

**Memorandum  
Public Works Department**



**To:** City Manager  
**Subject:** Wet Weather Treatment System, Project 2624  
**Date:** June 15, 2011  
**Number:** 2011-182

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Attached is a proposal from Symbiont for engineering services during the construction phase of the new wet weather treatment system at the Mill Street Wastewater Treatment Facility.

The services during construction include attending progress meetings, site visits, plan clarification and interpretation, review of submittals such as shop drawings and product certification, approval of pay requests, approval of required contractor documentation, recommendations for completion and acceptance, and preparation of as-built drawings. Additional services included in this proposal include work related to bidding that has been requested by the Public Works Department that was beyond the original design scope, documentation and support necessary to obtain possible Leadership in Energy and Environmental Design (LEED) certification through the US Green Building Council, and landscape design services.

Symbiont proposes to provide these engineering services at their standard hourly rates for an estimated cost of \$2,272,526 which will be added to their original contract for design services by change order.

**Recommendation**

The Public Works Department recommends that the City Council approve the amendment to Symbiont's contract at an additional cost not to exceed \$2,272,526 and that the City Manager be authorized to sign the amendment on behalf of the City of Rock Island.

Vendor:	Symbiont	
Fund:	506	Wastewater Operation and Maintenance
Department:	619	Utilities Maintenance
Cost Center:	341	Wastewater Mill Street Plant
Object Code:	56501	Engineering Services
Project:	2624	Wet Weather Treatment System

Requisition Number:  
Purchase Order Number:

**Submitted by:** Robert T. Hawes, P.E., Assistant City Manager/Public Works Director  
Michael J. Kane, P.E., City Engineer

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**Approved by:** John C. Phillips, City Manager



SYMBIONT

6737 West Washington Street

Suite 3440

West Allis, Wisconsin 53214

414 291 8840

Fax: 414 291 8841

[www.symbiontonline.com](http://www.symbiontonline.com)

Mr. Robert Hawes, P.E.  
Assistant City Manager/Public Works Director  
City of Rock Island  
1309 Mill Street  
Rock Island, IL 61201-3261

June 15, 2011

**RE: Proposal for Engineering Services During Construction  
Wet Weather Treatment System  
Rock Island, Illinois  
Symbiont Proposal No. 31858**

Dear Mr. Hawes:

Symbiont is pleased to submit this proposal to the City of Rock Island (City) Public Works Department for engineering services during construction for the Wet Weather Treatment System project. This is a proposal amendment to the project design contract, dated January 19, 2009, which indicated that Symbiont would develop a separate scope of work and amend the existing design contract for engineering services during construction.

## **PROJECT UNDERSTANDING AND APPROACH**

Symbiont completed detailed design of the Wet Weather Treatment System project which included a new wet weather treatment system, existing wastewater treatment plant improvements, a new outfall sewer, a new utilities maintenance garage, and miscellaneous improvements. The City opened bids for the project on May 10, 2011. The project is configured for the City to enter into an agreement with a single general contractor for the construction of all of the improvements included in the project. We understand that the City desires to award the contract to the low, responsive bidder immediately following Illinois Environmental Protection Agency (IEPA) review and approval of the bid results and issuance of an SRF loan. Site construction activities would begin immediately following notice to proceed, and the project has a substantial completion schedule of 870 days from award of contract with an additional 60 days for final completion, approximately the end of 2013.

The following paragraphs outline the specific engineering services during construction tasks to be performed in support of this project. As previously discussed, Symbiont will submit separate proposals to the City for startup services, programming and applications engineering, and O&M manual preparation.

## SCOPE OF WORK

### Project Meetings

Symbiont's Project Manager and key design staff including subconsultants will attend a pre-construction meeting with the General Contractor and City personnel prior to the beginning of construction activities.

Symbiont's Project Manager, design staff, and subconsultants will attend biweekly progress meetings to be held by the General Contractor. Attendance at these meeting will allow the design team to stay informed of current construction issues and schedule status and may be combined with the site visits by design engineers described below.

Symbiont's proposal assumes a 31 month construction schedule for final completion and is based on the following meeting attendance:

- Symbiont will attend 62 meetings
- Gere-Dismer will attend 45 meetings
- Missman will attend 18 meetings
- Shive-Hattery will attend 8 meetings

### Visits to Site by Design Engineers

Representatives of the various design disciplines utilized by Symbiont in preparing the contract documents will make visits to the site at intervals appropriate to the various stages of construction. Such visits will be as necessary in order to observe, as an experienced and qualified design professional, the progress and quality of the various aspects of contractors' work. Based on information obtained during such visits and such observations, Symbiont will endeavor to determine in general if such work is proceeding in accordance with the contract documents. In addition to attending the construction progress meetings, Symbiont's structural, mechanical, and electrical discipline lead engineers will each visit the site twice during construction. Each site visit is anticipated to be a one day visit similar to the progress meetings.

Symbiont will not, during such visits or as a result of such observations of contractors' work in progress, supervise, direct, or have control over contractor's work, nor shall Symbiont have authority over, or responsibility for, the means, methods, techniques, sequences, or procedures of construction selected by contractors; for safety precautions and programs incident to the work of contractors; or for any failure of contractors to comply with laws, rules, regulations, ordinances, codes, or orders applicable to contractors' furnishing and performing the work.

Observations made during the site visits will be communicated with the General Contractor and the City of Rock Island project manager via a field trip report to be issued as soon as possible after the site visit.

### Defective Work and Follow Up

During site visits and on the basis of on-site observations, Symbiont will have authority to disapprove of or reject contractors' work while it is in progress if Symbiont believes that such work will not produce a completed project that conforms with the contract documents or that it will impact the integrity of the design concept of the completed project functioning as a whole as indicated in the contract documents. Symbiont will address disapprovals or rejections of contractors' work to the General Contractor through the use of a written defective work description. For budgeting purposes, Symbiont has assumed 5 instances of preparing contractor notices requiring 8 hours of document preparation per instance.

### Clarifications, Interpretations, and Field Orders

Symbiont will issue necessary clarifications and interpretations of the contract documents as appropriate to the orderly completion of the work. Such clarifications and interpretations will be consistent with the intent of and reasonably inferable from the contract documents. We anticipate that the General Contractor will utilize the electronic request for information (RFI) form and communicate the request directly to Symbiont.

Symbiont may also issue field orders authorizing minor variations from the requirements of the contract documents where no contractual dollar amount or schedule adjustments are required as a means of documenting project changes for record purposes. Symbiont will communicate with the General Contractor on a regular basis to confirm the intent of the design. The effort required to respond to contractor RFI requests will be addressed by Symbiont and our subconsultants, as appropriate.

### Submittal Review

Symbiont will review and comment on product certifications, shop drawings, and other data that contractors are required to submit. Submittal reviews will be for conformance with the information given in the contract documents and compatibility with the design concept of the completed project as a functioning whole as indicated in the contract documents. Such reviews and review comments will not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Symbiont's proposed level of effort is based on 300 submittals with the majority of the submittals successfully reviewed and returned to the Contractor in the original submittal.

Symbiont will receive and process the Contractor's submittals including routing of submittals to subconsultants, maintaining a submittal log, transmitting submittal review comments to the Contractor, and transmitting reviewed submittals to City personnel and field inspection staff.

### Substitutes

Symbiont will evaluate and determine the acceptability of substitute or "or-equal" materials proposed by subcontractors for conformance with the contract document requirements. Substitution requests will be evaluated as part of the shop drawing review process. Symbiont has assumed a maximum of 20 substitutes at an average of 3 hours per substitute.

### Applications for Payment

Based on Symbiont's on-site observations as experienced and qualified design professionals and on review of Applications for Payment and the accompanying data and schedules, Symbiont shall review the Contractors' Applications for Payments and recommend amounts to be paid. Such recommendations of payment will be in writing and will constitute Symbiont's representation to the City, based on such observations and review, that, to the best of Symbiont's knowledge, information and belief the work has progressed to the point indicated, the quality of such work is generally in accordance with the Contract Documents (subject to an evaluation of such work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents and to any other qualifications stated in the recommendation), and the conditions precedent to Contractors' being entitled to such payment appear to have been fulfilled in so far as it is Symbiont's responsibility to observe the work. In the case of unit price work, Symbiont's recommendations of payment will include final determinations of quantities and classifications of such work (subject to any subsequent adjustments allowed by the Contract Documents).

By recommending any payment Symbiont shall not thereby be deemed to have represented that on-site observations made to check the quality or quantity of Contractors' work as it is performed and furnished have been exhaustive, extended to every aspect of the work in progress, or involved detailed inspections of the work beyond the responsibilities specifically assigned to Symbiont in this Agreement and the Contract Documents.

### Change Order Review

Symbiont will review change order and contractor claims along with the City of Rock Island to evaluate the technical and commercial merits of contractor and/or Rock Island initiated change orders. We will evaluate and make recommendations regarding the merit of proposed changes. We will provide an independent cost estimate and recommendations relative to the cost of the change as submitted by the contractor for negotiating purposes. Specification and/or drawing revisions will be provided to the City such that formal change orders can be executed with the contractor. Symbiont will prepare short-form change orders for concurrence by City personnel and execution with the Contractor. The budget for change order and claims review efforts includes 190 hours of engineering support.

### Contractors' Completion Documents

Symbiont will receive from the General Contractor, review, and transmit back to the General Contractor with written comments: maintenance and operating manuals, schedules, certificates of inspection, tests and approvals which are to be assembled by contractors in accordance with the contract documents to obtain final payment. Symbiont's review of such documents is limited to determine that in general the content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the contract documents. The General Contractor will be responsible for tracking the completion and submittal of all testing, inspection and similar documentation. Review of the General Contractor's progress will be monitored as part of the biweekly progress meetings. Symbiont will review and organize the final certificates of proper installation into the manufacturers O&M manuals as part of the overall project O&M manual. To accomplish the onsite reviews associated with the equipment certificates of proper installation, Symbiont anticipates that we can perform these services during the site meeting and technical inspection site visits. Symbiont will receive O&M materials and forward to the City when approved.

### Substantial Completion

Following notice from the General Contractor that they consider the entire work ready for its intended use, Symbiont, the City of Rock Island, and the General Contractor shall conduct an inspection to determine if the work is substantially complete. To perform substantial completion reviews, Symbiont assumes different discipline engineers will be required including civil, structural/architectural, mechanical, HVAC, controls, and electrical. If, after this inspection, Symbiont considers the work substantially complete, Symbiont will prepare a certificate of substantial completion for signature by the City and Contractor.

Following substantial completion inspection, Symbiont will prepare a draft punch list of items to be completed and distribute it to all inspection participants. Symbiont will prepare a Substantial Completion Package that includes the following:

- Contractor's Request for Substantial Completion Inspection
- Substantial Completion Inspection Report
- Punch List
- Statement regarding responsibilities pending final completion concerning security, maintenance, and insurance
- Statement regarding warranties and guarantees
- Certificates of Substantial Completion
- Request for Reduction of Retainer

Based on the design sequence of construction, Symbiont anticipates six partial substantial completion reviews and inspections could be executed as part of the construction contract.

Symbiont believes that a portion of the reviews can be completed as part of the biweekly progress meetings.

#### Contract Completion and Closeout

Symbiont along with the City of Rock Island and the General Contractor will conduct a final inspection to determine if the completed work of the contractor is acceptable so that Symbiont may recommend, in writing, final payment for the contractor. To perform final completion reviews, Symbiont assumes different discipline engineers will be required including civil, structural/architectural, mechanical, HVAC, controls, and electrical.

Accompanying the recommendation for final payment, Symbiont will also provide documentation that to the best of Symbiont's knowledge and information, the contract has been satisfied and is ready for final payment. Symbiont will provide a Final Completion Package that includes the following:

- Final Completion Certificate
- Final Pay Application
- Documentation of Maintenance Bond
- Waiver of Public Improvements Lien
- Consent of Surety to Final Payment

#### Record Drawings

During construction progress meetings and construction site visits, Symbiont in conjunction with the Missman site inspectors will monitor the Contractor's record drawings markups. Following completion of the construction work, Symbiont will prepare an electronic set of record drawings showing record information received from the General Contractor, change order modifications, field orders and other record documents furnished by the General Contractor to Symbiont, which were annotated by the General Contractor to show all changes made during construction.

Symbiont shall not be responsible for the acts or omissions of any Contractor, or of any subcontractor, any supplier, or for any other person or organization performing or furnishing any of the work. Symbiont shall not be responsible for Contractors' failure to perform or furnish the work in accordance with the Contract Documents. Upon preparation of the record drawings and review by the City, Symbiont will provide the City with electronic files of all the drawings.

#### Construction Observation

Symbiont through Missman will provide qualified technical personnel for the purpose of observing and recording construction details, including equipment, materials, workers, weather, contractors, progress, and other information for future reference. The observation services shall include the following:

- Screen contractor questions regarding plan and specification interpretations and assist in determining if an ambiguity or apparent omission exists.
- Contractor conformance with the contract plans, specifications and schedules
- Note work performed
- Take notes and measurements for record drawings
- Record weather
- Photographic documentation
- Note any special conditions, material deliveries, number of people working and arrival and departure of major equipment
- Note discussions and important visitors
- Record opening and closing of roads and detours
- Note suspension of work, resumption of work, time spent on disputed items, or delays
- Track work on railroad items
- Record any high water levels
- Record presence of testing personnel on site
- Note any accidents or injuries
- Note time of placing/removing erosion controls

The following services will not be performed as part of the observation services:

- Surveying and/or construction layout
- Title research or expert testimony
- Engineering services and/or coordination regarding Archaeological, Environmental, or Historic issues
- Soils investigations, geotechnical or environmental reports or studies
- Erosion control monitoring or reporting

All daily reports, diaries, and photography will be made available to the City on a regular basis.

The construction observation level of effort assumes 30 months of observation during normal business hours. A dedicated construction vehicle will be provided at the jobsite for use by the construction observation personnel. The vehicle will be billed at the rate of \$20 per day.

#### IEPA Loan Coordination

As part of the City's SRF loan with IEPA, various documents and information will need to be coordinated with IEPA. Symbiont will coordinate with and transmit to IEPA pay applications, change orders, and record drawings.

### Project Management

Symbiont will provide project management to coordinate the above scope of work with the design team, City staff, and outside stakeholders. In addition, Symbiont will develop and maintain a project website for posting relevant project information including inspection reports, photographs, submittal log, RFI log, meeting notes, etc. The website will be password protected and viewable only by project team members.

### Air Emissions Operating Permit

The following section summarizes the tasks to be completed to prepare a Federally Enforceable State Operating Permit (FESOP) application for City of Rock Island Wastewater Treatment Plant to accommodate the new high rate wet weather treatment system. The tasks outlined below are the steps necessary based on the status of the Illinois Environmental Protection Agency's (IEPAs) Air Quality Divisions' current permitting guidance and the ozone nonattainment status of Rock Island County.

### *BACKGROUND*

On November 16, 2010, on behalf of the City of Rock Island, Symbiont submitted a letter to IEPA requesting an exemption for requiring a construction permit for the removal of two boilers and one generator, and the installation of two replacement boilers, two emergency generators, one digester gas generator, and six natural gas-fired engine pumps; all part of the new high rate wet weather treatment system.

IEPA agreed that this project was exempt from requiring a construction permit but indicated in a letter dated December 7, 2010 that once the project was installed, the wastewater treatment plant would require an operating permit because the potential nitrogen oxide (NO<sub>x</sub>) emissions exceeded 100 tons per year (tpy). Potential emissions are calculated assuming that all equipment operates at a maximum rate for 24 hours/day, 365 days/yr and therefore are usually much higher than actual emissions. IEPA suggested that the City apply for a Federally Enforceable State Operating Permit (FESOP), in which the City would voluntarily accept operational limits to remain below the major source air permitting thresholds. A FESOP allows sources to avoid the requirements to obtain a major source Clean Air Act Permit Program (CAAPP) permit. A FESOP is almost always less expensive to obtain and comply with than a CAAPP permit.

Major source air permitting thresholds for each criteria pollutant are 100 tpy for the Rock Island, Illinois area. Based on the earlier construction permit exemption work performed by Symbiont for the City, it appears that the anticipated total actual emissions for each criteria pollutant from the waste water treatment plant and new wet weather treatment system will be well below 100 tpy. Therefore, Symbiont does not anticipate that the City will have any problems meeting FESOP requested permit limits to remain a non-major source.

## SCOPE OF SERVICES

### Task 1 – Data Collection & Site Visit

To prepare the FESOP permit application efficiently, Symbiont plans to utilize the existing information previously obtained to evaluate the air emissions. If necessary, Symbiont will perform a site visit to observe the operations and identify insignificant air emission sources that should be listed on the air emission permit application.

### Task 2 – Emissions Estimation

Symbiont will estimate actual and potential emissions of criteria and hazardous air pollutants for each of the following emission units based on the information obtained in Task 1:

- Two replacement boilers
- Two emergency generators
- One digester gas generator,
- Six natural gas-fired engine pumps
- Five existing natural gas-fired engine pumps, and
- One waste gas flare

Symbiont assumes that the emissions from the existing wastewater treatment system (e.g. clarifiers and aeration basins) and the new high rate system are negligible and IEPA will not require emission estimates from these units. *Note: Estimating emissions from wastewater treatment systems generally requires the use of complex computer modeling and is not included in the scope of this work.*

Supporting documentation such as material safety data sheets, equipment cut sheets and air emission information and other information used in the emission estimation will be compiled for the FESOP permit application.

### Task 3 - Completion of Draft Permit Forms and Supporting Documentation

Symbiont will determine state and federally enforceable applicable requirements based on the results of Task 2. Symbiont will complete the necessary permit application forms and supporting documentation for the units listed in Task 2. Based on IEPA online instructions, the following information and forms must be submitted for a FESOP application:

- Forms for each piece of equipment provide site specific information, process information, emission estimates, applicable requirements, process flow diagrams and supporting documentation.
- Propose a set of enforceable limitations on emissions, operations and production, which constrain plant emissions below major source levels.
- CAAPP200, Application for CAAP Permit

- CAAPP292, Fee Determination for Operating Permit
- CAAPP 293, Compliance Plan/Schedule of Compliance Plan for CAAPP permit
- CAAPP296, Compliance Certification
- CAAPP299- Listing of Significant Activities
- CAAPP215- Hazardous Air Pollutant Emission Summary
- CAAPP297- Listing of Insignificant Activities
- CAAPP391 Fugitive Emissions
- CAAPP 464 Compliance Assurance Monitoring Plan
- Fugitive Particulate Matter Operating Program, if required
- PM Contingency Measure Plan, if required

Symbiont will provide a copy of the draft permit application to City of Rock Island for review and comment.

#### **Task 4 – Finalize Permit Application**

Symbiont will finalize all correspondence, supporting documentation and permit forms after incorporating comments received from the City. We will then provide three copies of the permit application and supporting documentation to the City. Two copies will be required for submittal to IEPA.

#### **Task 5 – IEPA Operation Permit Application Follow-up**

Symbiont will respond to agency requests for additional information or clarification. Once a draft permit is available from the agency, Symbiont will review the draft permit and provide comments on the draft permit to the City. Based on past experience, Symbiont assumes that approximately 20 hours will be needed to respond to comments and questions by IEPA. Once the comments are received from IEPA, Symbiont will notify the City if additional effort may be needed.

#### **Task 6 – USEPA Communications Regarding New Engines**

Symbiont has been involved with ongoing communications with the United States Environmental Protection Agency (USEPA) in an attempt to classify the new WWTS engines as “emergency engines” (to be subject to higher emission limits than non-emergency) and to clarify how these engines can be tested to demonstrate that they meet the emission limits. Symbiont assumes that approximately 16 hours will be needed to conclude these communications.

#### **Air Permitting Fee Assumptions**

**The proposed fee below does not include the cost of any fees that may be required to be submitted to IEPA with the application or billed later.** Note: In addition to the fees associated with FESOP permit applications, an annual site fee is assessed and billed by IEPA after an operating permit is issued. The amount of the annual site fee depends on the type of operating

permit and its emission limits. The City may be exempt from the permitting and reporting fees. Symbiont will determine the amount of fees, if any, during Task 3.

Task 2- The proposed fee is to prepare the application only for the equipment listed in Task 2. Additional costs may be incurred if additional processes requiring inclusion in the permit are identified.

Task 2- The proposed fee does not include estimating emissions from the wastewater treatment processes for the existing treatment plant or for the high rate treatment system. Emissions from such units are usually negligible. If IEPA requires emission estimates from these units, Symbiont will prepare a cost estimate to complete such estimates for the City.

#### **WORK NOT INCLUDED**

This proposal does not include programming and instrumentation and control inspection services, startup assistance services, training, and O&M manual development. These services will be provided under a separate contract amendment after the construction process has begun so the scope of services can be better tailored to the specific construction sequence and duration.

#### **FEE AND SCHEDULE**

Symbiont proposes to perform the engineering services during construction described herein on a time and materials basis as follows.

Engineering Services During Construction	\$1,122,000
Construction Observation Services	\$1,130,726
Air Emissions Permitting Services	\$19,800
TOTAL	\$2,272,526

Symbiont's current design and bidding contract totals \$2,772,300. With the addition of this amendment, the revised contract amount will be \$5,044,826. All services will be billed on a time and materials basis according to the rate schedule in effect when the work is completed.

The construction phase for this project is anticipated to begin in mid July 2011 and is scheduled to be completed in December of 2013.

**PROJECT TEAM**

Symbiont plans to maintain the same team of highly qualified personnel that designed the Wet Weather Treatment System project for the engineering services during construction including Gere-Dismer Architects, Missman, Eclipse Controls, and Shive Hattery.

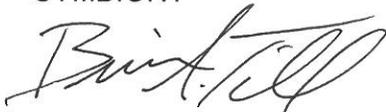
**TERMS AND CONDITIONS**

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.

Symbiont appreciates the opportunity to provide the City with the above engineering services. The work scope, cost, and schedule can be further modified as necessary to better meet the needs of the City. Please call at your earliest convenience if you have any questions regarding this proposal.

Sincerely,

SYMBIONT



Brian A. Till, P.E.  
Project Manager

SYMBIONT



Patrick W. Carnahan, P.E.  
Municipal Group Manager

Attachment



SYMBIONT

# CONTRACT CHANGE ORDER

**PROJECT NAME:** Wet Weather Treatment System

**CHANGE ORDER NO.:** 8

**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.:** W091615

**CONTRACT FOR:** Design Services

**CONTRACTOR PROJECT NO.:**

**CONTRACT DATE:** January 19, 2009

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

**Description:** Engineering Services During Construction

**Purpose of Change Order:** Contract amendment to include engineering services during construction including construction observation and air permitting services.

**Attachments:** 1 **Symbiont Proposal No. 31858**

CITY OF ROCK ISLAND

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

SYMBIONT

By: *Pat W. Cannon*

Title: *Municipal Group Mgr*

Date: *June 15, 2011*