

1316 COUNTY-CITY BUILDING
227 W. JEFFERSON BOULEVARD
SOUTH BEND, INDIANA 46601-1830



PHONE 574/ 235-9251
FAX 574/ 235-9171

CITY OF SOUTH BEND PETE BUTTIGIEG, MAYOR
BOARD OF PUBLIC WORKS

February 10, 2015

Mr. Matthew Travers
MWH, Americas, Inc.
Suite 200
285 Summer Street
Boston, MA 02210

RE: Professional Services Agreement – Evaluate and Negotiate New Long Term Control Plan

Dear Mr. Travers:

The Board of Public Works, at its meeting held on February 10, 2015, approved the above referenced Agreement in the amount of \$2,000,000.00.

Enclosed please find a copy of the Agreement for your records.

If you have any further questions regarding this matter, please call this office at (574) 235-9251.

Sincerely,

A handwritten signature in cursive script that reads "Linda M. Martin".

Linda M. Martin, Clerk

Enclosure

c. Jack Dillon, Engineering
Kara Boyles, Deputy Director of Public Works

AGREEMENT
BETWEEN OWNER AND ENGINEER
FOR
PROFESSIONAL SERVICES

THIS IS AN AGREEMENT effective as of February 10, 2015 (“Effective Date”) between

Board of Public Works, City of South Bend, Indiana (“Owner”) and MWH Americas, Inc. (“Engineer”).

Owner's Project, of which Engineer's services under this Agreement are a part, is generally identified as follows:

South Bend Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP) Integrated Planning Reevaluation (“Project”).

Engineer's Services under this Agreement are generally identified as follows:

South Bend Long Term Control Plan (LTCP) – Integrated Planning Overview

The EPA's Integrated Planning Framework (IPF) is an innovative response to increasing financial pressures on municipalities and utilities, particularly for Clean Water Act permits and enforcement initiatives. This is the first time the U.S. EPA has formally acknowledged affordability issues exist since the guidance on affordability for Long Term Control Plans (LTCPs) for combined sewer overflow (CSO) abatement and may well be considered a historic “turning point” in its interactions with the regulated community.

The City of South Bend has determined that a re-evaluation of its LTCP under the IPF could result in significant cost-savings to the City. MWH's approach to IPF is intended to achieve potential cost savings of \$100 to \$200 million compared to the City's current LTCP. This document provides a description of MWH's scope of services for Phase 1 of its IPF approach. Phase 1 consists of steps 1 through 6 (presented in Figure 1 below) which will result in prioritized project lists under various importance weighting scenarios. Phase 1 will provide those prioritized project lists for consideration by the City. The prioritized project lists provide useful information for scenario evaluation, but does not create an optimized schedule. Phase 1 will allow the City to refine the IPF process and make decisions about moving forward with Phase 2 under a separate agreement or amendment to this agreement. If Phase 2 is initiated by the City, MWH will then complete the process and develop a revised, final integrated plan that better achieves the goals of the CWA while maintaining affordability for South Bend's rate payers.



Figure 1. Integrated Planning Framework Process Diagram

Phase 1 (Steps 1 through 6) Scope of Work Overview

The Scope of Work for Phase 1 has been subdivided into Phase 1a and Phase 1b. As Phase 1a concludes, MWH will develop the work plan and schedule for Phase 1b activities, and Phase 1b work will proceed. MWH proposes to complete the Phase 1 South Bend LTCP IPF Scope of Work with seven tasks including:

- **Task 1 Background Data Review.** Task 1 will focus on reviewing the data and technical evaluation underlying the basis of the original options development, as well as the basis for the decisions made for each of the design choices in the LTCP. This review may lead to recommendations to collect additional data, and/or additional modeling, where there is a high potential that this would yield improvements in the final design recommendations. The majority of Task 1 occurs in Phase 1a with only a few activities continuing to Phase 1b.
- **Task 2 Wastewater System and Wastewater Treatment Plant Model Development Review.** Task 2 will focus on the current wastewater system and the potential opportunities to modify/improve these practices to leverage improvements in the long-term costs, performance and capital requirements of the LTCP, some of which may help achieve the environmental objectives of Indiana Department of Environmental Management (IDEM) and EPA Region 5 and compliance with Michigan’s water quality standards. The development of conceptual alternatives and the initiation of the treatment plan model will be completed in Phase 1a. The detailed collection system investigations and the completion of the treatment plant model will occur in Phase 1b.
- **Task 3 IPF and LTCP Optimization.** Task 3 will define alternate projects, including “green infrastructure” and additional Real Time Control (RTC) projects that may optimize projects that support

receiving water quality enhancement, CSO reduction and wastewater treatment plant (WWTP) effluent discharge improvement. This work will build upon the existing RTC projects already completed and underway in the City. A similar analysis led to the installation of nine RTC throttle valves, which cost effectively reduced CSO discharges. Task 3 will also include a preliminary affordability analysis.

Task 3 will also include a Water Quality Benefits Analysis designed to verify that the high levels of control are needed in light of new information and updates to the collection system model that will be undertaken as part of this Phase 1 work plan. Water quality also provides a consistent endpoint for evaluating water quality improvements and prioritizing potential projects and expenditures. A water quality analysis puts the City's contributions to bacteria loads in the St. Joseph River in the context of other sources in the watershed, including upstream and tributary sources. Previously developed watershed and water quality models illustrated that even in the absence of any CSO discharges to the St. Joseph River, pollutant loads from other sources were sufficient to cause exceedances of water quality standards for safe recreation in the river. A water quality-based approach can help identify the point of diminishing returns on investments—for example, spending significant capital dollars on a high level of control for a large storm event with marginal or negligible improvement in river conditions.

The selection of alternate projects will use an optimization approach that will dynamically select alternate projects such as green infrastructure and Real Time Control projects that provide the biggest water quality improvements at the lowest cost.

Most activities in Task 3 will initiate in Phase 1a and conclude in Phase 1b.

- **Task 4 Triple Bottom Line Benefit (TBL) Development.** Task 4 develops the TBL benefit criteria that will be used to prioritize projects. The specific benefit criteria are defined through workshops with the City and, if desired, with local stakeholders. In addition to identifying benefit criteria, the City and, if desired, the stakeholders will assign importance weights to each benefit criterion for use in the future optimized prioritization model. Task 4 will initiate in Phase 1a and conclude in Phase 1b.
- **Task 5 Community Outreach Development.** Task 5 includes initial development of a communications plan and establishment of a Stakeholders Advisory Board to facilitate community input in development of the optimized LTCP recommendations and support during subsequent regulatory negotiations. Task 5 will occur in Phase 1a.
- **Task 6 Project Controls and Budget Approach.** Task 6 updates the currently recommended LTCP project cost estimates, schedules and sequencing and identifies potential alternative approaches. Task 6 occurs in Phase 1a, and the systems established will continue for the duration of the planning project and the subsequent program.
- **Task 7 Project Administration and Quality Management.** Task 7 defines MWH's project administration and quality control activities.

Each of the seven tasks serve the purpose of defining lower-cost alternatives and developing tools to demonstrate how those alternatives achieve water quality standards. The following subsections detail the proposed Scope of Work and the Deliverables for each of the seven tasks.

Detailed Scope of Work

Task 1 Background Data Review

Subtask 1A. Existing LTCP Analysis

1. **Phase 1a:** Conduct data gathering workshop with City staff. This task element will result in a review of the assumptions used during the LTCP development to gain an understanding of what choices were financially or technically driven by the City, consultants and IDEM and EPA Region 5 regulators.
2. **Phase 1a:** Review existing LTCP information, including:
 - a. Evaluate existing treatment system models
 - b. Evaluate the current collection system model and rainfall analysis
 - c. Evaluate plant condition and planning period Operation and Maintenance (O&M) and capital costs
 - d. Review Financial Capability Assessment and State Economic Analysis
 - e. Review scope, preliminary design and design documents for current LTCP projects
 - f. Review the LTCP and the Consent Decree to provide an independent estimate of the anticipated total costs mid-way through construction.
 - g. Review of schedule and capital projects of the current LTCP.

Subtask 1B. Project Identification

1. **Phase 1b:** Identify up to six projects scheduled for design in 2015 and 2016 that should be prioritized for evaluation in Tasks 2. Projects shall include but not limited to: WWTP projects, Leeper Park, East Bank V.
2. **Phase 1b:** Identify up to ten non-CSO sanitary and stormwater CIP projects, as well as related operational needs that will need to be included in the IPF and affordability analyses in Task 2.

Task 1 Deliverables

- **Phase 1a:** Technical memorandum (delivered in electronic format) documenting baseline conditions and evaluations of the existing LTCP
- **Phase 1b:** Technical memorandum identifying prioritization of 2015 thru 2016 planned projects.

Task 1 Assumptions

- The majority of project documentation and information has been previously supplied to the MWH Team.
- Additional documentation will be supplied at or immediately following the workshop.
- Estimates of probable construction costs assume a Class 5 level of estimate on 40 conceptual projects.

Task 1 Exclusions

- Records research for documenting project details.

- Projects that are under contract and the City wants to complete regardless of the effect on the LTCP will not be included in the prioritization.

Task 2 Wastewater System and Wastewater Treatment Plant Model Development Review

Subtask 2A. Existing Wastewater Collection System Evaluation

1. **Phase 1a:** Evaluate collection system O&M practices and recent and planned cleaning and CCTV analysis. This will include evaluating historic and planned cleaning and CCTV programs to ensure that they are optimized to and that adequate data is provided to support a long-term asset management program for the sewer system.
2. **Phase 1a:** Evaluate wastewater system condition and planning period O&M and ongoing repair and replacement CIP costs. The current and projected costs for the operation will be evaluated for use in the development of cost projections to ensure that the appropriate costs are being utilized in the development of current and future rates for the financial analysis. This will ensure that adequate costs are included in the analysis to obtain an accurate projection of costs for the affordability analysis in Task 3B.

Task 2A Deliverables

- **Phase 1a:** Technical memorandum (delivered in electronic format) documenting current asset management practices and needs including CIP and O&M costs

Task 2A Assumptions

- Evaluation of CCTV analysis will be based on written reports provided by the City.
- Maintenance data is readily available.

Task 2A Exclusions

- The analysis does not include time to review CCTV tapes to determine the accuracy of condition reports.

Subtask 2B. Development of Conceptual Project Alternatives for Conveyance System

1. **Phase 1a:** The Source–Pathway–Receptor (SPR) approach will be utilized to develop up to six conceptual project alternatives for the conveyance system. The alternatives will be created for planning level evaluation of an entire sewershed or interceptor trunk line similar to the following:
 - a. Source control – reduction in rainfall runoff by implementing green infrastructure in a percentage of available area within a CSO tributary.
 - b. Pathway measures – implementing active and/or passive control in one of the trunk lines tributary to a particular CSO.
 - c. Receptor Measures – construction of a new storage tunnel parallel to the main trunk between two identified CSO outfalls.

Task 2B Deliverables

- **Phase 1a:** Technical memorandum (delivered in electronic format) summarizing SRP opportunities for each major sewershed or interceptor trunk line.

Task 2B Assumptions

- Applicable mapping and GIS data layers to describe natural resources, topography, soils, structures, roads, and infrastructure are provided in a suitable format.

Task 2B Exclusions

- Creation or development of GIS data layers based on record information.

Subtask 2C. Potential for Treating Higher Peak Flows Analysis

1. MWH will develop a dynamic process model. Activities needed to develop the dynamic model will include:
 - a. **Phase 1a:** Wastewater Characterization
 - i. Review treatment plant systems and operations. Investigate logistics for sampling.
 - ii. Develop detailed sampling plan to simulate special wet weather conditions to establish range of pollution loading and dilution characteristics
 - iii. City will perform sample collection and complete analysis with in-house and/or outside contract labs)
 - b. **Phase 1a:** Full Plant Process Model Data Collection
 - i. Evaluate pertinent physical data from plant process units (e.g. tank size/configuration, feed points, aeration type/capacity, etc..) provided by the City
 - ii. Evaluate operational data for minimum of three most recent years (5 years preferably) on both liquid and solids process train operations provided by the City
 - iii. Define in conjunction with the City specific process operational data needed
 - iv. Develop a “typical” year data set for influent flow and load
 - v. Conduct a “baseline” evaluation of the current solids balance across the plant to confirm validity of solids processing operational data, and confirm the results with plant operations staff.
 - c. **Phase 1a:** Apply the corresponding pollutant loadings established from the sampling program for the model’s dynamic input in conjunction with the resultant hydrograph from the collection system that represents the wet weather maximum condition. This will result in the creation of the influent hydrograph.
 - d. **Phase 1a:** Develop and direct an in-situ stress test protocol for the primary and secondary clarifier hydraulic loadings (process model will develop the organic/inorganic stress loading performance limits) to determine true hydraulic capacity (critical for the 77 MGD process limit determination)

- i. Develop work plan for each clarifier.
 - ii. Provide “real” data to support the application of design criteria that supersedes the Ten States Standards
 - iii. Model effects of Chemically Enhanced Primary Treatment (CEPT)
 - 1. Develop concept design for CEPT (coordinate with conveyance to digesters)
 - iv. Model effects of isolated Return Activated Sludge (RAS) control
 - v. Model system redundancies by simulating unit process elements being out of service for maintenance (focus is on primary clarifiers, aeration basins, and final clarifiers)
 - vi. Direct City staff performing the in-situ stress tests.
- e. **Phase 1b:** Calibrate the model to “LEVEL 3” (utilizes available and qualified historical data, special sampling qualified data, and diurnal sampling qualified data)
- i. Utilize a calibration accuracy goal of within 15% of measured results on final effluent quality and solids inventory balances
- f. **Phase 1b:** Develop and calibrate final process model based on items “b” through “e” above. Model to include both liquid and solids process trains.
- g. **Phase 1b:** Prepare technical memoranda detailing the results of the current plant solids mass balance, the model development and calibration, and the in-situ stress test.
2. **Phase 1b:** Evaluate Peak Flow Capacity
- a. Calibrated process model will be used to incorporate data from in-situ stress tests for use in predicting other unit process performance characteristics
 - b. Calibrated Process model dynamic simulations of the impacts of dry and wet weather influent flow and load conditions on existing unit process infrastructure, and under the assumed current permitted effluent water quality
 - c. Calibrated Process model dynamic simulations of peak (instantaneous) wet weather flow and load conditions on existing unit process infrastructure, and under the assumed current permitted effluent water quality
 - d. Calibrated Process model dynamic simulations reflecting performance of existing unit process infrastructure during periods of process elements being out of service under the assumed current permitted effluent water quality
 - e. Calibrated Process model steady-state simulation to examine sensitivities of wet weather flow and load imposed on operability and performance of specific unit process elements under the assumed current permitted effluent water quality
 - f. Calibrated Process model will be used to provide a maximum of three (3) alternative scenarios of unit process infrastructure improvements to accommodate goals of the IPF.
 - g. Prepare technical memorandum
 - h. Submit technical memorandum for formal review by US EPA Region 5 of the process model results. Develop one response memo to EPA comments from that review.

3. **Phase 1b:** Conduct a detailed grit characterization to support grit improvements
 - a. Identify technology options
 - b. Develop design criteria

Task 2C Deliverables

- **Phase 1a:** Sampling work plan including technical review of current sampling locations and methods
- **Phase 1a:** In-situ work plan
- **Phase 1b:** Technical review of current plant solids mass balance
- **Phase 1b:** Full Plant process model
- **Phase 1b:** Technical memorandum on treatment model calibration.
- **Phase 1b:** Technical memorandum on in-situ stress testing results.
- **Phase 1b:** Technical memorandum on treatment peak flow capacity analysis.

Task 2C Assumptions

- City staff will perform sampling
- City staff will operate all facilities during in-situ stress test and other activities with MWH oversight and direction
- Operational data provided by the City of South Bend for use in developing the process model is assumed to be valid data
- City will provide all laboratory testing and results data in electronic format
- Process model will be completed using BioWin
- Process model assumes no raw wastewater influent characteristics that could be considered inhibitory or toxic to biological process systems of treatment.
- Scope assumes one formal review by US EPA Region 5 of the process model results and response to EPA comments from that one review. All reviews and responses to comments in addition to this one, initial set will be considered out of scope and negotiated under separate agreement.

Task 2C Exclusions

- This scope does not include any Process model calibration above a “Level 3” industry standard
- Process model calibrations for toxicity or inhibitory influent conditions are considered outside the scope
- “Scrubbing” of historical operational data above and beyond accepted standard levels of effort for process model development is considered outside the scope
- The level of effort required for processing approval of all in-situ stress test methods and results with US EPA Region 5 is considered outside the scope and would be negotiated under a separate amendment
- Process model results are not considered applicable to preliminary engineering design of unit process element infrastructure
- Develop Computational Fluid Dynamics (CFD) models for the clarifiers to determine hydraulic capacity.

Task 3 IP and LTCP Optimization

Subtask 3A. Non Consent Decree Project Inventory

1. **Phase 1a:** Estimate future capital and operations and maintenance investments, based on the City’s existing cost estimates and readily available data, needed over a 25-year period for the:

- a. Wastewater collection system
- b. Wastewater treatment plant
- c. Storm sewers and storm water control facilities

Task 3A Deliverables

- Non consent decree project inventory with costs

Task 3A Assumptions

- O& M investments records are readily available for the past 25 years.

Task 3A Exclusions

- Capital and Operation costs that are considered minor will not be included.

Subtask 3B. Affordability Analysis

1. In accordance with the 1997 EPA FCA Guidance Document, produce an EPA Phase 1 FCA using the 2012 CSO LTCP proposed projects as the baseline condition.
 - a. **Phase 1a:** Request and analyse data for long-range financial planning model and FCA calculations. Data include, but are not limited to:
 - i. GIS shape files of utility service area
 - ii. Identification of outside-City service areas
 - iii. Utility billing system export for most recent 12 months with account number, service address, bill date, and charges billed
 - iv. Historical budgets for 2 years; currently approved line-item budget
 - v. Debt service schedules for currently outstanding debt
 - vi. List of capital improvements plan (CIP) with schedule and cost
 - vii. Listing of funds and accounts relevant to the utility
 - viii. Copies of last 2 comprehensive annual financial reports (CAFRs)
 - b. **Phase 1b:** Prepare long-range financial planning model to evaluate the current financial forecast under the 2012 LTCP. Model will be used in a subsequent phase to analyse scenarios of capital planning outputs from the IPF process. Inputs to the model include inflation and cost escalation factors, projections of cost categories from the City's operations and capital programs, and projections of all existing and proposed debt.
 - c. **Phase 1a:** Update EPA Guidance Phase 1 and 2 affordability calculations under baseline LTCP conditions and current community financial capability conditions. Includes calculating the cost per household and Residential Indicator in EPA Phase 1 and financial capability indicators in EPA Phase 2.
 - d. **Phase 1a:** Produce draft Phase 1 Baseline FCA reports documenting the assessment.
 - e. **Phase 1a:** Attend up to 2 assessment review meetings with Program Team and City.
2. **Phase 1b:** Define annual financial limitations for use in the future optimization model.

- a. Using the long-range financial planning model, project annual funds available for capital programs.
- b. Prepare schedule of available funds for the length of the LTCP.

Task 3B Deliverables

- **Phase 1a:** Information request
- **Phase 1a:** EPA Phase 1 Baseline FCA Report
- **Phase 1b:** FCA review meeting notes

Task 3B Assumptions

- City is forthcoming in data collection
- Data is provided in electronic formats compatible with those requested
- Limit of 3 revisions to Baseline FCA draft report
- Two meetings during Phase 1 and Phase 2
- Annual financial limitations are reviewed for most likely financing scenario
- Other water-related fees and costs, including potable water charges, will be considered in the affordability analysis

Task 3B Exclusions

- Wholesale customers' retail billing data analysis
- Delivery of financial model
- Wastewater rate design
- Data entry or transcription

Subtask 3C. Hydraulic Model Enhancements

1. Evaluate, update, verify and incorporate appropriate modifications to the hydraulic model for future IP decision support and accurate estimation of CSO volumes, including:
 - a. **Phase 1a:** Conduct a comprehensive evaluation of current hydraulic model and calibration, culminating in a "fit for purpose" assessment including a gap analysis. This evaluation will compare data from the 142 monitoring points in the collection system against the updated "current conditions" model. The monitoring data will be used to determine those areas of the model in least compliance with calibration standards and identify up to fifteen CSO areas as priority sewersheds to be updated.
 - b. **Phase 1a:** Conduct a hydraulic model software review of up to two software packages and recommend continuation of the current EPA SWMM software or transition to another modeling software. The modeling software will be selected based on compatibility with the City's real-time optimization tool, support the IPF decision process, and simulate green infrastructure implementation. The City has given preference to the EPA SWMM platform, but more-sophisticated platforms (e.g., PC SWMM, InfoSWMM, etc.) will be evaluated.
 - c. **Phase 1a:** If different modeling software is selected, convert the existing hydraulic model to the new system.

- d. **Phase 1a:** Make recommendations for additional model detail needed for IPF decision support and accurate estimation of CSO volume. The additional detail will be recommended for priority sewersheds and will include:
 - i. Enhanced representation of connections from the City's separate sewer system and storm water pond connections.
 - ii. Enhanced detail of combined sewer system and catchments where needed for IPF considerations such as green infrastructure, CSO volume accuracy and RTC improvements.
 - iii. Updates to catchment properties to reflect changes in impervious surface representation and land use changes.
 - iv. Update seasonal contributions from infiltration and inflow (I/I) sources.
- e. **Phase 1b:** Implement recommended strategic model detail in priority sewersheds.
- f. **Phase 1b:** Update model calibration in priority sewersheds utilizing the data from the existing 142 flow and depth monitoring sites and six rain gauges already present in the City.
- g. **Phase 1b:** Analyze flow monitoring data and model output to identify areas with potentially excessive infiltration and quantify the infiltration. Flow monitoring data will also be analyzed to determine areas in which significant sediment deposition may be occurring. This task will build upon the conceptual study recently completed for the City and provide a higher level of detail for conclusions derived in that study.
- h. **Phase 1b:** Document modifications to hydraulic model.
- i. **Phase 1b:** Verify hydraulic performance of conceptual alternatives identified in Task 2. Evaluation will consist of basic criteria such as CSO reduction, decrease in required storage volume or reduction in rainfall runoff over the typical year.

Task 3C Deliverables

- **Phase 1a:** Hydraulic model evaluation and gap analysis
- **Phase 1a:** Hydraulic model software review
- **Phase 1a:** Recommendations for hydraulic model additional detail in priority areas
- **Phase 1b:** Hydraulic model calibration results and updates
- **Phase 1b:** Identified potential sources of excessive infiltration and sedimentation

Task 3C Assumptions

- Data for model expansion will be based on available City GIS data and can be relied upon for accuracy.
- Sewer system GIS data is complete with invert, rim, diameter, pertinent elevations and other needed dimensions such as weir lengths.

- A critical portion of the model has been recalibrated and the revised model data provide correlation with observed data within WAPUG criteria for that area.
- A different modeling software platform will be selected and the model will need to be converted from EPA SWMM to that platform.

Subtask 3D. Green Infrastructure and Separation Conceptual Alternatives

1. **Phase 1a:** The MWH team will review available data on the City's plans for storm water improvement projects. This includes the review of Comprehensive Plans / Economic Redevelopment Plans / Capital Improvement Plans / Ordinances and Partners. This will also include the evaluation individual project opportunities as they are identified (up to budget authorization) and the identification of impediments to Green Infrastructure (GI) implementation.
2. **Phase 1a:** The MWH team will develop a technical memorandum describing the various GI source control measures. These include elements are normally chosen on the ability to fit into the existing landscape on private properties typically including: rain gardens, tree box filters, dry wells, ribbon driveways, and porous paving. These also include elements that can be incorporated into public rights-of-way including: swales and under-drained swales, infiltration trenches and chambers, filter strips, swales and under-drained swales, and detention basin / systems. These also include larger-scale systems including: wetlands, ponds, and retention structures.
3. **Phase 1a:** The MWH team will conduct a GI kickoff workshop with City departments and other stakeholders to review GI technologies and their potential benefits for CSO reduction. The purpose of the meeting will be to inform the stakeholders and to initiate the development of an implementation strategy by identifying the institutional needs for a successful GI program and ways to streamline activities by the city departments and public/private partners. For example, changes to zoning or building permit requirements may be required to realize the benefits from private property GI. Similarly, the Highway Department may be identified as the party responsible for GI maintenance, which is crucial for proper functioning and can present a substantial financial burden. The workshop is not intended to resolve all implementation issues, but is envisioned to initiate the process which will continue as the LTCP reevaluation matures.
4. **Phase 1a:** The MWH team will perform a GI opportunities assessment identifying the degree to which GI is technically feasible in each combined sewer catchment. The assessment will rely upon available GIS data describing land use, roadway widths, topography, coordination with future transportation projects, wetlands, soils and other physical characteristics that influence the effectiveness of GI. This assessment will also include review of sewershed / catchment delineation and runoff parameters in the hydraulic model to ensure consistency with current conditions.
5. **Phase 1a:** Based on an evaluation of the mapping data, the MWH team will perform conceptual GI designs for up to 4 representative sewer catchments. The conceptual GI designs will consist of a mix of elements described in the technical memo and will pair technologies to physical constraints in the catchments. For each conceptual design in each catchment, the MWH team will calculate the area that could be drained to the GI elements, and the effective removal of impervious area and thereby contributory storm water flow to the combined sewer system. Based on the characteristics of the selected

representative sewer catchments and the other sewer catchments in the system, those calculations of GI abstraction potential will be extrapolated to the other catchments. It should be noted that this process of detailed evaluation and extrapolation is consistent with EPA guidance for GI assessment for LTCP development.

6. **Phase 1a:** The goal of the GI opportunities assessment is to identify catchments where GI holds the greatest potential to reduce CSO volumes. The MWH team will also review the results of the hydraulic modelling in Task 3D to identify the locations in greatest need of source control for CSO reduction. Based on those two analyses, the MWH team will prioritize the catchments for further GI review in later phases of the LTCP reevaluation. Later phases will involve translating the GI potentials, which are specially distributed throughout the catchments, to CSO volume and activation reductions, at the end of pipe networks, and requires modifications to the hydraulic model. These later phases will also involve refinement of the conceptual designs to optimize their benefits, development of construction and maintenance costs, and the development of a GI implementation strategy.
7. **Phase 1a:** The MWH team will conduct a GI workshop with City departments and other stakeholders to review the conclusions of the GI opportunities analysis. The purpose of the workshop will be to identify the public acceptance issues, particularly as they relate to operations and maintenance of the GI systems, for each area targeted with a high potential. The outcome of this workshop will inform public outreach efforts to be included in Phase 2.

Task 3D Deliverables

- **Phase 1a:** Green Infrastructure opportunities assessment technical memorandum

Task 3D Assumptions

- City will provide relevant storm water reports and data for review
- City will identify and enlist the participation of departments and stakeholders for the GI workshop
- GIS data describing impervious area, landform and land use is sufficient for the evaluation

Task 3D Assumptions

- Manipulation of GIS data or creation of attributes to perform the analyses

Subtask 3E. System Optimization

1. **Phase 1a:** The project team will identify and develop conceptual optimization opportunities in the City's collection system. The goal of this analysis is to determine strategies by which conveyance, storage, and treatment capacity is fully utilized before an overflow begins.
2. **Phase 1a:** The team has already determined several optimization opportunities which will enable the collection system to respond dynamically to a storm event. The initial ideas that will be evaluated are as follows:

- a. Optimize the weir heights at CSOs throughout the collection system using Opti-SWMM.
 - b. Model and evaluate the operational benefit of the proposed trunkline interconnections throughout the collection system to move flows from satellite areas towards the WWTP.
 - c. Fully utilize the interceptor by regulating flows from the CSO 001 and 002 regulators into the interceptor so that the full interceptor and WWTP capacity is utilized prior to an overflow at these locations.
 - d. Evaluate inline storage opportunities in service areas 003, 006, and 037, which can be used to prevent overflows in these areas and free up interceptor capacity of other areas.
 - e. Optimize existing and proposed retention basins (for filling and dewatering), to maximize overflow reduction.
 - f. In the event that the Fairfax Infiltration Basin is not able to handle all of the excess wet weather flow from the Kensington Basins, evaluate the feasibility of sending stormwater from the Kensington area to the stormwater retention basins located along Ironwood, north of Ireland.
3. **Phase 1a:** The team will hold a workshop with the City to review the potential control concepts, evaluate the ideas for constructability (for example, the City may know that a proposed in-line storage location is in a pipe that is in poor condition), and brainstorm other optimization approaches.
 4. **Phase 1b:** The team will develop up to 4 control strategies for the collection system, and each strategy will be developed against the following priorities:
 - a. Reduce the number of overflow events
 - b. Reduce overflow volume
 - c. Minimize the life-cycle cost of implementation
 5. **Phase 1b:** Each strategy will be analyzed to determine which best meets the defined goals. This analysis will generate data points of treatment capacity versus storage volume needed to maintain CSO compliance for developing cost/benefit (“knee-of-the-curve”) analysis. The results of this work will provide the framework for the detailed development of alternatives for the LTCP in phase 2 of this work.

Task 3E Deliverables

- **Phase 1a:** Summary of conceptual system optimization strategies opportunities identified
- **Phase 1a:** Summary of optimization opportunities selected for further pursuit and rationale for selection
- **Phase 1b:** Recommendations for static weir heights
- **Phase 1a:** Meeting notes from workshop with City
- **Phase 1b:** Description of four control strategies and expected benefits of each strategy

Task 3E Assumptions

- The existing hydraulic model will have sufficient detail and level of calibration to evaluate optimization opportunities.

Subtask 3F. Water Quality Benefits Analysis

1. **Phase 1a:** Review monitoring data from the City of Elkhart to update the water quality model boundary conditions. Review monitoring data from Mishawaka and South Bend to inform the re-calibration of the St. Joseph River water quality model. Review the monitoring data from the City of South Bend to update the model kinetic rates. Use the data from the three communities to identify an appropriate calibration period. The in-stream data from Elkhart, Mishawaka and South Bend spanning 2004-2013 will be reviewed to identify the most appropriate single year recreation season (April – October) to use as the updated water quality model calibration period. The recreation season in years with a higher number of monitoring data that likely reflect wet weather source loads, few high or low outliers in the range of monitored E. coli levels, a wide range of storm sizes and river flows during wet and dry periods, and limited occurrence of extreme conditions (e.g. flood flows, etc.) will be considered as the basis for selecting an updated calibration period. The updated river model calibration will encompass dry and wet weather conditions and significant storms triggering CSO discharge events.
2. **Phase 1a:** Compare existing model quality results with data from the recent “Bowman Creek Supplemental Environmental Project” (SEP) report. A cursory review of the SEP data, which were collected in 2012, indicated that measured bacteria levels were lower than levels measured in 2002-2003, which were used to develop the bacteria load inputs to the water quality model. Since the confluence of Bowman Creek with the St. Joseph River is proximate to the City of South Bend, the modeled river water quality in the vicinity of South Bend is sensitive to this load. Update Bowman Creek bacteria load inputs to reflect data from the SEP will ensure that the river’s potential assimilative capacity is properly represented in the river model.
3. **Phase 1a:** Export flow volumes from 2012 model for current (i.e. Baseline) conditions during a Typical Rainfall Year. These volumes will be used to estimate the current E.Coli loadings to the receiving waters in dry and wet weather conditions. Hydrographs from the following sources will be obtained:
 - a. CSO overflow hydrographs shall be obtained for each CSO structure from the hydraulic model.
 - b. Hydrographs at stormwater outfalls within the study area’s separated areas will be obtained from the hydraulic model (if available) or from a hydrologic software such as HEC-HMS if the pipe network is not available.
 - c. Hydrographs from tributary streams to receiving water bodies within the study area using a hydrologic when flow gauging data is not available.
 - d. Hydrographs from facilities that may have a significant contribution such as Waste Water Treatment Facilities (WWTF) or large industrial discharges will also be computed if deemed relevant.

- e. Hydrographs from areas generating surface runoff draining directly to the river will be computed using a hydrologic model if the contribution is deemed large enough as to significantly alter the results of the receiving water quality model.
4. **Phase 1a:** Calibrate the City's water quality model for *E. coli* bacteria using instream and loading data for the selected calibration period to meet calibration standards so that it can be used to evaluate the impact of the City's CSOs on river conditions, including compliance with Indiana's water quality standards at key river locations, such as the East Race, and with Michigan's water quality standards at the state line. The model calibration will be based on reasonably reproducing the range of modeled and measured *E. coli* concentration distributions, minimizing root mean square error, and capturing the range of temporal and spatial conditions using graphical comparisons. Conduct three sensitivity simulations to evaluate the sensitivity of the predicted water quality conditions to model inputs, such as loss rate and CSO *E. coli* event mean concentrations.
5. **Phase 1b:** Run the updated 2014 collection system hydraulic model for the same flow sources specified in Subtask 3.F.3 and export hydrographs for three cases: existing 2014 conditions (Baseline), current LTCP (Alternative 0), and current LTCP without disinfection (Alternative 0-A). It is assumed that hourly volumes from each CSO and disinfection facility for each scenario will be compiled into a spreadsheet matrix.
6. **Phase 1b:** Configure and run the calibrated water quality model for the 1992 typical year to evaluate the water quality impact of South Bend's existing CSO discharges with the 2014 hydraulic baseline model under a scenario assuming that upstream and tributary sources are not causing or contributing to violations of the standards. The scenario will be used to assess how often the City's CSOs alone cause violations of the water quality standards. The collection system hydraulic model results for the existing 2014 conditions (Baseline) will be used to specify South Bend CSO loads
7. **Phase 1b:** Apply the calibrated water quality model for the typical year (1992) using updated CSO volumes for two conceptual control alternatives developed by the City and consultant team: Alternative 0 and Alternative 0-A. This purpose of this task is to evaluate the sensitivity of river *E. coli* levels to other South Bend CSO control solutions. The model results will be evaluated against the Indiana and Michigan water quality standards under the conditions assuming that upstream and tributary sources are not causing or contributing to violations of the standards.
8. **Phase 1b:** Develop two technical memoranda describing the updates to the water quality model and model results. The first memorandum will encompass the data review, updates to the water quality model and the results of the updated calibration. This draft memorandum will be submitted to the City 3-4 months after notice to proceed. A companion PowerPoint presentation summarizing this memorandum will be developed and presented to the City at an on-site meeting.

The second technical memorandum will describe the 2014 Baseline conditions and the updated LTCP alternatives model configuration and model results described above. This draft memorandum will be submitted to the City 6-8 months after notice to proceed. A companion PowerPoint presentation summarizing this memorandum will be developed and presented to the City at an on-site meeting.

Task 3F Deliverables

- **Phase 1a:** Technical memo: Water Quality model updates, calibration, and calibration results to be submitted electronically in draft approximately 3-4 months after notice to proceed. A companion PowerPoint presentation will also be developed, presented and provided to the City.
- **Phase 1b:** Technical memo: Water quality model runs on existing conditions, current LTCP and LTCP sans disinfection to be submitted electronically in draft form at approximately 6-8 months after notice to proceed. A companion PowerPoint presentation will also be developed, presented and provided to the City.
- **Phase 1b:** Water quality model calibration and alternative analysis electronic files

Task 3F Assumptions

- Utilize best available source (CSO) data.
- South Bend will provide their St. Joseph River and tributary (if available) monitoring data from 2004 through 2013 within two weeks of notice to proceed.
- South Bend will assist the consultant with obtaining St. Joseph River and tributary monitoring data from Elkhart and Mishawaka, if needed.
- The cities of Elkhart and Mishawaka will provide their water quality monitoring data within four weeks of notice to proceed.
- Hourly volumes from collection system hydraulic model will be provided by MWH to the water quality modeling consultant in a spreadsheet matrix.
- South Bend will provide GIS data on the drainage area and locations of new discharges resulting from completed CSO LTCP projects.
- The Elkhart and Mishawaka LTCPs are appropriate representation of future CSO loads from these communities.
- The year 1992 will continue to serve as the typical year.
- Available river and tributary flow data is readily available

Task 3F Exclusions

No additional sampling in the St. Joseph River, its tributaries or landside sources (e.g. CSO, stormwater).

Subtask 3G. Regulatory Strategy and Negotiations Support

1. **Phase 1a:** Develop negotiation strategy with Department of Law / Outside Counsel.
2. **Phase 1a:** Advise City regarding Clean Water Act/Permit requirements / Integrated Planning.
3. **Phase 1a:** Develop two presentations, and up to three technical memorandums in response to requests for information from the USEPA, EPA Region 5, and IDEM.
4. Participate and document two meetings that includes EPA Region 5, and IDEM:
 - a. **Phase 1a:** First meeting at mid-point of Phase 1 indicating intent to pursue IPF.
 - b. **Phase 1b:** Second meeting at conclusion of Phase 1a to discuss conceptual alternatives.
5. **Phase 1b:** Prepare and submit a work plan for Phase 2 outlining the Phase 2 scope of work.

Task 3G Deliverables

- **Phase 1a:** Memorandum (delivered in electronic format) summarizing USEPA Region 5 strategy completed in conjunction with South Bend legal counsel.
- **Phase 1b:** Draft work plan for Phase 3.

Task 3G Exclusions

This task does not include the completion of Section 308 requests from regulatory authorities.

Task 4 IP Triple Bottom Line Benefit Development

Subtask 4A. TBL Benefit Criteria Identification

1. **Phase 1a:** Review existing South Bend goals, mission statement, vision statement, existing master planning documents (as available), and strategic planning documents (as available) to identify potential benefit criteria specific to the City.
2. **Phase 1a:** Facilitate one workshop with the City to develop a customized list of TBL benefit criteria.
3. **Phase 1a:** Conduct one workshop with the City and local stakeholders to review the TBL benefit criteria and to assign importance weights for each TBL benefit criterion.
4. **Phase 1b:** Conduct project scoring meeting with select City staff to score the non-CSO wastewater, stormwater and current LTCP projects.
5. **Phase 1b:** Develop draft prioritized project list.
6. **Phase 1b:** Review prioritized project list with City staff and make scoring adjustments as necessary.
7. **Phase 1b:** Finalize prioritized project list.

Subtask 4B. IP Prioritization Approach Establishment

1. **Phase 1b:** Establish a baseline prioritization model to demonstrate the following:
 - a. Baseline/Alternative 0 Scenario. The existing LTCP, storm water and water projects with current regulatory deadlines and regulatory importance weights.
 - b. Following the engineering analyses in Phase 1, Phase 2 will integrate those conclusions to develop additional scenarios for testing in the model to develop an optimized LTCP, non-LTCP, and stormwater project sequencing for selected scenarios. The model will be established to facilitate those Phase 2 efforts.
2. **Phase 1b:** Prepare a technical memorandum summarizing the findings of the Baseline/Alternative 0 case study. It is anticipated that this baseline will establish that the current LTCP is not affordable and fails to meet community goals sufficiently. This is the justification for alternatives analysis in Phase 2, and can

serve as the beginning of communication with USEPA Region 5 on reevaluating the LTCP in the context of the IPF.

Task 4 Deliverables

- **Phase 1a:** Technical memorandum (delivered in electronic format) summarizing benefit criteria selection, and importance weighting.
- **Phase 1b:** Technical memorandum (delivered in electronic format) summarizing baseline project list and associated existing schedule or sequencing constraints, development of a baseline regulatory scenario optimization model and baseline regulatory scenario model results.

Task 4 Assumptions

- City will provide existing master planning and strategic planning documents for use in identifying potential TBL benefit criteria
- City will provide existing project lists of sanitary, stormwater, O&M and asset repair and rehabilitation (collectively termed renewal) projects along with project costs, projected annual spend amounts and specific project sequencing constraints
- TBL criteria weighting will be based on a spreadsheet analysis based on input from the City and stakeholders

Task 4 Exclusions

- Development of a formalized asset valuation or replacement cost analysis to determine annual funding requirements for asset renewal by asset class
- A formal pairwise comparison analysis of TBL criteria for generation of weighting

Task 5 Community Outreach Development

Subtask 5A. Communications Plan

Phase 1a: Provide technical assistance in development of a communications plan to implement future phases of a fully integrated public outreach program which will provide the foundation for a positive public perception of and positive public interaction with the South Bend CSO/Consent Decree Program and City of South Bend. MWH will provide the following specific services:

1. Facilitate one 2 hour workshop with City staff to identify current communications and public outreach efforts and discuss the plan going forward.
2. Develop communications and public outreach plan including, but not limited to scheduled calls with appropriate City staff.
3. Facilitate review of draft communications plan to finalize plan.
4. Prepare final communications and public outreach plan.

5. Attend two public meetings.

Subtask 5B. Stakeholder Advisory Committee Identification

1. **Phase 1a:** As part of the communications planning process, coordinate with the City to begin identification of stakeholder groups. These groups will comprise the initial stakeholder database. These groups may consist of elected officials, business groups, neighborhood associations and property owners adjacent to the projects, regulatory agencies, and utilities.
2. **Phase 1a:** Coordinate with the City to list the initial members of the Stakeholder Advisory Committee, and moderate the first committee meeting.

Task 5 Deliverables

- **Phase 1a:** One Public Outreach Communications Plan (electronic format)
- **Phase 1a:** Stakeholder Advisory Committee member list (electronic format)

Task 5 Assumptions

- First communications and public outreach communications workshop shall be attended in person by City staff and MWH team, and will occur on the same day as the data gathering workshop depicted in Task 1A. Subsequent meetings will be held as conference calls as needed.
- MWH Team will plan and facilitate first stakeholder advisory committee workshop.
- The communications and community outreach plan will include a planned overview, key messages related to the project, and a summary of general audience types with communication objectives.

Task 5 Exclusions

- MWH will not be responsible for implementation of the communications and public outreach plan until it is formally approved by the City.
- The communications and community outreach plan will only cover activities related to the long-term control plan.
- Implementation of the communications and community outreach plan is not covered in this phase of the project. MWH will work with the City at the completion of the plan to determine implementation strategy.

Task 6 Project Controls and Budget Approach

Subtask 6A. Review Status of Existing Projects

1. **Phase 1a:** Conduct one 3-hour workshop to:
 - a. Determine delivery status of each active project within the Consent Decree.
 - b. Assess risks associated with remaining project activities.
 - c. Complete a quality review of project documentation.

Subtask 6B. Project Estimating Review

1. **Phase 1a:** Review the cost estimates for up to 3 projects that are currently in the Design phase of the project life cycle to validate the Design Consultant estimates. During this exercise, MWH will:
 - a. Verify estimate based on level of design documents assume 60% completion, Level 2 verification.
 - b. Conduct design document audits for competition or document errors

Subtask 6C. Program Budget and Finance Approach

1. **Phase 1a:** Develop a baseline budget schedule and cash flow projection of financial needs based on current project schedules and the current LTCP to assist the City with understanding the financing, bond sales and cash flow management associated with those commitments. In this task, MWH will work with the City staff to review existing budgets and make recommendations on the overall Master Program Baseline Budget and Finance approach, including:

Subtask 6D. Document Control

1. **Phase 1a:** Establish an electronic document-management site (Google Drive) for the project team, including MWH Team and City staff.
2. **Phase 1a:** Identify, log and organize up to 500 documents utilizing a document tracking system.

Task 6 Deliverables

- **Phase 1a:** Updated master schedule and budget (delivered in electronic format)

Task 6 Assumptions

- Status review workshops will be conducted via phone or schedule to coincide with other meetings.
- City provides access to appropriate staff.
- Client provides data, reports, plans, and other information requested.

Task 6 Exclusions

- Formatting or extraction of data for analysis.

Task 7 Project Administration and Quality Management

Subtask 7A. Project Management

For Phases 1a and 1b, For the projected 10-month Phase 1 project duration, MWH will provide coordination of its own staff and subconsultants, and track the engineering services budget. MWH will prepare monthly invoices detailing project labor costs and other direct costs and progress reports submitted in and agreed form.

Subtask 7B. Progress and Review Status Meetings

MWH will attend up to five progress and review coordination meetings for the **Phase 1a** South Bend LTCP and IP project to review project progress and to obtain direction on matters requiring decisions by City. These progress meetings will address the technical aspects of the work and results of the investigations, analyses, and conceptual design efforts at various phases of completion. Meetings will be conducted over the phone or scheduled coincidentally with other workshops/meetings.

Subtask 7C. Quality Control

Quality Control (QC) procedures will be employed in order to maintain work product quality. These procedures will address the use of quality control reviews, engineering and calculations checking, conceptual design checking, construction and operation issues, and other measures necessary to maintain a consistent, complete, high quality and compatible plan. A formal QC review will be conducted on key technical memorandum. City staff will contribute to quality reviews.

Task 7 Deliverables

- Monthly invoice for assumed 10-month Phase 1 project duration and associated progress report in electronic format with one hard copy provided.

Owner and Engineer further agree as follows:

1.01 *Basic Agreement and Period of Service*

- A. Engineer shall provide, or cause to be provided, the services set forth in this Agreement. If authorized by Owner, or if required because of changes in the Project, Engineer shall furnish services in addition to those set forth above. Owner shall pay Engineer for its services as set forth in Paragraphs 7.01 and 7.02.
- B. Engineer shall complete its services within a reasonable time, or within the following specific time period: *Phase 1 duration is anticipated as 11 months from Notice to Proceed. Regulatory review may extend project; therefore, period of service will not have a specific time period.*
- C. If the Project includes construction-related professional services, then Engineer's time for completion of services is conditioned on the time for Owner and its contractors to complete construction not exceeding N/A months. If the actual time to complete construction exceeds the

number of months indicated, then Engineer's period of service and its total compensation shall be appropriately adjusted.

2.01 *Payment Procedures*

- A. *Invoices*: Engineer shall prepare invoices in accordance with its standard invoicing practices and submit the invoices to Owner on a monthly basis. Invoices are due and payable within 30 ~~35~~ days of receipt. ~~If Owner fails to make any payment due Engineer for services and expenses within 30 days after receipt of Engineer's invoice, then the amounts due Engineer will be increased at the rate of 1.0% per month (or the maximum rate of interest permitted by law, if less) from said thirtieth day.~~ In addition, Engineer may, after giving seven days written notice to Owner, suspend services under this Agreement until Engineer has been paid in full all amounts due for services, expenses, and other related charges. Owner waives any and all **non-disputed** claims against Engineer for any such suspension. ~~Payments will be credited first to interest and then to principal.~~

3.01 *Termination*

- A. The obligation to continue performance under this Agreement may be terminated:
1. For cause,
 - a. By either party upon 30 days written notice in the event of substantial failure by the other party to perform in accordance with the Agreement's terms through no fault of the terminating party. Failure to pay Engineer for its services is a substantial failure to perform and a basis for termination.
 - b. By Engineer:
 - 1) upon seven days written notice if Owner demands that Engineer furnish or perform services contrary to Engineer's responsibilities as a licensed professional; or
 - 2) upon seven days written notice if the Engineer's services for the Project are delayed for more than 90 days for reasons beyond Engineer's control.

Engineer shall have no liability to Owner on account of a termination by Engineer under Paragraph 3.01.A.1.b.

- c. Notwithstanding the foregoing, this Agreement will not terminate as a result of a substantial failure under Paragraph 3.01.A.1.a if the party receiving such notice begins, within seven days of receipt of such notice, to correct its substantial failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of notice; provided, however, that if and to the extent such substantial failure cannot be reasonably cured within such 30 day period, and if such party has diligently attempted to cure the same and thereafter continues diligently to cure the same, then the cure period provided for herein shall extend up to, but in no case more than, 60 days after the date of receipt of the notice.
2. For convenience, by Owner effective upon Engineer's receipt of written notice from Owner.

- B. The terminating party under Paragraph 3.01.A may set the effective date of termination at a time up to 30 days later than otherwise provided to allow Engineer to complete tasks whose value would otherwise be lost, to prepare notes as to the status of completed and uncompleted tasks, and to assemble Project materials in orderly files.
- C. In the event of any termination under Paragraph 3.01, Engineer will be entitled to invoice Owner and to receive full payment for all **non-disputed** services performed or furnished in accordance with this Agreement and all reimbursable expenses incurred through the effective date of termination.

4.01 *Successors, Assigns, and Beneficiaries*

- A. Owner and Engineer are hereby bound and the successors, executors, administrators, and legal representatives of Owner and Engineer (and to the extent permitted by Paragraph 4.01.B the assigns of Owner and Engineer) are hereby bound to the other party to this Agreement and to the successors, executors, administrators, and legal representatives (and said assigns) of such other party, in respect of all covenants, agreements, and obligations of this Agreement.
- B. Neither Owner nor Engineer may assign, sublet, or transfer any rights under or interest (including, but without limitation, moneys that are due or may become due) in this Agreement without the written consent of the other, except to the extent that any assignment, subletting, or transfer is mandated or restricted by law. Unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under this Agreement.
- C. Unless expressly provided otherwise, nothing in this Agreement shall be construed to create, impose, or give rise to any duty owed by Owner or Engineer to any contractor, subcontractor, supplier, other individual or entity, or to any surety for or employee of any of them. All duties and responsibilities undertaken pursuant to this Agreement will be for the sole and exclusive benefit of Owner and Engineer and not for the benefit of any other party.

5.01 *General Considerations*

- A. The standard of care for all professional engineering and related services performed or furnished by Engineer under this Agreement will be the care and skill ordinarily used by members of the subject profession practicing under similar circumstances at the same time and in the same locality. Engineer makes no warranties, express or implied, under this Agreement or otherwise, in connection with Engineer's services. Subject to the foregoing standard of care, Engineer and its consultants may use or rely upon design elements and information ordinarily or customarily furnished by others, including, but not limited to, specialty contractors, manufacturers, suppliers, and the publishers of technical standards.
- B. Engineer shall not at any time supervise, direct, control, or have authority over any contractor's work, nor shall Engineer have authority over or be responsible for the means, methods, techniques, sequences, or procedures of construction selected or used by any contractor, or the safety precautions and programs incident thereto, for security or safety at the Project site, nor for any failure of a contractor to comply with laws and regulations applicable to such contractor's furnishing and performing of its work.

- C. This Agreement is to be governed by the law of the state or jurisdiction in which the Project is located.
- D. Engineer neither guarantees the performance of any contractor nor assumes responsibility for any contractor's failure to furnish and perform its work in accordance with the contract between Owner and such contractor. Engineer is not responsible for variations between actual construction bids or costs and Engineer's opinions or estimates regarding construction costs.
- E. Engineer shall not be responsible for the acts or omissions of any contractor, subcontractor, or supplier, or of any of their agents or employees or of any other persons (except Engineer's own employees) at the Project site or otherwise furnishing or performing any construction work; or for any decision made regarding the construction contract requirements, or any application, interpretation, or clarification of the construction contract other than those made by Engineer.
- F. The general conditions for any construction contract documents prepared hereunder are to be the "Standard General Conditions of the Construction Contract" as prepared by the Engineers Joint Contract Documents Committee (EJCDC C-700, 2007 Edition) unless the parties agree otherwise.
- G. All documents prepared or furnished by Engineer are instruments of service, and Engineer retains an ownership and property interest (including the copyright and the right of reuse) in such documents, whether or not the Project is completed. Owner shall have a limited license to use the documents on the Project, extensions of the Project, and for related uses of the Owner, subject to receipt by Engineer of full payment for all services relating to preparation of the documents and subject to the following limitations: (1) Owner acknowledges that such documents are not intended or represented to be suitable for use on the Project unless completed by Engineer, or for use or reuse by Owner or others on extensions of the Project, on any other project, or for any other use or purpose, without written verification or adaptation by Engineer; (2) any such use or reuse, or any modification of the documents, without written verification, completion, or adaptation by Engineer, as appropriate for the specific purpose intended, will be at Owner's sole risk and without liability or legal exposure to Engineer or to its officers, directors, members, partners, agents, employees, and consultants; (3) Owner shall indemnify and hold harmless Engineer and its officers, directors, members, partners, agents, employees, and consultants from all claims, damages, losses, and expenses, including attorneys' fees, arising out of or resulting from any use, reuse, or modification of the documents without written verification, completion, or adaptation by Engineer; and (4) such limited license to Owner shall not create any rights in third parties.
- H. To the fullest extent permitted by law, Owner and Engineer (1) waive against each other, and the other's employees, officers, directors, agents, insurers, partners, and consultants, any and all claims for or entitlement to special, incidental, indirect, or consequential damages arising out of, resulting from, or in any way related to the Project, and (2) agree that Engineer's total liability to Owner under this Agreement shall be limited to \$50,000 or the total amount of compensation received by Engineer, whichever is greater.
- I. The parties acknowledge that Engineer's scope of services does not include any services related to a Hazardous Environmental Condition (the presence of asbestos, PCBs, petroleum, hazardous substances or waste as defined by the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq., or radioactive materials). If Engineer or any other party encounters a Hazardous Environmental Condition, Engineer may, at its option and without liability

for consequential or any other damages, suspend performance of services on the portion of the Project affected thereby until Owner: (1) retains appropriate specialist consultants or contractors to identify and, as appropriate, abate, remediate, or remove the Hazardous Environmental Condition; and (2) warrants that the Site is in full compliance with applicable Laws and Regulations.

- J. Owner and Engineer agree to negotiate each dispute between them in good faith during the 30 days after notice of dispute. If negotiations are unsuccessful in resolving the dispute, then the dispute shall be mediated. If mediation is unsuccessful, then the parties may exercise their rights at law.

6.01 *Total Agreement*

- A. This Agreement (including any expressly incorporated attachments), constitutes the entire agreement between Owner and Engineer and supersedes all prior written or oral understandings. This Agreement may only be amended, supplemented, modified, or canceled by a duly executed written instrument.

7.01 *Basis of Payment—Lump Sum*

- A. Using the procedures set forth in Paragraph 2.01, Owner shall pay Engineer as follows:

- 1. A Lump Sum amount of \$1,998,428

- B. The portion of the compensation amount billed monthly for Engineer's services will be based upon Engineer's estimate of the percentage of the total services actually completed during the billing period.

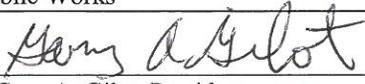
- 7.02 *Additional Services:* For additional services of Engineer's employees engaged directly on the Project, Owner shall pay Engineer an amount equal to the cumulative hours charged to the Project by each class of Engineer's employees times standard hourly rates for each applicable billing class; plus reimbursable expenses and Engineer's consultants' charges, if any. Engineer's standard hourly rates are attached as Appendix 1.

Attachments: Appendix 1, Engineer's Standard Hourly Rates

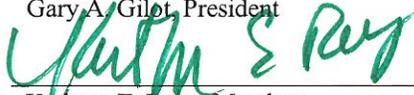
IN WITNESS WHEREOF, the parties hereto have executed this Agreement, the Effective Date of which is indicated on page 1.

Owner:
City of South Bend, Indiana
Board of Public Works

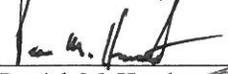
Engineer:
MWH Americas, Inc.

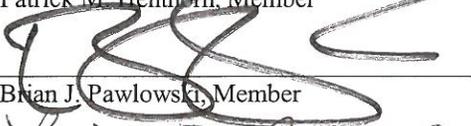
By: 
Title: Gary A. Gilot, President

By: 
Title: Matthew Travers, Vice President

By: 
Title: Kathryn E. Roos, Member

By: 
Title: David P. Relos, Member

By: 
Title: Patrick M. Henthorn, Member

By: 
Title: Brian J. Pawlowski, Member

Attest: 
Title: Linda Martin, Clerk

Date: 2/10/2015

Date: February 6, 2015

Engineer License or Firm's Certificate No. 198202-251
State of: Indiana

Address for giving notices:
227 West Jefferson Boulevard
South Bend, Indiana 46601

Address for giving notices:
285 Summer Street, Suite 200
Boston, MA 02210

Designated Representative (Paragraph 8.03.A):
Kara M. Boyles, Ph.D., P.E.

Designated Representative (Paragraph 8.03.A):
Richard E. Raiche, PE, PMP

Title: Deputy Director of Public Works

Title: Principal Project Manager

Phone Number: (574) 235-7692

Phone Number: (617) 504-0437

Facsimile Number: (574) 235-9171

Facsimile Number: _____

E-Mail Address: kboyles@southbendin.gov

E-Mail Address: richard.raiche@mwhglobal.com



ENGINEERS JOINT CONTRACT
DOCUMENTS COMMITTEE

This is **Appendix 1, Engineer's Standard Hourly Rates**, referred to in and part of the Short Form of Agreement between Owner and Engineer for Professional Services dated February 6, 2015.

Engineer's Standard Hourly Rates

A. *Standard Hourly Rates:*

1. Standard Hourly Rates are set forth in this Appendix 1 and include salaries and wages paid to personnel in each billing class plus the cost of customary and statutory benefits, general and administrative overhead, non-project operating costs, and operating margin or profit.
2. The Standard Hourly Rates apply only as specified in Paragraphs 7.01 and 7.02, and are subject to annual review and adjustment.

B. *Schedule of Hourly Rates:*

Hourly rates for services performed on or after the Effective Date are:

Billing Class VIII	\$ <u>300.00</u> /hour
Billing Class VII	<u>225.00</u> /hour
Billing Class VI	<u>180.00</u> /hour
Billing Class V	<u>130.00</u> /hour
Billing Class IV	<u>120.00</u> /hour
Billing Class III	<u>110.00</u> /hour
Billing Class II	<u>90.00</u> /hour
Billing Class I	<u> </u> /hour
Support Staff	<u>120.00</u> /hour



ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

This is **Appendix 2, Engineer's Standard Hourly Rates**, referred to in and part of the Short Form of Agreement between Owner and Engineer for Professional Services dated February 5, 2015.

Engineer's Standard Hourly Rates

A. *Standard Hourly Rates:*

1. Standard Hourly Rates are set forth in this Appendix 1 and include salaries and wages paid to personnel in each billing class plus the cost of customary and statutory benefits, general and administrative overhead, non-project operating costs, and operating margin or profit.
2. The Standard Hourly Rates apply only as specified in Paragraphs 7.01 and 7.02, and are subject to annual review and adjustment.

B. *Schedule of Hourly Rates:*

Hourly rates for services performed on or after the Effective Date are:

Billing Class VIII	\$ 300.00 /hour
Billing Class VII	225.00 /hour
Billing Class VI	180.00 /hour
Billing Class V	130.00 /hour
Billing Class IV	120.00 /hour
Billing Class III	110.00 /hour
Billing Class II	90.00 /hour
Billing Class I	_____/hour
Support Staff	120.00 /hour

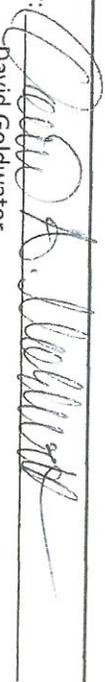
Approved by:

David Goldwater

2/10/2015
Date

City of South Bend, Indiana
 CSO LTCP IPF Reevaluation
 Appendix 2: Professional Services Fee

Subtask	Phase 1a Fee	Phase 1b Fee	Phase 1 Total
Task 1 – Background Data Review	170,540	46,912	217,452
Task 2A – Existing System Evaluation	82,388	-	82,388
Task 2B – Alternatives Development	122,284	-	122,284
Task 2C – Treatment Process Model Development	89,306	69,098	158,404
Task 3A – Non Consent Decree Project Inventory	53,430	-	53,430
Task 3B – Affordability Analysis	97,795	43,540	141,335
Task 3C – Hydraulic Model Enhancements	97,595	213,382	310,977
Task 3D – Green Infrastructure and Separation Conceptual Alternatives	189,168	-	189,168
Task 3E – System Optimization	121,529	152,354	273,883
Task 3F – Water Quality Benefits Analysis	71,673	46,191	117,864
Task 3G – Regulatory Strategy and Negotiations Support	68,290	42,677	110,967
Task 4A – TBL Benefit Criteria Identification	40,041	29,457	69,498
Task 4B – IP Prioritization Approach Establishment	-	31,671	31,671
Task 5 – Community Outreach Development	55,520	-	55,520
Task 6 - Project Controls and Budget Approach	63,588	-	63,588
Task 7 - Project Administration	<i>Included in Tasks 1 - 6</i>		
	Phase 1a:	1,323,147	
	Phase 1b:	675,282	
	Total Phase 1:		1,998,428

Approved by: 
 David Goldwater

Date: 2/10/15

**BOARD OF PUBLIC WORKS
AGENDA ITEM REVIEW REQUEST FORM**

Date 2/2/2015
 Name Jack Dillon Department Public Works
 BPW Date 2/10/2015 Phone Extension 5895

Required Prior to Submittal to Board

Legal Attorney Name _____
 Controller Controller review is required for all Contracts \$5,000.00 or more and greater than one year in length per the City Purchasing Policy
 Purchasing

Check the Appropriate Item Type – Required for All Submissions

Agreement Contract Proposal Addendum
 Professional Services Resolution
 Bid Opening Bid Award Req. to Advertise Title Sheet
 Quote Opening Quote Award
 Change Order No. _____ C/O & PCA No. _____ PCA
 Ease/Encroach. Traffic Control
 Other: _____

Required Information

Company or Vendor Name MWH
 New Vendor Yes No If Yes, Approved by Purchasing
 MBE/WBE Contractor MBE WBE
 MBE/WBE Contractor Requested No Yes Name of Company _____
 Project Name CSO LTCP Reassessment/Value Engineering
 Project Number 114-010
 Funding Source 2012 Sewer Bond
 Account No. 661-0621-415-4205
 Amount \$ 2,000,000
 Terms of Contract _____
 Purpose/Description Evaluate & Negotiate new LTCP
 Required Contractor's Certification Form Attached (Non-Collusion, Non-Discrimination, Non-Debarment, E-Verify, Iran, etc.)

Required For Change Orders Only

Amount of Increase \$ _____
 Decrease \$ _____
 Previous Amount \$ _____
 Current Percent of Change: _____ %
 New Amount \$ _____
 Total Percent of Change: _____ %

Dispersal After Approval

Copy	Original	
<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/>	<input type="checkbox"/>	_____

