REQUEST FOR PROPOSALS
For Safe and Sound Bridge Improvement Design Build Project

BOOK 2 — PERFORMANCE REQUIREMENTS

October 29, 2008 DB Contract
Project Number J5B0800
Missouri Department of Transportation
1320 Creek Trail Drive
Jefferson City, MO 65109

CONTENTS of BOOK 2

1 GENERAL

The Contractor will replace the Project Bridges listed in Book 4 in accordance with this Contract.

1.1 Configuration Requirements

The configuration requirements are as follows:

a) If possible, all Work is to be constructed within the Existing ROW limits (Book 4 item) shown on the existing plans included in Book 5.

b) If possible, for projects that involve railroads, all Work is to be completed within the Commission's existing easement with the railroad.

c) If possible, all Work is to be constructed without disturbing existing Utilities.

d) If road closure is allowed, road closures shall be kept to minimum durations and detour lengths shall be minimized.

The Commission intends to utilize Federal Highway Bridge Program funding for this Project. Project Bridges currently eligible for Highway Bridge Program funding shall be replaced such that Federal Highway Bridge Program funding may be used.

2 PROJECT MANAGEMENT

All Project management activities, including scope, schedule and document management, shall be used to manage the combination of multiple Project Bridge improvement activities including design, construction and maintenance.

2.1 Schedules

A schedule that is well organized and meeting the need of this Section shall be created and maintained throughout the life of this Contract, the "Contract Schedule".

If at any time a significant contract delay that could prevent the Construction Completion is identified on the Contract Schedule, it shall be brought to the attention, in writing to the Project Director.

2.1.1 Preliminary Schedule

A preliminary schedule shall be submitted prior to issuance of the NTP2. Each Project Bridge shall be referenced in the schedule. This preliminary schedule shall include estimated design and construction dates for each Project Bridge. The preliminary schedule will be the base to build from as more details become available and will be archived for viewing by authorized Commission personnel. For this

Contract, this will be considered the Contract Schedule. The Contract Schedule shall not schedule work in conflict with the 2010 - 2014 Statewide Transportation Improvement Program (STIP) projects to be performed by the Commission and its other contractors. Conflicts between Safe and Sound Project Bridges and other Commission contracts shall be addressed in accordance with Book 1, Section 23.

This Preliminary Contract Schedule shall be submitted to the Commission for review and approval, specifically related to schedule coordination between projects.

2.1.2 Updates and Archived Records

The Contract Schedule shall be updated and archived, at a minimum, once per month until Contract completion. The Contract Schedule shall be accessible for viewing and printing by the Commission at any time. Any revisions made to the approved Contract Schedule, shall be mutually agreed upon, with respect to Project Bridges and other Commission contracts. Likewise, any revisions to the STIP impacting construction shall be coordinated with the Contractor prior to Commission approval.

The Contractor shall provide the following schedule information:

a) Twelve month construction look ahead;

b) Three month construction look ahead;

c) Estimated year of construction for each Project Bridge;

d) Estimated construction duration for each Project Bridge.

2.1.3 Minimum detail requirements

The Contract Schedule shall have the ability to be sorted by district and have the ability to isolate any period of time.

The Contract Schedule shall include any key dates referenced in this Contract, including without limitation:

a) public hearings;

b) design schedule;

c) construction schedule;

d) closure periods; and

e) other items necessary to control and track the progress of this Contract on a global scale as well as for each Project Bridge.

All applicable components listed on the Contract Schedule shall also show tracking of actual progress.

Each Project Bridge shown on the Contract Schedule will have a collapsible detailed individual Project Bridge schedule. Specific information shall include specific components of the entire process including all phases of design and construction, including without limitation, Utility Work, Right of Way acquisition schedule, third party agreements, environmental clearances, construction schedule and traffic closures.

2.1.4 Schedule and Software Requirements

2.1.4.1 Scheduling Software

The scheduling software is subject to Commission approval.

2.1.4.2 General Scheduling Constraints

In the Contract Schedule, the Contractor shall:

a) ensure that the actual number of activities in the Contract Schedule are sufficient to ensure adequate planning of the Work for the Project;

b) depict the sequence and interdependence of activities required for complete performance of the Work beginning with the date of issuance of the NTP2 and concluding at Final Acceptance;

c) include the Completion Deadlines set forth in the Contract; and

d) depict the required coordination with and Work to be performed by other contractors, Utility owners, governmental officials, engineers, architects, Subcontractors and Suppliers.

2.2 Annual Report

The Contractor shall submit a report annually for the Project Bridges to the Project Director or other designated Commission representative. It shall describe the Work that has been done on the Project Bridges during the previous year and the Work that is proposed for each Project Bridge during the upcoming year. The first annual report will be due on the first Business Day in January after the issuance of NTP2. The last annual report will be due at Final Acceptance.

2.2.1 Bridge Construction Unit Cost Report

Annually, the Contractor shall report to the Commission, bridge construction unit cost for Project Bridges completed during the previous Federal fiscal year, which starts October 1st and ends the last day in September of the following calendar year. The data contained in this report will be used by the FHWA to calculate the State of Missouri's apportionment as described in Title 23, USC Section 144(e). The *FHWA's Bridge Construction Unit Cost Memorandum* provides the content requirements of the report.

2.3 Project Directory

The Contractor shall maintain and furnish a project directory listing the names, addresses and telephone (office, home, mobile and facsimile) numbers of the key personnel and critical support staff of the Contractor and each subcontractor for the projects. The project directory shall be submitted to the Commission within 10 Calendar Days following the issuance of NTP1. The Contractor shall update the project directory quarterly for the duration of the Work.

2.4 Deliverables

All deliverables for all disciplines shall include a minimum of one hard copy and one electronic copy unless otherwise specified in Book 1 or Book 2.

At a minimum, the Contractor shall submit the following to the Commission for review or approval:

Deliverable	Approval	Schedule	Reference Section
Preliminary Contract Schedule	Yes	Prior to NTP2	2.1.1
Updates		Monthly	2.1.2
Archived records		Monthly	2.1.2
Schedule software	Yes	Prior to schedule submittal	2.1.4
Annual Report		Annually on Jan. 2	2.2
Bridge construction unit cost		Annually	2.2.1
Project directory		Within 10 Calendar Days of NTP1	2.3

3 Quality Management

3.1 Quality Management System

The terms and definitions used in this Section 3, not otherwise defined herein, shall have the meanings prescribed by the ISO 9000:2000 standard. The Contractor shall develop, implement and maintain a quality management system meeting the requirements of ISO 9001:2000 standard and the requirements below.

The scope of the quality management system shall cover all requirements of the Contract. The quality management system shall include a Quality Manual, submitted for the Commission's written approval, to which the Commission will respond within

20 Calendar Days. The issuance of the NTP2 shall require the Quality Manual submittal and approval in accordance with Book 1 Section 4.2.

The Quality Manual shall indicate the frequency at which the Contractor's top management will review the quality management system. The Quality Manager and quality assurance staff shall have no responsibilities in the production of the Work and shall report to the Contractor's top management only. Performance of the Commission Quality Control functions as set forth in the approved Quality Manual in no way relieves the Contractor of any of its obligations as set forth in the Contract. Quality Control staff shall remain independent of the Quality Assurance staff. All personnel who perform inspection, sampling or testing must be certified according to a recognized technician certification program and any other required certifications, for the tasks for which they are responsible. For any laboratory other than the Commission's laboratory, the Contractor shall ensure that all laboratories performing testing participate in and achieve a score of three or greater in the AASHTO Materials Reference Laboratory (AMRL) and/or Cement and Concrete Reference Laboratory (CCRL) proficiency sample programs for the tests being performed by that laboratory. It will be the Commission's obligation to ensure its own laboratory meets such requirements.

The following quality planning aspects shall be mutually agreed to by the Commission and the Contractor and included in the Quality Manual:

a) All Quality Control and Quality Assurance activities and their standards, methods or procedures, and frequencies for product control and acceptance.

b) All release points at which Work shall be formally accepted by Quality Assurance personnel independent of the Work, prior to proceeding.

c) The requirements to be verified at each release point.

d) The agency and position responsible to perform the verification.

e) The method of verification.

f) The resulting record, how the record is documented and maintained.

The Contractor's proposed response, including any resolution, to identified nonconformance(s) shall be documented in a format and medium acceptable to the Commission. Following approval of the proposed resolution by the Commission, the Contractor shall, when implementing the proposed resolution, provide 24 hours notification so that the Commission may witness the implementation. The Contractor shall ensure that this procedure is applied to all Contract requirements, including design, construction, operational and management systems. The Contractor's Engineer responsible for the design shall approve all resolutions of non-conformances that require design changes, repairs or rework.

The Contractor's response, including a proposed corrective action, if any, to the Commission identified corrective action requests shall be documented in a format and medium acceptable to the Commission. Following approval of the proposed

corrective action by the Commission, the Contractor shall advise when the corrective action has been implemented so the Commission may confirm the implementation. The Quality Manual shall describe how the verification records and forms will clearly show whether the Work meets the Contract requirements. The Quality Manual shall describe how material quantities will be calculated and documented in order to enable the Contractor and the Commission to conduct sample testing at their required frequencies.

3.2 Design Documents

The Contractor shall format all Design Documents as 8½ inch x 11 inch or 11 inch x 17 inch and in English units. All Design Documents shall be submitted in an electronic format and developed using versions of MicroStation and GEOPAK and shall follow MoDOT's *CADD Standards* and MoDOT's *GEOPAK and MicroStation Drawing Standards*. The Commission will provide seed files upon request. Electronic submissions shall be in original Microstation, Geopak format or in MoDOT's current version of Adobe Acrobat as appropriate. Each deliverable shall include an index detailing the contents and an Acrobat file of the Design Documents, created directly from the native software and organized in a manner that allows easy retrieval of any part of the Design Documents, including individual drawings.

3.2.1 Released for Construction Documents

Released for Construction Documents shall be all drawings, Specifications, shop drawings, reports, calculations, revisions thereto and any other items necessary to construct the Work. The Contractor shall ensure that no construction Work is undertaken without sealed, Released for Construction Documents. Two hard copies and one electronic copy of all Released for Construction Documents shall be submitted to the Project Director prior to construction.

3.2.2 As-Built Documents

As-Built Documents shall include the most current version of Released for Construction Documents incorporating any changes that occurred as well as all design back-up information; including design plans, shop drawings, calculations, reports, Specifications, all manufacturers' warranties, guarantees, instruction sheets, parts lists, any other product data, all required evidence of conformance with requirements that are the responsibility of the Contractor and electronic MicroStation and GEOPAK data. Design back-up information, calculations and reports shall be submitted on compact disk in Adobe Acrobat 5.0 format or greater. Each compact disk that is submitted shall include an index file with electronic links to the files contained within. The As-Built Documents shall be organized and indexed to facilitate easy retrieval of information and be certified by the Contractor's Project Manager to reflect the actual condition of the constructed Work.

3.3 Division of Responsibilities

The Contractor and the Commission share responsibilities in the Quality Program, as outlined below, and as detailed in the Quality Manual.

The Contractor shall:

a) Provide the Quality Manual for approval of the Commission;

b) perform overall implementation of the quality management functions as set forth in the Quality Manual;

c) perform Quality Assurance activities as set forth in the Quality Manual;

d) perform Quality Control functions as set forth in the Quality Manual;

e) track and respond to all quality audit findings, such that no open audit findings are unresolved prior to Final Completion of a Project Bridge; and

f) provide access to the Work for all Commission or audit staff.

The Commission will;

g) perform Quality Control functions in accordance with the Missouri Standard Specifications for Highway Construction;

h) provide Quality Control at select fabrication locations;

i) perform spot Audits of various Contractor activities and report results to the Contractor; and

j) track all Commission Quality Control and Audit findings as provided in the Quality Manual, and provide this information to the Contractor for its use and response.

The Commission's Quality Control will include measurement and testing as well as reporting all results to Contractor staff.

The Contractor shall provide safe access to the Work, its organization and all Subcontractor and Supplier organizations to allow the Commission to carry out required activities. This will include the allowing of samples for the purposes of testing, the provision of information and records, and interviews with personnel from the Contractor's organization and all Subcontractor and supplier organizations and providing advance notification of activities requiring Commission quality functions. No additional payments for sampling will be made. The Commission will supply all labor, equipment and incidental costs related to performance of Commission quality activities. The Contractor shall supply all labor, equipment and incidental costs related to performance of Contractor activities.

The Contractor shall make decisions relating to quality functions in accordance with the Quality Manual and will identify appropriate comparison ranges and steps to take in the event test results don't compare.

Representatives of agencies of the Federal, State and local government shall have the right to inspect the Work to the same extent provided above for the Commission.

All personnel, including non-MoDOT personnel, who perform inspection sampling or testing on a National Highway System Project Bridge for the purpose of acceptance must be qualified in accordance with MoDOT's *Materials Manual* Field Section 10 to do such testing, herein referred to as "IAS Qualified". MoDOT will be responsible for all IAS audit's. MoDOT will ensure that MoDOT personnel are IAS Qualified and the Contractor shall ensure that all non-MoDOT personnel are IAS Qualified. [The Contractor must keep MoDOT informed of the non-MoDOT personnel that are IAS Qualified – need to address who and how, possibly a Quality Manual item]. The Contractor will use all reasonable efforts to make non-MoDOT personnel available for IAS audit's as necessary to meet the intent of MoDOT's *Materials Manual* Field Section 10.

In addition to IAS testing, the Contractor shall ensure that the QC/QA testing meets the requirements of Field Section 15 of MoDOT's *Materials Manual* for Federal-Aid Acceptance Sampling and Testing (FAST). If the QC/QA testing does not meet all of the FHWA requirements, then the Contractor shall be responsible for such additional applicable FAST testing.

3.4 Deliverables

At a minimum, the Contractor shall submit the following to the Commission for review or approval:

Deliverable	Approval	Schedule	Reference Section
Quality Manual	Yes	Approved prior to NTP2.	3.1
Released for Construction Documents		No later than when they are issued to the Contractor responsible for constructing the Work.	3.2.1
As-Built Documents	Yes	Condition of Final Completion of a Project Bridge	3.2.2

4 PUBLIC INFORMATION

4.1 Public Information Plan

The Contractor shall assist the Commission in the preparation and maintenance of a Public Information Plan (PIP) to address the development and communication of information to and from the public throughout the Initial Construction Period of this Project and assist with training of MoDOT staff in implementation of this plan. The PIP shall be individually tailored for each of MoDOT's ten districts and shall identify key Stakeholders and methods that will be used to coordinate with them throughout the Bridge Improvement Project to accommodate local needs. Where bridge closures are required to construct a Project Bridge at any of the locations listed in Book 4, the PIP shall communicate alternate routes and detours that minimize the length of out-of-direction travel by customers and limit the duration of public

inconvenience during construction. The PIP shall be used throughout the Project by the Contractor and the Commission to manage and implement the construction and traffic coping aspects of the public information process.

The Contractor shall provide the Commission contact information on its key personnel of which at a minimum shall include the Project Manager within 30 Calendar Days following the Effective Date.

4.1.1 Public Meetings

A public meeting shall be held by the Commission a minimum of 30 Calendar Days prior to any full Project Bridge closure. This meeting could cover the closure of multiple Project Bridges within the same geographic region. The Contractor shall cooperate to help ensure the meeting is properly prepared.

4.1.2 Omitted Intentionally

4.1.3 Information Materials

All information materials developed by the Contractor for release to the public shall be provided to the Commission's Community Relations staff.

4.1.4 Commercial Vehicle Access and Restriction Information

The Contractor shall inform the appropriate district of any construction related events, including geometric constraints that could restrict or impede the movement of Commercial Vehicles.

4.2 Deliverables

At a minimum, the Contractor shall submit the following to the Commission:

Deliverable	Approval	Schedule	Reference Section
Information packet materials		Prior to the scheduled distribution date	4.1.3

5 ENVIRONMENTAL REQUIREMENTS

The Contractor shall comply with all existing and future environmental requirements set forth in the FHWA-approved National Environmental Policy Act (NEPA) documents and all Environmental Approvals obtained by the Commission for the life of the Project. The Commission will provide the Contractor with copies of all Environmental Approvals and related requirements as required herein.

5.1 General

Except as otherwise provided in this Section and Book 1, the Commission will obtain all Environmental Approvals required in connection with the Project during the Term.

Contractor will furnish the Commission with a bridge schedule indicating when the work is scheduled to start. The Commission will take such reasonable steps as are necessary to ensure that the permits have been secured as soon as reasonably practical. If delays are unavoidable, the Contractor will work with Commission to adjust the schedule or propose Bridge Substitutions.

The Commission will provide the NEPA clearance for the Project Bridges and a list of Project Bridges requiring permits, certifications and clearances.

The Commission will conduct Endangered Species Act and Tribal consultations; obtain appropriate Section 106, 4(f), 6(f) clearances; obtain Clean Water Act Sections 404 permits and 401 water quality certificates; obtain Federal Emergency Management Agency (FEMA) buy-out approvals; screen for hazardous waste sites; and obtain appropriate permits for the latter.

All Project Bridges in this project have a NEPA classification of Categorical Exclusion (CE), based on database level screenings as provided in Book 4. Approximately 17 of the Project Bridges received a CE classification with restrictions that limit the Work that can be performed. These restrictions limit Work to the Existing ROW, to re-decking, and/or to no tree clearing. During the Term, if these restrictions are in conflict with the proposed solution for a Project Bridge, or currently unknown resources are discovered during the permitting and clearance phase of the Project, a new or updated NEPA classification may be required for a Project Bridge or Project Bridges. The Contractor shall provide the information needed to process permits and clearances and any changes in NEPA classifications, including but not limited to the following: scope of work descriptions, location information, anticipated Additional Right of Way locations, preliminary engineering, mitigation designs, and if necessary, future and construction-year traffic, alternatives, and/or purpose and need analyses.

Some Work identified in the Environmental and Historic Preservation List of Bridges have known environmental and/or cultural resources that will require additional processing time to receive permits, certificates and clearances. The Contractor shall notify the Commission of the timing of the Work such that adequate time is available to obtain said permits, certificates and clearances before construction begins for known resources and additional resources that may be discovered during the life of the Project.

In performance of the Work, the Contractor shall provide the following list of deliverable items:

a) A standardized format for all maps and plan sheets needed for Environmental Approvals and historic preservation clearances;

b) Preliminary engineering drawings and a detailed description of the Work plans, to include the bridge number, future and construction year traffic analysis, scope of work, termini points, anticipated Additional Right of Way needs and the maximum footprint of disturbance delineated for Project Bridges that involve reconstruction, with updates, when any of these items change;

c) Landowner contact information and permission to access land to be purchased as Additional ROW or as temporary or permanent easements.

5.2 Erosion Control

MoDOT maintains a MoDNR Section 402 National Pollution and Discharge Elimination System (NPDES) Permit, Chapter 644 RSMO, Missouri Clean Water Law for construction. The Contractor shall be responsible for developing an erosion control plan and monitoring, based on the *Storm Water Pollution Prevention Plan* that is part of MoDOT's NPDES Permit, and adhering to the permit, Inspection reporting requirements and plan for the Work. In addition, a complete list including any Project Bridge that is anticipated to have over 1 acre of erodible acreage on January 1, April1, July 1, or October 1 will have to be reported to the Commission at least 14 Calendar Days prior. This report should include approximate erodible acreage, the Bridge Number, crossing feature, County and route. If the Commission's staff is utilized for Erosion Control inspection, then the plan, monitoring requirements and reporting requirements shall be clearly outlined in the Quality Manual.

5.3 Wetlands and Waters of the US

The Contractor shall fulfill the terms and conditions of both the Clean Water Act Section 404 permit and the Section 401 Water Quality Certification, as required by the U.S. Army Corps of Engineers (USACE) and the MoDNR, respectively. The Contractor shall integrate design practices to avoid and/or minimize potential Work impacts to wetlands and waters of the U.S. The Contractor shall participate in the development of all stream and/or wetland mitigation required to fulfill the permitting requirements, as described in Book 2, Section 5.9.

The Contractor shall maintain the natural low flow characteristics of all stream crossings, including temporary crossings.

The Contractor shall provide the following deliverable; cut and fill quantities, location of impacts and bridgework design plans including cross-sections as necessary to secure Clean Water Act Section 404 permits and 401 certificates.

For Work on Project Bridges that have one-tenth or less acre permanent fill in waters of the US and no other environmental impacts, no pre notification to the USACE is required. These preliminary plans do not require cross-sections and can be approved within one month.

5.4 Threatened and Endangered Species

The Contractor shall comply with all aspects of the *Endangered Species Act*, including consultations. The Contractor shall coordinate with the Commission when it is determined that there are any threatened or endangered species or rare natural communities in the vicinity of any of the bridges. In some instances surveys may be necessary to determine if Work will impact a species. The Contractor shall coordinate with the Commission to determine whether Work may proceed and what

measures can be implemented to avoid or minimize the construction impacts to threatened and endangered species and rare natural communities.

5.5 Cultural Resources

The Contractor shall supply adequate maps and plans to assist the State Historic Preservation Office (SHPO) and the Commission in the identification of potential impacts to historic properties eligible for or listed on the National Register of Historic Places (NRHP) and assist the Commission in obtaining the appropriate Section 106 clearance. The Contractor shall comply with the conditions of the clearance and coordinate with the Commission to test, avoid or mitigate those properties identified by the SHPO.

5.6 Hazardous Waste

The U.S. Environmental Protection Agency (EPA) has determined that bridges are defined as structures per 40CFR61 Subpart M, NESHAP (National Emission Standard for Hazardous Air Pollutants), therefore subject to inspection, notification- and removal requirements per federal, state and local laws and regulations. The Contractor shall comply with applicable laws and coordinate with the Commission regarding potential hazardous waste impacts. The Commission will provide information to the Contractor from tests identifying lead base paint and asbestos-containing materials on Project Bridges 30 Calendar Days prior to start of bridge construction. The Contractor shall follow specific measures to protect the streams and other waters of the U.S., including wetlands, from materials generated during bridge blasting and deck repair or removal in accordance with Sections 622 and 1081 of the Missouri Standard Specifications for Highway Construction.

5.7 Public Lands

The Contractor shall coordinate with the Commission on the potential to impact public lands; including parks, trails and other recreational type lands; that could potentially be classified as Section 4 (f) or Section 6 (f) properties to facilitate avoidance or mitigation.

5.8 Borrow and Staging Areas

All Contractor-furnished borrow and staging areas are subject to the same Environmental Laws as the specific bridge Work. The Contractor shall adhere to all Legal Requirements regarding borrow, wasting and staging areas, as if these areas were included in the Bridge location. The Contractor shall provide to the Commission the location; extent of staging, wasting and borrow areas; and obtain and provide copies of all permits and clearances obtained by the Contractor for borrow and staging areas. The only exception is that MoDOT has a NPDES permit that covers borrow areas that are adjacent to the Commission's Right of Way. The Contractor shall seek a separate NPDES permit from MDNR for borrow areas not contiguous with the Commission Right of Way. The Commission will verify that all of the Contractors obligations have been completed.

The Contractor shall provide the following list of deliverable items:

a) Location and extent of impact of all staging, wasting and borrow areas.

b) Copies of all permits and clearances for staging and borrow areas, except the NPDES for areas contiguous with Commission Right of Way.

5.9 Mitigation

The Commission will plan, in consultation with the Contractor, for mitigation. The Commission may have wetland or stream mitigation banks in place that may be appropriate for bridge impacts. The Contractor may be required to design and construct mitigation when Commission mitigation banks or other alternatives are not available for use. The Contractor may be required to coordinate with the Missouri Department of Conservation (MDC) to design and construct mitigation and develop signs identifying mitigation on MDC properties.

The Contractor shall provide the following list of deliverable items when applicable:

a) Wetland and stream mitigation engineering drawings.

b) Constructed wetland and stream mitigation that meets standards of regulating agencies.

5.10 Regulatory Compliance

The Contractor shall be responsible for all fines and penalties that may be assessed by an agency with jurisdiction in connection with the Contractor's failure to comply with applicable Environmental Laws or Environmental Approvals. The Contractor has the right to reasonably contest any such fines or penalties. Further, it shall be the Contractor’s responsibility to correct, at its own expense, any violations caused by the Contractor. Immediately upon receiving a written notice of violation or similar notification, the Contractor shall contact the MoDOT Project Director and provide all correspondence and details of the resolution of these warnings and/or violations.

5.11 Deliverables

The Contractor shall provide the following list of deliverable items:

Deliverables *	Approval	**Schedule**	Reference **Section**
Standardized maps and plan sheets		As developed and no later than six months prior to construction of a Project Bridge	5.1
Preliminary engineering drawings with detailed description of bridgework and maximum footprint of disturbance.		Six months prior to construction or rehab work begins on Project Bridge	5.1
Landowner permission to access		As needed for studies during life of project	5.1
Erodible Acreage Report		Quarterly as described	5.2
Cut and fill quantities and locations for Section 404 Permit and 401 certification when required.		Six months prior to construction or rehab work begins on a Project Bridge	5.3
Preliminary plans for projects with less than one tenth acre fill in waters of the US.		One month prior to construction or rehab work begins on a Project Bridge	5.3
Location and extent of staging, wasting and borrow areas		Six months prior to construction or rehab work begins on a Project Bridge	5.8
Copies of staging, wasting and borrow area clearances and permits	Yes	Two months prior to construction or rehab work begins on a Project Bridge	5.8
Designs of wetland and stream mitigation		Three months before construction or rehab work begins on a Project Bridge	5.9

* This schedule does not apply to Project Bridges identified on the Environmental and Historic Bridge list that will require more than the average time to receive permits, certificates and clearances; and there may be currently unknown resources that are discovered during the permitting and clearance phase of the project that may require either an updated NEPA classification or more time to process than this table indicates.

6 THIRD PARTY AGREEMENTS

6.1 Administrative Requirements

The Commission will enter into agreements with all incorporated cities, all counties and all railroad companies where these entities have property or facilities that will be permanently affected by construction of any Project Bridge. The Commission will assume all responsibility for third party permits, coordination and costs associated with any increase above existing property owner rights. Any temporary work on property or facilities of the above-described entities shall not require a Third Party Agreement with the Commission.

6.2 Working with Local Agencies

Coordination with local agencies will be a cooperative process between the Contractor and the Commission. The Commission will be responsible for drafting all third party agreements and securing execution from local agencies. Prior to execution of any such agreement, the Contractor shall review the draft of the agreement subsequent to execution by the Commission. The Contractor shall be entitled to compensation and/or relief pursuant to Book 1, Sections 12 and 13, caused by changes or additions to the Project as may be requested by the local agencies, so long as these changes are approved by mutual consent of the Contractor and the Commission and documented by a Change Order. Changes to the Project may include but not be limited to the following: improvements to local roads, landscaping, tree plantings, roadway lighting, bridge lighting, bicycle or pedestrian accommodations, additional noise abatement, decorative fencing, sidewalks, additional aesthetics to bridges or walls, etc. Changes or additions requested by local entities will be allowed only when the entity agrees to completely fund the additional cost for incorporation of all additional improvements into the proposed treatment.

Proposed treatments that will disturb existing third party facilities shall include provisions for replacement of the facility, at the Contractor's cost.

6.3 Railroad Third Party Agreements

An agreement with the affected railroad will be required prior to beginning work. The Commission, with the reasonable support of the Contractor, shall be responsible for negotiating any job specific provisions with the railroad company prior to commencement of all construction work. At least 18 months prior to the planned date of construction for each Project Bridge, the Contractor shall provide the Commission notification if the Project Bridge will require a railroad Third Party Agreement, as defined below. All work to be performed over or on railroad Right of Way may be subject to the affected railroad's approval. For each Project Bridge on this list the Contractor shall supply all required railroad submittal documents.

Where applicable, the Contractor shall include a traffic control plan with the expected dates of construction. Also included with this traffic control submittal will be an explanation of the time and duration of any expected railroad track closures.

A Grade Separation Agreement (GSA) between the railroad company and the Commission will be required. The GSA will define the terms and conditions for the construction and the maintenance of the new Project Bridge, and the easement granted by the railroad needed to secure the Commission's property rights. The GSA will include the railroad job special provisions that will detail the railroad's requirements for the Contractor's work over the railroad including railroad insurance requirements and need for railroad flagging, both funded by the Contractor. The drafting and negotiation of these documents will be coordinated with MoDOT's Project Director after the Contractor has secured the railroad's approval of preliminary plans for the new Project Bridge.

6.4 Deliverables

Deliverables *	Approval	Schedule	Reference Section
Notification if the Project Bridge will require a railroad Third Party Agreement		As developed and no later than 18 months prior to construction of a Project Bridge	6.3

7 UTILITIES

The Commission will coordinate Utility Work on Additional ROW and Existing ROW. The Contractor shall avoid relocation of Utilities to the extent practicable. Betterments are not included within the Contractor's Work. This Section 7 applies to existing and proposed underground and overhead Utilities, except traffic signals, street lighting, variable message signs, video and video detection systems and Intelligent Transportation Systems (ITS).

7.1 Contractor Responsibility

The Contractor shall verify the location of all Utilities that may be affected by the proposed construction. If temporary or permanent utility relocation is necessary for a Project Bridge, the Contractor shall provide the Commission with Utility Relocation Plans 12 months prior to start of construction, 24 months if Additional ROW is required. Utility relocations will be in accordance with the requirements of 7 CSR 10-3 and any applicable Utility Agreements and Master Reimbursable Utility Agreement(s).

7.2 General Obligations

7.2.1 Commission's General Obligations

The Commission's obligations with respect to each impacted Utility shall include the following activities, all of which shall constitute a part of the Utility Work:

a) Coordination of all tasks, obligations and duties assigned in the Utility Agreements and Master Reimbursable Utility Agreement(s), and performance of the same in connection with the Existing ROW.

b) The Commission shall assist the Contractor with respect to the performance of Incidental Utility Work, including the acquisition of necessary Governmental Approvals.

7.2.2 Contractor's General Obligations

The Contractor's obligations with respect to each impacted Utility shall include the following activities, all of which shall constitute a part of the Utility Work:

a) The Contractor shall perform all Incidental Utility Work, including but not limited to locating existing Utilities, identifying conflicts and ensuring compliance with all applicable Legal Requirements and required Governmental Approvals.

b) Identification and verification of all existing Utilities located within the Existing ROW, Additional ROW or otherwise impacted by the Project.

c) Provide survey coordinates and Utility Relocation Plans 12 months prior to start of construction of affected Project Bridge. Utility Relocation Plans shall include as a minimum the location of the existing and proposed Project Bridge, existing utilities, ROW boundaries, natural features such as streams and drainage ditches and man-made features such as access roads.

d) Mark in the field the proposed location of the new Project Bridge.

e) Coordinate all necessary Utility Work with the appropriate Utility if such Utility Work is being performed during construction.

7.3 Utility Permits and Construction Easements

The Commission shall coordinate with the Utility Owner to obtain MoDOT and non-MoDOT permits and/or Construction Easements or agreements. Separate permits may be required for Work on streets under local entity jurisdictions. In the event the Contractor determines that a Utility Owner does not have the required permits, the Contractor shall immediately notify the Commission in writing. The Contractor shall comply with all such Utility permits and construction easements or agreements.

7.4 Utilities Adjacent to and on Project Bridges

Utility attachments to Project Bridges are not permitted unless the Commission has an agreement executed with the Utility Owner to permit the attachment. If placement on a Project Bridge is necessary, the Contractor shall provide details of the proposed installation to the Commission as soon as the need has been determined but no less than 12 months prior to scheduled construction. If the Commission agrees the attachment is permissible, the Contractor shall coordinate with the Commission to

provide the approved details and information so the Commission can negotiate with the Utility Owner and enter into an appropriate agreement. The agreement will be of the form commonly used by the Commission for utility attachments to structure.

7.5 Notices

The Contractor shall notify all affected Utility Owners at least 2 Business Days before commencing any operations that affect a Utility, unless otherwise agreed to in a Utility Agreement. For excavation operations, the Contractor shall mark the proposed excavation before contacting Missouri One Call. The Contractor shall call Missouri One Call at least 2 Business Daysbefore starting excavation operations. Commission facilities are included in Missouri One Call.

The Contractor shall not start construction operations adjacent to Utility properties until arrangements, satisfactory to the Utility Owner, have been made by the Contractor for the protection of the Utility and continuation of service. Should the Contractor's equipment come in contact with or damage a Utility in any way, even though there may be no apparent evidence of breakage or harm, the Contractor shall promptly notify the proper authorities and cooperate with those authorities in determining damage and restoring interrupted services as may be needed. Where contact is made with a Utility, the Contractor shall suspend operations immediately and vacate the area until it has been determined by the Utility Owner that it is safe to resume operations.

7.5.1 Notices Regarding Utility Owner Performance

The Contractor shall be responsible for verifying progress of the Utility Owner's work.

7.6 Coordination and Cooperation

The Commission and the Contractor shall be available to meet at the request of the other party, as necessary, to discuss and resolve matters relating to the Utility Work. The requesting party shall provide the other party with not less than seven Calendar Days prior notice of such meetings unless mutually agreed to otherwise.

The Contractor shall produce minutes of all meetings with Utility Owners and distribute copies of the minutes to the Utility Owner and the Commission no later than seven Calendar Days after each meeting. The Contractor shall provide the Commission copies of all correspondence between the Contractor and any Utility Owner no later than seven Calendar Days after receipt or sending.

The allocation of responsibility for any Utility Work to a Utility Owner will not relieve the Contractor of the obligation to coordinate with the Utility Owner as necessary for the Utility Work to be performed during construction.

7.7 Cost

Payment for Utility Cost shall be in accordance with Book 1 Section 6.

7.8 Damage to Utilities by Contractor

The Contractor shall be responsible for any and all damage caused by the Contractor's Subcontractors, employees or agents to the property, facilities, structures or persons of the Utility Owner. The Contractor shall immediately notify the affected Utility Owners of any Utilities damaged by the Contractor during the Contractor's performance of the Work. The Contractor shall be responsible for all costs and/or schedule impact associated with said damage.

Promptly after the Contractor's discovery of such damage or the Contractor's receipt of notice of any such damage from the Utility Owner or from any other source:

a) the Contractor shall repair the damage to the Utility Owner's reasonable satisfaction; or

b) at the Utility Owner's election, the Utility Owner may make such repairs at the Contractor's expense.

7.9 Joint Issue and Dispute Resolution Procedures

Any Disputes that arise between the Commission and the Contractor shall be subject to the Dispute Resolution provisions set forth in Book 1, Section 19; however, if the Dispute involves a Utility Owner, the Dispute Resolution provisions set forth in Book 1, Section 19 shall be modified in accordance with this Section to include participation by the Utility Owners or as modified in the applicable Utility Agreements with the Utility Owner(s).

The Contractor and the Commission agree that the Utility Owner(s) shall be invited to participate in all joint issue resolution activities related to the Utility Work of the affected Utility Owner(s). If any Dispute arises between the Contractor and the Commission that involves a Utility Owner(s) and the Dispute is not resolved during the joint issue resolution process, the Dispute Resolution Board (DRB) procedures set forth in Book 1, Section 19 shall be modified to allow the affected Utility Owner(s) to select one member to participate on the DRB for the issues affecting the Utility Owner(s), with such member approved by the Commission and the Contractor. Regardless of how many Utility Owners are involved in the dispute; the Utility Owners will only have one member on the DRB. The Utility Owners' DRB member shall have the experience and qualifications required in Book 1, Section 19 for the DRB members and shall comply with all of the requirements applicable to DRB members therein. If a Dispute involves an affected Utility Owner(s), the chairperson of the DRB will act as chairperson for the DRB procedures, but will not participate in any deliberations or decisions. The Contractor, the Commission and the Utility Owners may agree to a modified dispute resolution process either in the MRUA or in a separate agreement.

8 RIGHT OF WAY

8.1 Administrative Requirements

The Commission will assume all responsibility for recording fees, title insurance, closing costs, staff, vehicles, appraisals, legal services and cost of property with respect to Additional ROW. The Commission will retain possession of each parcel and all improvements, if any, made thereon by the Contractor. The Contractor's access and use of the Right of Way arises solely from the permission granted by the Commission under the Contract. Should the Commission decide to purchase Additional ROW with existing hazardous material(s), the Contractor will not be responsible for any remediation costs. In no case will the Contractor be responsible to pay for any Existing ROW.

8.2 Right of Way Acquisition

a) Payment for additional ROW shall be in accordance with Book 1 Section 6.

b) Upon Commission approval to purchase Additional ROW in accordance with Book 1 Section 6.1.2, the Commission will, in accordance with Book 1 Section 6, acquire permanent Additional Right of Way, access rights, permanent easements and temporary easements as indicated on design plans, fund Commission personnel costs of acquiring Additional Right of Way, and perform relocation services for displaced persons, property and businesses, unless the Contractor accepts such obligations as allowed by the Contract.

c) The Commission will have discretion to determine the amount to be paid to property owners. The Commission will follow its established typical valuation, negotiation, settlement, mediation, condemnation practice and relocation benefits.

A preliminary Additional Right of Way needs list or preliminary Additional Right of Way design is encouraged to be developed and provided to MoDOT Right of Way Division as soon as practicable. A timely Preliminary Additional Right of Way needs list will likely reduce the amount of time required for the Commission to acquire Additional Right of Way.

d) The Contractor shall develop Additional Right of Way plans in accordance with the requirements for Additional Right of Way design specified in the EPG.

e) Upon notice from the Contractor of the need for additional Right of Way, the Commission will order and fund the cost of all ownership information in connection with obtaining Additional Right of Way. This information will be provided to the Contractor as soon as available.

f) The Contractor shall write legal descriptions in connection with obtaining Additional Right of Way. The Commission will prepare Additional Right of Way acquisition documents incorporating Contractor’s legal descriptions.

g) The Contractor shall make plan changes requested by the Commission in connection with obtaining Additional Right of Way to accommodate and facilitate property owner desires and to mitigate impact on property. Delays in procuring Additional Right of Way that result from plan changes will not be included in the time allowed for the Commission to obtain Additional Right of Way as allowed in the section. Changes in Additional Right of Way plans developed by the Contractor may require additional time, up to one year, after such change in Additional Right of Way.

h) Additional Right of Way acquisition with condemnation may require approximately one year from the time Additional Right of Way plans are submitted to the Commission.

i) The acquisition of Additional Right of Way with environmental or cultural resource constraints will not occur until a means to reconcile such constraints have been determined.

j) The Commission will provide the Contractor notice of fully acquired Additional Right of Way on each Project Bridge, individually.

k) The Commission will coordinate and perform condemnation.

l) Final settlements with owners will be communicated to the Contractor for consideration of reducing or eliminating Additional Right of Way acquisition prior to payment or proceeding with condemnation; unless such settlement is less than an amount pre-approved or such proceeding has been pre-approved by the Contractor. Delays in procuring Additional Right of Way that result from the Contractors review of any settlements or plan changes will not be included in the time allowed for the Commission to obtain Additional Right of Way as allowed in this section.

m) Changes in Additional Right of Way plans may require additional time, up to one year after such change in Additional Right of Way.

8.3 Temporary Easement Acquisition by The Contractor

The Contractor may negotiate and acquire, without cost restriction, property access beyond project Right of Way needs directly from property owners, but must follow all applicable laws. Examples of indirect project needs from property owners might include, but are not limited to staging areas, enhanced project access, over-swing of machinery, borrow sites, disposal sites off Right of Way, etc.

8.4 Demolition

The Contractor shall be responsible for demolishing, removing and disposing of all existing buildings and other structures from the existing ROW and Additional ROW, including any permanent easements and temporary easements related thereto. Removal of all buildings shall include all attached structures, existing rubbish, trash and contents in and adjacent to the building on each parcel. The Contractor shall

follow all applicable state and local laws and regulations. Demolition of the subject structures cannot begin until after the Contractor is notified that the Additional ROW has been acquired and legal and physical possession has been obtained. The Contractor shall notify the Missouri Department of Natural Resources ten Business Days before the demolition of any building structure.

8.5 Deliverable

At a minimum, the Contractor shall submit the following to the Commission for review or approval:

Deliverable	Approval	Schedule	Reference Section
Preliminary Additional Right of Way needs list Or Preliminary Plans		As soon as practical	8.2
Additional Right of Way Plans		One year prior to start of construction	8.2
Legal descriptions for Additional Right of Way		Submitted concurrently with completed Additional Right of Way plans.	8.2
Right of Way survey and staking		Staking concurrent with delivery of Additional Right of Way plans, Prior to Construction and as needed for Additional Right of Way negotiations	8.2

9 SURVEY

9.1 Project Survey Coordination

The Contractor shall designate a Professional Land Surveyor, registered in the State of Missouri, as the responsible person in charge of Contractor survey activities on the Project. The Contractor shall comply with the most recent and applicable State of Missouri and Federal Laws. Survey procedures and criteria shall be in accordance with 20 CSR 2030-16, the *Missouri Minimum Standards for Property Boundary Surveys*, and any applicable portions of Chapter 3 of the MoDOT Project Development Manual.

The Contractor's Professional Land Surveyor (PLS) shall be required to sign and seal survey documentation in accordance with 20 CSR 2030-16.

9.2 Contractor Supplied Survey Data

Except as provided by the Commission, the Contractor shall provide all survey work required for completion of the Project.

Any source data provided to the Contractor by the Commission shall be returned in the same manner and condition as when it was provided. The data should be returned at the point when it is no longer needed by the Contractor to perform the services required by this agreement or at the conclusion of the Contract, which ever occurs first.

9.3 Preservation of Survey Control Monuments

The Contractor shall preserve all survey control monuments and any governmental defined land corners that are located on MHTC Right of Way. The Contractor shall notify the Commission as soon as it becomes known that a monument is in a position that will interfere with new construction or with Contractor operations. The monument position shall be accurately preserved prior to disturbing any such monument.

If an existing marker is disturbed, or cannot be preserved in place, the Contractor's PLS shall set the new marker in accordance with the requirements of 20 CSR 2030-16. The Contractor shall furnish and install new survey monuments in accordance with the standards for permanent monuments, including a cap stamped with MHTC's name, and the highway station and offset for that location as detailed in Chapter 3 of the EPG.

9.4 Permission to Enter Property

The Contractor shall provide the property owner written notification prior to entering any property outside of MHTC Right of Way for surveying purposes. The Contractor shall retain a copy of all such documents for Commission review.

9.5 Right of Way Surveys

A Location Survey Plan shall be required when Additional Right of Way or easements are acquired. The Contractor's PLS shall reestablish the existing alignment, Right-of-Way and survey any new project alignment to meet the standards of the MoDOT's Project Development Manual, Chapter 3-04.2, and conform to all requirements of 20 CSR 2030-16. The Contractor's PLS shall survey and temporarily stake or mark the proposed rights of way prior to landowner negotiations and all Additional Right of Way acquisition activities.

All monumentation for Additional Right of Way and permanent easements shall be in place and the location survey submitted as soon as practical. The Acceptance of Structure will not be made if these items have not been submitted.

The Location Survey Plan will include a land description of the existing and Additional Right of Way or easements at the Project Bridge location. This description shall:

a) be based on the location survey;

b) be concise;

c) contain title identity;

d) contain measured dimensions and highway stationing in ground units;

e) contain measurement data that describes the geometric area of the corridor and closes mathematically;

f) contains information that does not lend to alternate interpretations; and

g) be written to facilitate the relocation of the corridor by any other professional land surveyor.

9.6 Legal Property Surveys

The Contractor's PLS shall perform the survey of existing property boundaries included in the legal description and a land survey of any Additional Right of Way or easements required for the selected treatment. This survey shall be in accordance with 20 CSR 2030-16. The results of the land survey will be included in the Location Survey Plan that will serve as the recordable survey plat.

The Contractor's PLS shall be responsible for verifying, furnishing and recording of any public survey corners necessary for legal descriptions used in deed writing and/or the development of the Location Survey Plan. The Contractor shall reference Chapter 3 of the *MoDOT Project Development Manual* to ensure that the public survey corners are obtained in accordance with such requirements. The Contractor's PLS shall tie any public survey corners used in the Location Survey Plan to the highway survey alignment.

9.7 Bridge Surveys

Bridge surveys shall be completed in a manner as necessary for the permitting and design of the Project Bridge. The use of existing or commercially available data in lieu of *Project Development Manual* field survey requirements is permitted.

9.7.1 Retaining Walls and Rehabilitated Bridges

The information obtained for bridge surveys for retaining walls and Bridge Rehabilitations shall be at the Contractor's discretion.

9.7.2 Stream Crossings

The requirements of *MoDOT Project Development Manual Section 3-02,* shall be modified as follows:

a) Contours for a minimum of 100' upstream and 100' downstream shall be reported.

b) A minimum of two valley sections, extending to a reasonable amount above design high water, shall be reported. One section shall be upstream and one shall be downstream.

c) One typical channel section extending to a reasonable amount above design high water, shall be provided.

d) Minimum photographs requirements are the 360 degree panorama of the bridge sight.

e) The low water elevation does not need to be reported.

9.8 Deliverables

At a minimum, the Contractor shall submit the following to the Commission for review or approval:

Deliverable	Approval	Schedule	Reference Section
Location Survey Plan(s) for New Land Acquisition required for any Additional Right of Way purchases		As soon as practical In year 1 and early year 2.	9.5, 9.6

10 GEOTECHNICAL

The Contractor shall determine the need for geotechnical information and conduct investigations as necessary to complete the analyses, design and construction.

10.1 Geotechnical Report

The Contractor shall prepare and submit a copy of the Geotechnical Report with the As-Built Documents. The Geotechnical Report shall include a detailed method statement describing the general philosophy and methods of design and construction and the rationale for selection of the proposed construction methods for all geotechnical and foundation aspects of the Project. The method statement shall indicate how material and design details are chosen to match selected construction methods and construction details and the soil, rock and groundwater environment for the site.

The Geotechnical Report shall define the engineering and design approach that will be followed in order to develop technically and environmentally acceptable and durable foundations, cut and fill slopes, retaining structures and geotechnical designs for the Project.

The Geotechnical Report shall be prepared and signed and sealed by a Professional Engineer or Professional Geologist registered in the State of Missouri.

10.2 Geotechnical Data

The Contractor shall form its own interpretation of any existing geotechnical data that is obtained or may become available from the Commission. If the Contractor obtains or is provided existing geotechnical data from the Commission, the Contractor

assumes the sole risk of liability or loss on these documentary interpretations and conclusions to its detriment, delay or loss.

10.3 Deliverables

At a minimum, the Contractor shall submit the following to the Commission for review or approval:

Deliverable	Approval	Schedule	Reference Section
Geotechnical report		Submit with As-Built Documents	10.1

11 SIGNING, PAVEMENT MARKING, AND LIGHTING

11.1 Signing

The Commission will install new signing as required, except for any signs that are damaged or removed by the Contractor. Such damaged or removed signs shall be installed with new posts consistent with the type on that route and new sign panels in accordance with Applicable Standards. Signs shall be detailed in accordance with the *EPG*.

All Signing that is no longer required shall be identified as removals on the Design Documents by the Contractor and removed by the Commission.

The Commission shall furnish and install delineation on the bridge and approach per Applicable Standards, as detailed by the Contractor.

11.2 Pavement Marking

The Contractor shall provide all temporary pavement markings. If pavement markings are to be relocated during construction, temporary marking shall be provided. Conflicting pavement markings, either temporary or permanent, shall be removed. Permanent pavement marking will be installed by the Commission upon completion of the Project Bridge, as detailed in the Design Documents.

The pavement marking system need not be specified for the Commission's application.

11.3 Permanent Lighting

The Contractor shall provide basic lighting, per the EPG, at any locations currently have basic lighting and the existing lighting is being removed due to construction at any Project Bridge site.

a) The average illumination of the traveled way including ramp terminals shall provide an average maintained intensity of not less than 0.6 foot-candles and

a minimum intensity of not less than 0.2 foot-candles. Continuous lighting, per the EPG, shall be provided where continuous lighting is currently used, and the existing lighting is being removed due to the construction of the Project Bridge.

b) The average illumination of the traveled way and ramp connections shall provide an average maintained intensity of not less than 0.6 foot-candles, and a minimum intensity of not less than 0.2 foot-candles.

c) The average illumination of cross streets shall provide an average maintained intensity of not less than 0.4 foot-candles, and a minimum intensity of not less than 0.2 foot-candles.

d) Must provide a uniformity ratio of 4:1 or better for 45 foot mounting height and 6:1 or better for 30 foot mounting height.

Lighting shall be provided under all bridges over 75 feet wide where necessary to maintain the continuity of existing or proposed lighting.

The average illumination in pedestrian tunnels shall provide an average maintained intensity of not less than 0.5 foot-candles. Pedestrian level lighting shall be provided for sidewalks on bridges.

The Contractor shall contact the Commission a minimum of 30 Calendar Days in advance of proposal to locate existing facilities in the area of highway lighting. If any lighting is damaged by construction activities, the Contractor shall replace in kind with new materials. Lighting poles shall be kept in the current location, relocation will not be allowed, unless the Contractor proposes an alternative design that does not effect performance or safety near the lighting. Lighting must be completely operational or completely off. Lighting shall remain completely operational when bridges are open to traffic.

Any changes in lighting design must meet the illumination criteria in the “EPG”. The Contractor shall submit lighting calculations showing the proposed lighting plan meets the illumination criteria if different than the standard layouts in the EPG. If the location is currently using a 30-foot pole design for lighting, the Contractor may propose replacing the existing lighting poles with 45-foot pole design lighting. However, the entire interchange must be converted to the same system. All pull boxes located on the bridges shall be replaced.

If current lighting wiring is located under the Project Bridge or not in conduit, the Contractor shall replace wiring and add pull boxes and conduit to the Project Bridges. The new pull box shall be located in the toe of the barrier wall. If any conduit located on the Project Bridges is damaged by construction activities, it shall be replaced.

All non-breakaway light poles removed at any time due to the Work shall be replaced with AT type poles per Missouri Standard Plans for Highway Construction.

Any changes made to the lighting system must complete the 15 day system test as outlined in the *Missouri Standard Specifications for Highway Construction*. All products used must be as listed on the *Traffic Signal and Highway Lighting Approved Products List* and an *Equipment and Materials List* (MoDOT's form D-15) shall be submitted with the As-Built Documents prior to Acceptance of Structure.

Missouri Standard Specifications for Highway Construction will apply for permanent lighting.

11.4 Navigation Lighting

Navigation lighting shall be kept operational with a permanent system. *Missouri Standard Specifications for Highway Construction* will apply for navigation lighting.

If the navigation lighting system is indicated for replacement, the installation will be completed according to the *Missouri Standard Specifications for Highway Construction*. If navigation lighting is replaced, products from the *Traffic Signal and Highway Lighting Approved Product List* shall be used and an *Equipment and Materials List* (MoDOT's form D-15) shall be submitted with the As-Built Documents prior to Acceptance of structure.

11.5 Aviation Lighting

Aviation lighting shall remain operational at all times.

If aviation lighting is replaced, products from the Traffic Signal and Highway Lighting Approved Product List shall be used and an Equipment and Materials List shall be submitted with the As-Built Documents prior to Acceptance of Structure.

Deliverable	Approval	Schedule	Reference Section
Equipment and Materials list		Submit with As-Built Documents prior to Acceptance of Structure	11.3, 11.4, 11.5

12 HYDROLOGY AND HYDRAULICS

The Project shall include all Work for the design and construction of drainage facilities at each Project Bridge location including temporary and permanent erosion control measures.

12.2 Coordination with Other Agencies

The Contractor shall coordinate all sewer and drainage issues with affected regulatory agencies that have interest or jurisdiction over the project.

The Contractor shall include the Commission in all contacts with affected regulatory agencies.

12.3 Commission Drainage Facilities

Commission drainage facilities include pipes, closed conduits, culverts, bridges, natural channels and man-made channels receiving storm water that are owned and maintained by the Commission. The following criteria apply:

a) Gutter Flow Spread: Design Spread shall not exceed the lesser of 6 ft or the Shoulder width plus 3 feet for an 8.5 in/hr intensity. Matching existing spread on existing decks that are used-in-place is acceptable.

b) Bridge and Culvert Hydraulic Design Criteria: The Commission encourages the Contractor to establish the appropriate hydraulic design performance criteria at each location a Project Bridge is being replaced or widened. However, if the appropriate criteria does not meet the criteria established below, a design exception documenting the reason for deviation is required. In no case shall roadway overtopping frequency be reduced. If the Commission does not grant a Design Exception to match or exceed the hydraulic performance of the existing bridge, the Contractor is entitled to a Change Order or a Bridge Substitution.

c) The following requirements are applicable to Project Bridges that are replaced, Bridge Rehabilitations that have the bottom of superstructure elevation lowered or Project Bridges that have their substructure widened:

i) For Roadway Overtopping, the water level shall be no deeper than one foot below the lowest Shoulder point:

- during a 25-year event for Minor Routes;
- during a 50-year event for Major Routes; and
- during a 100-year event for interstate Routes.

ii) The freeboard for all bridges shall be evaluated for the 50-year event. The freeboard shall be greater than one foot for drainage areas less than 20 square miles and greater than two feet for drainage areas greater than 20 square miles. The Design High Water (DHW) shall be based on the return period used for the freeboard (50 year).

iii) Backwater and headwater for bridges and box culverts on all routes shall meet NFIP requirements. The maximum backwater compared to natural conditions shall be two feet for the 100 year event.

12.4 Methods to Estimate Flow

The Contractor shall ensure that the conditions in the watershed conform to the limitations method of analysis. For all methods, available historical data shall be reviewed and the design flow justified as meeting the local Project conditions.

12.5 Hydraulic Design

The *Corps of Engineers Hydrologic Engineering Center's River Analysis System* (HEC-RAS) shall be used to develop water surface profile models for the hydraulic analysis of bridges. Hydraulic analysis is required for all Project Bridges.

Calculated scour limits shall be within or above the limits of the footings.

12.6 Regulatory Floodway and Floodplains

The Contractor shall complete hydraulic studies to assess floodplain and regulatory floodway impacts. All impacts shall be documented and meet the requirements of all Federal and State of Missouri regulations. The Contractor shall obtain a *Floodplain Development Permit* from the State Emergency Management Agency (SEMA) for construction within areas of identified flood hazard prior to proceeding with construction.

The Contractor shall upon discovery notify the Commission, if the work will impact FEMA/SEMA buyout property.

The Contractor shall provide the following deliverable items:

a) *Floodplain Development Permit*

b) A "*No Rise" Certificate* for construction within a regulatory floodway.

12.7 Stream Gages

Stream gages currently attached to a Project Bridge shall be carefully removed, stored and reinstalled prior to Final Completion of such Project Bridge.

The following Project Bridges have USGS stream gages attached:

Taney	S0848
Polk	N0586
St. Louis	Z0557
Schuyler	T0892
Daviess	X0117
Clinton	A0190

[Potential Substitute Bridges with USGS stream gages attached include:

Madison	T0071
St. Clair	N0932
McDonald	S0086
Cedar	A2063
Iron	T0113
Dade	R0163]

The Contractor shall notify the USGS three weeks prior to removal and reinstallation of any USGS gages. The USGS will provide coordination, location and reinstallation instructions for each of their gages.

USGS contact:
Paul Rydlund Jr.
Supervisory Hydrologist
573-308-3572

12.8 Deliverables

The following are required when hydraulic analysis is performed. For the Bridge Survey Report, Bridge Hydraulics and Scour Report or Culvert Hydraulics Report, use the forms available on MoDOT's web sight.

Deliverable	For Approval	Schedule	Reference Section
Flood Plain Development Permit		4 Months prior to start of Construction	12.6
"No-Rise" Certificate		With Flood Plain Development Permit	12.6
Bridge Survey Report		With As-Built Documents	12.8
Bridge Hydraulics and Scour Report or *Culvert Hydraulics Report*		With As-Built Documents (Project Bridges requiring hydraulic analysis only)	12.8
Input and output files from water surface profile models		With As-Built Documents (Project Bridges requiring hydraulic analysis only)	12.5

13 ROADWAYS AND PAVEMENTS

13.1 Traffic and Accident Analysis

The Commission will furnish the Contractor traffic information for the construction and design years. Design-year traffic volumes shall be used to determined design-year levels of service (LOS) for each Project Bridge location.

13.2 Design Exceptions

Design of the Project shall be in accordance with the requirements of this RFP and AASHTO. The Contractor shall be responsible for obtaining Design Exceptions from the Commission and the FHWA for deviations in accordance with the ITP. Design Exceptions subsequent to Contract execution shall be in accordance with Book 1, Section 13.

13.3 Non-Vehicular Transportation Provisions

The provision to accommodate bicycle and/or pedestrian facilities associated with the proposed treatment should be included when the local jurisdiction agrees to

completely fund the additional cost for incorporation of the non-vehicular facility into the proposed treatment. Proposed treatments that will disturb existing bicycle and/or pedestrian facilities shall include provisions for replacement of the facility.

The provision to accommodate bicycle and/or pedestrian facilities associated with the proposed treatment should be considered when any one or more of the following conditions exist:

a) The local jurisdiction has a comprehensive bicycle and/or pedestrian policy in affect that includes the area of the Project Bridge location and would require the accommodation of non-vehicular traffic.

b) There is public support through local planning organizations or other local jurisdictions for the inclusion of bicycle and/or pedestrian facilities.

c) Bicycle and/or pedestrian traffic generators are located near the Project Bridge location (i.e. residential neighborhoods, employment centers, shopping centers, schools, parks, libraries, etc.) and there are no reasonable alternative crossings of a natural or man-made barrier (i.e. bridges over rivers, roadways or railroads, or under access-controlled facilities).

d) There is evidence of bicycle and/or pedestrian traffic at, on, under or adjacent to the proposed Project Bridge location and the local community supports the incorporation of facilities at this time.

13.4 Pavement Selection

The Contactor shall minimize the disturbance and replacement of roadway pavements to the greatest extent possible. Where pavement replacement is necessary and adjacent to Project Bridge treatments, the new pavement thickness shall generally be equivalent to the existing pavement thickness on four inches of aggregate base but not less than 5-3/4 inches of pavement on four inches of aggregate base. For these sections, the new pavement may consist of asphaltic concrete, cold mix or hot mix, or Portland cement concrete pavement, at the Contractor's option. If the AADT is greater than 2000, the cold mix asphalt option is not allowed.

14 SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS

14.1 Temporary and Permanent Traffic Signalization

The Contractor shall keep any existing signals functional, including maintaining any existing communication links between the signal controllers and other equipment. If existing signals must be shut down, the Contractor shall provide temporary signals or appropriate traffic control. Temporary signals shall be provided according to the *Missouri Standard Specifications for Highway Construction* and the *Missouri Standard Plans for Highway Construction*.

If the signals will be altered by closing an approach or changing traffic patterns, the Contractor shall submit a signal timing and phasing plan or provide the appropriate traffic control to the Commission for approval prior to altering the traffic pattern.

The Contractor shall replace or repair any conduit located on Project Bridges, damaged or destroyed by the Work. As an alternative, if the conduit contains interconnect wiring only, the Contractor can install a wireless interconnect system on the affected bridges, instead of replacement conduit.

The Contractor shall at minimum replace in kind any detection loops on bridge decks or roadway pavements that are destroyed by the Work, or install a video detection system on the affected Project Bridges. If the geometrics of an intersection are altered, the Contractor shall submit a location plan for the placement of new detection loops or video detection system and such geometrics must be approved by the Commission. If the Contractor chooses to use video detection, the Contractor must also upgrade the equipment as necessary to use the system and make it operational.

The Contractor shall relocate or replace any other signal facilities altered or destroyed because of the Work, including but not limited to cabinets, conduit, bases, pull boxes, etc.

For any modified signals, the Contractor shall complete the 15-day system test as outlined in the *Missouri Standard Specifications for Highway Construction*.

The Contractor shall use products from the *Traffic Signal and Highway Lighting Approved Products List* and an *Equipment and Materials List* (MoDOT's form D-15) shall be submitted with the As-Built Documents prior to Acceptance of Structure.

Missouri Standard Specifications for Highway Construction shall apply for permanent traffic signalization.

14.2 Intelligent Transportation Systems

The Contractor shall relocate or replace any ITS equipment; cabinets, conduits, pull boxes, data collection equipment, etc., that are altered or damaged because of the Work. The Contractor shall keep any existing dynamic message signs and traffic sensors functional.

14.2.1 Communication System

The Contractor shall relocate or replace any communication equipment; cabinets, conduits, pull boxes, underground fiber optic network, etc., which may be altered or damaged because of the Work.

14.3 Deliverables

At a minimum, the Contractor shall submit the following to the Commission for review or approval:

Deliverable	Approval	Schedule	Reference Section
Signal timing and phasing plan	Yes	As needed, 4 weeks prior to planned construction	14.1
Detection loop or video plan	Yes	As needed, 4 weeks prior to planned construction.	14.1
Equipment and Materials list		Submit with As-Built Documents prior to Acceptance of Structure	14.1

15 STRUCTURES

15.1 General

Designs shall be in accordance with applicable State of Missouri and Federal regulations.

The Contractor shall request a bridge number for each bridge. All correspondence relative to a Project Bridge shall contain the bridge number in the subject line. The bridge number shall be stenciled on each Project Bridge in accordance with the provisions contained in the *Missouri Standard Specifications for Highway Construction*.

15.2 Design Loading

Designs shall be in accordance with either *AASHTO Standard Specifications for Highway Construction* or *AASHTO LRFD Bridge Design Specifications* and the EPG. The Design Truck shall be as follows:

	Specification	
Location	**LFD**	**LRFD**
NHS and within Commercial Zones	HS-25	HL-93
Other	HS-20	HL-93

15.3 Drainage

Deck drainage shall be controlled and not discharged onto superstructure or substructure elements.

15.4 Reinforcing Steel

The following reinforcement shall be epoxy coated:

- All reinforcement in the deck slab; above the deck slab; and extending into the deck slab, including all non-prestressed reinforcing in precast prestressed concrete panels (deck forms).

- Integral end bent reinforcement above the bottom of the deck slab or extending into the deck slab.

- Non-integral end bent reinforcement in the backwall, extending into the backwall and the bearing beam.

- All semi-deep abutment reinforcement in abutment slab, bearing beam, curtain wall, apron wall, backwall, and transverse approach beam.

- Any end bent or abutment wing reinforcement that extends into the safety barrier curb.

- All reinforcement located within and extending into the cap beam of intermediate bents below expansion joints.

- All reinforcement in approach slabs and sleeper slabs.

Minimum concrete cover for reinforcing steel shall be as specified in the EPG, but no less than 1-1/2 inch.

15.5 Load Rating / Posting Values

The Contractor shall load rate all Project Bridges. The load ratings shall be in accordance with the *Load Rating for Design Build Bridges* memorandum. A report for each Project Bridge shall be supplied detailing the ratings for all axle configurations identified by the memorandum. The Contractor shall use VIRTIS software to rate each Project Bridge. The input and output shall be supplied to the Commission in electronic format. Project Bridge types not supported by VIRTIS shall be rated by hand calculations or other load rating software. Calculations, input and results shall be supplied to the Commission in an acceptable format.

15.6 Structure Types

Structures shall be continuous over supports, use integral end bents or abutments, and incorporate as few joints, if any, and bearings as possible.

Permissible bridge types are as follows:

a) Prestressed concrete I-girders;

b) Steel plate girders;

c) Wide flange rolled girders;

d) Cast-in-place concrete slabs;

e) Adjacent prestressed concrete box girders / slabs with 6" composite concrete deck;

f) Adjacent prestressed concrete box girder / slabs with approved waterproofing membrane and asphalt provided the ADT is less than 1000 vpd;

g) Prestressed concrete double tees provided the ADT is less than 5000 vpd;

h) Cast-in-place and precast concrete box culverts;

i) Precast three sided concrete arches;

j) Bridge elimination; and

k) Other structure types that provide life cycle cost equivalent to the above structure types. These structure types are to be submitted to the Commission per the Instructions to Proposers.

Bridge types utilizing fracture critical members shall not be used.

15.7 Deliverables

At a minimum the Contractor shall submit the following to the Commission:

Deliverable	For Approval	Schedule	Reference Section
Virtis rating of each Bridge		Before construction of each Project Bridge	15.3
Structure Type, Size and Location	Yes	As soon as available	15.6

16 MAINTENANCE OF TRAFFIC

The Contractor shall develop, install, maintain and remove temporary traffic control for all Project Bridges ; i) on divided highways, ii) constructed with staged construction or iii) constructed using a bypass. . The Commission shall be responsible for Maintenance of Traffic for all remaining Project Bridges. The Commission assumes no responsibility for temporary traffic control on routes under a Project Bridge.

At least 120 Calendar Days prior to start of construction on a Project Bridge the Contractor shall:

a) notify the Commission of the scheduled date to start construction for any Project Bridge the Commission is responsible for developing the traffic control plan;

b) provide plan sheet detailing any bypass

c) provide traffic control plans for any Project Bridges for any Project Bridge with respect to which the Contractor is responsible for developing the traffic control plan.

Notwithstanding the foregoing, any Project Bridge scheduled to commence within 4 months following Execution, notification for maintenance of traffic will be required no earlier than 30 Calendar Days but no later than 21 Calendar Days prior to the scheduled start of construction.

Any Contractor-provided MOT Plan shall identify the Contractor's strategy to provide for the safe and efficient movement of people, goods and services through and around each Project Bridge while minimizing impacts to local residents, business and commuters, such MOT Plan shall include:

d) Traffic Control Plans (TCP);

e) plan to maintain resident, business and school access to emergency and other service providers;

f) plan to minimize traffic impacts to school districts, businesses, farmers and local residents;

g) plan to maintain and control pedestrian, bicycle and other non-vehicular traffic.

Access to all parcels within each improvement limit shall be maintained or the Contractor shall provide alternative access. Contractor shall describe the MOT Plan with reasonable, measurable tasks and milestones.

16.1 Traffic Control Plans

When traffic control plans are the responsibility of the Contractor, the Contractor shall develop and submit, for the Commission's review and approval, Traffic Control Plans for each stage of construction on each Project Bridge that shows the Contractor's proposed construction staging and proposed traffic control devices consistent with the MOT Plan. Revisions to a TCP shall also be submitted to the Commission for review and approval. The TCPs shall include, at a minimum, a detailed diagram of the Work Zone that shows the location of all traffic control devices, lane widths, Work Zone speed limits, temporary bypasses, and detour routing.

16.2 Requirements

The Contractor shall conform to the following:

a) The Contractor shall notify the Commission of any lane and road closures necessary to perform work on each Project Bridge by submitting a *Notice of Intent to Perform Work* form prior to instituting or changing such traffic control

measures and after such improvements have been completed. This form shall be submitted at least 2 Business Days prior to start of construction or impact to traffic. The *Notice of Intent to Perform Work* form is located at http://www.modot.org/asp/intentToWork.shtml.

b) The Contractor shall notify the Commission 20 Calendar Days prior to any vertical clearance reduction that provides less than 18 foot clearance, any load capacity reductions or any width reduction that results in a restriction of less than 20 feet. Notification shall be in the form of the MoDOT *Overdimension/Overweight Workzone Restriction Request Form*.

c) Any Project Bridge that is or has an overhead obstruction shall have a MoDOT Motor Carrier Services Bridge Clearance Report completed and submitted to the Commission before the over-dimension/overweight Work Zone Restriction is removed. This submittal should be prior to the bridge opening and as close as reasonably practical.

d) The Contractor shall provide a paved surface for all Major Route bypasses.

e) The Contractor's placement of construction equipment, materials and vehicles shall comply with AASHTO policies and guidelines.

f) The Contractor shall be responsible for maintaining the existing traffic flow through the job site during construction of Project Bridge built under staged construction or built using a bypass or crossover. If disruption of the traffic flow occurs and unreasonable Traffic Delays occur, then the Contractor shall review the construction operations that contributed directly to the disruption of the traffic flow and make adjustments to the operations to prevent the queues from reoccurring. The Commission will be responsible for all detour routes, with the reasonable cooperation of the Contractor for implementing any necessary adjustments to the operations to prevent disruption of the traffic flow resulting in unreasonable Traffic Delays.

16.3 Construction Restriction

Due to the reconstruction of Interstate route 64 the following bridges located in the St. Louis area shall not have lane restrictions until after January 31, 2010 or the completion of the route 64 Design Build Project:

Br. #	Route	Feature Intersected
A0210	OR 270 E	Coldwater Creek
F0131	MO 180 E	Coldwater Creek
Z0557	RT D E	BR RVR Des Peres

16.4 Deliverables

At a minimum, the Contractor shall submit the following to the Commission for review or approval:

Deliverable	Approval	Schedule	Reference Section
Final Maintenance of Traffic Plans provided by the Contractor	Yes	120 Calendar Days prior to start of Construction	16
Submit *Notice of Intent to Perform Work* form		2 Business Days Prior to Impacts	16.2
Submit *Notice of Over-dimension / Overweight* (Form Provided by MoDOT)		20 Calendar Days prior to restriction	16.2
Motor Carrier Services *Bridge Clearance Report* (Form Provided by MoDOT)		Prior to removal of restrictions and as close to bridge opening as practical.	16.2
Traffic Control Plans (contractor's responsibility)	Yes	120 Calendar Days prior to start of construction	16.1

17 MAINTENANCE DURING CONTRACT PERIOD

17.1 Maintenance Prior To Initial Contractor Control

The Commission will perform periodic bridge inspections and maintenance to keep the Project Bridge safe and operational until the Project Bridge is under Contractor Control.

17.2 Maintenance During Contractor Control

The Contractor will be responsible for the safety and all maintenance of the work site and bridge from mobilization until the Project Bridge is open to unimpeded traffic.