

EAST GOSHEN MUNICIPAL AUTHORITY

February 14, 2022

7:00 PM

1. CALL TO ORDER/PLEDGE OF ALLEGIANCE/MOMENT OF SILENCE

- a. Ask if anyone will be taping the meeting

2. CHAIRMAN'S REPORT/OTHER MEMBERS REPORTS

3. SEWER REPORTS

- a. Director of Public Works Report.
b. Pennoni Engineer's Report.
c. Big Fish Environmental Report

4. APPROVAL OF MINUTES

- a. January 10, 2021

5. APPROVAL OF INVOICES

Pennoni Invoice #1103752	\$ 1,217.25
Pennoni Invoice #1103753	\$ 5,664.50
West Goshen Twp. #EG-4-21-O&M	\$ 163,742.44
Gawthrop Invoice #254159	\$ 660.00
Gawthrop Invoice #251594	\$ 540.00 Paid

6. LIAISON REPORTS

7. FINANCIAL REPORTS

- a. January Financial Report

8. OLD BUSINESS

- a.

9. 2021 Goals:

Goal	Status
Ridley Creek Plant Compliance	January was in compliance and met all requirements.
Continue to Monitor Upgrades at WGSTP and Westtown Way Pump Station	On – going
Continue to Implement Infiltration and Inflow for the Sewer System	On-going
Caustic Soda Project	Mike Ellis is vetting the suppliers
Replace sewer line Hershey Mill Estate trunk line replacement	Engineer will bring you up to date under old business. Public Works dug test holes for Pennoni 12-6-2021
Hunt Country Pump Station Mag Meter	On Hold
Hunt Country Pump Station Muffin Monster Replacement	On Hold
Hunt Country Pump Station Bypass Pump	On Hold
Three new meters for Ridley Creek Collection	Hibberd Lane is on line. Ridley Creek Plant is the next meter, in the process of replacing the meter at the plant.

10. NEW BUSINESS

- a. Audit Engagement Letter
- b. RCSTP UV system – Mike Ellis

11. CAPACITY REQUESTS

12. ANY OTHER MATTER

13. CORRESPONDENCE AND REPORTS OF INTEREST

14. PUBLIC COMMENT

15. ADJOURNMENT

EAST GOSHEN MUNICIPAL AUTHORITY
EAST GOSHEN TOWNSHIP
1580 PAOLI PIKE, WEST CHESTER, PA 19380-6199

To: Municipal Authority
From: Mark Miller
Re: January 2022 Monthly Report

Monthly Flows: The average daily flow to West Goshen was 677.257 per day.

Meters: The meters were read on a daily basis. The mag meter that was damaged during Hurricane Ida at Hershey Mill has been replaced and a new meter is in full operation with an average daily flow of 76,000 gpd.

C.C. Collection: The pump stations were visited on a daily basis, routine maintenance was performed and the FOG rods were pulled and cleaned. The levels for the pump controls were reset once the rods were secured.
We cleared the sewer right of ways. The manhole covers were pulled and the conditions of each manhole were checked.
Interceptor line: The right of way line was cleared from Wilson Drive down to the Hicks Farm. We found that a section of the line was exposed from the remnants of hurricane Ida.

R.C. Collection: The stations were checked on a daily basis. The lift station was cleaned as well as the level sensor.

Ridley Creek Plant: The Public Works Department spent hours with maintenance work inside and outside of the plant. We replaced the old T8 light bulbs with LED bulbs, we also installed new LED lights in the SBR building. What a difference the lighting has done.
We also cleared that area outside the fence. The ground was frozen so we installed a sump pipe in the area where the new metering pit will be installed. The new meter and manhole have been ordered.
They also cleared the right of way from the plant up to the golf course.

Alarms: We responded to 41 alarms for January.

PA One Calls: We responded to over 56 PA One Calls for the month January.

Monthly Rainfall: 4.05 inches of rain for the month of January.

Lateral repairs or Caps:

**EAST GOSHEN MUNICIPAL AUTHORITY
ENGINEER'S REPORT
February 11, 2022**

Ridley Creek Sewage Treatment Plant (RCSTP)

- Caustic Soda Conversion – We are continuing to finalize vendor selection and quotes for the tank and feed piping systems.
- UV Disinfection System – We continued evaluation of alternative products for the UV replacement including field visits to Trojan and Glasco systems in Upper Gwynned Township and Hazleton, PA accordingly. Vendors provided updated pricing quotes, concept designs, and product information. We also coordinated with Lenni Electric for a quote for the associated electrical work and with a mechanical contractor for installation of the permanent UV banks and temporary UV bypass system. An alternatives evaluation and recommendation summary memo is submitted under separate cover. Additionally, we are researching grant opportunities for the project.
- NPDES Permit Renewal – We received and responded to minor comments from DEP on the application. DEP submitted the draft permit thereafter, which we are currently reviewing. The draft permit does not change any contaminant limits, but it does add requirements to start sampling and reporting for influent CBOD and effluent E. Coli, UV intensity, total nitrogen, total copper, and total zinc.
- Influent Flow Meter Replacement – We revisited the location and depth of the proposed new metering manhole with Mark, and we obtained updated quotes for the manhole and ultrasonic flow meter. The materials have been ordered, and delivery is expected in approximately five months.

Ridley Creek Collection System Permanent Meters

- No activity since our last report.

Westtown Way Pump Station

- No activity since our last report.

Sanitary Sewer Pipe Rehab

- Supplee Valley – No activity since our last report.
- Hershey's Mill Estates – We submitted a summary report of the geotechnical investigation and resultant recommendations. We are finalizing the design plans, bid documents, and GP-11 permit application, and updating the cost estimate.

I&I Program

- No activity since our last report.

New Connections

- Sewer Extension Study – We drafted a summary memo of the study conclusions for presentation by the MA to the Township BOS.

Chapter 94 Reports

- We initiated data analysis and preparation of the 2021 Chapter 94 Annual Sewer Facilities Reports for the Ridley Creek, Chester Creek (West Goshen), and Westtown Service Areas.

Industrial Pretreatment Ordinance

- No activity since our last report. As discussed at the May MA meeting, a headworks study with sampling at the RCSTP can be conducted to set contaminant limits.

END OF REPORT



Executive Summary

The Ridley Creek sewage treatment plant outfall 001 achieved compliance with the permit discharge limitations for the month of December 2021 and January 2022. All supplemental reports for December 2021 were submitted with the DMR. Discharge to the Applebrook irrigation lagoon remained in service. Chemical usage utilized for pH and total alkalinity remained consistent with previous months. Aluminium sulfate solution volumes slightly decreased during January to 70.1 gpd as compared to December at 75 gpd to achieve phosphorus removal. No significant mechanical or operational issues were observed during operation of sludge dewatering equipment or SBR treatment process. There were no odor complaints during the month.

Treatment Process Operation

Table 1 illustrates the final effluent composite sample data reported for outfall 001 for the December 2021 DMR.

Table 1

December 2021- Final Effluent - Outfall 001											
NPDES Permit Discharge Limitations	Flow	CBOD ₅		TSS		NH ₄ -N		Phosphorus, Total		Fecal Coliform	
	MGD Average	mg/L	lbs/ month	mg/L	lbs/ month	mg/L	lbs/ month	mg/L	lbs/ month	Geo Mean	Geo Mean
	0.75	20	125	10	131	7.0	44	0.5	3.0	200	1,000
		40		15							
Sample Date											
December 7, 2022	0.328	3.4	9.3	14.8	40.5	0.23	0.63	0.23	0.63	2	0.3010
December 14, 2022	0.299	2.0	5.0	4.0	10.0	0.10	0.25	0.10	0.25	1	0.0000
December 21, 2022	0.364	2.0	6.1	6.5	19.7	0.10	0.30	0.14	0.43	33	1.5185
December 28, 2022	0.287	2.2	5.3	9.2	22.0	0.10	0.24	0.30	0.72	15	1.1761
Average	0.320	2.4	6.4	8.6	23	0.13	0.36	0.19	0.51	13	0.7489
Minimum	0.287	2.0	5.0	4.0	10.0	0.10	0.24	0.10	0.25	1	0.0000
Maximum	0.364	3.4	9.3	14.8	40	0.23	0.63	0.30	0.72	33	1.5185

Compliance with the NPDES discharge permit was achieved during September. The monthly average total phosphorus was reported as 0.10 mg/L as compared to the permit limitation of 0.5 mg/L. The TSS samples were consistently in single digits and well below the weekly maximum of 15 mg/L. The monthly average TSS was reported as 4 mg/L as compared to the discharge limitation of 10 mg/L. The TSS weekly averages are presented below in Table 2.

Table 2

December 2021 Final Effluent Weekly TSS Averages	
Week 1	14.8 mg/L
Week 2	4.0 mg/L
Week 3	6.5 mg/L
Week 4	9.2 mg/L

The final effluent test results demonstrate that the biological treatment process performed well during December and January. Sequencing batch reactors (SBRs) numbered 2, 3 and 4 were in service. Process monitoring of each SBR included ammonia as N, nitrite as N, Nitrate as N, COD, SSV, MLSS and total phosphorus. Daily analysis of the final effluent flow equalization grab sample for total phosphorus is ongoing. Sample collection and analysis of the influent wastewater collected at the influent pump station wet well is ongoing.

Discharge to the Applebrook irrigation lagoon, outfall 002 continued through January.

Table 3 presents the available pollutant data for the Applebrook discharge reported as outfall 002 on the December 2021 DMR.

Table 3

December 2021 - Applebrook - Out Fall 002											
NPDES Permit Discharge Limitations	Flow	CBOD ₅		TSS		NH ₄ -N		Phosphorus, Total		Fecal Coliform	
	MGD	mg/L	lbs/ month	mg/L	lbs/ month	mg/L	lbs/ month	mg/L	lbs/ month	Geo Mean	Geo Mean
	Average	25		30		7.0	44	0.5	3	200	1,000
		40		45							
December 7, 2022	0.046	3.4	1.32	14.8	5.73	0.23	0.09	0.23	0.09	2	0.3010
December 14, 2022	0.053	2.0	0.89	4.0	1.77	0.10	0.04	0.10	0.04	1	0.0000
December 21, 2022	0.041	2.0	0.68	6.5	2.22	0.10	0.03	0.14	0.05	33	1.5185
December 28, 2022	0.055	2.2	1.00	9.2	4.18	0.10	0.05	0.30	0.14	15	1.1761
Average	0.049	2.4	0.97	8.6	3.48	0.13	0.05	0.19	0.08	13	0.7489
Minimum	0.041	2.0	0.68	4.0	1.77	0.10	0.03	0.10	0.04	1	0.0000
Maximum	0.055	3.4	1.32	14.8	5.73	0.23	0.09	0.30	0.14	33	1.5185

The influent wastewater pollutant concentrations and loading entering the wastewater treatment facility generally remained within the design concentration and organic loading values. The monthly average weekly concentrations were generally observed to be less than the design parameters for the treatment process.

Table 4 presents the available pollutant data for the influent wastewater collected at the doghouse manhole during December 2021.

Table 4

December 2021 - Influent Wastewater											
Design Basis	Flow	BOD ₅		TSS		NH ₄ -N		TKN, mg/L		Phosphorus, Total, mg/L	
	MGD Average	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day
		335	2,098	320	2,001	32	200	48	301	9.1	57
Sample Date											
December 7, 2022	0.506	310	1,307	388	1,636	29.7	125	56.3	237	4.76	20.1
December 14, 2022	0.432	362	1,305	267	962	34.3	124	78.6	283	5.80	20.9
December 21, 2022	0.436	333	1,209	478	1,736	32.0	116	55.7	202	5.50	20.0
December 28, 2022	0.472	318.0	1,253	280	1,103	31.4	124	60.2	237	5.46	21.5
Average	0.4614	331	1,269	353	1,359	32	122	62.7	240	5.4	20.6
Minimum	0.4321	310	1,209	267	962	30	116	55.7	202	4.8	20.0
Maximum	0.5057	362	1,307	478	1,736	34	125	78.6	283	5.8	21.5

The foam on the SBR surface reduced to approximately 5% to 10% coverage of the surface area. The foam thickness is approximately 3 to 4 inches with a light to medium brown color. These conditions may contribute to a decrease in clarity within the final effluent post flow equalization basins; however, the clarity is improved after passing through the disc filters. The operation strategy is to lower the MLSS to maintain a F:M ratio of 0.06 while ensuring the ammonia effluent discharge concentration remains within the seasonal limit of 2.5 mg/L.

Table 5 illustrates the available data for the final effluent composite sample data reported for outfall 001 for use with the January 2022 DMR.

Table 5

January 2022- Final Effluent - Outfall 001											
NPDES Permit Discharge Limitations	Flow	CBOD ₅		TSS		NH ₄ -N		Phosphorus, Total		Fecal Coliform	
	MGD Average	mg/L	lbs/ month	mg/L	lbs/ month	mg/L	lbs/ month	mg/L	lbs/ month	Geo Mean	Geo Mean
		20	125	10	131	7.0	44	0.5	3.0	200	1,000
		40		15							
Sample Date											
January 4, 2022	0.297	2.0	5.0	4.0	9.9	0.10	0.25	0.13	0.32	29	1.4624
January 11, 2022	0.329	2.6	7.1	4.0	11.0	0.10	0.27	0.11	0.30	4	0.6021
January 18, 2022	0.283	2.0	4.7	6.4	15.1	0.10	0.24	0.14	0.33	112	2.0492
January 25, 2022	0.289	2.0	4.8	5.5	13.3	0.10	0.24	0.11	0.27	56	1.7482
Average	0.300	2.2	5.4	5.0	12.3	0.10	0.25	0.12	0.30	50	1.4655
Minimum	0.283	2.0	4.7	4.0	9.9	0.10	0.24	0.11	0.27	4	0.6021
Maximum	0.329	2.6	7.1	6.4	15.1	0.10	0.27	0.14	0.33	112	2.0492

Table 6 presents the available pollutant data for the Applebrook discharge reported as outfall 002 on the January 2022 DMR.

Table 6

January 2022 - Applebrook - Out Fall 002											
NPDES Permit Discharge Limitations	Flow	CBOD ₅		TSS		NH ₄ -N		Phosphorus, Total		Fecal Coliform	
	MGD		lbs/ month		lbs/ month		lbs/ month		lbs/ month	Geo Mean	Geo Mean
	Average	mg/L		mg/L		mg/L		mg/L			
	0.135	25		30		7.0	44	0.5	3	200	1,000
		40		45							
January 4, 2022	0.0483	2.0	0.81	4.0	1.61	0.10	0.04	0.13	0.05	29	1.4624
January 11, 2022	0.0520	2.6	1.13	4.0	1.73	0.10	0.04	0.11	0.05	4	0.6021
January 18, 2022	0.0437	2.0	0.73	6.4	2.33	0.10	0.04	0.14	0.05	112	2.0492
January 25, 2022	0.0470	2.0	0.78	5.5	2.16	0.10	0.04	0.11	0.04	56	1.7482
Average	0.0478	2.2	0.86	5.0	1.96	0.10	0.04	0.12	0.05	50	1.4655
Minimum	0.0437	2.0	0.73	4.0	1.61	0.10	0.04	0.11	0.04	4	0.6021
Maximum	0.0520	2.6	1.13	6.4	2.33	0.10	0.04	0.14	0.05	112	2.0492

Table 7 represents the influent wastewater collected at the doghouse manhole during January 2022. The influent wastewater pollutant loadings remain within the design criteria for the treatment process and equipment.

Table 7

January 2022 - Influent Wastewater											
Design Basis	Flow	BOD ₅		TSS		NH ₄ -N		TKN, mg/L		Phosphorus, Total, mg/L	
		mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day
	MGD Average	335	2,098	320	2,001	32	200	48	301	9.1	57
Sample Date											
January 4, 2022	0.424	306	1,082	233	824	29.1	103	55.9	198	5.09	18.0
January 11, 2022	0.452	247	931	234	882	24.3	92	39.4	149	4.55	17.2
January 18, 2022	0.414	503	1,737	577	1,992	31.4	108	81.2	280	7.83	27.0
January 25, 2022	0.421	283.0	994	230	808	32.4	114	63.0	221	4.71	16.5
Average	0.4278	335	1,186	319	1,126	29	104	59.9	212	5.5	19.7
Minimum	0.4140	247	931	230	808	24	92	39.4	149	4.6	16.5
Maximum	0.4520	503	1,737	577	1,992	32	114	81.2	280	7.8	27.0

PA DEP

No activity

Pennoni Associates

Provided data for Chapter 94 Report.

Chemical Usage:

January 2022		
Chemical	Daily Average	Total Monthly
Soda Ash, pounds	290	9,000
Aluminium Sulfate solution, gal	70.1	2,173

Flow data:

January 2022			
Flow Meter Location	Total Volume for Month, MG	Average Daily Flow, gpd	Daily Maximum Flow, gpd
Influent Wastewater to Screening Building*	13.706	442,145	685,510
Influent Wastewater to SBRs*	13.785	444,684	559,104
Internal Recycle**	0.482	15,553	80,739
Treated Effluent to Disc Filters	13.546	436,959	544,640
Final Effluent Discharge	9.950	320,968	618,000
Applebrook Golf Course	1.529	49,322	55,744

During January, the average monthly influent wastewater flow measured at the "field" flow meter was 442,145 gallons//day as compared to the influent flow into the SBRs as 444,684 gallon/day. The difference between the daily averages is 2,539 gpd, with the "field" flow meter measurements recorded should be less than the influent to the SBR. These values would be considered typical as the flow volume into the SBRs includes internal recycle flows from the centrifuge and disk filters.

Minor Preventative Maintenance

Flushed chemical feed lines to the SBRs.

Cleaned final effluent weir trough daily

Skimmed surface of disc filters daily

Drained and cleaned disc filters bi-weekly

Cleaned buildings and laboratory

Significant Rainfall

During January, there were seven (7) days when rainfall or snow occurred. There were two (2) events where the rainfall exceeded 0.5 inches in a 24-hour period.

January 2nd 0.98 inches rainfall

January 17th 1.55 inches rainfall

January 7th 3-inches snow

January 29th 4.5 inches of snow

The total rainfall for the month of January total 3.16 inches.

Maintenance and Repair Activities

Jan 11th

John Laidley from Kappe Associates released the Filter Feed panel job for production. The Allen Bradley Panel View is estimated to not ship until March.

Jan 12th

The reagent refrigeration Laboratory blower room stopped working. Mark was notified and has a replacement in the same day.

Jan 17th

The Influent composite sampler stopped working. There was a heating failure alarm on the screen. When starting the program, the sampler would not operate the pump head. Operating the pump head manually via the buttons on the sampler was attempted, however, manual sampling intervals is not a feature of the sampler. The composite sampler influent Wet Well was relocated at the influent sampler location. The representatives for composite samplers was contacted for pricing for a replacement unit.

Jan 19th

Quotes were received for refrigerated samplers to replace the influent. The samplers are very comparable in operation.

Isco Sampler	9-11 weeks delivery	\$7,969.00
Hach/Sigma	5-6 weeks delivery	\$8,185.40 + \$981.65 (12% surcharge)= \$9,167.05

The Isco sampler is provided from Hartco Environmental and the Hach sampler from USA Blue Book. The Isco sampler is less expensive, however has a longer delivery time and longer warranty. The Isco 5800 composite sampler was chosen and ordered per quote MGBOQ2772 in the amount of \$7,969.00.

Jan 20th

Verizon was here and installed new router and a new main receiver. This resolved the internet issues as well as the issues with the cable service.

Burt was onsite to set up the new router and make sure that we could remotely view the cameras.

Jan 21st

Greased laboratory building blower motors.

Jan 24th

Replaced pump head tubing on Final Effluent sampler

Rebuilt the male side of the UV plug for bank two Module 5

Installed new mixing chamber for SBR polyblend unit per Mark's request

Jan 25th

Cleaned up/organized in the lab

Assembled scaffolding for Lenni Electric

Wiped down SBR blowers

Jan 28th

0" rain, it has started snowing around 11:00 am.

Jan 29th

4.5" snow and still lightly snowing at 11:00 am.

Feb 2nd

Replaced sensor cap and calibration chip in the hand held D.O. probe, Two (2) new kits remain in inventory.

Feb 3rd

Lenni Electric is on site changing lights out in the SBR building

Feb 4th

Lenni Electric on site continuing replacing lights

Township staff spent the day at the plant deep cleaning the plant and running a power scrubber on the floors

Replaced the packing in the gland on the distribution conveyor, and added a ring of packing to the transfer conveyor in the centrifuge room

Rebuilt both the male and female plug ends on the UV bank 2, Modules 3 and 4

DRAFT
EAST GOSHEN TOWNSHIP MUNICIPAL AUTHORITY
MEETING MINUTES
January 10, 2022

The East Goshen Township Municipal Authority held their regular meeting on Monday, January 10, 2022 at 7:00 pm. at the Township Building.

Members in attendance were: Dana Pizarro, Chairman; Jack Yahraes Vice Chairman; Kevin Cummings, and Walter Wujcik.

Also in attendance were: Mark Miller (Director of Public Works), David Ware (Financial Director), Mike Ellis (Pennoni), Mike Lynch (Township Supervisor), Patrick McKenna (Attorney), Scott Towler (via phone).

COMMON ACRONYMS:

<i>BFES – Big Fish Environmental Services</i>	<i>MA- Municipal Authority</i>
<i>BOS – Board of Supervisors</i>	<i>NPDES – National Pollutant Discharge Elimination System</i>
<i>CB – Conservancy Board</i>	<i>PC – Planning Commission</i>
<i>DEP – Department of Environmental Protection</i>	<i>PM – Prevention Maintenance</i>
<i>EPA – Environmental protection Agency</i>	<i>PR – Park & Recreation Board</i>
<i>HC – Historical Commission</i>	<i>RCSTP – Ridley Creek Sewer Treatment Plant</i>
<i>I&I – Inflow & Infiltration</i>	<i>SBR – Sequencing Batch Reactor</i>
<i>LCSTP – Lockwood Chase Sewer Treatment Plant</i>	<i>SSO – Sanitary System Overflow</i>
	<i>WAS – Waste Activated Sludge</i>

Call to Order & Pledge of Allegiance

Dana called the meeting to order at 7:00 pm and led those present in the Pledge of Allegiance.

He asked for a moment of silence for our First Responders, EMTs, Military around the world and doctors and nurses taking care of us.

Dana asked if anyone would be recording the meeting. There was no response.

Chairman’s Report

1. Reorganization – Jack provided the following change of officers:

Chairman - Walter

Vice Chairman - Kevin

Secretary - Phil

Treasurer - Dana

Secretary/Treasurer - Jack

Jack made a motion to accept these new officers. Kevin seconded the motion. The motion passed unanimously.

2. Dana received a letter from Aqua about their purchase of Willistown. He reviewed the Accomplishments/Goals for the ABC meeting. Walter will make the presentation.

3. Walter commented that Phil couldn’t attend the West Goshen meeting. Jack confirmed that their meeting is held on the first Wednesday of the month, but the time has changed from 7:00 pm to 6:00 pm.

1 **SEWER REPORTS**

2 **1. Director of Public Works, Mark Miller's report for December 2021**

3 **Monthly Flows** – The average daily flow to West Goshen was 687,150 per day.

4

5 **Meters:** The meters were read on a daily basis. The meters have been calibrated and all meters have
6 been working correctly.

7

8 **C.C. Collection:** We cleaned and televised 12,000 LF of pipe in Quad 3 the sewer main from Ellis
9 Lane and Route 3 down to the interceptor line at Westtown Way. Then moved to Water View Farms.
10 We noticed three 4 inch laterals that peaked our interest. The lines appeared in good condition as did
11 the manholes. Aqua will be replacing the water mains beginning in February. The Public Works
12 Department has televised and located the laterals and marked them out.

13

14 **R.C. Collection:** The emergency generators were checked out by Paul Siddel. Paul found that when
15 the transfer switched from run time to normal power, the switch jammed and welded the switch gear
16 in the normal position and would not switch to emergency power. It also fried the alarm panel
17 wiring, leaving us without alarms at the station so Kevin installed a cable hot spot at the station, and
18 he installed a camera which allowed us to monitor the station until we could locate the new switch
19 gear. If you recall the emergency generator and switch gear were from the Reserve Pump Station.
20 Lenni has been notified and are working with Paul to locate the new switch gear. The Hunt Country
21 pump station transfer switch has been repaired. The New Muffin Monster has been installed at the
22 Hershey Mill Pump Station. We are actively working with Verizon to get internet service for
23 installing the surveillance cameras.

24

25 **Ridley Creek Plant:** The Public Works Department moved pallets of soda ash up, per the operator's
26 request. Lenni will be performing routine maintenance to the motor control centers. We had to
27 replace a UPS Box for the sludge press controller.

28

29 **Alarms:** We responded to 33 alarms for December.

30

31 **PA One Calls:** We responded to over 63 PA One Calls for the month of December.

32

33 **Monthly Rainfall:** 3.85 inches of rain for the month of December.

34

35 **Lateral Repairs or Caps:** We did make several lateral repairs at a property on Reservoir Road. We
36 found three laterals that appeared ok but after further examination, we found huge holes in three
37 pipes. We replaced the pipes.

38

39 **Additional Notes** – Mark mentioned that he met with FEMA today and told them about the UV.
40 They recommended that he file a claim.

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1 **2. Pennoni Engineer's Report dated January 7, 2022**

2 **Ridley Creek Sewage Treatment Plant (RCSTP)**

- 3 • Caustic Soda Conversion – We are continuing to evaluate if any improvements or revisions
4 will be required by chemical suppliers, such as an additional safety shower/eye wash, to make
5 deliveries.
- 6 • UV Disinfection System – We submitted design information to Lenni Electric for quotes for
7 the electrical installation of the Trojan system and separately for the installation of the entire
8 Glasco UV system, as well as a breakdown of the labor vs. material cost from the Trojan
9 vendor in order to establish an apples-to-apples cost comparison of the two systems.
- 10 • NPDES Permit Renewal – The application was submitted to DEP on November 1, and we are
11 awaiting their review comments.
- 12 • Filter Feed Pump Controls – We reviewed the proposed scope and quote for the new SCADA
13 functionality and equipment to provide for remote control of the pumps, and we provided
14 questions to Mark about the compatibility of the new HMI interface to the existing SBR computer
15 and internet.

16 **Ridley Creek Collection System Permanent Meters**

- 17 • No activity since our last report.

18 **Westtown Way Pump Station**

- 19 • No activity since our last report.

20 **Sanitary Sewer Pipe Rehab**

- 21 • Supplee Valley – No activity since our last report.
- 22 • Hershey's Mill Estates – We prepared a summary report of the geotechnical investigation and
23 resultant recommendations. We will now finalize the design plans, bid documents, and GP-11
24 permit application, and update the cost estimate.

25 **I&I Program**

- 26 • No activity since our last report.

27 **New Connections**

28 Sewer Extension Study – We researched life cycle costs of septic systems, and we prepared a memo
29 of the life cycle costs to property owners of septic systems vs. public sewer

30 **Industrial Pretreatment Ordinance**

- 31 • No activity since our last report. As discussed at the May MA meeting, a headworks study
32 with sampling at the RCSTP can be conducted to set contaminant limits.

33
34 Additional Notes - Hershey Mill Estates, Mike mentioned that they are negotiating with Trojan and
35 Glasco and will visit their other installations. They dug 6 holes to check the type of soil, water level,
36 and rocks. He anticipates work could start in July 2022.

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3. Big Fish Environmental Services –

The Ridley Creek sewage treatment plant outfall 001 achieved compliance with the permit discharge limitations for the month of November 2021. All supplemental reports were submitted with the DMR. Discharge to the Applebrook irrigation lagoon remained in service. Chemical usage utilized for pH and total alkalinity remained consistent with previous months. Aluminium sulfate solution volumes increased during December (14 gal/day) as compared to November to achieve phosphorus removal. Supply chain issues procuring Aluminium sulfate were experienced. Additional volumes of Aluminium sulfate stored in totes throughout the facility have been purchased. The goal is maintaining a 6-month supply on hand (approximately 12,000 gallons) stored within buildings to provide spill containment. Aluminium sulfate solution is a critical component for total phosphorus removal. No significant mechanical or operational issues were observed during operation of sludge dewatering equipment or SBR treatment process. There were no odor complaints during the month. Scott mentioned that he is in quarantine and realized that his report had some errors. He will review and make corrections and resend it next week. He is very pleased with the new lab.

Approval of Minutes

Dana moved to approve the December 13, 2021 minutes as amended. Jack seconded the motion. The motion passed unanimously.

Approval of Invoices

- 1. Jack moved to approve the following Pennoni invoices:

Invoice #1099545	\$1,768.25
Invoice #1099546	\$3,852.69
Invoice #1099547	\$2,308.50

Dana seconded the motion. The motion passed unanimously.
- 2. Dana moved to approve the JWC Environmental invoice #109024 for \$11,255.01. Kevin seconded the motion. The motion passed unanimously.
- 3. Kevin moved to approve the following invoices from Deckman:

Invoice #3921	\$2,709.00
Invoice #3922	\$2,215.00
Invoice #3923	\$1,870.00

Jack seconded the motion. The motion passed unanimously.
- 4. Jack moved to approve dues payment for Pennsylvania Municipal Authorities Assoc. for \$880.25. Dana seconded the motion. The motion passed unanimously

Liaison Reports

- 1. Conservancy Board – Walter reported that they did place new wood chips in Clymer’s Woods. Sandy is the Chairman.

1 2. Board of Supervisors – Mike reported that the BOS welcomed Cody Bright as a new Supervisor.
2 They changed solicitors. They voted to start unwinding the eminent domain on the Hicks property.
3 The Chairman is Michele Truitt and Vice Chairman is John Hertzog. The General Fund had a
4 positive balance. They may change the date for the ABC meeting because of the Covid surge.
5

6 **Financial Reports**

7 1. December Financial Report - Dave Ware reviewed the following report:
8 In December 2021, the Municipal Authority recorded \$7,366 in revenues (transfers from Sewer
9 Operating and connection fees) and \$15,363 in expenses (Engineering, Legal Services, RC STP
10 Capital, and Administrative wages), for a negative variance of (\$7,997). As of December 31, 2021,
11 the fund balance was \$11,620.
12
13

14 **Old Business**

15 None
16

17 **Goals**

18 The goals were reviewed.

19 Mark Miller provided a list of 2021 Public Works Accomplishments:

20 Cleaned and televised 80,440 LF of sanitary sewer pipes

21 Installed metering station at Hibberd Lane and East Boot Road

22 Replaced 42 castings and water tight lids

23 Continued with extensive I&I work throughout the year by use of portable meters and plain
24 old detective work, by pulling manhole lids in the middle of the night to view flows. We estimate that
25 we removed between 75,000 to 100,000 gallons of infiltration.

26 While televising, we located three manholes that were deteriorated and needed to be replaced.

27 We continued to perform routine maintenance at the pumping stations and the sewer plant.

28 Pumps were pulled from the wet wells and rebuilt. We also performed extensive electrical
29 maintenance at all of the stations and the plant. This work has resulted in less downtime.

30 Drained two SBR tanks which were cleaned and inspected. Dutchland performed
31 maintenance to both tanks and the decking.

32 In December 2020 we had an emergency on the trunk line in Hershey's Mill Estates. Upon
33 further investigation we found the line to have many sags and deflections. The Municipal Authority
34 has decided to replace the sewer line from Tanglewood Dr. down to the Hershey Mill Dam.

35 For 2021:

36 Total man hours for sewer were 3,970

37 Total wages were \$198,194.69

38 Total equipment hours were 2,014.25

39 Total equipment costs were \$107,827

40 The Public Works Department hosted a Trench Safety course which was also attended by
41 surrounding municipalities.

42 The Public Works Department purchased several new gas detectors for confined space entry.

43 We had to deal with two rain events which brought 7" of rain and two weeks later another 10" of
44 rain.
45
46
47

1 **New Business**

2 **1. Municipal Authority 2022 Proposed Budget** - Dave reviewed the Proposed 2022 Municipal
3 Authority budget. The 2022 Proposed Budget Revenue is \$764,910. The 2022 Proposed Budget
4 Expenses are \$764,910. So, he proposed a net 0 budget. It does not include grant money from
5 FEMA. Dana moved to adopt the 2022 Municipal Authority Budget as proposed. Jack seconded the
6 motion. The motion passed unanimously.

7
8 **2. Upgrade Filter Feed Control Panel** – Mark explained the need to remotely oversee the plant. Scott
9 described the current program and some of the problems they are having. The upgrade will provide
10 the capability to remotely access the Operator Interface Terminal (Touch Screen/HMI). The operator
11 will be able to link in from a remote computer and have viewing and control capabilities. This would
12 provide the operator with quick access to monitor and change the operation remotely. The cost to
13 replace the existing Allen Bradley Touch Screen with a new Allen Bradley Plus 7 color touch screen
14 will be \$9,163.00. Kevin made a motion to move forward with the Filter Feed Control Panel upgrade
15 as proposed not to exceed \$10,000.00. Jack seconded the motion. The motion passed unanimously.

16
17 **3. Sewer Extension Study** – Dana spoke about current on site systems that homeowners may not be
18 able to replace under today’s rules. Pennoni’s report was reviewed and discussed. Mike explained
19 that his report assumes systems can be replaced. He spoke about the gravity sewer and grinder pump
20 systems. The report dated November 5, 2021 estimated the overall cost to extend public sewer to ten
21 neighborhoods ranged from \$48,000 to \$90,000 per property with an average of approximately
22 \$54,000 per property. He noted that there are various grant programs for which the extensions would
23 be eligible to receive financial support to reduce that cost. The costs to replace an existing on site
24 system vs. extension to the public sewer were discussed. After much discussion, it was decided to
25 prepare a summary report to present to the Board of Supervisors for their input.

26
27 **Capacity Request** - None

28
29 **Any Other Matter** –

30 The Pennsylvania Municipal Authorities Assoc. requested review of the Membership Roster for 2022
31 that they have. During review, the MA members requested that personal information (address, email,
32 etc.) not be used. Instead, they want the address to be for the Township Building. During this
33 discussion it became clear that the members do not have township emails. Dave will look into this.

34
35 **Correspondence**- None

36
37 **Public Comment** - None

38
39 **Adjournment**

40 There being no further business Jack moved to adjourn the meeting. Dana seconded the motion. The
41 motion passed unanimously. The meeting was adjourned at 8:45 pm.
42 The next regular meeting will be held on Monday, February 14, 2022 at 7:00 pm.

43
44 Respectfully submitted,

45
46
47 Ruth Kiefer, Recording Secretary



INVOICE

Remit Payment To:
 Pennoni Associates Inc.
 P.O. Box 827328
 Philadelphia, PA 19182-7328

Mark Miller
 East Goshen Municipal Authority
 1580 Paoli Pike
 West Chester, PA 19380-6199

Invoice No : 1103752
 Invoice Date : 01/27/2022
 Project : EGMAU21004
 Project Name : HM Estates Sewer
 Design & Permitting

For Services Rendered Through 01/16/2022

Phase 07: Completed geotechnical investigation summary & recommendations report, and calculated estimated rock removal and overexcavation quantities accordingly.

Phase Code / Name	Contract Amount	Previously Billed	% Complete	Complete To Date	Amount This Invoice
01 -- Wetland & Watercourse Investigation	\$6,750.00	\$6,750.00	100.00%	\$6,750.00	\$0.00
02 -- Phase I Bog Turtle Habitat Assessment	\$6,750.00	\$6,750.00	100.00%	\$6,750.00	\$0.00
03 -- Survey	\$17,200.00	\$17,200.00	100.00%	\$17,200.00	\$0.00
04 -- Design	\$26,100.00	\$24,756.02	94.85%	\$24,756.02	\$0.00
05 -- Permitting	\$8,000.00	\$3,839.59	47.99%	\$3,839.59	\$0.00
07 -- Geotechnical	NTE \$10,000.00	\$4,948.25	61.66%	\$6,165.50	\$1,217.25
Total :	\$74,800.00	\$71,764.36		\$72,981.61	\$1,217.25

Phase: 07 -- Geotechnical

Labor

Class	Hours	Rate	Amount
Authority Engineer	1.25	141.00	176.25
Senior Professional	1.50	134.00	201.00
Associate Professional	8.00	105.00	840.00

Labor

1,217.25

Phase Subtotal

\$1,217.25

Amount Due This Invoice

\$1,217.25

Outstanding Invoices

Number	Date	Balance
1099546	12/29/2021	3,852.69
Total		3,852.69

[Signature]
 2/11/22

West Goshen HM Estates Sewer Design Permitting
EGMAU21004 Invoice Summary
Invoice Date 1/27/2022

Project: EGMAU21004
Pennoni Job No.: HM Estates Sewer Design & Permitting
Invoice No: 1103752
Invoice Period: 12/20/2021 to 1/16/2022
Initial Authorization: \$ 64,800.00 **Date:** 1/27/2022
Contract Amount: \$ 74,800.00
Previously Invoiced: \$ 71,764.36
Current Invoice: \$ 1,217.25
Invoiced to Date (\$): \$ 72,981.61
Invoiced to Date (%): 98%
Remaining Budget (\$): \$ 1,818.39
Remaining Budget (%): 2%

Budget by Phase:

Phase Name: HM Estates Sewer Design & Permitting
Phase Budget: \$ 74,800.00
Previously Invoiced: \$ 71,764.36
Current Invoice: \$ 1,217.25
Invoiced to Date (\$): \$ 72,981.61
Invoiced to Date (%): 98%
Remaining Budget (\$): \$ 1,818.39
Remaining Budget (%): 2%

Comments: Phase 07: Completed geotechnical investigation summary & recommendations report, and calculated estimated rock removal and overexcavation quantities accordingly.



INVOICE

Remit Payment To:
Pennoni Associates Inc.
P.O. Box 827328
Philadelphia, PA 19182-7328

Mark Miller
East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6199

Invoice No : 1103753
Invoice Date : 01/27/2022
Project : EGMAU22001
Project Name : 2022 General
Services

For Services Rendered Through 01/16/2022

General Consultation - January Engineer's Report; preparation for and attendance at January MA meeting including review of RCSTP operator's report. Reviewed and responded from inquiry from Acero on oil-water separator requirements. Provided info to MA on status of 2022 projects and goals. Reviewed filter feed pumps remote control SCADA upgrade contractor quote and scope and provided comments to Township. Westtown Way Pump Station Upgrade status updates w/ HRG, and email follow-up updates to MA.

RCSTP UV Replacement - Obtained and reviewed reduced cost quote for Trojan system, evaluated technical capabilities and features of Glasco vs. Trojan systems including additional vendor meetings, prepared and submitted cost comparison to MA, evaluated feasibility of a 4th UV system from Kershner, prepared scope and specifications for separate electrical construction work, submitted scope to Lenni for cost quote, design of temporary bypass system, and evaluated viability of FEMA disaster recovery grant application with operator and M. Miller.

Sewer Extension Study - Continued evaluation of septic system replacement costs including discussions with septic contractor, prepared septic vs. public sewer life cycle cost analysis and summary memo, and initiated summary memo to BOS.

RCSTP NPDES Permit Renewal - Evaluated and responded to DEP about UV monitoring criteria question.

RCSTP Influent Meter Replacement - Requested updated manhole and meter cost quotes from vendors.

Billing Limits	Current	Prior	To-Date
Total Billings	5,664.50	0.00	5,664.50
Limit			35,000.00
Remaining			29,335.50

Labor

	Hours	Rate	Amount
Senior Professional	30.75	134.00	4,243.00
Project Professional	3.00	118.00	354.00
Associate Professional	7.00	105.00	735.00
Graduate Professional	3.50	95.00	332.50
Totals	44.25		5,664.50
Total Labor			5,664.50

Total this Invoice \$5,664.50

INVOICES DUE ON RECEIPT. Invoices outstanding over 30 days will have a Service Charge of 1 1/2% per month.

2022 General Services
EGMAU22001 Invoice Summary
Invoice Date 1/27/2022

Project:	EGMAU22001		
Pennoni Job No.:	2022 General Services		
Invoice No:	1103753		
Invoice Period:	NTP	to	1/16/2022
Initial Authorization:	\$ 35,000.00	Date:	1/27/2022
Contract Amount:	\$ 35,000.00		
Previously Invoiced:	\$ -		
Current Invoice:	\$ 5,664.50		
Invoiced to Date (\$):	\$ 5,664.50		
Invoiced to Date (%):	16%		
Remaining Budget (\$):	\$ 29,335.50		
Remaining Budget (%):	84%		

Budget by Phase:

Phase Name:	2022 General Services		
Phase Budget:	\$ 35,000.00		
Previously Invoiced:	\$ -		
Current Invoice:	\$ 5,664.50		
Invoiced to Date (\$):	\$ 5,664.50		
Invoiced to Date (%):	16%		
Remaining Budget (\$):	\$ 29,335.50		
Remaining Budget (%):	84%		

Comments: General Consultation - January Engineer's Report; preparation for and attendance at January MA meeting including review of RCSTP operator's report. Reviewed and responded from inquiry from Acero on oil-water separator requirements. Provided info to MA on status of 2022 projects and goals. Reviewed filter feed pumps remote control SCADA upgrade contractor quote and scope and provided comments to Township. Westtown Way Pump Station

Upgrade status updates w/ HRG, and email follow-up updates to MA. RCSTP UV Replacement - Obtained and reviewed reduced cost quote for Trojan system, evaluated technical capabilities and features of Glasco vs. Trojan systems including additional vendor meetings, prepared and submitted cost comparison to MA, evaluated feasibility of a 4th UV system from Kershner, prepared scope and specifications for separate electrical construction work, submitted scope to Lenni for cost quote, design of temporary bypass system, and evaluated viability of FEMA disaster recovery grant application with operator and M. Miller.

Sewer Extension Study - Continued evaluation of septic system replacement costs including discussions with septic contractor, prepared septic vs. public sewer life cycle cost analysis and summary memo, and initiated summary memo to BOS.

RCSTP NPDES Permit Renewal - Evaluated and responded to DEP about UV monitoring criteria question.

RCSTP Influent Meter Replacement - Requested updated manhole and meter cost quotes from vendors.

West Goshen Township

INVOICE



848 S. Concord Road
West Chester, PA 19382
P: 610-696-0900
F: 610-429-9360

Date: February 2, 2022
Invoice #: EG-4-21-O&M
For: O&M Charge, 4th Qtr, 2021
Bill To: East Goshen Township
1580 Paoli Pike
West Chester, PA 19380

DESCRIPTION	AMOUNT
For East Goshen's share of the operation and maintenance costs of the Sewage Treatment System as per Article VI, Section 6.02(2) of the Agreement dated September 6, 1977 (details attached).	
Treatment Plant O&M Charge	\$129,547.50
Collection and Conveyance O&M Charge	\$34,194.94
TOTAL	\$163,742.44

Please make check payable to:
West Goshen Township

THANK YOU!

[Handwritten Signature] 2/11/22

East Goshen Flow Data			
	<u>October</u>	<u>November</u>	<u>December</u>
Westtown Way Meter	889,000	894,000	883,000
<u>Subtractions</u>			
Ellis Lane	110,000	97,000	85,000
Paoli Pike	55,000	52,000	52,000
Wilson Drive	93,000	91,000	90,000
Brandywine Airport	350	350	350
UPS	3,657	3,657	3,657
Westtown Township Triangle	2,761	2,761	2,761
Lynnwood (65 @ 229)	14,885	14,885	14,885
2 EDU's Westtown Way	700	700	700
Summit House (@ 20,400/day)	20,400	20,400	20,400
Total Subtractions	300,753	282,753	269,753
<u>Additions</u>			
Thomson	159	159	159
Airport/Wilson	570	570	570
Goshen View (closed)	-	-	-
6 EDU's Strasburg, @350	2,100	2,100	2,100
5 EDU's Ellis Lane, @350	1,750	1,750	1,750
10 EDU's Killern Lane, @229	2,290	2,290	2,290
Total Additions	6,869	6,869	6,869
Total E. Goshen Flows	595,116	618,116	620,116
Treatment Plant Cost			
<u>Average Daily Flow From East Goshen</u>			
Average Daily Flow of West Goshen Plant			
$\frac{611,116}{3,538,000}$	X	$\frac{3,000,000}{4}$	= 0.17273 X 750,000 = \$ 129,547.50 Due
<u>West Goshen Plant Flows</u>		<u>East Goshen Flows</u>	
October	3,606,000	October	595,116
November	3,524,000	November	618,116
December	3,484,000	December	620,116
Total	10,614,000	Total	1,833,348
Average	3,538,000	Average	611,116
Collection & Conveyance Cost			
<u>Average Daily Flow From East Goshen</u>			
Average Daily Flow From Westtown Way Pumping Station			
$\frac{611,116}{1,184,000}$	X	$\frac{265,000}{4}$	= 0.51615 X 66,250 = \$ 34,194.94 Due
<u>Westtown Way Flows</u>			
October	1,194,000		
November	1,197,000		
December	1,161,000		
Total	3,552,000		
Average	1,184,000		
NOTES:			
<ul style="list-style-type: none"> \$3,000,000 was used as the estimated amount E. Goshen will be responsible to contribute towards the 2021 O&M of the treatment plant. To avoid overpayment, the amount has been adjusted slightly downward to offset any overpayment from the quarterly payments already made during 2021. \$265,000 was used as the estimated amount E. Goshen will be responsible to contribute towards the O&M of collection and conveyance. To avoid overpayment, the amount has been adjusted slightly downward to offset any overpayment from the quarterly payments already made during 2021. 			



Gawthrop Greenwood, PC
Attorneys at Law

17 East Gay Street, Suite 100 | (p) 610-696-8225
West Chester, PA 19381-0562 | (f) 610-344-0922
gglaw@gawthrop.com | www.gawthrop.com

Please Note:
Please Mail checks to:
P.O. Box 562
West Chester, PA 19381-0562

To Make a Payment with a Credit Card, please visit:
<https://secure.lawpay.com/pages/gawthrop/operating>

East Goshen Municipal Authority
1580 Paoli Pike
West Chester PA 19380

Page: 1
02/10/2022
Client No: 6604M

Previous Balance	Fees	Expenses	Payments	Balance
6604-001 General Authority Services				
620.00	580.00	0.00	-540.00	<u>\$660.00</u>

[Handwritten signature]
2/11/22

To ensure proper credit, please write your client number on your check when returning payment.
A finance charge of 1.25% per month (15% annually) may be charged on balances not paid 60 days after the invoice date.



Gawthrop Greenwood, PC
Attorneys at Law

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East Goshen Municipal Authority
1580 Paoli Pike
West Chester PA 19380

Page: 1
02/10/2022
Client No: 6604-001M
Invoice No. 254159

General Authority Services

Fees

			Hours	
01/10/2022	PMM	Review and analyze meeting packet in preparation for Authority board meeting; Attend Authority Board meeting.	2.10	420.00
01/11/2022	PMM	Emails (4) from/to D. Ware regarding email addresses for Authority Board members.	0.60	120.00
01/12/2022	PMM	Email from D. Ware regarding email addresses.	0.20	40.00
		For Current Services Rendered	<u>2.90</u>	<u>580.00</u>

Recapitulation

<u>Timekeeper</u>	<u>Hours</u>	<u>Hourly Rate</u>	<u>Total</u>
Patrick M. McKenna	2.90	\$200.00	\$580.00
Previous Balance			\$620.00
Total Current Charges			580.00
01/18/2022	Payment		-540.00
Balance Due			<u>\$660.00</u>

PA
2/10/22



Gawthrop Greenwood, PC
Attorneys at Law

MA

17 East Gay Street, Suite 100 | (p) 610-696-8225
West Chester, PA 19381-0562 | (f) 610-344-0922
gglaw@gawthrop.com | www.gawthrop.c

PAID

Please Note:
Please Mail checks to:
P.O. Box 562
West Chester, PA 19381-0562

East Goshen Municipal Authority
1580 Paoli Pike
West Chester PA 19380

Page: 1
12/08/2021
Client No: 6604-001M
Invoice No. 251594

General Authority Services

Fees

		Hours	
11/02/2021			
PMM	Draft resolution for Willistown Line Road sewer agreement; Email to M. Miller, D. Davis and K. Camp regarding same.	0.50	100.00
11/05/2021			
RCJ	Email (1) received from S.Smith containing meeting materials; and Review and analyze materials from client.	0.70	140.00
11/08/2021			
RCJ	Attend East Goshen Muni Authority general meeting.	1.50	300.00
	For Current Services Rendered	2.70	540.00

Recapitulation

<u>Timekeeper</u>	<u>Hours</u>	<u>Hourly Rate</u>	<u>Total</u>
Patrick M. McKenna	0.50	\$200.00	\$100.00
Robert C. Jefferson	2.20	200.00	440.00

Previous Balance \$1,280.00

Total Current Charges **540.00**

11/18/2021 Payment -320.00

Handwritten signature

East Goshen Municipal Authority

General Authority Services

Page: 2
12/08/2021

Client No: 6604-001M
Invoice No. 251594

Balance Due

\$1,500.00

Handwritten signature
2/16/22

To ensure proper credit, please write your client number on your check when returning payment.
A finance charge of 1.25% per month (15% annually) may be charged on balances not paid 60 days after the invoice date.

Memo

To: Municipal Authority
From: Dave Ware
Re: MA January 2022 Financial Report
Date: February 10, 2022

In January 2022, the Municipal Authority recorded \$24,483 in revenues (transfer from Sewer Operating and Sewer Capital Reserve) and \$27,399 in expenses (2022 PA MA member dues, Engineering, Legal Services, Pump Station pumps, Muffin Monster), for a negative variance of (\$7,997). As of January 31, 2022, the fund balance was \$8,704.

A complete list of 2022 full year MA revenues and expenses is attached.

EAST GOSHEN TOWNSHIP
Other Funds
January 2022
Municipal Authority

Account Title	Acct #	Annual Budget	Y-T-D Budget	Y-T-D Actual	Y-T-D Variance	M-T-D Budget	M-T-D Actual	M-T-D Variance
REVENUE								
INTEREST EARNINGS	07341 1000			0.19	0.19		0.19	0.19
DCKD GRANT	07354 0400	152,980						
C.C. TAPPING FEES	07364 1100	2,000						
R.C. TAPPING FEES	07364 1110	2,000						
CONNECTION FEES - SEWER	07364 1130	1,000	84		(83.70)	84		(83.70)
TRANSFER FROM SEWER OPERATING	07392 0500	130,000		5,497.00	5,497.00		5,497.00	5,497.00
TRANSFER FROM SEWER CAP RESERVE	07392 0900	476,930		18,986.13	18,986.13		18,986.13	18,986.13
TOTAL REVENUE		764,910	84	24,483.32	24,399.62	84	24,483.32	24,399.62
EXPENSES								
ADMINISTRATIVE WAGES	07424 1400	30,529						
MISCELLANEOUS EXPENSE	07424 3000	1,500		880.25	(880.25)		880.25	(880.25)
MUNIC. AUTH. -AUDITING	07424 3110	10,300						
ENGINEERING SERVICES	07424 3130	45,000	54	4,076.75	(4,023.13)	54	4,076.75	(4,023.13)
LEGAL SERVICES	07424 3140	8,000		540.00	(540.00)		540.00	(540.00)
R.C. CAPITAL-STP	07424 7440	315,000						
CAP. REPLACEMENT R.C.	07424 7490	41,400						
RELINING	07426 3001	130,000						
BARKWAY PUMP STATION CAPITAL	07429 1501			2,215.00	(2,215.00)		2,215.00	(2,215.00)
HERSHEYS HILL PUMP STATION CAPITAL	07429 1503			17,816.70	(17,816.70)		17,816.70	(17,816.70)
HUNT CO PUMP STATION CAPITAL	07429 1504			1,870.00	(1,870.00)		1,870.00	(1,870.00)
RCSTP CAPITAL	07429 1505	46,897						
WEST GOSHEN CAPITAL	07429 6100	136,284						
TOTAL EXPENSES		764,910	54	27,398.70	(27,345.08)	54	27,398.70	(27,345.08)
NET RESULT FROM OPERATIONS			30	(2,915.38)	(2,945.46)	30	(2,915.38)	(2,945.46)

MUNICIPAL AUTHORITY January 31, 2022 YTD Financials

Account #	Description	Per	Src	Trx#	Debits	Credits	Balance	Date	Check#	Name	Description
07341-1000	BEGINNING BALANCE						0				
07341-1000	INTEREST EARNINGS	2201	JE	82114	-	0.19	0	1/31/2022	INTEREST	INTEREST EARNED JANUARY 2022	07 FUND
07392-0500	BEGINNING BALANCE						0				
07392-0500	TRANSFER FROM SEWER OPERATING	2201	JE	81851	-	5,497.00	0	1/13/2022	XFER	XFER \$ TO MA FROM SEWER &	SEWER CAP.RE: DEC.EXPENSES
07392-0900	BEGINNING BALANCE						0				
07392-0900	TRANSFER FROM SEWER CAP RESERVE	2201	JE	81851	-	18,986.13	0	44574	XFER	XFER \$ TO MA FROM SEWER &	SEWER CAP.RE: DEC.EXPENSES
07424-3000	BEGINNING BALANCE						0				
07424-3000	MISCELLANEOUS EXPENSE	2201	CD	81850	880.25	-	0	44574		3303 PENNSYLVANIA MUNICIPAL AUTHORITIES ASSOC	2022 ACTIVE MEMBERSHIP DUES
07424-3130	BEGINNING BALANCE						0				
07424-3130	ENGINEERING SERVICES	2201	CD	81850	4,076.75	-	0	1/13/2022		3302 PENNONI ASSOCIATES INC.	SERVICES THRU 12/19/21 2021 GEN.SER
07424-3140	BEGINNING BALANCE						0				
07424-3140	LEGAL SERVICES	2201	CD	81850	540.00	-	0	1/13/2022		3300 GAWTHROP GREENWOOD & HALSTED	LEGAL SERVICE - NOVEMBER 2021
07429-1501	BEGINNING BALANCE						0				
07429-1501	BARKWAY PUMP STATION CAPITAL	2201	CD	81850	2,215.00	-	0	44574		3299 DECKMAN MOTOR & PUMP INC.	REBUILT HYDROMATIC PUMP
07429-1503	BEGINNING BALANCE						0				
07429-1503	HERSHEYS MILL PUMP STATION CAPITAL	2201	CD	81850	2,709.00	-	0	44574		3299 DECKMAN MOTOR & PUMP INC.	2 - REBUILT HYDROMATIC PUMPS
07429-1503	HERSHEYS MILL PUMP STATION CAPITAL	2201	CD	81850	11,255.01	-	0	44574		3301 JWC ENVIRONMENTAL	MUFFIN MONSTER
07429-1503	HERSHEYS MILL PUMP STATION CAPITAL	2201	CD	81850	3,852.69	-	0	44574		3302 PENNONI ASSOCIATES INC.	SERVICES THRU 12/19/21 HM ESTATES
07429-1504	BEGINNING BALANCE						0				
07429-1504	HUNT CO PUMP STATION CAPITAL	2201	CD	81850	1,870.00	-	0	44574		3299 DECKMAN MOTOR & PUMP INC.	REBUILT HYDROMATIC PUMP

January 13, 2022

To the Board of the Authority
c/o Mr. Walter Wujcik, Chairman
East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6107

Attached is your audit engagement letter for the year ended December 31, 2021. You should be made aware that in May of 2019, new professional auditing standards were issued related to a potential new reporting feature known as key audit matters (KAMs). With your upcoming audit, you have the option of having key audit matters reported on.

Key audit matters have been reported on for publicly traded entities for some time, however, this a new concept in the world of nonpublic entities. Key audit matters are defined as those matters that in the auditor's professional judgement were of most significance in the audit of the financial statements of the current period. Examples of KAMs include significant estimates, significant unusual transactions, revenue, goodwill, and implementation of new IT systems.

It is important to note that at this time, key audit matters are not required to be reported upon. In deciding whether to have the auditor report on key audit matters, an entity is encouraged to consider the needs of the users of the financial statements, as well as the effects of sharing potentially sensitive information with these users.

If you are interested in having us report on key audit matters, the attached engagement letter will need to be revised, so please do not sign it. Instead reach out to me to discuss. On the other hand, if you are not interested in having us report on key audit matters, please sign the attached engagement letter.

Sincerely,



Edward Fronczkowski, CPA

January 13, 2022

To the Board of the Authority
c/o Mr. Walter Wujcik, Chairman
East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6107

You have requested that we audit the statement of net position of East Goshen Municipal Authority as of December 31, 2021, and the related statements of revenues, expenses and changes in net position and cash flows for the year then ended and the related notes to the financial statements, which collectively comprise the East Goshen Municipal Authority's basic financial statements. We are pleased to confirm our acceptance and our understanding of this audit engagement by means of this letter. Our audit will be conducted with the objective of our expressing an opinion on the financial statements.

Accounting principles generally accepted in the United States of America (U.S. GAAP) require that management's discussion and analysis and budgetary comparison information be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. As part of our engagement, we will apply certain limited procedures to the required supplementary information (RSI) in accordance with auditing standards generally accepted in the United States of America (U.S. GAAS). These limited procedures will consist primarily of inquiries of management regarding their methods of measurement and presentation, and comparing the information for consistency with management's responses to our inquiries. We will not express an opinion or provide any form of assurance on the RSI. The following RSI is required by U.S. GAAP. This RSI will be subjected to certain limited procedures but will not be audited:

1. Management's Discussion and Analysis

The objectives of our audit are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with auditing standards generally accepted in the United States of America (GAAS) and/or Generally Accepted Government Auditing Standards (GAGAS) will always detect a material misstatement when it exists. Misstatements, including omissions, can arise from fraud or error and are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

AUDITOR RESPONSIBILITIES

We will conduct our audit in accordance with GAAS. As part of an audit in accordance with GAAS, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, fraudulent financial reporting, misappropriation of assets, or violations of laws, governmental regulations, grant agreements, or contractual agreements, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

To the Board of the Authority
c/o Mr. Walter Wujcik, Chairman
East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6107
Page 2

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. However, we will communicate to you in writing concerning any significant deficiencies or material weaknesses in internal control relevant to the audit of the financial statements that we have identified during the audit.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation. If appropriate, our procedures will therefore include tests of documentary evidence that support the transactions recorded in the accounts, tests of the physical existence of inventories, and direct confirmation of cash, investments, and certain other assets and liabilities by correspondence with third parties (e.g., creditors or financial institutions). As part of our audit process, we will request written representations from your attorneys, and they may bill you for responding. At the conclusion of our audit, we will also request certain written representations from you about the financial statements and related matters.
- Obtain reasonable assurance about whether the financial statements are free of material misstatement, and will perform tests of the East Goshen Municipal Authority's compliance with certain provisions of laws, regulations, contracts and grants that could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions is not an objective of our audit, and, accordingly, we will not express such an opinion.
- Conclude, based on the audit evidence obtained, whether there are conditions or events, considered in the aggregate, that raise substantial doubt about East Goshen Municipal Authority's ability to continue as a going concern for a reasonable period of time.

Because of the inherent limitations of an audit, together with the inherent limitations of internal control, an unavoidable risk exists that some material misstatements (whether caused by errors, fraudulent financial reporting, misappropriation of assets, or violations of laws or governmental regulations) may not be detected by our firm, even though our audit is properly planned and performed in accordance with GAAS.

In addition, an audit is not designed to detect immaterial misstatements or violations of laws or governmental regulations that do not have a direct and material effect on the financial statements. However, we will inform you of any material errors that come to our attention, and we will inform you, or the appropriate level of management, of any fraudulent financial reporting or misappropriation of assets that comes to our attention. We will also inform you of any violations of laws or governmental regulations that come to our attention, unless clearly inconsequential.

In making our risk assessments, we consider internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. However, we will communicate to you in writing concerning any significant deficiencies or material weaknesses in internal control relevant to the audit of the financial statements that we have identified during the audit.

To the Board of the Authority
c/o Mr. Walter Wujcik, Chairman
East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6107
Page 3

As this engagement is not designed to be a fraud audit, management understands and accepts the inherent limitations of the audit services described in this agreement. Our responsibility as auditors is limited to the period covered by our audit and does not extend to any other periods.

REPORTING

We will issue a written report upon completion of our audit of the East Goshen Municipal Authority's basic financial statements. Our report will be addressed to the governing body of the East Goshen Municipal Authority. We cannot provide assurance that an unmodified opinion will be expressed. Circumstances may arise in which it is necessary for us to modify our opinion, add an emphasis-of-matter or other-matter paragraph(s), or withdraw from the engagement.

MANAGEMENT RESPONSIBILITIES

Our audit will be conducted on the basis that management and those charged with governance acknowledge and understand that they have responsibility:

1. For the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America.
2. For the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to error, fraudulent financial reporting, misappropriation of assets, or violations of laws, governmental regulations, grant agreements, or contractual agreements;
3. To provide us with:
 - a. Access to all information of which management is aware that is relevant to the preparation and fair presentation of the financial statements, such as records, documentation and other matters;
 - b. Additional information that we may request from management for the purpose of the audit; and
 - c. Unrestricted access to persons within the entity from whom we determine it necessary to obtain audit evidence.
 - d. A written acknowledgement of all the documents that management expects to issue that will be included in the annual report and the planned timing and method of issuance of that annual report, if applicable; and
 - e. A final version of the annual report (including all the documents that, together, comprise the annual report) in a timely manner prior to the date of the auditor's report, if applicable.
4. For including the auditors' report in any document containing financial statements that indicates that such financial statements have been audited by the entity's auditor;

To the Board of the Authority
c/o Mr. Walter Wujcik, Chairman
East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6107
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5. For identifying and ensuring that the entity complies with the laws and regulations applicable to its activities; and
6. For adjusting the financial statements to correct material misstatements and confirming to us in the management representation letter that the effects of any uncorrected misstatements aggregated by us during the current engagement and pertaining to the current year under audit are immaterial, both individually and in the aggregate, to the financial statements as a whole; and
7. For acceptance of nonattest services, including identifying the proper party to oversee nonattest work; and
8. For maintaining adequate records, selecting and applying accounting principles, and safeguarding assets; and
9. For informing us of any known or suspected fraud affecting the entity involving management, employees with significant role in internal control and others where fraud could have a material effect on the financials; and
10. For the accuracy and completeness of all information provided; and
11. For informing us of events occurring or facts discovered subsequent to the date of the financial statements that may affect the financial statements.

Nonattest Services

We will perform the following nonattest services:

1. Preparation of financial statements based on your trial balances
2. Preparation of the Commonwealth of Pennsylvania Department of Community and Economic Development Municipal Annual Audit and Financial Report.

We will not assume management responsibilities on behalf of East Goshen Municipal Authority. However, we will provide advice and recommendations to assist management of East Goshen Municipal Authority in performing its responsibilities.

With respect to any nonattest services we perform, the East Goshen Municipal Authority's management is responsible for (a) making all management decisions and performing all management functions; (b) assigning a competent individual to oversee the services; (c) evaluating the adequacy of the services performed; (d) evaluating and accepting responsibility for the results of the services performed and (e) establishing and maintaining internal controls, including monitoring ongoing activities.

As part of our audit process, we will request from management and those charged with governance, written confirmation concerning representations made to us in connection with the audit, including your understanding of your responsibilities as defined in this letter to us in your management representation letter.

To the Board of the Authority
c/o Mr. Walter Wujcik, Chairman
East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6107
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Our responsibilities and limitations of the nonattest services are as follows:

- We will perform the services in accordance with applicable professional standards, including the auditing standards generally accepted in the United States of America (GAAS).
- The nonattest services are limited to the preparation of financial statements based on your trial balances and Preparation of the Commonwealth of Pennsylvania Department of Community and Economic Development Municipal Annual Audit and Financial Report previously outlined. Our firm, in its sole professional judgment, reserves the right to refuse to do any procedure or take any action that could be construed as making management decisions or assuming management responsibilities, including determining account coding and approving journal entries. Our firm will advise East Goshen Municipal Authority with regard to tax positions taken in the preparation of the tax return, but East Goshen Municipal Authority must make all decisions with regard to those matters.

OTHER

We understand that your employees will prepare all confirmations we request and will locate any documents or invoices selected by us for testing.

If you intend to publish or otherwise reproduce the financial statements and make reference to our firm, you agree to provide us with printers' proofs or masters for our review and approval before printing. You also agree to provide us with a copy of the final reproduced material for our approval before it is distributed.

In accordance with the terms and conditions of this agreement, East Goshen Municipal Authority shall be responsible for the accuracy and completeness of all data, information and representations provided to us for purposes of this engagement. Because of the importance of oral and written management representations to the effective performance of our services, East Goshen Municipal Authority releases and indemnifies our firm and its personnel from any and all claims, liabilities, costs and expenses attributable to any misrepresentation by management and its representatives.

In connection with this engagement, we may communicate with you or others via email transmission. We take reasonable measures to secure your confidential information in our email transmissions. However, as email can be intercepted and read, disclosed, or otherwise used or communicated by an unintended third party, or may not be delivered to each of the parties to whom it is directed and only to such parties, we cannot guarantee or warrant that email from us will be properly delivered and read only by the addressee. Therefore, we specifically disclaim and waive any liability or responsibility whatsoever for interception or unintentional disclosure or communication of email transmissions, or for the unauthorized use or failed delivery of email transmitted by us in connection with the performance of this engagement. In that regard, you agree that we shall have no liability for any loss or damage to any person or entity resulting from the use of email transmissions, including any consequential, incidental, direct, indirect, or special damages, such as loss of sales or anticipated profits, or disclosure or communication of confidential or proprietary information.

To the Board of the Authority
c/o Mr. Walter Wujcik, Chairman
East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6107
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We may from time to time and depending on the circumstances and nature of the services we are providing, share your confidential information with third-party service providers, some of whom may be cloud-based, but we remain committed to maintaining the confidentiality and security of your information. Accordingly, we maintain internal policies, procedures and safeguards to protect the confidentiality of your personal information. In addition, we will secure confidentiality terms with all service providers to maintain the confidentiality of your information and will take reasonable precautions to determine that they have appropriate procedures in place to prevent the unauthorized release of your confidential information to others. In the event that we are unable to secure appropriate confidentiality terms with a third-party service provider, you will be asked to provide your consent prior to the sharing of your confidential information with the third-party service provider. Although we will use our best efforts to make the sharing of your information with such third parties secure from unauthorized access, no completely secure system for electronic data transfer exists. As such, by your signature below, you understand that the firm makes no warranty, expressed or implied, on the security of electronic data transfers.

Regarding the electronic dissemination of audited financial statements, including financial statements published electronically on your Internet website, you understand that electronic sites are a means to distribute information and, therefore, we are not required to read the information contained in these sites or to consider the consistency of other information in the electronic site with the original document.

During the course of the engagement, we may communicate with you or your personnel via fax or e-mail, and you should be aware that communication in those mediums contains a risk of misdirected or intercepted communications.

Edward Fronczkowski, CPA, is the engagement partner for the audit services specified in this letter. His responsibilities include supervising Maillie LLP's services performed as part of this engagement and signing or authorizing another qualified firm representative to sign the audit report.

Our fees are based on the amount of time required by the individuals assigned to the engagement and value of services provided, plus direct out-of-pocket expenses. Our standard hourly rates vary according to the degree of responsibility involved and the experience level of the personnel assigned to your audit. Invoices will be rendered as work progresses and expenses are incurred and are payable upon presentation. We estimate that our fee for the audit will be \$10,250 plus direct confirmation.com charges.

In accordance with our firm policies, work may be suspended if your account becomes 30 days or more overdue and will not resume until your account is paid in full. East Goshen Municipal Authority further acknowledges and agrees that in the event we stop work or withdraw from this engagement as a result of East Goshen Municipal Authority's failure to pay on a timely basis for services rendered as required by this engagement letter, we shall not be liable for any damages that occur as a result of our ceasing to render services. If we elect to terminate our services for nonpayment, our engagement will be deemed complete upon written notification of termination, even if we have not completed our report. You will be obligated to compensate us for all time expended and to reimburse us for all out-of-pocket costs through the date of termination.

We reserve the right to withdraw from this engagement without completing the work if you fail to comply with the terms of this engagement letter or if we determine professional standards require our withdrawal for any reason.

To the Board of the Authority
c/o Mr. Walter Wujcik, Chairman
East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6107
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During the course of the audit, we may observe opportunities for economy in, or improved controls over, your operations. We will bring such matters to the attention of the appropriate level of management, either orally or in writing.

The audit documentation for this engagement is the property of Maillie LLP and constitutes confidential information. However, we may be requested to make certain audit documentation available to various regulators pursuant to authority given to them by law or regulation, or to peer reviewers. If requested, access to such audit documentation will be provided under the supervision of Maillie LLP's personnel. Furthermore, upon request, we may provide copies of selected audit documentation to various regulators. The various regulators may intend, or decide, to distribute the copies of information contained therein to others, including other governmental agencies.

It is our policy to keep records related to this engagement for seven years. Original client records will be returned to you at the completion of the services rendered under this engagement. When records are returned to you, it is your responsibility to retain and protect your records for any future use, including potential examination by government or regulatory agencies. Professional standards prohibit us from being the sole host and/or the sole storage for your financial and non-financial data. As such, it is your responsibility to maintain your original data and records and we cannot be responsible to maintain such original information. By signing this engagement letter, you affirm that you have all the data and records required to make your books and records complete and that upon the expiration of the seven year period, Maillie LLP shall be free to destroy our records related to this engagement.

Please sign and return the attached copy of this letter to indicate your acknowledgment of, and agreement with, the arrangements for our audit of the financial statements including our respective responsibilities.

We appreciate the opportunity to be your financial statement auditors and look forward to working with you and your staff.

Respectfully,

MAILLIE LLP



Edward Fronczkowski, CPA

RESPONSE:

This letter correctly sets forth our understanding.

Acknowledged and agreed on behalf of the **East Goshen Municipal Authority** by:

Name: _____

Signature: _____

Title: _____



Christiana Executive Campus
121 Continental Drive, Suite 207
Newark, DE 19713
T: 302-655-4451
F: 302-654-2895

www.pennoni.com

MEMORANDUM

TO: East Goshen Municipal Authority
Mark Miller, Public Works Director

CC: Derek Davis, Township Manager
Dave Ware, Finance Director
Big Fish Environmental

FROM: Michael Ellis, PE
Tim Daily, PE

DATE: February 11, 2022

SUBJECT: RCSTP UV System Replacement – Product Alternatives and Recommendation

This memo outlines the evaluation and recommendations of ultraviolet (UV) disinfection system alternatives for the replacement of the existing Siemens UV system at the Ridley Creek Sewage Treatment Plant (RCSTP).

BACKGROUND

The RCSTP currently utilizes a Siemens two bank horizontal UV system from 2009, in which each bank is rated for 1.5 MGD. The existing UV system incurred damage to its electrical connections and ballasts during a storm in August 2021 due to high water levels. Additionally, many of the lamps in the second bank are non-functional due to age. Siemens has since stopped manufacturing of UV systems, making replacement parts (i.e., ballasts, sleeves, lamps) nearly impossible to come by. Consequently, it is proposed to replace the existing UV disinfection system with a new UV system that has a similar capacity and flow-paced operational abilities.

Pennoni evaluated five different UV systems for the replacement of the existing RCSTP system:

1. Trojan Horizontal 3000 Plus UV System
2. Glasco Vertical VCS-40-A150-2 UV System
3. Enaqua Non-Contact UV System
4. Severn Trent Non-Contact UV System
5. Trojan Horizontal 3000B UV System

Of the five options, it was determined that the Enaqua and Severn Trent non-contact systems were not feasible alternatives due to the size of the systems and their inability to be efficiently retrofitted into the plant since the existing concrete UV channel would need to be completely demolished to fit the pre-manufactured non-contact channels. In addition, the Trojan 3000B UV system does not come with many of the desirable key features the Trojan 3000 Plus system has, such as PLC controls or an automatic cleaning system. Therefore, only the Trojan 3000 Plus and Glasco VCS-40-A150-2 UV systems, which are contact systems, were further evaluated.

PRODUCTS

1. Trojan Horizontal 3000 Plus UV System

The Trojan 3000 Plus is a horizontal UV system with the ability to be flow-paced by dimming the output of the lamps. The proposed layout consists of one UV bank retrofitted into the existing concrete channel with a peak design flow of 3 MGD. The bank is comprised of six UV modules in parallel, each containing six lamps (36 lamps total), with a lamp output of 250 watts. The lamps are placed inside of quartz sleeves, which are sealed and immersed in the effluent water. The ballasts are housed within the bank (above the channel) and are cooled by the water and metal bank enclosure without separate air conditioning. The system comes with an automatic chemical/mechanical cleaning system, driven by a hydraulic power unit, that helps to eliminate sleeve fouling and reduce maintenance requirements. The bulbs can be dimmed to 60% output. The UV lamps are warranted for 12,000 hours, prorated after 9,000 hours, and the ballasts are warranted for 5 years, prorated after 1 year. It was recommended that a manual crane be provided to remove the module. See the attached Trojan 3000 Plus Proposal and Concept Plans for additional information.

It was recommended by the local representative that to maintain the PADEP redundancy requirement, a spare module be kept on hand. If a module needs service, it can be removed and replaced with the spare module. The system is rated to provide adequate disinfection with one module out of service. To replace a bulb or ballast, the module needs to be removed from the channel.

We performed a site visit to the Upper Gwynedd (UG) Wastewater Treatment Plant (WWTP) to observe their Trojan 3000 Plus UV system with the vendor and UG WWTP operator. The operator provided a favorable recommendation of the system. The operator did relate that he would not recommend removing a module manually. He recommended that a crane be used and that there should always be a second person there to guide the removal.

2. Glasco Vertical VCS-40-A150-2 UV System

The Glasco VCS-40-A150-2 is a vertical UV system with the ability to be flow-paced by reducing the number of lamps that are on. The proposed system consists of two 1.5 MGD UV banks in series retrofitted into the existing concrete channel, providing a combined peak capacity of 3 MGD. At the daily average flow, 25% of the bulbs will be on. The banks each contain 40 lamps (80 lamps total), with a lamp output of 150 watts. The UV bulbs are suspended inside of the quartz sleeves and are accessible for replacement without removing the banks. The ballast is housed in the control panel, which is air conditioned and is located external to the channel. The system comes with a pneumatically driven automatic cleaning system that is driven by compressed air to reduce maintenance requirements. The UV lamps are guaranteed for 13,000 hours and are expected to have a lifespan of 1.5 to 3 years at the RCSTP. Glasco will send a free replacement lamp before 9,000 hours and provide a credit proportional to the unused hours after 9,000 hours. The ballasts are warranted for 5 years. See the attached Glasco VCS-40-A150-2 Proposal and Concept Plans for additional information.

We performed a site visit to the CAN DO – Humboldt Industrial Park Wastewater Treatment Plant in Hazleton, PA to observe their similar Glasco UV system with the vendor and WWTP management personnel. We also spoke separately with the Humboldt WWTP operator who provided a favorable recommendation of the system.

UV SYSTEM INSTALLATION

The installation of either UV system will require raising of the existing concrete weir wall, raising/relocating the existing finger weir, and electrical upgrades. All structural and electrical work is to be completed by East Goshen Public Works or an outside contractor. Both UV systems will also require installation of a temporary bypass/pilot UV system by the Township or an outside contractor to maintain disinfection during construction.

PRICING

The total cost of the Trojan 3000 Plus UV system and control equipment is \$190,500 (\$178,500 base quote + \$11,000 for spare UV module), including the channel reduction baffle, training, four spare UV lamps, one spare quartz sleeve, one spare ballast, one spare UV module, and one operator's kit. The cost also includes installation of the UV bank. Add-on items include the following:

- One UV module maintenance rack – \$995
- One davit crane with base and lifting sling – \$4,900

The total cost of the Glasco VCS-40-A150-2 and control equipment is \$123,035, including eight spare UV lamps, eight spare quartz sleeves, one spare ballast, and eight spare seals and wiper rings in addition to recommended add-on items for a temporary/pilot bypass UV channel, stainless steel channel bump out, and startup training. Installation of the UV banks are not included; however, the associated cost is expected to be minimal (less than \$5,000). Other optional add-on items include the following:

- One new finger weir – \$4,000 (not expected to be necessary)
- One davit crane – \$2,050

We still recommend budgeting approximately \$200,000 – \$250,000 for the overall project to include the aforementioned UV equipment costs plus structural, electrical, and any controls work.

RECOMMENDATIONS

Based on our evaluation of available products and the existing conditions of the concrete channel, we recommend the Glasco VCS-40-A150-2 be selected as the replacement for the existing RCSTP UV system. Though the Glasco and Trojan 3000 Plus products are similar in operation, the Glasco vertical system is recommended over the Trojan horizontal system for the following reasons:

- The vertical layout of the Glasco system allows for lamps to be changed without removing the banks or undoing any underwater seals. Due to the limited space inside the RCSTP, not having to remove the banks for cleaning/replacement will result in an ease of maintenance.
- Glasco's automated self-cleaning system is expected to be adequate for the RCSTP since the water is predominantly residential (not industrial) and has been filtered prior to the UV system. The more sophisticated Trojan self-cleaning is not expected to be necessary for the RCSTP.
- The proposed Glasco system is comprised of two banks instead of one, which provides redundancy by allowing one bank to remain online while the other undergoes maintenance or repairs.
- The Glasco system with two 1.5 MGD modules in series is the same configuration as the existing UV system. It is our opinion that the Glasco system would be considered a direct replacement and meet the PADEP Part II Water Quality permit without the need to amend the permit.
- The overall cost of the Glasco system is approximately \$60,000 less than the Trojan system.

After the selection of the proposed UV system, an on-site meeting between Pennoni, Public Works, Big Fish, the equipment vendor, the manufacturer's technical representative, and the Township's electrical,

controls, and mechanical contractors will be held to discuss the detailed scopes of work and any additional add-on items for the installation of the new UV system. A finalized quote will then be obtained from the UV vendor, and quotes will also be obtained from the electrical, controls, and mechanical contractors.

The lead time for the recommended Glasco UV system is four to six weeks for a design submittal, and 16 to 18 weeks for product delivery after the receipt of approved submittals. The total lead time is therefore approximately six months.

LIST OF ATTACHMENTS

- Trojan 3000 Plus CoStar Proposal and Concept Plans
- Glasco VCS-40-A150-2 CoStar Proposal and Concept Plans



Christiana Executive Campus
121 Continental Drive, Suite 207
Newark, DE 19713
T: 302-655-4451
F: 302-654-2895

www.pennoni.com

Trojan 3000 Plus Proposal and Concept Plans



Kappe Associates, Inc.
191 Main St. Suite 200
Emmaus, PA 18049

(215) 361-5700 Office
(215) 361-5107 Fax
Email: ewalters@kappe-inc.com
Web: www.kappe-inc.com

Date: 1-10-2021

To: East Goshen, Pa Ridley Creek WWTP

Project: Ultraviolet Disinfection Replacement Project

Engineer: Pennoni

East Goshen:

Under the Terms and Conditions listed hereafter we are pleased to offer the following for your review and consideration.

Trojan Technologies 3000 Plus Replacement Project

Please accept this firm proposal to perform a Turn-Key Co-Star project to replace the existing UV system at East Goshen, Pa Ridley Creek WWTP. Kappe Associates along with Trojan Technologies with supply all UV related equipment, Bypass UV Equipment, installation supervision, start-up, and training. East Goshen will provide installation and construction services to include mechanical and electrical work. East Goshen will also provide and set up the by-pass pump for this project.

I have attached a Trojan Technologies 3000 Plus scope of supply. This includes Trojan responsibilities along with the responsibilities of the owner East Goshen.

I have also attached a scope of supply and rental terms for a Trojan Technologies pilot unit to act as a by-pass for this project. This includes Trojan responsibilities along with the responsibilities of the owner East Goshen.

TOTAL SELLING PRICE: \$220,300.00

TOTAL SELLING PRICE WITH COSTAR DISCOUNT: **\$179,500.00**

I welcome this opportunity and hope for a successful project. Thank you.

Respectfully:

Evan Walters



**SCOPE OF SUPPLY FOR EAST GOSHEN - RIDLEY CREEK WWTP REPLACEMENT, PA
ULTRAVIOLET DISINFECTION EQUIPMENT – TROJAN SYSTEM UV3000Plus™**

Project Name: East Goshen - Ridley Creek WWTP Replacement, PA

Consulting Engineer: Pennoni

Submitted by: Trojan Technologies

Trojan Quote: 231788

Design Criteria: Current Peak Design Flow: 3 MGD
UV Transmittance: 65 % (minimum)
Total Suspended Solids: 30 mg/l (30 Day Average)
Discharge Limit: 200 Fecal Coliform/100 mL (30 Day Geometric Mean)

We are pleased to submit the following scope of equipment based on the above criteria.

The purchaser is responsible for reading all information contained in this Supply Contract. Trojan will not be held accountable for the supply of equipment not specifically detailed in this document. Supplemental Terms and Conditions are attached to this document. Detailed installation instructions are provided with the shop drawings and are available earlier upon request. Changes to this Scope of Supply that affect selling price will be handled through a change order.

Please refer all inquiries to Trojan Manufacturer's Representative:

Rep Name: Evan Walters
Rep Firm: Kappe Associates, Inc.
Phone: (215) 361-5700
Email: ewalters@kappe-inc.com

This proposal has been respectfully submitted by,
Trojan Technologies

John Faber

John Faber
Regional Manager
Trojan Technologies

**East Goshen - Ridley Creek WWTP Replacement, PA
UV Disinfection System Scope of Supply**

Unless otherwise indicated in this proposal all conduit, conductors, local disconnects and transformers (if required) are the responsibility of the CONTRACTOR and are not included in this Scope of Supply.

ULTRAVIOLET MODULES

Trojan's Responsibility:

Each module supplied shall be completely assembled containing lamps, quartz sleeves and be electrically wired to each electronic ballast. Modules are shipped in a support rack and crated.

Model and Make:	Standard System UV3000Plus™
Quantity:	Six (6) UV modules will be supplied each containing six (6) lamps
Material of Construction:	316 stainless steel frame
Approximate Weight:	98 pounds

SYSTEM CONTROL CENTER

Trojan's Responsibility:

One (1) System Control Center (SCC) shall be supplied to monitor and control the UV System. The SCC will be located within one 304 Stainless Steel - Type 4X (IP66) enclosure. The SCC shall consist of the following:

Quantity Supplied	One (1) SCC
Location:	Wall-Mount
Controller Type:	Standard Trojan Touch-Smart Controller
Operator Interface:	Standard 7" Trojan Touch-Smart HMI
Enclosure Rating:	Type 4X

Installation Contractor's Responsibility:

The Installation Contractor to be responsible for the supply, installation and connection of the following:

1. One (1) 120V, 1-phase, 2-wire, + ground, 300 VA power supply.
2. One 4 – 20 mA DC Analog signal from plant flow meter.
3. One (1) Ground Link, 14 gauge (minimum) type TWH stranded, daisy chained to the HSC.
4. One (1) 24Volt DC remote input/output to the HSC.
5. One (1) serial communication link consisting of one (1) shielded twisted pair, 18 gauge maximum from the HSC.
6. One (1) pair of 12 Volt DC, 18 gauge minimum, wire for discrete signal to the Water Level Sensor.
7. Serial communication link from SCADA – Ethernet IP.
8. Connection of communication, power cables and hydraulic lines from the UV Modules

POWER DISTRIBUTION CENTER

Trojan's Responsibility:

The Power Distribution Center (PDC) distributes power to the UV Modules and shall consist of the following:

Quantity Supplied:	One (1) PDC
Material of Construction:	304 Stainless Steel
Enclosure Rating:	Type 4X
Approximate Weight:	220 pounds

Installation Contractor's Responsibility:

The Installation Contractor to be responsible for setting in place and bolting the Power Distribution Center to the top of channel. The Installation Contractor to be responsible for the supply, installation and connection of the following at the Power Distribution Center:

1. One (1) 480Y/277V 3-phase, 4-wire, + ground, 9.2 kVA power supply with local disconnect.
2. One (1) Ground Link, 14 gauge minimum, TWH stranded single wire from the HSC.
3. One (1) communication link consisting of one (1) shielded twisted pair from the SCC.
4. One (1) pair of 12Volt DC, 18 gauge minimum discrete signal to the Water Level Sensor from PDC.

**East Goshen - Ridley Creek WWTP Replacement, PA
UV Disinfection System Scope of Supply**

- 5. One (1) pair of 24Volt DC, 18 gauge remote I/O to the HSC.
- 6. Connection of communication, power cables and hydraulic lines from the UV Modules

HYDRAULIC SYSTEM CENTER

Trojan's Responsibility:

The Hydraulic System Center (HSC) houses the ancillary equipment required to operate the quartz sleeve cleaning system.

Quantity Supplied:	One (1) HSC
Materials of Construction:	304 Stainless Steel
Enclosure Rating:	Type 4X
Approximate Weight:	300 pounds

Installation Contractor's Responsibility:

The Installation Contractor to be responsible for setting in place and bolting the HSC and manifold as shown on the contract drawings. The HSC should be located within 50 feet (15 meters) from the farthest PDC. The Installation Contractor shall be responsible for the supply, connection and installation of the following at the HSC:

- 1. One (1) 480V 3-phase, 3-wire, + ground, 2.5 kVA power supply with local disconnect
- 2. One (1) ground link of, 14 gauge minimum, TWH stranded from the PDC.
- 3. Connection of the hydraulic hoses from PDC. Hoses and connections will be supplied by Trojan.
- 4. One (1) serial communication link of one (1) twisted, shielded pairs, 18 gauge maximum cable from the SCC and daisy chained to the PDC.
- 5. One (1) pair, 18 gauge minimum, 24Volt DC remote I/O from the PDC.

SUPPORT RACKS

Trojan's Responsibility:

Support racks are provided to support UV modules in the effluent channel.

Quantity Supplied:	One (1) rack
Material of Construction:	304 Stainless Steel
Approximate Weight:	< 100 pounds

Installation Contractor's Responsibility:

The Installation Contractor to be responsible for setting in place and bolting the support racks to the channel walls. The Contractor will be required to supply eight (8) 1/2" Diameter x 5 1/2" Long expansion anchor bolts per rack.

Install approved (engineered) anchor points for personnel to use as part of their fall restraint system around the open channels. The anchor points must be positioned so that the preferred retractable lifeline of 8 feet is of sufficient length to access the work at the channel. Refer to local safety regulation.

LEVEL CONTROLLER (Existing)

Trojan's Responsibility:

A level control device is required to maintain and control the effluent level regardless of flow rate.

Description:	Serpentine Weir
Quantity Supplied:	One (1) level controller
Material of Construction:	304 stainless steel
Weir Length Required:	364 inches effective crest length

**East Goshen - Ridley Creek WWTP Replacement, PA
UV Disinfection System Scope of Supply**

Installation Contractor's Responsibility:

The Installation Contractor to be responsible for setting in place, grouting and sealing the level control device.

WATER LEVEL SENSOR KIT

Trojan's Responsibility:

The water level sensor is located downstream of the UV System and provides a digital signal to shut down & protect the UV System if the water level is too low.

Quantity Supplied:	One (1) water level sensor
Enclosure Rating:	Type 4X
Approximate Weight:	10 pounds

Installation Contractor's Responsibility:

The Installation Contractor to be responsible for setting in place and bolting the water level sensor panel to the effluent channel wall. The Installation Contractor shall also be responsible for the supply of mounting hardware, watertight conduit and supply and connection of one discrete signal (pair of 12V DC, 14 gauge) from the water level sensor probe to each PDC.

SPARE PARTS AND SAFETY EQUIPMENT

Trojan's Responsibility:

The following spare parts and safety equipment will be supplied with the UV system:

- 4 UV lamps
- 1 Quartz sleeve
- 1 Ballast
- 1 Operators Kit (including face shield, gloves and cleaning solution)

ADDITIONAL EQUIPMENT

UV CHANNEL REDUCTION BAFFLE

Trojan's Responsibility:

Trojan will supply one (1) baffle constructed of 304 stainless steel to reduce the channel in the area of the UV bank by six (6) inches.

Installation Contractor's Responsibility:

Contractor shall install and seal watertight the baffle by anchoring the perimeter of the baffle to the channel floor and walls with appropriate number of anchors (provided by Others).

DOCUMENTATION (SHOP DRAWINGS AND O & M MANUALS)

Trojan's Responsibility:

The following documentation will be supplied to the contractor by Trojan per the following schedule:

- 3 copies of submittal shop drawings 4-6 weeks after execution of written purchase order.
- 3 copies of Trojan Standard O&M manuals at time of equipment delivery.

**East Goshen - Ridley Creek WWTP Replacement, PA
UV Disinfection System Scope of Supply**

DELIVERY, START-UP AND TRAINING

- Equipment shipped 12-14 weeks after approval of Shop Drawings.

Installation Contractor's Responsibility:

The Contractor is responsible for:

- Unloading of the components supplied by Trojan, storage of all components, if required in a clean dry environment
- Installing the equipment outlined in the scope of Supply in accordance with contract drawings, Trojan's shop drawings, instructions and installation checklist.
- Supplying all conduits and conductors and components per the sites state regulations and components indicated as supplied by others,
- Completing the Checklist and returned at least two (2) weeks prior to date requested for commissioning.

The following start-up services will be provided by Kappe Associates -Trojan-certified technicians:

- Ten (10) days of installation supervision.
- Two (2) Days of Start up and Training.

WARRANTY

Trojan's Responsibility:

Trojan Technologies will warrant the equipment and parts for 12 months after start-up or 18 months after shipment, whichever comes first. Refer to attached Terms and Conditions for additional details.

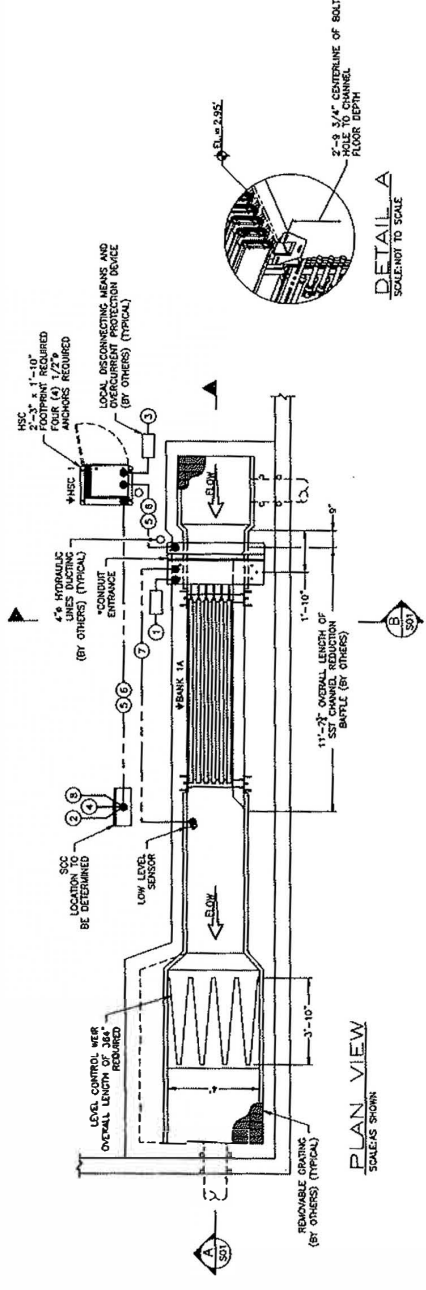
- UV lamps to be warranted for 12,000 hours, prorated after 9,000 hours.
- Ballasts will be warranted for 5 years, prorated after 1 year.

TROJAN UV3000 PLUS™ EQUIPMENT INTERCONNECTIONS

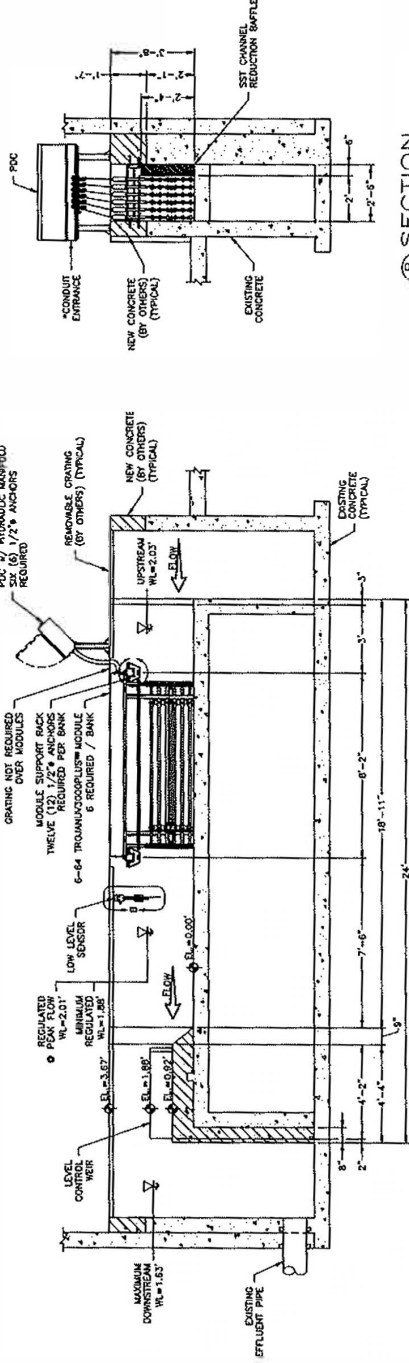
No.	DESCRIPTION	FROM	TO
1	POWER DISTRIBUTION CENTER (POC) POWER SUPPLY PHASE A, WIRE + GROUND 8.2 AMP POC POWER DRAW 12 AMP MAXIMUM CURRENT/PHASE	DISTRIBUTION PANEL (DP) (BY OTHERS) (NOT SHOWN)	POC
2	SYSTEM CONTROL CENTER (SCC) TOUCH SMART 120V, 1 PHASE, 2 WIRE + GROUND 0.3 MA, 3 AMPS	DISTRIBUTION PANEL (DP) (BY OTHERS) (NOT SHOWN)	SCC
3	HYDRAULIC SYSTEMS CENTER (HSC) 400V, 3 PHASE, 3 WIRE + GROUND 2.5 MA, 2 AMPS	DISTRIBUTION PANEL (DP) (BY OTHERS) (NOT SHOWN)	HSC
4	FLOW METER 4-20 MA, DC ANALOG INPUT (BY OTHERS)	FLOW METER PANEL (FM) (BY OTHERS)	SEC
5	GROUND LINK 14 AWG TYPE THW STRAINED	SEC	POC THRU HSC (DASH CHAINED)
6	WIRING 1 SHIELDED TWISTED PAIR	SEC	POC THRU HSC (DASH CHAINED)
7	WIRING 12 AWG TYPE LOW LEVEL SIGNAL	SEC	POC
8	ETHERNET/IP COMMUNICATION	SEC	PLANT SCADA (BY OTHERS) (NOT SHOWN)

NOTES:

- DO NOT SLOPE CHANNEL FLOOR
- CHANNEL WIDTH & DEPTH MUST BE KEPT WITHIN A TOLERANCE OF + OR - ".
- ANCHOR BOLTS ARE NOT SUPPLIED BY TROJAN TECHNOLOGIES.
- CONCRETE FOUNDATION SHALL BE PERFORMED BY OTHERS. DISTRIBUTION PANELS & INTERCONNECTIONS BY OTHERS UNLESS OTHERWISE NOTED.
- ELECTRICAL REQUIREMENTS SHOWN ARE TO SUPPLY TROJAN UV EQUIPMENT ONLY.
- ELECTRICAL AND/OR MECHANICAL REQUIREMENTS SHOWN ARE TO BE ADDED AS PER LOCAL CODE.
- WEIGHT OF THE SECTIONS SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF THE APPLICABLE JURISDICTION.
- TROJAN TECHNOLOGIES INSTALLATION INSTRUCTIONS PRIOR TO EQUIPMENT INSTALLATION.
- EFFLUENT LEVELS SHOWN REFLECT HYDRAULICS ASSOCIATED WITH TROJAN EQUIPMENT ONLY. EFFLUENT LEVELS MAY BE ALTERED DUE TO CHANNEL DIMENSIONS OR GEOMETRY.
- ALLOW ADEQUATE COUPLING OF THE UV MODULES.
- CONDUIT RUN BETWEEN HSC AND POC IS 20' MAXIMUM.
- HSC HYDRAULIC ENTRANCE MUST BE MORE THAN 1'-0" BELOW POC MOUNTING SITE TO PROVIDE APPROVED (ENGINEERED) ANCHOR POINTS FOR PERSONNEL TO USE AS PART OF THEIR FALL RESTRAINT SYSTEM AROUND OPEN CHANNELS. THE ANCHOR POINTS MUST BE PERMITTED TO BE USED FOR ANY OTHER PURPOSES.
- POWER AND LOW VOLTAGE CONDUITS MUST ENTER EITHER LABELED LOCATION ON LEFT SIDE OF POC.



PLAN VIEW
SIZES SHOWN



SECTION
SIZES SHOWN
NOTE: SCC AND HSC NOT SHOWN FOR CLARITY.

DETAIL B
SCALE: NOT TO SCALE

DESIGN CRITERIA		PEAK FLOW AT 25.1°C SUSPENDED SOLIDS DISINFECTANT STANDARD	3 MGD 65 % 30 mg/L (AVERAGE) 200 FC / 100 mL (30 DAY AVERAGE)	DESCRIPTION: LAYOUT, TROJAN/COORPLUS EAST COUSEN RILEY CREEK WWTP REPLACEMENT, PA DRAWN BY: MAJ CHECKED BY: MAJ APPROVED BY: SD DATE: 2/10/22 DATE: 2/10/22 LOG NUMBER: N/A	PROJECT NO: 231788 DRAWING NO: N/A SHEET NO: S01 TOTAL SHEETS: A
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PRELIMINARY, NOT FOR CONSTRUCTION
VERY IMPORTANT: BEFORE CONSTRUCTION, CHECK ALL DIMENSIONS AND MATERIALS AGAINST THE ORIGINAL DESIGN DRAWINGS.

TROJAN UV
TROJAN TECHNOLOGIES
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Pilot - ByPass Scope

East Goshen Township, PA

Date: Nov/22/2021
Revision: 1
Author: Willem V

Refer all local inquiries to:
Evan Walters
Kappe Associates
100 Wormans Mill Court
Frederick, MD 21701
Phone: (301) 846-0200

PROPRIETARY & CONFIDENTIAL INFORMATION NOTICE

This proposal document is proprietary to Trojan Technologies and is furnished in confidence solely for use in evaluating the proposal and for no other direct or indirect use. No rights are granted to the recipient for any information disclosed in this proposal. It contains proprietary information which may be the subject of an issued patent or pending application in the United States or elsewhere.

By accepting this document from Trojan Technologies, the recipient agrees:

- to use this document and the information it contains exclusively for the above-stated purpose and to avoid use of the information for performance of the proposed work by recipient itself or any third party.

- BETWEEN

East Goshen Township a corporation incorporated pursuant to the laws of Pennsylvania, having its principal office at 1580 Paoli Pike, West Chester, PA 19380-6199 (hereinafter referred to as the "Customer").

AND

TROJAN TECHNOLOGIES Group ULC, an incorporation governed by the laws of British Columbia, Canada, having its principal place of business at 3020 Gore Road, London, Ontario, N5V 4T7, Canada (hereinafter referred to as "Trojan").

WHEREAS

The Customer wishes to rent certain equipment from Trojan for the purposes of a bypass during construction of a new UV application project to be located in East Goshen Township, PA (hereinafter referred to as "the Project").

Trojan wishes to participate in this Project by providing the necessary ultra-violet light equipment, services and related expertise.

NOW THEREFORE, in consideration of the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto agree as follow:

Trojan will provide to the Customer the Equipment and services (as defined below) and the Customer shall pay to Trojan the Rental Amount (as defined below) as consideration for the use of such Equipment upon the following terms and conditions:

A complete TrojanUV System will be provided by Trojan under the terms and conditions set forth herein, and agreed as follows:

1. Trojan Offering

1.1 Pricing Summary

The rental charges for the rental of the Equipment described in this proposal are listed in the table below. Payments to be made on a monthly basis, in advance, without setoff or deduction.

Minimum No. Of Months	Estimated Rental	Supplied By
1	2 Months	Kappe Assoc.

Planned Deployment Date: Q2, 2022

Startup & Decommissioning Service: Included

1.2 Rental Period & Price Validity

Rental units are available on a 'first come, first serve' basis. The minimum number of months will be the agreed duration of deployment and used to determine the agreed minimum total rental price. If the customer requires the deployment to be extended beyond this "Minimum No. of Months" as stated in this proposal, a request to Trojan must be made at the earliest possible time due to other scheduled commitments of the asset(s). It is Trojan's discretion whether to extend the Rental Period, extend the Rental Period with a modified Monthly Rental Price, or deny this extension. If an extension is granted, the balance of the Rental Agreement will remain in full force and effect.

Taxes

No taxes or duties are included in the above pricing. Any taxes, duties, tariffs of any type are for the account of the Renter.

Freight

Included in costing

Insurance

Customer shall provide proof of insurance including required endorsements, in accordance with Rental Agreement Terms. Minimum limits of coverage are summarized below.

Insurance Type	Coverage/Description	Minimum Limits per trailer
Commercial General & Products Liability (Occurrence based)	Bodily Injury & Property Damage	\$1,000,000 Combined Single Limit
Commercial Umbrella Liability	Umbrella Coverage	\$5,000,000 per occurrence
Broad Form Property Insurance	Full Value of the equipment	Disclosure Value ¹

¹Disclosure Value of Trojan unit: \$17,000USD

Equipment Shipment and Delivery

A typical drawing submission and equipment shipment schedule is indicated below. Equipment shipment periods are quoted from date of receipt of a formal signed purchase order or acknowledgement of award:

Activity	Timing and Duration
Trojan design information submittal <i>(Submittal drawings are for information only to be used for equipment installation)</i>	Approximately 1 week after order acknowledgement
Equipment Shipment	Tentatively Q2 2022
Installation, piping & power connections by site owner	Typically takes one week from arrival
Trojan Field Service on site for startup and commissioning. <i>(Operator training is included in startup services)</i>	Tentatively one week from pilot unit delivery. Contingent upon completion of pilot unit installation by site owner.

Activity	Timing and Duration
Trojan Field Service person to be on site for de-commissioning (approx. one/two days) after customer has performed the final cleaning per instruction manual	Included

3. Scope of Supply

3.1 Scope of Supply

Scope of Supply	By Trojan	By Customer
TrojanUV system: <ul style="list-style-type: none"> 1 x 32AL50 UVFit 	X	
P&ID and General Arrangement Drawing	X	
Operating & Maintenance Manual	X	
Field Service Start-Up Assistance & Training	X	
Interconnects between UV chamber and Control Panel	X	
Transportation		
Payment for UV unit delivery to & return from jobsite (Unless otherwise requested by customer, Trojan will be responsible for coordination of shipment and delivery to and from the customer facility. Customer is responsible to reimburse Trojan for the costs associated with shipping and handling. Shipping costs vary by location, etc. Please refer to the Pricing Summary in the Proposal for estimated costs.)	X	
Receiving and safe storage of equipment until ready for installation.		X
Loading and unloading of delivered equipment at a mutually agreed FOB point.		X
Prior to Delivery		

<u>Scope of Supply</u>	<u>By Trojan</u>	<u>By Customer</u>
Provide a site capable of supporting the operational weight of the Trojan unit Operational (wet) weight approximately 2000 lbs., Shipping weight is approximately 1400 lbs.		X
Commercial General & Products Liability Insurance (\$1 Million/ \$5 Million per system) per Trojan's Terms and Conditions		X
<u>Prior to Commissioning</u>		
Place UV pilot on level surface indoors. The surface must be able support the pilot equipment with water (2000lbs.) The UV pilot needs to be level. Observe minimum required clearance around pilot. Refer to generic layout drawing. Note: Conditions provided here are preferred and ensure reliable operation; however, if process conditions are different than defined here, Trojan Engineering must review them and sign off on the conditions to confirm that they are acceptable.		X
Drain water piping from the systems to customer disposal points.		X
Provide operating Permits (if required)		X
Provide electrical wiring, conduit and other appurtenances required to provide power connections as needed from the electrical power source to the Trojan pilot.		X
Complete power connections as per code to the unit per Trojan supplied documentation.		X
Influent water piping to inlet and treated water discharge piping from effluent. See P&ID for detail and/or discuss with Trojan Engineering prior to implementation.		X
Complete piping connections to unit per PID and Trojan supplied documentation.		X
Provide and install pipe supports for external pipe connections. Note: Pipe support will be sufficient to eliminate any mechanical loading of the pilot unit connection points.		X
Provide operating and maintenance personnel during equipment Checkout, Start-Up and Training.		X

Scope of Supply	By Trojan	By Customer
During Operation		X
Provide operators to run the equipment. Operate equipment per Trojan's instruction. Trojan may determine changes to the operation of the system necessary during the Operating Period depending on the performance being observed.		X
Provide routine maintenance per Trojan's recommendations		X
Provide laboratory services if required		X
Trojan Engineering to remotely connect and periodically check the system operation	X	
Provide cleaning and repair services such that the unit is returned to the same condition as which it was received (general cleanliness, no damage etc.). Note: Failure to return the unit in acceptable condition could result in additional charges.		X
Prior to Decommissioning		X
Provide a minimum of 2 weeks' notice that the unit is no longer required and is to be decommissioned.		X
Prepare the unit for return shipment.		X

4. Technical Description

4.1 Process Summary

Secondary waste after disc filters

4.2 Treated Water Objectives

TBD

4.3 Operational Parameters

1.5MGD at 55% UVT.

4.4 System Description Overview

Lamp Type:	Low pressure
Number & Arrangement of Lamps:	32, series flow
Hydraulic Maximum	3722gpm
Physical Dimensions chamber:	90" x 30" x 34"
Clearance one side:	90"
Physical Dimensions panel:	86" x 40" x 20"
Piping Connections:	8 inches, flanged
Electrical Requirement:	208VAC, L-L + Ground 8.1KVA

The proposed TrojanUV System consists of one (1) 32AL50 UVFit with thirty-two (32) UV lamps each in an SST chamber with flow meter.

**Attachment A –
Equipment Rental
Terms and Conditions of Lease**

TERMS AND CONDITIONS

The Customer shall take all reasonable steps to ensure that the demonstration equipment is adequately secure from vandalism and to prevent unwarranted access by persons not associated with the demonstration study. Under no circumstance shall the Customer allow any person(s) not associated with the project to handle, view or photograph the UV equipment while maintenance is being performed except with the written permission of Trojan Technologies. Photographing during normal operation of the UV equipment to accommodate site tours is acceptable. The Customer shall protect and save the original packing for reuse in returning the UV equipment to Trojan Technologies.

Shipping Address

_____	_____
P.O. Number	Date
_____	_____
Customer Name	Phone Number
_____	_____
Address	Fax Number

State / Country / Zip Code / Federal Tax ID
If tax exempt. Please provide documentation

Kappe Associates, Inc.
APPLICATION ENGINEERS
100 Wormans Mill Court
Frederick, Maryland 21701
PH. (301) 846-0200 FAX (301) 846-0808

TERMS AND CONDITIONS OF SALE

This offer consists of sheets. Sheet no .

Date submitted: 1-10-2021

TO: East Goshen Pa

RE: Ridley Creek UV Replacement

TERMS: NET 30 DAYS. SUBJECT TO APPROVAL OF CONTINUED CREDIT STATUS. 1-1/2% PER MONTH INTEREST ASSESSED ON ALL BALANCES OVER 30 DAYS OLD.

START-UP SERVICE WILL BE SCHEDULED ONCE 90% PAYMENT IS RECEIVED, BALANCE NET THIRTY (30) DAYS UPON COMPLETION OF SUCCESSFUL START-UP.

YOU MAY ACCEPT THIS OFFER WITHIN 30 DAYS OR UNTIL IT IS WITHDRAWN BY US, WHICHEVER FIRST OCCURS, BY SIGNING WHERE INDICATED BELOW AND RETURNING A COPY TO KAPPE ASSOCIATES, INC., OR BY SUBMITTING YOUR PURCHASE ORDER REFERENCING THE DATE OF THIS OFFER. If you have not yet received a contract to supply and/or install the goods described herein and/or a notice to proceed, please advise us of same as a part of your acceptance hereof. In such event, your obligations hereunder shall be contingent upon your receipt of same, and, notwithstanding that set forth below, the prices stated herein shall be firm for 60 days from the date hereof, provided that we shall have the right to cancel this transaction after being advised of the contingency, and provided you give us prompt written notice of your receipt of the contract award and notice to proceed. Otherwise, or if you fail to accept this offer as provided herein, we may charge such prices as may be in effect at the time of shipment THIS TRANSACTION SHALL BE GOVERNED BY THE TERMS AND CONDITIONS SET FORTH BELOW.

1. PAYMENTS. If Buyer requests that shipment be postponed after manufacture is commenced, payment will be due on Seller's notice that the goods are ready for shipment. Pro rata payments shall be made for partial shipments upon Seller's request.
2. FIELD SERVICES. Buyer may purchase field service in addition to these included in the foregoing proposal from Seller at a per diem rate of \$720.00 (including travel time), plus \$ 0.85 per mile travel, plus living expenses.
3. SHIPMENT. Shipments are made F.O.B. point of manufacture, with full freight allowed to the nearest recognized railway station or curb stop to the job site. Risk of loss shall be upon Buyer upon delivery of the goods to the carrier at the point of manufacture. Buyer shall provide and maintain for the benefit of Seller adequate insurance for the goods referred to herein until same are paid for in full. Seller does not guaranty shipment or delivery dates.
4. PRICES. Prices herein are firm provided: (a) a contract on the terms stated herein is formed within thirty days of the date hereof, (b) Seller receives Buyer's approval of Seller's drawings within 30 days of Seller's issuance thereof, (c) Buyer accepts delivery and makes payment when the goods are ready, and (d) Buyer makes pro rata payments as and when billed for partial shipments. Otherwise, Seller shall be permitted to charge such prices as may be in effect as of the date of shipment; provided that if shipment is for any reason deferred for more than 12 months from the date a contract of sale is formed between Buyer and Seller, Seller may charge the prices in effect as of the date of shipment not to exceed an escalation of 2% per month from the expiration of the aforesaid 12 month period to the date of shipment.
5. TAXES. Buyer shall be responsible for any sales, use or other tax levied at any time by any local, county, state or federal government. Buyer shall provide any exemption or resale certificate, and shall be responsible for all penalties and interest if same is not accepted.
6. SELLER'S LIMITED WARRANTY; DISCLAIMER. Seller warrants to repair or replace, at Seller's option, any equipment, parts or other goods sold hereunder which are found by Seller to be defective in material or workmanship under normal and proper use within one year from the date of shipment, F.O.B. point of original shipment. Seller further warrants to refund monies paid by Buyer for services rendered by Seller, which services are found by Seller to be improper or defective. This warranty shall not cover damage due to improper data or instructions supplied by or on behalf of Buyer, decomposition by chemical action, wear caused by the presence of abrasive materials, damage caused by improper storage or handling at the job site, or damage caused by accident, negligence, alteration, abuse, misuse, or failure to follow manufacturer's instructions. Seller makes no other warranties, express or implied, respecting the goods and services provided to Buyer, except as set forth in writing herein. No written or oral warranty or representation made by any person of entity (including, without limitation, the manufacturer of any equipment or other goods sold by Seller) shall be attributed to or become the responsibility of Seller. Seller makes no warranties respecting the speed, capacity, suitability, performance, reliability or other characteristics of the equipment or other goods sold hereunder. There are no warranties implied herein arising from any course of dealing, trade usage or custom, or otherwise. SELLER SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
7. LIMITATION ON BUYER'S REMEDIES. If, notwithstanding the above, a court or arbitration panel of competent jurisdiction determines that Seller owes additional warranties or other obligations to Buyer (including, without limitation, those imposed by the Uniform Commercial Code, other statutes, the law of torts, or any purported agreement between the parties),

(Continued)

Seller's liability for same shall be limited to (in the case of the sale of goods) accepting return of the goods F.O.B. point of original shipment, refunding payments previously made less depreciation at the pro rated annual rate of 15%, and canceling Buyer's further payment obligations; and (in the case of the sale of services) a refund of payments made for those services deemed improper. UNDER NO CIRCUMSTANCES SHALL SELLER BE LIABLE FOR ANY DAMAGES OR REMEDY EXCEPT THAT SET FORTH HEREIN. WITHOUT LIMITATION, SELLER SHALL NOT BE LIABLE FOR, AND BUYER COVENANTS TO MAKE NO CLAIM FOR, LOSS OF USE, LOSS OF REVENUE, DAMAGE TO PROPERTY, DAMAGE FOR DELAY, OR OTHER DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. THIS LIMITATION SHALL APPLY WHETHER THE BUYER'S CLAIM IS BASED UPON BREACH OF CONTRACT, TORT, VIOLATION OF STATUTE, THE FAILURE OF ESSENTIAL PURPOSE OF THE REMEDIES SET FORTH HEREIN, OR OTHERWISE. No claim of any kind or description may be brought against Seller after the expiration of six months from the date of delivery of goods or services.

8. COMPLIANCE WITH STATUTORY, REGULATORY, SAFETY AND LICENSING REQUIREMENTS. Seller does not warrant or represent that the goods sold hereunder comply with statutory, regulatory or safety requirements, or that any goods or services sold hereunder shall render any site, project, equipment or other item in compliance with statutory, regulatory or safety requirements. It is agreed and understood that Seller has relied upon information and instructions supplied by or on behalf of Buyer in supplying the goods and services referred to herein. It shall be Buyer's sole responsibility to obtain all required permits and licenses, and to assure that the goods sold hereunder will, when installed and put in use, comply with all statutory, regulatory and safety requirements. Buyer agrees to defend, indemnify and save harmless Seller, its agents, employees and affiliated persons and entities, against any and all claims, suits, demands, losses, attorneys fees, costs, damages or liabilities arising out of or related to any matter in which it is averred in whole or in part that the goods sold hereunder were or became unsafe, improper, unsuitable, dangerous or otherwise such as to cause harm to any person or property, or that the services provided hereunder created or failed to prevent such conditions, whether or not same resulted in whole or in part from any claimed or actual negligence or other fault on the part of Seller, including, without limitation, matters pertaining to assertions of improper operation, design, safety features, performance, installation or otherwise, except for breaches of Seller's warranty as set forth above.

9. NONPERFORMANCE; CANCELLATION. Seller shall be excused from performance hereunder to the extent that same has been delayed, prevented or rendered commercially impracticable (in Seller's reasonable judgment) by virtue of causes beyond Seller's reasonable control, including, without limitation, strikes, changes in manufacturer pricing, fires, prior sales, government action, unanticipated Job site conditions and otherwise. Buyer may cancel this agreement upon payment to Seller of expenses already incurred, anticipated profits, and other loss or damage said cancellation causes to Seller.

10. CREDIT APPROVAL. All sales are subject to final credit approval by Seller. Seller may suspend or terminate any delivery or performance hereunder in the event that Seller determines in its reasonable judgment that Buyer represents an inappropriate credit risk, or if Buyer fails or refuses to provide to Seller reasonable security and assurance of payment.

11. SECURITY INTEREST. Buyer hereby affords Seller a recordable security interest in all goods sold hereunder pending full and final payment of all sums due and owing by Buyer to Seller.

12. DISPUTE RESOLUTION. All disputes between Seller and Buyer arising out of the transaction referred to generally herein, directly or indirectly, shall, at the option of Seller, be resolved by way of an arbitration conducted pursuant to the Rules of the American Arbitration Association, including, without limitation, Seller's claim for payment, Buyer's claims for breach of warranty, tort or violation of statute, or Buyer's claims for indemnification or contribution. In the absence of fraud, the award of the arbitrators shall be deemed final and binding and judgment may be entered thereon in any court of competent jurisdiction. Seller may suspend all deliveries under any installment agreement pending resolution of any such dispute. Whether through litigation or arbitration, if Seller is awarded any damages against Buyer on account of Buyer's failure to pay sums properly due and owing to Seller or otherwise, or if Buyer makes any claim against Seller which is found in whole or in part to be improper, precluded hereby or not meritorious, then Buyer shall pay all of the costs and expenses incurred by Seller pursuant thereto, including, without limitation, counsel fees and expert costs. Seller shall be permitted to make claim for said costs and expenses during the course of any such litigation or arbitration, without the necessity of filing a separate Motion or awaiting the favorable termination of same. Buyer hereby consents to jurisdiction and venue in any state or county in which Seller maintains an office, or in the state and county to which the goods or services referred to herein were delivered or rendered, and at no other place, at Seller's sole option.

13. MISCELLANEOUS.

- (a) No addition, deletion, alteration, amendment or change order (whether written on or appended thereto, or contained in any separate document) shall be legally binding on Seller unless approved in writing by an officer thereof, whether or not Seller ships or otherwise performs hereunder. Seller agrees to be bound by no different or additional terms and conditions except those set forth herein.
- (b) Seller's waiver of any provision or breach hereof shall not be deemed a waiver of any past or future compliance herewith, or of such provision at any past or future time.
- (c) These terms and conditions contain the entire agreement between the parties with respect to the transaction contemplated herein, and bind the successors and assigns of the parties hereto.
- (d) Buyer covenants that it shall make no claim inconsistent herewith, or against any agent, employee, representative or affiliated person or entity of Seller.
- (e) This offer shall remain open for acceptance for 30 days from the date submitted, or until withdrawn in writing by Seller, whichever first occurs.
- (f) To the extent this offer makes reference to certain section numbers or portions of specifications, such references are for the purposes of convenience only, and Seller shall not be obliged to furnish all equipment

(Continued)

described therein. Seller shall only be required to furnish that specifically listed in this offer (whether or not other items

are required but omitted from drawings or specification. Seller reserves the right to assign orders directly to its principals.

Notwithstanding any

(g) provisions in any documents heretofore or subsequently forwarded from Buyer to

Seller, including without limitation provisions stating that Buyer shall not accept terms and conditions different than or additional to those set forth in such documents. Buyer agrees that in all events Seller shall be considered the offer or in this transaction, and that the terms and conditions stated herein shall constitute the sole terms and conditions of the offer. This is not an invitation to make an offer. Buyer's acceptance of any goods or services provided by Seller shall constitute Buyer's acceptance of these terms and conditions and the formation of a contract of sale inclusive of same, whether or not Buyer has signed these terms and conditions or otherwise asserted hereto.

Payment Terms specific to this project:

- 20% upon approved submittals and prior to fabrication
- 70% upon delivery and prior to start-up
- 10% upon successful start-up and training

Accepted this day of

Submitted This:

By: _____

By: Evan W Walters C.O.O.

Title: _____

For KAPPE ASSOCIATES, INC. (Seller)



Christiana Executive Campus
121 Continental Drive, Suite 207
Newark, DE 19713
T: 302-655-4451
F: 302-654-2895

www.pennoni.com

Glasco VCS-40-A150-2 Proposal and Concept Plans



E&W Equipment Co. LLC
 901 School Street
 Moosic, PA 18507
 Phone: 570-677-1919
 e-mail: jconnor@ewequipment.com

PROPOSAL 2022-02-08

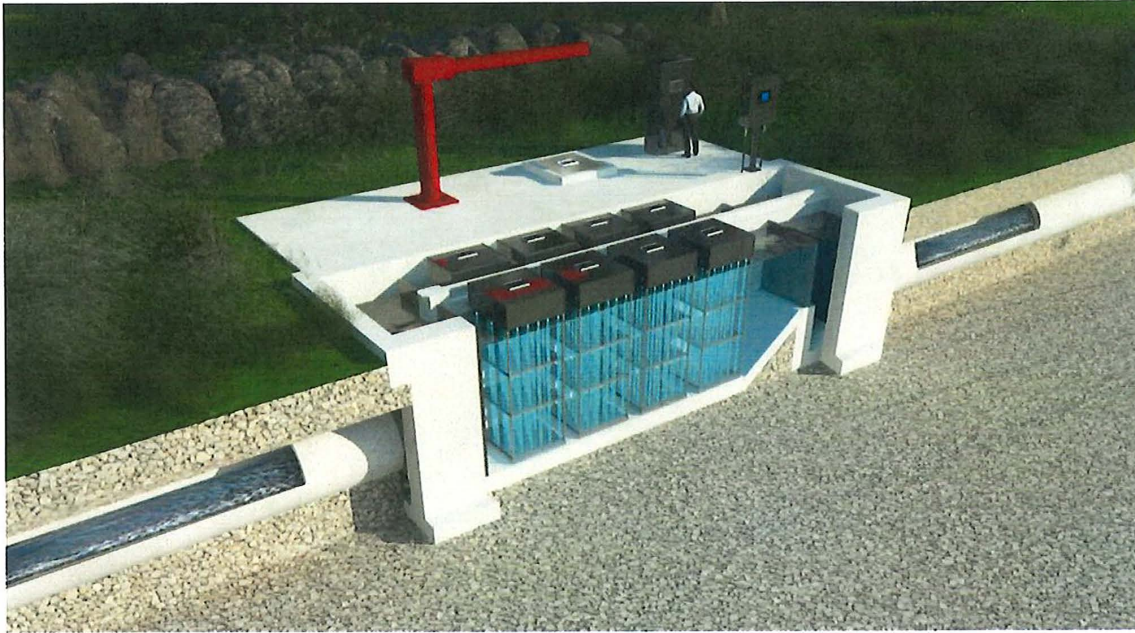
TO East Goshen Township Municipal Authority
 PROJECT Ridley Creek Wastewater UV Disinfection System
 LOCATION East Goshen Township, PA
 DATE 2022-02-08

Per your request and through E&W Equipment’s association with Glasco UV, we offer this proposal for purchase of a Glasco UV disinfection system from E&W Equipment through the PA COSTARS program. The proposed UV system consists of VCS-40-A150-2 X 2 to be installed within the existing UV Channel that would be modified to accommodate the new system. The proposal also includes a temporary painted steel channel to be used with the new UV modules as temporary disinfection while the channel modifications were be constructed. Installation would be by others.

The proposed UV disinfection equipment is based on the following design information:

PROPOSED UV DESIGN BASIS:

Project Type:	Wastewater
Channel Type	Existing concrete open channel to be modified
Orientation	Vertical 30"
System Name	VCS-40-A150-2
Lamp Technology	Low pressure amalgam 150 W
Flow rate range	
Peak hydraulic flow	3.0 MGD
Average flow	0.7 MGD
Redundancy	N+1
Location	Indoors
Water Quality	
UV transmission %	65%
Influent fecal counts	200,000 fc/100 ml
Water temp.	33-90° F
TSS	<30 mg/l
BOD	<30 mg/l
Discharge permit	<200 fc/100 ml
Design UV dosage	30 mJ
Dimensions	
Channel length	See drawing
Channel width	23"
Channel height	See drawing
Water level	29"
Level control	Finger weir
Ballast Control Center	Freestanding NEMA 4x Stainless w A/C



PROPOSED UV EQUIPMENT OVERVIEW:

Model Name	VCS-40-A150-2 X 2
System type	Vertical
Configuration	Open Channel
Lamp type	Low pressure amalgam 150 W
Channels	2
Modules per channel	1
Lamps per module	40
Lamps per channel	40
UV monitoring	0-100% - 4-20 ma
Auto quartz cleaning	Pneumatic
Lamp status	Green LEDs
Remote control	H/O/A
Voltage	220-240 Volt
kW/hr	6 kW (per module)
Weight	300 lbs
Integration	
UV output	4-20 mA from UV
Flow signal	4-20 mA to UV
Basic PLC	AB MicroLogix
Remote control	H/O/A

Modules receive a flow signal and segments are turned on and off as needed. This saves energy and lamp hours.

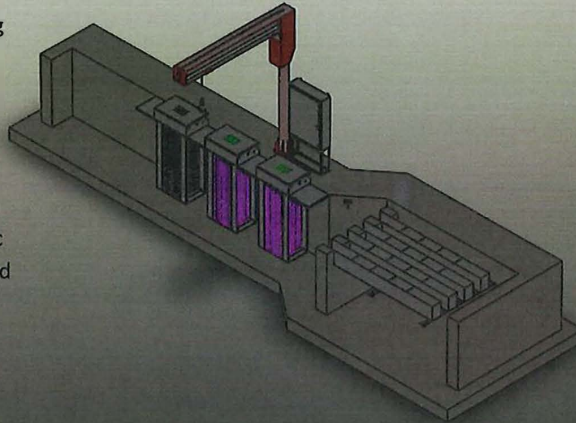
A level control weir ensures that the lamps are submerged regardless of flow rate. 30" arc length needs to be under water.

Modules have an automatic quartz cleaning mechanism. A compressed air source is required and can be provided as an option.

Lamps can be changed without removing the module.

A hoist can be used for seasonal or periodic out of channel cleaning and can be provided as an option.

A remote Ballast Control Center with A/C sits above the channel and attaches to the modules with power, data and air.



PROPOSED SCOPE OF ENGINEERING SERVICES

The following documentation will be provided at the time of submittal:

- Installation Operation and Maintenance manual
- Layout drawings
- P+ID drawings
- Panel and wiring drawings
- Ladder logic diagrams
- Terminal block diagrams
- Warranty requirements
- Long term storage requirements
- Bills of materials
- Equipment descriptions
- Equipment brochures
- UV Head loss calculations
- and other relevant documentation.

PROPOSED SCOPE OF SUPPLY:

Quantity	Description
Two (2)	VCS-40-A150-2 Vertical modules with automatic cleaning and low-pressure amalgam lamps. Lamps are 30" and are 150 watts.
One (1)	Ballast Control Center (BCC) / System Control Center (SCC) (PLC), NEMA 4X modified Type 304 SS enclosure with AB MicroLogix PLC with touch screen OUI. System will be air conditioned.
One (1)	Automatic quartz cleaning system center – compressed air by others
One (1)	Operator safety kit for UV system
Three (3)	O&M Manuals
Spares	
Eight (8)	UV Lamps
One (1)	Ballast
Eight (8)	Quartz Sleeves
Eight (8)	Seals and Wiper Rings

COSTARS Price Proposal	
UV Disinfection System	\$112,535.00
New Finger Weir (optional)	\$4,000.00
Davit Crane (optional)	\$2,050.00
1.5 MGD Temporary Channel	\$5,000.00
S.S. Channel Bump Out (optional)	\$2,000.00
Startup and Training	\$3,500.00
Total (including all options)	\$129,085.00

Commercial Offering:

TERMS: Net 30 days
 30% upon approved drawings
 60% upon equipment delivery (or upon notification of ready and holding)
 10% upon start-up or within six (6) months from delivery, whichever occurs first

FREIGHT: Included in proposal

SUBMITTAL: 4 to 6 weeks after release of order

DELIVERY: 16-18 weeks after receipt of approved submittals

Proposal Accepted by: _____

Signature: _____ Date: _____

Notes:

1. E&W Equipment proposes to furnish materials and/or equipment for the above project. Any items not shown above as detailed under 'SCOPE OF SUPPLY', or other attachments to this proposal, are EXCLUDED.
2. Any order resulting from this proposal is subject to the COSTARS Contract Standard Terms and Conditions, COSTARS Contract Special Terms and Conditions, and the attached Terms and Conditions in addition to the following understandings:
 - a. Prices noted will be held valid for a period of 90 days from the date of the proposal.
 - b. Prices are in US Dollars.
 - c. Local or state taxes are not included in this proposal.
3. Purchase Orders shall be issued to E&W Equipment Company, LLC, 901 School Street, Moosic, PA 18507 and electronically to jconnor@ewequipment.com.
4. Items not included in this scope of supply include but are not limited to the following:
 - a) Structure above UV modules to protect from direct heat as well as from inclement weather.
 - b) Mechanical installation labor for installing equipment, cabling and instrumentation.
 - c) Lightning surge protection and electrical ground connection.
 - d) Unloading of components.
 - e) Placement in storage of all components.
 - f) All required equipment, labor, analysis, etc. for any on-site biological performance tests that may be required (regular support for operational tests is provided).
 - g) Supply and installation of electrical conduit and wiring for power supply and controls of UV system.
 - h) Any civil and/or mechanical work required to support or install the UV system or its associated controls. This includes concrete pads and/or Unistrut.
 - i) Power surge protection and lightning strike protection devices to be provided by contractor.
 - j) All transformers, circuit breakers and disconnect devices prior to the UV system enclosures are to be provided by electrical contractor.
 - k) Labor and installation of UV modules and electrical enclosures.
 - l) Contractor to supply stainless steel anchor bolts for component installation.

Glasco UV Warranty

The warranty period is 18 months from date of delivery or 12 months from date of the Certification of Substantial Completion whichever comes first. It covers all failures due to defects in material and/or workmanship excluding consumables (see separate lamp and ballast warranties below).

This warranty shall not apply to any failure or defect which results from the Equipment not being operated and maintained in strict accordance with instructions specified in Glasco UV's Instructions Manual or which results from mishandling, misuse, neglect, improper storage, improper operation of the Equipment with other equipment furnished by the Customer or by other third parties or from defects in designs or specifications furnished by or on behalf of the Customer by a person other than Glasco UV. In addition, this warranty shall not apply to Equipment that has been altered or repaired after start-up by any one except:

- Authorized representatives of Glasco UV, or
- Customer acting under specific instructions from Glasco UV.

Customer must notify Glasco UV in writing within 5 days of the date of any Equipment failure. This notification shall include a description of the problem, a copy of the operator's log, a copy of the Customer's maintenance record and any analytical results detailing the problem. If Customer has not maintained the operator's log and maintenance record in the manner directed in the Operation and Maintenance manual, or does not notify Glasco UV of the problem as specified above, this warranty may, in Glasco UV's discretion, be invalid.

Customer will fully cooperate with Glasco UV, in the manner requested by Glasco UV, in attempting to diagnose and resolve the problem by way of telephone support. If the problem can be diagnosed by telephone support and a replacement part is required, Glasco UV will either, at Glasco UV's expense, ship a repaired, reworked or new part to the Customer who will install such part as directed by Glasco UV or will direct Customer to acquire, at Glasco UV's expense, such part from a third party and then install such part as directed by Glasco UV.

This warranty is the exclusive remedy of the Customer for all claims based on a failure of or defect in the Equipment, whether the claim is based on contract (including fundamental breach), tort (including negligence), strict liability or otherwise. This warranty is lieu of all other warranties whether written, oral, implied or statutory. Without limitation, no warranty of merchantability or fitness for a particular purpose shall apply to the Equipment.

Lamp Warranty

Each low pressure, high output lamp is guaranteed for 13,000 hours operating time under normal operating conditions. Normal operating conditions include:

- On/off cycles max. 4 per 24 operating hours,
- Voltage fluctuations according to DIN IEC 38.

In case of premature lamp failure, the client is requested to send the lamp back to Glasco UV together with the information of UV unit serial number, hours run and on/off cycles. Glasco UV then offers the following:

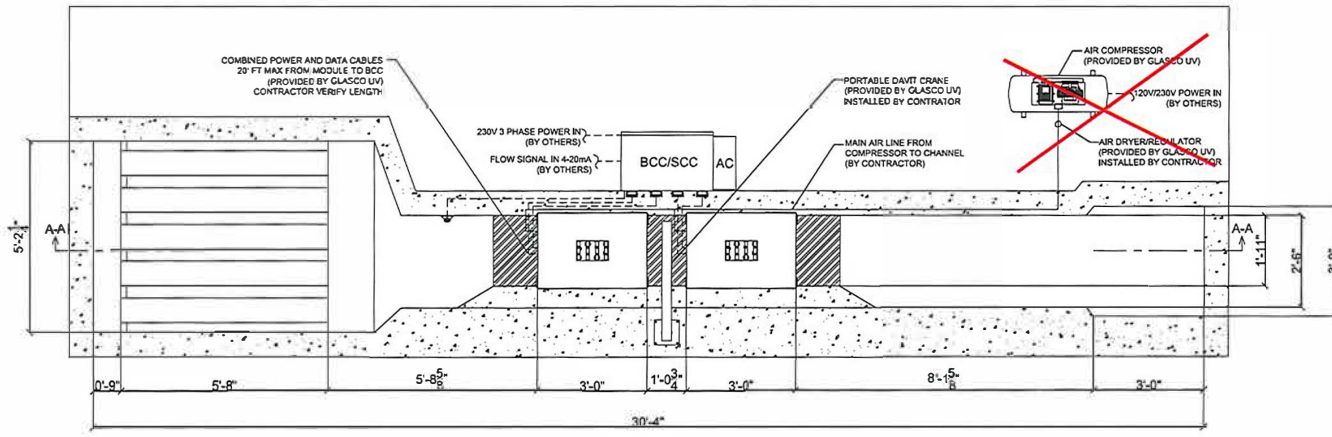
- Lamp failure before 9,000 h: Glasco UV will send a replacement lamp free of charge,
- Lamp failure after 9,000 h: Glasco UV will issue a credit proportional to the hours not used.

Upon return to our facilities in Mahwah, NJ, we will dispose/recycle all used and failed lamps at no charge to the client.

Terms & Conditions

1. **Applicable Terms.** These terms govern the purchase and sale of the equipment and related services, if any (collectively, "Equipment"), referred to in Seller's purchase order, quotation, proposal or acknowledgment, as the case may be ("Seller's Documentation"). Whether these terms are included in an offer or an acceptance by Seller, such offer or acceptance is conditioned on Buyer's assent to these terms. Seller rejects all additional or different terms in any of Buyer's forms or documents.
2. **Payment.** Buyer shall pay Seller the full purchase price as set forth in Seller's Documentation. Unless Seller's Documentation provides otherwise, freight, storage, insurance and all taxes, duties or other governmental charges relating to the Equipment shall be paid by Buyer. If Seller is required to pay any such charges, Buyer shall immediately reimburse Seller. All payments are due within 30 days after receipt of invoice. Buyer shall be charged the lower of 1 1/2% interest per month or the maximum legal rate on all amounts not received by the due date and shall pay all of Seller's reasonable costs (including attorneys' fees) of collecting amounts due but unpaid. All orders are subject to credit approval.
3. **Delivery.** Delivery of the Equipment shall be in material compliance with the schedule in Seller's Documentation. Unless Seller's Documentation provides otherwise, Delivery terms are F.O.B. Seller's facility.
4. **Ownership of Materials.** All devices, designs (including drawings, plans and specifications), estimates, prices, notes, electronic data and other documents or information prepared or disclosed by Seller, and all related intellectual property rights, shall remain Seller's property. Seller grants Buyer a non-exclusive, non-transferable license to use any such material solely for Buyer's use of the Equipment. Buyer shall not disclose any such material to third parties without Seller's prior written consent.
5. **Changes.** Seller shall not implement any changes in the scope of work described in Seller's Documentation unless Buyer and Seller agree in writing to the details of the change and any resulting price, schedule or other contractual modifications. This includes any changes necessitated by a change in applicable law occurring after the effective date of any contract including these terms.
6. **Warranty.** Subject to the following sentence, Seller warrants to Buyer that the Equipment shall materially conform to the description in Seller's Documentation and shall be free from defects in material and workmanship. The foregoing warranty shall not apply to any Equipment that is specified or otherwise demanded by Buyer and is not manufactured or selected by Seller, as to which (i) Seller hereby assigns to Buyer, to the extent assignable, any warranties made to Seller and (ii) Seller shall have no other liability to Buyer under warranty, tort or any other legal theory. If Buyer gives Seller prompt written notice of breach of this warranty within 18 months from delivery or 1 year from acceptance, whichever occurs first (the "Warranty Period"), Seller shall, at its sole option and as Buyer's sole remedy, repair or replace the subject parts or refund the purchase price therefore. If Seller determines that any claimed breach is not, in fact, covered by this warranty, Buyer shall pay Seller its then customary charges for any repair or replacement made by Seller. Seller's warranty is conditioned on Buyer's (a) operating and maintaining the Equipment in accordance with Seller's instructions, (b) not making any unauthorized repairs or alterations, and (c) not being in default of any payment obligation to Seller. Seller's warranty does not cover damage caused by chemical action or abrasive material, misuse or improper installation (unless installed by Seller). THE WARRANTIES SET FORTH IN THIS SECTION ARE SELLER'S SOLE AND EXCLUSIVE WARRANTIES AND ARE SUBJECT TO SECTION 10 BELOW. SELLER MAKES NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.
7. **Indemnity.** Seller shall indemnify, defend and hold Buyer harmless from any claim, cause of action or liability incurred by Buyer as a result of third party claims for personal injury, death or damage to tangible property, to the extent caused by Seller's negligence. Seller shall have the sole authority to direct the defense of and settle any indemnified claim. Seller's indemnification is conditioned on Buyer (a) promptly, within the Warranty Period, notifying Seller of any claim, and (b) providing reasonable cooperation in the defense of any claim.
8. **Force Majeure.** Neither Seller nor Buyer shall have any liability for any breach (except for breach of payment obligations) caused by extreme weather or other act of God, strike or other labor shortage or disturbance, fire, accident, war or civil disturbance, delay of carriers, failure of normal sources of supply, act of government or any other cause beyond such party's reasonable control.
9. **Cancellation.** If Buyer cancels or suspends its order for any reason other than Seller's breach, Buyer shall promptly pay Seller for work performed prior to cancellation or suspension and any other direct costs incurred by Seller as a result of such cancellation or suspension.
10. **LIMITATION OF LIABILITY.** NOTWITHSTANDING ANYTHING ELSE TO THE CONTRARY, SELLER SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE OR OTHER INDIRECT DAMAGES, AND SELLER'S TOTAL LIABILITY ARISING AT ANY TIME FROM THE SALE OR USE OF THE EQUIPMENT SHALL NOT EXCEED THE PURCHASE PRICE PAID FOR THE EQUIPMENT. THESE LIMITATIONS APPLY WHETHER THE LIABILITY IS BASED ON CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER THEORY.
11. **Reservation Clause.** Buyer acknowledges that Seller is required to comply with applicable export laws and regulations relating to the sale, exportation, transfer, assignment, disposal and usage of the Equipment provided under this Agreement, including any export license requirements. Buyer agrees that such Equipment shall not at any time directly or indirectly be used, exported, sold, transferred, assigned or otherwise disposed of in a manner which will result in non-compliance with such applicable export laws and regulations. It shall be a condition of the continuing performance by Seller of its obligations hereunder that compliance with such export laws and regulations be maintained at all times. BUYER AGREES TO INDEMNIFY AND HOLD SELLER HARMLESS FROM ANY AND ALL COSTS, LIABILITIES, PENALTIES, SANCTIONS AND FINES RELATED TO NON-COMPLIANCE WITH APPLICABLE EXPORT LAWS AND REGULATIONS.
12. **Miscellaneous.** If these terms are issued in connection with a government contract, they shall be deemed to include those federal acquisition regulations that are required by law to be included. These terms, together with any quotation, purchase order or acknowledgement issued or signed by the Seller, comprise the complete and exclusive statement of the agreement between the parties (the "Agreement") and supersede any terms contained in Buyer's documents, unless separately signed by Seller. No part of the Agreement may be changed or cancelled except by a written document signed by Seller and Buyer. No course of dealing or performance, usage of trade or failure to enforce any term shall be used to modify the Agreement. If any of these terms is unenforceable, such term shall be limited only to the extent necessary to make it enforceable, and all other terms shall remain in full force and effect. Buyer may not assign or permit any other transfer of the Agreement without Seller's prior written consent. The Agreement shall be governed by the laws of the State of New Jersey without regard to its conflict of laws provisions.

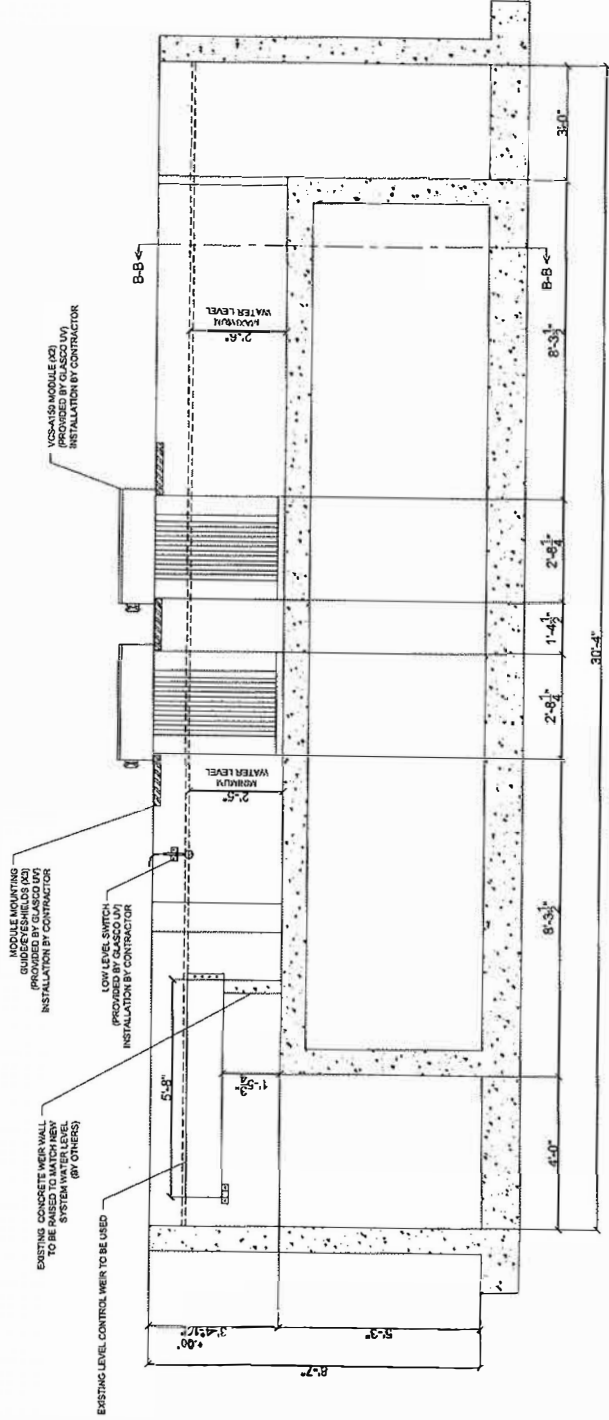
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UV PLAN VIEW

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PROJECT	W/STATION	DATE	SCALE
MA LAYOUT	N/A	D	NONE
DESIGNED BY	DATE	CHECKED BY	SCALE
ES	3/10/21	RV	NONE
APPROVED BY	DATE	SCALE	
RV	9/10/21		
TITLE: EQUIPMENT LAYOUT		SHEET: 1 OF 4	
PROJECT NO: VCS-40-A150X2		DRAWING NO:	

REV. DESCRIPTION DATE APPROVED

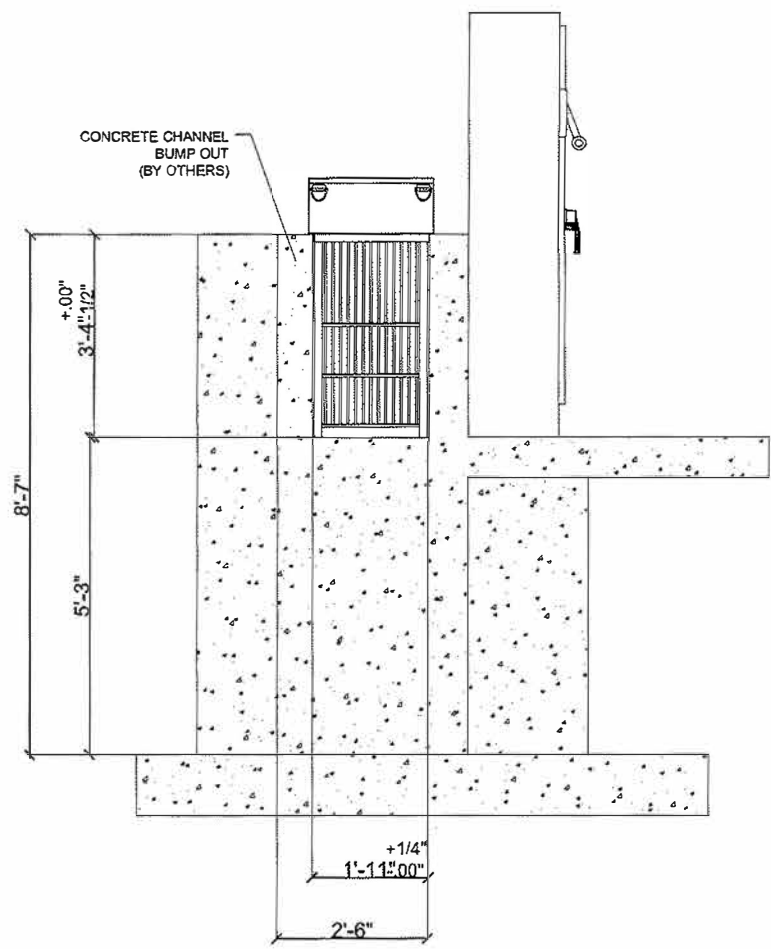


Glasco UV, LLC 128 Christie Ave Mahwah, NJ 07450 Tel: 201-934-3388 Fax: 201-934-3344	
PROJECT	N/A
CLIENT	N/A
DESIGNER	ES 8/10/21
DATE	8/10/21
DRWING	RV 8/10/21
SCALE	NONE
SHEET NO.	2
TOTAL SHEETS	4

EQUIPMENT LAYOUT

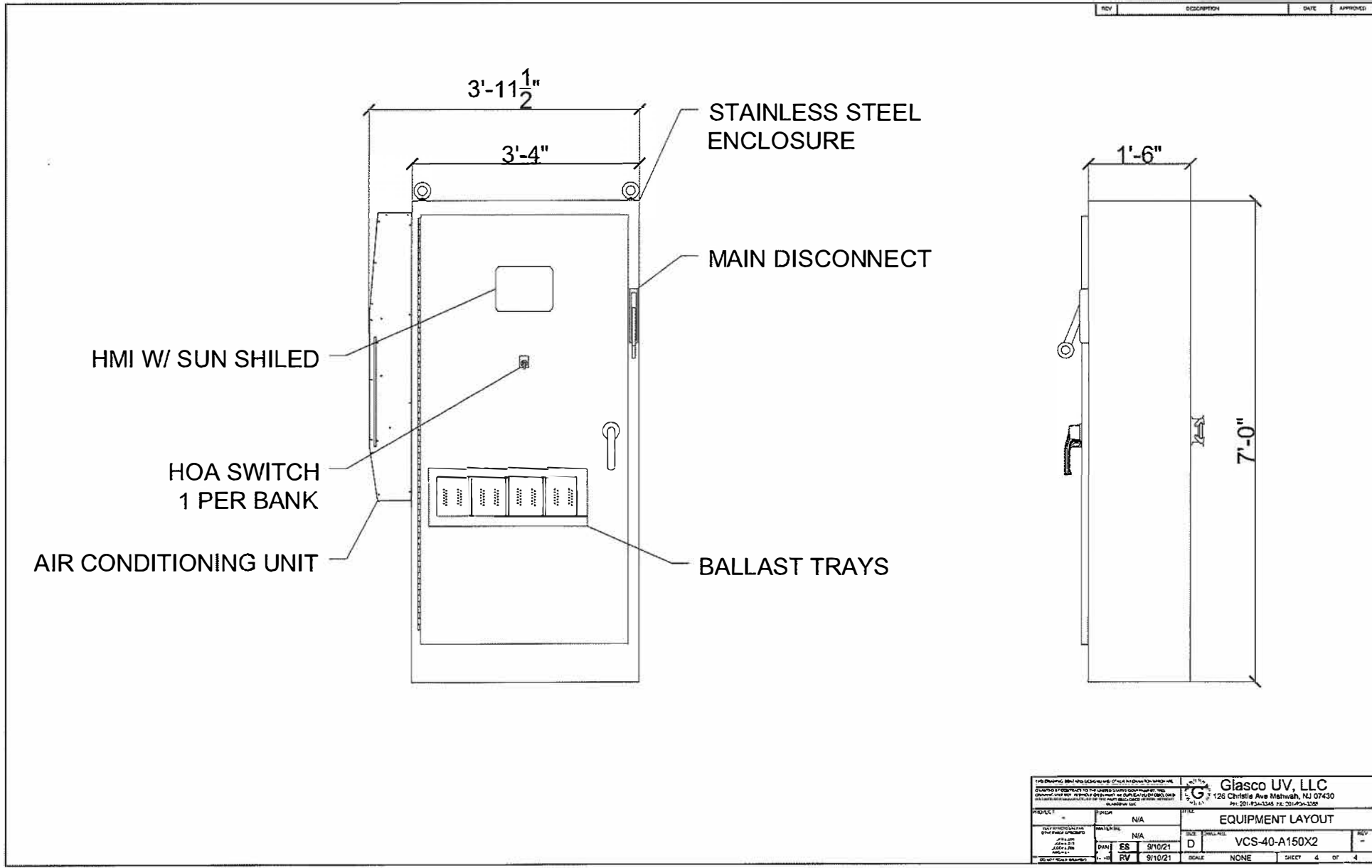
VCS-40-A150X2

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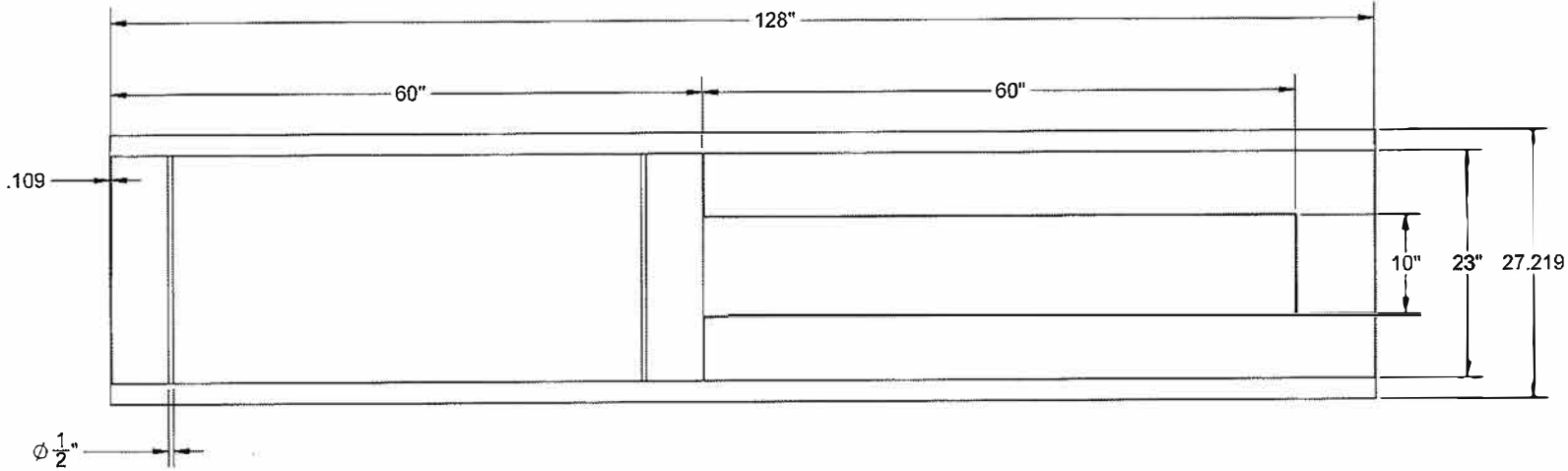
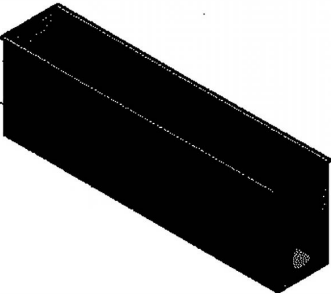
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<small>THIS DRAWING SHALL BE CONSIDERED VOID WITHOUT SIGNATURE</small> <small>DESIGNED BY: DANIEL ESPOSITO</small> <small>CHECKED BY: RICHARD V. ...</small> <small>DATE: 9/10/21</small>		Glasco UV, LLC 128 Christie Ave. Mahwah, NJ 07430 PH: 201-824-3345 FX: 201-824-3328
PROJECT: SHEET NO: DATE: SCALE:	TITLE: EQUIPMENT LAYOUT SIZE: D SCALE: NONE	REV: SHEET: 4 OF 4

ISOMETRIC VIEW FOR
REFERENCE ONLY



NOTE:
WELDS TO BE WATERTIGHT ALL AROUND

GENERAL ENGINEERING COMMENTS AND NOTES			

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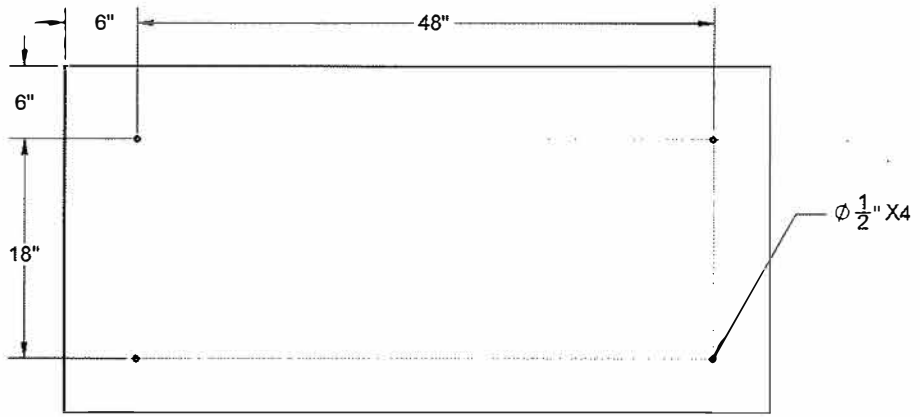
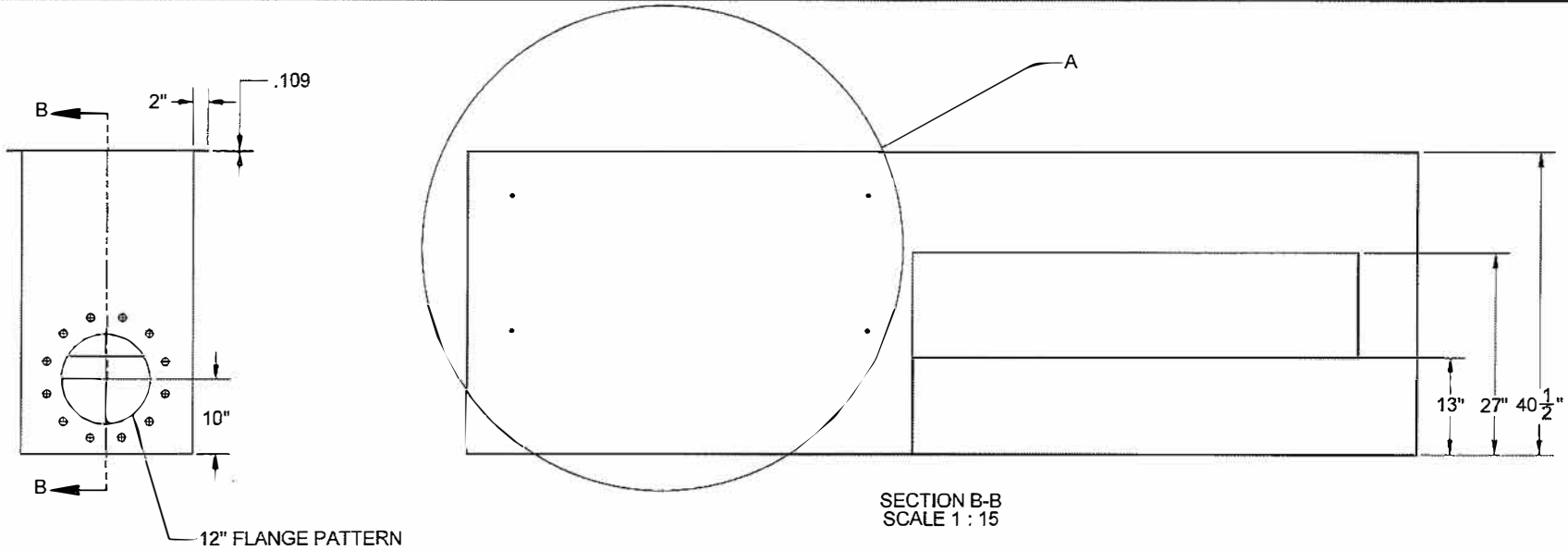
GLASCOS UV
128 Grand Avenue
Mankato, MN 56003
PH: 507-838-4343 FAX: 507-838-7368
www.glascosuv.com

PROJECT: 12GA 286 SS


DATE: 07/22/2010
JOB # 10985
AWD 1 1

TEMPORARY TANK - GOSHEN

REV	DATE	APPROVED	DRAWN BY	SCALE	SHEET NO.
B				1:1	12



NOTE:
WELDS TO BE WATERTIGHT ALL AROUND

GENERAL ENGINEERING COMMENTS AND NOTES		 GLASCO UV 125 Glenview Glenview, IL 60025 Tel: 847.834.3300 Fax: 847.834.3388 www.guv.com		PROJECT: 125A, 304 SS FINISH: WELDS TO BE WATERTIGHT ALL AROUND DIMENSIONS UNLESS OTHERWISE NOTED 1/8" = 1'-0" A36 - F 150 A53 - F 70				
TEMPORARY TANK - GOSHEN		SHEET NO. GUV012-10985-MP01-P01 SHEET 1 OF 1		REV B				
REV	GLASCO UV REVISION NOTES	DATE	APPROVED	BY	DATE	SCALE	SHEET	TOTAL



Board Member Training

FYI



PMAA's annual training for new and current authority board members.

This one-day in-person training is open to both veteran and newly appointed board members. Attendees will learn about their responsibilities in effectively establishing policy and direction for the authority.

Also encouraged to attend:

- Authority Managers
- Authority Professionals
- Consultants

This training is specially designed to provide a broad overview of key powers, duties, and responsibilities for authority board members such as:

- Ethics
- Financial responsibilities
- Establishing relationships with engineers, solicitors and other professional entities

Dates

Central - Friday, March 11
Best Western Premier
The Central Hotel &
Conference Center
800 East Park Drive
Harrisburg, PA 17111

West - Friday, March 18
DoubleTree by Hilton
Hotel Pittsburgh -
Cranberry
910 Sheraton Drive
Mars, PA 16046

East - Thursday, March 24
Delta by Marriott Center
100 Hotel
7736 Adrienne Drive
Breinigsville, PA 18031



Educational Sessions

8:00am

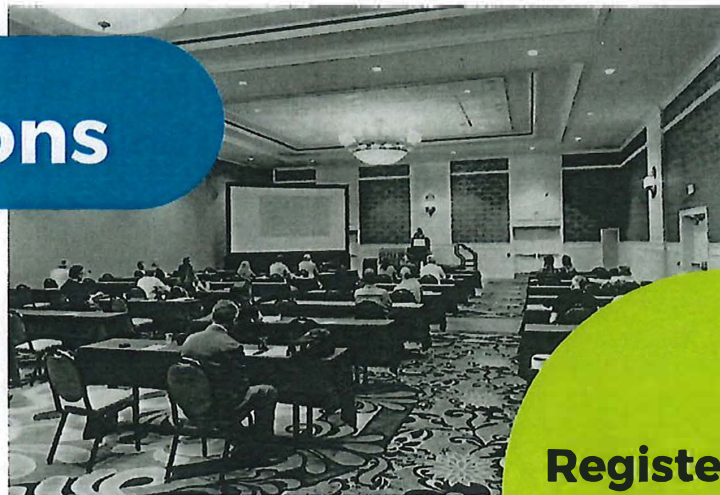
Registration

8:45 - 9:15am

Legislative Update

- Jennie Shade, PA Municipal Authorities Association
- Jennifer Case, PA Municipal Authorities Association

PMAA staff will provide an overview of government relations activities, including newly enacted state laws effecting your authority, ways to establish relationships with your legislators, tracked legislation currently under consideration in the Pennsylvania House and Senate, upcoming federal and state agency regulatory and policy initiatives, as well as other related areas of interest.



**Register
online!**

9:15 - 9:45am

Financial Responsibilities

- David Busch, Keystone Alliance Consulting
- David will address the board responsibility for financial reporting which includes: external reports, internal reports, ways to budget, annual operating, revenue generation and much more.

9:45 - 10:15am

Board and Manager Responsibilities & Governing Body Authority Relations

- Anthony J. Bellitto, Jr., PE, North Penn Water Authority (East)
- Steve Disney, Bradford Water and Sanitary Authorities (West)
- Mike Kyle, Lancaster Area Sewer Authority (Central)

It is essential that Authority Board members and Managers understand their different roles and responsibilities to ensure effective operations. It's also important that Authorities maintain cooperative and constructive working relationships with the municipalities that govern them. This presentation will address both topics.

10:15 - 10:30am

Break

11:30am - 1:00pm

Solicitor Panel

- Michael J. Witherel, Esq., Witherel & Associates
- Steven A. Hann, Esq., Hamburg, Rubin, Mullin, Maxwell & Lupin

PMAA solicitors will lead a panel of authority solicitors in a discussion of a wide range of issues. Each solicitor will get 15-minutes and then 30-minutes of Q/A from the audience.

Lunch will begin at the conclusion of the panel.

10:30 - 11:00am

Board Engineer Relations - Tips & Tricks on How to Work with Your Engineer

- Michael Schober, PE, ARRO Consulting Group (East)
- Chad Hanley, Herbert, Rowland and Grubic, Inc. (West)
- Erin Threet, Herbert, Rowland and Grubic, Inc. (Central)

This discussion will focus on some of the strategies you can use to facilitate your relationship with your engineer. Topics will include developing scopes, establishing compensation, administrative issues and the ever-challenging cost estimate!

11:00 - 11:30am

Ethics

- Brian D. Jacisin, Esq., PA State Ethics Commission
- Brian will provide a brief review of ethical standards, recent Ethics Commission rulings impacting Municipal Authority officials, and briefly address the required Statement of Financial Interest forms. The Ethics Act requires this form be filed each year the position (board &/or mgmt.) is held and the year following termination of service.

REGISTRATION



Please check which location you will be attending:

- Central – Friday, March 11**
Best Western Premier The Central Hotel & Conference Center
800 East Park Drive
Harrisburg, PA 17111
717.561.2800
- West – Friday, March 18**
DoubleTree by Hilton Hotel Pittsburgh - Cranberry
910 Sheraton Drive
Mars, PA 16046
724.776.6900
- East – Thursday, March 24**
Delta by Marriott Center 100 Hotel
7736 Adrienne Drive
Breinigsville, PA 18031
610.391.1000

Name/Job Title: _____
Authority/Firm: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone: _____ E-mail: _____

Name/Job Title: _____
Authority/Firm: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone: _____ E-mail: _____

Name/Job Title: _____
Authority/Firm: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone: _____ E-mail: _____

Contact the hotel at the numbers listed above for accommodations or information.

On-line registration is available on our website.

- Registration pricing PRIOR to February 25:**
- Member - \$115.00 per person
 - Prospective-Member - \$160.00 per person

- Registration pricing AFTER to February 25:**
- Member - \$135.00 per person
 - Prospective-Member - \$170.00 per person

- Payment Methods:**
- A check, made payable to PMAA, is enclosed
 - Visa MasterCard Discover

Card No.: _____ Exp.: _____
Security code: _____



ALL CANCELLATIONS MUST BE SUBMITTED TO THE OFFICE IN WRITING ONE WEEK PRIOR TO THE MEETING DATE. Due to reservation guarantees, unpaid no-shows will be charged. NO REFUNDS will be made after the cancellation deadline.

