BILL NO. S-14-05-06

SPECIAL ORDINANCE NO. S-_____

AN ORDINANCE approving PROFESSIONAL ENGINEERING SERVCES AGREEMENT FOR WATER QUALITY MODELING FOR THE ST. JOSEPH RIVER, ST. MARY'S RIVER, AND MAUMEE RIVER between HDR ENGINEERING, INC. and the City of Fort Wayne, Indiana, in connection with the Board of Public Works.

NOW, THEREFORE, BE IT ORDAINED BY THE COMMON COUNCIL OF THE CITY OF FORT WAYNE, INDIANA:

SECTION 1. That the PROFESSIONAL ENGINEERING SERVCES AGREEMENT FOR WATER QUALITY MODELING FOR THE ST. JOSEPH RIVER, ST. MARY'S RIVER, AND MAUMEE RIVER by and between HDR ENGINEERING, INC. and the City of Fort Wayne, Indiana, in connection with the Board of Public Works, is hereby ratified, and affirmed and approved in all respects, respectfully for:

All labor, insurance, material, equipment, tools, power, transportation, miscellaneous equipment, etc., necessary for: project will update and refine the City's water quality modeling project on the St. Joseph River, St. Mary's, and Maumee Rivers. The effort will build on the city's historical and ongoing water quality sampling program, and the water quality modeling analyses conducted from 1997-1999. The Engineer will be responsible for producing a dynamic water quality model of the rivers and selected tributaries, including landside components to generate hydrologic inflows to the river. The water quality modeling tools will be used to create a better predictive tool to enhance understanding of water quality conditions in the rivers and to allow City Utilities to better assess the water quality impacts of its programs and projects:

involving a total cost of TWO HUNDRED SEVENY-SEVEN THOUSAND, NINE HUNDRED NINETY-FOUR AND 00/100 DOLLARS - ($277,994.00). A copy of said Contract is on file with the Office of the City Clerk and made available for public inspection, according to law.

SECTION 2. That this Ordinance shall be in full force and effect from and after its passage and any and all necessary approval by the Mayor.

_____
Council Member

APPROVED AS TO FORM AND LEGALITY

_____
Carol Helton, City Attorney

PROFESSIONAL SERVICES AGREEMENT

FORT WAYNE WATER QUALITY MODEL ("PROJECT")

This Agreement is by and between

CITY OF FORT WAYNE ("CITY")

by and through its

Board of Public Works
City of Fort Wayne
200 E. Berry Street, Suite 240
Fort Wayne, IN 46802

and

HDR Engineering, Inc.
2800 Corporate Exchange Drive
Suite 100
Columbus, OH 43231

Who agree as follows:

City hereby engages Engineer to perform the services set forth in Part I - Services ("Services") and Engineer agrees to perform the Services for the compensation set forth in Part III - Compensation ("Compensation"). Engineer shall be authorized to commence the Services upon execution of this Agreement and written authorization to proceed from City. City and Engineer agree that these signature pages, together with Parts I-IV and attachments referred to therein, constitute the entire Agreement ("Agreement") between them relating to the Project.

APPROVALS

APPROVED FOR CITY

BOARD OF PUBLIC WORKS

BY: _____
Robert P. Kennedy, Chair

BY: Mike Avila
Mike Avila, Member

BY: _____
Kumar Menon, Member

ATTEST: Victoria Edwards
Victoria Edwards, Clerk

DATE: April 23, 2014

APPROVED FOR ENGINEER

BY: _____
Ben R. Edelen, P.E., P.L.S./Vice President

DATE: 4/21/14

PART I

SCOPE OF BASIC ENGINEERING SERVICES

A. GENERAL

Engineer shall provide the City professional engineering services in all phases of the project to which this scope of services applies. These services will include serving as City's professional representative for the Project, providing professional engineering consultation and advice, furnishing civil engineering services and other customary services incidental thereto.

B. PROJECT DESCRIPTION

This project will update and refine the City's water quality modeling program on the St. Joseph, St. Marys, and Maumee Rivers. The effort will build on the City's historical and ongoing water quality sampling program, and the water quality modeling analyses conducted from 1997-1999 as part of the Impact Characterization of Combined Sewer Overflows.

The Engineer will be responsible for producing a dynamic water quality model of the main-stem rivers and selected tributaries, including land-side components to generate hydrologic inflows to the rivers. The full extent of the detailed riverine model is to be determined during the initial stages of the project, but the Scope of Work is based on the assumption that upstream boundaries will be the Mayhew Road Bridge on the St. Joseph River and the Ferguson Road Bridge on the St. Marys River, and the downstream boundary will be the Landin Road Bridge on the Maumee River.

The water quality modeling tools will be used to develop further understanding of water quality conditions in the rivers and be used to support integrated planning efforts and/or LTCP plan refinement. While the City is not obligated to conduct any water quality modeling under the terms of their Consent Decree, the tools and analyses will be used to support City decision-making under their overall Wet-Weather Program.

C. SCOPE OF WORK

In summary, the Engineer is responsible for developing a water quality modeling platform to provide, at minimum, specific capabilities and meet key City requirements as follows:

- Dynamic simulation of bacteria, nutrients, and the dissolved oxygen cycle with the WASP water quality model as linked with the river hydraulic model (SWMM5).
  - Bacteria kinetics will include base die-off rates for fecal coliform and *E. coli* with the die-off due to solar radiation included as a relationship that is a function of input daily solar radiation data.
  - Organic and inorganic nutrients will be modeled along with the associated kinetics (e.g., organic to inorganic hydrolysis, nitrification, settling).
  - The dissolved oxygen (DO) cycle will include the sources from atmospheric oxygen reaeration and algal photosynthesis (if important); and the sinks from BOD oxidation, ammonia nitrification, algal respiration (if important) and sediment oxygen demand (SOD).
  - The growth, death and settling of water column phytoplankton, as represented by chlorophyll-a, will be modeled if the phytoplankton levels are high enough to impact DO or affect nutrient levels in the river. If phytoplankton are modeled, the kinetics will include nutrient uptake and recycle, DO interactions along with light, temperature and nutrient mediated growth and death.
- Ability to model both single events and continuous periods up to 5 years in length.
  - All of the proposed models (SWMM5, WASP and EFDC if used) have the capability to run in a time-varying mode and, therefore, the models can be run for either single events (days) or annual periods (years).
- Ability to assess the relative contribution from multiple source types (City versus upstream, storm versus CSO, etc.).
  - The water quality impacts from various sources (e.g., City CSO or storm water, non-City storm water, upstream river inputs, WWTP) can be assessed independently by removing these sources one at a time and comparing the model output to the base case with all sources assigned. In this manner, a source loading component analysis can be completed to determine the importance of the difference sources on river water quality. In addition, by using the extensive water quality database from Heidelberg

University on the Maumee River these model component analyses can put the City's nutrient load into perspective with the total Maumee River nutrient load to western Lake Erie.

- Ability to assess the relative water quality benefit from different solution types as part of integrated planning.
  - Since the City has required the coupling of the City's sewer system model (SWMM5) to the river water quality model, the effect of different solutions on river water quality can easily be assessed through the development model projection scenarios. The model projection scenarios will be developed with the City to assess the relative merit of CSO, stormwater and upstream source control as part of the integrated planning process. This capability will ultimately be the benefit of developing a water quality model of the rivers that is coupled to the the land-side models.
- Integration with the City's existing collection system model, which will be used to represent the combined sewer portion of the land-side component and represent potential Sanitary Sewer Overflows as inputs to the water quality model. The City has used the MIKE URBAN platform for their collection system modeling for approximately 5 years, including application of USEPA SWMM5 as the hydrologic/hydraulic model within MIKE URBAN.
  - As requested, the SWMM5 model will be used to model both the City's combined sewers, storm water areas and river hydraulics. The SWMM5 model river hydraulic transport will be converted into a WASP river transport file (*.hyd) and used to complete the river water quality modeling. The WASP river transport file (*.hyd) includes timestep information on volumes, depths and velocities. Details of this SWMM5 to WASP hydraulic transport coupling is contained in the WASP User's Manual and other readily available sources. If more than one dimension is required to properly represent the river hydraulics then the EFDC hydrodynamic model will be implemented. The EFDC model has the option of writing the required WASP transport file (*.hyd).

Given the above required capabilities, the City has selected the following modeling platforms for this project:

- Upstream lumped watershed models: SWMM5
- Separate storm landside model within the detailed model area: SWMM5
- Hydrodynamic model for the riverine system: SWMM5 using dynamic wave routing option (formerly EXTRAN)
- Water quality model for the riverine system: WASP (use of latest version 7.52)

The City will consider other software options as recommended by the Engineer, if Engineer can unequivocally demonstrate that another option provides capabilities equivalent to the above selections and provides additional benefit to the City.

Other responsibilities of the Engineer will include assistance with developing the water quality sampling plan to support model calibration, and development of data-based analysis protocols for project and City use.

The Engineer is also responsible for developing planning documents for all steps in the modeling process, specifically data collection, model building, model calibration, model application, and model maintenance. These documents will be submitted at interim milestones as appropriate, and bundled with additional documentation for a final report at the conclusion of the project.

In detail, the Engineer shall develop and provide the following services:

Task 1 – Water Quality Data Assessment and Analysis Protocols

The Engineer will begin the project with a review of historical City water quality data, in order to gain an initial understanding of water quality conditions in the rivers, identify available water quality data that is useable for this project, and establish the background necessary for subsequent review the City's draft Water Quality Sampling Plan. In addition, we will compare the City's historical water quality data to the Maumee River data collected and maintained by Heidelberg University to allow a comparison of the relative contribution of Fort Wayne area sources to the total Maumee River loadings to western Lake Erie. This additional effort will provide information for the City in anticipating nutrient criteria development efforts in Ohio as part of Ohio EPA's nutrient reduction strategy.

The project-specific water quality sampling program will begin in Spring 2014 and incorporate all of the components listed in Exhibit #1. The sampling and analysis activities will be conducted under a separate contract, but the Engineer is responsible for reviewing and finalizing the City's draft Water Quality Sampling Plan (to be

provided). One area of the 2014 sampling program review will be the availability of river cross-sectional data and water levels so that sufficient data is available for building the river SWMM5 hydraulic model. This aspect of the required modeling data is important for calculating the correct travel time through the rivers, which has an important role in properly calculating river water quality. The Engineer will also review the collected water quality data for completeness and applicability as it is obtained, and provide as-needed guidance on protocols and procedures during implementation of the program.

The database platform proposed to house the water quality data is MS Access running in a MS Windows operating environment. The database protocol/design will be developed in consultation with the City but at a minimum will include: specification of the data tables; methodology for populating the tables and running data checks; and the method for data entry. This database will be used to store both the historical water quality data and the new data to be collected in 2014.

Task 1 will also include development of data-based analysis protocols. These will be standardized protocols for processing and analyzing collected water quality data to maximize understanding of instream conditions. The protocols will allow the City to observe temporal and spatial trends in the data, and visualize these trends on a geographic (map) interface. These protocols will be independent of any subsequent water quality modeling, allowing the City to benefit from historical water quality data, the core water quality data collected during the 2014 sampling program, and any subsequent water quality sampling programs. Further, the protocols will help the modeling team assess the collected data as it is obtained and facilitate identification of data gaps, focusing subsequent efforts for the 2014 sampling program.

Task 2 – Model Building

The water quality model will be developed with the City-selected modeling platforms, or alternate platforms recommended by the Engineer if deemed superior by the City. Within one month of Notice To Proceed, the Engineer will conduct a Modeling Platform workshop with City staff to finalize all software selections for the project.

Task 2 will incorporate all of the components listed below.

- Review the CE-QUAL-RIV1 model developed in the late 1990s, for re-use of any applicable physical data, model parameters or other information that will benefit the current model update.
- Obtain and review the City's landside models, including the MIKE URBAN/SWMM5 collection system model of the combined sewer system and any modeled stormwater systems, as well as any historical separate stormwater models (for areas outside the combined sewer system) and HEC2/HEC-RAS models, to identify any useful model information for this project.
- Develop a detailed Model Building Plan to outline all remaining subtasks under Task 2, for review by the City.
  - The Model Building Plan will include the following components: problem identification and quality objectives; determination of water quality endpoints (i.e., appropriate water quality standards or targets); model development and application steps; and format of model output processing for comparison to water quality standards and targets (i.e., location, averaging period, frequency of exceedance).
- Identify data collection needs for the physical river system, e.g. cross sections, and prepare a Physical Data Collection Plan. The City will decide how to implement the data collection plan, either with in-house staff, through this project, or through a separate contract.
  - The data review completed in Task 1 will identify the available river cross-sectional data and determine whether data gaps exist. This plan will identify where additional river geometry data is needed for improving model geometry setup and the resulting hydraulic calculations.
- Build a river hydraulic model to represent the channel characteristics of the City's rivers. The level of effort estimate is based on assumed boundaries at the Ferguson Road Bridge (St. Marys), the Mayhew Road Bridge (St. Joseph), and the Landin Road Bridge (Maumee). In addition, explicit representation of Spy Run Creek will be included in the detailed riverine model.
  - Groundwater inputs, as necessary to maintain a flow balance through the study area, will be developed through analysis of available flow data and model calculated flow output.
  - This is effort will also focus on properly representing the flood relief channel along the Maumee River so that the river hydraulics and the associated water quality calculations are accurate.

- Build a landside model (stormwater/CSO) to represent all water tributary to the City's rivers. Primary components of the landside model include:
  - Combined sewer system discharges – as based on the City's existing MIKE URBAN/SWMM5 collection system model.
  - Separate stormwater discharges within extents of the study area not already included in the river hydraulic model – build new SWMM5 models based on available GIS information such as USGS or other available topography, drainage catchment delineation, etc.
  - Upstream watersheds outside of the study area – build lumped basin SWMM5 models for the watershed areas upstream of the USGS gage flows on the St. Joseph (#04180500) and St. Marys Rivers (#04182000). These models will be setup with a few sub-watershed areas (i.e., major tributaries) to represent these upstream areas with the models developed to represent the flow inputs from these two upstream watersheds. Watershed loads will be calculated from the model calculated flows and concentration-flow relationships developed from available water quality data.
- The water quality modeling tools (SWMM5-WASP) must be built to allow for detailed simulation of single events as well as extended continuous simulation of multi-year periods.
  - The SWMM5-WASP modeling framework will be setup to represent one time-varying input file that encompasses all of the monitored single events from 2014. The benefit of developing the time-varying model setup is that it provides a longer modeled time-period for assessing the water quality impacts associated with other sources (e.g., upstream river and local storm water loads) during non-CSO event periods.

Task 3 – Model Calibration

The model calibration task will be made up of the following components.

- Develop a detailed Model Calibration Plan to outline all subtasks under Task 3, for review by the City. This will include defining model statistic metrics for quantifying the level of model calibration. These metrics will be used along with the more typical qualitative assessment of model calibration to provide a robust presentation of the model calibration efforts. This document will also include typical ranges for the model constants and parameters that are required for bacteria, nutrient, BOD, DO and phytoplankton kinetics (e.g., bacteria die-off, BOD oxidation and ammonia nitrification rates). The different formulations for calculating atmospheric oxygen reaeration in rivers will be presented along with a query of the National Council for Air and Stream Improvement (NCASI) reaeration database to obtain measured rates from other similar river systems.
- Calibrate the model for hydrodynamics, using the City's collection system model as the tool for generating CSO inputs. The hydrodynamic model will be calibrated to monitored flows at USGS gauging stations, using the City's rain gauge network for rainfall data. Hydrodynamic calibration will be performed using two-week time windows, with the center of each window defined by a sampling event (7 events).
  - The SWMM5 hydrodynamic model calibration will compare model output to observed data for river flow and water level at the following USGS gages: Maumee River at New Haven, Landin Road Bridge (#04183000); Maumee River at Coliseum Blvd. (#04182950); Maumee River at Fort Wayne (#04182900); and Maumee River at Columbia St. (#04182830). Depending on the model segmentation in Spy Run Creek, the hydrodynamic model may also be calibrated to the USGS gage data on Spy Run Creek near Park Drive (#04182808).
- Calibrate the model for water quality, using the collected sampling data.
  - The WASP model will be calibrated to the 2014 sampling data (10 stations in the river) for bacteria, TSS, BOD, DO and nutrients in the mainstem rivers and also Spy Run Creek. The CSO and storm water outfall data will be used along with historic sampling data to define water quality concentrations (e.g., event mean or geometric mean) to assign with the model calculated overflow volumes.
- Define all boundary condition assumptions (flows, concentrations, etc.) required for non-monitored conditions, to allow for simulation of various alternatives and time frames beyond the calibration events.
  - It is expected that there will be three main boundary conditions (St. Marys River at Ferguson Road Bridge; St. Joseph River at Mayhew Road Bridge; and at an upstream location on Spy Run Creek. These boundary conditions will be assigned based on the lumped basin SWMM5 model outputs for the upstream areas on the St. Joseph and St. Marys Rivers for the time period under consideration. In addition, the available data at these boundary condition locations will be analyzed to determine whether concentration-flow relationships can be developed so that the water quality loads can be defined daily based on the lumped basin SWMM5 model calculated flows.

- Prepare a Model Calibration Technical Memorandum, presenting the results of the calibration process, for review by the City.
  - Model sensitivity analyses will also be included in the memorandum that may include the effect of model rates (e.g., bacteria die-off, BOD oxidation, ammonia nitrification) and a source loading component analysis to highlight the factors controlling water quality concentrations in the rivers.

The City recognizes that calibration of water quality models is less standardized than calibration of collection system models. Therefore, the City will allow for the judgment and discretion of an experienced modeling team; however, all calibration decisions must be fully documented. Any model inputs that require adjustment (from rainfall data to rate coefficients) beyond documented values or industry standards will be fully justified based on watershed or event-specific conditions.

Task 4 – Model Application

The calibrated model will be used for the following applications during this project:

- Several-week simulations of two observed historical periods, one representing high-flow flood conditions and one representing very low-flow conditions. These will allow the City to assess the sensitivity of instream water quality conditions to urban discharges under a range of river flow conditions.
  - These high-flow and low-flow conditions will be developed based on statistical analysis of the USGS flow data on the St. Marys and St. Joseph Rivers. For example, 10^{th} and 90^{th} percentile weekly average flows can be calculated from the historic flow record and be used to select an appropriate time-period for setting up the simulation for the two observed historical periods. The final approach and time-period selection will be discussed and approved by the City before proceeding with model setup.
- Typical year simulation for existing conditions.
- Typical year simulation for future conditions with LTCP in place.
- 5-year simulation of existing conditions.
  - The 1- and 5-year model rainfall periods will be provided by the City for setting up the models with and without the LTCP conditions in place. The model output from these simulations will be presented as time-series at specific locations, averages over time and river segment and also allow the development of probability of exceedance curves for assessing the frequency of attaining standards or targets.

At the conclusion of Task 4, Engineer will prepare a Model Application Technical Memorandum presenting the results of these model applications for review by the City.

Task 5 – Model Training

The Engineer is responsible for developing and implementing a model training program for City staff. Two City engineers will be trained as every-day users of the modeling tools, requiring detailed instruction on model development, calibration, application, and maintenance. Two additional City staff will be trained as end-users of model results, requiring overview instruction on model components, capabilities, and limitations. The Engineer is committed to a robust training program for the City, to ensure its staff have a complete working knowledge of and ability to manipulate the model following completion of the project. The Engineer will continue its training program beyond the bulleted framework noted below, within the base fee proposed, until such time as City staff are confident users of the model platform. The Engineer can and will tailor its training program to the needs of City staff, and will assess with the City the skills of its users, to ensure the model can be independently operated by the City, as future need arises.

- A model training workshop will be provided near the end of the project for technical transfer of all the model files (pre- and post-processors, model calibration and application files, ancillary model setup files, and model User's Manuals). The workshop will be for 2 days at the City's office as follows:
  - Day 1: Overview of model theory, model setup, model use and model output post-processing. This will provide training for every-day users as well end-users.
  - Day 2: Hands on use of the models for every-day users to run through example model application runs along with model post-processing. Additional detail will be provided regarding model calibration and maintenance issues.

Task 6 – Final Report

At the completion of Tasks 1 through 5, Engineer will prepare a final report presenting all efforts and results from the project. This final report will include all Plans and Technical Memoranda from previous tasks, along with any additional narrative necessary to fully document the project effort.

The final report will include a stand-alone Model Maintenance Plan, presenting Engineer's recommendations for ongoing City efforts to maintain the Water Quality Model as an everyday tool.

Task 7 – Cedarville Dam Breach

The Engineer shall develop a dam inundation model and map using the simplified methodology following Indiana DNR guidelines, articulated in Exhibit 2, attached. The model, maps, and report of findings and assumptions will be delivered to the City, including any Engineer recommendations.

D. SCHEDULE

The project will be completed as noted in the modeling project schedule below. This schedule is based on receiving prompt review and approvals from City agencies and Program Manager (2-weeks per review are included in the schedule).

SCHEDULE	DURATION
Task 1	5 weeks from Notice to Proceed
Task 2	8 weeks from Task 1 completion
Task 3	22 weeks from Task 2 completion
Task 4	7 weeks from Task 3 completion
Task 5	6 weeks from Task 4 completion
Task 6	4 weeks from Task 5 completion
Task 7	12 weeks from Notice to Proceed

E. OPTIONAL ADDITIONAL SERVICES

Upon separate written authorization by City and negotiated fees, Engineer can provide the following additional services:

EFDC River Hydraulic Model

- Develop and apply the multi-dimensional hydrodynamic model (EFDC) for calculating river hydraulic transport for the water quality model (WASP). If sampling information obtained in 2014 indicates that there are lateral (across the width of the rivers) and/or vertical variations in the observed data that are important to represent in the models then we can develop and apply the EFDC model. This will not impact the proposed water quality modeling efforts and would just represent switching the river hydraulic model from SWMM5 to EFDC.
  - The EFDC model setup would be very similar to that for the SWMM5 model and will include: develop a model grid of the river system (including Spy Run Creek and the flood relief channels) that may include lateral and vertical segmentation); assigning water depths to the model segments; and developing boundary condition inputs on the St. Marys River, St. Joseph River and Spy Run Creek (flows, temperature and specific conductivity). Other EFDC model inputs that are required include meteorological data (e.g., wind speed and direction, air temperature), CSO and storm water overflow volumes, downstream water levels, and dam weir and flood channel connection stage-flow relationships.

- The SWMM5 collection system model will initially be run with observed water levels as downstream water elevation boundary conditions so that outfalls with flap gates can operate as a function of the river water level. This is necessary to properly calculate collection system storage and release as a function of landside inflows and downstream river water levels. If EFDC calculated water levels are significantly different than the observations for specific outfalls due to overflows, an additional SWMM5 model run will be completed using the updated water levels to develop final overflow volumes for input to the EFDC and WASP models.
- The EFDC model will be calibrated to river flow, water level, temperature and specific conductivity data. The EFDC model includes a full heat balance calculation with the atmosphere so model calculated temperature will also be compared to observations. Specific conductivity is also included in the EFDC model calculations as a conservative tracer, which allows a further check on mass transport in the river system in addition to flow, water level and temperature.

- The EFDC calibrated water transport in the river (volumes, depths and velocities) will be converted into a "*.hyd" file as part of the model run for use in the WASP water quality modeling.If the EFDC hydrodynamic model is selected for use after determining the need for including more than one dimension in the modeling and the SWMM5 river modeling is not started then the fees for using EFDC instead of SWMM5 for the river hydraulic modeling will not change. That is, the level of effort for applying either the SWMM5 or EFDC models is the same.
- If a decision is made at a later date to use the EFDC model after development of the SWMM5 model, then additional fees will be required for EFDC building and calibration tasks. The estimated fee for switching the river hydraulic calculations from SWMM5 to EFDC is approximately $36,500.

Future Scenario Model Application

- If required, we can provide support for additional model scenarios related to LTCP refinements or integrated planning efforts. These additional model scenarios could include the following: population increase (sanitary flow increase and effect on CSOs); upstream river source load changes; effect of green infrastructure on CSO and stormwater flows and loads; and TMDL type analyses to determine load reductions from all sources required to meet water quality standards or targets. The estimated fee for each additional model scenario run (model setup, model run and output processing) is $7,000.

CONTINGENCY TASKS (but not specifically limited to):

Contingency items are authorized by the Program Manager and shall have prior approval of fees prior to commencement.

- No contingency tasks are anticipated at this time.

PART II

CITY'S RESPONSIBILITIES

City shall, at its expense, do the following in a timely manner so as not to delay the services:

A. INFORMATION REPORTS/CITY UTILITY MAPS/AERIAL MAPS/CONTOUR MAPS

Make available to Engineer reports, studies, regulatory decisions and similar information relating to the Services that Engineer may rely upon without independent verification unless specifically identified as requiring such verification.

Provide Engineer with a maximum of two (2) copies each of existing City utility maps, aerial maps and contour maps that are readily available in the Citizens Square Building.

Provide Engineer with electronic copies of ortho aerial photography, GIS base map information (ArcView or AutoCAD format) on right-of-way and lot information, GIS information on existing water and sewer lines (ArcView or AutoCAD format).

B. REPRESENTATIVE

Designate a representative for the project who shall have the authority to transmit instructions, receive information, interpret and define City's requirements and make decisions with respect to the Services. The City representative for this Agreement will be Anne Marie Smrchek, P.E.

C. DECISIONS

Provide all criteria and full information as to City's requirements for the Services and make timely decisions on matters relating to the Services.

D. PROPERTY OWNER NOTIFICATION

Property owner survey notification letters will be prepared and mailed by the City.

PART III

COMPENSATION

A. COMPENSATION

Compensation for services performed in accordance with Part I – Scope of Basic Engineering Services of this Agreement will be based on hours actually spent and expenses actually incurred with a not-to-exceed engineering fee of **$277,994** as summarized in attached Attachment 1. There will be no mark-up of our Subconsultant (DLZ) costs for this modeling project.

Engineer's costs will be based on the hours incurred to complete the project times the hourly rates of the various personnel, per Attachment 2 – Hourly Rate Schedule. All Reimbursable costs incurred for the project will be invoiced at cost.

Payment for outside consulting and/or professional services such as Geotechnical, Utility Locates, Registered Land Surveyor for easement preparation, or Legal Services performed by a Subconsultant at actual cost to Engineer plus 10 percent for administrative costs. The Engineer will obtain written City approval before authorizing these services.

B. BILLING AND PAYMENT

1. Timing/Format

   a. Engineer shall invoice City monthly for Services completed at the time of billing. Such invoices shall be prepared in a form and supported by documentation as City may reasonably require.

   b. City shall pay Engineer within 30 days of receipt of approved invoice.

2. Billing Records

   Engineer shall maintain accounting records of its costs in accordance with generally accepted accounting practices. Access to such time based and reimbursable expense records will be provided during normal business hours with reasonable notice during the term of this Agreement and for 3 years after completion.

PART IV
STANDARD TERMS AND CONDITIONS

1. STANDARD OF CARE. Services shall be performed in accordance with the standard of professional practice ordinarily exercised by the applicable profession at the time and within the locality where the services are performed. No warranty or guarantee, express or implied, are provided, including warranties or guarantees contained in any uniform commercial code.

2. CHANGE OF SCOPE. The scope of Services set forth in this Agreement is based on facts known at the time of execution of this Agreement, including, if applicable, information supplied by ENGINEER and CITY. ENGINEER will promptly notify CITY of any perceived changes of scope in writing and the parties shall negotiate modifications to this Agreement.

3. SAFETY. ENGINEER shall establish and maintain programs and procedures for the safety of its employees. ENGINEER specifically disclaims any authority or responsibility for general job site safety and safety of persons other than ENGINEER employees.

4. DELAYS. If events beyond the control of ENGINEER, including, but not limited to, fire, flood, explosion, riot, strike, war, process shutdown, act of God or the public enemy, and act or regulation of any government agency, result in delay to any schedule established in this Agreement, such schedule shall be extended for a period equal to the delay. In the event such delay exceeds 90 days, ENGINEER will be entitled to an equitable adjustment in compensation.

5. TERMINATION/SUSPENSION. Either party may terminate this Agreement upon 30 days written notice to the other party in the event of substantial failure by the other party to perform in accordance with its obligations under this Agreement through no fault of the terminating party and fails to cure such cause within the 30 day notice period. CITY shall pay ENGINEER for all Services, including profit relating thereto, rendered prior to termination, plus any expenses of termination.

ENGINEER or CITY, for purposes of convenience, may at any time by written notice terminate the services under this Agreement. In the event of such termination, ENGINEER shall be paid for all authorized services rendered prior to termination including reasonable profit and expenses relating thereto.

6. REUSE OF PROJECT DELIVERABLES. Reuse of any documents or other deliverables, including electronic media, pertaining to the Project by CITY for any purpose other than that for which such documents or deliverables were originally prepared, or alternation of such documents or deliverables without written verification or adaptation by ENGINEER for the specific purpose intended, shall be at CITY's sole risk.

7. OPINIONS OF CONSTRUCTION COST. Any opinion of construction costs prepared by ENGINEER is supplied for the general guidance of the CITY only. Since ENGINEER has no control over competitive bidding or market conditions, ENGINEER cannot guarantee the accuracy of such opinions as compared to contract bids or actual costs to CITY.

8. RELATIONSHIP WITH CONTRACTORS. ENGINEER shall serve as CITY's professional representative for the Services, and may make recommendations to CITY concerning actions relating to CITY's contractors, but ENGINEER specifically disclaims any authority to direct or supervise the means, methods, techniques, sequences or procedures of construction selected by CITY's contractors.

9. MODIFICATION. This Agreement, upon execution by both parties hereto, can be modified only by a written instrument signed by both parties.

10. PROPRIETARY INFORMATION. Information relating to the Project, unless in the public domain, shall be kept confidential by ENGINEER and shall not be made available to third parties without written consent of CITY unless disclosure is required by law, subpoena, or other court order. If Engineer receives a request, subpoena, or court order for information relating to the project, ENGINEER shall notify CITY within five (5) business days of receipt.

11. INSURANCE. ENGINEER shall maintain in full force and effect during the performance of the Services the following insurance coverage; provided, however, that if a High Risk Insurance Attachment is attached hereto, the requirements of the High Risk Insurance Attachment shall be substituted in lieu of the following requirements;

a) Worker's Compensation per statutory requirements
b) General Liability $1,000,000 minimum per occurrence/ $1,000,000 aggregate (if the value of the projects exceeds $10,000,000 then this shall be $5,000,000 aggregate).
c) Automobile Liability $1,000,000 per occurrence
d) Products Liability $1,000,000 per occurrence
e) Completed Operations Liability $1,000,000 minimum per occurrence

The Certificate of Insurance must show the City of Fort Wayne, its Divisions and Subsidiaries as an Additional Insured and a Certificate Holder, with 30 days notification of cancellation or non-renewal. All Certificates of Insurance should be sent to the following address:
City of Fort Wayne Purchasing Department
200 East Berry St., Suite #480
Fort Wayne, IN 46802

12. INDEMNITIES. To the fullest extent permitted by law, ENGINEER shall indemnify and save harmless the City from and against loss, liability, and damages sustained by CITY, its agents, employees, and representatives by reason of injury or death to persons or damage to tangible property to the extent caused directly by the negligent errors or omissions of ENGINEER, its agents or employees.

13. LIMITATIONS OF LIABILITY. Each party's liability to the other for any loss, cost, claim, liability, damage, or expense (including attorneys' fees) relating to or arising out of any negligent act or omission in its performance of obligations arising out of this Agreement, shall be limited to the amount of direct damage actually incurred. Absent gross negligence or knowing and willful misconduct which causes a loss, neither party shall be liable to the other for any indirect, special or consequential damage of any kind whatsoever.

14. ASSIGNMENT. The rights and obligations of this Agreement cannot be assigned by either party without written permission of the other party. This Agreement shall be binding upon and insure to the benefit of any permitted assigns.

15. ACCESS. CITY shall provide ENGINEER safe access to any premises necessary for ENGINEER to provide the Services.

16. PREVAILING PARTY LITIGATION COSTS. In the event any actions are brought to enforce this Agreement, the prevailing party shall be entitled to collect its litigation costs from the other party.

17. NO WAIVER. No waiver by either party of any default by the other party in the performance of any particular section of this Agreement shall invalidate another section of this Agreement or operate as a waiver of any future default, whether like or different in character.

18. SEVERABILITY. The various terms, provisions and covenants herein contained shall be deemed to be separate and severable, and the invalidity or unenforceability of any of them shall not affect or impair the validity or enforceability of the remainder.

19. AUTHORITY. The persons signing this Agreement warrant that they have the authority to sign as, or on behalf of, the part for whom they are signing.

20. STATUTE OF LIMITATION. To the fullest extent permitted by law, parties agree that, except for claims for indemnification, the time period for bringing claims regarding ENGINEER's performance under this Agreement shall expire one year after Project Completion.

21. CONSENT DECREE NOTIFICATION. ENGINEER shall perform, or cause others to perform, all services undertaken in connection with this Agreement in accordance with the above-stated Standard of Care and in conformance with the terms of the Consent Decree entered in the U.S District Court on April 1, 2008 by the United States and State of Indiana. ENGINEER acknowledges that it has been provided a complete copy of the Consent Decree which can be viewed at:
http://www.cityoffortwayne.org/utilities/clean-river-team/32-consent-decree-.html

22. DOCUMENT RETENTION. Notwithstanding any other provision of this Agreement, ENGINEER agrees to preserve all non-identical copies of all documents, records and other information (whether in physical or electronic form) within ENGINEER's possession or control and which relate, in any manner, to the performance of the services undertaken in connection with this Agreement for a period of 1 year after the completion contemplated by the Agreement (the "Retention Period"). Prior to the end of the Retention Period, or at any earlier time if requested by the City, ENGINEER shall provide the City with complete copies of such documents, records and other information at no cost to the City. The copies shall be provided to the City on CD or DVD media, and individual files shall be in Adobe PDF format. The individual files shall be contained in a ZIP formatted file, and the filename of the ZIP shall include the name of the

project and the ENGINEER. No part of any file shall be encrypted or protected from copying. Such copies shall be accompanied by a verified written statement from the ENGINEER attesting that it has provided the City with complete copies of all documents, records and other information which relates to the services contemplated by the Agreement.

ATTACHMENT #1

SUMMARY SHEET

SCOPE OF BASIC ENGINEERING SERVICES FEE PROPOSAL

Basic Services

Task 1 – Water Quality Data Assessment and Analysis Protocols For Services outlined in Task 1 a not to exceed fee of:	$38,492
Task 2 – Model Building For Services outlined in Task 2 a not to exceed fee of:	$29,695
Task 3 – Model Calibration For Services outlined in Task 3 a not to exceed fee of:	$55,173
Task 4 – Model Application For Services outlined in Task 4 a not to exceed fee of:	$24,209
Task 5 – Model Training For Services outlined in Task 5 a not to exceed fee of:	$19,268
Task 6 – Final Report For Services outlined in Task 6 a not to exceed fee of:	$27,893
Task 7 – Cedarville Dam Breach For Services outlined in Task 7 a not to exceed fee of:	$29,823
Project Management/Quality Control Review/Meetings	$48,672
Expenses:	$4,769
TOTAL NOT TO EXCEED FEE =	**$277,994**

<u>Optional Services</u> - As authorized by PM

Develop and Apply EFDC River Hydrodynamic Model (*if done with base project*)	$0 increase in base fee

Develop and Apply EFDC, as rework to base model (*if done after SWMM5-WASP model effort is complete*) = $36,500 additional fee

Future Model Scenario Applications (*model set-up, run, output processing, after WQ project is final*) = $7,000 per ea scenario

<u>Contingency Allowance</u> - As authorized by PM
None noted at this time.

ATTACHMENT #2

HDR EMPLOYEE HOURLY RATE SCHEDULE

LABOR CLASSIFICATION	RATE
Technical Advisor	$243
Project Manager	$197
Hydraulic Model Lead	$177
Water Quality Model Lead	$161
Data Manager	$142
Hydraulic Modeler	$112
Water Quality Modeler	$87
Administration	$57

EXHIBIT #1

COMPONENTS OF WATER QUALITY SAMPLING PROGRAM (PRELIMINARY)

There will be a total of up to 18 sampling locations, made up of a combination of instream river locations, separate storm discharges, and CSO discharges. All sampling protocols and procedures will be consistent with the information in USEPA's final *CSO Post Construction Compliance Monitoring Guidance*, May 2012.

- Assume approximately 10 sampling locations on the rivers. These will typically be bridge locations to allow for bucket sampling or equivalent.
- Assume approximately 5 sampling locations at major separate storm discharges (outfalls or streams).
- Assume approximately 3 sampling locations at major CSO discharges.
- Assume 3 dry-weather sampling events and 4 wet-weather sampling events, ideally to be conducted during the recreational season (April through October inclusive). On a case-specific basis, and as approved by the City, a wet-weather sampling event may be initiated after October, if overall weather conditions are consistent with recreational season conditions.
- Each wet-weather sampling event will consist of 2-person crews dispatched to collect a series of time-based samples from each sampling location (during and after rainfall events). The sampling routes will be developed to allow one crew to sample multiple locations.
- Samples will be field-analyzed for typical instantaneous parameters (e.g. temperature, pH).
- Samples will be analyzed in the laboratory for:
    - Bacteria
    - TSS
    - BOD and Dissolved Oxygen
    - Nutrients
- In addition, in-situ sediment sampling may be warranted (e.g., for sediment oxygen demand).
- Flow data will be obtained from USGS gauging stations.
- Assume deployment of up to 8 Datasondes (or equivalent) probes for continuous DO/T/pH/Chlph monitoring.

EXHIBIT #2

Simplified Procedure for Estimating Approximate Dam Breach Inundation Area for EAP Light Studies

This document provides a summary of a simplified methodology developed in July 2009 by Christopher B Burke Engineering, Ltd (CBBEL) for estimating approximate dam breach inundation area for use with Emergency Action Plan of dams in Indiana, when the development of more detailed hydrologic and hydraulic modeling is not financially feasible at this time. The project was done as part of a contract with the Indiana Department of Natural Resources (IDNR).

As part of this effort, CBBEL conducted research to find and briefly evaluate various methods in use by various agencies within the United States to assist in the development of a methodology most appropriate for the IDNR purposes. Based on the noted research, a combination of earlier work done by Dr. David Froehlich (1995), the Washington State Department of Ecology (2007), Bureau of Reclamation (1986), and US Army Corps of Engineers (latest) was determined to be the most appropriate procedure for IDNR purposes. To automate as much as process as possible, CBBEL developed a spreadsheet that incorporates formulas, tables, and graphs associated with Froehlich, Washington State Department of Ecology, and Bureau of Reclamations pieces.

The following are step by step instructions for developing approximate dam breach inundation mapping in accordance with the CBBEL simplified procedure:

Step1: Determine Dam Height

The following sources can be used to determine the height of the dam:

- National Inventory of Dams
- Inspection records
- Indiana Department of Natural Resources records
- Emergency Action Plans

If no information is available from the sources listed above, estimate the dam height by field measurements or by topographic data from USGS Maps or other reliable sources.

Step 2: Determine Volume Impounded at Top of Dam

The volume impounded at the top of the dam may be found using the sources listed above. If the volume cannot be found using these sources, then it can be estimated by digitizing contours and using the contour-area method. Lake contour maps can typically be obtained from the Indiana Department of Natural Resources.

Step 3: Determine the Dam Breach Peak Discharge and Attenuated Peak Discharges in the Downstream Reach

- Input the dam height (feet) and lake volume impounded at top of dam (acre-feet) into CBBEL Simplified Breach Analysis Spreadsheet – Peak Discharge Estimator to obtain peak breach discharge and attenuated peak discharges along downstream reach (peak discharge results are provided at 0.25-mile increments downstream to 2 miles, then every 0.5 miles afterward).
- Methodology and assumptions used within the spreadsheet includes the following:
    - The dam breach peak discharge is computed using an equation developed in 1995 by Dr. David Froehlich [Qb = 40.1Vw0.295Hw1.24]. In the equation, Qb is the peak breach discharge (cfs), Vw is the volume of water above the breach invert elevation at the time of breach (acre ft), and Hw is the height of water over the base elevation of the breach (ft). For the

purpose of CBBEL simplified approach, the breach is assumed to occur at the top of the dam, with reservoir full to the top of the dam and there is no additional inflow. Therefore, total volume of reservoir at the top of dam is substituted for Vw (in acre-feet) and height of the dam is substituted forHw (in feet).

- The estimation for attenuation of the dam breach peak discharge as the breach wave travels downstream is based on a family of curves developed in 2007 by the Washington State Department of Ecology for this purpose. The curves depict the relationship of the ratio of downstream discharge to peak breach discharge at the dam versus the distance downstream of the dam for various reservoir storage volumes ranging from 10 to 3,000 acre-feet. If the volume impounded at top of the dam exceeds 3,000 acre-feet, an equation developed in 1986 by the Bureau of Reclamation [Q = Qb (10)-0.02x] is utilized. In the equation, Q is peak discharge (cfs) corresponding to distance x, Qb is peak breach discharge (cfs), and x is distance downstream from dam (mi).

Step 4: Obtain Topographic Data and Aerial Photographs for Area of Interest

• Digital USGS topographic data is preferred to the 2005 Statewide Digital Elevation Model (DEM).

• Utilize more reliable data (i.e. 2-foot or 1-foot contours) if available from the appropriate City or County.

• Obtain the most current aerial photographs from the Indiana Spatial Data Portal, the Indiana Map, or other reliable source.

Step 5: Perform Breach Wave Modeling and Inundation Mapping

• Import topographic data and aerial photograph(s) into ArcGIS.

• Utilize the latest version of the US Army Corps of Engineers program HEC-GEORAS to define stream reach, stream banks, flow paths, and to cut cross-sections.

• General rules for cutting cross-sections are as follows:

1. Cross-sections should be cut whenever there is a significant change in channel geometry or topography or every 50-1000 feet (maximum).
2. Cross-sections should be perpendicular to the flow path.
3. At bridges or culverts, assume that the opening is completely blocked with debris from the flood wave. Cut three cross-sections: one along the road profile (ignoring any openings), one approximately 50-100 ft. upstream of the bridge, and one approximately 50-100 ft. downstream of the bridge. Note: The assumption of fully clogged bridge/culvert opening may be too extreme and unreasonable in some cases. Judgment must be used to either assume the crossing to be clogged, explicitly model the bridge opening, or not to model the crossing at all.

• Export geometric data to the latest version of US Army Corps of Engineers Program HEC-RAS that is compatible with the version of HEC-GEORAS being used.

• Input the attenuated peak discharges from Step 3 into the HEC-RAS model.

• Assign Manning's "n" values to each cross-section based on aerial photographs or other recent and reliable site photos.

• Input boundary conditions. Assume normal depth at the downstream end with a friction slope equal to the bed slope between the two most downstream cross-sections.

• Run HEC-RAS steady-state model to determine the water surface profile.

• The study limits should extend downstream to a point at which the depth of flooding is less than two (2) feet, when inundation limits are completely contained within the 100-year floodplain, or when the flood wave reaches a large body of water.

• To be conservative and more accurate, read energy grade line elevation (instead of water surface elevations).

• Export HEC-RAS results to ArcGIS.

• Utilize "Tin Intersect" or HEC-GEORAS to map the inundation area.

• Look up the calculated water surface elevation at the confluence of tributaries entering the downstream reach and the receiving stream within the impact area (including the upstream reach of any receiving stream, if applicable) and map the potential inundation limits along these tributaries assuming level pool inundation in the tributary.

Alternative Step 5: Estimate Inundation Depths Downstream Without Utilizing Computer Models

• For very preliminary estimates of potential inundation depth at a downstream location or when using ArcGIS, HEC-GEORAS, and HEC-RAS are not practical for the user, the State of Washington Department of Ecology simplified procedures may be used to determine the flood wave depths. This methodology produces an estimate of cross sectional area at each downstream location through dividing the estimated attenuated peak discharge determined in Step 3 by the representative breach wave velocity estimated based on typical stream bed slope and overbanks cover type. CBBEL automated this procedure into a spreadsheet solution and further modified it by introducing allowance for entering coordinates for typical 8-point cross sections along the stream so that flood wave depth at each discharge location downstream can be estimated. The spreadsheet also allows entry of ditch bottom elevations at quarter mile markers along the stream so that the depths may be translated into elevations. The resultant estimates of breach wave water surface elevations along downstream reach should be treated as an initial estimation tool.

• Utilize the Water Surface Elevation Estimator tab of the CBBEL Simplified Breach Analysis Spreadsheet to determine the water surface depth and elevation at various locations downstream. Additional inputs needed are typical stream bed slope (feet per mile), typical overbank land cover, channel bottom elevations (ft), and typical 8-point cross-section coordinates for one or more typical locations (up to 8 cross sections may be utilized).

• Input a minimum of 1 ft. of freeboard in the spreadsheet to be added to the water surface elevations determined by this method to account for variability in the estimation methods. It is recommended that additional freeboard be added for reaches that have highly variable or irregular cross-sections. The user must use sound engineering judgment when determining the appropriate amount of freeboard.

• If an initial approximate mapping of the estimated elevations is desired, utilize water surface elevations from spreadsheet to manually map the inundation area based on existing topography.

CITY OF FORT WAYNE, INDIANA

HDR Engineering, Inc.
(Vendor Name)

VENDOR DISCLOSURE STATEMENT RELATING TO:
1. **FINANCIAL INTERESTS;**
2. **POTENTIAL CONFLICTS OF INTERESTS;**
3. **CURRENT AND PENDING CONTRACTS OR PROCUREMENTS**

Vendors desiring to enter into certain contracts with the City of Fort Wayne, Indiana (the "City") shall disclose their financial interests, potential conflicts of interest and current and pending contract or procurement information as set forth below.

The following disclosures by Vendors are required for all contracts with annual payments by the City in the amount of $25,000 or more. Vendors shall disclose the financial interests, potential conflicts of interest and other contract and procurement information identified in Sections 1, 2 and 3 below as a prerequisite for consideration of an award of contract by the City. This Disclosure Statement must be completed and submitted together with Vendor's contract, bid, proposal, or offer.

A publicly traded entity may submit its current 10K disclosure filing in satisfaction of the disclosure requirements set forth in Sections 1 and 2 below.

Section 1. Disclosure of Financial Interest in Vendor

a. If any individuals have either of the following financial interests in Vendor (or its parent), please check all that apply and provide their names and addresses (attach additional pages as necessary):

(i) Equity ownership exceeding 5% (____)

(ii) Distributable income share exceeding 5% (____)

(iii) Not Applicable (If N/A, go to Section 2) X

Name: _____ Name: _____

Address: _____ Address: _____

b. For each individual listed in Section 1a., show his/her type of equity ownership: sole proprietorship (___) stock (____) partnership interest (____) units (LLC) (____) other (explain)_____

c. For each individual listed in Section 1a., show the percentage of ownership interest in Vendor (or its parent): ownership interest:_____%

Section 2. Disclosure of Potential Conflicts of Interest (not applicable for vendors who file a 10K) – N/A

For each individual listed in Section 1a., check "Yes" or "No" to indicate which, if any, of the following potential conflict of interest relationships apply. If "Yes", please describe using space under applicable subsection (attach additional pages as necessary):

a. City employment, currently or in the previous 3 years, including contractual employment for services. Yes _____ No. _____

b. City employment of "Member of Immediate Family" (defined herein as: spouse, parent, child or sibling) including contractual employment for services in the previous 3 years. Yes _____ No. _____

c. Relationship to Member of Immediate Family holding elective City office currently or in the previous 3 years. Yes _____ No. _____

d. Relationship to Member of Immediate Family holding appointive City office currently or in the the previous 3 years Yes _____ No _____

Section 3. DISCLOSURE OF OTHER CONTRACT AND PROCUREMENT RELATED INFORMATION

a. Does Vendor have **current** contracts (including leases) with the City? Yes _____ No _X____.

b. If "Yes", identify each current contract with descriptive information including purchase order or contract reference number, contract date and City contact using space below (attach additional pages as necessary).

c. Does Vendor have **pending** contracts (including leases), bids, proposals, or other pending procurement relationship with the City? Yes _____ No. __X___

If "Yes", identify each pending matter with descriptive information including bid or project number, contract date and City contact using space below (attach additional pages as necessary).

Section 4. CERTIFICATION OF DISCLOSURES

In connection with the disclosures contained in Sections 1, 2 and 3 Vendor hereby certifies that, except as described in attached Schedule A:

a. Vendor (or its parent) has not, within the five (5) year period preceding the date of this Disclosure Statement, been debarred, suspended, proposed for debarment declared ineligible or voluntarily excluded from any transactions by any federal, state or local unit of government;

b. No officer or director of Vendor (or its parent) or individual listed in Section 1a. is presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state or local) with commission of any offense;

c. Vendor (or its parent) has not, within the five (5) year period preceding the date of this Disclosure Statement, had one or more public transactions (federal, state or local) terminated for cause or default;

d. No officer or director of Vendor (or its parent) or individual listed in Section 1a. has, within the five (5) year period preceding the date of this Disclosure Statement, been convicted, adjudged guilty, or found liable in any criminal or civil action instituted by the City, the federal or state government or any other unit of local government; and

e. Neither Vendor, nor its parent, nor any affiliated entity of Vendor, or any of their respective officers, directors, or individuals listed in Section 1a. is barred from contracting with any unit of any federal, state or local government as a result of engaging in or being convicted of: (i) bid-rigging; (ii) bid-rotating; or (iii) any similar federal or state offense that contains the same elements as the offense of bid-rigging or bid-rotating

f. Pursuant to IC 5-22-16.5, Vendor hereby certifies they do NOT provide $20 million dollars or more in goods or services to the energy sector of Iran. Vendor also certifies it is not a financial institution that extends $20 million dollars or more in credit that will provide goods or services to the energy sector of Iran or extends $20 million dollars or more in credit to a person identified on the list as a person engaging in investment activities in Iran.

The disclosures contained Sections 1, 2 and 3 and the foregoing Certifications are submitted by

HDR Engineering, Inc.
(Name of Vendor)

2517 Sir Barton Way, Lexington, KY 40509
Address
(859) 629-4800
Telephone
ben.edelen@hdrinc.com
E-Mail Address

The individual authorized to sign on behalf of Vendor represents that he/she: (a) is fully informed regarding the matters pertaining to Vendor and its business; (b) has adequate knowledge to make the above representations and disclosures concerning Vendor; and (c) certifies that the foregoing representations and disclosures are true and accurate to the best of his/her knowledge and belief.

Name (Printed) Ben R. Edelen, P.E., P.L.S.

Signature  Date April 17, 2014

NOTE: FAILURE TO COMPLETE AND RETURN THIS FORM WITH YOUR DOCUMENTATION MAY RESULT IN YOUR CONTRACT, OFFER, BID OR PROPOSAL BEING DISQUALIFIED FROM CONSIDERATION.

City Utilities
Engineering

Interoffice Memo

Date: **April 25, 2014**

To: Common Council Members

From: Anne Marie Smrchek, Program Manager, City Utilities Engineering

RE: Contract Title: Water Quality Modeling

Consultant Selected: HDR Engineering, Inc.

Contract Value: $277,994.00

The consultant shall provide: Professional engineering services to develop a water quality model for the St. Joseph River, St. Mary's River, and Maumee River.

Project Description: This project will update and refine the City's water quality modeling project on the St. Joseph, St. Mary's, and Maumee Rivers. The effort will build on the city's historical and ongoing water quality sampling program, and the water quality modeling analyses conducted from 1997-1999. The Engineer will be responsible for producing a dynamic water quality model of the rivers and selected tributaries, including landside components to generate hydrologic inflows to the river. The water quality modeling tools will be used to create a better predictive tool to enhance understanding of water quality conditions in the rivers and to allow City Utilities to better assess the water quality impacts of its programs and projects.

Implications of not being approved: Water quality models are an essential tool in predicting the impacts of Wet-Weather Programs on river water quality. Through the use of models, river water quality is correlated to rainfall or a lack thereof, providing insight to potential sources of impairments. The model will also provide opportunities to assess the impacts of projects on water quality prior to implementation.

If Prior Approval is being Requested, Justify: N/A

Selection and Approval Process: The consultant was selected through the Competitive Sealed Proposal (CSP) process based on their prior experiences and qualifications. The RFQ announcement was sent to approximately 146 firms, and 5 firms submitted a statement of qualifications. Utilities Engineering staff reviewed the qualifications of all interested firms and established a short list of consultants. A request for proposals was then developed and sent to all shortlisted firms. All three shortlisted firms submitted Competitive Sealed Proposals and a scoring matrix was used to score all firms based on the RFQ and RFP scores. RFP scoring was based on prior work experiences, qualifications, proposed scope of work and cost. Using this procedure, Utilities Engineering selected HDR Engineering, Inc. for this

project and also finds their not-to-exceed fee to be the best value. The Board of Public Works approved the contract on April 23, 2014.

Funding: The Professional Services Agreement (PSA) will be funded by Sewer Revenue Bond.

Council Introduction Date: May 13, 2014

CC: BOW
Matthew Wirtz
Diane Brown
Chrono
File