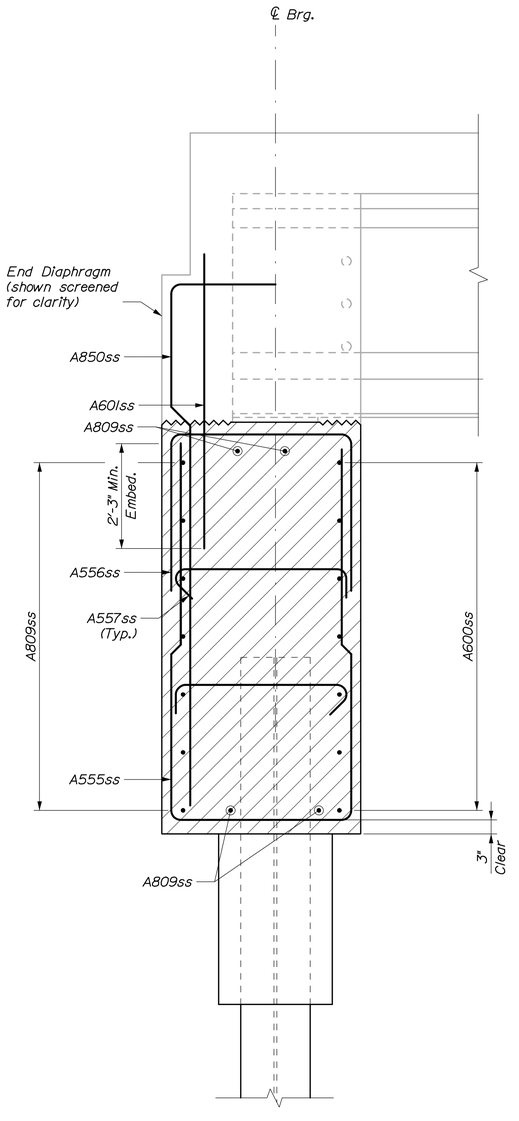
Filename: 168_Abutment Reinforcing.dgn Division: Username: Date:8/25/2021



SECTION A-A
ABUTMENT SECTION
(Between girders)



SECTION B-B
WINGWALL SECTION
(At top of wingwall)



SECTION C-C
ABUTMENT SECTION
(At ℄ Girder)

NOTES:

1. Roughen the construction joint between the bottom portion of the abutment and the top of the wingwall or end diaphragm. Omit roughening under the girder bearing pads and for 1" on each side of the girder bearing pads.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	H. Walton	P. Bishop	08\21
CHECKED-REVIEWED	N. Boert	A. Stephens	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

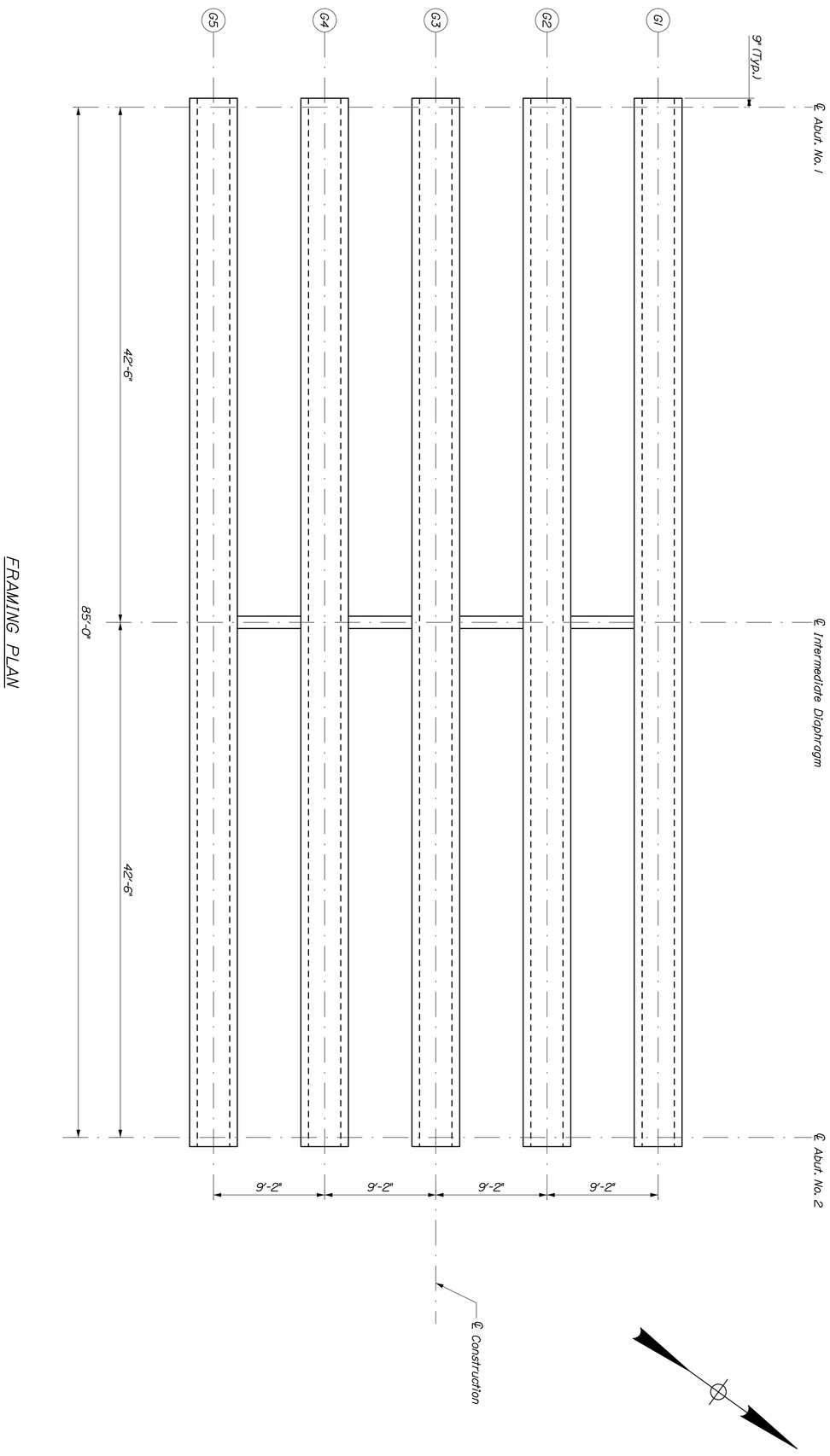
ABUTMENT SECTIONS

SHEET NUMBER

169

OF 183

Filename: 169_Abutment Sections.dgn Division: Username: Date:8/25/2021



FRAMING PLAN

HNTB

SHEET NUMBER 170 OF 183

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

FRAMING PLAN

PROJ. MANAGER	D. Eaton, P.E.	BY	DATE
DESIGN-DETAILED	H. Walton	P. Bishop	08\21
CHECKED-REVIEWED	N. Boert	A. Stephens	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

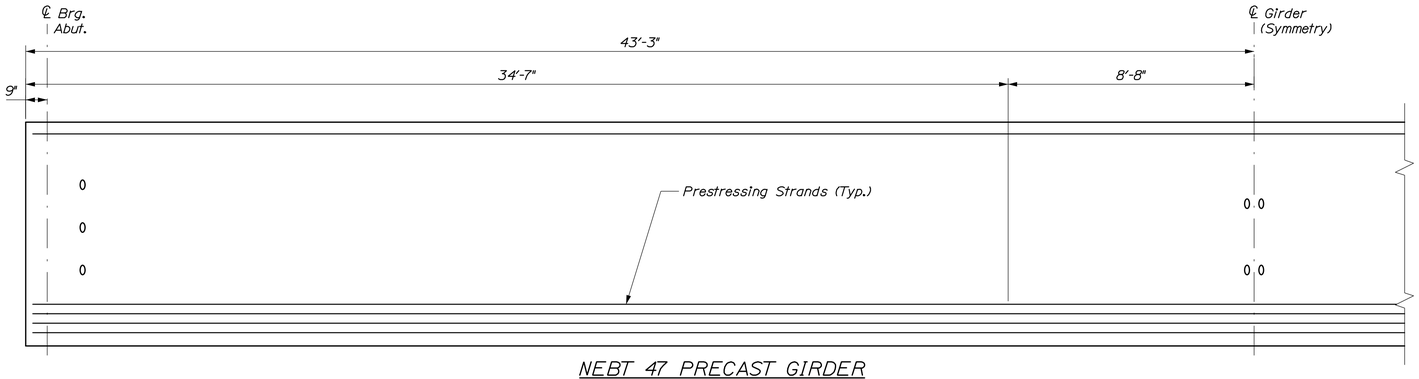
P.E. NUMBER

DATE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

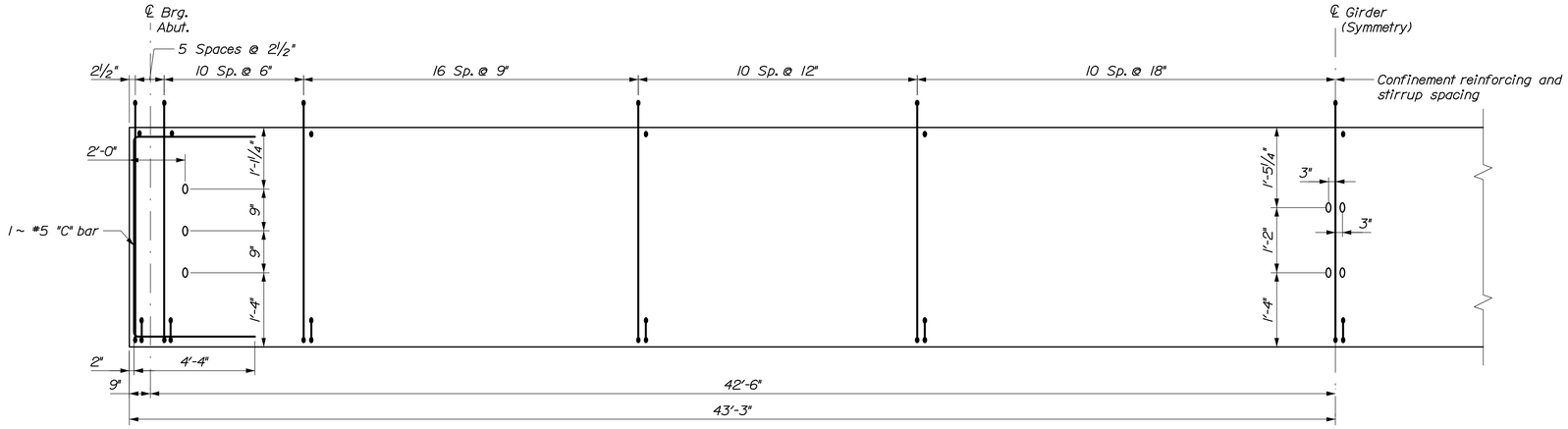
2392900

BRIDGE NO. 6667 WIN 23929.01 BRIDGE PLANS



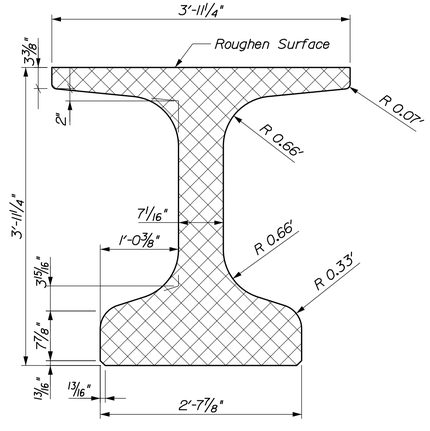
NEBT 47 PRECAST GIRDER

Reinforcing Layout
Vertically Exaggerated for Clarity



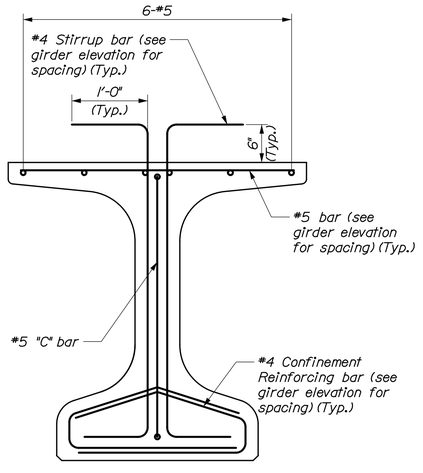
NEBT 47 PRECAST GIRDER

Reinforcing Layout
Vertically Exaggerated for Clarity
(All bars #4 unless otherwise noted)

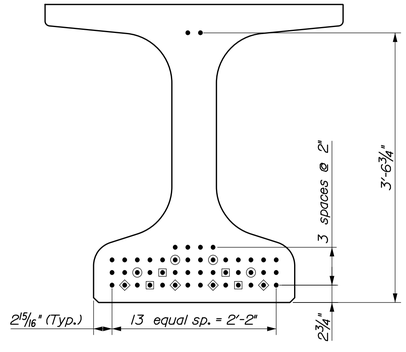


TYPICAL GIRDER SECTION

NEBT 47



GIRDER REINFORCING



PRESTRESSING STRANDS

PRECAST CONCRETE SUPERSTRUCTURE NOTES:

1. Prestressing strands shall be 0.62-in. diameter. The tensioning force is 36 kips per prestressing strand.

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

3. The estimated camber at release is 2.16 inches and the estimated camber at erection is 3.83 inches. Refer to Special Provision 535, Precast, Prestressed Concrete Superstructure - Camber.

4. The top surface of the upper flange of the prestressed beams shall be rake finished to a surface roughness of ¼ inch, except at locations corresponding to the blocking points. At these locations a flattened area of sufficient size shall be finished to facilitate taking elevations for setting bottom of slab elevations.

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

6. All mild reinforcing bars in the NEBT beams shall be stainless steel conforming to ASTM A955, Grade 75.

7. All reinforcing steel, sleeves, inserts and other items embedded in girders shall be included for payment under Item 535.61, Prestressed Structural Concrete I-Girders.

8. At girder diaphragm locations, 2"ϕ PVC sleeves shall be provided. All sleeves and threaded inserts shall be placed perpendicular to the girder.

9. Suggested end zone reinforcement may be adjusted by fabricator to reflect the fabricator's experience and to reduce the potential for cracking. All adjustments shall be clearly flagged on the girder shop drawings and will be subject to the Engineer's approval.

10. Threaded inserts shall not interfere with prestressing strands. Payment for fabrication and installation shall be incidental to Item 535.61, Prestressed Structural Concrete I-Girders.

TYPE OF GIRDER	NO. STRANDS	Fi	g ℄	g end
NEBT 47	48	1728	6.67"	7.53"

Fi = Total intial prestress force before losses (kips).
g ℄ = Distance from bottom of girder to C.G. of all prestressing strands at girder centerline (inches) (see girder elevation).
g end = Distance from bottom of girder to C.G. of all prestressing strands at end of girder (inches) (See girder elevation).

PRESTRESSING LEGEND

- ~ Steel Reinforcing
- ~ Straight Strand
- ~ Debonded Strand 4-feet at Each End
- ~ Debonded Strand 8-feet at Each End
- ~ Debonded Strand 12-feet at Each End

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	H. Walton	P. Bishop	08\21
CHECKED-REVIEWED	N. Boert	A. Stephens	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

BEAM DETAILS 1

SHEET NUMBER

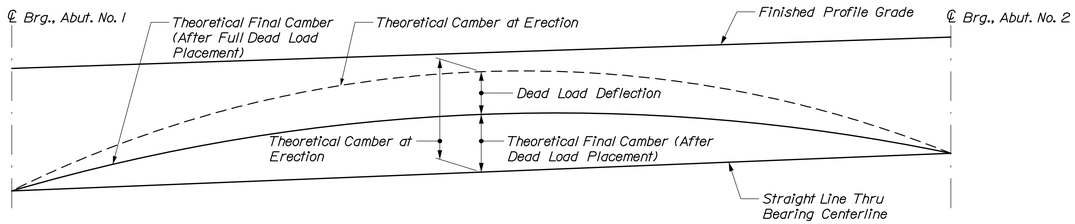
171

OF 183

HNTB

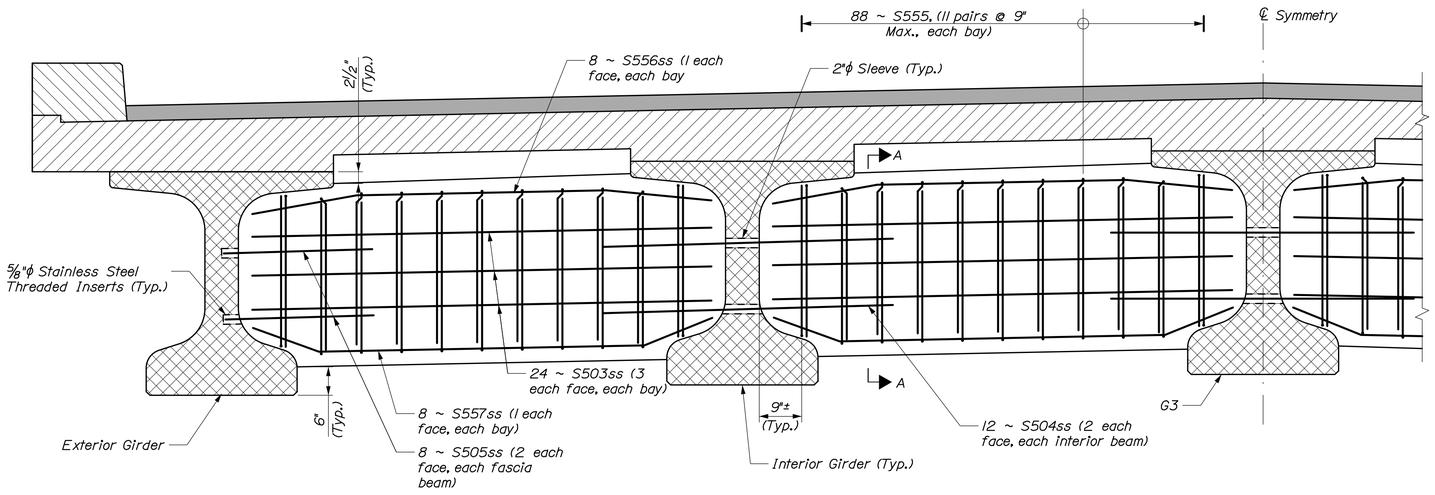
Username:
Division:
Date:8/25/2021
Filename: 171_Beam Details 1.dgn

GIRDER	BOTTOM OF SLAB ELEVATIONS										
	℄ Brg., Abut. No. 1	0.1 Span	0.2 Span	0.3 Span	0.4 Span	0.5 Span	0.6 Span	0.7 Span	0.8 Span	0.9 Span	℄ Brg., Abut. No. 2
G1	10.96	11.02	11.08	11.15	11.21	11.27	11.33	11.39	11.46	11.52	11.59
G2	11.15	11.21	11.27	11.34	11.40	11.46	11.52	11.59	11.65	11.71	11.77
G3	11.33	11.39	11.46	11.52	11.58	11.65	11.71	11.77	11.83	11.89	11.96
G4	11.15	11.21	11.27	11.34	11.40	11.46	11.52	11.59	11.65	11.71	11.77
G5	10.96	11.02	11.08	11.15	11.21	11.27	11.33	11.39	11.46	11.52	11.59



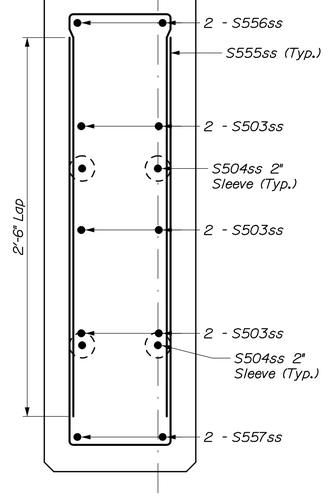
NEXT BEAM CAMBER DIAGRAM

Not to Scale



INTERMEDIATE DIAPHRAGM

(Bays 1 and 2 shown, bays 3 and 4 similar)



SECTION A-A

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

PROJ. MANAGER	D. Eaton, P.E.		
DESIGN-DETAILED	H. Walton	BY	DATE
CHECKED-REVIEWED	N. Boert	P. Bishop	08\21
DESIGN2-DETAILED2		A. Stephens	08\21
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

BEAM DETAILS 2

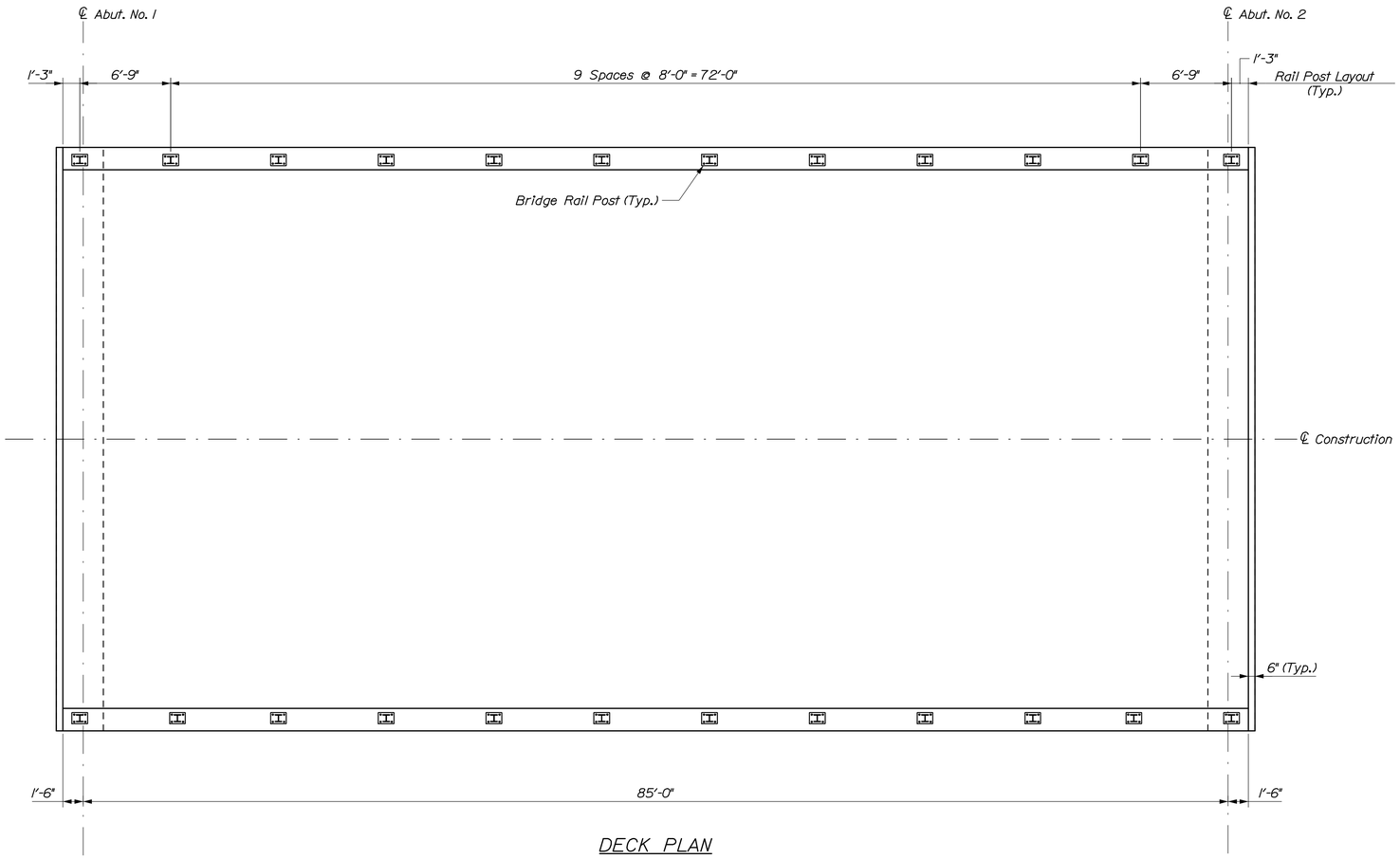
SHEET NUMBER

172

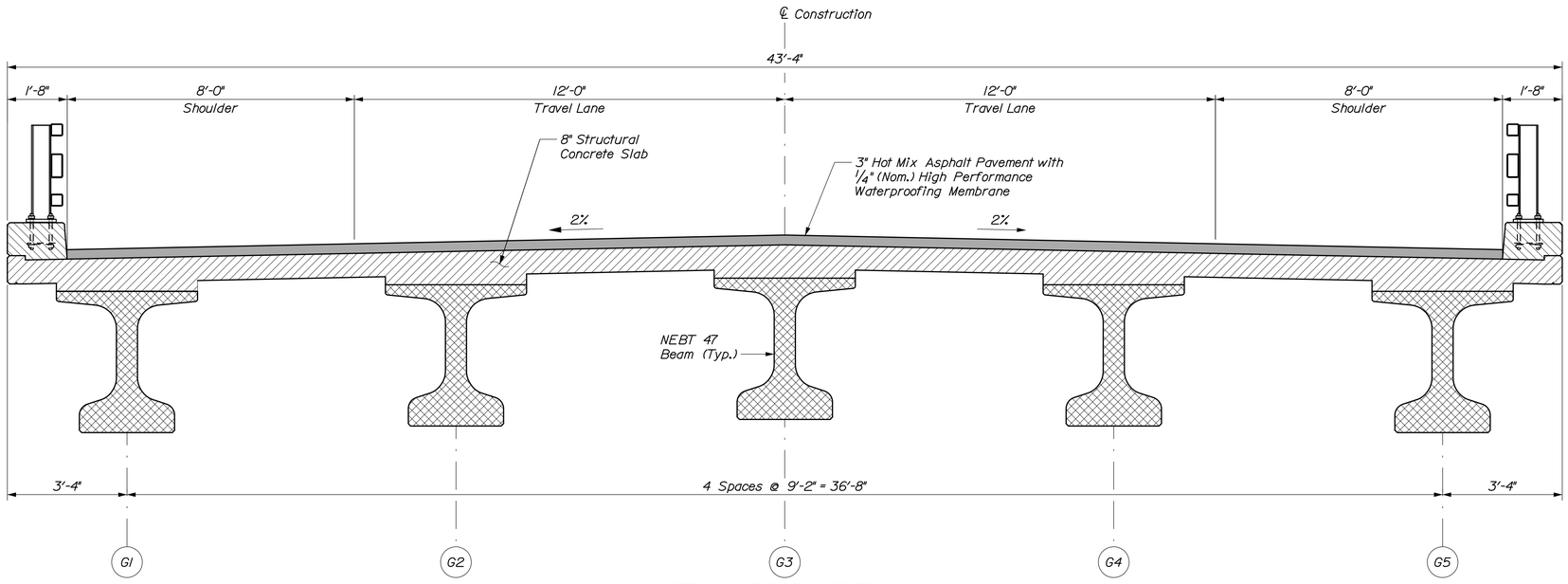
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Filename: 172_Beam Details 2.dgn Division: Username: Date:8/25/2021



DECK PLAN



TRANSVERSE SECTION

SUPERSTRUCTURE NOTES

1. Form a one inch V-groove on the fascias at the horizontal joint between the curb and slab.

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

3. The superstructure slab and end diaphragm concrete shall be placed in one continuous operation and shall be kept plastic until the entire placement has been made.

4. Payment for concrete within the abutment and below the bottom of the cast-in-place deck will be made under Item No. 502.219 Structural Concrete, Abutments and Retaining Walls.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

			DATE
PROJ. MANAGER	D. Eaton, P.E.	BY	
DESIGN-DETAILED	H. Walton	P. Bishop	08\21
CHECKED-REVIEWED	N. Boert	A. Stephens	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

SUPERSTRUCTURE PLAN

SHEET NUMBER

173

OF 183

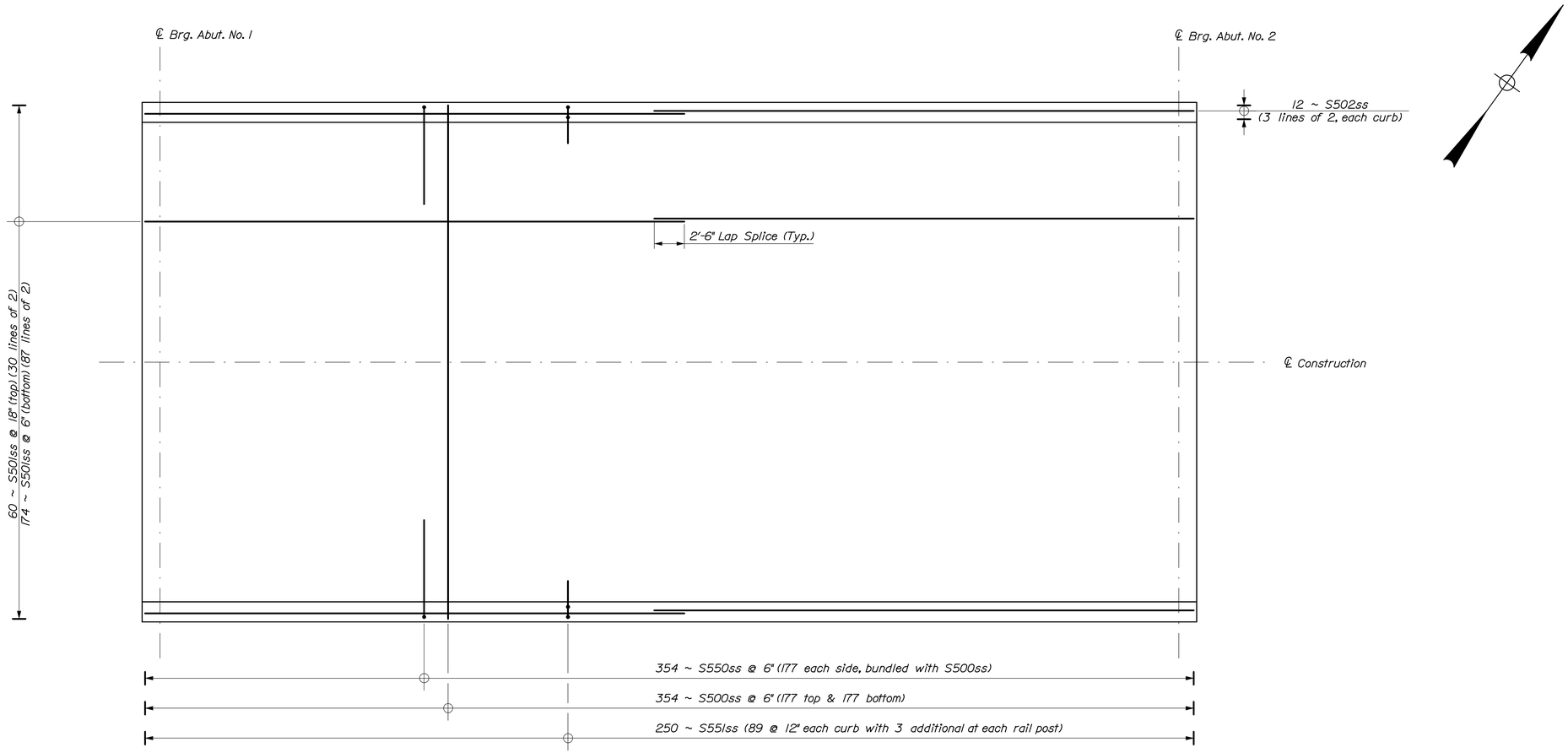
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Username:

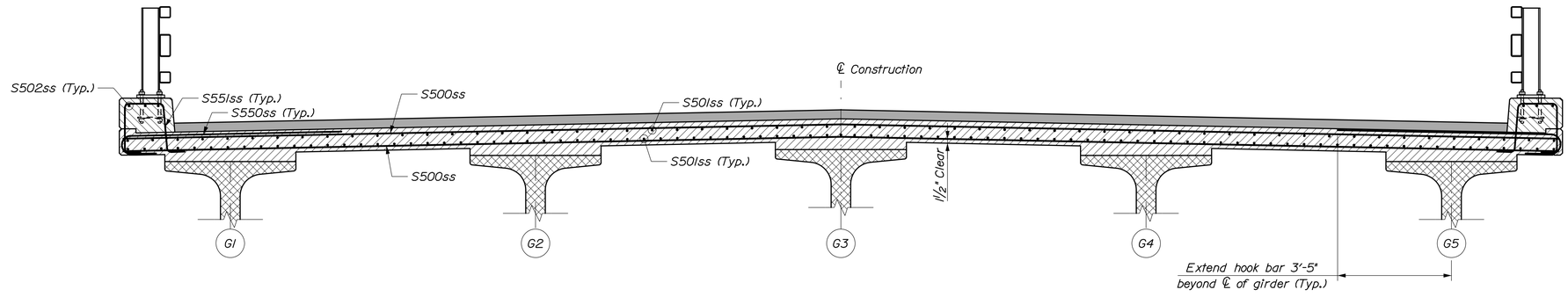
Division:

Date:8/25/2021

Filename: 173_Superstructure Plan.dgn



SUPERSTRUCTURE REINFORCING PLAN



TRANSVERSE REINFORCING SECTION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

PROJ. MANAGER	D. Edson, P.E.		
DESIGN-DETAILED	H. Walton	P. Bishop	08\21
CHECKED-REVIEWED	N. Boert	A. Stephens	08\21
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

SUPERSTRUCTURE REINFORCING

SHEET NUMBER

174

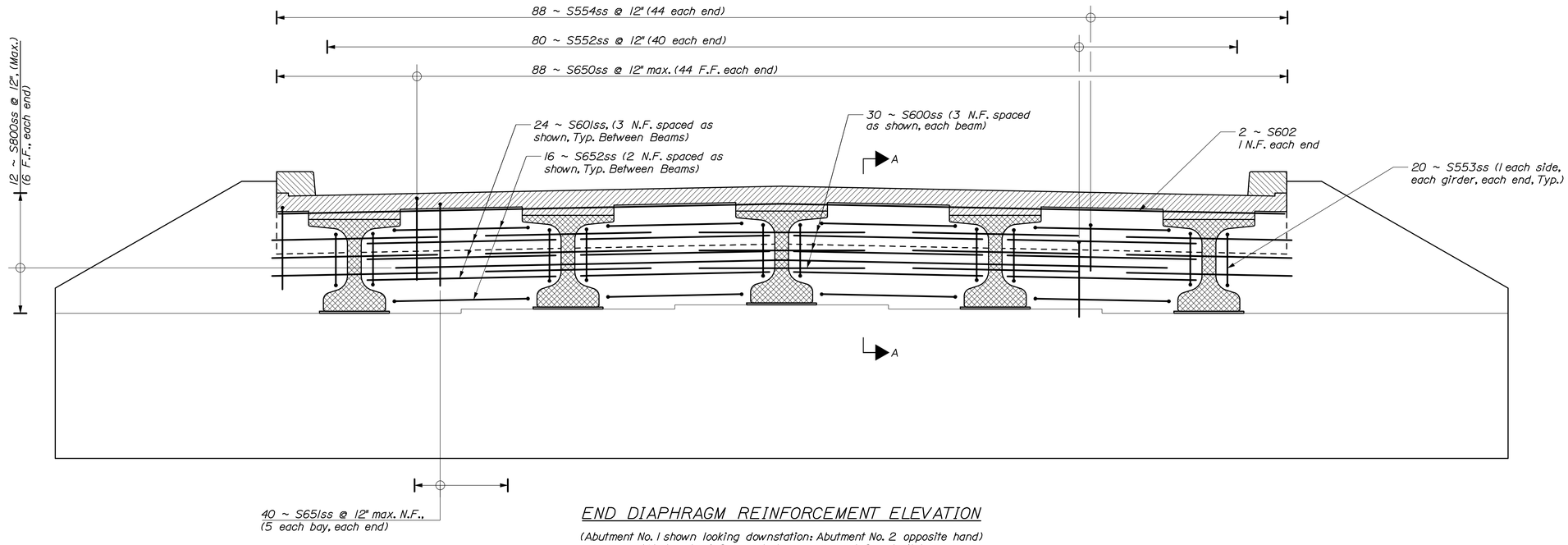
OF 183

Username:

Division:

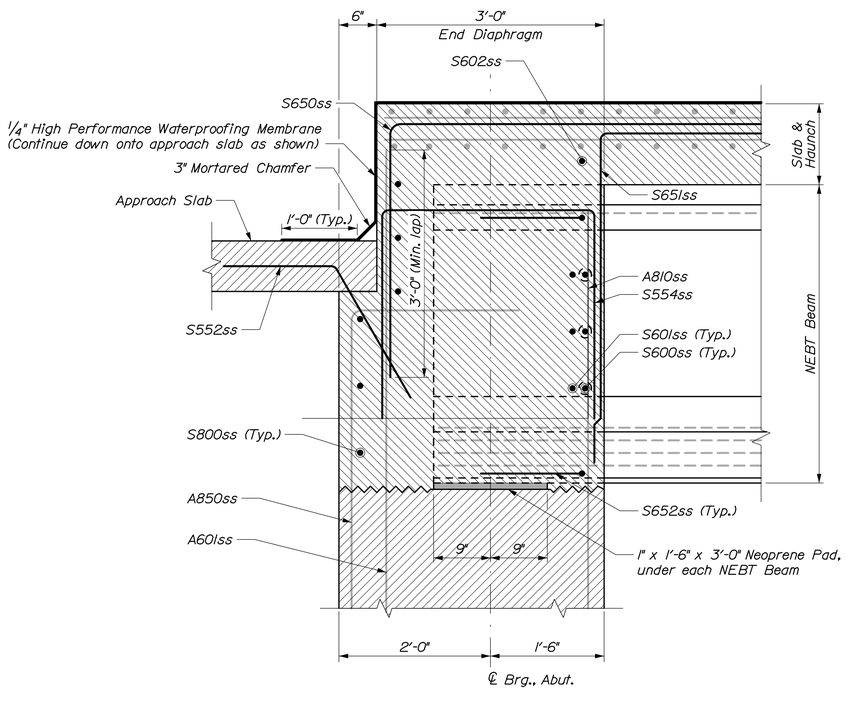
Date:8/25/2021

Filename: 174_Superstructure Reinforcing Plan.dgn



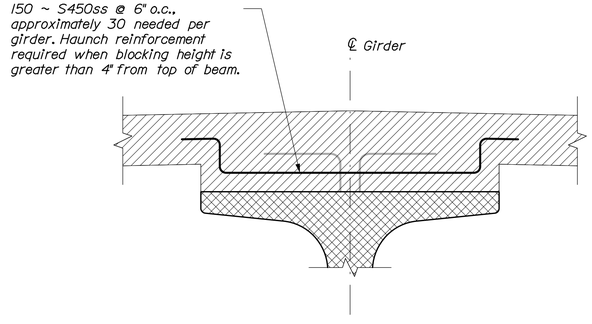
END DIAPHRAGM REINFORCEMENT ELEVATION

(Abutment No. 1 shown looking downstation: Abutment No. 2 opposite hand)
(Abutment reinforcment shown screened for clarity)



SECTION A-A

(Abutment No. 1 shown, Abutment No. 2 similar)
(Deck Reinforcing and Substructure Reinforcing shown screened for clarity)



HAUNCH REINFORCING DETAIL

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE NO. 6667

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	D. Eaton, P.E.	
DESIGN-DETAILED	P. Bishop	08\21
CHECKED-REVIEWED	A. Stephens	08\21
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

END DIAPHRAGM REINFORCING

SHEET NUMBER

175

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HNTB

Filename: 175_End Diaphragm Reinforcing.dgn Division: Username: Date:8/25/2021

Username:

Division:

Filename: 176_Reinforcing Schedule.dgn

Date:8/25/2021

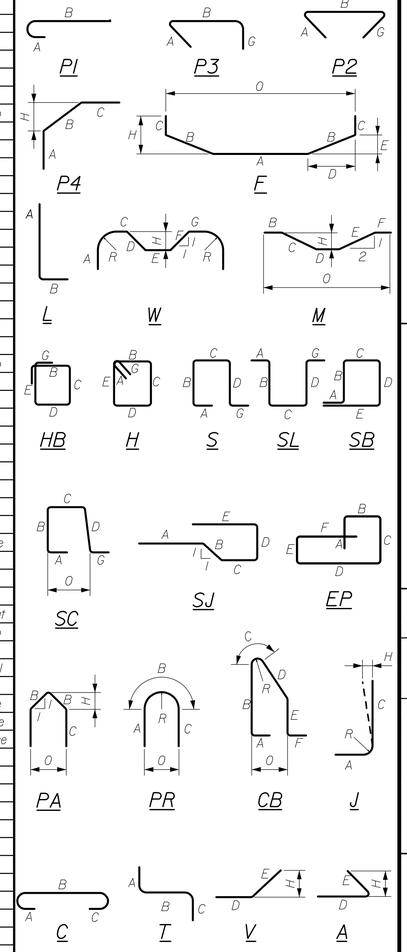
STRAIGHT BARS

MARK	QTY.	LENGTH	LOCATION
Abutment No. 1 (Stainless Steel)			
A500ss	14	12'-10"	Wingwall Horizontal, Near Face
A501ss	2	11'-5"	Wingwall Horizontal, Near Face
A502ss	2	10'-1"	Wingwall Horizontal, Near Face
A503ss	2	8'-10"	Wingwall Horizontal, Near Face
A504ss	2	6'-6"	Wingwall Horizontal, Near Face
A600ss	7	43'-2"	Stem Horizontal, Near Face
A601ss	44	6'-9"	Stem Vertical, End Diaphragm, FF
A800ss	38	19'-10"	Wingwall Hor., FF, T&B Lower Portion
A801ss	2	19'-5"	Wingwall Horizontal, Far Face
A802ss	2	18'-7"	Wingwall Horizontal, Far Face
A803ss	2	17'-8"	Wingwall Horizontal, Far Face
A804ss	2	16'-10"	Wingwall Horizontal, Far Face
A805ss	2	15'-11"	Wingwall Horizontal, Far Face
A806ss	2	15'-1"	Wingwall Horizontal, Far Face
A807ss	2	14'-2"	Wingwall Horizontal, Far Face
A808ss	2	13'-4"	Wingwall Horizontal, Far Face
A809ss	11	32'-7"	Stem Hor., FF, T&B Lower Portion
A810ss	32	9'-6"	Stem Vertical, Near Face
A811ss	12	10'-5"	Wingwall Vertical, Near/Far Face
A812ss	10	11'-5"	Wingwall Vertical, Near/Far Face
A813ss	12	8'-2"	Wingwall Vertical, Near/Far Face
A814ss	12	9'-4"	Wingwall Vertical, Near/Far Face
Abutment No. 2 (Stainless Steel)			
B500ss	16	12'-10"	Wingwall Horizontal, Near Face
B501ss	2	11'-5"	Wingwall Horizontal, Near Face
B502ss	2	10'-1"	Wingwall Horizontal, Near Face
B503ss	2	8'-10"	Wingwall Horizontal, Near Face
B504ss	2	6'-6"	Wingwall Horizontal, Near Face
B600ss	8	43'-2"	Stem Horizontal, Near Face
B601ss	44	6'-9"	Stem Vertical, End Diaphragm, FF
B800ss	42	19'-10"	Wingwall Hor., FF, T&B Lower Portion
B801ss	2	19'-5"	Wingwall Horizontal, Far Face
B802ss	2	18'-7"	Wingwall Horizontal, Far Face
B803ss	2	17'-8"	Wingwall Horizontal, Far Face
B804ss	2	16'-10"	Wingwall Horizontal, Far Face
B805ss	2	15'-11"	Wingwall Horizontal, Far Face
B806ss	2	15'-1"	Wingwall Horizontal, Far Face
B807ss	2	14'-2"	Wingwall Horizontal, Far Face
B808ss	2	13'-4"	Wingwall Horizontal, Far Face
B809ss	12	32'-7"	Stem Hor., FF, T&B Lower Portion
B810ss	32	10'-2"	Stem Vertical, Near Face
B811ss	12	11'-1"	Wingwall Vertical, Near/Far Face
B812ss	10	12'-1"	Wingwall Vertical, Near/Far Face
B813ss	12	8'-10"	Wingwall Vertical, Near/Far Face
B814ss	12	10'-0"	Wingwall Vertical, Near/Far Face
Approach Slab (Stainless Steel)			
AS501ss	32	30'-0"	Approach Slab Transverse
AS502ss	32	10'-6"	Approach Slab Transverse
AS601ss	158	15'-2"	Approach Slab Longitudinal
Superstructure (Stainless Steel)			
S500ss	354	43'-0"	Deck Slab, Transverse T&B
S501ss	234	45'-1"	Deck Slab, Longitudinal T&B
S502ss	12	45'-1"	Curb, Longitudinal Top
S503ss	24	8'-2"	Int. Diaphragm, Horizontal
S504ss	12	7'-8"	Int. Diaphragm, Hor., Thru Stem
S505ss	8	3'-8"	Int. Dia., Hor., (Threaded Insert)
S600ss	30	7'-2"	End Dia., Hor., NF, Thru Stem
S601ss	24	8'-2"	End Diaphragm Horizontal, NF
S602ss	2	32'-7"	End Dia. Horizontal, NF, Top
S800ss	12	32'-7"	End Diaphragm Horizontal, FF

BENT BARS

MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
Abutment No. 1 (Stainless Steel)														
A550ss	2	11'-11"	L	0'-10"	11'-1"									Wingwall Hor., NF, Girder BF
A551ss	2	7'-8"	L	0'-10"	6'-10"									Wingwall Hor., NF, Girder TF
A552ss	2	6'-10"	L	0'-10"	6'-0"									Wingwall Horizontal, FF, T&S
A553ss	2	5'-1"	L	0'-10"	4'-3"									Wingwall Horizontal, FF, T&S
A554ss	2	3'-4"	L	0'-10"	2'-6"									Wingwall Horizontal, FF, T&S
A555ss	67	14'-6"	S	0'-0"	5'-9"	3'-0"	5'-9"			0'-0"				Stem & Wingwall Bottom Stirrup
A556ss	87	8'-10"	S	0'-0"	2'-11"	3'-0"	2'-11"			0'-0"				CJ Shear Stirrup, WW Top Stirrup
A557ss	134	3'-11.5"	P3	0'-5½"	3'-0"					0'-6"				Shear Tie
A558ss	8	10'-2"	V				1'-3"	8'-11"			4'-5"			Wingwall Top Slope Reinforcing
A559ss	16	4'-8"	S	0'-0"	0'-10"	3'-0"	0'-10"			0'-0"				Wingwall End Stirrups
A850ss	87	10'-2"	L	8'-4"	1'-10"									Stem Vertical, Far Face
Abutment No. 2 (Stainless Steel)														
B550ss	2	11'-11"	L	0'-10"	11'-1"									Wingwall Hor., NF, Girder BF
B551ss	2	7'-8"	L	0'-10"	6'-10"									Wingwall Hor., NF, Girder TF
B552ss	2	6'-10"	L	0'-10"	6'-0"									Wingwall Horizontal, FF, T&S
B553ss	2	5'-1"	L	0'-10"	4'-3"									Wingwall Horizontal, FF, T&S
B554ss	2	3'-4"	L	0'-10"	2'-6"									Wingwall Horizontal, FF, T&S
B555ss	67	15'-10"	S	0'-0"	6'-5"	3'-0"	6'-5"			0'-0"				Stem & Wingwall Bottom Stirrup
B556ss	87	8'-10"	S	0'-0"	2'-11"	3'-0"	2'-11"			0'-0"				CJ Shear Stirrup, WW Top Stirrup
B557ss	134	3'-11.5"	P3	0'-5½"	3'-0"					0'-6"				Shear Tie
B558ss	8	10'-2"	V				1'-3"	8'-11"			4'-5"			Wingwall Top Slope Reinforcing
B559ss	18	4'-8"	S	0'-0"	0'-10"	3'-0"	0'-10"			0'-0"				Wingwall End Stirrups
B850ss	87	10'-10"	L	9'-0"	1'-10"									Stem Vertical, Far Face
Superstructure (Stainless Steel)														
S450ss	150	5'-11"	SL	0'-8"	0'-6"	3'-7"	0'-6"			0'-8"				Haunch Stirrup
S550ss	354	7'-2"	C	0'-7"	6'-7"									Deck Overhang, Primary Transverse
S551ss	250	5'-7"	SC	0'-10"	1'-4"	1'-3"	1'-4"			0'-10"		1'-4"		Curb Stirrup
S552ss	80	5'-6"	V				3'-0"	2'-6"			1'-3"			Approach Slab Pin
S553ss	20	3'-10"	S	0'-0"	0'-10"	2'-2"	0'-10"			0'-0"				End Diaphragm, NF, Thru Girder
S554ss	88	8'-6"	S	0'-0"	2'-11"	2'-8"	2'-11"			0'-0"				Shear Stirrup, above App. Slab Seat
S555ss	88	6'-2"	S	0'-0"	2'-9"	0'-8"	2'-9"			0'-0"				Int. Diaphragm, Transverse Stirrup
S556ss	8	8'-1"	F	3'-5"	2'-4"	0'-0"	2'-4"	0'-3"			0'-3"	8'-1"		Int. Diaphragm, Top Longitudinal
S557ss	8	8'-3"	F	4'-7"	1'-10"	0'-0"	1'-9"	0'-7"			0'-7"	8'-1"		Int. Diaphragm, Bottom Longitudinal
S650ss	88	10'-9"	L	6'-0"	4'-9"									End Diaphragm to Deck, Far Face
S651ss	40	7'-2"	L	3'-0"	4'-2"									End Diaphragm to Deck, Near Face
S652ss	16	8'-2"	S	0'-0"	1'-0"	6-2"	1'-0"			0'-0"				End Diaphragm, Fill Bars, Near Face

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, AC1 440.1r-15

GENERAL NOTES

1. The first two digits following the letter(s) of the mark indicate the size of the bar:

   Mark 'A502' = bar size #5
   Mark 'P805' = bar size #8
   Mark 'S650' = bar size #6
   Mark 'S650ss' = bar size #6 Stainless Steel
   Mark 'S600G' = bar size #6 GFRP

2. Each crank bar, Type B, may be replaced by two (2) straight bars (one top and one bottom) of the same bar size as the crank bar. Payment in either case shall be based on crank bars as schedule on the plans.

3. Bar marks ending with 'G' indicate GFRP. Bar marks ending with 'ss' indicate stainless steel. All other bars are plain (uncoated).

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2392900

WIN 23929.01

BRIDGE PLANS

BRIDGE NO. 6667

	SIGNATURE	P.E. NUMBER	DATE
PROJ. MANAGER			
DESIGN-DETAILED	D. Eaton, P.E.		
CHECKED-REVIEWED	H. Walton		
DESIGN2-DETAILED2	N. Baert		
DESIGN3-DETAILED3	A. Stephens		
REVISIONS 1	P. Bishop		
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

	BY	DATE
REVISIONS 1	P. Bishop	08\21
REVISIONS 2	A. Stephens	08\21
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

PLEASANT COVE BRIDGE
KENNEBEC RIVER ESTUARY
WOOLWICH SAGADAHOC COUNTY

REINFORCING STEEL SCHEDULE

SHEET NUMBER

176

OF 183

Date:$date$
Username: $user$
Division: $wkgroup$
Filename: $file$

PLAN LEGEND

Town, County, State		New R/W Along Existing R/W		Existing	Proposed	Existing	Proposed
Approx. Property Lines	P.L.	Building	Clearing Limit Line	Sanitary Sewer		Traveled Way	
Existing Right of Way		Trees Conifer	Deciduous	Telephone Line		Ditch	
Limits of Wrought Portion	L.O.W.P.	Tree Line	Bush Line	Electric Line	E	Catch Basin	
Control Of Access	C.O.A.	Water Edge		Water Line	W	Manhole	
New Right of Way		Ledge	Rock/Boulder	Underdrain Line		Sewer Manhole	
New Easement		Fence CHAIN LINK	BARB WIRE / STOCKADE	Gas Line		Utility Pole	
New Temporary Rights		Sign	Well / Mailbox	Guardrail		Fire Hydrant	
New R/W Within Existing R/W				Culvert		Curbing	

Cut Line C C C	Fill Line F F F		
Stonewall	Retaining Wall		
Baseline 10+00	11+00	12+00	
Monument	Traverse Point		
Iron Rod Found IRF	Pipe Found IPF		
Replacement Pin Set			

THIS PLAN WAS PREPARED IN CONNECTION WITH THE DEPARTMENT'S ACQUISITION OF REAL PROPERTY FOR TRANSPORTATION PURPOSES. IT CANNOT BE USED TO ESTABLISH LEGAL BOUNDARIES BETWEEN ABUTTING PROPERTY OWNERS.

25 0 25 50 75 100
Scale of Feet

STATE OF MAINE
REGISTRY OF DEEDS

COUNTY _____
RECEIVED _____, _____
at _____h _____m _____M and
recorded in Plan Bk _____, Pg. _____
Attest: _____
REGISTER

EXISTING RIGHT OF WAY INFORMATION

STATE HIGHWAY "26" (U.S. ROUTE 1)

LINCOLN COUNTY COMMISSIONER'S RECORDS
VOLUME 6, PAGE 240
& AS RELOCATED
VOLUME 6, PAGE 413
YEAR 1840, 4 RODS WIDE

MAINE STATE HIGHWAY COMMISSION
PLAN OF PROPOSED RELOCATION
STATE HIGHWAY "D"
WOOLWICH - SAGADAHOC COUNTY
ACROSS THE LAND OF CENTRAL MAINE RAILROAD CO.
& FRANK W. CARLTON
DATED OCTOBER 1933
S.H.C FILE NO. 12-7 SHEETS 3 & 4

MAINE STATE HIGHWAY COMMISSION
RIGHT OF WAY MAP - STATE HIGHWAY "26"
WOOLWICH, SAGADAHOC COUNTY
FEDERAL AID PROJECT NO. F-026-1(4)
DATED JANUARY 1955
S.H.C. FILE NO. 12-38 SHEET 1
SAGADAHOC COUNTY REGISTRY OF DEEDS
PLAN BOOK 6 PAGE 14A

SURVEY OF PROPOSED CONVEYANCE
PREPARED FOR LAWRENCE EDWARDS, JR.
SURVEYED BY COLBY AND ASSOCIATED
DATED DECEMBER 4, 2013
S.C.R.D. PLAN BOOK 49, PAGE 72

CONTROL INFORMATION

HORIZONTAL DATUM - U.S. STATE PLANE NAD(83) (2011)
ZONE - MAINE 2000 CENTRAL ZONE
VERTICAL DATUM - NAVD 88
COMBINED FACTOR - 1.00001871

GRID
MAINE 2000 CENTRAL ZONE

KEPRAN, LLC

APPROXIMATE LOCATION
30' RIGHT OF WAY EASEMENT
NEW ENGLAND TELEPHONE AND TELEGRAPH
S.C.R.D. BOOK 186, PAGE 86
SEE TOWN OF WOOLWICH TAX MAP

TOE OF SLOPE DITCH
STA. 80+19± TO STA. 80+39± LT.

EXISTING DRAINAGE EASEMENT
SEE S.H.C. FILE NO. 12-50, SHEET 2

SALLY DAGGETT
ITEM NO. (2)
SLOPE EASE. = 99± S.F. (1)
TEMP. CONST. RIGHTS = 1,497± S.F. (1)
TOTAL AREA = 4.64± AC. (PER SURVEY)

PC = STA. 75+52.85

SEWER OVERFLOW

CONC 3 STEPS

3/4" DIA REBAR

S.H.C. FILE NO. 12-50 (1960)

S.H.C. FILE NO. 12-50 SHEET 2

SOUTH RT. 1

TO BATH

BEGIN B.L. STA. 73+50.00

N 29°28'50.7" E 202.85'

1,293.29'

STATE HIGHWAY "26" / U.S. ROUTE 1 / MAIN STREET

1/2" DIA REBAR b smith 1175

CMP/39/205/10 ELECTRIC

S.H.C. FILE NO. 12-50, SHEET 2

BOULDER

STONE WHEEL ANCHOR

CMP/38 ELECTRIC

0.18± AC.

TASTE OF MAINE

STONE WHEEL

6" DIA. WOOD

CMP/37.5/205/12

S.H.C. FILE NO. 12-50 SHEET 2

U-CHANNEL MERGE

CMP/7.1/13S ELECTRIC

18" CMP

8" CMP

SLOW VILLAGE AHEAD

ELECTRIC

TEMP. CONST. LIMITS
1,497± S.F.

EASEMENT LIMITS
99± S.F.

SLOPE EASE.
381± S.F.

EXISTING SLOPE EASEMENT LIMITS

TEMP. CONST. LIMITS

CANDYLAND, LLC
ITEM NO. (1)
SLOPE EASE. = 0.10± AC. (2)
DRAINAGE EASE. = 0.05± AC. (1)
TEMP. CONST. RIGHTS = 0.18± AC. (1)
TEMP.ROAD RIGHT = 0.22± AC. (1)
TOTAL AREA = 5.79± AC. (PER TOWN)

EXISTING HIGHWAY DITCH EASE.
SEE S.H.C. FILE NO. 12-50 SHEET 3

GAZEBO

ROAD

0.05± AC.

0.22± AC.

0.14± AC.

0.18± AC.

0.05± AC.

0.14± AC.

ABANDONED

D.O.T. FILE NO. 12-76

D.O.T. FILE NO. 12-104

TEMP. ROAD LIMITS

TEMP. CONST. LIMITS

TOE OF SLOPE DITCH
STA. 80+01± TO
STA. 80+58± RT.

DRAINAGE OUTLET
STA. 79+04± RT.

24" CONCRETE PIPE

TOE OF SLOPE DITCH
STA. 78+25± TO STA. 78+86± RT.

OUTLET DRAINAGE STRUCTURE
STA. 78+68 TO STA. 79+12 RT.

OSPREY TOWER

2'X2'

STANDARD BOUNDARY SURVEY
LAND OF HARRY C. & MARION A CROOKER
BY BRIAN SMITH SURVEYING, INC.
DATED DECEMBER 9 2001
REVISED DATE DECEMBER 5 2001
S.C.R.D. PLAN BOOK 37, PAGE 64

RIGHT OF WAY INFORMATION (CONT.)

MAINE STATE HIGHWAY COMMISSION
RIGHT OF WAY MAP - STATE HIGHWAY "26"
WOOLWICH, SAGADAHOC COUNTY
FEDERAL AID PROJECT NO. F-FG-026-1(11)
DATED AUGUST 1960
S.H.C. FILE NO. 12-50, SHEET 2 OF 3
SAGADAHOC COUNTY REGISTRY OF DEEDS
PLAN BOOK 7, PAGE 8

STATE OF MAINE - DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS - RIGHT OF WAY MAP
STATE HIGHWAY "26"
WOOLWICH, SAGADAHOC COUNTY
LAND PURCHASE OF JOHN DONNELLY & SONS
DATED MAY 1977
D.O.T. FILE NO. 12-76
SAGADAHOC COUNTY REGISTRY OF DEEDS
PLAN BOOK 13, PAGE 28

STATE OF MAINE - DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS - RIGHT OF WAY MAP
STATE HIGHWAY "26"
WOOLWICH, SAGADAHOC COUNTY
FEDERAL AID PROJECT NO. RFG-026-1(48)
DATED MARCH 1979
D.O.T FILE NO. 12-78
SAGADAHOC COUNTY REGISTRY OF DEEDS
PLAN BOOK 20, PAGE 57

RAILROAD RIGHT OF WAY INFORMATION

RIGHT-OF-WAY AND TRACK MAP
MAINE CENTRAL R.R.
OPERATED BY MAINE CENTRAL RAILROAD COMPANY
STATION 494+38 TO STATION 580+80
DATED JUNE 30, 1916
PLAN V6, SHEETS 10 & 11

STATE OF MAINE - DEPARTMENT OF TRANSPORTATION
RIGHT OF WAY MAP - ROCKLAND BRANCH M.D.O.T. RAILROAD
WOOLWICH, SAGADAHOC COUNTY
FEDERAL AID PROJECT NO. 007952.10
DATED JULY 1998
D.O.T. FILE NO. 12-104, SHEET 10 OF 53

FORMER LOCATION OF U.S. ROUTE 1
16' WATER LINE EASEMENT
SEE S.C.R.D. PLAN BOOK 37, PAGE 64
RAILROAD PLAN V6, SHEETS 10 & 11
D.O.T. FILE RD. 12-104
STATE OF MAINE

RAILROAD PLAN V6, SHEETS 10 & 11

CURVE DATA #1
PI = 82+09.70
D = 1°54'35.5"
Δ = 24°42'00.0" Rt.
R = 3000.00'
L = 1293.29'
E = 71.84'

STATION 46 BRIDGE
OVER
FORMER MAINE CENTRAL RAILROAD
NOW STATE OF MAINE

BRIDGE NO. 3039 WIN 023929.00

ITEM	CHECKED
EXISTING CONDITION PLAN	G.L.L.
FINAL RIGHT OF WAY	G.L.L.
AREAS	G.L.L.
TECH	G.L.L.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016 - 207-624-3460
WOOLWICH
RIGHT OF WAY MAP

REVISIONS

NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK		PAGE	COUNTY RECORD		
NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE

BRUCE A. VAN NOTE
COMMISSIONER
JOYCE NOEL TAYLOR
CHIEF ENGINEER
DATE

STATE HIGHWAY "26"
U.S. ROUTE 1 / MAIN STREET
WOOLWICH SAGADAHOC COUNTY
FEDERAL AID PROJECT NO. 2392900

MAY 2021 | RIGHT-OF-WAY MAP | D.O.T. FILE NO. 12-142
SCALE 1" = 25' | SHEET 1 OF 4

SHEET NUMBER
177
OF 183

Date:$date$
Username: $user$
Division: $wkgroup$
Filename: $file$

PLAN LEGEND

Town, County, State	New R/W Along Existing R/W	Existing / Proposed	Existing / Proposed
Approx. Property Lines P.L.	Building / Clearing Limit Line	Sanitary Sewer	Traveled Way
Existing Right of Way	Trees Conifer / Deciduous	Telephone Line	Ditch
Limits of Wrought Portion L.O.W.P.	Tree Line / Bush Line	Electric Line	Catch Basin
Control Of Access C.O.A.	Water Edge	Water Line	Manhole
New Right of Way	Ledge / Rock/Boulder / Flag Pole	Gas Line	Sewer Manhole
New Easement	Fence CHAIN LINK / BARB WIRE / STOCKADE	Underdrain Line	Utility Pole
New Temporary Rights	Sign / Well / Mailbox	Guardrail	Fire Hydrant
New R/W Within Existing R/W		Culvert	Curbing

Cut Line C C C	Fill Line F F F
Stonewall	Retaining Wall
Baseline 10+00 11+00 12+00	
Monument	Traverse Point
Iron Rod Found IRF	Pipe Found IPF
Replacement Pin Set	

THIS PLAN WAS PREPARED IN CONNECTION WITH THE DEPARTMENT'S ACQUISITION OF REAL PROPERTY FOR TRANSPORTATION PURPOSES. IT CANNOT BE USED TO ESTABLISH LEGAL BOUNDARIES BETWEEN ABUTTING PROPERTY OWNERS.

25 0 25 50 75 100
Scale of Feet

STATE OF MAINE REGISTRY OF DEEDS

COUNTY _____
RECEIVED _____, _____
at _____h_____m_____M and
recorded in Plan Bk _____, Pg._____
Attest: _____
REGISTER

CONTROL INFORMATION
HORIZONTAL DATUM - U.S. STATE PLANE NAD(83) (2011)
ZONE - MAINE 2000 CENTRAL ZONE
VERTICAL DATUM - NAVD 88
COMBINED FACTOR - 1.00001871

GRID & MAINE 2000 CENTRAL ZONE

SCOTT MICHAEL HILLEGEIST
ITEM NO. (3)
SLOPE EASE. = 381± S.F. (1)
TEMP. CONST. RIGHTS = 0.07± AC. (1)
TOTAL AREA = 52± AC. (PER TOWN)

TOE OF SLOPE DITCH
STA. 80+19± TO STA. 80+39± LT.

STATE OF MAINE
RAILROAD PLAN V6, SHEETS 10 & 11 / D.O.T. FILE NO. 12-104
APPROXIMATE LOCATION 30' RIGHT OF WAY EASEMENT NEW ENGLAND TELEPHONE AND TELEGRAPH SEE TOWN OF WOOLWICH TAX MAP
APPROXIMATE LOCATION N.E.T.T. CABLE SEE S.H.C. FILE NO. 12-38 SHEET 1
12" CPP
P.L.
TEMP. CONST. LIMITS
CLL
SLOPE EASE. 381± S.F.
0.07± AC.
0.10± AC.
MANHOLE
ROR
15" PCP
S.H.C. FILE NO. 12-50, SHEET 2
S.H.C. FILE NO. 12-38
S.H.C FILE NO. 12-38 SHEET 1
WET AREA
STATE HIGHWAY "26" / U.S. ROUTE 1 / MAIN STREET
SPEED LIMIT 35
80+00
81+00
82+00
83+00
84+00
85+00
86+00
87+00
1,293.29'
RIGHT LANE MUST TURN RIGHT
S.H.C. FILE NO. 12-38
EASE. FOR HIGHWAY PURPOSES
SEE D.O.T. FILE NO. 12-76
EASE. FOR HIGHWAY PURPOSES
CMP/36/14 ELECTRIC
ABANDONED
TEMP. ROAD LIMITS
1,533± S.F. EASE.
0.14± AC.
APPROXIMATE DEED LINE - S.C.R.D. BOOK 458, PAGE 194 & D.O.T FILE NO. 12-76
OHU
CMP 35/205/15 ELECTRIC
0.50± AC.
L.C.C.R. VOL. 6, PAGE 240 & L.C.C.R. VOL. 6, PAGE 413 & S.H.C. FILE NO. 12-38 SHEET 1
TAX MAP R-3
LOT 4
CMP/34/16 ELECTRIC

CURVE DATA #1
PI = 82+09.70
D = 1°54'35.5"
Δ = 24°42'00.0" Rt.
R = 3000.00'
L = 1293.29'
T = 656.85'
E = 71.07'

OWNER UNKNOWN
ITEM NO. (4)
TEMP. CONST. RIGHTS = 0.50 ± AC. (1)
TOTAL AREA = (VAST HOLDING)

STATION 46 BRIDGE
OVER
FORMER MAINE CENTRAL RAIL ROAD
NOW STATE OF MAINE
BRIDGE NO. 3039 WIN 023929.00

ITEM	CHECKED
EXISTING CONDITION PLAN	G.L.L.
FINAL RIGHT OF WAY	G.L.L.
AREAS	G.L.L.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016 - 207-624-3460
WOOLWICH
RIGHT OF WAY MAP

REVISIONS NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK PAGE	COUNTY RECORD NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE

BRUCE A. VAN NOTE
COMMISSIONER
JOYCE NOEL TAYLOR
CHIEF ENGINEER
DATE

STATE HIGHWAY "26"
U.S. ROUTE 1 / MAIN STREET
WOOLWICH SAGADAHOC COUNTY
FEDERAL AID PROJECT NO. 2392900

MAY 2021	RIGHT-OF-WAY MAP	D.O.T. FILE NO. 12-142
SCALE 1" = 25'	SHEET 2 OF 4	

SHEET NUMBER
178
OF 183

PLAN LEGEND

Town, County, State	New R/W Along Existing R/W		Existing	Proposed		Existing	Proposed
Approx. Property Lines P.L.	Building	Clearing Limit Line	Sanitary Sewer		Traveled Way		
Existing Right of Way	Trees Conifer	Deciduous	Telephone Line		Ditch		
Limits of Wrought Portion L.O.W.P.	Tree Line	Bush Line	Electric Line	E	Catch Basin		
Control Of Access C.O.A.	Water Edge		Water Line	W	Manhole		
New Right of Way	Ledge	Rock/Boulder Flag Pole	Underdrain Line		Sewer Manhole		
New Easement	Fence CHAIN LINK	BARB WIRE STOCKADE	Gas Line		Utility Pole		
New Temporary Rights	Sign	Well WELL Mailbox	Guardrail		Fire Hydrant		
New R/W Within Existing R/W			Culvert		Curbing		

Cut Line C C C	Fill Line F F F		
Stonewall	Retaining Wall		
Baseline 10+00 11+00 12+00			
Monument	Traverse Point		
Iron Rod Found IRF	Pipe Found IPF		
Replacement Pin Set			

THIS PLAN WAS PREPARED IN CONNECTION WITH THE DEPARTMENT'S ACQUISITION OF REAL PROPERTY FOR TRANSPORTATION PURPOSES. IT CANNOT BE USED TO ESTABLISH LEGAL BOUNDARIES BETWEEN ABUTTING PROPERTY OWNERS.

25 0 25 50 75 100
Scale of Feet

STATE OF MAINE
REGISTRY OF DEEDS

COUNTY _____
RECEIVED _____, _____
at _____h_____m_____M and
recorded in Plan Bk _____, Pg._____
Attest: _____
REGISTER

S.C.R.D BOOK 458, PAGE 194
D.O.T. FILE NO. 12-76

GRID
MAINE 2000 CENTRAL ZONE

CONTROL INFORMATION

HORIZONTAL DATUM - U.S. STATE PLANE NAD(83) (2011)
ZONE - MAINE 2000 CENTRAL ZONE
VERTICAL DATUM - NAVD 88
COMBINED FACTOR - 1.00001871

R/W TO OTHERS
SEE S.H.C. FILE NO. 12-38 SHEET 1
SEE D.O.T. FILE NO. 12-76

APPROXIMATE LOCATION
N.E.T.T. CABLE
SEE S.H.C. FILE NO. 12-38 SHEET 1

APPROXIMATE LOCATION
N.E.T.T. CABLE
SEE S.H.C. FILE NO. 12-38 SHEET 1

STATE OF MAINE

S.H.C FILE NO. 12-38 SHEET 1

S.H.C FILE NO. 12-38 SHEET 1

WAIT 35

PLANE SIGN

U.S. Route 1

87+00 88+00 89+00 90+00 91+00 92+00 93+00 94+00

1,293.29'

END B.L.
STA. 88+46.14

STATE HIGHWAY "26" / U.S. ROUTE 1 / MAIN STREET

RIGHT LANE MUST TURN RIGHT

GEORGE WRIGHT RD.

SPEED LIMIT 55

CURVE DATA #1
PI = 82+09.70
D = 1°54'35.5"
Δ = 24°42'00.0" Rt.
R = 3000.00'
L = 1293.29'
T = 656.85'
E = 71.07'

PT = STA. 88+46.14

WET AREA

HATCHED AREA
STATE OF MAINE TO
TOWN OF WOOLWICH
PERMIT TO PARK
SEE S.H.C. FILE NO. 12-38 SHEET 1

CMP/31/19 ELECTRIC

CMP/33/17 ELECTRIC

P R-3
ELECTRIC

APPROXIMATE DEED LINE - S.C.R.D. BOOK 458, PAGE 194 & D.O.T FILE NO. 12-76

L.C.C.R. VOL. 6, PAGE 240 & L.C.C.R. VOL. 6, PAGE 413
S.H.C. FILE NO. 12-38 SHEET 1

L.C.C.R. VOL. 6, PAGE 240 & L.C.C.R. VOL. 6, PAGE 413 & S.H.C. FILE NO. 12-38 SHEET 1

ED LINE - S.C.R.D. BOOK 458, PAGE 194 & D.O.T FILE NO. 12-76

STATION 46 BRIDGE
OVER
FORMER MAINE CENTRAL RAIL ROAD
NOW STATE OF MAINE

BRIDGE NO. 3039 WIN 023929.00

ITEM	TECH	CHECKED
EXISTING CONDITION PLAN	G.L.L.	
FINAL RIGHT OF WAY	G.L.L.	
AREAS	G.L.L.	

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016 - 207-624-3460

WOOLWICH
RIGHT OF WAY MAP

REVISIONS			
NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK PAGE COUNTY RECORD

NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE

BRUCE A. VAN NOTE
COMMISSIONER
JOYCE NOEL TAYLOR
CHIEF ENGINEER
DATE

STATE HIGHWAY "26"
U.S. ROUTE 1 / MAIN STREET
WOOLWICH SAGADAHOC COUNTY
FEDERAL AID PROJECT NO. 2392900

MAY 2021	RIGHT-OF-WAY MAP	D.O.T. FILE NO. 12-142
SCALE 1" = 25'	SHEET 3 OF 4	

SHEET NUMBER
179
OF 183

Filename: $file$ Division: $wkgroup$ Username: $user$ Date:$date$

Date:$date$
Username: $user$
Division: $wkgroup$
Filename: $file$

PLAN LEGEND

Town, County, State	New R/W Along Existing R/W	Sanitary Sewer	Existing / Proposed	Traveled Way	Existing / Proposed	Cut Line	Fill Line
Approx. Property Lines P.L.	Building / Clearing Limit Line	Telephone Line		Ditch		Stonewall	Retaining Wall
Existing Right of Way	Trees Conifer / Deciduous	Electric Line		Catch Basin		Baseline 10+00 11+00 12+00	
Limits of Wrought Portion L.O.W.P.	Tree Line / Bush Line	Water Line		Manhole		Monument	Traverse Point
Control Of Access C.O.A.	Water Edge	Underdrain Line		Sewer Manhole		Iron Rod Found ● IRF	Pipe Found ● IPF
New Right of Way	Ledge / Rock/Boulder / Flag Pole	Gas Line		Utility Pole		Replacement Pin Set	
New Easement	Fence CHAIN LINK / BARB WIRE / STOCKADE	Guardrail		Fire Hydrant			
New Temporary Rights	Sign / Well / Mailbox	Culvert		Curbing			
New R/W Within Existing R/W							

THIS PLAN WAS PREPARED IN CONNECTION WITH THE DEPARTMENT'S ACQUISITION OF REAL PROPERTY FOR TRANSPORTATION PURPOSES. IT CANNOT BE USED TO ESTABLISH LEGAL BOUNDARIES BETWEEN ABUTTING PROPERTY OWNERS.

25 0 25 50 75 100
Scale of Feet

STATE OF MAINE
REGISTRY OF DEEDS

COUNTY _____
RECEIVED _____, _____
at _____h_____m_____M and
recorded in Plan Bk _____, Pg._____
Attest: _____
REGISTER

BOOK 458, PAGE 194
FILE NO. 12-76

S.C.R.D BOOK 2590, PAGE 217, PARCEL 1
S.C.R.D BOOK 458, PAGE 194 & D.O.T. FILE NO. 12-76

GRID
MAINE 2000 CENTRAL ZONE

CONTROL INFORMATION
HORIZONTAL DATUM - U.S. STATE PLANE NAD(83) (2011)
ZONE - MAINE 2000 CENTRAL ZONE
VERTICAL DATUM - NAVD 88
COMBINED FACTOR - 1.00001871

APPROXIMATE LOCAITON
N.E.T.T. CABLE
SEE S.H.C. FILE NO. 12-38 SHEET 1

BANK OF THE CHANNELL S.C.R.D. BOOK 458, PAGE 194 D.O.T. FILE NO. 12-76

BACK RIVER CREEK

S.H.C FILE NO. 12-38 SHEET 1

CONTROL OF ACCESS - S.H.C. FILE NO. 12-38 SHEET 1

SHORE OF BACK WATER CREEK S.C.R.D. BOOK 458, PAGE 194 TRACED FROM S.H.C. FILE NO. 12-38 SHEET 1

85'-0"

94+00 95+00 96+00 97+00 98+00 99+00 100+00 101+00

STATE HIGHWAY "26" / U.S. ROUTE 1 / MAIN STREET

TO WISCASSET

George Wright Road

CULVERT EASEMENT
SEE S.H.C. FILE NO. 12-38 SHEET 1

BACK RIVER CREEK

SHORE OF BACK WATER CREEK S.C.R.D. BOOK 288, PAGE 4 TRACED FROM S.H.C. FILE NO. 12-38 SHEET 1

SEE S.H.C. FILE NO. 12-38 SHEET 1 & L.C.C.R. VOL. 6, PAGE 240 & VOL. 6, PAGE 413

L.C.C.R. VOL. 6, PAGE 413

LINCOLN COUNTY CO... VOL. 6, PAGE ... 4 RODS

CONTROL OF ACCESS - S.H.C. FILE NO. 12-38 SHEET 1

STATION 46 BRIDGE
OVER
FORMER MAINE CENTRAL RAIL ROAD
NOW STATE OF MAINE

BRIDGE NO. 3039 WIN 023929.00

PRELIMINARY PLAN

ITEM	TECH	CHECKED
EXISTING CONDITION PLAN	G.L.L.	G.L.L.
FINAL RIGHT OF WAY	G.L.L.	G.L.L.
AREAS	G.L.L.	G.L.L.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016 - 207-624-3460
WOOLWICH
RIGHT OF WAY MAP

REVISIONS			
NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK PAGE COUNTY RECORD					
NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE

BRUCE A. VAN NOTE
COMMISSIONER
JOYCE NOEL TAYLOR
CHIEF ENGINEER
DATE

STATE HIGHWAY "26"
U.S. ROUTE 1 / MAIN STREET
WOOLWICH SAGADAHOC COUNTY
FEDERAL AID PROJECT NO. 2392900

MAY 2021	RIGHT-OF-WAY MAP	D.O.T. FILE NO. 12-142
SCALE 1" = 25'	SHEET 4 OF 4	

SHEET NUMBER
180
OF 183

LAST SAVED BY: WILLIAM.EDGAR 7/1/2021 9:44 AM

GENERAL NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
2. BELOW GRADE UTILITY INFORMATION IS BASED ON INFORMATION PROVIDED BY EACH UTILITY. LOCATION OF PUBLIC UTILITIES SHOWN IS ONLY APPROXIMATE AND IS NOT COMPLETE. PRIVATE UNDERGROUND UTILITIES SUCH AS, BUT NOT LIMITED TO, SEWER LINES, WATER LINES AND BURIED ELECTRICAL SERVICE ENTRANCES ARE NOT SHOWN. THE CONTRACTOR SHALL ASCERTAIN THE LOCATION AND SIZE OF EXISTING UTILITIES IN THE FIELD WITH THE RESPECTIVE UTILITY REPRESENTATIVE PRIOR TO COMMENCING WORK. ADDITIONAL TEST PITS, BEYOND THOSE SHOWN, MAY BE REQUIRED. UTILITY CONTACTS ARE AS FOLLOWS:

DIG SAFE:
TEL: 1-888-344-7233

CABLE TELEVISION:
SPECTRUM
1-207-620-3416

WATER:
BATH WATER DISTRICT
1 LAMBARD STREET
BATH, ME, 04530
207-443-2391

MAINE DEPT OF TRANSPORTATION
24 CHILD STREET
AUGUSTA, ME 04330
207-624-3000

ELECTRIC:
CENTRAL MAINE POWER
BATH, ME 04530
207-721-8002

TELEPHONE:
FAIRPOINT
360 BATH RD.
BRUNSWICK, ME 04011
207-442-8018

TOWN:
TOWN OF WOOLWICH
13 NEQUASSET ROAD
WOOLWICH, ME, 04579
207-442-8859

3. ALL EXISTING STORM DRAIN LINES ENCOUNTERED DURING CONSTRUCTION ARE TO REMAIN IN SERVICE. ANY EXISTING STORM DRAIN LINES OR CULVERTS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. EXISTING DRAINAGE STRUCTURES SHOWN ON PLANS THAT ARE PLUGGED OR FULL OF SAND AND ARE NOT BEING REPLACED WITH A NEW DRAINAGE STRUCTURE ARE TO BE CLEANED BY CONTRACTOR AND THE MATERIAL DISPOSED OF PER CITY ORDINANCE.
4. ALL STRUCTURES AND PIPELINES LOCATED ADJACENT TO THE CONTRACTOR'S EXCAVATIONS SHALL BE PROTECTED AND FIRMLY SUPPORTED BY THE CONTRACTOR UNTIL THE TRENCH IS BACK FILLED. INJURY TO ANY SUCH STRUCTURES CAUSED BY, OR RESULTING FROM, THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. ALL UTILITIES REQUIRING REPAIR, RELOCATION OR ADJUSTMENT AS A RESULT OF THE PROJECT SHALL BE COORDINATED THROUGH THE RESPECTIVE UTILITY.
5. IN THOSE INSTANCES WHERE POWER OR TELEPHONE POLE SUPPORT IS REQUIRED, THE CONTRACTOR SHALL PROVIDE A MINIMUM 48-HOUR NOTIFICATION TO CMP OR FAIRPOINT/CONSOLIDATED COMMUNICATIONS, RESPECTIVELY. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR TEMPORARY BRACING OF UTILITIES.
6. CONTRACTOR SHALL INSTALL AND MAINTAIN TRAFFIC CONTROL SIGNS IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
7. TRAFFIC CONTROL PLANS SHALL BE SUBMITTED TO MAINE DEPARTMENT OF TRANSPORTATION (MDOT).
8. ALL TEST PITS SHALL BE EXCAVATED PRIOR TO CONSTRUCTION LAYOUT AND RESULTS REPORTED TO ENGINEER FOR REVIEW FOR CONFORMANCE WITH PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT OF ALL PROPOSED LINES AND GRADES AS SHOWN ON THE DRAWINGS.
9. THE ENGINEER SHALL PROVIDE THE NECESSARY HORIZONTAL CONTROL POINTS FOR THE CONTRACTOR AND THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THIS INFORMATION THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL ELEVATION REFERENCE INFORMATION PRIOR TO USE IN CONSTRUCTION.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREVENTION OF EROSION. ALL DISTURBED EARTH SURFACES ARE TO BE STABILIZED IN THE SHORTEST PRACTICAL TIME AND TEMPORARY EROSION CONTROL DEVICES SHALL BE EMPLOYED UNTIL SUCH TIME AS ADEQUATE SOIL STABILIZATION HAS BEEN ACHIEVED. TEMPORARY STORAGE OF EXCAVATED MATERIAL IS TO BE IN A MANNER THAT WILL MINIMIZE EROSION. MATERIALS AND METHODS USED FOR TEMPORARY EROSION CONTROL SHALL BE AS SPECIFIED BY THE "MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES" PREPARED BY THE MAINE SOIL AND WATER CONSERVATION COMMISSION.
11. COMPACTION TESTS SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS. ANY SETTLEMENT OCCURRING WITHIN ONE YEAR OF SUBSTANTIAL COMPLETION OF THE PROJECT WILL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
12. ALL TRENCHES SHALL BE BACKFILLED AND CLOSED AT THE END OF EACH WORK DAY. THE USE OF BARRICADES AND STEEL PLATES SHALL BE CONSIDERED BY THE OWNER, ENGINEER, AND CITY ON A CASE BY CASE BASIS IF REQUESTED BY THE CONTRACTOR.
13. ALL VEGETATED AREAS THAT ARE EXCAVATED, FILLED OR OTHERWISE DISTURBED BY THE CONTRACTOR AND ARE NOT TO BE PAVED OR OTHERWISE DEVELOPED SHALL BE LOAMED, GRADED, LIMED, FERTILIZED, SEEDED AND MULCHED AT NO ADDITIONAL EXPENSE TO THE OWNER.
14. THE CONTRACTOR SHALL NOT HAVE ANY RIGHT OF PROPERTY IN ANY MATERIALS TAKEN FROM ANY EXCAVATION. SUITABLE EXCAVATED MATERIAL MAY BE INCORPORATED IN THE PROJECT, WITH EXCESS MATERIAL DISPOSED OF. THESE PROVISIONS SHALL IN NO WAY RELIEVE THE CONTRACTOR OF HIS OBLIGATIONS TO PROPERLY DISPOSE OF AND REPLACE ANY MATERIAL DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACK FILLING. THE CONTRACTOR SHALL DISPOSE OF UNSUITABLE AND EXCESS MATERIAL IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE CONTRACT DOCUMENTS.
15. THE CONTRACTOR IS TO TAKE SPECIAL CARE NOT TO DAMAGE TREES WITHIN THE CONSTRUCTION AREA UNLESS THEY ARE NOTED TO BE REMOVED. TREES TO BE REMOVED ARE TO HAVE THE STUMPS REMOVED AND THE RESULTING PIT SHALL BE LOAMED AND SEEDED.
16. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THEIR OWN LAY DOWN AREA.
17. INITIAL PAVING SHALL BE CONDUCTED WITHIN ONE WEEK OF COMPLETION OF PLACEMENT OF FINAL BACKFILL WITHIN TRAVEL LANES UNLESS OTHERWISE AUTHORIZED BY ENGINEER. INITIAL PAVEMENT SHALL BE INSTALLED AND MAINTAINED BY CONTRACTOR FOR A MINIMUM PERIOD OF 2 MONTHS BEFORE FINAL PAVEMENT IS PLACED. FINAL PAVEMENT MAY BE PLACED OVER THE INITIAL PAVING PROVIDED INITIAL PAVING COURSE IS IN GOOD REPAIR. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND SHIMMING THE INITIAL PAVEMENT AS NECESSARY TO ACCEPT THE FINAL PAVING COURSE. IF CONDITIONS WARRANT, THE CONTRACTOR MAY BE REQUIRED TO REMOVE AND REPLACE INITIAL PAVING PRIOR TO FINAL PAVING.

CIVIL DEMOLITION NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND DISPOSING OF ALL DEMOLISHED PIPING, EQUIPMENT AND MATERIALS. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL STATE AND LOCAL REGULATIONS. THE OWNER RESERVES THE RIGHT TO RETAIN ANY SUCH PIPING, EQUIPMENT AND MATERIALS DESIGNATED FOR DEMOLITION FOR HIS USE. SUCH MATERIALS TO BE RETAINED SHALL BE PROPERLY STORED IN AN ON-SITE LOCATION. COORDINATE LOCATION AND MATERIALS TO BE SALVAGED WITH THE OWNER/ENGINEER.
2. THE CONTRACTOR SHALL KEEP A RECORD OF DEMOLITION AS PART OF THE PROJECT RECORD DOCUMENTS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE APPROPRIATE DISPOSAL OF FLOWS RESULTING FROM PRECIPITATION AND HIS DEWATERING OPERATIONS.

SITE GRADING NOTES

1. ALL ROAD AND PARKING AREA SURFACES SHALL PITCH 1/4 INCH PER FOOT MINIMUM UNLESS OTHERWISE NOTED.
2. ALL AREAS THAT ARE EXCAVATED, FILLED, OR OTHERWISE DISTURBED BY THE CONTRACTOR SHALL BE LOAMED, GRADED, LIMED, FERTILIZED, SEEDED AND MULCHED, UNLESS OTHERWISE NOTED. THE TOP 4 INCHES OF SOIL SHALL BE LOAM. REFER TO SPECIFICATION SECTION 02485, LANDSCAPING/LOAM AND SEED.
3. CONTRACTOR SHALL CONTROL DUST ON THE CONSTRUCTION SITE TO A REASONABLE LIMIT, AS DETERMINED BY THE ENGINEER.
4. CONTRACTOR SHALL NOT TRACK OR SPILL EARTH, DEBRIS OR OTHER CONSTRUCTION MATERIAL ON PUBLIC OR PRIVATE STREETS AND PLANT DRIVES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE ASSOCIATED CLEAN UP.
5. WHERE EXISTING PAVEMENT IS REMOVED AND REPLACED, MATCH EXISTING GRADES TO THE EXTENT POSSIBLE. COORDINATE FINE GRADING WITH THE ENGINEER.

SITE LAYOUT NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT OF ALL PROPOSED WORK AS SHOWN ON THE DRAWINGS. THE ENGINEER WILL PROVIDE PROJECT BENCHMARKS THAT DEFINE THE HORIZONTAL CONTROL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THIS PROVIDED LAYOUT INFORMATION THROUGHOUT THE COURSE OF CONSTRUCTION. REPORT ANY LAYOUT DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RE-ESTABLISHING AND RESETTING ALL EXISTING PROPERTY MONUMENTATION DISTURBED BY HIS OPERATIONS. THIS WORK SHALL BE DONE BY A LAND SURVEYOR REGISTERED IN THE STATE OF MAINE, AT NO ADDITIONAL COST TO THE OWNER.
3. WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE DISTANCES FROM THE DRAWINGS. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.

SURVEY NOTES

1. THE VERTICAL DATUM SHOWN IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 1988).
2. SURVEY BASE PLAN IS BASED ON SURVEY DATA PROVIDED BY HNTB. HORIZONTAL DATUM IS STATE PLANE COORDINATES, NAD83, MAINE 2000 WEST.

PIPELINE GENERAL NOTES

1. **THE LOCATIONS OF ALL EXISTING DRAINS, WATER MAINS, POWER LINES, TELEPHONE CABLES AND OTHER UTILITIES ARE APPROXIMATE ONLY. FIELD LOCATIONS SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO STARTING THE WORK.**
2. **WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADAPTERS, FITTINGS, AND ADDITIONAL PIPE AS REQUIRED TO COMPLETE THE CONNECTION. CONTRACTOR SHALL VERIFY LOCATION, ELEVATION, ORIENTATION AND MATERIAL OF CONSTRUCTION. TEST PITS SHALL BE USED AS REQUIRED.**
3. **ANY UNDERGROUND STRUCTURES, CABLES, AND PIPELINES LOCATED ADJACENT TO THE TRENCH EXCAVATIONS SHALL BE PROTECTED AND FIRMLY SUPPORTED BY THE CONTRACTOR UNTIL THE TRENCH IS BACKFILLED. DAMAGE TO ANY SUCH STRUCTURES, CABLES, AND PIPELINES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE OWNERS OF THE STRUCTURES, CABLES, AND PIPELINES.**
4. **THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT OF THE NEW WATER MAIN. LAYOUT SHALL BE REVIEWED AND ACCEPTED BY THE WATER DISTRICT AND ENGINEER. THE NEW WATER MAIN MUST BE LOCATED WITHIN THE RIGHTS-OF-WAY SHOWN ON THE DRAWINGS.**
5. **MINIMUM DEPTH OF COVER SHALL BE 5'-0" AND MAXIMUM DEPTH OF COVER SHALL BE 7'-0" UNLESS SHOWN OTHERWISE ON THE DRAWINGS. THE NEW MAIN SHALL GENERALLY FOLLOW THE GROUND CONTOUR, HOWEVER, ABRUPT CHANGES IN GRADE SHALL BE AVOIDED. AT LOCAL HIGH POINTS OR WHERE AIR RELEASE VALVES ARE SHOWN, THE CONTRACTOR SHALL SLOPE NEW MAIN AS NEEDED TO MAINTAIN HIGH POINT AT AIR RELEASE VALVE. IF LEDGE IS ENCOUNTERED THE MINIMUM DEPTH OF COVER WILL BE 5'-0". DUE TO UTILITY CONFLICTS THE DEPTH OF COVER SHALL NOT BE LESS THAN 4'-0" AND 2" RIGID BOARD INSULATION SHALL BE USED AS DETAILED. RIGID BOARD INSULATION SHALL BE 40PSI COMPRESSIVE STRENGTH, DOW STYROFOAM HIGHLOAD 40, CERTIFOAM 40 OR EQUAL.**
6. **NEW HYDRANTS SHALL BE FIELD LOCATED AND INSPECTED BY THE BATH WATER DISTRICT.**
7. **ALL BENDS, TEES, REDUCERS, HYDRANTS AND PLUGS SHALL BE RESTRAINED BY USING CONCRETE THRUST BLOCKS AND GRIP-RINGS OR OTHER METHOD AS SHOWN ON THE DRAWINGS.**
8. **TEST PRESSURES FOR THE COMBINATION PRESSURE AND LEAKAGE TESTS SHALL BE 150 PSI. TEST DURATION SHALL BE TWO HOURS.**
9. **CONNECTIONS TO EXISTING WATER MAIN SHALL BE COORDINATED WITH BATH WATER DISTRICT.**
10. **ALL WATER MAINS THAT ARE TO BE LEFT IN PLACE SHALL BE CAPPED WITH A M.J. CAP OR PLUG AND FILLED WITH FLOWABLE FILL.**
11. **BELOW GRADE UTILITY INFORMATION IS BASED ON RECORD DRAWINGS. LOCATION OF PUBLIC UTILITIES SHOWN IS ONLY APPROXIMATE AND MAY NOT BE COMPLETE. PRIVATE UNDERGROUND UTILITIES SUCH AS, BUT NOT LIMITED TO, SEWER LINES, WATER LINES AND BURIED ELECTRICAL SERVICE ENTRANCES ARE NOT SHOWN.**
12. **ALL EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION ARE TO REMAIN IN SERVICE UNLESS OTHERWISE NOTED. AT NO ADDITIONAL COST TO THE OWNER THE CONTRACTOR SHALL REPAIR OR COORDINATE WITH THE RESPECTIVE UTILITY ON DAMAGE TO EXISTING UTILITIES.**
13. **SUITABLE EXCAVATED MATERIALS MAY BE INCORPORATED INTO THE PROJECT. THIS PROVISION SHALL IN NO WAY RELIEVE THE CONTRACTOR OF HIS OBLIGATIONS TO REMOVE AND DISPOSE OF ANY MATERIAL DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING.**
14. **PLANNED SHUTDOWNS OF 8 HOURS, OR LESS ARE ACCEPTABLE WITH A MINIMUM OF 72 HOURS NOTICE TO THE DISTRICT FOR COORDINATION.**

CIVIL ABBREVIATIONS

&	AND
DIA	DIAMETER
#, NO	NUMBER
APP'D	APPROVED
BLDG	BUILDING
CB	CATCH BASIN
CEN	CENTER
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
COR	CORNER
CY	CUBIC YARD
DEMO	DEMOLITION
DMH	DRAIN MANHOLE
DI	DUCTILE IRON
DR	DRAIN
DWG	DRAWING
EL	ELEVATION
EMH	ELECTRIC MANHOLE
FM	FORCE MAIN
FT	FEET
G	GAS
HYD	HYDRANT
IN	INCH
INF	INFLUENT
INV	INVERT
IRF	IRON ROD FOUND
LBS	POUNDS
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MW	MONITORING WELL
N	NORTH
NGVD	NATIONAL GEODETIC VERTICAL DATUM
N/A	NOT AVAILABLE/APPLICABLE
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
PC	PERFORATED CLAY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PS	PRIMARY SLUDGE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
REQ'D	REQUIRED
S	SLOPE, SEWER
SD	STORM DRAIN
SF	SQUARE FEET
SMH	SANITARY SEWER MANHOLE
SQ	SQUARE
SS	SANITARY SEWER
STA	STATION
T, XFMR	TRANSFORMER
TBM	TEMPORARY BENCH MARK
THK	THICKNESS
TOS	TOP OF STRUCTURE
TYP	TYPICAL
UD	UNDERDRAIN
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
VC	VITRIFIED CLAY
W/	WITH
W	POTABLE WATER

LEGEND

EXISTING		PROPOSED
	CENTERLINE	
	EDGE OF PAVEMENT	
	CURBING	
	EDGE OF GRAVEL	
	EDGE OF CONCRETE	
122	CONTOUR	
	BUILDING	
	TREELINE	
	GUARDRAIL	
4" W	WATER	8"W
15" SD	STORM DRAIN	
6" UD	UNDERDRAIN	
12" CMP	CULVERT	
UGE	UNDERGROUND ELECTRIC	
OHE	OVERHEAD ELECTRIC	
CB CB	CATCH BASIN	
EMH	ELECTRIC MANHOLE	
TMH	TELEPHONE MANHOLE	
	GATE VALVE	
	CURB STOP	
	HYDRANT	
	UTILITY POLE	
	UTILITY POLE W/ GUY	
	UTILITY POLE W/ LIGHT	
	CONIFEROUS TREE	
	DECIDUOUS TREE	
	SHRUB	
	EDGE OF WETLANDS	
	SIGN	
B-3	TEST BORING	
	LIMIT OF WORK	
	RIPRAP	
	RAILROAD	

NO	REVISIONS	APP'D	DATE
1			
2			
3			
4			
5			

PROJECT NO: 20648
DESIGNED: D.LAC
CAD COORD: W.EDG
CAD: W.EDG
CHECKED: D.LAR
DATE: 7/1/2021
APPROVED:
DATE:
SUBMISSION: 95% DESIGN REVIEW

WRIGHT-PIERCE
207.725.8721 | www.wright-pierce.com
11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

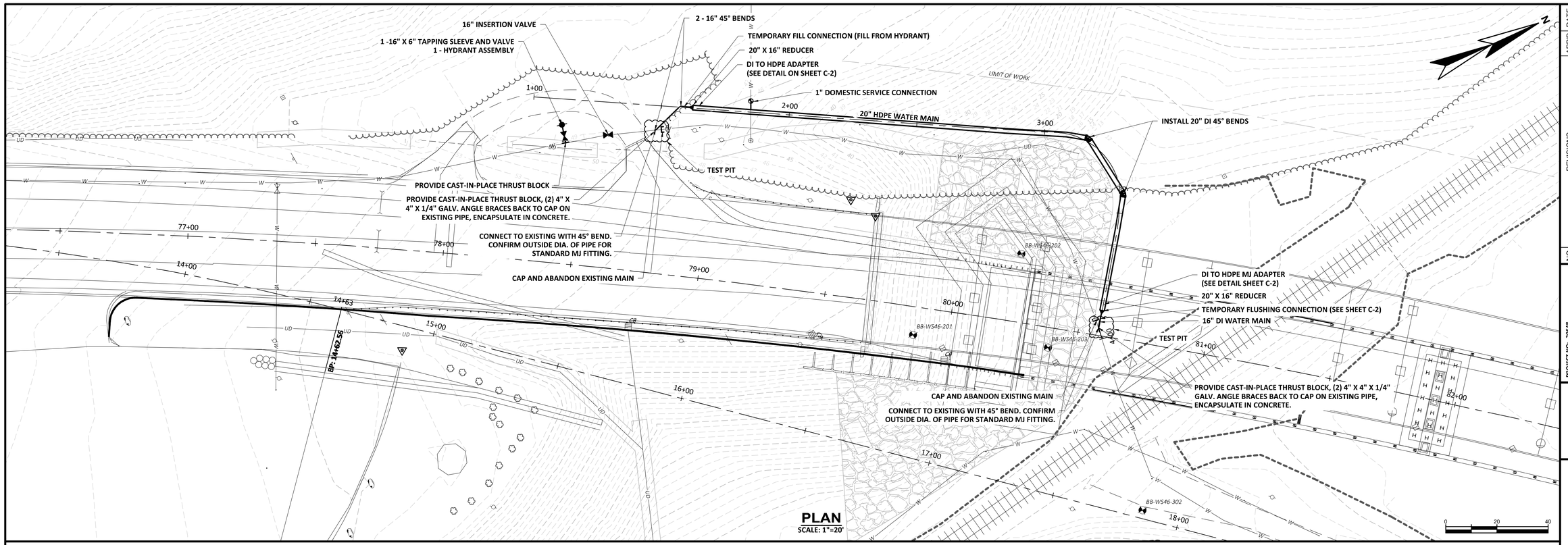
STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WATER MAIN RELOCATION
WOOLWICH, MAINE

GENERAL NOTES, LEGEND, AND ABBREVIATIONS

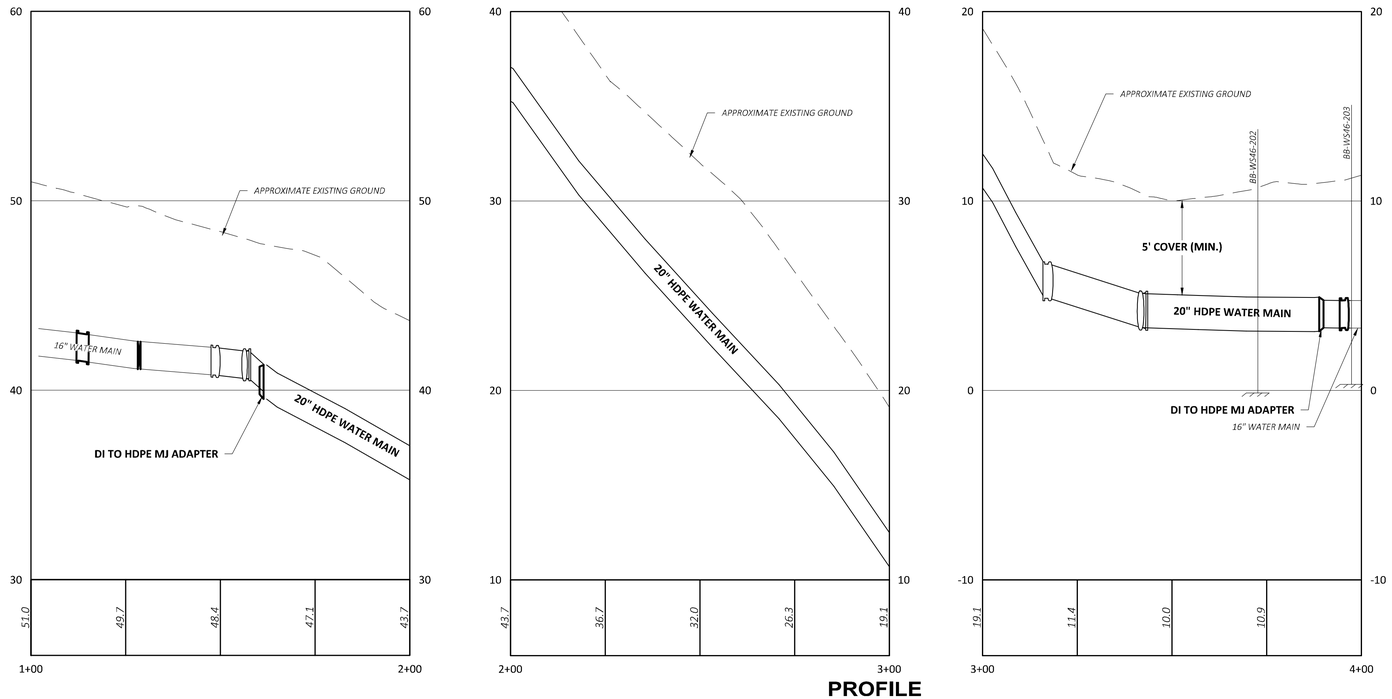
SHEET NUMBER
181 OF 183

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LAST SAVED BY: WILLIAM.EDGAR 7/1/2021 11:23 AM



PLAN
SCALE: 1"=20'



PROFILE
SCALES
VERT:1"=4'
HORIZ:1"=20'

NO	REVISIONS	APP'D	DATE
1			
2			
3			
4			
5			

PROJECT NO: 20648
DESIGNED: D.LAC
CAD COORD: W.EDG
CAD: W.EDG
CHECKED: D.LAR
DATE: 7/1/2021
APPROVED:
DATE:
SUBMISSION: 95% DESIGN REVIEW

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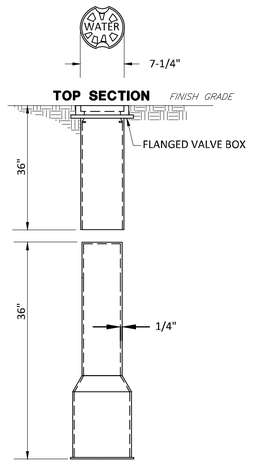
STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WATER MAIN RELOCATION
WOOLWICH, MAINE

WATER MAIN REPLACEMENT
STA. 1+00 TO STA. 4+00

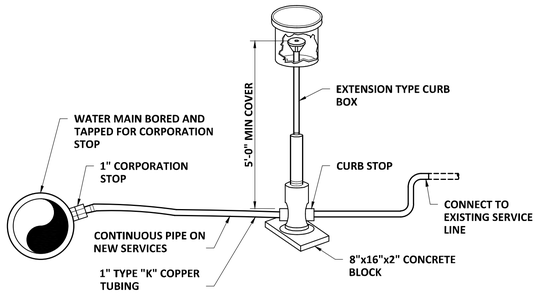
SHEET NUMBER
182 OF 183

J:\ENG\WE\BATHWD\20648-RTE1WOOLWICHWATERMAIN\DRAWINGS\CIV\20648-CS-PLANPROFILE1.DWG | P&P_1 | 1:2.585 | — | 7/1/2021 11:25:42 AM | WILLIAM.EDGAR

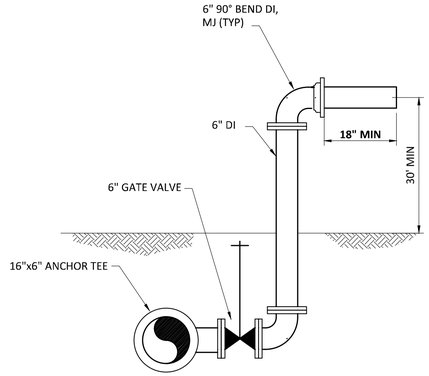
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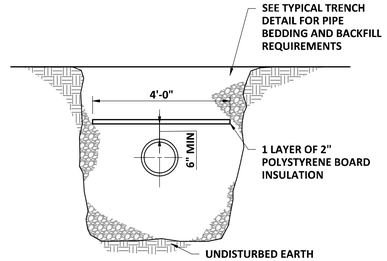
2-PIECE SLIDING VALVE BOX
NTS



WATER SERVICE CONNECTION
SCALE: NTS

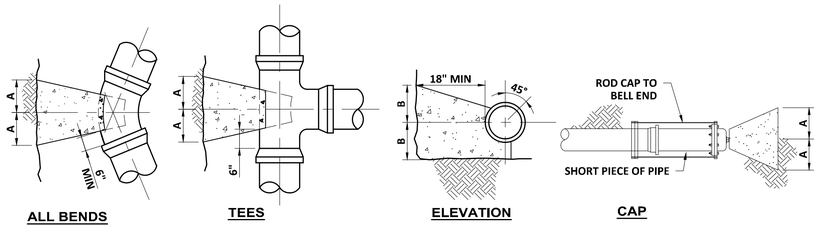


TEMPORARY FLUSHING CONNECTION DETAIL
NTS

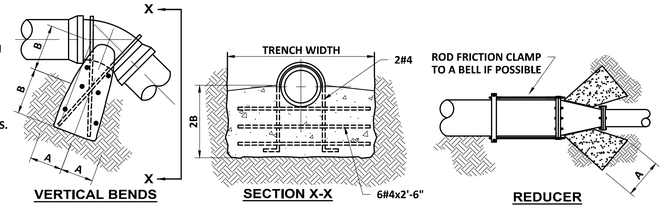


NOTE:
TRENCH PIPE INSULATION TO BE USED WHERE DEPTH OF COVER IS LESS THAN ** FEET OR AS DIRECTED BY THE ENGINEER

TRENCH PIPE INSULATION
SCALE: NTS

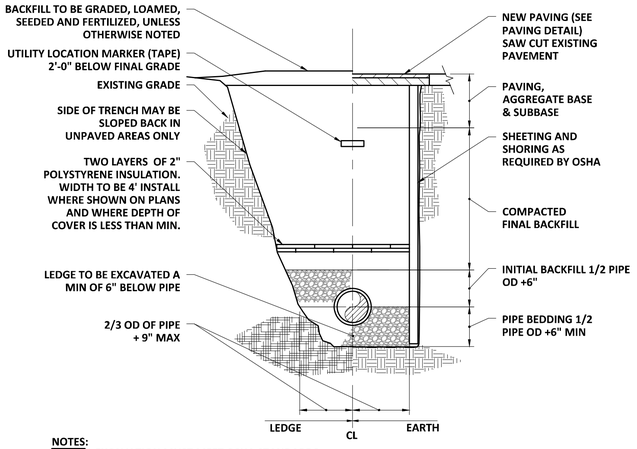


NOTES:
1. THRUST BLOCK SIZES SHOWN ARE BASED ON A SOIL BEARING CAPACITY OF 2000 PSF AND TEST PRESSURES OF 180 PSI.
2. ALL BENDS, TEES, WYES, HYDS. & DEAD ENDS SHALL BE BRACED WITH CONCRETE THRUST BLOCKS.
3. RODDING MAY BE REQUIRED



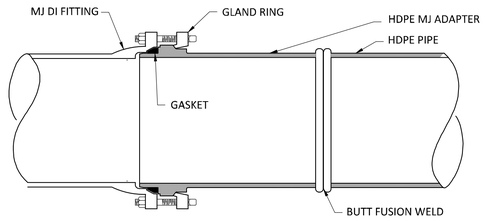
PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEE		VERTICAL BEND (DOWN)		PLUG		REDUCER	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
4"	15"	12"	12"	9"	9"	6"	6"	6"	12"	12"	24"	21"	12"	12"	12"	12"
6"	15"	12"	12"	9"	9"	6"	6"	6"	12"	12"	24"	21"	12"	12"	12"	12"
8"	20"	15"	14"	12"	9"	9"	9"	6"	18"	12"	33"	24"	14"	14"	18"	12"
10"	21"	21"	18"	15"	15"	9"	9"	9"	20"	18"	40"	27"	16"	16"	20"	18"
12"	27"	24"	23"	15"	15"	12"	12"	9"	25"	18"	48"	30"	18"	18"	25"	18"
16"	37"	30"	30"	21"	21"	15"	13"	12"	32"	24"	57"	36"	22"	22"	32"	24"

THRUST BLOCKS
NTS



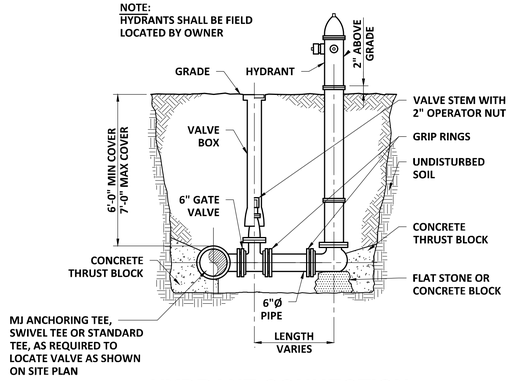
NOTES:
1. ALL EXCAVATION MUST MEET OSHA STANDARDS.
2. INSTALL 3 FOOT LONG IMPERVIOUS MATERIAL DAM IN BEDDING/INITIAL BACKFILL MATERIAL EVERY 100' AND WHERE SHOWN ON PLANS TO PREVENT TRENCH GROUNDWATER FROM BEING CHANNELED ALONG BEDDING/INITIAL BACKFILL.

PIPE TRENCH
SCALE: "NTS"



HIGH DENSITY POLYETHYLENE PIPE TO MECHANICAL JOINT CONNECTION DETAIL
SCALE: NTS

NOTE:
HYDRANTS SHALL BE FIELD LOCATED BY OWNER



HYDRANT CONNECTION
SCALE: NTS

NO	REVISIONS	APP'D	DATE
1			
2			
3			
4			
5			

PROJECT NO: 20648
DESIGNED: D.LAC
CAD COORD: W.EDG
CAD: W.EDG
CHECKED: D.LAR
DATE: 7/1/2021
APPROVED:
DATE:
SUBMISSION: 95% DESIGN REVIEW

WRIGHT-PIERCE
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STATION 46 & PLEASANT COVE BRIDGES
KENNEBEC RIVER ESTUARY
WATER MAIN RELOCATION
WOOLWICH, MAINE

WATER MAIN DETAILS

SHEET NUMBER
183 OF 183

J:\ENG\WE\BATHWD\20648-RTE1WOOLWICHWATERMAIN\DRAWINGS\CIV\20648-CS-DETAILS.DWG | 20648-CS-Details | 1:2.5849 | ---- | 7/1/2021 11:25:52 AM | WILLIAM.EDGAR