

SCOPE OF SERVICES

Provide Bridge Inspection Services, including Specialized Testing Services; Develop Repair Plans; Provide PSE Deliverables for Repairs done by Contractors; and Provide Construction Engineering Services to fulfill the requirements of the FHWA memo: *Non-Destructive Testing of Fracture Critical Members Fabricated from AASHTO M244 Grade100 (ASTM A514/A517) Steel.*

The following MoDOT structures have been determined to fall under the requirements of the above referenced memo.

A1501E	IS 64 EBL	St. Louis City
A1501W	IS 64 WBL	St. Louis City
A3292	IS 70 EBL	St. Charles County
A4017	IS 64 WBL	St. Louis County
A1700	IS 155	Pemiscot County

The CONSULTANT shall be responsible for completing the work necessary for MoDOT to be in compliance with the referenced FHWA memo. The identified work tasks are listed below along with some details on what the task may entail. The potential exists for the work to be done in phases and supplemental agreements may be used for additional phases.

This scope of services is intended to be an accurate description of the items and tasks required for completion of this project. However, each project is unique and may require more or less effort in an individual task to complete the work. The following information will explain and define in general terms the major items of importance relating to this project. All the elements of work that are necessary to satisfactorily complete this project may not be listed. The lack of a specific listing item in the scope of services does not in itself constitute the basis for additional services, supplemental agreements, and/or adjustment in compensation.

More detailed information on the process and requirements used by MoDOT for completion of projects may be found in the MoDOT Engineering Policy Guide (EPG). The consultant is encouraged to review the appropriate sections of the EPG as a means to supplement the information contained in the scope of services and provide additional guidance in the requirements and expectations of MoDOT for consultants that are providing engineering services.

The provisions of the Design Consultant Agreement outlining the responsibilities of the CONSULTANT regarding the quality and accuracy of the deliverables and products

DRAFT

shall apply to any decisions regarding determinations of additional services.

Preparation of a supplemental agreement is necessary prior to performance of any work, which is considered as additional services, not included in the original scope of services. The CONSULTANT will not be compensated for additional services performed prior to execution of a supplemental agreement. Only additional services, which are required due to changed or unforeseen conditions or are due to a change in the specified end product, will be considered for inclusion in a supplemental agreement. If a phased approach is used for completion of this work, then supplemental agreements may be used for differentiating between the work in the different phases.

The CONSULTANT will provide professional, technical, and other personnel, equipment, material, and all other things necessary to ensure MoDOT complies with the requirements of this memorandum, for the five listed structures. In general, the consultant will be required to complete the specified tasks and other tasks that are identified as this project progresses. Tracking and invoicing of costs separately for each structure may also be required. The consultant will have to comply with the requirements of the FHWA memorandum as well as MoDOT, NBIS requirements, and other national standards that may apply.

The consultant shall perform the following services, all in accordance with the standard practice of the Commission and AASHTO Standard Specification for Highway Bridges:

Some aspects of the later stages of the work in this project may not be fully definable at the execution of the original agreement. This may be addressed using a phased approach to the project.

1. Review Structure Information and Develop Inspection Plan

- (A) Review existing bridge plans, shop drawings, inspection reports, and other information provided by MoDOT.
- (B) Identify locations on the structure that utilized AASHTO M244 Grade 100 (ASTM A514/A517) Steel (hereinafter T-1 Steel) and would fall under the mandatory inspection requirements in the FHWA memo.
- (C) Develop an inspection plan for inspecting the identified locations. As a minimum, the inspection plan shall include the following items.
 - a. Locations needing inspection on each structure.
 - b. Method of NDT inspection needed to properly assess each location.
 - c. Process for properly completing the inspection at each location.

DRAFT

- d. Process for documentation and notification of inspection results as each location is completed.
- e. Method(s) of access to be utilized for inspecting each location.
- f. Qualifications needed for individuals that will be performing the inspections. This may require some type of certification process that each person has to complete to be eligible as an inspector.
- g. Identify any NBIS regulation requirements that might apply to the inspections and/or the personnel completing the inspections and provide documentation that they meet those requirements.
- h. Work with Bridge Division and District Offices to identify any requirements that need to be met as part of the inspection work. This would primarily relate to traffic control measures, work zone setups, lane closures, notification timelines, or similar things.
- i. Identify if inspection locations are over railroads or navigation channels, requiring coordination with railroads and notification of the US Coast Guard.

2. Conduct Field Inspection of Structures

- (A) Notify the US Coast Guard of any activities that may affect navigation.
- (B) Comply with any applicable railroad requirements when inspections are conducted in areas over railroad property. This would include access/entry permits, coordination, safety training, liability insurance, and railroad flaggers.
- (C) Provide inspection access for all areas being inspected. Access may be performed with a combination of under bridge inspection vehicles, boom-lifts, ladders, or rope access techniques. All work is to be conducted with appropriate safety tie-offs and fall protection.
- (D) Conduct a daily safety meeting at the project site to discuss the daily safety issues. Work for each individual shall not proceed until they are documented to have participated in the safety meeting.
- (E) Provide inspection documentation in a format consistent with the bridge plans and the inspection plan developed for each structure

DRAFT

- (F) Work with MoDOT on any traffic control measures that are needed to safely perform the inspection work.
- (G) Notify MoDOT's Bridge Office three weeks prior to starting field inspection by email of the planned start date and estimated end date for the inspection. The Bridge Division contact person is provided below.

Bridge Contact: David Koenig
Bridge Management Engineer
573-526-0556
David.Koenig@modot.mo.gov

- (H) Coordinate with local municipalities as needed for staging, storage, parking or access.
- (I) Conduct one kick-off meeting prior to mobilization of inspection crews and equipment for each structure.

3. Develop Repair Plans

Furnish to the COMMISSION fully checked design plans, job special provisions, design computations, quantity computations, final cost estimate, and a construction work day study for the structure(s). The CONSULTANT is expected to make the COMMISSION aware of more economical design alternatives that may become apparent during the preparation of the final design.

- (A) The plans shall be complete and shall cover all parts of the structure they represent. The degree of detail shall be comparable to that furnished on typical plans prepared by the COMMISSION. Deliverables shall be in accordance with the "Specifications of Computer Deliverable Contract Plans" requirement outlined in the Commission's Engineering Policy Guide. The electronic plans in Microstation format cannot be signed and sealed. The electronic submittals shall be made in a method suitable to MoDOT.
- (B) All construction changes made to the plans during construction of the project shall also be submitted electronically in Adobe Acrobat and Microstation format.
- (C) The job special provisions shall be complete and describe all design features, construction procedures, or material requirements in the plans that are deviations from the latest edition of the Missouri Standard Plans for Highway Construction. Typical job special provisions that have been developed by MoDOT for previous

DRAFT

jobs are posted on MoDOT's website and are available for use and modification as needed. The job special provisions shall include a table of contents sheet that is signed and sealed by a professional engineer registered in Missouri. The signed and sealed job special provisions shall also be submitted in Adobe Acrobat Reader format, version 7 or higher. Job Special Provisions shall also be submitted in Microsoft Word format. The submittal letter shall explain the need for each provision.

- (D) The design computations and plans shall be acceptable to, and will become the property of the Commission. The CONSULTANT shall submit design computations in accordance with MoDOT's CADD standards.
- (E) The final estimate submitted by the CONSULTANT shall include backup material that supports the estimates made for non-standard or lump sum pay items.
- (F) More details related to the expectations for repair plans submitted for contractor work will be provided as services are negotiated for this phase of the work.

4. Construction Support

For repairs that are done by contractors, the CONSULTANT may be required to provide construction inspection and/or oversight of the repair work.

- (A) The CONSULTANT shall be available to the COMMISSION to discuss and interpret plans and specifications during the bidding and construction phase of the project as determined necessary by the Engineer.
- (B) The CONSULTANT may be required to attend a pre-construction meeting, and a post construction meeting.
- (C) If issues arise during construction, there will be a direct line of communication established between the MoDOT Construction Office and the CONSULTANT. The CONSULTANT will immediately inform the MoDOT Bridge Division of any recommendations or clarifications made to the Construction Office.

5. Reporting and Invoicing

- (A) The CONSULTANT will be required to provide a final report for each structure that is part of this contract. An exception for this requirement will be for A1501E

DRAFT

and A1501W, which can be combined into a single report. Information provide in any report to MoDOT shall be in an acceptable electronic format

- (B) As a minimum, the report shall provide the following items.
- a. General discussion about the structure and the approach used for ensuring compliance with the FHWA memo.
 - b. Sketches, drawings, photos, tables, and other information needed to fully convey the review and inspection work that has taken place on a structure.
 - c. Listing of the T-1 steel inspection areas that were identified for each structure.
 - d. Inspection plan that was developed for the structure, including types of testing and the qualifications of individuals performing the inspection.
 - e. Methods of access at each location should be provided.
 - f. Information on the findings at each location that was tested.
 - g. Information on the resolution used for resolving any adverse findings on a structure.
 - h. For findings that require development of repair plans and implementation of those repairs by contract, provide information on the repair that was proposed and the results of the completed repair.
 - i. Recommendations on any future inspection that might be needed at these locations.
 - j. Report shall be provided in an electronic PDF format and shall be signed and sealed by a professional engineer registered in the State of Missouri.
- (C) The CONSULTANT will be required to submit periodic invoices for payment on completed work for this project. Independent tracking of work effort and invoicing of costs shall be required for structure A1700 and may be required for the four remaining structures. The MoDOT Engineer will provide more specifics on work tracking and invoicing requirements once the contract has started.