Salisbury Township
Pollutant Reduction Plan

Gap, PA

DRAFT - July 1, 2020





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Introduction

This pollutant reduction plan (PRP) was developed for Salisbury Township as a requirement of their municipal separate storm sewer system (MS4) permit. Salisbury Township has previously had MS4 permit waiver instead of an MS4 permit due to the Township's small Urban Area (UA) and population. In November 2019, Salisbury Township's MS4 Waiver Renewal was denied by the Pennsylvania Department of Environmental Protection (DEP) because the increased population within the UA moved the Township above the threshold needed to obtain an MS4 permit waiver. Salisbury Township is operating under permit number PAI133548 and is expected to receive an approval of coverage under the individual MS4 permit upon DEP's approval of this PRP.

The PRP outlines the actions that the Township will take to address pollutant loads to the waterbodies within the MS4 that drain to the Chesapeake Bay/impaired waters. These actions include public participation, mapping of outfalls and other discharges, pollutant load calculations, best management practices (BMPs) selection, identification of potential funding sources and partners, and operations and maintenance (O&M) activities.

A. Public Participation – to be completed following Public Comment Period

Public participation is an essential part of the PRP because it enhances buy-in from landowners that may have an impact on pollutant discharges, can uncover missing elements or errors in calculations, and builds cooperative partnerships among the municipality and other entities.

A copy of the draft PRP was re	released via public notice on MONTH, DAY, YEAR to the follow	ving
media outlets:	The notice ran for # days. A copy of the public notice is	
included as Item A-1. The pub	blic was given 30 days to provide commentary on the conten	nts
of the PRP. A copy of all writte	en public comments is included as Item A-2. Salisbury Towns	ship
held a public meeting on MON	NTH, DAY, YEAR to receive verbal commentary on the conter	nts
of the PRP. A copy of the com	nments and the record of consideration is included as Item A	١-3.
Salisbury Township used the p	public comments to update the draft PRP in the following wa	ays:

B. Map

Ninety-three percent of Salisbury Township is located within the Chesapeake Bay Basin. The Upper West Branch Brandywine Creek HUC-12 subwatershed, part of the Delaware River Basin, covers about 7 percent (1,845 acres) in Salisbury Township's northwest tier; however, there is no UA located within this watershed. Therefore, the Upper West Branch Brandywine Creek HUC-12 subwatershed is not addressed further in this PRP.

Within the Chesapeake Bay Basin, the Headwaters Pequea Creek HUC-12 subwatershed comprises approximately 90 percent of the Township (24,052 acres) and approximately 90 percent of the municipality's Planning Area. The Eshelman Run-Pequea Creek HUC-12 subwatershed accounts for less than 2 percent (536 acres) of the Township. The Pine Creek watershed accounts for approximately 1.2 percent (319 acres) of Salisbury Township and the Valley-Creek East Branch Octoraro Creek watershed accounts for 0.3% of Salisbury Township (87 acres). Figure 1 identifies the subwatershed basins within Salisbury Township, as well as the non-attaining (impaired) and attaining streams (not impaired) from the DEP 2014 Integrated List, and the location of the 2010 Census urban area. Additional maps are provided in Appendix B.

Map B1 in Appendix B identifies the 2011 Land Use types throughout the Township, the MS4 outfall locations, and the storm sewershed boundaries grouped into the Pequea Creek Planning Area. Less than 5 percent of Salisbury Township (1,286 acres) is within the UA based on the 2010 U.S. Census data. The total impervious cover within the UA is only approximately 5 percent based on 2011 National Land Cover Database (NLCD) data used in the WikiWatershed Model My Watershed modeling application. A significant portion of the UA is in forested and agricultural land use types. The 2011 NLCD impervious surface cover by land use type includes the following ranges:

Low Density Developed Use: 15% impervious

Medium Density Developed Use: 52% Impervious

High Density Developed Use: 87% Impervious

Map B2 in Appendix B, provides an overview of the three planning areas in Salisbury Township: the Pequea Creek Planning Area, Pine Creek Planning Area, and Valley Creek East Branch (Octoraro) Planning Area. Due to small size of the planning areas and their dispersed nature, Map B3 focuses on the planning areas within the southern portion of the Township and Map B4 focuses on the planning areas in the east.

These maps include justification notation for UA locations that were parsed out of these planning areas. Map B5 provides the proposed location(s) of structural BMPs that will be implemented to achieve the required pollutant load reductions per watershed during the current permit cycle.

B.1 Mapping of Planning Areas

In accordance with DEP's guidelines, Salisbury Township used the following process to parse areas and establish their MS4 planning area for the PRP. Prior to beginning PRP development, Salisbury went through a desktop and field verification exercise to establish inlets, outlets, pipes, swales and outfalls ("system") within the Township.

As part of the PRP development, Salisbury's system mapping was added to a base map with National Hydrology Dataset (NHD) streams, topography, and watershed boundaries in order to aid in the field drainage boundary assessment to establish MS4 planning areas for the PRP. Mapping also included areas that could be parsed out such as state-owned road right of ways and areas without MS4 infrastructure.

The field review then continued to field verify outfalls on NHD streams with matching observed general drainage flow to the map; or to determine that the regulated system (inlets, curb and gutter, etc.) tied to the end point adequately collects stormwater run-off from the drainage areas reviewed. This process involves a visual tracing against the system map. The field review is supported by a condensed desktop reconfirmation analysis, where a topographic map with an aerial image, as well as the "system" map, are reviewed to determine the areas draining to outfalls and how these areas could be combined into a planning area that could be mapped in GIS and analyzed for pollutant loading rates.

Planning areas were then drawn to capture the drainage areas that are collected into the MS4 infrastructure and discharge via the outfall or group of outfalls within a watershed.

Within the Eshelman Run-Pequea Creek subwatershed, only 0.42 acres draining to MS4 infrastructure existed within the UA. Therefore, this small area was added into the Pequea Creek Planning Area. Within the Pequea Creek Planning Area, PENNDOT roads and areas without any MS4 infrastructure were excluded. Forty acres of non-UA land that is located upgradient from the UA, but drains into the Township's MS4 infrastructure were added into the Pequea Creek Planning Area.

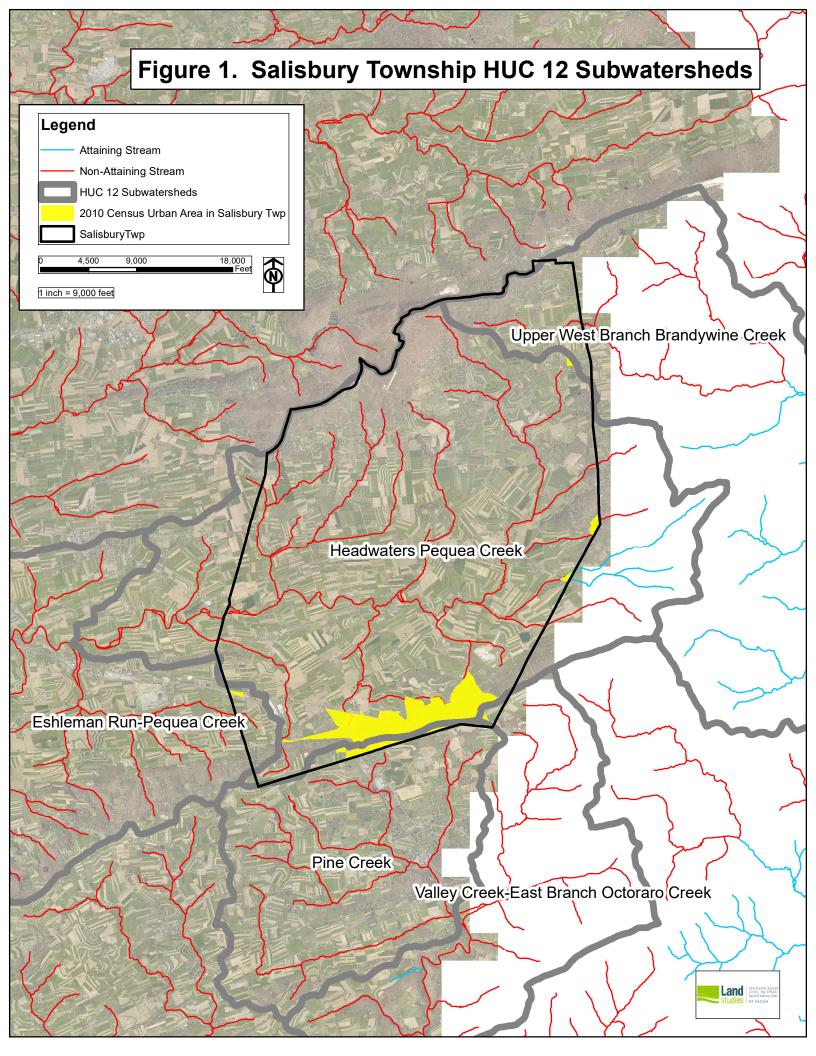
Within the Pine Creek Planning Area, there were several tracts of forested and agricultural land that did not contain any MS4 infrastructure and drained to undeveloped land outside of Salisbury Township's border. A small 7.6-acre area outside of the UA drained into a development in the Pine Creek Planning Area and was, therefore, added to the planning area.

Aside from a small 3.2-acre area with no MS4 infrastructure that drained to undeveloped land outside of the Township, the Valley Creek East Branch Planning Area did not have any excluded areas.

In total, 235 acres of UA within Salisbury Township were excluded from the planning areas based on the aforementioned rational. The total planning area acreage is approximately 1,095 acres for the Pequea Creek, Pine Creek, and Valley Creek Planning Areas.

Maps of these planning areas and excluded areas were reviewed and discussed with DEP's Southcentral Regional Office staff in January 2020.





C. Pollutants of Concern

Since the Pequea Creek, Pine Creek, and Valley Creek East Branch watersheds ultimately drain to the Chesapeake Bay, the following are pollutants concern: sediment, total nitrogen (TN), and total phosphorus (TP). Because of this drainage to the Chesapeake Bay, the Township must prepare a CBPRP in accordance with Appendix D in the PAG-13 General Permit. Salisbury Township also discharges stormwater to local impaired waters, including the Pequea Creek and its tributaries. Therefore, it must reduce pollutant loads associated with those impairments and prepare an impaired waters PRP in accordance with Appendix E in the PAG-13 General Permit. Note: there are no surface waters of the Pine Creek or Valley Creek East Branch watersheds within the Township.

Table 1 shows the affected subwatersheds within Salisbury Township and the pollutant(s) that are of concern to the municipality as shown on the DEP MS4 requirements table revised 11/18/2019. Other impairments listed in Table 1 that are not addressed in this upcoming permit cycle will be considered in future permit cycles.

Table 1. Salisbury Township MS4 Requirements Table

MS4 Planning Area / Watershed	Pollutant(s) of Concern
Pequea Creek	Appendix E – Nutrients, Organic
	Enrichment / Low DO1, Suspended
	Solids (4a)
Chesapeake Bay Nutrients / Sediment	Appendix D - Nutrients, Siltation (4a)

NOTE1: The MS4 Requirements Table identifies "Organic Enrichment / Low D.O." as Appendix E Pollutants of Concern for the Donegal Creek. Organic Enrichment and Low D.O. are surrogates for nutrient impairment.

In accordance with DEP's PRP Instructions, this report is required specifically for stormwater discharges of nutrients and sediment to surface waters for the Chesapeake Bay (Appendix D) and impaired waters (Appendix E).

Separate from the PRP, Pollutant Control Measures (PCMs) described in DEP's General Permit (3800-PM-BCW0100d) are to be implemented for Appendix A, B, and/or C pollutants of concern identified in the MS4 Requirements Table.

To address both the Appendix D and Appendix E requirements, Salisbury Township will select BMPs to reduce the sediment pollutant load by 10 percent, which is assumed to then reduce the TN and TP by 3 percent and 5 percent respectively according to DEP's PRP Instructions (3800-PM-BCW0100k). Therefore, only sediment load reductions within the MS4 planning areas are reported in this PRP.

As Salisbury Township is subject to both a CBPRP and an impaired waters PRP, it will select BMPs that target the impaired waters discharges first, as action toward the local impaired waters will have a beneficial impact on the Chesapeake Bay.



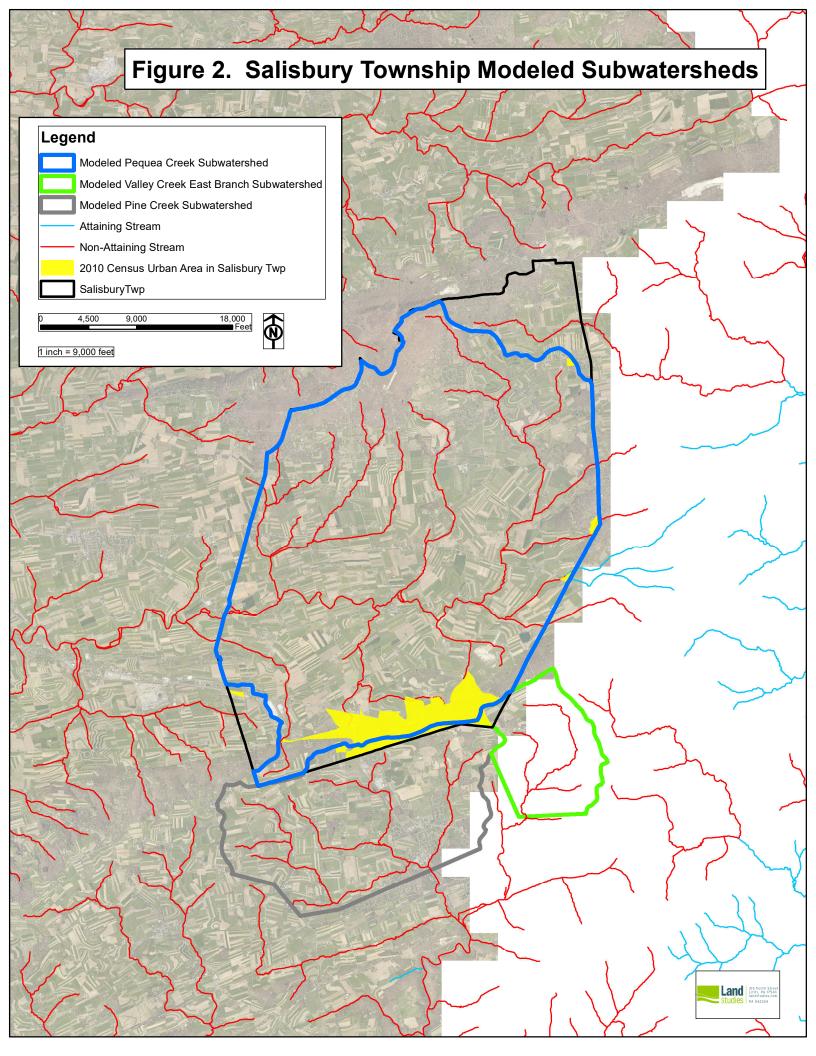
D. Existing Load for Pollutants of Concern

The Pequea Creek is the primary watershed within Salisbury Township since all of the surface waters within the MS4 Planning Areas are part of the Pequea Creek watershed. Small portions of the Pine Creek and Valley Creek East Branch Octoraro watersheds are included in the Township's MS4 Planning Areas because, although there are no impaired waters within these areas, they are located within the Chesapeake Bay drainage area and are part of the Township's Appendix D requirements.

The existing load for Salisbury Township's Pequea Creek, Pine Creek, and Valley Creek East Branch Planning Areas were calculated using Stroud Water Research Center's Wikiwatershed Model My Watershed.

The Pequea Creek watershed covers 37.6 square miles. The approximately 981-acre Pequea Creek Planning Area was mapped in ArcGIS and the planning area shapefile was imported into Model My Watershed (MMW). The Pequea Creek Planning Area was modeled based on the land use types and stream lengths within the planning area. Specific land use loading rates, streambank loading rates, and farm animal data for the watershed were incorporated into the model. The resulting baseline load data was exported into the MMW BMP Spreadsheet Tool (included in Appendix C).

Since the Pine Creek and Valley Creek East Branch Octoraro watersheds only cover 1.2% and 0.3% of the Township's land area, respectively, these watersheds were modified in ArcGIS to include only the areas that receive drainage from Salisbury Township. Portions of these watersheds that are outside of the Township's boundaries and do not receive drainage from the Township were not included in the revised watershed models. The revised watersheds that were modeled in MMW are shown in Figure 2. The Pine Creek watershed covers 11.8 square miles. The Valley Creek East Branch Octoraro watershed covers 3.8 square miles. The Pine Creek Planning Area (approximately 92 acres) and Valley Creek East Branch Planning Area (approximately 22 acres) were mapped in ArcGIS and imported into MMW along with the modified watershed shapefiles for modeling. The baseline load results for both Pine Creek and Valley Creek are shown in Appendix C in the MMW BMP Spreadsheet Tool for each watershed.



D.1 Pequea Creek Planning Area Existing Load

Table 2 shows the sediment loading rates for each land use type for the Pequea Creek Planning Area.

Table 2. Total Sediment Loading Rate per Land Use Type - Pequea Creek

Land Use Type	Acreage	Sediment Loading Rate (lbs/acre)	Total Sediment Load (lbs)
Developed, Open Space	205.38	783.78	160,974
Developed, Low Intensity	160.72	783.78	125,966
Developed, Medium Intensity	28.32	2191.65	62,065
Developed, High Intensity	14.81	3464.28	51,323
Deciduous Forest	378.66	235.74	89,267
Evergreen Forest	2.47	235.74	582
Mixed Forest	2.47	235.74	582
Shrub/Scrub	64.20	235.74	15,134
Grassland/Herbaceous	22.22	270.03	6,001
Pasture/Hay	59.48	337.34	20,065
Cultivated Crops	42.20	1653.14	69,757
Total Existing Sediment Load - F Area:	Pequea Cree	k Planning	601,716

No existing urban or agricultural BMPs were included in the existing load calculations for the Pequea Creek Planning. Salisbury Township is actively working with the local agricultural community to implement and maintain agricultural conservation practices on the farms within the Township; however, these non-structural agricultural BMPs (i.e. cover crops and conservation plans) are not eligible for PRP pollutant load reduction credit per DEP's MS4 NPDES Permits – Frequently Asked Questions (October, 2019).

Based on these existing load calculations it was determined that the Pequea Creek Planning Area existing loading is 601,716 lbs. The minimum sediment reduction required for this Planning Area is 60,172lbs.

D.2 Pine Creek Planning Area Existing Load

Table 3 shows the sediment loading rates for each land use type for the Pine Creek Planning Area.

Table 3. Total Sediment Loading Rate per Land Use Type – Pine Creek

Land Use Type	Acreage	Sediment Loading Rate (lbs/acre)	Total Sediment Load (lbs)
Developed, Open Space	26.14	255.53	6,680
Developed, Low Intensity	22.38	255.53	5,718
Developed, Medium Intensity	2.22	700.19	1,551
Developed, High Intensity	0.22	1065.29	236
Deciduous Forest	22.82	98.78	2,254
Mixed Forest	0.22	98.78	22
Shrub/Scrub	4.43	98.78	438
Pasture/Hay	9.53	257.20	2,450
Cultivated Crops	3.99	2332.35	9,301
Total Existing Sediment Load - Pine	e Creek Pla	nning Area:	28,650

No existing urban or agricultural BMPs were included in the existing load calculations for the Pine Creek Planning.

Based on these existing load calculations it was determined that the Pine Creek Planning Area existing loading is 28,650 lbs. The minimum sediment reduction required for this Planning Area is 2,865 lbs.

D.3 Valley Creek East Branch Planning Area Existing Load

Table 4 shows the sediment loading rates for each land use type for the Valley Creek East Branch Planning Area.

Table 4. Total Sediment Loading Rate per Land Use Type – Valley Creek East Branch

Land Use Type	Acreage	Sediment Loading Rate (lbs/acre)	Total Sediment Load (lbs)
Developed, Open Space	10.19	137.21	1,398
Developed, Low Intensity	4.87	137.21	669
Shrub/Scrub	2.66	57.09	152
Pasture/Hay	2.44	167.37	408
Cultivated Crops	1.99	1720.70	3,431
Total Existing Sediment Load - Valley	Creek East Bra	anch Planning	
Area:			6,058

No existing urban or agricultural BMPs were included in the existing load calculations for the Pine Creek Planning.

Based on these existing load calculations it was determined that the Valley Creek East Branch Planning Area existing loading is 6,058 lbs. The minimum sediment reduction required for this Planning Area is 606 lbs.

D.4 Salisbury Township's Total Aggregated Existing Load

Salisbury received approval from DEP on January 16, 2020 to aggregate all of the watershed planning area loads for the municipality into a total aggregated load for Salisbury Township. Table 5 shows planning area loads and the total aggregated load for Salisbury Township.

Table 5. Total Existing Load for Salisbury Township.

	0 , ,
Planning Area Name	Final Planning Area Existing Load (lbs)
Pequea Creek	601,716
Pine Creek	28,650
Valley Creek East Branch	6,058
Total Aggregated Load for Salisbury Twp	636,423
10% Sediment Reduction	
Requirement for	
Aggregated Load	63,642

E. BMPs Selected to Achieve the Minimum Required Reductions in Pollutant Loading

Based on the 10% sediment reduction targets established above, Salisbury Township has identified a strategy to meet the minimum load reductions within 5 years following DEP's approval of permit coverage. The nutrient reduction requirements for the impaired waters are assumed to be addressed by the 10 percent sediment reductions.

Summary of Alternatives and Selection of BMPs

Salisbury Township evaluated multiple BMPs considering the following criteria:

- Sediment reductions;
- Cost per pound of pollutant reduction;
- Ownership (public versus private land);

- Funding and Workforce availability;
- Community benefit (site accessibility, visibility to the public, ability of public to experience benefits);
- Connectivity to other completed or proposed stormwater BMPs;
- Timeframe to implement;

The purpose of the evaluation was to determine the BMPs that would reduce the most pollutants for the least amount of money while getting closer to the goal of removing streams from the impaired waters list and protecting the Chesapeake Bay.

The Township has determined that there are limited opportunities to implement stormwater BMPs throughout the planning areas that can satisfy the PRP load reduction requirements; however, there are multiple stream restoration projects located directly downstream from the planning areas that provide opportunities to significantly reduce streambank erosion and sediment loading in the Pequea Creek watershed.

There are sections of the Umbletown Road Stream Restoration Project (BMP 3) that are located within the UA; however, all of the other proposed stream restoration projects are located directly downstream from the UA in active agricultural areas. These proposed BMPs and their non-UA locations were discussed with DEP. A narrative was provided to DEP to justify why these non-UA proposed BMPs should be eligible for full pollutant load reduction credit under FAQ 69 from DEP's MS4 NPDES Permits Frequently Asked Questions from October 21, 2019. On June 9, 2020, DEP concurred that these projects would be eligible for full pollutant load reduction credit as long as they meet DEP's stream restoration project guidance (see Appendix E – Proposed BMP Justification).

Additionally, DEP will need verification that the agricultural lands on which these potential stream restoration projects are proposed are working towards or in compliance with agricultural conservation plans. Once Salisbury Township has moved beyond the preliminary planning phase and has selected a specific reach of stream for restoration, the Township will provide DEP with site specific information on the conservation plan(s) along the proposed reach of stream if that site is in agriculture.

The highest priority BMPs evaluated by Salisbury Township are summarized in Table 6 as potential BMPs that could be implemented to satisfy the load reduction requirements.

Table 6. Proposed BMPs for Salisbury Township

Stream BMPs - Sediment and Nutrient Reduction Calculations*			
Site	BMP ID	Length (ft)	Sediment Removal (lbs)
Lincoln Highway Stream Restoration	1	1,400	161,000
Spring Garden Road Stream Restoration	2	1,300	149,500
Umbletown Road Stream Restoration	3	11,000	1,265,000
Houston Run Stream Restoration	4	4,800	552,000
*Sediment Load Reductions Calculated at 115 lbs./lf based on PADEP's P	RP Insti	ructions	

The implementation of any of the above stream restoration projects would exceed Salisbury Township's 10% sediment reduction requirement. Salisbury Township is not committing to implement all of these projects, but plans to select a segment for restoration from one of the site identified above. The final selection of the length and location of the stream restoration will be based on detailed design criteria, cost, and landowner coordination. The chosen BMP(s) will meet the 10 percent required sediment reduction and will be implemented by the end of the five-year permit cycle.

BMP 1 - Lincoln Highway Stream Restoration

Salisbury Township is considering a stream restoration project of approximately 1,400 LF that would be implemented along an Unnamed Tributary to the Pequea Creek (COMID 57464113). The Township has identified BMP1 as the highest priority BMP for implementation. According to the DEP PRP Instructions, a 115 lbs. /ft. sediment load reduction can be applied to this project resulting in 161,000 lbs. of sediment reduction if the full 1,400-foot reach is restored. This reach of stream is located between Lincoln Highway, upstream, and the Salisbury Township Community Park, downstream. The majority of this project is located on active agricultural lands. This project will require coordination with these private landowners. The exact location and length of this stream restoration project will be based on the final design details.

BMP 2 – Spring Garden Road Stream Restoration

The Spring Garden Road Stream Restoration project of approximately 1,300 LF is another BMP opportunity located further downstream from BMP1 along the same Unnamed Tributary to the Pequea Creek (COMID 57464113). According to the DEP PRP Instructions, a 115 lb. /ft. sediment load reduction can be applied to this project resulting in 149,500 lbs. of sediment reduction if the full 1,300-foot reach is restored. This reach of stream is located

between Spring Garden Road, upstream, and White Horse Road, downstream. This project is located on active agricultural lands. This project will require coordination with a private landowner. The exact location and length of this stream restoration project will be based on the final design details.

BMP 3 – Spring Garden Road Stream Restoration

The Umbletown Road Stream Restoration project of approximately 11,000 LF is another BMP opportunity located further downstream from BMP1 along the same Unnamed Tributary to the Pequea Creek (COMID 57464113). According to the DEP PRP Instructions, a 115 lb. /ft. sediment load reduction can be applied to this project resulting in 149,500 lbs. of sediment reduction if the full 1,300-foot reach is restored. This reach of stream is located between Spring Garden Road, upstream, and White Horse Road, downstream. This project is located on active agricultural lands. This project will require coordination with a private landowner. The exact location and length of this stream restoration project will be based on the final design details.

F. Funding Mechanism Identification

In order to install and maintain any of the BMPs listed in Section E, Salisbury Township proposes the following sponsors/partners and funding sources:

- Salisbury Township Budget Funds
- Local Business Tax
- Potential Grant Funding: DCNR, DEP, NFWF, Lancaster Clean Water Partners, etc.

G. Responsible Parties for Operation and Maintenance (O&M) of BMPs

If the BMP is located on private land, landowner agreements and/or easements must be developed to enforce the on-going O&M of the BMP, and to identify the parties responsible for the O&M, and to provide access for periodic inspections and maintenance, as needed. Actual O&M activities will be listed in the Annual MS4 Status Report sent to the PADEP under the General Permit.

The Township's Public Works staff will perform 0&M activities associated with the proposed BMPs, unless otherwise agreed upon and specified in the BMP landowner agreement. After the first few years of post-construction maintenance, the 0&M responsibilities may transfer to the landowner. If the 0&M responsibility does transfer, this would be specified in the landowner agreement.

Specific O&M activities / frequencies to be performed will be based upon design criteria established as part of the BMP development. Generally, inspections will occur quarterly and following significant rain events. General O&M activities for these stream restoration BMPs include:

- Maintenance of desirable vegetation and control of weeds and invasive plants;
- Repair of eroded and damaged areas and replanting the damaged area with appropriate plant material;
- · Proper management of agricultural activities;
- Removal of debris hindering the function of the system;

H. Works Cited

Pennsylvania Department of Environmental Protection (PADEP). 2014. 2014 Final Pennsylvania Integrated Water Quality Monitoring and Assessment Report – Clean Water Act Section 305(b) Report and 303(d) List. Office of Water Management, Bureau of Water Supply & Wastewater Management, Water Quality Assessment and Standards Division. Harrisburg, PA.

Pennsylvania Department of Environmental Protection (PADEP). 2016. 2016 Final Pennsylvania Integrated Water Quality Monitoring and Assessment Report – Clean Water Act Section 305(b) Report and 303(d) List. Office of Water Management, Bureau of Water Supply & Wastewater Management, Water Quality Assessment and Standards Division. Harrisburg, PA.

Pennsylvania Department of Environmental Protection (PADEP). 2016. PRP / TMDL Plans MS4 Workshop. Harrisburg, PA.

Pennsylvania Department of Environmental Protection (PADEP). 2018. 2018 Pennsylvania Integrated Water Quality Monitoring and Assessment Report – Clean Water Act Section 305(b) Report and 303(d) List. Office of Water Management, Bureau of Water Supply & Wastewater Management, Water Quality Assessment and Standards Division. Harrisburg, PA. Retrieved May 1, 2020 at

https://www.depgis.state.pa.us/2018 integrated report/index.html

Pennsylvania Department of Environmental Protection (PADEP). 2019. MS4 NPDES Permits Frequently Asked Questions (FAQ) – Revised October 21, 2019. Bureau of Clean Water. Harrisburg, PA.

Stroud Water Research Center. WikiWatershed Model My Watershed. Retrieved January 15 – May 15, 2020 at https://modelmywatershed.org/.





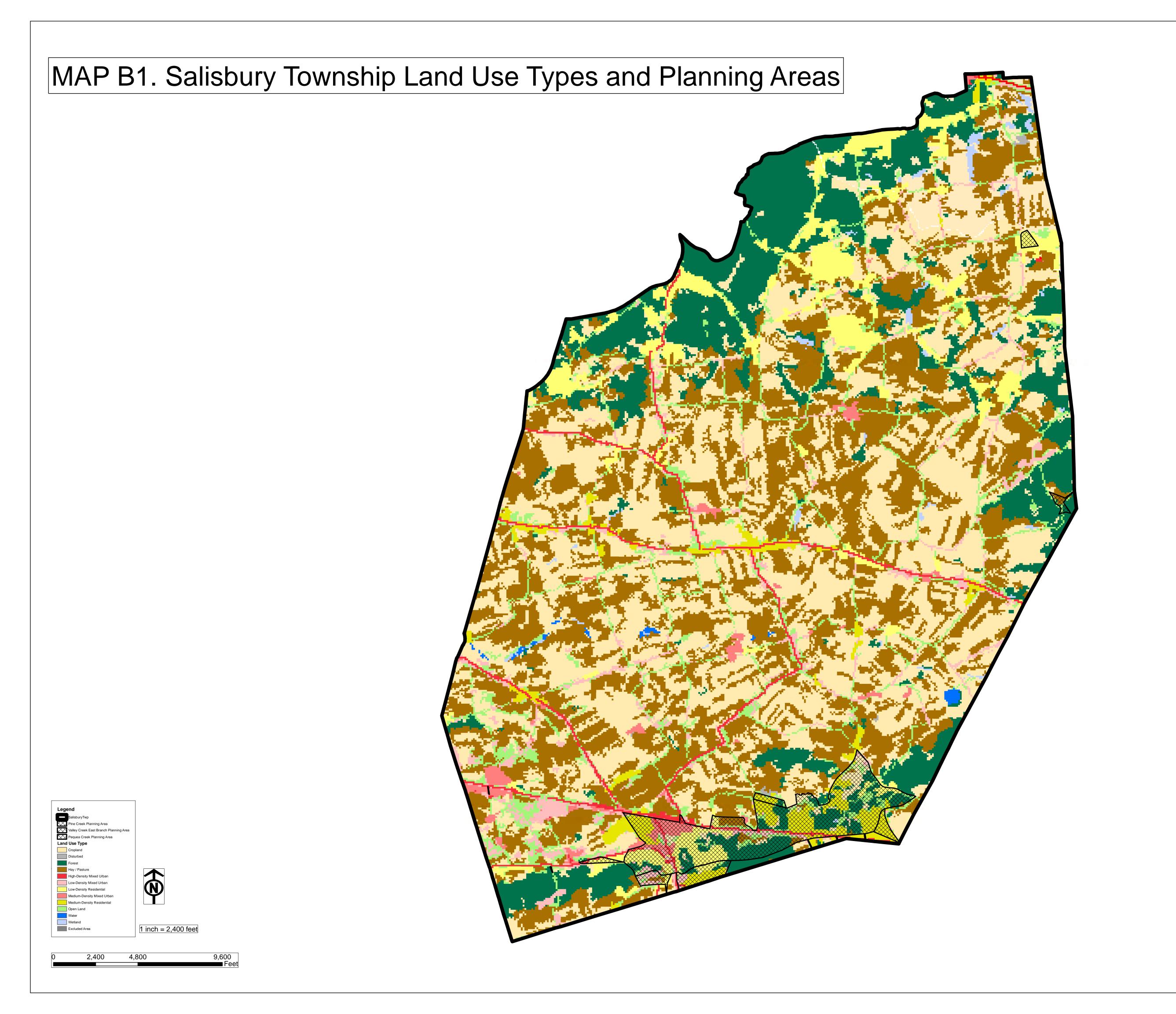
Public Participation: Item A1. Public Notice; Item A2. Written Public Comments; Item A3. Record of Consideration of Written Public Comments



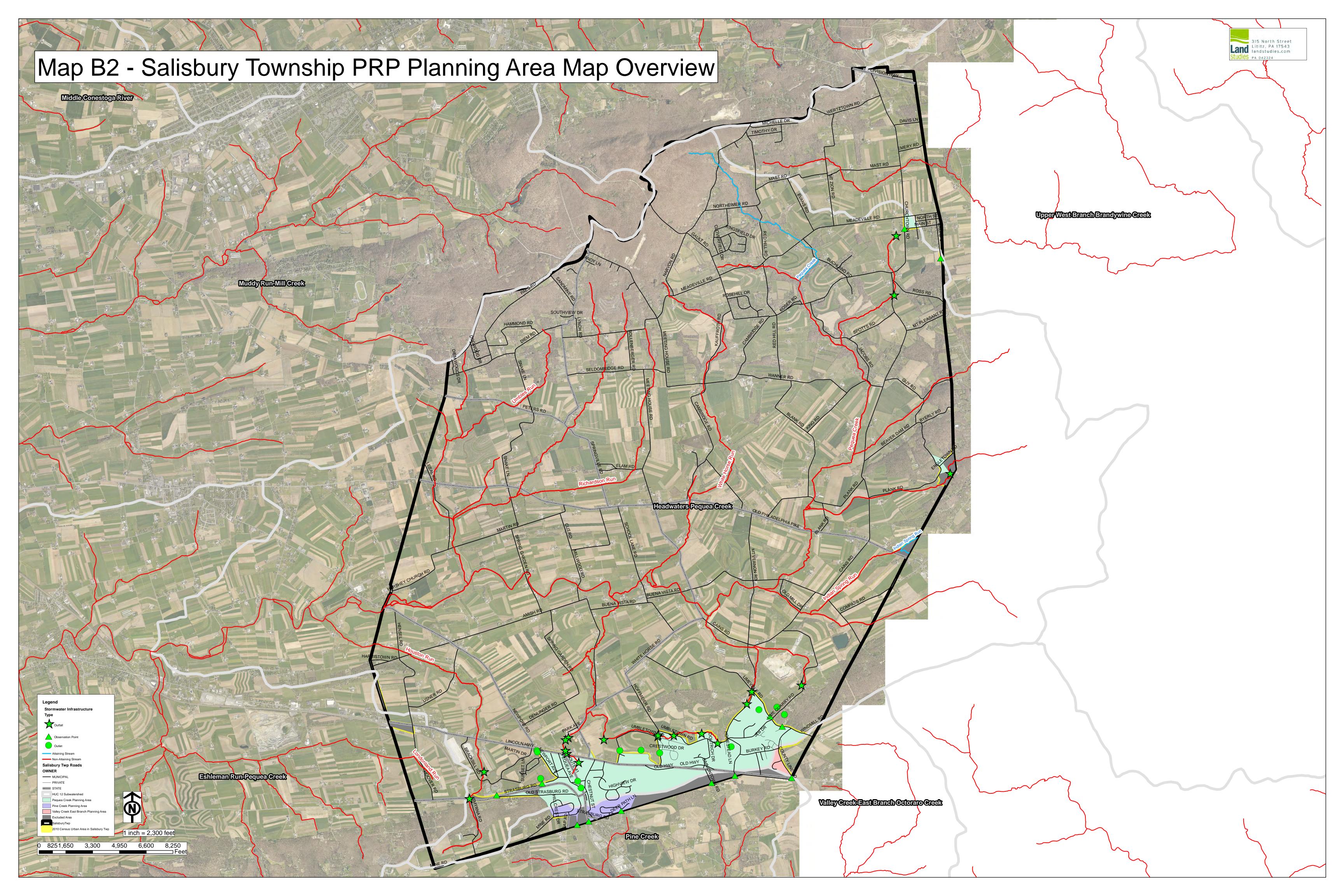
Appendix B

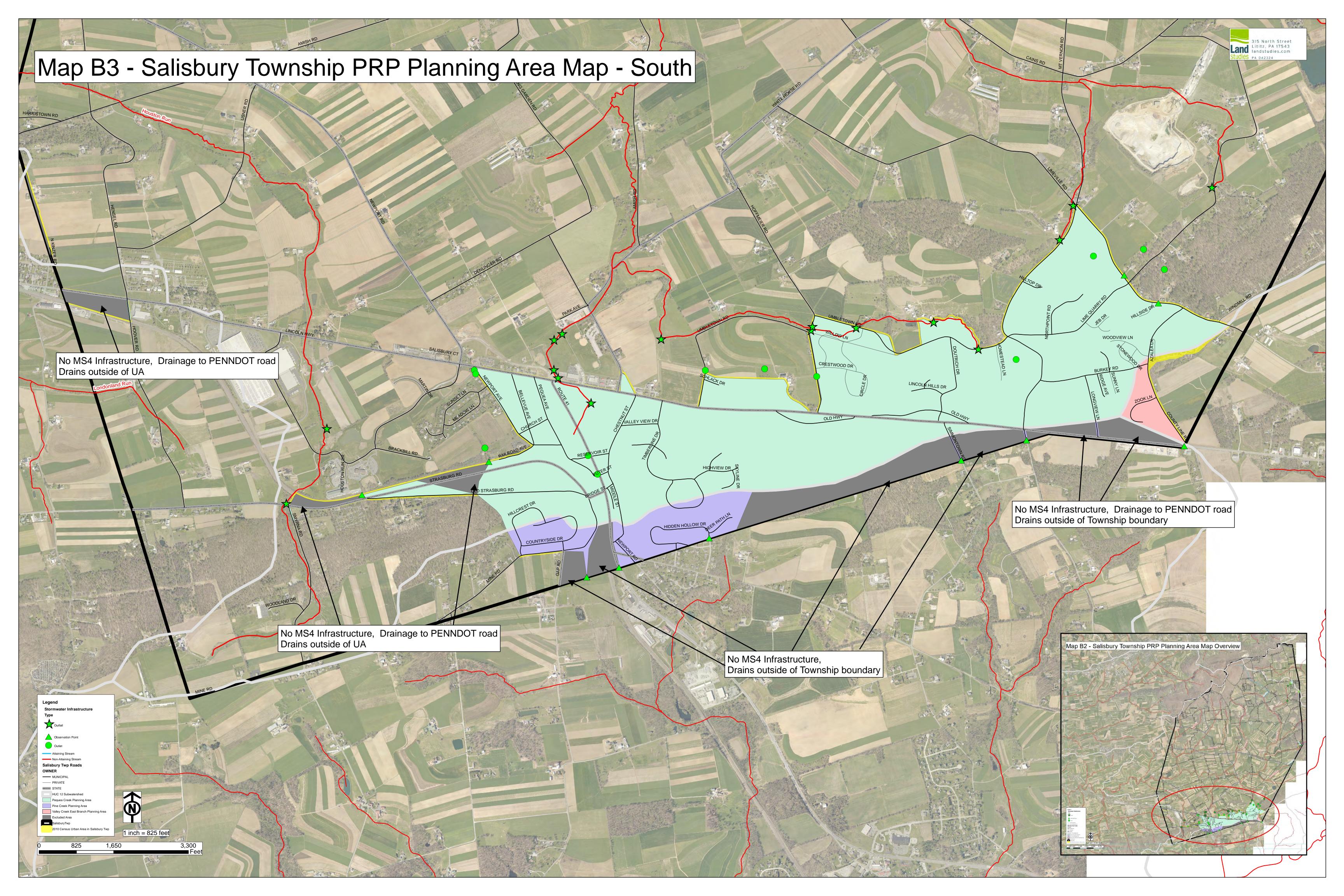
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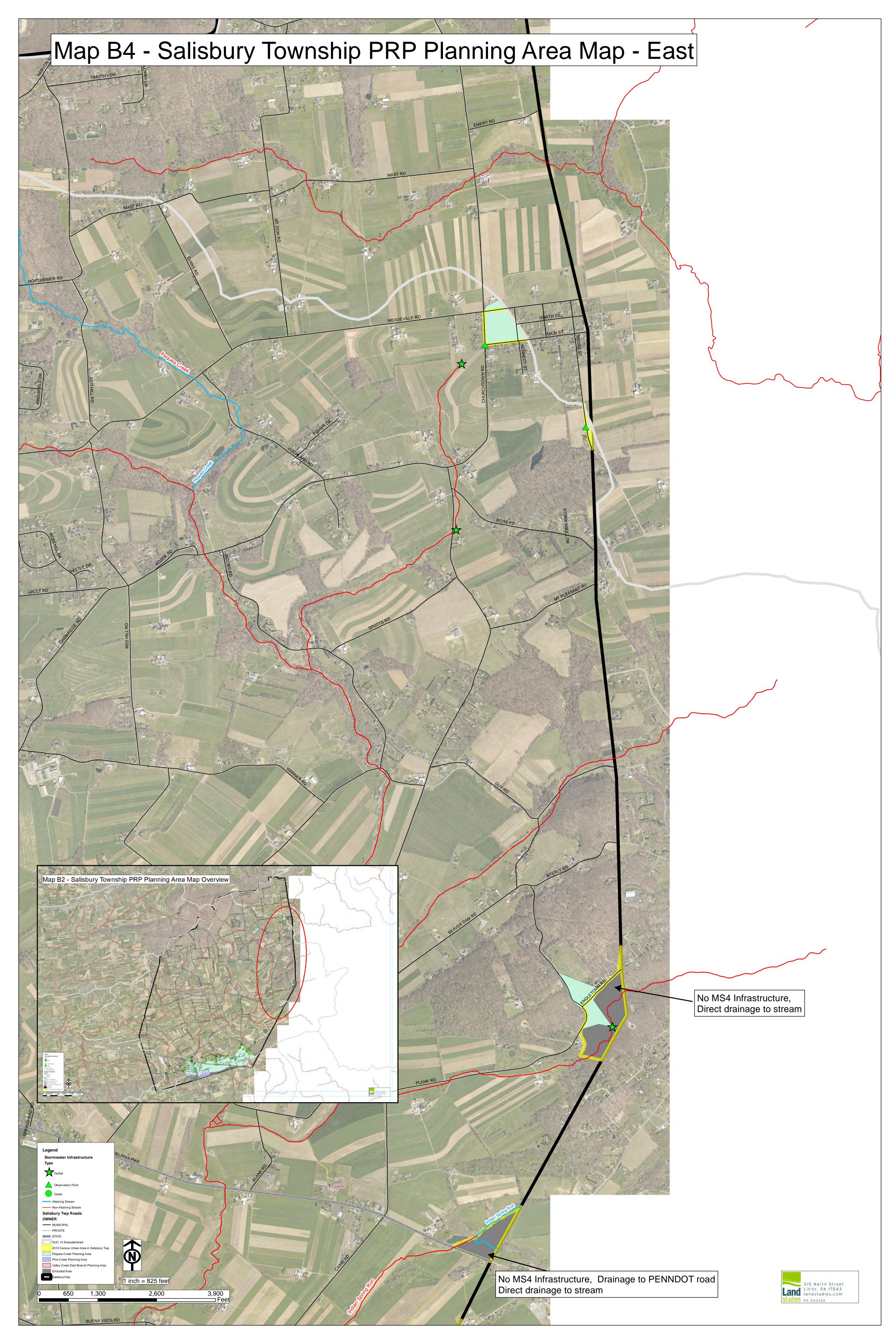


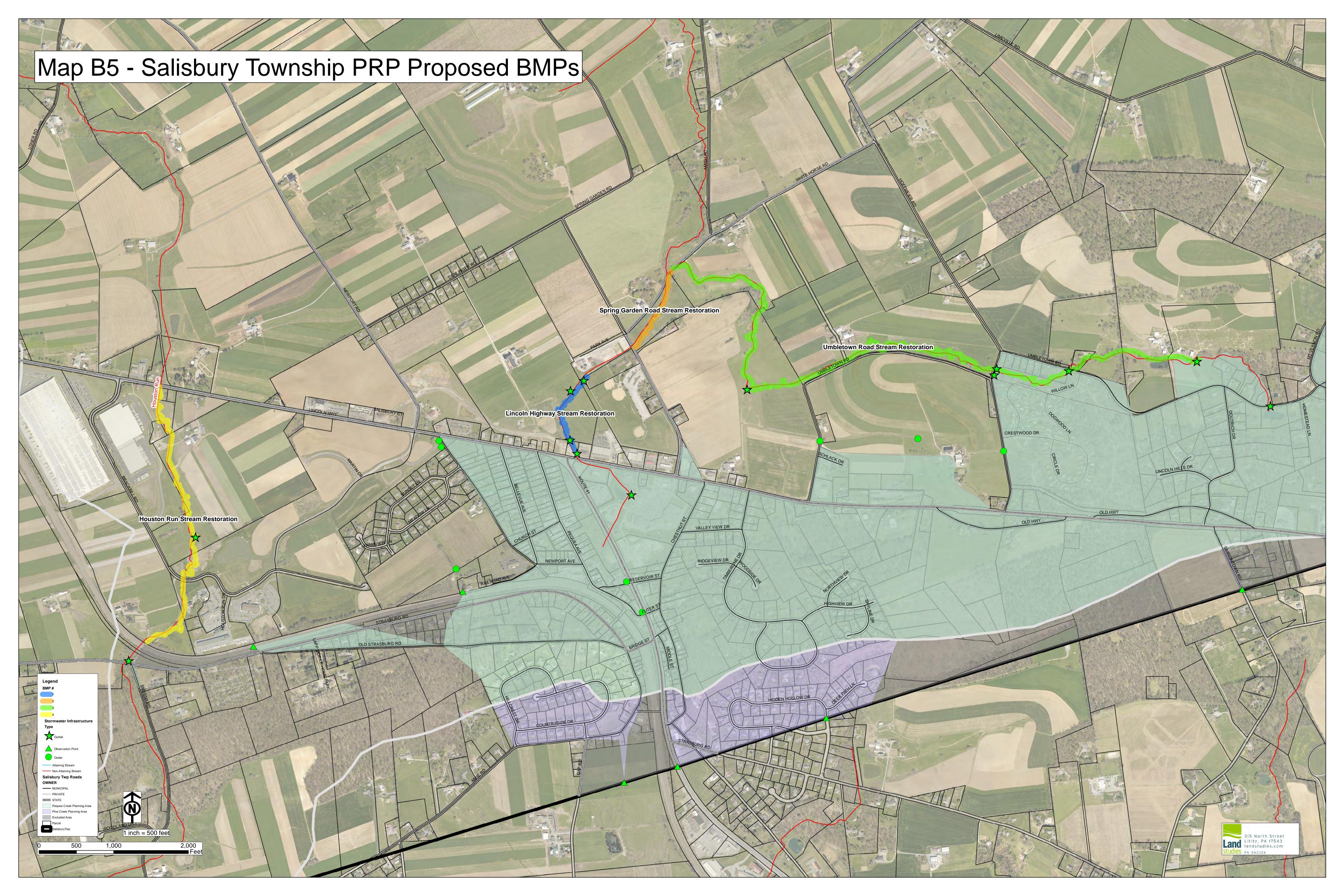












Appendix C
Baseline Load Calculations



The baseline load calculations for all three of the planning areas in Salisbury Township (shown in Table 5 of the report) were calculated through the Stroud Water Research Center's Wikiwatershed Model My Watershed online modeling program. For the Pequea Creek Planning Area, Pine Creek Planning Area, and Valley Creek East Branch Planning Area, shapefiles of these specific planning areas were loaded into the online Model My Watershed modeling program to obtain *area-specific* values on stream lengths and stream bank loading rates, acreages per land use type, land use loading rates, and farm animal data.

From the specific planning area shapefiles modeled online, a Model My Watershed (MMW) BMP Spreadsheet Tool is developed to determine the existing load for the specific watershed and the planning area within that watershed. An overview of the MMW BMP Spreadsheet Tool is shown here:

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Load Reductio	ns irom bivir impi	ementation	III Orban a	iliu Kura	Areas												
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	Mike Hickman, Center fo		rotection														
	Reid Christianson, Cent			& Universit	y of Illinois												
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Hay/Pasture land us																	
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	ese loads are NOT inclu																
	and therefore these load comparing the nitrogen																
	appear lower by land us																
	nerally attributed to long				ments. diodno	awater ioau	ing of mao	genana									
		-															
	ut) contains results from n supporting documents								ahad that was	procented i	n the Leek	un Table i	Costion 2				
ections 4 to 7 contai	i supporting documents	tion that show	/ now the care	ulations w	ere periormea	to arrive at	tile values	ioi the water	sned that were	presented	ii the Look	up rable ii	i section 2.				
Tabs that	require or allow user ing	out															
	equire of allow user in equired. Tabs contain ca		s or provide d	escriptive i	nformation												
Final resu			- promote d														
	are provided in a user r	nanual that car	n be obtained	at the foll	https://raw.g	ithubuserco	ontent.com	/WikiWaters	hed/MMW-BM	P-spreadshe	et-tool/ma	ster/docs/I	MMW BMP	Spreadshe	et Tool Us	erManual.	docx
etailed Instructions																	
etailed Instructions																	
						and los	d reduction	1									
MITATIONS:	ool was originally devel	oped for use b	y municipaliti	ies that hav	e MS4 dischar	ges allu lua	a reduction										
MITATIONS: nis Excel workbook t sponsibilities in Pe	nnsylvania. This tool ca	Iculates land u	use pollutant l	loading rat	es for TSS, TN a	and TP using	g calculatio	ns,									
MITATIONS: nis Excel workbook t sponsibilities in Pe ethodology, assump	nnsylvania. This tool ca ptions, and data based o	Iculates land u	use pollutant l tent with, the l	loading rat MapShed m	es for TSS, TN a nodel used in l	and TP using PA, and is a	g calculatio Iso consiste	ns, ent with									
MITATIONS: is Excel workbook t sponsibilities in Pe ethodology, assum; DEP's 2017 TMDL ar	nnsylvania. This tool ca	Iculates land u on, and consist S4s. Now that t	use pollutant l tent with, the l the modeling i	loading rat MapShed m routines in	es for TSS, TN a nodel used in I MapShed have	and TP using PA, and is al e been inco	calculatio Iso consiste rporated in	ns, ent with									

The total existing load calculations for Salisbury Township were calculated by running the MMW BMP Spreadsheet Tool for the Pequea Creek Planning Area, Pine Creek Planning Area, and Valley Creek East Branch Planning Area and then summing the total of these loads. No existing Urban and Agricultural BMPs were input into the MMW BMP Spreadsheet Tool for any of the planning areas. Inputs and outputs from the MMW BMP Spreadsheet Tool are shown below for each of the planning areas. As noted above, the focus of the PRP is on sediment loads. Therefore, screenshots of the animal loading rates and the stream bank nitrogen and phosphorus loading rates are not included herein.

NOTE: 25 acres of medium developed land use was subtracted out of the planning area acreage to account for the footprint of the PENNDOT Road Right-of-Ways within the planning areas.

The Pequea Creek Headwaters Watershed and the Pequea Creek Planning Area:

MMW Model Output – Pequea Creek

Look-Up Table fo Watershed: He Year: 20	or MMW Land to eadwaters Peque 120	Use Loading R	otes														
Section 3: M	MW Model Ou	utput															
This page is where the pasted into this workb																	
Source File Name - Watershed Name - are being calculated (c Source file - The an output file to the table i Year - the year mod	User-specified nar optional), inual pollutant data, below.	ne of a watershed	for which land us	se loading rates													
Data Entered By: Date Data Entered: Source File Name: Watershed: Year:	2020-06-08 User Specified Headwaters Pequa	ea Creek															
		odel My Watersh	ed OUTPUT DAT	A					STREAM LENGTHS*	KM*	FEET	Sed to/ft	TN b/ft	TP bift			
Source Units	Area	Sediment fons/year	Tot N /bs/year	Tot P /bs/year	1				Total Length Ag Streams	108.79 62.78	358922.6 205971.1	28.4		0.01			
Hay/Past Cropland	10,306.17 11,003.95	533.15 7,065.52	5,239.65 50,506.49	2,069.57 19,323.03					Non-Ag Streams	46.01	150951.4						
Forest	6,905.00	0.47	179.71	2150					*These values can be	obtained from the	e "Stream" tab in th	e "Analyze" section of	a Model My Waters	hed run			
Wetland Disturbed	117,50	0.12	25.59	2.09					FARM ANIMAL DATA								
Turfgrass Open_Land Bare_Rock	360.74	2.54	89.05	6.92					TYPE*	NUMBER*	AVG WT KG	TOTAL KG	TOTAL AEU	KG NIAEU/DAY	KG PIAEU/DAY	TOTAL NOAY	
Bare_Rock Sandy_Areas	9.81	0.01	7.45	0.26					Chickens, Broilers Chickens, Layers	420347	0.9		378.3123	1.07	0.3	404.794161	113,49369
Unpaved_Road Ld_Moxed	3,696.30	6.91	344.64	36.30					Cows, Beef Cows, Dairy	234 4936	360 640	84240	84.24 3159.04	0.31	0.09	26.1144 1389.9776	7.5016 221.1328
Md_Mixed Hd_Mixed	207.41	6.68 124	256.97 47.61	26.22 4.85					Horses	791 15565	500 61	395500	395.5 949.465	0.28 0.48	0.06 0.15	110.74	23.73
Ld_Residential		144		****					Pigs/Hogs/Swine Sheep	510 9748	50	25500	25.5	0.37	0.1	455.7432 9.435	2.55
Md_Residential Hd_Residential	1		1						Turkeys	9748	6.0	66286.4	66.2864	0.59	0.2	39,108976	13.25728
Farm Animals Tile Drainage			147,168.93	36,807.84										Daily Totals Poutry Totals		2435.91 443.90	524.17 126.75
Stream Bank Groundwater		5,077.29	6,473.88 658,526.14	2,898.92 6,853.34										Livestock Totals Poutry Fraction		1992.01	397.41 0.31894
Point Source Septic Systems			2,220.44 649.60	262.40										Livestock Fraction		0.81777	0.75819
Totals	32,538.27	13,495.92	1,080,745.23	67,913.89	-				*These values can be	obtained from the	"Animal" tab in the	"Analyze" section of a	Model My Watersh	ed run			
MMW NLCD Land Co						Pollutant	Load Conve	rsion from	Metric to Standard U	nits (from "Moc	del" cav file)						
TYPE	**************************************	AREA (km²2)		AREA (acres)		SOURCE			SEDMENT (kg)	TOTAL N (kg)	TOTAL P (kg)	SEDMENT (tons)	TOTAL N (Bs)	TOTAL P (Ds)			
Open Water Perennial loe/Snow		0.21		51.85		Hay/Pastu Cropland	e		483,583.38 7.134.254.16	2,376.26 26,967.07	938.58	533.1506765 7865.515211	5239.6533 59506.48935	2069.5689 19323.0324			
Developed, Open Space		10.06		2,483.95		Wooded A	reas		5,870.69	81.50	9.75	6.472435725	179.7075	21.49875			
Developed, Low Intensi Developed, Medium Int	lensity	4.91 0.84		1,212.35 207.41		Wetlands Open Land			108.24 2,307.34	16.14 39.93	0.95 3.14	0.1193346 2.54384235	35,5887 88,04565	2.09475 6.9237			
Developed, High Intens Barren Land (Rock/Sa	sity ind/Clay)	0.16 0.06		39.51 14.81		Barren An Low-Dens	ity Mixed		7,94 6,263,08	3.38 156.30	0.12 16.75	6.9050457	7.4529 344.6415	0.2646 36.93375			
Deciduous Forest Evergreen Forest		24.54		6,059.26		Medium-De High-Dens	maily Mixed		8,058.59 1,122.12	118.54 21.59	11.89	6.677390475	256 9707 47 60595	26.21745 4.851			
Mixed Forest Shrub/Scrub		0.06 0.22 3.27		54 32 807.41		Other Upla Farm Anim			12,824,94	320.05 86,743.28			705.71025 147188.9324	75.60945 38807.8445			
GrasslandHerbaceour Pasture/Hay	4	0.57 41.74		140.74 10,306.17		Stream Ba Subsurfac	nk Erosion		4,601,628.00 0.00	2,936.00 389,354.26	1,224.00	5073.29487	6473.88 858526.1433	2698.52			
Cultivated Crops		44.89		11,083.95		Point Sour	ces		0.00	1,007.00	119.00	ő	2220 435 649 6812	262 395			
Woody Wetlands Emergent Herbaceous	Wetlands	0.33		81.48 32.10		Septic Sys	tems		0.00	234.04	0.00		049.0012				
Totals		131.78		32,538.27		Totals			12,254,026.48	490,453.94	30,834.24	13,510.06	1,081,450.94	67,989.50			
		manager and a		POST POR SERVICE	- CONTROL OF	and the same of th	\$1000										
Note: The information						rahed bour	idary										
MMW NLCD Land Co			rom second, s		csv file)												
TYPE Open Water		AREA (km²2)		AREA (acres)			TN (lb/yr)	TP (lb/yr)	Sediment (lb/yr)								
Perennial loe/Snow Developed, Open Spar	ce	0.83		204.94			129.11	45.09	160,626.56		(Note: The values	below only pertain to the	ne smaller target an	10)			
Developed, Low Intens Developed, Medium Int.		0.65		160.49 27.65			101.11 57.80	35.31 19.36	125,791.89 60,608.50		STREAM LENGTH	KM*	FEET				
Developed, High Intens Barren Land (Rock/Sa	sity	0.06		14,81			34.96	15.11	51,322.64		Total Length	9.46	31135.2				
Deciduous Forest Evergreen Forest		1.53		377.78 2.47			68.00	22.67	89,058.40		Ag Streams Non-Ag Streams	2.43	7972.4 23162.7				
Moxed Forest		0.01 0.01 0.26		2.47 64.20			0.44	0.15	582.08			an be obtained from the		"Anabara"	of a Maderita	Materials of ma	
Shrub/Scrub Grassland/Herbaceou	4	0.09		22.22			17.33	3.85 2.44	15,134.11 6,000.57		inese values ci	an oe obtained from the	oveam tao n the	Amanyze section (or a moder My 1	reletaned run	
Pasture/Hay Cutivated Crops		0.24 0.17		59.26 41.98			446.81 520.49	117.33 147.75	69,391.00								
Woody Wetlands Emergent Herbaceous	Wetlands	0					0.00	0.00	0.00								
Totals		3.96		978.27			1,368.07	409.21	599,088.28								
				-522-5-1													
TYPE Open Water		AREA (m²2)*		AREA (acres) 0.00													
Perennial loe/Snow Developed, Open Spar	ce	0 1794.5		0.00			0.28	0.10	347.28								
Developed, Low Intensi Developed, Medium Int.	sity	897.24 2691.75		0.22			0,14	0.05	173.64 1,456.63								
Developed, High Intens Barren Land (Rock/Sa	sty	0		0.00			0.00		0.00		*Only use this input	ut block if land cover die AOI is less than about	stribution is given in Z square kilomater	square meters (m*)	2).		
Deciduous Forest Evergreen Forest		3529		0.89			0.16	0.05	208.91								
Mixed Forest				0.00			0.00	0.00	0.00								
Shrub/Scrub Grassland/Herbaceou	5	0		0.00			0.00	0.00	0.00								
Pasture/Hay		897.35		0.22			1.67 2.75	0.44	388.24								
Cultivated Crops				0.00			0.00	0.00	0.00								
Woody Wetlands	Wetlands			0.00			0.00	0.00	0.00								
Woody Wetlands Emergent Herbaceous	Wetlands	10766.95		0.00													
Woody Wetlands	Wetlands	10768.99					6.38	1,88	2,627.44								

Land Use Loading Rates – Pequea Creek

tershed: Headwaters F ar: 2020	After Piece																	
rce File: User Specifie	d																	
1																		
ction 2: Landcove	er Loading Ra	tes Look-Up	Table															
TO	OTAL WATER	SHED ANNUA	AL LOADS								ANNUAL LAN	USE LOADING RA	TES (Ibs	'acre)				
- 2						SEDIMENT					NITROGEN				PHQ	SPHORUS		
Source	Area	Sediment	Total Nitrogen	Total Phosphorus	From Land Use	From Stream Banks (1)	TOTAL SEDIMENT LOADING RATE		From Land	From Stream Banks ①	From Farm Animals	TOTAL NITROGEN LOADING RATE		From Land Use	From Stream Banks	From Farm Animals (3)	TOTAL PHOSPHORUS	s
Linite	Acres	7one	Pounds	Pounds	bs/scre	bs/scre	Ba/acre		bsiacre	bs/scre	bs/scre	Bs/scre		bs/sore	bs/acre	ba/acre	Ba/acre	-
Source -	area - I	entiment to -			o - TSS Loadita -	ISS Loadling -	TSS LONGHOUSE IDE	F00 - 8	TN Locustra -	IN Lording	- IN Londing -	IN Locations Inch	Cohum	IP Loadbatel		TP LoadFalsAn	TP Loadflate IDP	
Hay/Past	10,306.17	533.15	5,239.65	2,069.57	103.46	233.88	337,34		0.51	0.15	6.66	7.54	-	9.20	0.06	1.72	1.98	Hay/Post
Cropland	11,003.95	7,865.52	59,506.49	19.323.03	1,419.26	233.66	1,653.14		5.37	0.15	6.65	12.40		1.74	0.06	1.72	3.62	Cropland
Forest	6.935.80	6.47	179.71	21.50	1.87	233.88	235,74		0.03	0.15	n/a	0,18		0.00	0.06	n/a	0.06	Forest
Wetland	113.58	0.12	35.59	2.09	2.10	233.88	235.98	1	0.31	0.15	n/a	0.46		0.02	0.06	n/a	0.08	Wetland
Disturbed	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	nia	0.00		0.00	0.00	n/a	0.00	Disturbed
Turfgrass	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1	0.00	0.00	nla	0.00		0.00	0.00	n/a	9.00	Turtorese
Open Land	149.74	2.54	88.05	6.92	26.15	233.86	279.03	1	0.63	0.15	n/a	9.78		0.05	7 0.06	0/8	9.11	Open Land
Bare_Rock	14.81	0.01	7.45	0.26	1.18	233.88	235.05	1	0.50	0.15	6/8	0.85		0.02	0.06	0/8	0.06	Bare Rock
Sandy_Areas	0.00	0.00	0.00	0.00	0.05	0.00	0.00		0.00	0.00	nia	0.00		0.00	0.00	0/8	0.00	Sandy Area
Unpayed Road	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	nia	0.00		0.00	0.00	n/a	0.00	Unpayed Ros
Ld Mixed	3,696,30	6.91	344.64	36.93	3.74	780.04	783.78	1	0.09	0.54	nte	0.63		0.01	0.21	n/a	0.22	Ld Mixed
Md Mixed	207.41	6.68	256.97	26.22	64.39	2,127,26	2,191,65		1.24	0.85	n/a	2.09		0.13	0.57	n/a	0.70	Md Mixed
Hd Mixed	39.51	124	47.61	4.85	62.83	3,401.65	3,464.28		1.21	1.15	nia	2.36		0.12	0.90	n/a	1.02	Hd Mixed
Ld Residential	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	n/a	0.00		0.00	0.00	n/a	0.00	Ld_Residentia
Md Residential	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1 1	0.00	0.00	nta	0.00		0.00	0.00	n/a	0.00	Md_Residenti
H5_Residential	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	A/a	0.00		0.00	0.00	n/a	0.00	Hd_Residents
		5500	Total	Total	San' 188 Salva		Sandjerske		Top 188 to to			Sandpoolen		No. Metalia			Santyvian	
Source		Sediment		Phosphorus	aread distant		-					t					*	
Units		Tons	Pounds	Pounds														
Form Animals		0.00	147,168.93	38,807.84														
Tile Drainage		0.00	0.00	0.00														
Stream Bank ①		5,073.29	6,473.88	2,696.92														
Groundwater		0.00	050,526,14	6,653.34														
Point Source		0.00	2,226.44	262.40														
Septic Systems		0.00	649.68	0.00														
Notes:																		
Separate workst concurrence from Mr.			pportion the load	Sing rates from the	Stream Bank source los	ids (for sediment, b	otal nitrogen, and total ph	nosphorus	s) from the MM/	V Output file into	each land use co	fegory, using methodolo	gy provided	by Dr. Barry Evans	(Pennsylvania State U	niversity), the author	of MapShed, and with	
							m Animats source load fr ource loads do not apply						and, based	on area weighting. T	he methodology was p	provided by Dr. Sarr	Evans (Pennsylvania	
Groundwater		0.0	868 526 1	6,653.3	The second of the second	THE PARTY OF THE P		-	7-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1		Calabra and an annual control	0.077.5						
		0.0	2.220.4	262.4														
Point Source																		

ection 5: Stream Bank Sonis worksheet calculates and ap				load for par	liment from the MMW
is worksheet calculates and ap	portions the loading rates in	in the Stream	Dank Source	load for sec	allient from the minvy
tep 1. The Stream Bank Sed	iment Load, in tons, and I	and areas fo	or each land	use categ	ory, in acres, are
esented below.					
	Sediment				
Stream Bank		tons			ken from Cell D38 in the
Source	Area (acres)		MMW Output	Worksneet	
Hay/Pasture	10,306.17	1			
Cropland	11,083.95				
Forest Wetland	6,935.80 113.58				
Forest Wetland Disturbed	0.00				
	0.00				
Open_Land Bare_Rock	140.74 14.81				
Sandy_Areas	0.00				
Unpayed Road	0.00				
Ld_Mixed Md_Mixed	3,696.30 207.41				
Hd_Mixed	39.51				
Ld_Residential	0.00	-			
Md_Residential Hd Residential	0.00				
nu_Residential	0.00				
Total Acres, Watershed	32,538.27				
ton 2 Convert the Oters - D	nk Cadimant I dt-	ndo by my	inhine to -	hu 2 000 -	nundo porte-
tep 2. Convert the Stream Ba	ink pediment Foad to bon	nas by mult	ipiyirig tons	∪y 2,000 pe	ounds per ton.
	Sediment Load, pound				
Stream Bank	10,146,580.00	pounds	= [5073.29	tons x 2,000	pounds per ton]
tep 3. Sum the total acres in	the Headwaters Pequea	Creek water	shed.		
Total Acres in watershed	32,538.27	acres			
Total 7 to 00 iii tratoronoo	02,000.21	40.00			
ensity Mixed (Ld_Mixed), Me ensity Residential (Ld_Resi esidential (Hd_Residential).		Residential		ential), and	High Density
ensity Residential (Ld_Resi esidential (Hd_Residential).				ential), and	High Density
ensity Residential (Ld_Resi esidential (Hd_Residential). Area of Developed Lands Low Density Developed	acres 3,696.30	percent 94%	(Md_Resid	+ Ld_Reside	ntial]
ensity Residential (Ld_Resi esidential (Hd_Residential). Area of Developed Lands Low Density Developed Medium Density Developed	acres 3,696.30 207.41	percent 94% 5%	(Md_Resid	+ Ld_Reside + Md_Reside	ntial] ential]
ensity Residential (Ld_Resi esidential (Hd_Residential). Area of Developed Lands Low Density Developed	acres 3,696.30	percent 94%	(Md_Resid	+ Ld_Reside + Md_Reside + Hd_Reside	ntial] ential]
ensity Residential (Ld_Resi esidential (Hd_Residential). Area of Developed Lands Low Density Developed Medium Density Developed High Density Developed	acres 3,696.30 207.41 39.51	percent 94% 5% 1%	(Md_Resid	+ Ld_Reside + Md_Reside + Hd_Reside	ntial] ential] ntial]
ensity Residential (Ld_Resi esidential (Hd_Residential). Area of Developed Lands Low Density Developed Medium Density Developed High Density Developed Total	acres 3,696.30 207.41 39.51 3,943.21	percent 94% 5% 1% 100%	[Ld_Mixed [Md_Mixed [Md_Mixed [Hd_Mixed [All "Develo	+ Ld_Reside + Md_Reside + Hd_Reside ped" land us	ntial] ential] ntial] e categories]
ensity Residential (Ld_Resi esidential (Hd_Residential). Area of Developed Lands Low Density Developed Medium Density Developed High Density Developed	acres 3,696.30 207.41 39.51 3,943.21	percent 94% 5% 1% 100%	[Ld_Mixed [Md_Mixed [Md_Mixed [Hd_Mixed [All "Develo	+ Ld_Reside + Md_Reside + Hd_Reside ped" land us	ntial] ential] ntial] e categories]
ensity Residential (Ld_Resi esidential (Hd_Residential). Area of Developed Lands Low Density Developed Medium Density Developed High Density Developed Total This is A) 75% of the Stream	acres 3,696.30 207.41 39.51 3,943.21 of the Stream Bank Sedim	percent 94% 5% 1% 100% ent Load res	[Ld_Mixed [Md_Mixed [Hd_Mixed [All "Developments	+ Ld_Reside + Md_Reside + Hd_Reside oped" land us "Develope	ntial] ential] ntial] e categories] d" Lands
ensity Residential (Ld_Resi esidential (Hd_Residential). Area of Developed Lands Low Density Developed Medium Density Developed High Density Developed Total Total	acres 3,696.30 207.41 39.51 3,943.21 of the Stream Bank Sedim	percent 94% 5% 1% 100% ent Load res	[Ld_Mixed [Md_Mixed [Hd_Mixed [All "Developments	+ Ld_Reside + Md_Reside + Hd_Reside oped" land us "Develope	ntial] ential] ntial] e categories] d" Lands
ensity Residential (Ld_Resi esidential (Hd_Residential). Area of Developed Lands Low Density Developed Medium Density Developed High Density Developed Total Total This is A) 75% of the Stream Buls B) 25% of the Stream Bank Sediment Load	acres 3,696,30 207,41 39,51 3,943,21 of the Stream Bank Sedim Bank Sediment Load times the nk Sediment Load: 10,146,580.00	percent 94% 5% 1% 100% ent Load resept control of depounds	[Ld_Mixed [Md_Mixed [Hd_Mixed [All "Developments	+ Ld_Reside + Md_Reside + Hd_Reside oped" land us "Develope	ntial] ential] ntial] e categories] d" Lands
ensity Residential (Ld_Resi esidential (Hd_Residential). Area of Developed Lands Low Density Developed Medium Density Developed High Density Developed Total This is A) 75% of the Stream Ban Low Developed Total This is A) 75% of the Stream Ban Stream Bank Sediment Load Total Developed Acres	acres 3,696,30 207,41 39,51 3,943,21 If the Stream Bank Sedim Bank Sediment Load times the nk Sediment Load: 10,146,580.00 3,943,2	percent 94% 5% 1% 100% ent Load resepercent of d	(Md_Resid	+ Ld_Reside + Md_Reside + Hd_Reside oped" land us "Develope	ntial] ential] ntial] e categories] d" Lands
ensity Residential (Ld_Resi esidential (Hd_Residential). Area of Developed Lands Low Density Developed Medium Density Developed High Density Developed Total Total This is A) 75% of the Stream Iplus B) 25% of the Stream Bail Stream Bank Sediment Load Total Developed Acres Total Developed Acres	acres 3,696.30 207.41 39.51 3,943.21 of the Stream Bank Sedim Bank Sediment Load times the nk Sediment Load: 10,146,580.00 3,943.2 32,538.3	percent 94% 5% 1% 100% ent Load resepercent of d	[Ld_Mixed [Md_Mixed [Hd_Mixed [All "Developed lan from Step 2	+ Ld_Reside + Md_Reside + Hd_Reside oped" land us "Develope	ntial] ential] ntial] e categories] d" Lands
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	urfaces				
Low Density Developed	80%	=	[554.44 acr	es / 696.67	acres]
Medium Density Developed	15%	=	[107.85 acr	es / 696.67	acres]
High Density Developed	5%	=	[34.37 acre	s / 696.67 a	cres]
Total	100%				
Step 9. Distribute the "Total Load					eloped Land type
based on "Impervious" surfaces	and the percent of fanc	area in the	iand use ca	legory.	
Load Assigned to Developed			Lancaca de Caraca	1.111	
Lands Load assigned to Total	3,458,868.87	pounds =	[result of St	ep 5]	
Developed Land	922 223 87	nounds =	[result of St	en 51	
Load assigned for Total	022,220.01	poundo	11000110101	op o j	
Impervious Land	2,536,645.00	pounds =	[result of St	ep 5]	
	4				
Step 10. Apportion Load Assigne	d to "Impervious" surfa	ices to each	"Developed	land use	category by
multiplying the 'Percent of Total Imper-	vious Surfaces' (Step 8) I	oy 2536645 p	ounds (calcul	ated in Step	9):
Stream Bank Sediment Load A	Assigned to Imperviou 2.018.797.22	s Surface, p		2525045	ounds 1
Low Density Developed Medium Density Developed	392,701.24		= [80 %)	2536645 p 2536645 p	
High Density Developed	125,146.55			2536645 pt	
	,,				
Step 11. Apportion Load Assigne	d to Total Land Area to	each "Deve	loped" land	use caten	ory by multiplying
the 'Percent of Area of Developed La	nds' (from Step 4) by 922	223.87 pound	ds (calculated	in Step 9):	
Stream Bank Sediment Load A	Assigned to Total Neve	loped I and	Area, noune	is	
Low Density Developed	864,476.60	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	= [94 % x	922223.87	pounds]
Medium Density Developed	48,507.71		= [5%x9	22223.87 p	ounds]
High Density Developed	9,239.56		= [1%x9	22223.87 p	ounds]
		s" surfaces,	from Step 10), and the	loads apportioned
to Total Developed Land Area, fro Total Stream Bank Sediment I	om Step 11: Load per Land Use, po	unds			
Low Density Developed Medium Density Developed	om Step 11: Load per Land Use, poi 2,883,273.82 441,208.94	unds = [20187 = [39270	97.22 pounds	+ 864476.6 + 48507.71	pounds]
to Total Developed Land Area, fro Total Stream Bank Sediment I Low Density Developed	om Step 11: Load per Land Use, por 2,883,273.82	unds = [20187 = [39270	97.22 pounds	+ 864476.6 + 48507.71	pounds]
to Total Developed Land Area, fro Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed	om Step 11: Load per Land Use, por 2,883,273,82 441,208,94 134,386,11	unds = [20187 = [39270 = [12514	97.22 pounds 1.24 pounds 6.55 pounds	+ 864476.6 + 48507.71 + 9239.56 p	6 pounds] pounds] ounds]
to Total Developed Land Area, fro Total Stream Bank Sediment I Low Density Developed Medium Density Developed	om Step 11: Load per Land Use, por 2,883,273.82 441,208.94 134,386.11 Loading Rate for ea	unds = [20187 = [39270 = [12514	97.22 pounds 1.24 pounds 6.55 pounds	+ 864476.6 + 48507.71 + 9239.56 p	6 pounds] pounds] ounds]
to Total Developed Land Area, fro Total Stream Bank Sediment I Low Density Developed Medium Density Developed High Density Developed Step 13. Calculate the Stream Ba dividing the load from Step 12 by	om Step 11: Load per Land Use, por 2,883,273.82 441,208.94 134,386.11 Loading Rate for ea	unds = [20187 = [39270 = [12514 ach "Develo	97.22 pounds 11.24 pounds 6.55 pounds	+ 864476.6 + 48507.71 + 9239.56 p	6 pounds] pounds] ounds]
to Total Developed Land Area, fro Total Stream Bank Sediment I Low Density Developed Medium Density Developed High Density Developed Step 13. Calculate the Stream Ba	on Step 11: Load per Land Use, po 2,883,273.82 441,208.94 134,386.11 Loading Rate for exite acres in Step 4:	unds = [20187 = [39270 = [12514 ach "Develo	97.22 pounds 1.24 pounds 6.55 pounds	+ 864476.6 + 48507.71 + 9239.56 p se, in pou	6 pounds] pounds] ounds]
to Total Developed Land Area, fro Total Stream Bank Sediment I Low Density Developed Medium Density Developed High Density Developed Step 13. Calculate the Stream Ba dividing the load from Step 12 by Stream Bank Sediment	om Step 11: Load per Land Use, por 2,883,273.82 441,208.94 134,386.11 Loading Rate for ea	unds = [20187 = [39270 = [12514 ach "Develo Land Use area, acres	97.22 pounds 1.24 pounds 6.55 pounds ped" Land U	+ 864476.6 + 48507.71 + 9239.56 p se, in pou	6 pounds] pounds] ounds]
to Total Developed Land Area, fro Total Stream Bank Sediment I Low Density Developed Medium Density Developed High Density Developed Step 13. Calculate the Stream Ba dividing the load from Step 12 by Stream Bank Sediment Land Use Loading Rate Low Density Developed Medium Density Developed	oad per Land Use, po 2,883,273.82 441,208,94 134,396,11 Land Loading Rate for ei the acres in Step 4: pounds 2,883,273.82 441,208,94	unds = [20187 = [39270 = [12514 ach "Develo Land Use area, acres 3,696.30 207.41	97.22 pounds 1.24 pounds 6.55 pounds ped" Land U Stream Sedir 780.04 2,127.26	+ 864476.6 + 48507.71 + 9239.56 p se, in pou Bank nent = [2883273.	s pounds] pounds] ounds] nds per acre, by 82 lbs / 3696, 3 acres] 4 lbs / 207, 41 acres]
to Total Developed Land Area, fro Total Stream Bank Sediment I Low Density Developed Medium Density Developed High Density Developed Step 13. Calculate the Stream Ba dividing the load from Step 12 by Stream Bank Sediment Land Use Loading Rate Lov Density Developed	m Step 11: Load per Land Use, po 2,883,273.82 441,208.94 134,386.11 ank Loading Rate for exthe acres in Step 4: pounds 2,883,273.82	unds = [20187 = [39270 = [12514 ach "Develo Land Use area, acres 3,696.30 207.41	97.22 pounds 1.24 pounds 6.55 pounds ped" Land U Stream Sedir 780.04 2,127.26	+ 864476.6 + 48507.71 + 9239.56 p se, in pou Bank nent = [2883273.	S pounds] pounds] ounds] nds per acre, by 82 lbs / 3696.3 acres]
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The Pine Creek Watershed and the Pine Creek Planning Area:

MMW Model Output – Pine Creek

Look-Up Table for	or MMW I and I	lleo I cadina Da	stor							<i>3</i> .							
Watershed: P	Pine Creek 2020	use Loading Ka	ates														
Section 3:	MMW Model O	utput															
This page is where the pasted into this work																	
Source File Name - Watershed Name - are being calculated a Source file - The a output file to the table Year - the year mo	- User-specified file - User-specified nar (optional). nnual pollutant data s below.	name for the output ne of a watershed f	file from MMW () for which land u	optional). se loading rates													
Data Entered By: Date Data Entered: Source File Name: Watershed: Year:	2020-06-08 User Specified																
		odel My Watershe	ed OUTPUT DAT	A					STREAM LENGTHS	KM*	FEET			****			
Source	Area	Sediment	Tot N	Tot P					Total Length Ag Streams	24.59 13.8	80675.9 45275.6	Sed lb/ft 11.3	TN Ib/8 0.01	TP 16/ft 0.00			
Units Hey/Past	2,696:30	218,12	10 s/year 1753.64	(05/year (92.15					Non-Ag Streams	10.79							
Cropland Forest Wetland Disturbed	2,083,36 1,069,14 197,53	2,330.84 1,80 0.34	15,340.63 175.39 63.50	5,305,89 9,26 0,97					*These values can b		e "Stream" tab in the	e "Analyze" section of	a Model My Waters	hed run			
Turfgrass Open_Land	17.28	0.69	12.79	154					TYPE*	NUMBER*	AVG WT KG	TOTAL KG	TOTAL AEU	KG N/AEU/DAY		TOTAL N/DAY	TOTAL PIDAY
Bare_Rock Sandy_Areas			*	1					Chickens, Broilers Chickens, Layers	97616 0	0.9		87.8544 0	0.85	0.3	94.004208 0	26.35632 0
Unpaved_Road Ld_Mixed	950.62	146	71.00	7.72					Cows, Beef Cows, Dairy	52 1121	360 640	723840	18.72 723.84	0.44	0.09	318.4896	1.6848 50.6688
Md_Mixed Hd_Mixed	98.89 32.10	2.68 0.95	112.23 39.69	11.47 3.97					Horses Pigs/Hogs/Swine	175 3590	500 61	219478	87.5 219.478	0.48	0.06 0.15		5.25 32.9217
Ld_Residential Md_Residential	1								Sheep Turkeys	115 2219	50 6.8		5.75 15.0892		0.1	2.1278 8.902628	0.575 3.01784
Hd_Residential Farm Animals	200		33,766,27	8,495.51										Daily Totals		559.18	120.47
Tile Drainage Stream Bank		453.66	568.89	235.94										Poultry Totals Livestock Totals		102.91 456.27	29.37 91.10
Groundwater Point Source			263,670.61	1,803.47										Poultry Fraction Livestock Fraction		0.22554 0.81597	0.32244 0.75618
Septic Systems			277,39						*These values can be	obtained from the	"Animal" tab in the	"Analyze" section of a	Model My Watersh	ed run			
Totals	7,135,80	3,010,74	305,692.82	16,530.89					Metric to Standard I								
MMW NLCD Land C	over Categories	AREA (km²2)	rom Analyze			SOURCE	Load Conve	raion from	SEDMENT (kg)	TOTAL N (kg)		SEDMENT (tons)	TOTAL N (bs)	TOTAL P (bs)			
Open Water		AREA (NIT 2)		AREA (acres)		Hay/Pastur			197,844 30 2,114,137,40	795.30	TOTAL P (kg) 313.90	218 1233408	1753.6365	692 1495			
Perennial Ice/Snow Developed, Open Spi		2.78		686.42		Cropland Wooded A	reas		1.635.10	6,957.20 52.68	4.20	2330.836484 1.80269775	15340.626 115.983	9.261			
Developed, Low Inter Developed, Medium in	ntensity	1.07 0.36		264.20 88.89		Wetlands Open Land			305 10 628 00	28.80 5.80	0.70	0.33637275 0.69237	63.504 12.789	3.969 1.5435			
Developed, High Inter Barren Land (Rock/S	nsity land/Clay)	0.13		32.10		Barren Are Low-Dens	ey Mixed		1,324.20	0.00 32.20 50.90	0.00 3.50	1.4599305	71,001	7.7175			
Deciduous Forest Evergreen Forest		3.64		898.77		High-Densi			2,432.60 858.60	18.00	1.80	2.6819415 0.9466065	112 2345 39.69	3.969			
Mixed Forest Shrub/Scrub		0.04 0.65		9.88		Other Upla Farm Anim	als		3,451.00	83,90 15,313.50	3,834.70	3.8047275 0	184.9995 33768.2675	8455.5135			
Grassland/Herbaceo Pasture/Hay	us	0.07 10.92		17.28 2,696.30		Stream Bar Subsurfac	e Flow		411,667.00 0.00	258.00 114,990.10	817.90	453.8628675 0	568.89 253570.8105	235.935			
Cultivated Crops Woody Wetlands	lata seem	8.44 0.68		2,003.95 167.90		Point Souri Septic Sys	tems		0.00	0.00 125.80	0.00	0	277,389	0			
Emergent Herbaceou	s Wellands	0.12		29.63													
Totals		28.90		7,135.80		Totals			2,734,283.30	138,720.10	7,506.00	3,014.55	305,877.82	16,550.73			
Note: The informat	tion below is only	used for allocation	on of "urban" k	oads within a la	rger water	shed boun	dary										
MMW NLCD Land C																	
TYPE	-	AREA (kmr2)		AREA (acres)			TN (BAYE)	TP (BOY)	Sediment (lb/yr)								
Open Water Perennial Ice/Snow		0						- Andrews									
Developed, Open Spo Developed, Low Inter	ace nstv	0		- :			0.00	0.00	0.00		(Note: The values	below only pertain to th	he smaller target an	08)			
Developed, Medium In Developed, High Inter	ntensity nsity	0					0.00	0.00	0.00		STREAM LENGTH	KM*	FEET				
Barren Land (Rock/S Deciduous Forest	land/Clay)	0					0.00	0.00	0.00		Total Length Ag Streams	0	0.0				
Evergreen Forest Mixed Forest		0					0.00	0.00	0.00		Non-Ag Streams	0	0.0				
Shrub/Scrub Grassland/Herbaceo	us	0		-			0.00	0.00	0.00		*These values or	an be obtained from the	"Stream" tab in the	"Analyze" section o	of a Model My V	Watershed run	
Pasture/Hay Cultivated Crops		0		- :			0.00										
Woody Wetlands Emergent Herbaceou	s Wetlands	0		- :			0.00	0.00	0.00								
Totals							-										
TYPE		AREA (m*2)*		AREA (acres)													
Open Water Perennial Ice/Snow		0		0.00	1												
Developed, Open Spi Developed, Low Inter	nsty	105875.51 90622.38		26.14 22.38	1		6.54 5.59	2.09 1.79	5,717.66								
Developed, Medium in Developed, High Inter	ntensity nsity	8972.5 897.25		0.22			3.43 0.36	0.66	1,551.23 236.01		*Only use this inpu	n block if land cover dis	stribution is given in	square meters (m²)	5.		
Barren Land (Rock/S Deciduous Forest	and/Clay)	92416.76		0.00	6		3.88	0.00	0.00 2,253.99		This occurs when	AOI is less than about	2 square kilometer.	2			
Evergreen Forest Mixed Forest		0.000000		0.00	6		0.00	0.00									
Shrub/Scrub Grassland/Herbaceo	us	897.25 17945		4.43			0.75	0.13	437.67								
Pasture/Hay Cuttivated Crops		36581.76 16150.5		9.53	10		74.02 57.74	19.53	2,450.18								
Manda Mc		0		0.00			0.00	0.00	0.00								
Woody Wetlands	a Wattanda			0.00													
Emergent Herbaceou	s Wetlands	372348 70		0.00			152.36										
	s Wetlands	372358.79		91.94			152.36	42.29	28,649.53								

Land Use Loading Rates – Pine Creek

er 2020																		
urce File: User Specifie	5																	
ection 2: Landcove	r Loading Ra	ites Look-Up	Table															
- 10	TAL WATER	RSHED ANNU	AL LOADS								ANNUAL LAN	D USE LOADING RA	ES (lbs	acre)				
-			01000.001000	-		SEDIMENT		-	1		NITROGEN	111111111111111111111111111111111111111		-		PHORUS		
				1 1011000		From	THE PROPERTY OF THE PARTY.	1		1	From	Pierra de la companya della companya			PHOS	PHURUS	Promote and the	1
1967347			Total	Total	From	Stream	TOTAL SECIMENT	1	From Land	From Stream		TOTAL NITROGEN		in and	From Stream Banks	From Farm	TOTAL PHOSPHORUS	
Source	Area	Sediment	Nitrogen	Phosphorus	Lend Use	Banka ①	LOADING RATE		Use	Banks ①	(3)	LOADING RATE		From Land Use	0	Animata ②	LOADING RATE	
Units	Acres	Tons	Pounds	Pounds	lbs/acre	Ibs/acre	bs/acre	L	lbs/scre	Be(ecre	bs/acre	tos/acre		Re/acre	Ibslacre	Bs/acre	Ibsfacre	1
Source =		sectionent to		11-11-11	Co = 755 LoadRa =	ISS LoadRay	The state of the s	Co.	IN LoadRu	TN LONGRY	IN LoadRa	IN_LoadRate_IbPe =	Colum	IP_LoadRateL	TP_LoadRatella=		TP_LoadRate_lbP	
HayiPast	2,696.30	218.12	1,753.64	692.15		95.40	257.20	1	0.65	0.06	7.06	7.77		0.26	0.02	1.77	2.05	HayiPast
Cropland	2,083.95	2,330.84	15,340.63	5,305.09		95.40	2,332.36	-	7.36	0.06	7.06	16.65		2.55	0.02	1.77	4.34	Cropland
Forest	1,089.14	1.80	115.88	9.26		95.40	98.78	1	0.11	0.00	nla	0.17		0.01	0.02	nla	0.03	Forest
Wetland	197.53	0.34	63.50	3.97		95.40	98.81	-	0.32	0.06	n/a	0.38		0.02	0.02	n/a	0.04	Wetland
Disturbed	0.00	0.00	0.00	0.00		0.00	0.00	1	0.00	0.00	n/a	0.00		0.00	0.00	0/8	9.00	Disturbed
Yurfgrass	0.00	0.00	0.00	0.00		0.00	8.00	-	0.00	0.00	n/a	0.00		0.00	0.00	0/2	0.00	Turfgrass
Open_Land	17.20	0.69	12.79	1.54		95.40	176.62		0.74	0.00	nla	0.00		0.09	0.02	n/a	0.11	Open_Land
Bare_Rock	0.00	0.00	0.00	0.00		0.00	0.00	-	0.00	0.00	n/a	0.00		0.00	0.00	7/3	0.00	Bare_Rock
Sendy_Areas	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	n/a	0.00		0.00	0.00	n/a	0.00	Sandy_Area
Unpaved_Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	n/a	0.00		0.00	0.00	nla	0.00	Unpaved_Ro
Ld_lifeed	950.62 88.89	2.68	71.00	7.72		252.46	255.53 700.19		0.07	0.18		0.26 1.55		0.01	0.07	nis	0.08	Ld_Mixed Md Mixed
Md_Mixed		0.95	112.23	3.97		639.85 1,006.30	1,055,29		1.26	0.29	n/a n/a	1.63		9.13		n/a	0.30	
Hd_Mored	0.00	0.00	0.00	0.00		0.00	1,066.29		0.00	0.00	n/a	0.00		0.12	0.00	0/8	0.00	Hd_Hissed
Ld_Residential	0.00	0.00	0.00	0.00		0.00	0.00	-		0.00		0.00	_	0.00	0.00		0.00	Ld_Resident Md Resident
Md_Residential Hd_Residential	9.90	0.00	0.00	0.00		0.00	0.00		0.00	0.00	n/a n/a	0.00		0.00	9.00	5/8	0.00	Hd_Resident
NU_NESQUEFSIES	4.00	0.00	9.00	0.00	0.00	9.99	9.59	-	0.00	0.00	riva	9.00		9.00	1 0.00	108	WW.	Trial Leases
1			Total	Total	Feet 1880 Septem		Secretarion		See SHIPMON			bankpoon		No. of the latest lates			Seastproduc	
Source		Sediment	Nitrogen	Phosphorus			because .		mend chales			t		part of charles			Accesses .	
Units		Tons	Pounds	Pounds														
Farm Animals		0.00	33,766,27	8,455.51														
Tile Orainage		0.00	0.00	0.00														
Stream Bank (1)		453.88	568.89	235.94														
Groundwater		0.00	253,570.81	1,803.47														
Point Source		0.00	0.00	0.00														
Septic Systems		0.00	277.39	0.00														
Notes:																		
Separate workshooncurrence from Ur.			pportion the loa	ding rates from th	ne Stream Bank source lo	eds (for sedment, b	otal nitrogen, and fotal pt	toephor	rus) from the Milh	V Output file into	each land use co	alegory, using methodolog	provided	by Dr. Barry Evans	(Pennayivania State Un	iversity), the author	of MapShed, and with	
			portion the "Tot	al Nitrogen" and "	Total Phosphorus* loading	rates from the Fac	m Animals source load f	nom the	MIRW Output file	into the two ap	cultural land uses	s, Hay/Pasture and Cropla	d based	on area weighting T	he methodology was p	rovided by Dr. Barn	Evans (Pennsylvania	
					ADEP). Additionally, since													
Groundwater		0.0	253,570.6	1,003.5	STATE OF STREET					STATISTICS.								
Point Source		0.0	0.0	0.0														
Septic Systems		0.0	277.4	0.0														

Vatershed: Pine Creek Year: 2020	oading Rates					
	-dim-nt Idim- D-t	Madaka	1			
ection 5: Stream Bank Se nis worksheet calculates and ap				e load for sec	liment from the MMW	
ep 1. The Stream Bank Sed esented below.	iment Load, in tons, and I	and areas t	for each land	d use categ	ory, in acres, are	
	Sediment					
Stream Bank		tons	MMW Output		ken from Cell D38 in the	
Source Hay/Pasture	Area (acres) 2,696,30	5	-			
Cropland	2,083.95					
Forest	1,069.14					
Wetland	197.53					
Disturbed Turfgrass	0.00					
Open_Land	17.28					
Bare_Rock	0.00					
Sandy_Areas Unpaved Road	0.00					
Ld_Mixed	0.00 950.62					
Md_Mixed	88.89					
Hd_Mixed	32.10					
Ld_Residential Md_Residential	0.00					
Hd_Residential	0.00					
Total Acres, Watershed	7,135.80					
ep 2. Convert the Stream Ba		nds by mul	tiplying tons	by 2,000 p	ounds per ton.	
	Continue de la contin					
Stream Bank	Sediment Load, pound 907,720.00	pounds	= [453.86 to	ons x 2,000 p	ounds per ton]	
A11 - 12 - 11 - 11 - 1						
ep 3. Sum the total acres in	the Pine Creek watershed	1.				
Total Acres in watershed	7,135.80	acres				
ensity Mixed (Ld_Mixed), Me ensity Residential (Ld_Resi esidential (Hd_Residential).	dential), Medium Density I					
oorganisas (r ro_rxeasuerflidi).						
Area of Developed Lands	acres	percent				
Area of Developed Lands Low Density Developed	acres 950.62	89%	[Ld_Mixed	+ Ld_Reside	ntial]	
Area of Developed Lands Low Density Developed Medium Density Developed High Density Developed	950.62 88.89 32.10	89% 8% 3%	[Ld_Mixed [Md_Mixed [Hd_Mixed	+ Md_Reside + Hd_Reside	ntial] ential] ential]	
Area of Developed Lands Low Density Developed Medium Density Developed	acres 950.62 88.89	89% 8%	[Ld_Mixed [Md_Mixed [Hd_Mixed	+ Md_Reside + Hd_Reside	ntial]	
Area of Developed Lands Low Density Developed Medium Density Developed High Density Developed Total	950.62 88.89 32.10 1,071.60	89% 8% 3% 100%	[Ld_Mixed [Md_Mixed [Hd_Mixed [All "Devel	+ Md_Reside + Hd_Reside pped" land us	ntial] ntial] ntial] e categories]	
Area of Developed Lands Low Density Developed Medium Density Developed High Density Developed Total	acres 950.62 88.89 32.10 1,071.60 of the Stream Bank Sedim	89% 8% 3% 100% ent Load re	[Ld_Mixed [Md_Mixed [Hd_Mixed [All "Devel	+ Md_Reside + Hd_Reside oped" land us - "Develope	ntial] Intial] ntial] e categories] d"Lands	
Area of Developed Lands Low Density Developed Medium Density Developed High Density Developed Total pp 5. Calculate the portion of This is A) 75% of the Stream Bar	acres 950.62 88.89 32.10 1,071.60 of the Stream Bank Sediment Load times the k Sediment Load:	89% 8% 3% 100% ent Load re	[Ld_Mixed [Md_Mixed [Hd_Mixed [All "Devel esulting from	+ Md_Reside + Hd_Reside oped" land us - "Develope	ntial] Intial] ntial] e categories] d"Lands	
Area of Developed Lands Low Density Developed Medium Density Developed High Density Developed Total This is A) 75% of the Stream Bar Stream Bank Sediment Load Total Developed Acres	950.62 88.89 32.10 1,071.60 of the Stream Bank Sediment Load times the nk Sediment Load: 907,720.00 1,071.6	89% 8% 3% 100% ent Load re percent of	[Ld_Mixed [Md_Mixed [Hd_Mixed [All "Devel esulting from developed lan from Step 2 from Step 4	+ Md_Reside + Hd_Reside oped" land us "Develope ds in the wa	ntial] Intial] ntial] e categories] d"Lands	
Area of Developed Lands Low Density Developed Medium Density Developed High Density Developed Total ep 5. Calculate the portion of This is A) 75% of the Stream Bai Stream Bank Sediment Load Total Developed Acres Total Acres in watershed Percent of Developed India	acres 950.62 88.89 32.10 1,071.60 of the Stream Bank Sedim Bank Sediment Load times then nk Sediment Load: 907,720.00 1,071.6 7,135.8	89% 8% 3% 100% ent Load re percent of pounds acres	[Ld_Mixed [Md_Mixed [Hd_Mixed [All "Devel sulting from developed lan from Step 2 from Step 4 from Step 3	+ Md_Reside + Hd_Reside pped" land us "Develope ds in the wa	ntial] Intial] Intial] Itial] d'Lands tershed	
Area of Developed Lands Low Density Developed Medium Density Developed High Density Developed Total This is A) 75% of the Stream Bai Stream Bank Sediment Load Total Developed Acres Total Acres in watershed Percent of Developed lands in watershed	950.62 88.89 32.10 1,071.60 of the Stream Bank Sedim Bank Sediment Load times the nk Sediment Load: 907,720.00 1,071.6 7,135.8	89% 8% 3% 100% ent Load re percent of	[Ld_Mixed [Md_Mixed [Hd_Mixed [All "Devel sulting from developed lan from Step 2 from Step 4 from Step 3	+ Md_Reside + Hd_Reside oped" land us "Develope ds in the wa	ntial] Intial] Intial] Itial] d'Lands tershed	
Area of Developed Lands Low Density Developed Medium Density Developed Medium Density Developed Total ep 5. Calculate the portion of This is A) 75% of the Stream plus B) 25% of the Stream Bank Stream Bank Sediment Load Total Developed Acres Total Acres in watershed Percent of Developed lands in watershed A) 75% x Stream Bank Sediment Load x Percent of Developed Lands	950.62 88.89 32.10 1,071.60 of the Stream Bank Sedim Bank Sediment Load times the nk Sediment Load: 907,720.00 1,071.6 7,135.8	89% 8% 3% 100% ent Load re percent of pounds acres acres	[Ld_Mixed [Md_Mixed [Hd_Mixed [All "Devel sulting from developed lan from Step 2 from Step 4 from Step 3	+ Md_Reside + Hd_Reside oped" land us "Develope ds in the wa es / 7135.8 a	ntial] intial] intial] of tands drands drands drands	
Area of Developed Lands Low Density Developed Medium Density Developed Medium Density Developed Total Polymore p 5. Calculate the portion of This is A) 75% of the Stream plus B) 25% of the Stream Ball Stream Bank Sediment Load Total Developed Acres Total Developed Acres Total Acres in watershed Percent of Developed ands in watershed A) 75% x Stream Bank Sediment Load x Percent of Developed Lands B) 25% x Stream Bank Sediment Load Sediment Loads Sediment Loads Sediment Loads Company Compa	950.62 88.89 32.10 1,071.60 of the Stream Bank Sedim Bank Sediment Load times the nk Sediment Load: 907,720.00 1,071.6 7,135.8	89% 8% 3% 100% 100% ent Load respercent of pounds acres acres	[Ld_Mixed [Md_Mixed [Md_Mixed [Hd_Mixed [All "Devel sulting from developed land from Step 2 from Step 3 [1071.6 acr	+ Md_Reside + Hd_Reside pped" land us l"Develope ds in the wa es / 7135.8 a	initial] Initial] Initial] Initial] Itial	
Area of Developed Lands Low Density Developed Medium Density Developed Medium Density Developed High Density Developed Total This is A) 75% of the Stream is plus B) 25% of the Stream is Stream Bank Sediment Load Total Developed Acres Total Acres in watershed Percent of Developed lands in watershed A) 75% Stream Bank Sediment Load x Percent of Developed Lands Stream Bank Sediment Load x Developed Lands Load Assigned to Developed	950.62 88.89 32.10 1,071.60 of the Stream Bank Sedim Bank Sediment Load times the nk Sediment Load: 907,720.00 1,071.6 7,135.8 15%	89% 8% 3% 100% 100% ent Load re percent of pounds acres acres acres pounds =	[Ld_Mixed Md_Mixed Hd_Mixed	+ Md_Reside + Hd_Reside pped" land us l"Develope ds in the wa es / 7135.8 a	initial] Initial] Initial] Initial] Itial	
Area of Developed Lands Low Density Developed Medium Density Developed Medium Density Developed High Density Developed Total This is A) 75% of the Stream E plus B) 25% of the Stream E plus B) 25% of the Stream E plus B) 25% of the Stream B stream Bank Sediment Load Total Developed Acres Total Acres in watershed Percent of Developed lands in watershed A) 75% x Stream Bank Sediment Load x Percent of Developed Lands B) 25% x Stream Bank Sediment Load x Percent of Developed Lands B) 25% x Stream Bank Sediment Load x Percent of Developed Lands B) 25% x Stream Bank Sediment Load Assigned to Developed Lands Load Assigned to Developed Lands Load Percent of Impe Low Density Developed Medium Density Developed	950.62 88.89 32.10 1,071.60 of the Stream Bank Sediment Load times the k Sediment Load: 907,720.00 1,071.6 7,135.8 15% 102,236.28 226,930.00 329,166.28 of the Stream Bank Sedimes by calculating relative c crivious Area for corresponsible.	89% 8% 3% 3% 100% 100% 100% 100% 100% 100% 10	[Ld_Mixed [Md, Mixed [Hd, Mixed [Hd, Mixed [Hd, Mixed [Hd, Mixed I] All "Developed lar from Step 2 from Step 2 from Step 3 [1071.6 acr	+ Md, Residi- + Hd_Reside - Hd_Reside - Hd_Reside - Hd_Reside - Toevelope - ds in the wa - Md - Hd - Reside - Toevelope - ds in the wa - T20 pounds	ntial] Intial] Intial] Intial] d'Lands Idershed cres] x 15%]	
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Area of Developed Lands Low Density Developed Medium Density Developed Medium Density Developed High Density Developed Total Total This is A) 75% of the Stream plus B) 25% of the Stream Bank Stream Bank Sediment Load Total Developed Acres Total Acres in watershed Percent of Developed lands in watershed A) 75% x Stream Bank Sediment Load x Percent of Developed Lands B) 25% x Stream Bank Sediment Load Load Assigned to Developed Lands Load Assigned to Developed Lands Low Density Developed Medium Density Developed Medium Density Developed High Density Developed	## Section ## Se	89% 8% 3% 100% ent Load re- percent of pounds acres acres = pounds = pounds = pounds and from pounds acres ent Load from ponents anding land	[Ld_Mixed [Md, Mixed [Hd, Mixed [Hd, Mixed [Hd, Mixed [Hd, Mixed I] All Powel sulting from Step 2 from Step 4 from Step 3 [1071.6 acid [75% x 907 [25% x 907 m] "Develop from "Impe use categor	+ Md_Reside + Hd_Reside + Hd_Reside ped" land us "Develope ds in the wa res / 7135.8 a res / 720 pounds res / 720 pounds res / Reside	ntial] Intial] Intial] Intial] Idial	
Area of Developed Lands Low Density Developed Medium Density Developed Medium Density Developed Medium Density Developed Total Total This is A) 75% of the Stream plus B) 25% of the Stream plus B) 25% of the Stream Bal Stream Bank Sediment Load Total Developed Acres Total Acres in watershed Percent of Developed lands in watershed A) 75% x Stream Bank Sediment Load x Percent of Developed Lands B) 25% x Stream Bank Sediment Load x Percent of Developed Lands B) 25% x Stream Bank Sediment Load Load Assigned to Developed Lands Load Assigned to Developed Lands Medium Density Developed Medium Density Developed Medium Density Developed Medium Density Developed Load Proceed to the Portion of the Load Density Developed Medium Density Developed Load Density Developed Load Proceed Developed Load Density Developed Load Proceed	950.62 88.89 32.10 1,071.60 of the Stream Bank Sediment Load times the nk Sediment Load: 907,720.00 1,071.6 7,135.8 15% 102,236.28 226,930.00 329,166.28 of the Stream Bank Sedimes by calculating relative convious Area for corresponsible of the Stream Bank Sedimes by calculating relative convious Area for corresponsible of the Stream Bank Sedimes by calculating relative convious Area for corresponsible of the Stream Bank Sedimes by calculating relative convious Area for corresponsible of the Stream Bank Sedimes by calculating relative convious Area for corresponsible of the Stream Bank Sedimes by calculating relative convious Area for corresponsible of the Stream Bank Sedimes by calculating relative convious Area for corresponsible of the Stream Bank Sediment Load Stream Bank Sediment Ban	89% 8% 3% 3% 100% 100% 100% 100% 100% 100% 10	[Ld_Mixed [Md, Mixed [Hd, Mixed [Hd, Mixed [Hd, Mixed [Hd, Mixed I] All Powel sulting from Step 2 from Step 4 from Step 3 [1071.6 acid [75% x 907 [25% x 907 m] "Develop from "Impe use categor	+ Md_Reside + Hd_Reside + Hd_Reside ped" land us "Develope ds in the wa res / 7135.8 a res / 720 pounds res / 720 pounds res (MapSh	ntial] Intial] Intial] Intial] Idial	
Area of Developed Lands Low Density Developed Medium Density Developed Medium Density Developed High Density Developed Total Total This is A) 75% of the Stream E plus B) 25% of the Stream E plus B) 25% of the Stream E plus B) 25% of the Stream B Stream Bank Sediment Load Total Developed Acres Total Acres in watershed Percent of Developed lands in watershed A) 75% x Stream Bank Sediment Load x Percent of Developed Lands B) 25% x Stream Bank Sediment Load x Stream Bank Sediment Load x Stream Bank Sediment Load x Developed Lands Load Assigned to Developed Lands Lep 6. Calculate the portion of cach of the land use categorie Estimated Percent of Impe Low Density Developed High Density Developed Loby Density Developed Lep 7. Calculate how many a e percent in Step 6: Estimated Impervious Suri	## Secretary ## Sec	89% 8% 3% 3% 100% 100% 100% 100% 100% 100% 10	[Ld_Mixed Md Mixed Hd Mixed	+ Md, Resid+ + Hd, Reside + Hd, Reside - Hd, Reside - Hd, Reside - Toevelope - ds in the wa - May Sh - Hd, Reside - Hd, Re	that is assigned to aces and from the ed Values)	
Area of Developed Lands Low Density Developed Medium Density Developed Medium Density Developed Medium Density Developed Total Total This is A) 75% of the Stream plus B) 25% of the Stream plus B) 25% of the Stream Bal Stream Bank Sediment Load Total Developed Acres Total Acres in watershed Percent of Developed lands in watershed A) 75% x Stream Bank Sediment Load x Percent of Developed Lands B) 25% x Stream Bank Sediment Load x Percent of Developed Lands B) 25% x Stream Bank Sediment Load Load Assigned to Developed Lands Load Assigned to Developed Lands Medium Density Developed Medium Density Developed Medium Density Developed Medium Density Developed Load Proceed to the Portion of the Load Density Developed Medium Density Developed Load Density Developed Load Proceed Developed Load Density Developed Load Proceed	950.62 88.89 32.10 1,071.60 of the Stream Bank Sediment Load times the nk Sediment Load: 907,720.00 1,071.6 7,135.8 15% 102,236.28 226,930.00 329,166.28 of the Stream Bank Sedimes by calculating relative convious Area for corresponsible of the Stream Bank Sedimes by calculating relative convious Area for corresponsible of the Stream Bank Sedimes by calculating relative convious Area for corresponsible of the Stream Bank Sedimes by calculating relative convious Area for corresponsible of the Stream Bank Sedimes by calculating relative convious Area for corresponsible of the Stream Bank Sedimes by calculating relative convious Area for corresponsible of the Stream Bank Sedimes by calculating relative convious Area for corresponsible of the Stream Bank Sediment Load Stream Bank Sediment Ban	89% 8% 3% 3% 100% 100% 100% 100% 100% 100% 10	[Ld_Mixed IMd_Mixed IMd_Mixed IMd_Mixed IMd_Mixed IMd_Mixed IAI "Developed Iar from Step 2 from Step 4 from Step 3 [1071.6 act 175% x 907 [25% x 907 Imged I	+ Md_Reside + Hd_Reside + Hd_Reside ped" land us "Develope ds in the wa res / 7135.8 a res / 720 pounds res / 720 pounds res (MapSh	tershed cres] that is assigned to acces and from the ed Values)	
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Area of Developed Lands Low Density Developed Medium Density Developed Medium Density Developed High Density Developed Total This is A) 75% of the Stream is plus B) 25% of the Stream is Stream Bank Sediment Load Total Developed Acres Total Acres in watershed Percent of Developed lands in watershed A) 75% Vstream Bank Sediment Load x Percent of Developed Lands B) 25% x Stream Bank Sediment Load x Percent of Developed Lands Load Assigned to Developed Lands Load Assigned to Developed Lands Egital Company Load Percent of Impe Low Density Developed High Density Developed High Density Developed Lep 7. Calculate they wanny a e percent in Step 6: Estimated Impervious Surl Low Density Developed Medium Density Developed	## Secretary ## Secretary	89% 8% 3% 3% 100% 100% 100% 100% 100% 100% 10	[Ld_Mixed Md Mixed Md Mixed Hd Mixed	+ Md, Residi- + Hd, Reside + Hd, Reside - Hd, Reside - Hd, Reside - Hd, Reside - Res	that is assigned to aces and from the ed Values)	

Low Density Developed	Surfaces				
LOW Delisity Developed	66%	=	[142.59 ac	res / 216.74	acres]
Medium Density Developed	21%	=	[46.22 acre	es / 216.74 a	cres]
High Density Developed Total	13%		[27.93 acre	es / 216.74 a	cres J
1000	10010				
Step 9. Distribute the "Total Loa	d Assigned to Develone	d Lands" fro	nm Sten 5 t	n each Dev	veloned Land type
pased on "Impervious" surfaces					croped Land type
Load Assigned to Developed Lands	220.466.20	pounds =	I requit of C	ton E 1	
Load assigned to Total	329,100.20	pounds =	[result of S	tep 5 j	
Developed Land	102,236.28	pounds =	[result of S	tep 5]	
Load assigned for Total					
Impervious Land	226,930.00	pounds =	[result of S	tep 5 j	
Stop 40 Apportion Load Apping	ad to "Impossious" ourfa	ana ta anah	"Davelone	d" land use	anto anni bu
Step 10. Apportion Load Assign	ed to impervious suna	ces to each	Develope	d land use	category by
nultiplying the 'Percent of Total Impe	rvious Surfaces' (Step 8) I	у 226930 ро	unds (calcula	ated in Step	9):
Stream Bank Sediment Load	Assigned to Impervious	s Surface. n	oounds		
Low Density Developed	149,296.05			x 226930 p	ounds]
Medium Density Developed	48,395.19		= [21 %	x 226930 p	ounds]
High Density Developed	29,238.76		= [13 %	x 226930 p	ounds]
Step 11. Apportion Load Assign	ed to Total Land Area to	each "Deve	noped" land	use categ	ory by multiplying
he 'Percent of Area of Developed L	ands' (from Step 4) by 102	236.28 pound	ds (calculate	d in Step 9):	
Stroom Bank Sadimant	Assigned to Total C	lanad! '	Area	do	
Stream Bank Sediment Load Low Density Developed	90,693.48	 		102236.28	pounds 1
Medium Density Developed	8,480.43		= [8%x	102236.28 p	ounds]
High Density Developed	3,062.38		= [3%x	102236.28 p	ounds]
o Total Developed Land Area, fi	om Step 11:		from Step 1	o, and the	iodus apportioned
Total Stream Bank Sediment Low Density Developed Medium Density Developed	Load per Land Use, po 239,989.53 56,875.62	unds = [14929 = [48395	6.05 pounds	+ 90693.48 + 8480.43 po	pounds] unds]
Total Stream Bank Sediment Low Density Developed	Load per Land Use, po 239,989.53	unds = [14929 = [48395	6.05 pounds	+ 90693.48 + 8480.43 po	pounds] unds]
Total Stream Bank Sediment Low Density Developed Medium Density Developed	Load per Land Use, po 239,989.53 56,875.62	unds = [14929 = [48395	6.05 pounds	+ 90693.48 + 8480.43 po	pounds] unds]
Total Stream Bank Sediment Low Density Developed Medium Density Developed	Load per Land Use, po 239,989.53 56,875.62 32,301.14	unds = [14929 = [48395 = [29238	6.05 pounds .19 pounds + .76 pounds +	+ 90693.48 + 8480.43 po + 3062.38 po	pounds] unds] unds]
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed	Load per Land Use, po 239,989.53 56,875.62 32,301.14	unds = [14929 = [48395 = [29238	6.05 pounds .19 pounds + .76 pounds +	+ 90693.48 + 8480.43 po + 3062.38 po	pounds] unds] unds]
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed Step 13. Calculate the Stream E	Load per Land Use, po 239,989.53 56,875.62 32,301.14	unds = [14929 = [48395 = [29238	6.05 pounds .19 pounds + .76 pounds +	+ 90693.48 + 8480.43 po + 3062.38 po	pounds] unds] unds]
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed Step 13. Calculate the Stream E dividing the load from Step 12 b Stream Bank Sediment Land Use Loading Rate	Load per Land Use, po 239,989.53 56,875.62 32,301.14 ank Loading Rate for ey the acres in Step 4:	unds = [14929 = [48395 = [29238 ach "Develop Land Use area, acres	6.05 pounds .19 pounds + .76 pounds + ped" Land U	+ 90693.48 + 8480.43 po + 3062.38 po Jse, in pou	pounds] unds] unds] nds per acre, by
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed Step 13. Calculate the Stream E Stream Bank Sediment Land Use Loading Rate Low Density Developed	Load per Land Use, po 239,989.53 56,875.62 32,301.14 lank Loading Rate for ey the acres in Step 4:	unds = [14929 = [48395 = [29238 ach "Develop Land Use area, acres 950.62	6.05 pounds .19 pounds + .76 pounds + ped" Land U	+ 90693.48 8 8480.43 po - 3062.38 po Jse, in pou n Bank ment = [239989.5	pounds] unds] unds] nds per acre, by
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed Step 13. Calculate the Stream E Stividing the load from Step 12 b Stream Bank Sediment Land Use Loading Rate Low Density Developed Medium Density Developed Medium Density Developed	Load per Land Use, po 239,989.53 56,875.62 32,301.14 Tank Loading Rate for early the acres in Step 4: pounds 239,989.53 56,875.62	unds = [14929 = [48395 = [29238 ach "Develop Land Use area, acres 950.62 88.89	6.05 pounds .19 pounds + .76 pounds + ped" Land U Strear Sedi 252.46 639.85	+ 90693.48 + 8480.43 po - 3062.38 po Jse, in pou n Bank ment = [239389.5 = [56875.62	pounds] unds] unds] unds] nds per acre, by 3lbs/950.62 acres] lbs/88.93 acres]
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed Step 13. Calculate the Stream E Stream Bank Sediment Land Use Loading Rate Low Density Developed	Load per Land Use, po 239,989.53 56,875.62 32,301.14 lank Loading Rate for ey the acres in Step 4:	unds = [14929 = [48395 = [29238 ach "Develop Land Use area, acres 950.62 88.89	6.05 pounds .19 pounds + .76 pounds + ped" Land U Strear Sedi 252.46 639.85	+ 90693.48 + 8480.43 po - 3062.38 po Jse, in pou n Bank ment = [239389.5 = [56875.62	pounds] unds] unds] nds per acre, by
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed Step 13. Calculate the Stream E Stream Bank Sediment Land Use Loading Rate Low Density Developed Medium Density Developed High Density Developed	Load per Land Use, po 239,989.53 56,875.62 32,301.14 ank Loading Rate for ey the acres in Step 4: pounds 239,989.53 56,875.62 32,301.14	unds = [14929 = [48395 = [29238 ach "Develop Land Use area, acres 950.62 88.89 32.10	6.05 pounds .19 pounds + .76 pounds + ped" Land U Strear Sedi 252.46 639.85 1,006.30	+ 90693.48 8480.43 po - 3062.38 po Jse, in pou Ise, in pou Bank ment = [239398.5] = [56875.62 = [32301.14]	pounds] unds] unds] unds] nds per acre, by 3 lbs /950.62 acres] lbs /88.63 acres] bs /32.1 acres]
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed Step 13. Calculate the Stream E Stividing the load from Step 12 b Stream Bank Sediment Land Use Loading Rate Low Density Developed Medium Density Developed Medium Density Developed	Load per Land Use, po 239,989.53 56,875.62 32,301.14 ank Loading Rate for ey the acres in Step 4: pounds 239,989.53 56,875.62 32,301.14	unds = [14929 = [48395 = [29238 ach "Develop Land Use area, acres 950.62 88.89 32.10	6.05 pounds .19 pounds + .76 pounds + ped" Land U Strear Sedi 252.46 639.85 1,006.30	+ 90693.48 8480.43 po - 3062.38 po Jse, in pou Ise, in pou Bank ment = [239398.5] = [56875.62 = [32301.14]	pounds] unds] unds] unds] nds per acre, by 3 lbs /950.62 acres] lbs /88.63 acres] bs /32.1 acres]
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed Step 13. Calculate the Stream E Stream Bank Sediment Land Use Loading Rate Low Density Developed Medium Density Developed High Density Developed	Load per Land Use, po 239,989.53 56,875.62 32,301.14 ank Loading Rate for ey the acres in Step 4: pounds 239,989.53 56,875.62 32,301.14	unds = [14929 = [48395 = [29238 ach "Develop Land Use area, acres 950.62 88.89 32.10	6.05 pounds .19 pounds + .76 pounds + ped" Land U Strear Sedi 252.46 639.85 1,006.30	+ 90693.48 8480.43 po - 3062.38 po Jse, in pou Ise, in pou Bank ment = [239398.5] = [56875.62 = [32301.14]	pounds] unds] unds] unds] nds per acre, by 3 lbs /950.62 acres] lbs /88.63 acres] bs /32.1 acres]
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed Step 13. Calculate the Stream E Stream Bank Sediment Land Use Loading Rate Low Density Developed Medium Density Developed High Density Developed	Load per Land Use, po 239,989.53 56,875.62 32,301.14 ank Loading Rate for ey the acres in Step 4: pounds 239,989.53 56,875.62 32,301.14	unds = [14929 = [48395 = [29238 ach "Develop Land Use area, acres 950.62 88.89 32.10	6.05 pounds .19 pounds + .76 pounds + ped" Land U Strear Sedi 252.46 639.85 1,006.30	+ 90693,48 - 8480,43 po - 3062,38 po Jse, in pou - Bank ment = [239989,5] = [56875,62] = [32301,14]	pounds] unds] unds] unds] nds per acre, by 3 lbs /950.62 acres] lbs /88.63 acres] bs /32.1 acres]
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed Step 13. Calculate the Stream E Stream Bank Sediment Land Use Loading Rate Low Density Developed Medium Density Developed Medium Density Developed High Density Developed Step 14. Calculate the Stream E	Load per Land Use, po 239,989.53 56,675.62 32,301.14 lank Loading Rate for ex the acres in Step 4: pounds 239,989.53 56,875.62 32,301.14 lank Loading Rate for "U	unds = [14929 = [48395 = [29238 ach "Develop area, acres 950.62 88.89 32.10	6.05 pounds - 1.19 pounds - 1.76 pounds - 1.	+ 90693.48 8 8480.43 po 3062.38 p	pounds] unds] unds] unds] nds per acre, by 3 lbs /950.62 acres] lbs /88.63 acres] bs /32.1 acres]
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed High Density Developed Stream Bank Sediment Low Density Developed Low Density Developed Medium Density Developed High Density Developed Total Stream Bank Load Load assigned to Developed Lar Remaining Load assigned to	Load per Land Use, po 239,989.53 56,875.62 32,301.14 ank Loading Rate for every the acres in Step 4: pounds 239,989.53 56,875.62 32,301.14 ank Loading Rate for "Use of the control of the	unds = [14929 = [48395 = [29238 ach "Develop Land Use area, acres 950.62 88.89 32.10 Indeveloped	6.05 pounds - 1.76 pounds - 1.	+ 90693.48 8 8480.43 po 3062.38 p	pounds] unds] unds] unds per acre, by 3lbs /950.62 acres] bs /88.83 acres] bs /32.1 acres]
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed High Density Developed Stream Bank Sediment Land Use Loading Rate Low Density Developed Medium Density Developed High Density Developed Step 14. Calculate the Stream E Total Stream Bank Load Load assigned to Developed Lar Remaining Load assigned to Undeveloped Lands	Load per Land Use, po 239,989.53 56,875.62 32,301.14 ank Loading Rate for every the acres in Step 4: pounds 239,989.53 56,875.62 32,301.14 ank Loading Rate for "Use of the control of the	unds = [14929 = [48395 = [29238 ach "Develop Land Use area, acres 950.62 88.89 32.10 Indeveloped	6.05 pounds - 1.76 pounds - 1.	+ 90693.48 8 8480.43 po 3062.38 p	pounds] unds] unds] unds] nds per acre, by 3 lbs /950.62 acres] lbs /88.63 acres] bs /32.1 acres]
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed High Density Developed Stream Bank Sediment Low Density Developed Low Density Developed Medium Density Developed High Density Developed Total Stream Bank Load Load assigned to Developed Lar Remaining Load assigned to	Load per Land Use, po 239,989.53 56,875.62 32,301.14 lank Loading Rate for expenses in Step 4: pounds 239,989.53 56,875.62 32,301.14 ank Loading Rate for "Use and Loading	unds = [14929 = [48395 = [29238 ach "Develop Land Use area, acres 950.62 88.89 32.10 Indeveloped	6.05 pounds 1.19 pounds 1.76 pounds 2.76 pounds 4 Stream Sedia 252.46 639.85 1,006.30 I Land" (all [from Step [from Step	+ 90693.48 8 8480.43 po 3062.38 p	pounds] unds] unds] unds per acre, by 3lbs /950.62 acres] bs /88.83 acres] bs /32.1 acres]
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed High Density Developed Stream Bank Sediment Land Use Loading Rate Low Density Developed Medium Density Developed High Density Developed Step 14. Calculate the Stream E Total Stream Bank Load Load assigned to Developed Lar Remaining Load assigned to Undeveloped Lands	Load per Land Use, po 239,989.53 56,875.62 32,301.14 Lank Loading Rate for expenses in Step 4: pounds 239,989.53 56,875.62 32,301.14 Lank Loading Rate for "Use and Loading	unds = [14929 = [48395 = [29238 ach "Develop Land Use area, acres 950.62 88.89 32.10 Indeveloped pounds = pounds = pounds = pounds =	6.05 pounds - 19 pounds - 176 p	+ 90693.48 8 8480.43 po 3062.38 p	pounds] unds] unds] unds] unds per acre, by 3 lbs / 950.62 acres] bs / 88 89 acres] bs / 32.1 acres] use categories):
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed High Density Developed Step 13. Calculate the Stream E Stream Bank Sediment Land Use Loading Rate Low Density Developed Medium Density Developed High Density Developed High Density Developed Total Stream Bank Load Load assigned to Developed Land Remaining Load assigned to Undeveloped Lands Acres of Undeveloped Lands Stream Bank Sediment Loading rate for	Load per Land Use, po 239,989.53 56,875.62 32,301.14 Lank Loading Rate for expenses in Step 4: pounds 239,989.53 56,875.62 32,301.14 Lank Loading Rate for "Use and Loading	unds = [14929	6.05 pounds - 19 pounds - 176 p	+ 90693.48 8 8480.43 po 3062.38 p	pounds] unds] unds] unds] unds unds
Total Stream Bank Sediment Low Density Developed Medium Density Developed High Density Developed High Density Developed Step 13. Calculate the Stream E Stream Bank Sediment Land Use Loading Rate Low Density Developed Medium Density Developed High Density Developed High Density Developed Total Stream Bank Load Load assigned to Developed Land Remaining Load assigned to Undeveloped Lands Acres of Undeveloped Lands Stream Bank Sediment Loading rate for	Load per Land Use, po 239,989.53 56,875.62 32,301.14 Lank Loading Rate for expenses of the second s	unds	6.05 pounds 1.19 pounds 1.76 pounds 2.76 pounds 2.76 pounds 3.76 pounds 3.76 pounds 3.77 pounds 4.77 pounds 5.77 pounds 5.77 pounds 6.05 p	+ 90693.48 8 8480.43 po 3062.38 p	pounds] unds] unds] unds per acre, by 3 bs / 950.62 acres] bs / 98.83 acres] bs / 92.1 acres] use categories): 3.28 pounds] and" from Step 1]

The Valley Creek East Branch Octoraro Watershed and the Valley Creek East Branch Planning Area:

MMW Model Output – Valley Creek East Branch Octoraro

Look-Up Table for Watershed: Va	r MMW Land I	Use Loading F	lates							5							
Year 20	20																
Section 3: M	MW Model Or	utput															
This page is where the	output data from	a mult-year MMW	model run is to be	copied and													
pasted into this workbo	ook and is the sou	rce data for calcu	lations throughou	t the workbook.													
1. Source File Name - U	Jser-specified file	name for the outpo	ut file from MMW ((optional).													
2. Watershed Name - U are being calculated (o	ptional).																
 Source file - The and output file to the table b 	nual pollutant data selow	, in English Units, i	s copied directly t	from the MMVV													
4. Year - the year mod																	
Data Entered By:	User Specified																
Source File Name:	2020-06-09																
Watershed: 1	Valley Creek-Eas	t Branch Octoraro	Creek														
Year:	2020																
	M	odel My Watersl	hed OUTPUT DA	TA					STREAM LENGTHS*	KM*	FEET						
Source	Area	Sediment	Tot N	Tot P	1				Total Length	10.57	34678.5	Sed lb/ft 5.1	TN Ib/ft 0.00	TP lb/ft 0.00			
Units	acres	fons/year 34.43	/bs/year	10 s/year 127.01					Ag Streams	10.57	14140.4						
Hay/Past Cropland	607.41 955.56	796.32	319.28 5,627.38	1897.62					Non-Ag Streams	6,26	20538.1						
Forest	372.84	0.58	16.10	198					*These values can b	e obtained from the	"Stream" tab in the	"Analyze" section of	a Model My Waters	hed run			
Wetland Disturbed	56.79	0.11	10,00	130					FARM ANIMAL DATA								
Turfgrass Open_Land	9.00	0.26	8.60	0.66					TYPE*	NUMBER*	AVG WT KG	TOTAL KG	TOTAL AEU	KG N/AEU/DAY	O PIAEIUDAY	TOTAL MOAY	TOTAL DELAY
Bare_Rock	0,0	v.av							Chickens, Broilers	1368	0.9	1231.2	1.2312	1.07	0.3	1.317384	0.36936
Sandy_Areas Unpaved_Road	*			1					Chickens, Layers Cows, Beef	0	1.8 360	0 3240	3.24	0.85	0.29	1.0044	0.2916
Ld_Mixed	407.41	0.45	19.95	2.21					Cows, Dairy	92	640	58880	58.88	0.44	0.07	25.9072	4.1216
Md_Mixed Hd_Mixed	22.22 9.88	0.73 0.32	31.53 13.89	3.38 1.32					Horses Pigs/Hogs/Swine	45 138	500 61	22500 8418	22.5 8.418	0.28	0.06	6.3 4.04064	1.35 1.2627
Ld_Residential		11		97					Sheep	19	50	950	0.95	0.37	0.1	0.3515	0.095
Md_Residential Md_Residential									Turkeys	262	6.0	1781.6	1,7816	0.59	0.2	1.051144	0.35632
Farm Animals			2,496.94	57176										Daily Totals		39.97	7.05
Tile Drainage Stream Bank		87.90	110.25	46.21										Poutry Totals Livestock Totals		2.37 37.60	0.73 7.12
Groundwater Point Source			49,315.05	403.52										Poutry Fraction Livestock Fraction		0.06299 0.94075	0.10191
Septic Systems		- 1	73.65						.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,							0.210/3	0.90752
Totals	2,441.98	921.07	58,050.59	3,056.79					* These values can be	obtained from the	"Animal" tab in the	"Analyze" section of a	Model My Watersh	ed run			
MMW NLCD Land Co						Ballistan	Lord Com	rains to	Metric to Standard I	helte (fire - tar	all our file!						
	ver Categories		from Analyze				Load Conve	rsion from									
TYPE Open Water		AREA (km²2)		AREA (acres)		SOURCE Hay/Pastu			SEDMENT (kg) 31,232.70	TOTAL N (kg) 144.80	TOTAL P (kg)	SEDMENT (tons) 34.43405175	TOTAL N (lbs) 319.284	TOTAL P (lbs) 127,008			
Perennial Ice/Snow		o o				Cropland			722,282.60	2.552.10	860.60	796,3165665	5627,3805	1897.623			
Developed, Open Spac Developed, Low Intens	e e	1.33		328.40 79.01		Wooded A Wetlands	reas		523.50 95.90	7.30 8.20	0.90	0.57715875	16.0965				
Developed, Medium Inte	ensity	0.32 0.09		22.22		Open Land			240.10	3.90	0.30	0.26471025	8,5995				
Developed, High Intensi Barren Land (Rock/Sar		0.04		9.88		Barren Are Low-Dens			0.00 388.50	9.00	0.00	0.42611625	19.845	2.205			
Deciduous Forest	10.00	1.32		325.93		Medium De	ensity Mixed		862.00	14.30	1.50	0.729855	31.5315	3 3075			
Evergreen Forest Mixed Forest		0.01		2.47		High-Dens Other Upla	nd Areas		288.70 1,587.90	6.30 36.90	0.60	0.31829175 1.75065975	13.8915 81.3645	1.323 8.82			
Shrub/Scrub Grassland/Herbaceous		0.18		9.88		Farm Anim Stream Ba	als		0.00 79,726.00	1,132,40	259.30 21.00	0 87 897915	2498.942				
Pasture/Hay	7):	2.46		607.41		Subsurfac	e Flow		0.00	22,365.10	183.00	0.011313	49315.0455				
Cultivated Crops Woody Wetlands		3.87 0.23		955.56 56.79		Point Sour Septic Sys			0.00	33.40	0.00		73.647	0			
Emergent Herbaceous	Wetlands	0		-					-								
Totals		9.89		2,441.98		Totals			837,025.90	26,363.70	1,390.30	922.82	58,131.96	3,055.61			
											2,4			7.000			
Note: The informatio	on below is only	used for allocat	tion of "urban" I	loads within a lar	rger water	rshed bour	dary										
MMW NLCD Land Co	ver Categories	for Urban Area	from second s	maller "Analyze	cay file)												
			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Car may												
TVP€ Open Water		AREA (km²2)		AREA (acres)			TN (b/yr)	TP (Ib/yr)	Sediment (lb/yr)								
Perennial ice/Snew	e-										Married Married Co.						
Developed, Open Spac Developed, Low Intens	ity						0.00		0.00			below only pertain to th		00)			
Developed, Medium Inte	ensity						0.00	0.00	0.00		STREAM LENGTH	KM*	FEET				
Developed, High Intensi Barren Land (Rock/Sar	nd/Clay)			- 3			0.00	0.00	0.00		Total Length	0	0.0				
Deciduous Forest Evergreen Forest				-			0.00	0.00	0.00		Ag Streams	0	0.0				
Moved Forest				- 3			0.00	0.00	0.00		Non-Ag Streams	9					
Shrub/Scrub Grassland/Herbaceous		1					0.00	0.00	0.00		"These values ca	in be obtained from the	"Stream" tab in the	"Analyze" section (of a Model My Y	Watershed run	
Pasture/Hay				- 2			0.00	0.00	0.00								
Cultivated Crops Woody Wetlands							0.00		0.00								
Emergent Herbaceous	Wetlands						0.00	0.00	0.00								
Totals																	
TYPE		AREA (m*2)*		AREA (acres)													
Open Water Perennial Ice/Snow		0		0.00													
Developed, Open Spac		41273.40		10.19	Ŕ.		1.43		1,398.35								
Developed, Low Intens Developed, Medium Inte		19739.48 0		4.87			0.66	0.24	668.77 0.00								
Developed, High Intens	ty	0		0.00			0.00	0.00	0.00		*Only use this input	t block if land cover dis	stribution is given in	square meters (m*)	1.		
Barren Land (Rock/Sar Deciduous Forest	(urclay)	0		0.00			0.00	0.00	0.00		THIS OCCUPS WHEN	AOI is less than about	z square klometer.				
Evergreen Forest		0		0.00			0.00	0.00	0.00								
Mixed Forest Shrub/Scrub		10706.99		2.66			0.00	0.05	151.77								
Grassland/Herbaceous	E.	0		0.00			0.00	0.00	0.00								
Pasture/Hay Cultivated Crops		9869.74 8075.24		1,99			5.20 14.99	4.73	3,430.88								
Woody Wetlands	Wellands	0		0.00			0.00	0.00	0.00								
Emergent Herbaceous																	
Totats		89724.91		22.15			22.55	6.97	6,057.66								
TOTAL LOADS							22.55	6.97	6,057.66								

Land Use Loading Rates – Valley Creek East Branch Octoraro

ook-Up Table for N																		
atershed: Valley Creek- lar: 2020	-bast Branch Oc	toraro Creek																
urce File: User Specifie	4																	
urbe rise, user aprecia																		
ection 2: Landcove	er Loading R	ates Look-Up	Table															
												Name of the Contract Contract						
T	OTAL WATE	RSHED ANNU	AL LOADS								ANNUAL LAND	USE LOADING RA	ES (Ibs	acre)				
						SEDIMENT		3.1			NITROGEN	8 3			PHOS	PHORUS	9 3	
Source	Area	Sediment	Total Nitrogen	Total Phosphorus	From Land Use	From Stream Banks ①	TOTAL SEDIMENT LOADING RATE		From Land Use	From Stream Banks ①	From Farm Animals	TOTAL NITROGEN LOADING RATE		From Land Use	From Stream Banks	From Farm Animals ③	TOTAL PHOSPHORUS	8
Liteita	Acres	Tons	Pounds	Pounds :	ba/acre	(bs/scre	balacre		balacre	bs/acre	bs/acre	balacre		bs/scre	be/acre	lbs/scre	lbs/scre	
	eros ec -					TSS_LoadNate:	TSS_LoadRate_lbF	Coi		TN LoadRa		TN LoadRate IbPo-	Colum -		TP_LoudRateBi-		TP LoadRete JbPs	<
HayiPast	607.41	34.43	319.28	127.01	113.38	53.99	167.37		0.53	0.03	1.60	2.16		0.21	0.01	0.37	0.59	Hay/Past
Cropland	955.58	796.32	5,627.38	1,897.62	1,666.71	53.99	1,720.70		5.89	0.03	1.60	7.62		1.99	0.01	0.37	2.37	Cropland
Forest	272.04	0.50	16.10		3.10	53.99	57.09		0.04	0.00	n/a	0.07		0.01	0.01	5/8	0.02	Forest
Wetland	56.79	0.11	18.08	1,10	3.72	53.99	57,72		0.32	0.03	n/a	0.35		0.02	0.01	0/8	0.03	Wetland
Disturbed	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	nia	0.00		0.00	0.00	n/a	0.00	Disturbed
Turfgrass	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	n/a	0.00		0.00	0.00	n/s	0.00	Turfgrass
Open_Land	9.85	0.26	8.60		53.60	53.99	107.60		0.87	0.03	n/a	0.90		0.07	0.01	N/A	0.08	Open_Land
Bare_Rock	0.00	0.00	0.00		0.00	0.00	0.00		0.00	0.00	n/a	0.00		0.00	0.00	n/a	0.00	Bare_Rock
Sandy_Areas	0.00	0.00	0.00		0.00	0.00	0.00		0.00	0.00	n/a	0.00		0.00	0.00	1/9	0.00	Sandy_Area
Unpaved_Road	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	n/a	0.00		0.00	0.00	n/a	0.00	Unpaved_Ro
Ld_Mixed	407.41	0.43	19.85		2.09	135.12	137.21		0.05	0.09	n/a	0.14		0.01	0.04	nla	0.05	Ld_lilixed
Md_Mixed	22 22	0.73	31.53		65.69	335.24	400.93		1.42	0.16	n/a	1.58		0.15	0.09	nia	0.24	Md_Mixed
Hd_Mixed	9.88	0.32	13.89		64.45	524.54	589.00		1.41	0.22	n/a	1.63		0.13	0.14	0/8	0.27	Hd_Mixed
Ld_Residential	0.00	0.00	0.00	0.00	0.00	0.00	0.00	_	0.00	0.00	1/0	0.00		0.00	0.00	1/4	0.00	Ld_Residents
Md_Residential	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	n/a	0.00		0.00	0.00	nia	0.00	Md_Residents
Hd_Residential	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	n/a	0.00		0.00	0.00	nla	0.00	Hd_Residenti
_			Total	Yotal														
Source		Sediment	Nitrogen	Phosphorus	Car SHELDS		Secretarian Secretarian		to Mileto			hadandar Bernera		Ann SHE Life money charles			Record according Section assessed	
(Jointe		Tone	Pounds	Pounds														
Ferm Animals		0.00	2,499.94	571.76														
Tile Drainage		0.00	0.00	0.00														
Stream Bank (1)		87.90	110.25	46.51														
Groundwater		0.00	49,315.05	403.52														
Point Source		0.00	0.00	0.00														
Septic Systems		0.00	73.65	0.00														
Notes:																		
3 - Separate works concurrence from Mr			pportion the load	ding rates from the S	Stream Bank source los	ds (for sedment, t	total nitrogen, and total ph	osphoru	ra) from the MM	W Output file into	each land use ca	fegory, using methodolog	y provided	by Dr. Barry Evana	Pennsylvania State Ur	iversity), the author	of MapShed, and with	
3 - A separate work	ksheet is used to author of MapSi	calculate and a	portion the "Tot	ai Nitrogen" and "Tot Mr. Bill Brown (PADE	tal Phosphorus" loading	rates from the Far the Farm Animals	rm Animals source load fi source loads do not apply	on the I	IMW Output file	into the two agr	cultural land uses s in those cells ar	. Hay/Pasture and Cropia e "n/a".	Desed Dr	on area weighting. T	he methodology was p	rovided by Dr. Barry	Evans (Pennsylvania	
Groundwater		0.0	49.315.0		24 CONT. (1996) 1993			10000	ALCO CONTRACTOR	20/2/06/20/20/20/20		V (000 t)						
Point Source		0.0	0.0															
Septic Systems		0.0	73.6															

Streambank Loading Rates (Sediment) – Valley Creek East Branch Octoraro

ection 5: Stream Bank Se					
is worksheet calculates and ap	portions the loading rates fro	m the Strea	m Bank source	load for sec	diment from the MMW
4 The Ober 12 15 15					
ep 1. The Stream Bank Sedi esented below.	iment Load, in tons, and i	and areas	for each land	duse categ	ory, in acres, are
	0-41				
Stream Bank	Sediment 87.90	tons	Note: The sed	iment load is ta	ken from Cell D38 in the
			MMV Output		
Source Hav/Pasture	Area (acres)	6			
Cropland	607.41 955.56				
Early States	372.84				
Wetland Disturbed Turforass	56.79				
Disturbed Turfgrass	0.00				
Open_Land	9.88				
Bare_Rock	0.00				
Sandy_Areas	0.00				
Sandy_Areas Unpaved_Road Ld_Mixed	0.00 407.41				
	22.22	7			
Hd_Mixed	9.88				
Ld_Residential	0.00				
Md_Residential Hd_Residential	0.00				
Total Acres, Watershed	2,441.98				
tep 2. Convert the Stream Ba	ink Sediment Load to pou	nds by mu	Itiplying tons	by 2,000 pe	ounds per ton.
3		150	384 550	15 T	324
	Sediment Load, pound	S			
Stream Bank	175,800.00		= [87.9 tons	x 2,000 pou	nds per ton]
		7	(80)	7/ 10/10	20 T S. 20 T S S S S
tep 3. Sum the total acres in	the Valley Creek-Fact Bro	nch Octors	arn Creek wa	tershed	
top 5. Sum the total acres III	and valley Greek-East Bra	man oddia	no oreer wa	coneu.	
Total Acres in watershed	2,441.98	acres			
ensity Mixed (Ld_Mixed), Me ensity Residential (Ld_Resi esidential (Hd_Residential).	dential), Medium Density I	Mixed), Hig		xed (Hd_Mi	xed); and Low
ensity Residential (Ld_Resi	dential), Medium Density I	Mixed), Hig Residentia	h Density Mi	xed (Hd_Mi	xed); and Low
ensity Residential (Ld_Resi esidential (Hd_Residential). Area of Developed Lands Low Density Developed	dential), Medium Density	Mixed), Hig Residentia percent 93%	h Density Mi I (Md_Resid	xed (Hd_Mi ential), and + Ld_Reside	xed); and Low High Density Intial]
ensity Residential (Ld_Resi esidential (Hd_Residential). Area of Developed Lands Low Density Developed Medium Density Developed	acres 407.41 22.22	Mixed), Hig Residentia percent 93% 5%	h Density Mi I (Md_Resid	xed (Hd_Mi: ential), and + Ld_Reside + Md_Reside	xed); and Low High Density Intial]
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te	ep 10. Apportion Load Assign	ed to "Impervious" surfa	ices to each	"Developed	l' land use	category by
าน	Iltiplying the 'Percent of Total Imper	rvious Surfaces' (Step 8) I	oy 43950 pou	nds (calculate	ed in Step 9):
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Appendix D Proposed BMP Load Reduction Calculations



Stream BMPs - Sediment and Nutrient Reduction C	Calculation	s*									
Site	BMP ID	Length (ft)	Sediment Removal (lbs)								
Lincoln Highway Stream Restoration	1	1,400	161,000								
Spring Garden Road Stream Restoration	2	1300	149,500.00								
Umbletown Road Stream Restoration	3	11000	1,265,000.00								
Houston Run Stream Restoration	4	4,800	552,000.00								
*Sediment Load Reductions Calculated at 115 lbs./lf Based on PADEP's PRP Instructions											

Appendix E
Proposed BMP Justifications



Salisbury Township, Lancaster County MS4 PRP



BMP Justification: Stream / Floodplain Restoration Opportunities Outside of the Urban Area
June 3, 2020

BMP Justification Summary:

In the April 23, 2020 conference call with staff from DEP's Central Office, South Central Regional Office, and Southeast Regional Office, LandStudies discussed three stream reaches located less than 1 mile downstream of Salisbury Township's Urban Area that are potential stream / floodplain restoration opportunities to be incorporated into the Township's PRP (see attached map and details). As was discussed during the conference call, these three restoration opportunities would be eligible towards meeting the Township's PRP reduction goals under FAQ 69 from DEP's MS4 NPDES Permits Frequently Asked Questions from October 21, 2019.

Since Salisbury Township's three potential stream restoration reaches are within the Chesapeake Bay watershed, they would fall under the Bay's TMDL requirements. Under the Bay TMDL, there is no "baseline" requirement as referenced in FAQ 69b. Therefore, it is assumed that a restoration project along any of these three reaches would be eligible for full pollutant load reduction credit as long as the project qualifies as a stream restoration project per DEP guidance.

As was also discussed in the April 23 conference call, DEP will need verification that the agricultural lands on which these potential stream restoration projects are proposed are working towards or in compliance with agricultural conservation plans. In working with agricultural consultants, Salisbury Township has verified that the farms located along these three reaches have conservation plans or are in the process of developing conservation plans. Once the Township has selected a specific project reach for implementation, site specific information on the conservation plan(s) for that location will be provided to DEP.