NPDES Stormwater Discharges from MS4

Total Maximum Daily Load (TMDL) & Pollutant Reduction Plan for the Neshaminy Creek

September 11, 2017

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MS4 Pollutant Reduction Plan
for
New Britain Township
Bucks County, Pennsylvania

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A. Executive Summary

Background

- Section 303(d) of the Clean Water Act (CWA) and its implementing regulations require a TMDL to be developed for those waterbodies identified as impaired by the state.
- Based on biological assessments for the Neshaminy Creek, the creek and its sub-watersheds were listed as showing aquatic life use impairments due to sediment and nutrients ostensibly as a result of growth and land development within the watershed.
- The Neshaminy Creek Watershed TMDL was prepared by DEP and approved by EPA on 12/9/03.
- On 4/5/08, the Nutrient (including organic enrichment, DO/BOD) portions of the TMDL were withdrawn by DEP, with EPA approval.
- The Township submitted a TMDL Strategy in 2012 noting the intent to reduce sediment by 50% via increased street sweeping. Under the new regulations, street sweeping may not be the only measure in place.
- The Township is required to apply for an Individual Permit for 2018-2023 which is required to include a combined TMDL/PRP Plan.

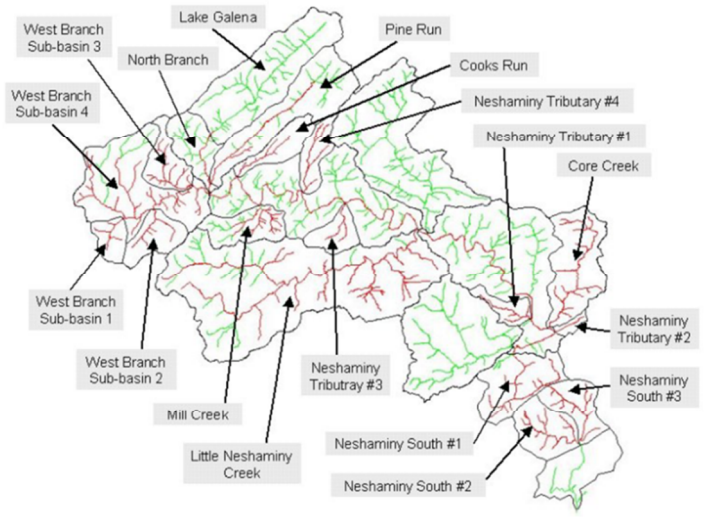

Figure A-1. Neshaminy Creek Sub-Watersheds Analyzed in the TMDL

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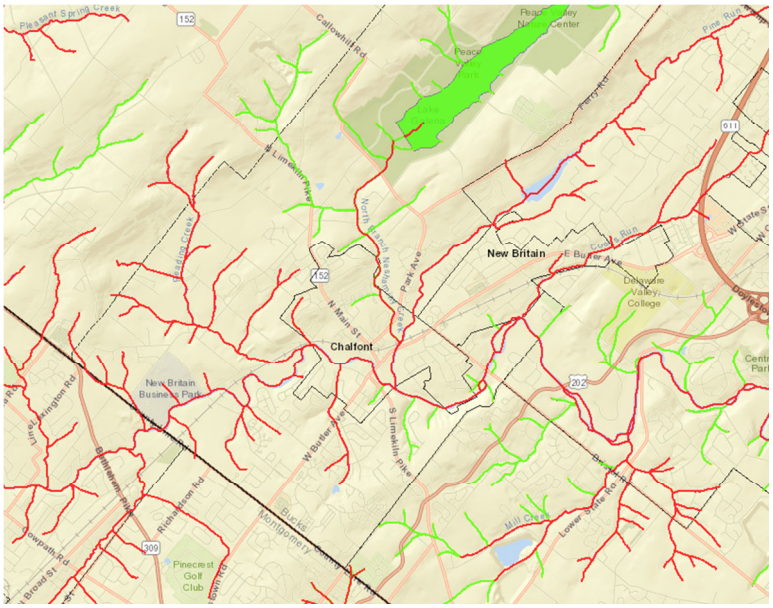


Figure A-2: eMap PA Listing of Impaired Streams (Green = Attaining, Red = Impaired)

Therefore, New Britain Township, Bucks County, is submitting this TMDL and Pollution Reduction Plan (PRP) in accordance with the requirements of *Individual Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems* (MS4); specifically, in accordance with the *MS4 Requirements Table (Municipal) Anticipated Obligations for Subsequent NPDES Permit Term*. New Britain Township must create a TMDL and PRP due to discharges from their MS4 to Impaired Downstream Waters, which are listed as impaired as follows and in Appendix A:

Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)	Other Cause(s) of Impairment
Reading Creek	Appendix E- Excessive Algal Growth (5)	
Unnamed Tributaries to West Branch Neshaminy Creek		Flow Alterations (4c)
Pine Run	Appendix E- Excessive Algal Growth (5)	
West Branch Neshaminy Creek	Appendix E- Excessive Algal Growth, Nutrients, Organic Enrichment/ Low D.O. (5)	Water/Flow Variability (4c)
Warrington Lake	Appendix E-Nutrients (5)	Exotic Species (5)
Little Neshaminy Creek	Appendix B-Pathogens (5), Appendix C-PCB (5), Appendix E-Nutrients, Organic Enrichment/ Low D.O. (5)	Water/Flow Variability (4c)
Mill Creek	Appendix E-Nutrients (5)	
Neshaminy Creek	Appendix B-Pathogens (5), Appendix E-Nutrients, Organic Enrichment/ Low D.O. (5)	
Neshaminy Creek TMDL	TMDL Plan-Siltation, Suspended Solids (4a)	
North Branch Neshaminy Creek		Water/Flow Variability (4c)
Cooks Run	Appendix E-Nutrients (5)	

Last Revised 2017-06-26

The Total Maximum Daily Load (TMDL) Assessment for the Neshaminy Creek Watershed last revised December 2003 was referenced for preparation of this report. The intent of this MS4 TMDL/PRP is to establish the existing loading of sediment and pollutants discharged from the MS4 to Impaired Downstream Waters, and to present a plan to reduce these loadings. Since all tributaries within the Urbanized Area within the Township ultimately drain to the Neshaminy Creek, a township-wide, presumptive approach was taken to assume a reduction in TP loading in conjunction with the proposed sediment load reduction. This Plan is organized to follow the "Required PRP Elements" presented in the PRP Instructions included as part of the *PAG-13 MS4 Individual Permit* instruction packages. This Plan will be evaluated and updated by New Britain Township on an as-needed basis, based on 1) its effectiveness in reducing pollutant loads in discharges from the regulated small MS4, 2) the reasonableness of achieving the reductions, and 3) the cost/benefit of the BMP"(s) under consideration. If this occurs, New Britain Township will work with the Department of Environmental Protection (DEP) for review and approval of any revisions or updates.

Each MS4 PRP must include the following Required PRP Elements:

Section A: Executive Summary
Section B: Public Participation
Section C: Map
Section D: Pollutants of Concern
Section E: Determine Existing Loading for Pollutants of Concern
Section F: Select BMPs to Achieve the Minimum Required Reductions in Pollutant Loading
Section G: Identify Funding Mechanisms
Section H: Identify Responsible Parties for Operation and Maintenance (O&M) of BMPs
Section I: General Information

Because the entire urbanized area is within the Neshaminy Creek Watershed, one TMDL/PRP Plan can be submitted to DEP with the assumption that installing BMP's to one sub-basin would reduce sediment loading to the downstream areas. New modeling efforts allow MS4s to recalculate the existing sediment loads. Using Mapshed software, and as described in further detail in Sections E and F, the following tables denote the required and proposed load reductions for the Township:

Table A-1

New Britain Township's Planning Areas Requirement Summary	
NBT Adjusted Baseline Loading	1,795,141 lbs/yr
10% Reduction Required	179,514 lbs/yr

Table A-2

Concept BMPs with Potential Sediment Load Reductions				
	Description	Location	Load Reduction (lbs/yr)	Lat/Long
BMP 1	New Basin	Cotton Park	33,195	40.277745, -75.234793
BMP 2	Riparian Buffer	Highlands Open Space	72,098	40.274531, -75.214102
BMP 3	Bioswale	Cornwall Dr	20,922	40.303372, -75.219114
BMP 4	Basin Retrofit	Walden/Crescent O.S.	32,159	40.298808, -75.235858
BMP 5	Riparian Buffer	Sycamore Cir O.S.	8,841	40.298272, -75.200088
BMP 6	Basin Retrofit	Circle Dr O.S.	26,786	40.274447, -75.226581
BMP 7	Bioswale	Upper State Road	19,787	40.299360, -75.205606
Total			**213,788**	

Additional measures will be installed at an average rate of 10% reduction per each subsequent 5-year term until the assigned Wasteload Allocation (WLA) is met.

B. Public Participation

As part of the preparation of this MS4 TMDL/PRP, public participation is required. The following public participation measures are required:

- A complete copy of the TMDL/PRP shall be available for public review.
- A public notice containing a statement describing the plan, where it may be reviewed by the public and the length of time provided for the receipt of comments shall be published by the MS4 in a newspaper of general circulation in the area.
- Written comments shall be accepted by the MS4 for a minimum of 30 days from the date of public notice.
- The MS4 shall accept comments from any interested member of the public at a public meeting or hearing, which may include a regularly scheduled meeting of the governing body of the municipality or municipal authority that is the permittee.
- Consider, and make a record of the consideration of, each timely comment received from the public during the public comment period concerning the plan, identifying any changes made to the plan in response to the comment.

A copy of the newspaper public notice, copies of any written comments if received from the public, and a copy of the MS4's record of consideration of all timely comments received in the public comment period are included with this TMDL/PRP. No comments were received and no revisions were required. All required documentation of public participation, as outlined above, is included as Appendix B.

- Date TMDL/PRP public notice was published in newspaper: July 19, 2017
- Date TMDL/PRP was made available for public review/comment: July 21, 2017
- End date for receipt of written comments (30 days from the date of public notice): August 21, 2017
- Date TMDL/PRP discussed public comment solicited at a Public Meeting: July 17 & August 21, 2017
- Adopted by the Board of Supervisors by Motion at a Public Meeting: September 11, 2017

C. Map

Mapping is an integral part of developing the TMDL/PRP and requires a level of detail suitable to determine the topography, MS4 drainage areas and loading for the listed impairments. The MS4 TMDL/PRP map shows the storm sewershed boundaries. The MS4 TMDL/PRP map also shows the proposed locations of BMPs that will be implemented in efforts to achieve the required pollutant load reductions. The storm sewershed boundaries shown on the New Britain Township MS4 TMDL/PRP Map constitute the combined storm sewershed of all MS4 outfalls within the MS4's jurisdiction that discharge to Neshaminy Creek Watershed.

The New Britain Township MS4 TMDL/PRP Map identifies the storm sewershed boundaries, as well as, the proposed locations of structural BMPs to be implemented to achieve required pollutant load reductions. The Township's MS4 TMDL/PRP Map is included in Appendix C.

The Township's MS4 TMDL/PRP Map shows parsed areas, which are areas within the storm sewershed that are excluded in the calculation of existing pollutant loading. Note that any BMPs located within parsed areas do not count toward achieving pollutant reduction objectives.

D. Pollutants of Concern

Identify the pollutants of concern. For all TMDL/PRPs, New Britain Township shall calculate existing loading of the pollutant(s) of concern in lbs/year; calculate the minimum reduction in loading in lbs/year; select BMP(s) to reduce loading; and demonstrate that the selected BMPs will achieve the minimum reductions.

For TMDL/PRPs developed for impaired water, the pollutants are based on the impairment listing as provided in the reference TMDL Plan and Appendix A of this document: the *MS4 Requirements Table (Municipal) Anticipated Obligations for Subsequent NPDES Permit Term (Appendix E)*. If the impairment is based on siltation only, a minimum of 10% sediment reduction is required. If the impairment is based on nutrients only or other surrogates for nutrients (e.g., "Excessive Algal Growth" and "Organic Enrichment/Low D.O."), a minimum 5% TP reduction is required. If the impairment is due to both siltation and nutrients, both sediment (10% reduction) and TP (5% reduction) must be addressed. A minimum 10% reduction is required for sediments within the listed impaired waters, as well as, a 5% reduction for Siltation within the Neshaminy Creek. The MS4 TMDL/PRP presents the minimum reduction in loading for each impairment as pounds per year (lbs/yr).

E. Determine Existing Loading for Pollutants of Concern

Existing loading must be calculated and reported as of the date of the development of this TMDL/PRP. Any methodology that calculates existing pollutant loading in terms of pounds per year, evaluates BNP-based pollutant reductions utilizing BMP effectiveness values contained in Document 3800-PM-BCW0100m (see Appendix D) or Chesapeake Bay Program expert panel reports, uses average annual precipitation conditions and is based on sound science may be considered acceptable. If a modeling tool will be used to estimate existing loading, the same tool should be used to estimate future pollutant loading for different BMP implementation scenarios to ensure consistency with input parameters between existing and future loading.

MS4s may not claim credit for street sweeping and/or other non-structural BMPs implemented in the past. If structural BMPs were implemented prior to development of this TMDL/PRP and continue to be operated and maintained, the MS4 may claim pollutant reduction "credit" in the

form of reduced existing loading. An MS4 may not reduce its obligation for achieving pollutant load reductions through previously installed BMPs; an MS4 may only use such BMPs to reduce its estimate of existing pollutant loading. In order to claim a credit, identify all such structural BMPs in Section F of the TMDL/PRP along with the following information:

- Detailed description of the BMP;
- Latitude and longitude coordinated for that BMP;
- Location of the BMP on the storm sewershed map;
- The permit number, if any, that authorized installation of the BMP;
- Calculations demonstrating the pollutant reduction achieved by the BMP;
- The date the BMP was installed and a statement that the BMP continues to serve the function(s) it was designed for; and
- The operation and maintenance (O&M) activities and O&M frequencies associated with the BMP,

The MS4 may optionally submit design drawings of the BMP for previously installed or future BMPs with the TMDL/PRP.

The date the existing loading was calculated is July 14, 2017. New Britain Township's permit obligation applies only to runoff collected by and discharged from the MS4. The storm sewershed land area that is collected by and discharges from the MS4 to various tributaries of the Neshaminy Creek has been delineated using PAMAP data known as Light Detection and Ranging (LiDAR) contours. LiDAR contours were also utilized in determining the areas for parsing. The following table summarizes the storm sewershed land areas. The sediment loads generated from these non-tributary areas are subtracted (parsed) from the total storm sewershed load to determine what is attributed to the MS4.

In modeling the existing load, the software program known as MapShed was utilized in the development of this MS4 TMDL/PRP to determine the source areas and the total load of list impairment based on the existing land uses. MapShed is a customized GIS interface that is used to create input data for an enhanced version of the GWLF watershed model originally developed at Cornell University. MapShed was improved by Dr. Barry Evans and his group at PSIEE using AVGWLF, a GIS-based watershed modeling tool that uses hydrology, land

cover, soils, topography, weather, pollutant discharges, and other critical environmental data to model sediment and nutrient transport within a watershed. Below is the information from MapShed displaying the source area and existing loading for the New Britain Township Planning Area portion of the MS4 that drains to the Neshaminy Creek:

FIGURE 1: MAPSHED AREAS

Table E-1: SUMMARY OF AREAS

New Britain Township's Planning Area	
Urban Area in NBT (ac)	5,120
Area Parsed (77%)(ac)	3,928
NBT Planning Area (ac.)	1,192

Table E-2: SUMMARY OF AREAS AND LOADING

Neshaminy Creek Township Planning Areas and Loading		
Parcel	Load (lbs)	Area (ac)*
0	36,584	12
2	34,579	38
3	35,230	35
4	523,978	366
5	567,163	325
6	55,411	34
7	1,575	2
8	23,912	29
9	17,429	21
10	39,081	14
11	26,390	31
12	100,459	56
13	47,518	24
14	247,126	205
Total Baseline Load	**1,756,435.0**	1,192
Required Sediment Reduction (10%)	**175,643.5**	***Areas from MapShed**

We note that based on the current Neshaminy Creek TMDL, last revised December 2003, the following sediment reduction percentages are required:

Table E-3: TMDL REDUCTION REQUIREMENTS

Sub-Basin	UA Acres	Adjusted Sediment Loading for NBT Based on Mapshed (lbs/yr)	% Reduction Required from TMDL	Sediment Loading Reduction Required for NBT (lbs/yr)
Part of Pine Run	360	384,534	52.5%	201,880
Part of West Branch #3	1,473	282,882	28.4%	80,338
Part of Mill Creek	130	18,092	52.0%	9,408
Total	**1,963***	**685,508**	**34.4%****	**235,815**

*Based on CAD
**Weighted Average

A weighted average was determined based on the areas of the sub-basins identified for New Britain Township within the TMDL. As shown in Tables E-1 and E-2, the Planning Area is 1,192 acres and the total existing load for sediment is 1,795,141 lbs/yr. The existing loading totals subject to the requirement was multiplied by 10% to determine the required sediment reduction. The Township is using a presumptive approach in which a 10% sediment reduction is assumed to also result in a 5% TP reduction. The proposed plan intends to meet the PRP requirement, however, the remaining 24.4% reduction required for the TMDL will be carried over until subsequent permit terms, until met.

F. Select BMPs to Achieve the Minimum Required Reductions in Pollutant Loading

New Britain Township has a requirement to reduce siltation and nutrients. Implementation of BMPs or land use changes must be proposed that will result in meeting the minimum required reduction in pollutant loading with the storm sewershed(s) identified by the MS4. These BMP(s) must be implemented within five (5) years of DEP's approval of coverage under the PAS-13 General Permit, and must be located within the storm sewersheds of the applicable impaired waters, on either public or private property. If the applicant is aware of BMPs that will be implemented by others (either in cooperation with the applicant or otherwise) within the storm sewershed that will result in net pollution loading reductions (not E&S BMPs to satisfy Chapter 102 requirements), the applicant may propose those BMPs within its TMDL/PRP.

DEP indicates that historic street sweeping practices should not be considered in calculating credit for future practices. All proposed street sweeping practices may be used for credit if the minimum standard is met for credit (see 3800-PM-BCW0100m; Appendix D). In other words, if sweeping was conducted one time per month and will be increased to 25 times per year in the future, the MS4 does not need to calculate a "net reduction"; they may take full credit for the full amount of reductions from the 25 times per year sweeping.

The names and descriptions of BMPs and land uses reported in the TMDL/PRP should be in accordance with the Chesapeake Bay Program Model; names and descriptions are available through "CAST" (www.casttool.org, see "Documentation", "Source Data" and worksheets "Land Use Definitions" and "BMP Definitions").

In calculating future pollutant loading, the applicant must be cognizant of planned changes to land uses or BMPs. For example, if a tract of land (<1 acre) currently in pasture will be converted within the next few years to residential land use, and there are no ordinances in place to control the rate, volume or quality of stormwater draining from the tract, the potential net increase in pollutant loading must be factored into the future loading estimate. This means that BMPs must be implemented on the tract or elsewhere within the storm sewershed to compensate for this change.

New Britain Township plans to achieve the sediment reduction by designing, constructing, operating and maintaining Best Management Practices (BMPs). New Britain Township is required to implement this plan for 10% reduction over the next five (5) years and carry over the remaining TMDL reduction requirement until the subsequent terms.

Table F-1 is a summary of the proposed BMPs under consideration, including location, type, area treated, and list impairment removed:

TABLE F-1: SUMMARY OF BMPS

Concept BMPs with Potential Sediment Load Reductions				
	Description	Location	Load Reduction (lbs/yr)	Lat/Long
BMP 1	New Basin	Cotton Park	33,195	40.277745, -75.234793
BMP 2	Riparian Buffer	Highlands Open Space	72,098	40.274531, -75.214102
BMP 3	Bioswale	Cornwall Dr	20,922	40.303372, -75.219114
BMP 4	Basin Retrofit	Walden/Crescent O.S.	32,159	40.298808, -75.235858
BMP 5	Riparian Buffer	Sycamore Cir O.S.	8,841	40.298272, -75.200088
BMP 6	Basin Retrofit	Circle Dr O.S.	26,786	40.274447, -75.226581
BMP 7	Bioswale	Upper State Road	19,787	40.299360, -75.205606
Total			**213,788**	

As illustrated in the previous section, the load after proposed BMPs are implemented for the Neshaminy Creek Storm Sewershed is required to be reduced by at least 179,514 lb/yr. As demonstrated above in Table F-1 the proposed total load reduction can be met with a combination BMPs as noted above depending on awarded grants and available funding. The Township remains fully committed to meeting applicable water standards and has the ability to revise the plan and include detailed BMP design and additional BMPs for consideration if additional controls are required in the long-term.

The following table summarizes the sediment load and required sediment reduction for the Neshaminy Creek Storm Sewershed.

TABLE F-2: MS4 TMDL/PRP STRATEGY SUMMARY

Description	Value	Unit
Neshaminy Creek Watershed	5,120	acres
Parsed Area - Total	3,928	acres
New Britain Township Planning Area	1,192	acres
Existing Sediment Load	1,795,141	lb/year
Required Sediment Pollutant Load Reduction Percentage	10	%
Minimum Required Pollutant Load Reduction	179,141	lb/year
Proposed Sediment Load Reduction from BMPs	179,141	lb/year
Proposed Sediment Total Load with Proposed BMPs Installed	1,616,000	lb/year

G. Identify Funding Mechanism(s)

The Municipality intends to apply for all related grants, such as Growing Greener and Treevitalize, to implement these BMPs. The Municipality intends to utilize general, public works and tree fund money to cover the construction costs for the proposed BMPs should grant money not be awarded. Once the PRP has been approved by PADEP, the Municipality intends to authorize design of the BMPs, upon which time a feasibility and cost analysis will be prepared and shared with PADEP.

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

Once implemented, the BMPs must be maintained in order to continue producing the expected pollutant reductions. Actual O&M activities will be identified by the MS4 in their Annual MS4 Status Reports, submitted under the Permit.

Applicants must identify the following for each selected BMP:

- The parties responsible for ongoing O&M;
- The activities involved with O&M for each BMP; and
- The frequency at which O&M activities will occur.

Table H-1 OPERATION AND MAINTENANCE OF BMPs

NAME OF BMP, LOCATION	LAT/LONG	OWNER/ RESPONSIBLE PARTY	O&M ACTIVITY & FREQUENCY
Stormwater Basin, Cotton Park	40.277745, -75.234793	NBT Public Works	Per PABMP Manual
Riparian Buffer, Highlands Open Space	40.274531, -75.214102	NBT Public Works	Per PABMP Manual
Bioswale, Cornwall Drive	40.303372, -75.219114	NBT Public Works	Per PABMP Manual
Basin Retrofit, Walden/Crescent O.S.	40.298808, -75.235858	NBT Public Works	Per PABMP Manual
Riparian Buffer, Sycamore Circle Open Space	40.298272, -75.200088	NBT Public Works	Per PABMP Manual
Basin Retrofit, Circle Dr Open Space	40.274447, -75.226581	NBT Public Works	Per PABMP Manual
Bioswale, Upper State and Woodside Ave.	40.299360, -75.205606	NBT Public Works	Per PABMP Manual

I. GENERAL INFORMATION

Terms: The term “nutrients” refers to “Total Nitrogen” (TN) and “Total Phosphorus” (TP) unless specifically stated otherwise in DEP’s latest Integrated Report. The terms “sediment,” “siltation,” and “suspended solids” all refer to inorganic solids and are hereinafter referred to as “sediment.”

Pollutants of Concern and Required Reductions: For all TMDL/PRPs, MS4s shall calculate existing loading of the pollutant(s) of concern, in lbs/year; calculate the minimum reduction in loading, in lbs/year; select BMP(s) to reduce loading; and demonstrate that the selected BMP(s) will achieve the minimum reductions.

For PRPs developed for impaired waters (Appendix E), the pollutant(s) are based on the impairment listing, as provided in the MS4 Requirements Table. If the impairment is based on siltation only, a minimum 10% sediment reduction is required. If the impairment is based on nutrients only or other surrogates for nutrients (e.g., “Excessive Algal Growth” and “Organic Enrichment/Low D.O.”), a minimum 5% TP reduction is required. If the impaired is due to both siltation and nutrients, both sediment (10% reduction) and TP (5% reduction) must be addressed.

Existing Pollutant Loading: Existing loading must be calculated and reported as of the date of the development of the TMDL/PRP. MS4s may not claim credit for street sweeping and other non-structural BMPs implemented in the past. If structural BMPs were implemented prior to development of the TMDL/PRP and continue to be operated and maintained, the MS4 may claim pollutant reduction credit in the form of reduced existing loading.

> **NOTE** – An MS4 may not reduce its obligations for achieving pollutant load reductions through previously installed BMPs. An MS4 may only use such BMPs to reduce its estimate of existing pollutant loading. For example, if a rain garden was installed ten years ago and is expected to remove 100 lbs of sediment annually, and the overall annual loading of sediment in the storm sewershed is estimated to be 1,000 lbs without specifically addressing the rain garden, an MS4 may not claim that the rain garden satisfies its obligations to reduce sediment loading by 10%. The MS4 may, however, use the rain garden to demonstrate that existing loading is 900 lbs instead of 1,000 lbs, and 90 lbs rather than 100 lbs needs to be reduced during the term of permit coverage.

BMP Effectiveness: All MS4s must use the BMP effectiveness values contained within DEP's BMP Effectiveness Values document (3800-PM-BCW0100m) or Chesapeake Bay Program expert panel reports for BMPs listed in those resources when determining pollutant load reductions in TMDL/PRPs. For BMPs not listed in 3800-PM-BCW0100m or expert panel reports, MS4s may use effectiveness values from other technical resources; such resources must be documented in the TMDL/PRP.

Combining PRPs: If the MS4 discharges into multiple local surface waters impaired for nutrients and/or sediment, one PRP may be submitted to satisfy Appendix E but calculations and BMP selections must be completed independently for the storm sewershed of each impaired water. If, for example, an MS4 permittee must complete three PRPs according to the MS4 Requirements Table for three separate surface waters, storm sewershed maps must be developed, existing loads must be calculated, and BMPs must be implemented for pollutant reductions independently within those storm sewersheds. In other words, BMPs cannot be implemented in one storm sewershed to count toward pollutant reductions in an entirely separate storm sewershed for a different impaired water.

Where local surface waters are impaired for nutrients and/or sediment, and those waters are tributary to a larger body of water that is also impaired, MS4s can propose BMPs within the upstream impaired waters to meet the pollutant reduction requirements of both the upstream and downstream waters. For example, if Stream A flows through a municipality that is tributary to Stream B, both are impaired and the MS4 has discharges to both streams, the MS4 can implement BMPs in the storm sewershed of Stream A to satisfy pollutant reduction requirements for both Streams A and B. In general, the MS4 permittee would not be able to satisfy pollutant reduction requirements for both streams if BMPs were only implemented in the storm sewershed of Stream B; however, on a case by case basis DEP will consider such proposals where it can be demonstrated that implementing BMPs in the upstream storm sewershed is infeasible.

If, however, Stream A does not flow into Stream B, both are impaired and the MS4 has discharges to both streams, in general DEP would expect that BMPs be implemented in the storm sewershed of both streams to meet pollutant reduction requirements.

MS4s participating in collaborative efforts are encouraged to contact DEP's Bureau of Clean Water during the PRP development phase for feedback on proposed approaches.

Joint PRPs: MS4s may develop and submit a joint PRP, regardless of whether the MS4s will be submitting a "joint NOI" or are already co-permittees. In general, the MS4s participating in a joint PRP should have contiguous land areas. The "study area" to be mapped is the combined storm sewershed for all MS4 jurisdictions.

BMP Selection: MS4s may propose and take credit for only those BMPs that are not required to meet regulatory requirements or otherwise go above and beyond regulatory requirements. For example, a BMP that was installed to meet Chapter 102 NPDES permit requirements for stormwater associated with construction activities may not be used to meet minimum pollutant reductions unless the MS4 can demonstrate that the BMP exceeded regulatory requirements; if this is done, the MS4 may take credit for only those reductions that will occur as a result of exceeding regulatory requirements.

> **NOTE** – Street sweeping may be proposed as a BMP for pollutant loading reductions if 1) street sweeping is not the only method identified for reducing pollutant loading, and 2) the BMP effectiveness values contained in 3800-PM-BCW0100m or Chesapeake Bay Program expert panel reports are utilized.

Submission of PRP: Attach one copy of the PRP with the NOI or individual permit application that is submitted to the regional office of DEP responsible for reviewing the NOI or application. In addition, one copy of the PRP (not the NOI or application) must be submitted to DEP's Bureau of Clean Water (BCW). BCW prefers electronic copies of PRPs, if possible. Email the electronic version of the PRP, including map(s) (if feasible), to RA-EPPAMS4@pa.gov. If the MS4 determines that submission of an electronic copy is not possible, submit a hard copy to: PA Department of Environmental Protection, Bureau of Clean Water, 400 Market Street, PO Box 8774, Harrisburg, PA 17105-8774.

PRP Implementation and Final Report: Under the PAG-13 General Permit, the permittee must achieve the required pollutant load reductions within 5 years following DEP's approval of coverage under the General Permit, and must submit a report demonstrating compliance with the minimum pollutant load reductions as an attachment to the first Annual MS4 Status Report that is due following completion of the 5th year of General Permit coverage. For example, if DEP issues written approval of coverage to a permittee on June 1, 2018, the required pollutant load reductions must be implemented by June 1, 2023 and the final report documenting the BMPs that were implemented (with appropriate calculations) must be attached to the annual report that is due

September 30, 2023. In general, the same methodology used to calculate the existing pollutant loads should be used in the final report to demonstrate the reductions. If BMP effectiveness values are updated in DEP's BMP Effectiveness Values document or Chesapeake Bay Program expert panel reports between the time the PRP is approved and the time the final report is developed, those updated effectiveness values may be used.

APPENDIX A

MS4 Name	NPDES ID	Individual Permit Required?	Reason	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)	Other Cause(s) of Impairment
Bucks County						
NEW BRITAIN TWP	PAG130060	Yes	TMDL Plan	Reading Creek	Appendix E-Excessive Algal Growth (5)	
				Unnamed Tributaries to West Branch Neshaminy Creek		Flow Alterations (4c)
				Pine Run	Appendix E-Excessive Algal Growth (5)	
				West Branch Neshaminy Creek	Appendix E-Excessive Algal Growth, Nutrients, Organic Enrichment/Low D.O. (5)	Water/Flow Variability (4c)
				Warrington Lake	Appendix E-Nutrients (5)	Exotic Species (5)
				Little Neshaminy Creek	Appendix B-Pathogens (5), Appendix C-PCB (5), Appendix E-Nutrients, Organic Enrichment/Low D.O. (5)	Water/Flow Variability (4c)
				Mill Creek	Appendix E-Nutrients (5)	
				Neshaminy Creek	Appendix B-Pathogens (5), Appendix E-Nutrients, Organic Enrichment/Low D.O. (5)	
				Neshaminy Creek TMDL	TMDL Plan-Siltation, Suspended Solids (4a)	
				North Branch Neshaminy Creek		Water/Flow Variability (4c)
				Cooks Run	Appendix E-Nutrients (5)	
NEW HOPE BORO		Yes	SP	Delaware River		Mercury (5)
NEWTOWN BORO	PAG130057	No		Neshaminy Creek	Appendix E-Siltation (4a), Appendix B-Pathogens (5), Appendix E-Nutrients, Organic Enrichment/Low D.O. (5)	
NEWTOWN TWP	PAG130048	No		Delaware River		Mercury (5)
				Lake Luxembourg	Appendix E-Nutrients, Suspended Solids (4a)	
				Neshaminy Creek	Appendix E-Siltation (4a), Appendix B-Pathogens (5), Appendix E-Nutrients, Organic Enrichment/Low D.O. (5)	
				Unnamed Tributaries to Houghs Creek		Cause Unknown (5)
				Core Creek	Appendix E-Siltation (4a)	
NORTHAMPTON TWP	PAG130098	Yes	TMDL Plan	Little Neshaminy Creek	Appendix B-Pathogens (5), Appendix C-PCB (5), Appendix E-Nutrients, Organic Enrichment/Low D.O. (5)	Water/Flow Variability (4c)
				Mill Creek		Other Habitat Alterations, Water/Flow Variability (4c)
				Neshaminy Creek	Appendix B-Pathogens (5), Appendix E-Nutrients, Organic Enrichment/Low D.O. (5)	
				Neshaminy Creek TMDL	TMDL Plan-Siltation, Suspended Solids (4a)	

APPENDIX B

Bucks County, SS.

NEW BRITAIN TOWNSHIP
E. M. BRADLEY, TWP. MGR.
CHALFONT, PA 18914

3-086712006
0007142878-01

Ann Clark being duly affirmed according to law, deposes and says that he/she is the Legal Billing Co-ordinator of the CALKINS NEWSPAPER INCORPORATED, Publisher of The Intelligencer, a newspaper of general circulation, published and having its place of business at Doylestown, Bucks County, Pa. and Horsham, Montgomery County, Pa.; that said newspaper was established in 1886; that securely attached hereto is a facsimile of the printed notice which is exactly as printed and published in said newspaper on

.....

July 19, 2017

.....

and is a true copy thereof; and that this affiant is not interested in said subject matter of advertising; and all of the allegations in this statement as to the time, place and character of publication are true.

LEGAL BILLING CO-ORDINATOR

Affirmed and subscribed to me before me this 19th day of July 2017 A.D.

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Karen McGovern, Notary Public
Tullytown Boro, Bucks County
My Commission Expires Feb. 19, 2021
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

NOTICE

NOTICE OF PUBLIC COMMENT PERIOD AND PUBLIC MEETING for the **New Britain Township** Total Maximum Daily Load (TMDL)/ Pollutant Reduction Plan (PRP) for Neshaminy Creek. The Plan outlines the measures the Township intends to implement to reduce certain pollutants discharged from the Township's municipal separate storm sewer system (MS4) within the watershed. The Plan includes calculations of the existing pollutant loading, the minimum reduction required, and a selection of potential Best Management Practices (BMPs) intended to achieve the minimum required reduction. The Township is soliciting written comments on the Plan. Interested persons may submit written comments during the 30-day period of July 21 through August 20, 2017. The Plans may be reviewed during the comment period at New Britain Township, 207 Park Avenue, Chalfont, PA 18914 weekdays from 8:30 AM to 3:30 PM or on the Township website homepage http://newbritaintownship.org. Written and verbal comments will be accepted at a public meeting on August 21, 2017 (7:00 PM) at New Britain Township Administrative Office. Comments must be submitted in writing to the address above (Attn: Township Manager) or by email to nbt@newbritaintownship.org and must include originator's name and address. Comments submitted by fax will not be accepted.

Eileen M. Bradley,
Township Manager
NEW BRITAIN TOWNSHIP

1t Jy 19 7142878

No Public Comments

The Draft version of this TMDL/PRP Plan for Neshaminy Creek prepared for New Britain Township was discussed at 3 public meetings. No public comments were received at these meetings or provided to the Township directly.

Board of Supervisors
Regular Meeting
July 17, 2017

6:30 p.m. Executive Session
7:00 p.m. Regular Meeting

Agenda

1. Call to Order

2. Pledge of Allegiance

3. Announcements from the Chair: The Board met in Executive Session prior to this Meeting to discuss personnel issues and land acquisition.

4. Public Comment on Non-Agenda Items

5. Approval of Minutes

    5.1. Minutes of Meeting of July 3, 2017

6. Departmental Reports

    6.1. Code Department Report for June 2017

    6.2. Police Department Report for June 2017

    6.3. Public Works Department Report for June 2017

7. Consideration of Old Business

    7.1. PFM Financial Consultants Presentation on Loan RFPs

    7.2. Authorize Advertisement of Ordinance Approving Indebtedness

    7.3. Metro Storage Land Development Approval Resolution #2017-16

    7.4. Frost Tract Land Development Approval Resolution #2017-17

8. Consideration of New Business

9. Consent Agenda

9.1. Alexander Sharpan/Apollo CM Group have executed a Professional Services Agreement for demolition of an existing building and construction of a single□family dwelling at 52 N. Chapman Road, TMP #26□012□046, with corresponding legal and engineering escrow of $2,500.00.

9.2. New Galena Road Bridge Replacement Project Payment Application #1 for $50,542.20 to DESCCO Design and Construction, Inc., leaving $614,188.31 remaining.

10. Board of Supervisors Comments

11. Administration Comments

11.1. Discussion of MS4 PRP Plan

11.2. Lepore Record Plans

11.3. Fall Festival PennDOT Overhead Banner Application

11.4. Possible Cancellation of August 7, 2017 Meeting

12. Solicitor and Engineer Comments

13. Other Business

14. Public Comment

15. Payment of Bills

15.1. Bills List dated July 7, 2017 for $177,040.27

16. Adjournment

The next Meeting of the Board of Supervisors of New Britain Township will take place on ***Monday, August 21, 2017 at 7:00 p.m.,*** *at the New Britain Township Building, 207 Park Avenue, Chalfont, PA. Agenda are posted to the Township website prior to the meeting date at www.newbritaintownship.org.*

Board of Supervisors
Regular Meeting
August 21, 2017

6:30 p.m. Executive Session
7:00 p.m. Regular Meeting

Agenda

1. Call to Order

2. Pledge of Allegiance

3. Announcements from the Chair: The Board met in Executive Session prior to this Meeting to discuss personnel issues and land acquisition.

4. Public Comment on Non-Agenda Items

5. Approval of Minutes

    5.1. Minutes of Meeting of July 17, 2017

6. Departmental Reports

    6.1. Code Department Report for July 2017

    6.2. Police Department Report for July 2017

    6.3. Public Works Department Report for July 2017

7. Consideration of Old Business

    7.1. Metro Storage Land Development Approval Resolution #2017-16

8. Consideration of New Business

    8.1. PUBLIC HEARING: Increase in Indebtedness Ordinance #2017-08-08

    8.2. Authorize Advertisement of Proposed Intergovernmental Agreement and Cooperative Recycling Grant Ordinance

    8.3. Resolution #2017-18 Authorizing Donation of Unclaimed Property

    8.4. Resolution #2017-21 Opposing HB1469 and SB663, related to UCC and Third-Party Inspection

8.5. Act 172 Tax Credit for Active Volunteer First Responders Discussion

9. Consent Agenda

9.1. MDG, LLC has executed a Sewer Installation Agreement for the Frost Tract at Upper State Road and Pickertown Road, TMP #26-005-077, for installation of a sanitary sewer line to service eleven new lots, with corresponding financial security escrow of $25,000.00.

9.2. Lot 20-2 Realty LP (SkyZone) has submitted Escrow Release Request #4 for $88,182.00, leaving $189,125.00 remaining.

9.3. The Estates at Julius Farm, LP has submitted Escrow Release Request #4 for the Estates at Julius Farm (Maurer Tract) for 184,895.70, leaving $729,855.88 remaining.

9.4. Brian T. and Katherine M. Freedman have executed a Stormwater Operation and Maintenance Agreement for improvements to 9 Elaines Lane, TMP #26-003-113-002, with corresponding permanent Maintenance Guarantee Fee of $343.50.

9.5. Toll PA XIII, LP has submitted Escrow Release Request #1 for the New Britain Woods Project for $1,115,219.20, leaving $922,131.67 remaining.

9.6. Holy Properties, LLC has submitted Escrow Release Request #4 for the Clauser Tree Service Property for $13,466.25, leaving $100,875.88 remaining.

9.7. New Galena Road Bridge Replacement Project Payment Application #2 for $121,296.96 to DESCCO Design and Construction, Inc., leaving $492,891.35 remaining.

10. Board of Supervisors Comments

11. Administration Comments

11.1. Adoption of 2018 Police Pension Minimum Municipal Obligation, Res. #2017-19

11.2. Adoption of 2018 Non-Uniform Pension Minimum Municipal Obligation, Res. #2017-20

12. Solicitor and Engineer Comments - TMDL/PRP Plan Public Comment

13. Other Business

14. Public Comment

15. Payment of Bills

15.1. Bills List dated August 3, 2017 for $6,698.09

15.2. Bills List dated August 9, 2017 for $405,701.75

15.3. Bills List dated August 17, 2017 for $187,370.57

16. Adjournment

*The next Meeting of the Board of Supervisors of New Britain Township, **a Work Session**, will take place on **Monday, September 11, at 9:00 a.m.,** at the New Britain Township Building, 207 Park Avenue, Chalfont, PA. Agenda are posted to the Township website prior to the meeting date at www.newbritaintownship.org.*

BOARD OF SUPERVISORS
MEETING MINUTES
July 17, 2017

A Regular Meeting of the New Britain Township Board of Supervisors was held on Monday, May 1, 2017, at the Township Administration Building, 207 Park Avenue, New Britain Township, PA, beginning at 7:00 p.m. Present were Supervisors: Chair A. James Scanzillo, Vice Chair John A. Bodden, Sr., Members Helen B. Haun, Gregory T. Hood and William B. Jones, III. Also present were Township Manager Eileen M. Bradley, Township Solicitor Peter Nelson, Esq., and Township Engineer Janene Marchand.

1. Call to Order: Mr. Scanzillo called the Meeting to order.

2. Pledge of Allegiance: Mr. Scanzillo led the Board and audience in the Pledge of Allegiance.

3. Announcements: Mr. Scanzillo announced that the Board had met in Executive Session prior to this Meeting to discuss personnel issues and land acquisition.

4. Public Comment on Non-Agenda Items: There was no Public Comment at this time.

5. Approval of Minutes:

5.1. Minutes of Meeting of July 3, 2017:

MOTION: A motion was made by Mr. Jones, seconded by Mr. Bodden and unanimously approved, to accept the July 3, 2017 Minutes as written.

6. Departmental Reports:

6.1. Code Department Report for June 2017: Ms. Bradley presented the Code Department Report for June 2017.

6.2. Police Department Report for June 2017: Chief Scafidi presented the Police Department Report for June 2017. Mr. Hood asked if there were many opioid related incidents. Chief Scafidi stated that only a few might be opioid-related.

6.3. Public Works Department Report for June 2017: Ms. Bradley presented the Public Works Department Report for June 2017. Mrs. Haun asked if there were any issues with flooding from the recent storms. Ms. Bradley stated there was no flooding of any significance throughout the Township.

7. Consideration of Old Business:

7.1. PFM Financial Consultants Presentation on Loan Proposals: Ms. Bradley introduced Mr. Jamie Schlesinger of PFM Financial Advisors, LLC to present the results of the Township's recent Request for Proposals (RFP) for a $3,000,000.00 bank loan. The loan would pay for reconstruction of the New Galena Road Bridge, repair/replacement of five culverts throughout the Township, and various other capital projects. Six proposals had been received by the July 11, 2017 deadline, with one received after that deadline.

Mr. Schlesinger stated that the RFP called for a loan term length of between five and ten years with a two-year drawdown period and no pre-payment penalty, with variable and/or fixed rates. He stated that banks were

asked to submit proposals for five, seven, ten and fifteen years with fixed interest rates. Variable interest rates were required to be capped at a stated rate.

After analysis of the total cost of the loan and fees, the proposal from First National Bank and Trust Company of Newtown (FNB) offered a ten-year fixed rate of 2.50%, with a variable rate based on 75% of the Wall Street Journal's Prime rate not to exceed 4.5% for the remainder of the term. This proposal resulted in the most cost effective choice of all proposals.

Mr. Schlesinger stated that FNB was easy to work with and would not require the Township to transfer other accounts to their bank. Ms. Bradley echoed this sentiment, stating that she had worked with FNB in the past and was confident that the relationship would be successful. Mr. Schlesinger and Ms. Bradley both recommended the Township contract with FNB for the borrowing. If the Board acted tonight, the loan could be settled by the end of August.

MOTION: Upon motion by Mr. Bodden, seconded by Mr. Jones, the Board unanimously elected to accept the proposal of First National Bank and Trust Company of Newtown, for a fifteen year $3,000,000.00 loan, with a two-year drawdown period, with a fixed rate of 2.50% for ten years, with no penalty for early repayment, and a maximum variable interest rate of 4.50% thereafter.

7.2. Authorize Advertisement of Ordinances Approving Indebtedness: Ms. Bradley stated that the Local Government Unit Debt Act required passage of an ordinance to allow the Township to incur additional indebtedness of $3,000,00.00, and asked the Board to authorize advertisement of an ordinance approving indebtedness. She stated that this was a necessary step to ensure the loan process continued moving forward and could be voted on at the August 21 meeting.

MOTION: Upon motion by Mr. Hood, seconded by Mrs. Haun, the Board unanimously authorized advertisement of an ordinance approving indebtedness.

7.3. Metro Storage Land Development Approval Resolution #2017-16: Mr. Bodden stated that since the Applicant was not present, he moved to table this issue.

MOTION: A motion was made by Mr. Bodden, seconded by Mrs. Haun and carried unanimously, to table Resolution #2017-16, which would have granted Final Approval to Metro Storage, to a future meeting.

7.4. Frost Tract Land Development Approval Resolution #2017-17: Appearing for the Applicant, Metropolitan Development Group (MDG, LLC) was Ms. Giovanna M. Raffaelli, Esq. Ms. Raffaelli stated that she was present to finalize and hopefully attain Final Approval from the Township for Phase II of the Frost Tract on Upper State Road.

The Applicant had met with the Chalfont-New Britain Township Joint Sewer Authority (CNBTJSA) and most neighbors to discuss the proposed sewer line along Upper State Road to Bristol Road. Ms. Raffaelli stated that the developer would assume responsibility to be careful and restore residents' property to pre-construction condition. The CNBTJSA had no issues with the proposed sewer line or construction plans.

Mr. Bodden asked if any engineering or legal issues present. Mrs. Marchand stated that they had received from the developer a video of the current conditions of Upper State Road and resident driveways. There were no other engineering concerns. Mr. Nelson stated he had no legal issues and the Board had a draft Resolution in front of them for consideration.

MOTION: A motion was made by Mr. Hood, seconded by Mrs. Haun and carried unanimously, to adopt Resolution #2017-17, granting Final Approval to the Frost Tract Phase II Land Development Plan.

8. Consideration of New Business:

9. Consent Agenda:

MOTION: Upon motion by Mr. Jones, seconded by Mrs. Haun, the Board unanimously approved the following Consent Agenda items: Execution of a Professional Services Agreement for Alexander Sharpan/Apollo CM Group for development of TMP #26-012-046, 52 N. Chapman Road, for demolition of an existing building and construction of a single family dwelling, with corresponding legal and engineering escrow of $2,500.00; Payment Application #1 in the amount of $50,542.20 for DESCCO Design and Construction, Inc. for construction of the New Galena Road Bridge Replacement Project, leaving $614,188.31 remaining.

10. Board of Supervisors' Comments: There were no Board of Supervisor's Comments at this time.

11. Township Administration Comments:

11.1. Discussion of MS4 PRP Plan: Mrs. Marchand stated that the Township was required to apply for a new Department of Environmental Protection (DEP) Municipal Separate Storm Sewer System (MS4) Permit every five years. Along with current MS4 reporting requirements, this round of permitting also required the Township to create Pollution Reduction Plans (PRP) and install best management practices (BMPs) to remove sediment and pollutants from the Neshaminy Creek and its tributaries. Mrs. Marchand stated the permit required a 10% reduction in sediment and a 5% reduction in nutrients from entering our waterways.

Mrs. Marchand stated that the Township would be undergoing five major retrofitting projects over the next five years to attain these goals. They included: adding a new basin to Cotton Park; adding additional riparian buffer to the Highlands Open Space; Circle Drive basin retrofit; improvements to the Cornwall Drive swale; and retrofitting of the Walden Way basin.

Ms. Bradley stated that Staff would advertise the proposed PRPs and obtain feedback from residents and stakeholders over the next month. Those comments would become part of the MS4 Application to DEP.

Mr. Hood asked if the Township was being proactive with stormwater management when it comes to land development. Ms. Bradley stated that stormwater management features are a requirement of both the Zoning Ordinance, Subdivision and Land Development Ordinance, Stormwater Management Act 167 Ordinance in all land development projects. Additionally, any resident making an improvement to their property that requires a variance from the Zoning Hearing Board is typically required to install stormwater management BMPs to their property.

11.2. Lepore Record Plans: Ms. Bradley stated that the Lepore Final Record Plans required Board signatures before recordation could take place.

MOTION: A motion was made by Mr. Hood, seconded by Mrs. Haun and carried unanimously, to execute the Lepore Final Record Plans.

11.3. Fall Festival PennDOT Overhead Banner Application: Ms. Bradley stated that the Chairman's signature was required to obtain permission from PennDOT to hang an Overhead Banner for the 2017 Fall Festival scheduled for September 23.

11.4. Possible Cancellation of August 7, 2017 Meeting: Ms. Bradley suggested to the Board that the August 7, 2017 Meeting be cancelled.

MOTION: A motion was made by Mr. Bodden, seconded by Mrs. Haun and carried unanimously, to cancel the August 7, 2017 Board of Supervisors Meeting.

12. Solicitor and Engineer Comments: There were no Solicitor or Engineer Comments at this time.

13. Other Business: There was no Other Business at this time.

14. Public Comment: There was no Public Comment at this time.

15. Payment of Bills:

15.1. Bills List dated July 7, 2017 for $177,040.27:

MOTION: Upon motion by Mrs. Haun, seconded by Mr. Jones, the Board unanimously approved the Bills List dated July 7, 2017 for $177,040.27.

16. Adjournment:

MOTION: There being no further business or comment, a motion was made by Mr. Hood, seconded by Mr. Jones, and unanimously carried, to adjourn the meeting at 7:30 p.m.

NEW BRITAIN TOWNSHIP BOARD OF SUPERVISORS

_____
A. James Scanzillo, Chair

_____
John A. Bodden, Sr., Vice Chair

_____
Helen B. Haun, Member

Attest: _____
Eileen M. Bradley
Secretary/Manager

_____
Gregory T. Hood, Member

_____
William B. Jones, III, Member

TOWNSHIP OF NEW BRITAIN

Bucks County, Pennsylvania
Founded: 1723

Eileen M. Bradley
Township Manager

BOARD OF SUPERVISORS

Helen B. Haun
John A. Bodden, Sr.
William B. Jones, III
A. James Scanzillo
Gregory T. Hood

PLANNING COMMISSION

Planning Commission Meeting
July 11, 2017
7:00 p.m.

Agenda

1. Pledge of Allegiance

2. Approval of Minutes of Meeting of June 27, 2017

3. Lohin, 4-Lot Subdivision and Land Development Plan Review, Township Line Road and Walter Road, TMP #26-001-043

4. New Britain Township's Total Maximum Daily Load (TMDL) & MS4 Pollutant Reduction Plan for the Neshaminy Creek

5. Public Comment

6. Adjournment

The next meeting of the New Britain Township Planning Commission is scheduled to take place on Tuesday, July 25, 2017, at 7:00 p.m. at the New Britain Township Building, 207 Park Avenue, Chalfont, PA

MEETING MINUTES
July 11, 2017
7:00 p.m.

A Meeting of the New Britain Township Planning Commission was held on July 11, 2017, at the Township Administration Building, 207 Park Avenue, New Britain Township, PA, beginning at 7:00 p.m. In attendance were: Chair Marco Tustanowsky, Vice Chair Deborah Rendon, William B. Jones III, Alfred Tocci, Gregory Hood, and Stephanie Shortall. Member Theresa Rizzo Grimes was absent. Township Zoning Officer, Devan Ambron and Township Engineer, Janene Marchand were also in attendance.

Public Meeting

1. Approval of Minutes:

1.1 Minutes of June 27, 2017 Planning Commission Meeting:

> **MOTION: Upon motion of Mr. Shortall, seconded by Mr. Tocci, the June 27, 2017 Minutes were approved as written.**

2. Lohin, 4-Lot Subdivision and Land Development Plan Review, Township Line Road and Walter Road, TMP #26-001-043

Mr. Robert Showalter, RL Showalter and Associates, Mr. Michael Lohin, and Mr. Chris Lohin were in attendance to present the proposed plan of subdivision to the New Britain Township Planning Commission. Mr. Showalter gave a brief history of the property. The property consists of 20 acres and is located in the SR-2, Suburban Residential, zoning district on the corner of Township Line Road and Walters Road. Mr. Showalter stated the proposed lots will range in size from approximately 3.5 acres to almost 6 acres and will be serviced by on-lot water and septic systems. Lots 1, 2 and 3 will be accessed by a shared driveway taking access off Township Line Road to avoid disturbance of the natural resources along Walters Road.

At this time Mr. Tocci asked Mr. Showalter who will be responsible for the maintenance of the shared driveway. Mr. Showalter stated the three property owners will be responsible for maintenance of the driveway. Mr. Showalter stated this plan was created before the issuance of the Fire Marshal review letter. Mr. Showalter presented a sketch plan overlay showing reconfiguration of the proposed driveway. The revised plan shows a horseshoe turn around area for the shared driveways. The Commission members discussed with Mr. Showalter and the applicants the potential benefits of the installation of a turnaround/island area for the 3 lots. Mr. Tustanowsky stated the revision gives a better sense of a community. With the revision fewer curb-cuts will be required along Township Line Road. The plans will be formally revised to show the revised driveway layout and B1 use.

At this time Mr. Showalter addressed the Gilmore & Associates Review letter dated June 13, 2017. Mr. Showalter stated a waiver is being requested from widening and improving the existing roads. The

Commission recommended a waiver be granted from road widening along Township Line Road and a partial waiver to allow the widening of Walters Road be reduced to a minimum of 18 feet. It was recommended that the sight lines be improved at the intersection of Township Line Road and Walters Road.

Mr. Showalter stated a waiver is being requested from the requirement of curb and sidewalk being installed along Township Line Road and Walters Road property frontages. Mr. Showalter stated currently no curbs or sidewalks exist along either of these frontages. The Commission is in support of this waiver.

A waiver is being requested in the calculation method of sizing the proposed stormwater management facilities. It is recommended a waiver be granted and the existing streams be stabilized and/or the applicant install riparian buffer plantings.

Mr. Showalter stated a waiver is being requested from the requirement to provide trees every 30 feet along the existing streets. Gilmore & Associates recommends that street trees be substituted with riparian buffer trees. The Commission recommends granting this waiver.

Mr. Showalter described the reasoning behind choosing the location for the proposed septic systems on each lot. He stated multiple tests were performed on each lot and the best location appears to be in the middle of the tract. Mr. Showalter stated he will supply documentation supporting this.

A brief discussion was had in regards to the need for stormwater management along Township Line Road. Mr. Showalter stated he will discuss this with Hilltown Township. With there being no further discussion the Commission recommends the proposed Subdivision/Land Development Plan be revised.

MOTION: Upon motion by Mr. Jones, seconded by Mrs. Rendon, and carried unanimously, the Commission tabled the proposed Subdivision/Land Development Plan.

3. New Britain Township's Total Maximum Daily Load (TMDL) & MS4 Pollutant Reduction Plan for the Neshaminy Creek

Mrs. Marchand presented the Planning Commission members a copy of the Total Maximum Daily Load & MS4 Pollutant Reduction Plan report. Mrs. Marchand stated as part of the Clean Water Act regulations a TMDL must be developed for those waterbodies identified as imparted by the state. Based on biological assessments for the Neshaminy Creek, the creek and its sub-watersheds were listed as showing aquatic life use impairment due to sediment and nutrients ostensibly as a result of growth and land development within the watershed. Mrs. Marchand stated there is a total of 7 BMP's proposed within the Township to aid in load reduction. The proposed BMP's include installing new stormwater basins, retrofitting existing basins, stabilizing streams and the installation of several bio-swales. No comments were received from the public.

MOTION: Upon motion by Mr. Jones, seconded by Mr. Hood, and carried unanimously, the Commission made a recommendation to approve advertisement of the Total Maximum Daily Load & MS4 Pollutant Reduction Plan Report.

4. **Public Comment.** There was no public comment at this time.

5. **Adjournment.**

MOTION: A motion was made by Mrs. Shortall, seconded by Mrs. Rendon, and unanimously carried to adjourn the July 11, 2017 meeting at 7:53 p.m.

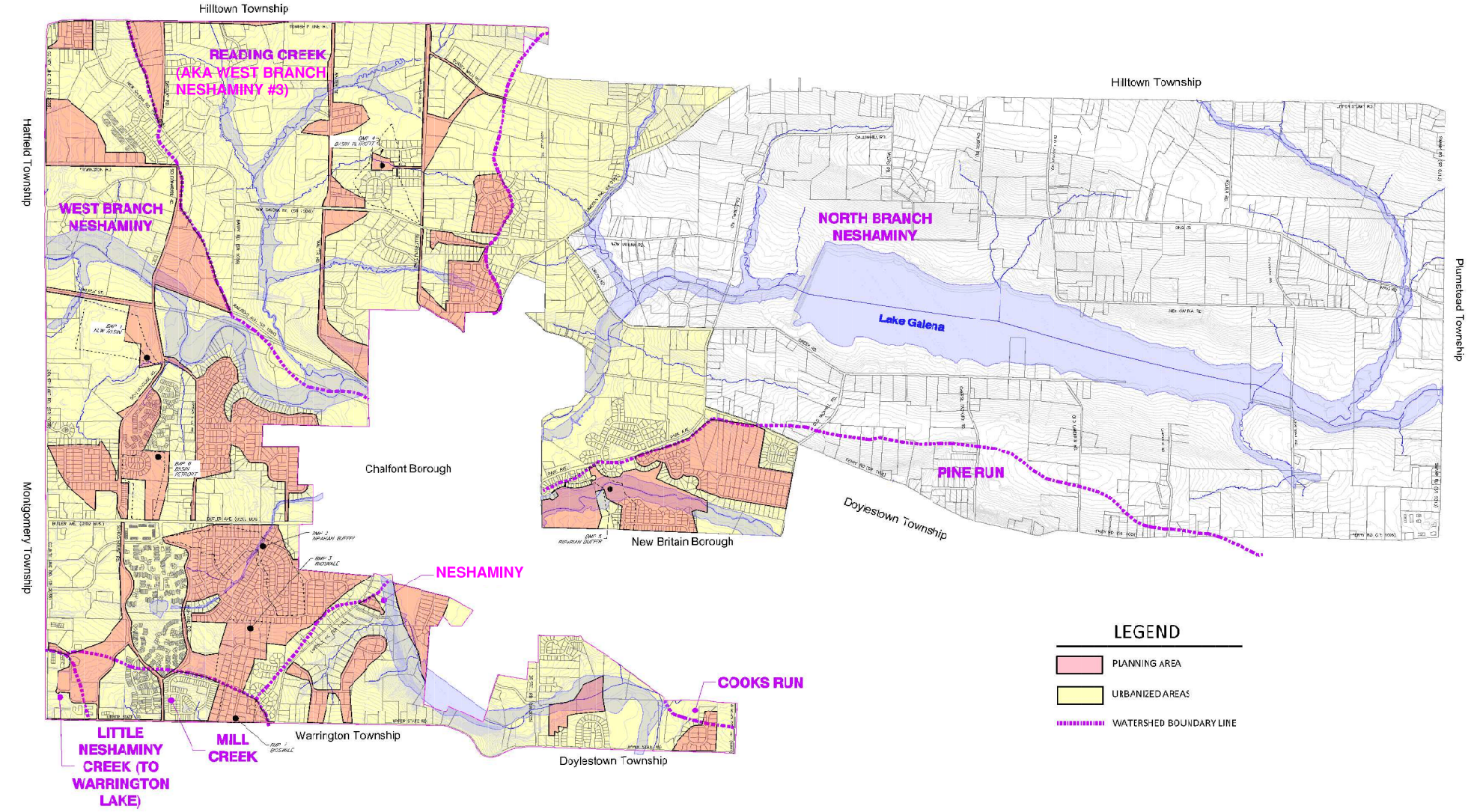
Respectfully Submitted,

_____	_____
Marco Tustanowsky, Chair	Devan Ambron, Zoning Officer

APPENDIX C

NEW BRITAIN TOWNSHIP POLLUTANT REDUCTION PLAN (PRP)

NESHAMINY CREEK WATERSHED



APPENDIX D

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STORMWATER DISCHARGES FROM
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS
BMP EFFECTIVENESS VALUES

This table of BMP effectiveness values (i.e., pollutant removal efficiencies) is intended for use by MS4s that are developing and implementing Pollutant Reduction Plans and TMDL Plans to comply with NPDES permit requirements. The values used in this table generally consider pollutant reductions from both overland flow and reduced downstream erosion, and are based primarily on average values within the Chesapeake Assessment Scenario Tool (CAST) (www.casttool.org). Design considerations, operation and maintenance, and construction sequences should be as outlined in the Pennsylvania Stormwater BMP Manual, Chesapeake Bay Program guidance, or other technical sources. The Department of Environmental Protection (DEP) will update the information contained in this table as new information becomes available. Interested parties may submit information to DEP for consideration in updating this table to DEP's MS4 resource account, RA-EPPAMS4@pa.gov. Where an MS4 proposes a BMP not identified in this document or in Chesapeake Bay Program expert panel reports, other technical resources may be consulted for BMP effectiveness values. Note – TN = Total Nitrogen and TP = Total Phosphorus.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Wet Ponds and Wetlands	20%	45%	60%	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal.
Dry Detention Basins and Hydrodynamic Structures	5%	10%	10%	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff.
Dry Extended Detention Basins	20%	20%	60%	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Infiltration Practices w/ Sand, Veg.	85%	85%	95%	A depression to form an infiltration basin where sediment is trapped and water infiltrates the soil. No underdrains are associated with infiltration basins and trenches, because by definition these systems provide complete infiltration. Design specifications require infiltration basins and trenches to be built in good soil, they are not constructed on poor soils, such as C and D soil types. Engineers are required to test the soil before approval to build is issued. To receive credit over the longer term, jurisdictions must conduct yearly inspections to determine if the basin or trench is still infiltrating runoff.
Filtering Practices	40%	60%	80%	Practices that capture and temporarily store runoff and pass it through a filter bed of either sand or an organic media. There are various sand filter designs, such as above ground, below ground, perimeter, etc. An organic media filter uses another medium besides sand to enhance pollutant removal for many compounds due to the increased cation exchange capacity achieved by increasing the organic matter. These systems require yearly inspection and maintenance to receive pollutant reduction credit.
Filter Strip Runoff Reduction	20%	54%	56%	Urban filter strips are stable areas with vegetated cover on flat or gently sloping land. Runoff entering the filter strip must be in the form of sheet-flow and must enter at a non-erosive rate for the site-specific soil conditions. A 0.4 design ratio of filter strip length to impervious flow length is recommended for runoff reduction urban filter strips.
Filter Strip Stormwater Treatment	0%	0%	22%	Urban filter strips are stable areas with vegetated cover on flat or gently sloping land. Runoff entering the filter strip must be in the form of sheet-flow and must enter at a non-erosive rate for the site-specific soil conditions. A 0.2 design ratio of filter strip length to impervious flow length is recommended for stormwater treatment urban filter strips.
Bioretention – Raingarden (C/D soils w/ underdrain)	25%	45%	55%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has an underdrain and is in C or D soil.
Bioretention / Raingarden (A/B soils w/ underdrain)	70%	75%	80%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has an underdrain and is in A or B soil.

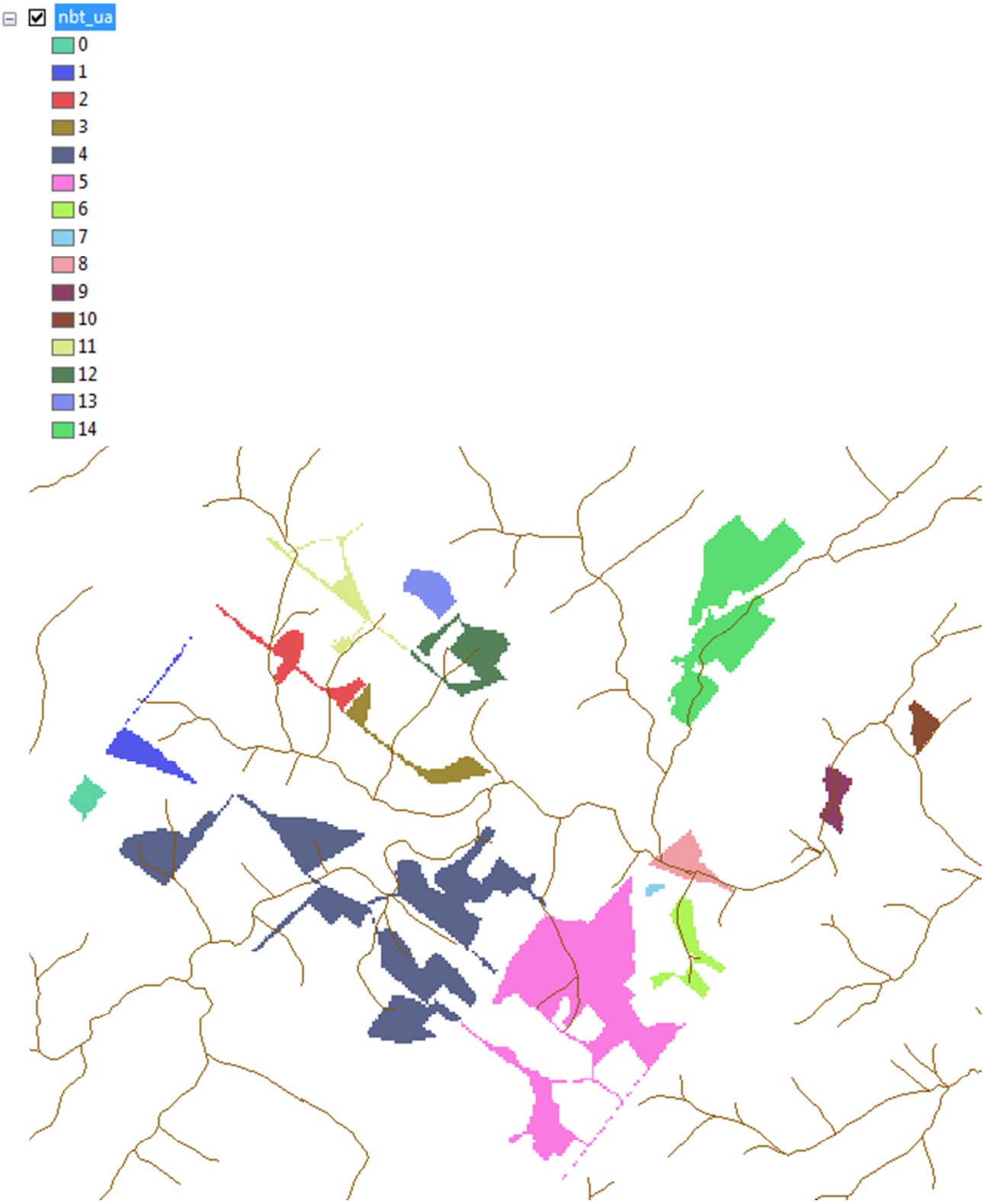
BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Bioretention / Raingarden (A/B soils w/o underdrain)	80%	85%	90%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has no underdrain and is in A or B soil.
Vegetated Open Channels (C/D Soils)	10%	10%	50%	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This BMP has no underdrain and is in C or D soil.
Vegetated Open Channels (A/B Soils)	45%	45%	70%	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This BMP has no underdrain and is in A or B soil.
Bioswale	70%	75%	80%	With a bioswale, the load is reduced because, unlike other open channel designs, there is now treatment through the soil. A bioswale is designed to function as a bioretention area.
Permeable Pavement w/o Sand or Veg. (C/D Soils w/ underdrain)	10%	20%	55%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, no sand or vegetation and is in C or D soil.
Permeable Pavement w/o Sand or Veg. (A/B Soils w/ underdrain)	45%	50%	70%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, no sand or vegetation and is in A or B soil.
Permeable Pavement w/o Sand or Veg. (A/B Soils w/o underdrain)	75%	80%	85%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has no underdrain, no sand or vegetation and is in A or B soil.
Permeable Pavement w/ Sand or Veg. (A/B Soils w/ underdrain)	50%	50%	70%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, has sand and/or vegetation and is in A or B soil.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Permeable Pavement w/ Sand or Veg. (A/B Soils w/o underdrain)	80%	80%	85%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has no underdrain, has sand and/or vegetation and is in A or B soil.
Permeable Pavement w/ Sand or Veg. (C/D Soils w/ underdrain)	20%	20%	55%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, has sand and/or vegetation and is in C or D soil.
Stream Restoration	0.075 lbs/ft/yr	0.068 lbs/ft/yr	44.88 lbs/ft/yr	An annual mass nutrient and sediment reduction credit for qualifying stream restoration practices that prevent channel or bank erosion that otherwise would be delivered downstream from an actively enlarging or incising urban stream. Applies to 0 to 3rd order streams that are not tidally influenced. If one of the protocols is cited and pounds are reported, then the mass reduction is received for the protocol.
Forest Buffers	25%	50%	50%	An area of trees at least 35 feet wide on one side of a stream, usually accompanied by trees, shrubs and other vegetation that is adjacent to a body of water. The riparian area is managed to maintain the integrity of stream channels and shorelines, to reduce the impacts of upland sources of pollution by trapping, filtering, and converting sediments, nutrients, and other chemicals. (Note – the values represent pollutant load reductions from stormwater draining through buffers).
Tree Planting	10%	15%	20%	The BMP effectiveness values for tree planting are estimated by DEP. DEP estimates that 100 fully mature trees of mixed species (both deciduous and non-deciduous) provide pollutant load reductions for the equivalent of one acre (i.e., one mature tree = 0.01 acre). The BMP effectiveness values given are based on immature trees (seedlings or saplings); the effectiveness values are expected to increase as the trees mature. To determine the amount of pollutant load reduction that can credited for tree planting efforts: 1) multiply the number of trees planted by 0.01; 2) multiply the acreage determined in step 1 by the pollutant loading rate for the land prior to planting the trees (in lbs/acre/year); and 3) multiply the result of step 2 by the BMP effectiveness values given.
Street Sweeping	3%	3%	9%	Street sweeping must be conducted 25 times annually. Only count those streets that have been swept at least 25 times in a year. The acres associated with all streets that have been swept at least 25 times in a year would be eligible for pollutant reductions consistent with the given BMP effectiveness values.

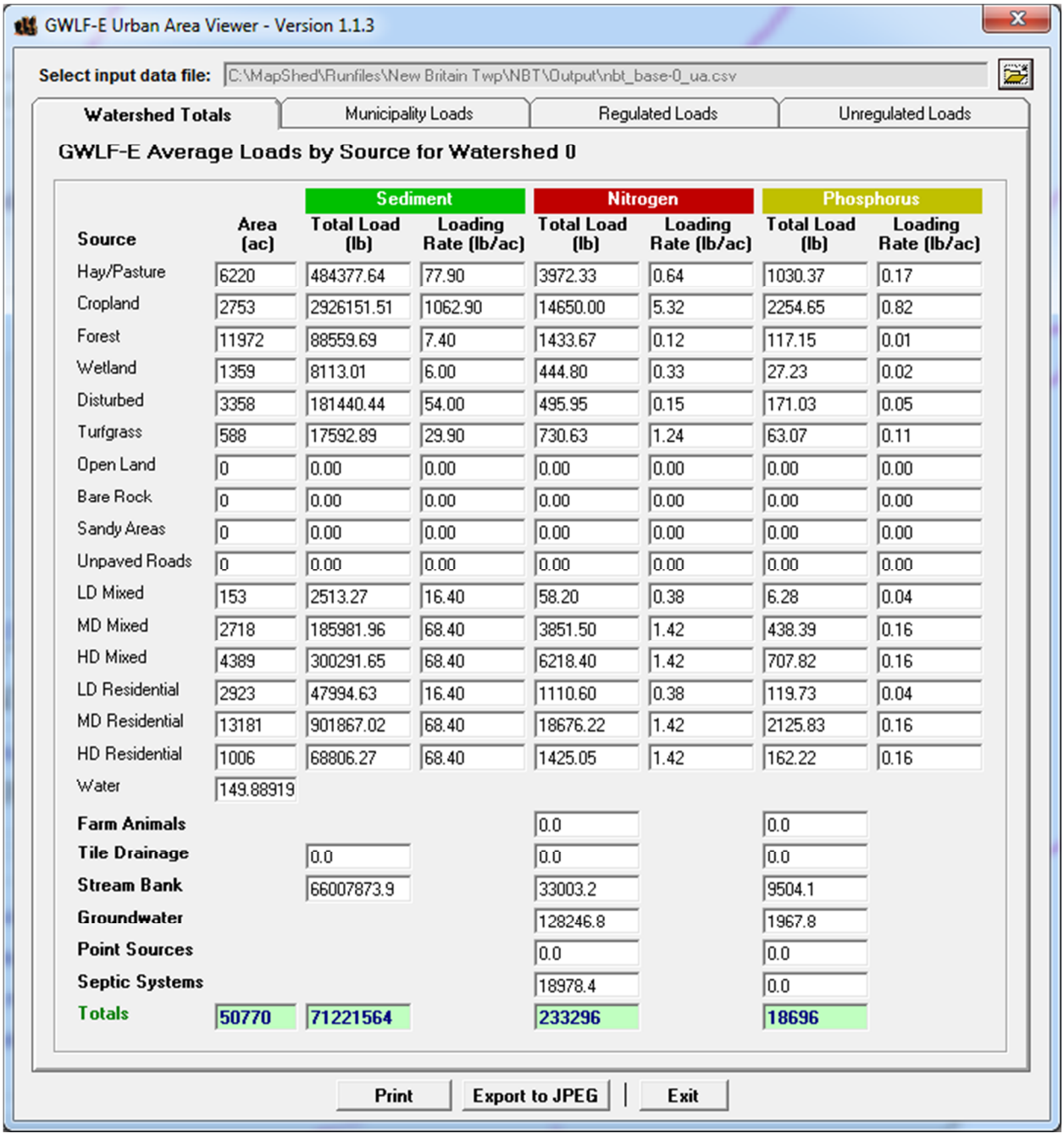
BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Storm Sewer System Solids Removal	0.0027 for sediment, 0.0111 for organic matter	0.0006 for sediment, 0.0012 for organic matter	1 – TN and TP concentrations	This BMP (also referred to as "Storm Drain Cleaning") involves the collection or capture and proper disposal of solid material within the storm system to prevent discharge to surface waters. Examples include catch basins, stormwater inlet filter bags, end of pipe or outlet solids removal systems and related practices. Credit is authorized for this BMP only when proper maintenance practices are observed (i.e., inspection and removal of solids as recommended by the system manufacturer or other available guidelines). The entity using this BMP for pollutant removal credits must demonstrate that they have developed and are implementing a standard operating procedure for tracking the material removed from the sewer system. Locating such BMPs should consider the potential for backups onto roadways or other areas that can produce safety hazards. To determine pollutant reductions for this BMP, these steps must be taken: 1) Measure the weight of solid/organic material collected (lbs). Sum the total weight of material collected for an annual period. Note – do not include refuse, debris and floatables in the determination of total mass collected. 2) Convert the annual wet weight captured into annual dry weight (lbs) by using site-specific measurements (i.e., dry a sample of the wet material to find its weight) or by using default factors of 0.7 (material that is predominantly wet sediment) or 0.2 (material that is predominantly wet organic matter, e.g., leaf litter). 3) Multiply the annual dry weight of material collected by default or site-specific pollutant concentration factors. The default concentrations are shown in the BMP Effectiveness Values columns. Alternatively, the material may be sampled (at least annually) to determine site-specific pollutant concentrations. DEP will allow up to 50% of total pollutant reduction requirements to be met through this BMP. The drainage area treated by this BMP may be no greater than 0.5 acre unless it can be demonstrated that the specific system proposed is capable of treating stormwater from larger drainage areas. For planning purposes, the sediment removal efficiency specified by the manufacturer may be assumed, but no higher than 80%.

Appendix E

Appendix E: Mapshed Output



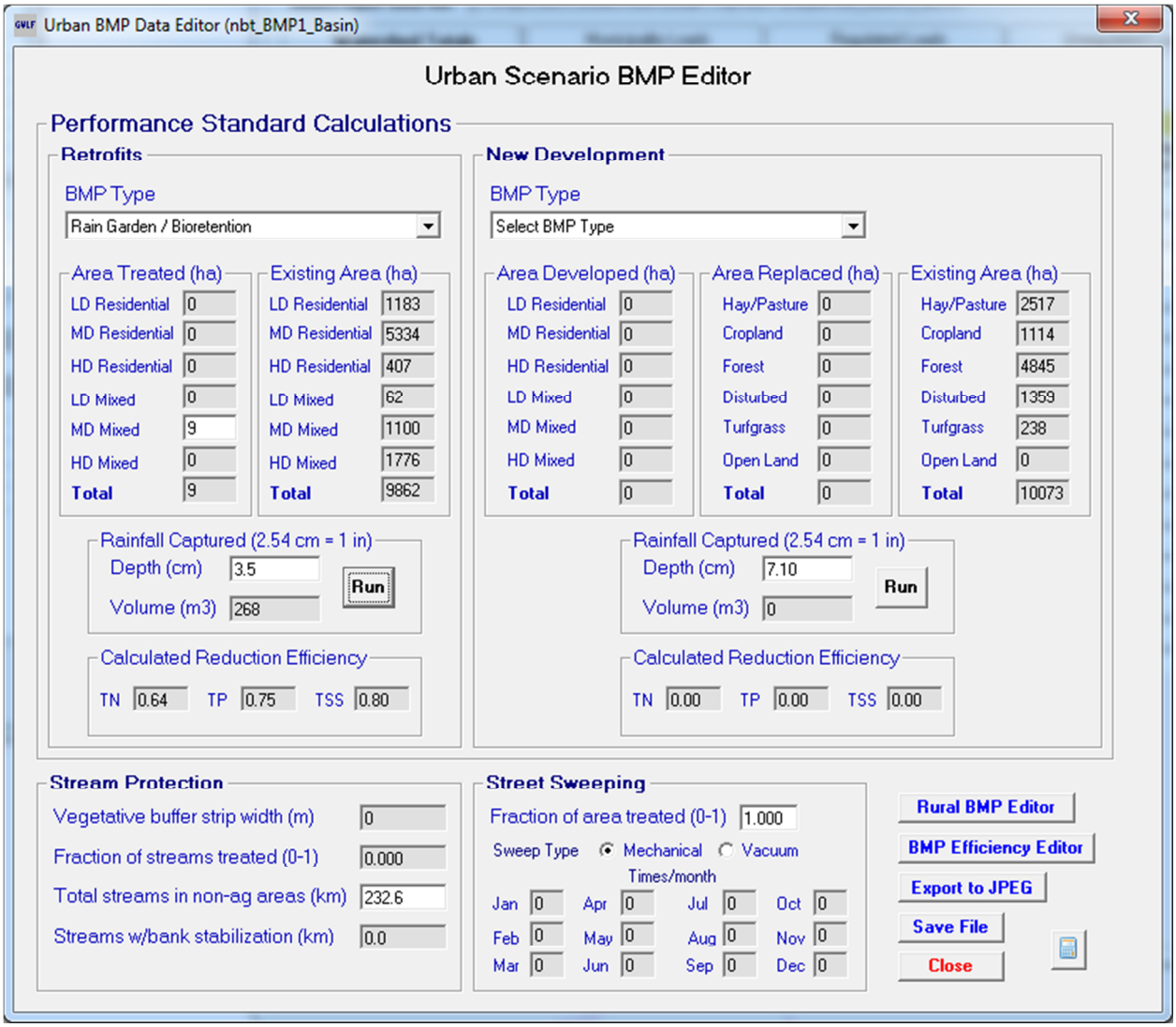
BASE – Neshaminy Creek (Including Subwatersheds)

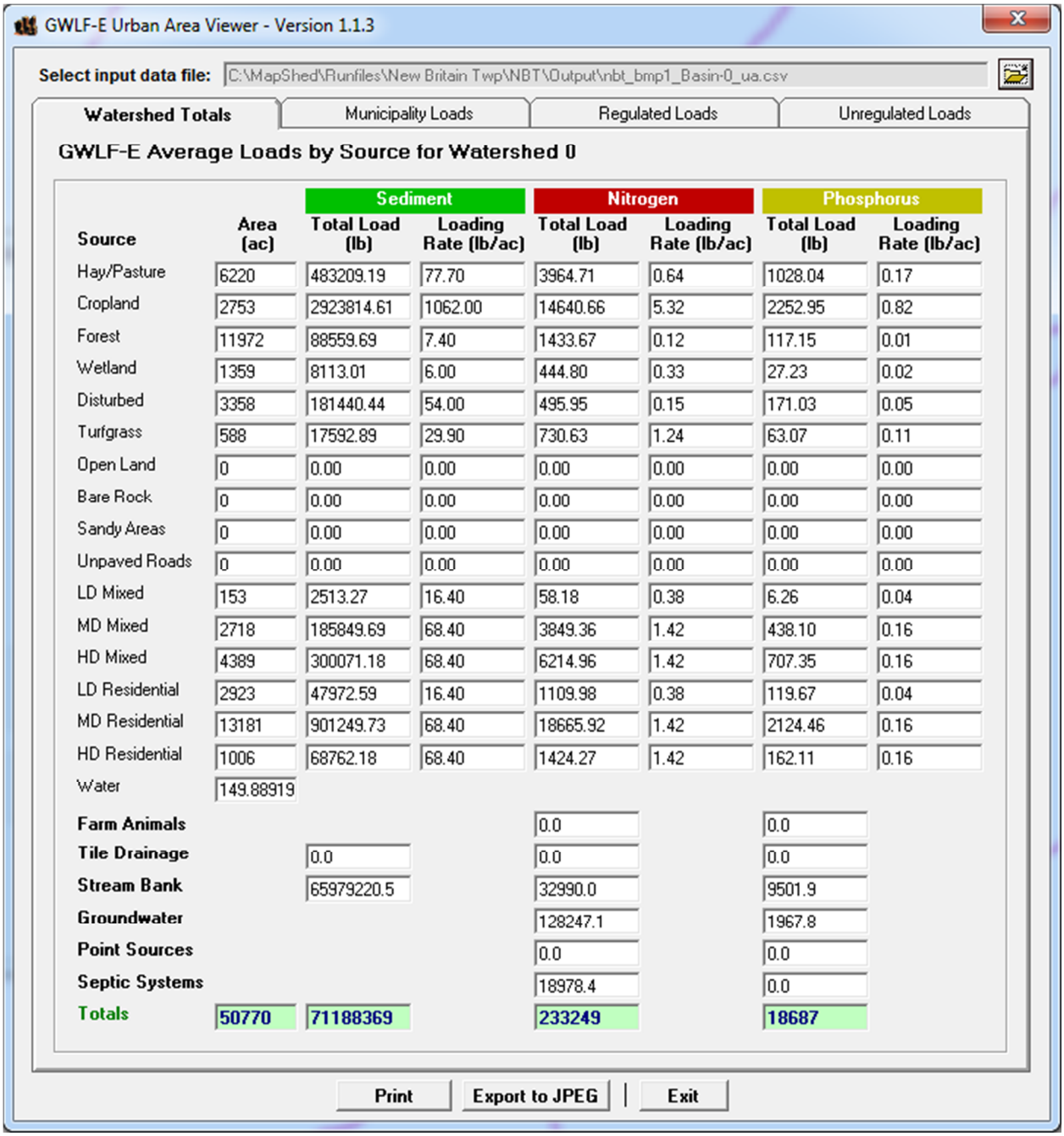


Source	Area (ac)	Sediment Total Load (lb)	Sediment Loading Rate (lb/ac)	Nitrogen Total Load (lb)	Nitrogen Loading Rate (lb/ac)	Phosphorus Total Load (lb)	Phosphorus Loading Rate (lb/ac)
Hay/Pasture	6220	484377.64	77.90	3972.33	0.64	1030.37	0.17
Cropland	2753	2926151.51	1062.90	14650.00	5.32	2254.65	0.82
Forest	11972	88559.69	7.40	1433.67	0.12	117.15	0.01
Wetland	1359	8113.01	6.00	444.80	0.33	27.23	0.02
Disturbed	3358	181440.44	54.00	495.95	0.15	171.03	0.05
Turfgrass	588	17592.89	29.90	730.63	1.24	63.07	0.11
Open Land	0	0.00	0.00	0.00	0.00	0.00	0.00
Bare Rock	0	0.00	0.00	0.00	0.00	0.00	0.00
Sandy Areas	0	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0	0.00	0.00	0.00	0.00	0.00	0.00
LD Mixed	153	2513.27	16.40	58.20	0.38	6.28	0.04
MD Mixed	2718	185981.96	68.40	3851.50	1.42	438.39	0.16
HD Mixed	4389	300291.65	68.40	6218.40	1.42	707.82	0.16
LD Residential	2923	47994.63	16.40	1110.60	0.38	119.73	0.04
MD Residential	13181	901867.02	68.40	18676.22	1.42	2125.83	0.16
HD Residential	1006	68806.27	68.40	1425.05	1.42	162.22	0.16
Water	149.88919						
Farm Animals				0.0		0.0	
Tile Drainage		0.0		0.0		0.0	
Stream Bank		66007873.9		33003.2		9504.1	
Groundwater				128246.8		1967.8	
Point Sources				0.0		0.0	
Septic Systems				18978.4		0.0	
Totals	**50770**	**71221564**		**233296**		**18696**	

BMP-1: Rain Garden

Location: Intersection of Schoolhouse Rd & Walnut St near Quad Graphics

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Select input data file:
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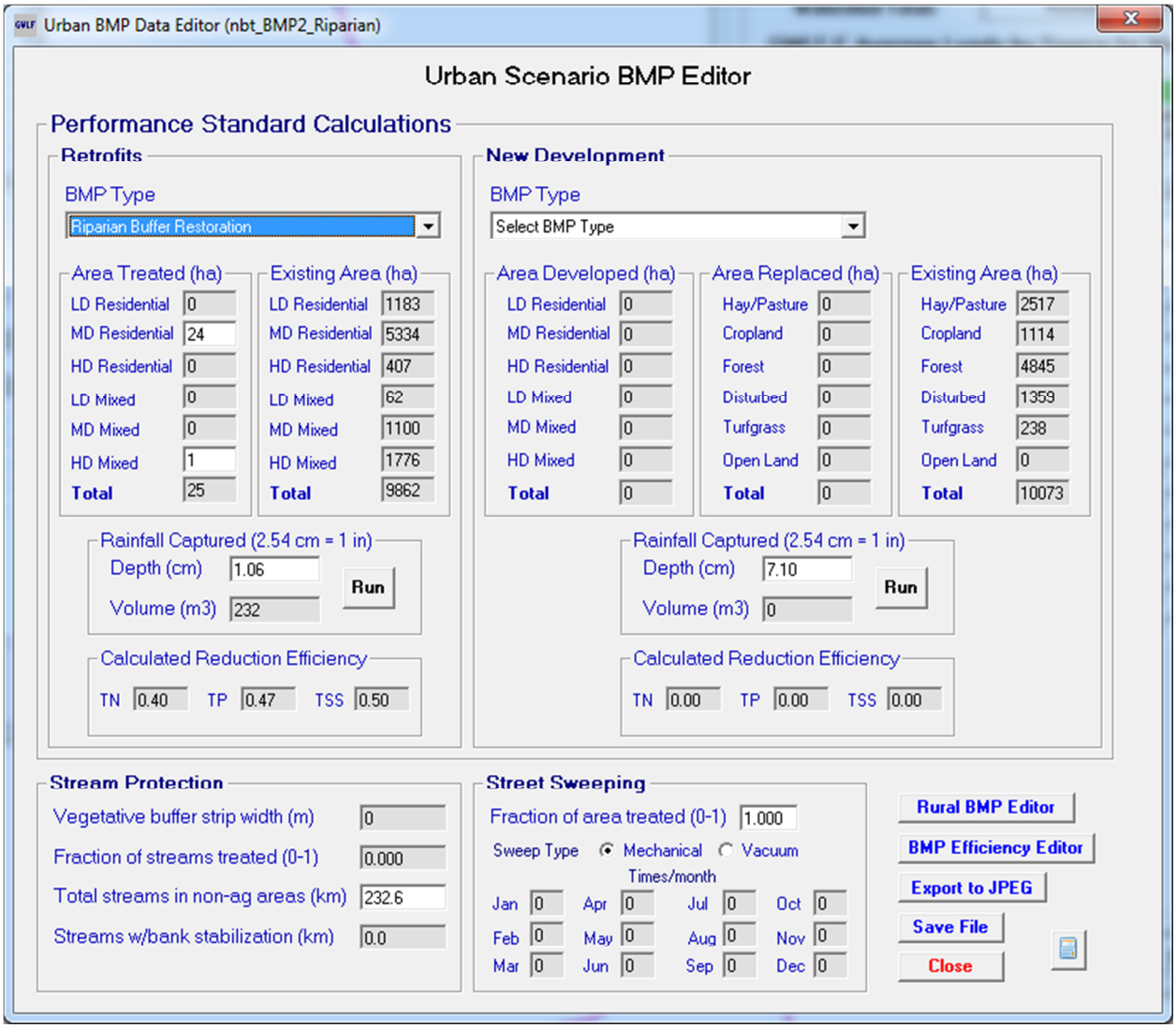
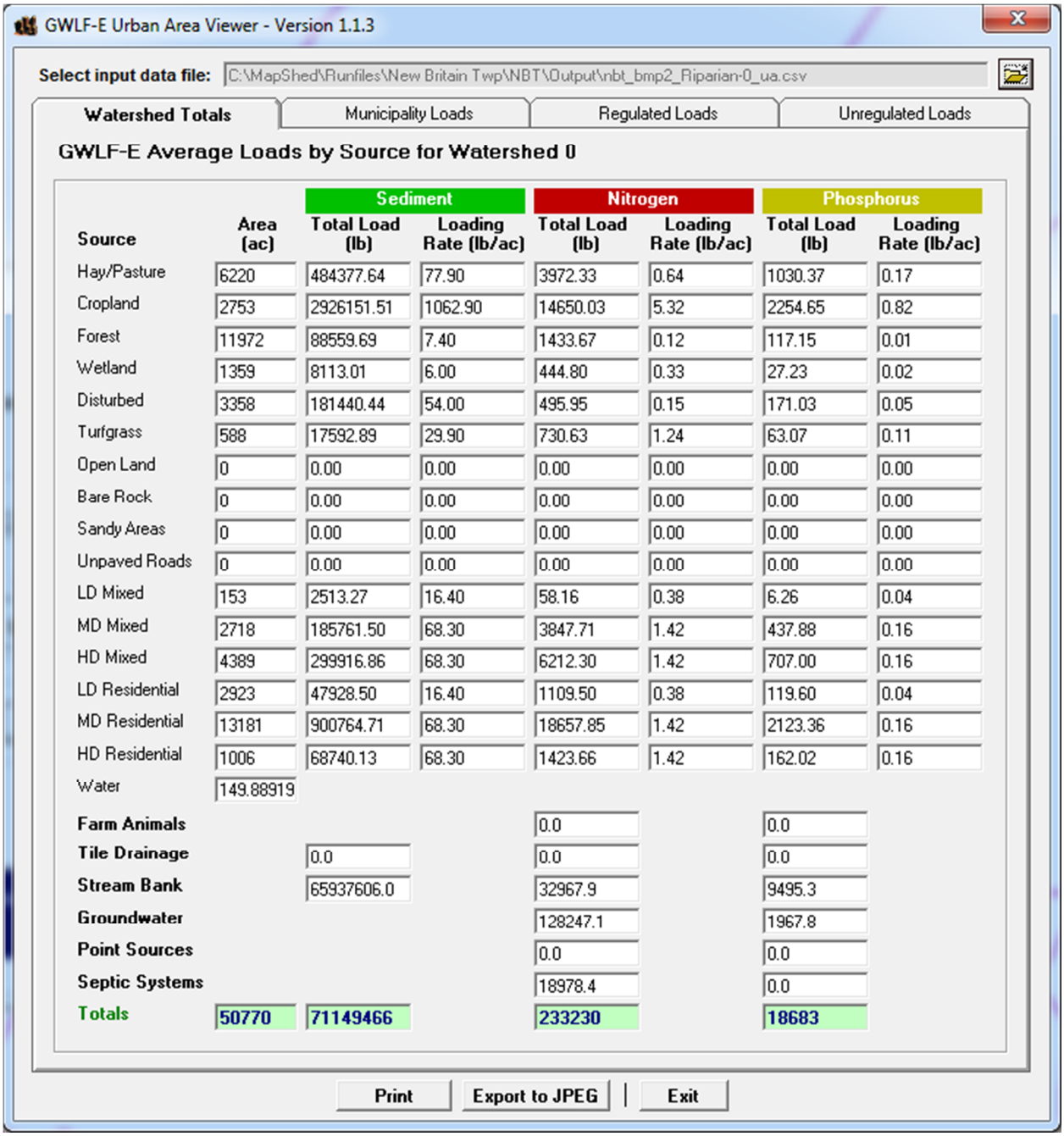
Watershed Totals
Municipality Loads
Regulated Loads
Unregulated Loads
GWLF-E Average Loads by Source for Watershed 0
Sediment
Nitrogen
Phosphorus
Source
Area (ac)
Total Load (lb)
Loading Rate (lb/ac)
Total Load (lb)
Loading Rate (lb/ac)
Total Load (lb)
Loading Rate (lb/ac)
Hay/Pasture 6220 483209.19 77.70 3964.71 0.64 1028.04 0.17
Cropland 2753 2923814.61 1062.00 14640.66 5.32 2252.95 0.82
Forest 11972 88559.69 7.40 1433.67 0.12 117.15 0.01
Wetland 1359 8113.01 6.00 444.80 0.33 27.23 0.02
Disturbed 3358 181440.44 54.00 495.95 0.15 171.03 0.05
Turfgrass 588 17592.89 29.90 730.63 1.24 63.07 0.11
Open Land 0 0.00 0.00 0.00 0.00 0.00 0.00
Bare Rock 0 0.00 0.00 0.00 0.00 0.00 0.00
Sandy Areas 0 0.00 0.00 0.00 0.00 0.00 0.00
Unpaved Roads 0 0.00 0.00 0.00 0.00 0.00 0.00
LD Mixed 153 2513.27 16.40 58.18 0.38 6.26 0.04
MD Mixed 2718 185849.69 68.40 3849.36 1.42 438.10 0.16
HD Mixed 4389 300071.18 68.40 6214.96 1.42 707.35 0.16
LD Residential 2923 47972.59 16.40 1109.98 0.38 119.67 0.04
MD Residential 13181 901249.73 68.40 18665.92 1.42 2124.46 0.16
HD Residential 1006 68762.18 68.40 1424.27 1.42 162.11 0.16
Water 149.88919
Farm Animals 0.0 0.0
Tile Drainage 0.0 0.0 0.0
Stream Bank 65979220.5 32990.0 9501.9
Groundwater 128247.1 1967.8
Point Sources 0.0 0.0
Septic Systems 18978.4 0.0
Totals 50770 71188369 233249 18687
Print
Export to JPEG
Exit

BMP – 2: Riparian Buffer

Location: Intersection of Hampshire Dr. & Brittany Dr. within residential neighborhood

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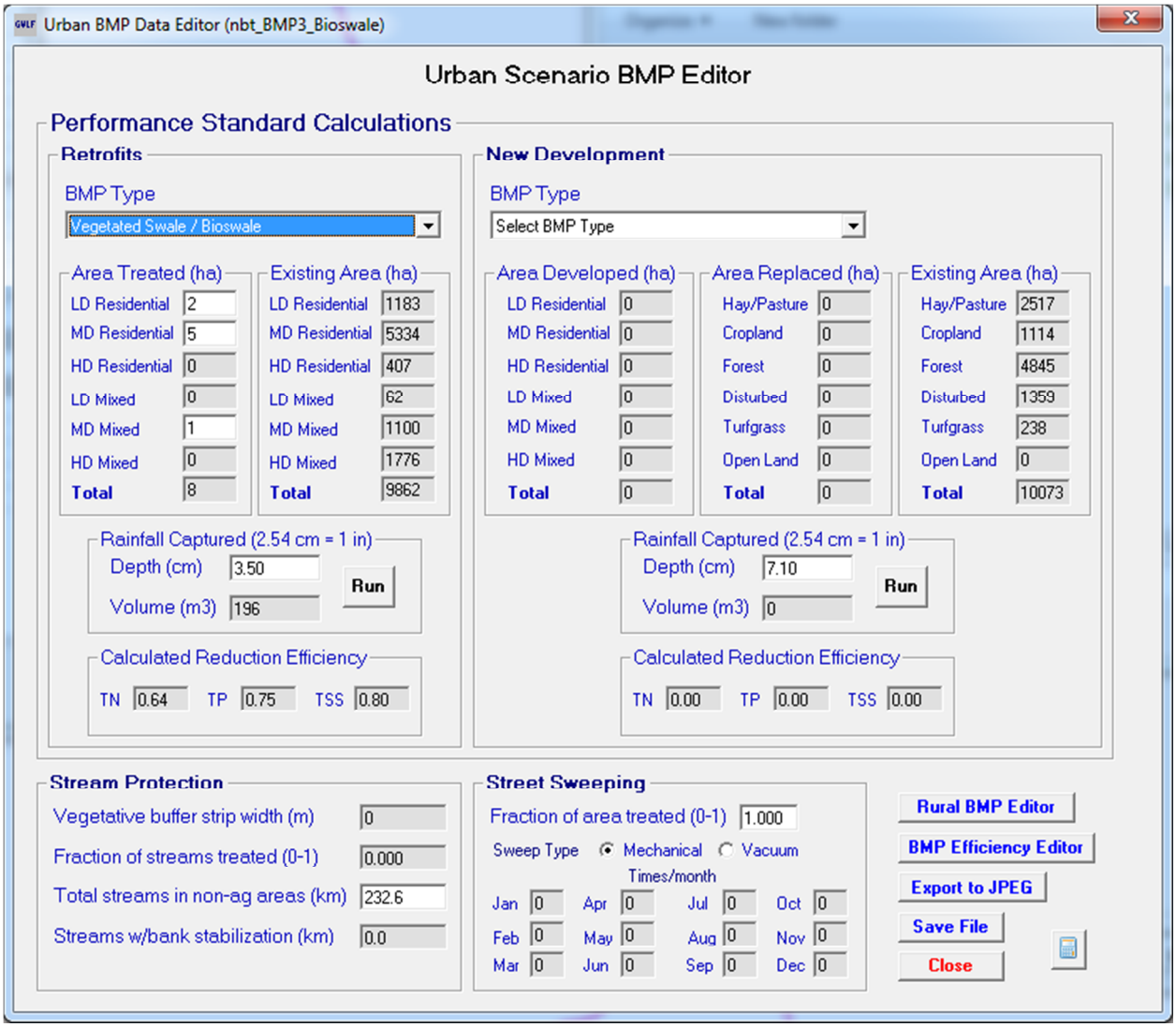
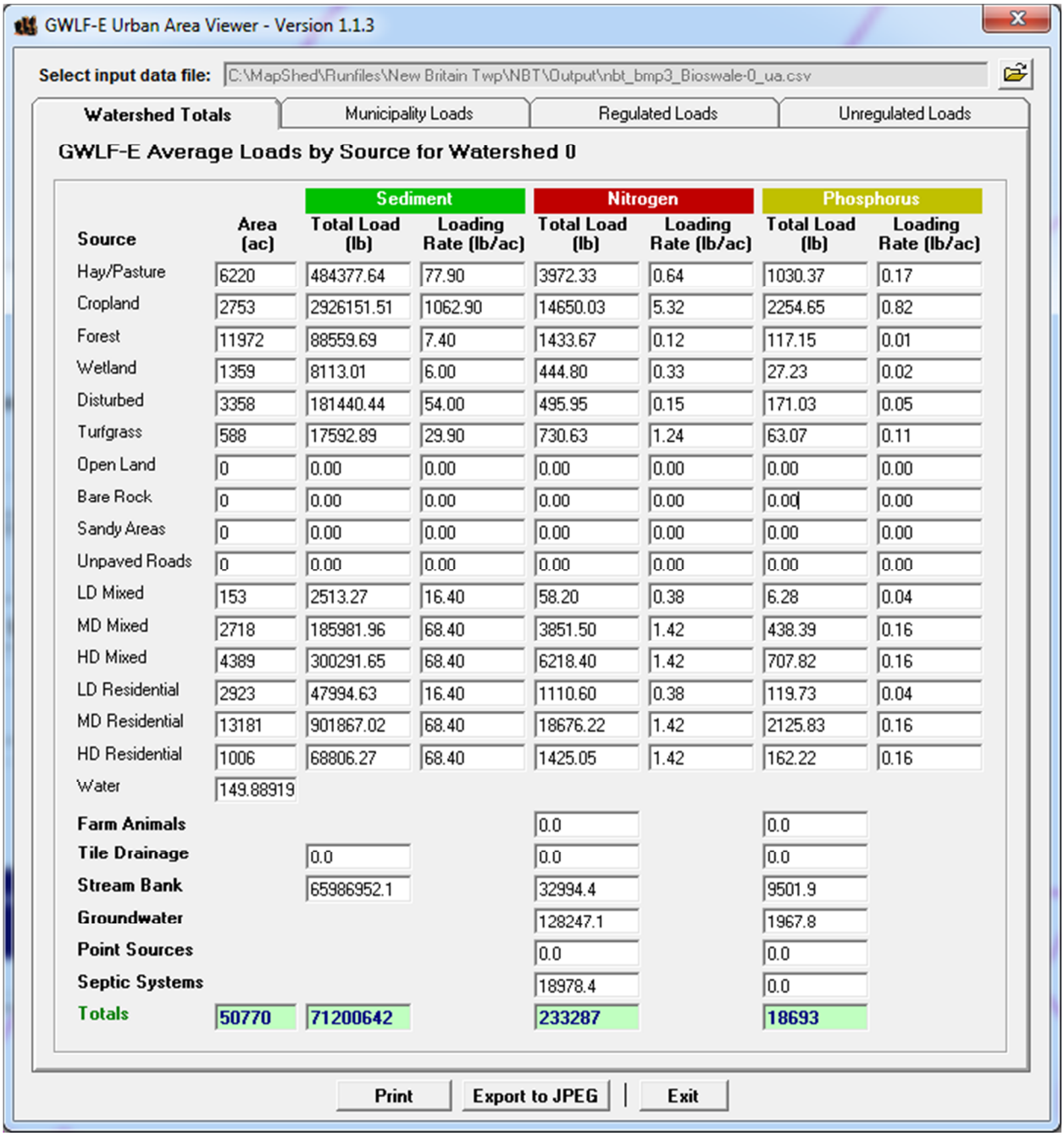
Select input data file:
C:\MapShed\Runfiles\New Britain Twp\NBT\Output\nbt_bmp2_Riparian-0_ua.csv
Watershed Totals
Municipality Loads
Regulated Loads
Unregulated Loads
GWLF-E Average Loads by Source for Watershed 0
Sediment
Nitrogen
Phosphorus
Source
Area (ac)
Total Load (lb)
Loading Rate (lb/ac)
Total Load (lb)
Loading Rate (lb/ac)
Total Load (lb)
Loading Rate (lb/ac)
Hay/Pasture 6220 484377.64 77.90 3972.33 0.64 1030.37 0.17
Cropland 2753 2926151.51 1062.90 14650.03 5.32 2254.65 0.82
Forest 11972 88559.69 7.40 1433.67 0.12 117.15 0.01
Wetland 1359 8113.01 6.00 444.80 0.33 27.23 0.02
Disturbed 3358 181440.44 54.00 495.95 0.15 171.03 0.05
Turfgrass 588 17592.89 29.90 730.63 1.24 63.07 0.11
Open Land 0 0.00 0.00 0.00 0.00 0.00 0.00
Bare Rock 0 0.00 0.00 0.00 0.00 0.00 0.00
Sandy Areas 0 0.00 0.00 0.00 0.00 0.00 0.00
Unpaved Roads 0 0.00 0.00 0.00 0.00 0.00 0.00
LD Mixed 153 2513.27 16.40 58.16 0.38 6.26 0.04
MD Mixed 2718 185761.50 68.30 3847.71 1.42 437.88 0.16
HD Mixed 4389 299916.86 68.30 6212.30 1.42 707.00 0.16
LD Residential 2923 47928.50 16.40 1109.50 0.38 119.60 0.04
MD Residential 13181 900764.71 68.30 18657.85 1.42 2123.36 0.16
HD Residential 1006 68740.13 68.30 1423.66 1.42 162.02 0.16
Water 149.88919
Farm Animals 0.0 0.0
Tile Drainage 0.0 0.0 0.0
Stream Bank 65937606.0 32967.9 9495.3
Groundwater 128247.1 1967.8
Point Sources 0.0 0.0
Septic Systems 18978.4 0.0
Totals 50770 71149466 233230 18683
Print
Export to JPEG
Exit

BMP – 3: Bioswale

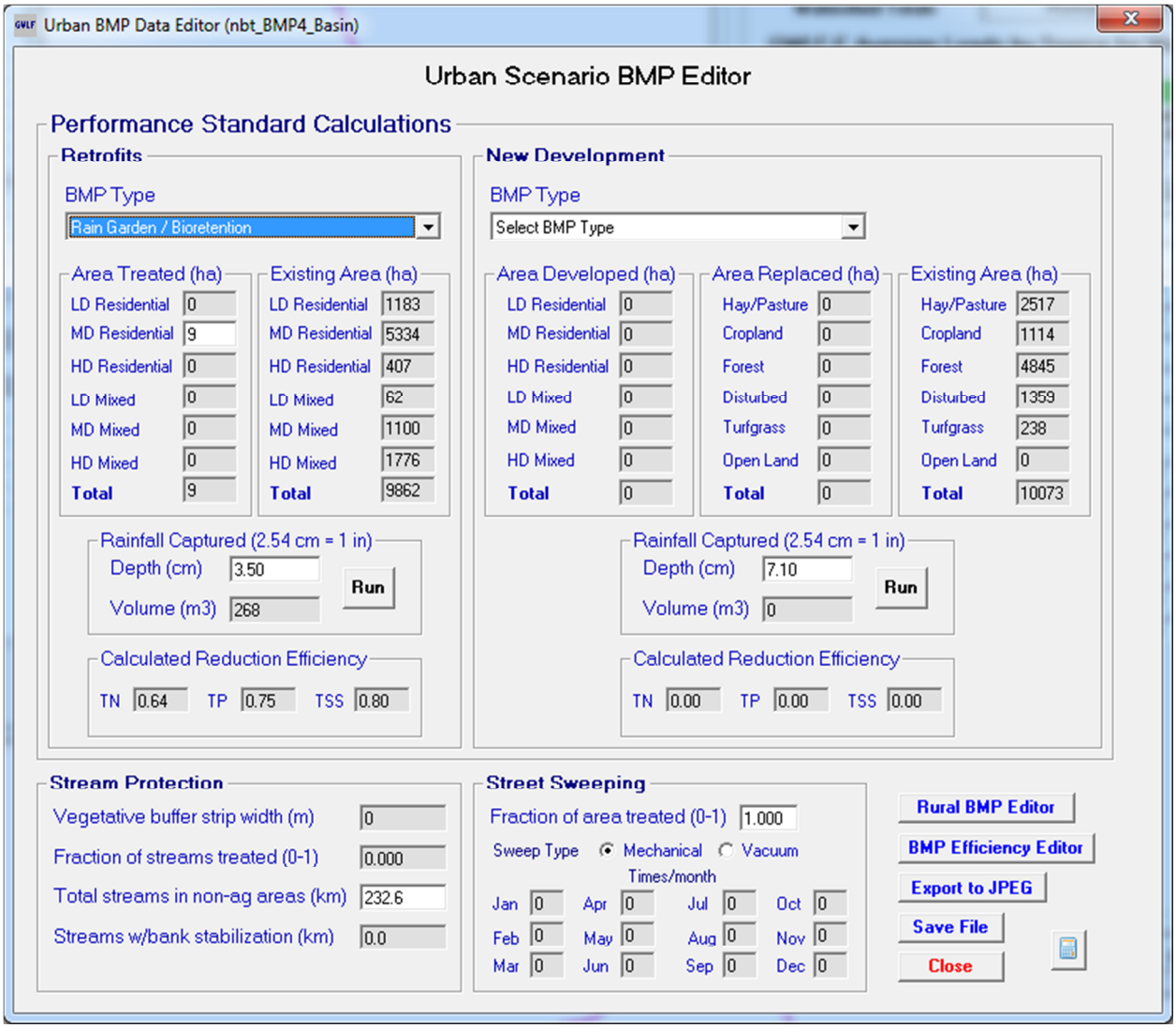
Location: South side of Cornwall Drive between Dolly Ln & Brittany Dr. (Approximately 1,000 feet)

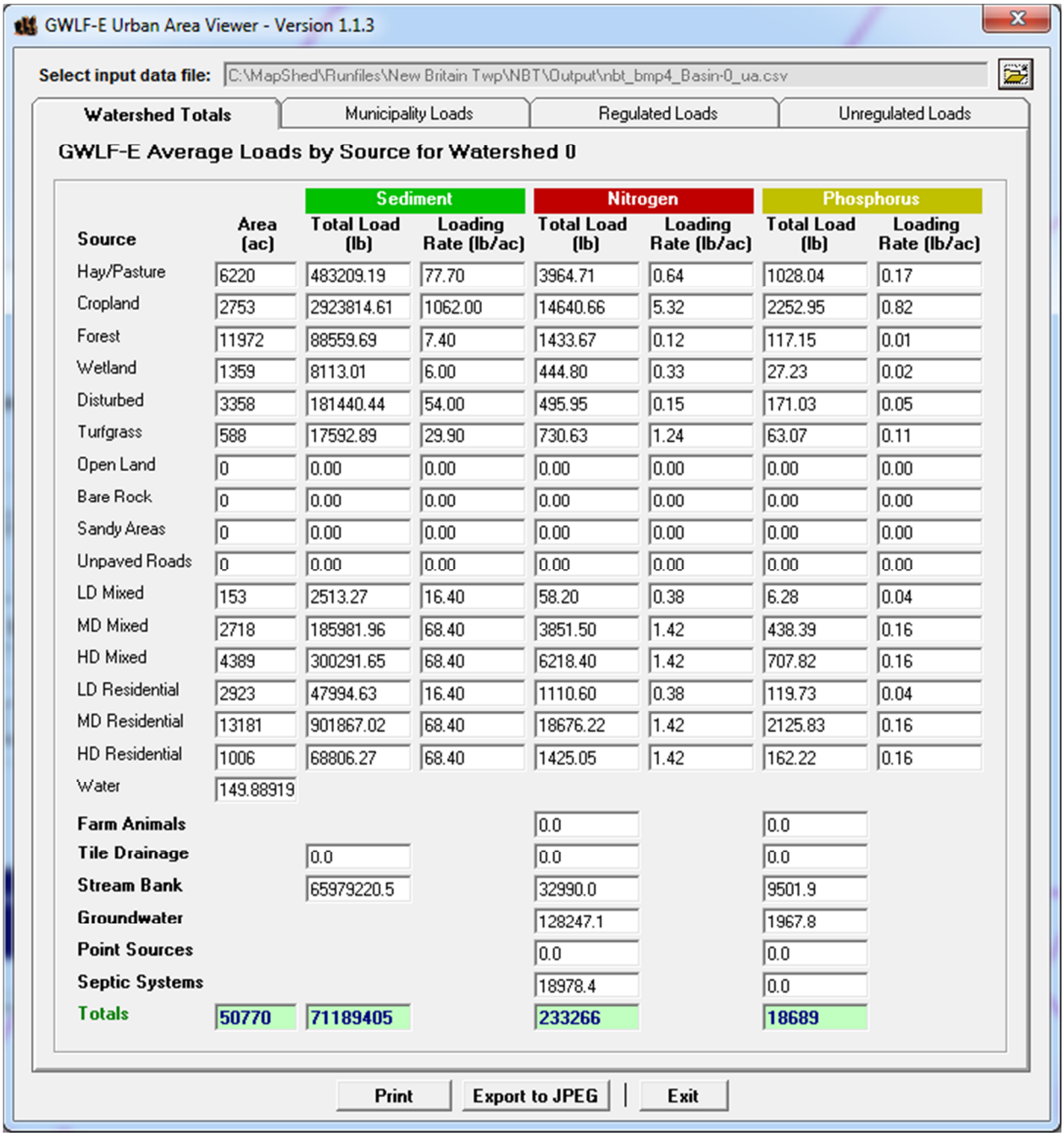



GWLF-E Urban Area Viewer - Version 1.1.3
Select input data file:
C:\MapShed\Runfiles\New Britain Twp\NBT\Output\nbt_bmp3_Bioswale-0_ua.csv
Watershed Totals
Municipality Loads
Regulated Loads
Unregulated Loads
GWLF-E Average Loads by Source for Watershed 0
Sediment
Nitrogen
Phosphorus
Source
Area (ac)
Total Load (lb)
Loading Rate (lb/ac)
Total Load (lb)
Loading Rate (lb/ac)
Total Load (lb)
Loading Rate (lb/ac)
Hay/Pasture 6220 484377.64 77.90 3972.33 0.64 1030.37 0.17
Cropland 2753 2926151.51 1062.90 14650.03 5.32 2254.65 0.82
Forest 11972 88559.69 7.40 1433.67 0.12 117.15 0.01
Wetland 1359 8113.01 6.00 444.80 0.33 27.23 0.02
Disturbed 3358 181440.44 54.00 495.95 0.15 171.03 0.05
Turfgrass 588 17592.89 29.90 730.63 1.24 63.07 0.11
Open Land 0 0.00 0.00 0.00 0.00 0.00 0.00
Bare Rock 0 0.00 0.00 0.00 0.00 0.00 0.00
Sandy Areas 0 0.00 0.00 0.00 0.00 0.00 0.00
Unpaved Roads 0 0.00 0.00 0.00 0.00 0.00 0.00
LD Mixed 153 2513.27 16.40 58.20 0.38 6.28 0.04
MD Mixed 2718 185981.96 68.40 3851.50 1.42 438.39 0.16
HD Mixed 4389 300291.65 68.40 6218.40 1.42 707.82 0.16
LD Residential 2923 47994.63 16.40 1110.60 0.38 119.73 0.04
MD Residential 13181 901867.02 68.40 18676.22 1.42 2125.83 0.16
HD Residential 1006 68806.27 68.40 1425.05 1.42 162.22 0.16
Water 149.88919
Farm Animals 0.0 0.0
Tile Drainage 0.0 0.0 0.0
Stream Bank 65986952.1 32994.4 9501.9
Groundwater 128247.1 1967.8
Point Sources 0.0 0.0
Septic Systems 18978.4 0.0
Totals 50770 71200642 233287 18693
Print
Export to JPEG
Exit

BMP – 4: Basin Retrofit

Location: Township Land between Sellersville Rd & Walter Rd near cul-de-sac of Clover Ln




GWLF-E Urban Area Viewer - Version 1.1.3
Select input data file:
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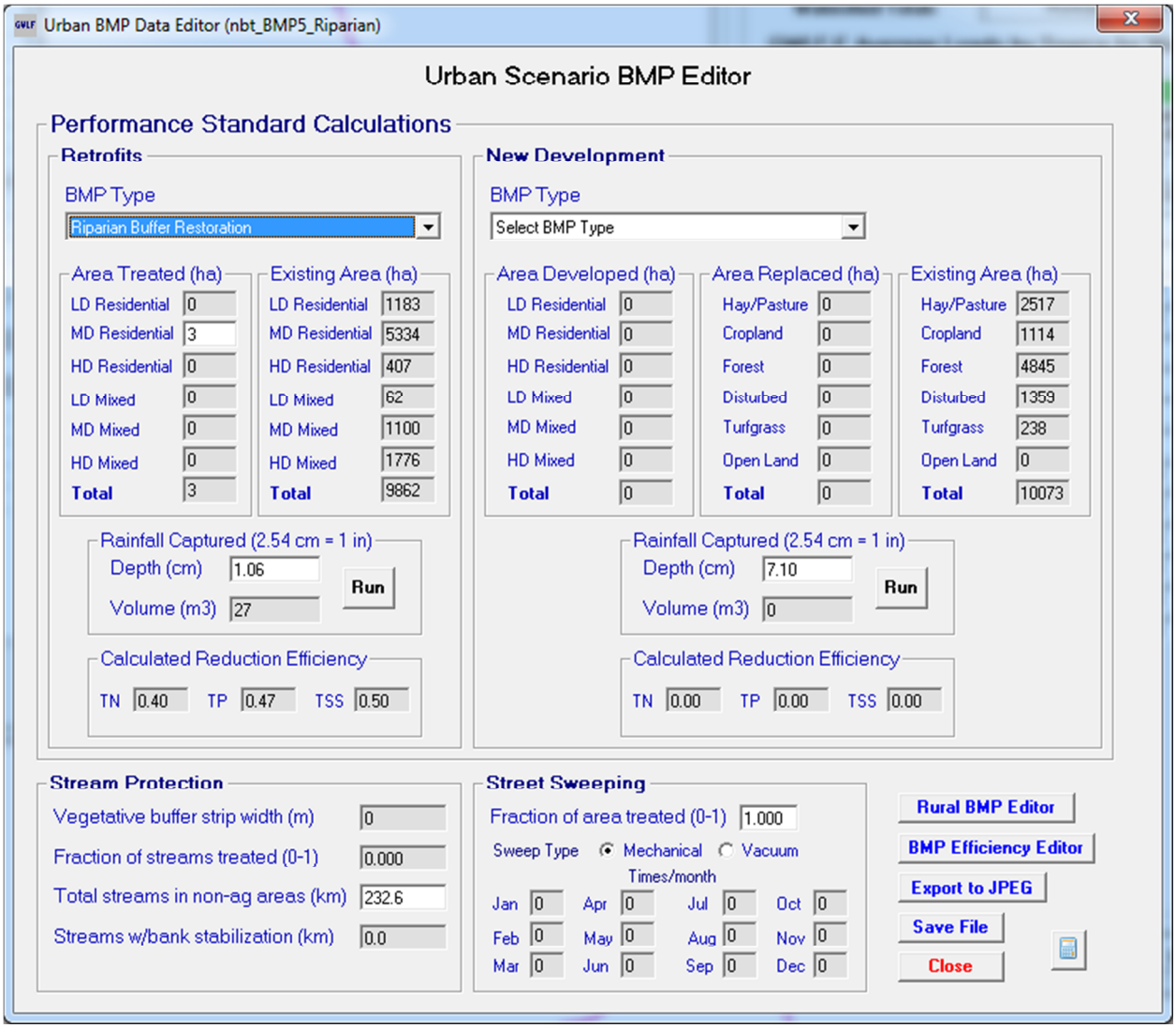
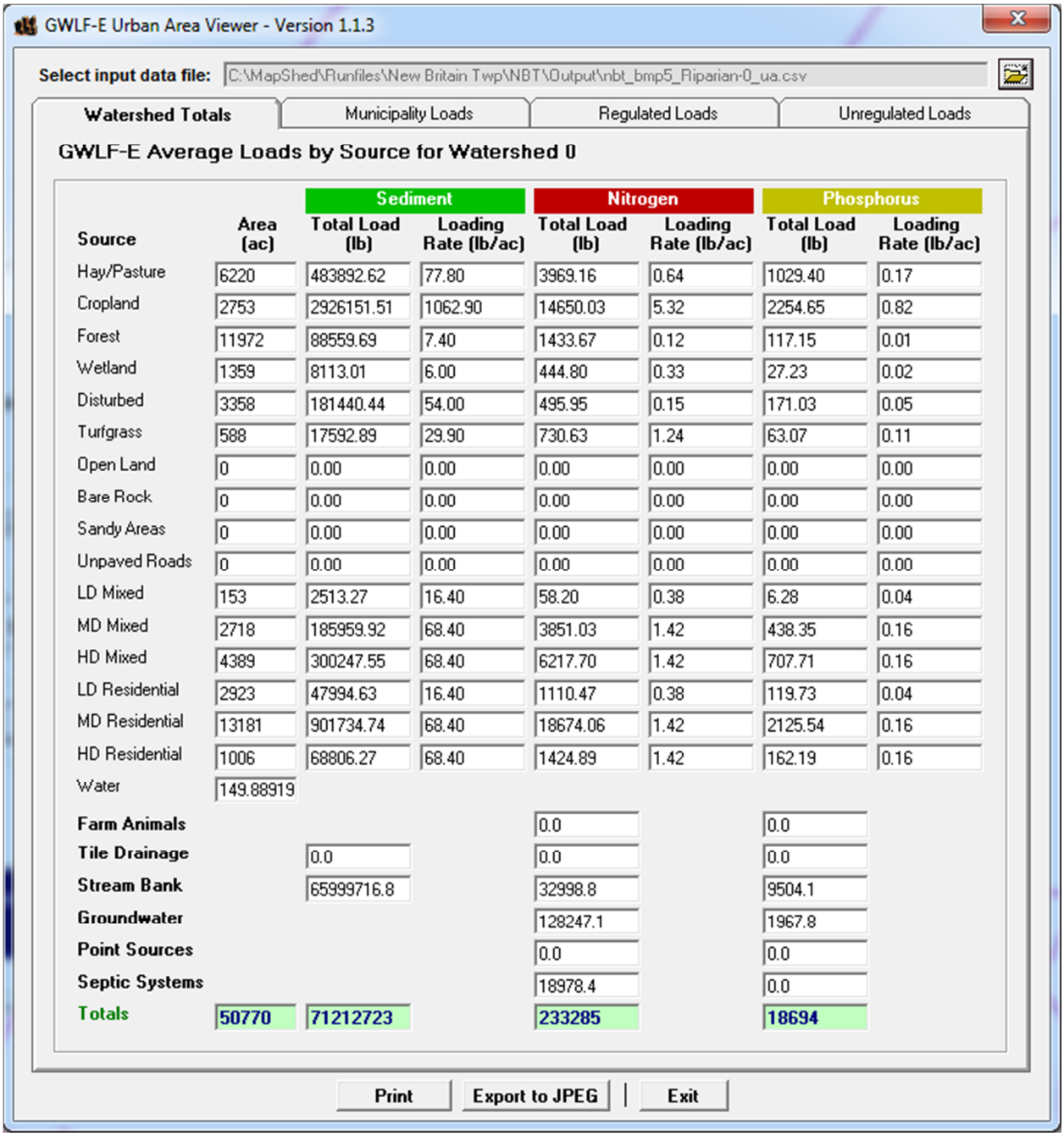
Watershed Totals
Municipality Loads
Regulated Loads
Unregulated Loads
GWLF-E Average Loads by Source for Watershed 0
Sediment
Nitrogen
Phosphorus
Source
Area (ac)
Total Load (lb)
Loading Rate (lb/ac)
Total Load (lb)
Loading Rate (lb/ac)
Total Load (lb)
Loading Rate (lb/ac)
Hay/Pasture 6220 483209.19 77.70 3964.71 0.64 1028.04 0.17
Cropland 2753 2923814.61 1062.00 14640.66 5.32 2252.95 0.82
Forest 11972 88559.69 7.40 1433.67 0.12 117.15 0.01
Wetland 1359 8113.01 6.00 444.80 0.33 27.23 0.02
Disturbed 3358 181440.44 54.00 495.95 0.15 171.03 0.05
Turfgrass 588 17592.89 29.90 730.63 1.24 63.07 0.11
Open Land 0 0.00 0.00 0.00 0.00 0.00 0.00
Bare Rock 0 0.00 0.00 0.00 0.00 0.00 0.00
Sandy Areas 0 0.00 0.00 0.00 0.00 0.00 0.00
Unpaved Roads 0 0.00 0.00 0.00 0.00 0.00 0.00
LD Mixed 153 2513.27 16.40 58.20 0.38 6.28 0.04
MD Mixed 2718 185981.96 68.40 3851.50 1.42 438.39 0.16
HD Mixed 4389 300291.65 68.40 6218.40 1.42 707.82 0.16
LD Residential 2923 47994.63 16.40 1110.60 0.38 119.73 0.04
MD Residential 13181 901867.02 68.40 18676.22 1.42 2125.83 0.16
HD Residential 1006 68806.27 68.40 1425.05 1.42 162.22 0.16
Water 149.88919
Farm Animals 0.0 0.0
Tile Drainage 0.0 0.0 0.0
Stream Bank 65979220.5 32990.0 9501.9
Groundwater 128247.1 1967.8
Point Sources 0.0 0.0
Septic Systems 18978.4 0.0
Totals 50770 71189405 233266 18689
Print
Export to JPEG
Exit

BMP – 5: Riparian Buffer

Location: Portion along Pine Run off of Park Ave, to the rear of Sycamore Cir, near walking trail.

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Select input data file:
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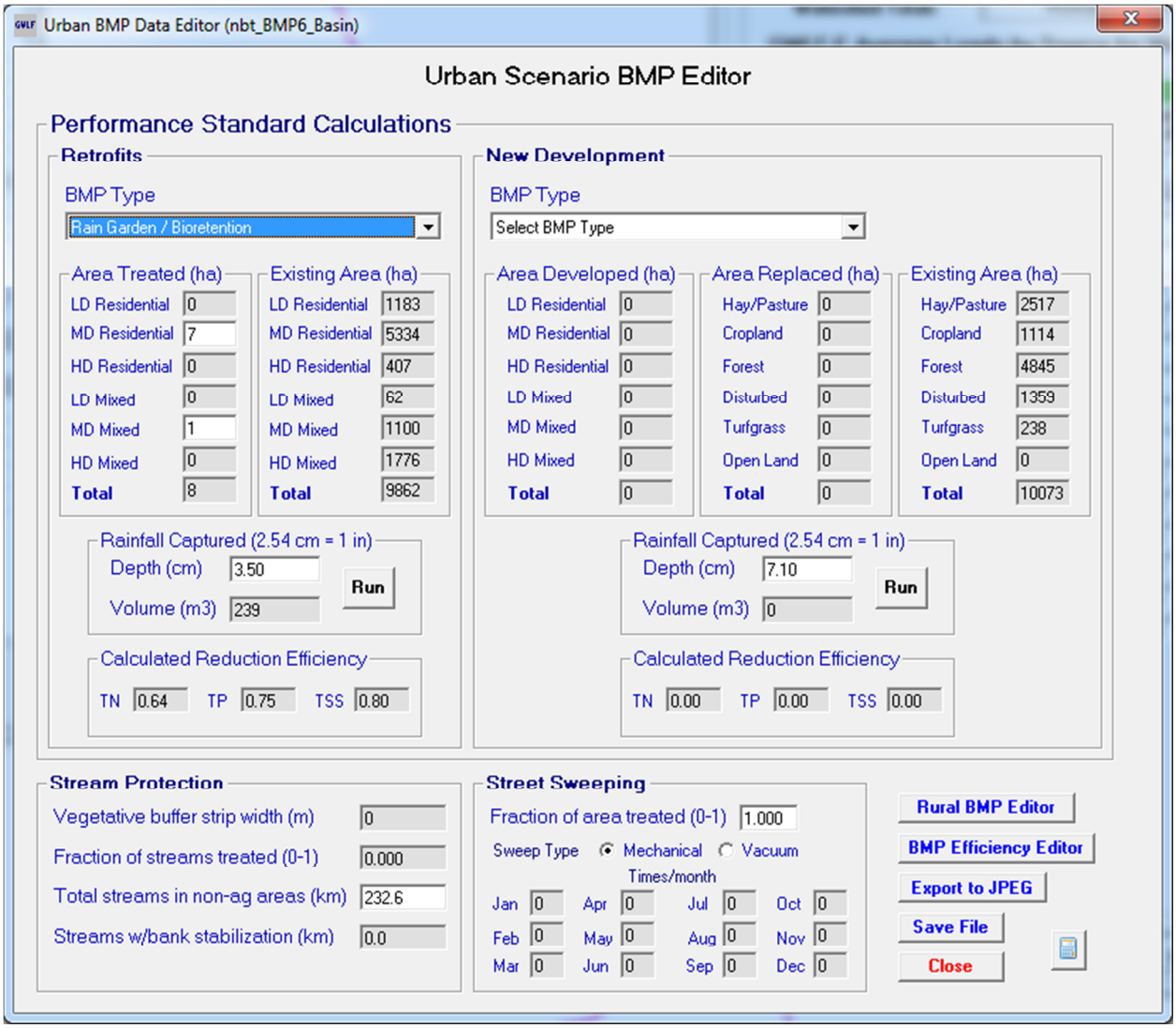
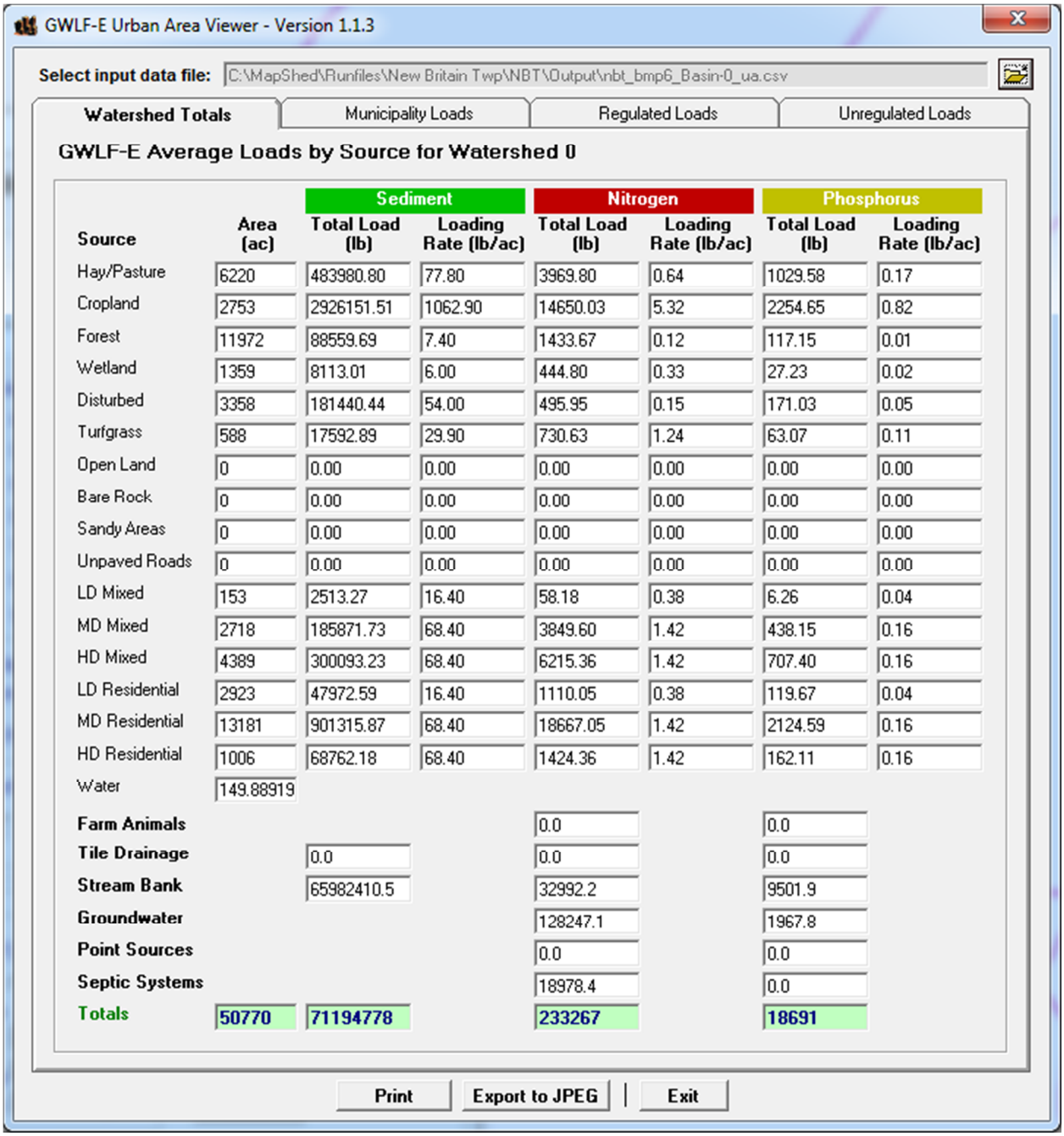
Watershed Totals
Municipality Loads
Regulated Loads
Unregulated Loads
GWLF-E Average Loads by Source for Watershed 0
Sediment
Nitrogen
Phosphorus
Source
Area (ac)
Total Load (lb)
Loading Rate (lb/ac)
Total Load (lb)
Loading Rate (lb/ac)
Total Load (lb)
Loading Rate (lb/ac)
Hay/Pasture 6220 483892.62 77.80 3969.16 0.64 1029.40 0.17
Cropland 2753 2926151.51 1062.90 14650.03 5.32 2254.65 0.82
Forest 11972 88559.69 7.40 1433.67 0.12 117.15 0.01
Wetland 1359 8113.01 6.00 444.80 0.33 27.23 0.02
Disturbed 3358 181440.44 54.00 495.95 0.15 171.03 0.05
Turfgrass 588 17592.89 29.90 730.63 1.24 63.07 0.11
Open Land 0 0.00 0.00 0.00 0.00 0.00 0.00
Bare Rock 0 0.00 0.00 0.00 0.00 0.00 0.00
Sandy Areas 0 0.00 0.00 0.00 0.00 0.00 0.00
Unpaved Roads 0 0.00 0.00 0.00 0.00 0.00 0.00
LD Mixed 153 2513.27 16.40 58.20 0.38 6.28 0.04
MD Mixed 2718 185959.92 68.40 3851.03 1.42 438.35 0.16
HD Mixed 4389 300247.55 68.40 6217.70 1.42 707.71 0.16
LD Residential 2923 47994.63 16.40 1110.47 0.38 119.73 0.04
MD Residential 13181 901734.74 68.40 18674.06 1.42 2125.54 0.16
HD Residential 1006 68806.27 68.40 1424.89 1.42 162.19 0.16
Water 149.88919
Farm Animals 0.0 0.0
Tile Drainage 0.0 0.0 0.0
Stream Bank 65999716.8 32998.8 9504.1
Groundwater 128247.1 1967.8
Point Sources 0.0 0.0
Septic Systems 18978.4 0.0
Totals 50770 71212723 233285 18694
Print
Export to JPEG
Exit

BMP – 6: Basin Retrofit

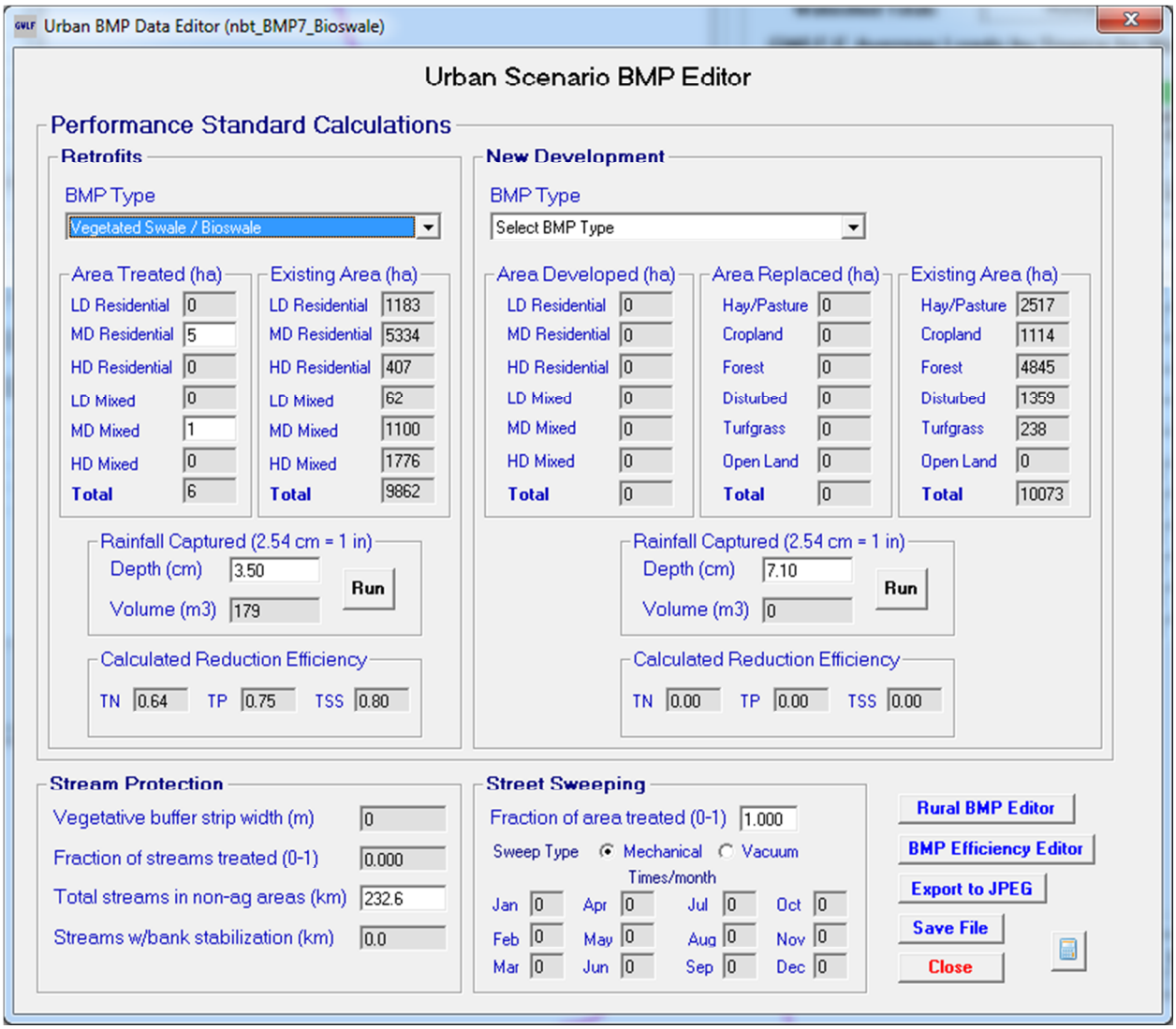
Location: Basin to the rear of Circle Dr. between Schoolhouse Rd & Cedar Hill Rd.

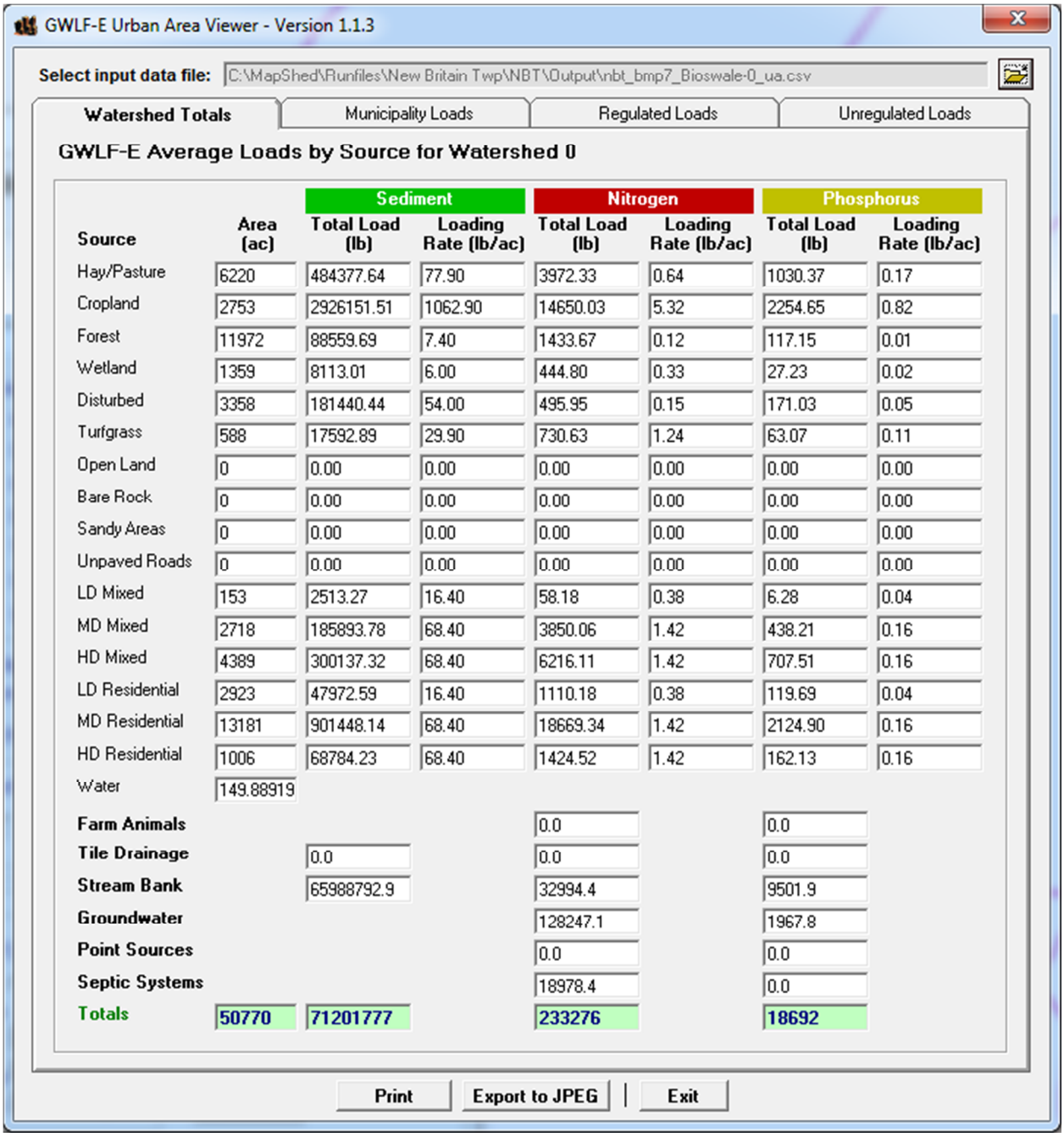



GWLF-E Urban Area Viewer - Version 1.1.3
Select input data file:
C:\MapShed\Runfiles\New Britain Twp\NBT\Output\nbt_bmp6_Basin-0_ua.csv
Watershed Totals
Municipality Loads
Regulated Loads
Unregulated Loads
GWLF-E Average Loads by Source for Watershed 0
Sediment
Nitrogen
Phosphorus
Source
Area (ac)
Total Load (lb)
Loading Rate (lb/ac)
Total Load (lb)
Loading Rate (lb/ac)
Total Load (lb)
Loading Rate (lb/ac)
Hay/Pasture 6220 483980.80 77.80 3969.80 0.64 1029.58 0.17
Cropland 2753 2926151.51 1062.90 14650.03 5.32 2254.65 0.82
Forest 11972 88559.69 7.40 1433.67 0.12 117.15 0.01
Wetland 1359 8113.01 6.00 444.80 0.33 27.23 0.02
Disturbed 3358 181440.44 54.00 495.95 0.15 171.03 0.05
Turfgrass 588 17592.89 29.90 730.63 1.24 63.07 0.11
Open Land 0 0.00 0.00 0.00 0.00 0.00 0.00
Bare Rock 0 0.00 0.00 0.00 0.00 0.00 0.00
Sandy Areas 0 0.00 0.00 0.00 0.00 0.00 0.00
Unpaved Roads 0 0.00 0.00 0.00 0.00 0.00 0.00
LD Mixed 153 2513.27 16.40 58.18 0.38 6.26 0.04
MD Mixed 2718 185871.73 68.40 3849.60 1.42 438.15 0.16
HD Mixed 4389 300093.23 68.40 6215.36 1.42 707.40 0.16
LD Residential 2923 47972.59 16.40 1110.05 0.38 119.67 0.04
MD Residential 13181 901315.87 68.40 18667.05 1.42 2124.59 0.16
HD Residential 1006 68762.18 68.40 1424.36 1.42 162.11 0.16
Water 149.88919
Farm Animals 0.0 0.0
Tile Drainage 0.0 0.0 0.0
Stream Bank 65982410.5 32992.2 9501.9
Groundwater 128247.1 1967.8
Point Sources 0.0 0.0
Septic Systems 18978.4 0.0
Totals 50770 71194778 233267 18691
Print
Export to JPEG
Exit

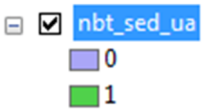
BMP – 7: Bioswale

Location: North side of Upper State Road between Woodside Ave. & Blackburn Dr. (Approximately 900 feet)

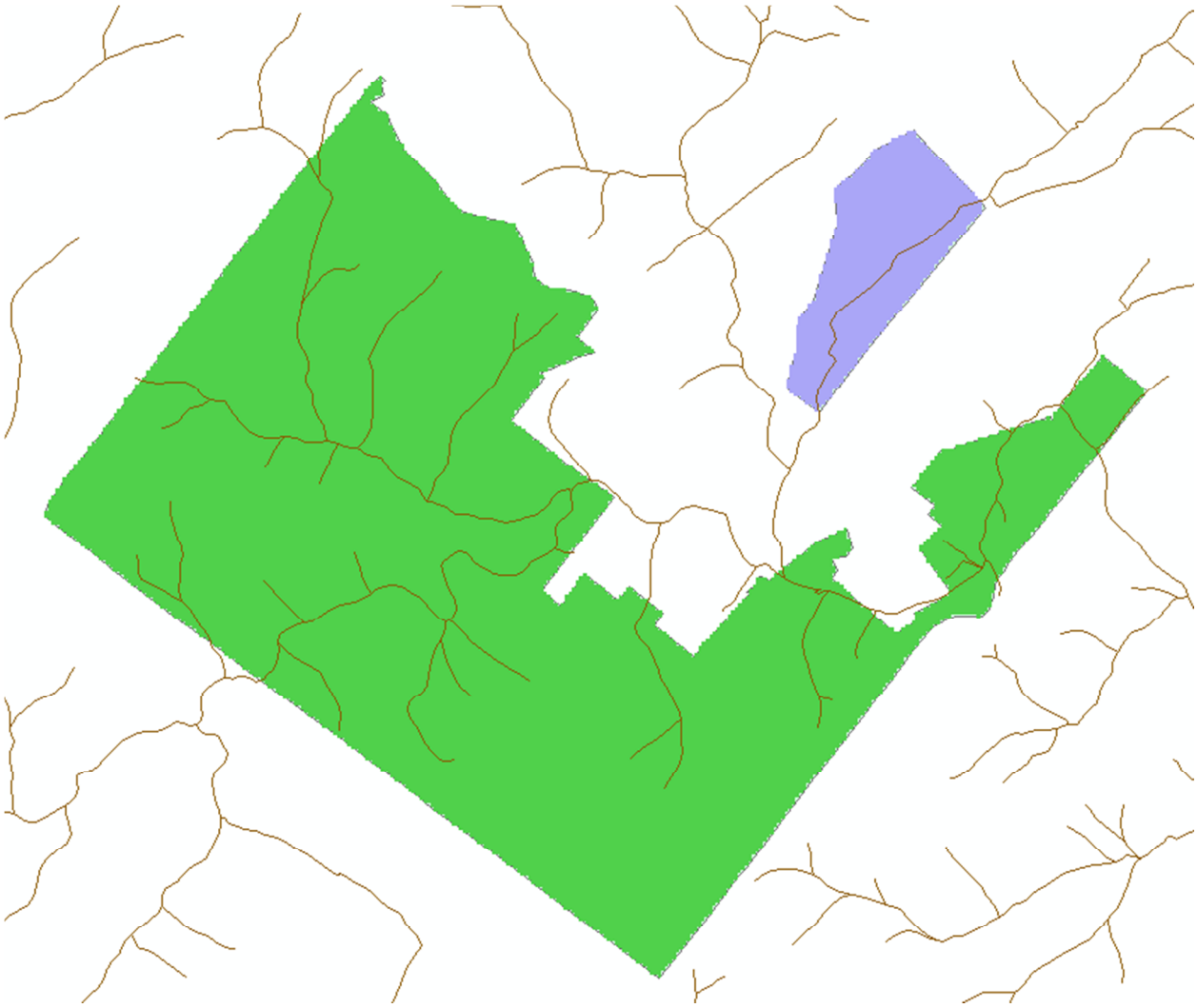



GWLF-E Urban Area Viewer - Version 1.1.3
Select input data file:
C:\MapShed\Runfiles\New Britain Twp\NBT\Output\nbt_bmp7_Bioswale-0_ua.csv
Watershed Totals
Municipality Loads
Regulated Loads
Unregulated Loads
GWLF-E Average Loads by Source for Watershed 0
Sediment
Nitrogen
Phosphorus
Source
Area (ac)
Total Load (lb)
Loading Rate (lb/ac)
Total Load (lb)
Loading Rate (lb/ac)
Total Load (lb)
Loading Rate (lb/ac)
Hay/Pasture 6220 484377.64 77.90 3972.33 0.64 1030.37 0.17
Cropland 2753 2926151.51 1062.90 14650.03 5.32 2254.65 0.82
Forest 11972 88559.69 7.40 1433.67 0.12 117.15 0.01
Wetland 1359 8113.01 6.00 444.80 0.33 27.23 0.02
Disturbed 3358 181440.44 54.00 495.95 0.15 171.03 0.05
Turfgrass 588 17592.89 29.90 730.63 1.24 63.07 0.11
Open Land 0 0.00 0.00 0.00 0.00 0.00 0.00
Bare Rock 0 0.00 0.00 0.00 0.00 0.00 0.00
Sandy Areas 0 0.00 0.00 0.00 0.00 0.00 0.00
Unpaved Roads 0 0.00 0.00 0.00 0.00 0.00 0.00
LD Mixed 153 2513.27 16.40 58.18 0.38 6.28 0.04
MD Mixed 2718 185893.78 68.40 3850.06 1.42 438.21 0.16
HD Mixed 4389 300137.32 68.40 6216.11 1.42 707.51 0.16
LD Residential 2923 47972.59 16.40 1110.18 0.38 119.69 0.04
MD Residential 13181 901448.14 68.40 18669.34 1.42 2124.90 0.16
HD Residential 1006 68784.23 68.40 1424.52 1.42 162.13 0.16
Water 149.88919
Farm Animals 0.0 0.0
Tile Drainage 0.0 0.0 0.0
Stream Bank 65988792.9 32994.4 9501.9
Groundwater 128247.1 1967.8
Point Sources 0.0 0.0
Septic Systems 18978.4 0.0
Totals 50770 71201777 233276 18692
Print
Export to JPEG
Exit

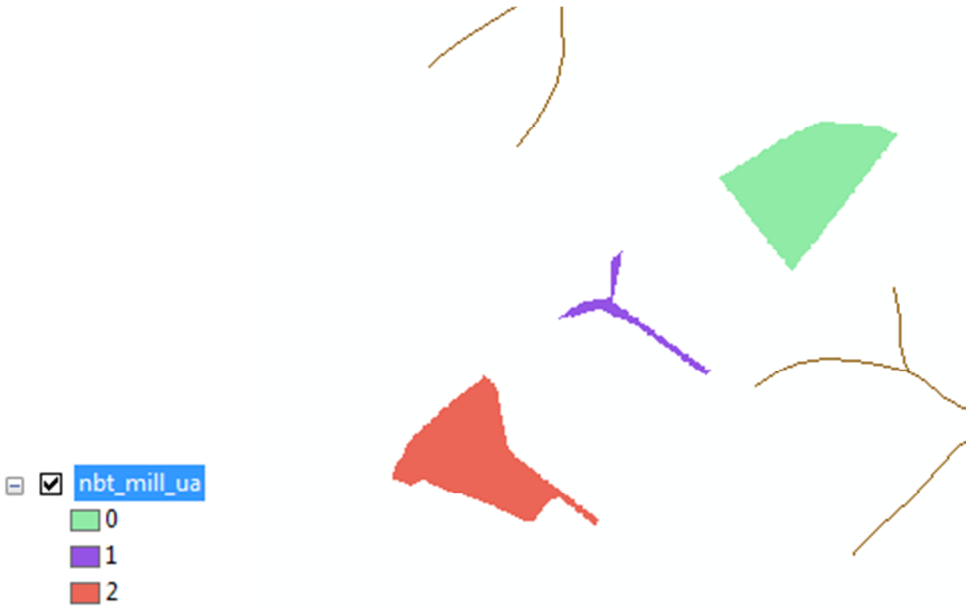
NBT Sediment – All urbanized area minus North Branch Watershed



Parcel	Area	Loading
0	294	347944
1	4110	5377660
Total	4404	5725604



NBT Mill – All urbanized area minus North Branch Watershed



Parcel	Area	Loading
0	22	11,618
1	2	1,329
2	10	5,145
TOTAL	34	18,092