



LCA Main Office:
1053 Spruce Road
Wescosville, PA 18106
610-398-2503

Agendas & Minutes Posted:
www.lehighcountyauthority.org

LEHIGH COUNTY AUTHORITY

Published: September 12, 2022

BOARD MEETING AGENDA – September 19, 2022 – 12:00 p.m.

In-Person or Virtual Meeting Attendance Options Available: Meetings of the LCA Board of Directors will be held at LCA's Main Office as well as online using the Zoom Meetings application, which includes a telephone option. Public participation is welcomed both in-person or virtually. Instructions for joining the meeting online or by phone are posted on the LCA website in the morning on the day of the meeting, prior to the start of each meeting. You may also issue comment to LCA via email to LCABoard@lehighcountyauthority.org in advance of any meeting or view the meeting at a later time by visiting the LCA website. Please visit <https://www.lehighcountyauthority.org/about/lca-board-meeting-videos/> for specific instructions to join the meeting if you are attending virtually. If attending in-person at LCA's Main Office, please follow all safety and sanitation protocols posted.

1. Call to Order

- **NOTICE OF MEETING RECORDINGS**

Meetings of Lehigh County Authority's Board of Directors that are held at LCA's Main Office at 1053 Spruce Road, Wescosville, PA, may be recorded for viewing online at lehighcountauthority.org. Recordings of LCA meetings are for public convenience and internal use only and are not considered as minutes for the meeting being recorded, nor are they part of public record. Recordings may be retained or destroyed at LCA's discretion.

- *Public Participation Sign-In Request*

2. Review of Agenda / Executive Sessions

- Additions to Agenda (vote required if action will be taken)

3. Approval of Minutes

4. Public Comments

5. Action / Discussion Items:

FINANCE AND ADMINISTRATION

- *2023 Budget – Preliminary Review (Discussion)*
- *LCA Pension Plan – Mandatory Municipal Obligation (Information) (digital Board packet, pages 3-4)*

WATER

- *I-78 Water Main Crossing (Approval) (**blue**) (digital Board packet, pages 5-10)*
- *Water Filtration Plant & System Master Plan (Discussion)*
- *Water Main Replacement Program Cycle 6 (Approval) (**goldenrod**) (digital Board packet, pages 11-16)*

WASTEWATER

- *Kline's Island WWTP: Solids Process Boiler and HVAC System Upgrade Project (Approval) (**green**) (digital Board packet, pages 17-22)*

6. Monthly Project Updates / Information Items (1st Board meeting per month)

7. Monthly Financial Review (2nd Board meeting per month) - **August report to be provided at a later date**

8. Monthly System Operations Overview (2nd Board meeting per month) (digital Board packet, page 23) - **August report attached**
9. Staff Comments
10. Solicitor's Comments
11. Public Comments / Other Comments
12. Board Member Comments
13. Executive Sessions
14. Adjournment

UPCOMING BOARD MEETINGS		
October 10, 2022	October 24, 2022	November 14, 2022

PUBLIC PARTICIPATION POLICY

In accordance with Authority policy, members of the public shall record their name, address, and discussion item on the sign-in sheet at the start of each meeting; this information shall also be stated when addressing the meeting. During the Public Comment portions of the meeting, members of the public will be allowed 5 minutes to make comments/ask questions regarding non-agenda items, but time may be extended at the discretion of the Chair; comments/questions regarding agenda items may be addressed after the presentation of the agenda item. Members of the public may not request that specific items or language be included in the meeting minutes.



LEHIGH COUNTY AUTHORITY

1053 SPRUCE ROAD, PO BOX 3348, ALLENTOWN, PA 18106
Phone: (610-398-2503); FAX (610-351-8363)

MEMORANDUM

Date Presented: September 13, 2022
To: Lehigh County Authority Board of Directors
From: Edward Klein, Chief Financial Officer
Subject: 2023 Minimum Municipal Obligation (MMO) for the Lehigh County Authority Pension Plan (39-100-8N)

Act 205 of 1984, as amended, governs the funding requirements for all municipal pension plans. The law requires the Chief Administrative Officer of each pension plan to inform the governing board of the municipality of the plan's expected financial obligation for the coming year. This must be done by the last business day in September.

The calculation of the 2023 MMO required an estimate of the 2022 W-2 wages of the employees covered by the plan. I have indicated on the attached worksheet my best estimate of the same. Questions on the pension cost calculation may be addressed to either myself or the Pennsylvania Municipal Retirement System at (800) 622-7968.

The MMO is the municipality's 2023 bill for this pension plan and must be paid by December 31, 2023. The obligation must be met with general fund monies or with any General State Aid to Municipal Pensions to which we may be entitled to under Act 205.

Edward Klein
Chief Financial Officer
edwardklein@lehighcountyauthority.org
(610) 398-2503, extension 160

Attachment: 2023 MMO Worksheet

The Minimum Municipal Obligation Worksheet (MMO)
Lehigh County Authority Pension Plan (39-100-8 N)
for Plan Year 2023

CHARGES

Estimated 2022 W-2 Payroll	\$10,492,927	
For Covered Plan Members:	(A) _____	
PMRS Determined Normal Cost		
Expressed as a Decimal:	(B) _____ .1290	
RESULT: (A) * (B) =		(C) \$1,353,588
Administrative Charge (PMRS Determined)		
# of Plan Members times \$20:		(D) 4,400.00
Amortization of Unfunded Liability		
(PMRS Determined)		(E) 554,085.00
TOTAL CHARGES: (C) + (D) + (E) =		(F) \$1,912,073

CREDITS

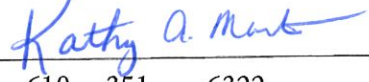
Repeat Estimated 2022 W-2 Payroll	\$10,492,927	
For Covered Plan Members:	(A) _____	
Employee Contribution Rate		
Expressed as a Decimal:	(G) _____ .01	
RESULT: (A) * (G) =		(H) 104,929
Amortization of the Actuarial Surplus		
(PMRS Determined)		(I) 0.00
TOTAL CREDITS: (H) + (I) =		(J) 104,929

MINIMUM MUNICIPAL OBLIGATION

(Based on 1/1/2021 Actuarial Valuation) (MMO) \$1,807,143

Equals TOTAL CHARGES Minus

TOTAL CREDITS (F) - (J) = **(Please round numbers to dollars)**

Prepared By: Kathy A. Martin (Name)  (Signature)
Human Resources Manager (Title) 610 351 6322 (Telephone #)

Please complete the above worksheet with your best estimates and return a copy to the Pennsylvania Municipal Retirement System by October 3, 2022. The official copy must be shared with the plan's governing board by the last business day in September.



Lehigh County Authority

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(610)398-2503 * FAX (610)398-8413 * Email: service@lehighcountyauthority.org

MEMORANDUM

Date: September 12, 2022

To: LCA Board of Directors
From: Edward Hoyle, Jr.
Subject: I-78 Water Main Crossing - Construction Phase

MOTIONS /APPROVALS REQUESTED:

No.	Item	Amount
1	<u>Capital Project Authorization:</u> Construction Phase	\$256,030
2 *	<u>Contract Awards:</u> Construction Phase • General Construction: Barrasso Excavation, Inc.	\$212,180
3 *	<u>Professional Services Authorizations:</u> Construction Phase • Keystone Consulting Engineers, Inc.	\$13,850

() Included in the Capital Project Authorization*

PROJECT OVERVIEW

Based on current and future demand for water service in the Upper System portion of the Central Lehigh Division ("CLD"), LCA's water system engineer (Gannett Fleming) ran various scenarios in the hydraulic model to simulate the impacts of expected growth, located generally just west of the village of Fogelsville. The preferred alternative to increase water capacity and system resiliency in the Upper System is a system extension under Interstate-78 and a new water booster station located on the north side of I-78, which will supplement existing well supplies and pumping capacity in the western service area of LCA's CLD water system.

LCA acquired a 36-inch steel casing pipe across I-78 from Upper Macungie Township in 2021. The existing casing pipe is located just west of the I-78/Route 100 interchange near the northwest corner of the brewery property. A PennDOT Highway Occupancy Permit was secured in 2021 for installation of the proposed water main within the existing casing pipe and design phase was completed in spring 2022.

The project consists of furnishing and installing approximately 170 linear feet of 20-inch HDPE pipe and appurtenances in the existing 36-inch diameter steel casing pipe under Interstate 1-78. The waterline will supplement supply in the CLD Upper System. Water drawn from the Lower System would be conveyed across I-78 to a proposed booster pumping station that will be constructed at a later date to meet projected water demands in the area. Note that design of the booster station design is under way and will proceed up to substantial completion of the mechanical design (DEP permit level) to ensure plans are available when needed and the permit paperwork can be expeditiously submitted to DEP.

This Memo requests Board approval of the construction phase of the capped I-78 waterline crossing. The remaining waterlines, including a connection to the Lower System, will be constructed at the time the pump station is needed.

PROJECT STATUS

The project was advertised through the PennBid system, an electronic document and bid management program, on August 1, 2022. Bids were opened on August 24, 2022.

The Pennsylvania Department of Transportation issued Highway Occupancy Permit No. 05059217 on July 27, 2021. The permit has been extended for one year and will expire on July 27, 2023.

THIS APPROVAL: CONSTRUCTION PHASE

A. BIDDING SUMMARY - CONSTRUCTION CONTRACTS

This project requires a General Construction contract. The bidding results are as follows:

General Construction	
Bidder	Amount
<i>Barrasso Excavation, Inc.</i>	<i>\$212,180</i>
C&R Directional Boring	\$258,575
Joao & Bradley Construction	\$269,050
Michael F. Ronca & Sons	\$271,000

The contractor is well qualified based on LCA's past experience in working with them with a sewer main replacement project in Heidelberg Heights. A check of references for the contractor found they are knowledgeable and performed acceptable work. There were no issues identified in the submitted bid package. Therefore, we recommend awarding the General Construction contract to Barrasso Excavation, Inc., located in Oley, PA, subject to the receipt of the executed Agreement, bonds, insurance, and other required documentation.

B. PROFESSIONAL SERVICES

Keystone Consulting Engineers, Inc., our design consultant, will provide the following services for the construction phase of the project:

- Prepare conformed Contract Documents
- Issue Notice to Proceed
- Review Contractor's submittals
- Inspect the work
- Review applications for payment
- Provide clarification of the Contract Documents
- Attend field job conferences
- Participate in substantial completion inspection and issue punch list
- Review record drawings

A Professional Services Authorization is attached for Board approval.

EASEMENTS

A permanent and associated temporary construction easement for access is needed from the property owner on the north side of I-78, and will be secured prior to contractor mobilization.

SCHEDULE

We anticipate construction starting within two months, with 60 days to reach substantial completion, unless there is a delay waiting for materials to be delivered.

FUTURE AUTHORIZATIONS

None anticipated.

CAPITAL PROJECT AUTHORIZATION

PROJECT NO.:	<u>SD-W-21-2</u>	BUDGET FUND:	<u>Suburban Div\Water\Capital</u>
PROJECT TITLE:	<u>I-78 Water Main Crossing</u>	PROJECT TYPE:	<input checked="" type="checkbox"/> Construction
			<input type="checkbox"/> Engineering Design
THIS AUTHORIZATION:	\$256,030		<input type="checkbox"/> Equipment Purchase
TO DATE (W/ ABOVE)	\$288,730		<input type="checkbox"/> Amendment

DESCRIPTION AND BENEFITS:

Construction Phase:

The project consists of furnishing and installing approximately 170 LF of 20" HDPE pipe and appurtenances in an existing 36-inch diameter steel casing pipe under Interstate 1-78 that was recently acquired from Upper Macungie Township. The casing is located near the northwest corner of the brewery's property. The waterline will supplement supply in the CLD Upper System. Water drawn from the Lower System would be conveyed across I-78 to a booster pumping station that will be constructed at a later date to meet projected water demands in the area.

A permanent and associated temporary construction easement is needed from the property owner on the north side of I-78. This authorization assumes there will not be any costs for easements other than for their preparation and filing fees.

The work should be completed in 2022 unless there is a significant delay in delivery of materials.

The project includes staff time, professional services, general construction contract and contingencies.

Please reference the cover Memo for additional information.

Previous Authorizations	
Design/Bid Phase (KCE)	\$32,700

REQUESTED THIS AUTHORIZATION	
Construction Phase	
Staff	\$10,000
Engineering Services - Keystone Consulting Engineers	\$13,850
General Contract – Barrasso Excavation, Inc.	\$212,180
Contingency	\$20,000
Total This Authorization	\$256,030

Future Authorizations	
None	

Total Authorizations	\$288,730
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REVIEW AND APPROVALS:

_____	_____	_____	_____
Project Manager	Date	Chief Executive Officer	Date
_____	_____	_____	_____
Chief Capital Works Officer	Date	Chairman	Date



Lehigh County Authority

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PROFESSIONAL SERVICES AUTHORIZATION

(To be signed by Professional and returned to the Authority)

Amendment No. 1

Professional: Keystone Consulting Engineers, Inc.
5012 Medical Center Circle, Suite 1
Allentown, PA 18106

Date: September 12, 2022

Requested By: Edward Hoyle, Jr.

Approvals

Department Head: _____

Chief Executive Officer: _____

Description of Services *(Work Scope, Steps, Check Points, etc.):*

Keystone Consulting Engineers will provide construction phase services for the "I-78 Waterline Crossing" project in Upper Macungie Township, Lehigh County, PA, as identified in the attached Proposal dated September 7, 2022. As part of its services, Keystone Consulting Engineers will prepare conformed contract documents, issue notice to proceed, review contractor's submittals, provide construction management oversight and inspect the work, review applications for payment, provide clarification of Contract Documents, attend field job conferences, participate in a substantial completion inspection and issue punch list, review record drawings, etc. Participation in a preconstruction meeting, distributing meeting minutes and providing construction stakeout were included in the design phase proposal. The Standard Agreement for Professional Services signed with Keystone Consulting Engineers on March 15, 2022 for design services sets forth the similar Terms and Conditions under which these professional services will be performed.

Cost Estimate *(not to be exceeded without further authorization):*

The tasks outlined in the above-mentioned Proposal will be performed under this PSA for the total not-to-exceed fee of \$13,850.00. Services will be paid for based on the hourly rates in the Professional's current Rate Schedule.

Timetable and Completion Deadline *(either party may terminate upon thirty days written notice):*

The General Construction Contract shall be substantially completed within 60 days following issuance of the Notice to Proceed, and completed and ready for final payment within 80 days from the date of the Notice to Proceed.

I am or represent the Professional indicated above, and as such I am authorized to:

- Accept the terms of the professional authorization set forth above; and
- Agree to indemnify, hold harmless and defend the Authority, its employees, agents, officials, successors and assigns (hereinafter all jointly referred to as "Authority"), from any and all loss and liability for claims, demands, suits or causes of action at law or in equity for damages and injuries (including death of every kind and nature) to persons (including employees of the Professional) and property arising out of error, omission or negligent act of Professional, or any person under contract to it, in rendering professional services under this authorization. The indemnification shall include, but not be limited to, payment of reasonable attorney fees and reasonable incidental litigation expenses of the Authority. Professional shall not, however, be liable for any portion of a judgment nor associated litigation expenses, including attorney's fees, ultimately determined to be the result of the negligence of the Authority.

Name (Signature)

Name (printed):
Title: _____

(For Authority Use Only)

Authorization Completion:

Approval: _____ **Actual Cost:** _____ **Date:** _____



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MEMORANDUM

Date: September 12, 2022

To: Lehigh County Authority Board

From: Jason Peters, Capital Project Coordinator

Subject: Suburban Division- Water Main Replacement Program
Construction Phase for Cycle 6

MOTIONS /APPROVALS REQUESTED:

No.	Item	Amount
2	<u>Capital Project Authorization:</u> Construction Phase, Cycle 6	\$2,566,698
3 *	<u>Professional Services Authorization Cycle 6:</u> <ul style="list-style-type: none">Construction Engineering / Managements Services, - <i>Gannett Fleming Inc.</i>	\$45,000
4 *	<u>Professional Services Authorization Cycle 6:</u> Construction inspection Services, - <i>Keystone Consulting Engineers.</i>	\$75,000
5 *	<u>Contract Award Cycle 6:</u> <ul style="list-style-type: none">General Construction – JOAO & Bradley Construction Co. Inc.	\$2,296,698

(*) *Included in the Capital Project Authorization*

PROJECT OVERVIEW:

The Suburban Division water system serves multiple municipalities in Lehigh and Northampton Counties. This Program covers Cycles 4-6 which includes the replacement of approximately 4 miles of water main pipe. The Cycle 6 water main replacement project is located in LCA's North Whitehall system near Schnecksville and includes approximately 1.11 mile of pipe and appurtenances, with the goal of addressing this high-risk water service area and providing more reliable service to our customers.

The driver for the project is to replace aging and failing infrastructure in order to prevent excessive leakage and/or service interruptions from water main breaks. Given the complex nature and size of the project, it will require a significant amount of coordination and public relations efforts.

FUNDING:

The Project will be funded by the LCA Suburban Division.

PROJECT STATUS:

In October 2017, the Board approved the Design Phase for Cycles 4-6 of the Project. Design of the Cycle 6 project was completed in early summer 2022. Working closely with all necessary Municipalities and other outside agencies, LCA obtained all approvals for Cycle 6 Construction Phase.

THIS APPROVAL: CONSTRUCTION PHASE CYCLE 6

Cycle 6 includes 1.11 miles of water main replacement in North Whitehall Township.

BIDDING SUMMARY: CONSTRUCTION CONTRACTS CYCLE 6

The project was advertised for bid on August 3, 2022. A mandatory pre-bid meeting was held on August 16, 2022, and bids were opened on August 24, 2022. The bidding results are as shown in Table 1 below.

Table 1	
General Construction	
Bidder	Amount
<i>JOAO & Bradley Construction Co., Inc.</i>	<i>\$2,296,698</i>
Shanline Excavating, Inc.	Non-responsive / \$2,063,513
Pact One LLC	\$2,371,267
Brubacher Excavating	\$3,111,566

The lowest in proposal cost was submitted by Shainline Excavating, Inc. (Shainline). Shainline failed to include in its bid submission (submitted on PennBid) a signed Bid Form, which is contrary to the requirements of LCA's bid specifications. As a result, Shainline's bid has been determined to be materially defective, as the failure to submit a signed Bid Form potentially deprives LCA of assurances that the bid will be effective, enforceable, and guaranteed. Under the Pennsylvania Municipal Authorities Act, a construction contract may only be awarded to the lowest responsive and responsible bidder. Under Pennsylvania law, Shainline Excavating, Inc. would not be considered the lowest responsive and responsible bidder for the Project.

JOAO & Bradley Construction Co., Inc. (Bradley) is the second-lowest bid and the bid submission is complete and responsive. The bid amount is below the engineer's cost opinion of \$3,682,406. Bradley has successfully completed numerous water main replacement projects for LCA, specifically the Suburban Division Cycles 3, 4 and 5 water main replacement projects and the Allentown Division Cycles 2, 3 and 5 water main replacement projects. Prior to the Lease, the Contractor performed many water main replacements for the COA, and is currently utilized by LCA Allentown Division Distribution and Collection (D&C) for emergency repairs.

Therefore, we recommend awarding the General Construction contract to JOAO Bradley Construction Co., Inc., subject to the receipt of the necessary Performance Bonds, Insurance and other required documentation.

PROFESSIONAL SERVICES: CONSTRUCTION PHASE CYCLE 6

1. Construction Engineering & Management

Gannett Fleming Inc., the design engineer of record, will provide construction engineering and administration services for the construction phase of the project. The work will generally include:

- Conduct preconstruction conference.
- Review contractor's construction schedule and updates for compliance with project.
- Arrange and conduct monthly progress meetings and provide meeting minutes.
- Review all contractor submittals to ensure that design objectives and requirements of the Contract Documents are met.
- Prepare Change Orders.
- Respond to contractor Requests-for-Information.
- Review certified payrolls.
- Conduct walkover of the project site with contractors and LCA representatives.
- Provide LCA with recommendation on completeness of work, final acceptance and release of final payment.

2. Construction Inspection

Keystone Consulting Engineers (KCE) will provide daily construction inspection related services for the project. The work will generally include:

- Act as the daily field contact person for the project.
- Attend pre-construction & monthly progress meetings
- On-site contract management and coordination
- Maintain daily record of project activities, quantities of work performed, site conditions, etc.
- Review documentation for change order requests
- Review monthly pay estimates
- Perform substantial and final completion inspections

Keystone Consulting Engineers (KCE) previously provided construction inspection services in Cycle 4 & 5 SD water main replacement projects and has provided construction phase services on other LCA water and wastewater projects. KCE provides a high level of technical expertise at a reasonable cost.

SCHEDULE:

Assuming approval of the Construction Phase at the September 12, 2022 Board meeting, all work is anticipated to be operational by March 31, 2023 (i.e., the substantial completion date).

FUTURE AUTHORIZATIONS:

No future authorizations are anticipated at this time.

CAPITAL PROJECT AUTHORIZATION

PROJECT NO.:	SD-W-22-1	BUDGET FUND:	Suburban Div\Water\Capital
PROJECT TITLE:	Suburban Division -Water Main Replacement Program Cycles 4-6	PROJECT TYPE:	<input checked="" type="checkbox"/> Construction <input type="checkbox"/> Engineering Study <input type="checkbox"/> Equipment Purchase
THIS AUTHORIZATION TO DATE (W/ABOVE)	<u>\$ 2,566,698</u> <u>\$ 7,446,559</u>	<input checked="" type="checkbox"/> Amendment No. 3	

DESCRIPTION AND BENEFITS:

The Suburban Division water systems serve multiple municipalities in Lehigh and Northampton Counties. This Program covers Cycles 4-6 which includes the replacement of approximately 4 miles of watermain pipe due to aging infrastructure that has reached the end of its useful life, in order to prevent excessive leakage or disruptive water main breaks that impact our customers.

Cycle 6 main replacement project includes replacement of 1.11 mile of pipe. Please reference the cover Memo for additional information.

THIS AUTHORIZATION: Construction Phase, Cycle 6

Previous Authorizations	
Design Phase Cycles 4-6	\$655,000
Construction Phase Cycle 4	\$2,013,635
Construction Phase Cycle 5	\$2,211,226

REQUESTED THIS AUTHORIZATION	
Construction Phase Cycle 6	
Staff	\$50,000
Professional Services:	
Construction Engineering / Management	\$45,000
Construction Inspection	\$75,000
General Construction Contract – Joao & Bradley Construction, Inc.	\$2,296,698
Contingency	\$100,000
Total This Authorization	\$2,566,698

Total Project	\$7,446,559
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REVIEW AND APPROVALS:

_____ Project Manager	_____ Date	_____ Chief Executive Officer	_____ Date
_____ Chief Capital Works Officer	_____ Date	_____ Chairman	_____ Date



Lehigh County Authority

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PROFESSIONAL SERVICES AUTHORIZATION
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Professional: GANNETT FLEMING, INC.
P.O. Box 67100
Harrisburg, PA 17106

Date: September 12, 2022

Requested By: Jason Peters

Approvals

Department Head: _____

Chief Executive Officer: _____

Suburban Division – Water Main Replacement Program Cycle 6

This Authorization - Construction Phase, Cycle 6: \$45,000

Gannett Fleming, Inc. will provide construction related services including but not limited to conducting pre-construction, progress and close out meetings, catalog cut / shop drawing review and approval, change orders, RFI response, and technical assistance within the following Professional Services.

Professional Services
1. Construction Engineering / Management

Please reference the cover Memo for additional information.

Cost Estimate (not to be exceeded without further authorization): \$45,000

Time Table and Completion Deadline: As required to meet various critical deadlines as set forth in the proposal.

(For Authority Use Only)

Authorization Completion:

Approval: _____ **Actual Cost:** _____ **Date:** _____



Lehigh County Authority

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PROFESSIONAL SERVICES AUTHORIZATION
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Professional: KEYSTONE CONSULTING
ENGINEERS
6235 Hamilton Boulevard,
Suite 100
Wescosville, PA 18106

Date: September 12, 2022

Requested By: Jason Peters

Approvals

Department Head: _____

Chief Executive Officer: _____

Suburban Division – Water Main Replacement Program Cycle 6

This Authorization- Construction Phase, Cycle 6: \$75,000

Keystone Consulting Engineers will provide construction inspection related services including but not limited to attending pre-construction, progress and close out meetings, and technical assistance for the following Professional Service.

Professional Service
1. Construction Inspection Services

Please reference the cover Memo for additional information.

Cost Estimate (not to be exceeded without further authorization): \$75,000

Time Table and Completion Deadline: As required to meet various critical deadlines as set forth in the proposal.

(For Authority Use Only)

Authorization Completion:

Approval: _____ **Actual Cost:** _____ **Date:** _____



Lehigh County Authority

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MEMORANDUM

Date: September 19, 2022

To: LCA Board of Directors

From: Bryan Geissel, Capital Works Project Engineer
Charles Volk, P.E., Chief Capital Works Officer

Subject: Allentown Division – KIWWTP Solids Process Boiler and
HVAC System Upgrade Project – Construction Phase

MOTIONS /APPROVALS REQUESTED:

No.	Item	Amount
1	<u>Capital Project Authorization – Construction Phase</u>	\$4,087,111
2	<u>Construction Contract No. 1 – General: LB Industries</u>	\$986,523
3	<u>Construction Contract No. 2 – Mechanical: Master Mechanical, Inc.</u>	\$2,604,138
4	<u>Construction Contract No. 3 – Electrical: Diefenderfer Electrical Contractors, Inc.</u>	\$202,850
5 **	<u>Professional Services Authorization - Construction Phase Engineering: GHD, Inc.</u>	\$136,100

*(**) Included in the Capital Project Authorization*

PROJECT OVERVIEW:

The solids process boiler system is over 25 years old and provides critical heat to the anaerobic digesters, which is essential for the anaerobic breakdown and stabilization of sewage sludge, which then enables the dewatering of the sludge. The boilers and associated HVAC equipment also provide heat to the solids dewatering and processing buildings. The equipment has reached the end of its service life. The majority of the HVAC equipment is located in a highly corrosive environment, which has accelerated the degradation of the equipment.

The improvements include construction of the following components:

- New boiler building addition on west side of No. 3 boiler, to provide a new at-grade boiler room, including slab/foundation, brick façade, insulation, pitched roof, rollup access door, and man-door
- Extension of sprinkler system into building addition and ensure code compliance for fire suppression
- Two new dual fuel boilers appropriately sized, including dual burner controllers and associated equipment
- New methane booster pumps and natural gas piping
- New hot water circulation pumps with expansion tank and associated piping
- New hot water air handling units (AHUs) and circulators in digester control building
- New hot water AHUs in existing boiler room
- New rooftop AHU for belt press room
- New water treatment system for boilers
- New unit heaters in belt press room
- New unit heaters in #3 boiler room, thickening odor control unit, polymer room, and dewatering garage; new hot water baseboard heater in dewatering hallway
- New PLC with SCADA integration of boiler controls and entire new heating system
- Demolition and removal of Nos. 1, 2 and 3 boilers and associated mechanical equipment; area restoration

PROJECT OBJECTIVE

The purpose of this project is to replace the boilers and associated solids processing HVAC equipment, which have reached the end of their service lives. This project was identified in the KIWWTP Master Plan as a 0 – 5-year upgrade prioritization. The existing digester boilers have been problematic since their installation in 1995 due to improperly selected burners that do not efficiently run-on digester gas due to pressure issues. The new boilers will be dual fuel type and are sized appropriately to be capable of heating two primary digesters, the dewatering building, and the digester control building.

The upgrade work will have a positive impact on operation and maintenance costs, as the new heating system will require minimum maintenance and eliminate system failure related staff time and callouts. The life expectancy of the new equipment is projected to be minimum 25 years.

PROJECT STATUS

In summer 2020, LCA authorized GHD to perform preliminary engineering work to develop a conceptual Basis of Design Report (“Report”) for the replacement of the boilers and associated HVAC equipment. GHD was selected based on their prior experience with anaerobic digester rehabilitation projects at KIWWTP, and their knowledge of the solids processing system. The preliminary engineering documents were submitted to the City Office of Compliance in January 2021, and LCA received conceptual design approval in March 2021. Design was completed in late Spring 2022, and LCA received substantially complete design approval from the City on 7/12/22. Bid phase followed in August 2022.

FUNDING

As the project has received conceptual design approval from the City, it is considered a Major Capital Improvement (MCI), and therefore costs will be recovered in Capital Cost Recovery Charges (CCRC).

THIS APPROVAL: CONSTRUCTION PHASE

BIDDING SUMMARY

The project consists of three contracts. The project was advertised for bid on August 5, 2022. A mandatory pre-bid meeting was held on August 16, 2022. Bids were received via PennBid on September 8, 2022, the results of which are as follows:

General Contract	
Bidder	Bid Amount
LB Industries, Inc.	\$986,523.00
Eastern Environmental Contractors, Inc.	\$1,076,400.00
Mechanical Contract	
Bidder	Bid Amount
Master Mechanical Corp.	\$2,604,138.00
Garden Spot Mechanical, Inc.	\$2,760,203.00
Frank Lill & Son, Inc.	\$3,499,000.00
Myco Mechanical, Inc.	\$3,694,000.00
Electrical Contract	
Bidder	Bid Amount
Diefenderfer Electrical Contractors	\$202,850.00
A.N. Lynch Co., Inc.	\$310,000.00
Brenden Stanton, Inc. (BSI)	\$377,900.00
Albarell Electric, Inc.	\$518,000.00

The total of the low bids is \$3,793,511, which is above the engineer's estimate of \$2,900,000. The variance is largely attributed to the mechanical contract bid results. LCA's project engineer, GHD, investigated the mechanical bids and reported that the air handler units (some of which are explosion-proof) have apparently increased significantly in price over the last year. Also, the variance was aggravated by additional stainless-steel ductwork to be replaced in the sludge dewatering building that was added late in design phase and not previously included in the engineer's estimate. GHD reported that only one air handler manufacturer provided pricing during bid phase for the mechanical contract, although an "or equal" provision was included in the specifications. Pending board authorization of construction phase, LCA and GHD will conduct a value engineering evaluation with the mechanical contractor post-award to reduce the cost of the air handling units by considering alternate manufactures, along with other items where the costs provided by the manufacturers appear to have been inflated, and potential savings will be credited during construction.

The General Construction low bid was submitted by LB Industries, Inc. (LB), located in Hellertown, PA. LB completed several small general/mechanical projects for LCA at the KIWWTP and the WFP, however, they have not been previously awarded any large projects. LB completed three large improvements projects at the City of Bethlehem Wastewater Treatment Plant, and the engineer for those projects (D'Huy Engineering) reported that the contractor performed adequately well and successfully completed the work. The contractor has similar project experience and appears qualified to perform the work.

The Mechanical Construction low bid was submitted by Master Mechanical Corp. (Master), located in McAdoo, PA. Master does not have project history with LCA. Master completed similar scope boiler projects for Northwestern Lehigh Elementary School and Bethlehem Area School District Clearview Elementary School, as well as an HVAC upgrade at the City of Bethlehem Wastewater Treatment Plant, and the engineer for those projects (D'Huy Engineering) reported that the contractor performed well and successfully completed the work. Master appears qualified to perform the work.

The Electrical Construction low bid was submitted by Diefenderfer Electrical Contractors (Diefenderfer) of Allentown PA. Diefenderfer has completed numerous upgrade projects for LCA at pump stations and wastewater plants in the Suburban and City Divisions and is well qualified to perform the electrical work.

MATERIAL PROCUREMENT: N/A

PROFESSIONAL SERVICES

Construction Phase Services

GHD Engineering has been our design consultant on this project and will provide construction engineering services for the construction phase of the project. Their work will include:

1. Facilitate completion of the Agreement and other elements of the Contract with LCA.
2. Prepare for and attend a pre-construction conference and prepare meeting minutes.
3. Prepare for and attend regular job conference meetings and prepare meeting minutes.
4. Review and execute contractors' submittals.
5. Respond to Contractors' Requests for Information (RFIs).
6. Process applications for payment and any necessary change orders.
7. Provide part-time construction observation over an estimated 6-month construction period.
8. Attend field meetings to resolve design issues and verify compliance with the specifications.
9. Administer start-up and commissioning of new systems.
10. Conduct Substantial and Final completion inspections; prepare punch list, final project close-out and certify final payments to contractors.
11. Prepare as-built drawings and review operation and maintenance manuals.

SCHEDULE

Assuming approval of construction phase at the September 19, 2022 Board meeting, construction will commence in late 2022 and the project is anticipated to finish in late 2023.

FUTURE AUTHORIZATIONS

None

CAPITAL PROJECT AUTHORIZATION

PROJECT NO.:	AD-S-20	BUDGET FUND:	Allentown Div\WW\Capital
PROJECT TITLE:	Allentown Division – KIWWTP Solids Process Boiler & HVAC System Upgrade Project: Construction Phase	PROJECT TYPE:	<input checked="" type="checkbox"/> Construction <input type="checkbox"/> Engineering Design <input type="checkbox"/> Equipment Purchase <input type="checkbox"/> Amendment No. 1
THIS AUTHORIZATION:	\$4,087,111		
TO DATE (W/ ABOVE)	\$4,302,229		

DESCRIPTION AND BENEFITS:

The purpose of this project is to replace the boilers and associated solids processing HVAC equipment, which have reached the end of their service lives. This project was identified in the KIWWTP Master Plan as a 0 – 5 year upgrade prioritization. This authorization is for construction phase.

AUTHORIZATION STATUS:

Prior Authorizations	
<i>Preliminary and Design Phase Engineering – GHD</i>	\$215,118
Requested This Authorization – Construction Phase	
Construction Contracts:	
General Contract – LB Industries	\$986,523
Mechanical Contract – Master Mechanical, Inc.	\$2,604,138
Electrical Contract – Diefenderfer Electrical, Inc.	\$202,850
Construction Engineering - GHD	\$136,100
Staff	\$50,000
Other – Permits, etc.	\$7,500
Contingencies	\$100,000
Total This Authorization	\$4,087,111

Future Authorizations	
None	

REVIEW AND APPROVALS:

_____	_____	_____	_____
Project Manager	Date	Chief Executive Officer	Date
_____	_____	_____	_____
Chief Capital Works Officer	Date	Chairman	Date



Lehigh County Authority

1053 Spruce Street * P.O. Box 3348 * Allentown, PA 18106-0348
(610)398-2503 * FAX (610)398-8413 * Email: service@lehighcountyauthority.org

PROFESSIONAL SERVICES AUTHORIZATION

Professional: GHD INC.
3655 East Swamp Road
Doylestown, PA 18902

Date: September 19, 2022

Requested By: Charles Volk

Approvals

Department Head: _____

Chief Executive

Officer: _____

Allentown Division – KIWWTP: Solids Process Boiler & HVAC System Upgrade Project – Construction Phase Engineering

GHD Inc. will perform construction phase services as outlined below for the above project at the KIWWTP.

This Authorization

Professional Services Authorization: **\$136,100**

Professional services are to include the following work items:

Professional Services
1. Pre-construction conference – administer, attend, issue meeting minutes
2. Attend regular job meetings and issue meeting minutes
3. Review and execute contractors' submittals
4. Respond to contractors' Requests for Information
5. Process applications for payment and any necessary change orders
6. Provide part time construction observation, including attending d field meetings to resolve design issues
7. Administer start-up and commissioning of new systems
8. Prepare as-built drawings and review operation and maintenance manuals for compliance with the specifications

Please reference the cover Memo for additional information.

Not to be exceeded without further authorization: **\$136,100**

Time Table and Completion Deadline: As required to meet various critical deadlines as set forth in the proposal.

(For Authority Use Only)

Authorization Completion:

Approval: _____ **Actual Cost:** _____ **Date:** _____

Presented: September 19, 2022

<u>Critical Activities</u>	<u>System</u>	<u>Description</u>	<u>Aug-22</u>	<u>2022 Totals</u>	<u>2021 Totals</u>	<u>Permit</u>
			<u>Daily Avg (MGD)</u>	<u>Daily Avg (MGD)</u>	<u>Daily Avg (MGD)</u>	<u>Daily Max (MGD)</u>
Water Production	Allentown	Total	24.03	22.55	22.00	39.0
		Schantz Spring	6.44	7.06	7.29	9.0
		Crystal Spring	3.89	3.87	3.75	4.0
		Little Lehigh Creek	13.70	11.62	10.84	30.0
		Lehigh River	0.00	0.03	0.11	28.0
	Central Lehigh	Total	13.19	11.69	10.98	19.04 MGD Avg
		Feed from Allentown	7.49	7.19	7.29	7.0 MGD Avg 10.5 MGD Max
		Well Production (CLD)	5.70	4.49	3.69	8.54 MGD Avg
		Sum of all (12) other Suburban Water Systems	0.16	0.14	0.13	1.71 Sum of all wells
Wastewater Treatment		Kline's Island	30.58	33.23	32.27	40.0
		Pretreatment Plant	5.22	5.23	5.17	5.75 (design capacity)
		Sum of all (5) other Suburban WW Systems	0.17	0.20	0.21	0.36
			<u>Aug-22</u>	<u>2022 Totals</u>	<u>2021 Totals</u>	<u>2020 Totals</u>
Precipitation Totals (inches)			2.84	30.7	44.67	60.66
Compliance Reports Submitted to Allentown			18	199	280	278
Notices of Violation (NOVs)	(Allentown + Suburban)		0	2	3	1
Sanitary Sewer Overflows (SSOs)/Bypasses	(Allentown + Suburban)		1	14	26	37
Main Breaks Repaired	Allentown		3	20	20	20
	Suburban		0	7	14	12
Customer Service Phone Inquiries	(Allentown + Suburban)		1113	7,220	15,857	22,992
Water Shutoffs for Non-Payment	(Allentown + Suburban)		175	1,294	1,773	1,956
Injury Accidents	(Allentown + Suburban)		1	4	8	10
Emergency Declarations	Allentown		0	(2) @ \$213,993	0	(2)@ \$152,053
	Suburban		(1) @ \$37,939.60	(1) @ \$800,000	(1) @ \$48,000	(1) @ \$19,335
<u>Significant Repairs/Upgrades:</u>						
Emergency repairs were made to the Trout Creek stream bank, which eroded away and left a Washington Township manhole in the middle of the creek. Due to the high risk of damage from floating debris, the stream bank was rebuilt after obtaining an emergency permit from the PA DEP.						
<u>Description of NOVs and/or SSOs:</u>						
A boil water advisory was issued for the Applewood System in the Central Lehigh Division on 8/23/2022. The advisory was issued due to loss of pressure and was lifted on 8/25/2022. A bypass occurred at Heidelberg Heights WWTP from 8/23-25/2022 due to a storm event resulting in 3.3" of rainfall.						
<u>Other Highlights:</u> On August 31st, PADEP declared a drought watch for Lehigh County. LCA is asking all customers to conserve water and reduce use by 5-10%. One injury occurred in August when an employee rolled his ankle on an incline.						