



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0016

Janet T. Mills
GOVERNOR

Bruce A. Van Note
COMMISSIONER

November 19, 2024
Subject: Babsons bridge replacement
State WIN: 023515.00
Location: Mt. Desert
Amendment No. 5

Dear Sir/Ms.:

REMOVE pages 336 to 339 titled SPECIAL PROVISION SECTION 531 BRIDGE SUPERSTRUCTURE DETAIL BUILD dated 9/16/2024 and **REPLACE** with the attached SPECIAL PROVISION SECTION 531 BRIDGE SUPERSTRUCTURE DETAIL BUILD dated 11/19/2024 (4 pages).

The following questions have been received:

Question: Please clarify the reinforcing requirements necessary for the NEXT Beams options? (GFRP, Chromex, Black bar). Is the intent that GFRP and/or Chromex be used in the Precast? Thank you.

Response: The mild steel reinforcing in the NEXT Beam options shall be low-carbon chromium bars. See updated Special Provision clarifying the requirements for reinforcing types in the beams and deck.

Consider these changes and information prior to submitting your bid on **November 20, 2024**

Sincerely,

A handwritten signature in cursive script that reads "Jeffrey S Folsom".

Jeffrey S. Folsom P.E.

Assistant Director-Bureau of Project Development

SPECIAL PROVISION
SECTION 531
BRIDGE SUPERSTRUCTURE DETAIL BUILD

Description

This work shall consist of the design, detailing, fabrication, delivery, and construction of a single span bridge superstructure in accordance with these specifications, and in close conformity with the lines, grades, and dimensions shown on the Plans. The elements of the project covered by this Special Provision include the bridge beams and bearings, the structural concrete bridge deck and reinforcing, and the superstructure end diaphragms including structural concrete, steel reinforcing, and abutment connections. This work shall include the following:

- Design, load rating, and detailing of the bridge superstructure.
- Detailing of the bearing seats and elevations.
- Fabrication, delivery, and placing of superstructure, deck, curb, and sidewalk reinforcing.
- Structural concrete above the bridge seat including quality control and curing box(es).
- Shear connectors or interface shear reinforcement.
- Bearings, bearing pads, and anchor bolts or dowels.
- Preformed expansion joint filler and silicone joint sealant.
- Superstructure coating application (as required or applicable).

Some of the items listed above may not be applicable, depending on the superstructure option chosen. The substructure design shown on the Plans was based on a conceptual NEXT 28F superstructure.

Detail Build Superstructure Options

- NEXT F precast, prestressed concrete beams with composite deck slab.
- NEXT D precast, prestressed concrete beams.
- Composite Tub Girders (CT Girders) with composite concrete deck.

Design Requirements

Bridge superstructure types shall be designed by a Professional Engineer (Engineer of Record) licensed in the State of Maine. The design shall be in accordance with the latest editions of the AASHTO LRFD Bridge Design Specifications, the MaineDOT Bridge Design Guide (BDG), MaineDOT Standard Details, MaineDOT Standard Specifications, and project specific Special Provisions.

The bridge superstructure design, in its entirety, shall be independently checked by a Professional Engineer (different than the Engineer of Record) licensed in the State of Maine.

The bridge superstructure shall be designed for a modified HL-93 live load. The modification to the HL-93 loading shall be an increase in the truck live load by 25 percent for the Strength I load combination only; all other load combinations shall use the standard HL-93 live load.

The chosen superstructure design shall be load rated in accordance with the latest editions of the AASHTO Manual for Bridge Evaluation and the MaineDOT Load Rating Guide. The bridge

shall be load rated for the HL-93, modified HL-93, EV, and RPV live loads and a Load Rating Report shall be submitted as part of the design calculations. Electronic templates for the Load Rating Report Title Sheet, Description of Bridge, and Summary of Bridge Rating forms are available from MaineDOT upon request.

The bridge shall meet the following geometric requirements as shown on the Plans:

56 feet 0 inches	Span length measured centerline of bearing to centerline of bearing
53 feet 0 inches	Clear span measured between the face of the abutments parallel to the construction working line
0 degrees Back Left	Skew measured between the CL of bearing and a line perpendicular to the construction working line
32 feet 0 inches	Clear distance between the curbs, measured perpendicular to the construction working line
40 feet 9 inches	Out-to-out bridge width measured from fascia to fascia perpendicular to the construction working line
10.40 feet (NAVD 88)	Elevation of the lowest point of the bottom of the superstructure

The typical superstructure section shall match the section shown on the Plans. The roadway cross slopes, vertical alignment, and finished grades shown on the Plans shall not be modified. Bridge rail, approach rail, and rail transitions shall be the types shown in the Plans and shall be constructed in accordance with the Standard Details or as shown on the Plans.

The bridge deck wearing surface shall be a 3 inch hot mix asphalt wearing surface with ¼ inch nominal high-performance waterproofing membrane. The concrete deck shall have a minimum structural thickness of 8 inches and be connected compositely to the beams. Neither stay-in-place steel corrugated or composite decking shall be used as bottom forms for the deck.

The bridge shall include an integral concrete end diaphragm bearing on the abutment stem as shown conceptually in the Contract Drawings. The design shall include the substructure anchorage detailing. The end diaphragm shall be designed using the appropriate AASHTO load combinations and shall be structural concrete regardless of superstructure option chosen.

Bridge drains are not required.

Materials

The requirements of this Special Provision are in addition to Standard Specification Sections 502 – Structural Concrete; 503 – Reinforcing Steel; and 535 – Precast, Prestressed Concrete Superstructures and the other material requirements set forth in Standard Specification Sections 203, 620, and 672.

Structural Concrete:

- Precast beam concrete shall be Class P.
- Cast-in-place deck concrete shall be Class A.
- All other concrete shall be Class A unless otherwise noted.

- Bent reinforcing bars **in the deck** and all curb **and backwall** reinforcing shall be low-carbon chromium meeting ASTM A1035-CS, Grade 100.
- Straight reinforcing bars **in the deck** (except the curb reinforcing) shall be glass fiber reinforced polymer (GFRP) meeting ASTM D7957.
- **Mild steel reinforcing in prestressed beams shall be low-carbon chromium meeting ASTM A1035-CS, Grade 100.**
- Prestressing strand shall be AASHTO M 203, Grade 270, Low Relaxation
- All steel hardware shall be galvanized.

Composite Tub Girders:

- See Special Provision Section 509.
- All steel hardware shall be galvanized.

Submittals

Submittals shall be handled in accordance with subsection 105.7 of the Standard Specifications. The following submittals shall be required:

50% Design Development Submittal

The Contractor shall submit to the Department electronically a formal design package submittal at the 50% design development stage. This submittal shall include plans showing the type of bridge superstructure to be constructed and an overall layout of the bridge, including a plan, profile, and typical section. All comments by the Department shall be addressed by the Contractor and verified by written approval from the Department prior to submitting shop drawings and the final submittal.

Final Submittal

The final submittal shall be submitted by the Contractor to the Department electronically and shall include the final set of Design Drawings, Design Computations and Design Check Computations for all bridge superstructure components, and Load Rating Report, including superstructure load rating computations and MaineDOT Load Rating Summary forms. All comments by the Department on the final submittal shall be addressed by the Contractor and verified by written approval from the Department prior to fabrication and commencement of construction. The Design Computations and Load Rating Computations shall be signed and sealed by the Engineer of Record and by the Engineer responsible for the design check. Design Drawings shall be signed and sealed by the Engineer of Record.

Upon completion of construction, the Contractor shall submit an electronic package of as-built drawings signed and sealed by the Engineer of Record with any field changes or alterations noted. If any field changes or alterations occur that will affect the bridge structure load capacity, the load rating shall be updated.

Construction Requirements

All work shall meet the applicable sections of the Standard Specifications, project Special Provisions, and Standard Details, except as shown on the Plans.

The bottom clear cover for deck reinforcement shall be 1.5" minimum when the bottom of

the deck must be formed in the field.

Method of Measurement

The accepted Bridge Superstructure will be measured by lump sum for the design, detailing, fabrication, delivery, and construction of the new Bridge Superstructure and all other items required by this Special Provision.

Basis of Payment

The accepted Bridge Superstructure will be paid for at the Contract lump sum price for the pay item listed below. Such payment shall be full compensation for the design, detailing, materials, fabrication, delivery, and construction of the new Bridge Superstructure and all the applicable components required by this Special Provision.

Note that work for Pay Item 502.49 Structural Concrete Curbs and Sidewalks will be paid separately from the work for Bridge Superstructure – Detail Build and will be paid according to the specifications for Item 502.49. The LS quantity for Item 502.49 Structural Concrete Curbs and Sidewalks may vary depending on the bridge superstructure option selected; however, Item 502.49 will be paid for 1 LS regardless of the superstructure option selected with no additional payment.

When used, protective coating for concrete surfaces, high-performance waterproofing membrane, HMA wearing surface, concrete curb and sidewalk, and bridge rail or barrier are not included for payment under this item.

The Lump Sum will be payable in installments as follows:

Upon acceptance of the design plans, computations, and load rating	40%
Erection of superstructure and deck completion	50%
Acceptance of Bridge Superstructure and As-Built drawings	10%

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
531.511 Bridge Superstructure – Detail Build	Lump Sum