Maine Department of Transportation FY 2024 Competitive Highway Bridge Program Off-System Bridge Investment Project Concept Plans





STATE OF MAINE DEPARTMENT OF TRANSPORTATION

SPECIFICATIONS

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

DESIGN LOADING

Live Load HL - 93 Modified for Strength 1

TRAFFIC DATA

Varies per location, refer to NBI data for traffic volumes. Additional information to be compiled during design phase, not available at this time.

HYDROLOGIC DATA

Data to be compiled and collected during design phase, not available at this time.

MATERIALS

Concrete:	
Curbs & Transition Barriers	
Precast.	
All Other	
Reinforcing Steel:	
Plain Reinforcing Steel	
Low-Carbon Chromium	
Glass Fiber Reinforced Polymer (GFRP)	ASTM D7957
Prestressing Strands	AASHTO M 203 (ASTM A 416)
	Grade 270, Low Relaxation

BASIC DESIGN STRESSES

Concrete:	
Concrete, Class "A"	f'c = 4,000 ps
Concrete, Class "P"	
	f'c = 8,000 ps
Concrete, Class "LP".	f 'c = 5,000 ps
Reinforcing:	
Plain Reinforcing Steel	f v = 60,000 ps
Low-Carbon Chromium Reinforcing Steel	
Prestressing Strands	
Glass Fiber Reinforced Polymer:	
#5 Bar	f fu = 100,000 ps
#6 Bar	f fu = 100,000 ps
#7 Bar	f fu = 95,000 ps
#8 Bar	
Minimum Elastic Modulus	E = 6,150,000 ps
Minimum Nominal Design Tensile Strain	1e fu = 1.226%



OFF-SYSTEM BRIDGE BUNDLE PLANNING STUDY CONCEPT PLANS FOR STANDARDIZED DESIGN

11 BRIDGE LOCATIONS

CONCEPT PLANS TO SUPPORT GRANT APPLICATION MARCH 13, 2025

LIST OF DRAWINGS

Title Sheet
Location Map2
General Plans. 3-13
Abutment Details14-17
Typical Sections

STATE OF MAINE DEPARTMENT OF TRANSPORTATION

OFF-SYSTEM RIDGE BUNDLE

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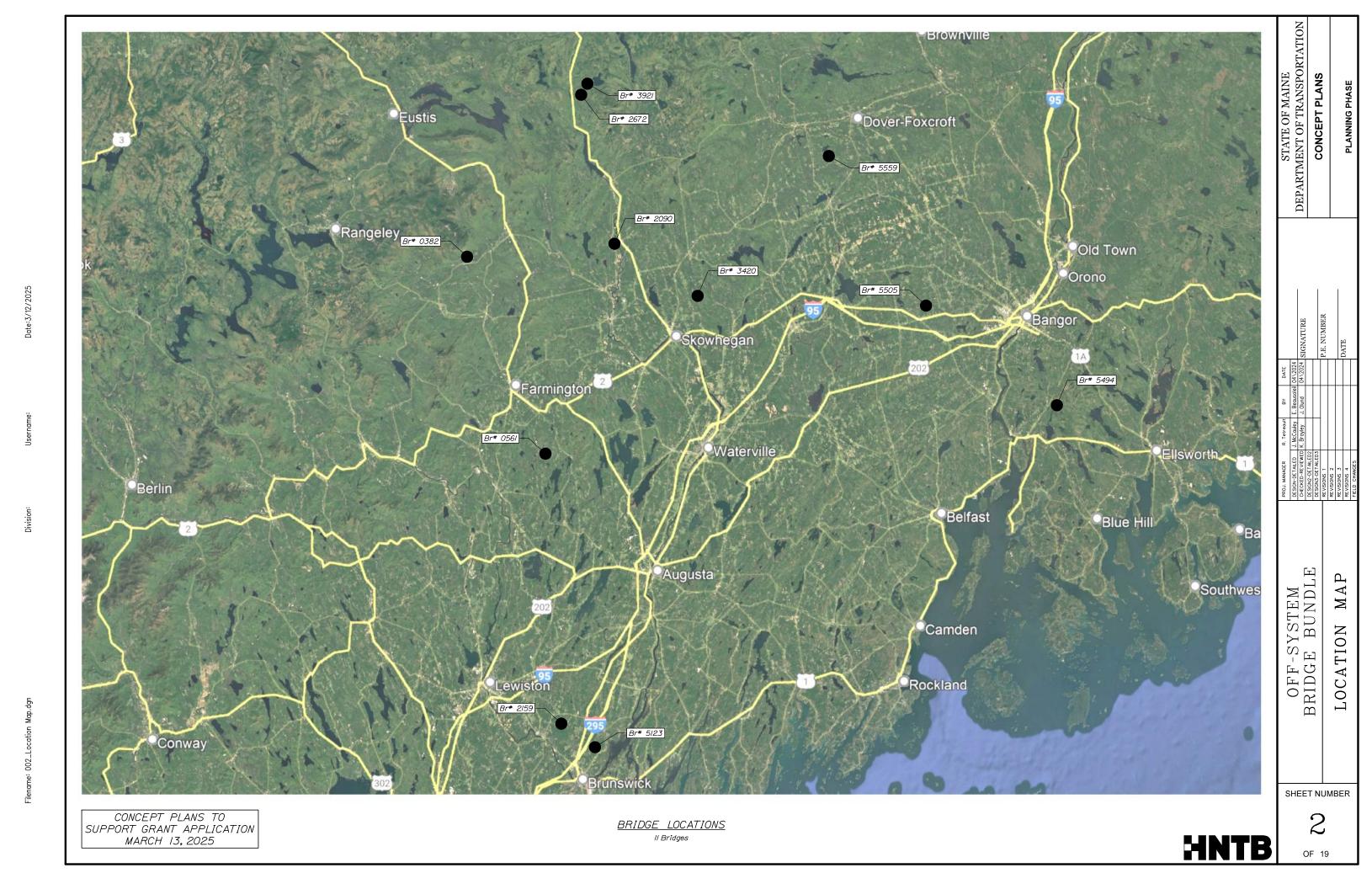
TITLE

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PROJECT LOCATION:	Varies, see location map
PROGRAM AREA:	Planning



TROSECT LOCATION.	varies, see location map
PROGRAM AREA:	Planning
OUTLINE OF WORK:	Conceptual plans for bridge replacement standardized design details to support grant application development.









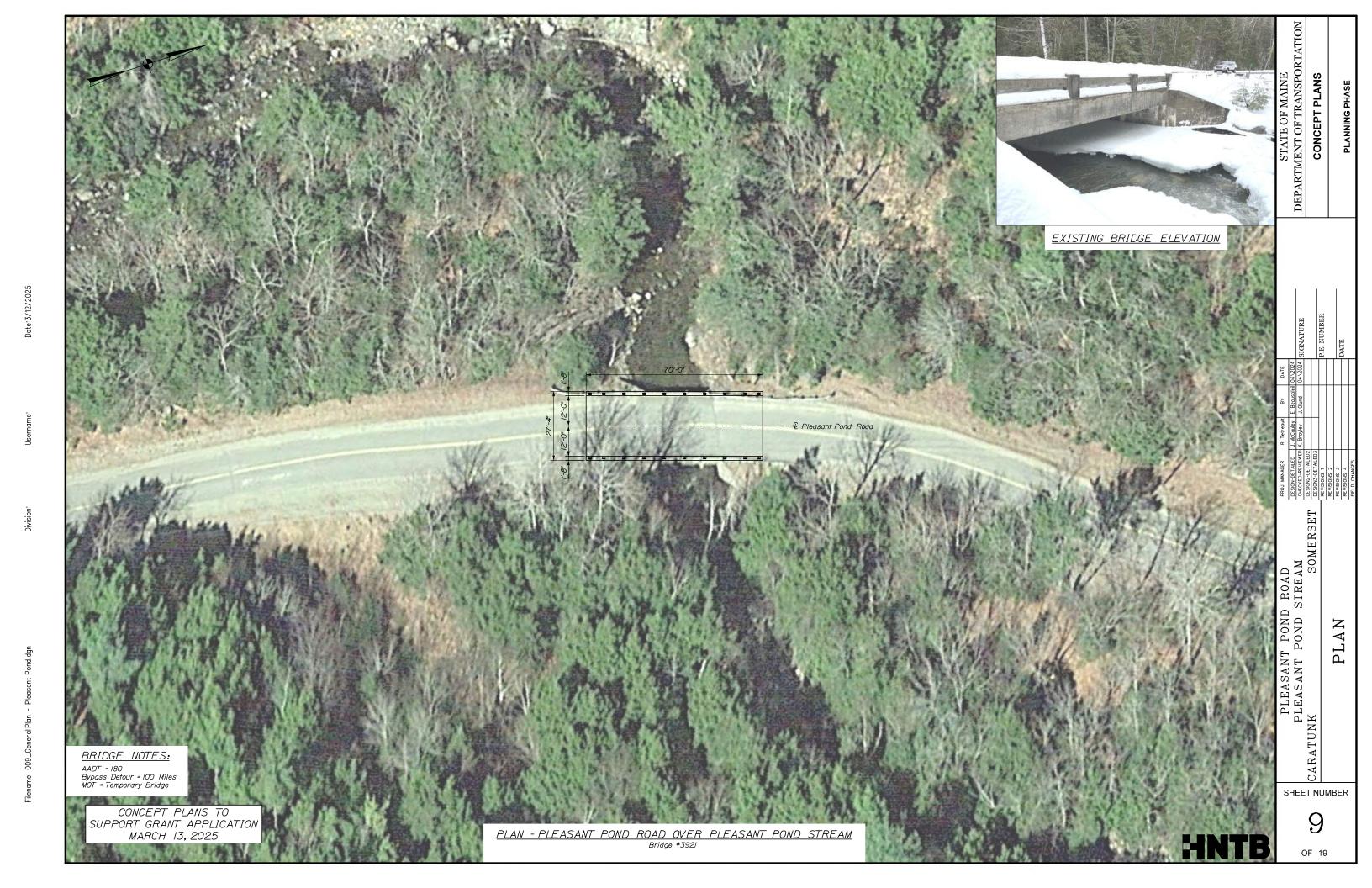






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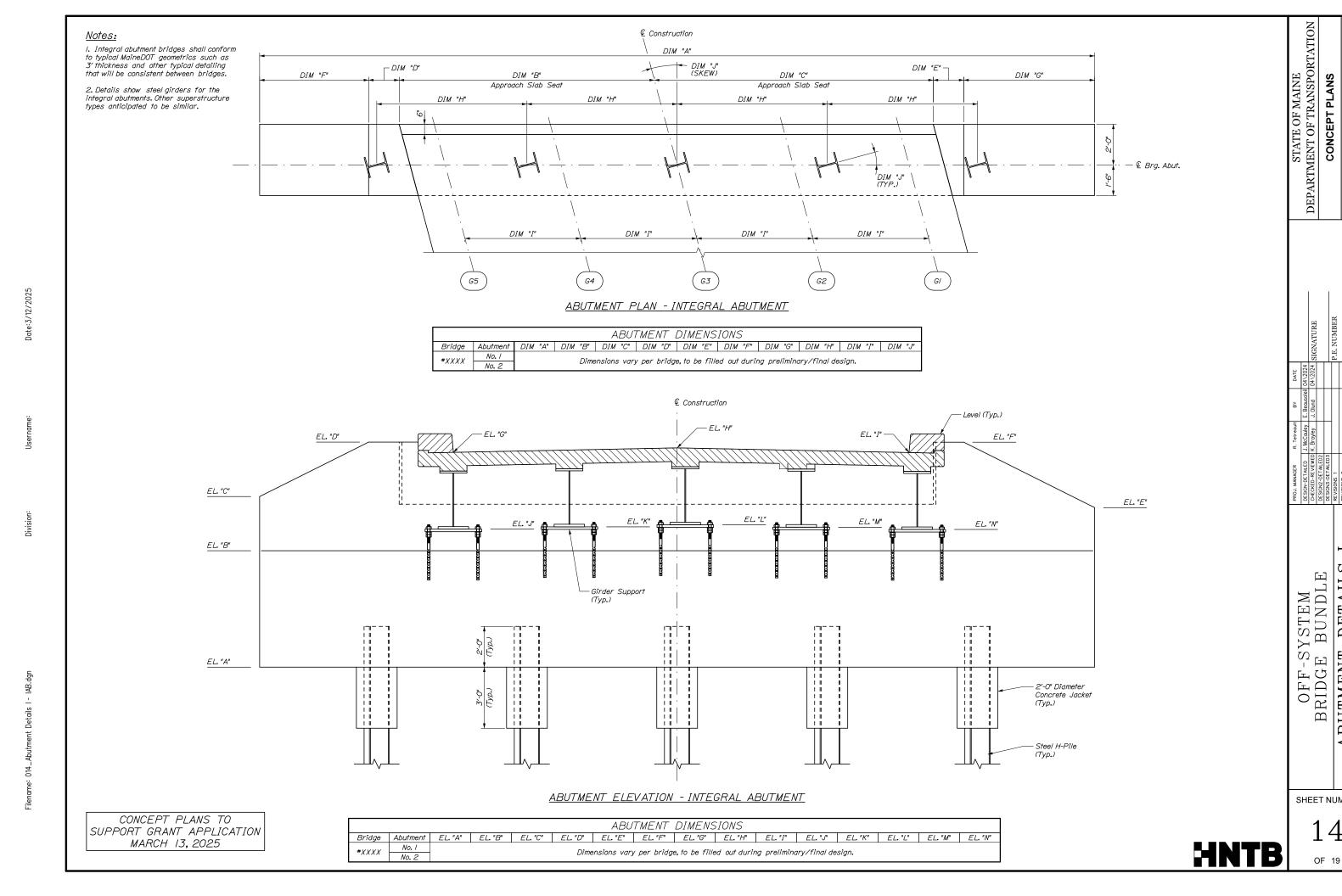
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OFF-SYSTEM BRIDGE BUNDLE

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DETAILS I ABUTMENT

ABUTMENT INTEGRAL

PLANNING PHASE

€ Brg. Abut. Aggregate Subbase Course - Gravel Approach Slab -Hot Mix Asphalt -– l'-0" x l'-0" Chamfer Steel Girder 1.5 Shelf E/. "A" *l'-6*" (Typ.)2 layers of 6 Mil. Polyethylene Sheeting Drainage Geocomposite Pay Limits for Structural Earth Excavation and Granular Borrow 4"\$\phi\$ Drain (Weep Hole) (Cut 4"\$\phi\$ hole in drainage geocomposite at drain locations) (Typ.) - Granular Borrow (Typ.) Protective Aggregate Cushion Concrete Jacket Class I, Non-woven Erosion Control Geotextile -

INTEGRAL ABUTMENT BACKFILL DETAIL

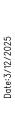
ABU	TMENT L	DIMENS	IONS			
Bridge	Abutment	"A"	"B"			
#XXXX	No. /					
"	No. 2					
#XXXX	No. /	Dimensions vary				
"	No. 2					
#XXXX	No. /	per bridge, to be				
"	No. 2	filled out during				
#XXXX	No. /	preliminary/final design.				
" ^ / / / /	No. 2					
#XXXX	No. /					
"A X X X	No. 2					

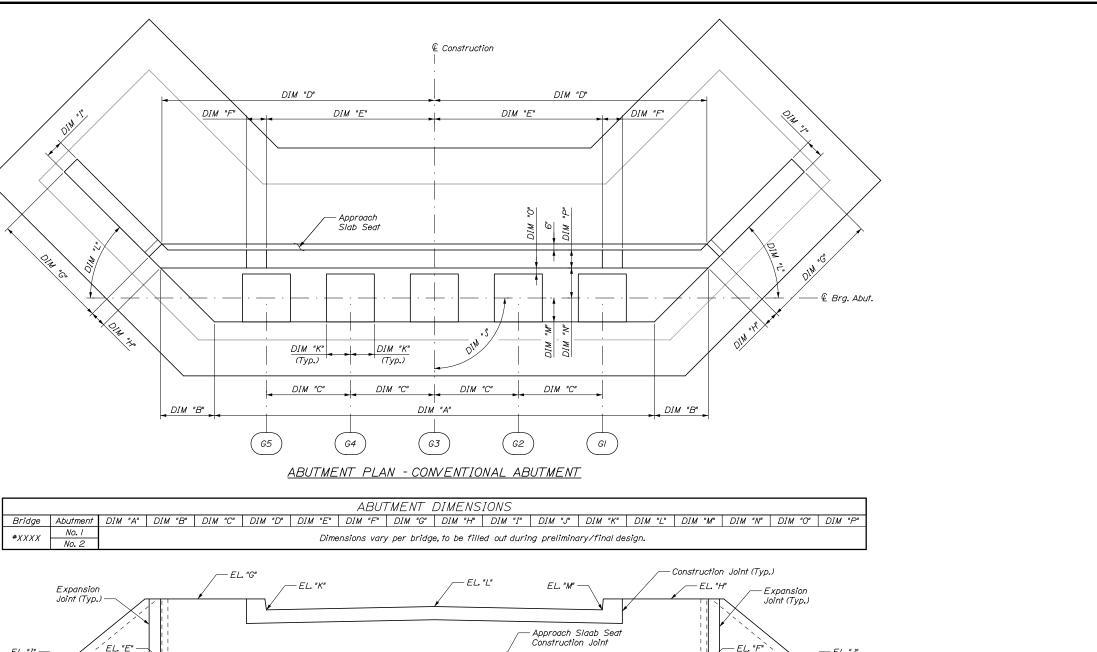
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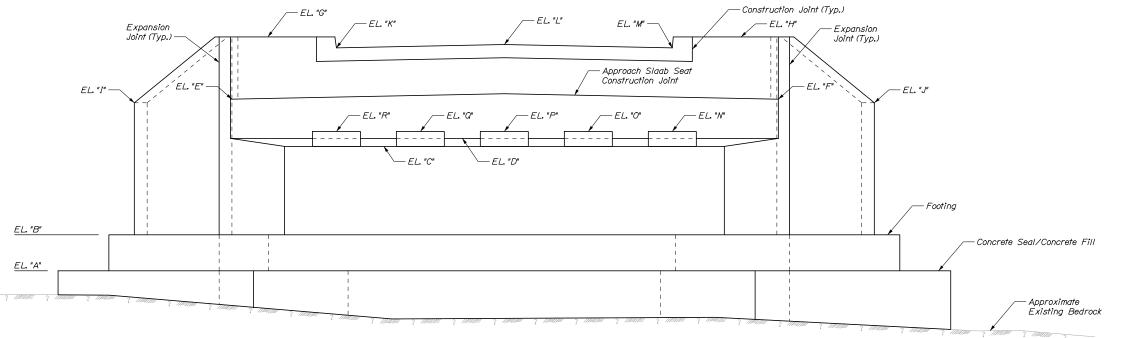
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OFF-SYSTEM BRIDGE BUNDLE

15







<u>ABUTMENT ELEVATION - CONVENTIONAL ABUTMENT</u>

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, H	ABUTMENT DIMENSIONS																			
۱۱ ۲	Bridge	Abutment	EL. "A"	EL. "B"	EL. "C"	EL. "D"	EL. "E"	EL. "F"	EL. "G"	EL. "H"	EL. "I"	EL. "J"	EL. "K"	EL. "L"	EL. "M"	EL. "N"	EL. "O"	EL, "P"	EL. "Q"	EL. "R"
الـ	*XXXX No. 1 Dimensions vary per bridge, to be filled out during preliminary/final design.																			

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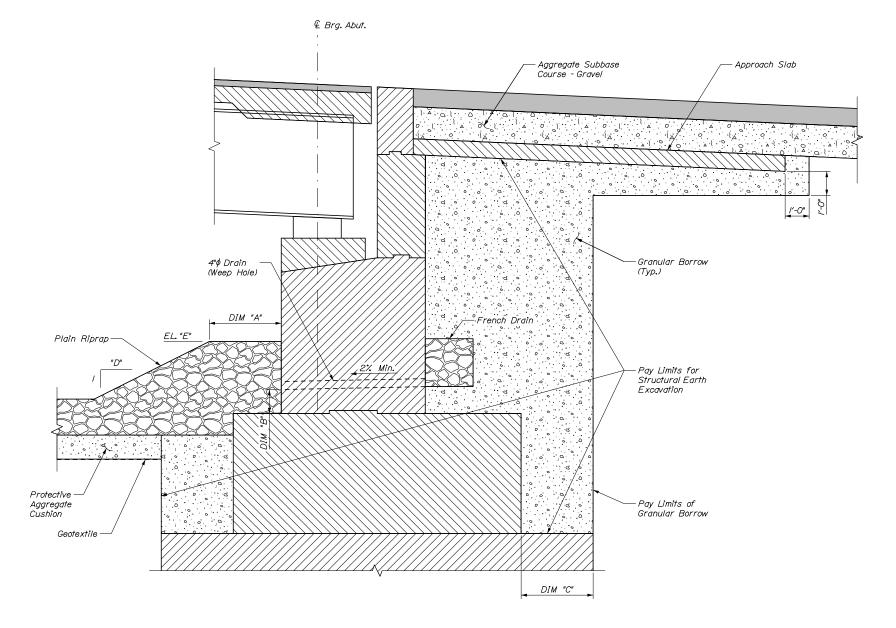
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DETAILS I L ABUTMENT

ABUTMENT I

PLANNING PHASE

16



CONVENTIONAL ABUTMENT BACKFILL DETAIL

CONCEPT PLANS TO SUPPORT GRANT APPLICATION MARCH 13,2025

ABUTMENT DIMENSIONS								
Bridge Abutment DIM "A" DIM "B" DIM "C" DIM "D" DIM ".								
#XXXX	No. /	Dimensions vary per bridge, to be filled						
"	No. 2	C	out during p	reliminary/	final desigr	7.		

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STATE OF MAINE
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CONCEPT PLANS

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PLANNING PHASE

17

ABUTMENT DETAILS II CONVENTIONAL ABUTMENT

OFF-SYSTEM BRIDGE BUNDLE

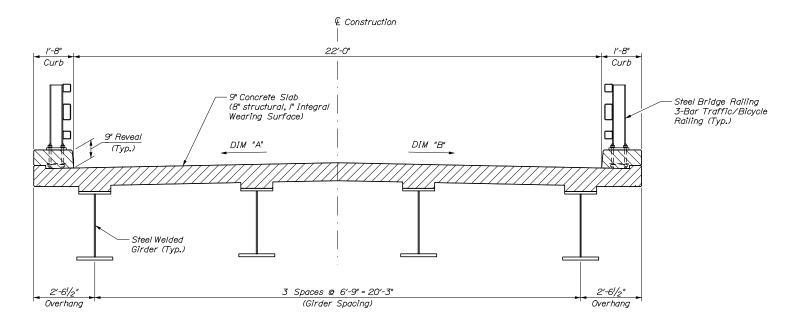
GENERAL NOTES ALL TYPICAL SECTIONS:

- I. The following elements are anticipated to be standardized for all bridges either by the use of MaineDOT Standard Details, or Standard
- Girders/Beams Details for each span length, including deflections
 Deck reinforcing size and spacing
 Bearings (elastomeric)

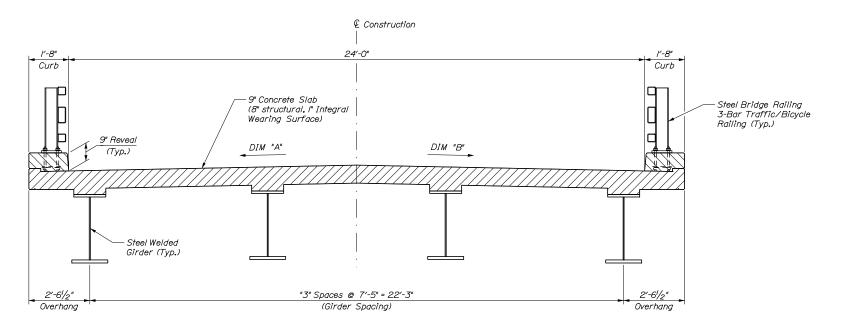
- Diaphragms Railing & Transitions Joints (APJs)
- Scuppers (if necessary)
- 2. The following elements are not anticipated to be standardized and will require unique plan sheets for each bridge: - General Plan, Profile & Cross Sections
- Boring Logs Hydraulics & Traffic Data - Framing Plans & Deck Plans
- Bottom of Slab & Camber
- 3. Majority of structures will be normal crown with 2% cross-slope. Some locations with require superelevation and geometrics will be tabulated to detail those locations in a later design phase.

STEEL GIRDER NOTES:

I. Two general typical section widths are anticipated, both with standard I'-8" wide curbs and either a 22' travel width or a 24' travel width. The superstructure types for these two configurations are broken into Types A through B.



TYPICAL SECTION - TYPE A



TYPICAL SECTION - TYPE B

TYPI	DIMENSIONS							
Bridge	DIM "A"	DIM "B"						
#XXXX	Dimensions	s varv per						
#XXXX		pe filled out						
#XXXX		iminary/final						
#XXXX	design.							
#XXXX	acorgri.							

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SECTION GIRDER YSTEM BUNDLE OFF-SY BRIDGE TYPICAL STEEL SHEET NUMBER

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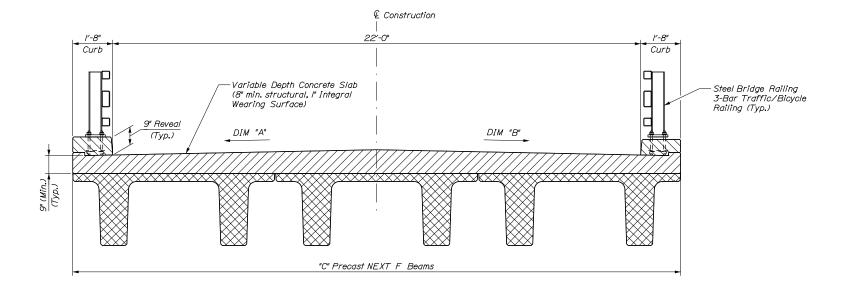
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PLANNING PHASE

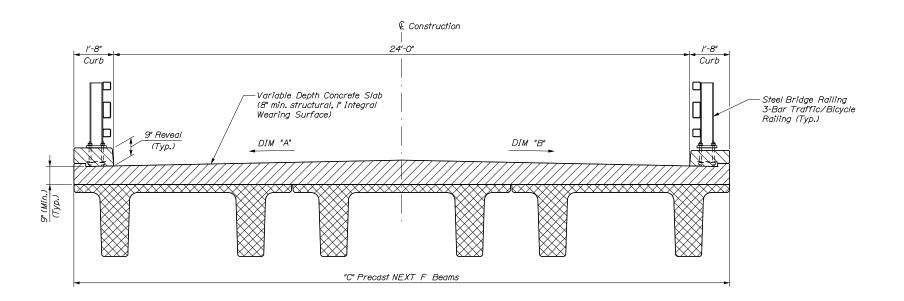
NEXT BEAM NOTES:

I. NEXT Beam 36F is assumed based on span lengths.

2. Two general typical section widths are anticipated, both with standard I'-8" wide curbs and either a 22' travel width or a 24' travel width. The superstructure types for these two configurations are broken into Types C through D.



TYPICAL SECTION - TYPE C



TYPICAL SECTION - TYPE D

TYPICAL SECTION DIMENSIONS										
Bridge	BEAM SIZE	DIM "A"	DIM "B"	DIM "C"						
#XXXX										
#XXXX	Dimensions vary per bridge, to be filled out during preliminary/final design.									
#XXXX										
#XXXX										
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P.E. NUMBER

SECTION BEAM

TYPICAL NEXT

PLANNING PHASE

19