



THE COUNCIL OF THE CITY OF BINGHAMTON
STATE OF NEW YORK

Date: November 4, 2015

Sponsored by Council Members: Motsavage, Papastrat, Mihalko, Berg, Matzo

Introduced by Committee: Finance

RESOLUTION

entitled

A RESOLUTION AUTHORIZING THE MAYOR
TO ENTER INTO AN AGREEMENT WITH GHD
TO AMEND WORK ORDER NO. 6 FOR THE BAF
RESTORATION AND REHABILITATION AT
THE JOINT SEWAGE TREATMENT FACILITY

WHEREAS, the City of Binghamton (the "City") is a joint owner of the Binghamton-Johnson City Joint Sewage Treatment Facilities (the "JSTF") with the Village of Johnson City (the "Village"); and

WHEREAS, the Council of the City of Binghamton adopted Permanent Resolution 15-8 on February 18, 2015, entitled, "A Resolution Authorizing the Mayor to Enter into an Agreement with GHD Consultants to Complete Work Order #6 for the BAF Restoration and Rehabilitation Project at the JSTP"; and

WHEREAS, the Commissioner of Public Works has recommended that the City enter into an agreement with GHD to amend Work Order No. 6 for additional design services for the restoration and rehabilitation of the BAF at the JSTF at a cost not to exceed \$2,997,000.00, as described in the attached proposal; and

WHEREAS, funds are available from budget line HX8150.500200.J11NN (\$2,247,750.00) and budget line HX8150.500200.J11FF (\$749,250.00).

NOW, THEREFORE, the Council of the City of Binghamton, duly convened in regular session, does hereby:

RESOLVE that the Mayor, or his designee, is hereby authorized to enter into an agreement, approved as to form and content by the Office of Corporation Counsel, with GHD to amend Work Order No. 6 for additional design services for the restoration and rehabilitation of the BAF at the JSTF at a cost not to exceed \$2,997,000.00, as described in the attached proposal; and be it further

RESOLVED that such funds shall be deducted from budget line HX8150.500200.J11NN (\$2,247,750.00) and budget line HX8150.500200.J11FF (\$749,250.00); and be it further

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RESOLVED that this Resolution shall be effective upon approval of the Board of Trustees of the Village of Johnson City.

I HEREBY CERTIFY that the above described funds are unencumbered and available.



Chuck Shager, JSTF Fiscal Officer and Comptroller

Introductory No. R15-110

Permanent No. R15-109

Sponsored by City Council Members:
Motsavage, Papastrat, Mihalko, Berg, Matzo

A RESOLUTION AUTHORIZING THE MAYOR TO
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WORK ORDER NO. 6 FOR THE BAF RESTORATION
AND REHABILITATION AT THE JOINT SEWAGE
TREATMENT FACILITY

The within Resolution was adopted by the Council of
the City of Binghamton.

11/4/15
Date

[Signature]
City Clerk

11/5/15
Date Presented to Mayor

11/5/15
Date Approved
[Signature]
Mayor

	Ayes	Nays	Abstain	Absent
Motsavage	✓			
Mihalko	✓			
Rennia		✓		
Webb		✓		
Papastrat	✓			
Matzo	✓			
Berg	✓			
Total	5	2	0	0

Code of the City of Binghamton

Adopted Defeated

5 Ayes 2 Nays 0 Abstain 0 Absent

I hereby certify the above to be a true copy
of the legislation adopted by the Council
of the City of Binghamton at a meeting
held on 11/4/15. Approved by the
Mayor on 11/5/15.

[Signature] (Deputy)



Work Order-06

Amendment -1

Plant Restoration and Rehabilitation Final Design

I. DESCRIPTION

An engineering evaluation of the Binghamton Johnson City Joint Sewage Treatment Plant (BJCJSTP) was submitted by the City of Binghamton to the New York State Department of Environmental Conservation (NYSDEC) on January 5, 2015. This was done in response to the requirements of the Consent Order. The evaluation was prepared as part of Work Orders No.01 and No. 02.

The evaluations performed in Work Orders No.01 and No. 02 resulted in recommendations for restoring and rehabilitating the BJCJSTP. The design services to restore and rehabilitate the BJCJSTP were completed under Work Order No. 6 and generally included:

- Demolish the existing fine screening building and existing C-BAF cells
- Modify existing N-BAF cells to CN-BAF cells (BIOSTYR DUO Media)
- Construct new CN-BAF cells (BIOSTYR DUO Media)
- Construct new backwash tank
- Convert existing DN-BAF system to BIOSTYR DN-BAF system
- Construct new influent fine screens for Binghamton side and Johnson City side
- Modify SIPS dry well and wet well and replace pumps
- Construct new BAF backwash treatment system
- Modify existing Thickener No. 1 to centrate equalization
- Replace coarse screens in Head House
- Convert existing grit chambers to stacked tray vortex grit chambers
- Construct new aerated influent channels for chemically enhanced primary treatment (CEPT)
- Construct new CEPT system
- Replace all chain and flights and scum removal on all primary clarifiers
- Reconfigure the flow path of Primary Clarifiers No. 7 through No. 10
- Repurposing the Compost Facility as maintenance shops and administration offices
- Replace the motor control center in the Head House

During the design effort, the design team and the BJCJSTP staff met over twenty times. Issues of site and equipment conditions and operation and maintenance were discussed during most of these meetings. With the City's concurrence, many these issues were addressed, which resulted in an increased scope of work for design.

The increase in design scope can be categorized into four major components:

1. Improvement of the original concept design
2. Repair/upgrade to existing equipment (unknown during Work Orders No. 1 and No. 2)
3. Modification in treatment process or equipment for cost savings and environmental benefit
4. Assignment of work (from others)
5. Supporting design

II. SCOPE OF SERVICES FOR FINAL DESIGN

A. Improvement to Original Concept Design

1. During Work Order No. 6, improvements were made to the concept design of some facilities / features. Amendment 1 will provide a final design for the following facilities / features, which have been modified and improved from the original concept design.
 - a) BAF Concrete Design – significant consideration was given to pre-cast concrete versus poured in place concrete - poured in place concrete was the selected type



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- b) New BAF Blower Building (Demo old) -- replace the existing building with a new building that can serve as part of the flood protection system - eliminates a section of flood wall
- c) BAF Backwash Tank -- the improved tank is larger and of secant pile construction, which reduces significantly the dewatering costs during construction
- d) New Aerated Grit Chambers -- design an aerated grit system instead of a Headcell® grit system; aerated grit system improves CEPT performance
- e) New Primary Distribution Box - replace the existing distribution box with a new distribution box; the new box will provide better flow control and simplifies construction
- f) Methanol System - replace the old system with a new system and add fire suppression according to Vestal Fire requirements
- g) New Chemical Building -- a new building is a safer alternative than adding new chemicals to an existing building and is preferred by Vestal Fire
- h) New Headhouse Screening Building -- replace the old building with new building; the old building is not to code and the new building and layout is better for equipment access and removal of screenings
- i) Thickener No. 1 -- design repairs to Thickener No. 1 instead of converting this thickener to a centrate equalization tank. This is a more conservative solids handling design and the centrate equalization tank can be built a later time.
- j) Parking lot and Landscaping at Administration Building -- based on the new site security requirements all parking for the plant staff and visitors will be south side of the Administration Building requiring a new larger parking lot and landscaping
- k) Site Security Design -- new site security including gates, cameras and lighting
- l) Site-Civil grading and yard piping
- m) Structural and architectural design for the facilities
- n) Electrical design for the facilities
- o) Instrumentation design for the facilities. Equipment will be PLC based and "SCADA ready"
- p) HVAC design for the facilities. The building will be in accordance with applicable codes (10-States Standards and NFPA 820)

B. Repair / Upgrade Design

1. During Work Order No. 6, the design team learned of existing equipment that required repair and or upgrade to meet permit limits or building codes. Amendment 1 will provide a final design for the following facilities / features.
 - a) Thickener Improvements -- replace the internal mechanism for Thickeners No. 2 and No. 3 and build a new flow distribution box. These repairs and upgrades will improve the performance of the thickeners
 - b) Odor Control -- the existing odor control system is undersized and in poor condition. Replace/Upgrade.
 - c) Electrical Panels and Feeders and Bing and JC MCC as part of Headhouse MCC -- the existing panels and feeders and MCC is old and parts are not readily available. Replace/Upgrade.
 - d) PRZ System -- the existing pressure reducing zone valve at the feed to the plant is old and is in poor condition. Replace/Upgrade.
 - e) Site-Civil grading and yard piping
 - f) Structural and architectural design for the facilities
 - g) Electrical design for the facilities
 - h) Instrumentation design for the facilities. Equipment will be PLC based and "SCADA ready"
 - i) HVAC design for the facilities. The building will be in accordance with applicable codes (10-States Standards and NFPA 820)



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C. Modification to Treatment / Equipment Design

1. During Work Order No. 6, opportunities for treatment modifications and new facilities became warranted based on other design elements. These modifications and new facilities provide operation and maintenance cost savings. Amendment 1 will provide a final design for the following facilities.
 - a) Plant Water System – a new plant water system will be installed that pumps and conveys disinfected effluent to equipment (fine screens and BAF). This system re-uses water instead of using fresh water from the water supply, saving operation and maintenance dollars. The new plant water system includes: three, 20-HP pumps, approximately 800 linear feet of 8-inch plant water distribution mains and approximately 500 linear feet of 2-,3-,4-inch building services.
 - b) UV Disinfection - the existing chlorination system will be replaced with a UV system. The new UV system avoids repair costs needed for the existing chlorination system. The new UV system has a lower annual operation and maintenance cost. The new UV system discharge fewer chemicals to the environment. The new UV system includes: conversion of existing chlorine contact tank to UV facility, eight (8) inclined UV banks, new UV building including an new electrical room, new level control weir trough tank.
 - c) Site-Civil grading and yard piping
 - d) Structural and architectural design for the facilities
 - e) Electrical design for the facilities
 - f) Instrumentation design for the facilities. Equipment will be PLC based and "SCADA ready"
 - g) HVAC design for the facilities. The building will be in accordance with applicable codes (10-States Standards and NFPA 820)

D. Assigned Work Design

1. During Work Order No. 6, some design work was assigned to GHD. The decision to do so was based on keeping the construction work in a signal construction contract for quality control and easy of construction management. Amendment 1 will provide a final design for the following facilities / features.
 - a) South Flood Protection System – the original design (by others) included a flood gate across Old Vestal Road and a flood wall on the south side of Old Vestal Road. By assigning the design work to GHD it allowed the flood wall to be integrated into treatment tank wall, thus simplifying construction and reducing construction costs. The South Flood Protection System includes: approximately 5,000-sq ft sheet pile, approximately 250-ft long concrete wall – 1-ft thick with foundation "t".
 - b) SW System and SW PS No 4 - the original design (by others) included a large stormwater pump station. . By assigning the design work to GHD it allowed the pump station to be reduced in size and integrated into new structures, thus simplifying construction and reducing construction costs. The new stormwater pump station includes: two, 15-HP pumps, four control valves, a control weir and a 20-ft x 20 ft vault.
 - c) Traffic Management Design - the original design (by others) was not started. Because the South Flood Protection System was assigned to GHD the traffic management design also needed to be assigned. The traffic management design entails the shut-down of one lane of Old Vestal Road during most of the construction duration.
 - d) SCADA Integration – new programming to integrate individual PLCs into SCADA network. For reason of continuity this work was assigned to GHD. After the hardware design and schematic package is completed, the Control System Narrative will be developed. This narrative document will detail the automation and monitoring software requirements for all of the PLCs, HMIs, and the SCADA system. It also defines the communication structures and protocols that will be used for all of the vendor and OEM PLCs. Once this narrative document is reviewed and accepted by the Client, then the development of the software packages can begin. Customized PLC software will be required to control and/or interface a total of 22 PLC's.



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- e) Site-Civil grading and yard piping
- f) Structural and architectural design for the facilities
- g) Electrical design for the facilities
- h) Instrumentation design for the facilities. Equipment will be PLC based and "SCADA ready".
- i) HVAC design for the facilities. The building will be in accordance with applicable codes (10-States Standards and NFPA 820)

E. Supporting Design

The design work detailed above requires supportive design work. This type of supportive design work was completed in Work Order No. 6, but due to the increased scope additional supportive design was required.

1. Provide Process Safety Management Plan. The work is anticipated to include:
 - a) Conduct a Process Hazard Analysis (PHA).
 - b) Prepare written Process Safety Management Plan to confirm with regulations
2. Provide hazardous material survey for the following buildings. This work will subcontracted to Shumaker Engineering, Binghamton.
 - a) Old Blower Building
 - b) East Scrubber Building
 - c) West Scrubber Building
 - d) Chlorination Building
 - e) DN Building
3. Provide environmental permitting. This work will be subcontracted to EDR, Syracuse.
 - a) Modify SWPPP based on modified backwash tank design. SWWP will be in compliance with the NYSDEC State Pollution Discharge Elimination
 - b) Provide additional wetland permitting assistance based on modified backwash tank design for potential impacts to adjacent waters of the United States.
4. Provide a final design for geotechnical. This work will be subcontracted to Brierley Associates, Syracuse. The final design for geotechnical is anticipated to include:
 - a) Interpret existing soils data for new/modified facilities identified above.
 - b) Prepare foundation designs for new/modified facilities identified above.

F. Other Services

1. Provide Bid Phase Services, including:
 - a) Prepare and issue necessary addenda based upon regulatory agency or contractor questions or comments.
2. Provide Project Management, including:
 - a) This task allows for the routine management, administration, and coordination of the work efforts for the final design activities. Included in this task is the appropriate coordination with the City, the Plant Staff and engineering team members, management of the project, monitoring of budget and schedule, and administrative assistance for NYSDEC and EFC.
3. The engineering team will participate in ADDITIONAL progress meetings with the Owner and the NYSDEC. The ADDITIONAL anticipated meetings include:
 - a) By-weekly meetings with the Owner (5 meetings)
 - b) NYSDEC meetings (2 meetings)
 - c) Vestal Fire (2 meetings)



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III. DELIVERABLES

- A. 30 Percent Design Bid Documents
- B. 60 Percent Design Bid Documents
- C. 100 Percent Design Bid Documents

IV. KEY PERSONNEL

Representative of Owner	Engineering Team
Gary Holmes	Michael Tamblin
Cathy Young	Howard LaFever
	Bruce Munn
	John LaGorga
	John Revette
	Dan Lalande
	Lauren Scanlan

V. SCHEDULE

Task	Completion Date
100 Percent Design Bid Documents	11/20/15

VI. COMPENSATION

- A. The Owner will be billed for actual labor hours charged at the billing rates contained in Attachment A, plus direct project expenses (e.g., identifiable reproduction costs, shipping charges). The compensation for the Scope of Services outlined in Section II is estimated to be \$2,997,000, as indicated in the Fee Schedule in Table 1.
- B. Payments for the work will be due monthly on the basis of statements submitted by GHD Consulting Services Inc. for the work performed during the period.
- C. Additional services beyond the Scope of Services will be considered extra work and will necessitate additional compensation.

VII. STANDARD TERMS AND CONDITIONS

The services described above will be completed as Work Order-06 Amendment -1 under the Terms and Conditions of the Agreement dated September 30, 2014 between GHD Consulting Services Inc. and the City of Binghamton.



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VIII. NEW YORK CLEAN WATER STATE REVOLVING FUND CONTRACTING REQUIREMENTS

GHD Consulting Services Inc. will comply with the applicable provisions of "Required Terms for Project Contracts and Subcontracts" as defined in the NY State Revolving Fund Bid Packet for Non-construction Contracts and Service Providers, as prepared by the New York State Environmental Facilities Corporation. Refer to Attachment B.

This Work Order is duly executed between Consultant and Client by signature or City Resolution (Attachment C). Upon execution of this Work Order, Consultant is authorized to proceed with the work.

CONSULTANT:

CLIENT:

GHD CONSULTING SERVICES INC.

CITY OF BINGHAMTON

By:

Michael E. Tamblin, P.E.

By:

Title:

Principal

Title:

Date:

Date:



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ATTACHMENT A RATE SCHEDULE

1.1 GHD CONSULTING SERVICES HOURLY RATES

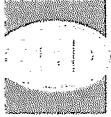
CLIENT shall pay Compensation for labor based on CONSULTANT's rate schedule below. The Rate Schedule provided below shall be in effect through completion of this Work Order:

Labor Category	Hourly Rate
Project Director	\$220.00
Senior Technical Advisor	\$210.00
Technical Advisor	\$180.00
Senior Project Manager	\$170.00
Senior Engineer	\$160.00
Project Manager	\$140.00
Project Engineer II	\$130.00
Project Engineer I	\$120.00
Engineer or Scientist II	\$110.00
Engineer or Scientist I	\$100.00
Architect	\$110.00
Managing Designer	\$140.00
Senior Designer	\$110.00
Designer	\$100.00
Senior Drafter	\$85.00
Drafter	\$70.00
Technician	\$65.00
Construction Project Representative	\$90.00
Field Technician	\$60.00
Secretarial/Word Processing	\$70.00

1.2 JL RICHARDS HOURLY RATES

CLIENT shall pay Compensation for labor based on CONSULTANT's rate schedule below. The Rate Schedule provided below shall be in effect through completion of this Work Order:

Labor Category	Hourly Rate
Project Director	\$190.00
Technical Advisor	\$185.00
Senior Project Manager	\$185.00
Senior Engineer	\$160.00
Project Manager	\$140.00
Project Engineer	\$120.00
Designer-Drafter	\$110.00
Secretarial/Word Processing	\$70.00



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1.3 Non-salary expenses and outside services attributable to the Project

CLIENT shall pay Compensation for expenses based on CONSULTANT's rate schedule below. The Rate Schedule provided below shall be in effect through completion of this Work Order:

- 1.3.1 Actual receipted cost of accommodations (not to exceed \$120 US per night)
- 1.3.2 A per diem for meals and expenses: \$46 US (overnight) or \$28 (full day) or \$16 (partial day).
- 1.3.3 Mileage calculated at the federal reimbursement rate established by the U.S. General Services Administration for privately owned vehicles in effect on the date of the occurrence;
- 1.3.4 The identifiable costs of reproduction, printing, and binding and postage and shipping applicable to the Project;
- 1.3.5 The actual cost of outside services and subcontractors;
- 1.3.6 Actual receipted cost of field equipment rental supplied by a vendor for use on the Project;
- 1.3.7 The actual cost of permits and fees required for the project and paid by CONSULTANT;
- 1.3.8 The actual cost for additional insurance required by the Owner in excess of CONSULTANT's normal coverage's or limits;
- 1.3.9 The actual cost of premiums paid on overtime worked.



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ATTACHMENT B

**Required Terms for Project Contracts and Subcontracts as defined in the NY State Revolving
Fund Bid Packet for Non-construction Contracts and Service Providers**