

Municipality	 Illinois Department of Transportation	Preliminary Engineering Services Agreement For Non-Motor Fuel Tax Funds	Name
Township			Hey & Associates, Inc.
County Lake County – Division of Transportation			Address 26575 W. Commerce Dr, Suite 601
Section 14-00196-09-DR			City Volo
	State Illinois		

THIS AGREEMENT is made and entered into this 13th day of October, 2015 between the above Local Agency (LA) and Consultant (ENGINEER) and covers certain professional engineering services in connection with the improvement of the above SECTION. Non-Motor Fuel Tax Funds, allotted to the LA by the State of Illinois, under the general supervision of the State Department of Transportation, hereinafter called the "DEPARTMENT", will be used entirely or in part to finance ENGINEERING services as described under AGREEMENT PROVISIONS.

Section Description

Name 14th Street Culvert Replacement

Route 14th St Length Mi. FT (Structure No.)

Termini

Description:

Replacement of the existing culvert at the Skokie River

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, and checked below:
 - 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, **Lake County Stormwater Management Commission 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 **one (1) copy of each document in both hardcopy and electronic format**. Additional copies of any or all documents, if required, shall be furnished to the LA by the ENGINEER at the ENGINEER's actual cost for reproduction.
 - h. Furnish the LA with survey and drafts in **duplicate** 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.
 - i. Assist the LA in the tabulation and interpretation of the contractors' proposals

DRAFT

- 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.
- l. **Services as included and/or defined in the attached Scope of Services.**

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 LA 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 the ENGINEER will perform such work without expense to the LA, even though final payment has been received by the ENGINEER. The ENGINEER 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 the ENGINEER and will show the ENGINEER's professional seal where such is required by law.

The LA Agrees,

1. To pay the ENGINEER as compensation for all services rendered in accordance with this AGREEMENT according to the following method 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
Under \$50,000

Percentage Fees

(see note)
%
%
%

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

2. To pay for all services rendered in accordance with this AGREEMENT at the actual cost of performing such work plus 303* percent to cover profit, overhead and readiness to serve - "actual cost" being defined as material cost plus payrolls, insurance, social security and retirement deductions. Traveling and other out-of-pocket expenses will be reimbursed to the ENGINEER at the ENGINEER's actual cost. Subject to the approval of the LA, the ENGINEER may sublet all or part of the services provided in section 1 of the ENGINEER AGREES. If the ENGINEER sublets all or part of this work, the LA will pay the cost to the ENGINEER plus an additional service charge of up to five (5) percent.

"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. *see the CEC\$

The Total Not-to-Exceed Contract Amount shall be \$44500.00

*Computed as follows (direct plus overhead multiplier) times 15% profit which equals $(1+1.6373)*1.15=3.03$

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 section 1 of 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 sections 1 and 3 of the ENGINEER AGREES and prior to the completion of such services, the LA shall reimburse the ENGINEER for the ENGINEER's actual costs plus ~~3.03*percent~~ incurred up to the time the ENGINEER 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 DEPARTMENT~~, the LA will pay the ENGINEER for such changes on the basis of actual cost plus ~~3.03*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 the ENGINEER's responsibility to prepare a complete and adequate set of plans and specifications.

~~*Computed as follows (direct plus overhead multiplier) times 15% profit which equals (1+1.6373)*1.15=3.03~~

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 the ENGINEER's 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 the ENGINEER 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 the ENGINEER's 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 triplicate counterparts, each of which shall be considered as an original by their duly authorized officers.

Executed by the LA:

County of Lake _____ of the
(Municipality/Township/County)

ATTEST:

By _____ State of Illinois, acting by and through its
County Board
Lake County Clerk
(Seal) By _____
Title Chairman of the County Board

RECOMMENDED FOR EXECUTION

Paula J. Trigg, P.E.
Director of Transportation/County Engineer
Lake County

Executed by the ENGINEER:

Hey and Associates, Inc.
Engineering Firm
26575 W Commerce Drive, Suite 601
Street Address

ATTEST:

By _____
Title Vice President
By _____
Title Administrative Assistant

Note: Three (3) Original Executed Contracts – (2) LCDOT; (1) Consultant

Hey and Associates, Inc.

Engineering, Ecology and Landscape Architecture

MILWAUKEE, WISCONSIN

26575 W. COMMERCE DRIVE, SUITE 601

VOLO, ILLINOIS 60073

PHONE (847) 740-0888

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CHICAGO, ILLINOIS

September 8, 2015

Mr. Philip Ruiz, P.E.
Lake County Division of Transportation
600 W. Winchester Rd
Libertyville, Illinois 60048

Project No.: 15-0215 (REVISED)

Re: Revised Proposal for Engineering Services
Pulaski Memorial Drive at Highway 41 – Phase Two Design and Permitting
City of North Chicago, Lake County, Illinois

Dear Mr. Ruiz:

Hey and Associates, Inc. (Hey) is pleased to submit this proposal to provide engineering services for the Skokie River crossing of Pulaski Memorial Drive in the City of North Chicago, Lake County, Illinois. Hey has previously completed a Phase One study for the project. This scope of services is to complete Phase Two engineering and prepare permit submittals for the project. Project components are anticipated to include the following:

1. Abandonment or removal of the existing 96-inch CMP cattle crossing.
2. Abandonment or removal of the existing 30-inch drain-tile under Pulaski Memorial Drive.
3. Installation of a new storm sewer, and associated structures, under Pulaski Memorial Drive discharging to the newly created channel (by others) on the south side of the road.
4. Outlet scour protection.

EXPANDED HYDROLOGIC AND HYDRAULIC ANALYSIS

To assess the possibility to increase the size of the proposed pipe under Pulaski Memorial Drive, we will enhance the previously prepared modeling to include areas downstream of Pulaski Memorial Pulaski Drive. We understand that a HEC-RAS hydraulic model was recently prepared for a Letter of Map Revision (LOMR) submittal for the drain-tile daylighting project on the Gillette property, immediately south of the Lake County Division of Transportation (LCDOT) right-of-way (ROW). We will recover this model for use in the analysis if it is determined that the model extends far enough downstream, otherwise we will use the effective HEC-2 model for the analysis. This analysis will terminate at the Illinois Route 137 crossing of the Skokie River, as the land-use immediately downstream of this point becomes largely residential, and it is unlikely that any increases in discharge could be accommodated in this area.

We will also rerun the current HEC-1 and XP-SWMM models for additional storm durations to confirm whether the 12-hour storm event is the critical duration event for the project reach. To determine the potential to increase the size of the proposed 48-inch storm sewer for future upstream flood reduction, we will perform the following analyses:

1. Run the XP-SWMM model for an unrestricted 48-, 60-, 72- and 84-inch proposed pipe and develop a rating curve for use in the updated effective HEC-1 model.
2. Modify the updated effective HEC-1 model with the four revised rating curves and rerun the model to generate updated discharge values for the area downstream of the project.
3. Run the LOMR HEC-RAS model or effective HEC-2 model if the HEC-RAS model does not extend far enough downstream, with the modified discharge values to assess elevation increases.
4. Create a “dummy” storage routing in the HEC-1 hydrologic model upstream of Illinois Route 137 for each condition to attenuate flows to existing levels and assess the required volume needed to mitigate for the increased discharges.
5. Prepare a table outlining the impacts of the various conditions on 100-year elevations downstream of the project area.
6. Review available Lake County one-foot topography to assess potentially impacted areas.
7. Prepare a memorandum and exhibit documenting the results of the analysis for review by LCDOT.

This task includes one (1) meeting with LCDOT and LCSMC staff to discuss results and determine the selection of the preferred proposed pipe size.

We will complete this task for a lump sum fee of \$10,000. Any fees associated with data recovery are not included.

PRELIMINARY ENGINEERING DESIGN

Upon completion of the expanded hydrologic and hydraulic modeling analysis and concurrence on a proposed pipe size, we will develop a preliminary concept plan and cost opinion for an open cut solution, including removal of the existing pipe and a solution where the existing pipe is abandoned and the proposed pipe is bored under Pulaski Memorial Drive. As part of this task we will consult contractors to assess costs and project constraints including assessing associated costs/constraints of boring a large diameter pipe (48"-84"). We also assume that any required traffic control planning, special provision, and design will be by others.

We will also evaluate outlet configurations consisting of a concrete headwall or flared end section and grading, with preference of a precast solution over cast-in-place if possible. We will prepare a cost opinion for each solution, as well as a discussion of other potential design implications. We will assume either solution will need to be confined to the LCDOT ROW, though construction easements north and/or south of the project may be required. We will provide supporting documentation, including exhibits, description of work, and proposed impacts for the required construction easements. We assume no right-of-way acquisition will be required. We also assume that any legal services, negotiations with property owners, and legal survey documents will be by others. These design tasks will build off of the work done in the Phase One study.

We will complete this task for a lump sum fee of \$3,500.

CONSTRUCTION DOCUMENTS

Following concurrence on the preliminary design, we will prepare final construction plans and specifications/special provisions for review with LCDOT, and finalize the summary of quantities and cost opinions. It is assumed that LCDOT will prepare the necessary "front-end" documents to be used for formal bidding.

We will provide the drawings for review by LCDOT at the preliminary and final levels of completion. This task includes one (1) meeting with LCDOT to review the preliminary plans and gather any input. The plans will follow LCDOT standards and will include the following sheets at a minimum:

1. Cover Sheet	6. Plan & Profile Sheets
2. General Notes	7. Cross Sections
3. Summary of Quantities	8. Detail Sheets
4. Traffic Control Plan	9. LCDOT Details
5. Erosion Control Plan	10. IDOT Details

As part of this task we will prepare a final XP-SWMM model representing the design condition for use in final design components, such as outlet protection, and permitting the project as outlined below.

We will complete these tasks for a lump sum fee of \$9,500.

BID AND CONSTRUCTION PHASE SERVICES

We will assist LCDOT during the bid and construction phase of the project as requested. We anticipate the following tasks will be required at a minimum:

1. Respond to Contractor questions and inquiries during bidding.
2. Assist with issuance of any required bid addenda.
3. Attend a pre-construction meeting with the Contractor and LCDOT.
4. Provide limited field assistance and response to questions during construction.

We will complete these tasks on a time and materials basis with a recommended budget of \$2,500.

STRUCTURAL AND GEOTECHNICAL ENGINEERING

Depending upon the select alternatives, some level of structural and geotechnical engineering will likely be required. Potential scope items include:

1. Soil boring and geotechnical analysis of the project area, including the Pulaski Memorial Drive roadway embankment to aid with the design of possible temporary sheet piling, shoring, or to determine the feasibility of jacking and boring.
2. Geotechnical and/or structural design recommendations for abandonment of the 96-inch cattle crossing (if required).
3. Structural design for outlet headwall structure (if required).

Hey has solicited preliminary fees from a qualified Geotechnical Engineer and Structural Engineer for the scope of services outlined above. The preliminary estimate for geotechnical

services is \$5,000 and the preliminary estimate for structural engineering services is \$3,000. We recommend budgeting \$10,000 for these tasks to allow for project contingencies in the event any structural or geotechnical issues encountered.

PERMITTING

Lake County Watershed Development Permit (WDP)

The proposed project will require a WDP, which will be issued by the Lake County Stormwater Management Commission (LCSMC). The project lies within the mapped floodplain and floodway of the Skokie River. As we do not propose to change the floodway at this time, LCSMC maintains jurisdiction over the proposed floodway activities, and a submittal to the Illinois Department of Natural Resources – Office of Water Resources (IDNR-OWR) is not required. We anticipate the following items to be addressed in the permit submittal:

1. Document that no adverse flood impacts occur as a result of the project.
2. Document any compensatory storage requirements.
3. Prepare Erosion and Sediment Control plan sheet.

We will prepare and submit a report outlining the modeling and other requirements of the Watershed Development Ordinance (WDO). We will also prepare the WDP application form for signature.

We will complete this task for a lump sum fee of \$2,500, including one (1) round of comment response to comments provided by LCSMC. Additional comment response will be performed on a fee and expense basis or by separate proposal.

U.S. Army Corps of Engineers (USACE) Regional Permit

The project will impact wetlands determined during the Phase One portion of the project to be under the jurisdiction of the USACE. We will prepare a Regional Permit submittal for the project including all required documentation. At this time we anticipate that the project will qualify for the Regional Permit 9 for Maintenance and/or a Regional Permit 3 for Transportation Projects. In association with this permit submittal, we will perform the following additional tasks:

1. State Threatened and Endangered Species Consultation through the IDNR.
2. Federal Threatened and Endangered Species Consultation through the U.S. Fish and Wildlife Service.
3. Historic resources consultation through the Illinois Historic Preservation Association.

We will complete this task for a lump sum fee of \$2,500, including one (1) round of comment response to comments provided by USACE. Additional comment response will be performed on a fee and expense basis or by separate proposal.

We assume any required permit fees will be by others. At this time we do not anticipate any additional permit requirements. Any permits not specifically listed are assumed to be by separate scope or by others.

TOPOGRAPHIC SURVEY

The recently completed tile daylighting project south of the project area has exposed a large area of storage in the forest preserve. This area was previously unable to be surveyed. We recommend surveying this area to add to the modeling as storage. We estimate this survey will take one day of field work.

Additionally, as-built survey of the channel project will be necessary for this work. We understand this will likely be available to us, but in the event the timing does not allow for permit submittals as desired, we will complete as-built survey of the channel and culverts. We estimate this survey will take one day of field work.

We will complete this survey work for a lump sum cost of \$1,750 per day, including incorporation of the data into the design plans. If both tasks are required the total fee will be \$3,500.

FEES

We propose to perform the above referenced scope of work on a not-to-exceed time and materials fee basis summarized below.

TASK	FEE
EXPANDED HYDROLOGIC AND HYDRAULIC ANALYSIS	\$10,000
PRELIMINARY ENGINEERING DESIGN	\$3,500
CONSTRUCTION DOCUMENTS	\$9,500
BID AND CONSTRUCTION PHASE SERVICES	\$2,500
STRUCTURAL AND GEOTECHNICAL ENGINEERING	\$10,000
PERMITTING	\$5,000
TOPOGRAPHIC SURVEY	\$3,500
REIMBURSABLE EXPENSES	\$500
TOTAL	\$44,500

Reimbursable expenses shall be in addition to the fees noted above and shall include, but are not necessarily limited to, travel, reproductions, shipping/delivery, aerial photographs, phone and other communication charges, consultants and subcontractor fees, equipment and supply costs related to the execution of the project. We estimate reimbursable expenses at \$500 and assume final plan and specification for bidding will be by LCDOT. Any additional meetings or supplemental work would be in addition to the above amount or by separate proposal. Our Standard Terms and Conditions are attached.

If this agreement is acceptable, please sign below and return this proposal to our office. Upon receipt, we will sign and return a fully executed copy for your records. This proposal is valid for 60 days from the date of this letter. Should you have any questions, please contact the project engineer, Dave Kraft, at our Volo office.