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## Director's Justification Memo

**DATE:** 12/1/22

**TO:** Lucas Martsof, Assistant Township Manager

**FROM:** Michael Malak, Director Engineering

**RE:** BCWPCF Bio Solids Update Final Design

**Munis Project Number:** CP039

**Munis Account(s):** 6210 5595 5111

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Check this box if the purchase is part of a capital project.

**Project Title:**

BCWPCF Bio Solids Processing & Dewatering Update Final Design

**Purchase / Project Description:**

Provide a detail description of the proposed requisition. (650 character limit)

This professional service requisition is for continued Consulting Engineering Services for the final design phase and bidding/award phase services for the solid processing, new dewatering facility design, and other ancillary improvements at the Brush Creek WPCF.

**Purchase / Project Justification:**

Describe why is this requisition is needed. What alternatives were considered? (650 character limit)

GHD comprehensive solids processing and dewatering Basin of Design Report determined anaerobic digestion system is the preferred upgrade technology for the plant. It was determined the second generation ATAD system alternative would cost significantly more than the anaerobic system. GHD has recently completed a preliminary 25% percent design for the plant upgrades include an anaerobic digestion system and centrifuge dewatering in a new building, associated piping and pumping modifications and several ancillary upgrades.



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## Director's Justification Memo

### Purchase Cost Details:

Provide a summary of the estimated costs. (650 character limit.)

GHD proposes to perform the services on a time & materials, not-to-exceed basis for the fees below:

*Table 2 Fee Schedule*

Activity	Fee
Task 1a Initiation to Preliminary Design	Complete
Task 1b Preliminary Design through 60% Design	\$303,000
Task 2 Final Design and Permitting	\$455,000
Task 3 Bid and Award	\$23,500
<b>Total</b>	<b>\$781,300</b>

### Staff Recommendation:

Describe the basis of your recommendation. (500 character limit.)

GHD has a firm understanding of the Township's needs and timeline for upgrading the BCWPCF facility. With GHD, and its subconsultant, having prior knowledge of the facility through a previous upgrade project, I would recommend GHD to complete the final phase of design.

### Image:

(Attach image if, applicable.)



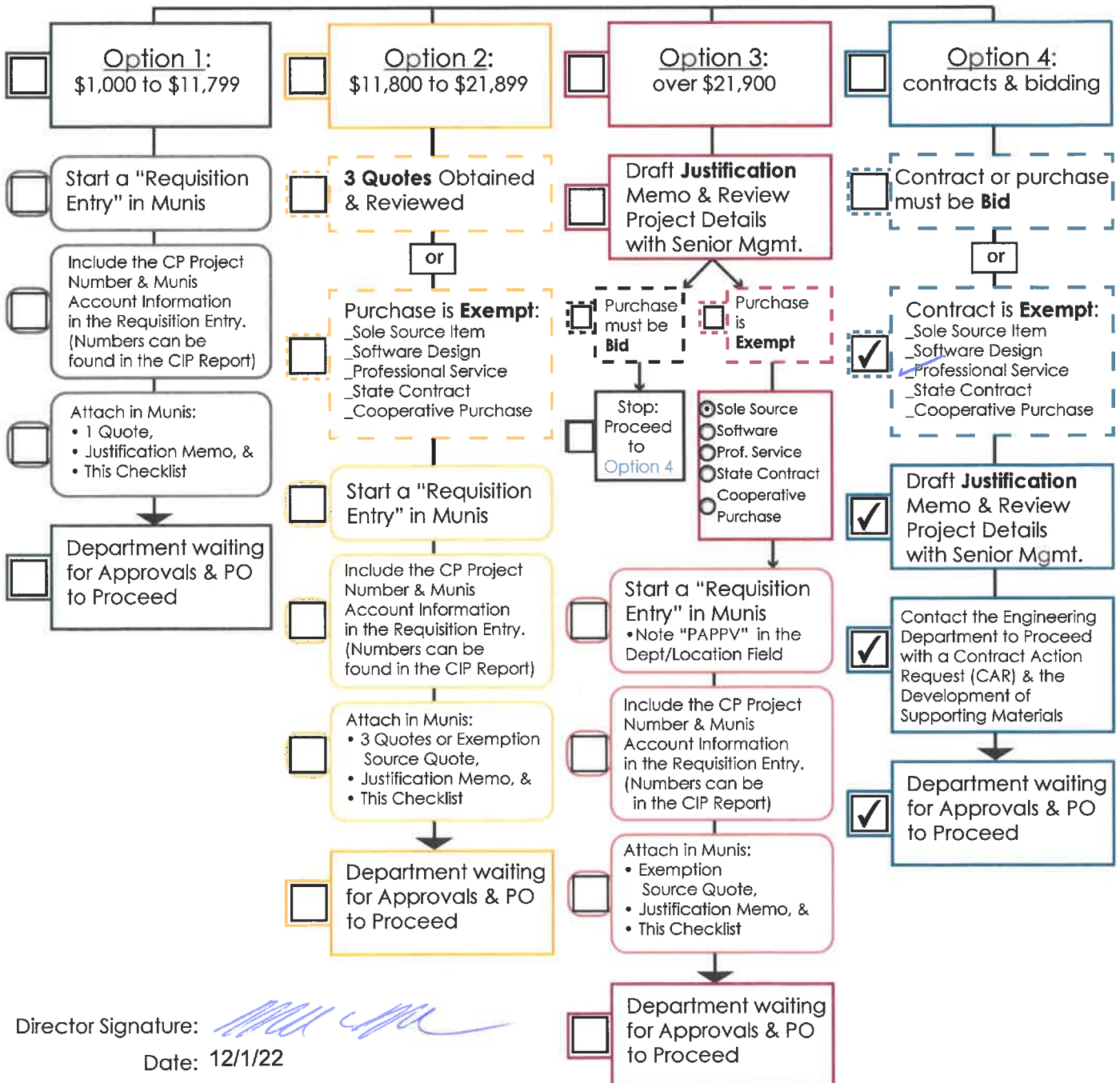
Cranberry Township  
Capital Purchasing Checklist

Purchase Title or Description: BCWPCF Bio Solids Update (Final Design)

Estimated Cost: \$781,300

Submitting Department: Engineering

Munis Project Number (CP#): CP039





Our ref: 12584064

November 16, 2022

Tim Schutzman, PE  
Waterworks Coordinator  
Cranberry Township  
2525 Rochester Road  
Cranberry Township, PA 16066

**Brush Creek WPCF Solids Processing and Dewatering Upgrade  
Updated Preliminary Design, Final Design and Bidding/Award Phase Services**

Dear Tim,

In accordance with your request, GHD offers this updated proposal to continue into detailed design and bidding/award phase services for the solids processing, new dewatering facility design, and other ancillary improvements at the Brush Creek WPCF. In our proposal, we discuss our understanding of the Township's needs, outline the proposed scope of services, provide a schedule to meet the Township's timeline, and address compensation and our agreement.

## **1. Understanding of needs**

Following up on revised TM-08, GHD worked with Cranberry Township staff on a comprehensive solids processing and dewatering Basin of Design Report (BODR) in October 2022. This report has been reviewed in detail by staff and discussed in a follow up workshop, and the BODR establishes the scope of this project. The upgrade includes an anaerobic digestion system and centrifuge dewatering in a new dewatering building, associated piping and pumping modifications, and several ancillary upgrades not previously contemplated (i.e., primary clarifier equipment replacements).

As noted previously, the GHD design team, including our subconsultant Keystone Engineering Group, has extensive knowledge of the facility through our work on the major WPCF upgrade and expansion project completed in 2019 and through the Basis of Design effort. We will leverage that knowledge and the previous solids processing upgrade design efforts to provide an efficient and timely design.

## **2. Scope of services**

### **Task 1a Project initiation to preliminary design – COMPLETE**

This task includes the effort to initiate the project, finalize the scope, develop design concepts to review with the Township, and deliver a Basis of Design Report (BODR) and preliminary construction cost estimate. Upon award of the assignment, GHD will:

1. Initiate and attend an onsite kick-off workshop with Township staff, collect additional information on existing facilities as needed and walk the site to identify desired locations for new systems.
2. Identify design constraints based on current NFPA 820 guidance, ANSI B149.6, and other local codes that may govern the facility upgrades and gas handling systems.
3. Identify qualified manufacturers of the gas safety systems and process equipment.
4. Prepare BODR. This report will build off the findings in TM-08 including the following:
  - Confirming solids train flows and loadings
  - Develop recommended scope of work
  - Provide basis of design equipment selections, design criteria and manufacturer's information
  - Prepare preliminary design drawing set (as noted on the sheet list)
  - Proposed construction sequence (including approximate durations and milestone) and maintenance of plant operations (MOPO) plan (not included in original proposal)
  - Basis of design construction cost estimate (not included in original proposal)
5. Conduct BODR workshop

### **Task 1b Preliminary design through 60-percent design**

This task includes the effort to deliver a design progress set at approximately 60-percent design completion for the Township's review and discussion. Upon award of the assignment, GHD will:

1. Develop design documents, including plans and specifications, that reflect the required final scope of work (in accordance with the Basis of Design Report).
2. Submit progress plans (approximately 30-percent design effort) for review and comment.
3. Conduct permitting agency outreach to confirm the required permits.
4. Deliver 60-percent design documents and updated opinion of probable construction cost to the Township for review and comment. GHD will facilitate an onsite workshop to review these documents.

### **Task 2 Final design and permitting**

GHD will identify regulatory compliance/permitting requirements. While the DEP Water Quality Management permit previously issued for the last upgrade did include the solids processing system, that permit was based on an ATAD system. At a minimum, a permit modification will be required. Additionally, we expect we will need to develop E&S control measures based on Township and County standards, and a DEP stormwater permit application (NPDES General or individual stormwater).

GHD will then submit permit applications on behalf of the Township in parallel with design development. Permit comments from the jurisdictional agencies will be incorporated into the bid set.

The following further outlines GHD's anticipated efforts under this task:

1. Coordinate with Township staff on the design, and specifications/contract documents.
2. Prepare biddable drawings. The anticipated drawing set upon which we have based our level of effort for design includes approximately **105** drawings (see Attachment). This drawing set is preliminary and will be adjusted as necessary through the project design.
3. Prepare biddable technical specifications/contract documents. The technical specifications will be prepared using the 17-division format published by the Construction Specifications Institute. The "front-end" contract documents will be developed based on the 2013 edition of documents published by the Engineers Joint Contract Documents Committee, modified to meet the Township's needs.

4. Prepare the bid form.
5. Provide an updated engineer's opinion of probable construction costs.
6. Provide documents for the Township's review and conduct an in-person 90-percent design review workshop.

Following incorporation of the 90-percent design review comments, we will prepare the bidding set. Deliverables will be submitted to the Township electronically and in hard copy format as needed. Final "bid ready" documents will be signed and sealed by a professional engineer registered in the Commonwealth of Pennsylvania.

### Task 3 Bid and award

As with the previous plant upgrade project designed by GHD, we anticipate that this project will be bid using the PennBid electronic document and bid management program. GHD will provide the following services:

1. Assist the Township with preparation of the bid advertisement (the Township will handle advertising in the local paper as necessary)
2. Post the construction project and all required documents on PennBid
3. Monitor the solicitation site on PennBid
4. Respond to questions asked by contractors through PennBid
5. Host a pre-bid meeting (via MS Teams or in person) and prepare the agenda and minutes
6. Prepare and distribute addenda through PennBid, as needed
7. Open bids on PennBid
8. Review bids received and all supporting documentation
9. Prepare a bid review letter and tabulation of bids
10. Assemble documentation for award of the contract (the Township will issue the Notice of Award letter)

## 3. Additional services

If directed by the Township, GHD will attend additional meetings or provide additional services related to this assignment for additional negotiated compensation based on our fee schedule at the time of service.

## 4. Schedule

Based on the scope of work and permitting timeframes (review times vary widely with regulatory agencies), we believe the project can be bid for construction in fall 2023. Table 1 shows the estimated project timeframe with a construction Notice to Proceed in early 2024. Specific items or permits may be advanced in the schedule if early procurement of equipment is considered.

*Table 1 Estimated project timeframe*

Activity/Milestone/Deliverable	Estimated Date
Project Award/NTP/Kickoff	<b>Complete</b>
Initiation and Site Visit	<b>Complete</b>
Basis of Design Report	<b>Complete</b>

<b>Activity/Milestone/Deliverable</b>	<b>Estimated Date</b>
Notice to Proceed	<b>December 12, 2022</b>
30% Design	<b>January 27, 2023</b>
60% Design	<b>May 26, 2023</b>
90% Design and Permitting	<b>July 7, 2023</b>
Draft Bid Documents	<b>August 18, 2023</b>
Bidding Period	<b>September 1 through November 10, 2023</b>
Receive Bids	<b>November 10, 2023</b>
Award Period	<b>November 10, 2023 through January 15, 2024</b>
Construction Period	<b>Commencing January 2024</b>

## 5. Compensation

We propose to perform our services on a time and materials, not-to-exceed basis for the fees shown in Table 2. These fees include estimated expenses for such items as travel and document reproduction, which are necessary to complete the tasks. Additional services, if requested by the Township, will be performed upon the Township's approval of additional tasks and fees.

*Table 2 Fee Schedule*

<b>Activity</b>	<b>Fee</b>
Task 1a Initiation to Preliminary Design	<b>Complete</b>
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<b>Total</b>	<b>\$781,300</b>

## 6. Agreement for professional engineering services

Services outlined in this proposal will be completed under the existing agreement between GHD and Cranberry Township for the Brush Creek WPCF design and construction project dated July 15, 2014. If this proposal is satisfactory to you, please execute and return an electronic copy of the accepted proposal to us. The accepted proposal will constitute an amendment to the current agreement and authorization to proceed. Alternatively, another mutually acceptable agreement may be used.

We appreciate the opportunity to be of continued service to the Township and look forward to working with you on this important assignment. Please contact us if you have any questions or require additional information.

Sincerely,  
GHD

*Howard Butler*

**Howard Butler, PE**  
Design Manager



**Joel Kostelac, PE BCEE**  
Project Director

Enclosure

Copy to: Mike Sedon, Cranberry Township



**ACCEPTANCE AND AUTHORIZATION TO PROCEED**

**Cranberry Township**

By: \_\_\_\_\_  
(Authorized Representative)

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

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

**Cranberry Township Brush Creek WPCF - Solids Handling, Dewatering and Ancillary Upgrades**

1	G-001	Cover Sheet with Location and Site Map	50	S-001	Structural Demo
2	G-002	Key Plan with General Notes	51	S-002	Digester foundation
3	G-003	Solids Handling Schematic	52	S-003	Digester Sections
4	C-001	Existing Site plan	53	S-004	Digester Plans, details, cutaway
5	C-002	Proposed Site Plan	54	S-005	Digester Building Sections
6	C-003	Yard Piping	55	S-006	Digester building plan(s)
7	C-004	Yard Piping Details/odor control site demo	56	S-007	Misc Metals and details
8	C-005	E&S Plan	57	S-008	Solids Processing Plan
9	C-006	E&S Notes	58	S-009	Solids Processing Section Solids Processing floor reinforce, stairs, conveyor support, monorail
10	C-007	Stormwater/Grading	59	S-010	
11	DD-001	Process Mechanical/Demo - Dewatering 1st floor	60	S-011	Structural Details, Symbols
12	DD-002	Process Mechanical/Demo - Pumps/HVAC	61	S-012	Dewatering floor repair
13	DD-003	Process Mechanical/Demo - Existing ATAD Subsurface piping Process Mechanical/Sections - Details Carbon Scrubbers, RDT pump,	62	S-013	IPS Biofilter
14	DD-004	WAS holding section (mixer)	63	S-014	Solids Processing Biofilter
15	DD-005	Grit Classifier Demo/Primary Clarifier Gates/Primary sludge pumps	64	S-015	Post Digestion Sludge Storage foundation
16	DD-006	Primary clarifier Plan/Section	65	H-001	Digester Building HVAC 1st floor
17	A-001	Membrane Roof Demo	66	H-002	Digester Building HVAC 2nd floor
18	A-002	Metal Roof Demo	67	H-003	SPB HVAC 1st floor
19	A-003	Digester Building Plan	68	H-004	SPB HVAC 2nd floor
20	A-004	Digester Building Elevations	69	H-005	HVAC Details
21	A-005	Digester Building Sections + Details	70	H-006	HVAC equipment schedules
22	A-006	Dewatering Building Plan, Doors, Details	71	H-007	HVAC equipment schedules
23	A-007	Architectural Schedules and Details	72	P-001	Solids Processing Building Plumbing
24	A-008	Membrane Roof Replacement	73	P-002	Dewatering Building Plumbing
25	A-009	Metal Roof Replacement	74	P-003	Plumbing Details
26	A-010	Solids Processing Building Plan	75	ED-001	IPS MCC demo (for 6th pump)
27	A-011	Solids Processing Building Elevations	76	ED-002	Switchgear 1,2, Demo, Single Line
28	A-012	Solids Processing Building Sections + Details	77	ED-003	Dewatering Demo - single line
29	D-001	Hydraulic Profile/Design Criteria	78	ED-004	IPS Demo Single line
30	D-002	Solids Processing - Lower Level	79	ED-005	IPS Demo Single Line
31	D-003	Solids Processing - Upper Level Plan	80	E-001	Electrical Site Plan
32	D-004	Solids Processing - Sections	81	E-002	IPS MCC Elevation
33	D-005	Solids Processing - Basement (pumps)	82	E-003	Digester MCC Elevation
34	D-006	Digester Building Plan	83	E-004	SPB MCC Elevation
35	D-007	Digester Building Sections	84	E-005	Ductbank Sections
36	D-008	Digester Building Details	85	E-006	Switchgear 1,2, Single Line
37	D-009	Digester 1&2 plan	86	E-007	Dewatering Single line
38	D-010	Digester 1&2 Section, Details	87	E-008	IPS single line
39	D-011	Gas Handling Plan and details, Flare	88	E-009	IPS single line
40	D-012	Grit Classifier	89	E-010	Digester Building Single Line
41	D-013	Primary clarifier Plan	90	E-011	SPB single line
42	D-014	Primary clarifier Section	91	E-012	SPB Single Line (2nd half)
43	D-015	Primary Sludge Pumps, Primary gates, details	92	E-013	Digester Building Lighting
44	D-016	Process Details	93	E-014	Digester Building Power
45	D-017	IPS Biofilter	94	E-015	Digester Power
46	D-018	Post Digestion Sludge Storage	95	E-016	SPB Lighting
47	D-019	Solids Processing Biofilter	96	E-017	SPB Power Plan
48	D-020	Pre Thickened WAS Storage (Cover)	97	E-018	SPB Biofilter, Post Eq power plan IPS Biofilter power plan/ Pre-Thickening Holding power plan
49	D-021	WAS Holding Mixer Replacement/RDT feed/Grinders	98	E-019	
			99	E-020	RDT pump, grinder, WAS mixer Power plan
			100	I&C-001	System Architecture
			101	I&C-002	Network Panels and Details
			102	I&C-003	Digester Tank instruments, connections
			103	I&C-004	Centrifuge, conveyor, polymer, feed pump control
			104	I&C-005	Dewatering emergency power, load shed
			105	I&C-006	Fire Alarm, Gas Detection, access control alarms