

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION



DIXFIELD - WILTON  
FRANKLIN COUNTY  
HALL BRIDGE  
OVER  
BUTTERFIELD BROOK  
ROUTES 2 & 17

STATE PROJECT 23144.00  
PROJECT LENGTH 0.04 mi.  
BRIDGE NO. 2341

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 (2019) AADT ..... 4260  
Future (2039) AADT ..... 4690  
DHV - % of AADT ..... 10  
Design Hour Volume ..... 469  
% Heavy Trucks (AADT) ..... 14  
% Heavy Trucks (DHV) ..... 17  
Directional Distribution (DHV) ..... 50  
18 kip Equivalent P 2.0 ..... 245  
18 kip Equivalent P 2.5 ..... 233  
Design Speed (mph) ..... 35

HYDROLOGIC DATA

Drainage Area ..... 2 sq mi  
Design Discharge (Q50) ..... 357 cfs  
Check Discharge (Q100) ..... 418 cfs  
Headwater Elevation (Q50) ..... 473.44 ft  
Headwater Elevation (Q100) ..... 473.59 ft  
Discharge Velocity (Q50) ..... 5.43 fps  
Discharge Velocity (Q100) ..... 5.94 fps  
Headwater Elevation (Q1.1) ..... 471.54 ft  
Discharge Velocity (Q1.1) ..... 2.41 fps  
Headwater Elevation (Q25) ..... 473.27 ft

MATERIALS

Concrete:  
Precast ..... Class "P"  
All Other ..... Class "A"  
Stainless Reinforcing Steel ..... ASTM A 955, Grade 75  
Plain Reinforcing Steel ..... ASTM A 615, Grade 60  
Welded Wire Reinforcement ..... ASTM A 1064

BASIC DESIGN STRESSES

Concrete  
Class "A" ..... f 'c = 4,000 psi  
Class "LP" ..... f 'c = 5,000 psi  
Precast Concrete ..... f 'c = 5,000 psi  
  
Reinforcing Steel ..... fy = 60,000 psi  
Stainless Reinforcing Steel ..... fy = 75,000 psi  
Welded Wire Reinforcement ..... fy = 65,000 psi

LIST OF DRAWINGS

Title Sheet .....	1
Estimated Quantities .....	2
General Plan .....	3
Profile .....	4
Boring Location Plan .....	5
Interpretive Subsurface Profile .....	6
Boring Logs .....	7
Staging Sections .....	8
Cross Sections .....	9-12
Culvert Details .....	13-16
Right of Way Map .....	17

UTILITIES

Central Maine Power Company  
Consolidated Communications  
Charter Communications

MAINTENANCE OF TRAFFIC

Staged Construction: Maintain one 14 foot wide (minimum) travel way of alternating one-way traffic utilizing temporary traffic signals while the new structure is constructed.

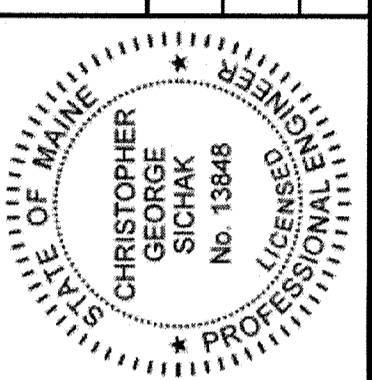
PROJECT LOCATION:	Hall Bridge #2341 carries US Route 2 & Route 17 over Hooper (Butterfield) Brook. Lat./Long. 44°-34'-22" N, 70°-18'-04" W
PROGRAM AREA:	Bridge Program
OUTLINE OF WORK:	Bridge Replacement with approximately 190 ft. of approach work

ERDMAN  
ANTHONY



WIN 23144.00

STATE OF MAINE DEPARTMENT OF TRANSPORTATION	APPROVED	DATE
		7-30-21
	COMMISSIONER:	7-30-21
	CHIEF ENGINEER:	7-30-21



PROJECT INFORMATION	BRIDGE PROGRAM	SIGNATURE	13848	P.E. NUMBER	06/23/2021	DATE
PROGRAM	PROJECT MANAGER	DESIGNER	CONSULTANT	PROJECT RESIDENT	CONTRACTOR	PROJECT COMPLETION DATE
	MICHAEL WIGHT	CHRIS SICHAK	ERDMAN ANTHONY			

DIXFIELD - WILTON HALL BRIDGE	TITLE SHEET
----------------------------------	-------------

SHEET NUMBER
1
OF 17

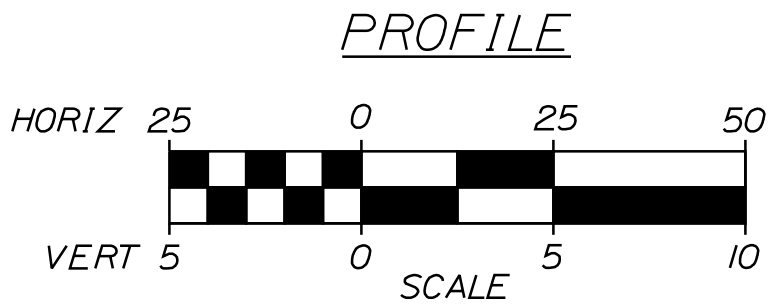
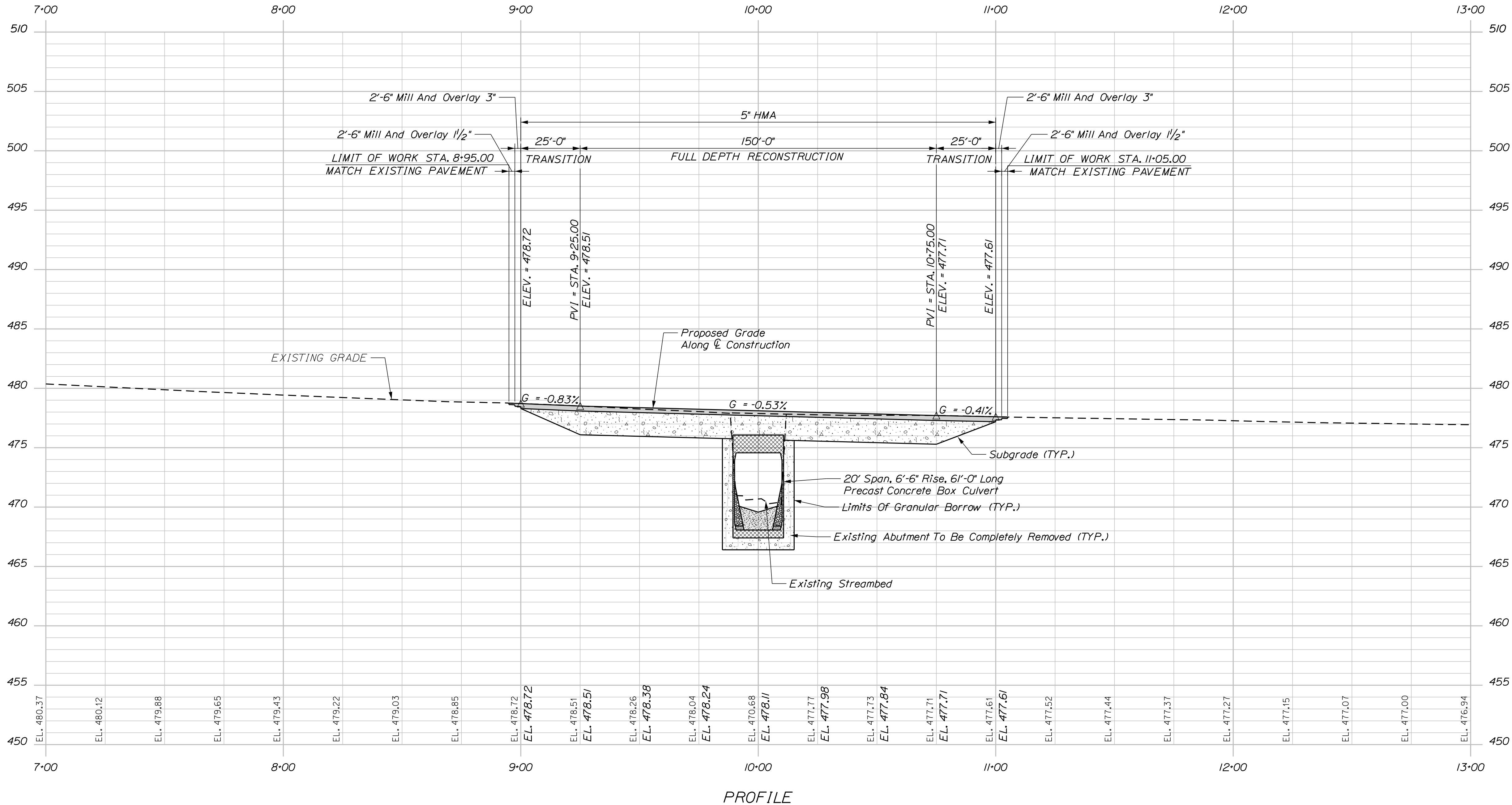
[illegible]

## GENERAL CONSTRUCTION NOTES

- For easements, construction limits and right of way lines, refer to Way Map.
2. The clearing limits as shown on the plans are approximate. The exact limits will be established in the field by the Resident. Payment for clearing will be considered incidental to Contract items.
3. All utility facilities shall be adjusted by the respective utilities unless otherwise noted.
4. Do not excavate for Aggregate Subbase Course where existing material is suitable as determined by the Resident.
5. In areas where the Resident directs the Contractor not to excavate to the subgrade line shown on the plans, payment for removing existing pavement, grubbing, shaping, ditching, and compacting the existing subbase and layers of new subbase 6 inches or less thick will be made under appropriate equipment rental items.
6. All embankment material, except as otherwise shown, placed below EL. 475.77 shall be Granular Borrow meeting the requirements of Standard Specifications Subsection 703.19, Materials for Underwater Backfill.
7. Place riprap on side slopes up to EL. 472.25.
8. Place loam 2 inches deep on all new or reconstructed sideslopes unless otherwise shown or as directed by the Resident.
9. Place a 24-in. wide strip of Temporary Erosion Control Blanket on the sideslopes along the top of the riprap and behind the wingwalls.
10. An NCHRP350 or MASH compliant guardrail end treatment shall be installed concurrently with the placement of each section of beam guardrail.
11. Where it is apparent that runoff will cause continual erosion, 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. Payment will be made under the appropriate Contract items.
12. Protective Coating for Concrete Surfaces shall be applied to the following areas:  
Concrete headwalls, including to one foot inside the box; Exposed tops of vertical walls and one foot below the ground on the back side; Exposed faces of vertical walls and to one foot inside the box.
13. Project information referred to below may be accessed at the following MaineDOT web address: <http://www.maine.gov/mdot/contractors/>.
14. 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.
15. The hydrologic report of the bridge site may be accessed at the MaineDOT web address. The hydrologic report is based on MaineDOT's interpretation of the information obtained for the subject site. No assurance is given that the information or the conclusions of the report will be representative of actual conditions at the time of construction.
16. The project geotechnical report titled: Geotechnical Design Report for the Hall Bridge #2341 Replacement; Route 2 over Hooper/Butterfield Brook; Wilton, Maine; dated June 15, 2020 may be accessed at the MaineDOT web address.
17. Geotechnical information furnished or referred to in this plan set is for the use of the Bidders and the Contractor. No assurance is given that the information or interpretations will be representative of actual subsurface conditions at the construction site. MaineDOT will not be responsible for the Bidders' or Contractor's interpretations of, or conclusions drawn from, the geotechnical information. The boring logs contained in the plan set present factual and interpretive subsurface information collected at discrete locations. Data provided may not be representative of the subsurface conditions between the boring locations.
18. 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.
19. The Contractor shall submit a Bridge Demolition Plan to the Resident at least 10 business days prior to the start of demolition work. The plan shall outline the methods and equipment to be used to remove and dispose of all materials included in the existing bridge. No work related to the removal of the bridge shall be undertaken by the Contractor until 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.
20. Existing signs within project limits shall be removed and reset as directed by the Resident. Payment for removal and reinstallation of existing signs will be considered incidental to the contract. No separate payment will be made.

SHEET NUMBER  2  OF 17		HALL BRIDGE BUTTERFIELD BROOK FRANKLIN COUNTY WILTON		PROJ. MANAGER   MICHAEL WIGHT		BY   DATE T. LINDO   6/20/21 C. SIOHAK   6/20/21		STATE OF MAINE DEPARTMENT OF TRANSPORTATION	
ESTIMATED QUANTITIES		DESIGN-DETAILED		E. FARRELL		T. LINDO		6/20/21	
		CHECKED-REVIEWED		C. SIOHAK		C. SIOHAK		6/20/21	
		DESIGN2-DETAILED02							
		DESIGN3-DETAILED03							
		REVISIONS 1						P.E. NUMBER	
		REVISIONS 2						DATE	
		REVISIONS 3							
		REVISIONS 4							
		FIELD CHANGES							
								BRIDGE NO. 2341	
								WIN 23144.00	
								BRIDGE PLANS	





STATE OF MAINE

DEPARTMENT OF TRANSPORTATION

WILTON

HALL BRIDGE

BUTTERFIELD BROOK

FRANKLIN COUNTY

PROFILE

SHEET NUMBER

4

OF 17

DESIGNED BY

DESIGNED

DESIGNED

DESIGNED

DATE

6/2021

6/2021

6/2021

BY

T. LINDO

C. SCHAK

C. SCHAK

PROJ. MANAGER

MICHAEL WIGHT

E. FARRELL

C. SCHAK

CHECKED

REVIEWED

DESIGNED

DESIGNED

DATE

6/2021

6/2021

6/2021

BY

T. LINDO

C. SCHAK

C. SCHAK

PROJ. MANAGER

MICHAEL WIGHT

E. FARRELL

C. SCHAK

CHECKED

REVIEWED

DESIGNED

DESIGNED

DATE

6/2021

6/2021

6/2021

BY

T. LINDO

C. SCHAK

C. SCHAK

PROJ. MANAGER

MICHAEL WIGHT

E. FARRELL

C. SCHAK

CHECKED

REVIEWED

DESIGNED

DESIGNED

DATE

6/2021

6/2021

6/2021

SIGNATURE

P.E. NUMBER

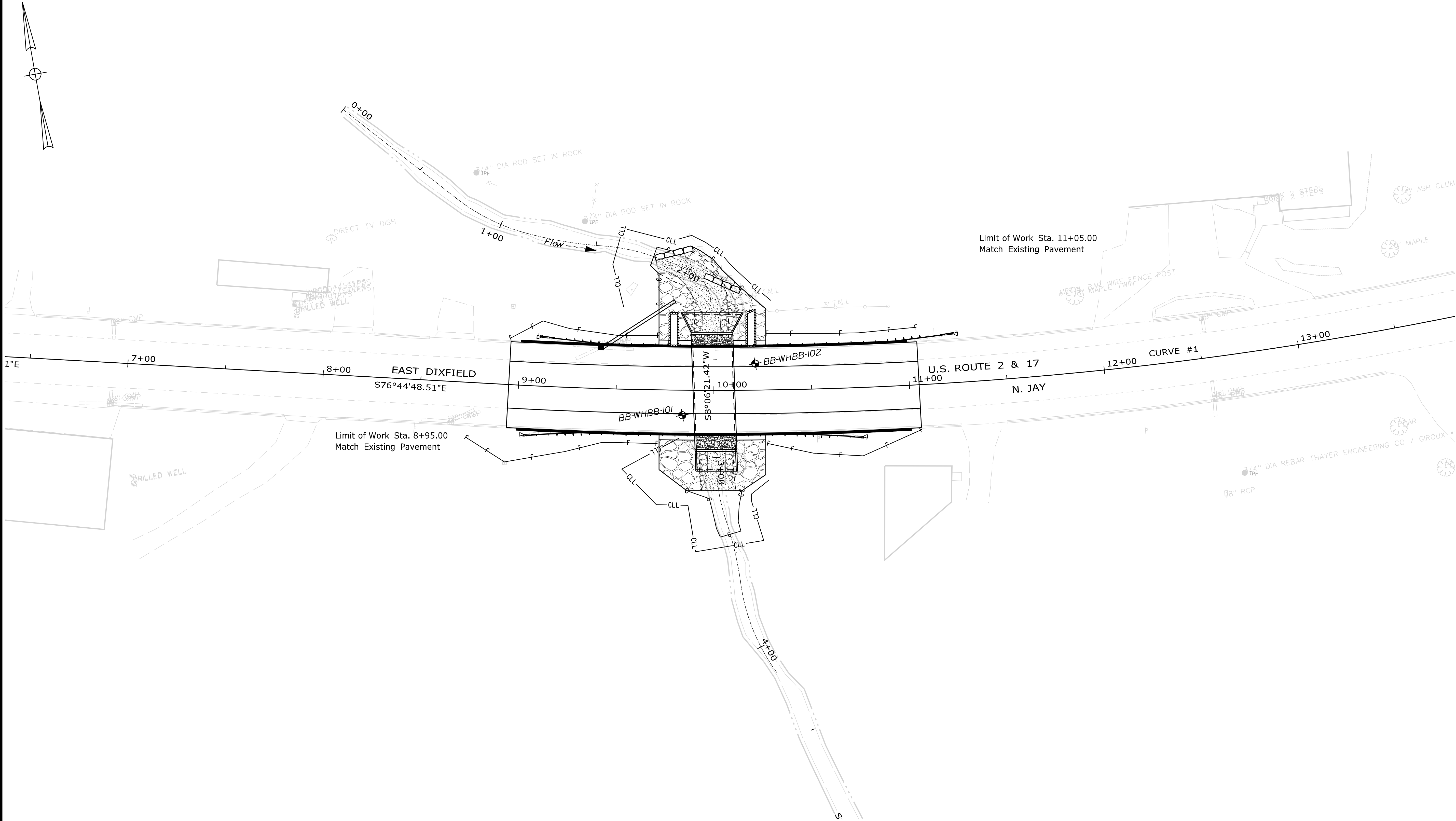
DATE

BRIDGE NO. 2341

WIN

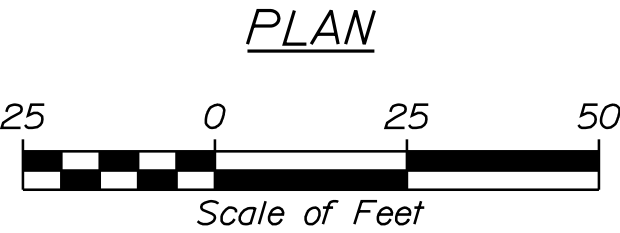
231444.00

BRIDGE PLANS



LEGEND

⊕ CASED WASH BORING



PROJ. MANAGER	MICHAEL WRIGHT	BY	DATE
DESIGN-DETAILED	E. FARRELL	T. LINDO	6/2021
CHECKED-REVIEWED	C. SCHAK	C. SCHAK	6/2021
DESIGNS DETAILLED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

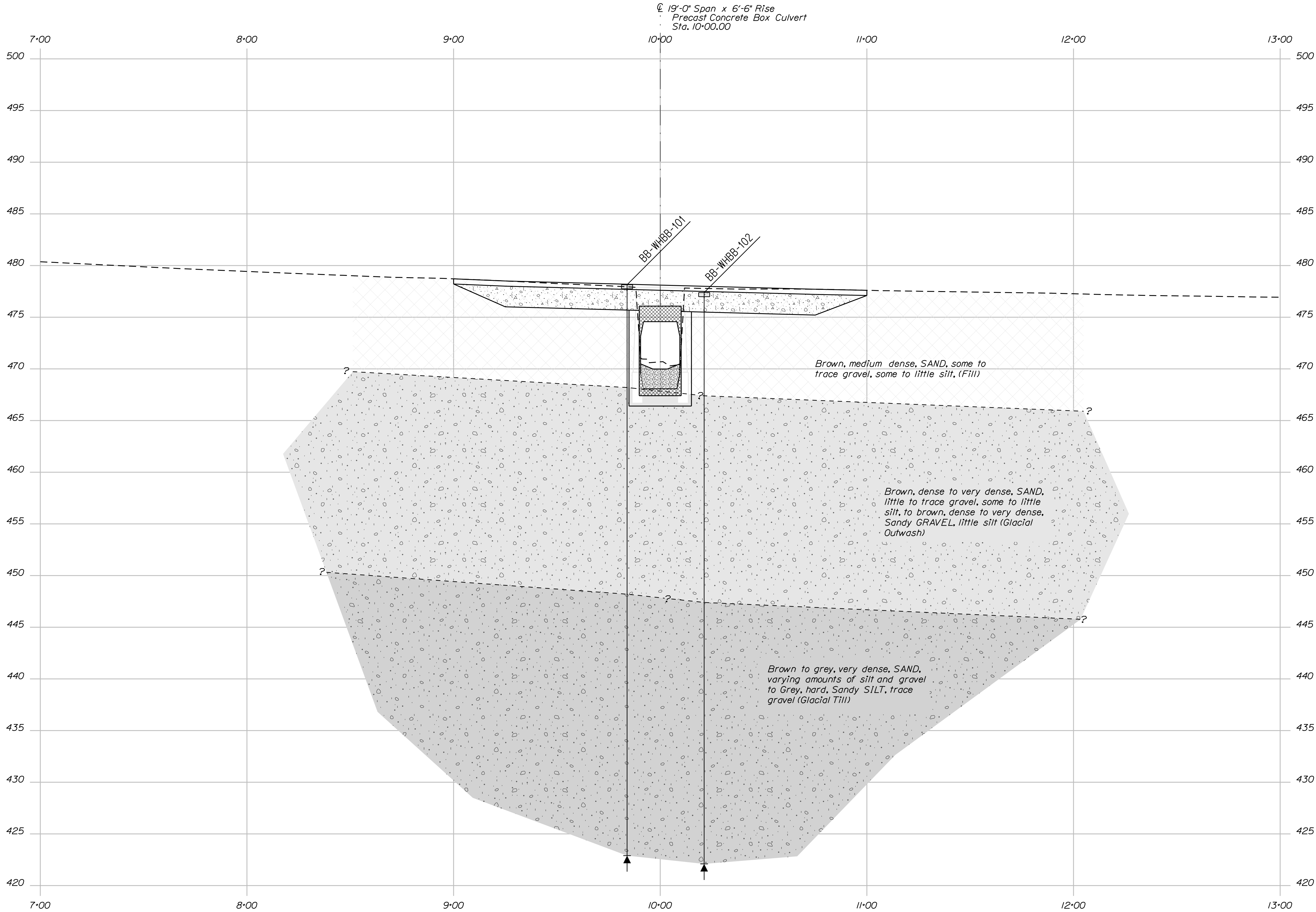
SIGNATURE	P.E. NUMBER	DATE

Date: 6/23/2021

Username:

Division: BRIDGE

Filename: ... \00\Bridge\WSTA\006\_ISP.dgn



19'-0" Span x 6'-6" Rise  
Precast Concrete Box Culvert  
Sta. 10+00.00

BB-WHBB-101

BB-WHBB-102

Brown, medium dense, SAND, some to trace gravel, some to little silt, (Fill)

Brown, dense to very dense, SAND, little to trace gravel, some to little silt, to brown, dense to very dense, Sandy GRAVEL, little silt (Glacial Outwash)

Brown to grey, very dense, SAND, varying amounts of silt and gravel to Grey, hard, Sandy SILT, trace gravel (Glacial Till)

PROFILE

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

**LEGEND**

Weathered Bedrock, if applicable

Approximate Top of Bedrock

Boring No. 101

Offset 11'

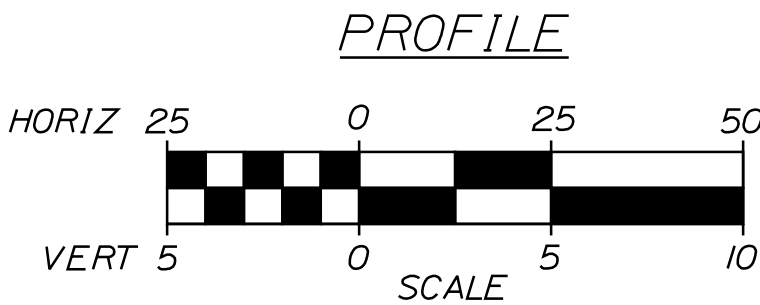
Pavement Thickness, if applicable

Rock Quality Designation for Rock Core Sample

BOE= Bottom Of Exploration

NR No Refusal

R Refusal



STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

WIN  
23144.00

BRIDGE NO. 2341  
BRIDGE PLANS

PROJ. MANAGER	MICHAEL WRIGHT	BY	T. LINDO	DATE	6/2021
DESIGN-DETAILED	E. FARRELL	CHECKED-REVIEWED	C. SCHAK	SIGNATURE	
DESIGNS-DETAILED		DESIGNS-DETAILED		P.E. NUMBER	
REVISIONS 1		REVISIONS 1		DATE	
REVISIONS 2		REVISIONS 2			
REVISIONS 3		REVISIONS 3			
REVISIONS 4		REVISIONS 4			
FIELD CHANGES					

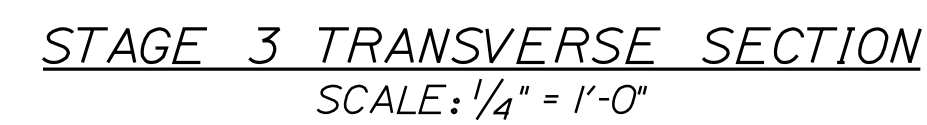
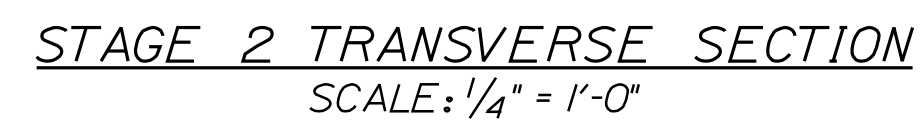
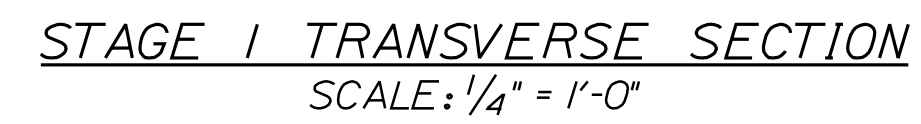
HALL BRIDGE  
BUTTERFIELD BROOK  
FRANKLIN COUNTY  
WILTON

INTERPRETIVE SUBSURFACE  
PROFILE

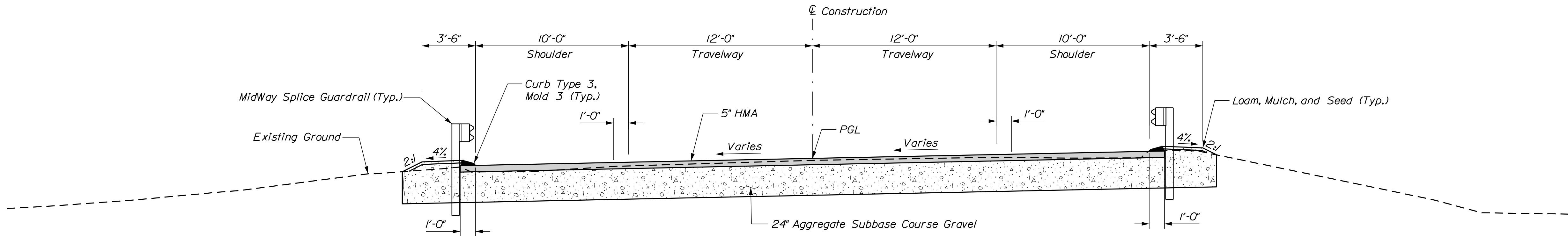
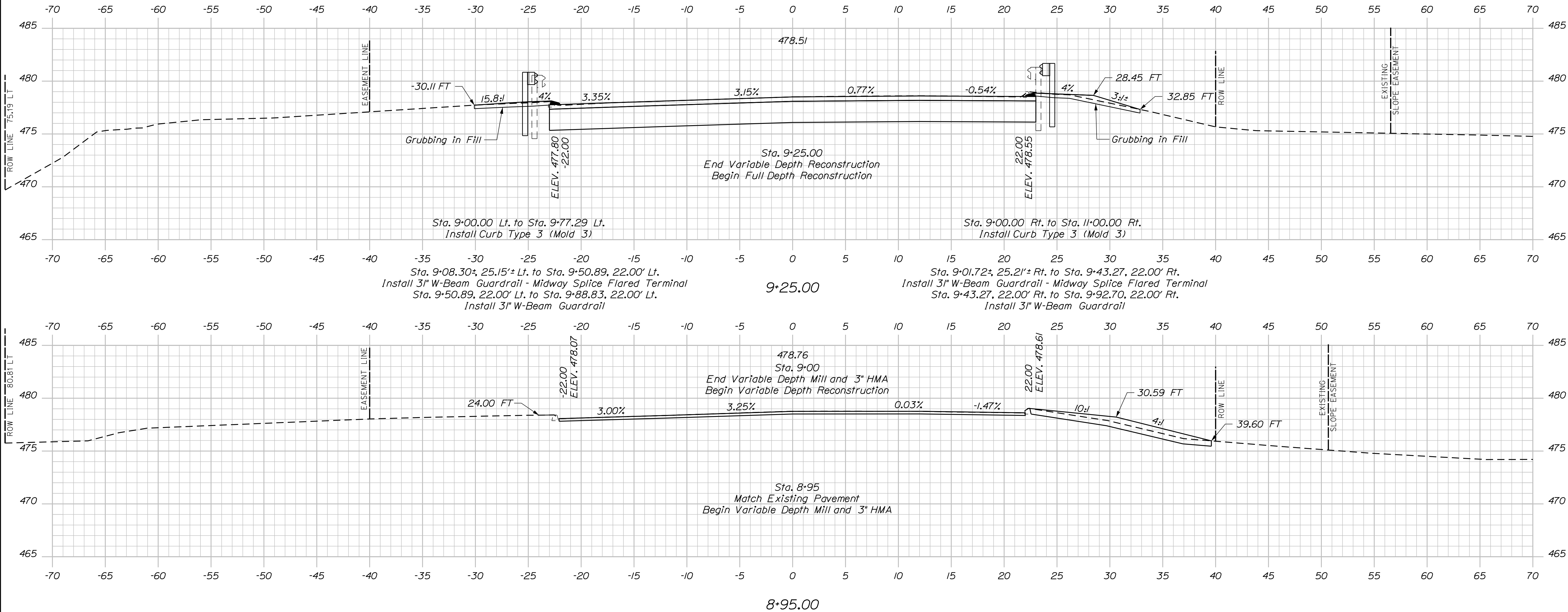
SHEET NUMBER  
  
6  
OF 17

ERDMAN  
ANTHONY

*The intent of this drawing is to show a conceptual layout for the placement of the temporary detour features. Actual location for placement of the various features shall be determined by the Contractor and be in conformance with MaineDOT requirements.*



ERDMAN  
ANTHONY



APPROACH SECTION - FULL DEPTH  
Sta. 9+25.00 to Sta. 10+75.00

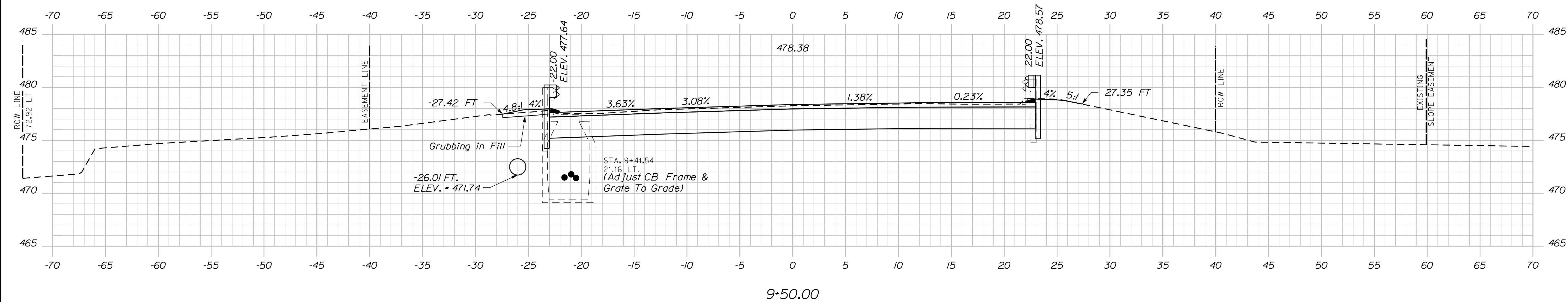
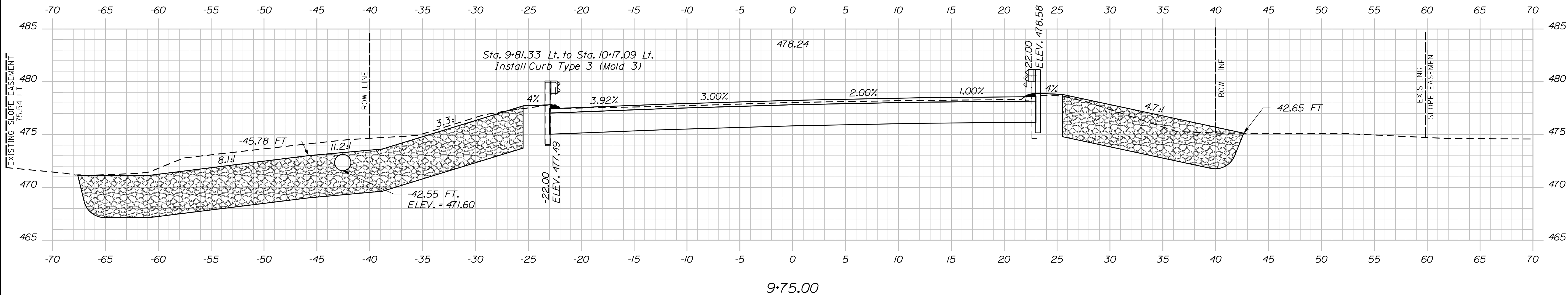
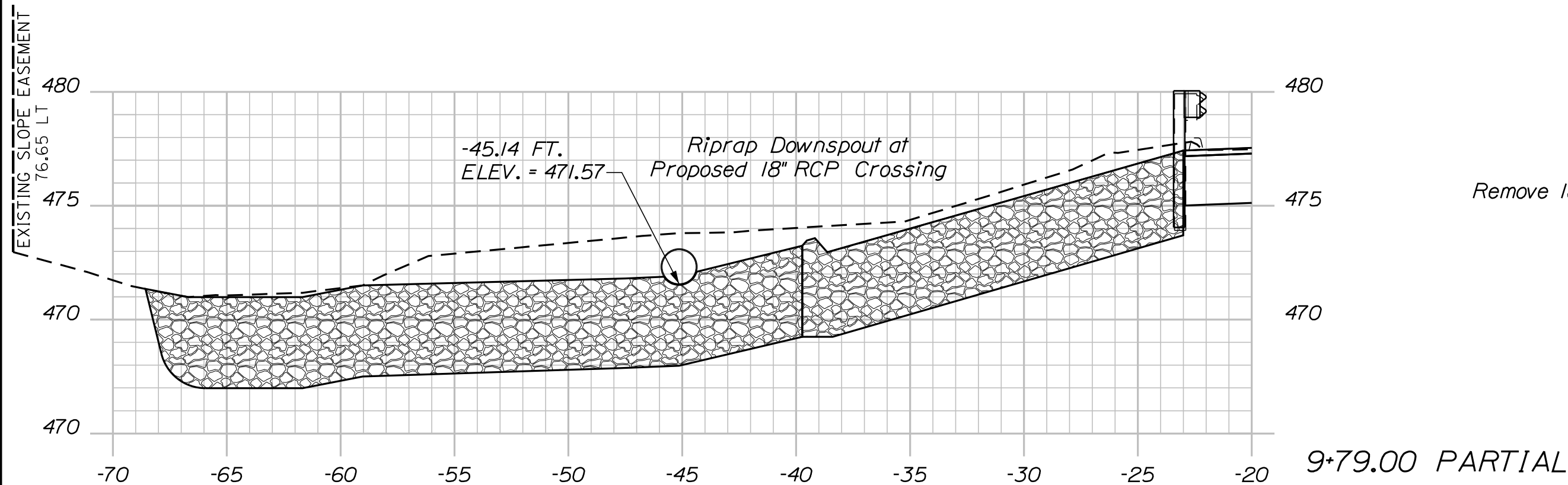
STATE OF MAINE DEPARTMENT OF TRANSPORTATION		BRIDGE NO. 2341		WIN 23144.00		BRIDGE PLANS	
WILTON		BUTTERFIELD BROOK FRANKLIN COUNTY		CROSS SECTIONS		9+25.00	
SHEET NUMBER		9		OF 17			
PROJ. MANAGER	MICHAEL WIGHT	BY	I. LINDO	DATE	6/2021	SIGNATURE	
CHECKED	E. FARRELL	DESIGNED	C. SCHAK	DATE	6/2021	P.E. NUMBER	
DESIGNED	C. SCHAK	DESIGNED	C. SCHAK	DATE		DATE	
REVISIONS	1	REVISIONS	2	REVISIONS	3	REVISIONS	4
FIELD CHANGES		FIELD CHANGES		FIELD CHANGES		FIELD CHANGES	

Date:6/23/2021

Username:

Division: BRIDGE

Filename: ... \Bridge\MSTA\010\_xsect\_02.dgn

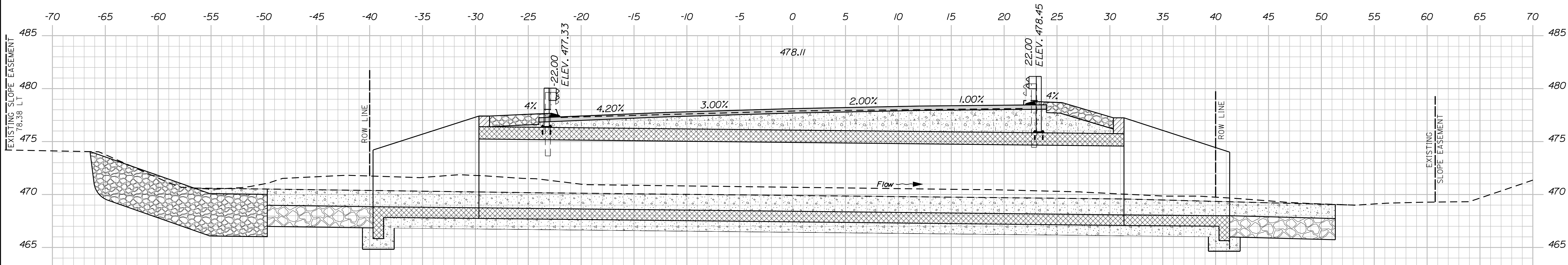
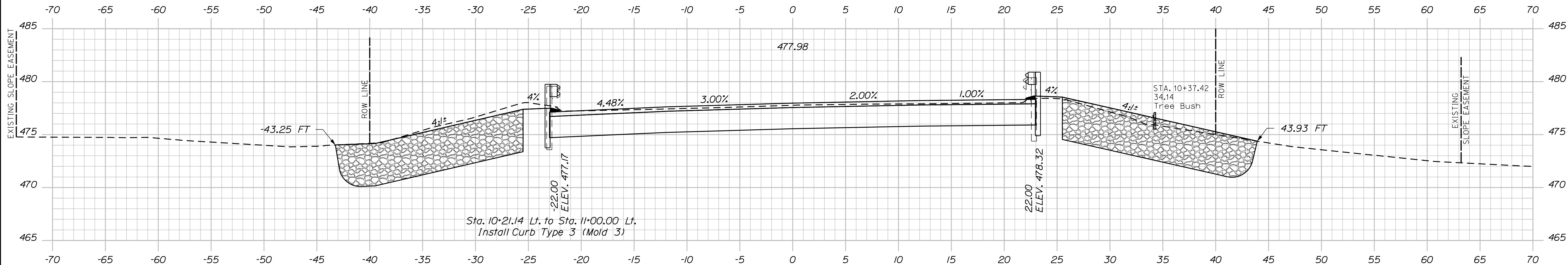
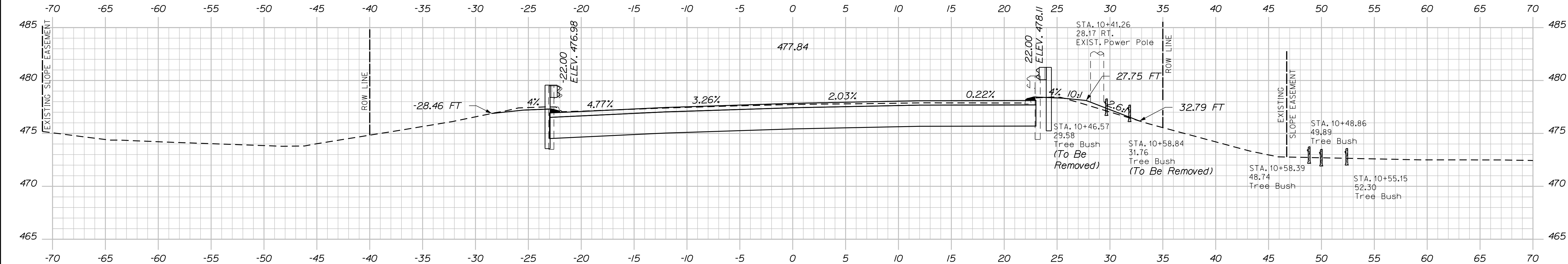


Date:6/23/2021

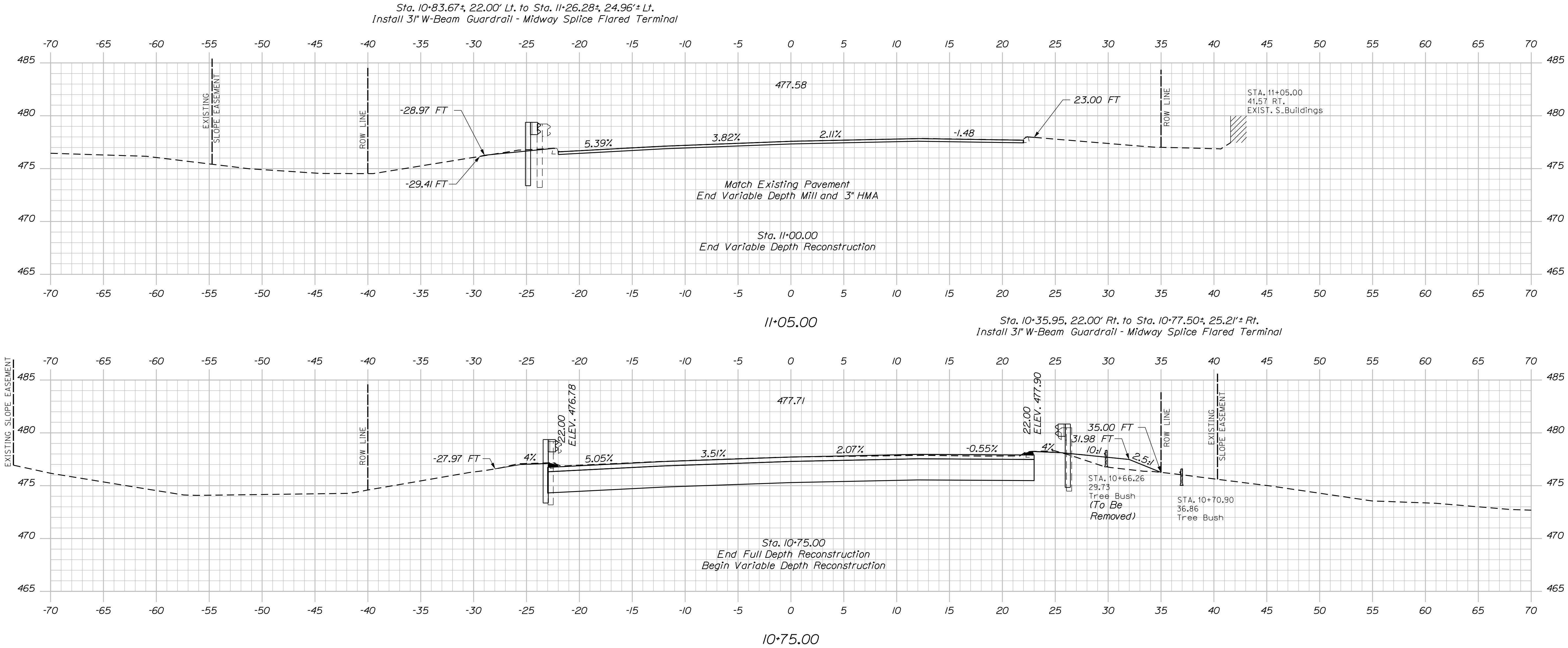
Username:

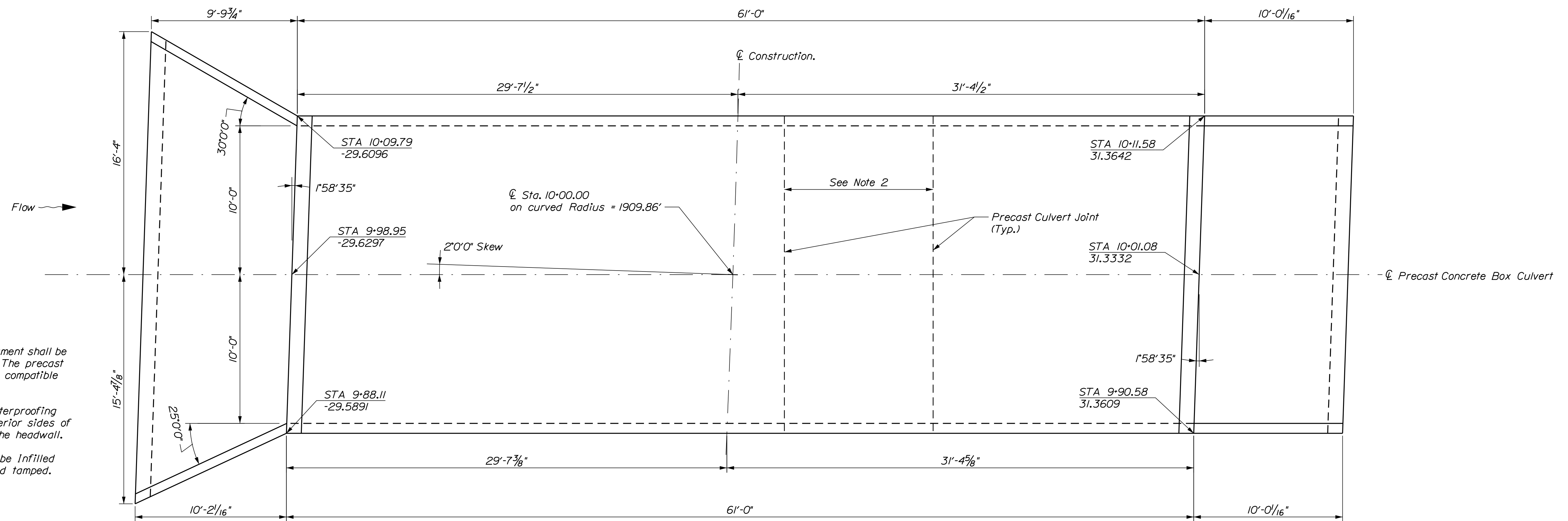
Division: BRIDGE

Filename: ... \Bridge\MSTA\011\_Xsect\_03.dgn

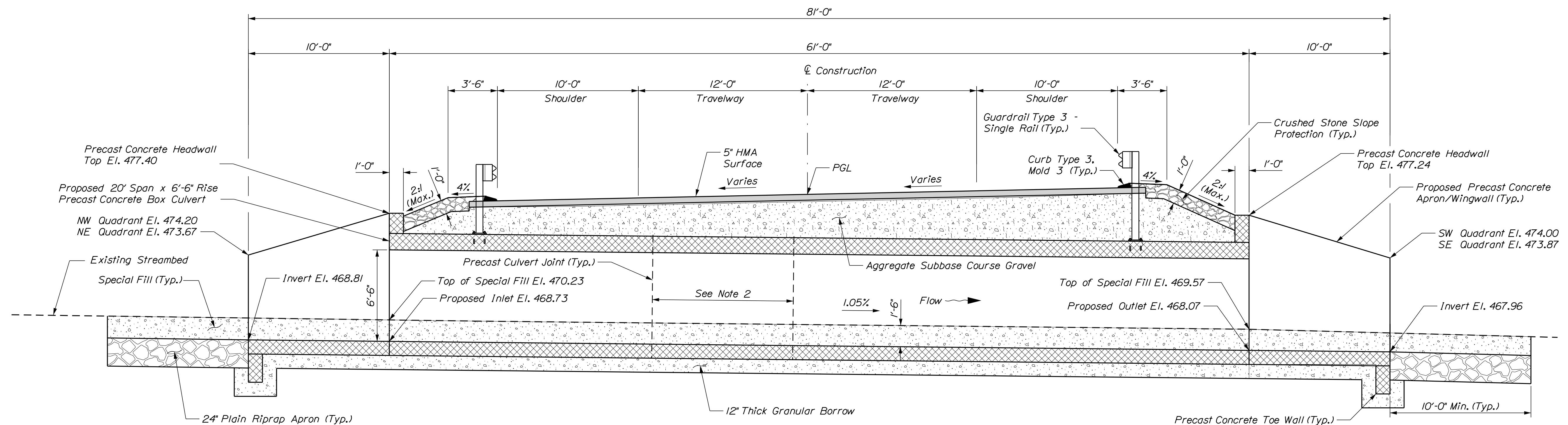


STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		BRIDGE PLANS	
WILTON		FRANKLIN COUNTY		10+00.00 CROSS SECTIONS 10+50.00	
HALL BRIDGE		BUTTERFIELD BROOK		11	
SHEET NUMBER		WIN		23144.00	
DATE		SIGNATURE		P.E. NUMBER	
BY		DATE		DATE	
PROJ. MANAGER		DESIGN-DETAILED		REVISIONS 1	
MICHAEL WIGHT		E. FARRELL		REVISIONS 2	
C. SICHAK		C. SICHAK		REVISIONS 3	
DESIGN-REVIEWED		DESIGN-DETAILED		REVISIONS 4	
FIELD CHANGES		FIELD CHANGES		FIELD CHANGES	





CULVERT PLAN



TRANSVERSE SECTION

Scale:  $1/4"=1'-0"$

*Note:*

Roadway dimensions shown here may not be to scale.

Normal widths shown are measured perpendicular to the centerline of construction.

NOTES

1. *The length of each culvert segment shall be determined by the contractor. The precast culvert segment length must be compatible with staging requirements.*
2. *Install standard membrane waterproofing over the top, 12" down the exterior sides of the precast units, and 12" up the headwall.*
3. *VOIDS in Riprap Aprons shall be Infilled with Special Fill watered-in and tamped.*

STATE OF MAINE	
DEPARTMENT OF TRANSPORTATION	
BRIDGE NO. 2341	WIN 23144.00
	BRIDGE PLANS

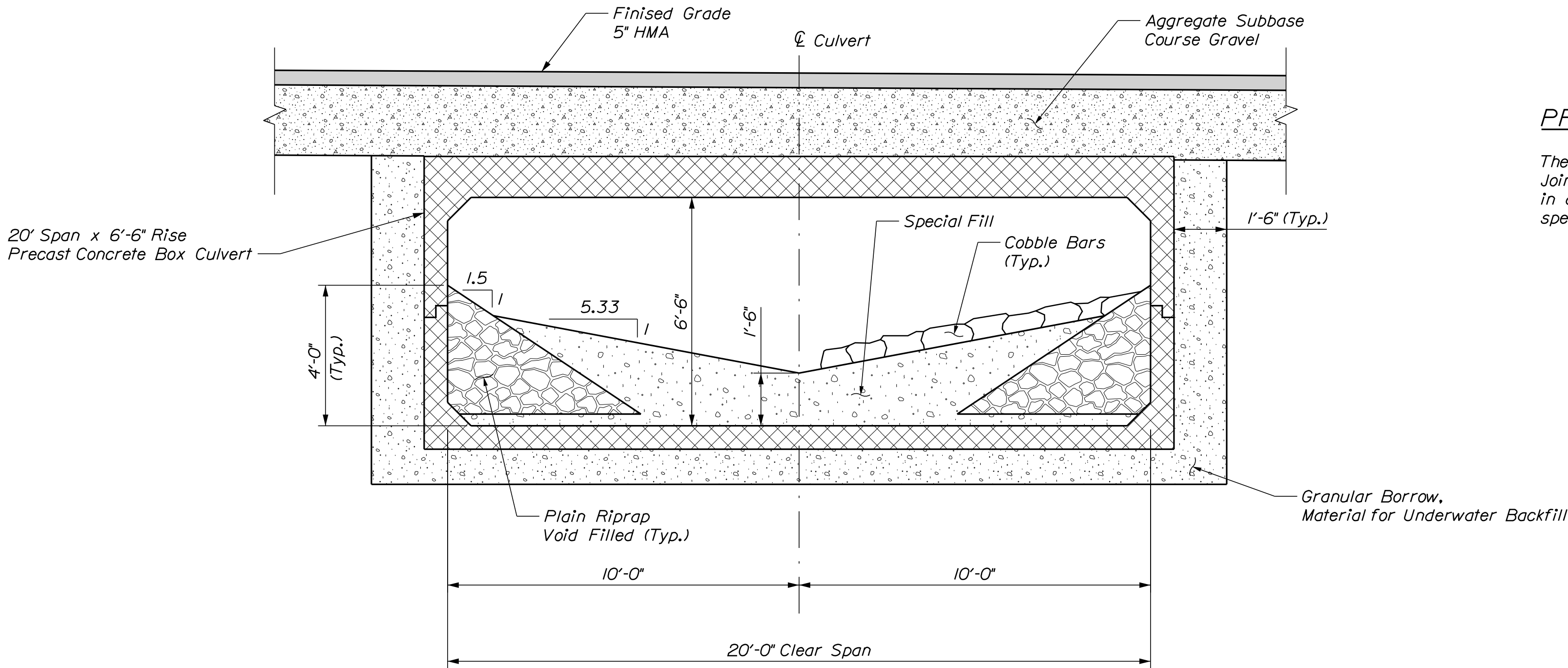
DESIGN-DETAILED	E. F. ARELLANO	6/2/2021
CHECKED-REVIEWED	C. SICHAH	6/2/2021
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		
SIGNATURE		
P.E. NUMBER		
DATE		

WILTON  
 BUTTERFIELD BROOK  
 HALL BRIDGE  
 FRANKLIN COUNTY  
 SPECIAL DETAIL - PRECAST  
 BOX CULVERT (1 OF 4)

SHEET NUMBER

13

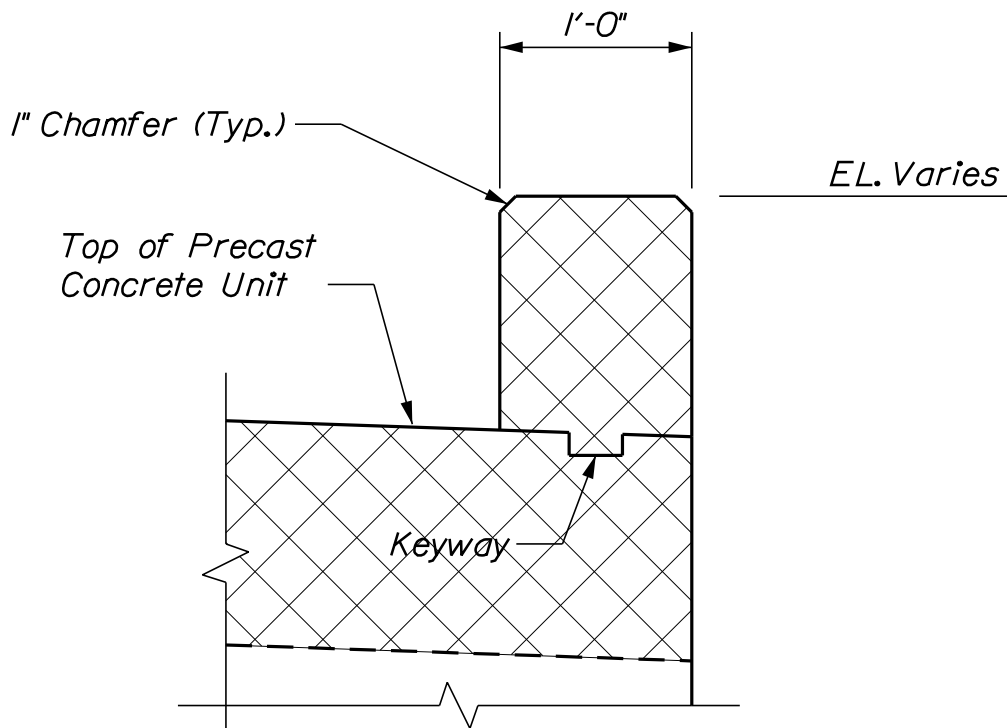
OF 17



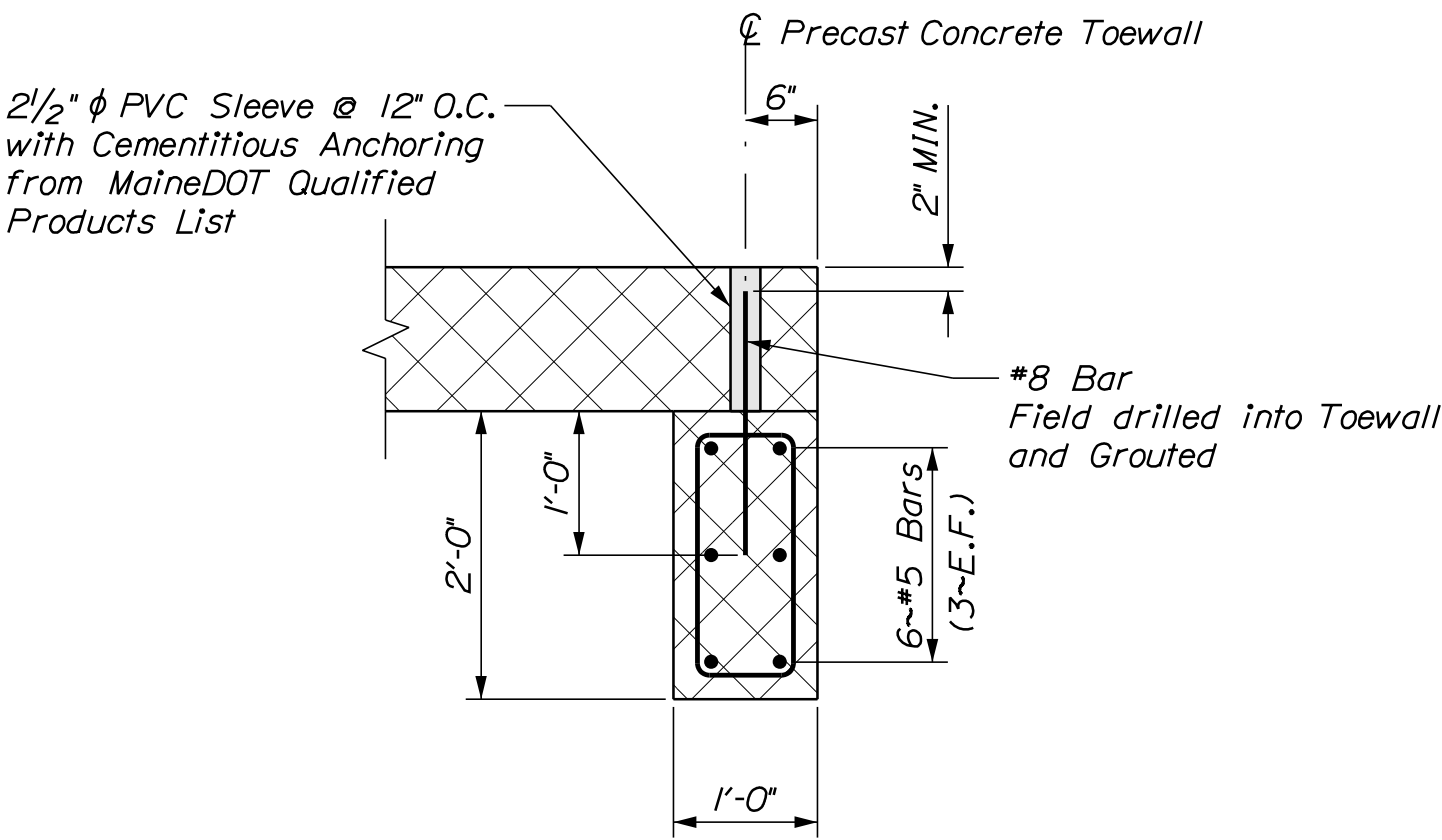
**PRECAST CONCRETE BOX NOTE:**

The contractor shall us a "clamshell" type structure. Joining the top and the bottom sections shall be in accordance with the manufacturer's specification

**TYPICAL CULVERT SECTION**



**HEADWALL DETAIL**  
 NOT TO SCALE

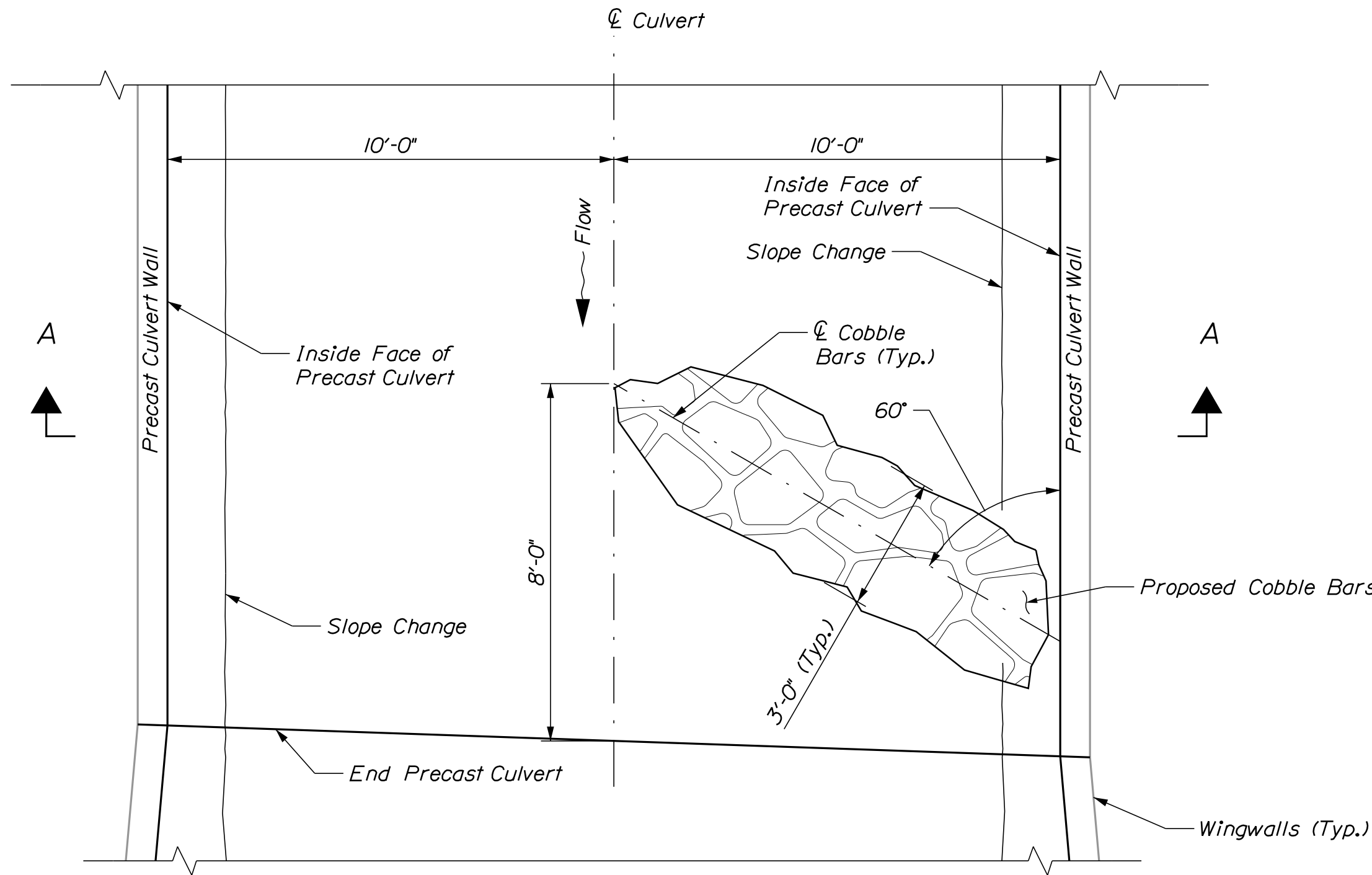


**PRECAST CONCRETE TOEWALL DETAIL**

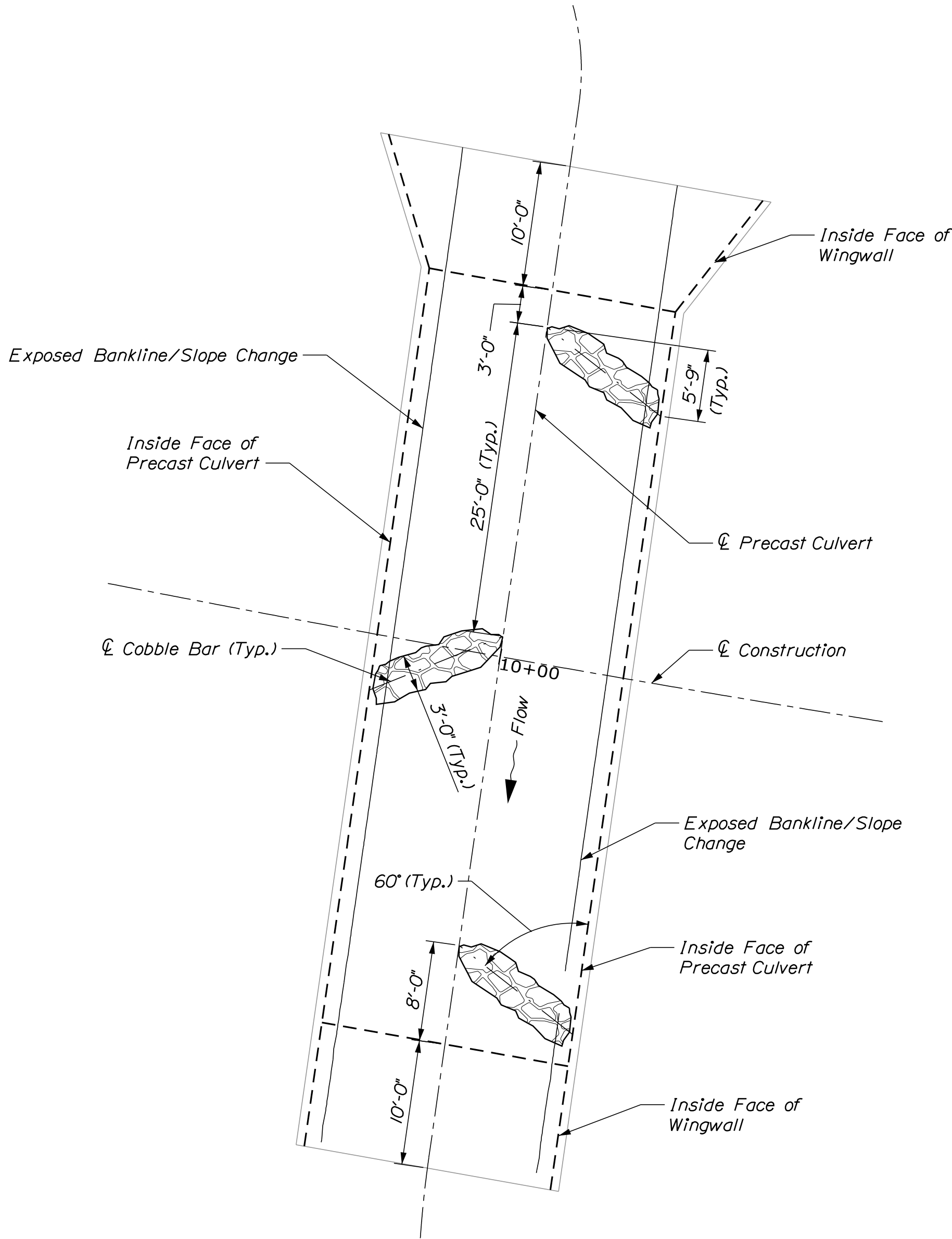
**NOTES**

1. Headwall reinforcement shall be stainless steel

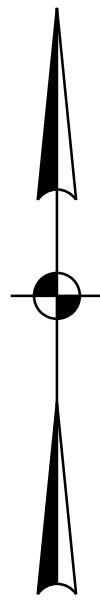
STATE OF MAINE		DEPARTMENT OF TRANSPORTATION	
WILTON		SIGNATURE	
HALL BRIDGE		P.E. NUMBER	
BUTTERFIELD BROOK		DATE	
FRANKLIN COUNTY		BRIDGE NO. 2341	
SPECIAL DETAIL - PRECAST BOX CULVERT (2 of 4)		WIN 23144.00	
SHEET NUMBER		BRIDGE PLANS	
14		OF 17	



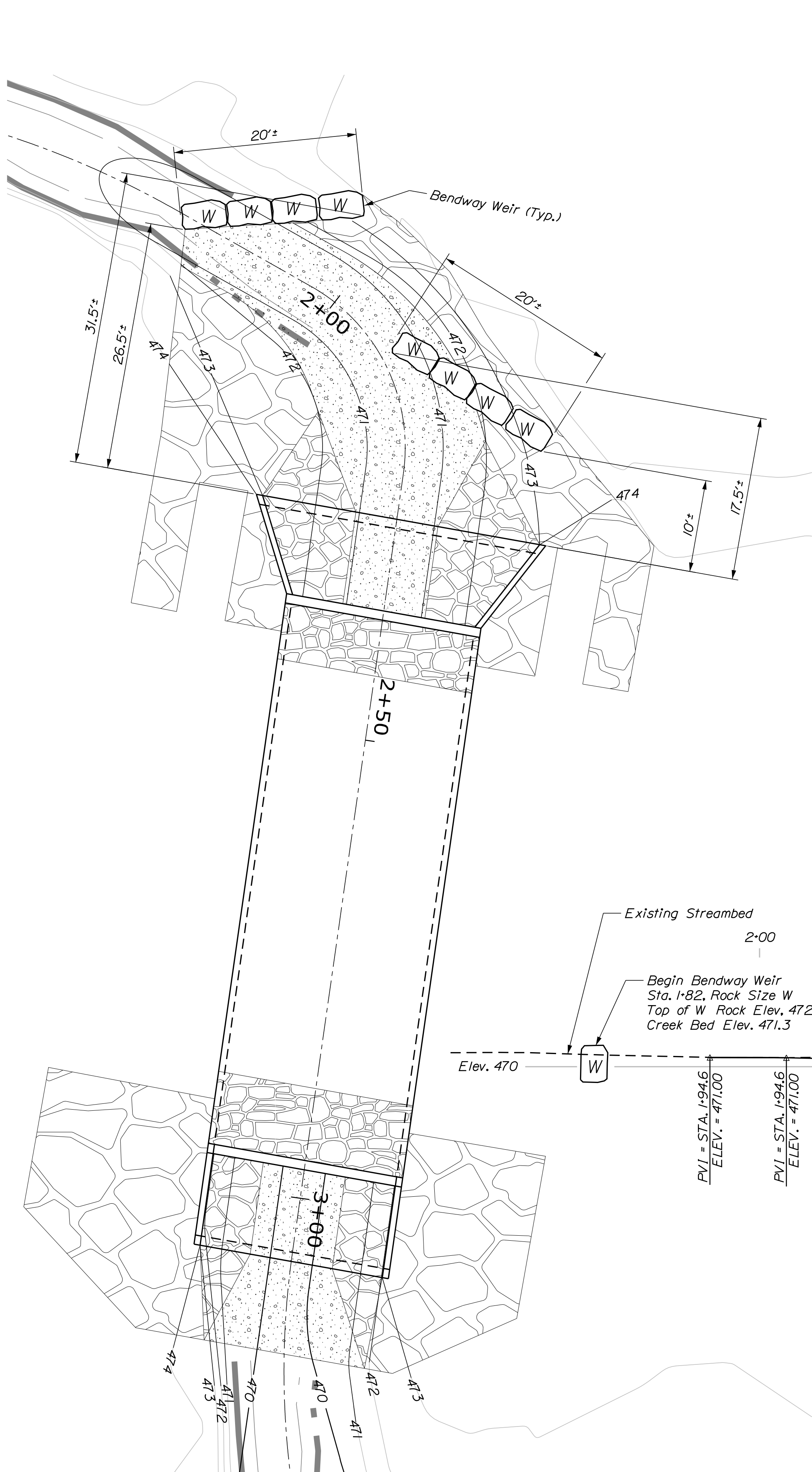
COBBLE BARS - CULVERT PLAN



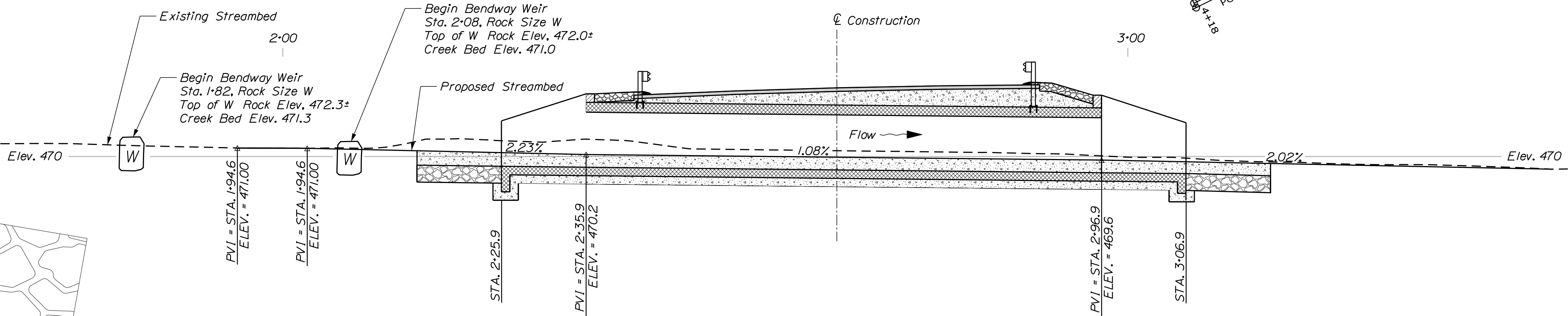
COBBLE BAR LAYOUT INSIDE PRECAST CULVERT



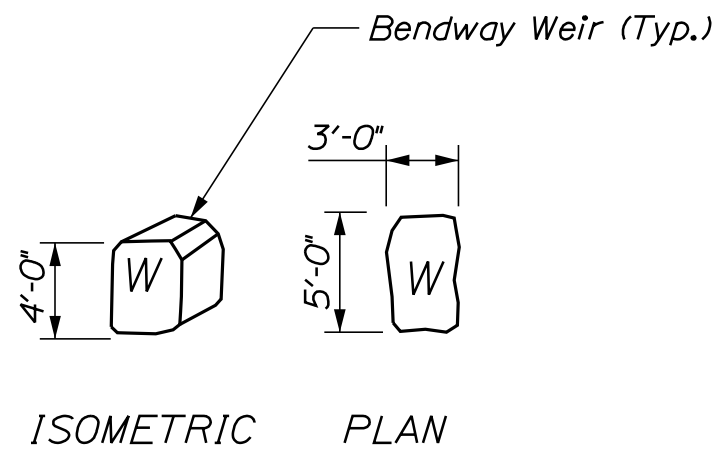
<div> <div>WILTON</div> <div>HALL BRIDGE</div> <div>BUTTERFIELD BROOK</div> <div>FRANKLIN COUNTY</div> </div>	<div> <div>STATE OF MAINE</div> <div>DEPARTMENT OF TRANSPORTATION</div> </div>		<div> <div>BRIDGE NO. 2341</div> <div>WIN</div> <div>23144.00</div> </div>		<div>BRIDGE PLANS</div>	
	<div> <div>SHEET NUMBER</div> <div>15</div> <div>OF 17</div> </div>		<div> <div>SIGNATURE</div> <div>P.E. NUMBER</div> <div>DATE</div> </div>			
	<div> <div>SPECIAL DETAIL - PRECAST</div> <div>BOX CULVERT (3 of 4)</div> </div>					



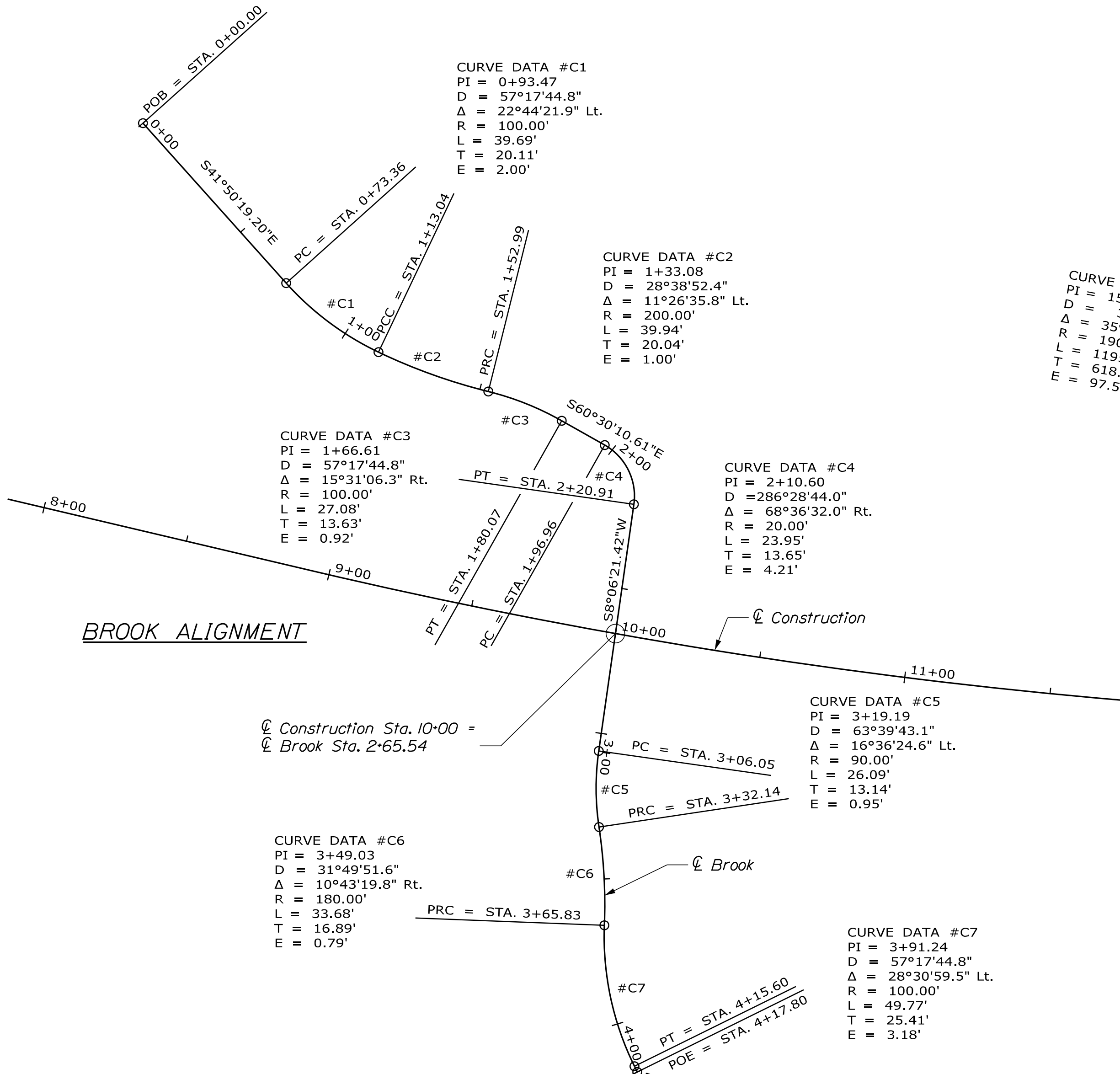
CREEK PLAN  
1/8" = 1'-0"



CREEK PROFILE  
1/8" = 1'-0"



LEGEND



CURVE  
PI = 15  
D = 3  
Δ = 35°  
R = 190  
T = 119  
L = 618  
E = 97.5

CURVE DATA #C1  
PI = 0+93.47  
D = 57°17'44.8"  
Δ = 22°44'21.9" Lt.  
R = 100.00'  
L = 39.69'  
T = 20.11'  
E = 2.00'

CURVE DATA #C2  
PI = 1+33.08  
D = 28°38'52.4"  
Δ = 11°26'35.8" Lt.  
R = 200.00'  
L = 39.94'  
T = 20.04'  
E = 1.00'

CURVE DATA #C3  
PI = 1+66.61  
D = 57°17'44.8"  
Δ = 15°31'06.3" Rt.  
R = 100.00'  
L = 27.08'  
T = 13.63'  
E = 0.92'

CURVE DATA #C4  
PI = 2+10.60  
D = 286°28'44.0"  
Δ = 68°36'32.0" Rt.  
R = 20.00'  
L = 23.95'  
T = 13.65'  
E = 4.21'

CURVE DATA #C5  
PI = 3+19.19  
D = 63°39'43.1"  
Δ = 16°36'24.6" Lt.  
R = 90.00'  
L = 26.09'  
T = 13.14'  
E = 0.95'

CURVE DATA #C6  
PI = 3+49.03  
D = 31°49'51.6"  
Δ = 10°43'19.8" Rt.  
R = 180.00'  
L = 33.68'  
T = 16.89'  
E = 0.79'

CURVE DATA #C7  
PI = 3+91.24  
D = 57°17'44.8"  
Δ = 28°30'59.5" Lt.  
R = 100.00'  
L = 49.77'  
T = 25.41'  
E = 3.18'

Construction

Construction Sta. 10+00 =  
Brook Sta. 2+65.54

Construction

3+00

Elev. 470

ERDMAN  
ANTHONY

STATE OF MAINE				DEPARTMENT OF TRANSPORTATION				BRIDGE PLANS			
WILTON				HALL BRIDGE				SHEET NUMBER			
BUTTERFIELD BROOK				FRANKLIN COUNTY				16			
SPECIAL DETAIL - PRECAST				BOX CULVERT (4 of 4)				OF 17			
SIGNATURE				P.E. NUMBER				DATE			
BY				DATE				BRIDGE NO. 2341			
MICHAEL WRIGHT				6/2021				WIN			
E. FARRELL				6/2021				23144.00			
C. SICHAK				6/2021							
DESIGN DETAIL				DESIGN DETAIL							
REVISIONS 1				REVISIONS 2							
REVISIONS 3				REVISIONS 4							
FIELD CHANGES											

Username: Perry Silverman

Date: 6/21/2021

Division: ROW

Filename: ... \00\ROW\WSTA\001\_RWP\PLAN1.dgn

