

**Memorandum
Public Works Department**



To: City Manager
Subject: LTCP – Black Hawk Lift Station Improvements
Date: March 2, 2015
Number: 2015-028

Attached is an Engineering Design Services Proposal from Symbiont Science, Engineering and Construction (Symbiont) for engineering design services on the Black Hawk Lift Station Project. This project is part of the Long Term Control Project.

The scope of work to be covered by this proposal is for engineering design services, including the preparation of detailed plans and specifications. Symbiont has included services necessary for submittals for approval by all required regulatory agencies, as well as assistance with any grant applications and application for an IEPA SRF Loan.

Symbiont proposes to provide these engineering services at their standard hourly rates for an estimated cost of \$168,000.

Recommendation

The Public Works Department recommends that the City Council approve the Engineering Services proposal from Symbiont in the amount of \$168,000 and authorize the City Manager to execute the contract documents.

Vendor:	Symbiont	
Proposal Amount:	\$168,000	
Fund:	506	Wastewater Operation & Maintenance
Department:	619	Utilities Maintenance
Cost Center:	346	Wastewater Collection Maintenance
Object Code:	56501	Engineering Services
Project	2733	LTCP- Black Hawk Lift Station Improvements

Purchase Order #: P004860

Submitted by: Randall D. Tweet, Public Works Director
Michael J. Kane, P.E., City Engineer

Approved by: Thomas Thomas, City Manager



Mr. Michael J. Kane, P.E.
City Engineer
City of Rock Island, Illinois
1309 Mill Street
Rock Island, IL 61201

February 20, 2015

**RE: Relocation of Outfall 007 Project
Black Hawk Lift Station Improvements Amendment
Combined Sewer Overflow Long Term Control Plan
Symbiont Proposal No. 33614**

Dear Mr. Kane:

Symbiont is pleased to submit this Proposal to the City of Rock Island (City) Public Works Department for final engineering design services for improvements to the City's Black Hawk Lift Station. The improvements are included in the City's Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP). Since the lift station improvements are a key part of relocating Outfall 007, Symbiont proposes to complete the lift station design services as an amendment to our existing Relocation of Outfall 007 project.

PROJECT UNDERSTANDING/BACKGROUND

The City's CSO LTCP identified improvements to the Black Hawk Lift Station as part of the overall approach to address CSO issues on the south side of the city. Symbiont recently completed a preliminary engineering evaluation of the lift station to refine the scope of work necessary to meet the goals of the CSO LTCP and relocate Outfall 007.

The scope of work described below assumes that the Black Hawk Lift Station improvements will be incorporated into the Relocation of Outfall 007 project for execution as a single project.

SCOPE OF WORK

The scope of work of the combined Relocation of Outfall 007 and Black Hawk Lift Station project is divided into six project phases. These phases are:

- PHASE 1: DESIGN SERVICES
- PHASE 2: PERMIT AND REGULATORY APPROVAL SUPPORT
- PHASE 3: BIDDING SERVICES
- PHASE 4: IEPA SRF LOAN APPLICATION SUPPORT
- PHASE 5: ENGINEERING SERVICES DURING CONSTRUCTION
- PHASE 6: I/I REDUCTION PROGRAM

Similar to the original project scope, this amendment proposal covers Phases 1 through 4. Following completion of these phases, a separate agreement will be executed between the City and Symbiont for Phase 5, Engineering Services During Construction.

PHASE 1: DESIGN SERVICES

The engineering design phase of this project includes the services necessary to provide the City with a professionally engineered system to achieve the goals of the City's CSO LTCP and discharge permit, and that responds to the needs of the City's WWTP operations and maintenance staff. Tasks included in the design phase are outlined below.

Detailed Engineering

The preliminary engineering effort identified the following scope of work necessary to upgrade the lift station for the relocation of Outfall 007:

- Increase the capacity of the lift station to 23.5 MGD by installing four new pumps and variable frequency drive controls
- Modify lift station wet well to meet Flygt submersible pump station design guidelines including flow splitting structures
- Install lift station bypass piping
- Repair damaged, leaking pump discharge elbows and wall penetration seals
- Replace pump wet well access hatches and provide protection from vehicular traffic
- Install a new diesel standby generator sized for the full station capacity that will automatically operate upon loss of utility power
- Coordinate with MidAmerican Energy for increased power requirements at the lift station
- Install additional access points for the upstream siphons
- Replace bar screens in the siphon intake chambers

Symbiont will complete engineering of the lift station improvements to determine the civil, mechanical, structural, electrical, and process engineering details required for a complete system. The detailed engineering will service as the basis for the bid documents. In addition, Symbiont will incorporate the lift station improvements into the Relocation of Outfall 007 facility plan for submittal to IEPA for their review and approval.

Hydraulic Transient Analysis

Symbiont proposes to perform a hydraulic transient analysis of the Black Hawk Lift Station and associated force main. This analysis will identify any pressure transients or surge related issues and the control measures necessary to protect the force main and lift station from adverse pressure transients.

Symbiont proposes to complete the transient analysis with Northwest Hydraulic Consultants, a water resources firm that specializes in hydraulic design, physical and

numerical modeling, hydraulic transient surge analysis, and other hydraulic-related areas. Symbiont has previously successfully worked with Northwest Hydraulic Consultants and feels they are a good partner for this analysis.

Prepare Construction Documents

Symbiont will prepare plans, specifications, and bidding documents for bidding and construction for the scope of work defined above. These documents will be combined with the Relocation of Outfall 007 documents for bidding as a single contract between the City and a general contractor.

Symbiont estimates that 15 to 20 drawings will be required to show the scope of work including instrumentation and controls, structural, mechanical, and electrical. Symbiont assumes that the City will provide Symbiont with AutoCAD files of the existing lift station for Symbiont's use in developing drawings of the proposed improvements.

The final documents will be stamped by a Professional Engineer registered in the State of Illinois. Plans will be prepared using AutoCAD 2014.

Engineer's Cost Estimate

Symbiont will prepare an opinion of probable construction cost for the lift station improvements. The opinion of probable cost will be combined with the cost estimate for the Relocation of Outfall 007 and will allow the City and Symbiont to update the project budget if necessary.

Design Progress Review Meetings with City Staff

Symbiont will conduct several design progress review meetings with City staff to review various aspects of the lift station design throughout the course of its development. Symbiont does not believe that additional meetings beyond those identified in the original Relocation of Outfall 007 scope are required for the addition of the lift station improvements.

In addition, construction document review meetings will be scheduled at approximately 50 percent and 90 percent completion. Symbiont will provide the City with "in process" construction documents for review in advance of the scheduled meetings. Review comments will be addressed with any necessary revisions incorporated into the construction documents.

PHASE 2: PERMIT AND REGULATORY APPROVAL

Symbiont identified a number of permits and regulatory agency approvals required for the Relocation of Outfall 007. Of those permits and approvals identified, Symbiont believes that only approval affected by the lift station improvements is the Illinois Environmental

Protection Agency (IEPA) Wastewater Construction Permit. As part of this amendment, Symbiont will complete the IEPA permit application to include both the Relocation of Outfall 007 and the Black Hawk Lift Station Improvements.

PHASE 3: BIDDING SERVICES

Symbiont's current contract with the City includes a number of bidding services including assisting the City with advertising for bids, conducting a pre-bid conference, issues clarifications and addenda, and evaluating bids. As part of this amendment Symbiont will complete these bidding services based on a single project including both the Relocation of Outfall 007 and the Black Hawk Lift Station Improvements.

PHASE 4: LOAN APPLICATION SUPPORT

Symbiont's current contact with the City includes engineering and administrative services to assist the City of Rock Island with applying for a loan from the State of Illinois Revolving Fund. These services include pre-application support, loan application support, and loan assistance. As part of this amendment, Symbiont will complete these services based on a single project including both the Relocation of Outfall 007 and the Black Hawk Lift Station Improvements.

Symbiont's current contract with the City includes providing up to 100 hours of engineering and administrative support toward the SRF loan application process. Based on the revised project scope of work including both the outfall relocation and lift station improvements, Symbiont proposes to provide a total of 120 hours of support toward the SRF loan application process.

PHASE 5: ENGINEERING SERVICES DURING CONSTRUCTION

As previously indicated, the City and Symbiont will enter into a separate agreement for Engineering Services During Construction (ESDC) following completion of the design and bidding phases. The ESDC phase will include the following elements for the revised scope of work for both the Relocation of Outfall 007 and the Black Hawk Lift Station Improvements:

- Visits to Site by Design Engineers
- Clarifications and Interpretations; Field Orders
- Shop Drawing Review
- Applications for Payment
- Contractors' Completion Documents
- Substantial Completion
- Final Notice of Acceptability of the Work

- Record Drawings
- Operations and Maintenance Manuals
- Start Up and Training Services

PHASE 6: I/I Reduction Program

The preliminary engineering analysis determined that the collection system tributary to the BHLS experiences high levels of infiltration and inflow (I/I) that contributes excessive clear water flow to the lift station. We understand that the City desires to identify and eliminate I/I to improve lift station performance and minimize sewer back-ups. As part of the design of the lift station improvements, Symbiont will work with the City to develop and implement an I/I reduction program for the combined sewer system upstream of the lift station. The program will likely include flow monitoring, sewer televising, sewer cleaning, sewer lining, and manhole rehabilitation.

Symbiont will draft a written I/I reduction plan that will outline the goals of the program, the elements of the program, the resources necessary to implement the program, and the program schedule. Symbiont will conduct a workshop with City staff to review the proposed program, schedule, and implementation. Execution of the plan will be completed by City staff and outside contractors where needed. Symbiont proposes to hold quarterly meetings with all program participants to review program status, on-going activities, collected data, results, and required program modifications. Based on the size of the proposed project area, Symbiont estimates that it will take approximately two years to complete the I/I reduction program and verify its effectiveness. I/I reduction may take more than two years to complete, but this program is a first step in reducing the I/I in the affected areas. Following completion of this program, it may be necessary for the City to continue I/I removal tasks.

As part of this amendment request, Symbiont has included attending quarterly status meetings through 2016. In addition to attending the quarterly meetings, Symbiont has included one hour per week of remote support for program support, data analysis, and program modifications. Once per year during the program, Symbiont will update the SWMM model with the information obtained from the I/I program to evaluate its effectiveness. At the conclusion of the two-year program, Symbiont will draft a summary report.

ASSUMPTIONS/EXCLUSIONS

The scope of work summarized above does not include the following:

1. Site topographic or utility survey. Symbiont believes that the proposed improvements can be designed and constructed utilizing existing information.

2. Subcontractors or subconsultants except those specifically stated above. Symbiont assumes that any subcontractors or subconsultants required to complete the I/I Reduction program will be contracted by the City or through an amendment to Symbiont's contract.
3. Equipment or instrumentation required for implementation of the I/I Reduction Program. Symbiont assumes that any equipment or instrumentation required for to complete the I/I Reduction Program will be purchased by the City or through an amendment to Symbiont's contract.

PROEJCT TEAM

Symbiont plans to maintain the same team of highly qualified personnel that completed the Black Hawk Lift Station preliminary engineering evaluation for the final design engineering services. In addition, Northwest Hydraulic Consultants will be employed for the completion of the transient surge analysis.

PROJECT SCHEDULE

Symbiont is prepared to begin the final design engineering work immediately following Notice to Proceed. The work will be completed consistent with the milestone dates and goals of the original Relocation of Outfall 007 project.

COMPENSTATION

Symbiont proposes to complete the Black Hawk Lift Station final design engineering Scope of Work described herein on a time and materials basis not to exceed \$168,000 without prior written approval from the City as summarized below.

Task	Amount
Engineering Design Services (Phases 1-4)	\$105,000
I/I Reduction Program (Phase 6)	\$63,000
TOTAL	\$168,000

All services will be billed on a time and materials basis according to the rate schedule in effect when the work is completed.

TERMS AND CONDITIONS

Symbiont Standard Terms and Conditions of Agreement as previously executed apply to this contract amendment. Please indicate your acceptance of this contract amendment by having an authorized representative sign the attached and return one copy to Symbiont.

Mr. Michael J. Kane, P.E.
City of Rock Island
February 20, 2015
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Symbiont looks forward to continuing its partnership with the City during the design phase and eventual implementation of this CSO LTCP project. Please contact us if you have any questions regarding this proposal.

Sincerely,

SYMBIONT®



Brian A. Till, P.E.
Project Manager

SYMBIONT®



Patrick W. Carnahan, P.E.
Vice President

Attachment

Symbiont considers the project approach, design, pricing, data, and other business considerations contained in this proposal to be proprietary and confidential business information to be used solely for the purpose of evaluating the proposal. This document and the information contained herein shall not be used for any purpose other than as stated above and shall not be used, duplicated, or disclosed to any other party without Symbiont's prior written consent.



SYMBIONT

CONTRACT CHANGE ORDER

PROJECT NAME: Relocation of Outfall 007

CHANGE ORDER NO.: 1

OWNER: City of Rock Island
1309 Mill Street
Rock Island, IL 61201

DESIGNER: Symbiont
6737 West Washington Street
Suite 3440
West Allis, WI 53214

SUBCONTRACTOR:

SYMBIONT PROJECT NO.: W140447

CONTRACT FOR: Design Services

CONTRACTOR PROJECT NO.:

CONTRACT DATE: November 14, 2014

You are directed to make the following changes in the Contract Documents.

Description: Engineering Services for Black Hawk Lift Station Improvements Final Design

Purpose of Change Order: Define scope and fee for engineering services

Attachments: 1 Symbiont Proposal, dated February 20, 2015

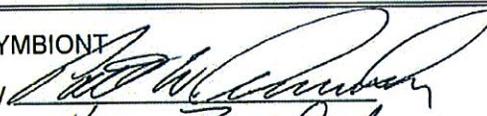
CITY OF ROCK ISLAND

By: _____

Title: _____

Date: _____

SYMBIONT

By: 

Title: Vice President

Date: 2/20/15