
EXHIBIT P2

EAST WHITELAND TOWNSHIP – ACT 537 PLAN DOCUMENTS
(SPECIAL STUDY 2011)

“SPECIAL STUDY”

AS AN AMENDMENT TO

ACT 537

Prepared For:



East Whiteland Township

Living. Working. Learning - Together.



Prepared by:



Engineering for the Environment. Planning for People.™

**1055 Andrew Drive, Suite A
West Chester, PA 19380**

**Revised September 2011
AGC Project No.: 2009-2412**



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Special Study as an Amendment to East Whiteland Township's ACT 537 Plan

ACRONYMS

AGC	Advanced GeoServices Corp.
EDU	Equivalent Dwelling Units
EWT	East Whiteland Township
GPD	Gallons Per Day
K&A	Kohli & Associates, Inc.
MGD	Million Gallons Day
PADEP	Pennsylvania Department of Environmental Protection
P.S.	Pump Station
TAR	Task Activity Report
VFSA	Valley Forge Sewer Authority



1.0 INTRODUCTION

1.1 PURPOSE OF STUDY

A meeting was held on March 15, 2010 at the Pennsylvania Department of Environmental Protection's (PADEP's) regional office in Norristown. Personnel from Kohli & Associates, Inc. (K&A), East Whiteland Township (EWT) and Advanced GeoServices Corp. (AGC) were in attendance at the meeting, with several key PADEP representatives. Guidance was provided by the PADEP regarding a "Special Study" that is necessary to prepare an update to East Whiteland Township's existing Act 537 Plan. This effort focuses on the study areas related to the replacement and upgrade of the Mill Lane Pump Station. The study is required by PADEP and is intended to be completed prior to finalizing the design and permitting for the Mill Lane Pump Station replacement project.

The "Special Study" is necessary to address the needs of the existing sanitary collection and conveyance system, in order to accommodate the upgrade of the Mill Lane Pump Station. This will require the Township to cross-reference the final planning recommendations developed during the study, with Tredyffrin Township's Act 537 Plan Revision for Valley Creek Trunk Sewer projected sanitary flows thru year 2035. The study will focus on the collection and conveyance system upstream and downstream of the Mill Lane Pump Station, and will provide information pertaining to new sanitary sewer service connections and potential flow constrictions. A copy of the Authorization Letter (POS) from PADEP for this Plan of Study and Task Activity Report (TAR) is included in Exhibit 1.

This report intends to outline five specific service areas; which are to be provided with sanitary sewers to serve residential and commercial units totaling 1,644 equivalent dwelling units (EDU's). These areas were outlined in the original 537 Plan report prepared in 1995 approved by the EWT Board of Supervisors in 1996. The areas were expected to be connected in the early 2000's. The majority of the areas are currently served by on-lot sewage disposal systems; and several of the areas represent new development. Many of these on-lot systems are beyond their useful life and repair or replacement is not feasible.



This study is being conducted as a “Special Study” in accordance with Title 25 Chapter 71 of the Pennsylvania Code. Specifically, Chapter 71.1(iii) states that a special study is a study, survey, investigation, inquiry, research, report or analysis which is directly related to an update revision. The studies provide documentation or other support necessary to solve specific problems identified in the update revisions. As a result of this study, all developed areas and projected sanitary sewage flows within the Township will have been accounted for and factored into the 537 Plan. Therefore, the sewer infrastructure planning within this special study report will encompass and account for all remaining unsewered areas within the Township.

1.2 CURRENT EAST WHITELAND TOWNSHIP ACT 537 PLAN SUMMARY

The current Act 537 “Official Plan”, prepared for East Whiteland Township, Chester County, was last revised by a “Special Study” in May 2000 and was adopted by the East Whiteland Township Board of Supervisors. The noted “Special Study” report was prepared by K&A to support Tredyffrin’s Revision for the Valley Creek Trunk Sewer Project and in accordance with Chapter 71 of Title 25 of the Pennsylvania Code.

The EWT Sewage Facilities Plan map, included as Exhibit 2, illustrates the proposed sewage areas reviewed in this study. This map shows that five areas that were proposed to be served by public sewage collection facilities before 2006; and another two were envisioned to be served beyond 2006. From the original 537 Plan report submitted in 1995, the noted major issues regarding future sewage capacity was the capacity limitation of the Wilson Road Pump Station and the Valley Forge Sewage Treatment Plant; which are both located downstream of EWT’s sewage collection system. The report notes that, until the Wilson Road Pump Station is upgraded to accommodate a potential Valley Forge Sewage Plant expansion, EWT may NOT adhere to their policy to serve the proposed areas indicated in their Act 537 Plan by making these connections into their public sewer system. However at this time, Tredyffrin Township has completed an update to their Act 537 Plan for Valley Creek Trunk Sewer to include an upgrade of the Wilson Road Pump Station. The Tredyffrin project is currently in design, and Tredyffrin’s



Special Study as an Amendment to East Whiteland Township's ACT 537 Plan

Act 537 Plan update outlines the proposed future flows that the new Wilson Road Pump Station can accommodate. EWT's future projected flows, including the expansion of the Mill Lane Pump Station, are included in this planning.

The sewer service connections included in this "Special Study" are expected to be connected within the timeframes as noted in Table 1.1. These connections will provide sewer capacity to serve future service areas that were not included in the original Act 537 Plan from 1995. These new areas are Malvern Hunt, Whiteland Village and William Henry Apartments. The Whiteland Village area has undergone planning and design; construction is currently in progress, however the completion has been stalled due to funding constraints. In developing a summary of the future flow projections, it was found that a section of the gravity collection system downstream of the Mill Lane Pump station will need to be replaced to handle future sanitary flows. This gravity sewer section is identified within this report.

The original Act 537 Plan from 1995 contains a figure that illustrates all of the areas discussed within this report, with exception of the new areas Malvern Hunt, Whiteland Village and William Henry Apartments. These areas were on the sewer map, but were not highlighted as part of EWT's system. These areas are expected to be added to the Township's collection system, and have been included in the future flow projections. The referenced figure is included as Exhibit 2 to this "Special Study". Also included is Exhibit 3 which denotes the specific previously planned five (5) Service Areas to be connected, and labels the new Service Areas noted above (Malvern Hunt, Whiteland Village and William Henry Apartments). The five (5) previously planned project Service Areas that will be addressed in this "Special Study" are:

- Area 1: Areas along Route 401 Corridor
- Area 2: Bacton Hill and Swedesford Road Areas
- Area 3: Planebrook Road Area
- Area 4: Church Road Extension to eliminate the Church Road Pump Station (P.S. #. 9)
- Area 5: Immaculata University Area



Exhibit 3 provides a color-coded outline of these areas, and also labels the future areas to be added to the EWT's collection system.

Table 1-1 Anticipated Connection Timeline

Area	Location	When to be serviced
1	Along Rt. 401	2010 - 2015
2	Bacton Hill and Swedesford Road	2010 - 2015
3	Planebrook Area	2010 - 2015
4	Church Road Extension	2015 - 2020
5	Immaculata University	2015 - 2020

Note that the new future areas to be serviced by EWT (Malvern Hunt and William Henry Apartments) are anticipated to be connected between 2020 and 2030 and have been identified in this study for future planning purposes. As noted, Whiteland Village has been approved and is currently in construction. New 8-inch and 10-inch sanitary sewer trunk lines are currently being constructed from Whiteland Village to the Mill Lane Pump Station. Final connections are expected to be completed within the 2011 calendar year. As previously noted, at the time when these areas are connected to the sewers, this will encompass the total Township sanitary sewer service area.

1.3 EAST WHITELAND TOWNSHIP CHAPTER 94 REVIEW

East Whiteland Township has been allocated to contribute a peak capacity of 9.5 million gallons per day (MGD) (3.8 MGD average) to the Valley Creek Trunk Sewer (as noted in the EWT 1995 Act 537 Plan Report). This total flow includes a 300,000 GPD allocation from Charlestown Township, which is conveyed to EWT. From the revised projected average flow at year 2035 for East Whiteland Township (see Exhibit 4), the projected average flow for the Township will be ~3.6 MGD. This is within the allocation of the average flow of 3.8 MGD.



2.0 WORK TO BE COMPLETED FOR NEW SERVICE AREAS TRIBUTARY TO THE MILL LANE PUMPING STATION

2.1 PROJECT SERVICE AREAS

2.1.1 Area 1 - Areas along Route 401 Corridor (2010 – 2015)

The area along Route 401 includes existing and projected flows from 147 EDUs and an allocated flow of 24,000 gallons per day (GPD) for the Malvern Courts mobile home park. This area is proposed to be served by public sewer between the years 2010 and 2015. A sanitary sewer line was extended from Charlestown Meadows (Charlestown Township Development, located at Rt. 401 and Newcomen Road) along Route 401 to the Hillbrook Pump Station (P.S. # 11). This sanitary sewer line will serve all development (existing and proposed) in this area. Eventually, it is anticipated that this sewer extension will permit the connection of Malvern Court, which is one of the new Service areas. Malvern Court is currently served by an onsite privately owned and operated wastewater treatment facility. Therefore, the connection of these sewers within this service area will facilitate the decommissioning and removal of the existing privately owned treatment facility. These sanitary sewer flows will be conveyed to the Mill Lane Pump Station.

2.1.2 Area 2 - Bacton Hill and Swedesford Road Areas (2010 – 2015)

Sanitary sewers will be extended along Bacton Hill Road and along South Bacton Hill Road to eliminate existing on-lot sewer systems. This area also includes the Swedesford Road area which conveys projected flows from 300 EDUs and is proposed to be connected to the public sewer system between 2010 and 2015. These sanitary sewer flows will be conveyed to the Mill Lane Pump Station.



2.1.3 Area 3 – Planebrook Area (2010 – 2015)

The Planebrook area includes existing and projected flows from 195 EDUs, and a majority of the existing residential dwellings are served by 30 – 35 year old on-lot sewer systems. The sanitary sewer extension from Whiteland Village (currently planned and partially constructed) will facilitate connection to the Planebrook Area located on the south side of Rt. 202 and will also provide access to the properties located on the north side of Swedesford Road and will extend to Bacton Hill Road area.

2.1.4 Area 4 - Church Road Extension - To Eliminate Church Road Pump Station (2015 – 2020)

Presently, the Church Road Pump Station (P.S. # 9) flow is ~168,500 GPD. Additionally, there are 5 projected EDUs that will be connected to the Church Road Pump Station. The Church Road Pump Station pumps the sanitary sewage to a manhole located at the intersection of Church Road and Rt. 30. The sewage then continues via a gravity sewer along Rt. 30 to the Westgate Pump Station (P.S. # 8). The Westgate Pump Station pumps the sanitary sewage to another gravity sewer line, which flows to Tredyffrin Township. Currently, this flow is not tributary to the Mill Lane Pump Station.

With the planned gravity sewer extension from Swedesford Road; it is anticipated that the Church Road Pump Station can be eliminated and the sewage will be collected by the gravity sewer to the Mill Lane Pump Station. This gravity sewer will also collect the sewage from the Church Road area.

2.1.5 Area 5 - Immaculata University Area (2015 – 2020)

The Immaculata University and surrounding area is located in the southwestern portion of the Township. Immaculata University has been allocated 250,000 GPD of sanitary sewage flow. Once Immaculata is connected, the William Henry apartments may also be connected; this will



add approximately 75,000 GPD. This area is anticipated to be connected between 2015 and 2020; which will provide time for the Wilson Road Pump Station and Valley Forge Treatment Plant to be upgraded.

Since the Whiteland Village sewer has been extended to Swedesford Road; the connection of the Immaculata University service area is dependent upon the extension of the gravity sewer from Swedesford Road to the Church Road Pump Station (P.S. # 9). The sanitary sewer flows from the Immaculata University service area can then be extended to this sewer line and will be conveyed to the Mill Lane Pump Station.

2.2 REVIEW OF ALTERNATIVES

With exception to the Church Road area, the other four proposed service areas under consideration in this "Special Study" are serviced by on-lot sewage disposal systems. Since sewer infrastructure will be within a reasonable distance from each of these service areas at the proposed times indicated as part of the Implementation Schedule, the most feasible alternative will be to connect these service areas to the public sewer system and eliminate the on-lot sewage disposal systems.

The Church Road area sewer configuration currently requires the sewage flow to be pumped from Pump Station #9 (Church Road PS) to a gravity sewer that flows to Pump Station #8 (Westgate PS). The sanitary sewage is pumped twice in this current configuration. Therefore, the most feasible alternative for this service area is to eliminate the redundant pumping, connect the remaining customers with on-lot sewage disposal systems and tie this area into the Mill Lane Pump Station collection system.



2.3 IMPLEMENTATION

2.3.1 Cost

The estimated probable construction costs to expand the sanitary sewer conveyance system to accomplish the outlined work are as follows:

Area 1 - Areas along Route 401 Corridor

The estimated construction cost of this project is approximately \$920,000; which excludes the road surfacing cost.

Area 2 – Bacton Hill and Swedesford Road Area

The estimated construction cost of this project is approximately \$975,000; which excludes the road surfacing costs.

Area 3 - Planebrook Road Area

The estimated construction cost of this project is approximately \$270,000; which excludes the road surfacing costs.

Area 4 - Church Road Extension

The estimated construction cost of this project is approximately \$300,000; which excludes the road surfacing cost.



Area 5 - Immaculata University Area

The estimated construction cost of this project is approximately \$1,125,000; which excludes the road surfacing cost.

2.3.2 Funding

Financing of these projects will be accomplished through the Board of Supervisors of East Whiteland Township. Refer to Exhibit 8 for additional information.

2.3.3 Schedule

It is anticipated that each individual project and the work associated with these projects will generally be completed within an 8 to 12 months once authorization to proceed is received by EWT. Refer to Section 6.0 for additional information pertaining to the Implementation Schedule.

2.3.4 Operation and Maintenance

All sanitary sewer facilities to be constructed under this "Special Study" will be owned and operated by East Whiteland Township. The sanitary sewer lines and manholes will be constructed within the Township owned rights of way or easements obtained prior to the start of any construction. In the event that new pump stations and force mains are deemed necessary, additional planning will be provided to PADEP for review and approval, permit applications will be submitted and all local communities and agencies will be notified appropriately. These facilities will also be constructed within the Township owned rights of way or easements obtained prior to the start of any construction.

New facilities will fall under the Maintenance Plan currently in place by East Whiteland Township. This Plan includes the periodic cleaning and flushing of sewer lines and manholes,



inspections of pump stations, as well as, the maintenance associated with pump station operations.

It is clear that EWT, as owner of these new facilities, will be responsible for the care and maintenance of all gravity sewers, manholes, force mains and proposed pump stations.

2.4 CONCLUSIONS

Based upon the information provided above, it is concluded that all of the units within the five proposed Study Areas will be best served by providing extensions of the existing sanitary sewer facilities to connect these areas. These sewer extensions will also provide the ability for the Township to connect all proposed “new” service areas as outlined herein.

Also, the previously agreed upon sanitary sewer flow allocations from EWT to Tredyffrin Township (as outlined in Tredyffrin’s Revision for the Valley Creek Trunk Sewer Project) are adequate and coincide with the projected flows of EWT at year 2035, which includes the five proposed Study Areas and new Service Areas. At a point in the future, the five proposed Study Areas will be within a reasonable distance of gravity collection system sewers. It is our opinion and best judgment that the suitable alternative is to provide these areas with public sewage and eliminate on-lot sewer systems and privately owned treatment facilities.



3.0 SUMMARY OF ALL OTHER SERVICE AREAS TRIBUTARY TO THE MILL LANE PUMPING STATION

As illustrated on the attached drawing (See Exhibit 3), "Drainage areas and projected flows: East Whiteland Township" updated July 2008, the flows from areas in Point "A" (outlined in yellow) will be conveyed to Mill Lane Pump Station (P.S. # 2). The exception is with the flow from the area that serves the Deer Run Pump Station (P.S. # 1), since this is separate and is not tributary to Mill Lane Pump Station. Below is the summary of Mill Lane Pump Station projected flows, including the projected flows from the five (5) proposed project Study Areas and the new Service areas outlined in this "Special Study".

Table 3-1 Mill Lane Pump Station Projected Flows with Charlestown (Average & Peak)

Year	Current and Projected Average Daily Flows		DEP Peaking Factor*	Current and Projected Peak Flows		TDH
	(GPD)	(GPM)		(GPM)	(FEET)	
2010	817,600	568	3.13	1,777	150	
2015	1,380,455	959	2.94	2,816	183	
2025	2,126,055	1,476	2.81	4,152	142**	
2035	2,304,805	1,601	2.78	4,454	151**	

* Peaking Factors were extracted from PADEP Domestic Wastewater Facilities Manual.

** Assumes that the force main from the Mill Lane PS will be replaced prior to 2025 (from a 14-inch to a 20-inch)

For year 2035, the projected peak hourly flow of Mill Lane Pump Station will be 4,454 GPM (~6.4 MGD).



4.0 REVIEW OF SANITARY SEWER COLLECTION SYSTEM DOWNSTREAM OF MILL LANE PUMPING STATION

4.1 GRAVITY TRUNK SEWERS WITHIN EAST WHITELAND TOWNSHIP

The gravity trunk sewers within EWT downstream of the Mill Lane Pump Station start from Manhole 2-6 (18"), which is the discharge manhole for the pump station, to Manhole 21-5 (36"). Below in Table 4-1 are the critical capacities of each major section of the sewer trunk line.

Table 4-1: Critical Sewer Capacities Downstream of Mill Lane Pump Station

Segment	Critical Capacity (MGD)*	Estimated Peak Flow (MGD) 2019	Estimated Peak Flow (MGD) 2029
MH 2-6 to MH 8-2(18")	7.06	6.00	6.03
MH 8-2 to MH 8-12(20")	7.81	6.00	6.03
MH 8-12 to MH 18-2(20")	6.21	6.55**	6.95**
MH 18-2 to MH 18-14(20")	5.98	6.90**	7.30**
MH 18-14 to MH 19-4(20")	6.21	7.25**	7.43**
MH 19-4 to MH 20-3(24")	11.05	9.00	9.35
MH 20-3 to MH 20-8(27")	11.79	9.00	9.35
MH 20-8 to MH 21-4(27")	12.64	9.00	10.68
MH 21-4 to MH 21-5(36")	17.95	9.00	10.68

* Data from Exhibit 5 of East Whiteland Township Sanitary Sewer System Evaluation, prepared by Kohli and Associates, Inc on June 22, 2005.

** Sewer Section Capacity exceeded starting 2019

From the results of the evaluation which includes the review of the historic projected flow data, it is noted that the future projected flows will exceed the capacities of three of the sewer trunk line segments; (1) MH 8-12 to MH 18-2 (20"), (2) MH 18-2 to MH 18-14 (20"), and (3) MH 18-14 to MH 19-4 (20"). As noted, these three sewer trunk line segments will need to be replaced before year 2019 with 24-inch piping. Refer to Exhibit 5 for a map of these segments.



Since the projected flows that include the five proposed Study Areas and the new Service Areas will be implemented by 2020; we are recommending that these sewer segments be replaced in a similar timeframe. This will assure that the existing Sewer capacities will not be exceeded. Refer to Section 6.0 for the Implementation Schedule.

4.2 REVIEW OF COLLECTION SYSTEM WITHIN TREDYFFRIN TOWNSHIP IN MOST RECENT ACT 537 PLAN UPDATE

The majority of EWT's flow is discharged to manhole No. LV77A located at the Tredyffrin - East Whiteland boundary. The flow is metered by the Matthews Road meter chamber. A small portion of EWT's flow, which is also metered, discharges to the Willistown Sewer System.

4.2.1 Gravity Trunk Line Tributary to Wilson Road Pumping Station

East Whiteland Township's flow will be transferred to the Wilson Road Pump Station via the trunk sewer line labeled as LV. The LV trunk sewer generally extends in an east to west direction from the Tredyffrin – East Whiteland boundary to the Wilson Road Pump Station, which is located near the point where Valley Creek crosses under the Pennsylvania Turnpike. The capacity evaluation (Table 7 from the Act 537 Plan Revision for Valley Creek Trunk Sewer) indicates that all except one segment of LV trunk sewer line has adequate capacity to convey the projected wastewater flows through the year 2035. Several pages from Table 7 are included as Exhibit 6 to this "Special Study" for reference. Additional capacity modeling completed after the initial capacity evaluation of this trunk sewer segment suggests that there is adequate capacity to convey the projected sanitary flows. Prior to proposing improvements to add sanitary sewage flows to the EWT's collection system; the Township will notify VFSA and Tredyffrin Township of the intent and confirm that capacity is available.



The limited capacity sewer trunk line segment is projected to occur within Manhole LV 58 to LV 57 by the year 2018 (based on projected flows). This segment of sewer is situated where the Valley Creek Trunk Sewer crosses under U.S. Route 202. The location is shown on Exhibit 7 of this "Special Study" (Also on Figure 3 and Figure 10 in the ACT 537 Plan Revision for Valley Creek Trunk Sewer). The pipe capacity is noted to be approximately 12.7 MGD. This capacity has been projected to be exceeded at year 2018; however as noted additional modeling has indicated that the capacity is available to convey the 2035 projected flows. Three alternatives are provided in the above mentioned Act 537 Plan; (1) enlarge existing sewer; (2) install parallel sewer; and (3) no action. In this Tredyffrin Act 537 the alternative recommended is installation of a parallel sewer. For details, please reference Chapter 6.1.2 and Chapter 6.2.2 of Tredyffrin Township Act 537 Plan Revision for Valley Creek Trunk Sewer. As noted, the sewer system capacities will be confirmed prior to adding additional sanitary sewer flows to the collection system.

The projected flows for EWT within the study period between 2010 and 2015 will not affect this capacity limit situation. However, as noted, the flow capacities will be confirmed for sewer collection system connection projects beyond 2015 to avoid capacity problems as a result of the projected flows for EWT.

4.2.3 Wilson Road Pumping Station Capacity

Currently, the Wilson road Pumping Station has the capacity for a peak flow of 16.27 MGD, and an average daily flow of 7.07 MGD. An ACT 537 Plan update was completed for the Wilson Road Pumping Station in 2008. The 537 Plan Revision was adopted by the affected municipalities in March of 2008, and was approved by PADEP on February 13, 2009. The Act 537 Plan recommended, and PADEP approved, a Phase 1 capacity increase to a peak flow of 20.16 MGD, and an average daily flow of 8.77 MGD. The Phase 1 capacity increase matches the capacity of the Wilson Road Pumping Station force main. Design of the Phase 1 was completed in 2009. Construction is expected to occur during the years 2010 and 2011.



The Phase 1 capacity increase, in consideration of the municipal wastewater flow projections set forth in Tredyffrin ACT 537 Plan Revision for Valley Creek Trunk Sewer, is expected to be adequate until the year 2025. In order to meet the projected capacity needs from 2025 through 2035, the capacity of the Wilson Road Pumping Station will need to be increased to a peak flow of 22.71 MGD (or an average daily flow of 9.87 MGD) by 2025.

The projected flows for EWT within this study period will not affect this capacity limit situation within the Wilson Road Pump Station.

4.2.4 Wilson Road Force Main to the Valley Forge Sewer Authority

The Wilson Road Pumping Station force main is approximately 19,300 feet long, 30-inches in diameter and extends from the Wilson Road Pumping Station to the Valley Forge Sewer Authority (VFSA) Wastewater Treatment Plant in Schuylkill Township, Chester County. Approximately two-thirds of the entire force main length is situated within Valley Forge Park.

The force main capacity is adequate for the current rated capacity of the Wilson Road Pumping station of 16.27 MGD (peak flow) and for the anticipated Phase 1 capacity increase to 20.16 MGD (peak flow). Therefore, based on current wastewater flow projections contained in the Act 537 Plan Revision for Valley Creek Trunk Sewer, the force main capacity should be adequate until year 2025. In order to meet the projected capacity needs from 2025 through 2035, the capacity of the Wilson Road Pumping Station force main (in conjunction with a commensurate capacity increase of the Wilson Road Pumping Station) will need to be increased to a peak flow of 22.71 MGD (9.87 MGD average daily flow) by 2025.

The projected flows for EWT within this study period will not affect this capacity limit situation within the Wilson Road Pump Station force main.



5.0 CONCLUSIONS

The average daily flow projected at year 2035 for East Whiteland Township (~3.6 MGD) will not be changed as a result of the projects outlined in this “Special Study”. Therefore, the proposed new Study Areas and Service Areas outlined herein will simply provide the potential to eliminate on-lot sewage systems and privately owned treatment facilities. It is our opinion and best judgment that the suitable alternative is to provide these areas with public sewerage provided that the following actions occur in the timeframes noted within the Implementation Schedule in Section 6.0:

1. Replace the 14-inch force main from the MLPS with a 20-inch force main. The sanitary sewer flows to and from the MLPS will be monitored via flow metering equipment as new connections are added to the collection system. EWT will provide additional planning when it is determined that the force main capacity must be increased. It is estimated that this will occur prior to year 2025; however the actual timeframe will be dependent on funding availability to connect the service areas outlined.
2. Enlarge the pipe size to 24-inch for the sewer sections between (1) MH 8/12 to MH 18-2, (2) MH 18-2 to MH 18-14 and (3) MH 18-14 to MH 19-4 within the EWT collection system before year 2019.
3. Improve the capacity of gravity sewer trunk line from MH LV58 to MHLV57 in Tredyffrin Township before year 2018. The recommended alternative in Tredyffrin Township’s Act 537 Plan revision for Valley Creek Trunk Sewer is to install a parallel sewer in order to improve capacity.
4. Refer to Exhibits 8 and 9 for additional clarification in response to PADEP comments.



Special Study as an Amendment to East Whiteland Township's ACT 537 Plan

6.0 IMPLEMENTATION SCHEDULE

<u>TASK</u>	<u>DATE</u>
Act 537 Plan Special Study adoptions	January 31, 2010
Act 537 Plan Special Study submitted to PADEP	September 30, 2010
Complete Design of Pump Station	February 25, 2011
Submit WQM Part II Permit Application	June 17, 2011
Submit Joint Permit Application	June 17, 2011
Obtain WQM Part II Permit	August 2011
Obtain Joint Permit	August 2011
Advertise for construction bids	September 2011
Receive Bids	September 2011
Award Construction Contract	October 2011
Issue Notice to Proceed	October 2011
Complete Construction	May 2012
New pump station online	June 2012
Provide Planning/Easement Information to PADEP for Area 1	August 2012
Complete Design, Permitting for Area 1	December 2012
Complete Bidding and Construction for Area 1	July 2013
Provide Planning/Easement Information to PADEP for Area 2	August 2013
Complete Design, Permitting for Area 2	December 2013
Complete Bidding and Construction for Area 2	July 2014
Provide Planning/Easement Information to PADEP for Area 3	August 2014
Complete Design, Permitting for Area 3	December 2014
Complete Bidding and Construction for Area 3	August 2015
Provide Planning Information to PADEP for Sewers Downstream of MLPS (MH 8-12 to MH 19-4)	December 2016
Complete Design, Permitting for Sewers Downstream of MLPS (MH 8-12 to MH 19-4)	July 2017



Special Study as an Amendment to East Whiteland Township's ACT 537 Plan

Complete Bidding and Construction for Sewers Downstream of MLPS (MH 8-12 to MH 19-4)	July 2018
Provide Planning/Easement Information to PADEP for Area 4	October 2018
Complete Design, Permitting for Area 4	February 2018
Complete Bidding and Construction for Area 4	September 2018
Provide Planning/Easement Information to PADEP for Area 5	December 2018
Complete Design, Permitting for Area 5	June 2019
Complete Bidding and Construction for Area 5	March 2020
Provide Planning Information to PADEP for New MLPS Force Main	August 2020
Complete Design, Permitting for New MLPS Force Main	February 2021
Complete Bidding and Construction for New MLPS Force Main	February 2022

*Note: This schedule is a general estimate of timeframes for implementation of the noted projects based on projected sanitary sewage flows outlined in EWT's sanitary sewer needs analysis. EWT will continue to closely monitor the sanitary sewage flow volumes and will initiate these improvements as the flows meet trigger points as noted in the Special Study.

EXHIBIT 1

Special Study Act 537 Plan Update – Plan of Study Authorization Letter And Scope of Work Letter



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHEAST REGIONAL OFFICE

July 23, 2010

Ms. Terry H. Woodman, Manager
East Whiteland Township
209 Conestoga Road
Frazer, PA 19355

Re: Act 537 – Special Study Act 537 Plan Update – Plan of Study
Mill Lane Pumping Station
East Whiteland Township
Chester County

Dear Ms. Woodman:

We have completed our review of your municipality's proposed Plan of Study (POS), as prepared by Mr. Jack Polce, P.E., of Advanced GeoServices dated May 3, 2010, and a proposed Task Activity Report (TAR) dated July 8, 2010.

The proposed Special Study will evaluate the hydraulic flows for areas within East Whiteland Township's (Township) sanitary collection and conveyance system tributary to the Mill Lane Pumping Station (MLPS). In addition, the proposed Special Study will provide planning for the upgrade and replacement of the MLPS to accommodate flows coming from the service area of the MLPS, including flows from existing development, new development, new sanitary connections from neighboring communities, and from communities or subdivisions previously using on-site sewage disposal systems or privately owned treatment facilities.

The hydraulic capacities of the downstream collection and conveyance systems, including Tredyffrin Township's Valley Creek Trunk Sewer and Wilson Road Pumping Station and the Valley Forge Sewer Authority's sanitary system, will be summarized to verify that these systems can accommodate the future projected sanitary sewer flows from the Township. Please ensure that documentation from the downstream receiving authorities is included in the plan. This documentation must confirm that capacity exists within these downstream conveyance and treatment facilities for the increased flow coming from the upgraded MLPS.

Approval of this proposed POS and TAR is hereby granted. The estimated cost of the plan is \$42,487.

Please note, however, that this POS approval does not constitute a final action by the Department of Environmental Protection (Department). When a completed plan is submitted to us, we will act upon it consistent with Pa. Code Title 25, Chapter 71.

KOHLI AND ASSOCIATES, INC.

42 LLOYD AVENUE

MALVERN, PA 19355

(610) 644-5591

FAX (610) 647-9212

SURENDER S. KOHLI, P.E.
PRESIDENT

CONSULTING ENGINEERS

May 3, 2010

Mr. Keith Dudley
PA Department of Environmental Protection
Southeast Regional Office
2 E. Main St.
Norristown, PA 19401

**RE: Scope of Work Outline for "Special Study" Act 537 Plan Amendment
East Whiteland Township / Mill Lane Pumping Station**

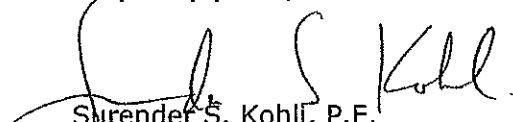
Dear Mr. Dudley:

At our meeting held on March 15, 2010 at your offices in Norristown; guidance was provided regarding the need for a "Special Study" that is necessary to develop an update to East Whiteland Township's existing Act 537 Plan. This study effort will focus on the hydraulic flows for the areas within the Township's sanitary collection and conveyance system related to the upgrade and replacement of the Mill Lane Pumping Station. Also, downstream of the Mill Lane Pumping Station, the Township's sanitary sewer is collected via a gravity trunk sewer line that crosses over into Tredyffrin Township and continues to the Wilson Road Pumping Station. The Wilson Road Pumping Station then pumps the sanitary sewage to the Valley Forge Wastewater Treatment Plant located in Schuylkill Township. The study will provide a review of Tredyffrin Township's most recent Act 537 Plan and will summarize the hydraulic capacities of the downstream collection and conveyance system tributary to the Wilson Road Pumping Station and the Valley Forge Sewer Authority to verify that these systems can accommodate the future projected sanitary sewer flows from East Whiteland Township.

The Mill Lane Pumping Station is being upgraded and replaced for two reasons; 1) the pumping station is over 30 years old, and 2) the station does not have space availability to expand operations and accommodate future projected sanitary sewer flows. The increase in capacity is to accommodate new development, new sanitary connections from neighboring communities and from communities or subdivisions previously using septic (or onsite sewage disposal) systems or privately owned treatment facilities. This study will identify these specific areas as an amendment to the Township's current Act 537 Plan and will quantify the projected increase in sanitary sewer flows for the collection and conveyance system tributary to the Mill Lane Pumping Station.

Mr. Keith Dudley
Scope of Work Outline for "Special Study" Act 537 Plan Amendment
May 3, 2010
Page 3

Very truly yours,



Surender S. Kohli, P.E.
Project Manager

SSK:jlpcpw

cc: Terry H. Woodman, East Whiteland Township
William H. Steele, East Whiteland Township

EXHIBIT 2

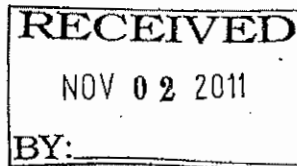
EWT Sewage Facilities Plan



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHEAST REGIONAL OFFICE



OCT 31 2011

Ms. Terry Woodman, Manager
East Whiteland Township
209 Conestoga Road
Frazer, PA 19355-1699

Re: Act 537 Special Study
Mill Lane Pumping Station
Status: ISSUED
APS ID 38912, AUTH ID 854870
East Whiteland Township
Chester County

Dear Ms. Woodman:

We have completed our review of your municipality's proposed Official Sewage Facilities Plan Special Study for the Mill Lane Pumping Station in East Whiteland Township (Township), Chester County, entitled Special Study as an amendment to East Whiteland Township Act 537 for the Mill Lane Pumping Station Upgrade (Special Study), as prepared by Kohli & Associates, Inc., dated September 2010. This Special Study is being submitted to the Department of Environmental Protection (Department) in accordance with the provisions set forth by Section 5 of the Pennsylvania Sewage Facilities Act and Chapter 71, the Administration of Sewage Facilities Program. Additional information was received by the Department of Environmental Protection (Department) on July 11, 2011. The review was conducted in accordance with the provisions set forth by Section 5 of the Pennsylvania Sewage Facilities Act and Chapter 71, the Administration of Sewage Facilities Program.

Approval of the Special Study is hereby granted. This approval provides for the following:

1. The establishment of project service areas that make up the sewer service area of the Township. These areas are delineated on the plan labeled East Whiteland Township, which was prepared by Kohli and Associates, Inc., and last revised April 2004. The delineations for this Special Study were added to this plan in 2011. These areas include:

Area	Location	When Implemented
1	Along Route 401	2010-2015
2	Planebrook and Bacton Hill Road	2010-2015
3	Swedeford Road	2010-2015
4	Church Road Extension	2015-2020
5	Immaculata University	2015-2020
New Area 1	Malvern Hunt	2020-2030
New Area 2	Whiteland Village	2010-2015
New Area 3	William Henry Apartments	2020-2030

- a. Area 1 – the extension of sanitary sewers along Route 401 to serve existing and proposed development in this area, including the connection of the Malvern Courts mobile home park, which is currently served by a privately owned and operated wastewater treatment facility.
 - b. Areas 2 and 3 – sanitary sewer extensions along Bacton Hill Road, Swedesford Road, and the Planebrook area of the Township to serve existing and proposed development in these areas.
 - c. Area 4 – the extension of sanitary sewers from Swedesford Road along Church Road to serve existing and proposed development in the Church Road area and which will allow for the abandonment and decommissioning of the Church Road Pump Station (PS 9).
 - d. Area 5 – extension of the proposed sanitary sewer main along Church Road (Area 4) to serve Immaculata University.
 - e. New Area 1 – commitment to initiate additional sewage facilities planning to connect the existing Malvern Hunt development to public sewer.
 - f. New Area 2 – sanitary sewer extension from the Whiteland Village development that is currently under construction to the existing sanitary sewer in Swedesford Road.
 - g. New Area 3 – commitment to initiate additional sewage facilities planning to connect the existing William Henry Apartments to public sewer. Connection to public sewer for this area will be dependent on the extension of public sewers to Immaculata University.
2. The expansion of the Mill Lane Pumping Station (MLPS) to accommodate total average annual flows of 2,304,805 gallons of sewage per day (gpd), which accounts for the existing flows to the pump station and the projected flows to the year 2035 for the service area tributary to the pump station.
 3. The replacement of existing 20-inch sanitary sewer mains with 24-inch sanitary sewer mains from Manholes 8-12 to 18-2, 18-2 to 18-14, and 18-14 to 19-4. The permitting and construction of these sanitary sewer replacement sections shall be completed no later than the dates listed in the implementation schedule for these steps.

OCT 31 2011

4. The replacement of the existing 14-inch MLPS force main from the MLPS to Manhole 2-6 with a 20-inch force main. The permitting and construction of these sanitary sewer replacement sections shall be completed no later than the dates listed in the implementation schedule for these steps.

Please note that additional sewage facilities planning may not be required for some of the projects listed in your implementation schedule. Please contact the Department prior to initiating planning for proposed sewage facilities not shown on the submitted sewer service map. The Department will determine if planning is needed for specific projects upon receipt of additional documentation.

Please note that any new land developments associated with this plan will not be eligible for exemptions from sewage facilities planning under Chapter 71, Section 71.51(b)(2), until after the receiving facilities have been constructed. Applicants proposing projects that will coordinate new development construction with the construction of municipal conveyance or treatment facilities must submit Sewage Facilities Planning Modules for adoption by the municipality and approval by the Department.

East Whiteland Township must secure Clean Streams Law permits from the Department for the construction and operation of their proposed sewerage facilities.

We acknowledge that the Township will initiate a study to evaluate options to connect the Malvern Courts Mobile Home Park to public sewers once the MLPS expansion is complete and operational.

Documentation has been submitted that indicates that new dynamic flow modeling of Tredyffrin Township's Valley Creek Trunk Sewer from Section LV57 to LV58 shows that sufficient capacity exists in this sewer section to serve the Township's projected 2035 flows. However, field verification of the actual capacity of this sewer section has not been performed. The Valley Creek Trunk Sewer 537 Plan currently being reviewed by the Department has proposed engineering investigations to determine the actual capacity of the existing sanitary sewer. Please note that the outcome of these engineering investigations may affect the implementation of your plan. The Township should contact the Department with an amended implementation schedule regarding Areas 4 and 5 and New Areas 1 and 3, should this investigation result in there not being sufficient capacity within this sewer for the Township's projected flows.

OCT 31 2011

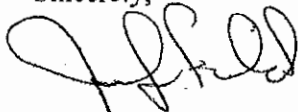
Any person aggrieved by this action may appeal, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. Section 7514, and the Administrative Agency Law, 2 Pa.C.S. Chapter 5A, to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, P.O. Box 8457, Harrisburg, PA 17105-8457, 717.787.3483. TDD users may contact the Board through the Pennsylvania Relay Service, 800.654.5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this action unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in braille or on audiotape from the Secretary to the Board at 717.787.3483. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS. YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD.

IMPORTANT LEGAL RIGHTS ARE AT STAKE; HOWEVER, SO YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD (717.787.3483) FOR MORE INFORMATION.

If you have any questions, please contact Ms. Kelly Boettlin of this office at the phone number located in the first page footer.

Sincerely,



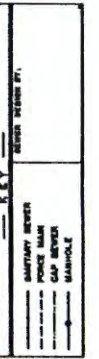
Jenifer Fields, P.E.
Regional Manager
Water Management

cc: Chester County Planning Commission
Chester County Health Department
Chester County Conservation District
Mr. Steele – East Whiteland Township
Tredyffrin Township
Valley Forge Sewer Authority
Mr. Kohli – Kohli & Associates, Inc.
Mr. Polce – Advanced GeoServices Corporation
Mr. O'Neil
Mr. Wolfinger
Planning Section
Re 30 (GJE11WQ)258

EXHIBIT 3

EWT Sewage Facilities Plan – Five New Service Areas

- P.S.1 - DEER RUN
- P.S.2 - MILL LANE
- P.S.3 - WILBERDALE
- P.S.4 - LEE BOULEVARD
- P.S.5 - MEADOWVIEW
- P.S.5 - FLAT ROAD
- P.S.7 - LAPP ROAD
- P.S.8 - WESTGATE
- P.S.9 - CHURCH ROAD
- P.S.10 - FRAME AVENUE
- P.S.11 - HILLBROOK CIRCLE
- P.S.12 - KING ROAD
- P.S.13 - MALVERN HUNT



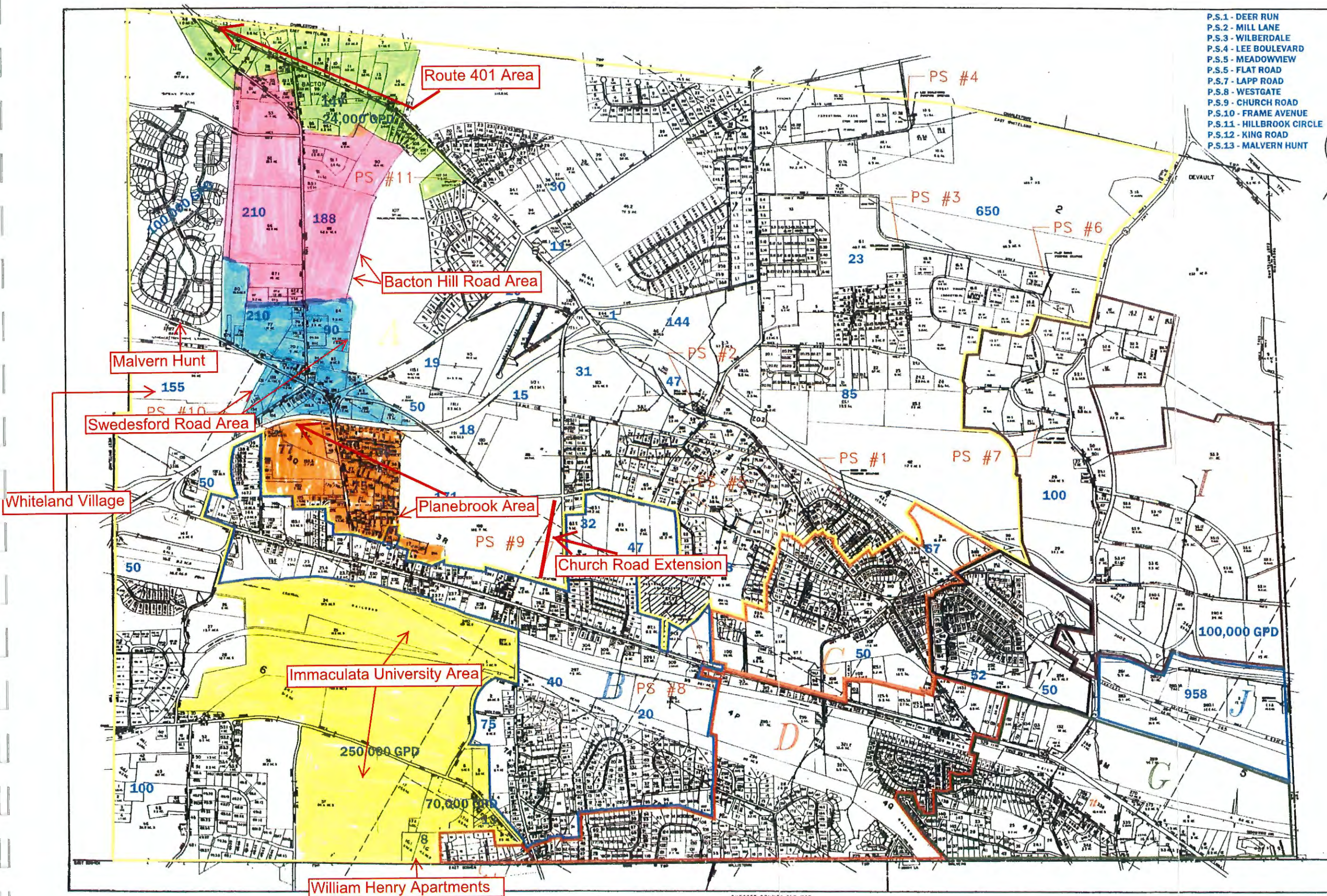
DRAINAGE AREAS AND PROJECTED FLOWS:

EAST WHITELAND TOWNSHIP

CHESTER COUNTY, PENNA.
KOHL AND ASSOCIATES, INC.
Township Engineer



JULY 2008
JUNE 2006





KEY

- SANITARY SEWER
- WATER MAIN
- POW. MAIN
- POW. SERVICE
- POW. SERVICE
- POW. SERVICE

Revised April 2004

EAST WHITELAND TOWNSHIP
CHESTER COUNTY, PENNA.
KOHLE AND ASSOCIATES, INC.
Township Engineer



LEGEND

- DISTRICT ONE
- DISTRICT TWO
- POW. SERVICE
- POW. SERVICE

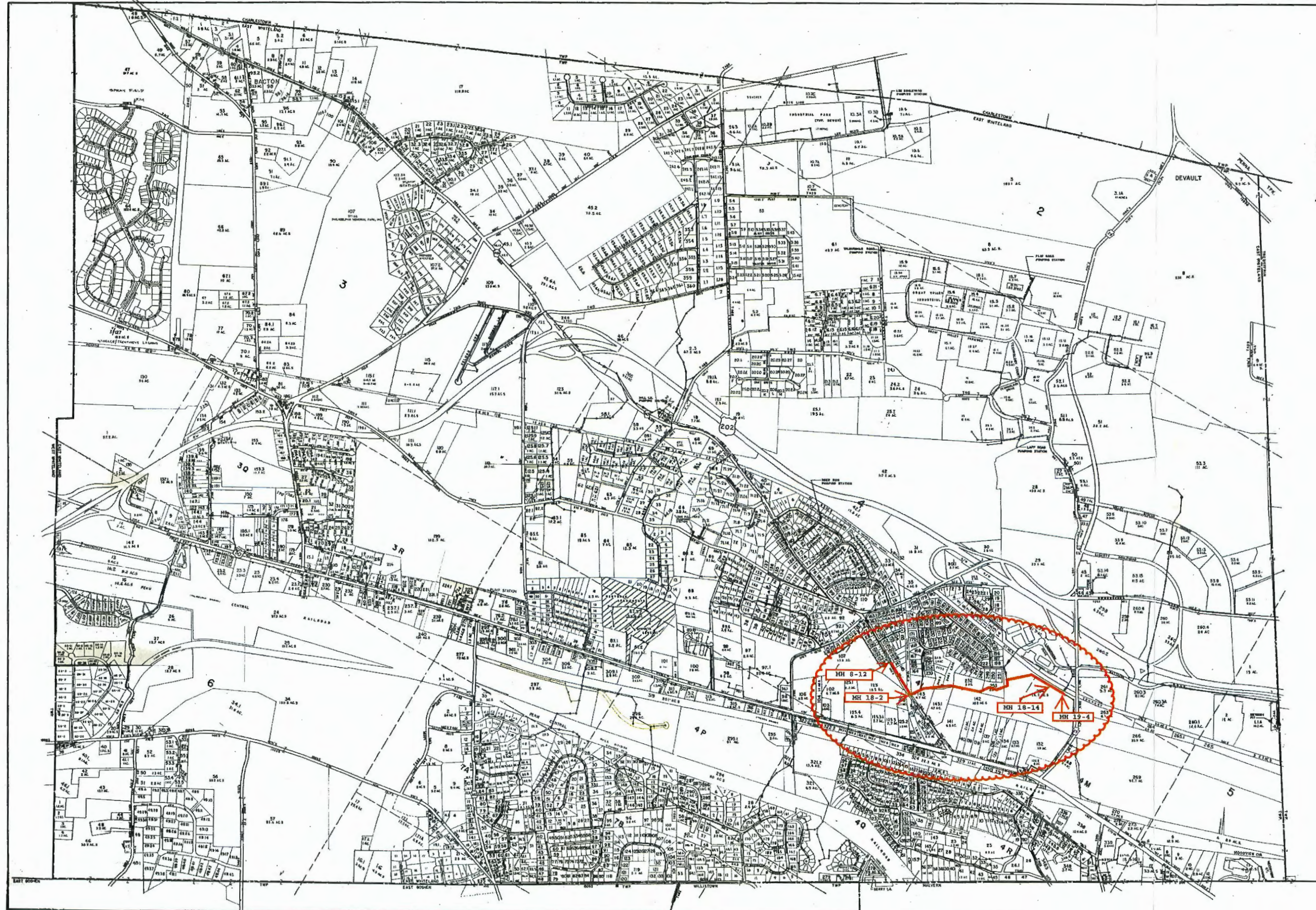


EXHIBIT 4

Projected Flows for East Whiteland Township up to Year 2035

Table 1. Mill Lane Pump Station Projected Flows(Average)*
(Revised 7/22/10 according to Surrender's guides)

7/19/2010 rev 7/22/10

	Total EDUs Scheduled to Connected to Date	Projected Flows(Avg.)	Unit
Year 2010			
Includes the following flows:			
P.S. #2 (Current)		817,600	GPD
Current flow at 2010		817,600	GPD
Year 2015			
Includes the following flows:			
P.S. #2 (Current)		817,600	GPD
Charlestown (Projected)		83,000	GPD
Plane Brook Area(Projected)	195	53,625	GPD
Property along Rt.401(Projected) I	147	40,425	GPD
Property along Rt.401(Projected) II		24,000	GPD
Bacton Hill	398	109,450	GPD
Swedesford Road Area	300	82,500	GPD
Church Road Pump Station(Current)		168,480	GPD
Church Road Pump Station(Projected)	5	1,375	GPD
Projected Average Flow		1,380,455	GPD
Year 2025			
Includes the following flows:			
2015 Projected Avg. Flow		1,380,455	GPD
Malvern Hunt(Projected)		100,000	GPD
Immaculata University(Projected)		250,000	GPD
William Henry Apartments(Projected)		70,000	GPD
Other EDUs I	1184	325,600	GPD
Projected Average Flow		2,126,055	GPD

Year 2035

Includes the following flows:

2025 Projected Avg. Flow		2,126,055	GPD
Other EDUs II	650	178,750	GPD
Projected Average Flow		2,304,805	GPD

* These projected flows are prepared according to Kohli's guidance on 7/21/2010

Exhibit "2" revision

8/22/2010

Charlestown is not included; 650 EDUs at Point "A" only

	Total EDUs Scheduled to Connected to Date	Projected Flows(Avg.)	Unit
Point "A"			
Includes the following flows:			
P.S. #1 (Current)		14700	GPD
P.S. #2 (projected 2035)		2,221,805	GPD
Projected flow at 2035		2,236,505	GPD
Point "B"			
Includes the following flows:			
P.S. #8 (Current)		272,300	GPD
other flow	287	78,925	GPD
Projected Average Flow		351,225	GPD
Point "C"			
Includes the following flows:			
Point "A"		2,236,505	GPD
Point "B"		351,225	GPD
other flow	469	128,975	GPD
Projected Average Flow		2,716,705	GPD
Point "D"			
Includes the following flows:			
Pump #12 (current)		50,850	GPD
other flow	356	97,900	GPD
Projected Average Flow		148,750	GPD
Point "E"			

Includes the following flows:

Point "C"	2,716,705	GPD
Point "D"	148,750	GPD
Projected Average Flow	2,865,455	GPD

Point "F"

Includes the following flows:

Point "E"	2,865,455	GPD
other flow	239	65,725 GPD
Projected Average Flow	2,931,180	GPD

Point "G"

Includes the following flows:

other flow	594	163,350 GPD
Projected Average Flow	163,350	GPD

Point "H"

Includes the following flows:

Point "F"	2,931,180	GPD
Point "G"	163,350	GPD
Projected Average Flow	3,094,530	GPD

Point "I"

Includes the following flows:

Point "H"	3,094,530	GPD
P.S.#7 (current)	157,500	GPD
(west) industrial park area(projected)	37,500	GPD
(east) industrial park area(projected)	100,000	GPD
other flow	100	27,500 GPD
Projected Average Flow	3,417,030	GPD

Point "J"

Includes the following flows:

Point "I"		3,417,030	GPD
other flow	958	263,450	GPD
Projected Average Flow	(650 EDU in point "A")	3,680,480	GPD

EXHIBIT 5

Valley Creek Trunk Sewer – Sewer Capacity Evaluation

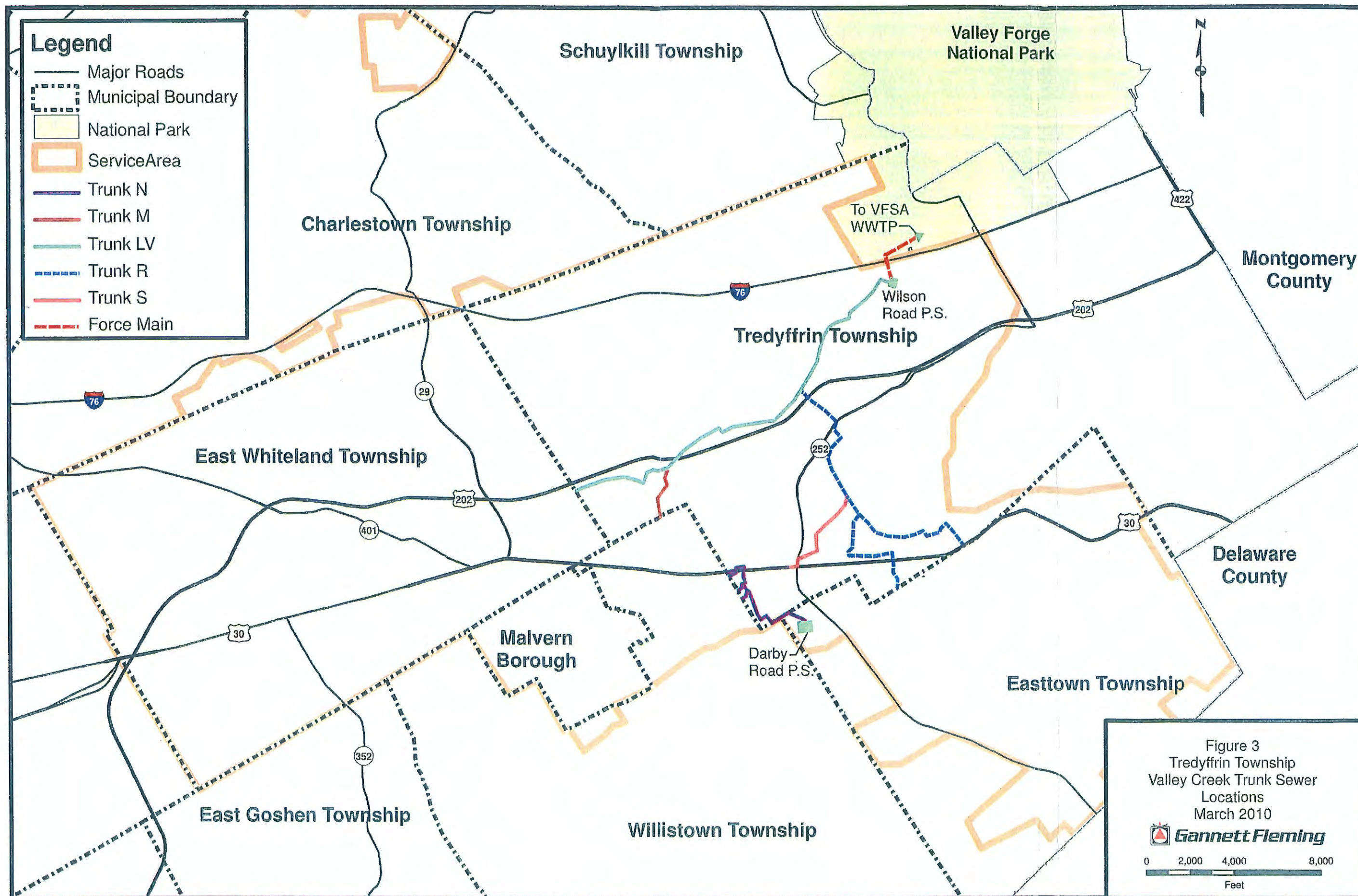


Figure 3
Tredyffrin Township
Valley Creek Trunk Sewer
Locations
March 2010
 **Gannett Fleming**
0 2,000 4,000 8,000
Feet

EXHIBIT 6

Trunk Sewer Segments to be Replaced Downstream of Mill Lane PS

7
 y Creek Trunk Sewer
 Capacity Evaluation
 Affrin Township, Chester County

EXHIBIT 6

4/20/07

Replacement Pipe Information										90% Capacity Evaluation									
Stationing	Pipe Material	Pipe Size (in)	Length (ft)	Flow (MGD)	Velocity (ft/s)	Head Loss (ft)	Refr. Coef.	Manning (ft ² /s)	Manning (ft ² /s)	Manning (ft ² /s)	Manning (ft ² /s)	Manning (ft ² /s)	Manning (ft ² /s)	Manning (ft ² /s)	Manning (ft ² /s)	Manning (ft ² /s)	Manning (ft ² /s)	Manning (ft ² /s)	Manning (ft ² /s)
R2A	18	199.9	0.0509	1.767	0.376	0.013	0.013	15.343	7.396	7.317	7.787	8.046	PASS						
R2	18	70.3	0.0569	1.767	0.376	0.013	0.013	16.222	7.396	7.317	7.787	8.046	PASS						
R1A	27	301.9	0.0216	3.975	0.563	0.013	0.013	29.427	7.396	7.317	7.787	8.046	PASS						
LV32	27	318.9	0.0115	3.975	0.563	0.013	0.013	21.472	7.396	7.317	7.787	8.046	PASS						

SECTION 5										SECTION 6									
M47	18	280.7	0.0140	1.767	0.376	0.013	0.013	8.046	2.975	3.170	3.230	3.258	PASS						
M46	18	119.6	0.0337	1.767	0.376	0.013	0.013	12.484	2.975	3.170	3.230	3.258	PASS						
M45	15	12.0	0.1467	1.227	0.313	0.013	0.013	16.005	2.975	3.170	3.230	3.258	PASS						
M44	15	179.0	0.0960	1.227	0.313	0.013	0.013	12.880	2.975	3.170	3.230	3.258	PASS						
M43	15	378.9	0.0297	1.227	0.313	0.013	0.013	7.202	2.975	3.170	3.230	3.258	PASS						
M42A	15	181.8	0.0258	1.227	0.313	0.013	0.013	6.712	2.975	3.170	3.230	3.258	PASS						
M42A	15	112.2	0.0250	1.227	0.313	0.013	0.013	6.607	2.975	3.170	3.230	3.258	PASS						
M41	15	276.7	0.0637	1.227	0.313	0.013	0.013	10.547	2.975	3.170	3.230	3.258	PASS						
M40	15	136.3	0.0637	1.227	0.313	0.013	0.013	10.547	2.975	3.170	3.230	3.258	PASS						
M1D	15	312.4	0.0150	1.227	0.313	0.013	0.013	5.118	2.975	3.170	3.230	3.258	PASS						
M1C	15	280.9	0.0214	1.227	0.313	0.013	0.013	6.113	2.975	3.170	3.230	3.258	PASS						
M1B	15	203.4	0.0247	1.227	0.313	0.013	0.013	6.567	2.975	3.170	3.230	3.258	PASS						
M1A	16	132.4	0.0150	1.386	0.334	0.013	0.013	6.080	2.975	3.170	3.230	3.258	PASS						
M1	15	218.5	0.0271	1.227	0.313	0.013	0.013	6.879	2.975	3.170	3.230	3.258	PASS						
LV59	15	120.5	0.0276	1.227	0.313	0.013	0.013	6.942	2.975	3.170	3.230	3.258	PASS						

SECTION 6										SECTION 7									
LV77	27	273.0	0.0049	3.975	0.563	0.013	0.013	14.016	6.203	7.367	8.837	10.557	PASS						
LV76A	27	269.0	0.0049	3.975	0.563	0.013	0.013	14.016	6.203	7.367	8.837	10.557	PASS						
LV76	27	214.8	0.0049	3.975	0.563	0.013	0.013	14.016	6.203	7.367	8.837	10.557	PASS						
LV75	27	405.4	0.0049	3.975	0.563	0.013	0.013	14.016	6.203	7.367	8.837	10.557	PASS						
LV74	27	190.8	0.0278	3.975	0.563	0.013	0.013	33.384	6.203	7.367	8.837	10.557	PASS						

Table 7
Valley Creek Trunk Sewer
Sewer Capacity Evaluation
Tredyffrin Township, Chester County

LV74	LV73A	27	300.0	0.0076	3.975	0.563	0.013	17.455	6.203	7.367	8.837	10.557
LV73A	LV73	27	199.0	0.0076	3.975	0.563	0.013	17.455	6.353	7.742	9.428	11.245
LV73	LV72	27	137.0	0.0070	3.975	0.563	0.013	16.752	6.353	7.742	9.428	11.245
LV72	LV71	27	205.0	0.0072	3.975	0.563	0.013	16.990	6.353	7.742	9.428	11.245
LV71	LV70	27	121.0	0.0072	3.975	0.563	0.013	16.990	6.353	7.742	9.428	11.245
LV70	LV69	27	387.0	0.0103	3.975	0.563	0.013	20.321	6.353	7.742	9.428	11.245
LV69	LV68	27	155.0	0.0083	3.975	0.563	0.013	18.241	6.353	7.742	9.428	11.245
LV68	LV67	27	190.0	0.0083	3.975	0.563	0.013	18.241	6.353	7.742	9.428	11.245
LV67	LV66	27	180.0	0.0083	3.975	0.563	0.013	18.241	6.853	7.742	9.428	11.245
LV66	LV65	27	180.7	0.0081	3.975	0.563	0.013	18.020	6.353	7.742	9.428	11.245
LV65	LV64	27	233.6	0.0083	3.975	0.563	0.013	18.241	6.353	7.742	9.428	11.245
LV64	LV63	27	246.0	0.0050	3.975	0.563	0.013	14.158	6.353	7.742	9.428	11.245
LV63	LV62	27	93.0	0.0050	3.975	0.563	0.013	14.158	6.353	7.742	9.428	11.245
LV62	LV61	27	212.0	0.0080	3.975	0.563	0.013	17.909	6.353	7.742	9.428	11.245
LV61	LV60	27	138.0	0.0080	3.975	0.563	0.013	17.909	6.353	7.742	9.428	11.245
LV60	LV59	27	250.0	0.0080	3.975	0.563	0.013	17.909	6.353	7.742	9.428	11.245
LV59	LV58	30	287.1	0.0083	4.907	0.626	0.013	24.168	9.218	10.851	12.648	14.527
LV57	LV56	30	112.1	0.0095	4.907	0.626	0.013	25.857	9.218	10.851	12.648	14.527
LV56	LV55	30	435.0	0.0091	4.907	0.626	0.013	25.306	9.304	10.927	12.726	14.612
LV55	LV54	30	441.0	0.0091	4.907	0.626	0.013	25.306	9.304	10.927	12.726	14.612
LV54	LV53	33	369.5	0.0030	5.937	0.688	0.013	18.722	9.304	10.927	12.726	14.612
LV53	LV52	33	275.1	0.0030	5.937	0.688	0.013	18.722	9.304	10.927	12.726	14.612
LV52	LV51	33	421.7	0.0148	5.937	0.688	0.013	41.585	9.304	10.927	12.726	14.612
LV51	LV50	33	152.0	0.0030	5.937	0.688	0.013	18.722	9.304	10.927	12.726	14.612
LV50	LV49	33	81.2	0.0031	5.937	0.688	0.013	19.032	9.304	10.927	12.726	14.612
LV49	LV47	33	689.7	0.0064	5.937	0.688	0.013	27.346	9.589	11.208	13.048	14.991
LV47	LV46	33	121.3	0.0085	5.937	0.688	0.013	31.515	9.589	11.208	13.048	14.991
LV46	LV45	33	365.0	0.0055	5.937	0.688	0.013	25.350	9.589	11.208	13.048	14.991

R:\31409\033\Rp\Tables\Table 7_2010.xls

Table 7
 Alley Creek Trunk Sewer
 Sewer Capacity Evaluation
 Reddyfryn Township, Chester County

LV45	LV44	33	185.0	0.0035	5.937	0.688	0.013	20.223	9.589	11.208	13.048	14.991	PAS
LV44	LV43	33	399.0	0.0035	5.937	0.688	0.013	20.223	9.589	11.208	13.048	14.991	PAS
LV43	LV42	33	156.0	0.0030	5.937	0.688	0.013	18.722	9.589	11.208	13.048	14.991	PAS
LV42	LV41	33	139.0	0.0030	5.937	0.688	0.013	18.722	9.589	11.208	13.048	14.991	PAS
LV41	LV40	33	331.0	0.0030	5.937	0.688	0.013	18.722	9.888	11.470	13.319	15.284	PAS
LV40	LV39	33	292.2	0.0058	5.937	0.688	0.013	26.033	9.888	11.470	13.319	15.284	PAS
LV39	LV38	33	298.6	0.0058	5.937	0.688	0.013	26.033	9.888	11.470	13.319	15.284	PAS
LV38	LV37	33	113.0	0.0058	5.937	0.688	0.013	26.033	9.888	11.470	13.319	15.284	PAS
LV37	LV36	33	183.5	0.0058	5.937	0.688	0.013	26.033	9.888	11.470	13.319	15.284	PAS
LV36	LV35	33	277.5	0.0058	5.937	0.688	0.013	26.033	9.888	11.470	13.319	15.284	PAS
LV35	LV34	33	276.9	0.0060	5.937	0.688	0.013	26.478	9.888	11.470	13.319	15.284	PAS
LV34	LV33	33	146.5	0.0102	5.937	0.688	0.013	34.523	9.888	11.470	13.319	15.284	PAS
LV33	LV32	33	271.6	0.0084	5.937	0.688	0.013	31.329	9.889	11.470	13.319	15.284	PAS
LV32	LV31	33	118.7	0.0400	5.937	0.688	0.013	68.365	14.407	16.086	18.441	20.928	PAS
LV31	LV30	33	174.7	0.0050	5.937	0.688	0.013	24.171	14.407	16.086	18.441	20.928	PAS
LV30	LV29	33	258.0	0.0050	5.937	0.688	0.013	24.171	14.476	16.155	18.513	21.004	PAS
LV29	LV28	33	357.0	0.0050	5.937	0.688	0.013	24.171	14.476	16.155	18.513	21.004	PAS
LV28	LV27	33	356.0	0.0050	5.937	0.688	0.013	24.171	14.476	16.155	18.513	21.004	PAS
LV27	LV26	33	190.0	0.0050	5.937	0.688	0.013	24.171	14.476	16.155	18.513	21.004	PAS
LV26	LV25	33	173.0	0.0050	5.937	0.688	0.013	24.171	14.476	16.155	18.513	21.004	PAS
LV25	LV24	33	197.0	0.0050	5.937	0.688	0.013	24.171	14.476	16.155	18.513	21.004	PAS
LV24	LV23	33	210.0	0.0166	5.937	0.688	0.013	44.041	14.476	16.155	18.513	21.004	PAS
LV23	LV22	48	140.0	0.0119	12.56	1.000	0.013	101.221	14.476	16.155	18.513	21.004	PAS
LV22	LV21	46	430.0	0.0048	12.56	1.000	0.013	64.287	14.603	16.424	18.846	21.388	PAS
LV21	LV20	48	270.0	0.0048	12.56	1.000	0.013	64.287	14.603	16.424	18.846	21.388	PAS
LV20	LV19	48	416.0	0.0120	12.56	1.000	0.013	101.646	14.603	16.424	18.846	21.388	PAS
LV19	LV18	46	410.0	0.0029	12.56	1.000	0.013	49.969	14.603	16.424	18.846	21.388	PAS
LV18	LV17	48	258.0	0.0030	12.56	1.000	0.013	50.823	14.603	16.424	18.846	21.388	PAS
LV17	LV16	48	330.0	0.0076	12.56	1.000	0.013	80.892	14.603	16.424	18.846	21.388	PAS

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Table 7
Valley Creek Trunk Sewer
Sewer Capacity Evaluation
Tredyffrin Township, Chester County

LV16	LV15B	48	162.1	0.0010	12.56	1.000	0.013	29.343	14.603	16.424	18.846	21.388
LV15B	LV15A	48	90.5	0.0010	12.56	1.000	0.013	29.343	14.784	16.615	19.046	21.604
LV15A	LV15	48	192.8	0.0010	12.56	1.000	0.013	29.343	14.784	16.615	19.046	21.604
LV15	LV14	48	400.0	0.0010	12.56	1.000	0.013	29.343	14.784	16.615	19.046	21.604
LV14	LV13	48	400.0	0.0010	12.56	1.000	0.013	29.343	14.847	16.680	19.113	21.675
LV13	LV12	48	450.0	0.0010	12.56	1.000	0.013	29.343	15.010	16.825	19.263	21.836
LV12	LV11	48	450.0	0.0010	12.56	1.000	0.013	29.343	15.173	16.969	19.412	21.997
LV11	LV10	48	500.0	0.0050	12.56	1.000	0.013	65.612	15.173	16.969	19.412	21.997
LV10	LV9	48	284.4	0.0050	12.56	1.000	0.013	65.612	15.173	16.969	19.412	21.997
LV9	LV8	48	149.4	0.0010	12.56	1.000	0.013	29.343	15.336	17.114	19.562	22.158
LV8	P.S.	48	48.0	0.0010	12.56	1.000	0.013	29.343	15.902	17.609	20.074	22.713

Special Study as An amendment to East Whiteland Township ACT 537

EXHIBIT 7

Location of Trunk LV and Potential Capacity for Tredyffrin Township

LEGEND

—●— EXISTING

—●— CAPACITY DEFICIT SECTIONS



Figure 10
Tredyffrin Township
Valley Creek Trunk Sewer
Trunk LV
Capacity Deficit Sections
September 2009

 **Gannett Fleming**

Scale: 1" = 400'

EXHIBIT 8

DEP Response Letter 1

KOHLI AND ASSOCIATES, INC.

42 LLOYD AVENUE

MALVERN, PA 19355

(610) 644-5591

FAX (610) 647-9212

CONSULTING ENGINEERS

SURENDER S. KOHLI, P.E.
PRESIDENT

March 15, 2011

2009-2412

Ms. Kelly Boettlin
Department of Environmental Protection
Southeast Regional Office
2 E. Main St.
Norristown, PA 19401

RE: "Special Study" Act 537 Plan Amendment – Response to PADEP Comments
East Whiteland Township / Mill Lane Pumping Station Replacement Project

Dear Ms. Boettlin:

The department's initial preliminary review has indicated that the plan update is incomplete and not in accordance with the provisions set forth in Chapter 71. The intent of the responses herein is to provide the requested information noted in the Department's letter dated November 12, 2010 and to insure that this information meets the provisions of Chapter 71 regarding the 537 planning process and warrants an approval of the plan amendment by the Department.

The following is a summary of each of the questions; followed by corresponding answers and a description of additional attached documentation, where appropriate:

1. Section 3.0 in the submitted Special Study provides projected flows for the Mill Lane Pump Station (MLPS). However, there appears to be no information provided on what will be involved in the replacement and upgrade of the MLPS. Please provide the following with regard to the MLPS:
 - a. The current permitted average annual flows for MLPS.

The pump station was originally rated for 1,400 GPM (~2.0 MGD). Currently the pump station is averaging approximately 820,000 GPD (~0.8 MGD). The purpose of the new pump station is two-fold, 1) to meet the future anticipated average and peak flows based on projected service area connections (these service areas were included as part of the original 537 Plan Report completed and approved in 1996 and last revised in May of 2000); and 2) to replace the existing station which is 30-years old and nearing its service life.

b. The proposed average annual flows for the expanded MLPS.

Below is Table 3.1 from the Special Study; which outlines the proposed average annual flow projections for the expanded MLPS. The replacement of the MLPS is the first step towards preparing for the sewer connections associated with the five (5) proposed project Study Areas described in the Special Study; which are to be connected to the sewer collection system tributary to the MLPS within the next 10 years.

Table 3-1 - Mill Lane Pump Station Projected Flows with Charlestown (Average & Peak)

Year	Current and Projected Average Daily Flows		DEP Peaking Factor*	Current and Projected Peak Flows	
	(GPD)	(GPM)		(GPM)	(FEET)
2010	817,600	568	3.13	1,777	150
2015	1,380,455	959	2.94	2,816	183
2025	2,126,055	1,476	2.81	4,152	142**
2035	2,304,805	1,601	2.78	4,454	151**

* Peaking Factors were extracted from PADEP Domestic Wastewater Facilities Manual.

** Assumes that the force main from the Mill Lane PS will be replaced prior to 2025 (from a 14-inch to a 20-inch)

c. How is the MLPS proposed to be upgraded? Will the pumps be replaced with larger pumps?

A new pump station will be built adjacent to the existing pump station in a new larger building and will be equipped with larger pumps. Initially, the pump station will be equipped with three pumps (2 duty, 1 standby) and each pump will be designed to pump 1,600 GPM (~2.3 MGD) at ~200' of total dynamic head. Also, in order to handle future projected flows; East Whiteland Township will have the option to expand the pump station by adding a fourth pump, if necessary. The new pump station will add pump capacity to handle future projected sanitary sewer flows, pumping redundancy and pumping flexibility for the Township.

d. A note on Table 3-1 indicates that the force main from the MLPS will be replaced prior to 2025 from a 14-inch to a 20-inch. Please clarify if this refers to the force main from the pump station to where the gravity sewers begin at Manhole 2-6. Will the force main be replaced as part of this upgrade? At what point will the Township initiate the replacement of this force main?

To clarify, the note on Table 3-1 refers to the force main from the existing MLPS to Manhole 2-6 where the gravity sewers begin. The force main will NOT be replaced as part of this pump station replacement project. Based on future projected flows for the pump station, it is recommended that the force main from the MLPS to Manhole 2-6 be replaced prior to year 2025 in order to keep the total hydraulic head requirements within an optimal range. This force main replacement will be dependent on the accuracy of the future projected flows.

- e. At what point will the Township initiate the upgrade of the MLPS?

Currently, the Township has authorized the design of the new proposed MLPS. The design is approximately 95% complete and it is anticipated that the design will be submitted to the Department for permitting in February or March of 2011. Construction is anticipated to start in late Spring or early Summer of 2011.

- f. What are the estimated costs associated with the upgrade to the MLPS, and how does the Township propose to fund these improvements?

The estimated costs associated with the upgrade of the MLPS are anticipated to be approximately \$2.0 to \$2.5 MM. The Township will fund this project through a combination of monies from the Township's Sewer Reserve Fund, monies from a bond issuance and/or grant funds.

2. Please confirm that flows from other pump stations within the Township are not tributary to the MLPS.

Exhibit 1 for this response letter attached illustrates the pump stations that are tributary to the MLPS, and provides the current rated capacity of each pump station. The future projected flows for the MLPS include the projected flows from all pump stations tributary to the MLPS.

3. Please confirm that the flow from the MLPS will not be tributary to other pump stations within the Township.

The MLPS discharges at Manhole 2-6; and then the sanitary sewage flows via gravity to Tredyffrin Township. The MLPS is not tributary to any other pump stations within East Whiteland Township. See Exhibit 2 attached.

4. Section 2.3.4 indicates that all sanitary sewer facilities to be constructed under this Special Study will be owned and operated by the Township. The submitted Special Study also discusses enlarging certain sewer sections downstream of the MLPS by 2019. However, it is unclear what exactly will be constructed upon implementation of this Special Study. Please clarify what actions are proposed to be completed upon approval of this Special Study.

It is the intent of the Township for this Special Study to serve as the final planning module for sewer improvements as outlined in the original Act 537 Plan approved by the Department in 1996 and last updated or amended in 2000. Therefore, the sewer improvements and connections outlined in this study will encompass and account for all remaining sewage planning areas within the Township. Additional information is included in the Special Study report to reflect the force main replacement (from 14" to 20") and for the enlargement of the sanitary sewer sections downstream of the MLPS.

5. In addition, please provide a detailed implementation schedule for the implementation of this Special Study. This implementation schedule should include milestones for the permitting, construction, and completion of the proposed sanitary sewer facilities mentioned in Item 4 above. Dates can be time dependent on prior milestones.

An implementation schedule is provided in the "Special Study" report illustrating projected milestone dates for completing the permitting, construction and completion of the planned improvements noted in Item 4 above.

6. Section 2.3.4 also states that the sanitary sewer lines and manholes will be constructed within the Township-owned rights-of-way or easements obtained prior to the start of any construction. Please clarify if any easements will be required for the sanitary sewer facilities proposed as part of this Special Study, and if easements will be necessary, does the Township foresee any issues obtaining the necessary easements.

For Area's 1, 2 and 3 of the "Special Study"; which are areas that were previously included in the approved Act 537 Plan, there will not be a need to obtain additional easements. For Area 4 (Church Road Extension), it is anticipated that an existing easement will need to be extended through Chester Valley Golf Club to complete this work; however EWT does not foresee any issues with obtaining this easement extension. For Area 5 (Immaculata University Area), a new easement will likely be necessary to connect to the public sewer; however EWT does not foresee any issues with obtaining this easement, since sewer connection has been an ongoing discussion with the University. For the "new" development areas not included as part of the approved Act 537 Plan (Malvern Hunt, Whiteland Village and William Henry Apartments); easements will be necessary to extend sewer infrastructure to these areas, however EWT does not foresee any issues with obtaining these easements. These "new" areas will be connected to new sewers that will be constructed in the next 10 years. Finally, for several of these sewer improvement projects, a PennDOT road crossing permit will be necessary. EWT has obtained these permits on numerous occasions previously; therefore it is not anticipated that these road crossings will create any issues. The work will be coordinated with PennDOT and standard PennDOT construction practices will be used.

7. Section 2.3.4 also states that in the event that new pump stations and force mains are deemed necessary, they will also be constructed within the Township-owned rights-of-way or easements obtained prior to the start of any construction. Please note that additional sewage facilities planning will be required prior to the construction of any new pump stations and force mains.

It is acknowledged that additional sewage facilities planning will be provided for any new pump station and force mains. At this time, the only potential planned force main project is to replace the MLPS force main within the next 5 to 10 years.

8. Section 2.3.2 states that the financing of these projects will be accomplished through the Board of Supervisors of the Township. Please elaborate. Does the Township have the funds available to be able to implement the construction of the new sewers? If the Township does not have funds available, how does the Township propose to raise the necessary funds? Also, please note that your plan must identify a contingency financing method in the event that the primary method identified is not available.

EWT will fund these projects through a combination of monies from the Township's Sewer Reserve Fund, monies from a bond issuance and/or grant funds. Contingency methods will be from one of these three sources depending on the timing of the sewer improvement projects.

9. Section 2.3.3 indicates that these projects will generally be completed within 8 to 12 months once authorization to proceed is received by the Township. Please clarify what conditions would cause the Township to not authorize construction of the new sewers.

EWT currently has ordinances containing sewer connection criteria for existing development. Many of these existing developments contain aging on-lot sewer systems. Therefore, EWT intends to complete these projects in order to assure that the infrastructure is available to make these connections and eliminate these aging on-lot sewer systems; therefore it is anticipated that authorization will be provided.

10. Please provide map(s) showing the proposed conceptual extensions in each area as well as the path from the MLPS to Manhole LV77A on the LV trunk sewer. These map(s) should be at a scale large enough to distinguish the detail shown and should also include a map legend.

Refer to attached Exhibit 2; which illustrates the items requested above and all planned improvements per the "Special Study".

11. We note that the section of the Valley Creek Trunk Sewer (VCTS) from Manholes LV58 to LV57 is projected to exceed capacity from flows coming from the Township by 2018. Section 4.2.1 refers to a parallel sewer being proposed within the VCTS 537 Plan being prepared by Tredyffrin Township as a way to increase capacity within the section of the

VCTS from Manholes LV58 to LV57. However, in May 2010, the Department had discussions with Gannett Fleming, Inc., Tredyffrin Township's engineer that is working on the VCTS 537 Plan, in which they indicated that the planning for this sewer section will not be included in the current version of the VCTS Plan proposed to be submitted to the Department.

Section 5.0 states that the suitable alternative is to provide the areas identified in the Special Study with public sewerage provided that the capacity of the gravity sewer trunk line from MHLV58 to MHLV57 in Tredyffrin Township is improved before the year 2018. Since it appears that the planning for increasing capacity within this sewer section is likely being postponed, the Township will be restricted by the current hydraulic capacity of this sewer section and will therefore be unable to provide capacity for all of the proposed sewer service areas identified in the Special Study. Please identify with text and mapping which areas are proposed to be able to connect to public sewer prior to capacity being increased within the VCTS from MHLV58 to MHLV57.

The proposed repair to section LV58 – LV57 of the Valley Creek Trunk Sewer has been deferred from the current VCTS 537 Plan due to a disagreement over who is responsible for paying for the repairs needed to restore the design capacity to this section of the trunk line. EWT asked that this section be removed from the current VCTS Plan so that the Plan can go through the approval process to allow other member municipalities to start capacity improvements that are needed now to protect public health and safety. EWT will continue to have dialogue with Tredyffrin Township and if necessary, will enter into arbitration in order to settle our argument over the assignment of cost for this pipeline repair.

12. Please clarify how the Township will manage connections and ensure that the sewage flow coming from the planned service area will not exceed the hydraulic capacity of the sewer section from MHLV 58 to MHLV57.

Per EWT's Act 537 "Special Study" report; there are several areas of sewer improvements that are noted to be completed by the year 2015. Currently, the preliminary hydraulic analyses that have been completed are focused specifically on the infrastructure needs within EWT as they related to the future projected sanitary sewage flows. Prior to adding additional flow to the sanitary sewer network as part of these planned projects; EWT will participate in informational meetings with VCTS and Tredyffrin Twp to update them regarding the intent and to verify sewer capacities.

13. The submitted Special Study indicates that the 2035 projected flows for the Township are available in the flow already allocated to the Township from both Tredyffrin Township and the VFSA. Please provide correspondence from both Tredyffrin Township and VFSA confirming this statement.

Attached as Exhibit 3 is a table and figure from Tredyffrin's recent Act 537 Plan Revision for Valley Creek Trunk Sewer dated April of 2010. This correspondence documents the

Ms. Kelly Boettlin
2009-2412
March 15, 2011
Page 7 of 7

projected flows for EWT as it pertains to Tredyffrin's the VCTS project improvements. These projected flows coincide with what has been summarized in EWT's Act 537 Plan "Special Study" report.

14. Section 1-3 of the Special Study states that the Township's capacity allocation to the VCTS is 4.0 MGD annual average flow. However, the March 2009 Act 537 sewage facilities planning done in support of the VFSA wastewater treatment facility expansion states that the Township's allocated capacity is only 3.63 MGD annual average flow. Please clarify this discrepancy.

Attached as Exhibit 4 is an excerpt from EWT's original Act 537 Plan revised and completed in 1995. On page 32 of this plan, it states that the Township had been allocated a peak capacity for the Valley Creek Trunk Line of 9.5 MGD (4.0 MGD average). This capacity allocation information was summarized in Section 1-3 of the "Special Study". It must be noted that this flow of 4.0 MGD includes sanitary flows from Charlestown Township; since Charlestown is under Agreement with EWT to discharge 0.3 MGD to the Township in lieu of sending their sanitary flow directly to the VFSA. Therefore, EWT's total flow is 3.63 MGD + 0.3 MGD from Charlestown.

However, attached is a letter dated October 15, 2008, which was a response to Buchart Horn, Inc. (the engineer of record for VFSA) regarding their request to separate the Charlestown flow from EWT's projected flow numbers. Therefore, the resulting total projected flows for EWT were documented to be 3.63 MGD average daily flow; which coincides with what was summarized in the March 2009 Act 537 planning completed in support of the VFSA wastewater treatment facility expansion. This letter is also included in Exhibit 4.

Very truly yours,

KOHLI AND ASSOCIATES


Surender S. Kohli, P.E.
Project Manager

Enclosures

cc: William H. Steele, EWT
Terry H. Woodman, EWT
Jack Polce, AGC
Steve Woodward, AGC

EXHIBIT 1

ITEM 6A - NUMBER OF PUMPING STATIONS IN THE SYSTEM: 12

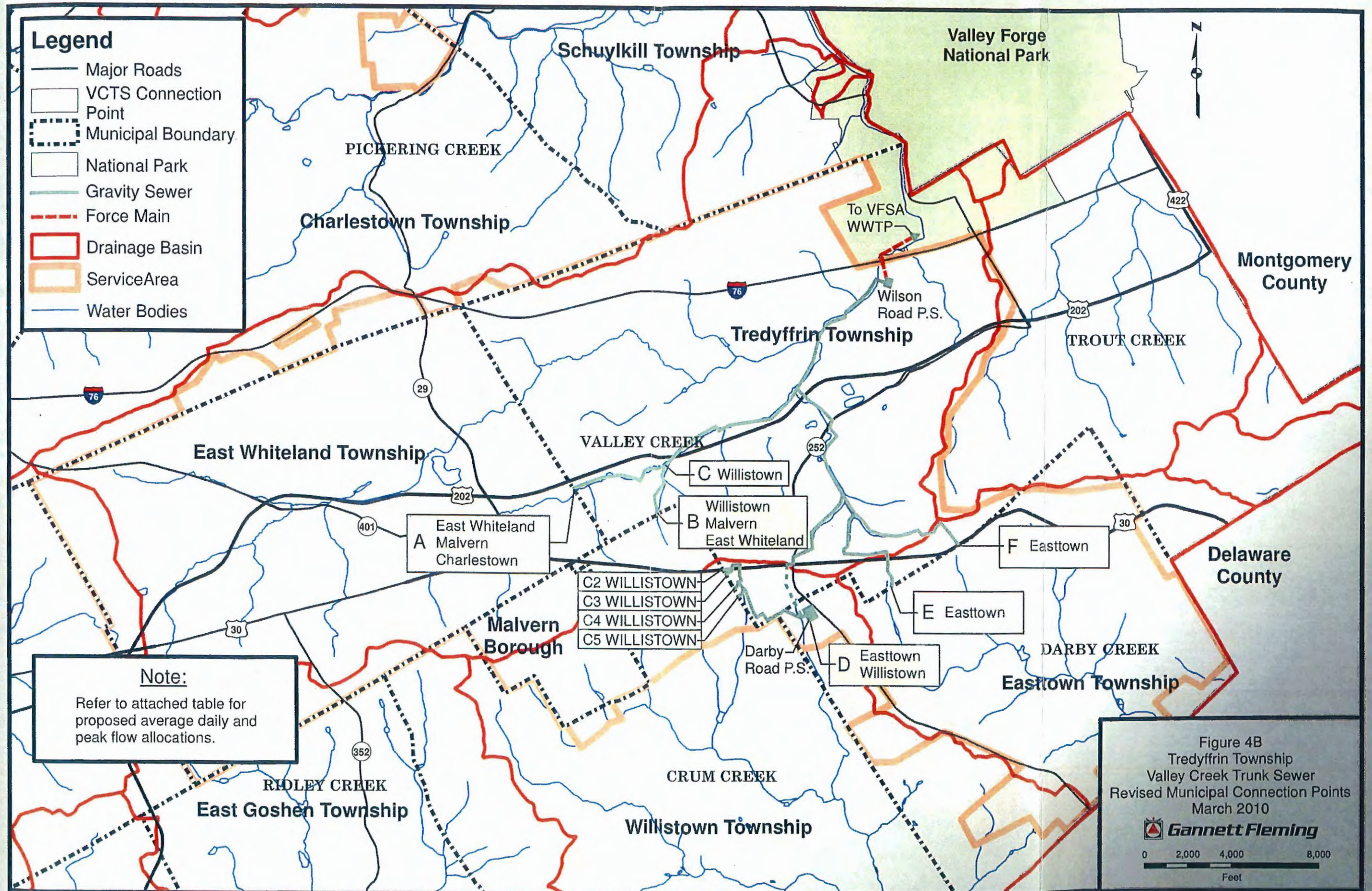
PUMP STATION	Rated Max. Daily Capacity (GPD)	Current Max. Daily Flows (GPD)	Max. Daily Flow ⁽¹⁾ (GPD)	Two-Year Max. Daily Flow (GPD)	Current Average Daily Flow (GPD)	Peak Instantaneous Flow ⁽²⁾ (GPD)
P.S. 1 - Deer Run	23,450	10,710	14,700	11,835	10,350	
P.S. 2 - Mill Lane	2,073,600	817,600	2,036,000	863,800	683,200	
P.S. 3 - Wilberdale	623,5020	278,260	600,000	290,000	231,660	
P.S. 4 - Lee Boulevard	350,000	52,920	350,000	58,120	47,250	
P.S. 5 - Meadowview	115,200	13,840	20,000	14,360	12,400	
P.S. 6 - Flat Road	427,500	91,053	427,500	100,680	61,212	
P.S. 7 - Lapp Road	472,000	154,980	412,000	152,460	124,110	
P.S. 8 - Westgate	890,000	182,700	850,000	170,450	166,600	
P.S. 9 - Church Road	700,000	168,480	700,000	164,430	151,200	
P.S. 10 - Frame Avenue	360,000	102,750	360,000	102,625	96,250	
P.S. 11 - Hillbrook Circle	250,000	20,757	250,000	18,426	13,875	
P.S. 12 - King Road	250,000	47,472	250,000	52,000	43,860	
P.S. 13 - Malvern Hunt	Flow goes to on-site treatment facilities.					

⁽¹⁾ When area served by Pumping Station is Fully Developed

⁽²⁾ Depending on rain event flows will be similar to Rated Max. Daily Capacity or Two-Year Max. Daily Flow

EXHIBIT 2

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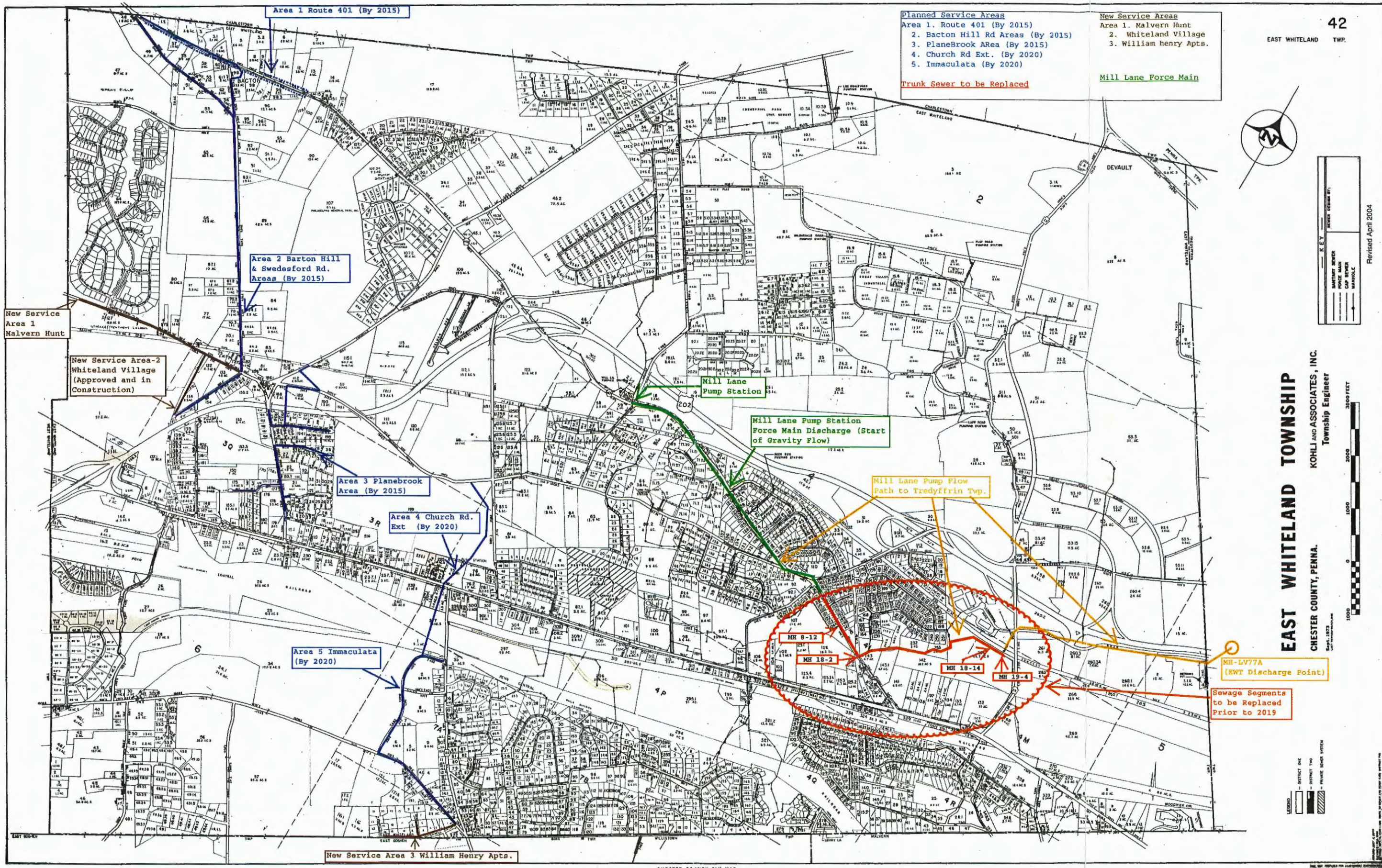


EXHIBIT 3

FIGURE 4B TABLE
REVISED MUNICIPAL CONNECTION POINTS
PROJECTED FLOWS

Connect. Point ⁽¹⁾	Manhole No.	Municipality/Description	Average Daily Flow (MGD)	Peak Flow Rate (MGD)
A	LV77A	East Whiteland (excludes Woodview)	3.621	9.053
		Charlestown (VFSA)	0.417	1.043
		Malvern (excludes Tidewater)	0.519	1.298
B	M48	Willistown (Cedar Hollow)	1.270	3.175
		Malvern (Tidewater)	0.024	0.060
		East Whiteland (Woodview)	0.009	0.023
C1	LV59	Willistown (unmetered)	0.002	0.005
C2	N68	Willistown (unmetered)	0.004	0.010
C3	N88	Willistown (unmetered)	0.004	0.010
C4	N79	Willistown (unmetered)	0.010	0.025
C5	N83	Willistown (unmetered)	0.003	0.008
D	P3	Easttown (unmetered)	0.146	0.545
		Willistown (unmetered)	0.055	0.138
E	R239	Easttown (Daylesford P.S.)	0.300	1.050
F	R56	Easttown (Saybrook P.S.)	0.104	0.396
		Easttown (Berwyn P.S.)	0.973	2.937

(1) Refer to Figure 4B for locations.

EXHIBIT 4

East Whiteland Township has been allocated a peak capacity of 9.5 mgd (4.0 mgd average) in the Valley Creek Trunk Line. Flows allocated to East Whiteland at the Wilson Road Pump Station, based on its current capacity, are 5.855 mgd peak and 2.34 mgd average. The Wilson Road Force Main, like the Pump Station, has a limited capacity and East Whiteland's allocation for the force main is 6.553 mgd peak and 2.62 mgd average daily flow. Based on the current plant capacity of 8 mgd, East Whiteland is allotted 1.7 mgd (average flows). East Whiteland has allowed Charlestown Township to utilize 0.3 mgd (average) of its allocation through the Valley Creek Trunk Line and the Wilson Road Pump Station and Force Main. Although the Valley Creek Trunk Line is capable of accepting the ultimate flows from East Whiteland Township, the plant capacity and the Wilson Road Pump Station and Force Main limit the actual flows possible through the system.

3. Treatment Systems

The Township collection system connects to the Valley Forge Sewer Authority plant for its sewage treatment and disposal. The sewage plant provides both primary and secondary treatment, and involves pressure filtration. The treatment system is an activated sludge method. The system was built in 1976 and is in excellent condition. The Municipal Authority plans to expand the collection system as funds become available. The expansion would accommodate infill development in western areas of the Township. No operating problems have been reported at this time. Treated effluent from the system is discharged into the Schuylkill River.

4. Private Systems

Seven private package plants operate in East Whiteland Township. These treatment plants are generally located in the southern and western portions of the Township. The Bishop Tube Company operates one facility. The treatment plant has a designed operating capacity of 10,000 gallons per day. The present average daily flow is 4,000-5,000 gallons per day (gpd). There are future plans to upgrade and expand the system to a designed operating capacity of 20,000 gpd.

The second private treatment facility is an aeration system that serves the Great Valley High School. The average daily flow for the system is 9,000 gpd which is well under the designed operating capacity.

The third private package serves Immaculata College. The College has two Imhof gravity-fed treatment facilities. The combined designed operating capacity of the two facilities is 117,200 gpd. The average daily flow is 28,700-50,000 gpd. Ongoing repairs such as new flow and filtration devices are being done. Malvern Court Mobile Home Park operates the fourth private package plant in the Township. The type of treatment system is aeration with sand filter beds. The designed operating capacity is 24,000 gpd and the average daily flow is 16,000-18,000 gpd.

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EXHIBIT 4A

File

KOHLI AND ASSOCIATES, INC.

42 LLOYD AVENUE

MALVERN, PA 19353

(610) 644-5591

FAX (610) 647-9912

SURENDER S. KOHLI, P.E.
PRESIDENT

CONSULTING ENGINEERS

October 15, 2008

Diane C. Vesely, P.E.
BUCHART HORN, INC.
P. O. Box 15040
York, PA 17405-7040

Post-It® Fax Note	7671	Date	03/07/11	# of pages	5
To	STEVE WOODWARD	From	SURENDER K.		
Co./Dept.	AGC	Co.	KOHLI		
Phone #		Phone #			
Fax #		Fax #			

Re: East Whiteland Township
Regional Act 537 Response

Dear Diane:

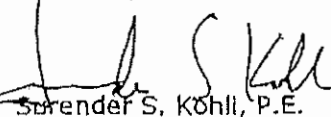
In response to your faxed letter dated October 8, 2008, enclosed herein please find "Exhibit 2" Sewage Flow Calculations which have been revised by removing the Charlestown Flows (as you requested) from Point "A", the previously mistyped flows for P.S. #2 were corrected, and "other flow" EDU additions were changed from 1,873 EDUs to 1,963 EDUs; thus providing the total flows at Point "A" to be 2,007,525 GPD. Please note that the William Henry Apartments (projected flows) as noted in your spread sheet as 710,000 GPD is incorrect and should be 70,000 GPD.

The total projected flows to Valley Forge Sewer Authority, as noted on Sheet 4 of 4, now shall be 3,630,250 GPD.

Enclosed herein also find the projected flows Map (submitted with the previous submission as Exhibit "1") showing the EDU numbers in blue which shall correlate with the other flows.

If you have any further questions, please contact me.

Very truly yours,

Surender S. Kohli, P.E.
Township Engineer
East Whiteland Township

SSK:cpw

cc: Terry H. Woodman, Township Manager

Revised 10/14/08

Exhibit "2"

EAST WHITELAND TOWNSHIP Regional Act 537 - Response

Sewage Flow Calculations

POINT "A"

Includes flows from P.S. #1 and #2 (which include flows from P.S. #3, #4, #5, #6, and #11), Charlestown flows, Malvern Hunt, Brownfields, Malvern, Court, Immaculata College, and William Henry Apartments and project flow from areas primarily in the northern and western parts of the Township.

P.S. #1 (current) = 14,700 gpd
P.S. #2 (current) = 854,000 gpd
Malvern Hunt (projected) = 100,000 gpd
Brownfields (projected) = 155,000 gpd
Malvern Court (projected) = 24,000 gpd
Immaculata University (projected) = 250,000 gpd
William Henry Apartments (projected) = 70,000 gpd
Other flow = 539,825 gpd (see below)

Projected flow (see Projected Flow Plan):
147, 188, 75, 30, 47, 85, 52, 15, 31, 90, 210, 210, 19, 144, 10, 50, 50, 30, 75, 13,
77, 5, 171, 18, 100, 13, 8 = 1,963 EDU @ 275 gpd/EDU = 539,825 gpd

TOTAL FLOW at "A" = 2,007,525 gpd

POINT "B"

Includes flows from P.S. #8 (which include flows from P.S. #9 and #10) and some projected flows from areas off of the Route 30 corridor.

P.S. #8 (current) = 272,300 gpd
Other flow = 78,925 gpd (see below)

Projected flow (see Projected Flow Plan):
32, 47, 68, 5, 75, 40, 20 = 287 EDU @ 275 gpd/EDU = 78,925 gpd

TOTAL FLOW at "B" = 351,225 gpd

East Whiteland Township Regional Act 537 Response
Exhibit "2"
Revised - 10/14/08

POINT "C"

Includes flows from Points "A" and "B" and flows from areas off of Route 401.

"A" = 2,007,525 gpd
"B" = 351,225 gpd
Other flow = 128,975 gpd (see below)

Projected flow (see Projected Flow Plan): 67, 50 = 117 EDU
Current estimated flow: 90, 19, 41, 10, 42, 150 = 352 EDU
(117 + 352) EDU = 469 EDU @ 275 gpd/EDU = 128,975 gpd

TOTAL FLOW at "C" = 2,487,725 gpd

POINT "D"

Includes flows along Route 30 and below (including P.S. #12)

P.S. #12 (current) = 50,850 gpd
Other flow = 97,900 gpd (see below)

Projected flow (see Projected Flow Plan): 1 EDU
Current estimated flow: 24, 7, 26, 7, 37, 12, 120, 30, 54, 37 = 355 EDU
(1 + 355) EDU = 356 EDU @ 275 gpd/EDU = 97,900 gpd

TOTAL FLOW at "D" = 148,750 gpd

POINT "E"

"E" = "C" + "D"

"C" = 2,487,725 gpd
"D" = 148,750 gpd

TOTAL FLOW at "E" = 2,636,475 gpd

East Whiteland Township Regional Act 537 Response
Exhibit "2"
Revised - 10/14/08

POINT "F"

Flows from "E" and some area north of the trunk line.

"E" = 2,636,475 gpd
Other flow = 65,725 gpd (see below)

Projected flow (see Projected Flow Plan): 52 EDU + 50 EDU = 102 EDU
Projected flow (see Projected Flow Plan): 20, 87, 30 = 137 EDU

(102 + 137) EDU = 189 EDU @ 239 gpd/EDU = 65,725 gpd

TOTAL FLOW at "F" = 2,702,200 gpd

POINT "G"

Projected flow (see Projected Flow Plan): 59, 72 = 131 EDU
Current estimated flow: 50, 69, 82, 40, 20, 6, 50, 126, 20 = 463 EDU

(131 + 463) EDU = 594 EDU @ 275 gpd/EDU = 163,350 gpd

TOTAL FLOW at "G" = 163,350 gpd

POINT "H"

"H" = "F" + "G"

"F" = 2,702,200 gpd
"G" = 163,350 gpd

TOTAL FLOW at "H" = 2,865,550 gpd

East Whiteland Township Regional Act 537 Response
Exhibit "2"
Revised - 10/14/08

POINT "I"

Flows from "H," P. S. #7, and the industrial park.

"H" = 2,865,550 gpd
P.S. #7 (current) = 157,500 gpd
(West) Industrial park area (projected) = 37,500 gpd
(East) Industrial park area (projected) = 100,000 gpd
Other flow = 27,500 gpd

Projected flow (see Projected Flow Plan): 100 EDU @ 275 gpd/EDU = 27,500 gpd

TOTAL FLOW at "I" = 3,188,050 gpd

POINT "J"

Flows from "I"

"I" = 3,188,050 gpd
Other flow = 442,200 gpd

Projected flow (see Projected Flow Plan):
Worthington = 958 EDU + Glasgow Quarry = 650 EDU
958 + 650 EDU = 1,608 EDU @ 275 gpd/EDU = 442,200 gpd

TOTAL FLOW at "J" = 3,630,250 gpd

**TOTAL PROJECTED FLOW
TO VALLEY FORGE SEWER AUTHORITY
= 3,630,250 GPD**

EXHIBIT 9

DEP Response Letter 2

July 8, 2011

2009-2412

Ms. Kelly Boettlin
Department of Environmental Protection
Southeast Regional Office
2 E. Main St.
Norristown, PA 19401

RE: Act 537 Special Study Amendment – Response #2
East Whiteland Township, Chester County
Mill Lane Pump Station Replacement Project

Dear Ms. Boettlin:

The following letter is being submitted on behalf of East Whiteland Township (EWT) and in response to the Department of Environmental Protection's (Department) letter dated May 27, 2011 regarding the Official Sewage Facilities Plan Special Study for the Mill Lane Pump Station Replacement (MLPS). The Department's letter states that the special study continues to not be in accordance with the provisions of Chapter 71. The intent of the responses herein is to provide additional answers and information for the special study to insure that the Special Study documentation meets the provisions of Chapter 71 regarding the 537 planning process and warrants an approval of the plan amendment by PADEP.

The following is a summary of each of the questions; followed by corresponding answers and a description of additional attached documentation, where appropriate:

1. The Township had confirmed during the April 13, 2011, meeting that the MLPS is currently permitted for 2.0 million gallons of sewage per day (MGD). Projected flows to the pump station have been listed; however, as noted below, the Township will be unable to get planning approval for the entire projected flows. Since permit limits are based on approved planning flows, please clarify the proposed permitted flow for the MLPS.

Please refer to Attachment 1 of this letter. This information was developed by Valley Forge Sewer Authority regarding the sewage flow capacity of the portion of Tredyffrin Township's interceptor between LV58 and LV57. The calculations to determine the flow capacity of this section of sewer were confirmed using dynamic modeling, as noted. The updated calculations (using the same site conditions as previously used) suggest that the flow capacity of this sewer section is 15.8 MGD, which is considerably greater than the 2035 projected



Ms. Kelly Boettlin
2009-2412
July 8, 2011
Page 2 of 6

capacity noted in Tredyffrin's 537 Plan (14.5 MGD). This information suggests that EWT's flow thru the MLPS may not need to be restricted; thus a Phased approach for the MLPS replacement project and related unsewered area connections (Areas 1 thru 5 noted in the 537 Plan Special Study) is likely not necessary.

As noted in the Special Study, the 2035 projected average daily flow is approximately 2.3 MGD with a peaking factor of approximately 6.4 MGD for the MLPS. Also, as previously noted, the MLPS replacement is necessary initially because the existing MLPS is over 30 years old and the existing pumps are beyond their useful life.

In summary, the total 2035 projected sewage flows of approximately 15.6 MGD (as noted in Tredyffrin Township's Act 537 Plan Revision for Valley Creek Trunk Sewer) are below the capacity threshold of 15.8 MGD for the LV58 to LV57 trunk sewer. However, for consistency purposes with the VCTS Act 537 Plan; EWT will continue to monitor connected flows and provide a future amendment to the Act 537 Plan if further modeling results suggest that insufficient capacity exists in the LV58 to LV57 trunk sewer to handle future connected sanitary flows.

2. The implementation schedule provided in the March 17, 2011, resubmission is inadequate. As indicated in the Department's November 12, 2010, review letter, this implementation schedule should include milestones for the permitting, construction, and completion of the proposed sanitary sewer facilities. The schedule can be time dependent on prior milestones and may be based on flow triggers where applicable.

Refer to Attachment 2 enclosed in this letter for implementation schedule information as it pertains to the permitting construction and completion of the MLPS, new connected areas outlined in the Special Study (Areas 1 thru 5), force main replacement and downstream sewer enlargement (from MH 8-12 to 18-2, MH 18-2 to 18-14 and MH 18-14 to 19-4) within EWT.

3. If flow triggers are to be included in your implementation schedule, please describe how the Township will monitor flows to see if the flow trigger points are reached.

As previously noted, EWT will monitor flows via installed flow metering equipment at the MLPS. Also, EWT will provide additional planning and flow projection information for each of the new areas to be connected to the public sewer collection system at the time that the improvements are proposed. The latest calculated flow information for the LV58 to LV57 section of Tredyffrin's trunk sewer shows that there is adequate capacity to handle future projected flows. However, EWT will provide advanced notice to both Tredyffrin and



Ms. Kelly Boettlin
2009-2412
July 8, 2011
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VFSA for any planned improvements and connections to the sewer system within EWT as a means of keeping all parties well informed.

4. A milestone for the replacement of the MLPS force main must be included in the required implementation schedule indicating what will trigger this force main replacement. Please note that additional sewage facilities planning may be required prior to replacement of this force main. The implementation schedule should reflect planning and permitting actions for the force main replacement.

Please refer to Attachment 2 for the implementation schedule. EWT would like to include the planning for the force main replacement as part of this Act 537 Plan Special Study. At the time of the force main replacement project, EWT will submit the required permit application information and will notify both Tredyffrin and VFSA of this replacement.

5. Milestones and triggers must also be included in the implementation schedule for the enlargement of the downstream sewer sections noted within the Special Study.

Please refer to Attachment 2 for the implementation schedule. EWT would like to include the planning for the sewer enlargement as part of this Act 537 Plan Special Study. At the time of the sewer enlargement project, EWT will submit the required permit application information and will notify both Tredyffrin and VFSA of this sewer enlargement.

6. Please clarify if all construction of sewage facilities proposed within the Special Study will take place within existing easements.

The force main replacement and the downstream sewer enlargement will be constructed within existing PennDOT right-of-way and generally in parallel to the existing infrastructure.

EWT will provide additional planning information to the Department and will obtain easements (if necessary) for Areas 1 thru 5 of the Special Study when these areas are to be connected to the sewer collection system. As part of this planning effort, EWT will also notify all parties involved, including Tredyffrin Township and VFSA.

7. As requested in the Department's November 12, 2010, review letter, please identify with text and mapping which areas are proposed to be able to connect to public sewer prior to capacity being increased within the Valley Creek Trunk Sewer (VCTS) from Manholes (MRs) LV58 to LV57.



Ms. Kelly Boettlin
2009-2412
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Please refer to the response in Item #1 above. Based on this information, EWT concludes that the capacity increase within the VCTS from MH LV58 to LV57 should not create a bottleneck for the replacement of the MLPS. Therefore, EWT's proposed public sewer connections will be made as the projects are budgeted; and additional planning and design information will be provided to the Department for review and final approval.

8. As discussed in the April 13, 2011, meeting, the Township will be unable to determine when replacement of the gravity sewer trunk line from MH LV58 to MH LV57 in Tredyffrin Township will be taking place. Since flows coming from the Township are projected to exceed capacity of the VCTS from MH LV58 to MH LV57 by 2018, the Department will be unable to approve planning for any projected flows beyond the capacity of this sewer section. The Township may wish to split the submitted planning into 2 phases. Phase 1 will include all construction able to take place prior to capacity being increased within the VCTS from MH LV58 to MH LV57 as well as the sewer service area description requested in Item 7 above. Phase 2 will describe the actions and areas to be served after capacity is increased within this VCTS section.

Please note that if the Township decides to split this planning into phases, the following will need to be included in the new Phase 1 submission:

- a. A new Resolution of Adoption.
- b. Evidence that this project has been republished.
- c. Documentation that shows that the Township Planning Commission, county planning commission, and the county health department have had a chance to review the changes to this planning document.
- d. An implementation schedule showing milestones and triggers pertaining to both phases.

EWT does not wish to split the submitted planning into 2 phases and does not believe that this is necessary considering the information outlined in Item 1 above pertaining to the capacity of the VCTS trunk sewer between LV58 and LV57. The attached implementation schedule shows the proposed improvements to be implemented as part of the proposed Act 537 Plan Special Study. The additional sewer connections outlined in the Act 537 Plan Special Study will be planned and designed at the time the connections are to be made. This information will be submitted to the Department for final review and approval.



Ms. Kelly Boettlin
2009-2412
July 8, 2011
Page 5 of 6

9. The March 17, 2011, resubmission included a copy of a portion of the draft VCTS Act 537 Plan to document that the 2035 projected flows for the Township are available in the flow already allocated to the Township from both Tredyffrin Township and the Valley Forge Sewer Authority (VFSA). This documentation is inadequate. Please submit separate correspondence from both Tredyffrin Township and VFSA confirming this statement.

Please refer to Attachment 3 of this letter for correspondence from both Tredyffrin Township and VFSA confirming the 2035 projected flows for EWT.

10. The Special Study indicated that the connection of the existing Malvern Courts Mobile Home Park (MHP) located in Service Area I of the Township will take place between now and 2015. However, the Department's Operations Section has noted significant operational concerns with the private sewerage facilities serving the MHP.

During the April 13, 2011 meeting, the Township had indicated that the connection of the MHP cannot occur until other sewerage facilities are installed closer to the development. Please clarify in detail what actions need to take place in order to connect this development to public sewer as well as the projected time needed for each action. In addition, please evaluate the feasibility of an expedited schedule of sewer construction which will allow for the near-term connection of the MHP.

If an expedited connection schedule for the MHP is not feasible, interim corrective measures are required in order to address the significant operational problems with the private sewerage facilities serving the MHP. Section 71.71 of the Pennsylvania Code states that "Municipalities are required to assure the proper operation and maintenance of sewage facilities within their borders." Therefore, please clarify how the Township intends to address the problems associated with the sewerage facilities serving this mobile home park. Specifically, please evaluate a municipal takeover of the MHP's wastewater treatment plant.

It is EWT's opinion that the status of the Malvern Courts MHP is a separate issue and is not related to the MLPS replacement project. However, the MLPS replacement has been designed and has been submitted to the Department for permitting. The MLPS must be replaced prior to any new connections to the collection system being implemented.

In relation to the Malvern Courts MHP, discussions have previously occurred regarding the connection of the MHP to EWT's public sewer. Once the MLPS project is constructed and the new pump station is operational, EWT will resume discussions with the Owner of the MHP and will contact the Department to set up a meeting to discuss the issues surrounding this situation. At that time, EWT will propose a study be conducted by the property owner to evaluate options for eliminating the onsite wastewater treatment plant and for connecting the MHP to EWT's sanitary sewer collection system.



Ms. Kelly Boettlin
2009-2412
July 8, 2011
Page 6 of 6

If you have any questions, comments or need additional clarification regarding the information contained within this letter, please contact me at (610) 840-9116.

Very Truly Yours,

ADVANCED GEOSERVICES CORP


Jack L. Polce, P.E.
Senior Project Engineer

Enclosures

JLP:kk

cc: Terry H. Woodman, EWT
William H. Steele, EWT
Surender S. Kohli, AGC
Stephen B. Woodward, AGC
Tredyffrin Township
Marty Goldberg, VFSA



ATTACHMENT 1

Terry Woodman

From: Martin Goldberg [mgoldberg@vfsa.com]
Sent: Friday, January 21, 2011 12:39 PM
To: Mimi Gleason; Terry Woodman
Cc: Len Pinchok; Steve Norcini; 'rphillips@GFNET.com'; Lutter, Larry
Subject: RE: VCTS 537 Plan - Line LV 57-58
Attachments: VCTS LV Interceptor RT 202 Crossing

Ladies/Gentlemen,

As I discussed with Steve Norcini this morning, I asked Buchar-Horn to evaluate the VCTS system using a dynamic hydraulic model in order to evaluate in further detail the hydraulic characteristics around the LV 57-58 section of the VCTS. We are also doing this for some sections of the VFSA gravity sewer system where static modeling has identified sections which may be of concern; yet field conditions have shown these sections of pipe to be in a "far-from-full" condition during very heavy rain events.

The results of the dynamic model analysis (see attachments) indicate that at the projected maximum flow rate, the pipe would not be entirely full. According to the dynamic analysis, the "full pipe condition" results at a flow rate of 15.8 million gallons per day (mgd) which is much greater than 2035 projected capacity requirement of 14.5 mgd condition in the Plan. The dynamic analysis included the same site condition parameters that were used in the latest version of the Act 537 Plan.

Of course as stated in the Plan, field study should also be implemented to confirm model results. However, for the purpose of the Act 537 Plan, given the significant cost involved with , we would suggest utilizing the most detailed (dynamic) model regarding this section of sewer.

With the LV 57-58 repair removed, the staff would recommend approving a resolution adopting the Plan.

Marty

From: Mimi Gleason [mailto:mgleason@tredyffrin.org]
Sent: Monday, January 17, 2011 1:07 PM
To: Martin Goldberg; 'twoodman@eastwhiteland.org'
Cc: Len Pinchok; Steve Norcini; 'rphillips@GFNET.com'
Subject: Re: VCTS 537 Plan discussion

Thanks, Marty. How about if we go with 3 pm on Mon, Jan 24? If that still works, see everybody then.

Mimi

From: Martin Goldberg <mgoldberg@vfsa.com>
To: Terry Woodman <twoodman@eastwhiteland.org>; Mimi Gleason
Cc: Len Pinchok <lpinchok@vfsa.com>; Steve Norcini; Phillips, Roger A. <rphillips@GFNET.com>
Sent: Mon Jan 17 10:12:00 2011
Subject: RE: VCTS 537 Plan discussion

That works for me also.

MG

Terry Woodman

From: Lutter, Larry [LLutter@BH-BA.com]
Sent: Friday, January 21, 2011 11:27 AM
To: Martin Goldberg
Subject: VCTS LV Interceptor RT 202 Crossing
Attachments: VFSA LV 58 Analysis.pdf

Marty,

As requested by the VFSA, BH evaluated the capacity of the LV Interceptor at the RT 202 crossing specifically manhole section LV 57 to LV58. We used a dynamic model. The model is described and the results summarized below. The model results graphic for this manhole section is attached.

Bentley® SewerGEMS® Sanitary V8i was used to create this sewer model. SewerGEMS is a fully-dynamic, multi-platform, sanitary modeling solution. The model calculates the depth of flow in the interceptor and considers the depth of flow in downstream manhole sections while calculating the depth of flow for each manhole section. The Interceptor from manhole LV59 to manhole V55 was set into the model using the pipe size, length, and slope listed in the October 2010 version of the VCTS Act 537 Plan. To establish invert elevation, the invert of manhole LV58 was set in the model at the elevation identified on the sewer plan and profile drawing. All other inverts were set using the pipe length and slope data listed in the 537 Plan. The "Manning's 'n'" value of 0.013 was used, the same as the used for the 537 Plan. The model results are as follows:

- @ 14.527 MGD, the peak flow rate identified in the Act 537 Plan; The Model indicates no surcharge at MH LV58
- @ 15.8 MGD the Model indicates full pipe at MH LV58

As with any model, the model results should be field verified for any manhole section where capacity is a concern. The field verification can be obtained by the use of a flow meter with a pressure sensor to verify flow rate and depth of flow. Field verification of the manhole conditions would be needed to confirm the manhole is suitable for a flow meter installation.

Please let me know if you have any questions.

Thanks.

Larry

Lawrence A. Lutter, P.E.

Principal Engineer

Buchart Horn, Inc.

Sanitary Engineering

The Russell E. Horn Building

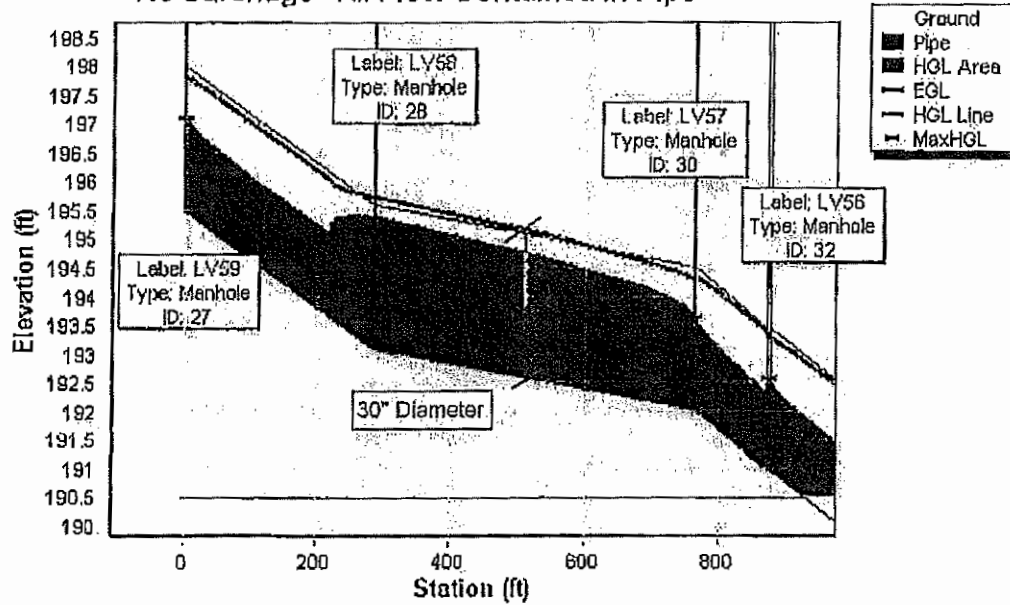
445 West Philadelphia Street, York

PO Box 15040, York, PA 17405-7040

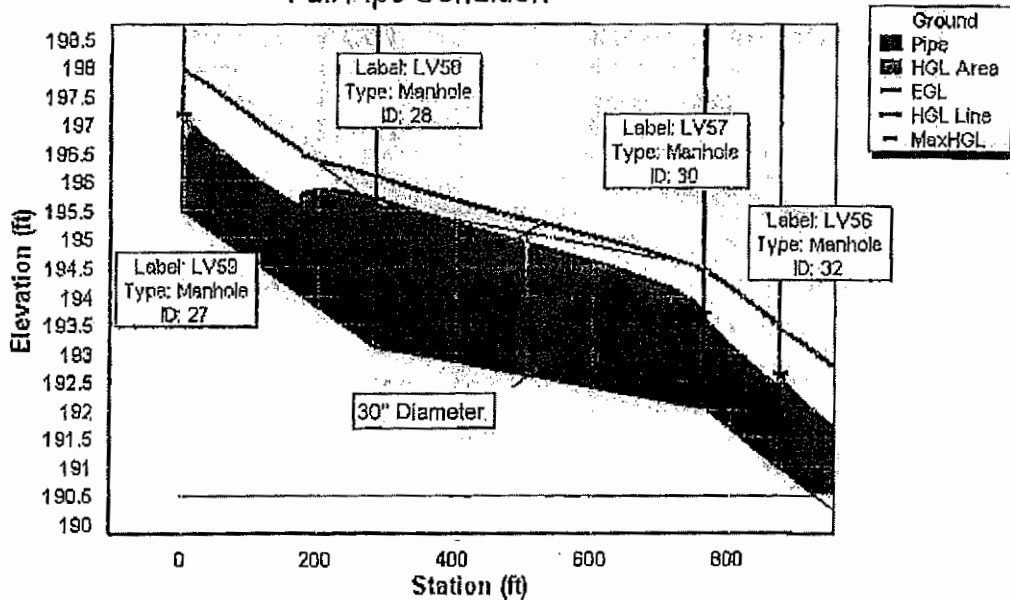
T: (717) 852-1483 || C: (443) 838-8012 || F: (717) 852-1613

llutter@bh-ba.com || www.bh-ba.com

537 Data - 14.527 MGD, $n=0.013$
No Surge - All Flow Contained in Pipe



537 Data - 15.8 MGD, $n=0.013$
Full Pipe Condition



Note: LV58 Drawing invert of 193.10' was used for the model. All other inverts were adjusted based on slopes and lengths indicated in the October 2010 Act 537 Plan Revision. Ground elevation (top of manhole) at LV58 = 202.55' (therefore LV58 depth is 9.45').

**Gannett Fleming**

GANNETT FLEMING, INC.
P.O. Box 80794
Valley Forge, PA 19484-0794

Location:
Valley Forge Corporate Center
1010 Adams Avenue
Audubon, PA 19403-2402

Office: (610) 650-8101
Fax: (610) 650-8180
www.gannettfleming.com

June 23, 2011

Surender Kohli, P.E.
Kohli and Associates, Inc.
42 Lloyd Avenue
Malvern, PA 19355

RECEIVED

JUN 27 2011

KOHLI & ASSOC., P.C.

Re: Tredyffrin Township
Valley Creek Trunk Sewer
Act 537 Plan – East Whiteland Capacity Certification

Dear Surrender:

With regard to the projected flows for East Whiteland Township in the Valley Creek Trunk Sewer Act 537 Plan, I have attached Table 6 of the Act 537 Plan indicating the projected flows from the member municipalities for your reference. East Whiteland Township has been allocated 3.63 mgd average daily flow, as previously requested, and as included in the Valley Forge Sewer Authority's Act 537 Plan. Utilizing a peaking factor of 2.30, this corresponds to a peak flow of 8.349 mgd. The wasteload projections in the Act 537 plan indicate a potential capacity shortfall in the LV pipeline in year 2018. The VCTS Act 537 Plan is deferring the final selected alternative for this section of pipeline until further engineering investigations can be undertaken closer to the year 2018, as indicated on page 45 of the plan.

The plan indicates the following to take place prior to determining the need for an increase in capacity:

- Flow metering during wet-weather periods.
- Visual observation of the flow through the run during wet-weather/high flows.
- Field verification of the condition of the pipe.
- Re-assessment of the pipe friction factor for use in determining pipe capacity.
- Determine actual capacity of existing sanitary sewer
- The use of dynamic flow modeling to reassess the adequacy of pipe capacity for present and projected peak wastewater flows through planning year 2035.
- Confirmation that additional capacity is required and in what time frame.

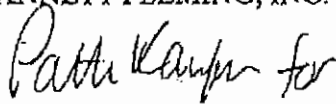


Gannett Fleming

If the results indicate that insufficient capacity exists, the findings will be addressed in a future amendment to the Act 537. I would recommend that similar language be included in the Act 537 Plan being prepared for East Whiteland Township in order to ensure consistency between the plans.

If you have any questions or require any additional information, please contact me.

Very truly yours,
GANNETT FLEMING, INC.



Roger A. Phillips, P.E.
Senior Project Manager

cc: Mimi Gleason
Terry Woodman



Table 6
Wastewater Flow Projections

<u>Municipality</u>	<u>2005 (Actual)</u>	<u>2006 (Actual)</u>	<u>2010</u>	<u>2015</u>	<u>2025</u>	<u>2035</u>
<u>Annual Average Daily Flow (mgd) ⁽¹⁾</u>						
Charlestown Township	0.128	0.122	0.212	0.311	0.404	0.417
Easttown Township	1.357	1.343	1.245	1.300	1.412	1.523
East Whiteland Township	1.963	1.914	2.136	2.469	3.003	3.630
Malvern Borough	0.329	0.291	0.344	0.424	0.436	0.543
Tredyffrin Township	1.128	1.360	1.753 ⁽²⁾	1.850	2.149	2.413
Willistown Township	1.221	1.180	1.225	1.301	1.324	1.348
Total	6.126	6.210	6.915	7.655	8.728	9.874
<u>Instantaneous Peak Flow Rate (mgd) ⁽³⁾</u>						
	14.09	14.28	15.90	17.61	20.07	22.71

Footnotes:

⁽¹⁾ Projections for years 2010, 2015, 2025, and 2035 obtained from Regional Act 537 Plan for Valley Forge Sewer Authority, November 2006 and December 2008 Needs Analysis.

⁽²⁾ Base flow increased by 200,000 gpd in 2008 due to corrections made to Willistown's unmetered flows starting in 2008.

⁽³⁾ Instantaneous peak flow rate estimated at 2.3 times average daily flow. It represents peak flow rate for total system flows at inlet to the Wilson Road Pumping Station.



ATTACHMENT 2

APPENDICES
Special Study Act 537 Plan – East Whiteland Township

Implementation Schedule*

<u>TASK</u>	<u>DATE</u>
Act 537 Plan Special Study adoptions	January 31, 2010
Act 537 Plan Special Study submitted to PADEP	September 30, 2010
Complete Design of Pump Station	February 25, 2011
Submit WQM Part II Permit Application	June 17, 2011
Submit Joint Permit Application	June 17, 2011
Obtain WQM Part II Permit	August 2011
Obtain Joint Permit	August 2011
Advertise for construction bids	September 2011
Receive Bids	September 2011
Award Construction Contract	October 2011
Issue Notice to Proceed	October 2011
Complete Construction	May 2012
New pump station online	June 2012
Provide Planning/Easement Information to PADEP for Area 1	August 2012
Complete Design, Permitting for Area 1	December 2012
Complete Bidding and Construction for Area 1	July 2013
Provide Planning/Easement Information to PADEP for Area 2	August 2013
Complete Design, Permitting for Area 2	December 2013
Complete Bidding and Construction for Area 2	July 2014
Provide Planning/Easement Information to PADEP for Area 3	August 2014
Complete Design, Permitting for Area 3	December 2014
Complete Bidding and Construction for Area 3	August 2015
Provide Planning Information to PADEP for Sewers Downstream of MLPS (MH 8-12 to MH 19-4)	December 2016
Complete Design, Permitting for Sewers Downstream of MLPS (MH 8-12 to MH 19-4)	July 2017

Complete Bidding and Construction for Sewers Downstream of MLPS (MH 8-12 to MH 19-4)	July 2018
Provide Planning/Easement Information to PADEP for Area 4	October 2018
Complete Design, Permitting for Area 4	February 2018
Complete Bidding and Construction for Area 4	September 2018
Provide Planning/Easement Information to PADEP for Area 5	December 2018
Complete Design, Permitting for Area 5	June 2019
Complete Bidding and Construction for Area 5	March 2020
Provide Planning Information to PADEP for New MLPS Force Main	August 2020
Complete Design, Permitting for New MLPS Force Main	February 2021
Complete Bidding and Construction for New MLPS Force Main	February 2022

*Note: This schedule is a general estimate of timeframes for implementation of the noted projects based on projected sanitary sewage flows outlined in EWT's sanitary sewer needs analysis. EWT will continue to closely monitor the sanitary sewage flow volumes and will initiate these improvements as the flows meet trigger points as noted in the Special Study.



ATTACHMENT 3

May 13, 2011

Mr. Stephen F. Norcini, P.E.
Public Works Director-Tredyffrin Township
1100 Duportail Road
Berwyn, PA 19312-1079

2009-2412

RE: East Whiteland Township
Confirmation of Allocated Wastewater Flow

Dear Mr. Norcini:

Advanced GeoServices is currently working with Surender Kohli on a project to replace on the East Whiteland Township's (EWT) major wastewater pumping stations. As part of this project, EWT is required to update their Act 537 Plan to include projected sewer connections and flows through the year 2035. The Act 537 Plan revision has been submitted to the Pennsylvania Department of Environmental Protection (PADEP) for review and approval. As a requirement of PADEP's approval process, they have requested that EWT provide written confirmation from Tredyffrin Township of the allocated wastewater flows.

Attached to this correspondence is a letter dated October 15, 2008 confirming with Buehrt Horn, Inc. that the total projected average daily flow to Valley Forge Sewer Authority (VFSA) is 3.63 MGD. Also, attached is a table from Tredyffrin's recent Act 537 Plan Revision for Valley Creek Trunk Sewer dated April of 2010. The table notes the average daily flow for EWT to be 3.621 MGD plus 0.009 MGD for Woodview, which equals a total average daily flow of 3.63 MGD. If you are in agreement with the noted information regarding the average daily flow allocation for EWT, please kindly sign on the line below as confirmation.

Upon signing this letter please either fax or mail the letter to my attention at (610) 840-9199 or to the address noted in the letterhead. Thank you for your anticipated timely response on this matter. If you have any questions, please contact Jack Polce at (610) 840-9116 or Surender Kohli at (610) 644-5591.

Very truly yours,

ADVANCED GEOSERVICES CORPORATION


Jack L. Polce, P.E.
Project Manager

Enclosures

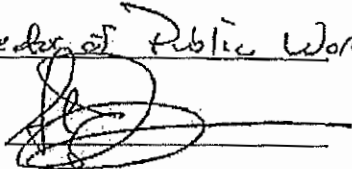
JLP:kk

cc: Surender Kohli, AGC
Steve Woodward, AGC

NAME: Stephen F. Norcini
(Print Name)

TITLE: Director of Public Works

DATE: 5/26/2011

SIGNATURE: 

Steve Norcini

From: Phillips, Roger A. [rphillips@GFNET.com]
Sent: Thursday, May 26, 2011 8:28 AM
To: Steve Norcini
Subject: RE: Regarding East Whiteland Township Allocated Wastewater Flow Letter

The flows allocated to East Whiteland in the Act 537 plan for 2035 are 3.63 mgd, as also indicated in the letter from Advanced Geoservices. The initial evaluation of the LV line indicated that the projected flows would exceed the capacity of the line. Upon the discussions with VFSA and East Whiteland, it was decided to modify the language in the plan to reevaluate the LV portion of the VCTS in five years to determine if in fact sufficient capacity exists, and if there is a need for replacement.

The letter is requesting that you certify that the 3.63 MGD is allocated to East Whiteland for 2035, which it is. Any potential upgrades to the LV trunk will be determined in the future as stated in the VCTS 537 Plan.

I say that you can sign it since the flow is allocated to East Whiteland. Just wanted to call your attention to the fact that it is unknown if in fact the capacity exists for that allocation.

From: Steve Norcini [mailto:snorcini@tredyffrin.org]
Sent: Thursday, May 26, 2011 8:11 AM
To: Phillips, Roger A.
Subject: RE: Regarding East Whiteland Township Allocated Wastewater Flow Letter

Roger,

Please clarify the comment regarding the future evaluation of the LV. thanks

Stephen F. Norcini, P.E.
Director of Public Works
Tredyffrin Township
snorcini@tredyffrin.org
610.408.3623

FOLLOW TREDYFFRIN TOWNSHIP ON [FACEBOOK](#) AND [TWITTER](#)

From: Phillips, Roger A. [mailto:rphillips@GFNET.com]
Sent: Wednesday, May 25, 2011 4:20 PM
To: Steve Norcini
Subject: RE: Regarding East Whiteland Township Allocated Wastewater Flow Letter

The letter is Ok to sign, as long as the Township is comfortable with the future evaluation of the LV trunk. The numbers indicated in the letter match the future flow allocations for East Whiteland as indicated in the VCTS 537 plan for year 2035.

From: Steve Norcini [mailto:snorcini@tredyffrin.org]
Sent: Wednesday, May 25, 2011 4:04 PM
To: Phillips, Roger A.
Subject: FW: Regarding East Whiteland Township Allocated Wastewater Flow Letter

Roger,

Where do you stand on this?

Stephen F. Norcini, P.E.
Director of Public Works
Tredyffrin Township
snorcini@tredyffrin.org
610.408.3623

FOLLOW TREDYFFRIN TOWNSHIP ON FACEBOOK AND TWITTER!

From: Steve Norcini
Sent: Wednesday, May 25, 2011 4:01 PM
To: 'Kimberly Keenan'
Subject: RE: Regarding East Whiteland Township Allocated Wastewater Flow Letter

Ms. Keenan,

This letter is in the hands of our sewer engineer, Gannett Fleming. I will call them and see where it stands.

Thank you

Stephen F. Norcini, P.E.
Director of Public Works
Tredyffrin Township
snorcini@tredyffrin.org
610.408.3623

FOLLOW TREDYFFRIN TOWNSHIP ON FACEBOOK AND TWITTER!

From: Kimberly Keenan [<mailto:kkeenan@advancedgeoservices.com>]
Sent: Wednesday, May 25, 2011 10:49 AM
To: Steve Norcini
Subject: Regarding East Whiteland Township Allocated Wastewater Flow Letter

Good morning Mr. Norcini,

Advanced GeoServices on behalf of Kohl & Associates sent you a letter a few weeks back dated May 13, 2011 regarding the confirmation of allocated wastewater flow for East Whiteland Township.

Could you give me an update on where you are with reviewing this letter and sending us a confirmation letter as requested by PADEP on the allocated wastewater flows. We are in need of this letter to go with our submittal package to PADEP.

I would appreciate any indication of when you would get a chance to review this information and send us a confirmation letter. Thank you very much for your time.

Have a nice day.

Kim Keenan
ADVANCED GEOSERVICES
1055 Andrew Drive, Ste. A

West Chester, PA 19380
Direct - 610-840-9183
Fax - 610-840-9199
Email: kkeenana@advancedgeoservices.com
Web Site: www.advancedgeoservices.com

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Engineering for the Environment. Planning for People.

1055 Andrew Drive, Suite A
West Chester, PA 19380-4293
tel 610.840.9100 fax 610.840.9199
www.advancedgeoservices.com

June 15, 2011

2009-2412

Mr. Martin F. Goldberg, P.E.
Operations Manager - Valley Forge Sewer Authority
333 Pawling Road
Phoenixville, PA 19460

RE: East Whiteland Township
Confirmation of Allocated Wastewater Flow

Dear Mr. Goldberg:

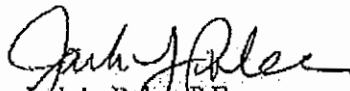
Advanced GeoServices is currently working with Surender Kohli on a project to replace one of East Whiteland Township's (EWT) major wastewater pumping stations. As part of this project, EWT is required to update their Act 537 Plan to include projected sewer connections and flows through the year 2035. The Act 537 Plan revision has been submitted to the Pennsylvania Department of Environmental Protection (PADEP) for review and approval. As a requirement of PADEP's approval process, they have requested that EWT provide written confirmation from Tredyffrin Township and Valley Forge Sewer Authority (VFSA) of the allocated wastewater flows. At this time, we have confirmation from Steve Norcini at Tredyffrin.

Attached to this correspondence is a letter dated October 15, 2008 confirming with Buehart Horn, Inc. that the total projected average daily flow to Valley Forge Sewer Authority (VFSA) is 3.63 MGD. Also, attached is a table from Tredyffrin's recent Act 537 Plan Revision for Valley Creek Trunk Sewer dated April of 2010. The table notes the average daily flow for EWT to be 3.621 MGD plus 0.009 MGD for Woodview, which equals a total average daily flow of 3.63 MGD. If you are in agreement with the noted information regarding the average daily flow allocation for EWT, please kindly sign on the line below as confirmation.

Upon signing this letter please either fax or mail the letter to my attention at (610) 840-9199 or to the address noted in the letterhead. Thank you for your anticipated timely response on this matter. If you have any questions, please contact Jack Polce at (610) 840-9116 or Surender Kohli at (610) 644-5591.

Very truly yours,

ADVANCED GEOSERVICES CORPORATION


Jack L. Polce, P.E.
Senior Project Engineer

Enclosures

JLP:kk

Cc: Surender Kohli, AGC
Steve Woodward, AGC

NAME: Martin F. Goldberg
(Print Name)

DATE: 6/21/11

TITLE: Operations Manager

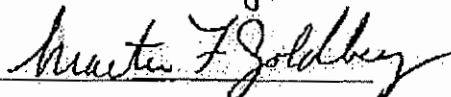
SIGNATURE: 

EXHIBIT 10

Resolution No 11-2002

**RESOLUTION NO. 11-2002
EAST WHITELAND TOWNSHIP**

RESOLUTION FOR PLAN REVISION

**RESOLUTION OF THE SUPERVISORS OF EAST WHITELAND TOWNSHIP,
CHESTER COUNTY, PENNSYLVANIA (hereunder "the municipality").**

WHEREAS, Section 5 of the Act of January 24, 1966, P.L. 1535, No. 537, known as the "Pennsylvania Sewage Facilities Act", as amended, and the Rules and Regulations of the Department of Environmental Protection (Department) adopted thereunder, Chapter 71 of Title 25 of the **Pennsylvania Code**, requires the municipality to adopt an Official Sewage Facilities Plan providing for sewage services adequate to prevent contamination of waters and/or environmental health hazards with sewage wastes, and to revise said plan whenever it is necessary to meet the sewage disposal needs of the municipality, and

WHEREAS, East Whiteland Township has prepared a minor amendment to Special Study – Act 537 which provides for a sewage facilities in a portion of existing residential area bounded by Sproul Road to the west, Amtrak Railroad to the north, Oakhill Circle to the east and west King Road to the south in East Whiteland Township, and

The alternative choice to be implemented is to provide a public sewer system. The key implementation activities/date include the project is currently under design and projected to be completed by November of 2002.

WHEREAS, East Whiteland Township finds that the Facility Plan described above conforms to applicable zoning, subdivision, other municipal ordinances and plans and to a comprehensive program of pollution control and water quality management.

NOW, THEREFORE, BE IT RESOLVED that the Supervisors of the Township of East Whiteland hereby adopt and submit to the Department of Environmental Protection for its approval as a revision to the "Official Plan" of the municipality, the above referenced Facility Plan. The municipality hereby assures the Department of the complete and timely implementation of the said plan as required by law. (Section 5, Pennsylvania Sewage Facilities Act as amended).

I, Maureen G. Perri, Secretary of East Whiteland Township Board of Supervisors hereby certify that the foregoing is a true copy of the Township's Resolution No. 13-2002, adopted this 23rd day of April, 2002.

BOARD OF SUPERVISORS
EAST WHITELAND TOWNSHIP

ATTEST:

Maureen G. Perri
Township Secretary

Virginia McMichael, Chair

Michele Vaughn
Michele Vaughn

P. Joseph Corrigan
Joseph Corrigan