

EAST GOSHEN MUNICIPAL AUTHORITY

January 13, 2014

Monday 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. APPROVAL OF MINUTES
 - a. December 9, 2013
4. APPROVAL OF INVOICES

Invoices paid in 2013		
a. Pennoni #573697	\$	663.75
b. Pennoni #573698	\$	605.75
c. Pennoni #573699	\$	13,994.25
5. LIAISON REPORTS
6. FINANCIAL REPORTS
 - a. December 2013 Reports
7. OLD BUSINESS
 - a.
8. GOALS
 - a. November Goals
9. NEW BUSINESS
 - a. Review Reservoir Road Pump Station Savings Analysis
 - b. Review Reservoir Road Project Update #1- in front pocket
 - c.
10. CAPACITY REQUESTS
 - a.
11. SEWER REPORTS
 - a. Director of Public Works Report – verbal report at meeting
 - b. Pennoni Engineer's Report
 - c. Big Fish Environmental Inc Report with DMR's
 - d. East Goshen Township Flows for December 2013 – still having issues with new meters, I will have them next month.
12. ANY OTHER MATTER
13. CORRESPONDENCE AND REPORTS OF INTEREST

14. PUBLIC COMMENT

15. ADJOURNMENT

Reminder – NEWSLETTER ARTICLE SUBMISSION DUE DATES:

Article Due Date

Website Posting Date

draft
EAST GOSHEN TOWNSHIP MUNICIPAL AUTHORITY
MEETING MINUTES
December 9, 2013

The East Goshen Township Municipal Authority held their regular public meeting on Monday, December 9, 2013 at 7:00 pm at the East Goshen Township building. Members in attendance were: Vice Chairman Jack Yahraes, Dana Pizarro, Ed McAssey, and Kevin Cummings. Also in attendance were: Rick Smith (Township Manager), Scott Towler (BFES), Mike Ellis (Pennoni), Dan Barbato (Pennoni), and Walter Wujcik, Conservancy Board.

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>PR – Park & Recreation Board</i>
<i>EPA – Environmental protection Agency</i>	<i>RCSTP – Ridley Creek Sewer Treatment Plant</i>
<i>HC – Historical Commission</i>	<i>SBR – Sequencing Batch Reactor</i>
<i>I&I – Inflow & Infiltration</i>	<i>SSO – Sanitary System Overflow</i>
<i>LCSTP – Lockwood Chase Sewer Treatment Plant</i>	<i>WAS – Waste Activated Sludge</i>

Call to Order & Pledge of Allegiance

Jack called the meeting to order at 7:00 pm and led those present in the Pledge of Allegiance. There was a moment of silence to remember the troops and all veterans. Jack asked if anyone would be recording the meeting and there was no response.

Chairman’s Report/Other Member’s Reports

Ed reported that he attended the West Goshen meeting. The agreement is close to being approved. The Riverkeepers have approved the agreement. .5 will take 5 years to achieve.

Approval of Minutes

Dana moved to accept the minutes of November 11, 2013 as corrected. Kevin seconded the motion. The motion passed unanimously.

Approval of Invoices

1. Kevin moved to approve payment of the following Gawthrop Greenwood invoices:

- | | | |
|----|----------------------------|-----------|
| a. | Gawthrop Greenwood #113959 | \$ 500.00 |
| b. | Gawthrop Greenwood #113960 | \$ 831.71 |

Dana seconded the motion. The motion passed unanimously.

2. Dana moved to approve payment of the following Pennoni invoices:

- | | | |
|----|-----------------|-------------|
| c. | Pennoni #569529 | \$ 367.50 |
| d. | Pennoni #569530 | \$ 401.50 |
| e. | Pennoni #569531 | \$ 3,031.25 |
| f. | Pennoni #569532 | \$ 4,376.50 |

Ed seconded the motion. The motion passed unanimously.

1
2 **Liaison Reports**

3 **Conservancy Board** – Walter reported that, on Saturday, November 16, 2013, they completed the
4 planting on E. Boot Road across from Bellingham. The spraying in the open spaces was done in
5 October. The Board will consider the new sign designed for the east entrance to the Township at
6 Paoli Pike and Line Road. It will have “Welcome to East Goshen Township, Clymer’s Woods
7 Reforestation” on it.
8

9 **Financial Reports**

10 Jon Altshul’s December 5, 2013 Financial Report for November 2013:

11 The Municipal Authority recorded \$40,337 in revenues and \$61,114 in expenses in November, a
12 difference of -\$20,778 (rounded). The fund balance is now \$1,635,119.

13 \$39,686 of the expenses was related to the Reserve Pump Station and an additional \$18,057 were
14 engineering costs associated with the Reservoir Road Pump Station. Most of the revenue came
15 from a \$40,000 transfer from the sewer sinking fund.

16 Note that the beginning fund balance was revised downwards by \$12 from what was reported to
17 you as the ending fund balance last month. This was due to a \$12 incoming wire fee assessed by
18 Susquehanna Bank on the proceeds of the DelVal note that was not recorded until last month.
19

20 **Goals**

- 21 1. Dana will provide an article for the next newsletter, which is due the last week of January.
22 2. Jack will attend the West Goshen meeting in March.
23 3. Items to add to the Goals list for 2014:
24 1. Obtain Act 537 plans for Reservoir Road
25 2. Investigate cost of tank covers for odor maintenance.
26

27 **New Business**

28 1. **Consider Pennoni 2014 Proposal** – The proposal for 2014 contained a 3 to 4% increase in
29 some hourly rates. Some rates have not been increased since 2011. Matt is rated as an
30 Engineering Technician II. Alternate routes for the Reservoir Road project were discussed. A
31 written outline will be ready for January. The estimated total fee for annual services is \$35,000.
32 Dana moved to reappoint Pennoni for 2014. Kevin seconded the motion. The motion passed
33 unanimously.
34

35 2. **Consider Proposed Budget for 2014**

36 Jon Altshul’s Review of 2014 proposed budget:

37 **Revenues:** This budget proposes revenues of \$147,471 including \$124,000 from Chester Creek
38 Tapping Fees (Goshen Meadows) and \$21,444 from Ridley Creek Tapping Fees (Colonial La).
39 Because of the projected tapping fees, no transfer from the sewer operating fund is necessary to
40 cover administrative expenses.

41 Interest income is projected to increase sharply as a result of the proceeds of the 2013 notes that
42 will not be spent until 2015.

43 **Expenses:** Auditing expenses in 2014 are expected to increase to \$10,800 to reflect additional
44 work surrounding the sale of the 2013 DelVal notes.

45 \$35,525 is budgeted for miscellaneous operating engineering services.

1 \$75,000 is budgeted for engineering for the new Reservoir Road pump station project, which will
2 be paid for from the proceeds of the 2013 bonds.

3 The projected fund balance at the end of 2014 is expected to be \$1,632,577. The majority of this
4 amount (\$1.525 million) will represent the remaining balance of the proceeds from the 2013
5 notes, which will be spent on the Reservoir Road pump station construction in 2015.

6 The \$75,000 for Reservoir Road project costs were discussed. Kevin moved to approve the
7 budget for 2014 as proposed. Ed seconded the motion. The motion passed unanimously.

8
9 3. Authorize Chairman to execute Fifth Supplemental Lease - Ed moved to authorize the Vice-
10 Chairman to sign the lease. Kevin seconded the motion. The motion passed unanimously. Jack
11 will sign. In answer to Kevin's question about insurance, Rick commented that the Township's
12 Errors and Omission's insurance covers ABCs members. Kevin would like something in
13 writing.

14 Sewer Reports

15 1. Mark Miller, Director of Public Works -

16 Meters: All meters were read on a daily basis. The portable flow meters are scheduled to be
17 installed next week at their new locations as discussed with Mike Ellis.

18 Pump Stations: Were visited on a daily basis.

19 C.C. Collection: We found two significant breaks two weeks ago; one on Baldwin Drive
20 approximately 25 to 30,000 gallons per day. The other was on the Interceptor line 75 to 100,000
21 gallons per day. I found another one last week which could be another 15 to 20,000 gallons a
22 day.

23
24 The break on the Interceptor turned out to be rather challenging. When we excavated the
25 manhole and the line, we found that the manhole had a significant crack that ran 3/4's of the way
26 around the manhole. We also found that the manhole did not have an anti-floater device and the
27 manhole has actually tilted causing the 8" pipe to break.

28 Rick and I decided to backfill the manhole and order a new manhole and piping. Prior to
29 backfilling, we installed a sump pump and pipe to begin dewatering around the clock with a 4"
30 diesel powered pump until the new manhole was delivered.

31 Once the manhole was delivered, we built a dam in the Chester Creek to bypass the stream to
32 alleviate the chance of the stream coming into our hole. While we made the repairs, a 12" pump
33 was utilized from Godwin Pump along with a 6" pump to bypass the Interceptor line. The crew
34 did a good job replacing the manhole and piping which began at 8:00 am Wednesday and
35 finished at 5:30 pm.

36 Prior to the work taking place, Mike Ellis applied for an emergency repair permit from the DEP
37 who came out to the site to make an inspection. Mike and I met them on site to go over the
38 scope of work. One of the inspectors had a problem with us making a temporary road thru the
39 wetlands. I explained it was necessary to get materials in and that we would restore the property
40 when we were done.

41 While preparing Grand Oak and Bittersweet Developments for paving, we noticed several holes
42 missing sewer caps. Several needed new piping. We replaced 8 caps.

43 R.C. Collection: we will begin grouting and raising manholes next week.

44 R.C. Plant: We had to pull pump #2 on the utility water system. The pump was sent to
45 Deckmans for repairs.

46 Alarms: we received a total of 28 alarms in November.

1 PA One Calls: We received 85 PA One Calls for the month of October.

2 Lateral Repairs: 8 Cap Replacements for the C.C. Collection.

3
4 **2. Pennoni** – Mike Ellis gave the following report for November:

5 RCSTP – Pennoni continues to provide operations assistance as needed. No issues were brought
6 to our attention in October.

7 Reserve PS Elimination – We are awaiting several contract closeout documents from the
8 contractor before we will recommend final payment including as –built plans, a letter from the
9 geotechnical engineer confirming adequate backfill compaction within the detention basin berm,
10 written notification that they will return in the spring to remove the filter sock along the creek,
11 contractor’s release, statement of surety, and maintenance bond.

12 Reservoir Road Pump Station Act 537 Plan – We completed the topographic and existing
13 conditions field survey of the proposed pump station parcel and proposed force main route to the
14 tentatively proposed gravity sewer connection in Bow Tree (along Strasburg Rd and N Chester
15 Rd.). We are coordinating with the various utility providers to obtain copies of their utility
16 plans. Once these plans are received, we will finalize the existing conditions plan.

17 We met with Rick Smith and Mark Miller to evaluate force main routing alternatives. The
18 preferred approach is a variation of Alternative 2 from our November 8, 2013 alternatives memo.
19 This alternative involves running the force main an additional approximately 3,000 l.f. to tie
20 directly into the Ridley Creek interceptor sewer. An odor control chemical feed system would
21 not be needed under this alternative. A cost-benefit analysis will be performed to evaluate the
22 savings from not having an odor control system over an approximately 20 year timeframe versus
23 the additional construction cost for a 3,000 l.f. longer force main.

24 A couple variations of the originally proposed force main route between the pump station site
25 and Bow Tree will be evaluated. There are numerous major utility conflicts at the intersection of
26 Strasburg Road and N. Chester Road, so we are evaluating other force main routes to avoid this
27 intersection that will not significantly increase construction cost (and may actually be less
28 costly) via existing easements and/or rights-of-way. Additionally, we will be contacting the
29 utility companies to determine what the restrictions would be for crossing and/or running parallel
30 to their pipes and conduits.

31 Chester Creek Interceptor Manhole Replacement – We assisted the Township with scope
32 determination and emergency permitting with PADEP for the replacement of the cracked
33 manhole on the Chester Creek interceptor sewer. Permitting included temporary stream
34 diversion of the East Branch Chester Creek via bypass pumping.

35
36 **3. Big Fish Environmental Services** – The following is a summary of Scott’s report for
37 November 2013:

38 Treatment Process Operation- During October 2013, there were no exceedances of the final
39 effluent discharge limitations for Outfall 001 and Outfall 002.

40 The monthly average total phosphorus concentration was 0.28 mg/L as compared to the
41 discharge limitation of 0.5 mg/L. During the month, the final effluent total phosphorus
42 concentration discharged ranged from 0.16 mg/L to 0.34 mg/L.

43 Flow to Applebrook, Outfall 002, continued until mid-October.

44 In October, Mike Brenner, Water Quality Specialist from PA DEP was on site to conduct a
45 facility inspection. No Violations were observed.

1 During the month of November 2013, there are no anticipated exceedances of the permitted
2 effluent discharge limitations.

3 During November, there was no discharge to Applebrook.

4 The influent wastewater pollutant concentrations and loading entering the wastewater treatment
5 facility remained within the design concentrations and loadings. Composite samples are
6 collected at the influent doghouse manhole and influent wet well. The influent flow meter
7 reading is collected from the influent flow meter located prior to the Screening Building,
8 excluding the internal recycle flows.

9 SBRs #1, 3 and 4 were in service during the month of November. SBR #2 was periodically
10 placed in service during the week of November 25th to assist with managing influent flows when
11 SBR #3 effluent valve actuator was malfunctioning.

12 Process monitoring of each SBR included ammonia as N, Nitrite as N, Nitrate as N, COD, SSV,
13 MLSS and total phosphorus. Foam concentrations remained around the same concentration as
14 during October. Present surface area coverage during React Phase ranges from approximately 60
15 to 80%. The foam color remains as light to medium brown in color and averages 2 to 4 inches in
16 depth.

17 Daily monitoring of the influent and final effluent 24-hour composites samples for total
18 phosphorus is ongoing. Daily analysis of the final effluent flow equalization grab sample is total
19 phosphorus is ongoing. Sample collection and analysis of the influent wastewater collected at
20 the influent pump station wet well is ongoing.

21 Addition of aluminum sulfate solution to the SBRs to assist with phosphorus removal continued.
22 The volume of aluminum sulfate solution to the SBRs was decreased at during November. The
23 addition of soda ash to the SBRs to assist with maintain desired pH concentrations above 7.0
24 standard units continued during the month.

25 SBR #2 remains out of service as a treatment unit.

26 During the month, the decanter for SBR 3 was observed to have been extended above the water
27 level. The effluent knife valve was routinely closed and the decanter filled with water to assist
28 with lowering the decanter within the water level. The frequency of occurrence ranged from one
29 to several occurrences during the month. If an effluent nozzle is partially or completely opened
30 at all times, the entry of air within the decanter could occur resulting with the decanter extending
31 above the water level. The SBR is planned to be removed from service during mid-December
32 for inspection of the effluent decanter nozzles.

33 Process Monitoring On-Line Instrumentation: Representatives from the Hach Co. will be on site
34 on December 17, 2013 at 9:00 am to discuss the proposed pilot study of the RTC online
35 analyzer.

36 Solids Dewatering and Disposal: November 2013

37 During the month, sludge wasting to the sludge holding tanks and decanting of the sludge
38 holding tanks was ongoing. Process monitoring included pH, total alkalinity and total solids.
39 Sludge holding tank #1 was in service. The level at the beginning of the month was 9.82 feet
40 and the level at the end of the month was 6.73 feet. The initial total solids concentration was
41 0.92% and ended the month as 0.63% total solids. Zero gallons of supernatant were decanted
42 during the month. A total of 400 pounds of soda ash were added during the month for pH
43 adjustment.

44 Sludge holding tank #2 was in service. The level at the beginning of the month was 9.28 feet
45 and the level at the end of the month was 10.15 feet. The initial total solids concentration was
46 0.79% and ended the month as 0.86% total solids. A total of 91,875 gallons of supernatant were

1 decanted during the month. A total of 650 pounds of soda ash were added during the month for
2 pH adjustment.

3 Significant storm events in November – None

4 Minor Repairs and Preventive Maintenance

5 1. On Nov. 9, 2013, the utility water system was removed to service. We identified no
6 power to control panel. When power was applied, the control panel immediately tripped off.
7 Mark Miller arranged for Lenni Electric to correct the problem.

8 2. On Nov. 9, 2013, replaced the sensor caps for LDO probes in SDBRs 1, 3, and 4.
9 Calibrated LDO meters.

10 3. On Nov. 18, 2013, Lenni Electric on site to repair the utility water electric failure. The
11 utility water system was returned to service with on pump online.

12 4. On Nov. 19, 2013, responded to Siemens panel alarm, checked home computer SBR#3
13 effluent valve failed to open. We placed SBR 2 on-line during troubleshooting and
14 implementation of corrective actions. Valve returned to intended operational mode.

15 5. On Nov. 21, 2013, responded to Siemens panel alarm for SBR 3 effluent valve failed to
16 close. Adjusted valve and returned valve appeared to be operational.

17 6. On Nov. 25, 2013, responded to Siemens panel alarm for SBR 4 maximum decant alarm.

18 7. On Nov. 27, 2013, responded to Siemens panel alarm for SBR 3 effluent valve failed to
19 open. Valve failed to open or close through manual operation. Adjusted valve and confirmed
20 operation on hand mode. We remained on site to observe valve operate in automatic mode.
21 Valve was observed to be functioning as intended.

22 8. On Nov. 29, 2013, SBR 3 valve failed to open. SBR 2 placed online. We contacted Tri-
23 State to arrange for a technician to report to the facility to assist with repairing the actuator.
24 Tri-State repaired the valve. During the visit, the motor for SBR 2 effluent actuator was
25 determined to require replacement (SBR 2 actuator was previously the actuator from SBR 3).
26 For 2014, Scott will recommend having a supply of spare parts on hand so down time for repairs
27 will be shorter. He also suggests a pilot study to look at alternative chemicals to reduce costs.
28 Kevin feels the plant should run for at least 1 year using the chemicals that it was designed to
29 use. He would like to get unit operations under control first. The plant is at only 50% of
30 capacity. In April 2013, the Authority members agreed to wait 1 year to see how things go.
31 Kevin would like to wait until April 2014. Everyone agreed.

32
33 Any Other Matter

34 1. Jack proposed the following slate of officers for consideration for January's meeting:

35 Chairman – Jack Yahares

36 Vice Chairman – Kevin Cummings

37 Secretary – Dana Pizarro

38 Treasurer – Ed McAssey

39 Assistant Sec/Treas – Fran Beck

40 This is based on the normal rotation used in the past.

41
42 2. Rick reported that the Board of Supervisors approved the Township's 2014 Budget last
43 Tuesday. There is no tax increase for 2014. The trash collection days will change in January.
44 Letters were sent to the residents.

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Adjournment

There being no further business, Kevin moved to adjourn the meeting. Dana seconded the motion. The motion passed unanimously. The meeting was adjourned at 8:25 pm.

Respectfully submitted,

Ruth Kiefer
Recording Secretary



INVOICE

Newark, DE
302-655-4451 Fax: 302-654-2895

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

East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6199
Attention: Louis F. Smith, Twp Mgr.

Invoice # : 573697
Invoice Date : 12/23/2013
Project : EGMA1301
Project Name : 2013 General Services

For Services Rendered through: 12/8/2013

Prepared Engineers Reports for November and December Municipal Authority meetings, attended November Municipal Authority meeting, and initiated preparation of NPDES Notice of Termination documentation and plans for Lockwood Chase STP Closure.

Phase : **** -- Professional Services

Total Phase : **** -- Professional Services

Labor :	663.75
Expense :	0.00
Phase Total :	663.75

Amount Due This Invoice

Fee :	13,000.00
Prior Billings :	10,767.50
Current Billings :	663.75
Total Billings :	11,431.25

\$663.75

Phase : **** -- Professional Services

Labor Class	Hours/Units	Rate	Amount
Senior Engineer	4.50	105.00	472.50
Senior Environmental Scientist	2.25	85.00	191.25
Labor Total:	6.75		663.75

Total Phase : **** -- Professional Services

Labor :	\$663.75
Expense :	\$0.00

Total Project : EGMA1301 -- 2013 General Services

Labor :	\$663.75
Expense :	\$0.00

OK RS 12/24

7424-3130

East Goshen Municipal Authority
EGMA1301 Invoice Summary
Invoice Date 12/23/2013

Project:	EGMA1301		
Pennoni Job No.:	2013 General Services		
Invoice No:	573697		
Invoice Period:	8/12/2013	to	12/8/2013
Initial Authorization:	\$ 10,000.00	Date:	1/1/2013
Contract Amount:	\$ 13,000.00		
Previously Invoiced:	\$ 10,767.50		
Current Invoice:	\$ 663.75		
Invoiced to Date (\$):	\$ 11,431.25		
Invoiced to Date (%):	88%		
Remaining Budget (\$):	\$ 1,568.75		
Remaining Budget (%):	12%		

Budget by Phase:

Phase No.	****
Phase Name:	2013 General Services
Phase Budget:	\$ 13,000.00
Previously Invoiced:	\$ 10,767.50
Current Invoice:	\$ 663.75
Invoiced to Date (\$):	\$ 11,431.25
Invoiced to Date (%):	88%
Remaining Budget (\$):	\$ 1,568.75
Remaining Budget (%):	12%

Comments: Prepared Engineers Reports for November and December Municipal Authority meetings attended November Municipal Authority meeting, and initiated preparation of NPDES Notice of Termination documentation and plans for Lockwood Chase STP Closure.



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P.O. Box 827328
Philadelphia, PA 19182-7328

East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6199
Attention: Louis F. Smith, Twp Mgr.

Invoice # : 573698
Invoice Date : 12/23/2013
Project : EGMA1306
Project Name : Reserve PS Diversion Construction
P

For Services Rendered through: 12/8/2013

Reviewed and processed Pay Application #2; prepared copy of pre-construction video as requested by Township Manager to confirm damage to curbing was not caused by contractor; and coordinated with a manhole lining contractor for pricing and schedule to rehab (via interior lining) previous force main discharge manhole that is deteriorated due to apparent hydrogen sulfide.

Phase : **** -- Professional Services

Total Phase : **** -- Professional Services

Labor : 605.75
Expense : 0.00
Phase Total : 605.75

Amount Due This Invoice

Fee : 20,000.00
Prior Billings : 13,529.75
Current Billings : 605.75
Total Billings : 14,135.50

\$605.75

*o/c RS 12/20
7428-1000*

Phase : **** -- Professional Services

Labor

Class	Hours/ Units	Rate	Amount
Senior Engineer	3.75	105.00	393.75
Technical Specialist	0.50	75.00	37.50
Graduate Engineer	1.50	73.00	109.50
Engineering Technician I	1.00	65.00	65.00
Labor Total:	6.75		605.75

Total Phase : **** -- Professional Services

Labor : \$605.75
Expense : \$0.00

Total Project : EGMA1306 -- Reserve PS Diversion Construction P

Labor : \$605.75
Expense : \$0.00

East Goshen Municipal Authority
 EGMA1307 Invoice Summary
 Invoice Date 12/23/2013

Project: EGMA1306
Pennoni Job No.: Reserve PS Diversion Construction P
Invoice No: 573698
Invoice Period: 10/14/2013 to 12/8/2013
Initial Authorization: \$ 20,000.00 **Date:** 1/16/2013
Contract Amount: \$ 20,000.00
Previously Invoiced: \$ 13,529.75
Current Invoice: \$ 605.75
Invoiced to Date (\$): \$ 14,135.50
Invoiced to Date (%): 71%
Remaining Budget (\$): \$ 5,864.50
Remaining Budget (%): 29%

Budget by Phase:

Phase Name:	Reserve PS Diversion Construction Phase
Phase Budget:	\$ 20,000.00
Previously Invoiced:	\$ 13,529.75
Current Invoice:	\$ 605.75
Invoiced to Date (\$):	\$ 14,135.50
Invoiced to Date (%):	71%
Remaining Budget (\$):	\$ 5,864.50
Remaining Budget (%):	29%

Comments: Reviewed and processed Pay Application #2; prepared copy of pre-construction video as requested by Township Manager to confirm damage to curbing was not caused by contractor; and coordinated with a manhole lining contractor for pricing and schedule to rehab (via interior lining) previous force main discharge manhole that is deteriorated due to apparent hydrogen sulfide.



INVOICE

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302-655-4451 Fax: 302-654-2895

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

East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6199
Attention: Louis F. Smith, Twp Mgr.

Invoice # : 573699
Invoice Date : 12/23/2013
Project : EGMA1307
Project Name : Reservoir Rd PS Act 537 Planning

For Services Rendered through: 12/8/2013

Completed field survey of existing conditions and topography along proposed force main route on Strasbug Rd and Rt 352 and of proposed pump station parcel, continued preparation of existing conditions plan, requested utility plans from utility providers, prepared and issued first force main routing & interceptor upgrade alternatives memo with cost estimates, attended routing alternatives meeting with Township Manager and PW Director, initiated cost/benefit analysis of additional force main length vs. odor control systems savings, and initiated cost savings estimate of decreased flows to West Goshen.

Phase : 02 -- Existing Conditions Survey

Total Phase : 02 -- Existing Conditions Survey

Labor :	11,490.50
Expense :	0.00
Phase Total :	11,490.50

Phase : 03 -- Act 537 Plan Update

Total Phase : 03 -- Act 537 Plan Update

Labor :	2,503.75
Expense :	0.00
Phase Total :	2,503.75

Amount Due This Invoice

\$13,994.25

ok RS 12/24
7428-1000

Continued on next page...

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

...Continued from previous page

Phase : 02 -- Existing Conditions Survey

Labor Class	<i>Hours/ Units</i>	<i>Rate</i>	<i>Amount</i>
Principal Surveyor	12.50	105.00	1,312.50
Senior Survey Technician	47.00	82.00	3,854.00
Survey Technician	93.00	68.00	6,324.00
Labor Total:	152.50		11,490.50

Total Phase : 02 -- Existing Conditions Survey

Labor : \$11,490.50
Expense : \$0.00

Phase : 03 -- Act 537 Plan Update

Labor Class	<i>Hours/ Units</i>	<i>Rate</i>	<i>Amount</i>
Senior Engineer	16.50	105.00	1,732.50
Project Engineer	7.00	95.00	665.00
Senior Environmental Scientist	1.25	85.00	106.25
Labor Total:	24.75		2,503.75

Total Phase : 03 -- Act 537 Plan Update

Labor : \$2,503.75
Expense : \$0.00

Total Project : EGMA1307 -- Reservoir Rd PS Act 537 Planning

Labor : \$13,994.25
Expense : \$0.00

East Goshen Municipal Authority
EGMA1307 Invoice Summary
Invoice Date 12/23/2013

Project:	EGMA1307		
Pennoni Job No.:	Reservoir Rd PS Act 537 Planning		
Invoice No:	573699		
Invoice Period:	10/14/2013	to	12/8/2013
Initial Authorization:	\$ 77,400.00	Date:	1/16/2013
Contract Amount:	\$ 77,400.00		
Previously Invoiced:	\$ 24,452.75		
Current Invoice:	\$ 13,994.25		
Invoiced to Date (\$):	\$ 38,447.00		
Invoiced to Date (%):	50%		
Remaining Budget (\$):	\$ 38,953.00		
Remaining Budget (%):	50%		

Budget by Phase:

	Reservoir Rd PS Act 537 Planning
Phase Name:	
Phase Budget:	\$ 77,400.00
Previously Invoiced:	\$ 24,452.75
Current Invoice:	\$ 13,994.25
Invoiced to Date (\$):	\$ 38,447.00
Invoiced to Date (%):	50%
Remaining Budget (\$):	\$ 38,953.00
Remaining Budget (%):	50%

Comments: Completed field survey of existing conditions and topography along proposed force main route on Strasbug Rd and Rt 352 and of proposed pump station parcel, continued preparation of existing conditions plan, requested utility providers, prepared and issued first force main routing & interceptor upgrade alternatives memo with cost estimates, attended routing alternatives meeting with Township Manager and PW Director, initiated cost/benefit analysis of additional force main length vs. odor control systems savings, and initiated cost savings estimate of decreased flows to West Goshen.

Memo

To: Municipal Authority
From: Jon Altshul
Re: MA December Financial Reports
Date: January 9, 2014

The Municipal Authority recorded \$23,140 in revenues and \$59,989 in expenses in December, a difference of -\$36,849. The fund balance is now \$1,598,270.

In addition to Pennoni charges for general engineering and work on the Reserve Pump Station and the Reservoir Road Pump Station projects, the following two expenses were recorded in December:

- \$26,723 is for the chargeback of 28% of the principal and interest of the 1998 DeVal note
- \$7,980 is for the quarterly chargeback of administrative overhead

A complete list of all monthly expenses is provided.

EAST GOSHEN TOWNSHIP
1580 PAOLI PIKE
WEST CHESTER, PA
Municipal Authority
December 2013

Account Title	Acct #	Annual Budget	Month To Date Actual	Year To Date Actual
MUNICIPAL AUTHORITY BEGINNING FUND BALANCE			1,635,119.17	

RCSTP BUDGET

REVENUE				
INTEREST EARNED - RCSTP EXPANSION	07341 1020	50.00	138.70	408.84
GRANT REVENUE	07392 0800	0.00	0.00	0.00
TOTAL REVENUE		50.00	138.70	408.84

EXPENSES

R.C.-CAP. PROJ.-ENGINEER	07424 7451	0.00	0.00	0.00
R.C. CAP EXPANSION GEN'L CONTRACTOR	07424 7452	0.00	0.00	0.00
R.C. CAP EXPANSION - ELECTRICAL	07424 7453	0.00	0.00	0.00
R.C. CAP EXP CONTINGENCY CAPITAL	07424 7454	0.00	0.00	0.00
R.C. CAP EXP CONTINGENCY ONGOING	07424 7455	0.00	0.00	0.00
R.C. CAP EXP ADDITIONAL CONTINGENCY	07424 7456	0.00	0.00	0.00
TRANSFER TO SEWER SINKING FUND	07492 0550	0.00	0.00	877,000.00
TRANSFER TO AUTHORITY CAP FUND	07492 0990	992,470.00	0.00	0.00

TOTAL EXPENSES		992,470.00	0.00	877,000.00
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RCSTP NET RESULT		(992,420.00)	138.70	(876,591.16)
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EAST GOSHEN TOWNSHIP
1580 PAOLI PIKE
WEST CHESTER, PA
Municipal Authority
December 2013

Account Title	Acct #	Annual Budget	Month To Date Actual	Year To Date Actual
OPERATING BUDGET				
REVENUE				
INTEREST EARNINGS	07341 1000	50.00	1.41	28.04
C.C. TAPPING FEES	07364 1100	128,000.00	0.00	200.00
R.C. TAPPING FEES	07364 1110	2,000.00	0.00	13,292.00
CONNECTION FEES - SEWER	07364 1130	0.00	0.00	1,689.64
MISCELLANEOUS REVENUE	07380 1000	1,000.00	0.00	423.36
TRANSFER FROM SEWER OPERATING	07392 0500	121,696.00	23,000.00	88,000.00
TOTAL REVENUE		252,746.00	23,001.41	103,633.04
EXPENSES				
ADMINISTRATIVE WAGES	07424 1400	33,547.00	7,980.36	31,921.44
MISCELLANEOUS EXPENSE	07424 3000	5,000.00	0.00	1,690.13
MUNIC.AUTH.-AUDITING	07424 3110	8,843.00	0.00	8,100.00
ENGINEERING SERVICES	07424 3130	35,000.00	3,277.75	40,584.00
LEGAL SERVICES	07424 3140	7,000.00	0.00	12,212.73
M.C.-DVRFA-DEBT SERVICE	07471 1000	20,720.00	20,720.00	20,720.00
M.C.-DVRFA-INTEREST PAYMIN	07472 1000	6,003.00	6,003.00	6,003.00
M.C.-DVRFA-INTEREST PAYMIN	07472 1010	5,583.00	0.00	0.00
TOTAL EXPENSES		121,696.00	37,981.11	121,231.30
OPERATING NET RESULT		131,050.00	(14,979.70)	(17,598.26)

EAST GOSHEN TOWNSHIP
1580 PAOLI PIKE
WEST CHESTER, PA
Municipal Authority
December 2013

Account Title	Acct #	Annual Budget	Month To Date Actual	Year To Date Actual
CAPITAL BUDGET				
REVENUE				
LOAN PROCEEDS-SEWER PROJECT	07393 1001	992,470.00	0.00	2,477,000.00
TRANSFER FROM SEWER CAP RESERVE	07392 0900	829,769.00	0.00	662,000.00
TOTAL REVENUE		1,822,239.00	0.00	3,139,000.00
EXPENSES				
MARYDELL PUMP STATION - ENGINEER	07425 1000	31,000.00	0.00	51,303.74
MARYDELL PUMP STATION -CONSTRUCTION	07425 2000	250,000.00	0.00	228,317.41
MANHOLE COVER REPLACEMENTS	07424.7405	17,000.00	0.00	0.00
C.C. CAPITAL - COLLECTION	07424.7420	100,000.00	0.00	0.00
LOCHWOOD ABANDONMENT ENGINEER	07424 7475	0.00	0.00	5,562.75
LOCHWOOD ABANDONMENT CONSTRUCTION	07424 7476	55,769.00	0.00	49,796.16
LOCHWOOD ELIMINATION PHASE 2	07424 7477	0.00	0.00	12,165.62
HERSHEY MILL STATION - ENGINEER	07426 1000	35,000.00	0.00	25,349.99
HERSHEY MILL STATION - CONSTRUCTION	07426 2000	180,000.00	0.00	167,012.62
RESERVE PUMP STATION - ENGINEER	07427 1000	25,000.00	3,637.00	33,729.51
RESERVE PUMP STATION - CONSTRUCTION	07427 2000	125,000.00	0.00	96,739.78
RESERVOIR PUMP STATION - ENGINEER	07428 1000	0.00	18,370.75	38,447.00
RESERVOIR PUMP STATION CONSTRUCTION	07428 2000	0.00	0.00	
TOTAL EXPENSES		818,769.00	22,007.75	708,424.58
CAPITAL NET RESULT		1,003,470.00	(22,007.75)	2,430,575.42

MUNICIPAL AUTHORITY ENDING FUND BALANCE 1,598,270.42

MGRP18 run by BRIAN 10 : 38 AM

Acct #	Per	Src	Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description
07341-1000						0.00				
			INTEREST EARNINGS							
		1301	JE 36010		0.74		02/05/13	INTEREST		INTEREST EARNED JANUARY 2013 07 FUND
				0.00	0.74	-0.74				
		1302	36396		0.48		03/04/13	INTEREST		INTEREST EARNED FEB. 2013 07 FUND
				0.00	0.48	-1.22				
		1303	36759		0.92		04/02/13	INTEREST		INTEREST EARNED MARCH 2013 07 FUND
				0.00	0.92	-2.14				
		1304	37177		3.20		05/01/13	INTEREST		INTEREST EARNED APRIL 2013 07100.1000
			37178		5.60		05/01/13	INTEREST		INTEREST EARNED APRIL 2013 07 CONSTRUCTION FUND
				0.00	8.80	-10.94				
		1305	37710		1.52		06/04/13	INTEREST		INTEREST EARNED MAY 2013 07 FUND
				0.00	1.52	-12.46				
		1306	38150		5.24		07/02/13	INTEREST		INTEREST EARNED JUNE 2013 07 FUND
				0.00	5.24	-17.70				
		1307	38593		2.15		08/02/13	INTEREST		INTEREST EARNED JULY 2013 07100.1000
				0.00	2.15	-19.85				
		1308	39012		2.30		09/03/13	INTEREST		INTEREST EARNED AUGUST 2013 07100.1000
				0.00	2.30	-22.15				
		1309	39401		1.52		10/01/13	INTEREST		INTEREST EARNED SEPTEMBER 2013 07100.1000
				0.00	1.52	-23.67				
		1310	39804		1.38		11/01/13	INTEREST		INTEREST EARNED OCTOBER 2013 07 FUND
				0.00	1.38	-25.05				
		1311	40135		1.58		12/02/13	INTEREST		INTEREST EARNED NOVEMBER 2013 7100.1000
				0.00	1.58	-26.63				
		1312	40616		1.41		01/06/14	INTEREST		INTEREST EARNED DECEMBER 2013 07 FUND
				0.00	1.41	-28.04				

MGRP18 run by BRIAN 10 : 38 AM

Acct #	Per	Src Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description
			0.00	28.04	-28.04				
07341-1020					0.00				
1301		36011		3.97		02/05/13	INTEREST		INTEREST EARNED JANUARY 2013 07 CONSTRUCTION FUND
			0.00	3.97	-3.97				
1302		36397		4.91		03/04/13	INTEREST		INTEREST EARNED FEB. 2013 07 CONSTRUCTION FUND
			0.00	4.91	-8.88				
1303		36760		3.97		04/02/13	INTEREST		INTEREST EARNED MARCH 2013 07 CONSTRUCTION FUND
			0.00	3.97	-12.85				
1305		37711		22.26		06/04/13	INTEREST		INTEREST EARNED MAY 2013 07 CONSTRUCTION FUND
			0.00	22.26	-35.11				
1306		37953	17.88			06/20/13	ADJUSTMENT		ADJUSTMENT TO MAY 2013 INTEREST
		38151		3.96		07/02/13	INTEREST		INTEREST EARNED JUNE 2013 07 CONSTRUCTION FUND
			17.88	3.96	-21.19				
1307		38594		4.66		08/02/13	INTEREST		INTEREST EARNED JULY 2013 07 CONSTRUCTION FUND
			0.00	4.66	-25.85				
1308		39013		4.25		09/03/13	INTEREST		INTEREST EARNED AUGUST 2013 07 CONSTRUCTION FUND
			0.00	4.25	-30.10				
1309		39402		4.37		10/01/13	INTEREST		INTEREST EARNED SEPTEMBER 2013 07 CONSTRUCTION FUND
			0.00	4.37	-34.47				
1310		39805		100.61		11/01/13	INTEREST		INTEREST EARNED OCTOBER 2013 07 CONSTRUCTION FUND
			0.00	100.61	-135.08				
1311		40136		135.06		12/02/13	INTEREST		INTEREST EARNED NOVEMBER 2013 07 CONSTRUCTION FUND
			0.00	135.06	-270.14				
1312		40617		138.70		01/06/14	INTEREST		INTEREST EARNED DECEMBER 2013 07 CONSTRUCTION FUND
			0.00	138.70	-408.84				

MGRP18 run by BRIAN 10 : 38 AM

Acct #	Per	Src Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description
			17.88	426.72	-408.84				
07364-1100	C.C. TAPPING FEES				0.00				
	1305	CR 37610	3,600.00	3,600.00		05/29/13	94 22	4518 1	CHESTER SPRINGS DEVELOPMENT CO
			3,600.00	3,600.00	0.00				
	1311	39954		200.00		11/14/13	3158	7943 1	1637 MANLEY RD - O'NEILL
			0.00	200.00	-200.00				
			3,600.00	3,800.00	-200.00				
07364-1110	R.C.TAPPING FEES				0.00				
	1301	JE 35931	2,000.00			01/30/13	REV TRX		REVERSE TRX #32779 TAP IN FEE FOR 913 SORRELL HILL
		35934		2,000.00		01/30/13	REV TRX		RE-REVERSE TRX 35931 FOR 913 SORRELL HILL TAP IN FEES
			2,000.00	2,000.00	0.00				
	1303	RE 36430		2,000.00		03/05/13	36430 1		TAP IN FEE - 916 SORRELL HILL
		36431		2,000.00		03/05/13	36431 1		TAP IN FEE - 911 SORRELL HILL
			0.00	4,000.00	-4,000.00				
	1305	37562		7,148.00		05/23/13	37562 1		TAP IN FEE FOR 1598 WINEBERRY
			0.00	7,148.00	-11,148.00				
	1309	CR 39373		2,144.00		09/30/13	1013	7875 1	SUNNY RIDGE FARMS LLC
			0.00	2,144.00	-13,292.00				
			2,000.00	15,292.00	-13,292.00				
07364-1130	CONNECTION FEES - SEWER				0.00				
	1302	36075		423.00		02/08/13	264	7195 1	JACOBS, ROBERT & CHERYL
				423.00		02/08/13	755	7193 1	GEORGE SMITH & CHRISTINA CONLE
		***	0.00	846.00	***				
		36147		423.00		02/13/13	11	6577 1	PAPPANO, JOSEPH & PATRICIA
				421.00		02/13/13	11	7196 1	PAPPANO, JOSEPH & PATRICIA
		***	0.00	844.00	***				
		36193		423.00		02/15/13	2173	7194 1	STOFFLET, MICHAEL
	JE 36174		282.24			02/14/13	PINE ROCK		ANNUAL PINE ROCK INSTALLMENT
		36194	141.12			02/15/13	PINE ROCK		ANNUAL PINE ROCK INSTALLMENT
			423.36	2,113.00	-1,689.64				
			423.36	2,113.00	-1,689.64				
07380-1000	MISCELLANEOUS REVENUE				0.00				
		36174		282.24		02/14/13	PINE ROCK		ANNUAL PINE ROCK INSTALLMENT

MGRP18 run by BRIAN 10 : 38 AM

Acct #	Per	Src Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description
07380-1000	1302	JE 36194		141.12		02/15/13	PINE ROCK		ANNUAL PINE ROCK INSTALLMENT
			0.00	423.36	-423.36				
			0.00	423.36	-423.36				
07392-0500		TRANSFER FROM SEWER OPERATING			0.00				
	1305	37366		39,000.00		05/14/13	DEPOSIT		DEPOSIT FUNDS FROM SEWER TO MA TO COVER OPERATING EXPENSE
			0.00	39,000.00	-39,000.00				
	1310	39601		26,000.00		10/16/13	DEPOSIT		DEPOSIT INTO MA ACCT. FROM 05
			0.00	26,000.00	-65,000.00				
	1312	40413		13,000.00		12/19/13	DEPOSIT		XFER FROM SEWER OPERATING TO MA AUTH. TO COVER EXPENSES
		40476		10,000.00		12/24/13	DEPOSIT		DEPOSIT \$ TO MA FROM SEWER OPERATING TO COVER EXPENSES
			0.00	23,000.00	-88,000.00				
			0.00	88,000.00	-88,000.00				
07392-0900		TRANSFER FROM SEWER CAP RESERVE			0.00				
	1302	36187		30,000.00		02/15/13	XFER		XFER \$ FROM 9100.1000 TO 7100.1000 TO COVER MA EXPENSES
			0.00	30,000.00	-30,000.00				
	1304	36841		50,000.00		04/08/13	XFER		XFER \$ FROM 9100.1000 TO 7100.1000
		36905		60,000.00		04/11/13	XFER		XFER \$ FROM 9100.1000 TO 7100.1000
			0.00	110,000.00	-140,000.00				
	1305	37361		53,000.00		05/14/13	XFER		XFER FUNDS FROM 9100.1000 TO 7100.1000 TO COVER CAP.EXP.
			0.00	53,000.00	-193,000.00				
	1306	37789		250,000.00		06/10/13	DEPOSIT		DEPOSIT TO MUN.AUTHORITY ACCT. 7100.1000
			0.00	250,000.00	-443,000.00				
	1307	38158		50,000.00		07/02/13	XFER		XFER \$ TO COVER MUN.AUTHORITY CAPITAL EXPENSES
			0.00	50,000.00	-493,000.00				
	1308	38715		70,000.00		08/13/13	XFER		XFER FROM SEWER CAPITAL RES. TO MUNICIPAL AUTHORITY
			0.00	70,000.00	-563,000.00				

MGRP18 run by BRIAN 10 : 38 AM

Acct #	Per	Src	Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description
07392-0900	1310	JE	39575		34,000.00		10/15/13	XFER		XFER \$ FROM 09 TO 07 TO COVER MA CAPITAL EXPENSES
			39601		25,000.00		10/16/13	DEPOSIT		DEPOSIT INTO MA ACCT. FROM 05
				0.00	59,000.00	-622,000.00				
1311			39973		40,000.00		11/15/13	XFER		XFER FUNDS FROM SEWER SINKING FUND TO MA GENERAL 11/15
				0.00	40,000.00	-662,000.00				
				0.00	662,000.00	-662,000.00				
07393-1001						0.00				
	1310	RE	39702		2,477,000.00		10/24/13	39702 1		2013 DELVAL PROCEEDS
				0.00	2,477,000.00	-2477000.00				
				0.00	2,477,000.00	-2477000.00				
07424-1400						0.00				
	1303	CD	36711	7,980.36			03/28/13	2166		425 EAST GOSHEN TOWNSHIP 1ST QTR. 2013 REIMBURSMNT TO GENE FUND
				7,980.36	0.00	7,980.36				
1306			38067	7,980.36			06/27/13	2189		425 EAST GOSHEN TOWNSHIP 2ND QTR. 2013 REIMBURSEMENT TO GENERAL FUND
				7,980.36	0.00	15,960.72				
1309			39342	7,980.36			09/26/13	2210		425 EAST GOSHEN TOWNSHIP - GENERAL 3RD QTR. 2013 REIMBURSMNT TO GEN FUND
				7,980.36	0.00	23,941.08				
1312			40448	7,980.36			12/20/13	2223		425 EAST GOSHEN TOWNSHIP - GENERAL 4TH QTR. REIMBURSEMENT FROM MA
				7,980.36	0.00	31,921.44				
				31,921.44	0.00	31,921.44				
07424-3000						0.00				
	1301		35598	500.00			01/03/13	2153		2737 DEP - COMMONWEALTH OF PA NPDES PERMIT - 2013 MINOR SEWAGE FACILITY
			35783	950.00			01/18/13	2158		2132 PENNSYLVANIA MUNICIPAL AUTHORITIES ASSOC 2013 ACTIVE MEMBERSHIP DUES
				1,450.00	0.00	1,450.00				

MGRP18 run by BRIAN 10 : 38 AM

Acct #	Per	Src Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description
07424-3000	1309	CD 39089	128.13			09/10/13	2208	3110	COMMONWEALTH OF PENNSYLVANIA APPLICATION FEE TO DCED - MUNICI AUTHORITY DEBT ISSUANCE (\$2.5M)
			128.13	0.00	1,578.13				
	1310	39630	100.00			10/17/13	2214	425	EAST GOSHEN TOWNSHIP - GENERAL REIMBURSE GEN.FUND FOR CREDIT CA PURCHASE FOR MA EXPENSES
		JE 39918	12.00			11/13/13	BANK FEE		WIRE FEE 10/15/13
			112.00	0.00	1,690.13				
			1,690.13	0.00	1,690.13				
07424-3110		MUNIC.AUTH.-AUDITING			0.00				
	1307	CD 38272	8,100.00			07/12/13	2195	808	MAILLIE FALCONIERO & CO. EXAM.OF MA FINANCIAL STMTS. - 20
			8,100.00	0.00	8,100.00				
			8,100.00	0.00	8,100.00				
07424-3130		ENGINEERING SERVICES			0.00				
	1301	35695	3,264.75			01/15/13	2156	1052	PENNONI ASSOCIATES INC. SERV.THRU 12/9/12 2012 GEN.SERV
			3,264.75	0.00	3,264.75				
	1302	36119	1,538.75			02/12/13	2162	1052	PENNONI ASSOCIATES INC. SERV.THRU 1/13/13 GEN.SERVICES 2
			1,538.75	0.00	4,803.50				
	1304	36889	6,695.25			04/10/13	2171	1052	PENNONI ASSOCIATES INC. SERVICES THRU 3/17/13 GENERAL SE
		36890	5,560.75			04/10/13	2173	1052	PENNONI ASSOCIATES INC. SERVICE THRU 2/20/13 GENERAL SER
			12,256.00	0.00	17,059.50				
	1305	37357	8,215.25			05/14/13	2175	1052	PENNONI ASSOCIATES INC. SERV.THRU 4/14/13 GENERAL SERVIC
			8,215.25	0.00	25,274.75				
	1306	37787	795.25			06/10/13	2186	1052	PENNONI ASSOCIATES INC. SERVICE THRU 5/12/13 2013 GENER
			795.25	0.00	26,070.00				
	1307	38122	3,072.25			07/02/13	2192	1052	PENNONI ASSOCIATES INC. SERVICES THRU 6/16/13 GENERAL SE
			3,072.25	0.00	29,142.25				
	1308	38761	1,843.75			08/15/13	2205	1052	PENNONI ASSOCIATES INC. GENERAL SERVICES

MGRP18 run by BRIAN 10 : 38 AM

Acct #	Per	Src Trx #	Debits	Credits	Req/End Bal	Date	Check/Ref #	ID #	Name/Description
			1,843.75	0.00	30,986.00				
1309		39132	1,160.25			09/11/13	2209	1052	PENNONI ASSOCIATES INC. SERVICE THRU 8/11/13 2013 GENERA SERVICES
			1,160.25	0.00	32,146.25				
1310		39562	3,120.50			10/15/13	2212	1052	PENNONI ASSOCIATES INC. SERV.THRU 9/15/13 2013 SEMI-ANN I&I REPORTS
			3,120.50	0.00	35,266.75				
1311		39933	2,039.50			11/13/13	2217	1052	PENNONI ASSOCIATES INC. SERVICE THRU 10/13/13 - GEN.SERV
			2,039.50	0.00	37,306.25				
1312		40282	769.00			12/11/13	2220	1052	PENNONI ASSOCIATES INC. SERV.THRU 11/3/13 - GENERAL SERV
		40504	663.75			12/27/13	2224	1052	PENNONI ASSOCIATES INC. SERVICES THRU 12/8/13 GEN.SERVIC
		40512	1,845.00			12/27/13	2227	1052	PENNONI ASSOCIATES INC. SERVICES THRU 12/8/13 - OPER.SUP
			3,277.75	0.00	40,584.00				
			40,584.00	0.00	40,584.00				
07424-3140	LEGAL SERVICES				0.00				
1301		35695	3,289.10			01/15/13	2155	528	GAWTHROP GREENWOOD & HALSTED LEGAL SERV. 11/9-11/30/12 GEN.AU
			3,289.10	0.00	3,289.10				
1302		36119	1,406.80			02/12/13	2161	528	GAWTHROP GREENWOOD & HALSTED LEGAL SERVICE - JAN. 2013 GEN.AU
			1,406.80	0.00	4,695.90				
1304		36889	1,661.12			04/10/13	2170	528	GAWTHROP GREENWOOD & HALSTED LEGAL SERVICES 2/4-2/25/13 GEN.A
			1,661.12	0.00	6,357.02				
1305		37357	3,364.00			05/14/13	2174	528	GAWTHROP GREENWOOD & HALSTED LEGAL SERVICES 3/7-3/25/13 GEN.A
			3,364.00	0.00	9,721.02				
1307		38122	700.00			07/02/13	2191	528	GAWTHROP GREENWOOD & HALSTED LEGAL SERV. 5/13-5/29/13 GEN.AUT
			700.00	0.00	10,421.02				
1308		38761	240.00			08/15/13	2204	528	GAWTHROP GREENWOOD & HALSTED LEGAL SERVICES 6/21-6/26/13

MGRP18 run by BRIAN 10 : 38 AM

Acct #	Per	Src	Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description
				240.00	0.00	10,661.02				
1310			39562	220.00			10/15/13	2211	528	GAWTHROP GREENWOOD & HALSTED LEGAL SERVICE 9/9/13 GEN.AUTHOR
				220.00	0.00	10,881.02				
1311			39933	500.00			11/13/13	2216	528	GAWTHROP GREENWOOD & HALSTED LEGAL SERV. 10/11-10/14/13 GEN.A
	JE		40079	831.71			11/25/13	RECLASS		RECLASS GAWTHROP INV.113960 PAYMENT
				1,331.71	0.00	12,212.73				
				12,212.73	0.00	12,212.73				
07424-7475		LOCHWOOD	ABANDONMENT ENGINEER			0.00				
		1301 CD	35695	511.50			01/15/13	2156	1052	PENNONI ASSOCIATES INC. SERVICES THRU 12/9/12 HERSHEY M PUMP STATION MUFFIN MONSTER
				511.50	0.00	511.50				
1302			36119	574.50			02/12/13	2162	1052	PENNONI ASSOCIATES INC. SERV.THURU 1/13/13 H.MILL PS MUF MONSTER DESIGN
				574.50	0.00	1,086.00				
1305			37357	47.50			05/14/13	2175	1052	PENNONI ASSOCIATES INC. SERV.THURU 4/14/13 H.MILL PS MUFF MONSTER'
				47.50	0.00	1,133.50				
1306			37787	4,429.25			06/10/13	2186	1052	PENNONI ASSOCIATES INC. SERVICE THRU 5/12/13 H.M.PS DIV CONSTRUCTION
				4,429.25	0.00	5,562.75				
				5,562.75	0.00	5,562.75				
07424-7476		LOCHWOOD	ABANDONMENT CONSTRUCTION			0.00				
		1301	35598	246.01			01/03/13	2152	317	CONTRACTOR'S CHOICE ORANGE SAFETY FENCE, STAKES & PA
			35695	1,482.40			01/15/13	2154	425	EAST GOSHEN TOWNSHIP LOCHWOOD PLANT CLOSING COSTS-LAB
			35698	-1,482.40			01/15/13	2154	425	EAST GOSHEN TOWNSHIP VOID CK. 2154 - DUPLICATE PAYMEN
				246.01	0.00	246.01				
1304			36840	30,769.00			04/08/13	2169	2128	JWC ENVIRONMENTAL CONTROLLER ASSEMBLY, HPP, & REP SUPPLIED EQUIPMENT

MGRP18 run by BRIAN 10 : 38 AM

Acct #	Per	Src	Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description
				30,769.00	0.00	31,015.01				
1305		37649		424.00			05/31/13	2180	489	FISHER & SON COMPANY INC 4 50LB BAGS - COMMERCIAL SEED
				111.65			05/31/13	2181	739	KNOX EQUIPMENT COMPANY MULCHER RENTAL 5/16-5/17/13
				5,560.00			05/31/13	2182	800	MACANGA INC. TRUCKS & TRACK HOE USE - HAUL DI FROM WESTTOWN WAY 5/13 & 5/14/13
				8,010.75			05/31/13	2183	1876	RANSOME RENTAL COMPANY LP STANDARD TRACK RENTAL 5/13-5/20/
		***		14,106.40	0.00	***				
				14,106.40	0.00	45,121.41				
1306		37771		99.75			06/07/13	2184	1849	HICKS BROTHERS LLC 21 SMALL BALES STRAW
		38067		525.00			06/27/13	2188	1556	CONVERY, MATTHEW GPS - RIDLEY CREEK LINE - LOCHWO CHASE AND OPEN SPACE
				624.75	0.00	45,746.16				
1308		38665		4,050.00			08/09/13	2198	1556	CONVERY, MATTHEW GPS OF R.C. SEWER LINE- 6/24 & 6
				4,050.00	0.00	49,796.16				
1310		39630		7,250.00			10/17/13	2215	3136	MGK INDUSTRIES INC. INSTALLATION OF GRINDER FRAME AT HERSHEY MILL PUMP STATION
	JE	39814			7,250.00		11/04/13	RECLASS		RECLASS PAYMENT FOR GRINDER PUMP.
				7,250.00	7,250.00	49,796.16				
				57,046.16	7,250.00	49,796.16				
07424-7477		LOCHWOOD	ELIMINATION PHASE 2			0.00				
		1301 CD	35872	379.90			01/24/13	2159	2762	A.J. BLOSENSKI INC. 30 YDS. ROLLOFF HAULING & LANDFI FEE
				379.90	0.00	379.90				
1302		36189		200.00			02/15/13	2165	2762	A.J. BLOSENSKI INC. 30 YARD ROLLOFF HAULING FEE
	JE	36105			379.90		02/11/13	VOID CHECK		VOID CK. 2159 - OVERCHARGED BY VENDOR - RETURNED CHECK
				200.00	379.90	200.00				
1303 CD		36711		1,894.91			03/28/13	2167	425	EAST GOSHEN TOWNSHIP 1/1-3/27/13 REIMBURSE GENERAL FU FOR LOCHWOOD PLANT CLOSING LABOR

MGRP18 run by BRIAN 10 : 38 AM

Acct #	Per	Src Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description
			1,894.91	0.00	2,094.91				
1306		38067	10,070.71			06/27/13	2190	425	EAST GOSHEN TOWNSHIP 2ND QTR.2013 REIMBURSMT TO GENER RE: LOCHWOOD PLANT CLOSING LABOR
			10,070.71	0.00	12,165.62				
			12,545.52	379.90	12,165.62				
07425-1000		MARYDELL PUMP STATION - ENGINEER			0.00				
1301		35695	5,493.75			01/15/13	2156	1052	PENNONI ASSOCIATES INC. SERVICES THRU 12/9/12 MARYDELL
			5,493.75	0.00	5,493.75				
1302		36119	5,988.75			02/12/13	2162	1052	PENNONI ASSOCIATES INC. SERV.THRU 1/13/13 MARYDELL PS
			5,988.75	0.00	11,482.50				
1304		36889	6,863.00			04/10/13	2171	1052	PENNONI ASSOCIATES INC. SERVICES THRU 3/17/13 MARYDELL P
		36890	2,167.75			04/10/13	2173	1052	PENNONI ASSOCIATES INC. SERVICE THRU 2/20/13 MARYDELL
			9,030.75	0.00	20,513.25				
1305		37357	7,168.00			05/14/13	2175	1052	PENNONI ASSOCIATES INC. SERV. THRU 4/14/13 MARYDELL PS
		37548	4,089.21			05/22/13	2178	3084	PA DEPARTMENT OF TRANSPORTATION MARY DELL DIVERSION INSPECTION
			11,257.21	0.00	31,770.46				
1306		37787	7,301.00			06/10/13	2186	1052	PENNONI ASSOCIATES INC. SERVICE THRU 5/12/13 MARYDELL P DIVERSION
			7,301.00	0.00	39,071.46				
1307		38122	5,803.50			07/02/13	2192	1052	PENNONI ASSOCIATES INC. SERV.THRU 6/16/13 MARYDELL PS DI
			5,803.50	0.00	44,874.96				
1308		38761	1,653.75			08/15/13	2205	1052	PENNONI ASSOCIATES INC. MARYDELL PS
		38881	3,671.00			08/23/13	2206	3084	PA DEPARTMENT OF TRANSPORTATION HIGHWAY OCCUPANCY PERMITS - MARYD DIVERSION
			5,324.75	0.00	50,199.71				
1309		39088	235.28			09/10/13	2207	3084	PA DEPARTMENT OF TRANSPORTATION HWY OCCUPANCY PERMITS - MARY DEL DIVERSION

MGRP18 run by BRIAN 10 : 38 AM

Acct #	Per	Src Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description
07425-1000	1309	CD 39132	868.75			09/11/13	2209	1052	PENNONI ASSOCIATES INC. SERVICE THRU 8/11/13 MARYDELL PS DIVERSION
			1,104.03	0.00	51,303.74				
			51,303.74	0.00	51,303.74				
07425-2000		MARYDELL PUMP STATION -CONSTRUCTION			0.00				
1304		36746	2,351.35			04/01/13	2168	3050	PECO ENERGY TWO MAN PECO CREW- BRACE PECO PO
		36889	20,700.00			04/10/13	2172	3059	PLY-MAR CONSTRUCTION CO.INC. MARYDELL PUMP STATION DIVERSION
			23,051.35	0.00	23,051.35				
1305		37357	79,704.00			05/14/13	2176	3059	PLY-MAR CONSTRUCTION CO.INC. APP.#2 MARYDELL PS DIVERSION
			79,704.00	0.00	102,755.35				
1306		37787	50,608.00			06/10/13	2187	3059	PLY-MAR CONSTRUCTION CO.INC. MARYDELL PS DIVERSION APP.3
			50,608.00	0.00	153,363.35				
1307		38122	31,620.75			07/02/13	2193	3059	PLY-MAR CONSTRUCTION CO.INC. MARYDELL DIVERSION - APP.#4
		38181	220.00			07/03/13	2194	765	LENNI ELECTRIC CORPORATION MARYDELL STATION FEED
			31,840.75	0.00	185,204.10				
1308		38571	1,980.00			08/01/13	2197	1022	PATTERSON, MICHAEL J. WOOD STOCKADE FENCE INSTALLATION
		38746	41,133.31			08/15/13	2199	3059	PLY-MAR CONSTRUCTION CO.INC. MARYDELL PUMP STATION DIVERSION
			43,113.31	0.00	228,317.41				
			228,317.41	0.00	228,317.41				
07426-1000		HERSHEY MILL STATION - ENGINEER			0.00				
1301		35695	2,047.12			01/15/13	2156	1052	PENNONI ASSOCIATES INC. SERV.THURU 12/9/12 HERSHEY MILL
		35783	250.00			01/18/13	2157	263	CHESTER COUNTY CONSERVATION DISTRICT PERMIT FEE - HERSHEY MILL DAM
			2,297.12	0.00	2,297.12				
1302		36119	2,600.00			02/12/13	2160	2911	EARTHCORE SERVICES LLC MOBILIZATION ATV RIG-HMPS DIVERS
			2,932.62			02/12/13	2162	1052	PENNONI ASSOCIATES INC. SERV.THURU 1/13/13 HERSHEY MILL
		***	5,532.62	0.00	***				

MGRP18 run by BRIAN 10 : 38 AM

Acct #	Per	Src Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description
			5,532.62	0.00	7,829.74				
1304		36889	3,593.75			04/10/13	2171	1052	PENNONI ASSOCIATES INC. SERVICES THRU 3/17/13 HERSHEY MI
		36890	2,516.50			04/10/13	2173	1052	PENNONI ASSOCIATES INC. SERVICE THRU 2/20/13 HERSHEY MILL
			6,110.25	0.00	13,939.99				
1305		37357	1,539.75			05/14/13	2175	1052	PENNONI ASSOCIATES INC. SERV. THRU 4/14/13 HERSHEY MILL
			1,539.75	0.00	15,479.74				
1307		38122	7,301.50			07/02/13	2192	1052	PENNONI ASSOCIATES INC. SERV. THRU 6/16/13 HERSHEY MILL
			7,301.50	0.00	22,781.24				
1308		38761	1,653.75			08/15/13	2205	1052	PENNONI ASSOCIATES INC. HERSHEY MILL PS
			1,653.75	0.00	24,434.99				
1309		39132	607.50			09/11/13	2209	1052	PENNONI ASSOCIATES INC. SERVICE THRU 8/11/13 2013 HERS.M PS DIV. CONSTRUCTION
			607.50	0.00	25,042.49				
1310		39562	307.50			10/15/13	2212	1052	PENNONI ASSOCIATES INC. SERV. THRU 9/22/13 HERSHEY MILL
			307.50	0.00	25,349.99				
			25,349.99	0.00	25,349.99				
07426-2000					0.00				HERSHEY MILL STATION - CONSTRUCTION
1306		37787	135,130.49			06/10/13	2185	3092	DELAWARE VALLEY UTILITY CONTRACTORS INC. HERSHEY MILL PROJ. APPLICATION 1
			135,130.49	0.00	135,130.49				
1307		38402	2,535.00			07/19/13	2196	425	EAST GOSHEN TOWNSHIP - GENERAL REIMBURSE GEN. FUND FOR MA CREDI CARD PURCHASE - HERSHEY MILL
			2,535.00	0.00	137,665.49				
1308		38761	22,097.13			08/15/13	2203	3092	DELAWARE VALLEY UTILITY CONTRACTORS INC. HERSHEY MILL PROJ. APPLICATION 2
			22,097.13	0.00	159,762.62				
1310	JE	39814	7,250.00			11/04/13	RECLASS		RECLASS PAYMENT FOR GRINDER PUMP.
			7,250.00	0.00	167,012.62				

MGRP18 run by BRIAN 10 : 38 AM

Acct #	Per	Src Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description
			167,012.62	0.00	167,012.62				
07427-1000					0.00				
		1301 CD 35695	2,047.13			01/15/13	2156	1052	PENNONI ASSOCIATES INC. SERV.THRU 12/9/12 RESERVE PS
			2,047.13	0.00	2,047.13				
		1302 36119	2,932.63			02/12/13	2162	1052	PENNONI ASSOCIATES INC. SERV.THRU 1/13/13 RESERVE PS
			1,000.00			02/12/13	2163	3027	SCHRODER, JOHN SEWER RIGHT OF WAY
			1,000.00			02/12/13	2164	3029	WILLOW POND HOMEOWNERS ASSOCIATION SEWER RIGHT OF WAY
		***	4,932.63	0.00	***				
			4,932.63	0.00	6,979.76				
		1304 36889	1,013.25			04/10/13	2171	1052	PENNONI ASSOCIATES INC. SERVICES THRU 3/17/13 RESERVE PU
			2,516.50			04/10/13	2173	1052	PENNONI ASSOCIATES INC. SERVICE THRU 2/20/13 RESERVE PS
			3,529.75	0.00	10,509.51				
		1305 37357	563.25			05/14/13	2175	1052	PENNONI ASSOCIATES INC. SERV. THRU 4/14/13 RESERVE PS
			1,455.00			05/14/13	2177	3075	SPRING MEADOWS HOMEOWNERS ASSOCIATION SEWER RIGHT OF WAY
		***	2,018.25	0.00	***				
		37649	2,600.00			05/31/13	2179	2911	EARTHCORE SERVICES LLC ATV RIG PROBES - 1 DAY
			4,618.25	0.00	15,127.76				
		1306 37787	427.50			06/10/13	2186	1052	PENNONI ASSOCIATES INC. SERVICE THRU 5/12/13 - RESERVE P
			427.50	0.00	15,555.26				
		1307 38122	2,770.75			07/02/13	2192	1052	PENNONI ASSOCIATES INC. SERVICES THRU 6/16/13 RESERVE PS
			2,770.75	0.00	18,326.01				
		1308 38761	714.25			08/15/13	2205	1052	PENNONI ASSOCIATES INC. RESERVE PS
			714.25	0.00	19,040.26				
		1309 39132	553.75			09/11/13	2209	1052	PENNONI ASSOCIATES INC. SERVICE THRU 8/11/13 2013 HERS.M & RESERVE PS.
			553.75	0.00	19,594.01				
		1310 39562	2,900.75			10/15/13	2212	1052	PENNONI ASSOCIATES INC. SERV.THRU 9/15/13 RESERVE PS DI

MGRP18 run by BRIAN 10 : 38 AM

Acct #	Per	Src Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description
			2,900.75	0.00	22,494.76				
1311		39932	7,597.75			11/13/13	10006	1052	PENNONI ASSOCIATES INC. SERVICES THRU 10/13/13 - RESERVE DIVERSION CONSTRUCTION
		39945	-7,597.75			11/14/13	10006	1052	PENNONI ASSOCIATES INC. VOID CK. 010006
		39947	7,597.75			11/14/13	2218	1052	PENNONI ASSOCIATES INC. SERV. THRU 10/13/13 - RESERVE PS
			7,597.75	0.00	30,092.51				
1312		40282	3,031.25			12/11/13	2220	1052	PENNONI ASSOCIATES INC. SERV. THRU 11/3/13 RESERVE PS DIV CONSTRUCTION
		40515	605.75			12/27/13	10011	1052	PENNONI ASSOCIATES INC. SERVICE THRU 12/8/13 RESERVE PS
			3,637.00	0.00	33,729.51				
			33,729.51	0.00	33,729.51				
07427-2000					0.00				
1310		39562	64,651.07			10/15/13	2213	3133	SMITH INC., RONALD APPLIC #1 RESERVE PS SEWER DIVE
			64,651.07	0.00	64,651.07				
1311		39932	32,088.71			11/13/13	10007	3133	SMITH INC., RONALD APPLICATION #2 RESERVE PS
		39945	-32,088.71			11/14/13	10007	3133	SMITH INC., RONALD VOID #010007
		39947	32,088.71			11/14/13	2219	3133	SMITH INC., RONALD RESERVE PS - APP.#2
			32,088.71	0.00	96,739.78				
			96,739.78	0.00	96,739.78				
07428-1000					0.00				
1310		39562	2,019.75			10/15/13	2212	1052	PENNONI ASSOCIATES INC. SERV. THRU 9/15/13 RESERVOIR RD
			2,019.75	0.00	2,019.75				
1311		39932	18,056.50			11/13/13	10006	1052	PENNONI ASSOCIATES INC. SERVICES THRU 10/13/13 - RESERVO RD. ACT 537 PLANNING
		39945	-18,056.50			11/14/13	10006	1052	PENNONI ASSOCIATES INC. VOID CK. 010006
		39946	18,056.50			11/14/13	10008	1052	PENNONI ASSOCIATES INC. SERV. THRU 10/13/13 RESERVOIR RD
			18,056.50	0.00	20,076.25				

MGRP18 run by BRIAN 10 : 38 AM

Acct #	Per	Src	Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description	
07428-1000	1312	CD	40283	4,376.50			12/11/13	10009	1052	PENNONI ASSOCIATES INC. SERV.THRU 11/3/13 RESERVOIR RD ACT 537	
			40515	13,994.25			12/27/13	10011	1052	PENNONI ASSOCIATES INC. SERV.THRU 12/8/13 RESERVOIR RD.P	
				18,370.75	0.00	38,447.00					
				38,447.00	0.00	38,447.00					
07429-3166			DIVERSION PROJ.- LEGAL			0.00					
	1311		39932	831.71			11/13/13	10005	528	GAWTHROP GREENWOOD & HALSTED LEGAL SERV.- 10/15-10/23/13 DEL. VALLEY REGIONAL FINANCE	
		JE	40079		831.71		11/25/13	RECLASS		RECLASS GAWTHROP INV.113960 PAYMENT	
				831.71	831.71	0.00					
				831.71	831.71	0.00					
07471-1000			M.C.-DVRFA-DEBT SERVICE			0.00					
	1312	CD	40400	20,720.00			12/19/13	2222	430	EAST GOSHEN TWP - SEWER M.C. DVRFA - DEBT SERVICE 28% P& ON 1998 MA NOTE	
				20,720.00	0.00	20,720.00					
				20,720.00	0.00	20,720.00					
07472-1000			M.C.-DVRFA-INTEREST PAYMN			0.00					
				6,003.00			12/19/13	2222	430	EAST GOSHEN TWP - SEWER M.C. DVRFA - DEBT SERVICE 28% P& ON 1998 MA NOTE	
				6,003.00	0.00	6,003.00					
				6,003.00	0.00	6,003.00					
07492-0550			TRF TO SEWER SINKING FUND			0.00					
	1310	JE	39704	877,000.00			10/24/13	REIMBURSE		REIMB.FR: 7105.1000 TO SEWER CAP.RESERVE FOR DIVERSION COST TRF TO SEWER CAPITAL RESERVE FUN	
				877,000.00	0.00	877,000.00					
				877,000.00	0.00	877,000.00					
Beg Bal				0.00	1,721,158.733,257,544.73-1536386						

MGRP18 run by BRIAN 10 : 38 AM

Acct #	Per	Src Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description
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**EAST GOSHEN MUNICIPAL AUTHORITY GOALS
JANUARY 2014**

ON-GOING

1. Submit an article for each newsletter.
 - a. Need by 1/31/14 - Dana
 - b. Need by 4/30/14
 - c. Need by 7/1/14
 - d. Need by 10/31/14
 - e.
2. Attend West Goshen Meetings quarterly – more often if needed.
 - a. 1st Quarter (March) - Jack
 - b. 2nd Quarter (June)
 - c. 3rd Quarter (September)
 - d. 4th Quarter (December)
3. Respond to capacity requests in 45 days or less.
4. Continue to implement I & I Plan
5. Operate RCSTP in compliance with NPDES Permit

PROJECTS

1. Reservoir Road Pump Station – Obtain Act 537 Plan approval
2. Investigate feasibility of tank covers at RCSTP.



PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

MEMORANDUM

TO: Rick Smith
Mark Miller

CC: East Goshen Municipal Authority

FROM: Michael J. Ellis, P.E. *MJE*

DATE: January 7, 2014

SUBJECT: Payback Period From West Goshen Intermunicipal Agreement Cost Savings – Reservoir Road Pump Station

As requested by the Municipal Authority, we reviewed the East Goshen–West Goshen Intermunicipal Agreement cost history from 2012. Final invoice and flow data for 2013 is not yet available. We created the attached table to estimate the cost benefit for the reduction of flow to West Goshen that may occur as a result of the Reservoir Road Pump Station Diversion. Treatment and conveyance costs vary from year to year based on actual flow. Decreasing the flow to West Goshen by 300,000 gpd would have reduced the intermunicipal cost by approximately \$163,000 by reducing East Goshen’s percentage of flow at the Westtown Way Meter (and ultimately at the West Goshen Sewage Treatment Plant). The ballpark capital expenditure for the pump station diversion is \$2,000,000 (including all construction, engineering, permitting, legal, and land acquisition fees), so the payback period would be approximately 12 years.

As noted in previous studies and planning documents, the cost savings is not the only benefit of the Reservoir Road Pump Station Diversion. Other substantial benefits are anticipated improvements to the operating efficiency of the RCSTP from the additional flow, reducing the reliance on the West Goshen STP, and creating capacity for expansion of customer base and future development within the Chester Creek collection system.

END OF MEMO

Attachments: Wastewater Treatment and Collection Yearly Cost Evaluation
West Goshen Invoice for 2012 (dated June 10, 2013)

East Goshen Municipal Authority
 Intermunicipal Agreement with West Goshen Township
 Wastewater Treatment and Collection Yearly Cost Evaluation
 Reservoir Road Pump Station Diversion

Part 1 - Treatment Costs	Actual 2012	Estimated System with Diversion	
Administration and Treatment Cost Proportion	17.419%	11.832%	proportion reduced
EGMA Average Daily Flow	824,677	524,677	
WG WWTP Avg. Daily Flow	4,734,333	4,434,333	
Sewer Authority Capital Cost Proportion	16.667%	16.667%	proportion unchanged
EGMA Average Daily Flow	1,000,000	1,000,000	
WG WWTP Avg. Daily Flow	6,000,000	6,000,000	
WG Actual Administration Costs	\$ 362,221.35	\$ 362,221.35	
WG Actual Treatment Costs	\$ 2,089,213.81	\$ 2,089,213.81	
Transfer Cost	\$ 44,977.00	\$ 44,977.00	
WGSA Capital Costs	\$ 184,472.13	\$ 184,472.13	
EGMA Calculated Cost Share	\$ 465,597.25	\$ 326,124.62	

Part 2 - Conveyance Costs	Actual 2012	Estimated System with Diversion	
Administration and Collection Cost Proportion	54.386%	43.136%	proportion reduced
EGMA Average Daily Flow	824,677	524,677	
WG WWTP Avg. Daily Flow	1,516,333	1,216,333	
Sewer Authority Capital Cost Proportion	54.795%	54.795%	proportion unchanged
EGMA Average Daily Flow	1,000,000	1,000,000	
WG Westtown Way P.S. Capacity	1,825,000	1,825,000	
WG Actual Administration Costs	\$ 12,890.25	\$ 12,890.25	
WG Actual Collection Costs	\$ 198,381.61	\$ 198,381.61	
WGSA Capital Costs	\$ 47,669.83	\$ 47,669.83	
EGMA Calculated Cost Share	\$ 141,023.34	\$ 117,254.61	

EGMA Total Cost Share	\$ 606,620.60	\$ 443,379.24
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Estimated Annual Cost Savings Created by Diversion

EGMA Treatment Share	\$ 139,472.63
EGMA Collection Share	\$ 23,768.73
Estimated Total Savings*	\$ 163,241.36

*estimated total cost savings will be similar if using full capacity of Intermunicipal Agreement



36435

Wastewater Treatment Plant

JOHN M. SCOTT
Plant Manager

848 S. Concord Rd.
West Chester, PA 19382
610-696-0900
Fax: 610-429-9360

INVOICE

Bill To: Board of Supervisors
East Goshen Township
1580 Paoli Pike
West Chester, PA 19380

PS

Invoice No: EG-6-2013
Date: June 10, 2013

Description	Amount
For East Goshen's share of the Annual Lease Rental on the present sewage treatment plant and a portion of the collection system as per Article VI., Section 6.04(a)(1) of the Agreement dated September 6, 1977.	
For the period of January 1, 2013 to June 30, 2013:	
\$215,000.00 * 9.522% * 50% =	10,236.15
Total	\$10,236.15

SUMMARY	
Customer Name:	East Goshen Township
Invoice #:	EG-6-2013
Bill Date:	June 10, 2013
Amount Due:	\$10,236.15

Terms: Balance due in 30 days.
paid by West Goshen Township

APPROVED BY: _____
DATE PAID: _____
CHECK #: _____
CHARGED TO: 05420,3851



MEMORANDUM

TO: East Goshen Municipal Authority Board
Rick Smith, Township Manager

FROM: Michael Ellis, P.E.
Authority Engineer

DATE: January 9, 2014

SUBJECT: Engineer's Report

Invoices

- Invoices with summaries are provided under separate cover.

Ridley Creek Sewage Treatment Plant (RCSTP)

- Pennoni continues to provide operations assistance as needed. No issues were brought to our attention in December.

Reserve PS Elimination

- We are still awaiting several contract closeout documents from the contractor before final payment can be made including as-built plans, a letter from the geotechnical engineer confirming adequate backfill compaction within the detention basin berm, written notification that they will return in the spring to remove the filter sock along the creek, contractor's release, statement of surety, and maintenance bond. The contractor has indicated they intend to provide the documents in time for final payment at the February MA meeting.

Reservoir Road Pump Station Act 537 Plan

- We analyzed the potential annual cost savings on sewer fees to West Goshen that will result from the diversion. We estimated the payback period to be 12 years, and we forwarded a summary memo to the Township.
- We performed a comprehensive evaluation of alternative pump station locations and force main routes. We prepared a memo with our recommendations, including detailed rationale for the recommendations, that we forwarded to the Township. We still recommend the pump station be located at the intersection of Reservoir Road and Strasburg Road. We recommend the force main be run all the way to the Ridley Creek interceptor via Misak Drive and Anne Drive to avoid the intersection of Strasburg Road and S.R. 0352 and numerous utility conflicts.

EGMA 1401

- We conducted an updated PNDI Search on the proposed pump station location and force main route. The results require that we perform a Phase 1 bog turtle habitat survey and also submit documentation to DCNR for a potential threat to a special concern plant species, the “Tooth-cup”.
- We request direction/approval from the Township and Authority on the force main route at January’s MA meeting. We will then make submissions to DCNR, PHMC (for cultural and historic resources as required by the Act 537 Planning process), and coordinate with PADEP and/or the Army Corps to perform the bog turtle survey. We anticipate the agencies will take at least 60 days to respond to the submissions and perform the bog turtle survey. PADEP and/or the Army Corps may require additional in-field wetlands delineation of the extended force main route prior to the bog turtle survey.
- The altered and additional force routing will require additional field survey beyond our original scope; however, we do not recommend any further surveying be performed until the design phase, after the Act 537 Plan is approved by PADEP.



Monthly Operations Report: December 2013

Treatment Process Operation

During November 2013, there were no exceedances of the final effluent discharge limitations for outfall 001 and Outfall 002. Table 1 illustrates the final effluent composite sample data reported for the November 2013 eDMR.

Table 1

November 2013 - Final Effluent - Out Fall 001											
NPDES Permit Discharge Limitations	Flow	CBOD ₅		TSS		NH ₄ -N		Phosphorus, Total , mg/L		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	21	131	7	44	0.5	3	200	1,000
	Instantaneous Maximum	40		42							
Sample Date											
November 5, 2013	0.353	2.0	5.9	3	9	0.120	0.35	0.31	0.91	1	0.0000
November 12, 2013	0.318	2.6	6.9	5	13	0.10	0.27	0.34	0.90	1	0.0000
November 19, 2013	0.395	2.0	6.6	3	10	0.176	0.58	0.25	0.82	1	0.0000
November 26, 2013	0.403	2.0	6.7	8	27	0.10	0.34	0.29	0.97	1	0.0000
Average	0.3673	2.2	6.5	5	15	0.124	0.38	0.30	0.90	1	0.0000
Minimum	0.3180	2.0	5.9	3	9	0.100	0.27	0.25	0.82	1	0.0000
Maximum	0.4030	2.6	6.9	8	27	0.176	0.58	0.34	0.97	1	0.0000

The monthly average total phosphorus concentration was 0.30 mg/L as compared to the discharge limitation of 0.5 mg/L. During the month, the final effluent total phosphorus concentration discharged ranged from 0.25 mg/L to 0.34 mg/L.

There was no discharge to Applebrook, Outfall 002, during November 2013.



Table 2 illustrates the influent wastewater pollutant loadings for November 2013. The influent loadings remained within the treatment facility design loadings.

Table 2

November 2013 - 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											
November 5, 2013	0.344	134	385	306	878	29.4	84	59.1	170	7	20
November 12, 2013	0.300	195	560	168	482	25.8	74	41.2	118	4.6	13
November 19, 2013	0.321	204	585	242	694	30.4	87	50.9	146	6.9	20
November 26, 2013	0.465	187	537	294	844	32.9	94	58.7	168	7.1	20
Average	0.3575	180	517	253	725	29.6	85	52.5	151	6.4	18
Minimum	0.3003	134	385	168	482	25.8	74	41.2	118	4.6	13
Maximum	0.4646	204	585	306	878	32.9	94	59.1	170	7.1	20

During the month of December 2013, there are no anticipated exceedances of the permitted effluent discharge limitations. Table 3 presents the final effluent data for the month of December 2013.



Table 3

December 2013 - Final Effluent - Out Fall 001											
NPDES Permit Discharge Limitations	Flow	CBOD ₅		TSS		NH ₄ -N		Phosphorus, Total , mg/L		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	21	131	7	44	0.5	3	200	1,000
	Instantaneous Maximum	40		42							
Sample Date											
December 3, 2013	0.371	2.0	6.2	5	15	0.100	0.31	0.19	0.59	1	0.0000
December 10, 2013	0.492	2.0	8.2	3	12	0.10	0.41	0.20	0.82	1	0.0000
December 17, 2013	0.449	2.0	7.5	5	19	0.100	0.37	0.38	1.42	1	0.0000
December 23, 2013	0.454	2.0	7.6	7	27	0.17	0.65	0.23	0.87	1	0.0000
December 30, 2013	0.498	2.0	8.3	5.0	21			0.18	0.75	1	0.0000
Average	0.4528	2.0	7.6	5	19	0.118	0.44	0.24	0.89	1	0.0000
Minimum	0.3710	2.0	6.2	3	12	0.100	0.31	0.18	0.59	1	0.0000
Maximum	0.4980	2.0	8.3	7	27	0.171	0.65	0.38	1.42	1	0.0000

During December, there was no discharge to Applebrook.

The influent wastewater pollutant concentrations and loading entering the wastewater treatment facility remained within the design concentrations and loadings. Composite samples are collected at the influent doghouse manhole and influent wet well. The influent flow meter reading is collected from the influent flow meter located prior to the Screening Building, excluding the internal recycle flows.

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



Table 4

December 2013 - 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											
December 3, 2013	0.352	106	311	232	681	33.7	99	51.2	150	6.9	20
December 10, 2013	0.402	234	687	288	845	28.8	85	42	123	5.6	16
December 17, 2013	0.396	222	652	242	710	27.3	80	39.9	117	6.3	18
December 23, 2013	0.417	191	561	142	417	25.7	75			5.1	15
December 30, 2013	0.405	127	373	216	634					6.8	20
Average	0.3943	176	517	224	657	28.9	85	44.4	130	6.1	18
Minimum	0.3519	106	311	142	417	25.7	75	39.9	117	5.1	15
Maximum	0.4174	234	687	288	845	33.7	99	51.2	150	6.9	20

Sequencing batch reactors (SBRs) numbered 1, 3 and 4 were in service during the month of December.

Process monitoring of each SBR included ammonia as N, nitrite as N, Nitrate as N, COD, SSV, MLSS and total phosphorus. Foam concentrations remained around the same concentration as during November. Present surface area coverage during React Phase ranges from approximately 90 to 100%. The foam color changed to a light tan color and averages 3 to 4 inches in depth

Daily monitoring of the influent and final effluent 24-hour composites samples for total phosphorus is ongoing. Daily analysis of the final effluent flow equalization grab sample is total phosphorus is ongoing. Sample collection and analysis of the influent wastewater collected at the influent pump station wet well is ongoing.

Addition of aluminum sulfate solution to the SBRs to assist with phosphorus removal continued. The volume of aluminum sulfate solution to the SBRs was consistent during December. The addition of soda ash to the SBRs to assist with maintain desired pH concentrations above 7.0 standard units continued during the month.



SBR No. 2 remains out of service as a treatment unit.

During the month, the decanter for SBR 3 was observed to have been extended above the water level. The effluent knife valve was routinely closed and the decanter filled with water to assist with lowering the decanter within the water level. The frequency of occurrence ranged from one to several occurrences during the month

Process Monitoring On-Line Instrumentation:

Representatives from the Hach Company were on site on December 17, 2013 to discuss the proposed pilot study of the RTC online analyzer.

Flow data:

December 2013		
Flow Meter Location	Total Volume for Month, MGD	Average Daily Flow, gpd
Influent Wastewater to Screening Building	12.351	398,404
Influent Wastewater to SBRs	14.736	475,340
Internal Recycle	2.280	75,553
Treated Effluent to Disc Filters	14.235	459,199
Final Effluent Discharge	13.866	447,290
Applebrook Golf Course	0	0

Chemical Usage:

December 2013		
Chemical	Daily Average	Total Monthly
Soda Ash	334	10,350
Magnesium Hydroxide	0	0
Aluminum Sulfate solution	58	1,803
Polymer (centrifuge)	7.5*	108 gallons

**Fifteen (15) days of centrifuge operation*



Solids Dewatering and Disposal: November 2013

Sludge Dewatering Summary	
Gallons of sludge dewatered	239,579 gallons
Average Dewatered Total Solids, %	19.9%
Wet Tons	27.2
Dry Tons	5.397
Number of dumpsters	3

Solids Dewatering and Disposal: December 2013

Sludge Dewatering Summary	
Gallons of sludge dewatered	254,585 gallons
Average Dewatered Total Solids, %	NA ⁺
Wet Tons	41.79
Dry Tons	NA ⁺
Number of dumpsters	4

**A total of four (4) dumpsters were removed during December.*

+The solids handling data from the laboratory was unavailable at the time of preparing this report.

During the month, sludge wasting to the sludge holding tanks and decanting of the sludge holding tanks was ongoing. Process monitoring included pH, total alkalinity and total solids.

Sludge holding tank No. 1 was in service. The level at the beginning of the month was 7.03 feet and the level at the end of the month was 9.74 feet. The initial total solids concentration was 0.70% and ended the month as 0.94% total solids. 108,850 gallons of supernatant were decanted during the month. A total of 100 pounds of soda ash were added during the month for pH adjustment.

Sludge holding tank No. 2 was in service. The level at the beginning of the month was 9.46 feet and the level at the end of the month was 13.58 feet. The initial total solids concentration were 0.88% and ended the month as 0.54% total solids. Zero gallons of supernatant were decanted during the month. A total of 250 pounds of soda ash were added during the month for pH adjustment.



Significant Storm Events

No significant storms were experienced during the month of December 2013.

Minor Repairs and Preventative Maintenance

- The pump tube for the alum feed pump for the SBVRs was replaced.
- Influent pump number 1 was removed and sent to Deckman Electric for rebuild.

2013 FLOWMETERS

2013 DECEMBER - CC COLLECTION - METERS FROM WEST GOSHEN

DATE	HERSHEY'S MILL		ASHBRIDGE		HICKS METER		RESERVOIR		SHERMAN		BARKWAY	
	READING	GPD	READING	GPD	READING	GPD	READING	GPD	READING	GPD	READING	GPD
12/1/2013												
12/2/2013					7,511,108	223,334	34,862,904	683,940				
12/3/2013					7,536,840	257,320	34,930,474	675,700				
12/4/2013					7,562,967	261,270	34,997,092	666,180				
12/5/2013					7,588,293	253,260	35,061,158	640,660				
12/6/2013												
12/7/2013												
12/8/2013												
12/9/2013												
12/10/2013												
12/11/2013					7,738,480	250,312	35,508,030	744,787				
12/12/2013					7,764,228	257,480	35,577,589	695,590				
12/13/2013												
12/14/2013												
12/15/2013												
12/16/2013					7,861,043	242,038	35,877,912	750,808				
12/17/2013					7,888,484	274,410	35,951,930	740,180				
12/18/2013					7,916,741	282,570	36,028,329	763,990			3,013,492	11,685
12/19/2013												
12/20/2013												
12/21/2013												
12/22/2013												
12/23/2013					8,092,231	350,980	36,390,493	724,328				
12/24/2013												
12/25/2013												
12/26/2013					8,114,851	75,400	36,631,169	802,253				
12/27/2013					8,138,708	238,570	36,705,740	745,710				
12/28/2013												
12/29/2013												
12/30/2013					8,204,780	220,240	36,931,099	751,197				
12/31/2013												
		#DIV/0!		53,451		245,168		721,948		#DIV/0!		11,685
		0		53,451		3,187,183		9,385,322		0		11,685
		0		1		13		13		0		1

2013 FLOWMETERS

2013 DECEMBER - CC COLLECTION - METERS FROM WEST GOSHEN

DATE	HERSHEY'S MILL		ASHBRIDGE		HICKS METER		RESERVOIR		SHERMAN		BARKWAY	
	READING	GPD	READING	GPD	READING	GPD	READING	GPD	READING	GPD	READING	GPD
12/1/2013												
12/2/2013					7,511,108	223,334	34,862,904	683,940				
12/3/2013					7,536,840	257,320	34,930,474	675,700				
12/4/2013					7,562,967	261,270	34,997,092	666,180				
12/5/2013					7,588,293	253,260	35,061,158	640,660				
12/6/2013												
12/7/2013												
12/8/2013												
12/9/2013												
12/10/2013												
12/11/2013					7,738,480	250,312	35,508,030	744,787				
12/12/2013					7,764,228	257,480	35,577,589	695,590				
12/13/2013												
12/14/2013												
12/15/2013					7,861,043	242,038	35,877,912	750,808				
12/16/2013					7,888,484	274,410	35,951,930	740,180				
12/17/2013					1,781,646	53,451	282,570	36,028,329	763,990		3,013,492	11,685
12/18/2013												
12/19/2013												
12/20/2013												
12/21/2013												
12/22/2013												
12/23/2013					8,092,231	350,980	36,390,493	724,328				
12/24/2013												
12/25/2013												
12/26/2013					8,114,851	75,400	36,631,169	802,253				
12/27/2013					8,138,708	238,570	36,705,740	745,710				
12/28/2013												
12/29/2013												
12/30/2013					8,204,780	220,240	36,931,099	751,197				
12/31/2013												
		#DIV/0!		53,451		245,168		721,948		#DIV/0!		11,685
		0		53,451		3,187,183		9,385,322		0		11,685
		0		1		13		13		0		1

2013 SUMMARY OF METER READINGS

	WESTTOWN WAY	ELLIS LANE	PAOLI PIKE	WILSON DRIVE	SUMMIT MILL	HERSHEY MILL	ASHBRIDGE	HICKS	RESERVOIR	SHERMAN	BARKWAY
JANUARY	1,277,069	120,481	60,165	63,671	20,400	89,992	70,106		922,377	7,363	11,147
FEBRUARY	1,297,700	101,955	56,216	77,811	20,400	89,500	64,950	387,898	936,368	7,669	10,544
MARCH	1,285,156	105,488	68,636	85,607	20,400	79,416	66,580	292,895	594,040	3,899	7,122
APRIL	1,127,728	92,814	69,146	68,496	20,400	73,245	59,483	365,108	1,030,755	5,310	9,527
MAY	1,109,530	95,306	70,372	69,500	20,400	81,412	65,970	335,818	864,850	6,661	11,011
JUNE	939,067	145,961	76,451	82,547	20,400	95,383	68,653	307,972	773,741	5,759	11,576
JULY	1,167,686	118,589	72,476	103,441	20,400	85,258	64,865	288,723	698,462	5,572	10,464
AUGUST	1,124,593	117,115	71,356	87,438	20,400	81,972	64,039	273,343	788,067	6,199	9,700
SEPTEMBER	918,265	89,624	64,278	68,398	20,400			263,145	688,202		
OCTOBER	930,556	81,623	59,527	74,116	20,400			248,191	660,718		
NOVEMBER			59,940	83,350	20,400			268,836	658,461		
DECEMBER	870,593	107,788	63,377	72,372	20,400		53,451	245,168	721,948		11,685
Total Flows											
Monthly Ave	1,204,794	117,674	71,995	85,159	22,255	84,522	72,262	327,710	848,908	6,054	11,597

To West Goshen 929,967

2013 SUMMARY OF METER READINGS

	WESTTOWN WAY	ELLIS LANE	PAOLI PIKE	WILSON DRIVE	SUMMIT	HERSHEY MILL	ASHBRIDGE	HICKS	RESERVOIR	SHERMAN	BARKWAY
JANUARY	1,277,069	120,481	60,165	63,671	20,400	89,992	70,106		922,377	7,363	11,147
FEBRUARY	1,297,700	101,955	56,216	77,811	20,400	89,500	64,950	387,898	936,368	7,669	10,544
MARCH	1,285,156	105,488	68,636	85,607	20,400	79,416	66,580	292,895	594,040	3,899	7,122
APRIL	1,127,728	92,814	69,146	68,496	20,400	73,245	59,483	365,108	1,030,755	5,310	9,527
MAY	1,109,530	95,306	70,372	69,500	20,400	81,412	65,970	335,818	864,850	6,661	11,011
JUNE	939,067	145,961	76,451	82,547	20,400	95,383	68,653	307,972	773,741	5,759	11,576
JULY	1,167,686	118,589	72,476	103,441	20,400	85,258	64,865	288,723	698,462	5,572	10,464
AUGUST	1,124,593	117,115	71,356	87,438	20,400	81,972	64,039	273,343	788,067	6,199	9,700
SEPTEMBER	918,265	89,624	64,278	68,398	20,400			263,145	688,202		
OCTOBER	930,556	81,623	59,527	74,116	20,400			248,191	660,718		
NOVEMBER			59,940	83,350	20,400			268,836	658,461		
DECEMBER	870,593	107,788	63,377	72,372	20,400		53,451	245,168	721,948		11,685
Total Flows											
Monthly Ave	1,204,794	117,674	71,995	85,159	22,255	84,522	72,262	327,710	848,908	6,054	11,597

To
West Goshen 929,967

2013 SUMMARY OF METER READINGS

	WESTTOWN WAY	ELLIS LANE	PAOLI PIKE	WILSON DRIVE	SUMMIT
JANUARY	1,277,069	120,481	60,165	63,671	20,400
FEBRUARY	1,297,700	101,955	56,216	77,811	20,400
MARCH	1,285,156	105,488	68,636	85,607	20,400
APRIL	1,127,728	92,814	69,146	68,496	20,400
MAY	1,109,530	95,306	70,372	69,500	20,400
JUNE	939,067	110,334	66,831	74,605	20,400
JULY	1,167,686	118,589	72,476	103,441	20,400
AUGUST	1,124,593	117,115	71,356	87,438	20,400
SEPTEMBER	918,265	89,624	64,278	68,398	20,400
OCTOBER	930,556	81,623	59,527	74,116	20,400
NOVEMBER			59,940	83,350	20,400
DECEMBER	870,953	107,788	63,377	72,372	20,400

Total Flows

Monthly Ave	1,095,300	103,738	65,193	77,400	20,400
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2013 SUMMARY OF METER READINGS

	WESTTOWN WAY	ELLIS LANE	PAOLI PIKE	WILSON DRIVE	SUMMIT
JANUARY	1,277,069	120,481	60,165	63,671	20,400
FEBRUARY	1,297,700	101,955	56,216	77,811	20,400
MARCH	1,285,156	105,488	68,636	85,607	20,400
APRIL	1,127,728	92,814	69,146	68,496	20,400
MAY	1,109,530	95,306	70,372	69,500	20,400
JUNE	939,067	110,334	66,831	74,605	20,400
JULY	1,167,686	118,589	72,476	103,441	20,400
AUGUST	1,124,593	117,115	71,356	87,438	20,400
SEPTEMBER	918,265	89,624	64,278	68,398	20,400
OCTOBER	930,556	81,623	59,527	74,116	20,400
NOVEMBER			59,940	83,350	20,400
DECEMBER	870,953	107,788	63,377	72,372	20,400
Total Flows					
Monthly Ave	1,095,300	103,738	65,193	77,400	20,400



PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

Reservoir Road Pump Station and Force Main Alternatives Cost Analysis

EGMA1307
January 8, 2014

Alternative 1 - Reservoir Road PS FM to Bow Tree Drive Manhole (No Interceptor Replacement)

Quantity	Description	Unit	Unit Price	Cost
1	Flow Diversion Vault	EA.	\$ 100,000	\$ 100,000
1	0.30 MGD (1.0 MGD Peak) Pump Station	EA.	\$ 350,000	\$ 350,000
5,875	HDD 8" HDPE Pipe Force Main	L.F.	\$ 100	\$ 587,500
150	Open Cut 8" HDPE at Pipelines and PennDOT Intersections	L.F.	\$ 250	\$ 37,500
0	18" SanititeHP Pipe Interceptor Replacement	L.F.	\$ 160	\$ -
0	Doghouse Manhole at Interceptor	EA.	\$ 10,000	\$ -
0	Reconnect to Ex. Manholes	EA.	\$ 2,500	\$ -
3	Manhole Lining	EA.	\$ 3,500	\$ 10,500
3	Bypass Pumping	DAYS	\$ 1,500	\$ 4,500
610	Pavement Restoration (State and Local Roads)	S.Y.	\$ 90	\$ 54,900
0	Creek Crossing Allowance	L.S.	\$ 35,000	\$ -
1	State Highway Crossing Allowance	L.S.	\$ 10,000	\$ 10,000
1	Traffic Control Allowance	L.S.	\$ 25,000	\$ 25,000
Subtotal				\$ 1,179,900
Construction Contingency			Percent 25.00%	\$ 295,000
Subtotal				\$ 1,474,900
Contractor Overhead and Profit			(Included in Unit Prices)	\$ -
Opinion of Probable Construction Costs				\$ 1,474,900

NOTE: An engineering opinion of probable construction cost is made by an engineer, and not by a professional construction cost estimator or construction contractor. The accuracy of the engineering opinion cannot be guaranteed.



PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

**Reservoir Road Pump Station and Force Main
Alternatives Cost Analysis**

EGMA1307
January 8, 2014

Alternative 2 - Reservoir Road PS FM to Interceptor (No Interceptor Replacement) via S.R. 352

Quantity	Description	Unit	Unit Price	Cost
1	Flow Diversion Vault	EA.	\$ 100,000	\$ 100,000
1	0.30 MGD (1.0 MGD Peak) Pump Station	EA.	\$ 350,000	\$ 350,000
8,200	HDD 8" HDPE Pipe Force Main	L.F.	\$ 100	\$ 820,000
450	Open Cut 8" HDPE at Pipelines and PennDOT Intersections	L.F.	\$ 250	\$ 112,500
0	18" SanititeHP Pipe Interceptor Replacement	L.F.	\$ 160	\$ -
1	Doghouse Manhole at Interceptor	EA.	\$ 10,000	\$ 10,000
0	Reconnect to Ex. Manholes	EA.	\$ 2,500	\$ -
3	Manhole Lining	EA.	\$ 3,500	\$ 10,500
3	Bypass Pumping	DAYS	\$ 1,500	\$ 4,500
940	Pavement Restoration (State and Local Roads)	S.Y.	\$ 90	\$ 84,600
1	Creek Crossing Allowance	L.S.	\$ 35,000	\$ 35,000
1	State Highway Crossing Allowance	L.S.	\$ 10,000	\$ 10,000
1	Traffic Control Allowance	L.S.	\$ 35,000	\$ 35,000
	Subtotal			\$ 1,572,100
	Construction Contingency	Percent	25.00%	\$ 393,000
	Subtotal			\$ 1,965,100
	Contractor Overhead and Profit	(Included in Unit Prices)		\$ -
Opinion of Probable Construction Costs				\$ 1,965,100

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PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

**Reservoir Road Pump Station and Force Main
Alternatives Cost Analysis**

EGMA1307
January 8, 2014

Alternative 2A - Reservoir Road PS FM to Interceptor (No Interceptor Replacement) via Misak Drive

Quantity	Description	Unit	Unit Price	Cost
1	Flow Diversion Vault	EA.	\$ 100,000	\$ 100,000
1	0.30 MGD (1.0 MGD Peak) Pump Station	EA.	\$ 350,000	\$ 350,000
8,280	HDD 8" HDPE Pipe Force Main	L.F.	\$ 100	\$ 828,000
150	Open Cut 8" HDPE at Pipelines and PennDOT Intersections	L.F.	\$ 250	\$ 37,500
0	18" SanititeHP Pipe Interceptor Replacement	L.F.	\$ 160	\$ -
1	Doghouse Manhole at Interceptor	EA.	\$ 10,000	\$ 10,000
0	Reconnect to Ex. Manholes	EA.	\$ 2,500	\$ -
3	Manhole Lining	EA.	\$ 3,500	\$ 10,500
3	Bypass Pumping	DAYS	\$ 1,500	\$ 4,500
700	Pavement Restoration (State and Local Roads)	S.Y.	\$ 90	\$ 63,000
1	Creek Crossing Allowance	L.S.	\$ 35,000	\$ 35,000
1	State Highway Crossing Allowance	L.S.	\$ 10,000	\$ 10,000
1	Traffic Control Allowance	L.S.	\$ 25,000	\$ 25,000
Subtotal				\$ 1,473,500
Construction Contingency		Percent	25.00%	\$ 368,000
Subtotal				\$ 1,841,500
Contractor Overhead and Profit (Included in Unit Prices)				\$ -
Opinion of Probable Construction Costs				\$ 1,841,500

NOTE: An engineering opinion of probable construction cost is made by an engineer, and not by a professional construction cost estimator or construction contractor. The accuracy of the engineering opinion cannot be guaranteed.



PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

Reservoir Road Pump Station and Force Main Alternatives Cost Analysis

EGMA1307
January 8, 2014

Alternative 3 - Reservoir Road PS FM to Bow Tree Drive Manhole Including Interceptor Replacement

Quantity	Description	Unit	Unit Price	Cost
1	Flow Diversion Vault	EA.	\$ 100,000	\$ 100,000
1	0.30 MGD (1.0 MGD Peak) Pump Station	EA.	\$ 350,000	\$ 350,000
5,875	HDD 8" HDPE Pipe Force Main	L.F.	\$ 100	\$ 587,500
150	Open Cut 8" HDPE at Pipelines and PennDOT Intersections	L.F.	\$ 250	\$ 37,500
1,203	18" SanititeHP Pipe Interceptor Replacement	L.F.	\$ 160	\$ 192,480
0	Doghouse Manhole at Interceptor	EA.	\$ 10,000	-
4	Reconnect to Ex. Manholes	EA.	\$ 2,500	\$ 10,000
3	Manhole Lining	EA.	\$ 3,500	\$ 10,500
20	Bypass Pumping	DAYS	\$ 1,500	\$ 30,060
610	Pavement Restoration (State and Local Roads)	S.Y.	\$ 90	\$ 54,900
1	Creek Crossing Allowance	L.S.	\$ 35,000	\$ 35,000
1	State Highway Crossing Allowance	L.S.	\$ 10,000	\$ 10,000
1	Traffic Control Allowance	L.S.	\$ 25,000	\$ 25,000
Subtotal				\$ 1,442,940
Construction Contingency		Percent	25.00%	\$ 361,000
Subtotal				\$ 1,803,940
Contractor Overhead and Profit		(Included in Unit Prices)		-
Opinion of Probable Construction Costs				\$ 1,803,940

NOTE: An engineering opinion of probable construction cost is made by an engineer, and not by a professional construction cost estimator or construction contractor. The accuracy of the engineering opinion cannot be guaranteed.



PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

Reservoir Road Pump Station and Force Main Alternatives Cost Analysis

EGMA1307
January 8, 2014

Alternative 4 - Reservoir Road PS FM to Interceptor Including Interceptor Replacement

Quantity	Description	Unit	Unit Price	Cost
1	Flow Diversion Vault	EA.	\$ 100,000	\$ 100,000
1	0.30 MGD (1.0 MGD Peak) Pump Station	EA.	\$ 350,000	\$ 350,000
8,280	HDD 8" HDPE Pipe Force Main	L.F.	\$ 100	\$ 828,000
150	Open Cut 8" HDPE at Pipelines and PennDOT Intersections	L.F.	\$ 250	\$ 37,500
1,203	18" SanititeHP Pipe Interceptor Replacement	L.F.	\$ 160	\$ 192,480
1	Doghouse Manhole at Interceptor	EA.	\$ 10,000	\$ 10,000
4	Reconnect to Ex. Manholes	EA.	\$ 2,500	\$ 10,000
3	Manhole Lining	EA.	\$ 3,500	\$ 10,500
20	Bypass Pumping	DAYS	\$ 1,500	\$ 30,000
700	Pavement Restoration (State and Local Roads)	S.Y.	\$ 90	\$ 63,000
1	Creek Crossing Allowance	L.S.	\$ 35,000	\$ 35,000
1	State Highway Crossing Allowance	L.S.	\$ 10,000	\$ 10,000
1	Traffic Control Allowance	L.S.	\$ 25,000	\$ 25,000
Subtotal				\$ 1,701,480
Construction Contingency		Percent	25.00%	\$ 425,000
Subtotal				\$ 2,126,480
Contractor Overhead and Profit (Included in Unit Prices)				\$ -
Opinion of Probable Construction Costs				\$ 2,126,480

NOTE: An engineering opinion of probable construction cost is made by an engineer, and not by a professional construction cost estimator or construction contractor. The accuracy of the engineering opinion cannot be guaranteed.



PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

**Reservoir Road Pump Station and Force Main
Alternatives Cost Analysis**

EGMA1307
January 8, 2014

**Alternative 5 - Reservoir Road PS FM to RCSTP Along Gravity Sewer Main and Interceptor
(No Interceptor Replacement)**

Quantity	Description	Unit	Unit Price	Cost
1	Flow Diversion Vault	EA.	\$ 100,000	\$ 100,000
1	0.30 MGD (1.0 MGD Peak) Pump Station	EA.	\$ 350,000	\$ 350,000
9,250	HDD 8" HDPE Pipe Force Main	L.F.	\$ 100	\$ 925,000
150	Open Cut 8" HDPE at Pipelines and PennDOT Intersections	L.F.	\$ 250	\$ 37,500
0	18" SanititeHP Pipe Interceptor Replacement	L.F.	\$ 160	\$ -
1	Doghouse Manhole at Interceptor	EA.	\$ 10,000	\$ 10,000
0	Reconnect to Ex. Manholes	EA.	\$ 2,500	\$ -
0	Manhole Lining	EA.	\$ 3,500	\$ -
2	Bypass Pumping	DAYS	\$ 1,500	\$ 3,000
700	Pavement Restoration (State and Local Roads)	S.Y.	\$ 90	\$ 63,000
1	Creek Crossing Allowance	L.S.	\$ 35,000	\$ 35,000
1	State Highway Crossing Allowance	L.S.	\$ 10,000	\$ 10,000
1	Traffic Control Allowance	L.S.	\$ 25,000	\$ 25,000
	Subtotal			\$ 1,558,500
	Construction Contingency	Percent	25.00%	\$ 390,000
	Subtotal			\$ 1,948,500
	Contractor Overhead and Profit	(Included in Unit Prices)		\$ -
	Opinion of Probable Construction Costs			\$ 1,948,500

NOTE: An engineering opinion of probable construction cost is made by an engineer, and not by a professional construction cost estimator or construction contractor. The accuracy of the engineering opinion cannot be guaranteed.



**Reservoir Road Pump Station and Force Main
Alternatives Cost Analysis**

EGMA1307
January 8, 2014

**Alternative 6 - Reservoir Road PS FM to RCSTP Along E. Strasburg Rd. and Gas Right-of-way
(No Interceptor Replacement)**

Quantity	Description	Unit	Unit Price	Cost
1	Flow Diversion Vault	EA.	\$ 100,000	\$ 100,000
1	0.30 MGD (1.0 MGD Peak) Pump Station	EA.	\$ 350,000	\$ 350,000
11,450	HDD 8" HDPE Pipe Force Main	L.F.	\$ 100	\$ 1,145,000
700	Open Cut 8" HDPE at Pipelines and PennDOT Intersections	L.F.	\$ 250	\$ 175,000
0	18" SanititeHP Pipe Interceptor Replacement	L.F.	\$ 160	\$ -
1	Doghouse Manhole at Interceptor	EA.	\$ 10,000	\$ 10,000
0	Reconnect to Ex. Manholes	EA.	\$ 2,500	\$ -
0	Manhole Lining	EA.	\$ 3,500	\$ -
2	Bypass Pumping	DAYS	\$ 1,500	\$ 3,000
1,440	Pavement Restoration (State and Local Roads)	S.Y.	\$ 90	\$ 129,600
1	Creek Crossing Allowance	L.S.	\$ 35,000	\$ 35,000
1	State Highway Crossing Allowance	L.S.	\$ 10,000	\$ 10,000
1	Traffic Control Allowance	L.S.	\$ 60,000	\$ 60,000
	Subtotal			\$ 2,017,600
	Construction Contingency	Percent	25.00%	\$ 504,000
	Subtotal			\$ 2,521,600
	Contractor Overhead and Profit	(Included in Unit Prices)		\$ -
Opinion of Probable Construction Costs				\$ 2,521,600

NOTE: An engineering opinion of probable construction cost is made by an engineer, and not by a professional construction cost estimator or construction contractor. The accuracy of the engineering opinion cannot be guaranteed.



Specialty Chemicals for Industrial and Municipal Wastewater Treatment

December 6, 2013

East Goshen Township
1580 Paoli Pike
West Chester PA 19380

Mark Miller
Director Of Public Works

Mark,

Thank you for your time yesterday to evaluate and recommend odor control for your pump station. ZetaLyte Odor Oxidizer 3275 currently utilized at your Ashbridge pump station will be recommended for this application. Based on a flow of 350,000 gallons per day the dosage will be approximately 15 gallons per day with an increase to 20 gallons per day during the months of July through September.

A metering pump will be required capable of 40 gallon per day feed with a degassing head. The cost for this pump is \$1329.00 and can be expected to last only 2-3 years because of the caustic nature of our product. The pump will require a 110 volt outlet wired so when the force main is energized the pump will also turn on.

CET would recommend our mini bulk delivery for this project because of your expected consumption in the warmer months. A 500 gallon double walled storage tank will cost \$2989.00 plus applicable freight charge of approximately \$ 600.00. The dimensions of this tank are 59 inches X 71 inches and will have to be stored inside or on a cement pad which will have to be certified.

The cost of ZetaLyte Odor Oxidizer delivered to your facility by mini bulk will be \$ 14.35 per gallon. Total cost per day for chemical will be approximately \$ 251.10.

Thank you,

Kevin Jacoby
Sales Representative

CUSTOM ENVIRONMENTAL TECHNOLOGY, INC.

8 Iron Bridge Drive • Collegeville, PA 19426 • Phone: (610) 409-8210 Fax: (610) 409-8212



PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

MEMORANDUM

TO: Rick Smith
Mark Miller

CC: East Goshen Municipal Authority

FROM: Michael J. Ellis, P.E. *MJE*

DATE: January 8, 2014

**SUBJECT: UPDATE #1
FORCE MAIN ROUTING & SEWER UPGRADE ALTERNATIVES
RESERVOIR ROAD PUMP STATION**

In November 2013, we prepared a memo summarizing our research and initial analyses of feasible alternatives for force main routing and potential gravity sewer upgrades. Following issuance of that memo, dated November 8, 2013, the Authority and Township staff requested we revisit the location of the pump station and consider variations of a few of the force main routing alternatives due to new information such as floodplain extents, utility conflicts and restrictions, cost/benefit analysis of use of an odor control chemical feed system, and other existing conditions. This memo is an updated and more in-depth analysis of alternatives.

Executive Summary Recommendation

We still recommend the pump station be located along the Chester Creek interceptor sewer at the intersection of Reservoir Road and Strasburg Road. We recommend the proposed Alternative 2A force main routing in which the force main is run all the way to the Ridley Creek interceptor sewer via Misak Drive and Anne Drive (to avoid the intersection of Strasburg Road and S.R. 0352).

Pump Station Location

Pennoni Associates prepared a memo in 2009 titled "West Goshen Diversion Project Identification and Evaluation of Potential Diversion Locations" which evaluated six diversion concepts and recommended the a "slip-stream" diversion concept with a new pump station near the intersection of Reservoir Road and Strasburg Road. The memo is attached. We revisited the six concepts and considered a few other diversion options, including analyses based upon current meter data, and we still recommend the "slip-stream" diversion with a pump station at the intersection of Reservoir Road and Strasburg Road.

The estimated daily flows for the diversions noted in the 2009 memo are generally still consistent with current metered flows. Without using the "slip-stream" diversion, three of the diversions considered in the 2009 memo would need to be implemented in order to divert 300,000 gpd to the Ridley Creek Sewage Treatment Plant (RCSTP) due to the limited flow within each tributary area. The total construction cost of three diversions would be at least double the estimated cost of the single "slip-stream" diversion. Additionally, the three diversions would require two or three new

pump stations, which would result in higher future operation and maintenance costs than the one pump station proposed as part of the “slip-stream” diversion. Therefore, the Additional Diversion Areas #1 through #5 in the 2009 memo are still not recommended.

There are no neighborhoods or isolated subareas within the Township’s Chester Creek service area that generate an average of 300,000 gpd. In fact, the largest subarea (Additional Diversion Area #4 from the 2009 memo) only generates approximately half that flow. Therefore, the “slip-stream” pump station must be located along the Chester Creek interceptor sewer at a point where there is at least 300,000 gpd every day, not just an annual or monthly average of 300,000 gpd, to ensure that total volume is available for diversion every day.

The “slip-stream” diversion should be along the interceptor south of Paoli Pike. Meter data from February-September 2013 at the Hicks Meter on the interceptor (one manhole north of Paoli Pike) indicates there is an average of 327,000 gpd there, but the average flows in July-September only ranged from 250,000-274,000 gpd. Therefore, this location on the interceptor does not have adequate daily flow. We do not know the exact location on the interceptor where the flow first exceeds 300,000 gpd every day, but we estimate it is at least seven manholes downstream of Paoli Pike. There is over 400,000 gpd of flow in the interceptor by the time it reaches Baldwin Drive and over 500,000 gpd at Strasburg Road according to 2013 portable meter data.

The pump station should therefore be located along the interceptor between the Meadows and Strasburg Road, as highlighted in yellow in attached Figure 2. A pump station south of Strasburg Road would require a longer force main to reach the Ridley Creek Collection System and would thereby have a greater construction cost. There would be no apparent long-term benefit of a pump station south of Strasburg Road to offset the additional upfront cost. The proposed portion of the interceptor north of Baldwin Drive is at least partially, if not entirely, within or bounded by wetlands. Construction of the pump station in wetlands would likely involve extensive permitting and creation of new wetlands to offset the lost wetlands. Therefore, a pump station in this portion of the interceptor should be avoided.

The two closest locations to connect a new force main from a pump station on the proposed/highlighted portion of the interceptor to the Ridley Creek Collection System are along Paoli Pike near Boot Road or in the Bow Tree development along S.R. 0352 (North Chester Road):

- The force main could be connected to the new sewers along Paoli Pike that were installed during the Marydell Pump Station Diversion project. Depending upon the exact location of the pump station, this would be a 20-25 percent shorter force main, but it would be connecting into a lengthy stretch of 8” and 10” gravity sewers. As noted hereafter in the “Force Main Routing” discussion, it is not desirable to tie the 300,000 gpd force main into 8” sewers even if they are modeled to have adequate capacity during normal conditions. Further, the gravity sewer system runs through the Township building parcel, alongside a school, and adjacent to a residential neighborhood and could create odor issues at those properties due to the additional wastewater loading. The distance to run the force main all the way to the interceptor along the existing Paoli Pike gravity sewer system would be nearly 10 percent longer than through Bow Tree.

- The recommended option is therefore to run the force main to or through the Bow Tree development. Regardless of the location of the pump station on the proposed/highlighted portion of the interceptor, the length of force main to run to Bow Tree is similar (within 10 percent variation). The shortest length that does not appear to involve acquiring new easements or new property is with a pump station located at the intersection of Reservoir Road and Strasburg Road. It also appears that a force main from this location would have the fewest number of bends, thereby facilitating more efficient pump operations. One shortcoming of this location is that it is within a 100-year floodplain (outside of the floodway). PADEP will allow pump stations within floodplains, subject to approval of a floodplain encroachment permit. The pump station footprint will need to be elevated to the approximate elevation of the Reservoir Road cartway (likely via isolated site grading) so that the building, hatches/lids, and driveway are above the 100-year flood elevation.

Force Main Routing

We revisited the alternatives presented in our November 8, 2013 memorandum to consider slightly altered routes to avoid work at the intersection of Strasburg Road and S.R. 0352 and along S.R. 0352 in favor of crossing S.R. 0352 at Bow Tree Drive and Anne Drive. In particular, we evaluated the following three adjustments to Alternative 2:

Alternative 2A – Run force main along Strasburg Road to Misak Drive, along the entire length of Misak Drive, through an existing sewer easement alongside and behind residential properties from Misak Drive to Anne Drive, and from Anne Drive across S.R. 0352 to Bow Tree Drive. The remainder of the force main routing to the interceptor would be the same as Alternative 2. This routing is entirely through existing rights-of-way and sewer easements so no new permanent easements are envisioned for this route. In addition to avoiding the numerous utility conflicts, traffic control challenges, and alleged shallow bedrock at the intersection of Strasburg Road and S.R. 0352, this also avoids crossing both the Williams Transco pipeline and PECO electric duct bank just east of the intersection. This alternative is considered very viable and is projected to be less costly with less construction risk than Alternative 2. An opinion of probable construction cost and a map have been prepared and are attached for this alternative.

Alternative 2B – Run force main along Strasburg Road approximately halfway to Misak Drive, then through an existing sewer easement behind existing residential properties parallel to Strasburg Road, exit the sewer easement onto Misak Drive, and the remainder of the routing is the same as Alternative 2A. This alternative is also considered viable but less desirable than Alternative 2A since it requires construction alongside and through additional residential properties. It would also require two additional 90 degree bends in the force main which would increase head loss in the pipe. Since this alternative is expected to create more disturbance to residential properties and increase head loss with little to no cost savings from Alternative 2A, we are not recommending this route and have not prepared a cost estimate or map for it.

Alternative 2C – Run force main through the existing Williams Transco pipeline right-of-way (ROW) that bypasses the intersection of Strasburg Road and S.R. 0352. Pipeline easements are typically exclusive, so the Township would probably have to obtain approval from Williams to install the force main within their pipeline easement, which pipeline companies are reluctant to allow. Williams' ROW restrictions state that they do not want any encroachments in their ROW.

They also have additional ROW restrictions and requirements that are extensive including casing all pipes and no vibratory compaction. If Williams were to approve this route, it would be very costly due to the casing pipe and all open cut work (some of which would have to be soft dig/hand excavating). The route would also require design approvals from Williams which may take an extensive amount of time to obtain. Further, construction scheduling would need to be coordinated with Williams since they would need to have an inspector on-site at all times at the cost of the Township. The Township would then have to comply with these same restrictions for future maintenance of the force main. We do not recommend this route so we have not prepared a cost estimate or map for it.

A few additional updates to other alternatives have also been made:

- The routing of the existing gravity sewer along Bow Tree Drive that was the basis of the prior point of connection of the force main was determined to be incorrect during the existing conditions field survey. The exhibits have been revised accordingly to correctly show the existing sewer layout. The force main in Alternatives 1 and 3 is now proposed to run approximately 700 LF longer to connect to an existing manhole further east on Bow Tree Drive.
- The proposed force main routing for Alternatives 1, 3, 4, and 5 has been revised to run along Misak Drive to Anne Drive (same as Alternative 2A) since we now recommend this route to avoid the intersection of Strasburg Road and S.R. 0352.
- Costs have been updated based upon new utility crossing restrictions and construction requirements obtained from the pipeline companies. Namely, work in the vicinity of the Strasburg Road and S.R. 0352 intersection is now expected to be all open cut with soft digging to expose existing pipelines and duct banks, which will increase construction costs.

The alternatives and the updated probable costs are summarized in the following table:

**Force Main (FM) and Sewer Upgrades Alternatives
Opinion of Probable Construction Cost**

	Scope	Probable Cost
Alternative 1	FM to Bow Tree 8" Sewer, No Interceptor Upgrades	\$1,474,900
Alternative 2	FM to 15" Interceptor, No Interceptor Upgrades (via 352)	\$1,965,100
Alternative 2A	FM to 15" Interceptor, No Interceptor Upgrades (via Misak Drive)	\$1,841,500
Alternative 3	FM to Bow Tree 8" Sewer, Upgrade Interceptor to 18"	\$1,803,940
Alternative 4	FM to 15" Interceptor, Upgrade Interceptor to 18"	\$2,126,480
Alternative 5	FM to RCSTP Influent Pipe along Existing Gravity Sewer Route, No Interceptor Upgrades	\$1,948,500
Alternative 6	FM to RCSTP Influent Pipe along Strasburg Rd and Gas Easement, No Interceptor Upgrades	\$2,521,600

The original/base concept for the Reservoir Road Pump Station force main is to connect to an existing gravity manhole within Bow Tree Drive (Alternative 1). Wastewater would then flow

through the 8" diameter collection sewers in Bow Tree to the 15" diameter Ridley Creek Collection System (RCCS) interceptor and onto the Ridley Creek Sewage Treatment Plant (RCSTP).

We now anticipate an 8" diameter force main will be adequate with a pump rate between 300-400 gpm. Initial modeling indicates the existing 8" collection sewers and the 15" interceptor sewers have adequate capacity to convey 400 gpm from the pump station during dry and non-extreme wet weather periods as per recent average daily influent metering data at the RCSTP. However, the 15" interceptor sewers and the RCSTP may not have capacity to accommodate an additional 300-400 gpm during extreme rainfall events when several inches of precipitation occurs over a few hours. It is therefore unlikely that this pump station can be designed with a peaking factor that causes the pump rate to exceed 400 gpm. We need as-built slope information on the interceptor pipes and hourly/daily meter data from 2013 to finalize the modeling and confirm these initial results.

In our opinion, a design with a peaking factor is unnecessary since this pump station is not proposed to function with a peaking factor. The station would pump approximately 300,000 gpd at a pump rate of 300-400 gpm every day regardless of upstream usage increases or inflow/infiltration. All wastewater in this part of the Chester Creek system beyond 300,000 gpd will be conveyed to West Goshen. Further, the pump station is proposed to have controls to shut off the pumps (or close a diversion valve) when influent flows at the RCSTP reach a critical level that either the plant or RCCS sewer system cannot accommodate (possibly dictated by the water level in the influent wet well).

Alternative 1 (force main tie in at 8" collection sewer in Bow Tree), and Alternatives 2 and 2A (force main tie in at 15" RCCS interceptor), are based upon the flow control scenario in which no gravity sewers are upgraded. In the event the Township envisions utilizing this pump station for increased variability of flows or for accommodation of wet weather flows to the RCSTP, the interceptor will likely need to be upgraded as included in Alternatives 3 through 6. It is our understanding that there is no intent to increase the flow rate from this pump station because any increases would necessitate a further expansion of the RCSTP. Therefore, we do not recommend Alternatives 3 through 6.

We recommend Alternative 2A. It is projected to be less costly and less risky than Alternative 2 as noted above. Although the initial capital cost for Alternative 2A is more than Alternative 1, Alternative 2A avoids shortcomings associated with Alternative 1 and has a short payback period as explained below. In our opinion, the long-term cost savings and reduced risk of problems justify Alternative 2A over Alternative 1.

- *Long-Term Cost Savings* – The Alternative 1 force main would connect to a collection sewer in a residential neighborhood, and there may be odor issues from the force main discharge. Odor control chemicals can be added at the pump station to proactively address odors as is done at other pump stations in the Township, but the addition of odor control equipment will significantly increase construction costs and normal operations costs. Odor control would not be needed with Alternative 2A since the force main would discharge directly into the RCCS interceptor a few manholes upstream of the RCSTP, so the odor control system costs would be avoided with Alternative 2A. The odor control system installation cost is only around \$15,000, but the major cost of the odor control system would be the chemical material cost. As per Custom Environmental Technology, Inc., a chemical vendor, the

estimated annual chemical material cost would be \$91,250 (see attached quote). The estimated capital cost difference between Alternative 1 and 2A is \$367,000, so the payback period for avoiding odor control with Alternative 2A is four years.

- In Alternative 1, an 8" force main would be discharging into the same size gravity collection sewer, which is not ideal. Modeling indicates the 8" gravity sewer has capacity, but the pipe will be flowing quite full at most times, could become completely full if I/I increases, would have little capacity tolerance if any pipe blockages occur, and could cause a surcharge of flow into lateral connections.
- There are nine manholes between the Alternative 1 force main tie-in and the interceptor sewer. These manholes will be subject to hydrogen sulfide deterioration. Although the attached cost estimate is based upon only lining three manholes to proactively address concrete corrosion, it is possible that more manholes would need to be lined in the future (or as part of the force main construction project).

Additional Planning

Alternative 2A will require additional planning effort for field survey and wetlands investigation beyond that which has already been performed for Alternative 1. The additional effort would include the route change along Misak Drive and Anne Drive as well as the extra approx. 3,100 LF to the interceptor. We expect wetlands will be encountered between Bow Tree and the interceptor near the creek. Future engineering design would include costs to prepare necessary permits as well as address design concerns imposed to avoid/mitigate impacts to wetlands and any other identified PNDI conflicts.

END OF MEMO

Attachments: "West Goshen Diversion Project Identification and Evaluation of Potential Diversion Locations" memo (2009) including Figure 1
Figure 2
Concept Layout Exhibits of Alternatives 1-6
Cost Analyses for Alternatives 1-6
Custom Environmental Technology, Inc. odor control quote letter, dated 12/6/2013

(2009)

MEMORANDUM

TO: Rick Smith, Township Manager

From: Evan R. Andrews, P.E. Authority Engineer
Justin A. Scarth, P.E. Project Engineer

RE: West Goshen Diversion Project
Identification and Evaluation of Potential
Diversion Locations

Background

As part of the Act 537 Special Study for the West Goshen Diversion Project, Pennoni reviewed the available flow information and sewer mapping to identify potential locations suitable to divert wastewater from the West Goshen (Chester Creek) service area to the Ridley Creek Sewage Treatment Plant (RCSTP). This diversion is intended to reduce and maintain East Goshen's wastewater discharge to West Goshen below the limit of 1.0 MGD established in the inter-municipal agreement between the two Townships.

The April 2007 "Wastewater Needs Evaluation" projected ultimate future wastewater production within East Goshen on the basis of full build-out of currently undeveloped land to local zoning limits. The evaluation projected an ultimate future wastewater production within the Ridley Creek and West Goshen service areas of approximately 1.7 MGD with approximately 1.3 MGD within the current West Goshen service area and 0.4 MGD within the Ridley Creek service area. The evaluation recommended diversion of approximately 0.3 MGD from the West Goshen service area to the Ridley Creek STP which is being upgraded and expanded to a capacity of 0.75 MGD.

There are three diversion projects currently in planning (Figure 1). These are the Hershey Mill Pump Station diversion with a capacity of approximately 62,000 GPD (includes diversion of the Reserve Pump Station), the Marydell Pump Station elimination and diversion with a capacity of approximately 7,000 GPD; and the Lochwood Chase STP elimination and diversion with a capacity of approximately 20,000 GPD. The total planned flow to be diverted to the RCSTP is approximately 85,000 GPD or 0.085 MGD.

Additional Diversion Areas

There are additional areas within the existing West Goshen drainage shed that could be diverted and treated by the RCSTP. Four individual areas have been identified as possible candidates for diversion. These areas combined could transfer up to 1,235 additional EDUs (at 225 GPD/EDU) to the Ridley Creek STP drainage shed or 0.278 MGD (Figure 1).

Additional Diversion Area #1

The first diversion option would entail construction of a new Pump Station near Wilson Drive where flows from West Goshen first enter into East Goshen Township. This option would

presumably take all current flows from West Goshen and transfer them to the Ridley Creek STP. East Goshen's meter at Wilson Drive indicates a diversion here would redirect an average of approximately 70,000 GPD. The pump station would need to be sized to not only account for the average flow but to handle the peak flows expected plus additional reserve capacity for foreseeable increases in flow. This proposal would require approximately 5,200 LF of forcemain assuming a connection on Buena Vista Lane and installation along Boot Road.

The new pump station and forcemain would be required to handle the peak flows generated by West Goshen Township as it enters East Goshen Township. Any future developments for flows generated upstream of the pump station in West Goshen would be subject to the capacity provided by this pump station and could at some point be restricted if capacity is not sufficient. It is estimated that this option would cost approximately \$1.1 million to construct (\$15.71/GPD).

Additional Diversion Area #2

The second area identified for diversion includes the area between Baker Drive and Chester Road from Strasburg Road to Gateswood Drive (approximately 50,000 GPD). Transferring sewage from this area would require a new pump station near the intersection of Reservoir Road and Strasburg Road. The proposed forcemain would be approximately 5,100 LF long and connect near the intersection of Beaumont Court and Bow Tree Drive.

The new pump station and forcemain would be required to handle the peak flows generated by the area served. Any developments or additional sewer flows generated would be subject to the capacity provided by the pump station. It is estimated that this option would cost approximately \$1.1 million to construct (\$22.00/GPD).

Additional Diversion Area #3

The third area identified includes the area served by the Ashbridge Pump Station. This area is generally bounded by N. Chester Road (SR 352), Strasburg Road, Hunter's Circle, and West Chester Pike (SR 3). This diversion would be approximately 70,000 GPD and would require rerouting the existing forcemain to the Ridley Creek Water shed. The proposed forcemain extension would be approximately 3,900 LF long and connect to the near the intersection of Beaumont Court and Bow Tree Drive.

Any developments or additional sewer flows generated by the service area would be subject to the capacity provided by the pump station. It is estimated that this option would cost approximately \$0.62 million to construct (\$8.86/GPD).

Additional Diversion Area #4

The fourth area identified includes the area generally bounded by Reservoir Road, N. Chester Road (SR 352), Strasburg Road and West Chester Pike (SR 3) and the area served by the Ashbridge Pump Station (Additional Diversion Area #3). This combined area would divert approximately 133,000 GPD. This would require a new pump station somewhere along the existing gravity line between Lochwood Lane and Chester Creek. The proposed forcemain would be approximately 7,300 LF long and connect to the Ridley Creek STP drainage shed near the intersection of Beaumont Court and Bow Tree Drive.

The new pump station and forcemain would be required to handle the peak flows generated by the area served. Any developments or additional sewer flows would be subject to the capacity provided by the pump station. It is estimated that this option would cost approximately \$1.4 million to construct (\$10.53/GPD).

Additional Diversion Area #5

A fifth area identified includes the area served by the area generally bounded by North Chester Road, the Marydell Pump Station service area, Gateswood Drive, and Baker Drive. This area produces approximately 22,500 GPD of wastewater. Transferring this area's flow would require a new pump station and approximately 2,700 LF of forcemain connected to an existing manhole north of the intersection between Paoli Pike and Boot Road.

The new pump station and forcemain would be required to handle the peak flows generated by the area served. Any developments or additional sewer flows would be subject to the capacity provided by the pump station. It is estimated that this option would cost approximately \$0.82 million to construct (\$36.44/GPD).

Slip Stream Diversion

An alternative to breaking out individual areas and rerouting them to the Ridley Creek service area would be to construct a "slip-stream" system. This arrangement would utilize a single pump station along the existing interceptor line that runs along Reservoir Road and take a portion of the flow (approximately 215,000 GPD) from the trunk line and pump it to the Ridley Creek service area. A presumed location would be near the intersection with Strasburg Road. The proposed forcemain from this location would be approximately 8,700 LF long. The forcemain would be routed to the existing interceptor along Ridley Creek since the existing 8-inch gravity sewer near the intersection of Beaumont Drive and Bow Tree Drive would not likely have adequate capacity.

One advantage of this type of system is that the pump station may not have to be sized to account for large peaks in flow. It could be sized at or near the desired flow capacity and then controlled with a variable speed drive to transfer only the desired amount to the RCSTP. This facility would not limit any future developments or sewer expansions in the drainage shed. It is estimated that the pump station and forcemain would cost approximately \$1.55 million to construct (\$7.18/GPD).

It must be noted that this alternative was presented to the Pa. DEP. During the discussion, the DEP stated that a "Slip Stream" diversion is not their preference as it can complicate intermunicipal agreements and responsibilities for infiltrations and inflow management.

Cost Summary

Diversion	Projected Flow (GPD)	Forcemain Length (FT)	Forcemain Cost	Pump Station Cost	Estimated Total Cost	Estimated \$/GPD
Diversion #1	69,750	5,200	\$ 624,000	\$ 500,000	\$ 1,124,000	\$ 15.71
Diversion #2	49,500	5,100	\$ 612,000	\$ 500,000	\$ 1,112,000	\$ 22.00
Diversion #3	47,250	3,900	\$ 468,000	¹ \$ 150,000	\$ 618,000	\$ 8.86
Diversion #4	112,500	7,300	\$ 876,000	\$ 500,000	\$ 1,376,000	\$ 10.53
Diversion #5	22,500	2,700	\$ 324,000	\$ 500,000	\$ 824,000	\$ 36.44
Slip Stream	215,000	8,700	\$ 1,044,000	\$ 500,000	\$ 1,544,000	\$ 7.18

¹ – Diversion #3 may require upgrades to the existing pump station

Recommendations

It is recommended that the Township pursue the Slipstream Diversion Alternative because it will provide the greatest flow diversion for the least amount of money. By diverting the flow from a single location, the Township will save the redundant capital costs associated with constructing multiple pump stations serving multiple areas with parallel forcemains. It is also estimated that the operation and maintenance costs would be less for one (larger) pump station as compared to multiple smaller pumping stations.

The following recommendations are made based on the evaluation of the identified diversion locations:

- Review the existing intermunicipal agreement with West Goshen to determine if there are restrictions on adjusting flow discharges and the requirements to amend the agreement, if necessary.
- Meet with West Goshen to review the evaluation and the preferred slip stream diversion alternative.
- Present the recommendation to the PA DEP for their comment.
- Complete the Special Study based on the outcome of the meetings with West Goshen and the PA DEP.