



### **ADDENDUM NUMBER ONE**

**DATE:** July 14, 2016

**OWNER:** Franklin County, Missouri  
400 East Locust Street  
Union, Missouri 63084

**SUBJECT:** Addendum Number One to Bend Road Bridge Replacement  
Federal Project No. BRM-9900(638)  
Cochran Project No. SC12-344

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This Addendum forms a part of the Bidding and Contract Documents and modifies the original Bidding Documents. **FAILURE TO ACKNOWLEDGE RECEIPT OF ADDENDUM MAY SUBJECT BIDDER TO DISQUALIFICATION.**

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#### **ITEM:**

1. **REPLACE:** In the Project Manual, **ITEMIZED BID FORM (4 pages)**, with the enclosed **REVISED ITEMIZED BID FORM (4 pages)**.
2. **REPLACE:** In the Project Manual, the Job Special Provisions, in its entirety (JSP-1 through JSP-40), with the enclosed Revised Job Special Provisions (JSP-1 through JSP-42)
3. **ADD:** To the Project Manual, In the Environmental and Cultural Permits and Clearances Section, the enclosed Categorical Exclusion Re-evaluation documents.
4. **REPLACE:** In the Plans, sheet Q-1 with the enclosed revised sheet Q-1.
5. **REPLACE:** In the Plans, sheet B-1 with the enclosed revised sheet B-1.
6. **ADD:** To the Plans, the enclosed Traffic Control Plan Sheet, TC-2.
7. **CLARIFICATION:** All Temporary Traffic Barriers (Type F), shall conform to plan sheet 617.20D of the current Missouri Department of Transportation Standard Plans for Highway Construction.

**ENCLOSURES:** REVISED BID FORM  
REVISED JOB SPECIAL PROVISIONS  
CATEGORICAL EXCLUSION RE-EVALUATION  
REVISED PLAN SHEET Q-1  
REVISED PLAN SHEET B-1  
PLAN SHEET TC-2

**END ADDENDUM NO. 1**

**ARTICLE 10****REVISED BID FORM PROPOSAL**PROJECT NAME: Bend Road Bridge Replacement

BID TIME \_\_\_\_\_

PROJECT LOCATION: Franklin County, Missouri

BID DATE \_\_\_\_\_

BIDDER NAME: \_\_\_\_\_

TO: Franklin County, Missouri ("Owner")

In response to the Invitation for Bids for Project No. BRM-9900(638), and in accordance with the Instructions to Bidders and other Bidding Documents, the undersigned Bidder declares that he has had an opportunity to examine the site of the Work and has carefully examined the Contract Documents therefore, including the Addenda identified below, and on the basis thereof, and being fully familiar with the local conditions affecting the Work, and upon written notice of award of contract, acknowledges and agrees to provide all labor, material, equipment, tools, management and supervision, safety and technical services, insurance, bonds and incidentals necessary or required for the faithful performance of the Contract Work in accordance with the above-referenced documents in a safe, timely and workmanlike manner for the following Base Bid Price:

**BASE BID:**

Dollars \_\_\_\_\_

(Amount in Words) \_\_\_\_\_

(\$ \_\_\_\_\_)

**DETERMINATION OF LOW BIDDER.** The Low Bidder will be determined by the total of the Base Bid.

**DETERMINATION OF DBE PERCENTAGE.** The DBE goal percentage will be based on the Base Bid total.

The Base Bid amount is more fully itemized as follows:

**ITEMIZED BID FORM**

Bid No.	Item No.	Description	Unit	Quantity	Unit Cost	Extended Cost	DBE Item *
1	2013000	Clearing and Grubbing	AC	7.3			
2	2022010	Removal of Improvements	LS	1			
3	2035000	Unclassified Excavation	CY	5,221			
4	2035500	Embankment in Place	CY	53,116			
5	2036000	Compacting Embankment	CY	53,116			
6	2042010	Settlement Gauge	EA	5			
7	3040504	Type 5 Aggregate for Base (4") (for roadway only)	SY	5,862			
8	3105003	Gravel (A) or Crushed Stone (B) (4") (for driveways only)	SY	1,537			
9	4010105	5 Inches, Bituminous Pavement (Driveway)	SY	537			
10	4011209	Asphalt Pavement (BP-1) (Surface Course) (2") (Echelon Paving)	TON	779			
11	4020520	Asphalt Pavement (Bituminous Base (Base Course) (2 - 3" Lifts)	TON	1,781			
12	5024006	Full Depth Pavement (Widening)	SY	583			
13	6061010	Type A Guardrail	LF	858			
14	6062300A	Transition Section, 6.5 Ft. Posts	EA	3			
15	6062400	Bridge Anchor Section	EA	3			
16	6063001	Crash Cushion Attenuator (9')	EA	1			
17	6063015	Type A Crashworthy Terminal End Section	EA	3			
18	6071041	Tubular Steel Drive Gates, 10' (including post)	EA	6			
19	6071042	Chain Gate and Posts	EA	1			
20	6071043	Mailbox relocation	EA	8			
21	6085006	Paved Concrete Approach 6"	SY	111			
22	6091051	Concrete Curb and Gutter	LF	167			
23	6096020	Furnishing Type 2 Rock Ditch Liner (12" Thick)	CY	185			
24	6096030A	Furnishing Type 3 Rock Ditch Liner (12" Thick)	CY	11			
25	6096042	Placing Type 2 Rock Ditch Liner	CY	185			
26	6096043	Placing Type 3 Rock Ditch Liner	CY	11			
27	6161025	Channelizer (trim line)	EA	100			
28	6161040	Flashing Arrow Panel	EA	2			
29	6161096	Changeable Message Sign	EA	2			
30	6162001	Portable Traffic Signal	EA	2			
31	6173601	Temporary Traffic Barrier (Type F), Contr. Furn./Retained	LF	175			
32	6181000	Mobilization	LS	1			

\*Contractor is required to indicate with a " \* " which line items will be performed by the DBE(s).

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**ITEMIZED BID FORM CONTINUED**

Bid No.	Item No.	Description	Unit	Quantity	Unit Cost	Extended Cost	DBE Item *
33	6240001	Pavement Geotextile	SY	6,924			
34	7261315	15" Class III Reinforced Concrete Pipe Culvert	LF	109			
35	7261324	36" Class III Reinforced Concrete Pipe Culvert	LF	52			
36	7261396	96" Class IV Reinforced Concrete Pipe Culvert	LF	147			
37	7320815	15" Precast Concrete Flared End Section	EA	10			
38	7320624	36" Precast Concrete Flared End Section	EA	2			
39	8061019	Silt Fence	LF	5,746			
40	8061021	Type I Ditch Check	EA	20			
41	8061026	Turbidity Barrier	LF	300			
					<b>Sub-Total Roadway Items</b>		
42	6161005	Construction Signs	SF	158			
43	6161030	Type III Moveable Barricade with Light	EA	12			
44	6208201	Type A Epoxy Pavement Marking, 4 in.	LF	9,576			
45	9031220	Relocate Sign with New Post	EA	5			
46	9035000	"Bike with Share the Road" (includes post and base)	EA	2			
47	9035001	"Reverse Turn" Sign (W1-3R) (includes post and base)	EA	2			
48	9035002	"Advisory Speed Plaque" Sign (W13-1) (includes post and base)	EA	2			
49	9035003	"One Direction Large Arrow" Sign (W1-6) (includes post and base)	EA	4			
50	9035004	"Object Marker" Sign (OM4-1) (includes post and base)	EA	4			
					<b>Sub-total Signing/Striping/Signal Items</b>		
51	8051000A	Seeding - Cool Season Mixtures	AC	4.4			
					<b>Sub-total Landscaping/Streetscaping Items</b>		

\*Contractor is required to indicate with a " \* " which line items will be performed by the DBE(s).

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**ADDENDUM 1 – REVISED JOB SPECIAL PROVISIONS**

(Job Special Provisions shall prevail over all other contract documents whenever in conflict therewith.)

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*B. Bradford Dunagan, PE*  
*7-14-2016*  
Date

Bradford Dunagan, P.E. #E-22970  
State of Missouri  
Registered Professional Engineer for  
Cochran



**1. GOVERNING SPECIFICATIONS – FEDERAL PROVISIONS**

The general requirements, provisions and technical specifications governing the completion of the work shall be the 2011, or latest, edition of the "Missouri Standard Specifications for Highway Construction", including all currently effective supplemental revisions and are made a part of this contract, although not reproduced herein. These documents are available on the Missouri Department of Transportation's webpage at [www.modot.mo.gov](http://www.modot.mo.gov) under "Business With MoDOT" "Standards and Specifications." The effective version shall be determined by the letting date of the project.

These bidding documents contain all current revisions to the bound printed versions and have important legal consequences. It shall be conclusively presumed that they are in the bidder's possession, and they have been reviewed and used by the bidder in the preparation of any bid submitted on this project.

The Job Special Provisions and the Construction Plans shall take precedence over all other documents whenever any conflicts exist. If a discrepancy exists between the Construction Plans and the Job Special Provisions, the Job Special Provisions will take precedence.

Unless otherwise stated, all references to "plans" shall refer to the Construction Plans provided with this contract.

The Federal Government is participating in the cost of construction of this project. All applicable Federal laws, and the regulations made pursuant to such laws, shall be observed by the Contractor. This contract requires payment of the prevailing hourly rate of wages for each craft or type of work required to execute the contract as determined by the Missouri Department of Labor and Industrial Relations, and requires adherence to a schedule of minimum wages as determined by the United States Department of Labor. For work performed anywhere on this project, the Contractor and the Contractor's subcontractors shall pay the higher of these two applicable wage rates. State Wage Rates, Information on the Required Federal Aid Provisions, and the current Federal Wage Rates are available on the Missouri Department of Transportation web page at [www.modot.mo.gov](http://www.modot.mo.gov) under "Business With MoDOT." Effective Wage Rates will be posted 10 days prior to the applicable bid opening. These supplemental bidding documents have important legal consequences. It shall be conclusively presumed that they are in the bidder's possession, and they have been reviewed and used by the bidder in the preparation of any bid submitted on this project.

**2. WORK ZONE TRAFFIC MANAGEMENT PLAN**

Work Zone Traffic Management Plans shall be submitted to the Engineer for review prior to the start of work. The Plans shall include the proposed traffic control measures, hours that the traffic control will be in place, actual construction activity working hours, and anticipated beginning and ending dates.

The Contractor shall notify the Engineer prior to lane closures or detours.

During all construction phases - all traffic control shall be according to the standards of the latest edition of the Manual on Uniform Traffic Control Devices developed by the Federal Highway Administration. At all times, the Contractor shall be responsible to follow the Work Zone Traffic Management Plan, and shall maintain signs, cones, lane delineators, and other facilities that may be necessary, even if not addressed on the Work Zone Traffic Management Plan, to comply with the MUTCD, and to protect the work and provide for safe travel through the construction area. Contractor trucks and equipment will not be allowed to drive on previously paved roadways.

In order to ensure minimal traffic interference, the Contractor shall schedule lane closures for the absolute minimum amount of time required to complete the work. Lanes shall not be closed until material is available for continuous construction and the Contractor is prepared to diligently pursue the work until the closed lane is opened to traffic.

Payment for all costs incurred in handling traffic during construction other than as provided for in the bid form will be considered incidental to the construction of the project.

### **3. PROJECT CONTACT FOR CONTRACTOR/BIDDER QUESTIONS**

All questions concerning this project during the bidding process shall be forwarded to the project contact listed below:

Mike Spalding  
737 Rudder Road  
Fenton, Missouri 63026  
(314) 842-4033  
[mbspalding@cochraneng.com](mailto:mbspalding@cochraneng.com)

### **4. EMERGENCY PROVISIONS AND INCIDENT MANAGEMENT**

The contractor shall have communication equipment on the construction site or immediate access to other communication systems to request assistance from the police or other emergency agencies for incident management. In case of traffic accidents or the need for police to direct or restore traffic flow through the job site, the contractor shall notify police or other emergency agencies immediately as needed. The engineer's office shall also be notified when the contractor requests emergency assistance.

Cochran Construction Manager  
Andy Elsperman  
(314) 842-4033

Cochran Project Manager  
Bradford Dunagan, P.E.  
(314) 842-4033

Franklin County  
Ronald J. Williams, P.E.  
Highway Administrator / Engineer  
(636) 583-6361

In addition to the 911 emergency telephone number for ambulance, fire or police services, the following agencies may also be notified for accident or emergency situation within the project limits.

Pacific Police Department  
(636) 257-2424

Pacific Fire Protection District  
(636) 257-3633

Meramec Ambulance District  
(636) 451-5816

Franklin County Sheriff Department  
(636) 583-2560

Missouri Highway Patrol  
(636) 300-2800

This list is not all inclusive. Notification of the need for wrecker or tow truck services will remain the responsibility of the appropriate police agency.

The contractor shall notify enforcement and emergency agencies before the start of construction to request their cooperation and to provide coordination of services when emergencies arise during the construction at the project site. When the contractor completes this notification with enforcement and emergency agencies, a report shall be furnished to the engineer on the status of incident management.

No direct pay will be made to the contractor to recover the cost of the communication equipment, labor, materials or time required to fulfill the above provisions.

## **5. Guidelines for Obtaining Environmental Clearance for Project Specific Locations**

This article provides guidelines for obtaining environmental clearance for disturbed areas such as:

Borrow Sites, Haul Roads, Burn Pits, Staging Areas and Spoil Sites at project-specific locations.

The necessary clearances for disturbed areas such as those referenced above shall be obtained prior to using these areas for projects. The contractor is encouraged to consider using material from previously disturbed locations (substantial disturbance) or disturbed areas that have previously been cleared, precluding the need to address most, if not all, of the issues described below. The contractor should include the federal project number on all correspondence. The following addresses the primary environmental issues related to clearance of disturbed areas such as borrow sites:

### **1. The Endangered Species Act**

The Federal Endangered Species Act protects rare species and their habitats. The U.S. Fish and Wildlife Service (USFWS) administers the Act. Violations of this act can result in extensive project delays and severe fines. To determine if an activity will impact any rare species or their habitats, contact the Missouri Department of Conservation's Policy and Coordination Section at (573) 751-4115 to request a query of the MDC Heritage Database. All queries must be accompanied by a good quality map illustrating the location of the proposed site with a description of the activity. Allow at least three weeks for a response to all requests.

If there are no known records of rare species or sensitive habitats at the proposed site, and it is unlikely that any will be impacted by the activity, the contractor will be given clearance to proceed. However, if rare species are known or likely to occur at the site, or known critical habitat exists, further coordination with MDC and the USFWS will be necessary. Written clearance from the U.S. Fish and Wildlife Service may be required before the project can proceed.

Missouri Department of Conservation (MDC)  
Planning Division  
P.O. Box 180  
Jefferson City MO 65102-0180  
Telephone Number (573) 751-4115 or FAX (573) 751-4495

U.S. Fish and Wildlife Service (FWS)  
Columbia Field Office  
101 Park DeVille Drive - Suite A  
Columbia, MO 65203-0007  
Telephone Number (573) 234-2131 or Fax (573) 234-2182

## **2. Floodplain/Regulatory Floodway**

An evaluation of floodplain impacts is mandated by Executive Order 11988, Floodplain Management, and subsequent federal floodplain management guidelines. When available, flood hazard boundary maps (National Flood Insurance Program) and flood insurance studies for the project area are used to determine the limits of the base (100-year) floodplain and the extent of encroachment.

The Federal Emergency Management Agency (FEMA) and Federal Highway Administration (FHWA) guidelines 23 CFR 650 have identified the base (100-year) flood as the flood having a one percent probability of being equaled or exceeded in any given year. The base floodplain is the area of 100-year flood hazard within a county or community. The regulatory floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood discharge can be conveyed without increasing the base flood elevation more than a specified amount. FEMA has mandated that projects can cause no rise in the regulatory floodway, and a one-foot cumulative rise for all projects in the base (100-year) floodplain. For projects that involve the state of Missouri, the State Emergency Management Agency (SEMA) issues floodplain development permits. In the case of projects proposed within regulatory floodways, a "No-Rise" Certification, if applicable, should be obtained prior to issuance of a permit.

Questions regarding floodplain and regulatory floodway should be addressed to:

SEMA  
P.O. Box 116  
Jefferson City, MO 65102  
(573) 526-9141

Documentation of consultation with SEMA regarding the presence of 100-year floodplain/regulatory floodway should be included in the final collection of information to be submitted to MoDOT staff.

## **3. Federal Emergency Management Agency (FEMA) Buyout Lands**

The Flood Disaster Protection Act of 1973, as amended by the Disaster Relief and Emergency Assistance Act of 1988 (The Stafford Act), identified the use of disaster relief funds under Section 404 for the Hazard Mitigation Grand Program (HMGP), including the acquisition and relocation of flood damaged property. The Volkmer Bill further expanded the use of HMGP funds under Section 404 to "buy out" flood damaged property, which had been affected by the Great Flood of 1993.

There are numerous restrictions on these FEMA buyout properties. No structures or improvements may be erected on these properties unless they are open on all sides. The site shall be used only for open space purposes, and shall stay in public ownership. These conditions and restrictions (among others), along with the right to enforce same, are deemed to be covenants running with the land in perpetuity and are binding on subsequent successors, grantees, or assigns. Any decision involving these properties should take into consideration that 2-3 years is necessary to process an exemption from FEMA to utilize this parcel. This exemption would likely be a permanent easement rather than a transfer of property. If any proposed site is located on a FEMA buyout property, an alternative site should be chosen.

#### **4. Farmland Protection**

In order to comply with the Farmland Protection Policy Act, which has the purpose of minimizing Federal programs' contributions to the unnecessary and irreversible conversion of farmland caused by nonagricultural uses, the Form AD-1006 will need to be completed. This can be accomplished through coordination with United States Department of Agricultural (USDA)-Natural Resources Conservation Service (NRCS), and the completion of Form AD-1006. To receive the Form AD-1006, call the NRCS State office in Columbia at (573) 876-9411. An aerial map of the site or sites will also be required with the area to be disturbed identified on the map. This aerial map can be obtained from the local SCS office. In some areas of the state this office may be located in an adjoining county.

The contractor will need to complete Parts I and III of Form AD-1006. The form should then be sent to the NRCS State Office for completion of Parts II, IV and V. The address for NRCS State Office is:

Mr. Dennis Potter  
State Soil Scientist  
Natural Resource Conservation Service  
601 Business Loop 70 West  
Parkade Center, Suite 250  
Columbia, MO 65203  
1-573-876-9411

After the NRCS office returns the form, the contractor will complete remaining Parts VI and VII. The contractor will provide a copy of the completed form to the MoDOT district contact to document compliance with the Farmland Protection Policy Act.

#### **5. Wetlands**

Federal executive order has decreed a national policy of "no net loss of wetlands." Under this policy, impacts to wetlands must be avoided if at all practical. Where wetlands are impacted, these impacts must be mitigated by construction or enhancement of a like quantity and quality of new wetlands. For these reasons, avoiding impacts to wetlands is a primary goal.

To determine whether wetlands occur on a site, contact the USDA, NRCS. The NRCS has identified and mapped wetlands as a requirement under the Food Security Act. These maps are available from county NRCS offices, usually located in the county seat. For all other non-farmland sites, consult the US Fish and Wildlife Service's Wetlands Map. If wetlands are identified on Food Security Act wetland maps, a site visit may be needed to confirm the location of wetlands. If there are no wetland impacts, no other action need be taken.

If there are any questions about the extent of wetlands in the event that wetlands cannot be avoided, contact the U.S. Army Corps of Engineers (COE). If wetlands cannot be avoided, a COE Section 404 permit would be processed through the appropriate COE district. There are five COE districts in Missouri. Information about COE district locations, addresses and phone numbers is available on the COE website.

#### **6. Water Quality/Land Disturbance**

The National Pollutant Discharge Elimination Systems (NPDES) program regulates construction activities where 1 acre or more of land is disturbed. If the project proponent has a general NPDES permit for all of their construction activities, this is adequate. If the project proponent does not have a valid general permit and the site to be disturbed is greater than 1 acre in size, a project-specific NPDES permit from DNR is required. If the project is entirely within MoDOT right of way, the

sponsor may use MoDOT's general permit. In either case, the sponsor will need to develop a site-specific stormwater pollution prevention plan for the project. The sponsor shall contact the Missouri Department of Natural Resources (DNR) NPDES Storm Water Program office at (573) 751-1300 or (800) 361-4827 for further directions. A few cities (Kansas City, Columbia, and others) and counties have obtained their own land disturbance permits from DNR for generic land disturbance purposes; see additional discussion on stormwater and erosion control in 136.4 Environmental and Cultural Requirements of the LPA Policy.

## **7. Hazardous Waste Sites**

More than likely, areas to be disturbed will be located in rural areas that have been used for agriculture or similar purposes. Hazardous wastes are most typically associated with commercial or previous industrial properties.

If the proposed area is basically farmland or pasture, and has not been used for any commercial activity or dumping, hazardous wastes are unlikely. The contractor should simply document the existing and historic land use of the parcel and tell how this assessment was obtained.

In nonrural, suburban or commercial areas a nonintrusive investigation may be used to "diagnose" the environmental conditions of a selected site. The following is a list of suggested items, but not inclusive, for a cursory nonintrusive investigation.

- Examine any noticeable contamination in the form of surface staining, oil sheen, odors, stressed vegetation, spills, leaks, illegal dumping, etc.
- Conduct interviews of local citizens and current owners to identify past land use practices and hazardous waste management practices.
- Consult with local and state (Missouri Department of Natural Resources, Hazardous Waste Program, 573-751-3176) environmental regulatory agencies to identify if any past problems (complaints, citations, etc.) have occurred at the site, if any permits/licenses have been filed for the site, or if enforcement actions have occurred.

If the above analyses produce negative results, the contractor should provide documentation to the MoDOT Design Division-Environmental Section as to who was contacted and the results of the contact. However, if through the search for information described above, potential problems are identified, it would be wise to locate another site.

The potential to encounter wastes from sites that are unknown should always be a consideration. Any unknown sites that are found will be handled in accordance with Federal and State Laws and Regulations.

## **8. Historic Preservation**

All jobs requiring environmental clearance for historic preservation (archaeological sites, buildings, and structures) must be reviewed and approved by the State Historic Preservation office (SHPO), Department of Natural Resources. To initiate SHPO's review and clearance of a proposed site for cultural resources, a "Section 106 Project Information Form" must be completed and submitted to SHPO along with a copy of a United States Geological Survey (USGS) topographic map indicating the location of the project. In addition, photographs of any structures that will be impacted must be provided. The "Section 106 Project Information Form" can be obtained from the SHPO website or requested from the SHPO by telephone, (573) 751-7858, or mail:

Missouri Department of Natural Resources

State Historic Preservation Office  
Attn: Section 106 Review  
P.O. Box 176  
Jefferson City, MO, 65102-0176

Based on the information supplied, SHPO may clear the project at that time or request that the contractor acquire the services of an archaeological consultant to conduct a historic preservation survey of the proposed area. A listing of currently acceptable and available archaeological consultants who can complete a survey if required can be viewed at the SHPO's website. Any questions can be directed to the Design Division-Historic Preservation Section, at (573) 751-0473.

## 9. Public Land

If borrow sites are proposed on any publicly owned land, contact the MoDOT district representative before proceeding. Section 4(f) of the Department of Transportation Act of 1966 (now codified as 49 U.S.C. 303 and 23 U.S.C. 138) protects certain public lands. Section 4(f) requires that all U.S. DOT-funded transportation projects must avoid impacts to public parkland and wildlife refuges (and cultural resources deemed eligible for the National Register of Historic Places), unless it is successfully demonstrated that no feasible and prudent alternative exists that avoid "use" or impacts to the park or refuge. It is strongly recommended that public lands not be considered as potential borrow sites.

Once the contractor has obtained all of the above information, it should be provided to the MoDOT district contact. The transmittal letter must include **county, route and job number** of the project, along with a map depicting the location and limits of the site(s).

## 6. UTILITIES JSP

For informational purposes only, the following is a list of names, addresses, and telephone numbers of the known utility companies in the area of the construction work for this improvement:

<u>Utility Name</u>	<u>Known Required Adjustment</u>
Missouri Natural Gas 6 Progress Parkway Union, MO 63084 (636) 584-8440	<u>NO</u>
Ameren UE 500 Independence Drive Union, MO 63084 (636) 583-7172	<u>NO</u>
City of Pacific – Water/Sewer 300 Hoven Drive Pacific, MO 63069 (636) 271-0500	<u>NO</u>
AT&T 507 E. Main Street Union, MO 63084 (636) 439-4140	<u>YES</u>

The existence and approximate location of utility facilities known to exist, as shown on the plans, are based upon the best information available to the Commission at this time. This information is provided by the Commission "as-is" and the Commission expressly disclaims any representation or warranty as to the completeness, accuracy, or suitability of the information for any use. Reliance upon this information is done at the risk and peril of the user, and the Commission shall not be liable for any damages that may arise from any error in the information. It is, therefore, the responsibility of the contractor to verify the above listing information indicating existence, location and status of any facility. Such verification includes direct contact with the listed utilities.

The contractor agrees that any effects of the presence of the utilities, their relocation, contractor's coordination of work with the utilities and any delay in utility relocation shall not be compensable as a suspension of work, extra work, a change in the work, as a differing site condition or otherwise including but, without limitation, delay, impact, incidental or consequential damages. The contractor's sole remedy for the effects of the presence of utilities, delay in their relocation or any other effects shall be an excusable delay as provided in Section 105.7.3. The contractor waives, for itself, its subcontractors and suppliers the compensability of the presence of utilities, delay in their relocation and any cost to the contractor, its subcontractors and suppliers in any claim or action arising out of or in relation to the work under the contract.

The contractor shall be solely responsible and liable for incidental and consequential damage to any utility facilities or interruption of the service caused by it or its subcontractors operation. The contractor shall hold and save harmless the Commission from damages to any utility facilities interruption of service by it or it's subcontractor's operation.

It shall be noted by the contractor that MoDOT is a member of Missouri One Call (800 Dig Rite). Some work on this project may be in the vicinity of MoDOT utility facilities, which includes but is not limited to traffic signal cables, highway lighting circuits, ITS cables, cathodic protection cables, etc. Prior to beginning work, the contractor shall request locates from Missouri One Call. The contractor shall also complete the Notice of Intent to Perform Work form located at the Missouri Department of Transportation website:

<http://www.modot.mo.gov/asp/intentToWork.shtml>

The contractor shall submit the form over the web (preferred method) or by fax to the numbers on the printed form. The notice must be submitted a minimum of 2 and a maximum of 10 working days prior to excavation just as Missouri One Call requires.

## **7. AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE AND FINAL ACCEPTANCE OF CONSTRUCTED FACILITIES**

**1.0 Description.** The contractor shall comply with all laws pertaining to the Americans with Disabilities Act during construction of pedestrian facilities on public rights of way for this project. An ADA Post Construction Checklist is provided herein to be utilized by the contractor for verifying compliance with the ADA law. The contractor is expected to familiarize himself with the plans involving pedestrian facilities and the ADA Post Construction Checklist prior to performing the work.

**2.0 ADA Post Construction Checklist.** The contractor can locate the ADA Inspection Checklist form on the Missouri Department of Transportation website:

[http://www.modot.mo.gov/business/contractor\\_resources/forms.htm](http://www.modot.mo.gov/business/contractor_resources/forms.htm)

**2.1** The checklist is intended to be a helpful tool for the contractor to use during the construction of the pedestrian facilities and a basis for the commission's acceptance of work. Prior to work being

performed, the contractor shall bring to the engineer's attention any planned work that is in conflict with the design or with the requirement shown in the checklist. Situations may arise where the checklist may not fully address all requirements needed to construct a facility to the full requirements of current ADA law. In those situations, the contractor shall propose a solution to the engineer that is compliant with current ADA law using the following hierarchy of resources: Americans with Disabilities Act Accessibility Guidelines (ADAAG), Draft Public Rights of Way Accessibility Guidelines (PROWAG), MoDOT's Engineering Policy Guidelines (EPG), or a solution approved by the Access Board.

**2.2** It is encouraged that the contractor monitor the completed sections of the newly constructed pedestrian facilities in attempts to minimize impacts that his equipment, subcontractors or general public may have on the tolerances as established in the checklist.

### **3.0 Coordination of Construction.**

**3.1** Prior to construction and/or closure on an existing pedestrian path of travel, the contractor shall submit a schedule of work to be constructed, which includes location of work performed, the duration of time the contractor expects to impact the facility and an accessible signed pedestrian detour during each stage of construction. This plan shall be submitted to the engineer for review and approval at or prior to the pre-construction conference.

**3.2** When consultant survey is included in the contract, the contractor shall use their survey crews to verify that the intended design can be constructed to the full requirements as established in the ADAAG. When ADAAG does not give sufficient information to construct the contract work, the contractor shall refer to the Draft PROWAG.

**3.3** When consultant survey is not included in the contract, the contractor shall coordinate with the engineer, prior to construction, to determine if additional survey will be required to confirm the designs constructability.

**4.0 Final Acceptance of Work.** The contractor shall provide the completed ADA Post Construction Checklist to the engineer at the semi-final inspection. ADA improvements require final inspection and compliance with the ADA Post Construction Checklist. Each item listed in the checklist must receive either a "YES" or an "N/A" score. Any item receiving a "NO" will be deemed non-compliant and shall be corrected at the contractor's expense unless deemed otherwise by the engineer.

**5.0 Basis of Payment.** The contractor will receive full pay of the contract unit cost for all sidewalk, ramp, curb ramp, median, island, approach work, cross walk striping, APS buttons, pedestrian heads and detectible warning systems that are completed during the current estimate period as approved by the engineer. Based upon completion of the ADA Post Construction Checklist, the contractor shall complete any necessary adjustments deemed non-compliant as directed by the engineer.

**5.1** No direct payment will be made to the contractor to recover the cost of equipment, labor, materials, or time required to fulfill the above provisions, unless specified elsewhere in the contract documents.

**5.2** No direct payment will be made to the contractor to recover the cost of the equipment, labor, materials, or time required to provide an accessible signed detour during the various stages and locations of construction.

## **8. CONSTRUCTION REQUIREMENTS**

The Contractor is responsible for stage construction of temporary and permanent drainage to prevent ponding and damage to work, subject to the approval of the Engineer.

The Contractor shall observe all legal load limit restrictions for all bridges on all state, county and local roadways.

**Access/Haul Roads.** All temporary access/haul roads to be constructed shall be approved by the Engineer and shall meet the conditions of the U.S. Army Corps of Engineers 404 Permit and Missouri Department of Natural Resources Section 401 Water Quality Certification issued for this project. After the temporary roads are no longer needed, the Contractor shall remove them and restore the ground to the original condition before construction. This may include clearing and grubbing, seeding and mulching the disturbed areas, temporary drainage structures, additional erosion control devices, fill material and rock or any other equipment, materials, or devices necessary to construct and remove temporary access/haul roads.

The Contractor is encouraged to visit the site in order to determine his preferred method of construction.

No direct payment will be made to the Contractor to recover the cost of equipment, labor, materials or time required to construct and remove haul roads, and to meet all permit requirements and conditions.

## **9. FERTILIZING**

Fertilizing shall be in accordance with Sections 801. In accordance with Section 801, the following application criteria shall be used:

Complete commercial fertilizer of a neutral character, with some elements derived from natural sources, containing not less than 12 percent phosphoric acid, 12 percent potassium and 12 percent nitrogen. Provide nitrogen in a form that will be available during the initial period of growth. Fertilizer shall be applied at the recommended rate.

## **10. POLLUTION, EROSION AND SEDIMENT CONTROL**

Pollution, Erosion and Sediment Control shall be in accordance with Section 806. The Contractor shall be responsible for furnishing, installing, maintaining and removal of the control measures as shown on the plans or as directed by the Engineer. Additional control measures may be necessary to ensure compliance with the intent of these specifications.

Contractor shall also provide and designate a 15 feet wide by 15 feet long (minimum) concrete truck washdown area within the project limits to contain the runoff from this operation. The area shall be dug out and shall be bermed on the sides and downhill end. The concrete truck washdown area shall be deep enough to provide sufficient volume to contain all the concrete waste resulting from the washout operations and to prevent the runoff from contaminating the stream in the event of a substantial rainfall. The concrete truck washdown area will be lined with polyethylene sheeting at least 10 mils thick. The polyethylene lining shall be free of holes, rips or other defects. Silt fence shall be installed around the outside of the bermed area as an added precaution. It is the Contractor's responsibility to inform the concrete supplier of this requirement and enforce the proper use of the concrete truck washdown area. Location of the concrete truck washdown area shall be approved by the Engineer and shall be situated so that rainfall runoff does not flow directly into the

washdown area. The concrete truck washdown area shall also be located at least 50 feet and as far as practical from the stream, storm drains or any other bodies of water.

The concrete truck washdown area shall be maintained by the Contractor to provide a minimum of one foot of freeboard. Maintenance shall include the removal and disposal of hardened concrete in accordance with the Solid Waste Management requirements of the County. Existing facilities must be cleaned or additional facilities constructed when the washout is 75 percent full.

Materials used to construct the concrete truck washdown area will become the property of the Contractor and shall be removed and disposed of offsite. Holes and depressions shall be backfilled and restored in conformance with the Standard Specifications.

## **11. ALTERED QUANTITIES**

The Owner reserves the right to make changes in plan details which may vary the accepted quantities from those shown on the Itemized Bid Form.

The Contractor shall accept, as payment in full, payment at the original Contract unit bid prices for the accepted quantities of work done. No allowance will be made for any increase expense or loss of expected profit suffered by the Contractor resulting directly from such altered quantities or indirectly from expenses derived by handling small quantities of materials or performing operations within restricted areas. No allowance shall be made for any increased expense or loss of expected profit suffered because of the anticipated use of specific equipment which was not used.

## **12. INCIDENTAL ITEMS**

Project coordination, preliminary site investigation, submittal requirements, general administrative duties, scheduling and product shipping and handling are considered incidental to the contract and no direct payment will be made for this work.

A partial list of work items to be considered incidental to the construction shall include, but not be limited to:

- Any traffic control items, other than those listed in the bid form, necessary to meet the standards of the MUTCD shall be considered incidental to the contract.
- Stripping as defined in Section 2000.
- Protection of trees.
- Temporary walkways and bridges.
- Hauling and disposal off site of all excavated material, regardless of type.
- Storm sewer testing, identification tape, sheeting and bracing required and backfill.
- Concrete footings for new signs or sign relocations.
- All utility adjustments.
- Asphalt tack and fabric tack coat.
- Any saw cutting.
- Joint sealing.
- Construction site cleanup.
- Temporary pavement markings.
- Maintenance of lawns or landscaping as required in the specifications.

If there is no line item shown in the Itemized Bid Form, any work shown in the Plans or Project Manual shall be considered as a subsidiary obligation of the Contractor covered under the other contract items.

**13. ASPHALT CEMENT PRICE INDEX**

The MoDOT provision allowing Asphalt Cement Price Indexing will be offered for this project. The provision is as follows:

Adjustments will be made to the payments due the Contractor for any plant mix bituminous base, plant mix bituminous pavement, plant mix bituminous surface leveling, asphaltic concrete pavement and ultrathin bonded asphalt wearing surface that contains performance graded (PG) asphalt binder when it has been determined that the monthly average price for the midpoint of the published prices of PG64-22 for St. Louis, Missouri area and Kansas City area has fluctuated from the monthly average price of the month the project was bid. The St. Louis, Missouri area and Kansas City area prices will be obtained from the Asphalt Weekly Monitor® published by Poten & Partners Inc. The monthly base price will be the price from the last published Asphalt Weekly Monitor® prior to MoDOT's monthly bid opening. The monthly base price, established prior to the monthly bid opening, shall apply to payment estimates for the following month.

The adjusted contract unit price will be applied to the actual amount of PG asphalt binder used by the Contractor for all asphalt items. The adjustment will be applied to projects that have a quantity of asphalt wet ton mix pay items or converted square yard quantity over 1000 tons. For projects that are paid for with square yard pay items, the adjustments will be made for applicable tons calculated based upon the plan square yard quantity and thickness converted to tons excluding the 1:1 wedge. The percentage of virgin PG asphalt binder as shown in the job mix formula will be the basis for adjustments for any asphalt mix type placed on the project during the monthly index period. The effective asphalt binder obtained from the use of Recycled Asphalt Pavement (RAP) and/or Recycled Asphalt Shingles (RAS) will not be eligible for adjustment. The base price index for PG64-22 will be applied to the asphalt mix for mixes using any PG asphalt binder.

Basis of Payment. To determine the adjustment for any material specified in this provision the following formula will be used.

$$A = (B \times C) \times (D - E)$$

Where: A = Adjustment for mix placed during monthly average index period

B = Tons of Mix Placed during the monthly average index period

C = % of virgin PG asphalt binder as listed in the job mix formula in use

D = monthly average price at time mix placement

E = monthly average price at time of bid

The engineer will make adjustment payments, as defined above, for the applicable work completed during each month except for projects on which the contractor is being charged liquidated damages, due to working beyond the project completion date. In this case, the "D" value used for the price adjustment will be either the last "D" value prior to the date that liquidated damage assessment began or the current monthly "D" value, whichever is lower. If the contractor is being charged liquidated damages due to the contract being beyond the project completion date and the current months "D" value results in a deduction, then the current monthly "D" value will be used.

Optional. This provision is optional. If the bidder wishes to be bound by this provision, the bidder shall execute the acceptance form in the Bid. Failure by the bidder to execute the acceptance form will be interpreted to mean election to not participate in the Asphalt Cement Price Index. If the Asphalt Cement Price Index is accepted, PG asphalt binder for the project will not be eligible for a material allowance.

**14. CONTRACTORS DAILY WORK SCHEDULE**

Work hours will be 7:00 a.m. through 7:00 p.m., Monday through Friday. All other times shall be preapproved by the Owner at least 48 hours in advance of work.

In all cases, the Contractor shall notify the Engineer sufficiently in advance of operations, in order to provide for suitable inspection of the preparation work performed by the Contractor. In no case shall the Contractor be permitted to begin operations without prior approval by the Engineer.

The Engineer shall be notified as soon as practical of any postponement due to weather, material or other circumstances.

The Contractor shall submit the entire and completed project construction schedule to the Engineer one week prior to the pre-construction meeting. The schedule will specifically identify the order of the work, and will be used as a tool to communicate the order and phasing of construction activities with the residents, property owners, and business owners in the area.

**15. CONSTRUCTION ACTIVITY/NOTIFICATION LETTERS**

The Contractor will be required to notify affected property owners, by letter, at the start of construction and when project is approximately 75% complete. Additionally, the Contractor shall provide notification at the following stages of the project:

1. When the road will be closed to through traffic at the new bridge abutment.
2. When the road will be closed to through traffic at the large culvert.
3. When the road will be closed to through traffic at the existing bridge.
4. When paving operations will take place.

The Contractor shall mail or hand-deliver each letter one week prior to each phase. Letters shall be given to each household and business to be affected by construction.

The letters should give an expected start date and timeframe, and state that there could be delays due to weather. In the event of delays of more than three days, a new letter shall be delivered. The Engineer shall approve all letters prior to distribution.

**16. UTILITY CONFLICTS**

Underground structures, facilities, and utilities have been plotted from available surveys and records. Therefore, their locations must be considered approximate only. There may be others, the existence of which is presently not known. The contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of various utility companies and, where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must call the appropriate utility company at least 48 hours before any excavation to request exact field location of utilities. Location, relocation and connection of the utilities shall be coordinated with the utility companies.

In the event that it is determined that there is a previously unknown conflict with an existing Utility, the Contractor shall immediately stop work at that location and notify the County.

The Contractor will be required to coordinate with the conflicting Utility as necessary to remedy the conflict.

The AT&T telephone/FO cable crosses the river on the existing bridge. AT&T shall be allowed to install the new cable and establish service prior to removal of the existing bridge and approaches.

The Contractor shall be responsible for installation of new telephone conduit on the new bridge. After the new telephone conduit is complete, the Contractor shall provide written notice to AT&T and the Engineer that the conduit is ready for cable installation. The Contractor shall allow AT&T and their contractors unrestricted access, for 15 Working Days, to install the telephone/FO cable. These working days shall be a part of the total working days allowed for the contract and shall be identified in the Contractor's schedule. The Contractor's schedule shall be provided to AT&T a minimum of 30 calendar days prior to the day on which AT&T will be given access.

No direct payment will be given for the coordination beyond that which is already provided for with existing unit cost bid items, however the Contractor will be given additional working days based on the duration of time that it takes the Utility Company to relocate their facilities.

#### **17. CHANGEABLE MESSAGE SIGNS**

The Contractor shall provide a minimum of two changeable message signs for the duration of the construction.

The Contractor shall be responsible to update the changeable message signs on a daily basis. The language shall be pre-approved by the Engineer in an effort to effectively communicate, in advance, the future traffic disruption and possible traffic delays.

Messages regarding road closures, lane closures, street cuts, and paving operations shall be posted at least a week in advance.

Changeable message signs will be located at strategic locations at both ends of the construction activity, as approved by the Engineer.

#### **18. PORTABLE TRAFFIC SIGNAL**

##### General:

The Contractor shall provide two portable traffic signals that can be available at any time as necessary during the construction. Any time that there are lane closures, portable traffic signals shall be utilized to maintain two-way traffic, unless otherwise approved by the Engineer.

The portable traffic signal system is a temporary traffic control device for controlling the flow of traffic in single lane, two-way traffic situations. The system shall have no less than 2 individual units linked together through either radio controlled, hard wired, or microwave communications to comprise the system. The portable traffic signal system shall comply with the requirements of the MUTCD and shall be installed and utilized as necessary to complete the work or as required by the Engineer.

The Contractor shall submit to the Engineer a plan for installing and maintaining signals that shall depict the Contractor's intent for maintaining traffic flows, including phase sequencing and timings. The Contractor shall receive approval of the plan from the Engineer prior to beginning work that would necessitate installing the proposed temporary signalization.

Maintenance and operation of these temporary signals shall be the responsibility of the Contractor.

When the portable traffic signals are not in use, the contractor shall move the equipment to a secure location, sufficiently away from the construction site to prevent interference with the construction or local traffic.

Requirements:

1. **Signal Heads:** Each trailer mounted portable traffic signal shall contain 2 signal heads. Each signal head shall contain standard ITE approved signal indications with a minimum diameter of 12 inches. Each signal indication, including the arrow indications, shall be independently illuminated and shall emit a single color; red, yellow, or green. Illuminate each signal indication with light emitting diodes (LED's). The typical arrangement of the signal indications shall comply with the MUTCD.
2. **Signal Head Placement:** The bottom of a signal head and any related attachments located over a travel lane shall have a minimum distance of 15 feet above the pavement. The top of the signal head shall not exceed a distance of 25.5 feet above the pavement. The bottom of the signal head of the lower signal shall have a minimum distance of 8 feet above the grade elevation of the travel lane.
3. **Controller:** The controller shall be an electronic unit housed in a weatherproof, rust resistant box, with a keyed lock and a light for night operation. The unit shall have a jack that will allow direct communications between the on-board controller and an IBM compatible personal computer. This unit shall also have an LCD display screen that will allow the operator to review the status of the system.
4. All radio communications between multiple trailer mounted units shall comply with all FCC regulations.
5. The controller shall provide default modes for the system to operate in when necessary. The default modes shall be "Red Flash" and "Yellow Flash". Failure of the controller, such as a power loss and total shut down of the system, shall require removal of the signal system from the roadway. When the system enters into a default mode or total shut down, the system shall have the capability to provide notification to the personnel responsible for the system status by contacting the pager(s) of the responsible personnel.
6. **Operational Requirements:** The portable signal system shall have the capability to operate in either a fixed timed mode, a vehicle actuation mode, or a remote control mode. In the fixed timed mode the system will operate in accordance with preset times programmed into the controller by the operator. In the vehicle actuation mode the system will operate in accordance with information inputs received from vehicle detectors. In the remote control mode the system will operate in accordance with information inputs received from a manual radio remote control unit.
7. When operating in the actuation mode, the system shall have the capability for pre-timed operation, traffic actuated operation, a variable green time interval dependent upon vehicle actuations, and programmable yellow clearance and red clearance intervals.
8. **Power Source:** The system shall obtain the electrical power necessary for operation from the battery system, a power source supplied by solar power, or an adaptable 110 V AC or 120 V AC power source.
9. If necessary, the Contractor shall make arrangements with the local utility company for temporary electrical service. The Contractor shall also be responsible for the costs of connections and disconnections and energy costs. If electrical service is not available, the Contractor shall provide a generator capable of continuously operating for at least 24 hours. The

Contractor shall demonstrate the signal's operational procedures and reliability to the Engineer for approval prior to beginning work necessitating use of the equipment.

10. Trailer and Accessories: Each trailer shall be properly equipped in compliance with local law governing motor vehicles. The minimum requirement for lights and reflectors shall include turn signals, dual tail lights, and brake lights. The trailer shall be equipped with Safety chains meeting SAE J-697 standards. Both the trailer and the signal supports shall be painted Federal Standard No. 595, Orange No. 12246.
11. Each trailer shall be equipped to minimize overturning from wind and various terrain conditions when in the operating position. Equip each trailer with 4 crank type leveling jacks. Each trailer shall be sufficiently chained to an anchoring device or one wheel shall be removed to discourage unauthorized removal during times when the contractor's personnel are not on site.

**Measurement and Payment:**

Portable Traffic Signal. The quantity measured shall be the number of accepted portable traffic signals used for the duration of the project. All costs associated with the purchase, rental, installation and maintenance shall be considered completely covered by the unit price bid for Portable Traffic Signal.

**19. ROAD/LANE CLOSURES**

The Contractor will be required to maintain a minimum of one-lane, two-way traffic at all times, except for Road Closures as allowed below or as preapproved by the Engineer.

Extended Time Road Closures will be allowed during construction operations for:

1. Construction of Bent #4. (4 WEEKS MAX.)
2. Removal and Replacement of 8' diameter culvert pipe and construction of the embankment from the new bridge to Sta. 30+00. (3 WEEKS MAX.)
3. Excavation, Grading and Paving from Sta. 10+50 to Sta. 14+00. (3 WEEKS MAX.)

Road closures are considered to be an extended time closure if the roadway cannot be reopened at the end of construction activities each day.

Contractor will be allowed to close the road during paving operations. Phasing and detour plans shall be submitted to the Engineer and approved, 7 days prior to commencement of paving activities.

The contractor shall meet MUTCD standards for all Road Closures. See the Traffic Control Plan sheets for details.

Lane closures will be allowed at the Contractor's discretion with approval from the Engineer. The Contractor will be required to provide a portable traffic signal during lane closure activities. One lane of roadway, with two-way traffic, shall be maintained at all times during these operations. For temporary, short term, lane closures, the Contractor will be required to provide a minimum of two competent flagmen for the duration of the lane closure.

**20. DRIVEWAY APPROACH ACCESS**

The Contractor shall notify any Business, Residence or Property Owner by letter, one week prior to beginning construction that is expected to affect or limit access.

The Contractor shall schedule his work such that at no time during the life of this Contract will any driveway be denied access for any reason other than the curing of the pavement.

If a Business or Property owner has two entrances, only one entrance will be allowed to be reconstructed at a time.

The Contractor shall be responsible for maintaining access to all side roads, commercial and private entrances at all times during construction, unless full entrance closure is allowed as noted below. All residents east of the river shall have access to their properties via the road to the east from Pacific, except for the time needed to replace the 8' pipe culvert, which time shall be a maximum of 3 weeks closure period.

**Commercial and Private Entrances (20' wide or less)** – excavation shall be completed in one calendar day. Immediately following excavation activities, Contractor shall provide Temporary Access. Concrete forming and pouring shall be completed in one calendar day. Concrete shall contain high early strength additives and must achieve a strength of 3,500 psi in two days.

**Commercial Entrances (greater than 20' wide)** – shall be constructed one half at a time. Excavation, forming and pouring activities for each half shall follow time constraints listed above. Concrete shall contain high early strength additives and must achieve a strength of 3,500 psi in two days.

For all Private Entrances, the time from the beginning of excavation to the pouring of the driveway approach shall not exceed 14 days.

**Temporary Access** – MoDOT specified Type 5 aggregate, at a minimum thickness of 6" compacted, shall be used for temporary access and shall be considered incidental to the contract. Contractor shall install and compact the Type 5 aggregate in a sufficient manner, and to the Engineer's satisfaction; to prevent vehicle bottoms scraping the roadway, driveway, and parking lots. No separate payment will be made for the placement, maintenance or removal of said access. If said access is not supplied as set out above, the County will supply said access with its own forces, without notification to the Contractor, and will deduct such costs from the sums due the Contractor.

## **21. NO PARKING SIGNS**

The Contractor shall be responsible to deliver notification to the residents regarding no parking on streets prior to operations. Temporary "No Parking" signs noting the date of construction activity shall be provided and installed at minimum intervals of 100 feet and maximum intervals of 200 feet, 48 hours in advance of work. The signs will be supplied by the Contractor and shall be approved by the Engineer prior to placement. The signs shall show the date and, if appropriate, the times of the parking restrictions.

The signs will be removed and properly disposed of by the Contractor approximately two (2) hours after construction activities have been completed or as directed by the Engineer.

## **22. CLEANING UP**

The Contractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by his operations. The Contractor shall not "stockpile" any material on the job site.

At the end of each work day the Contractor shall remove all remaining waste materials from and about the project as well as all tools, construction equipment, machinery and surplus materials, and shall clean all surfaces (streets, sidewalks, curbs, tree boxes, private property, and cars) and leave

the job site "broomclean" or its equivalent. **Failure to comply with this section will result in an immediate Stop Work order.**

### **23. STORAGE OF EQUIPMENT**

Equipment and materials shall be stored at locations as directed and approved by the Engineer.

### **24. COORDINATION WITH PUBLIC SERVICES**

The Contractor will be responsible to notify: a) school district, b) ambulance district, c) fire and police, d) the City's Trash Hauler and e) the United States Postal Service of the construction sequence and schedule. The Contractor shall coordinate trash collection for the residents during construction activities.

### **25. DUST CONTROL**

The Contractor shall take all reasonable precautions to avoid the creation of excessive dust as a result of construction operations. Should excessive dust result from the Contractor's operations, or complaints regarding dust be received from private property owners, the Contractor will be required to take immediate corrective action to alleviate and resolve the dust concern. Should any private property be damaged by excessive dust as a result of the Contractor's operations, the damage shall be repaired at the Contractor's expense. No direct payment will be made to the Contractor for any reason of their compliance with this provision.

### **26. PORTABLE TOILET FACILITIES**

The Contractor shall furnish and maintain an adequate number of portable restroom facilities for his employees for the duration of the project.

### **27. DISPOSAL OF EXCESS MATERIAL**

The Missouri Solid Waste Management Law and its ancillary regulations, 10 CSR 80-1 through 9, provide for the proper disposal of solid waste. The Contractor must comply with the provision of applicable regulations during highway and bridge construction activities. These activities oftentimes involve the generation of "excess material," which in many instances can also be considered "solid waste" under the definitions of the Department of Natural Resources (DNR) Solid Waste Management Program.

Many types of excess material are not regulated by the DNR's Solid Waste Management Program. Such "clean fill" includes uncontaminated soil, rock, sand, gravel, concrete, minimal amounts of woods and metal and inert solids as approved by rule or policy by DNR's Solid Waste Management Program.

These materials are basically not considered solid waste, and may be disposed of without prior approval from DNR's Solid Waste Management Program. Other substances, which are not included in this list of materials, may require special approval by the DNR's Solid Waste Management Program prior to disposal in areas other than approved landfills.

Disposal of any other material, which does not fit this "clean fill" definition, must be in accordance with DNR's (or local) regulations and it shall be the Contractor's responsibility to provide appropriate documentation (i.e., landfill receipts or a private landowner waiver letter or statement from DNR) that the disposal will not violate applicable laws or regulations.

No direct payment will be made for any expense incurred by the Contractor by reason of his compliance with these requirements.

## **28. INSPECTION WAIVER**

The County requires inspection of materials and products and requires certifications from the manufacturers or suppliers for compliance with the specifications. Supplier's material certification shall be required for the following items:

- i. Asphalt:  
    Mix Design Required  
    Certified Weight Tickets  
    Tack & Prime
- ii. Concrete:  
    Mix Design
- iii. Reinforcing Steel:  
    Mill Certification
- iv. Pipe and Flared End Sections
- v. Piling:  
    Mill Certification

Submittal – The Contractor shall submit certifications, signed by the material suppliers and the Contractor, that all materials meet the requirements of the specifications. Mix designs shall be submitted to the Engineer for approval, prior to the placement of the material. The Contractor shall provide the additional material necessary for job control testing. No additional payment will be made to the Contractor for this material.

The County will be responsible for the following job control testing:

- 1. Concrete (test cylinders, air content and slump)
- 2. Grading and Base compaction

## **29. ACCEPTANCE OF PRECAST, PRESTRESSED MEMBERS**

The following procedures have been established for the acceptance of precast, prestressed concrete girders, slab panels, MSE wall systems and other structural members. Shop drawings shall be submitted for review and approval to the engineer of record for the local public agency (LPA). The approval is expected to cover only the general design features, and in no case shall this approval be considered to cover errors or omissions in the shop drawings. The LPA or their engineer of record has the option of inspecting the precast units during fabrication or requiring the fabricator to furnish a certification of contract compliance and substantiating test reports. In addition, the following reports will be required:

- 1. Certified mill test reports, including results of physical tests on the prestressed strands and reinforcing steel, as required.
- 2. Test reports on concrete cylinder breaks.

The LPA or their engineer of record shall verify and document that the dimensions of the precast units were checked at the jobsite and found to be in compliance with the shop drawings.

**30. PRE-POUR MEETING**

The Contractor is advised that there will be a mandatory pre-pour meeting to be held on the project site a minimum of two working days and a maximum of four working days prior to the Contractor's anticipated deck pour date. The Contractor's project superintendent and a representative of the Contractor's concrete supplier will be required to attend this meeting. The meeting will cover the pre-pour checklist and other topics. The anticipated agenda and required checklist items may be found at:

<http://www.modot.mo.gov/business/manuals/documents/PourChecklist.pdf>

**31. CONCRETE BRIDGE SLAB**

**General.** The concrete slab shall be constructed in accordance with the Standard Specifications, these Special Provisions and in conformity with lines, grades, thickness and typical cross sections shown on the bridge plans.

The slab will be bid per square yard of slab concrete complete, including all slab concrete and reinforcing steel, plain and epoxy coated.

**Construction Method.** The slab shall be constructed in accordance with Section 703 of the Standard Specifications and these Special Provisions.

The reinforced concrete slab shall be constructed of concrete and Grade 60 reinforcing. Final design strength shall be as indicated on the plans.

All materials used for the curing of the bridge slab concrete shall be in accordance with Section 1055. The curing of the bridge deck shall be in accordance with Section 703.

The Contractor shall conduct his operations in such a manner that no surface crazing or shrinkage cracking of the concrete occurs. In the event that surface crazing or shrinkage cracking occurs, the surface will be rejected or shall be corrected by such methods as a polymer concrete overlay or other approved methods as directed by the Engineer.

The concrete bridge slab shall be textured using conventional methods as described in Section 703 prior to application of the interim curing compound.

The Contractor shall seal the concrete bridge deck using the scale prevention treatment as outlined in Section 703.3.8 and the materials used shall be in accordance with Section 1053.

**Method of Measurement.** The area of the concrete slab is based on the dimensions as shown in the plans and computed to the nearest square yard. This area is measured transversely from out-to-out of slab and longitudinally from fill face to fill face.

The estimated quantities for Slab on Steel represent the quantities used by the County in preparing the cost estimate for concrete slabs. Variations may be encountered in these estimated quantities, but these variations cannot be used for an adjustment in the contract unit price. Each bidder is urged to prepare their own estimate of quantities before submitting their bid.

Final measurement will not be made, except for authorized changes during construction or where appreciable errors are found in the contract quantity per square yard. The revision or correction will be computed and added to or deducted from the contract quantity.

**Basis of Payment.** The amount of completed and accepted work, measured as provided above, will be paid for at the contract unit price per square yard for Slab on Steel which will include full compensation for furnishing and placing all forms and any surface preparation required, furnishing and placing all concrete and reinforcing steel for the concrete slab, and all labor, equipment, tools and incidentals necessary to complete the work.

### **32. RIGHT TO INSPECT WORK BY FHWA AND MoDOT**

Representatives of the Missouri Department of Transportation (MoDOT) and the Federal Highway Administration (FHWA) may make inspections of the work. The Contractor shall grant them access to all parts of the work. Representatives of MoDOT will conduct a final inspection on this project.

### **33. PERMITS - ARMY CORPS OF ENGINEERS**

The construction to be performed under this project is subject to the terms and conditions of the U.S. Army Corps of Engineers 404 Permit. A copy of this permit is attached following these Job Special Provisions.

### **34. EMBANKMENT SURCHARGE AND SETTLEMENT**

As much as 12" of settlement due to consolidation of the existing soils is possible due to the additional weight of the proposed embankment. For this reason it is necessary to surcharge the embankment for a minimum period of 90 days prior to driving any pile within the embankment.

The embankment shall be constructed to an elevation 18" higher than profile grade elevation within the roadbed and over Bent 1 for a distance of 400' from the bridge. This surcharge can be tapered out gradually to nothing at the edges of the embankment in all directions.

Settlement Gauges meeting the requirements of Section 204 of the Standard Specifications and conforming to Standard Plan Sheet 204.00D shall be installed at locations designated by the Engineer. The Contractor shall be responsible for the installation and protection of the settlement gages, and shall provide the Engineer access to monitor the gauges when needed by the Engineer. Payment for the Settlement Gauges shall be as bid item "2042010 Settlement Gauge".

After construction of the embankment and surcharge, the Engineer will monitor the settlement gauges for a period of 90 days. If the settlement rate is not acceptable after the 90 day period, additional time will be allowed to reach an acceptable settlement rate. If no other major work items can be performed during this waiting period, no working days will be assessed.

The quantity of material required for the surcharge is not included in the quantities. No additional payment for providing, placing or removing the surcharge material will be made. This work will be considered incidental to the unit bid price for "Embankment in Place".

The Contractor shall create a schedule, in working days, and submit to the Engineer for approval, prior to the pre-construction meeting. This schedule shall include the 90-day waiting period within the overall contract working day allowance.

### **35. CONTRACTOR SURVEYING AND STAKING**

The Contractor shall be responsible for construction staking. The Engineer will provide the initial horizontal and vertical control stakes for the Contractor's use. Initial control staking will only be performed one time. The Contractor shall be responsible for preserving and transferring the control stakes for his own use. Contractor shall reimburse the Engineer for any additional staking required after the initial control staking.

### **36. CRASH ATTENUATOR SYSTEM**

#### **I. GENERAL SPECIFICATIONS**

The Crash Attenuator System shall be designed and installed to protect the concrete end post of the concrete bridge railing, 13" wide. The system shall be bolted to the concrete approach slab with a maximum length of 16'. The system shall comply with the description, performance criteria and test criteria as stated below.

#### **II. DESCRIPTION OF SYSTEM**

##### **A. General**

The crash attenuator system shall consist of energy absorbing cartridges surrounded by a framework of steel guardrail which can telescope rearward during head-on impacts. The system shall have a center monorail which will resist lateral movement during side angle impacts and a backup which will resist movement during head-on impacts. The nose shall consist of a formed plastic nose wrap and an energy absorbing cartridge.

##### **B. Component Description**

1. A bay describes a section of the system consisting of an energy absorbing cartridge, a diaphragm, two fender panels and fasteners.
  - a. The outside of each cartridge shall be fabricated from a weather resistant plastic. The actual quantity of each shall be determined by the system design speed.
  - b. The diaphragms shall be made from steel sections. Support legs shall be welded to the steel sections. Ski-shaped plates shall be welded to the bottom of the support legs. The diaphragms shall be designed to lock onto and be guided by a ground-mounted, center monorail support structure.
  - c. The fender panels shall be fabricated from 10 gauge steel Quad-beam sections. The rear of each fender panel (the panel end furthest from the nose of the assembled system) shall be tapered to help maximize performance during wrong-way, redirective impacts. Each fender panel shall be drilled and slotted in accordance with the manufacturer's specifications so that when assembled in the field, the front end (the end closest to the nose of the assembled system) shall be bolted to a diaphragm or hinge plate (depending on width of system). The rear of each fender panel shall overlap the next rearward fender panel and be connected to the diaphragm or hinge plate of the next bay by means of a bolt and washer. The bolt fits through the long horizontal slot in the forward fender panel. This permits the movement, front to back, of one set of fender panels relative to the panels in the underlying, next rearward bay.
2. The monorail support structure shall be made of steel and be anchored per manufacturer's instructions, to a specified concrete pad. The monorail shall prevent lateral movement, vertical movement and overturning of the diaphragms during design impacts.
3. The nose section shall contain a nose cover and an energy absorbing cartridge and is not counted as a bay. The nose cover shall be made from a plastic material formulated to resist weathering. The nose shall attach to the front diaphragm. Standard color shall be yellow.
4. The backup shall be made of steel and be attached to concrete or an integral tension strut framework, and shall be available in nominal widths of 24".

##### **C. Material Specifications**

1. Metal work shall be fabricated from either M1020 Merchant Quality or ASTM A-36 steel. After fabrication, metal work shall be galvanized in accordance with ASTM A-123. All welding shall be done by or under the direction of a certified welder.
2. The system shall be assembled with galvanized fasteners. All bolts, nuts, and washers shall be Commercial Quality "American National Standard" unless otherwise specified.

### III. PERFORMANCE CRITERIA

- A. For head-on impacts into the nose, a system shall be provided which is capable of meeting the occupant risk criteria as recommended in NCHRP 350. For vehicles weighing between 820 and 2000 kg [1,810 and 4,410 lbs], the theoretical impact velocity of a hypothetical front seat passenger against the vehicle's interior (calculated from vehicle acceleration and 600mm [24"] forward displacement) shall be less than 12m/s [39.4 ft/sec], and the vehicle's highest 10 millisecond average acceleration subsequent to the instant of the hypothetical passenger impact shall be less than 20 G's.
- B. The system shall be capable of redirecting 2000 kg [4,410 lbs] vehicles which impact the sides of the system at speeds up to 70 km/h [43 mph] at angles of 20 degrees for both right-way and wrong-way impacts (angles measured from system's longitudinal centerline). The system shall be capable of redirecting 820 kg [1,810 lbs] vehicles which impact the sides of the system at speeds up to 70 km/h [43 mph] at angles of 15 degrees. (See Test Criteria below.)
- C. The system shall be designed and constructed so there is no solid debris from the system which can create a hazard on the roadway after either head-on or side angle design impacts.

### IV. TEST CRITERIA

The system shall have been fully tested per the recommended criteria set forth in National Cooperative Highway Research Program (NCHRP) Report 350, 1993, Test Level 2 for redirective, non-gating terminals and crash cushions.

### V. DESIGN AND SELECTION CRITERIA

- A. Design, selection and placement of crash cushions shall conform to The American Association of State Highway and Transportation Officials (AASHTO) Publication, "Roadside Design Guide" 1996.
- B. Installation of the Crash System attenuators shall be accomplished in accordance with the Manufacturer's recommendations.

## 37. REVISIONS TO MoDOT STANDARD SPECIFICATIONS

Modifications to the 2011 Missouri Standard Specifications for Highway Construction shall be as listed herein.

### SECTION 101.2 DEFINITIONS OF TERMS

Delete the term "Commission" and its associated definition and substitute the following:

If the words "Commission" or "The Missouri Department of Transportation" are used in the Missouri Standard Specifications for Highway Construction, the word shall mean the Contracting Agency acting by and through any of its authorized representatives, including MoDOT, the Owner, or Consulting Engineer.

**SECTION 104 – SCOPE OF WORK**

Delete Section 104.10.3 in its entirety and substitute the following:

Right of way marker posts or markers and property pins damaged by the contractor's operations shall be replaced at the contractor's expense and installed in accordance with Section 602 and the standard plans. Replacement for damaged right of way marker plaques will be furnished by the contractor.

**SECTION 105 - CONTROL OF WORK**

Delete Section 105.1- Authority and Duties of Commission in Contract Administration - items (a) through (h) that pertain exclusively to MoDOT and not to the County.

Revise 105.4 - Coordination of Contract Documents. - such that the governing ranking will be as follows:

- (a) Job Special Provisions
- (b) Project Specific Drawings
- (c) General Conditions
- (d) Revisions to MoDOT Standard Specifications
- (e) General Special Provisions
- (f) Supplemental Specifications
- (g) Standard Specifications
- (h) Standard Drawings
- (i) Bid Items or Quantities

Delete Section 105.8 through Section 105.8.2 and substitute the following:

The engineer will set initial field control consisting of bench marks and control monuments. The contractor shall be responsible for the preservation of all bench marks and control monuments, and if any of these bench marks or control monuments are carelessly or willfully destroyed or disturbed, the cost of replacing them may be charged to the contractor. These bench marks and control monuments will constitute the initial field control by and in accordance with which the contractor shall establish other necessary controls and perform the work in the correct position to correspond to the information shown on the plans and given by the engineer during the progress of the work. Elevations shown on the drawings and referred to in the specifications are based on the benchmarks shown. The contractor shall employ competent personnel for making position, gradient and alignment determinations and measurements.

Delete Section 105.10.2 and substitute the following:

Inspections and job control tests will generally be made by the engineer on the following items of work. It shall be the responsibility of the contractor to notify the engineer by 3:00 P.M. of the day preceding any operation which affects these items.

- Initial Layout
- Removal of Existing Structure
- Pile Driving
- Footing Excavation
- Reinforcing Steel Placement
- All Concrete Operations
- All Asphalt Operations

Girder Erection  
All Base Rock Operations  
All Earthwork Operations  
All Roadway Surfacing Operations  
Post-Tensioning Material Placement  
Post-Tensioning Stressing  
Cutting of Tendon Ends  
Grouting of Stressing Pockets

If any operation which affects the above mentioned items is to be performed on a Monday, notification must be made to the engineer by 3:00 P.M. of the preceding Friday. The lack of supervision or inspection by the engineer shall not relieve the contractor of the responsibility to construct the project according to the plans and specifications. Any work performed or materials used without authorization by the engineer may be ordered removed and replaced at the contractor's expense.

## **SECTION 106 - CONTROL OF MATERIAL**

Add Section 106.1.4.1 that reads:

Unless otherwise specified, all materials shall be subject to visual inspection and job control tests, as determined by the engineer, and shall be certified by the material supplier that the material supplied conforms to the requirements of these specifications. All certifications shall make reference to the specific project, and shall contain the supplier's name and address.

Add Section 106.1.4.2 that reads:

Prior to approval and use of any material, the contractor shall furnish manufacturer's certifications, which state that the material supplied conforms to all of the requirements of these specifications. The certifications shall include, or have attached, specific results of laboratory tests for specified physical and chemical properties as determined from samples representative of the material. The engineer reserves the right to sample and test any material. Acceptance will be based on the certification, visual inspection and the results of any tests the engineer may perform.

Delete Section 106.12 - Pre-Acceptance List of Material and Sources - in its entirety.

## **SECTION 109 – MEASUREMENT AND PAYMENT**

Delete Section 109.1 and substitute the following:

Unless otherwise specified hereinafter, all work performed under the contract will be paid for on contract quantity basis. When the quantity of any item that is to be paid for on a contract quantity basis is found to include errors, or when an authorized revision of the plan is made, the quantity will be corrected before making final payment. The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Delete Section 109.6 in its entirety.

Delete Section 109.7.2 through 109.7.2.4 and substitute the following:

**109.7.3** Payment may be withheld or nullified in whole or part to such extent as may be necessary to protect the Owner from loss on account of:

- a. Failure to properly submit material certifications and substantiating test reports required under Sec. 106.1.4.1 and Sec. 106.3.
- b. Failure to properly submit certified copies of labor payrolls required under "SECTION 110 "STATE WAGE RATE REQUIREMENTS"
- c. Defective work not remedied.
- d. Failure of the Contractor to properly make payment to suppliers or subcontractors for material and/or labor.
- e. A reasonable doubt that the contract can be completed for the balance then unpaid.
- f. Damage to another Contractor.

Delete Section 109.11.2 and substitute the following:

All costs claimed must be adequately documented when measuring additional equipment expenses (i.e. ownership expenses) arising as a direct result of a delay caused by MoDOT, the Owner, or the Consulting Engineer. Use of equipment rental rate guides for this purpose is prohibited. Actual records kept in the usual course of business, measuring actual increased ownership expenses pursuant to generally accepted accounting principles is the only acceptable method.

#### **SECTION 110 – STATE AND FEDERAL WAGE RATES AND OTHER REQUIREMENTS**

Add Section 110.5:

The contractor shall be responsible for the submittal of payrolls and certifications for all subcontractors.

#### **SECTION 203 - ROADWAY AND DRAINAGE EXCAVATION, EMBANKMENT AND COMPACTION**

Modify Section 203.1.6.1 of Section 203.1.6 – Borrow – as follows:

Replace the first sentence with the following: Borrow will consist of approved material required for the construction of embankment or for other portions of the work, and shall be obtained from borrow areas shown on the plans, from areas designated by the engineer, or from other approved sources.

Modify Section 203.4 as follows:

Delete the reference in Section 203.4.1 that states, "Finishing by hand methods will not be required":  
Replace with the following:

Hand raking or fine grading by mechanical means of the disturbed areas shall be required to remove debris and stones. The soil shall be tilled to a depth of 4" and graded to a reasonably smooth surface. In section 203.4.1.1, Field Stone, the maximum size of permissible field stone shall be changed from 4 inches (100 mm) maximum to 1 inch (25 mm) maximum.

#### **SECTION 206 – EXCAVATION FOR STRUCTURES**

Delete Section 206.5.1 and substitute the following:

Final measurement of Class 1 Excavation will not be made unless there is an authorized change from plan location resulting in a different quantity. Measurement of Class 2 Excavation will be made to the

nearest 1/2 cubic yard for each structure of that volume of material actually removed from within the limits herein established. The volume measured will be limited by vertical planes 18 inches (450 mm) outside of and parallel with the neat lines of footings, tie beams, or overhangs of structures classed as bridges or retaining walls. The upper limits of the volume measured will be the specific elevation indicated on the plans. The lower limits of the volume measured will be the bottom of the footings, bottom of seal courses, or 18 inches below the bottom of tie beams and overhangs. For timber bents, the excavation will be measured within the horizontal limits shown on the plans to the bottom of the backing supports for end bents, and to the bottom of the sway bracing for intermediate bents.

Delete Section 206.5.3 and substitute the following:

Final measurement of Class 4 Excavation for box culverts, small retaining walls and miscellaneous structures will not be made unless there is an authorized change from plan location resulting in a different quantity or there is an authorized change averaging more than 6 inches (150mm) in the foundation elevation. If a revision is made or an appreciable error is found in the contract quantity, the revision or correction will be computed and added to or deducted from the contract quantity. Excavation classification will not change if a substitution of a drainage structure type is approved. Prior to performing any work paid as "Class 4 Excavation in Rock", the Contractor shall determine the accuracy of the plan quantities, and, if the Contractor desires to be paid for quantities other than plan quantity, the Contractor shall provide the Engineer with written notice of revised quantities, including complete calculations.

## **SECTION 216 – REMOVALS FOR BRIDGE STRUCTURES**

Add Section 216.10.2.1 as follows:

The existing bridge shall not be removed until AT&T has been allowed 15 Working Days to install new cable on the new bridge. Refer to the Utilities section for further requirements.

It is the Contractor's responsibility to determine the means and methods to be employed in removal of the structure. The means and methods employed by the Contractor shall be approved by the Engineer. The use of explosives will not be allowed on this project. The Contractor shall accept full responsibility for the safety and feasibility of his operations and the approval of the Engineer shall not relieve the Contractor of this responsibility.

All activities performed by the Contractor (or his Subcontractor's) or any other work related to this project must be performed without any disturbance to the areas identified as "Mussel Concentrations" on the plans. Within these areas, nothing can be placed (dropped) in the water and nothing shall be done that would disturb the streambed. Barges or floating structures will not be allowed to operate in these areas.

No work will be allowed to be performed in the river during the following times:

- entire month of June,
- last eight (8) days of July
- entire month of August.

Barges (or platforms) may not be placed in the river during these restrictions, but barges (platforms) already placed in the river may remain, provided that they are properly anchored and that no activity is being performed. Work outside of the river may continue during these times as long as all activities are outside of the current edge of water and no disturbance is caused in the water.

The east span of the old bridge must be removed without allowing anything to fall into the water. The methods employed by the Contractor must be adequate to prevent any and all material from entering the water. This includes, but is not necessarily limited to, dirt, sawdust, asphalt, paint chips, metal parts, torched slag, grinder shavings, or any other material that might be created or disturbed during the removal of the structure.

The west span of the old bridge may, at the contractor's option, be dropped in the river and subsequently removed. If this method of removal is employed, all material dropped in the river must be removed. This work is subject to the restrictions in June, July and August specified above.

The Contractor shall submit his proposed methods, schedule and plan for the removal of the bridge to the Engineer for review a minimum of 14 days prior to beginning the bridge removal. The bridge removal plan shall include his proposed method of removing and dismantling the existing superstructure as well as his proposed method of demolishing and removing the substructure. Also the plan shall include the proposed method of disposal.

### **SECTION 304 - BASES AND AGGREGATE SURFACES**

Delete Section 304.3.5 - Substitutions For Aggregate Base - in its entirety.

Add Section 304.4.1.2.5. For projects with less than 7500 SY of aggregate base, the requirements for Contractor QC/QA listed in Section 304.4.1 will be eliminated. The Engineer shall, however, continue with QC/QA requirements and any aggregate base areas found not to be in compliance with requirements shall be corrected at the Contractor's expense.

Modify Section 304.6 - Basis of Payment – as follows:

The accepted quantities of aggregate base course of the thickness and type specified will be paid for at the contract unit price for each of the pay items included in the contract. Payment will be considered full compensation for water used in performing this work.

### **SECTION 501 – CONCRETE**

Delete Section 501.2.1 and 501.2.2 and substitute the following:

Prior to approval and use of the material, the contractor shall furnish a certification stating that the material supplied conforms to all the requirements of these specifications. The certification shall include or have attached typical results of tests for specified properties which have been made on representative samples of the materials to be supplied. The engineer reserves the right to sample and test any material. Acceptance will be based on the certification, visual inspection and the results of any tests the engineer may perform.

Section 501.3 Mix Design – Change the last sentence to read:

“The Contractor may be required to submit representative samples of each ingredient to the Engineer for laboratory testing.”

Delete Section 501.4 and substitute the following:

Sampling of fresh concrete shall be in accordance with methods established by the consulting engineer. The entire sample for slump and air tests, and for molding compressive strength specimens, may be taken at one time or at two or more regular intervals during the discharge of the entire batch. Acceptability of the concrete for slump, air content, and strength requirements, will be determined by

tests on these samples. Tests on these samples shall be in accordance with methods established by the consulting engineer. Handling and curing of the specimens shall conform to methods established by the consulting engineer.

Revise Section 501.8.2, the fifth sentence, "The Engineer may allow the use of the test concrete for appropriate incidental construction", shall be deleted. In its place add the following sentence – "Test concrete shall not be used in construction".

Delete Section 501.8.9 and substitute the following:

Consideration will not be given to permitting the use of non-agitating equipment for the transportation of central mixed concrete.

Revise Section 501.8.10 to delete the Type 1 field laboratory at the proportioning plant.

Add Section 501.10.3.1 that reads:

The engineer will determine air content of normal weight concrete in accordance with methods established by the consulting engineer.

Add Section 501.10.3.2 that reads:

The engineer will generally test air content of concrete at least once for each pour in excess of 50 cubic yards of superstructure B-1 or B-2 concrete.

Delete Section 501.11 and substitute the following:

If specified in the contract, an approved retarder shall be provided and incorporated into the concrete. If not specified in the contract, the use of an approved retarder may be permitted upon approval by the consulting engineer. Approval for the use of any agent will be contingent upon satisfactory performance on the work and permission for its use may be withdrawn at any time satisfactory results are not obtained. The use of a retarder for extending the delivery or discharge time of the concrete, or for modifying temperature requirements for placement, will not be approved. Retarder shall be added in accordance with Sec 501.10.3 by means of a dispenser conforming to the requirements of that section. No direct payment will be made for furnishing the retarder, incorporating it into the mix, or for placing or finishing the concrete involved.

Delete Section 501.12 and substitute the following:

At the option of the contractor, Type A water-reducing admixtures may be used in any concrete. The use of superplasticizers may be permitted upon written approval of the consulting engineer.

Add Section 501.16.1 through Section 501.16.9 that reads:

**501.16.1** Unless otherwise specified, all concrete shall be subject to visual inspection, job control tests, and compressive strength tests performed on job control samples. These inspections and job control tests and samples will be performed by the engineer, at no expense to the contractor, except as provided in Sec. 105.11.3.

**501.16.2** Concrete materials and operations will be tested and inspected as the work progresses. Failure to detect any defective work or material shall not in any way prevent later rejection if such defect is discovered nor shall it obligate the engineer for final acceptance.

**501.16.3** Test specimens will be molded and cured from each sample in accordance with methods established by the engineer.

**501.16.4** Compressive strength will be determined by tests made in accordance with methods established by the engineer. One specimen will be tested at about 7 days for information and/or acceptance. If the test results of the specimen tested at about 7 days meets or exceeds the minimum strength requirements specified, subsequent tests may be waived. If one specimen in a test manifests evidence of improper sampling, molding or testing, it will be discarded and the strength of the remaining cylinder will be considered the test result.

**501.16.5** The engineer will generally make at least one strength test for each 100 cu yd, or fraction thereof, of each mix design of concrete placed in any 1 day. When the total quantity of concrete with a given mix design placed in any one day is less than 50 cu yd, the strength tests may be waived by the engineer if, in his judgment, adequate evidence of satisfactory strength has been demonstrated for the same kind of concrete supplied by the same concrete plant.

**501.16.6** The engineer will report strength test results to the contractor after they are performed. All test reports will include the exact location in the work at which the batch represented by a test was deposited.

**501.16.7** If the compressive strength test results indicate that the concrete represented by the sample does not meet the minimum strength required by the plans or by these specifications, the engineer will determine the corrective measures to be made.

CLASS OF CONCRETE	COMPRESSIVE STRENGTH PSI, (28 DAY)
A-1	5000
B	3000
B-1	4000
B-2	4000

Generally, any concrete that does not meet the minimum strength requirements will not be accepted and shall be removed. Any and all work and materials required to remove the defective work and make the necessary corrective measures shall be at the contractor's expense. Any additional testing or samples required by the engineer to determine the relative strength of the concrete in place in the structure shall be paid by the contractor.

**501.16.8** The contractor shall provide and maintain for the sole use of the engineer adequate facilities for safe storage and proper curing of concrete test specimens on the project site for the first 24 hours.

**501.16.9** The concrete supplier shall furnish with each load of concrete a certification which states that approved materials meeting the requirements of these specifications have been proportioned and mixed in accordance with the contract requirements. The supplier shall state in the certification the class of concrete being furnished, necessary project identification and the date. The concrete will be subject to acceptance or rejection by visual inspection at the job site.

## **SECTION 502 - PORTLAND CEMENT CONCRETE BASE AND PAVEMENT**

Delete Section 502.3.7 - in its entirety.

Revise the last sentence in Section 502.11.1.1 to read, "The QCP shall be approved by the County prior to placing any concrete."

Delete Section 502.15.3 Smoothness Adjustment – in its entirety.

Delete Section 502.15.3.1 Incentives – in its entirety.

Table I shall be revised so that “Percent of Contract Price” does not exceed 100.

Delete Sections 502.15.6 Width, 502.15.7 Pay Factors, and 502.15.8 PWL Determination Table in their entirety.

### **SECTION 503 – BRIDGE APPROACH SLAB**

Add Section 503.5.1 that reads:

The contractor shall be responsible for verifying the Bill of Reinforcing Steel. Any errors or omissions contained in the Bill of Reinforcing Steel shall not be a basis for an adjustment in contract unit price.

### **SECTION 601 - FIELD LABORATORIES**

Delete this Section in its entirety.

### **SECTION 605 - UNDERDRAINAGE**

Delete Sections 605.10.2.5 through 605.10.2.5.3 in their entirety. Video inspection of edge drains will not be required.

### **SECTION 611 – EMBANKMENT PROTECTION**

Delete Section 611.30.3 and substitute the following:

A trench at the toe of the slope shall be excavated to the elevation as shown on the plans, or to a depth of 2 feet if not shown. Generally, the excavation of stream banks shall be held to a minimum. Rock blanket shall not be placed on stream banks steeper than 2' horizontal for each 1' vertical (2:1), but may be placed on existing slopes flatter than 2:1 unless otherwise noted. Built up slopes shall be compacted to a uniform density as required for adjacent material. The rock or broken concrete shall be placed on the slope, to the specified thickness, elevation, and extent, and manipulated so that most of the flat sides are in contact, thereby eliminating large voids. The finished surface of the blanket shall present an appearance free from segregation and with a proportionate quantity of larger pieces showing. If reinforced concrete components are broken into pieces for rock blanket, any protruding reinforcing bars shall be cut by any method.

Add Section 611.30.3.1 as follows:

When work is being performed in the river on or near the west bank, turbidity barriers (silt curtains) shall be used to isolate the areas in which work is being performed. The type of curtain used shall be appropriate for the flow and velocities at the time the work is being performed. The barriers shall extend from the water surface to the streambed and shall prevent the passage of any waterborne particles. The barriers shall be located and placed such that no disturbance will occur outside the barriers.

When work is being performed on the west bank, BMP's (silt fences, sediment basins, ditch checks, etc.) shall be installed and updated as the work progresses. BMP's shall prevent silt and sediment from entering the river. These BMP's shall be maintained and documented to be effective until after all rock blanket has been placed and initial growth of seeded areas becomes effective.

No work will be allowed to be performed in the river during the following times:  
entire month of June,  
last eight (8) days of July  
entire month of August.

Delete Section 611.30.4 and substitute the following:

The contract quantity listed in the proposal shall be the basis for payment. Final measurement will not be made except for authorized changes during construction which significantly change the contract quantity or where appreciable errors are found in the contract quantity. The revision or correction will be computed and added to or deducted from the contract quantity.

Delete Section 611.30.5 and substitute the following:

The accepted quantities of rock blanket shall be paid for at the unit price included in the contract. No direct payment will be made for excavating the trench, for slope preparation, or for backfilling and compaction. This payment shall be for securing the source, quarrying, excavating, breaking, hauling the material to the site and placing of the accepted quantities.

Delete Section 611.50.4 and substitute the following:

The contract quantity listed in the proposal shall be the basis for payment. Final measurement will not be made except for authorized changes during construction which significantly change the contract quantity or where appreciable errors are found in the contract quantity. The revision or correction will be computed and added to or deducted from the contract quantity.

Delete Section 611.60.4 and substitute the following:

The contract quantity listed in the proposal shall be the basis for payment. Final measurement will not be made except for authorized changes during construction which significantly change the contract quantity or where appreciable errors are found in the contract quantity. The revision or correction will be computed and added to or deducted from the contract quantity.

## **SECTION 617 – CONCRETE TRAFFIC BARRIER**

Add Section 617.20.4.5 that reads:

**617.20.4.5** Concrete traffic barriers in conformance with Standard Drawing 617.20D shall be provided and placed by the Contractor in situations where the traveling public could come within 10' of an excavation and as approved by the Engineer. It is the Contractor's responsibility to place the barriers where required at the end of daily construction activities.

Delete Section 617.20.5 and substitute the following:

**617.20.5 Method of Measurement.** Measurement of temporary traffic barriers will be made to the nearest ½ linear foot for each continuous length and totaled to the nearest linear foot.

Delete Section 617.20.6 Basis of Payment and substitute the following:

**617.20.6 Basis of Payment.** Accepted temporary concrete traffic barriers will be paid for at the contract unit price for the pay item included in the contract when the barriers are implemented as part of the traffic control plan. No additional payment will be made for moving the barriers or relocating the barriers to another location.

**SECTION 620 - PAVEMENT MARKING**

Delete the second sentence of Section 620.2.3.1, which states that the engineer will measure the reflectivity of the pavement marking with a mobile retroreflectometer. Inspection will be done visually.

Replace Section 620.2.4.1 with the following:

620.2.4.1 Retroreflectivity inspection will be performed visually. Spotty or lack of reflectivity when driven during a nighttime visual inspection will be cause for reapplying the pavement marking at no additional cost to the County.

**SECTION 624 – GEOTEXTILE CONSTRUCTION**

Add Section 624.2.1 that reads:

All Type 1 (Subsurface Drainage) geotextile material shall be AASHTO Class A for Subsurface Drainage unless otherwise specified.

Add Section 624.2.2 that reads:

All Type 3 (Erosion Control) geotextile material shall be AASHTO Class A for Erosion Control unless otherwise specified.

Add Section 624.2.3 that reads:

Securing pins shall be steel and shall be adequate diameter and length to be properly inserted and hold the fabric securely in place until the rock blanket is completed.

Delete Section 624.3 and substitute the following:

Areas on which geotextile is to be placed shall be reasonably smooth and free from mounds, windrows, debris or projections. Geotextile shall be placed in a manner to minimize wrinkles or creases in the material. When used for erosion control or to separate soil and granular material, geotextile shall be placed loose to the contour of the ground so as to be free to adjust to minor indentations and protrusions as rock or fill is placed against or over the material but secured sufficiently to preclude sliding or displacement during fill placement and under traffic.

Add Section 624.3.1 that reads:

Geotextile shall be secured in place by securing pins driven perpendicular to the slope. Pins shall be inserted approximately 4 inches from the edges of the strips and shall be spaced not more than 3 feet apart along all edges.

Add Section 624.3.2 that reads:

Type 3 (Erosion control) geotextile shall be protected from damage due to the placement of large rock by limiting the height of drop of the material to no greater than three feet. Regardless of the placement technique, the contractor shall demonstrate that the placement technique will prevent damage to the geotextile. Placement of material shall begin at the toe and proceed up the slope.

Delete Section 624.4 and substitute the following:

The bid item quantity for geotextile stated in the contract shall be the basis for payment. Final measurement will not be made except for authorized changes during construction which significantly change the contract quantity, or where appreciable errors are found in the contract quantity. Any revisions or corrections due to authorized changes will be computed by the engineer and added to or deducted from the contract quantity. The measurement of geotextile will be made to the nearest square yard (square meter) of surface area covered by the completed mat of geotextile.

## **SECTION 627 - CONTRACTOR SURVEYING AND STAKING**

Revise the second sentence in Section 627.2.3 to read:

Except as specified herein, the Contractor shall provide all other staking including but not limited to, centerline stakes, right of way stakes, additional lines, connections, ramps, slope stakes, grade stakes, construction benchmarks and reference stakes locating all drainage, roadway and bridge structures, and utilities necessary for the successful prosecution of the work.

Add the following sentences immediately following the above:

Right of way staking shall be a maximum of 200 feet apart on tangents, at angle changes in the right of way and a maximum of 50' feet apart in horizontal curves, on both sides of the road, and shall be done at the initial start of the project to facilitate relocation of utilities. Right of way stakes shall indicate cuts and fills to final grade for help in determination of utility placement. The Contractor shall maintain construction stakes for the duration of the project at no additional cost to the County.

## **SECTION 702 – LOAD-BEARING PILE**

Delete Section 702.2.6 and substitute the following:

Prior to approval and use of the material, the contractor shall furnish manufacturer's certifications, which state that the material supplied conforms to all of the requirements of these specifications. The certifications shall include, or have attached, specific results of laboratory tests for specified physical and chemical properties as determined from samples representative of the material. The engineer reserves the right to sample and test any material. Acceptance will be based on the certification, visual inspection and the results of any tests the engineer may perform.

Add Section 702.2.6.1 that reads:

For precast and precast-prestressed concrete pile the contractor shall furnish a certification along with substantiating test reports from the pile manufacturer stating that the material furnished complies with the all the applicable requirements of Sec 501.2.1 and Sec 702.2.1 of the Standard Specifications. All testing required by Sec 702.2.2 and Sec 702.2.3 of the Standard Specifications shall be performed by the manufacturer and test results verifying conformance with Sec 702.2.2 and 702.2.3 of the Standard Specifications shall be furnished to the engineer prior to delivery of the material to the project site. All certifications and test reports shall be signed, sealed, and stamped in accordance with the laws relating to architects and professional engineers.

## **SECTION 703 - CONCRETE MASONRY CONSTRUCTION**

Add Section 703.2.3 that reads:

The contractor shall notify the engineer in writing, prior to the use of the material, of the source and proportions of each mixture he proposes to furnish. The statement shall include the following for each separate mix design proposed:

- (a) The types and sources of aggregates.
- (b) Type and source of cement.
- (c) Scale weights of each aggregate proposed as pounds per cubic yard of concrete.
- (d) Quantity of water proposed as pounds or gallons per cubic yard of concrete.
- (e) Quantity of cement proposed as sacks per cubic yard of concrete. If the cement is to be measured by the sack, the weight per sack shall be shown.
- (f) The type and quantity of air entrainment admixture.
- (g) The type and quantity of any other admixtures proposed.

Delete Section 703.3.3 and substitute the following:

Placing concrete in any unit of a structure shall not begin until preparations for placing and finishing are satisfactory to the engineer. Concrete shall be placed in the forms in layers as near final position as practicable with minimum handling. Generally, each placement shall be completed in a continuous operation with no interruption in excess of 45 minutes between the placing of contiguous portions of concrete. Where a finishing machine is to be used, it shall be moved over the area to be finished, immediately prior to placing concrete in any bridge deck pour, to facilitate checking reinforcement cover and slab thickness. This checking shall be made in the presence of the engineer and with the screeds in the finishing position. Placing of concrete for bridge decks shall proceed uniformly for the full width of the placement. Once begun, placing of concrete in the superstructure of a continuous or monolithic series of spans shall proceed as rapidly as good construction practice will permit until all the concrete in that series is placed. Sufficient vibrators shall be on hand to insure continuous placement of the concrete without delay. They shall not be used for moving concrete from place to place nor shall they penetrate or disturb previously placed layers of concrete which have taken initial set. Vibration shall not be prolonged until it causes segregation of the materials. Reinforcing steel protruding through transverse or longitudinal headers shall not be disturbed until the concrete has attained sufficient strength to prevent debonding.

Add a sentence to the end of Section 703.3.8 -Surface Sealing for Concrete – that reads: “Surface sealing shall not be applied until after all defects in the bridge deck surface have been patched per the Engineer’s requirements.”

Add Section 703.3.13 that reads:

Spread footings shall be keyed into rock or shale to the minimum depth indicated on the plans and in accordance with the requirements of Sec 206.4.2. If the elevation of suitable rock or shale deviates from any assumed elevations indicated on the plans, the footings shall be adjusted to meet the requirements of Sec 206.4.2 or as directed otherwise by the engineer. Excavation for structure will be paid for as indicated in Section 206 of the Standard Specifications and these General Special Provisions. For lowered footings, payment will be allowed for additional concrete and reinforcing steel necessary to extend the column to the top of the footing in the lowered position. If the contractor desires to furnish at his expense additional concrete to thicken footings to provide the revised length in lieu of extending the column, he may do so with payment being allowed only for concrete and reinforcing steel as described above.

## **SECTION 705 PRESTRESSED CONCRETE MEMBERS FOR BRIDGES**

Add Section 705.2.1 that reads:

All work and materials shall be subject to visual inspection and shall be approved by the engineer prior to final acceptance.

Add Section 705.4.3 that reads:

Surface finish shall be in accordance with the requirements of Sec. 703.3.5.8, except that no cracks of any kind in post-tensioned members shall be filled before the stressing is completed. The consulting engineer will determine the kind, type and extent of cracks and surface defects such as honeycomb and chipped edges or corners, that will be tolerated. Repairs may be permitted with mortar in accordance with Sec. 703.3.2.9. Commercially available patching materials shall be used only if approved by the consulting engineer. Unless indicated otherwise, the top surface of members shall be scored transversely to depth of approximately 1/4" with a wire brush, stiff broom or other approved method. A 3" wide strip across the top flange of the member at each end and at 1/4 points of girders shall be smooth finished to accurate top flange depth. After removal of hold down devices, holes shall be plugged. Exposed reinforcing steel shall be thoroughly cleaned of all concrete before delivery of members. Mechanical benders, without the use of heat, shall be used to bend the strand on girders.

## **SECTION 706 - REINFORCING STEEL FOR CONCRETE STRUCTURES**

Delete the last sentence in Section 706.2.2 that allows flame cutting of uncoated reinforcement. Reinforcement shall be saw cut or sheared.

Add Section 706.2.2.1 that reads:

A copy of the fabricator's bar list or detail shop drawings for fabrication shall be furnished to the consulting engineer prior to reinforcing steel placement. The bar list or shop drawings shall include reinforcing steel grade, size, length and bending information by bar mark number. Reinforcing steel identification by concrete pour number or location shall be identified. Accessories and reinforcing steel furnished as accessories or stock steel and not to be included as bid item pay quantities shall be separate and clearly identified as such.

## **SECTION 712 - REINFORCING STEEL FOR CONCRETE STRUCTURES**

Add Section 712.2.1 that reads:

Inspection of fabricated material and quality control shall be performed by the fabricator at no cost to the owner. The contractor shall be required to submit Certified Mill Test Reports representing all structural steel, Non-Destructive Testing Reports, and a certification stating that all materials and procedures are in accordance with the specifications, with all documentation signed, sealed and stamped in accordance with the laws relating to architects and professional engineers. The fabricator shall provide non-destructive testing by personnel who are currently approved by the Missouri Department of Transportation. The fabrication plant shall be certified by the American Institute of Steel Construction as a Class 3 plant or all welders, welding processes and procedures used for work on this project must be pre-qualified with the Missouri Department of Transportation.

Delete the sentence in Section 712.3 that reads: "Any material that has become bent shall be straightened before being assembled or shall be replaced, if necessary." Replace it with the following: "Any material that has become bent from the intended shape shall be replaced at no cost to the County."

The County will not issue qualification cards as stated in Section 712.6.3, but will require proof of the welder's certification from an accredited AWS Certified Welder Program. Welding will not be allowed on County projects without a copy of the welder's certification being delivered to the County prior to the beginning of welding. The welder shall not weld for any process and in the positions for which he is not certified.

## **SECTION 725 – METAL PIPE AND PIPE-ARCH CULVERTS**

Delete Section 725.1 and substitute the following:

The contractor shall furnish and install culvert pipes of the sizes and lengths as indicated on the plans. Installation shall include excavation, hardware necessary for couplings, coupling of old pipes to new pipes, flap gates and other items as may be necessary.

Add Section 725.2.1 that reads:

The contractor may use commercially available, new pipe so long as the pipe is fabricated by riveting or resistance spot welding and if the metal carries a brand designating a 2 ounce spelter coating and sheet manufacturer.

Add Section 725.2.2 that reads:

The contractor shall document the source, type or size, linear feet (length in meters), sheet manufacturer and coating weight shown on the pipe, by letter to the engineer stating that the pipe meets the requirements of this specification for commercially available pipe. Prior to approval and use of the material, the contractor shall furnish manufacturer's certifications, which state that the material supplied conforms to all of the requirements of these specifications. The certifications shall include, or have attached, specific results of laboratory tests for specified physical and chemical properties as determined from samples representative of the material. The engineer reserves the right to sample and test any material. Acceptance will be based on the certification, visual inspection and the results of any tests the engineer may perform.

Add Section 725.2.3 that reads:

All materials and installations will be subject to visual inspection by the engineer. All corrugated metal culvert pipe installations will be approved by the engineer prior to final acceptance.

## **SECTION 726 - RIGID PIPE CULVERTS**

Revise Section 726.1.1 to read as follows:

The contract will specify the type of pipe to be used. Substitution of pipe types is not permissible.

Revise 726.1.2 to read:

If the contract specifies reinforced concrete pipe, the type of installation and the class of pipe shall be in accordance with the plans for the applicable allowable overfill height.

Delete Sections 726.1.3, 726.1.4, 726.1.5 and 726.1.11.

Modify the sixth sentence in Section 726.3.1 to read:

All joints shall be sealed with an approved plastic compound, tubular joint seal, an external wrap, cement mortar or other approved methods to create a soil tight condition.

Modify 726.3.2 to read:

Bedding for reinforced concrete pipe shall consist of a mixture of stone in accordance with Section 1009, Grade 4, Gradation B.

Delete Section 726.3.4 and substitute the following:

Backfilling shall be done as soon as practicable. Suitable backfill and embankment material, free from large lumps, clods, or rocks, shall be placed alongside the pipe in loose layers not exceeding 6 inches thick to provide a berm of compacted or undisturbed earth, on each side of the pipe, at least as wide as the external diameter of the pipe. Each 6-inch layer shall be thoroughly compacted to the satisfaction of the consulting engineer. Backfilling material shall be moistened, if necessary, to facilitate compaction. Special care shall be taken to compact the embankment thoroughly under the haunches of the pipe. Filling and compacting shall be continued until the embankment is level with the top of the pipe if the top of the pipe is above the original surface, otherwise it shall be continued until the embankment is level with the original surface. Before heavy construction equipment is operated over the pipe, the contractor shall provide an adequate depth and width of compacted backfill to protect it from damage or displacement. Any damage or displacement shall be repaired or corrected at the contractor's expense.

Add Section 726.4.1 that reads:

Excavation, backfill, and all bedding, except Class A Bedding, required for placing rigid pipe culverts will not be measured but will be considered incidental to the work and no direct payment will be made.

Section 726.3.5 - Insert the following after the second sentence:

For all pipe culverts under roadways or sidewalks crushed stone backfill, meeting the requirements of Section 1009, Grade 4, Gradation B, shall be used for full depth of the trench, and to the subgrade of the road, and to a point two feet on either side of the pavement width. For backfill under grass areas, the granular backfill shall be brought to one foot above the top of the pipe, then completed with earthen backfill to the required grade.

Delete the second sentence in Section 726.5 that reads:

When two different diameters of pipe are shown on the plans for a given location for Group B or Group C pipe, the quantity of pipe installed will be based on the plan quantity for the larger diameter pipe, and will not be considered an appreciable error in the contract quantity if the smaller diameter pipe is used.

Delete the second sentence of 726.6.1 that reads:

When two different diameters of pipe are shown on the plans for a given location for Group B or Group C pipe, the contract unit price for the larger diameter pipe will be used for payment purposes.

## **SECTION 732 - FLARED END SECTIONS**

Delete Section 732.1.3.

Delete reference to HDPE and PVC in Section 732.1.4.

Delete the second sentence in Section 732.5 that reads:

When two different diameters of pipe are shown on the plans for a given location for Group B or Group C pipe, the contract unit price for the flared end section or safety slope end section that would be required for the larger diameter pipe will be used for payment purposes.

## **SECTION 801 - LIME AND FERTILIZER**

Revise the third sentence in Section 801.4.1 to read:

The soil shall be thoroughly broken up, worked, tilled and loosened to a minimum depth of 4 inches.

Revise the second sentence of 801.4.2 to read:

After application, the lime and fertilizer shall be thoroughly mixed into the soil to a minimum depth of 4 inches, except when applied hydraulically on slopes steeper than 2:1.

Add Section 801.4.3 that reads:

The rate of application of effective calcium carbonate equivalent shall be 500 lbs. per acre.

Add Section 801.4.4 that reads:

Unless otherwise specified, the following fertilizer shall be applied at the rate specified:

Nitrogen	80 lbs. per acre
Phosphoric Acid	160 lbs. per acre
Potash	80 lbs. per acre

#### **SECTION 804 - TOPSOIL**

Add Section 804.3.3 The Contractor shall be responsible for obtaining all necessary permits for removal of topsoil from an area. This shall include but not be limited to land disturbance, stormwater discharge, endangered species, farmland protection, wetlands, hazardous waste and cultural resources. Contact agencies for most of these are listed on MoDOT's website under Local Public Agency Manual.

#### **SECTION 806 - POLLUTION, EROSION AND SEDIMENT CONTROL**

Revise 806.4.4 to read as follows:

Erosion control features shall be in place prior to any clearing and grubbing of the construction site. Additional erosion control features may need to be installed as the project continues and problem areas become exposed. The Contractor shall maintain all erosion control features by removing silt buildup so that the erosion control feature is fully effective. Any erosion control features knocked down during construction shall be reinstalled at no additional cost to the County.

#### **SECTION 1036 – REINFORCING STEEL FOR CONCRETE**

Add Section 1036.2.4 that reads:

The engineer may inspect and sample the steel at the project site. Samples taken at the project site for testing of steel properties will be taken at the same time as samples of the coated steel and will be from the bar size and shape listed on the bar bill that includes additional bars for testing. If any bar fails to meet all requirements for reinforcing steel, all bars of that size in the total quantity will be rejected. No additional bars will be taken for destructive testing unless requested by the contractor and no additional payment will be made for bars taken for retest. If the shipment is retested, double the number of bars taken for the original tests will be selected. All samples taken for retest shall meet all requirements or all bars of that size in the total quantity will be rejected.

#### **SECTION 1054 – CONCRETE ADMIXTURES**

Add Section 1054.3.1.4 that reads:

The manufacturer shall submit a certification and guarantee to the consulting engineer, showing the brand name and designation; the composition or description of the admixture; the manufacturing ranges for specific gravity at 77 F, percent total solids, and pH; the infrared spectrum; the manner in which it will be identified on the containers; and certifying that it will conform to the requirements of these specifications. The certification shall include or have attached specific test results complying with AASHTO M 194, Type C or E, and the recommendation for use including amounts to be added. The manufacturer shall also guarantee that as long as material is furnished under that brand and designation it will be of the same composition as originally approved and will in no way be altered or changed.

### **38. SPECIFIC ENVIRONMENTAL RESTRICTIONS**

All activities performed by the Contractor (or his Subcontractor's) or any other work related to this project must be performed without any disturbance to the areas identified as "Mussel Concentrations" on the plans. Within these areas, nothing can be placed (dropped) in the water and nothing shall be done that would disturb the streambed. Barges or floating structures will not be allowed to operate in these areas. Barges, if used, shall be placed into the river from the west bank in the vicinity of the old bridge.

No work will be allowed to be performed in the river (drilled shaft construction, rock blanket placement, bridge removal, etc.) during the following times:

- entire month of June,
- last eight (8) days of July
- entire month of August.

This work restriction also applies to removal of the east span of the old bridge. Barges (or platforms) may not be placed in the river during these restrictions, but barges (platforms) already placed in the river may remain, provided that they are properly anchored and that no activity is being performed. Work outside of the river may continue during these times as long as all activities are outside of the current edge of water and no disturbance is caused in the water.

The east span of the old bridge must be removed without allowing anything to fall into the water. It is the Contractor's responsibility to determine the means and methods to be employed in removal of the structure. The methods employed by the Contractor must be adequate to prevent any and all material from entering the water. This includes, but is not necessarily limited to, dirt, sawdust, asphalt, paint chips, metal parts, torched slag, grinder shavings, or any other material that might be created or disturbed during the removal of the structure.

The west span of the old bridge may, at the contractor's option, be dropped in the river and subsequently removed. If this method of removal is employed, all material dropped in the river must be removed. This work is subject to the restrictions in June, July and August specified above.

When work is being performed in the river near the west bank, turbidity barriers (silt curtains) shall be used to isolate the areas in which work is being performed. The type of curtain used shall be appropriate for the flow and velocities at the time the work is being performed. The barriers shall extend from the water surface to the streambed and shall prevent the passage of any waterborne particles. The barriers shall be located and placed such that no disturbance will occur outside the barriers. The plan quantity for "Turbidity Barriers" will be the final quantity. Any additional Turbidity Barriers required beyond the plan quantity will be incidental to the project and no additional payment will be made. No other work shall be performed in the river at the time this work is being performed.

When work is being performed on the west bank, BMP's (silt fences, sediment basins, ditch checks, etc.) shall be installed and updated as the work progresses. BMP's shall prevent silt and sediment from entering the river. These BMP's shall be maintained and documented to be effective until after all rock blanket has been placed and initial growth of seeded areas becomes effective.

The attached section titled "Categorical Exclusion Re-evaluation" contains the directive from which these restrictions were adopted. The bat habitat of endangered species of bats has been removed so that clearing of trees may be performed at the Contractor's desired schedule. The other terms of the "Categorical Exclusion Re-evaluation" shall be adhered to as part of this contract and the intent expressed therein shall not be infringed.

#### **39. CONSTRUCTION REQUEST FOR INFORMATION**

The Contractor shall submit request for information for conditions requiring clarification during construction utilizing the attached Request for Information Form.

#### **40. GEOTECHNICAL REPORT**





**SCI ENGINEERING, INC.**

CONSULTANTS IN DEVELOPMENT,  
DESIGN AND CONSTRUCTION  
GEOTECHNICAL  
ENVIRONMENTAL  
NATURAL RESOURCES  
CULTURAL RESOURCES  
CONSTRUCTION SERVICES

May 24, 2016

Mr. Kevin Ward  
Federal Highway Administration  
3220 West Edgewood, Suite H  
Jefferson City, Missouri 65109

RE: Categorical Exclusion Re-evaluation  
Local Public Agency Project  
STP-9900 (638)  
Bend Road Bridge Replacement  
Pacific, Franklin County, Missouri  
SCI No. 2012-5077.33, .41

Dear Mr. Ward:

SCI Engineering, Inc. (SCI) is pleased to submit this re-evaluation of the Categorical Exclusion Determination (CE) submitted for the roadway improvements related to the Bend Road Bridge project in Pacific, Missouri. A Vicinity and Topographic Map, Figure 1, and an Aerial Photograph, Figure 2, are enclosed.

The initial CE was approved by the Federal Highway Administration (FHWA) on July 23, 2014. At that time, the project consisted of roadway improvements consisting of realigning Bend Road and constructing a new bridge over the Meramec River. The purpose of this re-evaluation is to include the demolition of the existing Bend Road Bridge (Withington Ford Bridge) which was not included in the previously submitted CE. This re-evaluation addresses potential impacts to resources from bridge demolition including Cultural Resources, Threatened and Endangered Species, Hazardous Waste, Section 4(f), and Wetlands and Waterbodies. No additional resources are to be affected as a result of the bridge demolition.

As to Cultural Resources in the initial CE, the existing Withington Ford Bridge was to remain in place with the new construction occurring further downstream. Following the submittal of the CE report, the plans were modified to include the demolition of the old bridge. The Withington Ford Bridge has been determined to be eligible for listing on the National Register of Historic Places (NRHP) and the proposed demolition posed an adverse effect to this historic property. Consequently, it was necessary to enter into the Section 106 process to determine the appropriate mitigation measures for the adverse effect to the historic bridge. In addition, the plan to demolish the existing bridge also triggered further Threatened and Endangers Species coordination, particularly as it pertains to potential impacts to threatened or endangered mussel and bat species. The following describes those sections of the CE report that have been modified or updated since the July 2014 submittal.

## **Cultural Resources**

### *Withington Ford Bridge*

The Withington Ford Bridge was identified in the 1994 Missouri Historic Bridge Inventory conducted by Fraserdesign. The bridge was evaluated as “possibly eligible” for the NRHP as an excellent long-span example of an uncommon truss type. In 2012, the Missouri State Historic Preservation Office (SHPO) determined that the Withington Ford Bridge (0920001) was indeed eligible for listing on the NRHP and that the replacement project, which proposes demolition, would have an adverse effect on the bridge (Appendix A).

The bridge was included on the Missouri Historic Bridge List in 2003. The list identified 300 of the most significant road bridges (on state, county and local road systems) in Missouri. The Historic Bridge List was a result of consultation between the MoDOT, the Missouri Division of the FHWA, and the Missouri SHPO.

In 2015, the Franklin County Highway Department initiated consultation with MoDOT and FHWA regarding the project and the removal of the Withington Ford Bridge (0920001). The outcome of this consultation was the determination that a Memorandum of Agreement (MOA) would be created for the project and that the Withington Ford Bridge (0920001) should be advertised for reuse. The consultation process reaffirmed the eligibility of the bridge under Criteria C as an example of an uncommon truss type.

### *Description of the Historic Property*

The Withington Ford Bridge is a Pratt Truss subtype: Pennsylvania through truss bridge consisting of two 200 ft. spans with an overall length of 422 ft. It is a single lane bridge with a roadway width of 15 ft. The superstructure is a steel, 10-panel, pin-connected Pennsylvania through truss with steel stringer approaches. The decking is asphalt on timber over steel stringers. The substructure consists of concrete abutments and piers. The bridge was designed by Franklin County Engineer J.M Moore in 1915 and was constructed by Miller and Borcharding of St. Louis in 1916-17.

### *Description of the Effects of the Project on the Historic Property*

The replacement of the Withington Ford Bridge would cause the removal by demolition of the historic bridge, which would cause an adverse effect on the historic bridge, as described at 36CFR800.5(a)(1) and 36CFR800.5(a)(2)(i).

The Franklin County Highway Department has consulted with the SHPO regarding the effects of the project on the historic bridge, and the SHPO has concurred with the determination of adverse effect on August 20, 2012 (Appendix A).

The Franklin County Highway Department Engineer worked closely with the City of Pacific and affected businesses and nearby property owners informing them about the project and the issues that the County was working through (engineer, cultural resources, endangered species because of tree clearing, floodplain permitting, etc.). Any concerns about cultural resources were referred to the MoDOT Historic Preservation Section for follow up.

In addition, Franklin County worked closely with area media to keep the public informed about the issues with the bridge. All media contacts include appropriate contact information for Franklin County

Highway Department and FHWA personnel so the public could ask further questions and direct comments to the Franklin County Highway Department or to FHWA.

As the bridge replacement represents an adverse effect on the Withington Ford Bridge, it was required that possible mitigation measures be considered via consultation among the primary parties involved, Franklin County, MoDOT, and FHWA, and any other interested parties. To that end, FHWA sent letters to potential consulting parties, inviting them to participate in consultation for the Withington Ford Bridge replacement. The invited parties included the City of Pacific, the Ozark Trail Association, the Magi Foundation in Pacific, the Historic Bridge Foundation, [Historicbridges.org](http://Historicbridges.org), the Franklin County Historical Society, the Meramec Valley Genealogical & Historical Society, the Franklin County Highway Department, Missouri Preservation, Great Rivers Greenways, Missouri State Parks, and the City of Wildwood. Six parties, the City of Pacific, the Ozark Trail Association, the Magi Foundation in Pacific, the Historic Bridge Foundation, [Historicbridges.org](http://Historicbridges.org), and Missouri Preservation, responded that they would like to participate in consultation about the fate of the bridge. In addition, FHWA sent a letter to the Advisory Council on Historic Preservation inquiring if the Council would want to participate in the Withington Ford Bridge consultation process. The Council's response was that they would not be participating.

One of the possible mitigation measures concerned the relocation/repurposing of the bridge. The bridge was made available for reuse in another location via, advertising on the MoDOT Free Bridges web-site (April 1, 2015) for two months; through direct mail notices (March 2015) to elected officials and historical societies in Franklin County, Missouri, as well as the Cities of Union and St. Clair, Missouri, the East-West Gateway Council of Governments, Missouri State Parks, Great River Greenways (a regional trail organization), and the Trail Net organization; a flyer distributed through the Franklin County Highway Department; and a press release by the Franklin County Highway Department (May 2015). In addition, a proposal checklist was created and distributed to those parties expressing an interest in relocating/repurposing the bridge. This checklist detailed the criteria that would need to be incorporated into any proposal in order to take possession of the Withington Ford Bridge. These efforts resulted in one inquiry regarding a proposal to reuse the historic bridge.

Following the advertisement period, a consultation meeting was held at the Franklin County offices on August 24, 2015. This meeting was attended by representatives of Franklin County, MoDOT, FHWA, and those parties that had expressed an interest in participating in the consultation process. At this meeting, questions were addressed regarding the proposal checklist and a deadline for proposal submittal was established.

On February 8, 2016, a meeting was held at the Franklin County offices to review submitted proposals. At this meeting the Maji Foundation presented a proposal. Comments and questions regarding the proposal were discussed and comments were taken from interested parties; affected landowners and local officials. The primary consulting parties, after reviewing the proposal and listening to comments from interested parties, determined that the proposal did not meet the required criteria and, therefore, alternative mitigation measures would be pursued (Appendix B). From this meeting it was determined that a MOA would be drafted that would provide a timeline for accomplishments/goals for the mitigation alternatives with the processes/procedures that would be followed should the alternatives prove inadequate or the deadlines not be met. This MOA was executed by all consulting parties on April 27, 2016 (Appendix C).

### **Threatened and Endangered Species**

The United States Fish and Wildlife Service (USFWS) and the Missouri Department of Conservation (MDC) were consulted with regard to the potential for threatened or endangered species or their critical habitat to exist within or near the project site. At the request of the USFWS and MDC, a survey to identify mussel species within the project area was completed May 6 – 8, 2014. The survey covered both the existing bridge alignment and the proposed new bridge alignment. The survey results were presented in a Biological Assessment (BA) dated November 2015. Since the submittal of the BA, MoDOT issued a Supplement to the BA to address additional concerns as provided by the USFWS. The USFWS provided concurrence with the Supplemental BA via an electronic mail message on March 9, 2016. These documents are included in Appendix D.

Additionally, the USFWS and the USACE indicated that the federally endangered Indiana bat and the federally threatened northern long-eared bat have been documented within Franklin County. Habitat for the species includes live or overly-mature trees and snags with exfoliating bark, cavities in trees which could provide roosting habitat, tree species including shellbark or shagbark hickory, white oak, cottonwood, and maple species, and forested areas along stream corridors, riparian areas, and upland woodlots that provide foraging habitat. MoDOT biologist provided a supplemental survey on January 29, 2016 to identify potential roost trees within the project limits that will need to be felled as a result of the project. The survey resulted in the identification of 25 potential roost trees, of which 16 will need to be removed. The 16 trees were cleared prior to March 31, 2016 to avoid impacts to the bat species. The following measures were provided in the Supplement to the BA, included in Appendix D.

### **Hazardous Waste**

Prior to demolition, the bridge will be inspected by a current Missouri Department of Natural Resources (MDNR)-certified asbestos inspector for the presence of asbestos containing materials (ACMs). Any ACMs found will be removed by a current MDNR-certified asbestos abatement contractor. All required demolition notices, abatements notices, and project notifications must be submitted to MDNR 10 days prior to beginning demolition activities. Asbestos containing materials and demolition debris will be disposed in approved landfills according to state and federal regulations.

Any painted surfaces on the bridge will be tested by a current Missouri Department of Health and Senior Services (DHSS)-licensed lead inspector for regulated heavy metal based paint to determine whether the material can be used for clean fill. If abatement is necessary, a current DHSS-licensed lead abatement contractor will conduct the abatement and provide the proper notification(s) to DHSS. All other demolition debris must be disposed in a demolition landfill. If a demolition landfill is not available, a permitted solid waste landfill can accept it.

### **Section 4(f)**

The Section 106 review resulted in an adverse effect determination necessitating completion of a Programmatic Section 4(f) Evaluation for Historic Bridges. The Programmatic Section 4(f) Evaluation was completed by Karen Daniels, MoDOT Senior Historic Preservation Specialist. The Section 4(f) Evaluation was approved by FHWA on May 2, 2016 and is attached as Appendix E.

### **Wetland and Waterbody Impacts**

Based on approved site plans, approximately 165 linear feet (lf) of the Meramec River will be impacted due to the project. Additionally, approximately 75 lf of the river will be impacted as a result of the

placement of two piers, each consisting of two 6-foot diameter columns. Approximately 70 lf of an intermittent tributary will be impacted as a result of the extension of an existing culvert pipe, and approximately 110 lf of grading impact to an ephemeral tributary will be necessary to support the approach road construction. The Section 404/401 Permit application was provided to the U.S. Army Corps of Engineers and the Missouri Department of Natural Resources (MDNR) to apply for the necessary impacts. The regulatory agencies issued the Section 404/401 Permit (*Nationwide Permit #14 – Linear Transportation Projects*) on March 31, 2016. The applicant is to comply with the conditions as presented in the permit. The Section 404/401 Permit is included in Appendix F.

### Previous Commitments

At the time the initial CE was approved the following environmental commitments were identified. Actions that have taken place since the 2014 CE are identified in bold.

- The 404 permitting process will be completed through USACE. Any mitigation measures or best management practices identified in the 404 permit will be complied with during construction. **The Section 404 Permit was received from the USACE on March 31, 2016. The project has been permitted under *Nationwide Permit #14: Linear Transportation Projects* and no wetland or waterbody mitigation is required for project impacts. In addition, MDNR conditionally issued the Section 401 Water Quality Certification for the project as part of the Section 404 permit.**
- Formal Consultation will be completed with USFWS relative to mussels encountered during the mussel survey. Any avoidance or mitigation measures required as a result of this consultation will be conducted. **In an email from Mr. Andy Roberts of the USFWS to Mr. Chris Shulse of the Missouri Department of Transportation (MoDOT) dated March 9, 2016, the USFWS stated that based on the BA and supplemental information provided by MoDOT, that the project may affect, but is not likely to adversely affect threatened or endangered species.**
- Tree removal will be completed during the Indiana bat hibernation period (November 1 to March 31). **On January 29, 2016, MoDOT biologist conducted a habitat assessment for the northern long-eared bat and the Indiana bat. It was determined that 25 trees possessing potential roosting habitat for the bat species are located within the project limits. However, after further review, it was determined that 16 trees will need to be felled during project construction. In an effort to prevent adverse impacts to the bat species, the 16 trees were cleared prior to March 31.**
- Any previously unknown sites that are found during project construction will be handled in accordance with applicable federal and state laws and regulations. If regulated solid or hazardous wastes are found during construction activities, the construction inspector will direct the contractor to cease work at the suspect site. An appropriate environmental specialist will be contacted to discuss options for remediation. The environmental specialist, the Agri/Business Expo Board, and the consultant will develop a plan for sampling, remediation, and continuation of project construction. Independent consulting, analytical, and remediation services will be contracted if necessary. The MDNR and U.S. Environmental Protection Agency (USEPA) will be contacted for coordination and approval of required activities.

- A Storm Water Pollution Prevention Plan (SWPPP) will be implemented to prevent or minimize adverse impacts to streams, water courses, lakes, ponds, or other impoundments within and adjacent to the project area.
- If changes in the project footprint or scope occur that were not evaluated in this document, MoDOT shall re-evaluate the NEPA document to ensure that determinations remain valid.

#### **Current Environmental Commitments**

At this time, no significant impacts are associated with the project. However, the following activities are necessary:

- The permit holder will adhere to the conditions as described in the Section 404 Permit dated March 31, 2016. In addition, the permit holder will comply with the special conditions as provided by the district engineer. A compliance certification must be completed within 30 days of project completion or the permit issuance may be revoked and considered null and void. The MDNR Water Protection Program has conditionally issued general Section 401 Water Quality Certification for the Nationwide Permit, subject to the special conditions of the permit.
- As outlined in the electronic mail message received from Mr. Andy Roberts of the USFWS, concurrence with the determination that the project may affect, but is not likely to adversely affect the threatened and endangered species as presented in the BA. Therefore, the presented measures to protect mussels as presented in the Supplement to the BA will be incorporated into the Job Special Provisions (JSPs). In addition, the identified roost trees identified within the project limits have been cleared. The USFWS and/or MDNR will be notified if threatened or endangered species are encountered during project construction.
- The executed MOA provided a detailed description of the mitigation measures for Section 106 compliance for the historic Withington Ford Bridge. The mitigation measures call for a full documentation of the bridge as well as the production of a historic context statement. These measures will be completed and approved by the consulting parties prior to demolition.
- Prior to demolition, the bridge will be inspected by a current MDNR-certified asbestos inspector for the presence of ACMs. Any ACMs found will be removed by a current MDNR-certified asbestos abatement contractor. All required demolition notices, abatements notices, and project notifications must be submitted to MDNR 10 days prior to beginning demolition activities. ACMs and demolition debris will be disposed in approved landfills according to state and federal regulations.
- Any painted surfaces on the bridge will be tested by a current Missouri DHSS-licensed lead inspector for regulated heavy metal based paint to determine whether the material can be used for clean fill. If abatement is necessary, a current DHSS-licensed lead abatement contractor will conduct the abatement and provide the proper notification(s) to DHSS. All other demolition debris must be disposed in a demolition landfill. If a demolition landfill is not available, a permitted solid waste landfill can accept it.
- A SWPPP will be implemented to prevent or minimize adverse impacts to streams, water courses, lakes, ponds, or other impoundments within and adjacent to the project area.

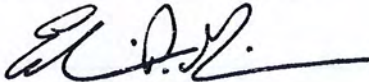
- If changes in the project footprint or scope occur that were not evaluated in this document, MoDOT shall re-evaluate the NEPA document to ensure that determinations remain valid.
- Any previously unknown sites that are found during project construction will be handled in accordance with applicable federal and state laws and regulations. If regulated solid or hazardous wastes are found during construction activities, the construction inspector will direct the contractor to cease work at the suspect site. An appropriate environmental specialist will be contacted to discuss options for remediation. The environmental specialist, the Agri/Business Expo Board, and the consultant will develop a plan for sampling, remediation, and continuation of project construction. Independent consulting, analytical, and remediation services will be contracted if necessary. The MDNR and USEPA will be contacted for coordination and approval of required activities.

Franklin County has determined that the original CE2 approved by FHWA remains valid and requests FHWA concurrence.

If you have any questions regarding this letter or need additional information, please contact me at (618) 206-3025 or [egrimmer@sciengineering.com](mailto:egrimmer@sciengineering.com).

Respectfully,

**SCI ENGINEERING, INC.**



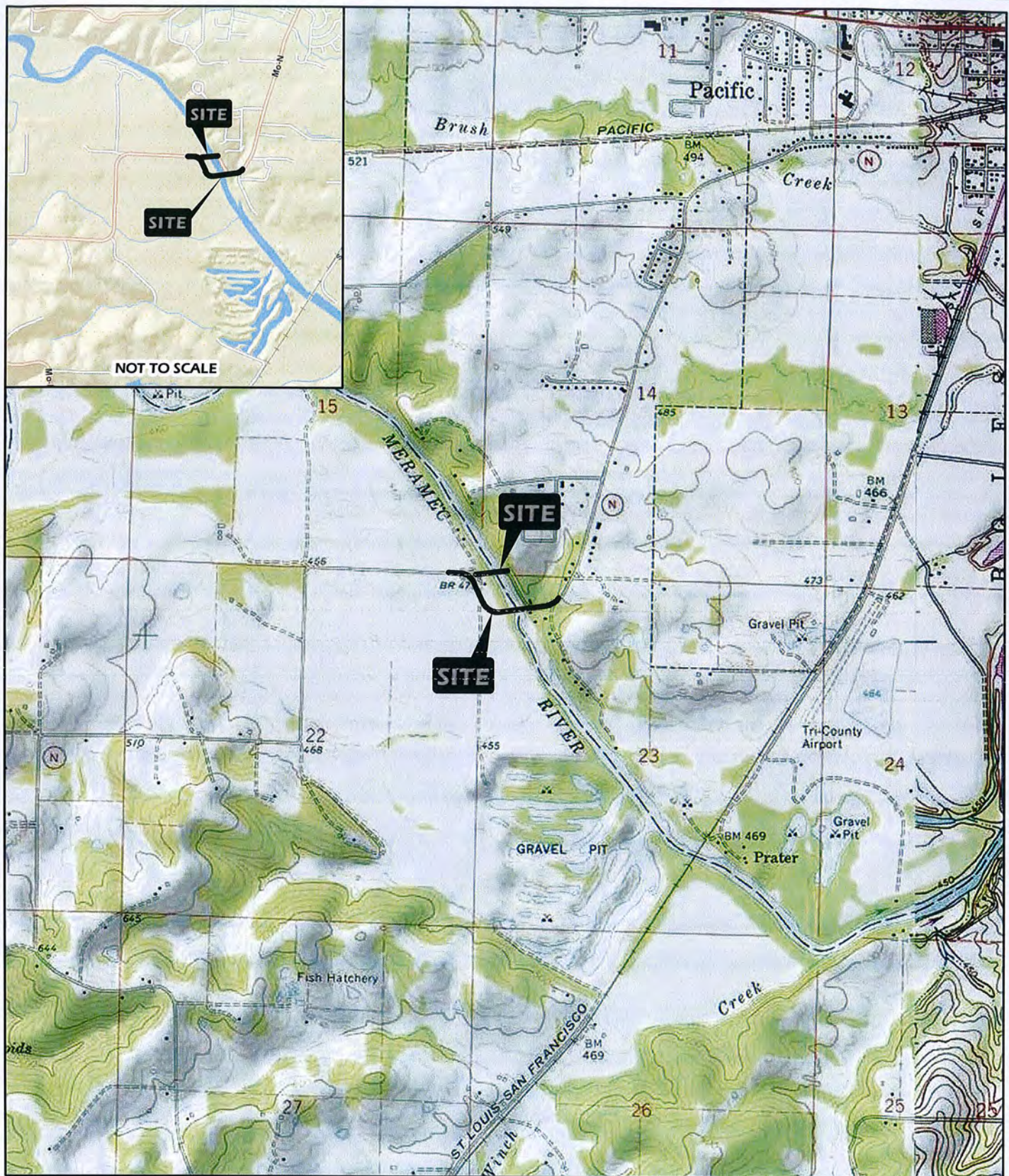
Edwin P. Grimmer, P.E.  
Vice President



SEB/DLB/EPG/lf

Enclosures

- Appendix A – SHPO letter, August 20, 2012
- Appendix B – FHWA letter, March 6, 2016
- Appendix C – FHWA letter, April 27, 2016
- Appendix D – Supplemental BA and USFWS Concurrence
- Appendix E – Section 4(f) Evaluation
- Appendix F – Section 404/401 Permit







	<b>PROJECT NAME</b>			<b>GENERAL NOTES/LEGEND</b> USGS TOPOGRAPHIC MAP GRAY SUMMIT, MISSOURI QUADRANGLE DATED 1969 20' CONTOURS PACIFIC, MISSOURI QUADRANGLE DATED 1974 10' CONTOURS	
	BEND ROAD BRIDGE FRANKLIN COUNTY, MISSOURI				
	VICINITY AND TOPOGRAPHIC MAP				
	<b>DRAWN BY</b> RCV	<b>DATE</b>	<b>JOB NUMBER</b>		
	<b>CHECKED BY</b> SEB	05/2016	2012-5077.33		<b>SCALE</b> 1" = 2000'
					<b>FIGURE</b> 1





	<b>PROJECT NAME</b> BEND ROAD BRIDGE FRANKLIN COUNTY, MISSOURI		<b>GENERAL NOTES/LEGEND</b> AERIAL PHOTOGRAPH OBTAINED FROM ARCGIS ONLINE - WORLD IMAGERY, DATED 12/2012.		
	<b>AERIAL PHOTOGRAPH</b>				
	<b>DRAWN BY</b> RCV	<b>DATE</b> 05/2016	<b>JOB NUMBER</b> 2012-5077.33	<b>SCALE</b> 1" = 300'	
	<b>CHECKED BY</b> JOK			<b>FIGURE</b> 2	



## **APPENDIX A**



STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES

Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

www.dnr.mo.gov

August 20, 2012

Joe Feldman, P.E.  
Franklin County Highway Department  
400 East Locust, Room 003A  
Union, Missouri 63084

RECEIVED  
AUG 27 2012  
FRANKLIN COUNTY  
MISSOURI

Re: Bend Road Bridge Replacement (FHWA) Franklin County, Missouri

Dear Mr. Feldman:

Thank you for submitting information on the above referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.O. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which require identification and evaluation of cultural resources.

We have reviewed the information provided concerning the above referenced project. We have determined that the Bend Road (Withington Ford) Bridge is eligible for inclusion in the National Register of Historic Places. We have also determined that the proposed replacement project will have an **adverse effect** on the historic fabric of the bridge.

Therefore, the Federal Highway Administration shall forward the necessary adequate documentation as described to the Executive Director, Advisory Council on Historic Preservation, The Old Post Office Building, 1100 Pennsylvania Avenue NW, #809, Washington, DC 20004. Pending receipt of the Council's decision on whether it will participate in consultation, no action shall be taken which would foreclose Council consideration of alternatives to avoid or satisfactorily mitigate any adverse effect on the property in question.

We have also determined that there is a moderate to high potential for the presence of archaeological sites near and within the area of the proposed project corridor, as indicated by the topographic location, and that an archaeological survey, with deep testing as deemed appropriate, should be conducted. This survey should be completed prior to the initiation of project-related construction activities.

A list of independent archaeological contractors who can perform such services is available through the Department of Natural Resources, Division of Administrative Support. The list can be obtained by calling (573) 751-0958 and requesting the "archaeological contractors list." Note that any 36 CFR Part 61 qualified archaeologist may perform an archaeological survey. If you choose a contractor not on the list, please be certain to include his or her curriculum vitae in the report. We would appreciate one (1) hard copy and one (1) pdf copy of the archaeological survey report when it is finished so we may complete the review and comment process.

If you have any questions, please write Judith Deel at State Historic Preservation Office, P.O. Box 176, Jefferson City, Missouri 65102 or call 573/751-7862.

Please be sure to include the SHPO Log Number (028-FR-12) on all future correspondence or inquiries relating to this project.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

A handwritten signature in blue ink, appearing to read "Mark A. Miles", with a long horizontal flourish extending to the right.

Mark A. Miles  
Director and Deputy State  
Historic Preservation Officer

MAM:d

c Peggy Casey, FHWA  
Bob Reeder, MoDOT

## **APPENDIX B**





U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Missouri Division**

March 8, 2016

3220 W. Edgewood, Suite H  
Jefferson City, Missouri 65109  
(573) 636-7104  
Fax (573) 636-9283  
Missouri.FHWA@fhwa.dot.gov

The Magi Foundation  
Attn: Steve Myers  
P. O. Box 405  
Pacific, MO 63069

Dear Mr. Myers:

As you know, Franklin County made the Withington Ford (Bend) Bridge (Bridge No. 0920001) available for reuse using the Free Bridges web page sponsored by the Missouri Department of Transportation (MoDOT) and through direct marketing to local agencies identified through consultation with the Missouri State Historic Preservation Office (SHPO). The bridge was made available for nine months, during which proposals for acquisition were solicited. A proposal checklist was developed in consultation with Franklin County, MoDOT and the Federal Highway Administration (FHWA) to be used to evaluate the validity of any proposal received. This proposal checklist was provided to the consulting parties for consideration in developing a proposal.

On December 23, 2015, we received the Magi Foundation's proposal for the reuse of the bridge to be used in place as part of a trail system being developed by the Ozark Trail Association. The proposal indicated that the City of Pacific would take title to and assume responsibility for the bridge but failed to provide supporting documentation regarding one of the proposal checklist requirements, which was a willingness from any party to accept title to (ownership of) the bridge and to assume all future legal and financial responsibility for the historic bridge. The proposal also failed to provide a cost estimate for rehabilitation of the bridge, which was another requirement called out in the proposal checklist.

FHWA and Franklin County convened a meeting on February 8, 2016 among the various Section 106 consulting parties for the project. This proposal for the reuse of the bridge was discussed at the meeting. Attendees who were in favor and opposed to the proposal were allowed the opportunity to speak at this meeting. FHWA learned that Franklin County does not wish to retain ownership of the bridge, and the City of Pacific will not agree to take title to the bridge due to the liability and cost associated with maintaining and policing the bridge.

Because the Magi Foundation's proposal was incomplete, and the critical elements of 1) providing a cost estimate for rehabilitation, and 2) ensuring a responsible party to take title to the bridge and assume future responsibility/liability were missing, the proposal cannot be accepted as part of this project.

I appreciate your efforts to prepare the proposal and your consideration for this historic structure.

Sincerely yours,

A handwritten signature in blue ink, appearing to read 'Raegan Ball', with a stylized, cursive script.

Raegan Ball  
Missouri Division  
Federal Highway Administration

cc: Matt Atnip, Ozark Trails Association  
Kitty Henderson, Historic Bridge Foundation  
Jeff Palmore, City of Pacific  
Nathan Holth, Historic Bridges  
Judith Deel, SHPO  
Mike Meinkoth, MoDOT  
Ron Williams, Franklin County

## **APPENDIX C**





U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Missouri Division**

4/27/2016

3220 W. Edgewood, Suite H  
Jefferson City, Missouri 65109  
(573) 636-7104  
Fax (573) 636-9283  
Missouri.FHWA@fhwa.dot.gov

Advisory Council on Historic Preservation  
401 F Street NW, Suite 308  
Washington, DC 20001-2637

RE: Filing of executed Memorandum of Agreement concerning the replacement of Withington Ford Bridge (Bridge No. 0920001) on Bend Rd. over the Meramec River, Franklin County, Missouri; Project No. STP-9900(638)

Dear Mr. Wilson:

On May 27, 2015, the Advisory Council on Historic Preservation (Advisory Council) was notified of the adverse effect of the referenced undertaking on historic properties eligible for listing in the National Register of Historic Places and was invited to participate in the consultation. The Advisory Council responded on June 17, 2015 declining participation in the consultation to resolve the adverse effect. Since then, the Federal Highway Administration, Missouri State Historic Preservation Office, and Franklin County have finalized a Memorandum of Agreement (MOA) to resolve the adverse effect to the historic property. Pursuant to 36 CFR §800.6(b)(1)(iv), our office would like to file the enclosed executed MOA with the ACHP to complete the requirements of Section 106 of the National Historic Preservation Act.

If you have any questions or would like any additional information, please contact me at 573-638-2620 or [Raegan.Ball@dot.gov](mailto:Raegan.Ball@dot.gov).

Sincerely,

Raegan Ball  
Program Development Team Leader

Enclosure

Cc: Mike Meinkoth, MoDOT  
Judith Deel, MO SHPO  
Ron Williams, Franklin County



## **APPENDIX D**



**From:** [Christopher D. Shulse](#)  
**To:** [Ron Williams](#); [Brad Dunagan](#); [Scott Billings](#); [raegan.ball.dot.gov](#); [Roopa.Banerjee@dot.gov](#); [Matthew Burcham](#); [Richard Moore](#); [Gayle Unruh](#); [Bree K. McMurray](#); [Stephanie D. Graham](#); [Valerie A. Hentges](#); [Tyson.J.Zobrist@usace.army.mil](#); [Gramke, Robert S MVS](#); [Michael Meinkoth](#); [ERIC T KOPINSKI](#)  
**Subject:** FW: Withington Ford/Bend Road Bridge Replacement - Job Number STP-9900(638)  
**Date:** Wednesday, March 09, 2016 11:56:55 AM  
**Attachments:** [Supplement to Bend Road BA.pdf](#)

---

All – below is the USFWS concurrence for the Bend Road Bridge Replacement. I've also attached the supplement to the BA referenced below that outlines the conservation measures the County has agreed to employ in order to remove adverse effects to the federally listed species in the project area. Please ensure that these are incorporated into job special provisions in the contract.

Ron Williams has notified MoDOT that all identified potential Indiana and northern long-eared bat roost trees have been removed so there are no further concerns with those species.

Thanks to everyone for their work on this project. Please let me know if you have any questions.

Sincerely,

**Chris Shulse**

**Senior Environmental Specialist**

Missouri Department of Transportation

P.O. Box 270, Jefferson City, MO 65101

office 573-526-6678 •cell 573-406-2207 •fax 573-522-1973

[christopher.shulse@modot.mo.gov](mailto:christopher.shulse@modot.mo.gov) • [www.modot.mo.gov/ehp/](http://www.modot.mo.gov/ehp/)

**Mission**

*Our mission is to provide a world-class transportation experience that delights our customers and promotes a prosperous Missouri.*

**From:** Roberts, Andy [[mailto:andy\\_roberts@fws.gov](mailto:andy_roberts@fws.gov)]  
**Sent:** Wednesday, March 09, 2016 11:15 AM  
**To:** Christopher D. Shulse  
**Cc:** Amy Salveter  
**Subject:** Withington Ford/Bend Road Bridge Replacement

Dear Mr. Shulse:

This letter is in response to your February 11, 2016, request for concurrence that the Withington Ford/Bend Road bridge replacement on the Meramec River in Franklin County is not likely to adversely affect federally listed species. This response is provided by the U.S. Fish and Wildlife Service (Service) under the authority of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347), and the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544) (ESA).

We appreciate your continued coordination on this project to address potential impacts to federally listed species including the endangered Indiana bat (*Myotis sodalists*), Northern long-eared bat (*Myotis septentrionalis*), sheepnose (*Plethobasus cyphus*), scaleshell (*Leptodea leptodon*), and spectaclecase (*Cumberlandia monodonta*). On June 10, 2014, the Missouri Department of Transportation (MoDOT) held an early planning meeting with the Service,

Missouri Department of Conservation, Ecological Specialists, Inc., and other consultants involved with the project. This meeting helped inform the remainder of the planning process and enabled design options to be considered for the removal of potential adverse effects to federally listed species. During informal consultation with the Service, MoDOT and the construction contractor have been successful in developing measures to accomplish this. A biological assessment (Ecological Specialists Inc. 2015) and supplemental information (Shulse 2016) was submitted by MoDOT to the Service on January 5 and February 11, 2016, respectively. Measures that remove adverse impacts to the above listed species are outlined in these documents.

According to the information contained in the Biological Assessment and supplement, we concur with your determination that the Bend Road project may affect, but is not likely to adversely affect the above listed species. Should you have any questions or require further assistance, please do not hesitate to call.

Sincerely,

Andy Roberts

--

Andy Roberts  
U.S. Fish and Wildlife Service  
Ecological Services  
101 Park DeVille Drive, Suite A  
Columbia, Missouri 65203

573-234-2132 x 110  
573-234-2181 (fax)

**Supplement to  
Biological Assessment for Impacts to  
*Cumberlandia monodonta*, *Plethobasus  
cyphus*, and *Leptodea leptodon* as a  
Result of Bridge Construction Activities  
in the Meramec River**

**Includes the Results of a Summer Habitat Assessment for  
Indiana and Northern long-eared Bats**

**Prepared by:**

**Chris Shulse  
Senior Environmental Specialist  
Missouri Department of Transportation**

**Prepared for:**

**FHWA  
Franklin County  
Withington Ford/Bend Road Bridge Replacement  
Job Number STP-9900(638)**

**USFWS Consultation Code: 03E14000-2016-SLI-0603**

**February 11, 2016**

## **Introduction**

In November 2015, Environmental Specialists, Inc. (ESI) submitted a biological assessment (BA) to the Missouri Department of Transportation (MoDOT) for potential impacts to three federally listed mussel species resulting from removal of the existing Withington Ford/Bend Road Bridge over the Meramec River in Franklin County, Missouri and replacement of the structure 250 m downstream. The BA was based upon in-stream mussel surveys conducted by ESI in May and October, 2014 and included a project description, a description of the action area, biological and life history information regarding the species considered, effects of the proposed action, and effects determinations for each species. MoDOT and US Fish and Wildlife Service biologists reviewed the document and determined that the BA addressed concerns regarding potentially lethal impacts, but more information was needed to address potential sub-lethal effects. Furthermore, details regarding the timing and scope of some of the construction activities, and their potential effects on mussels, were not described in the initial BA.

This supplement is intended to address these details, discuss the potential for sub-lethal effects, and present conservation measures intended to avoid adverse effects. The results of a summer habitat assessment for Indiana and northern long-eared bats and the conservation measure of winter clearing of suitable roost trees are also presented. As the designated non-federal representative of the Federal Highway Administration, MoDOT is requesting concurrence from the Service for “not likely to adversely affect” determinations for spectaclecase, scaleshell, and sheepnose mussels; and also for Indiana and northern long-eared bats.

## **Official Species List**

On January 6, 2016, MoDOT submitted the project to the USFWS IPaC system (Consultation Code 03E14000-2016-SLI-0603) generating the following species list:

### **Birds**

- Least tern, Piping Plover, Red Knot

### **Clams**

- Pink mucket, Scaleshell, Sheepnose, Snuffbox, Spectaclecase

### **Flowering Plants**

- Decurrent false aster

### **Mammals**

- Gray, Indiana, and Northern long-eared bats

No critical habitats are within the project area. In accordance with Section 7 of the ESA, MoDOT has made “no effect” determinations for the bird species, decurrent false aster, and gray bat based on lack of nearby records in the Missouri Natural Heritage Database, and no suitable habitat for these species in the project area. MoDOT has also made “no effect” determinations for pink mucket and snuffbox mussels. The nearest pink mucket records are 2.8 miles upstream consisting of dead specimens found in 1977. The nearest

snuffbox records are 3 miles downstream where one fresh dead specimen was found in 2001. These species were not found during ESI's 2014 project area surveys.

MoDOT has made "may affect, not likely to adversely affect" determinations for Indiana and northern long-eared bats. The Service provided a letter dated October 24, 2012 to Scott Billings of SCI Engineering, Inc., the environmental consultant hired by Franklin County, stating that if more than 10 acres of trees will be cleared, and if clearing will take place outside the hibernation season, then further assistance from the Service would be necessary. Tree clearing is less than 10 acres and cutting of suitable roost trees is slated to occur prior to April 1, 2016. MoDOT biologists conducted a summer habitat assessment on 1/29/16 and identified 15 trees within the clearing limits that would qualify as suitable habitat. These trees will be removed prior to April 1, 2016. Andy Roberts of USFWS has verbally concurred that removing these during the winter months meets the NLAA determination. Additional information is provided below.

### **Spectaclecase, Sheepnose, and Scaleshell Mussels**

The original Biological Opinion described the locations of these species within the project area, along with locations of construction activities, and concluded that all three were not likely to be adversely affected by the project. Although the upstream bed containing spectaclecase is underneath the east span of the existing bridge, Franklin County has committed to lift and remove this span of the bridge with a crane positioned on a barge in the middle of the river. The barge will be placed in the river from the opposite (west) bank just downstream of the existing bridge and it will not be placed on top of the mussel bed. The barge will either be anchored to the banks or by posts pushed into the stream bed. These measures will prevent direct mortality of mussels as a result of dropping the span in the river or crushing from the barge. Although the west span will be dropped in the river, few unionids and no listed species were observed below. Additionally, the existing pier is approximately 65 feet west of the edge of the bed and removal of this pier is not expected to impact spectaclecase (see Existing Bridge Pier Location attachment).

Removal of the existing bridge will increase turbidity and suspended solids for brief periods of time within the river. While these actions are not expected to impact spectaclecase due to currents, they could result in increased turbidity downstream in the vicinity of the sheepnose and scaleshell locations (approx. 350 meters downstream of the existing bridge). Dropping the west span will increase turbidity which is expected to quickly dissipate, but removal from the river by dragging out the superstructure will also increase turbidity. Removal of the superstructure and removal of the existing pier from the river will also briefly increase suspended solids. Each of these actions is expected to take 24 – 48 hours.

Construction of the new bridge upstream of the bed containing scaleshell and sheepnose will also result in increased turbidity. The new bridge will be constructed approximately 70 meters upstream of the bed (and approximately 130 meters from the locations where the listed species were found). Pier construction will cause a short term increase in

sediment stirred from the river bottom. The western pier will be the main concern for scaleshell and sheepsnose since it is directly upstream of the bed. To construct the piers, a 10' temporary casing will be constructed and bolted into the rock at the bottom of the river. Excavated materials would be hauled away and the casing will be pumped out and the contents hauled away from the river. There will be no discharges in the river. Casing construction is expected to take 24-48 hours per pier. Drilled shafts for the new bridge will be installed within the temporary casings. Overall, pier construction is expected to last for approximately 1 month/pier.

Another source of suspended solids will come from constructing the west bridge abutment. The western bank must be re-graded and sloped so that protective rock blanket can be placed to protect the western abutment. The toe of the rock slope will be keyed into the river bottom, approximately 15 feet from the bank. This action, along with placement of rock below the water line, is expected to take 48-72 hours, but could possibly last as long as one week. Geotextile blanket placed between the rock and river bottom will help to attenuate the turbidity, as will the placement of floating turbidity barriers around this area within the river. These barriers will extend to the river bottom and will trap most suspended solids allowing them to settle slowly on the river bottom instead of flowing downstream and depositing on over the mussel bed.

ESI concluded that the swift current will prevent siltation over the downstream bed. Although construction activities will not increase turbidity to the extent that mortality will occur due to smothering, changes in behavior such as temporarily halting of feeding or reproductive activities could occur. Decreased growth and increased use of stored resources have been observed in the laboratory for mussels exposed to high levels of suspended solids (Aldridge et al. 1987). However, a recent study found that growth and survival of mussels was not related to suspended solids, although negative effects on reproduction were observed (Gascho Landis et al. 2013). This underscores the need to protect mussels from exposure to elevated levels of suspended solids during their reproductive cycles. The breeding and host seasons are not well defined for sheepsnose and scaleshell (Andy Roberts, personal communication). Field observations suggest that scaleshell is a long-term brooder, spawning sometime in August and releasing its glochidia by June of the following year. Sheepsnose typically spawn in late June and release conglomerates in late July and into August. Thus, the most sensitive times for reproduction of these species are June, late July, and August.

Increased turbidity from actions associated with this project will likely be similar to levels produced during natural flood events. Mussels are adapted to these types of temporary disturbances and short durations of increased turbidity should not result in injury or meet the threshold of harassment under the ESA. Furthermore, the actions most likely to increase turbidity will take place outside of the most sensitive times for mussel reproduction as defined above, and devices to attenuate suspended solids will be employed. As an additional conservation measure, the actions described above will be staggered temporally to avoid cumulative disturbance effects, thereby lowering the levels of suspended solids to which mussels are exposed through a series of smaller events as opposed to a few larger disturbances.

The following measures to protect mussels will be incorporated into Job Special Provisions (JSPs) to be included in the contract:

- 1) No construction of the new piers (including the temporary casing and drilling) during the month of June, the last week of July, and the month of August.
- 2) No work below the water surface at the west abutment (excavation, placement of rock, etc.) during the same time period above.
- 3) Use of turbidity barriers that extend to the river bottom in the water around the new west abutment.
- 4) BMP's will be used to prevent silt and sediment from entering the water.
- 5) Use of a crane to lift off the east span of the old bridge over the mussel bed rather than dropping it.
- 6) Dropping the existing west span and removal of the existing pier outside of the timeframes in #1.
- 7) Construction barges cannot be placed on top of either mussel bed.
- 8) Barges will be placed within the river from the west bank immediately downstream of the existing bridge and outside the timeframes in #1.
- 9) Actions producing the greatest turbidity will not be performed concurrently (i.e., construction of the temporary casing around the west pier will not occur at the same time as construction of the west abutment below the water line).

#### **Indiana and Northern Long-Eared Bats**

This project involves less than 10 acres of tree clearing. Given the current project timeline, some tree clearing must take place during the summer months. Therefore, on 1/29/16 MoDOT biologists, accompanied by Brad Dunagan of Cochran Engineering, conducted a summer habitat assessment for Indiana and northern long-eared bat potential roost trees. Franklin County has committed to removing all potential bat roost trees during the winter months to prevent adverse effects. The survey resulted in identification of 25 potential roost trees within the project area, but after further review by Mr. Dunagan, it was determined that only 16 need to be removed for the project. Another tree (Tree 3) was re-assessed based on pictures taken in the field and it was determined that it does not qualify as suitable habitat. The rest are outside of the clearing limits.

Attached are plan sheets of the project depicting the locations of all trees identified during the assessment. The following summarizes the removals that will take place prior to April 1, 2016:

Trees 1 – 8: Remove all (except Tree 3)  
Trees 9 – 11: Can remain  
Trees 12 – 16: Remove all  
Trees 17 – 18: Can remain  
Trees 19 – 20: Remove all  
Trees 21 – 24: Can remain  
Tree 25: Remove

## **Conclusion and Determinations**

Franklin County has gone to great lengths to prevent adverse effects to mussels in the action area and they are to be commended for their conservation efforts. These efforts include lifting the east span with a crane, constructing the new bridge between the mussel beds, timing major sediment-disturbing activities to seasons when the mussels are least sensitive, and employing turbidity barriers around the abutment construction. Likewise, winter tree clearing of suitable roost trees will be performed as a conservation measure for bats. No future activities are planned in the area post-construction and these actions are unlikely to lead to additional development in the area. Adverse effects have been avoided and MoDOT, on behalf of the FHWA, requests concurrence from the Service for “not likely to adversely affect” determinations for spectaclecase, scaleshell, sheepsnose, Indiana bats, and northern long-eared bats.

## **References**

- ALDRIDGE, D. W., B. S. PAYNE, AND A. C. MILLER. 1987. The effects of intermittent exposure to suspended solids and turbulence on 3 species of freshwater mussels. *Environmental Pollution* 45:17–28.
- GASCHO LANDIS, A.M., W.R. HAAG, AND J.A. STOECKEL. 2013. High suspended solids as a factor in reproductive failure of a freshwater mussel. *Freshwater Science* 32:70-81.

## **APPENDIX E**




PROGRAMMATIC SECTION 4(f) EVALUATION

HISTORIC BRIDGES

PROJECT NUMBER: STP-9900(638) RTE: Bend Road COUNTY: Franklin

SECTION 4(f) RESOURCE: Withington Ford Bridge (also known as Bend Bridge)

REVIEWED BY: Michael Meinkoth <sup>MEM</sup> TITLE: Historic Preservation Manager

APPROVED BY  DATE \_\_\_\_\_

Digitally signed by RAEGAN M BALL  
DN: c=US, o=U.S. Government, ou=DOT  
HWAI Jefferson City MO, ou=FHWA  
CN=RAEGAN M BALL  
Date: 2015.05.02 09:29:49 -05'00'

This project and its impacts have been determined to meet the following criteria for a Programmatic Section 4(f). Sufficient documentation exists in the project file to support this determination. Note: Any response in a bracket requires additional information prior to approval. Consult Programmatic 4(f) Evaluation signed July 5, 1983 by FHWA's Office of Environmental Policy.

APPLICABILITY

- |  | Yes      | No       |
|--|----------|----------|
| 1. Will the bridge be replaced or rehabilitated with Federal funds?  | <u>X</u> | [ ]      |
| 2. Will the project require the "use" of an historic bridge which is on or eligible for listing on the National Register of Historic Places? | <u>X</u> | [ ]      |
| 3. Will the project impair the historic integrity of the bridge either by demolition or rehabilitation?                                      | <u>X</u> | [ ]      |
| 4. Has the bridge been determined to be a National Historic Landmark?  | [ ]      | <u>X</u> |

ALTERNATIVES CONSIDERED

- |  |          |     |
|--|----------|-----|
| 1. The do nothing alternative has been studied and is considered not to be feasible and prudent for reasons of maintenance and safety. | <u>X</u> | [ ] |
|--|----------|-----|

- |   | Yes                                 | No                       |
|---|-------------------------------------|--------------------------|
| 2. The building on new location alternative without using the old bridge has been studied and has been determined to be not feasible and prudent for reasons of terrain; and/or adverse social, economic or environmental effects; and/or engineering and economy. <u>  X  </u> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Rehabilitation of the existing bridge without affecting the historic integrity of the bridge has been studied and has been determined to be not feasible and prudent for reasons of structural deficiency and/or geometrics. <u>  X  </u>                                    | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Relocation of the existing bridge has been studied and found to be not feasible and prudent because either the bridge's historic integrity would be adversely affected or no responsible party could be found to accept responsibility for the bridge. <u>  X  </u>          | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

#### MEASURES TO MINIMIZE HARM

- |  |                                     |                          |
|--|-------------------------------------|--------------------------|
| 1. For bridges that are to be rehabilitated, the historic integrity of the bridge is preserved, to the greatest extent possible, consistent with unavoidable transportation needs, safety, and load requirements. <u>  n/a  </u>   | <input type="checkbox"/>            | <input type="checkbox"/> |
| 2. For bridges that are to be rehabilitated to the point that the historic integrity is affected or that are to be moved or demolished, the FHWA has ensured that fully adequate records are made of the bridge in accordance with the Historic American Engineering Record (HAER) standards, or other suitable means developed through consultation. <u>  n/a  </u> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 3. For bridges that are to be replaced, the existing bridge is made available for an alternative use, provided a responsible party agrees to maintain and preserve the bridge. <u>  X  </u>  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. For bridges that are adversely affected the FHWA, SHPO, and ACHP have reached agreement through the Section 106 process on Measures to Minimize Harm and those measures are incorporated in the project. <u>  X  </u>   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Section 4(f) Narrative  
Withington Ford (Bend) Bridge (Bridge 0920001)  
Franklin County, Missouri  
STP-9900(638)

Franklin County, Missouri is proposing to use funding from the Federal Highway Administration (FHWA) to realign a portion of Bend Road and construct a new bridge over the Meramec River. As part of this project the existing bridge, the Withington Ford Bridge (0920001) will be removed.

Applicability

Franklin County has applied for and been approved for a Surface Transportation Program (STP) grant to realign a portion of Bend Road near the Meramec River and to construct a new crossing of the Meramec River. The project will improve the safety of the roadway by eliminating a sharp curve on the approach to the river crossing and by eliminating a very narrow river crossing.

The Withington Ford Bridge was recommended as eligible for listing on the National Register of Historic Places (NRHP) following the Missouri Historic Bridge Inventory, as an excellent long-span example of the Pennsylvania through truss, an uncommon span type in Missouri. On August 20, 2012 the Missouri State Historic Preservation Office (SHPO), in response to a Section 106 submittal about the project, concurred with the eligibility determination for the bridge and said that the replacement of the bridge would have an adverse effect on the historic property (correspondence attached).

The bridge is not a National Historic Landmark.

Alternatives Considered

The alternatives considered for the project are detailed in the attached Alternative Courses. The Purpose and Need for the project was identified as improving the safety and efficiency of Bend Road over the Meramec River. Objectives included providing a bridge that would improve the load capacity of the structurally deficient bridge, improving functionality of the bridge so it is not considered obsolete, correcting sight distance issues at the bridge, improving roadway geometry so that WB-50 trucks can make the curve approaching the crossing and mitigating fracture critical issues with the crossing.

The do nothing alternative was studied and determined to not be prudent and feasible since it would not address the purpose and need of the project.

The roadway is being realigned and a bridge being constructed on a new alignment. Leaving the historic bridge in place to carry traffic as part of a one-way pair would not address the structural or geometric deficiencies of the historic bridge or roadway and would not address the fracture critical condition of the bridge. It would not allow WB-50 trucks to make the curve approaching the bridge.

Leaving the bridge in place as a pedestrian bridge was studied. The bridge was marketed for reuse in place or at a new location. A proposal for reuse in place was received from the Magi

Foundation. The proposal would locate a trail a portion of the Ozark Trail across the bridge. The proposal was opposed by neighboring property owners who hold a prescriptive easement to the roadway approaching the bridge. The proposal did not meet basic requirements, including a statement from a prospective new owner willing to take title of the bridge and assume all future legal and financial responsibility. Because of the deficiencies of the proposal, it was rejected.

Rehabilitation of the structure would not address the functional deficiency of the deck width or correct the geometric issues with the approach roadway to the bridge, and did not meet the purpose and need.

No proposals to relocate the bridge for another use were received during the nine months that the bridge was made available.

#### Measures to Minimize Harm

The bridge was made available for reuse by other parties, either in a new location or at its current location, for a period of nine (9) months. Information on the availability of the bridge was circulated to the Section 106 consulting parties, direct mailed to local governments in the area, and the bridge was placed on the Missouri Department of Transportation (MoDOT) Free Bridges web-site. During this period one (1) proposal was received, from the Magi Foundation, as discussed above. No party willing to maintain and preserve the bridge was found.

A Memorandum of Agreement (MOA) was developed during the Section 106 process stipulating several mitigation measures to resolve the adverse effect on the historic bridge. The bridge will be photographed using high resolution images, taken to National Register standards, and photographs will be printed to archival quality. A historical narrative explaining the history and significance of the bridge will be prepared. These documents will be supplied to the SHPO and to a local historical society. The bridge plates have been removed and will be donated to a local historical society. Franklin County will work with a local historical society to develop an exhibit on the history and significance of the bridge for display at the society. The MOA was executed on April 27, 2016.

#### Attachments:

Location Map

Photographs

Correspondence with SHPO

STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES

Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

www.dnr.mo.gov

August 20, 2012

Joe Feldman, P.E.  
Franklin County Highway Department  
400 East Locust, Room 003A  
Union, Missouri 63084

RECEIVED  
AUG 27 2012  
FRANKLIN COUNTY  
HIGHWAY DEPARTMENT

Re: Bend Road Bridge Replacement (FHWA) Franklin County, Missouri

Dear Mr. Feldman:

Thank you for submitting information on the above referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.O. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which require identification and evaluation of cultural resources.

We have reviewed the information provided concerning the above referenced project. We have determined that the Bend Road (Withington Ford) Bridge is eligible for inclusion in the National Register of Historic Places. We have also determined that the proposed replacement project will have an **adverse effect** on the historic fabric of the bridge.

Therefore, the Federal Highway Administration shall forward the necessary adequate documentation as described to the Executive Director, Advisory Council on Historic Preservation, The Old Post Office Building, 1100 Pennsylvania Avenue NW, #809, Washington, DC 20004. Pending receipt of the Council's decision on whether it will participate in consultation, no action shall be taken which would foreclose Council consideration of alternatives to avoid or satisfactorily mitigate any adverse effect on the property in question.

We have also determined that there is a moderate to high potential for the presence of archaeological sites near and within the area of the proposed project corridor, as indicated by the topographic location, and that an archaeological survey, with deep testing as deemed appropriate, should be conducted. This survey should be completed prior to the initiation of project-related construction activities.

A list of independent archaeological contractors who can perform such services is available through the Department of Natural Resources, Division of Administrative Support. The list can be obtained by calling (573) 751-0958 and requesting the "archaeological contractors list." Note that any 36 CFR Part 61 qualified archaeologist may perform an archaeological survey. If you choose a contractor not on the list, please be certain to include his or her curriculum vitae in the report. We would appreciate one (1) hard copy and one (1) pdf copy of the archaeological survey report when it is finished so we may complete the review and comment process.

If you have any questions, please write Judith Deel at State Historic Preservation Office, P.O. Box 176, Jefferson City, Missouri 65102 or call 573/751-7862.

Please be sure to include the SHPO Log Number (028-FR-12) on all future correspondence or inquiries relating to this project.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

A handwritten signature in blue ink, appearing to read "Mark A. Miles", followed by a horizontal line.

Mark A. Miles  
Director and Deputy State  
Historic Preservation Officer

MAM:d

c Peggy Casey, FHWA  
Bob Reeder, MoDOT

# FRANKLIN COUNTY, MISSOURI

## BEND ROAD BRIDGE NO. 09200011



PROJECT NO. BRM-9900(638)

ALTERNATIVES ANALYSIS

COMPILED: AUGUST, 2015

## **Project Description**

The Franklin County Highway Department proposes to improve the safety and efficiency of Bend Road over the Meramec River 1.6 miles southwest of Pacific by replacing the existing substandard bridge (Withington Ford Bridge) with a new bridge on a new alignment roughly 630 feet downstream from the existing bridge. The Withington Ford Bridge, 0920001, is eligible for the National Register of Historic Places (National Register), and the proposed work will have an “adverse effect” on the historic property. The project’s area of potential effects (APE) is considered to be the project footprint (i.e. existing and new right-of-way, and temporary and permanent easements) but will entail the removal from service of the historic bridge. The proposed project will use matching Federal funds.

## **Description of the Historic Property**

The Withington Ford Bridge is a Pratt Truss subtype: Pennsylvania through truss bridge consisting of two 200 ft. spans with an overall length of 422 ft. It is a single lane bridge with a roadway width of 15 ft. The superstructure is a steel, 10-panel, pin-connected Pennsylvania through truss with steel stringer approaches. The decking is asphalt on timber over steel floor beams. The substructure consists of concrete abutments and piers.

The bridge was designed by Franklin County engineer J.M Moore in 1915 and was constructed by Miller and Borcharding of St. Louis in 1916-17.

## **Objectives**

There are many problems with the existing structure. It is structurally deficient, meaning that it cannot carry legal loads and must be load posted. It is functionally obsolete because it is a 1-lane bridge with an ADT of over 100 VPD.(The actual ADT is over 1000 VPD) The bridge is fracture critical because it has only two non-redundant trusses and a failure in any one member of the bridge could cause failure of the entire bridge. With respect to safety, the bridge approaches are not conducive to modern traffic and vehicles. The sight distance is deficient because vehicles approaching the bridge cannot see if there are other vehicles on the bridge. The roadway geometry is deficient because the curve at the end of the bridge is substandard and trucks cannot make the corner. The objectives of this project are to correct the identified problems as follows:

1. Correct the structural deficiency by improving the load capacity.
2. Improve the functionality of the bridge so it is not considered obsolete.
3. Correct the sight distance so that vehicles approaching the bridge can see across the bridge.
4. Improve the roadway geometry to allow a WB-50 Truck to make the curve.
5. Mitigate the fracture critical characteristic of the structure.

## **Alternative Courses of Action**

The alternative courses of action considered for this project include the following:

1. Take no action.
2. Rehabilitate the existing structure.
3. Replace the bridge on the existing alignment
4. Construct new bridge on new alignment and profile to the southeast of the existing alignment.

## **Summary of Alternative Courses of Action**

The **no-build** alternate would result in continued deterioration of the bridge. Keeping it in service would require periodic repairs, and occasional unplanned load postings in addition to existing postings, and/or bridge closures for extended periods. The frequency of this work would increase as the bridge ages and the cost would be expected to increase each year. Additionally, the load posting would be lowered as the structure continues to deteriorate. This option does not satisfy any of the project objectives and would eventually result in permanent bridge closure.

**Rehabilitation** of the existing structure would extend the service life but would not eliminate the need for regular maintenance. Rehabilitation would include superstructure and substructure repair and repainting of all structural steel and reconstruction and realignment of both approaches.

Painting this structure would require that all of the existing rust and paint be removed. The existing paint contains lead so all materials removed would have to be treated as hazardous materials. It is likely that after sandblasting the rust out of the joints that additional structural problems will be found.

The west approach could be reconstructed to provide adequate sight distance to see vehicles on the bridge and a waiting lane with space to allow for oncoming traffic. The additional fill material required to reconstruct this approach would have to be investigated for its effect on the river flow during flood events. The east approach could be excavated further into the rock bluff. The residence on that property would have to be purchased to allow for the roadway alignment with adequate curve radius.

Rehabilitation would not address the functional deficiency of deck width since the deck is confined by the bridge truss and cannot be widened to allow two lanes of traffic. It is unlikely that the truss can be strengthened to carry current design loads. Having a restricted load capacity would also be an inconvenience to the surrounding area, but more importantly would restrict some emergency services being available west of the bridge.

This option does not satisfy several of the project objectives. The bridge would still be considered **FUNCTIONALLY OBSOLETE** because of the one-lane status and the ADT. Because of this none of the work would be eligible for Federal Reimbursement. Extensive rehabilitation of this scale would be impractical in light of these operational and safety restrictions.

**Complete replacement with a new bridge on existing alignment was also considered.** To improve the roadway geometry, homes would have to be taken, new R/W would be required and new roadbed would have to be constructed including a very large amount of rock excavation because of the high bluff on the east end. This option would result in the most environmental impact of any of the replacement options, both because of the very large amount of rock excavation and because of the mussel bed containing endangered species directly under the bridge. It would require the most right-of-way purchases, mitigation expenses, and approach roadway construction. For these reasons this was not considered to be a realistic option.

**Complete replacement with a new bridge on new alignment approximately 630' south of the existing bridge** allows for improvement of all of the safety issues related to load capacity and roadway geometry. The new structure will have a 28 foot wide roadway and meet current load standards. Building at this location will minimize the closure of Bend Road.

Other bridge locations were investigated as part of this alternative. However, all other alignments required more road work and greater environmental impact. Environmental studies have confirmed this alignment to be the best location for the bridge. While not known at the time the alignment was established, environmental studies have found endangered species of mussels upstream and downstream of the proposed corridor and under the existing bridge. However, at the time of the study, no endangered species were found within the proposed construction limits. The proposed new alignment for the west approach has been investigated and found to be clear of environmental issues.

**Conclusions:** To not do anything at this bridge site would be a violation of public safety concerns and is not considered an option. Rehabilitation of the existing structure does not adequately address the public safety concerns and is not considered to be a good use of public funds. Construction of a new bridge at or near the existing location also does not correct public safety issues without an excessive amount of realignment, R/W acquisition and environmental impacts.

Replacing the existing structure with a new bridge on new alignment approximately 630' south of the existing bridge would satisfy the project objectives of eliminating all condition, safety, and functional deficiencies. This is the most reasonable and Preferred Option.

Estimated Construct Costs:		Estimated Years of Service:
Rehabilitation:	\$2,800,000	15 Years
Replacement at Existing Location:	\$5,000,000	75 Years
Replacement at Proposed Location:	\$4,400,000	75 Years

## **APPENDIX F**





DEPARTMENT OF THE ARMY  
ST. LOUIS DISTRICT CORPS OF ENGINEERS  
1222 SPRUCE STREET  
ST. LOUIS, MISSOURI 63103-2833

REPLY TO  
ATTENTION OF:

March 31, 2016

Regulatory Branch  
File Number: MVS-2014-78

Mr. Joe Feldman  
Franklin County Highway Department  
400 East Locust, Room 003A  
Union, Missouri 63084

Mr. Feldman:

We have reviewed your permit application received by our office on February 18, 2014, submitted on your behalf by Cochran Engineering, regarding the project known as *Withington Ford/Bend Road Bridge #0920001 Replacement*, Franklin County, Missouri. The proposed project consists of the removal of the Bend Road Bridge Structure (Bridge #0920001) and constructing a new bridge and associated roadwork downstream of its current location. The bridge carries Bend Road/State Route N over the Meramec River, south of Pacific, Missouri. The project includes the removal of the existing truss bridge and pier, construction of a new roadway and bridge approaches, installation of drainage features and the construction of a new bridge deck and two single column hammerhead bents on piles. Additionally, minor grading will occur on the right descending bank. Once the bank grading is complete, type 2 rock will be placed along the right bank for erosion control. Tributary B identified in SCI's Wetland and Waterbody Determination Report will be impacted by the road work approaching the east side of the bridge. The impacts to Tributary B will be minor. Based on the submitted wetland determination, no wetlands will be impacted by the proposed project. The project is located within the Northeast ¼ of Section 22 and Northwest ¼ of Section 23, Township 43 N, Range 02 E, Franklin County, Missouri.

Based upon a review of the U.S. Geological Survey 7.5-minute topographical map, aerial imagery, and the submittal, we have determined that the Meramec River and Tributary B would possess an ordinary high water mark at these locations and would be considered a jurisdictional water of the United States. Therefore, the placement of fill material below the ordinary high water elevation requires a permit from this office.

The Corps of Engineers has determined that this activity may affect, but is not likely to adversely affect endangered species, and is authorized under Section 404 of the Clean Water Act by an existing Department of the Army nationwide permit for *Linear Transportation Activities* as described in the February 21, 2012, Federal Register, Reissuance of Nationwide Permits; Notice (77 FR 10273), Appendix A (B)(14). This verification is valid until March 18, 2017, unless the district engineer modifies, suspends, or revokes the nationwide permit authorization in accordance with 33 CFR 330.5(d). If you commence, or are under contract to commence, this activity before the nationwide permit expires, you will have 12 months after the date the nationwide permit expires or is modified, suspended, or revoked, to complete the activity under the present terms and conditions of this nationwide permit. Enclosed is a copy of the nationwide permit and conditions and management practices with which you must comply. **The district engineer has further conditioned this permit to include the following special conditions:**

1. All bank areas disturbed during construction shall be stabilized by rip rapping, seeding and mulching, or other appropriate erosion control methods.
2. All bridge material, including the bridge deck and piers from the existing bridge that will be removed or that may fall into the Meramec River shall be removed from below the OHWM of the Meramec River and shall be placed within an upland site and not into a jurisdictional stream or wetland.
3. All temporary roads, barges, equipment and other materials used to remove the existing bridge and to construct the new bridge structure shall be removed in their entirety once the work is completed.
4. Clearing of vegetation/trees shall be the minimum necessary to accomplish the activity.
5. The Federally Endangered Indiana Bat (*Myotis sodalis*) and the threatened Northern Long-eared Bat (*Myotis septentrionalis*) are found in stream corridors throughout Franklin County. Measures to minimize the potential take of the Indiana bat or Northern Long-eared Bat shall be performed by clearing trees outside of the reproductive season. If tree clearing is necessary, it SHALL NOT occur during the April 1 thru September 30th time frame to avoid impacting the Indiana and Northern Long-eared bats.
6. The Permittee shall notify the Corps should any change in size, location of methods to accomplish the work occur. Changes could potentially require additional authorizations from the Corps as well as other federal, state or local agencies.

In accordance with General Condition number 30 of the Nationwide Permit, a compliance certification (Attachment A of this package) must be completed within 30 days of project completion or the permit issuance may be revoked and considered null and void.

The Missouri Department of Natural Resources Water Protection Program (MDNR/WPP) has conditionally issued general Section 401 Water Quality Certification for this nationwide permit, subject to special conditions (see enclosure). These conditions are part of the Corps permit. If you have any questions regarding the water quality certification conditions, you may call Ms. Stacia Bax, MDNR/WPP, at 573-526-4586.

This determination is applicable only to the permit program administered by the Corps of Engineers. It does not eliminate the need to obtain other federal, state or local approvals before beginning work. This permit verification does not convey property rights, nor authorize any injury to property or invasion of other rights.

You are reminded that the permit is based on submitted plans. Variations from these plans shall constitute a violation of Federal law and may result in the revocation of the permit. If this nationwide permit is modified, reissued, or revoked during this period, the provisions described at 33 CFR 330.6(b) will apply.

The jurisdictional determination for this project is considered a preliminary jurisdictional determination (PJD) in accordance with Corps regulations at 33 CFR Part 331. A PJD is an expedited determination that does not require interagency coordination, but is also not appealable. If you consent to the findings of this PJD, please sign and date the enclosed *Preliminary Jurisdictional Determination Form* and return it to this office at the letterhead address. If you do not agree with the PJD, you may

request an Approved Jurisdictional Determination, which may be appealed, by contacting our office for further instruction.

If you have any questions, please contact Tyson Zobrist at (314) 331-8578. Please refer to file number **MVS-2014-78**. The St. Louis District Regulatory Branch is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to complete our Customer Service Survey found on our web site at

[http://corpsmapu.usace.army.mil/cm\\_apex/f?p=regulatory\\_survey](http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey).

Sincerely,

Tyson Zobrist  
Missouri Project Manager  
Regulatory Branch

Enclosures

Copy Furnished: (electronically w/o enclosures)

Ms. Stacia Bax, MDNR-Water Protection Program  
Mr. Jason Daniels, U.S. Environmental Protection Agency  
Ms. Judith Deel, MDNR-State Historic Preservation Office  
Ms. Amy Salveter, U.S. Fish & Wildlife Service  
Mr. Andy Roberts, U.S. Fish & Wildlife Service  
Mr. Audrey Beres, Missouri Department of Conservation

Mr. Bradford Dunagan, Cochran Engineering  
Mr. Scott Billings, SCI Engineering, Inc.



## **ATTACHMENT A**

### COMPLETED WORK CERTIFICATION

Date of Issuance: March 31, 2016

File Number: MVS-2014-78

Name of Permittee: Franklin County Highway Department

Name of Project: *Bend Road Bridge #0920001 Bridge Replacement Project*

Project Location: Pacific, Missouri

River Basin/County/State: Meramec/Franklin /Missouri

Project Manager: Zobrist

Upon completion of this activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers  
Attn: Regulatory Branch (OD-F)  
1222 Spruce Street  
St. Louis, Missouri 63103-2833

(Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification or revocation.)

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

\_\_\_\_\_  
Signature of Permittee

\_\_\_\_\_  
Date



# ROADWAY QUANTITIES

## LIST OF QUANTITIES

Bid No.	Item No.	Description	From STA	To STA	Unit	Quantity
<b>ROADWAY ITEMS</b>						
1	2013000	Clearing and Grubbing	10+50	34+45	AC	7.3
2	2022010	Removal of Improvements	10+50	34+45	LS	1
3	2035000	Unclassified Excavation	10+50	34+45	CY	5,221
4	2035500	Embankment in Place	10+50	34+45	CY	53,116
5	2036000	Compacting Embankment	10+50	34+45	CY	53,116
6	2042010	Settlement Gauge	17+50	20+50	EA	5
7	3040504	Type 5 Aggregate for Base (4") (for roadway only)	10+50	34+45	SY	5,862
8	3105003	Gravel (A) or Crushed Stone (B) (4") (for driveways only)	13+30	33+73	SY	1,537
9	4010105	5 Inches, Bituminous Pavement (Driveway)	25+40	32+06	SY	537
10	4011209	Asphalt Pavement (BP-1) (Surface Course) (2") (Echelon Paving)	10+50	34+45	TON	779
11	4020520	Asphalt Pavement (Bituminous Base (Base Course) (2 - 3" Lifts)	10+50	30+00	TON	1,781
12	5024006	Full Depth Pavement (Widening)	30+00	34+45	SY	583
13	6061010	Type A Guardrail	16+26	26+50	LF	858
14	6062300A	Transition Section, 6.5 Ft. Posts	20+00	26+00	EA	3
15	6062400	Bridge Anchor Section	20+00	26+00	EA	3
16	6063001	Crash Cushion Attenuator (9')	25+50	26+00	EA	1
17	6063015	Type A Crashworthy Terminal End Section	16+26	26+50	EA	3
18	6071041	Tubular Steel Drive Gates, 10' (including post)	15+50	25+70	EA	6
19	6071042	Chain Gate and Posts	28+50	28+90	EA	1
20	6071043	Mailbox relocation	27+20	33+55	EA	8
21	6085006	Paved Concrete Approach 6"	25+70	27+25	SY	111
22	6091051	Concrete Curb and Gutter	25+85	26+90	LF	167
23	6096020	Furnishing Type 2 Rock Ditch Liner (12" Thick)	27+35	32+60	CY	185
24	6096030A	Furnishing Type 3 Rock Ditch Liner (12" Thick)	28+45	28+60	CY	11
25	6096042	Placing Type 2 Rock Ditch Liner	27+35	32+60	CY	185
26	6096043	Placing Type 3 Rock Ditch Liner	28+45	28+60	CY	11
27	6161025	Channelizer (trim line)	10+50	34+45	EA	100
28	6161040	Flashing Arrow Panel	10+50	34+45	EA	2
29	6161096	Changeable Message Sign	10+50	34+45	EA	2
30	6162001	Portable Traffic Signal	10+50	34+45	EA	2
31	6173601	Temporary Traffic Barrier (Type F), Contr. Furn./Retained	10+50	34+45	LF	175
32	6181000	Mobilization	10+50	34+45	LS	1
33	6240001	Pavement Geotextile	10+50	34+45	SY	6,924
34	7261315	15" Class III Reinforced Concrete Pipe Culvert	27+39	33+68	LF	109
35	7261324	36" Class III Reinforced Concrete Pipe Culvert	28+37	28+93	LF	52
36	7261396	96" Class IV Reinforced Concrete Pipe Culvert	27+43	28+13	LF	147
37	7320615	15" Precast Concrete Flared End Section	27+39	33+68	EA	10
38	7320624	36" Precast Concrete Flared End Section	28+37	28+93	EA	2
39	8061019	Silt Fence	10+50	34+45	LF	5,746
40	8061021	Type I Ditch Check	10+50	34+45	EA	20
41	8061026	Turbidity Barrier	21+50	22+50	LF	300
<b>SIGNING/STRIPING/SIGNAL ITEMS</b>						
42	6161005	Construction Signs	10+50	34+45	SF	158
43	6161030	Type III Moveable Barricade with Light	10+50	34+45	EA	12
44	6206201	Type A Epoxy Pavement Marking, 4 in.	10+50	34+45	LF	9,576
45	9031220	Relocate Sign with New Post	10+50	34+45	EA	5
46	9035000	"Bike with Share the Road" (includes post and base)	14+50	31+50	EA	2
47	9035001	"Reverse Turn" Sign (W1-3R) (includes post and base)	10+70	25+65	EA	2
48	9035002	"Advisory Speed Plaque" Sign (W13-1) (includes post and base)	10+70	25+65	EA	2
49	9035003	"One Direction Large Arrow" Sign (W1-6) (includes post and base)	12+85	19+70	EA	4
50	9035004	"Object Marker" Sign (OM4-1) (includes post and base)	N/A	N/A	EA	4
<b>LANDSCAPING/STREETSCAPING ITEMS</b>						
51	8051000A	Seeding - Cool Season Mixtures	10+50	34+45	AC	4.4

Bid No.	Item No.	Description	From STA	To STA	Unit	Quantity
<b>BRIDGE ITEMS</b>						
52	2061003	Class 1 Excavation in Rock	25+25	26+00	CY	431
53	2160500	Removal of Bridges	12+00	17+00	EA	1
54	5031010	Bridge Approach Slab	20+80	25+75	SY	108
55	6071066	Pedestrian Fence (42")	20+93	25+62	LF	942
56	6113020	Furnishing Type 2 Rock Blanket	20+80	22+25	CY	2,124
57	6113040	Placing Type 2 Rock Blanket	20+80	22+25	CY	2,124
58	6240103A	Geotextile (Type 3) Class A	20+80	22+25	SY	3,119
59	7011111	Drilled Shafts (6' 6" Dia.)	22+40	24+10	LF	40
60	7011210	Rock Sockets (6' 0" Dia.)	22+40	24+10	LF	40
61	7011400	Foundation Inspection Holes	22+40	24+10	LF	100
62	7011600	Sonic Logging Testing	22+40	24+10	EA	2
63	7011300	Supplementary Television Camera Insp.	22+40	24+10	EA	2
64	7026000	Pre-bore for Piling	20+93	25+62	LF	133
65	7021012	Structural Steel Piles (12")	20+93	25+62	LF	369
66	7027000	Pile Point Reinforcement	20+93	25+62	EA	12
67	7032003	Class B Concrete (Substructure)	20+93	25+62	CY	51.6
68	7034003	Class B1 Concrete (Substructure)	20+93	25+62	CY	149.3
69	7034212	Slab on Steel	20+93	25+62	SY	1,615
70	7034610	Open Concrete Barrier Curb	20+93	25+62	LF	942
71	7061060	Reinforcing Steel (Bridges) (Grade 60)	20+93	25+62	LB	65,218
72	7101000	Reinforcing Steel (Epoxy Coated) (Grade 60)	20+93	25+62	LB	2,509
73	7110500	Temporary Coating - Concrete Bents and Piers (Weathering Steel)	20+93	25+62	LS	1
74	7121122	Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50W	20+93	25+62	LB	506,604
75	7151001	Vertical Drain at End Bents	20+93	25+62	EA	1
76	7162000	Laminated Neoprene Bearing Pad Assembly	20+93	25+62	EA	8
77	9107506	Conduit, 4", Rigid, External on Structure	20+93	25+62	LF	508



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237 RIDDER ROAD  
FENTON, MISSOURI 63026

CERTIFICATE OF AUTHORITY NUMBER - 006937

Three working days prior to the start of construction on this site, contractor shall call 1-800-DIG-RITE for utility location information.

All OSHA rules & regulations established for the type of construction shall be strictly followed (e.g. Trenching, Boring, etc.)

**BEND ROAD BRIDGE NO. 09200011**

**PROJECT NO. BRM-9900(638)**

**FRANKLIN COUNTY, MISSOURI**

**ROADWAY QUANTITIES**

DATE:	7/14/16	REVISION:	ADDENDUM 1
DWN. BY:	E.L.S.	APPD. BY:	B.B.D.
DATE:	JULY 2016	SCALE:	NO SCALE
PROJ. NO:	SC12-344	DWG. NO:	Q-1

## HYDRAULIC DATA

DESIGN FREQUENCY	100 YEAR
DESIGN DISCHARGE	133,000 CFS
DESIGN HIGH WATER ELEVATION AT THE STRUCTURE	470.47 FEET
NORMAL FREEBOARD PROVIDED	0.53 FEET
LOW ELEVATION OF STRUCTURE	471.00 FEET
APPROACH ROADWAY OVERTOPPING FREQUENCY	10-YEAR

## NOTE:

THE MAGNITUDE OF THE FLOODS, THE FLOODWAY DATA, AND ENCROACHMENT DATA WERE OBTAINED FROM A FIRM MAP; FRANKLIN COUNTY, MISSOURI MAP NUMBER 29071C0335D, ZONE AE.

## PROPOSED STRUCTURE

THREE SPAN (144'-180'-144')  
STEEL PLATE GIRDER  
CURB-TO-CURB WIDTH = 28'-0"  
OUT-TO-OUT WIDTH = 30'-10"  
SKEW = 20 DEGREES RIGHT ADVANCE  
GRADE = 0.00%

## PROPOSED ROADWAY

ROADWAY WIDTH = 24'-0"  
SHOULDER WIDTH = 2'-0"  
NORMAL CROWN = 2.00%

## BRIDGE QUANTITIES &amp; NOTES

## LIST OF QUANTITIES

Bid No.	Item No.	Description	From STA	To STA	Unit	Quantity
<b>BRIDGE ITEMS</b>						
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76	7162000	Laminated Neoprene Bearing Pad Assembly	20+93	25+62	EA	8
77	9107506	Conduit, 4", Rigid, External on Structure	20+93	25+62	LF	508

## GENERAL NOTES:

DESIGN SPECIFICATIONS:  
2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (6TH ED.) AND  
2013 INTERIM REVISIONS  
SEISMIC DESIGN CATEGORY A

CONSTRUCTION SPECIFICATIONS:  
MATERIALS AND CONSTRUCTION PROCEDURES SHALL CONFORM TO THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION 2011 AND CURRENT SUPPLEMENTAL SPECIFICATIONS AND REVISIONS, UNLESS MODIFIED BY THE PROJECT SPECIFICATIONS.

DESIGN LOADING:  
HL-93 LOADING  
FUTURE WEARING SURFACE 35 LBS./SQUARE FOOT  
EARTH 120 LBS./CUBIC FOOT  
EQUIVALENT FLUID PRESSURE= 45 LBS./CUBIC FT.

SUPERSTRUCTURE:  
SIMPLY SUPPORTED AND NON-COMPOSITE FOR DEAD LOAD 1.  
SIMPLY SUPPORTED AND COMPOSITE FOR DEAD LOAD 2 AND LIVE LOAD.

DESIGN UNIT STRESSES:  
END BENT 1 & 4 (CLASS B)  $f'_c = 3,000$  p.s.i.  
INTERMEDIATE BENT 2 & 3 (CLASS B1)  $f'_c = 4,000$  p.s.i.  
SAFETY BARRIER CURB (CLASS B1)  $f'_c = 4,000$  p.s.i.  
DRILLED SHAFTS & ROCK SOCKETS (CLASS B2)  $f'_c = 4,000$  p.s.i.  
SUPERSTRUCTURE CONCRETE (CLASS B2 MODIFIED)  $f'_c = 4,000$  p.s.i.  
REINFORCING STEEL (GRADE 60)  $f_y = 60,000$  p.s.i.  
STRUCTURAL STEEL (ASTM A709 GRADE 50W)  $f_y = 50,000$  p.s.i.  
STEEL PILE (ASTM A709 GRADE 36)  $FB = (3)$  PSI  
STEEL PILE: HP10 x 42; CAPACITY 56 TONS PER PILE (MAX.)  
STEEL PILE: HP12 x 53; CAPACITY 73 TONS PER PILE (MAX.)

ALL JOINT FILLER SHALL BE IN ACCORDANCE WITH SECTION 1057 FOR PREFORMED SPONGE RUBBER EXPANSION AND PARTITION JOINT FILLER, EXCEPT AS NOTED.

MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 2" UNLESS OTHERWISE SHOWN. ALL BAR CHAIR SUPPORTS AND WIRE USED FOR TYING THE REINFORCING STEEL SHALL BE EPOXY COATED OR PLASTIC COATED.

BEARINGS SHALL BE 60 DUROMETER NEOPRENE PADS, AND SHALL BE IN ACCORDANCE WITH SEC 716.

ROADWAY FILL SHALL BE COMPLETED TO THE FINAL ROADWAY SECTION AND UP TO THE ELEVATION OF THE BOTTOM OF THE CONCRETE BEAM WITHIN THE LIMITS OF THE STRUCTURE AND FOR NOT LESS THAN 25 FEET IN BACK OF THE FILL FACE OF THE END BENTS BEFORE PILES ARE DRIVEN FOR ANY BENTS FALLING WITHIN THE EMBANKMENT SECTION.

MINIMUM ENERGY REQUIREMENT OF HAMMER IS BASED ON PLAN LENGTH AND DESIGN BEARING VALUE OF PILE. ALL PILE SHALL BE DRIVEN TO PRACTICAL REFUSAL.

THE PROJECT SHALL BE OPEN FOR INSPECTIONS OF THE WORK BY REPRESENTATIVES OF MODOT AND FHWA. THE CONTRACTOR SHALL GRANT ACCESS TO ALL PORTIONS OF THE WORK.

HIGH STRENGTH BOLTS, NUTS, AND WASHERS WILL BE SAMPLED FOR QUALITY ASSURANCE AS SPECIFIED IN SECTION 106.

ALL REINFORCING STEEL SHALL BE SHIFTED TO CLEAR ANCHOR BOLT WELLS BY AT LEAST 1/2"

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737 RUDDER ROAD  
FENTON, MISSOURI 63226

CERTIFICATE OF AUTHORITY NUMBER - 006937

Three working days prior to the start of any excavation shall call 1-800-368-8811 for utility location information.

All GSMA rules & regulations established for the type of construction required by these plans shall be strictly followed (ie. trenching, boring, etc.)

BEND ROAD BRIDGE NO. 09200011

PROJECT NO. BRM-9900(638)

FRANKLIN COUNTY, MISSOURI

BRIDGE QUANTITIES &amp; NOTES

DATE:	7/14/16	ADDENDUM 1
DWN. BY:	M.J.F.	APPD. BY: B.B.D.
DATE:	APRIL 2016	
SCALE:	NOT TO SCALE	
PROJ. NO:	SC12-344	
DWG. NO:	B-1	

