

**PROFESSIONAL SERVICES AGREEMENT BETWEEN
STANTEC CONSULTING MICHIGAN, INC.
AND THE CITY OF ANN ARBOR
FOR PROFESSIONAL SERVICES**

The City of Ann Arbor, a Michigan municipal corporation, having its offices at 301 E. Huron St. Ann Arbor, Michigan 48104 ("City"), and Stantec Consulting Michigan, Inc.
("Contractor") a(n) Michigan Corporation
(State where organized) (Partnership, Sole Proprietorship, or Corporation)
with its address at 3754 Rancho Drive, Ann Arbor, MI 48108 agree
as follows on this 29th day of January, 2017.

The Contractor agrees to provide services to the City under the following terms and conditions:

I. DEFINITIONS

Administering Service Area/Unit means Water Treatment Services Unit.

Contract Administrator means Water Treatment Services Manager, acting personally or through any assistants authorized by the Administrator/Manager of the Administering Service Area/Unit.

Deliverables means all Plans, Specifications, Reports, Recommendations, and other materials developed for and delivered to City by Contractor under this Agreement

Project means WTP Supervisory Control and Data Acquisition (SCADA) System Upgrade Project.
Project name

II. DURATION

This Agreement shall become effective on January 29, 2018, and shall remain in effect until satisfactory completion of the Services specified below unless terminated as provided for in Article XI.

III. SERVICES

- A. The Contractor agrees to provide Professional Engineering Services
type of service
("Services") in connection with the Project as described in Exhibit A. The City retains the right to make changes to the quantities of service within the general scope of the Agreement at any time by a written order. If the changes add to or deduct from the extent of the services, the contract sum shall be adjusted accordingly. All such changes shall be executed under the conditions of the original Agreement.

- B. Quality of Services under this Agreement shall be of the level of quality performed by persons regularly rendering this type of service. Determination of acceptable quality shall be made solely by the Contract Administrator.
- C. The Contractor shall perform its Services for the Project in compliance with all statutory, regulatory and contractual requirements now or hereafter in effect as may be applicable to the rights and obligations set forth in the Agreement.
- D. The Contractor may rely upon the accuracy of reports and surveys provided to it by the City (if any) except when defects should have been apparent to a reasonably competent professional or when it has actual notice of any defects in the reports and surveys.

IV. INDEPENDENT CONTRACTOR

The Parties agree that at all times and for all purposes under the terms of this Agreement each Party's relationship to any other Party shall be that of an independent contractor. Each Party will be solely responsible for the acts of its own employees, agents, and servants. No liability, right, or benefit arising out of any employer/employee relationship, either express or implied, shall arise or accrue to any Party as a result of this Agreement.

V. COMPENSATION OF CONTRACTOR

- A. The Contractor shall be paid in the manner set forth in Exhibit B. Payment shall be made monthly, unless another payment term is specified in Exhibit B, following receipt of invoices submitted by the Contractor, and approved by the Contract Administrator.
- B. The Contractor will be compensated for Services performed in addition to the Services described in Section III, only when the scope of and compensation for those additional Services have received prior written approval of the Contract Administrator.
- C. The Contractor shall keep complete records of work performed (e.g. tasks performed/hours allocated) so that the City may verify invoices submitted by the Contractor. Such records shall be made available to the City upon request and submitted in summary form with each invoice.

VI. INSURANCE/INDEMNIFICATION

- A. The Contractor shall procure and maintain during the life of this contract such insurance policies, including those set forth in Exhibit C, as will protect itself and the City from all claims for bodily injuries, death or property damage which may arise under this contract; whether the act(s) or omission(s) giving rise to the claim were made by the Contractor, any subcontractor or anyone employed by them directly or indirectly. In the case of all contracts involving on-site work, the

Contractor shall provide to the City, before the commencement of any work under this contract, documentation satisfactory to the City demonstrating it has obtained the policies and endorsements required by Exhibit C.

- B. Any insurance provider of Contractor shall be admitted and authorized to do business in the State of Michigan and shall carry and maintain a minimum rating assigned by A.M. Best & Company's Key Rating Guide of "A-" Overall and a minimum Financial Size Category of "V". Insurance policies and certificates issued by non-admitted insurance companies are not acceptable unless approved in writing by the City.
- C. To the fullest extent permitted by law, Contractor shall indemnify, defend and hold the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses, including attorney's fees, resulting or alleged to result, from any acts or omissions by Contractor or its employees and agents occurring in the performance of or breach in this Agreement, except to the extent that any suit, claim, judgment or expense are finally judicially determined to have resulted from the City's negligence or willful misconduct or its failure to comply with any of its material obligations set forth in this Agreement.

VII. COMPLIANCE REQUIREMENTS

- A. Nondiscrimination. The Contractor agrees to comply, and to require its subcontractor(s) to comply, with the nondiscrimination provisions of MCL 37.2209. The Contractor further agrees to comply with the provisions of Section 9:158 of Chapter 112 of the Ann Arbor City Code and to assure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity.
- B. Living Wage. If the Contractor is a "covered employer" as defined in Chapter 23 of the Ann Arbor City Code, the Contractor agrees to comply with the living wage provisions of Chapter 23 of the Ann Arbor City Code. The Contractor agrees to pay those employees providing Services to the City under this Agreement a "living wage," as defined in Section 1:815 of the Ann Arbor City Code, as adjusted in accordance with Section 1:815(3); to post a notice approved by the City of the applicability of Chapter 23 in every location in which regular or contract employees providing services under this Agreement are working; to maintain records of compliance; if requested by the City, to provide documentation to verify compliance; to take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee or person contracted for employment in order to pay the living wage required by Section 1:815; and otherwise to comply with the requirements of Chapter 23.

VIII. WARRANTIES BY THE CONTRACTOR

- A. The Contractor warrants that the quality of its Services under this Agreement shall conform to the level of quality performed by persons regularly rendering this type of service.

- B. The Contractor warrants that it has all the skills, experience, and professional licenses necessary to perform the Services specified in this Agreement.
- C. The Contractor warrants that it has available, or will engage, at its own expense, sufficient trained employees to provide the Services specified in this Agreement.
- D. The Contractor warrants that it is not, and shall not become overdue or in default to the City for any contract, debt, or any other obligation to the City including real and personal property taxes.
- E. The Contractor warrants that its proposal for services was made in good faith, it arrived at the costs of its proposal independently, without consultation, communication or agreement, for the purpose of restricting completion as to any matter relating to such fees with any competitor for these Services; and no attempt has been made or shall be made by the Contractor to induce any other person or firm to submit or not to submit a proposal for the purpose of restricting competition.

IX. OBLIGATIONS OF THE CITY

- A. The City agrees to give the Contractor access to the Project area and other City-owned properties as required to perform the necessary Services under this Agreement.
- B. The City shall notify the Contractor of any defects in the Services of which the Contract Administrator has actual notice.

X. ASSIGNMENT

- A. The Contractor shall not subcontract or assign any portion of any right or obligation under this Agreement without prior written consent from the City. Notwithstanding any consent by the City to any assignment, Contractor shall at all times remain bound to all warranties, certifications, indemnifications, promises and performances, however described, as are required of it under the Agreement unless specifically released from the requirement, in writing, by the City.
- B. The Contractor shall retain the right to pledge payment(s) due and payable under this Agreement to third parties.

XI. TERMINATION OF AGREEMENT

- A. If either party is in breach of this Agreement for a period of fifteen (15) days following receipt of notice from the non-breaching party with respect to a breach, the non-breaching party may pursue any remedies available to it against the breaching party under applicable law, including but not limited to, the right to terminate this Agreement without further notice. The waiver of any breach by any party to this Agreement shall not waive any subsequent breach by any party.

- B. The City may terminate this Agreement, on at least thirty (30) days advance notice, for any reason, including convenience, without incurring any penalty, expense or liability to Contractor, except the obligation to pay for Services actually performed under the Agreement before the termination date.
- C. Contractor acknowledges that, if this Agreement extends for several fiscal years, continuation of this Agreement is subject to appropriation of funds for this Project. If funds to enable the City to effect continued payment under this Agreement are not appropriated or otherwise made available, the City shall have the right to terminate this Agreement without penalty at the end of the last period for which funds have been appropriated or otherwise made available by giving written notice of termination to Contractor. The Contract Administrator shall give Contractor written notice of such non-appropriation within thirty (30) days after it receives notice of such non-appropriation.
- D. The provisions of Articles VI and VIII shall survive the expiration or earlier termination of this Agreement for any reason. The expiration or termination of this Agreement, for any reason, shall not release either party from any obligation or liability to the other party, including any payment obligation that has already accrued and Contractor's obligation to deliver all Deliverables due as of the date of termination of the Agreement.

XII. REMEDIES

- A. This Agreement does not, and is not intended to, impair, divest, delegate or contravene any constitutional, statutory and/or other legal right, privilege, power, obligation, duty or immunity of the Parties.
- B. All rights and remedies provided in this Agreement are cumulative and not exclusive, and the exercise by either party of any right or remedy does not preclude the exercise of any other rights or remedies that may now or subsequently be available at law, in equity, by statute, in any agreement between the parties or otherwise.
- C. Absent a written waiver, no act, failure, or delay by a Party to pursue or enforce any rights or remedies under this Agreement shall constitute a waiver of those rights with regard to any existing or subsequent breach of this Agreement. No waiver of any term, condition, or provision of this Agreement, whether by conduct or otherwise, in one or more instances, shall be deemed or construed as a continuing waiver of any term, condition, or provision of this Agreement. No waiver by either Party shall subsequently effect its right to require strict performance of this Agreement.

XIII. NOTICE

All notices and submissions required under this Agreement shall be delivered to the respective party in the manner described herein to the address stated in this Agreement or such other address as either party may designate by prior written notice to the other. Notices given under this Agreement shall be in writing and shall be personally delivered, sent by next day express

delivery service, certified mail, or first class U.S. mail postage prepaid, and addressed to the person listed below. Notice will be deemed given on the date when one of the following first occur: (1) the date of actual receipt; (2) the next business day when notice is sent next day express delivery service or personal delivery; or (3) three days after mailing first class or certified U.S. mail.

If Notice is sent to the CONTRACTOR, it shall be addressed and sent to:

Stantec Consulting Michigan, Inc.
Attn: Brian Simons, PE
3754 Ranchero Drive
Ann Arbor, Michigan 48108

If Notice is sent to the CITY, it shall be addressed and sent to:

City of Ann Arbor
Attn: Brian Steglitz, PE
Water Treatment Services Manager
301 E. Huron St.
Ann Arbor, Michigan 48104

XIV. CHOICE OF LAW AND FORUM

This Agreement will be governed and controlled in all respects by the laws of the State of Michigan, including interpretation, enforceability, validity and construction, excepting the principles of conflicts of law. The parties submit to the jurisdiction and venue of the Circuit Court for Washtenaw County, State of Michigan, or, if original jurisdiction can be established, the United States District Court for the Eastern District of Michigan, Southern Division, with respect to any action arising, directly or indirectly, out of this Agreement or the performance or breach of this Agreement. The parties stipulate that the venues referenced in this Agreement are convenient and waive any claim of non-convenience.

XV. OWNERSHIP OF DOCUMENTS

Upon completion or termination of this Agreement, all documents (i.e., Deliverables) prepared by or obtained by the Contractor as provided under the terms of this Agreement shall be delivered to and become the property of the City. Original basic survey notes, sketches, charts, drawings, partially completed drawings, computations, quantities and other data shall remain in the possession of the Contractor as instruments of service unless specifically incorporated in a deliverable, but shall be made available, upon request, to the City without restriction or limitation on their use. The City acknowledges that the documents are prepared only for the Project. Prior to completion of the contracted Services the City shall have a recognized proprietary interest in the work product of the Contractor.

Unless otherwise stated in this Agreement, any intellectual property owned by Contractor prior to the effective date of this Agreement (i.e., Preexisting Information) shall remain the exclusive property of Contractor even if such Preexisting Information is embedded or otherwise incorporated in materials or products first produced as a result of this Agreement or used to develop Deliverables. The City's right under this provision shall not apply to any Preexisting Information or any component thereof regardless of form or media.

XVI. CONFLICTS OF INTEREST OR REPRESENTATION

Contractor certifies it has no financial interest in the Services to be provided under this Agreement other than the compensation specified herein. Contractor further certifies that it presently has no personal or financial interest, and shall not acquire any such interest, direct or indirect, which would conflict in any manner with its performance of the Services under this Agreement.

Contractor agrees to advise the City if Contractor has been or is retained to handle any matter in which its representation is adverse to the City. The City's prospective consent to the Contractor's representation of a client in matters adverse to the City, as identified above, will not apply in any instance where, as the result of Contractor's representation, the Contractor has obtained sensitive, proprietary or otherwise confidential information of a non-public nature that, if known to another client of the Contractor, could be used in any such other matter by the other client to the material disadvantage of the City. Each matter will be reviewed on a case by case basis.

XVII. SEVERABILITY OF PROVISIONS

Whenever possible, each provision of this Agreement will be interpreted in a manner as to be effective and valid under applicable law. However, if any provision of this Agreement or the application of any provision to any party or circumstance will be prohibited by or invalid under applicable law, that provision will be ineffective to the extent of the prohibition or invalidity without invalidating the remainder of the provisions of this Agreement or the application of the provision to other parties and circumstances.

XVIII. EXTENT OF AGREEMENT

This Agreement, together with any affixed exhibits, schedules or other documentation, constitutes the entire understanding between the City and the Contractor with respect to the subject matter of the Agreement and it supersedes, unless otherwise incorporated by reference herein, all prior representations, negotiations, agreements or understandings whether written or oral. Neither party has relied on any prior representations, of any kind or nature, in entering into this Agreement. No terms or conditions of either party's invoice, purchase order or other administrative document shall modify the terms and conditions of this Agreement, regardless of the other party's failure to object to such form. This Agreement shall be binding on and shall inure to the benefit of the parties to this Agreement and their permitted successors and permitted assigns and nothing in this Agreement, express or implied, is intended to or shall confer on any other person or entity any legal or equitable right, benefit, or remedy of any nature whatsoever under or by reason of this Agreement. This Agreement may only be altered, amended or modified by written amendment signed by the Contractor and the City. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall be deemed to be one and the same agreement.

FOR CONTRACTOR

By _____
Type Name
Its

FOR THE CITY OF ANN ARBOR

By _____
Christopher Taylor, Mayor

By _____
Jacqueline Beaudry, City Clerk

Approved as to substance

Howard S. Lazarus, City Administrator

Craig Hupy, Service Area Administrator

Approved as to form and content

Stephen K. Postema, City Attorney

EXHIBIT A SCOPE OF SERVICES

Section C - Proposed Work Plan

Introduction

Regardless of the project size or complexity, we consider the City an integral part of the project success. We understand that we are to represent the City throughout the course of the project and as such, communication to us is paramount. Below is our take on the project approach that considers the objectives and scope of services requirements as listed in section II of the RFP. We look forward to the development of the contract documents, technology innovation/improvement, and construction of an exciting project.

We offer the project approach understanding as a starting point of the conversation and look forward to furthering development with input from City staff.

Key Project Issues

This project includes many issues to address, coordinate, and execute. However, we consider the following issues as key to a successful project that meets the City's expectations and goals. Working on these issues with the City will be a key and critical factor for a successful project completion.

Development of PDB Contract Documents in Consultation with City Staff

The City is embarking on a new experience using the PDB as an alternative project delivery method. We will work closely with the WTP staff on the technical issues. However, of equal importance is working with the other City staff such as the City Attorney's office and the Purchasing Department. The development of the PDB contract documents must be done in full consultation with the City staff to ensure that the applicable legal, procurement, and contractual requirements are met. As an unchartered delivery method for the City, proper attention to details must be provided to ensure a successful procurement phase.

Since the City has not previously developed contract documents for PDB project delivery, we recommend that contract documents be based on industry-standard contract forms. This will facilitate the procurement of PDB teams who are familiar with these standard forms. Stantec will assist the City with evaluation of standard contract agreements for further modification for City-specific requirements in conjunction with the City Attorney's office. **Since the Progressive Design Build contracting format was initially developed by the DBIA, this is the most commonly used variant within the North American water industry and is the recommended basis for a suitable format for Ann Arbor. Some specific terms and conditions may need adjusting to suit local conditions and for this, where required, we recommend a review of the following industry-standard contract forms (in order of priority):**

1. The Design-Build Institute of America (DBIA)
2. The Water Design-Build Council
3. The Engineers Joint Contract Documents Committee (EJCDC) design and construction related documents
4. ConsensusDocs – A coalition of 40 leading design and construction industry associations

5. FIDIC International Federation of Consulting Engineers – Plant and Design-Build Contract 1st Edition (1999 Yellow Book)

The City will be responsible for all licenses agreements with form publishers and fees, as required. An allowance is included in the Fees proposal to cover the license fees.

Approval of the PDB Delivery Method

As a new delivery method to be used by the City of Ann Arbor, we are prepared to work with the City through the required internal City approvals. If determined that the City Council approval is required to proceed with the project implementation, we will work with the City staff to prepare the documents and/or presentation to facilitate City Council approval.

We will actively participate in the selection process for the PDB team. We will review the PDB proposals, meet with the City to discuss them, and present our selection recommendation. The selection process will be based on the requirements and selection criteria listed in the RFP documents. We will also participate in the PDB team interviews and/or negotiations as necessary.

Assigning Project Roles and Responsibilities to Mitigate Overall Risk

The project responsibilities related to the PDB delivery method are different from other delivery methods such as the conventional design-bid-build. We will work closely with the City to define the responsibilities for the various project stakeholders and assign the level of risk associated with the various project activities and phases. The guidelines included in the Water and Wastewater Design-Build Handbook issued by the Water Design-Build Council will be followed to facilitate this activity. Our PDB experienced staff are familiar with this document and will adhere to its requirements.

Soliciting and Addressing Input from the WTP Staff

We will work closely with the SCADA system end user. This means soliciting input from the City staff members who are involved with the day-to-day operations and who face the daily challenge of delivering reliable and quality water supply to the City residents. This input will be discussed and analyzed to make joint decisions regarding implementation into the upgraded SCADA system. We are uniquely positioned to accomplish this task through our local staff who are very familiar with the operations and SCADA system evolution over the years culminating in the recent SCADA software procurement (pending award at the time of preparing this proposal).

I. Contract Documents - Request for Proposal (RFP)

A. Front End

The front end of the contract must be tailored to address the expectations of WTP Staff, City Attorney's and Purchasing and in turn crafted into a document that can be bid on by Progressive Design Build (PDB) teams. Based on the intent of the PDB approach and what we feel is the limited PDB experience of local integrators, we expect partnering by firms to bid on this project. This is one of many challenges we are prepared to address. Our PDB experts will be directly engaged with the development of the front-end documents. We will go through the following steps to ensure the front-end documents reflect the specific project needs:

1. Engage the Purchasing Department prior to the commencement of any work.

Review the intent of the project and solicit concerns with an alternative project approach to address them as needed.

2. Engage the Project Management Services group to review the intent of the project and address application and documentation of the prevailing wage requirements of the City. This project must meet the requirements of the prevailing wage documentation process regardless of the funding mechanism such as the Drinking Water Revolving Fund (DWRWF) administered by MDEQ or the anticipated federally funded infrastructure improvements plan.
3. Engage the City's Attorney office prior to the commencement of any work. Review the intent of the project and solicit concerns with an alternative project approach to address them as needed. The recommended industry standard contract documents will be submitted in an editable format to the City's Attorney office for review and comments. The documents will include "red line" edits, if applicable, for the City's consideration. The City's Attorney office will compare the submitted documents to the City's standard documents to determine the difference between the two sets of documents and decide what to implement.
4. Engage the WTP staff prior to the commencement of any work. Review the intent of the project and solicit concerns with an alternative project approach to address them as needed.
5. Specification Outline.
6. Document Control including hierarchy of communication paths. Our project manager will serve as the point person for the flow of information.

B. Project Implementation Plan (PIP)

Our team includes team members who are primarily engaged in the alternative project delivery arena. This project will be based on a PDB package that will follow the Water Design-Build Council Water/Wastewater Design-Build Handbook guidelines. This handbook outlines the suggested criteria conditions for a PDB and the Stantec team will execute the project accordingly.

1. We plan to conduct a workshop with WTP staff to determine project drivers.
 - Delivery Method – Discuss specifics related to the PDB delivery method
 - Schedule
 - Scope of work at each level – 30%, 60%, 90%
 - Communication:
 - a. Path between Stantec and WTP Staff
 - b. Path between Stantec and Purchasing, Project Management Services, and City Attorney office

C. Risk Mitigation, Assessment, and Responsibility

Risk can never be fully eliminated from a capital works project. However, it can and should be mitigated to the greatest extent possible. Firstly, it should be recognized that the contract should be structured such that risk is held by the party most able to control the outcome. For example, performance risk for a measuring instrument to be within specification should

be held by the supplier; productivity risk for time necessary to complete programming should be held by the system integrator; etc. We will develop a risk/responsibility matrix for the project activities to outline which party is responsible for each discrete task. This will avoid overlap of responsibilities and assign risks where it is best controlled. This matrix will be prepared using industry standard procedures and reviewed with City staff as part of the RFP development stage.

To ensure that only competent contractors are engaged in the project, it is strongly recommended that the City pre-qualifies the installation contractors, vendors and system installers based on a qualification based selection process. This is necessary since the contractor is selected ahead of full design development and without detailed design documents. **Stantec will lead the pre-qualifying process for the City in developing the required documents, document review, sitting on interviews, preparing interview and qualification review scoring guidelines, etc.**

One project driver of the Water Design-Build Council Water/Wastewater Design-Build Handbook is risk assessment and responsibility. Stantec will work with the City and help to develop a risk plan, weigh the risks against project costs, and assign roles and responsibilities to mitigate overall risk. These costs could impact preliminary overall project cost or future repairs as significant change orders. Our goal is to help design a project that meets the City's needs while minimizing unexpected change orders and providing project solutions.

Examples of the risk-related issues that will be addressed are:

- Risk for Owner
 - a. Mitigation - Cost
 - b. Mitigation - Time
- Risk for Stantec
- Risk for Contractor
- Risk and associated project cost – bidding
- Risk and associated project cost – change order
- Risk and design errors and omissions
- Risk-Responsibility
- Owner Responsibility
- Stantec Responsibility
- Contractor Responsibility

As the Owner's advisor, Stantec will assist the City through the project phases in assessing the project goals and scope as they relate to the budget allocated for the project. This assessment will allow the City to make informed decisions at the appropriate project milestones.

D. Design Concepts Report

Given our qualifications and intimate knowledge of the WTP conditions, we are well positioned to prepare a basis of design report. This report will be an integral part of the

contract documents and is key to the success of the project and will present the design concepts to be followed by the PDB team. The report will include the following:

1. Expand the existing information the City and Stantec have gathered over the years.
2. Define hardware expectations based around Allen-Bradley 5000 Logix.
 - Review of raw I/O
 - Review of logic I/O
3. Software expectations based around the successful SCADA RFP bidder. **It should be noted that Stantec will assist the City with finalizing selection of the SCADA software solution.**
 - Review of HMI I/O – loop values
4. Define hardware expectations for servers and network infrastructure
 - IT requirements
 - Server software requirements (operating system) – what works in the real work beyond minimum requirements
5. Define the expectation for Human Machine Interface (HMI) with staff.
 - Fixed locations (Workstations)
 - Mobile locations (iPad/Thin Clients/Tablets)
 - a. IT requirements
 - b. Security Review
6. Integrated in Project Implementation Plan.
7. Identify construction limitations
 - Systems that can run in manual
 - Systems that can run in parallel condition
 - Laboratory Information Management System (LIMS) integration
 - Computerized Maintenance Management System (CMMS) integration
8. Security Consideration: The AWWA security guidance document will be followed. This document titled “Process Control System Security Guidance for the Water Sector” was developed in accordance with the National Institute of Standards and Technology (NIST) Cybersecurity Framework. This framework includes a set of standards, methodologies, procedures, and processes that align policy, business, and technological approaches to address cyber risks. Examples of the security considerations that will be addressed are as follows:
 - Separate SCADA from City Networks
 - Separate the live dam systems from City and SCADA Networks
 - Integration of FERC safety recommendation plan
 - Wireless – localized, may not be practical but will investigate with assistance of the City’s IT group
9. Redundancy of Systems (Servers/PLCs/Runtimes)

- Primary system located at WTP
- Back-up system located at City Hall
- Ability to run manually (hardwired)

10. Communication Backbone

- MOSCAD System sunset (running on spare parts)
- Fiber optics infrastructure
- Recently added network
- Existing camera system wireless backbone
- Separate wireless backbone – must satisfy IT requirements

11. Control Room and Process Lab Area

The interconnected control room and lab area represent an integral component of the overall WTP operations. The functionality of these areas will be evaluated and improvements recommended. Some of the issues that will be addressed are:

- The security requirements for the area and how they tie into the overall WTP security requirements.
- How to limit access to authorized personnel while still allowing controlled access for group visits.
- How to keep the control room functional while improvements and upgrades are implemented.
- Separation of the two areas with connecting doors and upgrading the HVAC system to meet the different requirements for the control room and lab area.
- The above concepts and others developed by Stantec in the early stage of the design concept will be evaluated as potential alternatives. Workshops will be held with the City staff to evaluate the proposed designs including material selections, color schemes, opinion of construction cost, etc.
- Evaluate the best project delivery method for this component of the project. The SCADA-related upgrades could be part of the overall project delivered through the PDB method, while the “physical” improvements could be implemented through the conventional Design-Bid-Build method. The various elements impacting this decision will be discussed with City such as cost, constructability, and impact on operations.

We anticipate conducting workshops with the City staff to discuss the above issues and facilitate vendor presentations, if applicable. We envision major changes to the control room/lab area layout with separation that still allows visual connection and controlled access. For example, a wall with door(s) and observation windows may separate the two areas, but still allow the operators freedom of movement between them.

12. Conceptual Design Documents

- Network Diagrams
- Control Panels
- Basic sequence of operation for existing control panels
- Staff Interviews – existing operations

- Staff Interviews – enhancements and expectations

13. Drawings:

- Existing drawings with PDB team mark-ups

Plan to start with existing as-built drawings of the controls systems. Stantec will spend a few days in the field verifying the accuracy and provide field mark-ups to PDB contractor. The PDB team will issue the final as-built drawings.

- Ladder logic, HMI, and scripting document

Similar to the as-built wiring diagrams, the custom routines that have been developed for the PLC screens and scripts will be provided to the PDB team for review and improvements. The goal is not to reuse this program but to start with a fresh “program” as part of the project.

14. Workshops, Goals, and Decisions

Stantec will hold multiple workshops with the general goal of improving the processes work flow, and interfaces that the City operators use. Not every workshop will involve “all” plant staff. An example of a workshop is “press” system. How does it run? Can it be run more efficiently? What improvements should be implemented? Workshops will be held to evaluate security, work flow, remote data access, asset management, decision making capabilities, situational awareness, analytics, as well as other more basic SCADA and PLC programming related topics.

15. Data Management

With the integration of multiple platforms, such as LIMS, and CMMS, the capability of sharing data and communicating freely between these platforms will be evaluated. We will review the application of an outside software that could in theory “wrap” everything into one package to use across the WTP and perhaps the entire City.

E. Budget Review

After the basis of design report is complete, it is important to complete a budget review to confirm that the technical and financial requirements are aligned. Moving forward with technical expectations out of line with funding could result in a poorly received project. The cost review would help identify short comings in technical and/or funding aspects.

1. Preliminary cost estimate based on basis of design report
2. Value engineering workshops
 - Outside constructability and cost review – MWH Constructors (Stantec’s Construction Group)
3. Define contingency elements
4. Confirm City budget for project

F. Quality Assurance and Quality Review

1. Owner Review
2. Stantec’s independent technical review
3. Independent Design-Build Review (30%)
 - Non-disclosure agreement

- Limited information review

G. Permits

1. MDEQ
2. City
3. Utility and electrical permits

II. Technical Documents (Design Concept) - (Estimated 35-45 drawings at this stage/We estimate a total of 55-65 drawings at the completion of the project).

The approach with PDB delivery is for Stantec to produce a set of documents to a design concept level and then partner through a separate contract with of PDB team who will take the project to 100% completion including updates to the contract documents. This approach allows a two-phase implementation as follows:

- A collaborative approach (City, Owner's Advisor, and PDB team) to move the design from a design concept level to a 30% level and then to a 60% or 90% level before establishing the Guaranteed Maximum Price (GMP). Stantec recommends this approach up to the 90% design level to allow more time for design adjustments before the GMP is set.
- Establishing the GPM at the conclusion of the 90% design. Owner-requested design revisions after the 90% milestone could impact the project cost and result in additional cost beyond the GMP.

In summary, the major milestones for the design concept phase of the project are as follows:

- The design concept report
- The RFQ documents intended to identify qualified PDB firms
- The RFP documents, including the design concept report, to select one of the PDB teams previously pre-qualified through the RFQ process

The selected PDB team will then prepare 30%, 60%, and 90% design documents. The 60% or 90% design documents (Stantec recommends the 90%) will include a GMP prepared by the PDB team.

A. Drawings

Stantec anticipates developing the design concept for the following categories of drawings as part of the design concept documents:

1. System Architecture
2. SCADA – P&ID diagrams
3. I/O Verification
4. I/O Diagrams
5. I/O count spreadsheet

6. Wiring
7. Network
8. Electrical Interlocks
9. Communications
10. Control room and process lab

In addition, Stantec will gather existing I&C/SCADA drawings and compile them into a functional as-built set to be provided to the PDB team.

B. Specifications

Stantec anticipates including the following specification categories as part of the design concept documents:

1. Hardware

- Servers
- PLC's
- HMI Interface
- Portable Devices
- Radio Network
- Miscellaneous panel devices

2. Limits of Construction

One of the challenges faced with this project will be the need to address the impact of replacing the hardware on the water treatment processes. We have worked with the WTP staff on various projects and have become familiar with and knowledgeable of the potential impacts. We will be address these issues as part of the PDB process.

- Identify time of year for equipment replacement
- Can systems be run in parallel?
- Manual operations

C. Budget Review

After the technical documents are complete, we recommend revisiting the budget and confirm that the project is aligned technically and financially.

1. Update budget based on 30% documents
2. Confirm changes (additions/subtraction) based on 30% documents
3. Revise contingency based on new data
4. Report on updated budget

D. Owner Workshops

Workshops with the City staff will be held to discuss various issues such as:

1. Feedback
2. Idea/Technology process improvements

3. Process Improvements
4. Vendor/Manufacturer Improvements
5. IT improvements

III. Technical Documents (60%/90%/100%) – Review of PDB Team Design Packages

A. Drawings

1. SCADA – P&ID Diagrams
2. I/O Verification
3. I/O Diagrams
4. I/O count spreadsheet
5. Wiring
6. Network
7. Electrical Interlocks
8. Communications
9. Control room and process lab

B. Specifications

1. Hardware
 - Servers
 - PLC's
 - HMI Interface
 - Portable Devices
 - Radio Network
2. Limits of Construction
 - Identify time of year for equipment replacement
 - Can systems be run in parallel?
 - Manual operations

C. Develop Guaranteed Maximum Price (GMP)

1. The PDB contractor will update costs based on 60%/90%/100% documents
2. Final GMP to be based on 90% documents
3. GMP and contingencies will be reviewed regularly

D. Owner “Brain Storming” Sessions (24 Sessions)

This PDB project will require multiple discussions with the City staff. We are expecting the

duration of this project to be nearly two years. We are also expecting to conduct a minimum of one brain storming session per month. These sessions could involve a limited number of individuals or larger groups (15 +/-). We will work with the WTP staff to control the flow of information to the various project stakeholders.

1. Feedback
2. Idea/Technology improvements
3. Process Improvements
4. Vendor/Manufacturer Improvements
5. IT improvements

E. Comments on the PDB Design Submittals

As the Owner's representative, we will solicit comments from multiple team members and compile into a working set of comments. These comments could be from external resources (equipment suppliers), WTP staff and IT staff. These comments will be documented as part of the PDB process and evaluated for implementation into the contract.

1. Drawings/specifications feedback and comments
2. Hardware feedback and comments
3. Software feedback and comments
4. Communications feedback and comments
5. IT feedback and comments

IV. Construction

Based on the City's concern with impact on operations, we fully expect this project to be executed in stages. Each stage will address a specific process or function such as pump station, sedimentation, filtration, etc. Communication with operations staff will be vital to minimize disruption of plant operations, minimize impact on plant staff daily responsibilities, maintain the expected water quality and flow, and keep the project moving forward on schedule.

We fully expect to have workshops that result in documenting agreed upon decisions such as durations of outages, manual operations, screen changes, etc. As with any Stantec project with the City, we will be there to assist with migration of the systems, conduct training with staff and provide sequence of operations manuals.

A. Construction Observation

It would not be the best use of the City and Stantec resources to perform full time inspection of this project. Instead, it would be best to identify the major project components and treat them as "individual" projects. The following would be performed for these "individual" projects:

1. Kick-off and progress meetings
2. Submittal reviews
3. Field observation
4. Factory Acceptance Testing (local)

5. Field Acceptance Testing
6. Inspection Reports
7. Validation Testing
8. Wiring Inspections
9. Equipment Inspection
10. Substantial Completion Designation
11. We do not plan to perform full time inspection during the field wiring work, but do inspection when field wiring is completed for each system.

B. Commissioning, Training, and Standard Operating Procedures (SOPs)

The PDB team will have the main responsibility for items 1 through 7 listed below. Stantec will review the submittals applicable to these items and provide oversight for the commissioning and field training:

1. O&M Manuals
2. Record Drawings
3. Training Manuals
4. SOP Manuals
5. Commissioning
6. Field Training
7. Punch List
8. Schedule: We anticipate the effort to occur during the last 2-3 months of the project.

Since this is a PDB project, punch list will be evolving throughout the project phases with the direct involvement from Stantec, the PDB team, and the City. A final punch list will be developed when the individual projects are completed.

C. 60%/90%/100% Contract Negotiations

1. Change in scope based on Progressive Build process (as needed)
 - Additional Scope
 - Deleted Scope
 - Owner Requests
 - Fee Evaluations from Contractor
 - Value Engineering
 - Updated PCCs
 - Change Orders

D. Resolution of Disputes and Request for Information

E. Project Management

1. Project Meetings

2. Meeting Agendas
3. Meeting Minutes

V. Deliverables

The following is a list of deliverables that Stantec will provide at the various phases of the project:

A. Design Concept and RFP Development Phase

1. Project kick-off meeting agenda and minutes – Stantec’s PM (Walid Al-Ani) and Team Leads (Guy Le Patourel and Greg Schofer) will also attend
2. Design concept report including the Project Implementation Plan and a conceptual opinion of construction costs
3. RFP documents with design concept as an appendix
4. Design concept and RFP development workshop agendas and minutes – Stantec’s PM (Walid Al-Ani) and Team Leads (Guy Le Patourel and Greg Schofer) will attend the workshop – Stantec’s Expert (Shane Singh) will also attend
5. RFQ documents to select firms that are qualified to perform the PDB work
6. Notice of award to PDB team
7. Notice to proceed to PDB team
8. The design concept for the control room/lab area will include sketches, color schemes, material boards, etc.
9. A table that defines the project metrics for success that are to be used to assess the project goals and scope throughout the project - This issue will be discussed in the kick-off meeting followed by development of the table

B. Design Phase (design by PBD team)

1. 30%, 60%, and 90% design review comments
2. 30%, 60%, and 90% design workshop agenda and minutes – Stantec’s PM (Walid Al-Ani), Design Criteria Team Lead (Greg Schofer), and Expert (Shane Singh) will attend the workshops
3. Document listing decisions (to be updated throughout the course of the project)
4. The PDB team will submit the 30%, 60%, and 90% documents including cost estimates - Stantec will review the cost estimates and assist the City in making decisions regarding implementation of the various cost items

C. Construction Oversight

1. Construction kick-off and progress meeting agendas and minutes
2. Submittal log including updates
3. Punch list

D. Construction Observation and Commissioning

1. Construction observation reports
2. Commissioning report
3. SOPs

VI. Added Value Items

Added Value – Beyond the base RFP

- **Control Screens Development**
Based on past projects with the City, we understand that control screen development will require more interaction with plant staff than what the original RFP called for. Each significant system (for example Ozone), will need to be reviewed with the City staff for improvements, and further developed with the PDB team. **The effort will include coming up with a manual on control screen construction that identifies, color schemes, use of graphical items, situational awareness vs graphical interpretation, layout of menus, buttons, etc. All SCADA design concepts will be identified and laid out in an easy to use guide that can be used by City staff or given to contractors for use in SCADA software design.**
- **PLC Standards**
A PLC standard will need to be developed for the PDB team to base pricing on. Items that will need to be addressed include Manufacture, model/series, I/O approach, and communications.
- **Remark Standard / Program Structure**
We will need to identify the standard approach on how the “logic ladder” is organized and “remarked” to document functions. **This will include PLC programming standards (i.e. the use of latches, AOI's, etc.)**
- **Make day to day operations easier; public access to some aspects**
What are expectations with today's Internet of Things (IOT). Does it work with the expected levels of security? Do we want the public to view the status of the plant and/or dams? **How to facilitate report generation?**
- **Recovery from incidents**
How does the control system handle incidents (power failure/equipment failure)? Can it assist with providing additional information? Can it point the operator in a direction to assist?
- **Analytics integration with other software**
Can patterns be determined to provide a better way to run the plant, minimize failure, predict failure, or even help with maintenance? Can data be pulled in/out of the software packages and what effort/cost will have on the project? This may take a third-party application, and may require outside demonstrations.

EXHIBIT B COMPENSATION

General

Contractor shall be paid for those Services performed pursuant to this Agreement inclusive of all reimbursable expenses (if applicable), in accordance with the terms and conditions herein. The Compensation Schedule below/attached states nature and amount of compensation the Contractor may charge the City:



City of Ann Arbor WTP

Owners Advisor for WTP SCADA System Upgrade Project
Revised Fee Schedule

Tasks	Project Manager	Senior Reviewer/QA/QC Design/Build	Senior Reviewer/QA/QC Chief I&C	RFP Development Team Lead	Design Criteria Team Lead	Progressive DB Documents	Constructability Review	Controls	Electrical	MDEQ Permitting and Liaison	Architect	CAD Designer	Technical Support	Task Cost Total
	Walid Al-Ani	Mike Watson	David Wilcoxson/Shane Singh	Guy Le Patourel	Greg Schofer	Ken Broome/David Socha	Jim Salerno	David Steffes/Brad Sauder	Marty Armenta/Doug Reed	Ken Jewison	Berkley	Various	Various	
	\$188	\$332	\$219	\$289	\$156	\$188	\$289	\$188	\$188	\$148	\$289	\$100	\$90	
8														
RFP Development, Study, and 30% Design	80	8	8	40	80	40	4	40	20	16	40	120	40	\$92,972
Contract Development	24	8	8	8	24	60								\$26,256
Bidding and Award	16			2	24	40								\$14,850
Project Kickoff, Design Phase, and Design Review	60	8	8	16	80	40	12	60	20	24	24		40	\$72,908
Construction Phase Administration	48	4	4	4	40			60	20				40	\$37,264
Construction Phase Observation	32				160								48	\$35,296
Commissioning and Training	16	4	4		40								8	\$12,172
Project Closeout	24				40								4	\$11,112
Additional Two Workshops for S. Singh			32											\$7,008
Added Value Components - Development and Processes	15		25		72								18	\$21,147
Added Value Components - Standards	8		8		30								5	\$8,386
Added Value Components - Integration and Data	3		5		16								3	\$4,425
Subtotal Hours	326	32	102	70	606	180	16	160	60	40	64	120	206	1,982
Subtotal Fee	\$61,288	\$10,624	\$22,338	\$20,230	\$94,536	\$33,840	\$4,624	\$30,080	\$11,280	\$5,920	\$18,496	\$12,000	\$18,540	\$343,796
Allowance for Additional Engineering as Authorized by City														\$20,000
Reimbursable Expenses (Travel for Non-Local Staff)														\$10,000
Allowance for Licensing Fees related to Standard DB Documents														\$1,000
Additional Reimbursable Expenses (Travel for S. Singh-Two Workshops)														\$2,000
TOTAL FEE														\$376,796

**EXHIBIT C
INSURANCE REQUIREMENTS**

Effective the date of this Agreement, and continuing without interruption during the term of this Agreement, Contractor shall have, at a minimum, the following insurance, including all endorsements necessary for Contractor to have or provide the required coverage.

A. The Contractor shall have insurance that meets the following minimum requirements:

1. Professional Liability Insurance or Errors and Omissions Insurance protecting the Contractor and its employees in an amount not less than \$1,000,000.

2. Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:

Bodily Injury by Accident - \$500,000 each accident
Bodily Injury by Disease - \$500,000 each employee
Bodily Injury by Disease - \$500,000 each policy limit

3. Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 07 98 or current equivalent. The City of Ann Arbor shall be an additional insured. There shall be no added exclusions or limiting endorsements which diminish the City's protections as an additional insured under the policy. Further, the following minimum limits of liability are required:

\$1,000,000	Each occurrence as respect Bodily Injury Liability or Property Damage Liability, or both combined
\$2,000,000	Per Job General Aggregate
\$1,000,000	Personal and Advertising Injury

4. Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 07 97 or current equivalent. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. The City of Ann Arbor shall be an additional insured. There shall be no added exclusions or limiting endorsements which diminish the City's protections as an additional insured under the policy. Further, the limits of liability shall be \$1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.

5. Umbrella/Excess Liability Insurance shall be provided to apply in excess of the Commercial General Liability, Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of \$1,000,000.

- B. Insurance required under A.3 and A.4 above shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City does possess shall be considered excess insurance only and shall not be required to contribute with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer against the City.

- C. Insurance companies and policy forms are subject to approval of the City Attorney, which approval shall not be unreasonably withheld. Documentation must provide and demonstrate an unconditional 30 day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number; name of insurance company; name and address of the agent or authorized representative; name and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which shall be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified. Contractor shall furnish the City with satisfactory certificates of insurance and endorsements prior to commencement of any work. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) to the City. If any of the above coverages expire by their terms during the term of this contract, the Contractor shall deliver proof of renewal and/or new policies and endorsements to the Administering Service Area/Unit at least ten days prior to the expiration date.