CITY		ENGINEER	
CITY OF JOPLIN 602 S. MAIN STREET JOPLIN, MO 64801		Name: HDR Engineering, Inc. Address: 2139 E. Primrose Suite E Springfield, MO 65804	
Attention:		Attention: Jennifer Thomas, P.E.	
Department:		Phone: 417-651-6511	Fax:
Phone:	Fax:		

WORK AUTHORIZATION NUMBER HDR-OC-002
TO AGREEMENT FOR PROFESSIONAL ENGINEERING CONSULTING SERVICES

City and Engineer agree to amend their Agreement for Professional Engineering Consulting Services to include a scope of work and fees for engineering services, by adding the following terms to their Agreement.

1. **Services**. The City agrees to engage the services of the Engineer and the Engineer agrees to perform the services hereinafter set forth in connection with projects described in ***Exhibit A***.

2. **Addition to Services**. The City may add to the Engineer services or delete therefrom activities of a similar nature to those set forth in ***Exhibit A***, provided that the total cost of such work does not exceed the total cost allowance as specified in Paragraph 5 hereof. The Engineer shall undertake such changed activities only upon the direction of the City. All such directives and changes shall be in written form and prepared and approved by the City and shall be accepted and countersigned by the Engineer.

3. **Term**. The services of the Engineer shall commence as soon as practicable after the execution of this contract, unless otherwise directed in writing, and shall be undertaken and completed in such sequence as to assure their expeditious completion in the light of the purposes of the contract, but in any event, all of the services required hereunder shall be completed as set forth in the schedule for the project which is attached hereto as ***Exhibit A***.

4. **Costs not to Exceed**. The City of Joplin is limited by law with respect to the amount of money it can pay. Therefore, the City has established a fixed sum for this contract, which cannot be exceeded unless this contract is amended. The Engineer providing services hereunder shall be required to keep track of the amount of hours billable under this contract at all times; and any work in excess of the fixed sum shall not be eligible for payment. The Engineer shall notify the City if Engineer anticipates that the contract amount may be exceeded, in order to determine whether or not the City is prepared to increase the total compensation. The Engineer shall establish a billing system showing the amount of money remaining on the contract, which shall be shown in each monthly billing.

5. **Payment**.

a. **Conditioned upon acceptable performance**. The City agrees to pay the Engineer in accordance with the terms set forth in ***Exhibit A***, which shall constitute complete compensation for all services to be rendered under this contract; provided, that where payments are to be made periodically to Engineer for services rendered under this contract, the City expressly reserves the right to disapprove in whole or in part a request for payment where the services rendered during the period for which payment is claimed are not performed in a timely and satisfactory manner in accordance with the schedule and description of services set forth in ***Exhibit A***.

b. **Total compensation not to exceed**. It is expressly understood that in no event will the total compensation and reimbursement to be paid to the Engineer under the terms of this work Authorization Number HDR-OC-002 exceed the sum of three hundred sixteen thousand, three hundred forty six Dollars ($ 316,346.00).

6. **Insurance**. Without limiting any of the other obligations or liabilities of the Engineer, the Engineer shall secure and maintain at its own cost and expense, throughout the duration of this Contract and until the work is completed and accepted by the City of Joplin, insurance of such types and in such amounts as may be necessary to protect it and the interests of the City of Joplin against all hazards or risks of loss as hereunder specified or which may arise out of the performance of the Contract Documents. The form and

limits of such insurance, together with the underwriter thereof in each case, are subject to approval by the City of Joplin. Regardless of such approval, it shall be the responsibility of the Engineer to maintain adequate insurance coverage at all times during the term of the Contract. Failure of the Engineer to maintain coverage shall not relieve it of any contractual responsibility or obligation or liability under the Contract Documents.

The certificates of insurance, including evidence of the required endorsements hereunder or the policies, shall be filed with the City at the time that this contract is signed by the Engineer. All insurance policies shall provide thirty (30) days written notice to be given by the insurance company in question prior to modification or cancellation of such insurance. Such notices shall be mailed, certified mail, return receipt requested, to:

City of Joplin - Public Works, 602 S. Main, Joplin, MO 64801; and

Such policies shall name the City as an additional insured with limits of liability not less than the sovereign immunity limits for Missouri public entities calculated by the Missouri Department of Insurance as of January 1 each calendar year and published annually in the Missouri Register pursuant to Section 537.610, RSMo.
(See, http://insurance.mo.gov/industry/sovimmunity.php).

As of January 1, 2016, the minimum coverage for the insurance referred to herein shall be as set out below:

a. Workers' Compensation....Statutory coverage per RSMo 287.010 et seq.
Employer's Liability..... $1,000,000.00

b. Commercial General Liability Insurance, including coverage for Contractual Liability and Independent Contractors Liability. Such coverage shall apply to bodily injury and property damage on an "Occurrence Form Basis" with limits of at least Two Million Seven Hundred Twenty-Seven Thousand Four Hundred Eighty-Nine and no/100 Dollars ($2,727,489.00) for all claims arising out of a single accident or occurrence and at least Four Hundred Nine Thousand One Hundred Twenty-Three and no/100 Dollars ($409,123.00) with respect to injuries and/or death of any one person in a single occurrence and an amount not less than at least $1,000,000 for all claims to property arising out of a single occurrence and at least $100,000 to any one owner with respect to damages to property. Engineer agrees that the proceeds of such insurance policy shall first be used to pay any award, damages, costs, and/or attorneys' fees incurred by or assessed against City, its employees, officers and agents, before payment of any award, damages, costs or attorneys fees of Engineer, its employees, officers or agents. Engineer agrees to cause its insurer to name City as an additional insured on such insurance policy, including the City as an additional insured for coverage under its products-completed operations hazard, and said policy shall be primary and noncontributory.

c. Automobile Liability Insurance covering bodily injury and property damage for owned, non-owned and hired vehicles, with limits of at least Two Million Seven Hundred Twenty-Seven Thousand Four Hundred Eighty-Nine and no/100 Dollars ($2,727,489.00) for all claims arising out of a single accident or occurrence and at least Four Hundred Nine Thousand One Hundred Twenty-Three and no/100 Dollars ($409,123.00) with respect to injuries and/or death of any one person in a single accident or occurrence.

d. Errors and Omissions Insurance. The Engineer shall maintain a professional liability insurance policy in the amount of $1,000,000.00. This policy shall remain in full force and effect for a period of one year after completion and acceptance by the City of the construction of the project.

e. Subcontracts. In case any or all of this work is sublet, the Engineer shall require the subcontractor to procure and maintain all insurance required in subparagraphs (A), (B) and (C) hereof and in like amounts. Engineer shall require any and all subcontractors with whom it enters into a contract to perform work on this project to protect the City of Joplin through insurance against applicable hazards or risks and shall, upon request of the City, provide evidence of such insurance.

f. Notice. The Engineer and/or subcontractor shall furnish the City prior to beginning the work satisfactory proof of carriage of all the insurance required by this contract, with the provision that policies shall not be canceled, modified or non-renewed without thirty (30) days written notice to the City of Joplin.

g. Legislative or Judicial Changes. In the event the scope or extent of the City's tort liability as a governmental entity as described in Section 537.600 through 537.650 RSMo is broadened or increased during the term of this agreement by legislative or judicial action, the City may require Engineer, upon 10 days written notice, to execute a contract addendum whereby the Engineer

agrees to provide, at a price not exceeding Engineer's actual increased premium cost, additional liability insurance coverage as the City may require to protect the City from increased tort liability exposure as the result of such legislative or judicial action. Any such additional insurance coverage shall be evidenced by an appropriate certificate of insurance and shall take effect within the time set forth in the addendum.

7. All other terms and conditions of the original Agreement shall remain in effect.

IN WITNESS WHEREOF, the parties hereto have set their hands and seals on the day and year herein stated.

REVIEWED FOR APPROVAL

Dan Salisbury
Assistant Director of Public Works/Engineering

CERTIFICATE OF DIRECTOR OF FINANCE

I certify that the expenditure contemplated by this document is within the purpose of the appropriation to which it is to be charged and that there is an unencumbered balance of appropriated and available funds to pay therefore.

Leslie Haase, Director of Finance

APPROVED AS TO FORM

Peter Edwards, City Attorney

Engineer: HDR Engineering, Inc.

By: Joseph E. Drimmel

Printed Name: Joseph E. Drimmel

Title: Vice President

Date: 7-7-16

CITY OF JOPLIN, MISSOURI

By: _____
Nicholas A. Heatherly, P.E.
Public Works Director

Date: _____

TABLE OF CONTENTS – Exhibit A

Rate Schedule 6

Engineering Services Agreement 7-31

Project Schedule 32

Fee Estimate 33-36

Geotech Sub-Consultant Scope and Fee 37-40

ATTACHMENT ONE (REV 7/7/2016)
RATE SCHEDULE
(JANUARY 1, 2016 – DECEMBER 31, 2016)

ROLE	HOURLY RATE
PRINCIPAL/QUALITY CONTROL/SENIOR SPECIALIST	$225.00
SENIOR PROJECT MANAGER	$198.00
PROJECT MANAGER	$150.00
SENIOR PROJECT ENGINEER	$205.00
PROJECT ENGINEER	$135.00
SENIOR PROCESS/CIVIL ENGINEER	$160.00
PROCESS/CIVIL ENGINEER	$130.00
SENIOR STRUCTURAL ENGINEER	$225.00
STRUCTURAL ENGINEER	$140.00
SENIOR ELECTRICAL ENGINEER	$196.00
ELECTRICAL ENGINEER	$105.00
SENIOR MECHANICAL ENGINEER	$175.00
MECHANICAL ENGINEER	$110.00
ENGINEERING INTERN	$100.00
ASSET MANAGEMENT SPECIALIST	$205.00
GIS MANAGER	$140.00
SENIOR CAD TECHNICIAN	$115.00
CAD TECHNICIAN	$ 90.00
REGISTERED LAND SURVEYOR	$135.00
2 PERSON SURVEY CREW	$140.00
SURVEY GPS TECHNICIAN	$ 85.00
SENIOR RESIDENT PROJECT REPRESENTATIVE	$110.00
RESIDENT PROJECT REPRESENTATIVE	$ 85.00
SR. ADMINISTRATION PERSONNEL	$ 95.00
ADMINISTRATION PERSONNEL	$ 75.00
SR. ENVIRONMENTAL PLANNER	$190.00
SR. ENVIRONMENTAL SCIENTIST	$160.00
ENVIRONMENTAL SCIENTIST	$105.00
REIMBURSABLES:	
PRINTING & REPRODUCTION	COST
TRAVEL	CURRENT IRS RATE
PHONE	COST
MAPPING	COST
SUBCONSULTANTS	COST

Exhibit A

Project Name/Description Connecticut Ave over I-44 Bridge Replacement
Consultant HDR Engineering

Engineering Services Agreement

Article 1 of the Agreement is supplemented to include the following agreement of the parties.

Engineer shall provide Basic and Additional Services as set forth below.

PART 1 – BASIC SERVICES *All deliverables referred to in the agreement shall also be provided in an electronic format to be specified by the City.*

A1.01 *Conceptual Phase*

A. Engineer shall:

1. Consult with Owner to define and clarify Owner's requirements for the Project, including design objectives and constraints, space, capacity and performance requirements, flexibility, and expandability, and any budgetary limitations, and identify available data, information, reports, facilities plans, and site evaluations.

   If Owner has already identified one or more potential solutions to meet its Project requirements, then proceed with the study and evaluation of such potential solutions. Options will be discussed and agreed to by Engineer at scoping meeting.

2. Identify potential solution(s) to meet Owner's Project requirements, as needed.

3. Study and evaluate the potential solution(s) to meet Owner's Project requirements.

4. Visit the Site, or potential Project sites, to review existing conditions and facilities, unless such visits are not necessary or applicable to meeting the objectives of the Study and Report Phase.

5. Advise Owner of any need for Owner to obtain, furnish, or otherwise make available to Engineer additional Project-related data and information, for Engineer's use in the study and evaluation of potential solution(s) to Owner's Project requirements, and preparation of a related report.

6. After consultation with Owner, recommend to Owner the solution(s) which in Engineer's judgment meet Owner's requirements for the Project.

7. Identify, consult with, and analyze requirements of governmental authorities having jurisdiction to approve the portions of the Project to be designed or specified by Engineer, including but not limited to mitigating measures identified in an environmental assessment for the Project.

8. Prepare a conceptual report (the "Report") which will, as appropriate, contain schematic layouts, sketches, and conceptual design criteria with appropriate exhibits to indicate the agreed-to requirements, considerations involved, and

Engineer's recommended solution(s). For each recommended solution Engineer will provide the following, which will be separately itemized: opinion of probable Construction Cost; proposed allowances for contingencies; the estimated total costs of design, professional, and related services to be provided by Engineer and its Consultants; and, on the basis of information furnished by Owner, a tabulation of other items and services included within the definition of Total Project Costs.

9. Advise Owner of any need for Owner to provide data or services of the types described in Exhibit B, for use in Project design, or in preparation for Contractor selection and construction.

~~10. When mutually agreed, assist Owner in evaluating the possible use of building information modeling; civil integrated management; geotechnical baselining of subsurface site conditions; innovative design, contracting, or procurement strategies; or other strategies, technologies, or techniques for assisting in the design, construction, and operation of Owner's facilities. The subject matter of this paragraph shall be referred to in Exhibit A and B as "Project Strategies, Technologies, and Techniques."~~

11. If requested to do so by Owner, assist Owner in identifying opportunities for enhancing the sustainability of the Project, and pursuant to Owner's instructions plan for the inclusion of sustainable features in the design.

12. Develop a scope of work and survey limits for any topographic and other surveys necessary for design.

~~13. Perform or provide the following other Study and Report Phase tasks or deliverables:~~

Conceptual

14. Furnish 6 review copies of the Report and any other ~~Study and Report Phase~~ deliverables to Owner by the due date and review by phone or in person with Owner.

15. Revise the Report and any other Study and Report Phase deliverables in response to Owner's comments, as appropriate, and furnish 6 copies of the revised Report and any other Study and Report Phase deliverables to the Owner by the agreed upon due date.

Conceptual

B. Engineer's services under the ~~Study and Report Phase~~ will be considered complete on the date when Engineer has delivered to Owner the revised Report and any other Study and Report Phase deliverables.

C. Billing/Payment Processing Options

1. Request for payment may be submitted at appropriate intervals during the contract. Application for payment must include a detailed breakdown of deliverables completed as well as specific tasks or percentages of specific tasks completed. Payment schedule will be at the approval of the city.

~~2. Deliverables option as determined by engineering staff on a project by project basis. Example: 30 percent Preliminary plans, 60 percent Right of Way plans, 90 percent Final plans and bid documents, 100 percent project completion.~~

A1.02 Preliminary Design Phase - (30 percent plans)

A. Proceed with Preliminary Design Phase after the completion of the Conceptual phase which includes: Acceptance by Owner of the Conceptual Report and any other Study and Report ~~Phase~~ deliverables; selection by Owner of a recommended solution; issuance by Owner of any instructions for use of Project Strategies, Technologies, and Techniques, or for inclusion of sustainable features in the design, and Indication by Owner of any specific modifications or changes in the scope, extent, character, or design requirements of the Project desired by Owner.

1. Prepare Preliminary Design Phase documents consisting of final design criteria, preliminary drawings, outline specifications, and written descriptions of the Project.

2. Include on plans, property lines, structure locations, ownership names and contact information.

3. In preparing the Preliminary Design Phase documents, use any specific applicable Project Strategies, Technologies, and Techniques authorized by Owner during ~~or following the Study and~~ Conceptual Phase, and include sustainable features, as appropriate, pursuant to Owner's instructions.

4. Provide necessary field surveys, topographic and utility mapping for Engineer's design purposes. Comply with the scope of work and procedure for the identification and mapping of existing utilities as defined by Section A1.03 "Utility Requirements" and Section A1.04 "Survey Services"

5. Visit the Site as needed to prepare the Preliminary Design Phase documents.

6. Advise Owner if additional reports, data, information, or services of the types described are necessary and assist Owner in obtaining such reports, data, information, or services.

~~7. Continue to assist Owner with Project Strategies, Technologies, and Techniques that Owner has chosen to implement.~~

8. Based on the information contained in the Preliminary Design Phase documents, prepare a revised opinion of probable Construction Cost, and assist Owner in tabulating the various cost categories which comprise Total Project Costs.

9. Obtain and review Owner's instructions regarding Owner's procurement of construction services (including instructions regarding advertisements for bids, instructions to bidders, and requests for proposals, as applicable), Owner's construction contract practices and requirements, insurance and bonding requirements, electronic transmittals during construction, and other information necessary for the finalization of Owner's bidding-related documents (or requests for proposals or other construction procurement documents), and Construction Contract Documents. Also obtain and review copies of Owner's design and construction standards, Owner's standard forms, general conditions, supplementary conditions, text, and related documents or content for Engineer

to include in the draft bidding-related documents (or requests for proposals or other construction procurement documents), and in the draft Construction Contract Documents, when applicable.

~~10. Development communication plan for project: considering the use of door hangers, letters, public meetings, changeable message boards.~~

11. Furnish 6 review copies of the Preliminary Design Phase documents, opinion of probable Construction Cost, and any other Preliminary Design Phase deliverables to Owner by established due date, and review them with Owner. Owner shall submit to Engineer any comments regarding the furnished items.

12. Revise the Preliminary Design Phase documents, opinion of probable Construction Cost, and any other Preliminary Design Phase deliverables in response to Owner's comments, as appropriate, and furnish to Owner 6 copies of the revised Preliminary Design Phase documents, revised opinion of probable Construction Cost, and any other deliverables by the specified due date.

13. Engineer's services under the Preliminary Design Phase will be considered complete on the date when Engineer has delivered to Owner the revised Preliminary Design Phase documents, revised opinion of probable Construction Cost, and any other Preliminary Design Phase deliverables.

A1.03 *Utility Requirements*

A. Make notification to utilities during conceptual phase of preliminary design process. Communication to be made in a specific, documented format. (As detailed in item D).

B. Based on specific utility feedback, and field observation, identify potential high expense utility relocation issues.

C. Prepare and present plan for city review, detailing significant utility conflicts, ~~proposed pothole locations, and associated costs for verifying existing utilities. Potholing process to include horizontal and vertical alignment and depth details. Details will be included in 30 percent plan completion, final right of way plans, and final construction plans. Necessary corrective action to address incomplete or inaccurate details may be subject to errors and omissions insurance claim.~~

D. Submit utility report at 30 percent submittal and close out of project. Utility report to include representatives contacted, meeting dates, and a summary of discussions, requests, observations and/or concerns. (See City of Joplin utility notification form)

A1.04 Surveying Services – General

A. Control Survey

All horizontal control for the project will be based on the Missouri State Plane Coordinate System of 1983, West Zone.
All vertical control for the project will be based on the North American Vertical Datum of 1988 (NAVD 88) provided by NOAA's National Geodetic Survey (NGS).

Control points and temporary bench marks will be set inter-visible and in strategic locations along the project route so as to be conveniently used during all phases of the project, including construction.

B. Engineering Survey

Field identified

Provide topographic engineering survey for the length of the project to facilitate design. Provide a survey of all ~~existing~~ surface and sub-surface utilities in the project corridor.

C. Property Boundary Survey/Right-of-way Survey/Easements

Provide a boundary survey or surveys to locate the existing Right-of-Way/Easements for the length of the project, the adjacent property lines of the parcels along the project, and all existing easements of record encumbering each property that will affect the project. Consultant will be responsible for ~~ordering title work for each parcel along the project route and~~ procuring existing right-of-way documents and/or right-of-way plans.

~~D. Right-of-way and Easement Description Preparation~~

~~Upon final approval of the Right-of-Way/Project Plans consultant will provide descriptions and exhibit drawings for all property right acquisitions including, but not limited to: right-of-way takings, permanent easements and temporary easements.~~

E. Right-of-way and Easement Staking

~~During the property negotiation phase of the project it may be necessary to stake the proposed right-of-way and/or easement locations to assist the right-of-way agent. Upon request, the consultant will temporarily stake the proposed right-of-way/easement locations with wooden lathe to allow the property owner to visually inspect the location of such.~~

Pre-Construction Phase – On projects that will require the relocation of existing utilities prior to the award of the construction contract the consultant shall temporarily stake the location of the Right-of-Way and/or easements at points predetermined by Owner. This service will be provided one (1) time as a part of the contract. Any additional staking, if required by utility contractors due to the destruction of the temporary stakes, will be done at the advertised hourly rate and billed back to the utility contractor who is found to be responsible for removing the original stakes.

F. Existing United States Public Land Survey System Corners

All existing USPLSS corners that may/will be removed or altered as a result of this project must be referenced and re-established according to 20 CSR 2030-17.020 and 20 CSR 2030-17.030.

G. Survey Records

Consultant shall provide to Owner originals or copies of all survey records relevant to the project. These records shall include, but are not limited to: survey notes, research records, computations, calculations and drawings.

H. Other Services

Services not covered by A through F that are determined in the scoping meeting to be necessary for completion of the project.

~~*A1.05 Right of Way Plan Phase - 60 percent plans*~~

~~A. Determine parcels and parcel ownership information to be included on right of way plans.~~

~~B. Determine parcel size.~~

~~C. Prepare R.O.W. plan tabulation sheet.~~

~~D. Prepare R.O.W. plan sheets showing easement and right of way takings.~~

~~E. Furnish 6 review copies of the Right of Way Plan Phase documents, opinion of probable Right of Way Cost, and any other Right of Way Plan Phase deliverables to Owner by established due date, and review them with Owner. Owner shall submit to Engineer any comments regarding the furnished items.~~

~~F. Revise the Right of Way Plan Phase documents, opinion of probable Right of Way Cost, and any other Right of Way Plan Phase deliverables in response to Owner's comments, as appropriate, and furnish to Owner 6 copies of the revised Right of Way Plan Phase documents, revised opinion of probable Right of Way Cost, and any other deliverables by the specified due date.~~

~~G. Engineer's services under the Right of Way Plan Phase will be considered complete on the date when Engineer has delivered to Owner the revised Right of Way Plan Phase documents, revised opinion of probable Right of Way Cost, and any other Right of Way Plan Phase deliverables.~~

A1.06 Final Design Phase

A. After acceptance by Owner of the Preliminary Design Phase documents, revised opinion of probable Construction Cost as determined in the Preliminary Design Phase, and/or any other Right of Way plan documents, subject to any Owner-directed modifications or changes in the scope, extent, character, or design requirements of or for the Project, and upon written authorization from Owner, Engineer shall:

1. Prepare final Drawings and Specifications indicating the scope, extent, and character of the Work to be performed and furnished by Contractor.

2. Visit the Site as needed to assist in preparing the final Drawings and Specifications.

3. Provide technical criteria, written descriptions, and design data for Owner's use in filing applications for permits from or approvals of governmental authorities having jurisdiction to review or approve the final design; assist Owner in consultations with such authorities; and revise the Drawings and Specifications in response to directives from such authorities, as appropriate.

4. Advise Owner of any recommended adjustments to the opinion of probable Construction Cost.

5. After consultation with Owner, include in the Construction Contract Documents ~~any~~ specific protocols for the transmittal of Project-related correspondence, documents, text, data, drawings, information, and graphics, in electronic media or digital format, either directly, or through access to a secure Project website. Any such protocols shall be applicable to transmittals between and among Owner, Engineer, and Contractor during the Construction Phase and Post-Construction Phase, and unless agreed otherwise shall supersede any conflicting protocols previously established for transmittals between Owner and Engineer.

6. Assist Owner in assembling known reports and drawings of Site conditions, and in identifying the technical data contained in such reports and drawings upon which bidders or other prospective contractors may rely.

7. In addition to preparing the final Drawings and Specifications, assemble drafts of other Construction Contract Documents based on specific instructions and contract forms, text, or content received from Owner.

8. Prepare or assemble draft bidding-related documents (or requests for proposals or other construction procurement documents), based on the specific bidding or procurement-related instructions and forms, text, or content received from Owner.

9. Contract shall include contractor provided changeable message signs to communication construction information.

10. Furnish for review by Owner, its legal counsel, and other advisors, 6 copies of the final drawings and Specifications, assembled drafts of other construction Contract Documents, the draft bidding-related documents (or requests for proposals or other construction procurement documents), and ~~any other~~ final design Phase deliverables, by the established due date, with the Final Design Phase, and review them with Owner. Owner shall submit to Engineer written ~~any~~ comments regarding the furnished items, and ~~any~~ instructions for revisions.

B. Engineer's services under the Final Design Phase will be considered complete on the date when Engineer has delivered to Owner the final Drawings and Specifications, other assembled Construction Contract Documents, bidding-related documents (or requests for

proposals or other construction procurement documents), and any other Final Design Phase deliverables.

C. In the event that the Work designed or specified by Engineer is to be performed or furnished under more than one prime contract, or if Engineer's services are to be separately sequenced with the work of one or more prime Contractors (such as in the case of fast-tracking), Owner and Engineer shall, prior to commencement of the Final Design Phase, develop a schedule for performance of Engineer's services during the Final Design, Bidding or Negotiating, Construction, and Post-Construction Phases in order to sequence and coordinate properly such services as are applicable to the work under such separate prime contracts.

A1.07 Bidding Phase

A. After acceptance by Owner of the final Drawings and Specifications, other Construction Contract Documents, bidding-related documents (or requests for proposals or other construction procurement documents), and the most recent opinion of probable Construction Cost as determined in the Final Design Phase, and upon written authorization by Owner to proceed, Engineer shall:

1. ~~Advertise for and obtain bids or proposals for the Work,~~ assist Owner in issuing assembled design, contract, and bidding-related documents (or requests for proposals or other construction procurement documents) to prospective contractors, and where applicable, ~~maintain a record of prospective contractors to which documents have been issued,~~ attend pre-bid conferences, if any, and receive and process contractor deposits or charges for the issued documents.

2. Prepare and issue Addenda as appropriate to clarify, correct, or change the issued documents.

readily available

3. Provide information or assistance needed by Owner in the course of ~~any~~ review of proposals with prospective contractors.

~~4. If Federal funding is involved, set up prequalification's for contractor. This includes researching all applicable debarment & qualified contractor's lists & providing this documentation in the project file~~

5. Consult with Owner as to the qualifications of subcontractors, suppliers, and other individuals and entities proposed by prospective contractors, for those portions of the Work as to which review of qualifications is required by the issued documents.

6. If the issued documents require, the Engineer shall evaluate and determine the acceptability of "or equals" and substitute materials and equipment proposed by prospective contractors, provided that such proposals are allowed by the bidding-related documents

7. ~~Attend the bid opening, prepare bid tabulation sheets to meet Owner's schedule, and~~ assist Owner in evaluating bids, assembling final contracts for the Work for

execution by Owner and Contractor, and in issuing notices of award of such contracts.

B. The Bidding Phase will be considered complete upon commencement of the Construction Phase.

A1.08 Construction Phase

A. Upon successful completion of the Bidding and Negotiating Phase, and upon written authorization from Owner, Engineer shall:

~~1. *General Administration of Construction Contract:* Consult with Owner and act as Owner's representative as provided in the Construction Contract. The extent and limitations of the duties, responsibilities, and authority of Engineer shall be as assigned below. All of Owner's instructions to Contractor will be issued through Engineer, which shall have authority to act on behalf of Owner in dealings with Contractor to the extent provided in this Agreement and the Construction Contract except as otherwise provided in writing.~~

~~2. *Resident Project Representative (RPR):* Provide the services of an RPR at the Site to assist the Engineer (unless provided by the city), and to provide more extensive observation of Contractor's work. Duties, responsibilities, and authority of the RPR are as set forth. The furnishing of such RPR's services will not limit, extend, or modify Engineer's responsibilities or authority except as expressly set forth~~

~~3. *Selection of Independent Testing Laboratory:* Assist Owner in the selection of an independent testing laboratory to perform the services identified.~~

4. *Pre-Construction Conference:* Participate in a pre-construction conference prior to commencement of Work at the Site.

5. *Electronic Transmittal Protocols:* Consultant shall follow City of Joplin protocols shown below.

~~6. *Original Documents:* If requested by Owner to do so, maintain and safeguard during the Construction Phase at least one original printed record version of the Construction Contract Documents, including Drawings and Specifications signed and sealed by Engineer and other design professionals in accordance with applicable Laws and Regulations. Throughout the Construction Phase, make such original printed record version of the Construction Contract Documents available to Contractor and Owner for review.~~

~~7. *Schedules:* Receive, review, and determine the acceptability of any and all schedules that Contractor is required to submit to Engineer, including the Progress Schedule, Schedule of Submittals, and Schedule of Values.~~

~~8. *Baselines and Benchmarks:* As appropriate, establish baselines and benchmarks for locating the Work which in Engineer's judgment are necessary to enable Contractor to proceed.~~

~~9. *Visits to Site and Observation of Construction:* In connection with observations of Contractor's Work while it is in progress:~~

a) Make visits to the Site at intervals appropriate to the various stages of construction, as Engineer deems necessary, to observe as an experienced and qualified design professional the progress of Contractor's executed Work. Such visits and observations by Engineer, and the Resident Project Representative, if any, are not intended to be exhaustive or to extend to every aspect of the Work or to involve detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in this Agreement and the Construction Contract Documents, but rather are to be limited to spot checking, selective sampling, and similar methods of general observation of the Work based on Engineer's exercise of professional judgment, as assisted by the Resident Project Representative, if any. Based on information obtained during such visits and observations, Engineer will determine in general if the Work is proceeding in accordance with the Construction Contract Documents, and Engineer shall keep Owner informed of the progress of the Work.

b) The purpose of Engineer's visits to the Site, and representation by the Resident Project Representative, if any, at the Site, will be to enable Engineer to better carry out the duties and responsibilities assigned to and undertaken by Engineer during the Construction Phase, and, in addition, by the exercise of Engineer's efforts as an experienced and qualified design professional, to provide for Owner a greater degree of confidence that the completed Work will conform in general to the Construction Contract Documents and that Contractor has implemented and maintained the integrity of the design concept of the completed Project as a functioning whole as indicated in the Construction Contract Documents. Engineer shall not, during such visits or as a result of such observations of the Work, supervise, direct, or have control over the Work, nor shall Engineer have authority over or responsibility for the means, methods, techniques, sequences, or procedures of construction selected or used by any Constructor, for security or safety at the Site, for safety precautions and programs incident to any Constructor's work in progress, for the coordination of the Constructors' work or schedules, nor for any failure of any Constructor to comply with Laws and Regulations applicable to furnishing and performing of its work. Accordingly, Engineer neither guarantees the performance of any Constructor nor assumes responsibility for any Constructor's failure to furnish or perform the Work, or any portion of the Work, in accordance with the Construction Contract Documents.

10. *Defective Work:* Reject Work if, on the basis of Engineer's observations, Engineer believes that such Work is defective under the terms and standards set forth in the Construction Contract Documents. Provide recommendations to Owner regarding whether Contractor should correct such Work or remove and replace such Work, or whether Owner should consider accepting such Work as provided in the Construction Contract Documents.

11. *Compatibility with Design Concept:* If Engineer has express knowledge that a specific part of the Work that is not defective under the terms and standards set forth in the Construction Contract Documents is nonetheless not compatible with

the design concept of the completed Project as a functioning whole, then inform Owner of such incompatibility, and provide recommendations for addressing such Work.

12. *Clarifications and Interpretations:* Accept from Contractor and Owner submittal of all matters in question concerning the requirements of the Construction Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Construction Contract Documents. With reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Construction Contract Documents.

~~13. *Field Orders:* Subject to any limitations in the Construction Contract Documents, Engineer may prepare and issue Field Orders requiring minor changes in the Work.~~

~~14. *Change Orders and Work Change Directives:* Recommend Change Orders and Work Change Directives to Owner, as appropriate, and prepare Change Orders and Work Change Directives as required.~~

~~a) Identify discrepancy~~
~~b) Contractor submits pricing~~
~~c) Cost analysis by Project Manager~~
~~d) Submit Conceptual Plan to MoDOT and FHWA, if applicable~~
~~e) Receive conceptual approval from both agencies and give contract Notice to Proceed~~
~~f) Change in work complete, submit official change Order with Justification and copy of conceptual to MoDOT and FHWA if applicable (justification provided by City Project Manager)~~
~~g) After signatures on Change order are complete, notify the contractor.~~

~~15. *Differing Site Conditions:* Respond to any notice from Contractor of differing site conditions, including conditions relating to underground facilities such as utilities, and hazardous environmental conditions. Promptly conduct reviews and prepare findings, conclusions, and recommendations for Owner's use.~~

16. *Shop Drawings, Samples, and Other Submittals:* Review and approve or take other appropriate action with respect to Shop Drawings, Samples, and other required Contractor submittals, but only for conformance with the information given in the Construction Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated by the Construction Contract Documents. Such reviews and approvals or other action will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions and programs incident thereto. Engineer shall meet any Contractor's submittal schedule that Engineer has accepted.

17. *Substitutes and "Or-equal":* Evaluate and determine the acceptability of substitute or "or-equal" materials and equipment proposed by Contractor.

~~18. *Inspections and Tests:*~~

a) Receive and review all certificates of inspections, tests, and approvals required by Laws and Regulations or the Construction Contract Documents. Engineer's review of such certificates will be for the purpose of determining that the results certified indicate compliance with the Construction Contract Documents and will not constitute an independent evaluation that the content or procedures of such inspections, tests, or approvals comply with the requirements of the Construction Contract Documents. Engineer shall be entitled to rely on the results of such inspections and tests.

b) As deemed reasonably necessary, request that Contractor uncover Work that is to be inspected, tested, or approved.

c) Pursuant to the terms of the Construction Contract, require special inspections or testing of the Work, whether or not the Work is fabricated, installed, or completed.

19. *Change Proposals and Claims:*

a) Review and respond to Change Proposals. Review each duly submitted Change Proposal from Contractor and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer will not resolve the Change Proposal.

b) Provide information or data to Owner regarding engineering or technical matters pertaining to Claims.

20. *Applications for Payment:* Based on Engineer's observations as an experienced and qualified design professional and on review of Applications for Payment and accompanying supporting documentation:

a) Determine the amounts that Engineer recommends Contractor be paid. Recommend reductions in payment (set offs) based on the provisions for set offs stated in the Construction Contract. Such recommendations of payment will be in writing and will constitute Engineer's representation to Owner, based on such observations and review, that, to the best of Engineer's knowledge, information and belief, Contractor's Work has progressed to the point indicated, the Work is generally in accordance with the Construction Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Construction Contract Documents, and to any other qualifications stated in the recommendation), and the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work. In the case of unit price Work, Engineer's recommendations of payment will include final determinations of quantities and classifications of the Work (subject to any subsequent adjustments allowed by the Construction Contract Documents).

b) By recommending payment, Engineer shall not thereby be deemed to have represented that observations made by Engineer to check the quality or quantity of Contractor's Work as it is performed and furnished have been exhaustive, extended to every aspect of Contractor's Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in this Agreement.

21. *Contractor's Completion Documents:* Receive from Contractor, review, and transmit to Owner maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance required by the Construction Contract Documents, certificates of inspection, tests and approvals, and Shop Drawings, Samples, and other data. Receive from Contractor, review, and transmit to Owner the annotated record documents which are to be assembled by Contractor in accordance with the Construction Contract Documents to obtain final payment. The extent of Engineer's review of record documents shall be to check that Contractor has submitted all pages.

22. *Substantial Completion:* Promptly after notice from Contractor that Contractor considers the entire Work ready for its intended use, in company with Owner and Contractor, visit the Site to review the Work and determine the status of completion. Follow the procedures in the Construction Contract regarding the preliminary certificate of Substantial Completion, punch list of items to be completed, Owner's objections, notice to Contractor, and issuance of a final certificate of Substantial Completion. Assist Owner regarding any remaining engineering or technical matters affecting Owner's use or occupancy of the Work following Substantial Completion.

23. *Other Tasks:* Perform or provide the following other Construction Phase tasks or deliverables:

24. *Final Notice of Acceptability of the Work:* Conduct a final visit to the Project to determine if the Work is complete and acceptable so that Engineer may recommend, in writing, final payment to Contractor. Accompanying the recommendation for final payment, Engineer shall also provide a notice to Owner and Contractor in the form of the acceptance identified in MoDOT's LPA Manual, that the Work is acceptable (subject to the provisions of the Notice and Paragraph A1.05.A.21.b) to the best of Engineer's knowledge, information, and belief, and based on the extent of the services provided by Engineer under this Agreement.

25. *Standards for Certain Construction Phase Decisions:* Engineer will render decisions regarding the requirements of the Construction Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth in the Construction Contract for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

B. *Duration of Construction Phase:* The Construction Phase will commence with the execution of the first Construction Contract for the Project or any part thereof and will terminate upon written recommendation by Engineer for final payment to Contractors. If the Project involves more than one prime contract, then Construction Phase services may be rendered

at different times in respect to the separate contracts. Engineer shall be entitled to an equitable increase in compensation if Construction Phase services (including Resident Project Representative services, if any) are required after the original date for

completion and readiness for final payment of Contractor as set forth in the Construction Contract.

A1.09 Post-Construction Phase

A. Upon written authorization from Owner during the Post-Construction Phase, Engineer shall:

~~1. Together with Owner, visit the Project to observe any apparent defects in the Work, make recommendations as to replacement or correction of defective Work, if any, or the need to repair of any damage to the Site or adjacent areas, and assist Owner in consultations and discussions with Contractor concerning correction of any such defective Work and any needed repairs.~~

~~2. Together with Owner, visit the Project within one month before the end of the Construction Contract's correction period to ascertain whether any portion of the Work or the repair of any damage to the Site or adjacent areas is defective and therefore subject to correction by Contractor.~~

~~3. Full payment of the final invoice will not be considered until the consultant has electronically furnished the following documents:~~

~~a) The city's semi-final inspection letter stating the date of semi-final inspection and listing those who were present.~~

~~b) The city's final acceptance letter showing the number of working days or calendar days charged, completion date and the amount of liquidated damages, if any.~~

~~c) A final list of acceptance testers used on the project and a certification stating:~~

~~"The results of the tests or acceptance samples indicate that material incorporated in the construction work and the construction operations controlled by sampling and testing were in reasonably close conformity with the approved plans and specifications, and such results compare favorably with the results of independent assurance sampling and testing." Any deviations from the specifications must be explained along with the reason for acceptance.~~

~~"All field tests were performed in conformity with the governing specifications and the results were in reasonably close conformity with the specifications." Explain any deviations and why the work was accepted.~~

~~"The project was constructed substantially in conformity with the plans and specifications for the project."~~

d) Contractor certification and city recommendation:

~~Showing the final DBE participation on the project including the DBEs used, the type of work performed, and the dollar amount paid to each DBE.~~

~~The city's recommendation regarding the contractor's fulfillment of the DBE requirements. The consultant shall also provide written documentation from each DBE that they were paid in full for the work identified in the Contractor DBE Certification. Examples of documentation from DBEs may include a letter, e-mail, lien waiver or copies of reimbursement checks. If DBE goals were not met, include documentation as to why.~~

~~e) Final Invoice~~

~~f) Final Detailed Estimate of Quantities~~

~~g) Contractor's Affidavit Regarding Settlement of Claims~~

~~h) Final Change Order (if needed)~~

~~i) Affidavit (Compliance with Prevailing Wage Law)~~

~~j) These documents are to be received within 60 days of the Final Inspection date. Final Reimbursement will be processed once all close out documentation has been reviewed and accepted.~~

~~B. The Post-Construction Phase services may commence during the Construction Phase and, if not otherwise modified, will terminate twelve months after the commencement of the Construction Contract's correction period.~~

PART 2 – ADDITIONAL SERVICES

A2.01 *Additional Services Requiring Owner's Written Authorization*

A. If authorized in writing by Owner, Engineer shall provide Additional Services of the types listed below. These services are not included as part of Basic Services and will be paid for by Owner as indicated.

1. Preparation of applications and supporting documents (in addition to those furnished under Basic Services) for private or governmental grants, loans, or advances in connection with the Project; preparation or review of environmental assessments and impact statements; review and evaluation of the effects on the design requirements for the Project of any such statements and documents prepared by others; and assistance in obtaining approvals of authorities having jurisdiction over the anticipated environmental impact of the Project.

2. Undertaking investigations and studies including, but not limited to:

a. Detailed consideration of operations, maintenance, and overhead expenses.

EXHIBIT A 3.0

Replacement of the Connecticut Ave Bridge over I-44, Joplin, Missouri
City of Joplin, Missouri

July 7, 2016

JOB SPECIFIC SCOPE OF SERVICES

Project Description

The City of Joplin plans to replace the Connecticut Avenue Bridge over I-44 with a wider bridge to accommodate a four-lane section of road with two shared-use path.

The existing bridge is orientated north and south over I-44 and is a 4-span steel plate girder bridge with pin and hangers at Bents 2 and 4 and continuous over Bent 3. The existing interior bents have two columns and are supported on pile caps with steel H-piles. The stub end bents are also support on steel H-piles. The existing roadway carries 2-lanes of traffic and has a roadway width of 28' with concrete curbs. The substructure is skewed 10 degrees Right Advance and the posted speed limit over the bridge is 25 mph. The MoDOT Bridge number for this structure is A1969.

The proposed bridge for this scope and fee is a two-span prestressed concrete Type 4 I-girder bridge with an approximate span arrangement of 75'-75' with end bents behind MSE walls. The new typical section of the bridge will consist of: 4 ea x 11' lanes + 2 ea x 2' curb and gutter + 2 x 10'-0" raised shared-use concrete paths + 2 concrete barriers at the edges of the bridge + 1' between NB and SB traffic. The overall width of the bridge would be approximately 72' and the substructure skewed 10 degrees right advance. A fence will be required on the outside of the bridges for protection on the raised shared use path. The new bridge will not have aesthetic treatment and bridge lighting spacing will be analyzed. The horizontal centerline alignment of the bridge will be shifted to the east since there is an overhead power line parallel to the roadway on the west side of the bridge. Connecticut Avenue will be closed at the bridge during construction. Final vertical clearance above I-44 will be 16'-6". No new right-of-way taking is anticipated as the additional right-of-way is being acquired by the City in advance of the project.

General

The general scope of the project is to prepare preliminary and final roadway and bridge plans for the construction of a replacement bridge on Connecticut Avenue over I-44 in the City of Joplin, Missouri. HDR will be responsible for the site survey, environmental and permitting, utility coordination only, geotechnical investigation and foundation design recommendations, preliminary and final roadway, and bridge engineering and plans as well as construction services for the project.

Preparation of a supplemental agreement is necessary prior to performance of any work, which is considered as additional services, not included in the original scope of services. Only additional services, which are required due to changed or unforeseen conditions or are due to a change in the specified end product, will be considered for inclusion in a supplemental agreement.

HDR will prepare design drawings through use of a Computer Aided Drafting (CAD) program and will conform to the Missouri Department of Transportation Specifications for Computer Deliverable Contract Plans as referenced in the MoDOT Engineering Policy Guide (EPG).

Design computations and plans will become the property of the City of Joplin and MoDOT. HDR shall submit design computations in electronic format in Adobe Acrobat Reader version 7.0 format or greater.

Six copies of 11-inch by 17-inch paper prints or similar electronic copies of 100% unsigned and unsealed final roadway, bridge and wall design plans shall be submitted to the City of Joplin, the MoDOT District Transportation Project Manager and the Bridge Division's Structural Liaison Engineer for their review.

The final cost estimate submitted by HDR shall include backup material that supports the estimates made for non-standard or lump sum pay items.

HDR shall prepare signed and sealed bridge and roadway special provisions to supplement the 2016 edition of the Missouri Standard Specifications for Highway Construction. The written special provisions shall also identify design features, construction procedures, or material requirements in the HDR plans that are deviations from Missouri Standard Plans for Highway Construction, including a brief reason for the deviation and the authorizing contact person.

Additions to Part 1 – Basic Services

The basic services are indicated in Exhibit "A". The following detailed scope of services further refines Engineer's services to be provided as part of Part 1 – Basic Services.

1. Project Administration

a. Project Administration – Includes general administration items and standard coordination and correspondence thru design and construction services. Includes routine internal project team meetings and project management.

b. Project Controls – Includes budget and cost monitoring activities thru design and construction services.

c. Status Reports and Invoicing – Preparation of monthly invoices and status reports by project manager and accounting staff thru design and construction services.

d. MoDOT Coordination - Coordination with MoDOT for plan submittal review, permitting, access, and traffic control activities during survey and geotechnical investigation thru design and construction services.

e. Survey and Subconsultant Coordination – Coordination of geotechnical subconsultant for site access and activities where survey crew is required.

f. Project Kickoff Meeting and Site Visit – The HDR Project Manager and a Senior Engineer will attend a kickoff meeting with the City of Joplin to discuss the project, visit the project site and review design criteria. HDR will prepare a comprehensive design criteria memorandum for the project and submit it to the City of Joplin for review and approval prior to starting the preliminary design phase. HDR will prepare a meeting agenda prior to the meeting and forward minutes to the City afterwards and note changes to the design criteria. Preparation, attendance at the meeting and meeting minute preparation is included as 40 hours in the fee. Other project meetings and site visits are identified elsewhere in the scope and fee.

2. Survey

a. Survey Management and Coordination – Task management activities of the survey manager for coordinating survey personnel and the logistics necessary for the completion of the survey. Includes coordination of utility locates and necessary permits from MoDOT for access to the project site.

b. Site Control – Set level and tie project control and benchmarks. Includes four control points and two benchmarks.

c. Topographic and Utility Survey – Perform topographic survey within MoDOT Right-of-Way. The survey limits are approximately a 1200' long along Connecticut for the entire width of the new right-of-way obtained by the City (approximately 200' wide) and minor survey pickup along I-44. Survey will locate the necessary visible features needed for use in preparation of design documents. Utilities existing within the survey limits will be located and shown according to markings provided by the Missouri One-Call system. Utilities will not be potholed. The utility located on the east side of the bridge will be located by others. Contours will be produced at one foot intervals and be provided in Microstation for use in design. Survey will include bridge features such as low chord elevations, end bent seat elevations and sketches/photos of the bridge

d. Right-of-Way Survey – No new right-of-way taking is anticipated as the additional right-of-way is being acquired by the City in advance of the project. Use existing bridge and right-of-way plans to locate section corners, property lines and right of way information. No title search or property ownership search is included.

e. Geotechnical Boring Staking Survey – Coordinate with the geotechnical sub-consultant to locate the proposed sounding locations and to record the final location and surface elevation of the actual sounding locations for use in design and plan development.

3. Preliminary Bridge and Wall Design

Perform the geometric analysis at the proposed bridge sites necessary to develop type, size and location drawings consisting of a general plan and elevation plan and typical section of the structure, typical roadway sections and roadway profiles. The superstructure type shall be dependent upon site constraints and a cost analysis. The structure length shall be based on roadway alignments/grades, vertical clearances, geometric and clear zone requirements. For this scope and fee a 2-span bridge is used with end bents behind MSE walls. Requirements outlined in the MoDOT Engineering Policy Guide shall be met. If applicable, submit a preliminary design approval package to the Missouri Division of the FHWA with a copy of the cover letter being sent to the MoDOT Bridge Division.

a. Conceptual Bridge Layout and Typical Section – Develop Bridge Concept Layout with a typical section for early submittal to the City.

b. Develop Bridge and MSE Wall Design Criteria – Develop detailed design criteria with Bridge Memorandum and Wall Memorandum (two walls) and Design Layout document with a typical bridge section. Provide design exception requests if applicable.

c. Lighting Analysis for Bridge – HDR will investigate amount of lighting fixtures needed on the bridge for the pedestrian usage of the raised shared use path. Illumination requirements will follow the MoDOT EPG.

d. Wall Sounding Layout - Develop a wall layout with required locations for geotechnical investigation borings shown for coordination with geotechnical subconsultant. The existing bridge has piling driven to rock for all the substructure units and piling is expected for the replacement bridge substructure. The design team will use the existing bridge boring information for the bridge end bents and intermediate bent. This criterion was discussed with MoDOT and confirmed. Investigation borings will be collected for the MSE Walls only, per MoDOT criteria, for the MSE wall design recommendations.

e. Preliminary Drawings and Bridge Design Layout - Develop preliminary drawings of the bridge structure showing bridge type, size, and location of the structure. The bridge design layout shall include the design criteria used for final design including the foundation type and estimated foundation bearing elevations, and design values for foundation design based on existing bridge data.

f. Preliminary Retaining Wall Drawings and Design Layout - Develop preliminary drawings of the retaining walls around the bridge end bents showing location length and height. The wall design layout shall include the design criteria used for final design including estimated foundation bearing elevations and design values based on the foundation investigation. It is anticipated that soil mitigation measures for the foundation material will be needed under the MSE wall due to the increased fill heights.

g. Preliminary Cost Estimate and Work Day Study - Develop a preliminary itemized bridge and wall cost estimate. Coordinate this cost estimate with the roadway and

civil estimated costs. The preliminary cost will be based on estimated quantities to construction the bridge and walls. A Work Day Study for the estimated construction duration will be prepared.

h. Quality Control Review - Perform a quality control review of the preliminary bridge deliverable package by a senior bridge QC engineer.

i. Address MoDOT and City Review Comments – Address preliminary review comments received from MoDOT and the City.

4. Preliminary Roadway Design

Perform the geometric analysis at the proposed project site necessary to develop the typical roadway sections, proposed plan view with construction limits, and profile of the roadway. A project title sheet will be provided. Requirements outlined in the MoDOT Engineering Policy Guide shall be met or a Design Exception Request submitted. No right of way plans included.

a. Prelim I-44 Shoulder Reconstruction Plans - Prepare preliminary layout for replacement of outside shoulders for eastbound and westbound I-44 to accommodate MSE walls and barrier installation for existing posted speed limit of I-44.

b. Prelim Connecticut Avenue Roadway Plans - Prepare preliminary for Connecticut Avenue considering the following criteria: no significant change in vertical profile, 35 mph posted and design speed limit, new bridge location will hold west roadway edge of pavement line to accommodate current southbound lane without horizontal transitions and approximately 100' of roadway improvement at north and south ends of new bridge end bents to make tie-in. A future City of Joplin project will extend roadway improvements. The sidewalk on the bridge will continue onto a raised sidewalk on the roadway section off the bridge at each end.

c. Prelim Guardrail Layout - Prepare guardrail plans using MoDOT standard guardrail layout. Guardrail is needed for I-44 median piers, MSE wall, and barrier walls for I-44 eastbound and westbound approaches. Guardrail for Connecticut will be designed and constructed at the bridge ends, as well as with future roadway project (designed by others) and temporary concrete safety barrier will be used in the interim.

d. Prelim Traffic Control Plans and Detour - Prepare preliminary traffic control plans considering the following criteria: Connecticut Avenue can be closed to traffic for the duration of construction, I-44 shoulders can be closed during bridge and MSE wall construction and mainline lanes shifted onto existing inside shoulder and reduced to 11-foot minimum (if needed). This does not include plans/details for the replacement of inside shoulder for traffic control purposes. Temporary lane closures of I-44 will be during off-peak hours using MoDOT standard work zone advance signing detail and short term night-time rolling closures (no signed detour route) for I-44 traffic to permit installation of new girders. Demolition of the existing bridge will be done with a weekend closure of I-44 with a detour.

e. Utility Coordination - HDR will attend up to one utility coordination meeting and participate in up to two utility coordination conference calls with affected area utilities to coordinate their facilities and relocation as needed. Utility relocation plans or utility coordination exhibits are not included in this scope and fee.

f. Prelim Storm Drainage Plans– Design of drainage collection systems at the ends of the bridges and the ditch drainage under the bridge along I-44 next to the MSE walls. The storm drainage will tie in at the ends of the bridge and curb & gutter inlets into an existing closed drainage system along Connecticut Ave (if it exists nearby) or day lighting the drainage to an open ditch for future roadway work (designed by others). Along I-44, it is assumed a pipe will be used to carry drainage in front of MSE walls to/from the open ditch on each side.

g. Prelim Roadway Cost Estimate - Develop a preliminary itemized roadway cost estimate. Coordinate this cost estimate with the bridge estimated costs. The preliminary cost will be based on estimated quantities to for the roadway work.

h. Quality Control Review - Perform a quality control review of the preliminary roadway deliverable package by a senior roadway QC engineer.

i. Address MoDOT and City Review Comments – Address preliminary review comments received from MoDOT and the City.

5. Bridge and Retaining Wall Final Design

HDR will design and furnish checked design plans and quantity computations for the bridge and MSE walls for the project. The design shall be cover all parts of the structure they represent. The degree of detail shall be comparable to that furnished on typical plans prepared in accordance with Missouri Department of Transportation (MoDOT) criteria and procedures. MoDOT has told the City that they will perform the bridge rating and it is not included in this scope and fee.

a. Bridge Final Design and Sheet List - The list of estimated bridge final design sheets and hours is included with the fee estimate. The hours include the final design and detailing effort. MoDOT standard detail sheets will be used were applicable.

b. MSE Wall Final Design and Sheet List - The list of estimated MSE Wall final plan sheets and hours is included with the fee estimate. The hours include the final design and detailing effort of the MSE walls around the two end bents. MoDOT standard detail sheets will be used were applicable. Details and a Job Special Provision for the soil improvements under the MSE walls will be provided.

c. Bridge and Wall Cost Estimate - Develop a final itemized bridge cost estimate. Coordinate this cost estimate with the roadway estimated costs.

d. Bridge and Wall Special Provisions - Prepare technical specifications based on City specifications and supplemented with MoDOT specifications with City-provided front-end documents.

e. Quality Control Review - Perform a quality control review of the bridge deliverable package by a senior bridge QC engineer.

f. Address MoDOT and City Review Comments – Address final plan and Special Provision Comments received from MoDOT and the City.

6. Roadway Final Design

HDR will design and furnish checked design plans and quantity computations for the roadway portion of the project. The degree of detail shall be comparable to that furnished on typical plans prepared in accordance with Missouri Department of Transportation (MoDOT) criteria and procedures. Final plans will be developed for Connecticut Avenue and the roadway work along I-44.

a. Roadway Final Design and Sheet List - The list of estimated final roadway sheets and hours is included with the fee estimate. The hours include the final design and detailing effort along Connecticut Avenue and I-44. MoDOT standard detail sheets will also be used where applicable. Pavement design is not included in this scope and fee – will use a City of Joplin standard arterial pavement section for Connecticut Ave.

   The Traffic Control includes closure and advance closure signing layout for Connecticut Ave and I-44 and two phases or lane shifts for I-44 for interior bent and MSE wall/end bent construction.

   The storm drainage final design will tie drainage at the ends of the bridge and curb & gutter inlets into an existing closed drainage system along Connecticut Ave (if it exists nearby) or day lighting the drainage to an open ditch for future roadway work (designed by others). Along I-44 it is assumed a pipe will be used to carry drainage in front of the MSE walls to/from the open ditch on each side.

b. Roadway Cost Estimate - Develop a final itemized roadway cost estimate. Coordinate this cost estimate with the bridge estimated costs.

c. Roadway Special Provisions - Prepare technical specifications based on City specifications and supplemented with MoDOT specifications with City-provided front-end documents.

d. Quality Control Review - Perform a quality control review of the roadway deliverable package by a senior roadway QC engineer.

e. Address MoDOT and City Review Comments – Address final plan and Special Provision Comments received from MoDOT and the City.

7. Environmental and Permitting Services

HDR will provide limited environmental and permitting services consisting of the following:

a. Categorical Exclusion Letter - HDR understands that some level of NEPA (National Environmental Policy Act) compliance may be required for this project.

MoDOT will be responsible for determining the NEPA classification, but for the purposes of this scope of services it is assumed that the project can be processed under a Categorical Exclusion (CE), given the limited area of impact and scope of the project. Projects of similar scope and scale to the Connecticut Avenue bridge project are classified as Programmatic CEs, particularly when the project is to be built on essentially the same alignment, with no more than three acres of additional right-of-way required. For projects expected to have low environmental impacts but that do not qualify for the Programmatic CE, MoDOT may advise that the project requires a letter CE. This scope of services includes a limited environmental review and completion of a letter summarizing the anticipated impacts. It is anticipated that this project will qualify for Programmatic CE or a letter CE. Any clearances beyond this may require additional scope and fee.

b. Agency Coordination Letters and Bat Survey - With NEPA compliance requirements, it is likely that limited agency coordination will be required. HDR will send coordination letters to the U.S. Fish and Wildlife Service (USFWS) and to the Missouri Department of Conservation (MDC) regarding threatened and endangered species. The USFWS and/or MDC may request that habitat surveys be completed for listed bat species if any trees would be impacted by the project. If so, HDR will conduct a habitat survey and provide a survey report to the City. Aside from bat habitat surveys, no other species surveys are provided, nor are formal Section 7 consultation services with USFWS provided. HDR will also send a coordination letter to the Missouri State Historic Preservation Office (SHPO) regarding potential cultural, historical and archeological issues. At this time, cultural resources surveys are not anticipated or included in this scope of services.

   This scope and fee excludes the following resource reviews or tasks which do not appear to be located within the project limits: Community Impacts, Farmland Impacts, Wetland/Stream Impacts, Water Quality Impacts, Floodplain Impacts, Air Quality Impacts, Noise Impacts, Parklands, Section 4(f)/6(f) Impacts, Hazardous Waste Sites Impacts and Public Involvement.

   Extensive quantitative analysis and/or modeling, field surveys or sampling, or other detailed analysis will not be needed and are not included in this scope of services. In particular, this applies to the cultural resources and threatened and endangered species.

8. Construction Services

HDR will provide construction services that will consist of shop drawing reviews, answering bidding and construction RFI (Request for Information), attending a pre-bid meeting, attending a pre-construction meeting, and site visits during construction for either a bridge or roadway engineer.

a. Attend Pre-Bid Meeting: Project Manager or Senior Engineer will attend one pre-bid meeting to address questions on the plans and specifications. Questions will

be addressed, logged, and distributed. Hours for this meeting shall not exceed eight hours.

b. Attend Pre-Construction Meeting: Project Manager or Senior Engineer will attend one pre-bid meeting to address questions on the plans and specifications. Questions will be addressed, logged, and distributed. Hours for this meeting shall not exceed eight hours.

c. Site Visits during Construction: The Project Manager or a Senior Engineer will make one site visit per month during construction. Estimate four months for construction duration. Hours for each site visit shall not exceed eight hours.

d. Respond to RFI's: HDR will support the City and Contractor staff by answering RFI's within two business days from receipt of the RFI. If of an urgent nature, HDR will take reasonable measures to answer the RFI as soon as possible to help maintain construction progress. For this Scope and Fee Estimate, the number of RFI's will be estimated at eight with an average of four hours per RFI response for a total of 32 hours.

e. Shop Drawing Reviews: Shop drawings shall be reviewed and returned to the City within two weeks of receipt. The shop drawings shall be submitted to the design professional's project manager by e-mail in a pdf format. Shop drawing review includes the initial review and one follow-up review for resubmittals. Time for additional reviews is not included in this scope and fee.

   The shop drawing review effort includes prestressed concrete I-girders and the MSE walls. Hour estimate for each of these reviews (initial and follow-up) is included in the fee estimate.

   Miscellaneous shop drawings for review may consist of the following: Demolition Plan, Concrete Mix Design, Formwork, Excavation Shoring, Erection Drawings, Drainage Structures, Piling, Fence or Handrail Details, Roadway Materials. For these ten other reviews, three hours is estimated for each review and this include the initial and follow up review (if necessary) for a total of 30 hours.

Meetings

- One Project Kickoff Meeting and Site Visit in Joplin (fee included in section 1.0)
- One Utility Coordination Meeting at City of Joplin (fee included in section 4.0)
- One Pre-Bid Meeting (fee included in section 8.0)
- One Pre-Construction meeting (fee included in section 8.0)
- Four Site Visits during Construction (fee included in section 8.0)

** No overnight stays for Design Team or Construction Services. Survey Crew will have overnight stays.

Deliverables

- Bridge Memorandum and Sounding Layout
- 11x17 Preliminary Bridge, Wall and Roadway plans
- Bridge Design Layout
- 11x17 Final Bridge, Wall and Roadway plans and Job Special Provisions
- Categorical Exclusion Letter, Agency Coordination Letters and Bat Survey
- Construction Services submittals that include RFI responses and shop drawings

Project Schedule

July 21st	- Notice to Proceed
July 29th	- Conceptual Bridge Layout and Typical Section
August 15th	- Kickoff meeting (tentative date)
August 22nd	- Sounding Request
September 16th	- Preliminary Bridge, Wall and Roadway Plan and Estimate
October 1st	- Categorical Exclusion Letter & Agency Coordination Letters
October 17th	- 100% Unsigned/Unsealed Plans, Special Provisions & Estimate
October 31st	- 100% Signed/Sealed Plans, Special Provisions and Estimate

** The above schedule allows for one week maximum review of submittals by City of Joplin and MoDOT.

Exhibit A 3.0
Replacement of the Connecticut Ave Bridge over I-44, Joplin, Missouri
Labor and Fee Estimate - HDR Engineering, Inc.
Design and Construction Phase Services
July 6, 2016

		ROLE	Quality Control	Senior Project Manager	Sr Struct Engineer	Structural Engineer	Sr Enviro Planner	Enviromental Scientist	Sr Civil Engineer	Civil Engineer	CADD Technician	Admin Personnel	Registered Surveyor	Two Person Survey Crew	Total
		Hourly Billing Rate	225.00	198.00	225.00	140.00	190.00	105.00	160.00	130.00	90.00	75.00	135.00	140.00	
Labor (Hours)															
1. Project Administration	a.	Project Administration		16								4			20
	b.	Project Controls		8								4			12
	c.	Status Reports and Invoicing		4								8			12
	d.	MoDOT Coordination		4											4
	e.	Survey and Subconsultant Coordination		4											4
	f.	Project Kickoff Meeting and Site Visit		20					20						40
		Subtotal	**0**	**56**	**0**	**0**	**0**	**0**	**20**	**0**	**0**	**16**	**0**	**0**	**92**
2. Survey	a.	Survey Management and Coordination		2									4		6
	b.	Site Control									4		2		6
	c.	Topographic and Utility Survey									20		4	44	68
	d.	Right-of-Way Survey									12		4	6	22
	e.	Geotechnical Boring Staking Survey									2		2	12	16
		Subtotal	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**38**	**0**	**16**	**62**	**118**
3. Preliminary Bridge and Wall Design	a.	Conceptual Bridge Layout and Typical Section			4	8					8				20
	b.	Develop Bridge and MSE Wall Design Criteria			8	16									24
	c.	Lighting Analysis for Bridge			8	12									20
	d.	Wall Sounding Layout			2	4					8				14
	e.	Preliminary Drawings and Bridge Design Layout			14	20					12				46
	f.	Preliminary Ret Wall Drawings and Design Layout			14	20					12				46
	g.	Preliminary Cost Estimate and Work Day Study	2		4	8									14
	h.	Quality Control Review	4	2	2	4					8				20
	i.	Address MoDOT and City Review Comments		2	2	2					4				10
		Subtotal	**6**	**4**	**58**	**94**	**0**	**0**	**0**	**0**	**52**	**0**	**0**	**0**	**214**
4. Preliminary Roadway Design	a.	Prelim I-44 Shoulder Reconstruction Plans							2	30	24				56
	b.	Prelim Connecticut Avenue Roadway Plans							8	24	32				64
	c.	Prelim Guardrail Layout							4	20	16				40
	d.	Prelim Traffic Control Plans and Detour							12	32	30				74
	e.	Utility Coordination		2					12	4					18
	f.	Prelim Storm Drainage Plans							8	12					20
	g.	Prelim Roadway Cost Estimate	2						2	4					8
	h.	Quality Control Review	4	2					2	4	8				20
	i.	Address MoDOT and City Review Comments		2					2	2	4				10
		Subtotal	**6**	**6**	**0**	**0**	**0**	**0**	**52**	**132**	**114**	**0**	**0**	**0**	**310**

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Design and Construction Phase Services
July 6, 2016

		ROLE	Quality Control	Senior Project Manager	Sr Struct Engineer	Structural Engineer	Sr Enviro Planner	Enviromental Scientist	Sr Civil Engineer	Civil Engineer	CADD Technician	Admin Personnel	Registered Surveyor	Two Person Survey Crew	Total
		Hourly Billing Rate	225.00	198.00	225.00	140.00	190.00	105.00	160.00	130.00	90.00	75.00	135.00	140.00	
	5. Bridge and Retaining Wall Final Design	a.	Bridge Final Design and Sheet List												0
			General Plan and Elevation (1 sht)		2		16					8				26
			Est Quantities and General Notes (1 sht)		2	8	16					8				34
			End Bent No. 1 Details (2 shts)			20	40					24				84
			Veritcal Drain at End Bents (1 sht)				2					4				6
			Int Bent No. 2 Details (2 shts)			20	40					24				84
			End Bent No. 3 Details (2 shts)			10	20					24				54
			P/S Girder Details, Span 1 & 2 (2 shts)			16	32					16				64
			Intermediate Diaphragm Details (1 sht)			4	8					8				20
			Diaphragm Details at Int Bent (1 sht)			4	8					8				20
			Camber and Haunching Diagrams (1 sht)			8	16					8				32
			Slab Plan and Pouring Sequence (1 sht)			8	16					8				32
			Slab Section and Details (1 sht)			8	16					8				32
			Precast Panel Details (1 sht)				4					4				8
			Barrier Details (2 shts)			6	12					12				30
			Sidewalk Details (1 sht)			6	12					12				30
			Optional Slip Form Detail (1 sht)				2					4				6
			Lighting and Fencing Details (1 sht)			4	8					12				24
			Bridge Approach Slab (1 sht)			4	8					8				20
			Bill of Reinforcing (3 shts)			16	24					12				52
			As-Built Pile Data (1 sht)				2					2				4
		b.	MSE Wall Final Design and Sheet List													0
			End Bent No. 1 MSE Wall Plan and Elevation (1 sht)			8	12					8				28
			End Bent No. 3 MSE Wall Plan and Elevation (1 sht)			8	12					8				28
			Soil Improvement Details under MSE Walls (1 sht)		2	14	20					12				48
			Wall and Misc Details and Notes (2 shts)			8	12					8				28
		c.	Bridge and Wall Cost Estimate				4					8				12
		d.	Bridge Special Provisions				4									4
		e.	Quality Control Review	16	2	2	4					8				32
		f.	Address MoDOT and City Review Comments			2	4					4				10
			Subtotal	**16**	**8**	**184**	**374**	**0**	**0**	**0**	**0**	**270**	**0**	**0**	**0**	**852**

Exhibit A 3.0
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Design and Construction Phase Services
July 6, 2016

		ROLE	Quality Control	Senior Project Manager	Sr Struct Engineer	Structural Engineer	Sr Enviro Planner	Enviromental Scientist	Sr Civil Engineer	Civil Engineer	CADD Technician	Admin Personnel	Registered Surveyor	Two Person Survey Crew	Total
		Hourly Billing Rate	225.00	198.00	225.00	140.00	190.00	105.00	160.00	130.00	90.00	75.00	135.00	140.00	
	6. Roadway Final Design	a.	Roadway Final Design and Sheet List												0
			Title Sheet (1 sht)						1	4	8				13
			Reference and Coordinate Point Sheets (1 sht)						1	4	8				13
			Typical Sections (1 sht)						2	4	8				14
			Plan and Profile - Connecticut Ave (2 shts)						4	6	8				18
			Plan Sheet - I44 (1 sht)						2	2	4				8
			Roadway Detail Sheets (6 shts)						8	16	12				36
			Traffic Control and Detour Plans (12 shts)						16	24	40				80
			Erosion and Sediment Control (5 shts)						4	8	12				24
			Pavement Marking and Signing (3 shts)						4	8	12				24
			Storm Drainage Sheets (2 shts)						8	16	16				40
			Cross Sections (6 shts)							12	12				24
		b.	Roadway Cost Estimate						4	8					12
		c.	Roadway Special Provisions						4						4
		d.	Quality Control Review	8	2				2	4	8				24
		e.	Address MoDOT and City Review Comments			2			2	4	4				12
			Subtotal	**8**	**2**	**2**	**0**	**0**	**0**	**62**	**120**	**152**	**0**	**0**	**0**	**346**
	7. Environmental and Permitting Services	a.	Categorical Exclusion Letter	1	1			8	8						18
		b.	Agency Coordination Letters and Bat Survey	1	1			16	4						22
															0
			Subtotal	**2**	**2**	**0**	**0**	**24**	**12**	**0**		**0**	**0**	**0**	**0**	**40**
	8. Construction Services	a.	Attend Pre-Bid Meeting		8										8
		b.	Attend Pre-Construction Meeting		8										8
		c.	Site Visits during Construction		16	16									32
		d.	Respond to RFI's			8	24								32
		e.	Shop Drawing Review - P/S Conc Girders			8	16								24
			Shop Drawing Review - MSE Walls			8	16								24
			Shop Drawing Review - Misc Reviews			10	20								30
			Subtotal	**0**	**32**	**50**	**76**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**158**
Grand Total (Man-Hours)				**38**	**112**	**294**	**544**	**24**	**12**	**134**	**252**	**626**	**16**	**16**	**62**	**2130**

Exhibit A 3.0
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Labor and Fee Estimate - HDR Engineering, Inc.
Design and Construction Phase Services
July 6, 2016

ROLE	Quality Control	Senior Project Manager	Sr Struct Engineer	Structural Engineer	Sr Enviro Planner	Enviromental Scientist	Sr Civil Engineer	Civil Engineer	CADD Technician	Admin Personnel	Registered Surveyor	Two Person Survey Crew	Total
Hourly Billing Rate	225.00	198.00	225.00	140.00	190.00	105.00	160.00	130.00	90.00	75.00	135.00	140.00	
Labor Fee Breakdown by Task													
1. Project Administration	$ -	$ 11,088	$ -	$ -	$ -	$ -	$ 3,200	$ -	$ -	$ 1,200	$ -	$ -	15,488
2. Survey	$ -	$ 396	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,420	$ -	$ 2,160	$ 8,680	14,656
3. Preliminary Bridge and Wall Design	$ 1,350	$ 792	$ 13,050	$ 13,160	$ -	$ -	$ -	$ -	$ 4,680	$ -	$ -	$ -	33,032
4. Preliminary Roadway Design	$ 1,350	$ 1,188	$ -	$ -	$ -	$ -	$ 8,320	$ 17,160	$ 10,260	$ -	$ -	$ -	38,278
5. Bridge and Retaining Wall Final Design	$ 3,600	$ 1,584	$ 41,400	$ 52,360	$ -	$ -	$ -	$ -	$ 24,300	$ -	$ -	$ -	123,244
6. Roadway Final Design	$ 1,800	$ 396	$ 450	$ -	$ -	$ -	$ 9,920	$ 15,600	$ 13,680	$ -	$ -	$ -	41,846
7. Environmental and Permitting Services	$ 450	$ 396	$ -	$ -	$ 4,560	$ 1,260	$ -	$ -	$ -	$ -	$ -	$ -	6,666
8. Construction Services	$ -	$ 6,336	$ 11,250	$ 10,640	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	28,226
Total Labor Fee	**$ 8,550**	**$ 22,176**	**$ 66,150**	**$ 76,160**	**$ 4,560**	**$ 1,260**	**$ 21,440**	**$ 32,760**	**$ 56,340**	**$ 1,200**	**$ 2,160**	**$ 8,680**	**$ 301,436**

Estimated Direct Costs	
Survey Crew Lodging (4 nights @ $200 per crew)	$ 800
Survey Crew Meals/Per Diem (5 days @ $118 per crew)	$ 590
Survey Crew Mileage (850 total - 650 two round trips, 40 daily) AT $0.60	$ 510
Meetings by Design Team-Rental Car (2 @ 75 per trip)	$ 150
Meetings by Design Team-Rental Car Gas (2 @ 50 per trip)	$ 100
Meetings by Design Team-meals (2 @ 20 per trip)	$ 40
Site Visits by Const Serv Team-Rental Car (6 @ 75 per trip)	$ 450
Site Visits by Constr Serv Team-Car Gas (6 @ 50 per trip)	$ 300
Site Visits by Const Serv-meals (6 @ 20 per trip)	$ 120
Postage/Package Overnight	$ 50
Printing (500 pages at .10 per page)	$ 50
Total Direct Costs	**$ 3,160**

Subconsultant Costs	
Geotech Investigation and Report Palmerton & Parrish, Inc. (copy included)	$ 11,750
Total Subconsultants	**$ 11,750**

TOTALS	
Total Labor Fee	$ 301,436
Estimated Direct Costs	$ 3,160
Subconsultant Costs	$ 11,750
Grand Total	**$ 316,346**

PALMERTON & PARRISH, INC.

GEOTECHNICAL & MATERIALS ENGINEERS
MATERIALS TESTING LABORATORIES
ENVIRONMENTAL SERVICES

4168 W. KEARNEY ST.
SPRINGFIELD, MO 65803
Ph: (417) 864-6000
www.ppimo.com

Revised
July 5, 2016

Ms. Jennifer A. Thomas, P.E. ENV SP
HDR
2139E E. Primrose St.
Springfield, Missouri 65804

Email: Jennifer.Thomas@hdrinc.com

RE: PPI Proposal for Geotechnical Subsurface Investigation
Connecticut Avenue Bridge over I-44
Joplin, Missouri

Dear Ms. Thomas:

Palmerton & Parrish, Inc. (PPI) appreciates the opportunity to submit this proposal for completion of a Subsurface Investigation and Geotechnical Engineering Report for the new Connecticut Avenue Bridge over I-44 in Joplin, Missouri. The sections below summarize PPI's project understanding, scope of services, project schedule and logistics, and estimated cost.

PROJECT UNDERSTANDING

The Project involves construction of a new Connecticut Avenue Bridge over Interstate 44 (I-44) in Joplin, Missouri. The new bridge will have a total width on the order of 68 feet, 8 inches, and will include four (4) lanes and two (2) sidewalks on the outside edges of the bridge. The bridge will be a two-span, prestressed I-girder bridge, with span lengths of approximately 75 feet and 75 feet.

The new bridge will have integral end bents. Mechanically stabilized earth (MSE) walls will be constructed in front of the end bents, and will extend parallel to I-44 until they taper down to existing ground surface elevations. The total wall length is on the order of 140 feet, and the maximum wall height of approximately 18 feet occurs at the bridge abutments.

Bridge foundation support is anticipated to be footings supported on deep pile foundations. Existing subsurface data collected during design of the original bridge structure indicates thick overburden consisting of clay and heavy chert, underlain by limestone and/or limestone and shale bedrock at variable depth.

Surface elevation was relatively flat among the boring logs reviewed by PPI, ranging from 1055.7 to 1058.8 feet. Several borings were terminated on chert prior to reaching the depth of limestone bedrock. Where borings were extended to bedrock, limestone was encountered at depths ranging from 63.3 feet to 111.5 feet; data points included 104.3, 111.5, 72.5, 70.7, 87.5, 64.8, 63.3, 63.8, 58.0, 72.3, and 69.8 feet. Flint was encountered in one boring at a depth of 62 feet.

SCOPE OF SERVICES

It is understood that the existing subsurface data will be utilized by HDR for design of the new bridge structure, and no additional subsurface investigation is desired for this portion of the project. However, additional subsurface investigation is desired for the proposed new MSE Walls. PPI's scope of services will include completion of a field subsurface

investigation, laboratory testing program, engineering analysis of collected data, and preparation of a formal Geotechnical Engineering Report. PPI anticipates issuance of a Preliminary Geotechnical Engineering Report for HDR's use before the laboratory testing program is complete, with the Final Geotechnical Engineering Report issued upon completion of laboratory testing.

The scope of the field subsurface investigation and laboratory testing program has been developed in general accordance with the Missouri Department of Transportation's (MoDOT's) Technical Guidelines for Geotechnical Investigations, and is summarized in the tables below.

FIELD DRILLING SCOPE	
Construction Item	**Field Drilling Scope**
MSE Wall Abutments	MoDOT Guideline: sample borings ~200 foot spacing with a minimum of 2 sample borings per wall; probe borings ~25 ft. centers; typical depth ~10 feet below wall foundation. [Wall length is approximately 140 feet x 2 walls. Assume 2 sample borings and 5 probe boring per wall, approximately 15 feet of soil drilling in each]

LABORATORY TESTING SCOPE	
Construction Item	**Laboratory Testing Scope**
MSE Wall Abutments	**All Soil Samples:** Moisture Content and Pocket Penetrometer Strength **Selected Soil Samples:** Atterberg Limits, Grain Size Analysis, and Unconfined Compressive Strength **Selected Soil Samples:** Drained Direct Shear Testing and Multi-stage Consolidated Undrained Triaxial Testing (if sample type and quality allows)

PPI's Formal Geotechnical Engineering Report will include:

- An Executive Summary;
- Discussion of the Work Performed;
- Encountered Subsurface Conditions;
- Site and Boring Location Plans;
- Typed Boring Logs;
- MSE wall design parameters & Global Stability Analysis; and
- Laboratory Test Results.

LOGISTICS AND ASSUMPTIONS

This proposal includes the following assumptions:

- Boring locations will be surveyed and staked in the field, including surface elevations, by HDR.
- Borings will typically be located on MoDOT right-of-way. Any required right of entry or other site access agreements will be provided by others.
- It is assumed that the site is accessible by PPI's track-mounted drilling equipment. This proposal does not include an allowance for site clearing or earthwork to accommodate drill rig access.
- PPI will make utility locate requests to the Missouri One Call System. **Marking of planned boring locations is a critical path item for the overall drilling schedule, so that PPI can make utility locate requests.**
- Private utilities, if any, will be marked in the field by others prior to PPI's mobilization.

- In accordance with MoDOT guidelines, PPI will provide a qualified engineer or geologist to log the borings during field drilling.
- PPI will provide traffic control for our crew in accordance with MoDOT's Traffic Control for Field Operations, based upon the Manual for Uniform Traffic Control Devices.
- PPI anticipates obtaining a Utility Permit from MoDOT, to obtain formal permission to work on MoDOT Right of Way. Part of the Utility Permit requirement will be restoration of the project site upon completion of work, followed by a final inspection by MoDOT. This proposal includes an allowance for rut repair, and spreading grass seed and straw.
- Soil samples will be sealed and stored in PPI's laboratory for 60 days after completion of the Geotechnical Engineering Report, unless other arrangements are mutually agreed upon.

There are existing electric transmission lines on the west side of the existing bridge. The only field drilling that may occur on the west side of the existing bridge is borings for the new MSE wall abutments. These borings will be located where they are not in conflict with this transmission line, and may be eliminated from the scope if they cannot be safely drilled in an applicable location west of the existing bridge.

There is existing overhead electric on the east side of the existing bridge. It is anticipated that this electric service will be relocated as part of this Project. For the purposes of this proposal, PPI assumes that boring locations will either be sited so that they are not in conflict with the electric line east of the existing bridge, or field drilling will be delayed until after the line is relocated.

SCHEDULE

PPI's anticipated schedule is summarized in the table below, assuming that it will be possible to complete all of the planned field drilling activities in a single mobilization.

ANTICIPATED SCHEDULE	
Work Item	**Anticipated Duration (Total Project Timeline)**
Coordination and Planning	1 week from the date of Project Authorization
Field Subsurface Investigation	3 days
Preliminary Geotechnical Engineering Report	1 week
Laboratory Testing Program (basic)	1 week
Laboratory Testing Program (high end strength tests)	2 weeks
Final Geotechnical Engineering Report	1 week after completion of Laboratory Testing Program (4 to 5 weeks total timeline)

ESTIMATED COST

PPI will provide the scope of services outlined in this proposal for a Lump Sum Cost of Eleven Thousand Seven Hundred & Fifty Dollars ($11,750). PPI is also happy to provide services on a time and materials basis if that is desired by HDR and/or MoDOT.

The table below shows a general breakdown of PPI's Lump Sum cost by task.

GENERAL BREAKDOWN OF LUMP SUM COST	
Item	**Estimated Cost**
Project Management	$1,050
Traffic Control Plan & Coordination of Field Work with MoDOT	$300
Traffic Control Implementation (Equipment Rental, Set Up, & Take Down)	$600
Subsurface Investigation (Field Drilling and Logging by a Geologist)	$5,750
Laboratory Testing Program	$2,450
Geotechnical Engineering Report	$1,600
Total LUMP SUM Cost:	**$11,750**[1]
[1] Total LUMP SUM cost based upon the assumptions, quantities, and general work effort discussed throughout this proposal dated July 5, 2016	

CLOSURE

PPI appreciates the opportunity to submit this proposal to HDR for completion of a field subsurface investigation and Geotechnical Engineering Report for the new Connecticut Avenue Bridge over I-44. To authorize us to proceed, please sign below, initial the attached General Conditions, and return one fully executed copy to our office. PPI is also happy to consider alternate contract forms provided by HDR. Please call our Springfield Office at (417) 864-6000 if you have any questions regarding this proposal.

PALMERTON & PARRISH, INC.
By:

Rachel J. Goeke

Rachel J. Goeke, P.E.
Geotechnical Engineer

PALMERTON & PARRISH, INC.
By:

Brandon R. Parrish, P.E.
Vice-President

Attachment: General Conditions

Submitted: 1 Electronic (.pdf) Copy via Email (Jennifer.Thomas@hdrinc.com)

Copy: Electronic (.pdf) Copy via Email: Kurt.Gribble@hdrinc.com

SMR:BRP/brp

CLIENT AUTHORIZATION:

_____
Firm Name

_____
Authorizing Signature

_____
Please Print Name & Title

_____
Date