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

Janet T. Mills
GOVERNOR

Bruce A. Van Note
COMMISIONER

January 6, 2020
Subject: Staples Bridge Replacement
State WIN: 022336.00
Location: **North Berwick**
Amendment No. 2

Dear Sir/Ms.:

Please make the following changes to the Bid Documents:

In the Bid Book:

REMOVE pages 96 through 100, SPECIAL PROVISION - SECTION 531 - BRIDGE STRUCTURE – DETAIL BUILD, 5 pages, dated November 4, 2019, and **REPLACE** with the attached, revised SPECIAL PROVISION - SECTION 531 - BRIDGE STRUCTURE – DETAIL BUILD, 5 pages, dated January 3, 2020.

The following question has been received:

Question: SP section 531 states "work shall include the following.... All structural concrete..... So, my question, if this is correct, what is Item 502.22 Structural Concrete for?

Response: Item 502.22 Structural Concrete, Abutments and Retaining Walls (Placed Under Water) is to be used as needed for the seal concrete up to a maximum elevation of 135. This was kept separate from Item 531.51 Bridge Structure – Detail Build as this quantity could vary based on irregular bedrock elevations. Please see the updated Special Provision Section 531 Bridge Structure – Detail Build for corrected language.

Consider these changes and information prior to submitting your bid on **January 8, 2020**.

Sincerely,

George M. A. Macdougall P.E.
Contracts & Specifications Engineer

SPECIAL PROVISION
SECTION 531
BRIDGE STRUCTURE – DETAIL BUILD

Description

This work shall consist of the design, detailing, materials, fabrication, delivery, and construction of a simple span highway bridge in accordance with these Special Provisions and in close conformity to the lines and grades shown on the Plans or established by the Resident. This work shall include the following:

- Design and independent design check, load rating, and detailing of the new bridge superstructure,
- Design, independent design check, and detailing of the new bridge substructure, foundations, retaining walls or wingwalls,
- Structural earth excavation for the abutments, retaining walls, and wingwalls,
- Backfill for the abutments, retaining walls, and wingwalls,
- All structural concrete including quality control and curing box(es), with the exception of seal concrete which will be paid for separately,
- Reinforcing steel,
- Bridge railing,
- Precast concrete curb transitions,
- Highway guardrail transitions,
- Permanent concrete transition barriers,
- High performance waterproofing membrane,
- French drains,
- Protective coating for concrete surfaces,
- Precast, prestressed structural concrete,
- Structural steel, including coating application,
- Steel shear connectors,
- Bearings, bearing pads, anchor bolts,
- Longitudinal saw cut grooving of the integral concrete wearing surface.
- Temporary Concrete Barrier, Type I (40 LF)

Some of the items listed above may not be applicable depending on the chosen structure options.

Detail Build Options

1. Precast/prestressed concrete PCI NEXT D beam superstructure with high performance waterproofing membrane and 3” hot mix asphalt wearing surface on concrete abutments or Geosynthetic Reinforced Soil-Integrated Bridge System (GRS-IBS) substructure founded on bedrock.

2. Precast/prestressed concrete PCI NEXT F beam superstructure with 8” concrete deck, including 7” structural concrete slab and 1” integral wearing surface, on concrete abutments or GRS-IBS substructure founded on bedrock.
3. Galvanized steel stringer bridge with 8” concrete deck, including 7” structural concrete slab and 1” integral wearing surface, on concrete abutments or GRS-IBS substructure founded on bedrock. Prefabricated bridge alternatives will be allowed.

Design Requirements

The bridge structure, including foundation elements, shall be designed by a Professional Engineer (Engineer of Record, EOR) licensed in the State of Maine. The design shall be in accordance with the latest editions of AASHTO LRFD Bridge Design Specifications, MaineDOT Bridge Design Guide, MaineDOT Standard Details, MaineDOT Standard Specifications, the Plans, and these project specific Special Provisions.

The bridge substructure and superstructure design shall be independently checked by a Professional Engineer (different from the EOR) licensed in the State of Maine.

The bridge shall be designed for HL-93 live load modified by a 25% increase to the truck live load for the Strength I load combination. All other load combinations shall use the standard HL-93 live load.

The superstructure design shall be rated in accordance with the latest edition of the AASHTO Manual for Bridge Evaluation and the MaineDOT Load Rating Guide using the LRFR method. The bridge shall be rated for HL-93 and HL-93 Modified 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 geometry shall be in accordance with the Plans and shall meet the following criteria:

- 40’-0” clear span length
- 0° skew
- 16’-0” travel way width from curb-to-curb
- 2% normal crown
- 0.70% profile grade sloping down from Abutment No. 1 to Abutment No. 2
- 142.15’ minimum low chord elevation (NAVD88)
- 300 square feet minimum hydraulic opening
- Bridge structure shall be within the proposed right of way limits shown on the Right of Way Plan.

The bridge railing shall be MaineDOT standard bridge mounted guardrail or any other galvanized bridge rail system that has been designed in accordance with the AASHTO TL-2 loading and approved by the Resident. Bridge transitions shall be either MaineDOT bridge transitions or any other transitions designed for the TL-2 railing used on the bridge. Concrete curbs and transitions barriers, if applicable, shall be Class LP Concrete.

Bearings shall be designed to satisfy the recommendations in the MaineDOT Bridge Design Guide and shall be provided at both abutments.

The cast in place concrete bridge deck alternative shall include a 1 inch integral wearing surface with a grooved finish. The clear cover to the top mat of reinforcement shall be 2 inches and the bottom mat of reinforcement shall be 1.5 inches.

The girder ends shall be encased in concrete. A separated backwall may be provided in lieu of girder end encasement. Expansion joints shall not be allowed.

Bridge drains are not required on the structure.

The substructures shall be reinforced concrete abutments founded on rock or GRS-IBS abutments founded on rock. The wingwalls/retaining walls and associated grading shall be designed and detailed to stay within the toes of slopes identified on the plans. Boring logs and laboratory test results are provided in the MaineDOT Geotechnical Design Report for the Staples Bridge #1238, dated September 4, 2019, which may be accessed with the bid documents at the MaineDOT website.

Materials

The requirements of this Special Provision are in addition to the Standard Specifications Sections 502 – Structural Concrete; 503 – Reinforcing Steel; 504 – Structural Steel; 506 – Shop Applied Protective Coating – Steel; and 535 – Precast, Prestressed Concrete Superstructures and the other material requirements set forth in Special Provision Section 203, 620, and 672.

Structural Steel:

- Superstructure steel shall be ASTM A 709, Grade 50, hot-dipped galvanized or metalized per Standard Specification Section 506.
- Anchor rods and nuts shall conform to the requirements of ASTM F 1554, hot-dipped galvanized per ASTM A 153
- Fasteners shall be ASTM F 1325, Grade A 325, Type 1, galvanized in accordance with ASTM 153, unless noted otherwise.

Structural Concrete:

- Precast Concrete shall be Class P
- Integral Wearing Surface concrete shall be Class A with a calcium nitrite corrosion inhibitor admixture added at a rate of 3 gallons/cubic yard of concrete.
- Curb and Transition Barrier concrete shall be Class LP
- All other concrete shall be Class A, unless otherwise noted
- All reinforcing steel shall be ASTM A 615, Grade 60
- Prestressing strand shall be AASHTO M 203 (ASTM A 416), Grade 270, Low Relaxation
- All steel hardware shall be hot-dipped galvanized per ASTM A 153.

Submittals

Submittals shall be in accordance with Subsection 105.7 of the Standard Specifications.

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 substructure and 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 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 EOR and by the Engineer responsible for the design check. Design Drawings shall be signed and sealed by the EOR.

As-Built Submittal

Upon completion of construction, the Contractor shall submit an electronic package of As-Built Drawings, signed and sealed by the EOR with any field changes or alterations documented. If any field changes or alteration 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.

Method of Measurement

The accepted Bridge Structure will be measure by lump sum for the design, detailing, fabrication, delivery, and construction of the new Bridge Structure and all the applicable components required by the Plans and this Special Provisions.

Basis of Payment

The accepted Bridge Structure 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 Structure and all the applicable components required by the Plans and this Special Provision.

All costs associated with preparation of design computations, independent design check, load rating, and Contract Drawings, including coordinating with the Department address review comments, shall be considered incidental to the Bridge Structure pay item.

If applicable, the cost of hot mix asphalt pavement on the bridge will be paid for under the respective 403 pay items.

The cost of Granular Borrow and Erosion Control Geotextile placed beneath riprap slope protection will be paid for under Items 203.25 and 620.58 respectively.

The Lump Sum will be payable in installments as follows:

Upon acceptance of the final design plans, computations, and load rating	30%
Upon erection of the superstructure and completion of the deck	50%
Upon acceptance of the Bridge Structure and As-Built Drawings	20%

Payment will be made under:

	Pay Item	Pay Unit
531.51	Bridge Structure – Detail Build	Lump Sum