

RESOLUTION NO. _____

A RESOLUTION AUTHORIZING THE ADMINISTRATOR FOR THE DEPARTMENT OF PUBLIC WORKS TO ENTER INTO AN AGREEMENT WITH HAZEN AND SAWYER FOR PROFESSIONAL SERVICES RELATIVE TO CONTRACT NO. W-14-006-101, MOCCASIN BEND WASTE WATER TREATMENT PLANT SECONDARY CLARIFIER UPGRADES, FOR AN AMOUNT NOT TO EXCEED ONE MILLION EIGHT HUNDRED FORTY THOUSAND EIGHT HUNDRED DOLLARS (\$1,840,800.00).

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CHATTANOOGA, it is hereby authorizing the Administrator for the Department of Public Works to enter into an agreement with Hazen and Sawyer for professional services relative to Contract No. W-14-006-101, Moccasin Bend Waste Water Treatment Plant Secondary Clarifier Upgrades, for an amount not to exceed \$1,840,800.00.

ADOPTED: _____, 2014

/mem

City of Chattanooga



Resolution/Ordinance Request Form

Date Prepared: November 18, 2014

Preparer: Dennis Malone

Department: Public Works

Brief Description of Purpose for Resolution/Ordinance:

Res./Ord. # _____ Council District #

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A Council Action is requested for the Administrator of the Department of Public Works to enter into an agreement with Hazen and Sawyer, for professional services, relative to Contract No. W-14-006-101, Moccasin Bend Waste Water Treatment Plant Secondary Clarifier Upgrades, in an amount not to exceed \$1,840,800.00.

Name of Vendor/Contractor/Grant, etc.	<u>Hazen and Sawyer</u>	New Contract/Project? (Yes or No)	<u>Yes</u>
Total project cost \$	<u>1,840,800.00</u>	Funds Budgeted? (YES or NO)	<u>Yes</u>
Total City of Chattanooga Portion \$	<u>1,840,800.00</u>	Provide Fund	<u>6012</u>
City Amount Funded \$	<u>1,840,800.00</u>	Provide Cost Center	<u>K37141</u>
New City Funding Required \$	<u>0</u>	Proposed Funding Source if not budgeted	_____
City's Match Percentage %	_____	Grant Period (if applicable)	_____

List all other funding sources and amount for each contributor.

Amount(s)	Grantor(s)
\$ _____	_____
_____	_____
_____	_____

Agency Grant Number _____

CFDA Number if known _____

Other comments: (Include contingency amount, contractor, and other information useful in preparing resolution)

Consent Decree Project _____

Approved by: _____

DESIGNATED OFFICIAL/ADMINISTRATOR

Reviewed by: FINANCE OFFICE

Please submit completed form to @budget, City Attorney and City Finance Officer

Revised: 1/26/09



CITY OF CHATTANOOGA
STANDARD AGREEMENT FOR ENGINEERING SERVICES

THIS AGREEMENT, is between the City of Chattanooga, Tennessee, a municipal corporation in the state of Tennessee, hereinafter called Owner, and

Hazen and Sawyer,

Hereinafter called Engineer.

The Owner wishes to employ the Engineer to perform professional engineering services for

W-14-006-101

MBWWTP Secondary Clarifier Upgrades,

hereinafter called Project.

In consideration of the provisions contained in this Agreement, the Owner and Engineer agree to the following:

1. **EFFECTIVE DATE**

The effective date of this Agreement shall be _____, 20_____.

2. **GOVERNING LAW**

This Agreement shall be governed by the laws of the State of Tennessee and the codes of the City of Chattanooga.

3. **SERVICES TO BE PERFORMED BY ENGINEER**

Engineer shall perform the Services described in Attachment A, Scope of Services, in accordance with applicable sections of the City of Chattanooga Design and Construction Standards in effect on the date of this agreement.

4. **COMPENSATION**

Owner shall pay Engineer in accordance with the Attachment B, Compensation.

5. **OWNER'S RESPONSIBILITIES**

Owner shall be responsible for all matters described in Attachment C, Owner's Responsibilities.

6. **SUPPLEMENTAL AGREEMENTS**

The provisions set forth in Attachment D, Supplemental Agreements, shall be incorporated into this Agreement

7. **PROJECT SCHEDULE**

The provisions set forth in the Attachment E, Project Schedule, shall be incorporated into this Agreement.

8. **RATE SCHEDULE**

The Engineer shall provide a schedule of standard hourly rates for all employees to be used in the performance of all contracts with a cost-not-to-exceed basis. This schedule shall be incorporated into the agreement as Attachment F.

9. **INVOICING**

The Engineer will use the format established in Attachment G, Standard Invoice, for all invoices



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submitted for services on the Project.



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10. STANDARD OF CARE

Engineer shall exercise the same degree of care, skill, and diligence in the performance of Services as is ordinarily possessed and exercised by a professional engineer under similar circumstances in the same area of practice. Engineer makes no warranty or guarantee, either expressed or implied, as part of this agreement.

11. INDEMNIFICATION

Engineer hereby agrees to fully indemnify and hold harmless Owner and any of its departments, divisions, agencies, officers, employees and elected officials from all loss, damage, cost, or expenses specifically including attorneys' fees and other expenses of litigation incurred by or on behalf of the Owner and any of its officers, employees or elected officials arising out of Engineer's actual negligent performance of Services under this Agreement, including errors or omissions.

Owner hereby agrees to fully indemnify and hold harmless Engineer and any of its officers, employees, or designated agents from all loss, damage, cost, or expenses specifically including attorneys' fees and other expenses of litigation incurred by or on behalf of the Engineer and any of its officers, employees or designated agents arising out of Owner's negligence to the extent provided by the Tennessee Governmental Tort Liability Act, T.C.A. 29-20-201 et seq.

12. INSURANCE

Engineer shall purchase and maintain during the life of this Agreement, insurance coverage which will satisfactorily insure him against claims and liabilities which arise because of the execution of this Agreement, with the minimum insurance coverages as follows:

- a. Commercial General Liability Insurance, with a limit of \$1,000,000 for each occurrence and \$2,000,000 in the general aggregate.
- b. Automobile Liability Insurance, with a limit of \$1,000,000 for each accident, combined single limit for bodily injury and property damage.
- c.
- d. Worker's Compensation Insurance and Employer's Liability Insurance, in accordance with statutory requirements, with a limit of \$500,000 for each accident.
- e. Professional Liability Insurance, with a limit of \$1,000,000 for each claim and aggregate.

Prior to issuance of the Notice to Proceed by Owner, Engineer shall have on file with Owner certificates of insurance acceptable to Owner. Said certificates of insurance shall be filed with Owner in January of each year or may be submitted with each agreement. Upon completion of all Services, obligations, and duties provided for in this Agreement, or if this Agreement is terminated for any reason, the terms and conditions of this section shall survive.

Notwithstanding any other provision of the Agreement, Owner waives any claim against Engineer and, to the maximum extent permitted by law, agrees to defend, indemnify, and hold Engineer harmless from any claim, liability, and/or defense costs for injury or loss arising from Engineer's discovery of unanticipated hazardous materials or suspected hazardous materials, including, but not limited to, any costs created by delay of the project and any cost associated with possible reduction of the property value.

13. LIMITATIONS OF RESPONSIBILITY



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Engineer shall not be responsible for: (1) construction means, methods, techniques, sequences, procedures, or safety precautions and programs in connection with the Project, (2) the failure of any contractor, subcontractor, vendor, or other Project participant, not under contract to Engineer, to fulfill contractual responsibilities to the Owner or to comply with federal, state or local laws, regulations, and codes; or (3) procuring permits, certificates, and licenses required for any construction unless such responsibilities are specifically assigned to Engineer in Attachment A, Scope of Services.

14. OPINIONS OF COST AND SCHEDULE

Since Engineer has no control over the cost of labor, materials, or equipment furnished by others, or over the resources provided by others to meet Project construction schedules, Engineer's opinion of probable construction costs and of construction schedules shall be made on the basis of experience and qualifications as a professional engineer. Engineer does not guarantee that costs will not vary from Engineer's cost estimates or that actual construction schedules will not vary from Engineer's projected schedules.

15. REUSE OF DOCUMENTS

All documents, including, but not limited to calculations, drawings, specifications, and computer software prepared by Engineer pursuant to the Agreement are instruments of service in respect to the Project. They are not intended or represented to be suitable for reuse by Owner or others on extensions of the Project or on any other project. Any reuse without prior written verification or adaptation by Engineer for the specific purpose intended will be at Owner's sole risk and without liability or legal exposure to Engineer. Any verification or adaptation requested by Owner shall entitle Engineer to compensation at rates to be agreed upon by Owner and Engineer.

16. OWNERSHIP OF DOCUMENTS AND INTELLECTUAL PROPERTY

Except as otherwise provided herein, engineering documents, calculations, drawings, specifications, and other documents prepared by Engineer as part of the Services shall become and be the sole property of Owner. However, both Owner and Engineer shall have the unrestricted right to their use. Engineer shall retain its rights in its standard drawing details, specifications, databases, computer software, and other proprietary property protected under the copyright laws of the United States. Rights to intellectual property developed, utilized, or modified in the performance of services shall remain the property of Engineer.

17. RECORDS RETENTION AND AUDIT PROVISION

The term "Engineer" is used interchangeably to describe signatories to contracts, grants, and agreements with the City and applies to reflect the relationship with the City (Engineer, Contractor, Licensee, Supplier, Vendor, Consultant, Grant Recipient, etc.).

- a. All records relating in any manner whatsoever to the Project, or any designated portion thereof, which are in the possession of the Engineer or the Engineer's consultants, shall be made available for inspection and copying upon written request to the Owner. Additionally, said records shall be made available, upon request by the Owner, to any state, federal or other regulatory authorities and any such authority may review, inspect and copy such records. Said records include, but are not limited to, all plans, specifications, submittals, correspondence, minutes, memoranda, tape recordings, videos, or other writings or things which document the Project, its design and its construction. Said records expressly include those documents reflecting the time expended by the Engineer and its personnel to perform the obligations of this Agreement and the records of expenses incurred by the Engineer in its performance under said Agreement. The Engineer shall maintain and protect these records for no less than seven



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(7) years after the completion of the Project, or for any longer period of time as may be required by applicable law, good engineering practice, and upon notice during the pendency of any claims or litigation arising from the Project.

- b. The Owner or its assign may audit all financial and related records (including digital) associated with the terms of the contract or agreement including timesheets, reimbursable out of pocket expenses, materials, goods, and equipment claimed by the Engineer. The Owner may further audit any of Engineer's records to conduct performance audits (to identify waste and abuse or to determine efficiency and effectiveness of the contract or agreement) or to identify conflicts of interest.
- c. The Engineer shall at all times during the term of the contract or agreement and for a period of seven years after the end of the contract, keep and maintain records of the work performed pursuant to this Contract or Agreement. This shall include proper records of quotations, contracts, correspondence, invoices, vouchers, timesheets, and other documents that support actions taken by the Engineer. Documents shall be maintained by the Engineer, which are necessary to clearly reflect all work and actions taken. All such records shall be maintained in accordance with generally accepted accounting principles. The Engineer shall at its own expense make such records available for inspection and audit (including copies and extracts of records as required) by the Owner at all reasonable times and without prior notice.
- d. The obligations of this Section shall be explicitly included in any subcontracts or agreements formed between the Engineer and any subcontractors or suppliers of goods or services to the extent that those subcontracts or agreements relate to fulfillment of the Engineer's obligations to the Owner.
- e. Costs of any audits conducted under the authority of this section and not addressed elsewhere will be borne by the Owner unless the audit identifies significant findings that would benefit the Owner. The Engineer shall reimburse the Owner for the total costs of an audit that identifies significant findings that would benefit the Owner.
- f. This Section shall not be construed to limit, revoke, or abridge any other rights, powers, or obligations relating to audit which the Owner may have by Federal, State, or Municipal law, whether those rights, powers, or obligations are express or implied.

18. TERMINATION

This Agreement may be terminated by either party upon written notice in the event of substantial failure by the other party to perform in accordance with the terms of this Agreement. The nonperforming party shall have fifteen calendar days from the date of the termination notice to cure or to submit a plan for cure acceptable to the other party. Owner may terminate or suspend performance of this Agreement for Owner's convenience upon written notice to Engineer. If termination or suspension is for Owner's convenience, Owner shall pay Engineer for all Services performed prior to the date of the termination notice. Upon restart, an adjustment acceptable to Owner and Engineer shall be made to Engineer's compensation.

19. DELAY IN PERFORMANCE

Neither Owner nor Engineer shall be considered in default of the Agreement for delays in performance caused by circumstances beyond the reasonable control of the nonconforming party. For purposes of this Agreement, such circumstances include abnormal weather conditions; floods; earthquakes; fire; epidemics; war, riots, or other civil disturbances; sabotage; judicial restraint;



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discovery of unanticipated hazardous wastes; and inability to procure permits, licenses, or authorizations from any local, state, or federal agency for any of the supplies, materials, accesses, or services required to be provided by either Owner or Engineer under this Agreement. Should such circumstances occur, the nonconforming party shall, within a reasonable time of being prevented from performing, give written notice to the other party describing the circumstances preventing continued performance and the efforts being made to resume performance of the Agreement. If the Engineer is delayed in the performance of the services for more than 365 calendar days, either by the Owner or circumstances beyond his control, an equitable adjustment to the contract amount can be made to compensate for additional costs incurred.

~~For delays in performance by Engineer, as set forth in Attachment E, Project Schedule, caused by circumstances which are within its control, such delays shall be documented on the Engineer's Project Performance Evaluation form. Said form shall be completed at the conclusion of Project and acknowledged by both Owner and Engineer. Completed form shall be retained by Owner for a period of seven years and reviewed prior to consultant selection for City projects. In the event Engineer is delayed in the performance of Services because of delays caused by Owner, Engineer shall have no claim against Owner for damages or contract adjustment other than an extension of time.~~

20. HAZARDOUS MATERIALS

Hazardous materials may exist at a site where there is no reason to believe they could or should be present. The Owner and Engineer agree that the discovery of unanticipated hazardous materials constitutes a changed condition mandating a renegotiation of the scope of work or termination of services. Owner and Engineer also agree that the discovery of unanticipated hazardous materials may make it necessary for the Engineer to take immediate measures to protect health and safety. Owner agrees to compensate Engineer for any equipment decontamination or other costs incident to the discovery of unanticipated hazardous materials.

Engineer agrees to notify Owner when unanticipated hazardous materials or suspected hazardous materials are encountered. Owner agrees to make any disclosures required by law to the appropriate governing agencies, and agrees to hold Engineer harmless for any and all consequences of disclosures made by Engineer which are required by governing law. In the event the project site is not owned by Owner, the Owner agrees to inform the property owner of the discovery of unanticipated hazardous materials or suspected hazardous materials.

21. COMMUNICATIONS

Any communication required by this Agreement shall be made in writing to the address specified below:

Engineer: Hazen and Sawyer; Scott Woodard, P.E.
651 E. 4th Street, Suite 100
Chattanooga, TN 37403
(423) 648-9860
swoodard@hazenandsawyer.com

Owner: City of Chattanooga
Department of Public Works
Engineering Division
Suite 2100, Development Resource Center
1250 Market Street



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Chattanooga, TN 37402
(423) 643- 6033

Nothing contained in the Article shall be construed to restrict the transmission of routine communications between representatives of Engineer and Owner.

22. **WAIVER**

A waiver by either Owner or Engineer of any breach of this Agreement shall be in writing. Such a waiver shall not affect the waiving party's rights with respect to any other or further breach.



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23. DISPUTE RESOLUTION

Claims, disputes or other matters in question between the parties to this Agreement arising out of or relating to this Agreement or breach thereof shall be subject to mediation in Chattanooga, Tennessee, in accordance with the following provisions:

- a. The mediation shall be conducted by a mediator mutually acceptable to both parties.
- b. The parties agree to share equally in the expenses of mediations.
- c. Such mediation may include the Engineer or any other person or entity who may be affected by the subject matter of the dispute.
- d. Unless the parties agree otherwise, mediation shall be a condition precedent to the exercise of any legal remedy other than a proceeding seeking an immediate injunction or restraining order to protect the rights of a party pending litigation. Notwithstanding the issuance of an injunction or restraining order or the refusal of a court to issue such an order, the dispute shall continue to be subject to mediation.

24. SEVERABILITY

The invalidity, illegality, or unenforceability of any provision of this Agreement or the occurrence of any event rendering any portion or provision of this Agreement void shall in no way affect the validity or enforceability of any other portion or provision of this Agreement. Any void provision shall be deemed severed from this Agreement, and the balance of this Agreement shall be construed and enforced as if this Agreement did not contain the particular portion or provision held to be void. The parties further agree to amend this Agreement to replace any stricken provision with a valid provision that comes as close as possible to the intent of the stricken provision. The provisions of this Article shall not prevent this entire Agreement from being void should a provision which is of the essence of this Agreement be determined void.

25. INTEGRATION

This Agreement represents the entire and integrated agreement between Owner and Engineer. All prior and contemporaneous communications, representations, and agreements by Engineer, whether oral or written, relating to the subject matter of this Agreement, as set forth in Attachment D, Supplemental Agreements, are hereby incorporated into and shall become a part of this Agreement.

26. SUCCESSORS AND ASSIGNS

Owner and Engineer each binds itself and its directors, officers, partners, successors, executors, administrators, assigns, and legal representatives to the other party of this Agreement and to the directors, officers, partners, successors, executors, administrators, assigns, and legal representatives of such other party in respect to all provisions of this Agreement.

27. ASSIGNMENT

Neither Owner nor Engineer shall assign any rights or duties under this Agreement without the prior written consent of the other party. Unless otherwise stated in the written consent to an assignment, no assignment will release or discharge the assignor from any obligation under this Agreement. Nothing contained in this Article shall prevent Engineer from employing independent consultants, associates, and subcontractors to assist in the performance of the Services; however, other agreements to the contrary notwithstanding, in the event Engineer employs independent consultants, associates, and subcontractors to assist in performance of the Services, Engineer shall be solely responsible for the negligent performance of the independent consultants, associates, and



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subcontractors so employed.

28. **THIRD PARTY RIGHTS**

Nothing in this Agreement shall be construed to give any rights or benefits to anyone other than Owner and Engineer.

29. **RELATIONSHIP OF PARTIES**

Nothing contained herein shall be construed to hold or to make the Owner a partner, joint venturer, or associate of Engineer, nor shall either party be deemed the agent of the other, it being expressly understood and agreed that the relationship between the parties is and shall at all times remain contractual as provided by the terms and conditions of this Agreement.

30. **NON-DISCLOSURE**

Engineer agrees not to disclose or to permit disclosure of any information designated by the Owner as confidential, except to the engineer's employees and subcontractors who require such information to perform the services specified in this agreement.

31. **NON-DISCRIMINATION**

Engineer agrees to comply with all federal, state, and local non-discrimination laws and regulations. Engineer agrees not to discriminate against any participant in this Agreement on the basis of race, color, religion, sex, age or national origin. Engineer further agrees to comply with all federal, state and local laws regarding treatment and accommodations for individuals with disabilities.

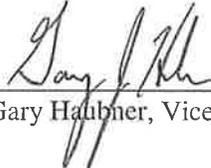
32. **DRUG FREE WORKFORCE**

Engineer certifies that it will provide a drug-free workplace and agrees to comply with the applicable requirements of the Drug-Free Workplace Act of 1988.

33. **FEDERAL OR STATE FUNDING**

In the event that the Project is funded in whole or in part by Federal or State grants, Engineer agrees to abide by all applicable Federal and State laws, regulations, grant conditions and procedures.

IN WITNESS WHEREOF, Owner and Engineer have executed this Agreement.



Gary Hauptner, Vice President 11-20-2014
Date

Administrator of Public Works Date



Bob Copeland 11/20/14
Date

Director of Purchasing Date

Reviewed by City Attorney Office _____
Initial Date



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ATTACHMENT A

Owner: City of Chattanooga, Tennessee

Engineer: Hazen and Sawyer
Project Number & Name: W-14-006-101
MBWWTP Secondary Clarifier Upgrades

SCOPE OF SERVICES

1. BASIC SERVICES

The project is specifically defined as:

The project will provide evaluation and design of improvements to increase the Moccasin Bend Wastewater Treatment Plant (MBWWTP) secondary treatment capacity from 140 MGD to 150 MGD. In 2014, the report titled Moccasin Bend WWTP Hydraulic Profile Model by Hazen and Sawyer indicated hydraulic limitations at the secondary clarifiers. In order to achieve and maintain regulatory compliance, the City desires to overcome the hydraulic limitations at the secondary clarifiers with the addition of two new 110 foot diameter circular secondary clarifiers, new splitter box for flow control to new and existing clarifiers, additional chlorine contact volume, and associated yard piping. This project will also include an evaluation of the liquid stream processes at the plant including the following major tasks:

Evaluation Phase (Liquid Stream Process Optimization):

1. Evaluation of process optimization opportunities within the WWTP, including energy savings and increased wet weather storage and effectiveness.
2. Evaluation to identify potential improvements needed to address facility and equipment condition based on equipment that has exceeded its useful life (Detritors; Scum removal issues at primary clarifiers; etc.);
3. Evaluation of alternative operations and improvements to equalization basins to maximize storage volume and effectiveness;
4. Evaluation of downstream and upstream effects of proposed improvements on existing treatment processes;

Evaluation Phase (Preliminary Engineering Report):

1. Evaluation of additional secondary clarifiers to achieve a maximum treatment capacity of 150 MGD;
2. Evaluation of need for additional chlorine contact volume;
3. Evaluation of solutions to reduce the tendency for loss of solids at existing secondary clarifiers;
4. Evaluation of mixed liquor distribution channel at secondary clarifiers examining possible improvements to flow distribution. This will include one day trip with up two (2) site visits to tour flow splitter boxes;
5. Evaluation of piping upgrades and appurtenances associated with the recommended improvements;

Detailed Design Phase:

1. Design of two (2) additional secondary clarifiers to achieve a maximum treatment capacity of 150 MGD;
2. Design additional weir length for existing secondary clarifiers to prevent loss of solids if determined to be necessary in evaluation phase;



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3. Design of upsizing the influent connection at each oxygenation basin (30" to 36");
4. Design of new splitter boxes;
5. Design of new connection piping for new splitter boxes; new secondary clarifiers; and chlorine contact tank;
6. Design of new chlorine contact tank;

Order of Work:

1. Liquid Stream Biological Process Optimization Report
2. Preliminary Engineering Report
3. Detailed Design

The Engineer agrees to provide the following services:

Task 1 – Data Gathering and Project Management

- 1.1 Kick-off Meeting
- 1.2 Project Management Plan and Schedule
- 1.3 Gather and evaluate relevant data
- 1.4 Project management and coordination

Task 2 – Liquid Stream Biological Process Optimization Report

Engineer will perform an evaluation of the liquid stream processes at the plant. The objective of the evaluation is to provide recommendations for optimization of current unit processes and for upgrades to increased capacity and potentially more stringent permit requirements in the future. The evaluation will include the following:

2.1 Review Existing Facilities and Establish Design Criteria

Engineer will review the existing liquid stream unit processes and associated performance. Engineer will perform a one day site visit to tour the existing facilities and to discuss current operation and associated issues with plant operations staff. A brief summary of the site visit and associated observations will be compiled and provided to the City.

Engineer will review at least three years of data provided by the City and establish current and future influent loading criteria. A large amount of current operating data has been compiled under the solids management study currently in progress for the city. Criteria for current operating conditions, as well as future conditions agreed to by the City will be included. These criteria will be used for evaluation of alternatives identified as part of the study.

Engineer will use the existing data collected and typical unit process loading factors to establish initial process capacity limitations. These limitations will be discussed with the City during a workshop to screen alternatives for further evaluation.

2.2 Biowin Model Development and Calibration

Engineer will develop and calibrate a Biowin model for use in evaluation of optimization strategies



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for the existing liquid stream unit process as well as future alternatives for process modifications. Model will be calibrated to industry standards using existing data, suitable for planning purposes for nitrification and wet weather performance. Model will not be calibrated for optimized BNR (e.g. suitable for design of low level nutrient technologies). Therefore, further sampling and calibration may be warranted should design of these facilities be necessary in the future.

If additional sampling is required for the model calibration, it is assumed that the City will pay for all outside analyses required.

2.3 Energy Model Development and Calibration

Engineer will develop and calibrate a Hazen Energy Efficiency Tool (HEET) model. The model will be used to evaluate energy usage of existing liquid process facilities and to evaluate potential energy optimization strategies related to process modifications. The HEET model will be calibrated based on existing metered energy usage. It is assumed that the City will provide at least 2 years of energy usage data and associated power bills in electronic format where possible. HEET model will be calibrated to annual average conditions and to within 15% of actual energy usage. The HEET model does not model building heating, lighting, and ventilation systems.

2.4 Process Model Training

Engineer will provide two days of on-site training for the process model. The training will be provided at City facilities on two consecutive days and will cover the following topics: model basics, developing models in Biowin, overview of plant model development, and use of model for simulations. Problem examples will be used to provide attendees with overview of model use and specific plant considerations. It is assumed that City will provide computers for their attendees. Handouts and other pertinent information will be provided.

2.5 Alternatives Analysis

Engineer will evaluate process optimization and modification alternatives. Alternatives will be evaluated based on conceptual level capital costs, and estimated annual operation and maintenance costs. A present worth value will be estimated for each process alternative to allow equal basis comparison of alternatives. Prior to the evaluation of alternatives, Engineer will work with City to identify feasible alternatives for evaluation. Engineer will identify viable options based on review of existing data, facilities, and current operating practices. Engineer will work with City to screen alternatives in a workshop format prior to the more detailed evaluation. It is anticipated that a maximum of two to three alternatives will be identified. It is assumed that a maximum of 10 process modification alternatives will be evaluated. A maximum of 10 energy optimization strategies will also be evaluated.

2.6 Alternatives Workshop

Prior to the alternatives workshop Engineer will develop conceptual level estimates of the proposed alternatives and strategies, including life cycle operation and maintenance costs and present worth. Engineer will also summarize non-cost criteria. Engineer will hold a workshop with the City to discuss the alternative analysis and reach consensus on recommended alternatives. A brief summary of the workshop will be provided.

2.7 Draft Optimization Report

Engineer will prepare a draft report that summarizes the evaluation of optimization alternatives and strategies. Engineer provide hard copies and an electronic copy of the draft report (pdf). The draft of the report will be provided prior to the Draft Report Meeting.



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2.8 Draft Report Meeting

Engineer will meet with the City to discuss comments on the draft report. Comments will be incorporated prior to the final report submittal.

2.9 Final Optimization Report

Engineer will submit hard copies and electronic copies of the final report to the City.

TASK 3 – Preliminary Engineering Report

3.1 Establish basis of design

Engineer will establish the basis of design using data provided by the City for previous tasks. It is anticipated that information developed as part of Task 2 will contribute to the basis of design of improvements included in the PER. The basis of design will be developed specifically for the proposed solutions, and is assumed to include:

- Design of two (2) additional secondary clarifiers to achieve a maximum treatment capacity of 150 MGD;
- Design additional weir length for existing secondary clarifiers to prevent loss of solids if determined to be necessary in evaluation phase;
- Design of upsizing the influent connection at each oxygenation basin (30" to 36");
- Design of new splitter boxes;
- Design of new connection piping for new splitter boxes; new secondary clarifiers; and chlorine contact tank;
- Design of new chlorine contact tank

3.2 Coordinate with other on-going projects

Engineer will review current construction activities on other plant projects, as well as schedules for planned major construction activities. As necessary during final design, constraints will be identified and incorporated into detailed design drawings and specifications.

3.3 Develop and Evaluate Alternatives

Engineer will develop and evaluate alternatives for the proposed alternatives. Alternatives will be evaluated primarily on capital cost and significant differences in energy costs. Evaluation of alternatives will include a one-day site visit to tour and observe up to two existing splitter box designs.

3.4 Basis of design and alternatives workshop.

Engineer will meet with the City to discuss the basis of design criteria and potential alternatives. The purpose of the meeting is to establish options that will be taken further for evaluation.

3.5 Develop conceptual layout drawings

Engineer will develop conceptual layout drawings to an approximately 15% level for use during evaluation of modifications.

3.6 Opinion of Probable Construction Costs

Engineer will develop a preliminary level capital cost estimate for alternatives based. Drawings as needed to cost alternatives will also be developed as necessary.

3.7 Draft PER

Engineer will submit a draft copy of the report port. Hard copies and an electrical version will be



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sent to the City for review.

3.8 Draft PER meeting

3.9 Final PER

After addressing City and Program Manager comments, Engineer will submit hard copies and electronic copies of the final report to the City.

3.10 Assist with SRF loan documents

Engineer will assist in submittal of information for evaluation for SRF loans and regulatory review. It is assumed that the City will pay for any permits or submittal fees for the loan documents and other information sent to regulatory agencies.

Task 4 – Detail Design

Detailed design will be based on the PER developed in Task 3. Detailed design is assumed to include:

- Design of two (2) additional secondary clarifiers to achieve a maximum treatment capacity of 150 MGD;
- Design additional weir length for existing secondary clarifiers to prevent loss of solids if determined to be necessary in evaluation phase;
- Design of upsizing the influent connection at each oxygenation basin (30” to 36”);
- Design of new splitter boxes;
- Design of new connection piping for new splitter boxes; new secondary clarifiers; and chlorine contact tank;
- Design of new chlorine contact tank

4.1 Finalize final design layout and equipment selection

4.2 60% Design drawings and specifications

4.2.1 Opinion of probable construction cost

- Cost estimate will be developed to expected accuracy ranges identified by the Association for the Advancement of Cost Engineers International (AACEI) recommended practices and standards, specifically 18R-97; Class 2.

4.2.2 60% Design Submittal

4.2.3 60% Design Workshop

4.2.4 Respond to City/Program Manager Comments

4.3 90% Design drawings and specifications

4.3.1 Opinion of probable construction cost

- Cost estimate will be developed to expected accuracy ranges identified by the Association for the Advancement of Cost Engineers International (AACEI) recommended practices and standards, specifically 18R-97; Class 1.

4.3.2 90% Design Submittal

4.3.3 90% Design Workshop

4.3.4 Respond to City/Program Manager Comments

4.3.5 SRF submittal and respond to comments

4.4 Final Design drawings and specifications

4.4.1 Opinion of probable construction cost

- Cost estimate will be developed to expected accuracy ranges identified by the Association for the Advancement of Cost Engineers International (AACEI) recommended practices and standards, specifically 18R-97; Class 1.



CITY OF CHATTANOOGA

STANDARD AGREEMENT FOR ENGINEERING SERVICES

Task 5 – Bid Phase Services

- 5.1 Advertisement for bid – includes printing of 20 sets of bid documents
- 5.2 Answer questions and issue addenda
- 5.3 Participate in bid opening/prepare certified Bid Tab
- 5.4 Evaluate bids and recommend award
- 5.5 Assist with MBE/WBE documentation for SRFLP
- 5.6 Prepare final conformed contract documents for execution – includes 5 sets

Task 6 – Construction Phase Services (based on 18 month construction duration)

- 6.1 Construction administration and coordination
- 6.2 Pre-construction and monthly progress meetings
- 6.3 Shop drawing review
- 6.4 Site visits during construction (based on 1.5 site visits per month for 18 months)
- 6.5 RFI response and Change Orders
- 6.6 Process monthly and final pay requests
- 6.7 Substantial completion inspection/Closeout docs
- 6.8 Record Drawings

2. SUPPLEMENTAL SERVICES

Any work requested by the Owner that is not included in the Basic Services will be classified as Supplemental Services. Supplemental Services shall include, but are not limited to the following:

Task 7 – Permitting

- 7.1 Stormwater
- 7.2 NPDES
- 7.3 Codes

Task 8 – Surveying and Mapping

- 8.1 Site topographic mapping
- 8.2 Geotechnical exploration

Task 9 – Resident project representative (RPR; based on one full-time RPR for 18 month construction duration; no sustenance or travel expenses shall be billed to client)

- 9.1 RPR services prior to NTP
- 9.2 RPR services during construction
- 9.3 RPR during substantial completion, post-contract and follow-up inspections

3. REIMBURSABLE EXPENSES:

Project specific reimbursable expenses and charges shall include the following:

Misc. travel and direct (out of town travel only) at cost and sub-consultants at cost plus 10%.



CITY OF CHATTANOOGA
STANDARD AGREEMENT FOR ENGINEERING SERVICES

ATTACHMENT B

Owner: City of Chattanooga, Tennessee

Engineer: Hazen and Sawyer
Project Number & Name: W-14-006-101
MBWWTP Secondary Clarifier Upgrades

COMPENSATION

For the services covered by this Agreement, the Owner agrees to pay the Engineer as follows:

- 1. For the Basic Services described in Attachment A, Not-to-Exceed fee of \$1,454,000. Payments shall be made monthly in amounts which are consistent with the amount of engineering services provided, as determined by the Engineer.

Task 1 – Project Management and Data Gathering	\$80,100
Task 2 – Liquid Stream Biological Process Optimization Report	\$90,700
Task 3 – Preliminary Engineering Report	\$132,200
Task 4 – Detail Design	\$723,000
Task 5 – Bid Phase Services	\$43,000
Task 6 – Construction Phase Services (18 month construction)	\$385,000
	Subtotal <u>\$1,454,000</u>

- 2. Compensation for Supplemental Services shall be made as defined below, when authorized in writing by the Owner. The maximum limit for each item of additional service shall be established individually and specifically agreed to by the Owner as stated below, unless the service is included in a subsequent agreement.

Task 7 – Permitting and Codes	\$20,200
Task 8 – Survey and Mapping	
Survey	\$19,500
Geotechnical	\$16,500
Task 9 – Resident project representative (18 month construction)	\$330,600
	Subtotal <u>\$386,800</u>

Grand Total \$1,840,800

- 3. Hourly rates for each classification as defined by the Engineer's rate schedule, see Attachment F. Overtime, when authorized by the Owner, will be billed at 1.5 times the rates listed (non-engineer time only).
- 4. Reimbursable charges will be considered the amount of actual costs of project related expenses or charges times a markup of 0% for direct expenses and 10% for sub-consultants. Charges for use of computer equipment or software, local travel, local telephone, project photographs, miscellaneous supplies, and reproduction are not considered reimbursable charges. Allowable project-specific reimbursable expenses shall be outlined in Attachment A.



CITY OF CHATTANOOGA

STANDARD AGREEMENT FOR ENGINEERING SERVICES

5. The entire amount of each statement shall be due and payable 30 days after receipt by the Owner.
6. The Engineer shall keep records on the basis of generally accepted accounting practice of costs and expenses which records shall be available for inspection at all reasonable times.
7. Invoices shall be submitted using the Standard Invoice form, Attachment G.



CITY OF CHATTANOOGA
STANDARD AGREEMENT FOR ENGINEERING SERVICES

ATTACHMENT C

Owner: City of Chattanooga, Tennessee

Engineer: Hazen and Sawyer
Project Number & Name: W-14-006-101
MBWWTP Secondary Clarifier Upgrades

OWNER'S RESPONSIBILITIES

The Owner will furnish, as required by the work and not at the expense of the Engineer, the following:

1. The Owner will provide the Engineer copies of all current and necessary permits and approvals from all federal, state and local regulatory agencies. These include air quality, water quality, storm water quality, solid waste, special wastes, and other regulatory permits that may be required.
2. The Owner will provide Engineer access to all of available NPDES reports as required.
3. The Owner will coordinate and facilitate meetings or the exchange of information between any other interested parties that may also prospectively participate in the project as required.
4. The Owner will coordinate for the Engineer the acquisition of future population and employment figures from regional planning institutions as required for the project as required.
5. The Owner will provide the Engineer copies of all available sewer reports related to sewer facility planning as required.
6. The Owner will provide access to the system wide hydraulic model outputs as required.
7. The Owner will provide the Engineer the most up-to-date GIS data available for all sewer system components as required.
8. The Owner will provide the Engineer access to all its pump station and CSOTF sites as required.
9. The Owner will provide Engineer access to all available plans and specifications for the facilities as required.
10. The Owner will provide the Engineer with documentation of existing O&M procedures related to the operation of the treatment works that may be relative to the project as required.
11. The Owner will provide the Engineer with documentation of existing standards and procedures related to the sewer system development and expansion as required.
12. The Owner will provide the Engineer with documentation of existing standards and procedures related to the treatment works as required.
13. The Owner will arrange for facilities for the Engineer and attend public information meetings as



CITY OF CHATTANOOGA

STANDARD AGREEMENT FOR ENGINEERING SERVICES

required. The Owner will prepare and mail invitations for public information meetings as required. The Owner and the Engineer will conduct monthly project progress meetings as required.

14. The Owner will designate a project representative to be the liaison between the Engineer and the Owner on the project.
15. Owner will make a reasonable effort to evaluate if hazardous materials are on or near the project site, and will inform Engineer of findings relative to the possible presence of such materials.



CITY OF CHATTANOOGA

STANDARD AGREEMENT FOR ENGINEERING SERVICES

ATTACHMENT D

Owner: Owner of Chattanooga, Tennessee

Engineer: Hazen and Sawyer
Project Number & Name: W-14-006-101
MBWWTP Secondary Clarifier Upgrades

SUPPLEMENTAL AGREEMENTS

A. Engineers Responsibilities:

1. During Contract negotiation, the Engineer shall describe in detail its overall approach that will be used by its Engineer's Project Team to perform the scope of work described herein for the development of the project for the Owner.
2. The Engineer shall provide all labor, benefits, equipment, materials, fuel, utilities, insurance, out-of-pocket expenses, and other related services required in connection with development of the project.
3. The Engineer shall obtain all necessary permits and approvals from all federal, state, and local regulatory agencies related to development of the project as required. Furnish copies of all required permits and approvals to the Owner.
4. The Engineer shall provide and submit reports and certifications as required by all applicable EPA and/or State regulations of development of the project as required. Furnish a copy of all required reports to the Owner in a timely manner.
5. The Engineer shall coordinate its work with the operating schedule of the Owner as required.
6. The Engineer shall conduct the work for the development of the project in compliance with all applicable federal, state, and local laws, regulations, permits, and approvals.
7. The Engineer shall provide adequate supervision and technical and managerial oversight of the Engineer's employees, subcontractors, and agents
8. The Engineer shall support and utilize the Owner's Standard Operating Procedures developed for the Consent Decree (CD) Program. Specifically, the design of each project shall comply with CADD standards, standardized specifications, or approved design guidelines, cost estimating guidelines, and materials and functional layout and operation of equipment and systems as required.
9. The Engineer shall administer the project to comply with the scheduling goals established by the Program Manager (PM) to ensure that the CD milestones are being met. The Engineer shall timely report project information as prescribed by the PM.
10. The Engineer shall prepare an initial and minimum monthly update to its project schedule; updates can be more frequent or as significant activities change.



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11. The Engineer shall prepare, implement and execute a project quality management plan which complies with quality program guidelines and requirements and goals to be established by the PM, and the Engineer's own internal quality procedures/program requirements. The Engineer shall be fully responsible for the quality of their work products and associated quality assurance and quality control activities.
12. The Engineer shall prepare, implement and execute a written project safety management plan which following the Engineer's own internal safety procedures/program requirements and which will also reflect the goals of the safety program to be established by the PM for the CD program project.
13. The Engineer shall provide all documents in a timely manner and format prescribed by the PM to support a document management/imaging repository. All documents shall be maintained in this manner for general and financial record keeping, contract compliance, claims and litigation, warranty issues, and related purposes.
14. The Engineer may assist the PM in reviewing the preliminary project budget and provide recommendations relative to project updates for design, construction contract administration and inspection, contracting costs, and industry appropriate level of contingency as required. The Engineer shall assist the PM in coordinating the program budget with the plan schedule in order to ensure compliance with the CD needs and constraints regarding the overall budget as required. Engineer shall maintain and input pertinent information to account for all costs of the project in a form and manner prescribed by the PM as required.
15. The Engineer shall assist the PM with the preparation of project progress reports as required. Reports shall include, but not be limited to, all reports required to satisfy requirements of the CD.
16. The Engineer may be asked to provide technical support to the CD Public Relations Plan.
17. The Engineer shall utilize the Owner's standardized Division 00 and 01 specifications as in developing project specific specifications- In addition the PM will provide to the Engineer certain technical specifications, details and minimum design guidelines intended to provide consistency across the design deliverables from various Engineers on similar types of work as required.
18. The Engineer shall submit all Requests for Information (RFIs) and change order for their professional services agreement to the PM first for approval.
19. The Engineer shall submit all pay requests/invoices to PM first for approval.
20. Engineer shall identify any and all permits during the first month of project activity from Notice to Proceed (NTP). Likely easements and permanent real estate acquisitions shall be identified with special purpose survey exhibits depicting areas needed based on a schedule to be developed by the Engineer within the first month of project activity from NTP.
21. The PM may conduct monthly progress meetings, value engineering (VE) reviews and constructability review as required and include Owner and PM staff as needed.



CITY OF CHATTANOOGA

STANDARD AGREEMENT FOR ENGINEERING SERVICES

B. Owner and Engineer agree that the following communications, representations, and agreements by Engineer relating to the subject matter of the Agreement are hereby incorporated into and shall become a part of the Agreement.

[All necessary items as Supplemental]



CITY OF CHATTANOOGA
STANDARD AGREEMENT FOR ENGINEERING SERVICES

ATTACHMENT E

Owner: Owner of Chattanooga, Tennessee

Engineer: Hazen and Sawyer
Project Number & Name: W-14-006-101
MBWWTP Secondary Clarifier Upgrades

PROJECT SCHEDULE

Owner and Engineer recognize that time is of the essence of the Agreement and that Owner may suffer financial loss if the work is not completed within the times stipulated herein, plus any extensions thereof. Accordingly, Engineer will develop for this Agreement a preliminary schedule based on the schedule requirements specified in the Specific Scope of Work for this project and either provide it below or as Attachment E1.

A detailed schedule (project schedule) will be required as one of the Project Management deliverables as specified in the Specific Scope of Work for this project once the Agreement is executed. The Engineer will produce the project schedule using industry accepted scheduling software approved by the Owner.

It is understood and agreed that the Engineer shall start the performance of Services within 10 days of receipt of a written Notice to Proceed and shall complete the work in accordance with the contract times set forth herein.

Task	Completion
Task 2 – Liquid Process Optimization Study	150 days following NTP
Task 3 – Preliminary Engineering Report	210 days following NTP
Task 4 – Design Phase Services	390 days following NTP
Task 5 – Bid Phase Services	90 days following receipt of SRFLP site cert.
Tasks 6, 9 Construction Phase Services	540 days from NTP of Construction
Tasks 7, 8 Permitting and Survey/Mapping	As needed



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STANDARD AGREEMENT FOR ENGINEERING SERVICES

ATTACHMENT F

Owner: Owner of Chattanooga, Tennessee

Engineer: Hazen and Sawyer
Project Number & Name: W-14-006-101
MBWWTP Secondary Clarifier Upgrades

RATE SCHEDULE

Vice President/QA/QC	\$200
Senior Associate	\$195
Associate	\$168
Sr. Principle Engineer	\$150
Principle Engineer	\$135
Engineer	\$115
Asst. Engineer	\$110
Sr. Modeler	\$140
Sr. Principle Designer	\$135
Principle Designer	\$127
Designer	\$105
Construction Manager	\$135
Field Coordinator	\$120
Field Inspector	\$100
Administration	\$80
Intern/Co-op	\$55



CITY OF CHATTANOOGA
 STANDARD AGREEMENT FOR ENGINEERING SERVICES

ATTACHMENT G

STANDARD INVOICE

Indicates MANDATORY item

CONSULTANT LETTERHEAD

 INVOICE

ATTN: City Project Manager
 REF: **Provided by City**
 CODE: Consultant Project Number
 PO: **Must be Sequential Number**
 TERMS: Net 25 days
 DUE: 08/01/03

Invoice Must show Billing Period.

This Breakdown must list each item of the Contract.

Consultant Project No.	Description	Fee	Work	Percent	Amount	Previous	This
		Fee Basis		to Date	Billed	Billed	Invoice Billed
C03009-01	01 - Design	\$51,500.00	LS	55%	\$28,325.00	\$18,540.00	\$9,785.00
	02 - Survey	\$15,700.00	LS	0%	\$0.00	\$0.00	\$0.00
C03009-02	Barton Avenue and Brown Acres Golf Course Design	\$20,000.00	CP	12%	\$2,391.02	\$2,033.00	\$358.02
C03009-03	Permitting/Easement Assistance	\$5,000.00	CP	6%	\$291.08	\$0.00	\$291.08
C03009-04	Bidding/Construction Assistance	\$10,000.00	CP	0%	\$0.00	\$0.00	\$0.00
C03009-05	Misc. As-Requested Services	\$5,000.00	CP	7%	\$363.85	\$0.00	\$363.85
	Total Contract Amount	\$107,200.00			\$31,370.95	\$20,573.00	
	TOTAL THIS INVOICE						\$10,797.95

Must Match Contract Amount

Prior Invoices	\$20,573.00
This invoice	\$10,797.95
Payments	-\$20,573.00
Balance on Account	\$10,797.95

- NOTE:
- There shall be only one invoice per contract per billing period.
 - Any necessary details should be attached as backup.

227 French Landing Drive, Suite 420
Nashville, TN 37228

615-783-1515 Fax: 615-724-0855

TO:	Mr. Mike Marino, P.E. Jacobs Engineering 4510 Turntable Road Suite 110 Chattanooga, TN 37421
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DATE: 11/20 /2014	JOB NO.
ATTENTION Mr. Mike Marino, P.E.	
RE: Chattanooga Secondary Clarifier Agreement	

WE ARE SENDING YOU Under Separate Cover Via _____ the following items:

<input type="checkbox"/> Shop drawings	<input type="checkbox"/> Prints	<input type="checkbox"/> Plans	<input type="checkbox"/> Samples
<input type="checkbox"/> Specifications	<input type="checkbox"/> Copy of letter	<input type="checkbox"/> Change Order	<input checked="" type="checkbox"/> Final Agreement

COPIES	DATE	DESCRIPTION
6	11/20/2014	City of Chattanooga Secondary Clarifier Agreement

THESE ARE TRANSMITTED as checked below:

- | | | |
|--|---|---|
| <input type="checkbox"/> For approval | <input type="checkbox"/> Furnish as Submitted | <input type="checkbox"/> Resubmit _____ copies for approval |
| <input checked="" type="checkbox"/> For your use | <input type="checkbox"/> Furnish as Corrected | <input type="checkbox"/> Submit _____ copies for distribution |
| <input type="checkbox"/> As requested | <input type="checkbox"/> Revise and Resubmit | <input type="checkbox"/> Return _____ corrected prints |
| <input type="checkbox"/> For review and comment | <input type="checkbox"/> _____ | <input type="checkbox"/> PRINTS RETURNED AFTER LOAN TO US |
| <input type="checkbox"/> FOR BIDS DUE _____ | | |

REMARKS:

COPY TO:

File

FROM: Scott Woodard

SIGNED:

DISTRIBUTION: