STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

Hoyle, Tanner & Associates, Inc.

SPECIFICATIONS

Design: Load and Resistance Factor Design per AASHTO LRFD Bridge Design Specifications, Eighth Edition, 2017 with 2018 Errata.

DESIGN LOADING

Live Load ..... HL - 93

TRAFFIC DATA

Current (2020) AADT	1990
Future (2040) AADT	2190
DHV - % of AADT	12
Design Hour Volume	263
Heavy Trucks (% of AADT)	14
Heavy Trucks (% of DHV)	12
Directional Distribution (% of DHV)	50
18 kip Equivalent P 2.0	211
18 kip Equivalent P 2.5	201
Design Speed (mph)	45

MATERIALS

Concrete:	
Joints, Curbs, & Transition Barriers	Class "LP"
All Other	Class "A"
Reinforcing Bars:	
Plain	ASTM A 615/A 615M, Grade 60
Stainless	ASTM A 955/A 955M, Grade 75

BASIC DESIGN STRESSES

Concrete:	
Class "LP"	f 'c = 5,000 psi
Class "A"	f 'c = 4,000 psi
Reinforcing Bars:	
Plain	f y = 60,000 psi
Stainless	f y = 75,000 psi

PEMBROKE
WASHINGTON COUNTY
PENNAMAQUAN BRIDGE
OVER
PENNAMAQUAN RIVER
US ROUTE 1
STATE PROJECT NO. 22346.00
PROJECT LENGTH 0.047 mi.
BRIDGE NO. 5326

LIST OF DRAWINGS

UTILITIES

Emera Maine
Maine Fiber Company
Consolidated Communications (Fairpoint)
Charter Communications (Spectrum)

MAINTENANCE OF TRAFFIC

Maintain one lane of alternating traffic using temporary traffic signals.

PROJECT LOCATION	Route 1 in Pembroke, approximiately 0.1 miles northerly of Little Falls Road intersection Lat./Long. 44°57'40.23" N 67°09'36.27" W
PROGRAM AREA	Highway Bridges - Traditional
OUTLINE OF WORK	Bridge Deck Replacement

WIN 022346.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

APPROVED

		DATE
COMMISSIONER:		11/5/19
CHIEF ENGINEER:	Joseph Paul Taylor	11-13-19

STATE OF MAINE · AARON M. LACHANCE · No. 13294 · LICENSED PROFESSIONAL ENGINEER

Aaron Lachance
SIGNATURE
13294
P.E. NUMBER
November 8, 2019
DATE

PROJECT INFORMATION

PROGRAM	Bridge Program
PROJECT MANAGER	Jason Stetson
DESIGNER	Aaron M. Lachance
CONSULTANT	Hoyle, Tanner & Assoc., Inc.
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

PEMBROKE
PENNAMAQUAN BRIDGE

TITLE SHEET

SHEET NUMBER
1
OF 18

Filename:\00\BRIDGE\MSTA\001_Title.dgn Division: BRIDGE Username: Date:11/7/2019

Filename: ...\BRIDGE\MSTA\002_Estimate.dgn Division: BRIDGE Username: Date:11/7/2019

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
202.10	REMOVING EXISTING SUPERSTRUCTURE (PROPERTY OF CONTRACTOR) (190 CY)	1	LS
202.13	REMOVING OF EXISTING RAILINGS RETAINED BY DEPARTMENT	340	LF
202.17	REMOVING EXISTING STRUCTURAL CONCRETE (15 CY)	1	LS
202.202	REMOVING PAVEMENT SURFACE	650	SY
203.20	COMMON EXCAVATION	350	CY
203.21	ROCK EXCAVATION	25	CY
203.25	GRANULAR BORROW	130	CY
206.082	STRUCTURAL EARTH EXCAVATION - MAJOR STRUCTURES	120	CY
304.10	AGGREGATE SUBBASE COURSE - GRAVEL	275	CY
403.2081	12.5 MM POLYMER MODIFIED HMA	140	T
403.213	HOT MIX ASPHALT 12.5 MM BASE	55	T
403.2131	12.5 MM POLYMER MODIFIED HMA BASE	135	T
409.15	BITUMINOUS TACK COAT - APPLIED	115	G
502.219	STRUCTURAL CONCRETE, ABUTMENTS AND RETAINING WALLS (20 CY)	1	LS
502.26	STRUCTURAL CONCRETE ROADWAY AND SIDEWALK SLAB ON STEEL BRIDGES (175 CY)	1	LS
502.31	STRUCTURAL CONCRETE APPROACH SLABS (12 CY)	1	LS
502.49	STRUCTURAL CONCRETE CURBS AND SIDEWALKS (20 CY)	1	LS
503.12	REINFORCING STEEL, FABRICATED/DELIVERED	41600	LB
503.13	REINFORCING STEEL, PLACING	41600	LB
503.17	MECHANICAL/WELDED SPLICE	672	EA
503.26	STAINLESS STEEL REINF, FABRICATED AND DELIVERED	12650	LB
503.27	STAINLESS STEEL REINF, PLACING	12650	LB
505.08	SHEAR CONNECTORS (1630 EA)	1	LS
507.0821	STEEL BRIDGE RAIL, 3 BAR (368 LF)	1	LS
508.13	SHEET WATERPROOFING MEMBRANE (38 SY)	1	LS
508.14	HIGH PERFORMANCE WATERPROOFING MEMBRANE (570 SY)	1	LS
514.06	CURING BOX FOR CONCRETE CYLINDERS	1	EA
515.21	PROTECTIVE COATING FOR CONCRETE SURFACES (210 SY)	1	LS
518.50	REPAIR OF UPWARD FACING SURFACES - TO REINFORCING STEEL	10	SF
518.60	REPAIR OF VERTICAL SURFACES < 8 INCHES	15	SF
518.80	CRACK REPAIR	100	LF
520.22	EXPANSION DEVICE - COMPRESSION SEAL	3	EA
520.232	EXPANSION DEVICE - ASPHALTIC PLUG JOINT	30	LF
524.301	TEMPORARY STRUCTURAL SUPPORT (BY CONTRACTOR)	1	LS
526.301	TEMPORARY CONCRETE BARRIER, TYPE 1 (160 LF)	1	LS
526.305	TEMPORARY CONCRETE BARRIER, BRACED TYPE 1 (290 LF)	1	LS
527.34	WORK ZONE CRASH CUSHIONS	2	UN
603.179	18" CULVERT PIPE OPTION III	30	LF
606.1301	31" W-BEAM GUARDRAIL, MID-WAY SPLICE SINGLE FACED	125	LF
606.1305	31" W-BEAM GUARDRAIL, MID-WAY SPLICE FLARED TERM	3	EA
606.1721	BRIDGE TRANSITION - TYPE 1	4	EA
606.353	REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	7	EA
610.08	PLAIN RIPRAP	10	CY
613.319	EROSION CONTROL BLANKET	435	SY
615.07	LOAM	25	CY
618.14	SEEDING METHOD NUMBER 2	4	UN
619.12	MULCH	4	UN
619.14	EROSION CONTROL MIX	50	CY
620.58	EROSION CONTROL GEOTEXTILE	20	SY
627.7333	4" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	1200	LF
627.77	REMOVING EXISTING PAVEMENT MARKING	200	SF
627.78	TEMPORARY 4" PAVEMENT MARKING LINE, WHITE OR YELLOW	2500	LF
629.05	HAND LABOR, STRAIGHT TIME	10	HR
631.10	AIR COMPRESSOR (INCLUDING OPERATOR)	10	HR
631.11	AIR TOOL (INCLUDING OPERATOR)	10	HR
631.12	ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	10	HR
631.14	GRADER (INCLUDING OPERATOR)	10	HR
631.15	ROLLER, EARTH BASE COURSE (INCLUDING OPERATOR)	10	HR
631.21	ROAD BROOM (INCLUDING OPERATOR AND HAULER)	10	HR
631.172	TRUCK - LARGE (INCLUDING OPERATOR)	10	HR
639.19	FIELD OFFICE, TYPE B	1	EA
643.72	TEMPORARY TRAFFIC SIGNAL	1	LS
645.106	DEMOUNT REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGN	2	EA
645.116	REINSTALL REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGN	2	EA
652.312	TYPE III BARRICADE	10	EA
652.30	FLASHING ARROW BOARD	2	EA
652.33	DRUM	40	EA
652.34	CONE	40	EA
652.35	CONSTRUCTION SIGNS	300	SF
652.361	MAINTENANCE OF TRAFFIC CONTROL DEVICES (200 CD)	1	LS
652.38	FLAGGER	300	HR
652.41	PORTABLE-CHANGEABLE MESSAGE SIGN	2	EA
656.75	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	1	LS
659.10	MOBILIZATION	1	LS

GENERAL CONSTRUCTION NOTES

1. For construction limits and right of way lines, refer to General Plan sheet.

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

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

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

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

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

7. Extended-use Erosion Control Blanket, seeded gutters, riprap downspouts, and other gutters lined with Stone Ditch Protection shall be constructed after paving and shoulder work is completed, where it is apparent that runoff will cause continual erosion. Payment will be made under the appropriate Contract items.

8. 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.
   Top of abutment wingwalls and to one foot below the top of wingwalls on the back side.

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

10. The existing bridge plans may be accessed at the MaineDOT web address. The plans are reproductions of the original drawings as prepared for the construction of the bridge. It is very unlikely that the plans will show any construction field changes or any alterations which may have been made to the bridge during its life span.

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

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

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

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

13. The Contractor shall submit a Deck Demolition Plan to the Resident at least 10 business days prior to the start of demolition work. The plan shall outline the methods and equipment to be used to remove and dispose of all materials included in the existing bridge. No work related to the removal of the deck shall be undertaken by the Contractor until MaineDOT has reviewed the Deck 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 superstructure removal pay item.

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

15. 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 their work. The Contractor is responsible for implementing appropriate OSHA mandated personal protection standards related to this process. Payment for this work will not be made separately, but will be considered incidental to related Contract items.

16. Existing bridge mounted thrie beam guardrail sections, offset brackets, and associated hardware which are to be removed shall be carefully salvaged and stored by the Contractor and will remain the property of the Department. Contact Region 4 Bridge Maintenance Manager to schedule pickup.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2234600

WIN 022346.00

BRIDGE NO. 5326

BRIDGE PLANS

Hoyle, Tanner & Associates, Inc.

PROJ. MANAGER	J. STETSON	BY	DATE
DESIGN-DETAILED	R. Wood	P. Dustin	Sep. 2019
CHECKED-REVIEWED	R. McMullen	A. Lachonce	Nov. 2019
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

ESTIMATED QUANTITIES & GENERAL NOTES

SHEET NUMBER

2

OF 18

POR NO. 2
MAP 17, LOT 36
CHOLMONDELEY TRUST
1.12± AC. (PER MEGIS)

POR NO. 3
MAP 17, LOT 35
STATE OF MAINE
4.05± AC. (PER MEGIS)

POR NO. 4
MAP 17, LOT 38
HAROLD W. DEACON
ALICIA E. WILLIAMS
3.57± AC. (PER MEGIS)

℄ Brg. Abut. No. 1
Sta. 6+27.1 ±

℄ Pier No. 1
Sta. 6+77.9 ±

℄ Pier No. 2
Sta. 7+39.4 ±

℄ Brg. Abut. No. 2
Sta. 7+90.1 ±

Span 1 = 50'-9"
50'-0" between ℄ Brgs.

Span 2 = 61'-6"
60'-0" between ℄ Brgs.

Span 3 = 50'-9"
50'-0" between ℄ Brgs.

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

Reconstruct Top of Wing (Typ.)

Pennamaquan River Flow

Steel Approach Railing, 3 Bar (Typ.)

31" W-Beam Guardrail
Mid-Way Splice Flared Terminal
(1.5' Flare) (Typ.)

4+00 5+00 6+00 7+00 8+00 9+00 10+00

N53°59'22.51"E

To Dennysville

Route 1

To Perry

31" W-Beam Guardrail Mid-Way Splice

Riprap Downspout (Typ.)

Deck Slab

18" Culvert Option III

Compression Seal
(Typ. Each Pier & Abut. No. 2)

Precast Concrete Transition Curb (Typ.)

Asphaltic Plug Joint
(Abut. No. 1)

Existing R.O.W. Line (Typ.)

Property Line (Typ.)

PC = STA. 10+78.74

POR NO. 6
MAP 17, LOT 39
EMERA MAINE
4.18± AC. (PER MEGIS)

POR NO. 7
MAP 9, LOT 7
HAROLD W. DEACON
ALICIA E. WILLIAMS
34.79± AC. (PER TOWN)

PLAN

25 0 25 50
Scale of Feet

STATE OF MAINE
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BRIDGE NO. 5326

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DESIGN3-DETAILED3		
REVISIONS 1	P. Dustin	
REVISIONS 2		
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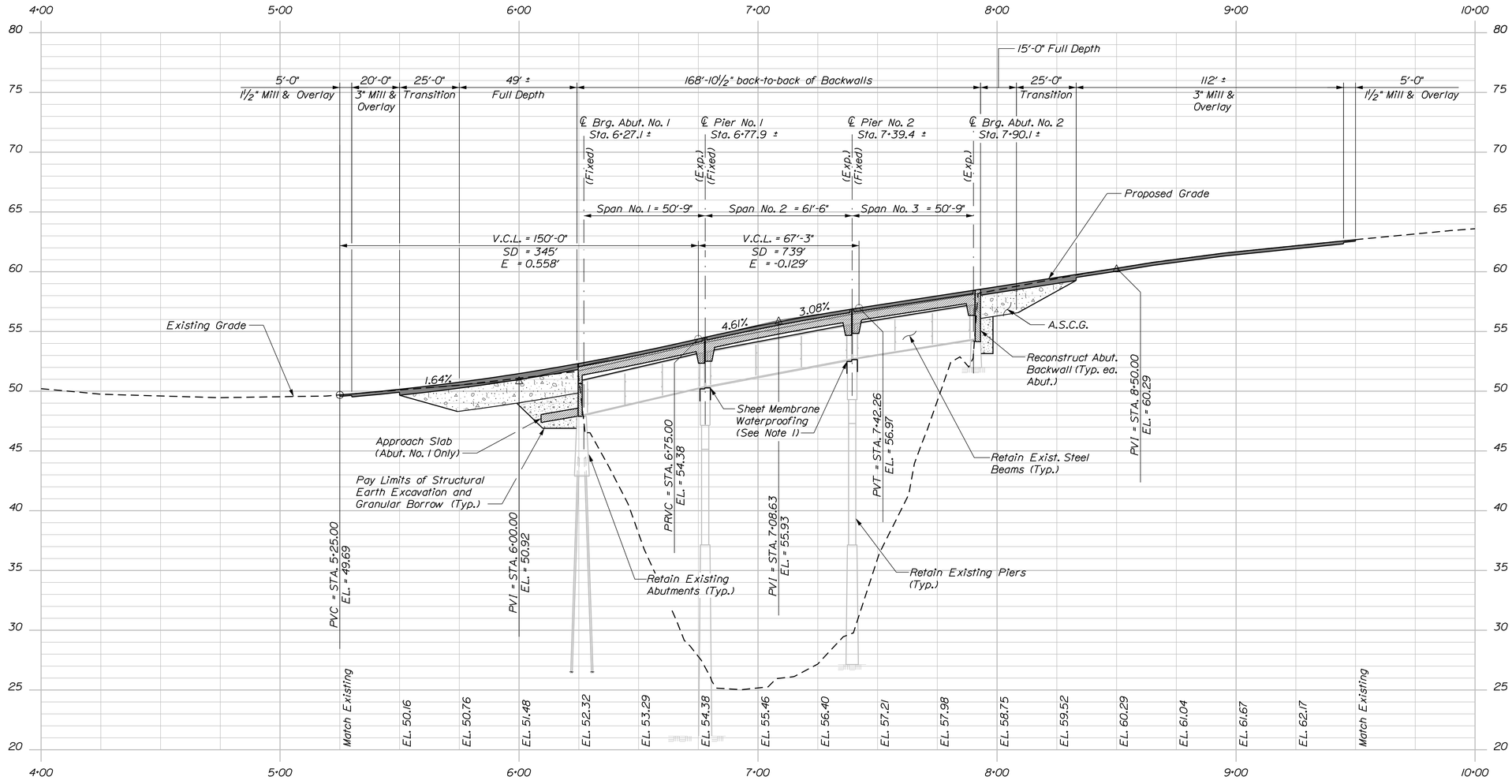
REVISIONS 4		
FIELD CHANGES		

PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

GENERAL PLAN

SHEET NUMBER
3
OF 18



PROFILE

Horiz. 25 0 25 50

Vert. 5 0 5 10

Scale of Feet

NOTE

1. Apply an approved peel and stick type sheet waterproofing membrane to both pier caps. Membrane shall fully cover the exposed concrete surfaces of the top of the piers and continue to a minimum of 1 ft. down the sides of the pier caps.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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WIN 022346.00

BRIDGE NO. 5326

BRIDGE PLANS

Hoyle, Tanner & Associates, Inc.

	BY	DATE
PROJ. MANAGER	J. STETSON	
DESIGN-DETAILED	A. Lochance	Sep. 2019
CHECKED-REVIEWED	P. Dustin	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

PROFILE

SHEET NUMBER

4

OF 18

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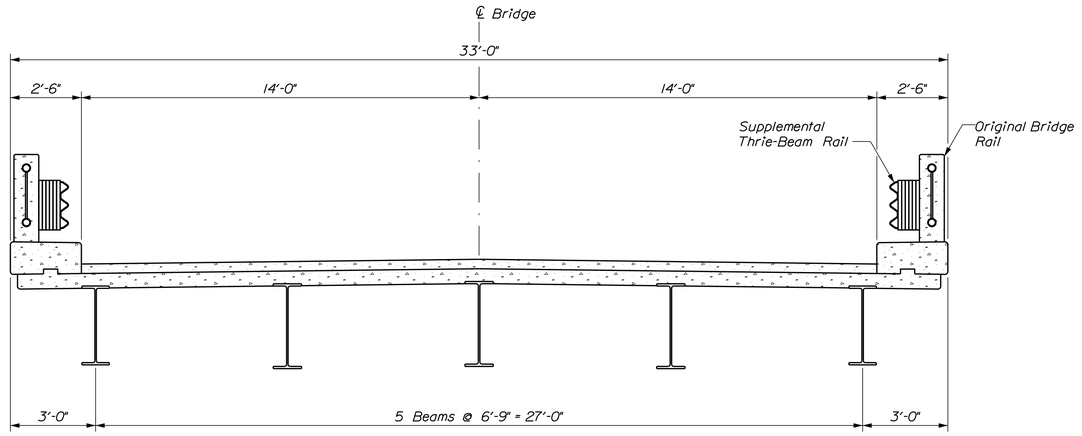
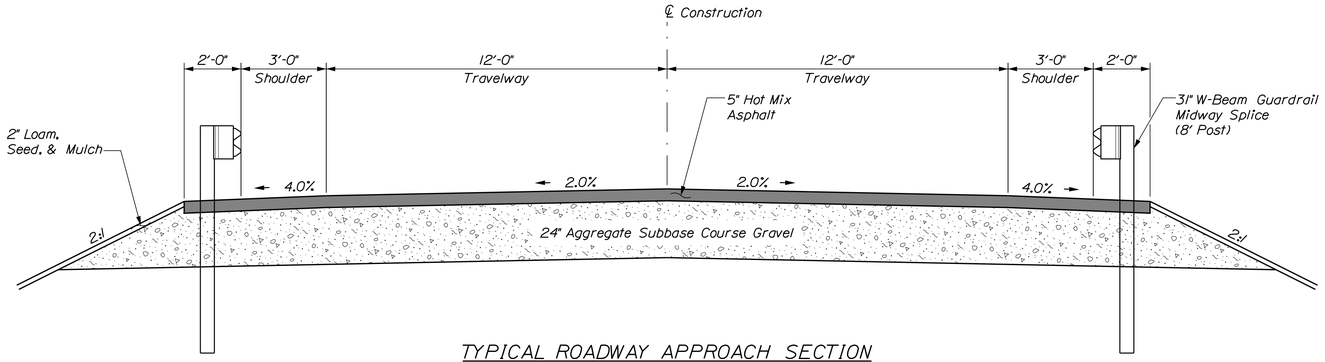
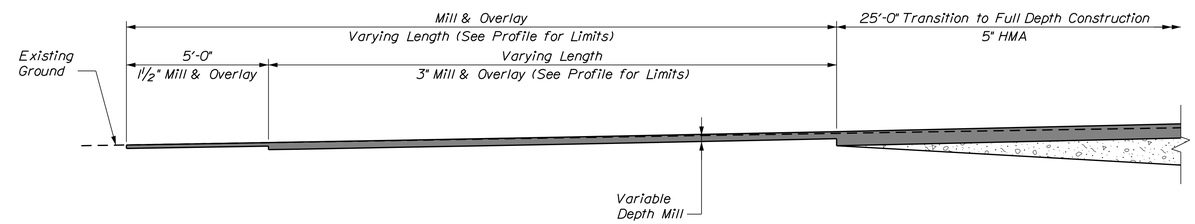


EXISTING BRIDGE SECTION



TYPICAL ROADWAY APPROACH SECTION

Full Depth Construction
(Sta. 5+75 to 6+25, Sta. 7+93 to 8+08)



MILL & OVERLAY DETAIL

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2234600

WIN 022346.00

BRIDGE NO. 5326

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Hoyle, Tanner & Associates, Inc.

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DESIGN3-DETAILED3			
REVISIONS 1	P. Dustin	Sep. 2019	
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REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

TYPICAL SECTIONS

SHEET NUMBER

5

OF 18

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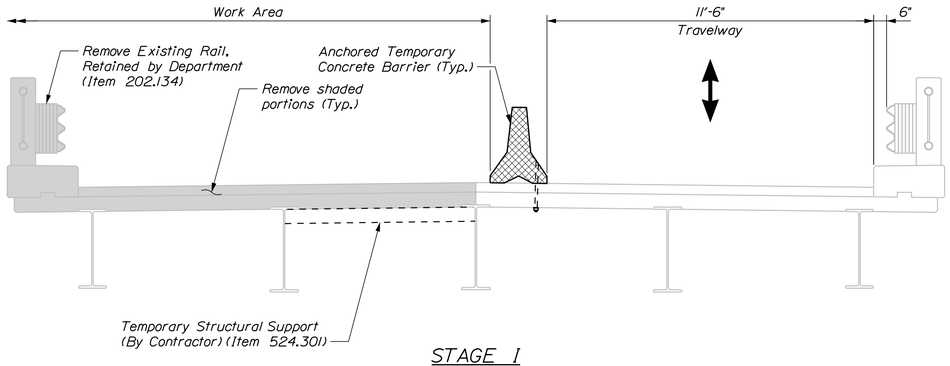
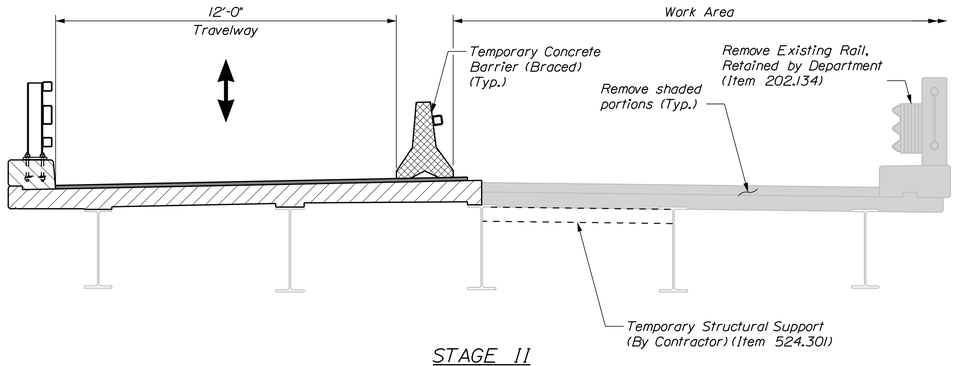


STAGE I



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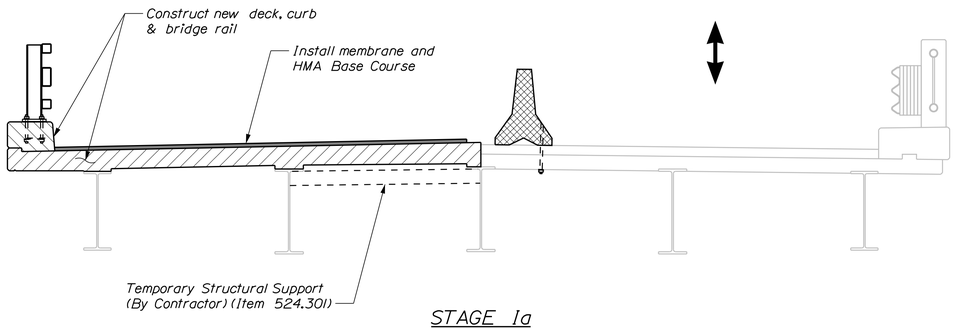

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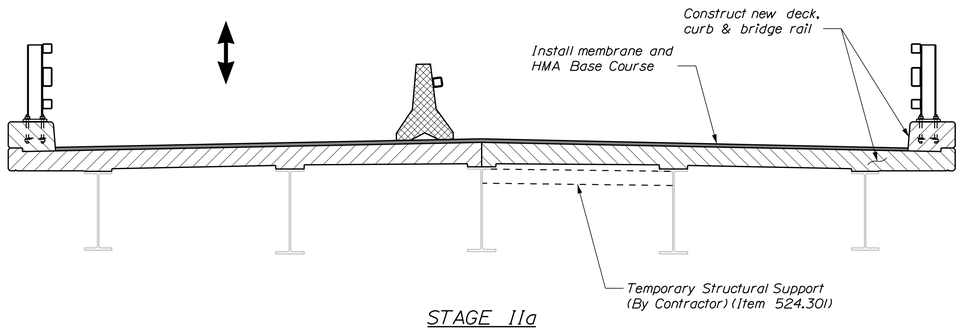
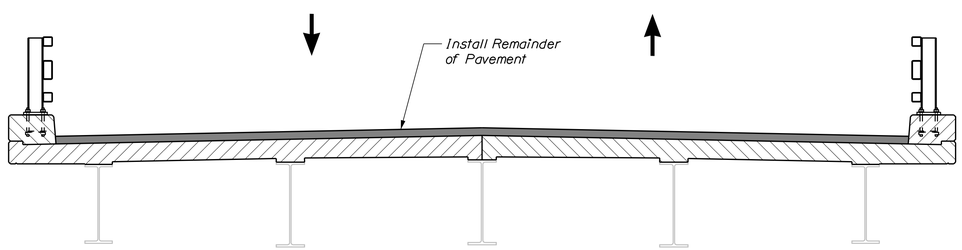


STAGE IIa



STAGE III

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2234600

WIN 022346.00

BRIDGE NO. 5326

BRIDGE PLANS

Hoyle, Tanner & Associates, Inc.

PROJ. MANAGER	J. STETSON		
DESIGN-DETAILED	A. Lochance	BY	P. Dustin
CHECKED-REVIEWED		DATE	Sep. 2019
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

STAGED CONSTRUCTION

SHEET NUMBER

6

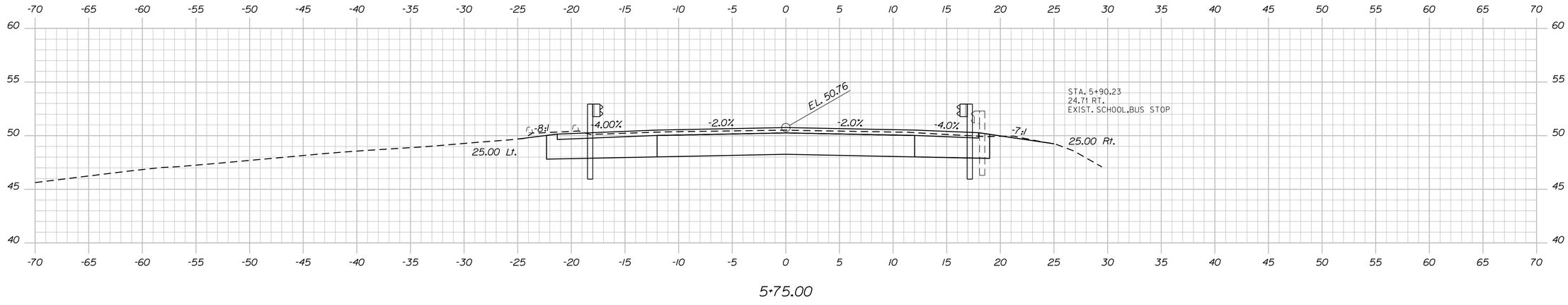
OF 18

Username:

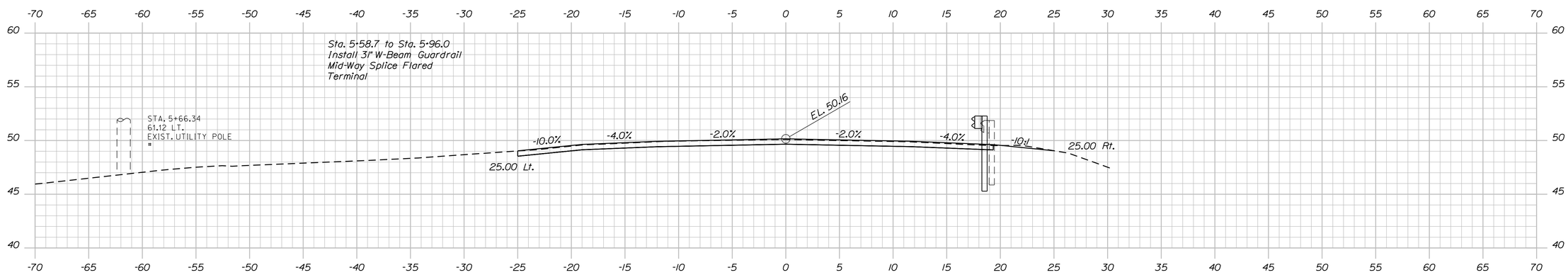
Date:11/1/2019

Division: BRIDGE

Filename: ...\MSTA\006_StageConstr.dgn



5+75.00



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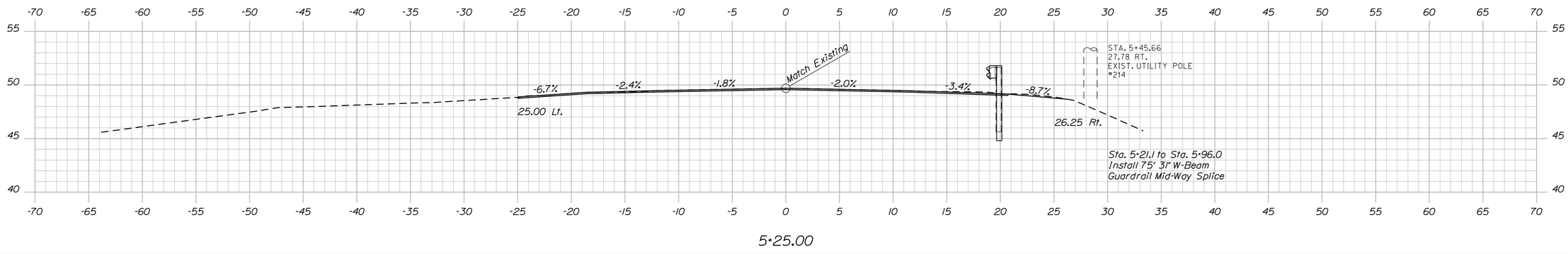

5+25.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2234600

WIN 022346.00

BRIDGE NO. 5326

BRIDGE PLANS

Hoyle, Tanner & Associates, Inc.

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DESIGN3-DETAILED3		
REVISIONS 1	BY	P. Dustin
REVISIONS 2	DATE	Sep. 2019
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

CROSS SECTIONS

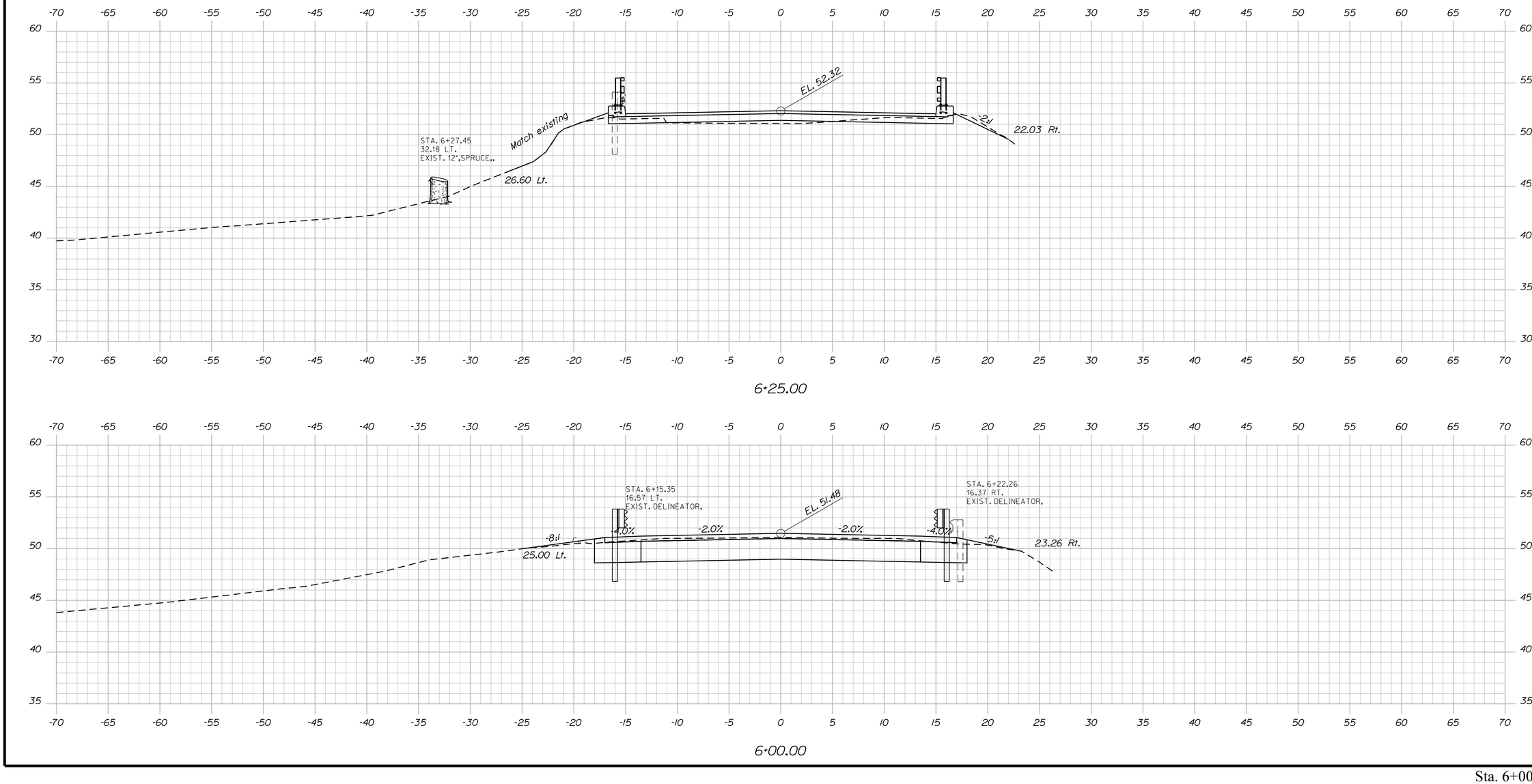
SHEET NUMBER

7

OF 18

Filename: ...\MSTA\007_XSECT_5+25_001.dgn Division: BRIDGE Username: Date:11/1/2019

Sta. 5+25.00 to Sta. 5+75.00



Sta. 6+00.00 to Sta. 6+25.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2234600

WIN
022346.00

BRIDGE NO. 5326

BRIDGE PLANS

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PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

CROSS SECTIONS

SHEET NUMBER

8

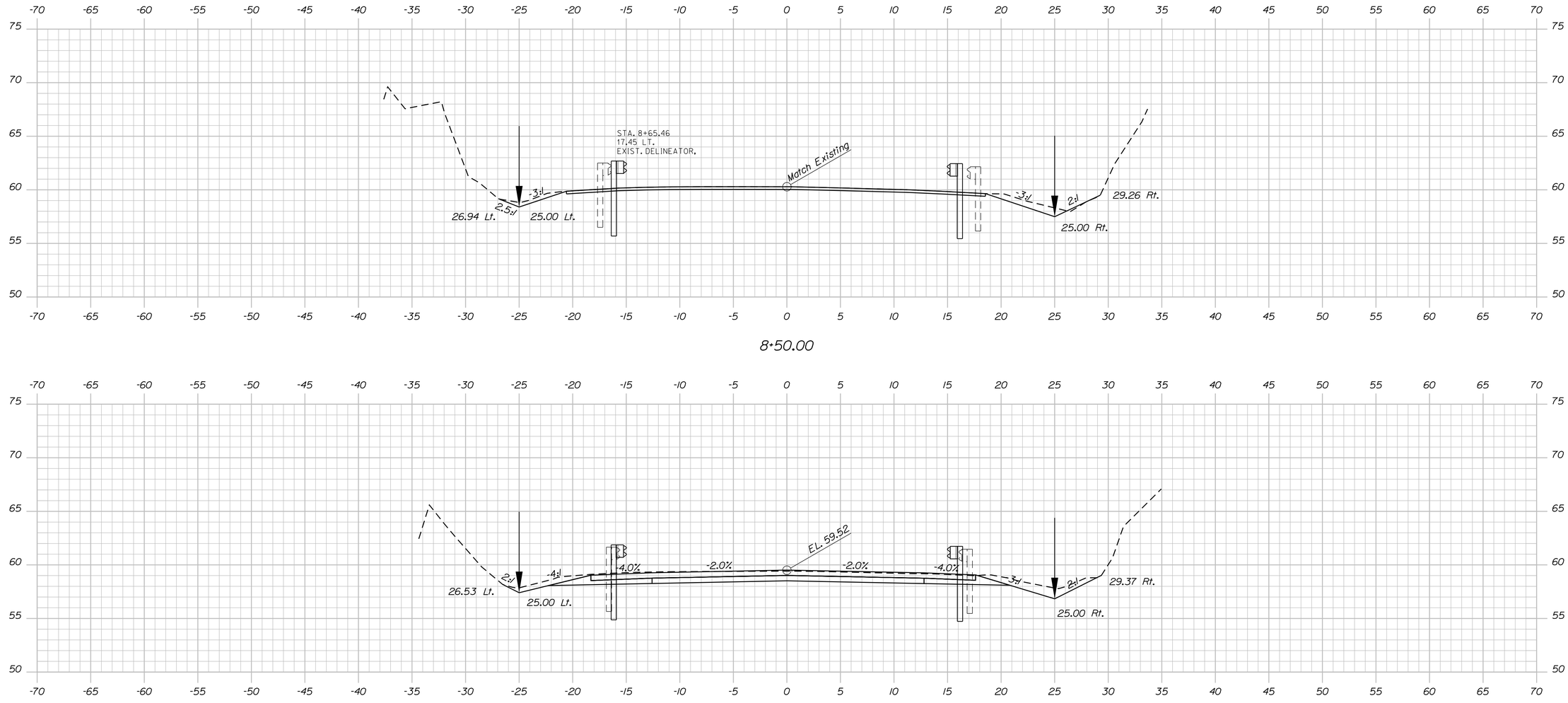
OF 18

Username:

Date:11/1/2019

Division: BRIDGE

Filename: ...\MSTA\008_XSECT_6+00_002.dgn



8+50.00

8+25.00

8+00.00

Sta. 8+00.00 to Sta. 8+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2234600

WIN 022346.00

BRIDGE NO. 5326

BRIDGE PLANS

Hoyle, Tanner & Associates, Inc.

PROJ. MANAGER	J. STETSON	BY	DATE
DESIGN-DETAILED	A. Lochhead	P. Dustin	Sep. 2019
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

CROSS SECTIONS

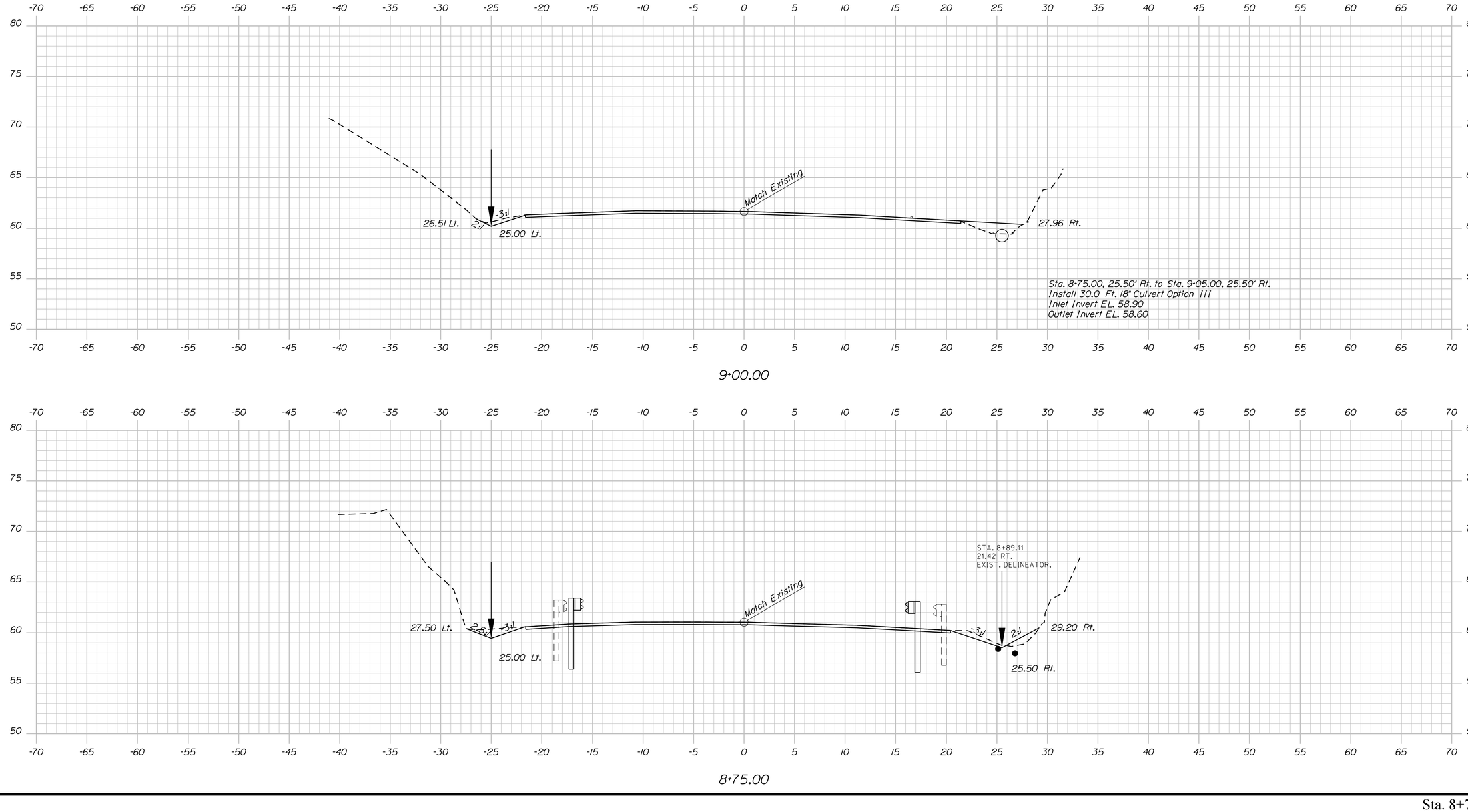
SHEET NUMBER

9

OF 18

Filename: ...\MSTA\009_XSECT_8+00_003.dgn Division: BRIDGE Username: Date:11/1/2019

Filename: ...\MSTA\010_XSECT_8+75_004.dgn Division: BRIDGE Username: Date:11/1/2019



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2234600

WIN 022346.00

BRIDGE NO. 5326

BRIDGE PLANS

Hoyle, Tanner & Associates, Inc.

PROJ. MANAGER	J. STETSON	BY	DATE
DESIGN-DETAILED	A. Lachance	P. Dustin	Sep. 2019
CHECKED-REVIEWED			
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

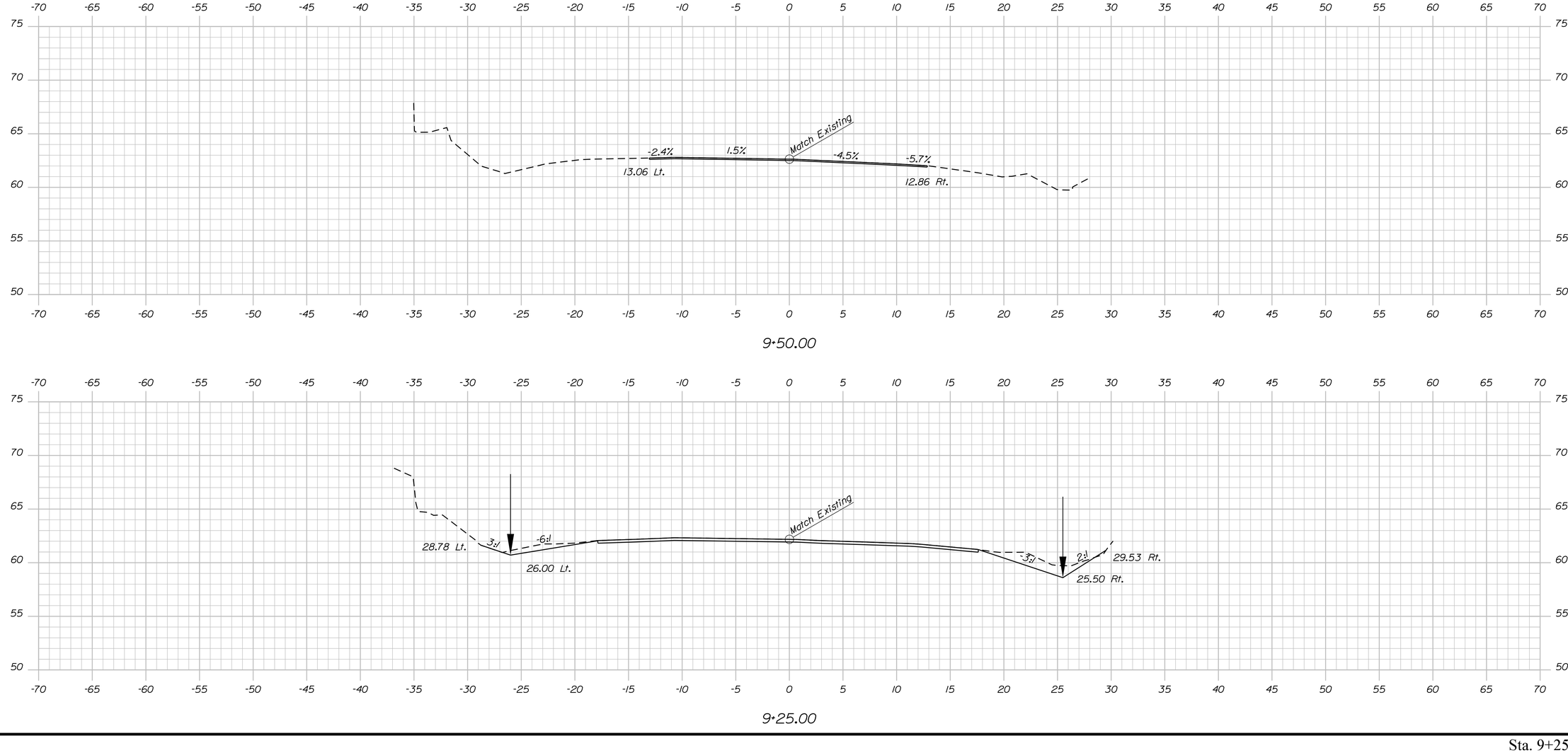
PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

CROSS SECTIONS

SHEET NUMBER

10

OF 18



Sta. 9+25.00 to Sta. 9+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2234600

WIN 022346.00

BRIDGE NO. 5326

BRIDGE PLANS

Hoyle, Tanner & Associates, Inc.

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FIELD CHANGES			

PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

CROSS SECTIONS

SHEET NUMBER

11

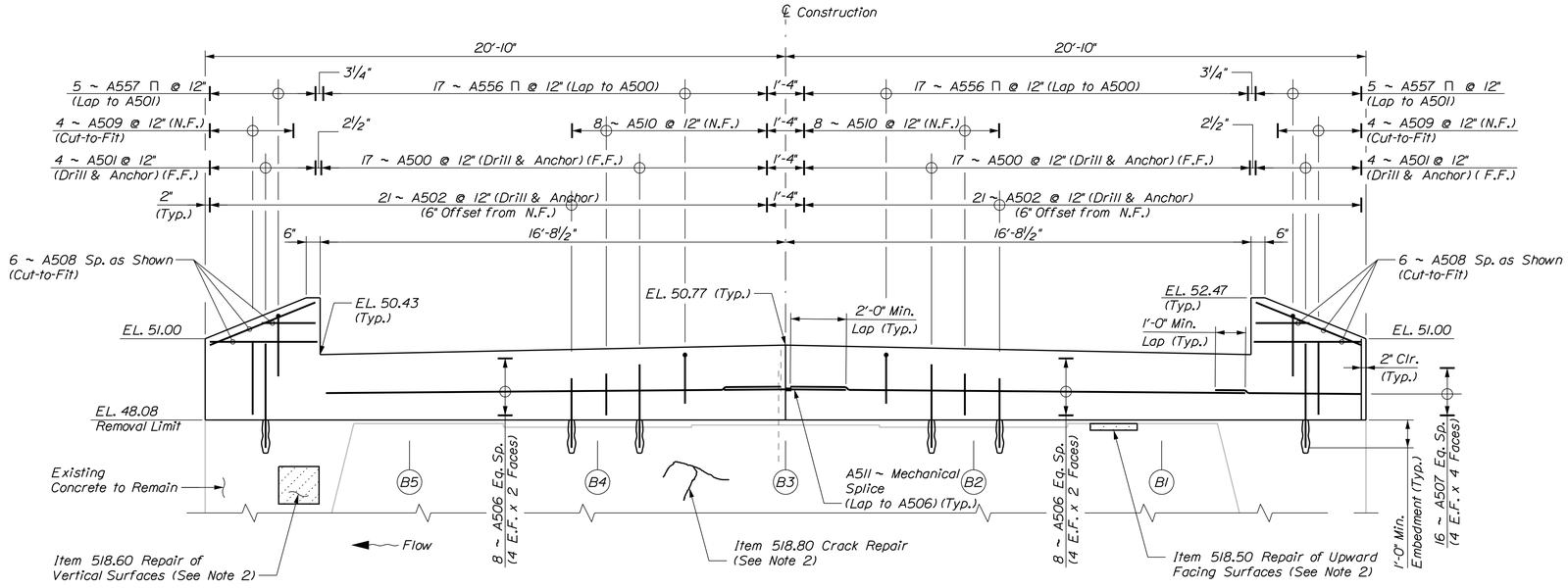
OF 18

Username:

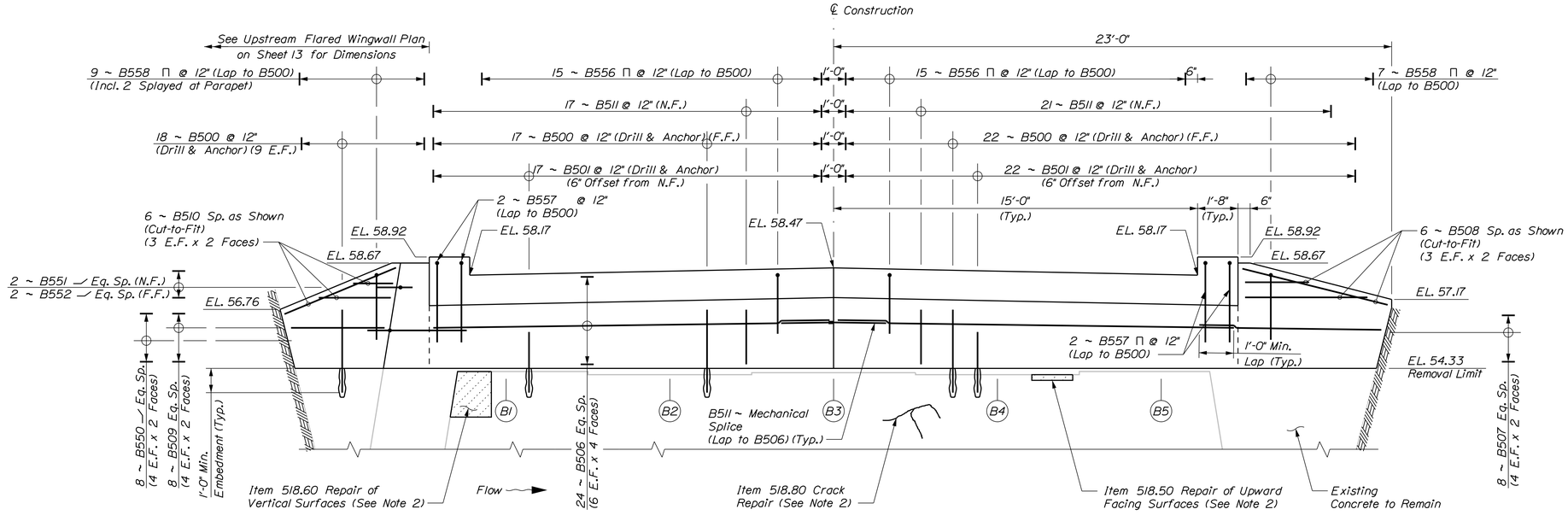
Date:11/1/2019

Division: BRIDGE

Filename: ...\MSTA\011_XSECT_9+25_005.dgn



ABUTMENT NO. 1 MODIFICATIONS



ABUTMENT NO. 2 MODIFICATIONS

LEGEND

N.F. = Near Face
F.F. = Far Face
E.F. = Each Face

ABUTMENT NOTES

1. For limits of Structural Earth Excavation and Granular Borrow for the abutments and wingwalls, see Profile Sheet.

2. Generic repair locations shown. Abutments shall be inspected jointly by the Contractor and Resident. Deteriorated concrete shall be removed to sound concrete and repaired utilizing Item(s) 518.50, 518.60 and/or 518.80 as directed by the Resident.

STATE OF MAINE
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BRIDGE PLANS

BRIDGE NO. 5326

Hoyle, Tanner & Associates, Inc.

PROJ. MANAGER	J. STETSON	
DESIGN-DETAILED	A. Lachance	P. Dustin
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

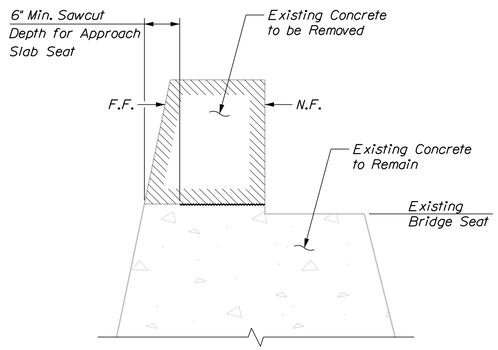
DATE: Sep. 2019

PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

ABUTMENT DETAILS

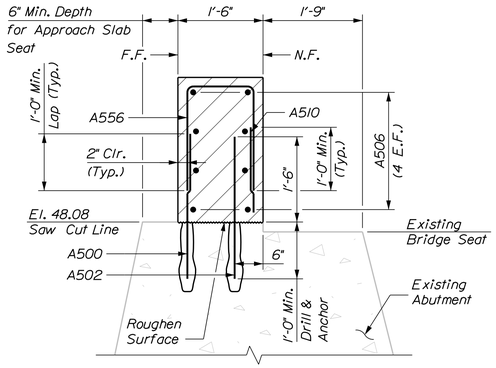
SHEET NUMBER
12
OF 18

Filename: ...\BRIDGE\MSTA\012_Abutment_1.dgn Division: BRIDGE Username: Date:11/1/2019

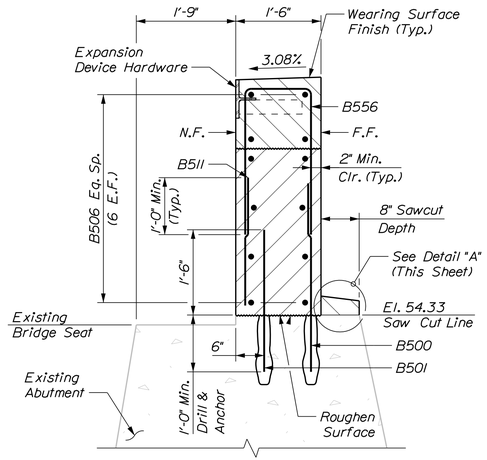


ABUTMENT REMOVAL SECTION

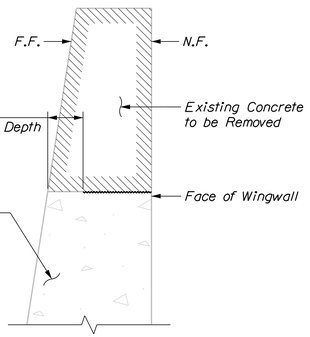
Abutment No. 1 Shown, Abutment No. 2 Similar



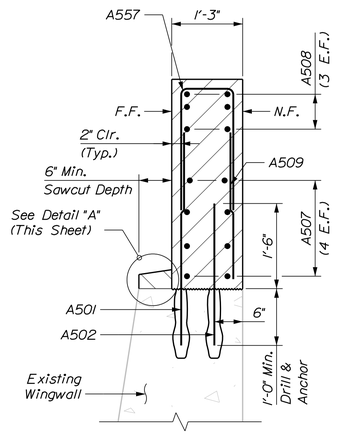
ABUTMENT NO. 1 RECONSTRUCTION SECTION



ABUTMENT NO. 2 RECONSTRUCTION SECTION

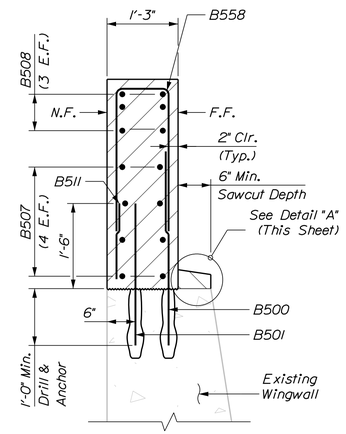


WINGWALL REMOVAL SECTION



ABUTMENT NO. 1 WINGWALL RECONSTRUCTION SECTION

SW Wingwalls Shown, SE Wingwall Similar



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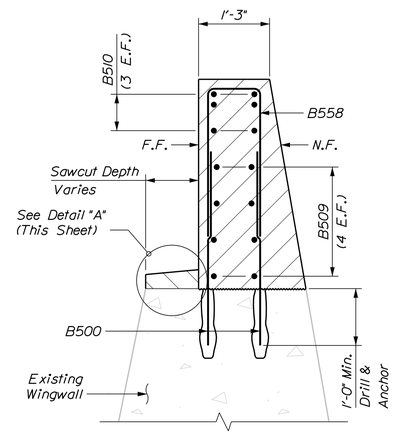
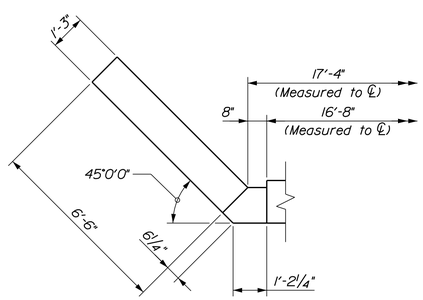
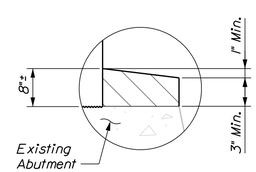


ABUTMENT NO. 2 UPSTREAM WINGWALL RECONSTRUCTION SECTION



UPSTREAM FLARED WINGWALL PLAN

Wingwall Batter not Shown for Clarity



DETAIL "A"

LEGEND

N.F. = Near Face
F.F. = Far Face
E.F. = Each Face

ABUTMENT NOTES

1. For limits of Structural Earth Excavation and Granular Borrow for the abutments and wingwalls, see Profile Sheet.
2. Existing reinforcing in section views not shown for clarity.
3. The existing batter on the near face of the upstream wingwall shall be measured in the field and replicated on the proposed near face of the upstream wingwall.

STATE OF MAINE
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2234600

WIN 022346.00

BRIDGE NO. 5326

BRIDGE PLANS

Hoyle, Tanner & Associates, Inc.

PROJ. MANAGER	J. STETSON	BY	DATE
DESIGN-DETAILED	A. Lachance	P. Dustin	Sep. 2019
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REVISIONS 4			
FIELD CHANGES			

PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

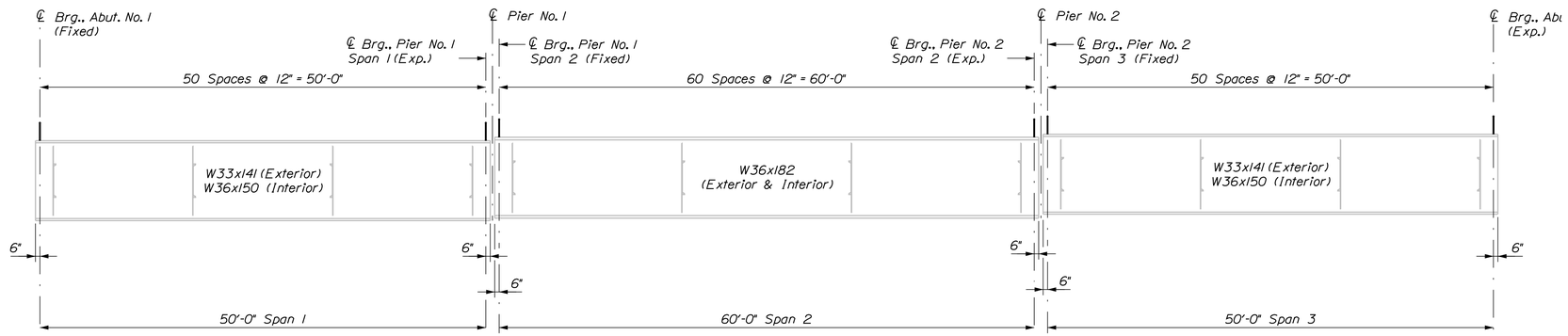
ABUTMENT DETAILS

SHEET NUMBER

13

OF 18

Filename: ...\BRIDGE\MSTA\013_Abutment_2.dgn Division: BRIDGE Username: Date:11/1/2019



SHEAR CONNECTOR LAYOUT

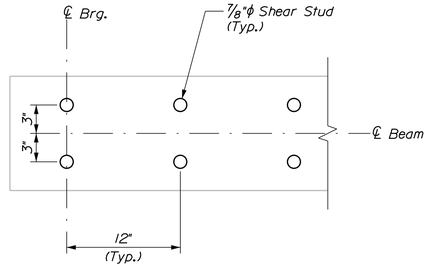
Double Studs ~ 326 Studs per Beam Line (5) = 1,630 Studs

BOTTOM OF SLAB ELEVATIONS									
		Span No. 1							
Beam	℄ Brg., Abut. No. 1	6.25'	12.50'	18.75'	25.00'	31.25'	37.50'	43.75'	℄ Brg., Pier No. 1
1	51.19	51.45	51.72	51.98	52.24	52.50	52.76	53.01	53.27
2	51.33	51.58	51.84	52.10	52.36	52.62	52.88	53.14	53.40
3	51.38	51.63	51.89	52.15	52.41	52.67	52.93	53.19	53.46
4	51.33	51.58	51.84	52.10	52.36	52.62	52.88	53.14	53.40
5	51.19	51.45	51.72	51.98	52.24	52.50	52.76	53.01	53.27

BOTTOM OF SLAB ELEVATIONS									
		Span No. 2							
Beam	℄ Brg., Pier No. 1	7.50'	15.00'	22.50'	30.00'	37.50'	45.00'	52.50'	℄ Brg., Pier No. 2
1	53.34	53.71	54.07	54.40	54.70	54.98	55.22	55.45	55.65
2	53.47	53.84	54.19	54.52	54.82	55.10	55.35	55.57	55.78
3	53.52	53.89	54.24	54.57	54.87	55.15	55.40	55.63	55.83
4	53.47	53.84	54.19	54.52	54.82	55.10	55.35	55.57	55.78
5	53.34	53.71	54.07	54.40	54.70	54.98	55.22	55.45	55.65

BOTTOM OF SLAB ELEVATIONS									
		Span No. 3							
Beam	℄ Brg., Pier No. 2	6.25'	12.50'	18.75'	25.00'	31.25'	37.50'	43.75'	℄ Brg., Abut. No. 2
1	55.70	55.92	56.14	56.34	56.54	56.73	56.91	57.07	57.24
2	55.83	56.04	56.25	56.46	56.65	56.84	57.02	57.20	57.37
3	55.88	56.10	56.31	56.51	56.71	56.90	57.08	57.25	57.42
4	55.83	56.04	56.25	56.46	56.65	56.84	57.02	57.20	57.37
5	55.70	55.92	56.14	56.34	56.54	56.73	56.91	57.07	57.24

Bottom of slab elevations given at 1/8 points.



SHEAR CONNECTOR DETAIL

SHEAR STUD NOTE

1. Prior to installing the proposed shear studs, the Contractor shall clean the top flange so that it is free of debris, rust, scale, oil and other contaminates that would adversely affect the welding operation. Payment for cleaning the top flange for installation of the proposed shear studs will be considered incidental to the shear stud item.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2234600

WIN 022346.00

BRIDGE NO. 5326 — BRIDGE PLANS

Hoyle, Tanner & Associates, Inc.

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DESIGN-DETAILED	A. Lachance	P. Dustin
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
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REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

BY: P. Dustin — DATE: Sep. 2019

PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

STEEL DETAILS & BOTTOM OF SLAB ELEVATIONS

SHEET NUMBER

14

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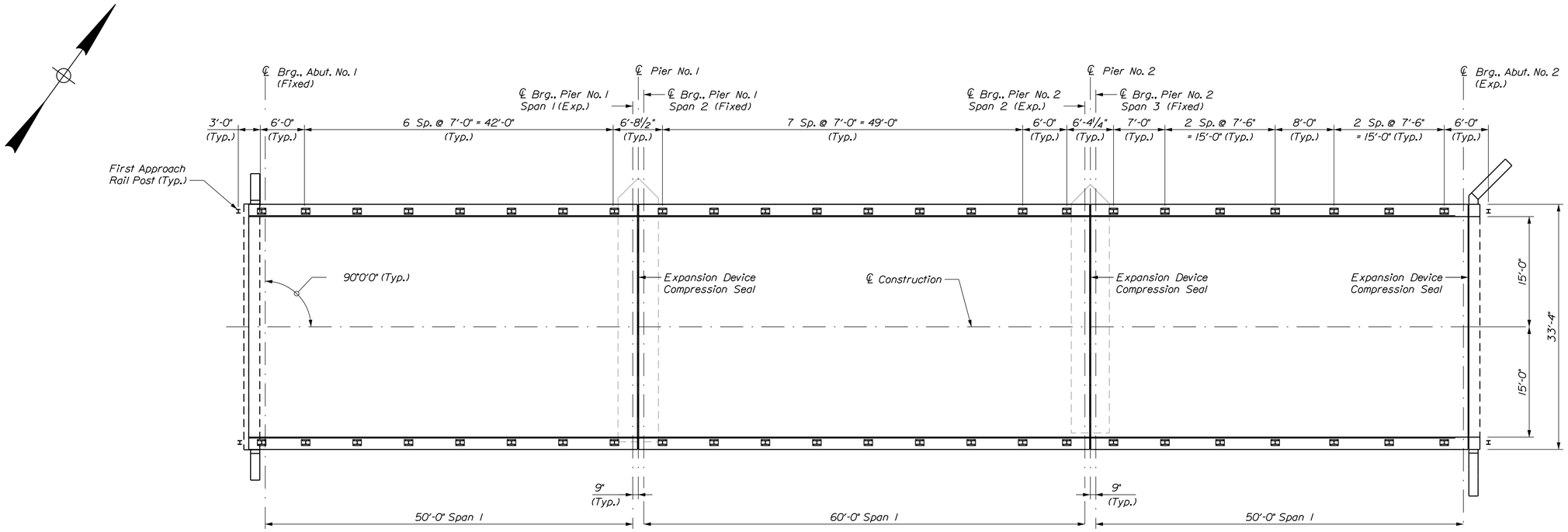
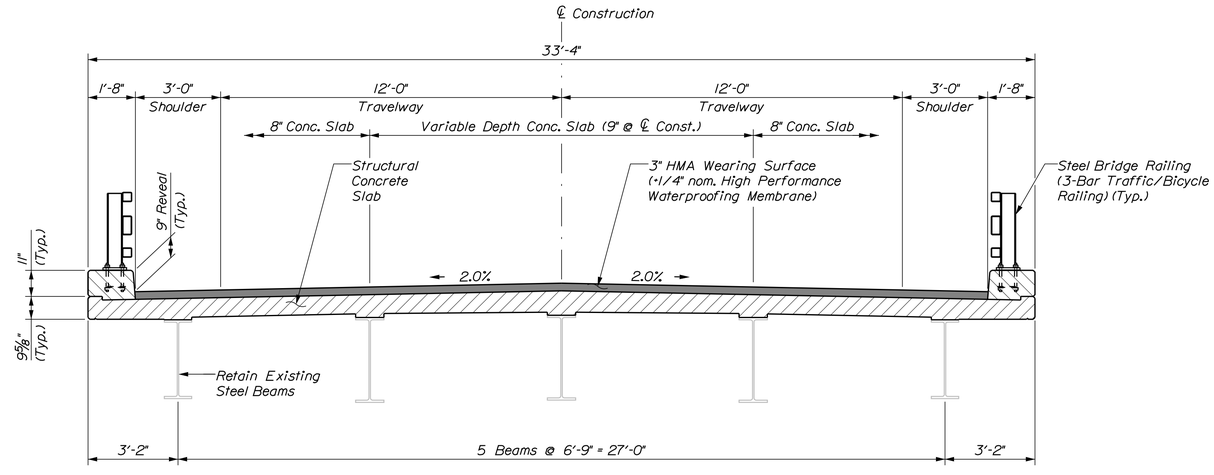
Filename: ...\00\BRIDGE\MSTA\014_Framing.dgn Division: BRIDGE Username: Date:11/1/2019



SUPERSTRUCTURE PLAN



PROPOSED BRIDGE SECTION

THEORETICAL BLOCKING DISTANCE TABLE

Description	Beams 1 & 5 (in)	Beams 2 & 4 (in)	Beam 3 (in)
Span 1 Abutment No. 1	4.50	5.25	6.00
Span 1 Pier No. 1	1.25	1.75	2.50
Span 2 Pier No. 1	1.25	1.75	2.50
Span 2 Pier No. 2	1.50	2.25	2.75
Span 3 Pier No. 2	1.50	2.25	2.75
Span 3 Abutment No. 2	1.25	2.00	2.50

SUPERSTRUCTURE NOTES

1. Multiple theoretical blocking distances are required because the proposed deck profile and cross slope do not match the longitudinal and transverse slopes of the existing beams. The various theoretical blocking distances utilized for deck design are provided in the Theoretical Blocking Distance Table included on this sheet. These values have been prepared based on limited survey information and bridge geometry from the original construction drawings. The Contractor should anticipate variances and deviations between the information found in these drawings and the existing site conditions.

2. Refer to Standard Detail 502(03) for blocking details.

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

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

5. The superstructure slab concrete for each span shall be placed continuously and shall be kept plastic until the entire placement has been made.

6. Precast deck panels will not be permitted in place of the full depth cast-in-place deck slab.

7. The seals to be furnished shall have minimum Movement Rating(s) as follows:

   Pier No. 1 = 5/8 inch
   Pier No. 2 = 3/4 inch
   Abutment No. 2 = 5/8 inch

8. The Resident shall approve the seals prior to fabrication of the Expansion Device.

STATE OF MAINE
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DESIGN-DETAILED	A. Lachance	BY	P. Dustin
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REVISIONS 4			
FIELD CHANGES			

PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

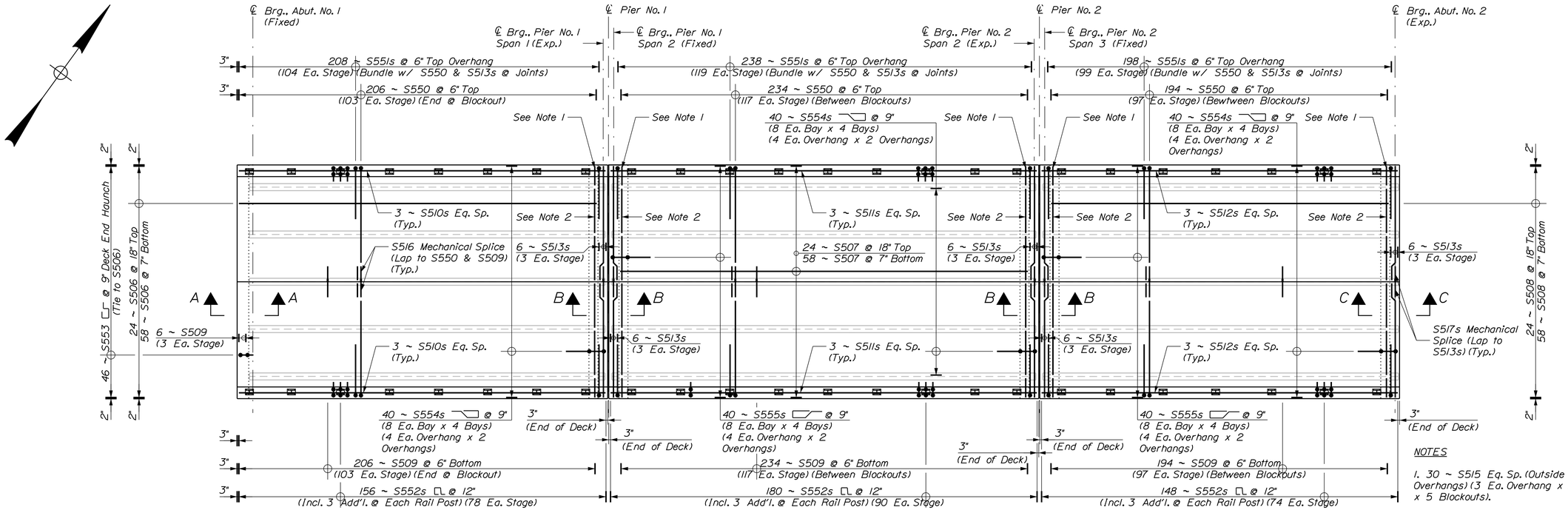
SUPERSTRUCTURE

SHEET NUMBER

15

OF 18

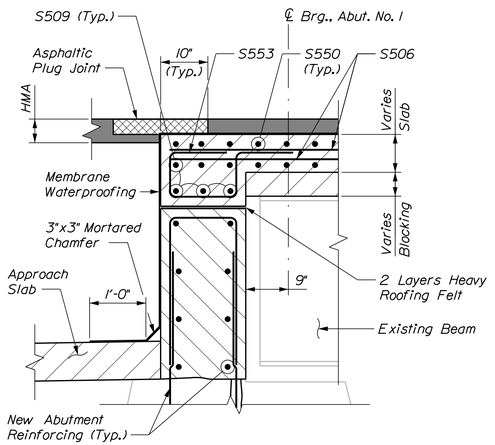
Filename: ...\MSTA\015_Superstructure_ 1.dgn Division: BRIDGE Username: Date:11/1/2019



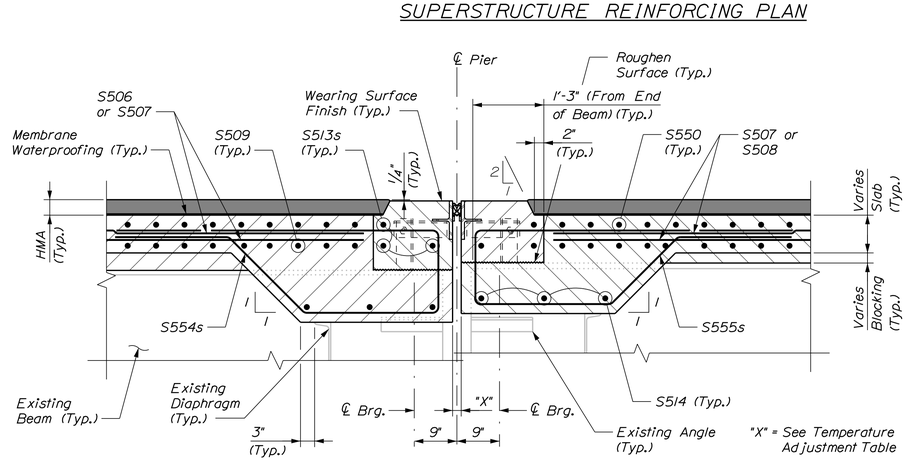
SUPERSTRUCTURE REINFORCING PLAN

NOTES

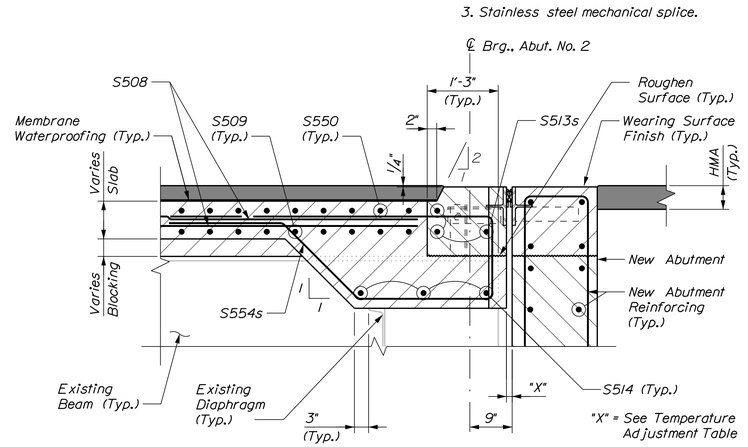
1. 30 ~ S515 Eq. Sp. (Outside Beams in Overhangs) (3 Ea. Overhang x 2 Stages x 5 Blockouts).
2. 60 ~ S514 Eq. Sp. (Between Beams) (3 Ea. Bay x 4 Bays x 5 Blockouts).
3. Stainless steel mechanical splice.



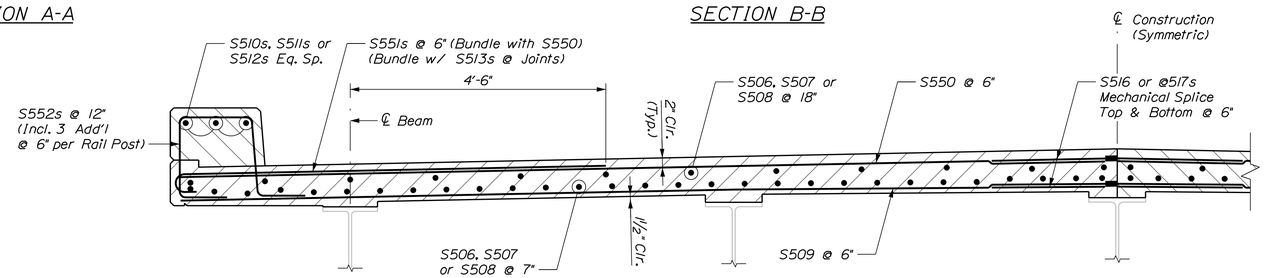
SECTION A-A



SECTION B-B



SECTION C-C



PART TRANSVERSE REINFORCING SECTION

TEMPERATURE ADJUSTMENT TABLE

Temp. (°F)	"X" (In.) @ Pier No. 1	"X" (In.) @ Pier No. 2	"X" (In.) @ Abut. No. 2
0	1.99	1.96	1.99
15	1.93	1.89	1.93
30	1.87	1.82	1.87
45	1.81	1.75	1.81
60	1.75	1.67	1.75
75	1.69	1.60	1.69
90	1.63	1.53	1.63

CV2502/WA250 compression seals

STATE OF MAINE
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BRIDGE NO. 5326

BRIDGE PLANS

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FIELD CHANGES		

PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

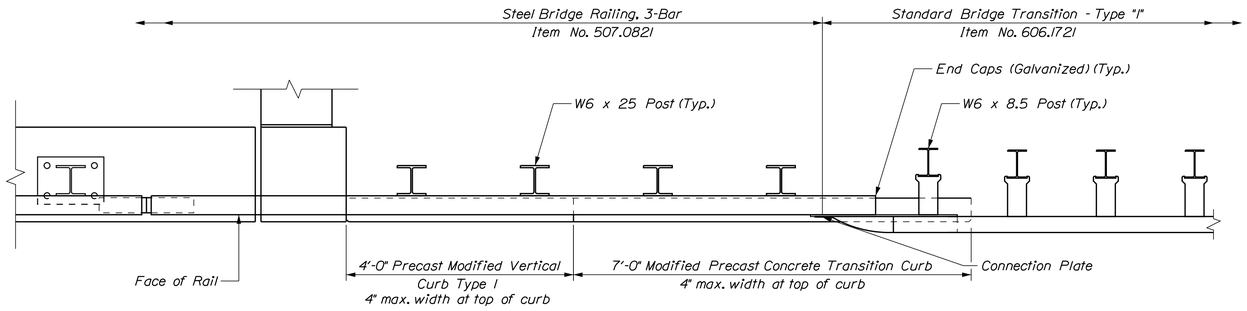
SUPERSTRUCTURE DETAILS

SHEET NUMBER

16

OF 18

Filename: ...\MSTA\016_Superstructure_ 2.dgn Division: BRIDGE Username: Date:11/1/2019



PLAN VIEW - STEEL BRIDGE RAILING, 3-BAR

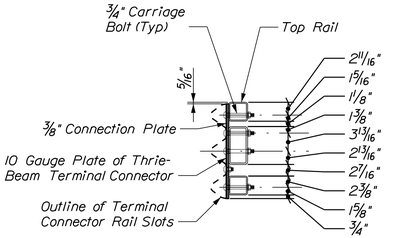
NOTES

1. All bridge approach rail materials, dimensions, sizes, and notes shall be the same as those of the bridge rail, unless otherwise noted.

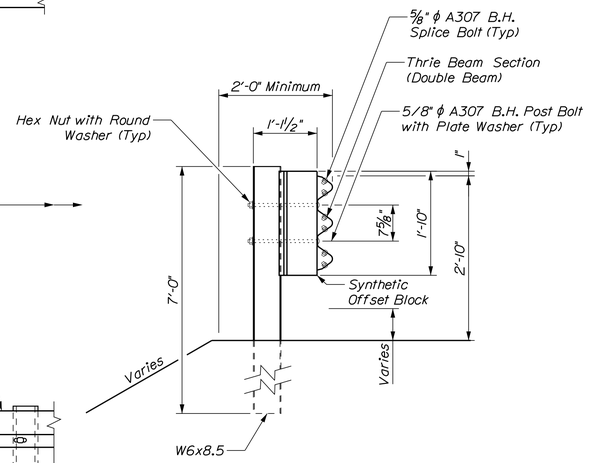
2. Carriage bolts shall be ASTM A307, and nuts shall be ASTM A563 Grade A or better (galvanized).

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

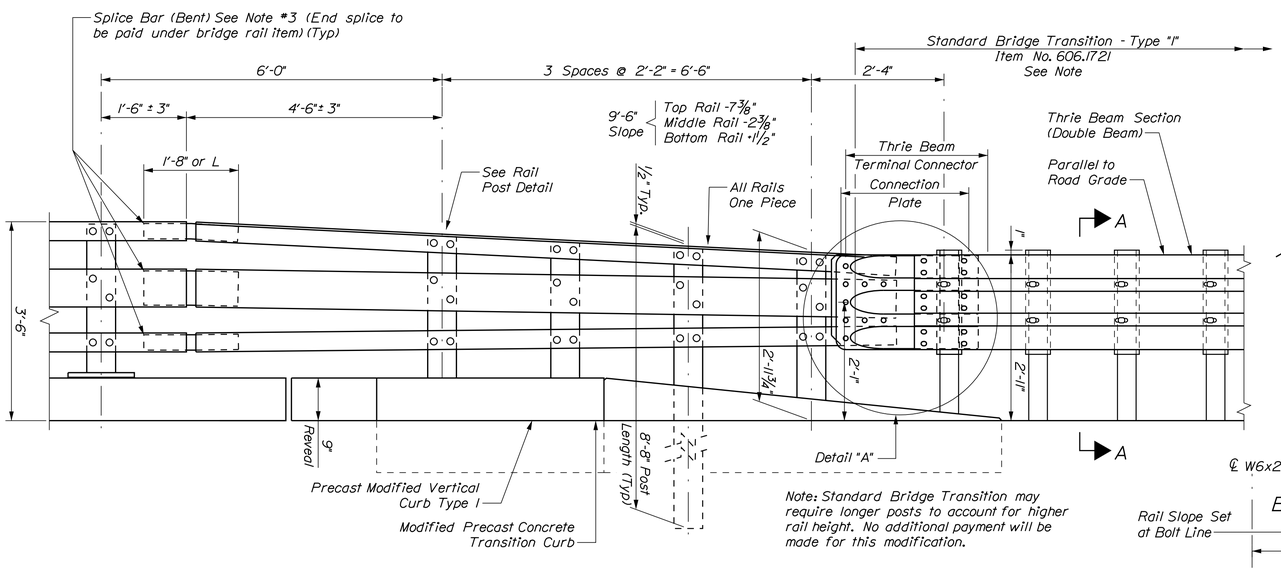
4. Precast concrete curbs will not be paid for seperately, but shall be considered incidental to other items.



SECTION B-B (CONNECTION PLATE)

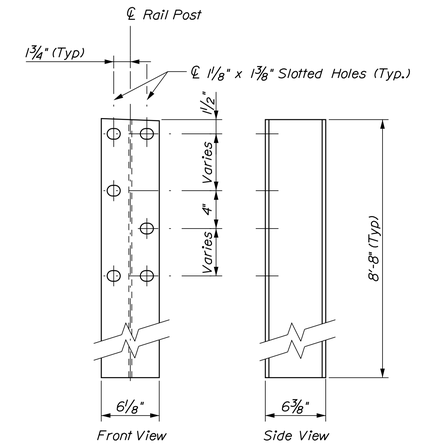


SECTION A-A (POST RAIL ASSEMBLY)

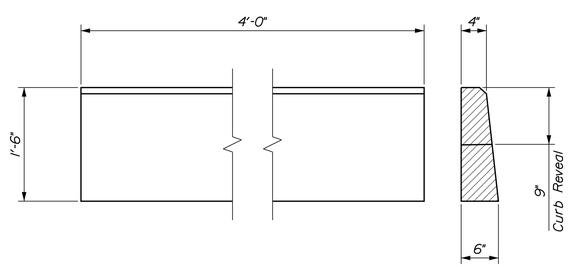


Note: Standard Bridge Transition may require longer posts to account for higher rail height. No additional payment will be made for this modification.

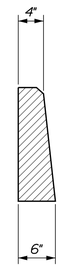
ELEVATION VIEW- STEEL BRIDGE RAILING, 3-BAR



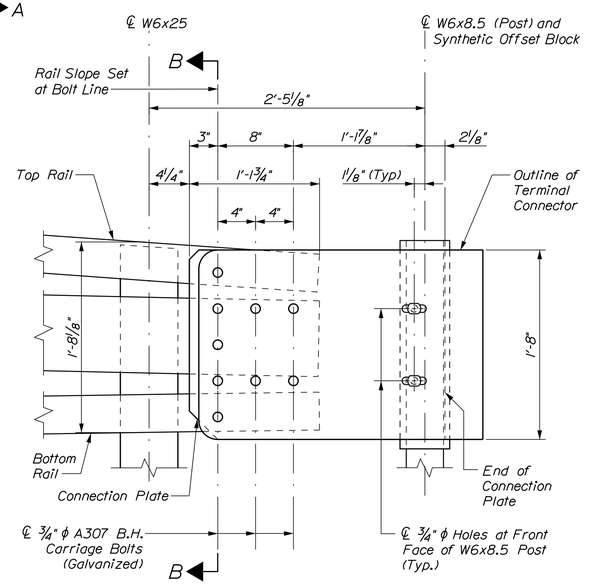
RAIL POST (W6x25)



PRECAST MODIFIED VERTICAL CURB TYPE I

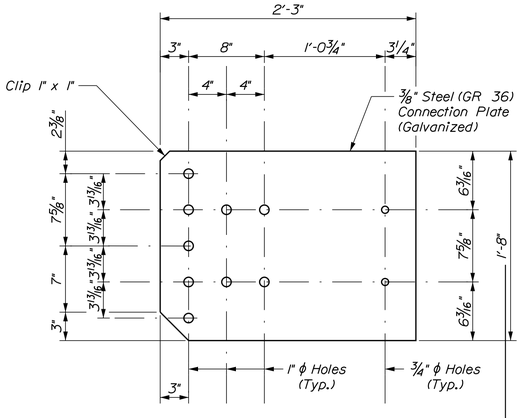


MODIFIED PRECAST CONCRETE TRANSITION CURB



DETAIL A

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



CONNECTION PLATE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2234600

WIN 022346.00

BRIDGE NO. 5326

BRIDGE PLANS

Hoyle, Tanner & Associates, Inc.

PROJ. MANAGER	J. STETSON	
DESIGN-DETAILED	A. Lochance	Sep. 2019
CHECKED-REVIEWED	P. Dustin	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

STEEL APPROACH RAILING 3-BAR

SHEET NUMBER

17

OF 18

Date:11/1/2019

Username:

Filename: ...\017_Steel_Approach_Railing_3-Bar.dgn Division: BRIDGE

STRAIGHT BARS

MARK	QTY.	LENGTH	LOCATION
			ABUTMENT NO. 1
A500	34	3'-0"	Vertical Dowel (Backwall F.F.)
A501	8	3'-9"	Vertical Dowel (Wingwall F.F.)
A502	42	2'-6"	Vertical Dowel (Abutment N.F.)
A506	16	16'-5"	Horizontal (Backwall E.F.)
A507	16	5'-1"	Horizontal (Wingwall E.F.)
A508	12	4'-1"	Horizontal (Wingwall E.F.)
A509	8	2'-7"	Vertical (Wingwall N.F.)
A510	16	1'-6"	Vertical (Backwall N.F.)
A511	16	2'-2"	Transverse Splice
			SUPERSTRUCTURE
S506	82	51'-2"	Longitudinal (Span 1)
S507	82	58'-2"	Longitudinal (Span 2)
S508	82	48'-2"	Longitudinal (Span 3)
S509	640	16'-4"	Transverse Bottom
S510s	6	52'-6"	Longitudinal Curbs (Span 1)
S511s	6	61'-0"	Longitudinal Curbs (Span 2)
S512s	6	51'-0"	Longitudinal Curbs (Span 3)
S513s	30	16'-4"	Expansion Joint Blockouts
S514	60	6'-4"	Between Beams
S515	30	2'-9"	Outside Beams (Overhangs)
S516	1274	2'-2"	Transverse Splice
S517s	30	2'-2"	Transverse Splice

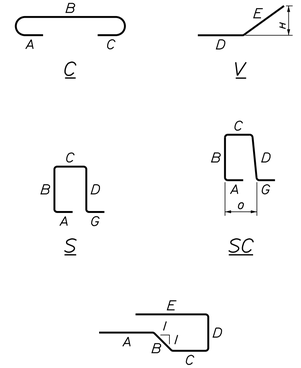
MARK	QTY.	LENGTH	LOCATION
			ABUTMENT NO. 2
B500	57	3'-5"	Vertical Dowel (F.F)
B501	39	2'-6"	Vertical Dowel (N.F.)
B506	24	16'-4"	Horizontal (Backwall E.F.)
B507	8	7'-4"	Horizontal (D.S. Wingwall E.F.)
B508	6	6'-0"	Horizontal (D.S. Wingwall E.F.)
B509	8	6'-4"	Horizontal (U.S. Wingwall E.F.)
B510	6	6'-7"	Horizontal (U.S. Wingwall E.F.)
B511	40	2'-3"	Vertical Backwall (N.F.)
B512	24	2'-2"	Transverse Splice

BENT BARS

MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
								ABUTMENT NO. 1						
A556	34	4'-10"	S	0"	1'-10"	1'-2"	1'-10"			0"				Backwall Stirrup
A557	10	5'-5"	S	0"	2'-3"	11"	2'-3"			0"				Wingwall Stirrup
								ABUTMENT NO. 2						
B550	8	4'-0"	V				1'-0"	3'-0"			2'-1½"			Horizontal (Wingwall E.F.)
B551	2	2'-3"	V				1'-0"	1'-3"			10½"			Horizontal (Wingwall N.F.)
B552	2	1'-8"	V				1'-0"	8"			5¾"			Horizontal (Wingwall F.F.)
B556	30	6'-2"	S	0"	2'-6"	1'-2"	2'-6"			0"				Backwall Stirrup
B557	4	7'-4"	S	0"	3'-1"	1'-2"	3'-1"			0"				Parapet Stirrup
B558	16	6'-9"	S	0"	2'-9"	11"	2'-9"			0"				Wingwall Stirrup
								SUPERSTRUCTURE						
S550	634	16'-11"	C	7"	16'-4"									Transverse Top
S551s	644	8'-1"	C	7"	7'-6"									Transverse Top (Overhangs)
S552s	484	5'-9"	SC	10"	17"	15"	17"			10"		16"		Curbs
S553	46	5'-2"	S	1'-0"	1'-0"	1'-2"				1'-0"				End of Slab (Abut. No. 1)
S554s	120	13'-2"	SJ	2'-0"	1'-9"	2'-4"	1'-6"	5'-7"						End of Slab (Exp. Joints)
S555s	80	12'-4"	SJ	2'-0"	1'-7"	2'-2"	1'-4"	5'-3"						End of Slab (Exp. Joints)

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.

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

2. Bar marks with "s" indicate stainless steel.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2234600

WIN 022346.00

BRIDGE PLANS

BRIDGE NO. 5326

Hoyle, Tanner & Associates, Inc.

PROJ. MANAGER	J. STETSON	DATE
DESIGN-DETAILED	A. Lachance	BY
CHECKED-REVIEWED		Sep. 2019
DESIGN2-DETAILED2		P. Dustin
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
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PENNAMAQUAN BRIDGE
PENNAMAQUAN RIVER
PEMBROKE WASHINGTON COUNTY

REINFORCING STEEL SCHEDULE

SHEET NUMBER

18

OF 18

Filename: ...\00\BRIDGE\MSTA\018_Rebar.dgn Division: BRIDGE Username: Date:11/1/2019