Fort Dodge Natural Trail Bridge #9 Replacement Project – Spring 2025

1. GENERAL
   1. BASIC INFORMATION
      1. This specification is for a clear span bridge on the City’s multiuse trail system designed to carry pedestrians and normal trial users along with trail maintenance equipment (tractor units, etc.).
      2. Contractor is responsible to retain a licensed Professional Engineer (PE), registered in the State of Iowa, to design and approve bridge and bridge end anchorage structures. Construction drawings stamped by the Engineer must be submitted to Assistant City Manager for approval prior to beginning construction.
      3. Owner has secured all necessary County/State erosion control/waterway/zoning permits.
   2. SCOPE OF WORK
      1. Design, furnish and install bridges, abutments, and approaches in accordance with the requirement of the specification as follows.
      2. The Contractor shall be responsible for designing, detailing, fabrication, delivery, construction and erection of the entire Pedestrian / Trail Bridge with abutments and approaches.
   3. REFERENCES
      1. State of Wisconsin Department of Transportation "Standard Specifications for Construction", current edition
      2. WI DNR "Bridge Guidelines" New and Replacement Snowmobile and All- Terrain Vehicle Bridges. - Current edition
         1. Wisconsin Department of Natural Resources (PUB-CF-005-2017)
      3. Chapter NR 320 Bridges In or Over Navigable Waterways
      4. Or equivalent standards can be submitted to Owner for review/approval.

\*\* **CUSTOM BRIDGES ARE DESIGNED FOR DNR TRAIL BRIDGE SPECIFICATIONS, NOT DESIGNED TO MEET AASHTO HIGHWAY BRIDGE SPECIFICATIONS\*\***

1. FEATURES OF DESIGN
   1. SITE REGRADING
      1. Re-grade bridge approaches and add ¾" crushed limestone as needed to allow smooth transition for trail users and trail maintenance equipment (tractor units, etc.).
   2. SPAN
      1. Total span for the bridge shall be approximately eighty (80) feet with two twenty (20) foot approaches in length.
      2. Bridge shall be a clear span design with bridge anchorage structures on either end and no central support.
      3. Contractor shall verify span. Location of new bridge anchorage structures shall not significantly change bridge span.
   3. WIDTH
      1. Width of usable bridge deck shall be a minimum of ten (10) feet. Usable bridge deck shall be defined as shortest distance across (perpendicular to centerline) bridge deck from any component above bridge deck.
   4. RAILINGS
      1. Horizontal safety railings shall cover both sides of bridge for entire span of bridge.
      2. Railings shall be a minimum of fifty-four (54) inches above bridge deck.
      3. Additional safety protection shall be installed between bridge deck and horizontal railing for the entire span length. Protection between deck and railings shall be designed to prevent a four (4) inch sphere from passing through.
   5. DECK
      1. Bridge deck shall be wooden deck supported on structural steel and conform to WDNR loading guidelines.
   6. BRIDGE ANCHORAGE STRUCTURES
      1. Design of bridge anchorage structure is responsibility of contractor
      2. Acceptable bridge anchorage structures types include; concrete wall bridge anchorage structures, helical pilings, portable bridge footing (with or without riser), concrete piers, or pan-style bridge anchorage system. Bridge anchorage structures are to be designed by registered Iowa professional engineer. Submit stamped drawings to City of Fort Dodge Engineering Department.
   7. Miscellaneous
      1. Provide steel tread plate as required.
      2. All disturbed areas shall be seeded with Reinders No Mow/Low Grow (or equivalent) at rate of 6 lbs. per 1,000 sq. ft.
      3. An urban/net free erosion control mat shall be placed over all newly seeded areas and stapled per manufacturer's instructions, including disturbed areas underneath bridge.
      4. Contractor is responsible for ensuring design, materials, and method of construction meet DNR regulations.
2. DESIGN REQUIREMENTS
   1. Design of bridge and bridge anchorage structures shall be done by Professional Engineer registered in the state of Iowa.
   2. Bridge Structure:
      1. Bridge design load shall be capable of supporting UTV / side-by-side traffic and trail maintenance equipment (tractor units, etc.) as determined by engineer.
      2. At minimum bridge shall be capable of supporting sixty (60) pounds pedestrian live load per square foot.
      3. At minimum bridge shall be capable of supporting 10,000 lbs. vehicle load mid span.
      4. Design shall conform with Wisconsin Department of Natural Resources (WDNR) guidelines and all applicable requirements for permitting by the state of Wisconsin or equivalent.
      5. *[OPTION]* Bridge shall have minimum of 5 feet of navigational clearance beneath the center of the bridge
3. MATERIALS
   1. STRUCTURAL STEEL
      1. Square or rectangular tubing shall be cold-formed welded, unpainted, high strength, low alloy, and atmospheric corrosion resistant in accordance with ASTM A847, A588 or A242.
      2. Plates and structural steel shapes shall be in accordance with ASTM A606 with a minimum corrosion index of 5.8 per ASTM 6101.
      3. Steel beams shall be ASTM A709 W shapes.
      4. All structural steel shall be grade 50 (Fy = 50,000 psi).
      5. All structural steel shall be primed with red oxide primer, military standard TT-P-664D. Contractor to touch up in field as required.
      6. Structural steel size shall be determined by Iowa licensed Professional Engineer (PE).
   2. STRUCTURAL TIMBER
      1. This section shall include only such lumber and timber, as is part of the completed work. It shall not include falsework, forms, bracing, sheeting or other lumber and timber used for erection purposes.
      2. Wood shall be MCA treated Southern Yellow Pine #1. Fresh cut ends of wood shall be treated to prevent deterioration.
      3. Only pieces consisting of sound wood, free from any form of decay shall be accepted. No piece of exceptionally lightweight shall be accepted.
      4. Knotholes and holes from cause other than knots shall be measured and limited as provided for knots. All visible pieces of lumber and timber having knots that are unsightly in appearance shall be rejected. Cluster knots and knots in groups are not permitted.
      5. Lumber and timber meeting the requirements of Structural Timber only shall be permitted.
      6. All structural timber furnished shall conform to the dimensions specified for either rough or surfaced stock.
      7. All timber to be graded as per NFPA 1991 National Design Specifications for Wood Construction.
      8. PRESERVATIVE TREATEMENT
         1. This section covers the wood preservatives and the preservative treatment of lumber, timber, piling and posts conforming to the Specifications as referenced or otherwise specified in the plans or special provisions.
         2. Preservatives and Preservative Treatments shall be in accordance with WISDOT Section 507.
         3. So far as practicable all adazing, boring, chamfering, framing, gaining, mortising, surfacing and general framing, etc., shall be done prior to treatment. If cut after treatment, coat cut surfaces according to AWPA M4.
         4. Abutment material shall be creosote treated.
         5. Railing components shall be treated with CCA or approved comparable treatments. MCA Treated Lumber required.
         6. Structural deck shall be CCA or ACZA; Wear deck shall be CCA or approved comparable treatments. MCA Treated Lumber required.
   3. HARDWARE
      1. All hardware (machine bolts, carriage bolts, drift pins, lag screws, dowels, rods, nails, spikes, washers, connectors, etc.)
      2. Unless a Dome Head Bolt or approved equal is used, all bolt heads or tightening nuts in contact with Structural Timber and lumber shall have a washer of sufficient thickness and bearing area to ensure a minimum deformation of the contacted surface when tightened to develop not more than the maximum allowable tensile stress of that bolt
      3. Bolt heads or tightening nuts in contact with metal surfaces shall have a cut washer or approved equal placed between the bolt head or nut and the metal surface.
      4. Only hardware chemically non-reactive to preservative treated lumber shall be used. ACZA treated lumber require hot dipped galvanized hardware.
   4. ERECTION
      1. Protect waterway from debris and pollution. All applicable county, state, and federal regulations must be followed.
      2. Contractor shall be responsible for repairing damage to site and staging areas caused by equipment or materials.
      3. Contractor responsible for erosion control methods and maintenance throughout project duration. Prior to project completion, all disturbed areas shall be temporarily covered with straw mulch by the end of the day prior to forecasted measurable rain events. All disturbed areas shall be permanently seeded and covered with urban/net free erosion control mat upon completion of the project.

The Nature Trail Bridge #9 Replacement Project is a lump sum bid, that includes but is not limited to all parts, equipment, labor, product, permits, and the like. It is the responsibility of the potential bidder to, if needed, to be onsite to review, evaluate, and inspect as necessary to provide a competitive and accurate bid.

The selected bid recipient shall provide insurance upon approval of the contract by Fort Dodge City Council.

Total Bid Amount $

Respectfully submitted,

CONTRACTOR

BY (PRINT NAME)

TITLE

SIGNATURE and DATE

CONTACT INFORMATION

SEALED BIDS ARE DUE ON / BEFORE WEDNESDAY, NOVEMBER 6, 2024, AT 2:00PM CST.

BIDS CAN BE MAILED OR DELIVERED TO:

FORT DODGE CITY HALL

819 1ST AVE SOUTH

FORT DODGE, IA 50501