STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

SPECIFICATIONS

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

DESIGN LOADING

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

TRAFFIC DATA

Current (2020) AADT	840
Future (2040) AADT	920
DHV - % of AADT	12%
Design Hour Volume	110
Heavy Trucks (% of AADT)	15%
Heavy Trucks (% of DHV)	13%
Directional Distribution (% of DHV)	62%
18 kip Equivalent P 2.0	80
18 kip Equivalent P 2.5	77
Design Speed (mph)	55

HYDROLOGIC DATA

Drainage Area	1,882 sq mi
Design Discharge (Q50)	37,025 cfs
Check Discharge (Q100)	40,710 cfs
Headwater Elevation (Q1.1)	460.11 ft
Headwater Elevation (Q10)	465.51 ft
Headwater Elevation (Q25)	466.63 ft
Headwater Elevation (Q50)	467.43 ft
Headwater Elevation (Q100)	468.23 ft
Discharge Velocity (Q1.1)	7.36 fps
Discharge Velocity (Q10)	9.66 fps
Discharge Velocity (Q25)	10.20 fps
Discharge Velocity (Q50)	10.55 fps
Discharge Velocity (Q100)	10.90 fps

MATERIALS

Concrete:	
Curbs & Sidewalk	Class "LP"
Abutment Seals	Class "S"
Pier Seals	Class "A"
All Other	Class "A"
Plain Reinforcing Steel	ASTM A615, Grade 60
Stainless Reinforcing Steel	ASTM A955, Grade 75
GFRP Reinforcing Bars	CSA S807-10, ACI 440.1R-15
Structural Steel:	
Flanges Over Pier	ASTM A709 HPS Grade 70W (unpainted)
All Other Material (except as noted)	ASTM A709, Grade 50W (unpainted)
High Strength Bolts	ASTM F3125, Grade A325, Type 3

BASIC DESIGN STRESSES

Class "A" Concrete	f 'c = 4,000 psi
Class "LP" Concrete	f 'c = 5,000 psi
Class "S" Concrete	f 'c = 2,500 psi
Plain Reinforcing Steel	f y = 60,000 psi
Stainless Reinforcing Steel	f y = 75,000 psi
Structural Steel:	
ASTM A 709, Grade 50W	F y = 50,000 psi
ASTM A 709, Grade HPS 70W	F y = 70,000 psi
ASTM F3125, Grade A325, Type 3	F μ = 120,000 psi
Glass Fiber Reinforced Polymer:	
#5	f_{fu} = 100,000 psi
#6	f_{fu} = 100,000 psi
#7	f_{fu} = 95,000 psi
Minimum Elastic Modulus	Ef = 6,150,000 psi
Minimum Nominal Design Tensile Strain	ξfu = 1.226%

T3 INDIAN PURCHASE TWP
PENOBSCOT COUNTY
DETECTIVE BENJAMIN CAMPBELL BRIDGE
OVER
WEST BRANCH PENOBSCOT RIVER
ROUTE 11
FEDERAL AID PROJECT NO. 2262701
PROJECT LENGTH 0.229 mi.
BRIDGE NO. 3666

LIST OF DRAWINGS

UTILITIES

Versant Power
Maine Fiber
Consolidated Communications of NNE, LLC

MAINTENANCE OF TRAFFIC

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

PROJECT LOCATION:	Detective Benjamin Campbell Bridge #3666 in T3 Indian Purchase TWP Carrying State Route 11 over West Branch Penobscot River Lat./Long. 45°38'13.68" N 68°46'24.82" W
PROGRAM AREA:	Bridge
OUTLINE OF WORK:	Replacement of Detective Benjamin Campbell Bridge #3666 in T3 Indian Purchase with associated approach work.

HNTB

WIN 023236.01

2262701

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

APPROVED — DATE 8-21-2020

COMMISSIONER: Paul T. Godfrey — DATE 8-18-2020

CHIEF ENGINEER: Joyce MacLaughlin

STATE OF MAINE — PAUL T. GODFREY — No. 7716 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE — P.E. NUMBER 7716 — DATE 7-31-20

PROJECT INFORMATION	
PROGRAM	BRIDGE
PROJECT MANAGER	ANDY LATHE
DESIGNER	ASHLEY STEPHENS, P.E.
CONSULTANT	HNTB
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

T3 INDIAN PURCHASE TWP
DETECTIVE BENJAMIN CAMPBELL BRIDGE

TITLE SHEET

SHEET NUMBER 1 OF 69

Date:7/30/2020
Username:
Division:
Filename@01_TITLE.dgn

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
201.11	Clearing	1.1	AC
202.19	Removing Existing Bridge (400 CY, 370 TON)	1	LS
202.202	Removing Pavement Surface	31	SY
203.20	Common Excavation	1,550	CY
203.24	Common Borrow	2,000	CY
203.25	Granular Borrow	1,230	CY
206.082	Structural Earth Excavation - Major Structures, Plan Quantity	2,900	CY
304.10	Aggregate Subbase Course - Gravel	3,150	CY
403.2081	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (Polymer Modified)	380	TON
403.209	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Sidewalks, Drives, Islands, & Incidentals)	18	TON
403.2131	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (Base and Intermediate Base Course, Polymer Modified)	550	TON
409.15	Bituminous Tack Coat, Applied	240	GAL
461.131	Temporary Pavement	260	TON
502.219	Structural Concrete, Abutments and Retaining Walls (677 CY)	1	LS
502.22	Structural Concrete, Abutments and Retaining Walls (Placed Under Water)	814	CY
502.239	Structural Concrete Piers (162 CY)	1	LS
502.24	Structural Concrete Piers (Placed Under Water)	270	CY
502.26	Structural Concrete Roadway and Sidewalk Slab on Steel Bridges (485 CY)	1	LS
502.31	Structural Concrete Approach Slab (26 CY)	1	LS
502.49	Structural Concrete Curbs and Sidewalks (194 CY)	1	LS
502.77	Fiber Reinforced Polymer Bridge Drain - Type: G	3	EA
503.12	Reinforcing Steel, Fabricated and Delivered	84,900	LB
503.13	Reinforcing Steel, Placing	84,900	LB
503.26	Stainless Steel Reinforcement, Fabricated and Delivered	63,560	LB
503.27	Stainless Steel Reinforcement, Placing	63,560	LB
504.702	Structural steel fabricated and delivered, welded (866,000 LB)	1	LS
504.71	Structural steel erection (866,000 LB)	1	LS
505.08	Shear Connectors (4,830 EA)	1	LS
507.0821	Steel Bridge Rail, 3 Bar (391 LF)	1	LS
507.0831	Steel Bridge Rail, 4 Bar (391 LF)	1	LS
508.14	High Performance Waterproofing Membrane (1,370 SY)	1	LS
510.10	Special Detour, 14 foot Roadway With Vehicular and Pedestrian Traffic Not Separated	1	LS
511.07	Cofferdam: Abutment 1	1	LS
511.07	Cofferdam: Pier	1	LS
511.07	Cofferdam: Abutment 2	1	LS
512.081	French Drains (175 LF)	1	LS
515.21	Protective Coating for Concrete Surfaces (861 SY)	1	LS
520.22	Expansion Device - Compression Seal (45.33 LF)	2	EA
523.52	Bearing Installation	15	EA
523.5551	Pot or Disc Bearings, Fixed	5	EA
523.5552	Pot or Disc Bearings, Expansion	10	EA
526.301	Temporary Concrete Barrier - Type 1 (40 LF)	1	LS
527.34	Work Zone Crash Cushions	4	UNIT
530.30	Glass Fiber Reinforced Polymer, Fabricated and Delivered	113,620	LF
530.31	Glass Fiber Reinforced Polymer, Placing	113,620	LF
603.169	15 inch Culvert Pipe Option III	24	LF
606.1301	31" W-Beam Guardrail - Mid-Way Splice (Steel Post, 8" Offset Blocks, Single Faced)	54	LF
606.1303	31" W-Beam Guardrail - Mid-Way Splice (Steel Post, 8" Offset Blocks, 15' Radius and Less)	63	LF
606.1304	31" W-Beam Guardrail - Mid-Way Splice (Steel Post, 8" Offset Blocks, Over 15' Radius)	13	LF
606.1305	31" W-Beam Guardrail - Mid-Way Splice Flared Terminal	1	EA
606.1721	Bridge Transition - Type 1	4	EA
606.259	Anchorage Assembly	1	EA
606.265	Terminal End - Single Rail - Galvanized Steel	2	EA
606.353	Reflectorized Flexible Guardrail Marker	5	EA
610.08	Plain Riprap	3	CY
610.16	Heavy Riprap	1,350	CY
613.319	Erosion Control Blanket	300	SY
615.07	Loam	220	CY
618.14	Seeding Method Number 2	35	UNIT
619.12	Mulch	35	UNIT
619.14	Erosion Control Mix	440	CY
620.58	Erosion Control Geotextile	1,011	SY
627.733	4" White or Yellow Painted Pavement Marking Line	3,650	LF
627.78	Temporary 4" Painted Pavement Marking Line, White or Yellow	3,250	LF
629.05	Hand Labor, Straight Time	20	HR
631.12	All Purpose Excavator (including operator)	20	HR
631.172	Truck - Large (including operator)	20	HR
639.18	Field Office, Type A	1	EA
643.72	Temporary Traffic Signal Route 11	1	LS
652.312	Type III Barricades	4	EA
652.33	Drum	30	EA
652.34	Cone	30	EA
652.35	Construction Signs	270	SF
652.361	Maintenance of Traffic Control Devices	1	LS
652.38	Flaggers	270	HR
656.75	Temporary Soil Erosion and Water Pollution Control	1	LS
659.10	Mobilization	1	LS

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	A. Lathe		
DESIGN-DETAILED	C. Helmick	P. Bishop	07\20
CHECKED-REVIEWED	L. Driscoll	R. Hanf	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

ESTIMATED QUANTITIES

SHEET NUMBER

2

OF 69

Filename: 002_Estimated Quantities.dgn Division: Username: Date:8/3/2020

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 Right of Way Maps.

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

4. Unless otherwise noted, all embankment material placed below EL. 467.43 and beyond the abutment backfill limits 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.

7. Loam shall be placed to a nominal depth of 2 in. 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 end beam guardrail.

9. 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, where it is apparent that runoff will cause continual erosion. 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 and sidewalks,
    Fascias down to the drip notch,
    Top of abutment backwalls and to one foot below the top of backwalls on the back side, wingwalls top face and roadway face to one foot below roadway grade.

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 Item Number 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 hydrologic report of 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 report titled: Geotechnical Design Report Detective Benjamin Campbell Bridge over West Branch Penobscot River, Route 11, Bridge No. 3666, MaineDOT WIN 23236.01, T3 Indian Purchase Township, Maine, dated July 2020 may be ccessed at the MaineDOT web address.

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 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 bridge shall be removed by and become the property of the Contractor. The steel portions of the existing bridge may be 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. This 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. Gravel entrances shall be constructed with 14 in. Aggregate Subbase Course Gravel.

23. A 3 ft. Paved lip shall be placed at all unpaved entrances unless otherwise noted on the plans or directed by the Resident.

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 related Contract Items.

25. Construct the riprap shelf at Abutment 1 to elevation 473.25 and at Abutment 2 to elevation 468.50.

26. ROW maps were created under WIN 023236.00.

27. Place riprap on sideslopes up to elevation 468 unless noted otherwise.

28. Stones which cannot be rolled or compacted into the gravel finished surfaces shall be removed by hand raking. Payment for hand raking will be considered incidental to Pay Item 304.10, Aggregate Subbase Course - Gravel.

29. Temporary pavement ramps shall be constructed to meet the following criteria:

    a. For roadways with speed limits equaling or exceeding 50 mph, temporary ramps shall be constructed at a length of eight feet per inch of transition depth.

    b. For roadways with speed limits less than 50 mph, temporary ramps shall be constructed at a length of four feet per inch of transition depth.

    c. Materials, placement, maintenance, and removal shall be incidental to contract items.

30. Temporary pavement installed to protect FRP drains shall be installed for the full length and width of the low side shoulder.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lothel	BY	DATE
DESIGN-DETAILED	C. Helmick	P. Bishop	07\20
CHECKED-REVIEWED	L. Driscoll	R. Hanf	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

GENERAL NOTES

SHEET NUMBER

3

OF 69

Username:

Division:

Date:8/10/2020

Filename: 003_GeneralNotes.dgn

ROUTE 11
CURVE DATA #1
PI = 1187+13.57
D = 1°25'56.6"
Δ = 2°55'58.7" Lt.
R = 4000.00'
L = 204.76'
T = 102.40'
E = 1.31'

PT = STA. 1188+15.93

1187+00

1188+00

1189+00

N 23°38'20.21" E

1190+00

PC = STA. 1190+88.51

1191+00

To Brownville

ROUTE 11
CURVE DATA #2
PI = 1191+75.06
D = 1°25'56.6"
Δ = 2°28'45.0" Lt.
R = 4000.00'
L = 173.08'
T = 86.55'
E = 0.94'

PCC = STA. 1192+61.58

ROUTE 11
CURVE DATA #3
PI = 1194+02.58
D = 4°46'28.7"
Δ = 13°24'07.9" Lt.
R = 1200.00'
L = 280.70'
T = 140.99'
E = 8.25'

Gravel Entrance

3' Paved Apron

CLL

1192+00

1193+00

Route 11

1194+00

R=40'

2% 3:1

Slope Break
(Typ.)

Sta. 1193+70, 41' Rt.
Proposed Utility Pole
(By Others)

Remove Utility Pole
(By Others)

PLAN

25 0 25 50
Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	A. Lothel	
DESIGN-DETAILED	C. Hémick	07\20
CHECKED-REVIEWED	L. Driscoll	R. Hanf 07\20
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

GENERAL PLAN 1

SHEET NUMBER

4

OF 69

Username:

Division:

Filename: 004_BDPlan_01.dgn

Date:8/3/2020

Filename: 005_BDPlan_02.dgn Division: Username: Date:8/3/2020

ROUTE 11
CURVE DATA #3
PI = 1194+02.58
D = 4°46'28.7"
Δ = 13°24'07.9" Lt.
R = 1200.00'
L = 280.70'
T = 140.99'
E = 8.25'

Sta. 1195+50, 33' Lt.
Proposed Utility Pole
(By Others)

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

℄ Brg. Abut. 1
Sta. 1196+18.00

3I" W-Beam Guardrail -
Mid-Way Splice
Flared Terminal

PT = STA. 1195+42.28

Existing Recreational
Vehicle Bridge
(To Remain)

℄ Brg. Pier
Sta. 1198+08.00

℄ Brg. Abut. 2
Sta. 1199+98.00

Sta. 1200+85, 33' Lt.
Proposed Utility Pole
(By Others)

Gravel Field
Entrance

Remove
and
Reset
Sign

190'-0"

190'-0"

18°0'0" Skew (Typ.)

Anchored
End

Heavy Riprap
(Typ.)

R=40'

Bridge Transition
Type I (Typ.)

1194+00

1195+00

1196+00

1197+00

1198+00

1199+00

1200+00

1201+00

Route 11

N 7°45'27.30" E

Slope Break
(Typ.)

R=15'
157°53'50"

R = 25'

Remove Utility Pole
(By Others)

Terminal End

Gravel Field
Entrance

Remove Utility Pole
(By Others)

Sta. 1200+39.03, 26.0' Rt. Route 11
= Sta. 10+00.00 Recreational Vehicle Trail ℄

PC = STA. 10+10.00

PT = STA. 10+51.21

RECREATIONAL
VEHICLE TRAIL
CURVE DATA #1
PI = 10+34.60
D =190°59'09.4"
Δ = 78°42'34.9" Rt.
R = 30.00'
L = 41.21'
T = 24.60'
E = 8.80'

PC = STA. 10+68.68

℄ Recreational
Vehicle Trail

Temporary Detour
Slope Limit (Typ.)

Temporary Bridge Slope
Limit and Clearing Shall
Avoid Vernal Pool

West Branch Penobscot River

R=30'
R=15'

R=15'
Terminal End

N 86°28'02.22" E

10+00

11+00

24' X 15"
C.P. Opt. III

PT = STA 11+11.11

RECREATIONAL
VEHICLE TRAIL
CURVE DATA #2
PI = 10+91.27
D =114°35'29.6"
Δ = 48°37'18.2" Lt.
R = 50.00'
L = 42.43'
T = 22.59'
E = 4.87'

PLAN

25 0 25 50
Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN
023236.01

Bridge No. 3666

BRIDGE PLANS

	BY	DATE
A. Lothel		
C. Helmick	C. Helmick	07\20
D. L. Driscoll	R. Honf	07\20
DESIGN-DETAILED		
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

PROJ. MANAGER

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

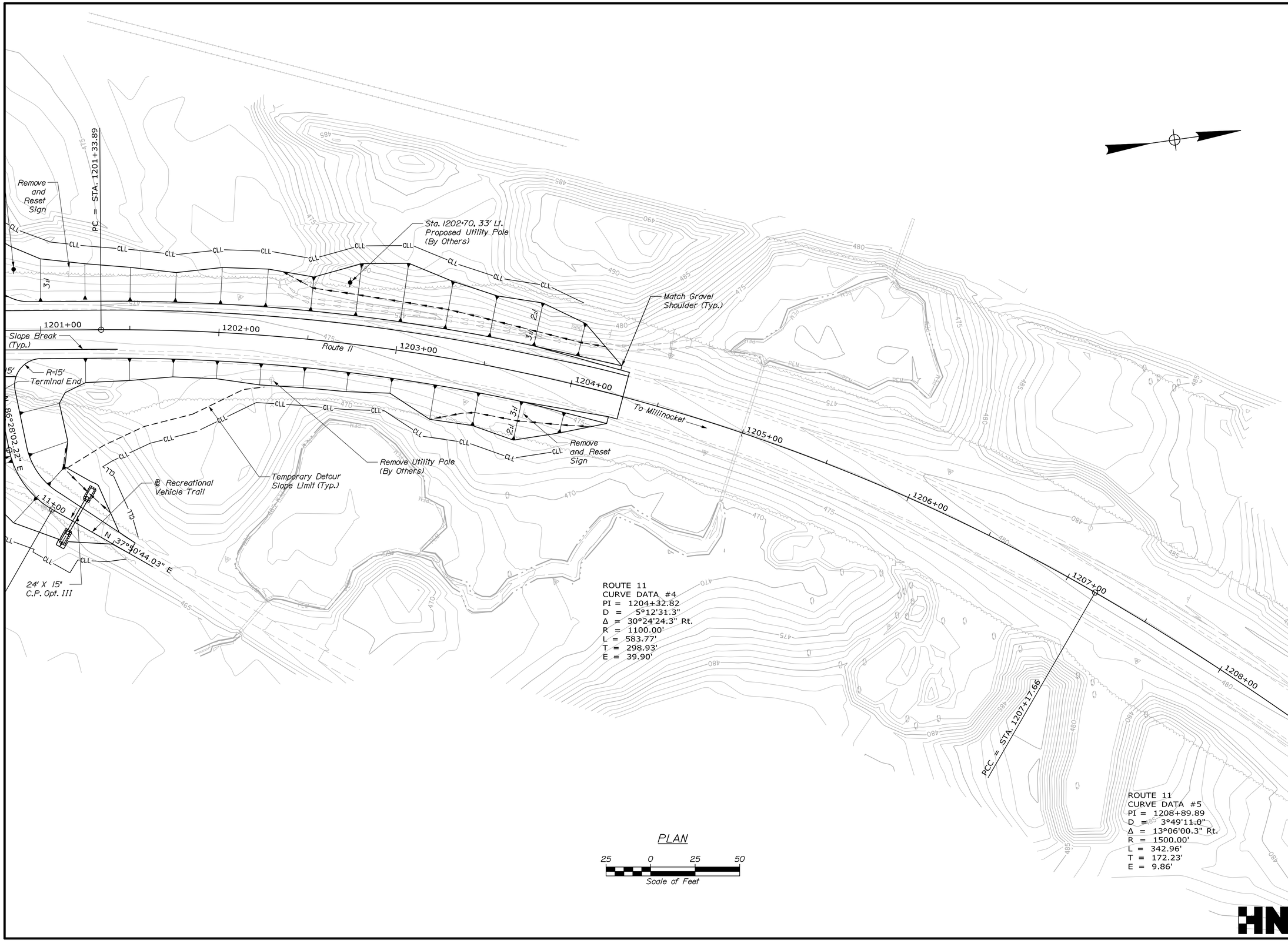
GENERAL PLAN 2

SHEET NUMBER

5

OF 69

Filename: 006_BDPlan_03.dgn Division: Username: Date:8/3/2020



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666 BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	A. Lothe	
DESIGN-DETAILED	C. Helmick	07\20
CHECKED-REVIEWED	L. Driscoll	07\20
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

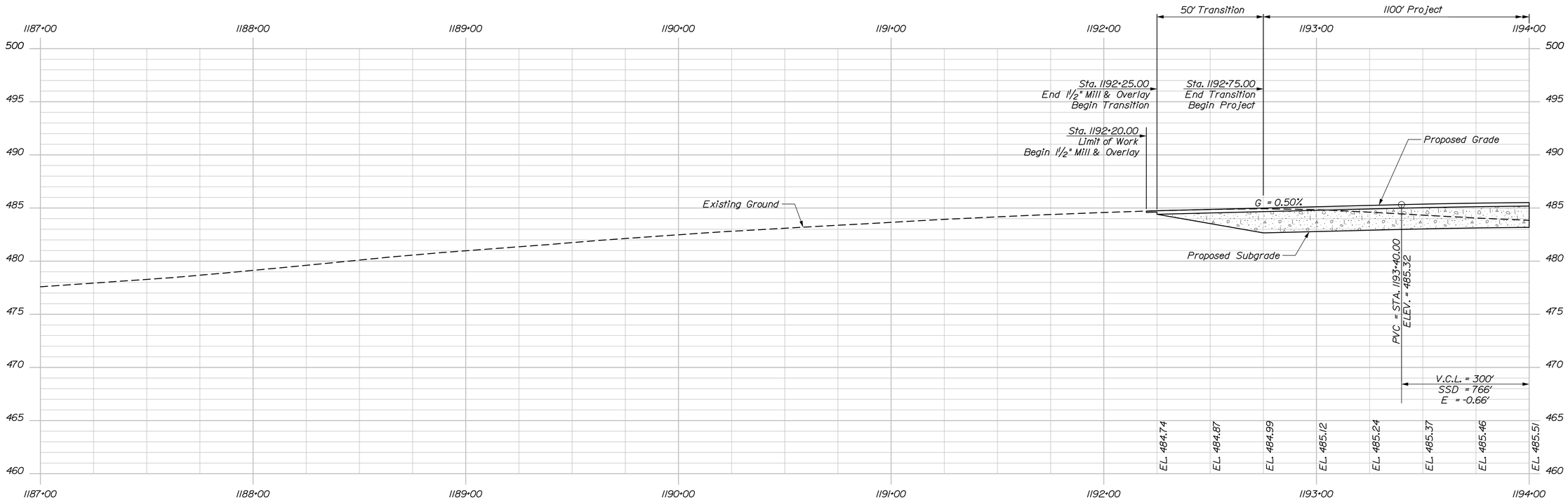
GENERAL PLAN 3

SHEET NUMBER

6

OF 69

HNTB



ROUTE 11
PROFILE

Horiz. 25 0 25 50
Vert. 5 0 5 10
Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666 BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	A. Lothel	
DESIGN-DETAILED	C. Helmick	07\20
CHECKED-REVIEWED	L. Driscoll	07\20
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

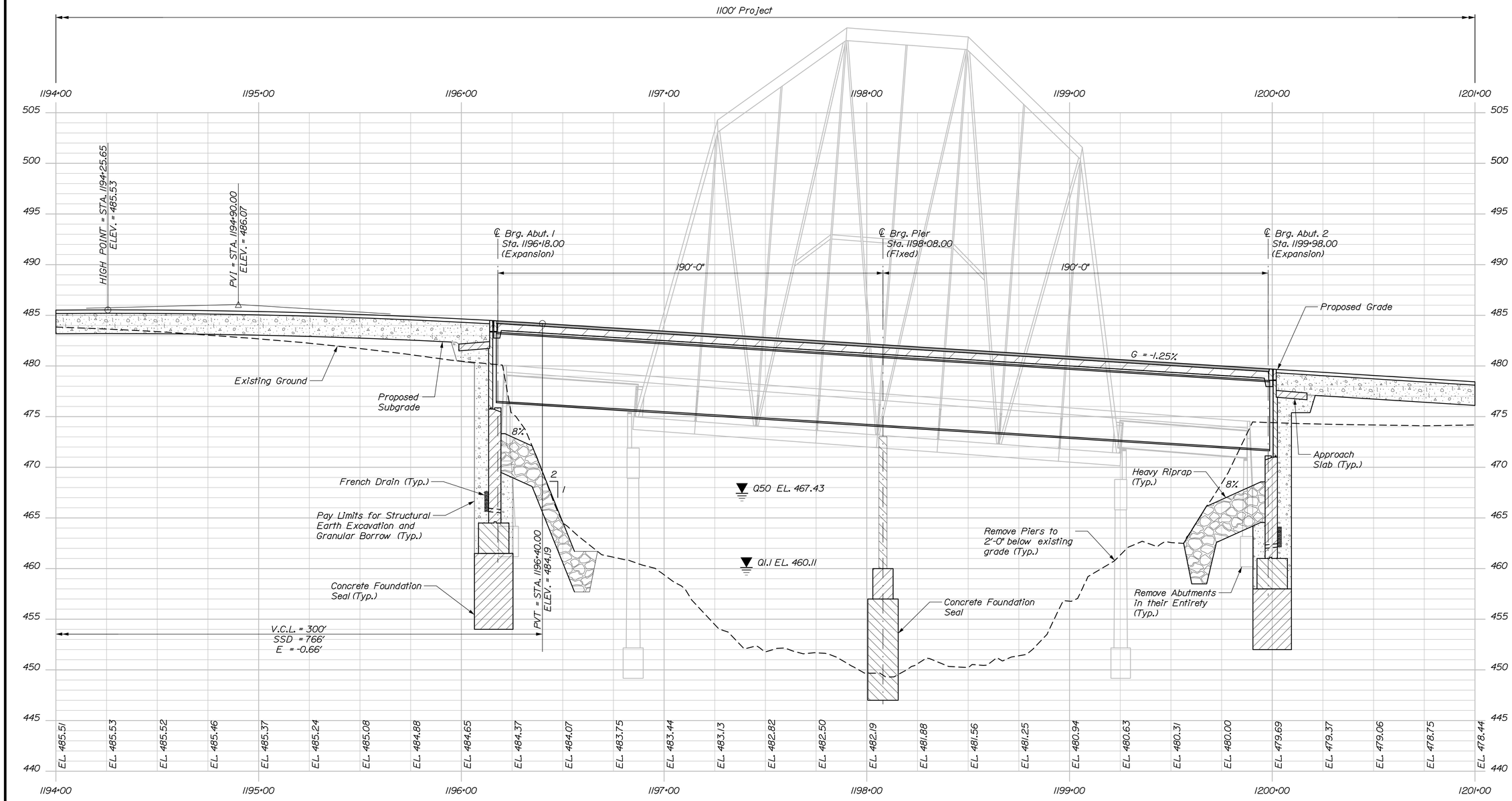
DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

PROFILE 1

SHEET NUMBER

7

OF 69



ROUTE 11
PROFILE

Horiz. 25 0 25 50
Vert. 5 0 5 10
Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	A. Lathel	
DESIGN-DETAILED	C. Helmick	07\20
CHECKED-REVIEWED	L. Driscoll	07\20
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

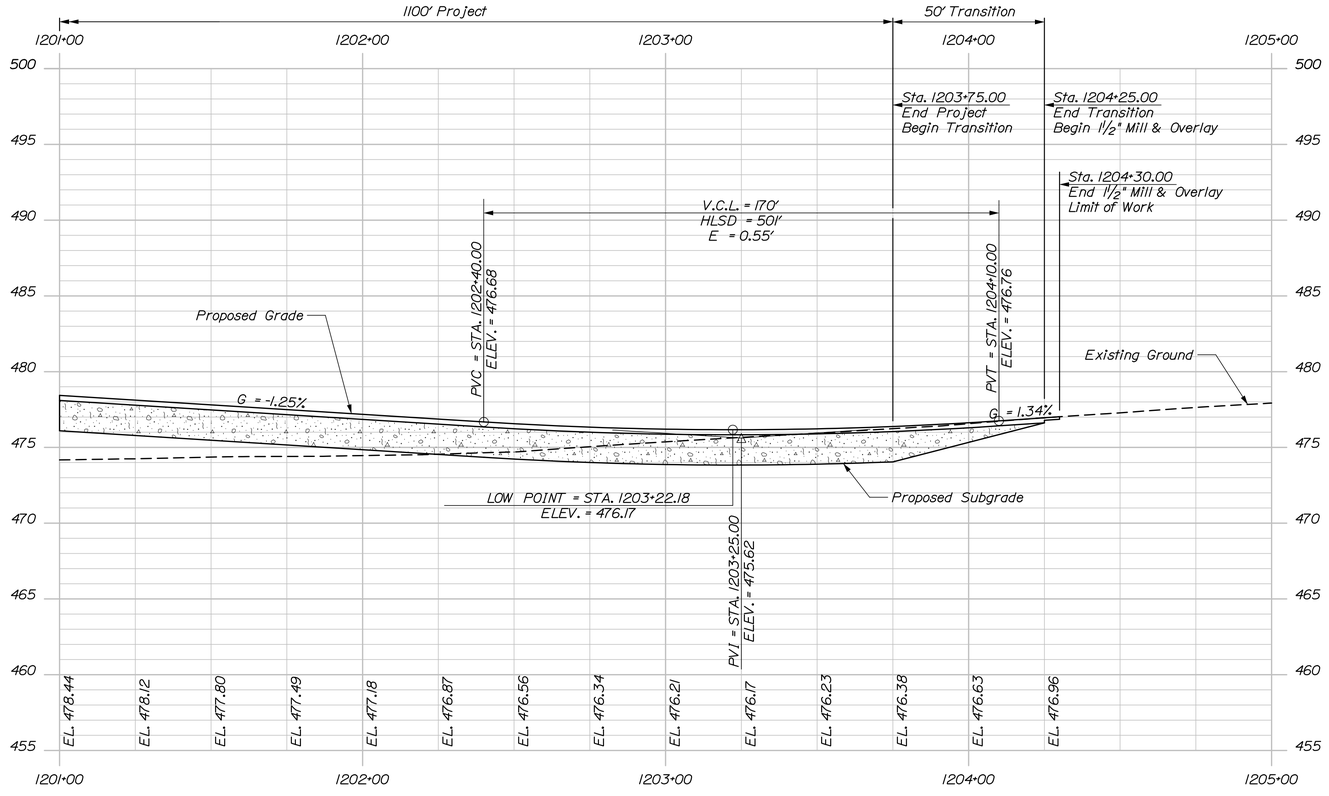
DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

PROFILE 2

SHEET NUMBER

8

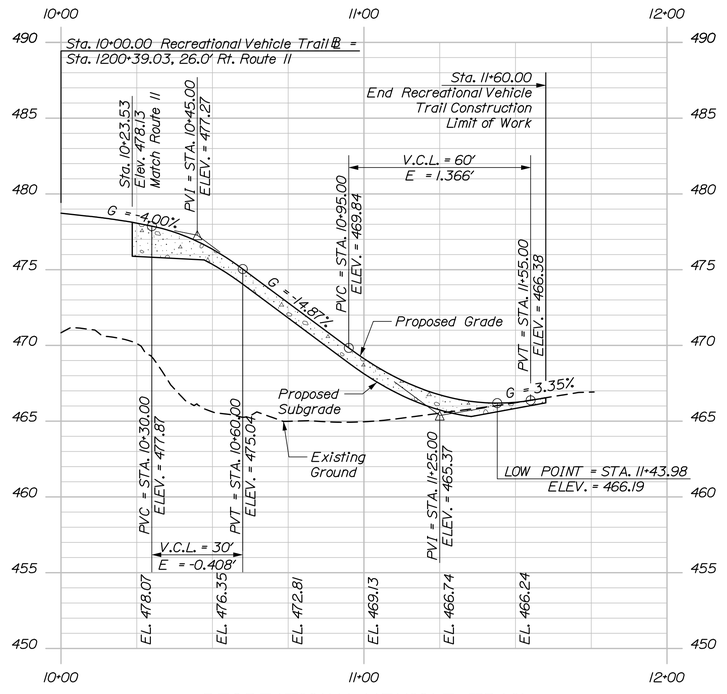
OF 69



ROUTE 11
PROFILE

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

Scale of Feet



RECREATIONAL VEHICLE TRAIL
PROFILE

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

Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathel	BY	DATE
DESIGN-DETAILED	C. Hémick	P. Bishop	07\20
CHECKED-REVIEWED	L. Driscoll	R. Hanf	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

PROFILE 3

SHEET NUMBER

9

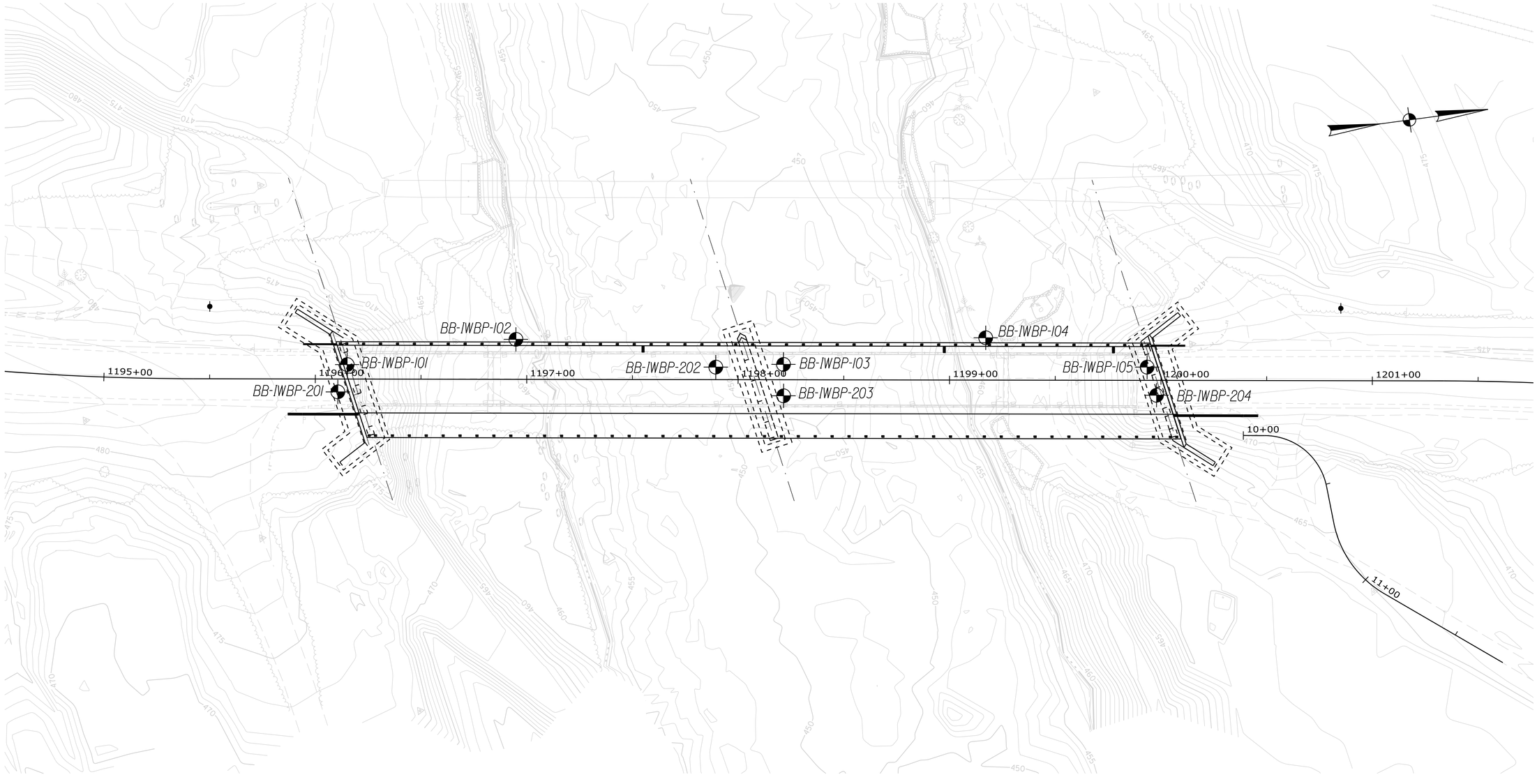
OF 69

Username:

Date:8/3/2020

Division:

Filename: 009_Profile_03.dgn



NOTES

1) Base map developed from electronic files (3DContours.dgn, 3DTopo.dgn, Alignments.dgn, and Bridge.dgn) provided by HNTB on May 29, 2020.

2) The as-drilled locations of the test borings were surveyed by MaineDOT and provided by HNTB.

LEGEND

BB-IWBP-105 — Indicates borings performed by New England Boring Contractors of Hermon, Maine between May 29, and June 7, 2018 and observed by GZA personnel.

BB-IWBP-204 — Indicates borings performed by New England Boring Contractors of Hermon, Maine between February 25, and March 5, 2020 and observed by GZA personnel.

PLAN

25 0 25 50

Scale

Division: Bridge
Filename: ...\Microstation\BLP\BLP.dgn

Date:7/21/2020
Username: BMC

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BRIDGE PLANS

WIN 23236.01

Bridge No. 3666

BY	DATE
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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	

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

BORING LOCATION PLAN

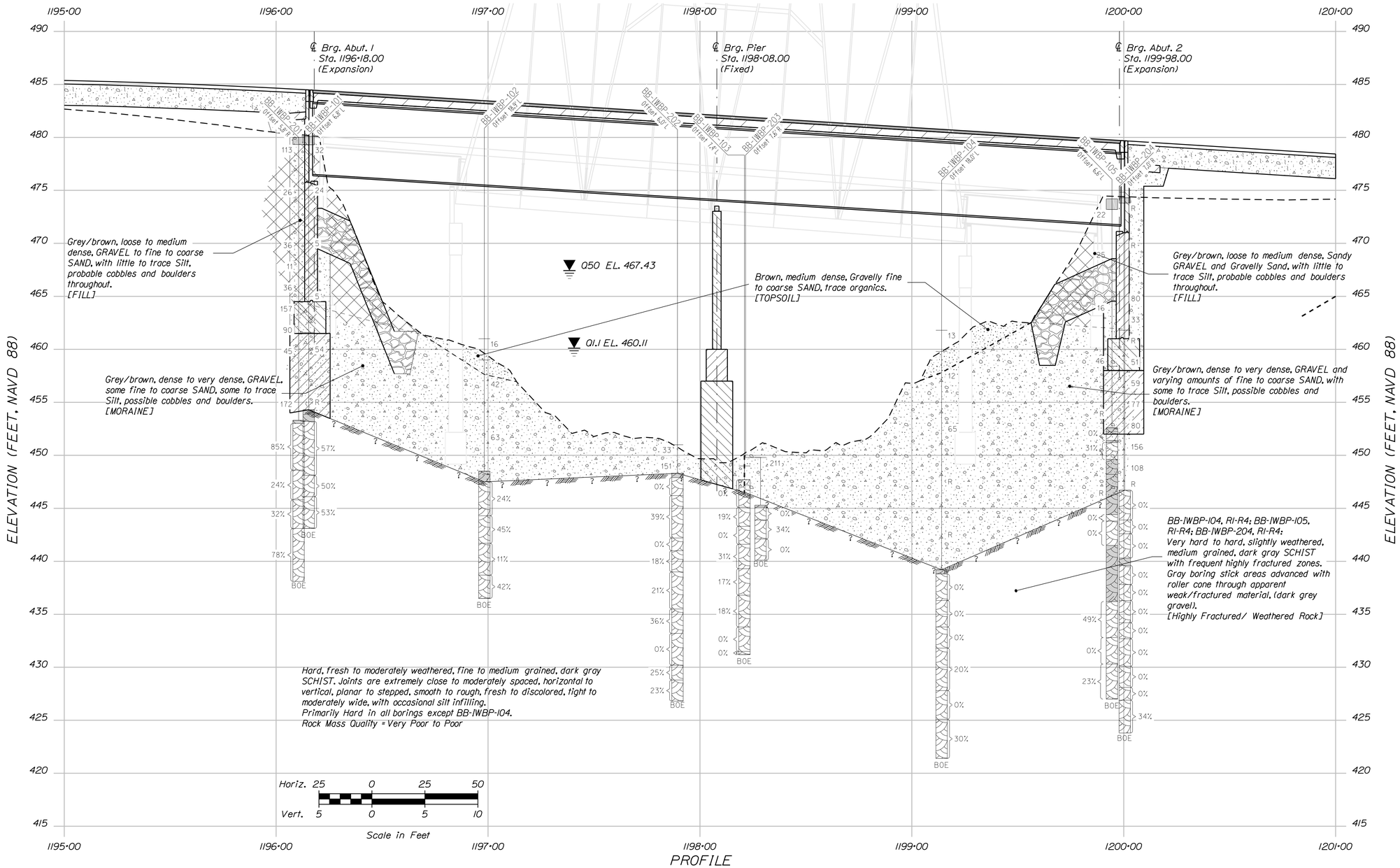
PREPARED BY:

GZA

SHEET NUMBER

10

OF 69



PROFILE

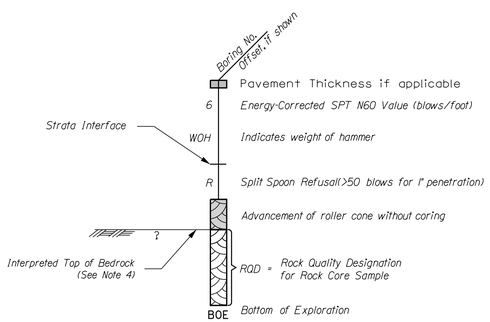
NOTES

1) Base map developed from electronic files provided by HNTB on May 29, 2020 (File included Profile.dgn)

2) The as drilled boring locations were surveyed by MaineDOT and provided by HNTB.

3) Top of highly fractured/Weathered rock and rock is defined using either roller cone resistance prior to identification of bedrock by coring or by transition of rock quality assessed from rock core.

4) 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. For more specific information refer to the exploration logs.



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BRIDGE PLANS

WIN 23236.01

Bridge No. 3666

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

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

INTERPRETIVE SUBSURFACE PROFILE

PREPARED BY:

GZA

SHEET NUMBER

11

OF 69

Division: Bridge
Filename: ...\ISP\West Branch_ISP.dgn

Date:7/21/2020
Username: BMC

Maine Department of Transportation — Soil/Rock Exploration Log — US CUSTOMARY UNITS

Project: Detective Benjamin Campbell Bridge #3666, West Branch
Location: T3 Indian Purchase Township, Maine
Boring No.: BB-IWBP-201
PIN: 23236.00

Driller:	New England Boring Contractors	Elevation (ft.)	480.0	Auger ID/OD:	2.5 SSA
Operator:	Eric Baron	Datum:	NAVD88	Sampler:	Standard Splitspoon
Logged By:	M. Johnescu	Rig Type:	Truck	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	2-25-20 / 2-25-20	Drilling Method:	Mobile Drill B53	Core Barrel:	NX
Boring Location:	N779147.9, E1730300.7	Casing ID/OD:	4/4.5", 3/3.5"	Water Level *:	10.0'
Hammer Efficiency Factor:	0.904	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu 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 = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane 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 (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)
0	1D	2/2	0.7 - 0.9				SSA	479.3
	2D	24/18	1.0 - 3.0	71-45-30-33	75	113		
5	3D	24/7	5.0 - 7.0	8-10-7-12	17	26	51	
							76	
							65	
							138	
							90	
10	4D	24/5	10.0 - 12.0	29-18-6-4	24	36	21	
							30	
	5D	24/0	12.0 - 14.0	1-2-5-6	7	11	12	
							35	
	6D	24/3	14.0 - 16.0	30-19-5-14	24	36	200	
15								464.5
	7D	24/6	16.0 - 18.0	11-57-47-66	104	157		
							28	
	8D	24/9	18.0 - 20.0	29-35-25-21	60	90	43	
							65	
20	9D	24/6	20.0 - 22.0	12-11-19-18	30	45	34	
							42	
							38	
							68	
							72	
25	10D	24/16	25.0 - 27.0	41-53-61-50/4"	114	172	50	
							125	453.3
	R1	53/52	27.0 - 31.4	RQD = 85%			85/2"	
							NX	
30	R2	34/33	31.4 - 34.2	RQD = 24%				
	R3	32/30	34.2 - 36.9	RQD = 32%				
35	R4	60/60	36.9 - 41.9	RQD = 78%				
40								438.1

Visual Description and Remarks:

0'-0.7': Asphalt
— 0.7 —
Brown, dry, very dense, gravelly fine to coarse SAND, little silt, (Fill).
Brown/light brown, dry, very dense, fine to coarse SAND, some gravel, little silt, (Fill).
Brown, dry, medium dense, fine to coarse SAND, some gravel, trace silt, (Fill).
Brown, wet, dense, fine to coarse GRAVEL, some fine to medium sand, little silt, (Fill).
No recovery. One coarse, angular gravel piece in spoon tip.
Brown, wet, dense, fine to coarse GRAVEL, some fine to coarse sand, little silt, angular gravel, (Fill).
— 15.5 —
Brown, wet, very dense, fine to coarse GRAVEL, some fine to coarse sand, little silt, angular gravel, (Moraine).
Brown, wet, very dense, fine to coarse GRAVEL, some fine to coarse sand, little silt, angular gravel, (Moraine).
Brown, wet, dense, fine to coarse GRAVEL, some fine to coarse sand, little silt, (Moraine).
Brown, wet, very dense, gravelly fine to coarse SAND, little silt, angular gravel, (Moraine).
— 26.7 —
Splitspoon refusal at 26.7'. Advanced roller bit to 27.0' and set up to core.
R1: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close to moderately spaced, moderately dipping to high angle, planar, smooth to rough, discolored, partially open to moderately wide, highly fractured from 30.9'-31.4'.
-CARRABASSETT FORMATION-
Rock Mass Quality = Good
Recovery = 98%
Rock Core Times (min:sec): 27.0-28.0' (1:47), 28.0-29.0' (1:24), 29.0-30.0' (1:19), 30.0-31.0' (1:34), 31.0'-31.4' (1:38)
R2: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close to closely spaced, planar, rough to smooth, discolored, tight to moderately wide, with silt infilling, heavily fractured from 32.3'- 33.7'. Fractured into angular gravel fragments from 32.3'-33.7'.
Rock Mass Quality = Very Poor
Recovery = 97%
Rock Core Times (min:sec): 31.4-32.4' (1:40), 32.4-33.4' (1:20), 33.4-34.2' (2:36)
R3: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close to closely spaced, low to high angle, planar, rough to smooth, discolored, tight to open, with some silt infilling.
Rock Mass Quality = Poor
Recovery = 94%
Rock Core Times (min:sec): 34.2-35.2' (1:56), 35.2-36.2' (1:36), 36.2-36.9' (2:03)
R4: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are very close to moderately spaced, moderately dipping to vertical, planar, smooth to rough, discolored, tight to moderately wide.
Rock Mass Quality = Good
Recovery = 100%
Rock Core Times (min:sec): 36.9-37.9' (1:52), 37.9-38.9' (1:30), 38.9-39.9' (1:32), 39.9-40.9' (1:28), 40.9-41.9' (1:56)
— 41.9 —
Bottom of Exploration at 41.90 feet below ground surface.

Laboratory Testing Results/AASHTO and Unified Class.: q_p=4112 (at 27.0 - 31.4)

Remarks:

1. Automatic hammer NEBC #D24 Energy Transfer Ratio = 0.904.
2. Cobble/gravel stuck in spoon at 1D; refusal; drilled down to 1.0' and sampled again.
3. Switched to drive and wash method at 5.0'; heavy rig chatter and loss of water at 12.0' bgs. Bent splitspoon on sample 6D.
4. Loss of water return at 14.5' bgs, heavy rig chatter, probable cobble; broke through at 15.7' and regained water return.
5. From 14.5'-17.0' drilled ahead of casing; started using 3/3.5" case inside 4/4.5" case.

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-IWBP-201

Maine Department of Transportation — Soil/Rock Exploration Log — US CUSTOMARY UNITS

Project: Detective Benjamin Campbell Bridge #3666, West Branch
Location: T3 Indian Purchase Township, Maine
Boring No.: BB-IWBP-101
PIN: 23236.00

Driller:	New England Boring Contractors	Elevation (ft.)	480.1	Auger ID/OD:	4.25" SSA
Operator:	T. Schafer	Datum:	NAVD 88	Sampler:	Standard Splitspoon
Logged By:	E. Friede	Rig Type:	Mobile B-53	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	5-31-18/5-31-18	Drilling Method:	Drive/Spin & Wash	Core Barrel:	NQ
Boring Location:	N779154.0, E1730288.5	Casing ID/OD:	4"/4.5", 3"/3.5"	Water Level *:	Not Measured
Hammer Efficiency Factor:	0.6	Hammer Type:	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions: D = Split Spoon Sample; MD = Unsuccessful Split Spoon Sample attempt; U = Thin Wall Tube Sample; MU = Unsuccessful Thin Wall Tube Sample attempt; V = Insitu Vane Shear Test; MV = Unsuccessful Insitu 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 = weight of rods; WO1P = Weight of one person; S_u = Insitu Field Vane Shear Strength (psf); T_v = Pocket Torvane Shear Strength (psf); q_p = Unconfined Compressive Strength (ksf); N-uncorrected = Raw field SPT N-value; Hammer Efficiency Factor = Annual Calibration Value; N_{60} = SPT N-uncorrected corrected for hammer efficiency; N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected; $S_{u(lab)}$ = Lab Vane 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 (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)
0							SSA	479.3
	1D	24/11	1.0 - 3.0	12-17-15-25	32	32		
5	2D	24/13	5.5 - 7.5	5-12-12-15	24	24	29	
							65	
							40	
							16	
							30	
10	3D	24/0	10.0 - 12.0	3-2-3-3	5	5	16	
							17	
							16	
							13	
							15	
15	4D	24/4	15.0 - 17.0	4-3-2-2	5	5	12	
							12	
							12	
							19	461.6
							50	
20	5D	24/11	20.0 - 22.0	21-32-22-26	54	54	2	
							17	
							18	
							29	
							36	
25	6D	10/8	25.0 - 25.8	23-50/4"	-		18	454.3
	R1	61/61	26.9 - 32.0	RQD = 57%			SPIN NQ	
	R2	24/20	32.0 - 34.0	RQD = 50%				
	R3	36/36	34.0 - 37.0	RQD = 53%				
35								443.1

Visual Description and Remarks:

0'-0.8': Asphalt
— 0.8 —
Brown, moist, dense, Gravelly fine to coarse SAND, little silt, (Fill).
Brown, moist, medium dense, Gravelly fine to coarse SAND, trace silt, (Fill). Increased roller cone resistance between 7.0'-8.0', possible cobbles.
No recovery. Drove 3" OD spoon through interval.
Brown, moist, loose, GRAVEL, little medium to coarse sand, trace silt, (Fill).
Brown, moist, loose, fine to coarse Sandy GRAVEL, trace silt, (Fill).
— 18.5 —
Brown-grey, moist, very dense, fine to coarse GRAVEL, some fine to medium sand, little silt, gravel is angular, (Moraine).
Brown-grey, wet, very dense, GRAVEL, some fine to coarse sand, trace silt, (Moraine).
— 25.8 —
Increased resistance at 25.8', probable top of bedrock. Spin 3" casing to 26.9' and core.
R1: Hard, fresh, medium grained, dark grey, SCHIST. Joints are extremely close to moderately spaced, low to high angle, planar to stepped, smooth to rough, fresh to slightly discolored, tight to open, no infilling.
-CARRABASSETT FORMATION-
Rock Mass Quality = Fair
Recovery = 100%
Rock Core Times (min:sec): 26.9-28.0' (2:48), 28.0-29.0' (2:41), 29.0-30.0' (2:21), 30.0-31.0' (2:20), 31.0-32.0' (2:30)
R2: Hard, fresh, medium grained, dark grey, SCHIST. Joints are close, low to high angle, planar, smooth, fresh, tight, grey silt infilling.
Rock Mass Quality = Poor
Recovery = 83%
Rock Core Times (min:sec): 32.0-33.0' (2:30), 33.0-34.0' (2:50)
R3: Hard, fresh, medium grained, dark grey, SCHIST. Joints are extremely close to moderately spaced, low to high angle, planar to stepped, smooth, fresh to discolored, tight to moderately wide, no infilling.
Rock Mass Quality = Fair
Recovery = 100%
Rock Core Times (min:sec): 34.0-35.0' (2:45), 35.0-36.0' (2:22), 36.0-37.0' (2:32)
— 37.0 —
Bottom of Exploration at 37.00 feet below ground surface.

Laboratory Testing Results/AASHTO and Unified Class.:
- 1D: G#1, A-1-a, SP-SM, WC=4.3%
- 2D: G#2, A-1-a, SP-SM, WC=3%
- 5D: G#3, A-1-a, GM, WC=5.5%
- R1: q_p=2,687

Remarks:

1. Drove 4" casing to 26.0', spun 3" casing to 26.9'.
2. No water return when spinning 3" casing.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterburg Limit tests if available, rather than the MaineDOT Standard based percentages passing specific grain sizes.

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-IWBP-101

Maine Department of Transportation — Soil/Rock Exploration Log — US CUSTOMARY UNITS

Project: Detective Benjamin Campbell Bridge #3666, West Branch
Location: T3 Indian Purchase Township, Maine
Boring No.: BB-IWBP-102
PIN: 23236.00

Driller:	New England Boring Contractors	Elevation (ft.)	461.0	Auger ID/OD:	4.25" SSA
Operator:	T. Schafer	Datum:	NAVD 88	Sampler:	Standard Splitspoon
Logged By:	E. Friede/B. Cardali	Rig Type:	Mobile B-53	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	6-6-18/6-7-18	Drilling Method:	Spin & Wash	Core Barrel:	NQ
Boring Location:	N779234.7, E1730287.3	Casing ID/OD:	4"/4.5", 3"/3.5"	Water Level *:	Not Measured
Hammer Efficiency Factor:	0.6	Hammer Type:	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions: D = Split Spoon Sample; MD = Unsuccessful Split Spoon Sample attempt; U = Thin Wall Tube Sample; MU = Unsuccessful Thin Wall Tube Sample attempt; V = Insitu Vane Shear Test; MV = Unsuccessful Insitu 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 = weight of rods; WO1P = Weight of one person; S_u = Insitu Field Vane Shear Strength (psf); T_v = Pocket Torvane Shear Strength (psf); q_p = Unconfined Compressive Strength (ksf); N-uncorrected = Raw field SPT N-value; Hammer Efficiency Factor = Annual Calibration Value; N_{60} = SPT N-uncorrected corrected for hammer efficiency; N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected; $S_{u(lab)}$ = Lab Vane 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 (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)
0	1D	24/8	0.0 - 2.0	2-8-8-20	16	16	SSA	
								459.0
							SPIN	
5	2D	24/4	5.0 - 7.0	17-26-16-15	42	42	RC	
							SPIN	
							RC	
10	3D	24/8	10.0 - 12.0	12-24-39-38	63	63		
								449.1
							NQ	448.5
	R1	38/38	13.5 - 16.7	RQD = 24%				
15	R2	31/31	16.7 - 19.3	RQD = 45%				
	R3	36/32	19.3 - 22.3	RQD = 11%				
20	R4	26/26	22.3 - 24.5	RQD = 42%				
								436.5

Visual Description and Remarks:

Brown, moist, medium dense, medium to coarse SAND, little gravel, trace organics (roots, leaves), (Topsoil).
— 2.0 —
Heavy grinding to 5.0' with roller cone, possible cobbles.
Grey, wet, dense, fine to coarse GRAVEL, some fine to coarse sand, trace silt, (Moraine).
Light brown, wet, very dense, fine to coarse GRAVEL, little fine to coarse sand, little silt, gravel is angular, (Moraine).
— 11.9 —
Increased resistance at 11.9', brown, fractured rock and quartz fragments in wash return, advance 4" casing.
— 12.5 —
Consistent increased roller cone resistance at 12.5' and rock chips in return, probable top of bedrock. Spin 3" casing to 13.5' and core.
R1: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are close to extremely close (highly fractured from 16.0'-16.7'), low to high angle, planar, smooth to rough, discolored to slightly decomposed, tight to moderately wide, grey clay infilling.
-CARRABASSETT FORMATION-
Rock Mass Quality = Very Poor
Recovery = 100%
Rock Core Times (min:sec): 13.5-14.5' (2:22), 14.5-15.5' (2:23), 15.5-16.5' (1:54), 16.5-16.7' (0:29)
R2: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are very close to moderately spaced, low to high angle, planar, smooth to rough, discolored, open to moderately wide, no infilling.
Rock Mass Quality = Poor
Recovery = 100%
Rock Core Times (min:sec): 16.7-17.7' (1:54), 17.7-18.7' (1:40), 18.7-19.3' (1:06)
R3: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close to very close, low to high angle, planar, smooth to rough, discolored, tight to moderately wide, with occasional silt infilling.
Rock Mass Quality = Very Poor
Recovery = 89%
Rock Core Times (min:sec): 19.3-20.3' (2:37), 20.3-21.3' (2:09), 21.3-22.3' (1:25)
R4: Hard, slightly weathered, fine grained, grey, SCHIST with a 2" quartz seam at 23.0'-23.2'. Joints are very close to close, low angle to moderately dipping, planar to undulating, rough to smooth, discolored, with silt infilling, partially open to wide.
Rock Mass Quality = Poor
Recovery = 100%
Rock Core Times (min:sec): 22.3-23.3' (3:13), 23.3-24.3' (3:06), 24.3-24.5' (0:31)
— 24.5 —
Bottom of Exploration at 24.50 feet below ground surface.

Laboratory Testing Results/AASHTO and Unified Class.:
- 2D: G#4, A-1-a, GW, WC=3.6%
- 3D: G#5, A-1-a, GP-GM, WC=4.6%
- R1: S_c=3,471, 2,653 (PLD)

Remarks:

1. Auger refusal at 3.8' prior to casing advancement.
2. PLD indicates diametral point load test performed. S_c indicates estimated unconfined compressive strength per ASTM D5731.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterburg Limit tests if available, rather than the MaineDOT Standard based percentages passing specific grain sizes.

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-IWBP-102

Maine Department of Transportation — Soil/Rock Exploration Log — US CUSTOMARY UNITS

Project: Detective Benjamin Campbell Bridge #3666, West Branch
Location: T3 Indian Purchase Township, Maine
Boring No.: BB-IWBP-202
PIN: 23236.00

Driller:	New England Boring Contractors	Elevation (ft.)	451.0	Auger ID/OD:	2.5 SSA
Operator:	Brad Enos	Datum:	NAVD88	Sampler:	Standard Splitspoon
Logged By:	M. Johnescu	Rig Type:	Truck	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	2-26-20 / 2-26-20	Drilling Method:	Mobile Drill B53	Core Barrel:	NX
Boring Location:	N779326.7, E1730312.9	Casing ID/OD:	4/4.5", 3/3.5"	Water Level *:	River
Hammer Efficiency Factor:	0.904	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions: D = Split Spoon Sample; MD = Unsuccessful Split Spoon Sample attempt; U = Thin Wall Tube Sample; MU = Unsuccessful Thin Wall Tube Sample attempt; V = Insitu Vane Shear Test; MV = Unsuccessful Insitu 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 = weight of rods; WO1P = Weight of one person; S_u = Insitu Field Vane Shear Strength (psf); T_v = Pocket Torvane Shear Strength (psf); q_p = Unconfined Compressive Strength (ksf); N-uncorrected = Raw field SPT N-value; Hammer Efficiency Factor = Annual Calibration Value; N_{60} = SPT N-uncorrected corrected for hammer efficiency; N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected; $S_{u(lab)}$ = Lab Vane 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 (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)
0	1D	19/5	0.0 - 1.6	2-8-14-50/1"	22	33	24	
							155	
	2D	8/1	2.0 - 2.7	31-100/3"	100	151	NX	448.3
	R1	20/17	3.1 - 4.8	RQD = 0%				
	R2	48/43	4.8 - 8.8	RQD = 39%				
	R3	14/12	8.8 - 10.0	RQD = 0%				
10	R4	24/22	10.0 - 12.0	RQD = 18%				
	R5	42/42	12.0 - 15.5	RQD = 21%				
15	R6	28/21	15.5 - 17.8	RQD = 36%				
	R7	36/32	17.8 - 20.8	RQD = 0%				
20	R8	17/16	20.8 - 22.2	RQD = 25%				
	R9	24/22	22.2 - 24.2	RQD = 23%				
								426.8

Visual Description and Remarks:

Brown, wet, medium dense, GRAVEL, little sand, trace silt, (Moraine).
Brown, wet, dense, GRAVEL, little sand, trace silt, one angular gravel piece in spoon tip, (Moraine).
— 2.7 —
Splitspoon refusal at 2.7'; advanced roller bit to 3.1' and set up to core.
R1: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close to close, moderately dipping to high angle, planar, rough to smooth, discolored, partially open to moderately wide, with silt infilling.
-CARRABASSETT FORMATION-
Rock Mass Quality = Very Poor
Recovery = 85%
Rock Core Times (min:sec): 3.1-4.1' (2:40), 4.1-4.8' (2:27)
R2: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close to closely spaced, low angle to vertical, planar, rough to smooth, discolored, tight to moderately wide, with silt infilling.
Rock Mass Quality = Poor
Recovery = 90%
Rock Core Times (min:sec): 4.8-5.1' (0:41), 5.1-6.1' (2:06), 6.1-7.1' (2:23), 7.1-8.1' (1:49), 8.1-8.8' (2:33)
R3: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close, moderately dipping, planar, smooth to rough, discolored, partially open to moderately wide, with silt infilling. Fractured into angular gravel fragments.
Rock Mass Quality = Very Poor
Recovery = 86%
Rock Core Times (min:sec): 8.8-9.8' (2:03), 9.8-10.0' (1:27)
R4: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close to closely spaced, moderately dipping to vertical, planar, rough to smooth, discolored, tight to moderately wide, with silt infilling. Fractured into angular gravel fragments from 10.0'-10.8'.
Rock Mass Quality = Very Poor
Recovery = 92%
Rock Core Times (min:sec): 10.0-10.8' (1:14), 10.8-11.8' (1:24), 11.8-12.0' (0:46)
R5: Hard, moderately weathered, fine to medium grained, grey, SCHIST. Joints are extremely close to moderately spaced, low to high angle, planar, rough to smooth, discolored to decomposed (14.6'-15.0'), tight to moderately wide, with silt and sand infilling.
Rock Mass Quality = Very Poor
Recovery = 100%
Rock Core Times (min:sec): 12.0-12.8' (1:44), 12.8-13.8' (1:13), 13.8-14.8' (1:48), 14.8-15.5' (1:29)
R6: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close to close, low to high angle, planar, rough to smooth, discolored, tight to moderately wide, with silt/sand infilling.
Rock Mass Quality = Poor
Recovery = 75%
Rock Core Times (min:sec): 15.5-16.8' (2:00), 16.8-17.8' (2:10)
R7: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close to closely spaced, moderately dipping to vertical, stepped to planar, rough to smooth, discolored, tight to moderately wide, with silt infilling.
Rock Mass Quality = Very Poor
Recovery = 89%
Rock Core Times (min:sec): 17.8-18.8' (1:23), 18.8-19.8' (1:54), 19.8-20.8' (1:32)
R8: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close to closely spaced, low angle to high angle, planar, rough to smooth, discolored, tight to moderately wide.
Rock Mass Quality = Poor
Recovery = 94%
Rock Core Times (min:sec): 20.8-21.8' (1:23), 21.8-22.2 (1:39)
R9: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close to closely spaced, low angle to high angle, planar, rough to smooth, discolored, tight to moderately wide, with some silt infilling.
Rock Mass Quality = Very Poor
Recovery = 92%
Rock Core Times (min:sec): 22.2-22.8' (1:04), 22.8-23.8' (2:46), 23.8-24.2' (1:13)
— 24.2 —
Bottom of Exploration at 24.20 feet below ground surface.

Remarks:

1. Mudline 28.0' below bridge deck.
2. Automatic hammer NEBC #D24 Energy Transfer Ratio = 0.904.

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-IWBP-202

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BRIDGE PLANS
WIN 23236.01
Bridge No. 3666

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

SIGNATURE
P.E. NUMBER
DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

BORING LOGS 1

PREPARED BY:

Division: Bridge
Filename: ...\Boring logs sheets.dgn

Date:7/21/2020
Username: BMC

Division: Bridge
Filename: ...\Boring logs sheets.dgn

Date:7/21/2020
Username: BMC

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Detective Benjamin Campbell Bridge #3666, West Branch
Location: T3 Indian Purchase Township, Maine

Boring No.: BB-IWBP-103
PIN: 23236.00

Driller:	New England Boring Contractors	Elevation (ft.)	449.0	Auger ID/OD:	4.25" SSA
Operator:	T. Schafer	Datum:	NAVD 88	Sampler:	Standard Splitspoon
Logged By:	E. Friede	Rig Type:	Mobile B-53	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	6-5-18/6-5-18	Drilling Method:	Spin & Wash	Core Barrel:	NQ
Boring Location:	N779358.6, E1730315.9	Casing ID/OD:	4"/4.5", 3"/3.5"	Water Level *:	River
Hammer Efficiency Factor:	0.6	Hammer Type:	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu 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 = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Sample Information

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.)
0							SPIN	
	R1	31/26	1.3 - 3.9	RQD = 0%			NQ	447.7
	R2	21/21	3.9 - 5.7	RQD = 19%				
5	R3	19/19	5.7 - 7.3	RQD = 0%				
	R4	29/25	7.3 - 9.7	RQD = 31%				
	R5	30/30	9.7 - 12.2	RQD = 17%				
	R6	36/33	12.2 - 15.2	RQD = 18%				
15	R7	28/22	15.2 - 17.5	RQD = 0%				
	R8	4/2	17.5 - 17.8	RQD = 0%				431.2

Visual Description and Remarks:

Spin 4" casing to 0.3' to seat. Heavy grind with roller cone to 1.2', consistent rock fragments in wash return. Telescope 3" casing to 1.3'. — 1.3

R1: Hard, fresh, fine grained, dark grey, SCHIST. Joints are extremely close to close, horizontal to high angle, fresh to discolored, planar, smooth to rough, tight to open, gray silt infilling.
-CARRABASSETT FORMATION-
Rock Mass Quality = Very Poor
Recovery = 84%
Rock Core Times (min:sec): 1.3-2.3' (1:50), 2.3-3.3' (1:45), 3.3-3.9' (1:42)
R2: Hard, fresh, fine grained, dark grey, SCHIST. Joints are extremely close to close, horizontal to high angle, fresh to discolored, planar, smooth to rough, tight to open, gray silt infilling.
Rock Mass Quality = Very Poor
Recovery = 100%
Rock Core Times (min:sec): 3.9-4.9' (2:36), 4.9-5.7' (1:58)
R3: Hard, fresh, fine grained, dark grey, SCHIST. Joints are extremely close to close, horizontal to high angle, fresh to discolored, planar, smooth to rough, tight to open, gray silt infilling.
Rock Mass Quality = Very Poor
Recovery = 100%
Rock Core Times (min:sec): 5.7-6.7' (2:26), 6.7-7.3' (1:20)
R4: Hard to medium hard, fresh to highly weathered (at 9.1'), fine grained, dark grey, SCHIST. Joints are extremely close to close, low to high angle, planar to undulating, rough to smooth, open to moderately wide, with silt infilling approximately 1/4" thick at 9.1'.
Rock Mass Quality = Poor
Recovery = 86%
Rock Core Times (min:sec): 7.3-8.3' (2:36), 8.3-9.3' (1:57), 9.3-9.7' (0:48)
R5: Hard, fresh to slightly weathered, fine grained, dark grey, SCHIST. Joints are very close to close, low angle to vertical, undulating to planar, rough, fresh to discolored, tight to moderately wide, trace silt infilling.
Rock Mass Quality = Very Poor
Recovery = 100%
Rock Core Times (min:sec): 9.7-10.7' (1:48), 10.7-11.7' (2:06), 11.7-12.2' (0:42)
R6: Hard, slightly weathered, medium grained, grey, SCHIST. Joints are extremely close to close, low to high angle, undulating, rough, discolored (black and orange spotted staining), moderately wide, grey clay infilling.
Rock Mass Quality = Very Poor
Recovery = 92%
Rock Core Times (min:sec): Not measured.
R7: Hard, moderately weathered, medium grained, grey, SCHIST. Joints are extremely close to very close, low to high angle, undulating, rough, discolored to decomposed, moderately wide, grey clay infilling.
Rock Mass Quality = Very Poor
Recovery = 79%
Rock Core Times (min:sec): 15.2-16.2' (3:24), 16.2-17.2' (2:26), 17.2-17.5' (0:36)
R8: Hard, slightly weathered, medium grained, grey SCHIST. Joints are extremely close, highly fractured with grey clay infilling.
Rock Mass Quality = Very Poor
Recovery = 50% — 17.8

Bottom of Exploration at 17.80 feet below ground surface.

Remarks:

1. Boring was drilled through 0.8' thick concrete bridge deck. Mudline was 27.8' below top of deck. Boring depths are referenced to the mudline. Mudline elevation calculated using the surveyed bridge deck elevation and taped distance to mudline.
2. River water level was 9.5' above mudline.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterburg Limit tests if available, rather than the MaineDOT Standard based percentages passing specific grain sizes.

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-IWBP-103

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Detective Benjamin Campbell Bridge #3666, West Branch
Location: T3 Indian Purchase Township, Maine

Boring No.: BB-IWBP-203
PIN: 23236.00

Driller:	New England Boring Contractors	Elevation (ft.)	449.8	Auger ID/OD:	2.5 SSA
Operator:	Mike Porter	Datum:	NAVD88	Sampler:	Standard Splitspoon
Logged By:	M. Johnescu	Rig Type:	Truck	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	3-2-20 / 3-2-20	Drilling Method:	Mobile Drill B53	Core Barrel:	NX
Boring Location:	N779356.6, E1730330.6	Casing ID/OD:	4/4.5"	Water Level *:	River
Hammer Efficiency Factor:	0.904	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu 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 = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Sample Information

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.)
0	1D	24/14	0.0 - 2.0	8-72-68-57	140	211		
	R1	14/11	4.7 - 5.9	RQD = 0%				445.3
5	R2	22/16	5.9 - 7.7	RQD = 34%				
	R3	24/16	7.7 - 9.7	RQD = 0%				440.1

Visual Description and Remarks:

Brown, wet, very dense, GRAVEL, some fine to coarse sand, some silt, (Moraine). — 4.5

Increased roller cone resistance at 4.5'; apparent top of rock. Advance roller cone to 4.7' and start to core.
R1: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close to closely spaced, moderately dipping to vertical, planar, rough to smooth, discolored, tight to moderately wide.
-CARRABASSETT FORMATION-
Rock Mass Quality = Very Poor
Recovery = 79%
Rock Core Times (min:sec): 4.7-5.7' (2:34), 5.7-5.9' (2:14)
R2: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close to closely spaced, low to high angle, planar, rough to smooth, discolored, tight to moderately wide.
Rock Mass Quality = Poor
Recovery = 73%
Rock Core Times (min:sec): 5.9-6.7' (2:07), 6.7-7.7' (2:48)
R3: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close, low to high angle, planar, rough to smooth, discolored, partially open to moderately wide.
Rock Mass Quality = Very Poor
Recovery = 67%
Rock Core Times (min:sec): 7.7-8.7' (1:45) — 9.7

Bottom of Exploration at 9.70 feet below ground surface.

Remarks:

1. Mudline 28.3' below bridge deck.
2. Automatic hammer NEBC #D24 Energy Transfer Ratio = 0.904.

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-IWBP-203

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Detective Benjamin Campbell Bridge #3666, West Branch
Location: T3 Indian Purchase Township, Maine

Boring No.: BB-IWBP-104
PIN: 23236.00

Driller:	New England Boring Contractors	Elevation (ft.)	461.6	Auger ID/OD:	4.25" SSA
Operator:	T. Schafer	Datum:	NAVD 88	Sampler:	Standard Splitspoon
Logged By:	E. Friede	Rig Type:	Mobile B-53	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	6-4-18/6-5-18	Drilling Method:	Spin & Wash	Core Barrel:	NQ
Boring Location:	N779455.1, E1730316.2	Casing ID/OD:	4"/4.5", 3"/3.5"	Water Level *:	Not Measured
Hammer Efficiency Factor:	0.6	Hammer Type:	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu 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 = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Sample Information

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.)
0	1D	24/8	0.0 - 2.0	4-4-9-12	13	13	SSA	
								459.6
							SPIN	
5	2D	24/0	5.7 - 7.7	4-5-7-6	12	12		
								452.6
10	3D	20/4	10.4 - 12.1	16-26-39-58/2"	65	65	RC	
15	4D	10/10	15.0 - 15.8	47-100/4"	R			
20	5D	4/3	20.0 - 20.3	100/4"	R			
								439.0
	R1	30/30	23.0 - 25.5	RQD = 0%			NQ	
25	R2	30/30	25.5 - 28.0	RQD = 0%				
	R3	24/18	28.0 - 30.0	RQD = 0%				
30	R4	48/42	30.0 - 34.0	RQD = 20%				
								429.3
	R5	32/32	34.0 - 36.7	RQD = 0%				
	R6	44/44	36.7 - 40.4	RQD = 30%				
40								421.2

Visual Description and Remarks / Laboratory Testing Results/AASHTO and Unified Class.:

Brown, moist, medium dense, Gravelly fine to coarse SAND, trace silt, trace organics (roots), (Topsoil). — G#6, A-1-a, SP, WC=4.7% — 2.0

No recovery. Drove 3" OD spoon through interval.
Grey, wet, medium dense, Sandy fine to coarse GRAVEL, trace silt, (Moraine). — G#7, A-1-a, GP, WC=7.7% — 9.0

Heavy grinding with roller cone at 7.8', no water return, possible cobble/boulder.

Brown, wet, very dense, GRAVEL, some fine to coarse sand, trace silt, (Moraine).

Light brown, moist, very dense, Gravelly fine to coarse SAND, some silt, (Moraine). — G#8, A-1-b, SM, WC=11.6%

Brown, wet, very dense GRAVEL, trace silt, trace fine sand. Gravel is angular, 1" of fractured rock in spoon tip, (Moraine). — 22.6

Increased roller cone resistance and rock fragments in wash return at 22.6', apparent top of highly fractured bedrock. Spin casing to 23.0' and core.
R1: Hard, slightly to moderately weathered, fine grained, dark gray to brown, SCHIST. Highly fractured. Joints are extremely close to very close, low angle to high angle, planar, rough to smooth, discolored and decomposed, open, brown silt/clay infilling.
-CARRABASSETT FORMATION- (Fractured/ Weathered Rock)
Rock Mass Quality = Very Poor
Recovery = 100%
Rock Core Times (min:sec): 23.0-24.0' (2:24), 24.0-25.0' (2:34), 25.0-25.5' (1:03)
R2: Hard, moderately weathered, fine grained, grey-brown, SCHIST (Fractured/ Weathered Rock). Joints are extremely close to very close, low angle to high angle, undulating, rough, decomposed, open, with brown silt infilling.
Rock Mass Quality = Very Poor
Recovery = 100%
Rock Core Times (min:sec): 25.5-26.5' (4:04), 26.5-27.5' (2:02), 27.5-28.0' (1:54) — S_c=1,609, 1,071 (PLD); S_c=4,645, 3,129 (PLA)
R3: Hard, moderately weathered, fine grained, grey-brown, SCHIST (Fractured/ Weathered Rock). Joints are extremely close to very close, low angle to high angle, undulating, rough, decomposed, open, with brown silt infilling.
Rock Mass Quality = Very Poor
Recovery = 75%
Rock Core Times (min:sec): 28.0-29.0' (2:20), 29.0-30.0' (3:18)
R4: Hard, fresh, fine to medium grained, grey-white banded, SCHIST.
30.0'-32.3': Fractured/Weathered Rock. — 32.3
R4: 32.3'-34.0': Joints are very close to close, low angle, smooth, planar, discolored, tight, no infilling.
-CARRABASSETT FORMATION-
Rock Mass Quality = Very Poor
Recovery: 88%
Rock Core Times (min:sec): 30.0-31.0' (1:42), 31.0-32.0' (3:20), 32.0-33.0' (2:03), 33.0-34.0' (3:01)
R5: Hard, slightly weathered, fine to medium grained, grey/white banded, SCHIST. Joints are extremely close to close, low to high angle, planar to undulating, rough, discolored to decomposed, open. Trace brown silt infilling.
Rock Mass Quality = Very Poor
Recovery = 100%
Rock Core Times (min:sec): 34.0-35.0' (2:35), 35.0-36.0 (2:34), 36.0-36.7' (2:00)
R6: Hard, fresh to slightly weathered, fine to medium grained, grey/white banded, SCHIST. 36.7'-39.4': Joints are very close to close, low to high angle, planar, smooth, discolored to decomposed, tight to open, grey clay infilling. 39.4'-40.4': Highly fractured, grey clay infilling.
Rock Mass Quality = Poor
Recovery = 100%
Rock Core Times (min:sec): 36.7-37.7' (2:48), 37.7-38.7' (2:05), 38.7-39.7' (2:05), 39.7-40.4' (1:44) — 40.4

Bottom of Exploration at 40.40 feet below ground surface.

Remarks:

1. Heavy grinding at 3.7' indicative of cobbles. Switched to Spin & Wash with 4" casing at 3.7' and 3" casing at 12.1'.
2. Heavy, consistent grinding at 7.8', no wash water return.
3. PLD, PLA indicate diametral and axial point load tests performed. S_c indicates estimated unconfined compressive strength per ASTM D5731.
4. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterburg Limit tests if available, rather than the MaineDOT Standard based percentages passing specific grain sizes.

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-IWBP-104

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Detective Benjamin Campbell Bridge #3666, West Branch
Location: T3 Indian Purchase Township, Maine

Boring No.: BB-IWBP-105
PIN: 23236.00

Driller:	New England Boring Contractors	Elevation (ft.)	474.2	Auger ID/OD:	4.25" SSA
Operator:	T. Schafer	Datum:	NAVD 88	Sampler:	Standard Splitspoon
Logged By:	E. Friede	Rig Type:	Mobile B-53	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	5-29-18/5-29-18	Drilling Method:	Drive/Spin & Wash	Core Barrel:	NQ
Boring Location:	N779528.9, E1730340.1	Casing ID/OD:	4"/4.5", 3"/3.5"	Water Level *:	Not Measured
Hammer Efficiency Factor:	0.6	Hammer Type:	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu 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 = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Sample Information

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.)
0							SSA	473.2
	1D	24/10	2.0 - 4.0	8-11-11-20	22	22		
5	2D	24/8	5.0 - 7.0	10-7-18-13	25	25	RC	
10	3D	24/2	10.0 - 12.0	10-9-7-7	16	16		
							26	
							18	
							19	
							29	
15	4D	24/12	15.5 - 17.5	11-21-25-25	46	46	RC	458.4
20	5D	14/1	20.0 - 21.2	10-10-50/2"	R		SPIN	
								452.6
	R1	9/1	22.0 - 22.8	RQD = 0%				452.1
	R2	19/13	23.0 - 24.6	RQD = 31%				451.2
								450.1
	6D	16/2	26.0 - 27.3	24-39-50/4"	R			
	R3	7/7	29.8 - 30.4	RQD = 0%			NQ	444.4
30	R4	28/11	30.4 - 32.7	RQD = 0%			SPIN	442.9
								436.3
	R5	41/40	38.0 - 41.4	RQD = 49%			NQ	
	R6	30/30	41.4 - 43.9	RQD = 0%				
	R7	39/39	43.9 - 47.2	RQD = 23%				427.0

Visual Description and Remarks / Laboratory Testing Results/AASHTO and Unified Class.:

0'-1.0': Asphalt.
Heavy grinding, large cobbles. — 1.0

Grey-brown, dry, medium dense, Sandy fine to coarse GRAVEL, trace silt, (Fill). — G#9, A-1-a, GW-GM, WC=1.9%

Brown, moist, medium dense, Sandy fine to coarse GRAVEL, trace silt, (Fill). — G#10, A-1-a, GW-GM, WC=2.8%

Dark grey, moist, medium dense, GRAVEL, trace fine to coarse sand, trace silt. Gravel is angular, (Fill).

Top 4": Dark grey, wet, GRAVEL, trace fine to coarse sand, trace silt. Gravel is angular, (Fill). — G#11, A-1-a, GM, WC=6.9% — 15.8
Bottom 8": Light brown and grey mottled, wet, dense, fine to coarse GRAVEL, some fine to coarse sand, little silt, (Moraine).

Dark grey, wet, very dense, GRAVEL, trace silt, trace fine to coarse sand, (Moraine). — 21.6

Consistent increased roller cone resistance at 21.6'. Apparent top of highly fractured/ weathered rock. Spin 3" casing and advance roller cone to 22.0', and set up to core.
R1: Very hard, slightly weathered, medium grained, dark grey, SCHIST (Fractured/ Weathered Rock). Joints are extremely close.
Recovery = 11%
Rock Core Times (min:sec): 22.0-22.8' (3:58) — S_c=4,088, 4,809 (PLD); S_c=3,899, 1,421 (PLA) — 22.1
Hole caved-in. Advanced 3" casing to 23.0', no wash water return. Possible highly fractured/weathered rock. — 23.0
R2: Very hard, slightly weathered, medium grained, dark grey, SCHIST (Fractured/ Weathered Rock). Joints are close, low to high angle, undulating, smooth to rough, discolored, open, brown silt infilling at bottom.
Rock Mass Quality = Poor
Recovery = 68%
Rock Core Times (min:sec): 23.0-24.0' (2:20), 24.0-24.4' (0:39) — 24.1
Advanced roller cone through apparent fractured/weathered rock to 26.0'.
Dark grey, wet, very dense, GRAVEL, trace clay, trace fine to coarse sand, (Fractured/ Weathered Rock).
Advance roller cone through apparent fractured/weathered rock to 29.8', set up to core. — 29.8
R3: Hard, slightly weathered, medium grained, dark grey, SCHIST (Fractured/ Weathered Rock). Joints are extremely close, low angle to vertical, undulating, rough, discolored, moderately wide, moderate grey-brown clay infilling.
Rock Mass Quality = Very Poor
Recovery = 100%
Rock Core Times (min:sec): 29.8-30.4' (4:11) — q_p=2,665
R4 (top): Hard, slightly weathered, medium grained, dark grey, SCHIST (Fractured/ Weathered Rock). Joints are extremely close, low to high angle, undulating, rough, discolored, moderately wide, brown clay infilling (>1/4"). Residual soil plug at bottom.
Rock Mass Quality = Very Poor
Recovery = 39%
Rock Core Times (min:sec): 30.4-31.4' (2:15), 31.4-32.4' (1:56), 32.4-32.7' (1:50)
Sample consistent with R3. Recovery sample assumed to be from top of core. — 31.3
No recovery from bottom of R4 Core. Advance roller cone after R4 with low resistance. Clay and rock fragments observed in wash return. Possible highly fractured/ weathered rock. — 37.9
Consistent increased roller cone resistance at 37.9'. Spin 3" casing and advance roller cone to 38.0' and set up to core.
R5: Hard, slightly weathered, fine grained, dark grey, SCHIST. Joints are extremely close to moderately spaced, low angle to moderately dipping, planar, smooth, discolored, tight to open, moderate clay infilling.
-CARRABASSETT FORMATION-
Rock Mass Quality = Poor
Recovery = 98%
Rock Core Times (min:sec): 38.0-39.0' (2:41), 39.0-40.0' (2:06), 40.0-41.0' (2:45), 41.0-41.4' (0:34)
R6: Hard, slightly weathered, fine grained, dark grey and brown, SCHIST. Joints are extremely close to close, low to high angle, planar and smooth to undulating and rough, discolored to decomposed, tight to open, rusty brown, silt infilling.
Rock Mass Quality = Very Poor
Recovery = 100%
Rock Core Times (min:sec): 41.4-42.4' (1:50), 42.4-43.4' (1:48), 43.4-43.9' (1:18)
R7: Hard, slightly weathered, medium grained, dark grey and white banded SCHIST. Joints are extremely close to close, low to high angle, planar to undulating, smooth to rough, discolored, tight to moderately wide, trace brown silt infilling.
Rock Mass Quality = Poor
Recovery = 100%
Rock Core Times (min:sec): 43.9-44.9' (1:43), 44.9-45.9' (1:38), 45.9-46.9' (1:24), 46.9-47.2' (0:40) — 47.2

Bottom of Exploration at 47.20 feet below ground surface.

Remarks:

1. Hole cave at 5.0'; advance HSA to 5.0'; switch to Drive & Wash; advance 4" casing to 21.3'; advance 3" casing to 38.0'.
2. PLD, PLA indicate diametral and axial point load tests performed. S_c indicates estimated unconfined compressive strength per ASTM D5731.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterburg Limit tests if available, rather than the MaineDOT Standard based percentages passing specific grain sizes.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Page 1 of 1
Boring No.: BB-IWBP-105

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BRIDGE PLANS

WIN 23236.01

Bridge No. 3666

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

SIGNATURE
P.E. NUMBER
DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

BORING LOGS 2

PREPARED BY:

SHEET NUMBER
13
OF 69

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Detective Benjamin Campbell Bridge #3666, West Branch
Location: T3 Indian Purchase Township, Maine

Boring No.: BB-IWBP-204-1
PIN: 23236.00

Driller: New England Boring Contractors	Elevation (ft.) 474.3	Auger ID/OD: 2.5 SSA	
Operator: Brad Enos	Datum: NAVD88	Sampler: Standard Splitspoon	
Logged By: M. Johnescu	Rig Type: Truck	Hammer Wt./Fall: 140#/30"	
Date Start/Finish: 2-26-20 / 3-5-20	Drilling Method: Mobile Drill B53	Core Barrel: NX	
Boring Location: N779531.5, E1730353.9	Casing ID/OD: 4/4.5"	Water Level *: 15.0'	
Hammer Efficiency Factor: 0.904	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample; MD = Unsuccessful Split Spoon Sample attempt; U = Thin Wall Tube Sample; MU = Unsuccessful Thin Wall Tube Sample attempt; V = Insitu Vane Shear Test; MV = Unsuccessful Insitu 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 = weight of rods; WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf); T_v = Pocket Torvane Shear Strength (psf); q_p = Unconfined Compressive Strength (ksf); N-uncorrected = Raw field SPT N-value; Hammer Efficiency Factor = Annual Calibration Value; N_{60} = SPT N-uncorrected corrected for hammer efficiency; N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane 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 (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	17/17	0.5 - 1.9	60-72-79/5"			SSA		0'-0.5': Asphalt	
								473.8	0.5 — Brown, moist, very dense, sandy GRAVEL, little silt, angular gravel pieces, (Fill).	
	2D	9/4	4.0 - 4.8	7-100/3"	R		RC		Brown, moist, very dense, fine to coarse SAND, some gravel, little silt, (Fill).	
5							38			
							67			
							82			
							62			
	3D	24/6	9.0 - 11.0	10-26-27-10	53	80	47		Grey, wet, very dense, fine to coarse GRAVEL, little fine to coarse sand, (Fill).	
10							123			
	4D	24/10	11.0 - 13.0	14-12-10-21	22	33	105		Grey, wet, dense, gravelly fine to coarse SAND, trace silt, (Fill).	
							132	462.3	12.0	
	5D	16/4	13.0 - 14.3	62-1-50/4"	R		RC		Brown, wet, hard, Silty CLAY, little fine to medium sand, trace silt, medium to low plasticity (Moraine).	
15	6D	18/6	15.0 - 16.5	71-18-16	34	51			Brown and grey, moist, hard, gravelly CLAY, trace silt, low plasticity, (Moraine).	
								457.8	16.5	
								457.3	See BB-IWBP-204-2 for remainder of boring log from 17.0'-50.5' bgs. 17.0	
									Bottom of Exploration at 17.00 feet below ground surface.	

Remarks:

1. Automatic hammer NEBC #D24 Energy Transfer Ratio = 0.904.
2. Possible cobble at 4.8' bgs, heavy grinding and rig chatter.
3. Heavy rig chatter and on/off loss of drilling returns starting at 12.5'.
4. Drill rig changed to NEBC drill rig B23 on 3-2-2020 at 17.0'.

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-IWBP-204-1

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Detective Benjamin Campbell Bridge #3666, West Branch
Location: T3 Indian Purchase Township, Maine

Boring No.: BB-IWBP-204-2
PIN: 23236.00

Driller: New England Boring Contractors	Elevation (ft.) 474.3	Auger ID/OD: 2.5 SSA	
Operator: Brad Enos	Datum: NAVD88	Sampler: Standard Splitspoon	
Logged By: M. Johnescu	Rig Type: Truck	Hammer Wt./Fall: 140#/30"	
Date Start/Finish: 2-26-20 / 3-5-20	Drilling Method: Mobile Drill B53	Core Barrel: NX	
Boring Location: N779531.5, E1730353.9	Casing ID/OD: 4/4.5"	Water Level *: 15.0'	
Hammer Efficiency Factor: 0.842	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample; MD = Unsuccessful Split Spoon Sample attempt; U = Thin Wall Tube Sample; MU = Unsuccessful Thin Wall Tube Sample attempt; V = Insitu Vane Shear Test; MV = Unsuccessful Insitu 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 = weight of rods; WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf); T_v = Pocket Torvane Shear Strength (psf); q_p = Unconfined Compressive Strength (ksf); N-uncorrected = Raw field SPT N-value; Hammer Efficiency Factor = Annual Calibration Value; N_{60} = SPT N-uncorrected corrected for hammer efficiency; N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane 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 (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Laboratory Testing Results/ AASHTO and Unified Class.
0									
								457.3	
	7D	24/12	17.0 - 19.0	51-22-20-22	42	59	RC		
	8D	24/7	19.0 - 21.0	28-26-29-38	55	77			
	9D	24/9	21.0 - 23.0	40-32-25-27	57	80			
	10D	24/11	23.0 - 25.0	28-81-30-39	111	156			
25	11D	24/10	25.0 - 27.0	37-52-25-28	77	108			
	12D / R1	7/7 / 35/10	27.0 - 27.6 / 27.6 - 30.5	66-50/2" / RQD = 0%	R		NX	446.7	s_c=3380 (PLD)
	R2	14/11	30.5 - 31.7	RQD = 0%					
	R3	28/15	31.7 - 34.0	RQD = 0%					
	R4	23/14	34.7 - 36.6	RQD = 0%			RC		
35							NX		
	R5	17/13	36.6 - 38.0	RQD = 0%				437.8	
	R6	26/22	38.0 - 40.2	RQD = 0%					
40	R7	17/14	40.2 - 41.6	RQD = 0%					
	R8	31/28	41.6 - 44.2	RQD = 0%					
	R9	24/24	44.2 - 46.2	RQD = 0%					
	R10	14/9	46.2 - 47.4	RQD = 0%					
	R11	37/37	47.4 - 50.5	RQD = 34%					
50								423.8	

Visual Description and Remarks:

See BB-IWBP-204-1 for material descriptions from 0.0'- 17.0' bgs.

[17.0] Brown, moist, very dense, fine to coarse SAND, some gravel, some silt, (Moraine).

Brown, moist, very dense, sandy GRAVEL, trace silt, (Moraine).

Brown, wet, very dense, fine to coarse SAND, little gravel, trace silt, (Moraine).

Brown and grey, wet, very dense, GRAVEL, little sand, trace silt, gravel is subangular, (Moraine).

Brown and grey, wet, very dense, GRAVEL, little sand, trace silt, gravel is subangular, (Moraine).

[27.6] Splitspoon refusal at 27.6', probable bedrock. Advance roller cone to 27.6' and start to core.
Probable top of rock at 27.6'.
R1: Hard, slightly weathered, fine grained, grey, SCHIST (Fractured/Weathered Rock). Joints are extremely close, moderately dipping, stepped to planar, rough to smooth, discolored, tight to moderately wide. Highly fractured.
-CARRABASSETT FORMATION-
Rock Quality = Very Poor
Recovery = 29%
Rock Core Times (min:sec): 27.6-28.6' (3:06), 28.6-29.6' (2:28), 29.6-30.5' (3:03)
R2: Hard, slightly weathered, fine grained, grey, SCHIST (Fractured/Weathered Rock). Joints are extremely close, moderately dipping to vertical, stepped to planar, rough to smooth, discolored, partially open to moderately wide. Fractured into angular gravel fragments.
Rock Quality = Very Poor
Recovery = 79%
Rock Core Times (min:sec): 30.5-31.6' (1:35), 31.6-31.7' (0:35)
R3: Hard, slightly weathered, fine grained, grey, SCHIST (Fractured/Weathered Rock). Joints are extremely close, stepped to planar, rough, discolored, partially open to moderately wide.
Rock Quality = Very Poor
Recovery = 54%
Rock Core Times (min:sec): 31.7-32.6' (1:23), 32.6-33.6' (1:41)
R4: Hard, slightly weathered, fine grained, grey, SCHIST (Fractured/Weathered Rock). Joints are extremely close, low angle, stepped to planar, rough to smooth, discolored, tight to moderately wide.
Rock Quality = Very Poor
Recovery = 63%
Rock Core Times (min:sec): Not recorded

[36.5] R5: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close, low angle to vertical, s tepped to planar, rough to smooth, discolored, tight to moderately wide.
-CARRABASSETT FORMATION-
Rock Quality = Very Poor
Recovery = 76%
Rock Core Times (min:sec): 36.6-37.6' (5:03), 37.6-38.0' (3:16)
R6: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close to very close, low angle to high angle, planar, rough to smooth, discolored, tight to moderately wide.
Rock Quality = Very Poor
Recovery = 85%
Rock Core Times (min:sec): 38.0-38.6' (1:24), 38.6-39.6' (4:08), 39.6-40.2' (3:09)
R7: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close, low angle to moderately dipping, planar, rough to smooth, discolored, tight to moderately wide.
Rock Quality = Very Poor
Recovery = 82%
Rock Core Times (min:sec): 40.2-41.2' (3:19), 41.2-41.6' (1:52)
R8: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close to very close, low angle to high angle, planar, rough to smooth, discolored, tight to moderately wide.
Rock Quality = Very Poor
Recovery = 90%
Rock Core Times (min:sec): 41.6-42.2' (1:25), 42.2-43.2' (2:14), 43.2-44.2' (2:45)
R9: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are e xtremely close, low angle to vertical, s tepped to planar, rough to smooth, discolored, tight to moderately wide.
Rock Quality = Very Poor
Recovery = 100%
Rock Core Times (min:sec): 44.2-45.2' (1:58), 45.2-46.2' (2:06)
R10: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are extremely close, low angle to high angle, planar, rough to smooth, discolored, partially open to moderately wide. Fractured into angular gravel fragments.
Rock Quality = Very Poor
Recovery = 64%
Rock Core Times (min:sec): 46.2-47.2' (3:15), 47.2-47.4' (1:16)
R11: Hard, slightly weathered, fine grained, grey, SCHIST. Joints are e xtremely close to moderately spaced, low angle to high angle, stepped to planar, rough to smooth, discolored, tight to moderately wide.
Rock Quality = Poor
Recovery = 100%
Rock Core Times (min:sec): 47.4-48.2' (1:54), 48.2-49.2' (2:09), 49.2-50.2' (2:47), 50.2-50.5' (0:37)

[50.5] Bottom of Exploration at 50.50 feet below ground surface.

Remarks:

1. Automatic hammer NEBC #D23 Energy Transfer Ratio = 0.842.
2. Possible cobble at 4.8' bgs, heavy grinding and rig chatter.
3. Heavy rig chatter and on/off loss of drilling returns starting at 12.5'.
4. Drill rig changed to NEBC drill rig B23 on 3-2-2020 at 17.0'.
5. After coring sample R3 to 34.0' bgs, the roller bit was advanced to 34.7', and then coring was continued.

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 3 of ??
Boring No.: BB-IWBP-204-2

Division: Bridge
Filename: ...\Boring logs sheets.dgn

Date:7/21/2020
Username: BMC

PREPARED BY:

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BRIDGE PLANS
WIN 23236.01
Bridge No. 3666

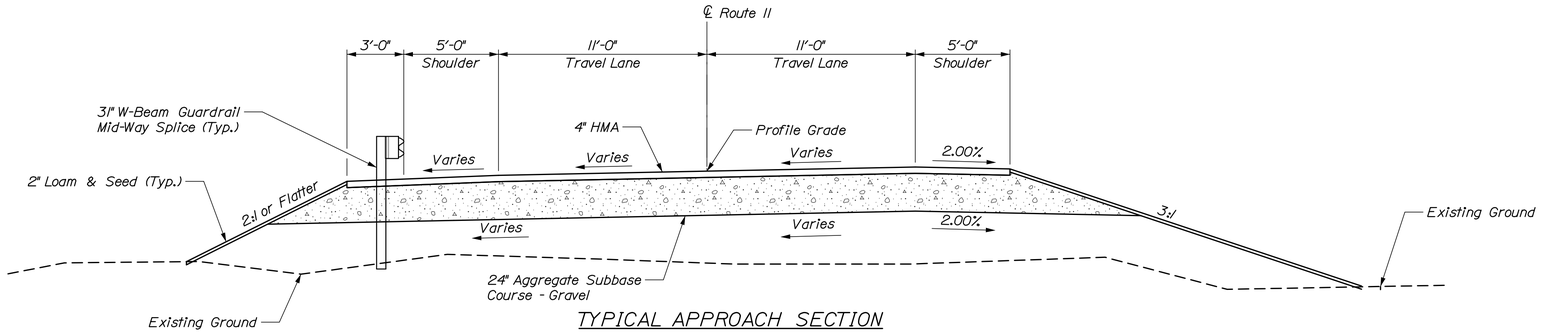
BY	DATE	
		PROJ. MANAGER
--	--	DESIGN-DETAILED
--	--	CHECKED-REVIEWED
		DESIGN2-DETAILED2
		DESIGN3-DETAILED3
		REVISIONS 1
		REVISIONS 2
		REVISIONS 3
		REVISIONS 4
		FIELD CHANGES

SIGNATURE
P.E. NUMBER
DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

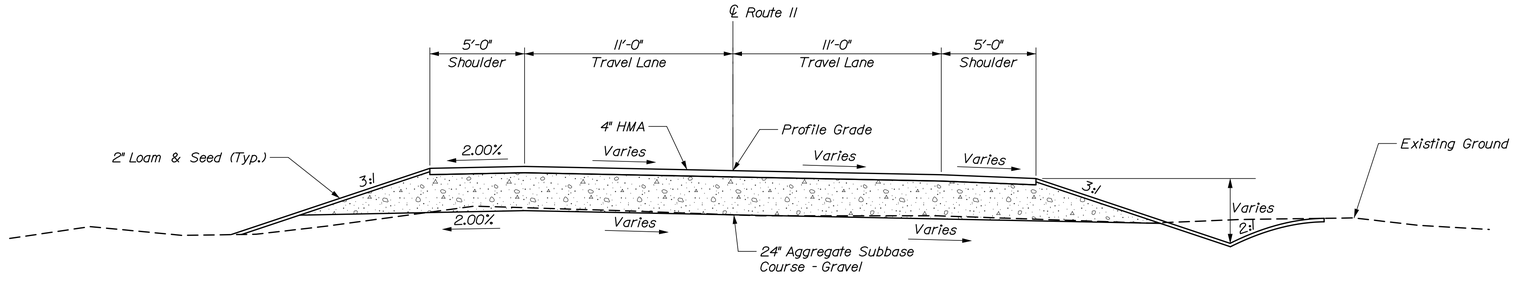
BORING LOGS 3

SHEET NUMBER
14
OF 69



TYPICAL APPROACH SECTION

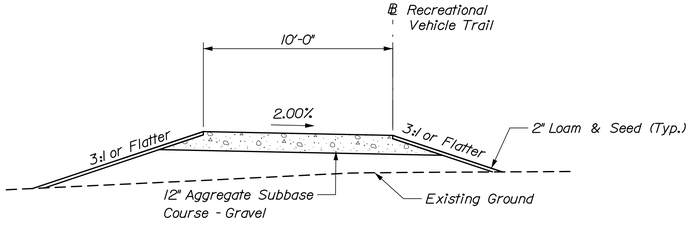
With Guardrail



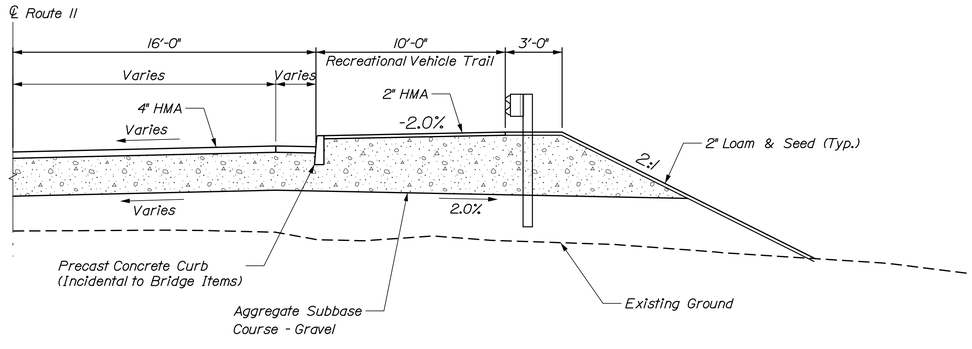
TYPICAL APPROACH SECTION

Without Guardrail

Route 11 Superelevation Table				
Lt. Shoulder	Lt. Travelway	Station	Rt. Travelway	Rt. Shoulder
Match Existing		1192+20.00	Match Existing	
-6.0%	-5.0%	1192+25.00	4.4%	3.5%
-6.0%	-5.2%	1192+50.00	5.2%	2.5%
-6.0%	-6.0%	1192+75.00	6.0%	1.5%
-6.0%	-6.0%	1193+00.00	6.0%	0.5%
-6.0%	-6.0%	1193+25.00	6.0%	-0.5%
-6.0%	-6.0%	1193+50.00	6.0%	-1.5%
-6.0%	-6.0%	1193+75.00	6.0%	-2.0%
↓	↓	-	↓	↓
-6.0%	-6.0%	1195+14.00	6.0%	-2.0%
-5.5%	-5.5%	1195+25.00	5.5%	-2.0%
-4.5%	-4.5%	1195+50.00	4.5%	-2.0%
-3.4%	-3.4%	1195+75.00	3.4%	-2.0%
-2.3%	-2.3%	1196+00.00	2.3%	-2.0%
-2.0%	-2.0%	1196+07.00	2.0%	-4.0%
N/A	-2.0%	1196+25.00	2.0%	N/A
↓	↓	-	↓	↓
N/A	-2.0%	1199+75.00	2.0%	N/A
-4.0%	-2.0%	1200+00.00	2.0%	N/A
-4.0%	-2.0%	1200+03.00	2.0%	-4.0%
-4.0%	-1.1%	1200+25.00	1.1%	-4.0%
-4.0%	0.0%	1200+50.00	0.0%	-4.0%
-4.0%	1.1%	1200+75.00	-1.1%	-4.0%
-4.0%	2.2%	1201+00.00	-2.2%	-4.0%
-3.0%	3.2%	1201+25.00	-3.2%	-4.0%
-2.0%	4.3%	1201+50.00	-4.3%	-4.3%
-2.0%	5.4%	1201+75.00	-5.4%	-5.4%
-2.0%	6.0%	1201+90.00	-6.0%	-6.0%
↓	↓	-	↓	↓
-2.0%	6.0%	1202+50.00	-6.0%	-6.0%
-1.0%	6.0%	1202+75.00	-6.0%	-6.0%
0.0%	6.0%	1203+00.00	-6.0%	-6.0%
1.0%	6.0%	1203+25.00	-6.0%	-7.0%
2.0%	6.0%	1203+50.00	-6.0%	-8.0%
3.0%	6.0%	1203+75.00	-6.0%	-9.0%
4.0%	6.0%	1204+00.00	-6.0%	-10.0%
5.0%	5.8%	1204+25.00	-5.9%	-11.0%
Match Existing		1204+30.00	Match Existing	



RECREATIONAL VEHICLE TRAIL DESIGN SECTION



TYPICAL APPROACH SECTION WITH RECREATIONAL VEHICLE TRAIL

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathe
DESIGN-DETAILED	C. Helmick
CHECKED-REVIEWED	L. Driscoll
DESIGN2-DETAILED2	
DESIGN3-DETAILED3	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

BY	DATE
P. Bishop	07\20
R. Hanf	07\20

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

TYPICAL SECTIONS

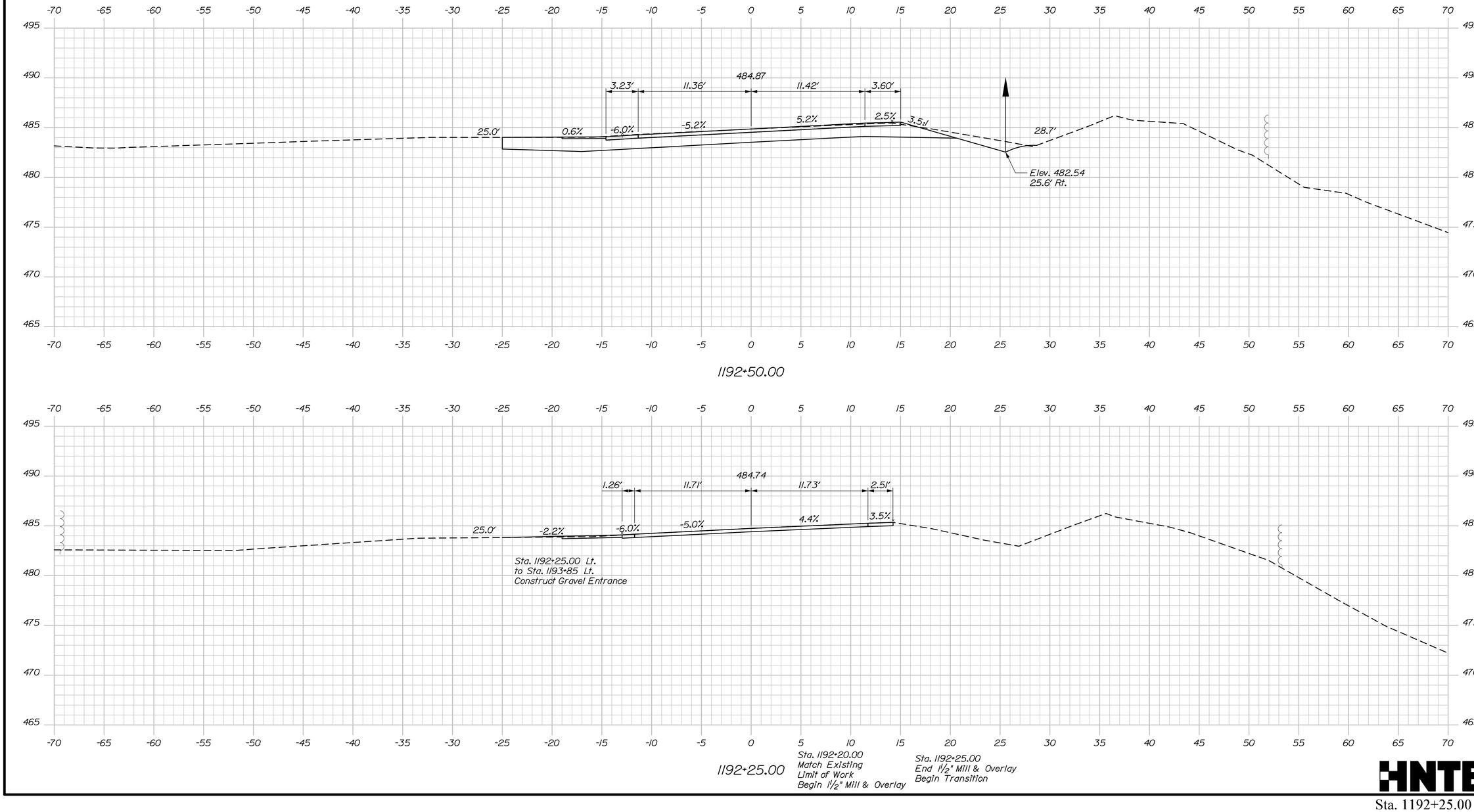
SHEET NUMBER

15

OF 69

HNTB

Filename: 015_Typical Section.dgn Division: Username: Date:8/3/2020



HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN
023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathel	BY	DATE
DESIGN-DETAILED	C. Helmick	C. Helmick	07\20
CHECKED-REVIEWED	L. Driscoll	R. Hanf	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CROSS SECTIONS
ROUTE 11

SHEET NUMBER

16

OF 69

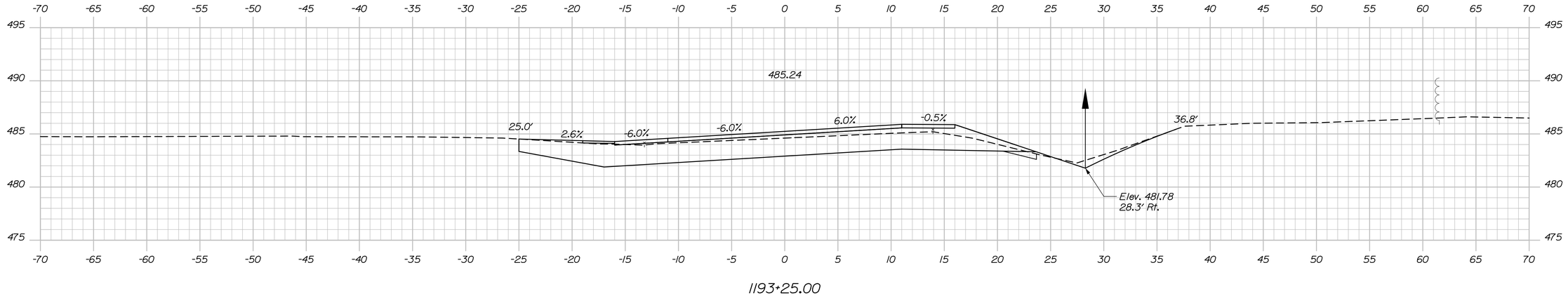
Sta. 1192+25.00 to Sta. 1192+50.00

Date:8/3/2020

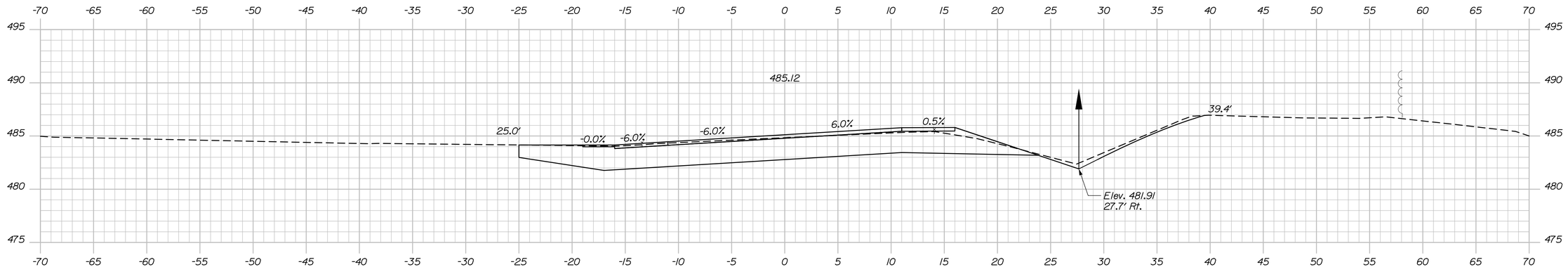
Username:

Division:

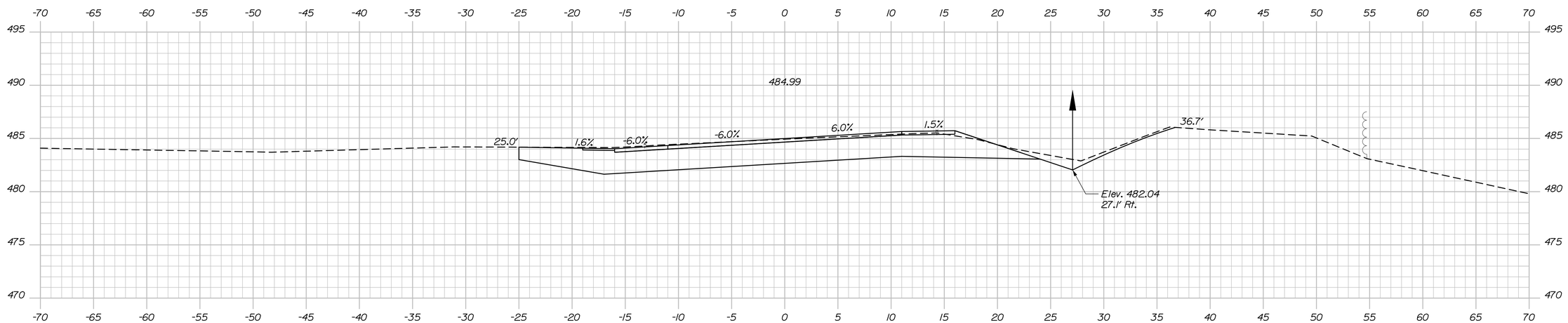
Filename: Xsect_Rte11.dgn



1193+25.00



1193+00.00



1192+75.00

Sta. 1192+75.00
End Transition
Begin Project

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN
023236.01

Bridge No. 3666

BRIDGE PLANS

SIGNATURE

P.E. NUMBER

DATE

			BY	DATE
PROJ. MANAGER	A. Lothe			
DESIGN-DETAILED	C. Helmick		C. Helmick	07\20
CHECKED-REVIEWED	L. Driscoll		R. Hanf	07\20
DESIGN2-DETAILED2				
DESIGN3-DETAILED3				
REVISIONS 1				
REVISIONS 2				
REVISIONS 3				
REVISIONS 4				
FIELD CHANGES				

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CROSS SECTIONS
ROUTE 11

SHEET NUMBER

17

OF 69

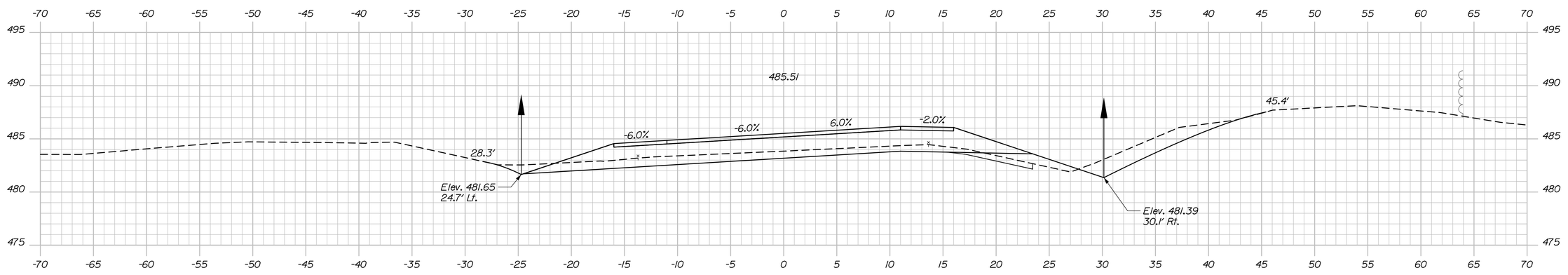
Sta. 1192+75.00 to Sta. 1193+25.00

Date:8/3/2020

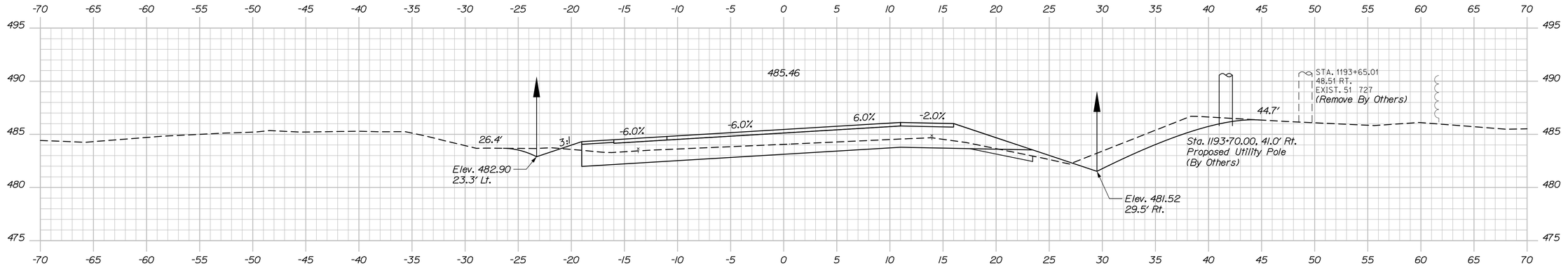
Username:

Division:

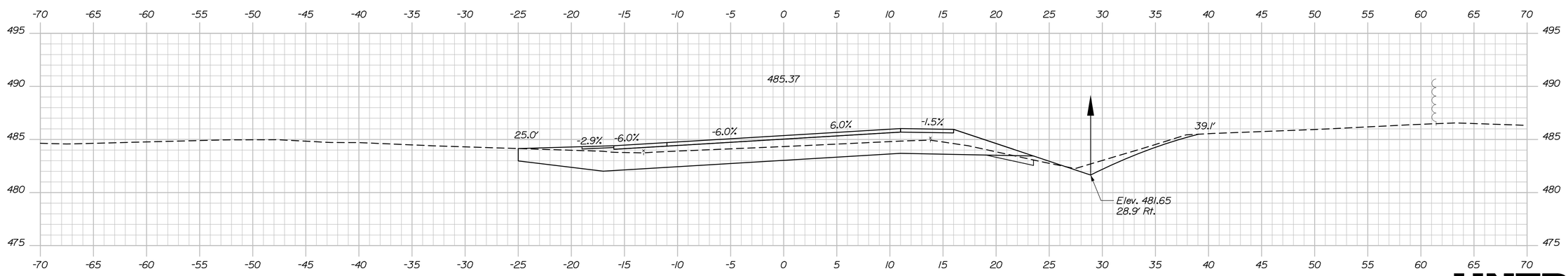
Filename: Xsect_Rte11.dgn



1194+00.00



1193+75.00



1193+50.00

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lothel	BY	DATE
DESIGN-DETAILED	C. Hélmick	C. Hélmick	07\20
CHECKED-REVIEWED	L. Driscoll	R. Honf	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CROSS SECTIONS
ROUTE 11

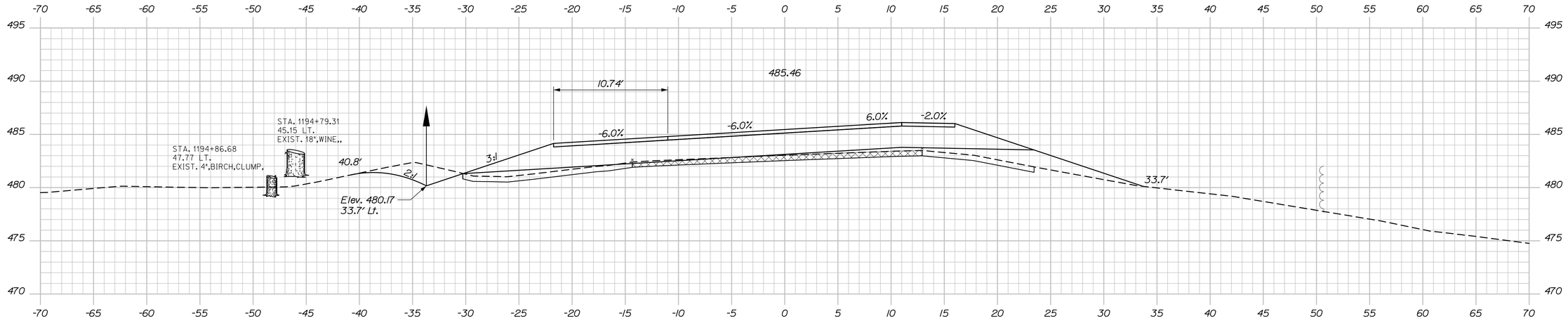
SHEET NUMBER

18

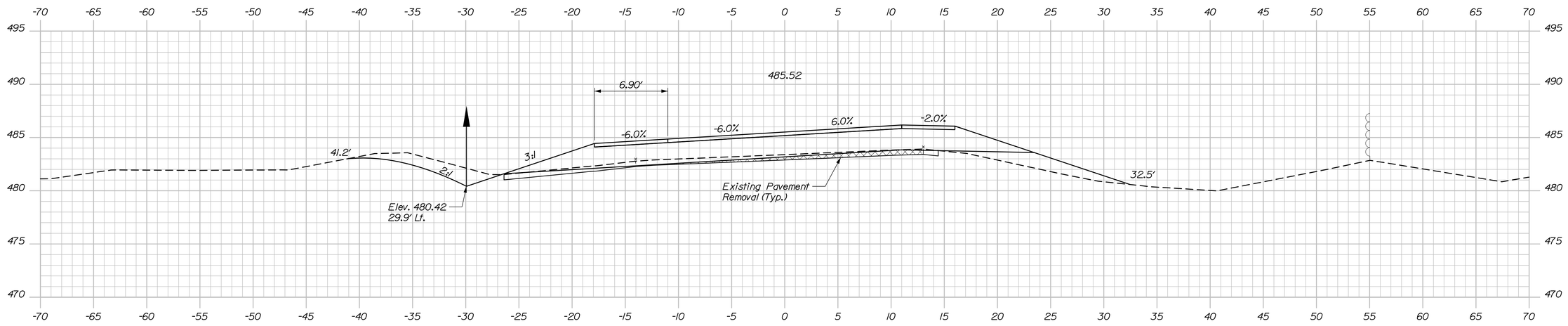
OF 69

Sta. 1193+50.00 to Sta. 1194+00.00

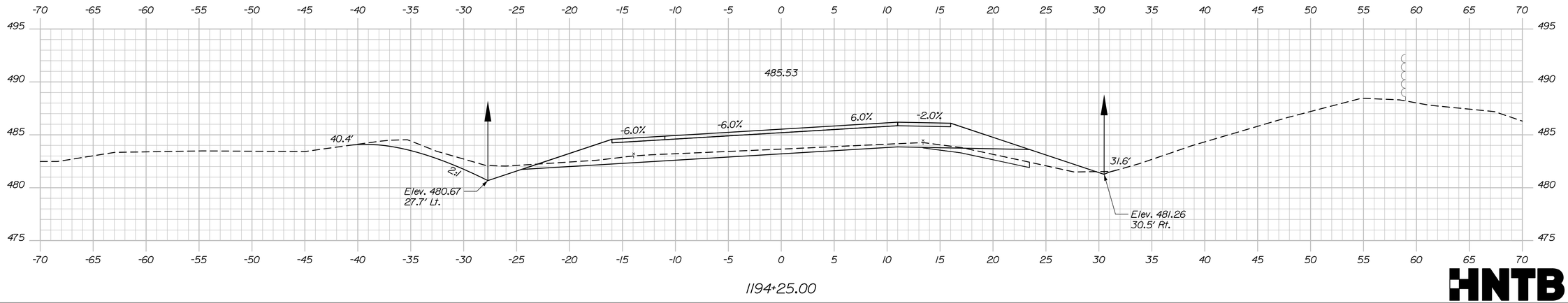
Filename: Xsect_Rte11.dgn Division: Username: Date:8/3/2020



1194+75.00



1194+50.00



1194+25.00

HNTB

Sta. 1194+25.00 to Sta. 1194+75.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

BRIDGE PLANS

Bridge No. 3666

	BY	DATE
PROJ. MANAGER	A. Lothel	
DESIGN-DETAILED	C. Hélmick	07\20
CHECKED-REVIEWED	L. Driscoll	07\20
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

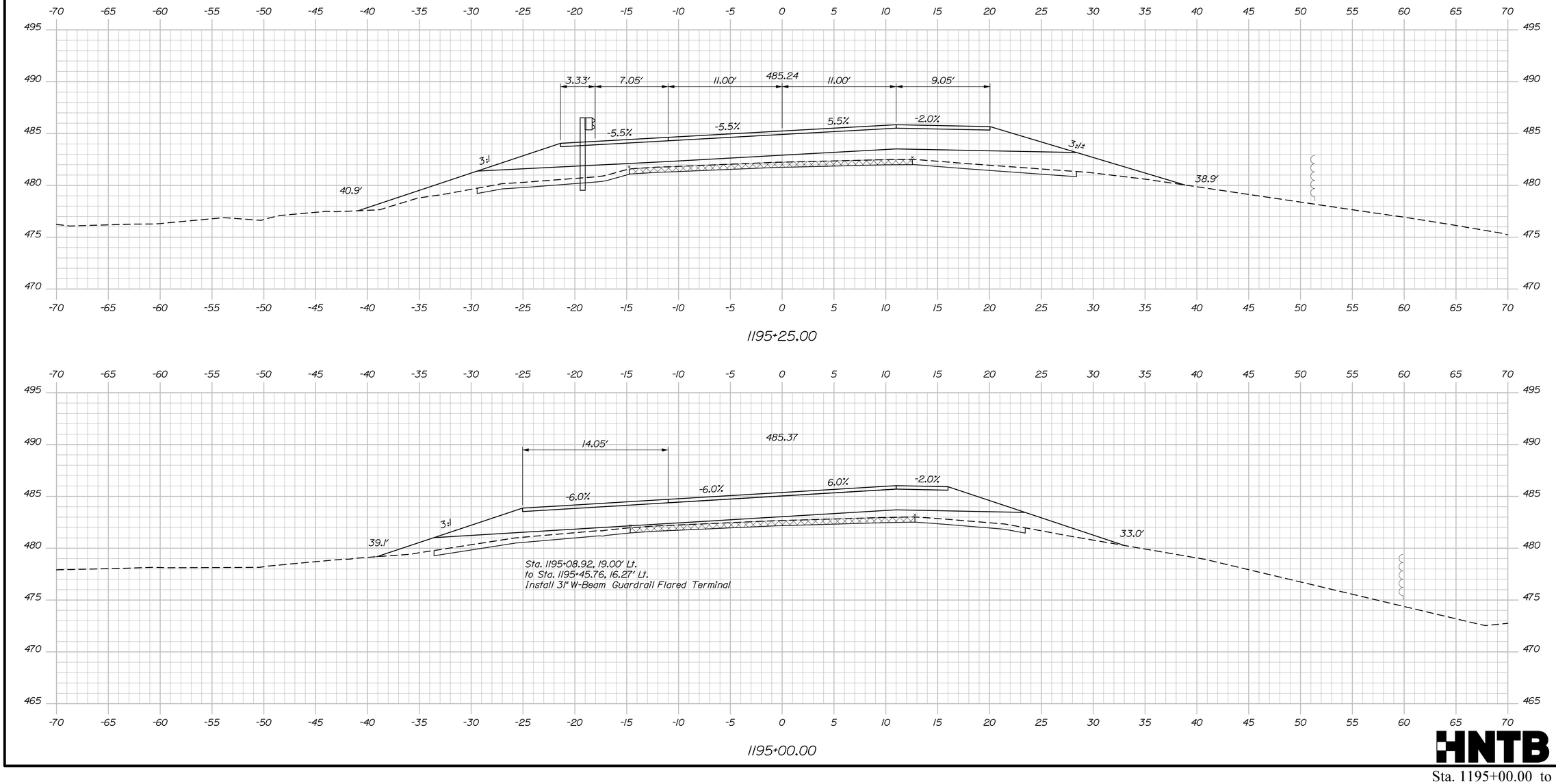
CROSS SECTIONS
ROUTE 11

SHEET NUMBER

19

OF 69

Filename: Xsect_Rte11.dgn Division: Username: Date:8/3/2020



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathel		
DESIGN-DETAILED	C. Helmick	BY	DATE
CHECKED-REVIEWED	L. Driscoll	C. Helmick	07\20
DESIGN2-DETAILED2		R. Hanf	07\20
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CROSS SECTIONS
ROUTE 11

SHEET NUMBER

20

OF 69

HNTB

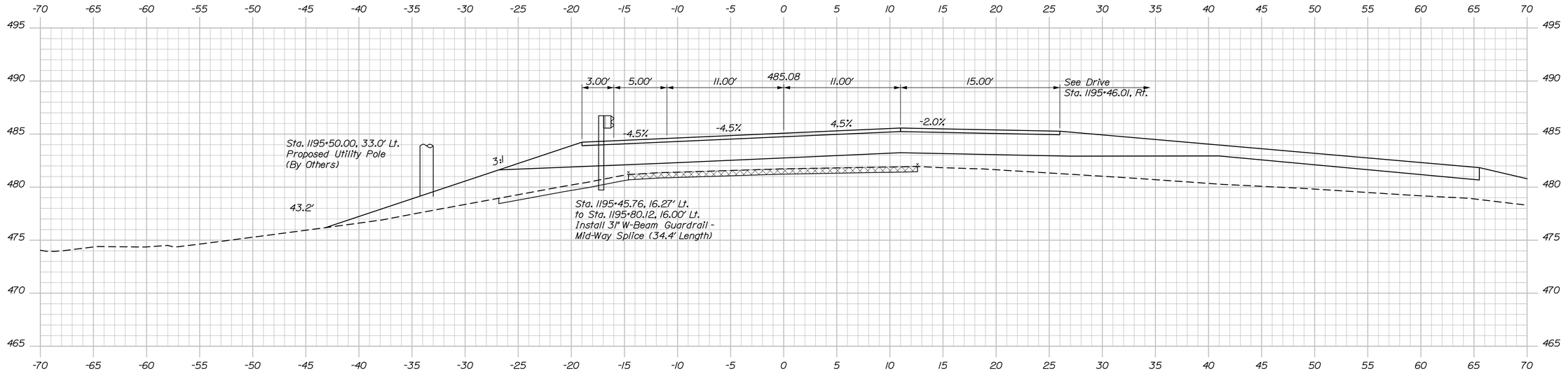
Sta. 1195+00.00 to Sta. 1195+25.00

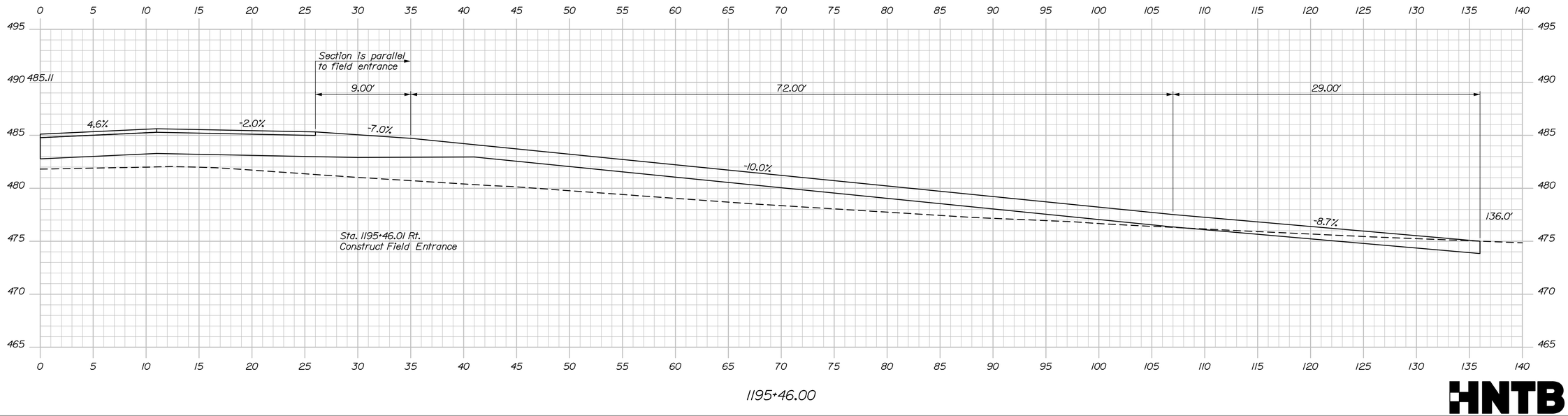
Username:

Division:

Date:8/3/2020

Filename: Xsect_Rte11.dgn





HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN
023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathel
DESIGN-DETAILED	C. Helmick
CHECKED-REVIEWED	L. Driscoll
DESIGN2-DETAILED2	
DESIGN3-DETAILED3	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

BY	DATE
C. Helmick	07\20
R. Honf	07\20

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CROSS SECTIONS
ROUTE 11

SHEET NUMBER

21

OF 69

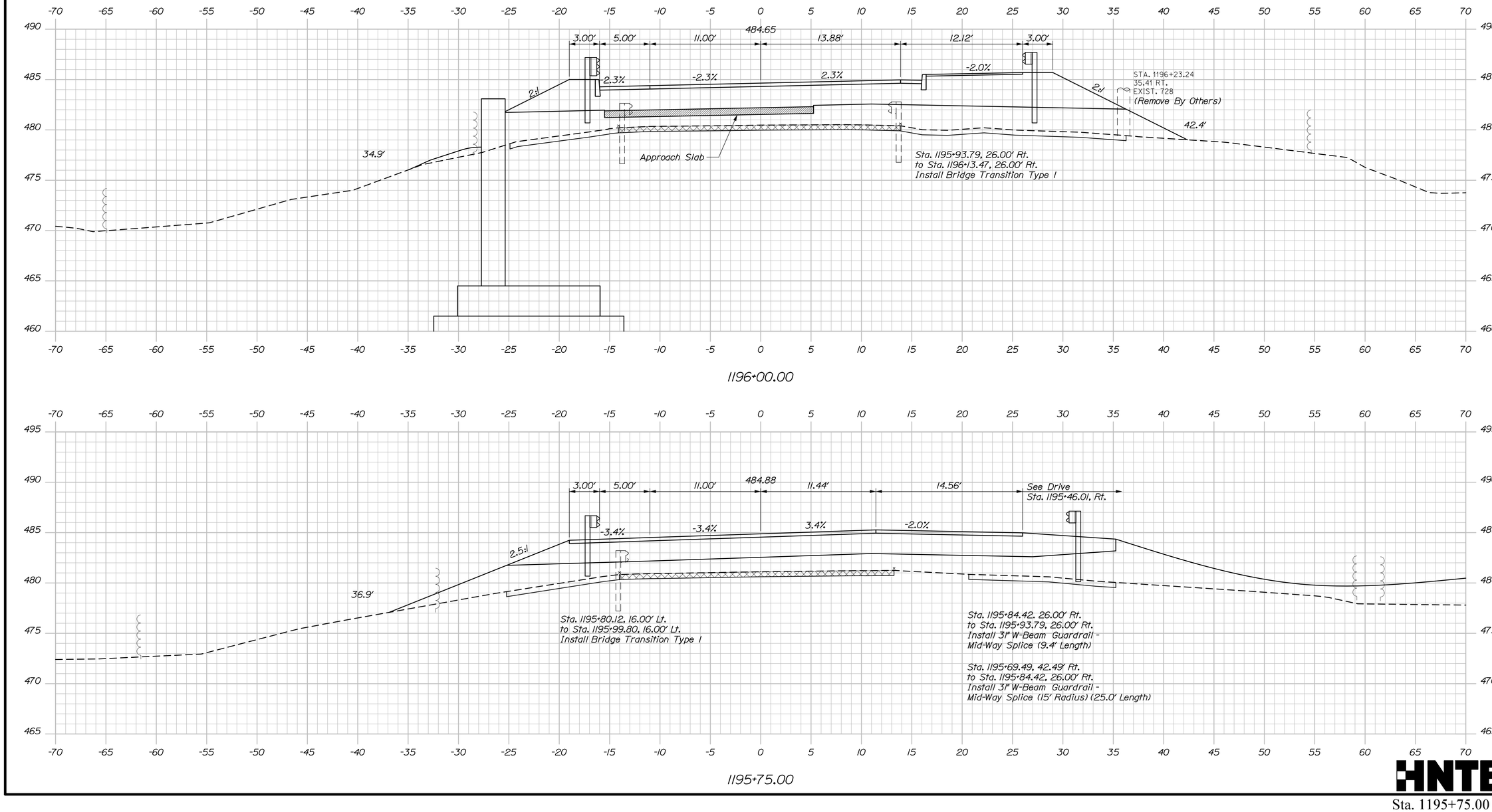
Sta. 1195+34.00 to Sta. 1195+50.00

Date:8/3/2020

Username:

Division:

Filename: Xsect_Rte11.dgn



HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	A. Lothel	
DESIGN-DETAILED	C. Helmick	07\20
CHECKED-REVIEWED	L. Driscoll	07\20
DESIGN2-DETAILED2	R. Hanf	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CROSS SECTIONS
ROUTE 11

SHEET NUMBER

22

OF 69

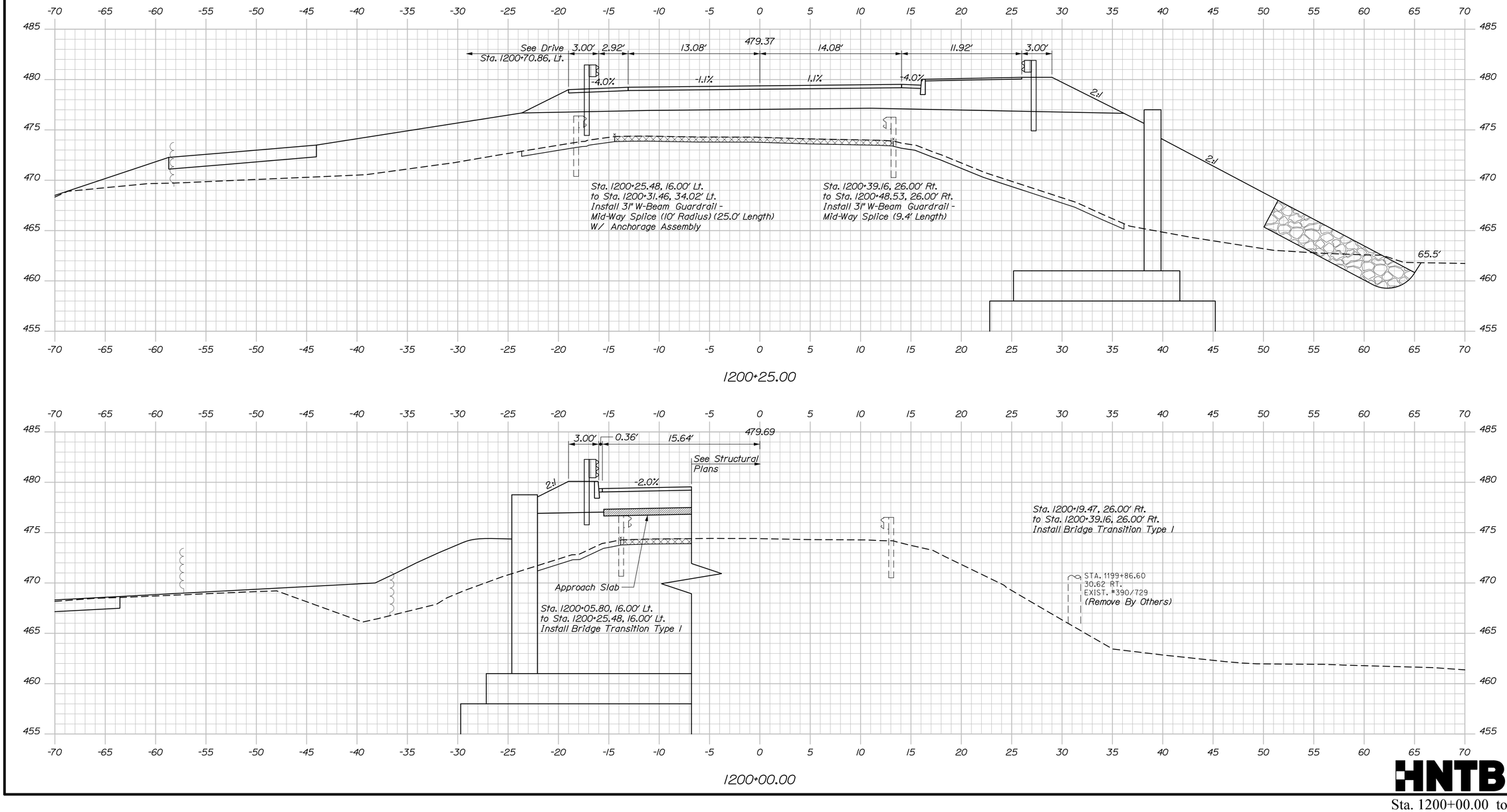
Sta. 1195+75.00 to Sta. 1196+00.00

Username:

Division:

Filename: Xsect_Rte11.dgn

Date:8/3/2020



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathel	BY	DATE
DESIGN-DETAILED	C. Hémick	C. Hémick	07\20
CHECKED-REVIEWED	L. Driscoll	R. Hanf	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CROSS SECTIONS
ROUTE 11

SHEET NUMBER

23

OF 69

HNTB

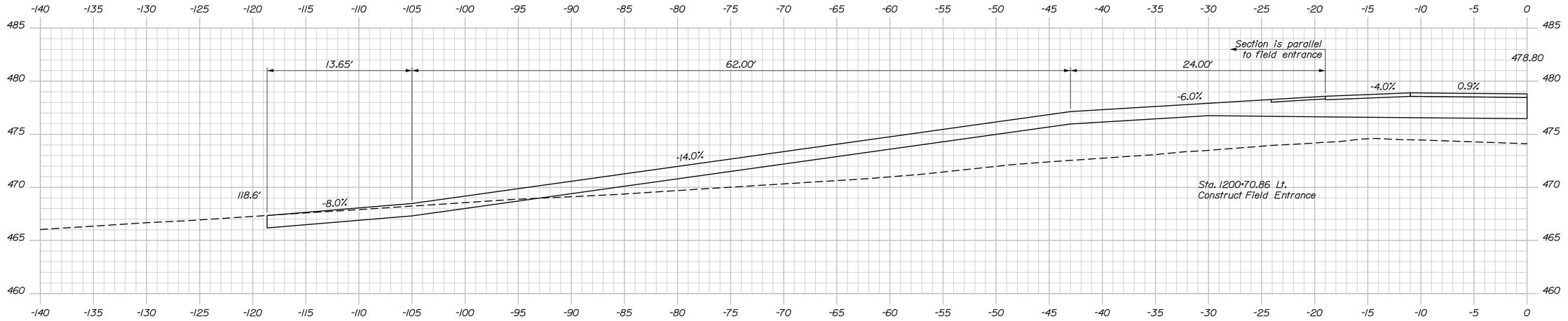
Sta. 1200+00.00 to Sta. 1200+25.00

Date:8/3/2020

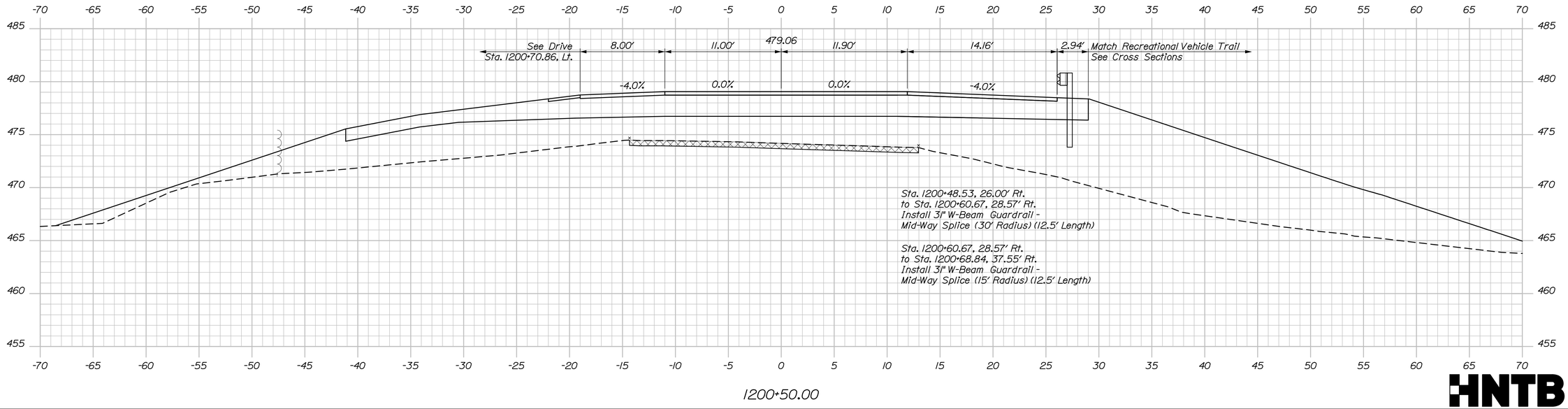
Username:

Division:

Filename: Xsect_Rte11.dgn



1200+70.86



1200+50.00

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathel	BY	DATE
DESIGN-DETAILED	C. Helmick	C. Helmick	07\20
CHECKED-REVIEWED	L. Driscoll	R. Honf	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CROSS SECTIONS
ROUTE 11

SHEET NUMBER

24

OF 69

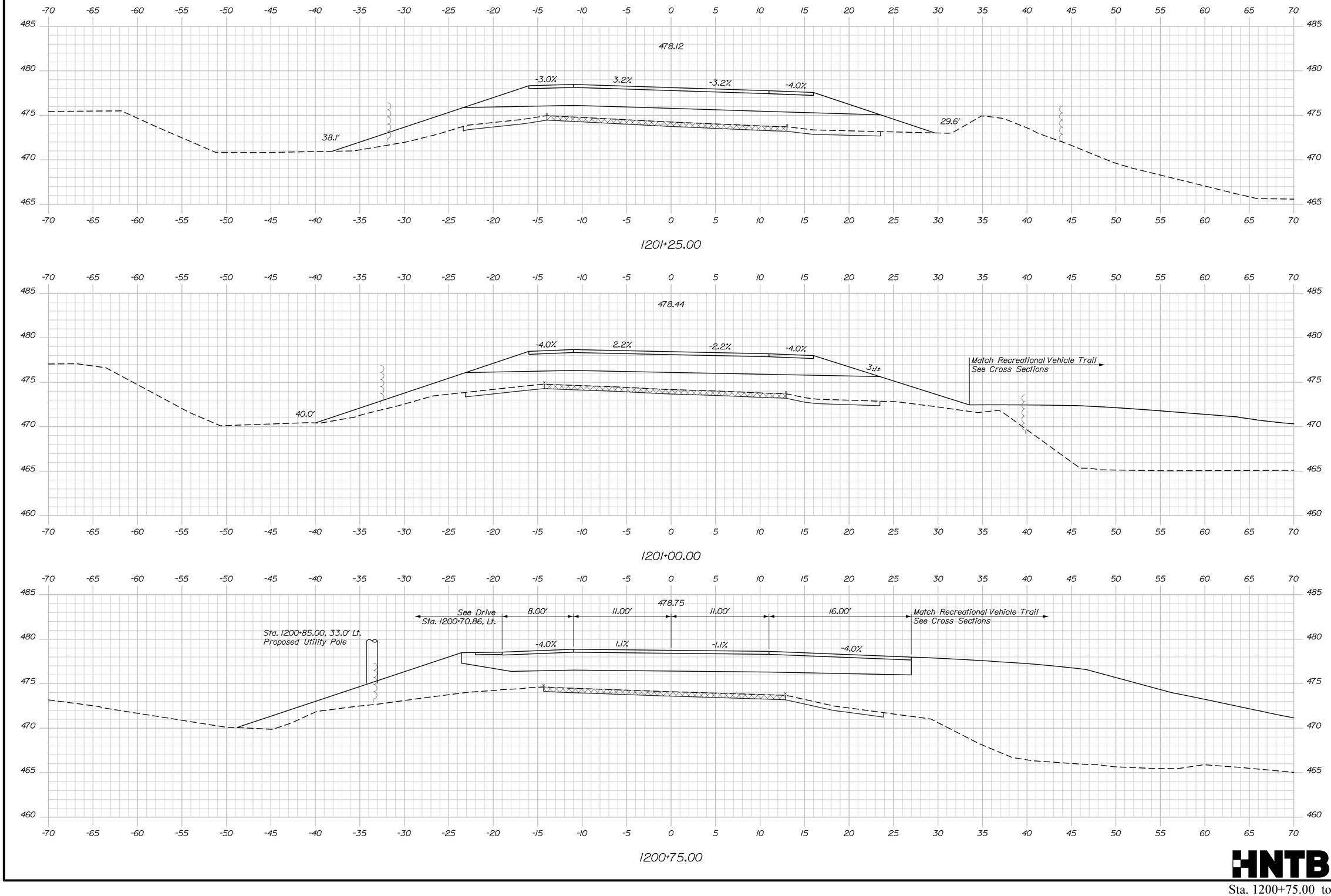
Sta. 1200+50.00 to Sta. 1200+70.86

Date:8/3/2020

Username:

Division:

Filename: Xsect_Rte11.dgn



Sta. 1200+75.00 to Sta. 1201+25.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lothel		
DESIGN-DETAILED	C. Helmick	BY	DATE
CHECKED-REVIEWED	L. Driscoll	C. Helmick	07\20
DESIGN2-DETAILED2		R. Hanf	07\20
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CROSS SECTIONS
ROUTE 11

SHEET NUMBER

25

OF 69

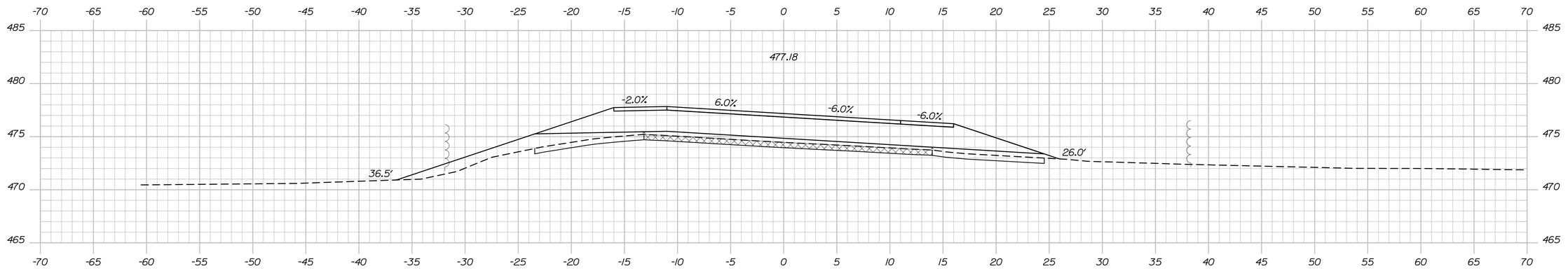
HNTB

Username:

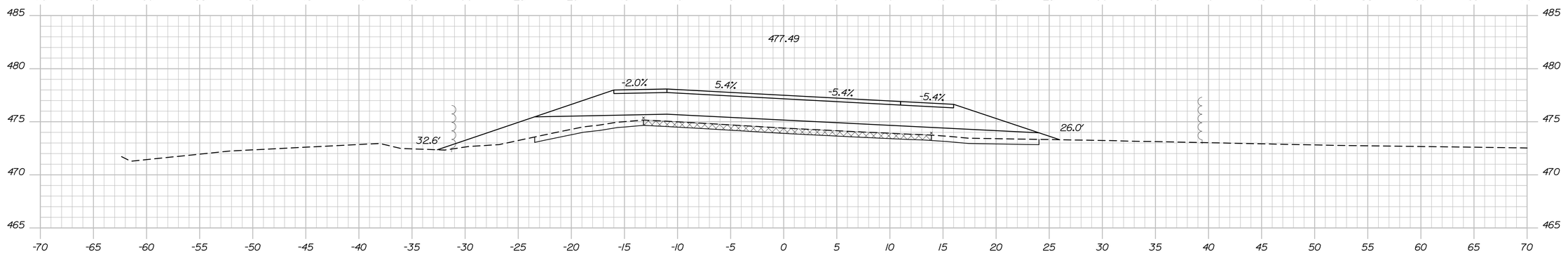
Division:

Date:8/3/2020

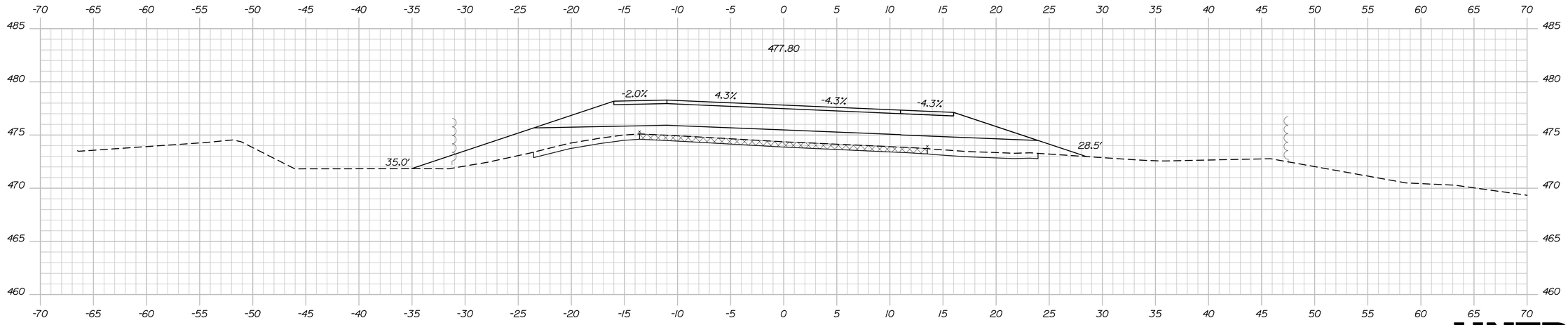
Filename: Xsect_Rte11.dgn



1202+00.00



1201+75.00



1201+50.00

HNTB

Sta. 1201+50.00 to Sta. 1202+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	BY	DATE
DESIGN-DETAILED	A. Lathe	
CHECKED-REVIEWED	C. Helmick	07\20
DESIGN2-DETAILED2	L. Driscoll	07\20
DESIGN3-DETAILED3	R. Hanf	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

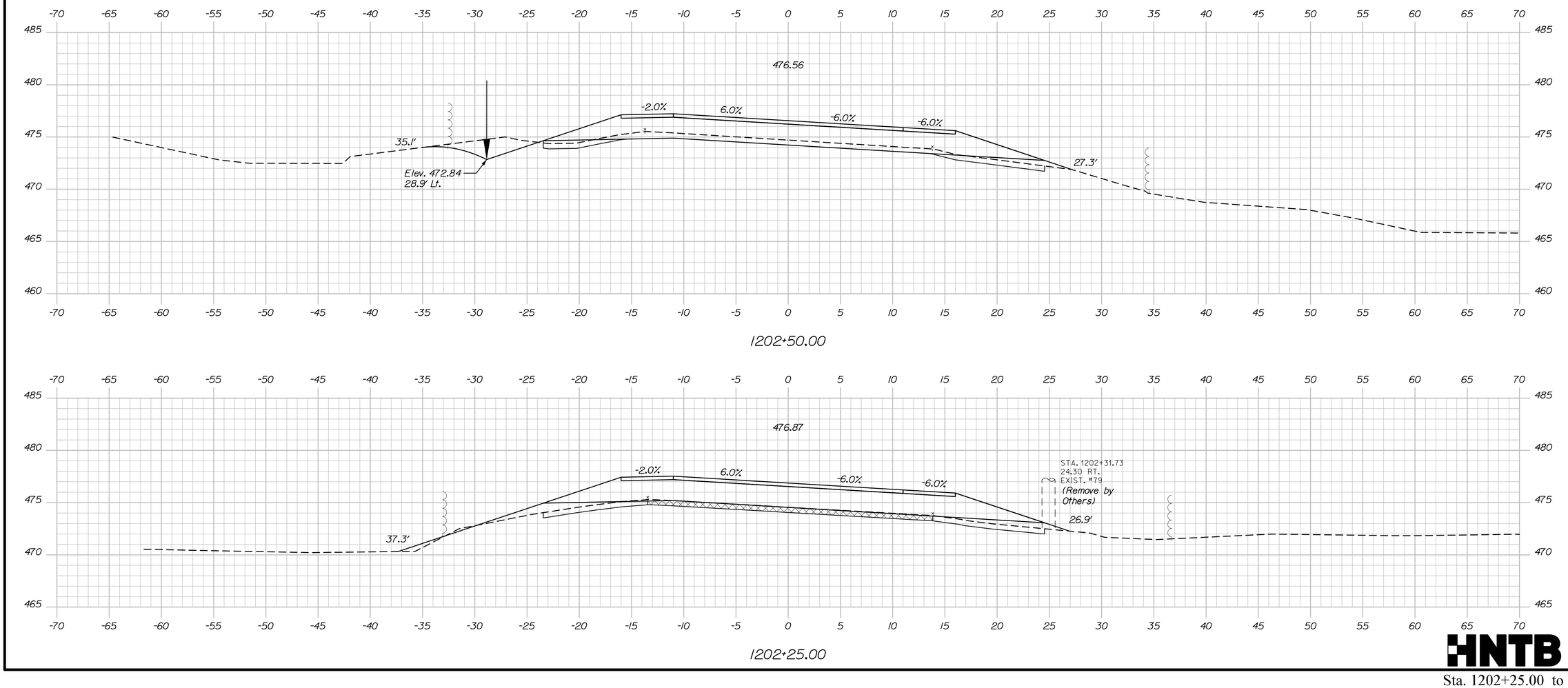
CROSS SECTIONS
ROUTE 11

SHEET NUMBER

26

OF 69

Filename: Xsect_Rte11.dgn Division: Username: Date:8/3/2020



Sta. 1202+25.00 to Sta. 1202+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lothel	BY	DATE
DESIGN-DETAILED	C. Helmick	C. Helmick	07\20
CHECKED-REVIEWED	L. Driscoll	R. Hanf	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CROSS SECTIONS
ROUTE 11

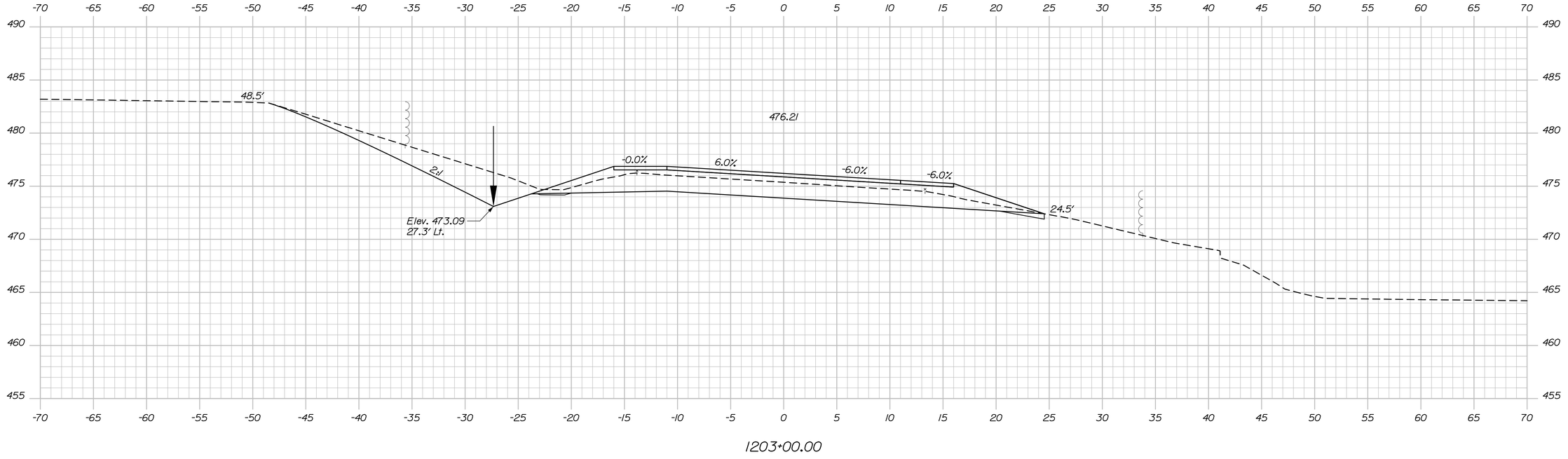
SHEET NUMBER

27

OF 69

HNTB

Filename: Xsect_Rte11.dgn Division: Username: Date:8/3/2020



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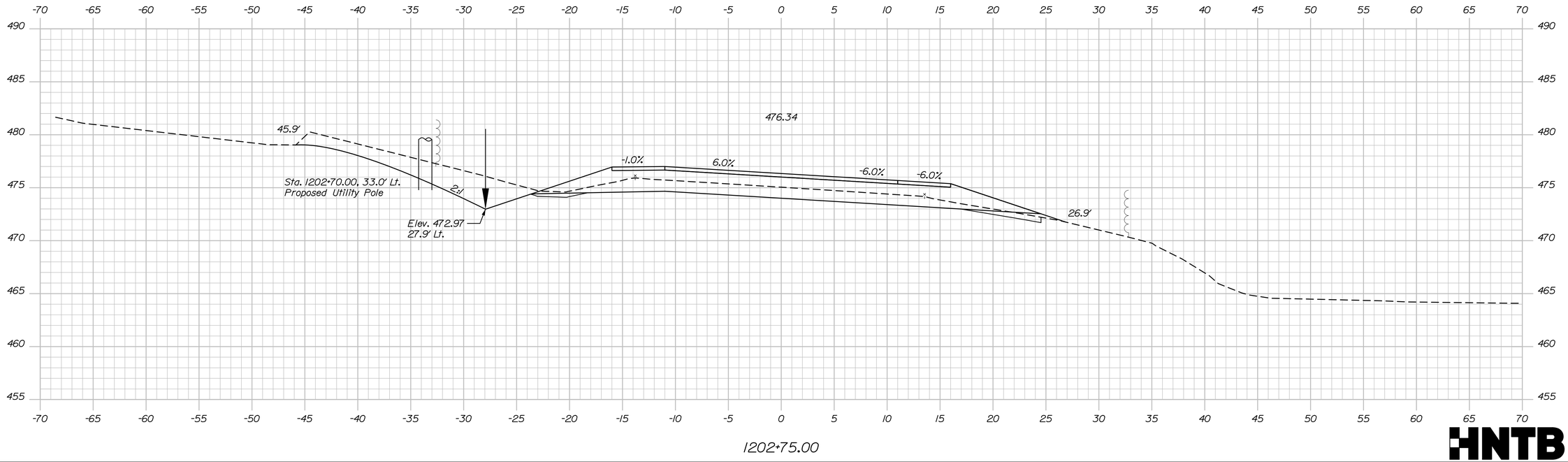


1202+75.00

HNTB

Sta. 1202+75.00 to Sta. 1203+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lothel	
DESIGN-DETAILED	C. Helmick	07\20
CHECKED-REVIEWED	L. Driscoll	07\20
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

BY / DATE

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CROSS SECTIONS
ROUTE 11

SHEET NUMBER

28

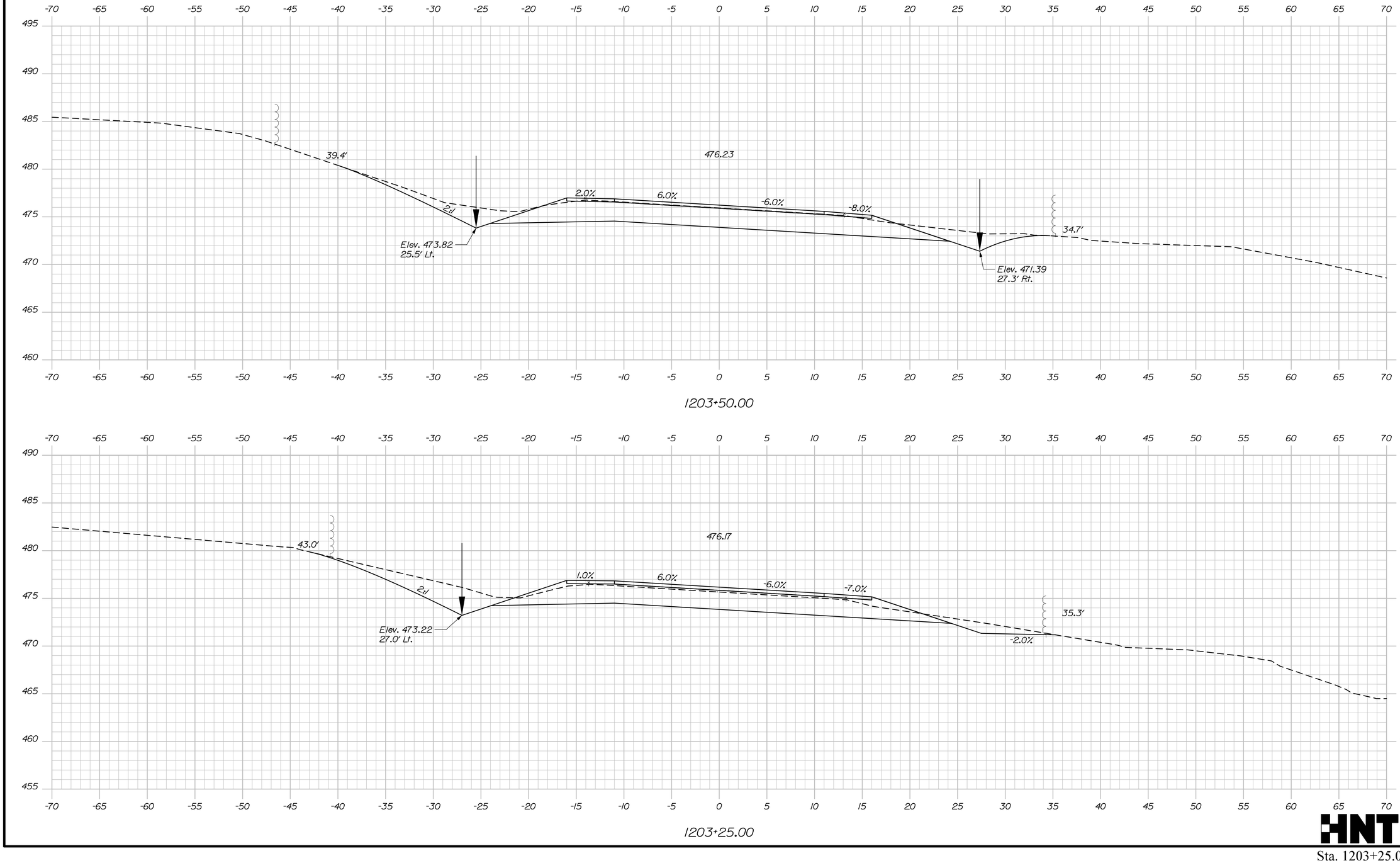
OF 69

Username:

Division:

Filename: Xsect_Rte11.dgn

Date:8/3/2020



Sta. 1203+25.00 to Sta. 1203+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lothel		
DESIGN-DETAILED	C. Helmick	C. Helmick	07\20
CHECKED-REVIEWED	L. Driscoll	R. Hanf	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

P.E. NUMBER

SIGNATURE

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CROSS SECTIONS
ROUTE 11

SHEET NUMBER

29

OF 69

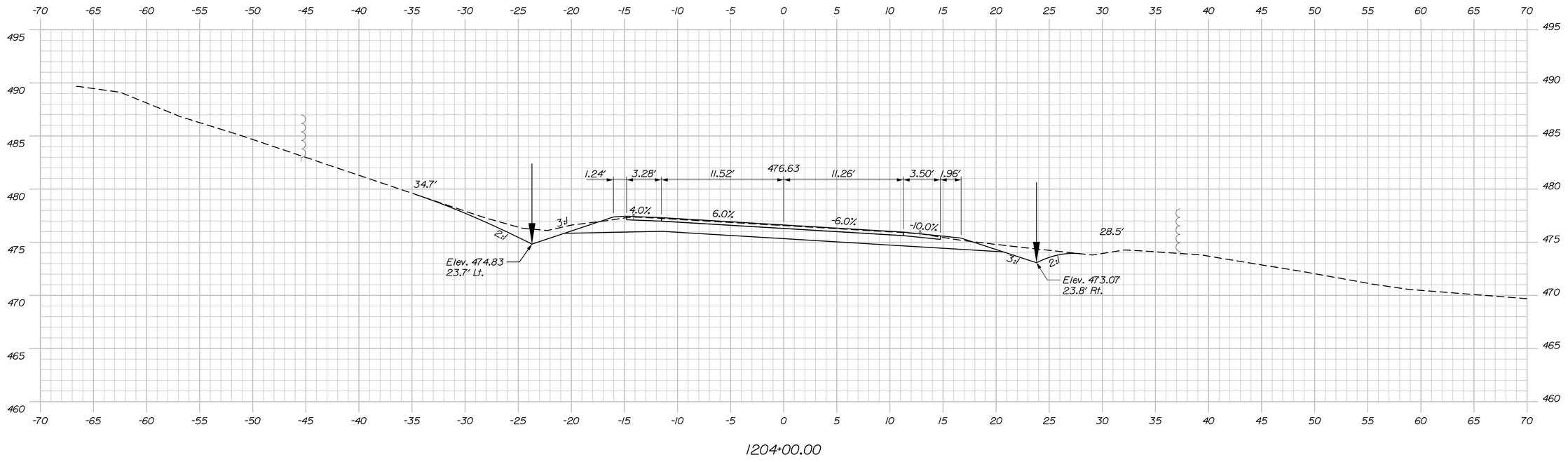
HNTB

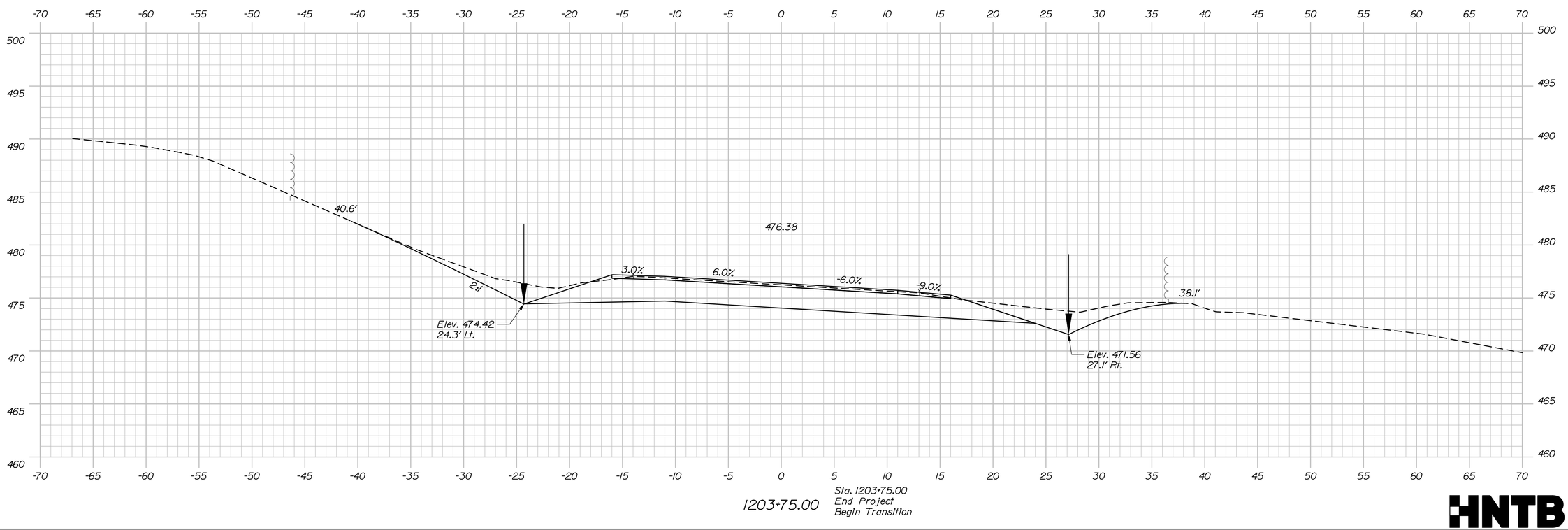
Date:8/3/2020

Username:

Division:

Filename: Xsect_Rte11.dgn





STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathel		
DESIGN-DETAILED	C. Helmick	BY	C. Helmick
CHECKED-REVIEWED	L. Driscoll	DATE	07\20
DESIGN2-DETAILED2		BY	R. Hanf
DESIGN3-DETAILED3		DATE	07\20
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CROSS SECTIONS
ROUTE 11

SHEET NUMBER

30

OF 69

HNTB

Sta. 1203+75.00 to Sta. 1204+00.00

Date:8/3/2020

Username:

Division:

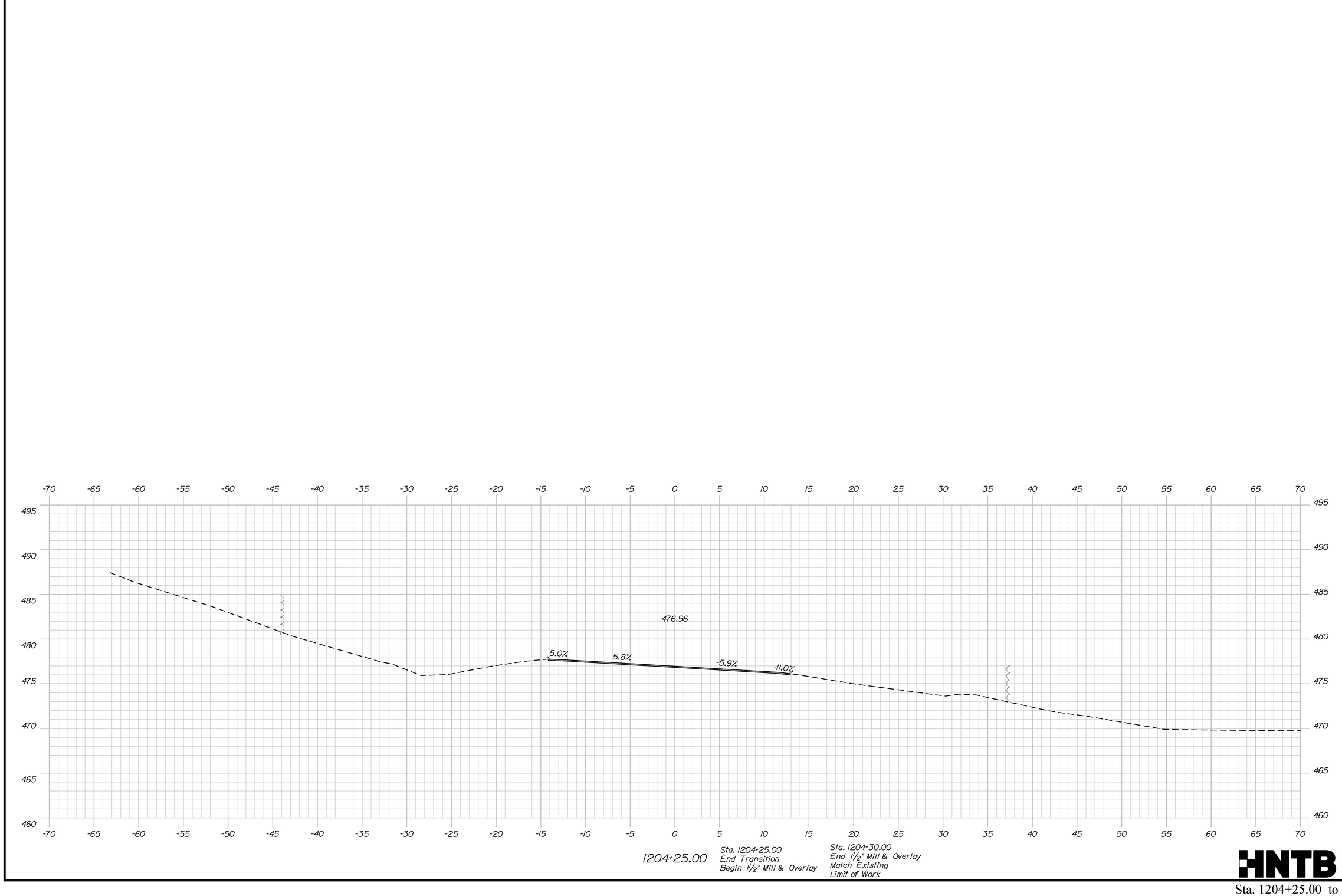
Filename: Xsect_Rte11.dgn

Username:

Date:8/3/2020

Division:

Filename: Xsect_Rte11.dgn



PROJ. MANAGER	A. Lothel	BY	DATE
DESIGN-DETAILED	C. Helmick	C. Helmick	07\20
CHECKED-REVIEWED	L. Driscoll	R. Hanf	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

SIGNATURE

P.E. NUMBER

DATE

2262701

WIN
023236.01

Bridge No. 3666

BRIDGE PLANS

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

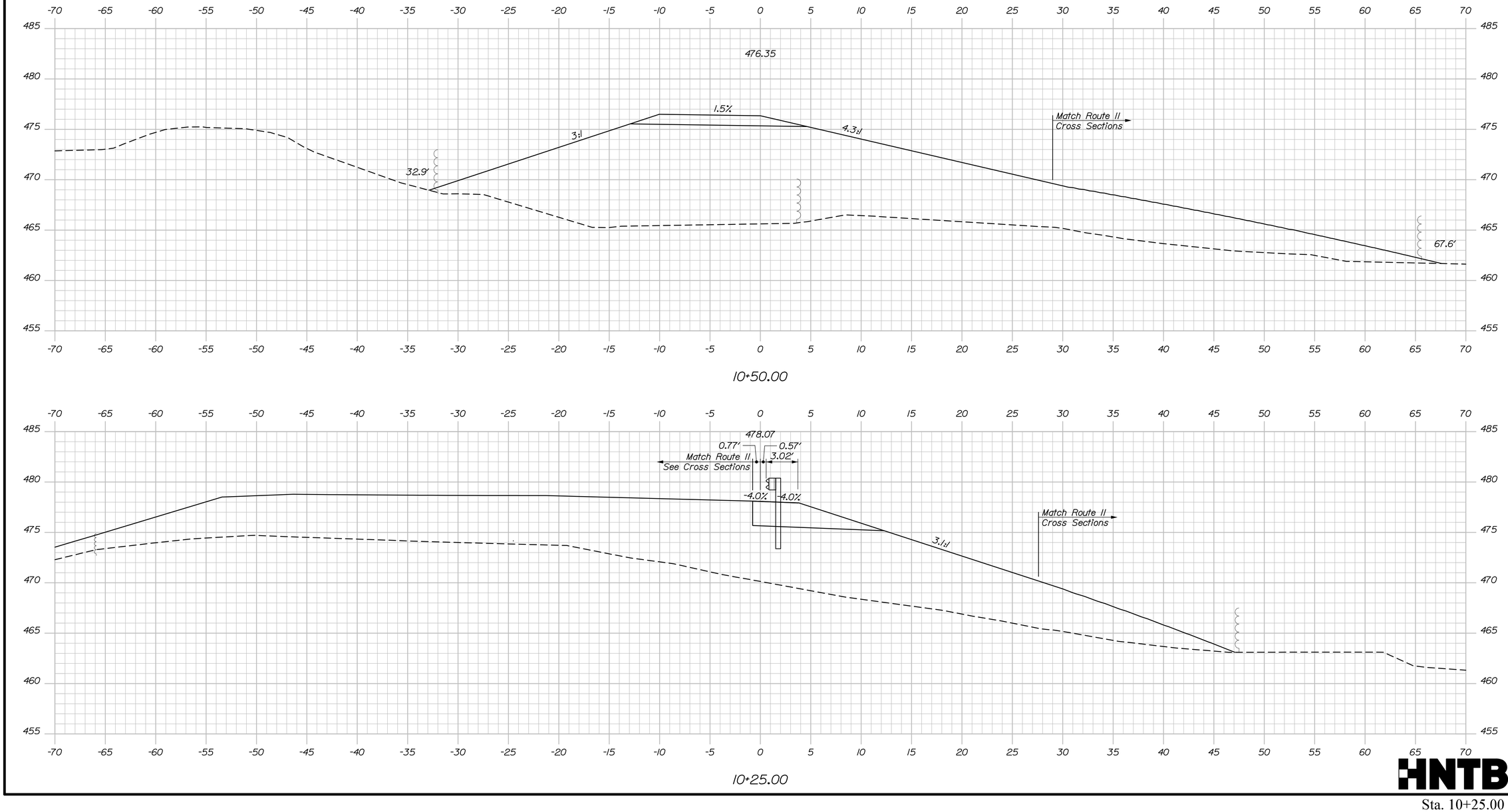
CROSS SECTIONS
ROUTE 11

SHEET NUMBER

31

OF 69

Sta. 1204+25.00 to Sta. 1204+25.00



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

	BY	DATE
A. Lathel		
C. Helmick	C. Helmick	07\20
C. Helmick	R. Hanf	07\20
L. Driscoll		
DESIGNED		
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

PROJ. MANAGER

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CROSS SECTIONS
REC. VEHICLE TRAIL

SHEET NUMBER

32

OF 69

HNTB

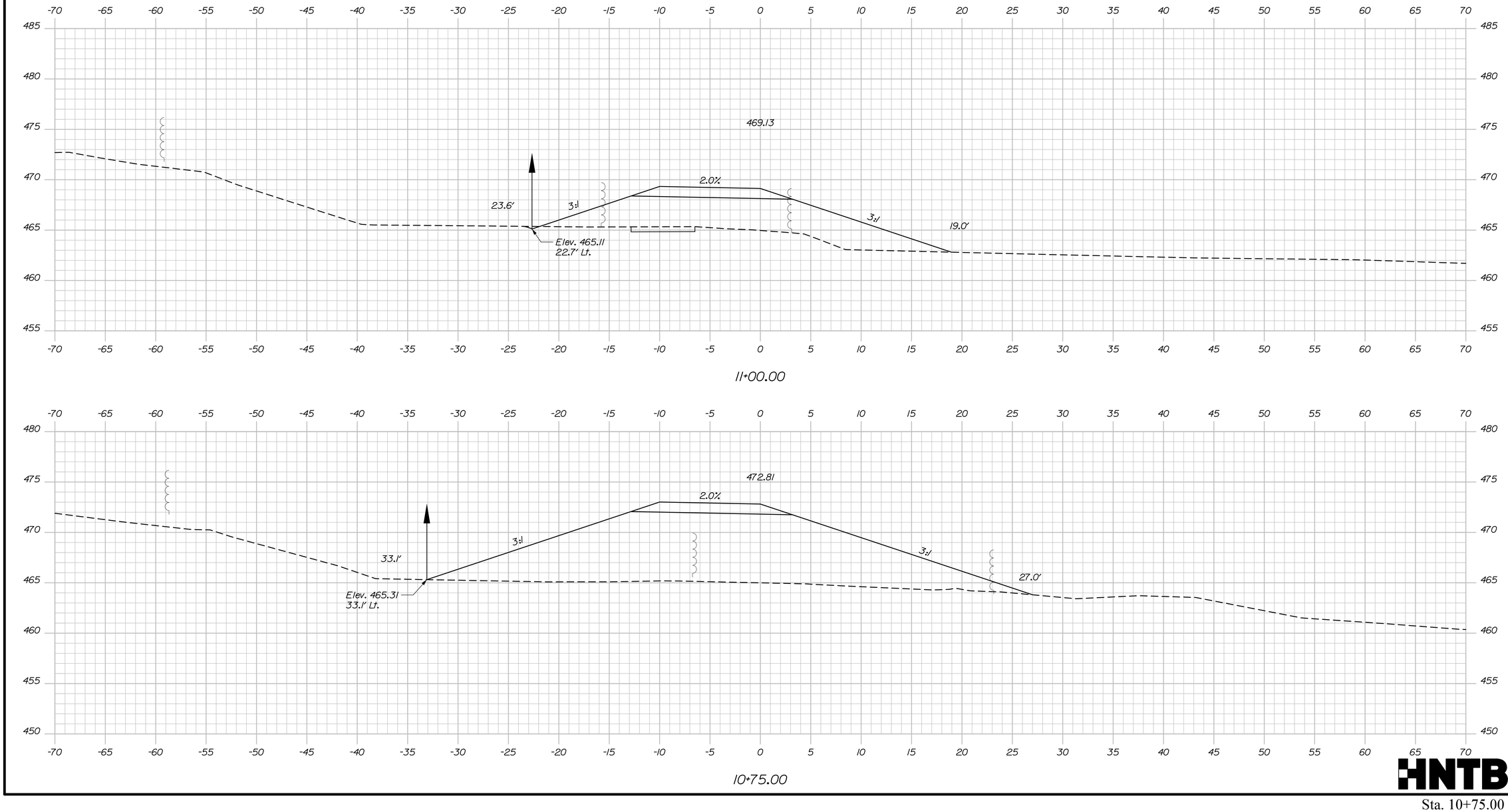
Sta. 10+25.00 to Sta. 10+50.00

Date:8/3/2020

Username:

Division:

Filename: Xsect_Snowmobile.dgn



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN
023236.01

Bridge No. 3666

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	A. Lothel	
DESIGN-DETAILED	C. Helmick	07\20
CHECKED-REVIEWED	L. Driscoll	07\20
DESIGN2-DETAILED2	R. Hanf	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CROSS SECTIONS
REC. VEHICLE TRAIL

SHEET NUMBER

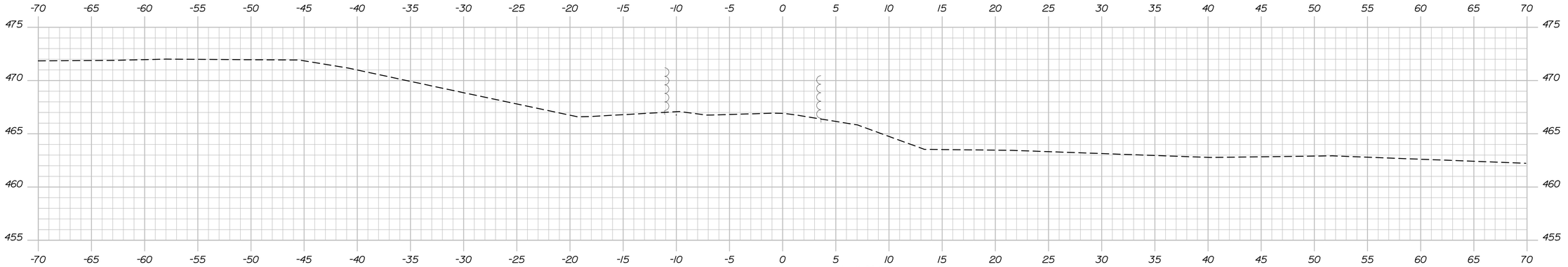
33

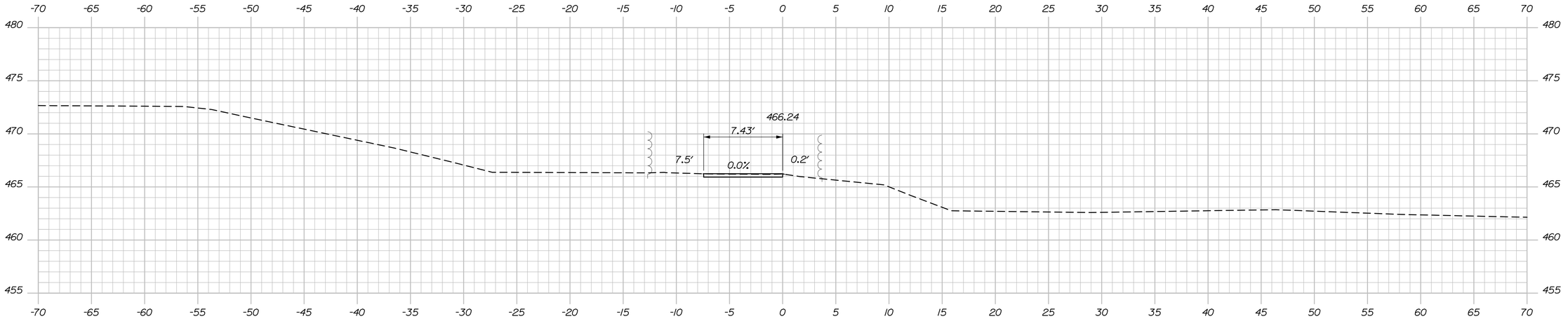
OF 69

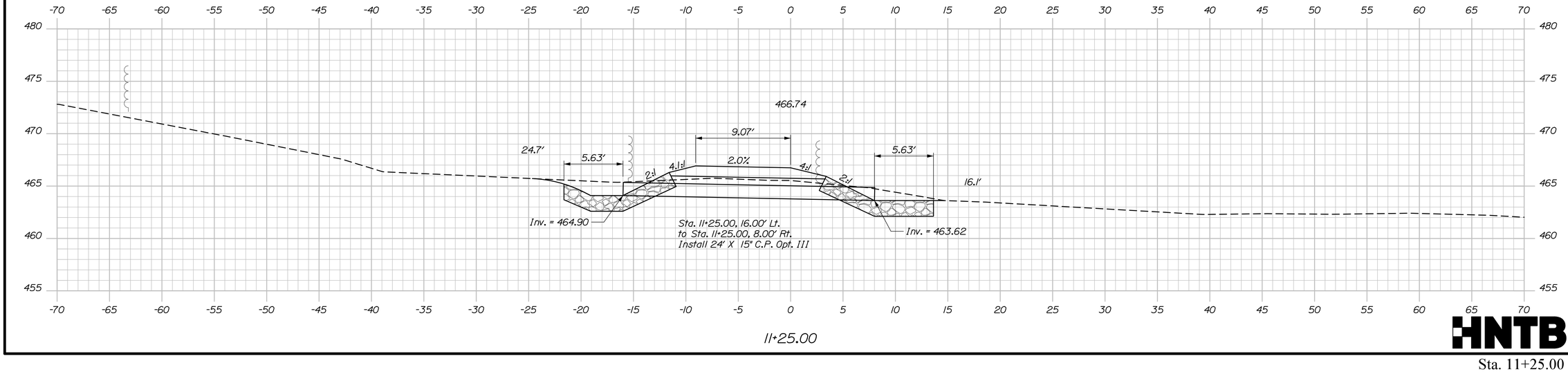
HNTB

Sta. 10+75.00 to Sta. 11+00.00

Username:
Date:8/3/2020
Division:
Filename: Xsect_Snowmobile.dgn







HNTB

Sta. 11+25.00 to Sta. 11+75.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lothel	BY	DATE
DESIGN-DETAILED	C. Hélmick	C. Hélmick	07\20
CHECKED-REVIEWED	L. Driscoll	R. Hanf	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CROSS SECTIONS
REC. VEHICLE TRAIL

SHEET NUMBER

34

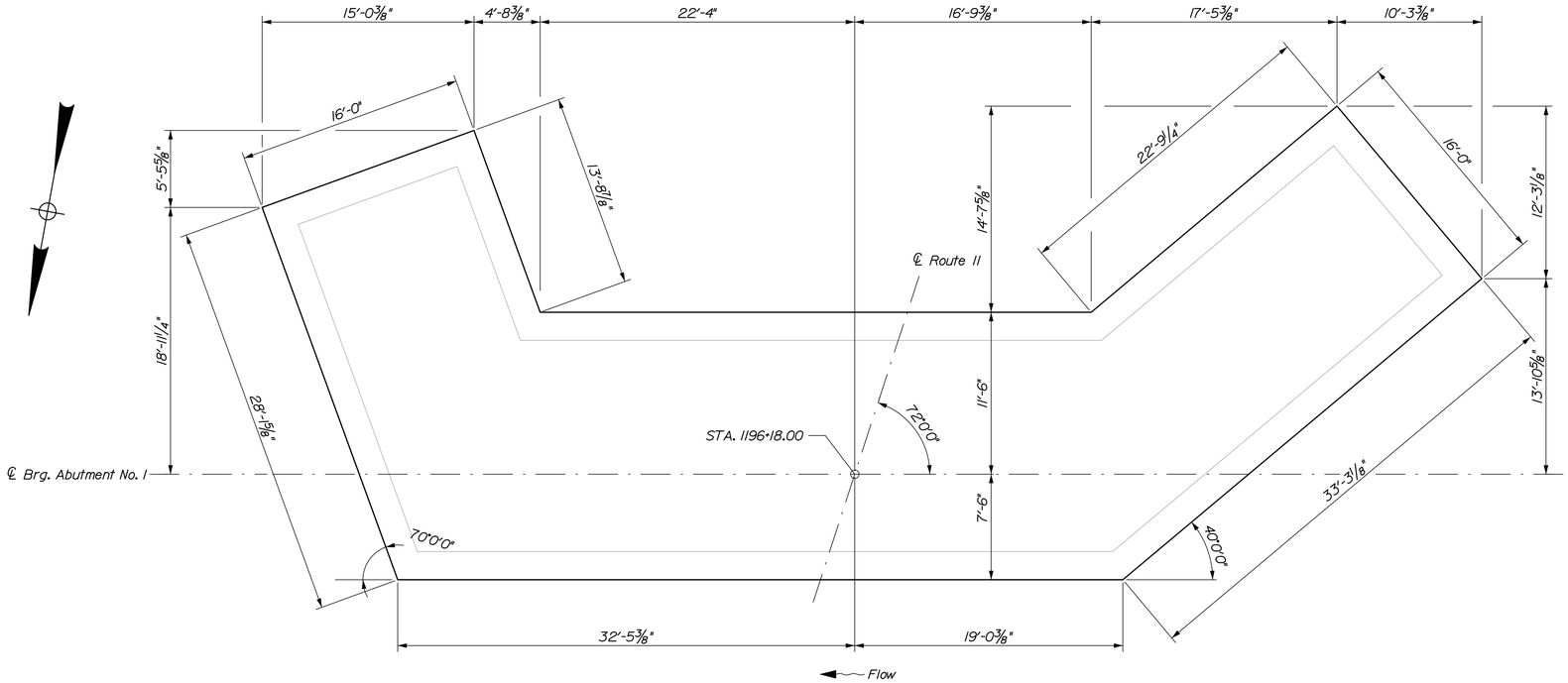
OF 69

Username:

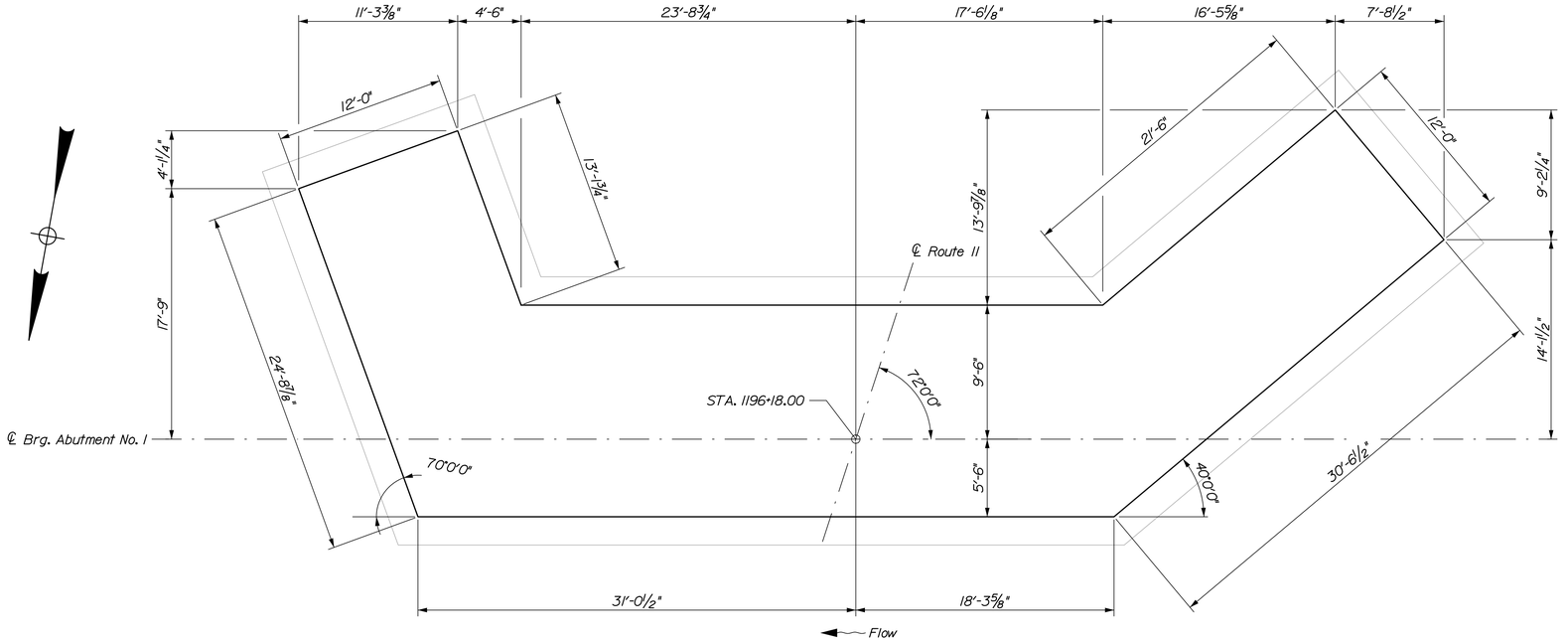
Division:

Date:8/3/2020

Filename: Xsect_Snowmobile.dgn



ABUTMENT NO. 1 SEAL PLAN



ABUTMENT NO. 1 FOOTING PLAN

ABUTMENT NOTES:

1. The maximum factored applied footing pressure is 14.3 ksf at Abutment No. 1, and 12.8 ksf at Abutment No. 2 at the Strength I Limit State.

2. Reinforcing steel shall have a minimum concrete cover of 2 inches in the walls and 3 inches in the footings unless otherwise noted.

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

4. Cover joints where waterstops are not required in accordance with Standard Details Section 502.

5. Construct French Drains behind the abutments and wingwalls in accordance with Standard Specification Section 512, French Drains.

6. 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.

7. The concrete pedestal elevations shown are approximate. The actual elevations shall be adjusted to accomodate the bearings supplied by the Contractor. The elevations given assume the overall bearing heights designated in the Disc Bearing Design Table.

ABUTMENT 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 the seal is set for a water elevation of 465.51. 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 1 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 level steps or made completely level.

7. Abutment 2 seal concrete shall be supported on a combination of the native dense gravel material and fractured bedrock. Prepare and inspect abutment seal subgrades at the elevation indicated on the plans, or deeper. Disturbed or weakened soil, if encountered at or below the design seal elevation, shall be removed to expose dense gravel material or fractured bedrock prior to seal placement.

8. Cofferdam excavation, inspection and reporting shall be in accordance with Special Provision 511 - Cofferdams.

9. The seals shall be cored full depth in at least four (4) locations to ensure that the seals were satisfactorily placed. The final core run shall sample the concrete/bedrock interface and extend at least one foot into the bedrock. Seal concrete core samples will be a minimum of 3 inches O.D., be adequately stored in boxes and each core run labeled. In the event that voids or any other defects are found, the Contractor shall correct the defects in a manner approved by the Department. For each core that reveals a void or defect, two additional cores shall be taken in approximately the same location as the original core. The other core will be located by the Resident. All core holes shall be refilled using a non-shrink grout. The cost of all coring and repairs will be considered incidental to "Structural Concrete Abutments (Placed Under Water)".

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	A. Lothe	
DESIGN-DETAILED	I. McCabe	07\20
CHECKED-REVIEWED	J. Song	07\20
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

ABUTMENT NO. 1
SEAL & FOOTING PLAN

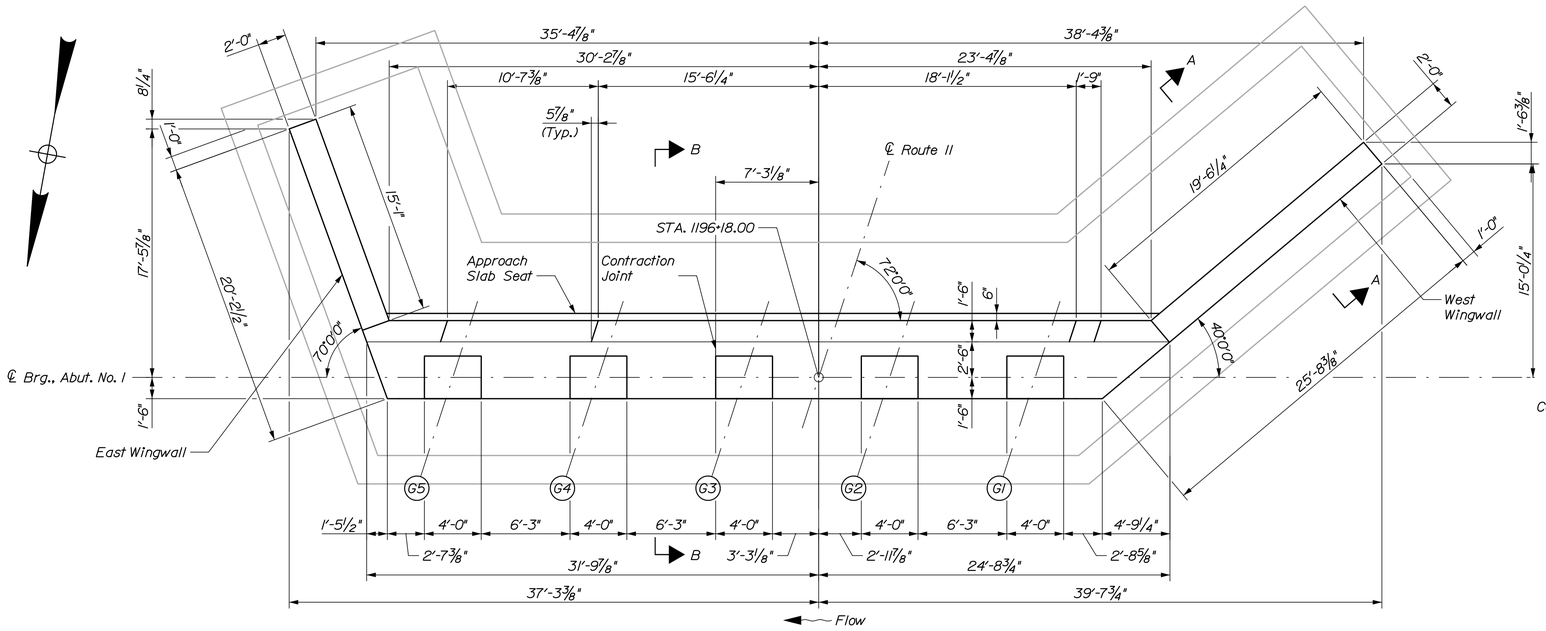
SHEET NUMBER

35

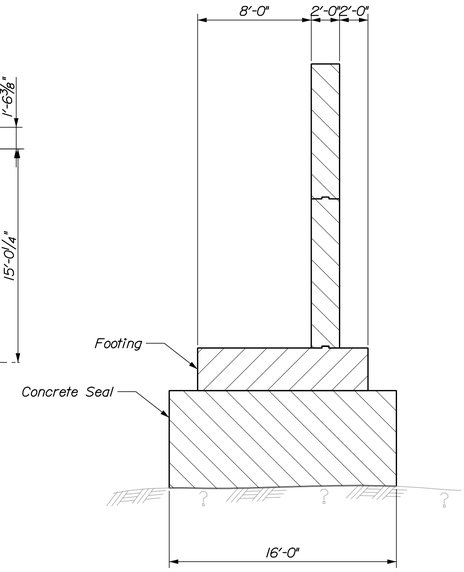
OF 69

HNTB

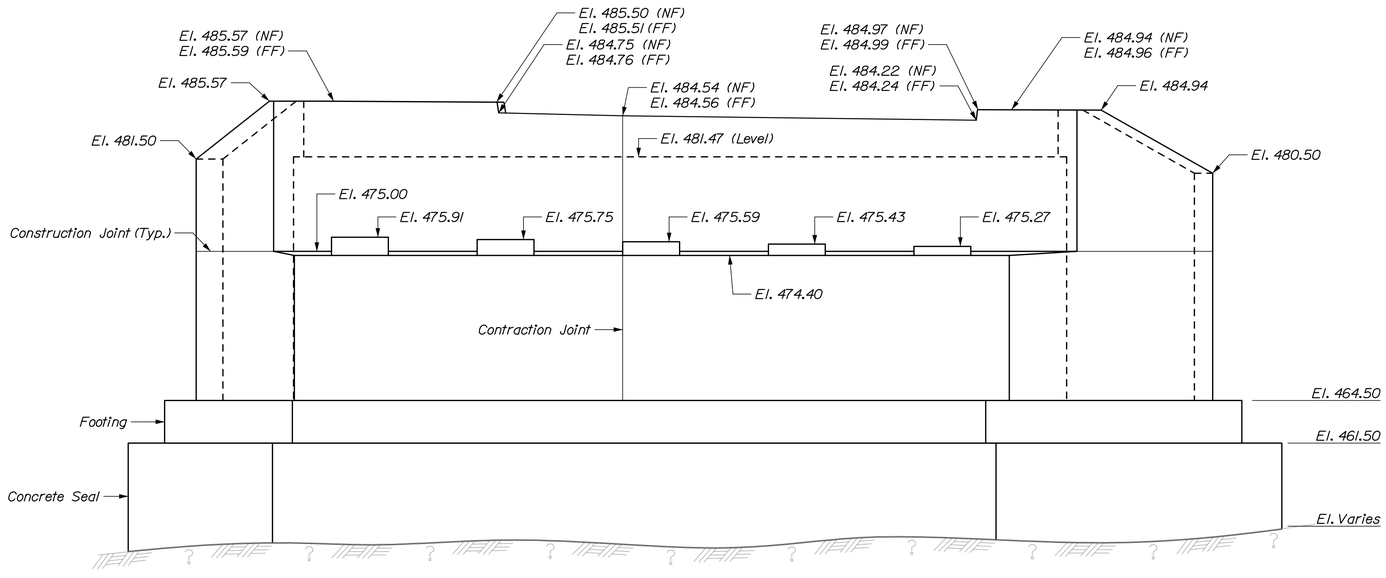
Filename: 035_Abutment 1 Seal and Footing Plan.dgn Division: Username: Date:8/3/2020



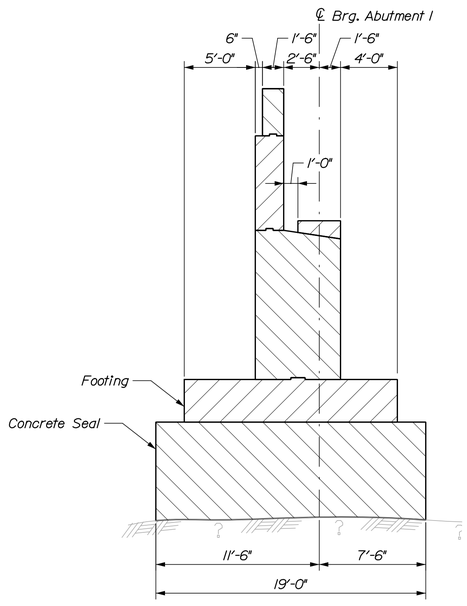
ABUTMENT NO. 1 PLAN



SECTION A-A



ABUTMENT NO. 1 ELEVATION



SECTION B-B

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathe
DESIGN-DETAILED	I. McCabe
CHECKED-REVIEWED	J. Song
DESIGN2-DETAILED2	
DESIGN3-DETAILED3	

	BY	DATE
REVISIONS 1		
REVISIONS 2		
REVISIONS 3	E. Beausoleil	07\20
REVISIONS 4	K. Segal	07\20
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

ABUTMENT NO. 1
PLAN, ELEVATION, & SECTIONS

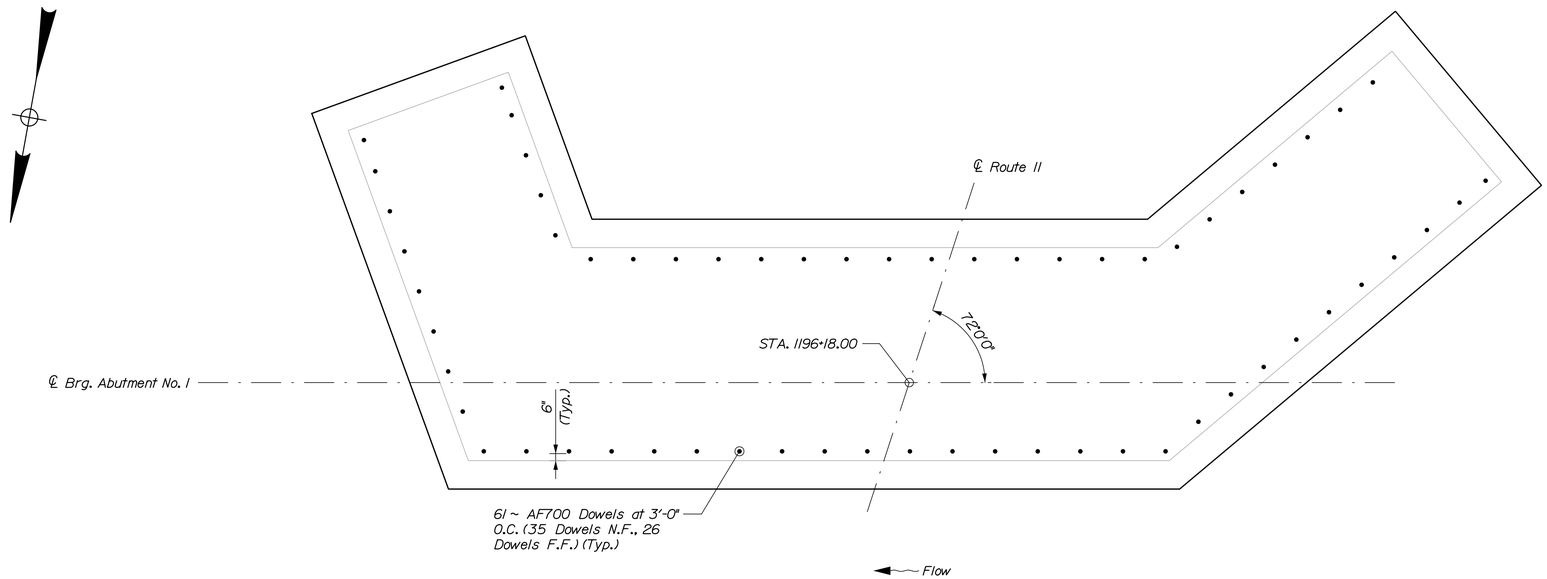
SHEET NUMBER

36

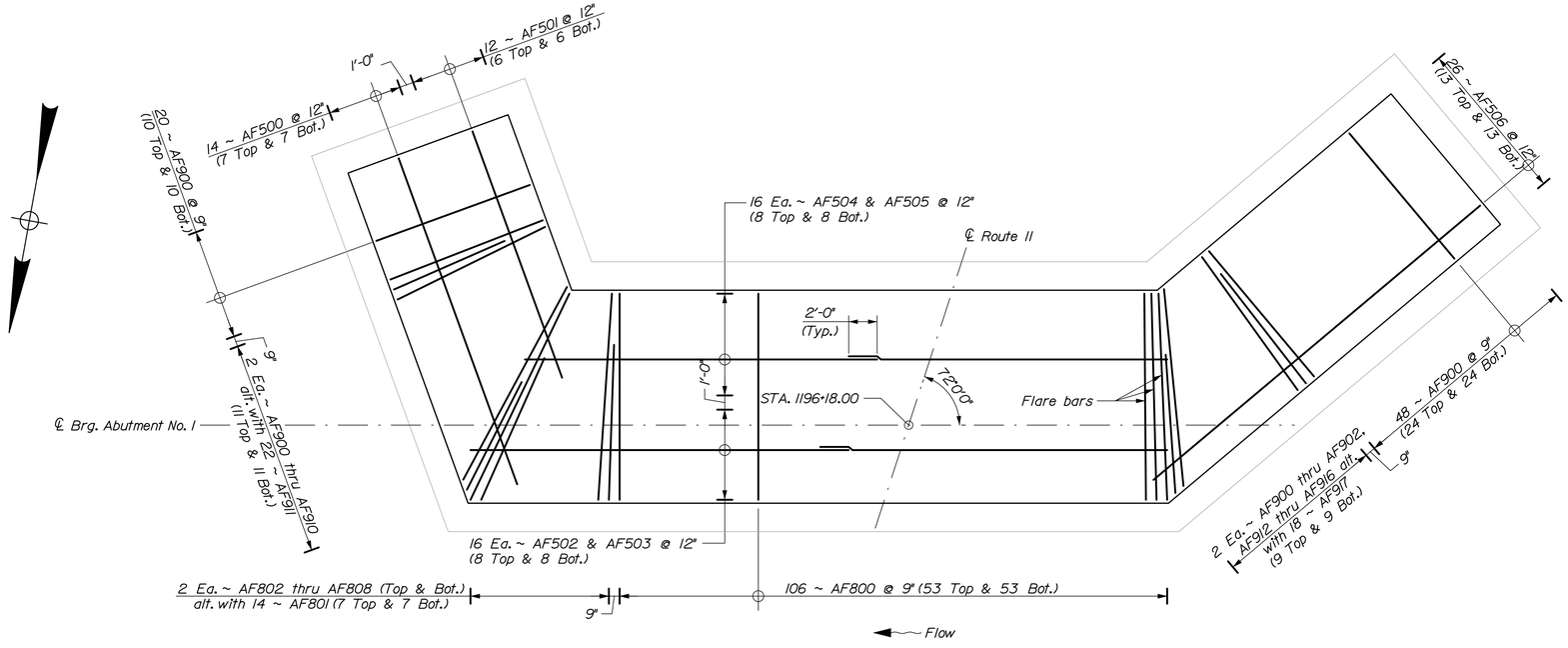
OF 69

HNTB

Filename: 036_Abutment 1 Plan, Elevation, and Sections.dgn Division: Username: Date:8/3/2020



ABUTMENT NO. 1 SEAL REINFORCEMENT PLAN



ABUTMENT NO. 1 FOOTING REINFORCEMENT PLAN

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lothel		
DESIGN-DETAILED	I. McCabe	E. Beausoleil	07\20
CHECKED-REVIEWED	J. Song	K. Segal	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

ABUTMENT NO. 1 SEAL & FOOTING REINF.

SHEET NUMBER

37

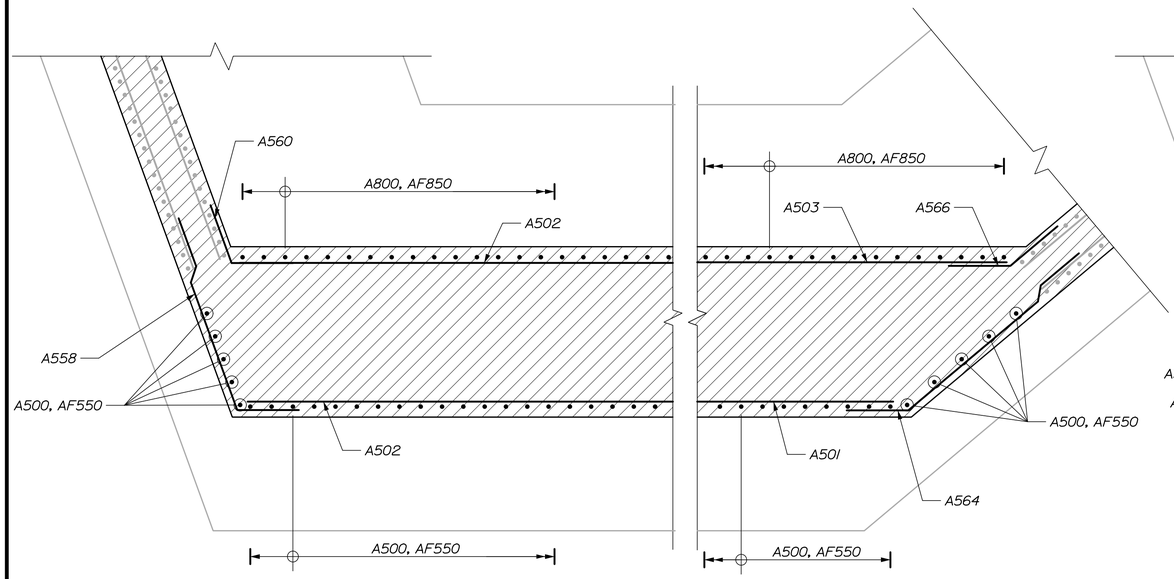
OF 69

HNTB

Date:8/3/2020

Username:

Filename: 037_Abutment 1 Seal and Footing Reinforcing Design



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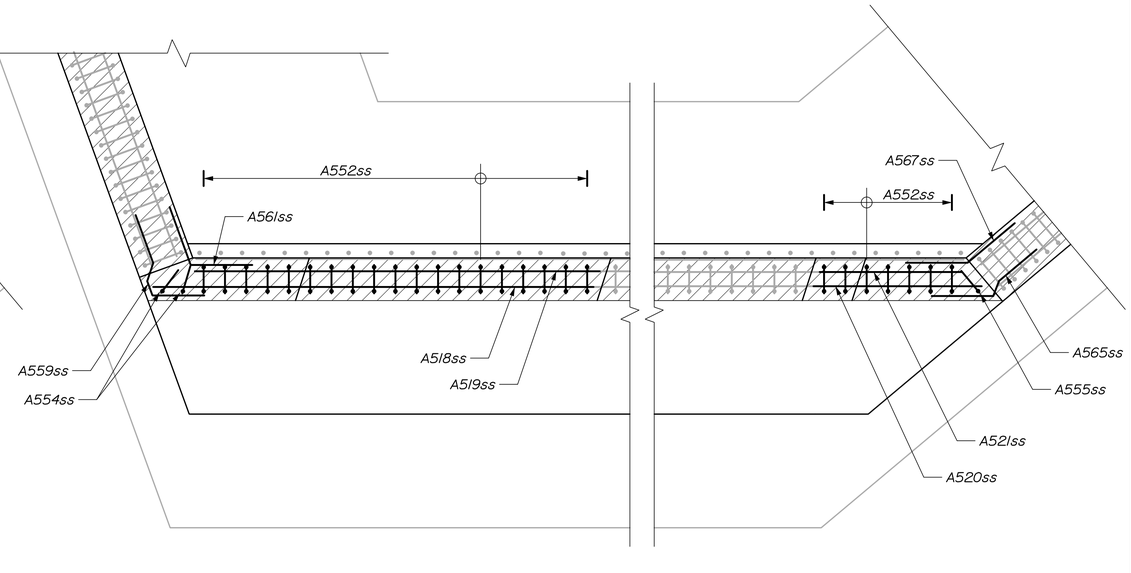

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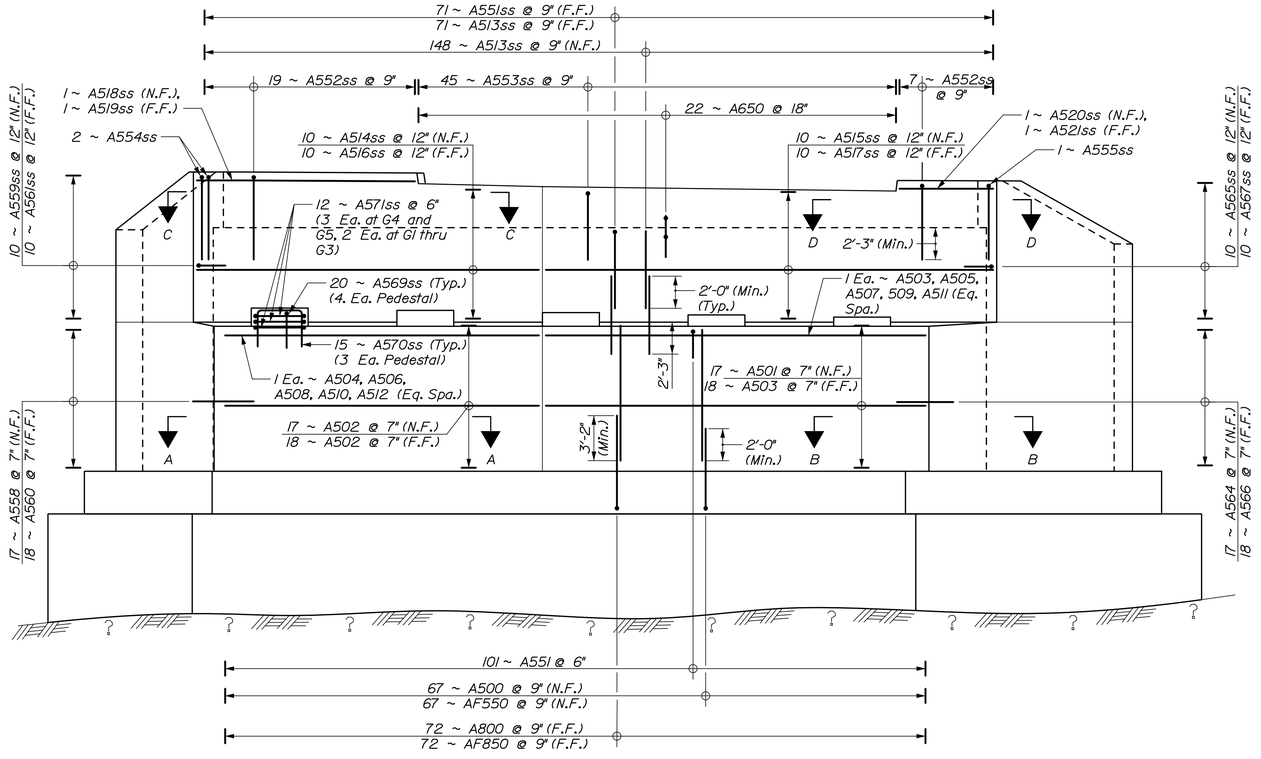


ABUTMENT NO. 1 REINFORCEMENT ELEVATION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

BRIDGE PLANS

Bridge No. 3666

P.E. NUMBER

SIGNATURE

DATE

	BY	DATE
PROJ. MANAGER	A. Lathe	
DESIGN-DETAILED	I. McCabe	07\20
CHECKED-REVIEWED	J. Song	07\20
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

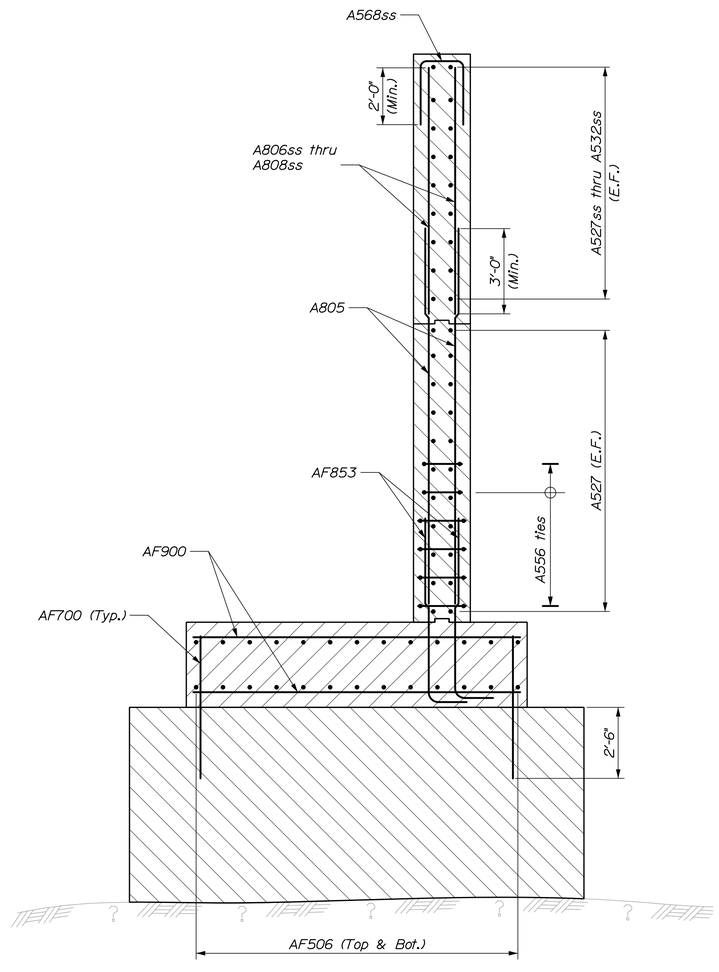
ABUTMENT NO. 1 REINF. PLAN & ELEVATION

SHEET NUMBER

38

OF 69

HNTB



WEST WINGWALL SECTION

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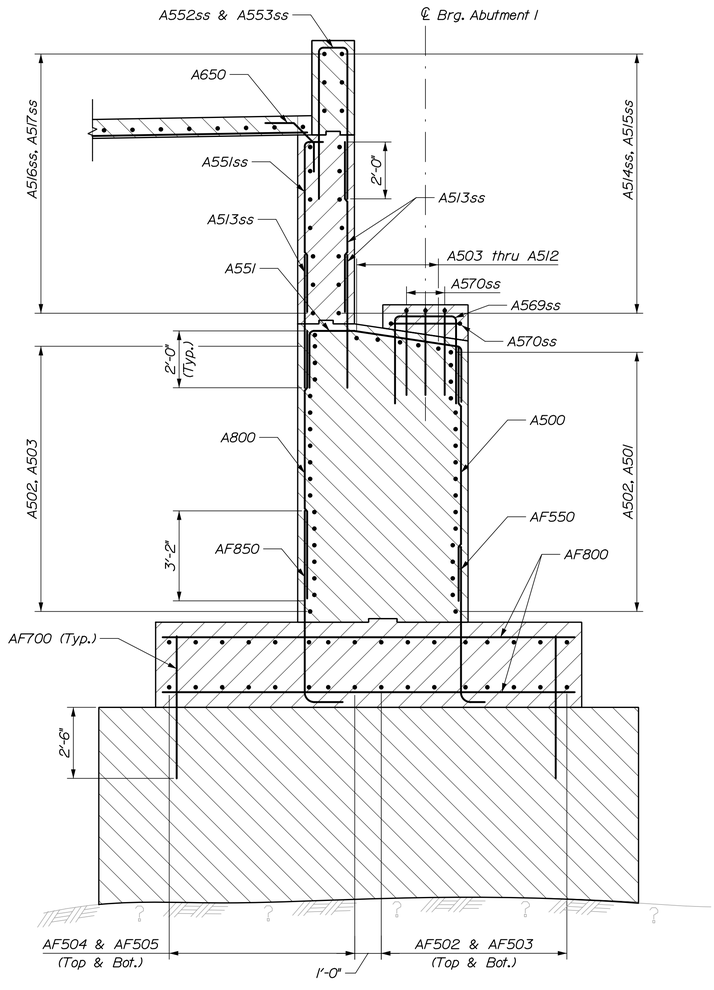

ABUTMENT SECTION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	A. Lothel		
DESIGN-DETAILED	I. McCabe	E. Beausoleil	07\20
CHECKED-REVIEWED	J. Song	K. Segal	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
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REVISIONS 4			
FIELD CHANGES			

SIGNATURE

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DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

ABUTMENT NO.1 REINFORCING SECTIONS

SHEET NUMBER

39

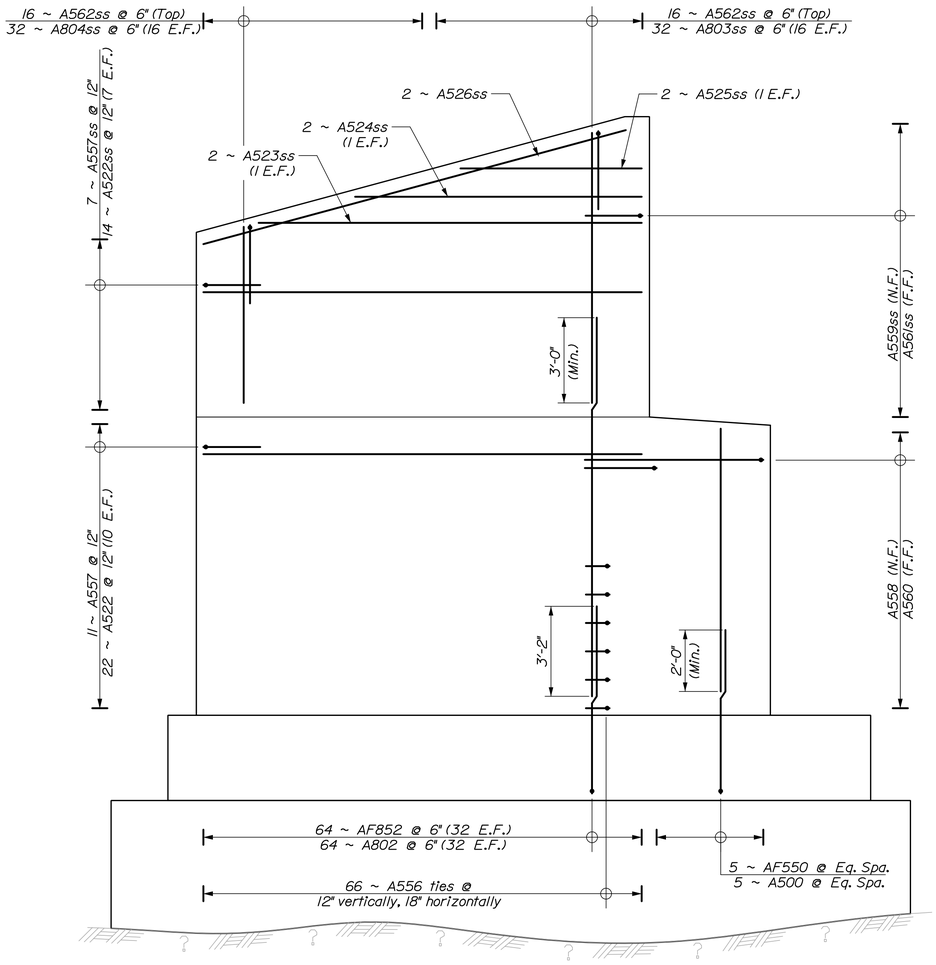
OF 69

Username:

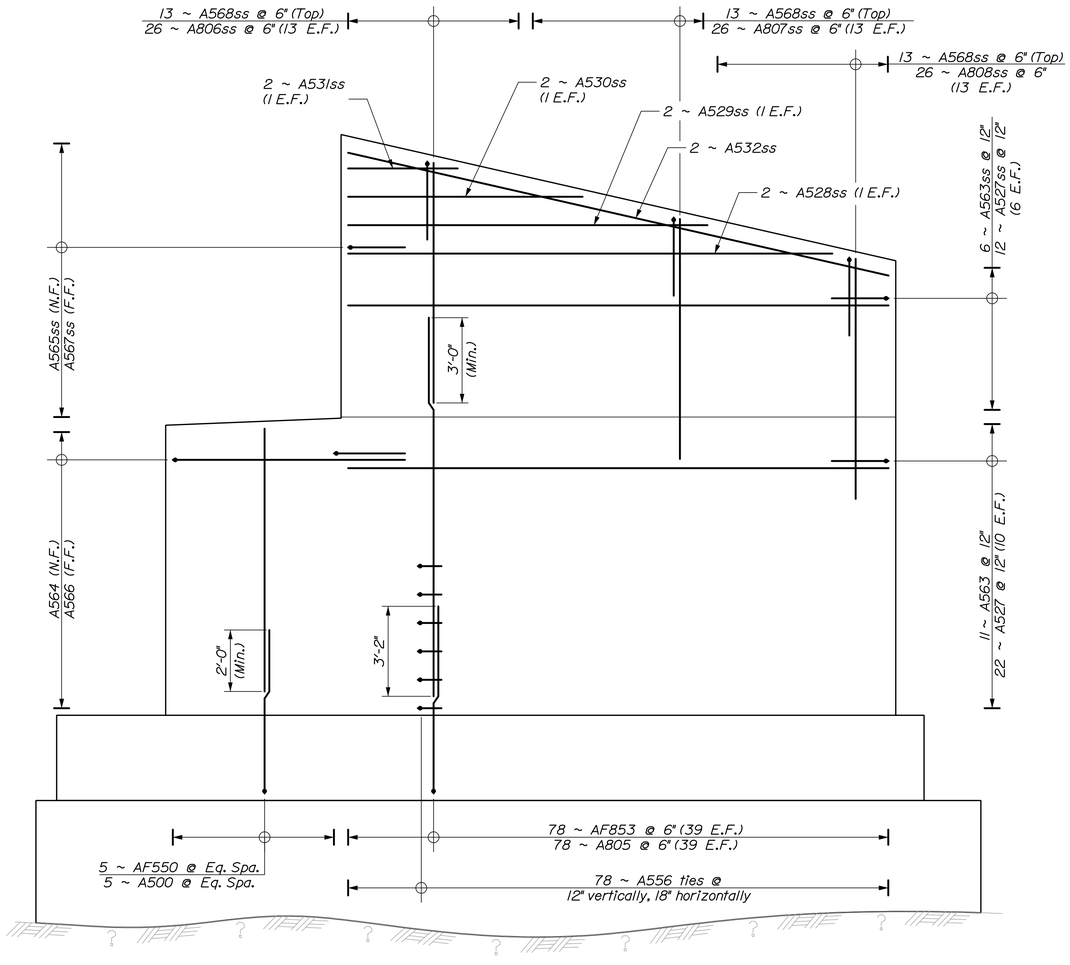
Date:8/3/2020

Filename: 039_Abutment 1 Reinforcement Section.dgn Division:

Filename: 040_Abutment 1 Wingwall Elevation.dgn Division: Username: Date:8/3/2020



ABUTMENT NO. 1 EAST WINGWALL ELEVATION



ABUTMENT NO. 1 WEST WINGWALL ELEVATION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lothel		
DESIGN-DETAILED	I. McCabe	E. Beausoleil	07\20
CHECKED-REVIEWED	J. Song	K. Segal	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

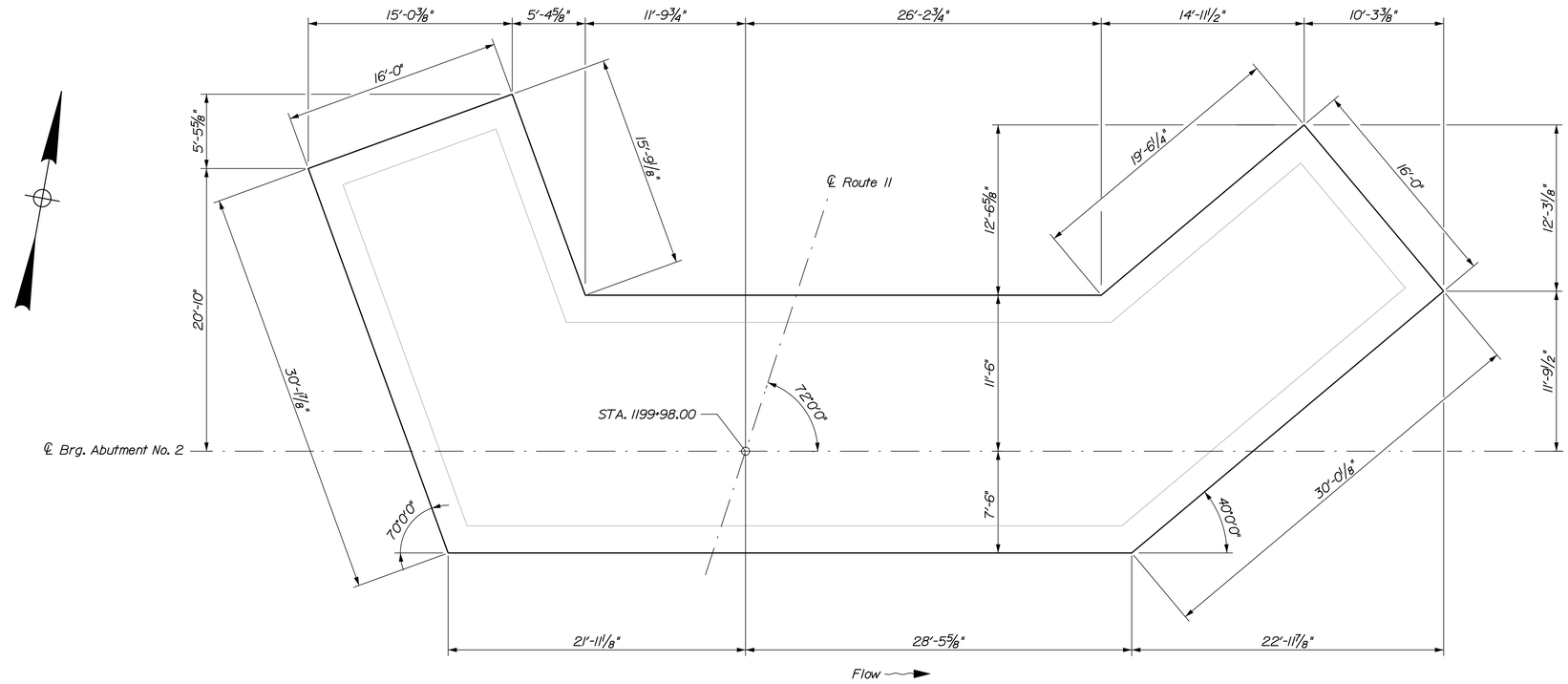
DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

ABUTMENT NO. 1
WINGWALL ELEVATION

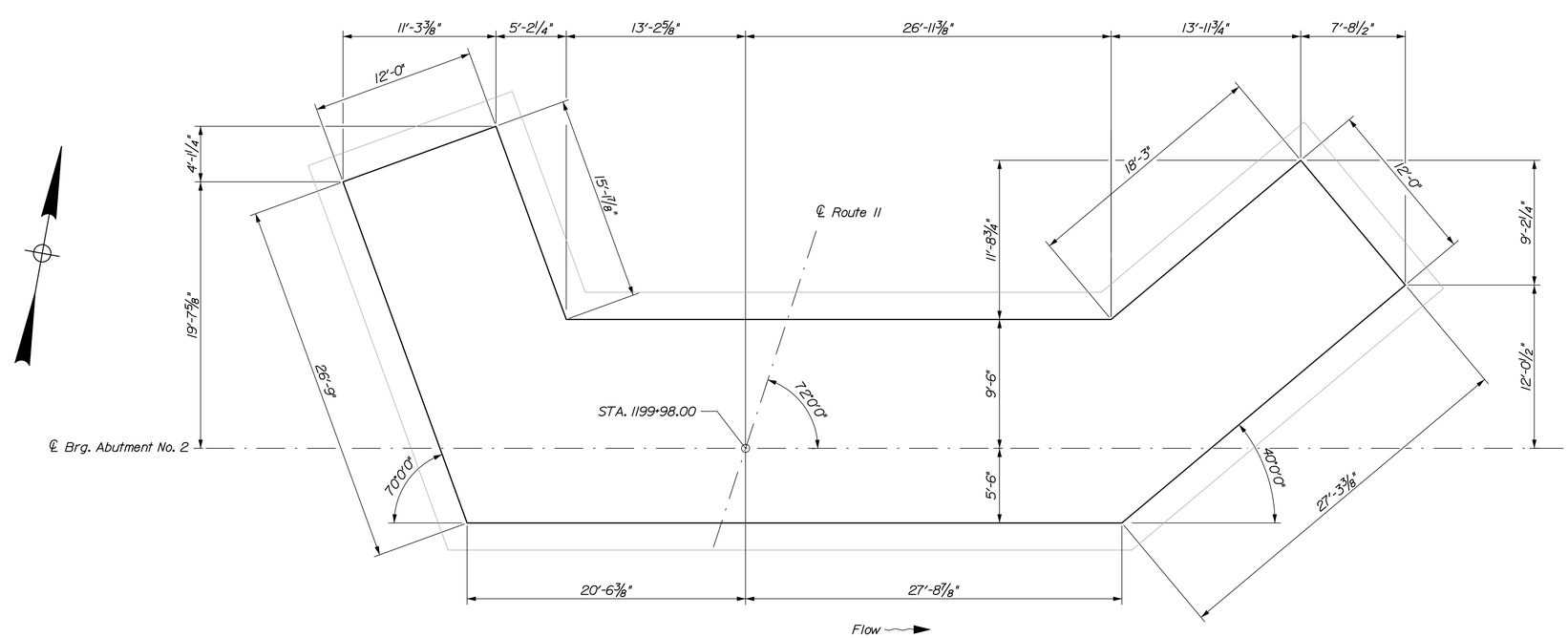
SHEET NUMBER

40

OF 69



ABUTMENT NO. 2 SEAL PLAN



ABUTMENT NO. 2 FOOTING PLAN

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lothel	BY	DATE
DESIGN-DETAILED	I. McCabe	E. Beausoleil	07\20
CHECKED-REVIEWED	J. Song	K. Segal	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

ABUTMENT NO. 2
SEAL & FOOTING PLAN

SHEET NUMBER

41

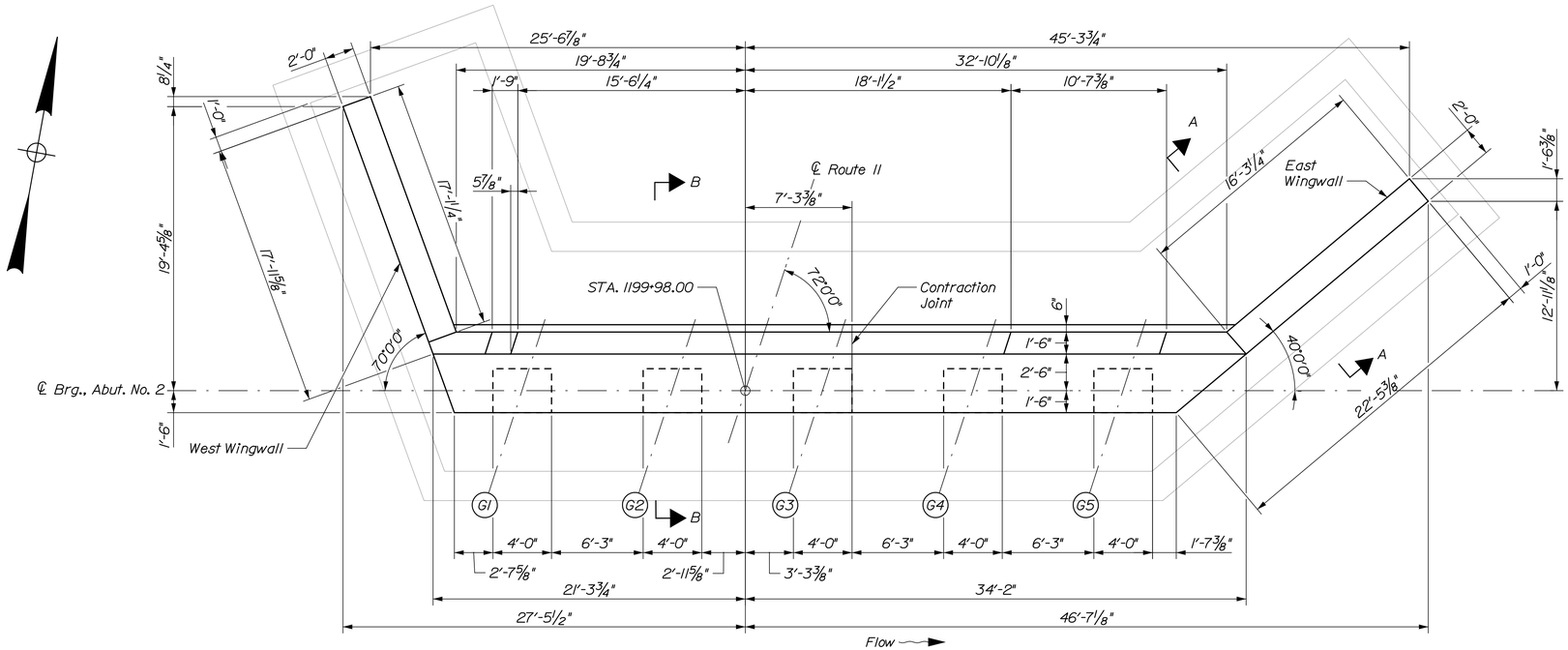
OF 69

Username:

Date:8/3/2020

Filename: 041_Abutment 2 Seal and Footing Plan.dgn

Division:



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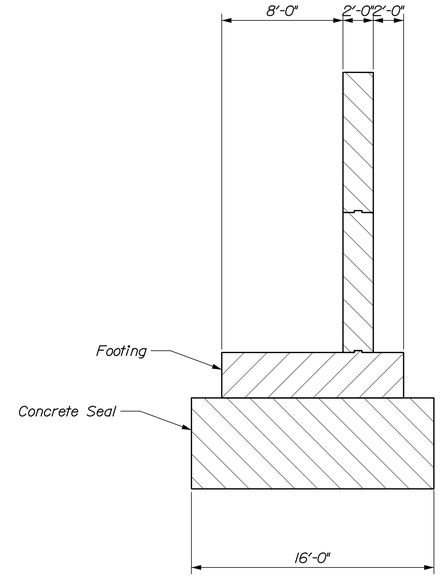
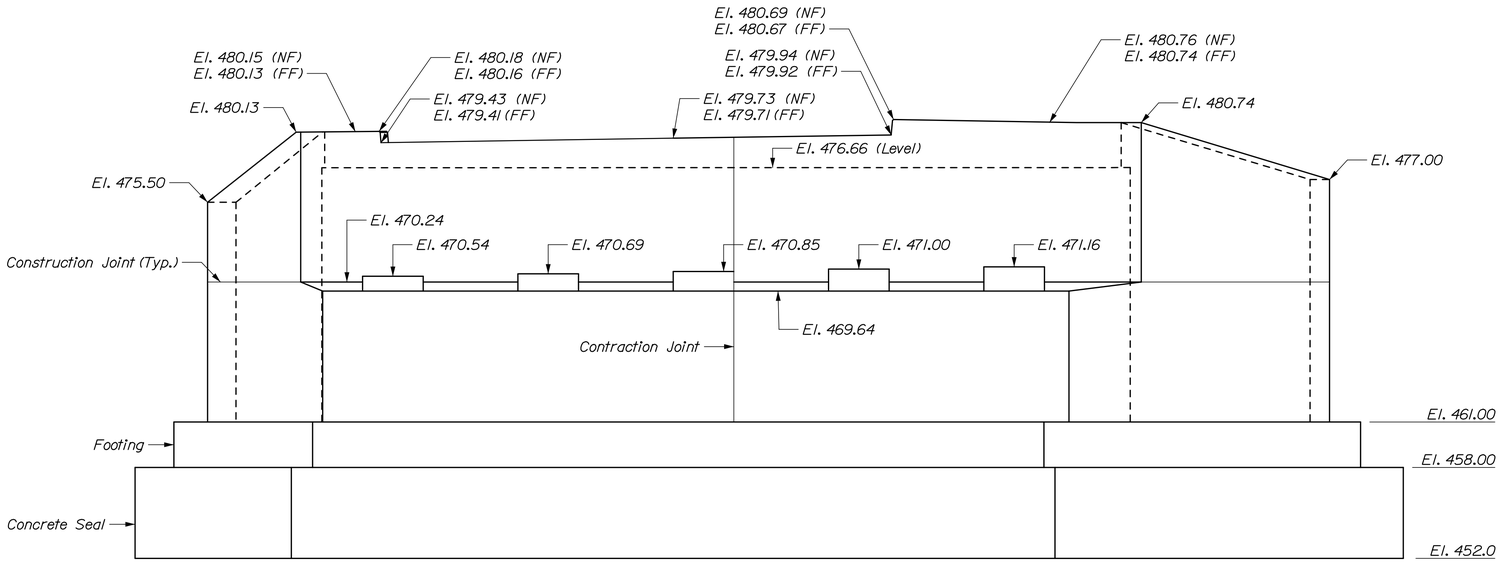
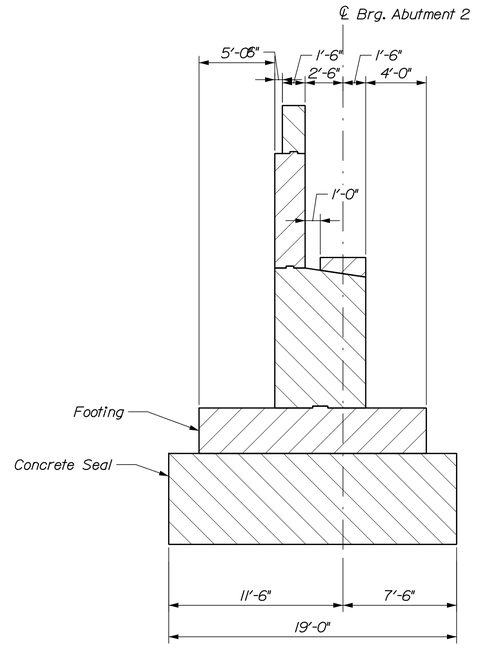


SECTION A-A

El. 480.69 (NF)



ABUTMENT NO. 2 ELEVATION



SECTION B-B

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	A. Lathe	
DESIGN-DETAILED	E. Beausoleil	07\20
CHECKED-REVIEWED	I. McCabe	07\20
DESIGN2-DETAILED2	K. Segal	
DESIGN3-DETAILED3	J. Song	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

ABUTMENT NO. 2
PLAN, ELEVATION, & SECTIONS

SHEET NUMBER

42

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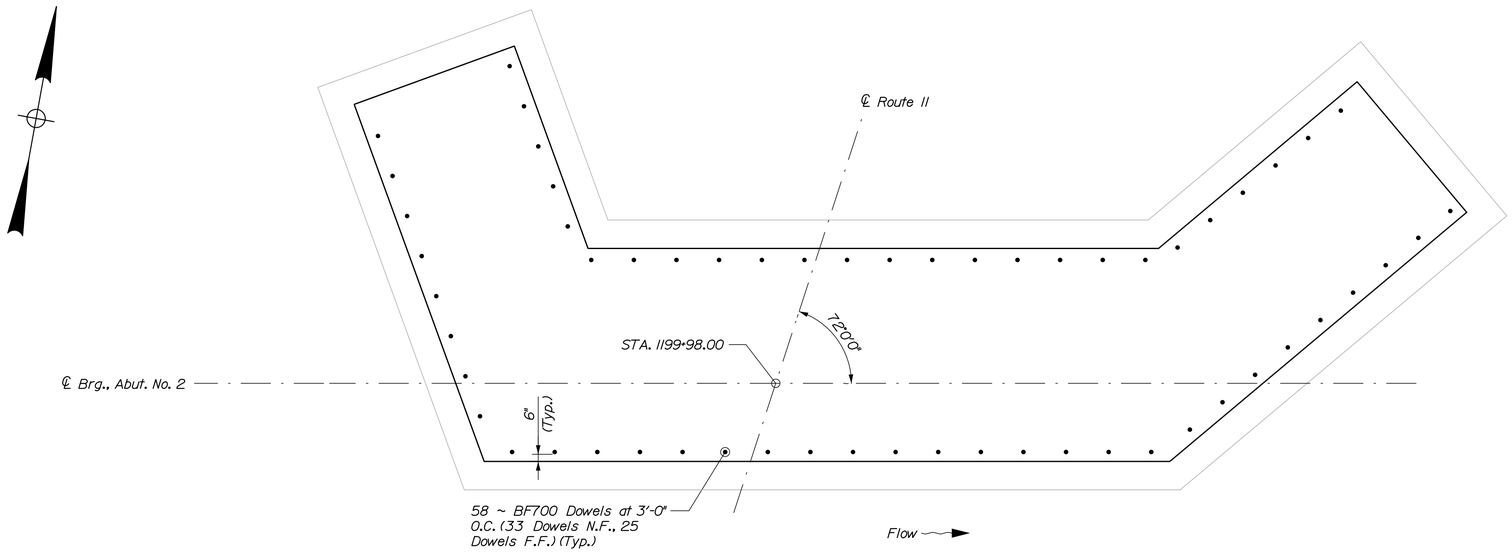
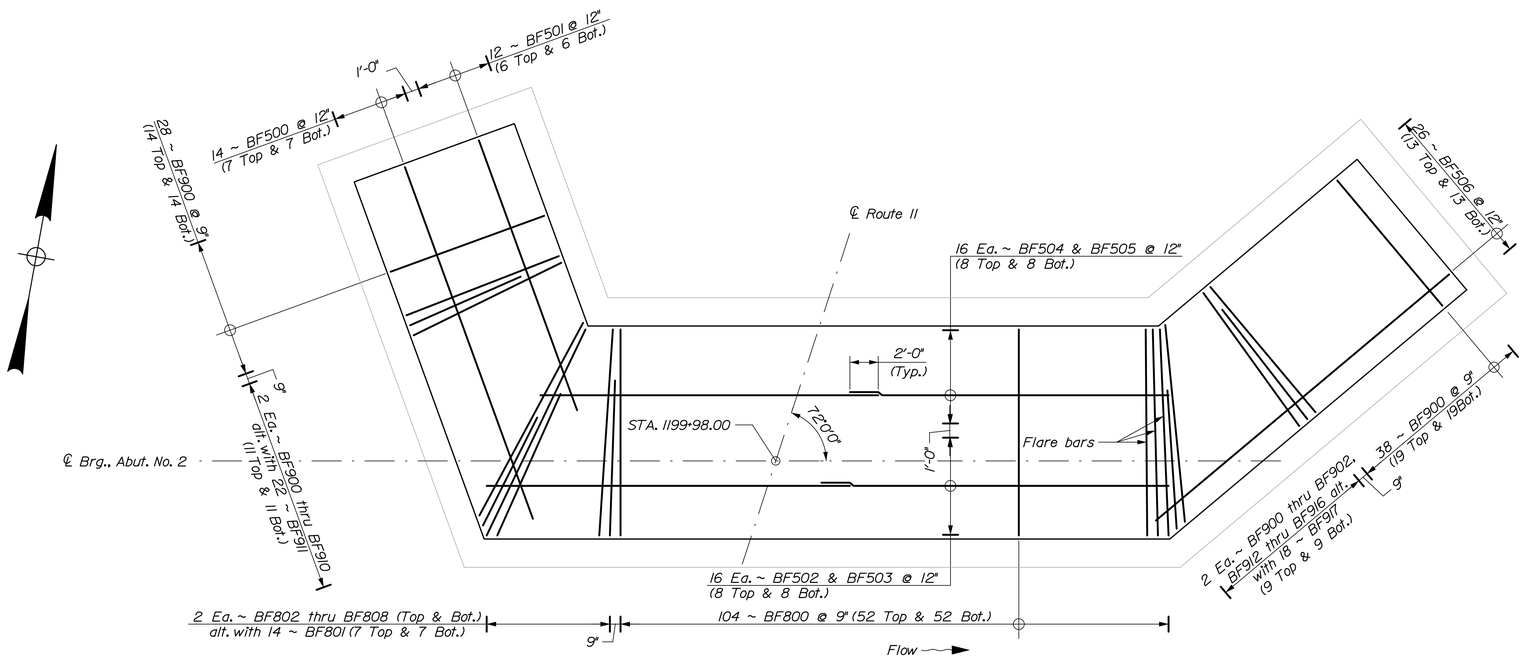
HNTB

Filename: 042_Abutment 2 Plan, Elevation, and Sections.dgn Username: Date:8/3/2020



ABUTMENT NO. 2 SEAL REINFORCEMENT PLAN



ABUTMENT NO. 2 FOOTING REINFORCEMENT PLAN

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathe	BY	DATE
DESIGN-DETAILED	I. McCabe	E. Beausoleil	07\20
CHECKED-REVIEWED	J. Song	K. Segal	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

ABUTMENT NO. 2
SEAL & FOOTING REINF.

SHEET NUMBER

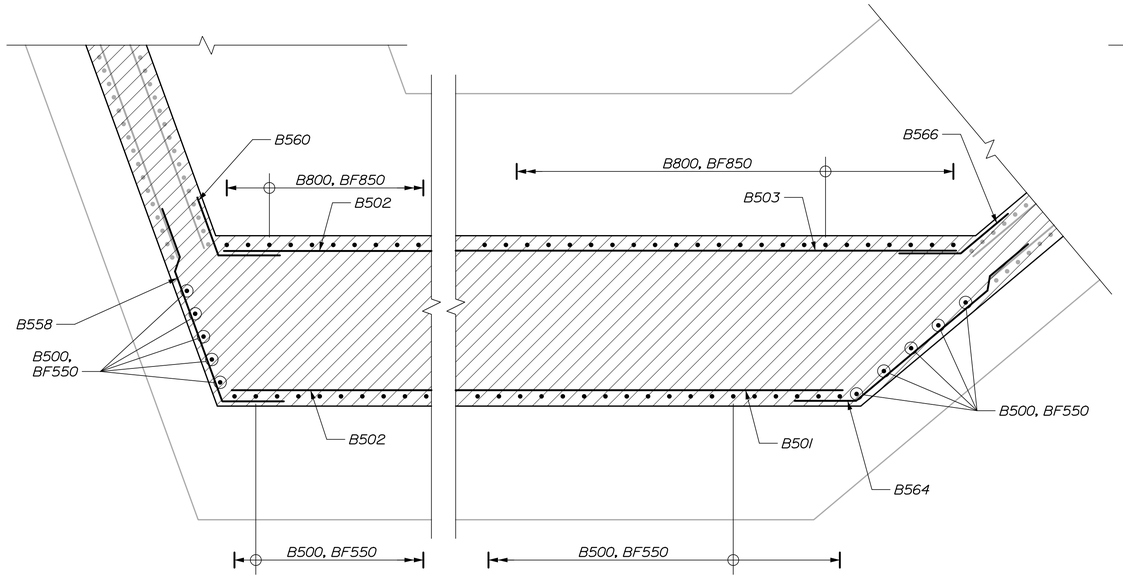
43

OF 69

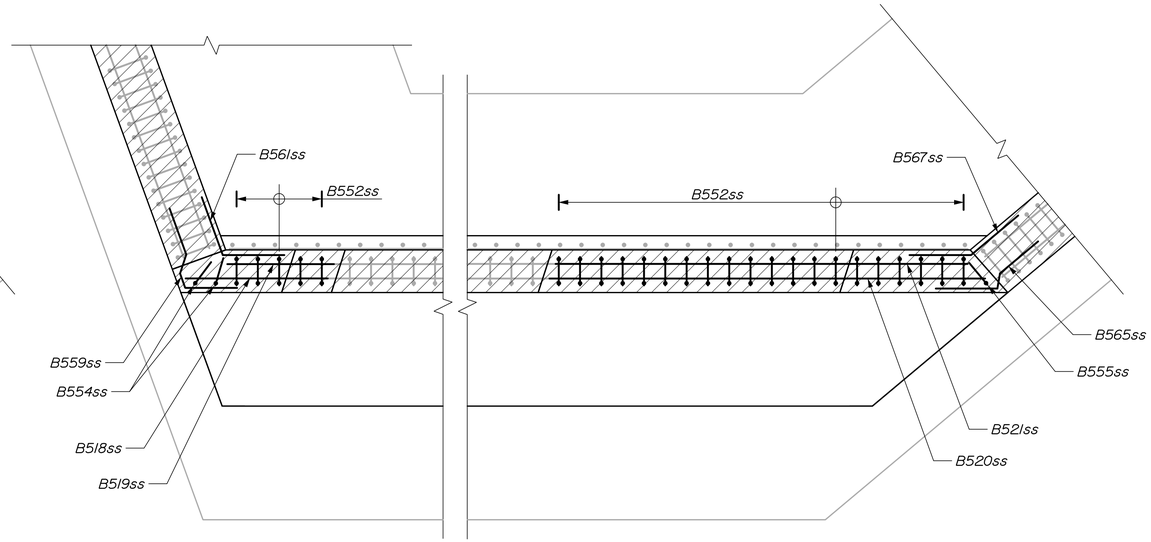
HNTB

Filename: 043_Abutment 2 Seal and Footing Reinforcement.dgn Username:

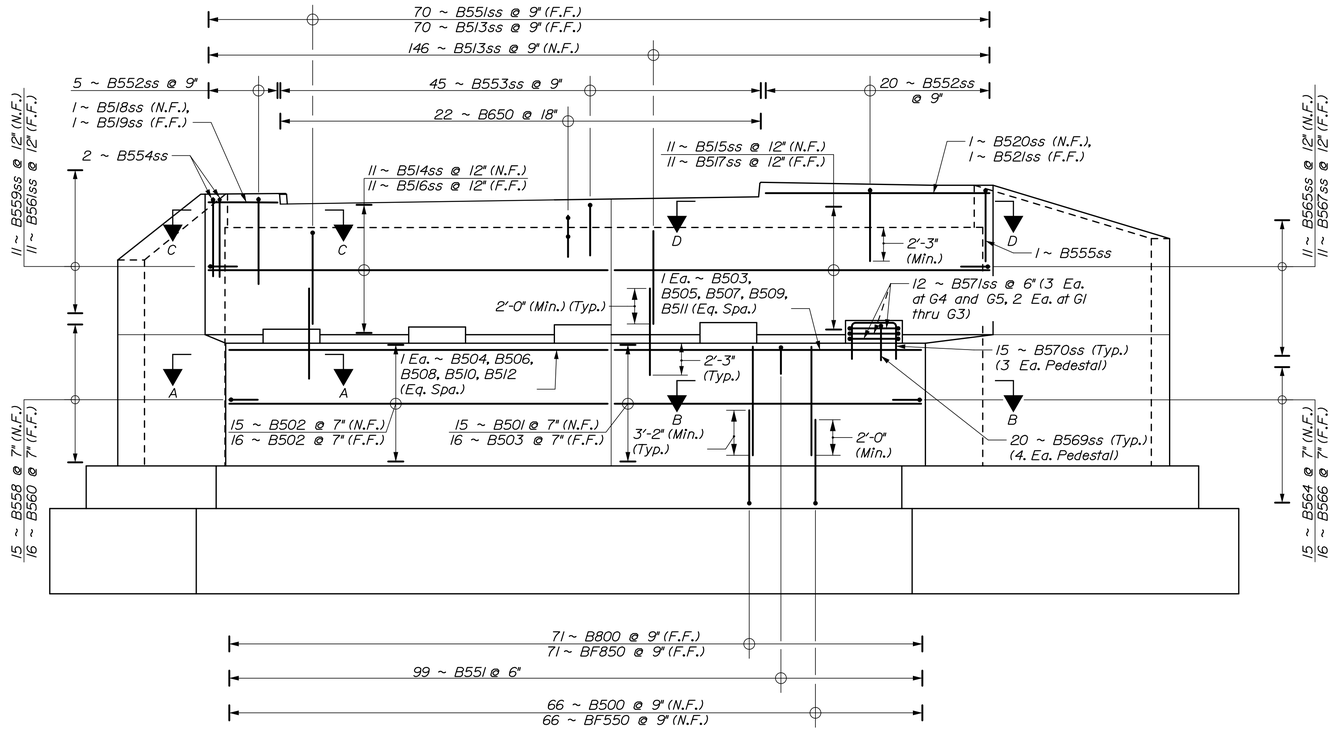
Date:8/3/2020



SECTION A-A SECTION B-B



SECTION C-C SECTION D-D



ABUTMENT NO. 2 ELEVATION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathe		
DESIGN-DETAILED	E. Beausoleil	07\20	
CHECKED-REVIEWED	I. McCabe	07\20	
DESIGN2-DETAILED2	J. Song		
DESIGN3-DETAILED3	K. Segal		
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

ABUTMENT NO. 2
REINF. PLAN & ELEVATION

SHEET NUMBER

44

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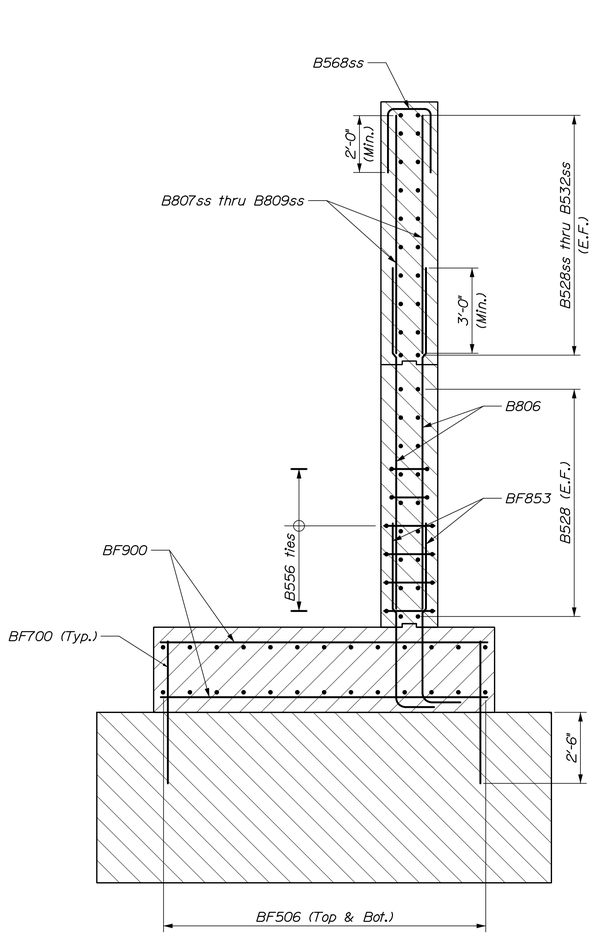
HNTB

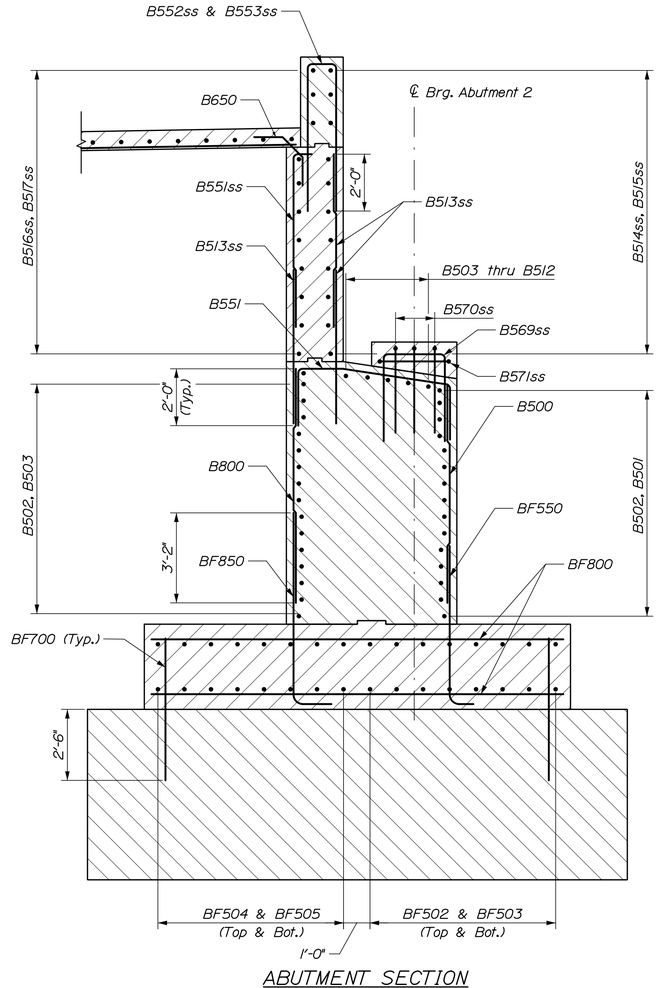
Filename: 044_Abutment 2 Reinforcement Elevation.dgn Username:

Date:8/10/2020



EAST WINGWALL SECTION

West Wingwall Similar



ABUTMENT SECTION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lothel	BY	DATE
DESIGN-DETAILED	I. McCabe	E. Beausoleil	07\20
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DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

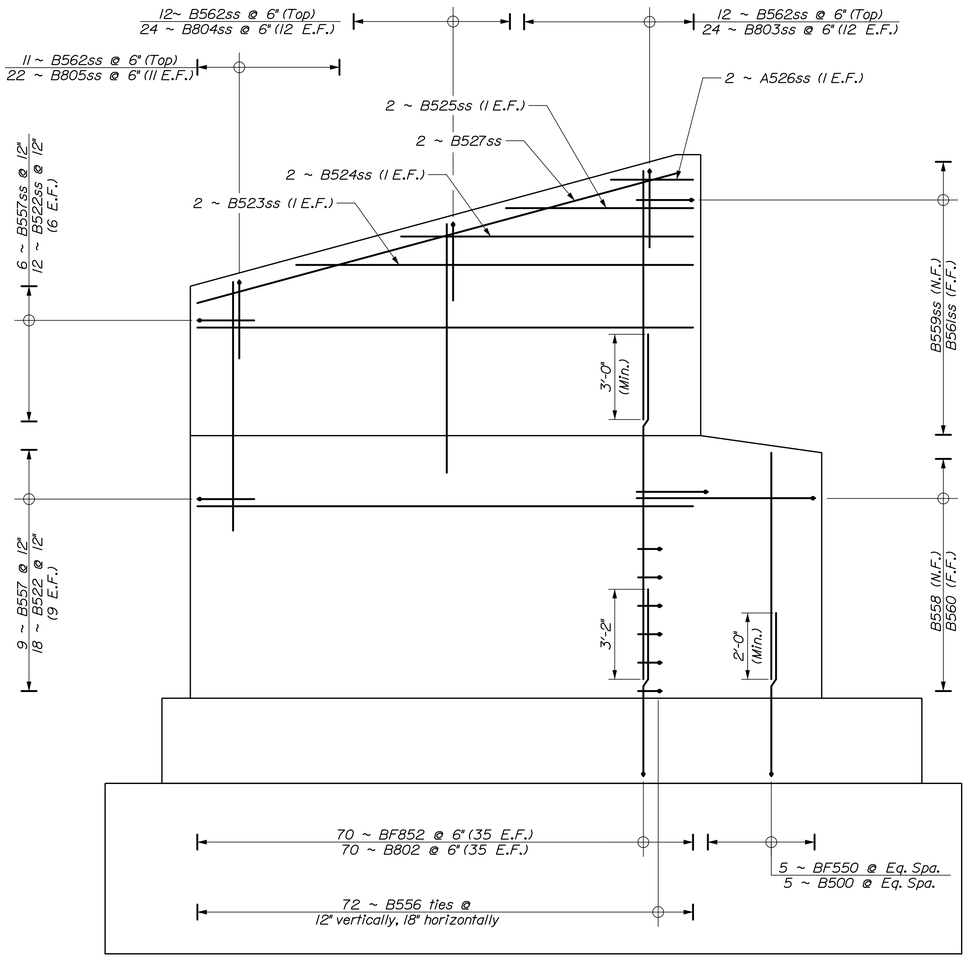
DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

ABUTMENT NO. 2
REINFORCING SECTIONS

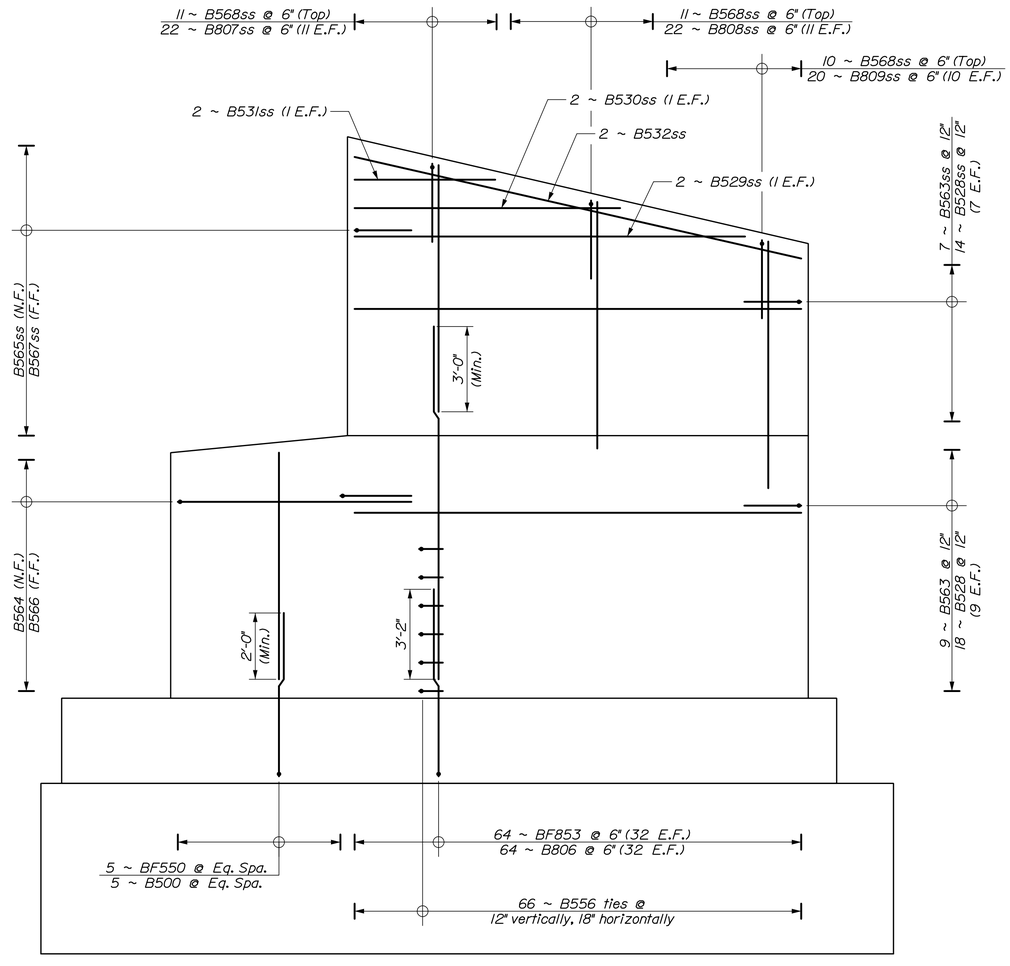
SHEET NUMBER

45

OF 69



ABUTMENT NO. 2 WEST WINGWALL ELEVATION



ABUTMENT NO. 2 EAST WINGWALL ELEVATION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lothel	BY	DATE
DESIGN-DETAILED	I. McCabe	E. Beausoleil	07\20
CHECKED-REVIEWED	J. Song	K. Segal	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

ABUTMENT NO. 2
WINGWALL ELEVATION

SHEET NUMBER

46

OF 69

Filename: 046_Abutment 2 Wingwall Elevation.dgn Division: Username: Date:8/3/2020

PIER DESIGN CRITERIA

1. Critical AASHTO Load Combination - Modified Strength I with ice

2. Buoyancy: Water level assumed at EL. 467.43.

3. Stream flow: Velocity of 10.63 fps 15° to longitudinal centerline of pier.

4. Wind: 115 mph.

5. Ice: Q1.1 - Thickness of 2'-6", Pressure 28.8 ksf (3'-6" Thickness at Extreme Event II)
Q50 - Thickness of 2'-6", Pressure 14.4 ksf (3'-6" Thickness at Extreme Event II)
30% of nose force applied transverse to pier

PIER NOTES

1. The maximum factored applied footing pressure is 17.0 ksf (Str. 1).

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

3. Bridge pedestal elevations shown are based on bearing heights given in the "Disc Bearing Design Table" on the "Bearing Details" sheet. Adjustments to the elevations shall be made, if necessary, according to the provisions stated there.

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 thickness of the seal shall be 10 feet. The thickness of the seal is set for a water elevation of 465.51. If the water elevation at the time of construction is higher, the thickness shall be adjusted as approved by the Resident.

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. 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 level steps or made completely level.

7. Cofferdam excavation, inspection and reporting shall be in accordance with Special Provision 511 Cofferdams.

8. The seal shall be cored full depth in at least four (4) locations to ensure that the seal was satisfactorily placed. The final core run shall sample the concrete/bedrock interface and extend at least one foot into the bedrock. Seal concrete core samples will be a minimum of 3 inches O.D., be adequately stored in boxes and each core run labeled. In the event that voids or any other defects are found, the Contractor shall correct the defects in a manner approved by the Department. For each core that reveals a void or defect, two additional cores shall be taken in approximately the same location as the original core. The other cores will be located by the Resident. All core holes shall be refilled using a non-shrink grout. The cost of all coring and repairs will be considered incidental to "Structural Concrete Piers (Placed Under Water)".

9. If the bedrock elevations vary from the elevations assumed in the development of these plans, the pier seals may need to be modified. The Contractor shall grant the Department ten (10) Days to modify the Plans from the date the Resident accepts the bedrock survey.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathel	BY	DATE
DESIGN-DETAILED	A. Ravindra	E. Beausoleil	07\20
CHECKED-REVIEWED	J. Song	K. Segal	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

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DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

PIER NOTES

SHEET NUMBER

47

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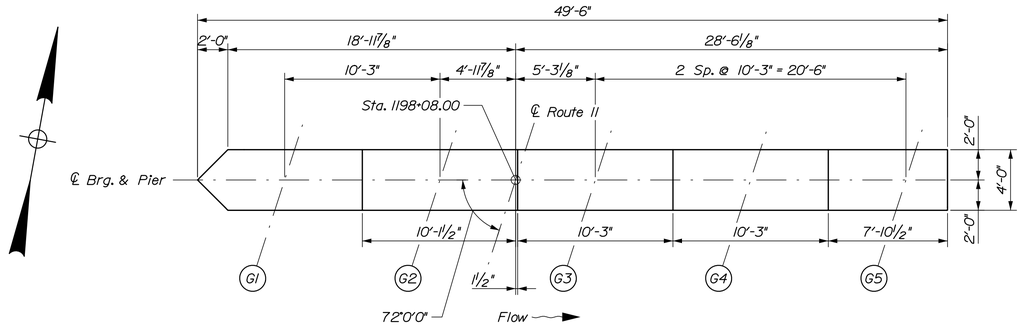
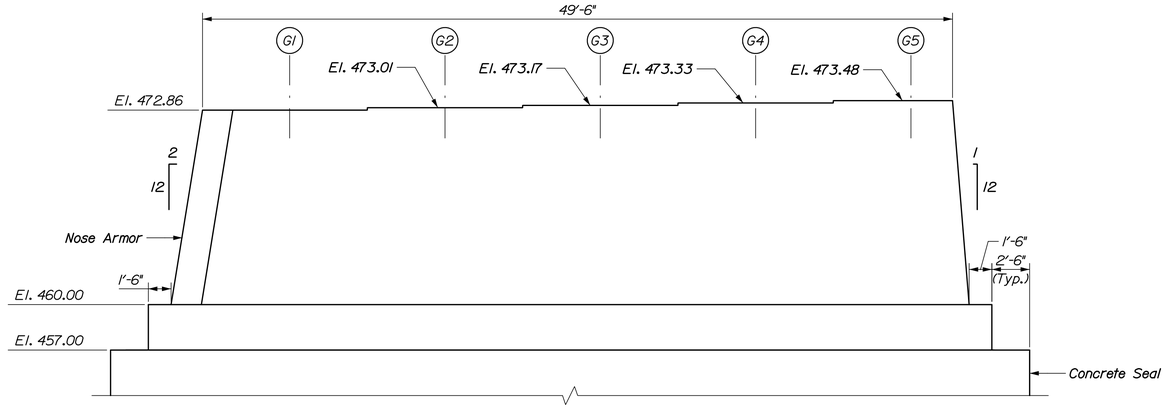
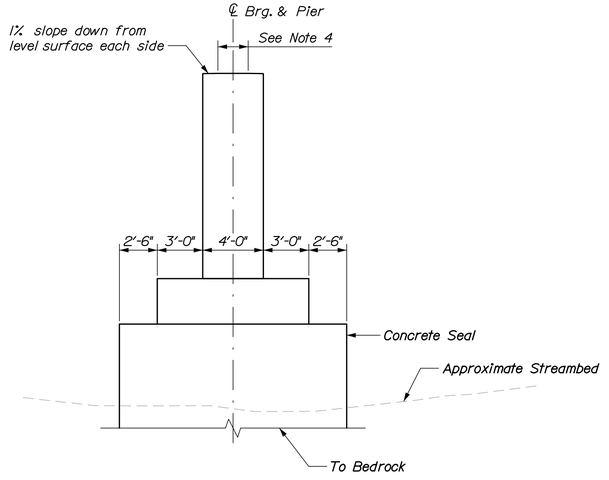
HNTB



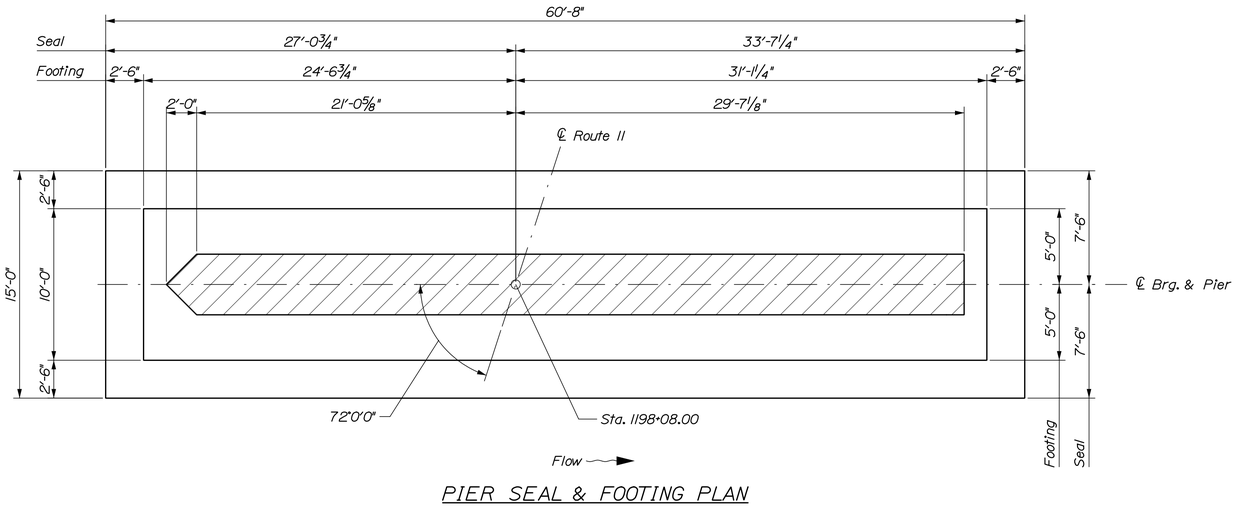
PIER SHAFT PLAN



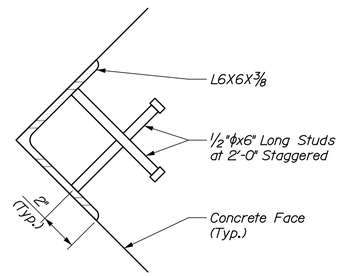
PIER ELEVATION



PIER END ELEVATION



PIER SEAL & FOOTING PLAN



NOSE ARMOR DETAIL

PIER NOSE ARMOR NOTES

1. Payment for furnishing and placing the concrete anchors and pier nose shall be incidental to the unit price bid for the concrete pier.

2. Pier Nose protection shall be extended from top of footing to EL. 472.86.

3. Nose armor, including anchor studs, shall be cleaned and galvanized in accordance with Section 506 of the Contract Standard Specifications and included in Pay Item 502.239 Structural Concrete Piers.

4. The bearing area shall be dressed in accordance with Standard Specifications Subsection 523.09 prior to installation of bearings.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	A. Lathel	
DESIGN-DETAILED	A. Ravindra	07\20
CHECKED-REVIEWED	J. Song	07\20
DESIGN2-DETAILED2	E. Beausoleil	
DESIGN3-DETAILED3	K. Segal	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

PIER GEOMETRY

SHEET NUMBER

48

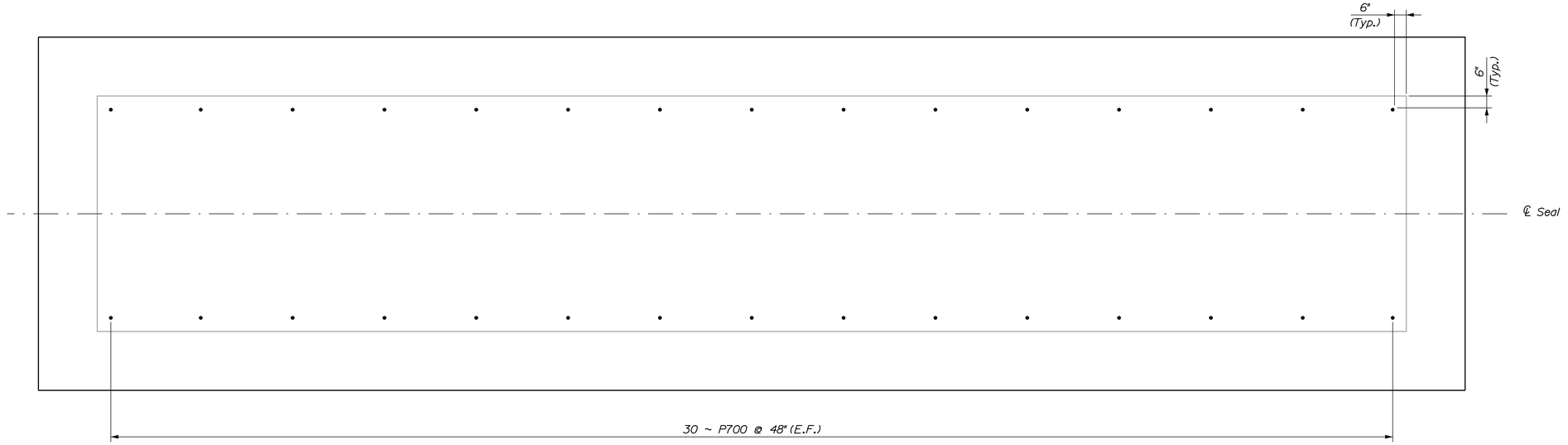
OF 69

Username:

Date:8/3/2020

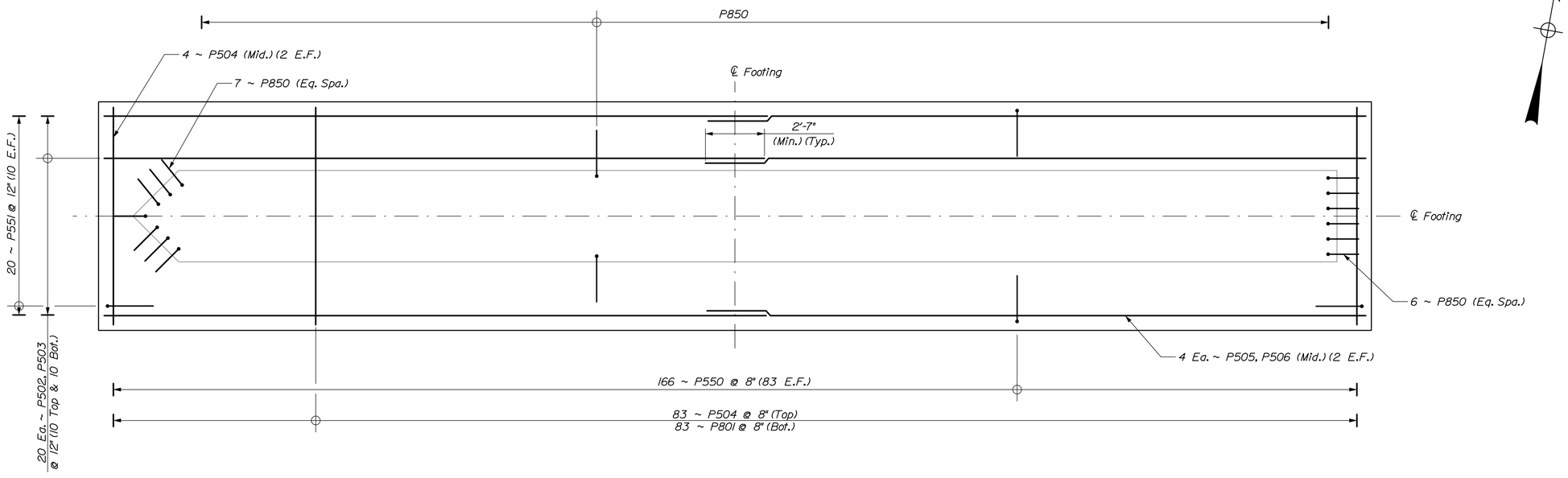
Division:

Filename: 048_Pier Geometry.dgn



PLAN - SEAL REINFORCEMENT

(Footing reinforcement not shown for clarity)



PLAN - FOOTING REINFORCEMENT

(Pier stem reinforcement not shown for clarity)

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathel		
DESIGN-DETAILED	A. Ravindra	E. Beausoleil	07\20
CHECKED-REVIEWED	J. Song	K. Segal	07\20
DESIGN2-DETAILED2			
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REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

PIER
FOOTING REINFORCEMENT

SHEET NUMBER

49

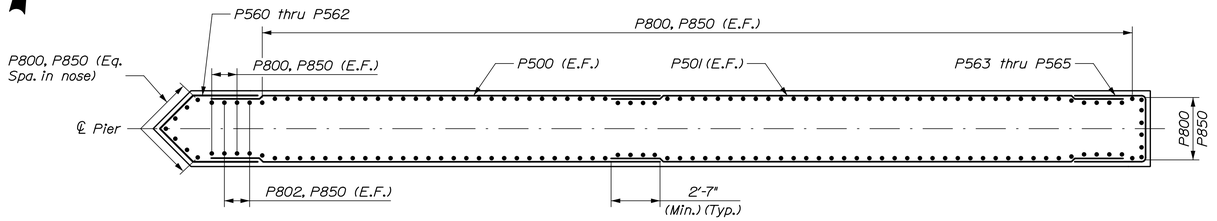
OF 69

Date:8/3/2020

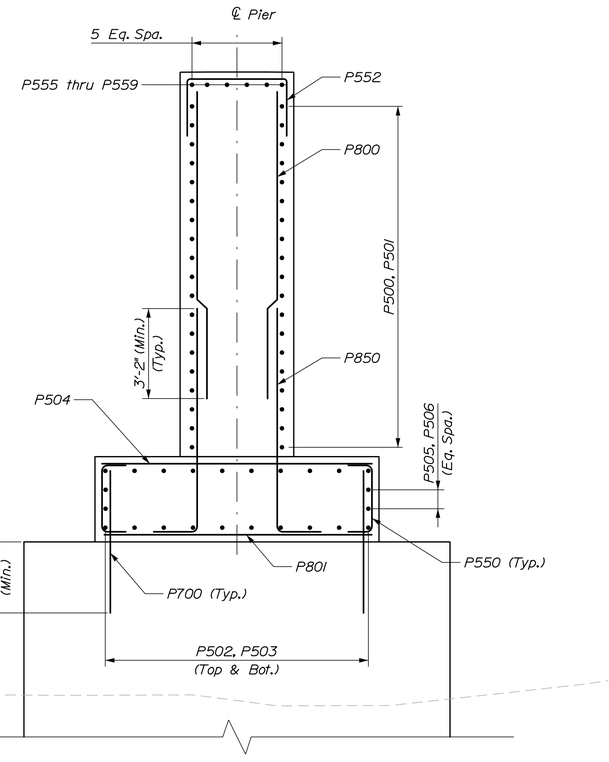
Username:

Division:

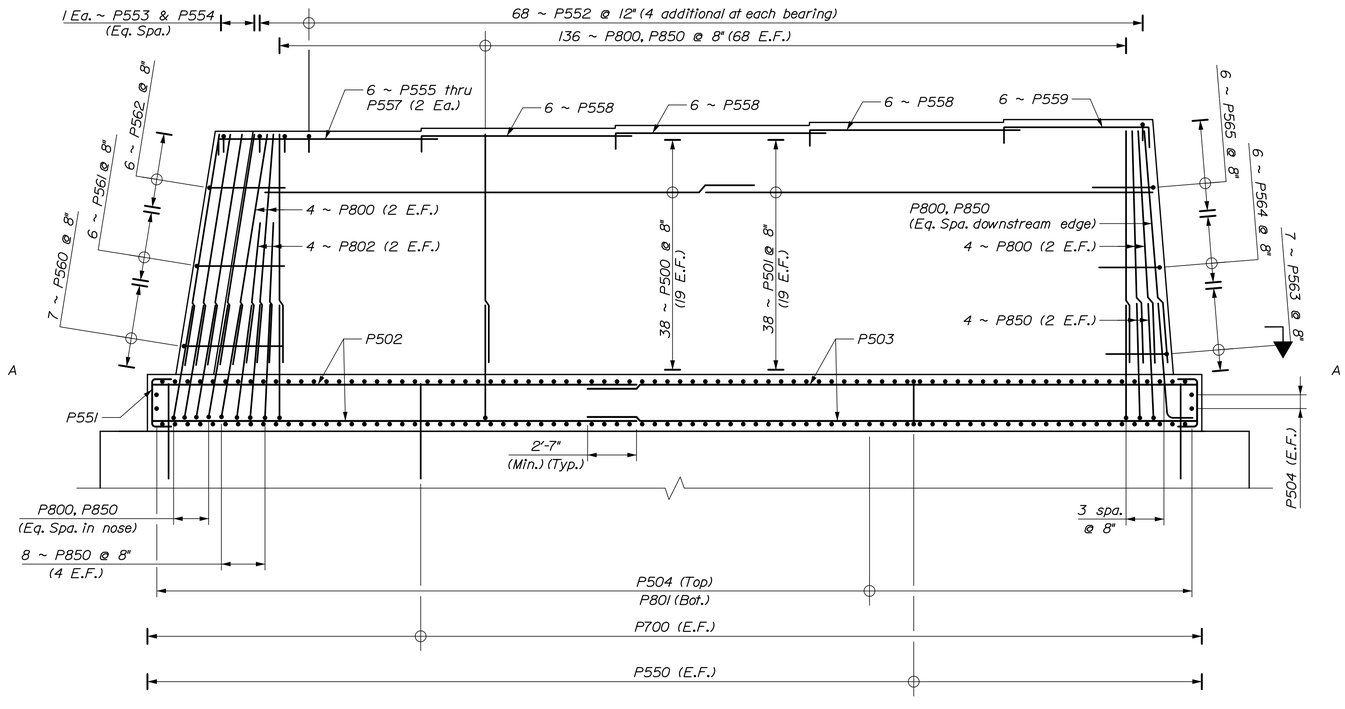
Filename: 049_Pier Footing Reinforcement.dgn



SECTION A-A



SECTION - PIER REINFORCING



ELEVATION - FOOTING AND PIER REINFORCEMENT

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	A. Lathe	
DESIGN-DETAILED	A. Ravindra	07\20
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DESIGN2-DETAILED2		
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REVISIONS 1	E. Beausoleil	
REVISIONS 2	K. Segal	
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

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P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

PIER
REINFORCEMENT ELEVATION

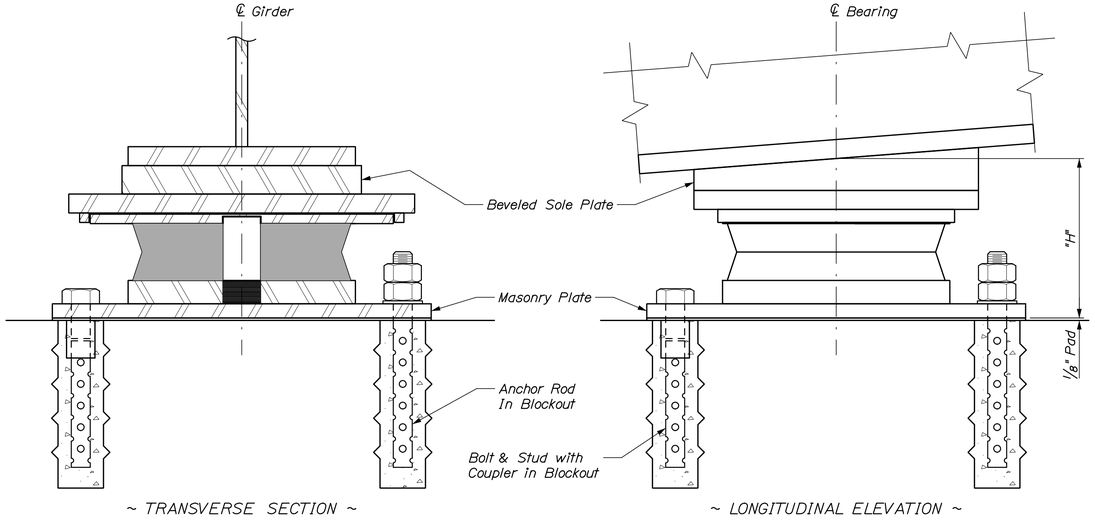
SHEET NUMBER

50

OF 69

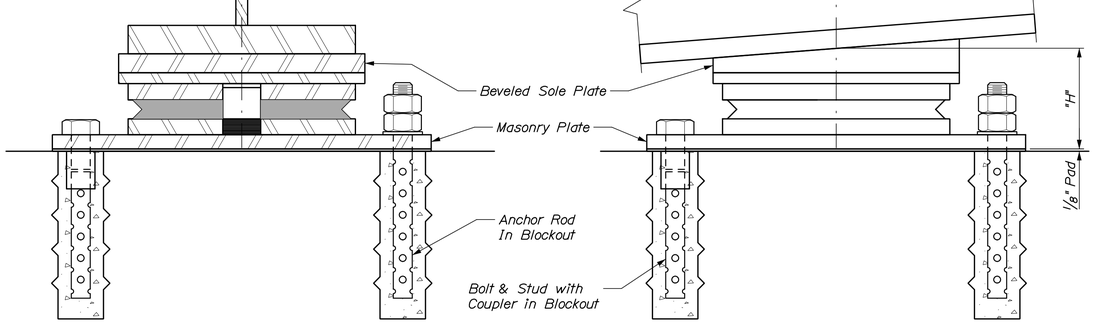
HNTB

Filename: 050_Pier Reinforcement Elevation.dgn Division: Username: Date:8/3/2020



~ TRANSVERSE SECTION ~ ~ LONGITUDINAL ELEVATION ~

EXPANSION BEARING



~ TRANSVERSE SECTION ~ ~ LONGITUDINAL ELEVATION ~

FIXED BEARING

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 1/8" thick preformed pads in accordance with the specifications.

3. All steel, unless otherwise specified, shall meet the requirements of ASTM A709, Grade 50W.

4. Bearing anchorage shall be either Anchor Rod with double nuts and washers in blockout, or Bolt & Stud with Coupler in blockout, at the Contractor's option.

5. Anchorage spacing shall be coordinated with the bearing manufacturer.

6. Anchor bolts shall meet the requirements of ASTM F3125, Grade A325 Type 1.

7. Anchor rods shall meet the requirements of ASTM F1554, Grade 105 and shall be swedged on the embedded portion of the rod.

8. Heavy hex nuts for anchor rods shall meet the requirements of ASTM A563, Grade D or DH.

9. Anchor bolts, rods, washers, and nuts shall be galvanized to ASTM A153 or ASTM B695, Class 50, Type 1. Payment for galvanizing will be considered incidental to the disc bearing pay items.

10. For abutment bearings, all steel located below the polyether urethane disc shall be coated in accordance with Standard Specifications Section 506, Protective Coating - Steel (Thermal Spray Coating). All remaining steel shall be coated in accordance with Standard Specifications Section 506, Protective Coating - Steel (Zinc Rich Coating System). Payment for Coatings for Disc Bearings will be considered incidental to Item 523.5551, Pot or Disc Bearings, Fixed or Item 523.5552 Pot or Disc Bearings, Expansion as applicable.

11. For pier bearings, all steel located below the polyether urethane disc shall be coated in accordance with Standard Specifications Section 506, Protective Coating - Steel (Thermal Spray Coating). All remaining steel shall be coated in accordance with Standard Specifications Section 506, Protective Coating - Steel (Zinc Rich Coating System). Payment for Coatings for Disc Bearings will be considered incidental to Item 523.5551, Pot or Disc Bearings, Fixed or Item 523.5552 Pot or Disc Bearings, Expansion as applicable.

12. The abbreviation "PTFE" indicates polytetraflouroethylene.

13. All PTFE, including guide and restraint surfaces, shall be unfilled.

14. PTFE minimum bearing pressure shall be 1 ksi under total service loading and 3 ksi under total strength loading.

15. Average compressive stresses on the disc shall be computed using the minimum plan area of the unstressed disc, excluding the area of any holes.

16. The design temperature range shall be 150°F (-30°F to 120°F).

17. Design of the sole plates and masonry plates is the responsibility of the Bearing Manufacturer. Payment for these shall be made under Item 523.5551, Pot or Disc Bearings, Fixed or Item 523.5552, Pot or Disc Bearings, Expansion as applicable.

18. Sole plate shall be beveled according to the grade defined at each substructure location in the Disc Bearing Design Table.

19. 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, 8th Edition 2017.

20. Bearings shall be designed with a thermal load factor of 1.0.

21. Longitudinal horizontal forces do not include friction forces at expansion bearings.

22. 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.

23. Bearing installation shall be in strict conformance with the Standard Specifications and the manufacturer's recommendations.

24. In the Disc Bearing Setting Corrections Table, a negative dimension indicates a direction away from the nearer expansion joint. A positive dimension indicates a direction toward the nearer expansion joint.

25. Temperatures shown in the Disc Bearing Setting Corrections Table are those of the steel girders and not necessarily the ambient air temperature.

DISC BEARING DESIGN TABLE

Location	Bearing Type	Design Loads Per Bearing (kips)										Dim "H" (in.) (Note No. 1)	Design Rotation (Note No. 19)				Total Long. Movement (in.)	Sole Plate Bevel
		Vertical				Horizontal							Strength		Service			
		Strength	Extreme Event	Service		Strength		Extreme Event		Service								
		Total Load	Total Load	Dead Load	Total Load	Longitudinal (Note No. 21)	Transverse	Longitudinal (Note No. 21)	Transverse	Longitudinal (Note No. 21)	Transverse		Rotation (radians)	Coincidental Total Load (kips)	Rotation (radians)	Coincidental Total Load (kips)		
Abut. No. 1	Uni-directional	489	246	189	302	0	45	0	45	0	5	9 3/8"	0.018	465	0.011	291	2.05	1.10%
Pier	Fixed	1211	728	640	815	122	122	122	122	14	15	9 1/2"	0.006	1108	0.003	772	0	1.25%
Abut. No. 2	Uni-directional	442	227	183	272	0	41	0	41	0	5	9 3/8"	-0.017	403	-0.011	260	2.05	1.25%

Disc Bearing Setting Corrections Table

	15 °F	30 °F	45°F	60 °F	75 °F	90 °F
Abut. No. 1	-1/2"	-1/4"	0"	1/4"	1/2"	3/4"
Pier No. 1	--	--	--	--	--	--
Abut. No. 2	-1/2"	-1/4"	0"	1/4"	1/2"	3/4"

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	A. Lathe	
DESIGN-DETAILED	E. Beausoleil	07\20
CHECKED-REVIEWED	K. Segal	07\20
DESIGN2-DETAILED2	A. Ravindra	
DESIGN3-DETAILED3	J. Song	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

BEARING DETAILS

SHEET NUMBER

51

OF 69

HNTB

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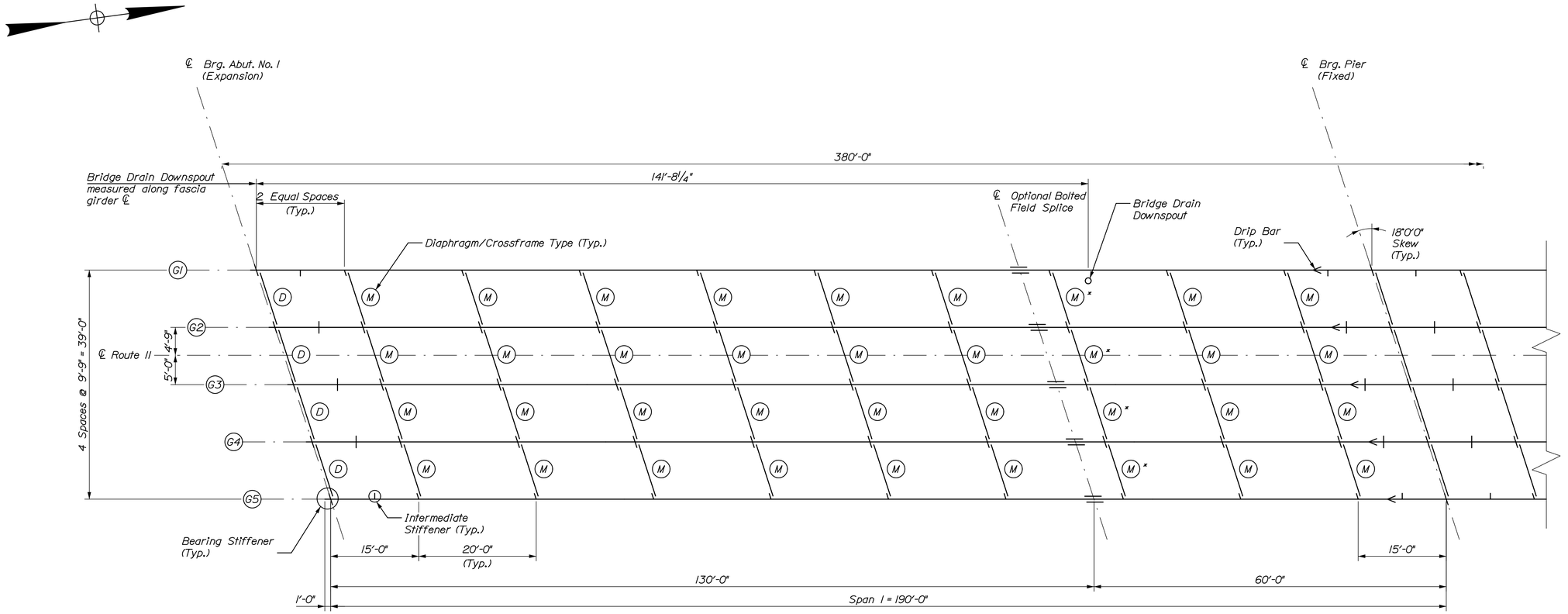

FRAMING PLAN

STRUCTURAL STEEL NOTES:

1. No transverse butt weld splices will be allowed in the flange plates or web plates within 10 feet or 10 percent 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.

2. Sections of flange plates or web plates between transverse shop splices or between a transverse shop splice and a field splice shall be not less than 20 feet in length unless otherwise shown on the plans.

3. 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.

4. Crossframe or diaphragm connection plates may be either plumb or normal to the top flange and shall be 5/8" thick.

5. All connection plates shall be welded to the top and bottom flanges using 5/16" fillet welds.

6. Bolted field splice connections shall be made using 7/8"ϕ ASTM F3125 Grade A325 bolts. Hole size shall be 15/16"ϕ. 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 connection.

7. The ends of the girders and the end diaphragms shall be coated with a zinc-rich coating system in accordance with Standard Specification Section 506, Shop Applied Protective Coating - Steel (Zinc Rich Coating System), to a distance of 10 feet from the face of the abutments. Paint color shall meet Federal Color 30045 (Brown) of Federal Color Standard 595B. All costs related to coating will not be paid for directly, but will be considered incidental to related structural steel contract items.

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. A minimum of two girders with connecting crossframes must be in place prior to installing any girders in adjacent bays.

10. After placement of the superstructure concrete, thoroughly clean the abutments and piers of all stains with a method approved by the Resident. Payment will be considered incidental to related Contract items.

11. Provide a "drip bar" on the high side of each pier and abutment on all girders as shown and in accordance with the Standard Details.

12. Structural steel was designed with a vertical construction live load of 50 psf and a lateral wind velocity of 115 mph.

13. Bolted diaphragms or cross frame connections shall be made using 7/8-inch diameter bolts. Bolt threads shall be excluded from the shear plane of the connections.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathel		
DESIGN-DETAILED	J. Song	E. Beausoleil	07\20
CHECKED-REVIEWED	I. McCabe	K. Segal	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

FRAMING PLAN 1

SHEET NUMBER

52

OF 69

Username:

Date:8/3/2020

Division:

Filename: 052_Framing Plan 1.dgn

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathel		
DESIGN-DETAILED	J. Song	E. Beausoleil	07\20
CHECKED-REVIEWED	I. McCabe	K. Segal	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

FRAMING PLAN II

SHEET NUMBER

53

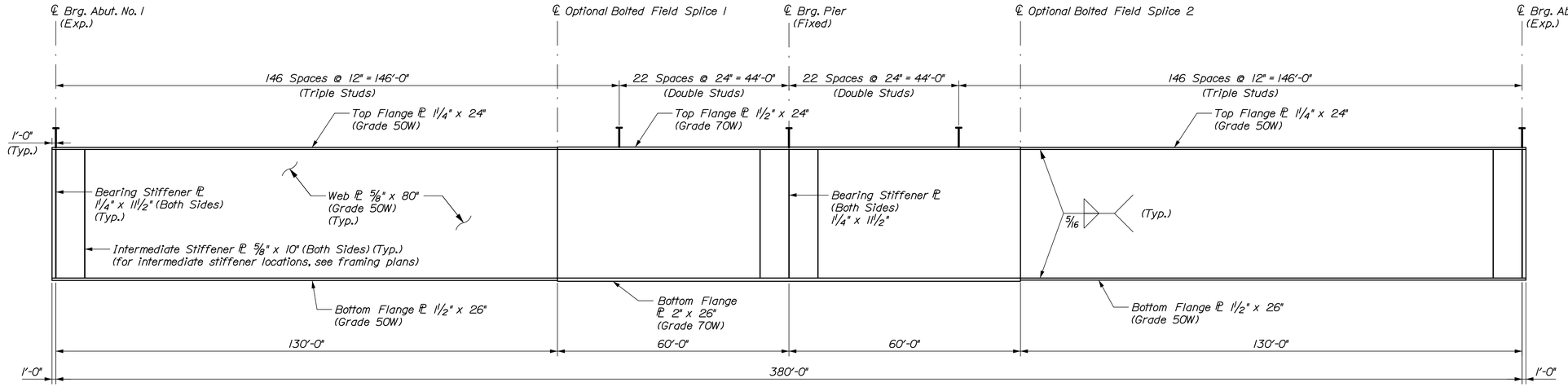
OF 69

Username:

Division:

Filename: 053_Framing Plan II.dgn

Date:8/3/2020



GIRDER ELEVATION

(966 Studs X 5 Girders = 4830 Studs)

TABLE OF DEFLECTIONS ~ GIRDER 1 (Inches)

	℄ Abut. No. 1	0.1xL	0.2xL	0.3xL	0.4xL	0.5xL	0.6xL	0.7xL	0.8xL	0.9xL	℄ Brg. Pier	0.1xL	0.2xL	0.3xL	0.4xL	0.5xL	0.6xL	0.7xL	0.8xL	0.9xL	℄ Abut. No. 2
Steel Dead Load	0.00	-0.48	-0.88	-1.15	-1.26	-1.21	-1.02	-0.73	-0.41	-0.13	0.00	-0.13	-0.41	-0.73	-1.02	-1.21	-1.26	-1.15	-0.88	-0.48	0.00
Fluid Dead Load	0.00	-1.19	-2.19	-2.86	-3.14	-3.02	-2.53	-1.80	-1.00	-0.32	0.00	-0.32	-0.99	-1.80	-2.53	-3.01	-3.14	-2.86	-2.19	-1.19	0.00
Superimposed Dead Load	0.00	-0.30	-0.55	-0.71	-0.78	-0.75	-0.63	-0.46	-0.26	-0.09	0.00	-0.09	-0.27	-0.47	-0.64	-0.75	-0.78	-0.71	-0.54	-0.29	0.00

TABLE OF DEFLECTIONS ~ GIRDER 2 (Inches)

	℄ Abut. No. 1	0.1xL	0.2xL	0.3xL	0.4xL	0.5xL	0.6xL	0.7xL	0.8xL	0.9xL	℄ Brg. Pier	0.1xL	0.2xL	0.3xL	0.4xL	0.5xL	0.6xL	0.7xL	0.8xL	0.9xL	℄ Abut. No. 2
Steel Dead Load	0.00	-0.48	-0.88	-1.15	-1.26	-1.21	-1.02	-0.73	-0.41	-0.13	0.00	-0.13	-0.41	-0.73	-1.02	-1.21	-1.26	-1.15	-0.88	-0.48	0.00
Fluid Dead Load	0.00	-1.22	-2.24	-2.92	-3.21	-3.08	-2.59	-1.85	-1.03	-0.33	0.00	-0.33	-1.03	-1.84	-2.59	-3.08	-3.21	-2.92	-2.24	-1.22	0.00
Superimposed Dead Load	0.00	-0.34	-0.62	-0.81	-0.89	-0.86	-0.73	-0.52	-0.29	-0.10	0.00	-0.10	-0.29	-0.52	-0.72	-0.86	-0.89	-0.81	-0.62	-0.34	0.00

TABLE OF DEFLECTIONS ~ GIRDER 3 (Inches)

	℄ Abut. No. 1	0.1xL	0.2xL	0.3xL	0.4xL	0.5xL	0.6xL	0.7xL	0.8xL	0.9xL	℄ Brg. Pier	0.1xL	0.2xL	0.3xL	0.4xL	0.5xL	0.6xL	0.7xL	0.8xL	0.9xL	℄ Abut. No. 2
Steel Dead Load	0.00	-0.48	-0.88	-1.15	-1.26	-1.21	-1.02	-0.73	-0.41	-0.13	0.00	-0.13	-0.41	-0.73	-1.02	-1.21	-1.26	-1.15	-0.88	-0.48	0.00
Fluid Dead Load	0.00	-1.23	-2.25	-2.95	-3.24	-3.11	-2.62	-1.87	-1.04	-0.34	0.00	-0.34	-1.04	-1.87	-2.62	-3.11	-3.24	-2.95	-2.25	-1.23	0.00
Superimposed Dead Load	0.00	-0.42	-0.78	-1.03	-1.13	-1.09	-0.93	-0.67	-0.38	-0.13	0.00	-0.12	-0.37	-0.65	-0.91	-1.09	-1.13	-1.03	-0.79	-0.43	0.00

TABLE OF DEFLECTIONS ~ GIRDER 4 (Inches)

	℄ Abut. No. 1	0.1xL	0.2xL	0.3xL	0.4xL	0.5xL	0.6xL	0.7xL	0.8xL	0.9xL	℄ Brg. Pier	0.1xL	0.2xL	0.3xL	0.4xL	0.5xL	0.6xL	0.7xL	0.8xL	0.9xL	℄ Abut. No. 2
Steel Dead Load	0.00	-0.48	-0.88	-1.15	-1.26	-1.21	-1.02	-0.73	-0.41	-0.13	0.00	-0.13	-0.41	-0.73	-1.02	-1.21	-1.26	-1.15	-0.88	-0.48	0.00
Fluid Dead Load	0.00	-1.22	-2.24	-2.92	-3.21	-3.08	-2.59	-1.84	-1.03	-0.33	0.00	-0.33	-1.03	-1.85	-2.59	-3.08	-3.21	-2.92	-2.24	-1.22	0.00
Superimposed Dead Load	0.00	-0.57	-1.05	-1.38	-1.52	-1.47	-1.25	-0.90	-0.52	-0.18	0.00	-0.17	-0.51	-0.89	-1.24	-1.46	-1.52	-1.38	-1.06	-0.58	0.00

TABLE OF DEFLECTIONS ~ GIRDER 5 (Inches)

	℄ Abut. No. 1	0.1xL	0.2xL	0.3xL	0.4xL	0.5xL	0.6xL	0.7xL	0.8xL	0.9xL	℄ Brg. Pier	0.1xL	0.2xL	0.3xL	0.4xL	0.5xL	0.6xL	0.7xL	0.8xL	0.9xL	℄ Abut. No. 2
Steel Dead Load	0.00	-0.48	-0.88	-1.15	-1.26	-1.21	-1.02	-0.73	-0.41	-0.13	0.00	-0.13	-0.41	-0.73	-1.02	-1.21	-1.26	-1.15	-0.88	-0.48	0.00
Fluid Dead Load	0.00	-1.19	-2.19	-2.86	-3.14	-3.01	-2.53	-1.80	-0.99	-0.32	0.00	-0.32	-1.00	-1.80	-2.53	-3.02	-3.14	-2.86	-2.19	-1.19	0.00
Superimposed Dead Load	0.00	-0.73	-1.34	-1.76	-1.93	-1.86	-1.58	-1.14	-0.65	-0.22	0.00	-0.23	-0.66	-1.16	-1.59	-1.87	-1.94	-1.76	-1.34	-0.73	0.00

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	A. Lathe	
DESIGN-DETAILED	J. Song	07\20
CHECKED-REVIEWED	J. McCabe	07\20
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

GIRDER ELEVATION

SHEET NUMBER

54

OF 69

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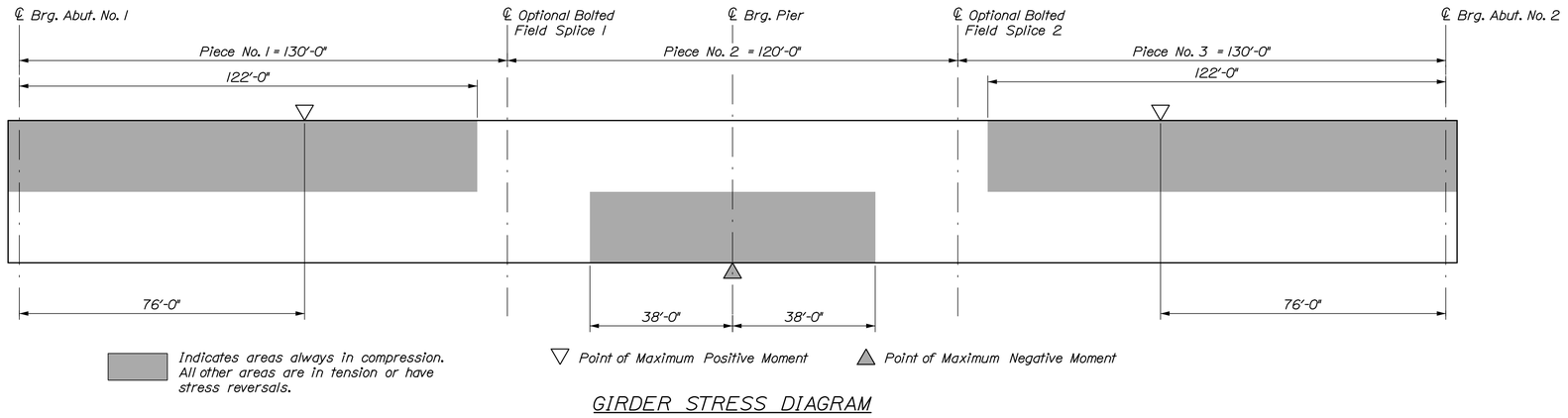

GIRDER STRESS DIAGRAM

GIRDER	BOTTOM OF SLAB ELEVATIONS																			
	℄ Brg. Abut. 1	0.05 x L	0.10 x L	0.15 x L	0.20 x L	0.25 x L	0.30 x L	0.35 x L	0.40 x L	0.45 x L	0.50 x L	0.55 x L	0.60 x L	0.65 x L	0.70 x L	0.75 x L	0.80 x L	0.85 x L	0.90 x L	0.95 x L
G1	483.20	483.15	483.10	483.05	482.97	482.95	482.80	482.80	482.59	482.55	482.34	482.25	482.05	481.87	481.74	481.63	481.42	481.20	481.11	481.05
G2	483.36	483.29	483.26	483.24	483.13	483.14	482.97	482.95	482.76	482.70	482.51	482.44	482.22	482.12	481.90	481.79	481.58	481.38	481.27	481.12
G3	483.52	483.48	483.43	483.42	483.30	483.29	483.14	483.10	482.94	482.88	482.69	482.59	482.39	482.22	482.07	481.95	481.74	481.51	481.42	481.34
G4	483.68	483.66	483.59	483.55	483.48	483.45	483.33	483.29	483.12	483.03	482.87	482.75	482.57	482.43	482.25	482.12	481.91	481.67	481.58	481.51
G5	483.83	483.80	483.76	483.69	483.65	483.60	483.51	483.44	483.31	483.20	483.05	482.90	482.75	482.57	482.42	482.29	482.07	481.87	481.74	481.58

GIRDER	BOTTOM OF SLAB ELEVATIONS																				
	℄ Brg. Pier 1	0.05 x L	0.10 x L	0.15 x L	0.20 x L	0.25 x L	0.30 x L	0.35 x L	0.40 x L	0.45 x L	0.50 x L	0.55 x L	0.60 x L	0.65 x L	0.70 x L	0.75 x L	0.80 x L	0.85 x L	0.90 x L	0.95 x L	℄ Brg. Abut. 2
G1	480.84	480.79	480.63	480.50	480.47	480.35	480.31	480.31	480.15	480.16	479.96	479.96	479.74	479.71	479.47	479.31	479.17	478.87	478.82	478.74	478.46
G2	480.99	480.96	480.79	480.64	480.63	480.50	480.48	480.47	480.32	480.06	480.13	479.88	479.91	479.67	479.64	479.43	479.33	479.14	478.99	478.80	478.62
G3	481.15	481.12	480.95	480.83	480.79	480.75	480.65	480.65	480.49	480.47	480.31	480.23	480.09	479.91	479.82	479.54	479.50	479.14	479.15	479.06	478.77
G4	481.30	481.23	481.11	480.95	480.96	480.85	480.82	480.82	480.67	480.45	480.50	480.31	480.27	480.15	480.00	479.83	479.68	479.37	479.32	479.19	478.93
G5	481.46	481.34	481.27	481.21	481.12	481.11	480.99	481.00	480.85	480.60	480.68	480.42	480.46	480.21	480.18	479.96	479.85	479.64	479.48	479.28	479.08

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

P.E. NUMBER

DATE

SIGNATURE

	BY	DATE
PROJ. MANAGER	A. Lathe	
DESIGN-DETAILED	E. Beausoleil	07\20
CHECKED-REVIEWED	K. Segal	07\20
DESIGN2-DETAILED2	J. Song	
DESIGN3-DETAILED3	J. McCabe	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

GIRDER STRESS DIAGRAM AND B.O. SLAB ELEVATIONS

SHEET NUMBER

55

OF 69

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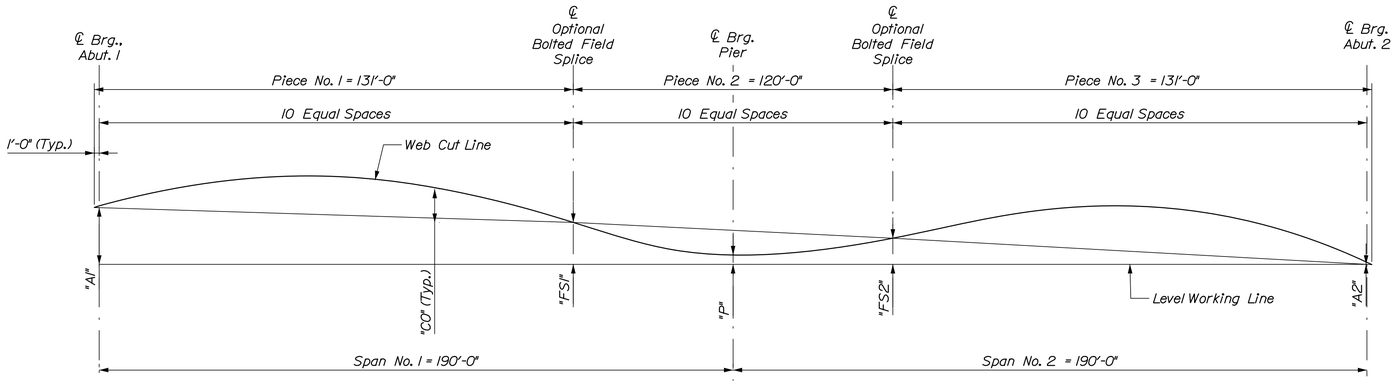


CAMBER DIAGRAM

TABLE OF CAMBER DIMENSIONS (Feet)						
GIRDER	"A1"	"FS1"	"P"	"FS2"	"A2"	GIRDER
G1	4.734	3.391	2.375	1.892	0.000	G1
G2	4.739	3.402	2.375	1.901	0.000	G2
G3	4.743	3.417	2.375	1.915	0.000	G3
G4	4.746	3.434	2.375	1.934	0.000	G4
G5	4.749	3.451	2.375	1.953	0.000	G5

TABLE OF CAMBER ORDINATES "CO" (INCHES)																				
		Piece No. 1										Piece No. 2									
GIRDER	℄ A1	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	"FS1"	0.1 x L	0.2 x L	0.3 x L	0.4 x L	P	0.6 x L	0.7 x L	0.8 x L	0.9 x L	"FS2"	GIRDER
G1	0.00	1.21	2.20	2.86	3.33	3.49	3.35	2.89	2.15	1.16	0.00	-0.84	-1.66	-2.40	-2.95	-3.20	-2.94	-2.40	-1.66	-0.83	0.00	G1
G2	0.00	1.22	2.16	2.91	3.40	3.59	3.45	2.98	2.22	1.20	0.00	-0.87	-1.73	-2.49	-3.06	-3.32	-3.06	-2.49	-1.73	-0.87	0.00	G2
G3	0.00	1.25	2.21	3.01	3.53	3.73	3.59	3.11	2.31	1.25	0.00	-0.91	-1.81	-2.61	-3.21	-3.49	-3.22	-2.62	-1.81	-0.91	0.00	G3
G4	0.00	1.30	2.31	3.16	3.71	3.93	3.78	3.28	2.44	1.32	0.00	-0.96	-1.92	-2.77	-3.41	-3.71	-3.41	-2.77	-1.92	-0.96	0.00	G4
G5	0.00	1.34	2.42	3.32	3.91	4.14	3.99	3.45	2.57	1.39	0.00	-1.02	-2.03	-2.93	-3.61	-3.92	-3.60	-2.93	-2.03	-1.02	0.00	G5

TABLE OF CAMBER ORDINATES "CO" (INCHES)												
		Piece No. 3										
GIRDER	"FS2"	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	℄ A2	GIRDER
G1	0.00	1.14	2.11	2.83	3.26	3.39	3.20	2.71	1.97	1.04	0.00	G1
G2	0.00	1.19	2.19	2.94	3.40	3.52	3.33	2.82	2.05	1.08	0.00	G2
G3	0.00	1.24	2.30	3.09	3.56	3.70	3.49	2.96	2.16	1.14	0.00	G3
G4	0.00	1.32	2.43	3.27	3.77	3.92	3.70	3.14	2.29	1.21	0.00	G4
G5	0.00	1.39	2.57	3.45	3.98	4.13	3.89	3.30	2.40	1.27	0.00	G5

CAMBER NOTES:

1. Camber ordinates, as shown, are computed to compensate for all dead load deflections and for the finished grade profile.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathel	BY	DATE
DESIGN-DETAILED	J. Song	E. Beausoleil	07\20
CHECKED-REVIEWED	I. McCabe	K. Segal	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

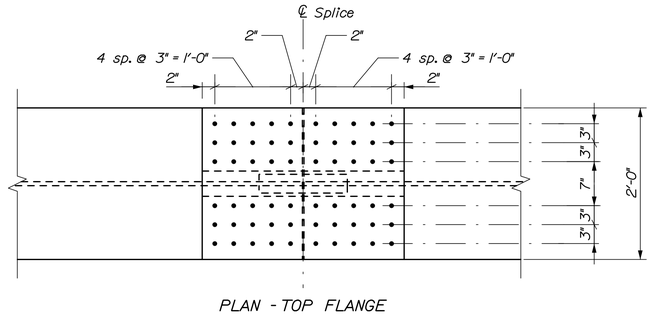
DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

CAMBER DIAGRAM

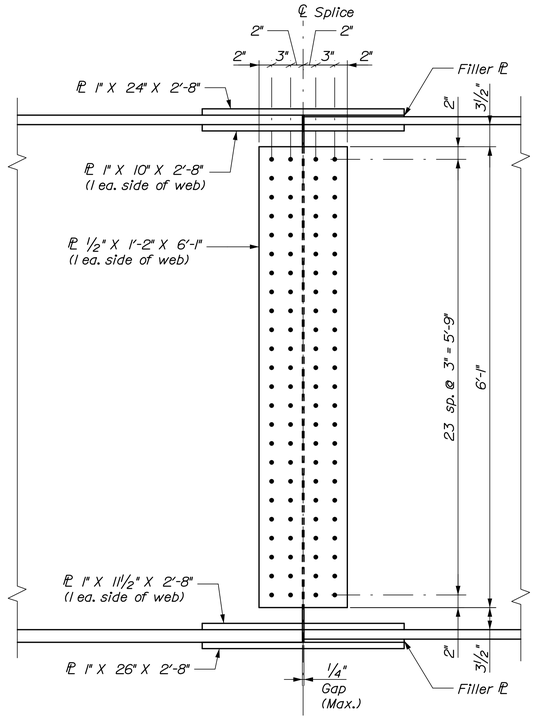
SHEET NUMBER

56

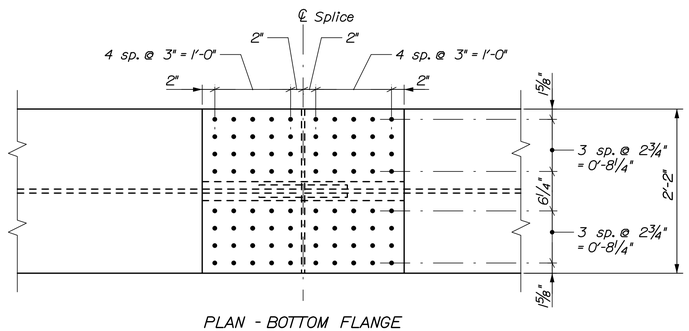
OF 69



PLAN - TOP FLANGE



ELEVATION



PLAN - BOTTOM FLANGE

BOLTED FIELD SPLICE

(Field Splice 2 Shown; Field Splice 1 is Opposite Hand)

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathel	BY	DATE
DESIGN-DETAILED	J. Song	E. Beausoleil	07\20
CHECKED-REVIEWED	I. McCabe	K. Segal	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

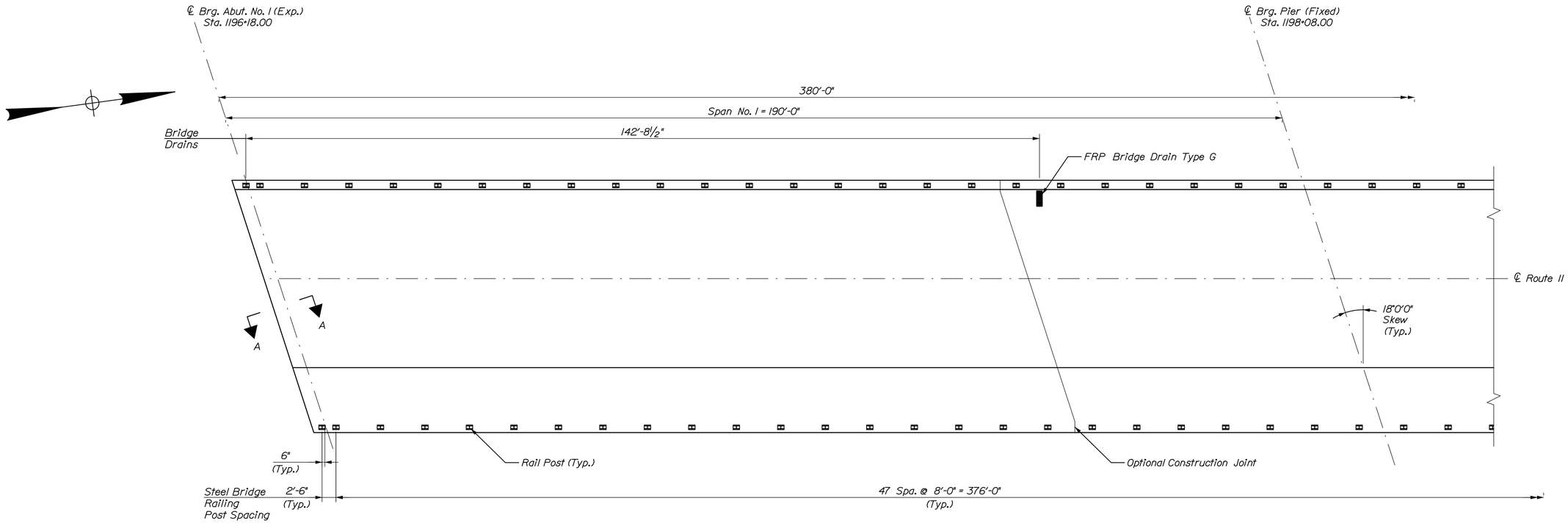
STRUCTURAL STEEL DETAILS

SHEET NUMBER

57

OF 69

Filename: 057_Structural Steel Details.dgn Division: Username: Date:8/3/2020



SUPERSTRUCTURE PLAN

SUPERSTRUCTURE NOTES

1. The theoretical blocking used for design of the structure is 4/4 inches at the centerline of bearing of the abutments and piers. Refer to Standard Detail 502(03) for blocking details.

2. Reinforcement shall have a minimum concrete cover of 2 inches unless otherwise noted.

3. Form a one inch V-groove on the fascias at the horizontal joint between the curb and slab.

4. The superstructure slab concrete shall not be placed in one continuous operation. The initial placement shall begin at an abutment and shall terminate at the designated slab construction joint in the same span. The successive placement shall proceed from the end of the previous placement and shall terminate at the opposite abutment. No additional construction joints will be allowed. Concrete in each placement shall be kept plastic until the entire placement has been completed. A minimum of 5 days shall elapse between successive partial placements. The superstructure slab concrete placement sequence shall be approved by the Resident.

5. The use of precast deck panels will not be allowed on this project.

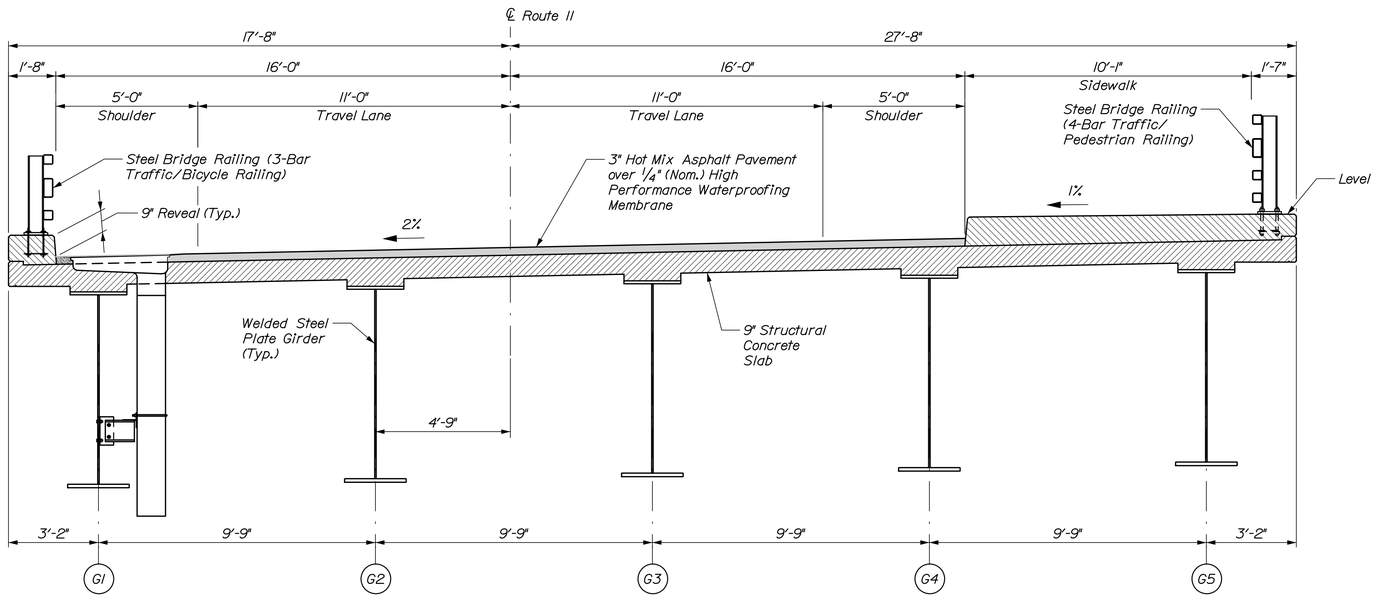
6. Provide 3 additional stirrups in the curbs at each Bridge Rail Post location, as shown in Standard Details Section 507.

7. Bar supports for GFRP reinforcement shall be plastic, dielectric material, or other approved material.

8. Adjust reinforcing to fit around the bridge drains in a manner approved by the Resident. Do not cut transverse reinforcing bars.

9. The seals to be furnished shall have a minimum Movement Rating of:
   Abutment No. 1 = 3 inches
   Abutment No. 2 = 3 inches

10. The 3-Bar Steel Approach Railing shall conform to Standard Details and the first post on the approach shall be located 5'-2" from the first post on the bridge.



TRANSVERSE SECTION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

SIGNATURE

P.E. NUMBER

DATE

		BY	DATE
PROJ. MANAGER	A. Lathel		
DESIGN-DETAILED	J. Song	E. Beausoleil	07\20
CHECKED-REVIEWED	A. Ravindra	K. Segal	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

SUPERSTRUCTURE PLAN
SPAN NO. 1

SHEET NUMBER

58

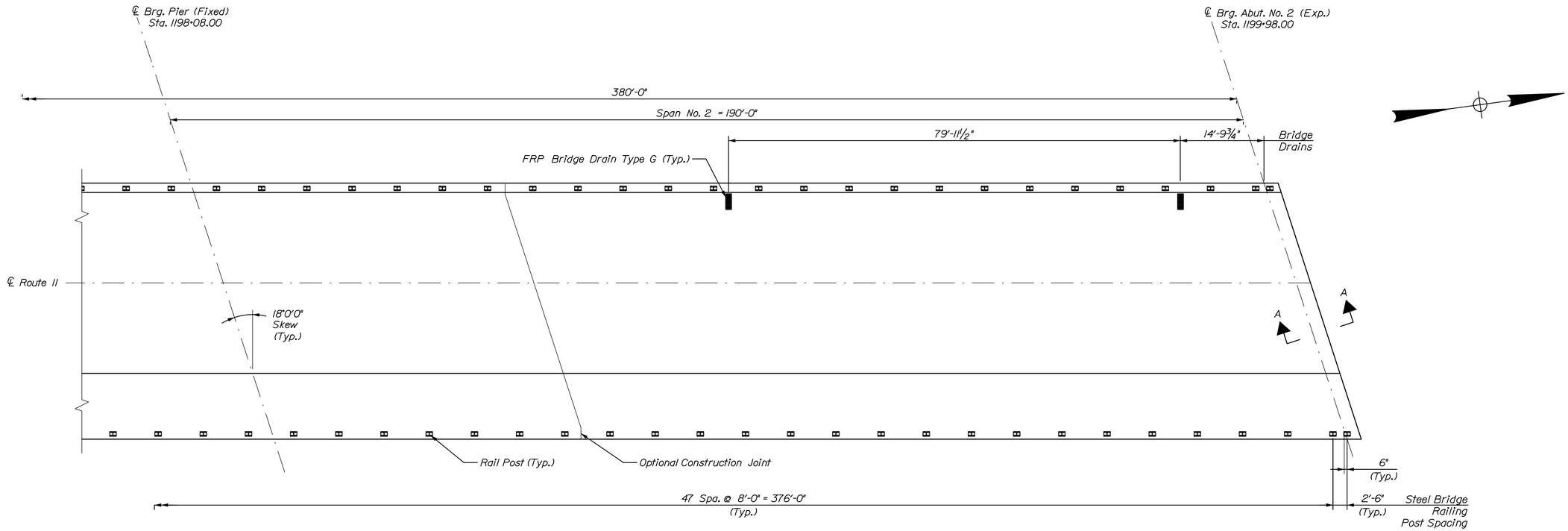
OF 69

Username:

Date:8/10/2020

Division:

Filename: 058_Superstructure Plan Span 1.dgn



SUPERSTRUCTURE PLAN

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	A. Lathel	
DESIGN-DETAILED	J. Song	E. Beausoleil 07\20
CHECKED-REVIEWED	I. McCabe	K. Segal 07\20
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

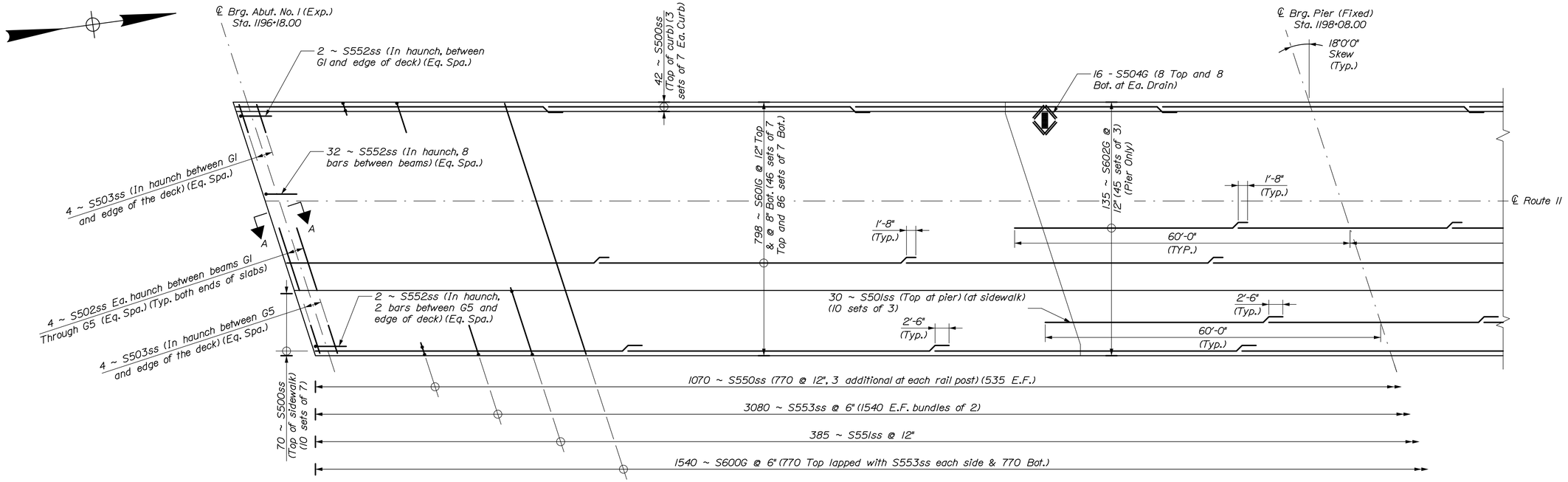
SUPERSTRUCTURE PLAN
SPAN NO. 2

SHEET NUMBER

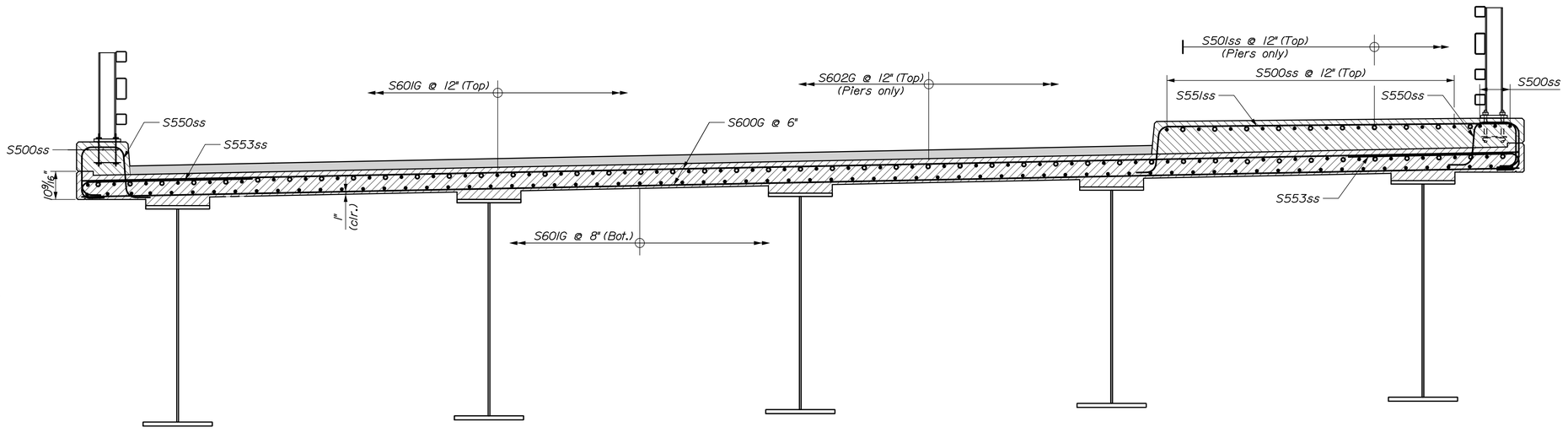
59

OF 69

Filename: 059_Superstructure Plan Span 2.dgn Division: Username: Date:8/10/2020



SUPERSTRUCTURE REINFORCING PLAN



TRANSVERSE REINFORCMENT SECTION

NOTES:

1. For Section A-A, see the "Superstructure Reinforcing II" sheet.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	A. Lathel		
DESIGN-DETAILED	J. Song	E. Beausoleil	07\20
CHECKED-REVIEWED	A. Ravindra	K. Segal	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

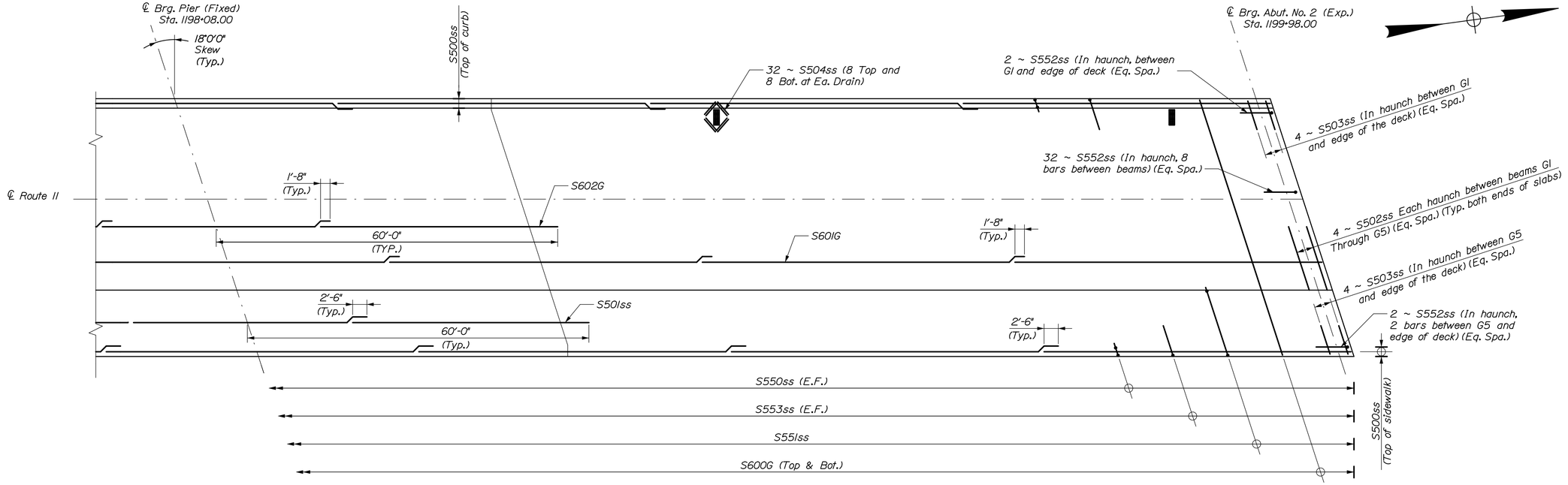
SUPERSTRUCTURE REINFORCING I

SHEET NUMBER

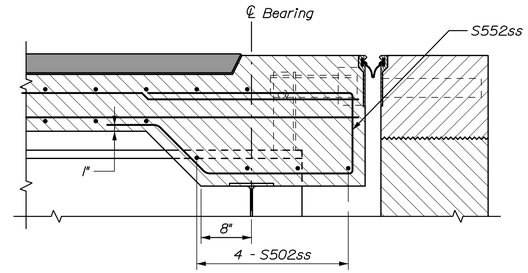
60

OF 69

Filename: 060_Superstructure Reinforcing I.dgn Division: Username: Date:8/3/2020



SUPERSTRUCTURE REINFORCING PLAN



SECTION A-A

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lathel		
DESIGN-DETAILED	J. Song	E. Beausoleil	07\20
CHECKED-REVIEWED	A. Ravindra	K. Segal	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

SUPERSTRUCTURE REINFORCING II

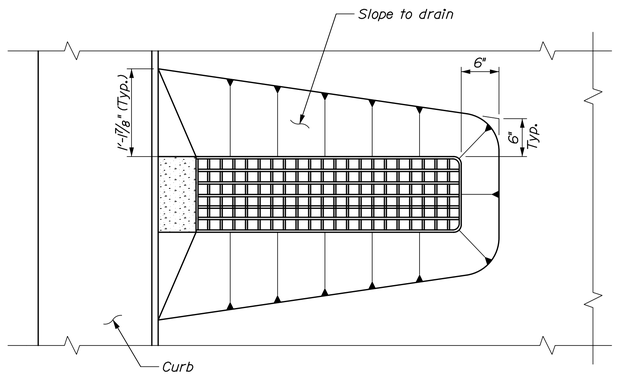
SHEET NUMBER

61

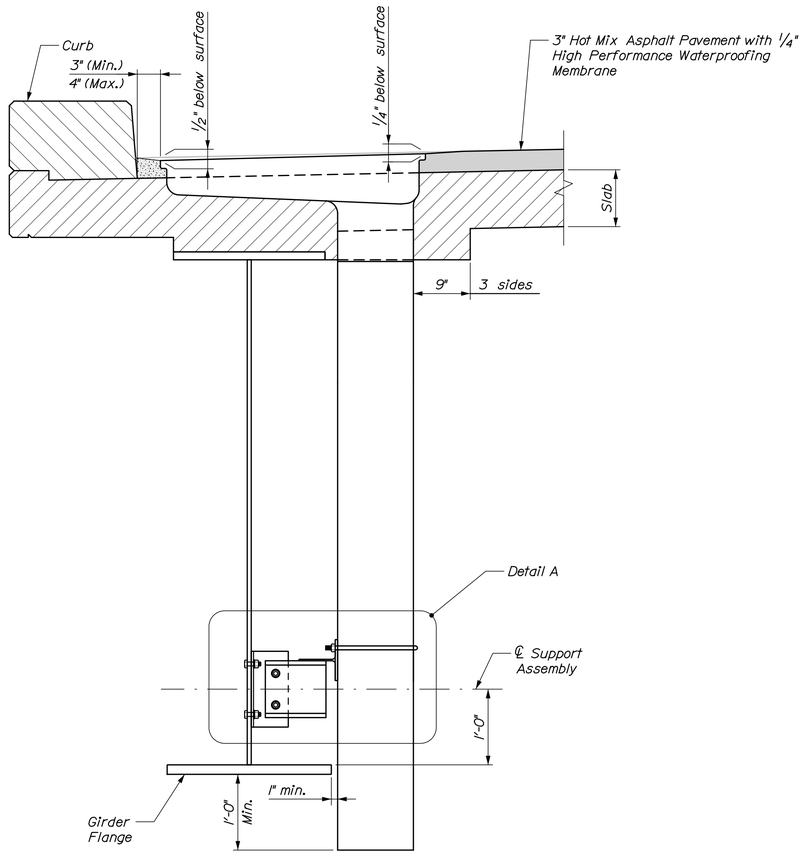
OF 69

HNTB

Filename: 061_Superstructure Reinforcing II.dgn Division: Username: Date:8/3/2020



BRIDGE DRAIN PLAN



BRIDGE DRAIN ELEVATION

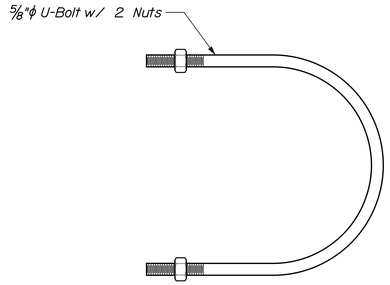
BRIDGE DRAIN NOTES

1. FRP Bridge Drains shall be designed and detailed based on the dimensions for the bridge drain details shown, and in accordance with Special Provision Section 502, Fiber Reinforced Polymer Bridge Drain and Downspout.

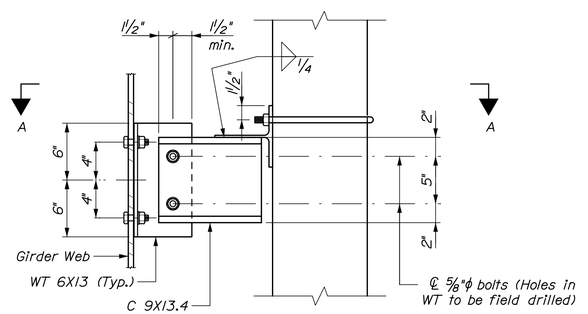
2. Shear connectors welded to the top flange of steel beams may require adjustment to clear the bridge drains. No extra payment will be made for needed adjustment to the connectors.

3. Support Assembly components and hardware shall meet the grade and protective coating requirements identified on Standard Detail 502(24).

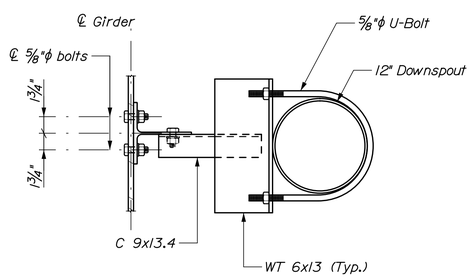
4. For weathering or painted steel superstructures, the WT 6X13 in contact with the steel girder shall be coated with a zinc rich coating system in accordance with Standard Specifications Section 506. Bolts in contact with weathering steel shall be Type 3. Nuts and washers shall be treated in the same manner as their associated bolt.



U-BOLT DETAIL



DETAIL A



SECTION A-A

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

Bridge No. 3666

BRIDGE PLANS

PROJ. MANAGER	A. Lothel		
DESIGN-DETAILED	K. White	E. Beausoleil	07\20
CHECKED-REVIEWED	J. Song	K. Segal	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

BRIDGE DRAIN DETAILS

SHEET NUMBER

62

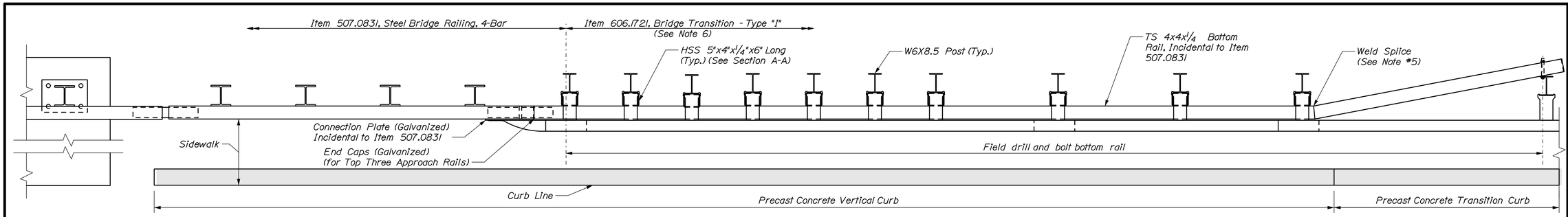
OF 69

Username:

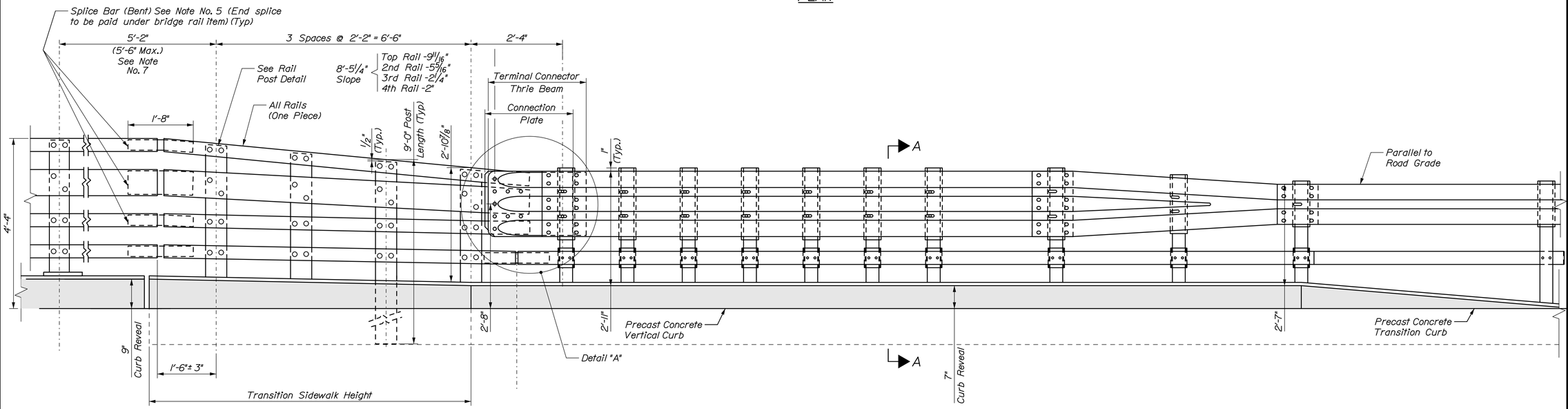
Date:8/3/2020

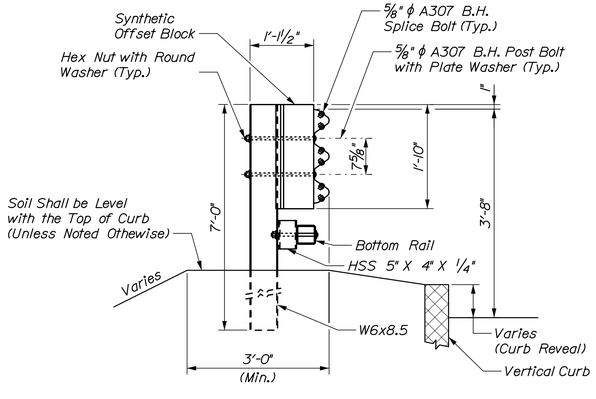
Division:

Filename: 062_Bridge Drain Details.dgn

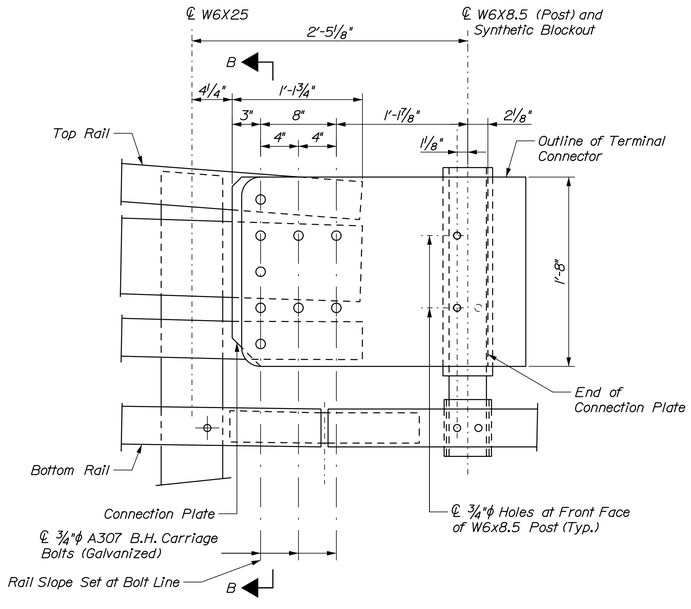


PLAN



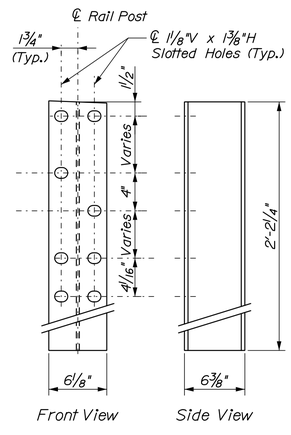


SECTION A-A (POST RAIL ASSEMBLY)



DETAIL A

(Overlapping of Double nested Thrie-Beam not Shown for Clarity)



RAIL POST (W6x25)

NOTES: STEEL BRIDGE RAILING, 4-BAR

1. Refer to Steel Bridge Railing and Steel Approach Railing, 3-Bar Standard Details for additional details, notes and materials specifications. For Section B-B, refer to Standard Detail 507(24).

2. Rail bar welds shall have a minimum penetration of 80% as demonstrated by a test weld performed by the fabricator.

3. The precast concrete vertical or transition curb shall meet the provisions of Section 609 - Curbing of the Standard Specifications. The bridge end of the curb shall be saw-cut in the field to fit flush against the backwall, as dictated by the bridge skew angle and the profile grade. Where curbing is specified on the adjacent highway, the transition shall be modified accordingly.

4. After installation of the guard rail is complete, upset the threads on the anchor bolts in three (3) places around each bolt, at the junction of the nut and the exposed thread, with a center punch or similar tool.

5. Weld splice bar to fit bend. Use complete joint penetration butt weld (B-U2)

6. Standard Bridge Transition may require longer posts to account for higher rail height. No additional payment will be made for this modification.

7. Three foot spacing to first post on bridge is standard. For longer expansion joints, the first post on the bridge may be located up to 5'-6" from the previous post in the approach.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2262701

WIN 023236.01

BRIDGE PLANS

Bridge No. 3666

PROJ. MANAGER	A. Lothel		
DESIGN-DETAILED	K. White	E. Beausoleil	07\20
CHECKED-REVIEWED	J. Song	K. Segal	07\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

STEEL APPROACH RAILING
4-BAR

SHEET NUMBER

63

OF 69

Username: Date:8/10/2020

Filename: 063_Steel Approach Railing 4-Bar.dgn Division:

Filename: 064_Reinforcing Schedule Abutment 1.dgn Division:

Username:

Date:8/3/2020

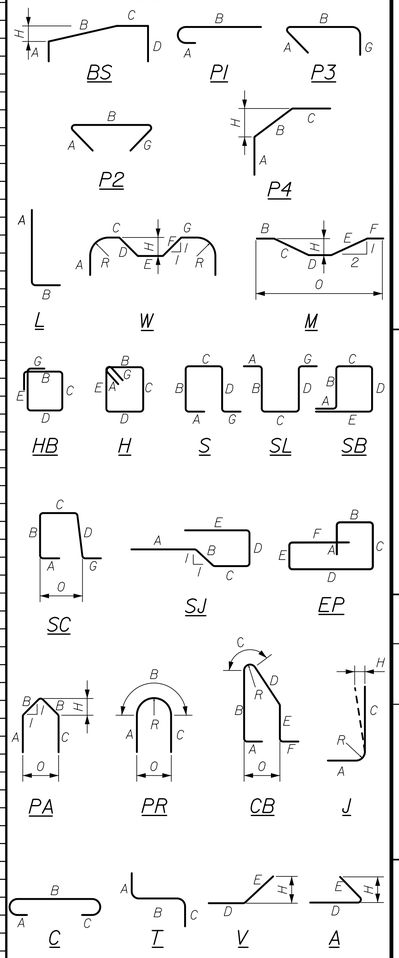
STRAIGHT BARS

MARK	QTY.	LENGTH	LOCATION
			Abutment 1
AF700	61	5'-0"	Dowels - Ftg to Concrete Seal
			FOOTING
AF500	14	24'-4"	Long - East WW (T&B)
AF501	12	18'-5"	Long - East WW (T&B)
AF502	16	25'-0"	Long - Footing (T&B)
AF503	16	26'-1"	Long - Footing (T&B)
AF504	16	23'-0"	Long - Footing (T&B)
AF505	16	24'-3"	Long - Footing (T&B)
AF506	26	30'-2"	Long - West WW (T&B)
AF800	106	14'-6"	Trans - Footing (T&B)
AF801	14	10'-11"	Trans - Footing (T&B) (Flare)
AF802	2	14'-6"	Trans - Footing (T&B) (Flare)
AF803	2	14'-8"	Trans - Footing (T&B) (Flare)
AF804	2	14'-10"	Trans - Footing (T&B) (Flare)
AF805	2	15'-0"	Trans - Footing (T&B) (Flare)
AF806	2	15'-4"	Trans - Footing (T&B) (Flare)
AF807	2	15'-8"	Trans - Footing (T&B) (Flare)
AF808	2	16'-1"	Trans - Footing (T&B) (Flare)
AF900	72	11'-6"	Trans - WW (T&B)
AF901	4	11'-7"	Trans - WW (T&B) (Flare)
AF902	4	11'-9"	Trans - WW (T&B) (Flare)
AF903	2	11'-11"	Trans - East WW (T&B) (Flare)
AF904	2	12'-3"	Trans - East WW (T&B) (Flare)
AF905	2	12'-8"	Trans - East WW (T&B) (Flare)
AF906	2	13'-1"	Trans - East WW (T&B) (Flare)
AF907	2	13'-7"	Trans - East WW (T&B) (Flare)
AF908	2	14'-2"	Trans - East WW (T&B) (Flare)
AF909	2	14'-9"	Trans - East WW (T&B) (Flare)
AF910	2	15'-5"	Trans - East WW (T&B) (Flare)
AF911	22	8'-6"	Trans - East WW (T&B) (Flare)
AF912	2	12'-2"	Trans - West WW (T&B) (Flare)
AF913	2	12'-6"	Trans - West WW (T&B) (Flare)
AF914	2	12'-11"	Trans - West WW (T&B) (Flare)
AF915	2	13'-5"	Trans - West WW (T&B) (Flare)
AF916	2	13'-11"	Trans - West WW (T&B) (Flare)
AF917	18	9'-9"	Trans - West WW (T&B) (Flare)
			STEM
A500	77	9'-3"	Vertical - Stem (NF)
A501	17	26'-9"	Longitudinal - Stem (NF)
A502	35	22'-8"	Longitudinal - Stem (NF & FF)
A503	19	30'-9"	Longitudinal - Stem (FF, T)
A504	1	22'-10"	Longitudinal - Stem (T)
A505	1	27'-6"	Longitudinal - Stem (T)
A506	1	23'-1"	Longitudinal - Stem (T)
A507	1	28'-4"	Longitudinal - Stem (T)
A508	1	23'-4"	Longitudinal - Stem (T)
A509	1	29'-2"	Longitudinal - Stem (T)
A510	1	23'-7"	Longitudinal - Stem (T)
A511	1	30'-0"	Longitudinal - Stem (T)
A512	1	23'-10"	Longitudinal - Stem (T)
A800	72	9'-6"	Vertical - Stem (FF)
			BACKWALL
A513ss	219	5'-6"	Vertical - Backwall (NF & FF)
A514ss	10	24'-1"	Long - Backwall (NF)
A515ss	10	31'-6"	Long - Backwall (NF)
A516ss	10	22'-6"	Long - Backwall (FF)
A517ss	10	30'-2"	Long - Backwall (FF)
A518ss	1	15'-6"	Long - Backwall (Top) (NF)
A519ss	1	14'-3"	Long - Backwall (Top) (FF)
A520ss	1	5'-11"	Long - Backwall (Top) (NF)
A521ss	1	5'-0"	Long - Backwall (Top) (FF)
			EAST WINGWALL STEM
A522	22	15'-5"	Longitudinal - WW Stem
A522ss	14	15'-5"	Longitudinal - WW Stem
A523ss	2	9'-11"	Longitudinal - WW Stem
A524ss	2	6'-2"	Longitudinal - WW Stem
A525ss	2	2'-6"	Longitudinal - WW Stem
A526ss	2	15'-7"	Longitudinal - WW Stem (T)
A802	64	15'-6"	Vertical - WW Stem (NF & FF)
A803ss	32	8'-0"	Vertical - WW Stem (NF & FF)
A804ss	32	6'-0"	Vertical - WW Stem (NF & FF)
			WEST WINGWALL STEM
A527	22	19'-0"	Longitudinal - WW Stem
A527ss	12	19'-0"	Longitudinal - WW Stem
A528ss	2	12'-5"	Longitudinal - WW Stem
A529ss	2	8'-0"	Longitudinal - WW Stem
A530ss	2	3'-8"	Longitudinal - WW Stem
A531ss	2	-1'-9"	Longitudinal - WW Stem
A532ss	2	20'-0"	Longitudinal - WW Stem (T)
A805	78	15'-0"	Vertical - WW Stem (NF & FF)
A806ss	26	8'-0"	Vertical - WW Stem (NF & FF)
A807ss	26	6'-6"	Vertical - WW Stem (NF & FF)
A808ss	26	5'-0"	Vertical - WW Stem (NF & FF)

BENT BARS

MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
							STEM							
AF550	77	6'-7"	L	5'-9"	0'-10"									Stem - Vertical (NF)
A551	101	9'-6"	BS	2'-0"	3'-9"	1'-9"	2'-0"				0'-6 3/4"			Stem - Top Ubar
AF850	72	7'-9"	L	6'-5"	1'-4"									Stem - Vertical (FF)
							BACKWALL							
A551ss	71	6'-10"	L	5'-6"	1'-4"									Backwall - Vertical (FF)
A552ss	26	13'-2"	S	0'-0"	6'-1"	1'-0"	6'-1"			0'-0"				Backwall - Top Ubar
A553ss	45	11'-7"	S	0'-0"	5'-3 1/2"	1'-0"	5'-3 1/2"			0'-0"				Backwall - Top Ubar
A554ss	2	7'-1"	L	6'-1"	1'-0"									Backwall - Top Lbar
A555ss	1	6'-6"	L	5'-6"	1'-0"									Backwall - Top Lbar
A650	22	3'-0"	P4	1'-0"	1'-0"	1'-0"					0'-8 1/2"			Backwall into Approach Slab
							EAST WINGWALL STEM							
A556	144	2'-5 1/2"	P3	0'-5 1/2"	1'-6"					0'-6"				East and West WW Stem - Ties
A557	11	5'-6"	S	0'-0"	2'-0"	1'-6"	2'-0"			0'-0"				Wingwall - Side Ubar
A557ss	7	5'-6"	S	0'-0"	2'-0"	1'-6"	2'-0"			0'-0"				Wingwall - Side Ubar
A558	17	9'-2"	V				7'-0"	2'-2"			2'-0 1/2"			Wingwall Corner (NF)
A559ss	10	4'-11"	V				2'-9"	2'-2"			2'-0 1/2"			Wingwall Corner (NF)
A560	18	4'-4"	V				2'-2"	2'-2"			2'-0 1/2"			Wingwall Corner (FF)
A561ss	10	4'-4"	V				2'-2"	2'-2"			2'-0 1/2"			Wingwall Corner (FF)
A562ss	32	7'-0"	S	0'-0"	2'-9"	1'-6"	2'-9"			0'-0"				Wingwall - Top Ubar
AF852	64	7'-9"	L	6'-5"	1'-4"									Wingwall - Vertical (NF & FF)
							WEST WINGWALL STEM							
A563	11	5'-6"	S	0'-0"	2'-0"	1'-6"	2'-0"			0'-0"				Wingwall - Side Ubar
A563ss	6	5'-6"	S	0'-0"	2'-0"	1'-6"	2'-0"			0'-0"				Wingwall - Side Ubar
A564	17	10'-3"	V				8'-1"	2'-2"		0	1'-5"			Wingwall Corner (NF)
A565ss	10	4'-4"	V				2'-2"	2'-2"		0	1'-5"			Wingwall Corner (NF)
A566	18	4'-4"	V				2'-2"	2'-2"		0	1'-5"			Wingwall Corner (FF)
A567ss	10	4'-4"	V				2'-2"			0				Wingwall Corner (FF)
A568ss	39	7'-0"	S	0'-0"	2'-9"	1'-6"	2'-9"							Wingwall - Top Ubar
AF853	78	7'-9"	L	6'-5"	1'-4"									Wingwall - Vertical (NF & FF)
							ABUTMENT 1 PEDESTAL							
A569ss	20	10'-0"	S	0'-0"	3'-9"	2'-6"	3'-9"			0'-0"				Trans - U-bar
A570ss	15	11'-0"	S	0'-0"	3'-9"	3'-6"	3'-9"			0'-0"				Long - U-bar
A571ss	12	13'-7"	H	0'-5 1/2"	3'-8"	2'-8"	3'-8"	2'-8"		0'-5 1/2"				Ties

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 scheduled 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

2262701

WIN 023236.01

BRIDGE PLANS

Bridge No. 3666

	BY	DATE
PROJ. MANAGER	A. Lothel	
DESIGN-DETAILED	I. McCabe	07\20
CHECKED-REVIEWED	K. White	07\20
DESIGN2-DETAILED2	K. Segal	
DESIGN3-DETAILED3	E. Beausoleil	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

REINFORCING SCHEDULE ABUTMENTS

SHEET NUMBER

64

OF 69

Filename: 065_Reinforcing Schedule Abutment 2.dgn Division:

Username:

Date:8/3/2020

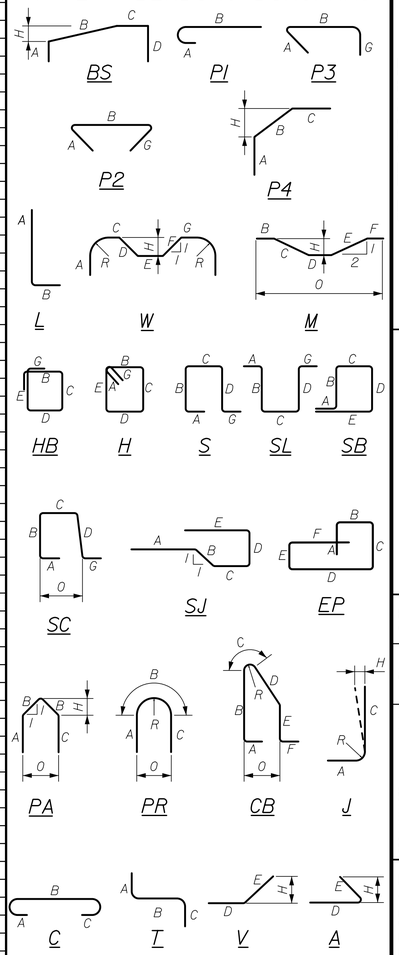
STRAIGHT BARS

MARK	QTY.	LENGTH	LOCATION
			Abutment 2
BF700	58	5'-0"	Dowels - Ftg to Concrete Seal
			FOOTING
BF500	14	26'-3"	Long - West WW Ftg (T&B)
BF501	12	20'-3"	Long - West WW Ftg (T&B)
BF502	16	24'-0"	Long - Footing (T&B)
BF503	16	26'-0"	Long - Footing (T&B)
BF504	16	22'-0"	Long - Footing (T&B)
BF505	16	24'-1"	Long - Footing (T&B)
BF506	26	26'-9"	Long - East WW Ftg (T&B)
BF800	104	14'-6"	Trans - Footing (T&B)
BF801	14	10'-11"	Trans - Footing (T&B) (Flare)
BF802	2	14'-6"	Trans - Footing (T&B) (Flare)
BF803	2	14'-8"	Trans - Footing (T&B) (Flare)
BF804	2	14'-10"	Trans - Footing (T&B) (Flare)
BF805	2	15'-0"	Trans - Footing (T&B) (Flare)
BF806	2	15'-4"	Trans - Footing (T&B) (Flare)
BF807	2	15'-8"	Trans - Footing (T&B) (Flare)
BF808	2	16'-1"	Trans - Footing (T&B) (Flare)
BF900	70	11'-6"	Trans - WW (T&B)
BF901	4	11'-7"	Trans - WW (T&B) (Flare)
BF902	4	11'-9"	Trans - WW (T&B) (Flare)
BF903	2	11'-11"	Trans - West WW (T&B) (Flare)
BF904	2	12'-3"	Trans - West WW (T&B) (Flare)
BF905	2	12'-8"	Trans - West WW (T&B) (Flare)
BF906	2	13'-1"	Trans - West WW (T&B) (Flare)
BF907	2	13'-7"	Trans - West WW (T&B) (Flare)
BF908	2	14'-2"	Trans - West WW (T&B) (Flare)
BF909	2	14'-9"	Trans - West WW (T&B) (Flare)
BF910	2	15'-5"	Trans - West WW (T&B) (Flare)
BF911	22	8'-6"	Trans - West WW (T&B) (Flare)
BF912	2	12'-2"	Trans - East WW (T&B) (Flare)
BF913	2	12'-6"	Trans - East WW (T&B) (Flare)
BF914	2	12'-11"	Trans - East WW (T&B) (Flare)
BF915	2	13'-5"	Trans - East WW (T&B) (Flare)
BF916	2	13'-11"	Trans - East WW (T&B) (Flare)
BF917	18	9'-9"	Trans - East WW (T&B) (Flare)
			STEM
B500	76	8'-0"	Vertical - Stem (NF)
B501	15	21'-8"	Longitudinal - Stem (NF)
B502	31	26'-8"	Longitudinal - Stem (NF & FF)
B503	17	25'-8"	Longitudinal - Stem (FF, T)
B504	1	26'-10"	Longitudinal - Stem (T)
B505	1	22'-6"	Longitudinal - Stem (T)
B506	1	27'-1"	Longitudinal - Stem (T)
B507	1	23'-4"	Longitudinal - Stem (T)
B508	1	27'-4"	Longitudinal - Stem (T)
B509	1	24'-2"	Longitudinal - Stem (T)
B510	1	27'-7"	Longitudinal - Stem (T)
B511	1	24'-11"	Longitudinal - Stem (T)
B512	1	27'-10"	Longitudinal - Stem (T)
B800	71	8'-3"	Vertical - Stem (FF)
			BACKWALL
B513ss	216	5'-6"	Vertical - Backwall (NF & FF)
B514ss	11	28'-1"	Long - Backwall (NF)
B515ss	11	26'-5"	Long - Backwall (NF)
B516ss	11	26'-6"	Long - Backwall (FF)
B517ss	11	25'-1"	Long - Backwall (FF)
B518ss	1	5'-0"	Long - Backwall (Top) (NF)
B519ss	1	3'-9"	Long - Backwall (Top) (FF)
B520ss	1	15'-4"	Long - Backwall (Top) (NF)
B521ss	1	14'-6"	Long - Backwall (Top) (FF)
			WEST WINGWALL STEM
B522	18	17'-6"	Longitudinal - WW Stem
B522ss	12	17'-6"	Longitudinal - WW Stem
B523ss	2	13'-9"	Longitudinal - WW Stem
B524ss	2	10'-1"	Longitudinal - WW Stem
B525ss	2	6'-5"	Longitudinal - WW Stem
B526ss	2	2'-8"	Longitudinal - WW Stem
B527ss	2	17'-9"	Longitudinal - WW Stem (T)
B802	70	14'-0"	Vertical - WW Stem (NF & FF)
B803ss	24	7'-10"	Vertical - WW Stem (NF & FF)
B804ss	24	6'-4"	Vertical - WW Stem (NF & FF)
B805ss	22	4'-9"	Vertical - WW Stem (NF & FF)
			EAST WINGWALL STEM
B528	18	15'-9"	Longitudinal - WW Stem
B528ss	14	15'-9"	Longitudinal - WW Stem
B529ss	2	13'-7"	Longitudinal - WW Stem
B530ss	2	9'-3"	Longitudinal - WW Stem
B531ss	2	4'-11"	Longitudinal - WW Stem
B532ss	2	16'-8"	Longitudinal - WW Stem (T)
B806	64	13'-6"	Vertical - WW Stem (NF & FF)
B807ss	22	8'-9"	Vertical - WW Stem (NF & FF)
B808ss	22	7'-6"	Vertical - WW Stem (NF & FF)
B809ss	20	6'-3"	Vertical - WW Stem (NF & FF)

BENT BARS

MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
								STEM						
BF550	76	6'-7"	L	5'-9"	0'-10"									Stem - Vertical (NF)
B551	99	9'-6"	BS	2'-0"	3'-9"	1'-9"	2'-0"				0'-6 3/4"			Stem - Top Ubar
BF850	71	7'-9"	L	6'-5"	1'-4"									Stem - Vertical (FF)
								BACKWALL						
B551ss	70	6'-10"	L	5'-6"	1'-4"									Backwall - Vertical (FF)
B552ss	25	13'-1"	S	0'-0"	6'-0 1/2"	1'-0"	6'-0 1/2"			0'-0"				Backwall - Top Ubar
B553ss	45	11'-7"	S	0'-0"	5'-3 1/2"	1'-0"	5'-3 1/2"			0'-0"				Backwall - Top Ubar
B554ss	2	6'-6"	L	5'-6"	1'-0"									Backwall - Top Lbar
B555ss	1	7'-1"	L	6'-1"	1'-0"									Backwall - Top Lbar
B650	22	3'-0"	P4	1'-0"	1'-0"	1'-0"					0'-8 1/2"			Backwall into Approach Slab
								WEST WINGWALL STEM						
B556	138	2'-5 1/2"	P3	0'-5 1/2"	1'-6"					0'-6"				East and West WW Stem - Ties
B557	9	5'-6"	S	0'-0"	2'-0"	1'-6"	2'-0"			0'-0"				Wingwall - Side Ubar
B557ss	6	5'-6"	S	0'-0"	2'-0"	1'-6"	2'-0"			0'-0"				Wingwall - Side Ubar
B558	15	9'-2"	V				7'-0"	2'-2"			2'-0 1/2"			Wingwall Corner (NF)
B559ss	11	4'-11"	V				2'-9"	2'-2"			2'-0 1/2"			Wingwall Corner (NF)
B560	16	4'-4"	V				2'-2"	2'-2"			2'-0 1/2"			Wingwall Corner (FF)
B561ss	11	4'-4"	V				2'-2"	2'-2"			2'-0 1/2"			Wingwall Corner (FF)
B562ss	35	7'-0"	S	0'-0"	2'-9"	1'-6"	2'-9"			0'-0"				Wingwall - Top Ubar
BF852	70	7'-9"	L	6'-5"	1'-4"									Wingwall - Vertical (NF & FF)
								EAST WINGWALL STEM						
B563	9	5'-6"	S	0'-0"	2'-0"	1'-6"	2'-0"			0'-0"				Wingwall - Side Ubar
B563ss	7	5'-6"	S	0'-0"	2'-0"	1'-6"	2'-0"			0'-0"				Wingwall - Side Ubar
B564	15	10'-3"	V				8'-1"	2'-2"			1'-5"			Wingwall Corner (NF)
B565ss	11	4'-4"	V				2'-2"	2'-2"			1'-5"			Wingwall Corner (NF)
B566	16	4'-4"	V				2'-2"	2'-2"			1'-5"			Wingwall Corner (FF)
B567ss	11	4'-4"	V				2'-2"							Wingwall Corner (FF)
B568ss	32	7'-0"	S	0'-0"	2'-9"	1'-6"	2'-9"							Wingwall - Top Ubar
BF853	64	7'-9"	L	6'-5"	1'-4"									Wingwall - Vertical (NF & FF)
								ABUTMENT 2 PEDESTAL						
B569ss	20	10'-0"	S	0'-0"	3'-9"	2'-6"	3'-9"			0'-0"				Trans - U-bar
B570ss	15	11'-0"	S	0'-0"	3'-9"	3'-6"	3'-9"			0'-0"				Long - U-bar
B571ss	12	13'-7"	H	0'-5 1/2"	3'-8"	2'-8"	3'-8"	2'-8"		0'-5 1/2"				Ties

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 scheduled 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

2262701

WIN 023236.01

BRIDGE PLANS

Bridge No. 3666

	BY	DATE
PROJ. MANAGER	A. Lothel	
DESIGN-DETAILED	L. McCabe	07\20
CHECKED-REVIEWED	K. White	07\20
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

REINFORCING SCHEDULE ABUTMENTS

SHEET NUMBER

65

OF 69

Filename: 066_Reinforcing Schedule Piers.dgn Division: Username: Date:8/3/2020

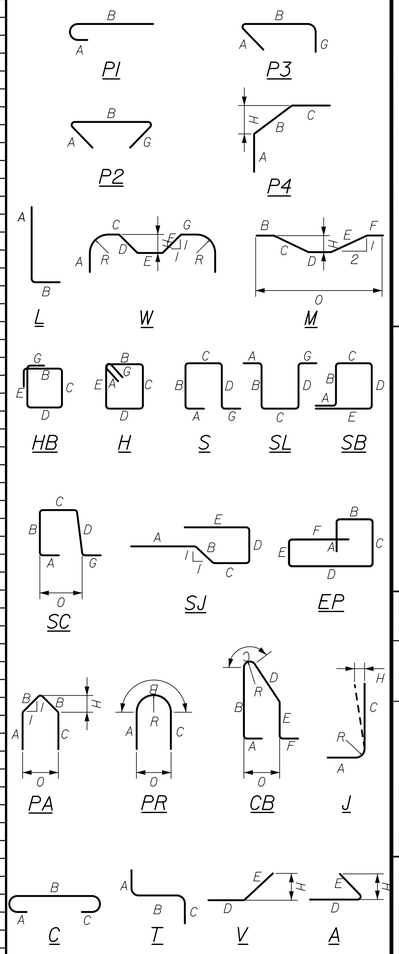
STRAIGHT BARS

MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	LOCATION
P500	38	26'-0"	Longitudinal - Pier Shaft				
P501	38	23'-0"	Longitudinal - Pier Shaft				
P502	20	28'-0"	Longitudinal - Footing (Top and Bottom)				
P503	20	30'-0"	Longitudinal - Footing (Top and Bottom)				
P504	87	9'-6"	Transverse - Footing (Top)				
P505	4	30'-0"	Longitudinal - Footing (EF)				
P506	4	28'-0"	Longitudinal - Footing (EF)				
P700	30	5'-0"	Vertical - Footing and Seal				
P800	157	11'-8"	Vertical - Pier Shaft				
P801	83	9'-6"	Transverse - Footing (Bottom)				
P802	4	7'-5"	Vertical - Pier Shaft				

BENT BARS

MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
P550	166	4'-2"	S	0'-0"	0'-10"	2'-6"	0'-10"			0'-0"				Footing - EF
P551	20	4'-2"	S	0'-0"	0'-10"	2'-6"	0'-10"			0'-0"				Footing - EF
P552	68	7'-6"	S	0'-0"	2'-0"	3'-6"	2'-0"			0'-0"				Pier
P553	1	6'-8"	S	0'-0"	2'-0"	2'-8"	2'-0"			0'-0"				Pier - Nose
P554	1	5'-4"	S	0'-0"	2'-0"	1'-4"	2'-0"			0'-0"				Pier - Nose
P555	2	12'-7"	L	11'-9"	0'-10"									Pier - Nose (Step)
P556	2	11'-10"	L	11'-0"	0'-10"									Pier - Nose (Step)
P557	2	11'-3"	L	10'-5"	0'-10"									Pier - Nose (Step)
P558	18	12'-10"	L	12'-0"	0'-10"									Pier (Step)
P559	6	9'-0 1/2"	S	0'-0"	0'-10"	7'-4 1/2"	0'-10"			0'-0"				Pier (Step)
P560	7	17'-9"	PA	6'-5"	2'-5 1/2"	6'-5"					1'-9"	3'-6"		Pier - Nose
P561	6	15'-9"	PA	5'-5"	2'-5 1/2"	5'-5"					1'-9"	3'-6"		Pier - Nose
P562	6	13'-7"	PA	4'-4"	2'-5 1/2"	4'-4"					1'-9"	3'-6"		Pier - Nose
P563	7	10'-10"	S	0'-0"	3'-8"	3'-6"	3'-8"			0'-0"				Pier - Downstream Edge
P564	6	10'-2"	S	0'-0"	3'-4"	3'-6"	3'-4"			0'-0"				Pier - Downstream Edge
P565	6	9'-6"	S	0'-0"	3'-0"	3'-6"	3'-0"			0'-0"				Pier - Downstream Edge
P850	161	9'-4"	L	8'-0"	1'-4"									Vertical - Pier Shaft

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
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   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

2262701

WIN 023236.01

BRIDGE PLANS

Bridge No. 3666

PROJ. MANAGER	A. Lothel			SIGNATURE		
DESIGN-DETAILED	A. Ravindra	E. Beausoleil	07\20	P.E. NUMBER		
CHECKED-REVIEWED	K. White	K. Segal	07\20			
DESIGN2-DETAILED2				DATE		
DESIGN3-DETAILED3						
REVISIONS 1						
REVISIONS 2						
REVISIONS 3						
REVISIONS 4						
FIELD CHANGES						

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

REINFORCING SCHEDULE PIERS

SHEET NUMBER

66

OF 69

Filename: 067_Reinforcing Schedule Superstructure.dgn Division: Username: Date:8/3/2020

STRAIGHT BARS

MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	LOCATION
SUPERSTRUCTURE DECK							
S500ss	112	57'-6"	Longitudinal - Curb and Sidewalk				
S501ss	30	42'-6"	Longitudinal - Sidewalk (Over Pier Only)				
S502ss	32	7'-10"	Transverse - End Haunch				
S503ss	16	1'-11"	Transverse - End Haunch				
S504G	48	3'-0"	Scuppers				
S600G	1540	40'-8"	Transverse - Deck				
S601G	798	56'-8"	Longitudinal - Deck				
S602G	135	41'-8"	Longitudinal - Deck (Over Pier Only)				
APPROACH SLAB							
AS501	32	16'-0"	Top Mat				
AS502	32	18'-0"	Top Mat				
AS601	130	15'-2"	Bottom Mat				

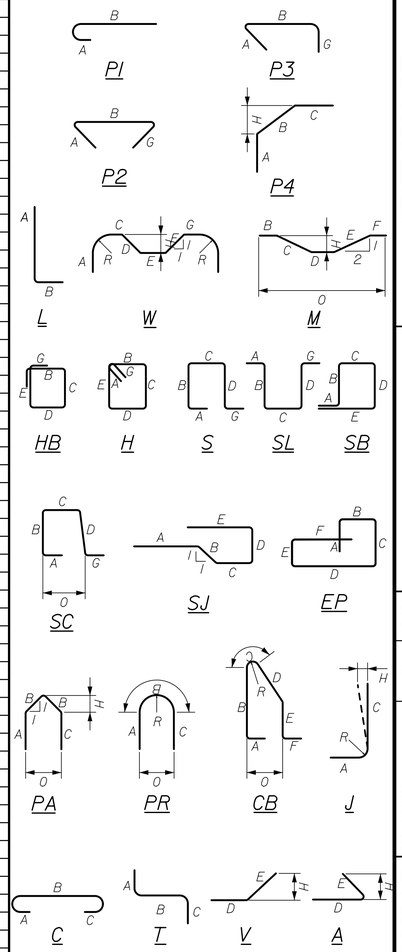
BENT BARS

MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
SUPERSTRUCTURE DECK														
S550ss	1070	5'-7 3/4"	SC	0'-10"	1'-4"	1'-3 3/4"	1'-4"			0'-10"		1'-5 1/2"		Curb and Posts
S551ss	385	16'-2"	SC	0'-10"	1'-4"	11'-10"	1'-4"			0'-10"		11'-11 3/4"		Sidewalk
S552ss	72	8'-0"	SJ	0'-10"	0'-9 3/8"	2'-0"	1'-0 5/8"	3'-4"						End Haunch
S553ss	3080	8'-0"	PI	0'-8"	7'-4"									Deck Overhang

MARK | QTY. | LENGTH | LOCATION | 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

2262701

WIN 023236.01

BRIDGE PLANS

Bridge No. 3666

PROJ. MANAGER	A. Lathel	SIGNATURE	
DESIGN-DETAILED	J. Song	P.E. NUMBER	
CHECKED-REVIEWED	K. White	DATE	
DESIGN2-DETAILED2	E. Beausoleil	07\20	
DESIGN3-DETAILED3	K. Segal	07\20	
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

DETECTIVE BENJAMIN CAMPBELL BRIDGE
WEST BRANCH PENOBSCOT RIVER
T3 INDIAN PUR. TWP PENOBSCOT COUNTY

REINFORCING SCHEDULE SUPERSTRUCTURE

SHEET NUMBER

67

OF 69

Filename: ...\00\ROW\MSTA\001_RWPLAN1.dgn Division: ROW Username: Terri.L.Blair Date:8/3/2020

PLAN LEGEND

Town, County, State	New R/W Along Existing R/W	Sanitary Sewer	Traveled Way
Approx. Property Lines — P.L.	Building	Telephone Line	Ditch
Existing Right of Way	Trees Conifer / Deciduous	Electric Line	Catch Basin
Limits of Wrought Portion — L.O.W.P.	Tree Line / Bush Line	Water Line	Manhole
Control Of Access — C.O.A.	Water Edge	Underdrain Line	Sewer Manhole
New Right of Way	Ledge / Rock/Boulder / Flag Pole	Gas Line	Utility Pole
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	Clearing Limit Line	Existing / Proposed	Existing / Proposed

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

ROUTE 11
CURVE DATA #2
PI = 1191+75.06
D = 1°25'56.6"
Δ = 2°28'45.0" Lt.
R = 4000.00'
L = 173.08'
T = 86.55'
E = 0.94'

ROUTE 11
CURVE DATA #3
PI = 1194+02.58
D = 4°46'28.7"
Δ = 13°24'07.9" Lt.
R = 1200.00'
L = 280.70'
T = 140.99'
E = 8.25'

GREAT LAKES HYDRO AMERICA, LLC
KATAHDIN FOREST MANAGEMENT LLC (TIMBER RIGHTS)
ITEM NO. (3)
TEMP. CONST. RIGHTS = 1540± S.F.(1)
TOTAL AREA = VAST HOLDINGS

KATAHDIN FOREST MANAGEMENT LLC
ITEM NO. (1)
TEMP. CONST. RIGHTS = 155± S.F.(1)
TOTAL AREA = VAST HOLDINGS

KATAHDIN FOREST MANAGEMENT LLC
ITEM NO. (2)
TEMP. ROAD RIGHTS = 0.19± AC.(1)
TOTAL AREA = VAST HOLDINGS

GREAT LAKES HYDRO AMERICA, LLC
KATAHDIN FOREST MANAGEMENT LLC (TIMBER RIGHTS)
ITEM NO. (4)
SLOPE EASE. = 510± S.F. (1)
TEMP. ROAD RIGHTS = 0.38± AC. (1)
TOTAL AREA = VAST HOLDINGS

EXISTING R/W REFERENCES

S.H.C. FILE NO. 10-42
S.H.C. FILE NO. 10-73
S.H.C. FILE NO. 10-94

GREAT LAKES HYDRO AMERICA, LLC PARCELS SUBJECT TO PENOBSCOT MILLS PROJECT, FERC LICENSE PROJECT NO. 2458

PROJECT CONSTRUCTED UNDER WIN 023236.01

BRIDGE NO. 3666 WIN 023236.00

TO NORTH TWIN LAKE
GRID ZONE
TO BROWNVILLE
TO QUAKISH LAKE
FLOW
WEST BRANCH PENOBSCOT RIVER
RECREATIONAL BRIDGE
BOAT RAMP
NORTH TWIN HYDRO STATION
GATE POST
BRIDGE POSTS
DIR ONLY
CABLE ANCHORED IN GROUND
GRAVEL
12" PINE
5" BIRCH
4" BIRCH CLUMP
PCC = STA. 1192+61.58
PT = STA. 1195+42.28
APPROXIMATE F.E.R.C. PROJECT BOUNDARY (200 FEET FROM SHORELINE) (RUNS ALONG P.L.)
P.L.
TEMP. CONST. 155± S.F.
TEMP. CONST. 1540± S.F.
CLL
LIMITS
ROUTE 11 / POPLAR STREET / STATE HIGHWAY "289"
BEGIN B.L.
1192+00
1193+00
1194+00
1195+00
1196+00
1197+00
1198+00
242.28'
591.61'
N 7°45'27.3" E
10' WIDE, HYDROELECTRIC EASEMENT
510± S.F. SLOPE EASE.
0.19± AC.
0.38± AC.
ROAD
TEMP.

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

ITEM	TECH	CHECKED
EXISTING CONDITION PLAN	T.L.B.	D.S.G.
FINAL RIGHT OF WAY	T.L.B.	
AREAS		

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016 - 207-624-3460
PENOBSCOT COUNTY
RIGHT OF WAY MAP

STATE HIGHWAY "289"
ROUTE 11 / POPLAR STREET
TOWNSHIP 3 INDIAN PURCHASE PENOBSCOT COUNTY
STATE PROJECT NO. 23236.00

MAY 2020	RIGHT-OF-WAY MAP	D.O.T. FILE NO. 10-520
SCALE 1" = 25'	SHEET 1 OF 2	

SHEET NUMBER
68
OF 69

PLAN LEGEND

Town, County, State	New R/W Along Existing R/W	Sanitary Sewer	Traveled Way
Approx. Property Lines P.L.	Building / Clearing Limit Line	Telephone Line	Ditch
Existing Right of Way	Trees Conifer / Deciduous	Electric Line	Catch Basin
Limits of Wrought Portion L.O.W.P.	Tree Line / Bush Line	Water Line	Manhole
Control Of Access C.O.A.	Water Edge	Underdrain Line	Sewer Manhole
New Right of Way	Ledge / Rock/Boulder / Flag Pole	Gas Line	Utility Pole
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			

Existing / Proposed

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

TO NORTH TWIN LAKE

GRID ZONE

BANGOR & AROOSTOOK RAILORAD

CAUTION SIGNS

BOAT RAMP

12" PINE

5" BIRCH CLUMP

WEST BRANCH PENOBSCOT RIVER

P.L.

BRIDGE POST

RECREATIONAL BRIDGE

CABLE FOR BRIDGE

2" BEECH CLUMP

4" MAPLE CLUMP

10" PINE TWIN

14" PINE

8" CEDAR

6" CEDAR TWIN

CABLE ROUTE

GREAT LAKES HYDRO AMERICA, LLC
KATAHDIN FOREST MANAGEMENT LLC (TIMBER RIGHTS)
ITEM NO. (5)
TEMP. CONST. RIGHTS = 0.09± AC. (1)
TOTAL AREA = VAST HOLDINGS

APPROXIMATE F.E.R.C. PROJECT BOUNDARY (200 FEET FROM SHORELINE) (RUNS ALONG P.L.)

PC = STA. 1201+33.89

KATAHDIN FOREST MANAGEMENT LLC
ITEM NO. (7)
TEMP. CONST. RIGHTS = 1175± S.F. (2)
TOTAL AREA = VAST HOLDINGS

CLL CONST. TEMP. 0.09± AC. 85± S.F. LIMITS

1198+00 1199+00 1200+00 1201+00 1202+00 1203+00 1204+00

591.61' N 7°45'27.3" E 316.11'

ROUTE 11 / POPLAR STREET / STATE HIGHWAY "289"

1090± S.F.

TO MILLINOCKET

END B.L.

185± S.F. SLOPE LIMIT LINE

10' WIDE HYDROELECTRIC EASEMENT

ATV TRAIL

1645± S.F. LIMITS

RECREATIONAL TRAIL AND RELATED DRAINAGE TO BE MAINTAINED BY OTHERS

RECREATIONAL VEHICLE TRAIL

485± S.F. LIMITS

0.29± AC. TEMP. ROAD LIMITS

0.07± AC.

FLOW

WEST BRANCH PENOBSCOT RIVER

TO QUAKISH LAKE

GREAT LAKES HYDRO AMERICA, LLC
KATAHDIN FOREST MANAGEMENT LLC (TIMBER RIGHTS)
ITEM NO. (6)
SLOPE EASE. = 185± S.F.(1)
TEMP. ROAD RIGHTS = 0.29± AC. (1)
TEMP. CONST. RIGHTS - 0.07± AC. (1)
TOTAL AREA = VAST HOLDINGS

APPROXIMATE F.E.R.C. PROJECT BOUNDARY (200 FEET FROM SHORELINE) (RUNS ALONG P.L.)

KATAHDIN FOREST MANAGEMENT LLC
ITEM NO. (8)
TEMP. ROAD RIGHTS = 1645± S.F. (1)
TEMP. CONST. RIGHTS = 485± S.F. (1)
TOTAL AREA = VAST HOLDINGS

ROUTE 11
CURVE DATA #4
PI = 1204+32.82
D = 5°12'31.3"
Δ = 30°24'24.3" Rt.
R = 1100.00'
L = 583.77'
T = 298.93'
E = 39.90'

EXISTING R/W REFERENCES

S.H.C. FILE NO. 10-42
S.H.C. FILE NO. 10-73
S.H.C. FILE NO. 10-94

GREAT LAKES HYDRO AMERICA, LLC PARCELS SUBJECT TO PENOBSCOT MILLS PROJECT, FERC LICENSE PROJECT NO. 2458

PROJECT CONSTRUCTED UNDER WIN 023236.01

DETECTIVE BENJAMIN CAMPBELL BRIDGE
OVER
WEST BRANCH PENOBSCOT RIVER

BRIDGE NO. 3666 WIN 023236.00

ITEM	TECH	CHECKED
EXISTING CONDITION PLAN		
FINAL RIGHT OF WAY	T.L.B.	D.S.G.
AREAS	T.L.B.	

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016 - 207-624-3460
PENOBSCOT COUNTY
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 "289"
ROUTE 11 / POPLAR STREET
TOWNSHIP 3 INDIAN PURCHASE PENOBSCOT COUNTY
STATE PROJECT NO. 23236.00

MAY 2020 | RIGHT-OF-WAY MAP | D.O.T. FILE NO. 10-520
SCALE 1" = 25' | SHEET 2 OF 2

SHEET NUMBER
69
OF 69

Filename: ...\00\ROW\MSTA\002_RWPLAN2.dgn Division: ROW Username: Terri.L.Blair Date:8/3/2020