



Purchasing Division

ADDENDUM NO. 3

DATE: March 26, 2019
FROM: City of Grand Junction Purchasing Division
TO: All Offerors
RE: 2019 Monument Road Bicycle Path Trail IFB-4618-19-DH

Offerors responding to the above referenced solicitation are hereby instructed that the requirements have been clarified, modified, superseded and supplemented as to this date as hereinafter described.

Please make note of the following clarifications:

1. Q. Can the micropile scope be revisited?
 - The subcontractors in this area that install micropiles have indicated that 8" diameter are too large for their equipment.
 - An 8" would actually be considered a small caisson and caisson subcontractors are few and far between in this area.
 - According to some of the area subcontractors, the diameter could be decreased and the quantity and/or depth could be increased to reach the same design loads.

A. The scope/specifications for micropiles shall remain as stated in the solicitation documents. The City has verified that there are multiple companies capable of providing the required scope/specifications.

2. Q. The bridge described in Special Provisions Revision of Section 509 is very different from the bridge shown in the plans. The specifications describe an All-Bolted Vehicular Truss Bridge with HL-93 loading, while the plans show a welded prefabricated pedestrian truss bridge with a 90 psf Live Load or H5 vehicle load applied. Typically it is Revision of Section 628 that is included with the special provisions. Can you please confirm the loading and bridge type preferred for this projects?

A. Attached is the updated Revision of Section 509 – Prefabricated Structural Steel Bridge.

3. Q. The railing system for the approach rails shown on sheet 98 (B-8) appear to differ from the railing system for the bridge shown on sheet 99 (B-9). Please confirm if the railing system for the approach rails needs to match the bridge?

A. The railing system on the approach rails shall match the railing system on the bridge.

4. Q. The backwall height on sheets 96 (B-6) and 97 (B-7) differ from what is shown on sheet 99 (B-9). Can you please confirm what the intended backwall height is or will the contractor be able to modify this height based off the bridge manufacturer's drawings?

A. The backwall height will need to be modified by the contractor based on the chosen bridge manufacturer's drawings. Shop drawings provided by the bridge manufacturer will verify the required backwall height prior to casting the abutment walls.

5. Q. Is there a required percentage of work that the prime contractor must perform with their own forces on the Monument Road Bike Path Project?

The original solicitation for the project noted above is amended as noted.

All other conditions of subject remain the same.

Respectfully,

A handwritten signature in black ink, appearing to read "Duane Hoff Jr.", written in a cursive style.

Duane Hoff Jr., Senior Buyer
City of Grand Junction, Colorado

**REVISION OF SECTION 509
PREFABRICATED STRUCTURAL STEEL BRIDGE**

Section 509 of the Standard Specifications is hereby revised to include the following:

Subsection 509.01 shall include the following:

This work consists of fabricating the Structural Steel Bridge that includes the steel truss structure (Weathering Steel), Structural Fasteners, Anchor Bolts, Bearing Plates, furnish and installation of the Structural Steel Bridge in accordance with these specifications, and in conformity to the plans.

Add subsection 509.051 immediately following subsection 509.05 under the Materials section.

509.051 Structural Steel Bridge Materials

Bridges specified as “weathering” shall be fabricated from rolled beam or wide flange shapes designated ASTM A709 Grade 50W. Secondary weathering members may be tubular shapes carrying the ASTM A847 (50 ksi) designation; all domestically produced and provided by an AISC recognized supplier.

All bolted connections shall utilize ASTM A-325 High Strength Bolts. All bolts for weathering steel components shall be ASTM A325 Type 3. Galvanized bolts shall be A325 Type 1, hot dip galvanized in accordance with ASTM A-153 specifications.

The anchor bolts supplied with all bridge systems shall be ASTM A449 Full Thread Studs Hot Dip Galvanized as per ASTM A153. Each anchor bolt shall be provided with one A563 Galvanized Heavy Hex Nut and one F436 Galvanized Flat Washer.

The bridge must be furnished with edge deck supports and a stay-in-place galvanized steel form deck suitable for pouring a reinforced concrete slab. The form deck shall be designed to carry the dead load of the wet concrete, weight of the form decking, plus a construction load of 20 PSF uniform load or a 145 pound concentrated load on a 1’-0” wide section of deck. Edge support deflections are limited to 1/180 of the span or 3/4”, whichever is less.

The form deck shall be either smooth or composite. Composite decking shall not be used as reinforcing when designing for vehicular wheel loads. The form deck material shall be supplied in accordance with ASTM A653 and galvanized to a minimum G90 coating weight. The deck slab shall be constructed using normal weight concrete (145 pcf) with a minimum 28-day strength of 4,500 psi.

The bridge shall utilize the following bridge bearings: Laminated Elastomeric Bearing Pads beneath Load Plates. Laminated elastomeric bearing pads shall be custom molded from neoprene or natural rubber. Laminated pads shall be reinforced with internal steel plates and vulcanized-bonded to alternating layers of the elastomer during the molding process.

The bridge style in section shall be designed as a Pratt half through-truss (a.k.a. pony truss) as shown in the contract drawings. The elevation of each truss shall have a parallel top & bottom chord, one diagonal member in each truss panel, and plumb end vertical members. Interior vertical members shall be perpendicular to the chord faces.

The bridge shall be designed utilizing an H-Section configuration where the floor beams are placed up inside the trusses and attached to the truss verticals. The top of the top chord shall not be less than 48 inches above the deck (measured from the high point of the riding surface).

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Manufacturers:

1. CONTECH Engineered Solutions, LLC
9025 Centre Pointe Drive
West Chester, OH 45069
2. Big-R Bridge, Inc.
P.O. Box 1290
Greeley, Colorado 80632
3. US Bridge
5765 Leehigh Circle
Nashport, OH 43830
4. Or approved equal

All other prospective manufacturers, not pre-approved by the Owner are required to submit a signed application with the following documentation supporting their ability to meet the above referenced qualifications no less than seven (7) business days prior to bid opening:

- Copy of current AISC certifications as provided below.
- Copy of Quality Assurance Programs.
- Splicing and erection procedures.
- Approved welding process procedures.
- The name and qualifications of the Manufacturer's representative designated to represent the Manufacturer for all pre-bid activities.
- The name and qualifications of the Technical Assistant that will conduct on-site assistance during field installation of the Bridge until secure and stable.
- If any part of the Bridge is to be galvanized, a copy of the written warranty issued by the galvanizer that warrants against corrosion of the superstructure (other than bridge flooring) for a period of not less than 35 years.
- List ten (10) permanent steel bridges similar in size and configuration to the Bridge, which the applicant has manufactured in the preceding five (5) years, together with drawings, calculations, project details and contact information.
- Complete list of plant, equipment, employees and others to be used by the applicant to design and manufacture the Bridge including copies of all Professional Engineering licenses for designers and welding certificates for welders.
- **AISC Certification:** The Manufacturer shall be an approved steel fabricator under the AISC Quality Management System Certification Program as an Intermediate Steel Bridge Fabricator including Fracture Critical and Sophisticated Paint System endorsements, for a period of at least five (5) continuous years immediately preceding the bid opening.

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The Structural Steel Bridge shall be delivered to the site in pre-assembled sections ready for installation with no field welding of the major structure required.

Deliver anchor bolts, sleeves and anchorage devices which are to be embedded in concrete to the project site in time for installation under appropriate trades. Furnish setting drawings, templates and installation instructions as required.

Subsection 509.14(a) shall include the following:

A current copy of the AISC Program Manual describing the Bridge Manufacturer's operations and practices shall be maintained by the quality Control Manager for review by designated quality control inspectors. Copies of the AISC Certification Manual shall be made available to customers and their representatives, upon requests.

Subsection 509.15 shall include the following:

The engineering design of the Bridge shall be performed by, or under the direct supervision of a Licensed Professional Engineer in the State in which the Bridge will be erected. The design shall be completed in accordance with recognized engineering principles and design practices and with a standard of care commensurate with the Manufacturer's role in the project.

The Bridge shall be designed in accordance with AASHTO LRFD Guide Specifications for Design of Pedestrian Bridges and AASHTO LRFD Bridge Design Specifications. The bridge structure design shall consider its own dead load (superstructure and original decking), as well as the additional loads listed below.

The pedestrian live load shall be specified as 90 pounds per square foot of bridge walkway area. The pedestrian live load shall be applied to those areas of the walkway so as to produce maximum factored load in the member being designed.

The bridge superstructure, floor system and decking shall be designed for each of the following point load conditions:

A four wheeled vehicle with the appropriate wheelbase, tire track and tire print area shall be applied. The vehicle load applied shall be an H-5 vehicle load with an 80% rear wheel distribution. A vehicle impact allowance is not required.

The bridge(s) shall be designed for a minimum wind load of 35 pounds per square foot on the full vertical projected area of the bridge as if enclosed. Wind load shall be considered in accordance with AASHTO Signs and Luminaires, but in no case will the wind load be taken as less than 35 pounds per square foot. The wind load shall be applied horizontally at right angles to the longitudinal axis of the structure.

The wind loading shall be considered both in the design of the lateral load bracing system and in the design of the truss vertical members, floor beams and their connections.

The effect of forces tending to overturn structures shall be calculated assuming that the wind direction is at right angles to the longitudinal axis of the structure. In addition, an upward force shall be applied at the windward quarter point of the transverse superstructure width. This force shall be 20 pounds per square foot of deck.

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The top chord, truss verticals, and floor beams shall be designed for lateral wind loads (per section 3.1.4.1) and for any loads required to provide top chord stability as outlined in Section 3.3.6; however, in no case shall the load be less than 50 pounds per lineal foot or a 200-pound point load, whichever produces greater stresses, applied in any direction at any point along the top chord.

Calculation of the Bridge's dead and live load deflection is required. Pedestrian live load deflection of the primary members should be limited to the span-to-deflection ratio of $L/360$ unless otherwise specified. Dead load deflection shall be accommodated by forming camber into the unloaded geometry of the members. Profile grade curvature shall also be taken into account when determining the fabricated (or induced) camber of the members. Deflection limits due to occasional vehicular traffic shall not be considered.

Vibration of the structure shall not cause discomfort or concern to users.

The concrete deck slab shall be designed by the bridge manufacturer in accordance with the Design Specification.

The Manufacturer shall design the prefabricated bridge and prepare Drawings in accordance with the following minimum requirements. Engineering Drawings and Calculations, sealed by a Registered Professional Engineer in the state where the Bridge is to be erected, will be submitted to the Owner for Approval within (4) weeks of receipt of the Purchase Order, contingent upon receiving all scope information at the time of purchase order; and after receiving answers to requests for information (RFI). Shop Drawings will be supplied to the Owner.

Unless otherwise requested, an electronic version of the Shop Drawings will be submitted in portable document format (.PDF) via email to the Owner or the Owner's designated contact. After final approval by the Owner, the Manufacturer shall provide the Owner with two 24" x 36" paper copies of the Engineering Drawings. (2) sets of the As-Fabricated Drawings (11" x 17") shall be transmitted to the Contractor at the time of Bridge Delivery.

Subsection 509.16 shall include the following:

For all welded assemblies the inspector shall be a Certified Weld Inspector that is qualified under the AWS QC-1 program. Each inspection shall include as a minimum requirement the following: review of Shop Drawings, weld procedures, welder qualifications and weld testing reports, visual inspection of welds and verification of overall dimensions and geometry of the Bridge. Non-destructive testing of welds shall be performed both prior to and after galvanizing. All welds shall be visually inspected 100%. All welds shall be magnetic particle tested for a minimum length or 12". Welds over 12" long shall be magnetic particle tested at least 12" for every 10" of length. A report of these inspections shall be provided.

Subsection 509.19(1) shall include the following:

When the collection of water inside a structural tube is a possibility, either during construction or during service, the tube shall be provided with a drain hole at its lowest point to let water out.

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Subsection 509.20(k) shall include the following:

All bolt hole fabrication for high strength, slip critical bolted connections shall conform to the workmanship requirements of the Research Council on Structural Connections (RCSC) Specifications for Structural Joint Using A325 or A490 Bolts. Computer Numerically Controlled (CNC) drilling equipment shall be utilized as a manufacturing method as it allows for highly accurate hole location along with precise and rapid shop operations. Exceptions to CNC processing should be submitted in writing to the owner for approval, prior to commencing fabrication.

Subsection 509.20 shall include the following:

- (l) *Welding Tubes.* Welding of tubular connections is covered in the AWS D1.1 Welding Code. All welding shall utilize E70 or E80 series electrodes. The weld process used shall be Flux Core Arc Welding (FCAW) or Shielded Manual Arc Welding (SMAW) per ANSI/AASHTO/AWS D1.5 "Bridge Welding Code." Welding operators shall be properly accredited and experienced. Qualifications of welders shall be made available upon request.

Special attention shall be given to developing sufficient weld throats on tubular members. Fillet weld details shall be in accordance with AWS D1.1, Section 3.9.2. Unless determined otherwise by testing, the loss factor "Z" for heel welds shall be in accordance with AWS Table 2.9. Fillet welds which run onto the radius of a tube shall be built up to obtain the full throat thickness. The maximum root openings of fillet welds shall not exceed 3/16" in conformance with AWS D1.1, Section 5.22. Weld size or effective throat dimensions shall be increased in accordance with this same section when applicable (i.e. fit-up gaps > 1/16").

- (m) *Plate & Shape Cutting:* Plate and shape cutting shall conform to methods specified in AASHTO/AWS D1.5 Bridge Welding Code Section 3 Workmanship. Computer Numerically Controlled (CNC) cutting equipment shall be utilized as a manufacturing method as it allows for highly accurate dimensional cutting along with precise and rapid shop operations. Exceptions to CNC processing should be submitted in writing to the owner for approval, prior to commencing fabrication.

Subsection 509.24(a) shall include the following:

All Blast Cleaning shall be done in a dedicated OSHA approved indoor facility. Blast operations shall use Best Management Practices and exercise environmentally friendly blast media recovery systems.

To aid in providing a uniformly "weathered" appearance, all exposed surfaces of steel shall be blast cleaned in accordance with Steel Structures Painting Council Surface Preparation Specifications No. 7 Brush-Off Blast Cleaning, SSPC SP7 latest edition.

Exposed surfaces of steel shall be defined as those surfaces seen from the deck and from outside of the structure. Stringers, floor beams, lower brace diagonals and the inside face of the truss below deck and bottom face of the bottom chord need not be blasted.

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Subsection 509.27 shall include the following:

Delivery of the Bridge will be within an agreed period of time after approval of Engineering Drawings (12 weeks). Bearing plates, anchor bolts and expansion joints shall be furnished in advance of the Bridge for incorporation into the abutment construction, upon receipt of a timely request by the Contractor. Delivery of the bridge shall be coordinated between the Manufacturer or their Supplier and the Contractor. The Supplier shall communicate this information to the Manufacturer depending on the agreement and subsequent responsibilities.

The Manufacturer will advise the Owner/Contractor of the attachment points and other necessary information required to install the bridge. The method and sequence of erection shall be the responsibility of the Contractor unless otherwise included in the agreement. Unloading, stabilization, splicing, bolting, and proper rigging and lifting are the responsibility of the Contractor.

The successful bidder through the Manufacturer and/or Supplier shall provide a qualified Technical Assistant at the jobsite while the primary structure components are installed. The Contractor shall notify the Manufacturer or their representative at least two weeks in advance of the planned installation. The Technical Assistant shall have at least five (5) years of experience in the installation of similar bridges.

Subsection 509.28(e) shall include the following:

Chord splices shall have loose splice plates that are inserted into the tubular chord members. The splice plates shall have a splice nut retention device consisting of a capture plate(s) with hexagonal holes held in place by either an angle on each side of the capture plate(s) or C channel(s). Tack welding of splice nuts to splice plates is not acceptable unless an approved Weld Procedure Specification (WPS) can be provided. The sections are then bolted together by bolting through the wall of the tube, nut capture assembly and nut.

Subsection 509.32 shall include the following:

Prefabricated Structural Steel Bridge will be measured and paid for by Lump Sum (LS), installed complete. Work shall include all steel, hardware, anchor bolts, bearing plates, washers, nuts, temporary shoring and other incidentals to the erection of the bridge.

Subsection 509.33 shall include the following:

Payment will be made under:

Pay Item

Pay Unit

Prefabricated Structural Steel Bridge

Lump Sum