

**WORCESTER TOWNSHIP
MONTGOMERY COUNTY, PENNSYLVANIA**

**MINOR ACT 537 SEWAGE FACILITIES
PLAN UPDATE REVISION
COMPONENT 3M
PADEP CODE #1-46962-178-3m**

**FOR
WORCESTER TOWNSHIP
HICKORY HILL AREA
LOW PRESSURE SEWER SYSTEM EXTENSION**

**September 16, 2013
(REVISED: November 1, 2013)**

REFERENCE NO. 7471

**CKS ENGINEERS, INC.
88 SOUTH MAIN STREET
DOYLESTOWN, PENNSYLVANIA 18901**

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**SEWAGE FACILITIES PLANNING MODULE
FOR
MINOR ACT 537 UPDATE REVISION
COMPONENT 3M**

(FORM 3800-FM-BPNPSM0353m)



SEWAGE FACILITIES PLANNING MODULE FOR MINOR ACT 537 UPDATE REVISION

Component 3m. Municipal or Authority Sponsored Minor Sewage Collection Project

(Return completed module package to appropriate municipality)

DEP USE ONLY				
DEP CODE #	CLIENT ID #	SITE ID #	APS ID #	AUTH ID #
1-46962-178-3M				

This document provides a simplified planning format for municipalities and municipal authorities proposing the construction of a sewer extension primarily serving existing development. Typically, this format would be used for projects involving the extension of sewer service to no more than 100 equivalent dwelling units (EDUs) and where the majority of the project serves existing development. For projects where more than 50 percent of the proposed customers will result from new land development, a Component 3 Sewage Facilities Planning Module would typically be used. For larger projects or if the project would involve the construction or modification of a wastewater treatment facility, then a general Act 537 Update Revision, meeting all of the requirements of Title 25 Pennsylvania Code, Chapter 71 § 71.21, is appropriate.

DEP staff will make a final determination as to the appropriate type of planning for a given project based on the review of a plan of study. Eligibility for a grant to offset the cost of planning will be determined by DEP staff based upon review of a *Task/Activity Report* (3800-FM-BPNPSM0005). The project sponsor submits both documents. **DO NOT** use this form without coordinating with your local DEP staff. Refer to the instructions.

This planning document, along with any other documents specified in the cover letter, must be completed and submitted to the municipality with jurisdiction over the project site for review and approval. All required documentation must be attached for the Sewage Facilities Planning Module to be complete. Refer to the instructions for help in completing this component.

A. PROJECT INFORMATION (See Section A of instructions)

1. Project Name

HICKORY HILL AREA LOW PRESSURE SEWER SYSTEM EXTENSION

2. Brief Project Description

LOW PRESSURE SEWER SERVICE WILL BE PROVIDED TO 74 PARCELS LOCATED IN WORCESTER TOWNSHIP, BOUND BY HICKORY HILL DRIVE, LANDIS ROAD, CREST TERRACE, VALLEY FORGE ROAD, AND GREEN BRIAR DRIVE, THROUGH THE WORCESTER TOWNSHIP SEWER SYSTEM.

B. CLIENT (MUNICIPALITY) INFORMATION (See Section B of instructions)

Municipality Name	County	City	Boro	Twp
WORCESTER TOWNSHIP	MONTGOMERY	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Municipality Contact - Last Name	First Name	MI	Suffix	Title
MANGAN	LEE			TOWNSHIP MANAGER
Additional Individual - Last Name	First Name	MI	Suffix	Title
Municipality Mailing Address Line 1		Mailing Address Line 2		
1721 VALLEY FORGE ROAD		P.O. BOX 767		
Address Last Line - City		State	ZIP+4	
WORCESTER		PA	19490-0767	
Phone + Ext.	FAX (optional)		Email (optional)	
215-584-1410			manager@worcestertwp.com	

C. SITE INFORMATION (See Section C of instructions)

Site Name

HICKORY HILL AREA

Site Location Line 1

AREA BOUND BY HICKORY HILL DRIVE, LANDIS ROAD, CREST TERRACE, VALLEY FORGE ROAD, AND GREEN BRIAR DRIVE (Refer Exhibit Nos. 4, 6 and 9)

Site Location Line 2

Site Location Last Line - City

WORCESTER

State

PA

ZIP+4

19490-0767

Latitude

40.192545N

Longitude

-75.343740W

Detailed Written Directions to Site

FROM PA TURNPIKE NORTHEAST EXTENSION INTERCHANGE #31: SOUTH ON SUMNEYTOWN PIKE TO WEST ON VALLEY FORGE ROAD (PA RT. 363), CROSS OVER SKIPPACK PIKE (PA RT 73) AND MAKE LEFT ONTO HICKORY HILL DRIVE.

Description of Site

RESIDENTIALLY ZONED, SINGLE FAMILY RESIDENCES (WITH A FEW COMMERCIAL PROPERTIES) WITH WELLS AND ON-LOT SEWAGE DISPOSAL SYSTEMS. (Refer Exhibit No. 5 and 7)

Site Contact - Last Name

First Name

MI

Suffix

Phone

Ext.

Site Contact Title

Site Contact Firm (if none, leave blank)

FAX

Email

Mailing Address Line 1

Mailing Address Line 2

Mailing Address Last Line – City

State

ZIP+4

D. PROJECT CONSULTANT INFORMATION (See Section D of instructions)

Last Name

JANETKA

First Name

ERIC

MI

J

Suffix

Title

PROJECT MANAGER

Consulting Firm Name

CKS ENGINEERS, INC.

Mailing Address Line 1

88 SOUTH MAIN STREET

Mailing Address Line 2

Address Last Line - City

DOYLESTOWN

State

PA

ZIP+4

18901

Country

USA

Email

ejanetka@cksengineers.com

Phone

215-340-0600

Ext.

FAX

215-340-1655

E. AVAILABILITY OF DRINKING WATER SUPPLY (See Section E of instructions)

The project will be provided with drinking water from the following source: (Check appropriate box)

- Individual wells or cisterns.
- A proposed public water supply.
- An existing public water supply.

If existing public water supply is to be used, provide the name of the water company and attach documentation from the water company stating that it will serve the project.

Name of water company: N/A (Refer Narrative Section F - Item 1)

F. PROJECT NARRATIVE (See Section F of instructions)

- A narrative has been prepared as described in Section E of the instructions and is attached.
The applicant may choose to include additional information beyond that required by Section E of the instructions.
(Refer Report Attachments Page 2 of 205)

G. SEWAGE DISPOSAL NEEDS IDENTIFICATION (See Section G of instructions)

Conduct sanitary and water supply surveys per DEP's publication entitled *Sewage Disposal Needs Identification*. This is highly recommended for all projects. It is required if PENNVEST funding is to be sought for the project, or if required by DEP as indicated by the checked box opposite this item. (Refer Narrative Section G-Page 3 of 9)

H. EXISTING WASTEWATER FACILITIES (See Section H of instructions)

1. COLLECTION SYSTEM

Provide requested information concerning the existing treatment facility.

- a. Name of existing collection system WORCESTER TOWNSHIP SEWER SYSTEM
Clean Streams Law Permit Number _____
- b. Name of interceptor N/A
Clean Streams Law Permit Number N/A

2. WASTEWATER TREATMENT FACILITY

Provide requested information concerning the existing treatment facility.

Name of existing facility VALLEY GREEN WASTEWATER TREATMENT PLANT
NPDES Permit Number for existing facility PA0050393 A-1

I. PROPOSED WASTEWATER FACILITIES (See Section I of instructions)

1. Provide an estimate of the immediate and five year projected flow from the proposed sewer extension. Address the capacity for this flow in the existing conveyance and treatment facilities in terms of the most recent wasteload management annual report for these facilities. (Refer Narrative Section I – Page 4 of 9)
2. **PLOT PLAN** (Refer Exhibit Nos. 4, 5, 6, 9, 10, 11 and 12)

The following information is to be submitted on a plot plan or map of the proposed project that clearly reflects the relationship between the proposed facilities and the identified features.

- | | |
|--|--|
| a. Existing and proposed buildings. | h. Existing and proposed streets, roadways, access roads, etc. |
| b. Lot lines and lot sizes. | i. Any designated recreational or open space area |
| c. Adjacent lots. | j. Wetlands - from National Wetland Inventory Mapping and USGS Hydric Soils Mapping. |
| d. Existing and proposed sewerage facilities. | k. Flood plains or Floodprone area soils, floodways, watercourses, water bodies (from Federal Flood Insurance Mapping) |
| e. Show tap-in or sewer extension to the point of connection to existing collection system. | l. Prime Agricultural Land. |
| f. Existing and proposed water supplies and surface water (wells, springs, ponds, streams, etc.) | m. Any other facilities (pipelines, power lines, etc.) |
| g. Existing and proposed rights-of-way. | n. Orientation to north. |

I. PROPOSED WASTEWATER FACILITIES (continued)

3. WETLAND PROTECTION (Refer Exhibit No. 10)

YES NO

- a. Are there wetlands in the project area? If yes, indicate these areas on the plot plan as shown in the mapping or through on-site delineation.
- b. Are there any construction activities (encroachments, or obstructions) proposed in, along, or through the wetlands? If yes, Identify any proposed encroachments on wetlands and identify whether a General Permit or a full encroachment permit will be required. If a full permit is required, address time and cost impacts on the project. Note that wetland encroachments should be avoided where feasible. Also note that a feasible alternative **MUST BE SELECTED** to an identified encroachment on an exceptional value wetland as defined in Chapter 105. Identify any project impacts on HQ or EV streams and address impacts of the permitting requirements of said encroachments on the project.

4. PRIMARY AGRICULTURAL LAND PROTECTION (Refer Exhibit No. 12)

- a. Will your project involve the disturbance of any prime agricultural lands? If "yes" indicate any alternatives to this disturbance that were considered and the reasons they were not deemed feasible. Identify any primary or secondary impacts of the project on the Commonwealth's prime agricultural lands. Evaluate alternatives to avoid or mitigate undesirable impacts. The selected sewage facilities plan must be consistent with local measures in place to protect prime agricultural lands.

5. STORMWATER MANAGEMENT IMPACTS:

- a. Will the project impact an area covered by a DEP approved County Stormwater Management Plan? If yes show that the proposed facilities are consistent with that plan.

6. PENNSYLVANIA NATURAL DIVERSITY INDEX (PNDI) CONSISTENCY:

Check one:

- The "Pennsylvania Natural Diversity Inventory (PNDI) Project Environmental Review Receipt" resulting from my search of the PNDI database and all supporting documentation from jurisdictional agencies (when necessary) is/are attached. (Refer Exhibit No. 3)
- A completed "Pennsylvania Natural Diversity Inventory (PNDI) Project Planning & Environmental Review Form," (PNDI Form) available at www.naturalheritage.state.pa.us, and all required supporting documentation is attached. I request DEP staff to complete the required PNDI search for my project. I realize that my planning module will be considered incomplete upon submission to the Department and that the DEP review will not begin, and that processing of my planning module will be delayed, until a "PNDI Project Environmental Review Receipt" and all supporting documentation from jurisdiction agencies (when necessary) is/are received by DEP.

Applicant or Consultant Initials _____

7. COMPREHENSIVE PLAN CONSISTENCY: (Refer Narrative Section G and I; Appendix A)

- A narrative and mapping to show that the proposed project is consistent with any comprehensive plan developed under the Pennsylvania Municipalities Planning Code (Act 247) is attached. Document that the proposed project is consistent with land use and all other requirements stated in the comprehensive plan.

8. COOPERATION WITH PA. HISTORICAL AND MUSEUM COMMISSION (PHMC): (Refer Exhibit No. 3)

- A copy of DEP's "Cultural Resource Notice" and map which were sent to the Commission and a copy of the Commission's response are attached. Note that the Commission may require archeological surveys if federal funds, including PENNVEST, will be used in the project. If PENNVEST funds are to be used, DEP cannot recommend the project to PENNVEST for consideration until any required surveys have been done and the project has been "cleared" by the Commission.

9. **ADDITIONAL REQUIREMENTS FOR PENNVEST PROJECTS:**

- A copy of the additional information is attached. If PENNVEST funding is to be sought for the project, address these additional items in terms of any project impacts and measures to avoid or mitigate same.
- Cost Effectiveness
 - Air quality
 - Floodplains
 - Wild and scenic rivers
 - Coastal zone management
 - Socio-economic impacts
 - Water supplies
 - Other environmentally sensitive areas

J. ALTERNATIVE SEWAGE FACILITIES ANALYSIS (See Section J of instructions)

- An alternative sewage facilities analysis has been prepared as described in Section J of the instructions and is attached.

The applicant may choose to include additional information beyond that required by Section J of the instructions.

(Refer Narrative Section J – Page 6 of 9)

K. CHAPTER 94 CONSISTENCY DETERMINATION (See Section K of instructions)

Projects that propose the use of existing municipal collection, conveyance or wastewater treatment facilities, or the construction of collection and conveyance facilities to be served by existing municipal wastewater treatment facilities must be consistent with the requirements of Chapter 94 of DEP's rules and regulations (relating to Municipal Wasteload Management). If more than one municipality or authority will be affected by the project, please obtain the information required in this section for each. Additional sheets may be attached for this purpose.

1. Project Flows **26,100** gpd
2. Total Sewage Flows to Facilities
 - a. Enter average and peak sewage flows for each proposed or existing facility as designed or permitted.
 - b. Enter the present average and peak sewage flows for the critical sections of existing facilities.
 - c. Enter the average and peak sewage flows projected for 5 years through the critical sections of existing facilities which includes existing, proposed, or future projects.

To complete the table, refer to Section K of instructions.

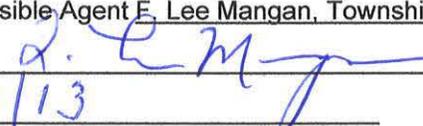
	a. Design and/or Permitted [*] Capacity (gpd)		b. Present Flows (gpd)		c. Projected Flows in 5 years (gpd)	
	Average	Peak	Average	Peak	Average	Peak
Collection	225,000	450,000	98,000	108,000	124,100	134,100
Conveyance						
Treatment	220,000	330,000	98,000	108,000	124,100	134,100

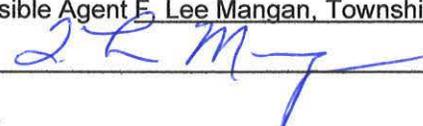
*** Refer to Exhibit No. 13 "Valley Green Wastewater Treatment Plant Expansion – Project Narrative".**

3. Collection and Conveyance Facilities
The questions below are to be answered by the sewer authority, municipality, or agency responsible for completing the Chapter 94 report for the collection and conveyance facilities. These questions should be answered in coordination with the latest Chapter 94 annual report and the above table.

This project proposes sewer extensions or tap-ins. Will these actions create a hydraulic overload within five years on any existing collection or conveyance facilities that are part of the system? Yes No

- a. If yes, this sewage facilities planning module will not be accepted for review by the municipality, delegated local agency and/or DEP until all inconsistencies with Chapter 94 are resolved or unless there is an approved plan and schedule granting an allocation for this project. A letter granting allocations to this project under the plan and schedule must be attached to the module package.
- b. If no, the sewer authority, municipality, or agency responsible for completing the Chapter 94 report for the collection and conveyance facilities must sign below to indicate that the collection and conveyance facilities have adequate capacity and are able to provide service to the proposed development in accordance with Chapter 94 requirements and that this proposal will not affect this status.

c. Collection System
Name of Agency, Authority, Municipality Worcester Township
Name of Responsible Agent E. Lee Mangan, Township Manager
Agent Signature 
Date 9/11/13

d. Conveyance System
Name of Agency, Authority, Municipality Worcester Township
Name of Responsible Agent E. Lee Mangan, Township Manager
Agent Signature 
Date 9/11/13

K. CHAPTER 94 CONSISTENCY DETERMINATION (continued)

4. Treatment Facility

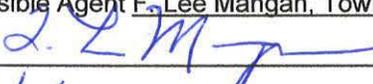
The questions below are to be answered by the facility permittee in coordination with the information in the table and the latest Chapter 94 report.

This project proposes the use of an existing wastewater treatment plant for the disposal of sewage. Will this action create a hydraulic or organic overload within 5 years at that facility? Yes No

- a. If yes, this planning module for sewage facilities will not be reviewed by the municipality, delegated local agency and/or DEP until this inconsistency with Chapter 94 is resolved or unless there is an approved plan and schedule granting an allocation for this project. A letter granting allocations to this project under the plan and schedule must be attached to the planning module.
- b. If no, the treatment facility permittee must sign below to indicate that this facility has adequate treatment capacity and is able to provide wastewater treatment services for the proposed development in accordance with Chapter 94 requirements and that this proposal will not impact this status

c. Name of Agency, Authority, Municipality Worcester Township

Name of Responsible Agent F. Lee Mangan, Township Manager

Agent Signature 

Date 9/11/13

L. INSTITUTIONAL EVALUATION (See Section L of instructions)

- An institutional evaluation is attached. Identify the entity which will design, obtain necessary permits, construct, own and operate the proposed facilities. If a low pressure vacuum or effluent sewer are proposed, discuss purchase, installation, operation and maintenance responsibilities for the individual pumping, valves, tanks, etc.
(Refer Narrative Section L – Page 8 of 9)

M. PROJECT COST AND FUNDING ANALYSIS (See Section M of instructions)

- A detailed cost estimate and present worth analysis for the project is attached. Provide a financing plan for the project, identifying the funding source(s) and identifying estimated tap fees and user rates. For projects proposing the use of PENNVEST funds, see Section I. 9. **ADDITIONAL REQUIREMENTS FOR PENNVEST PROJECTS.** Complete the following table:

Cost and Funding Information (Estimated)	
COST	
Construction cost	\$ 878,165.00
Administrative, legal, engineering cost	\$ 175,633.00
Total project cost	\$ 1,053,798.00
Annual O/M cost	\$ N/A
FUNDING	
Tap-in fees (\$ per EDU X no. EDUs)	\$ 259,000.00
Proceeds from primary funding source	\$ 1,053,798.00
Proceeds from other funding sources	\$ N/A
USER COSTS	
Initial user base	74 EDUs
Monthly debt service per EDU	\$ N/A
Monthly O/M cost per EDU	\$ N/A
Total estimated monthly user cost per EDU	\$ 31.67

(Also refer Exhibit No. 9 and Narrative Section M – Page 8 of 9)

(= \$3,500.00 x 74)

N. PROJECT IMPLEMENTATION SCHEDULE (See Section N of instructions)

- A project implementation schedule showing milestone dates for submission of DEP permit applications, initiation and completion of construction and any other milestones significant to this particular project is attached to this component. (Refer Narrative Section N – Page 8 and 9 of 9)

O. PUBLIC NOTIFICATION REQUIREMENT (See Section O of instructions)

- Attached is a copy of the public notice. All comments received as a result of the notice are attached.
- Municipal response to these comments is attached.
- No comments were received. A copy of the public notice is attached.

(Refer Exhibit Nos. 2 and 3)

P. ADDITIONAL CHAPTER 71 PLANNING ELEMENTS (See Section P of instructions)

a. Additional planning elements are required by DEP.

- _____
- _____
- _____
- _____
- _____

Q. PLANNING AGENCY REVIEW (See Section Q of instructions)

Local Planning Commission comments or Component 4a are attached.

(Refer Exhibit No. 3)

County, Area, Or Region Planning Commission comments or Component 4b are attached.

(Refer Exhibit No. 3)

County or Joint County Health Department comments (if appropriate) or Component 4c are attached.

(Refer Exhibit No. 3)

R. RESOLUTION OF ADOPTION (See Section R of instructions)

An original, signed, and sealed Resolution of Adoption is attached. (Refer Exhibit No. 1)

ATTACHMENTS

**SEWAGE FACILITIES PLANNING MODULE
FOR MINOR ACT 537 UPDATE REVISION COMPONENT 3M
HICKORY HILL AREA
LOW PRESSURE SEWER SYSTEM EXTENSION
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA**

SECTION F – PROJECT NARRATIVE

1. Nature of the Project

Worcester Township is currently in the planning phase of the “Hickory Hill Area Low Pressure Sewer System Extension”. The project proposes public sanitary sewer service to a total of seventy-four (74) properties bounded by Hickory Hill Drive, Landis Road, Valley Forge Road, Crest Terrace, and Green Briar Drive within Worcester Township, Montgomery County, Pennsylvania (**Refer Exhibit Nos. 6 and 9**). This proposed Planning Area is identified in the Township’s Act 537 Plan (February 12, 1997) and Worcester Township Comprehensive Plan as being within the Center Point Village Sewer Service Area, but is presently served by on-lot sewage disposal systems and private wells. The Planning Area is also within the “10 Year Planning Area for Public Sewers” as identified in Figure 5-1 of the Worcester Township Act 537 Plan of 1997 (**Refer Appendix A & B**). The Center Point Village Service Area and the proposed Planning Area are within the service area of the Valley Green Wastewater Treatment Plant (WTP), which was recently approved for expansion to a capacity of 220,000 gallons per day (gpd). Construction of the approved expansion of the Valley Green WTP will be completed concurrently with construction of the low pressure sewer system (which is the subject of this Minor Act 537 Plan Update). The engineering design of the treatment plant is complete and bid for construction of the expansion will be let in late 2013. Engineering design of the low pressure sewer system (LPSS) is being completed concurrently with preparation of this Planning Module and the Township intends to file for Water Quality permit for the LPSS within the same timeframe as submission of the Planning Modules (**Refer Section N, Project Implementation Schedule, of this narrative**). The treatment plant is presently permitted for a maximum capacity of 130,000 gpd (**Refer Valley Green Wastewater Treatment Plant Expansion Narrative – Exhibit No. 13 of this report; and NPDES Permit No. PA0050393 A-1 – Exhibit No. 3 of this report**). No connections to the LPSS will be made that will hydraulically overload the treatment plant or the collection system. No public water mains are to be constructed in conjunction with this project.

The Hickory Hill Area Low Pressure Sewer System Extension Planning Area, to which public sewer service is to be extended, consists of 74 parcels, located within five different Zoning Districts, R-75, R-150, R-175, AGR, Commercial (**Refer Exhibit Nos. 5 and 7**). Twelve (12) parcels are zoned Commercial, but several of these parcels contain an existing residential use. One of the parcels, while being residentially zoned, contains an existing “utility” use and does not contain a residential dwelling. All other parcels are residentially zoned or zoned to allow

residential uses. Some of the parcels zoned Commercial and which contain existing residential uses, could be utilized in the future for traditional Commercial uses. Most parcels in the Planning Area are developed and being utilized for either residential or commercial use (as described above). Several of the parcels are heavily encumbered by restrictive environmental features such as floodplains, riparian corridors, wetlands, or woodlands and are unable to be further subdivided or developed (**Refer Exhibit Nos. 10 and 11**). Some larger lots exist within the Planning Area but are limited from higher density subdivision due to location, Zoning Regulations, and/or environmental/physical encumbrances. A total of one (1) EDU is allotted to each parcel in the Planning Area with additional EDUs allotted for future subdivision and/or development of five (5) parcels as described below and in Exhibit No. 7 – Planning Area Parcels and Projected Sewage Flow. A map of the Planning Area is attached (**Refer Exhibit No. 6**).

2. Wastewater Flow Projections (**Also Refer to Exhibit No. 7**)

A total of 74 properties are within the project Planning Area, and as described above, at least one (1) EDU is allotted for each parcel, but additional EDUs are allotted for those parcels that might be further subdivided/developed in the future (**Refer Exhibit No. 7 – Planning Area Parcels and Projected Sewage Flow**). A total of four (4) EDUs are allotted to Parcel Numbers 670002808005, 670000910004, 670000928004, and 670001069007 and a total of two (2) EDUs are allotted to Parcel Number 670001693004. The remaining sixty-nine (69) parcels are allotted one (1) EDU resulting in a total quantity of 87 EDUs for the Planning Area (69 parcels @ 1 EDU plus 4 parcels @ 4 EDUs plus 1 parcel @ 2 EDUs). The Worcester Township Act 537 Plan identifies one EDU as being the equivalent of 300 gpd of sewage flow; therefore, the total proposed flow in the Planning Area is 26,100 gpd (87 EDUs x 300 gpd). Based on PADEP definition of 400 gpd per EDU, the proposed additional flow would equate to sixty-six EDUs. All parcels with failing or malfunctioning On-Lot Disposal Systems (OLDS) will be required to immediately connect to the low pressure sewer system. Properties with failing systems will be determined in consultation with the Montgomery County Department of Health. All lots within the Planning Area will be required to equally share the cost to install the sewer system within the public rights-of-way and sewer easement areas. Cost of the system will be divided equally amongst the initial user base of 74 parcels (**Refer Section M of Component 3M form, Section M of this narrative and Exhibit No. 9**). Worcester Township will require all properties within the Planning Area to connect to the system at time of transfer of property or refinancing of a mortgage. A maximum time period after which connection must be made to the system has not been established by Worcester Township as part of this Act 537 Sewage Facilities Plan Update Revision. A summary of projected immediate flow, 5-year flow, 10-year flow and ultimate flow is provided in Table I.1 of Section I of this narrative.

3. Proposed Collection and Conveyance System

The proposed low pressure sewer extension will consist of 1.5-inch to 3-inch PVC piping largely located within paved public roadways including Hickory Hill Drive,

Landis Road, Valley Forge Road, Crest Terrace, and Green Briar Drive (**Refer Exhibit No. 9**). A small portion of the system is to be constructed within easements on private property in order to directly connect to the Valley Green WTP, owned and operated by Worcester Township. This portion of the system will convey sewage flow from parcels along Valley Forge Road, Hickory Hill Drive (between Landis Road and Valley Forge Road) and Landis Road. The other portion of system will convey sewage flow from parcels along Hickory Hill Drive (south of Landis Road) and Green Briar Drive and will connect to an existing gravity sewer manhole at the intersection of Green Briar Drive and Conestoga Lane. This manhole is part of a sanitary sewer system owned and operated by Worcester Township. This system, which consists of 8-inch gravity sewer mains, conveys flow along Defford Road, directly to the Valley Green WTP, which was recently approved for expansion to a capacity of 220,000 gallons per day (gpd). Construction of the approved expansion of the Valley Green WTP will be completed concurrently with construction of the low pressure sewer system (which is the subject of this Minor Act 537 Plan Update). The engineering design of the treatment plant is complete and bid for construction of the expansion will be let in late 2013. Engineering design of the low pressure sewer system (LPSS) is being completed concurrently with preparation of this Planning Module and the Township intends to file for Water Quality permit for the LPSS within the same timeframe as submission of the Planning Modules (**Refer Section N, Project Implementation Schedule, of this narrative**). The treatment plant is presently permitted for a maximum capacity of 130,000 gpd (**Refer Valley Green Wastewater Treatment Plant Expansion Narrative – Exhibit No. 13 of this report; and NPDES Permit No. PA0050393 A-1 – Exhibit No. 3 of this report**). No connections to the LPSS will be made that will hydraulically overload the treatment plant or the collection system.

SECTION G - SEWAGE DISPOSAL NEEDS IDENTIFICATION

Soils within the project Planning Area are identified in the Montgomery County Soil Survey as “very limited” or “moderately limited” for traditional sand mound or subsurface sand filter trench on-lot disposal systems (OLDS), and are considered marginal for septic systems under current regulations. Several OLDS within the project Planning Area are known to have failed and several other malfunctions are suspected based on soil conditions and reports from property owners. A list of the classifications and limitations (for on-lot septic systems) for soils within the Planning Area is attached (**Refer Exhibit No. 12**).

A survey of 71 owners of parcels within the proposed Planning Area, regarding their OLDS, conducted in 2012, resulted in 62 responses (87%), of which 29 owners (47%) chose either gravity or low pressure public sewer as their preference for sewage disposal, over their private, on-lot systems (**Refer Exhibit No. 8**). Further, information reported by the 62 respondents identified that 11 of the existing OLDS were approximately 10-years old or less, confirming failure or malfunction of at least 18% of the OLDS in the Planning Area. Respondents indicated there are approximately 30 OLDS that are at least 40 years old or greater, which is significantly greater than the

normal lifespan of an on-lot disposal system. Accordingly, it is reasonable to anticipate that additional OLDS failures are likely in the near future.

Worcester Township anticipated extending public sewer service to the Planning Area as this location is within the Center Point Village Sewer Service Area pursuant to the Worcester Township Act 537 Plan (February 12, 1997) and Worcester Township Comprehensive Plan. Further, the Act 537 Plan identifies the Planning Area as being within the “10 Year Planning Area for Public Sewers” (**Refer Appendix A and B**).

SECTION I - PROPOSED WASTEWATER FACILITIES

The Hickory Hill Area Low Pressure Sewer System Extension Planning Area, to which public sewer service is to be extended, consists of 74 parcels (the initial user base). As described in this narrative, at least one (1) EDU is allotted for each parcel in the Planning Area, but additional EDUs are allotted for those parcels that might be further subdivided/developed in the future (**Refer Exhibit No. 7 – Planning Area Parcels and Projected Sewage Flow**). A total of four (4) EDUs are allotted to four of the Planning Area parcels and a total of two (2) EDUs are allotted to one of the Planning Area parcels. The remaining sixty-nine (69) parcels are allotted one (1) EDU resulting in a total quantity of 87 EDUs for the Planning Area (69 parcels @ 1 EDU plus 4 parcels @ 4 EDUs plus 1 parcel @ 2 EDUs). The total proposed flow in the Planning Area is 26,100 gpd (87 EDUs x 300 gpd). Based on PADEP definition of 400 gpd per EDU, the proposed additional flow would equate to sixty-six EDUs (**Refer Exhibit No. 7**).

All parcels with failing or malfunctioning OLDS will be required to immediately connect to the low pressure sewer system. Properties with failing systems will be determined in consultation with the Montgomery County Department of Health. All lots within the Planning Area will be required to equally share the cost to install the sewer system within the public rights-of-way and sewer easement areas. Cost of the system will be divided equally amongst the initial user base of 74 parcels (**Refer Section M of Component 3M form, Section M of this narrative and Exhibit No. 9**). Worcester Township will require all properties within the Planning Area to connect to the system at time of transfer of property or refinance of a mortgage. A maximum time period after which connection must be made to the system has not been established by Worcester Township as part of this Act 537 Sewage Facilities Plan Update Revision. A summary of projected immediate flow, 5-year flow, 10-year flow and ultimate flow is provided in Table I.1 of Section I of this narrative.

The proposed low pressure sewer extension will consist of 1.5-inch to 3-inch PVC piping largely located within paved public roadways including Hickory Hill Drive, Landis Road, Valley Forge Road, Crest Terrace, and Green Briar Drive. A small portion of the system is to be constructed within easements on private property in order to directly connect to the Valley Green WTP, owned and operated by Worcester Township. This portion of the system will convey sewage flow from parcels along Valley Forge Road, Hickory Hill Drive (between Landis Road and Valley Forge Road) and Landis Road. The other portion of system will convey sewage flow from parcels along Hickory Hill Drive (south of Landis Road) and Green Briar Drive and will connect to an existing

gravity sewer manhole at the intersection of Green Briar Drive and Conestoga Lane. This manhole is part of a sanitary sewer system owned and operated by Worcester Township. This system, which consists of 8-inch gravity sewer mains, conveys flow along Defford Road, directly to the Valley Green WTP (**Refer Valley Green Wastewater Treatment Plant Expansion Narrative – Exhibit No. 13 of this report**).

Project clearance for the proposed schematic sewer layout and lateral connections has been obtained from the Pennsylvania Historical and Museum Commission and is included in the attachments to the Component 3M (**Refer Exhibit No. 3**). A Pennsylvania Natural Diversity Inventory (PNDI) Environmental review has been conducted and indicated “no known impacts” and “no further review required”. The location of wetlands is shown on the attached Exhibit No. 10 based on the National Wetland Inventory. No impact to wetlands is anticipated with this project; however, the presence of wetlands will be determined at time of completion of engineering design for the sewer system and as each property submits application for connection and construction of their individual lateral connections. Since the proposed low pressure sewer mains and related improvements are to be largely constructed on previously developed ground (streets, residential lots, previously graded areas), the presence of wetlands is not anticipated. A copy of the PNDI Environmental Review is attached (**Refer Exhibit No. 3**).

This project is consistent with Worcester Township’s Comprehensive Plan (**Refer Appendix A**). Chapter 1 of the Plan indicates the provision of extending public sewer into the Township’s growth areas, including Center Point Village, as a Growth and Development Objective. This objective is also included in the Township’s Sewage Disposal and Water Supply Goals of Chapter 1. Also, in Chapter 1 under Sewage Disposal and Water Supply Objectives, extension of public sewer service is proposed for Center Point. In Chapter 3 of the Comprehensive Plan, Sewage Disposal and Water Supply, the proposed Planning Area is within the 1995 Sewer Growth Plan area (**Refer Appendix A**).

The following table summarizes immediate, 5-year, 10-year and ultimate proposed sewage flows for the Planning Area (**also refer Exhibit No. 7**):

IMMEDIATE FLOW	5-YEAR PROJECTED FLOW	10-YEAR PROJECTED FLOW	ULTIMATE PROJECTED FLOW
3,900 gpd ⁽¹⁾	11,400 gpd ⁽²⁾	22,200 gpd ⁽³⁾	26,100 gpd ⁽⁴⁾

Footnotes:

1. *Flow based on connection of parcels with failing/malfunctioning systems within the Planning Area at 300 gpd per connection. It is estimated that approximately 10% of the parcels are experiencing OLDS failures or malfunctions. Properties with failing/malfunctioning septic systems will be required to connect immediately. Also included in this total is flow from 5 parcels with functioning septic system that voluntarily request to connect.*

2. *Total estimated flow at Year 5 includes connection of parcels transferring ownership (average of 3 property sales per year, over 5 years) plus 1 voluntary connection per year (over 5 years) plus connection of 1 newly failing system (estimated) per year (over 5 years) plus flow of 3,900 gpd from the immediate connections of Year 1.*
3. *All 74 parcels are connected at 300 gpd per parcel.*
4. *Total proposed flow from the Planning Area (87 EDUs @ 300 gpd per EDU).*

SECTION J - ALTERNATIVES ANALYSIS

The Hickory Hill Area Low Pressure Sewer System Extension will ultimately serve seventy-four (74) properties bounded by Hickory Hill Drive, Landis Road, Valley Forge Road, Crest Terrace, and Green Briar Drive (**Refer Exhibit No. 6**).

The following alternatives for providing sewer service to the proposed Planning Area have been considered:

1. Construction of a Conventional Gravity Sewer System

This alternative involves the construction of gravity sanitary sewer pipe to serve the 74 parcels within the Planning Area. This system would require a substantial quantity of 8-inch diameter pipe, sewer manholes, two stream crossings, and roadway restoration. Due to the significant cost to construct this system (approximately \$37,000.00 per initial user), as compared to low pressure sanitary sewer, it is not considered economically feasible, particularly since the Planning Area is on the perimeter of the Center Point Village Sewer Service Area and it is not anticipated that additional connections (beyond those planned, as described in this Planning Modules Component 3M) to the system will be made in the future from those surrounding areas, thus there is no potential to recover additional up-front cost through future sewer connection tapping fees (**Refer Section M of this narrative**).

2. Construction of a Low Pressure Sewer System

This alternative involves the construction of a low pressure sanitary sewer (LPSS) system with sewer mains ranging in size from 1-1/2 inches to 3 inches. This system would only serve the 74 parcels (the initial user base) within the Planning Area. There is no additional capacity in the LPSS system as future extension of sewer beyond the proposed Planning Area is not intended nor is it recommended as part of the Worcester Township Comprehensive Plan or Act 537 Plan. Annual maintenance cost associated with this type of system (for individual grinder pumps, electric, etc.) would be substantially greater than a gravity sewer system, but the cost to install this system is substantially less than gravity sewer system.

3. Continued Use of On-Lot Sewage Disposal Systems

The continued use of on-lot sewage disposal systems (OLDS) was considered as an alternative for the Planning Area. The properties within the Planning Area are

served by OLDS built under earlier regulations for soil testing and design of septic disposal systems, and which are greater than 40 years old. Nearly 20% of the OLDS in the Planning Area have already failed and been replaced (**Refer Exhibit No. 8**). It is anticipated that due to the age of the remaining OLDS in the Planning Area, additional system failures are likely in the near future. Due to the history of system failures and based on current regulations for the testing of soils and system design, OLDS are not considered a viable option given the environmental restrictions in the Planning Area, specifically the soils which are mostly classified by the Montgomery County Soil Survey as “moderately limited” or “very limited” for traditional on-lot sewage disposal systems including elevated sand mounds and subsurface sand filter trenches. Use of OLDS in the Planning Area is also restricted due to the design challenges presented by setback and separation regulations on small lots. Since the Planning Area is located in the Center Point Village Sewer Service Area and the “10 Year Planning Area for Public Sewers” as identified in Figure 5-1 of the Worcester Township Act 537 Plan of 1997, the continued use of OLDS is not considered technically or economically feasible. Cost for installation of replacement OLDS (estimated between \$35,000.00 and \$40,000.00) is greater than the cost associated with the alternatives discussed herein.

4. Small Flow or Community Treatment Facility

The proposed Planning Area is located in close proximity to the Worcester Township Sanitary Sewer collection system, Valley Green WTP, within the Center Point Village Sewer Service Area and the “10 Year Planning Area for Public Sewers” (as identified in the Worcester Township Act 537 Plan of 1997), thus construction of an additional plant(s) is not considered technically or economically feasible.

5. Retaining Tanks

Generally, retaining tanks are only permitted on an interim basis where connection to sanitary sewer is imminent. While they may have some viability on a short-term basis, any reliance on the continued use of retaining tanks is not considered technically feasible.

6. Do Nothing

This alternative would require that nothing be done to eliminate sewage system failures or malfunctions. This alternative would not meet the goals and objectives of the Worcester Township Act 537 Sewage Facilities Plan or Comprehensive Plan (**Refer Appendix A and B**) and is not considered viable.

7. Selected Alternative

Based upon the alternatives considered above, construction of a low pressure sewer system has been determined to be the most desirable and cost effective alternative for serving the properties within the Proposed Planning Area in Worcester Township. This alternative provides a permanent method of sanitary sewage disposal allows for connection of the greatest number of lots served by OLDS and limits potential for pollution to the Zacharias Creek and groundwater system.

SECTION L - INSTITUTIONAL EVALUATION

The proposed low pressure sewer system and the portion of the laterals within the public right-of-ways (and easement areas) will be owned and maintained by Worcester Township. Additionally, Worcester Township owns, operates and maintains the downstream gravity sewer collection system and Valley Green WTP to which the low pressure sewer system will discharge. The portion of the low pressure sanitary sewer system on the individual properties will be installed, owned and maintained by the property owner. This will include the grinder pump and pump basin, electric supply and controls, and the lateral pipe from the right-of-way to the pump basin and from the pump basin to the dwelling.

SECTION M - PROJECT COST AND FUNDING ANALYSIS

The low pressure sewer system is to be constructed, operated and maintained by Worcester Township. The cost to install all system components is estimated to be \$1,053,798.00 which equates to a cost of \$14,240.51 per parcel/initial user base EDU. With the inclusion of an estimated private lateral construction cost of \$ 10,600.00 (which includes grinder pump, electric supply/controls, lateral installation and abandonment of existing on-lot disposal system) and a tapping fee of \$3,500.00 per connection, the total overall project cost of the low pressure sewer system is \$28,350.51 per EDU (based on a current total of 74 initial user base EDUs). A copy of the preliminary estimated cost of this project is attached (**Refer Exhibit No. 9**). By comparison, the estimated cost of the gravity sewer system is \$37,000.00 per initial user base EDU (including private lateral construction cost, abandonment of existing septic system, and tapping fee). The total costs to install the LPSS (excluding private lateral construction) will be immediately assessed to each parcel owner (approximately \$14,240.51 per parcel) upon completion of construction. A maximum time period after which connection must be made to the system has not been established by Worcester Township as part of this Act 537 Sewage Facilities Plan Update Revision.

SECTION N – PROJECT IMPLEMENTATION SCHEDULE

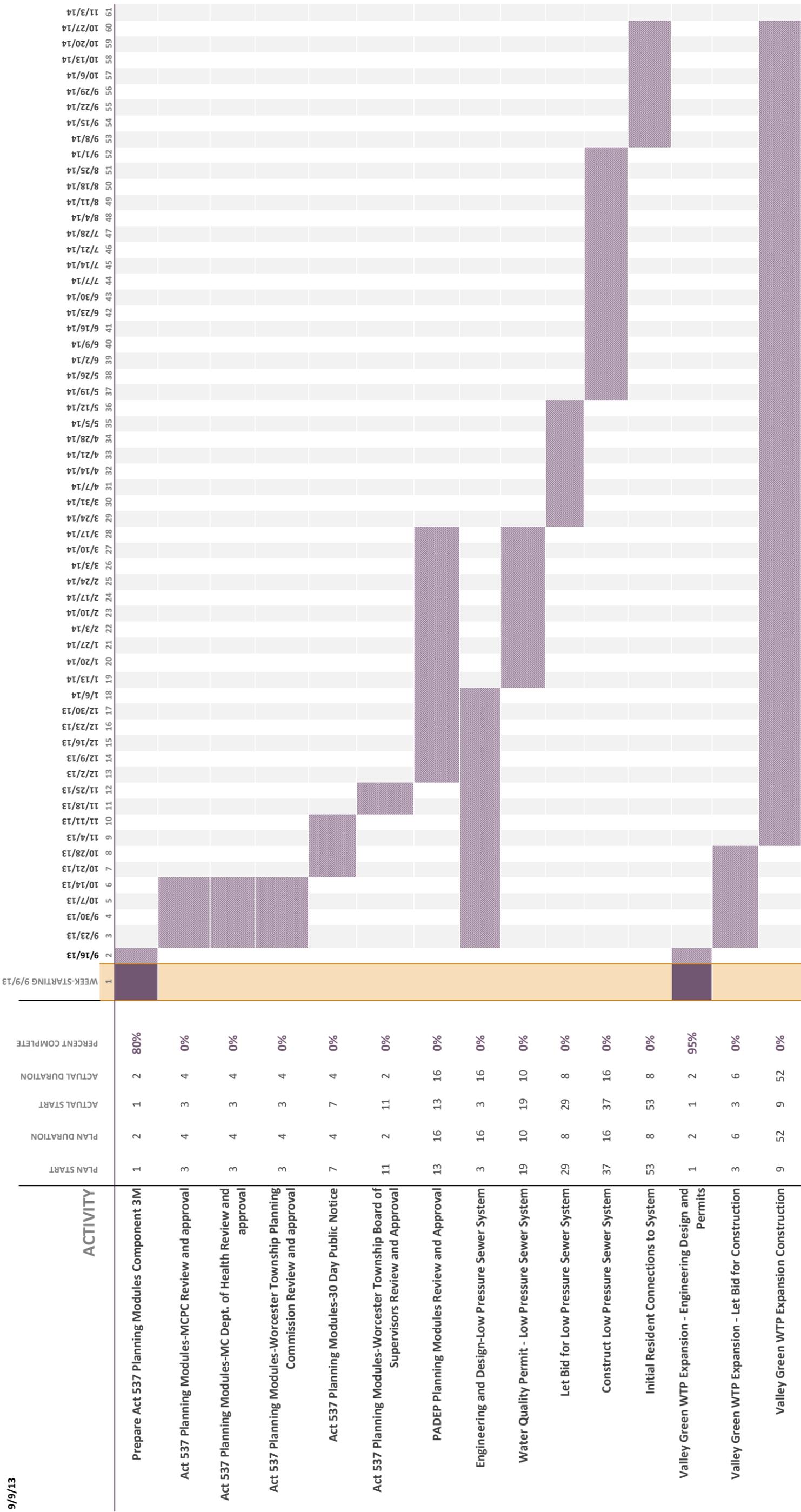
REFER TO FOLLOWING NARRATIVE PAGE FOR ATTACHED SCHEDULE

**HICKORY HILL AREA
LOW PRESSURE SEWER SYSTEM EXTENSION
PROJECT IMPLEMENTATION SCHEDULE**

START DATE:
9/9/13

Period Highlight: 1 % Complete

Plan



EXHIBITS

EXHIBIT NO. 1

MUNICIPAL ADOPTING RESOLUTION

RESOLUTION FOR MINOR ACT 537 PLAN REVISION

RESOLUTION OF THE BOARD OF SUPERVISORS OF WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA (hereinafter "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 there under, 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 in conformance with a comprehensive program of pollution control and water quality management, and

WHEREAS, Worcester Township has prepared the attached Minor Act 537 Sewage Facilities Plan Update Revision which provides for extension of public sewage facilities to a portion of Worcester Township, which is within the Center Point Village Service Area, and which includes seventy-four (74) properties bound by Hickory Hill Drive, Crest Terrace, Valley Forge Road, Landis Road, and Green Briar Drive, and

WHEREAS, the alternative of choice to be implemented is construction of and connection to a low pressure sewer system to be owned and operated by Worcester Township, and

WHEREAS, Worcester Township finds that the Sewage Facilities 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 Worcester Township Board of Supervisors hereby adopt and submit to the Department of Environmental Protection for its approval as a revision to the "Official Sewage Facilities Plan" of the municipality, the above-referenced Sewage Facilities Planning Module, which is attached hereto. 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, _____, Secretary,
Worcester Township Board of Supervisors hereby certify that the foregoing is a true copy

of the Township Resolution No. _____ adopted _____ 20 ____ .

AUTHORIZED SIGNATURE:

MUNICIPAL SEAL:

Worcester Township
1721 Valley Forge Road
Worcester, PA 19490-0767
215-584-1410

EXHIBIT NO. 2

PROOF OF PUBLIC NOTIFICATION

PUBLIC NOTICE

Public Notice is hereby given that Worcester Township, Montgomery County, Pennsylvania proposes to adopt a Minor Act 537 Sewage Facilities Plan Update Revision, Component 3M for the Hickory Hill Area Low Pressure Sewer System Extension, in accordance with Pennsylvania Act 537. This Planning Module provides the planning for eighty-seven (87) EDUs of sewage flow for connection of mostly residentially zoned properties (known as Hickory Hill Area) bound by Hickory Hill Drive, Crest Terrace, Valley Forge Road, Landis Road, and Green Briar Drive, to a public, low pressure sanitary sewer system to be owned and operated by Worcester Township.

The Act 537 Update will allow the connection of the residential properties in the Sewage Facilities Planning Area (bound by Hickory Hill Drive, Crest Terrace, Valley Forge Road, Landis Road, and Green Briar Drive) to a public, low pressure sanitary sewer system to be extended from the existing Worcester Township collection system. Tapping Fees and User Fees for properties connecting to the low pressure sewer system are included in the Sewage Facilities Plan Update. The Planning Module will also address comments received during the Public Comment Period and any comments received from Planning Agency and Health Department reviews.

A copy of the Sewage Facilities Planning Module, Component 3M can be reviewed at the Worcester Township Building at 1721 Valley Forge Road, Worcester Pennsylvania, 19490-0767 weekdays from 9:00 a.m. until 3:00 p.m., or on the Worcester Township website, <http://www.worcestertwp.com>.

Written comments from the public regarding the Sewage Facilities Planning Module, Component 3M will be received by the Township at the above address for 30 calendar days following the date of publication of this Notice. All comments should be submitted to the attention of Lee Mangan, Township Manager. This Minor Act 537 Sewage Facilities Plan Update Revision Component 3M will become part of Worcester Township's official Act 537 Sewage Facilities Plan.

Lee Mangan, Township Manager
Worcester Township

EXHIBIT NO. 3 - PROJECT CORRESPONDENCE

**CORRESPONDENCE REGARDING PROJECT
ISSUES/FEASIBILITY LOCAL AND COUNTY
PLANNING AGENCY REVIEWS; COUNTY HEALTH
DEPARTMENT REVIEWS/GUIDANCE, STATE
AGENCY REVIEWS; PUBLIC COMMENTS AND
OTHER APPLICABLE CORRESPONDENCE**

EXHIBIT NO. 3
INDEX

CORRESPONDENCE REGARDING PROJECT ISSUES/FEASIBILITY LOCAL AND COUNTY PLANNING AGENCY REVIEWS; COUNTY HEALTH DEPARTMENT REVIEWS/GUIDANCE, STATE AGENCY REVIEWS; PUBLIC COMMENTS AND OTHER APPLICABLE CORRESPONDENCE.

1. Worcester Township

Correspondence dated September 10, 2013 to Worcester Township residents within the Planning Area inviting them to attend a Board of Supervisors Meeting on September 18, 2013, at which the financial aspects of the low pressure sewer project will be discussed.

2. Pennsylvania Department of Environmental Protection (PADEP)

Correspondence dated June 20, 2013 to Worcester Township requesting the status of providing public sewer service to the Hickory Hill Drive/Landis Road area of the Township (as proposed by the Worcester Township Act 537 Plan). Correspondence dated July 17, 2013 to Worcester Township approving NPDES Permit No. PA0050393 A-1 for the Valley Green Wastewater Treatment Plant. Sewage Facilities Planning Module Application Mailer dated September 4, 2013. PADEP correspondence dated September 25, 2013 regarding review of the Application Mailer.
for the Worcester Township gravity sewer system discharging to Valley Green WTP.

4. Pennsylvania Historical and Museum Commission

Submission Correspondence of August 28, 2013.
Review Correspondence of September 16, 2013.

5. Pennsylvania Natural Heritage Program – Pennsylvania Natural Diversity Inventory (PNDI)

PNDI Environmental Review Receipt No. 20130822418034 dated August 22, 2013.

6. Worcester Township Planning Commission

Approved Component 4A dated November 14, 2013.

7. Montgomery County Planning Commission

Submission Correspondence of October 2, 2013.

Submission Correspondence of November 1, 2013 for amended Planning Modules Report.

Review Correspondence of November 14, 2013.

Approved Component 4B dated November 14, 2013.

8. Montgomery County Health Department

Submission Correspondence of October 2, 2013.

Review Correspondence of October 8, 2013.

Approved Component 4C dated October 8, 2013.

Submission Correspondence of November 7, 2013 for amended Planning Modules Report.

Review Correspondence of November 13, 2013 for amended Planning Modules Report.

9. Public Comments

Comments Received from the Public and response to those comments by Worcester Township.

ERECTED INTO A TOWNSHIP IN 1733
TOWNSHIP OF WORCESTER
AT THE CENTER POINT OF MONTGOMERY COUNTY
PENNSYLVANIA

Board of Supervisors:

ARTHUR C. BUSTARD, CHAIRMAN
SUSAN G. CAUGHLAN, VICE CHAIRMAN
STEPHEN C. QUIGLEY, MEMBER

1721 Valley Forge Road
P.O. Box 767
Worcester, PA 19490

COPY

September 10, 2013

Denise Walsh
1805 Green Briar Drive
PO Box 984
Worcester, PA 19490

RE: Hickory Hill Sewer Expansion Financing

Dear Ms. Walsh,

As you know by now, Worcester Township is preparing the design of a low pressure sanitary sewer system to serve properties in your neighborhood. Your property, located at 1805 Green Briar Drive will ultimately be connected to this sewer system. At the August 21, 2013 meeting, the Board of Supervisors voted to publically sewer this area by use of a low pressure system.

An explanation of this system was shared with the residents at a special meeting held on September 13, 2012. Since then, surveys have been mailed and analyzed, additional design work has been performed, and the Board has reviewed all this data.

At the September 18, 2013 meeting, the Board of Supervisors will discuss the financing for this expansion to the Hickory Hill Area. At this time, the Board will explain the interest rates and payment schedules. You are encouraged to attend this meeting. If you are unable to attend, information will be posted on our web site following the meeting at www.worcestertwp.com. This meeting will be held at the Worcester Township Community Hall located at 1031 Valley Forge Road Fairview Village.

If you have any questions regarding this information after the presentation on the 18th of September, please call me at 610-584-1410 for any questions that might pertain specifically to your property.

Sincerely,

WORCESTER TOWNSHIP


F. Lee Mangan
Township Manager



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHEAST REGIONAL OFFICE

June 20, 2013

LU EK TL JN

Mr. F. Lee Mangan, Manager
Worcester Township
1721 Valley Forge Road
Worcester, PA 19490

Re: Worcester Township Act 537 Plan
Act 537 Sewage Facilities Plan Update
Worcester Township
Montgomery County

Dear Mr. Mangan:

On June 18, 2013, the Department of Environmental Protection (DEP) received an inquiry from a Worcester Township resident about the availability of public sewers in the vicinity of Hickory Hill and Landis Roads.

Your current Act 537 Official Sewage Facilities Plan, adopted by the Worcester Township Supervisors and approved by DEP on September 6, 1996, required public sewers to be installed in the Hickory Hill and Landis Roads service areas within 10 years (2006). It has come to our attention that the plan has not been implemented for these areas. The resident reports that the septic systems in the Hickory Hill Road area are approximately 50 years old. There are also concerns that soils in these study areas may not support the long-term use of on-lot sewage disposal.

Section 71.11 of DEP's regulations, 25 Pa. Code Section 71.11, requires municipalities to "develop and implement comprehensive official plans which provide for the resolution of existing sewage disposal problems, provide for the future sewage disposal needs of new land development, and provide for the future sewage disposal needs of the municipality." Please provide DEP with a status report of the implementation of your current Act 537 Plan. In this report, please provide an explanation describing why this area has not been sewered and what course of action Worcester Township plans to take regarding the implementation of its Act 537 Plan. Please provide this report within 30 days of the date of this letter.

Southeast Regional Office | 2 East Main Street | Norristown, PA 19401-4915

484.250.5970 | Fax 484.250.5971

Printed on Recycled Paper 

www.depweb.state.pa.us

Mr. F. Lee Mangan, Manager

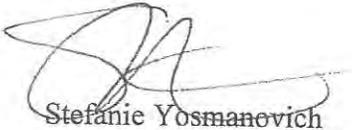
- 2 -

June 20, 2013

This letter is neither an order nor any other final action of DEP. It neither imposes nor waives any enforcement action available to DEP under any of its statutes. If DEP determines that an enforcement action is appropriate, you will be notified of the action.

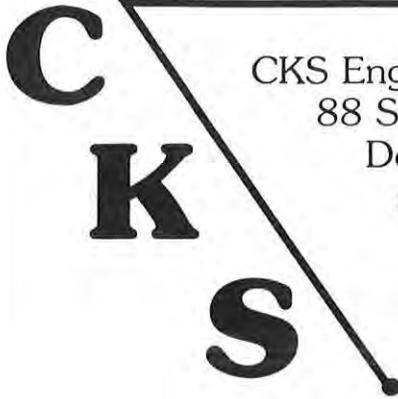
If you have any questions, please contact me at 484.250.5186.

Sincerely,



Stefanie Yosmanovich
Sewage Planning Specialist 2
Clean Water

cc: Montgomery County Planning Commission
Ms. Paul - Montgomery County Health Department
Ms. Loomis - Worcester Township
Planning Section
Re 30 (eh13clw)171-4



CKS Engineers, Inc.
88 South Main Street
Doylestown, PA 18901
215-340-0600 • FAX 215-340-1655

David W. Connell, P.E.
Joseph J. Nolan, P.E.
Thomas F. Zarko, P.E.
James F. Weiss
Patrick P. DiGangi, P.E.
Ruth Cunnane

September 4, 2013
Ref: #7039

Pennsylvania Department of Environmental Protection
Southeast Region
2 E. Main Street
Norristown, PA 19401

Reference: Sewage Facilities Planning Module Application Mailer
Hickory Hill Area Sanitary Sewer Project Minor Act 537 Plan Update
Worcester Township, Montgomery County

Dear Sir or Madam:

On behalf of Worcester Township, Montgomery County, enclosed is the Sewage Facilities Planning Module Application Mailer for the proposed extension of public sewage facilities to the Center Point area of the Township located in the vicinity of Hickory Hill Road, Landis Road, Valley Forge Road, Crest Terrace and Green Briar Drive (refer enclosed project planning area exhibit identifying impacted tax parcels). Please confirm a Minor Act 537 Plan Update revision (Planning Module Component 3M) is required to accomplish this extension of low pressure sewer and assign a PADEP project code. Also enclosed for your reference are U.S.G.S. map exhibit showing the project planning area and a list of tax parcels potentially impacted by the project.

The planning area is presently served by on-lot sewage disposal systems that have experienced malfunctions and failures dating back greater than 30 years. By copy of this correspondence, Montgomery County Department of Health is notified of this application as directed in the application mailer instructions.

If you have any questions regarding the above or should you require additional information, please do not hesitate to contact me.

Sincerely,
CKS ENGINEERS, INC.
Township Engineers

A handwritten signature in black ink, appearing to read 'Eric J. Janetka', with a long horizontal flourish extending to the right.

Eric J. Janetka, P.E.

EJJ/klk
Enclosures
cc: Lee Mangan, Township Manager
Eunice C. Kriebel, Assistant Township Manager
Montgomery County Department of Health
Joseph J. Nolan, P.E., CKS Engineers, Inc.
Kenneth G. Kollmer, CKS Engineers, Inc.
File

SEWAGE FACILITIES PLANNING MODULE APPLICATION MAILER



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

For more information, visit DEP's Web site at
www.depweb.state.pa.us, keyword: Act 537.

1. Development Information

Name of Development Hickory Hill Area Low Pressure Sewer System Extension
Developer Name Worcester Township
Address 1721 Valley Forge Road, P.O. Box 767
Worcester, PA 19490-0767
Telephone # 215-584-1410
Email manager@worcestertwp.com

2. Location of Development

a. County Montgomery
b. Municipality Worcester Township
c. Address or Coordinates 40.192545, -75.343740
d. Tax Parcel # Refer attached exhibit
e. USGS Quad Name Lansdale
inches up 12.32 over 13.21
from bottom right corner of map.
f. Located in a High Quality/Exceptional Value watershed?
Yes No

3. Type of Development Proposed (check appropriate box)

Residential Multi-Residential
Describe PUBLIC SEWER SERVICE EXTENSION TO EXISTING RESIDENTIAL and COMMERCIAL PARCELS
Commercial Institutional
Describe
Brownfield Site Redevelopment
Other (specify)

4. Size

a. # of lots 74 # of EDUs 66
b. # of lots since 5/15/72 74
c. Development Acreage 154
d. Remaining Acreage 0

5. Sewage Flows 26,100 gpd

6. Proposed Sewage Disposal Method (check applicable boxes)

Sewerage System
Existing (connection only) New (extension)
Public Private
Pump Station(s)/Force Main Gravity
Name of existing system being extended
Worcester Township
Interceptor Name N/A
Treatment Facility Name Valley Green WTP
NPDES Permit # PA0050393 A-1
Construction of Treatment Facility
With Stream Discharge
With Land Application (not including IRSIS)
Other
Repair?
Name of waterbody where point of discharge is proposed (if stream discharge)

- Onlot Sewage Disposal Systems (check appropriate box)
Individual onlot system(s) (including IRSIS)
Community onlot system
Large-Volume onlot system

Retaining tanks
Number of Holding Tanks
Number of Privies

7. Request Sewage Facilities Planning Module forms in electronic format

8. Request for Planning Exemption

Protection of rare, endangered or threatened species
Check one:
The "PNDI Project Environmental Review Receipt" is attached. or
A completed "PNDI Project Planning & Environmental Review Form," (PNDI Form) is attached. I request DEP staff to complete the required PNDI search for my project. I realize that my planning exemption will be considered incomplete and that the DEP processing of my planning exemption request will be delayed, until a "PNDI Project Environmental Review Receipt" and all supporting documentation from jurisdictional agencies (when necessary) is/are received by DEP.

Applicant or Consultant Initials

- Plot Plan Attached Site Reports Attached

c. Onlot Disposal Systems

I certify that the Official Plan shows this area as an onlot service area.

(Signature of Municipal Official) / Date

Name (Print) / Title

Municipality (must be same as in 2.b.)

Telephone #

I certify that each lot in this subdivision has been tested and is suitable for both a primary and replacement sewage disposal system.

Signature of SEO / Date

Name (Print) / Certification #

Telephone #

I certify that each lot in this subdivision is at least 1 acre in size

(Signature of Project Applicant/Agent) / Date

d. Public Sewerage Service (i.e., ownership by municipality or authority)

Based upon written documentation, I certify that the facilities proposed for use have capacity and that no overload exists or is projected within 5 years. (Attach documents.)

(Signature of Municipal Official) / Date

Name (Print) / Title

Municipality (must be same as in 2.b.)

Telephone #

Return Correspondence/Forms to:
CKS Engineers, Inc.
Attn: Eric J. Janetka, P.E.
88 South Main Street
Doylestown, PA 18901

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Southeast Region

2 E. Main Street

Norristown, PA 19401

DEP USE	
Components Sent	
Onlot Disposal	<input type="checkbox"/>
Collection and Treatment	<input type="checkbox"/>
Planning Agency Review	<input type="checkbox"/>
Exempt from Planning	<input type="checkbox"/>
Code	_____
Date	_____

"Fold Here"



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHEAST REGIONAL OFFICE

September 25, 2013

Mr. Eric Janetka
CKS Engineers, Inc.
88 South Main Street
Doylestown, PA 18901

Re: Application for Planning Modules
Hickory Hill Sanitary Sewer Project
DEP Code 1-46962-178-3M
Worcester Township
Montgomery County

Dear Mr. Janetka:

On September 6, 2013, we received your application for Sewage Facilities Planning Modules for the extension of public sewers to the Hickory Hill sewer service area. This project encompasses the areas of Hickory Hill Road, Landis Road, Valley Forge Road, Crest Terrace and Green Briar Drive designated as public sewer service areas in Worcester Township's Act 537 plan update approved on September 6, 1998.

Sewage Facilities Planning Module forms are now available from our eLibrary as MS Word Form Fields files directly from the Department of Environmental Protection's (DEP) website address located in the footer below. In the left-hand column, select the Water heading and then select Water Standards and Facility Regulation. In the right-hand column, select Wastewater Management and then select Act 537. Under Act 537, select Act 537 – Planning Authorizations. Under Planning Forms, select the appropriate forms. The link will take you to the eLibrary location for the form.

Please select the following forms for this project and enter the above-referenced DEP Code Number on the first page of each form. Projects submitted without coding may be subject to delays, including the assignment of additional forms or different planning module packages.

Sewage Facilities Planning Module Transmittal Letter, Form 3800-FM-WSWM0355
Sewage Facilities Planning Module Resolution, Form 3980-FM-WSWM0356
Sewage Facilities Planning Module Component 3m, Form 3800-FM-WSWM0353m

- Instructions
- Form

Sewage Facilities Planning Module Component 4

- 4A-Municipal Planning Agency Review, Form 3800-FM-WSWM0362A
- 4B-County Planning Agency Review, Form 3800-FM-WSWM0362B
- 4C-County or Joint Health Department Review, Form 3800-FM-WSWM0362C

If you have any questions, or if you are unable to print the forms from our website, please call me at 484.250.5186.

Sincerely,



Stefanie Yosmanovich
Sewage Planning Specialist 2
Clean Water

cc: Montgomery County Health Department
Montgomery County Planning Commission
Worcester Township
Planning Section
Re 30 (GJE13CLW)268-3



pennsylvania

DEPARTMENT OF ENVIRONMENTAL
PROTECTION

Southeast Regional Office

July 17, 2013

CERTIFIED MAIL NO. 7007 3020 0002 8265 2338

Mr. Lee F. Mangan
Township Manager
Worcester Township
1721 Valley Forge Road, P. O. Box 767
Worcester, PA 19490-0767

Re: Final NPDES Permit - Sewage
Valley Green STP
NPDES Permit No. PA0050393 A-1
Authorization ID No. 955046
Worcester Township, Montgomery County

Dear Mr. Mangan:

Your NPDES permit amendment is enclosed. Please read the permit carefully. The permit expires on the date identified on page 1 of the permit. A renewal application must be submitted to this office 180 days prior to the permit expiration date, if a discharge is expected to continue past the expiration date of the permit.

Enclosed are Discharge Monitoring Report (DMR) templates and DMR instructions. It is recommended that you retain the DMR templates in the event you are unable to submit DMRs electronically through DEP's eDMR system. Routine use of the eDMR system is a requirement of the permit unless the conditions in Part A III.B of the permit are met to withdraw from the eDMR system.

Also enclosed is a Supplemental Form Inventory, which identifies the forms that are attached to the permit and must be submitted as attachments to eDMR reports, as applicable (see individual form instructions). The submission of other supplemental forms may be required in accordance with the permit. We encourage you to use the spreadsheet versions of supplemental forms that contain appropriate validation and DEP-approved calculations.

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

Mr. Lee F. Mangan

- 2 -

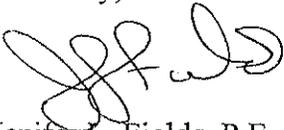
audiotape from the Secretary to the Board at 717.787.3483. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

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 Sara Abraham at 484.250.5195.

Sincerely,



Jenifer L. Fields, P.E.
Environmental Program Manager
Clean Water Program

Enclosures

cc: Worcester Township (w/o enclosure)
Montgomery County Health Department (w/o enclosure)
Ms. Lashley (w/o enclosure)
Mr. Nolan-CKS Engineers, Inc.
Operations Section
Mr. Kovach-DRBC
Central Office, Division of Operations, Monitoring and Data Systems
Re



**AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
DISCHARGE REQUIREMENTS FOR PUBLICLY OWNED
TREATMENT WORKS (POTWs)**

**NPDES PERMIT NO: PA0050393
Amendment No. 1**

In compliance with the provisions of the Clean Water Act, 33 U.S.C. Section 1251 *et seq.* ("the Act") and Pennsylvania's Clean Streams Law, as amended, 35 P.S. Section 691.1 *et seq.*,

**Worcester Township
1721 Valley Forge Road, P. O. Box 767
Worcester, PA 19490-0767**

is authorized to discharge from a facility known as **Valley Green STP**, located in **Worcester Township, Montgomery County**, to **Zacharias Creek** in Watershed(s) 3-E in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts A, B and C hereof.

THIS PERMIT SHALL BECOME EFFECTIVE ON AUGUST 1, 2013

THIS PERMIT SHALL EXPIRE AT MIDNIGHT ON SEPTEMBER 30, 2016

The authority granted by this permit is subject to the following further qualifications:

1. If there is a conflict between the application, its supporting documents and/or amendments and the terms and conditions of this permit, the terms and conditions shall apply.
2. Failure to comply with the terms, conditions or effluent limitations of this permit is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. (40 CFR 122.41(a))
3. A complete application for renewal of this permit, or notice of intent to cease discharging by the expiration date, must be submitted to DEP at least 180 days prior to the above expiration date (unless permission has been granted by DEP for submission at a later date), using the appropriate NPDES permit application form. (40 CFR 122.41(b), 122.21(d))

In the event that a timely and complete application for renewal has been submitted and DEP is unable, through no fault of the permittee, to reissue the permit before the above expiration date, the terms and conditions of this permit, including submission of the Discharge Monitoring Reports (DMRs), will be automatically continued and will remain fully effective and enforceable against the discharger until DEP takes final action on the pending permit application. (25 Pa. Code 92a.7(b), (c))

4. This NPDES permit does not constitute authorization to construct or make modifications to wastewater treatment facilities necessary to meet the terms and conditions of this permit.

DATE PERMIT ISSUED September 14, 2011
DATE PERMIT AMENDMENT ISSUED July 17, 2013

ISSUED BY 
Jenifer L. Fields, P.E.
Clean Water Program Manager
Southeast Regional Office

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall: 001, Latitude 40° 11' 55.70", Longitude 75° 20' 48.38", River Mile Index 2.6, Stream Code 01048

Receiving Waters: Zacharias Creek

Type of Effluent: Sewage

- The permittee is authorized to discharge during the period from Permit Effective Date through December 31, 2014.
- Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)	Concentrations (mg/L)	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum	Minimum Measurement Frequency	Required Sample Type
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	6.0	XXX	XXX	XXX	1/day	Grab
CBOD5	11.0	16.0	XXX	10.0	15.0	20.0	2/week	24-Hr Composite
CBOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	21.7	32.5	XXX	20.0	30.0	40.0	2/week	24-Hr Composite
Fecal Coliform (CFU/100 ml)* May 1 - Sep 30	XXX	XXX	XXX	Geo Mean 200	XXX	1,000	2/week	Grab

Outfall 001, Continued (from Permit Effective Date through December 31, 2014)

Parameter	Effluent Limitations				Monitoring Requirements	Required Sample Type		
	Mass Units (lbs/day)	Concentrations (mg/L)	Minimum	Instant. Maximum				
	Average Monthly	Weekly Average	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum	Minimum Measurement Frequency	
Fecal Coliform (CFU/100 ml)* Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/week	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	Report	Report	Report	2/week	24-Hr Composite
Ammonia-Nitrogen	2.2	3.3	XXX	2.0	3.0	4.0	2/week	24-Hr Composite
Total Phosphorus	0.66	XXX	XXX	0.61	XXX	1.0	2/week	24-Hr Composite
UV Intensity ($\mu\text{W}/\text{cm}^2$)	XXX	XXX	Report Min	XXX	XXX	XXX	1/day	Metered

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Outfall 001

*See Part C, I. Other Requirement No. F

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. B. For Outfall 001, Latitude 40° 11' 55.70", Longitude 75° 20' 48.38", River Mile Index 2.6, Stream Code 01048

Receiving Waters: Zacharias Creek

Type of Effluent: Sewage

- The permittee is authorized to discharge during the period from January 1, 2015 through September 30, 2016.
- Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)	Concentrations (mg/L)	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum	Minimum Measurement Frequency	Required Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	6.0	XXX	XXX	XXX	1/day	Grab
CBOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/week	Composite
CBOD5	18.3	27.5	XXX	10.0	15.0	20.0	2/week	Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/week	Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/week	Composite
Total Suspended Solids	29.0	44.0	XXX	16.0	24.0	32.0	2/week	Composite
Fecal Coliform (CFU/100 ml)* May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/week	Grab

Outfall 001, Continued (from January 1, 2015 through September 30, 2016)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Fecal Coliform (CFU/100 ml)* Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/week	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	Report	Report	Report	2/week	24-Hr Composite
Ammonia-Nitrogen	3.7	5.5	XXX	2.0	3.0	4.0	2/week	Composite
Total Phosphorus	1.1	XXX	XXX	0.61	XXX	1.0	2/week	24-Hr Composite
UV Intensity ($\mu W/cm^2$)	XXX	XXX	Report Min	XXX	XXX	XXX	1/day	Metered

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Outfall 001

*See Part C, I, Other Requirement No. F

**PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS
(Continued)**

Additional Requirements

1. The permittee may not discharge:
 - a. Floating solids, scum, sheen or substances that result in observed deposits in the receiving water. (25 Pa Code 92a.41(c))
 - b. Oil and grease in amounts that cause a film or sheen upon or discoloration of the waters of this Commonwealth or adjoining shoreline, or that exceed 15 mg/l as a daily average or 30 mg/l at any time (or lesser amounts if specified in this permit). (25 Pa. Code 92a.47(a)(7) and 95.2(2))
 - c. Substances in concentration or amounts sufficient to be inimical or harmful to the water uses to be protected or to human, animal, plant or aquatic life. (25 Pa Code 93.6(a))
 - d. Foam or substances that produce an observed change in the color, taste, odor or turbidity of the receiving water, unless those conditions are otherwise controlled through effluent limitations or other requirements in this permit. (25 Pa Code 92a.41(c))
2. The monthly average percent removal of BOD₅ or CBOD₅ and TSS must be at least 85% for POTW facilities on a concentration basis except where 25 Pa. Code 92a.47(g) and (h) are applicable to facilities with combined sewer overflows (CSOs) or as otherwise specified in this permit. (25 Pa. Code 92a.47(a)(3))
3. If the permit requires the reporting of average weekly statistical results, the maximum weekly average concentration and maximum weekly average mass loading shall be reported, regardless of whether the results are obtained for the same or different weeks.
4. The permittee shall monitor the sewage effluent discharge(s) for the effluent parameters identified in the Part A limitations table(s) during all bypass events at the facility, using the sample types that are specified in the limitations table(s). Where the required sample type is "composite", the permittee must commence sample collection within one hour of the start of the bypass, wherever possible. The results shall be reported on the Daily Effluent Monitoring supplemental form (3800-FM-BPNPSM0435) and be incorporated into the calculations used to report self-monitoring data on Discharge Monitoring Reports (DMRs).

Footnotes

- (1) When sampling to determine compliance with mass effluent limitations, the discharge flow at the time of sampling must be measured and recorded.
- (2) This is the minimum number of sampling events required. Permittees are encouraged, and it may be advantageous in demonstrating compliance, to perform more than the minimum number of sampling events.

Supplemental Information

- (1) The hydraulic design capacity of 0.13 million gallons per day before the expansion of the plant and 0.22 million gallons per day after the expansion of the plant are used to prepare the annual Municipal Wasteload Management Report to help determine whether a "hydraulic overload" situation exists, as defined in Title 25 Pa. Code Chapter 94.
- (2) The effluent limitations for Outfall 001 were determined using an effluent discharge rate of 0.13 MGD before the expansion of the plant and 0.22 MGD after the expansion of the plant.

II. DEFINITIONS

At Outfall (XXX) means a sampling location in outfall line XXX below the last point at which wastes are added to outfall line (XXX), or where otherwise specified.

Average refers to the use of an arithmetic mean, unless otherwise specified in this permit. (40 CFR 122.41(l)(4)(iii))

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the pollution to surface waters of the Commonwealth. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. (25 Pa. Code 92a.2)

Bypass means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR 122.41(m)(1)(i))

Calendar Week is defined as the seven consecutive days from Sunday through Saturday, unless the permittee has been given permission by DEP to provide weekly data as Monday through Friday based on showing excellent performance of the facility and a history of compliance. In cases when the week falls in two separate months, the month with the most days in that week shall be the month for reporting.

Clean Water Act means the Federal Water Pollution Control Act, as amended (33 U.S.C.A. §§1251 to 1387).

Composite Sample (for all except GC/MS volatile organic analysis) means a combination of individual samples (at least eight for a 24-hour period or four for an 8-hour period) of at least 100 milliliters (mL) each obtained at spaced time intervals during the compositing period. The composite must be flow-proportional; either the volume of each individual sample is proportional to discharge flow rates, or the sampling interval is proportional to the flow rates over the time period used to produce the composite. (EPA Form 2C)

Composite Sample (for GC/MS volatile organic analysis) consists of at least four aliquots or grab samples collected during the sampling event (not necessarily flow proportioned). The samples must be combined in the laboratory immediately before analysis and then one analysis is performed. (EPA Form 2C)

Daily Average Temperature means the average of all temperature measurements made, or the mean value plot of the record of a continuous automated temperature recording instrument, either during a calendar day or during the operating day if flows are of a shorter duration.

Daily Discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day. (25 Pa. Code 92a.2, 40 CFR 122.2)

Daily Maximum Discharge Limitation means the highest allowable "daily discharge."

Discharge Monitoring Report (DMR) means the DEP or EPA supplied form(s) for the reporting of self-monitoring results by the permittee. (25 Pa. Code 92a.2 and 40 CFR 122.2)

Estimated Flow means any method of liquid volume measurement based on a technical evaluation of the sources contributing to the discharge including, but not limited to, pump capabilities, water meters and batch discharge volumes.

Geometric Mean means the average of a set of n sample results given by the nth root of their product.

Grab Sample means an individual sample of at least 100 mL collected at a randomly selected time over a period not to exceed 15 minutes. (EPA Form 2C)

Hauled-In Wastes means any waste that is introduced into a treatment facility through any method other than a direct connection to the sewage collection system. The term includes wastes transported to and disposed of within the treatment facility or other entry points within the collection system.

Hazardous Substance means any substance designated under 40 CFR Part 116 pursuant to Section 311 of the Clean Water Act. (40 CFR 122.2)

Immersion Stabilization (i-s) means a calibrated device is immersed in the wastewater until the reading is stabilized.

Indirect Discharger means a non-domestic discharger introducing pollutants to a Publicly Owned Treatment Works (POTW) or other treatment works. (25 Pa. Code 92a.2 and 40 CFR 122.2)

Industrial User means a source of Indirect Discharge. (40 CFR 403.3)

Instantaneous Maximum Effluent Limitation means the highest allowable discharge of a concentration or mass of a substance at any one time as measured by a grab sample. (25 Pa. Code 92a.2)

Measured Flow means any method of liquid volume measurement, the accuracy of which has been previously demonstrated in engineering practice, or for which a relationship to absolute volume has been obtained.

Monthly Average Discharge Limitation means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month. (25 Pa. Code 92a.2)

Municipality means a city, town, borough, county, township, school district, institution, authority or other public body created by or pursuant to State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes. (25 Pa. Code 92a.2)

Publicly Owned Treatment Works (POTW) means a treatment works as defined by §212 of the Clean Water Act, owned by a state or municipality. The term includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. The term also includes sewers, pipes or other conveyances if they convey wastewater to a POTW providing treatment. The term also means the municipality as defined in section 502(4) of the Clean Water Act, which has jurisdiction over the indirect discharges to and the discharges from such a treatment works. (25 Pa Code 92a.2 and 40 CFR 122.2)

Severe Property Damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR 122.41(m)(1)(ii))

Stormwater means the runoff from precipitation, snow melt runoff, and surface runoff and drainage. (25 Pa. Code 92a.2)

Stormwater Associated With Industrial Activity means the discharge from any conveyance that is used for collecting and conveying stormwater and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant, and as defined at 40 CFR §122.26(b)(14)(i) – (ix) and (xi) and 25 Pa. Code 92a.2.

Toxic Pollutant means those pollutants, or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains may, on the basis of information available to DEP cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions, including malfunctions in reproduction, or physical deformations in these organisms or their offspring. (25 Pa. Code 92a.2)

Weekly Average Discharge Limitation means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.

III. SELF-MONITORING, REPORTING AND RECORDKEEPING

A. Representative Sampling

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity (40 CFR 122.41(j)(1)). Representative sampling includes the collection of samples, where possible, during periods of adverse weather, changes in treatment plant performance and changes in treatment plant loading. If possible, effluent samples must be collected where the effluent is well mixed near the center of the discharge conveyance and at the approximate mid-depth point, where the turbulence is at a maximum and the settlement of solids is minimized. (40 CFR 122.48 and 25 Pa. Code § 92a.61)

2. Records Retention (40 CFR 122.41(j)(2))

Except for records of monitoring information required by this permit related to the permittee's sludge use and disposal activities which shall be retained for a period of at least 5 years, all records of monitoring activities and results (including all original strip chart recordings for continuous monitoring instrumentation and calibration and maintenance records), copies of all reports required by this permit, and records of all data used to complete the application for this permit shall be retained by the permittee for 3 years from the date of the sample measurement, report or application, unless a longer retention period is required by the permit. The 3-year period shall be extended as requested by DEP or the EPA Regional Administrator.

3. Recording of Results (40 CFR 122.41(j)(3))

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The exact place, date and time of sampling or measurements.
- b. The person(s) who performed the sampling or measurements.
- c. The date(s) the analyses were performed.
- d. The person(s) who performed the analyses.
- e. The analytical techniques or methods used; and the associated detection level.
- f. The results of such analyses.

4. Test Procedures (40 CFR 122.41(j)(4))

Facilities that test or analyze environmental samples used to demonstrate compliance with this permit shall be in compliance with laboratory accreditation requirements of Act 90 of 2002 (27 Pa. C.S. §§4101-4113) and 25 Pa. Code Chapter 252, relating to environmental laboratory accreditation. Unless otherwise specified in this permit, the test procedures for the analysis of pollutants shall be those approved under 40 CFR Part 136 (or in the case of sludge use or disposal, approved under 40 CFR Part 136, unless otherwise specified in 40 CFR Part 503 or Subpart J of 25 Pa. Code Chapter 271), or alternate test procedures approved pursuant to those parts, unless other test procedures have been specified in this permit.

5. Quality/Assurance/Control

In an effort to assure accurate self-monitoring analyses results:

- a. The permittee, or its designated laboratory, shall participate in the periodic scheduled quality assurance inspections conducted by DEP and EPA. (40 CFR 122.41(e), 122.41(j)(3))
- b. The permittee, or its designated laboratory, shall develop and implement a program to assure the quality and accurateness of the analyses performed to satisfy the requirements of this permit, in accordance with 40 CFR Part 136. (40 CFR 122.41(j)(4))

B. Reporting of Monitoring Results

1. The permittee shall effectively monitor the operation and efficiency of all wastewater treatment and control facilities, and the quantity and quality of the discharge(s) as specified in this permit. (40 CFR 122.41(e), 122.44(i)(1))
2. Discharge Monitoring Reports (DMRs) must be completed in accordance with DEP's published DMR Instructions (3800-BPNPSM-0463). DMRs are based on calendar reporting periods. DMR(s) must be received by the agency(ies) specified in paragraph 3 below in accordance with the following schedule:
 - Monthly DMRs must be received within 28 days following the end of each calendar month.
 - Quarterly DMRs must be received within 28 days following the end of each calendar quarter, i.e., January 28, April 28, July 28, and October 28.
 - Semiannual DMRs must be received within 28 days following the end of each calendar semiannual period, i.e., January 28 and July 28.
 - Annual DMRs must be received by January 28, unless Part C of this permit requires otherwise.
3. The permittee shall complete all Supplemental Reporting forms (Supplemental DMRs) provided by DEP in this permit (or an approved equivalent), and submit the signed, completed forms as an attachment to the DMR(s). If the permittee elects to use DEP's electronic DMR (eDMR) system, one electronic submission may be made for DMRs and Supplemental DMRs. If paper forms are used, the completed forms shall be mailed to:

Department of Environmental Protection
Clean Water Program
2 East Main Street
Norristown, PA 19401
4. If the permittee elects to begin using DEP's eDMR system to submit DMRs required by the permit, the permittee shall, to assure continuity of business operations, continue using the eDMR system to submit all DMRs and Supplemental Reports required by the permit, unless the following steps are completed to discontinue use of eDMR:
 - a. The permittee shall submit written notification to the regional office that issued the permit that it intends to discontinue use of eDMR. The notification shall be signed by a principal executive officer or authorized agent of the permittee.
 - b. The permittee shall continue using eDMR until the permittee receives written notification from DEP's Central Office that the facility has been removed from the eDMR system, and electronic report submissions are no longer expected.
5. The completed DMR Form shall be signed and certified by either of the following applicable persons, as defined in 25 Pa. Code 92a.22:
 - For a corporation - by a principal executive officer of at least the level of vice president, or an authorized representative, if the representative is responsible for the overall operation of the facility from which the discharge described in the NPDES form originates.
 - For a partnership or sole proprietorship - by a general partner or the proprietor, respectively.
 - For a municipality, state, federal or other public agency - by a principal executive officer or ranking elected official.

If signed by a person other than the above, written notification of delegation of DMR signatory authority must be submitted to DEP in advance of or along with the relevant DMR form. (40 CFR 122.22(b))

6. If the permittee monitors any pollutant at monitoring points as designated by this permit, using analytical methods described in Part A III.A.4. herein, more frequently than the permit requires, the results of this monitoring shall be incorporated, as appropriate, into the calculations used to report self-monitoring data on the DMR. (40 CFR 122.41(l)(4)(ii))

C. Reporting and Notification Requirements

1. Planned Changes to Physical Facilities – The permittee shall give notice to DEP as soon as possible but no later than 30 days prior to planned physical alterations or additions to the permitted facility. A permit under 25 Pa. Code Chapter 91 may be required for these situations prior to implementing the planned changes. A permit application, or other written submission to DEP, can be used to satisfy the notification requirements of this section.

Notice is required when:

- a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR §122.29(b). (40 CFR 122.41(l)(1)(i))
 - b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are not subject to effluent limitations in this permit. (40 CFR 122.41(l)(1)(ii))
 - c. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR 122.41(l)(1)(iii))
 - d. The planned change may result in noncompliance with permit requirements. (40 CFR 122.41(l)(2))
 - e. The facility is proposing an expansion or modifications to its treatment processes.
2. Planned Changes to Waste Stream – Under the authority of 25 Pa. Code 92a.24(a) and 40 CFR 122.42(b), the permittee shall provide notice to DEP and EPA as soon as possible but no later than 45 days prior to any changes in the volume or pollutant concentration of its influent waste stream as a result of indirect discharges or hauled-in wastes, as specified in paragraphs 2.a. and 2.b., below. Notice shall be provided on the "Planned Changes to Waste Stream" Supplemental Report (3800-FM-BPNPSM0482), available on DEP's website. The permittee shall provide information on the quality and quantity of waste introduced into the POTW, and any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW (40 CFR 122.42(b)(3)). The Report shall be sent via Certified Mail or other means to confirm DEP's receipt of the notification. DEP will determine if the submission of an application and receipt of an amended permit is required.
 - a. Introduction of New Pollutants (25 Pa. Code 92a.24(a), 40 CFR 122.42(b)(1))

New pollutants are defined as parameters that meet one or more of the following criteria:

- (i) Were not detected in the facilities' influent waste stream as reported in the permit application, or were otherwise not analyzed in the influent and reported to DEP prior to permit issuance;
- (ii) Have not been previously approved to be included in the permittee's influent waste stream by DEP and/or EPA in writing;
- (iii) Are previously unapproved pollutants introduced into the POTW from an indirect discharger which would be subject to Sections 301 and 306 of the Clean Water Act if it were directly discharging those pollutants (40 CFR 122.42(b)(1)).

The permittee shall provide notification of the introduction of new pollutants in accordance with paragraph 2 above. The permittee may not authorize the introduction of new pollutants until the permittee receives DEP's and/or EPA's written approval.

b. Increased Loading of Approved Pollutants (25 Pa. Code 92a.24(a), 40 CFR 122.42(b)(2))

Approved pollutants are defined as parameters that meet one or more of the following criteria:

- (i) Were detected in the facilities' influent waste stream as reported in the permittee's permit application or were otherwise analyzed and reported to DEP prior to permit issuance;
- (ii) Have an effluent limitation or monitoring requirement in this permit;
- (iii) Have been previously approved for the permittee's influent waste stream by DEP in writing.

The permittee shall provide notification of the introduction of increased influent loading (lbs/day) of approved pollutants in accordance with paragraph 2 above when (1) the cumulative increase in influent loading (lbs/day) exceeds 10% of the maximum loading reported in the permit application, or a loading previously approved by DEP, or (2) may cause an exceedance in the effluent of Effluent Limitation Guidelines (ELGs) or limitations in Part A of this permit, or (3) may cause interference or pass through at the POTW, or (4) may cause exceedances of the applicable water quality standards in the receiving stream. Unless specified otherwise in this permit, if DEP and/or EPA does not respond to the notification within 30 days of its receipt, the permittee may proceed with the increase in loading. The acceptance of increased loading of approved pollutants may not result in an exceedance of ELGs or effluent limitations, may not result in a hydraulic or organic overload condition as defined in 25 Pa. Code 94.1, and may not cause exceedances of the applicable water quality standards in the receiving stream.

c. New Information on Existing Discharges

The permittee shall notify DEP and EPA where it discovers new information, not reported previously, on the quality and quantity of the effluent introduced into the POTW by an industrial user or an indirect discharger and the anticipated impact of the change in the quality and quantity of effluent to be discharged from the POTW. (40 CFR 122.41(h) and 122.62)

3. Reporting Requirements for Hauled-In Wastes

a. Receipt of Residual Waste

- (i) The permittee shall document the receipt of all hauled-in residual wastes (including but not limited to wastewater from oil and gas wells, food processing waste, and landfill leachate) received for processing at the treatment facility. The permittee shall report hauled-in residual wastes on a monthly basis to DEP on the "Hauled In Residual Wastes" Supplemental Report (3800-FM-BPNPSM0450) as an attachment to the DMR. If no residual wastes were received during a month, submission of the Supplemental Report is not required.

The following information is required by the Supplemental Report. The information used to develop the Report shall be retained by the permittee for five years from the date of receipt and must be made available to DEP or EPA upon request.

- (1) The dates that residual wastes were received.
- (2) The volume (gallons) of wastes received.
- (3) The license plate number of the vehicle transporting the waste to the treatment facility.
- (4) The permit number(s) of the well(s) where residual wastes were generated, if applicable.

- (5) The name and address of the generator of the residual wastes.
- (6) The type of wastewater.
- (7) Documentation of whether or not a chemical analysis of the residual wastes were reported on a Residual Waste Form 26R, or a separate waste characterization using the parameters from Form 26R.

The transporter of residual waste must maintain these and other records as part of the daily operational record (25 Pa. Code 299.219). If the transporter is unable to provide this information, the residual wastes shall not be accepted by the permittee until such time as the transporter is able to provide the required information.

- (ii) The following conditions apply to the characterization of residual wastes received by the permitted treatment facility:
 - (1) The permitted facility must receive and maintain on file a characterization of the residual wastes it receives from the generator, as required by 25 Pa. Code 287.54. The characterization shall conform to the Bureau of Waste Management's Form 26R except as noted in paragraph (2), below. Each load of residual waste received must be characterized accordingly.
 - (2) For wastewater generated from hydraulic fracturing operations ("frac wastewater") within the first 30 production days of a well site, the characterization may be a general frac wastewater characterization approved by DEP. Thereafter, the characterization must be waste-specific and reported on the Form 26R.

b. Receipt of Municipal Waste

- (i) The permittee shall document the receipt of all hauled-in municipal wastes (including but not limited to septage and liquid sewage sludge) received for processing at the treatment facility. The permittee shall report hauled-in municipal wastes on a monthly basis to DEP on the "Hauled In Municipal Wastes" Supplemental Report (3800-FM-BPNPSM0437) as an attachment to the DMR. If no municipal wastes were received during a month, submission of the Supplemental Report is not required.

The following information is required by the Supplemental Report:

- (1) The dates that municipal wastes were received.
 - (2) The volume (gallons) of wastes received.
 - (3) The BOD₅ concentration (mg/l) and load (lbs) for the wastes received.
 - (4) The location(s) where wastes were disposed of within the treatment facility.
- (ii) Sampling and analysis of hauled-in municipal wastes must be completed to characterize the organic strength of the wastes, unless composite sampling of influent wastewater is performed at a location downstream of the point of entry for the wastes. The influent BOD₅ characterization for the treatment facility, as reported in the annual Municipal Wasteload Management Report per 25 Pa. Code Chapter 94, must be representative of the hauled-in municipal wastes received.

4. Unanticipated Noncompliance or Potential Pollution Reporting

- a. Immediate Reporting - The permittee shall immediately report any incident causing or threatening pollution in accordance with the requirements of 25 Pa. Code Sections 91.33 and 92a.41(b).
- (i) If, because of an accident, other activity or incident a toxic substance or another substance which would endanger users downstream from the discharge, or would otherwise result in pollution or create a danger of pollution or would damage property, the permittee shall immediately notify DEP by telephone of the location and nature of the danger. Oral notification to the Department is required as soon as possible, but no later than 4 hours after the permittee becomes aware of the incident causing or threatening pollution.
 - (ii) If reasonably possible to do so, the permittee shall immediately notify downstream users of the waters of the Commonwealth to which the substance was discharged. Such notice shall include the location and nature of the danger.
 - (iii) The permittee shall immediately take or cause to be taken steps necessary to prevent injury to property and downstream users of the waters from pollution or a danger of pollution and, in addition, within 15 days from the incident, shall remove the residual substances contained thereon or therein from the ground and from the affected waters of this Commonwealth to the extent required by applicable law.
- b. The permittee shall report any noncompliance which may endanger health or the environment in accordance with the requirements of 40 CFR 122.41(l)(6). These requirements include the following obligations:
- (i) 24 Hour Reporting - The permittee shall orally report any noncompliance with this permit which may endanger health or the environment within 24 hours from the time the permittee becomes aware of the circumstances. The following shall be included as information which must be reported within 24 hours under this paragraph (40 CFR 122.41(l)(6)(ii)):
 - (1) Any unanticipated bypass which exceeds any effluent limitation in the permit;
 - (2) Any upset which exceeds any effluent limitation in the permit; and
 - (3) Violation of the maximum daily discharge limitation for any of the pollutants listed in the permit as being subject to the 24-hour reporting requirement.
 - (ii) Written Report - A written submission shall also be provided within 5 days of the time the permittee becomes aware of any noncompliance which may endanger health or the environment. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
 - (iii) Waiver of Written Report - DEP may waive the written report on a case-by-case basis if the associated oral report has been received within 24 hours from the time the permittee becomes aware of the circumstances which may endanger health or the environment. Unless such a waiver is expressly granted by DEP, the permittee shall submit a written report in accordance with this paragraph. (40 CFR 122.41(l)(6)(iii))

5. Other Noncompliance

The permittee shall report all instances of noncompliance not reported under paragraph C.4 of this section or specific requirements of compliance schedules, at the time DMRs are submitted, on the Non-Compliance Reporting Form (3800-FM-BPNPSM0440). The reports shall contain the information listed in paragraph C.4.b.(ii) of this section. (40 CFR 122.41(l)(7))

PART B

I. MANAGEMENT REQUIREMENTS

A. Compliance Schedules (25 Pa. Code 92a.51, 40 CFR 122.47(a))

1. The permittee shall achieve compliance with the terms and conditions of this permit within the time frames specified in this permit.
2. The permittee shall submit reports of compliance or noncompliance, or progress reports as applicable, for any interim and final requirements contained in this permit. Such reports shall be submitted no later than 14 days following the applicable schedule date or compliance deadline. (40 CFR 122.47(a)(4))

B. Permit Modification, Termination, or Revocation and Reissuance

1. This permit may be modified, terminated, or revoked and reissued during its term in accordance with 25 Pa. Code 92a.72 and 40 CFR 122.41(f).
2. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition. (40 CFR 122.41(f))
3. In the absence of DEP action to modify or revoke and reissue this permit, the permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time specified in the regulations that establish those standards or prohibitions. (40 CFR 122.41(a)(1))

C. Duty to Provide Information

1. The permittee shall furnish to DEP, within a reasonable time, any information which DEP may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. (40 CFR 122.41(h))
2. The permittee shall furnish to DEP, upon request, copies of records required to be kept by this permit. (40 CFR 122.41(h))
3. Other Information - Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to DEP, it shall promptly submit the correct and complete facts or information. (40 CFR 122.41(l)(8))
4. The permittee shall provide the following information in the annual Municipal Wasteload Management Report, required under the provisions of Title 25 Pa. Code Chapter 94:
 - a. The requirements identified in 25 Pa. Code 94.12.
 - b. The identity of any indirect discharger(s) served by the POTW which are subject to pretreatment standards adopted under Section 307(b) of the Clean Water Act; the POTW shall also specify the total volume of discharge and estimate concentration of each pollutant discharged into the POTW by the indirect discharger.
 - c. A "Solids Management Inventory" including the following information for the preceding year, at a minimum: average annual flow (MGD), average influent BOD₅ (mg/l), average effluent CBOD₅ (mg/l), total volume of sludge wasted (gallons), average solids concentration of return or waste sludge flow (mg/l), and total sludge or biosolids generated (wet or dry tons).
 - d. The total volume of hauled-in residual and municipal wastes received during the year, by source.

- e. The Annual Report requirements for permittees required to implement an industrial pretreatment program listed in Part C, as applicable.

D. General Pretreatment Requirements

1. POTWs shall require indirect dischargers to the treatment works subject to pretreatment standards adopted under Section 307(b) of the Clean Water Act to comply with the reporting requirements of Sections 204(b), 307, and 308 of the Clean Water Act and regulations thereunder.
2. Any POTW (or combination of POTWs operated by the same authority) with a total design flow greater than 5 million gallons per day (MGD) and receiving from industrial users pollutants which pass through or interfere with the operation of the POTW or are otherwise subject to Pretreatment Standards will be required to establish a POTW Pretreatment Program unless specifically exempted by the Approval Authority. A POTW with a design flow of 5 MGD or less may be required to develop a POTW Pretreatment Program if the Approval Authority finds that the nature or volume of the industrial influent, treatment process upsets, violations of effluent limitations, contamination of sludge, or other circumstances warrant in order to prevent interference or pass through. (40 CFR 403.8)
3. Each POTW with an approved Pretreatment Program pursuant to 40 CFR 403.8 shall develop and enforce specific limits to implement the prohibitions listed in 40 CFR 403.5(a)(1) and (b), and shall continue to develop these limits as necessary and effectively enforce such limits. This condition applies, for example, when there are planned changes to the waste stream as identified in Part A III.C.2. If the permittee is required to develop or continue implementation of a Pretreatment Program, detailed requirements will be contained in Part C of this permit.
4. For all POTWs, where pollutants contributed by indirect dischargers result in interference or pass through, and a violation is likely to recur, the permittee shall develop and enforce specific limits for indirect dischargers and other users, as appropriate, that together with appropriate facility or operational changes, are necessary to ensure renewed or continued compliance with this permit or sludge use or disposal practices. Where POTWs do not have an approved Pretreatment Program, the permittee shall submit a copy of such limits to DEP when developed. (25 Pa. Code 92a.47(d))

E. Proper Operation and Maintenance

1. The permittee shall employ operators certified in compliance with the Water and Wastewater Systems Operators Certification Act (63 P.S. §§1001-1015.1).
2. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes, but is not limited to, adequate laboratory controls including appropriate quality assurance procedures. This provision also includes the operation of backup or auxiliary facilities or similar systems that are installed by the permittee, only when necessary to achieve compliance with the terms and conditions of this permit. (40 CFR 122.41(e))

F. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge, sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR 122.41(d))

G. Bypassing

1. Bypassing Not Exceeding Permit Limitations - The permittee may allow a bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions in paragraphs two, three and four of this section. (40 CFR 122.41(m)(2))

2. Other Bypassing - In all other situations, bypassing is prohibited and DEP may take enforcement action against the permittee for bypass unless:
 - a. A bypass is unavoidable to prevent loss of life, personal injury or "severe property damage." (40 CFR 122.41(m)(4)(i)(A))
 - b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance. (40 CFR 122.41(m)(4)(i)(B))
 - c. The permittee submitted the necessary notice required in paragraph G.4 below. (40 CFR 122.41(m)(4)(i)(C))
3. DEP may approve an anticipated bypass, after considering its adverse effects, if DEP determines that it will meet the conditions listed in paragraph G.2 above. (40 CFR 122.41(m)(4)(ii))
4. Notice
 - a. Anticipated Bypass – If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least 10 days before the bypass. (40 CFR 122.41(m)(3)(i))
 - b. Unanticipated Bypass
 - (i) The permittee shall submit immediate notice of an unanticipated bypass causing or threatening pollution. The notice shall be in accordance with Part A III.C.4.a.
 - (ii) The permittee shall submit oral notice of any other unanticipated bypass within 24 hours, regardless of whether the bypass may endanger health or the environment or whether the bypass exceeds effluent limitations. The notice shall be in accordance with Part A III.C.4.b.

H. Sanitary Sewer Overflows (SSOs)

An SSO is an overflow of wastewater, or other untreated discharge from a separate sanitary sewer system (which is not a combined sewer system), which results from a flow in excess of the carrying capacity of the system or from some other cause prior to reaching the headworks of the sewage treatment facility. SSOs are not authorized under this permit. The permittee shall immediately report any SSO to DEP in accordance with Part A III.C.4 of this permit.

II. PENALTIES AND LIABILITY

A. Violations of Permit Conditions

Any person violating Sections 301, 302, 306, 307, 308, 318 or 405 of the Clean Water Act or any permit condition or limitation implementing such sections in a permit issued under Section 402 of the Act is subject to civil, administrative and/or criminal penalties as set forth in 40 CFR §122.41(a)(2).

Any person or municipality, who violates any provision of this permit; any rule, regulation or order of DEP; or any condition or limitation of any permit issued pursuant to the Clean Streams Law, is subject to criminal and/or civil penalties as set forth in Sections 602, 603 and 605 of the Clean Streams Law.

B. Falsifying Information

Any person who does any of the following:

- Falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit, or

- Knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit (including monitoring reports or reports of compliance or noncompliance)

Shall, upon conviction, be punished by a fine and/or imprisonment as set forth in *18 Pa.C.S.A § 4904* and *40 CFR §122.41(j)(5)* and *(k)(2)*.

C. Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance pursuant to Section 309 of the Clean Water Act or Sections 602, 603 or 605 of the Clean Streams Law.

Nothing in this permit shall be construed to preclude the institution of any legal action or to relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject to under the Clean Water Act and the Clean Streams Law.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. 40 CFR 122.41(c)

III. OTHER RESPONSIBILITIES

A. Right of Entry

Pursuant to Sections 5(b) and 305 of Pennsylvania's Clean Streams Law, and Title 25 Pa. Code Chapter 92a and 40 CFR §122.41(i), the permittee shall allow authorized representatives of DEP and EPA, upon the presentation of credentials and other documents as may be required by law:

1. To enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit; (40 CFR 122.41(i)(1))
2. To have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit; (40 CFR 122.41(i)(2))
3. To inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and (40 CFR 122.41(i)(3))
4. To sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act or the Clean Streams Law, any substances or parameters at any location. (40 CFR 122.41(i)(4))

B. Transfer of Permits

1. Transfers by modification. Except as provided in paragraph 2 of this section, a permit may be transferred by the permittee to a new owner or operator only if this permit has been modified or revoked and reissued, or a minor modification made to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act. (40 CFR 122.61(a))
2. Automatic transfers. As an alternative to transfers under paragraph 1 of this section, any NPDES permit may be automatically transferred to a new permittee if:
 - a. The current permittee notifies DEP at least 30 days in advance of the proposed transfer date in paragraph 2.b. of this section; (40 CFR 122.61(b)(1))

Payment for annual fees shall be remitted to DEP at the address below by the anniversary date. Checks should be made payable to the Commonwealth of Pennsylvania.

PA Department of Environmental Protection
Bureau of Point and Non-Point Source Management
Re: Chapter 92a Annual Fee
P.O. Box 8466
Harrisburg, PA 17105-8466

PART C

I. OTHER REQUIREMENTS

- A. No storm water from pavements, area ways, roofs, foundation drains or other sources shall be directly admitted to the sanitary sewers associated with the herein approved discharge.
- B. The approval herein given is specifically made contingent upon the permittee acquiring all necessary property rights by easement or otherwise, providing for the satisfactory construction, operation, maintenance or replacement of all sewers or sewerage structures associated with the herein approved discharge in, along, or across private property, with full rights of ingress, egress and regress.
- C. Collected screenings, slurries, sludges, and other solids shall be handled and disposed of in compliance with 25 Pa. Code, Chapters 271, 273, 275, 283, and 285 (related to permits and requirements for landfilling, land application, incineration, and storage of sewage sludge), Federal Regulation 40 CFR 257, Pennsylvania Clean Streams Law, Pennsylvania Solid Waste Management Act of 1980, and the Federal Clean Water Act and its amendments. The permittee is responsible to obtain or assure that contracted agents have all necessary permits and approvals for the handling, storage, transport, and disposal of solid waste materials generated as a result of wastewater treatment.
- D. Notification of the designation of the responsible operator must be submitted to the permitting agency by the permittee within 60 days after the effective date of the permit and from time to time thereafter as the operator is replaced.
- E. The attention of the permittee is directed to the fact that the herein approved discharge is directed to a small stream which affords a limited dilution potential. If the effluent creates a health hazard or nuisance, the permittee shall upon notice from the DEP, provide such additional treatment as may be required by the DEP.
- F. The seasonal effluent limitations for fecal coliform are based on Chapter 92a (§ 92a.47(4) & (5)) of DEP's regulations and Delaware River Basin Commission's (DRBC's) Water Quality Regulations at § 4.30.4.A. DEP's regulations govern the summer limits for fecal coliform while the winter limits are based on DRBC's regulations. The DRBC regulations state that during winter season from October through April, the instantaneous maximum concentration of fecal coliform organisms shall not be greater than 1,000 per 100 milliliters in more than 10 percent of the samples tested. For reporting purposes, a copy of the guidelines on the 10 percent rule is enclosed with the permit.

G. Laboratory Certification

The Environmental Laboratory Accreditation Act of 2002 requires that all environmental laboratories register with the DEP. An environmental laboratory is any facility engaged in the testing or analysis of environmental samples required by a statute administered by the DEP relating to the protection of the environment or of public health, safety, and welfare.

- H. The Worcester Township shall submit an Infiltration/Inflow abatement plan within three months from the effective date of this permit. The plan shall include at a minimum the following information:
 - a. A description of identified sources of I/I from the collection system, along with locations.
 - b. A schedule of corrective actions such as televising sewer system, rehabilitation of collection system, reduction of I/I from private sewer laterals and any other measures necessary to either eliminate or reduce the sources of I/I shall be included in the plan.
 - c. Information regarding flow metering, hydraulic characterization of the sanitary sewer collection system and expected reduction in I/I flow.



Commonwealth of Pennsylvania
Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093
www.phmc.state.pa.us

September 16, 2013

CKS Engineers, Inc.
Attn: Eric J. Janetka, P.E.
88 South Main Street
Doylestown, PA 18901

RE: ER# 2013-2110-091-A
DEP: Hickory Hill Area Sanitary Sewer
Project, Minor Act 537 Plan Update, Low
Pressure Sanitary Sewer System
Extension, Worcester Township,
Montgomery County

Dear Mr. Janetka:

Thank you for submitting information concerning the above referenced project. The Bureau for Historic Preservation (the State Historic Preservation Office) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 *et seq.* (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources. Our comments are as follows:

Historic Resources

There may be historic buildings, structures, districts, and/or objects eligible for the National Register of Historic Places located in the project area. However, in our opinion, the activity described in your proposal should have no effect on such resources. Should the scope and/or nature of the project activities change, the Bureau for Historic Preservation should be contacted immediately.

Archaeological Resources

In our opinion, no archaeological investigations are necessary for this project.



Page Two
Mr. Janetka
September 16, 2013

If you have any questions or comments concerning our review, please contact Barbara Frederick at (717) 772-0921.

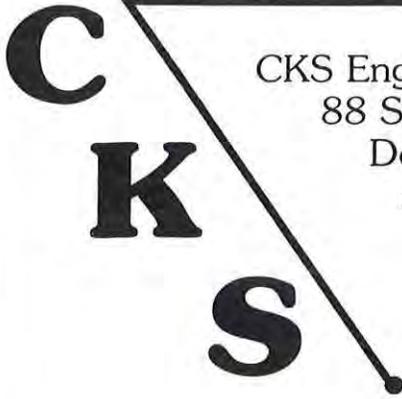
Sincerely,



Douglas C. McLearn, Chief
Division of Archaeology and Protection

cc: DEP, Southeast Region Office





CKS Engineers, Inc.
88 South Main Street
Doylestown, PA 18901
215-340-0600 • FAX 215-340-1655

David W. Connell, P.E.
Joseph J. Nolan, P.E.
Thomas F. Zarko, P.E.
James F. Weiss
Patrick P. DiGangi, P.E.
Ruth Cunnane

August 28, 2013
Ref: #7471

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Pennsylvania Historical and Museum Commission
Bureau of Historic Preservation
400 North Street, Second Floor
Harrisburg, PA 17120-0093

Reference: Cultural Resource Notice
Hickory Hill Area Sanitary Sewer Project Minor Act 537 Plan Update
Low Pressure Sanitary Sewer System Extension
Worcester Township, Montgomery County

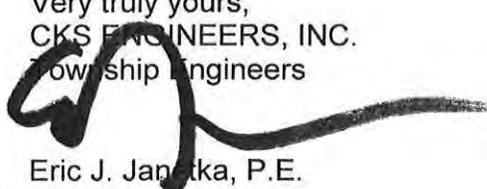
Dear Sir or Madam:

On behalf of Worcester Township, Montgomery County, enclosed is an executed Cultural Resource Notice, checklist, narrative, U.S.G.S. quadrangle map showing the project planning area, a schematic diagram of proposed low pressure sewer system extension and PNDI Project Environmental Review receipt for the subject project.

In accordance with the requirements of PADEP Act 537 Planning Approval process, we request that your office determine if the proposed SEWAGE FACILITIES PLANNING will, or will not, impact any archaeological sites or historic structures. No construction is proposed at this time and it is anticipated that future construction activity will have no impact on any existing structures.

If you have any questions regarding the above or should you require additional information, please do not hesitate to contact me.

Very truly yours,
CKS ENGINEERS, INC.
Township Engineers


Eric J. Janotka, P.E.

EJJ/klk
Enclosures

cc: Lee Mangan, Township Manager
Eunice C. Kriebel, Assistant Township Manager
Joseph J. Nolan, P.E., CKS Engineers, Inc.
Kenneth G. Kollmer, CKS Engineers, Inc.

File (w/encls.)

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<ul style="list-style-type: none"> ■ Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. ■ Print your name and address on the reverse so that we can return the card to you. ■ Attach this card to the back of the mailpiece, or on the front if space permits. 	<p>A. Signature <input checked="" type="checkbox"/> <i>[Signature]</i> <input type="checkbox"/> Agent <input type="checkbox"/> Addressee</p> <p>B. Received by (Printed Name) C. Date of Delivery SEP 18 2013</p>
<p>1. Article Addressed to: PA Historical and Museum Commission Bureau of Historic Preservation 400 North Street, Second Floor Harrisburg, PA 17120-0093</p>	<p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No</p> <p>3. Service Type <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.</p> <p>4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes</p>
<p>2. Article Number (Transfer from service label)</p>	<p>7012 3460 0000 8427 3430</p>
<p>PS Form 3811, February 2004</p>	<p>Domestic Return Receipt 102595-02-M-1540</p>



CULTURAL RESOURCE NOTICE

APPLICANT'S ✓ CHECKLIST

Please check the following list to make sure that you have included all the required information. Place a checkmark in the column provided for all items completed and/or provided.

Failure to provide all of the requested information will delay the processing of the application and may result in the application being placed on hold with no action, or will be considered withdrawn and the application file closed.

	Requirement	Check ✓ If Included
1.	Attachments, where appropriate	
	a) Section B - Additional municipality information.	X
	b) Section B - Additional county information.	X
	c) Section H - 7.5' USGS Map (with defined boundaries of proposed activity).	X
	d) Section H - Narrative description of proposed activity.	X
	e) Section H - Photographs of any buildings over 50 years old. Indicate what is to be done to all buildings in the project area.	N/A
	f) Section H - Total acres in property under review. Of this acreage, total acres of earth disturbance for the proposed activity.	N/A
	g) Return receipt of delivery of Cultural Resource Notice to the Pennsylvania Historical and Museum Commission.	
2.	Mailings	
	a) Notice mailed to PHMC on <u>August 26, 2013</u> .	X
	b) Received return receipt from PHMC on _____.	
	c) Submitted application to DEP Regional, Central, District Mining or Oil and Gas Mgmt. Office on _____ with copy of return receipt from PHMC as proof of submittal. or	
	d) Submitted application to County Conservation District Office on _____ with copy of Return Receipt from PHMC as proof of submittal.	
	Requests	Check ✓ If Included
3.	Attachments requested, where appropriate	
	a) Section H - Photographs of any buildings over 40 years old.	N/A
	b) Section H - Site maps of the proposed activity, if available.	X

DEP USE ONLY
Date Received



CULTURAL RESOURCE NOTICE

Read the instructions before completing this form.

SECTION A. APPLICANT IDENTIFIER	
Applicant Name	Worcester Township
Street Address	1721 Valley Forge Road, P.O. Box 767
City	Worcester State PA Zip 19490-0767
Telephone Number	215-584-1410
Project Title <u>Center Point (Hickory Hill & Landis Road) and Vicinity Act 537 Planning Module Comp. 3M</u>	
SECTION B. LOCATION OF PROJECT	
Municipality	<u>Worcester Township</u> County Name <u>Montgomery</u> DEP County Code <u>46</u>
SECTION C. PERMITS OR APPROVALS	
Name of Specific DEP Permit or Approval Requested: <u>Sewage Facilities Planning Module Component 3M</u>	
Anticipated federal permits: <u>N/A</u>	
<input type="checkbox"/> Surface Mining	<input type="checkbox"/> 404 Water Quality Permit
<input type="checkbox"/> Army Corps of Engineers	<input type="checkbox"/> Federal Energy Regulatory Commission
<input type="checkbox"/> 401 Water Quality Certification	<input type="checkbox"/> Other: _____
SECTION D. GOVERNMENT FUNDING SOURCES <u>N/A</u>	
<input type="checkbox"/> State: (Name) _____	<input type="checkbox"/> Local: (Name) _____
<input type="checkbox"/> Federal: (Name) _____	<input type="checkbox"/> Other: (Name) _____
SECTION E. RESPONSIBLE DEP REGIONAL, CENTRAL, DISTRICT MINING or OIL & GAS MGMT OFFICE	
DEP Regional Office Responsible for Review of Permit Application <input type="checkbox"/> Central Office (Harrisburg)	
<input checked="" type="checkbox"/> Southeast Regional Office (Norristown)	<input type="checkbox"/> Northeast Regional Office (Wilkes-Barre)
<input type="checkbox"/> Southcentral Regional Office (Harrisburg)	<input type="checkbox"/> Northcentral Regional Office (Williamsport)
<input type="checkbox"/> Southwest Regional Office (Pittsburgh)	<input type="checkbox"/> Northwest Regional Office (Meadville)
<input type="checkbox"/> District Mining Office: _____	<input type="checkbox"/> Oil & Gas Office: _____
SECTION F. RESPONSIBLE COUNTY CONSERVATION DISTRICT, if applicable.	
County Conservation District	Telephone Number, if known
<u>Montgomery County Conservation District</u>	<u>610-489-4506</u>
SECTION G. CONSULTANT	
Consultant, if applicable	<u>CKS Engineers, Inc., Eric J. Janetka, P.E.</u>
Street Address	<u>88 South Main Street</u>
City	<u>Doylestown</u> State <u>PA</u> Zip <u>18901</u>
Telephone Number	<u>215-340-0600</u>

SECTION H. PROJECT BOUNDARIES AND DESCRIPTION

REQUIRED

Indicate the total acres in the property under review. Of this acreage, indicate the total acres of earth disturbance for the proposed activity.

Attach a 7.5' U.S.G.S. Map indicating the defined boundary of the proposed activity.

Attach photographs of any building over 50 years old. Indicate what is to be done to all buildings in the project area.

Attach a narrative description of the proposed activity.

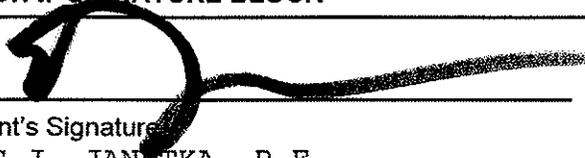
Attach the return receipt of delivery of this notice to the Pennsylvania Historical and Museum Commission.

REQUESTED

Attach photographs of any building over 40 years old.

Attach site map, if available.

SECTION I. SIGNATURE BLOCK



Applicant's Signature
ERIC J. JANETKA, P.E.

August 26, 2013

Date of Submission of Notice to PHMC

NARRATIVE

SEWAGE FACILITIES PLANNING MODULE MINOR ACT 537 UPDATE REVISION COMPONENT 3M CENTER POINT (HICKORY HILL AND LANDIS ROAD) AND VICINITY LOW PRESSURE SEWER SYSTEM EXTENSION PROJECT

WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

This Minor Act 537 Sewage Facilities Planning Module is prepared on behalf of Worcester Township, Montgomery County, Pennsylvania, to allow the connection of 74 properties to a proposed low pressure sanitary sewer system in the Center Point area of the Township which is flanked by Hickory Hill Drive, Landis Road, Valley Forge Road, and Crest Terrace. The location of the properties to be connected is shown on the attached U.S.G.S. Lansdale quadrangle map and the attached project planning area map. A map of the schematic location of existing and proposed public sewer is also enclosed for reference.

No construction is proposed at this time and engineering design of the system is not complete and is in the preliminary planning and alternatives evaluation stage. Prior to completing engineering design, The Township's Act 537 Plan must be amended by way of Planning Modules Component 3M (Minor Act 537 Update Revision). Properties within the planning area have on-lot disposal system (OLDS) and have experienced malfunctions and failures of these systems, dating back 30 plus years. The planning area is located in the Center Point Village Service Area with effluent conveyed to and treated at the Valley Green Wastewater Treatment Plant (VGWTP) located on Defford Road. Installation of public sewer in the proposed Planning Area is identified in the Worcester Township Act 537 Plan (March 1996) as part of the "Areas Proposed for Sewer within 5 Years". The VGWTP will be expanded to accommodate flow anticipated with this sewer extension. Design and permitting for the VGWTP expansion will be completed concurrently with this Minor Act 537 Plan Update (Component 3M).

The properties within the project planning area are largely zoned residential but there are a small number of commercial, utility, and agricultural properties, as well. Existing single-family homes within the planning area are served by individual on-lot septic systems. Most soils in the area are classified as "poorly drained" or "somewhat poorly drained" in the Montgomery County Soil Survey and would be considered marginal for septic systems under current regulations. The area of land to be disturbed in conjunction with this sewer extension project will vary for each individual property, but the sewage service connection will be installed within a single trench for each home. Lower pressure sewer mains will largely be located within developed area such as streets, yards, or previously graded/cleared areas. No existing buildings are to be demolished as a result of this project.

1. PROJECT INFORMATION

Project Name: **Center Point and Vicinity Minor Act 537 Plan Update**

Date of review: **8/22/2013 9:55:47 AM**

Project Category: **Waste Transfer, Treatment, and Disposal, Liquid waste/Effluent, Sewage module/Act 537 plan**

Project Area: **175.9 acres**

County: **Montgomery** Township/Municipality: **Worcester**

Quadrangle Name: **LANSDALE** ~ ZIP Code: **19403,19426**

Decimal Degrees: **40.192545 N, -75.343740 W**

Degrees Minutes Seconds: **40° 11' 33 N, W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, based on the information you provided, no further coordination is required with the jurisdictional agencies. This response does not reflect potential agency concerns regarding impacts to other ecological resources, such as wetlands.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE: No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special

concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <http://www.naturalheritage.state.pa.us>.



5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA.
17105-8552
Fax:(717) 772-0271

U.S. Fish and Wildlife Service
Endangered Species Section
315 South Allen Street, Suite 322, State College, PA.
16801-4851
NO Faxes Please.

PA Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

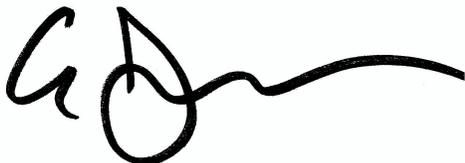
PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: Eric J. Janetka, P.E.
Company/Business Name: CKS Engineers, Inc.
Address: 88 South Main Street
City, State, Zip: Doylestown, PA 18901
Phone: (215) 340-0600 Fax: (215) 340-1655
Email: ejanetka@cksengineers.com

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.



August 22, 2013

applicant/project proponent signature

date



COMMONWEALTH OF PENNSYLVANIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

DEP Code #:
 1-46962-178-3M

**SEWAGE FACILITIES PLANNING MODULE
 COMPONENT 4A - MUNICIPAL PLANNING AGENCY REVIEW**

Note to Project Sponsor: To expedite the review of your proposal, one copy of your completed planning module package and one copy of this *Planning Agency Review Component* should be sent to the existing local municipal planning agency for their comments.

SECTION A. PROJECT NAME (See Section A of instructions)

Project Name

HICKORY HILL AREA LOW PRESSURE SEWER SYSTEM EXTENSION

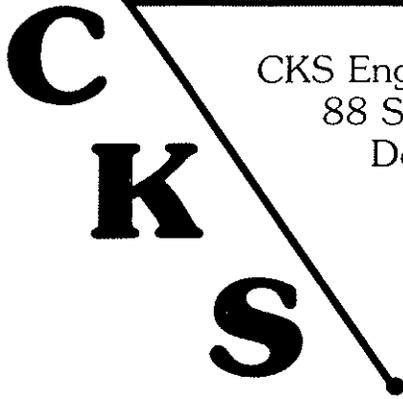
SECTION B. REVIEW SCHEDULE (See Section B of instructions)

1. Date plan received by municipal planning agency.
2. Date review completed by agency. 11/14/2013

SECTION C. AGENCY REVIEW (See Section C of instructions)

Yes	No	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Is there a municipal comprehensive plan adopted under the Municipalities Planning Code (53 P.S. 10101, <i>et seq.</i>)?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Is this proposal consistent with the comprehensive plan for land use? If no, describe the inconsistencies _____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Is this proposal consistent with the use, development, and protection of water resources? If no, describe the inconsistencies _____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Is this proposal consistent with municipal land use planning relative to Prime Agricultural Land Preservation?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Does this project propose encroachments, obstructions, or dams that will affect wetlands? If yes, describe impacts _____
<input type="checkbox"/>	<input checked="" type="checkbox"/>	6. Will any known historical or archaeological resources be impacted by this project? If yes, describe impacts _____
<input type="checkbox"/>	<input checked="" type="checkbox"/>	7. Will any known endangered or threatened species of plant or animal be impacted by this project? If yes, describe impacts _____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. Is there a municipal zoning ordinance?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Is this proposal consistent with the ordinance? If no, describe the inconsistencies _____
<input type="checkbox"/>	<input checked="" type="checkbox"/>	10. Does the proposal require a change or variance to an existing comprehensive plan or zoning ordinance?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. Have all applicable zoning approvals been obtained?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	12. Is there a municipal subdivision and land development ordinance?

SECTION C. AGENCY REVIEW (continued)	
Yes	No
<input checked="" type="checkbox"/>	<input type="checkbox"/>
13. Is this proposal consistent with the ordinance? If no, describe the inconsistencies _____	
<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. Is this plan consistent with the municipal Act 537 Official Sewage Facilities Plan? If no, describe the inconsistencies _____	
<input type="checkbox"/>	<input checked="" type="checkbox"/>
15. Are there any wastewater disposal needs in the area adjacent to this proposal that should be considered by the municipality? If yes, describe _____	
<input type="checkbox"/>	<input checked="" type="checkbox"/>
16. Has a waiver of the sewage facilities planning requirements been requested for the residual tract of this subdivision?	
<input type="checkbox"/>	<input type="checkbox"/>
If yes, is the proposed waiver consistent with applicable ordinances?	
17. Name, title and signature of planning agency staff member completing this section:	
Name: <u>Gordon Todd</u>	
Title: <u>Worcester Township Planning Commission Chairman</u>	
Signature: <u>Gordon Todd</u>	
Date: <u>11/20/2013</u>	
Name of Municipal Planning Agency: <u>Worcester Township</u>	
Address: <u>1721 Valley Forge Rd PO Box 767 Worcester PA 19490</u>	
Telephone Number: <u>(610) 584-1410</u>	
SECTION D. ADDITIONAL COMMENTS (See Section D of instructions)	
This Component does not limit municipal planning agencies from making additional comments concerning the relevancy of the proposed plan to other plans or ordinances. If additional comments are desired, attach additional sheets.	
The planning agency must complete this Component within 60 days.	
This component and any additional comments are to be returned to the project sponsor.	



CKS Engineers, Inc.
88 South Main Street
Doylestown, PA 18901
215-340-0600 • FAX 215-340-1655

David W. Connell, P.E.
Joseph J. Nolan, P.E.
Thomas F. Zarko, P.E.
James F. Weiss
Patrick P. DiGangi, P.E.
Ruth Cunnane

October 2, 2013
Ref: #7471

Montgomery County Planning Commission
PO Box 311
Norristown, PA 19404-0311

Attention: Jody L. Horton, AICP, Executive Director

Reference: Hickory Hill Area Low Pressure Sewer System Extension
Sewage Facilities Planning Module Component 3M
Component 4B – County Planning Agency Review
Worcester Township

Dear Ms. Horton:

On behalf of Worcester Township, CKS Engineers has prepared a Sewage Facilities Planning Module Component 3M (Minor Act 537 Plan Update Revision) for the Hickory Hill Drive/Landis Road area in Worcester Township, for extension of low pressure sewer to serve parcels presently utilizing on-lot sewage disposal systems.

This Act 537 Plan Update is required to gain planning approval for the connection of 74 parcels along Hickory Hill Drive, Landis Road, Valley Forge Road, Crest Terrace, and Green Briar Drive. A total of 87 EDUs are proposed and the Township has been directed by PADEP to proceed with submission of the Component 3M (refer enclosed correspondence dated June 20, 2013 and July 30, 2013 from PADEP to Worcester Township). An application mailer was recently submitted to PADEP and a project code of 1-46962-178-3M has been assigned. The "planning area" is presently served by on-lot sewage disposal systems that have experienced numerous malfunctions and failures dating back over 30 years. A detailed plan of the improvements is not included with the Planning Module report as preliminary engineering design has not commenced.

Please review the enclosed Planning Module package, including PADEP Component 3M and supporting documents, and verify the information on the enclosed Planning Module Component 4B – County Planning Agency Review. Please return a signed copy of the Component 4B to this office.

If you have any questions regarding the above or should you require additional information, please do not hesitate to contact me.

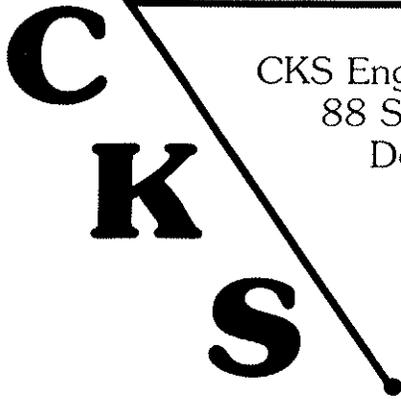
Sincerely,
CKS ENGINEERS, INC.



Eric J. Janetka, P.E.

EJJ/klk
Enclosures

cc: Lee Mangan, Township Manager
Eunice C. Kriebel, Assistant Township Manager
Joseph J. Nolan, P.E., CKS Engineers, Inc.
Kenneth G. Kollmer, CKS Engineers, Inc.
File



CKS Engineers, Inc.
88 South Main Street
Doylestown, PA 18901
215-340-0600 • FAX 215-340-1655

David W. Connell, P.E.
Joseph J. Nolan, P.E.
Thomas F. Zarko, P.E.
James F. Weiss
Patrick P. DiGangi, P.E.
Ruth Cunnane

November 1, 2013
Ref: #7471

Montgomery County Planning Commission
PO Box 311
Norristown, PA 19404-0311

Attention: Drew Shaw, AICP, Environmental Planning Section Chief

Reference: Hickory Hill Area Low Pressure Sewer System Extension
Sewage Facilities Planning Module - Component 4B
Worcester Township

Dear Drew:

On behalf of Worcester Township, this office recently submitted the subject Sewage Facilities Planning Module Component 3M to the Montgomery County Planning Commission for review. Worcester Township has decided to revise the criteria for mandatory connection of properties within the Planning Area to the proposed sewer system, thus minor revisions have been made to portions of the Planning Module Report.

The original Planning Module Report Narrative (dated September 16, 2013) indicated that all properties within the Planning Area would be required to connect to the sewer extension within ten years of the date of completion of the extension. Worcester Township will no longer require connection within this ten-year time period, but will require all properties with failing/malfunctioning septic systems to immediately connect to the sewer system and all others to connect at time of transfer of a property to a new owner or refinance of a mortgage.

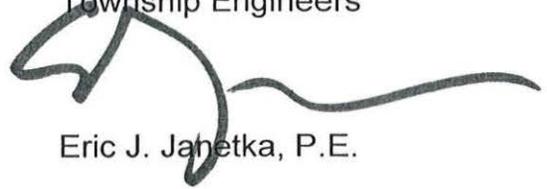
Enclosed is a copy of those portions of the Planning Module Report that have been amended to address the revision to the required sewer connection schedule. There are no other substantive changes. Please note the Planning Module Report of record for this review is dated September 16, 2013 with a revision date of November 1, 2013.

Ref: #7471

Page 2

If you have any questions regarding the above or should you require additional information, please do not hesitate to contact me.

Sincerely,
CKS ENGINEERS, INC.
Township Engineers

A handwritten signature in black ink, appearing to read "Eric J. Janetka", with a long horizontal flourish extending to the right.

Eric J. Janetka, P.E.

EJJ/klk
Enclosures

cc: Lee Mangan, Township Manager
Eunice C. Kriebel, Assistant Township Manager
Joseph J. Nolan, P.E., CKS Engineers, Inc.
Kenneth G. Kollmer, CKS Engineers, Inc.
File

**MONTGOMERY COUNTY
BOARD OF COMMISSIONERS**

JOSHUA D. SHAPIRO, CHAIR

LESLIE S. RICHARDS, VICE CHAIR

BRUCE L. CASTOR, JR., COMMISSIONER



**MONTGOMERY COUNTY
PLANNING COMMISSION**

MONTGOMERY COUNTY COURTHOUSE • PO Box 311
NORRISTOWN, PA 19404-0311
610-278-3722

FAX: 610-278-3941 • TDD: 610-631-1211
WWW.MONTCOPA.ORG

JODY L. HOLTON, AICP
DIRECTOR

November 14, 2013

MCPC 537 Number: 13-2105
DEP #1-46962-178-3M
Worcester Township
Hickory Hill Area Low Pressure
Sewer System Extension
Date revision received by the
County Planning Commission: 10/3/2013
Revised 11/1/2013

Mr. Lee Mangan, Manager
Worcester Township
1721 Valley Forge Road
Worcester, PA 19490

Dear Mr. Mangan:

We have reviewed this proposed revision to the Township's Sewage Facilities Plan in accordance with regulations issued under Act 537, "The Pennsylvania Sewage Facilities Act," as requested. We are forwarding this letter as a report of our review and recommendations.

BACKGROUND

The Township is proposing a revision to its Sewage Facilities Plan to incorporate a low pressure sewer system to serve 74 parcels. The project area is bounded by Hickory Hill Drive, Landis Road, Crest Terrace, Valley Forge Road, and Green Briar Drive. The low pressure system would connect to the township system, enabling the flows to be conveyed to the Valley Green Wastewater Treatment Plant.

ISSUES/COMMENTS

Planning Module: The original planning module of September 16, 2013, was amended during the review period. The new module, November 1, 2013, includes a change that will no longer require connection to the proposed system within a ten-year time period. All properties with failing/malfunctioning septic systems will be required to connect immediately, and all others will be required to connect at the time of transfer of a property to a new owner, or refinance of a mortgage.

Mr. Lee Mangan

-2-

November 14, 2013

Comprehensive Planning: The proposal to provide public sewer service to the project area conforms to the current county comprehensive plan. The area is designated as Suburban Residential Area on the 2010 Future Land Use Map. The provision of public sewers to alleviate any failing or malfunctioning on-lot sewer systems is also consistent with the plan.

RECOMMENDATION:

We find that the Plan Update considers the pertinent issues for providing sewer service through the planning horizon, and have no objections to the recommendations of this Plan Update, provided it conforms to all applicable DEP requirements.

Should you have questions on the comments contained in this letter, please contact me. My contact information is provided below.

Sincerely,

Drew Shaw, AICP
Environmental Planning Section Chief
dshaw@montcopa.org
(610) 278-3733

Montgomery County Planning Commission
P. O. Box 311
Norristown, PA 19404-0311
www.planning.montcopa.org

c. Elizabeth Mahoney, PADEP
Eric J. Janetka, P.E., CKS Eng.



SEWAGE FACILITIES PLANNING MODULE
 COMPONENT 4B - COUNTY PLANNING AGENCY REVIEW
 (or Planning Agency with Areawide Jurisdiction)

MCPC #13-2105

Note to Project Sponsor: To expedite the review of your proposal, one copy of your completed planning package and one copy of this Planning Agency Review Component should be sent to the existing county planning agency or planning agency with areawide jurisdiction for their comments.

SECTION A. PROJECT NAME (See Section A of instructions)

Project Name: Hickory Hill Area Low Pressure Sewer System Extension

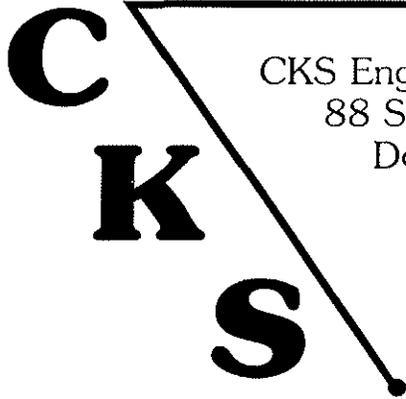
SECTION B. REVIEW SCHEDULE (See Section B of instructions)

1. Date plan received by county planning agency. 10/3/2013 **Revised 11/1/2013**
2. Date plan received by planning agency with area wide jurisdiction
 Agency name
3. Date review completed by agency 11/14/13

SECTION C. AGENCY REVIEW (See Section C of instructions)

Yes	No	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Is there a county or areawide comprehensive plan adopted under the Municipalities Planning Code (53 P.S. 10101 et seq.)?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Is this proposal consistent with the comprehensive plan for land use?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Does this proposal meet the goals and objectives of the plan? If no, describe goals and objectives that are not met
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Is this proposal consistent with the use, development, and protection of water resources? If no, describe inconsistency
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is this proposal consistent with the county or areawide comprehensive land use planning relative to Prime Agricultural Land Preservation? If no, describe inconsistencies:
<input type="checkbox"/>	<input checked="" type="checkbox"/>	6. Does this project propose encroachments, obstructions, or dams that will affect wetlands? If yes, describe impact
<input type="checkbox"/>	<input checked="" type="checkbox"/>	7. Will any known historical or archeological resources be impacted by this project? If yes, describe impacts
<input type="checkbox"/>	<input checked="" type="checkbox"/>	8. Will any known endangered or threatened species of plant or animal be impacted by the development project?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	9. Is there a county or areawide zoning ordinance?
<input type="checkbox"/>	<input type="checkbox"/>	10. Does this proposal meet the zoning requirements of the ordinance? Zoning is a Township issue. If no, describe inconsistencies

Yes	No	SECTION C. AGENCY REVIEW (continued)
<input type="checkbox"/>	<input type="checkbox"/>	11. Have all applicable zoning approvals been obtained? <u>Zoning is a Township issue.</u>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	12. Is there a county or areawide subdivision and land development ordinance?
<input type="checkbox"/>	<input type="checkbox"/>	13. Does this proposal meet the requirements of the ordinance? <u>This is also a Township issue.</u> If no, describe which requirements are not met
<input checked="" type="checkbox"/>	<input type="checkbox"/>	14. Is this proposal consistent with the municipal Act 537 Official Sewage Facilities Plan? If no, describe inconsistency
<input type="checkbox"/>	<input checked="" type="checkbox"/>	15. Are there any wastewater disposal needs in the area adjacent to this proposal that should be considered by the municipality? If yes, describe
<input type="checkbox"/>	<input checked="" type="checkbox"/>	16. Has a waiver of the sewage facilities planning requirements been requested for the residual tract of this subdivision? If yes, is the proposed waiver consistent with applicable ordinances? If no, describe the inconsistencies
<input type="checkbox"/>	<input checked="" type="checkbox"/>	17. Does the county have a stormwater management plan as required by the Stormwater Management Act? No plan has been completed for the Skippack Creek Watershed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	If yes, will this project plan require the implementation of storm water management measures?
		18. Name, Title and signature of person completing this section: Name: Drew Shaw Title: Environmental Planning Section Chief Signature: Date: 11/14/13 Name of County or Areawide Planning Agency: Montgomery County Planning Commission Address: Court House - PO Box 311, Norristown, PA Telephone Number: 610-278-3733
SECTION D. ADDITIONAL COMMENTS (See Section D of instructions)		
This Component does not limit county planning agencies from making additional comments concerning the relevancy of the proposed plan to other plans or ordinances. If additional comments are needed, attach additional sheets.		
The county planning agency must complete this Component within 60 days. This Component and any additional comments are to be returned to the applicant.		



CKS Engineers, Inc.
88 South Main Street
Doylestown, PA 18901
215-340-0600 • FAX 215-340-1655

David W. Connell, P.E.
Joseph J. Nolan, P.E.
Thomas F. Zarko, P.E.
James F. Weiss
Patrick P. DiGangi, P.E.
Ruth Cunnane

October 2, 2013
Ref: #7471

Montgomery County Department of Health
PO Box 311
Norristown, PA 19404-0311

Attention: Tori McQueen, SEO, Division of Water Quality Management

Reference: Hickory Hill Area Low Pressure Sewer System Extension
Sewage Facilities Planning Module Component 3M
Component 4C – County Health Department Review
Worcester Township

Dear Ms. McQueen:

On behalf of Worcester Township, CKS Engineers has prepared a Sewage Facilities Planning Module Component 3M (Minor Act 537 Plan Update Revision) for the Hickory Hill Drive/Landis Road area in Worcester Township, for extension of low pressure sewer to serve parcels presently utilizing on-lot sewage disposal systems.

This Act 537 Plan Update is required to gain planning approval for the connection of 74 parcels along Hickory Hill Drive, Landis Road, Valley Forge Road, Crest Terrace, and Green Briar Drive. A total of 87 EDUs are proposed and PADEP has assigned this a project code of 1-46962-178-3M. The "planning area" is presently served by on-lot sewage disposal systems that have experienced numerous malfunctions and failures dating back over 30 years. A detailed plan of the improvements is not included with the Planning Module report as preliminary engineering design has not commenced.

Please review the enclosed Planning Module package, including PADEP Component 3M and supporting documents, and verify the information on the enclosed Planning Module Component 4C – County Health Department Review. Please return a signed copy of the Component 4C to this office. Also enclosed is a check for \$815.00 required for review of the Component 3M.

If you have any questions regarding the above or should you require additional information, please do not hesitate to contact me.

Sincerely,
CKS ENGINEERS, INC.



Eric J. Janetka, P.E.

EJJ/klk
Enclosures

cc: Lee Mangan, Township Manager
Eunice C. Kriebel, Assistant Township Manager
Joseph J. Nolan, P.E., CKS Engineers, Inc.
Kenneth G. Kollmer, CKS Engineers, Inc.
[File](#)

**MONTGOMERY COUNTY
BOARD OF COMMISSIONERS**

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LESLIE S. RICHARDS, VICE CHAIR
BRUCE L. CASTOR, JR.



HEALTH DEPARTMENT
1430 DEKALB STREET • PO Box 311
NORRISTOWN, PA 19404-0311
610-278-5117
FAX: 610-278-5167
WWW.HEALTH.MONTCOPA.ORG

JOSEPH M. DIMINO, DO
DIRECTOR OF HEALTH/MEDICAL DIRECTOR

October 8, 2013

Lee Mangan, Township Manager
1721 Valley Forge Road
P.O. Box 767
Worcester, Pa 19490-0767

Re: Hickory Hill Area Low Pressure Sewer System Extension
Sewage Facilities Planning Module Component 4C
Worcester Township, Montgomery County, PA

Dear Mr. Mangan:

The Montgomery County Health Department (MCHD) has reviewed the Sewage Facilities Planning Module for the Hickory Hill Area Low Pressure Sewer System Extension. The module was prepared by CKS Engineers, Inc., and a complete copy was received by MCHD on October 4, 2013.

The module proposes a sanitary sewer extension to provide service to seventy-four (74) existing properties located on Hickory Hill Drive, Landis Road, Valley Forge Road, Crest Terrace, and Green Briar Drive. The proposed extension will generate an estimated 26,100 gallons per day (GPD) of sewage flow that will be conveyed and treated by the Valley Green Wastewater Treatment Plant. Drinking water for the site is currently served by private wells.

MCHD has no objections to the proposed Sewage Facilities Planning Module.

If you have any further questions, please contact me at (610) 278-5117 extension 6730.

Sincerely,

Tori McQueen

Tori McQueen
Environmental Health Specialist/SEO
Division of Water Quality Management
tmcqueen@montcopa.org

Enclosures

xc: Department of Environmental Protection
CKS Engineers, Inc.

NORRISTOWN HEALTH CENTER
1430 DeKalb Street, PO Box 311
Norristown, PA 19404-0311
Phone: (610) 278-5145 Fax: (610) 278-5166

POTTSTOWN HEALTH CENTER
364 King Street
Pottstown, PA 19464
Phone: (610) 970-5040 Fax: (610) 970-5048
Report Attachments Page 74 of 215

EASTERN COURT HOUSE ANNEX
102 York Road, Suite 401
Willow Grove, PA 19090
Phone: (215) 784-5415 Fax: (215) 784-5524



SEWAGE FACILITIES PLANNING MODULE
COMPONENT 4C - COUNTY OR JOINT HEALTH DEPARTMENT REVIEW

Note to Project Sponsor: To expedite the review of your proposal, one copy of your completed planning module package and one copy of this *Planning Agency Review Component* should be sent to the county or joint county health department for their comments.

SECTION A. PROJECT NAME (See Section A of instructions)

Project Name

Hickory Hill Area Low Pressure Sewer System Extension

SECTION B. REVIEW SCHEDULE (See Section B of instructions)

1. Date plan received by county or joint-county health department. October 4, 2013

Agency name Montgomery County Health Department

2. Date review completed by agency October 8, 2013

SECTION C. AGENCY REVIEW (See Section C of instructions)

Yes No

1. Is the proposed plan consistent with the municipality's Official Sewage Facilities Plan?

If no, what are the inconsistencies? _____

2. Are there any waste water disposal needs in the area adjacent to the new land development that should be considered by the municipality?

If yes, describe _____

3. Is there any known groundwater degradation in the area of the proposed subdivision?

If yes, describe _____

4. The county or joint county health department recommendation concerning this proposed plan is as follows: MCHD has no objections to the Hickory Hill Area Low Pressure Sewer System Extension.

5. Name, title and signature of person completing this section:

Name: Tori McQueen

Title: Environmental Health Specialist/SEO

Signature: Tori McQueen

Date: October 8, 2013

Name of County Health Department: Montgomery County Health Department

Address: 1430 DeKalb Street, P.O. Box 311, Norristown, Pa 19404-0311

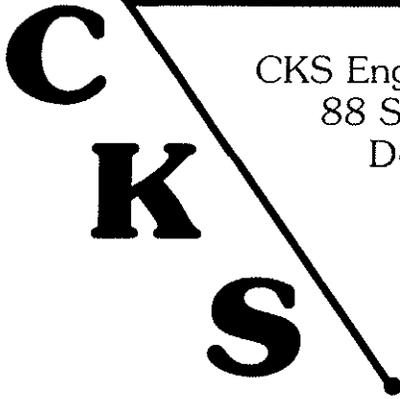
Telephone Number: 610-278-5117

SECTION D. ADDITIONAL COMMENTS (See Section D of instructions)

This Component does not limit county planning agencies from making additional comments concerning the relevancy of the proposed plan to other plans or ordinances. If additional comments are needed, attach additional sheets.

The county planning agency must complete this Component within 60 days.

This Component and any additional comments are to be returned to the applicant.



CKS Engineers, Inc.
88 South Main Street
Doylestown, PA 18901
215-340-0600 • FAX 215-340-1655

David W. Connell, P.E.
Joseph J. Nolan, P.E.
Thomas F. Zarko, P.E.
James F. Weiss
Patrick P. DiGangi, P.E.
Ruth Cunnane

November 7, 2013
Ref: #7471

Montgomery County Department of Health
PO Box 311
Norristown, PA 19404-0311

Attention: Tori McQueen, Environmental Health Specialist/SEO
Division of Water Quality Management

Reference: Hickory Hill Area Low Pressure Sewer System Extension
Sewage Facilities Planning Module - Component 4C
Worcester Township

Dear Ms. McQueen:

Worcester Township received executed Component 4C for the subject Sewage Facilities Planning Module, pursuant to correspondence dated October 8, 2013 from the Montgomery County Health Department. Since your initial review and execution of Component 4C, the Township has revised the criteria for mandatory connection of properties within the Planning Area to the proposed sewer system.

The original Planning Module Report Narrative (dated September 16, 2013) indicated that all properties within the Planning Area would be required to connect to the sewer extension within ten years of the date of completion of the extension. Worcester Township will no longer require connection within this ten-year time period, but will require all properties with failing/malfunctioning septic systems to immediately connect to the sewer system and all others to connect at time of transfer of a property to a new owner or refinance of a mortgage.

This change in sewer connection requirements has resulted in minor revisions to portions of the Planning Module Report, most notably, the project narrative. Accordingly, as you requested, enclosed is a copy of those portions of the Planning Module Report that have been amended to address the revision to the required sewer connection schedule. Please note the Planning Module Report of record for this review is dated September 16, 2013 with a revision date of November 1, 2013.

Ref: #7471

Page 2

The above changes do not impact the Component 4C form. Please advise whether the currently executed Component 4C can be included with the Planning Modules application/report that Worcester Township will be submitting to PADEP for approval.

If you have any questions regarding the above or should you require additional information, please do not hesitate to contact me.

Sincerely,
CKS ENGINEERS, INC.
Township Engineers

A handwritten signature in black ink, appearing to read 'Eric J. Janetka', with a long horizontal flourish extending to the right.

Eric J. Janetka, P.E.

EJJ/klk
Enclosures

cc: Lee Mangan, Township Manager
Eunice C. Kriebel, Assistant Township Manager
Joseph J. Nolan, P.E., CKS Engineers, Inc.
Kenneth G. Kollmer, CKS Engineers, Inc.
File

**MONTGOMERY COUNTY
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HEALTH DEPARTMENT
1430 DeKALB STREET • PO Box 311
NORRISTOWN, PA 19404-0311
610-278-5117
FAX: 610-278-5167
WWW.HEALTH.MONTCOPA.ORG

JOSEPH M. DIMINO, DO
DIRECTOR OF HEALTH/MEDICAL DIRECTOR

November 13, 2013

Lee Mangan, Township Manager
1721 Valley Forge Road
P.O. Box 767
Worcester, Pa 19490-0767

Re: Hickory Hill Area Low Pressure Sewer System Extension
Sewage Facilities Planning Module Component 4C
PADEP Code #1-46962-178-3m
Worcester Township, Montgomery County, PA

Dear Mr. Mangan:

The Montgomery County Health Department (MCHD) has reviewed the Sewage Facilities Planning Module for the Hickory Hill Area Low Pressure Sewer System Extension. The module was prepared by CKS Engineers, Inc., and a revised copy was received by MCHD on November 12, 2013.

The revised module proposes a sanitary sewer extension to provide service to seventy-four (74) existing properties located on Hickory Hill Drive, Landis Road, Valley Forge Road, Crest Terrace, and Green Briar Drive. The proposed extension will generate an estimated 26,100 gallons per day (GPD) of sewage flow that will be conveyed and treated by the Valley Green Wastewater Treatment Plant. Drinking water for the site is currently served by private wells. The revised module eliminates a maximum time limit for which a connection to this system must be made.

MCHD has no objections to the revisions made to the Sewage Facilities Planning Module.

If you have any further questions, please contact me at (610) 278-5117 extension 6730.

Sincerely,

Tori McQueen

Tori McQueen
Environmental Health Specialist/SEO
Division of Water Quality Management
tmcqueen@montcopa.org

Enclosures

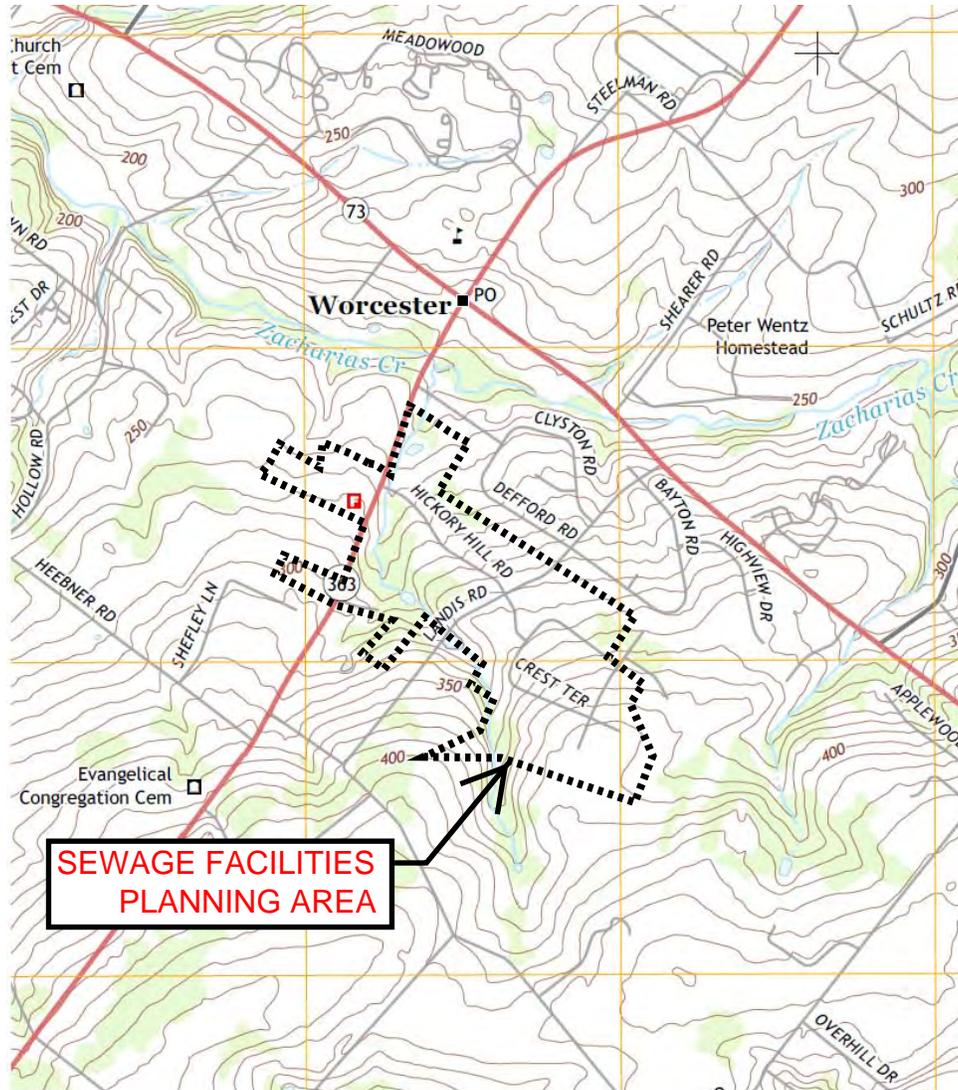
xc: Department of Environmental Protection
CKS Engineers, Inc.
Rachel DeMarzio, Field Supervisor 

EXHIBIT NO. 4

U.S.G.S. QUADRANGLE MAP

CENTER POINT (HICKORY HILL AND LANDIS ROAD) AND VICINITY LOW PRESSURE SEWER SYSTEM EXTENSION PROJECT MINOR ACT 537 PLAN UPDATE REVISION WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

USGS PROJECT LOCATION MAP



**SEWAGE FACILITIES
PLANNING AREA**

QUADRANGLE LOCATION

Perkiomenville	Telford	Doylestown
Collegetown	Lansdale	Ambler
Valley Forge	Norristown	Germantown

ADJOINING 7.5 QUADRANGLES

ROAD CLASSIFICATION

Expressway		Local Connector	
Secondary Hwy		Local Road	
Ramp		4WD	
Interstate Route	US Route	State Route	

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84) - Projection and
1 000-meter grid; Universal Transverse Mercator, Zone 18T
10 000-foot ticks; Pennsylvania Coordinate System of 1983
(south zone)

Imagery: NIP, July 2010
Roads: ©2006-2010 TomTom
Names: ©2006-2010 TomTom
Hydrography: National Hydrography Dataset, 2010
Contours: National Elevation Dataset, 2011
Boundaries: Census, 187C, 18C, USGS, 1972 - 2012

PENNSYLVANIA

QUADRANGLE NAME: LANSDALE
PROJECT LOCATION LATITUDE/LONGITUDE: 40° 11' 33.16"N, -75° 20' 37.46"W



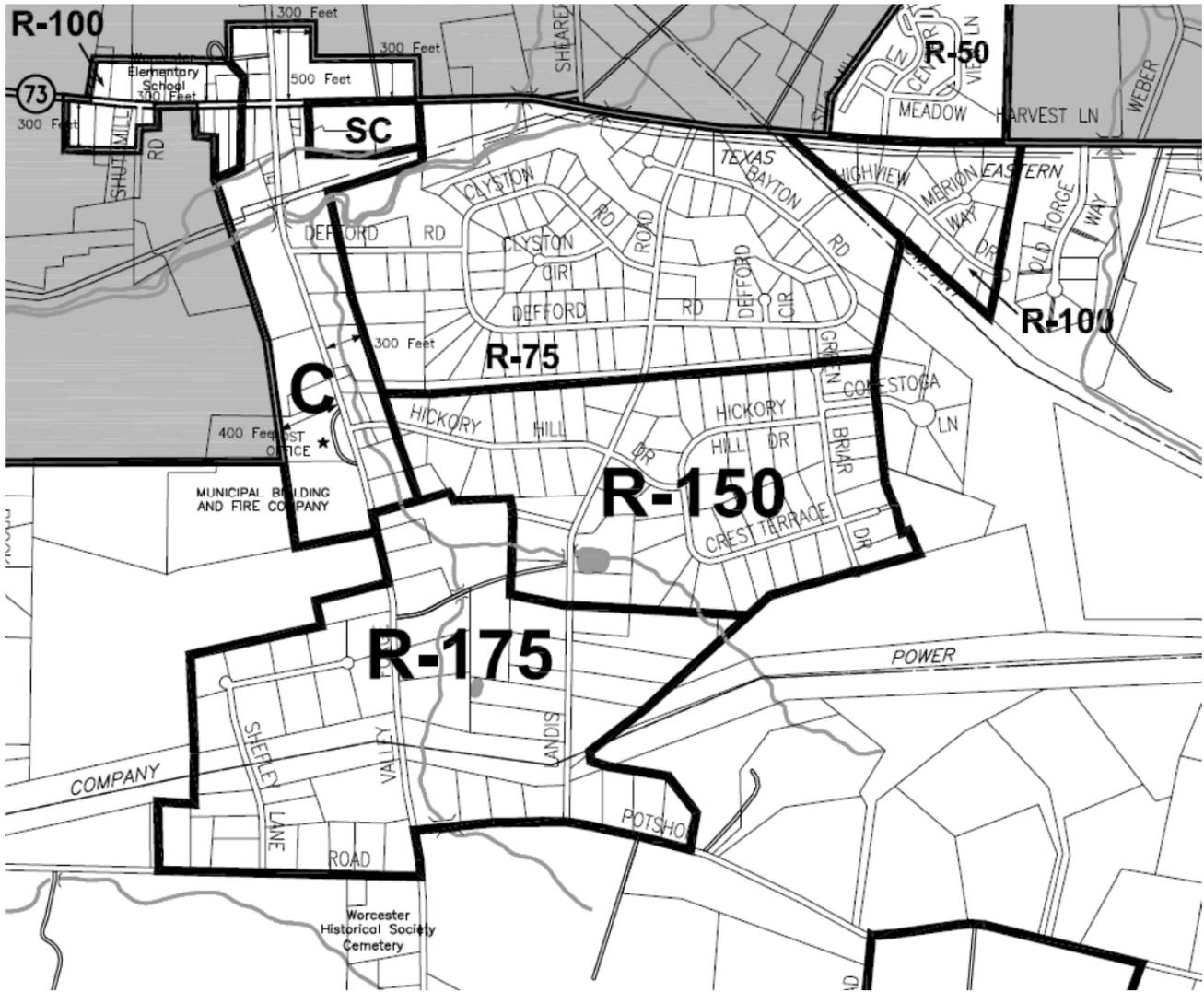
CKS Engineers, Inc.

88 South Main Street, Doylestown, PA 18901
(215) 340-0600

Report Attachments Page 81 of 215

EXHIBIT NO. 5

**WORCESTER TOWNSHIP
ZONING MAP**



- AGR AGRICULTURAL
- R-175 RESIDENTIAL
- R-150 RESIDENTIAL
- R-100 RESIDENTIAL
- R-75 RESIDENTIAL
- R-50 RESIDENTIAL
- RO RESIDENTIAL OFFICE
- R-AG-175 RESIDENTIAL AGRICULTURE
- R-AG-200 RESIDENTIAL AGRICULTURE
- C COMMERCIAL
- LI LIMITED INDUSTRIAL
- LPD LAND PRESERVATION DISTRICT
- SC SHOPPING CENTER
- MH MOBILE HOME DEVELOPMENT
- MURI MULTI RESIDENTIAL USE OVERLAY DISTRICT
- AQRC AGE QUALIFIED RESIDENTIAL COMMUNITY

- PUBLIC ROAD
- PRIVATE ROAD
-  U.S. INTERSTATE
-  PENNSYLVANIA ROUTE



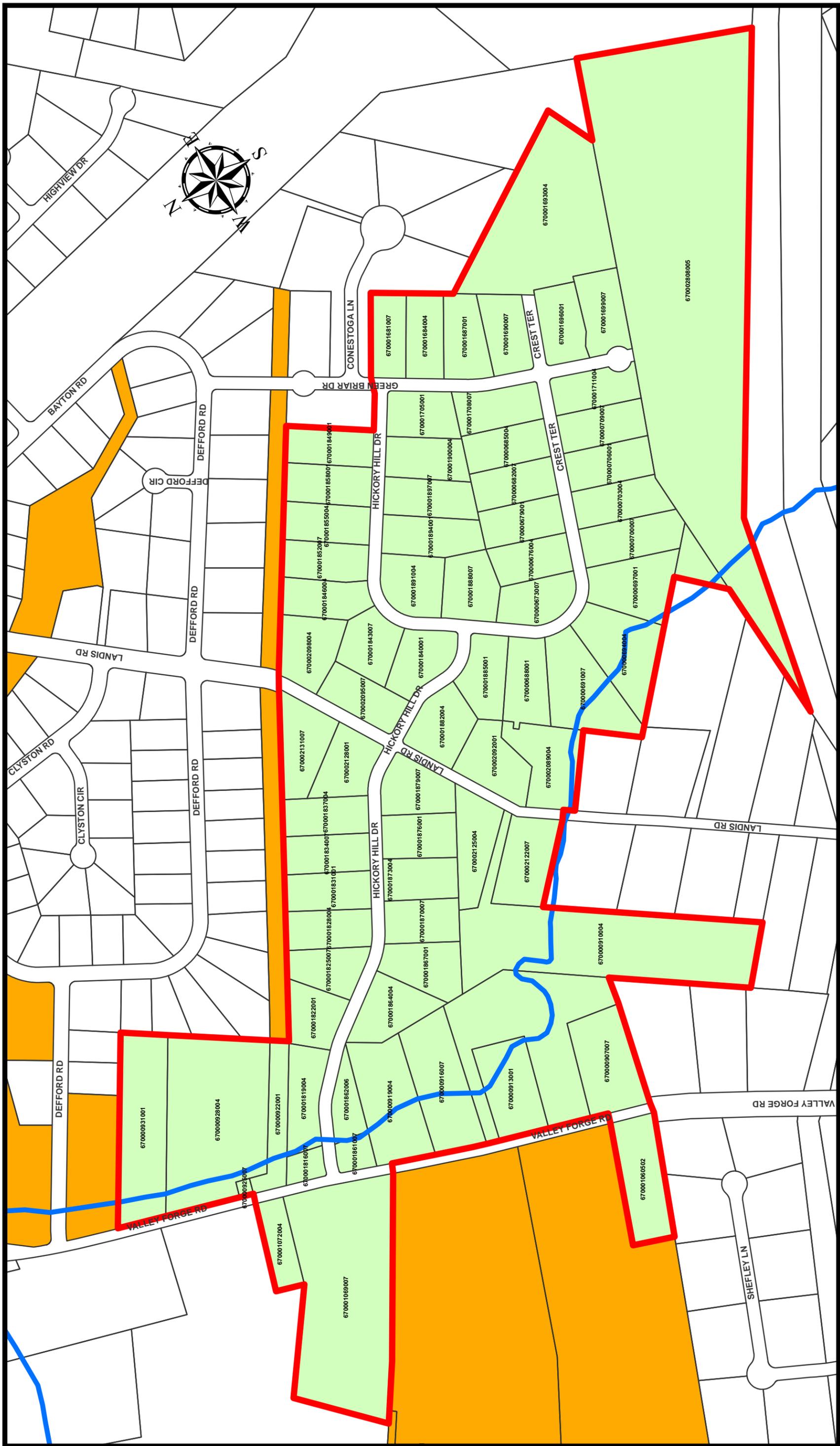
ZONING MAP

WORCESTER TOWNSHIP

MONTGOMERY COUNTY, PENNSYLVANIA

EXHIBIT NO. 6

**HICKORY HILL AREA
LOW PRESSURE SEWER EXTENSION PROJECT
PLANNING AREA MAP**



SEWAGE FACILITIES PLANNING AREA
HICKORY HILL AREA SANITARY SEWER PROJECT
LOW PRESSURE SEWER SYSTEM EXTENSION
SEWAGE FACILITY PLANNING MODULE
MINOR ACT 537 UPDATE REVISION

Legend

- Center Point Planning Area
- Parcels within Planning Area
- STREAMS
- WORCESTER TOWNSHIP Owned Parcels
- Worcester Township Parcels

CKS Engineers, Inc.
 88 South Main Street, Doylestown, PA 18901
 (215) 340-0600

EXHIBIT NO. 7

**PLANNING AREA PARCELS AND
PROJECTED SEWAGE FLOW**

HICKORY HILL AREA SANITARY SEWER PROJECT
 LOW PRESSURE SEWER SYSTEM EXTENSION
 MINOR ACT 537 UPDATE REVISION
 PLANNING AREA PARCELS AND PROJECTED EDUS

No.	PROPOSED	PARCEL NUM.	EDUS	CALC. ACREAGE	CLASS	ZONING	BLOCK	UNIT	OWNER	OWNER ADDRESS	LOCATION
1		670000673007	1	1.12751602	R	R1758	019A	030	ROCK STEVEN L & ANNE F	2885 CREST TER	2885 CREST TER
2		670000676004	1	1.09230517	R	R1758	019A	028	BURZYNSKI REGINA	PO BOX 610	2875 CREST TER
3		670000679001	1	1.11963772	R	R1758	019A	029	CIPOLLINI AUGUSTUS M JR & SUZANNE P	PO BOX 64	2869 CREST TER
4		670000682007	1	1.142989300	R	R1758	019A	027	KOELLNER EFFRIEDE	PO BOX 432	2863 CREST TER
5		670000685004	1	1.114293927	R	R1758	019A	026	MONASTERO DANIEL & ANNE C	PO BOX 778PA	2859 CREST TER
6		670000688000	1	1.291443322	R	R1758	019A	034	BARCLAY WILLIAM R & SHIRLEY G	PO BOX 177	2862 CREST TER
7		670000691007	1	2.23802444	R	R1758	019A	035	ANDREWS ROGER D	PO BOX 274	2888 CREST TER
8		670000694004	1	2.06354643	R	R1758	019A	036	CHIAPETTA MARK C & DEBRA E	1700 VALLEY FORGE RD	2884 CREST TER
9		670000697001	1	1.67067585	R	R1758	019A	037	GIANGIULIO NICHOLAS & SALVATRICE	PO BOX 697	2880 CREST TER
10		670000700007	1	1.40782763	R	R1758	019A	039	WOLF RUDOLPH J JR & ANN G	PO BOX 210	2874 CREST TER
11		670000703004	1	1.24586972	R	R1758	019A	040	IRVIN STEVEN D & ELIZABETH H	PO BOX 287	2874 CREST TER
12		670000706001	1	1.19197505	R	R1758	019A	041	MOORE JOAN R	PO BOX 173	2868 CREST TER
13		670000709007	1	1.16540365	R	R1758	019A	042	HUNT ROGER C & NANCY S	PO BOX 218	2862 CREST TER
14		670000907007	1	2.03891718	R	AGR	018	011	COUGHUIN JOHN F	2956 DEFFORD RD	2858 CREST TER
15		670000910004	4	7.38128167	R	R175	018	023	LUDWIG DAVID C & SUSAN L	1700 VALLEY FORGE RD	1704 VALLEY FORGE RD
16		670000913001	1	1.75426543	R	R175	018	010	WYATT MICHAEL T & DEBORAH A	PO BOX 9	1700 VALLEY FORGE RD
17		670000916007	1	2.48246571	R	C	018	024	TYSON EDWARD K & BARBARA A	PO BOX 191	1716 VALLEY FORGE RD
18		670000919004	1	2.48295898	R	C	018	009	GETER ELLA REVOCABLE TRUST	PO BOX 9	1726 VALLEY FORGE RD
19		670000922001	1	1.09793155	R	C	018	008	BLUM WILLIAM R & HOWLAIN EILEEN M	P O BOX 9	1730 VALLEY FORGE RD
20		670000925007	1	0.07903138	R	C	018	014	WEED RICHARD A & ROBIN S	P O BOX 173	1806 VALLEY FORGE RD
21		670000928004	4	5.75561584	C	C	018	007	BATEMAN GLEN W & PAMELA	PO BOX 218	1808 VALLEY FORGE RD
22		670000931001	1	3.15686261	R	C	018	043	KREISHER JOHN H JR & MARY S	2956 DEFFORD RD	1814 VALLEY FORGE RD
23		670001060502	1	1.92588569	U	AGR	014	031	BELL TELEPHONE CO	1 PARKWAY	2956 DEFFORD RD
24		670001069007	4	7.73189056	I	C	014	012	1741 VALLEY FORGE ROAD LP	1030 W GERMANTOWN PIKE	VALLEY FORGE RD
25		670001072004	1	0.91459728	R	C	014	010	DEMITO HENRY J & ROBERTA A	PO BOX 287	1741 VALLEY FORGE RD
26		670001681007	1	1.05651334	R	R1758	019A	007	ZAPALAC THOMAS E & MELYDYE R	1803 VALLEY FORGE RD	1803 VALLEY FORGE RD
27		670001684004	1	1.13223828	R	R1758	019A	006	DREHER DANA W & LAURA A	1812 GREEN BRIAR DR	1812 GREEN BRIAR DR
28		670001687001	1	1.25431123	R	R1758	019A	005	ALDERFER HARRY H & SHIRLEY R	1804 GREEN BRIAR DR	1804 GREEN BRIAR DR
29		670001690007	1	1.19667683	R	R1758	019A	004	WILDE N JAMES & JANETT	1758 GREEN BRIAR DR	1758 GREEN BRIAR DR
30		670001693004	2	6.04030215	R	AGR	019A	001	UMAR KENAN & BELMA	PO BOX 752	1752 GREEN BRIAR DR
31		670001696001	1	1.17578365	R	R1758	019A	003	DIRESO THOMAS M & TAYLOR SUSAN M	2802 CREST TER	2836 CREST TER
32		670001699007	1	1.24685047	R	R1758	019A	002	COOK JEFFREY & DIANE C	PO BOX 8	1746 GREEN BRIAR DR
33		670001705001	1	1.13300127	R	R1758	019A	024	BRIGHT ELAINE W	PO BOX 84	1740 GREEN BRIAR DR
34		670001708007	1	1.19924762	R	R1758	019A	025	FOURNIER JAMES N & MARY E	PO BOX 84	1805 GREEN BRIAR DR
35		670001711004	1	1.10626574	R	R1758	019A	043	LICWINKO KENNETH J & ALICE R	PO BOX 84	1805 GREEN BRIAR DR
36		670001816007	1	0.39520046	R	C	018	047	BLUM RICHARD & HOWLAIN EILEEN	PO BOX 9	1745 GREEN BRIAR DR
37		670001819004	1	1.27817304	R	C	018	045	HALEY BRIAN & STEPHANIE	PO BOX 9	HICKORY HILL DR
38		670001822001	1	1.09316223	R	R1758	018	037	MANIKOWSKI JESSE & KRISTEN	2947 HICKORY HILL DR	2947 HICKORY HILL DR
39		670001825007	1	1.10598039	R	R1758	018	039	BAUER SHAWN M & MICHELLE	PO BOX 456	2939 HICKORY HILL DR
40		670001828004	1	1.16457285	R	R1758	018	036	BEAUCHAMP PATRICIA F	PO BOX 456	2931 HICKORY HILL DR
41		670001831001	1	1.13809595	R	R1758	018	032	LACEK WALTER S & REGINA T	PO BOX 267	2925 HICKORY HILL DR
42		670001834007	1	1.15351149	R	R1758	018	030	PENNYPACKER DONALD L & DEBRA J	PO BOX 267	2921 HICKORY HILL DR
43		670001837004	1	1.13252981	R	R1758	018	030	KEHR ROBERT L SR & MILDRED W	PO BOX 267	2915 HICKORY HILL DR
44		670001840001	1	1.18124902	R	R1758	019A	018	DEPEPPE CHRISTOPHER T & DEBORAH L	PO BOX 209	2909 HICKORY HILL DR
45		670001843007	1	1.19541920	R	R1758	019A	017	GIBSON BYRON C & JUDITH A	PO BOX 209	2887 HICKORY HILL DR
46		670001846004	1	1.15052466	R	R1758	019A	015	JACKINSKI SAMUEL & MARIANNE	PO BOX 209	2879 HICKORY HILL DR
47		670001849001	1	1.14518966	R	R1758	019A	011	LONG SCOTT R & CAROL D	PO BOX 209	2875 HICKORY HILL DR
48		670001852007	1	1.14784497	R	R1758	019A	014	ABIAAD MAROUN & FRANCISCA	PO BOX 209	2857 HICKORY HILL DR
49		670001855004	1	1.16906177	R	R1758	019A	013	BUNTING NICOLE LYNN & OPFERMAN KATHRYN A	PO BOX 209	2871 HICKORY HILL DR
50		670001858001	1	1.20419684	R	R1758	019A	012	WATSON CHARLES & SUSAN M	PO BOX 669	2861 HICKORY HILL DR
51		670001861007	1	0.42764371	R	C	018	046	WORCESTER OFFICE PARTNERS	PO BOX 669	HICKORY HILL DR
52		670001862006	1	0.71536012	R	C	018	048	WORCESTER OFFICE PARTNERS	PO BOX 669	HICKORY HILL DR
53		670001864004	1	1.33907316	R	R1758	018	040	ALDERFER GLENN & HEIDI	PO BOX 669	2938 HICKORY HILL DR
54		670001867001	1	1.32783801	R	R1758	018	027	LACKMAN EDWARD L & JULIE R	PO BOX 694	2928 HICKORY HILL DR
55		670001870007	1	1.141477047	R	R1758	018	041	DUTTON HOWARD J & WANDA S	PO BOX 694	2924 HICKORY HILL DR
56		670001873004	1	1.08886204	R	R1758	018	038	NYCE MICHAEL W & MARGARET A	PO BOX 694	2918 HICKORY HILL DR
57		670001876001	1	1.16464906	R	R1758	018	034	PINEY GEOFFREY E & MODDESTINE MAUREEN	PO BOX 536	2912 HICKORY HILL DR

**HICKORY HILL AREA SANITARY SEWER PROJECT
LOW PRESSURE SEWER SYSTEM EXTENSION
MINOR ACT 537 UPDATE REVISION
PLANNING AREA PARCELS AND PROJECTED EDUS**

No.	PARCEL NUM.	PROPOSED EDUS	CALC. ACREAGE	CLASS	ZONING	BLOCK	UNIT	OWNER	OWNER ADDRESS	LOCATION
58	670001879007	1	1.23868705	R	R1758	018	028	WILLIAMS SUZANNE & HAROLD D	2902 HICKORY HILL DR	NORRISTOWN PA 19403
59	670001882004	1	1.31875994	R	R1758	019A	032	ROMANO ANNMARIE R	2896 HICKORY HILL DR	WORCESTER PA 19490
60	670001885001	1	1.19580563	R	R1758	019A	033	EARLEY RICHARD J & KATHY J	P O BOX 36	WORCESTER PA 19490
61	670001888007	1	1.24811008	R	R1758	019A	031	LEMANOWICZ JOHN & JOANNE M	PO BOX 304	NORRISTOWN PA 19403
62	670001891004	1	1.26388270	R	R1758	019A	020	WITTENBERG FRANK & DEBORAH	2876 HICKORY HILL DR	NORRISTOWN PA 19401
63	670001894001	1	1.32753841	R	R1758	019A	021	OPPERMAN RICHARD A JR & KATHRYN A	2868 HICKORY HILL DR	WORCESTER PA 19490
64	670001897007	1	1.21573159	R	R1758	019A	022	WATTERS EDMOND A III & KATHLENE A	2862 HICKORY HILL DR	NORRISTOWN PA 19403
65	670001900004	1	1.18073284	R	R1758	019A	023	GOLDKAMP CAROL M	2858 HICKORY HILL DR	NORRISTOWN PA 19403
66	670002089004	1	1.72247443	R	R1758	019	024	MOOGAN THOMAS B & EILEEN M	PO BOX 841	WORCESTER PA 19490
67	670002092001	1	1.40359726	R	R1758	019	034	ROGERS CHARLES THOMAS III	1720 LANDIS RD	WORCESTER PA 19490
68	670002095007	1	1.15299984	R	R1758	019A	019	MISUS SCOTT C	1804 LANDIS RD	NORRISTOWN PA 19403
69	670002098004	1	1.38260373	R	R1758	019A	016	SHAW WAYNE C & ELIZABETH ANNE	P O BOX 336	WORCESTER PA 19490
70	670002122007	1	1.61460485	R	R1758	018	022	DIESEL JOHN J & AMY D	1715 LANDIS RD	WORCESTER PA 19490
71	670002125004	1	1.40063360	R	R1758	018	029	SYKES MICHAEL C & PETER S	1721 LANDIS RD	WORCESTER PA 19490
72	670002128001	1	1.22643636	R	R1758	018	033	BROWN MICHAEL C & BOWERS ELIZABETH S	1803 LANDIS RD	WORCESTER PA 19490
73	670002131007	1	1.49823708	R	R1758	018	035	LACROSSE THOMAS J & LINDA H	1809 LANDIS RD	NORRISTOWN PA 19403
74	670002808005	4	23.60141960	R	AGR	019	040	BURKEY MARILYN	1743 GREEN BRIAR DR	WORCESTER PA 19490

TOTAL EDUS: 87 Note: Refer to narrative attached to Planning Area Parcel and Projected EDUS List for explanation of total projected EDUS, immediate and ultimate.

TOTAL PARCELS: 74

Note: Refer to narrative attached to "Planning Area Parcel and Projected EDUS List" for explanation of total projected EDUs, immediate and ultimate.

HICKORY HILL AREA
LOW PRESSURE SEWER SYSTEM EXTENSION
PROJECTED SEWAGE FLOW

The Hickory Hill Area Low Pressure Sewer System Extension Planning Area consists of 74 parcels, located within five different Zoning Districts, R-75, R-150, R-175, AGR, and C (Commercial). With the exception of “C”, all districts are either zoned residential or allow residential uses (such as “AGR”). Allowable lot area and width regulations for each zoning district are identified below under the heading “Chapter 150. Zoning”. With the exception of 13 parcels, all presently contain a residential use or are designated for residential use. Of the 13 aforementioned parcels, one is utilized for “utility” use and the others are zoned “Commercial”. Some of the parcels zoned “Commercial” presently are utilized for residential purposes, only, but could be utilized in the future for “Commercial”. Most parcels are developed and being utilized for either residential or commercial use (as described above). Several of the parcels are heavily encumbered by environmental features such as floodplains, riparian corridors, wetlands, or woodlands and are unable to be further developed. The rear portion of one parcel is zoned “LPD” but is not considered as part of this analysis since it is environmentally encumbered.

For the purposes of identifying sewage facilities needs (EDUs), immediate and future, the following assumptions are made:

1. The Worcester Township Act 537 Plan identifies one (1) EDU as 300 gallons per day (gpd) for single family residential uses. There are no multi-family residential uses existing within the Planning Area nor are any anticipated in the future based on current Zoning Regulations. The Act 537 Plan identifies that 0.10 gallons of sewage flow is anticipated from one (1) gross square foot of commercial building area (Refer to Worcester Township Act 537 Plan). Gross building area (“Commercial”) in the Planning Area, present and future, is assumed to be based on one-story. The maximum permitted gross building area in the “Commercial” Zoning District is 6,500 square feet pursuant to Section 150-118.B.1 of the Zoning Ordinance.
2. Unless otherwise identified in this narrative, a minimum of one (1) EDU is allotted as the immediate flow required for every parcel within the Planning Area, regardless of lot area, lot dimensions, or other environmental encumbrances. Additional future (ultimate) EDUs are allotted for several parcels within the Planning Area (refer Planning Area Parcel List) due to their size, location, and current Zoning Regulations.
3. Due to lot area and dimensions, and in consideration of environmental restrictions, the following residential parcels are identified as being able to be further subdivided:

<u>Parcel Number</u>	<u>Zoning District</u>	<u>Parcel Acreage</u>	<u>Estimated Number of Lots</u>
670002808005	AGR	23.60 Ac	4
670001693004	AGR	6.04 Ac	2
670000910004	R-175	7.38 Ac	4

4. Due to lot area and dimensions, and in consideration of environmental restrictions, the following “Commercial” zoned parcels are identified as being able to be further developed:

<u>Parcel Number</u>	<u>Estimated Number of Lots</u>	<u>Gross Building Area</u>	<u>Gallons Per Day</u>	<u>Estimated EDUs *</u>
670000928004	3 (condo units)	19,500 sf	1,950	4
670001069007	3 (condo units)	19,500 sf	1,950	4

* Calculation results in 6.5 EDUs (based on a definition of 300 gpd per EDU) but use 4 EDUs due to space limitations and environmental restrictions on this parcel.

5. In summary, the immediate number of EDUs proposed for the Planning Area is 74 @ 300 gpd for a total immediate flow of 22,200 gpd. The ultimate number of EDUs for the Planning Area is 69 parcels @ one (1) EDU per parcel, 4 parcels @ four (4) EDUs per parcel, and 1 parcel @ two (2) EDUs per parcel for a total of 87 EDUs and 26,100 gpd (based on 300 gpd per EDU).

Worcester Township Zoning Regulations - Chapter 150 of the Township Code

Article IV. AGR Agricultural District

§ 150-12. Lot area and width regulations.

- A. Minimum lot area. Eighty thousand square feet shall be the minimum lot area that shall be provided for every building or use.
- B. Minimum lot width. All lots shall meet the following lot width requirement:
 - (1) Two hundred fifty feet shall be the minimum lot width for every building or use.
 - (2) Lots which front secondary collector or primary streets (highways) shall have a minimum lot width measured at both the building and street lines of at least 250 feet for every building or use.

Article XII. R-75 Residential District

§ 150-76. Lot area and width regulations.

- A. Minimum lot area with public sewer and water. Twenty thousand square feet shall be the minimum lot area that shall be provided for every building or use, provided that the lot is served by public water and sewers.
- B. Minimum lot area with on-site water or on-site sewers. Forty thousand square feet shall be the minimum lot area that shall be provided for every building or use, provided that either on-site water or on-site sewer is proposed.

- C. Minimum lot width. One hundred feet shall be the minimum lot width provided for every building or use.

Article IX. R-150 Residential District

§ 150-52. Lot area and width regulations.

- A. Minimum lot area. Fifty thousand square feet shall be the minimum lot area that shall be provided for every building or use.
- B. Minimum lot width. One hundred fifty feet shall be the minimum lot width provided for every building or use.

Article VII. R-175 Residential District

§ 150-36. Lot area and width regulations.

- A. Minimum lot area. Sixty thousand square feet shall be the minimum lot area that shall be provided for every building or use.
- B. Minimum lot width. One hundred seventy-five feet shall be the minimum lot width provided for every building or use.

Article XVII. C Commercial District

§ 150-112. Use regulations. A building may be erected or used and a lot may be used or occupied for any one of the following purposes and no other:

- A. Retail store selling or leasing for local neighborhood use one or more of the following items at retail: food, groceries, meats, vegetables, fruit, drugs, cosmetics, hardware, clothing, jewelry, watches, optical goods, nursery stock, musical, professional or scientific instruments.
- B. Office, bank, financial institution.
- C. Personal service shop of a dressmaker, shoe repairer, tailor, hairdresser.
- D. Medical offices of a private practitioner, other than a clinic.
- E. Undertaker, not including crematorium.
- F. Baker, confectioner or custom shop for the production of articles to be sold only on the premises.
- G. Restaurant, catering operation, ice cream shop or other food service operation, provided not more than four persons are employed by the same, and provided that no alcoholic beverages are served.
- H. Any similar use to those specified in this section above, when authorized as a special exception by the Zoning Hearing Board and when not employing more than five persons.
- I. Special exceptions. The following uses are permitted when authorized as a special exception by the Zoning Hearing Board.
 - (1) Public garages.
 - (2) Motor vehicle sales.
 - (3) Motor vehicle service or repair, employing not more than three persons.

- (4) Motor vehicle rental or leasing.
- (5) Gasoline service station when limited to three bays and customary sales room and including sanitary toilet rooms, provided that any outdoor display of merchandise is kept within 25 feet of the building or on the pump islands, and provided that between the hours of 10:00 p.m. and 6:00 a.m., prevailing time, it will be closed, with no illumination evident excepting a dim nightlight indoors.
- (6) Hotel, motel or similar lodging facility.
- (7) Wholesale merchandise establishment.
- (8) Multiple use office building.
- (9) Laundry or dry cleaning.
- (10) Parking lot incidental to any of the uses under this subsection.
- (11) Nursing homes, personal care facilities and life care facilities.
- (12) Hospitals.

J. Municipal use as defined in Article III.

§ 150-113. Lot area and width regulations.

- A. Minimum lot area. Twenty-five thousand square feet shall be the minimum lot area that shall be provided for every building or use.
- B. Minimum lot width. A lot width of not less than 100 feet shall be provided for every building or use.

EXHIBIT NO. 8

PROPERTY OWNER SURVEY

ERECTED INTO A TOWNSHIP IN 1733
TOWNSHIP OF WORCESTER
AT THE CENTER POINT OF MONTGOMERY COUNTY
PENNSYLVANIA

COPY

Board of Supervisors:
ARTHUR C. BUSTARD, CHAIRMAN
SUSAN G. CAUGHLAN, VICE CHAIRMAN
STEPHEN C. QUIGLEY, MEMBER

1721 Valley Forge Road
P.O. Box 767
Worcester, PA 19490

September 4, 2013

Nicholas & Salvatrice Giangiulio
2880 Crest Terrace
PO Box 778
Worcester, PA 19490

**Subject: Worcester Township Unsewered Area
Status of On-Lot Septic Systems**

Dear Nicholas & Salvatrice Giangiulio,

As you may know, Worcester Township is gathering information in the Valley Green Waste Water Treatment area for residences that currently do not have the means to connect to the public sewer system. Your property is located in the area identified by Worcester as being a location for the extension of the sewer system. It is Worcester's belief that extension of public sewer to areas of the Township that are currently unsewered would be of benefit to the individual residences and to the community in general.

Enclosed is a copy of the PowerPoint that was presented at the September 13th meeting for your reference. Please note, should the project go forward, the homeowner would be responsible for the assessed cost at the time of project approval. Further, the non-assessed cost illustrated in the attachment will be paid by the homeowner at the time of connection to the system.

From our discussion with a number of homeowners in your area, it is our understanding that some of the on lot systems are new, while others are failing. So that we may have a better understanding as to the current condition of your system, we are requesting that you complete the enclosed survey so we can obtain information to adequately make a determination if there is a need for expanding the sewer area.

Worcester is interested in obtaining this information within the next two weeks. Please return the survey in the self addressed stamped envelope. You may respond online at www.worcestertwp.com/sewersurvey.htm. **Please respond by Monday, October 8, 2012.** A follow up meeting will be held on Wednesday, October 24, 2012 at 7:30 p.m. at the Worcester Community Hall located at 1031 Valley Forge Road.

Should you have any questions, please call me directly.

Very truly yours,

WORCESTER TOWNSHIP

F. Lee Mangan, Township Manager

201241

COPY

October 5, 2012

1741 Valley Forge Road LP
1741 Valley Forge Road
PO Box 287
Fairview Village, PA 19409

**Subject: Worcester Township Unsewered Area
Status of On-Lot Septic Systems**

Dear Sir or Madam,

On September 21, 2012, a questionnaire was forwarded to you relative to your on-site sewer system. If you have already responded to the questionnaire, please ignore this follow up letter. If you have not responded, please take the time to fill out the enclosed questionnaire and return it in the enclosed prepaid envelope as soon as possible. This will ensure that your concerns and comments will be reviewed for inclusion in the results.

Thank you for your prompt attention to this matter.

Very truly yours,

WORCESTER TOWNSHIP

F. Lee Mangan, Township Manager

FLM/ell

Enclosure(s)

201201

PROPERTY OWNERS SURVEYED

No.	Survey#	Last Name	First Name	Street Address	PO Box	City	State	Zip Code
1	201201	1741 Valley Forge Road LP		1741 Valley Forge Road	PO Box 287	Fairview Vil	PA	19409
2	201202	Demito	Henry J & Roberta A	1803 Valley Forge Road	PO Box 266	Worcester	PA	19490
3	201203	Wyatt	Michael T & Deborah A	1716 Valley Forge Road	PO Box 210	Worcester	PA	19490
4	201204	Tyson	Frank & Deborah	1726 Valley Forge Road	PO Box 488	Worcester	PA	19490
5	201205	Kreisher	John H JR & Mary	2956 Defford Road	PO Box 203	Worcester	PA	19490
6	201206	Lacek	Walter S & Regina T	2921 Hickory Hill Drive	PO Box 267	Worcester	PA	19490
7	201207	Blum	William R & Howlin Eileen	1806 Valley Forge Road	PO Box 9	Worcester	PA	19490
8	201208	Weed	Richard A & Robin S	1808 Valley Forge Road	PO Box 173	Worcester	PA	19490
9	201209	Alderfer	Glenn & Heidi	2938 Hickory Hill Road		Norristown	PA	19403
10	201210	Diesel	John J & Amy D	1715 Landis Road	PO Box 182	Worcester	PA	19490
11	201211	Sykes	Michael C & Peter S	1721 Landis Road	PO Box 281	Worcester	PA	19490
12	201212	Brown	Michael C & Bowers Elizabeth	1803 Landis Road		Norristown	PA	19403
13	201213	Lacrosse	Thomas J & Linda H	1809 Landis Road		Norristown	PA	19403
14	201214	Dutton	Howard J & Wanda S	2924 Hickory Hill Drive	PO Box 694	Worcester	PA	19490
15	201215	Nyce	Michael W & Margaret A	2918 Hickory Hill Road		Norristown	PA	19403
16	201216	Piney	Geoffrey E & Modestine Maureen	2912 Hickory Hill Drive	PO Box 536	Worcester	PA	19490
17	201217	Williams	Suzanne & Harold D	2902 Hickory Hill Road		Norristown	PA	19403
18	201218	Lackman	Edward L & Julie R	2928 Hickory Hill Road		Norristown	PA	19403
19	201219	Bateman	Glen W & Pamela	1814 Valley Forge Road	PO Box 218	Worcester	PA	19490
20	201220	Pennypacker	Donald L & Debra J	2915 Hickory Hill Road		Norristown	PA	19403
21	201221	Kehr	Robert L SR & Mildred	2909 Hickory Hill Road		Norristown	PA	19403
22	201222	Worcester Office Partners		P.O. Box 669		Worcester	PA	19490
23	201223	Haley	Brian & Stephanie	2947 Hickory Hill Drive		Norristown	PA	19403
24	201224	Manikowski	Jesse & Kristen	2939 Hickory Hill Drive		Norristown	PA	19403
25	201225	Bauer	Shawn M & Michelle	2931 Hickory Hill Drive	PO Box 456	Worcester	PA	19490
26	201226	Beauchamp	Patricia F	2925 Hickory Hill Road		Norristown	PA	19403
27	201227	Geyer	Ella Revocable Trust	1730 Valley Forge Road	PO Box 191	Worcester	PA	19490
28	201228	Coughlin	John F	1704 Valley Forge Road	PO Box 462	Worcester	PA	19490
29	201229	Ludwig	David C & Susan L	1700 Valley Forge Road	PO Box 697	Worcester	PA	19490
30	201230	Moogan	Thomas B & Eileen M	1716 Landis Road	PO Box 841	Worcester	PA	19490
31	201231	Rogers	Charles Thomas III	1720 Landis Road	PO Box 517	Worcester	PA	19490
32	201232	Burkey	Marilyn	1743 Green Briar Drive	PO Box 680	Worcester	PA	19490
33	201233	Rock	Steven L & Anne F	2885 Crest Terrace		Norristown	PA	19403
34	201234	Burzynski	Regina	2875 Crest Terrace	PO Box 610	Worcester	PA	19490
35	201235	Cipollini	Augustus M JR & Suzanne	2869 Crest Terrace		Norristown	PA	19403
36	201236	Koellner	Effriede	2863 Crest Terrace	PO Box 64	Worcester	PA	19490
37	201237	Monastero	Daniel & Anne C	2859 Crest Terrace		Norristown	PA	19403
38	201238	Barclay	William R & Shirley G	2892 Crest Terrace	PO Box 432	Worcester	PA	19490
39	201239	Andrews	Roger D	2888 Crest Terrace	PO Box 156	Worcester	PA	19490
40	201240	Chiappetta	Mark C & Debra E	2884 Crest Terrace		Norristown	PA	19403
41	201241	Giangiulio	Nicholas & Salvatrice	2880 Crest Terrace	PO Box 778	Worcester	PA	19490
42	201242	Wolf	Rudolph J JR & Ann	2874 Crest Terrace	PO Box 177	Worcester	PA	19490
43	201243	Irvin	Steven D & Elizabeth H	2868 Crest Terrace		Norristown	PA	19403
44	201244	Moore	Joan R	2862 Crest Terrace	PO Box 274	Worcester	PA	19490
45	201245	Hunt	Roger C & Nancy S	2858 Crest Terrace		Norristown	PA	19403
46	201246	Zapalaz	Thomas E & Melodye R	1812 Green Briar Drive		Norristown	PA	19403
47	201247	Dreher	Dana W & Laura A	1804 Green Briar Drive		Norristown	PA	19403
48	201248	Alderfer	Harry H & Shirley R	1758 Green Briar Drive	PO Box 298	Worcester	PA	19490
49	201249	Wilde	N James & Janet T	1752 Green Briar Drive	PO Box 752	Worcester	PA	19490
50	201250	Umar	Kenan & Belma	2936 Crest Terrace		Norristown	PA	19403
51	201251	Direso	Thomas M & Taylor Susan	1746 Green Briar Drive	PO Box 8	Worcester	PA	19490
52	201252	Cook	Jeffrey & Diane C	1740 Green Briar Drive		Norristown	PA	19403
53	201253	Walsh	Denise	1805 Green Briar Drive	PO Box 984	Worcester	PA	19490
54	201254	Fournier	James N & Mary E	1751 Green Briar Drive		Norristown	PA	19403
55	201255	Licwinko	Kenneth J & Alice R	1745 Green Briar Drive		Norristown	PA	19403
56	201256	Depeppe	Christopher T & Deborah L	2887 Hickory Hill Road		Norristown	PA	19403
57	201257	Gibson	Byron C & Judith A	2879 Hickory Hill Road		Norristown	PA	19403
58	201258	Jackinski	Samuel & Marianne	2875 Hickory Hill Road		Norristown	PA	19403
59	201259	Long	Scott R & Carol D	2857 Hickory Hill Road		Norristown	PA	19403
60	201260	Abiaad	Maroun & Francisca	2871 Hickory Hill Road	PO Box 209	Worcester	PA	19490
61	201261	Bunting	Nicole Lynn & Opperman Kathryn	2867 Hickory Hill Road		Norristown	PA	19403
62	201262	Watson	Charles & Susan M	2861 Hickory Hill Road		Norristown	PA	19403
63	201263	Romano	Annmarie R	2896 Hickory Hill Road	PO Box 36	Worcester	PA	19490
64	201264	Earley	Richard J & Kathy J	2888 Hickory Hill Road	PO Box 304	Worcester	PA	19490
65	201265	Lemanowicz	John & Joanne M	2882 Hickory Hill Road		Norristown	PA	19403
66	201266	Wittenberg	Frank & Deborah	2876 Hickory Hill Road		Norristown	PA	19403
67	201267	Opperman	Richard A JR & Kathryn	2868 Hickory Hill Road	PO Box 279	Worcester	PA	19490
68	201268	Watters	Edmond A III & Kathlene	2862 Hickory Hill Road		Norristown	PA	19403

PROPERTY OWNERS SURVEYED

No.	Survey#	Last Name	First Name	Street Address	PO Box	City	State	Zip Code
69	201269	Goldkamp	Carol M	2858 Hickory Hill Road		Norristown	PA	19403
70	201270	Misus	Scott C & Carol A	1804 Landis Road		Norristown	PA	19403
71	201271	Shaw	Wayne C & Elizabeth Anne	1812 Landis Road	PO Box 336	Worcester	PA	19490

INDIVIDUAL SEWER SURVEY RESPONSES

Survey#	Last Name	Response Type	Response	Gravity	Low Pressure	Private System	Age of System
201201	1741 Valley Forge Road LP		No				
201202	Demito	Name Given	Yes			X	57
201203	Wyatt	Name Given	yes		X		Unknown
201204	Tyson	Name Given	Yes	DID NOT ANSWER QUESTION ABOUT PREF.			Unknown
201205	Kreisher	Name Given	Yes			X	47
201206	Lacek	Anonymous	Yes	X			50
201207	Blum	Anonymous	Yes	X			Unknown
201208	Weed	Anonymous	Yes			X	Unknown
201209	Alderfer	Name Given	Yes	X			52
201210	Diesel	Name Given	yes			X	53
201211	Sykes	Anonymous	Yes			X	50
201212	Brown	Name Given	yes			X	Unknown
201213	Lacrosse	Name Given	Yes	X			52
201214	Dutton	Name Given	Yes	DID NOT ANSWER QUESTION ABOUT PREF.			Approx. 48
201215	Nyce	Anonymous	Yes			X	48
201216	Piney	Name Given	Yes		X		Approx. 47
201217	Williams	Name Given	Yes		X		Unknown
201218	Lackman	Name Given	Yes			X	4
201219	Bateman	Name Given	Yes		X		Approx. 14
201220	Pennypacker	Name Given	Yes	DID NOT ANSWER QUESTION ABOUT PREF.			50
201221	Kehr	Anonymous	Yes	X			Unknown
201222	Worcester Office Partners	Anonymous	Yes	DOES NOT APPLY TO THIS PROPERTY			No System
201223	Haley	Name Given	Yes			X	9
201224	Manikowski	Name Given	Yes			X	4
201225	Bauer	Anonymous	Yes	DID NOT ANSWER QUESTION ABOUT PREF.			Unknown
201226	Beauchamp	Name Given	Yes			X	9
201227	Geyer	Name Given	Yes	X?	X?		54
201228	Coughlin	Anonymous	Yes	X			Unknown
201229	Ludwig	Name Given	Yes			X	Unknown
201230	Moogan	Name Given	Yes			X	12
201231	Rogers	Name Given	Yes		X		Unknown
201232	Burkey	Name Given	Yes			X	23
201233	Rock		No				
201234	Burzynski	Anonymous	Yes	X			Unknown
201235	Cipollini	Anonymous	Yes	X			Unknown
201236	Koellner	Anonymous	Yes			X	2
201237	Monastero		No				
201238	Barclay	Name Given	Yes	DID NOT ANSWER QUESTION ABOUT PREF.			Unknown
201239	Andrews	Anonymous	Yes			X	Unknown
201240	Chiappetta	Name Given	Yes			X	Approx. 51
201241	Giangiulio	Name Given	Yes	X			Approx. 42
201242	Chew	Verbal	yes			X	1
201243	Irvin	Name Given	Yes		X		Approx. 51
201244	Moore	Name Given	Yes	X			43
201245	Hunt	Name Given	Yes	X			Approx. 47
201246	Zapalaz	Name Given	Yes	X			49
201247	Dreher		No				
201248	Alderfer		No				
201249	Wilde	Name Given	Yes			X	Approx. 52
201250	Umar	Survey and Presentation returned to Twp Office twice. No					
201251	Direso	Name Given	Yes	X			Approx. 52
201252	Cook	Anonymous	Yes			X	Approx. 48
201253	Walsh	Address Given	Yes	X			Unknown

INDIVIDUAL SEWER SURVEY RESPONSES

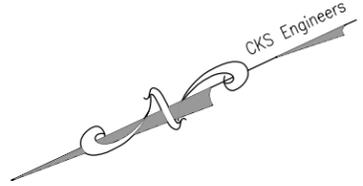
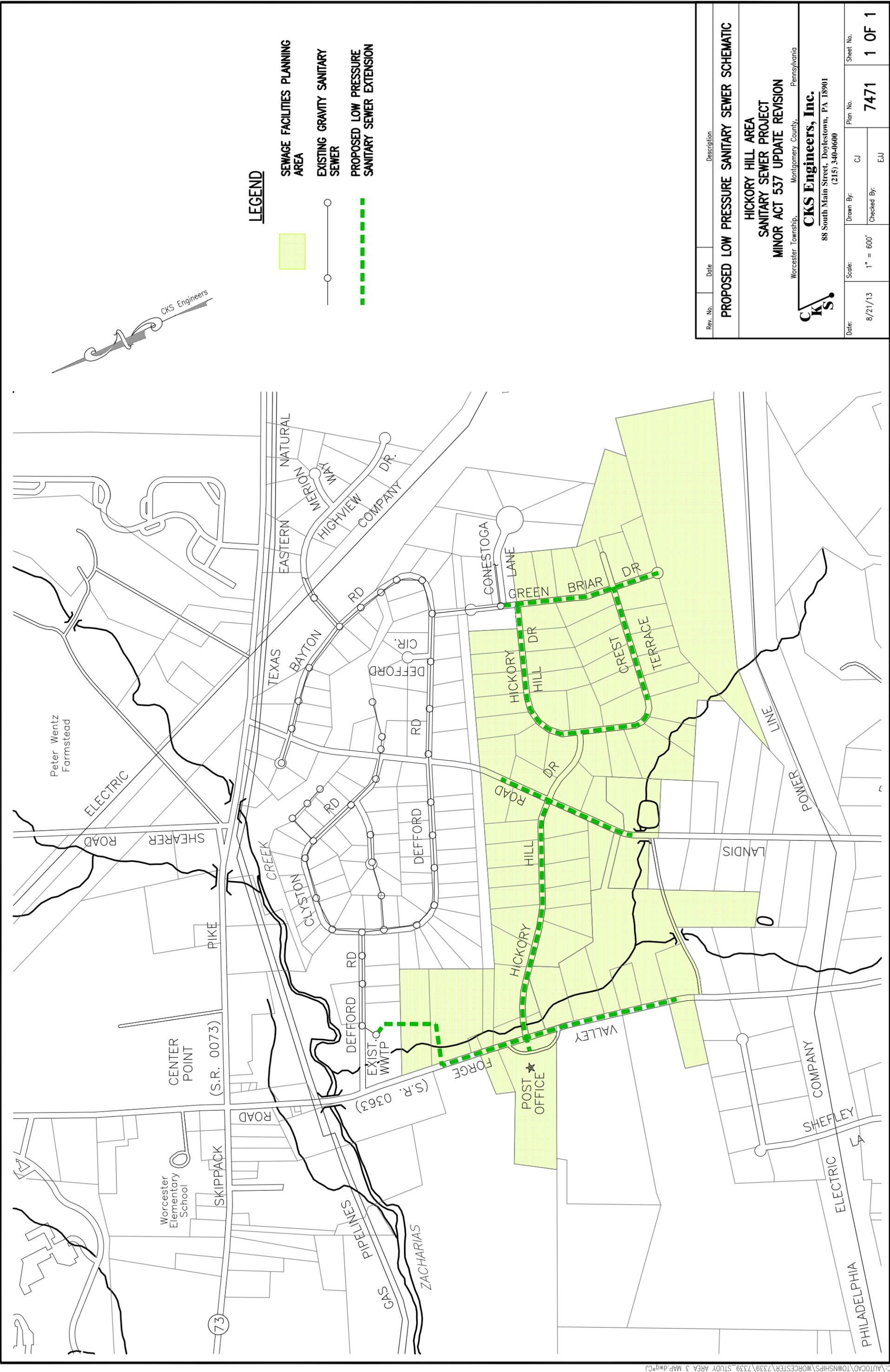
Survey#	Last Name	Response Type	Response	Gravity	Low Pressure	Private System	Age of System
201254	Fournier	Name Given	Yes	X	x		Unknown
201255	Licwinko	Name Given	Yes			X	5
201256	Depeppe		No				
201257	Gibson	Name Given	Yes			X	Unknown
201258	Jackinski	Name Given	Yes		X		47
201259	Long		No				
201260	Abiaad	Anonymous	yes			X?	Unknown
201261	Bunting	Name Given	Yes	X			49
201262	Watson	Anonymous	Yes	X			Approx. 48
201263	Romano	Name Given	Yes	X			Approx. 59
201264	Earley	Name Given	Yes	DID NOT ANSWER QUESTION ABOUT PREF.			Unknown
201265	Lemanowicz	Anonymous	Yes	DID NOT ANSWER QUESTION ABOUT PREF.			32
201266	Wittenberg	Name Given	Yes			X	9
201267	Opperman	Name Given	Yes	X			9
201268	Watters	Anonymous	Yes	X			46
201269	Goldkamp	Name Given	Yes	X			Approx. 49
201270	Misus	Anonymous	Yes			X	48
201271	Shaw	Name Given	Yes			X	1

TOTALS

	22	7	26
Responded w/preference	55		
Responded w/no preference	7		
Did Not Respond at all	7		
Returned to office	1		
Property not in service area	1		
	71		

EXHIBIT NO. 9

**SCHEMATIC DIAGRAM OF PROPOSED
LOW PRESSURE SEWER SERVICE AND PRELIMINARY
ESTIMATED PROJECT COST**



LEGEND

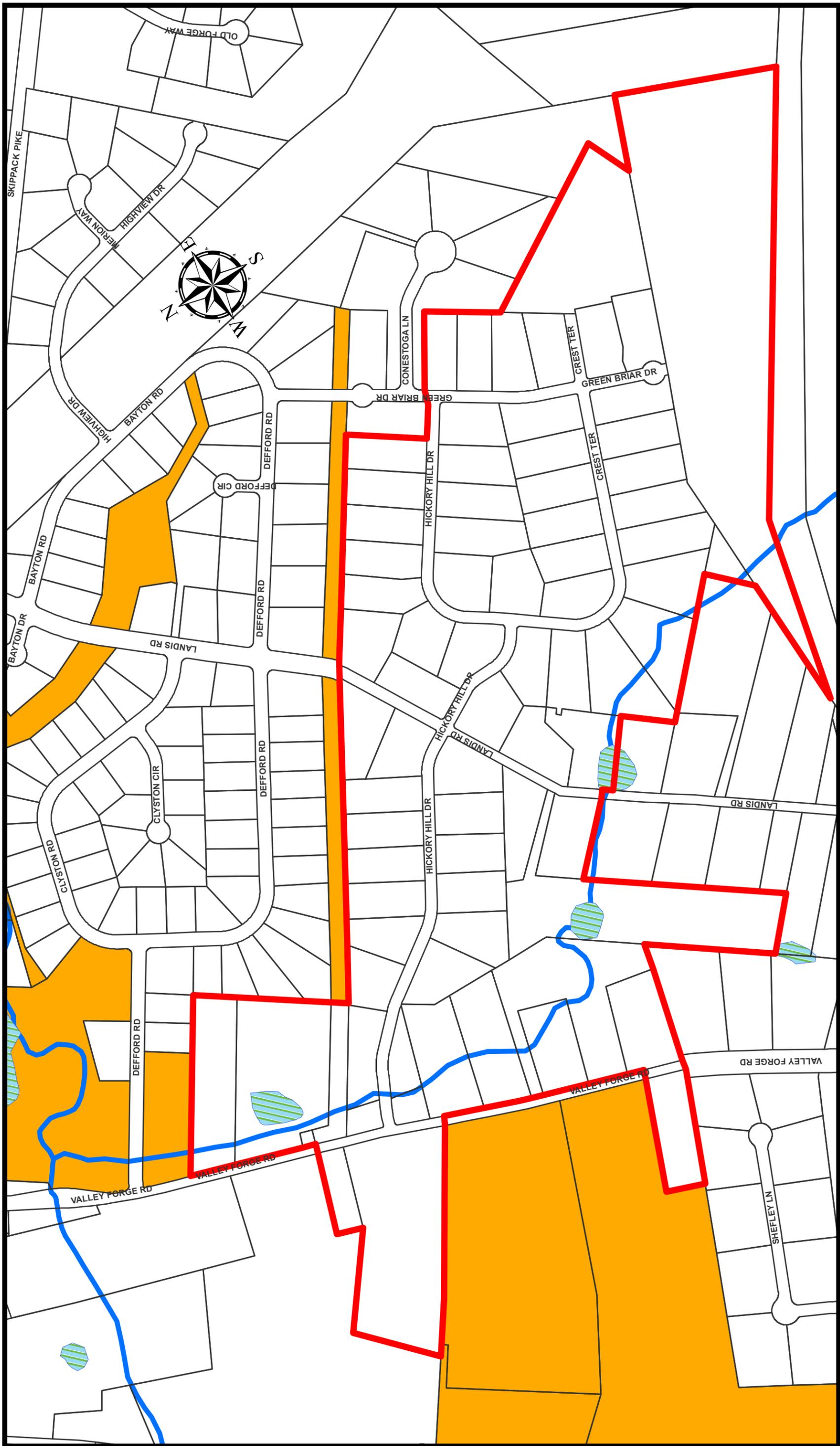
- SEWAGE FACILITIES PLANNING AREA
- EXISTING GRAVITY SANITARY SEWER
- PROPOSED LOW PRESSURE SANITARY SEWER EXTENSION

Rev. No.	Date	Description	
		PROPOSED LOW PRESSURE SANITARY SEWER SCHEMATIC HICKORY HILL AREA SANITARY SEWER PROJECT MINOR ACT 537 UPDATE REVISION	
		CKS Engineers, Inc. Worcester Township, Montgomery County, Pennsylvania 88 South Main Street, Doylestown, PA 18901 (215) 340-0600	
Date:	Scale:	Drawn By:	Plan No.:
8/21/13	1" = 600'	CJ	7471
		Checked By:	Sheet No.:
		EJU	1 OF 1

WORCESTER TOWNSHIP HICKORY HILL AREA LOW PRESSURE SEWER SYSTEM EXTENSION PRELIMINARY ESTIMATED PROJECT COST					
ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST (1)	TOTAL COST (2)
1	2½" PVC F.M. in State Highway	530	L.F.	\$52.00	\$27,560.00
2	2" PVC F.M. in State Highway	800	L.F.	\$49.00	\$39,200.00
3	1½" PVC F.M. in State Highway	350	L.F.	\$45.00	\$15,750.00
4	3" PVC F.M. in Township Streets	880	L.F.	\$50.00	\$44,000.00
5	2½" PVC F.M. in Township Streets	2,490	L.F.	\$47.00	\$117,030.00
6	2" PVC F.M. in Township Streets	2,640	L.F.	\$44.00	\$116,160.00
7	1½" PVC F.M. in Township Streets	1,135	L.F.	\$40.00	\$45,400.00
8	2½" PVC F.M. in Easements	565	L.F.	\$41.00	\$23,165.00
9	1½" PVC F.M. in Easements	25	L.F.	\$35.00	\$875.00
10	1¼" PVC Indiv. F.M. Laterals	1,980	L.F.	\$42.00	\$83,160.00
11	Flushing Connections	5	Ea.	\$1,500.00	\$7,500.00
12	Lateral Assemblies	74	Ea.	\$575.00	\$42,550.00
13	Connect to Exist. System	3	Ea.	\$1,500.00	\$4,500.00
14	Stream Crossings	2	Ea.	\$5,000.00	\$10,000.00
15	State Highway Restoration (3)	1,100	S.Y.	\$65.00	\$71,500.00
16	Township Road Restoration (3)	4,600	S.Y.	\$40.00	\$184,000.00
17	Easement Restoration	1,600	S.Y.	\$2.50	\$4,000.00
ESTIMATED CONSTRUCTION COST					\$836,350.00
5% CONTINGENCIES					\$41,815.00
SUBTOTAL					\$878,165.00
20% ENGINEERING/LEGAL/INSPECTION					\$175,633.00
TOTAL (4)					\$1,053,798.00
NOTES					
(1) Unit cost based upon current construction cost data.					
(2) Preliminary construction cost estimates based upon conceptual design layout and are subject to change with preparation of detailed engineering plans.					
(3) Restoration costs based upon standard Township and PennDOT trench restoration criteria, including milling and overlay of roadway half-width of PennDOT Highways.					
(4) Preliminary estimated project cost does not include easement acquisition costs.					

EXHIBIT NO. 10

**NATIONAL WETLANDS INVENTORY (NWI)
WETLAND MAP**



Legend

- Planning Area
- Worcester Township Owned Parcels
- Worcester Township Parcels
- Streams
- NWI Wetland Inventory

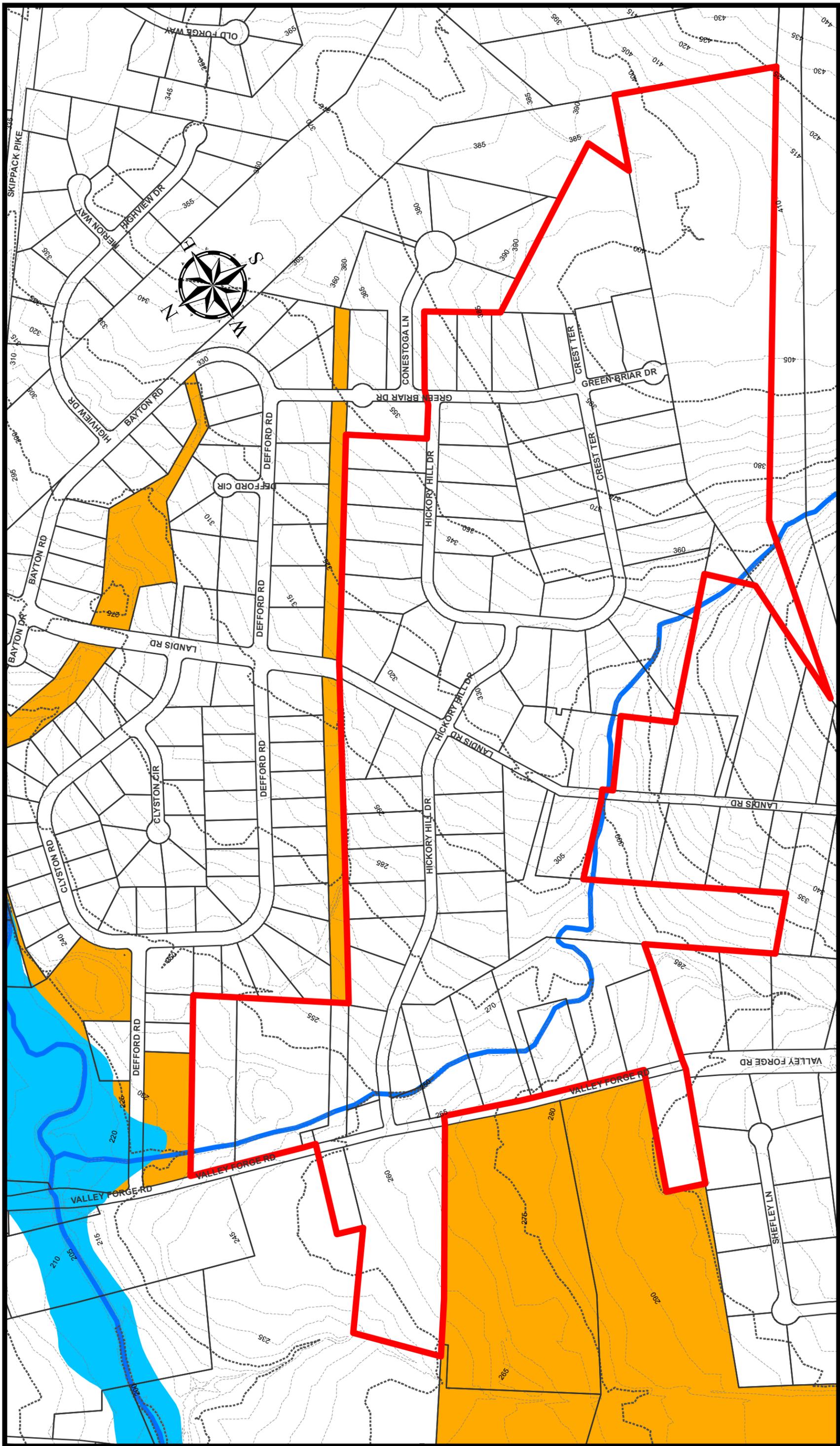
**NWI WETLANDS INVENTORY EXHIBIT
 HICKORY HILL AREA SANITARY SEWER PROJECT
 LOW PRESSURE SEWER SYSTEM EXTENSION
 SEWAGE FACILITY PLANNING MODULE
 MINOR ACT 537 UPDATE REVISION**

CKS Engineers, Inc.
 88 South Main Street, Doylestown, PA 18901
 (215) 340-0600



EXHIBIT NO. 11

**FEMA FLOODPLAIN INFORMATION
AND TOPOGRAPHIC MAP**



**FLOODPLAIN AND TOPOGRAPHY EXHIBIT
 HICKORY HILL AREA SANITARY SEWER PROJECT
 LOW PRESSURE SEWER SYSTEM EXTENSION
 SEWAGE FACILITY PLANNING MODULE
 MINOR ACT 537 UPDATE REVISION**

Legend

- Planning Area
- WORCESTER TOWNSHIP OWNED PARCELS
- Worcester Township Parcels
- Index Contour
- Intermediate Contour
- FEMA FLOODPLAIN ZONE A
- FEMA FLOODPLAIN ZONE AE
- FEMA FLOODPLAIN ZONE AO
- STREAMS

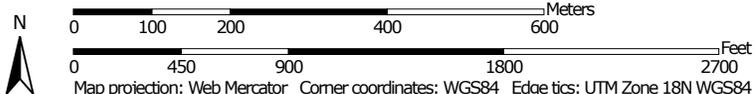
CKS Engineers, Inc.
 88 South Main Street, Doylestown, PA 18901
 (215) 340-0600

EXHIBIT NO. 12
SOILS INFORMATION

Soil Map—Montgomery County, Pennsylvania
(HICKORY HILL AREA COMPONENT 3M)



Map Scale: 1:9,590 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

	Area of Interest (AOI)		Spoil Area
	Area of Interest (AOI)		Stony Spot
Soils			Very Stony Spot
	Soil Map Unit Polygons		Wet Spot
	Soil Map Unit Lines		Other
	Soil Map Unit Points		Special Line Features
Special Point Features		Water Features	
	Blowout		Streams and Canals
	Borrow Pit	Transportation	
	Clay Spot		Rails
	Closed Depression		Interstate Highways
	Gravel Pit		US Routes
	Gravelly Spot		Major Roads
	Landfill		Local Roads
	Lava Flow	Background	
	Marsh or swamp		Aerial Photography
	Mine or Quarry		
	Miscellaneous Water		
	Perennial Water		
	Rock Outcrop		
	Saline Spot		
	Sandy Spot		
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000. Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Montgomery County, Pennsylvania
Survey Area Data: Version 5, Feb 26, 2009

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

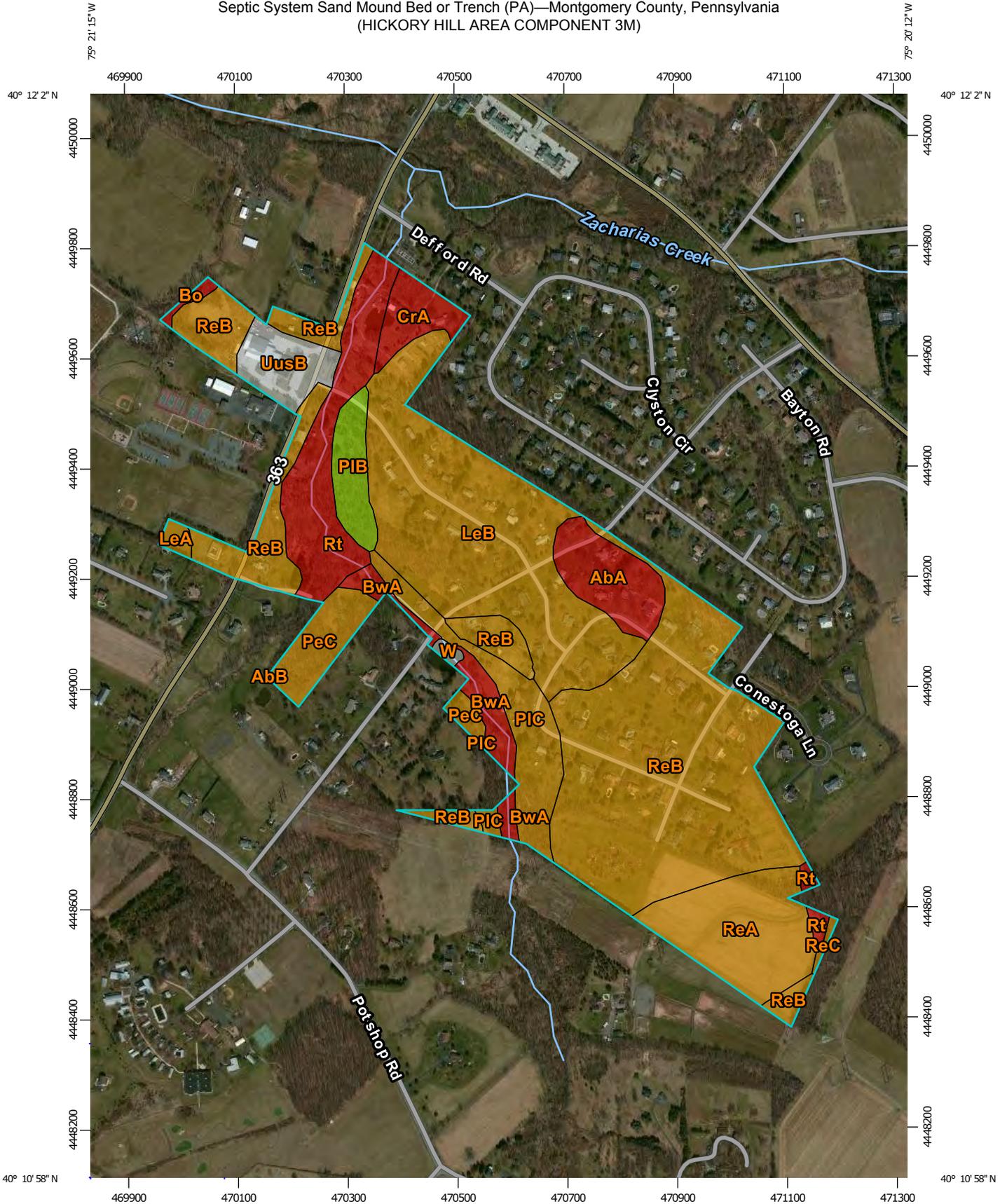
Date(s) aerial images were photographed: Mar 19, 2011—Jul 1, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

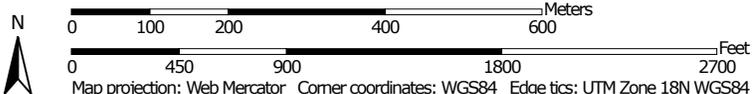
Map Unit Legend

Montgomery County, Pennsylvania (PA091)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AbA	Abbottstown silt loam, 0 to 3 percent slopes	6.4	4.1%
AbB	Abbottstown silt loam, 3 to 8 percent slopes	0.0	0.0%
Bo	Bowmansville-Knauers silt loams	0.5	0.3%
BwA	Buckingham silt loam, 0 to 3 percent slopes	4.3	2.8%
CrA	Croton silt loam, 0 to 3 percent slopes	3.6	2.3%
LeA	Lawrenceville silt loam, 0 to 3 percent slopes	0.7	0.4%
LeB	Lawrenceville silt loam, 3 to 8 percent slopes	34.1	22.0%
PeC	Penn silt loam, 8 to 15 percent slopes	5.3	3.5%
PIB	Penn-Lansdale complex, 3 to 8 percent slopes	4.1	2.6%
PIC	Penn-Lansdale complex, 8 to 15 percent slopes	8.7	5.6%
ReA	Readington silt loam, 0 to 3 percent slopes	12.3	8.0%
ReB	Readington silt loam, 3 to 8 percent slopes	57.1	36.8%
ReC	Readington silt loam, 8 to 15 percent slopes	0.3	0.2%
Rt	Rowland silt loam, terrace	12.4	8.0%
UusB	Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes	4.7	3.0%
W	Water	0.4	0.2%
Totals for Area of Interest		154.9	100.0%

Septic System Sand Mound Bed or Trench (PA)—Montgomery County, Pennsylvania
(HICKORY HILL AREA COMPONENT 3M)



Map Scale: 1:9,590 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

	Area of Interest (AOI)		US Routes
	Area of Interest (AOI)		Major Roads
Soils			Local Roads
Soil Rating Polygons			Background
	Very limited		Aerial Photography
	Moderately limited		
	Slightly limited		
	Not limited		
	Not rated or not available		
Soil Rating Lines			
	Very limited		
	Moderately limited		
	Slightly limited		
	Not limited		
	Not rated or not available		
Soil Rating Points			
	Very limited		
	Moderately limited		
	Slightly limited		
	Not limited		
	Not rated or not available		
Water Features			
	Streams and Canals		
Transportation			
	Rails		
	Interstate Highways		

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000. Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

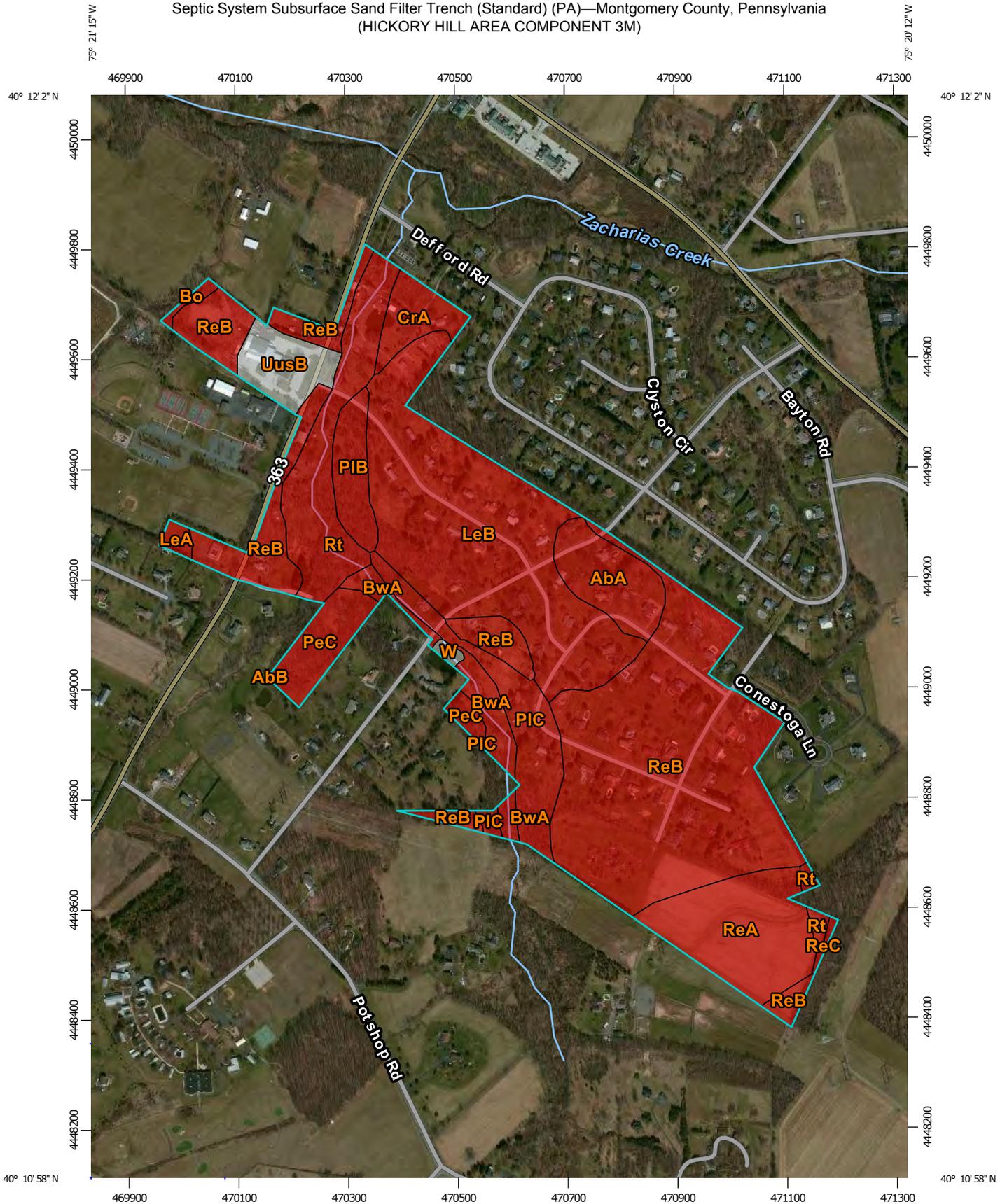
Soil Survey Area: Montgomery County, Pennsylvania
Survey Area Data: Version 5, Feb 26, 2009

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

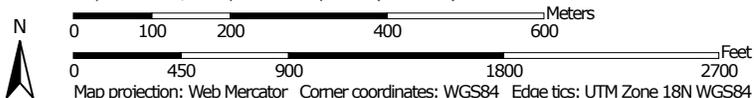
Date(s) aerial images were photographed: Mar 19, 2011—Jul 1, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Septic System Subsurface Sand Filter Trench (Standard) (PA)—Montgomery County, Pennsylvania
(HICKORY HILL AREA COMPONENT 3M)



Map Scale: 1:9,590 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84



MAP LEGEND

	Area of Interest (AOI)		US Routes
	Area of Interest (AOI)		Major Roads
Soils			Local Roads
Soil Rating Polygons			Background
	Very limited		Aerial Photography
	Moderately limited		
	Slightly limited		
	Not limited		
	Not rated or not available		
Soil Rating Lines			
	Very limited		
	Moderately limited		
	Slightly limited		
	Not limited		
	Not rated or not available		
Soil Rating Points			
	Very limited		
	Moderately limited		
	Slightly limited		
	Not limited		
	Not rated or not available		
Water Features			
	Streams and Canals		
Transportation			
	Rails		
	Interstate Highways		

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000. Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Montgomery County, Pennsylvania
Survey Area Data: Version 5, Feb 26, 2009

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

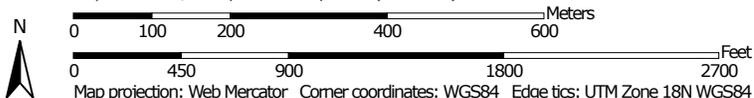
Date(s) aerial images were photographed: Mar 19, 2011—Jul 1, 2011

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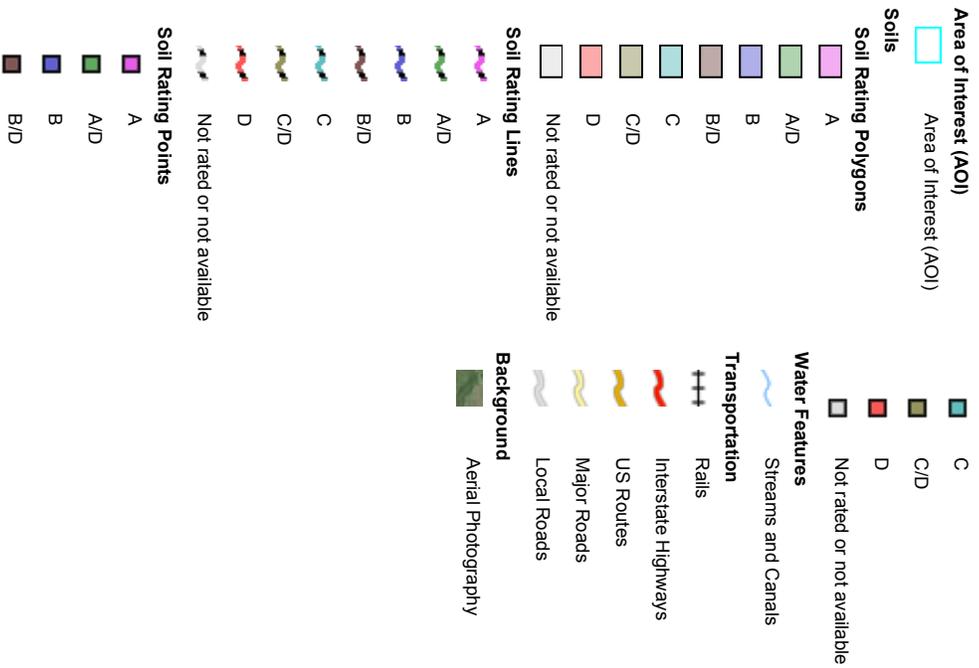
Hydrologic Soil Group—Montgomery County, Pennsylvania
(HICKORY HILL AREA COMPONENT 3M)



Map Scale: 1:9,590 if printed on A portrait (8.5" x 11") sheet.



MAP LEGEND



MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000. Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

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This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Montgomery County, Pennsylvania
Survey Area Data: Version 5, Feb 26, 2009

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

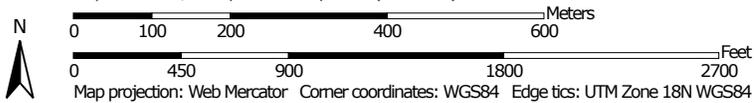
Date(s) aerial images were photographed: Mar 19, 2011—Jul 1, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Farmland Classification—Montgomery County, Pennsylvania
(HICKORY HILL AREA COMPONENT 3M)



Map Scale: 1:9,590 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 18N WGS84

MAP LEGEND

 Area of Interest (AOI)
 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

Soil Rating Lines

-  Prime farmland if subsolled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

Soil Rating Lines

-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if subsolled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Soil Rating Points

-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available
-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

Water Features

-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if subsolled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

MAP INFORMATION

-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:12,000. Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

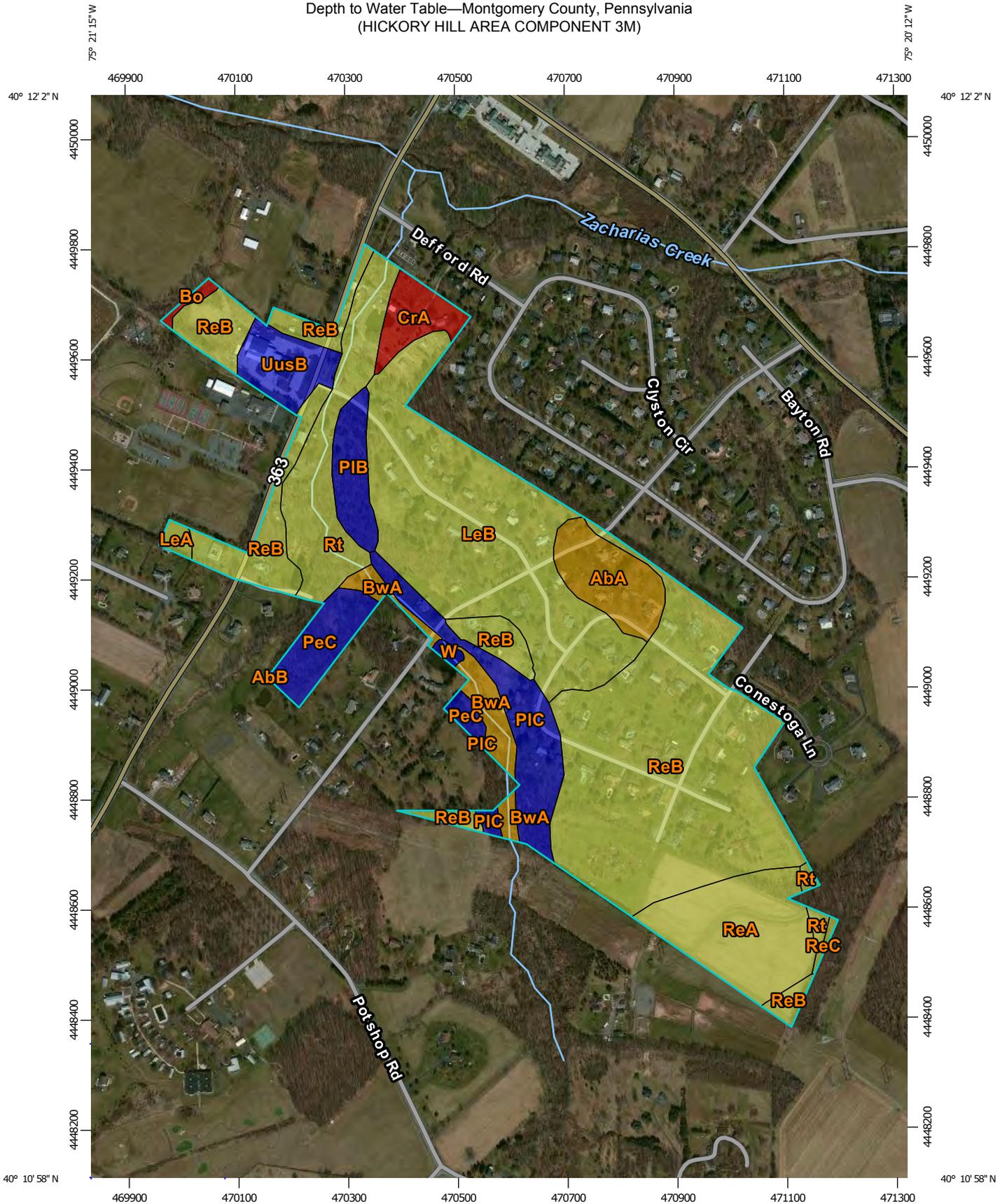
Soil Survey Area: Montgomery County, Pennsylvania
Survey Area Data: Version 5, Feb 26, 2009

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

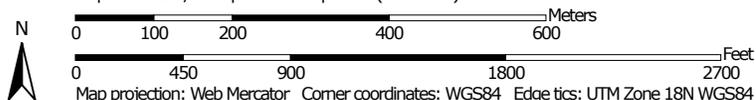
Date(s) aerial images were photographed: Mar 19, 2011—Jul 1, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Depth to Water Table—Montgomery County, Pennsylvania
(HICKORY HILL AREA COMPONENT 3M)



Map Scale: 1:9,590 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

 Not rated or not available	 Area of Interest (AOI)	 Not rated or not available
	 Area of Interest (AOI)	
Water Features		
 Streams and Canals		
Transportation		
 Rails	 Interstate Highways	
 US Routes	 Major Roads	
 Local Roads		
Background		
 Aerial Photography		
Soil Rating Polygons		
 0 - 25	 25 - 50	 50 - 100
 100 - 150	 150 - 200	 > 200
 Not rated or not available		
Soil Rating Lines		
 0 - 25	 25 - 50	 50 - 100
 100 - 150	 150 - 200	 > 200
 Not rated or not available		
Soil Rating Points		
 0 - 25	 25 - 50	 50 - 100
 100 - 150	 150 - 200	 > 200

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000. Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

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This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Montgomery County, Pennsylvania
Survey Area Data: Version 5, Feb 26, 2009

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 19, 2011—Jul 1, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Septic System Sand Mound Bed or Trench (PA)

Septic System Sand Mound Bed or Trench (PA)— Summary by Map Unit — Montgomery County, Pennsylvania (PA091)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
AbA	Abbottstown silt loam, 0 to 3 percent slopes	Very limited	Abbottstown (93%)	Seasonal high water table (1.00)	6.4	4.1%
				Slope (0.18)		
			Croton (5%)	Seasonal high water table (1.00)		
				Slow percolation 12-20" (1.00)		
	Slope (0.18)					
AbB	Abbottstown silt loam, 3 to 8 percent slopes	Very limited	Abbottstown (93%)	Seasonal high water table (1.00)	0.0	0.0%
				Slope (0.40)		
			Croton (6%)	Seasonal high water table (1.00)		
				Slow percolation 12-20" (1.00)		
	Slope (0.40)					
Bo	Bowmansville-Knauers silt loams	Very limited	Knauers (40%)	Seasonal high water table (1.00)	0.5	0.3%
				Flooding (1.00)		
				Slow percolation 12-20" (0.50)		
				Slope (0.18)		
			Bowmansville (40%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation 12-20" (0.50)		
				Slope (0.18)		

Septic System Sand Mound Bed or Trench (PA)— Summary by Map Unit — Montgomery County, Pennsylvania (PA091)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BwA	Buckingham silt loam, 0 to 3 percent slopes	Very limited	Buckingham (80%)	Seasonal high water table (1.00)	4.3	2.8%
				Slope (0.18)		
			Croton (5%)	Seasonal high water table (1.00)		
				Slow percolation 12-20" (1.00)		
				Slope (0.18)		
			Knauers (2%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation 12-20" (0.50)		
				Slope (0.18)		
			CrA	Croton silt loam, 0 to 3 percent slopes		
Slow percolation 12-20" (1.00)						
Slope (0.18)						
LeA	Lawrenceville silt loam, 0 to 3 percent slopes	Moderately limited	Lawrenceville (81%)	Low potential seasonal high water table (0.67)	0.7	0.4%
				Slope (0.18)		
LeB	Lawrenceville silt loam, 3 to 8 percent slopes	Moderately limited	Lawrenceville (83%)	Low potential seasonal high water table (0.67)	34.1	22.0%
				Slope (0.40)		
PeC	Penn silt loam, 8 to 15 percent slopes	Moderately limited	Penn (90%)	Too steep (0.85)	5.3	3.5%
				Potential bedrock near 20" (0.35)		
PIB	Penn-Lansdale complex, 3 to 8 percent slopes	Slightly limited	Penn (69%)	Slope (0.40)	4.1	2.6%
				Potential bedrock near 20" (0.35)		
			Lansdale (25%)	Slope (0.40)		
PIC	Penn-Lansdale complex, 8 to 15 percent slopes	Moderately limited	Penn (50%)	Too steep (0.85)	8.7	5.6%
				Potential bedrock near 20" (0.35)		
			Lansdale (40%)	Too steep (0.85)		

Septic System Sand Mound Bed or Trench (PA)— Summary by Map Unit — Montgomery County, Pennsylvania (PA091)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
ReA	Readington silt loam, 0 to 3 percent slopes	Moderately limited	Readington (85%)	Low potential seasonal high water table (0.67)	12.3	8.0%
				Slope (0.18)		
ReB	Readington silt loam, 3 to 8 percent slopes	Moderately limited	Readington (80%)	Low potential seasonal high water table (0.67)	57.1	36.8%
				Slope (0.40)		
ReC	Readington silt loam, 8 to 15 percent slopes	Moderately limited	Readington (86%)	Too steep (0.85)	0.3	0.2%
				Low potential seasonal high water table (0.67)		
Rt	Rowland silt loam, terrace	Very limited	Rowland (82%)	Flooding (1.00)	12.4	8.0%
				Low potential seasonal high water table (0.86)		
				Slope (0.18)		
			Knauers (8%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation 12-20" (0.50)		
UusB	Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes	Not rated	Urban land (80%)		4.7	3.0%
W	Water	Not rated	Water (99%)		0.4	0.2%
Totals for Area of Interest					154.9	100.0%

Septic System Sand Mound Bed or Trench (PA)— Summary by Rating Value		
Rating	Acres in AOI	Percent of AOI
Moderately limited	118.6	76.6%
Very limited	27.2	17.5%
Slightly limited	4.1	2.6%
Null or Not Rated	5.1	3.3%
Totals for Area of Interest	154.9	100.0%

Description

This is a system of pressurized lines that distribute effluent from a septic tank into a mound with sand under aggregate. The mound is placed on top of the mineral soil surface. About 1 to 4 feet of sand could be placed on the mineral soil surface in a sand mound system. Only the part of the soils between depths of 0 and 20 inches is considered when the soils are rated.

The soil properties and site features considered are those that affect absorption of the effluent and construction and maintenance of the system and those that may affect public health. These include depth to a water table, depth to bedrock, content of rock fragments, flooding, slope, and saturated hydraulic conductivity (Ksat). Flooding is a serious problem because it can result in improper treatment of the effluent and contamination of ground water or surface water. If Ksat is too fast or too slow, if the content of rock fragments is too high, or if the water table is too close to the surface, the effluent can contaminate the ground water. If this system is improperly installed on the steeper slopes, the effluent could flow along the surface of the soils. Additional grading may be needed in areas downslope from the system.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Slightly limited" indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. "Moderately limited" indicates that the soil has features that are somewhat favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the Selected Soil Interpretations report with this interpretation

included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Septic System Subsurface Sand Filter Trench (Standard) (PA)

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Montgomery County, Pennsylvania (PA091)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
AbA	Abbottstown silt loam, 0 to 3 percent slopes	Very limited	Abbottstown (93%)	Seasonal high water table (1.00)	6.4	4.1%
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.01)		
			Croton (5%)	Seasonal high water table (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Potential bedrock near 72" (0.10)		
				Slope (0.01)		

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Montgomery County, Pennsylvania (PA091)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
AbB	Abbottstown silt loam, 3 to 8 percent slopes	Very limited	Abbottstown (93%)	Seasonal high water table (1.00)	0.0	0.0%
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.12)		
			Croton (6%)	Seasonal high water table (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.12)		
				Potential bedrock near 72" (0.10)		

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Montgomery County, Pennsylvania (PA091)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Bo	Bowmansville-Knauers silt loams	Very limited	Knauers (40%)	Seasonal high water table (1.00)	0.5	0.3%
				Flooding (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Potential fast percolation 36-60" (0.18)		
				Slight voided fragments (0.10)		
			Bowmansville (40%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (0.98)		
				Slope (0.01)		

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Montgomery County, Pennsylvania (PA091)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BwA	Buckingham silt loam, 0 to 3 percent slopes	Very limited	Buckingham (80%)	Seasonal high water table (1.00)	4.3	2.8%
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.01)		
			Croton (5%)	Seasonal high water table (1.00)		
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (0.98)		
				Slope (0.01)		
			Knauers (2%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Potential fast percolation 36-60" (0.18)		
				Slight voided fragments (0.10)		

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Montgomery County, Pennsylvania (PA091)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
CrA	Croton silt loam, 0 to 3 percent slopes	Very limited	Croton (82%)	Seasonal high water table (1.00)	3.6	2.3%
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (0.98)		
				Slope (0.01)		
LeA	Lawrenceville silt loam, 0 to 3 percent slopes	Very limited	Lawrenceville (81%)	Seasonal high water table (1.00)	0.7	0.4%
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.01)		
			Doylestown (4%)	Seasonal high water table (1.00)		
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.01)		

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Montgomery County, Pennsylvania (PA091)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
LeB	Lawrenceville silt loam, 3 to 8 percent slopes	Very limited	Lawrenceville (83%)	Seasonal high water table (1.00)	34.1	22.0%
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.12)		
			Doylestown (3%)	Seasonal high water table (1.00)		
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.01)		
PeC	Penn silt loam, 8 to 15 percent slopes	Very limited	Penn (90%)	Bedrock, above 72" (1.00)	5.3	3.5%
				Slow percolation 12-36"; see criteria (0.96)		
				Slope (0.46)		
PIB	Penn-Lansdale complex, 3 to 8 percent slopes	Very limited	Penn (69%)	Bedrock, above 72" (1.00)	4.1	2.6%
				Slow percolation 12-36"; see criteria (0.96)		
				Slope (0.12)		
			Lansdale (25%)	Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Potential slow percolation 36-60" (0.27)		
				Slope (0.12)		

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Montgomery County, Pennsylvania (PA091)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
PIC	Penn-Lansdale complex, 8 to 15 percent slopes	Very limited	Penn (50%)	Bedrock, above 72" (1.00)	8.7	5.6%
				Slow percolation 12-36"; see criteria (0.96)		
				Slope (0.46)		
			Lansdale (40%)	Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Potential slow percolation 36-60" (0.27)		
ReA	Readington silt loam, 0 to 3 percent slopes	Very limited	Readington (85%)	Seasonal high water table (1.00)	12.3	8.0%
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.01)		
			Croton (3%)	Seasonal high water table (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Potential bedrock near 72" (0.10)		
				Slope (0.01)		

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Montgomery County, Pennsylvania (PA091)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
ReB	Readington silt loam, 3 to 8 percent slopes	Very limited	Readington (80%)	Seasonal high water table (1.00)	57.1	36.8%
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.12)		
			Croton (6%)	Seasonal high water table (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.12)		
				Potential bedrock near 72" (0.10)		

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Montgomery County, Pennsylvania (PA091)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
ReC	Readington silt loam, 8 to 15 percent slopes	Very limited	Readington (86%)	Seasonal high water table (1.00)	0.3	0.2%
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.46)		
			Croton (2%)	Seasonal high water table (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Potential bedrock near 72" (0.10)		
				Slope (0.01)		

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Montgomery County, Pennsylvania (PA091)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Rt	Rowland silt loam, terrace	Very limited	Rowland (82%)	Seasonal high water table (1.00)	12.4	8.0%
				Flooding (1.00)		
				Slow percolation 12-36"; see criteria (1.00)		
				Slow percolation 36-60" (0.98)		
				Slope (0.01)		
			Knauers (8%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Potential fast percolation 36-60" (0.18)		
				Slight voided fragments (0.10)		
UusB	Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes	Not rated	Urban land (80%)		4.7	3.0%
W	Water	Not rated	Water (99%)		0.4	0.2%
Totals for Area of Interest					154.9	100.0%

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Rating Value		
Rating	Acres in AOI	Percent of AOI
Very limited	149.8	96.7%
Null or Not Rated	5.1	3.3%
Totals for Area of Interest	154.9	100.0%

Description

This is a subsurface system of lines that distribute effluent from a septic tank into a sand filter above the natural soil. The distribution lines are at a minimum depth of 36 to 60 inches. The part of the soils between depths of 0 and 72 inches is considered when the soils are rated. Only the soils with slopes of less than 25 percent are rated.

The soil properties and site features considered are those that affect absorption of the effluent and construction and maintenance of the system and those that may affect public health. These include depth to a water table, depth to bedrock, content of rock fragments, flooding, slope, and saturated hydraulic conductivity (Ksat). Flooding is a serious problem because it can result in improper treatment of the effluent and contamination of ground water or surface water. If Ksat is too fast or too slow, if the content of rock fragments is too high, or if the water table is too close to the surface, the effluent can contaminate the ground water. If this system is improperly installed on the steeper slopes, the effluent could flow along the surface of the soils. Additional grading may be needed in areas downslope from the system.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Slightly limited" indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. "Moderately limited" indicates that the soil has features that are somewhat favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the Selected Soil Interpretations report with this interpretation

included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Depth to Water Table

Depth to Water Table— Summary by Map Unit — Montgomery County, Pennsylvania (PA091)				
Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
AbA	Abbottstown silt loam, 0 to 3 percent slopes	38	6.4	4.1%
AbB	Abbottstown silt loam, 3 to 8 percent slopes	38	0.0	0.0%
Bo	Bowmansville-Knauers silt loams	0	0.5	0.3%
BwA	Buckingham silt loam, 0 to 3 percent slopes	31	4.3	2.8%
CrA	Croton silt loam, 0 to 3 percent slopes	8	3.6	2.3%
LeA	Lawrenceville silt loam, 0 to 3 percent slopes	69	0.7	0.4%
LeB	Lawrenceville silt loam, 3 to 8 percent slopes	69	34.1	22.0%
PeC	Penn silt loam, 8 to 15 percent slopes	>200	5.3	3.5%
PIB	Penn-Lansdale complex, 3 to 8 percent slopes	>200	4.1	2.6%
PIC	Penn-Lansdale complex, 8 to 15 percent slopes	>200	8.7	5.6%
ReA	Readington silt loam, 0 to 3 percent slopes	69	12.3	8.0%
ReB	Readington silt loam, 3 to 8 percent slopes	69	57.1	36.8%
ReC	Readington silt loam, 8 to 15 percent slopes	69	0.3	0.2%
Rt	Rowland silt loam, terrace	61	12.4	8.0%
UusB	Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes	>200	4.7	3.0%
W	Water	>200	0.4	0.2%
Totals for Area of Interest			154.9	100.0%

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Montgomery County, Pennsylvania (PA091)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AbA	Abbottstown silt loam, 0 to 3 percent slopes	C	6.4	4.1%
AbB	Abbottstown silt loam, 3 to 8 percent slopes	C	0.0	0.0%
Bo	Bowmansville-Knauers silt loams	D	0.5	0.3%
BwA	Buckingham silt loam, 0 to 3 percent slopes	C	4.3	2.8%
CrA	Croton silt loam, 0 to 3 percent slopes	D	3.6	2.3%
LeA	Lawrenceville silt loam, 0 to 3 percent slopes	C	0.7	0.4%
LeB	Lawrenceville silt loam, 3 to 8 percent slopes	C	34.1	22.0%
PeC	Penn silt loam, 8 to 15 percent slopes	C	5.3	3.5%
PIB	Penn-Lansdale complex, 3 to 8 percent slopes	C	4.1	2.6%
PIC	Penn-Lansdale complex, 8 to 15 percent slopes	C	8.7	5.6%
ReA	Readington silt loam, 0 to 3 percent slopes	C	12.3	8.0%
ReB	Readington silt loam, 3 to 8 percent slopes	C	57.1	36.8%
ReC	Readington silt loam, 8 to 15 percent slopes	C	0.3	0.2%
Rt	Rowland silt loam, terrace	C	12.4	8.0%
UusB	Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes		4.7	3.0%
W	Water		0.4	0.2%
Totals for Area of Interest			154.9	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Farmland Classification

Farmland Classification— Summary by Map Unit — Montgomery County, Pennsylvania (PA091)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AbA	Abbottstown silt loam, 0 to 3 percent slopes	Farmland of statewide importance	6.4	4.1%
AbB	Abbottstown silt loam, 3 to 8 percent slopes	Farmland of statewide importance	0.0	0.0%
Bo	Bowmansville-Knauers silt loams	Not prime farmland	0.5	0.3%
BwA	Buckingham silt loam, 0 to 3 percent slopes	Farmland of statewide importance	4.3	2.8%
CrA	Croton silt loam, 0 to 3 percent slopes	Not prime farmland	3.6	2.3%
LeA	Lawrenceville silt loam, 0 to 3 percent slopes	All areas are prime farmland	0.7	0.4%
LeB	Lawrenceville silt loam, 3 to 8 percent slopes	Farmland of statewide importance	34.1	22.0%
PeC	Penn silt loam, 8 to 15 percent slopes	Farmland of statewide importance	5.3	3.5%
PIB	Penn-Lansdale complex, 3 to 8 percent slopes	All areas are prime farmland	4.1	2.6%
PIC	Penn-Lansdale complex, 8 to 15 percent slopes	Farmland of statewide importance	8.7	5.6%
ReA	Readington silt loam, 0 to 3 percent slopes	All areas are prime farmland	12.3	8.0%
ReB	Readington silt loam, 3 to 8 percent slopes	Farmland of statewide importance	57.1	36.8%
ReC	Readington silt loam, 8 to 15 percent slopes	Farmland of statewide importance	0.3	0.2%
Rt	Rowland silt loam, terrace	All areas are prime farmland	12.4	8.0%
UusB	Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes	Not prime farmland	4.7	3.0%
W	Water	Not prime farmland	0.4	0.2%
Totals for Area of Interest			154.9	100.0%

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Sewage Disposal

This table shows the degree and kind of soil limitations that affect septic tank absorption fields and sewage lagoons. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches or between a depth of 24 inches and a restrictive layer is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Saturated hydraulic conductivity (Ksat) is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a Ksat rate of more than 14 micrometers per second are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Report—Sewage Disposal

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Sewage Disposal—Montgomery County, Pennsylvania					
Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
AbA—Abbottstown silt loam, 0 to 3 percent slopes					
Abbottstown	93	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to hard bedrock	0.61
		Depth to bedrock	0.86	Seepage	0.53

Sewage Disposal--Montgomery County, Pennsylvania					
Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
AbB--Abbottstown silt loam, 3 to 8 percent slopes					
Abbottstown	93	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.92
		Depth to bedrock	0.86	Depth to hard bedrock	0.61
				Seepage	0.53
Bo--Bowmansville-Knauers silt loams					
Bowmansville	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
Knauers	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Slow water movement	0.46		
BwA--Buckingham silt loam, 0 to 3 percent slopes					
Buckingham	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.53
CrA--Croton silt loam, 0 to 3 percent slopes					
Croton	82	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Depth to hard bedrock	0.88
		Depth to bedrock	0.96	Seepage	0.27
LeA--Lawrenceville silt loam, 0 to 3 percent slopes					
Lawrenceville	81	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Seepage	0.53
		Slow water movement	1.00	Depth to saturated zone	0.44

Sewage Disposal--Montgomery County, Pennsylvania					
Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
LeB—Lawrenceville silt loam, 3 to 8 percent slopes					
Lawrenceville	83	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Slope	0.92
		Slow water movement	1.00	Seepage	0.53
				Depth to saturated zone	0.44
PeC—Penn silt loam, 8 to 15 percent slopes					
Penn	90	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.63	Seepage	1.00
PIB—Penn-Lansdale complex, 3 to 8 percent slopes					
Penn	69	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.92
Lansdale	25	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to bedrock	0.89	Slope	0.92
				Depth to hard bedrock	0.71
PIC—Penn-Lansdale complex, 8 to 15 percent slopes					
Penn	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.63	Seepage	1.00
Lansdale	40	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	0.89	Seepage	1.00
		Slope	0.63	Depth to hard bedrock	0.71

Sewage Disposal--Montgomery County, Pennsylvania					
Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
ReA—Readington silt loam, 0 to 3 percent slopes					
Readington	85	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Seepage	0.53
		Slow water movement	1.00	Depth to saturated zone	0.44
		Depth to bedrock	0.36	Depth to hard bedrock	0.01
ReB—Readington silt loam, 3 to 8 percent slopes					
Readington	80	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Slope	0.92
		Slow water movement	1.00	Seepage	0.53
		Depth to bedrock	0.36	Depth to saturated zone	0.44
				Depth to hard bedrock	0.01
ReC—Readington silt loam, 8 to 15 percent slopes					
Readington	86	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.53
		Slope	0.63	Depth to saturated zone	0.44
		Depth to bedrock	0.36	Depth to hard bedrock	0.01
Rt—Rowland silt loam, terrace					
Rowland	82	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Slow water movement	0.72		
UusB—Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes					
Urban land	80	Not rated		Not rated	
Udorthents, shale and sandstone	15	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	0.32
		Depth to bedrock	0.01		
W—Water					
Water	99	Not rated		Not rated	

Data Source Information

Soil Survey Area: Montgomery County, Pennsylvania
Survey Area Data: Version 5, Feb 26, 2009

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description

Montgomery County, Pennsylvania

AbA—Abbottstown silt loam, 0 to 3 percent slopes

Map Unit Setting

Elevation: 200 to 1,000 feet

Mean annual precipitation: 40 to 48 inches

Mean annual air temperature: 50 to 55 degrees F

Frost-free period: 160 to 200 days

Map Unit Composition

Abbottstown and similar soils: 93 percent

Minor components: 5 percent

Description of Abbottstown

Setting

Landform: Hillslopes

Landform position (two-dimensional): Toeslope, footslope

Landform position (three-dimensional): Base slope, head slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Parent material: Acid reddish brown residuum weathered from shale and siltstone

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 15 to 30 inches to fragipan; 40 to 60 inches to lithic bedrock

Drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 6 to 18 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 3.7 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance

Land capability (nonirrigated): 3w

Hydrologic Soil Group: C

Typical profile

0 to 10 inches: Silt loam

10 to 20 inches: Silt loam

20 to 39 inches: Channery loam

39 to 48 inches: Channery silt loam

48 to 49 inches: Bedrock

Minor Components

Croton

Percent of map unit: 5 percent

Landform: Depressions

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

AbB—Abbottstown silt loam, 3 to 8 percent slopes

Map Unit Setting

Elevation: 200 to 1,000 feet

Mean annual precipitation: 40 to 48 inches

Mean annual air temperature: 50 to 55 degrees F

Frost-free period: 160 to 200 days

Map Unit Composition

Abbottstown and similar soils: 93 percent

Minor components: 6 percent

Description of Abbottstown

Setting

Landform: Hillslopes

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope, head slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Parent material: Acid reddish brown residuum weathered from shale and siltstone

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 15 to 30 inches to fragipan; 40 to 60 inches to lithic bedrock

Drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 6 to 18 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 3.7 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance

Land capability (nonirrigated): 3w

Hydrologic Soil Group: C

Typical profile

0 to 10 inches: Silt loam

10 to 20 inches: Silt loam

20 to 39 inches: Channery loam

39 to 48 inches: Channery silt loam

48 to 49 inches: Bedrock

Minor Components

Croton

Percent of map unit: 6 percent

Landform: Depressions

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Bo—Bowmansville-Knauers silt loams**Map Unit Setting**

Elevation: 150 to 900 feet

Mean annual precipitation: 38 to 48 inches

Mean annual air temperature: 45 to 57 degrees F

Frost-free period: 150 to 210 days

Map Unit Composition

Bowmansville and similar soils: 40 percent

Knauers and similar soils: 40 percent

Description of Knauers**Setting**

Landform: Flood plains

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Parent material: Recent alluvium derived from sandstone and shale

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 72 to 99 inches to lithic bedrock

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: OccasionalNone

Frequency of ponding: None

Available water capacity: Low (about 5.5 inches)

Interpretive groups

Farmland classification: Not prime farmland

Land capability (nonirrigated): 4w

Hydrologic Soil Group: D

Typical profile

0 to 8 inches: Silt loam

8 to 17 inches: Silt loam

17 to 24 inches: Gravelly sandy loam

24 to 60 inches: Stratified sand to gravelly sandy loam

Description of Bowmansville**Setting**

Landform: Flood plains

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Head slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

Parent material: Recent alluvial deposits weathered from sandstone and siltstone

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 72 to 99 inches to lithic bedrock

Drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: About 0 to 18 inches

Frequency of flooding: OccasionalNone

Frequency of ponding: None

Available water capacity: Moderate (about 8.2 inches)

Interpretive groups

Farmland classification: Not prime farmland

Land capability (nonirrigated): 3w

Hydrologic Soil Group: B/D

Typical profile

0 to 7 inches: Silt loam

7 to 26 inches: Silty clay loam

26 to 43 inches: Fine sandy loam

43 to 65 inches: Stratified gravel to sand

BwA—Buckingham silt loam, 0 to 3 percent slopes

Map Unit Setting

Elevation: 150 to 450 feet

Mean annual precipitation: 38 to 48 inches

Mean annual air temperature: 46 to 57 degrees F

Frost-free period: 150 to 200 days

Map Unit Composition

Buckingham and similar soils: 80 percent

Minor components: 7 percent

Description of Buckingham

Setting

Landform: Drainageways

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Head slope

Down-slope shape: Linear, concave

Across-slope shape: Concave, linear

Parent material: Fine-loamy colluvium and old alluvium derived from shale and siltstone

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 20 to 40 inches to fragipan; 80 to 99 inches to lithic bedrock

Drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water
(*Ksat*): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.4 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance
Land capability (nonirrigated): 3w
Hydrologic Soil Group: C

Typical profile

0 to 16 inches: Silt loam
16 to 40 inches: Silt loam
40 to 48 inches: Silty clay loam
48 to 62 inches: Gravelly silt loam

Minor Components**Croton**

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave

Knauers

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear

CrA—Croton silt loam, 0 to 3 percent slopes**Map Unit Setting**

Mean annual precipitation: 40 to 48 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 160 to 190 days

Map Unit Composition

Croton and similar soils: 82 percent

Description of Croton**Setting**

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear

Across-slope shape: Linear, concave
Parent material: Residuum weathered from sandstone and shale

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 12 to 25 inches to fragipan; 40 to 60 inches to lithic bedrock
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.4 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 4w
Hydrologic Soil Group: D

Typical profile

0 to 11 inches: Silt loam
11 to 19 inches: Silty clay loam
19 to 30 inches: Channery silty clay loam
30 to 44 inches: Channery silt loam
44 to 64 inches: Bedrock

LeA—Lawrenceville silt loam, 0 to 3 percent slopes

Map Unit Setting

Elevation: 200 to 1,500 feet
Mean annual precipitation: 38 to 48 inches
Mean annual air temperature: 50 to 57 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Lawrenceville and similar soils: 81 percent
Minor components: 4 percent

Description of Lawrenceville

Setting

Landform: Upland slopes, depressions
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Loess over residuum weathered from shale and siltstone

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 24 to 38 inches to fragipan; 48 to 99 inches to lithic bedrock

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: About 18 to 36 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 4.5 inches)

Interpretive groups

Farmland classification: All areas are prime farmland

Land capability (nonirrigated): 2w

Hydrologic Soil Group: C

Typical profile

0 to 12 inches: Silt loam

12 to 26 inches: Silt loam

26 to 47 inches: Silt loam

47 to 75 inches: Silt loam

Minor Components

Doylestown

Percent of map unit: 4 percent

Landform: Drainageways

Landform position (two-dimensional): Toeslope, footslope, backslope

Landform position (three-dimensional): Head slope

Down-slope shape: Linear, concave

Across-slope shape: Concave, linear

LeB—Lawrenceville silt loam, 3 to 8 percent slopes

Map Unit Setting

Elevation: 200 to 1,500 feet

Mean annual precipitation: 38 to 48 inches

Mean annual air temperature: 50 to 57 degrees F

Frost-free period: 140 to 200 days

Map Unit Composition

Lawrenceville and similar soils: 83 percent

Minor components: 3 percent

Description of Lawrenceville

Setting

Landform: Upland slopes

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Parent material: Loess over residuum weathered from shale and siltstone

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 24 to 38 inches to fragipan; 48 to 99 inches to lithic bedrock

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: About 18 to 36 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 4.5 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance

Land capability (nonirrigated): 2e

Hydrologic Soil Group: C

Typical profile

0 to 12 inches: Silt loam

12 to 26 inches: Silt loam

26 to 47 inches: Silt loam

47 to 75 inches: Silt loam

Minor Components

Doylestown

Percent of map unit: 3 percent

Landform: Drainageways

Landform position (two-dimensional): Toeslope, footslope, backslope

Landform position (three-dimensional): Head slope

Down-slope shape: Concave, linear

Across-slope shape: Linear, concave

PeC—Penn silt loam, 8 to 15 percent slopes

Map Unit Setting

Elevation: 250 to 950 feet

Mean annual precipitation: 38 to 48 inches

Mean annual air temperature: 50 to 57 degrees F

Frost-free period: 170 to 200 days

Map Unit Composition

Penn and similar soils: 90 percent

Description of Penn

Setting

Landform: Hillslopes

Landform position (two-dimensional): Shoulder, backslope, summit

Landform position (three-dimensional): Nose slope, interfluve, side slope

Down-slope shape: Convex, linear

Across-slope shape: Linear, convex

Parent material: Residuum weathered from shale and siltstone

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high to high (0.20 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 4.1 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance

Land capability (nonirrigated): 3e

Hydrologic Soil Group: C

Typical profile

0 to 10 inches: Silt loam

10 to 22 inches: Channery silt loam

22 to 28 inches: Very channery silt loam

28 to 48 inches: Bedrock

PIB—Penn-Lansdale complex, 3 to 8 percent slopes

Map Unit Setting

Elevation: 250 to 950 feet

Mean annual precipitation: 38 to 48 inches

Mean annual air temperature: 50 to 57 degrees F

Frost-free period: 160 to 200 days

Map Unit Composition

Penn and similar soils: 69 percent

Lansdale and similar soils: 25 percent

Description of Penn

Setting

Landform: Hillslopes

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Side slope, nose slope

Down-slope shape: Linear, convex

Across-slope shape: Convex, linear

Parent material: Residuum weathered from shale and siltstone

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.1 inches)

Interpretive groups

Farmland classification: All areas are prime farmland
Land capability (nonirrigated): 2e
Hydrologic Soil Group: C

Typical profile

0 to 10 inches: Channery silt loam
10 to 22 inches: Channery silt loam
22 to 28 inches: Very channery silt loam
28 to 48 inches: Bedrock

Description of Lansdale**Setting**

Landform: Hillsides
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone and/or residuum weathered from conglomerate

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 42 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.6 inches)

Interpretive groups

Farmland classification: All areas are prime farmland
Land capability (nonirrigated): 2e
Hydrologic Soil Group: B

Typical profile

0 to 10 inches: Channery loam
10 to 30 inches: Sandy loam
30 to 47 inches: Channery loamy sand
47 to 57 inches: Bedrock

PIC—Penn-Lansdale complex, 8 to 15 percent slopes

Map Unit Setting

Elevation: 250 to 950 feet

Mean annual precipitation: 38 to 48 inches

Mean annual air temperature: 50 to 57 degrees F

Frost-free period: 160 to 200 days

Map Unit Composition

Penn and similar soils: 50 percent

Lansdale and similar soils: 40 percent

Description of Penn

Setting

Landform: Hillslopes

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Side slope, nose slope

Down-slope shape: Convex, linear

Across-slope shape: Linear, convex

Parent material: Residuum weathered from shale and siltstone

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high to high (0.20 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 3.9 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance

Land capability (nonirrigated): 3e

Hydrologic Soil Group: C

Typical profile

0 to 10 inches: Channery silt loam

10 to 22 inches: Channery silt loam

22 to 28 inches: Very channery silt loam

28 to 48 inches: Bedrock

Description of Lansdale

Setting

Landform: Hillsides

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Residuum weathered from sandstone and/or
residuum weathered from conglomerate

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 42 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
(Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.4 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance
Land capability (nonirrigated): 3e
Hydrologic Soil Group: B

Typical profile

0 to 10 inches: Channery loam
10 to 30 inches: Sandy loam
30 to 47 inches: Channery loamy sand
47 to 57 inches: Bedrock

ReA—Readington silt loam, 0 to 3 percent slopes

Map Unit Setting

Elevation: 200 to 900 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 160 to 200 days

Map Unit Composition

Readington and similar soils: 85 percent
Minor components: 3 percent

Description of Readington

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, head slope, side
slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Residuum weathered from shale and siltstone

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 36 inches to fragipan; 40 to 70
inches to lithic bedrock
Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.0 inches)

Interpretive groups

Farmland classification: All areas are prime farmland
Land capability (nonirrigated): 2w
Hydrologic Soil Group: C

Typical profile

0 to 8 inches: Silt loam
8 to 29 inches: Silt loam
29 to 58 inches: Channery silt loam
58 to 68 inches: Bedrock

Minor Components**Croton**

Percent of map unit: 3 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear

ReB—Readington silt loam, 3 to 8 percent slopes**Map Unit Setting**

Elevation: 200 to 900 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 160 to 200 days

Map Unit Composition

Readington and similar soils: 80 percent
Minor components: 6 percent

Description of Readington**Setting**

Landform: Hillslopes
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Side slope, base slope, head slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Residuum weathered from shale and siltstone

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 20 to 36 inches to fragipan; 40 to 70 inches to lithic bedrock

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: About 18 to 36 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 4.0 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance

Land capability (nonirrigated): 2e

Hydrologic Soil Group: C

Typical profile

0 to 8 inches: Silt loam

8 to 29 inches: Silt loam

29 to 58 inches: Channery silt loam

58 to 68 inches: Bedrock

Minor Components

Croton

Percent of map unit: 6 percent

Landform: Depressions

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear, concave

Across-slope shape: Concave, linear

ReC—Readington silt loam, 8 to 15 percent slopes

Map Unit Setting

Elevation: 200 to 900 feet

Mean annual precipitation: 36 to 50 inches

Mean annual air temperature: 46 to 57 degrees F

Frost-free period: 160 to 200 days

Map Unit Composition

Readington and similar soils: 86 percent

Minor components: 2 percent

Description of Readington

Setting

Landform: Hillslopes

Landform position (two-dimensional): Footslope, backslope

Landform position (three-dimensional): Base slope, head slope, side slope

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Residuum weathered from shale and siltstone

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 36 inches to fragipan; 40 to 70 inches to lithic bedrock
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.3 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance
Land capability (nonirrigated): 3e
Hydrologic Soil Group: C

Typical profile

0 to 11 inches: Silt loam
11 to 29 inches: Silt loam
29 to 58 inches: Channery silt loam
58 to 68 inches: Bedrock

Minor Components**Croton**

Percent of map unit: 2 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave

Rt—Rowland silt loam, terrace**Map Unit Setting**

Elevation: 150 to 600 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 150 to 200 days

Map Unit Composition

Rowland and similar soils: 82 percent
Minor components: 8 percent

Description of Rowland**Setting**

Landform: Flood plains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Linear, concave

Across-slope shape: Linear, concave
Parent material: Alluvium derived from sandstone and shale

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 60 to 99 inches to lithic bedrock
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 12 to 36 inches
Frequency of flooding: NoneOccasional
Frequency of ponding: None
Available water capacity: Moderate (about 8.0 inches)

Interpretive groups

Farmland classification: All areas are prime farmland
Land capability (nonirrigated): 2w
Hydrologic Soil Group: C

Typical profile

0 to 12 inches: Silt loam
12 to 34 inches: Silty clay loam
34 to 46 inches: Silty clay loam
46 to 61 inches: Stratified gravel to sand

Minor Components

Knauers

Percent of map unit: 8 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave

UusB—Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes

Map Unit Setting

Mean annual precipitation: 40 to 48 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 161 to 215 days

Map Unit Composition

Urban land: 80 percent
Udorthents, shale and sandstone, and similar soils: 15 percent

Description of Urban Land

Setting

Landform: Hills
Parent material: Pavement, buildings and other artificially covered areas

Properties and qualities*Slope:* 0 to 8 percent*Depth to restrictive feature:* 10 to 99 inches to lithic bedrock*Available water capacity:* Very low (about 0.0 inches)**Interpretive groups***Farmland classification:* Not prime farmland*Land capability (nonirrigated):* 8s**Typical profile***0 to 6 inches:* Variable**Description of Udorthents, Shale And Sandstone****Setting***Landform:* Ridges*Landform position (two-dimensional):* Backslope, shoulder, summit*Landform position (three-dimensional):* Interfluve, side slope, nose slope*Down-slope shape:* Convex, linear*Across-slope shape:* Convex, linear*Parent material:* Graded areas of sandstone and shale**Properties and qualities***Slope:* 0 to 8 percent*Depth to restrictive feature:* 20 to 99 inches to lithic bedrock*Drainage class:* Well drained*Capacity of the most limiting layer to transmit water**(Ksat):* Moderately low to high (0.06 to 6.00 in/hr)*Depth to water table:* More than 80 inches*Frequency of flooding:* None*Frequency of ponding:* None*Available water capacity:* Very low (about 2.9 inches)**Interpretive groups***Farmland classification:* Not prime farmland*Land capability (nonirrigated):* 7s*Hydrologic Soil Group:* B/D**Typical profile***0 to 6 inches:* Very channery loam*6 to 60 inches:* Very channery silt loam**W—Water****Map Unit Setting***Mean annual precipitation:* 36 to 50 inches*Mean annual air temperature:* 46 to 59 degrees F*Frost-free period:* 120 to 214 days**Map Unit Composition***Water:* 99 percent

Description of Water

Setting

Parent material: Rivers streams ponds

Data Source Information

Soil Survey Area: Montgomery County, Pennsylvania
Survey Area Data: Version 5, Feb 26, 2009

EXHIBIT NO. 13

**VALLEY GREEN WASTEWATER TREATMENT
PLANT EXPANSION – PROJECT NARRATIVE**

**TOWNSHIP OF WORCESTER
VALLEY GREEN WASTEWATER TREATMENT PLANT EXPANSION
WATER QUALITY MANAGEMENT PERMIT APPLICATION
PROJECT NARRATIVE**

I. GENERAL PROJECT DESCRIPTION

A. Project Narrative Summary

The Valley Green Treatment Plant is a package-type treatment plant with both secondary and tertiary treatment units. The plant was originally constructed in 1979 as a 45,000 gpd facility. The plant was subsequently expanded in July of 1988 to handle a hydraulic capacity of 80,000 gpd. The plant was again expanded in 1993 to a design capacity of 90,000 gpd. The original plant was composed of three (3) separate "Pure Stream" treatment trains. This type of treatment plant is constructed with steel tanks which are buried in the ground. The 90,000 gpd facility is referred to as the "original plant".

In 1998, the treatment plant was expanded with the addition of a 130,000 gpd extended aeration treatment plant, which was built in conjunction with the Center Point Farms development. The facility is, therefore, composed of the "original" 90,000 gpd portion and the "new" 130,000 gpd portion. Each portion could be operated independently but the total plant was permitted as a 222,000 gpd facility.

After the new plant was operational, total flows to the facility were ranging from 80,000 gpd to 90,000 gpd. The new plant was capable of handling all the flows through the facility. At some point, the Township contract operations personnel took the original plant "off-line", which saved in utility and operation costs since this new facility was more efficient to operate and maintain. The original facility was to be placed back in service when the additional capacity was required.

In 2011 and 2012 DEP had performed several inspections of the facility and met with the Township to discuss the current status and condition of the WWTP. The DEP had also issued several Notice of Violation (NOV) letters in conjunction with permit violations at the facility. Subsequent to these inspections and meetings DEP requested a Corrective Action Plan (CAP) from the Township to place the "original" 90,000 gpd plant back in service.

One of the main concerns of the Township was the condition and operability of the original plant, and after some investigation it was concluded that it would not be economically feasible to put additional funds into the original plant which is past its useful life and would require a complete overhaul. Current technology has greatly improved over the years and utilizing a more current process would be also be beneficial with regards to pending changes in the effluent requirements. The Township's CAP was approved by DEP in a letter dated February, 24, 2012. The CAP proposed a 90,000 gpd expansion to the facility. The proposed expansion involves the demolition of the "original" 90,000 gpd plant and installation of a new 90,000 gpd

extended aeration treatment plant, similar to the one in operation, designed and constructed by Dutchland, Inc. This will bring the plant back to the permitted discharge rate of 220,000 gpd, with each treatment train capable of treating 110,000 gpd.

It is proposed to divide the flow equally between the two treatment trains via the splitter box. Each of the treatment trains can operate within acceptable limits at 25% of the design flow, which in this case would be 33,000 gallons per day per each train. Currently the annual average flow at the WWTP is 98,000 gallons per day; therefore splitting the flow equally does not present an operational issue.

An application for a temporary amendment to the existing NPDES permit No. PA0050393 was submitted at the request of DEP in order to coincide with the Chapter 94 reporting. This temporary amendment (Amendment No. 1) was received and took effect on August 1, 2013. This temporary amendment will reduce the plant's permitted discharge flow from 220,000 gpd to 130,000 gpd until the expansion is complete at which time the 220,000 gpd permitted discharge rate will be restored. The township has received the Water Quality Management Part 2 Permit for construction of the expansion and is ready to bid this project by the end of September 2013. Award of the contract and start of construction is expected in November 2013, with a one year construction time frame. It is therefore anticipated that the full 220,000 gpd of capacity will be restored by December 2014.

In the meantime, there is adequate capacity in the existing facility to allow approval of the 537 planning required for the Hickory Hill Area. The construction timeline for design, bidding, and construction of the public sewer system will coincide with the treatment plant construction, and full capacity should be available before any connections in the Hickory Hill area. However, there is adequate capacity in the existing facility to accept new connections if necessary.

APPENDICES

APPENDIX A

**WORCESTER TOWNSHIP
COMPREHENSIVE PLAN – EXCERPTS**

Chapter 1

Goals and Objectives

The goals and objectives identified in this chapter provide the basic framework for this update of Worcester’s 1995 Comprehensive Plan. These goals are intended to guide Township decision-making on rural preservation, growth, development, environmental protection, parkland, and infrastructure to the year 2020. This update is the result of a review of the 1995 Comprehensive Plan to determine any revisions that may be appropriate as a result of changing conditions. The Township recognizes that these goals and other parts of the plan should be reviewed again in the future to remain relevant.

These goals and objectives summarize the desires and vision of the Township and spell out the goals contained throughout this comprehensive plan. The goals are explained briefly and followed by a set of objectives and action steps to help the township achieve these goals.

Rural Preservation Goals

Maintain the Rural Character of the majority of the Township:

For social, economic, and environmental benefits that come from remaining a rural community near a metropolitan area.

Preserve Farmland:

To provide areas for growing produce and raising farm animals close to the greater Philadelphia market while contributing to the diversity of the township’s economic base and employment. Also, to preserve soils that are suitable for farming instead of paving them over, and to help protect environmentally sensitive areas.

Preserve Scenic Views and Roads:

To help define and preserve the township’s rural character, history, and property values.

Preserve Historic Sites and Landscapes:

To help people understand the township’s heritage as part of the history of the United States.

Rural Preservation Objectives

Achieve Rural Preservation Goals through the following objectives:

- Classify rural preservation areas for low density

- development and direct growth by concentrating higher density zoning in specific areas provided with sewers.
- Consider enacting a transfer of development rights ordinance to allow development rights to be transferred from rural and farm areas to growth areas.
- Consider establishing a regional planning effort in order to reduce development pressures in inappropriate areas.
- Encourage farmers to join the Township’s agricultural security district and sell their development rights to the County, State or conservation organizations.
- Encourage cluster development to help preserve critical natural and farmland resources and to move homes away from roads or behind ridgelines and woodlands to preserve views.
- Continue to use conservation subdivision techniques to ensure new residential development contributes positively to the character of the township and preserves rural resources.
- Encourage historic cluster development to preserve historic buildings within their context, instead of demolishing them or surrounding historic homes, farm buildings, or mills with suburban subdivision.
- Use landscaping, buffering, and tree preservation to screen and protect views of historic sites, to maintain, restore, or expand scenic roads and views, and to retain Worcester’s unique rural character.
- Consider new ordinance provisions to preserve scenic views and scenic roads.
- Enact village commercial zoning in commercial areas that still have a historic character and in areas where a village character is desired.
- Consider hamlet-style zoning provisions for appropriate rural areas.
- Enact natural resource protection ordinances and require tree protection, buffers between uses, and installation of street trees with new development.
- Encourage the County to continue acquiring land around Peter Wentz farmstead, so that this grouping of historic farm buildings continues to evoke Worcester as it existed 200 years ago.
- Encourage donations of land, development rights, and scenic easements to the Township or to land conservation groups.
- Preserve open space and farmland by purchasing development rights and/or easements and by facilitating preservation through land trusts, conservancies, or similar organizations.

Growth and Development Goals

Develop the Villages:

To reduce conflicts between agricultural uses and suburban development, to facilitate provision of infrastructure to concentrated development, to create a sense of place and community where shopping, recreation, institutions, and housing are close by, to maintain the rural character of the township, and to reduce development pressures on the rural and the preservation areas of the township. Almost all new development should occur in the villages and not in the rural or preservation areas.

Provide a Range of Housing Types and Densities:

To provide a balanced housing stock that meets the needs of residents with different incomes, housing preferences, and ages, and to meet its fair share of housing types and densities.

Encourage Housing that Fits the Township's Character:

To help preserve the township's history, preserve its aesthetic beauty and character, to protect property values, and to foster a sense of community.

Allow Neighborhood and Convenience Commercial Facilities:

To meet the shopping needs of the township's residents for food, and other items. To diminish the potential for increased traffic, environmental, aesthetic, and safety problems that often arise with extensive commercial development, no community or regional shopping facilities are proposed. Instead, residents will continue to be served within the trade areas of the eight community shopping centers, five town centers, and three regional malls outside the township.

Discourage Strip Commercial Uses:

To reduce potential problems that occur where relatively small commercial buildings are strung out along a road, each with its own access, and avoid: traffic congestion caused by numerous turning points and the need to drive, not walk, between neighboring or nearby businesses; the proliferation of competing signs; increased vehicular accidents and conflicts between pedestrians and cars; additional noise, pollution, light, and unsightliness, stretched out along roads and affecting a larger number of adjacent properties.

Permit a Limited Amount of Office and Industrial Development:

To provide local job opportunities for township residents while reducing the distance they have to drive to work and meet the Township's fair share obligations for these uses. To limit potential negative impacts on traffic congestion,

farmland, rural character, and the environment, the Township should not become a major industrial and office employment center, but will continue to rely on nearby major industrial and office employment centers.

Consider Regional Planning Options:

To better control land uses, to better coordinate development and preservation with one or more neighboring municipalities, and to provide new planning opportunities.

Growth and Development Objectives

Achieve Residential Growth and Development Goals through the following objectives:

- Direct more intense development into, and provide public sewers for, the township's four growth areas, as follows: high-density residential, medium-density residential, and commercial uses in Fairview Village and Center Point; high- and medium-density residential uses in Cold Spring; and only medium-density residential uses in Locust Corner.
- Allow a variety of housing types in the high-density areas to help create a village character and encourage uses and development that will maintain and enhance the historic character of existing village centers.
- Do not provide public sewers to rural preservation areas within the time frame of this plan, unless necessary for specific cluster projects.
- Locate high- and medium-density housing in the township's growth areas, with access to public sewers and water, major roads, and community facilities.
- Allow a range of housing types in the high-density areas and a range of single-family detached lot sizes in the medium-density areas.
- In the township's rural preservation areas: limit housing to the lowest permitted density; encourage location of new homes in less visible wooded areas at the edges of farm fields or below ridgelines and prominent hilltops, especially when using a cluster plan; preserve scenic and roadside views, especially for scenic roads; consider rural character for new roads; preserve as much viable agricultural and natural resource land as possible; provide for trail connections to the township's destinations such as parks, other trails, and villages.

Achieve Nonresidential Growth and Development Goals through the following objectives:

- Limit commercial zoning to be sufficient for neighborhood and convenience shopping needs.
- Minimize the amount of commercial zoning strung out

along roads, but encourage common driveways and interconnected parking lots for abutting commercial uses where permitted.

- Limit the amount of industrial and office zoning in the township and encourage small-scale offices and small “satellite” office locations.

Environmental Goals

Preserve Steep Slope Areas:

To prevent or diminish potential problems on sloped areas that are more susceptible to erosion and mass movement, including increased runoff and sedimentation from disturbed slopes. Also, to reduce potential for unnecessary public expenditures for flood control, water quality, and stormwater management, and to protect habitats for important species of plants and wildlife.

Preserve Stream Corridors and Floodplains:

To carry floodwaters, minimize erosion, protect water quality, provide plant and animal habitats, and provide recreation opportunities, including trail linkages.

Preserve Wetlands:

To purify water, retain stormwater runoff, limit erosion, reduce flood flows, provide food and shelter for a wide array of animals and plants, facilitate groundwater recharge, and to help maintain the base flows of area streams.

Preserve Woodlands:

To provide habitat for many animal and plant species, control erosion, clean the air, protect privacy, provide windbreaks, cool the air in the summer, reduce the impact of rainfall, muffle noise, absorb odors, and to improve the appearance of an area.

Preserve High-Priority Open Space Lands:

To protect natural resources, to preserve important agricultural lands and working farms, to conserve historic and heritage resources, to buffer important historic and natural resource areas, to protect scenic views and roads, and to provide high-quality passive recreation opportunities.

Environmental Objectives

Achieve Environmental Goals through the following objectives:

- Continue to enforce the Township’s steep slope ordinance to prohibit development on slopes that are 25% or more, minimize development or regrading on slopes of 15% to 25%, and continue to subtract steep slopes from the calculation of lot area.
- Establish a setback from stream corridors to protect the riparian corridor and woodlands along the stream.

- Continue to enforce the Township’s floodplain ordinance to prohibit development in the floodplain and consider a twenty-five foot building setback from the floodplain edge.
- Use cluster standards, conservation subdivision procedures, and/or the transfer of development rights to keep steep slopes, stream corridors, wetlands, and floodplains undeveloped, and to reduce the amount of woodlands removed from development sites.
- Require wetlands to be shown on subdivision and land development plans, prohibit development of wetlands, require a 25-foot setback from wetlands, and subtract wetlands from the township’s definition of lot area.
- Revise the Township’s landscaping ordinance, to more strongly encourage tree preservation and require a larger number of new trees to replace mature trees that are destroyed.
- Encourage the State to expand Evansburg State Park into wooded areas and valuable natural resource areas that adjoin the park.
- Acquire land or easements to provide additional park and recreation facilities.

Parkland and Recreation Goals

Provide Community Level Parks:

To provide all Township residents with a place to play a variety of sports.

Meet the Township’s Neighborhood Park Needs:

To provide parks close to people’s homes, where they are more accessible, especially for young children.

Provide a Trail Along Zacharias Creek:

To extend from the County’s Peter Wentz Farmstead to Evansburg State Park, with additional connections to the Township Building, through Heebner Park, and through passive parkland along Zacharias Creek, and to give township residents easy access to various trails in Evansburg State Park.

Develop a Network of Parks and Trails Throughout the Township:

To provide bicycle, hiking, jogging, equestrian and walking recreation opportunities for township residents by ensuring that trails of various types are constructed that: connect multiple destinations in the township; provide a variety of recreation experiences; connect to trail networks outside the township, and extend the county-wide, multi-municipal trail network.

Create Passive Parkland Sites:

To provide places for township residents to hike, picnic, fish, and enjoy nature in general.

Parkland and Recreation Objectives**Achieve Parkland and Recreation Goals through the following objectives:**

- Develop Nike Park for public park uses,
- Develop the former Army Reserve property for public park uses.
- Require developments to provide open space or pay a fee in lieu of such open space.
- Require developments to provide trails and public access easements when the trail network is proposed to traverse the development or a link to the network is desired, or to provide a public access easement and pay a fee in lieu of such trail construction to allow future construction of the trail.
- Provide neighborhood parks in the Cold Spring and Fairview Village growth areas.
- Acquire land or easements to provide additional park and recreation facilities.

Sewage Disposal and Water Supply Goals**Provide public sewers for intense land uses:**

To serve more intensive residential, and non-residential uses, for health reasons and serve less intense land uses by on-lot sewage facilities. Also, to provide public sewers to the suburban growth areas, for high-density residential, medium density residential, and commercial land uses; to reduce pressure for development of rural preservation areas by not extending sewers beyond the growth areas, unless necessary for a cluster development.

Provide Public Water Wherever Public Sewers Are Proposed:

To prevent depletion of groundwater where homes use wells for water and public sewers for wastewater. In order to help preserve areas outside growth areas, public water should not be extended beyond the growth boundaries or sewer areas. Where on-lot wells and on-lot sewage disposal are used, filtered wastewater can percolate back into the groundwater table and replenish water that was removed by the well.

Sewage Disposal and Water Supply Objectives**Achieve Sewage Disposal and Water Supply Goals through the following objectives:**

- Provide public sewers for the Fairview Village, Center Point, Locust Corner, and Cold Spring growth areas and encourage the North Penn Water Authority to provide public water to the Center Point, Locust Corner, and Cold Spring growth areas and the Pennsylvania American Water Company to the Fairview Village growth area.
- Prohibit extension of public sewers into rural preservation areas during the time frame of this plan.

Transportation Goals**Reduce traffic congestion and improve traffic safety:**

To reduce costs to residents in money and time and reduce additional air pollution, thereby enhancing the health and welfare of township residents.

Provide Transportation Alternatives:

To encourage alternatives to the automobile, such as walking, bicycling, or public transportation, and provide a means of traveling for those who cannot drive, such as children and some elderly.

Preserve Scenic Roads:

To help define and preserve the township's rural character, history, and property values.

Develop Rural Road Standards:

To help preserve the township's unique rural character, history, and property values.

Transportation Objectives**Achieve Transportation Goals through the following objectives:**

- Encourage context-sensitive solutions for transportation planning in cooperation with the State and County governments to improve the roads in Worcester to the Township's standards.
- Reserve rights-of-way needed for realigning roads and intersections where appropriate.
- Reserve road ultimate right-of-way widths that will be adequate for future road widening and/or other transportation improvements.

- Consider using various traffic-calming techniques on roads with inappropriate vehicle speeds.
- Discourage individual driveways to strip commercial uses and encourage abutting commercial uses to use common drive-ways and interconnected parking areas.
- Limit new development in the township to reduce new traffic generation.
- Require sidewalks and/or trails throughout the Center Point, Fairview Village, Locust Corner, and Cold Spring growth areas, so that people can walk to commercial, civic, and residential uses.
- Develop special road and streetscape standards unique to Worcester for its villages, hamlets, and rural roads.
- Require sidewalks and/or trails within developments built in other portions of the township.
- Support future plans to provide bus service to Worcester Township.
- Create a trail network to connect Township, County and State Park lands and trails.

Chapter 3

Sewage Disposal and Water Supply

Development cannot occur unless adequate sewage disposal and water supply facilities are available. For land use planning, it is important to determine where centralized facilities exist or are planned and where development must use individual on-lot facilities. Centralized facilities allow more intense development while individual on-lot facilities can accommodate only lower intensity development. Therefore, the Township can guide the intensities of development by carefully planning and limiting the locations where centralized sewer and water facilities are located or proposed. In Worcester Township, with only two exceptions, the centralized sewer systems that serve existing developments are all municipally owned and operated public systems. The two exceptions are privately owned and operated "package

plants" for two developments with more than 80 residential units. Private companies regulated by the Public Utilities Commission provide centralized water supplies. This chapter describes Worcester's existing and proposed centralized sewage and water facilities and provides recommendations for future purposes.

Public Sewage Facilities

Existing or planned public sewage facilities provide an incentive for growth when there is sufficient capacity for new development. Conversely, there is a disincentive for growth where public sewage facilities and capacity are not available. Therefore, the Township's sewage facilities and land use plans should be closely coordinated and sewer growth areas should be provided where the Township wants to direct growth of intensive land uses. These intensive land uses should be grouped together to provide economical sewage treatment service and to control suburban sprawl. This section identifies the existing public sewage facilities available in the Township and summarizes guidelines in the Township's official Sewage Facilities Plan.

Figure 3-1
Plant Capacities

Name	Upper Gwynedd	Upper Gwynedd/ Towamencin	Berwick Place	Valley Green
1992 EDU Flow by Worcester*	81,000 gallons per day	45,000 gallons per day	(built 1994)	62,000 gallons per day
1995 Average Annual Plant Capacity*	2,500,000 gallons per day	6,500,000 gallons per day	60,000 gallons per day	90,000 gallons per day
1995 EDU Flow by Worcester**	98,300 gallons per day	86,800 gallons per day	0 gallons per day	61,300 gallons per day
1995 Projected Total Future EDU Flow by Worcester**	241,700 gallons per day	120,960 gallons per day	150,000 gallons per day	220,000 gallons per day
1998 Average Annual Plant Capacity***	4,500,000 gallons per day	6,500,000 gallons per day	150,000 gallons per day	230,000 gallons per day
1998 EDU Flow by Worcester	98,000 gallons per day			74,000 gallons per day
2001 Measured Flow by Worcester****			52,000 gallons per day	
2002 EDU Flow by Worcester****			70,400 gallons per day	
2002 Projected Total Future EDU Flow by Worcester****			149,900 gallons per day	
2005 Average Annual Plant Capacity*****	4,500,000 gallons per day	6,500,000 gallons per day	150,000 gallons per day	220,000 gallons per day
2005 EDU Flow by Worcester*****	173,100 gallons per day	92,400 gallons per day	80,000 gallons per day	100,000 gallons per day

* From 1995 Worcester Comprehensive Plan

** From 1995 Worcester Township 537 Plan

*** From 1998 Montgomery County Planning Commission Sewage Treatment Facilities Status Report

**** From 2002 Worcester Township 537 Plan Update

***** From 2005 Montgomery County Planning Commission Sewage Treatment Facilities Status Report

Figure 3-2
Existing Sewage Facilities

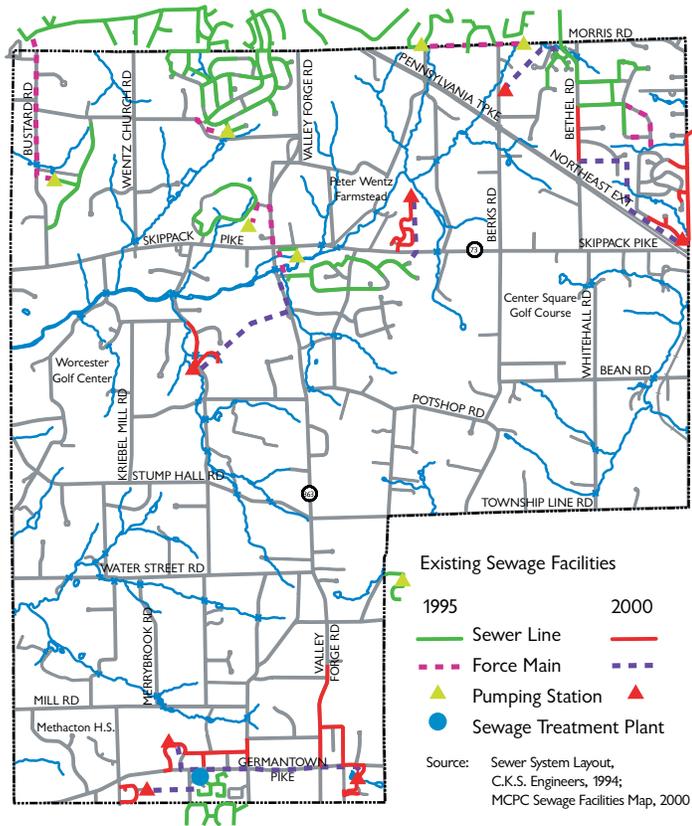
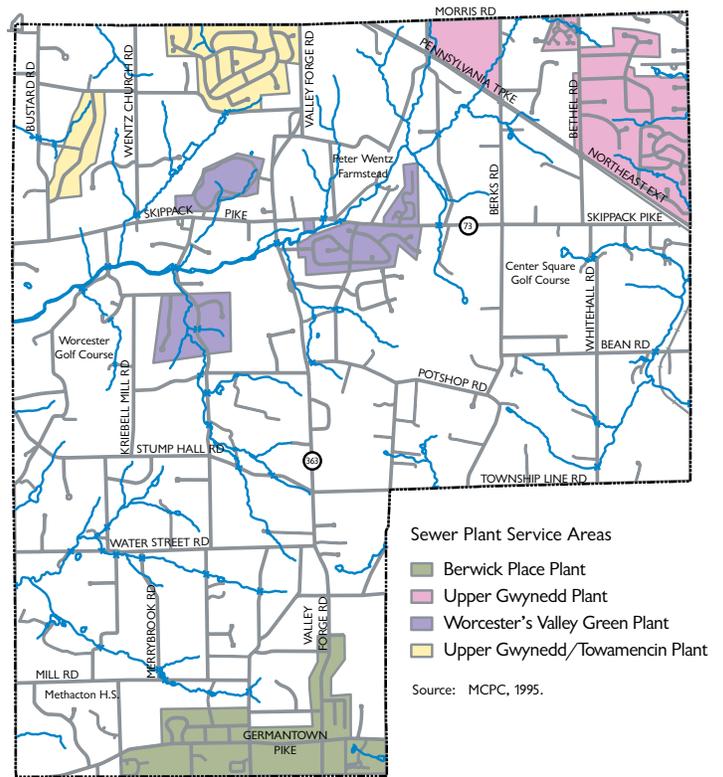


Figure 3-3
Sewer Plant Service Areas, 1995



Existing Sewage Facilities

Worcester Township is currently served by four municipally owned and operated sewage treatment plants: the Upper Gwynedd and the Upper Gwynedd/Towamencin plants, and Worcester Township's Valley Green and Berwick Place plants. Plant capacities are shown in the table in Figure 3 - 1. Figure 3 - 2 shows the location of existing sewer lines, pumping stations, and treatment plants. Figure 3 - 3 shows areas that served by public sewers in 1995.

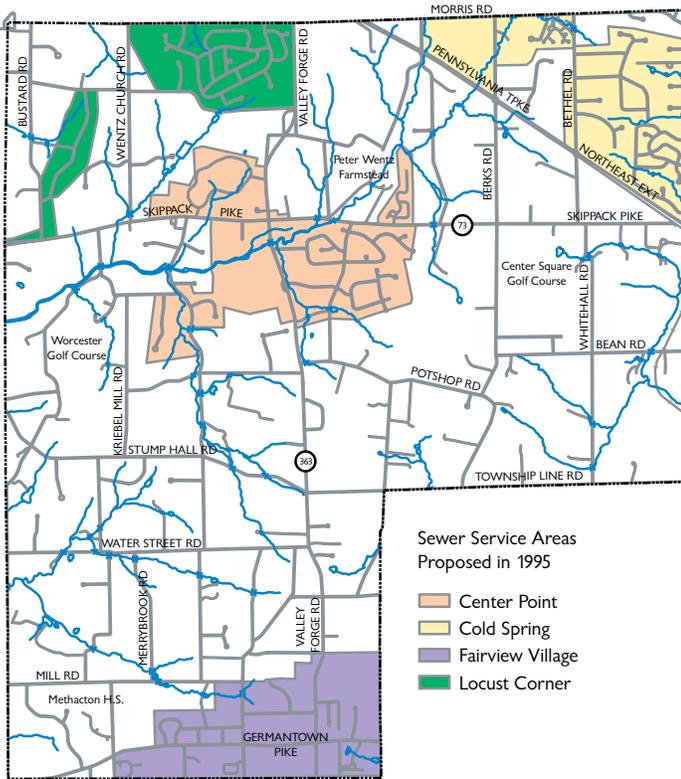
Sewage Facilities Planning

In 1966, the Pennsylvania Legislature passed Act 537, the Sewage Facilities Act. This required local governments to provide for sewage needs within their borders and required these governments to prepare sewage facilities plans and amend them as needed. The following list summarizes additional relevant sewer planning for Worcester Township:

- 1974: Act 537 was amended by Act 208, which provided additional standards for the administration of on-site sewage systems and for revising local sewage facilities plans in a coordinated manner.

- 1972: Worcester and all but two Montgomery County municipalities adopted a countywide sewage facilities plan.
- 1976: The Township prepared a revision to its part of the county base plan.
- 1985: The Township revised the plan for the Center Point area only.
- 1995: To reflect the land use plan in the 1995 Comprehensive Plan, the Township prepared an Act 537 plan update. This update was used as a guide for the sewer growth plan described in the 1995 Comprehensive Plan.
- 2002: The Township revised the plan for the Fairview Village area.
- 2006: The Township revised the plan for the Hollow Road/Zacharias Creek area.

Figure 3-4
Proposed Sewer Service Areas in 1995



1995 Sewer Growth Plan

Figure 3 - 4 shows the parts of the Township that were proposed as sewer growth areas in the 1995 Comprehensive Plan. These growth areas include proposed medium-density and high-density residential, commercial, and village commercial land uses. Unserved low-density areas near Center Point and Cedars were also included, since these areas were already approved for sewers. This sewer growth plan was intended to serve the Township’s sewage needs until the year 2020, although the Township anticipated a need to review the sewer growth plan sooner. The 1995 Comprehensive Plan anticipated these sewer service areas would accommodate nearly all of the Township’s expected residential growth until 2020 (1,800 units).

The areas outside the sewer growth areas were designated rural preservation/low-density residential on the 1995 Land Use Plan, and comprise the majority of the township. The 1995 Plan anticipated growth in these areas to occur slowly and at very low densities to protect rural character and limit suburban sprawl. Public sewers should extend into these areas only to serve low-density cluster development (density of one dwelling unit per two acres with over 70% open space). Figure 3 - 4 also shows areas where possible cluster development might be served by public sewers.

Public Sewer System Capacities

Figure 3 - 5 shows the 1995 numbers for sewage generated by existing development, sewage capacity set aside, and sewage projected to be generated by new development on vacant land.

Figure 3-5
Projected Sewage Flows in Gallons Per Day (1995 Comprehensive Plan)

	Center Point Sewer Service Area	Fairview Village Sewer Service Area	Cold Spring Sewer Service Area	Locust Corner Sewer Service Area
1992 Sewage Flows plus Reserved Sewage Flows	90,000	89,750	98,300	86,800
Additional Sewage Flows from Residential Buildout of Vacant Tracts	91,400	46,250	143,400	34,160
Additional Sewage Flows from Build-out on Non-Residential Vacant Tracts	12,000	14,000	0	0
Possible Sewage Flows from Cluster Development Outside of Growth Area	26,000	0	3,900	43,680
Total Future Sewage Flows	220,000	150,000	245,600	164,640
Existing Sewage Capacity	90,000	60,000	Net Set	100,000

- Valley Greene Plant: To accommodate projected growth in the Center Point area, this plant was expanded to 230,000 gallons per day of sewer capacity. Four pumping stations serve the area.
- Berwick Place Plant: At 150,000 gallons per day, the capacity of the plant is projected to be adequate to meet the future sewage needs of the Fairview Village area. Three pumping stations serve the area.
- Upper Gwynedd Plant: This plant's expanded capacity can easily accommodate the Cold Spring area's projected 230,000 gallons per day. Four pumping stations in Worcester serve the area.
- Upper Gwynedd/Towamencin Plant: This plant has the capacity to handle the 121,000 gallons per day projected in the 1995 Plan for the Locust Corner growth area. If future cluster development requires additional capacity, the Township will have to work with the Upper Gwynedd/Towamencin sewer authority to assure that capacity. Two pumping stations in Worcester serve the area.

Overall, the proposed sewer growth areas provide room for the township's growth while limiting this growth to specific growth areas. The Township's 1995 Act 537 plan recommended how sewers will serve these areas.

Centralized Water Facilities

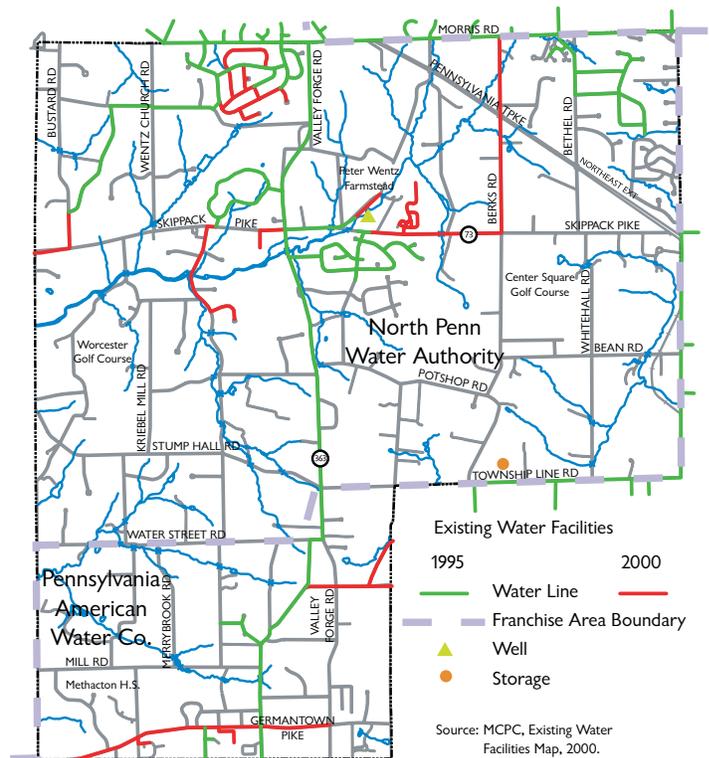
Water service is another important determinant of the amount and location of growth in a township. Centralized water supply is necessary for higher-density residential growth, which also needs public sewers. Therefore, the water facilities plan should be closely coordinated with the sewage and land use plans. This section examines the township's existing public water facilities and proposes a water supply plan.

Existing Water Suppliers

Most of Worcester is within the franchise area of the North Penn Water Authority. The rest of the township falls within the franchise area of the Pennsylvania American Water Company, except for the Center Point Farms development near Center Point, which is a service area of the Superior Water Company. Within these franchise areas, only a small portion of the township is served by public water. Figure 3 - 6 shows the franchise areas and the extent of water lines.

The North Penn Water Authority draws water from two general sources: groundwater via wells located throughout its franchise area and surface water that is pumped from the Delaware River through the Point Pleasant pumping station. 1998 data indicated the North Penn Water Authority was permitted to withdraw nearly 20 million gallons per day but

Figure 3-6
Existing Water Facilities



its average daily withdrawal was less than 10 million gallons per day. Therefore, it appears the Authority will have capacity to serve Worcester's water needs for many years, although its excess capacity will be distributed throughout the eleven communities that comprise its service area.

The Pennsylvania American Water Company uses two wells and the Schuylkill River for its primary water supply. In 1998, the company was permitted to withdraw and treat 18 million gallons per day from the river, but actually used only 8.8 million gallons per day of this capacity. Its two wells are permitted for an additional 150,000 gallons per day. This leaves the company with a large excess capacity, some of which can be used to serve new customers within its service area in Worcester, and the remainder throughout the ten communities that comprise its service area.

Water Plan

Although the State does not require water planning by local governments, in 1979 the Montgomery County Planning Commission published a Water Service Plan that proposed water service growth areas and outlined criteria for identifying these areas.

These criteria include population estimates, proposed land use and growth areas, sewage facility growth areas,

proximity to existing water lines, physical constraints, location of problem water areas, and water supply. The county Water Service Plan stresses that water plans should be correlated closely with sewage facility plans and that residential areas zoned for two or more acre lots are rarely justified for public water service.

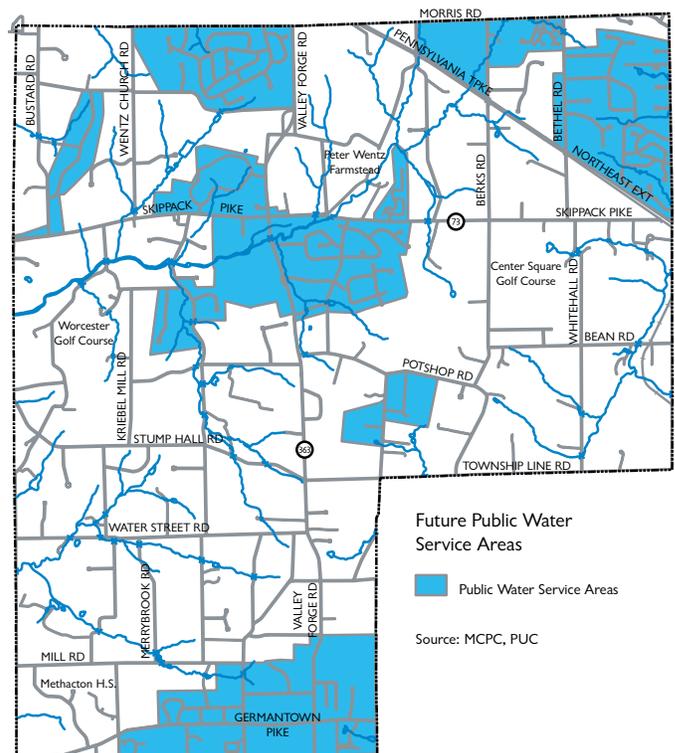
When these criteria are applied to Worcester, the proposed water service area closely corresponds with the proposed sewage facilities areas, except that the industrial area on Potshop Road, which is near water lines, has been included in the water service area while a sewered development on Hollow Road is not proposed for water service. The Township's proposed water service area is shown in Figure 3 - 7 and includes all non-residential areas and residential areas with more than one dwelling unit per acre. The water service areas support growth near Fairview Village, Center Point, Locust Corner, and Cold Spring.

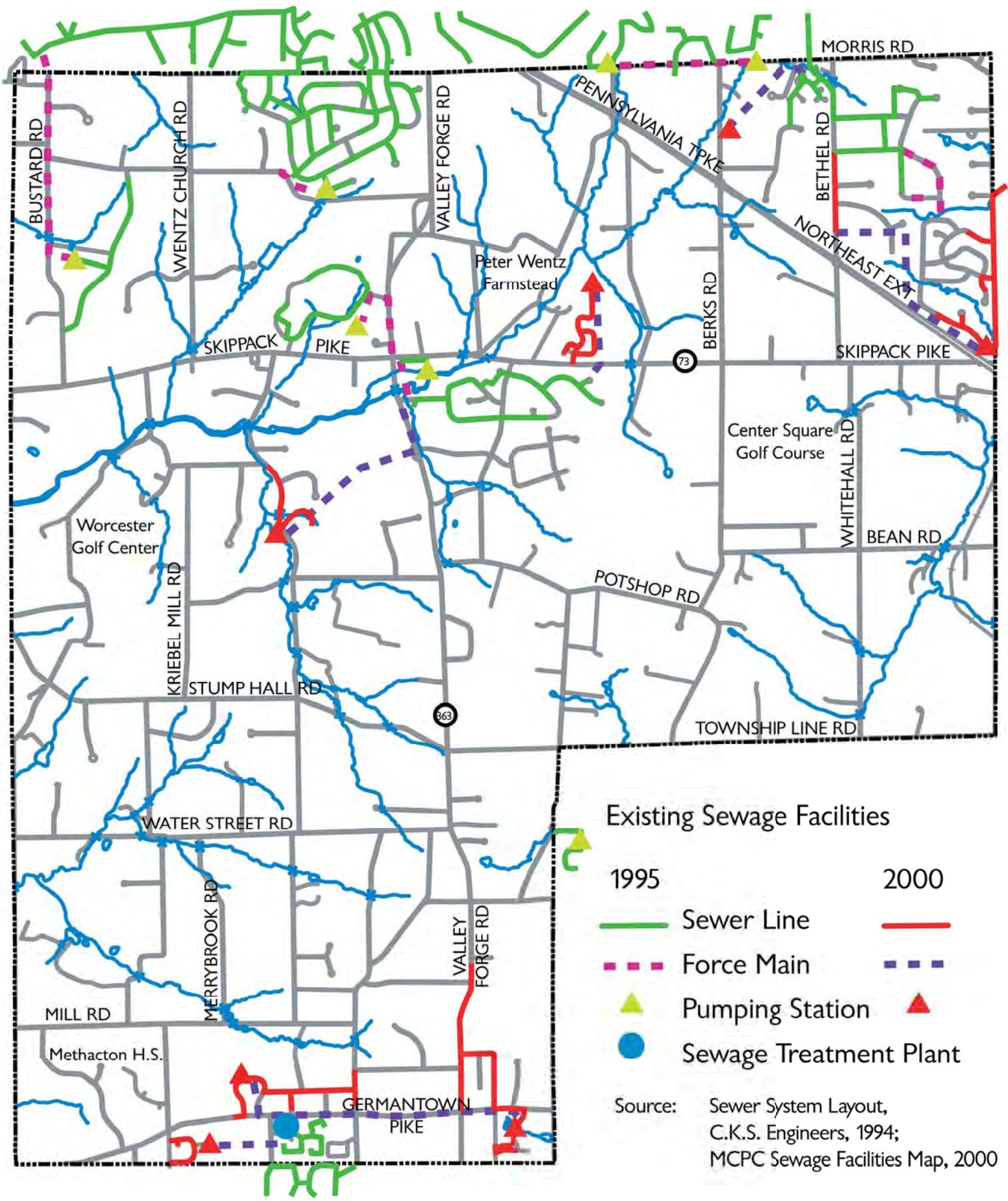
In addition, secondary water service areas are shown for potential low-density cluster development sites. If public sewers are provided for these sites, public water supply should also be provided. Cluster developments can also be served by on-site centralized water supply and sewage disposal owned and operated by a homeowners association or by the Township. The Future Land Use chapter explains how low-density cluster principles can be used to preserve major elements of rural character throughout the township while allowing reasonable amounts of new residential development.

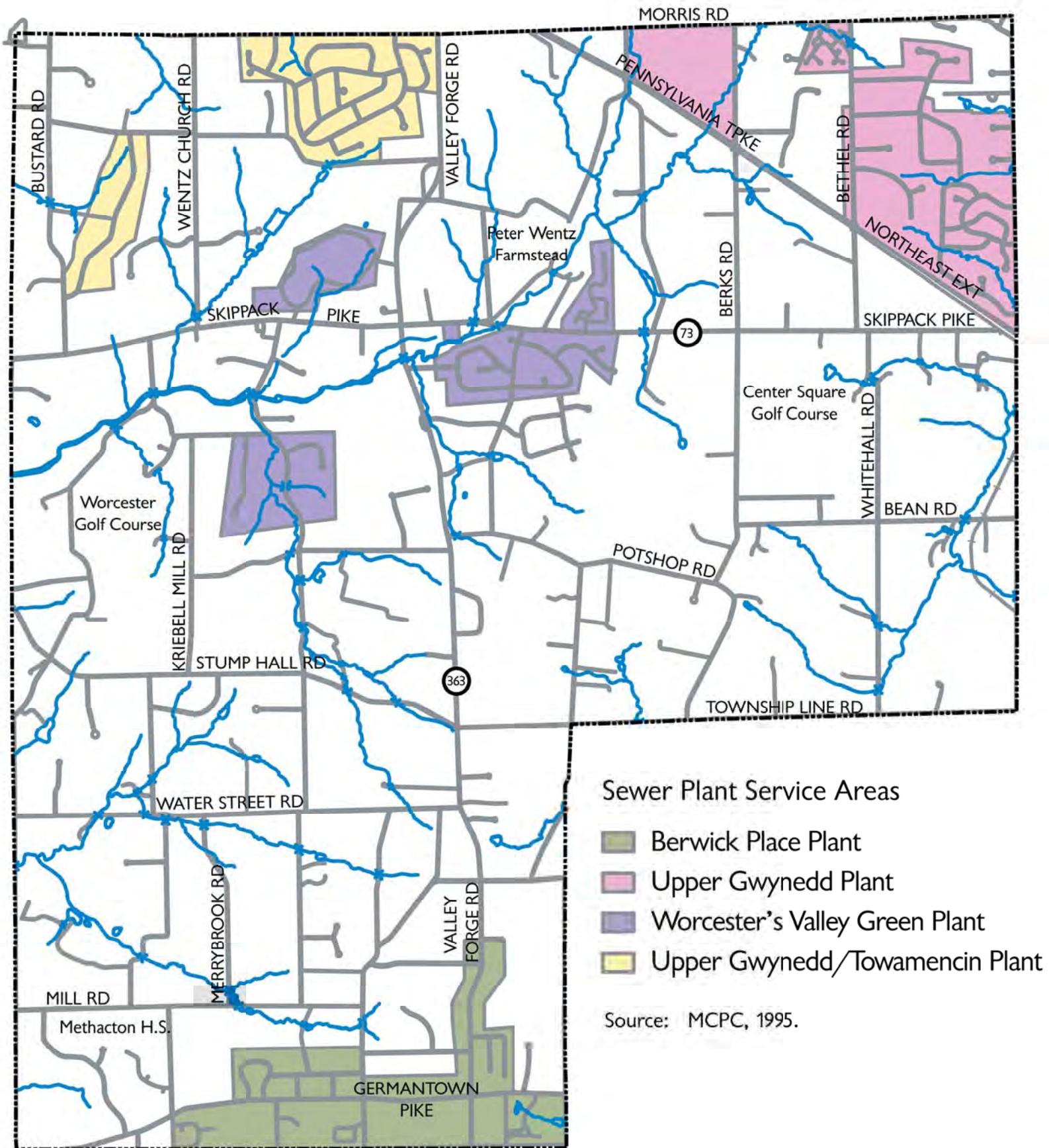
As shown in Figure 3 - 7, much of the Township is not proposed to be served by public water lines. Instead, these areas of the Township will continue to be served by private, on-lot wells that depend on groundwater sources.

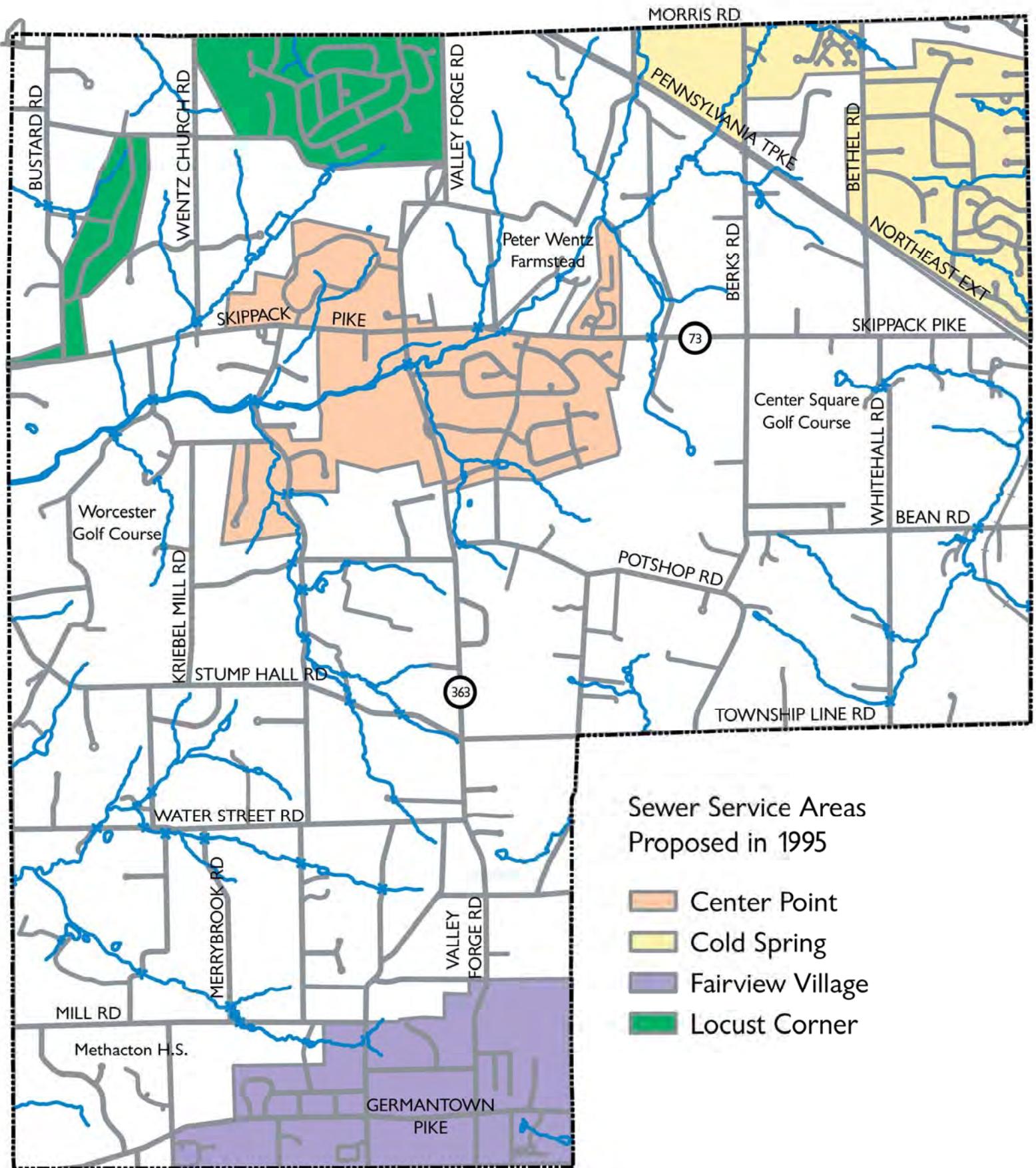
To help protect the groundwater supply for wells, homeowners and businesses should conserve water by changing water-use habits and using water saving devices. Contamination can be avoided by properly storing and handling hazardous materials, by limiting the amount of chemicals used outdoors, and by properly installing, using, and maintaining private on-lot sewage systems.

Figure 3-7
Future Public Water Service Areas









APPENDIX B

**WORCESTER TOWNSHIP
ACT 537 PLAN - EXCERPTS**

TOWNSHIP OF WORCESTER
MONTGOMERY COUNTY, PA

ACT 537

SEWAGE FACILITIES PLAN
UPDATE

MARCH 1996
FINAL DEP APPROVAL: FEBRUARY 12, 1997

REF.: #7200-89

CKS ENGINEERS, INC.
88 SOUTH MAIN STREET
DOYLESTOWN, PA 18901

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PLAN SUMMARY

INTRODUCTION.

This study is an update to the Township of Worcester's Sewage Facilities Management Plan (Act 537). This plan update has been prepared in accordance with the Sewage Facilities Planning Guidelines as most recently published by the Pennsylvania Department of Environmental Resources.

This study is divided into numerous sections for evaluation. Section I provides a general introduction and overview of the Act 537 process and previous sewage planning in Worcester Township. Section II includes a detailed description of the physical and environmental setting of the Township. This covers the geology, soils, topography and environmentally sensitive areas. Section III next discusses population and land use projection. Projections and development trends are provided, consistent with the Township Land Use Plan and the Comprehensive Plan. Section IV covers the existing sewage facilities in the Township, and the potential for public sewer service by adjoining municipalities. A detailed discussion and evaluation of existing sewage treatment facilities in the Township are provided. Section V projects future wastewater flows, and provides an evaluation of sewer alternatives in the Township to handle the flow needs of each designated sewer service area. This section evaluates and selects the best alternative for each area. Section VI reviews the existing use of on-lot sewer systems in the Township and evaluates the elimination of problem areas. This section also looks at the future use of on-lot systems in the Township and the development of an on-lot sewage management plan to monitor and control on-lot systems. Section VII provides cost estimates for all selected alternatives and an estimate of operational costs, and sewer tapping fees. And finally, Section VIII looks at the plan implementation and schedule.

PLAN SUMMARY.

The Township of Worcester Sewage Facilities Management Plan Update addresses sewage management needs throughout the Township. For this study, four (4) sewer service areas have been designated throughout the Township in accordance with a number of considerations, such as drainage areas, existing sewage facilities and existing development proposals. Major issues and/or problems addressed by the plan include the following:

1. Correction of on-lot sewage disposal problems.
2. Extension of public sewer service to higher density development areas.
3. Preservation of open space.
4. Protection of environmentally sensitive areas.

In order to address the issues and problems identified by the study, the following alternatives are selected for each sewer service area.

- Fairview Village Service Area - The selected alternative for this area includes the expansion of the Berwick Place Treatment Plant from its current permitted capacity of 40,500 gpd to 150,000 gpd. In addition, two gravity interceptors will be constructed along Germantown Pike, and two wastewater pumping stations will be constructed in conjunction with proposed development in this area.
- Center Point Village Service Area - The selected alternative for this area includes the expansion of the Valley Green Treatment Plant from its current permitted capacity of 90,000 gpd to 220,000 gpd. In addition, two wastewater pumping stations will be required in conjunction with the proposed development in this service area.
- Upper Gwynedd Service Area - The selected alternative for this area includes the continued conveyance of sewage to Upper Gwynedd Township for treatment at their treatment plant. The service area will be expanded, and a total capacity of 241,700 gpd would be required at the treatment facility. A new gravity interceptor along Bethel Road, as well as a pumping station and force main, would be required to serve the sewer needs of this area. A new Intermunicipal Sewer Service Agreement will be required between Upper Gwynedd and Worcester in conjunction with this alternative.
- Upper Gwynedd/Towamencin Service Area - The selected alternative for this area includes the continued conveyance of sewage to Towamencin Township for eventual treatment at the Upper Gwynedd/Towamencin Authority Treatment Plant. The service area will be expanded, and a total capacity of 120,960 gpd would be required at the treatment facility. A new pumping station and force main would be constructed in conjunction with a projected new development in the area. A new Intermunicipal Sewer Service Agreement will be required between Towamencin Township, the Upper Gwynedd/Towamencin Authority and Worcester in conjunction with this alternative.

An on-lot sewage management program will be developed and implemented in these areas of the Township where public sewer service will not be provided.

The cost of implementation of the selected alternatives has been developed and is presented in Tables 7-1 through 7-4 in Section VII of the report.

discussed further in the next section. Table 3-2 identifies all development/subdivision activity in the Township and lists the status, size and projected population. These developments are depicted on Figure 3-1.

3.3 LAND USE PLAN.

In addition to the proposed and current development, the Township has considered the remaining areas of the Township for land use and growth potential. The Township retained the MCPC to prepare a new Land Use Plan for the Township. This plan was developed in conjunction with the Township Planning Commission and was completed in 1993. This plan evaluated the entire Township to identify the past land use trends in the Township and determine the preferred future land use patterns based on proper planning practices and Township goals for orderly development. Figure 3-2 is entitled "Future Land Use Plan," and is taken directly from the completed 1993 Land Use Plan. This figure shows the desired areas of growth that will require consideration for public sewers or other sewer alternatives acceptable for higher densities. Clearly, the location of these areas of higher density was logical, in that they are accessible to public sewer systems already in place, or anticipated in the near future. The Land Use Plan will be considered in this plan and in determining alternatives and capacity needs.

The Township's Zoning Map will require changes to conform to the new Land Use Plan. The current Zoning Map was last revised in 1985. The Township is working with the MCPC to update the map to conform to the Land Use Plan. The Sewage Plan Update is based on the recommendations in the Land Use Plan and on assumptions that the Zoning Map will be revised accordingly.

In addition to the Land Use Plan, the Township has also adopted a new Township Comprehensive Plan, recently completed by the MCPC. The Comprehensive Plan reflects the planning goals of the Township, and the overall development of all aspects of the Township to reflect these planning goals. This 537 Plan Update has been coordinated with the Comprehensive Plan and reflects the recommendations of that plan relative to the sewage facilities needs of the Township.

SECTION IV

EXISTING PUBLIC SEWAGE FACILITIES

The existing public sewage facilities within Worcester Township are shown on Figure 4-1. Public sewage facilities are defined to include all collection systems serving more than one individual property owner and all sewage treatment facilities to the surface or surface waters. Individual, on-lot sewage disposal systems discharging below ground are considered private sewage disposal systems.

4.1 WORCESTER TOWNSHIP.

Within Worcester Township at the present time, the public sewage facilities include three (3) package-type wastewater treatment plants and extensions of the Lower Gwynedd Township and Towamencin Township sanitary sewer systems to serve recent development within Worcester.

The first of the sewage treatment facilities within Worcester Township is located on the Methacton High School property and solely serves the high school complex. This treatment facility utilizes an extended aeration type of treatment process with intermittent sand filtration and discharges its effluent to a tributary stream of Skippack Creek. The treatment plant has a capacity for 40,000 gallons per day (gpd), with a present average daily loading of approximately 30,000 gpd over an eight-hour period. At the present time, the facility is known to be adequate in capacity.

The second sewage treatment facility is the Valley Green Treatment Plant. This is a package-type treatment plant with both secondary and tertiary treatment units. The plant, which was constructed in 1979 and began operation in July 1980, was recently expanded to handle a hydraulic capacity of 90,000 gpd.

Plant operation is the responsibility of the Township, which assumed this responsibility in 1986 from the former owner, Clover Construction Company. All operational personnel is provided by a contract operations consultant, who is directly responsible to the Township Board of Supervisors.

The plant's liquid treatment process consists of the following:

- Influent Pumping Station
- Comminution with Bypass Bar Screens
- Extended Aeration-type Activated Sludge
- Secondary Clarification
- Chemical Flocculation Chamber
- Settling Chamber
- Gravity Filtration
- Disinfection

Sludge produced by this facility is hauled off-site by a private contractor.

The Valley Green facility serves the Center Point area of the Township. This includes the Valley Green and Worcester Downs developments, the Meadowood Life Care facility, the Center Point Village Shopping Center and the adjacent commercial tracts. In addition, this facility has reserve capacity designated for the existing Worcester Acres subdivision and the planned subdivision called Fawn Creek. All of the treatment capacity of this facility (90,000 gpd) is either being utilized or has been allocated for future use.

The third sewage treatment facility is the Berwick Place Treatment Plant. This is an extended aeration facility recently constructed in conjunction with the Berwick Place town house development. The plant was placed in service in April of 1994, and was dedicated to the Township of Worcester. Plant operations are also performed by a contract operations consultant who is responsible to the Township.

The plant's liquid treatment process consists of the following:

- Influent Pumping Station
- Comminution with Bypass Bar Screens
- Extended Aeration-type Activated Sludge
with Oxidic/Anoxic Zones
- Secondary Clarification
- Chemical Flocculation Chamber
- Settling Chamber
- Gravity Filtration
- Disinfection

Sludge produced by this facility is hauled off-site by a private contractor.

The Berwick Place plant will initially serve the 154 town houses proposed for Berwick Place (40,500 gpd). The plant was constructed as a 60,000 gpd facility, but was permitted initially for 40,500 gpd. The layout of the plant will allow the eventual expansion of this facility to 150,000 gpd. The sizing was determined by a study performed in conjunction with the Berwick Place project for the DER. The plant site was approved by the DER as the best site for the servicing of the entire Fairview Village area in the future, as the area develops.

The various municipalities which border the Township also need to be evaluated for their potential for public sewers. Two townships (Towamencin and Upper Gwynedd) already have service extended into the Township. A discussion of the adjacent municipalities follows:

SECTION V

PLANNED PUBLIC SEWAGE FACILITIES AREAS

5.1 INTRODUCTION.

This section will discuss those areas of the Township which are the most feasible for public sewers. In all areas, public sewers already exist, to a certain degree, and extension of sewers to serve adjacent areas is a practical solution. All areas already have planning approval for public sewers, and all planning of the areas has occurred with future public sewer service in mind. In the Fairview Village area, for instance, DER has already conceptually approved the Berwick STP as a sub-regional facility with expansion capability to serve the entire Fairview Village area. This section will further define these areas, and provide a more detailed look at the potential growth, sewage flows and sewage alternatives for each area. Figure 5-1 shows the planned areas discussed in this section. Refer to this Figure for locating the different service areas.

5.2 METHOD OF PROJECTING WASTEWATER FLOWS.

The planning of public sewage facilities must be based on existing flows and the projected future wastewater flows based on reasonable flow factors for the size and types of developments proposed. For the purposes of this 537 Plan update, existing development flows are based on either the actual flows determined from historical information, or from previously approved Planning Module submissions. Planning flow values, previously approved, were maintained in order to avoid confusion and possible conflicts with allocated and approved capacity amounts.

For all new developments, and projected future growth, sewage flows for Worcester Township are based on a sewage flow factor of 300 gpd/sfu, and 250 gpd/mfu. In addition, commercial flows were based on a flow factor of 0.10 gallons/square foot of projected building area. For the area tributary to Upper Gwynedd/Towamencin, however, a flow factor of 280 gallons/EDU was used to conform to the Upper Gwynedd/Towamencin Authority. The number of units in each development was based on actual field count, or the number of units proposed in currently planned projects. The projections for those presently undeveloped and unplanned areas are based on the maximum density allowed by the Township's current Zoning Ordinance. The higher density areas identified by the Township Planning Commission were taken from the Land Use Plan prepared for the Township by the County.

5.3 EVALUATION OF ALTERNATIVES FOR SEWAGE TREATMENT.

Four (4) service areas will be evaluated for expansion of public sewers. These areas are as follows:

- Fairview Village Service Area
- Center Point Village Service Area
- Upper Gwynedd Service Area
- Upper Gwynedd/Towamencin Service Area

5.3.1 Areas with Existing Wastewater Treatment Plants.

The Fairview Village and Center Point Village Service Areas are currently served by sanitary sewers and wastewater treatment plants owned and operated by Worcester Township. The existing treatment capacity of each treatment plant is not adequate to handle the projected sewage flow needs of these areas. Therefore, the following alternatives were evaluated in conjunction with each area.

- Expand the existing wastewater treatment plant to provide additional treatment capacity, continue to use stream discharge of effluent.
- Expand the existing wastewater treatment plant and utilize spray irrigation for disposal of treated effluent from wastewater treatment plant.
- Convey wastewater to adjacent municipalities for wastewater disposal.
- Utilize individual on-site or community on-site treatment alternatives for wastewater treatment.
- "Do Nothing" to plan for additional treatment capacity.

Expanding the existing wastewater treatment plants with a continued stream discharge is a viable alternative in both service areas. There is adequate existing space at each treatment plant site for expansion, and the sites are located in areas suited for this use. The existing sewer system can be expanded logically to serve areas of growth, and the sewers are adequate in size to handle additional sewage flows. A revised permit and a new stream allocation are required for the plant expansions. This alternative allows the Township to continue operation of existing facilities with control over capacity allocations, treatment costs and sewage rates.

In addition to plant expansions with stream discharge, the option of spray irrigation was also evaluated. This alternative would require converting and expanding the existing advanced treatment plants to secondary treatment facilities with spray irrigation of the final effluent. The limiting factors for this alternative relate to the availability of land with soils suitable for this type of effluent disposal. Using the standard acceptable factor of 3,000 gallons per acre for land requirement would generate the need for 72 acres of "open space" suitable for spray for the Valley Green plant and 50 acres for the Berwick Place plant. The Township does not currently own enough land to satisfy this need. The open space to be included in the pending development projects is also not sufficient in size to meet the need. The Township would, therefore, have to consider purchasing the land necessary for this alternative.

Most of the surrounding open land is currently being used as agricultural farms, with the crops being used as human food source. These parcels would, therefore, be unsuitable for spray irrigation. In addition, most soils in the immediate area, and throughout the Township, are not conducive to sewage treatment. Most soils are classified as having "severe" limitations for sewage disposal due to "slow to moderately slow" percolation and a seasonally high water table. These factors would limit the potential for obtaining an adequate amount of land with proper soils.

Therefore, in light of the lack of an adequate amount of land and the poor soil compatibility, this alternative should not be considered further for evaluation.

Another alternative considered in conjunction with these two service areas is the conveyance of wastewater flows to adjacent municipalities for treatment. In the Fairview Village area, Lower Providence Township was contacted in conjunction with the Berwick Place project, and they indicated that they had no sewage capacity available for Worcester Township and no interest in providing sewer service. The Berwick Place Treatment Plant was constructed as a result and, therefore, Lower Providence Township is not considered a viable alternative for sewage treatment.

In the Center Point area, consideration was seriously given to conveying excess sewage flows to Upper Gwynedd/Towamencin Authority. The Authority expressed interest in providing additional capacity, as the Authority already serves the Milestone and Hollis Estates subdivisions in the Township. However, after an economic evaluation of the costs involved for the construction of the necessary pumping station and force main, plus the cost of actual capacity, this alternative

5.5 CENTER POINT VILLAGE SERVICE AREA.

The Center Point Village Service Area will be served by the existing Valley Green Wastewater Treatment Plant. This facility has an existing permitted capacity of 90,000 gpd, and is currently operating a flow of approximately 61,000 gpd, based on the 1994 Chapter 94 Report. The remaining excess capacity of approximately 29,000 gpd is currently reserved for two projects. The Worcester Acres is an existing development with on-lot septic systems, and Fawn Creek which is a proposed 42-lot subdivision with planning approval for capacity in the WTP.

In addition to the existing and approved flows to the WTP, there is a multi-family development proposed along Skippack Pike which will connect to the treatment plant. Center Point Farms will include 174 town house units and has requested planning approval for connection to the Valley Green Treatment Plant. This will require an expansion of the facility. In addition to Center Point Farms, numerous other projects are proposed in this service area, and the Township's Land Use Plan has designated several areas for rezoning to higher densities. Based on the anticipated growth in the service area, an expansion of the WTP will be necessary. Table 5-2 sets forth the existing and projected development in this service area and projects the associated sewage flows. Figure 5-1 shows this service area and the associated development and properties included in this area. Based on the flow projections set forth in Table 5-2, a total treatment plant capacity of 220,000 gpd is necessary to handle the designated service area. Therefore, the treatment plant must be expanded by 130,000 gpd and the permit revised from its current capacity limitation of 90,000 gpd to 220,000 gpd.

5.6 UPPER GWYNEDD SERVICE AREA.

This section will evaluate the existing and projected development and the associated public sewage needs in the northeastern corner of Worcester Township. The area under study is bounded by Skippack Pike and Morris road to the south and north, and North Wales road and Schultz Road to the east and west.

The Upper Gwynedd Service Area currently has four developments being served by public sewers. These are Wister Mews, Bethel Grant, Bethel Terrace and Hillcrest Meadows. The Ford facility is also currently served by Upper Gwynedd Township. All of these developments discharge, by gravity, to the Upper Gwynedd Township sewer system for treatment at the Upper Gwynedd Wastewater Treatment Plant. Over the past several years, no additional connections have been allowed in Worcester Township due to a lack of sewage capacity at the treatment plant. However, a recently completed expansion has provided for the potential to serve new areas in Worcester Township.

The existing and future wastewater flows projected for this study area are based on a sewage flow factor of 300 gpd/sfu and 250 gpd/mfu, as set forth in Section 5.2. The number of units in each development was based on actual field count, or the number of

units proposed in currently planned projects. The projections for those presently undeveloped and unplanned areas are based on the maximum density allowed by the Township's current Zoning Ordinance. The higher density areas identified by the Montgomery County Planning Commission were taken from the proposed Land Use Plan prepared for the Township by the County.

TABLE 5-2 CENTER POINT VILLAGE SERVICE AREA PROJECTED SEWAGE FLOWS		
EXISTING/PROJECTED DEVELOPMENTS WITH RESERVE CAPACITY	NO. OF UNITS	TOTAL PROJECTED FLOW (gpd)
Valley Green/Worcester Downs	111	24,420
Meadowood Community	256	35,000
Center Point Commercial Area	-----	1,880
Worcester Acres	56	14,000
Fawn Creek Subdivision	42	14,700
SUBTOTAL		90,000
PROJECTED FLOWS - TRIBUTARY AREAS		
Center Point Farms Development	174	43,500
Meadowood Expansion	14	5,000
Worcester Elementary School	-----	10,500
Land Use Plan - Medium Density Areas		
TMP 28/20	43	12,900
TMP 29/30	15	4,500
TMP 14/34	9	2,700
TMP 14/24	41	12,300
AGR Zoning - Fill Areas	89	26,600
Commercial Zoning - Fill Areas	120,000 S.F. of Bldg.	12,000
SUBTOTAL		130,000
TOTAL FLOWS		220,000

SECTION VI

INDIVIDUAL, ON-LOT SEWAGE DISPOSAL SYSTEMS

6.1 EXISTING USE OF ON-LOT SYSTEMS.

With the exception of the existing public sewage facilities defined in Section IV, all sewage facilities within Worcester Township are individual, on-lot sewage disposal systems. These facilities are known to include holding tanks, septic tank and tile field and elevated sand mound systems of various ages and design, which include: aerobic treatment tanks, and alternate subsurface absorption systems.

Holding tanks are currently in use for the following establishments:

- o The Worcester Tennis Club located along Valley Forge Road south of Germantown Pike.
- o The Greco's Luncheonette located along Germantown Pike east of Valley Forge Road.
- o The Orchard View Trailer Park located along Germantown Pike at Adair Drive.
- o The former Sunoco Station within Fairview Village located at the intersection of Valley Forge Road and Germantown Pike.
- o The newest Bell Telephone Building located along Valley Forge Road south of Skippack Pike.
- o The Fairview Village Shopping Center near the Germantown Pike/Valley Forge Road intersection.
- o Cedars Country Store

As holding tanks are considered to be a regulatory problem by the DER, they are considered only as a last resort or to be used as an interim measure for periods of generally less than 18 months. Although the use of holding tanks is also noted to be more expensive than conventional sewage disposal systems, they can be managed as an acceptable sewage disposal system and have, on the large part, functioned acceptably within Worcester Township.

As noted previously, the remainder of the individual on-lot sewage disposal systems within Worcester Township are septic tank, tile field and elevated sand mound systems of various ages and designs.

The history of the effectiveness of the individual on-lot sewage disposal systems in Worcester Township is obtained from the investigation of complaint files of Worcester Township, as well as

recorded applications to correct malfunctioning systems through the expansion of individual on-lot systems of one type or another.

Review of the Township files indicates, over the recorded history of malfunctioning on-lot sewage disposal systems of more than 25 years, that approximately 50 such malfunctions are noted. These problem systems are distributed throughout the Township in what appears to be a direct proportion to the distribution of residential dwellings. Although most of the noted malfunctioning systems have been repaired and have not indicated subsequent problems, there are, at this time, a few existing problems. Township records and observations indicate current existing problem areas, such as the individual on-lot sewage disposal systems contained in the Worcester Acres development and the Shady Lane/Oak Terrace development.

If we assume that past malfunctioning on-lot sewage disposal systems indicate potentially continuing or reoccurring problems, specific localized problem areas within the Township can be identified. The nature of the malfunctions identified are the discharge of partially treated sewage to the surface. In addition to this obvious indication of a malfunctioning system, an inadequately designed system can also pollute the groundwater used for drinking water supplies. This type of malfunction, however, does not become obvious until drinking water supplies are noticeably affected.

Within the "Montgomery County Act 537 Plan," prepared by the Montgomery County Planning Commission, malfunctioning on-lot sewage disposal problem areas are defined through the convention of considering clusters of homes of 25 or more that 10% or more malfunction. Utilizing this convention with the malfunctioning on-lot sewage disposal systems identified in the preceding paragraphs, whether repaired or not, defines four areas that could be suspected as potential problem areas. These areas include the Center Point area, including Worcester Acres development, the eastern and western portions of the Fairview Village area and the Shady Lane/Oak Terrace area.

6.2 ELIMINATION OF PROBLEM AREAS.

The previous section identified numerous establishments with sewage holding tanks and four areas with a history of malfunctioning on-lot sewage disposal systems. Good sewage planning would attempt to eliminate these potential problem areas by incorporating the planning of public sewers to serve these areas wherever practical.

Of the six establishments with holding tanks, all but one (Bell Telephone) is included in the Fairview Village Service Area. These five establishments will be able to connect to the planned public sewers in Germantown Pike, which will convey sewage to the Berwick Place Treatment Plant.

The Bell Telephone Building is in an isolated area with no access to planned or existing public sewers. The potential exists,

however, for this establishment to investigate the alternative on-lot sewage treatment systems which will be discussed later in this section.

The four existing development areas with on-lot system problems have also been included in the public sewer service areas discussed in Section V. Worcester Acres has always been included in the Center Point Village Service Area, and capacity is reserved in the existing Valley Green Treatment Plant for this development. Public sewers would be required to collect and convey flow to the treatment plant.

The Shady Lane/Oak Terrace development have now been included in the Upper Gwynedd Service Area, and part of the requested capacity allocation will be designated for this development. Public sewers already exist to serve the Bethel Terrace subdivision recently constructed at the end of Oak Terrace. A sewer extension would be required to serve the remaining existing homes on these streets.

The eastern and western portions of the Fairview Village Service Area with on-site systems have been included in the Fairview Village Sewer Service Area. East and west gravity interceptors are planned for construction in Germantown Pike, with sewage flows to be conveyed to the Berwick Place Treatment Plant. All adjacent developed areas along Germantown Pike will be able to connect to this interceptor once it is constructed. Sewer extension along the feeder streets would be necessary to convey flow to the interceptor.

It can be seen that provisions have been made to include all problem areas in the Township into the various public sewer service areas. This will result in the eventual elimination of all existing and potential problems with malfunctioning on-lot systems and the elimination of sewage holding tanks in these areas.

6.3 FUTURE USE OF ON-LOT SYSTEMS.

Conventional on-lot sewage disposal techniques, as defined by PA Code, Title 25, Chapter 73, are based upon the concept of a three-stage treatment including:

- o Treatment in the septic tank by settling and biological action.
- o Treatment in the seepage bed by filtration and biological action.
- o Treatment in deep soil layers by filtration and biological action.

The major difficulty with all soil absorption disposal techniques is that overloading of the absorptive capacity of soil results in serious public health problems through overflowing of inadequately treated sewage onto the land surface and/or infiltration into water supply wells.

In rural areas, on-lot systems are the predominant method of sewage disposal. If on-lot sewage disposal is to be effective, certain soil characteristics are necessary. The soil permeability must be rapid enough to allow the effluent to be distributed to the soil absorption system with a reasonable uniformity. This is the same basic concern as when considering the applicability of a spray irrigation system. There must be an adequate depth to bedrock to ensure the effluent will be sufficiently treated by the soil before it enters the groundwater. Areas in which the soil is underlain by a fractured rock are considered hazardous because of their high potential for groundwater contamination. This is important because the groundwater supplies that may be contaminated by on-lot disposal systems often come from the same geologic formation from which drinking water supplies are drawn. A low susceptibility for flooding and a deep seasonal high water table are primary requirements of conventional on-lot sewage disposal systems. Figure 6-1 and 6-2 relate to the applicability of on-lot disposal systems and spray irrigation systems to soil types and criteria soil features.

In areas where it is judged that the use of a conventional sewage disposal system is unsuitable, it may be feasible to utilize an alternate subsurface disposal system. An alternate disposal system is defined as a "system employing the use of demonstrated technology in a manner not specifically recognized by Title 25." The purpose of the alternate disposal system is to provide various methods of on-lot disposal which may provide a satisfactory solution to overcome limitations of the soil for use of a conventional system. The conventional system is composed of a septic tank, which separates the solids from the liquid and holds it for bacterial action; the distribution box, a small tank which allows an equal amount of the liquid to reach each of the trenches in the disposal field; and the disposal field, which consists of perforated pipes that discharge the effluent to gravel filled trenches for infiltration into the soil. The only difference between the conventional septic tank system and the alternate system is the design of the disposal field. Generally, the alternate subsurface disposal system is designed to create a more suitable disposal field where soils are inadequate for conventional systems. Some of these alternate systems include:

- Elevated sand mound bed installed on slopes between 8% and 12%.
- Separate of blackwater/greywater sewage flows.
- Subsurface sand filter trench.
- Shallow placement systems.

While these systems serve their purposes as outlined when properly designed and constructed, they have two main disadvantages. First, the design and construction costs are higher than the conventional disposal field. Secondly, they may be considered unsightly due to their physical design.

When planning sewage disposal systems which include on-lot systems, it is convenient to have the soils in the area classified with respect to their suitability for on-lot sewage disposal systems. The Pennsylvania Sewage Facilities Act (Act 537) requires that such a classification be made. The soil suitability for on-lot sewage disposal systems presented within Figure 6-1 classifies the soils within Worcester Township into three basic categories. The soils identified as being generally suitable for conventional sewage disposal systems are noted to be deep (greater than 6 feet), well-drained soils with probable percolation rates of 1 inch of water in not less than 6 minutes nor greater than 60 minutes. The soil classification noted to be generally suitable for alternate sewage disposal systems are noted to include soils with the characteristics as follows:

- o Rapid percolation normally resulting in possible insufficient filtration and treatment of effluent.
- o Moderately deep, well-drained soils with probable percolation rates of 1 inch of water in 6 to 60 minutes.
- o Well-drained soils with probable percolation rates slower than 1 inch of water in 60 minutes.
- o Soils underlain by limestone and normally having a high hazard of groundwater pollution through solution channels.
- o Well-drained soils that are shallow (1-2 feet) or very shallow (0-1 foot) to bedrock.
- o Moderately well-drained soils on upland sites having seasonal high water tables which are the major limitations for use as conventional subsurface disposal systems.

The soils identified as being generally unsuitable for on-lot sewage disposal systems include soils that are noted to be either within the floodplain and have a high flooding hazard or are somewhat poorly, poorly or very poorly-drained soils on upland sites having sufficiently high water table elevations to make them unsuitable for sewage disposal systems. The information presented within the Figure showing soil suitability for on-lot sewage disposal systems is derived from the Montgomery County Soil Survey, prepared by the U. S. Soil Conservation Service. The specific soil types within each category have been defined by the DER within the "Rules and Regulations of the Department of Environmental Resources, Chapter 73, Standards for Sewage Disposal Facilities, Appendix B, Soil Groups." It should be noted that the soil suitability map is a general guide to the location of soils suitable for on-lot disposal systems. Detailed investigations and field tests may demonstrate that a specific site within a larger area of predominately unsuitable soils may have a soil which would accept on-lot systems and vice versa. In addition, there are other restrictions established by the DER which prohibit the construction of subsurface disposal systems within 100 feet of any individual water supply, and within 50 feet of streams, lakes and other surface water.

As shown on Figure 6-1, and considering the information presented herein, many of the existing on-lot sewage disposal systems are constructed on soils that are classed as generally unsuitable for conventional sewage disposal facilities. In fact, combining the two soil classifications that are noted to be not generally suitable for conventional sewage disposal systems would cover an area estimated to be 95% of the land area within Worcester Township. The recent provisions allowing alternate subsurface disposal systems have, therefore, significantly aided Worcester Township in the potential use of on-lot sewage disposal systems. Combining the soil classifications indicating suitable soil conditions for both conventional and alternate sewage disposal systems would cover what is estimated to be 80% of the land area of Worcester Township. Therefore, 80% of the land area under the new regulations is considered to be generally suitable for some type of on-lot sewage disposal system, while the previous regulations allowed approximately 5%.

In addition to significantly changing the allowed use of individual on-lot sewage disposal systems, the new regulations have also provided a means of repairing malfunctioning sewage disposal systems that will produce a sewage disposal system of an acceptable design. We have noted, however, that by far, most of the malfunctioning on-lot systems have occurred out of what we believe to be neglect and inappropriate usage of these systems. We feel that an effective educational program in the use, including correct operation and maintenance of on-lot sewage disposal systems, could greatly improve the operation and extend the useful life of both new and existing sewage disposal systems. We believe that through carefully designed repairs to existing sewage disposal systems and through effective education of the use, maintenance and operation of on-lot sewage disposal systems, adequate on-lot sewage disposal can be achieved throughout the majority of the Township where public sewers are not available and not planned.

6.4 ON-LOT SEWAGE MANAGEMENT PROGRAM.

It is inevitable that the use of on-lot subsurface disposal systems will continue throughout Worcester Township. As documented previously, many of these systems are malfunctioning, which can cause opportunity for undesirable odors and health problems to arise. The extension of the existing public sewage facilities in conjunction with the construction of proposed sewage facilities will alleviate on-lot disposal problems in areas currently experiencing malfunctioning. Meanwhile, the areas that are determined to be less problematic, and those areas that are within remote locations and unable to receive public sewer service by way of connection to the proposed or existing sewage facilities, will be required to comply with a Sewage Management Program implemented by the Township in accordance with Chapter 71 of DER regulations.

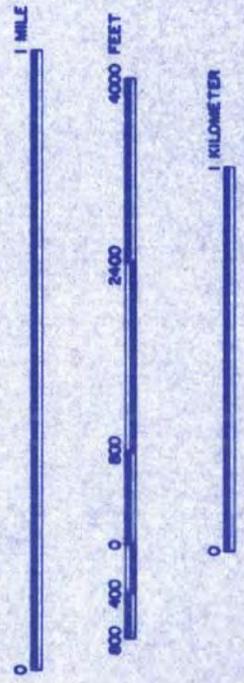
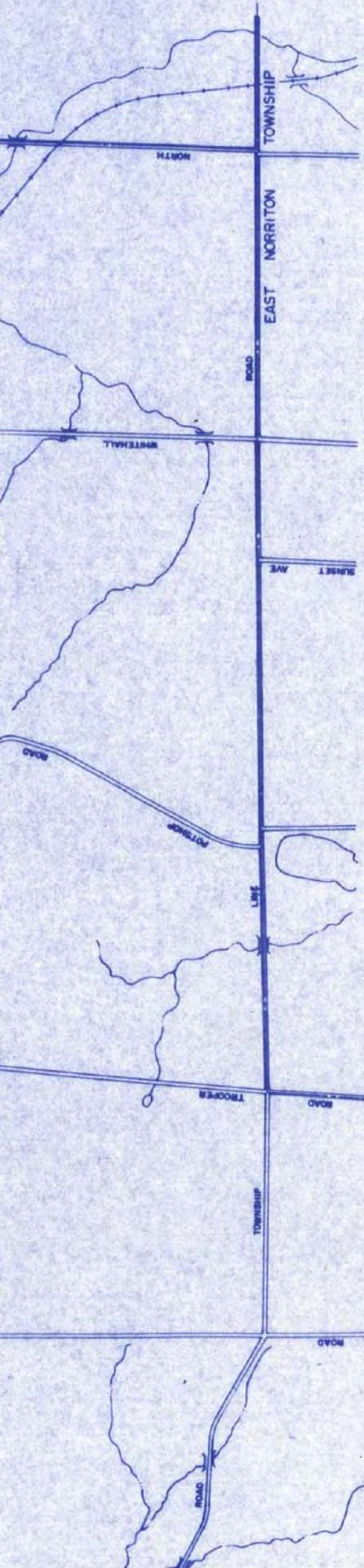
Implementation of the Sewage Management Program should improve the performance of on-lot sewage disposal systems and also help resolve existing problems associated with on-lot systems. This

can be accomplished through regular required maintenance and inspection enforced through an ordinance governing municipal management of on-site subsurface sewage disposal facilities. The key components of a successful Sewage Management Program are briefly discussed below.

- Permit Requirements - The Sewage Management Program must incorporate the current requirements that all on-lot disposal users obtain and maintain a permit from the Montgomery County Health Department to install, construct, operate or rehabilitate an individual or community on-lot system. The permit must indicate that the installation of an on-lot disposal system is in compliance with all state regulations.
- Inspections - Provisions to schedule and conduct inspections of on-lot systems should be included in the Sewage Management Program. Inspections may include sampling of surface water, wells and other groundwater sources, tours of the property and sampling of the sewage disposal system itself. An authorized agent of the Township should inspect malfunctioning systems and order the property owner to take any corrective measures necessary in conjunction with the Montgomery County Health Department.
- Operations - No industrial wastes, automobile oil and other non-domestic wastes, toxic or hazardous substances or chemicals or clean surface or groundwater should be discharged into any on-lot disposal system.
- Maintenance - Each person utilizing on-lot disposal systems should have the tank pumped on a regular basis of at least once every three years. Receipts from the pumper/hauler should be submitted to the Township within the prescribed pumping period. Owners must also submit a written statement by a qualified individual that the baffles in the septic tank have been inspected and are in good working order. Additional maintenance activity includes cleaning and unclogging of pipes, servicing and repair of equipment, removal of obstructing trees and the diversion of surface water away from the disposal area.
- System Rehabilitation - A written notice of violation should be issued to any owner of a property served by a malfunctioning system. Within a specified time period, application for a permit to repair or replace the system must be made by the owner. The Sewage Management Program should require the installation of water conservation equipment and the institution of water conservation practices. Should none of the remedies prove totally effective in eliminating the malfunction, the owner shall not be absolved of responsibility for that malfunction. The Township may require any action necessary to totally eliminate the malfunction.

CKS Engineers, Inc.

The Sewage Management Program must be developed in accordance with state regulations and the Township's specific needs. The Program must also be consistent with the Montgomery County Public Health Code and the Montgomery County Health Department operational procedures.



-  AREAS WITH EXISTING PUBLIC SEWERS
-  AREAS PROPOSED FOR SEWERS WITHIN 5 YEARS
-  10 YEAR PLANNING AREA FOR PUBLIC SEWERS
-  PROPOSED SEWAGE PUMPING STATION (P.S.)
-  SEWAGE TREATMENT PLANT (S.T.P.) TO BE EXPANDED

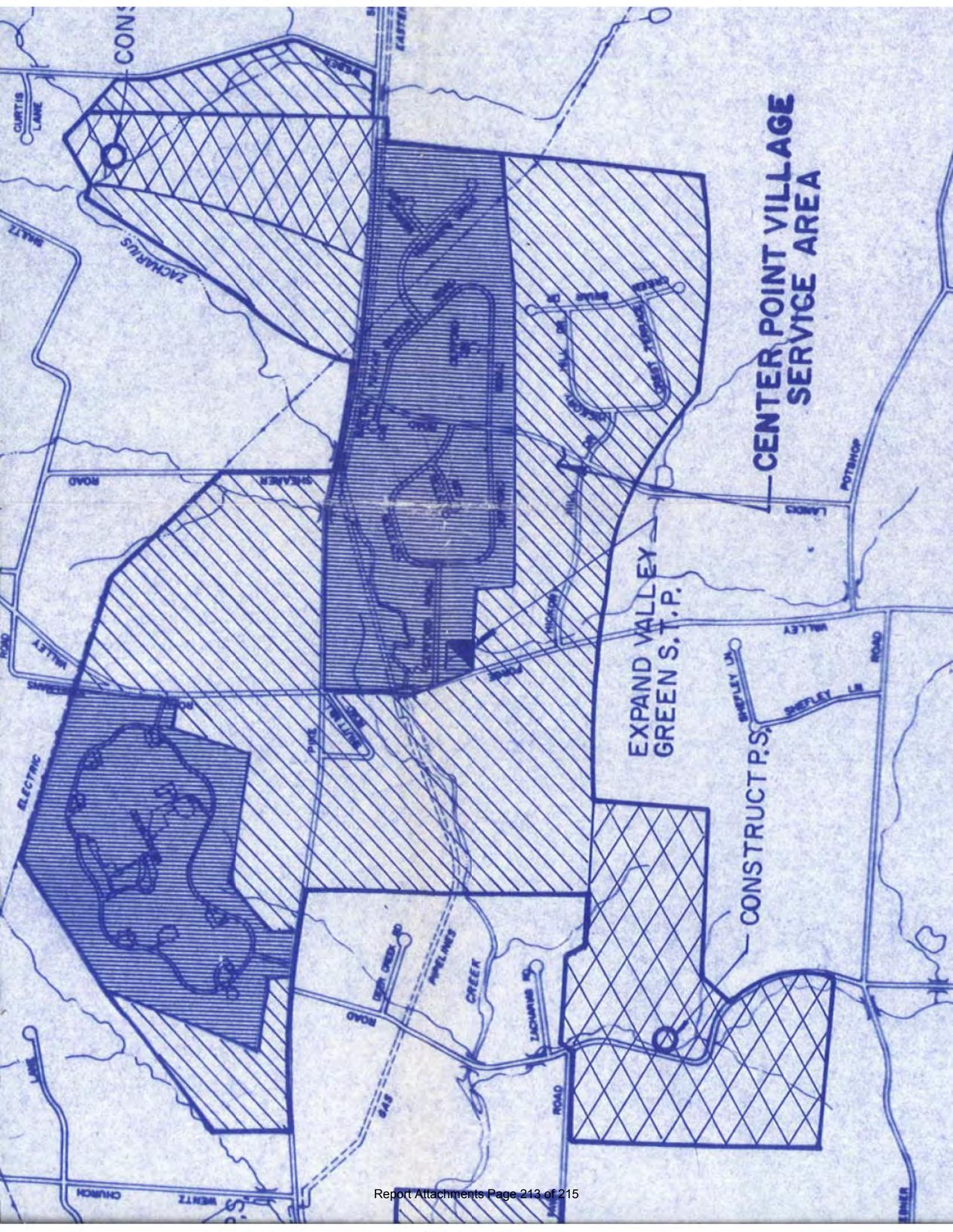
FIGURE 5-1

Plan No.	Date	Scale	Drawn By	Checked By	Plot No.
ADD	6/95	AS SHOWN	JTW	JUN	7200-89

PLANNED PUBLIC SEWAGE FACILITIES AREAS

TOWNSHIP OF WORCESTER
MONTGOMERY COUNTY, PENNSYLVANIA

CK S
C K S Engineers, Inc.
48 South Main Street, Doylestown, PA 18001
(215) 340-0000



CONS

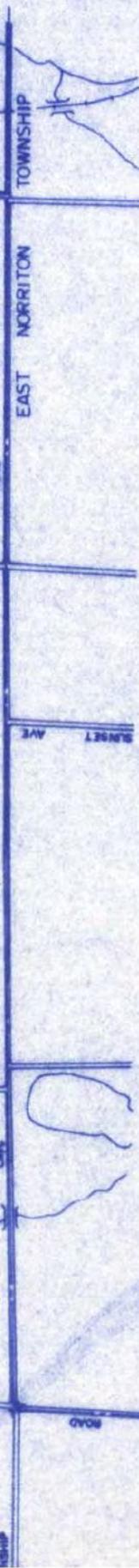
CURTIS LANE

ZACHARIAS

CENTER POINT VILLAGE SERVICE AREA

EXPAND VALLEY GREEN S.T.P.

CONSTRUCT P.S.



LEGEND

-  SANITARY SEWER
-  FORCE MAIN
-  PUMPING STATION
-  SEWAGE TREATMENT PLANT

FIGURE 4-1

Proj. No.	DATE	ADD	DESCRIPTION
1	3/78		EXISTING PUBLIC SEWAGE FACILITIES
TOWNSHIP OF WORCESTER MONTGOMERY COUNTY, PENNSYLVANIA			
C K S Engineers, Inc. 44 South Main Street, Doylestown, PA 18001 (215) 340-0800			
Drawn By:	Checked By:	Plan No.	Sheet No.
6/95	AS SHOWN	CAF	7200-89
		J J N	

