Pollutant Reduction Plan

Unnamed Tributaries to Hazle Creek, Black Creek and Catawissa Creek

Prepared By:
Hazle Township
Luzerne County, PA

Revised: 3-13-22
8-18-22

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1.0 Purpose and Scope

This Pollutant Reduction Plan (PRP) is part of the required Notice of Intent (NOI) of Hazle Township's PAG-13 General Permit requirements for NPDES permit coverage of regulated small municipal separate storm sewer systems (MS4s) discharge of stormwater to surface waters of the Commonwealth. Hazle Township's small MS4s were previously covered by a PaDEP waiver but are now required to apply for NPDES permit coverage based on urbanized areas as determined by the latest Decennial Census by the U.S. Census Bureau and as designated as needing a permit by PaDEP. Hazle Township proposes to operate under this General Permit as designated and regulated by the U.S. Environmental Protection Agency (EPA) pursuant to 40 CFR § 122.32(a)(1) or designated as regulated by DEP under 40 CFR § 122.32(a)(2).

Hazle Township discharges stormwater into several unnamed tributaries including Hazle Creek, Black Creek and Catawissa Creek which have been listed by DEP as being an impaired stream. Accordingly, Hazle Township is developing this Pollution Reduction Plan (PRP) to address water quality initiatives within these drainage areas. This (PRP) will be re-evaluated regularly by Hazle Township for its effectiveness in reducing pollutant loads from its stormwater discharges. If the Township believes the PRP should be revised or best management practices (BMP) updated, Hazle Township shall work with the Regional Office of PaDEP for review and approval of any revisions and/or updates.

Hazle Township sewersheds were evaluated based on PaDEP NPDES Standards for permit coverage of stormwater discharges from municipal separate storm sewer systems (MS4s). For this permit cycle, Hazle Township has identified all MS4s and developed this Pollutant Reduction Plan to address discharges to surface waters impaired for certain pollutants or for discharge to waters in the Chesapeake Bay watershed.

This PRP will be used as a guideline to help Hazle Township identify and manage overall stormwater objectives. The planning and design process is an important tool to assist in the prevention of pollutants discharging into the Township's impaired streams. Addressing water quality and pollution concerns during project planning by use of thoughtful municipal ordinances and guidelines can decrease the cost, risks and environmental issues facing the Township. Implementation of Hazle Township's PRP plan will be a multi-faceted approach integrating educational, public participation, operation and maintenance, and training, whenever possible.

This PRP is prepared based on the best and most current guidance made available by PA DEP. Definitions of relevant regulatory terms have been provided as part of this report. This PRP proposes the following tentative schedule after receipt of final DEP approval:

- Year 1: Complete detailed mapping of all sewersheds including storm water infrastructure.
- Year 2 & 3: Design and Permit require BMP's
- Year 4: Seek required funding, bid and begin construction of proposed BMP's
- Year 5: Complete construction and begin to monitor and review performance of BMPs and additional needed improvements

2.0 Six (6) Minimum Control Measure Requirements of PRP

MCM1 Public Education: The Final PRP will implement several efforts targeted to Public Education and Outreach on Stormwater Impacts. Working thru recommendations of EPA and DEP educational videos, booklets, stencil drain kits, children's activity books and informational posters will be utilized to meet this minimum control measure.

MCM2 Public Involvementr: The public can provide valuable input and assistance to the Township's stormwater management program and will be given an opportunity to play an active role in development and implementation of the PRP program. An active and involved community is crucial to the success of this stormwater management program.

The Township held an initial informational public meeting to review the proposed permit and development of this Pollution Reduction Plan (PRP). A public notice of the initial PRP was issued in a June 4, 2018 publication of the Hazleton Standard Speaker newspaper. The final revised PRP was re-advertised for comment in an August 15, 2022 public notice. The plan was available for review at the Township Municipal Building from June 11, 2018 thru July 11, 2018, again from August 15, 2002 tjru September 15, 2022 as well as on the Hazle Township Web Site. A public meeting was held on Tuesday, July 17, 2018 at Hazle Township Commons Building. A copy of both public notices are included in the Appendix.

The public was given over 30 days to provide commentary on the contents of the PRP. Hazle Township did not receive any public comments. Hazle Township held a public meeting and did not receive any public presence, written or public comments.

MCM3 Illicit Discharges: One of the Township's goals of this PRP will be to identify, map, educate and eliminate illicit stormwater and pollutant discharges into the municipality. The Township has historically not mapped, identified, tracked, monitored or inspected its stormwater infrastructure unless a complaint was received. This PRP will take steps to begin the detailed mapping in compliance with DEP's model map recommendations, identify and evaluate all outfalls and implement a public discharge complaint policy.

MCM4 Construction Site Runoff: One of the major contributors to stream degradation and pollution loading is poorly managed and controlled construction site runoff. The Township will increase local efforts of construction site inspection, monitoring, reporting and potential violations. DEP's recommended construction site inspection and complaint form will be implemented to log and track complaints and violations.

MCM5 Post-Construction Stormwater: The Township will work closely with County Planning Department and the County Conservation District to implement, maintain, monitor and inspect all approved post construction BMP's. Municipal Planning Ordinances will be reviewed and updated to reflect preferred low impact design and green infrastructure for large developments, industrial sites as well as individual residential single-family construction.

MCM6 Municipal Operations: Hazle Township will utilize DEP guidelines to prepare an inventory of municipal facilities and activities related to stormwater BMP's, and to develop a stormwater "Operations & Maintenance Plan". Stormwater pollution hazards associated with each facilities/activity on the inventory plan will be identified.

3.0 General Permit Requirements

In order to properly develop this PRP, it is important to have an understanding of all Hazle Township's permit requirements. Hazle Township is required by the PaDEP and the Environmental Protection Agency (EPA) to implement a ten (10%) percent reduction in sediment pollution from stormwater discharges to impaired surface waters of the Commonwealth over the next five (5) year permit term. Based on storm sewer sheds identified in this report and after detailed mapping is complete this plan Hazle Township proposes to implement acceptable Best Management Practices (BMPs) to accomplish the required reduction. Hazle Township has MS4 discharges or "outfalls" to Hazle Creek, Black Creek, and unnamed tributaries to Catawissa Creek. These stream basins are listed in the 2016 Pennsylvania Integrated Water Quality Monitoring and Assessment Report (Integrated Report) as impaired for siltation (i.e. sediment) and are highlighted and identified below.

As per PaDEP's 3800-PM-BCW0100a 5/2016 NOI Instructions, Hazle Township received a waiver from DEP during the last permit term and is now only required to submit as an attachment to this NOI, at a minimum, a topographic map identifying all MS4 outfalls, surface waters receiving stormwater discharges, the MS4's legal boundaries and the UA boundaries. Hazle Township has also drafted changes to their current stormwater ordinance to implement PaDep MS4 control recommendations.

MS4 Name	NPDES ID	Individual Permit Required?	Reason	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)	Other Cause(s) of Impairment
Luzerne County						
HARVEYS LAKE BORO	PAI132235	Yes	SP, IP	Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	
HAZLE TWP	PAG132300*	No		Hazle Creek	Appendix A-Metals, pH (4a)	
				Black Creek	Appendix A-Metals, pH (4a)	
				Catawissa Creek	Appendix A-Metals (4a)	
				Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	
				Cranberry Creek		Flow Alterations (4c)
				Unnamed Tributaries to Susquehanna River	Appendix E-Siltation (5)	Flow Alterations (4c)
				Cross Run	Appendix A-Metals (4a)	
				Little Black Creek	Appendix E-Siltation (5)	Flow Alterations (4c)
				Unnamed Tributaries to Little Fishing Creek	Appendix E-Siltation (5)	Flow Alterations (4c)
				Stony Creek	Appendix A-Metals, pH (4a)	

Table 1: Hazle Township is required to reduce the sediment loading by 10 percent over the next five (5) year permit term.

Mapping: In order to determine how much existing sediment is being contributed to receiving streams, the Township first needed to examined how stormwater runoff is entering the municipality, how the runoff is being impacted once inside its boundaries, and how the stormwater is collected and discharged from the municipality. The Township created an overall storm sewer map for its MS4 permit, showing the locations of storm outfalls, inlets, manholes, pipes, swales and pipe discharge locations. This map will be in GIS format and also be used to identify land uses including and impervious/pervious surfaces and each storm sewershed boundary associated with each MS4 outfall.

A GIS mapping platform was utilized for analysis and development of the Township's PRP and will include and address the following:

1. Storm Sewer & Street Map – existing GIS base map will be created showing the municipal storm sewer system with outfall locations, streams and drainage channels.
2. Topo & Impaired Stream Map – contour information from available LIDAR shapefile information downloaded from Pennsylvania Spatial Data Access (PASDA) website will be used to analyze stormwater flow. Impaired stream information is provided by PA DEP online GIS mapping service (eMAP).
3. Storm Drainage Areas Maps – drainage collection systems to each MS4 outfall will be identified and mapped using the topographic information and field locating and mapping stormwater assets. This process will assess stormwater runoff entering and traveling through the storm sewer system along streets, swales, inlets and pipes. The mapping will identify areas with 'dispersed discharges' where runoff is not piped and does not have single point source, but is allowed to flow across a surface into a stream or receiving body of water, such as pond, wetland, or tributary stream.
4. Impairment Area Map – after the drainage areas are outlined in detail each storm sewershed boundary was delineated. This boundary will show the area of the Township which drains to and impacts each stream. Any land use areas draining to non-impaired streams outside the urbanized areas will not be included in the PRP calculations. Sewer sheds draining to any open mining operation past or present which has disrupted stream flow will be excluded from the Township's analysis.
5. Land Use Map – land uses will be evaluated for each sewershed. Determining the land use for a property is essential for calculating the pervious and impervious areas within each drainage area. Available shapefiles on PASDA will be used as basis of this analysis.
6. Parsing – the mapping included in the attached appendix identifies areas that are to be "parsed" from the planning area. At the Township's discretion and as approved by PaDep, certain areas may be shown on the map that are within the storm sewershed but are not included in the calculation of land area or the existing pollution loading. These areas are may be covered by an existing NPDES permit for the control of stormwater, covered under PaDot permit requirements, contain present or past surface mining operations, is an area that drains away from the Township MS4 or an area that does not have a qualified MS4. BMPs implemented on parsed land will be excluded form use as a credit toward meeting the MS4's pollutant loading reduction requirements.

If parsing is initially complete for the this PRP but the Township decides later that it would be in their best interests to include that land in the PRP, the Township may submit a modified PRP to DEP, following the required public participation requirement.

4.0 Background/Setting

According to the United States Census Bureau, Hazle Township has a total area of 45.3 square miles of which 45.1 square miles is land and 0.27 square miles or 0.59% is water. It is drained by tributaries of the Susquehanna River except in the southeast, which drains to the Lehigh River in the Delaware River Basin. The 2010 Urbanized Area (U.S. Census Bureau) covers approximately 4,925 Acres of land area in the Township based on GIS Analysis.

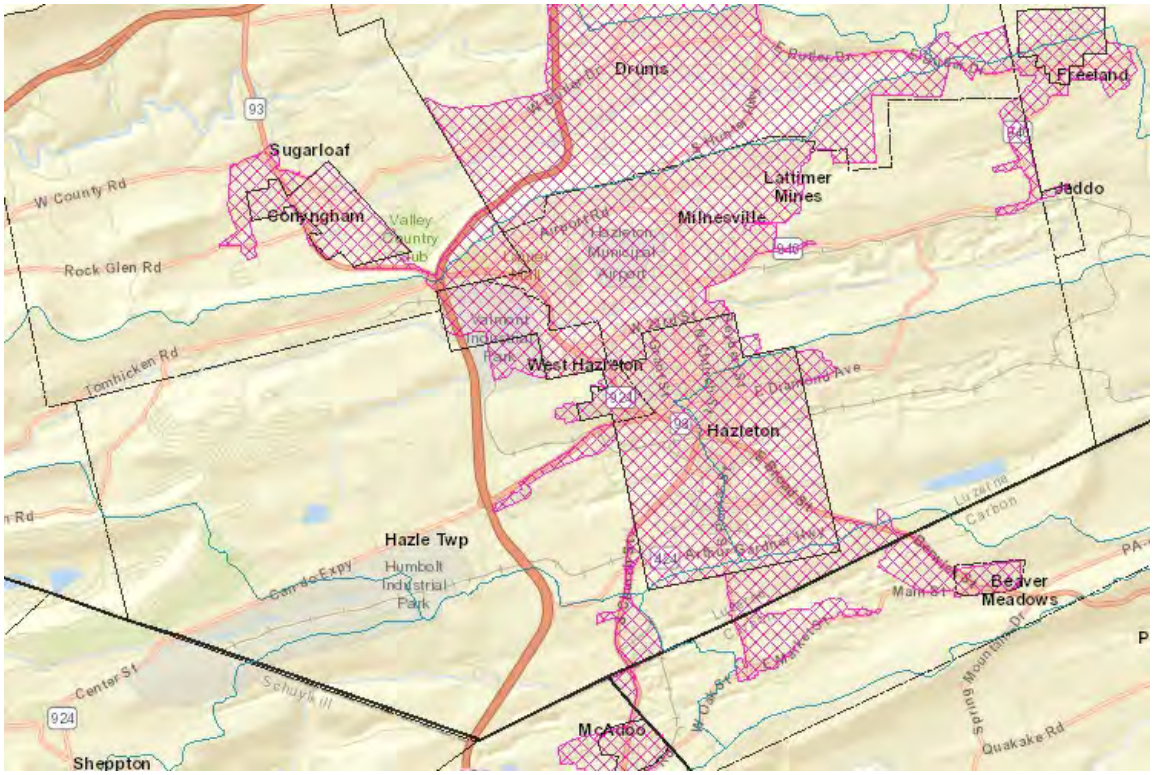


Fig. 1: Map of Hazle Township Boundary and 2010 Census Urbanized Areas

4.1 LOADING AND POLLUTANTS OF CONCERN

The Township has identified pollutants of concern for each storm sewershed and in the overall PRP planning area. DEP's MS4 Requirements Table identified Hazle Township as having impaired stream waters for Black Creek, Hazle Creek, Messer Run-Catawissa Creek, and Beaver Creek. These streams are impaired due to sediment and nutrients. The terms "sediment", "siltation" and "suspended solids" all refer to inorganic solids.

The EPA also notes that nitrogen pollution is one of America's most widespread, costly and challenging environmental problems. Although Nitrogen and Phosphorous are natural elements and support both animal and plant life, too much of either can impact our air quality, alter plant growth, decrease aquatic habitat and impact our food and drinking resources.

This PRP calculated the existing loading of the pollutant(s) of concern in pounds per year (lbs/yr). Hazle Township utilized GIS the mapping information to determine its existing contribution of sediment being discharged each watershed.

Hazle Township is required to reduce the amount of sediment discharge by 10%, and Phosphorous by 5%. It is the intent to select BMPs suited to reduce this pollution loading. The final PRP shall demonstrate that the selected BMPs will achieve the minimum reductions required by DEP.

It is assumed that a reduction in nutrients will accomplish a commensurate with meeting the reduction in sediment.

4.2 BEST MANAGEMETN PRACTICES TO MEET REDUCTION IN POLLUTANT LOADING

Once the Township has identified the amount of pollution load required to be reduced it will identify areas within the municipality to be further studied for BMP improvements. The proposed implementation of BMPs or land use changes shall be within the storm sewershed that will result in meeting required reductions.

The Township intends to implement BMP's within five (5) years of DEP's approval date for coverage under the PAG-13 General Permit. The BMPs may be located on public or private property and land acquisition may be required. The Township will also work with developers to identify BMPs that may be installed by others.

During the five (5) year permit period, the Township may elect to take credit for BMPs that are less than 1 acre and are not being used to meet regulatory requirements, such as a Chapter 102 NPDES permit for construction activities. The Township is considering modifications of the current storm water ordinance to implement BMPS for all land development that exceed minimum requirements of the Chapter 102 NPDES permit in order to take "Credit" towards the MS4 permit requirements.

Map of Major drainage basins withing Hzle Township:

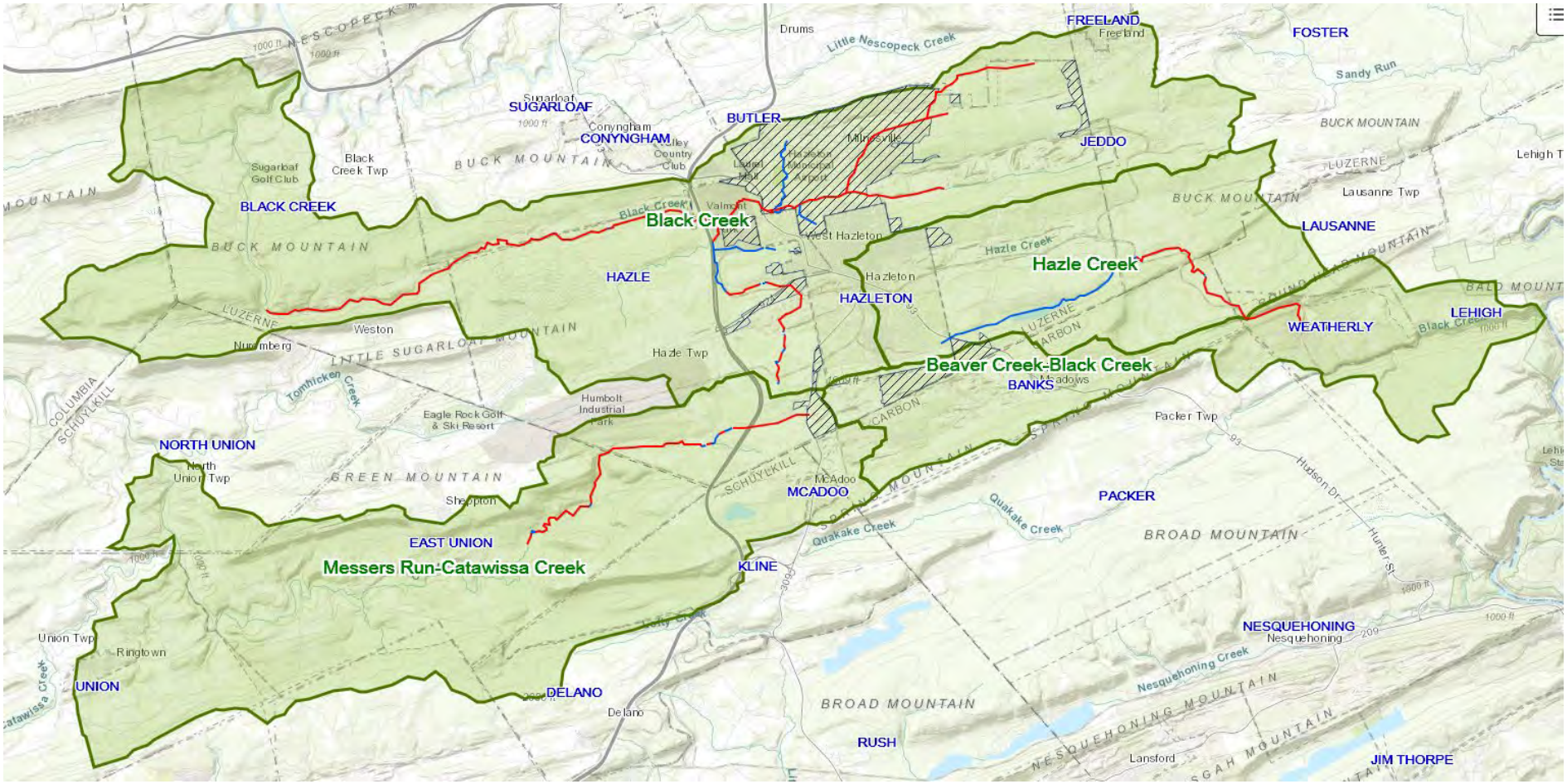
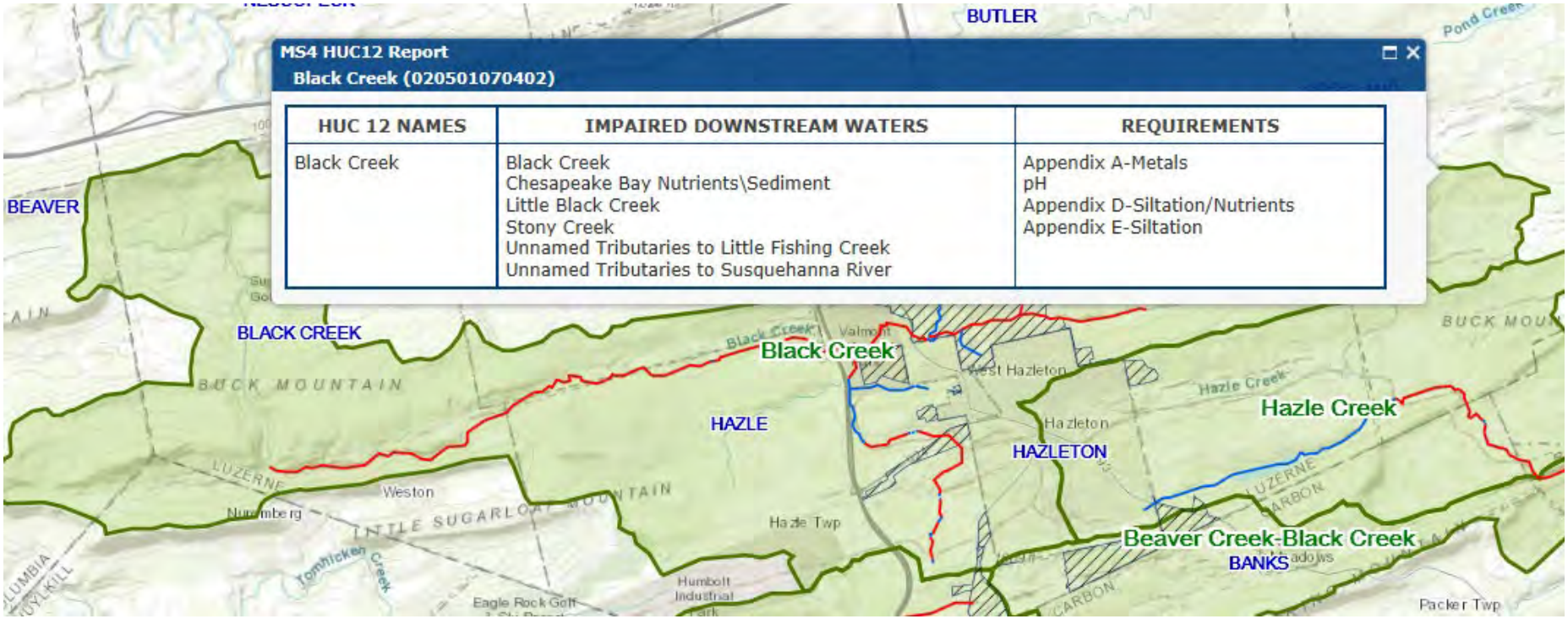


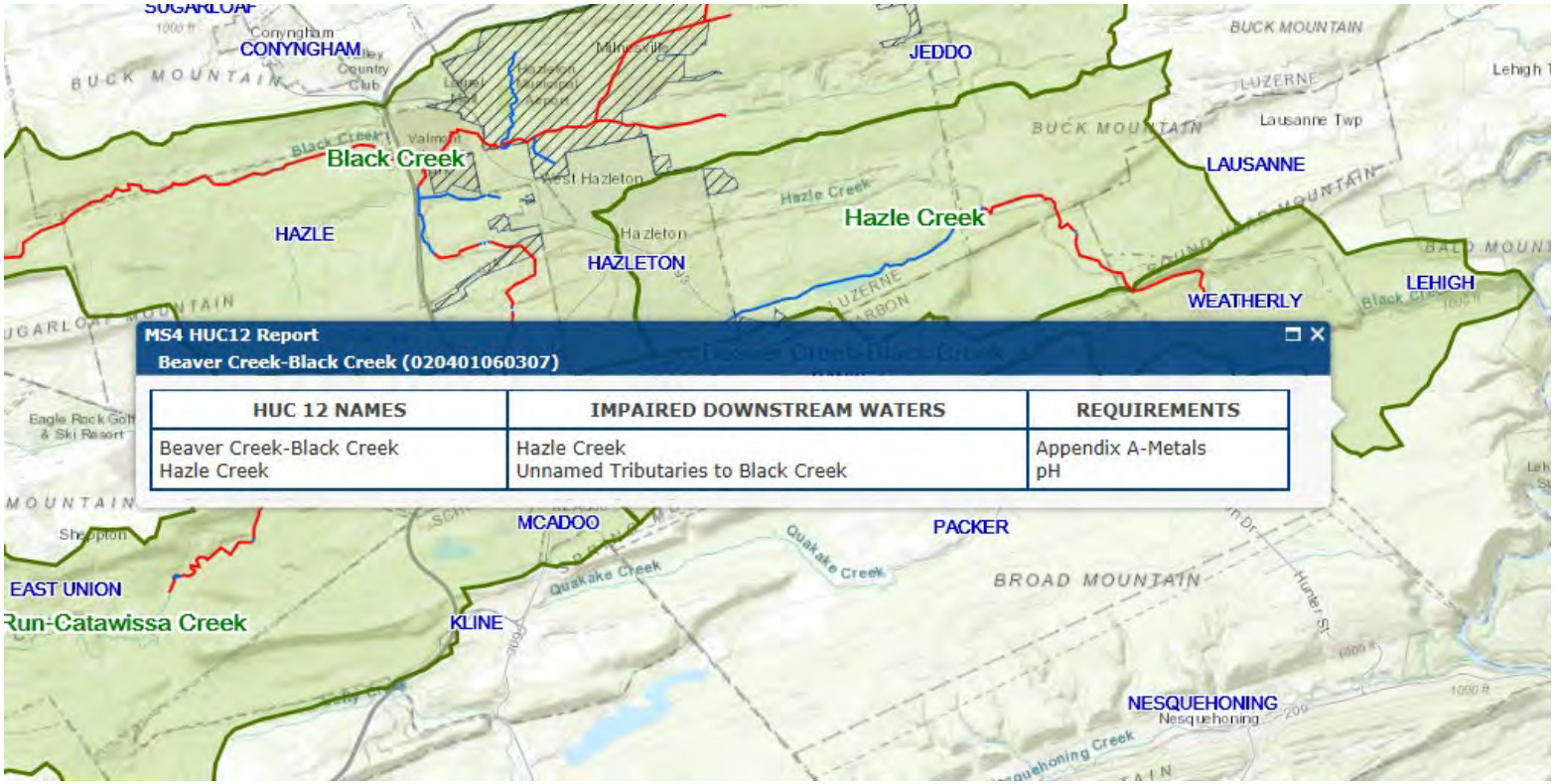
Figure 2: Map of the basins and streams that flow through Hazle Township. Stream segments colored red indicate impaired portions of streams.



BLACK CREEK BASIN

Black and Hazle Creek		
Information	**Status**	**Links**
County: Luzerne, Schuylkill, Carbon **Category:** AMD **Cause:** Metals, pH **HUC:** 2040106	EPA Approved 4/9/2009	**TMDL:** Black and Hazle Creek **Public Notice:** Black and Hazle Creek Public Notice

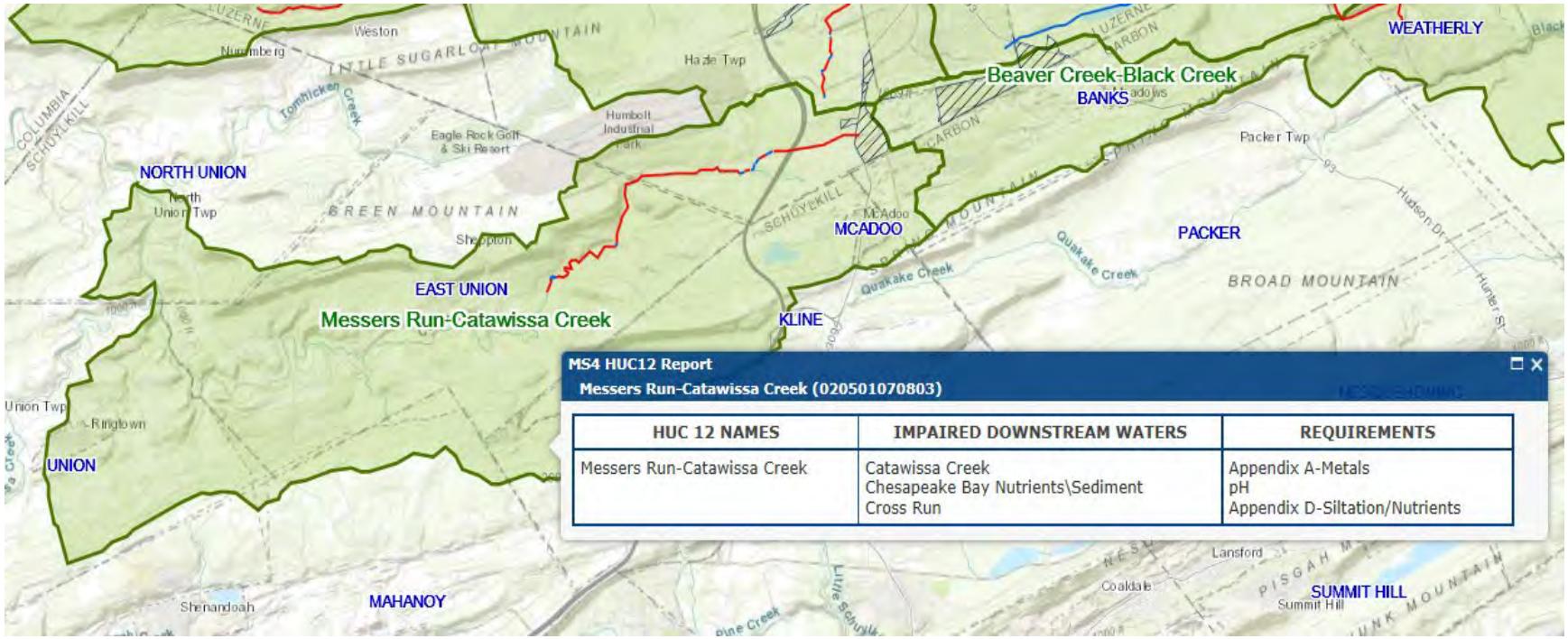
Figure 3: Map and EPA data for Black Creek Basin flowing through Hazle Township.



HAZLE CREEK BASIN

Black and Hazle Creek		
Information	**Status**	**Links**
County: Luzerne, Schuylkill, Carbon **Category:** AMD **Cause:** Metals, pH **HUC:** 2040106	EPA Approved 4/9/2009	**TMDL:** Black and Hazle Creek **Public Notice:** Black and Hazle Creek Public Notice

Figure 4: Map and EPA data for Hazle Creek Basin flowing through Hazle Township.

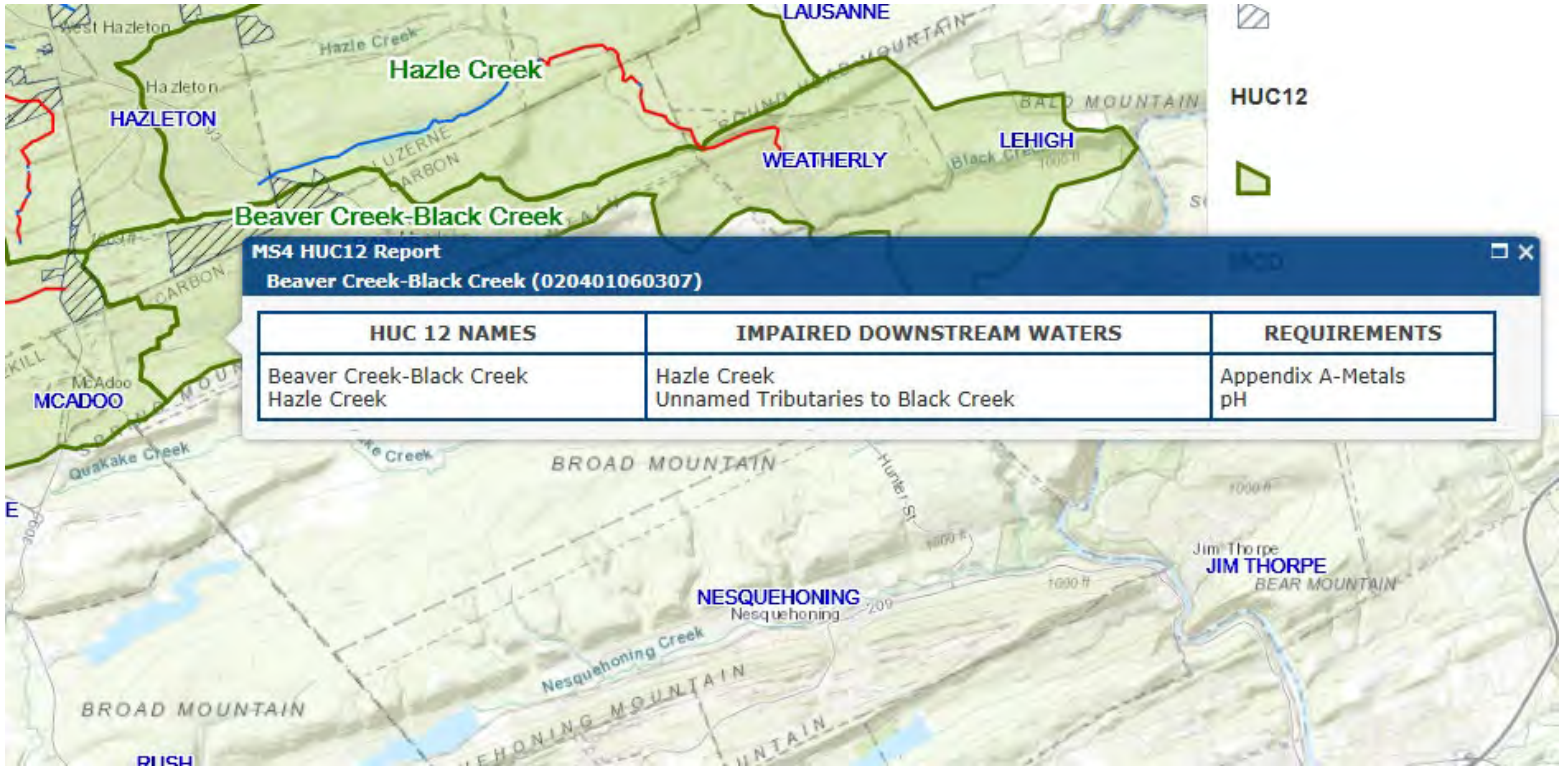


MESSER RUN – CATAWISSA CREEK BASIN

Catawissa Creek		
Information	**Status**	**Links**
County: Columbia, Schuylkill **Category:** AMD **Cause:** Metals, pH **HUC:** 2040203, 2050107, 2050301	EPA Approved 4/9/2003	**TMDL:** Catawissa Creek Watershed TMDL **Information:** Information Sheet for Catawissa Creek Watershed TMDL **Public Notice:** Public Notice for Catawissa Creek Watershed TMDL

Privacy Policy | Security Policy

Figure 5: Map and EPA data for Catawissa Creek Basin flowing through Hazle Township.



BEAVER CREEK – BLACK CREEK BASIN

Black and Hazle Creek		
Information	**Status**	**Links**
County: Luzerne, Schuylkill, Carbon **Category:** AMD **Cause:** Metals, pH **HUC:** 2040106	EPA Approved 4/9/2009	**TMDL:** Black and Hazle Creek **Public Notice:** Black and Hazle Creek Public Notice

Figure 6: Map and EPA data for Beaver Creek Basin flowing through Hazle Township.

4.3 Black Creek

The headwaters of Black Creek begin in Foster Township near Freeland and flow southwest though the community of Jeddo where it enters Hazle Township. Surface water flow from the headwaters in this area is cut off from the actual stream by permitted open mining activity. No surface flow from the Urbanized Areas in this area is currently able to flow to the stream crossing at Stockton Mountain Road.

Additional watershed lies between two mountain ridges near the community of Ebervale which is also separated from the stream bank due to active mines south of this Village. Further downstream, the creek leaves the two mountains and flows thru urbanized areas north of Hazleton, crossing Pennsylvania Route 940 and Pennsylvania Route 309.

Watershed area from the headwaters of Little Black Creek near Pardeesville, Milnesville and Hollywood also appear to be separated from surface flow to this creek due to active mine operations. Active mining south of Harleigh and Pardeesville as well as outfalls directly to large mine pits currently prevent surface water flow from entering this stream.

Until such time as the mine operations cease and the land is restored to allow surface flow and MS4 outfalls to discharge to the stream these areas are included in this PRP but will have no immediate impact on reducing overall sediment loading.

4.4 Hazle Creek

Hazle Creek is a tributary source stream of the Lehigh River and the Delaware River Basin. The headwaters of this creek are located within the east-side neighborhoods of Hazle Township. Active mine operations separate MS4 from the Diamond Avenue area and prevent flow into the stream. Urbanized areas south of the Hazleton Beltway flow overland without an MS4 outfall into the active Jeansville mining area and currently do not flow to the headwaters of Beaver Creek.

Until such time as the mine operations cease and the land is restored to allow surface flow and MS4 outfalls to discharge to the stream these areas are included in this PRP but will have no immediate impact on reducing overall sediment loading.

4.5 Unnamed Tributaries to Catawissa Creek

A small portion of Hazle Township and an urbanized area along the south side of the municipality drain to the headwaters of Catawissa Creek. The waters of Catawissa Creek are highly acidic due to runoff from an abandoned mine in the creek's watershed. Headwaters of Catawissa Creek start in this south section of Hazle Township and flow south-west into Schuylkill County and eventually to the Susquehanna River. Active coal mining and abandoned strip pits still separate surface flow from the urbanized areas in this location.

Until such time as the mine operations cease and the land is restored to allow surface flow and MS4 outfalls to discharge to the stream these areas are included in this PRP but will have no immediate impact on reducing overall sediment loading.

5.0 Pollutant Reduction

Per the MS4 permit and PRP Instructions document (3800-PM-BCW0100k), over the next five (5) year permit cycle this plan will address Public Participation, Storm Sewershed mapping, Pollutants of Concern, Existing Sediment Loading, Proposed Best Management Practices (BMPs), Funding Mechanisms, and Operations and Maintenance of BMP's.

Hazle Township has completed the next step in the restoration effort of local water bodies and complying with the mandate to meet the Total Maximum Daily Load (TMDL) requirements set by the federal government. This plan sets a 5-year goal, from DEP's approval of the PRP, to reduce pollution into local waterways by installing various Best Management Practices (BMPs). The township is required to reduce pollution caused from sediment by 10%, Phosphorus by 5%, and Nitrogen by 3%. It is assumed that by meeting the reduction in sediment pollution the phosphorus and nitrogen reductions will also be met since these pollutants bind to soil particles. The current calculated preliminary sediment pollutant load (not yet accounting for previously installed BMPs) is 1,015,282 lbs/yr for the entire Township, meaning that the township is responsible for reducing this by 101,528 lbs/yr.

In order to meet these reduction goals, the township will develop a plan involving a series of projects throughout each small watershed. The PRP proposes implementing In-Line Water Treatment devices, stream restoration, adding outfall protection and restoring swales. This plan is preliminary and may change during the permit cycle if after additional detailed analysis more feasible/cost effective projects are discovered.

Based on Section 4 of the Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects this PRP estimates that addressing runoff from low, medium and high intensity development may result in a total project Load Reduction of 120,778 lbs/yr, exceeding the required reduction for the 5-year permit. The projects is expected to cost in excess of $5,000,000. Although implementation of this PRP plan is a significant cost to the Township, the Township Supervisors will proactively look for ways to achieve pollutant load reductions and pursue grant opportunities to reduce the overall cost of achieving the required load reductions.

5.1 Public Participation and Education

Hazle Township will make the final version of this PRP available to the public to review and provide comments for thirty (30) days, initiated by a public notice published in the Standard Speaker. A copy of the each public notice published in the Standard Speaker is included in Appendix A. All timely comments received and a record of consideration of these comments will be added to this Appendix. The PRP will be presented by the Board of Supervisors at a public meeting at a time and date to be established. Additional comments will also be accepted at this meeting from any interested members of the public.

Public Education Goals: Educate public as to effects of stormwater runoff including:

- How polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.
- How sediment can cloud the water and make it difficult or impossible for aquatic plants to grow as well as destroy aquatic habitats.
- Explain how excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- Identify how bacteria and other pathogens can wash into swimming areas and create health hazards.
- Show how debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life and animals.
- Identify how typical household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- Discuss how polluted stormwater directly impacts drinking water sources.

Public Participation Goals: Help residents learn how to be part of the Solution to Runoff Pollution:

Stormwater flowing over driveways, lawns, and sidewalks, picks up debris, chemicals, dirt, and other pollutants. Stormwater can flow into a storm sewer system or directly to a lake, stream, river, or wetland. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water and is the largest threat to clean water.

By practicing healthy household habits, homeowners can keep common pollutants like pesticides, pet waste, grass clippings, and automotive fluids off the ground and out of stormwater. The Township will promote and adopt healthy household habits by simply taking steps around home and businesses to increase the amount of water that entering into the ground and thus reducing the amount of water flowing into the street. Some initial steps that will be promoted include:

- Wash your car on the lawn (not the driveway), or take your car to a commercial car wash
- Plant additional trees, shrubs, and ground cover
- Use of rain barrels to catch and store water for use in gardens
- Redirecting down spouts from paved areas and roads to vegetated areas
- Installing gravel trenches along driveways and patios to retain runoff
- Increased use of porous materials (i.e. porous concrete, wooden planks or brick pavers) for walkways and patios
- Grade driveways and walkways to direct water flow toward vegetated areas

Public Involvement:

The EPA believes that the public can provide valuable input and assistance to small municipal stormwater management programs. Therefor the public is given opportunities to play an active role in both the development and implementation of this PRP program. An active and involved community is critical to the success of this stormwater management program.

Broad public understanding and support from citizens who participate in the development and decision making process and who are partially responsible for the program make it less likely to raise legal challenges to the program and more likely to take an active role in its implementation. Shorter implementation schedules are realized due to fewer obstacles in the form of public and legal challenges. The municipality sees an increase in citizen volunteers and a broader base of expertise and economic benefits while developing a relationship between the community and government programs on a watershed perspective.

Proposed BMP's:

- Hold a public stormwater awareness meeting to receive input on the proposed MS4 program.
- Develop and host hands-on stormwater workshops on various topics such as rain barrels, composting, and rain gardens.
- Identify possible partner groups and hold joint coordination meetings including watershed foundations, Penn State, Conservation District, major stakeholders, etc.
- Identify and develop community volunteer opportunities.
- Encourage public participation and method of receiving and tracking information, complaints and recommendations.
- Improve and educate developers of construction site stormwater runoff control.

5.2 Storm Sewersheds

All storm sewersheds from urbanized areas and areas identified by PaDep were manually delineated in ArcMap 10.7GIS tools using digital elevation models, (2) foot topographic contours from PAMAP and published data by the Pennsylvania Department of Conservation and Natural Resources (DCNR). Data was overlaid on aerial maps referencing Google Street View and multiple sources of aerial imagery.

"Parsing" provided an opportunity to eliminate areas within storm sewersheds from the existing pollutant load that do not drain to the MS4, areas that are already covered by an NPDES permit for the control of stormwater, areas that are excluded such as PaDot right of way, and areas that are separated from streams due to active mine activities. Storm sewersheds which extend outside of the municipal boundary and do not drain to the Township MS4 system were also removed from these calculations.

Sewersheds which convey stormwater and are owned by the Township, designed to collect or convey stormwater including drains, pipes, and ditches are considered an MS4. All combined storm sewer systems are excluded. Storm sewershed boundaries are synonymous with the planning area boundaries and maps illustrating the storm sewersheds to be further mapped in this next permit cycle are attached below.

See Appendix B for a detailed breakdown and analysis of each sewershed analyzed in this PRP.

A summary list of outfalls as identified to date and associated with MS4 storm sewershed is included in Appendix C. Also listed is the receiving sediment-impaired stream for each outfall and United States Geological Survey (USGS) National Hydrography Dataset (NHD) Hydrologic Unit Code (HUC) 12 watershed.

5.3 Mapping the Storm Sewersheds

Using GIS tools and available online sources the entire storm sewer system was delineated and mapped for all sewersheds. A clear distinction was made between the sewersheds that discharge to locally impaired waters subject to Appendix E requirements and those subject to Appendix D. WikiWatershed was then used to estimate the pervious and impervious area within each sewershed for the areas as indicated in figures below:

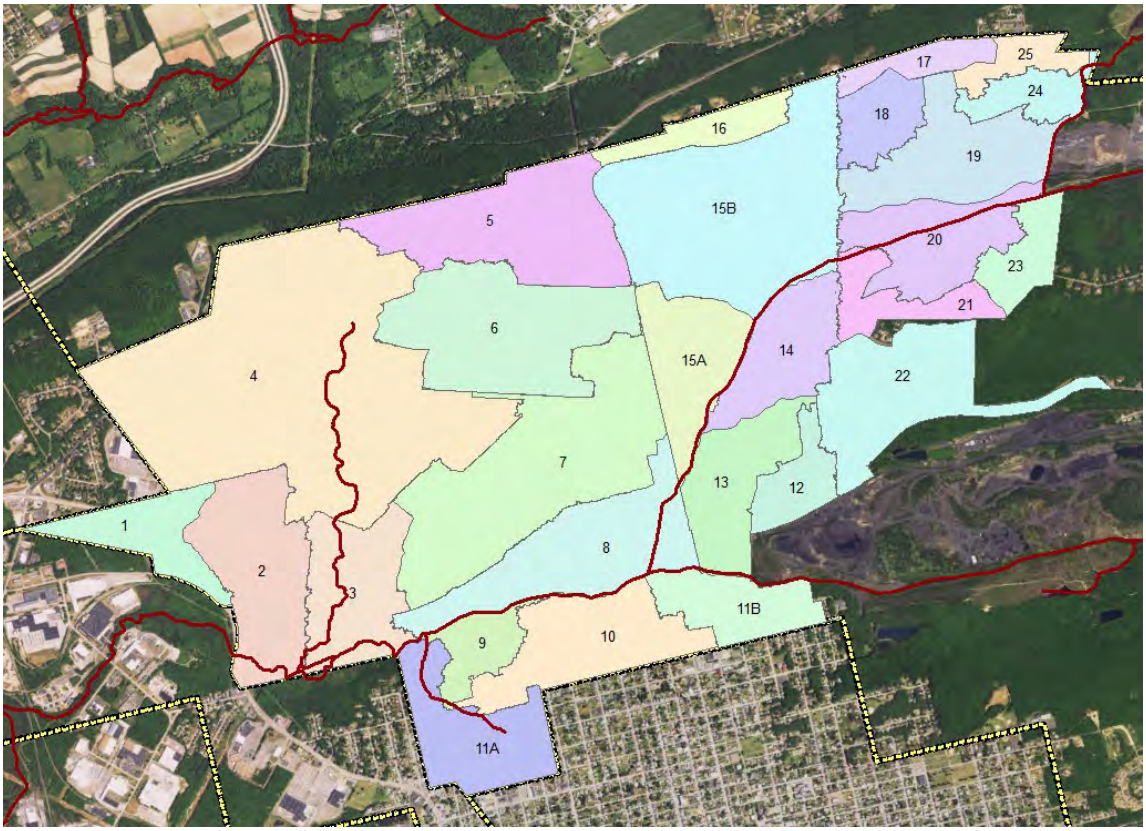


Figure 7: Storm Sewersheds in North area, Hazle Township Luzerne County.

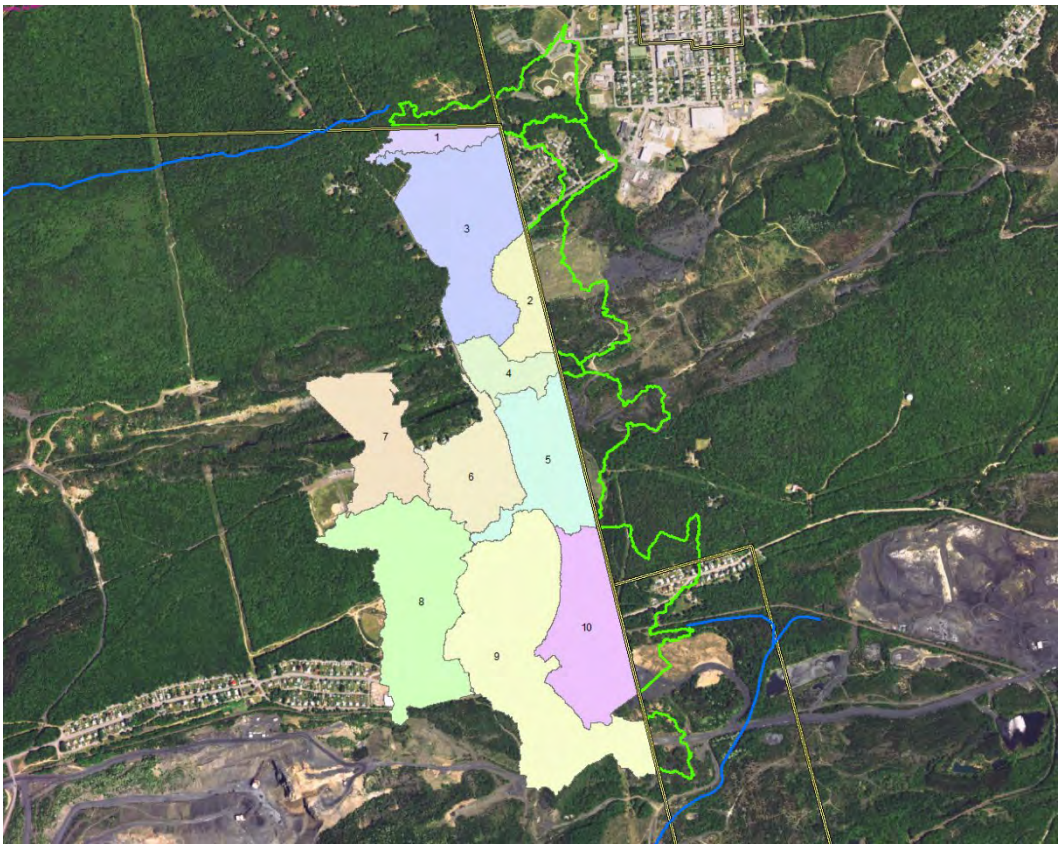


Figure 8: Storm sewersheds in Drifton area, Hazle Township Luzerne County.

Figure 9: Storm sewershed in Diamond Ave. area, Hazle Township Luzerne County.

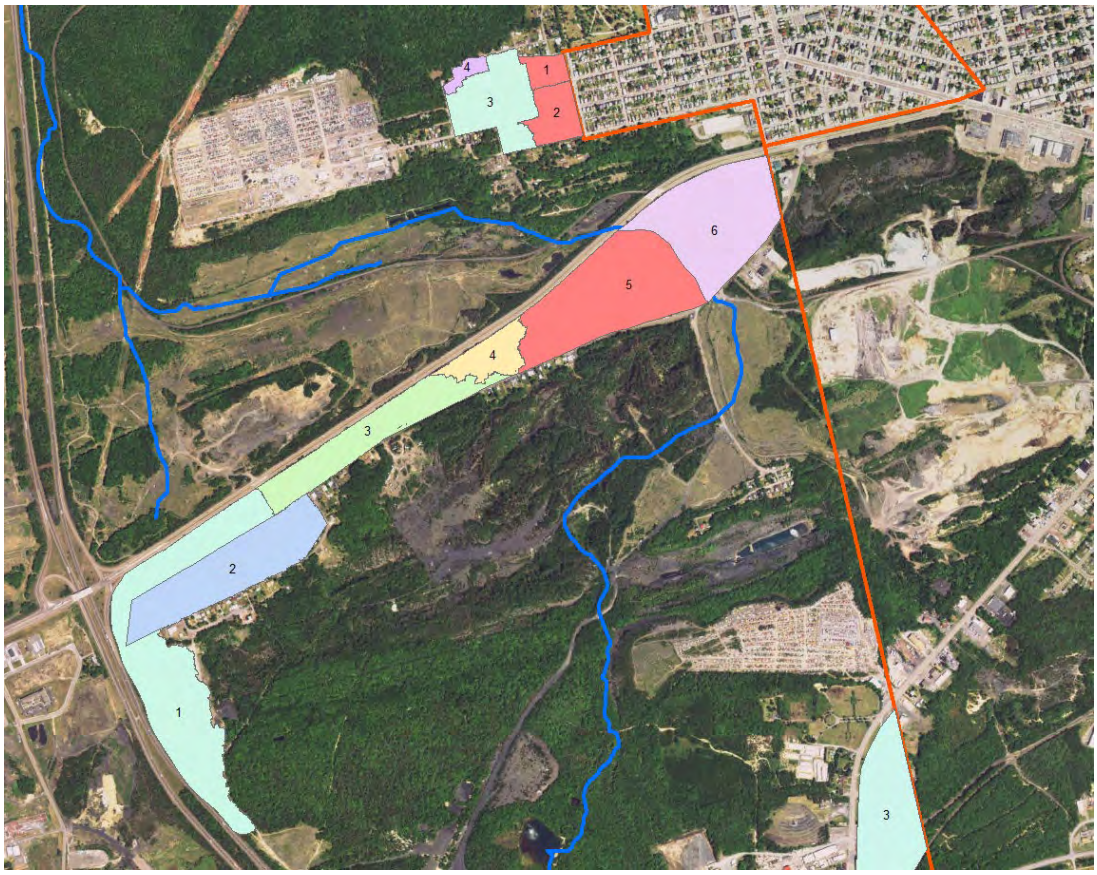


Figure 10: Storm sewersheds in Harwood and Greenridge area, Hazle Township Luzerne County.

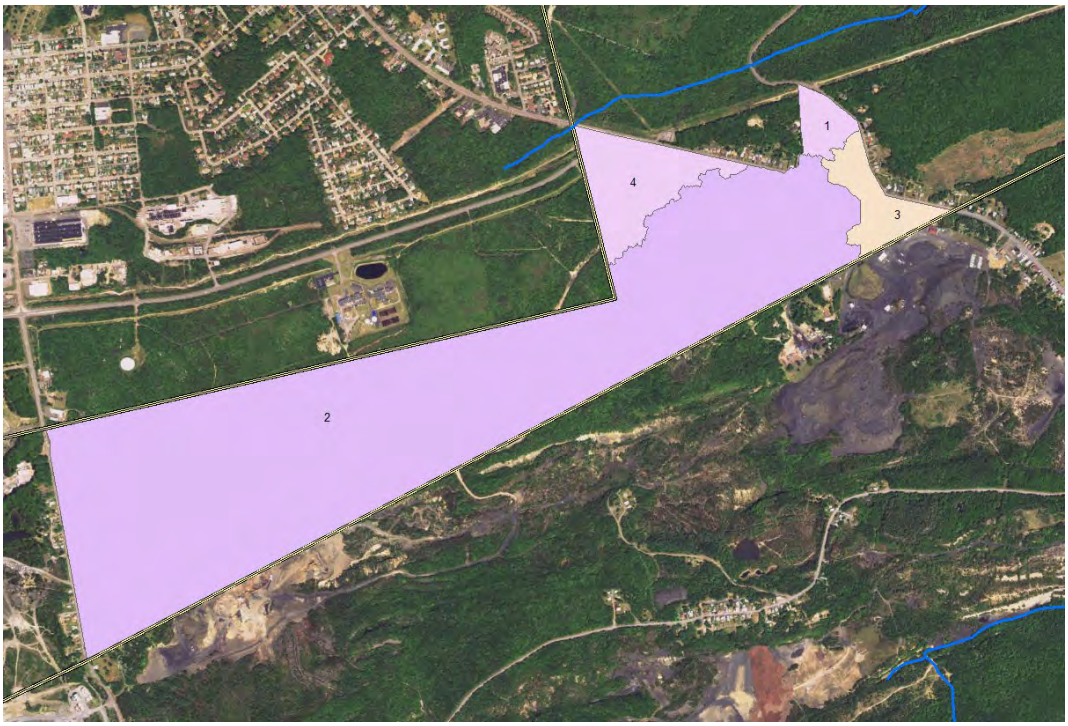


Figure 11: Storm sewersheds in New Coxesville area, Hazle Township Luzerne County.

Figure 12: Storm sewersheds in Valmont area, Hazle Township Luzerne County.

Figure 13: Storm sewersheds in Beaver Brook area, Hazle Township Luzerne County.

5.4 Pollutants of Concern

The primary pollutant of concern that Hazle Township is required to address is sediment. To meet the mandated requirements, a minimum ten (10) percent sediment reduction must be demonstrated.

5.5 Existing Sediment Loading

To determine existing sediment loading in urbanized areas that drain impaired streams the methodology described in the DEP guidance document entitled "Pollution Reduction Plan: A Methodology" was utilized. Per the "Pollutant Aggregation Suggestions for MS4 Requirements Table Instructions" and the "Pollutant Aggregation Suggestions for MS4 Requirements Table (Municipal)", Hazle Township has elected to achieve a ten (10) percent sediment pollutant reduction across the entire Planning Area (i.e. storm sewersheds), as opposed to a 10 percent reduction in the Planning Areas for each receiving impaired surface water. Utilizing ArcGIS 10.5, 2011 National Land Cover Dataset (NLCD) data the acreage of each land cover classification type within the each storm sewersheds was calculated. The aggregate NLCD statistics within the storm sewersheds for each impaired receiving water was tabulated by land cover classification type. The land use information from WikiWatershed comes from the 2011 National Land Cover Database (NLCD 2011).

Please note the following NLCD 2011 definitions:

- Developed, Open Space – **Impervious surfaces account for less than 20% of total cover.** These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.
- Developed, Low Intensity - **Impervious surfaces account for 20% to 49% percent of total cover.** These areas most commonly include single-family housing units.
- Developed, Medium Intensity - **Impervious surfaces account for 50% to 79% of the total cover.** These areas most commonly include single-family housing units.
- Developed High Intensity - **Impervious surfaces account for 80% to 100% of the total cover.** Highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial.

The NLCD 2011 information amalgamates impervious and pervious land uses together to create larger scale land use categories. Therefore the impervious and pervious information needs to be separated out using the percentage information provided in each definition. However PA DEP analysis has determined that the highest percentage of impervious must be used to remain accurate. The appropriate impervious percentages are as follows:

- Developed, Open Space – 19% impervious
- Developed, Low Intensity – 49% impervious
- Developed, Medium Intensity – 79% impervious
- Developed High Intensity – 100% impervious

The calculation was performed using a simple spreadsheet which converts the area information from square meters to acres then multiplies by the correct impervious ratio.

The "Developed Land Loading Rates for PA Counties" (Attachment B of the PRP Instructions) for "Luzerne County" were applied for impervious developed and pervious developed. The existing sediment loading quantified from the entire Planning Area was 624,462 lbs/yr. No existing BMPs were credited to reduce the existing sediment loading. Based on this simple method of load calculations in Appendix C, Hazle Township will be required to remove 10% of this loading over the next five year permit cycle or 62,446 lbs/year of sediment.

Attachment B
Developed Land Loading Rates for PA Counties

County	Category	Acres	TN lb/acre/yr	TP lb/acre/yr	TSS (Sediment) lb/acre/yr
Luzerne	impervious developed	5,857.0	20.43	3	1,648
	pervious developed	13,482.9	19.46	0.98	221
	Outside of Urbanized Area	All	10	0.33	234.6

5.6 Proposed Best Management Practices (BMPs) and Load Reduction Calculations

Proposed BMP's:

Hazle Township proposes to meet the required 10 percent sediment load reduction for the current Planning Area by implementing several BMPs within each area during the next five (5) year permit term.

These BMPs may include a combination of the following BMP's:

- Street Sweeping
- Infiltration Trenches
- Filtering Practices
- Storm Inlet Inserts
- Vegetated Open Swales
- Bio-swales
- Stream Restoration
- Outfall Protection and lining

As each sewer shed is mapped and analyzed final BMP's will be selected and implemented. Pollutant reductions resulting from the proposed BMPs will be quantified using PaDep approved methodology.

Pollution Prevention & Good Housekeeping:

Preventing pollutants from entering a waterway is better than attempting to restore a waterway after it has been polluted. Hazle Township will focus on preventing pollution before it happens. BMPs will focus on preventing pollutants from contacting stormwater.

Municipal activities including winter road maintenance, minor road repairs, infrastructure work, automobile maintenance, landscaping and park maintenance, and building maintenance will be

reviewed annually to help prevent discharge to nearby waterbodies. In addition, polices for containing spills, manage trash, and handle non-stormwater discharges will be developed.

Cleaning storm drains can be a major method of preventing pollutants from entering nearby waterways. Hazle Township staff will be trained to prevent and reduce stormwater pollution from activities like maintaining infrastructure and performing daily municipal activities including:

- Developing inspection and maintenance procedures and schedules for stormwater BMPs
- Implementing BMPs to treat pollutants from roadways and drainage infrastructure, maintenance areas, storage yards, and road salt storage areas.
- Establishing procedures for properly disposing of pollutants removed
- Identifying ways to incorporate water quality controls into new and existing projects
- Developing a training program for staff involved in activities that could discharge pollutants
- Developing standard operating procedures that incorporate stormwater BMPs for common municipal activities

Load Reduction Calculations:

This plan sets a 5-year goal, from DEP's approval of the PRP, to reduce pollution into local waterways by installing various Best Management Practices (BMPs) as noted above. In order to meet these reduction goals, the township will develop and implement these BMP's involving a series of projects throughout each small watershed. As each water shed is mapped in detail over the next five years In-Line Water Treatment devices, stream restoration, outfall protection and swale restoration will be added. This plan is preliminary and may change during the permit cycle if more feasible/cost effective projects are discovered.

As noted, this load reduction calculation is based on the Simplified method of Sediment Removal and Section 4 of the Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects. Due to the fact that this is the municipalities first permit cycle and acknowledging the diversity of possible retrofit BMP applications as further details and analysis are completed, this method provides a potential maximum calculated Load Reduction of 120,778 lbs/yr, if all BMP's are implemented. The analysis indicates that the Township has adequate MS4 watershed and potential BMP's to address the required 101,528 lbs/yr reduction for the 5-year permit. The initial mapping indicates that there are 58 distinct sub watersheds within the Urbanized Area of the Hazle Township boundary of which 28 sewersheds qualify as permitted MS4 areas.

5.7 Funding Mechanisms

Since detailed existing storm system mapping still needs to be completed it is difficult to estimate exact costs of BMP implementation and if any land acquisition will be required. Using a BMP budget cost of $215,000 per sub-watershed including design, engineering, permitting and construction it is expected to cost approximately $4,945,000 over the five year permit cycle or approximately $989,000 per year. Although implementation of this PRP plan is a significant cost to the Township, the Township Supervisors will proactively look for ways to achieve pollutant load reductions and pursue grant opportunities to reduce the overall cost of achieving the required load reductions.

Hazle Township will seek various funding mechanisms to complete all improvements. Funding may include but not be limited to General Funds, Pennvest, Growing Greener, Pa Department of Community and Economic Development and Department of Housing and Urban Development. Engineering, design and estimated costs for the implementation of each proposed BMP will also be developed as each watershed is detailed and analyzed. Hazle Township plans on funding all proposed and required BMPs through money secured through this next permit cycle including revisions to fees and costs incorporated into the stormwater management ordinance.

5.8 Operations and Maintenance

To ensure the long-term effectiveness of all proposed BMPs, operation and maintenance (O&M) is crucial. All the proposed BMPs will be located on Township-owned property or right of way. It will be the responsibility of the Township to maintain the integrity of all facilities as required for each proposed BMP (Pennsylvania Stormwater BMP Manual). The Township is already performing some level of maintenance for these areas through mowing, cleaning and debris removal. It is the intent of the Township to select and design BMP's to minimize operation and maintenance expenses of all new and/or retrofitted facilities. The following tables identify potential BMP's and their required operation and maintenance responsibilities.

Responsible Parties for Operation and Maintenance of Various BMPs

BMP Option 1	Parties Responsible for O&M	O&M Activities	Frequency of Activities
Stream Restoration	Hazle Township Public Works Director Maintenance Staff	Visually inspect bank and structures	Annually
		Note and photograph any accelerated weathering, displacement or significant changes	Annually
		Inspect the bank and structures after heavy rainfall	As Needed
		Sponsor Clean Up events to clear debris and trash from the drainage area.	Annual event coordinated with the Township

BMP Option 2	Parties Responsible for O&M	O&M Activities	Frequency of Activities
Open Channel Vegetation	Hazle Township Public Works Director Maintenance Staff Local schools	Visually inspect the channel; remove weeds, debris and intrusive plants; replacement of any rip rap or stone areas	Monthly (first 6 months) Annually after 6 mo.
		Visually inspect the channel; look to conduct outdoor classroom exercises, provide Township copy of the class exercise report	Annually
		Mow and trim vegetation to ensure safety, aesthetics, proper swale operations, and to suppress weeds and invasive plants	As Needed Mowing and trimming schedule to be directed by the Nursery supplier
		Provide summary of maintenance activities conducted to the Township	Annually
		Provide training on proper uses of fertilizers, pesticides, de-icers and other materials within the drainage area; review non-toxic alternatives	Annual Training for Maintenance Staff coordinated with Hazle Township staff

BMP Option 3	Parties Responsible for O&M	O&M Activities	Frequency of Activities
Rain Gardens	Hazle Township Public Works Director Maintenance Staff Private Participation Local schools	Visually inspect for signs of erosion; Clear accumulation of debris at pipe openings and discharge points	As Needed following construction
		Initial watering program to get plantings established	As Needed following construction
		Prune and weed swale to maintain appearance; Remove trash and debris	Monthly
		Remove and replace mulch	Every 2-3 years
		Inspect inflow area for sediment accumulation; Test planting bed pH soil, adjust as needed	Annually
		Replace dying vegetation	Annually
		Visually inspect and check cross-section and longitudinal slopes	Annually
		Inspect inflow area for sediment accumulation; Test planting bed pH soil, adjust as needed	Annually

BMP Option 4	Parties Responsible for O&M	O&M Activities	Frequency of Activities
Permeable Pavement	Hazle Township	Designate restricted use areas near the pavement to prevent clogging materials from being washed into the area (mulch piles, truck washing areas, material storage, etc.)	Annual Training for Staff on restricted activities on or near permeable pavement
		Post signs at parking lot about restrictive uses for the area	As needed
		Weed removal	Monthly
		Maintenance Agreement with Hazle Township	Prior to construction
		Vacuum Sweeper; Records of vacuum sweeping (preventative measure)	At least 2 times a year. More if needed Regenerative air vacuum sweepers recommended for regular maintenance
		Inspection for accumulated dust, sediment and debris	Quarterly
		Municipal Compliance verification	Annually

BMP Option 5	Parties Responsible for O&M	O&M Activities	Frequency of Activities
Filter Strip Runoff Reduction	Hazle Township	Inspect accumulation of debris, remove debris, flag and repair locations of channelization and /or erosion that need re-stabilized	At least twice a year
		Inspect vegetative for 85% sustained coverage, reestablish cover if >50% damage is observed, remove invasive/ unwanted plant growth	At least twice a year Min. 1 Inspection - during growing season Min. 1 inspection – during non-growing season
		Removal of sediment when accumulation exceeds 2 inches in depth	As Needed
		Legal agreement with property owner	Prior to BMP work List of maintenance and operation tasks to be provided in a written manual for both parties
	Property Owner	Inspection log for recording observations and maintenance activities	Annual submission of log forms to Township

6.0 Conclusion

The required ten (10) percent reduction in sediment can be achieved through the proposed implementation of BMP's. These BMP's will be funded and implemented by the end of this permit cycle in 2028.

7.0 Definitions

Best Management Practices (BMPs): Schedules of activities, prohibitions of practices, structural controls (e.g., infiltration trenches), design criteria, maintenance procedures, and other management practices to prevent or reduce pollution to the waters of the Commonwealth. BMPs include Erosion and Sedimentation Control Plans, Post Construction Stormwater Management Plans, MS4 TMDL Plans, Stormwater Management Act Plans, and other treatment requirements, operating procedures and practices to control runoff, spillage or leaks, sludge or waste disposal, drainage from raw material storage, and methods to reduce pollution, to recharge groundwater, to enhance stream base flow and to reduce the threat of flooding and stream bank erosion. [NPDES Stormwater Discharges from Small MS4s General Permit 5/2016 (PAG-13)]

Municipal Separate Storm Sewer System (MS4): All separate storm sewers that are defined as "large" or "medium" or "small" municipal separate storm sewer systems pursuant to 40 CFR §§ 122.26(b)(18), or designated as regulated under 40 CFR § 122.26(a)(1)(v). [PAG-13]

National Pollutant Discharge Elimination System (NPDES): A permit issued under 25 Pa. Code Chapter 92a (relating to National Pollutant Discharge Elimination System permitting, monitoring and compliance) for the discharge or potential discharge of pollutants from a point source to surface waters. [PAG-13]

Outfall: A "Point Source" as defined by 40 CFR § 122.2 is the point where an MS4 discharges stormwater to other surface waters of this Commonwealth. This does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream and are used to convey waters of the Commonwealth (40 CFR § 122.26 (b) (9)). [PAG-13]

Owner or operator: The owner or operator of any "facility" or "activity" subject to regulation under the NPDES program. [PAG-13]'

Parsing: A process in which land area is removed from a Planning Area in order to calculate the actual or target pollutant loads that are applicable to an MS4. [NPDES from Small MS4 PRP Instructions-Attachment A]

Planning Area: All of the storm sewersheds that an MS4 must calculate existing loads and plan load reductions for [NPDES from Small MS4 PRP Instructions]

8.0 Appendix A: Advertisement

The Standard Speaker (Under act P.L. 877 No 160. July 9,1976)
Commonwealth of Pennsylvania, County of Luzerne

HAZLE TOWNSHIP SUPERVISORS
WENDY NAPRAVA
PO BOX 506 HAZLE TOWNSHIP BLDG
HARLEIGH PA 18225

Account # 218982
Order # 82218071
Ad Price: 190.64

POLLUTION REDUCTION
Ann Marie Fortese
Being duly sworn according to law deposes and says that (s)he is Billing clerk for The Standard Speaker, owner and publisher of The Standard Speaker, a newspaper of general circulation, established in 1865, published in the city of Hazleton, county and state aforesaid, and that the printed notice or publication hereto attached is exactly as printed in the regular editions of the said newspaper on the following dates:

06/04/2018

Affiant further deposes and says that neither the affiant nor The Standard Speaker is interested in the subject matter of the aforesaid notice or advertisement and that all allegations in the foregoing statement as time, place and character or publication are true.

Sworn and subscribed to before me
this 4th day of June A.D., 2018

(Notary Public)

Commonwealth of Pennsylvania - Notary Seal
Sharon Venturi, Notary Public
Luzerne County
My commission expires February 12, 2022
Commission number 1254226
Member, Pennsylvania Association of Notaries

Legal Notices

NOTICE

NOTICE IS HEREBY GIVEN THAT Hazle Township has prepared a Pollution Reduction Plan (PRP) as required by the PA DEP which plan outlines potential activities and projects to reduce pollution caused by sediment and/or nutrients in receiving streams. The PRP is available for public review and comment at the Township Office located at 101 West 27th Street, Hazle Township, PA 18202 beginning June 11, 2018 through and including July 11, 2018 weekdays, during regular business hours of 7:00 a.m. until 2:00 p.m. The Plan is also available for review beginning June 11, 2018 at the Townships website at http://www.hazletownship.com

Written comments will be accepted in person or by mail at the Townships Office address above no later than close of business on July 11, 2018. Public comment concerning the PRP will also be accepted at a public meeting to be held on Tuesday, July 17, 2018 at 6 p.m. at the Township Office. The proposed adoption of the Plan by the Hazle Township Supervisors will be considered at the Townships regularly scheduled public meeting to be held on August 13, 2018 at 6:00 p.m.

/s/ John Synoski
Hazle Township Planning Director

9.0 Appendix B: Sub-Sewershed Analysis

The Hazle Township Municipal Storm Water System was broken down into sub-watersheds utilizing Wiki "Model My Watershed" Tool created by the Stroud™ Water Research Center and GIS mapping analysis utilizing layers and tools provided by PASDA. PASDA 2-foot USGS contours, field research of existing piped storm drainage system, Google earth 3-D, PASDA Hillshade and experience working in the area was utilized to determine direction of flow, probable type of flow (sheet, swale or piping) and reasonable outfall locations based on available data.

Based on recent coordination and plan review discussions with PaDep, any area meeting the Parsing Guidelines established by the Department may be excluded from the Planning Area for the MS4 Permit. Parsing for PRPs include the following:

1. Areas within the storm sewer shed that do not drain to a Township/Municipal MS4
2. Areas already covered by an NPDES permit for the control of stormwater
3. Sites covered by the PAG-03 General Permit for Stormwater Associated with Industrial Activity
4. Areas associated with non-municipal stormwater NPDES permit coverage that exists within the urbanized area of a municipality
5. Land area associated with private development, School Districts, PennDOT roadways, Railroads and the Pennsylvania Turnpike (roads and right of ways)
6. Lands associated with the production area of a Concentrated Animal Feeding Operation
7. Land areas in which stormwater runoff does not enter the MS4.
8. Homeowner's associations which do not contain municipal roads or other municipal infrastructure
9. Schools which do not contain municipal roads or other municipal infrastructure.
10. Any drainage area disconnected from the stream being analyzed (i.e. open mine pit or mining)

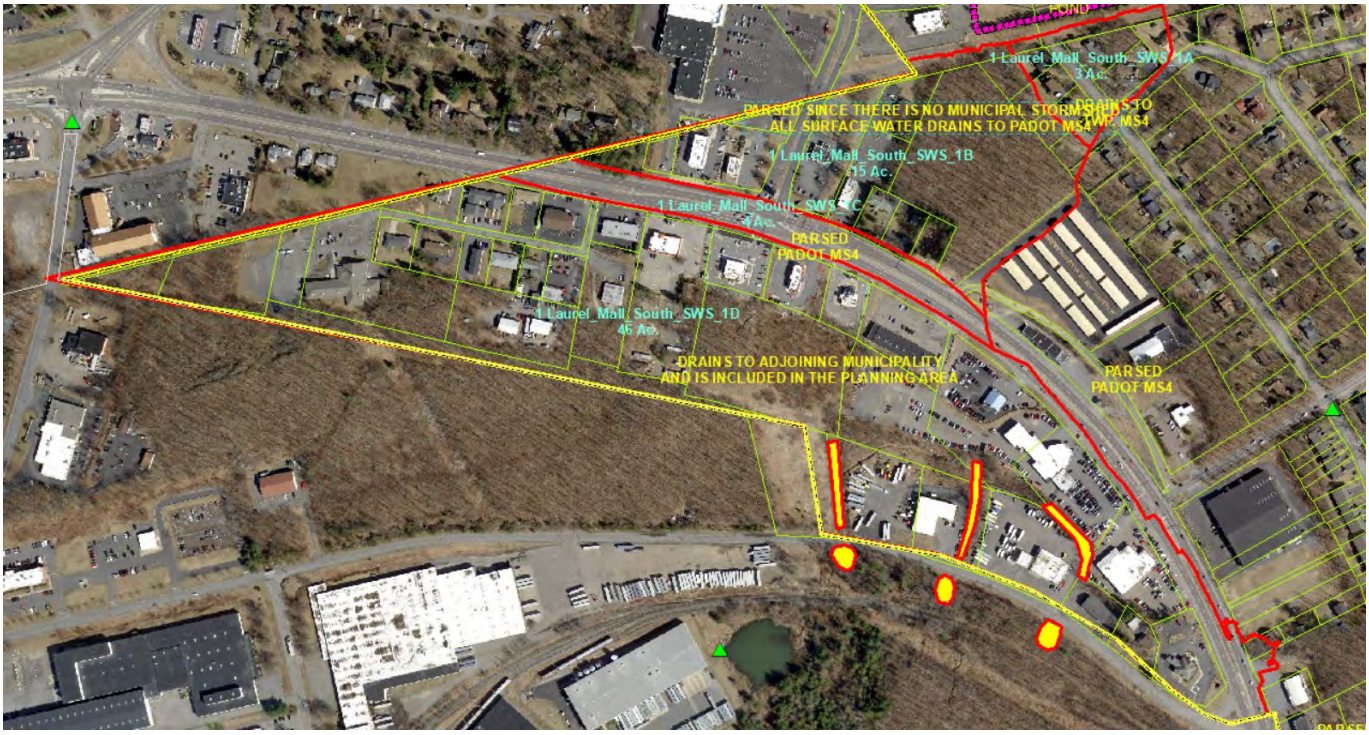
There has been and continues to be a large area of surface mining activities within Hazle Township. Many of these current and former mining activities have disturbed and significantly scared the original surface topography and have altered many of the original stream drainage flow paths. Several sewersheds surface flow never reach the stream due to these mining activities. As required by PaDep, a more detailed study of all mining areas is required prior to parsing this land.

Surface mining alterations have resulted in a significant discontinuation of the historical stream and has resulted in surface discharge to open pits, active mining operations and most likely eventually the mine pool. **All areas draining to current or former mining activities, isolated open pits, mine pools or areas that are disconnected from the MS4 and the stream being impacted are parsed out and excluded from this MS4 analysis at this time as approved by PaDep.**

NORTH AREA OF HAZLE TOWNSHIP

The North area of Hazle Township contains the primary Urbanized section of the Township. This section of Hazle Township borders Sugarloaf Township, Borough of West Hazleton and Butler Township. Watershed areas which do not contain a Township MS4, areas that drain to Padot, and PaDot right of way have been parsed out of the MS4 and excluded from this analysis.

1 Laurel Mall South SWS1: This drainage area contains part of the Chapel Hill Development, entrance to and part of the Laurel Mall, development of commercial buildings along SR 93 and industrial development along Dessen Drive in West Hazleton. All drainage systems except for the small area in Chapel Hill are private or part of/drain to the PaDot right of way. Hazle Township does not own or maintain any municipal stormwater piping, swales or roads in this drainage area except for Chapel Hill and therefore areas except the Chapel Hill watershed are parsed out of this analysis.

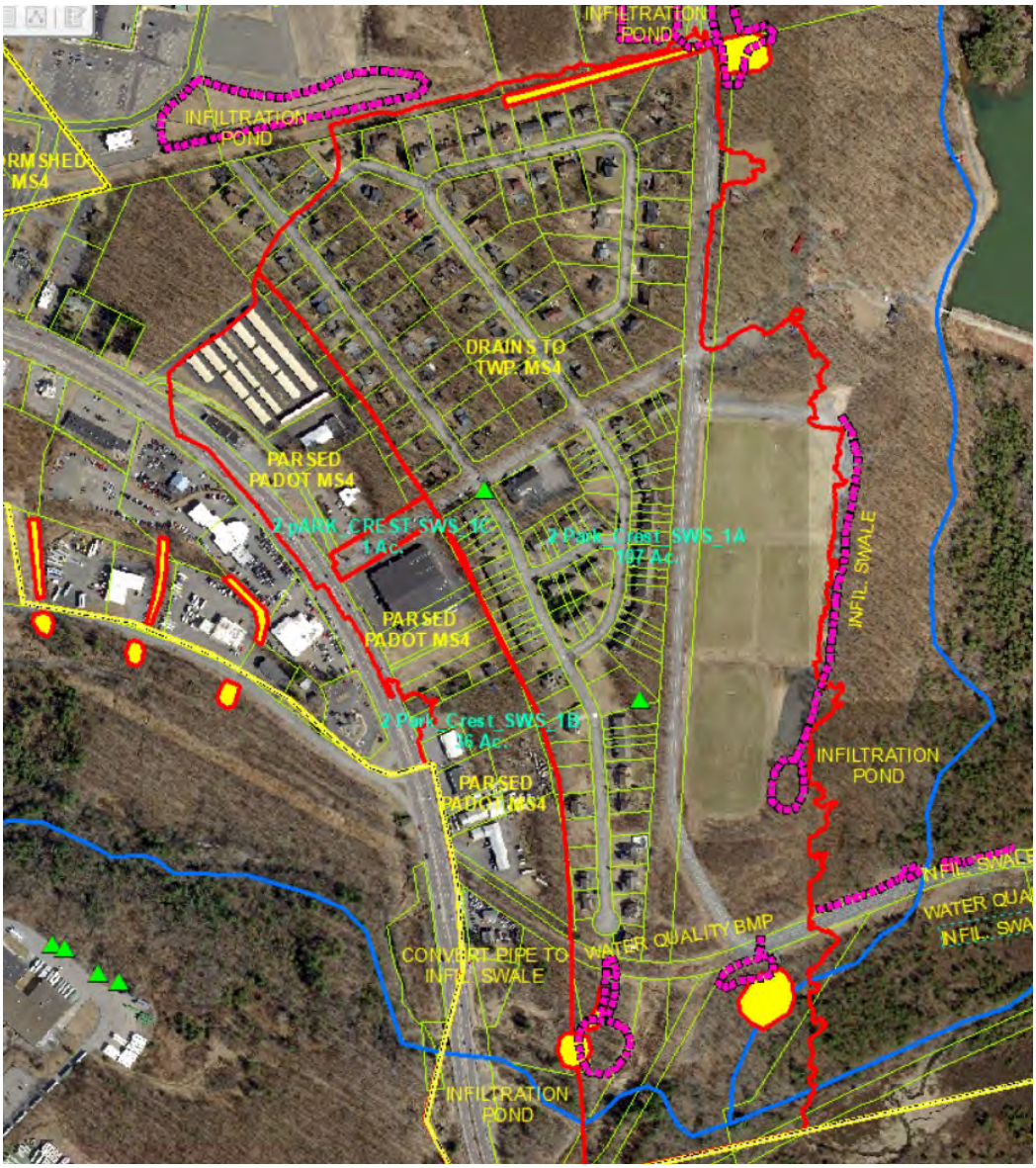


1 Laurel_Mall_South_SWS_1

OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
6585	1	0	11758.706638	2019480.87285	46	1 Laurel_Mall_South_SWS_1D	No Twp MS4 but drains to W. Haz Pipes
6585	1	0	11758.706638	638954.494213	15	1 Laurel_Mall_South_SWS_1B	Parsed Out No MSS4 All Private Dev Drains to PaDot
6585	1	0	11758.706638	169657.471616	4	1 Laurel_Mall_South_SWS_1C	Parsed Out - PaDot ROW No MS4
6585	1	0	11758.706638	134729.601322	3	1 Laurel_Mall_South_SWS_1A	Twp MS4 - Improved Road w/ Inlets & Swales

Proposed BMP's: Since section 1A is such a small isolated MS4 drainage area street sweeping, and inlet inserts are proposed to remove contaminants. The 46 acres of section 1D includes Fox Manor Road where inlets and street sweeping is also proposed. The majority of land in 1D flows to adjoining municipality but is included in Hazle Township's planning area and loading calculations.

2 Park Crest SWS1: This drainage area contains the majority of the Chapel Hill Development, entrance to the Hazle Township Community Park, Community Park soccer fields, Park Crest Development and commercial development along SR 93. All drainage systems within the two residential developments are owned and maintained by the Township. Commercial development along the State ROW flows to the PaDot SR93 drainage system and is not part of the Township MS4. The Padot ROW and developed area tied directly to that system are therefor parsed out of this analysis.

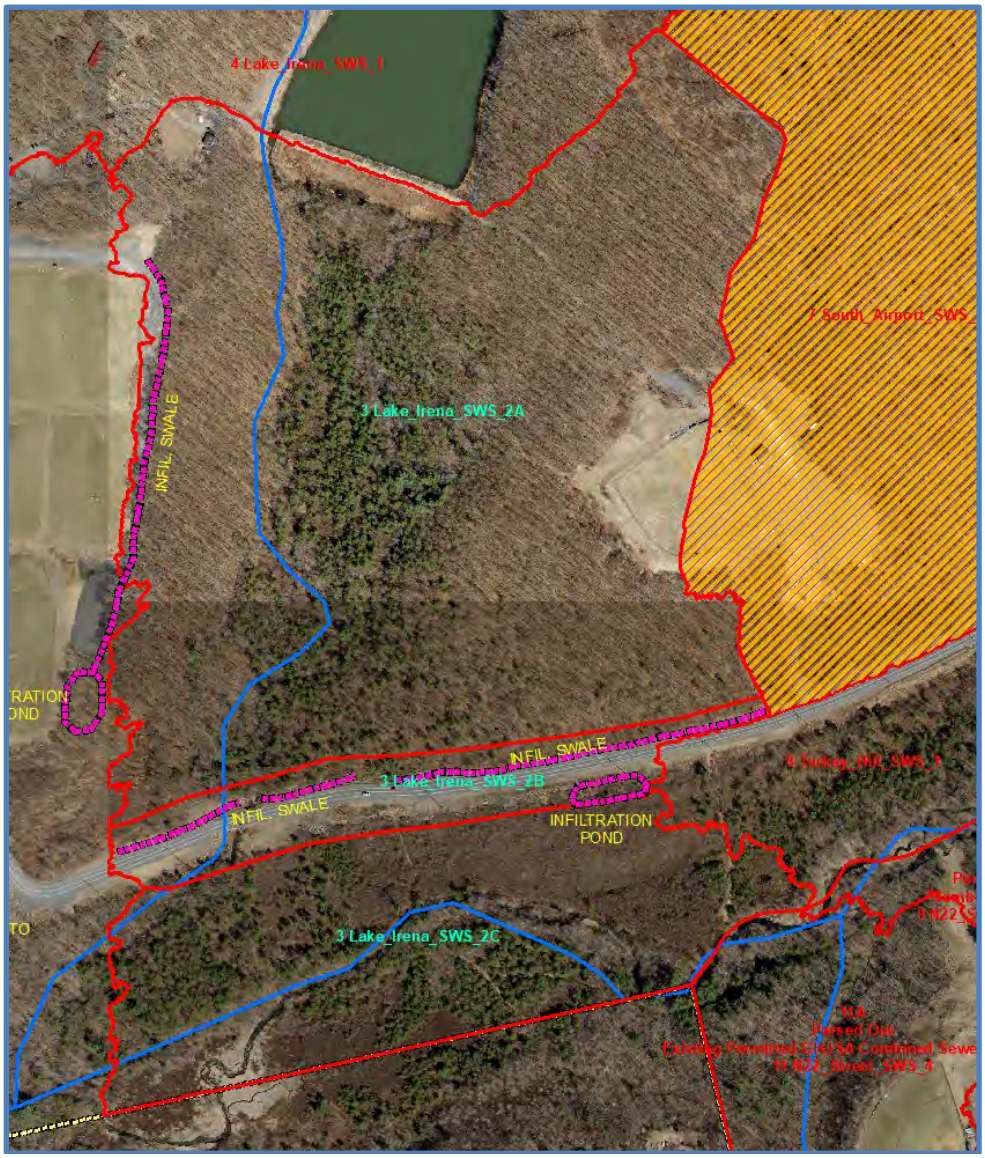


2 Park_Crest_SWS_1

FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
1	Polygon	6480	2	0	9286.664926	1549713.89739	36	2 Park_Crest_SWS_1B	Parsed Out No MSSS Drains to Padot
0	Polygon	6480	2	0	14103.686194	4665623.86218	107	2 Park_Crest_SWS_1A	Twp MS4 BMPs Added
2	Polygon	6480	2	0	1039.621879	41527.097781	1	2 pARK_CREST SWS_1C	Twp MS4 Drains to PaDot

Proposed BMP's: This drainage area discharges to a large piped outfall. The proposed BMPs' include replacing existing pipe with a vegetated open swale discharging to infiltration wet pond with wetlands.

3 Lake Irena SWS2: This drainage area is part of the lands of Hazle Township Community Park and is located just south of Lake Irena. The land is predominantly wooded and undeveloped. An existing Community Park Road cuts across the very south end of the drainage area. Existing rock swales and cross pipes installed by the Township to handle surface stormwater flow from this drainage area.



3 Lake_Irena_SWS_2

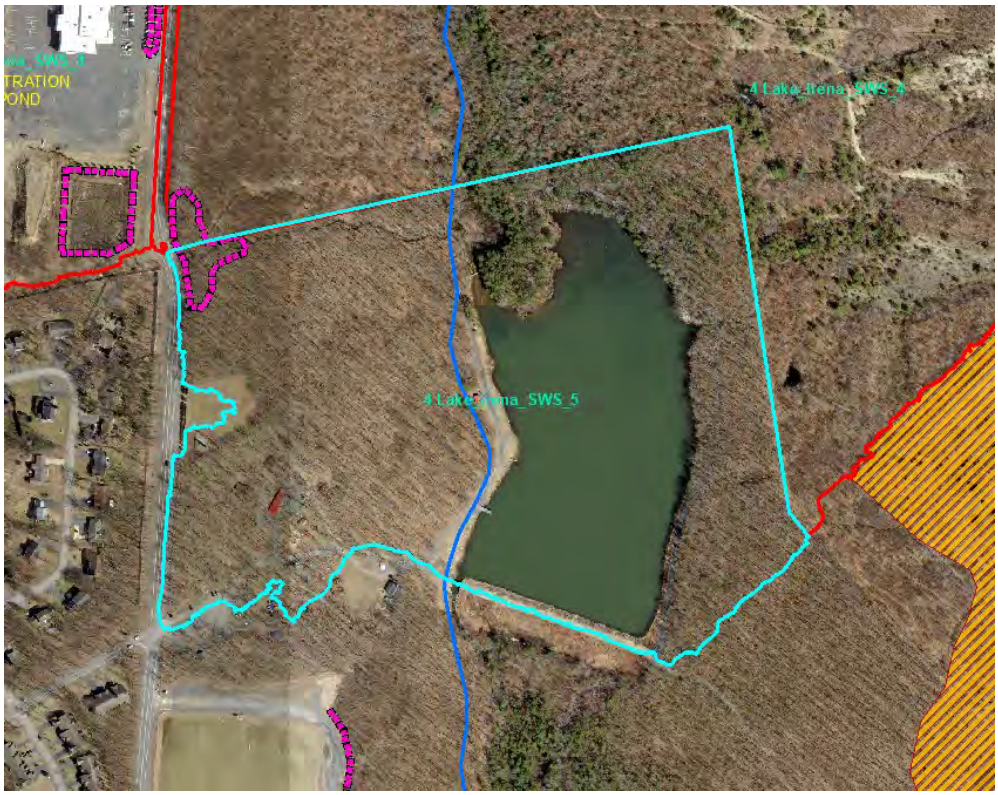
FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
0	Polygon	6589	3	3296	14499.372602	4553628.21099	77	3 Lake_Irena_SWS_2A	Natural Wooded Area
1	Polygon	6589	3	3296	14499.372602	4553628.21099	9	3 Lake_Irena_SWS_2B	Twp Road Improvement
2	Polygon	6589	3	3296	14499.372602	4553628.21099	27	3 Lake_Irena_SWS_2C	Natural Wooded Area

Proposed BMP's: This drainage area discharges to existing rock lined swales and typical open cross pipe. The proposed BMPs' include replacing rock swales with vegetated open infiltration swales, outfall protection and bio-retention area.

4 Lake Irena SWS1: This is a large drainage watershed and includes significant development. Extending from the far north line of the Township this area includes the residential development of Woodlawn Park, commercial development along the Airport Beltway (PaDot), lands of the Hazleton Airport (parsed since Federally regulated), Walmart, Hazleton Auto Mall, the Laurel Mall, and the north part of the Hazle Township Community Park. The PaDot right of way of the Airport Beltway is parsed out of this watershed. All drainage flows is via pipes and swales to the headwaters to tributaries to Lake Irena and are critical to the water quality of this lake.

VIEW OF OVERALL DRAIANGE AREA

LANDS OF HAZLETON AIRPORT PARSED OUT OF THIS ANALYSIS



NATURALLY WOODED LANDS OF COMMUNITY PARK PARSED OUT OF THIS ANALYSIS

4 Lake_Irena_SWS_1

FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Watershed	Descripti	Area_Acres
1	Polygon	6584	4	2903	31418.867553	163.045258	4 Lake_Irena_SWS_2	Drainage to new infiltration swale	163
2	Polygon	6584	4	2903	31418.867553	15.029965	4 Lake_Irena_SWS_3	Padot ROW Parsed Out	15
5	Polygon	6584	4	2903	31418.867553	2.612878	4 Lake_Irena_SWS_6	Twp North Park Drive	3
6	Polygon	6584	4	2903	31418.867553	24.254386	4 Lake_Irena_SWS_7	Developed area to stream	24
9	Polygon	6584	4	2903	31418.867553	7.937281	4 Lake_Irena_SWS_10	Private Development No MS4	8
0	Polygon	6584	4	2903	31418.867553	62.384044	4 Lake_Irena_SWS_1	Laurel Mall - Upgrade Pond - Potential Parse Area	62
3	Polygon	6584	4	2903	31418.867553	168.188108	4 Lake_Irena_SWS_4	Airport Lands Parsed Out No Twp MS4	168
4	Polygon	6584	4	2903	31418.867553	49.77812	4 Lake_Irena_SWS_5	Community Park Parsed Out No MS4	50
7	Polygon	6584	4	2903	6687.806569	2081662.47072	4 Lake_Irena_SWS_8	Auto Mall Upgrade Pond- Potential Parse Area	48
8	Polygon	6584	4	2903	31418.867553	28.642601	4 Lake_Irena_SWS_9	Wallmart Upgrade Pond- Potential Parse Area	29
10	Polygon	6584	4	2903	31418.867553	18.172856	4 Lake_Irena_SWS_11	Upgrade Existing Ponds - Potential Parse Area	18

Proposed BMP's: This drainage area includes a wide variety of existing private, public and facilities. Some facilities are within PaDot right of way. Infrastructure includes ponds, swales and unprotected open cross pipes. The proposed BMPs' include entering into a cooperative agreement with private developers owning the various stormwater ponds in order to upgrade to wet ponds, wetlands or extended detention basins. Grass lined and rock swales will be upgraded to vegetated open infiltration swales, outfall protection and bio-retention areas.

5 Hollywood SWS1

This drainage area includes part of the Village of Hollywood, a large BAMR reclaimed area and the PaDot Airport Beltway. The PaDot right of way of the Airport Beltway has been parsed out of this watershed analysis. All drainage flows via sheet flow, pipes and swales to the PaDot right of way and drainage system which is not a Municipal Stormwater System. Stormwater for these drainage areas then discharges to a large open mine pit via PaDot pipes and is totally disconnected from the stream of this analysis. Therefore, this entire drainage area has been parsed out and excluded from this analysis.

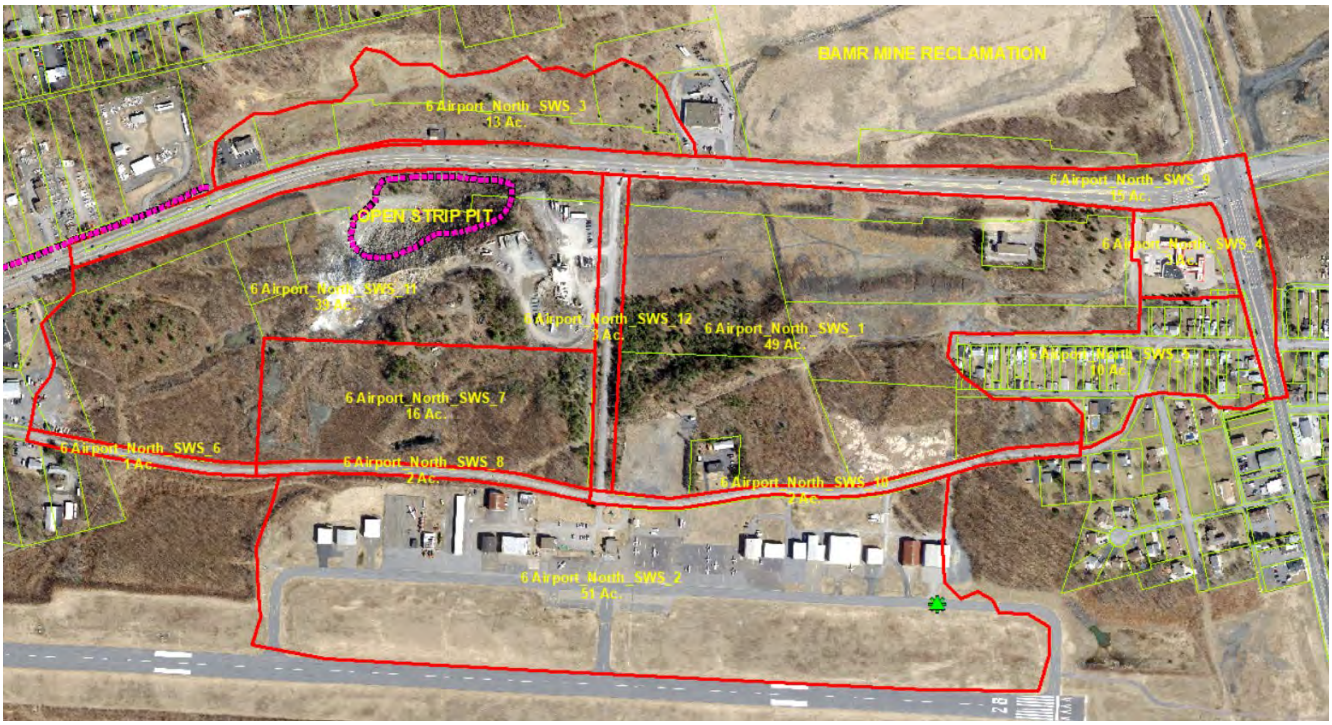
5 Hollywood_SWS_1

FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
0	Polygon	6446	5	1547	17801.545872	4727559.39102	109	5 Hollywood_SWS_1	Village of Hollywood
1	Polygon	6446	5	1547	17801.545872	671800.089276	15	5 Hollywood_SWS_2	Padot ROW & Draiange Area No MS4
2	Polygon	6446	5	1547	17801.545872	2234259.26022	51	5 Hollywood_SWS_3	BAMR Mine Reclamation Area No MS4

Proposed BMP's: The PaDot and BAMR reclamation site has no Township MS4 and these areas have been parsed from the analysis. This Hollywood drainage area includes municipal strets and storm system and is included in the ms4. Grass lined and rock swales will be upgraded to vegetated open infiltration swales, outfall protection and bio-retention areas.

6 Airport North SWS1

This drainage area includes part of the Village of Milnesville, a large strip pit, PaDot right of way, Township Old Airport Road and part of the Lands of the City of Hazleton Airport which is under a separate NPDES Permit. This entire area drains to an open mine pit and is disconnected from any stream. and has been parsed out and excluded from this analysis. Padot ROW, private non MS$ land draining to Padot, area without an MS4 and the Airport Land have been parsed from the analysis.



6 Airport_North_SWS_1

FID	Shape *	Acres	Watershed	Descriptio
0	Polygon	49	6 Airport_North_SWS_1	Mine land & Undeveloped to pit
1	Polygon	51	6 Airport_North_SWS_2	Airport Part of Indiv NPDES Permit - Parsed
2	Polygon	13	6 Airport_North_SWS_3	Priv land to Padot - No MS4 in this area
3	Polygon	3	6 Airport_North_SWS_4	Turkey Hill to Pit but included in MS4
4	Polygon	10	6 Airport_North_SWS_5	Part of Milnesville drains to pit part of MS4
5	Polygon	1	6 Airport_North_SWS_6	Twp Road Part of MS4
6	Polygon	16	6 Airport_North_SWS_7	Priv Land of Airport drains to Padot No MS4
7	Polygon	2	6 Airport_North_SWS_8	Twp Road Part of MS4
8	Polygon	15	6 Airport_North_SWS_9	PaDot ROW to pit excluded from MS4
9	Polygon	2	6 Airport_North_SWS_10	Twp Road Part of MS4
10	Polygon	39	6 Airport_North_SWS_11	Undev Land drains to Padot No Twp MS4
11	Polygon	3	6 Airport_North_SWS_12	Twp Road Part of MS4 drains to Padot

Proposed BMP's: . Grass lined and rock swales will be upgraded to vegetated open infiltration swales, outfall protection and bio-retention areas are proposed.

Airport South SWS1

This drainage area includes a large part of the City of Hazleton Airport Lands which is not under the control of the Township and parsed out of this analysis. A small section in the North East corner near 36'th Street and North Vine Street which has a drainage system installed by the Township. It appears that the area along 36'th and Vine Street is tied into the piping and swales of the Airport North SWS1 drainage area which discharges to a disconnected open min pit and has also been parsed out. All PaDot right of way is parsed form this drainage area analysis. The remaining area of development along 30'th Street drains to an open swale and eventually to Black Creek.

7 South_Airport_SWS_1

Shape_Leng	FID	Shape_Area	acres	Watershed	Descriptio
24793.510164	1	920363.675087	21	7 South_Airport_SWS_2	Woodlawn Park Outfalls to Adjacent Area
24793.510164	2	85647.477107	2	7 South_Airport_SWS_3	Padot ROW Parsed Out
24793.510164	3	655991.552258	15	7 South_Airport_SWS_4	Part Milnesville - drains N. to Adjent mined area
24793.510164	4	370631.080774	9	7 South_Airport_SWS_5	Developed area
24793.510164	0	9977303.59405	229	7 South_Airport_SWS_1	Wooded Land of Hazleton City Airport Indiv NPDES

Proposed BMP's: The MS4 drainage area along 30'th Street discharges to the headwaters of Black Creek via pipes and swales. The proposed BMPs' include vegetated open infiltration swales, outfall protection and bio-retention areas. These BMP's are in adjacent drainage area #8.

8 Turkey Hill SWS1

This area includes the drainage area near Turkey Hill and southwest along the north side of Black Creek. A private geriatrics care and housing facility is located within this area and parsed out of this analysis. A part of Community Park Road is located along the north edge of the drainage area. Two auto sales lots are located adjacent to and draining to the PaDot SR 309 ROW are parsed out of this analysis. All PaDot right of way is parsed form this drainage area analysis.

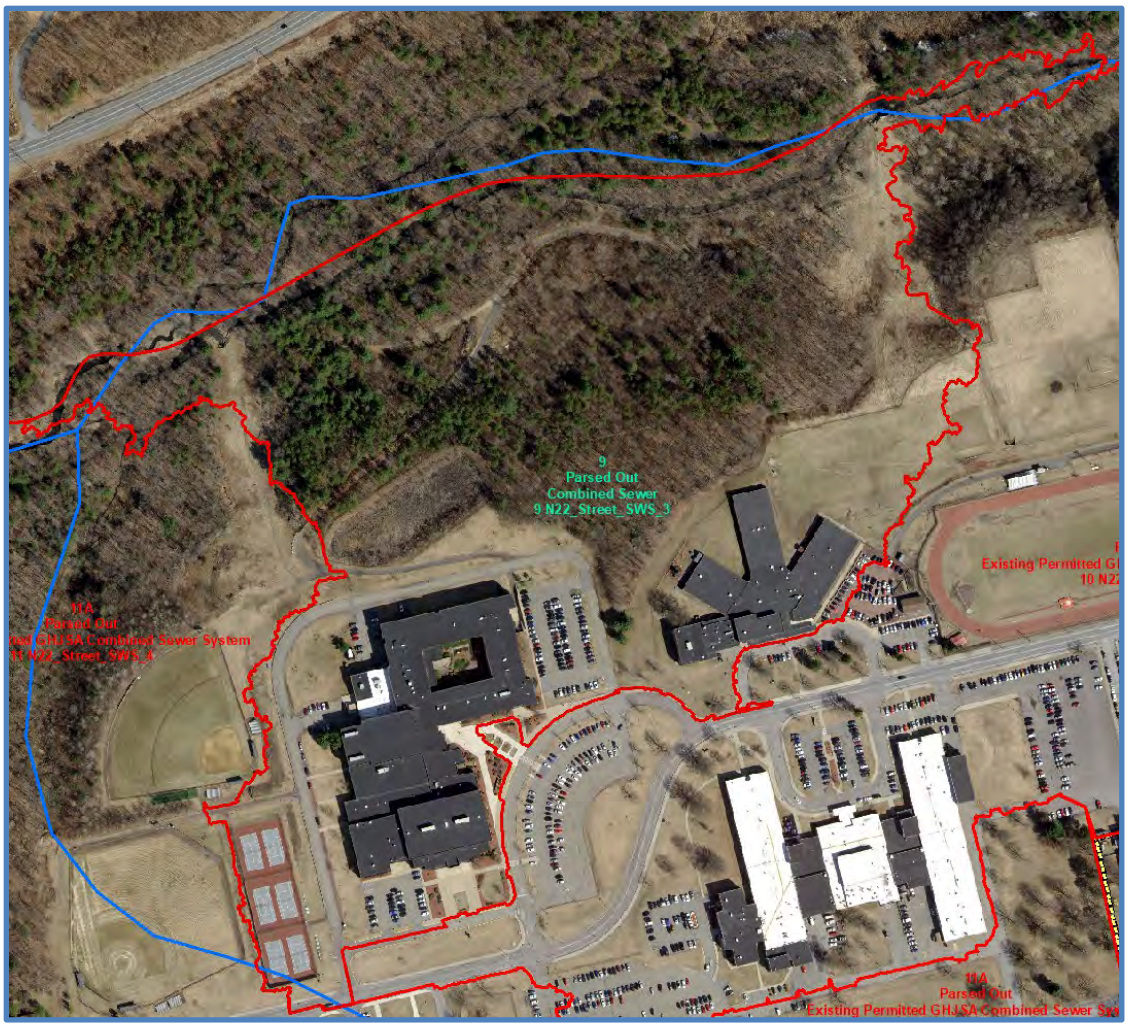
8 Turkey_Hill_SWS_1

FID	Shape_Leng	Shape_Area	Acres	Watershe	Descriptio
0	3161927.14311	3161927.14311	73	8 Turkey_Hill_SWS_1	Drainage Area of 8 Turkey Hill SWS 1
1	407622.47313	407622.47313	9	8 Turkey_Hill_SWS_2	Twp Road Area Drains to PaDot
2	62770.407083	62770.407083	1	8 Turkey_Hill_SWS_3	Parsed Out PaDot ROW
3	169907.952917	169907.952917	4	8 Turkey_Hill_SWS_4	Twp Road Area Drains to PaDot
4	38256.684709	38256.684709	1	8 Turkey_Hill_SWS_5	Parsed Out PaDot ROW
5	136267.664081	136267.664081	3	8 Turkey_Hill_SWS_6	Private Lands Sheet Flow To Stream
6	1056343.83215	1056343.83215	24	8 Turkey_Hill_SWS_7	Private Development mixed with Twp MS4
7	843983.848921	843983.848921	19	8 Turkey_Hill_SWS_8	Drainage Area of 8 Turkey Hill SWS 8
8	850379.284557	850379.284557	20	8 Turkey_Hill_SWS_9	Drainage Area of 8 Turkey Hill SWS 9
9	339163.182683	339163.182683	8	8 Turkey_Hill_SWS_10	Drainage Area of 8 Turkey Hill SWS 10

Proposed BMP's: The MS4 drainage area along 30'th Street from adjacent drainage area discharges to the headwaters of Black Creek via pipes and swales. The proposed BMPs' include vegetated open infiltration swales, outfall protection and bio-retention areas.

9 North 22nd Street SWS1

This drainage area includes lands of the Hazleton Area School District. Hazle Township has no Municipal Storm Sewer System in this area. This private non-municipal drainage area is completely parsed form the overall PRP analysis. An existing old stormwater pond exists in the rear of the school which may be an asset for future water quality control.



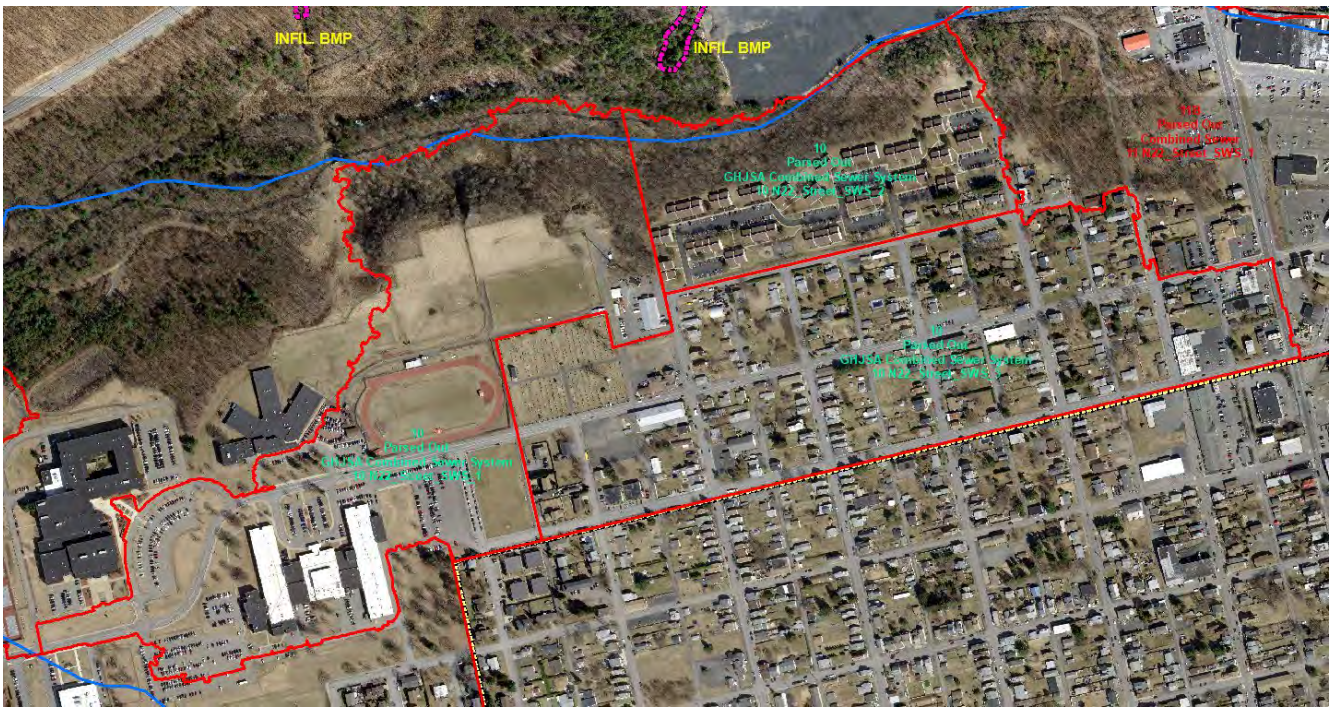
9 N22_Street_SWS_3

FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Parsed	Reason	Watershed
0	Polygon	2248	9	1403	11524.561788	1951747.47972	45	Parsed Out	Combined	9 N22_Street_SW

Proposed BMP's: This drainage area is a private non-municipal system and therefore no BMP's are proposed.

10 North 22nd Street SWS2

This drainage area is part of a combined sanitary/storm sewer system and is adjacent to the northern boundary of the City of Hazleton. The system is owned, operated and managed by the GHJSA including the CSO to Black Creek. This area contains no qualifying Municipal Stormwater System.



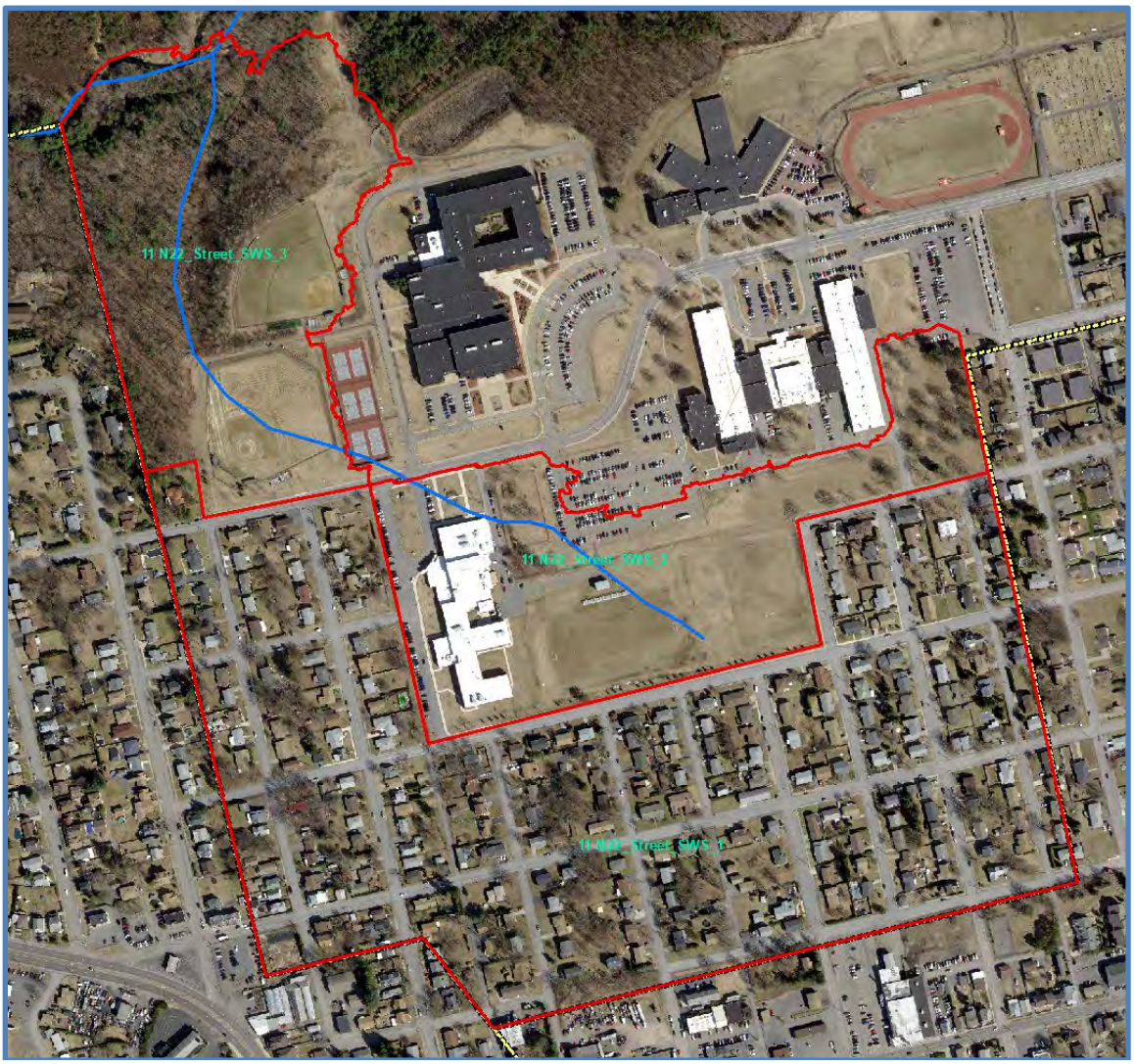
10 N22_Street_SWS_2

	FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed	Reason	Parsed
	1	Polygon	1659	10	808	23306.416729	9925363.93542	126	10 N22_Street_SWS_1	GHJSA Combined Sewer System	Parsed Out
	3	Polygon	1659	10	808	23306.416729	967264.421386	22	10 N22_Street_SWS_2	GHJSA Combined Sewer System	Parsed Out
	0	Polygon	1659	10	808	23306.416729	2280435.59952	52	10 N22_Street_SWS_3	GHJSA Combined Sewer System	Parsed Out

Proposed BMP's: This drainage area is part of an approved and permitted combined sewer system and therefore no BMP's are proposed.

11 North 22nd Street SWS4

This drainage area is part of a combined sanitary/storm sewer system and is adjacent to the northern boundary of the City of Hazleton. The system is owned, operated and managed by the GHJSA including the CSO to Black Creek.



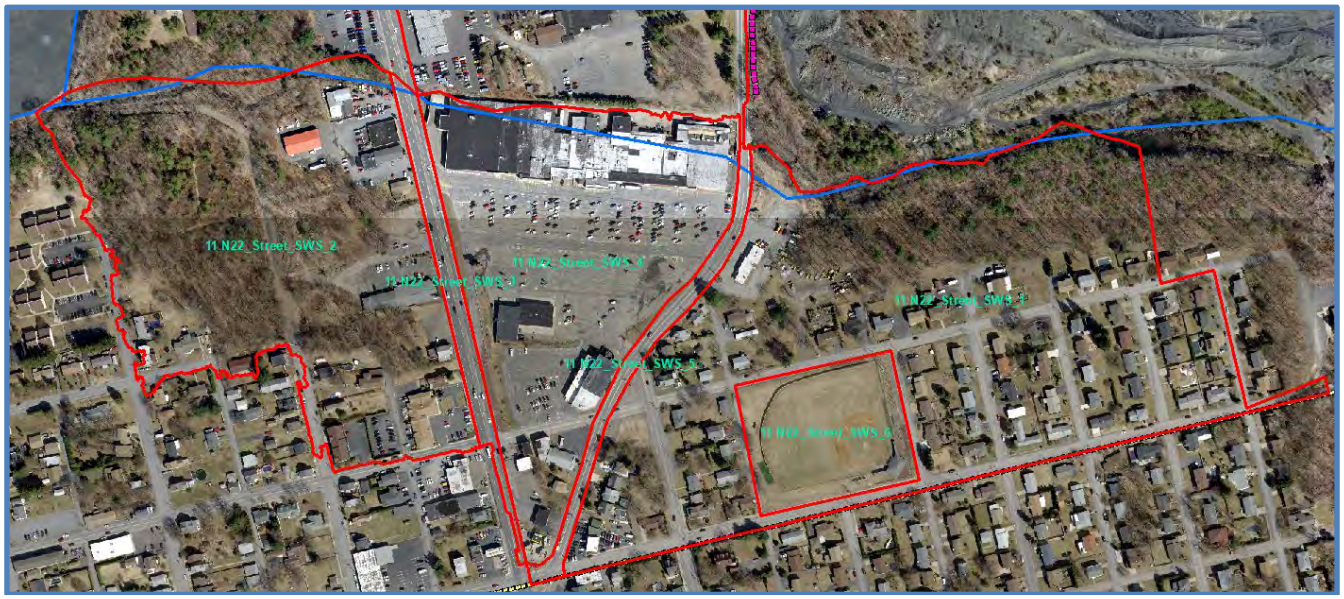
11 N22_Street_SWS_4

FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Name	Parsed	Reson	Watershed
0	Polygon	2305	11	2123	13272.153307	2664910.266713	61	11A	Parsed Out	GHJSA Combined Sewer System	11 N22_Street_SWS_1
1	Polygon	2305	11	2123	13272.153307	949819.898102	22	11A	Parsed Out	GHJSA Combined Sewer System	11 N22_Street_SWS_2
2	Polygon	2305	11	2123	13272.153307	981518.952215	23	11A	Parsed Out	GHJSA Combined Sewer System	11 N22_Street_SWS_3

Proposed BMP's: This drainage area is part of an approved and permitted combined sewer system and therefore no BMP's are proposed.

12 North 22nd Street SWS1

This drainage area is part of a combined sanitary/storm sewer system and is adjacent to the northern boundary of the City of Hazleton. The system is owned, operated and managed by the GHJSA including the CSO to Black Creek



12 N22_Street_SWS_1

FID	Shape_Leng	Shape_Area	Acres	Parsed	Reason	Watershed
0	8195.869844	1275275.15605	29	Parsed Out	Combined Sewer	11 N22_Street_SWS_1
1	8195.869844	911055.127282	21	Parsed Out	Combined Sewer	11 N22_Street_SWS_2
2	8195.869844	66747.744268	2	Parsed Out	PaDot ROW	11 N22_Street_SWS_3
3	8195.869844	648338.88049	15	Parsed Out	Combined Sewer	11 N22_Street_SWS_4
4	8195.869844	59436.774908	1	Parsed Out	PaDot ROW	11 N22_Street_SWS_5
5	8195.869844	171674.345899	4	Parsed Out	Combined Sewer	11 N22_Street_SWS_6

Proposed BMP's: This drainage area is part of an approved and permitted combined sewer system and therefore no BMP's are proposed.

13 Ridgewood SWS2

This drainage area includes part of the Village of Harleigh along SR 940 as well as part of the Churchview development. State Route SR 940 cuts thru the lower section of this drainage area and is parsed out of this analysis. An old abandoned railroad track runs along the south border of this drainage area. An old former railroad swale appears to collect surface water and direct it to a pipe along SR 940 which leads to Black Creek near the Church Hill Mall. Improvements to this swale are proposed as the BMP for this drainage area. State Road ROW has been parsed from this analysis.

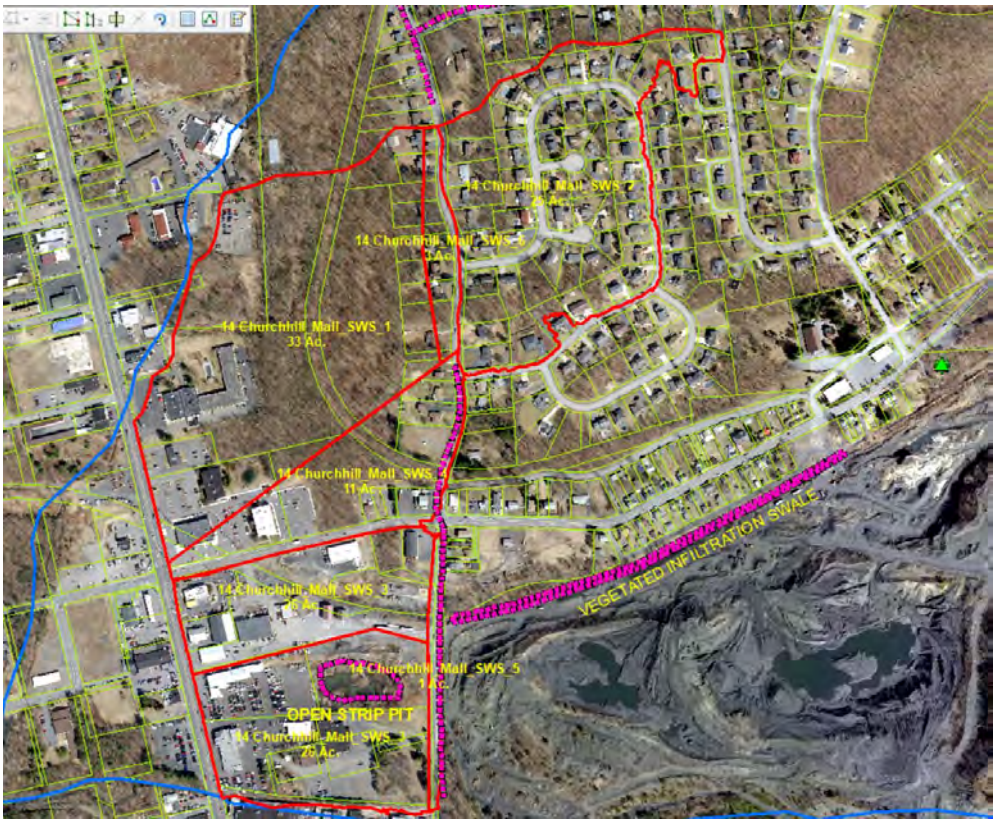
13 Ridgewood_SWS_2

FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
0	Polygon	4230	12	4166	13428.529586	3652840.20346	46	13 Ridgewood_SWS_1	Developed Area
1	Polygon	4230	12	4166	73967.202004	73967.202004	2	13 Ridgewood_SWS_2	PaDot ROW Parsed Out
2	Polygon	4230	12	4166	13428.529586	421508.819418	10	13 Ridgewood_SWS_3	Harleigh Development

Proposed BMP's: The MS4 drainage area flows along the abandoned railroad swale and discharges to the headwaters of Black Creek via pipes and swales. The proposed BMPs' include vegetated open infiltration swales, outfall protection and bio-retention areas.

14 Church Hill Mall SWS1

This drainage area includes several sub areas that have been altered by development over the years. This includes a large wooded area without development which drains naturally to a stream, large commercial parcels which do not have a municipal storm system and which drain to the PaDot right of way. Lands of Hazle Township and adjacent car dealership drain to an open mine pit disconnected from any stream and are parsed. State Route SR 309 cuts north/south along this area and is parsed out of this analysis. Non municipal areas and disconnected mine pits have been pared out of this analysis. Based on available information the Church View Development stormwater is piped south along SR 940 to Black Creek.



14 Churchhill_Mall_SWS_1

FID	Shape_Area	Acres	Watershed	Descriptio
0	2062131.18256	33	14 Churchhill_Mall_SWS_1	Parsed No MS4 Priv Dev drains to Padot
1	1081749.34153	25	14 Churchhill_Mall_SWS_2	Developed area drains to pipe system
2	1159104.05621	26	14 Churchhill_Mall_SWS_3	Parsed No MS4 Priv Dev
3	2062131.18256	11	14 Churchhill_Mall_SWS_4	29'th Street Twp Road to Padot MS4
4	1159104.05621	1	14 Churchhill_Mall_SWS_5	Parsed PaDot no Twp MS4
5	2062131.18256	3	14 Churchhill_Mall_SWS_6	Twp Road part of MS4
7	1159104.05621	26	14 Churchhill_Mall_SWS_3	Part of MS4

Proposed BMP's: Replacement of pipe with open vegetated infiltration swales are proposed as the BMP for this drainage area. A constructed wetland or infiltration pond is possible near the headwaters of Black Creek via pipes and swales.

15 Lattimer SWS4

This drainage area includes part of the Ridgewood Development and part of the Village of Lattimer. A section along the north side drains away from the Hazle Township road and has no MS4 and is parsed out of this analysis. The Township stormwater piping system currently discharges to the existing Little Black Creek Stream. BMP's are proposed to address water quality to meet this PRP.

15 Lattimer_SWS_4

	FID	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
	0	11713.091508	2870027.01693	66	15 Lattimer_SWS_1	Developed Area to new Infil BMP
▶	1	11713.091508	1080981.66006	25	15 Lattimer_SWS_2	Drains away from road no MS4 Parsed

Proposed BMP's: Replacement of last section of pipe with open vegetated infiltration swales and infiltration pond are proposed as the BMP for this drainage area. This area also has the possibility of stream restoration.

16 Milnesville East SWS1

This drainage area includes the eastern section of the Village of Milnesville east of SR 309. Several private commercial improvements are located in this drainage area that do not have a municipal storm water system. In addition, a major PaDot highway falls along the western side. Sections of the residential development along SR309 drain directly to the State right of way and do not have a Township Municipal Storm System. In addition, a large section in the north is directed to an active mining area and flow is disconnected from the stream in this analysis. All the areas listed above have been parsed out of this analysis.

16 Milnesvill_East_SWS_1

FID	Shape_Area	Acres	Name	Watershed	Descriptio
0	1228822.9122	28	16	16 Milnesvill_East_SWS_1	Developed Area MS4
1	132920.414799	3	16	16 Milnesvill_East_SWS_2	Parsed PaDot ROW
2	1027548.17227	24	16	16 Milnesvill_East_SWS_3	Private Dev Drains to Padot No MS4
3	873833.754747	20	16	16 Milnesvill_East_SWS_4	Wooded Private Land No Twp MS4
4	1107807.77088	25	16	16 Milnesvill_East_SWS_5	Developed Area MS4
5	123684.926864	3	16	16 Milnesvill_East_SWS_6	Developed Area MS4

Proposed BMP's: The Township stormwater piping/swale system that currently discharges to the existing Little Black Creek Stream will have proposed BMP's to address water quality to meet this PRP including open vegetated infiltration swales and infiltration pond. This area also has the possibility of stream restoration.

17 Pardeesville area of Hazle Township (General) SWS 17 thru 23

The overall Pardeesville drainage area is located along the north east section of the municipality along the Butler Township Boundary. A very large active mining operation sits in the hollow just south and between this drainage area and the stream of analysis. The entire drainage area is disconnected from the stream. A large mine pool collects surface water and is used to wash and clean in the mining operations. The entire Pardeesville area is parsed out of this municipal PRP. Drainage areas 17 thru 23 are pictured below for reference.

17 Pardeesville SWS1

17 Pardeesville_SWS_1

FID	Shape *	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
0	Polygon	19986.822697	3720735.85986	42	17 Pardeesville_SWS_1	Parsed - Private No Twp MS4

18 Pardeesville SWS2

18 Pardeesville_SWS_2

FID	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
0	10172.795495	1483519.82819	32	18 Pardeesville_SWS_2	Part of Twp MS4

19 Pardeesville SWS3

19 Pardeesville_SWS_3

FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed
0	Polygon	1714	17	1666	8613.385456	1740568.46888	32	Twp MS4

20 Pardeesville SWS4

20 Pardeesville_SWS_4

FID	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
0	23747.893169	4773040.191952	110	20 Pardeesville_SWS_4	Parsed - No Twp MS4
1	23747.893169	796907.288664	18	20 Pardeesville_SWS_4	Twp MS4

21 Pardeesville SWS5

21 Pardeesville_SWS_5

FID	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
0	6154.153587	1366182.249882	31	21 Pardeesville_SWS_5	Twp MS4
1	7008.585023	849254.32395	19	21 Pardeesville_SWS_5	No Twp MS4 in this Area

22 Pardeesville SWS6

This drainage area includes the entrance to Pardeesville off of SR 309. The drainage area is to an active open surface mining operation and is disconnected from the stream. This entire drainage area is therefore parsed out of this calculation.

22 Pardeesville_SWS_6

FID	Shape_Leng	Shape_Area	Acres	Name	Watershed	Descriptio
0	18209.617755	11137930.47140	256	22A	22 Pardeesville_SWS_6	No Twp MS$ in this area
1	9333.216188	1748396.68165	40	22B	22 Pardeesville_SWS_6	Twp MS4 Area

23 Pardeesville SWS7

This drainage area includes the entrance to Pardeesville off of SR 309. The drainage area is to an active open surface mining operation and is disconnected from the stream. This entire drainage area is therefore parsed out of this calculation.

23 Pardeesville_SWS_7

FID	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
0	10490.600179	2201049.59995	42	23 Pardeesville_SWS_7	Part of Twp MS4

North East Section of Hazle Township includes the Lattimer area SWS 24 thru 26

This area of Lattimer drains to the Headwaters of Little Black Creek. There appear to be three disctinc sub areas for which each is analyzed and appropriate BMP's selected. Draiange areas 24 thru 26 are pictured below.

24 Lattimer SWS1

24 Lattimer_SWS_1

	FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed
▶	0	Polygon	3607	23	2022	33700.293028	15652081.0182	47	24 Lattimer_SWS_1

Proposed BMP's: The Township stormwater piping/swale system that currently discharges to the existing Little Black Creek Stream will have proposed BMP's to address water quality to meet this PRP including open vegetated infiltration swales and infiltration pond. This area also has the possibility of stream restoration.

25 Lattimer SWS2

25 Lattimer_SWS_2

	FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed
▶	0	Polygon	6747	21	2839	14183.633248	3162578.98189	54	25 Lattimer_SWS_2

Proposed BMP's: The Township stormwater piping/swale system that currently discharges to the existing Little Black Creek Stream will have proposed BMP's to address water quality to meet this PRP including open vegetated infiltration swales and infiltration pond. This area also has the possibility of stream restoration.

26 Lattimer SWS3

26 Lattimer_SWS_3

FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
0	Polygon	2729	20	2619	20360.368965	2726754.14687	63	26 Lattimer_SWS_1	Developed Area of MS4
1	Polygon	2729	21	2619	10338.870378	1715934.02831	39	39.3925824625402	No Twp MS4 this area
2	Polygon	2729	22	2619	20360.368965	207025.089243	5	26 Lattimer_SWS_3	Parsed Out 50' from Stream Area

Proposed BMP's: The mining area north of the stream as well as 50 feet either side of the stream have been parsed out of this analysis. The Township stormwater piping/swale system that currently discharges to the existing Little Black Creek Stream will have proposed infiltration BMP's to address water quality to meet this PRP including open vegetated infiltration swales and infiltration pond. This area also has he possibility of stream restoration.

27 Ridgewood SWS 1C

This drainage area includes the entrance to Ridgewood Development along SR 940 south of the natural ridge (break) where water begins to flow north to Little Black Creek. Based on Pa Emap there is a permitted Township outfall at this location. Evaluation indicates that this entire area flows from the pipe to an open swale leading directly to an open mine pit water pool. This pool of water is part of and used in the active mining operation and is totally disconnected from the stream. Therefor this entire drainage area is parsed form the analysis currently.

27 Ridgewood_SWS_1C

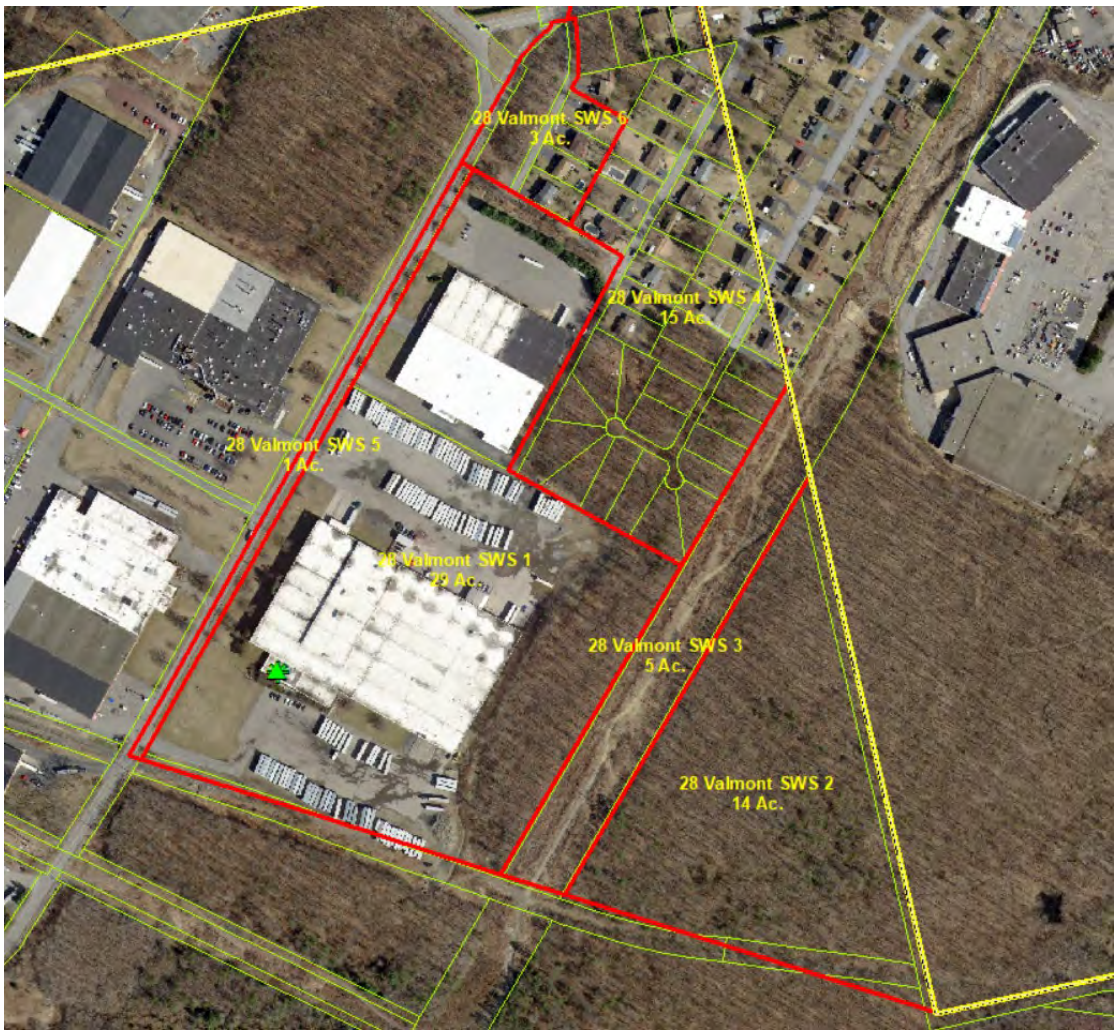
Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
Polygon	2944	22	2839	13493.906839	5611144.76322	129	27 Ridgewood_SWS_3	Part of Twp MS4
Polygon	2944	22	2839	13493.906839	623017.686828	14	27 Ridgewood_SWS_1	Part of Twp MS4
Polygon	2944	22	2839	13493.906839	318590.450312	7	27 Ridgewood_SWS_2	Part of Twp MS4

Proposed BMP's: This drainage area is disconnected from the stream at this time and therefore no BMP's are proposed.

28 Valmont SWS 1 and 29 Valmont SWS2

This drainage area includes the southwest edge of Valmont Industrial Park in Hazle Township. There are two distinct areas both of which appear to have permitted NPDES outfalls which have been parsed out of this analysis. A wooded undeveloped area, PPL right of way and the developed area which drains to the adjacent West Hazleton Municipality have all been parsed out of this analysis. Half of the Township road in this drainage area is an MS4 and is addressed in drainage area 29 below.

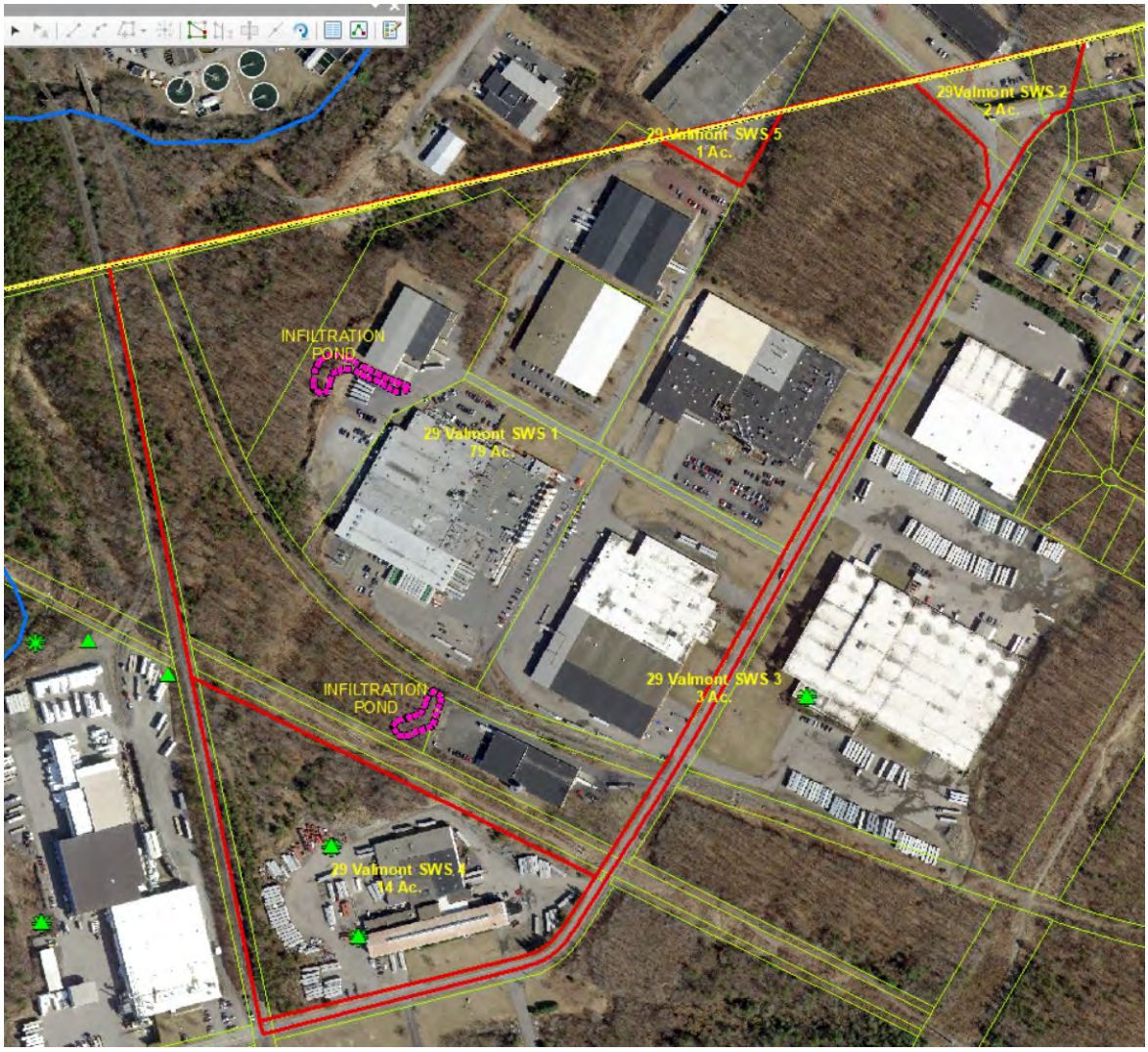
28 Valmont SWS 1



28 HT_Valmont_SWS_1

FID	Shape_Leng	Shape_Area	Label	Description	Acres
0	36853.920577	1275121.80625	28 Valmont SWS 1	Parsed Karchner Indus Disch Permit ID 328761	29
1	36853.920577	618524.982844	28 Valmont SWS 2	Parsed out No Twp MS4 in This area	14
2	36853.920577	232989.103931	28 Valmont SWS 3	Parsed Out PPI ROW no Twp MS4	5
3	36853.920577	655700.076422	28 Valmont SWS 4	Drains to West Hazleton Included in Twp MS4	15
4	36853.920577	56483.505781	28 Valmont SWS 5	Twp Road MS4	1
5	36853.920577	115689.93063	28 Valmont SWS 6	Part of MS4 Draisn to Twp Road	3

29 Valmont SWS2



29 HT_Valmont_SWS_2

FID	Shape_Leng	Shape_Area	Label	Descriptio	Acres
0	60462.179764	3450233.04821	29 Valmont SWS 1	Developed Industrial Park Part of MS4	79
1	60462.179764	98049.72211	29Valmont SWS 2	Drains to West Hazleton MS4 but part of Twp MS4	2
2	60462.179764	109545.326963	29 Valmont SWS 3	Hazle Twp Road MS4	3
3	60462.179764	596879.447794	29 Valmont SWS 4	Disch Permit Sandusky Meta Prod & Truth Hdwr	14
4	60462.179764	36226.343969	29 Valmont SWS 5	Drains to West Hazleton MS4 but part of Twp MS4	1

Proposed BMP's: There appears to be three Township roads picking up stormwater in this area and discharging to open swales. The Township stormwater piping/swale system that currently discharges to the existing Black Creek Stream will have proposed infiltration BMP's to address water quality to meet this PRP including open vegetated infiltration swales and infiltration pond.

30 Garfield SWS 1 and 31 Garfield SWS2

This drainage area includes the north east urbanized area of the Township close to the City of Hazleton. There are two distinct areas both of which appear to drain from dead end roads to wooded areas above Black Creek. Therefor this drainage area includes required BMp's.

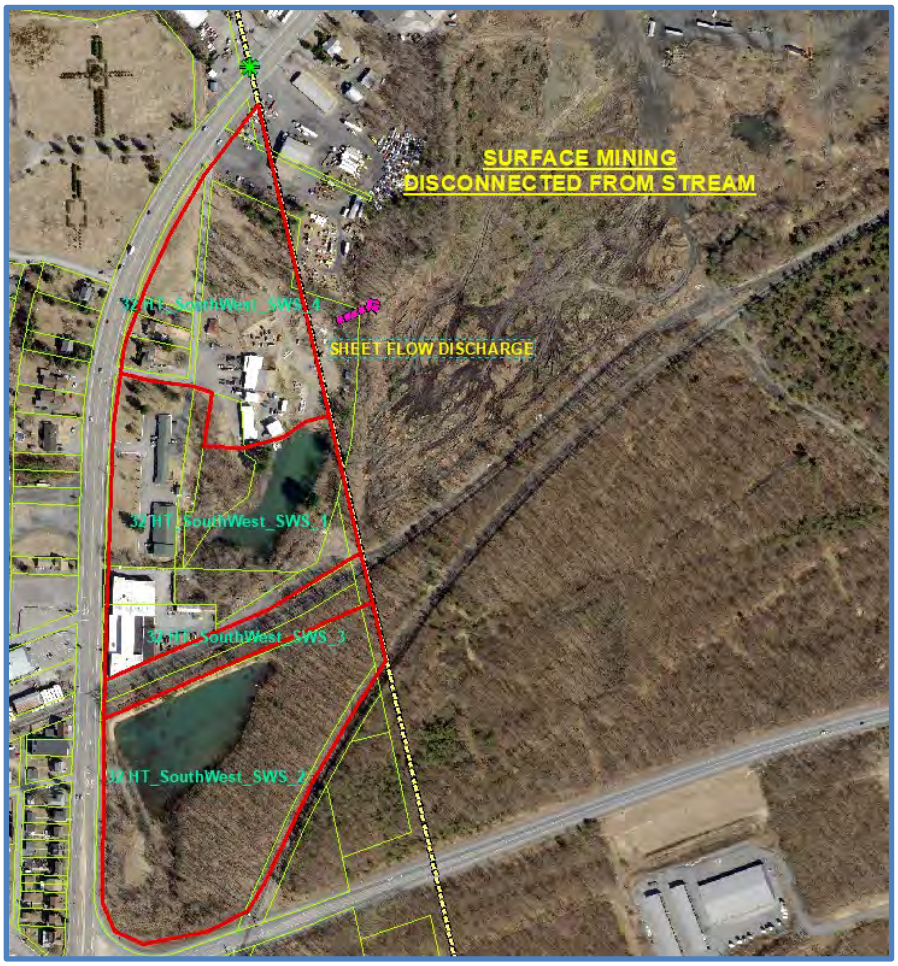
Garfield_14th_St

FID	Shape *	Id	Watershed	Acres
0	Polygon	0	Garfield_14thSt_SWS_1	18
1	Polygon	0	Garfield_14thSt_SWS_2	13

Proposed BMP's: There appears to be two Township roads picking up stormwater in this area and discharging to open swales discharges to the headwaters of Black Creek. Infiltration BMP's are proposed in each location to address water quality to meet this PRP including open vegetated infiltration swales and infiltration pond.

32 HT Southwest SWS 1 thru 4

This drainage area includes the south west section of HT which is identified as UA. The UA is bounded by PaDot ROW on the south and the west. An active railroad right of way bisects the drainage area. Several private commercial facilities are along SR 309 and enter a PaDot drain or flows to open waters These commercial parcels have no MS4 associated with them. A small area in the very north includes a Township road and drainage system. This area sheet flows or drains to an existing swale which discharges to an active mining area. The mining area is disconnected from the stream. Therefore, all areas in this drainage location have been parsed out of this analysis at this time.



32 HT_SouthWest_SWS_1

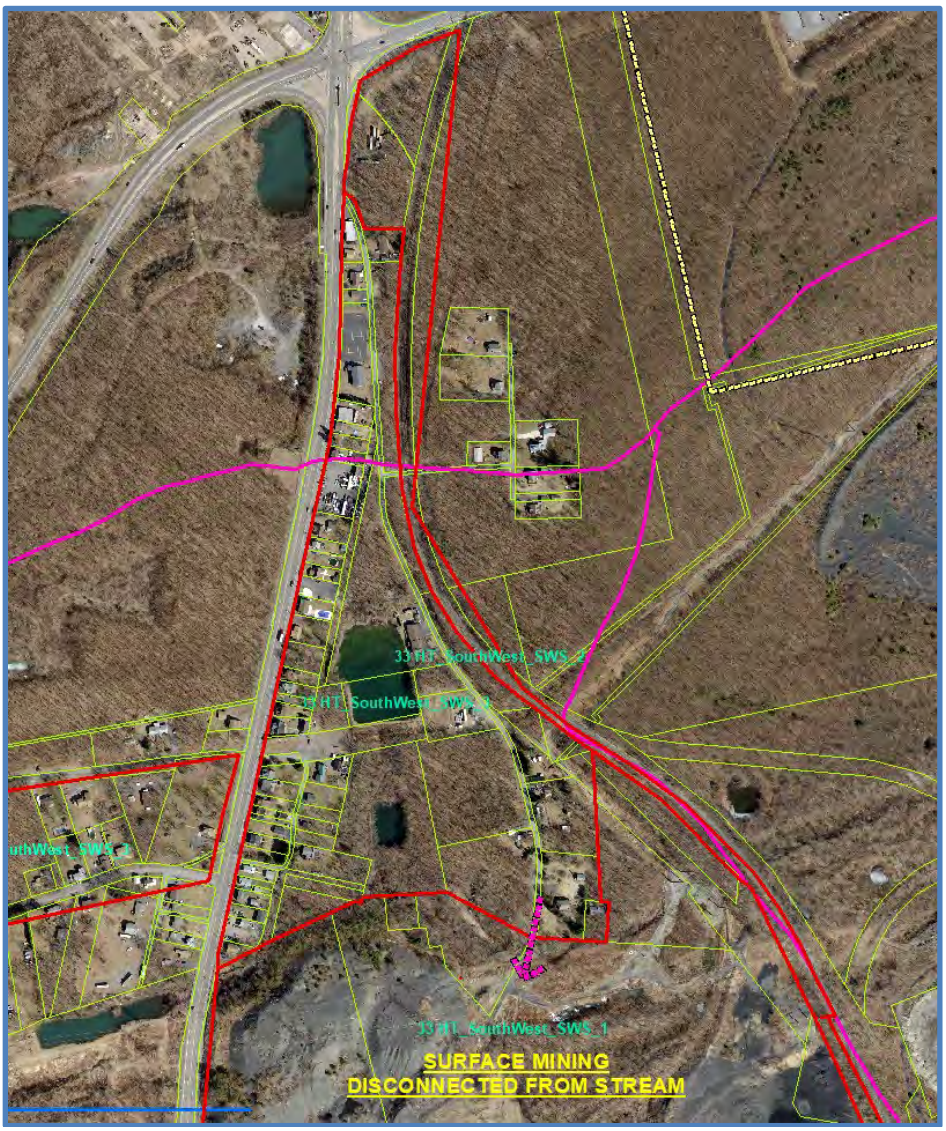
FID	Shape *	OBJECTID_1	Id	gridcode	Shape_Leng	Shape_Le_1	Shape_Area	Watershed	Acres	Descriptio
0	Polygon	14	590	4095	11776.62454	5375.844335	415006.590672	32 HT_SouthWest_SWS_	10	Parsed No MS4 PaDot drains to private body water
1	Polygon	14	590	4095	11776.62454	5375.844335	467392.520561	32 HT_SouthWest_SWS_	11	Parsed No MS4 Open Body Water
2	Polygon	14	590	4095	11776.62454	5375.844335	89830.614509	32 HT_SouthWest_SWS_	2	Parsed - Railroad ROW No MS4
3	Polygon	14	590	4095	11776.62454	5375.844335	323943.792529	32 HT_SouthWest_SWS_	7	Parsed - MS4 drains to mine - disconnected

Proposed BMP's: This drainage area is disconnected from the stream at this time and therefore no BMP's are proposed.

33 HT Southwest SWS

This drainage area includes the south west section of HT which is identified as UA. The UA is bounded by PaDot ROW on the north and the west. An active railroad right of way is located along the entire east side. A large open pit mine area is in the center of the drainage area and disconnects surface flow from the stream headwaters. A small area along the north and the Village of Honeybrook drain to the disconnected mine area. Since the mining area is disconnected from the stream, all areas in this drainage location have been parsed out of this analysis at this time.

33 HT Southwest SWS – North Section



33 HT Southwest SWS – South Section

33 HT_SouthWest_SWS_2

FID	Shape_Leng	Shape_Le_1	Shape_Area	Watershed	Descriptio	Acres
0	11776.62454	14838.600579	4365658.5971	33 HT_SouthWest_SWS_1	Parsed Open Mining Disconnected from stream	100
1	11776.62454	14838.600579	538221.264494	33 HT_SouthWest_SWS_2	Parsed Railroad right of way	12
2	11776.62454	14838.600579	1731688.32625	33 HT_SouthWest_SWS_3	Twp MS4 Area but disconnected drains to mine area	40
3	11776.62454	14838.600579	771850.489708	33 HT_SouthWest_SWS_4	Twp MS4 Area but disconnected drains to mine area	18
4	11776.62454	14838.600579	921849.408748	33 HT_SouthWest_SWS_5	Twp MS4 Area but disconnected drains to mine area	21

Proposed BMP's: This drainage area is disconnected from the stream at this time and therefore no BMP's are proposed.

34 HT Southwest SWS 1

This drainage area includes a small UA west of SR 309. A large open pit mine area is in the center of the drainage area disconnects these stream headwaters from the stream flow. Since the mining area is disconnected from the stream, the area in this drainage location have been parsed out of this analysis at this time.

34 HT_SouthWest_SWS_3

FID	Shape *	OBJECTID_1	OBJECTID	Id	gridcode	Shape_Leng	Shape_Le_1	Shape_Area	Watershed	Area
0	Polygon	11	5617	561	3970	15265.848925	3671.037022	638498.145111	HT_SouthWest_SWS_3	15

Proposed BMP's: This drainage area is disconnected from the stream at this time and therefore no BMP's are proposed.

35 HT Cranberry SWS 1

This drainage area includes a small UA south of 924 and including part of the Village of Cranberry. This area includes the beginning of Cranberry Creek which was recently restored by BAMR and also includes a railroad right of way. The BAMR stream restoration and railroad right of way have been parsed out of this analysis.

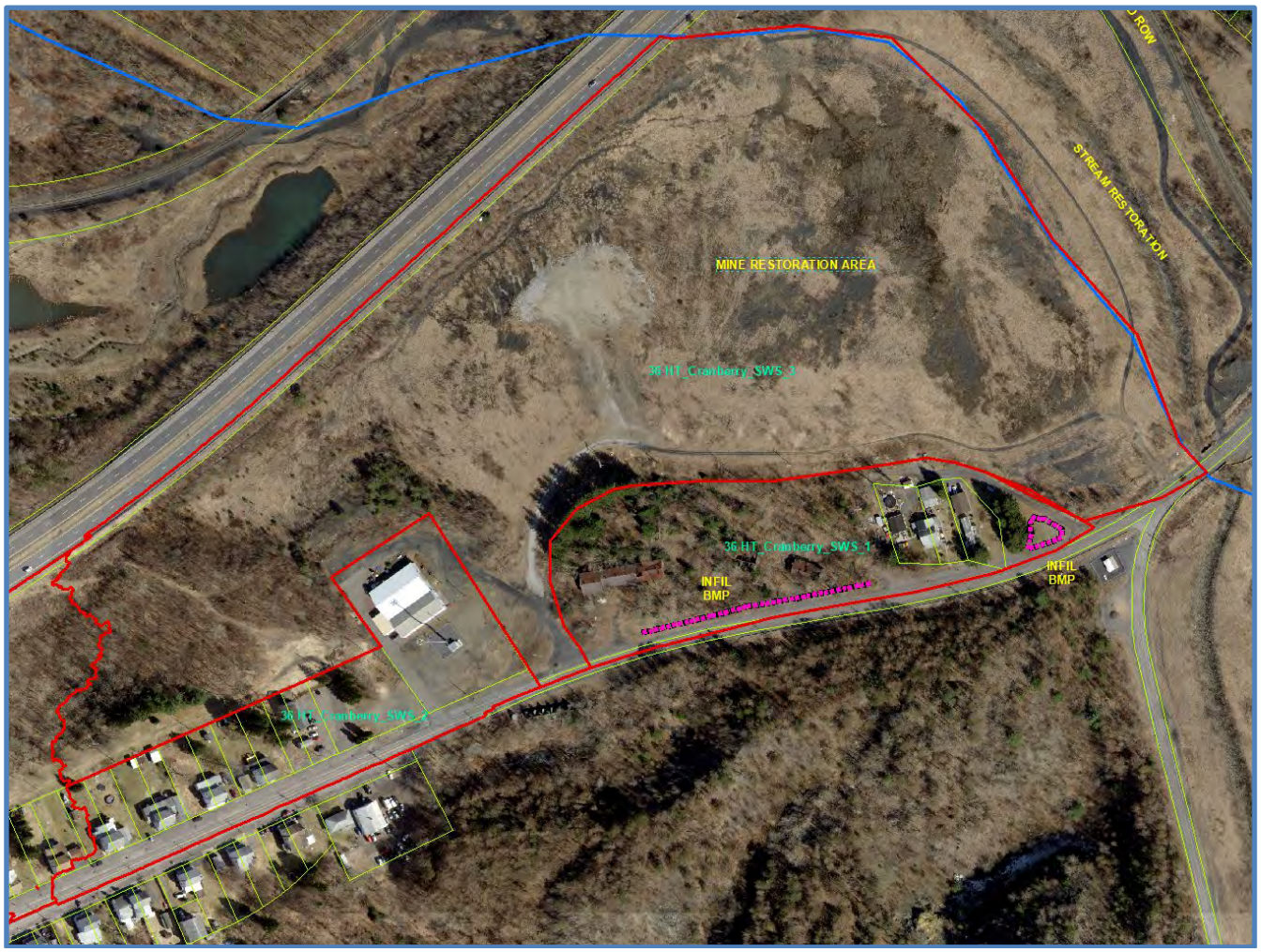
35 HT_Cranberry_SWS_1

	FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Watershed	Descriptio	Acres
	0	Polygon	4943	494	3793	37513.781953	981662.863246	35 HT_Cranberry_SWS_2	Village of Cranberry	23
▸	1	Polygon	4943	494	3793	37513.781953	547124.47926	35 HT_Cranberry_SWS_1	Parsed - Railroad and Stream	13

Proposed BMP's: There appears to be a drainage swale to Cranberry Creek in the southeast corner of this drainage area. Infiltration BMP's are proposed at this location to address water quality to meet this PRP including open vegetated infiltration swales and infiltration pond.

36 HT Cranberry SWS 2

This drainage area includes a small UA south of 924 and including part of the Village of Hollars Hill. This area includes a recently restored by BAMR project. The BAMR area has been parsed out of this analysis.



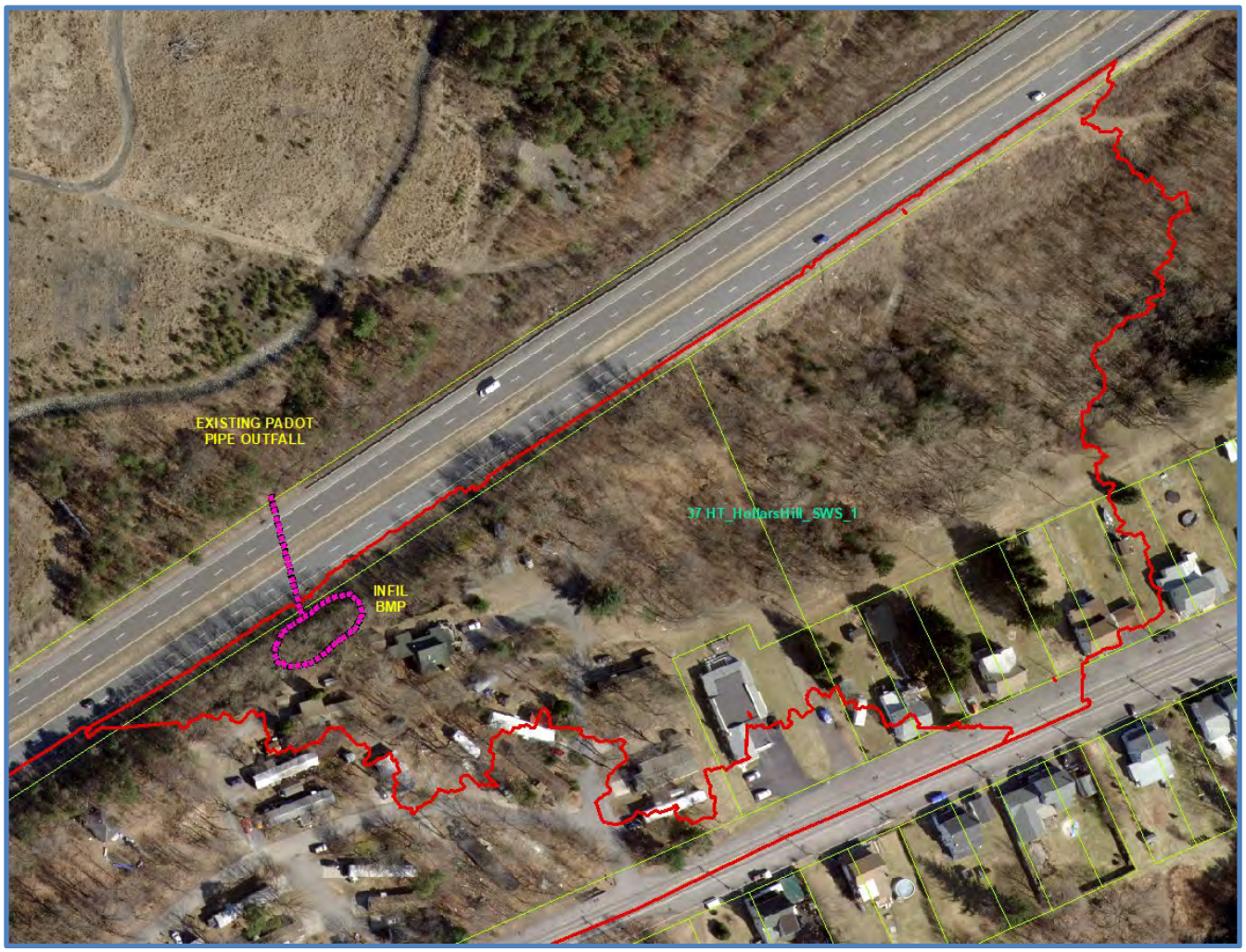
36 HT_Cranberry_SWS_2

	FID	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
	0	2457.142757	1344873.72715	31	36 HT_Cranberry_SWS_3	No Twp MS4 - Does nto drian to MS4
	1	2457.142757	215850.429651	5	36 HT_Cranberry_SWS_2	Part of Twp MS4
▶	2	2457.142757	215784.951424	5	36 HT_Cranberry_SWS_1	Part of Twp MS4

Proposed BMP's: There appears to be a drainage swale to Cranberry Creek along the existing road. Infiltration BMP's are proposed at this location to address water quality to meet this PRP including open vegetated infiltration swales and infiltration pond.

37 HT Hollars Hill SWS 1

This drainage area includes a small UA south of 924 and including a small part of the Village of Hollars Hill. Surface flow is to an existing PaDot cross pipe. Infiltration BMP's are proposed at the upstream side of the cross pipe.



37 HT_HollarsHill_SWS_1

FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Area	Watershed	Descriptio
0	Polygon	5599	4	5502	276.584839	2910.73782	9	37 HT_HollarsHill_SWS_1	

Proposed BMP's: There appears to be a drainage swale to Cranberry Creek along the existing PaDot highway and cross pipe. Infiltration BMP's are proposed at this location to address water quality to meet this PRP including open vegetated infiltration swales and infiltration pond.

38 HT Hollars Hill SWS 2

This drainage area includes a small UA south of 924 and including a small part of the Village of Hollars Hill. Drainage area flows to PaDot cross pipes under SR 924. Various BMP's are proposed prior to these cross pipes.

38 HT_HollarsHill_SWS_2

FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
0	Polygon	1515	151	1357	533.450934	6737.428583	22	38 HT_HollarsHill_SWS_2	

Proposed BMP's: There appears to be a drainage swale to Cranberry Creek along the existing PaDot highway and cross pipe. Infiltration BMP's are proposed at this location to address water quality to meet this PRP including open vegetated infiltration swales and possible infiltration pond.

39 HT Harwood SWS 1

This drainage area includes a small UA south of 924 and including a small part of the Village of Harwood. The entire drainage area flows south to a series of existing abandoned open mine pits which are disconnected from the stream. This entire area has therefore been parsed out of this analysis.

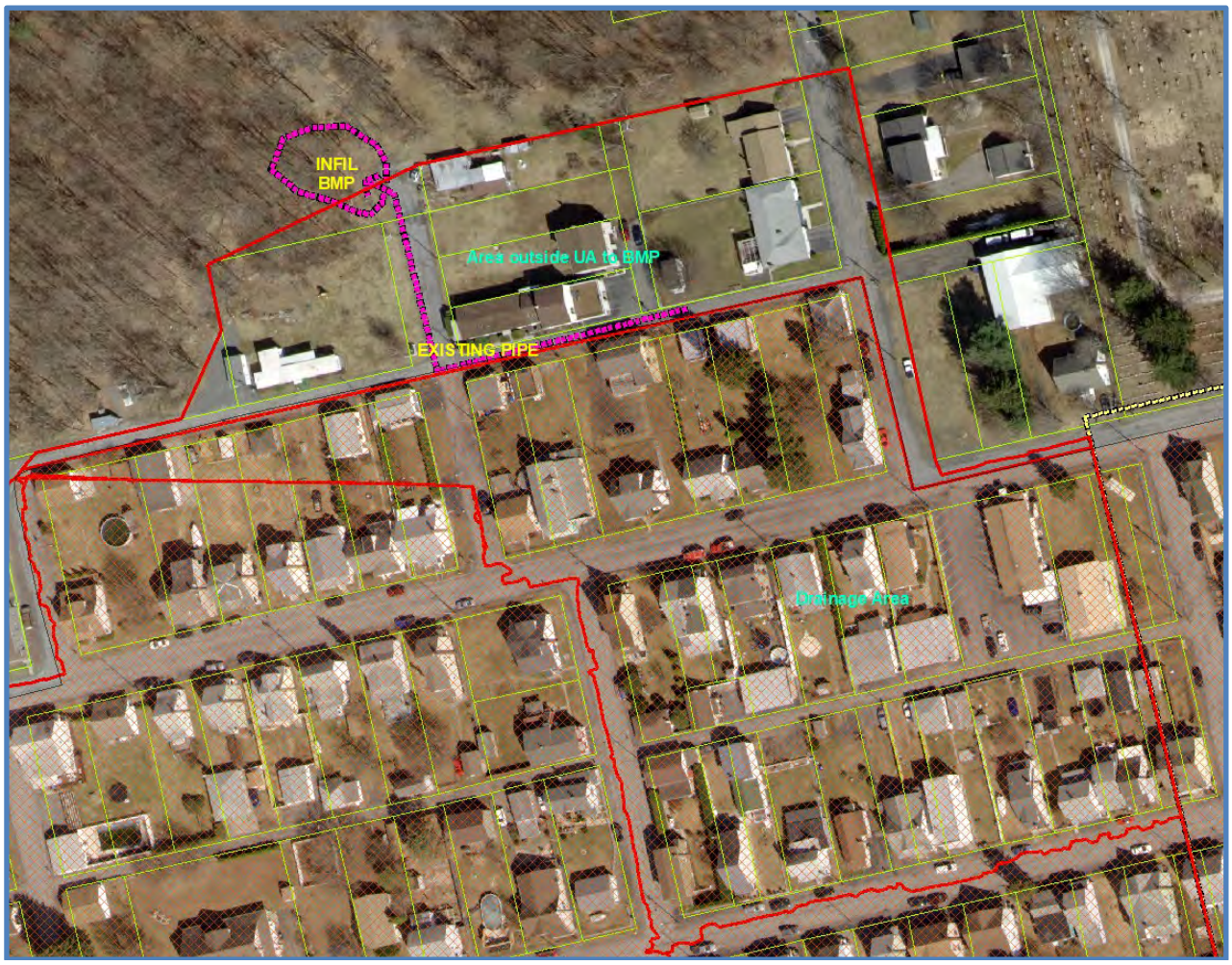
39 HT_Harwood_SWS_1

	FID	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
▶	0	31637.765339	6008385.28304	31	39 HT_Harwood_SWS_1	Part of Twp MS4

Proposed BMP's: This drainage area is disconnected from the stream at this time and therefore no BMP's are proposed.

40 HT Greenridge SWS1

This drainage area includes a small UA along North Street in the Village of Greenridge. The drainage area includes a small section outside the UA. All drainage discharges to an existing storm pipe in the wooded area at end of the alley. New infiltration BMP's are proposed.



40 HT_Greenridge_SWS_1

FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
0	Polygon	3896	389	3488	4647.675157	221223.194432	5	Drainage Area	Existing Pipe Outfall retrofit BMP
1	Polygon	3896	389	3488	4647.675157	99166.152792	2	Area outside UA to BMP	Existing Pipe Outfall retrofit BMP

Proposed BMP's: There appears to be a drainage pipe to the end of an alley discharging to a wooded area. Infiltration BMP's are proposed at this location to address water quality to meet this PRP including open vegetated infiltration swales and possible infiltration pond.

41 HT Greenridge SWS2

This drainage area includes a small UA along the north side of Ridge Avenue. All surface flow is directed to inlets, piping and discharge in West Hazleton Borough outside the Township Boundary. All drainage discharges to an existing storm pipe in the wooded area at end of the alley and to an open mine pit disconnected from the stream under analysis. This area is parsed out since it a drainage area to West Hazleton and is also disconnected from the stream.

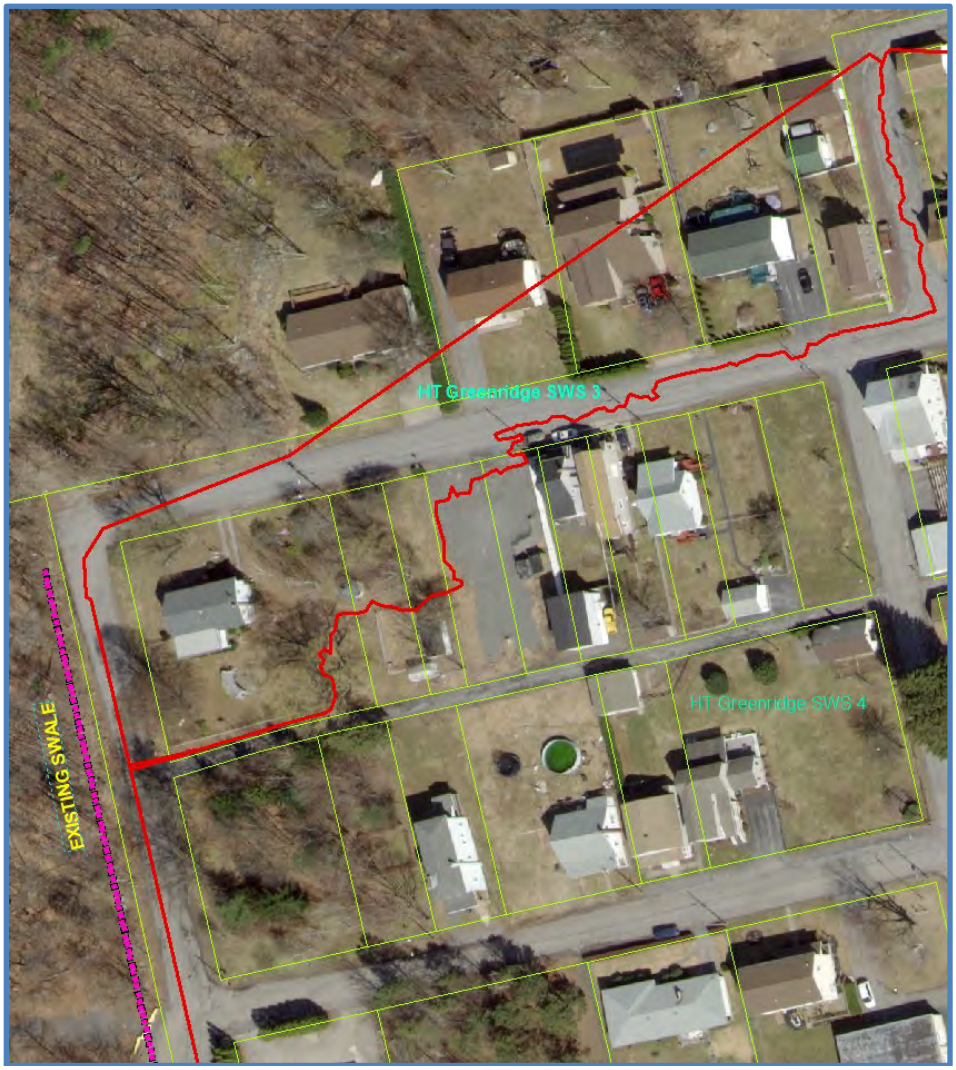
41 HT_Greenridge_SWS_2

FID	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
0	4185.175864	520166.953197	8	41 HT_Greenridge_SWS_2	Part of Twp MS4

Proposed BMP's: This drainage area is disconnected from the stream at this time and therefore no BMP's are proposed.

42 HT Greenridge SWS3

This drainage area includes a small UA along the south side of North Street at the end of Ridge Avenue. All surface flow is directed to an existing storm swale in the wooded area west of the Village. This drains to drainage area south of this location which is disconnected from stream and therefore parsed form this analysis. (Also see drainage area 43)



42 HT_Greenridge_SWS_3

FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
0	Polygon	4177	417	3675	8215.862031	907643.124811	2	HT Greenridge SWS 3	Drains to existing swale

Proposed BMP's: This drainage area is disconnected from the stream at this time and therefore no BMP's are proposed.

43 HT Greenridge SWS4

This drainage area includes a small UA along the south side of North Street at the end of Ridge Avenue. All surface flow is directed to an existing storm swale in the wooded area west of the Village and to an open mine pit disconnected from the stream.

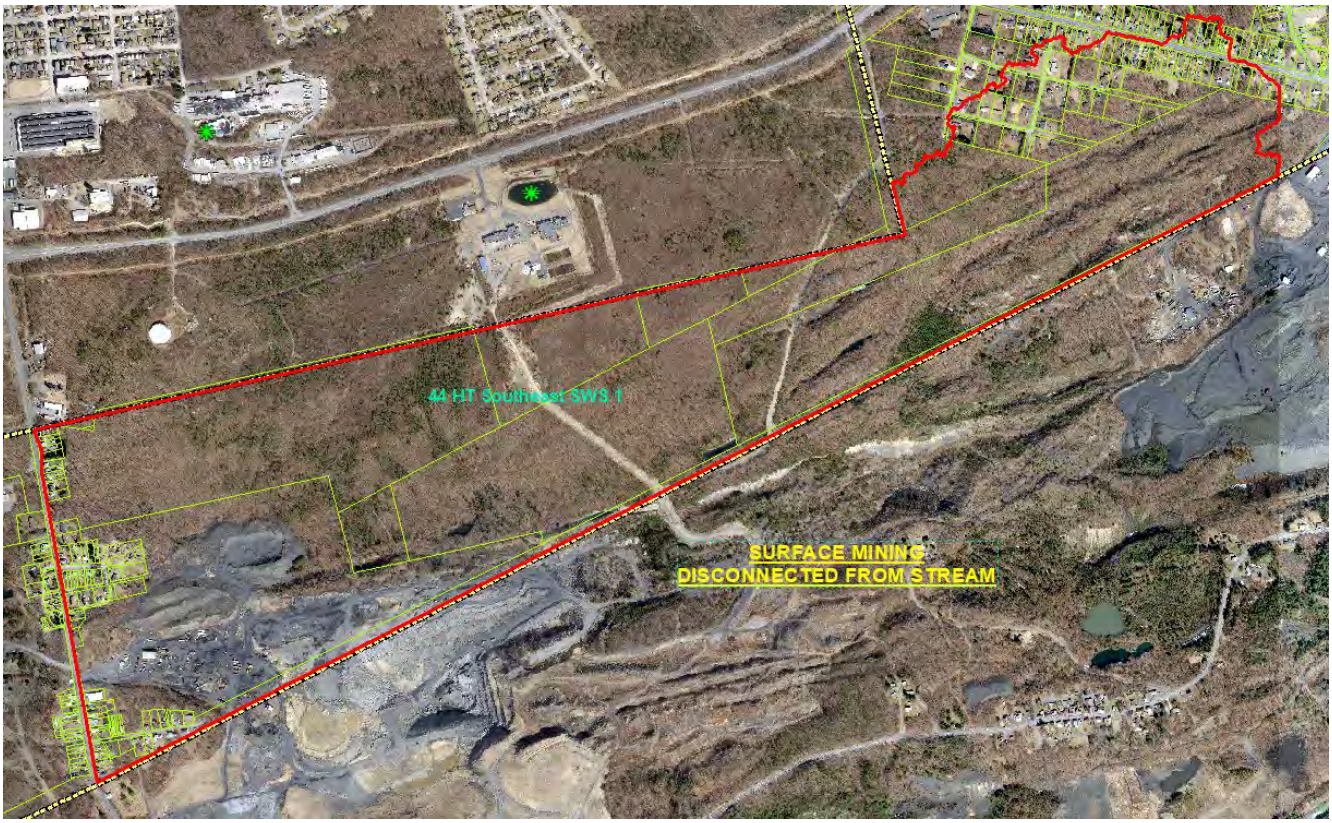
43 HT_Greenridge_SWS_4

FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
0	Polygon	4440	444	4300	969.63246	24214.492447	17	HT Greenridge SWS 4	Drains to exisitng swale

Proposed BMP's: This drainage area is disconnected from the stream at this time and therefore no BMP's are proposed.

44 HT Southeast SWS1

This drainage area includes an Urbanized area which is primarily wooded and includes part of the Village of Jeansville. This area drains to an active open mine area which is disconnected from the stream. Therefore, this area is parsed out of this analysis.



44 HT_SouthEast_SWS_1

FID	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
0	40866.362405	46905075.8485	434	44 HT Southeast SWS 1	This area not within Cheasapeak Bay Watershed

Proposed BMP's: This drainage area is within defined urbanized area but is not in the Chesapeake Bay Watershed.

45 HT Southeast SWS2

This drainage area includes an Urbanized area which is primarily wooded and includes part of the Village of New Coxesville. This drainage area sits on a ridge which directs all surface flow back to the PaDot ROW and drainage system. Hazle Township has no MSS in this area. This area drains to an existing PaDot cross pipe not under Township control. Therefore, this area is parsed out of this analysis.

45 HT_SouthEast_SWS_2

OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
313	313	168	37866.658511	20122832.3653	10	45 HT Southeast SWS 2	This area not within Cheasapeak Bay Watershed

Proposed BMP's: This drainage area is within defined urbanized area but is not in the Chesapeake Bay Watershed.

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46 HT Southeast SWS3

This drainage area includes an Urbanized area which is primarily wooded and includes part of the Village of New Coxesville. This drainage area sits on a ridge which directs all surface flow back to the PaDot ROW and drainage system. Hazle Township has no MSS in this area. This area drains to an existing PaDot cross pipe not under Township control. Therefore, this area is parsed out of this analysis

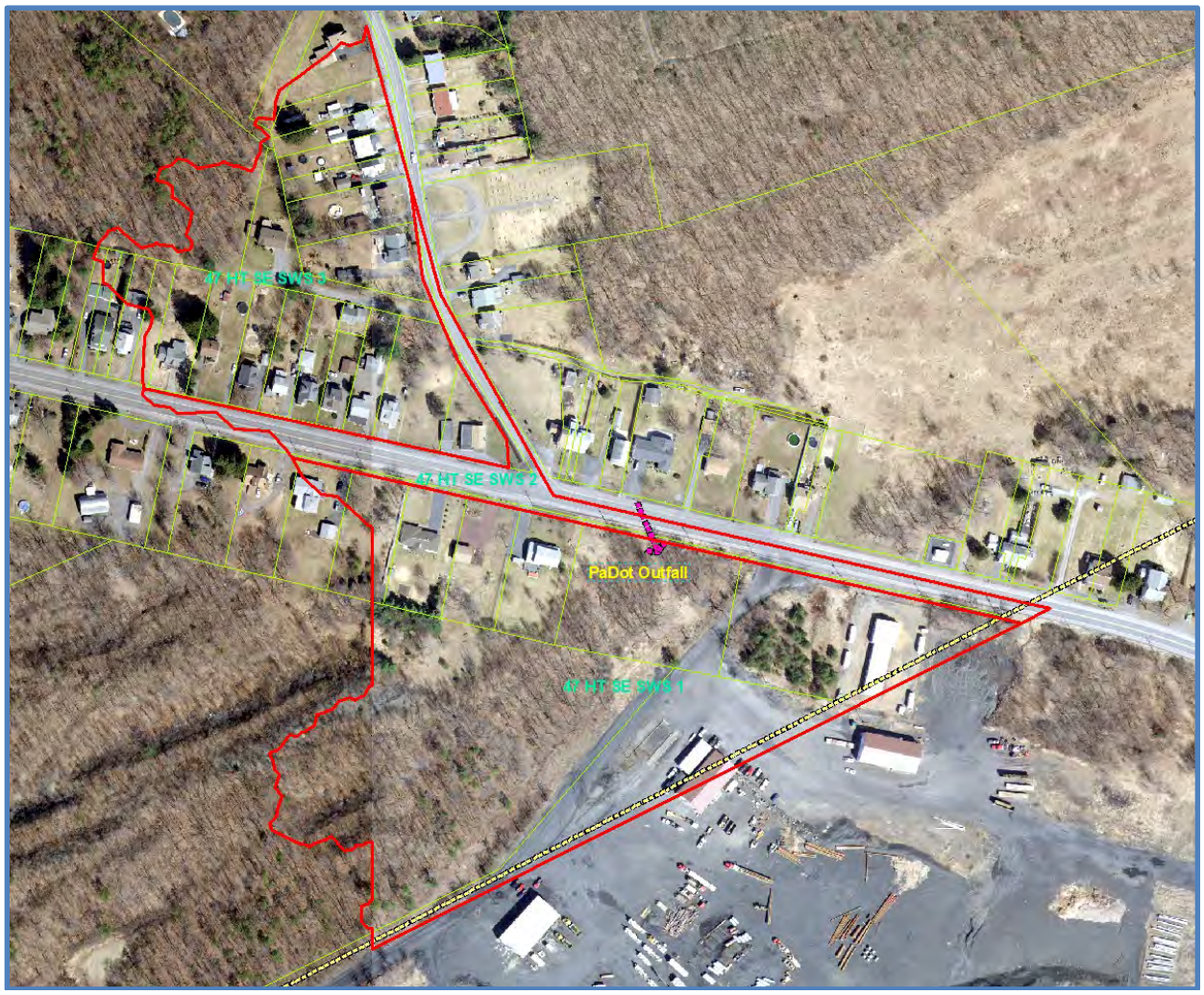
46 HT_SouthEast_SWS_3

OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
313	313	168	37866.658511	20122832.3653	35	46 Southeast SWS 4	This area is not in the Chesapeake Bay Watershed.

Proposed BMP's: This drainage area is within defined urbanized area but is not in the Chesapeake Bay Watershed.

47 HT Southeast SWS4

This drainage area includes a small Urbanized area which does not include a Township MSS. Therefore, this area is parsed out of this analysis.



47 HT_SouthEast_SWS_4

FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Acres	Watershed	Descriptio
0	Polygon	1492	149	1047	17590.935252	517889.261019	12	47 HT SE SWS 1	This area not in Cheasapeak Watershed
1	Polygon	1492	149	1047	17590.935252	82040.410076	2	47 HT SE SWS 2	This area not in Cheasapeak Watershed
2	Polygon	1492	149	1047	17590.935252	276751.792616	6	47 HT SE SWS 3	This area not in Cheasapeak Watershed

Proposed BMP's: This drainage area is within defined urbanized area but is not in the Chesapeake Bay Watershed.

48 HT East SWS1

This drainage area includes the urbanized area along Diamond Avenue (Padot) and along the City of Hazleton border. A large section along the City boundary drains to the City storm system and to a currently permitted MS4 outfall. This area and the PaDot ROW are therefore parsed out of this analysis. One UA drainage area is part of the Hazle Springs Development and discharges to an existing private stormwater detention pond. In addition, a section of Hazle Springs that drains to this pond is outside the UA. This entire area drains to an open active mining area just south of the Diamond Avenue and is disconnected from the stream. Therefore, this entire area is parsed out of this analysis at this time.

48 HT_East_SWS1

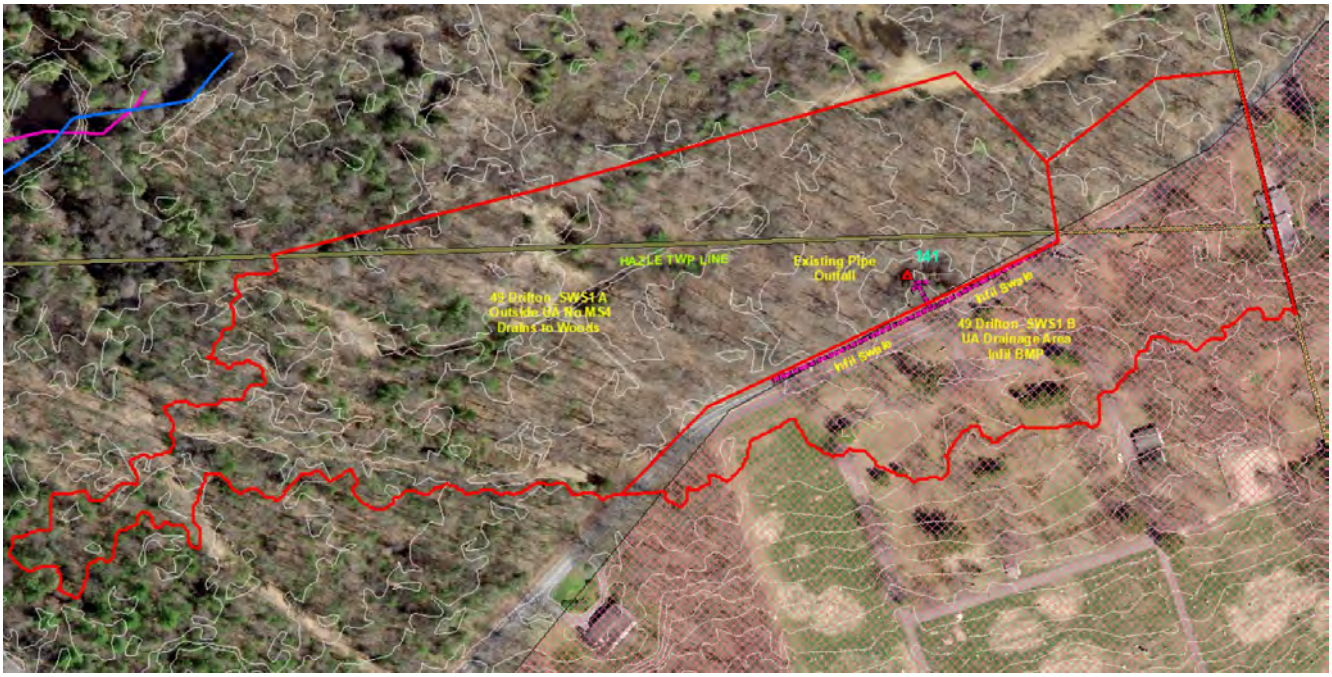
FID	Shape *	OBJECTID	Id	gridcode	Shape_Leng	Shape_Area	Area	Watershed
0	Polygon	0	0	0	7923.13878	1991457.15678	46	Area not in Cheasapeak Watershed
1	Polygon	0	0	0	4774.336375	1139610.60663	26	Area not in Cheasapeak Watershed
2	Polygon	0	0	0	4152.007755	41651.185065	1	Area not in Cheasapeak Watershed
3	Polygon	0	0	0	3641.354361	598164.962665	14	Area not in Cheasapeak Watershed

Proposed BMP's: This drainage area is within defined urbanized area but is not in the Chesapeake Bay Watershed.

DRIFTON AREA OF TOWNSHIP

The Drifton section of Hazle Township borders Butler Township, Foster Township, Freeland and Jeddo Borough. Watershed areas outside Hazle Township Municipality have been excluded from this analysis.

49 Drifton SWS1: SWS1 is the norther most watershed in Drifton and only contains a small section of Township Roadway and part of a private cemetery. Surface stormwater flow is predominately sheet flow north to the creek headwaters. SWS1 eventually drains to a mine pit disconnected from the Stream and is therefore parsed out of this analysis.

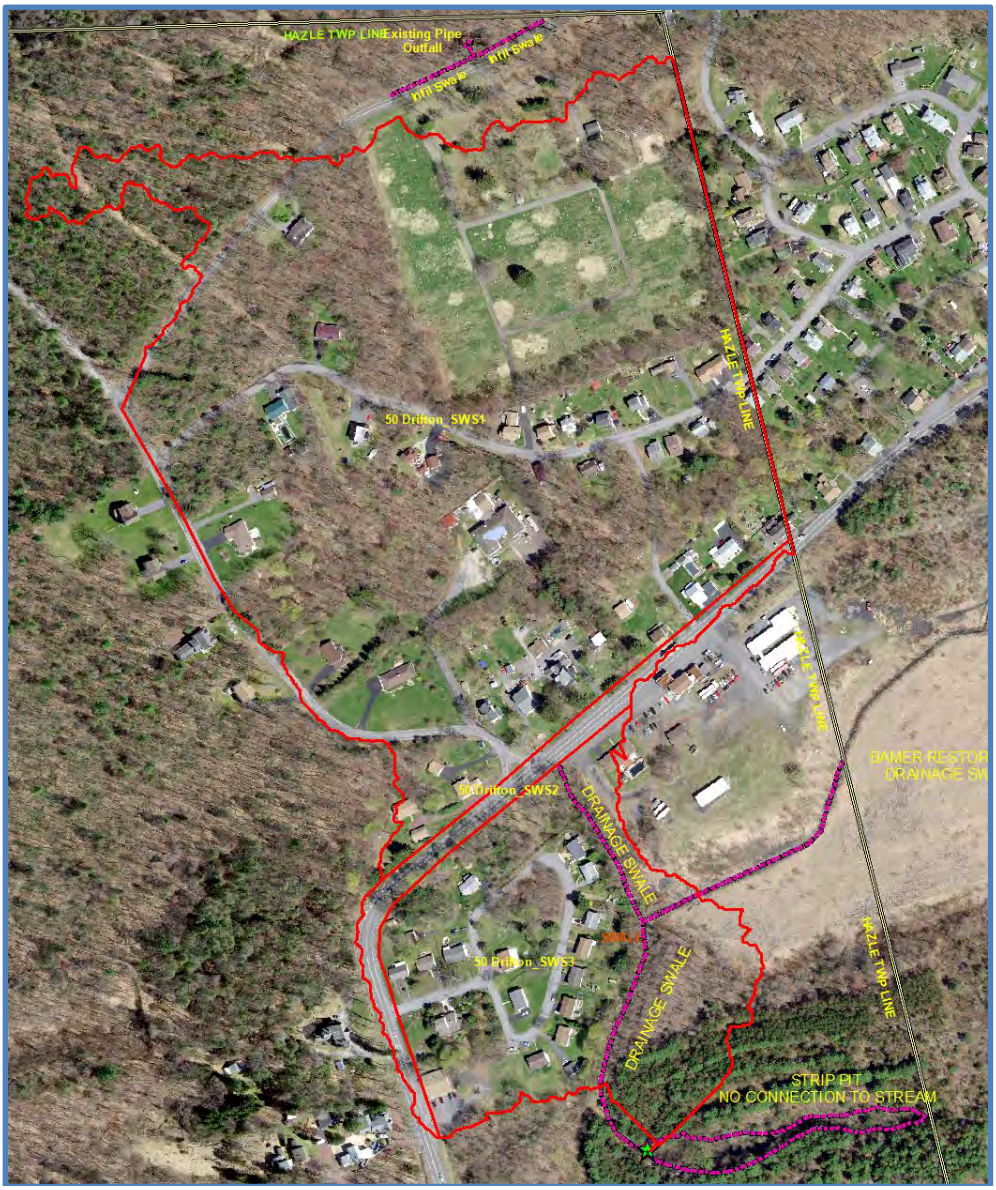


49 Drifton_SWS1

FID	Shape *	Area_Acre	ID	Shape_Leng	Shape_Area	Watershed	Descriptio	Reason
0	Polygon	8.915312	34	11006.747349	388349.455699	49 Drifton_SWS1 A	Outside UA No MS4	Drains to Woods
1	Polygon	4.192336	34	11006.747349	182617.427999	49 Drifton_SWS1 B	UA Drainage Area	Infil BMP

Proposed BMP's: This drainage area is disconnected from the stream at this time and therefore no BMP's are proposed. If necessary, an infiltration trench BMP may be installed along the north side of the Township road.

50 Drifton SWS2: This area includes a large drainage watershed outside the Municipal Boundary which drains to a BAMR installed rock lined swale in Foster Township. SWS2 contains the current outfall from SWS1, SWS2 SWS3 and SWS4 which is to a disconnected open mine pit. Since these watersheds are disconnected from the stream, they have all been parsed out of this plan.

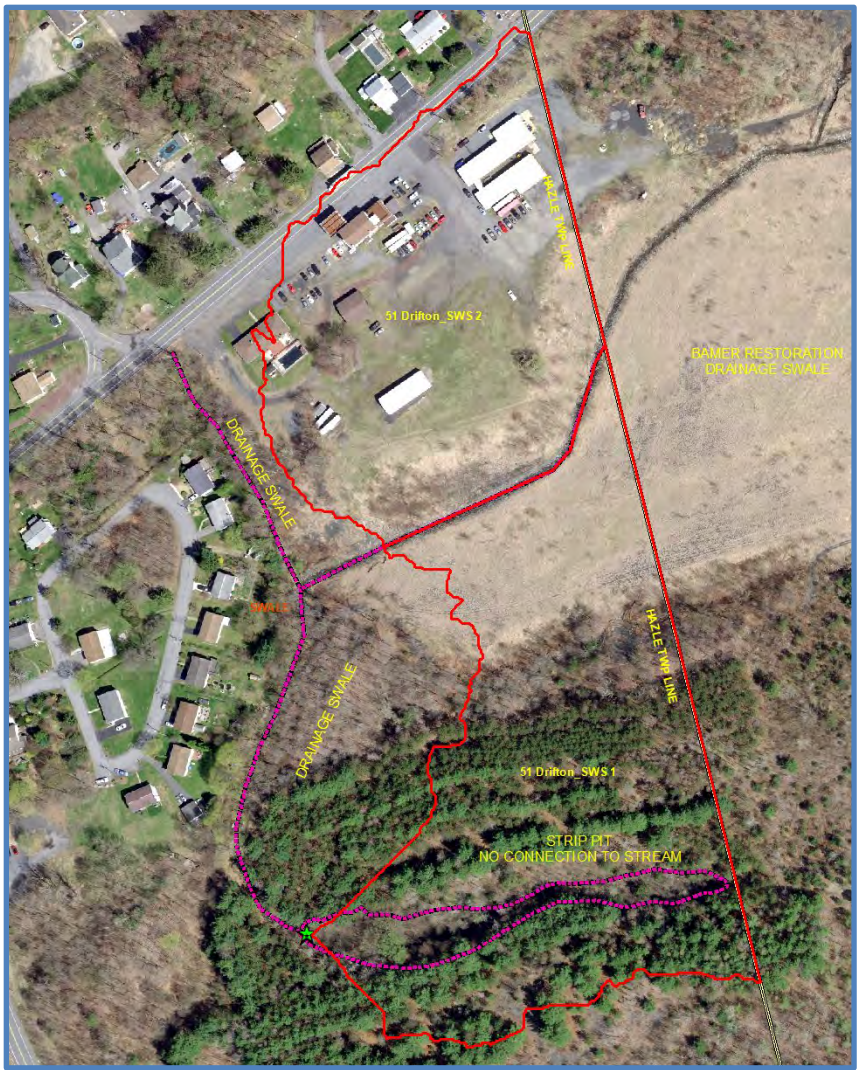


50 Drifton_SWS2

	FID	Shape *	Area_Acre	ID	Shape_Leng	Shape_Area	Watershed	Descriptio
▶	0	Polygon	45.379283	39	11779.23619	1976713.68223	50 Drifton_SWS1	Drainage to PaDot Cross Pipe
	1	Polygon	2.013214	39	11779.23619	87695.269318	50 Drifton_SWS2	Parsed PaDot ROW
	2	Polygon	13.050057	39	11779.23619	568458.226624	50 Drifton_SWS3	Drainage to Open Swale

Proposed BMP's: This drainage area is disconnected from the stream at this time and therefore no BMP's are proposed.

51 Drifton SWS3: This area includes a large drainage watershed in the Township developed area along SR 940 adjacent to Foster Township. A large section is outside the Municipal Boundary and drains to an existing BAMR rock swale. Stormwater from this area is collected to a small broken up stormwater piping system which discharges to a large open BAMR swale south of SR 940 and eventually to the disconnected outfall. Since this watershed is also disconnected from the stream, it has been parsed out of this plan.

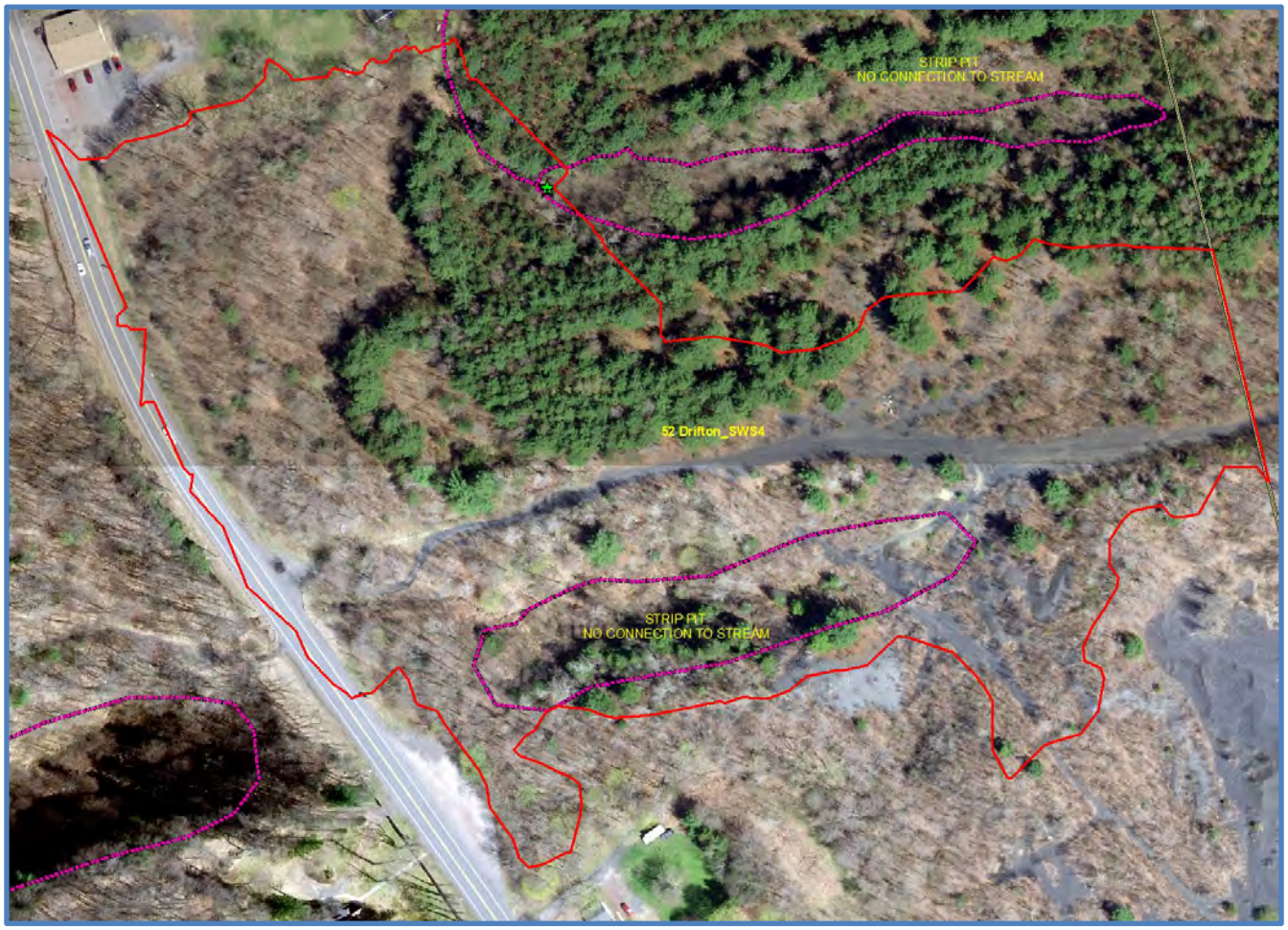


51 Drifton_SWS3

FID	ID	Shape_Leng	Shape_Area	Area	Watershed	Descriptio
0	38	13048.453591	396793.735237	9	51 Drifton_SWS 1	Sheet flow to mine pit
1	38	13048.453591	298226.858658	7	51 Drifton_SWS 2	To Bamer Swale to min pit

Proposed BMP's: This drainage area is disconnected from the stream at this time and therefore no BMP's are proposed.

52 Drifton SWS4: This drainage area is completely wooded and undeveloped with a small section of PaDot roadway. Since this area has no Municipal Stormwater System and naturally drains to the same disconnected outfall it has been parsed out of this analysis.



52 Drifton_SWS4

FID	Shape *	Id	Area	Watershed	Descriptio
0	Polygon	4	14	52 Drifton_SWS4	Parsed Drains to Open Pit Disconnected from stream

Proposed BMP's: This drainage area is disconnected from the stream at this time and therefore no BMP's are proposed.

53 Drifton SWS5: This area includes a large municipal drainage watershed in the Village of Drifton. This drainage area enters PaDot coss pipes and continues thru 57 Drifton SWS 6 to a discharge swale. PaDot Right of Way has been parsed from this drainage area. The MS4 outfall is an open pipe discharge to a swale. See 56 Drifton SWS 6 below.

53 Drifton_SWS5

FID	Area_Acre	ID	Shape_Leng	Shape_Area	Area	Watershed	Descriptio
0	0	4	7084.394604	1231645.56767	28	53 Drifton_SWS 1	
2	0	4	3014.107634	42085.26896	1	53 Drifton_SWS 3	Parsed PaDot ROW

Proposed BMP's: This drainage area discharges across PaDot ROW. Therefore, are no BMP's are proposed within this watershed.

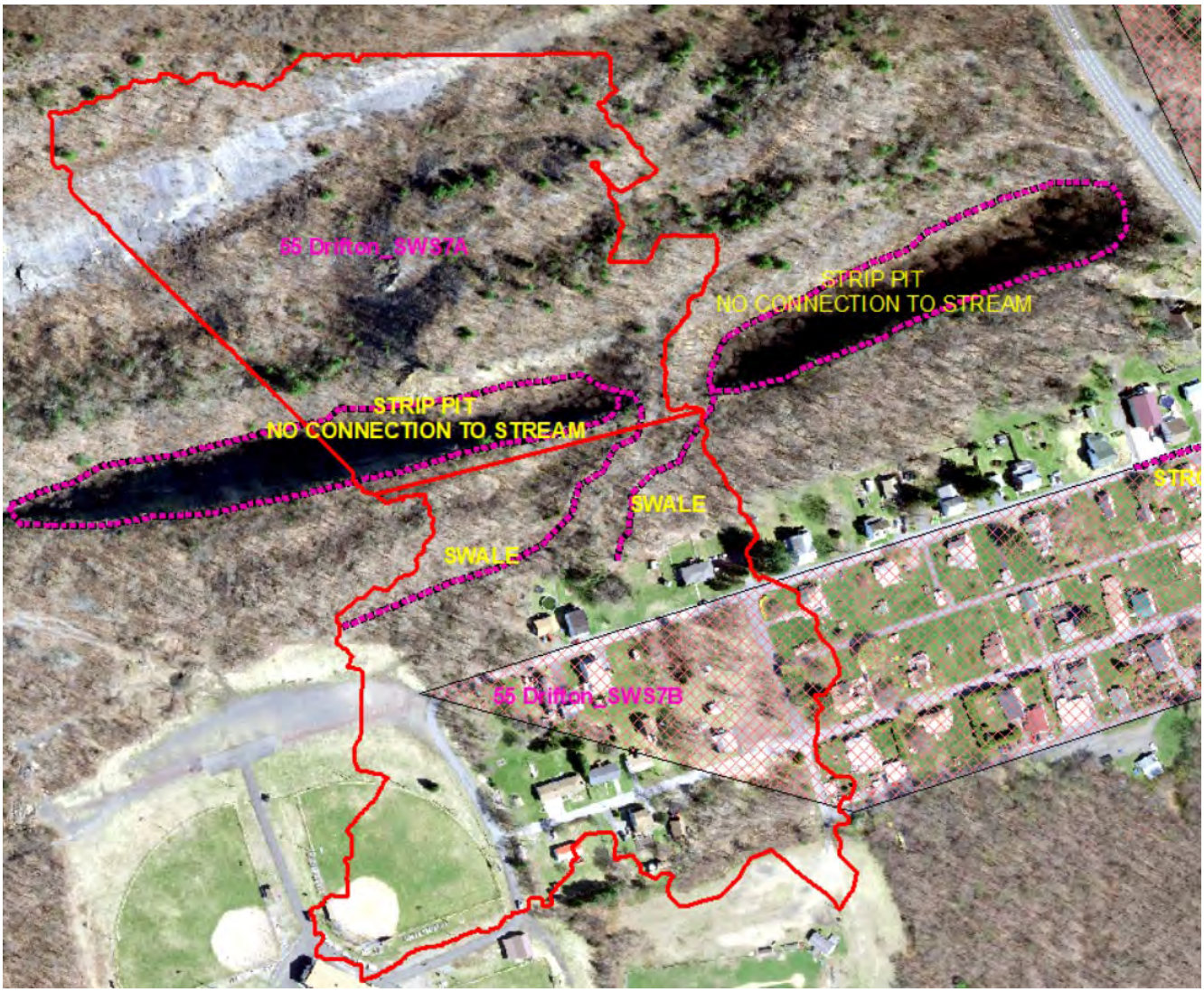
54 rifton SWS6: This area includes a small drainage area which includes part of the Village of Drifton along SR 940. The MS4 is piped across the PaDot ROW to a new infiltration BMP and outfall.

54 Drifton_SWS6

Area_Acre	Area_SqMi	AveSlope	ID	Shape_Leng	Shape_Area	Area	Watershed	Descriptio
36.269787	0.056672	0	5	8731.235851	1406302.84551	32	54 Drifton_SWS 1	
36.269787	0.056672	0	5	8731.235851	29391.445092	1	54 Drifton_SWS 2	Parsed PaDot ROW
36.269787	0.056672	0	5	8731.235851	144211.318735	3	54 Drifton_SWS 3	

Proposed BMP's: There appears to be a drainage pipe to the end of an alley discharging to a wooded area. Infiltration BMP's are proposed at this location to address water quality to meet this PRP including open vegetated infiltration swales and possible infiltration pond.

55 Drifton SWS7: This drainage area includes the highest part of the Village of Drifton near the existing ASA Softball Complex. There is no existing storm piping in this area. Stormwater sheet flows north along existing residential lots and [public streets until it reaches old swales remaining from former surface mining operations. The accumulated flow then discharges to two existing surface pits and do not connect to the stream under analysis. Since this watershed is disconnected from the stream, it has been parsed out of this plan.



55 Drifton_SWS7

FID	Shape *	Id	Area	Watershed	Descriptio
1	Polygon	7	33	55 Drifton_SWS7A	No Municipal Twp MS4 in this area - Outside UA
0	Polygon	7	33	55 Drifton_SWS7B	Part of Twp MS4

Proposed BMP's: This drainage area is disconnected from the stream at this time and therefore no BMP's are proposed.

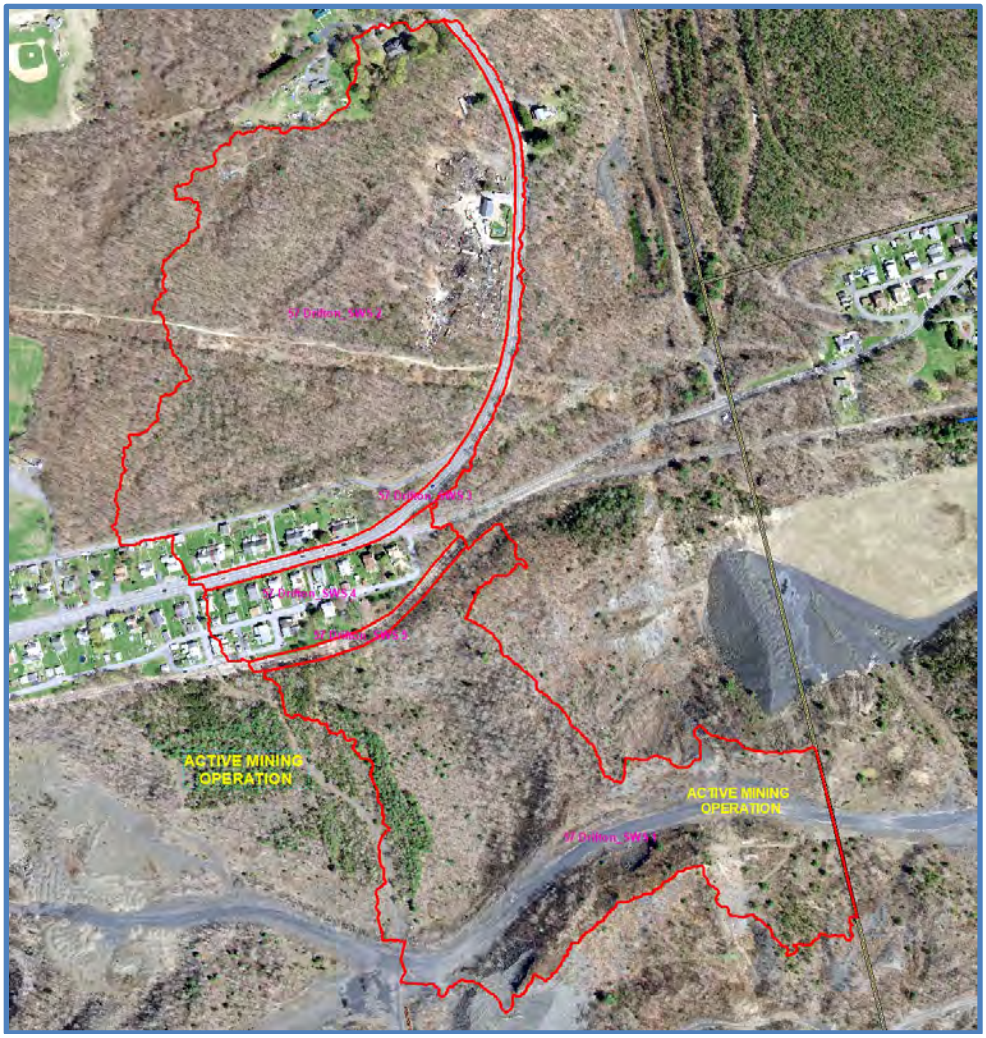
56 Drifton SWS8: This drainage area includes the existing ASA Softball Complex and the drainage area south thru part of the Village of Oakdale. There is no existing storm piping in the area of the ASA Softball Complex. The MS4 collects flow on the north side of SR 940, connects to the PaDot pipe system then discharges to swales along the existing Norfolk Southern Railroad. Existing railroad piping under the tracks discharge all surface flow to an existing open pit mining activity. Since this watershed is disconnected from the stream, it has been parsed out of this plan.

56 Drifton_SWS8

FID	Shape *	Id	Area	Watershed	Descriptio
0	Polygon	8	55	56 Drifton_SWS 1	
1	Polygon	8	2	56 Drifton_SWS 2	Parsed PaDot ROW
2	Polygon	8	6	56 Drifton_SWS 3	
3	Polygon	8	0	56 Drifton_SWS 4	Parsed Railroad ROW
4	Polygon	8	1	56 Drifton_SWS 5	

Proposed BMP's: This drainage area is disconnected from the stream at this time and therefore no BMP's are proposed.

57 Drifton SWS9: This drainage area includes the existing eastern end of the Village of Oakdale. Most of this area is undeveloped without a municipal storm system or part of an active open mining. The MS4 collects flow on the north side of SR 940, connects to the PaDot pipe system then discharges to swales along the existing Norfolk Southern Railroad. Existing railroad piping under the tracks discharge all surface flow to an existing open pit mining activity. A small part of this drainage area on the far south east end is outside of Hazle Township. Since this watershed is disconnected from the stream, it has been parsed out of this plan.



57 Drifton_SWS9

FID	Area_Acre	ID	Shape_Leng	Shape_Area	Watershed	Descriptio
0	35.27574	11	17858.968747	1536605.0966	57 Drifton_SWS 1	
1	43.855517	11	17858.968747	1910338.68626	57 Drifton_SWS 2	
2	2.733481	11	17858.968747	119069.945636	57 Drifton_SWS 3	Parsed PaDot ROW
3	5.363003	11	17858.968747	233611.473706	57 Drifton_SWS 4	
4	1.037772	11	17858.968747	45205.156917	57 Drifton_SWS 5	Parsed Railroad ROW

Proposed BMP's: This drainage area is disconnected from the stream at this time and therefore no BMP's are proposed.

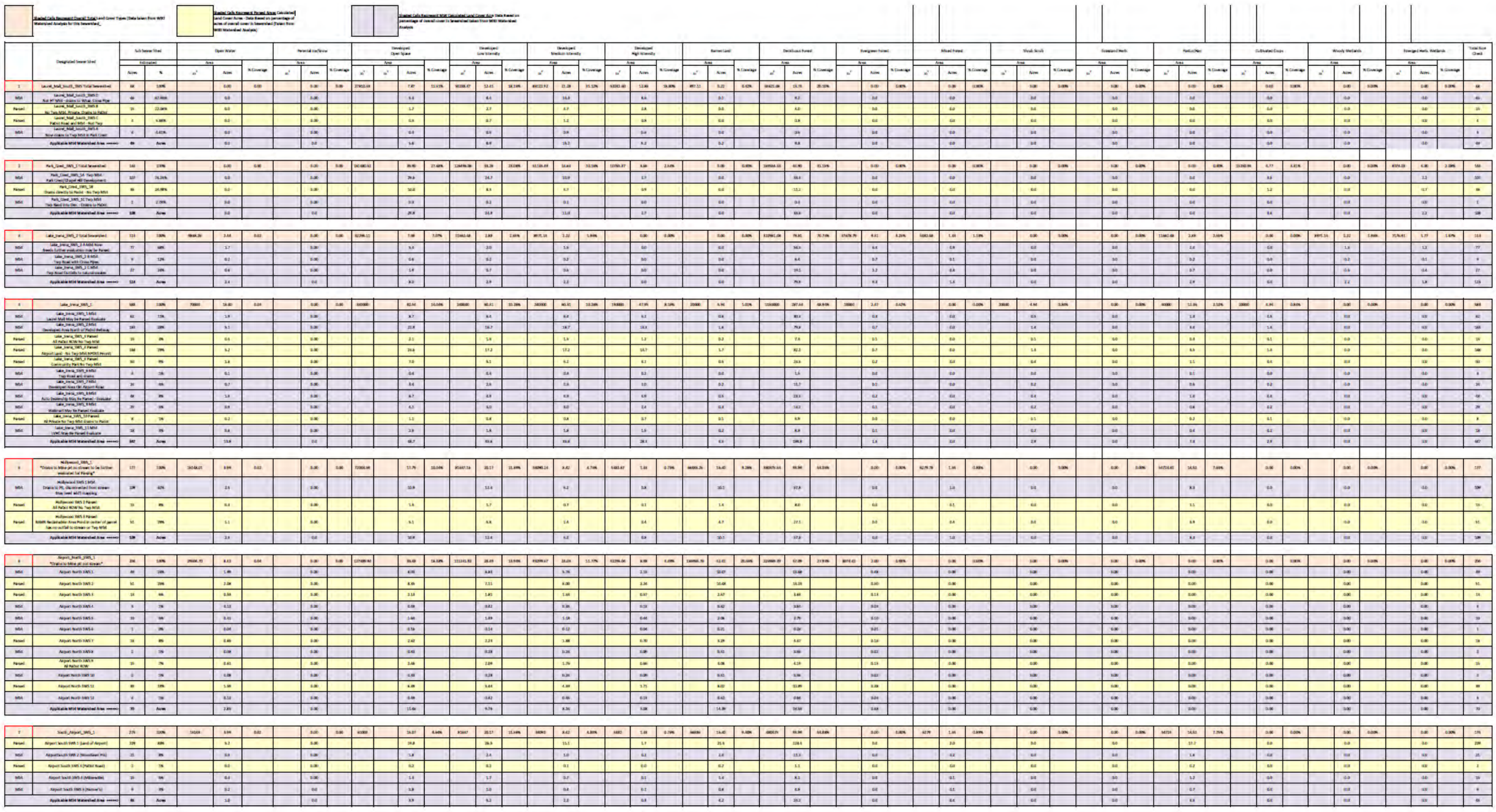
58 Drifton SWS10: This drainage area includes a large wooded former open mine area. This area is undeveloped without a municipal storm system and an active open mining. The small MS4 swales collects flow on teach side of the road to Jeddo Borough and connects to an pipe system which discharges to the existing Norfolk Southern Railroad. Existing railroad piping under the tracks discharge all surface flow to an existing open pit mining activity. Since this watershed is disconnected from the stream, this drainage area has been parsed out of this plan.

58 Drifton_SWS10

FID	Area_Acre	ID	Shape_Leng	Shape_Area	Watershed	Descriptio
0	42.911943	12	12087.30142	1869236.7631	58 Drifton_SWS10	No Twp Owned MS4 in this area

Proposed BMP's: This drainage area is disconnected from the stream at this time and therefore no BMP's are proposed.

10.0 Appendix C: Sewershed Estimated Simplified Load Analysis

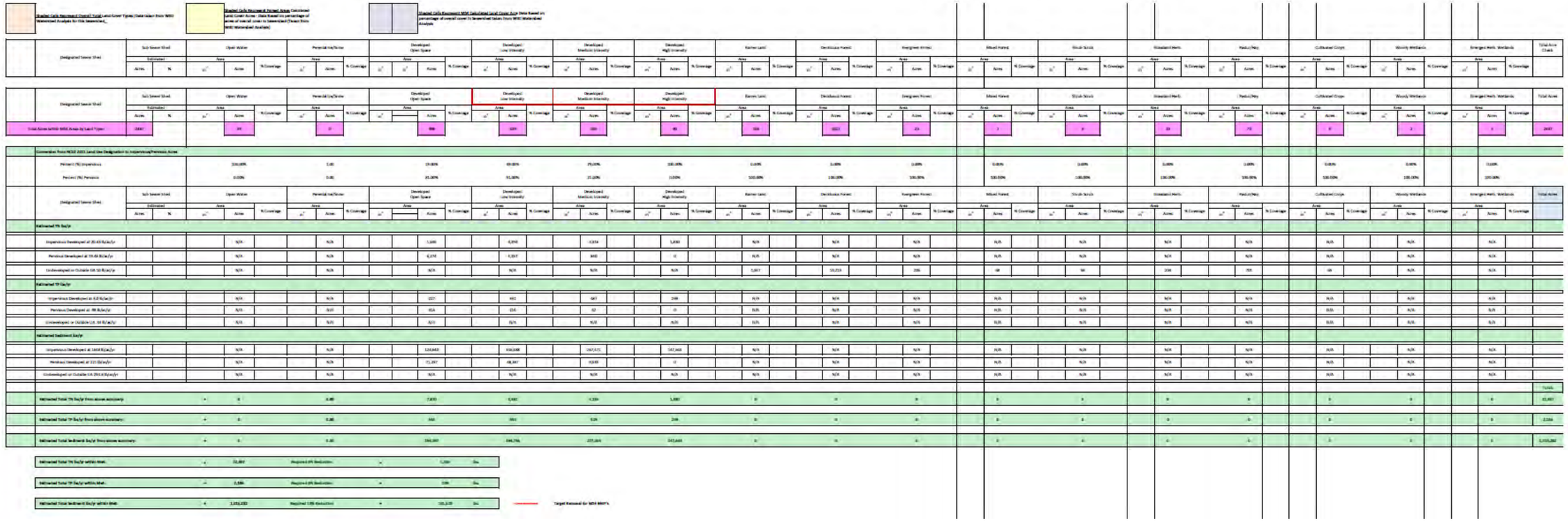


Shaded Cells Represent Overall Total Land Cover Types [Data taken from WMS Watershed Analysis for this Watershed_

Shaded Cells Represent Parcel Areas Calculated Land Cover Acres - Data Based on percentage of acres of overall cover in Watershed Taken from WMS Watershed Analysis

Shaded Cells Represent MS4 Calculated Land Cover Acre Data Based on percentage of overall cover in Watershed Taken from WMS Watershed Analysis

| | Designated Sewer Shed | Soil Sewer Shed Estimated Acres | Soil Sewer Shed Estimated % | Open Water Area ac² | Open Water Area Acres | Open Water % Coverage | Perm Str Veg/Snow Area ac² | Perm Str Veg/Snow Area Acres | Perm Str Veg/Snow % Coverage | Developed Open Space Area ac² | Developed Open Space Area ac² | Developed Open Space Area Acres | Developed Open Space % Coverage | Developed Low Intensity Area ac² | Developed Low Intensity Area Acres | Developed Low Intensity % Coverage | Developed Medium Intensity Area ac² | Developed Medium Intensity Area Acres | Developed Medium Intensity % Coverage | Developed High Intensity Area ac² | Developed High Intensity Area Acres | Developed High Intensity % Coverage | Mainly Lawn Area ac² | Mainly Lawn Area Acres | Mainly Lawn % Coverage | Deciduous Forest Area ac² | Deciduous Forest Area Acres | Deciduous Forest % Coverage | Evergreen Forest Area ac² | Evergreen Forest Area Acres | Evergreen Forest % Coverage | Mixed Forest Area ac² | Mixed Forest Area Acres | Mixed Forest % Coverage | Shrub Scrub Area ac² | Shrub Scrub Area Acres | Shrub Scrub % Coverage | Grassland Herb. Area ac² | Grassland Herb. Area Acres | Grassland Herb. % Coverage | Pasture/Hay Area ac² | Pasture/Hay Area Acres | Pasture/Hay % Coverage | Cultivated Crops Area ac² | Cultivated Crops Area Acres | Cultivated Crops % Coverage | Woody Wetlands Area ac² | Woody Wetlands Area Acres | Woody Wetlands % Coverage | Emerged Herb. Wetlands Area ac² | Emerged Herb. Wetlands Area Acres | Emerged Herb. Wetlands % Coverage | Total Row Check |
|---|---|---



11.0 Appendix D: Simplified Load Removal Analysis

Developed Land Loading Rates for PA Counties						
County	Category	Acres	TN lb/acre/yr	TP lb/acre/yr	TSS (Sediment) lb/acre/yr	Application
Luzerne	Impervious developed	5857	20.43	3	1,648	TSS Loading values used below to calculate annual lbs
	Pervious developed	13483	19.46	0.98	221	
	Outside of Urbanized Area	All	10	0.33	234.6	

Simplified Method for Estimating Sediment Removal

	Designated Sewer Shed	Total Acres	Proposed BMP	Estimated Acres To BMP	BMP Effectiveness Values TN	TP	SEDIMENT	Type of Development Based on GIS data evaluation and Conversion from NCLD 2011 Land Use Designation to Impervious/Pervious Acres: Estimated sediment removal Developed Open Space Development 19% Imperv.	81% Pervious	Estimated sediment removal Low Intensity Development 49% Imperv.	51% Pervious	Estimated sediment removal Medium Intensity Development 79% Imperv.	21% Pervious	Estimated sediment removal High Intensity 100% Imperv.	0% Pervious	Estimated Total Sediment reduction (lbs/year) Based on BMP Effectiveness Values
1	Laurel_Mall_South_SWS	68														
Parsed	Laurel_Mall_South_SWS D	46	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Laurel_Mall_South_SWS B	15	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Laurel_Mall_South_SWS C	4	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
MS4	Laurel_Mall_South_SWS A	3	Add Permeable pavers along swale (C/D Soil)	0.5	0.10	0.20	0.55			222	31					253
Applicable Total MS4 Watershed Area =====>		49														
2	Park_Crest_SWS_1	144														
MS4	Part of Chapel Hill Developemtn Township Applicable MS4 Watershed	107	Bioretention/Rain garden and Vegetated Open Channels (C/D Soil) - Lower Value Used	25	0.10	0.10	0.50	1,957	1,119	5,047	352	0	0	0	0	8,475
Parsed	Laurel_Mall_South_SWS D Chapel Hill	7	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		108														
3	Lake_Irena_SWS_2	113														
Parsed	Lake_Irena_SWS_2 A	77	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
MS4	Lake_Irena_SWS_2 B	9	Vegetated Open Channels (C/D Soil)	3	0.10	0.10	0.50	470	269	0	0	0	0	0	0	738
Parsed	Lake_Irena_SWS_2 C	27	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		113														
4	Lake_Irena_SWS_1	588														
MS4	Lake_Irena_SWS_1 Laurel Mall and Regal Cinema	62	Upgrade existing detention pond to extended detention with low flow infiltration and bioretention raingarden	10	0.10	0.10	0.50					6,510	873			7,383
MS4	Lake_Irena_SWS_2 Development North of Beltway	163	Vegetated Open Channels (C/D Soil)	10	0.20	0.20	0.60			4,845	676					5,521
Parsed	Lake_Irena_SWS_3 (Padot)	15	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Lake_Irena_SWS_4 (Airport)	168	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Lake_Irena_SWS_5 (Lake No MS4)	50	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
MS4	Lake_Irena_SWS_6 Twp North Park Drive	3	Vegetated Open Channels (C/D Soil)	1.5	0.10	0.10	0.50					976	131			1,107
MS4	Lake_Irena_SWS_7 Development Along Old Airport Road	24	Vegetated Open Channels (C/D Soil)	1	0.20	0.20	0.60			485	68					552
MS4	Lake_Irena_SWS_8 Lands of Car Dealerships	48	Upgrade existing detention pond to extended detention with low flow infiltration and bioretention raingarden	10	0.20	0.20	0.60			4,845	676					5,521
MS4	Lake_Irena_SWS_9 Lands Of Wallmart	29	Upgrade existing detention pond to extended detention with low flow infiltration and bioretention raingarden	10	0.20	0.20	0.60			4,845	676					5,521
Parsed	Lake_Irena_SWS_10	8	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
MS4	Lake_Irena_SWS_11 Lands of LHVH	18	Upgrade existing detention pond to extended detention with low flow infiltration and bioretention raingarden	3	0.20	0.20	0.60			1,454	203					1,656
Applicable Total MS4 Watershed Area =====>		347														

Simplified Method for Estimating Sediment Removal

	Designated Sewer Shed	Total Acres	Proposed BMP	Estimated Acres To BMP	BMP Effectiveness Values TN	TP	SEDIMENT	Type of Development Based on GIS data evaluation and Conversion from NCLD 2011 Land Use Designation to Impervious/Pervious Acres: Estimated sediment removal Developed Open Space Development 19% Imperv.	81% Pervious	Estimated sediment removal Low Intensity Development 49% Imperv.	51% Pervious	Estimated sediment removal Medium Intensity Development 79% Imperv.	21% Pervious	Estimated sediment removal High Intensity 100% Imperv.	0% Pervious	Estimated Total Sediment reduction (lbs/year) Based on BMP Effectiveness Values
5	Hollywood_SWS_1 *Drains to Mine pit not stream*	177														
Parsed	Hollywood SWS 1 Vilage of Hollywood to Pit	109	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Hollywood SWS 2 PaDot ROW Parsed	15	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Hollywood SWS 3 BAMR Reclamation Area	51	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		109														
6	Airport_North_SWS_1 *Drains to Mine pit not stream*	204														
Parsed	Airport North SWS 1	93	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Airport North SWS 2	68	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Airport North SWS 3	23	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Airport North SWS 4	3	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Airport North SWS 5	10	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		70														
7	South_Airport_SWS_1	276														
Parsed	Airport South SWS 1	229	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
MS4	AirportSouth SWS 2 Part of Woodlwn Park Developemnt	21	Vegetated Open Channels (C/D Soil)	8	0.10	0.10	0.50			3,230	451					3,681
Parsed	Airport South SWS 3	2	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
MS4	Airport South SWS 4	15	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
MS4	Airport South SWS 5	9	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		45						5		2		2		0		
8	Turkey_Hill_SWS_1	198														
Parsed	Turkey_Hill_SWS_1 (Wooded no development)	73	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Turkey_Hill_SWS_2 (Dev Along SR 309)	9	Vegetated Open Channels (C/D Soil)	4	0.10	0.10	0.50			1,615	225					1,840
Parsed	Turkey_Hill_SWS_3 (PaDot Roadway)	1	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Turkey_Hill_SWS_4 (Priv Ford Dealership)	4	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Turkey_Hill_SWS_5 (PaDot Roadway)	1	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Turkey_Hill_SWS_6 (Car Lot/Dunkin)	3	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Turkey_Hill_SWS_7 (Geriatrics Ctr)	24	Vegetated Open Channels (C/D Soil)	8	0.10	0.10	0.50			3,230	451					3,681
Parsed	Turkey_Hill_SWS_8 (Wooded Area no Dev)	15	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Turkey_Hill_SWS_9 (Twp Road & MS4)	20	Vegetated Open Channels (C/D Soil)	5	0.10	0.10	0.50			2,019	282					2,301
Parsed	Turkey_Hill_SWS_10 (Geriatrics Ctr)	8	Vegetated Open Channels (C/D Soil)	2	0.10	0.10	0.50			808	113					920
Applicable Total MS4 Watershed Area =====>		61														
9	N22_Street_SWS_3 (Removed drains to CSO)	44														
Parsed	N22_Street_SWS_3	45	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		0														
10	N22_Street_SWS_2 (Removed drains to CSO)	164														
Parsed	N22_Street_SWS2_1	52	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	N22_Street_SWS2_2	126	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	N22_Street_SWS2_3	22	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		0														

Simplified Method for Estimating Sediment Removal																						
								Type of Development Based on GIS data evaluation and Conversion from NCLD 2011 Land Use Designation to Impervious/Pervious Acres												
	Designated Sewer Shed	Total Acres	Proposed BMP	Estimated Acres To BMP	BMP Effectiveness Values				Estimated sediment removal Developed Open Space Development			Estimated sediment removal Low Intensity Development			Estimated sediment removal Medium Intensity Development			Estimated sediment removal High Intensity			Estimated Total Sediment reduction (lbs/year) Based on BMP Effectiveness Values
					TN	TP	SEDIMENT		19% Imperv.		81% Pervious	49% Imperv.		51% Pervious	79% Imperv.		21% Pervious	100% Imperv.		0% Pervious	
11	N22_Street_SWS_4 (Removed drains to CSO)	164																			
Parsed	N22_Street_SWS4_1	61	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Parsed	N22_Street_SWS4_2	22	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Parsed	N22_Street_SWS4_3	23	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Applicable Total MS4 Watershed Area =====>		0																			
12	N22_Street_SWS_1	72																			
Parsed	N22_Street_SWS1_1	29	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Parsed	N22_Street_SWS1_2	21	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Parsed	N22_Street_SWS1_3	2	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Parsed	N22_Street_SWS1_4	15	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Parsed	N22_Street_SWS1_5	1	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Parsed	N22_Street_SWS1_6	4	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Applicable Total MS4 Watershed Area =====>		0																			
13	Ridgewood_SWS_2	58																			
MS4	Ridgewood_SWS 1	46	Vegetated Open Channels (C/D Soil)	10	0.10	0.10	0.50					4,038		564							4,601
Parsed	Ridgewood_SWS 1	2	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
MS4	Ridgewood_SWS 1	10	Vegetated Open Channels (C/D Soil)	4	0.10	0.10	0.50					1,615		225							1,840
Applicable Total MS4 Watershed Area =====>		56																			
14	Churchhill_Mall_SWS	99																			
Parsed	Churchhill_Mall_SWS 1	47	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
MS4	Churchhill_Mall_SWS 2	25	Vegetated Open Channels (C/D Soil)	8	0.10	0.10	0.50					3,230		451							3,681
Parsed	Churchhill_Mall_SWS 3	27	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Applicable Total MS4 Watershed Area =====>		65																			
15	Lattimer_SWS	91																			
MS4	Lattimer_SWS 1	66	Vegetated Open Channels (C/D Soil)	10	0.10	0.10	0.50					4,038		564							4,601
Parsed	Lattimer_SWS_2	25	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Applicable Total MS4 Watershed Area =====>		66																			
16	Milnesvill_East_SWS_1 *Drains to Mine pit not stream*	100																			
MS4	Milnesvill_East_SW 1 (MS4 to Crk)	28	Vegetated Open Channels (C/D Soil)	10	0.10	0.10	0.50					4,038		564							4,601
Parsed	Milnesvill_East_SW 2 (PaDot Road)	3	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
MS4	Milnesvill_East_SW 3 (Twp road to PaDot)	24	Vegetated Open Channels (C/D Soil)	8	0.10	0.10	0.50					3,230		451							3,681
MS4	Milnesvill_East_SW 4 (All Wooded no MS4)	20	Vegetated Open Channels (C/D Soil)	8	0.10	0.10	0.50					3,230		451							3,681
Parsed	Milnesvill_East_SW 5 (Drains to Mine Pit)	25	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Applicable Total MS4 Watershed Area =====>		56																			
17	[illegible] *Drain to strip mine*	42																			
Parsed	Milnesvill_East_SW 1	42	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Applicable Total MS4 Watershed Area =====>		0																			

Simplified Method for Estimating Sediment Removal

	Designated Sewer Shed	Total Acres	Proposed BMP	Estimated Acres To BMP	BMP Effectiveness Values TN	TP	SEDIMENT	Type of Development Based on GIS data evaluation and Conversion from NCLD 2011 Land Use Designation to Impervious/Pervious Acres: Estimated sediment removal Developed Open Space Development 19% Imperv.	81% Pervious	Estimated sediment removal Low Intensity Development 49% Imperv.	51% Pervious	Estimated sediment removal Medium Intensity Development 79% Imperv.	21% Pervious	Estimated sediment removal High Intensity 100% Imperv.	0% Pervious	Estimated Total Sediment reduction (lbs/year) Based on BMP Effectiveness Values
18	Pardeesville_SWS_2	32														
Parsed	Pardeesville_SWS_2	32	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		32														
19	Pardeesville_SWS_3 *Drains to Mine pit not stream*	32														
Parsed	Pardeesville_SWS_3	32	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		32														
20	Pardeesville_SWS_4 *Drains to Mine pit not stream*	138														
Parsed	Pardeesville_SWS_4	128	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		18														
21	Pardeesville_SWS_5 *Drain to strip mine*	50														
Parsed	Pardeesville_SWS_5	51	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		31														
22	Pardeesville_SWS_6 *Drains to Mine pit not stream*	296														
Parsed	Pardeesville_SWS_6	296	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		40														
23	Pardeesville_SWS_7 *Drains to Mine pit not stream*	42														
Parsed	Pardeesville_SWS_7	42	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		42														
24	Lattimer_SWS_1	47														
MS4	Lattimer_SWS_1	23	Bioretention/Rain garden and Vegetated Open Channels (C/D Soil) - Lower Value Used	10	0.10	0.10	0.50			4,038	564					4,601
Applicable Total MS4 Watershed Area =====>		47														
25	Lattimer_SWS_3	54														
MS4	Lattimer_SWS_3	54	Bioretention/Rain garden and Vegetated Open Channels (C/D Soil) - Lower Value Used	10	0.10	0.10	0.50			4,038	564					4,601
Applicable Total MS4 Watershed Area =====>		54														
26	Lattimer_SWS_2B	105														
MS4	Lattimer_SWS 1	63	Bioretention/Rain garden and Vegetated Open Channels (C/D Soil) - Lower Value Used	20	0.10	0.10	0.50			8,075	1,127					9,202
Parsed	Lattimer_SWS 2	39	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Lattimer_SWS 3	5	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		63														
27	Ridgewood_SWS_1C *Drain to strip mine*	150														
Parsed	Ridgewood_SWS 3	129	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Ridgewood_SWS 1	14	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Ridgewood_SWS 2	7	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		150														

Simplified Method for Estimating Sediment Removal

	Designated Sewer Shed	Total Acres	Proposed BMP	Estimated Acres To BMP	BMP Effectiveness Values TN	TP	SEDIMENT	Type of Development Based on GIS data evaluation and Conversion from NCLD 2011 Land Use Designation to Impervious/Pervious Acres: Estimated sediment removal Developed Open Space Development 19% Imperv.	81% Pervious	Estimated sediment removal Low Intensity Development 49% Imperv.	51% Pervious	Estimated sediment removal Medium Intensity Development 79% Imperv.	21% Pervious	Estimated sediment removal High Intensity 100% Imperv.	0% Pervious	Estimated Total Sediment reduction (lbs/year) Based on BMP Effectiveness Values
28	HT_Valmont_1	67														
MS4	HT_Valmont 1	29	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	HT_Valmont 2	14	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	HT_Valmont 3	5	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	HT_Valmont 4	15	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
MS4	HT_Valmont 5	1	Bioretention/Rain garden and Vegetated Open Channels (C/D Soil) - Lower Value Used	0.5	0.10	0.10	0.50			202	28					230
MS4	HT_Valmont 6	3	Bioretention/Rain garden and Vegetated Open Channels (C/D Soil) - Lower Value Used	1.5	0.10	0.10	0.50			606	85					690
Applicable Total MS4 Watershed Area =====>		19														
29	HT_Valmont_2	99														
Parsed	HT_Valmont SWS2 1	79	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
MS4	HT_Valmont SWS2 2	2	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
MS4	HT_Valmont SWS2 3	3	Bioretention/Rain garden and Vegetated Open Channels (C/D Soil) - Lower Value Used	1.5	0.10	0.10	0.50			606	85					690
Parsed	HT_Valmont SWS2 4	14	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
MS4	HT_Valmont SWS2 5	1	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		85														
30 & 31	Garfield & 14'th St	99														
MS4	Garfield & 14'th St 1	18	Bioretention/Rain garden and Vegetated Open Channels (C/D Soil) - Lower Value Used	6	0.10	0.10	0.50		939		537					1,476
MS4	Garfield & 14'th St 2	13	Bioretention/Rain garden and Vegetated Open Channels (C/D Soil) - Lower Value Used	4	0.10	0.10	0.50		626		358					984
Applicable Total MS4 Watershed Area =====>		31														
32	HT_Southwest_1	30														
Parsed	HT_Southwest 1	10	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	HT_Southwest 2	11	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	HT_Southwest 3	2	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	HT_Southwest 4	7	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		0														
33	HT_Southwest_2	190														
Parsed	HT_Southwest2 1	100	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	HT_Southwest2 2	12	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	HT_Southwest2 3	40	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	HT_Southwest2 4	18	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	HT_Southwest2 5	21	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		0														
34	HT_Southwest_3	15														
Parsed	HT_Southwest_3	15	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		0														
35	HT_Cranberry_1	35														
MS4	HT_Cranberry 1	23	Bioretention/Rain garden and Vegetated Open Channels (C/D Soil) - Lower Value Used	10	0.10	0.10	0.50			4,038	564					4,601
Parsed	HT_Cranberry 2	13	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		23														

Simplified Method for Estimating Sediment Removal

	Designated Sewer Shed	Total Acres	Proposed BMP	Estimated Acres To BMP	BMP Effectiveness Values TN	TP	SEDIMENT	Type of Development Based on GIS data evaluation and Conversion from NCLD 2011 Land Use Designation to Impervious/Pervious Acres: Estimated sediment removal Developed Open Space Development 19% Imperv.	81% Pervious	Estimated sediment removal Low Intensity Development 49% Imperv.	51% Pervious	Estimated sediment removal Medium Intensity Development 79% Imperv.	21% Pervious	Estimated sediment removal High Intensity 100% Imperv.	0% Pervious	Estimated Total Sediment reduction (lbs/year) Based on BMP Effectiveness Values
36	HT_Cranberry_SWS_2	41														
Parsed	HT_Cranberry_SWS2 1	31	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
MS4	HT_Cranberry_SWS2 2	5	Vegetated Open Channels (C/D Soil)	2	0.20	0.20	0.60			969	135					1,104
MS4	HT_Cranberry_SWS2 3	5	Vegetated Open Channels (C/D Soil)	2	0.20	0.20	0.60			969	135					1,104
Applicable Total MS4 Watershed Area =====>		10														
37	HT_Hollarshill_1	9														
MS4	HT_Hollarshill_1	9	Vegetated Open Channels (C/D Soil)	3	0.10	0.10	0.50			1,211	169					1,380
Applicable Total MS4 Watershed Area =====>		9														
38	HT_Hollarshill_2	22														
MS4	HT_Hollarshill_2	22	Vegetated Open Channels (C/D Soil)	8	0.10	0.10	0.50			3,230	451					3,681
Applicable Total MS4 Watershed Area =====>		22														
39	HT_Harwood_1	31														
Parsed	HT_Harwood_1	31	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		31														
40	HT_Greenridge_1	7														
MS4	HT_Greenridge 1	5	Bioretention/Rain garden and Vegetated Open Channels (C/D Soil) - Lower Value Used	2	0.10	0.10	0.50			808	113					920
MS4	HT_Greenridge 2 Area Outside MS4	2	Bioretention/Rain garden and Vegetated Open Channels (C/D Soil) - Lower Value Used	1	0.10	0.10	0.50			57	60					117
Applicable Total MS4 Watershed Area =====>		7														
41	HT_Greenridge_2	8														
Parsed	HT_Greenridge_2	8	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		8														
42	HT_Greenridge_3	2														
Parsed	HT_Greenridge_3	2	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		2														
43	HT_Greenridge_4	17														
Parsed	HT_Greenridge_4	17	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>																
44	HT_Southeast_1	596														
Parsed	HT_Southeast_1	434	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		0														
45	HT_Southeast_2	10														
Parsed	HT_Southeast_2	10	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		0														

Simplified Method for Estimating Sediment Removal

										Type of Development Based on GIS data evaluation and Conversion from NCLD 2011 Land Use Designation to Impervious/Pervious Acres													
	Designated Sewer Shed	Total Acres	Proposed BMP	Estimated Acres To BMP	BMP Effectiveness Values				Estimated sediment removal Developed Open Space Development			Estimated sediment removal Low Intensity Development			Estimated sediment removal Medium Intensity Development			Estimated sediment removal High Intensity			Estimated Total Sediment reduction (lbs/year) Based on BMP Effectiveness Values
					TN	TP	SEDIMENT		19% Imperv.		81% Pervious	49% Imperv.		51% Pervious	79% Imperv.		21% Pervious	100% Imperv.		0% Pervious	
46	HT_Southeast_3	35																			
MS4	HT_Southeast_3	35	Vegetated Open Channels (C/D Soil)	10	0.10	0.10	0.50					4,038		564							4,601
Applicable Total MS4 Watershed Area =====>		0																			
47	HT_Southeast_4	19																			
MS4	HT_Southeast 1	12	Vegetated Open Channels (C/D Soil)	4	0.10	0.10	0.50					1,615		225							1,840
Parsed	HT_Southeast 2	2	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
MS4	HT_SoutheasTt 3	6	Vegetated Open Channels (C/D Soil)	3	0.10	0.10	0.50					1,211		169							1,380
Applicable Total MS4 Watershed Area =====>		0																			
48	HT_East SWS 1 Hazle Springs *Drains to Mine pit not stream*	87																			
MS4	HT_East SWS 1	46	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Parsed	HT_East SWS 2	26	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Parsed	HT_East SWS 3	1	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Parsed	HT_East SWS 4	14	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Applicable Total MS4 Watershed Area =====>		86																			
49	Drifton_SWS1	10																			
Parsed	Drifton_SWS 1	9	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
MS4	Drifton_SWS 2	3	Vegetated Open Channels (C/D Soil)	0.5	0.10	0.10	0.50		78		45										123
Applicable Total MS4 Watershed Area =====>		13																			
50	Drifton_SWS2	60																			
Parsed	Drifton_SWS 1	45	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Parsed	Drifton_SWS 2	2	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Parsed	Drifton_SWS 3	13	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Applicable Total MS4 Watershed Area =====>		58																			
51	Drifton_SWS3	76																			
Parsed	Drifton_SWS3 1	9	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Parsed	Drifton_SWS3 2	7	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Applicable Total MS4 Watershed Area =====>		76																			
52	Drifton_SWS4	14																			
Parsed	Drifton_SWS4 1	4	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Applicable Total MS4 Watershed Area =====>		0																			
53	Drifton_SWS5	29																			
MS4	Drifton_SWS5	28	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
MS4	Drifton_SWS5	1	Bioretention/Rain garden and Vegetated Open Channels (C/D Soil) - Lower Value Used	0.5	0.10	0.10	0.50					202		28							230
Parsed	Drifton_SWS5	1	NO BMP PROPOSED		0	0	0		N/A			N/A			N/A			N/A			N/A
Applicable Total MS4 Watershed Area =====>																					

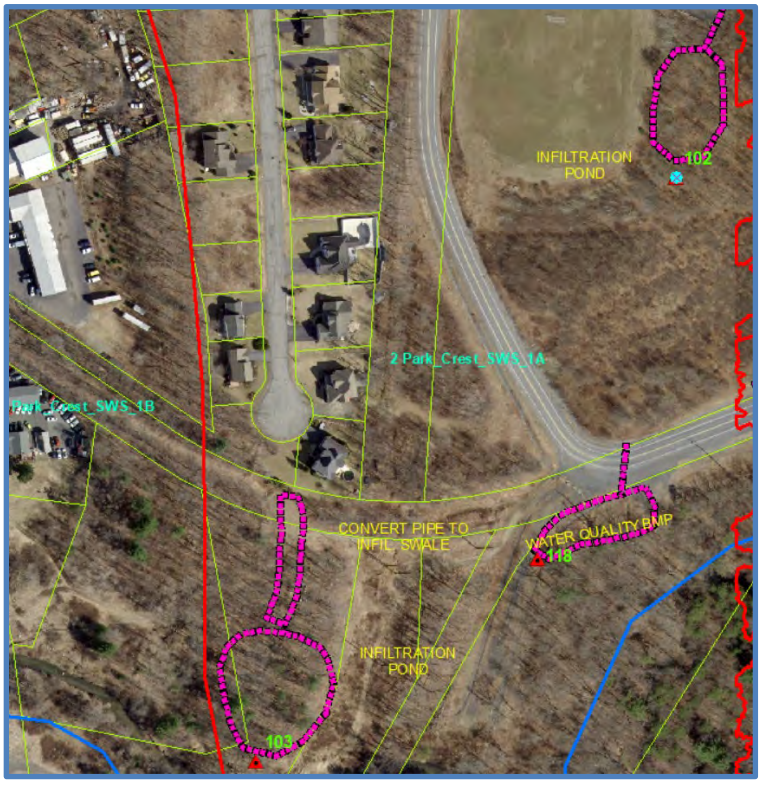
Simplified Method for Estimating Sediment Removal

	Designated Sewer Shed	Total Acres	Proposed BMP	Estimated Acres To BMP	BMP Effectiveness Values TN	TP	SEDIMENT	Type of Development Based on GIS data evaluation and Conversion from NCLD 2011 Land Use Designation to Impervious/Pervious Acres: Estimated sediment removal Developed Open Space Development 19% Imperv.	81% Pervious	Estimated sediment removal Low Intensity Development 49% Imperv.	51% Pervious	Estimated sediment removal Medium Intensity Development 79% Imperv.	21% Pervious	Estimated sediment removal High Intensity 100% Imperv.	0% Pervious	Estimated Total Sediment reduction (lbs/year) Based on BMP Effectiveness Values
54	Drifton_SWS6	29														
MS4	Drifton_SWS6 1	32	Bioretention/Rain garden and Vegetated Open Channels (C/D Soil) - Lower Value Used	3	0.10	0.10	0.50			1,211	169					1,380
Parsed	Drifton_SWS6 2	1	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Drifton_SWS6 3 Drains to Open Pit	3	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		32														
55	Drifton_SWS 7	66														
Parsed	Drifton_SWS 7	33	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		33														
56	Drifton_SWS8	63														
Parsed	Drifton_SWS8 2	55	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Drifton_SWS8 2	2	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Drifton_SWS8 3	6	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Drifton_SWS8 4	1	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Drifton_SWS8 5	1	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		62														
57	Drifton_SWS 57	88														
Parsed	Drifton_SWS7 1	35	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Drifton_SWS7 2	44	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Drifton_SWS7 3	3	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Drifton_SWS7 4	5	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Parsed	Drifton_SWS7 5	1	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		84														
58	Drifton_SWS10	48														
Parsed	Drifton_SWS10	42	NO BMP PROPOSED		0	0	0	N/A		N/A		N/A		N/A		N/A
Applicable Total MS4 Watershed Area =====>		0														

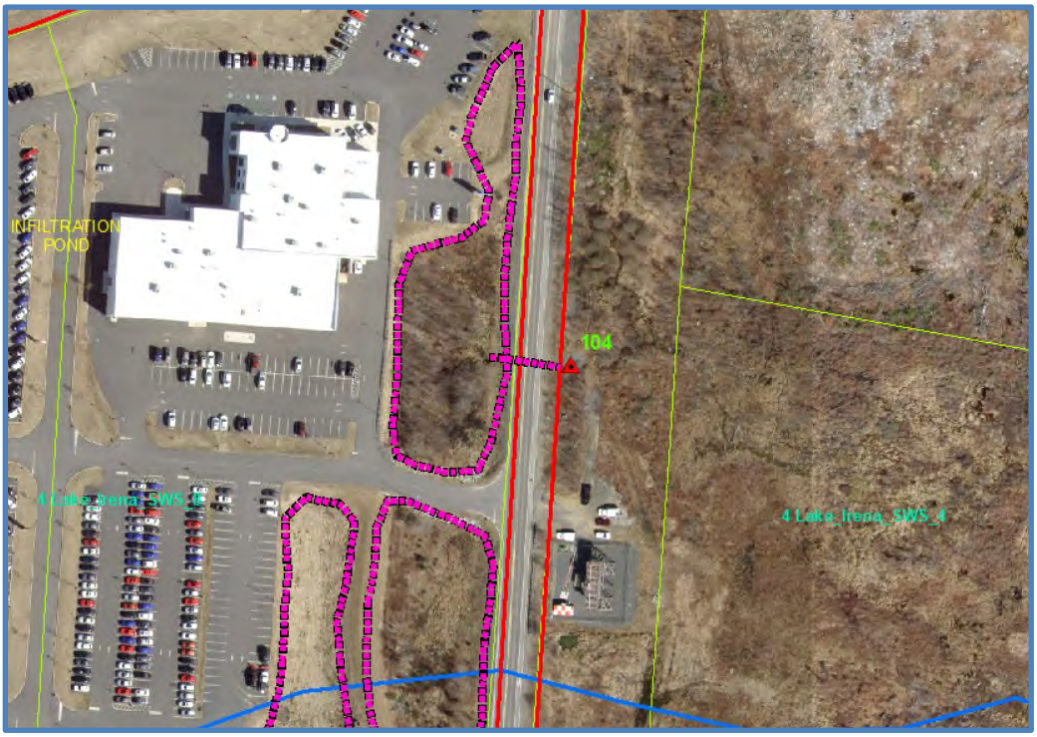
Estimated Total lbs sediment removed per year if all BMP's completed	120,778

12.0 Appendix E: MS4 BMP Outfall Summary

Outfall 101 - 1 Laurel Mall South SWS 1A: This area drains to a series of storm inlets. No outfall is located within this area, surface flow drains to existing inlets. Outfall noted as inserts may be used.

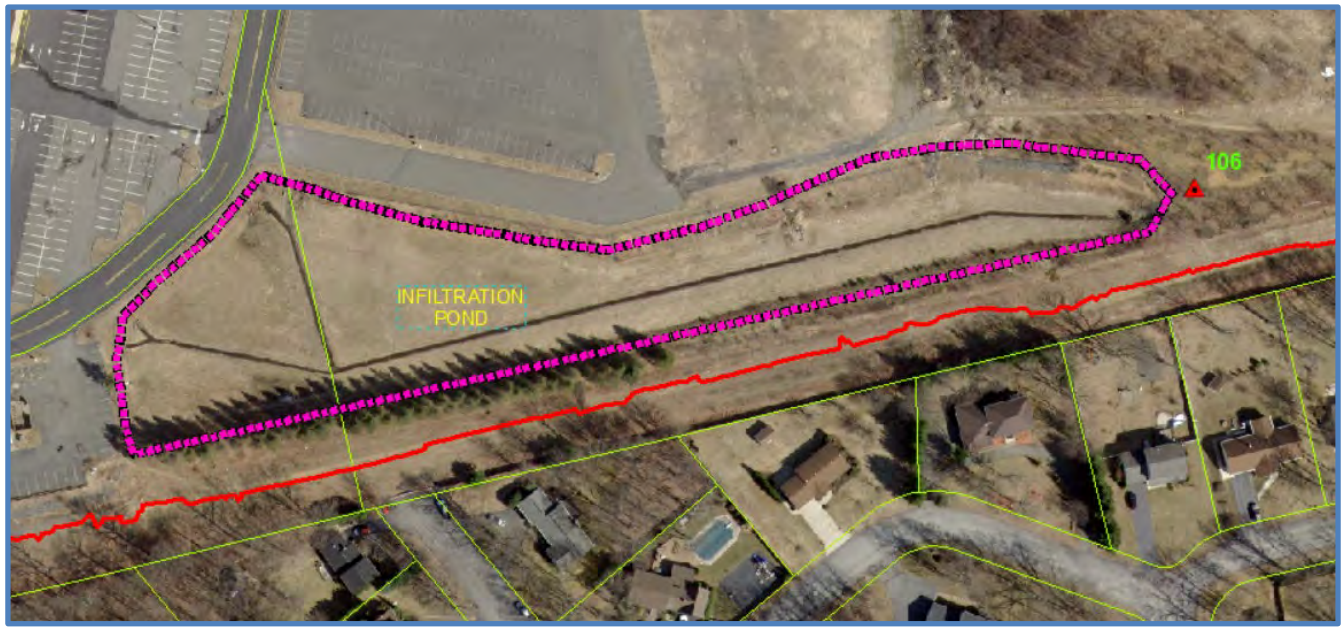


Outfall 102 & 103 - 2 Park Crest SWS1: This drainage includes outfall 102 from BMP to address athletic fields and parking as well as 103 for the BMP addressing Park Crest Development stormwater.

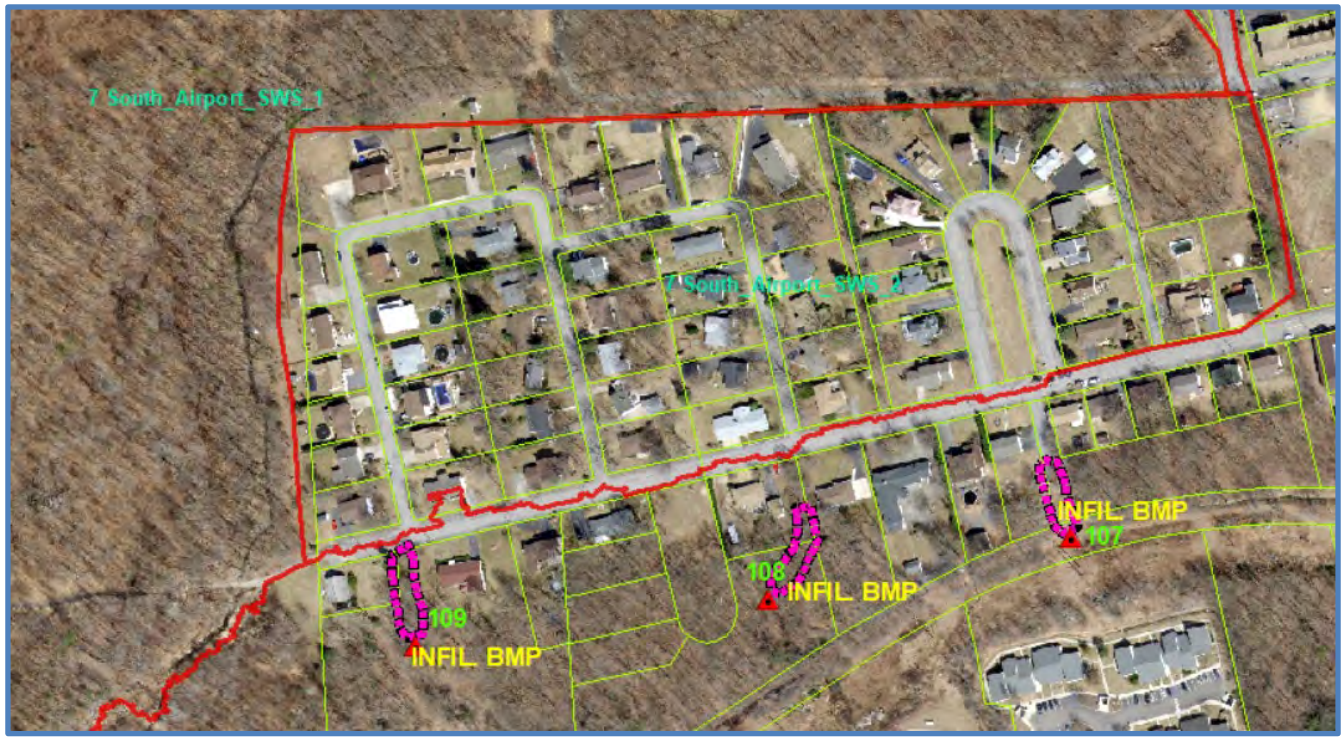


Outfall 104 - 4 Lake Irena SWS1: Address erosion and discharge form existing cross pipe from Auto-Mall stormwater system.

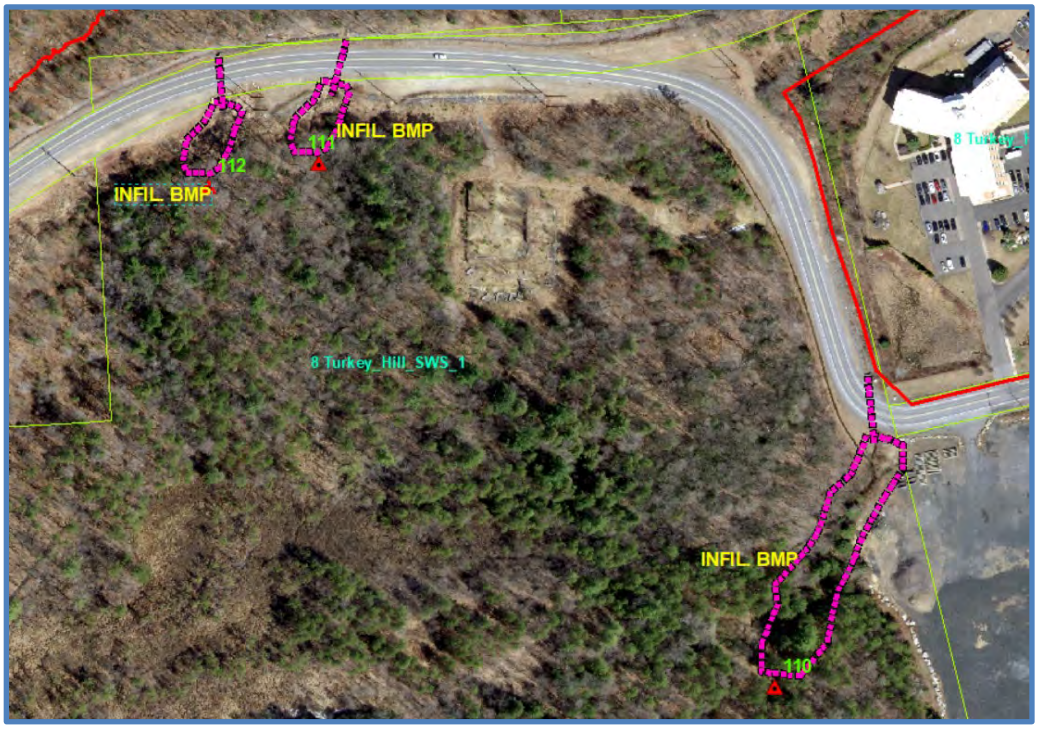
Outfall 105 - 4 Lake Irena SWS1: Address erosion from existing 36" cross pipe from Wallmart and Laurel Mall



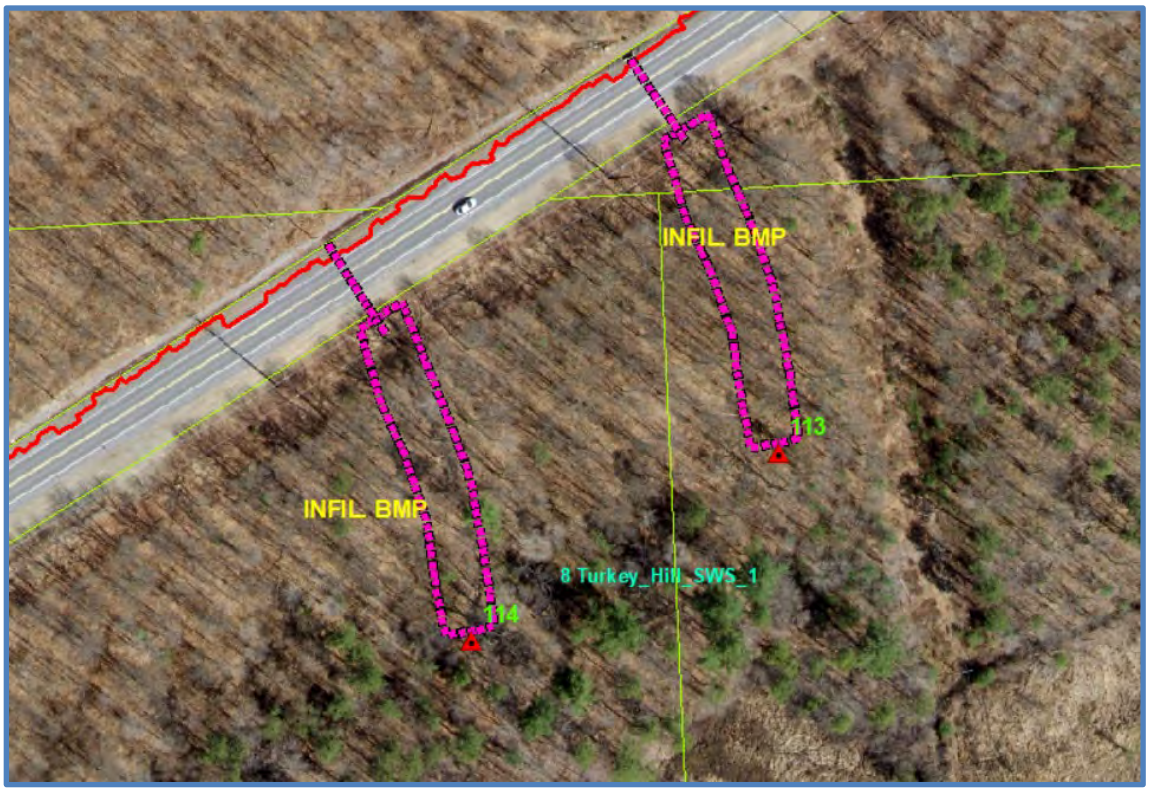
Outfall 106 - 4 Lake Irena SWS1: Remove concrete low flow swale and upgrade pond.



Outfalls 107,108 & 109 - 7 Airport South SWS1: New BMP's to address outfall from existing pipes.

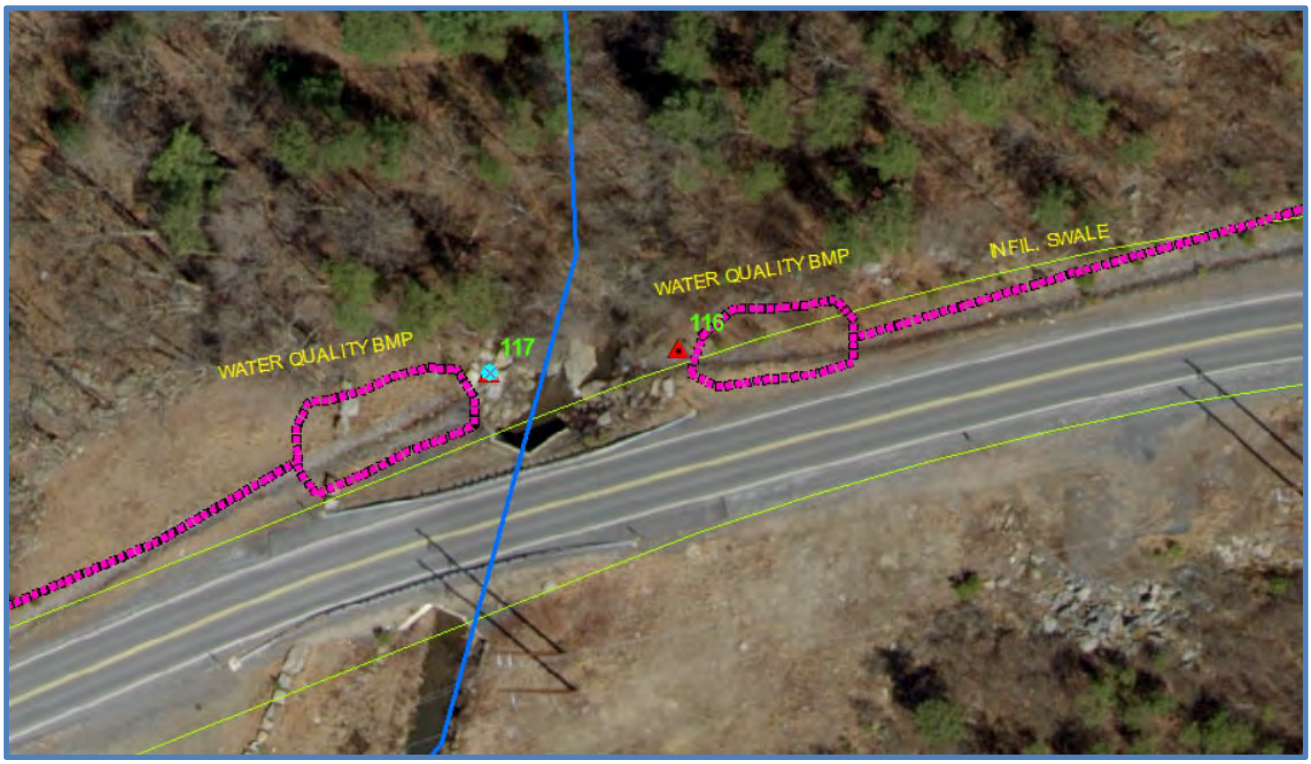


Outfalls 110,111 & 112 - 8 Turkey Hill SWS1: New BMP's to address outfall from existing pipes.

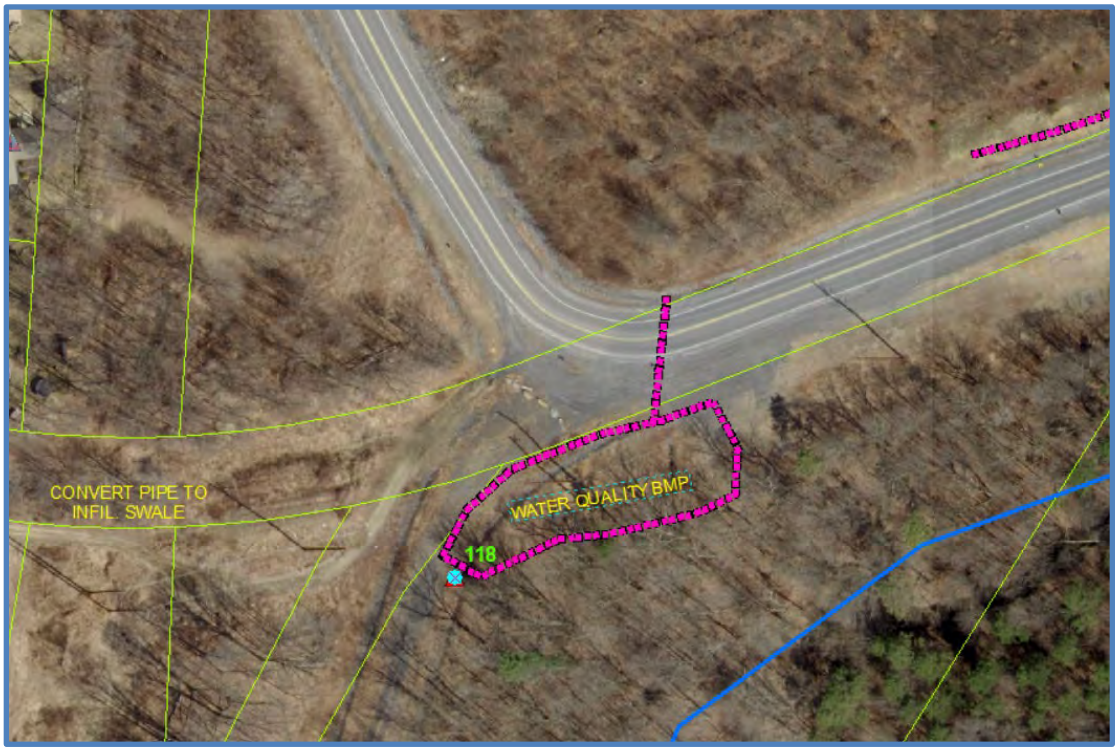


Outfalls 113 & 114 - 8 Turkey Hill SWS1: New BMP's to address outfall from existing pipes.

Outfalls 115 - 8 Turkey Hill SWS1: New BMP's to address outfall from existing pipes.



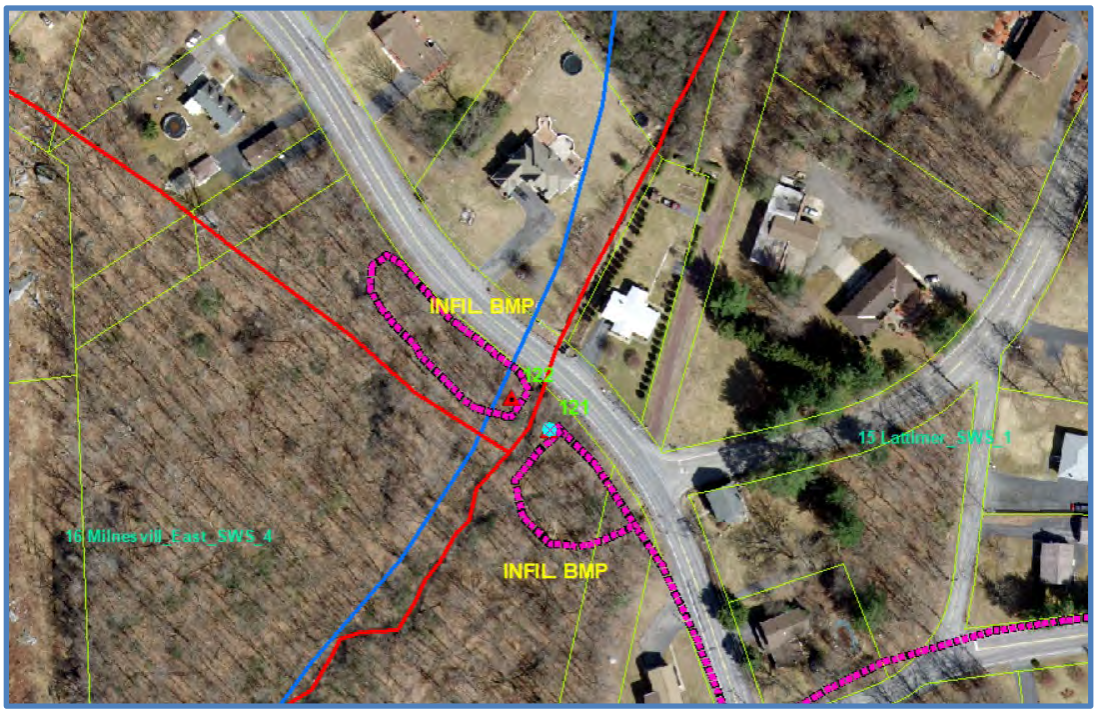
Outfalls 116 & 117 - 8 Turkey Hill SWS1: New BMP's to address outfall from existing roadside swales at Black Creek.



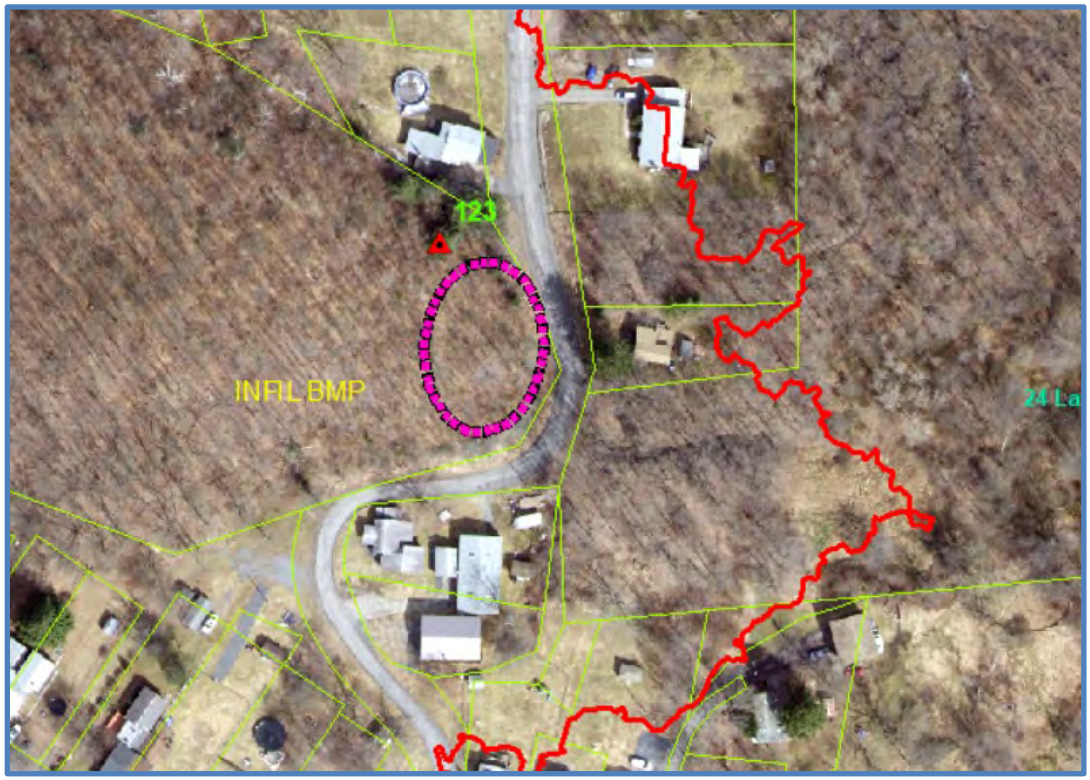
Outfalls 118 - 8 Turkey Hill SWS1: New BMP's to address outfall from existing roadside swales and cross pipe at Black Creek.

Outfall 119 - 13 Ridgewood SWS2: Outfall from conversion of old swale to infiltration swale.

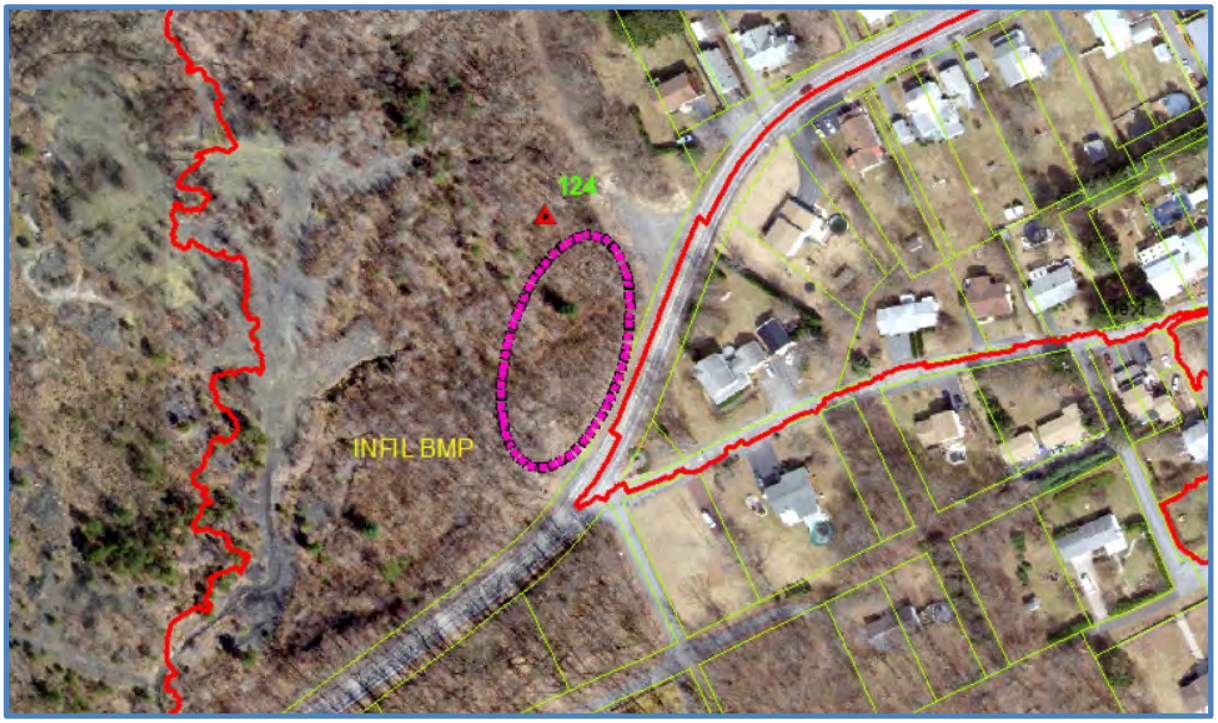
Outfall 120 - 14 Church Hill Mall SWS1: Outfall from conversion of old pipe to infiltration swale.



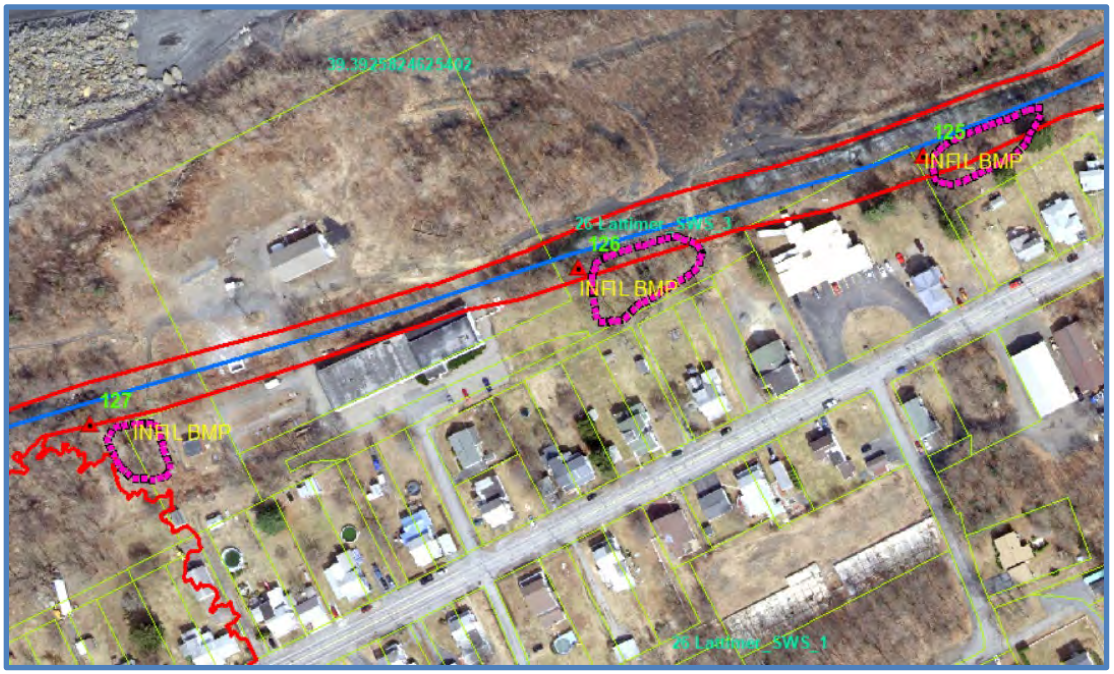
Outfall 121 - 15 Lattimer SWS4 and Outfall 122 -16 Milnesville East SWS1: Outfalls from new BMP's to address runoff piping from Ridgewood and swales from Milnesville.



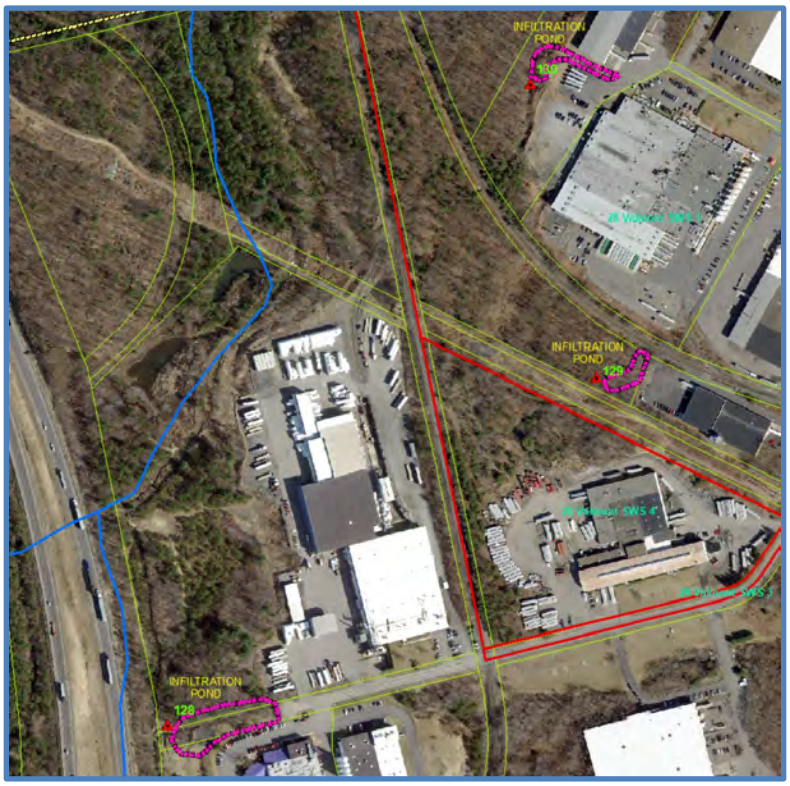
Outfall 123 - 24 Lattimer SWS1: Outfall from new BMP to address stormwater flow from Lattimer



Outfall 124 - 25 Lattimer SWS2: Outfall from new BMP to address stormwater flow from Lattimer



Outfalls 125, 126 and 127 - 26 Lattimer SWS3: Outfall from new BMP's to address stormwater flow from Lattimer.



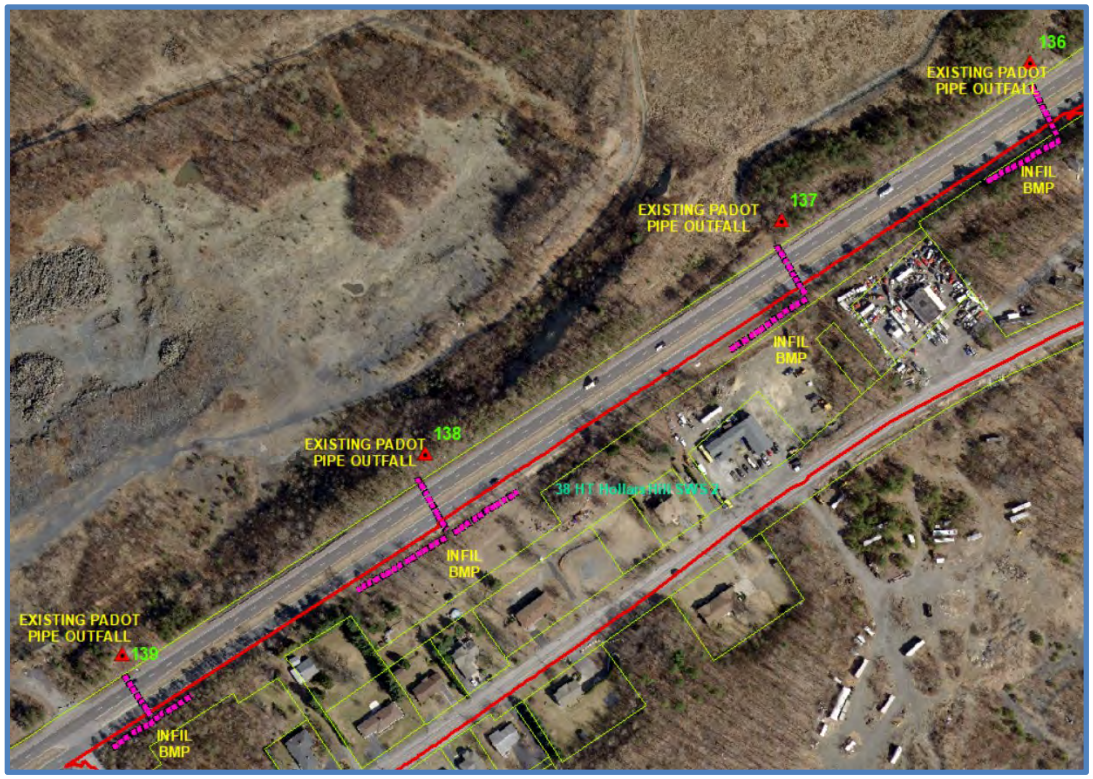
Outfalls 128, 129 and 130 - 28 Valmont SWS 1 and 29 Valmont SWS2: BMP outfalls to address surface flow from urbanized areas in Valmont Industrial Park

Outfalls 131 & 132 - 30 Garfield SWS 1 and 31 Garfield SWS2: New BMP outfalls to address stormwater runoff from existing pipes.

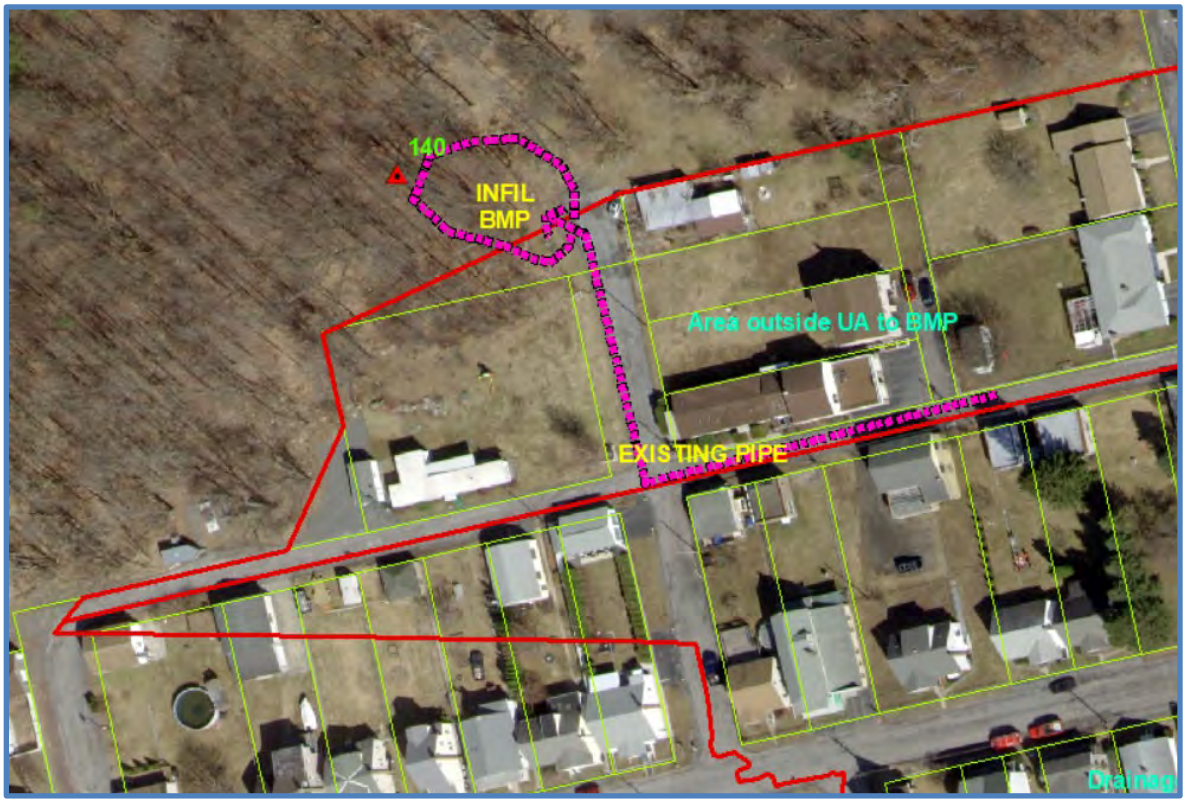
Outfall 133 - 35 HT Cranberry SWS 1: New BMP outfall for Village of Cranberry.

Outfall 134 - 36 HT Cranberry SWS 1: New BMP outfall for Village of Cranberry

Outfall 135 - 37 HT Hollars Hill SWS 1: New BMP with Outfall to existing PaDot cross pipe.



Outfalls 136, 137, 138 & 139 - 38 HT Hollars Hill SWS 2: New BMP's with Outfall to existing PaDot cross pipes.



Outfall 140 - 40 HT Greenridge SWS1: Outfall from new BMP in Greenridge.

Outfall 141 - 49 Drifton SWS1: New BMP outfall from roadside swale.

Outfall 142 - 54 Drifton SWS1: New BMP outfall from roadside drainage system in Village of Drifton.

OUTFALL SUMMARY

Outfall Number	Sewershed	Surface Waters	Estimated Acres	Description	OutfallType	Ch_93_Exis	Impaired	Latitude	Longitude	Land Owner
101	1 Laurel Mall South SWS_1A	Tributary to Black Creek	3	BMP Outfall along roadside swale	Inlet Inserts	Trib to CWF	Yes	40.98161148	-76.01275546	BMP on Private Lands
102	2 Park Crest SWS1	Black Creek	107	New BMP Outfall at Community Park Fields	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.97560707	-76.00649416	BMP on Private Lands
103	2 Park Crest SWS1	Black Creek	9	New BMP Outfall from Park Crest Development	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.97307447	-76.0089984	BMP on Private Lands
104	4 Lake Irena SWS1	Black Creek	99	North Park Drive cross pipe from Car Dealer	Pipe from existing Ponds	Trib to CWF	Yes	40.98806035	-76.00672673	BMP on Private Lands
105	4 Lake Irena SWS1	Black Creek	100	North Park Drive outlet from Chapel Hill/Laurel Mall Swale	Pipe from existing Ponds	Trib to CWF	Yes	40.983255	-76.007045	BMP on Private Lands
106	4 Lake Irena SWS1	Black Creek	98	Laurle Mall Stormwater Pond Outfall	Convert Existing Pond	Trib to CWF	Yes	40.98292412	-76.0108478	BMP on Private Lands
107	7 Airport South SWS1	Black Creek	7	Woodlawn Park and 30'th Street	Swale/Pipe	Trib to CWF	Yes	40.98086752	-75.98362182	BMP on Private Lands
108	7 Airport South SWS1	Black Creek	7	Woodlawn Park midway down 30'th Street to swale	Swale/Pipe	Trib to CWF	Yes	40.98060909	-75.98546828	BMP on Private Lands
109	7 Airport South SWS1	Black Creek	7	Woodlawn Park at end of 30'th Street	Swale/Pipe	Trib to CWF	Yes	40.98042881	-75.98762119	BMP on Private Lands
110	8 Turkey Hill SWS1	Black Creek	13	Hazle Twp Blvd at right turn north near Geriatrics Center	Pipe	Trib to CWF	Yes	40.97670566	-75.98705198	BMP on Private Lands
111	8 Turkey Hill SWS1	Black Creek	13	Community Park Drive cross pipe from area north of road	Pipe	Trib to CWF	Yes	40.97889425	-75.98947266	BMP on Private Lands
112	8 Turkey Hill SWS1	Black Creek	13	Community Park Srice Cross Pipe	Pipe	Trib to CWF	Yes	40.9788112	-75.99006875	BMP on Private Lands
113	8 Turkey Hill SWS1	Black Creek	13	Community Park Drive cross pipe from area north of road	Pipe	Trib to CWF	Yes	40.97726133	-75.99258278	BMP on Private Lands
114	8 Turkey Hill SWS1	Black Creek	13	Community Park Drive cross pipe from area north of road	Pipe	Trib to CWF	Yes	40.976898	-75.99340951	BMP on Private Lands
115	8 Turkey Hill SWS1	Black Creek	13	BMP Outfall at Community Park Drive Cross Pipe	Pipe	Trib to CWF	Yes	40.97506912	-75.99791423	BMP on Private Lands
116	8 Turkey Hill SWS1	Black Creek	13	Swale Outfall to Black Creek	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.97510731	-76.0044562	BMP on Private Lands
117	8 Turkey Hill SWS1	Black Creek	12	Swale Outfall to Black Creek	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.97508681	-76.00470577	BMP on Private Lands
118	8 Turkey Hill SWS1	Black Creek	13	BMP Outfall to Black Creek	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.97393885	-76.00733968	BMP on Private Lands
119	13 Ridgewood SWS2	Black Creek	56	Harleigh near post office SR 940 ROW	Infiltration Swale	Trib to CWF	Yes	40.97933014	-75.9755409	BMP on Private Lands
120	14 Church Hill Mall SWS1	Black Creek	25	New BMP Outfall from Churchview Development	Change pipe to infiltration swale	Trib to CWF	Yes	40.97720401	-75.97558829	BMP on Private Lands
121	15 Lattimer SWS4	Black Creek	66	New BMP Outfall from Ridgewood	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.98724582	-75.97657625	BMP on Private Lands

OUTFALL SUMMARY (Cont'd)

Outfall Number	Sewershed	Surface Waters	Estimated Acres	Description	OutfallType	Ch_93_Exis	Impaired	Latitude	Longitude	Land Owner
122	16 Milnesville East SWS1	Black Creek	28	Hillside Road and Lattimer Road	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.98733878	-75.97671239	BMP on Private Lands
123	24 Lattimer SWS1	Little Black Creek	23	New BMP Outfall Lattimer	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.99498413	-75.95773795	BMP on Private Lands
124	25 Lattimer SWS2	Black Creek	54	Near Lattimer Monument	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.99219803	-75.96794562	BMP on Private Lands
125	26 Lattimer SWS3	Little Black Creek	21	New BMP Outfall Lattimer	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.99490775	-75.96229272	BMP on Private Lands
126	26 Lattimer SWS3	Little Black Creek	21	New BMP Outfall Lattimer	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.9945175	-75.96400569	BMP on Private Lands
127	26 Lattimer SWS3	Little Black Creek	21	Behind HCA Lattiemr Pump Station	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.99396751	-75.96643964	BMP on Private Lands
128	28 Valmont SWS 1	Unnamed Tributary to Cranberry Creek	1	End of Jaycee Drive from Valmont	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.96301993	-76.02695679	BMP on Private Lands
129	29 Valmont SWS2	Unnamed Tributary to Cranberry Creek	3	BMP Private Outfall	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.96598256	-76.02191914	BMP on Private Lands
130	29 Valmont SWS2	Unnamed Tributary to Cranberry Creek	3	BMP Private Outfall	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.9685596	-76.02261684	BMP on Private Lands
131	30 Garfield SWS 1	Hazle Creek	18	17'th and Hayes Northgate No Pipe	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.97148431	-75.96870026	BMP on Private Lands
132	31 Garfield SWS 2	Hazle Creek	13	17'th and Evans Court Northgate No Pipe	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.97215963	-75.96556449	BMP on Private Lands
133	35 HT Cranberry SWS 1	Unnamed Tributary to Cranberry Creek	23	BMP Outfall near Train Trestle Cranberry	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.95238948	-75.99793903	BMP on Private Lands
134	36 HT Cranberry SWS 1	Unnamed Tributary to Cranberry Creek	5	BMP Outfall Hollars Hill	Pipe	Trib to CWF	Yes	40.95116966	-75.99989067	BMP on Private Lands
135	37 HT Hollars Hill SWS 1	Unnamed Tributary to Cranberry Creek	9	BMP Outfall thru PaDot Cross Pipe	Infiltration BMP to Padot Cross Pipe	Trib to CWF	Yes	40.95005124	-76.00984403	BMP on Private Lands
136	38 HT Hollars Hill SWS 2	Unnamed Tributary to Cranberry Creek	5	BMP Outfall thru PaDot Cross Pipe	Infiltration BMP to Padot Cross Pipe	Trib to CWF	Yes	40.94964764	-76.01079389	BMP on Private Lands
137	38 HT Hollars Hill SWS 2	Unnamed Tributary to Cranberry Creek	5	BMP Outfall thru PaDot Cross Pipe	Infiltration BMP to Padot Cross Pipe	Trib to CWF	Yes	40.94881212	-76.01260929	BMP on Private Lands
138	38 HT Hollars Hill SWS 2	Unnamed Tributary to Cranberry Creek	5	BMP Outfall thru PaDot Cross Pipe	Infiltration BMP to Padot Cross Pipe	Trib to CWF	Yes	40.94757603	-76.01521096	BMP on Private Lands
139	38 HT Hollars Hill SWS 2	Unnamed Tributary to Cranberry Creek	5	BMP Outfall thru PaDot Cross Pipe	Infiltration BMP to Padot Cross Pipe	Trib to CWF	Yes	40.94650969	-76.01742524	BMP on Private Lands
140	40 HT Greenridge SWS1	Unnamed Tributary to Cranberry Creek	7	BMP Outfall Greenridge	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	40.9600373	-76.0071402	BMP on Private Lands
141	49 Drifton SWS1	Tributary to Black Creek	3	BMP Outfall along roadside swale	Infiltration Swale	Trib to CWF	Yes	41.01090622	-75.90715779	BMP on Private Lands
142	54 Drifton SWS1	Black Creek	32	Drifton at east end discharge to mine drainage swale	Level Lip Spreader from Infiltration Pond	Trib to CWF	Yes	41.00010454	-75.90246428	BMP on Private Lands

13.0 Appendix F: Visual Site Inspection Report

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Inspection Report

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

CHAPTER 102 VISUAL SITE INSPECTION REPORT

GENERAL INFORMATION

Inspection Date: _____ Inspection Time: _____ AM / PM Inspection No.: _____

Inspection Type: _____ Precipitation in Previous 24 hours: _____ inches

Current Site Conditions: ☐ Active Earth Disturbance ☐ Fully Stabilized ☐ Snow Covered

Current Weather Conditions: ☐ Rain/Sleet/Snow ☐ Overcast ☐ Sunny/Partly Sunny

Permittee Name: _____ Inspector Name: _____

Permittee Address: _____ Inspector Phone: _____

City, State, ZIP: _____ Inspector Firm: _____

Project Name: _____ Inspector Title: _____

Municipality: _____ County: _____

Permit Type: ☐ PAG-02 ☐ IP ☐ ESCGP ☐ ESP Permit No.: _____

INSPECTION INFORMATION

Areas for Inspection	Check if Inspected	Problems Observed
1. Areas that have been cleared and grubbed, graded, excavated, or otherwise disturbed and are not yet stabilized.	☐	
2. BMPs installed to comply with permit.	☐	
3. Material, waste, borrow and equipment storage and maintenance areas covered by permit or E&S Plan approval.	☐	
4. Areas where stormwater flows within the site, including drainageways designed to divert, convey and/or treat stormwater.	☐	
5. Discharge points on-site.	☐	
6. Locations where stabilization measures have been implemented.	☐	

Questions	Check One
7. Are the approved E&S Plan and drawings available on-site?	☐ Yes ☐ No ☐ N/A
8. Are the approved PCSM Plan and drawings available on-site?	☐ Yes ☐ No ☐ N/A
9. Are E&S BMPs properly installed, operational, and working as intended?	☐ Yes ☐ No ☐ N/A
10. Are PCSM BMPs properly installed, operational, and working as intended?	☐ Yes ☐ No ☐ N/A
11. Has a PPC Plan been prepared, implemented, and available on-site?	☐ Yes ☐ No ☐ N/A
12. Is all earth disturbance within the permitted limit of disturbance?	☐ Yes ☐ No ☐ N/A
13. Have all disturbed areas in which disturbance has ceased for more than 4 days been stabilized?	☐ Yes ☐ No ☐ N/A

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Questions	Check One
14. Is the approved construction sequence being followed?	☐ Yes ☐ No ☐ N/A
15. Are areas intended for PCSM BMPs being protected from compaction and sediment laden runoff?	☐ Yes ☐ No ☐ N/A
16. For Questions 7 through 15, explain any answers of "No" in the space below or on a separate sheet.	
17. Are there signs of visible accelerated erosion and sedimentation due to discharges from the site?	☐ Yes ☐ No ☐ N/A
18. Are there any unauthorized non-stormwater discharges occurring from the site?	☐ Yes ☐ No ☐ N/A
19. Do stormwater discharges, if occurring during inspection, contain floating solids, foam, scum, sheen, or substances that result in observed deposits or produce an observable change in the color, taste, odor or turbidity of the receiving water?	☐ Yes ☐ No ☐ N/A
20. Were any instances of non-compliance observed during the inspection?	☐ Yes ☐ No
21. For Questions 17 through 20, explain any answers of "Yes" in the space below or on a separate sheet.	
22. Are critical stages of implementation of the PCSM Plan occurring at the time of inspection?	☐ Yes ☐ No ☐ N/A
23. If No. 22 is "Yes", is or was a licensed professional present on-site and responsible?	☐ Yes ☐ No
24. Has any fill material excavated on-site, imported to the site, or exported from the site been tested for clean fill since the last inspection? *(if "Yes" attach Form FP-001 to this report)*	☐ Yes ☐ No
25. Identify the names and addresses of all new operators that have commenced work on the project site since the last inspection was conducted (see 25 Pa. Code § 102.1 for the definition of "operator").	
Name: _____ Name: _____	
Address: _____ Address: _____	
City, State, ZIP: _____ City, State, ZIP: _____	
For new operators listed above, has the Transferee/Co-Permittee Application been completed and submitted?	☐ Yes ☐ No
26. **Corrective Action** – Describe any corrective actions that should be taken by the permittee to comply with the permit.	
27. Have photograph(s) been taken during the inspection and are attached to this report?	☐ Yes ☐ No
28. Are additional pages attached to this report?	☐ Yes ☐ No

I certify under penalty of law (see 18 Pa.C.S. § 4904 (relating to unsworn falsification)) that the information reported herein was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the information, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Inspector Signature **Date of Signature**