



Memo

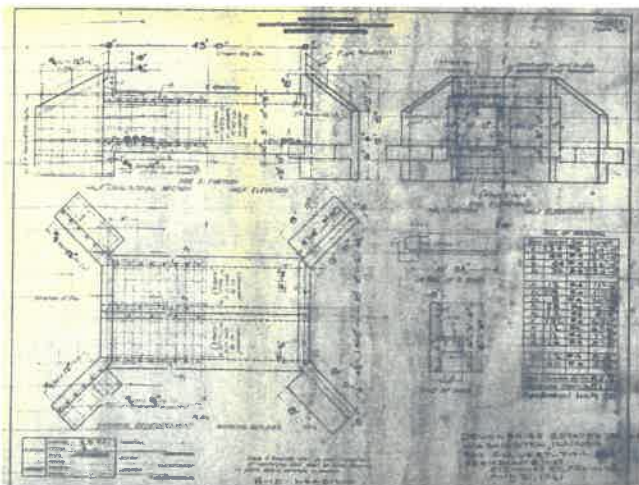
TO: Committee of the Whole
FROM: Ed Andrews, Public Works Director
DATE: June 1, 2018
SUBJECT: Stratford Bridge Engineering S/N# 090-6004

The following memorandum was presented and discussed with the Public Works Committee (PWC) on 6-4-18. It was the consensus of the PWC to advance this discussion to the Committee of the Whole.

In July of 2017, the Illinois Department of Transportation (IDOT) Bridge Office completed a review of the Stratford Bridge, Structure Number 090-6004. This was part of a state-wide effort under FHWA to review a particular design of concrete box culverts. IDOT decreased the structural sufficiency of the bridge from 81.5 in 2013 to 63.7 in 2017 and subsequently notified the City to load post (restrict) the structure to 12T.

This being largely from a restriction on the original standard plan design of either bearing traffic directly on the top slab of the box culvert or increasing fill depths of 36" to help distribute the loading. The current thickness of the pavement onto of the Stratford bridge averages 17.2 inches.

A review of the history of the structure indicates that it was constructed by the developer of the subdivision in the 1960s, giving it an approximate age of 50 years. Below is the single sheet plan used for its construction.



Staff conducted a detailed review in the Summer of 2017 and determined that there are a number of confining constraints prohibiting simply increasing the overlay thickness from 17" to 36" to gain back some structural sufficiency rating.



Additionally, there are components of the structure which we have continued to monitor that will warrant additional attention in the coming years.



Crazing and leacate noted in the upper slab

The following is an inventory of all of the bridges under the City's jurisdiction. Aside from the Candlewood bridge (unique in and of itself because of being a historical stone arch structure), Stratford has the second lowest sufficiency rating in our inventory. It is also interesting to note that Candlewood was previously rehabilitated in 2001.

Structure Number	Stream	Federal Aid Route	Local Name	Sufficiency Rating		Year		Avg Daily Traffic		Avg Daily Traffic	
				2013	2017	Constructed	Old	(ADT)	Year	(ADT)	Year
090-6000	Farm Creek	FAP 398	North Main St	96.7	96.7	1966	51	5900	2008	6250	2014
090-6001	Trib. Farm Cr		South Main St	95.7	95.7	1966	51	5900	2008	5950	2014
090-6004	Farm Creek		Stratford Dr	81.5	63.1	1968	49	450	2008	275	2014
090-6007	Farm Creek		Elm St	99.0	99.0	1969	48	300	2008	250	2014
090-6008	Farm Creek		Candlewood Ln	40.5	29.5	1894	123	225	2008	200	2014
090-6010	Farm Creek	FAU 6732	West Jefferson	94.1	94.1	1980	37	2100	2008	2250	2014
090-6011	Farm Creek		Westgate Rd	96.6	96.6	1982	35	2200	2008	2650	2014
090-6012	Farm Creek	FAU 6739	Dallas Rd	98.4	98.4	2000	17	2700	2008	2700	2008
090-6013	Farm Creek		Lawndale Rd	100.0	100.0	2002	15	550	2014	550	2014
090-6088	Trib. Farm Cr		Lincoln Ave	100.0	100.0	2009	8	1950	2014	1950	2014
Average				90.3	87.3	1974	43	2228		2303	
Low				40.5	29.5	1894	123				
High				100.0	100.0	2009	8				

FHWA has established that sufficiency ratings of less than 80 warrant rehabilitation and 50 are consideration for replacement. Given the previously mentioned constraints to the structure, Staff has requested that Hutchison Engineering prepare a proposal for discussion.

Consideration of advancing this proposal to a formal contract is being brought before Committee of the Whole for review and discussion.

cc: File

Municipality City of Washington	L O C A L A G E N C Y	Preliminary Engineering Services Agreement For Local Funds	C O N S U L T A N T	Name Hutchison Engineering, Inc.
Township N/A				Address 2015 W. Glen Ave, Suite 210
County Tazewell				City Peoria
Section				State Illinois

THIS AGREEMENT is made and entered into this _____ day of June, 2018 between the above Local Agency (LA) and Consultant (ENGINEER) and covers certain professional engineering services in connection with the improvement of the above SECTION. Local Funds will be used entirely to finance ENGINEERING services as described under AGREEMENT PROVISIONS.

Section Description

Name Stratford Drive Structure Replacement and Roadway Reconstruction

Route Stratfor Length 0.10 Mi. 525.00 FT (Structure No. 090-6004)

Termini Kingsbury Rd to Yorkshire Drive

Description:

Replacement of the existing structure with a PPC Deck Beam structure and corresponding roadway and entrance reconstruction.

Agreement Provisions

The Engineer Agrees,

1. To perform or be responsible for the performance of the following engineering services for the LA, in connection with the proposed improvements herein before described, checked below, and described in greater detail in attached Exhibit A:
 - a. Make such detailed surveys as are necessary for the preparation of detailed roadway plans
 - b. Make stream and flood plain hydraulic surveys and gather high water data, and flood histories for the preparation of detailed bridge plans.
 - c. Make or cause to be made such soil surveys or subsurface investigations including borings and soil profiles and analyses thereof as may be required to furnish sufficient data for the design of the proposed improvement. Such investigations are to be made in accordance with the current requirements of the DEPARTMENT.
 - d. Make or cause to be made such traffic studies and counts and special intersection studies as may be required to furnish sufficient data for the design of the proposed improvement.
 - e. Prepare Army Corps of Engineers Permit, Department of Natural Resources-Office of Water Resources Permit, Bridge waterway sketch, and/or Channel Change sketch, Utility plan and locations, and Railroad Crossing work agreements.
 - f. Prepare Preliminary Bridge design and Hydraulic Report, (including economic analysis of bridge or culvert types) and high water effects on roadway overflows and bridge approaches.
 - g. Make complete general and detailed plans, special provisions, proposals and estimates of cost and furnish the LA with five (5) copies of the plans, special provisions, proposals and estimates. Additional copies of any or all documents, if required, shall be furnished to the LA by the ENGINEER at his actual cost for reproduction.
 - h. Furnish the LA with survey and drafts in quadruplicate of all necessary right-of-way dedications, construction easement and borrow pit and channel change agreements including prints of the corresponding plats and staking as required.

~~Note: Four copies to be submitted to the Regional Engineer~~

- i. Assist the LA in the tabulation and interpretation of the contractors' proposals
 - j. Prepare the necessary environmental documents in accordance with the procedures adopted by the DEPARTMENT's Bureau of Local Roads & Streets.
 - k. Prepare the Project Development Report when required by the DEPARTMENT.
- (2) That all reports, plans, plats and special provisions to be furnished by the ENGINEER pursuant to the AGREEMENT, will be in accordance with current standard specifications and policies of the DEPARTMENT. It is being understood that all such reports, plats, plans and drafts shall, before being finally accepted, be subject to approval by the LA and the DEPARTMENT.
- (3) To attend conferences at any reasonable time when requested to do so by representatives of the LA or the Department.
- (4) In the event plans or surveys are found to be in error during construction of the SECTION and revisions of the plans or survey corrections are necessary, the ENGINEER agrees that he will perform such work without expense to the LA, even though final payment has been received by him. He shall give immediate attention to these changes so there will be a minimum delay to the Contractor.
- (5) That basic survey notes and sketches, charts, computations and other data prepared or obtained by the Engineer pursuant to this AGREEMENT will be made available, upon request, to the LA or the DEPARTMENT without cost and without restriction or limitations as to their use.
- (6) That all plans and other documents furnished by the ENGINEER pursuant to this AGREEMENT will be endorsed by him and will show his professional seal where such is required by law.

The LA Agrees,

1. ~~To pay the ENGINEER as compensation for all services performed as stipulated in paragraphs 1a, 1g, 1i, 2, 3, 5 and 6 in accordance with one of the following methods indicated by a check mark:~~
- ~~a. A sum of money equal to _____ percent of the awarded contract cost of the proposed improvement as approved by the DEPARTMENT.~~
 - ~~b. A sum of money equal to the percent of the awarded contract cost for the proposed improvement as approved by the DEPARTMENT based on the following schedule:~~

Schedule for Percentages Based on Awarded Contract Cost

Awarded Cost		Percentage Fees	
Under	\$50,000	_____	(see note)
		_____	%
		_____	%
		_____	%
		_____	%
		_____	%

~~Note: Not necessarily a percentage. Could use per diem, cost plus or lump sum.~~

2. To pay for services stipulated in paragraphs 1a, 1b, 1c, 1e, 1f, 1g, & 1j, of the ENGINEER AGREES at actual cost of performing such work plus 125 percent to cover profit, overhead and readiness to serve - "actual cost" being defined as payrolls, insurance, social security and retirement deductions. GPS time, CADD time, robotic survey equipment will be billed at the ENGINEER's current rate. Traveling and other out-of-pocket expenses will be reimbursed to the ENGINEER at his actual cost. Subject to the approval of the LA, the ENGINEER may sublet all or part of the services provided under the paragraph 1c. If the ENGINEER sublets all or part of this work, the LA will pay the cost to the ENGINEER. "Cost to Engineer" to be verified by furnishing the LA and the DEPARTMENT copies of invoices from the party doing the work. The classifications of the employees used in the work should be consistent with the employee classifications for the services performed. If the personnel of the firm, including the Principal Engineer, perform routine services that should normally be performed by lesser-salaried personnel, the wage rate billed for such services shall be commensurate with the work performed.

Payment for all engineering services described under ENGINEER AGREES shall not exceed \$65,000 unless otherwise approved in writing by the LA.

3. That payments due the ENGINEER for services rendered in accordance with this AGREEMENT will be made as soon as practicable after the services have been performed in accordance with the following schedule:
 - ~~a. Upon completion of detailed plans, special provisions, proposals and estimate of cost being the work required by paragraphs 1a through 1g under THE ENGINEER AGREES to the satisfaction of the LA and their approval by the DEPARTMENT, 90 percent of the total fee due under this AGREEMENT based on the approved estimate of cost.~~
 - ~~b. Upon award of the contract for the improvement by the LA and its approval by the DEPARTMENT, 100 percent of the total fee due under the AGREEMENT based on the awarded contract cost, less any amounts paid under "a" above.~~

~~By Mutual agreement, partial payments, not to exceed 90 percent of the amount earned, may be made from time to time as the work progresses.~~
4. That, should the improvement be abandoned at any time after the ENGINEER has performed any part of the services provided for in paragraphs 1a, through 1h and prior to the completion of such services, the LA shall reimburse the ENGINEER for his actual costs plus 125 percent incurred up to the time he is notified in writing of such abandonment -"actual cost" being defined as in paragraph 2 of THE LA AGREES.
5. That, should the LA require changes in any of the detailed plans, specifications or estimates except for those required pursuant to paragraph 4 of THE ENGINEER AGREES, after they have been approved by the LA, the LA will pay the ENGINEER for such changes on the basis of actual cost plus 125 percent to cover profit, overhead and readiness to serve -"actual cost" being defined as in paragraph 2 of THE LA AGREES. It is understood that "changes" as used in this paragraph shall in no way relieve the ENGINEER of his responsibility to prepare a complete and adequate set of plans and specifications.

It is Mutually Agreed,

1. That any difference between the ENGINEER and the LA concerning their interpretation of the provisions of this Agreement shall be referred to a committee of disinterested parties consisting of one member appointed by the ENGINEER, one member appointed by the LA and a third member appointed by the two other members for disposition and that the committee's decision shall be final.
2. This AGREEMENT may be terminated by the LA upon giving notice in writing to the ENGINEER at his last known post office address. Upon such termination, the ENGINEER shall cause to be delivered to the LA all surveys, permits, agreements, preliminary bridge design & hydraulic report, drawings, specifications, partial and completed estimates and data, if any from traffic studies and soil survey and subsurface investigations with the understanding that all such material becomes the property of the LA. The ENGINEER shall be paid for any services completed and any services partially completed in accordance with Section 4 of THE LA AGREES.
3. That if the contract for construction has not been awarded one year after the acceptance of the plans by the LA and their approval by the DEPARTMENT, the LA will pay the ENGINEER the balance of the engineering fee due to make 100 percent of the total fees due under this AGREEMENT, based on the estimate of cost as prepared by the ENGINEER and approved by the LA and the DEPARTMENT.
4. That the ENGINEER warrants that he/she has not employed or retained any company or person, other than a bona fide employee working solely for the ENGINEER, to solicit or secure this contract, and that he/she has not paid or agreed to pay any company or person, other than a bona fide employee working solely for the ENGINEER, any fee, commission, percentage, brokerage fee, gifts or any other consideration, contingent upon or resulting from the award or making of this contract. For Breach or violation of this warranty the LA shall have the right to annul this contract without liability.

IN WITNESS WHEREOF, the parties have caused the AGREEMENT to be executed in quadruplicate counterparts, each of which shall be considered as an original by their duly authorized officers.

Executed by the LA:

City of Washington of the
(Municipality/Township/County)

ATTEST:

State of Illinois, acting by and through its

By _____

Clerk

By

(Seal)

Title

Executed by the ENGINEER:

Hutchison Engineering, Inc.

2015 W. Glen Ave., Suite 210

Peoria, IL 61614

By

W. Shanahan

Title Office Manager

HUTCHISON ENGINEERING, INC.

STRATFORD DRIVE STRUCTURE REPLACEMENT AND ROADWAY RECONSTRUCTION

EXHIBIT A - SCOPE OF SERVICES

Whereas the City of Washington (Client) has engaged Hutchison Engineering, Inc. (Consultant), to provide professional engineering services related to the structure replacement and corresponding roadway reconstruction on Stratford Drive, Hutchison Engineering, Inc. agrees to provide the services described in the ensuing paragraphs.

The general scope of the project is to provide construction plans, specifications, estimates, and bidding documents for the complete structure replacement and corresponding roadway reconstruction on Stratford Drive including, but not limited to new PPC Deck Beam structure with open abutments, pavement, curbs, driveways, sidewalk, storm drainage facilities, and appurtenant improvements.

Plans will be prepared in general conformance with Illinois Department of Transportation (IDOT) plan preparation guidelines using Bentley Microstation and Geopak software.

SERVICES: Hutchison Engineering's scope of services will be limited to the following:

1. Project Administration & Management – This will include the overall day to day management of the project including coordination with client, IDOT, consultants, and other entities who may hold stake in the project. This will also include monitoring of project schedule, budget, and staffing needs.
2. Field Investigations & Site Visits
 - a. Make site visits and conduct field investigations and measurements as needed to collect data, evaluate existing conditions, and aid in the design of appropriate infrastructure features.
3. Survey
 - a. Courthouse Research
 - b. Locate property/section corners
 - c. Hydraulic Survey
 - d. Topographic Survey
 - e. Cross Sections
4. Subsurface Soil Investigations (performed by sub-consultant – Whitney Associates) – See attached scope of services.
5. Coordination Meetings – Prepare for and attend coordination meetings with client and IDOT as needed.
6. Utility Coordination
 - a. Contacting all utility companies to request additional utility information including horizontal and vertical location of facilities.
 - b. Coordination of all conflicts and the corresponding relocation

HUTCHISON ENGINEERING, INC.

STRATFORD DRIVE STRUCTURE REPLACEMENT AND ROADWAY RECONSTRUCTION

EXHIBIT A - SCOPE OF SERVICES

7. Environmental Coordination
 - a. Submit Environmental Survey Request (ESR) to IDOT for processing.
 - b. Provide all necessary ESR attachments including location map and pictures of all existing buildings for IHPA review.
 - c. Coordinate any environmental or cultural review findings.

8. Illinois Environmental Protection Agency (IEPA) Coordination
 - a. Develop Storm Water Pollution Prevention Plan (SWPPP) in accordance with the National Pollutant Discharge Elimination System (NPDES) Permit No. ILR10 and submit to the IEPA for review and permit issuance.
 - b. Develop Notice of Intent (NOI) and submit to the IEPA.

9. Structure Design
 - a. Develop Preliminary Bridge Design & Hydraulic Report (PBD&HR)
 - b. Develop Type, Size, and Length Submittal (TSL)
 - c. Submit IDNR Individual Permit
 - d. Coordinate with IDOT for approval of PBD&HR and TSL.

10. Storm Water Drainage System Design
 - a. Review any existing drainage deficiencies which are brought to the attention of the design engineer.
 - b. Redesign system as needed to accommodate new roadway profile as dictated by new bridge elevation.

11. Prepare Construction Plans
 - a. General Notes
 - b. Quantity Schedules
 - c. Typical sections
 - d. Plan & Profile Sheets
 - e. Structure Plans
 - f. Removal Plans
 - g. Drainage Plans
 - h. Erosion Control Plans
 - i. Traffic Control Plan
 - j. Cross Sections – Cross sections will be developed on 50' centers for the length of the project as well as for each entrance.
 - k. Special Construction Details – provide separate details for circumstances not covered by standard details and specifications.
 - l. Highway Standards – IDOT, District 4, and City.

HUTCHISON ENGINEERING, INC.

STRATFORD DRIVE STRUCTURE REPLACEMENT AND ROADWAY RECONSTRUCTION

EXHIBIT A - SCOPE OF SERVICES

12. Contract Quantities

- a. Identify pay items
- b. Calculate contract quantities

13. Bidding & Contract Documents

- a. Develop recurring special provision check sheet
- b. Develop BDE check sheet and compile individual BDE special provisions
- c. Compile Local Roads special provisions
- d. Compile District 4 special provisions
- e. Develop project specific special provisions
- f. Develop Construction Cost Estimate
- g. Coordinate with and answer questions of potential bidders
- h. Develop and issue addendums as needed
- i. Attend Bid Opening

14. Quality Assurance

- a. Perform internal quality reviews of plans and specifications at regular intervals and prior to milestone submittals. At a minimum, reviews will include checks for adherence to policy, checks for conflicting utilities, usage of proper pay items and associated specification section, review of quantity calculations, cross checking of plan notes, and constructability reviews.

15. Client/IDOT Review Revisions

- a. Consultant will maintain regular contact with the City and allow sufficient time for client review during the project development process. At a minimum, consultant shall gain intermediate approvals from City as critical design details are developed.
- b. Consultant will incorporate City review comments from Pre-Final PS&E submittal into the Final PS&E submittal.

16. Construction Support – Consultant will assist the City's Resident Engineer as needed to review shop drawings for PPC Deck Beams and other bridge elements and be available to discuss plans and specifications.

OUT OF SCOPE WORK: The following services are not included in the scope of work but can be added by addendum at the City's request.

1. Development of Plats and Legal Descriptions for acquisition of ROW or Easements
2. Staking of Right-of-Way and easements
3. Land Acquisition Services

HUTCHISON ENGINEERING, INC.

STRATFORD DRIVE STRUCTURE REPLACEMENT AND ROADWAY RECONSTRUCTION

EXHIBIT A - SCOPE OF SERVICES

4. Preliminary Environmental Site Assessment. If determined necessary by IDOT, this task can be added by supplement.
5. Evaluation of multiple structure types. Agreement amount is based on the proposed structure being a PPC deck beam structure with open abutments. If a PPC deck beam closed abutment structure is desired to avoid utilities or to eliminate piling, a supplement will be required.
6. Development of Project Development Report (PDR)
7. Bid Advertisement, Bid Opening, Bid Tabulation, and Contract Award
8. Public Involvement
9. Construction Inspection