

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF TRANSPORTATION**

RHODE ISLAND CONTRACT NO. 2024-CB-050

FEDERAL AID PROJECT NO. BRO-042C(002), BRF-042C(003)

**REPLACEMENT OF MAPLE VALLEY ROAD
BRIDGE NO. 084351**

**REPLACEMENT OF NICHOLAS ROAD
BRIDGE NO. 084651**

**REPLACEMENT OF CAHOONE ROAD
BRIDGE NO. 084551**

MAPLE VALLEY ROAD OVER FLAT RIVER

NICHOLAS ROAD OVER ROARING BROOK

CAHOONE ROAD OVER BUCKS HORN BROOK

**TOWN OF COVENTRY
KENT COUNTY
RHODE ISLAND**

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Specifications – Job Specific



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August 31, 2024

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JOB SPECIFIC

CODE 106.01.1

CONTROL OF MATERIAL – BUY AMERICA JOB SPECIFICATION (BABA)

Remove Section 106.01.1 from the RIDOT Standard Specifications for Road & Bridge Construction, February 2024 in its entirety and replace with:

Introduction:

While existing Buy America requirements previously applied to iron, steel, and certain manufactured goods, the Infrastructure Investment and Jobs Act (IIJA) expands requirements to include all manufactured products and construction materials in construction contracts that include Federal Aid funding in the construction phase. Additional information available in 23 CFR 635.410 Buy America and it's Q&A at FHWA's Buy America Q and A for Federal-aid Program - Buy America - Contract Administration - Construction - Federal Highway Administration (dot.gov) [fhwa.dot.gov]

Purpose:

Provide materials from domestic sources when products are permanently incorporated into the work.

Ensure all manufacturing processes, including applications of coatings, occur in the United States. A coating includes all processes required to apply the coating to a product to protect or enhance the value of the product. The requirements of this JS are not applicable to equipment, tools, and temporary items, including materials left in place at the Contractor's convenience.

Certifications:

All certifications are submitted by the prime Contractor. When submitting certifications for materials that are subject to the requirements of this specification, the certification shall be on Form provided by the Department.

Determination of Material Category:

- Foreign or Uncertified Products

Buy America does not apply to minimal use of steel/iron materials provided that the total cost of all foreign source items used in the contract, as delivered to the project site, is less than \$2500 or one-tenth-of-one percent of the total contract amount, whichever is greater.

The total value is that shown to be the cost of the steel and iron products as delivered to the project site. Contractor to keep a log of foreign source items to ensure that the minimal use threshold is not exceeded during the life of the contract.

- Manufactured Products

Provide manufactured products produced in the United States. A manufactured product is acceptable under this provision if: The manufactured product was manufactured in the United States; and The cost of the components of the manufactured product that are mined,

produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product.

- Construction Materials

The category of construction materials excludes cement and cementitious materials, aggregates such as stone, sand, or gravel, or aggregate binding agents or additives.

Construction materials are materials that consist primarily of:

- Non-ferrous metals
- plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables)
- glass (including optic glass)
- lumber; or
- drywall.

Waivers:

The Contractor may submit a waiver request to the department using RIDOT procedures and form provided in the PMP document management folder. The form must reflect a detailed justification for the use of goods, products, or materials mined, produced, or manufactured outside the United States and including copies of all documentation verifying the unavailability of the material or product.

The Department will submit approved waiver requests to FHWA for review. The Contractor shall investigate and respond to any public comments made to the FHWA Office of Program Administration, indicating that a domestic supplier cannot provide the material for which a waiver has been requested. Final approval of the Buy America Waiver request will be made by the Administrator, Federal Highway Administration. The waiver will be effective the date following publication in the Federal Register.

Contractor fully understands there is no guarantee a waiver request will be approved. Any contract delays caused by this waiver process will be the sole responsibility of the contractor.

The contractor shall be responsible for all cost associated with any of the construction materials that are permanently incorporated into the project that does not meet the requirements of this Special Provision without prior written approval from the Department, up to and including removal and replacement.

The Contractor may submit a waiver request to the department during construction:

1. Determine which type of the three waivers applies.
 - Public Interest Waiver: applying the domestic content procurement preference would be inconsistent with the public interest. A waiver in the public interest may be appropriate where the approving federal agency determines that other important policy goals cannot be achieved consistent with the IIA requirements, and the proposed waiver would not meet the requirements for a nonavailability or unreasonable cost waiver.

- Nonavailability Waiver: for types of iron, steel, manufactured products, or construction materials that are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality.
 - Unreasonable cost waiver: the inclusion of iron, steel, manufactured products, or construction materials produced in the United States will increase the cost of the overall project by more than 25 percent. Provide documentation that no domestic alternatives are available within this cost parameter. Document in the waiver a comparison of the cost of the domestic product to the cost of the foreign product or a comparison of the overall cost of the project with domestic products to the overall cost of the project with foreign-origin products.
2. Contractor shall prepare waiver documentation including waiver form provided by RIDOT; located in the PMP portal and submit to the Department's Project Manager with a cc: to the Construction Manager (RE).
 3. RIDOT/Project Manager to Submit waiver to Federal Highway Division.
Federal Highway Division submits the waiver to the Made in America Office. All waivers have to be submitted by Federal agencies to the Made in America Office. Project specific waivers require a minimum of 15 calendar day public comment period. General applicability waivers are subject to a minimum 30 calendar day public comment period. Federal agencies are responsible for performing due diligence and approving or rejecting waivers.

JOB SPECIFIC

CODE 108.1000

PROSECUTION AND PROGRESS

Interim/Phase Completion:

A \$2,700 per day fine/charge will be issued for not completing the defined work by the date or within the duration indicated below:

- Maple Valley Road Bridge No. 084351, excluding loam and seeding: December 10, 2025
 - Phase 1, excluding utility relocation: 75 days
 - Phase 2: 50 days

- Nicholas Road Bridge No. 084651: August 18, 2025
 - Phase 1: 60 days
 - Phase 2: 50 days
 - Phase 3: 5 consecutive closure days

- Cahoone Road Bridge No. 084551, excluding loam and seeding: November 04, 2025

Substantial Completion: The following fine/charge for not completing contract work by April 20, 2026, according to Section 101.89 of the 2024 Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction shall be \$2,700 per day.

Final Acceptance: All Contract work shall be completed by September 17, 2026, as defined by Section 105.18 of the 2024 Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction or a Daily Charge will be deducted from any money due in the amount of \$2,700.00 per day.

JOB SPECIFIC

CODE 201.9901

DEMOLITION OF STRUCTURE – BRIDGE NO. 084301

DESCRIPTION. Work under this item shall consist of the removal of the existing corrugated metal pipe arch culverts as indicated on the Maple Valley Road Plans (084351) or as directed by the Engineer, and in conformance with Sections 201 and 803 of the Standard Specifications, as amended by this Specification.

Within the limits and at the locations indicated on the Maple Valley Road contract drawings, or as directed by the Engineer, the “DEMOLITION OF STRUCTURE” item shall include: the removal and disposal of corrugated metal pipe arches, installation and removal of temporary protective shielding, concrete aprons, concrete spandrel walls and concrete wingwalls. This item shall also include the removal and disposal of associated reinforcing steel, steel hardware, and other structural steel components embedded in the concrete (joint assembly, anchorage, etc.), including all utility carrier components and wiring, if encountered.

This item of work shall not include the stone removal for the stone wall rebuilding; removal and rebuilding of dry-laid stone walls is paid for separately under the applicable items.

CONSTRUCTION METHODS. The Contractor shall submit to the Engineer for approval a complete description of the method of operations for the various items to be removed, including detailed sequence of removal and disposal operations, in accordance with Section 105.02.

The Contractor shall phase and/or perform this work in accordance with the Sequence of Construction, the Maintenance and Protection of Traffic Plans found in the Contract Drawings, and the restrictions noted in the CS pages.

All work performed under this item shall be done in a cautious and professional manner. Except as noted herein, the exact method used to dismantle, cut or break-up and remove the various portions of the existing culvert is optional.

Care shall be taken during removal operations so as not to damage those portions of the structures required to support construction traffic for the remaining phases of construction. Any damage to such portions of the structures which ensues due to the Contractor’s operations shall be repaired or replaced to the satisfaction of the Engineer at the sole expense of the Contractor.

The Contractor shall ensure that his removal and disposal operations do not cause damage to any existing structures or properties. Any resulting damages will be repaired to the satisfaction of the Engineer and property owner(s) at the expense of the Contractor.

The methods and equipment to be used for the removal and disposal, as described in this Special Provision, and the disclosure of the Contractor's proposed disposal area(s), shall be submitted by the Contractor to the Engineer for approval prior to the commencement of work. Said approval(s) shall in no way relieve the Contractor of sole liability for damages resulting from his operations.

All removed materials shall be taken from the site as the work progresses. No storing or burying of material or debris on site will be permitted, except as herein specified, or as directed by the engineer.

METHOD OF MEASUREMENT. These items do not require a measurement for payment.

BASIS OF PAYMENT. "Demolition of Structure – Bridge No. 084301" will be paid for at the contract unit price per lump sum as listed in the Bid. The price so stated shall constitute full and complete compensation for all labor, saw cutting, materials, tools and equipment, and all other incidentals required to complete the work on Maple Valley Road bridge replacement as described in the Special Provisions and elsewhere in the Contract Documents, complete in place and accepted by the Engineer.

JOB SPECIFIC

CODE 201.9902

DEMOLITION OF STRUCTURE – BRIDGE NO. 084601

DESCRIPTION. Work under this item shall consist of the removal of the existing bridge superstructure as indicated on the Nicholas Road Plans (084651), or as directed by the Engineer, and in conformance with Sections 201 and 803 of the Standard Specifications, as amended by this Specification.

Within the limits and at the locations indicated on the Nicholas Road contract drawings, or as directed by the Engineer, the “DEMOLITION OF STRUCTURE” item shall include: the removal and disposal of the entire bridge superstructure including but not limited to the following major items: installation and removal of temporary protective shielding in accordance with Section 803 of the Standard Specifications, wearing surface; bridge deck; steel beams; bridge railings (guardrail); and other miscellaneous items. This item shall also include the cutting and partial removal of the existing stone masonry abutments.

CONSTRUCTION METHODS. The Contractor shall submit to the Engineer for approval a complete description of the method of operations for the various items to be removed, including detailed sequence of removal and disposal operations, in accordance with Section 105.02.

The Contractor shall phase and/or perform this work in accordance with the Sequence of Construction, the Maintenance and Protection of Traffic Plans found in the Contract Drawings, and the restrictions noted in the CS pages.

All work performed under this item shall be done in a cautious and professional manner. Except as noted herein, the exact method used to dismantle, cut or break-up and remove the various portions of the existing culvert is optional.

Care shall be taken during removal operations so as not to damage those portions of the structures required to support construction traffic for the remaining phases of construction. Any damage to such portions of the structures which ensues due to the Contractor’s operations shall be repaired or replaced to the satisfaction of the Engineer at the sole expense of the Contractor.

The Contractor shall ensure that his removal and disposal operations do not cause damage to any existing structures or properties. Any resulting damages will be repaired to the satisfaction of the Engineer and property owner(s) at the expense of the Contractor.

The methods and equipment to be used for the removal and disposal, as described in this Special Provision, and the disclosure of the Contractor’s proposed disposal area(s), shall be submitted by the Contractor to the Engineer for approval prior to the commencement of work. Said approval(s) shall in no way relieve the Contractor of sole liability for damages resulting from his operations.

All removed materials shall be taken from the site as the work progresses. No storing or burying of material or debris on site will be permitted, except as herein specified, or as directed by the engineer.

METHOD OF MEASUREMENT. These items do not require a measurement for payment.

BASIS OF PAYMENT. “Demolition of Structure – Bridge No. 084601” will be paid for at the contract unit price per lump sum as listed in the Bid. The price so stated shall constitute full and complete compensation for all labor, saw cutting, materials, tools and equipment, and all other incidentals required to complete the work on the Nicholas Road bridge replacement as described in the Special Provisions and elsewhere in the Contract Documents, complete in place and accepted by the Engineer.

JOB SPECIFIC

CODE 201.9903

DEMOLITION OF STRUCTURE – BRIDGE NO. 084501

DESCRIPTION: The work under this item shall be in accordance with the applicable provisions of Section 803 of the Standard Specifications and these Special Provisions. This work consists of the complete removal, handling, transportation, and legal disposal of the existing Cahoone Road Bridge No. (084501), to the limits indicated on the Contract Drawings and as described below.

Ensure demolition methods Prevent all equipment, materials, and debris from entering Bucks Horn Brook.

The plans and details of the existing structure shown on the Demolition Plans are illustrative only, depicting the minimum limits of removal. It is the Contractor's responsibility to visit the site and to review all existing information to assess the existing conditions and the scope of the demolition work required to accommodate the proposed construction, prior to submitting bids. No additional compensation, other than the lump sum price bid for this item, shall be made for additional material, disposal or work required to accommodate the proposed construction whether or not it differs from that inferred or described herein or shown on the Contract Drawings.

Work will only be allowed in the river and adjacent banks within the low flow period, between July 1st and October 31st of any year. All materials and equipment shall not be placed until after July 1st and shall be removed in their entirety prior to October 31st. Should construction activities in and/or along the river span multiple construction seasons, all materials and equipment are required to be removed in their entirety between construction seasons in compliance with the aforementioned date restrictions. No additional payment will be made for the removal and subsequent re-delivery of any materials or the demobilization and remobilization of any equipment.

During the entire demolition operation, the Contractor shall make provisions to protect all public properties, private properties, utilities, roadway, and all other structures to remain.

For the purposes of this Special Provision, the existing superstructure and substructures to be removed and disposed of (to the limits indicated on the Contract Drawings) are in general described as follows:

Superstructure:

- The entire superstructure of the Cahoone Road Bridge No. 084501 from the existing North Abutment to the existing South Abutment and roadway makeup (all the components above the beam seats inclusive of railings and any/all components or materials that are embedded, attached, or applied).

Substructures:

- The existing reinforced concrete/stone masonry abutments in their entirety; upper portion of reinforced concrete/stone masonry pier, and existing reinforced concrete and concrete block wing walls in their entirety, to the limits indicated on the Contract Drawings (including all attached and embedded components).

Timber and hardware for shielding shall conform to the requirements of SECTIONS M.11 and M.05, respectively, of the Rhode Island Standard Specifications for Road and Bridge Construction, 2024 Edition. The material shall be structural lumber in accordance with the National Design Specifications for stress graded lumber recommended by the National Forest Products Association (NFPA). The grade shall be $F_b = 1200$ psi minimum. Minimum lumber size for underside shielding shall be 3" x 8".

SUBMITTALS. Submit the following for review and approval in accordance with Standard Specification 105.02:

A. Demolition Plan

Show the location of all roadways, utilities, and other appurtenances in the area of demolition. Detail method of protecting the roadway and utilities, Include anticipated pick weights, rigging, crane and equipment types and locations (including operating radii), removal sequence and effects on remaining structural elements, temporary support design, and all else necessary to clearly describe the work to be performed. Approval(s) of demolition plans, procedures, etc., shall in no way relieve the Contractor of sole liability for damages resulting from the removal and disposal operations.

CONSTRUCTION METHODS. Perform work in accordance with the provisions of the Contract Drawings and the restrictions noted in the CS pages. The Contractor shall Segment substructure concrete removal portions into as few pieces as possible.

The Contractor shall ensure that the removal and disposal operations do not cause damage to the existing structures, properties, utilities, and/or roadways and any portion of the existing structures to remain. Any resulting damages shall be repaired to the satisfaction of the Engineer and property owner(s) at the expense of the Contractor. **No blasting or explosive demolition will be allowed.**

Protect all utilities and adjacent structures, any damage shall be repaired by the Contractor at his own expense to the satisfaction of the Engineer and the respective Utility Companies. All respective utility companies are to be given a minimum of forty-eight (48) hours (two full business days) advanced notice of demolition activities to be performed adjacent to their utilities. Refer to CS Pages for additional utility notification and coordination requirements.

METHOD OF MEASUREMENT. This item will not be measured for payment.

BASIS OF PAYMENT. "ITEM CODE 201.9903 REMOVE AND DISPOSE EXISTING CAHOONE ROAD BRIDGE NO. 084501" will be paid for at the Contract unit price per "Lump Sum" prices as listed in the Proposal. The price so stated will constitute full and complete compensation for all labor, materials, tools, equipment, and all incidentals required to complete

the work as described in these Special Provisions and elsewhere in the Contract Documents, complete in place and accepted by the Engineer.

Partial payments for this Lump Sum item will be made in accordance with Section 109.07 of the Standard Specifications.

JOB SPECIFIC

CODE 202.9901 STREAMBED MATERIAL

DESCRIPTION: The purpose of this item is to provide for the manufacture and installation of natural streambed for aquatic organisms and restore streambed areas as shown in the MAPLE VALLEY ROAD BRIDGE (084351) contract plans. All construction must be performed in the dry. The Contractor shall first obtain the material from existing material stockpiled from excavation of the existing streambed.

The reference sieve for existing streambed material and size distribution can be found in Appendix D – GM2 Geotechnical report (July 28, 2023) - Laboratory Test Results. Using the particle size as a guide, the Contractor shall select the material and particle size distribution for use as streambed material in the culvert and restored streambed areas. The result shall be a dense, well graded bed mix with a percentage and type of fine material (sand, silt, clay) similar to the percentage and type in the reference sieve provided in the Contract plans. Use the additional guidance below.

- The entire bed mix should be well graded (poorly sorted). A dense, stable bed requires all particle sizes, so no gap in sizes should exist between any classes of material in the design bed mix. Each class of bed material that makes up the mix will be well graded, so that all sizes within the category are represented.
- The percentage of sand, silt and clay should approximate the reference sieve and should be adequate to limit bed permeability by filling voids between the larger particles. Including sand, silt, and clay in the streambed material requires using water during construction to wash the fine material down into voids between the larger particles in the bed.
- Bed material rock should be at least as angular as in the reference channel. If it is less angular. Local material shall be sourced as it will more likely resemble the natural bed material.

The Contractor shall submit the proposed gradation for review. The design gradation is to match the existing stream channel particle size distribution within 5%.

Streambed material placed outside of the culverts shall be compacted in lifts as directed by the ENGINEER. Lightly water streambed material to wash fines into voids within the substrate.

METHOD OF MEASUREMENT:

Streambed material will be measured for payment by the Cubic Yard, complete in place.

BASIS OF PAYMENT:

Streambed material required will be paid for at the Contract unit price per Cubic Yard, which price shall include all labor, materials, equipment, streambed gradation development and incidental costs required to complete the work. No separate payment will be made for stockpiling, storing,

or rehandling new material, blending material into the existing stockpile, compaction, disposal of excess material nor placement of the streambed material, but all costs in connection therewith shall be included in the Contract unit price bid.

JOB SPECIFIC

CODE 203.0100

STRUCTURAL EXCAVATION EARTH – NICHOLAS ROAD BRIDGE NO. 084651

DESCRIPTION. The work under this Item shall be in accordance with the applicable provisions of the Standard Specifications and the following.

METHOD OF MEASUREMENT. Horizontal pay limits will be measured between plumb lines and 1 foot outside the neat lines of the proposed foundations only as shown on the Nicholas Road Bridge Plans. However, should the size of the footing be increased by more than 1 foot in any direction, the area of the footing that extends beyond the original payment lines will be used for determining the amount of excavation. No allowance for rock overbreak will be made beyond the limits stated in Section 203 of the Standard Specifications, or more than 6 inches below the bottom of footing.

JOB SPECIFIC

CODE 203.9901

CONTROL OF WATER – BRIDGE NO. 084351

DESCRIPTION. The work under this Item shall be in accordance with the applicable provisions of the Standard Specifications and the following.

The work on Maple Valley Road (08431) shall consist of furnishing, installing, maintaining, and removing temporary measures to control the flow of water for the removal of the existing concrete aprons the corrugated metal pipe arches, concrete spandrel walls and concrete wingwalls. The work of this item shall also include all actions necessary to move, remove, replace, and/or protect water control measures, personnel, equipment, and work-in-progress in the event of high flows in Flat River.

Prior to working in the stream bed of the Flat River, the Contractor will submit shop drawings and design calculations to the Engineer for approval in accordance with Subsection 105.02 of the Standard Specifications. The procedure and drawings shall depict the proposed materials and methods of controlling the Flat River for the removal of the existing concrete aprons, corrugated metal pipe arches, concrete spandrel walls and concrete wingwalls. These plans shall be in conformance with the Plans and these specifications. The procedure and drawings must always allow for the continued normal flow of the river through diversion of the river through the work site. The materials and methods not specifically mentioned in this Special Provision shall comply with the Standard Specifications where applicable.

The Contractor shall install all erosion control measures and sedimentation (silt) fence as depicted in the Plans prior to proceeding with the approved water control plans. The materials and methods not specifically mentioned under this Item shall comply with the standard specifications where applicable.

The Engineer has the right to order the Contractor to stop all operations when in his judgement the Contractor's water control operations are failing to produce adequate results or are posing a threat to the environment.

CONSTRUCTION METHOD. The Contractor shall construct and maintain all necessary temporary diversion and protective works; shall furnish all materials required; and shall furnish, install, maintain and operate all necessary equipment for the diversion and removal of water from the work area and control of water in the work area, as stated in these specifications. During concrete apron removal, metal pipe arch removal, and concrete placement operations at the Maple Valley Road Bridge, the Contractor shall divert the flow of water away from the work down to existing stream bed elevation. The 10 year flood and observed high water elevations are 256.06 and 254.0±, respectively.

Maintenance of Water Diversion Systems:

Throughout the period that work areas are kept dewatered, water diversion systems (i.e. portable dams, cofferdams) shall be inspected regularly by the Contractor and properly maintained. Sufficient materials and equipment shall be available on site to carry out any repair work that may be required.

Removal of Temporary Facilities:

After having served their purpose, all temporary water diversion systems and other diversion and protective works shall be completely removed. The Contractor shall be responsible for complete and proper diversion of water during all stages of this project and shall repair, at no expense to the Department, any damage to the foundations, structures, or any other part of the work caused by floods, high water, or failure of any part of the diversion of protective works for any cause whatsoever. Upon completion of all work, the Contractor shall remove and legally dispose all sediments collected in ponds. Sediment ponds shall be filled with suitable, compacted fill and the site shall be graded to near existing topography.

Contractor's wastewater:

All water which has been polluted by materials such as sediment, oil, grease, cement and concrete, paints or chemicals used by the Contractor's operation shall be disposed of in an approved manner and in accordance with all applicable permits and local, state, and federal regulations. It shall be the contractor's responsibility that no wastewater enters the river at any point in time.

METHOD OF MEASUREMENT. This item does not require a measurement for payment.

BASIS OF PAYMENT. "Control of Water – Bridge No. 084351" will be paid for at the contract Lump Sum price as listed in the Proposal and as accepted by The Engineer. The price so stated shall constitute full and complete compensation for all design, labor, equipment, materials, hay bales, sedimentation (silt) fence, temporary diversion measures, pumps, removal, storage, transportation and disposal of water, etc., required to control water in the Flat River to complete the work.

JOB SPECIFIC

CODE 401.03.6

CODE 401.05

DENSE GRADED HOT MIX ASPHALT (HMA) PAVEMENTS – COMPACTION

DENSE GRADED HOT MIX ASPHALT (HMA) PAVEMENTS – BASIS OF PAYMENT

Add the following to Section 401.03.6 from the RIDOT Standard Specifications for Road & Bridge Construction, February 2024:

401.03.6 Compaction.

Quality control for paving operations shall include measurement of in-place mat and joint density using a nuclear or non-nuclear density gauge calibrated and operated in accordance with AASHTO T 343 or T 355 as applicable. The operator of the gauge shall direct and guide both the paver and roller operators to ensure conformance with density specifications. This QC operation shall be performed for all paving sessions greater than 300 tons or if the mix being placed includes pay adjustments. It is not required for leveling course but is required for all dense graded mixes, Friction Courses and PPEST.

Quality control personnel will take acceptance cores at the direction of the Department.

Add the following to Section 401.05 from the RIDOT Standard Specifications for Road & Bridge Construction, February 2024:

401.05 Basis of Payment.

A disincentive of \$10.00 per ton will be assessed for all HMA placed without these QC processes in place.

JOB SPECIFIC

CODE 800.9901

MAPLE VALLEY ROAD BRIDGE NO. 084351

DESCRIPTION: Except for the excluded items of work indicated below, the work under this item shall consist of constructing the new Maple Valley Road Bridge No. 084351 in its entirety. This shall comprise of all work pertaining to the construction of all bridge and wingwall components from the bottom of the concrete footings to the tops of the precast concrete arch, precast concrete wingwalls, and spandrel walls, inclusive of any and all embedded or attached components, including waterproofing and dampproofing. The work includes the design of all precast elements in accordance with Section 809.9901 of the Specifications. If actual arch design loading exceeds those listed on the contract plans, the Contractor shall redesign the cast-in-place footings and submit design calculations to the Engineer for approval. All the work, design and shop drawings shall be complete in place and accepted in accordance with the Contract Documents except that the Method of Measurement and Basis of Payment will be in accordance with these Special Provisions.

Excluded Items of Work: The work pertaining to the following items of work are excluded from this lump sum item and will be paid for separately under their own appropriate bid items included in the Proposal: Overhead utility relocation, temporary earth retaining systems, earthwork (including all excavation and various fill materials), removal and disposal of existing roadway structure materials, removal and disposal of portions of the existing bridge, removal and disposal of existing headwalls and retaining walls, partial rebuilding of stone retaining wall, and new guardrail and fence installations.

METHOD OF MEASUREMENT: This item will not be measured for payment.

BASIS OF PAYMENT: Item CODE 800.9901 “MAPLE VALLEY ROAD BRIDGE NO. 084351” will be paid for at the contract “Lump Sum” price as listed in the Proposal. The price so stated shall constitute full and complete compensation for all labor, materials, tools, equipment, and all other incidentals required to complete the construction of the superstructure as described above under “DESCRIPTION” and elsewhere in the Contract Documents, complete in place and accepted by the Engineer.

Partial payments for this Lump Sum item will be made in accordance with Section 109.07 of the Specifications.

JOB SPECIFIC

CODE 800.9902

NICHOLAS ROAD BRIDGE NO. 084651

DESCRIPTION: Except for the excluded items of work indicated below, the work under this item shall consist of constructing the new Nicholas Road Bridge No. 084651 in its entirety. This shall comprise of all work pertaining to the construction of all bridge and substructure components from the bottom of the concrete footings to the tops of the concrete backwalls, concrete abutments and wingwalls, precast concrete end posts, high early strength concrete closure pours, special slope paving, reinforcing steel, mechanical connectors, weep drains and fabric-wrapped filter stones, inclusive of any and all embedded or attached components, including dampproofing. Filter stone and dampproofing shall be in accordance with Section M01.07 and M12.02 of the Standard Specifications, respectively. The work includes the design, fabrication and erection of the prefabricated panelized steel truss and railings, bearing assembly, and all its components, in accordance with Section 809.9902 of the Specifications. If actual prefabricated truss design loading exceeds those listed on the contract plans, the Contractor shall redesign the bridge substructure and submit design calculations to the Engineer for approval. All the work shall be complete in place and accepted in accordance with the Contract Documents except that the Method of Measurement and Basis of Payment will be in accordance with these Special Provisions.

Use mechanical couplers that are on the RIDOT Approved Products List or submitted to the Engineer for approval a minimum of 15 working days before their use. Size the mechanical couplers to fit the reinforcing bar to be spliced and designed so that the splice connection meets or exceeds 125 percent of the specified yield strength of the bar.

Excluded Items of Work: The work pertaining to the following items of work are excluded from this lump sum item and will be paid for separately under their own appropriate bid items included in the Proposal: Overhead utility relocation, temporary earth retaining systems, earthwork (including all excavation and various fill materials), dewatering, removal and disposal of existing roadway structure materials, removal and disposal of the existing bridge, partial removal of existing abutments, and new guardrail installations.

METHOD OF MEASUREMENT: This item will not be measured for payment.

BASIS OF PAYMENT: Item CODE 800.9902 "NICHOLAS ROAD BRIDGE NO. 084651" will be paid for at the contract "Lump Sum" price as listed in the Proposal. The price so stated shall constitute full and complete compensation for all labor, materials, tools, equipment, and all other incidentals required to complete the construction of the substructure and superstructure as described above under "DESCRIPTION" and elsewhere in the Contract Documents, complete in place and accepted by the Engineer.

Partial payments for this Lump Sum item will be made in accordance with Section 109.07 of the Specifications.

JOB SPECIFIC

CODE 800.9903

CAHOONE ROAD BRIDGE NO. 084551

DESCRIPTION: Except for the excluded items of work indicated below, the work under this item shall consist of constructing the Cahoon Road Bridge No. 084551 in its entirety. This shall comprise all work pertaining to the construction of:

Superstructure:

- All the components above the beam seats inclusive of the bridge bearings, railing, and all other components or materials that are embedded, attached, or applied.

Substructure:

- All components of the reinforced concrete abutments including reinforced concrete approach slabs, return walls, support of excavation, end posts, bridge rail, and other components or materials that are embedded, attached, or applied.

The work under this item shall also include all the work pertaining to the Control of Water and Dewatering required to construct the bridge. All of the above work shall be complete in place and accepted in accordance with the Contract Documents except that the Method of Measurement and the Basis of Payment will be in accordance with this Special Provision.

Excluded Items of Work: The work pertaining to the following items of work are excluded from this Lump Sum item and instead will be measured and be paid for separately under their own appropriate unit bid or Lump Sum items as listed in the Proposal: Earthwork (various structural excavation and various fill materials), Piles (including all pile components, mobilization, and testing), Remove and Dispose Existing Cahoon Road Bridge No. 084501.

Work will only be allowed in the river within the low flow period, between July 1st and October 31st of any year. All materials and equipment at or below the 100-year flood elevation (EL 406.89) shall not be placed until after July 1st and shall be removed in their entirety prior to October 31st. Should construction activities in and/or along the river span multiple construction seasons, all materials and equipment are required to be removed in their entirety between construction seasons in compliance with the aforementioned date restrictions. No additional payment will be made for the removal and subsequent re-delivery of any materials or the demobilization and remobilization of any equipment.

CONSTRUCTION METHODS: All work shall be performed in accordance with the sequence of construction, the Maintenance and Protection of Traffic Plans as well as the restrictions noted in the Contract TMP, CS pages, and the regulatory permits.

The Contractor shall ensure that no debris or any other foreign material falls onto the ground beneath or into Bucks Horn Brook. Should any debris fall onto the ground or into the water, all work shall stop until such time as the debris has been recovered and a revised procedure of

operation submitted for approval. Any delay caused as a result of cessation of work shall not relieve the Contractor of any responsibilities under this Contract, including the timely completion of the work.

METHOD OF MEASUREMENT: This item will not be measured for payment.

BASIS OF PAYMENT: “ITEM CODE 800.9903 CAHOONE ROAD BRIDGE NO. 084551” will be paid for at the Contract “Lump Sum” price as listed in the Proposal. The price so stated shall constitute full and complete compensation for all labor, materials, tools, equipment, and all incidentals required to complete the construction of the Cahoone Road Bridge No. 084551 as described above under “DESCRIPTION” and elsewhere in the Contract Documents, complete in place and accepted by the Engineer.

Partial payments for this Lump Sum item will be made in accordance with Subsection 109.07 of the RI Standard Specifications.

JOB SPECIFIC

CODE 805.9901

TEMPORARY SUPPORT OF EXCAVATION – BRIDGE NO. 084651

DESCRIPTION. The work under this Item shall consist of the installation and removal of temporary excavation support required to retain excavations for the installation of the bridge abutments and wingwalls. The temporary earth excavation support shall be installed and removed in accordance with the Section 805 of the Standard Specifications, except as herein specified, or as directed by the Engineer.

The work under this item shall also include the installation and removal of temporary welded wire mesh earth retaining system for the temporary north approach roadway widening for phased construction from STA 5+55.4 LT to STA 6+05 LT, as shown on the plans.

CONSTRUCTION METHODS. The Contractor's attention is directed to the required construction sequence and the temporary shoring necessary to accomplish the work in accordance with the Plans and Specifications.

The design and computations of all temporary earth retaining systems shall be prepared and stamped by a Rhode Island Registered Professional Engineer. The design and computations, including drawings, shall be submitted to the Engineer for approval.

The Contractor shall furnish and install temporary earth retaining systems of sufficient length and adequate section modulus; and provide bracing for the loads and conditions involved to safely sustain the earth banks and any loads thereon. In addition to the earth loads, the temporary earth retaining systems shall be designed for a two-foot live load surcharge, TL-3 impact load as specified on the plans and any other construction loading which the Contractor may anticipate.

The Engineer may order additional or stronger bracing and supports at any time when, in his opinion, sufficient and proper bracing and supports have not been provided. The Contractor shall provide the additional bracing and supports required without additional compensation.

The Engineer may also order additional temporary earth retaining systems when, in his opinion, field conditions make it necessary to properly protect the work under construction or any existing installation affected by the construction. It is expressly understood and agreed that the fact that the Engineer orders or fails to order such temporary earth retaining systems shall not relieve the Contractor of sole and exclusive responsibility for any damage whatever to adjacent structures and installations either above or below ground that may be caused by the installation or removal of the earth retaining systems, failure or yielding of the earth retaining systems, or settling of the ground adjacent thereto, or other factors related to said earth retaining systems.

The Contractor shall maintain all excavations in good order during the construction of the work and shall take all actions necessary to prevent any movement of material either on the sides of open excavations or the sides of above-braced excavations.

The Contractor shall take due considerations of any area and space limitations in planning the installation of temporary earth retaining systems to allow sufficient room for the equipment necessary for the removal and replacement of the substructures or other work in the area.

The face of welded wire mesh earth retaining system shall be vertical, as shown on the plans. The Contractor shall submit a detailed description of how the system will be installed to the Engineer for approval.

MATERIALS. The temporary excavation support required for the installation of the bridge abutments and wingwalls will be selected and designed by the Contractor and submitted to the Engineer for approval. The materials shall be in conformance with subsection 805.02 of the Standard Specifications.

The materials used for the temporary welded wire mesh earth retaining system required for the temporary north approach widening for phased construction shall be selected and designed by the Contractor and submitted to the Engineer for approval.

METHOD OF MEASUREMENT. This item does not require a measurement for payment.

BASIS OF PAYMENT. “Temporary Support of Excavation – Bridge No. 084651” will be paid for at the contract unit price per lump sum as listed in the Bid. The price so stated constitutes full and complete compensation for all design, labor, materials, tools, and equipment, including driving, bracing, and removal, and all other incidentals to finish the work, complete and accepted by the Engineer.

JOB SPECIFIC

CODE 808.9901

HIGH EARLY STRENGTH CONCRETE

DESCRIPTION: This specification covers field casting of closure walls spanning between abutment stems and backwalls, as indicated on the Nicholas Road Plans (084651). The material shall be high early strength concrete. The work under this item shall be in accordance with Section 601 of the Standard Specifications and the requirements specified herein.

MATERIALS: The high early strength concrete shall conform to the requirements of Sections 601, M02 and the following criteria:

1. Use Portland cement conforming to AASHTO M85 with compatible admixtures and air entraining agent.
2. Proportioning not specified herein shall be in accordance with Class HP requirements of Section 601 of the Standard Specifications.
3. Water-cementitious material ratio shall not exceed 0.4 by weight, including water in the admixture solution and based on saturated surface dry condition of aggregates.
4. Use a maximum size coarse aggregate of $\frac{3}{4}$ ".
5. High early strength concrete shall achieve a minimum 24-hour compressive strength of 2500 psi.
6. The early strength characteristics of the concrete shall be commensurate with the intended construction procedure and schedule that is developed by the Design-Builder in the Assembly Plan.
7. A shrinkage reducing admixture shall be added to the concrete mix according to the manufacturer's recommendation such that there will be no cracks at 14 days in the sample tested in accordance with AASHTO T334. A shrinkage reducing admixture shall be tested by an approved testing lab and meeting the requirements of ASTM C494-10 Type S. Shrinkage reducing admixtures shall not contain expansive metallic materials.
8. The maximum allowable total chloride content in concrete shall not exceed 0.1% by weight of cement.

Concrete shall be controlled, mixed, and handled as specified in the pertinent portions of the RIDOT Standard specifications, Section 601 Portland Cement Concrete. See Table 1 below for Verification Testing Requirements:

Table 1: Verification Testing Requirements

Property	Method	Quality Characteristic		Limits	
				Min.	Max.
Strength	AASHTO T22 ^[1]	Compressive Strength (psi)	12 Hours	Informational	
			24 Hours	2500	–
			3 Days	4000	–
			7 Days	5000	–
			28 Days	Informational	
Setting	AASHTO T 197	Initial Set (min.)		Informational	
		Final Set (min.)		Informational	
Shrinkage Cracking Resistance ^[3]	AASHTO T 160 ^[2]	Unrestrained Volume Change (με)	28 Days	–	420
Durability	AASHTO T 358 ^{[1][4]}	Surface Chloride Ion Penetration Resistance (kΩ-cm)	7 Days	Informational	
			28 Days	21	–
	OR				
	AASHTO TP 119 ^{[1][4]}	Uniaxial Chloride Ion Penetration Resistance (kΩ-cm)	7 Days	Informational	
			28 Days	10.4	–
<p>[1] Three (3) 4 x 8 in. cylinders shall be cast and tested for each age specified for maximum aggregate size less than 1-½ in. Two (2) 6 x 12 in. cylinders shall be cast and tested for each age specified for maximum aggregate size greater than 1 in.</p> <p>[2] For applications where the concrete is not subject to restraining stresses.</p> <p>[3] Not applicable to mix design formulations incorporating sufficiently designed dosages of Type S-SRA Shrinkage Reducing or Type S-CRA Crack Reducing chemical admixtures meeting M02.05: Chemical Admixtures.</p> <p>[4] Specimens shall be moist cured in accordance with AASHTO T 22 and shall be in saturated surface dry (SSD) condition during testing.</p>					

METHOD OF MEASUREMENT:

High Early Strength Concrete will not be measured separately for payment.

BASIS OF PAYMENT:

High Early Strength Concrete will be paid for under Lump Sum Item 800.9902.

JOB SPECIFIC

CODE 808.9902

ULTRA HIGH-PERFORMANCE CONCRETE (UHPC)

DESCRIPTION: Field cast Ultra High-Performance Concrete (UHPC) in the longitudinal deck closure pour joints **for the Cahoon Road Bridge No. 084551** at the locations and to the depths indicated on the Plans and as directed by the Engineer, all in accordance with this Special Provision.

This work also includes forming, preparation of bonding surfaces, batching and mixing on site, making test cylinders, testing, finishing, and curing UHPC.

The material, mixing, and placing equipment shall be as supplied by the UHPC Manufacturer/Contractor. All testing (unless otherwise stated herein) shall be performed by the Contractor and UHPC Manufacturer using ACI Certified Technicians. The Contractor, Manufacturer's Representative(s), their Technicians required for testing, and RIDOT shall be present during the Trial Batch Testing, Mock-up Testing, Pre-Pour Meeting, and the Production Pour.

All work shall be in accordance with the applicable provisions of the Standard Specifications.

DESCRIPTION: All UHPC material components shall be supplied by the same manufacturer. Materials commonly used in UHPC are:

- Fine Aggregate
- Cementitious material
- Superplasticizer
- Steel Fibers (specifically made for steel reinforcement and coated to prevent rusting)
- Water

UHPC material shall meet the following criteria:

Minimum Compressive Strength (ASTM C1856 / ASTM C39):

4 days	≥ 14,000 psi
14 days	≥ 17,600 psi
28 days	≥ 21,000 psi

Chloride Ion Permeability (AASHTO T277) ≤ 250 coulombs (28 days)*

Freeze-Thaw Resistance (AASHTO T161 Procedure A; RDM ≥ 95% *300 cycles)

Slump Flow (ASTM C1856 / ASTM C1437) 7–10 inch diameter after 25 drops
(No visual segregation of steel fiber and aggregate)

Shrinkage (AASHTO T160): ≤ 800 microstrains (28 days)*

**Manufacturers historical test data may be submitted in lieu of Contractor testing. Test data must be submitted 30 days prior to the trial batch.*

SUBMITTALS: Submit shop drawings for approval in accordance with Subsection 105.02 of the Standard Specifications. All subcomponents of the shop drawing shall be submitted in a single package.

Submit the UHPC mix design specifying the separate components that are not pre-blended and are only added together during the mixing process. The mix design shall specify the proportion of each of these materials. A trial batch shall be made based upon the mix design. It shall be tested and the results included in the submission. Submit details of a proposed Mock-up pour mimicking conditions of the proposed actual closure pours. The submission shall include details of materials, equipment, and procedures including preparation of bonding surfaces, forming and placement details, casting, testing, maturity, and storing cylinders.

Construction Procedures: Upon approval of the mix design and proposed Mock-up, construct the Mock-up panel and provide the engineer with 21 days of notice prior to the Mock-up pour, the engineer may elect to inspect the Mock-up prior to the pour. After UHPC is placed in the Mock-up, the engineer shall approve or provide specific comments on deficiencies. Depending on the severity of deficiencies the engineer may request additional Mock-ups be performed until all issues are resolved. After Mock-up approval, UHPC production pour work may commence.

Regional Experience of the Manufacturer: The Manufacturer of the UHPC material components shall demonstrate the successful completion of a minimum of three similar projects in the New England region. Their technical representative shall be on site during UHPC placement for the trial mix, mock-up and production closure pours. Provide documentation that the technical representative is certified to oversee the work.

QUALITY CONTROL: Testing Equipment: The testing equipment listed below will be required at the site for the Trial Batch Testing, the Mock-up Testing, and for the Production Testing.

- A mini-slump cone meeting the requirements of ASTM C1856/C1437, for on-site testing.
- A concrete thermometer meeting the requirements of AASHTO T309.
- 3-inch diameter by 6-inch-tall cylinder molds for making samples for compressive testing in accordance with ASTM C1856/C39.
- Only for Trial Batch Testing, all equipment and molds necessary to fabricate samples for AASHTO T160, T161, and T277 tests (if historical test data is not available).
- Maturity Meter and thermocouples that can:
 - Provide a maturity value based on the Equivalent Age or Temperature Time Method as detailed in ASTM C 1074.

- Continuously log and store maturity data.
- Provide accuracy to within +/- 1°F when the meter is calibrated as per the manufacturer's instructions.
- Take readings every half hour for the first 15 hours.
- Print data and/or download it into a spreadsheet.
- The Contractor shall provide a minimum of four thermocouples per each UHPC closure pour joint. A minimum of three thermocouples shall be installed at each UHPC closure pour joint, one at each end, and one at midway with additional thermocouples as recommended by the manufacturer. The Engineer shall have the option of directing the Contractor to place the fourth thermocouple at a location of the Engineer's choosing. Alternate methods of monitoring may be acceptable if submitted and approved by the Engineer.

RIDOT will retain ownership of said equipment upon project completion.

Sampling and Testing: Trial Batch Testing, Mock-up Testing, and Production Pour Testing shall be in accordance with the following sampling and testing procedures:

- The Quality Control sampling and testing shall be performed by the Contractor/Manufacturer using ACI Certified Technicians for Field Testing Technician Grade 1. All materials, testing equipment, mixers, etc., shall be supplied by the Contractor/Manufacturer. In addition, compression strength testing of hardened UHPC shall be performed by the Contractor/Manufacturer at an AASHTO accredited laboratory in accordance with this Special Provision and the Manufacturer's recommendations. Chloride ion permeability, freeze-thaw, and shrinkage shall also be performed if historical data is not available. The Contractor shall provide a copy of the test results to the Engineer.
- UHPC testing:
 - The test days shall be at 2 days, 4 days, 14 days, and 28 days. A minimum of four (4) - 3 inch diameter by 6 inch cylinders shall be used for each test day.
 - The trial batch test cylinders shall be standard cured in accordance with RIDOT Standard Specifications.
 - The mock-up test cylinders and the production pour test cylinders used for the 2 and 4 day tests shall be field cured in the same environment as the closure pour material they represent. The cylinders for the remaining 14 day and 28 day tests shall be cured in accordance with the Manufacturer's recommendations.
 - In addition to the cylinders noted above, a minimum of four (4) additional concrete cylinders shall be fabricated and maintained at 50°F in a controlled testing laboratory for both the trial batch and mock-up tests (a total of 8 cylinders for all tests). One (1) cylinder shall be tested each test day. Compressive testing shall be performed at 2, 4, 14, and 28 days. Acceptance cylinders will be tested by the Engineer. Quality Control cylinders shall be tested by the Contractor/Manufacturer, at an AASHTO accredited laboratory.

- Methodology For Maturity Testing:
 - The procedure for utilizing the maturity method to determine in-place UHPC strengths includes three steps: obtain Manufacturers' strength-maturity relationship, monitoring the maturity of the placement by taking periodic temperature readings as recommended by the Manufacturer, and regular validation of the strength maturity relationship. Any changes in the mix design, its components, or proportions will require that a new strength-maturity relationship be developed.
 - The strength-maturity relationship shall be developed one month minimum prior to construction. Continue data collection for the strength-maturity relationship after acceptance of the maturity value until the strength reaches 21 ksi.
 - A procedure to develop the strength-maturity relationship shall be submitted to the Engineer for review and approval along with the shop drawings. The submitted procedure shall include all necessary information for the development of the strength maturity relationship. All necessary testing included in the procedure shall be conducted by an AASHTO accredited testing laboratory.

- Trial Batch Testing:
 - UHPC batch temperatures shall be recommended by the Manufacturer and shall be representative of the proposed batch temperatures required for the production pours. Record the temperature.
 - The Trial Batch shall be representative of the production pour and shall consist of the same materials, equipment, methods of mixing, cylinder preparation, and curing methods.
 - The basis for acceptance of the Trial Batch test results will be that the concrete compressive strength at 4 days is equal to or greater than 14,000 psi. The 2 day, 14 day, and 28 day test results shall be recorded.
 - Mock-ups shall be simulations of the production closure pours and shall consist of the same UHPC materials, equipment, mixing, batching, forming, surface preparations, placement, making of test cylinders, quality control by the Manufacturer's representative, and curing as for the production longitudinal deck closure pours. The longitudinal deck closure pour Mock-up shall consist of linking two concrete panels together with a closure pour of the same width and thickness as shown on the Plans. Each of the concrete panels will be a minimum of 3 feet wide by 20 feet long. Mock-up closure pour joints shall be over-filled with UHPC material by 1/4 inch to 3/8 inch above the required depth to allow for subsidence due to loss of entrapped air. Curing of the joint shall be as specified in this Special Provision. For the longitudinal deck closure pour Mock-up, after curing is completed, the Contractor shall diamond grind the closure pour flush with the adjacent concrete panel surfaces to demonstrate to the Engineer the outcome and effective use of the equipment proposed to be used for the production closure pours.
 - A minimum of one slump flow test for each batch of UHPC during the Mock-up shall be performed and recorded by the Contractor for Quality Control. The slump flow test

- shall be within the 7 to 10 inch acceptable range. The slump test shall be performed and accepted prior to placing the mix in the Mock-up joints.
- UHPC batch temperatures shall be as recommended by the Manufacturer. The temperature shall be recorded. The UHPC shall be fully placed within 30 minutes after mixing and its temperature, as determined by AASHTO T309, shall not be in excess of 80°F prior to being placed into the closure pour.
 - Production Pour Testing:
 - UHPC 4 days \geq 14,000 psi:
 - The basis for acceptance of the production test results will be that the concrete compressive strength at 4 days is equal to or greater than 14,000 psi. The 2 day, 14 day, and 28 day test results shall also be recorded.
 - Cylinders for compressive strength testing shall be cast for each day of UHPC production pour placement. The number of test cylinders and test days shall be as detailed in UHPC Testing above.
 - Curing boxes shall be supplied by the Contractor to store standard cured cylinders in a humidity and temperature control environment as recommended by the Manufacturer prior to testing.

METHOD OF MEASUREMENT: This item will not be measured for payment.

BASIS OF PAYMENT: No separate payment will be made for this item. Payment for this item will be included in the lump sum or unit bid prices of the appropriate items as listed in the Proposal.

JOB SPECIFIC

CODE 809.9901

PRECAST CONCRETE BRIDGE ELEMENTS

DESCRIPTION: This item of work shall include furnishing, fabricating, and erecting precast concrete elements including precast arches, wingwalls, and spandrel walls all in accordance with this specification, the Maple Valley Road Bridge (084351) plans, and the relevant provisions of Section 809 of the RIDOT Standard Specification and/or as directed by the Engineer.

Also included in this work is the design of the precast wingwalls, and spandrel walls.

Wingwalls and spandrel walls shall receive a form liner finish. Form liner shall be Ashlar Masonry Pattern in accordance with the Rhode Island Bridge Standard Details, or approved equal.

DESIGN:

The precast arch shall be designed by the manufacturer in accordance with the latest AASHTO LRFD Bridge Design Specifications. The design live load shall be HL-93. The maximum live load deflection shall not exceed $L/800$, where L is the span of the structure, in accordance with the latest AASHTO LRFD Bridge Design Specifications

The Contractor shall design the wingwalls, spandrel walls, and the connection of spandrel wall to precast arch units in accordance with the latest AASHTO LRFD Bridge Design Specifications. The Contractor shall also provide a load rating analysis in accordance with current Rhode Island Load Rating Guidelines. Load rating to be submitted and approved as part of the shop drawing submission. Additionally, all precast concrete members shall be designed to accommodate anticipated temporary construction loading. If setback restrictions are required, the Contractor shall clearly delineate on the shop drawing submittal.

MATERIALS:

Concrete

The concrete for the precast elements shall be air-entrained when installed in areas subject to freeze-thaw conditions, composed of Portland cement, fine and coarse aggregates, admixtures and water. Air-entrained concrete shall contain 6 ± 2 percent air. The air-entraining admixture shall conform to AASHTO M154. The minimum concrete compressive strength shall be as shown on the contract plans. Portland cement, fine and coarse aggregates, and admixtures shall conform to the requirements of Section M02 of the Standard Specifications.

Steel Reinforcement

All reinforcing steel for the precast elements shall be fabricated and placed in accordance with the detailed shop drawings submitted by the manufacturer. The minimum steel yield strength shall be 60,000 psi, unless otherwise noted on the shop drawings. Reinforcing steel shall conform to Subsection M05.06.

CONSTRUCTION METHODS:

The Contractor shall submit an "Erection Plan" that shall include, but not be limited to, the following requirements: Lifting and installation procedure of each precast section conforming to the manufacturer's recommendations. Detailed method of rigging, lifting and placing, including crane size(s), crane location(s) and relocations if required, shall be submitted including all applicable design calculations. The contractor shall coordinate with overhead utility owners to avoid scheduling conflicts with utility relocation.

The contractor also has the option to use high capacity, low profile roller dollies to install the precast bridge units to avoid the need for existing overhead utility relocation. The contractor shall select Hilman Rollers, or approved equal, that meet or exceed the required capacity to move the precast bridge units. The contractor shall coordinate with the precast manufacturer to ensure the selected rollers can be used. The "Erection Plan" shall detail the rolling and lifting procedures to ensure that overhead utilities and cofferdams will be avoided. The contractor shall use appropriate cofferdam installation and removal techniques to avoid conflicts with the existing overhead utilities.

Precast Concrete Arch

Precast arch sections shall be placed on steel or masonite shims within the keyway of the precast footing. The elevation of the crown of the Arch Top as shown on the Maple Valley Road Bridge (084351) plans shall be accurately achieved. The height of the legs of the precast bridge units are based on a 1" shim under the legs.

The Contractor shall coordinate with the manufacturer to determine whether shear keys are required between precast sections.

Each fascia section shall be mechanically fastened to first interior section. Details of connection shall be per the manufacturer's recommendation.

Precast Concrete Wingwalls

Precast concrete wingwalls shall be constructed from panels that extend for the full height of the walls without horizontal joints. Wall panels shall be constructed with integral concrete anchors on the rear face to provide appropriate stability.

Precast Concrete Spandrel Walls

The height of the precast spandrel walls shall be as shown on the Maple Valley Road plans. The backside of the spandrel wall, and the top and side of the counterfort shall receive bituminous dampproofing in accordance with Section 813 of the Standard Specifications.

Placement of the Units: Precast units shall be placed as shown on the Maple Valley Road construction drawings. Special care shall be taken in setting the units to the true line and grade.

The precast bridge units shall be set on 6" × 6" masonite or steel shims set in the cast-in-place arch footing keyway to provide a minimum distance of 1" from bottom of unit to bottom of footing keyway. The gap shall be filled with cement grout.

External Protection of Joints — The butt joint made by two adjoining precast bridge units shall be covered with a piece of preformed bituminous joint sealant.

The entire top and outside wall faces of the precast bridge units shall receive bituminous dampproofing. A cold spray-applied liquid membrane shall also be applied to the entire top and to the top 2 feet of the outside wall face of the precast bridge units, as shown on the plans. All waterproofing and dampproofing shall be in accordance with Section 813 of the Standard Specifications.

Manufacturer shall determine whether a connection is warranted between precast bridge units, and if so, connection shall be included in the cost and shall be detailed on the shop drawings.

Backfill — Backfill shall be considered as all replaced excavation and new embankment adjacent to the arch units and wingwalls.

No backfill shall be placed against any structural elements until they have been approved by the Engineer.

Backfill against a waterproofed surface shall be placed carefully to avoid damage to the waterproofing material. No boulders or rock in the backfill placed against the waterproofed surfaces shall be permitted.

Mechanical tampers or approved compacting equipment shall be used to compact all backfill and embankment immediately adjacent to each side of the culvert. The backfill within four feet of each side of the culvert shall be placed in lifts of eight inches or less (loose depth). Backfill shall be placed on both sides to approximately the same elevation at the same time. Heavy compaction equipment shall not be operated in this area or over the culvert until it is covered to a depth of one foot.

Lightweight dozers and graders may be operated over arches having one foot of compacted cover, but heavy earth moving equipment (larger than a D-4 Dozer weighing in excess of 12 tons and having track pressures of eight psi or greater) shall require approval from the manufacturer.

Any additional fill and subsequent excavation required to provide this minimum cover shall be made at -no additional cost to the project.

As a precaution against introducing unbalanced stresses in the arches when placing backfill, at no time shall the difference between the heights of fill on opposite sides of the arches exceed 24".

METHOD OF MEASUREMENT:

Precast Concrete Bridge Elements will not be measured separately for payment.

BASIS OF PAYMENT:

Precast Concrete Bridge Elements will be paid for under Lump Sum Item 800.9901.

JOB SPECIFIC

CODE 809.9902

PREFABRICATED STEEL TRUSS – BRIDGE NO. 084651

DESCRIPTION: This item of work shall include designing, fabricating, and installing the prefabricated truss system in its entirety, all in accordance with this specification, the Nicholas Road Bridge (084651) plans, and the relevant provisions of Sections 824 and 843 of the RIDOT Standard Specification or as directed by the Engineer.

All steel components of the truss shall be hot-dip galvanized and painted, in accordance with this specification, manufacturer's recommendations and the relevant provisions of Sections 843 and 825, respectively, of the RIDOT Standard Specification or as directed by the Engineer.

DESIGN: The prefabricated truss system and bearing assembly shall be designed by the manufacturer in accordance with the latest AASHTO LRFD Bridge Design Specifications. The design live load shall be HL-93. The truss depth shall not be less than $0.1L$, where L is the span of the structure. The maximum live load deflection of an orthotropic metal deck shall not exceed $L/1000$, in accordance with the latest AASHTO LRFD Bridge Design Specifications.

The Manufacturer shall design the truss system and the bearing assembly in accordance with the latest AASHTO LRFD Bridge Design Specifications. Further, the manufacturer must be certified as under the quality assurance programs certified by ISO 9001 and the American Institute of Steel Construction (AISC) to have the personnel, organization, experience, capability, and commitment meeting the requirements of the Advanced (Major) Steel Bridges with Fracture Critical Endorsement categories as set forth in the AISC Certification Program. Live load fatigue shall be analyzed in accordance with the AASHTO design code for 500,000 cycles (or other appropriate number of cycles) using Category E for the trusses. Fatigue tests shall not be acceptable.

Bearing assembly shall include anchorage as required to resist all prescribed wind and hydraulic loading, both transverse and longitudinal, per the latest AASHTO LRFD Bridge Design Specifications.

The Contractor shall also provide a load rating analysis in accordance with current Rhode Island Load Rating Guidelines. Load rating to be submitted and approved as part of the shop drawing submission. Additionally, all precast concrete members shall be designed to accommodate anticipated temporary construction loading. If setback restrictions are required, the Contractor shall clearly delineate on the shop drawing submittal.

MATERIALS:

Trusses (Panels):

The upper and lower chords of a panel shall be fabricated from hot-rolled steel channels, and the verticals and diagonals are fabricated from rectangular hollow sections, channels, or flat bar.

Male forgings used for pin connections shall be solid and of one-piece construction. The minimum metal thickness shall be ¼ inch. Truss/panel materials shall meet or exceed the following:

- AASHTO M223 Grade 65 (ASTM A572 Gd 65)
- Min. Ultimate Tensile Strength 80,000 p.s.i.
- Yield 65,000 p.s.i.
- Elongation 17% of 203mm Gauge Length
- Panel Connection Pins
 - ASTM A193 Grade B7

Transoms/Floorbeams:

The transoms shall be fabricated from wide flanged sections. Vertical cross-bracing shall be incorporated between floorbeams in every other bay. This bracing shall be at each end of the floorbeams and prevent horizontal loads from being transferred from the floorbeam into the truss members. Transom/floorbeam and bracing materials shall meet or exceed the following:

- AASHTO M223 Grade 50 (ASTM A572 Gd 50)
- Min. Ultimate Tensile Strength 65,000 p.s.i.
- Yield 50,000 p.s.i.
- Elongation 18% of 203mm Gauge Length

Orthotropic Steel Deck:

The deck system is comprised of orthotropic units. Each unit has a steel deck plate welded to longitudinal stringers. The driving surface of the deck plate shall have a factory applied anti – skid aggregate and epoxy surface. Curbs shall be 6” tall and shall be shop welded to a deck unit. Transversely in a deck unit are 4 round tube diaphragms of 3” diameter that distribute wheel loads. Steel Deck and all other materials not listed above shall meet or exceed the following:

- AASHTO M183 Grade 36 (ASTM A36/50)
- Min. Ultimate Tensile Strength 58,000 p.s.i.
- Yield 36,000 p.s.i.
- Elongation 20% of 203mm Gauge Length

Bolts

Bolts shall meet or exceed ASTM F3125. The following bolt diameters are to be considered minimum acceptable diameters:

- Chord Bolt – 32mm
- Deck bolt – 19mm
- All other bolts – 25mm

CONSTRUCTION METHODS: The Contractor shall submit an “Erection Plan” that shall include, but not be limited to, the following requirements: Lifting and installation procedure of each prefabricated section conforming to the manufacturer’s recommendations. Detailed method of rigging, lifting and placing, including crane size(s), crane location(s) and relocations if required, shall be submitted including all applicable design calculations. Design calculations shall be stamped by a Rhode Island Registered Professional Engineer.

Contractor shall coordinate with manufacturer to confirm bearing locations prior to erection of the bridge. The bridge shall be assembled by the rolling/launching method (or lift in by crane). Copies of the Operator's Manual or Technical Handbook shall be supplied to the Contractor and RIDOT by the Manufacturer.

FABRICATION: Workmanship, fabrication, Quality Assurance Systems, and shop connections shall be in accordance with the AISC (American Society of Steel Construction) for Certified Bridge Fabrication – Advanced (Major), AWS (American Welding Society) D.1.5. Bridge welding codes, AASHTO (American Association of State and Highway Transportation Officials Bridge Design Code), and ISO9001. Welding is to be performed by properly certified operators.

FINISHING: All major components, unless otherwise specified in this specification or by the Engineer, shall be hot-dipped galvanized to AASHTO M111 and ASTM A123, or equivalent, and be in accordance with Section 843 of the RIDOT Standard Specifications. The coating shall provide a minimum of 3.9mils of coverage for steel of 6.5mm thick and greater. The interior circumference of the pin holes of the trusses/panels shall be coated with hot dip galvanizing. All bolts, pins, etc., shall be galvanized or spun galvanized. It shall be the manufacturer's responsibility to ensure proper thickness of galvanization has been applied to the truss components.

The truss, and all its components, will then be thoroughly cleaned, prepared and painted in accordance with Section 825 of the RIDOT Standard Specifications. The contractor is solely responsible for coordinating the painting of the truss and all of its components. The contractor shall coordinate with the truss manufacturer to transport the truss to a painting facility following the galvanization process. Following the painting process, it is then the contractor's responsibility to clean, prepare and paint on site any portions of the paint coat that were damaged while transporting the truss and its components to the job site.

METHOD OF MEASUREMENT: Prefabricated Steel Truss will not be measured separately for payment.

BASIS OF PAYMENT: Prefabricated Steel Truss will be paid for under Lump Sum Item 800.9902.

JOB SPECIFIC

CODE 809.9903

PREFABRICATED BRIDGE UNITS

DESCRIPTION: Furnish and erect Prefabricated Bridge Units (PBUs) for Cahoon Road Bridge No. 084551, including all necessary materials and equipment to complete the work at locations indicated on the Contract Drawings and as directed by the Engineer, all in accordance with this Special Provision.

Prefabricate each of the three required PBU's using a concrete decked steel girder system as shown on the Contract Drawings, consisting of a single Galvanized Steel Press-Brake-Formed Tub Girder (PBFTG), assembled complete with diaphragms, angle bracket bracings, inspection access covers, shear connectors, shear keys, steel sole plates, cast in place reinforced concrete deck, galvanized reinforcing, Ultra-High Performance Concrete (UHPC) longitudinal production and mockup closure pours, and reinforced concrete safety walk.

Perform work as shown on the Contract Drawings and in accordance with relevant provisions of the Standard Specifications.

MATERIALS: All material shall conform to the relevant provisions of the RI Standard Specifications and as supplemented or modified herein.

A. Concrete.

1. Deck concrete shall be Class HP.
2. Closure Pour shall be in accordance with Code 808.9902 of these Special Provisions for Ultra High-Performance Concrete.

B. Structural Steel.

All structural steel plates and shapes shall conform to AASHTO M270 Grade 50.

CONSTRUCTION METHODS: Perform construction in accordance with approved Shop Drawings, the Contract Documents and where provided with the specific products utilized, the manufacturer's recommendation and instructions. Where conflicts exist, the most stringent requirement shall govern as determined solely by the Engineer.

Place fabricated press brake formed tub girders on temporary support structures with beam seat elevations and locations which duplicate and maintain the configuration of the bridge superstructure in its final position, on the permanent beam seats/bearings. Support superstructures on temporary bearings of the same size, type, and material as for the permanent structures. Elastomeric bearing pads used in the temporary condition may be reused in the final configuration. Any shims required shall be steel and where multiple layers of shims are utilized they shall be tack welded or bolted together.

Simultaneously cast proposed deck over all U beams with closure pours temporarily blocked/filled.

SUBMITTALS: Submit Shop Drawings for approval in accordance with Subsection 105.02 of the Standard Specifications. All subcomponents of the Shop Drawings shall be submitted in a coordinated single package.

Provide a list of three similar projects demonstrating the necessary experience to furnish and erect PBUs, including a brief description of each project that is similar in scope. A reference shall be included for each project listed. As a minimum, the reference shall include the owner's name, a direct contact name, address and current phone number.

The Contractor shall design all temporary works according to the current edition of the AASHTO LRFD Bridge Construction Specifications, Section 3 "Temporary Works", the Rhode Island LRFD Bridge Design Manual.

Submit PBU Shop Drawings detailing:

- Structural steel Shop Drawings detailing all structural steel.
- Reinforcement Shop Drawings.
- Detailed procedure for fabricating PBUs, including forming the deck.

Submit a temporary Assembly Plan Detailing:

- A work area plan of the deck casting location depicting temporary supports and their configuration.
- All equipment to be used to lift tub girders onto temporary support structures including locations, operation radii, rigging, lifting calculations, etc.
- Procedures for limiting out of alignment displacements between adjacent beams to ¼" prior to deck placement.
- Methods of forming and curing concrete decks.
- Show minimum compressive strength to be attained by concrete deck and concrete traffic rail prior to handling the PBUs.

Submit a final Assembly Plan detailing:

- A work area plan, depicting all utilities within the work area and protective measures, etc.
- All equipment to be used to lift PBUs including locations, operation radii, rigging, lifting calculations, etc.
- Computations to indicate the magnitude of stress in the PBUs during erection do not exceed permissible values.

- Methods of forming and curing closure pours.

CONSTRUCTION:

A. Quality Control.

1. Provide a legible mark on each PBU with date of fabrication, supplier identification, and PBU identification. Markings shall be provided by stamping in fresh concrete, by stencil, by label adequately attached, or by other appropriate means selected by the Contractor and approved by the Engineer.
2. Take all necessary precautions to prevent cracking or damage to concrete deck and safety walk during handling and storage.
3. Construct PBUs to the following tolerances:
 - Deck surfaces must meet a $\frac{1}{8}$ -inch in 10-foot straightedge requirement in longitudinal and transverse directions.
 - Differences in camber between adjacent PBUs shall not exceed $\frac{1}{4}$ -inch prior to casting deck.

B. Fabrication.

1. Do not place concrete in the forms until the Engineer has inspected the form and has approved all materials and the placement of the materials in the form.
2. Provide the Engineer with a tentative casting schedule at least two weeks in advance to make inspection and testing arrangements.
3. The surface profile of closure pour bonding surfaces shall have an exposed aggregate surface.
4. The Contractor may elect to fabricate steel members from built up plates. The proposed configuration shall have section properties of equal or greater value to the sections shown in the Contract Documents and shall be submitted for review and approval to the engineer.

C. Handling, Storing, and Transportation.

1. Handling and Storing.

- a. Follow the latest PCI Design Handbook regarding the handling and erection bracing of precast components.
- b. PBUs damaged during handling and storage shall be repaired or replaced by the Contractor, as directed by and to the satisfaction of the Engineer, at no additional cost to the State.
- c. The Contractor is responsible for handling stresses in the PBUs and shall include all necessary deck concrete modifications, to resist handling stresses, on the Shop Drawings.
- d. Storage areas shall be smooth and well compacted to prevent damage due to differential

- settlement.
- e. PBUs may be loaded on a trailer as described above. Shock-absorbing cushioning material shall be used at all bearing points during transportation. Tie-down straps shall be located at the lines of blocking only.
 - f. The PBUs shall not be subject to damaging torsional, dynamic, or impact stresses.

2. Transportation.

- a. A PBU shall not be transported from the casting yard until the deck concrete attains the minimum 28-day compressive strength specified in the Contract Documents as shown by test cylinders cured in accordance with AASHTO T 23, and a minimum of 7 days has elapsed from casting of the deck concrete.
- b. A 48-hour notice of the loading and shipping schedule shall be provided to the Engineer.
- c. Transport PBUs horizontal with steel tub girders on the bottom side for support. Support the PBUs at approximately the same points they will be supported when installed.
- d. Material, quality and condition after shipment will be inspected after delivery to the construction site, with this and any previous inspections constituting only partial acceptance.

D. General Installation of PBUs.

- 1. Saturate surface dry (SSD) all closure pour surfaces prior to placing UHPC production pours.
- 2. Form closure pours and ensure forms and all surfaces are free of deleterious materials that may prevent bonding of the joint.
- 3. Cast UHPC closure pours, each closure pour shall be cast in a single simultaneous operation, over the entire bridge length with no joints. Cure closure pours.
- 4. Repair concrete defects as directed by and to the satisfaction of the Engineer.
- 5. Do not apply superimposed dead loads or construction live loads to the prefabricated superstructure until the compressive test result of the cylinders for the UHPC closure pour concrete has reached a minimum compressive strength **of 14 KSI.**

METHOD OF MEASUREMENT: This item will not be measured for payment.

BASIS OF PAYMENT: No separate payment will be made for this item. Payment for this item will be included in the lump sum or unit bid prices of the appropriate items as listed in the Proposal.

JOB SPECIFIC

CODE 809.9904

GALVANIZED STEEL PRESS-BRAKE-FORMED TUB GIRDER (PBFTG)

DESCRIPTION: The work under this item shall consist of furnishing and manufacturing the Galvanized Steel Press-Brake-Formed Tub Girder (PBFTG) according to the plans, the standard specifications and as contained herein. The PBFTG shall be produced by the following manufacturer or an approved equivalent manufacturer:

Valmont Industries, Inc. – North American Structures
valmontbridgesales@valmont.com
800-533-5103

Shop Drawings. Furnish the Department with shop drawings of the PBFTG for approval. Include in the shop drawings the physical dimensions, methods of manufacture, structural steel dimensions, structural steel material properties, recommended installation procedure, design assumptions, design loads, and design calculations. Submit the Shop Drawings for review at least 30 calendar days prior to fabrication. The Shop Drawings must be sealed by a state-licensed Professional Engineer. Do not begin fabrication until written approval of the shop drawings has been received from the Engineer of Record.

MATERIALS: All material shall conform to the relevant provisions of the RI Standard Specifications and shall meet the requirements of the current version of AASHTO LRFD Bridge Construction Specifications.

A. Structural Steel.

All structural steel plates and shapes shall conform to AASHTO M270 Grade 50.

B. Galvanizing.

Hot-Dipped Galvanizing shall conform to the provisions of Section 843 of the Standard Specifications.

CONSTRUCTION METHODS: All construction shall be in accordance with the approved shop drawings, the Contract Documents, and where provided with the specific products utilized, the manufacturer's recommendation and instructions. Where conflicts exist, the most stringent requirement shall govern as determined solely by the Engineer.

SUBMITTALS: The Contractor shall submit complete and accurate shop drawings to the Engineer for approval in accordance with Subsection 105.02 of the Standard Specifications. It shall be understood that all submittals shall be acceptable to the Engineer and shall be resubmitted as many times as necessary for such acceptance, without giving rise to any claims for additional compensation or extension to the time of completion.

FABRICATION:

- A. Steel Fabrication. PBFTG shall be manufactured by an AISC Certified Bridge Fabricator - Intermediate (IBR).
- I. Welding. Any welding performed shall meet the requirements of AASHTO/AWS D1.5.
 - No welding is allowed except where specifically shown on approved shop drawings.
 - II. Cold-Bending. Cold bend structural steel per the current AASHTO LRFD Bridge Construction Specifications, except as noted below:
 - The minimum bend radii for cold-bending (at room temperature), measured concave to the face of the plate, shall be taken as 5.0 times the thickness of the base plate material.
 - III. Inspection Hatch Opening. Provisions shall be made to ensure interior visual inspection and drainage of girders.
 - Inspection hatch cover shall rotate to allow entry.
 - IV. Handling. Handle the PBFTG by a method approved by the manufacturer and Engineer.
 - Do not drill holes in the PBFTG for lifting or handling.
 - V. Product Marking. Clearly mark the following information on the interior of each PBFTG with a steel ID tag seal welded to the member, or other means approved by the Engineer, at a location easily visible through the inspection hatch.
 - Assembly part number.
 - Customer order number.
 - Shop order number.
- B. Tolerances. All PBFTG must meet the tolerances specified below:

TYPE OF PART	DIMENSION	ALLOWABLE DEVIATION
		FROM NOMINAL
PLASMA CUT PBFTG PLATE (PRIOR TO BENDING)	1. WIDTH	+/- 0.13"
	2. LENGTH (0' - 144")	+/- 0.06"
	3. LENGTH (Greater than 144")	+/- 0.13"
	4. SQUARENESS (0' - 144")	+/- 0.13"
	5. SQUARENESS (Greater than 144")	+/- 0.25"
	6. LAYOUT LINES FOR BENDING	+/- 0.13" in the flat
PRESS BRAKE BENDING	7. FLAT PATTERN	
	8. LAYOUT LINE VERIFICATION	+/- 0.13" in the flat
	9. BEND LOCATION	+/- 0.13" after forming
	10. FORMED ANGLES	+/- 1.00°
COMPONENT	11. WIDTH or LENGTH	+/- 0.13" in the flat
	12. LENGTH	+/- 0.13" in the flat
	13. HOLE LOCATION	+/- 0.03"
	14. BOLT HOLE SPACING	+/- 0.03"
	15. DRILL HOLE SIZE	+0.03", -0"
	16. THERMAL CUT HOLE SIZE	+0.03" long, +0.06" wide
	17. INSPECTION ACCESS PORTAL	+/- 0.25"
	18. SOLE PLATE FLATNESS AFTER WELDING	+/- 0.06"
PBFTG ASSEMBLY	19. LINEAR DIMENSIONS AND ASSEMBLY COMPONENTS (unless noted otherwise on the drawing)	+/- 0.06"
	20. HOLE LOCATION	+/- 0.03"
	21. BOLT HOLE SPACING	+/- 0.03"
	22. DRILL HOLE SIZE	+0.03", -0"
	23. THERMAL CUT HOLE SIZE	+0.03" long, +0.06" wide
	24. SLOTTED HOLE SIZE	+ 0.13"
	25. BOLTED SPICE GAP AT ENDS	+ 0.13", - 0.19"
	26. STUD START LOCATION	+/- 0.06"
	27. CAMBER (LENGTH 0" TO 600")	+ 0.25"
	28. CAMBER (FOR EVERY 120" IN EXCESS OF 600")	Additional + 0.13"
	29. ANGLE FROM SQUARE	+/- 1 degree
	30. STUD TO STUD SPACING	
	Longitudinal	+/- 0.13"
Across	+/- 0.25"	
31. STUD ANGULARITY	+/- 2 degrees	

C. Weld Testing and Inspection. Test steel and provide inspection in accordance with below:

I. Primary Members

- 100% penetration groove welds loaded in shear with FCAW, GMAW or SMAW
 - 100% Visual, 100% Ultrasonic Test
- Fillet & PJP Groove welds welded with FCAW, GMAW, or SMAW
 - 100% Visual, 100% Magnetic Partial Test

II. Secondary Members

- Fillet & PJP Groove welds welded with FCAW, GMAW, or SMAW
 - 100% Visual

III. Other

- Stud welds
 - Shift Start Bend Test
 - 100% VT (in accordance with AWS D1.5 Clause 9.8)
- Weld repairs
 - Additional NDT shall be performed
 - NDT shall go 2” beyond the defect in all direction

METHOD OF MEASUREMENT: This item will not be measured for payment.

BASIS OF PAYMENT: No separate payment will be made for this item. Payment for this item will be included in the lump sum or unit bid prices of the appropriate items as listed in the Proposal.

JOB SPECIFIC

CODE 937.0100

**FURNISH, INSTALL, MAINTAIN, AND MOVE TEMPORARY TRAFFIC
PROTECTION**

DESCRIPTION: **Subsection 937.05.2; Failure to Comply**, of the Standard Specifications, requires that a daily charge be deducted from monies due the Contractor for failure to satisfactorily maintain traffic control devices.

The charge for this Contract will be \$5,000.00 per day.

JOB SPECIFIC
CODE 938.1000
PRICE ADJUSTMENTS

DESCRIPTION:

- a. Liquid Asphalt Cement.** * The Base Price of Liquid Asphalt Cement as required to implement **Subsection 938.03.1** of the Standard Specifications is \$ 590.00 per ton as of July, 2024.

* In the case of modified asphalt binder, this price adjustment provision shall only apply to the neat liquid asphalt component. This provision shall not apply to the modifier component, manufacture, storage, transportation or other associated costs.

- b. Diesel Fuel.** The Base Price of Diesel Fuel as required to implement **Subsection 938.03.2** of the Standard Specifications is \$ 2.6036 per gallon as of July, 2024.

JOB SPECIFIC

CODE T20.0101

PAVEMENT MARKINGS

DESCRIPTION. This work consists of furnishing and applying 6” epoxy resin pavement marking materials on asphaltic and /or Portland cement concrete pavement surfaces for the purpose of providing road users with a clearly defined path of travel. Work shall conform to Section M17 – Pavement Markings of the RIDOT Standard Specifications for Road and Bridge Construction, February 2024 Edition, with all revisions.

METHOD OF MEASUREMENT. “Pavement Markings” shall be measured for payment by the “Linear Foot” (excluding skips and spaces) actually installed in accordance with the Plans and/or as directed by the Engineer, as appropriate for each of the specific types of markings listed in the Proposal.

BASIS OF PAYMENT. “Pavement Markings” will be paid for at the contract unit price per linear foot as listed in the Bid. The price so-stated shall constitute full and complete compensation for all labor, tools, materials, and equipment, including cleaning of pavement, furnishing, layout, and application of the pavement markings, and all other incidentals necessary to finish the work, complete in place and accepted by the Engineer.