Potash Brook Flow Restoration Plan

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1. Executive Summary

This Flow Restoration Plan (FRP) for the Potash Brook watershed was developed in accordance with requirements in the Municipal Separate Storm Sewer System (MS4) General Permit #3-9014 (2012). Once approved by the Vermont Department of Environmental Conservation (VTDEC) this FRP will become part of the Stormwater Management Plans (SWMP) prepared by the MS4 permittees in the Potash Brook watershed. This includes the City of South Burlington, the Vermont Agency of Transportation (VTrans), the City of Burlington, Burlington International Airport (BTV) and the University of Vermont (UVM). The Potash Brook FRP will act as a guidance document for the MS4 entities as they implement the stormwater Best Management Practices (BMPs) necessary to attain the flow restoration targets established by the Potash Brook Total Maximum Daily Load (TMDL). The Potash Brook TMDL was approved by the U.S. Environmental Protection Agency (EPA) on December 19, 2006. The TMDL suggests an 11.2% increase in stream flow during low flow conditions, and requires a 16.5% reduction in stream flow during high flow conditions (established as the 1-year storm event).

Development of the Potash Brook FRP was an iterative process that utilized the Vermont Best Management Practice Decision Support System (BMPDSS) model maintained by VTDEC. This model was created by VTDEC and its partners as part of the initial TMDL development. The BMPDSS model allows the user to add, remove, or modify information related to the existing and proposed stormwater BMPs in the watershed. The BMPDSS then predicts the impacts that these changes will have on stream flow. In 2002, VTDEC provided a "base" condition BMPDSS model for Potash Brook. This version of the BMPDSS model included all stormwater BMPs that existed in the watershed prior to 2002 and provided an estimated stream flow during the 1-year storm event. The goal of the FRP is to reduce stream flow by 16.5% during this target storm event.

The first step in FRP development was to inspect all existing BMPs included in the "base" condition model (Pre-2002). Based on the results of these field inspections, revisions were made to the BMPDSS model. Once this work was complete, the BMPDSS model was updated to include all BMPs that were constructed in the watershed after 2002. This version of the model became known as the "existing" condition, or Post-2002, model run.

Following updates to the BMPDSS for the Pre-2002 and Post-2002 model scenarios, existing Pre-2002 BMPs were evaluated to determine if they could be retrofit to provide improved treatment and detention of stormwater runoff. After an initial list of retrofit sites were identified, a preliminary field assessment was completed at each site to document any potential constructability issues and review the drainage areas for each proposed BMP. These new BMPs were then incorporated into the BMPDSS model. This model iteration, which also included new treatment opportunities and was identified as the "Credit 1" scenario, was followed by subsequent iterations of the BMPDSS model in which additional new BMPs were added. This process continued and new BMPs were added to the BMPDSS model until the required stream flow reduction target of 16.5% established in the TMDL was achieved.

The BMPDSS model run that ultimately achieved a 16.5% reduction in stream flow during the 1-year storm event includes a total of 107 sites; forty (40) retrofits to existing BMPs, forty-one (41) new detention systems, eighteen (18) new infiltration systems, five (5) new gravel wetlands, two (2) new bioretention systems, and one (1) new median filter system. The total cost for implementation of these BMPs is estimated at approximately $16,500,000 (final cost utilizes 2014 construction cost estimates).

Once the final list of required BMPs was determined, these projects were then ranked using a comprehensive ranking matrix and scheduled for construction over a 17-year period. The MS4 permit

requires that the BMPs identified in the FRP be constructed within 20 years of the effective date of the MS4 permit, which resulted in a December 5, 2032 deadline. Therefore, 17 years remain for project implementation prior to the construction deadline. Many factors were considered when developing the BMP implementation schedule. A number of the BMPs are currently covered by expired State of Vermont stormwater permits. These BMPs were included at the front of the schedule so that the associated properties could complete the required stormwater improvements and achieve permit compliance. Other BMPs involve properties containing more than 3 acres of impervious area. VTDEC is currently drafting a "3 Acre Permit" that would require stormwater retrofit of these sites. Therefore, BMPs in this situation were also placed towards the front of the implementation schedule. Other BMPs are located on land owned or controlled by the MS4 entities. These BMPs were given priority over those that were located on private property. The remaining projects were scheduled based on their ability to contribute to stream flow reductions, cost effectiveness, and constructability.

The final step in FRP development was to develop a financial plan that would allow for the construction of the BMPs included in the BMPDSS model. The MS4s involved in the Potash Brook FRP worked together to develop an implementation schedule for Potash Brook. Some MS4s have responsibility for BMP implementation as part of FRPs in multiple watersheds. For example, the City of South Burlington has the responsibility to implement BMPs as part of FRPs in five stormwater impaired watersheds: Bartlett, Englesby, Centennial, Munroe, and Potash Brook. All five FRPs were considered when developing a comprehensive and realistic D&C schedule for the City.

Initial project cost estimates were arrived at using 2014 cost estimates. The City of South Burlington intends to finance the required stormwater BMPs by utilizing funds raised by stormwater utility fees, State and Federal grants, as well as low interest loan programs. Once projects were scheduled over the 17-year implementation schedule an annual 3% inflation rate was applied based on historic trends in the construction cost index. The City of South Burlington was then able to take these annual costs and insert them into their existing stormwater utility rate model. Three different scenarios were evaluated in the rate model. The first scenario assumed that grant funding would not be available and that the City would not utilize low interest loans to assist with project implementation. This scenario resulted in a stormwater billing rate of $11.25 per Equivalent Residential Unit (ERU) in FY2032. The second scenario also assumed that grant funding would not be available, but that the City would utilize low interest loans to help pay for implementation of the projects. This scenario resulted in a stormwater billing rate of $10.44 per ERU in FY2032. The third funding scenario assumed that grant funding of approximately $250,000 per year would be available starting in 2018 and that this amount would increase to $500,000 in 2030. This resulted in a stormwater billing rate of $8.79 per ERU in FY2032.

2. Background

2.1. General

Potash Brook and its watershed are located in Chittenden County, principally in the City of South Burlington, and encompass an area of approximately 7.13 square miles. The main stem of Potash Brook originates in the southeast portion of South Burlington, south of Interstate 89 and east of Route 116, and flows to its mouth at Shelburne Bay in Lake Champlain. Several major tributaries flow to the main stem and drain significant portions of the watershed north and south. The entire stream and its tributaries are Class B waters designated as cold water fish habitat pursuant to the Vermont Water Quality Standards.

Potash Brook has been identified as not attaining water quality standards in accordance with Section 303(d) of the Federal Clean Water Act. In 2006, the EPA approved the Potash Brook Stormwater TMDL[1]. The Potash Brook TDML study established targets for flow modification in the stream. The flow targets are the basis for this FRP, which was developed in accordance with the MS4 General Permit Subpart IV.C.1 as a required part of the MS4s SWMPs.

The City of South Burlington, as well as the City of Burlington, BTV, VTrans, and UVM, are regulated MS4 Operators who own and control impervious surface in the Potash Brook Watershed. The final MS4 general permit dated December 2012 requires that the impacted MS4s develop and submit a comprehensive FRP for the Potash Brook Watershed. The purpose of this Potash Brook FRP is to identify the necessary stormwater Best Management Practices (BMPs) that will be used to achieve the flow restoration targets prescribed in the Potash Brook TMDL.

2.2. Permitting History

All State issued stormwater permits within the Potash Brook watershed were reviewed as part of the FRP development effort. A full list of VTDEC permits discharging to the Potash Brook and the type of system covered under the permit is included in Table 1. Several of the expired permits obtained new permit coverage under a Residual Designation Authority (RDA) permit from VTDEC. Many of the properties that were issued RDA permits have applied for a renewal of their permit, but VTDEC has yet to act on these renewal requests.

Table 1: Existing VTDEC Permits

Permit Number	RDA/Other[1]	Project Name Where Permit is Located	Permittee	Permit Expiration Date	Existing Manner of Discharge[2]
1-0239	6285-9030	Ridgewood Estates	Ridgewood Estates Homeowners Association	11/19/2014; 8/26/2013	CB, 2 DP (new), 1 DP upgrade
1-0464		Oak Creek Village	Butler Farms Inc.	12/31/1991	OF, GS, CB, (2) DP
1-0526	6279-9030	Woodlands Industrial Park	Woodland Commons Condominium Association	11/19/2014	DP
1-0538	7294-INDS; 7294-INDO	Price Chopper Pond	Pomerleau Real Estate Corp	3/31/1992	DP, GS
1-0647		Village at Dorset Park	Village at Dorset Park Community Assoc.	6/30/1993	(3) DP, CB
1-1020		Park Place	David Dubrul	3/31/1996	GS, OF
1-1033		Dorset Park Pond	City of South Burlington	3/31/1998	DP, GS
1-1155		Pinnacle at Spear	John Larkin; L&M Partnership	12/31/2003	CB, OF
1-1337	4442-9003	The Lane Press	The Lane Press	6/30/2003; 8/18/2011	IB
1-1380		South Burlington Community Housing	South Burlington Community Housing	9/30/2004	PP, IG

[1] The EPA approval of the Potash Brook TMDL can be viewed at the following links:
http://dec.vermont.gov/sites/dec/files/wsm/stormwater/docs/SWImpaired/sw_pot_tmdl_finalapproved.pdf
http://dec.vermont.gov/sites/dec/files/wsm/stormwater/docs/SWImpaired/sw_potashTMDLappovaldoc.pdf

Permit Number	RDA/Other[1]	Project Name Where Permit is Located	Permittee	Permit Expiration Date	Existing Manner of Discharge[2]
1-1391/ 1-1270/ 1-0839		Burlington International Airport	Heather Kendrew; Burlington International Airport	9/30/2004	IG, CB
1-1520		O'Brien Home Farm	Daniel and Leo O'Brien Jr.; dba Forest Park Realty Corp	10/9/2007	(3) DP, CB, GS
2-0100	7220-9020	Stonehedge	BAM Property Management	7/1/1985; 7/7/2016	DP, BR
2-0140		1 Kennedy Drive	Merv Brown	7/1/1987	PP, SF for 1st 1/2" only
2-0195		Healthy Living Wetland Pond	Mings Inc.	11/17/1983	OF, GS
2-0825		Twin Oaks Pond	Property Management Associates	6/30/1980	SF and RP for 1st 1/2" runoff
2-0909		South Burlington City Hall	City of South Burlington	7/1/1985	SF for 1st 1/2" runoff - NOT BUILT
2-0988	6391-INDS	Winding Brook	Winding Brook Homeowner's Association	7/1/1985; 12/7/2015	DP
6170-9020		Summerfield	John O'Brien; Buckthorm Group	8/12/2013	DP
6174-INDS.A		South Burlington High School	South Burlington School District	10/18/2015	(2) IB
1-1214		Shopping Center - Hannaford - Lowe's	Southland Plaza	9/30/2005	(2) DP, RS, GS
6204-9020		Fay Dr Pond	Allen Road Land Company, Inc	4/23/2014	DP
1-1254	4113-INDS	Technology Park Lot 8A	Technology Park Associates	9/30/2001	DP
1-0233		Key Bank	ICV Construction Inc.	5/1/1982	CB
1-0234	6322-9030	Quarry Hill South	Horizon Heights Condominiums Association	11/19/2014	CB
1-0237; 1-1013; 1-1290		Kennedy Dr. P4 Expansion	CPA Partnership	7/1/1982; 3/31/1996; 3/30/2002	CB, OF, OGS, GS
1-0242		Dorset Commons	Veve Associates	8/1/1982	CB
1-0503	6282-9030	UMall	University Mall Realty Trust	9/30/2003; 11/19/2014	(2) DP, (2) IG
1-0618	6853-9003; 6853-INDS	Dynapower	Burlington Properties LTD	12/31/1992	OF, GS, CB, (2) DP
1-0661		South Meadows Pond	c/o Richard Feeley; South Meadow Housing Associates	6/30/1993	CB, DP
1-0969	6295-9030	INS Building	INS	9/30/1995	(2) DP
1-0998		Retina Center	Daniel and Eugene Morrissey	12/31/1995	OF, GS, CB
1-1000	6291-9030	Adelphia Cable Communications	Comcast Cable	12/31/1995; 11/19/2014	DP, CB, GS

Permit Number	RDA/Other[1]	Project Name Where Permit is Located	Permittee	Permit Expiration Date	Existing Manner of Discharge[2]
1-1015		Pillsbury Manor	John P Larkin	3/31/1996	DP
1-1117		The Pines	Pines Housing LP	12/31/1997	DP, CB
1-1269	4290-INDS	Meadowland	Attn: Mark R. Neagley; Summer Ice Joint Ventures	9/30/2001; 1/16/2013; 9/30/2015	(8) DP
1-1438		Farrell/ Eastwood Commons	D Farrell; S McConaughy & New Enterprises Inc.	9/30/2005	DP, CB
1-1452		Olympiad Apartments	Dan Morrissey; Sixty Farrell Street Associates	12/31/2005	DP
1-1458		Technology Park	Technology Park Partners	3/31/2006	DP, PW
1-1504		110 Kimball Ave	James Foster; 110-120 Kimball LLC	9/18/2006	(2) IB
1-1526	6269-9030	30 Kimball Ave	Kimball Partners, LLC	11/19/2014	DP
1-1582		Kennedy Dr	City of South Burlington	5/29/2008	(7) DP
2-0101		Ashbrook Dr	Ashbrook Park H.O. Assoc	7/1/1985	CB, GS
2-0144		Outback	Merv Brown	7/1/1985	IT for 1st 1/2", ST, GS
2-0167		Easy Self Storage	Easy Self Storage	7/1/1985	CB
2-0212		Fairpoint Communications	Gregory Myka; Verizon	7/1/1985	CB, OF, GS
2-0220		Dubois Dr	City of South Burlington	7/1/1985	CB, GS
2-0238; 2-0737		Grandview Dr	Carol Gamsby; CGPM Inc.	7/1/1985; 9/1/1983	CB, SF for 1st 1/2"
2-0312		Adirondack St	Butler Farms Inc	7/1/1986; 6/232013	CB
2-0619		Dorset Street Expansion	City of South Burlington	12/31/1992	CB, OF
2-0767	6553-INDO	Chelsea Cir	Art Dudek, President; Foxcroft Condominium Assoc.	6/30/1980; 4/22/2015	CB
2-0794		Brookwood Dr	Brookwood LTD	7/1/1980	CB
2-0811		Ace Hardware	LNP, Inc.	7/1/1980	ST
2-0824		Windridge Ct	Dan and Leo O'Brien; O'Brien Family Partnership	7/1/1980	CB
2-0878		Sugartree Ln	Dan Zang; SugarTree Condominium Association	6/30/1985	SF for 1st 1/2" runoff
2-0939	6275-9030; 6269-9030	Business Park North	Alan Palmer	7/1/1986; 11/19/2014	CB, OF, GS
2-1023; 2-0219		Wellesley Grove	Wellesley Grove Condominium Assoc.	7/1/1986; 7/1/1985	PP
2-1069		One Twin Oaks Assoc.	c/o Stephen Pitman; One Twin Oaks Assoc.	7/1/1987	IT for 1st 1/2" of runoff.
2-1171		Merchants Bank	Merchants Bank	7/1/1988	CB
2-0228	6293-9030	Vermont Gas Systems	James Mullowney; Vermont Gas Systems, Inc	7/1/1988; 11/19/2014	CB, OF, GS
2-0179	6318-9030	Church of Jesus Christ of Latter-Day Saints	The Church of Jesus Christ of Latter-Day Saints	7/1/1985; 11/19/2014	GS

Permit Number	RDA/Other[1]	Project Name Where Permit is Located	Permittee	Permit Expiration Date	Existing Manner of Discharge[2]
1-1241	4049-9030; 4049-9030.1	Vt National Country Club	Vermont National Country Club	3/31/2001	(3) DP, CB, GS
1 -	RDA: Residual Designation Authority- Private Permittees requests to have their expired stormwater system covered under an RDA permit, which overwrites their expired permit.				
2 -	Manner of Discharge: CB: Catch Basin, GS: Grass Swale, RS: Retention Swale, ST: Settling Tank, OF: Control orifice, IB: Infiltration Basin, DP: Detention Pond, DW: Dry Well, IG: Infiltration Gallery, SF: Sand Filter, BR: Bioretention.				
3 -	Expired permit retrofits were determined based on direct benefit to the Flow Restoration Targets. Expired permits with a CPv (extended detention of the 1-year design storm) BMP were assessed for retrofit opportunity, and if the flow reduction benefit was determined negligible, a retrofit was not proposed.				

2.3. Potash Brook Total Maximum Daily Load (TMDL)

2.3.1. Stormwater TMDL History

In response to Potash Brook not meeting the water quality standards set forth in Section 303(d) of the Federal Clean Water Act, the VTDEC developed TMDLs for impaired watersheds using flow as a surrogate for pollutant loading. The basis for the TMDL development was the comparison of modeled Flow Duration Curves (FDCs) between impaired and attainment watersheds. The Program for Predicting Polluting Particles Passage through Pits, Puddles, and Ponds, Urban Catchment Model (P8) was used to model gauged and ungauged watersheds in Vermont and develop Flow Duration Curves (FDCs) from which a normalized high flow and low flow per drainage area in square miles (cfs/sq.mi.) were extracted.

An FDC is a graph that displays the percentage of time during a given period where flow exceeds a certain value. For the purposes of the Potash Brook Stormwater TMDL, VTDEC determined that the "low" flow target would be represented by the 95th percentile (Q95%) of the curve and the "high" flow target would be represented by the 5th percentile (Q0.3%). The high and low flow values from the FDCs were then compared between "impaired" watersheds and comparable "attainment" watersheds to determine a percent change (i.e. reduction of high flow, increase of low flow). The percent change was reported in the EPA approved TMDL for each impaired watershed. The high-flow (Q0.3%) was determined to be relatively equivalent to the 1-year design storm flow (2.1 inches of rain over a 24-hour period in Chittenden County). Therefore, stormwater BMPs designed to meet the VTDEC Stormwater Management Manual's Channel Protection volume (CPv) storage standard were used to address the required high-flow reduction target[1].

2.3.2. TMDL Flow Targets

The Potash Brook was designated as impaired on the 2004 Vermont 303(d) List from its mouth at Lake Champlain to a point upstream 5.2 miles due to non-support of aquatic life designated uses. The TMDL concluded that since all tributaries and the main stem drain to the impaired lower portion of the stream, the entire Potash Brook watershed was considered to contribute to

[1] The approved Potash Brook TMDL can be viewed at the following link:
http://dec.vermont.gov/sites/dec/files/wsm/stormwater/docs/SWImpaired/sw_pot_tmdl_finalapproved.pdf

its impairment. The source of the impairment was considered to be multiple impacts associated with unmanaged stormwater runoff including runoff from both urban and developed areas, as well as from agricultural and open areas. The low flow target suggested a total 12.2% increase in watershed base stream flows during low flow conditions (11.2% wasteload allocation for urban/developed areas), and the high flow target required a total 17.9% reduction in watershed flow allocation during the 1-year storm event (16.5% wasteload allocation for urban/developed areas).

2.3.3. Future Growth in Potash TMDL

The TMDL flow targets and future growth assumption used by VTDEC in development of TMDL targets were reviewed as part of the FRP development. In May 2015, at the request of the City of South Burlington, the Chittenden County Regional Planning Commission (CCRPC) completed a study to estimate the expected non-jurisdictional impervious area growth in the Potash Brook watershed over the next 20 years. Non-jurisdictional growth by definition the impervious area that does not require a stormwater permit, and is therefore important to account for within the 20 year management plan. The original TMDL assigned a non-jurisdictional impervious growth of 30 acres, whereas the CCRPC study estimated 22 acres based on the actual non-jurisdictional growth rate from 2003 to 2010. With the revised future growth, the high-flow target (Q0.3%) would be reduced from 16.5% to 16.0%[1] as summarized in Table 2 below. The modified flow targets were considered, but ultimately the original (unmodified) flow target of 16.5%, was incorporated into the FRP planning process and proposed BMP implementation scenario.

Table 2: Modified TMDL Flow Targets with revised non-jurisdictional future impervious growth estimate

Flow Target	Target High Flow Q 0.3(± %) **Reduction**	Target Low Flow[2] Q 95 (± %) **Increase**
TMDL Target from current Urban/Developed areas	-14.6%	10.5%
TMDL Targets with **30 acres** of Non-Jurisdictional Future Growth	-16.5%	11.2%
TMDL *Modified* Targets with **22 acres** of Non-Jurisdictional Future Growth[1]	-16.0%	11.0%

1 Modified target was calculated as: -[(14.6%) + (16.5% - 14.6%)*(22 ac/30 ac)] = -16.0%

2. The low flow target is not actionable under the TMDL, but is included because improving base flow in the watershed is still a water quality goal.

2.4 MS4 Permit Background and Requirements

A MS4 is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, or man-made channels) that are designed or used for the collection or conveyance of stormwater discharged to waters of the State or waters of the United States. MS4 systems do not include combined sewer systems that are part of publicly owned wastewater treatment facilities.

On December 5, 2012, Vermont's revised MS4 Permit was issued. This MS4 permit was the second MS4 General Permit issued by the VTDEC. The first MS4 permit was issued in 2003 and amended in 2004. Both the 2004 and 2012 permits authorize stormwater discharges within the urbanized areas of small MS4s. Small MS4s included cities, towns, counties, airports, highway departments, and

universities. The City of South Burlington, City of Burlington, University of Vermont, Burlington International Airport, and Vermont Agency of Transportation were designated as a regulated small MS4, as were, Colchester, Essex, Essex Junction, Milton, Shelburne, Williston, and Winooski.

Included in the 2012 MS4 permit issuance were new requirements for municipalities to develop FRPs to implement the stormwater TMDLs. The FRPs must be developed for each impaired watershed within three (3) years of the date of issuance of the authorization to discharge to the permittee under the general permit, by October 1, 2016, and must include the following elements:

1) An identification of the required controls
2) A design and construction schedule
3) A financial plan
4) A regulatory analysis
5) The identification of regulatory assistance, and
6) Identification of any third party implementation.

The schedule shall provide for implementation of the required BMPs as soon as possible, but no later than 20 years from the effective date of the permit, before December 5, 2032.

3. Best Management Practice Decision Support System Model Assessment

3.1 Background

In an effort to implement the Vermont Stormwater TMDLs, the VTDEC worked with an external consultant (TetraTech) to develop the computer-based VT BMPDSS, a VT-specific hydrologic BMP assessment model. This modeling tool was developed by TetraTech, Inc., with considerable investment from EPA Region 3 and Prince George's County, Maryland, and was adapted for use in Vermont using funding from the Vermont Agency of Natural Resources (ANR). The purpose of the modeling tool was to predict progress toward the TMDL flow targets based on proposed BMP implementation scenarios to help MS4 communities identify different BMP options and associated costs.

3.1.1 Model Calibration for Potash Brook

During development of the Potash Brook FRP, the VT BMPDSS was also reviewed for any values or factors utilized in the stream flow model that could impact results. One value used by the BMPDSS is the Hydraulic Weighting Factor (HWF). The HWF is a measure of lag time within a watershed. VTDEC collected rainfall and stream flow data from 2006 to 2008 and calibrated the original model to this data using the HWF. After working closely with VTDEC, it was determined that adjustment of the HWF used in the original BMPDSS model would provide model results that more closely replicated the observed rainfall and streamflow data. Therefore, with VTDEC concurrence, the original and subsequent BMPDSS model runs utilized a modified HWF.

In order to complete a flow target assessment, VTDEC developed three model scenarios for each impaired watershed, including a base condition (Pre-2002), existing condition (Post-2002), and an optimized credit scenario (meeting the flow restoration target). The base scenario (Pre-2002 model) included all stormwater BMPs installed prior to issuance of the VT Stormwater Design Standards in 2002. The land use data used in this scenario was derived from 2002 Quickbird satellite imagery. An

existing scenario (Post-2002 model) was then developed with all existing BMPs designed to the 2002 VT Stormwater Design Standards, providing credit toward the flow target on a percent change basis compared to the base scenario. The optimized run was used by VTDEC to gage the estimated cost and level of effort to reach the flow targets in each impaired watershed. During the optimized credit run, a theoretical full build-out of BMPs were placed in each subwatershed by the model with a goal of minimizing cost and maximizing flow benefit. Results from the BMPDSS model output were provided as unadjusted cubic feet per second (cfs) and normalized flow (flow per drainage area, cfs/sq. mi). The unadjusted flow was used in the determination of progress towards the TMDL targets to eliminate the effect of watershed area in the percent change comparison.

3.2 Objective

The objective of the BMPDSS Model Assessment was to review the baseline (Pre-2002) and existing conditions (Post-2002) BMPDSS models for accuracy and to develop revised inputs for submittal to VTDEC, in order to establish a revised existing conditions model prior to the assessment of Credit Scenarios. Creation of Credit Scenarios involved developing a list of potential retrofit sites for review by the MS4s in the watershed. Once a preliminary list was created, concepts were refined, and sizing and drainage area delineations were developed for input into the BMPDSS model.

3.3 Existing Condition Review

The first step in the process was to complete a desktop assessment to compare the City's latest BMP data to the data used by VTDEC, which was last revised in 2014. The City had been making independent corrections and additions to the VTDEC's BMP drainage area data since 2014 and this information was used for an initial review. The VTDEC's list of permitted discharges for Potash Brook was also compared to the BMPDSS data to ensure no permitted BMPs were omitted. There were several permitted sites that did not have volume-based or infiltration BMPs. While these BMPs provide water quality treatment, they did not have a significant impact on flow rates in Potash Brook and were therefore omitted from the models. Significant changes have occurred in the Potash Brook watershed since the last BMPDSS model update (2014), as well as a number of retrofits to existing BMPs. As a result, 22 additional permitted BMPs and 12 retrofits to existing BMPs were added to the Post-2002 model as a part of the existing conditions review. A map showing existing stormwater BMPs in the Potash Brook watershed is presented in Appendix A, and a list of existing stormwater BMPs in the Potash Brook watershed is presented in Table A-2 in Appendix A.

Prior to conducting site inspections, expired VTDEC stormwater permit files for existing BMPs were reviewed so that the information could be compared to what was included in the Pre-2002 BMPDSS model. Site visits of all BMPs included in the Pre-2002 model were conducted between April 29th and May 5th of 2015. Several of the BMPs included in the Pre-2002 model have since been retrofit to meet 2002 VT Stormwater Design Standards, which has been indicated on the field forms located in Appendix A.

Verification of BMP drainage areas and the design of the existing BMPs was also completed during these site visits. Documentation of these observations has been included on field sheets (see Existing Stormwater BMP Site Inspection Field Sheets provided in Appendix A). BMP outlet structures were noted on the field sheet to confirm the general configuration. The HydroCAD models used by VTDEC to enter the BMPs into the BMPDSS were also reviewed against existing site conditions. Comparison of measured field observations versus what VTDEC used for model inputs yielded a number of

discrepancies. A list of the changes realized by field inspections are provided in the following two sections; 3.4 Pre-2002 Model Revisions and 3.5 Post-2002 Model Revisions.

Revised input files for the Pre-2002 and Post-2002 models were submitted to the VTDEC. This included revised subwatersheds, BMP point locations, BMP drainage areas, and HydroCAD model files. For more recent BMPs, the original HydroCAD files were acquired either through the City of South Burlington Planning and Zoning Department, BTV, VTDEC, or directly from the original design Engineer. Models were either used directly as provided or simplified for purposes of transferring to the BMPDSS. Simplifications included removing additional routing features like catch basins and/or reaches or other storages not pertinent to the specific BMP design configuration included in the BMPDSS.

3.4 Pre-2002 Model Revisions

The following revisions were made to the Pre-2002 model, which is representative of the watershed prior to 2002, before the current (2002) VT Stormwater Design Standards were established.

3.4.1 Watershed Boundary Revisions:

Englesby/Potash Boundary - The Englesby Brook and Potash Brook watershed boundary was revised by Stone Environmental as a part of the Englesby FRP project in March 2015. Further refinement of this boundary was completed based on review of the City of Burlington's storm sewer infrastructure, subwatershed mapping ("BTV_Subwatershed_032615"), Light Imaging, Detection, And Ranging (or LIDAR) imaging, and supplemental field verification. The boundary reflects what the VTDEC considers the most up-to-date boundary, consistent between the VTDEC's Englesby and Potash Brook BMPDSS models. A net difference of 3.38 acres was removed from the Potash Brook watershed and added to the Englesby watershed within the South Burlington jurisdiction, and a net difference of 0.45 acres was removed from the Potash Brook watershed and added to the Englesby watershed within the Burlington jurisdiction as a result of the watershed revisions (Figure 1 and Figure 2).

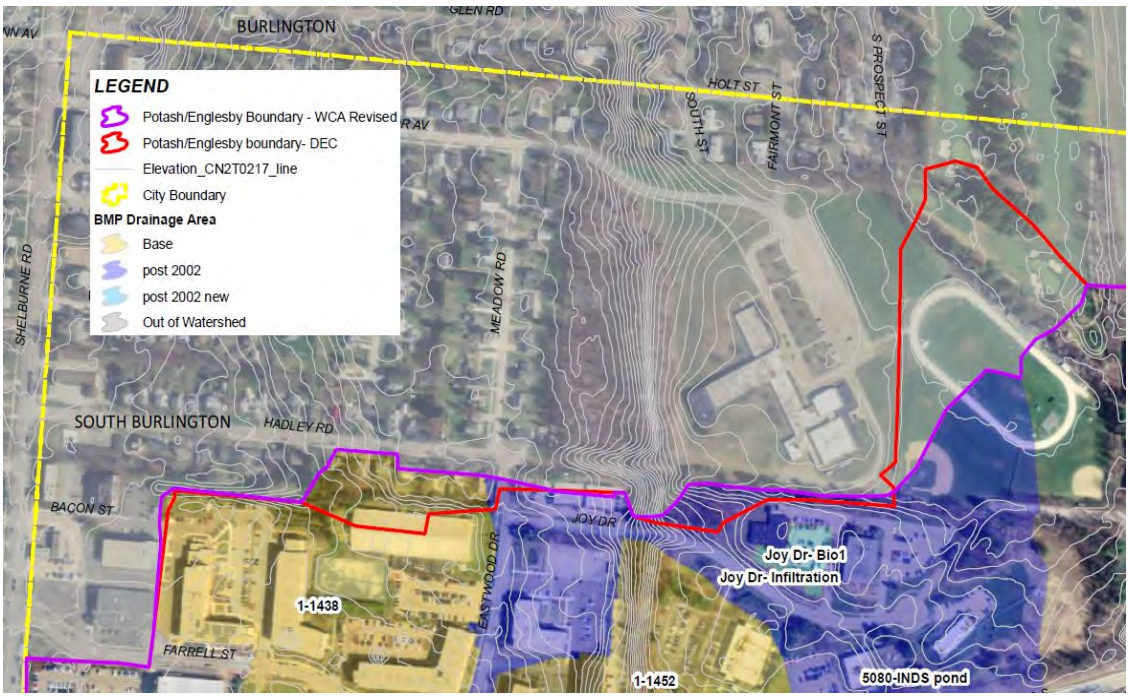


Figure 1: Potash/Englesby watershed boundary changes within the City of South Burlington from VTDEC's latest version in May 2015 to WCA's most revised version as of July 2015 (net change of 3.38 acres).

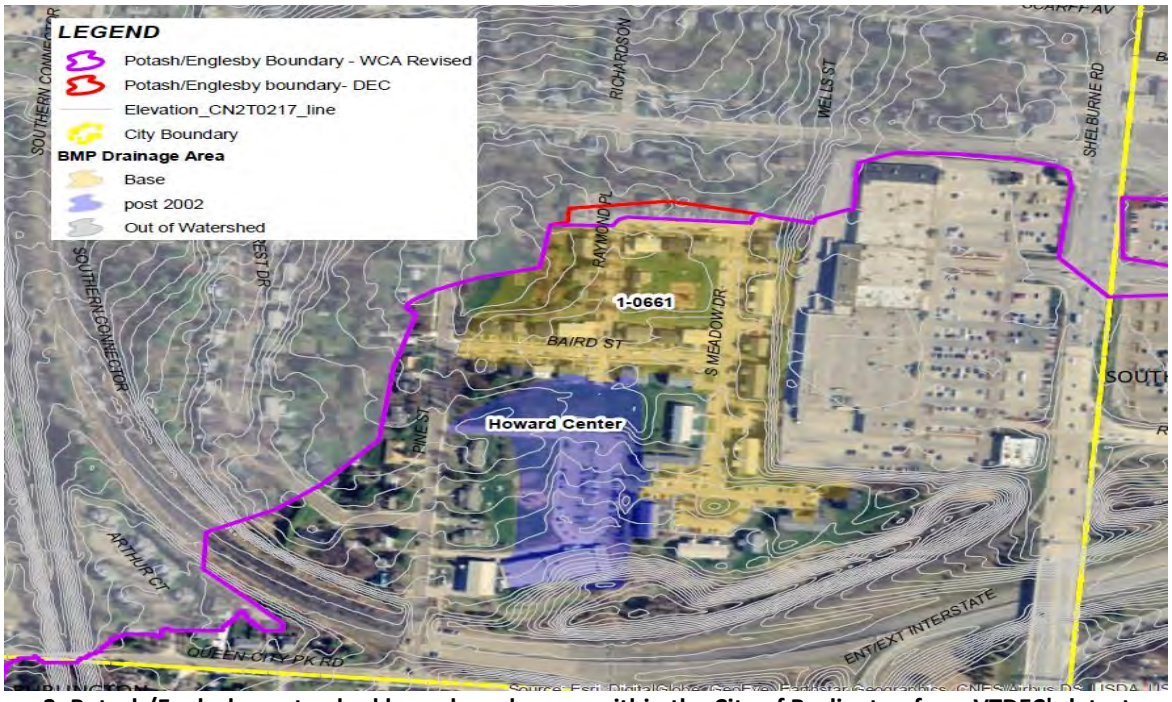


Figure 2: Potash/Englesby watershed boundary changes within the City of Burlington from VTDEC's latest version in May 2015 to HTA-WCA's most revised version as of July 2015 (net change of 0.45 acres).

<u>Highland Terrace/Hinesburg Rd.</u> - A 6-acre area was determined to be outside of the Potash Brook watershed near Highland Terrace based on the mapped infrastructure and field confirmation, all of which is within the South Burlington jurisdiction.

Burlington International Airport - Several sections of the Potash Brook watershed outer boundary at the Burlington International Airport were adjusted based on drainage mapping completed by Stantec Consulting in 2013, as part of a Stormwater Utility Credit Analysis. The adjustments resulted in a net change of 6.42 acres being removed from the watershed.

3.4.2 Subwatershed Boundary Revisions:

Thirty-three (33) of the subwatershed boundaries were revised based on field verification, and/or required due to changes in the BMP drainage areas. The majority of these modifications were minor. However, significant changes were made to boundaries near the Dorset Street Park, the Meadowland Business Park, and Burlington International Airport. The individual impact of each adjustment on the flow at the watershed outlet is unknown, as the model was not revised for each adjustment, and the impact resulted in no net change. A map showing subwatershed boundaries is presented in Appendix A - Map A-2: Subwatershed Boundaries.

3.4.3 BMP Drainage Areas:

The most recent BMP drainage area file provided by the VTDEC was compared to South Burlington's most up-to-date BMP drainage area data. The City's delineations were considered the most accurate as the South Burlington Stormwater Service Department has been updating delineations based on field conditions, and therefore replaced the VTDEC's version. Additional revisions to the City's delineations were needed for some BMPs based on field verification. Overall, thirty (30) of the VTDEC's BMP drainage areas were revised.

3.4.4 Pre-2002 Model BMPs:

Six (6) Pre-2002 BMPs were added to the model, including: an existing pond at the Ridgewood Estates which was not previously considered a permitted stormwater feature, two infiltration fields at the Burlington International Airport between Taxiway Alpha and Runway 1-19, a dry well at the UVM Forestry Research Center, an infiltration basin near Shunpike Rd, and an infiltration basin at Vermont Panurgy, Inc. Several revisions were made to the model input data for existing BMPs included in the model based on permit review and field verification, as summarized in Table 3 below.

Table 3: Input Data Revisions for Pre-2002 Model BMPs

Permit #	Pond Name	Model Input data revision
1-0464a	Oak Creek Village Pond #2 (Fox Run Lane)	Revised pond grading and culvert invert based on Stantec Survey of site prior to upgrades.
1-0464b	Oak Creek Village Pond#3 (Moss Glen Lane)	Revised pond grading and culvert invert based on Stantec Survey of site prior to upgrades.
1-1391	"I4_1-1319" (Burlington International Airport)	Replaced existing inputs with revised model file prepared by Stantec as a part of their Stormwater Credit Analysis with updated infiltration rate based on field testing.
1-0839	"I3_North" (Burlington International Airport Runway 1-19)	Replaced existing inputs with revised model file prepared by Stantec for the Northern section of the exfiltration system East of Runway 1-19, permitted under 1-0839.
1-0839	"I3_South" (Burlington International Airport Runway 1-19)	Replaced existing inputs with revised model file prepared by Stantec for the southern section of the exfiltration system East of Runway 1-19, permitted under 1-0839.
1-1458	Technology Park Field Detention Pond 3 (Community Drive)	Pond 3 outlet structure was changed from a 12" orifice to a 4" @ 2.25' below the existing sharp-crested weir, based on field inspection.
1-0503d	UMall SN005- Sears Automotive Pond	Revised Pond culvert outlet from 36" to 12".
1-1504b	110 Kimball Ave- South Infiltration Basin	Removed 18" riser structure. Only found 12" culvert out in field.
1-0503c	UMall Detention Pond	Revised pond outlet orifice from 6" to 7" and added high flow orifice based on field inspection.

3.5 Post-2002 Model Revisions

The Post-2002 model**,** including all BMPs in compliance with the 2002 VT Stormwater Design Standards, was revised as follows:

3.5.1 Watershed Boundary Revisions:

Englesby/Potash Watershed Boundary - The boundary is consistent with the revised Base model boundary with the exception of the most northern section where the new UVM athletic field is located. A 10-acre site on University of Vermont property now drains out of the Potash Brook watershed as a result of the new grading.

3.5.2 Subwatershed Boundary Revisions:

Thirty-seven (37) of the subwatershed boundary segments were revised due to the changes in the BMP drainage areas provided by South Burlington and confirmed via field verification. The subwatersheds are utilized by the BMPDSS to model flow, and more accurate subwatershed boundaries results in better flow modelling. Map A-2 showing subwatershed boundaries is presented in Appendix A.

3.5.3 BMP Drainage Areas:

BMP drainage areas from Geographical Information System (GIS) data provided by South Burlington were included in the BMPDSS model with the exception of the Hayes Stormwater Improvements to Swales 1, 2 and 3 and a swirl separator located on Farrell Street. These improvements were determined not to have a detention benefit in the model. Several minor revisions were required based on field verification and/or conflict with new BMPs, previously not included in the South Burlington data.

3.5.4 Post-2002 Existing BMP Revisions:

Revisions to five (5) existing BMPs were needed based on discrepancies between the existing model configuration and field observations. Thirteen (13) previously omitted retrofits to existing BMPs were added to the model, summarized in Table A-2 in Appendix A, under group ID "Existing BMP Retrofit-new". In addition, 26 new BMPs were added to the Post2002 model, included in Table A-2 under group ID "Post2002-new". As a result of the new permitted projects, 124.5 acres of impervious was added to the existing condition model. Thirteen (13) of the new BMPs or proposed retrofits have an existing VTDEC Stormwater Permit or Construction Permit, but have not been constructed as of May 2015, including;

- #1-0538: Pond upgrade under USACE Potash Tributary 3 Project at Midas Drive
- #1-0647: Proposed upgrades to three (3) ponds at the Village at Dorset Park
- #6174-INDS.A: Two proposed Infiltration Basins for new Concession Stand Project at South Burlington High School
- #6970-INDS: Wet Pond and Detention Swale for Dorset Street Hotel Project
- #7017-INDS: Two Detention Ponds and 1 Dry Pond for Rye Associates Planned Unit Development off Hinesburg Road.
- #2-0100: Detention Pond within Stonehedge Development
- #6553-INDO: Detention Pond for Hayes Apartments located off Hayes Ave.

Several existing BMPs in the City's GIS based stormwater pond inventory were previously omitted from both the Pre-2002 and Post-2002 model runs, and were added to the subsequent Post-2002 model iteration. These omitted BMPs include the following:

- Three proposed bioretention areas in the Stonehedge Neighborhood, under expired permit 2-0100.
- BMP retrofits associated with Permit #6269-9030 which covers the permitted system at 30 Kimball Avenue.
- Proposed modifications identified in the original Engineering Feasibility Assessment (EFA) for Permit #6282-9030 (expired permit #1-0503), which covers the stormwater BMPs at the University Mall. The original EFA was reviewed as a part of this process, but was not incorporated into the model because the proposed modifications were not approved by VTDEC. No proposed BMP upgrades have been implemented at this time.

3.6 Revised Model Results:

Overall the unadjusted flow for the Pre-2002 model and Post-2002 model decreased between the VTDEC model (model runs dated 11/18/14) and the revised Pre-2002 and Post-2002 models (model runs dated 7/8/15). A summary showing the difference between the original VTDEC model and the

revised model is presented in Table 4 below. The unadjusted flow was used to compare the model scenarios versus the normalized flow by area due to slight differences in watershed area between the model runs (as a result of the watershed boundary changes described in sections 3.4 and 3.5). The change between the watershed unadjusted high flow (cfs) in the Pre-2002 and Post-2002 scenarios was estimated to be -2.9% for the revised model run, compared to -1.4% for the previous VTDEC model run. There was no change in the low-flow percent difference between the model runs, however the overall base flow *increased* by 0.01 cfs across the watershed (Table 4). While the low-flow target is not actionable under the approved TMDL, the FRP continued to evaluate stream flows under this condition with the intent of achieving the recommended increase in flow.

Table 4: Potash Brook Base Model Runs Summary

Model Run Scenario	High-flow Q0.3% **Unadjusted flow (cfs)**	Low-flow Q95% **Unadjusted flow (cfs)**	BMPDSS Model Run Date
TMDL Targets with 30 acres of Non-Jurisdictional Future Growth	-16.50%	11.20%	----
Pre-2002 Scenario VTDEC	103.15	1.37	11/18/2014
Post-2002 Scenario VTDEC	101.74	1.36	11/18/2014
Percent Change from Pre-2002 to Post-2002 Scenarios VTDEC	-1.40%	-0.70%	
Revised Pre-2002 Scenario	101.90	1.38	7/8/2015
Revised Post-2002 Scenario	98.95	1.37	7/8/2015
Percent Change from Revised Pre-2002 to Revised Post-2002 Scenarios	**-2.90%**	-0.70%	----

3.7 Summary of BMPDSS Model Assessment Effort:

As a part of the BMPDSS model review, over 67 acres of additional impervious surface were added to the watershed model. Past experience with the BMPDSS model has exhibited sensitivity to changes in land cover, particularly impervious surface. One might expect the overall watershed high flow to increase with the change in land cover to a more impervious condition watershed-wide. However, new BMPs were also added to the model to manage stormwater runoff from the new developed areas, which reduced the impact observed in the model. Additionally, 12 retrofits to existing BMPs were added to the Post-2002 model, all of which were upgrades to the existing structures designed to detain the 1-year storm. As a result, the existing model scenario would be expected to estimate a net reduction in flow from the baseline condition, as was observed in the revised model scenario (Table 4).

4. Identification of Stormwater Best Management Practices

The process of BMP identification involved an initial assessment of the existing BMPs with expired permits that did not already meet the CPv standards in the 2002 Vermont Stormwater Management Manual (VSMM) to determine if they could be retrofit to meet the VSMM design standards. Upon review of the existing BMPs, it was determined that additional new BMPs would be required to meet the high-flow and low-flow targets. An initial desktop assessment of the watershed was completed to identify open spaces ideal for BMP implementation. A focus of this effort was to first evaluate property owned by the MS4s where projects could be implemented more readily than on private property. In addition, the location of

proposed BMPs across the watershed was taken into consideration to provide storage throughout the watershed. The effort also focused on areas with a high-percentage of impervious coverage where flows were expected to be highest and where infiltration may be possible, as indicated by mapped Natural Resource Conservation Service Hydrologic Soil Group A[1] or B[2] soils.

After an initial list of retrofit sites were identified, a preliminary field assessment was completed at each location to document potential constructability issues and review mapped drainage areas for the proposed BMPs. The BMPs were then modeled using HydroCAD to meet the CPv storage criteria for cold water fish habitat (12-hour detention standard), and incorporated into the BMPDSS model. The initial model iteration, "Credit 1" scenario, included the addition of 54 BMPs. The Credit 1 scenario did not achieve the flow reductions required by the TMDL. Additional BMPs were then identified and added in subsequent iterations of the proposed model until flow targets were met. This resulted in credit scenarios 2 through 4, as well as a final "CMAC Valve Run" scenario.

4.1 BMPDSS Model Assessment Results

The Post-2002 BMPDSS model runs included 90 BMPs and accounted for a 4.5% decrease towards the high flow (Q0.3) reduction target of 16.5%.

After completing the initial credit model run (Credit 1 scenario), the MS4 partners discussed the Hydraulic Weighting Factor (HWF) with VTDEC. As previously discussed (see section 3.1.1), it was determined that adjustment of the HWF used in the original BMPDSS model would provide results that more closely replicated the observed rainfall and streamflow data. Therefore, with VTDEC concurrence, the original and subsequent BMPDSS model runs utilized a modified HWF. These modifications resulted in a revised flow reduction of the unadjusted high flow (Q0.3) from 131.02 cfs to 125.08 cfs between the Pre-2002 and Post-2002 model runs, or 4.5% decrease. This reduction of 4.5% towards the high flow (Q0.3) reduction target of 16.5% differs from the earlier identified reduction of 2.9% towards the high flow target from the Pre-2002 Scenario to the Post-2002 Scenario identified in Table 4.

The final BMP scenario was developed based on an iterative assessment using the BMPDSS modeling tool. The initial model run (Credit 1 scenario) included fifty-four (54) additional BMPs, bringing the modeled stream flow reduction at the high-flow target to 11.8%. Fifteen (15) additional BMPs were identified and added to a subsequent model run "Credit 2". The Credit 2 run modeled stream flow reductions at the high-flow to 14.6% towards the targeted reduction of 16.5%. Thirteen (13) additional BMPs were identified and added to model run "Credit 3". The Credit 3 run reduced the estimated stream flows during the high-flow target by an additional 0.6%, increasing the total stream flow reductions to 15.2% towards the targeted reduction of 16.5%. A fourth model run was completed with "Credit 4", and included an additional sixteen (16) BMPs. The Credit 4 model run predicted a 16.4% reduction in stream flows during the high-flow target event.

A final model run "CMAC Valve Run" was then conducted implementing Continuous Monitoring and Adaptive Control (CMAC) valves on 18 ponds that were already included in previous model runs. These

[1] Group A is sand, loamy sand or sandy loam types of soils. It has low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sands or gravels and have a high rate of water transmission.

[2] Group B is silt loam or loam. It has a moderate infiltration rate when thoroughly wetted and consists chiefly or moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures.

actuated valves maximize the use of the ponds' storage capacity by predictively drawing down the permanent pool in advance of a storm event using data from connected on-site sensors, weather forecasts, and site specific parameters. This final model run predicted that stream flow during the high flow event would be reduced by 16.5%, meeting the targeted flow reductions of the TMDL**.** A summary of the results of each BMPDSS model iteration are presented in Table 5.

Table 5: Summary of BMPDSS Model Results

Description	Area (sq. mi)	Q0.3		Q95		# of BMPs Added for Model Runs	Impervious Area Managed (acres)*	% of Total Watershed Impervious Managed
		Area adjusted (cfs/sq.mi.)	Unadjusted flow (cfs)	Area adjusted (cfs/sq.mi.)	Unadjusted flow (cfs)			
Pre-2002 BMPs	7.055	18.570	131.020	0.1885	1.330			
Post-2002 BMPs	7.045	17.755	125.090	0.1874	1.320	90	248.1	26.5%
% Change vs Base			-4.5%		-0.8%			
Credit 1	7.046	16.403	115.580	0.1887	1.330	54	466.8	49.9%
% Change vs Base			-11.8%		0.0%			
Credit 2	7.024	15.932	111.900	0.1894	1.330	15	527.6	56.4%
% Change vs Base			-14.6%		0.0%			
Credit 3	7.024	15.811	111.050	0.1894	1.330	13	555.2	59.4%
% Change vs Base			-15.2%		0.0%			
Credit 4	7.024	15.592	109.520	0.1894	1.330	16	595.4	63.7%
% Change vs Base			-16.4%		0.0%			
CMAC Valve Run	7.024	15.568	109.350	0.1922	1.350	18 Ponds w/CMAC Valves	595.4	63.7%
% Change vs Base			**-16.5%**		1.5%			
* Includes all Post-2002 and Credit run BMPs to this point.								

A summary table listing all of the proposed BMPs added to each credit model scenarios is included in Appendix B (Table B-1). The table shows the model run to which the BMP was first added. The BMPs were maintained in the model for subsequent "Credit" runs.

The BMPDSS model did not predict a significant increase in the stream base flow (1.5% of the target of 11.2%) despite the preferential selection of infiltration-based BMPs when possible given site constraints such as soil type. The majority of soils within the Potash Brook watershed (64%) are not conducive to infiltration-based BMPs due to their negligible infiltration rates. Additionally, it has been noted by the VTDEC and other BMPDSS model users that the model tends to under represent infiltration-based BMPs and is not sensitive enough to accurately predict base flow increases as a result of smaller infiltration-based BMPs. It is expected that actual base flow increases will be higher than predicted by the BMPDSS.

5. Proposed BMP Implementation Plan

The final proposed BMP implementation plan includes a total of 107 sites; forty (40) retrofits to existing BMPs, forty-one (41) new detention systems, eighteen (18) new infiltration systems, five (5) new gravel wetlands, two (2) new bioretention systems, and one (1) new median filter system. The final number of proposed BMPs differs from the number of BMPS added to the model runs shown on Table 5 for several

reasons including; some BMPs were initially included in the model as two separate sites and then later combined into one project, and some projects were rerun in the CMAC Valve Run. The final proposed BMPs are summarized in Appendix C, Table C-1, including the impervious cover treated, drainage area, WQv managed, CPv storage, or infiltration volume manage as estimated by the HydroCAD design model. A map of the proposed BMP locations is included in Appendix C.

5.1 Proposed BMPs

One hundred seven (107) BMP sites are proposed for implementation in the Potash Brook watershed. Proposed BMPs include a mixture of existing BMPS, retrofits to existing BMPs, and new BMPs The proposed BMPS for implementation are summarized in Table C-1 in Appendix C. Summary sheets describing each proposed BMP in detail for the Potash Brook FRP were prepared and are included in Appendix C.

5.2 Considerations During BMP Design

Proposed BMPs are currently conceptual in nature. These BMPs will need to be advanced to final design prior to construction. A variety of site specific factors will need to be further considered during the design phase. These considerations include, but are not limited to, the following:

- Relocation of utilities
- Wetland impacts
- Archeological resource impacts
- Soil characterization
- Depth to groundwater
- Depth to bedrock
- ”Hotspot” land use
- Access considerations
- Land purchase/easements
- Future land use plans
- Potential need for site improvements such as; underground storage, retaining walls, etc.

6. Implementation Schedule

A Design and Construction (D&C) schedule is a required element of the final FRP. The MS4 permit indicates that the implementation schedule for the BMPs included in the FRP must be over a timeframe that is less than 20 years from the effective date of permit. The MS4s involved in the Potash Brook FRP worked together to develop an implementation schedule for Potash Brook. Some MS4s have responsibility for BMP implementation as part of FRPs in multiple watersheds. For example, the City of South Burlington has the responsibility to implement BMPs as part of FRPs in five stormwater impaired watersheds: Bartlett, Englesby, Centennial, Munroe, and Potash Brook. All five FRPs need to be considered when developing a comprehensive and realistic D&C schedule for the City. The time schedule also accounts for acquisition of necessary permits and/or regulatory approvals, as well as limitations of MS4 resources on an annual basis.

6.1 Project Ranking

All proposed BMPs identified as part of FRP development in the five stormwater impaired watersheds of Potash, Bartlett, Englesby, Centennial, and Munroe Brook were ranked and a

project prioritization was created. Considerations that factored into the ranking of BMP projects include the estimated benefit of a BMP towards the FRP's flow restoration targets, and the amount of impervious area treated. The comprehensive ranking matrix ranked the proposed BMP projects based on the following criteria, which were grouped into four general categories as shown in Table 6.

Table 6: Project Ranking Matrix

Category	ID	Criteria
Cost/Operations	A	Project Cost per Impervious Acre
Project Design Metrics	B	Impervious Acres Managed (ac)
	C	Channel Protection Volume (CPv) Mitigated, (ie. 1-year Storm)
	D	Volume Infiltrated (ac-ft)
Project Implementation	E	Permits
	F	Land Availability
Other Project Benefits/Constraints	G	Flood Mitigation (Is existing flooding issue mitigated by project?)
	H	TMDL Flow Target Addressed (Q03, Q95)
	I	Lake Champlain Phosphorus TMDL
	J	Other Project Benefits/Constraints

Values for each criteria were identified and assigned a relative score, so that proposed BMP projects could be ranked based on a total score. A full description of the ranking criteria is presented in Table D-1 in Appendix D, and a scoring key is presented in Table D-2 in Appendix D. The development of cost estimates is further defined in the Subsection 6.1.1. The final scoring of proposed BMP projects in the Potash Brook Watershed is presented Table E-2 in Appendix E.

6.2 Proposed BMP Cost Estimates

A spreadsheet-based method was used to develop planning level costs for all proposed BMPs. This methodology was first developed for the City of South Burlington by the Horsley-Witten Group (HW) and was utilized as part of Centennial Brook FRP development (the HW Memorandum dated 1/9/14 that describes this methodology is provided in Appendix D). This methodology provided consistent budgetary cost estimates across all FRPs.

BMP cost estimates are based on average costs for conceptual level projects and deviation from these estimates is expected as projects move forward with engineering design. It is anticipated that there will be differences between project cost estimates presented in the FRP and actual project bid costs. The BMP cost estimates presented in the FRP are based on limited site investigation and the application of a BMP estimating methodology previously developed by HW. This methodology, while providing consistency in budget cost estimating, may fail to accurately reflect project cost impacts due to actual site conditions and constraints. Therefore, the BMP cost estimates presented are suitable for planning purposes only and not detailed project budgeting. For consistency purposes, all project cost estimates presented are calculated using costs in 2014, when the methodology was developed.

The BMP cost estimates were developed based on the following assumptions:

Design Control Volumes: Design control volumes were based on the estimated runoff volume associated with the 1-year storm event for off-line, underground or green infrastructure-type practices. Control volumes for large, in-line infiltration or detention basins were based on the estimated runoff associated with the 100-year storm event plus approximately 2 feet of freeboard volume. Underground systems and green infrastructure-type practices were conceptually designed as offline practices that only accept runoff from the one-year event. Runoff volumes for all storm events were determined based on HydroCAD model results that rely on the Soil Conservation Service (SCS) TR-55 and TR-20 hydrologic methods.

Unit Costs and Site Adjustment Factors: Unit cost for each BMP and site adjustment factors were derived from research by the Charles River Watershed Association and Center for Watershed Protection, as well as from experience with actual construction.[1] Underground detention chambers (UDC) and underground recharge chamber (URC) systems were typically designed using Stormtech SC-740™ chamber systems. Cost estimates for the retrofit sites described as "GI/URC" were calculated as bioretention treatment systems followed by Stormtech SC-740™ chambers for recharge benefits. Cost adjustment factors were used to account for site specific differences typically related to project size, location, and complexity. Retrofits of existing BMPs, for example, generally cost less than new installations. The values used to estimate BMP costs are summarized in Table 7 below:

Table 7: Proposed BMP Unit Costs and Adjustment Factors

BMP	Base Cost ($/ft3)
Detention Basin	$2
Infiltration Basin	$4
Underground Chamber (infiltration or detention)	$12
Bioretention	$10
Green Infrastructure/ Underground Chamber Combo	$22
Site Type	**Cost Multiplier**
Existing BMP retrofit	0.25
New BMP in undeveloped area	1
New BMP in partially developed area	1.5
New BMP in developed area	2
Adjustment factor for large aboveground basin projects	0.5

*Excerpt from Horsley Witten Memorandum Dated January 9th 2014 (Page 11)

Site Specific Costs: Cost of significant utility or other work related to the construction of the BMP itself. Site specific costs are variable based on past experience.

Base Construction Cost: Calculated as the product of the design control volume, the unit cost, and the site adjustment factor.

Permits and Engineering Costs: Used either 20% (for largest storage volume projects), and 35% for smaller or complex projects.

[1] Horsley Witten Group, Inc. 2014. Centennial Brook Watershed: Flow Restoration VTBMPDSS Modeling Analysis and BMP Supporting Information. Memorandum Dated January 9th, 2014.

Land Acquisition Costs *(Modified*): A variation from the HW method was applied. Based on an estimate from the South Burlington City Assessor, a land acquisition cost of $120,000 per acre required for the BMP was applied to projects on private property. It should be noted that this value is based on a limited estimate and not necessary an expected cost per acre.

Total Project Cost: Calculated as the sum of the base construction cost, permitting and engineering costs, and land acquisition costs.

Cost per Impervious Acre: Calculated as the construction costs plus the permitting and engineering costs divided by the impervious acres managed by the BMP.

Operation and Maintenance: The annual O&M was calculated as 3% of the base construction costs, with a maximum of $10,000.

Minimum Cost Adjustment: After total project costs were determined for each proposed BMP based on the HW methodology, costs were reviewed and adjusted so that projects involving an outlet retrofit, such as a new outlet structure, were assigned a minimum cost of $10,000, and a project involving an expansion retrofit were assigned a minimum cost of $25,000.

A summary of all project costs for each proposed BMP in the Potash Brook Watershed are included in Table E-1 in Appendix E.

6.3 Implementation Schedule

The BMPDSS model run that ultimately achieved the required 16.5% reduction in stream flow during the 1-year storm event included 93 BMPs costing approximately $16,500,000 (this value utilizes 2014 construction cost estimates). The MS4 general permit requires that the BMPs identified in the FRP be constructed within 20 years of the effective date of the MS4 general permit. Therefore, the MS4 entities developed a schedule for design and construction of all BMPs that concludes before December 5, 2032. The implementation schedule for the proposed BMP projects in the Potash Brook watershed are included in Table E-3 in Appendix E.

In addition to a project's score within the BMP ranking matrix, development of a BMP implementation schedule required the consideration of additional factors. A number of the proposed BMPs are currently covered by expired State of Vermont stormwater permits. These BMPs were included in the beginning of the schedule so that the associated properties could complete the required stormwater improvements and achieve permit compliance. Other BMPs involve property containing more than 3 acres of impervious area. VTDEC is currently drafting a "3 Acre Stormwater Permit" that would require stormwater retrofits at these sites. BMPs in this situation were also placed towards the front of the implementation schedule. In addition, some of the proposed BMPs are located on land owned or controlled by the MS4 entities. These BMPs were given priority over those that were located on private property.

The BMP schedule presented in this FRP is expected to receive updates on an annual basis. Projects will be added, modified, or removed as necessary to meet FRP flow targets and respond to actual conditions. The primary reason being that the BMPs presented in the implementation schedule have only been developed in concept. It is reasonable to anticipate that changes will occur when these concepts are further developed. Depending on actual circumstances, the level of treatment achieved may be more or less than the level of treatment anticipated (e.g. variations

in soil conditions allow for either more or less infiltration of stormwater runoff than originally anticipated). These type of modifications are common when advancing BMP plans from concept to final design. Therefore, flexibility in the schedule is necessary to accommodate these changes.

Additionally, in order for project implementation to move forward in a cost effective manner, the MS4s will need to take advantage of opportunities for stormwater improvements as they present themselves. For example, a private property owner may decide to redevelop their property on a schedule that was not anticipated in the current BMP implementation schedule. If this occurs, the MS4s may need to shift available resources from a scheduled project in order to take advantage of a cost savings opportunity.

Finally, projects may need to be shifted in the BMP schedule based on Vermont's changing regulatory system. VTDEC is currently developing an implementation plan for the Lake Champlain Phosphorous TMDL. When this document is finalized, the MS4 permit will require regulated entities to develop Phosphorus Control Plans (PCPs), similar in size and scope to the FRPs being developed as part of stormwater TMDLs. When this occurs, the FRPs will likely need to be revised based on PCP requirements, which are yet to be defined by VTDEC.

7. Financial Plan

Subject to the requirements of the MS4 permit, a financial plan is required as a part of the FRP. This plan must provide initial BMP cost estimates and demonstrate the means by which BMP implementation will be financed. The financial plan must also include the steps that each MS4 will take to implement the finance plan.

Initial BMP cost estimates were arrived at using 2014 cost estimates. Once projects were scheduled over the remaining 17-year implementation schedule, an annual 3% inflation rate based on the construction cost index was applied. Table E-3 in Appendix E presents inflation adjusted project costs for each BMP project. Applying this inflation rate provides a more accurate annual cost for BMP construction in the later years of the schedule.

7.1 City of South Burlington Financial Plan

In 2005, the City of South Burlington created Vermont's first stormwater utility. Under the stormwater utility system, all developed properties in the City pay an impervious area-based stormwater fee using an Equivalent Residential Unit (ERU) system[1]. These stormwater fees provide the City with a stable funding source that is used to comply with State and Federal stormwater regulations and maintain stormwater infrastructure throughout the City. The stormwater utility was created with the understanding that there would be future stormwater costs related to the five stormwater impaired watersheds located in South Burlington, as well as costs related to future implementation of projects required by the Lake Champlain Phosphorous TMDL. The City anticipates using funds generated from stormwater utility fees to fund a portion of FRP related costs.

[1] South Burlington's *Ordinance Regulating the Use of Public and Private Sanitary Sewerage and Stormwater Systems*, dated 10/5/15, can be viewed at the following link: http://www.sburl.com/vertical/sites/%7BD1A8A14E-F9A2-40BE-A701-417111F9426B%7D/uploads/Sewer_and_Stormwater_Ordinance_Final_Clean_10.5.15.pdf

Once the BMP cost and implementation schedule was developed, the City of South Burlington Stormwater Utility was able to incorporate this information into its existing stormwater rate model. The City evaluated three different scenarios for funding the BMPs included in the FRP. The first scenario assumed that there would be no grant funding or low interest loans available to assist with implementation. The second scenario assumed that there would be no grant funding available, but low interest loans would be available to help the City pay for implementation. This scenario included $5M in low interest loans to help pay for BMP implementation. The third funding scenario assumed that grant funding of approximately $250,000 per year would be available in 2018 through 2029, and that this amount would increase to $500,000 in 2030, 2031, and 2032. The third funding scenario does not include low interest loans. The impact that these scenarios would have on stormwater utility rates is summarized in Table 8. The resulting annual cost to a single family residential property and commercial property owner containing 1 acre of impervious area is summarized in Table 9. Calculations for "Commercial Property Containing 1 Acre Impervious Area" in Table 9 assume an Equivalent Residential Unit (ERU) rate of 17 and do not take into account the City's relative tier factors, based percent impervious cover, which would yield an ERU range of 13 to 22 ERUs.

Table 8: Stormwater Billing Rate (Cost per Equivalent Residential Unit) Under Different Flow Restoration Plan Funding Scenarios

Fiscal Year	Funding Scenario 1 Receive No Grants and No Loans	Funding Scenario 2 Receive Low Interest Loans, No Grants	Funding Scenario 3 Receive $250,000 in Grants Annually*
2018	$6.69	$6.69	$6.69
2019	$6.87	$6.84	$6.84
2020	$7.05	$6.99	$6.99
2021	$7.26	$7.14	$7.14
2022	$7.50	$7.29	$7.29
2023	$7.77	$7.47	$7.44
2024	$8.07	$7.68	$7.59
2025	$8.40	$7.92	$7.74
2026	$8.76	$8.19	$7.89
2027	$9.15	$8.49	$8.04
2028	$9.57	$8.82	$8.19
2029	$9.99	$9.18	$8.34
2030	$10.41	$9.57	$8.49
2031	$10.83	$9.99	$8.64
2032	$11.25	$10.44	$8.79

*Funding Scenario 3 does not include low interest loans.

Table 9: Annual Stormwater Fee Paid by Property Owners Under Different Flow Restoration Plan Funding Scenarios

Fiscal Year	Funding Scenario 1 - Receive No Grants and No Loans		Funding Scenario 2 - Receive Low Interest Loans, No Grants		Funding Scenario 3 - Receive $250,000 in Grants Annually*	
	Single Family Residential Property	Commercial Property Containing 1 Acre Impervious Area	Single Family Residential Property	Commercial Property Containing 1 Acre Impervious Area	Single Family Residential Property	Commercial Property Containing 1 Acre Impervious Area
2018	$80.28	$1,364.76	$80.28	$1,364.76	$80.28	$1,364.76
2019	$82.44	$1,401.48	$82.08	$1,395.36	$82.08	$1,395.36
2020	$84.60	$1,438.20	$83.88	$1,425.96	$83.88	$1,425.96
2021	$87.12	$1,481.04	$85.68	$1,456.56	$85.68	$1,456.56
2022	$90.00	$1,530.00	$87.48	$1,487.16	$87.48	$1,487.16
2023	$93.24	$1,585.08	$89.64	$1,523.88	$89.28	$1,517.76
2024	$96.84	$1,646.28	$92.16	$1,566.72	$91.08	$1,548.36
2025	$100.80	$1,713.60	$95.04	$1,615.68	$92.88	$1,578.96
2026	$105.12	$1,787.04	$98.28	$1,670.76	$94.68	$1,609.56
2027	$109.80	$1,866.60	$101.88	$1,731.96	$96.48	$1,640.16
2028	$114.84	$1,952.28	$105.84	$1,799.28	$98.28	$1,670.76
2029	$119.88	$2,037.96	$110.16	$1,872.72	$100.08	$1,701.36
2030	$124.92	$2,123.64	$114.84	$1,952.28	$101.88	$1,731.96
2031	$129.96	$2,209.32	$119.88	$2,037.96	$103.68	$1,762.56
2032	$135.00	$2,295.00	$125.28	$2,129.76	$105.48	$1,793.16

It is the City's expectation that significant funding from the State of Vermont and other Federal sources will be available to help with the cost of stormwater TMDL implementation. The State of Vermont has already taken initial steps towards providing this funding. In 2015, the Vermont legislature created the Clean Water Fund (CWF). The CWF was provided with $2,005,000 in 2016 and $7,688,000 in 2016. While these initial investments are not at the level necessary to provide significant funding to the MS4 communities subject to stormwater TMDLs, it is our understanding that the State is working to provide additional funding to the CWF in the future. In December 2016, the State Treasurer and State agencies will be delivering a report to the Vermont legislature that provides options for raising significant money to fund the CWF. The City of South Burlington intends to work closely with our legislative representatives to ensure that this funding is made available for the stormwater improvements included in the FRPs. The City of South Burlington will also pursue funding from existing and new grant sources from other organizations including, but not limited to, VTDEC, the Vermont Agency of Transportation, and the Lake Champlain Basin Program.

7.2 City of Burlington Financial Plan

In 2009, the City of Burlington followed the example of the City of South Burlington in implementing an impervious area based stormwater fee to provide the City of Burlington with a stable funding source to maintain stormwater infrastructure throughout the City and to comply with numerous State and Federal stormwater regulations including the Stormwater TMDLs, Lake Champlain TMDL and Combined Sewer requirements. Implementation of retrofits for which the City is responsible will ultimately be the responsibility of the stormwater ratepayers. In order to limit the impact to the ratepayers, the City intends to leverage existing and new grant and loan sources, as they are available. In the case of Potash Brook, the two retrofits identified within Burlington City limits are on private property. Later analyses will determine whether additional retrofit financial obligations (i.e. paying into project completed elsewhere in the watershed) will be necessary for the City to meet its obligations in Potash Brook. As part of its Integrated Planning effort, the City of Burlington will also be evaluating possible mechanisms for incentivizing the construction of retrofits identified on private property, particularly if the City can get improvements that go above the Flow Restoration Plan requirements and make gains in phosphorus control. Additionally, as part of the Integrated Planning effort, the City will be completing a financial capability assessment (FCA) to evaluate the long-term ability of ratepayers to fund these and other Clean Water Act obligations. An FCA won't mean that Clean Water Act obligations won't be met – but may point to an adjustment of the overall schedule of implementation of all of the City of Burlington's obligations, including implementation of this and other Flow Restoration Plan projects, in order to mitigate the impact of stormwater and wastewater rates increasing at an unsustainable rate for the Burlington community. This FRP and SWMP will be amended with an updated financial plan, including stormwater rate projections for this and other Clean Water Act obligations once the FCA under the Integrated Plan is completed (end of 2018).

7.3 University of Vermont Financial Plan

Under the current budgeting process, the University would establish project funds to fulfill the University of Vermont's obligation. We would endeavor to pursue federal and state stormwater grant opportunities.

7.4 Vermont Agency of Transportation Financial Plan

Planning level costs were independently estimated for each VTrans project using a consistent spreadsheet-based method for all projects. As such, some cost estimates may differ slightly from those presented in other FRP documents. VTrans will request state and federal funding for the appropriate amount to implement the BMPs as outlined in their design and construction schedule. For those projects that will require a joint effort with another municipality, VTrans will request funding for their portion of the cost share. In watersheds where VTrans is either not meeting or exceeding their allocated target there may be cost sharing between MS4s.

7.5 Burlington International Airport Financial Plan

A financial plan that estimates the costs for implementing the BMPs and describes a strategy for financing is a required element of the FRP. The financing plan includes the steps each permittee will take to implement the financing plan. The City of South Burlington Potash Brook and Centennial Brook FRPs include cost estimates for each of the BMPs, using 2014 cost estimates with an annual 3% inflation rate as noted above. The VTDEC and the contributing MS4 permittees within these watersheds have signed a Memorandum of Agreement (MOA) to perform monitoring and other data collection required under the MS4 permitting program. Each MS4 permittee, including BTV, has been assigned a percentage of the total cost of the contracted work over a five-year timeframe. This type of collaborative arrangement will also apply to implementation and financing of the BMPs.

As described in the FRPs, it is BTV's expectation that significant funding from the State of Vermont and other Federal sources will be available to help with the cost of stormwater TMDL implementation. In 2015, the Vermont legislature created the Clean Water Fund (CWF). This fund was provided with $2,005,000 in 2015 and $7,688,000 in 2016, and will likely receive additional funding in the years to come. The City of South Burlington and Burlington Airport intend to work closely with legislative representatives to ensure that this funding is made available for the stormwater improvements included in the FRPs.

The Burlington Airport also intends to seek funding for implementing its commensurate share of the BMPs within the watersheds, including requests from the CWF and other sources. BTV is committed to participating in a cost share with the City of South Burlington to implement its FRP in a manner that is fair and reasonable for the airport. It is also noted that BTV reserves the right to achieve its FRP commitments through implementing projects of its own choosing that may not be identified on South Burlington's present list of proposed watershed improvement projects.

8. Regulatory Analysis

In accordance with the MS4 permit, an FRP requires a regulatory analysis that identifies and describes any additional regulatory authorities, including authority to require low impact development BMPs, that the permittees will need in order to effectively implement the FRP.

Currently, stormwater runoff within the Potash Brook watershed is regulated primarily by the VTDEC, City of South Burlington, City of Burlington, and VTrans. VTDEC regulates new developments through issuance of Stormwater Discharge Permits with technical requirements as outlined in the 2002 Vermont Stormwater Manual. The cities of South Burlington and Burlington require improved stormwater practices and low impact development for new developments through their stormwater ordinances and Land Development Regulations (LDRs). VTrans regulates stormwater discharges to the state Right of Way through 19 V.S.A.§1111 "Permitted use of the right-of-way".

The City of South Burlington updated stormwater requirements in its LDRs in June 2016.[1] The revised LDRs require that any project resulting in ½ acre or more of impervious area implement stormwater controls that prioritize infiltration. The revised LDRs also contain new requirements for properties that are being redeveloped. It is the City's expectation that these changes will result in gradual improvements in stormwater management over the course of the BMP implementation schedule.

The City of South Burlington also revised its "Ordinance Regulating the Use of Public and Private Sanitary Sewerage and Stormwater Systems" in October 2015.[2] The ordinance provides a policy regarding the handling of expired VTDEC stormwater permits located in South Burlington. The City will continue to take over responsibility for exclusively residential stormwater systems that complete upgrades. In addition, the revised ordinance allows commercial properties with expired permits to obtain coverage under the City's MS4 permit if upgrades to the stormwater system are completed. These properties will still be responsible for maintaining their systems, but the permit coverage required by the State of Vermont can now be provided through the City's MS4 permit, instead of obtaining coverage under one of VTDEC's other permit programs.

While the City of South Burlington has taken significant steps to alleviate the problems caused by expired State of Vermont stormwater permits within its boundaries, there is still a significant role that the VTDEC needs to play in order to support these efforts. The City's revised ordinance provides the opportunity for properties to obtain their required State of Vermont stormwater permit coverage through the City's MS4 permit, but it does not require it. It is anticipated that some property owners will want to work directly with VTDEC to obtain this permit coverage. In order for South Burlington to effectively implement its FRP, VTDEC needs to update its State permit programs so that properties with expired stormwater permits in stormwater impaired watersheds can obtain permit coverage directly from VTDEC. This updated permit program should require stormwater treatment on the properties that are, at minimum, equal to the stormwater treatment requirements included in the City's LDRs and referenced in the City's Stormwater Ordinance. If VTDEC fails to take this step and creates a permit program that allows properties to obtain permits with minimal stormwater improvements, it has the strong potential to undermine the City's efforts to meet the FRP targets.

The expired permit within Burlington's municipal boundary (South Meadow, 1-0661) does not contain any public Right of Way or other impervious. As such, the City is not committing to incorporating this permit at this time. However, the City of Burlington is reluctant to formally

[1] Section 12.03 – Stormwater Management Standards, "South Burlington Land Development Regulations," dated 6/27/16, can be viewed at the following link: http://www.sburl.com/vertical/Sites/%7BD1A8A14E-F9A2-40BE-A701-417111F9426B%7D/uploads/LDRs_Effective_6-27-2016__Complete_reduced_size.pdf

[2] South Burlington's "Ordinance Regulating the Use of Public and Private Sanitary Sewerage and Stormwater Systems," dated 10/5/15, can be viewed at the following link: http://www.sburl.com/vertical/sites/%7BD1A8A14E-F9A2-40BE-A701-417111F9426B%7D/uploads/Sewer_and_Stormwater_Ordinance_Final_Clean_10.5.15.pdf

request residual designation of this permit until the State has developed and made public the engineering feasibility assessment (EFA) it will use for these residually designated permits, since it is important that such an EFA reference the Flow Restoration Plan and ensure that retrofits under the RDA permit meet the goals of the flow restoration plan.

A full list of the expired State of Vermont permits with discharges to Potash Brook is presented in Table 1 in Section 2.2. BMPs with expired State of Vermont permits proposed for retrofit under this FRP are included in Table C-1: Final Proposed BMPs for Potash Brook FRP in Appendix C.

9. Third Party Implementation

In accordance with the MS4 permit, a FRP requires identification of the name of any party, other than the permittee, that is responsible for implementing any portion of the FRP. A full list of expired permits, identifying the third party permittee, within the Potash Brook watershed is presented in Table 1 in Section 2.2.

10. Conclusion

This Potash Brook FRP was completed to meet the requirements under Part III of the MS4 general permit for the contributing MS4s; City of South Burlington, City of Burlington, UVM, BTV, and VTrans. In accordance with Subpart IV.C.1. of the General Permit, the MS4s were required to submit a final FRP within 3 years of the permit issuance. This Potash Brook FRP fulfills those requirements. The Potash Brook FRP will become a part of the permittees' SWMP upon approval by VTDEC. Once the final Potash Brook FRP is approved by VTDEC, implementation of this FRP by the contributing MS4s is required. Additionally, updates on FRP progress toward the flow target reductions are required as a part of the MS4 annual reports.

11. Appendices

Appendix A - Existing Potash Brook Watershed BMPs
- Map A-1: Existing Stormwater BMP
- Table A-2: Post BMPDSS Model Existing Stormwater BMP List
- Map A-2: Subwatershed Boundaries
- Existing Stormwater BMP Site Inspection Field Sheets

Appendix B - BMPs included in BMPDSS Credit Runs
- Table B-1: Summary List of All BMPs included in BMPDSS Credit Runs

Appendix C – Potash Brook FRP Proposed BMPs
- Table C-1: Final Proposed BMPs for Potash Brook FRP
- Map C-1: Existing and Proposed Potash Brook FRP BMPs
- Potash Brook FRP BMP Summary Sheets

Appendix D – Project Ranking
- Horsley-Whitten Memorandum 1/9/14
- Table D-1: BMP Ranking Criteria Key
- Table D-2: BMP Ranking Scoring Key

Appendix E – Proposed BMP Cost Estimates, Prioritization Ranking, and Implementation Schedule
- Table E-1: Potash Brook Watershed BMP Project Cost Estimates
- Table E-2: Potash Brook Watershed BMP Project Scoring
- Table E-3: Potash Brook Watershed BMP Project Implementation Schedule

APPENDIX A

EXISTING POTASH BROOK
WATERSHED BMPs

Legend

- Stream Centerlines
- Stormwater BMPs
- Subwatershed Boundaries
- Watershed Boundary
- MS4 boundaries
- Town Boundaries

BMP Drainage Areas

- Base
- Base - new
- Existing BMP Retrofit
- Existing BMP Retrofit - new
- Post 2002
- Post 2002 - new

Stormwater Permits

- Construction
- Expired
- INDO
- INDS
- MSGP-9003
- RDA

Table 1: Drainage Area Scenario Groupings

Grouping ID	BMPDSS Model Scenario	Description
Base	Pre-2002	BMP added to model by VT DEC as of April 2015. Includes BMPs implemented prior to 2002. BMPS were not designed to meet VT SWMM design standards.
Base - new	Pre-2002	BMP added to model by the HTA-WCA Team as a part of Potash Brook FRP Project after April 2015. Includes BMPs implemented prior to 2002.
Existing BMP Retrofit	Post-2002	BMP added to model by VT DEC as of April 2015. Includes retrofits to existing BMPs implemented after 2002, designed to meet VT 2002 SWMM Standards.
Existing BMP Retrofit - new	Post-2002	BMP added to model by the HTA-WCA Team as a part of Potash Brook FRP Project after April 2015. Includes retrofits to existing BMPs implemented after 2002, designed to meet VT 2002 SWMM Standards.
Post 2002	Post-2002	BMP added to model by VT DEC as of April 2015. Includes BMPs implemented after 2002, designed to meet VT 2002 SWMM Standards.
Post 2002 - new	Post-2002	BMP added to Post 2002 BMPDSS model by the HTA-WCA Team a part of Potash Brook FRP Project after April 2015. Includes BMPs implemented after 2002, designed to meet VT 2002 SWMM Standards.

N

0 1,750 3,500 ft

Map A-1 - Existing Stormwater BMPs

Potash Brook Watershed
South Burlington, VT

Hoyle, Tanner & Associates, Inc.

Watershed Consulting Associates, LLC

Map Produced: 07-11-2016

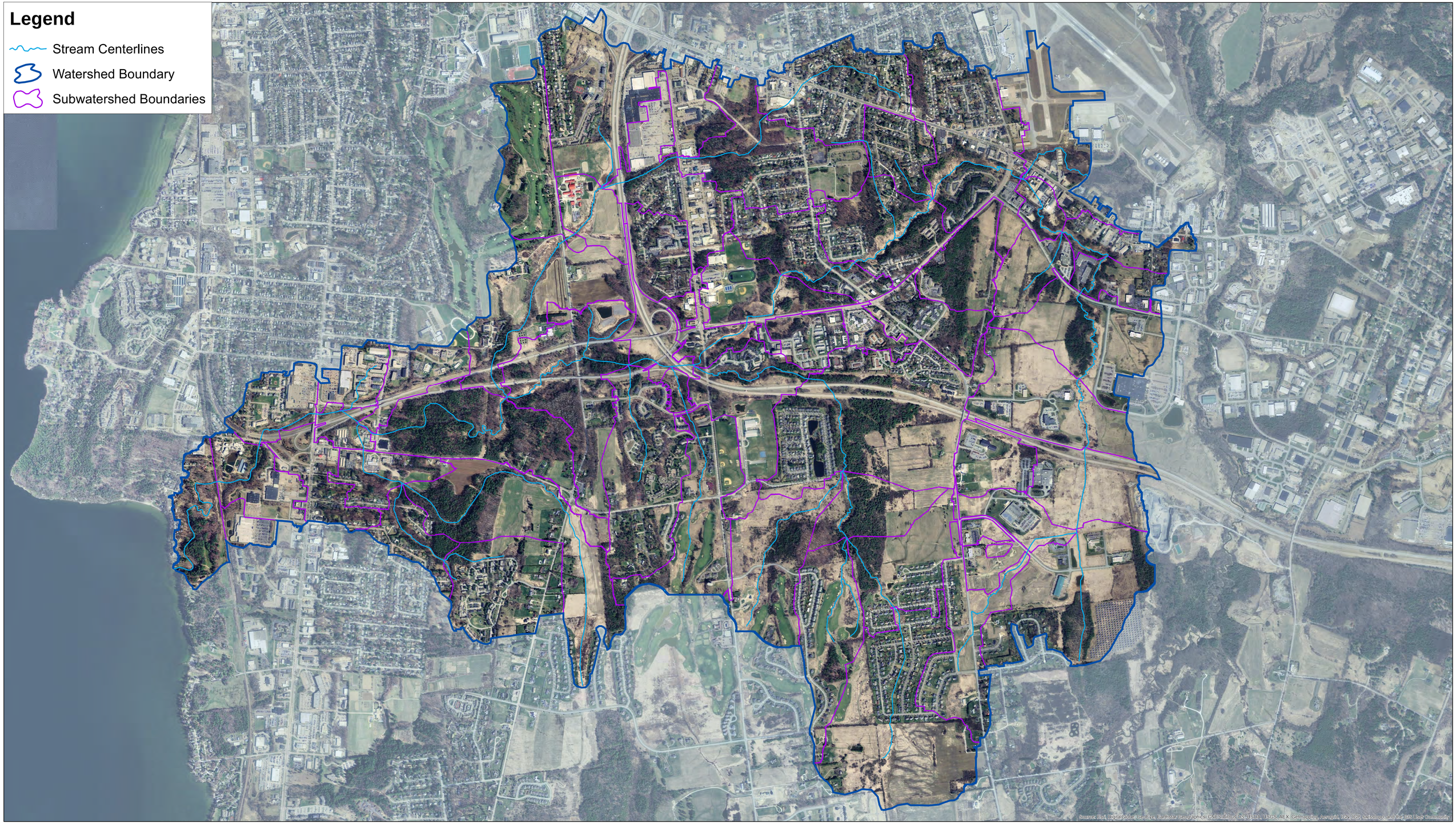
Potash Brook FRP Phase I
Table A-2: Post2002 BMPDSS Model Existing SW BMP List
as of 7-11-16

Table A-2: Post2002 BMPDSS Model Existing Stormwater BMP List

#	Model	MS4	Pond Name	BMP Type	Current Permit Number	RDA/ Renewed/ Related Permit	Location (Cross Streets)	BMP Drainage Area (acres)
Burlington Airport								
1	Base	BTV	I3_South	Infiltration Gallery	1-0839	n/a	1200 Airport Dr.	6.02
2	Base	BTV	1-1391 Infiltration System	Infiltration Gallery	1-1391	n/a	1200 Airport Dr.	3.11
3	Base	BTV	I3_North	Infiltration Gallery	No Permit	n/a	1200 Airport Dr.	19.88
4	Base-new	BTV	BTV I4 North Infiltration	Infiltration Field	3028-INDS.A	n/a	1200 Airport Dr.	2.08
5	Base-new	BTV	BTV I4 South Infiltration	Infiltration Field	3028-INDS.A	n/a	1200 Airport Dr.	13.42
City of Burlington								
6	Base	Burlington	South Meadows Pond	Detention Pond	1-0661	n/a	Baird St/ S. Meadow Dr.	10.10
7	Post 2002	Burlington	Howard Center	Wet Pond	7372-9020	n/a	Bard St. / Pine St.	5.29
City of South Burlington								
8	Base	South Burlington	110 Kimball Ave - South IB	Infiltration Basin	1-1504	n/a	Kimball Ave/Comcast Wy	1.42
9	Base	South Burlington	110 Kimball Ave - North IB	Infiltration Basin	1-1504	n/a	Kimball Ave/Comcast Wy	1.43
10	Base	South Burlington	30 Kimball Ave Detention	Detention Swale	6269-9030	1-1526	30 Kimball Avenue	1.27
11	Base	South Burlington	Adelphia Cable Communications	Detention Pond	6291-9030	1-1000	Comcast Wy/Kimball Ave.	1.91
12	Base	South Burlington	Dynapower	Detention Pond	6853-INDS	1-0618	85 Meadowland Dr.	5.81
13	Base	South Burlington	Economou Farm Pond	Detention Pond	4049-9030	1-1241	Swift St. / Economou Farm Rd.	6.37
14	Base	South Burlington	Farrell/Eastwood Commons	Detention Pond	1-1438	n/a	Farrell St.	20.95
15	Base	South Burlington	INS Building Pond a	Detention Pond	1-0969	6295-9030 (abandoned)	70 Kimball Ave	2.11
16	Base	South Burlington	INS Building Pond b	Detention Pond	1-0969	6295-9030 (abandoned)	70 Kimball Ave	1.44
17	Base	South Burlington	Lane Press Printing Facility IB	Infiltration Basin	1-1337	n/a	Meadowland Dr.	4.17
18	Base	South Burlington	Meadowland Lot 4 Pond	Detention Pond	1-1269	1-1269	Meadowland Dr. /Bowdoin St.	2.76
19	Base	South Burlington	Olympiad Apartments	Detention Pond	1-1452	n/a	Farrell St./ Eastwood Dr.	9.65
20	Base	South Burlington	Pillsbury Manor	Detention Pond	1-1015	n/a	Williston Rd/ Pillsbury Manor N.	1.06
21	Base	South Burlington	S. Burlington Community Housing	Infiltration Gallery	1-1380	n/a	Anderson Pwky/ Williston Rd.	6.92
22	Base	South Burlington	Swift Estates Pond	Pond	Swift Estates	n/a	Meadowood Dr.	18.52
23	Base	South Burlington	Technology Park Culvert Detention P4	Detention Area	1-1458 P4	n/a	Kimball Ave/Community Drive	8.05
24	Base	South Burlington	Technology Park Field Detention P3	Detention Area	1-1458 P3	n/a	Kimball Ave/Community Drive	15.12
25	Base	South Burlington	The Pines	Detention Pond	1-1117	n/a	Aspen Dr./Dorset Dr.	12.67
26	Base	South Burlington	UMall SN 001 Underground Infiltration	Infiltration Gallery	1-0503	6282-9030	Dorset St	17.15
27	Base	South Burlington	UMall SN 002 Undergrond Infiltration	Infiltration Gallery	1-0503	6282-9030	Dorset St	5.61
28	Base	South Burlington	UMall SN 003 Detention Pond	Detention Pond	1-0503	6282-9030	Dorset St	16.90
29	Base	South Burlington	UMall SN 005 Sears Automotive Pond	Detention Pond	1-0503	6282-9030	Dorset St	1.15
30	Base	South Burlington	Vermont National Country Club Pond b	Detention Pond	4049-9030	1-1241	Golf Course Rd. (Near 13th Tee)	36.03
31	Base	South Burlington	Vermont National Country Club Pond c	Detention Pond	4049-9030	1-1241	Swift St. / Economou Farm Rd.	9.94
32	Base	South Burlington	Woodlands Industrial Park	Detention Pond	6279-9030	6279-9030	102 Kimball Ave. (Woodland Commons)	2.39
33	Base-new	South Burlington	Shunpike Infiltration Basin	Infiltration Basin	No Permit	n/a	Shunpike Rd/ Kimball Ave	0.78
34	Base-new	South Burlington	UVM Forestry Research Center	Dry Well	No Permit	n/a	Spear St	1.02
35	Base-new	South Burlington	Panurgy Infiltration Basin	Infiltration Basin	No Permit	n/a	Shunpike Rd/ Kimball Ave	1.33
36	Existing BMP Retrofit	South Burlington	Mountain View Business Park - Lot A	Detention Pond	5395-INDS	1-1536	62 Tilley Drive	6.05
37	Existing BMP Retrofit	South Burlington	Winding Brook Pond	Detention Pond	6391-INDS	2-0988	Winding Brook Drive	9.11
38	Existing BMP Retrofit-new	South Burlington	Dorset Park Pond	Detention Pond	1-1033	n/a	Swift St./Dorset St.	26.07
39	Existing BMP Retrofit-new	South Burlington	Foxcroft Pond	Detention Pond	6553-INDO upgrades	2-0848	Kinsington St./ Hayes Ave.	5.38
40	Existing BMP Retrofit-new	South Burlington	Hayes Avenue Pond	Detention Pond	6553-INDO upgrades	2-0848	Kinsington St./ Hayes Ave.	12.66
41	Existing BMP Retrofit-new	South Burlington	Meadowland P1	Detention Pond	4290-9020.1 Lot 1b	1-1269 lot 1b	Meadowland Dr.	30.58
42	Existing BMP Retrofit-new	South Burlington	Oak Creek Village Flow Splitter to Pond 2	Flow Splitter	1-0464	n/a	Moss Glen Lane/Hinesburg Rd.	5.28
43	Existing BMP Retrofit-new	South Burlington	Oak Creek Village Pond 2	Detention Pond	1-0464	n/a	Moss Glen Lane/Hinesburg Rd.	16.75
44	Existing BMP Retrofit-new	South Burlington	Oak Creek Village Pond 3	Detention Pond	1-0464	n/a	Moss Glen Lane/Hinesburg Rd.	7.78

#	Model	MS4	Pond Name	BMP Type	Current Permit Number	RDA/ Renewed/ Related Permit	Location (Cross Streets)	BMP Drainage Area (acres)
45	Existing BMP Retrofit-new	South Burlington	Price Chopper Pond	Detention Pond	7294-9020	1-0538	End of Midas Dr./Williston Rd.	99.49
46	Existing BMP Retrofit-new	South Burlington	Ridgewood Pond	In stream pond.	1-0239/6285-9030	n/a	Corner of Dorset St & Swift Street	38.40
47	Existing BMP Retrofit-new	South Burlington	Technology Park Pond 1	Detention Pond	4113-INDS	1-1254	Community Dr.	8.96
48	Existing BMP Retrofit-new	South Burlington	Village at Dorset Park Pond a	Detention Pond	1-0647	n/a	Swift St/Brand Farm Dr.	16.31
49	Existing BMP Retrofit-new	South Burlington	Village at Dorset Park Pond b	Detention Pond	1-0647	n/a	Swift St/Brand Farm Dr.	8.27
50	Existing BMP Retrofit-new	South Burlington	Village at Dorset Park Pond c	Detention Pond	1-0647	n/a	Swift St/Brand Farm Dr.	20.48
51	post 2002	South Burlington	Double Tree Pond	Detention Pond	No Permit	n/a	Williston Rd.	5.78
52	post 2002	South Burlington	East Mountain View Pond	Detention Pond	5042-INDS	n/a	1100 Hinesburg Road	2.44
53	post 2002	South Burlington	Farrell Street Bioretention	Bioretention	5080-INDS	n/a	19 Farrell Street	0.35
54	post 2002	South Burlington	Farrell Street Pond	Detention Pond	5080-INDS	n/a	19 Farrell Street	32.96
55	post 2002	South Burlington	Fay Dr. Pond	Detention Pond	6204-9020	n/a	725 Hinesburg Road	2.81
56	post 2002	South Burlington	Hannafords Pond	Detention Pond	1-1214	n/a	Hannaford Dr	14.71
57	post 2002	South Burlington	Healthy Living Wet Pond #1	Detention Pond	4461-INDS.A	n/a	222, 200, 196 & 192 Dorset Street	3.36
58	post 2002	South Burlington	Healthy Living Wetland Pond	Wetland Pond Area	4461-INDS.A	n/a	222, 200, 196, &192 Dorset St.	15.35
59	post 2002	South Burlington	Heatherfield P1	Detention Pond	3658-INDS	n/a	885 Dorset St.	1.40
60	post 2002	South Burlington	Heatherfield P2	Detention Pond	3658-INDS	n/a	885 Dorset St.	10.76
61	post 2002	South Burlington	Heatherfield P3	Detention Pond	3658-INDS	n/a	885 Dorset St.	4.30
62	post 2002	South Burlington	Heatherfield Offset Pond	Detention Pond	3864-NDO	n/a	Dorset and Spear St.	23.93
63	post 2002	South Burlington	Kennedy Dr. P1	Detention Pond	1-1582	n/a	Kennedy Drive	1.47
64	post 2002	South Burlington	Kennedy Dr. P2	Detention Pond	1-1582	n/a	Kennedy Drive	2.16
65	post 2002	South Burlington	Kennedy Dr. P3	Detention Pond	1-1582	n/a	Kennedy Drive	2.11
66	post 2002	South Burlington	Kennedy Dr. P4	Detention Pond	1-1582	n/a	Kennedy Drive	1.41
67	post 2002	South Burlington	Kennedy Dr. P5	Detention Pond	1-1582	n/a	Kennedy Drive	0.70
68	post 2002	South Burlington	Kennedy Dr. P6	Detention Pond	1-1582	n/a	Kennedy Drive	0.66
69	post 2002	South Burlington	Kennedy Dr. P7	Detention Pond	1-1582	n/a	Kennedy Drive	1.82
70	post 2002	South Burlington	K-Mart Retrofit IB	Infiltration Gallery	5406-9020	n/a	Hannaford Drive	1.70
71	post 2002	South Burlington	Lot 1 Mountainview Pond	Detention Pond	3805-INDS.2	n/a	Tilley Drive, off of Rt. 116 (Hinesburg Rd)	3.92
72	post 2002	South Burlington	Lot 3 Mountainview Pond	Detention Pond	3805-INDS.3	n/a	Tilley Drive, off of Rt. 116 (Hinesburg Rd)	2.11
73	post 2002	South Burlington	Lot 4 Mountainview P1	Detention Pond	3805-INDS.1	n/a	Tilley Drive, off of Rt. 116 (Hinesburg Rd)	2.27
74	post 2002	South Burlington	Lot 4 Mountainview P2	Detention Pond	3805-INDS.1	n/a	Tilley Drive, off of Rt. 116 (Hinesburg Rd)	1.81
75	post 2002	South Burlington	Lowes Pond	Detention Pond	1-1214	n/a	Hannaford Dr.	12.73
76	post 2002	South Burlington	Meadowland Lot 2 Pond	Detention Pond	4290-INDC lot 2	1-1269	472 Meadowland Drive, 66 Bowdoin St.	5.85
77	post 2002	South Burlington	Meadowland Lot 8&9 Filter	Filter	5913-9020.1	1-1269	65 and 103 Bowdoin Street	0.22
78	post 2002	South Burlington	Meadowland Lot 8&9 North Pond	Detention Pond	5913-9020.1	1-1269	65 and 103 Bowdoin Street	1.29
79	post 2002	South Burlington	Meadowland Lot 8&9 South Pond	Detention Pond	5913-9020.1	1-1269	65 and 103 Bowdoin Street	1.73
80	post 2002	South Burlington	Meadowland Bus. Park Pond #2	Detention Pond	4290-9020.3 Lot 10	1-1269	472 Meadowland Dr	13.46
81	post 2002	South Burlington	Mountain View Business Park, Lot B	Detention Pond	3622-INDS	n/a	116 Hinesburg Rd.	2.33
82	post 2002	South Burlington	Mountain View Office Park Pond b	Detention Pond	3805-INDS	n/a	Tilley Drive, off of Rt. 116 (Hinesburg Rd)	0.90
83	post 2002	South Burlington	Oak Creek Village Micropool	Detention Pond	6009-9020	n/a	Hinesburg Road, Butler Drive, Fox Run Lane	5.80
84	post 2002	South Burlington	Obrien Pond a	Detention Pond	1-1520	n/a	Stonington Circle & Eldredge Street	31.76
85	post 2002	South Burlington	Obrien Pond b	Detention Pond	1-1520	n/a	Stonington Circle & Eldredge Street	3.08
86	post 2002	South Burlington	Obrien Pond c	Detention Pond	1-1520	n/a	Stonington Circle & Eldredge Street	4.06
87	post 2002	South Burlington	Quarry Hill Pond	Detention Pond	3602-INDS	n/a	Quarry Hill Road	21.75
88	post 2002	South Burlington	SBHS IB North	Infiltration Basin	6174-INDS.A	n/a	Dorset St.	0.21
89	post 2002	South Burlington	SBHS IB South	Infiltration Basin	6174-INDS.A	n/a	Dorset St.	0.46
90	post 2002	South Burlington	St. John Vianney Church IB	Infiltration Basin	3745-INDS	n/a	160 Hinesburg Road	4.17
91	post 2002	South Burlington	Technology Park Lot 2 PW	Pocket Wetland	1-1458	n/a	Kimball Ave/Community Drive	2.66
92	post 2002	South Burlington	Technology Park Lot 3 PW	Pocket Wetland	1-1458	n/a	Kimball Ave/Community Drive	3.85
93	post 2002	South Burlington	The Rock Pond A	detention pond	4207-INDC	1-1269	Meadowland Business Park	1.12
94	post 2002	South Burlington	The Rock Pond B	Detention Pond	4207-INDC	1-1269	Meadowland Business Park	1.85
95	post 2002	South Burlington	Trader Joes Median Swale	Infiltration Swale	4461-INDS.A	n/a	222, 200, 196, &192 Dorset St.	0.56
96	post 2002	South Burlington	Trader Joes Wet Pond #2	Wet Pond	4461-INDS.A	n/a	222, 200, 196, &192 Dorset St.	1.72
97	post 2002	South Burlington	Twin Oaks Pond	Detention Pond	5358-9020	2-0825	Twin Oaks Terrace, Kennedy Drive	19.81
98	post 2002	South Burlington	Vt Assoc. for the Blind- IG 1	Infitration Gallery	5717-INDS	n/a	Kimball Avenue	1.19
99	post 2002	South Burlington	Vt Assoc. for the Blind- IG 2	Infitration Gallery	5717-INDS	n/a	Kimball Avenue	0.56
100	post 2002 new	South Burlington	1060 Hinesburg Rd Parking lot	Detention Pond	6499-9020	n/a	1060, 1070 and 1080 Route 116	2.87

#	Model	MS4	Pond Name	BMP Type	Current Permit Number	RDA/ Renewed/ Related Permit	Location (Cross Streets)	BMP Drainage Area (acres)
101	post 2002 new	South Burlington	Butler Farms Pond	Detention Pond	6660-9020	n/a	Route 116, Butler Drive, Marcy Street	33.56
102	post 2002 new	South Burlington	City Hall Bioretention	Bioretention Basin	2-0909	n/a	575 Dorset St.	0.82
103	post 2002 new	South Burlington	City Hall Underground Storage	Underground Storage	2-0909	n/a	575 Dorset St.	2.43
104	post 2002 new	South Burlington	Dorset St Hotel Pond #1	Wet Pond	6970-9020	n/a	5 Dorset St.	2.97
105	post 2002 new	South Burlington	Dorset St Hotel Pond #2	Wet Pond	6970-9020	n/a	5 Dorset St.	1.01
106	post 2002 new	South Burlington	Elsom Pkwy System	Perforated Pipe	Mayfair Park Improvement	n/a	Elsom Pkwy	6.98
107	post 2002 new	South Burlington	Farrell Park Constructed Wetland	Constructed Wetland	No Permit	n/a	Swift St. / Farrell St.	1.37
108	post 2002 new	South Burlington	Hayes Apartments Stormwater Pond	Detention Pond	1-0839	n/a	635 Hinesburg Rd	1.98
109	post 2002 new	South Burlington	Indian Creek Dry Detention Basin 1	Detention Pond	1-0239/6285-9030	n/a	Corner of Dorset St & Swift Street	6.13
110	post 2002 new	South Burlington	Indian Creek Dry Detention Basin 2	cul-de-sac pond	1-0239/6285-9030	n/a	Corner of Dorset St & Swift Street	8.98
111	post 2002 new	South Burlington	Mayfair St System	Perforated Pipe	Mayfair Park Improvement	n/a	Elsom Pkwy	8.42
112	post 2002 new	South Burlington	Meadowland Bus. Park Lot 5 Pond	Detention Pond	4290-9020.2 Lot 5	1-1269	472 Meadowland Dr	2.71
113	post 2002 new	South Burlington	Meadowland Bus. Park Lot 6 Pond	Detention Pond	4319-INDC lot 6	1-1269	104 Bowdoin St	2.40
114	post 2002 new	South Burlington	Meadowlands Business Complex Lot 1C	Future Detention Pond	4290-9020.4 Lot 1C	n/a	472 Meadowland Drive, 66 Bowdoin St	2.70
115	post 2002 new	South Burlington	North West Bioretention	Bioretention Basin	7220-9020	n/a	Stonehedge Drive	5.74
116	post 2002 new	South Burlington	Ryes Associates - Dry Pond	Dry Pond	7017-INDS	n/a	Hinesburg Rd/Fox Run Lane	3.12
117	post 2002 new	South Burlington	Ryes Associates - Pond #1	Wet Pond	7017-INDS	n/a	Hinesburg Rd/Fox Run Lane	9.99
118	post 2002 new	South Burlington	Ryes Associates - Pond #2	Wet Pond	7017-INDS	n/a	Hinesburg Rd/Fox Run Lane	2.67
119	post 2002 new	South Burlington	South East Bioretention	Bioretention Basin	7220-9020	n/a	Stonehedge Drive	0.82
120	post 2002 new	South Burlington	South West Bioretention	Bioretention Basin	7220-9020	n/a	Stonehedge Drive	3.92
121	post 2002 new	South Burlington	Stonehedge Detention Pond	Detention Pond-Future	7220-9020	n/a	Stonehedge Drive	40.18
122	post 2002 new	South Burlington	Summerfield Pond	Detention Pond	6170-9020	n/a	1404 Hinesburg Rd.	4.26
123	post 2002 new	South Burlington	Dialysis Center Bioretetion	Bioretention	7317-INDS	n/a	35 Joy Dr.	0.45
124	post 2002 new	South Burlington	Dialysis Center Infiltration	Infiltration Basin	7317-INDS	n/a	35 Joy Dr.	0.19



N

0 1,750 3,500 ft

Map A-2 – Subwatershed Boundaries

Potash Brook Watershed
South Burlington, VT

Hoyle, Tanner & Associates, Inc.

Watershed Consulting Associates, LLC

Map Produced: 08-05-2016

Existing Stormwater BMP Site Inspection **Assessed by:** KG,JS

Assessment Information	Site Information
City BMP ID: Pd0054	**Site/Practice Description:** Wet extended detention pond with forebay (Oak Creek Village Pond #2) , located at the end of Fox Run Lane.
Current Permit #: 1-0464 **Related Permit #(s):** 6658-9020, US EPA Stormwater Demonstration Grant EM-83234901-1	
BMP Name: Oak Creek Village Pond 2	
BMP Type: Detention Pond	
BMP Ownership: City	
Post 2002 Upgrades (Y/N): Yes. Upgraded Post 2002.	
Date/Time Assessed: 2015-09-09 / 12:20	Detention pond with micropool.
Address/Cross Streets: Mill Pond Ln	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: None	
Operation/Maintenance Issues: No	
O/M Comments: No visible issues.	

Existing BMP Sizing Information

BMP Outlet Structure Overview: Concrete riser structure.

Orifice 1: Low-flow	**Orifice 2:** Low-flow	**Orifice 3:** Low-flow
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 2	**Diameter (in):** 72x12	**Diameter (in):** 4
Orientation (V/H): Vertical	**Orientation (V/H):** Vertical	**Orientation (V/H):** Vertical
Material: PVC- smooth	**Material:** Concrete	**Material:** PVC- smooth
Invert from Rim: 78	**Invert from Rim:** 42	**Invert from Rim:** 60

Emergency Spillway Dimensions (if applicable): yes **Breadth (ft):** 6 **Length (ft):** 150

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-0464a	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Post 2002 (retrofit)	**Justification:** System currently meeting CPv standard. No FRP Benefit.
Revision to GIS DA: Revise DA.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0055	**Site/Practice Description:** Wet pond with forebay (Oak Creek Village Pond #3), located off Moss Glen Lane.
Current Permit #: 1-0464 **Related Permit #(s):** 6658-9020, US EPA Stormwater Demonstration Grant EM-83234901-0	
BMP Name: Oak Creek Village Pond 3	
BMP Type: Detention Pond	
BMP Ownership: City	
Post 2002 Upgrades (Y/N): Yes. Upgraded Post 2002.	
Date/Time Assessed: 2015-09-09 / 12:06	
Address/Cross Streets: Moss Glen Lane/Hinesburg Rd.	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: None	
Operation/Maintenance Issues: No	
O/M Comments: No visible issues.	Pond with outlet structure.

Existing BMP Sizing Information		
BMP Outlet Structure Overview: Detention pond		
Orifice 1: Low-flow	**Orifice 2:** Low-flow	**Orifice 3:** Culvert
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 2	**Diameter (in):** 24x6	**Diameter (in):** 30
Orientation (V/H): Vertical	**Orientation (V/H):** Vertical	**Orientation (V/H):** Vertical
Material: PVC- smooth	**Material:** Concrete	**Material:** Concrete
Invert from Rim: 53	**Invert from Rim:** 30	**Invert from Rim:** 56
Emergency Spillway Dimensions (if applicable): Yes	**Breadth (ft):** 10	**Length (ft):** 50
Structure Notes/Follow-up: ---		

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-0464b	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Post 2002 (retrofit)	**Justification:** System currently meeting CPv standard. No FRP Benefit.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: IA0010	**Site/Practice Description:** Infiltration Basin underground in Hannaford's Parking lot. Not visible from street.
Current Permit #: 6282-9030 **Related Permit #(s):** 1-0503	
BMP Name: UMall SN 002 Underground Infiltration	
BMP Type: Infiltration Gallery	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): RDA under review	
Date/Time Assessed: 2015-05-04 / 12:38	
Address/Cross Streets: Dorset St	
Reviewed Existing Site Plans Prior to Field Visit: Plans not available.	
Active Pollution Visible: None	
Operation/Maintenance Issues: Pending	
O/M Comments: Not able to check underground basin. Contact Property owner for maintenance history.	Parking lot containing catchbasins.

Existing BMP Sizing Information

BMP Outlet Structure Overview: No outlet. Pipes connecting mapped catch basins were confirmed in field.

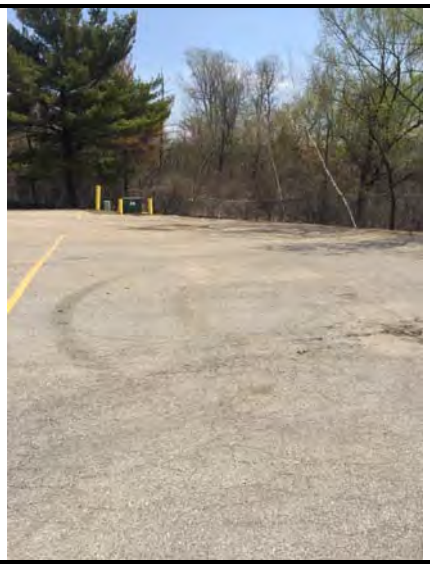
Orifice 1:	Orifice 2:	Orifice 3:
Multiplier:	**Multiplier:**	**Multiplier:**
Diameter (in):	**Diameter (in):**	**Diameter (in):**
Orientation (V/H):	**Orientation (V/H):**	**Orientation (V/H):**
Material:	**Material:**	**Material:**
Invert from Rim:	**Invert from Rim:**	**Invert from Rim:**

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: Catch basins and pipes consistent with mapping. Iron deposits in several catch basin sumps.

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-0503a	**Is Retrofit Possible/Needed:** Proposed Upgrade
Model (Which Model Scenario is the existing system included?): Base	**Justification:** BMP does not meet Rev, or WQv standards. See proposed modifications in EFA submittal (not accepted by DEC as of 2015).
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** See proposed EFA modifications.
	Feasibility Issues/Comments: Unknown at time of inspection.

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: IA0009	**Site/Practice Description:** Infiltration Basin underground in Parking lot between the Hannaford's Building and Sears Automotive Shop. Not visible from street.
Current Permit #: 6282-9030 **Related Permit #(s):** 1-0503	
BMP Name: UMall SN 001 Underground Infiltration	
BMP Type: Infiltration Gallery	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): RDA under review	
Date/Time Assessed: 2015-05-04 / 12:44	
Address/Cross Streets: Dorset St	
Reviewed Existing Site Plans Prior to Field Visit: Plans not available.	
Active Pollution Visible: Trash, Litter	
Operation/Maintenance Issues: Pending	
O/M Comments: Water is bypassing cbs, erosion in parking lots where ponding occurs. Need sweeping of sediment/trash left over from snow storage. Not able to check underground basin. Contact Property owner for maintenance history.	Back parking lot near fence shows evidence of flow bypassing inlets and excessive sediment from snow storage.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Parking lots have quite a bit of sediment. Suspect part of parking lot sheet flows.

Orifice 1:	Orifice 2:	Orifice 3:
Multiplier:	**Multiplier:**	**Multiplier:**
Diameter (in):	**Diameter (in):**	**Diameter (in):**
Orientation (V/H):	**Orientation (V/H):**	**Orientation (V/H):**
Material:	**Material:**	**Material:**
Invert from Rim:	**Invert from Rim:**	**Invert from Rim:**

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: South part of parking lot has quite a bit of sediment covering it. Suspect part of parking lot bypasses catch basins.

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-0503b	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Increase capture with an infiltration trench at southern edge of parking lot.
Revision to GIS DA: Revise DA.	**Proposed Practice Type:** Infiltration Trench
	Feasibility Issues/Comments: Unknown at time of inspection.

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0077	**Site/Practice Description:** Detention pond with outlet control device. Drainage area includes area around Sears and parking garage at University Mall.
Current Permit #: 6282-9030 **Related Permit #(s):** 1-0503	
BMP Name: UMall SN 003 Detention Pond	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): RDA under review	
Date/Time Assessed: 2015-09-09 / 08:49	
Address/Cross Streets: Dorset St	
Reviewed Existing Site Plans Prior to Field Visit: Plans not available.	
Active Pollution Visible: None	
Operation/Maintenance Issues: Yes	
O/M Comments: Water seems to enter riser through crack in base of structure.	Flow drains to outlet structure with little to no detention.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Concrete riser with low-flow orifice (not visible) and three orifices on side of riser, with culvert out.

Orifice 1: Culvert	**Orifice 2:** Low-flow	**Orifice 3:** Low-flow
Multiplier:1	**Multiplier:** 1	**Multiplier:** 3
Diameter (in): 36	**Diameter (in):** 7	**Diameter (in):** 7
Orientation (V/H): Vertical	**Orientation (V/H):** Vertical	**Orientation (V/H):** Vertical
Material: PVC- smooth	**Material:** Concrete	**Material:** Concrete
Invert from Rim: 57	**Invert from Rim:** 47	**Invert from Rim:** 26

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: Check plans for culvert out size and if there is a low-flow orifice below visible surface.

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-0503c	**Is Retrofit Possible/Needed:** Proposed Upgrade
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Pond does not meet Rev, CPv, or WQv standards. See proposed modifications in EFA submittal (not accepted by DEC as of 2015).
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** See proposed EFA modifications.
	Feasibility Issues/Comments: Need to assess capacity for more detention if orifice size is reduced.

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0078	**Site/Practice Description:** Detention pond behind Sears Automotive Shop.
Current Permit #: 6282-9030 **Related Permit #(s):** 1-0503	
BMP Name: UMall SN 005 Sears Automotive Pond	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): RDA under review	
Date/Time Assessed: 2015-05-04 / 12:57	
Address/Cross Streets: Dorset St	
Reviewed Existing Site Plans Prior to Field Visit: Plans not available.	
Active Pollution Visible: Trash, Litter	
Operation/Maintenance Issues: Yes	
O/M Comments: Clean up trash and litter.	Detention pond overview.

Existing BMP Sizing Information		
BMP Outlet Structure Overview: Concrete riser with 2 low flow orifices- one above the other and culvert out.		
Orifice 1: Low-flow	**Orifice 2:** Riser	**Orifice 3:** Culvert
Multiplier:2	**Multiplier:** 2	**Multiplier:** 1
Diameter (in): 5	**Diameter (in):** 41	**Diameter (in):** 12
Orientation (V/H): Vertical	**Orientation (V/H):** Horizontal	**Orientation (V/H):** Vertical
Material: Concrete	**Material:** Concrete	**Material:** HPDE
Invert from Rim: 25	**Invert from Rim:** 0	**Invert from Rim:** 30
Emergency Spillway Dimensions (if applicable): No visible spillway	**Breadth (ft):** ---	**Length (ft):** ---
Structure Notes/Follow-up: ---		

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-0503d	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Pond does not meet Rev, CPv, or WQv standards. See proposed modifications in EFA submittal (not accepted by DEC as of 2015).
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** Outlet Structure retrofit
	Feasibility Issues/Comments: Need to assess capacity for more detention if orifice size is reduced.

Existing Stormwater BMP Site Inspection **Assessed by:** KG,JS

Assessment Information	Site Information
City BMP ID: Pd0169	**Site/Practice Description:** Micropool practice and forebay with low-flow outlet control, located behind facility on east side of property.
Current Permit #: 6279-9030 **Related Permit #(s):** 1-0526	
BMP Name: Woodlands Industrial Park	 Detention pond overview.
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): Yes. Upgraded Post 2002.	
Date/Time Assessed: 2015-04-28 / 16:32	
Address/Cross Streets: 102 Kimball Ave	
Reviewed Existing Site Plans Prior to Field Visit: Yes. No outlet structure detail.	
Active Pollution Visible: None	
Operation/Maintenance Issues: No	
O/M Comments: No visible issues.	

Existing BMP Sizing Information

BMP Outlet Structure Overview: Concrete riser with low-flow orifice, trash rack, and emergency spillway.

Orifice 1: Low-flow	**Orifice 2:** Riser	**Orifice 3:** Culvert
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 4	**Diameter (in):** 24	**Diameter (in):** Couldn't see
Orientation (V/H): Vertical	**Orientation (V/H):** Horizontal	**Orientation (V/H):** Vertical
Material: PVC- smooth	**Material:** Concrete	**Material:** Couldn't see
Invert from Rim: 31	**Invert from Rim:** 0	**Invert from Rim:** Unknown

Emergency Spillway Dimensions (if applicable): Yes **Breadth (ft):** 10 **Length (ft):** 20

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-0526	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Post 2002 (retrofit)	**Justification:** System currently meeting CPv standard. No FRP Benefit.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0006	**Site/Practice Description:** Detention pond with stand pipe, located at the end of Midas Dr providing detention for runoff from Commerce Square.
Current Permit #: 7294-9020 **Related Permit #(s):** 1-0538	
BMP Name: Price Chopper Pond	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): Proposed Upgrade	
Date/Time Assessed: 2015-05-04 / 14:54	
Address/Cross Streets: Midas Dr	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: Trash, Litter	
Operation/Maintenance Issues: Yes	
O/M Comments: Trash, litter likely left over from snow storage. Standpipe outlet tilted, in need of repair.	Detention pond overview.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Concrete riser structure. Could not see culvert out. Standpipe in center of pond, but couldn't see connection to riser.

Orifice 1: Riser	**Orifice 2:**	**Orifice 3:**
Multiplier:1	**Multiplier:** 1	**Multiplier:**
Diameter (in): 21	**Diameter (in):**	**Diameter (in):**
Orientation (V/H): Horizontal	**Orientation (V/H):**	**Orientation (V/H):**
Material: Concrete	**Material:**	**Material:**
Invert from Rim: 0	**Invert from Rim:**	**Invert from Rim:**

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: Retrofit already proposed under 7294-9020 permit.

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-0538	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Post 2002 (retrofit)	**Justification:** Proposed retrofit- Permit #7294-INDO
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** Detention Pond-Regrade/Expand
	Feasibility Issues/Comments: See USACE Tributary 3 to Potash Brook Stormwater Treatment Section 545 Project

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0076	**Site/Practice Description:** Highly vegetated detention pond on Southern edge of parking lot. Grass swale permitted under 6853-INDS drains to pond.
Current Permit #: 6853-INDS **Related Permit #(s):** 1-0618	
BMP Name: Dynapower	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No change to permitted pond. INDS covered new swale which doesn't provide more detention.	
Date/Time Assessed: 2015-05-06 / 13:04	
Address/Cross Streets: Meadowland Dr	
Reviewed Existing Site Plans Prior to Field Visit: Yes. No detail for pond.	
Active Pollution Visible: Excessive sediment in catch basins.	
Operation/Maintenance Issues: Yes	
O/M Comments: Catch basin sumps still have erosion covers from past construction. Sumps are full of sediment. Catch basins in parking lot need to be cleaned out.	Detention pond overview.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Culvert out. No low flow control visible.

Orifice 1: Culvert	**Orifice 2:**	**Orifice 3:**
Multiplier:1	**Multiplier:** 1	**Multiplier:**
Diameter (in): 12	**Diameter (in):**	**Diameter (in):**
Orientation (V/H): Vertical	**Orientation (V/H):**	**Orientation (V/H):**
Material: Concrete	**Material:**	**Material:**
Invert from Rim: Unknown	**Invert from Rim:**	**Invert from Rim:**

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-0618	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Does not meet CPv standard.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** Outlet Structure retrofit
	Feasibility Issues/Comments: Need to assess capacity for more detention if orifice size is reduced.

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0033	**Site/Practice Description:** Large detention connected to two downstream ponds, located within the Village at Dorset Park neighborhood.
Current Permit #: 1-0647 **Related Permit #(s):** In Progress	
BMP Name: Village at Dorset Park Pond a	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): Proposed Upgrade	
Date/Time Assessed: 2015-05-01 / 13:47	
Address/Cross Streets: Lupine Drive	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: Trash, Litter	
Operation/Maintenance Issues: Yes	
O/M Comments: Clean up trash and litter.	Pond with outlet structure.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Standpipe with internal weir. Couldn't see into riser.

Orifice 1: ---	**Orifice 2:** ---	**Orifice 3:** ---
Multiplier:0	**Multiplier:** 0	**Multiplier:** 0
Diameter (in): ---	**Diameter (in):** ---	**Diameter (in):** ---
Orientation (V/H): ---	**Orientation (V/H):** ---	**Orientation (V/H):** ---
Material: ---	**Material:** ---	**Material:** ---
Invert from Rim: ---	**Invert from Rim:** ---	**Invert from Rim:** ---

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: Check plans for BMP configuration.

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-0647a	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Post 2002 (retrofit)	**Justification:** Does not meet CPv standard.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** Detention Pond-Regrade/Expand
	Feasibility Issues/Comments: Retrofit already proposed. Project "Village at Dorset Park".

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0033	**Site/Practice Description:** Large detention connected between two other large ponds, located within the Village at Dorset Park neighborhood.
Current Permit #: 1-0647 **Related Permit #(s):** In Progress	
BMP Name: Village at Dorset Park Pond b	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): Proposed Upgrade	
Date/Time Assessed: 2015-05-01 / 13:42	
Address/Cross Streets: Lupine Drive	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: None	
Operation/Maintenance Issues: No	
O/M Comments: No visible issues.	Detention pond with outlet structure.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Standpipe with internal weir. Couldn't see into riser.

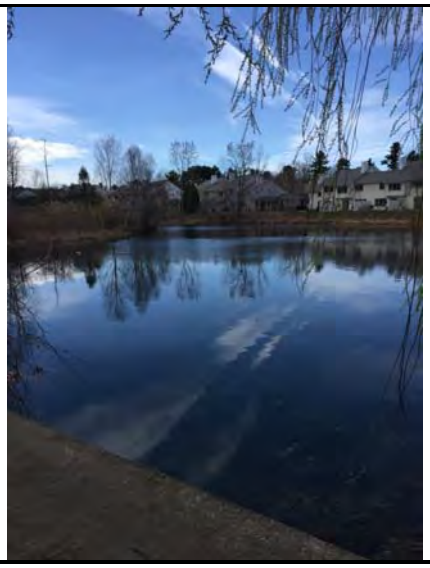
Orifice 1: ---	**Orifice 2:** ---	**Orifice 3:** ---
Multiplier:0	**Multiplier:** 0	**Multiplier:** 0
Diameter (in): ---	**Diameter (in):** ---	**Diameter (in):** ---
Orientation (V/H): ---	**Orientation (V/H):** ---	**Orientation (V/H):** ---
Material: ---	**Material:** ---	**Material:** ---
Invert from Rim: ---	**Invert from Rim:** ---	**Invert from Rim:** ---

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-0647b	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Post 2002 (retrofit)	**Justification:** Does not meet CPv standard.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** Detention Pond-Regrade/Expand
	Feasibility Issues/Comments: Retrofit already proposed. Project "Village at Dorset Park".

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0033	**Site/Practice Description:** Large detention connected to two upstream ponds, located within the Village at Dorset Park neighborhood.
Current Permit #: 1-0647 **Related Permit #(s):** In Progress	
BMP Name: Village at Dorset Park Pond c	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): Proposed Upgrade	
Date/Time Assessed: 2015-05-01 / 13:30	
Address/Cross Streets: Brand Farm Drive	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: Trash, Litter	
Operation/Maintenance Issues: Yes	
O/M Comments: Clean up trash and litter.	View of detention pond from outlet structure.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Concrete riser with weir on side and two overflow grates.

Orifice 1: Low-flow	**Orifice 2:** Riser	**Orifice 3:** Culvert
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 48 x 12	**Diameter (in):** 20 x 13	**Diameter (in):** Couldn't see
Orientation (V/H): Vertical	**Orientation (V/H):** Vertical	**Orientation (V/H):** Vertical
Material: Concrete	**Material:** Concrete	**Material:** Couldn't see
Invert from Rim: 48	**Invert from Rim:** 18"	**Invert from Rim:** Couldn't see

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-0647c	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Post 2002 (retrofit)	**Justification:** Expired permit- need to retrofit pond to meet VSMM standards.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** Detention Pond-Regrade/Expand
	Feasibility Issues/Comments: Retrofit already proposed. Project "Village at Dorset Park".

Existing Stormwater BMP Site Inspection **Assessed by:** KG

Assessment Information	Site Information
City BMP ID: PD0164	**Site/Practice Description:** Two fenced detention ponds
Current Permit #: 1-0661 **Related Permit #(s):**	
BMP Name: South Meadows Pond	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No	
Date/Time Assessed: 2015-09-09 / 10:04	
Address/Cross Streets: S Meadow Dr and Baird St	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: Trash, Litter	
Operation/Maintenance Issues: Yes	
O/M Comments: Clean up trash and litter.	Detention pond overview.

Existing BMP Sizing Information

BMP Outlet Structure Overview: CMP culvert out. No low-flow orifice.

Orifice 1: Culvert	**Orifice 2:** Riser	**Orifice 3:**
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 18	**Diameter (in):** 24	**Diameter (in):**
Orientation (V/H): Vertical	**Orientation (V/H):** Horizontal	**Orientation (V/H):**
Material: CMP	**Material:** CMP	**Material:**
Invert from Rim: 31	**Invert from Rim:**	**Invert from Rim:**

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-0661	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Does not meet CPv standard.
Revision to GIS DA: Revise DA.	**Proposed Practice Type:** Outlet Structure retrofit and pond expansion
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0071	**Site/Practice Description:** Detention pond with excess vegetation growth, located on west side of parking lot.
Current Permit #: 6291-9030 **Related Permit #(s):** 1-1000	
BMP Name: Adelphia Cable Communications	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No. No change to permitted pond associated with RDA permit.	
Date/Time Assessed: 2015-04-29 / 13:32	
Address/Cross Streets: Comcast Way	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: Trash, Litter	
Operation/Maintenance Issues: Yes	
O/M Comments: Excessive phragmites growth. Inlet pipe damaged on western edge.	Detention pond with significant vegetation.

Existing BMP Sizing Information		
BMP Outlet Structure Overview: No outlet structure visible. Did not find culvert out.		
Orifice 1:	**Orifice 2:**	**Orifice 3:**
Multiplier:	**Multiplier:**	**Multiplier:**
Diameter (in):	**Diameter (in):**	**Diameter (in):**
Orientation (V/H):	**Orientation (V/H):**	**Orientation (V/H):**
Material:	**Material:**	**Material:**
Invert from Rim:	**Invert from Rim:**	**Invert from Rim:**
Emergency Spillway Dimensions (if applicable): No visible spillway	**Breadth (ft):** ---	**Length (ft):** ---
Structure Notes/Follow-up: ---		

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1000	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Does not meet CPv standard.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** Detention Pond-Regrade/Expand
	Feasibility Issues/Comments: Unknown at time of inspection.

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0080	**Site/Practice Description:** Dry pond in back of Pillsbury Manor building, which appears to be connected to a high-flow bypass from upper drainage area. Drains to City system on Willison Rd.
Current Permit #: 1-1015 **Related Permit #(s):**	
BMP Name: Pillsbury Manor	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No, but check proposed redevelopment plans with P&Z.	
Date/Time Assessed: 2015-04-28 / 15:41	
Address/Cross Streets: Williston Rd/ Pillsbury Manor Rd	
Reviewed Existing Site Plans Prior to Field Visit: Yes. No detail for pond outlet.	
Active Pollution Visible: None	
Operation/Maintenance Issues: Yes	
O/M Comments: Outlet Pipe clogged with leaves and debris.	Staff inspecting location of outlet pipe.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Appears outlet of pond is periodically an inlet from the collection system to north during larger storm events.

Orifice 1: Culvert	Orifice 2:	Orifice 3:
Multiplier:1	**Multiplier:** 1	**Multiplier:**
Diameter (in): 12	**Diameter (in):**	**Diameter (in):**
Orientation (V/H): Vertical	**Orientation (V/H):**	**Orientation (V/H):**
Material: PVC- smooth	**Material:**	**Material:**
Invert from Rim: 66	**Invert from Rim:**	**Invert from Rim:**

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1015	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Does not meet CPv standard, but appears to have more storage capacity.
Revision to GIS DA: Need to verify Eastern Roof drainage.	**Proposed Practice Type:** Outlet Structure retrofit, Expand Pond.
	Feasibility Issues/Comments: Proposed redevelopment project needs to be considered.

Existing Stormwater BMP Site Inspection **Assessed by:** KG

Assessment Information	Site Information
City BMP ID: Pd0032	**Site/Practice Description:** Large detention pond at north end of Dorset St. Park.
Current Permit #: 1-1033 **Related Permit #(s):**	
BMP Name: Dorset Park Pond	
BMP Type: Detention Pond	
BMP Ownership: South Burlington	
Post 2002 Upgrades (Y/N): No. Upgrade completed prior to 2002.	
Date/Time Assessed: 2015-09-09 / 10:42	
Address/Cross Streets: Dorset St. and Swift St.	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: Trash, Litter	
Operation/Maintenance Issues: Yes	
O/M Comments: Clean up trash and litter.	Detention pond overview.

Existing BMP Sizing Information		
BMP Outlet Structure Overview: Detention pond with outlet riser		
Orifice 1: Low-flow	**Orifice 2:** Low-flow	**Orifice 3:** Culvert
Multiplier:2	**Multiplier:** 2	**Multiplier:** 1
Diameter (in): 4	**Diameter (in):** 16x12	**Diameter (in):** 24
Orientation (V/H): Vertical	**Orientation (V/H):** Vertical	**Orientation (V/H):** Vertical
Material: Concrete	**Material:** Concrete	**Material:** PVC- smooth
Invert from Rim: 70	**Invert from Rim:** 18	**Invert from Rim:** 90
Emergency Spillway Dimensions (if applicable): No visible spillway	**Breadth (ft):** ---	**Length (ft):** ---
Structure Notes/Follow-up: ---		

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1033	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Base	**Justification:** System currently meeting CPv standard. No FRP Benefit.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0004	**Site/Practice Description:** Large detention area between The Pines development and Oakwood Dr. Heavily vegetated on banks of ponded area.
Current Permit #: 1-1117 **Related Permit #(s):**	
BMP Name: The Pines	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No	
Date/Time Assessed: 2015-05-04 / 15:09	
Address/Cross Streets: Brookwood Dr	
Reviewed Existing Site Plans Prior to Field Visit: Plans not available.	
Active Pollution Visible: Trash, Litter	
Operation/Maintenance Issues: Yes	
O/M Comments: Side banks eroded.	View of detention pond from the outlet structure.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Single culvert out. Inlet not visible from pond.

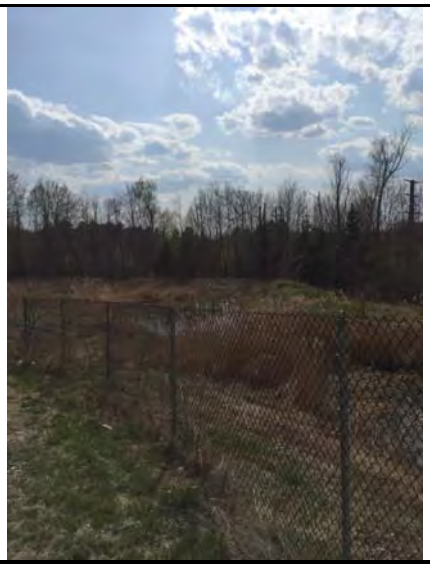
Orifice 1: ---	**Orifice 2:** ---	**Orifice 3:** ---
Multiplier:0	**Multiplier:** 0	**Multiplier:** 0
Diameter (in): ---	**Diameter (in):** ---	**Diameter (in):** ---
Orientation (V/H): ---	**Orientation (V/H):** ---	**Orientation (V/H):** ---
Material: ---	**Material:** ---	**Material:** ---
Invert from Rim: ---	**Invert from Rim:** ---	**Invert from Rim:** ---

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: Could not see culvert out. Check plans for culvert information. Check for San Remo Retrofit in this area.

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1117	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Does not meet CPv standard.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** Outlet Structure retrofit
	Feasibility Issues/Comments: High water table. Local resident mentioned past wet basement issues on the adjacent street.

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0003	**Site/Practice Description:** Large detention pond with forebay located to west of Hannaford's Store off Shelburne Rd.
Current Permit #: 1-1214 **Related Permit #(s):**	
BMP Name: Hannafords Pond	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): Yes. No new permit associated with upgrade.	
Date/Time Assessed: 2015-05-04 / 15:41	
Address/Cross Streets: Hannafords Dr	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: Excessive Erosion	
Operation/Maintenance Issues: Yes	
O/M Comments: Excessive Erosion. Need to revisit to provide more details concerning location and extent of erosion.	View of detention pond forebay.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Detention pond with low flow orifice. Pond has been upgraded to post-2002 standards.

Orifice 1: ---	**Orifice 2:** ---	**Orifice 3:** ---
Multiplier:0	**Multiplier:** 0	**Multiplier:** 0
Diameter (in): ---	**Diameter (in):** ---	**Diameter (in):** ---
Orientation (V/H): ---	**Orientation (V/H):** ---	**Orientation (V/H):** ---
Material: ---	**Material:** ---	**Material:** ---
Invert from Rim: ---	**Invert from Rim:** ---	**Invert from Rim:** ---

Emergency Spillway Dimensions (if applicable): Yes **Breadth (ft):** 10 **Length (ft):** 30

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1214	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Post 2002 (retrofit)	**Justification:** System currently meeting CPv standard. No FRP Benefit.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0075	**Site/Practice Description:** Pocket pond within golf course grounds, draining to larger detention pond to East.
Current Permit #: 4049-9030 & 4049-9030.1. **Related Permit #(s):** 1-1241	
BMP Name: Vermont National Country Club Pond b	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No change to permitted pond under RDA.	
Date/Time Assessed: 2015-05-01 / 15:03	
Address/Cross Streets: Golf Course Rd	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: None	
Operation/Maintenance Issues: No	
O/M Comments: No visible issues.	Detention pond overview.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Metal riser structure with low-flow orifice and culvert out.

Orifice 1: Low-flow	**Orifice 2:** Riser	**Orifice 3:** Culvert
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 6	**Diameter (in):** 27	**Diameter (in):** Couldn't see
Orientation (V/H): Horizontal	**Orientation (V/H):** Horizontal	**Orientation (V/H):** Vertical
Material: CMP	**Material:** CMP	**Material:** Couldn't see
Invert from Rim: 14	**Invert from Rim:** 0	**Invert from Rim:** Couldn't see

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: Check plans for culvert dimensions.

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1241b	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** May not meet CPv standard. Retrofit outlet to increase detention.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** Outlet Structure retrofit
	Feasibility Issues/Comments: Need to assess capacity for more detention if orifice size is reduced.

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0074	**Site/Practice Description:** Detention pond on east side of golf course collecting runoff from Golf Course Rd, Park Rd, and golf course grounds.
Current Permit #: 4049-9030 & 4049-9030.1. **Related Permit #(s):** 1-1241	
BMP Name: Vermont National Country Club Pond c	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No change to permitted pond under RDA.	
Date/Time Assessed: 2015-05-01 / 15:12	
Address/Cross Streets: Golf Course Rd	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: None	
Operation/Maintenance Issues: Yes	
O/M Comments: Woody debris in outlet structure	Detention pond outlet structure.

Existing BMP Sizing Information

BMP Outlet Structure Overview: CMP riser with trash rack. Culvert out not visible.

Orifice 1: Riser	**Orifice 2:**	**Orifice 3:**
Multiplier:1	**Multiplier:** 1	**Multiplier:**
Diameter (in): 12	**Diameter (in):**	**Diameter (in):**
Orientation (V/H): Horizontal	**Orientation (V/H):**	**Orientation (V/H):**
Material: CMP	**Material:**	**Material:**
Invert from Rim: 0	**Invert from Rim:**	**Invert from Rim:**

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1241c	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Retrofit outlet to increase detention.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** Outlet Structure retrofit
	Feasibility Issues/Comments: Need to assess capacity for more detention if orifice size is reduced. Potential concern of overflow to neighborhood. Consider diversion swale.

Existing Stormwater BMP Site Inspection **Assessed by:** KG

Assessment Information	Site Information
City BMP ID: Pd0098	**Site/Practice Description:** Dry Pond at the corner of Swift St. and Economou Farm Rd. connected to a small area of the golf course, and part of the Economou Rd. neighborhood.
Current Permit #: 4049-9030 & 4049-9030.1. **Related Permit #(s):** 1-1241	
BMP Name: Economou Farm Pond	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No change to permitted pond under RDA.	
Date/Time Assessed: 2015-04-24 / 10:02	
Address/Cross Streets: Swift Street/Economou Farm Rd	
Reviewed Existing Site Plans Prior to Field Visit: yes. Plans are poor quality.	
Active Pollution Visible: None	
Operation/Maintenance Issues: Yes	
O/M Comments: Outlet clogged by vegetation	Detention pond overview.

Existing BMP Sizing Information

BMP Outlet Structure Overview: HDPE riser with culvert out. Low-flow orifice not found.

Orifice 1: Culvert	**Orifice 2:** Riser	**Orifice 3:**
Multiplier:1	**Multiplier:** 1	**Multiplier:**
Diameter (in): 12	**Diameter (in):** 12	**Diameter (in):**
Orientation (V/H): Vertical	**Orientation (V/H):** Horizontal	**Orientation (V/H):**
Material: HDPE	**Material:** HDPE	**Material:**
Invert from Rim: 41.5	**Invert from Rim:** 0	**Invert from Rim:**

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: Piped infrastructure indicates more flow goes to the unpermitted pond at Swift Estates rather than the 1-1241d pond.

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1241d	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Retrofit outlet to increase detention.
Revision to GIS DA: Revision needed to south side of Economou Farm Rd	**Proposed Practice Type:** Outlet Structure retrofit
	Feasibility Issues/Comments: Need to assess capacity for more detention if orifice size is reduced.

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0036	**Site/Practice Description:** Detention pond with upgraded outlet structure, located at south end of parking lot. Wetland vegetation present.
Current Permit #: 4113-INDS **Related Permit #(s):** 1-1254	
BMP Name: Technology Park Pond 1	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): Yes. Upgraded outlet weir.	
Date/Time Assessed: 2015-04-29 / 14:40	
Address/Cross Streets: Community Dr	
Reviewed Existing Site Plans Prior to Field Visit: yes. No pond detail.	
Active Pollution Visible: None	
Operation/Maintenance Issues: No	
O/M Comments: No visible issues.	View of detention pond from outlet structure.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Concrete riser with trash rack.

Orifice 1: Low-flow	**Orifice 2:** Riser	**Orifice 3:** Culvert
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 11 x 8	**Diameter (in):** 75	**Diameter (in):** 48
Orientation (V/H): Vertical	**Orientation (V/H):** Vertical	**Orientation (V/H):** Vertical
Material: Concrete	**Material:** Concrete	**Material:** HPDE
Invert from Rim: 8	**Invert from Rim:** 0	**Invert from Rim:** 65

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1254	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Post 2002 (retrofit)	**Justification:** System currently meeting CPv standard. No FRP Benefit.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0172	**Site/Practice Description:** Large natural detention area in undeveloped field to the south of Meadowland Dr., controlled by a roadway culvert.
Current Permit #: 1-1269 **Related Permit #(s):**	
BMP Name: Meadowland Bus. Park Pond #1	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No	
Date/Time Assessed: 2015-04-29 / 15:27	
Address/Cross Streets: Meadowland Dr	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: Trash, Litter	
Operation/Maintenance Issues: Yes	
O/M Comments: Outlet pipe broken.	View of detention pond.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Culvert out under roadway. No low-flow orifice.

Orifice 1: Culvert	**Orifice 2:**	**Orifice 3:**
Multiplier:1	**Multiplier:** 1	**Multiplier:**
Diameter (in): 24	**Diameter (in):**	**Diameter (in):**
Orientation (V/H): Vertical	**Orientation (V/H):**	**Orientation (V/H):**
Material: HDPE	**Material:**	**Material:**
Invert from Rim: 60	**Invert from Rim:**	**Invert from Rim:**

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1269	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Secondary BMP, upstream of Pond 2. Retrofit may have limited benefit.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** Outlet Structure retrofit
	Feasibility Issues/Comments: Need to assess capacity for more detention if orifice size is reduced.

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0053	**Site/Practice Description:** Large shallow detention pond east of Thompson St. connected to Meadowland Dr. and Lot 10 Building runoff.
Current Permit #: 4290-9020.3 **Related Permit #(s):** 1-1269	
BMP Name: Meadowland Bus. Park Pond #2	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No	
Date/Time Assessed: 2015-04-29 / 15:21	
Address/Cross Streets: Meadowland Dr	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: Trash, Litter	
Operation/Maintenance Issues: Yes	
O/M Comments: Clean up trash and litter located on	Overview of detention pond.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Culvert out. No low-flow control visible.

Orifice 1: Culvert	**Orifice 2:**	**Orifice 3:**
Multiplier:1	**Multiplier:** 1	**Multiplier:**
Diameter (in): 21	**Diameter (in):**	**Diameter (in):**
Orientation (V/H): Vertical	**Orientation (V/H):**	**Orientation (V/H):**
Material: CMP	**Material:**	**Material:**
Invert from Rim: 72	**Invert from Rim:**	**Invert from Rim:**

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1269a	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Not meeting CPv standard. Retrofit outlet structure.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** Outlet Structure retrofit
	Feasibility Issues/Comments: Need to assess capacity for more detention if orifice size is reduced.

Existing Stormwater BMP Site Inspection **Assessed by:** KG,JS

Assessment Information	Site Information
City BMP ID: Pd0040	**Site/Practice Description:** Detention Pond with low-flow control outlet riser. Appears to be designed to VSMM 2002 standards.
Current Permit #: 4290-9020.1 **Related Permit #(s):** 1-1269	
BMP Name: Meadowland Bus. Park Lot 4 Pond	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No	
Date/Time Assessed: 2015-04-29 / 16:17	
Address/Cross Streets: Meadowland Dr	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: None	
Operation/Maintenance Issues: No	
O/M Comments: No visible issues.	Detention pond with outlet structure.

Existing BMP Sizing Information		
BMP Outlet Structure Overview: Riser with elbow joint, low flow hole at bottom of elbow		
Orifice 1: Low-flow	**Orifice 2:** Culvert	**Orifice 3:** Riser
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 2	**Diameter (in):** 12	**Diameter (in):** 24
Orientation (V/H): Vertical	**Orientation (V/H):** Vertical	**Orientation (V/H):** Horizontal
Material: PVC- smooth	**Material:** PVC- smooth	**Material:** Concrete
Invert from Rim: 30	**Invert from Rim:** 10'	**Invert from Rim:** 0
Emergency Spillway Dimensions (if applicable): No visible spillway	**Breadth (ft):** ---	**Length (ft):** ---
Structure Notes/Follow-up: ---		

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1269b	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Base	**Justification:** System currently meeting CPv standard. No FRP Benefit.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: IA0016	**Site/Practice Description:** Vegetated retention basin with sand filter underdrain system.
Current Permit #: 1-1337 **Related Permit #(s):**	
BMP Name: Lane Press Printing Facility Complex Infiltration Area	
BMP Type: Infiltration Basin	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No	
Date/Time Assessed: 2015-04-29 / 15:37	
Address/Cross Streets: Meadowland Dr	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: None	
Operation/Maintenance Issues: No	
O/M Comments: No visible issues.	Overview of infiltration basin.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Culvert out not found.

Orifice 1:	Orifice 2:	Orifice 3:
Multiplier:	**Multiplier:**	**Multiplier:**
Diameter (in):	**Diameter (in):**	**Diameter (in):**
Orientation (V/H):	**Orientation (V/H):**	**Orientation (V/H):**
Material:	**Material:**	**Material:**
Invert from Rim:	**Invert from Rim:**	**Invert from Rim:**

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1337	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Base	**Justification:** System currently infiltrating 1-year storm. No FRP Benefit.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: IA0016	**Site/Practice Description:** Grassed island in parking lot with buried pre-fabricated "Hancor EnviroChambers". Includes 3 rows each 231.35' long with 6" between rows.
Current Permit #: 1-1380 **Related Permit #(s):**	
BMP Name: S. Burlington Community Housing	
BMP Type: Infiltration Gallery	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No	
Date/Time Assessed: 2015-04-28 / 15:16	
Address/Cross Streets: Hayden Dr/ Williston Rd.	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: None	
Operation/Maintenance Issues: No	
O/M Comments: No visible issues.	Overview of infiltration trench.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Open grassed field with catch basins on North and South End. South catch basin has 6" reverse grade PVC pipe routed into the underground infiltration chambers. No pipes visible in north catchbasin.

Orifice 1:	Orifice 2:	Orifice 3:
Multiplier:	**Multiplier:**	**Multiplier:**
Diameter (in):	**Diameter (in):**	**Diameter (in):**
Orientation (V/H):	**Orientation (V/H):**	**Orientation (V/H):**
Material:	**Material:**	**Material:**
Invert from Rim:	**Invert from Rim:**	**Invert from Rim:**

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: Review plan to verify infiltration basin outlet.

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1380	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Infiltrates up to 1-year storm. Meets CPv standard according to DEC review.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** KG

Assessment Information	Site Information
City BMP ID: Pd0002	**Site/Practice Description:** Detention pond with forebay and controlled outlet structure at South end of property.
Current Permit #: 1-1438 **Related Permit #(s):**	
BMP Name: Farrell Property Development/ Eastwood Commons	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No	
Date/Time Assessed: 2015-04-23 / 15:15	
Address/Cross Streets: Farrell St	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: Trash, Litter	
Operation/Maintenance Issues: Yes	
O/M Comments: Clean up trash and litter.	Overview of detention pond.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Riser with 6.5" hole located 2'8" below riser rim and 4.25" hole located 5'5" below rim.

Orifice 1: Culvert	**Orifice 2:** Riser	**Orifice 3:**
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 18	**Diameter (in):** 30	**Diameter (in):**
Orientation (V/H): Vertical	**Orientation (V/H):** Horizontal	**Orientation (V/H):**
Material: HDPE	**Material:** Concrete	**Material:**
Invert from Rim: 84	**Invert from Rim:** 0	**Invert from Rim:**

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1438	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Does not meet CPv standard.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** Outlet Structure retrofit and pond expansion
	Feasibility Issues/Comments: Need to assess capacity for more detention if orifice size is reduced.

Existing Stormwater BMP Site Inspection **Assessed by:** KG

Assessment Information	Site Information
City BMP ID: Pd0001	**Site/Practice Description:** Detention pond with controlled outlet structure.
Current Permit #: 1-1452 **Related Permit #(s):**	
BMP Name: Olympiad Apartments & Office Bldg	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No	
Date/Time Assessed: 2015-04-23 / 16:00	
Address/Cross Streets: Farrell St and Eastwood Dr	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: Trash, Litter	
Operation/Maintenance Issues: Yes	
O/M Comments: Clean up trash and litter.	Overview of detention pond.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Riser with 3 low-flow orifices and culvert outlet.

Orifice 1: Culvert	**Orifice 2:** Riser	**Orifice 3:** Low-flow
Multiplier:1	**Multiplier:** 1	**Multiplier:** 3
Diameter (in): 18	**Diameter (in):**	**Diameter (in):** 4
Orientation (V/H): Vertical	**Orientation (V/H):** Horizontal	**Orientation (V/H):** Vertical
Material: HDPE	**Material:** Concrete	**Material:** Concrete
Invert from Rim: 70	**Invert from Rim:** 0	**Invert from Rim:** 60

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1452	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Does not fully meet CPv or WQv standards.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** Add forebay and clear out vegetation.
	Feasibility Issues/Comments: Unknown at time of inspection.

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0153	**Site/Practice Description:** Detention pond with controlled outlet structure. Ponded area is classified as a Class II Wetland.
Current Permit #: 1-1458 **Related Permit #(s):**	
BMP Name: Technology Park Field Detention P3	
BMP Type: Detention Area	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No	
Date/Time Assessed: 2015-04-29 / 14:25	
Address/Cross Streets: Community Dr	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: None	
Operation/Maintenance Issues: No	
O/M Comments: No visible issues.	Detention pond outlet structure.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Concrete box with weir outlet and routed to primary culvert outlet.

Orifice 1: Low-flow	**Orifice 2:** Riser	**Orifice 3:** Culvert
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 4	**Diameter (in):** 48 x 8 x 6	**Diameter (in):** 18
Orientation (V/H): Vertical	**Orientation (V/H):** Horizontal	**Orientation (V/H):** Vertical
Material: Concrete	**Material:** Concrete	**Material:** Concrete
Invert from Rim: 36	**Invert from Rim:** 0	**Invert from Rim:** 57

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1458 P3	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Base	**Justification:** System currently meeting CPv standard. No FRP Benefit.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0154	**Site/Practice Description:** Detention area at culvert under Community Dr.
Current Permit #: 1-1458 **Related Permit #(s):**	
BMP Name: Technology Park Culvert Detention P4	
BMP Type: Detention Area	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No	
Date/Time Assessed: 2015-04-29 / 14:20	
Address/Cross Streets: Community Dr	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: None	
Operation/Maintenance Issues: Yes	
O/M Comments: Excessive vegetation and leaves clogging culvert outlet.	Culvert outlet.

Existing BMP Sizing Information		
BMP Outlet Structure Overview: Culvert with concrete head wall.		
Orifice 1: Culvert	**Orifice 2:**	**Orifice 3:**
Multiplier:1	**Multiplier:** 1	**Multiplier:**
Diameter (in): 18	**Diameter (in):**	**Diameter (in):**
Orientation (V/H): Vertical	**Orientation (V/H):**	**Orientation (V/H):**
Material: Concrete	**Material:**	**Material:**
Invert from Rim: 120	**Invert from Rim:**	**Invert from Rim:**
Emergency Spillway Dimensions (if applicable): No visible spillway	**Breadth (ft):** ---	**Length (ft):** ---
Structure Notes/Follow-up: ---		

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1458 P4	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Does not meet CPv standard.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** Outlet Structure retrofit
	Feasibility Issues/Comments: Need to assess capacity for more detention if orifice size is reduced.

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: IA0017	**Site/Practice Description:** Infiltration basin on north edge of parking lot.
Current Permit #: 1-1504 **Related Permit #(s):**	
BMP Name: 110 Kimball Ave North Infiltration Basin	
BMP Type: Infiltration Basin	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No	
Date/Time Assessed: 2015-04-29 / 13:46	
Address/Cross Streets: 110 Kimball Ave	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: None	
Operation/Maintenance Issues: Yes	
O/M Comments: Culvert pipe broken at entry and exit. Inlet clogged with leaves. Surface is muddy. Could be retrofit with more appropriate cover material.	Infiltration basin on the northern side of parking lot.

Existing BMP Sizing Information

BMP Outlet Structure Overview: 12" HPDE culvert outlet for surface runoff

Orifice 1: Culvert	**Orifice 2:**	**Orifice 3:**
Multiplier:1	**Multiplier:** 1	**Multiplier:**
Diameter (in): 12	**Diameter (in):**	**Diameter (in):**
Orientation (V/H): Vertical	**Orientation (V/H):**	**Orientation (V/H):**
Material: HDPE	**Material:**	**Material:**
Invert from Rim: At level of pond surface	**Invert from Rim:**	**Invert from Rim:**

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: Check BMP entry in model.

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1504a	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Runoff is bypassing infiltration basin and sheet flowing to a swale with a direct discharge to the Brook. Add trench along west edge of parking lot to direct runoff to infiltration basin.
Revision to GIS DA: Need to revise drainage area.	**Proposed Practice Type:** Add trench drain on west side of parking lot to daylight to infiltration basin.
	Feasibility Issues/Comments: Need to assess capacity for more detention if more surface flow is directed to infiltration basin.

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: IA0004	**Site/Practice Description:** Permitted as Infiltration basin in south grassed island but really just depression at culvert under office entrance road, providing minimal flow detention.
Current Permit #: 1-1504 **Related Permit #(s):**	
BMP Name: 110 Kimball Ave - South Infiltration Basin	
BMP Type: Infiltration Basin	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No	
Date/Time Assessed: 2015-04-29 / 14:06	
Address/Cross Streets: 110 Kimball Ave	
Reviewed Existing Site Plans Prior to Field Visit: Yes. No detail for IB.	
Active Pollution Visible: None	
Operation/Maintenance Issues: Yes	
O/M Comments: Erosion at basin outlet is indicator of ponding and higher velocity flows.	Overview of infiltration basin.

Existing BMP Sizing Information

BMP Outlet Structure Overview: 12" HPDE culvert out, with no low-flow control.

Orifice 1: Culvert	**Orifice 2:**	**Orifice 3:**
Multiplier:1	**Multiplier:** 1	**Multiplier:**
Diameter (in): 12	**Diameter (in):**	**Diameter (in):**
Orientation (V/H): Vertical	**Orientation (V/H):**	**Orientation (V/H):**
Material: HDPE	**Material:**	**Material:**
Invert from Rim: 60	**Invert from Rim:**	**Invert from Rim:**

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: Verify that the culvert out doesn't flow back to other south side of roadway.

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1504b	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Permitted outlet riser not installed. Flow discharges to class II wetland via 12" culvert.
Revision to GIS DA: Need to revise drainage area for infiltration basin. Some area bypasses system.	**Proposed Practice Type:** Outlet Structure retrofit- Add proposed outlet control riser that was never constructed.
	Feasibility Issues/Comments: Need to assess capacity for more detention in south median area if orifice size is reduced.

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0020	**Site/Practice Description:** Micropool extended detention pond with forebay and outlet control at entrance to Stonington Circle.
Current Permit #: 1-1520 **Related Permit #(s):**	
BMP Name: O'Brien Home Farm Pond a	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): Post 2002 Design	
Date/Time Assessed: 2015-09-09 / 13:57	
Address/Cross Streets: Eldrige Street/Hinesburg Rd.	
Reviewed Existing Site Plans Prior to Field Visit: Plans not available.	
Active Pollution Visible: None	
Operation/Maintenance Issues: No	
O/M Comments: No visible issues.	Overview of detention pond.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Concrete riser structure with low-flow orifice.

Orifice 1: Low-flow	**Orifice 2:** Low-flow	**Orifice 3:** Low-flow
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 6	**Diameter (in):** 2.5	**Diameter (in):** 12.5
Orientation (V/H): Vertical	**Orientation (V/H):** Vertical	**Orientation (V/H):** Vertical
Material: PVC- smooth	**Material:**	**Material:** PVC- smooth
Invert from Rim: 72	**Invert from Rim:** 40	**Invert from Rim:** 19

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1520a	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Post 2002	**Justification:** System currently meeting CPv standard. No FRP Benefit.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0021	**Site/Practice Description:** Micropool extended detention pond with forebay, located across from entrance to O'Brien Home Farm development.
Current Permit #: 1-1520 **Related Permit #(s):**	
BMP Name: O'Brien Home Farm Pond b	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): Post 2002 Design	
Date/Time Assessed: 2015-09-09 / 13:32	
Address/Cross Streets: Stonington Dr	
Reviewed Existing Site Plans Prior to Field Visit: Plans not available.	
Active Pollution Visible: None	
Operation/Maintenance Issues: No	
O/M Comments: No visible issues.	Overview of detention pond.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Concrete riser structure with low-flow orifice.

Orifice 1: Low-flow	**Orifice 2:** Low-flow	**Orifice 3:** Riser
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 1	**Diameter (in):** 6	**Diameter (in):** 27
Orientation (V/H): Vertical	**Orientation (V/H):** Vertical	**Orientation (V/H):** Horizontal
Material: PVC- smooth	**Material:** PVC- smooth	**Material:**
Invert from Rim: 36	**Invert from Rim:** 21	**Invert from Rim:** 0

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1520b	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Post 2002	**Justification:** System currently meeting CPv standard. No FRP Benefit.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0022	**Site/Practice Description:** Micropool extended detention pond with forebay, located at corner of Eldridge St., within O'Brien Home Farm development.
Current Permit #: 1-1520 **Related Permit #(s):**	
BMP Name: O'Brien Home Farm Pond c	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): Post 2002 Design	
Date/Time Assessed: 2015-09-09 / 13:42	
Address/Cross Streets: Kennedy Dr	
Reviewed Existing Site Plans Prior to Field Visit: Plans not available.	
Active Pollution Visible: Trash, Litter	
Operation/Maintenance Issues: Yes	
O/M Comments: Clean up trash and litter.	Overview of detention pond.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Concrete riser structure with low-flow orifice.

Orifice 1: Low-flow	**Orifice 2:** Low-flow	**Orifice 3:** Riser
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 2	**Diameter (in):** 6	**Diameter (in):** 21
Orientation (V/H): Vertical	**Orientation (V/H):** Vertical	**Orientation (V/H):** Horizontal
Material: Other	**Material:**	**Material:**
Invert from Rim: 29	**Invert from Rim:** 12	**Invert from Rim:** 0

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up:

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1520c	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Post 2002	**Justification:** System currently meeting CPv standard. No FRP Benefit.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0166	**Site/Practice Description:** Detention swale with flow control riser structure. Discharges to natural pond.
Current Permit #: 6269-9030 **Related Permit #(s):** 1-1526	
BMP Name: 30 Kimball Ave	
BMP Type: Detention Swale	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): Unknown. Waiting for EFA plans from DEC.	
Date/Time Assessed: 2015-04-29 / 13:02	
Address/Cross Streets: 30 Kimball Ave	
Reviewed Existing Site Plans Prior to Field Visit: Plans not available.	
Active Pollution Visible: None	
Operation/Maintenance Issues: No	
O/M Comments: No visible issues.	View of detention basin from outlet structure.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Riser with 24" grate. 4" outlet into riser at surface of detention swale. In riser, 6" PVC outlet from underdrain of detention swale. Riser outlet has 90 elbow connected to 18" culvert out.

Orifice 1: Low-flow	**Orifice 2:** Low-flow	**Orifice 3:** Culvert
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 4	**Diameter (in):** 6	**Diameter (in):** 18
Orientation (V/H): Vertical	**Orientation (V/H):** Vertical	**Orientation (V/H):** Vertical
Material: PVC- smooth	**Material:** PVC- smooth	**Material:** PVC-corrugated
Invert from Rim: 15	**Invert from Rim:** 60	**Invert from Rim:** 54

Emergency Spillway Dimensions (if applicable): Yes **Breadth (ft):** 10 **Length (ft):** 10

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1526	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Does not meet CPv standard.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** Outlet Structure retrofit.
	Feasibility Issues/Comments: Need to assess capacity for more detention in south median area if orifice size is reduced.

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0051	**Site/Practice Description:** Retention pond with two sedimentation areas.
Current Permit #: 5395-INDS **Related Permit #(s):** 1-1536	
BMP Name: Mountain View Business Park - Lot A	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): Yes. Upgraded Post 2002.	
Date/Time Assessed: 2015-05-01 / 16:28	
Address/Cross Streets: Tilley Drive	
Reviewed Existing Site Plans Prior to Field Visit: Plans not available.	
Active Pollution Visible: Trash, Litter	
Operation/Maintenance Issues: Yes	
O/M Comments: Clean up trash and litter.	Overview of detention pond.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Riser with low flow hole and culvert out.

Orifice 1: Low-flow	**Orifice 2:** Riser	**Orifice 3:** Culvert
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 4	**Diameter (in):** 18	**Diameter (in):** 12
Orientation (V/H): Vertical	**Orientation (V/H):** Horizontal	**Orientation (V/H):** Vertical
Material: PVC- smooth	**Material:** CMP	**Material:** HPDE
Invert from Rim: 12	**Invert from Rim:** 0	**Invert from Rim:** 72

Emergency Spillway Dimensions (if applicable): Yes **Breadth (ft):** 10 **Length (ft):** 50

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 1-1536	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Post 2002 (retrofit)	**Justification:** System currently meeting CPv standard. No FRP Benefit.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0073	**Site/Practice Description:** Detention pond with forebay
Current Permit #: 6553-INDO upgrades **Related Permit #(s):** 2-0848	
BMP Name: Foxcroft Pond	
BMP Type: Detention Pond	
BMP Ownership: City	
Post 2002 Upgrades (Y/N): Yes. Upgraded Post 2002.	
Date/Time Assessed: 2015-09-09 / 11:07	
Address/Cross Streets: Kinsington St	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: None	
Operation/Maintenance Issues: Yes	
O/M Comments: Excessive vegetation, algal growth at outlet.	Overview of detention pond.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Concrete riser with low flow orifice, weir inside, 24" grate top and culvert out.

Orifice 1: Low-flow	**Orifice 2:** Low-flow	**Orifice 3:** Culvert
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 8	**Diameter (in):** 18 x 12	**Diameter (in):** 24
Orientation (V/H): Vertical	**Orientation (V/H):** Vertical	**Orientation (V/H):** Vertical
Material: PVC- smooth	**Material:** Concrete	**Material:** PVC-corrugated
Invert from Rim: 72	**Invert from Rim:** 24	**Invert from Rim:** 72

Emergency Spillway Dimensions (if applicable): Yes **Breadth (ft):** 15 **Length (ft):** 40

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 2-0848_N	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Post 2002 (retrofit)	**Justification:** Part of Hayes Stormwater Improvements Project. Upgrade completed.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0072	**Site/Practice Description:** Detention pond with forebay, located at end of Kinsington St.
Current Permit #: 6553-INDO upgrades **Related Permit #(s):** 2-0848	
BMP Name: Hayes Avenue Pond	
BMP Type: Detention Pond	
BMP Ownership: City	
Post 2002 Upgrades (Y/N): Yes. Upgraded Post 2002.	
Date/Time Assessed: 2015-05-04 / 14:39	
Address/Cross Streets: Kinsington St	
Reviewed Existing Site Plans Prior to Field Visit: Yes	
Active Pollution Visible: None	
Operation/Maintenance Issues: Yes	
O/M Comments: Algal growth, which could be issue in future. Not major issue as observed.	Overview of detention pond.

Existing BMP Sizing Information		
BMP Outlet Structure Overview: Square riser with weir inside.		
Orifice 1: Low-flow	**Orifice 2:** Riser	**Orifice 3:** Culvert
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 18 x 6	**Diameter (in):** 24	**Diameter (in):** Unknown
Orientation (V/H): Vertical	**Orientation (V/H):** Horizontal	**Orientation (V/H):** Vertical
Material: Concrete	**Material:** Concrete	**Material:**
Invert from Rim: 12	**Invert from Rim:** 0	**Invert from Rim:**
Emergency Spillway Dimensions (if applicable): Yes	**Breadth (ft):** 12	**Length (ft):** 30
Structure Notes/Follow-up: ---		

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 2-0848_S	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Post 2002 (retrofit)	**Justification:** Part of Hayes Stormwater Improvements Project. Upgrade completed.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** JS,KG

Assessment Information	Site Information
City BMP ID: Pd0041	**Site/Practice Description:** Detention pond with forebay, and low-flow outlet control, located within Winding Brook development.
Current Permit #: 6391-INDS **Related Permit #(s):** 2-0988	
BMP Name: Winding Brook Pond	
BMP Type: Detention Pond	
BMP Ownership: City	
Post 2002 Upgrades (Y/N): Yes. Upgraded Post 2002.	
Date/Time Assessed: 2015-09-09 / 11:25	
Address/Cross Streets: Winding Brook	
Reviewed Existing Site Plans Prior to Field Visit: Plans not available.	
Active Pollution Visible: None	
Operation/Maintenance Issues: No	
O/M Comments: No visible issues.	Overview of detention pond.

Existing BMP Sizing Information

BMP Outlet Structure Overview: Riser structure with low-flow orifice.

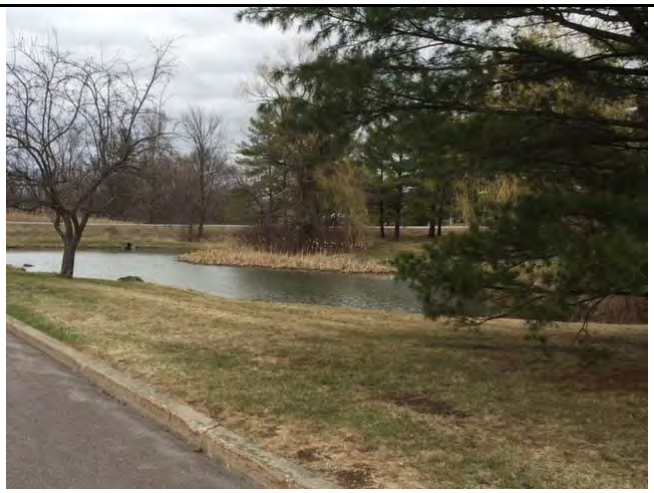
Orifice 1: Low-flow	**Orifice 2:** Low-flow	**Orifice 3:** Low-flow
Multiplier:1	**Multiplier:** 1	**Multiplier:** 1
Diameter (in): 2	**Diameter (in):** 6	**Diameter (in):** 16 x 4
Orientation (V/H): Vertical	**Orientation (V/H):** Vertical	**Orientation (V/H):** Vertical
Material: Concrete	**Material:** PVC- smooth	**Material:** Concrete
Invert from Rim: 60	**Invert from Rim:** 32	**Invert from Rim:** 13

Emergency Spillway Dimensions (if applicable): Yes **Breadth (ft):** 5 **Length (ft):** 10

Structure Notes/Follow-up: ---

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: 2-0988	**Is Retrofit Possible/Needed:** No
Model (Which Model Scenario is the existing system included?): Post 2002 (retrofit)	**Justification:** System currently meeting CPv standard. No FRP Benefit.
Revision to GIS DA: No revision needed based on field inspection.	**Proposed Practice Type:** No retrofit needed.
	Feasibility Issues/Comments: No Comment

Existing Stormwater BMP Site Inspection **Assessed by:** KG

Assessment Information	Site Information
City BMP ID: Pd0167	**Site/Practice Description:** Multistage Detention Pond
Current Permit #: No Permit **Related Permit #(s):**	
BMP Name: Swift Estates Pond	
BMP Type: Detention Pond	
BMP Ownership: Private	
Post 2002 Upgrades (Y/N): No	
Date/Time Assessed: 2015-04-24 / 10:30	
Address/Cross Streets: Swift Street	
Reviewed Existing Site Plans Prior to Field Visit: Plans not available.	
Active Pollution Visible: None	
Operation/Maintenance Issues: No	
O/M Comments: No visible issues.	Detention pond overview. Photo taken from Meadowood Drive

Existing BMP Sizing Information

BMP Outlet Structure Overview: Culvert under Swift St is only outlet control.

Orifice 1: Culvert	**Orifice 2:** ---	**Orifice 3:** ---
Multiplier:1	**Multiplier:** 1	**Multiplier:** 0
Diameter (in): 18	**Diameter (in):** ---	**Diameter (in):** ---
Orientation (V/H): Vertical	**Orientation (V/H):** ---	**Orientation (V/H):** ---
Material: CMP	**Material:** ---	**Material:** ---
Invert from Rim: ---	**Invert from Rim:** ---	**Invert from Rim:** ---

Emergency Spillway Dimensions (if applicable): No visible spillway **Breadth (ft):** --- **Length (ft):** ---

Structure Notes/Follow-up: Revise drainage area to include stormwater from cul-de-sac and rear of rooftops of five homes on Economou Farm Rd via catch basins in roadway and collection pipe.

BMPDSS Model Update Information	Retrofit Feasibility
BMPDSS ID: Swift Estates	**Is Retrofit Possible/Needed:** Potential
Model (Which Model Scenario is the existing system included?): Base	**Justification:** Does not meet CPv standard.
Revision to GIS DA: Yes. Revise DA from Economou Farm Rd.	**Proposed Practice Type:** Outlet Structure retrofit.
	Feasibility Issues/Comments: Site access could be an issue if pond needs to be expanded for more detention.

Potash Brook FRP
Table B-1: Proposed BMPs for BMPDSS Model Credit Runs

Model Run	Proposed BMP ID #	Project Name	BMP Address	New or Existing	BMP Type	MS4s with Impervious Area	Expired Permit #	BMP Drainage Area (acres)	Impervious Area Managed (acres)	Impervious %
Credit1	PB0002	110 Kimball Ave - North Infiltration Basin	110 Kimball Ave, South Burlington	Existing	IB	South Burlington	1-1504a	1.51	0.58	38%
Credit1	PB0003	110 Kimball Ave - South Infiltration Basin	110 Kimball Ave, South Burlington	Existing	IB	South Burlington	1-1504b	1.42	0.94	66%
Credit1	PB0004	189 Cloverleaf Detention Pond	Shelburne Rd and Queen City Pkwy, South Burlington	New	DP	South Burlington, VTrans, Burlington	No Permit	21.25	12.14	57%
Credit1	PB0006	30 Kimball Ave Swale Retrofit	30 Kimball Ave, South Burlington	Existing	DS	South Burlington	1-1526; 6269-9030	1.27	1.05	82%
Credit1	PB0009	Airport Drive	Airport Dr and Airport Rd, South Burlington	New	IG	South Burlington, BTV	No Permit	9.65	2.70	28%
Credit1	PB0011	Blue Mall Infiltration	Dorset St south of Market St, South Burlington	New	IG	South Burlington	2-0144	2.49	2.40	97%
Credit1	PB0012	Brookwood Drive Pond	Brookwood Dr off of Dorset St, South Burlington	New	DP	South Burlington	2-0794; 2-0619	41.24	24.49	59%
Credit1	PB0013	Burlington Price Chopper	Shelburne Rd, Burlington	New	GW	Burlington	No Permit	12.69	11.48	90%
Credit1	PB0014	Chelsea Circle	Chelsea Cir and Hayes Ave, South Burlington	New	IB	South Burlington	2-0767	3.28	1.82	56%
Credit1	PB0016	Community Bible Church Infiltration	Williston Rd and Millham Ct, South Burlington	New	IT	South Burlington	No Permit	10.34	6.17	60%
Credit1	PB0017	Domino's	Swift St and Farrell St, South Burlington	New	DP	South Burlington	No Permit	2.30	1.34	58%
Credit1	PB0019	Dumont Park Stormwater Project	Barrett St and Obrien Dr, South Burlington	New	DP	South Burlington, VTrans	No Permit	9.56	4.16	43%
Credit1	PB0021	East Terrace Detention Pond	East Terrace, South Burlington	New	DP	South Burlington	No Permit	6.36	2.28	36%
Credit1	PB0024	Economou Farm Pond	Economou Farm Rd, South Burlington	Existing	DP	South Burlington	1-1241d	6.37	1.46	23%
Credit1	PB0027	Fairpoint Communications	Hinesburg Rd south of I-89, South Burlington	New	DP	South Burlington	2-0212	8.75	4.76	54%
Credit1	PB0028	Faith United Methodist Church	Dorset St south of Songbird Ln, South Burlington	New	DP	South Burlington	No Permit	1.68	1.03	61%
Credit1	PB0029	Golf Course Road South	Golf Course Rd and Old Cross Rd, South Burlington	New	DP	South Burlington	1-1241	5.19	1.67	32%
Credit1	PB0031	Grandview Drive North Detention Pond	Grandview Dr and W Twin Oaks Terr, South Burlington	New	DP	South Burlington	2-0238; 2-0737	3.02	1.38	46%
Credit1	PB0032	Grandview Drive West Detention Pond	Grandview Dr and Dorset St, South Burlington	New	DP	South Burlington	2-0238; 2-0737	3.14	1.89	60%
Credit1	PB0033	Hawthorne Circle Detention Pond	Hawthorne Cir and Kennedy Dr, South Burlington	New	DP	South Burlington	No Permit	4.95	2.55	51%
Credit1	PB0034	Helen Ave Cul De Sac	Helen Ave, South Burlington	New	IB	South Burlington	No Permit	5.70	2.15	38%
Credit1	PB0037	Iby Gravel Wetland	Iby St off of Hinesburg Rd, South Burlington	New	GW	South Burlington	No Permit	2.82	1.14	40%
Credit1	PB0038	INS Building Pond A Retrofit	Kimball Ave west of Community Dr, South Burlington	Existing	RP	South Burlington	1-0969	2.11	0.98	47%

Potash Brook FRP
Table B-1: Proposed BMPs for BMPDSS Model Credit Runs

Model Run	Proposed BMP ID #	Project Name	BMP Address	New or Existing	BMP Type	MS4s with Impervious Area	Expired Permit #	BMP Drainage Area (acres)	Impervious Area Managed (acres)	Impervious %
Credit1	PB0039	INS Building Pond B Retrofit	Kimball Ave west of Community Dr, South Burlington	Existing	DP	South Burlington	1-0969b	1.44	0.61	42%
Credit1	PB0045	K-Mart Plaza Infiltration	Shelburne Rd north of Hannaford Dr, South Burlington	New	IG	South Burlington	No Permit	8.86	7.68	87%
Credit1	PB0049	Lilac Ln Infiltration Basin	Lilac Ln off of Hinesburg Rd, South Burlington	New	IB	South Burlington	No Permit	1.46	0.85	58%
Credit1	PB0051	Logwood Neighborhood Detention Pond	Williston Rd south of intersection with Airport Rd, South Burlington	New	DP	South Burlington	No Permit	44.81	18.44	41%
Credit1 / CMAC Valve	PB0054	Meadowland Business Park Pond 2	Meadowland Dr, South Burlington	Existing	DP	South Burlington, VTrans	1-1269_4290-9020.3 Lot 10	13.46	5.13	38%
Credit1	PB0055	Merchant's Bank Detention Pond	Kimball Ave and Kennedy Dr, South Burlington	New	DP	South Burlington	2-1171; 6275-9030; 6269-9030; 2-0939	4.36	3.17	73%
Credit1	PB0058	North Country Credit North West Infiltration	Swift St west of Shelburne Rd, South Burlington	New	IT	South Burlington	No Permit	0.25	0.21	84%
Credit1	PB0059	North Country Credit South Infiltration	Swift St west of Shelburne Rd, South Burlington	New	IG	South Burlington	No Permit	0.76	0.62	81%
Credit1	PB0060	O'Brien Drive Underground Detention	Obrien Dr, South Burlington	New	UD	South Burlington	No Permit	8.47	2.87	34%
Credit1	PB0061	Olympiad Apartments & Office Building Pond Retrofit	Farrell St south of Eastwood Dr, South Burlington	Existing	DP	South Burlington	1-1452	9.65	3.68	38%
Credit1	PB0064	Pillsbury Manor Infiltration Basin Retrofit	Pillsbury Manor N and Williston Rd, South Burlington	Existing	IB	South Burlington	1-1015	1.06	0.40	38%
Credit1	PB0065	Quarry Hill South	Quarry Hill Rd off of Spear St, South Burlington	New	DS	South Burlington	6322-9030	5.62	2.52	45%
Credit1	PB0066	Queen City Park Road Detention Pond	Queen City Park Rd off of Shelburne Rd, South Burlington	New	DP	South Burlington, VTrans	No Permit	6.51	2.98	46%
Credit1	PB0070	South Meadows Pond	Farrell St, South Burlington	Existing	DP	Burlington	1-0661	10.10	4.73	47%
Credit1	PB0071	Southview Drive	Southview Dr off of Prouty Pkwy, South Burlington	New	UD	South Burlington	No Permit	12.26	4.81	39%
Credit1	PB0072	Staples Plaza Underground Detention	Williston Rd west of I-89, South Burlington	New	UD	South Burlington, VTrans	No Permit	1.70	1.64	97%
Credit1	PB0074	Sugartree Lane	Sugartree Ln off of Kennedy Dr, South Burlington	New	DP	South Burlington	2-0878	1.54	1.05	69%
Credit1	PB0075	Swift Estates Pond	Meadowood Dr and Swift St, South Burlington	Existing	DP	South Burlington	No Permit	18.52	3.57	19%
Credit1	PB0076	Technology Park Pond Retrofit	Community Dr off of Kimball Ave, South Burlington	Existing	DP	South Burlington	1-1458 P4	8.05	0.03	0%
Credit1 / CMAC Valve	PB0078	The Pines	Aspen Dr off of Dorset St, South Burlington	Existing	DP	South Burlington	1-1117	12.67	5.85	46%

Potash Brook FRP
Table B-1: Proposed BMPs for BMPDSS Model Credit Runs

Model Run	Proposed BMP ID #	Project Name	BMP Address	New or Existing	BMP Type	MS4s with Impervious Area	Expired Permit #	BMP Drainage Area (acres)	Impervious Area Managed (acres)	Impervious %
Credit1	PB0079	UMall Detention Pond	Dorset St (University Mall), South Burlington	Existing	DP	South Burlington	1-0503c; 6282-9030	16.90	14.96	89%
Credit1	PB0080	UMall Infiltration 1	Dorset St (University Mall), South Burlington	Existing	IG	South Burlington	1-0503b; 6282-9030	17.15	15.30	89%
Credit1	PB0081	UMall Infiltration 2	Dorset St (University Mall), South Burlington	Existing	IG	South Burlington	1-0503a; 6282-9030	5.61	5.55	99%
Credit1	PB0084	UVM Forestry Research Center - East Roof	Spear St north of I-89, South Burlington	New	IG	UVM	No Permit	0.42	0.41	98%
Credit1	PB0085	UVM Forestry Research Center - West Roof	Spear St north of I-89, South Burlington	New	IG	UVM	No Permit	0.12	0.12	100%
Credit1	PB0086	Vermont National Country Club Pond B	Golf Course Rd and Park Rd, South Burlington	Existing	DP	South Burlington	1-1241b	35.72	8.63	24%
Credit1	PB0087	Vermont National Country Club Pond C	Golf Course Rd and Park Rd, South Burlington	Existing	DP	South Burlington	1-1241c	9.94	0.47	5%
Credit2	PB0001	1050 Hinesburg Road	1050 Hinesburg Rd, South Burlington	New	DP	South Burlington, VTrans	No Permit	1.43	0.74	52%
Credit2	PB0005	189 Ramp Detention Pond	Dorset St and 189 Ramps, South Burlington	New	DP	South Burlington, VTrans	2-0619	9.36	5.78	62%
Credit2	PB0018	Dorset Commons Pond	Dorset St and Town Square Dr, South Burlington	New	DP	South Burlington	1-0242	17.54	5.01	29%
Credit2	PB0022	Eastwood Commons Pond Expansion	Farrell St, South Burlington	Existing	DP	South Burlington	1-1438	28.39	20.78	73%
Credit2	PB0040	Joy Dr Detention Pond	Joy Dr, South Burlington	New	DP	South Burlington	No Permit	3.07	1.34	44%
Credit2 / CMAC Valve	PB0042	Kennedy Dr Pond 3 Expansion	Kennedy Dr west of Timber Ln, South Burlington	Existing	DP	South Burlington	1-1582c	6.39	4.82	75%
Credit2	PB0043	Kennedy Dr Pond 4 Expansion	Kennedy Dr and Hinesburg Rd, South Burlington	Existing	DP	South Burlington, VTrans	1-1582d; 1-0237; 1-1023; 1-1290	10.07	4.78	47%
Credit2 / CMAC Valve	PB0044	Kennedy Dr Pond 7 Expansion	Kennedy Dr north of Kimball Ave, South Burlington	Existing	DP	South Burlington	1-1582g; 1-0233	11.24	8.67	77%
Credit2	PB0052	Marcotte Central School	Market St near Dorset St intersection, South Burlington	New	DP	South Burlington	No Permit	2.11	1.83	87%
Credit2	PB0053	Marine Connection	Williston Rd and Shunpike Rd, South Burlington	New	DS	South Burlington	No Permit	10.79	4.73	44%
Credit2	PB0056	Miller Research Farm	Spear St north of I-89, South Burlington	New	DP	South Burlington, Burlington, VTrans	No Permit	79.01	5.03	6%
Credit2	PB0068	South Burlington High School Infiltration	Dorset St north of Kennedy Dr, South Burlington	New	IB	South Burlington	No Permit	3.57	3.10	87%
Credit2	PB0082	UMall Sears Auto Pond	Dorset St (University Mall), South Burlington	Existing	GW	South Burlington	1-0503d; 6282-9030; 2-0619	11.62	9.29	80%
Credit2	PB0091	Woodcrest Drive	Woodcrest Dr and Deane St, South Burlington	New	IB	South Burlington, VTrans	No Permit	7.46	2.38	32%
Credit3	PB0008	Adirondack Street	Adirondack St and Butler Dr, South Burlington	New	UD	South Burlington	2-0312	11.95	3.52	29%
Credit3	PB0010	Ashbrook Drive	Ashbrook Dr and Dorset St, South Burlington	New	DP	South Burlington	2-0101	2.49	0.88	35%

Potash Brook FRP
Table B-1: Proposed BMPs for BMPDSS Model Credit Runs

Model Run	Proposed BMP ID #	Project Name	BMP Address	New or Existing	BMP Type	MS4s with Impervious Area	Expired Permit #	BMP Drainage Area (acres)	Impervious Area Managed (acres)	Impervious %
Credit3	PB0015	Church of Jesus Christ of Latterday Saints	Swift St and Dorset St, South Burlington	New	DS	South Burlington	2-0179; 6318-9030	3.12	1.58	51%
Credit3	PB0023	Easy Self Storage	Swift St and Shelburne Rd, South Burlington	New	DP	South Burlington	2-0167	1.87	1.21	65%
Credit3	PB0030	Gonzo's Underground	Williston Rd east of Kennedy Dr, South Burlington	New	UD	South Burlington, VTrans	2-0811	13.62	8.72	64%
Credit3	PB0035	Hinesburg Road	Hinesburg Rd and Deane St, South Burlington	New	DP	South Burlington, VTrans	No Permit	3.53	1.27	36%
Credit3	PB0041	Kennedy Dr Pond 2 Expansion	Kennedy Dr and W Twin Oaks Terr, South Burlington	Existing	DP	South Burlington	1-1582b; 2-1069	3.89	2.36	61%
Credit3	PB0050	Lindenwood Drive Detention Pond	Lindenwood Dr off of Shelburne Rd, South Burlington	New	DP	South Burlington	No Permit	10.57	2.19	21%
Credit3	PB0067	Shaws West	Shelburne Rd north of 189, South Burlington	New	UD	South Burlington	No Permit	1.85	1.71	93%
Credit3	PB0083	UVM Bio Research Complex	Spear St north of I-89, South Burlington	New	DP	UVM	5269-9003.R	1.85	0.92	50%
Credit3	PB0088	VT Gas Detention Pond	Swift St and Farrell St, South Burlington	New	DP	South Burlington	2-0228; 6293-9030	7.57	3.09	41%
Credit3	PB0089	Wellesley Grove	Georgetown off of Kennedy Dr, South Burlington	New	DP	South Burlington	2-1023	8.85	2.15	24%
Credit3	PB0090	Windridge Court	Windridge Ct and Kennedy Dr, South Burlington	New	IB	South Burlington	2-0824	1.04	0.58	55%
Credit4	PB0007	Adelphia Cable Pond Retrofit	Kimball Ave and Adelphia Dr, South Burlington	Existing	DP	South Burlington	1-1000; 6291-9030	4.15	2.66	64%
Credit4	PB0020	Dynapower	Hinesburg Rd and Meadowland Dr, South Burlington	Existing	DP	South Burlington	1-0618	12.20	6.50	53%
Credit4	PB0025	Exit 13 Gravel Wetland	I-89 Exit 13, South Burlington	New	GW	VTrans	No Permit	16.72	5.57	33%
Credit4	PB0026	Exit 14 Gravel Wetland	I-89 Exit 14, South Burlington	New	GW	VTrans	No Permit	4.91	1.93	39%
Credit4	PB0036	I-89 Swale	Between I-89 N and S lanes west of Hinesburg Rd, South Burlington	New	MF	VTrans	No Permit	6.28	1.91	30%
Credit4	PB0046	Knoll Circle	Knoll Cir north of Dubois Dr, South Burlington	New	DP	South Burlington	2-0220	12.16	2.16	18%
Credit4	PB0047	Lane Press Roof	Meadowland Dr, South Burlington	New	IB	South Burlington	1-1337	5.57	4.17	75%
Credit4	PB0048	Laurel Hill Drive	Laurel Hill Dr off of Shelburne Rd, South Burlington	New	IB	South Burlington	No Permit	6.50	1.84	28%
Credit4	PB0057	Nicklaus Circle	Nicklaus Cir off of Dorset St, South Burlington	New	DP	South Burlington	1-1241, 4049-9030	9.25	2.23	24%
Credit4	PB0062	Panurgy Infiltration Basin	Kimball Ave and Shunpike Rd, South Burlington	Existing	IB	South Burlington	3409-9010	1.33	0.8	60%
Credit4	PB0063	Park Road Detention Pond	Park Rd off of Dorset St, South Burlington	New	DP	South Burlington	1-1241	6.96	1.27	18%

Potash Brook FRP
Table B-1: Proposed BMPs for BMPDSS Model Credit Runs

Model Run	Proposed BMP ID #	Project Name	BMP Address	New or Existing	BMP Type	MS4s with Impervious Area	Expired Permit #	BMP Drainage Area (acres)	Impervious Area Managed (acres)	Impervious %
Credit4	PB0069	South Burlington High School North	Dorset St north of Kennedy Dr, South Burlington	New	IG	South Burlington	6174-INDS.A	5.77	4.26	74%
Credit4	PB0073	Stonehedge Circle	Stonehedge Dr off of Spear St, South Burlington	New	DP	South Burlington	2-0100	2.48	1.26	51%
Credit4	PB0077	Temple Detention Pond	Swift St and Dorset St, South Burlington	New	DP	South Burlington	No Permit	1.81	0.92	51%
Credit4	PB0092	Woodlands Industrial Park	Kimball Ave west of Community Dr, South Burlington	Existing	DP	South Burlington	1-0526/ 6279-9030	4.40	3.89	88%
Credit4	PB0093	Worcester Street	Adirondack St and Butler Dr, South Burlington	New	UD	South Burlington	2-0312	10.84	3.82	35%
CMAC Valve	PB0096	Dorset Park Pond	Dorset St and Swift St, South Burlington	Existing	DP	South Burlington	1-1033	26.07	5.95	23%
CMAC Valve	PB0112	Lowes Pond	Hannaford Dr, South Burlington	Existing	DP	South Burlington	1-1214	12.73	10.05	79%
CMAC Valve	PB0099	Hannaford's Pond	Hannaford Dr, South Burlington	Existing	DP	South Burlington	1-1214	14.71	7.75	53%
CMAC Valve	PB0086	Vermont National Country Club Pond B	Golf Course Rd, South Burlington	Existing	DP	South Burlington	1-1241b	35.72	8.63	24%
CMAC Valve	PB0101	Technology Park Pond 1	Community Dr, South Burlington	Existing	DP	South Burlington	1-1254	8.96	3.78	42%
CMAC Valve	PB0103	Lot A Mountain View Pond	Tilley Dr, South Burlington	Existing	DP	South Burlington	1-1536	6.05	2.55	42%
CMAC Valve	PB0104	Kennedy Dr Pond 1	Kennedy Dr, South Burlington	Existing	DP	South Burlington	1-1582a	1.47	1.33	91%
CMAC Valve	PB0105	Quarry Hill Pond	Quarry Hill Rd off of Spear St, South Burlington	Existing	DP	South Burlington	3602-INDS	21.75	6.19	28%
CMAC Valve	PB0106	Heatherfield P1	Off of Spear St, South Burlington	Existing	DP	South Burlington	3658a	1.40	0.90	64%
CMAC Valve	PB0107	Heatherfield P2	Off of Spear St, South Burlington	Existing	DP	South Burlington	3658b	10.76	7.08	66%
CMAC Valve	PB0108	Heatherfield P3	Off of Spear St, South Burlington	Existing	DP	South Burlington	3658c	4.30	2.71	63%
CMAC Valve	PB0109	Winding Brook	Winding Brook Dr, South Burlington	Existing	DP	South Burlington	3691-INDS	9.11	3.32	36%
CMAC Valve	PB0110	Mountainview Pond b	Tilley Dr, South Burlington	Existing	DP	South Burlington	3805-INDS	0.90	0.61	68%
CMAC Valve	PB0111	Farrell St Pond	Farrell St, South Burlington	Existing	DP	South Burlington	5080-INDO	32.96	11.03	33%

1. BMP Type Abbreviations: GW: Gravel Wetland, GS: Grass Swale, RS: Retention Swale, ST: Settling Tank, OF: Control orifice, IB: Infiltration Basin, IT: Infiltration Trench, DP: Detention Pond, UD: Underground Detention, RP: Retention Pond, DS: Detention Swale, DW: Dry Well, IG: Infiltration Gallery, SF: Sand Filter, BR: Bioretention, MF: Median Filter.

APPENDIX C

POTASH BROOK FRP
PROPOSED BMPs

Potash Brook FRP
Table C-1: Final Proposed BMPs for the Potash Brook FRP

Proposed BMP ID #	Project Name	BMP Address	BMP Landowner	MS4s with Impervious Area	New or Existing	BMP Type	BMP Description	Expired Permit #	Drainage Area (acres)	Impervious Area Managed (acres)	Impervious %	CPv Managed (ac-ft)	Volume Infiltrated (ac-ft)	WQ Volume controlled (%)
PB0001	1050 Hinesburg Rd	1050 Hinesburg Rd, South Burlington	Private	South Burlington, VTrans	New	DP	There is an existing wet depression here where stormwater is already routed. Propose to retrofit pond to meet CPv standards.	No Permit	1.43	0.74	52%	0.111	0	100%
PB0002	110 Kimball Ave - North Infiltration Basin	110 Kimball Ave, South Burlington	Private	South Burlington	Existing	IB	Runoff is bypassing infiltration basin and sheet flowing to a swale with direct discharge to the brook. Add trench along west edge of parking lot to direct runoff to infiltration basin. Expand basin to accommodate increased volume.	1-1504a	1.51	0.58	38%	0.024	0.04	100%
PB0003	110 Kimball Ave - South Infiltration Basin	110 Kimball Ave, South Burlington	Private	South Burlington	Existing	IB	Retrofit outlet structure and add proposed outlet control riser that was not constructed.	1-1504b	1.42	0.94	66%	0.053	0.06	100%
PB0004	189 Cloverleaf Detention Pond	Shelburne Rd and Queen City Pkwy, South Burlington	MS4 Owned	South Burlington, VTrans, Burlington	New	DP	Add outlet structure to area that is already depressed to detain stormwater. Reroute stormline from Shelburne Rd to this area.	No Permit	21.25	12.14	57%	1.129	0	100%
PB0005	189 Ramp Detention Pond	Dorset St and 189 Ramps, South Burlington	MS4 Owned	South Burlington, VTrans	New	DP	Detain stormwater from 189 Ramps and Dorset St. Intercept stormline near Kennedy Dr and reroute to the area between 189 ramps.	2-0619	9.36	5.78	62%	0.348	0	100%
PB0006	30 Kimball Ave Swale Retrofit	30 Kimball Ave, South Burlington	Private	South Burlington	Existing	DS	Retrofit existing swale detention to meet CPv. Expand swale to accommodate modified outlet structure.	1-1526; 6269-9030	1.27	1.05	82%	0.025	0	100%
PB0007	Adelphia Cable Pond Retrofit	Kimball Ave and Adelphia Dr, South Burlington	Private	South Burlington	Existing	DP	Reroute drainage from Kimball Ave to this detention pond behind Adelphia Cable. Retrofit and expand existing pond to detain CPv.	1-1000; 6291-9030	4.15	2.66	64%	0.086	0	100%
PB0008	Adirondack Street	Adirondack St and Butler Dr, South Burlington	Private	South Burlington	New	UD	Construct underground detention chambers under ROW and grassed shoulder.	2-0312	11.95	3.52	29%	0.580	0	100%
PB0009	Airport Dr	Airport Dr and Airport Rd, South Burlington	MS4 Owned	South Burlington, BTV	New	IG	Construct subsurface infiltration chambers in southernmost lot where houses will be removed. Intercept stormline running south down Airport Dr.	No Permit	9.65	2.70	28%	0.455	0.46	100%
PB0010	Ashbrook Drive	Ashbrook Dr and Dorset St, South Burlington	Private	South Burlington	New	DP	Reroute stormwater and detain southwest of Dorset St behind apartment buildings.	2-0101	2.49	0.88	35%	0.178	0	100%
PB0011	Blue Mall Infiltration	Dorset St south of Market St, South Burlington	Private	South Burlington	New	IG	Construct underground infiltration chambers in the southwest edge of parking lot. Overflow to existing stormline that flows to Dorset St.	2-0144	2.49	2.40	97%	0.367	0.37	100%
PB0012	Vermont National Country Club Pond B	Golf Course Rd and Park Rd, South Burlington	Private	South Burlington	Existing	DP	Retrofit existing detention pond. Add forebay and expand pond.	1-1241b	41.24	24.49	59%	1.998	0	100%
PB0013	Burlington Price Chopper	Shelburne Rd, Burlington	Private	Burlington	New	GW	Construct new gravel wetland in area between parking lot and stream to the south of parking lot.	No Permit	12.69	11.48	90%	1.229	0	100%
PB0014	South Burlington High School Infiltration	Dorset St north of Kennedy Dr, South Burlington	MS4 Owned	South Burlington	New	IB	Construct new infiltration basin to the southeast of sports field in currently wooded area.	No Permit	3.28	1.82	56%	0.292	0.29	100%
PB0015	Church of Jesus Christ of Latterday Saints	Swift St and Dorset St, South Burlington	Private	South Burlington	New	DS	Add detention to swale to the west of parking area with outlet control to detain CPv.	2-0179; 6318-9030	3.12	1.58	51%	0.099	0	100%
PB0016	Community Bible Church Infiltration	Williston Rd and Millham Ct, South Burlington	Private	South Burlington	New	IT	Construct linear infiltration trench (perforated pipe) along back of several businesses.	No Permit	10.34	6.17	60%	0.912	0.91	100%
PB0017	Domino's	Swift St and Farrell St, South Burlington	Private	South Burlington	New	DP	Construct a new detention pond behind parking area. Add catchbasin along Swift St to also capture half of the road drainage.	No Permit	2.30	1.34	58%	0.231	0	100%
PB0018	The Pines	Aspen Dr off of Dorset St, South Burlington	Private	South Burlington	Existing	DP	Retrofit existing pond to meet CPv standards. Add forebay and outlet structure with low flow orifice; expand pond.	1-1117	17.54	5.01	29%	0.602	0	100%
PB0019	Dumont Park Stormwater Project	Barrett St and Obrien Dr, South Burlington	Private	South Burlington, VTrans	New	DP	Construct new detention pond to the north of Barrett St where two stormlines converge.	No Permit	9.56	4.16	43%	0.269	0	100%
PB0020	Dynapower	Hinesburg Rd and Meadowland Dr, South Burlington	Private	South Burlington	Existing	DP	Reroute roof drainage to existing detention pond. Formalize pond and retrofit to detain CPv.	1-0618	12.20	6.50	53%	0.952	0	100%
PB0021	East Terrace Detention Pond	East Terrace, South Burlington	Private	South Burlington	New	DP	Construct new linear detention basin near the outfall to the east side of East Terrace.	No Permit	6.36	2.28	36%	0.344	0	100%

Potash Brook FRP
Table C-1: Final Proposed BMPs for the Potash Brook FRP

Proposed BMP ID #	Project Name	BMP Address	BMP Landowner	MS4s with Impervious Area	New or Existing	BMP Type	BMP Description	Expired Permit #	Drainage Area (acres)	Impervious Area Managed (acres)	Impervious %	CPv Managed (ac-ft)	Volume Infiltrated (ac-ft)	WQ Volume controlled (%)
PB0022	Eastwood Commons Pond Expansion	Farrell St, South Burlington	Private	South Burlington	Existing	DP	Reroute area to the west of existing pond (eastern side of Shaw's plaza) to this pond. Add a new connection between these stormwater systems to the east of the Shaw's property. Expand pond and modify outlet structure to accommodate additional drainage.	1-1438	28.39	20.78	73%	0.728	0	100%
PB0023	Easy Self Storage	Swift St and Shelburne Rd, South Burlington	Private	South Burlington	New	DP	Create new detention basin to the north of the storage area.	2-0167	1.87	1.21	65%	0.203	0	100%
PB0024	Economou Farm Pond	Economou Farm Rd, South Burlington	Private	South Burlington	Existing	DP	Retrofit existing dry pond to detain CPv. Expand pond and retrofit outlet structure. Add forebay.	1-1241d	6.37	1.46	23%	0.669	0	100%
PB0025	Exit 13 Gravel Wetland	I-89 Exit 13, South Burlington	MS4 Owned	VTrans	New	GW	Install new gravel wetland in depressed triangle greenspace between ramps. Reroute several culverts to this area.	No Permit	16.72	5.57	33%	0.567	0	100%
PB0026	Exit 14 Gravel Wetland	I-89 Exit 14, South Burlington	MS4 Owned	VTrans	New	GW	Propose new gravel wetland in depressed triangle greenspace between ramps. Reroute several culverts to this area.	No Permit	4.91	1.93	39%	0.294	0	100%
PB0027	Fairpoint Communications	Hinesburg Rd south of I-89, South Burlington	Private	South Burlington	New	DP	Construct new detention pond to the east of property in grassed area. Two outfalls on site drain to wetland swales that need to be rerouted to the east.	2-0212	8.75	4.76	54%	0.591	0	100%
PB0028	Faith United Methodist Church	Dorset St south of Songbird Ln, South Burlington	Private	South Burlington	New	DP	Construct new underground detention behind church (northwest) in grassy area. Current outfall is eroded.	No Permit	1.68	1.03	61%	0.149	0	100%
PB0029	Golf Course Rd South	Golf Course Rd and Old Cross Rd, South Burlington	Private	South Burlington	New	DP	Construct new detention basin at the end of pipe before it enters the golf course. Existing infrastructure already drains to swale.	1-1241	5.19	1.67	32%	0.232	0	100%
PB0030	Gonzo's Underground	Williston Rd east of Kennedy Dr, South Burlington	Private	South Burlington, VTrans	New	UD	Propose to intercept stormline that flows west along Williston Rd to underground detention chambers under grassed area in front of Budget Car Rental / Gonzo's plaza.	2-0811	13.62	8.72	64%	0.451	0	100%
PB0031	Grandview Drive North Detention Pond	Grandview Dr and W Twin Oaks Terr, South Burlington	Private	South Burlington	New	DP	Construct new surface detention BMP following outfall, which is currently broken and experiencing significant erosion.	2-0238; 2-0737	3.02	1.38	46%	0.142	0	100%
PB0032	Grandview Drive West Detention Pond	Grandview Dr and Dorset St, South Burlington	Private	South Burlington	New	DP	Construct new surface detention basin to the west of Dorset St. Reroute stormline away from brook to new BMP.	2-0238; 2-0737	3.14	1.89	60%	0.179	0	100%
PB0033	Hawthorne Circle Detention Pond	Hawthorne Cir and Kennedy Dr, South Burlington	Private	South Burlington	New	DP	Construct new detention basin in greenspace formed in the triangle between three garages.	No Permit	4.95	2.55	51%	0.150	0	100%
PB0034	Helen Ave Cul De Sac	Helen Ave, South Burlington	Private	South Burlington	New	IB	Construct new infiltration basin in the cul de sac at the end of Helen Ave, which would provide significant water quality benefit.	No Permit	5.70	2.15	38%	0.354	0.35	100%
PB0035	Hinesburg Rd	Hinesburg Rd and Deane St, South Burlington	Private	South Burlington, VTrans	New	DP	Reroute stormwater to existing catchbasin on Deane St and detain to the west of Hinesburg Rd to the south of existing houses.	No Permit	3.53	1.27	36%	0.138	0	100%
PB0036	I-89 Swale	Between I-89 N and S lanes west of Hinesburg Rd, South Burlington	MS4 Owned	VTrans	New	MF	Construct median filter in depressed area between north and south I-89 lanes. Reroute several culverts.	No Permit	6.28	1.91	30%	0.531	0	100%
PB0037	Iby Gravel Wetland	Iby St off of Hinesburg Rd, South Burlington	Private	South Burlington	New	GW	Construct new gravel wetland at the end of Iby St to capture stormwater for the street.	No Permit	2.82	1.14	40%	0.067	0	100%
PB0038	INS Building Pond A Retrofit	Kimball Ave west of Community Dr, South Burlington	Private	South Burlington	Existing	RP	Retrofit existing detention pond. Add forebay and construct outlet structure with low flow orifice to meet CPv standards.	1-0969	2.11	0.98	47%	0.040	0	100%
PB0039	INS Building Pond B Retrofit	Kimball Ave west of Community Dr, South Burlington	Private	South Burlington	Existing	DP	Retrofit existing detention pond. Add forebay and construct outlet structure with low flow orifice to meet CPv standards.	1-0969b	1.44	0.61	42%	0.040	0	100%
PB0040	Joy Dr Detention Pond	Joy Dr, South Burlington	Private	South Burlington	New	DP	Construct new detention practice in adjacent flat area near the Green Mountain Power transmission corridor.	No Permit	3.07	1.34	44%	0.210	0	100%
PB0041	Kennedy Dr Pond 2 Expansion	Kennedy Dr and W Twin Oaks Terr, South Burlington	MS4 Owned	South Burlington	Existing	DP	Retrofit existing detention pond to accommodate additional drainage from The Edge and 1 Twin Oaks.	1-1582b; 2-1069	3.89	2.36	61%	0.159	0	100%

Potash Brook FRP

Table C-1: Final Proposed BMPs for the Potash Brook FRP

Proposed BMP ID #	Project Name	BMP Address	BMP Landowner	MS4s with Impervious Area	New or Existing	BMP Type	BMP Description	Expired Permit #	Drainage Area (acres)	Impervious Area Managed (acres)	Impervious %	CPv Managed (ac-ft)	Volume Infiltrated (ac-ft)	WQ Volume controlled (%)
PB0042	Kennedy Dr Pond 3 Expansion	Kennedy Dr west of Timber Ln, South Burlington	MS4 Owned	South Burlington	Existing	DP	Drainage for offices to the east of Timber Ln currently discharges to a swale along Kennedy Dr heading west (direction of the existing pond). Reroute culvert that crosses under access ramp to pond. Expand pond and retrofit to detain CPv.	1-1582c	6.39	4.82	75%	0.175	0	100%
PB0043	Dorset Commons Pond	Dorset St and Town Square Dr, South Burlington	Private	South Burlington	New	DP	Construct new detention pond in wooded area behind Dorset Commons.	1-0242	10.07	4.78	47%	0.252	0	100%
PB0044	Kennedy Dr Pond 7 Expansion	Kennedy Dr north of Kimball Ave, South Burlington	MS4 Owned	South Burlington	Existing	DP	Reroute stormline that currently outfalls behind Key Bank to existing detention pond. Expand pond footprint to accommodate additional drainage area and detain CPv.	1-1582g; 1-0233	11.24	8.67	77%	0.583	0	100%
PB0045	Brookwood Drive Pond	Brookwood Dr off of Dorset St, South Burlington	Private	South Burlington	New	DP	Construct new detention pond to detain this large outfall. Forebay to be located in empty lot near Brookwood Dr.	2-0794; 2-0619	8.86	7.68	87%	0.863	0.10	100%
PB0046	Knoll Circle	Knoll Cir north of Dubois Dr, South Burlington	Private	South Burlington	New	DP	Construct new surface detention basin with swale inlet. Current stormline draining subdivision already enters swale, which also drains area to the west.	2-0220	12.16	2.16	18%	0.802	0	100%
PB0047	Lane Press Roof	Meadowland Dr, South Burlington	Private	South Burlington	New	IB	Capture roof drainage in a new infiltration basin. Roof drains already flows to grassed area where treatment is proposed.	1-1337	5.57	4.17	75%	0.691	0.69	100%
PB0048	Laurel Hill Dr	Laurel Hill Dr off of Shelburne Rd, South Burlington	Private	South Burlington	New	IB	Construct new infiltration basin to the north of houses before stormline pipe enters riparian buffer.	No Permit	6.50	1.84	28%	0.405	0.41	100%
PB0049	Lilac Ln Infiltration Basin	Lilac Ln off of Hinesburg Rd, South Burlington	Private	South Burlington	New	IB	Formalize infiltration basin in depressed area at the end of Lilac Ln.	No Permit	1.46	0.85	58%	0.131	0.13	100%
PB0050	Lindenwood Drive Detention Pond	Lindenwood Dr off of Shelburne Rd, South Burlington	Private	South Burlington	New	DP	Add catchbasins and infrastructure to reroute stormwater to the east of Lindenwood Dr. Part of Brewer Pkwy drains to this area as well. Propose to create one detention basin to detain drainage from both streets. Lindenwood Dr has existing puddling and icing issues. This BMP would also mitigate those issues.	No Permit	10.57	2.19	21%	0.205	0	100%
PB0051	Logwood Neighborhood Detention Pond	Williston Rd south of intersection with Airport Rd, South Burlington	Private	South Burlington	New	DP	Construct new end of pipe surface impoundment BMP behind Lean Dental Group. Outfall is currently eroded.	No Permit	44.81	18.44	41%	0.606	0	100%
PB0052	Marcotte Central School	Market St near Dorset St intersection, South Burlington	MS4 Owned	South Burlington	New	DP	Construct new detention basin in wooded area directly south of school parking lot. Route outfall to existing stormline. Potential educational benefit.	No Permit	2.11	1.83	87%	0.186	0	100%
PB0053	Marine Connection	Williston Rd and Shunpike Rd, South Burlington	Private	South Burlington	New	DS	Add detention to existing swale near the back of the large Marine Connection building. Expand swale to accommodate additional volume.	No Permit	10.79	4.73	44%	0.214	0	100%
PB0054	Kennedy Dr Pond 4 Expansion	Kennedy Dr and Hinesburg Rd, South Burlington	MS4 Owned	South Burlington, VTrans	Existing	DP	Reroute stormline from Chatham Green and swale along Hinesburg Rd to existing detention pond. Expand pond to accommodate additional drainage area and detain CPv.	1-1582d; 1-0237; 1-1023; 1-1290	13.46	5.13	38%	1.704	0	100%
PB0055	Merchant's Bank Detention Pond	Kimball Ave and Kennedy Dr, South Burlington	Private	South Burlington	New	DP	Route stormwater from Allstate Insurance west to Merchant's Bank and provide detention in grassed area.	2-1171; 6275-9030; 6269-9030; 2-0939	4.36	3.17	73%	0.228	0	100%
PB0056	Miller Research Complex	Spear St north of I-89, South Burlington	MS4 Owned	UVM	New	DP	Construct bioretention to treat stormwater in grassed area near the center of complex. Potential educational benefit.	5269-9003.R	79.01	5.03	6%	2.364	0	100%
PB0057	Nicklaus Circle	Nicklaus Cir off of Dorset St, South Burlington	Private	South Burlington	New	DP	Construct new linear detention feature to the north of Nicklaus Cir where the stormline and swale converge.	1-1241, 4049-9030	9.25	2.23	24%	0.537	0	100%
PB0058	North Country Credit North West Infiltration	Swift St west of Shelburne Rd, South Burlington	Private	South Burlington	New	IT	Install perforated pipe to the north of parking lot in grassed area to infiltrate stormwater.	No Permit	0.25	0.21	84%	0.026	0.03	100%
PB0059	North Country Credit South Infiltration	Swift St west of Shelburne Rd, South Burlington	Private	South Burlington	New	IG	Construct underground infiltration chambers in the southeast corner of parking lot. Overflow to existing stormline.	No Permit	0.76	0.62	81%	0.119	0.12	100%
PB0060	O'Brien Drive Underground Detention	Obrien Dr, South Burlington	Private	South Burlington	New	UD	Construct underground storage chambers in open lot between existing houses.	No Permit	8.47	2.87	34%	0.536	0.54	100%

Potash Brook FRP
Table C-1: Final Proposed BMPs for the Potash Brook FRP

Proposed BMP ID #	Project Name	BMP Address	BMP Landowner	MS4s with Impervious Area	New or Existing	BMP Type	BMP Description	Expired Permit #	Drainage Area (acres)	Impervious Area Managed (acres)	Impervious %	CPv Managed (ac-ft)	Volume Infiltrated (ac-ft)	WQ Volume controlled (%)
PB0061	Olympiad Apartments & Office Building Pond Retrofit	Farrell St south of Eastwood Dr, South Burlington	Private	South Burlington	Existing	DP	Retrofit existing detention pond. Add forebay, clean out vegetation, and ensure pond detains CPv.	1-1452	9.65	3.68	38%	0.055	0	100%
PB0062	Panurgy Infiltration Basin	Kimball Ave and Shunpike Rd, South Burlington	Private	South Burlington	Existing	IB	Retrofit and expand existing infiltration basin to infiltrate the CPv.	3409-9010	1.33	0.8	60%	0.081	0.14	100%
PB0063	Park Road Detention Pond	Park Rd off of Dorset St, South Burlington	Private	South Burlington	New	DP	Propose to reroute swale on southern side of Park Rd to the north and detain in wooded area.	1-1241	6.96	1.27	18%	0.421	0	100%
PB0064	Pillsbury Manor Infiltration Basin Retrofit	Pillsbury Manor N and Williston Rd, South Burlington	Private	South Burlington	Existing	IB	Retrofit existing pond to infiltration basin. Overflow to existing culvert.	1-1015	1.06	0.40	38%	0.068	0.07	100%
PB0065	Quarry Hill South	Quarry Hill Rd off of Spear St, South Burlington	Private	South Burlington	New	DS	Add detention to existing swale running northeast behind garages.	6322-9030	5.62	2.52	45%	0.478	0	100%
PB0066	Queen City Park Road Detention Pond	Queen City Park Rd off of Shelburne Rd, South Burlington	MS4 Owned	South Burlington, VTrans	New	DP	Add detention to existing depressed area where stormlines already outfall. Drainage from Shelburne Rd is assumed to be already rerouted to larger depression to the north (see project entitled 189 Cloverleaf Detention Pond).	No Permit	6.51	2.98	46%	0.452	0	100%
PB0067	Shaws West	Shelburne Rd north of 189, South Burlington	Private	South Burlington	New	UD	Construct underground detention in vegetated island along west side of parking lot. Reroute last catchbasin in southwest corner of parking to this area.	No Permit	1.85	1.71	93%	0.157	0	100%
PB0068	Meadowland Business Park Pond 2	Meadowland Dr, South Burlington	Private	South Burlington, VTrans	Existing	DP	Retrofit existing detention pond. Add forebay and construct outlet structure with low flow orifice to meet CPv standards.	1-1269_4290-9020.3 Lot 10	3.57	3.10	87%	0.443	0.443	100%
PB0069	South Burlington High School North	Dorset St north of Kennedy Dr, South Burlington	MS4 Owned	South Burlington	New	IG	Construct dry wells to infiltrate stormwater from the high school parking lot and middle school roof. Potential educational benefit.	6174-INDS.A	5.77	4.26	74%	0.689	0.69	100%
PB0070	South Meadows Pond	Farrell St, South Burlington	Private	Burlington	Existing	DP	Retrofit existing detention pond to meet CPv standards. Add forebay and expand pond. Upgrade outlet structure.	1-0661	10.10	4.73	47%	0.370	0	100%
PB0071	Southview Drive	Southview Dr off of Prouty Pkwy, South Burlington	Private	South Burlington	New	UD	Construct underground detention chambers in ROW and grassed area. Road is 30ft wide and could be narrowed for storage.	No Permit	12.26	4.81	39%	0.711	0.04	100%
PB0072	Staples Plaza Underground Detention B	Williston Rd west of I-89, South Burlington	Private	South Burlington, VTrans	New	UD	Construct underground detention chambers in southeast corner of parking lot.	No Permit	1.70	1.64	97%	0.198	0.03	100%
PB0073	Stonehedge Circle	Stonehedge Dr off of Spear St, South Burlington	Private	South Burlington	New	DP	Construct bioretention along road in grassed area with discharge to existing catchbasin.	2-0100	2.48	1.26	51%	0.203	0	100%
PB0074	Sugartree Lane	Sugartree Ln off of Kennedy Dr, South Burlington	Private	South Burlington	New	DP	Expand existing depressed area at the end of Sugartree Ln , which appears to be an abandoned detention area. Reroute catchbasins to pond. Upgrade pond outlet.	2-0878	1.54	1.05	69%	0.115	0	100%
PB0075	Swift Estates Pond	Meadowood Dr and Swift St, South Burlington	Private	South Burlington	Existing	DP	Retrofit existing detention pond to meet CPv standards. Add forebay and upgrade outlet structure.	No Permit	18.52	3.57	19%	0.326	0	100%
PB0076	Technology Park Pond Retrofit	Community Dr off of Kimball Ave, South Burlington	Private	South Burlington	Existing	DP	Retrofit existing detention pond to meet CPv standards. Upgrade outlet structure and expand pond to accommodate additional storage.	1-1458 P4	8.05	0.03	0%	0.271	0	100%
PB0077	Temple Detention Pond	Swift St and Dorset St, South Burlington	Private	South Burlington	New	DP	Propose new detention pond in depressed area in front of Temple by intersection of Dorset St and Swift St. Stormwater already collects in this area.	No Permit	1.81	0.92	51%	0.192	0	100%
PB0078	K-Mart Plaza Infiltration	Shelburne Rd north of Hannaford Dr, South Burlington	Private	South Burlington	New	IG	Construct new underground infiltration chambers in K-Mart parking lot.	No Permit	12.67	5.85	46%	0.215	0	100%
PB0079	UMall Detention Pond	Dorset St (University Mall), South Burlington	Private	South Burlington	Existing	DP	Retrofit existing detention pond to detain CPv. Upgrade outlet structure and expand pond.	1-0503c; 6282-9030	16.90	14.96	89%	0.909	0	100%
PB0080	UMall Infiltration 1	Dorset St (University Mall), South Burlington	Private	South Burlington	Existing	IG	Retrofit existing infiltration gallery to infiltrate the CPv.	1-0503b; 6282-9030	17.15	15.30	89%	0.032	0.18	100%
PB0081	UMall Infiltration 2	Dorset St (University Mall), South Burlington	Private	South Burlington	Existing	IG	Retrofit existing infiltration gallery to infiltrate the CPv.	1-0503a; 6282-9030	5.61	5.55	99%	0.311	2.17	100%

Potash Brook FRP

Table C-1: Final Proposed BMPs for the Potash Brook FRP

Proposed BMP ID #	Project Name	BMP Address	BMP Landowner	MS4s with Impervious Area	New or Existing	BMP Type	BMP Description	Expired Permit #	Drainage Area (acres)	Impervious Area Managed (acres)	Impervious %	CPv Managed (ac-ft)	Volume Infiltrated (ac-ft)	WQ Volume controlled (%)
PB0082	Chelsea Circle	Chelsea Cir and Hayes Ave, South Burlington	Private	South Burlington	New	IB	Construct new infiltration basin constructed to south of existing swale, which receives flow from Chelsea Cir condos and Timberlane Dental parking lot. Neighborhood icing and flooding issues can be mitigated with this project.	2-0767	11.62	9.29	80%	0.612	0	100%
PB0083	UVM Forestry Research Center - West Roof	Spear St north of I-89, South Burlington	MS4 Owned	UVM	New	IG	Construct dry well to capture and infiltrate roof drain. Potential educational benefit.	No Permit	1.85	0.92	50%	0.199	0	100%
PB0084	UVM Forestry Research Center - East Roof	Spear St north of I-89, South Burlington	MS4 Owned	UVM	New	IG	Construct dry well to capture and infiltrate roof drain. Potential educational benefit.	No Permit	0.42	0.41	98%	0.055	0.01	100%
PB0085	Miller Research Farm	Spear St north of I-89, South Burlington	MS4 Owned	South Burlington, Burlington, VTrans	New	DP	Reroute culvert east across Spear St and detain water to the south of the UVM farm.	No Permit	0.12	0.12	100%	0.016	0.01	100%
PB0086	UMall Sears Auto Pond	Dorset St (University Mall), South Burlington	Private	South Burlington	Existing	GW	Construct large gravel wetland in unused section of parking lot in Umall (to the east of the party store). Reroute Dorset St stormline here.	1-0503d; 6282-9030; 2-0619	35.72	8.63	24%	0.427	0	100%
PB0087	Vermont National Country Club Pond C	Golf Course Rd and Park Rd, South Burlington	Private	South Burlington	Existing	DP	Retrofit existing detention pond. Add forebay and expand pond.	1-1241c	9.94	0.47	5%	0.848	0	100%
PB0088	VT Gas Detention Pond	Swift St and Farrell St, South Burlington	Private	South Burlington	New	DP	Reroute stormline from Swift St to grassed area to the north of VT Gas property and construct new detention pond.	2-0228; 6293-9030	7.57	3.09	41%	0.172	0	100%
PB0089	Wellesley Grove	Georgetown off of Kennedy Dr, South Burlington	Private	South Burlington	New	DP	Add outlet control to existing depression to detain stormwater. Outfall is currently eroded.	2-1023	8.85	2.15	24%	0.269	0	100%
PB0090	Windridge Court	Windridge Ct and Kennedy Dr, South Burlington	Private	South Burlington	New	IB	Construct new infiltration basin to infiltrate stormwater to the west of this small development.	2-0824	1.04	0.58	55%	0.099	0.10	100%
PB0091	Woodcrest Drive	Woodcrest Dr and Deane St, South Burlington	MS4 Owned	South Burlington, VTrans	New	IB	Infiltrate stormwater to the southwest of drainage area. Reroute stormline south to new BMP. Construct new swale to drain the end of Woodcrest Dr, which is currently eroding slope following road.	No Permit	7.46	2.38	32%	0.496	0.50	100%
PB0092	Woodlands Industrial Park	Kimball Ave west of Community Dr, South Burlington	Private	South Burlington	Existing	DP	Reroute roof drainage to existing detention pond. Retrofit pond to accommodate additional volume and detain CPv.	1-0526/ 6279-9030	4.40	3.89	88%	0.371	0	100%
PB0093	Worcester Street	Adirondack St and Butler Dr, South Burlington	Private	South Burlington	New	UD	Construct underground detention chambers under ROW and grassed shoulder.	2-0312	10.84	3.82	35%	0.560	0	100%
PB0094	Dorset Park Pond	Dorset St and Swift St, South Burlington	MS4 Owned	South Burlington	Existing	DP	Retrofit pond with CMAC valve.	1-1033	26.07	5.95	23%	0.30	0	100%
PB0095	Hannaford's Pond	Hannaford Dr, South Burlington	Private	South Burlington	Existing	DP	Retrofit pond with CMAC valve.	1-1214	14.71	7.75	53%	0.34	0	100%
PB0096	Lowes Pond	Hannaford Dr, South Burlington	Private	South Burlington	Existing	DP	Retrofit pond with CMAC valve.	1-1214	12.73	10.05	79%	0.196	0	100%
PB0097	Vermont National Country Club Pond B	Golf Course Rd, South Burlington	Private	South Burlington	Existing	DP	Retrofit pond with CMAC valve.	1-1241b	35.72	8.63	24%	0.92	0	100%
PB0098	Technology Park Pond 1	Community Dr, South Burlington	Private	South Burlington	Existing	DP	Retrofit pond with CMAC valve.	1-1254	8.96	3.78	42%	0.37	0	100%
PB0099	Lot A Mountain View Pond	Tilley Dr, South Burlington	Private	South Burlington	Existing	DP	Retrofit pond with CMAC valve.	1-1536	6.05	2.55	42%	0.02	0	100%
PB0100	Kennedy Dr Pond 1	Kennedy Dr, South Burlington	MS4 Owned	South Burlington	Existing	DP	Retrofit pond with CMAC valve.	1-1582a	1.47	1.33	91%	0.05	0	100%
PB0101	Quarry Hill Pond	Quarry Hill Rd off of Spear St, South Burlington	Private	South Burlington	Existing	DP	Retrofit pond with CMAC valve.	3602-INDS	21.75	6.19	28%	0.00	0	100%
PB0102	Heatherfield P1	Off of Spear St, South Burlington	Private	South Burlington	Existing	DP	Retrofit pond with CMAC valve.	3658a	1.40	0.90	64%	0.00	0	100%
PB0103	Heatherfield P2	Off of Spear St, South Burlington	Private	South Burlington	Existing	DP	Retrofit pond with CMAC valve.	3658b	10.76	7.08	66%	0.03	0	100%
PB0104	Heatherfield P3	Off of Spear St, South Burlington	Private	South Burlington	Existing	DP	Retrofit pond with CMAC valve.	3658c	4.30	2.71	63%	0.05	0	100%
PB0105	Winding Brook	Winding Brook Dr, South Burlington	Private	South Burlington	Existing	DP	Retrofit pond with CMAC valve.	3691-INDS	9.11	3.32	36%	0.11	0	100%
PB0106	Mountainview Pond b	Tilley Dr, South Burlington	Private	South Burlington	Existing	DP	Retrofit pond with CMAC valve.	3805-INDS	0.90	0.61	68%	0.08	0	100%
PB0107	Farrell St Pond	Farrell St, South Burlington	MS4 Owned	South Burlington	Existing	DP	Retrofit pond with CMAC valve.	5080-INDO	32.96	11.03	33%	0.05	0	100%

Notes:

1. **BMP Type Abbreviations**: GW: Gravel Wetland, GS: Grass Swale, RS: Retention Swale, ST: Settling Tank, OF: Control orifice, IB: Infiltration Basin, IT: Infiltration Trench, DP: Detention Pond, UD: Underground Detention, RP: Retention Pond, DS: Detention Swale, DW: Dry Well, IG: Infiltration Gallery, SF: Sand Filter, BR: Bioretention, MF: Median Filter.

N

0 1,750 3,500 ft

Map C-1 – Proposed Stormwater BMPs

Potash Brook Watershed
South Burlington, VT

Hoyle, Tanner & Associates, Inc.

Watershed Consulting Associates, LLC

Map Produced: 07-13-2016

Potash Brook FRP BMP Summary Sheet

Site name:	1050 Hinesburg Road	**South Burlington ID:**	PB0001		
Approximate address:	1050 Hinesburg Rd, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

There is an existing wet depression here where stormwater is already routed. Propose to retrofit pond to meet CPv standards.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$27,000
Drainage area (acres)	1.43
Impervious area managed (acres)	0.74
% Impervious	52%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.07
BMP Depth (feet)	6.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington, VTrans
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.11
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	110 Kimball Ave - North Infiltration Basin	South Burlington ID:	PB0002		
Approximate address:	110 Kimball Ave, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	Existing
Proposed BMP type:	Retrofit Existing Infiltration Basin				

Proposed BMP description:

Runoff is bypassing infiltration basin and sheet flowing to a swale with direct discharge to the brook. Add trench along west edge of parking lot to direct runoff to infiltration basin. Expand basin to accommodate increased volume.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	1.51
Impervious area managed (acres)	0.58
% Impervious	38%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.15
BMP Depth (feet)	1.50
Hydrologic soil group	B
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.02
Volume infiltrated (ac-ft)	0.04
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1504a

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	110 Kimball Ave - South Infiltration Basin	South Burlington ID:	PB0003

Approximate address:	110 Kimball Ave, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	Existing

Proposed BMP type:	Retrofit Existing Infiltration Basin

Proposed BMP description:

Retrofit outlet structure and add proposed outlet control riser that was not constructed.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$10,000
Drainage area (acres)	1.42
Impervious area managed (acres)	0.94
% Impervious	66%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.14
BMP Depth (feet)	3.50
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.05
Volume infiltrated (ac-ft)	0.06
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1504b

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	189 Cloverleaf Detention Pond	South Burlington ID:	PB0004

Approximate address:	Shelburne Rd and Queen City Pkwy, South Burlington	MS4 where BMP is located:	VTrans	New or existing BMP?	New

Proposed BMP type:	Detention Pond

Proposed BMP description:

Add outlet structure to area that is already depressed to detain stormwater. Reroute stormline from Shelburne Rd to this area.

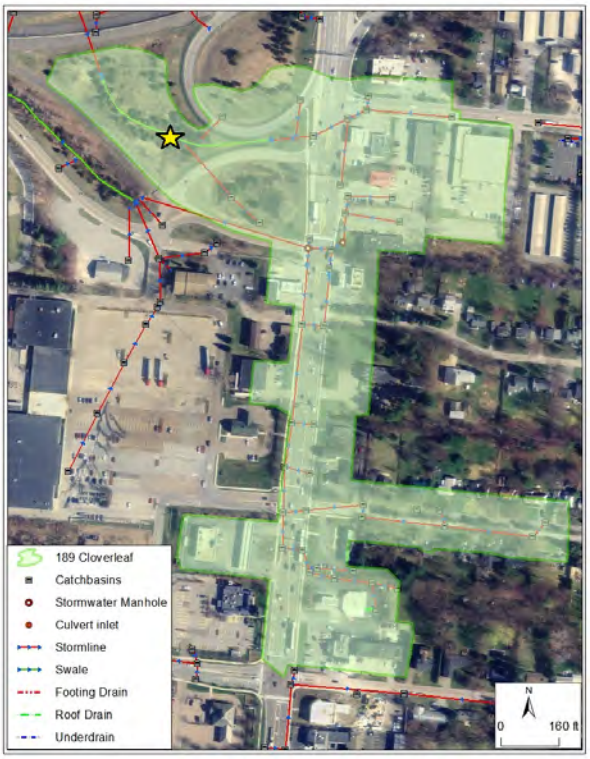
Feasibility concerns:

Wetlands concerns.

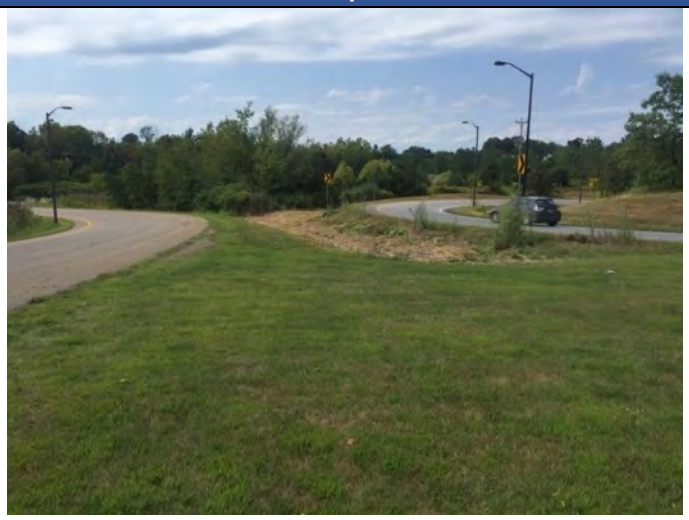
Proposed BMP details

Estimated project cost	$59,000
Drainage area (acres)	21.25
Impervious area managed (acres)	12.14
% Impervious	57%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	1.19
BMP Depth (feet)	16.00
Hydrologic soil group	B
MS4s contributing drainage to BMP	South Burlington, VTrans, Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	1.13
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map



Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	189 Ramp Detention Pond	**South Burlington ID:**	PB0005		
Approximate address:	Dorset St and 189 Ramps, South Burlington	**MS4 where BMP is located:**	VTrans	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Detain stormwater from a large section of Dorset St. Intercept stormline near Kennedy Dr and reroute to the area between 189 ramps.

Feasibility concerns:

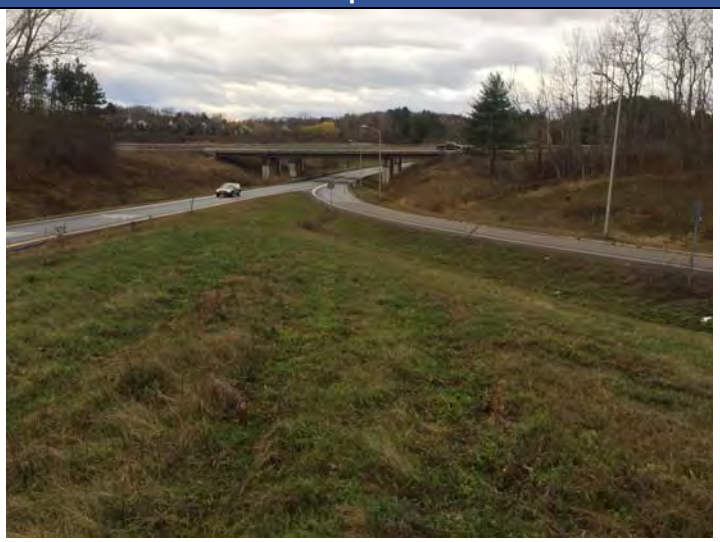
BMP location will need significant earthwork as area is elevated.

Proposed BMP details

Estimated project cost	$101,000
Drainage area (acres)	9.36
Impervious area managed (acres)	5.78
% Impervious	62%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.33
BMP Depth (feet)	8.00
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington, VTrans
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.35
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0619

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	30 Kimball Ave Swale Retrofit	South Burlington ID:	PB0006

Approximate address:	30 Kimball Ave, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	Existing

Proposed BMP type:	Retrofit Existing Swale

Proposed BMP description:

Retrofit existing swale detention to meet CPv. Expand swale to accommodate modified outlet structure.

Feasibility concerns:

Space is limited.

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	1.27
Impervious area managed (acres)	1.05
% Impervious	82%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.06
BMP Depth (feet)	3.50
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.02
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1526; 6269-9030

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Adelphia Cable Pond Retrofit	South Burlington ID:	PB0007		
Approximate address:	Kimball Ave and Adelphia Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Detention Pond				

Proposed BMP description:

Reroute drainage from Kimball Ave to this detention pond behind Adelphia Cable. Retrofit and expand existing pond to detain CPv.

Feasibility concerns:

Utilities limited pond expansion to the east.

Proposed BMP details

Estimated project cost	$25,000
Drainage area (acres)	4.15
Impervious area managed (acres)	2.66
% Impervious	64%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.21
BMP Depth (feet)	6.00
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.09
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1000; 6291-9030

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Adirondack Street	**South Burlington ID:**	PB0008		
Approximate address:	Adirondack St and Butler Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Underground detention				

Proposed BMP description:

Construct underground detention chambers under ROW and grassed shoulder.

Feasibility concerns:

Space is very limited. Utilities concerns. Unsure how high groundwater table is here.

Proposed BMP details	
Estimated project cost	$845,000
Drainage area (acres)	11.95
Impervious area managed (acres)	3.52
% Impervious	29%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.22
BMP Depth (feet)	5.67
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.58
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0312

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Airport Drive	**South Burlington ID:**	PB0009		
Approximate address:	Airport Dr and Airport Rd, South Burlington	**MS4 where BMP is located:**	BTV	**New or existing BMP?**	New
Proposed BMP type:	Infiltration Gallery				

Proposed BMP description:

Construct subsurface infiltration chambers in southernmost lot where houses will be removed. Intercept stormline running south down Airport Dr.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$439,000
Drainage area (acres)	9.65
Impervious area managed (acres)	2.70
% Impervious	28%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.09
BMP Depth (feet)	3.50
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington, BTV
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.46
Volume infiltrated (ac-ft)	0.46
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Ashbrook Drive	**South Burlington ID:**	PB0010		
Approximate address:	Ashbrook Dr and Dorset St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention pond				

Proposed BMP description:

Reroute stormwater and detain southwest of Dorset St behind apartment buildings.

Feasibility concerns:

Space is limited. Potential wetlands concerns.

Proposed BMP details	
Estimated project cost	$42,000
Drainage area (acres)	2.49
Impervious area managed (acres)	0.88
% Impervious	35%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.09
BMP Depth (feet)	6.00
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.18
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0101

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Blue Mall Infiltration	**South Burlington ID:**	PB0011		
Approximate address:	Dorset St south of Market St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Infiltration Gallery				

Proposed BMP description:

Construct underground infiltration chambers in the southwest edge of parking lot. Overflow to existing stormline that flows to Dorset St.

Feasibility concerns:

Potential underground utilities.

Proposed BMP details	
Estimated project cost	$531,000
Drainage area (acres)	2.49
Impervious area managed (acres)	2.40
% Impervious	97%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.11
BMP Depth (feet)	3.50
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.37
Volume infiltrated (ac-ft)	0.37
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0144

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Brookwood Drive Pond	**South Burlington ID:**	PB0012		
Approximate address:	Brookwood Dr off of Dorset St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Construct new detention pond to detain this large outfall. Forebay to be located in empty lot near Brookwood Dr.

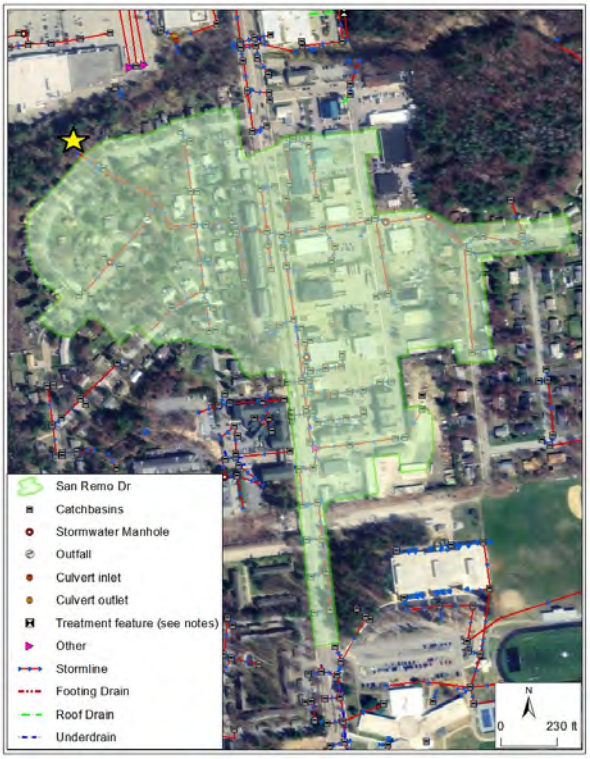
Feasibility concerns:

Space is limited. Potential wetlands concerns and utility issues.

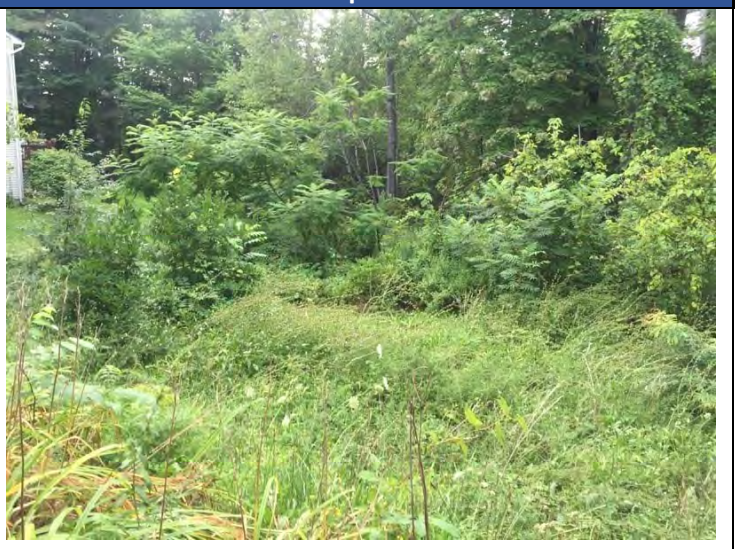
Proposed BMP details

Estimated project cost	$394,000
Drainage area (acres)	41.24
Impervious area managed (acres)	24.49
% Impervious	59%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.34
BMP Depth (feet)	14.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	2.00
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0794; 2-0619

Site map



Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	Burlington Price Chopper	**South Burlington ID:**	PB0013		
Approximate address:	Shelburne Rd, Burlington	**MS4 where BMP is located:**	Burlington	**New or existing BMP?**	New
Proposed BMP type:	Gravel wetland				

Proposed BMP description:

Construct new gravel wetland in area between parking lot and stream to the south of parking lot.

Feasibility concerns:

Space is limited.

Proposed BMP details	
Estimated project cost	$1,459,000
Drainage area (acres)	12.69
Impervious area managed (acres)	11.48
% Impervious	90%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.11
BMP Depth (feet)	8.00
Hydrologic soil group	Not Rated
MS4s contributing drainage to BMP	Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	1.23
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Chelsea Circle	**South Burlington ID:**	PB0014		
Approximate address:	Chelsea Cir and Hayes Ave, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Infiltration Basin				

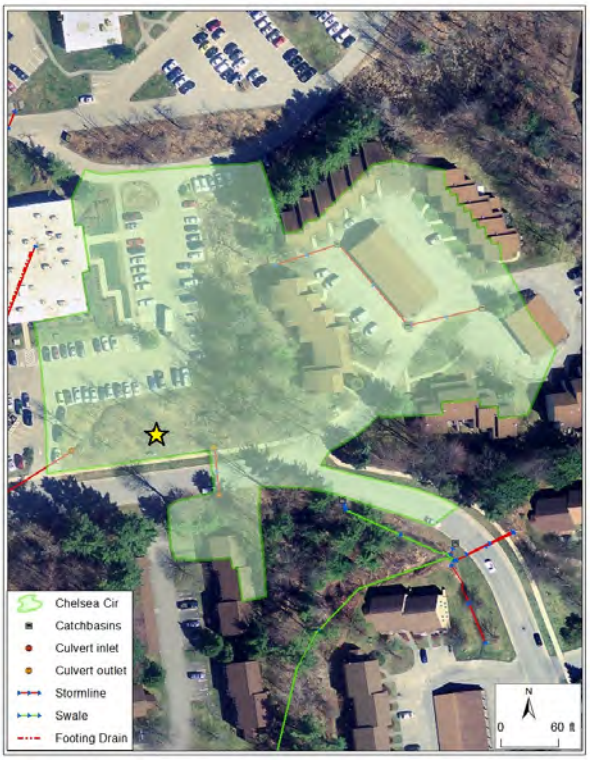
Proposed BMP description:

Construct new infiltration basin constructed to south of existing swale, which receives flow from Chelsea Cir condos and Timberlane Dental parking lot. Neighborhood icing and flooding issues can be mitigated with this project.

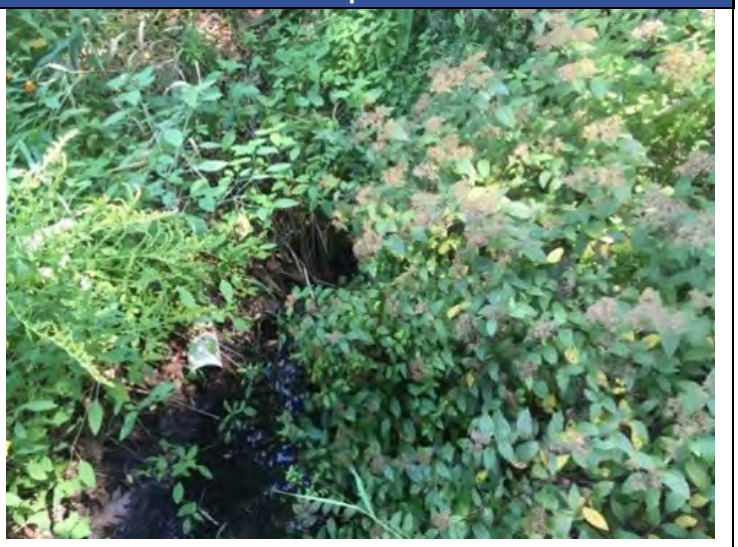
Feasibility concerns:

Proposed BMP details	
Estimated project cost	$115,000
Drainage area (acres)	3.28
Impervious area managed (acres)	1.82
% Impervious	56%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.20
BMP Depth (feet)	4.50
Hydrologic soil group	B
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.29
Volume infiltrated (ac-ft)	0.29
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0767

Site map



Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	Church of Jesus Christ of Latterday Saints	South Burlington ID:	PB0015		
Approximate address:	Swift St and Dorset St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Swale				

Proposed BMP description:

Add detention to swale to the west of parking area with outlet control to detain CPv

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$29,000
Drainage area (acres)	3.12
Impervious area managed (acres)	1.58
% Impervious	51%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.09
BMP Depth (feet)	4.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Institutional
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.10
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0179; 6318-9030

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Community Bible Church Infiltration	South Burlington ID:	PB0016

Approximate address:	Williston Rd and Millham Ct, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New

Proposed BMP type:	Infiltration Trench

Proposed BMP description:

Construct linear infiltration trench (perforated pipe) along back of several businesses.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$975,000
Drainage area (acres)	10.34
Impervious area managed (acres)	6.17
% Impervious	60%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.08
BMP Depth (feet)	4.00
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Institutional
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.91
Volume infiltrated (ac-ft)	0.91
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Domino's	**South Burlington ID:**	PB0017		
Approximate address:	Swift St and Farrell St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Construct a new detention pond behind parking area. Add catchbasin along Swift St to also capture half of the road drainage.

Feasibility concerns:

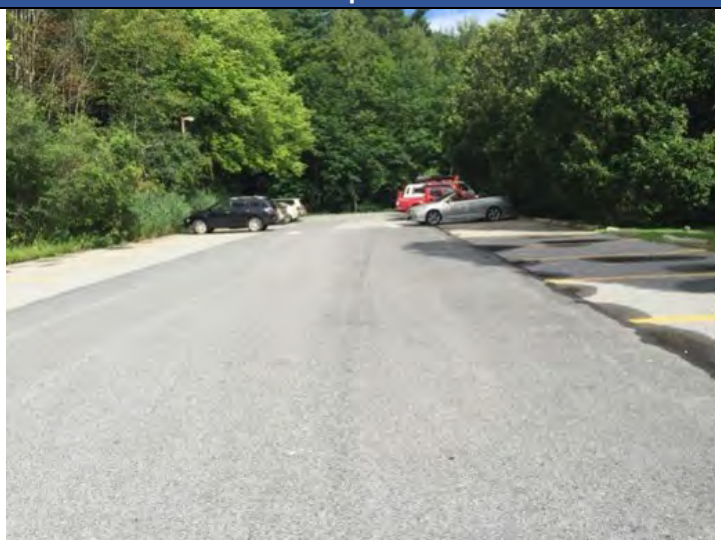
Space is limited. Site is in close proximity to Potash Brook.

Proposed BMP details

Estimated project cost	$54,000
Drainage area (acres)	2.30
Impervious area managed (acres)	1.34
% Impervious	58%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.14
BMP Depth (feet)	5.60
Hydrologic soil group	C/D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.23
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	Dorset Commons Pond	**South Burlington ID:**	PB0018		
Approximate address:	Dorset St and Town Square Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Construct new detention pond in wooded area behind Dorset Commons.

Feasibility concerns:

Potential wetlands issues. There is a water transmission main that runs through this area.

Proposed BMP details	
Estimated project cost	$168,000
Drainage area (acres)	17.54
Impervious area managed (acres)	5.01
% Impervious	29%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.51
BMP Depth (feet)	6.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.60
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-0242

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Dumont Park Stormwater Project	**South Burlington ID:**	PB0019		
Approximate address:	Barrett St and Obrien Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Construct new detention pond to the north of Barrett St where two stormlines converge.

Feasibility concerns:

Wetlands concerns. This site is near the future Dumont Park development.

Proposed BMP details

Estimated project cost	$69,000
Drainage area (acres)	9.56
Impervious area managed (acres)	4.16
% Impervious	43%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.22
BMP Depth (feet)	6.00
Hydrologic soil group	B
MS4s contributing drainage to BMP	South Burlington, VTrans
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.27
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Dynapower	**South Burlington ID:**	PB0020		
Approximate address:	Hinesburg Rd and Meadowland Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Detention Pond				

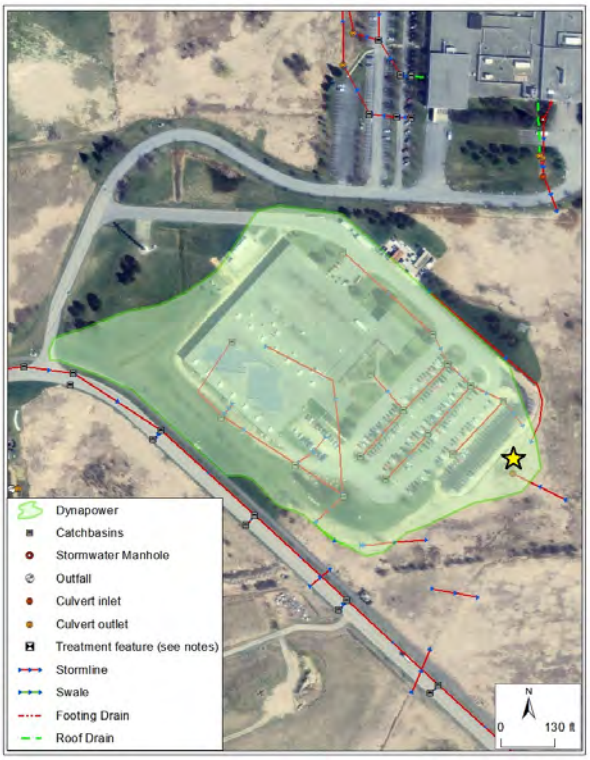
Proposed BMP description:

Reroute roof drainage to existing detention pond. Formalize pond and retrofit to detain CPv.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	12.20
Impervious area managed (acres)	6.50
% Impervious	53%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.27
BMP Depth (feet)	9.50
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Industrial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.95
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-0618

Site map



Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	East Terrace Detention Pond	**South Burlington ID:**	PB0021

Approximate address:	East Terrace, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New

Proposed BMP type:	Detention Pond

Proposed BMP description:

Construct new linear detention basin near the outfall to the east side of East Terrace.

Feasibility concerns:

Must ensure that BMP is >50 ft from delineated wetlands that exist north of the treatment area.

Proposed BMP details	
Estimated project cost	$102,000
Drainage area (acres)	6.36
Impervious area managed (acres)	2.28
% Impervious	36%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.40
BMP Depth (feet)	4.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.34
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Eastwood Commons Pond Expansion	South Burlington ID:	PB0022

Approximate address:	Farrell St, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	Existing

Proposed BMP type: Retrofit Existing Detention Pond

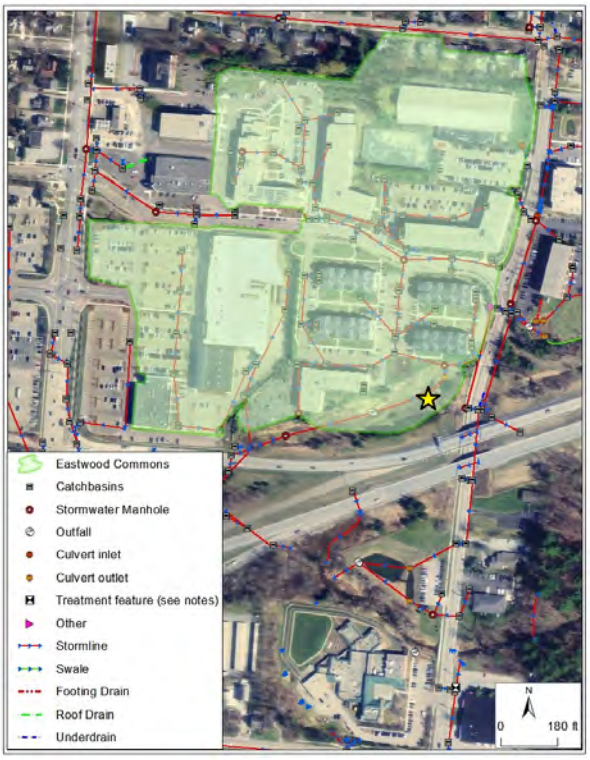
Proposed BMP description:

Reroute area to the west of existing pond (eastern side of Shaw's plaza) to this pond. Add a new connection between these stormwater systems to the east of the Shaw's property. Expand pond and modify outlet structure to accommodate additional drainage.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	28.39
Impervious area managed (acres)	20.78
% Impervious	73%
Land owner where BMP is	Private
BMP Footprint Size (acres)	1.05
BMP Depth (feet)	13.00
Hydrologic soil group	A/C/D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.73
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1438

Site map



Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Easy Self Storage	**South Burlington ID:**	PB0023		
Approximate address:	Swift St and Shelburne Rd, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Create new detention basin to the north of the storage area.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$53,000
Drainage area (acres)	1.87
Impervious area managed (acres)	1.21
% Impervious	65%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.14
BMP Depth (feet)	5.00
Hydrologic soil group	B
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.20
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0167

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Economou Farm Pond	**South Burlington ID:**	PB0024		
Approximate address:	Economou Farm Rd, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Detention Pond				

Proposed BMP description:

Retrofit existing dry pond to detain CPv. Expand pond and retrofit outlet structure. Add forebay.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	6.37
Impervious area managed (acres)	1.46
% Impervious	23%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.87
BMP Depth (feet)	7.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.67
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1241d

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Exit 13 Gravel Wetland	**South Burlington ID:**	PB0025		
Approximate address:	I-89 Exit 13, South Burlington	**MS4 where BMP is located:**	VTrans	**New or existing BMP?**	New
Proposed BMP type:	Gravel wetland				

Proposed BMP description:

Propose new gravel wetland in depressed triangle greenspace between ramps. Reroute several culverts to this area.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$219,000
Drainage area (acres)	16.72
Impervious area managed (acres)	5.57
% Impervious	33%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.43
BMP Depth (feet)	5.50
Hydrologic soil group	B
MS4s contributing drainage to BMP	VTrans
Primary land use in drainage area	Transportation
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.57
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Exit 14 Gravel Wetland	South Burlington ID:	PB0026		
Approximate address:	I-89 Exit 14, South Burlington	MS4 where BMP is located:	VTrans	New or existing BMP?	New
Proposed BMP type:	Gravel wetland				

Proposed BMP description:

Propose new gravel wetland in depressed triangle greenspace between ramps. Reroute several culverts to this area.

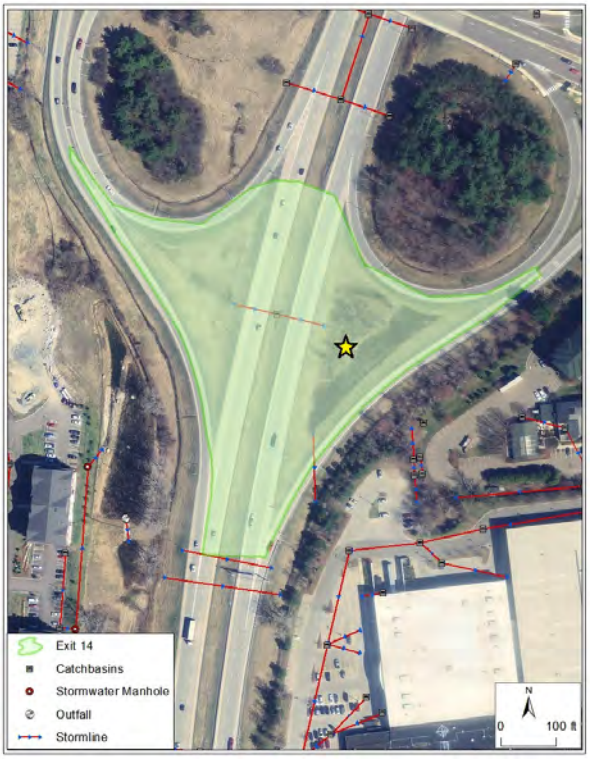
Feasibility concerns:

Soils are unmapped.

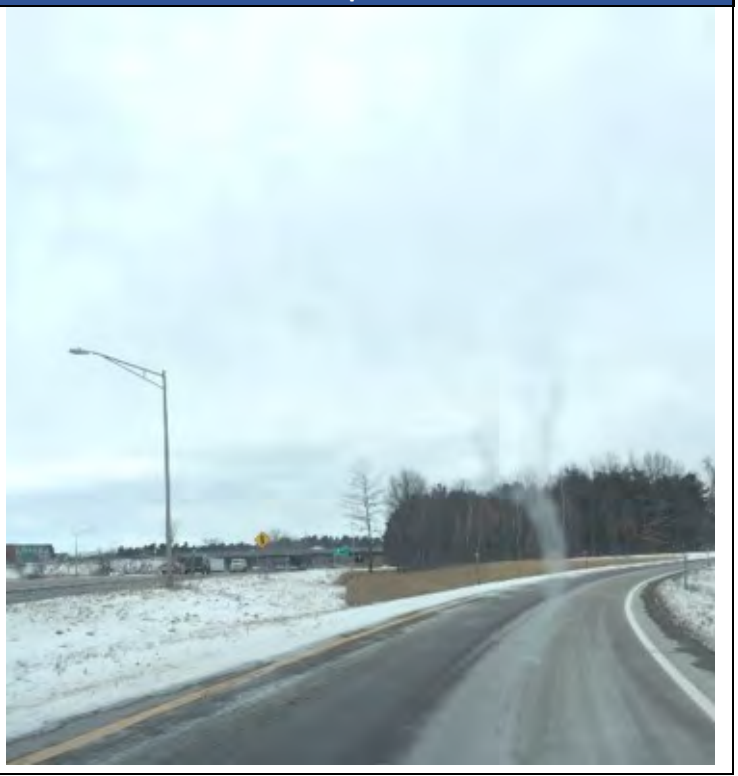
Proposed BMP details

Estimated project cost	$131,000
Drainage area (acres)	4.91
Impervious area managed (acres)	1.93
% Impervious	39%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.37
BMP Depth (feet)	5.00
Hydrologic soil group	Not Rated/B
MS4s contributing drainage to BMP	VTrans
Primary land use in drainage area	Transportation
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.29
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map



Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	Fairpoint Communications	**South Burlington ID:**	PB0027		
Approximate address:	Hinesburg Rd south of I-89, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Construct new detention pond to the east of property in grassed area. Two outfalls on site drain to wetland swales that need to be rerouted to the east.

Feasibility concerns:

There is bedrock nearby. Ensure that BMP is outside of wetlands buffer.

Proposed BMP details	
Estimated project cost	$124,000
Drainage area (acres)	8.75
Impervious area managed (acres)	4.76
% Impervious	54%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.26
BMP Depth (feet)	7.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.59
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0212

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Faith United Methodist Church	South Burlington ID:	PB0028

Approximate address:	Dorset St south of Songbird Ln, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New

Proposed BMP type:	Detention Pond

Proposed BMP description:

Construct new underground detention behind church (northwest) in grassy area. Current outfall is eroded.

Feasibility concerns:

Space is limited.

Proposed BMP details

Estimated project cost	$49,000
Drainage area (acres)	1.68
Impervious area managed (acres)	1.03
% Impervious	61%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.12
BMP Depth (feet)	6.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Institutional
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.15
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Golf Course Road South	**South Burlington ID:**	PB0029		
Approximate address:	Golf Course Rd and Old Cross Rd, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Construct new detention basin at the end of pipe before it enters the golf course. Existing infrastructure already drains to swale.

Feasibility concerns:

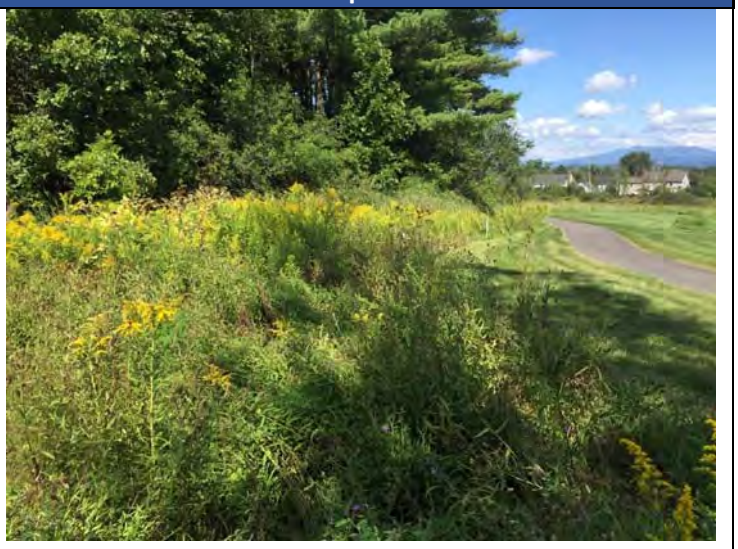
Space is somewhat limited.

Proposed BMP details

Estimated project cost	$38,000
Drainage area (acres)	5.19
Impervious area managed (acres)	1.67
% Impervious	32%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.12
BMP Depth (feet)	5.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.23
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1241

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	Gonzo's Underground	South Burlington ID:	PB0030		
Approximate address:	Williston Rd east of Kennedy Dr, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New
Proposed BMP type:	Underground detention				

Proposed BMP description:

Propose to intercept stormline that flows west along Williston Rd to underground detention chambers under grassed area in front of Budget Car Rental / Gonzo's plaza.

Feasibility concerns:

Space is limited. Buried utilities may be a concern.

Proposed BMP details

Estimated project cost	$662,000
Drainage area (acres)	13.62
Impervious area managed (acres)	8.72
% Impervious	64%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.21
BMP Depth (feet)	5.33
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington, VTrans
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.45
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0811

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Grandview Drive North Detention Pond	South Burlington ID:	PB0031

Approximate address:	Grandview Dr and W Twin Oaks Terr, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New

Proposed BMP type: Detention Pond

Proposed BMP description:

Construct new surface detention BMP following outfall, which is currently broken and experiencing significant erosion.

Feasibility concerns:

Wetlands concerns. There are delineated Class II wetlands downstream of outlet.

Proposed BMP details	
Estimated project cost	$33,000
Drainage area (acres)	3.02
Impervious area managed (acres)	1.38
% Impervious	46%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.07
BMP Depth (feet)	6.50
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.14
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0238; 2-0737

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Grandview Drive West Detention Pond	South Burlington ID:	PB0032

Approximate address:	Grandview Dr and Dorset St, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New

Proposed BMP type:	Detention Pond

Proposed BMP description:

Construct new surface detention basin to the west of Dorset St. Reroute stormline away from brook to new BMP.

Feasibility concerns:

Wetlands concerns.

Proposed BMP details

Estimated project cost	$36,000
Drainage area (acres)	3.14
Impervious area managed (acres)	1.89
% Impervious	60%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.03
BMP Depth (feet)	5.20
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.18
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0238; 2-0737

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Hawthorne Circle Detention Pond	South Burlington ID:	PB0033

Approximate address:	Hawthorne Cir and Kennedy Dr, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New

Proposed BMP type: Detention Pond

Proposed BMP description:

Construct new detention basin in greenspace formed in the triangle between three garages.

Feasibility concerns:

Potential underground utilities.

Proposed BMP details

Estimated project cost	$38,000
Drainage area (acres)	4.95
Impervious area managed (acres)	2.55
% Impervious	51%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.09
BMP Depth (feet)	6.00
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.15
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Helen Ave Cul De Sac	**South Burlington ID:**	PB0034		
Approximate address:	Helen Ave, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Infiltration Basin				

Proposed BMP description:

Construct new infiltration basin in the cul de sac at the end of Helen Ave, which would provide significant water quality benefit.

Feasibility concerns:

Water line and mature tree present in cul-de-sac.

Proposed BMP details	
Estimated project cost	$136,000
Drainage area (acres)	5.70
Impervious area managed (acres)	2.15
% Impervious	38%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.09
BMP Depth (feet)	6.00
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.35
Volume infiltrated (ac-ft)	0.35
Primary or secondary BMP?	Secondary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Hinesburg Road	South Burlington ID:	PB0035		
Approximate address:	Hinesburg Rd and Deane St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention pond				

Proposed BMP description:

Reroute stormwater to existing catchbasin on Deane St and detain to the west of Hinesburg Rd to the south of existing houses.

Feasibility concerns:

Must ensure BMP is located outside of river corridor.

Proposed BMP details

Estimated project cost	$33,000
Drainage area (acres)	3.53
Impervious area managed (acres)	1.27
% Impervious	36%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.07
BMP Depth (feet)	6.00
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington, VTrans
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.14
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	I-89 Swale	South Burlington ID:	PB0036

Approximate address:	Between I-89 N and S lanes west of Hinesburg Rd, South Burlington	**MS4 where BMP is located:**	VTrans	**New or existing BMP?**	New
Proposed BMP type:	Median Filter				

Proposed BMP description:

Construct median filter in depressed area between north and south I-89 lanes. Reroute several culverts.

Feasibility concerns:

Proposed BMP details

Estimated project cost	$129,000
Drainage area (acres)	6.28
Impervious area managed (acres)	1.91
% Impervious	30%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.38
BMP Depth (feet)	5.50
Hydrologic soil group	D
MS4s contributing drainage to BMP	VTrans
Primary land use in drainage area	Transportation
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.53
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Iby Gravel Wetland	**South Burlington ID:**	PB0037

Approximate address:	Iby St off of Hinesburg Rd, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Gravel wetland				

Proposed BMP description:

Construct new gravel wetland at the end of Iby St to capture stormwater for the street.

Feasibility concerns:

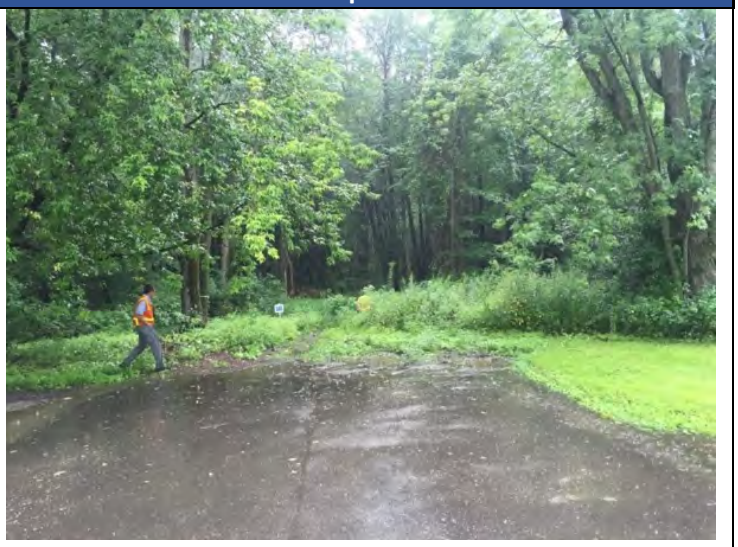
Wetlands concerns. This site is near the future Dumont Park development.

Proposed BMP details

Estimated project cost	$67,000
Drainage area (acres)	2.82
Impervious area managed (acres)	1.14
% Impervious	40%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.06
BMP Depth (feet)	3.00
Hydrologic soil group	B
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.07
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	INS Building Pond A Retrofit	**South Burlington ID:**	PB0038		
Approximate address:	Kimball Ave west of Community Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Retention Pond				

Proposed BMP description:

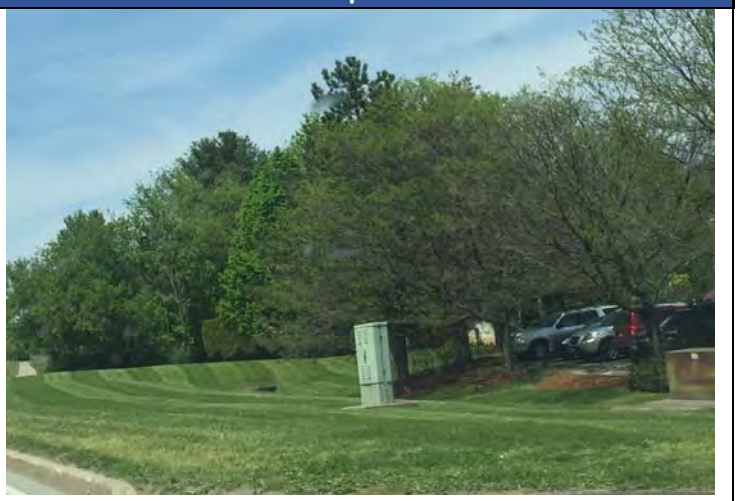
Retrofit existing detention pond. Add forebay and construct outlet structure with low flow orifice to meet CPv standards.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	2.11
Impervious area managed (acres)	0.98
% Impervious	47%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.33
BMP Depth (feet)	2.25
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Governmental
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.04
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-0969

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	INS Building Pond B Retrofit	South Burlington ID:	PB0039		
Approximate address:	Kimball Ave west of Community Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Detention Pond				

Proposed BMP description:

Retrofit existing detention pond. Add forebay and construct outlet structure with low flow orifice to meet CPv standards.

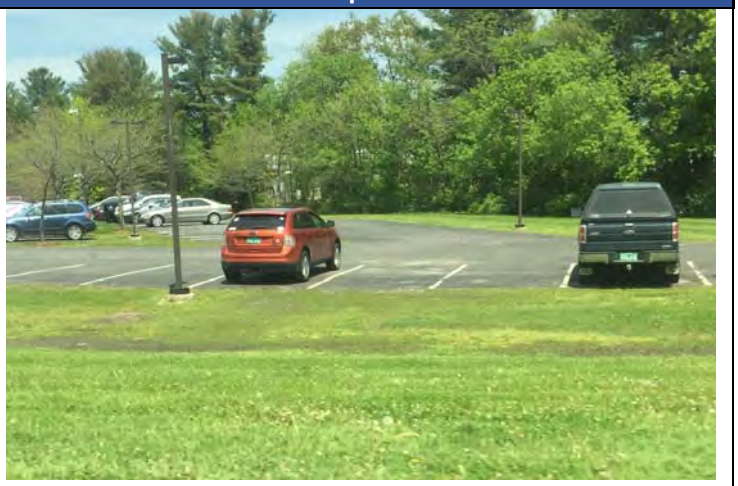
Feasibility concerns:

Proposed BMP details

Estimated project cost	$25,000
Drainage area (acres)	1.44
Impervious area managed (acres)	0.61
% Impervious	42%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.15
BMP Depth (feet)	3.00
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Governmental
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.04
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-0969b

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	Joy Dr Detention Pond	**South Burlington ID:**	PB0040		
Approximate address:	Joy Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Construct new surface BMP in adjacent flat area near the Green Mountain Power transmission corridor.

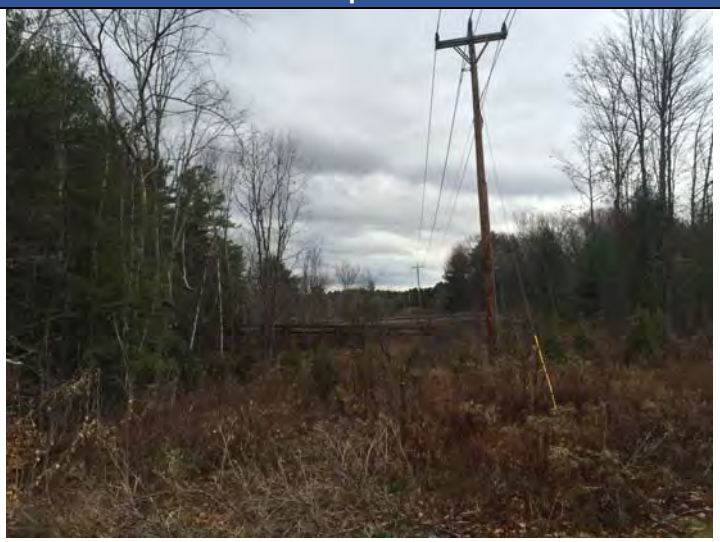
Feasibility concerns:

Power line corridor is close to proposed BMP.

Proposed BMP details	
Estimated project cost	$47,000
Drainage area (acres)	3.07
Impervious area managed (acres)	1.34
% Impervious	44%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.12
BMP Depth (feet)	6.00
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.21
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	Kennedy Dr Pond 2 Expansion	**South Burlington ID:**	PB0041		
Approximate address:	Kennedy Dr and W Twin Oaks Terr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Detention Pond				

Proposed BMP description:

Retrofit existing detention pond to accommodate additional drainage from The Edge and 1 Twin Oaks.

Feasibility concerns:

Space to expand pond is limited.

Proposed BMP details

Estimated project cost	$25,000
Drainage area (acres)	3.89
Impervious area managed (acres)	2.36
% Impervious	61%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.90
BMP Depth (feet)	4.57
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.16
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1582b; 2-1069

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Kennedy Dr Pond 3 Expansion	South Burlington ID:	PB0042		
Approximate address:	Kennedy Dr west of Timber Ln, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Detention Pond and add CMAC Valve				

Proposed BMP description:

Drainage for offices to the east of Timber Ln currently discharges to a swale along Kennedy Dr heading west (direction of the existing pond). Reroute culvert that crosses under access ramp to pond to pond. Add CMAC valve to detain CPv.

Feasibility concerns:

Limited area to expand pond.

Proposed BMP details

Estimated project cost	$25,000
Drainage area (acres)	6.39
Impervious area managed (acres)	4.82
% Impervious	75%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.11
BMP Depth (feet)	6.56
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.18
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1582c

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Kennedy Dr Pond 4 Expansion	South Burlington ID:	PB0043

Approximate address:	Kennedy Dr and Hinesburg Rd, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	Existing

Proposed BMP type:	Retrofit Existing Detention Pond

Proposed BMP description:

Reroute stormline from Chatham Green and swale along Hinesburg Rd to existing detention pond. Expand pond to accommodate additional drainage area and detain CPv.

Feasibility concerns:

Proposed BMP details

Estimated project cost	$25,000
Drainage area (acres)	10.07
Impervious area managed (acres)	4.78
% Impervious	47%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.11
BMP Depth (feet)	5.62
Hydrologic soil group	A/C
MS4s contributing drainage to BMP	South Burlington, VTrans
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.25
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1582d; 1-0237; 1-1023; 1-1290

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Kennedy Dr Pond 7 Expansion	**South Burlington ID:**	PB0044		
Approximate address:	Kennedy Dr north of Kimball Ave, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Detention Pond and add CMAC Valve				

Proposed BMP description:

Reroute stormline that currently outfalls behind Key Bank to existing detention pond. Add CMAC valve to detain CPv.

Feasibility concerns:

Elevations of pipes near Key Bank are quite low.

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	11.24
Impervious area managed (acres)	8.67
% Impervious	77%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.30
BMP Depth (feet)	7.95
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.58
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1582g; 1-0233

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	K-Mart Plaza Infiltration	**South Burlington ID:**	PB0045		
Approximate address:	Shelburne Rd north of Hannaford Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Infiltration Gallery				

Proposed BMP description:

Construct new underground infiltration chambers in K-Mart parking lot.

Feasibility concerns:

Unsure what the plans are for this plaza in the future.

Proposed BMP details

Estimated project cost	$1,121,000
Drainage area (acres)	8.86
Impervious area managed (acres)	7.68
% Impervious	87%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.32
BMP Depth (feet)	3.50
Hydrologic soil group	B
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.86
Volume infiltrated (ac-ft)	0.10
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Knoll Circle	**South Burlington ID:**	PB0046		
Approximate address:	Knoll Cir north of Dubois Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Construct new surface detention basin with swale inlet. Current stormline draining subdivision already enters swale, which also drains area to the west.

Feasibility concerns:

Proposed BMP is located outside of Knoll Cir residential property.

Proposed BMP details	
Estimated project cost	$184,000
Drainage area (acres)	12.16
Impervious area managed (acres)	2.16
% Impervious	18%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.35
BMP Depth (feet)	6.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.80
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0220

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Lane Press Roof	**South Burlington ID:**	PB0047		
Approximate address:	Meadowland Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Infiltration Basin				

Proposed BMP description:

Capture roof drainage in a new infiltration basin. Roof drains already flows to grassed area where treatment is proposed.

Feasibility concerns:

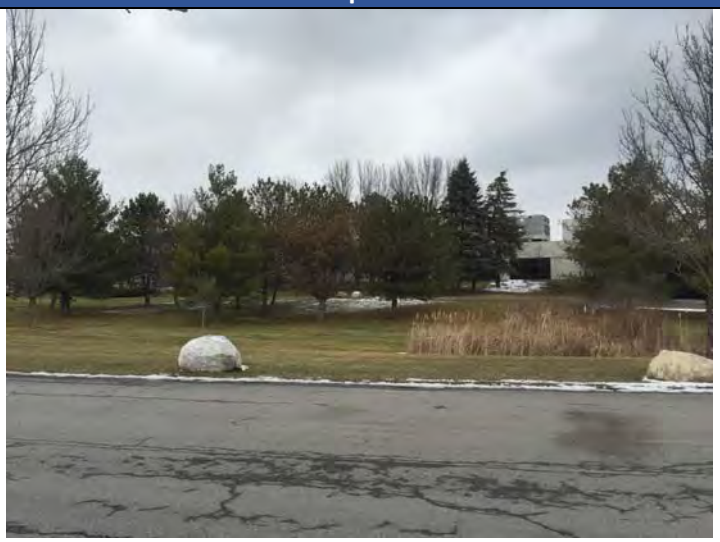
Soils are mapped as D, but infiltration basin directly to the west seems to be performing well and soils in this area appear similar. Would need to test infiltration rates to confirm that infiltration is possible here. If not, gravel wetland STP could be used.

Proposed BMP details

Estimated project cost	$310,000
Drainage area (acres)	5.57
Impervious area managed (acres)	4.17
% Impervious	75%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.55
BMP Depth (feet)	4.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Industrial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.69
Volume infiltrated (ac-ft)	0.69
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1337

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	Laurel Hill Drive	**South Burlington ID:**	PB0048		
Approximate address:	Laurel Hill Dr off of Shelburne Rd, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Infiltration Basin				

Proposed BMP description:

Construct new infiltration basin to the north of houses before stormline pipe enters riparian buffer.

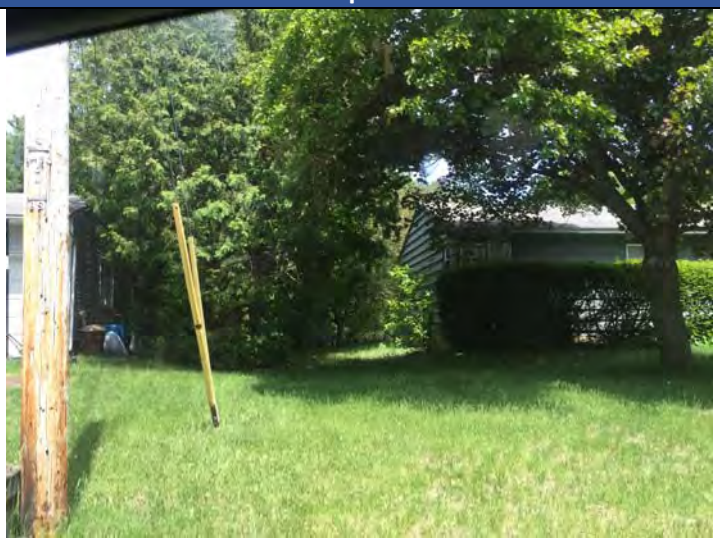
Feasibility concerns:

Proposed BMP is on private property.

Proposed BMP details	
Estimated project cost	$162,000
Drainage area (acres)	6.50
Impervious area managed (acres)	1.84
% Impervious	28%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.16
BMP Depth (feet)	4.50
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.41
Volume infiltrated (ac-ft)	0.41
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	Lilac Ln Infiltration Basin	South Burlington ID:	PB0049		
Approximate address:	Lilac Ln off of Hinesburg Rd, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New
Proposed BMP type:	Infiltration Basin				

Proposed BMP description:

Formalize infiltration basin in depressed area at the end of Lilac Ln.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$44,000
Drainage area (acres)	1.46
Impervious area managed (acres)	0.85
% Impervious	58%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.03
BMP Depth (feet)	6.00
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.13
Volume infiltrated (ac-ft)	0.13
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Lindenwood Drive Detention Pond	South Burlington ID:	PB0050

Approximate address:	Lindenwood Dr off of Shelburne Rd, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New

Proposed BMP type: Detention pond

Proposed BMP description:

Add catchbasins and infrastructure to reroute stormwater to the east of Lindenwood Dr. Part of Brewer Pkwy drains to this area as well. Propose to create one detention basin to detain drainage from both streets. Lindenwood Dr has existing puddling and icing issues. This BMP would also mitigate those issues.

Feasibility concerns:

BMP will require installing catchbasins and associated infrastructure on Lindenwood Dr. There is a water line running nearby.

Proposed BMP details

Estimated project cost	$89,000
Drainage area (acres)	10.57
Impervious area managed (acres)	2.19
% Impervious	21%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.44
BMP Depth (feet)	5.00
Hydrologic soil group	A/B
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.20
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Logwood Neighborhood Detention Pond	South Burlington ID:	PB0051

Approximate address:	Williston Rd south of intersection with Airport Rd, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New

Proposed BMP type:	Detention Pond

Proposed BMP description:

Construct new end of pipe surface impoundment BMP behind Lean Dental Group. Outfall is currently eroded.

Feasibility concerns:

Proposed BMP is on private property. Soils are unmapped. There are Class II wetlands south of proposed BMP, but BMP area should be well outside of wetlands buffer.

Proposed BMP details

Estimated project cost	$151,000
Drainage area (acres)	44.81
Impervious area managed (acres)	18.44
% Impervious	41%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.47
BMP Depth (feet)	6.50
Hydrologic soil group	Not Rated
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.61
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Marcotte Central School	South Burlington ID:	PB0052		
Approximate address:	Market St near Dorset St intersection, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Construct new detention basin in wooded area directly south of school parking lot. Route outfall to existing stormline. Potential educational benefit.

Feasibility concerns:

Potential wetlands concerns. Future Market St development.

Proposed BMP details

Estimated project cost	$57,000
Drainage area (acres)	2.11
Impervious area managed (acres)	1.83
% Impervious	87%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.20
BMP Depth (feet)	5.25
Hydrologic soil group	B
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Institutional
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.19
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Marine Connection	**South Burlington ID:**	PB0053		
Approximate address:	Williston Rd and Shunpike Rd, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Swale				

Proposed BMP description:

Add detention to existing swale near the back of the large Marine Connection building. Expand swale to accommodate additional volume.

Feasibility concerns:

Potential for future development in greenspace.

Proposed BMP details

Estimated project cost	$58,000
Drainage area (acres)	10.79
Impervious area managed (acres)	4.73
% Impervious	44%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.20
BMP Depth (feet)	6.00
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.21
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Meadowland Business Park Pond 2	**South Burlington ID:**	PB0054		
Approximate address:	Meadowland Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Detention Pond and add CMAC Valve				

Proposed BMP description:

Retrofit existing detention pond. Add forebay and CMAC valve to detain CPv.

Feasibility concerns:

Space is somewhat limited.

Proposed BMP details	
Estimated project cost	$45,000
Drainage area (acres)	13.46
Impervious area managed (acres)	5.13
% Impervious	38%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.89
BMP Depth (feet)	4.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington, VTrans
Primary land use in drainage area	Industrial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	1.70
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1269_4290-9020.3 Lot 10

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Merchant's Bank Detention Pond	South Burlington ID:	PB0055

Approximate address:	Kimball Ave and Kennedy Dr, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New

Proposed BMP type:	Detention Pond

Proposed BMP description:

Route stormwater from Allstate Insurance west to Merchant's Bank and provide detention in grassed area

Feasibility concerns:

Space is limited.

Proposed BMP details

Estimated project cost	$66,000
Drainage area (acres)	4.36
Impervious area managed (acres)	3.17
% Impervious	73%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.10
BMP Depth (feet)	6.50
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.23
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-1171; 6275-9030; 6269-9030; 2-0939

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Miller Research Farm	**South Burlington ID:**	PB0056		
Approximate address:	Spear St north of I-89, South Burlington	**MS4 where BMP is located:**	UVM	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Reroute culvert east across Spear St and detain water to the south of the UVM farm.

Feasibility concerns:

BMP is located on UVM property. Buried utilities nearby.

Proposed BMP details	
Estimated project cost	$463,000
Drainage area (acres)	79.01
Impervious area managed (acres)	5.03
% Impervious	6%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.77
BMP Depth (feet)	9.00
Hydrologic soil group	B
MS4s contributing drainage to BMP	South Burlington, Burlington, VTrans
Primary land use in drainage area	Golf Course
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	2.36
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Nicklaus Circle	**South Burlington ID:**	PB0057		
Approximate address:	Nicklaus Cir off of Dorset St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Construct new linear detention feature to the north of Nicklaus Cir where the stormline and swale converge.

Feasibility concerns:

Golf course is adjacent to proposed practice area and may object to large BMP.

Proposed BMP details	
Estimated project cost	$161,000
Drainage area (acres)	9.25
Impervious area managed (acres)	2.23
% Impervious	24%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.29
BMP Depth (feet)	6.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.54
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1241, 4049-9030

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	North Country Credit North West Infiltration	South Burlington ID:	PB0058

Approximate address:	Swift St west of Shelburne Rd, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New

Proposed BMP type:	Infiltration Trench

Proposed BMP description:

Install perforated pipe to the north of parking lot in grassed area to infiltrate stormwater.

Feasibility concerns:

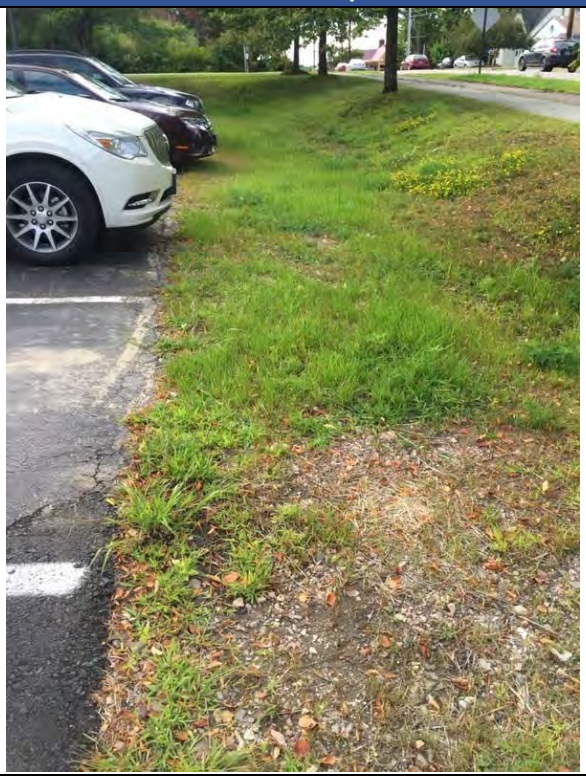
BMP only treats a small impervious area.

Proposed BMP details

Estimated project cost	$37,000
Drainage area (acres)	0.25
Impervious area managed (acres)	0.21
% Impervious	84%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.01
BMP Depth (feet)	3.00
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.03
Volume infiltrated (ac-ft)	0.03
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	North Country Credit South Infiltration	South Burlington ID:	PB0059

Approximate address:	Swift St west of Shelburne Rd, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New

Proposed BMP type: Infiltration Gallery

Proposed BMP description:

Construct underground infiltration chambers in the southeast corner of parking lot. Overflow to existing stormline.

Feasibility concerns:

BMP only treats a small impervious area.

Proposed BMP details

Estimated project cost	$129,000
Drainage area (acres)	0.76
Impervious area managed (acres)	0.62
% Impervious	81%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.03
BMP Depth (feet)	3.50
Hydrologic soil group	A/B
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.12
Volume infiltrated (ac-ft)	0.12
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	O'Brien Drive Underground Detention	South Burlington ID:	PB0060

Approximate address:	Obrien Dr, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New

Proposed BMP type:	Underground Detention

Proposed BMP description:

Construct underground storage chambers in open lot between existing houses.

Feasibility concerns:

Space is limited.

Proposed BMP details	
Estimated project cost	$580,000
Drainage area (acres)	8.47
Impervious area managed (acres)	2.87
% Impervious	34%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.11
BMP Depth (feet)	3.50
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.54
Volume infiltrated (ac-ft)	0.54
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Olympiad Apartments & Office Building Pond Retrofit	**South Burlington ID:**	PB0061		
Approximate address:	Farrell St south of Eastwood Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Detention Pond				

Proposed BMP description:

Retrofit existing detention pond. Add forebay, clean out vegetation, and ensure pond detains CPv.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	9.65
Impervious area managed (acres)	3.68
% Impervious	38%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.21
BMP Depth (feet)	8.00
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.06
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1452

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Panurgy Infiltration Basin	**South Burlington ID:**	PB0062		
Approximate address:	Kimball Ave and Shunpike Rd, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Infiltration Basin				

Proposed BMP description:

Retrofit and expand existing infiltration basin to infiltrate the CPv.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	1.33
Impervious area managed (acres)	0.80
% Impervious	60%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.06
BMP Depth (feet)	5.00
Hydrologic soil group	A/C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.08
Volume infiltrated (ac-ft)	0.14
Primary or secondary BMP?	Primary
Expired permit(s)?	3409-9010

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Park Road Detention Pond	South Burlington ID:	PB0063		
Approximate address:	Park Rd off of Dorset St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Propose to reroute swale on southern side of Park Rd to the north and detain in wooded area.

Feasibility concerns:

Ledge outcroppings were noted nearby.

Proposed BMP details	
Estimated project cost	$94,000
Drainage area (acres)	6.96
Impervious area managed (acres)	1.27
% Impervious	18%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.23
BMP Depth (feet)	6.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.42
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1241

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Pillsbury Manor Infiltration Basin Retrofit	South Burlington ID:	PB0064		
Approximate address:	Pillsbury Manor N and Williston Rd, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit to Infiltration Basin				

Proposed BMP description:

Retrofit existing pond to infiltration basin. Overflow to existing culvert.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	1.06
Impervious area managed (acres)	0.40
% Impervious	38%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.05
BMP Depth (feet)	5.00
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.07
Volume infiltrated (ac-ft)	0.07
Primary or secondary BMP?	Secondary
Expired permit(s)?	1-1015

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Quarry Hill South	**South Burlington ID:**	PB0065		
Approximate address:	Quarry Hill Rd off of Spear St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Swale				

Proposed BMP description:

Add detention to existing swale running northeast behind garages.

Feasibility concerns:

The wall slope to the west of the swale is quite steep.

Proposed BMP details

Estimated project cost	$132,000
Drainage area (acres)	5.62
Impervious area managed (acres)	2.52
% Impervious	45%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.40
BMP Depth (feet)	5.00
Hydrologic soil group	B/D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.48
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	6322-9030

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Queen City Park Road Detention Pond	**South Burlington ID:**	PB0066		
Approximate address:	Queen City Park Rd off of Shelburne Rd, South Burlington	**MS4 where BMP is located:**	VTrans	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Add detention to existing depressed area where stormlines already outfall. Drainage from Shelburne Rd is assumed to be already rerouted to larger depression to the north (see project entitled 189 Cloverleaf).

Feasibility concerns:

Space is somewhat limited.

Proposed BMP details

Estimated project cost	$99,000
Drainage area (acres)	6.51
Impervious area managed (acres)	2.98
% Impervious	46%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.63
BMP Depth (feet)	4.00
Hydrologic soil group	B
MS4s contributing drainage to BMP	South Burlington, VTrans
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.45
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Shaws West	**South Burlington ID:**	PB0067		
Approximate address:	Shelburne Rd north of 189, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Underground Detention				

Proposed BMP description:

Construct underground detention in vegetated island along west side of parking lot. Reroute last catchbasin in southwest corner of parking to this area.

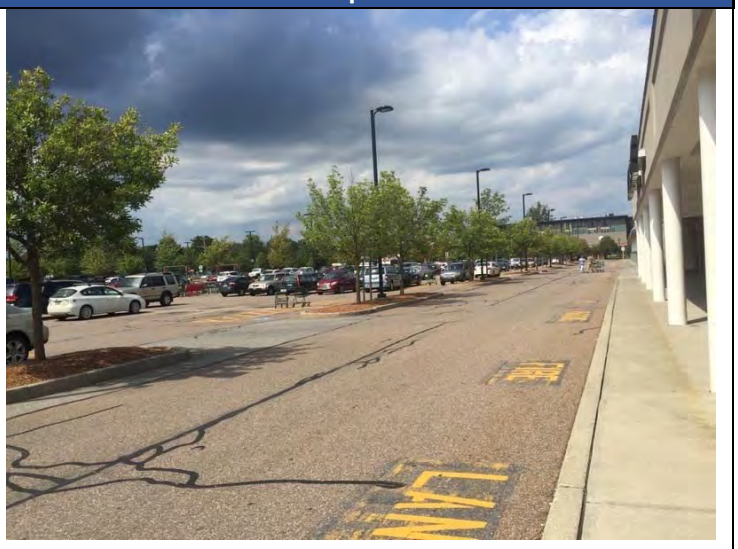
Feasibility concerns:

Space is limited.

Proposed BMP details	
Estimated project cost	$230,000
Drainage area (acres)	1.85
Impervious area managed (acres)	1.71
% Impervious	93%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.07
BMP Depth (feet)	4.83
Hydrologic soil group	B/D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.16
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	South Burlington High School Infiltration	South Burlington ID:	PB0068

Approximate address:	Dorset St north of Kennedy Dr, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New

Proposed BMP type: Infiltration Basin

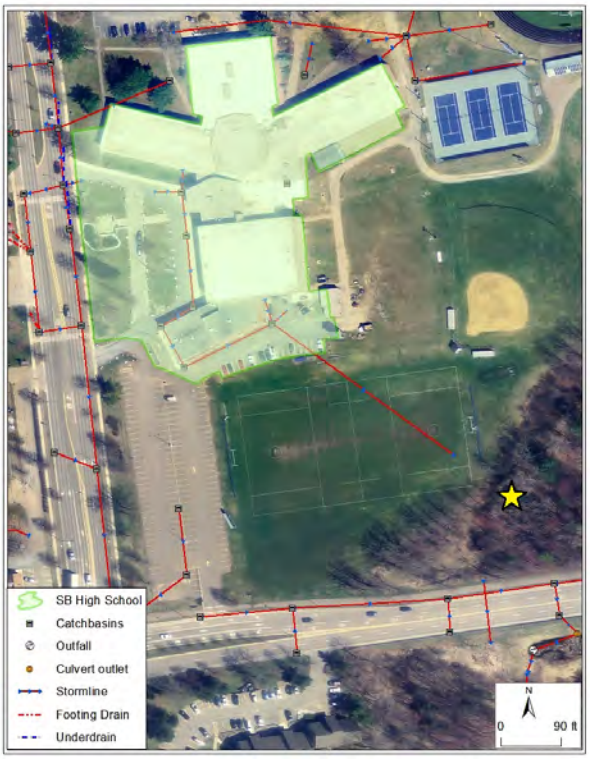
Proposed BMP description:

Construct new infiltration basin to the southeast of sports field in currently wooded area.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$165,000
Drainage area (acres)	3.57
Impervious area managed (acres)	3.10
% Impervious	87%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.22
BMP Depth (feet)	6.00
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Institutional
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.44
Volume infiltrated (ac-ft)	0.44
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map



Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	South Burlington High School North	South Burlington ID:	PB0069

Approximate address:	Dorset St north of Kennedy Dr, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New

Proposed BMP type: Underground Infiltration

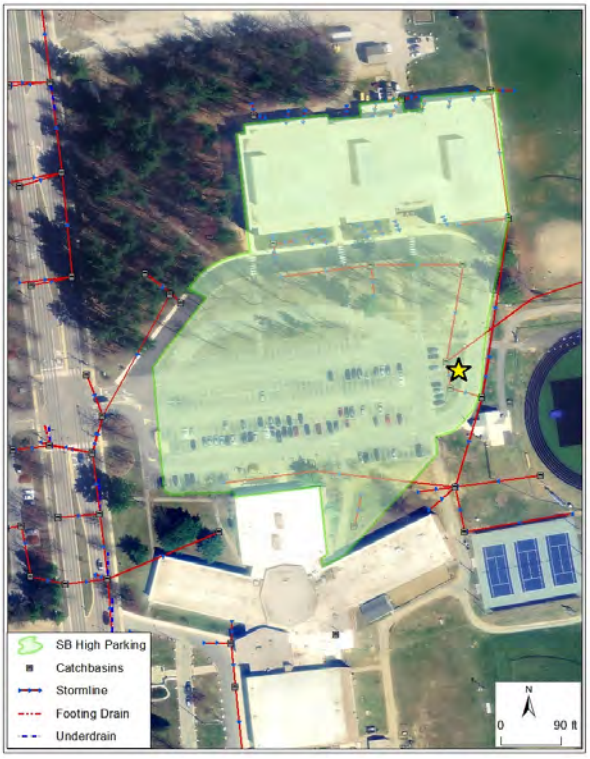
Proposed BMP description:

Construct dry wells to infiltrate stormwater from the high school parking lot and middle school roof. Potential educational benefit.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$992,000
Drainage area (acres)	5.77
Impervious area managed (acres)	4.26
% Impervious	74%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.16
BMP Depth (feet)	5.17
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Institutional
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.69
Volume infiltrated (ac-ft)	0.69
Primary or secondary BMP?	Primary
Expired permit(s)?	6174-INDS.A

Site map



Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	South Meadows Pond	**South Burlington ID:**	PB0070		
Approximate address:	Farrell St, South Burlington	**MS4 where BMP is located:**	Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Detention Pond				

Proposed BMP description:

Retrofit existing detention pond to meet CPv standards. Add forebay and expand pond. Upgrade outlet structure.

Feasibility concerns:

Space is limited. Water line runs nearby. Pond is very close to brook.

Proposed BMP details

Estimated project cost	$25,000
Drainage area (acres)	10.10
Impervious area managed (acres)	4.73
% Impervious	47%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.19
BMP Depth (feet)	10.00
Hydrologic soil group	B
MS4s contributing drainage to BMP	Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.37
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-0661

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Southview Drive	**South Burlington ID:**	PB0071		
Approximate address:	Southview Dr off of Prouty Pkwy, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Underground Detention				

Proposed BMP description:

Construct underground detention chambers in ROW and grassed area. Road is 30ft wide and could be narrowed for storage.

Feasibility concerns:

Space is limited.

Proposed BMP details	
Estimated project cost	$1,048,000
Drainage area (acres)	12.26
Impervious area managed (acres)	4.81
% Impervious	39%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.37
BMP Depth (feet)	5.00
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.71
Volume infiltrated (ac-ft)	0.04
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Staples Plaza Underground Detention	South Burlington ID:	PB0072

Approximate address:	Williston Rd west of I-89, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New

Proposed BMP type: Underground Detention

Proposed BMP description:

Construct underground detention chambers in southeast corner of parking lot.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$288,000
Drainage area (acres)	1.70
Impervious area managed (acres)	1.64
% Impervious	97%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.07
BMP Depth (feet)	5.17
Hydrologic soil group	Not Rated
MS4s contributing drainage to BMP	South Burlington, VTrans
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.20
Volume infiltrated (ac-ft)	0.03
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Stonehedge Circle	**South Burlington ID:**	PB0073		
Approximate address:	Stonehedge Dr off of Spear St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Bioretention				

Proposed BMP description:

Construct bioretention along road in grassed area with discharge to existing catchbasin.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$55,000
Drainage area (acres)	2.48
Impervious area managed (acres)	1.26
% Impervious	51%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.16
BMP Depth (feet)	4.00
Hydrologic soil group	B
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.20
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0100

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Sugartree Lane	South Burlington ID:	PB0074		
Approximate address:	Sugartree Ln off of Kennedy Dr, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Expand existing depressed area at the end of Sugartree Ln , which appears to be an abandoned detention area. Reroute catchbasins to pond. Upgrade pond outlet.

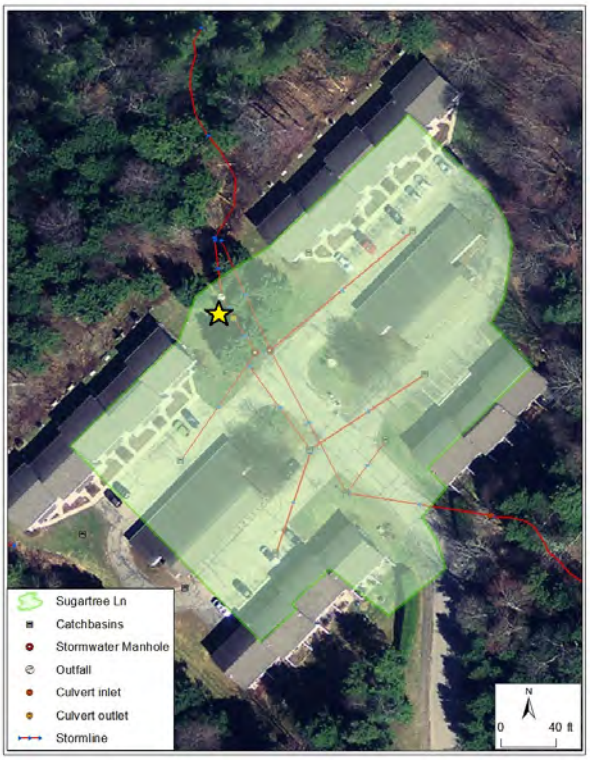
Feasibility concerns:

Space to expand depressed area is limited.

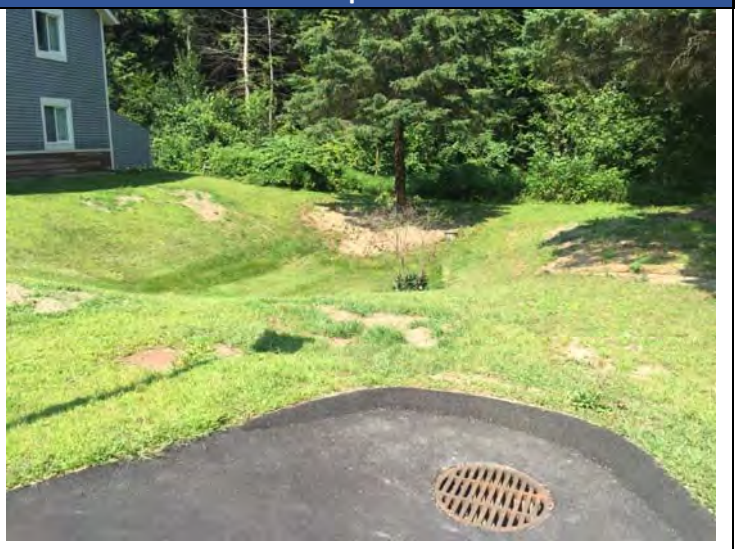
Proposed BMP details

Estimated project cost	$25,000
Drainage area (acres)	1.54
Impervious area managed (acres)	1.05
% Impervious	69%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.05
BMP Depth (feet)	8.00
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.12
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0878

Site map



Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	Swift Estates Pond	**South Burlington ID:**	PB0075		
Approximate address:	Meadowood Dr and Swift St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Detention Pond				

Proposed BMP description:

Retrofit existing detention pond to meet CPv standards. Add forebay and upgrade outlet structure.

Feasibility concerns:

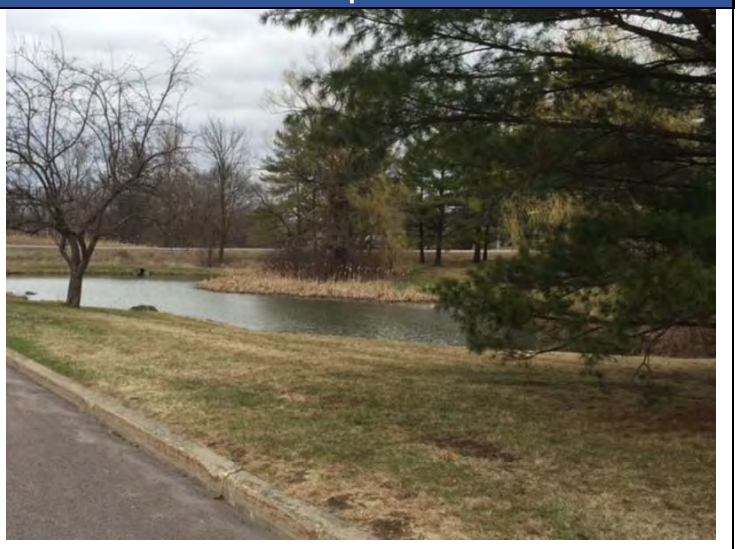
Space is limited to expand pond.

Proposed BMP details

Estimated project cost	$25,000
Drainage area (acres)	18.52
Impervious area managed (acres)	3.57
% Impervious	19%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.41
BMP Depth (feet)	7.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.33
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	Technology Park Pond Retrofit	**South Burlington ID:**	PB0076		
Approximate address:	Community Dr off of Kimball Ave, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Detention Pond				

Proposed BMP description:

Retrofit existing detention pond to meet CPv standards. Upgrade outlet structure and expand pond to accommodate additional storage.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	8.05
Impervious area managed (acres)	0.03
% Impervious	0%
Land owner where BMP is	Private
BMP Footprint Size (acres)	1.08
BMP Depth (feet)	5.50
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Industrial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.27
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1458 P4

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Temple Detention Pond	**South Burlington ID:**	PB0077		
Approximate address:	Swift St and Dorset St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Propose new detention pond in depressed area in front of Temple by intersection of Dorset St and Swift St. Stormwater already collects in this area.

Feasibility concerns:

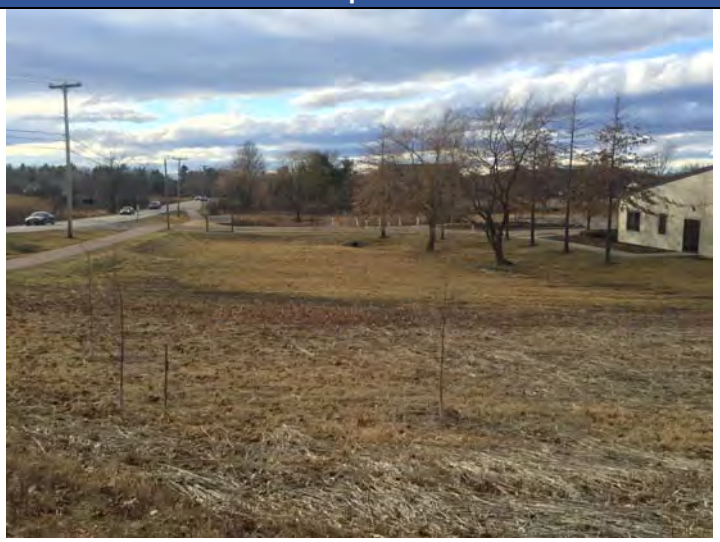
Wetlands concerns.

Proposed BMP details

Estimated project cost	$47,000
Drainage area (acres)	1.81
Impervious area managed (acres)	0.92
% Impervious	51%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.14
BMP Depth (feet)	5.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Institutional
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.19
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	The Pines	**South Burlington ID:**	PB0078		
Approximate address:	Oakwood Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Detention Pond and add CMAC Valve				

Proposed BMP description:

Retrofit existing detention pond. Add forebay and CMAC valve to detain CPv.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	12.67
Impervious area managed (acres)	5.85
% Impervious	46%
Land owner where BMP is	Private
BMP Footprint Size (acres)	1.14
BMP Depth (feet)	5.00
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.21
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1117

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	UMall Detention Pond	**South Burlington ID:**	PB0079		
Approximate address:	Dorset St (University Mall), South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Detention Pond				

Proposed BMP description:

Retrofit existing detention pond to detain CPv. Upgrade outlet structure and expand pond.

Feasibility concerns:

Space is limited.

Proposed BMP details	
Estimated project cost	$27,000
Drainage area (acres)	16.90
Impervious area managed (acres)	14.96
% Impervious	89%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.34
BMP Depth (feet)	9.00
Hydrologic soil group	B
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.91
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-0503c; 6282-9030

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	UMall Infiltration 1	**South Burlington ID:**	PB0080		
Approximate address:	Dorset St (University Mall), South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Infiltration Gallery				

Proposed BMP description:

Retrofit existing infiltration gallery to infiltrate the CPv.

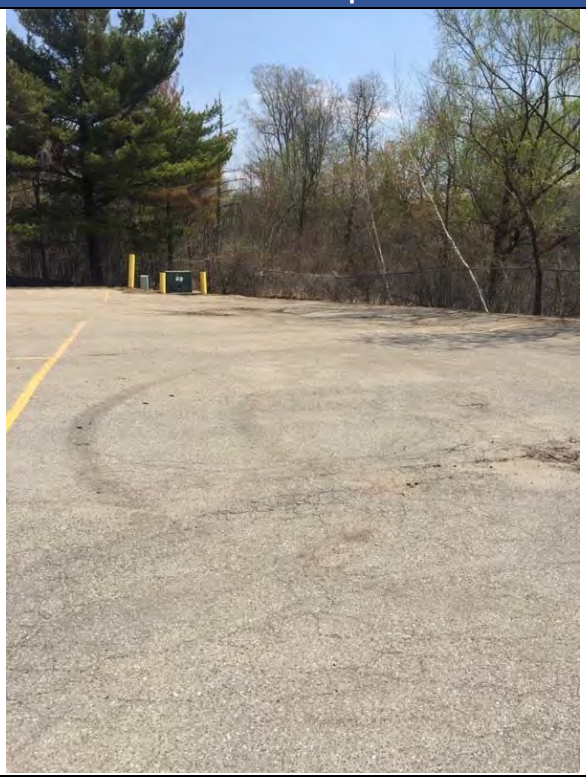
Feasibility concerns:

Need to assess capacity for expanding infiltration gallery.

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	17.15
Impervious area managed (acres)	15.30
% Impervious	89%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.09
BMP Depth (feet)	5.40
Hydrologic soil group	B
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.03
Volume infiltrated (ac-ft)	0.18
Primary or secondary BMP?	Primary
Expired permit(s)?	1-0503b; 6282-9030

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	UMall Infiltration 2	**South Burlington ID:**	PB0081		
Approximate address:	Dorset St (University Mall), South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Infiltration Gallery				

Proposed BMP description:

Retrofit existing infiltration gallery to infiltrate the CPv.

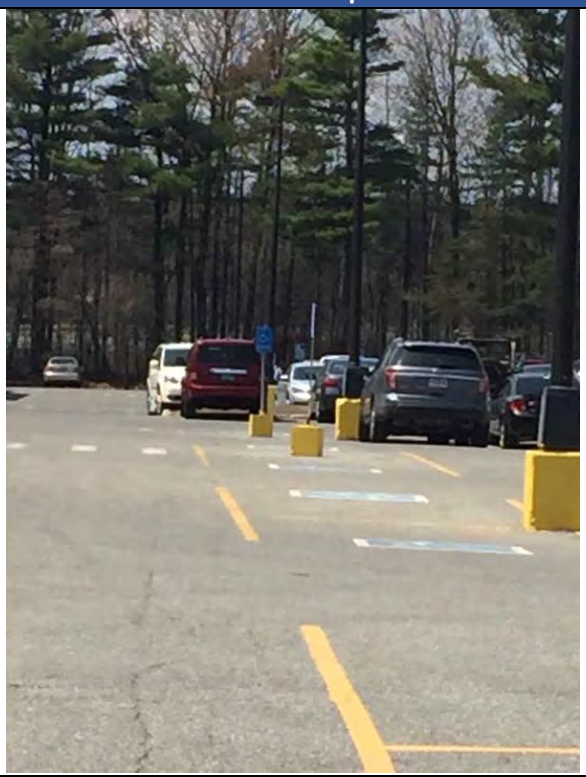
Feasibility concerns:

Need to assess capacity for expanding infiltration gallery.

Proposed BMP details	
Estimated project cost	$55,000
Drainage area (acres)	5.61
Impervious area managed (acres)	5.55
% Impervious	99%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.48
BMP Depth (feet)	4.72
Hydrologic soil group	B
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.31
Volume infiltrated (ac-ft)	2.17
Primary or secondary BMP?	Primary
Expired permit(s)?	1-0503a; 6282-9030

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	UMall Sears Auto Pond	**South Burlington ID:**	PB0082		
Approximate address:	Dorset St (University Mall), South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Pond to Gravel Wetland				

Proposed BMP description:

Construct large gravel wetland in unused section of parking lot in Umall (to the east of the party store). Reroute Dorset St stormline here.

Feasibility concerns:

Proposed BMP will require reducing parking. Potential buried utilities.

Proposed BMP details	
Estimated project cost	$90,000
Drainage area (acres)	11.62
Impervious area managed (acres)	9.29
% Impervious	80%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.86
BMP Depth (feet)	6.00
Hydrologic soil group	A/B/D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.61
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-0503d; 6282-9030; 2-0619

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	UVM Bio Research Complex	**South Burlington ID:**	PB0083		
Approximate address:	Spear St north of I-89, South Burlington	**MS4 where BMP is located:**	UVM	**New or existing BMP?**	New
Proposed BMP type:	Bioretention				

Proposed BMP description:

Construct bioretention to treat stormwater in grassed area near the center of complex. Potential educational benefit.

Feasibility concerns:

Potential buried utilities.

Proposed BMP details

Estimated project cost	$176,000
Drainage area (acres)	1.85
Impervious area managed (acres)	0.92
% Impervious	50%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.10
BMP Depth (feet)	5.00
Hydrologic soil group	C
MS4s contributing drainage to BMP	UVM
Primary land use in drainage area	Institutional
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.20
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	5269-9003.R

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	UVM Forestry Research Center - East Roof	**South Burlington ID:**	PB0084		
Approximate address:	Spear St north of I-89, South Burlington	**MS4 where BMP is located:**	UVM	**New or existing BMP?**	New
Proposed BMP type:	Infiltration Gallery				

Proposed BMP description:

Construct dry well to capture and infiltrate roof drain. Potential educational benefit.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$39,000
Drainage area (acres)	0.42
Impervious area managed (acres)	0.41
% Impervious	98%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.01
BMP Depth (feet)	3.33
Hydrologic soil group	B
MS4s contributing drainage to BMP	UVM
Primary land use in drainage area	Institutional
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.06
Volume infiltrated (ac-ft)	0.01
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	UVM Forestry Research Center - West Roof	**South Burlington ID:**	PB0085		
Approximate address:	Spear St north of I-89, South Burlington	**MS4 where BMP is located:**	UVM	**New or existing BMP?**	New
Proposed BMP type:	Infiltration Gallery				

Proposed BMP description:

Construct dry well to capture and infiltrate roof drain. Potential educational benefit.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	0.12
Impervious area managed (acres)	0.12
% Impervious	100%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.03
BMP Depth (feet)	3.33
Hydrologic soil group	B
MS4s contributing drainage to BMP	UVM
Primary land use in drainage area	Institutional
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.02
Volume infiltrated (ac-ft)	0.01
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Vermont National Country Club Pond B	South Burlington ID:	PB0086

Approximate address:	Golf Course Rd and Park Rd, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	Existing

Proposed BMP type:	Retrofit Existing Detention Pond

Proposed BMP description:

Retrofit existing detention pond. Add forebay and expand pond.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	35.72
Impervious area managed (acres)	8.63
% Impervious	24%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.47
BMP Depth (feet)	10.50
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.43
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1241b

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Vermont National Country Club Pond C	South Burlington ID:	PB0087

Approximate address:	Golf Course Rd and Park Rd, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	Existing

Proposed BMP type:	Retrofit Existing Detention Pond

Proposed BMP description:

Retrofit existing detention pond. Add forebay and expand pond.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	9.94
Impervious area managed (acres)	0.47
% Impervious	5%
Land owner where BMP is	Private
BMP Footprint Size (acres)	1.78
BMP Depth (feet)	4.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Golf Course
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.85
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1241c

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	VT Gas Detention Pond	South Burlington ID:	PB0088		
Approximate address:	Swift St and Farrell St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Detention pond				

Proposed BMP description:

Reroute stormline from Swift St to grassed area to the north of VT Gas property and construct new detention pond.

Feasibility concerns:

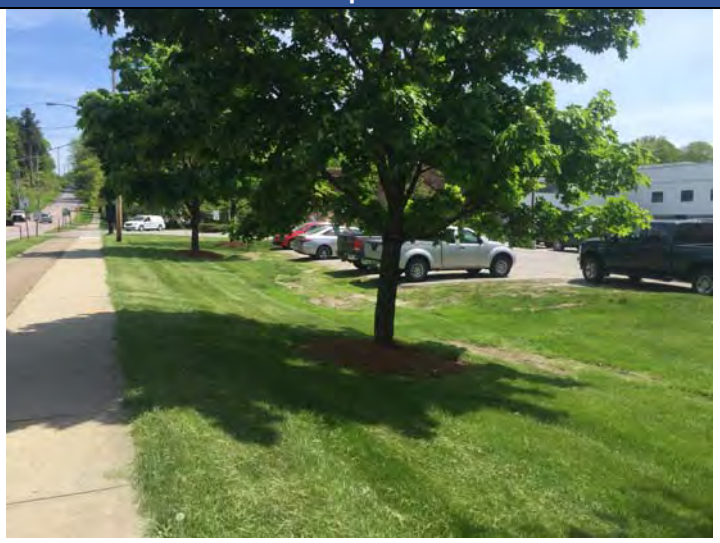
Space is limited. Proposed BMP is in close proximity to brook.

Proposed BMP details

Estimated project cost	$52,000
Drainage area (acres)	7.57
Impervious area managed (acres)	3.09
% Impervious	41%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.10
BMP Depth (feet)	6.00
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.17
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0228; 6293-9030

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	Wellesley Grove	South Burlington ID:	PB0089		
Approximate address:	Georgetown off of Kennedy Dr, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New
Proposed BMP type:	Detention pond				

Proposed BMP description:

Add outlet control to existing depression to detain stormwater. Outfall is currently eroded.

Feasibility concerns:

Wetlands concerns.

Proposed BMP details

Estimated project cost	$77,000
Drainage area (acres)	8.85
Impervious area managed (acres)	2.15
% Impervious	24%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.29
BMP Depth (feet)	5.00
Hydrologic soil group	A/C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.27
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-1023

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Windridge Court	**South Burlington ID:**	PB0090		
Approximate address:	Windridge Ct and Kennedy Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Infiltration Basin				

Proposed BMP description:

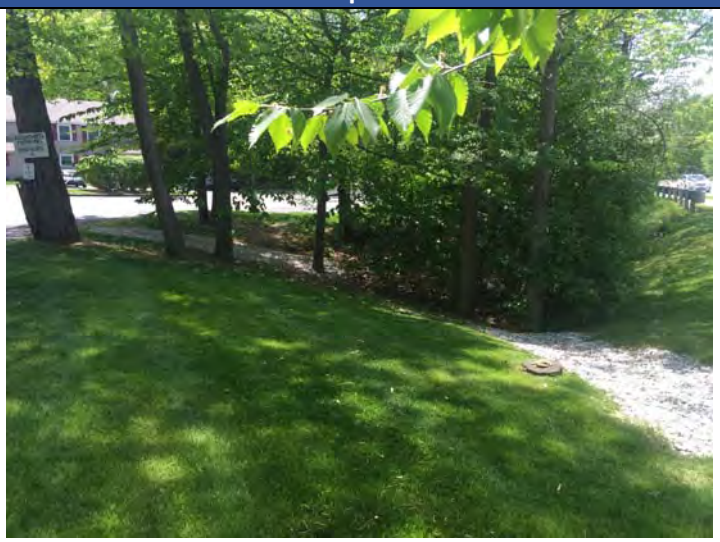
Construct new infiltration basin to infiltrate stormwater to the west of this small development.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$45,000
Drainage area (acres)	1.04
Impervious area managed (acres)	0.58
% Impervious	55%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.09
BMP Depth (feet)	4.50
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.10
Volume infiltrated (ac-ft)	0.10
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0824

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	Woodcrest Drive	South Burlington ID:	PB0091		
Approximate address:	Woodcrest Dr and Deane St, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	New
Proposed BMP type:	Infiltration Basin				

Proposed BMP description:

Infiltrate stormwater to the southwest of drainage area. Reroute stormline south to new BMP. Construct new swale to drain the end of Woodcrest Dr, which is currently eroding slope following road.

Feasibility concerns:

Wetlands exist to the west and south of proposed BMP.

Proposed BMP details

Estimated project cost	$182,000
Drainage area (acres)	7.46
Impervious area managed (acres)	2.38
% Impervious	32%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.22
BMP Depth (feet)	5.00
Hydrologic soil group	A/C
MS4s contributing drainage to BMP	South Burlington, VTrans
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.50
Volume infiltrated (ac-ft)	0.50
Primary or secondary BMP?	Primary
Expired permit(s)?	No Permit

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Woodlands Industrial Park	**South Burlington ID:**	PB0092		
Approximate address:	Kimball Ave west of Community Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Retrofit Existing Detention Pond				

Proposed BMP description:

Reroute roof drainage to existing detention pond. Retrofit pond to accommodate additional volume and detain CPv.

Feasibility concerns:

Space to expand pond is limited.

Proposed BMP details	
Estimated project cost	$25,000
Drainage area (acres)	4.40
Impervious area managed (acres)	3.89
% Impervious	88%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.20
BMP Depth (feet)	8.00
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Industrial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.37
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-0526/ 6279-9030

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Worcester Street	**South Burlington ID:**	PB0093		
Approximate address:	Adirondack St and Butler Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	New
Proposed BMP type:	Underground Detention				

Proposed BMP description:

Construct underground detention chambers under ROW and grassed shoulder.

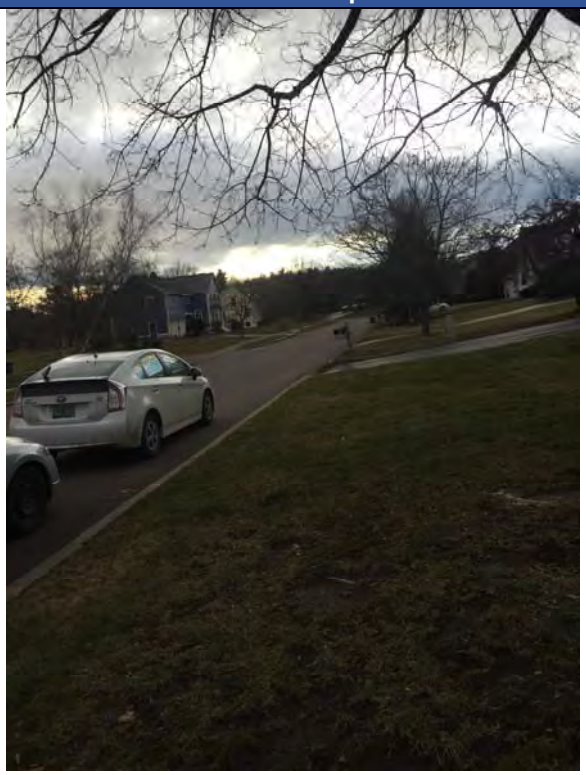
Feasibility concerns:

Space is very limited. Utilities concerns. Unsure how high groundwater table is here.

Proposed BMP details	
Estimated project cost	$821,000
Drainage area (acres)	10.84
Impervious area managed (acres)	3.82
% Impervious	35%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.26
BMP Depth (feet)	5.17
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.56
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	2-0312

Site map

Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	Dorset Park Pond	**South Burlington ID:**	PB0094		
Approximate address:	Dorset St and Swift St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Retrofit pond with CMAC valve.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$20,000
Drainage area (acres)	26.07
Impervious area managed (acres)	5.95
% Impervious	23%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	1.18
BMP Depth (feet)	6.60
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Recreational
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.30
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1033

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Hannaford's Pond	**South Burlington ID:**	PB0095		
Approximate address:	Hannaford Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Detention Pond				

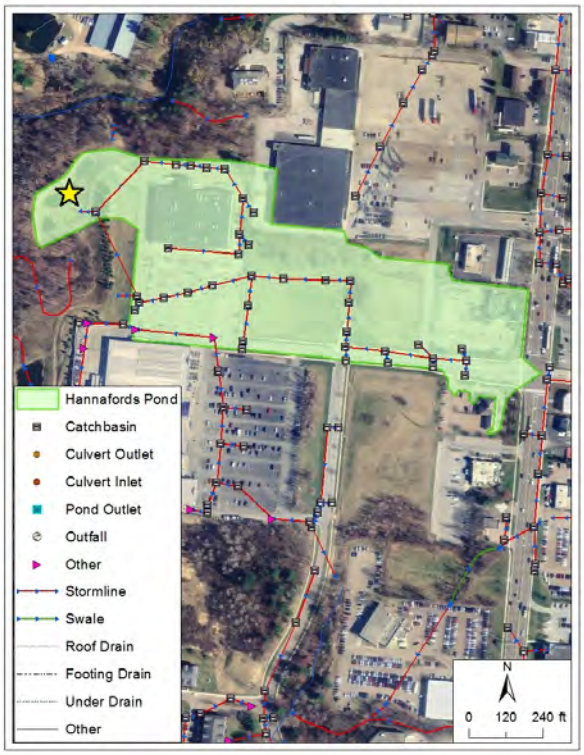
Proposed BMP description:

Retrofit pond with CMAC valve.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$21,000
Drainage area (acres)	14.71
Impervious area managed (acres)	7.75
% Impervious	53%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.59
BMP Depth (feet)	10.50
Hydrologic soil group	B
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.34
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1214

Site map



Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Lowes Pond	**South Burlington ID:**	PB0096		
Approximate address:	Hannaford Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Retrofit pond with CMAC valve.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$17,000
Drainage area (acres)	12.73
Impervious area managed (acres)	10.05
% Impervious	79%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.34
BMP Depth (feet)	6.00
Hydrologic soil group	A/D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.20
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1214

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Vermont National Country Club Pond B	South Burlington ID:	PB0097

Approximate address:	Golf Course Rd, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	Existing

Proposed BMP type: Detention Pond

Proposed BMP description:

Retrofit pond with CMAC valve.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$36,000
Drainage area (acres)	35.72
Impervious area managed (acres)	8.63
% Impervious	24%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.63
BMP Depth (feet)	12.00
Hydrologic soil group	C/D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.92
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1241b

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Technology Park Pond 1	**South Burlington ID:**	PB0098		
Approximate address:	Community Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Detention Pond				

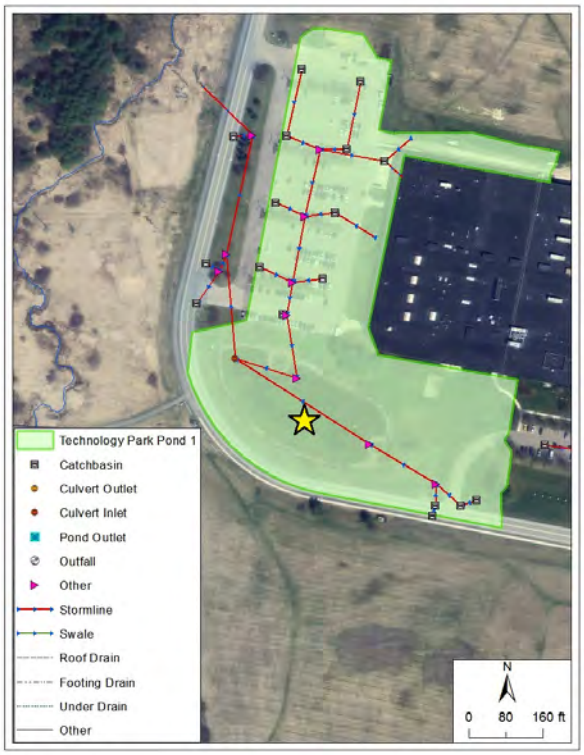
Proposed BMP description:

Retrofit pond with CMAC valve.

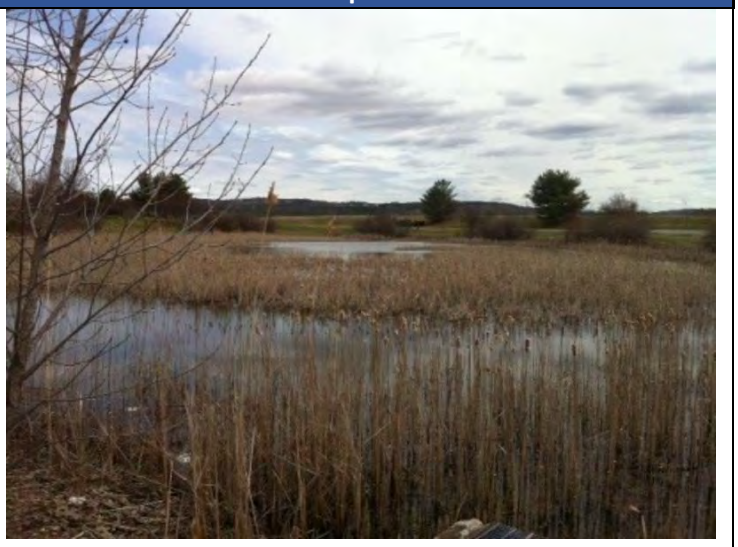
Feasibility concerns:

Proposed BMP details	
Estimated project cost	$22,000
Drainage area (acres)	8.96
Impervious area managed (acres)	3.78
% Impervious	42%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.74
BMP Depth (feet)	8.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Industrial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.37
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1254

Site map



Site photo



Potash Brook FRP BMP Summary Sheet

Site name:	Lot A Mountain View Pond	South Burlington ID:	PB0099		
Approximate address:	Tilley Dr, South Burlington	MS4 where BMP is located:	South Burlington	New or existing BMP?	Existing
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Retrofit pond with CMAC valve.

Feasibility concerns:

Proposed BMP details

Estimated project cost	$12,000
Drainage area (acres)	6.05
Impervious area managed (acres)	2.55
% Impervious	42%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.16
BMP Depth (feet)	14.00
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.02
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1536

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Kennedy Dr Pond 1	**South Burlington ID:**	PB0100		
Approximate address:	Kennedy Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Detention Pond				

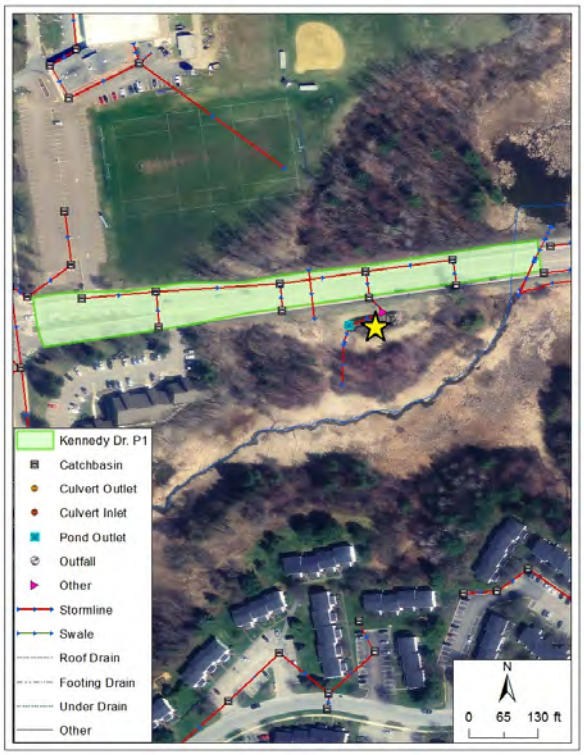
Proposed BMP description:

Retrofit pond with CMAC valve.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$13,000
Drainage area (acres)	1.47
Impervious area managed (acres)	1.33
% Impervious	91%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.08
BMP Depth (feet)	5.91
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Road
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.05
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	1-1582a

Site map



Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Quarry Hill Pond	**South Burlington ID:**	PB0101		
Approximate address:	Quarry Hill Rd off of Spear St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Detention Pond				

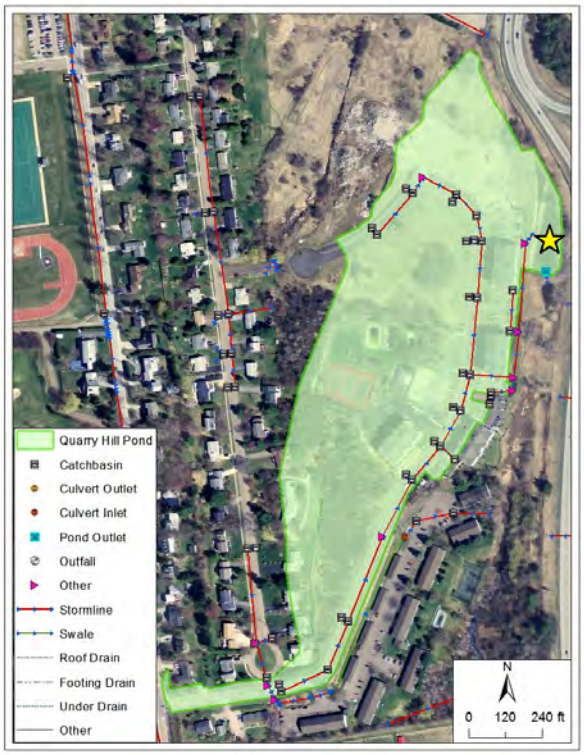
Proposed BMP description:

Retrofit pond with CMAC valve.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$12,000
Drainage area (acres)	21.75
Impervious area managed (acres)	6.19
% Impervious	28%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.41
BMP Depth (feet)	5.40
Hydrologic soil group	B/D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.00
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	3602-INDS

Site map



Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Heatherfield P1	**South Burlington ID:**	PB0102		
Approximate address:	Off of Spear St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Retrofit pond with CMAC valve.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$12,000
Drainage area (acres)	1.40
Impervious area managed (acres)	0.90
% Impervious	64%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.05
BMP Depth (feet)	8.00
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.00
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	3658a

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Heatherfield P2	**South Burlington ID:**	PB0103		
Approximate address:	Off of Spear St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Retrofit pond with CMAC valve.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$13,000
Drainage area (acres)	10.76
Impervious area managed (acres)	7.08
% Impervious	66%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.26
BMP Depth (feet)	11.00
Hydrologic soil group	B/C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.03
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	3658b

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Heatherfield P3	**South Burlington ID:**	PB0104		
Approximate address:	Off of Spear St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Retrofit pond with CMAC valve.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$13,000
Drainage area (acres)	4.30
Impervious area managed (acres)	2.71
% Impervious	63%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.10
BMP Depth (feet)	11.50
Hydrologic soil group	A
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.05
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	3658c

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Winding Brook	**South Burlington ID:**	PB0105		
Approximate address:	Winding Brook Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Detention Pond				

Proposed BMP description:

Retrofit pond with CMAC valve.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$15,000
Drainage area (acres)	9.11
Impervious area managed (acres)	3.32
% Impervious	36%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.19
BMP Depth (feet)	9.50
Hydrologic soil group	C
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Residential
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.11
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	3691-INDS

Site map

Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Mountainview Pond b	**South Burlington ID:**	PB0106		
Approximate address:	Tilley Dr, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Detention Pond				

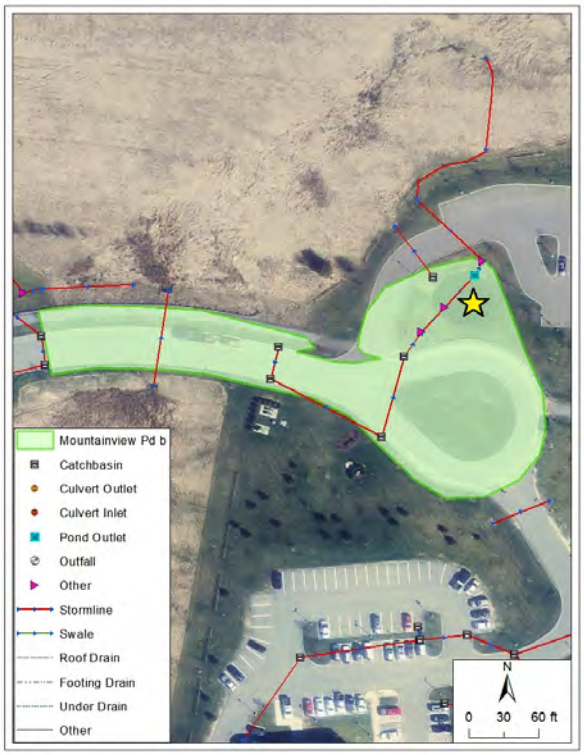
Proposed BMP description:

Retrofit pond with CMAC valve.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$14,000
Drainage area (acres)	0.90
Impervious area managed (acres)	0.61
% Impervious	68%
Land owner where BMP is	Private
BMP Footprint Size (acres)	0.13
BMP Depth (feet)	9.50
Hydrologic soil group	D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Road
Regional project? (2 or more landowners)	No
Channel protection volume managed (ac-ft)	0.08
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	3805-INDS

Site map



Site photo

Potash Brook FRP BMP Summary Sheet

Site name:	Farrell St Pond	**South Burlington ID:**	PB0107		
Approximate address:	Farrell St, South Burlington	**MS4 where BMP is located:**	South Burlington	**New or existing BMP?**	Existing
Proposed BMP type:	Detention Pond				

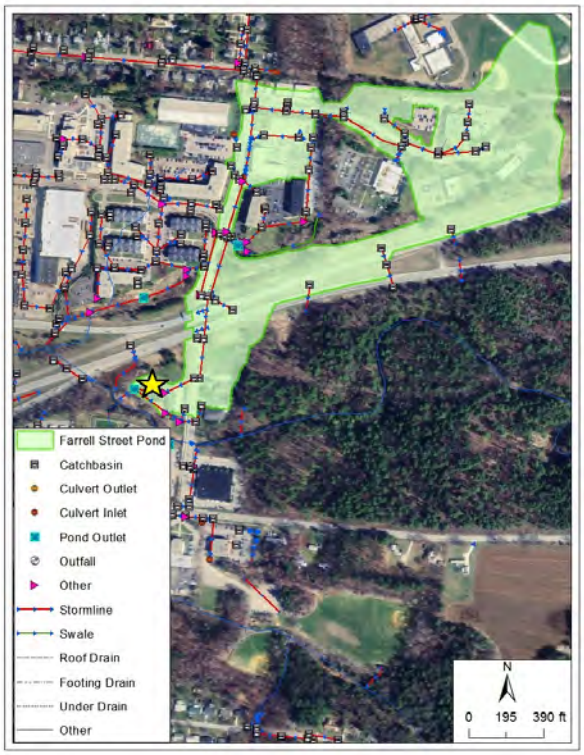
Proposed BMP description:

Retrofit pond with CMAC valve.

Feasibility concerns:

Proposed BMP details	
Estimated project cost	$13,000
Drainage area (acres)	32.96
Impervious area managed (acres)	11.03
% Impervious	33%
Land owner where BMP is	MS4 Owned
BMP Footprint Size (acres)	0.41
BMP Depth (feet)	9.00
Hydrologic soil group	A/C/D
MS4s contributing drainage to BMP	South Burlington
Primary land use in drainage area	Commercial
Regional project? (2 or more landowners)	Yes
Channel protection volume managed (ac-ft)	0.05
Volume infiltrated (ac-ft)	0.00
Primary or secondary BMP?	Primary
Expired permit(s)?	5080-INDO

Site map



Site photo

APPENDIX D

PROJECT RANKING

Horsley Witten Group
Sustainable Environmental Solutions
90 Route 6A • Sandwich, MA • 02563
Tel: 508-833-6600 • Fax: 508-833-3150 • www.horsleywitten.com

MEMORANDUM

DATE: December 2, 2013

TO: Dan Albrecht; Megan Moir; Tom DiPietro; Jennifer Callahan; Bill Nedde, Linda Seavey, and Lani Ravin

FROM: Horsley Witten Group, Inc.

RE: Centennial Brook Watershed: Flow Restoration VTBMPDSS Modeling Analysis and BMP Supporting Information

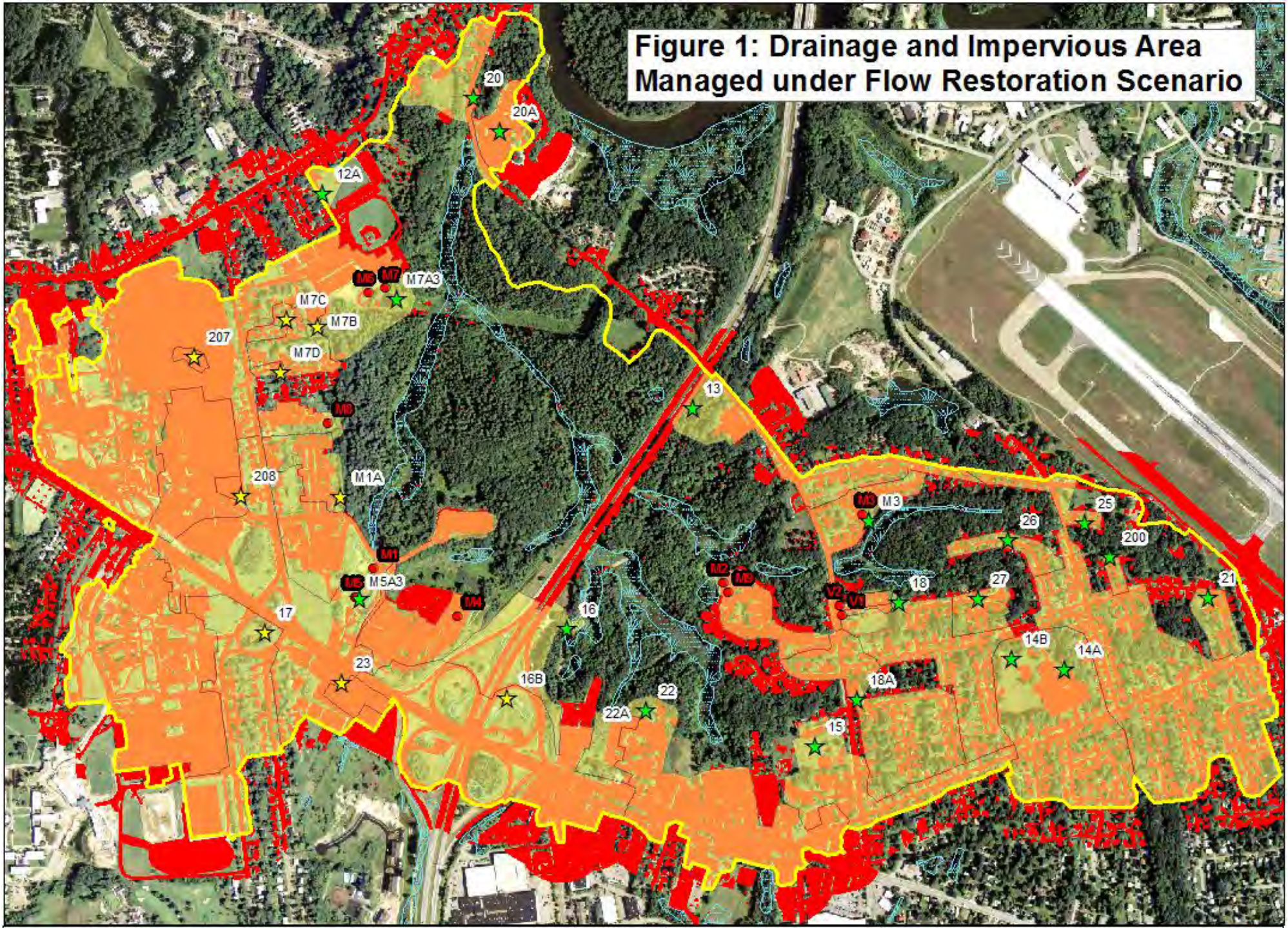
This memorandum describes the basic approach used to model potential stormwater retrofits for the Centennial Brook Flow Restoration Plan (FRP) using the VT BMPDSS model. Modeling efforts have proven that is it difficult to meet the **63.0%** high flow reduction target required by the Centennial Brook TMDL. In fact, the percent flow reduction achieved under the proposed restoration scenario is **45.7%**. This reduction reflects management of 90% of the watershed impervious cover using all retrofits identified in the field and vetted with the MS4s. Under this scenario, UVM's existing Main St. and North Campus ponds would be modified from their current configuration to improve performance while maintaining 12-hr detention times and storage capacity for future development activities (only the proposed Colchester Ave. watershed expansion is incorporated into the model at this time).

Table 1 summarizes high flow reduction targets established by the TMDL, a revised target based on an analysis of future impervious cover, and the percent reduction achieved under the currently modeled VTBMPDSS restoration scenario. Figures 1-3 show impervious cover and drainage area maps for the proposed restoration scenario, including a zoom in of the proposed Colchester Avenue expansion.

Table 1. Summary of Percent Flow Reductions Achieved

Description		% High Flow Reduction	Managed IA (acres)	Planning Level Cost[5]
TMDL Reduction Targets	TMDL baseline with no agriculture.	49.9	--	--
	TMDL with no agriculture and 40 acres future, unmanaged impervious cover.	63.0	--	--
	TMDL with no agriculture and revised 5 acres of future, unmanaged impervious cover.[1]	51.5[2]	--	--
Current Conditions	All existing BMPs (revised ANR VTBMPDSS Credit Model)	14.8	106.1[3]	--
Proposed Flow Restoration Scenario	All primary and secondary retrofits; existing UVM facilities meeting 12-hr detention criteria and maintaining future use allocations; Colchester Ave watershed expansion included.[4]	45.7	243.5	$9,740,000

[1] Based on 2013 analysis conducted by CCRPC for Burlington and South Burlington.
[2] 51.5% = 49.9% baseline target + 5/40 acres future IA * 13.1% reduction target associated with future IA
[3] IA managed by post-2002 BMPs, which does not include Main Street and Queensbury ponds (based on most recently available GIS)
[4] One surface detention facility proposed in the VTrans right-of-way is designed to exceed 24-hr detention time.
[5] See cost section for more detail on planning level assumptions and costing analysis.



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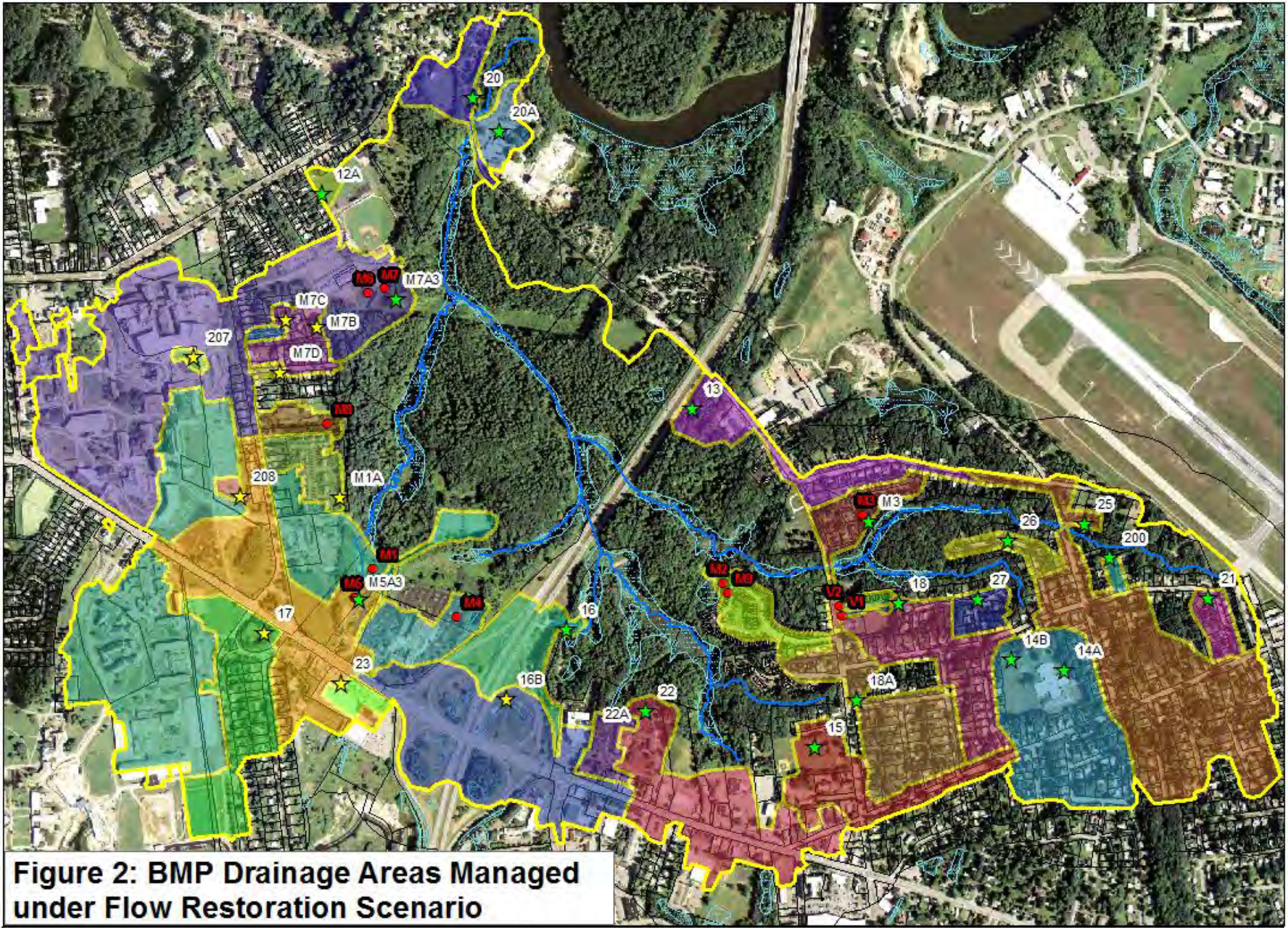

Figure 2: BMP Drainage Areas Managed under Flow Restoration Scenario

Legend

- Primary Retrofit
- Secondary Retrofit
- Retrofit DA
- Existing BMP
- stream
- Watershed
- Wetlands_SoBu
- Parcels

N

1,000 Feet

TRUDELL CONSULTING ENGINEERS

Horsley Witten Group

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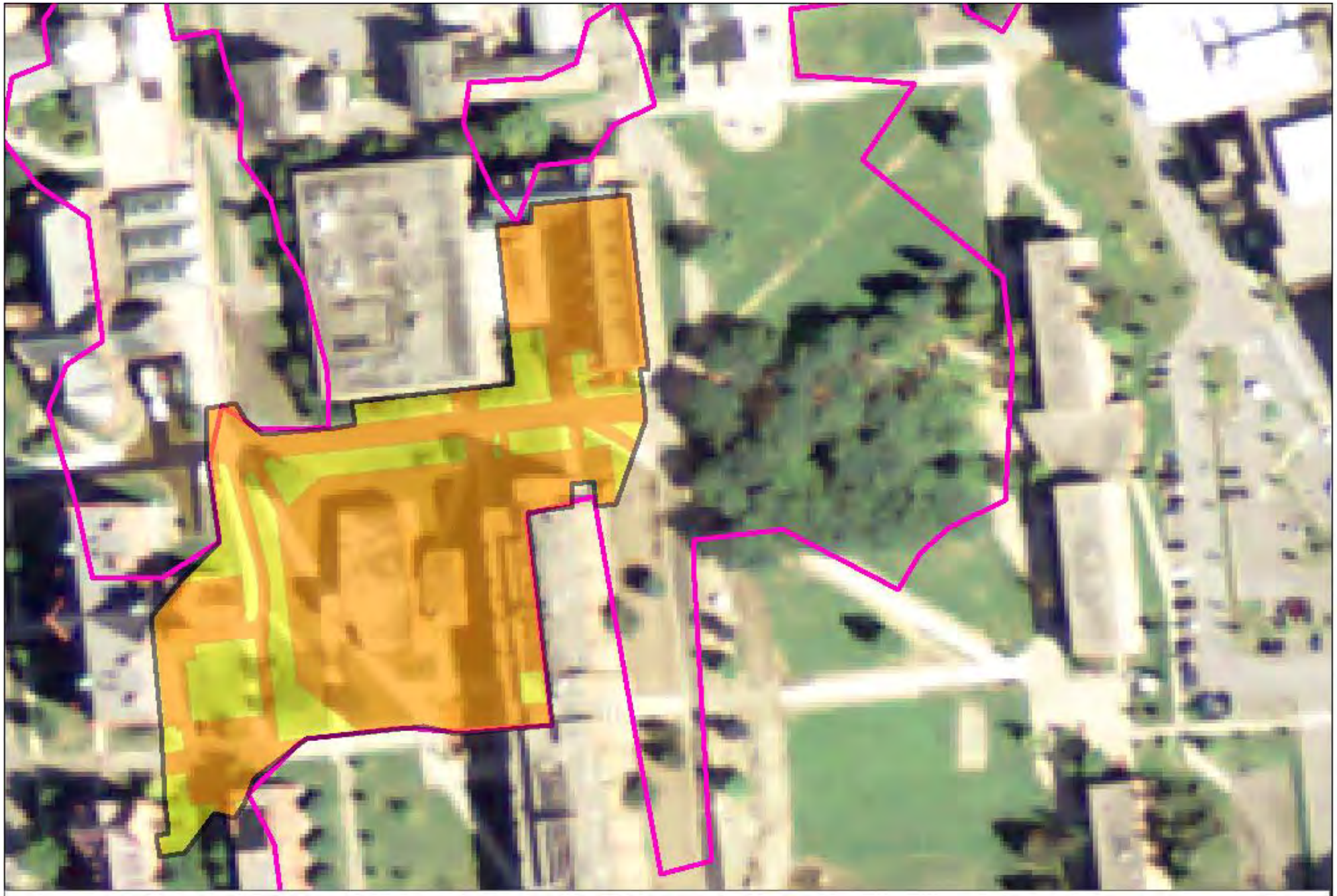

Figure 3. Colchester Ave. Proposed Watershed Expansion

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General Conclusions

The restoration scenario presented here is not intended to represent the optimal implementation scenario proposed by the MS4s, rather it represents the maximum reduction all MS4s agree is achievable, regardless of cost considerations. Prior to moving forward with finalizing the flow restoration plan for Centennial Brook, the MS4s and the VT Agency of Natural Resources (ANR) may want to consider the following:

1. A detailed analysis was conducted by Chittenden County Regional Planning Commission in July, 2013 that refined the estimate of future, unregulated impervious cover to a more realistic estimate of 5 acres, rather than the 40 acres assumed in the TMDL. This change, if approved by ANR, would lower the high flow TMDL target from 63.0% to 51.5%.
2. Restoration activities other than the implementation of structural stormwater retrofits, such as tree planting, buffer enhancement, impervious cover reduction, or more stringent development requirements could potentially bridge the remaining gap for meeting the reduction target if a crediting mechanism was established.
3. Higher flow reductions are possible if surface detention time (center of mass) are relaxed in Centennial Brook; although modeling suggests that detention times >24 hrs for retrofits of existing and new ponds still cannot meet the 63% reduction target. If increased detentions times were allowed, future permitting of proposed development projects draining to those retrofitted facilities would also need to be considered.
4. The proposed retrofits with the most influence on flow reduction modeled at the watershed outlet include: Best Western (#22 at 13.6% relative reduction); North Campus Pond (M7A3 at 7.7%); Chamberlain School (#14 at 5.9%); and Picard Circle (#25 at 4.3%). The East Campus Pond (M1) contributes to 13.4% of the achieved flow reduction, though no retrofit of this facility is proposed. The Main St. pond retrofit's (M5A3) relative reduction was 3.4%. These "regional" storage facilities manage more impervious cover than the smaller on-site BMPs, which have less of an individual influence on reductions measured at the watershed outlet. Based on the results of the VTBMPDSS, the revised 51.5% flow reduction target can be met by extending detention times of the UVM ponds beyond 24 hours; however, since over-detention in these existing facilities was reported by Krebs and Lansing to significantly reduce UVM's future development opportunities, this retrofit option is not considered practical. Regardless, the 63% target was not reached under any modeling scenarios.
5. A number of secondary BMPs (practices within the drainage areas of primary sites) were identified as backup options in case primary sites become infeasible or are down-sized. None of the secondary practices are able to completely replace the relevant primary practice, however. The I-89 clover-leaf (16B) comes the closest, but is about ½ as effective as the primary BMP proposed at I-89 outfall (16). Currently, these secondary practices are included in the proposed restoration scenario in addition to the primary facilities to show the maximum amount of flow reduction deemed achievable, regardless of cost. Removing the secondary facilities from the restoration scenario will likely result in a very modest change the flow reduction at significant cost savings.
6. The VTBMPDSS model runs for Centennial Brook do not fully depict expected increases in low flow despite a substantial increase in annual infiltration volumes from the proposed infiltration BMPs. Under the proposed restoration scenario, 94 acres of impervious cover are directed to infiltration practices designed to infiltrate the 1-year storm. Using the Burlington rainfall record, a rough analysis of recharge from the impervious area runoff should yield approximately 22 inches/year.

This recharge should augment streamflow by approximately 0.24 cfs across the entire flow duration curve; however, the model predictions of increase in low flow from infiltration practices are only 0.02 cfs (an 8% increase over baseline conditions).

7. The planning level estimate of overall capital costs for the proposed flow restoration scenario modeled is $9,740,000.

The remainder of this memorandum provides more detailed information on the modeling analyses, BMP input information, and estimated construction costs. Additional supporting information submitted separately from, but in conjunction with, this memo includes:

- VTBMPDSS model runs for the revised baseline, the revised credit, and the proposed restoration scenario.
- GIS shapefiles used in each scenario, including updated impervious cover layer, BMP footprints, and other shapefiles created during this effort.
- HydroCAD models—created for all of the revised Credit BMPs and potential retrofits using HydroCAD version 10.00 for calibrating VTBMPDSS input;
- Spreadsheets—summarizing reductions, input variables, and cost estimates.

VTBMPDSS Modeling Analysis

The VTBMPDSS model is a continuous hydrological simulation model that estimates the effect of land use changes and stormwater BMPs on streamflow. This model was applied to the Centennial Brook watershed, which has a drainage area of about 1.4 square miles. The most important inputs to the model for this study are the GIS layers of land use, impervious cover, and soil, as well as the locations, configuration, and connections of the BMPs themselves.

Establishing Baseline Conditions

The ANR Baseline Scenario represents the watershed condition prior to the Centennial TMDL (2002), which in this case reflects six existing BMPs. In coordination with ANR, a Revised Baseline Scenario was created to address an issue discovered during subsequent modeling runs involving the application of BMPs with small drainage areas. Each time one of these on-site BMPs is added, the model creates a new routing connection that increases downstream flow and reduces times of concentration in the drainage area. This phenomenon can cause the VTBMPDSS model to underestimate the reduction potential of smaller green infrastructure (GI) practices and negates some of the potential benefits of BMP treatment trains. To accurately account for this effect, the Baseline Scenario was revised to incorporate virtual outlets (VOs) and drainage areas with “dummy” connections in the same manner as in the subsequently modeled flow restoration scenario. This adjustment did not alter flow paths in the Baseline Scenario, but did slightly increase Q03 base flows. Thus, slight increases in percent reductions over baseline conditions were achieved in the restoration scenarios.

FDC Statistics and Flow Reductions

The VTBMPDSS model outputs both summary files and complete records of hourly flows for any specified control points. The outlet is the primary control point (number 16 for this model). The outlet summary file (Init_Eval.out) provides a quick way to see the control point flows for Q95 and Q03 flows (cfsm) from the current scenario. These numbers were used as a quick guide on performance.

For the final FDC flow numbers, ANR recommends that a separate FDC analysis be performed using only the last 10 years of the 12 year output record for the desired control point (Init_VirtualOutlet_16.out). The FDC spreadsheet was used to provide these numbers for all current scenarios. Only these FDC numbers are reported in this memo.

Additionally, ANR requires computation of the flow reductions percentages based on flow in cubic feet per second (cfs) not cubic feet per second per square mile (cfsm). The logic is that additional watershed area would increase flow (in cfs) and require instream morphological changes that could be detrimental, like augmenting sediment load. The flow per square mile (cfsm) might be unchanged and not reflect this impact. Only flows in cfs were reported in this memo.

Current Condition (Credit) Models

The ANR Credit Scenario reflects upgrades to four of the six ponds included in the baseline model to meet 2002 VT Stormwater Manual criteria. Updated ponds include: the East Campus Pond (M1), Sheraton Pond (M4); the North Campus Pond (M6) with sediment forebay (M7); and the Quarry Ridge Pond (M9) with sediment forebay (M2). The Queensbury Rd. Pond (M3) and the Main St. Pond (M5) remained unchanged from the baseline model. The ANR Credit Scenario was reviewed and revised to account for: 1) an error discovered in the HydroCAD and VTBMPDSS setup for the East Campus pond (M1), and 2) recent construction at Patchen Woods that added two vegetated swales (V1 and V2), increased impervious cover, and required slight changes to sub-watershed boundaries.

HydroCAD modeling of BMPs

HydroCAD models were set up for most of the proposed retrofits identified during field investigations in May, 2013. The Field Findings Memorandum (dated June 13, 2013) that documented procedures and feasible retrofit concepts has been revised to reflect subsequent changes to some of the retrofit concepts (see Revised Field Summaries Memorandum, dated October, 2013). The HydroCAD runs were saved as PDF files, marked up to show the relevant VTBMPDSS parameters used, and then the selected parameters were saved in a model input spreadsheet, thus providing full documentation of each VTBMPDSS model run. All HydroCAD models and the input spreadsheet are available for review. The following two modeling adjustments should be noted:

- HydroCAD models were based on the most updated impervious cover and soils data, which may differ slightly from what is being used in the VTBMPDSS model. ANR requested consistency in the GIS layers used for running model scenarios to ensure that results are comparable to baseline conditions; however, they agreed that the BMPs should be adequately designed using the latest data.
- Because of the differing methods that HydroCAD and the VTBMPDSS models aggregate runoff from soils and impervious areas and deal with flow lag times (time of concentration), the size of the HydroCAD designs for some infiltration practices (e.g., Jaycee Park (15) and Patchen Rd. (18A)) had to be increased to achieve maximum infiltration in the VTBMPDSS.

Flow Restoration Scenario

A number of restoration scenarios were modeled to compare various implementation options using 39 stormwater BMPs. In these scenarios, primary BMPs are defined as having an outlet directly to a stream while secondary BMPs drain to a downstream BMP. More details of the BMP concept summaries, based on GIS and field data, can be found in the revised "Centennial Brook Watershed: Retrofit Field Findings Summary Memorandum" (dated October, 2013). A few key model parameters used during the restoration scenarios include:

- The revised impervious cover used in the Revised Credit Scenario was updated slightly to account for new parking lots and buildings recently constructed/removed based on a visual inspection of the latest satellite images. Even though more recent impervious cover GIS layers were available, this approach was recommended by ANR since it allows direct comparison with the baseline scenarios without introducing differences between remote sensing technology used to develop the old and new impervious cover layers.
- The watershed boundary was changed in a few locations based on MS4 input and field verification. For example, the area north of University Avenue and west of the baseball diamond was removed because it is now connected to the combined sewer system. The UVM proposed expansion on the corner of Colchester Avenue and University Place was modeled as part of the restoration scenario presented here.
- All the stormwater practices, except for vegetated swales, were modeled as multistage ponds. The multistage pond allows the volume-stage relationship to be well represented, has more options for outlet control structures, and has all the controls represented in other model BMPs like infiltration or biofiltration. The multi-stage pond also has the added advantage in that it can be turned on/off or scaled with a multiplier (normally set to 1.0). The parameter allows the same network to be preserved for all flow restoration scenarios and is extremely useful for evaluating different scenarios and individual BMP performance.

Table 2 summarizes the base, credit, and restoration scenarios discussed above. Table 3 provides an accounting of some of the key input parameters of each proposed BMP used in the proposed restoration scenario.

Table 2. Summary of Modeling Scenarios

Model Scenario			Purpose	Q03 High Flow		Conclusion
				(cfs)	% Red.	
Pre-TMDL	ANR Base	Six pre-2002 BMPs, 2002 land use and IA GIS layers	What were the flows at the time the TMDL was established? These flows are the baseline from which restoration/treatment is measured.	27.2	--	We were able to successfully replicate ANR's model.
	Revised Base	ANR Base + virtual outlets, DAs, and network	Add "dummy" BMP connections to allow for more accurate comparison with restoration scenarios.	28.6	--	This is the new baseline to measure achieved flow reductions.
Current	ANR Credit	ANR Base + upgrades to some existing BMPs	What is the change in baseline flow with the retrofit of 4 of 6 existing BMPs to 2002 standards?	23.1	15.2%	We were able to replicate ANR's model.
	Revised Credit	ANR Credit + BMP revisions/addition	Revise current conditions by correcting model inputs on East Campus Pond (M1) and adding the Patchen Woods development.	23.2	14.8%	Corrections result in a slight decrease from ANR's prediction of the current reductions.
Proposed Restoration Scenario		All primary and secondary retrofits (see Table 3)	What is the max. flow reduction achievable if all feasible retrofits are implemented with UVM-designed retrofits of the Main St. (M5A3) and North Campus (M7A3) ponds and the Colchester Ave. expansion.	15.5	45.7%	Does not meet the revised 51.5%% TMDL reduction target, and benefit of secondary practices probably not worth the additional cost.

Table 3. BMPs used in Flow Restoration Scenarios

Site ID	Site Name	BMP Type[1]	Class[2]	DA (ac)	IA (ac)[3]	% Difference in Q03[4]		Design Notes
						BMP Outlet	Watershed Outlet	
12A	University soccer field	IB	E	1.41	0.33	-100.0	0.0	--
13	Patchen Rd. depression	URC	P	14.06	5.07	-100.0	-1.2	Max. ponding depth=7'; Exfiltration = 2.41 in/hr
14A/B	Chamberlin School	URC	P	31.49	10.12	-100.0	-5.9	Field size: 97'(w) x 167'(l) x 3.5'(h); Exf. = 0.52 in/hr
15	Jaycee Park	DB	P	15.73	6.28	-100.0	-2.7	Field size: 87'(w) x 60'(l) x 3.5'(h); Exf. = 2.41 in/hr
16	I-89 outfall	DB	P	52.25	18.88	-26.4[4]	-2.1	Max det. time= 46.6 hr; max. ponding depth=12'
16B	I-89 cloverleaf (NE)	UDC	S	39.17	16.14	-83.0	-0.9	Max det. time=48.8 hrs; max. ponding depth=8'
17	Jug handle @ Spear & Main St. (east)	UDC	S	22.01	7.28	-74.9	-0.3	Field size: 144'(w) x 231'(l) x 3.5'(h)
18	Fielding Lane Condos	URC	P	18.74	5.48	-100.0	-2.3	Max. ponding depth=4'; Exf. = 2.41 in/hr
18A	Patchen Rd & Pine St	URC	P	20.41	6.00	-100.0	-1.8	Field size: 49'(w) x 81'(l) x 3.5'(h); Exf. = 2.41 in/hr
20	Grove St Parking Lot	URC	P	8.82	2.54	-100.0	-0.3	Field size: 30'(w) x 74'(l) x 3.5'(h); Exf. = 2.41 in/hr
20A	SD Ireland Property	URC	P	4.66	3.82	-100.0	-0.2	--
21	Dumont Ave (south)	URC	P	3.93	1.20	-100.0	-0.1	Field size: 21'(w) x 24'(l) x 3.5'(h); Exf. = 2.41 in/hr
22	Best Western Windjammer (N)	IB	P	29.25	21.68	-100.0	-13.6	Max. ponding depth=12'; Exf. = 2.41 in/hr
22A	Best Western Windjammer (W)	IB	P	4.09	1.24	-100.0	-0.5	Max. ponding depth=3'; Exf. = 2.41 in/hr
23A/B	Staples Plaza	UDC	S	2.50	2.43	-67.7	-0.2	Field size: 35'(w) x 259'(l) x 2.33'(h)
25	Picard Circle	URC	P	51.85	17.11	-86.7	-4.3	Field size: 49'(w) x 138'(l) x 3.5'(h); Exf. = 2.41 in/hr
26	Duval St	URC	P	3.57	1.18	-100.0	-0.1	Field size: 21'(w) x 24'(l) x 3.5'(h); Exf. = 2.41 in/hr
27	Clover St	URC	P	3.82	1.43	-100.0	0.0	Field size: 26'(w) x 31'(l) x 3.5'(h); Exf. = 2.41 in/hr
200	N Henry Court	URC	P	1.03	0.45	-100.0	0.0	Field size: 11'(w) x 24'(l) x 3.5'(h); Exf. = 2.41 in/hr
207	Fletcher Allen green space	Bio	S	0.89	0.85	-100.0	0.0	Bio surface area: 3,200 sf
208	Fletcher Allen parking lot	Bio	S	0.83	0.53	-100.0	-0.1	Bio surface area: 2,300 sf
M1A	Centennial Crt Apartments	IB	S	6.54	3.03	-100.0	-0.6	Max. ponding depth=4'; Exfiltration=0.52 in/hr

Site ID	Site Name	BMP Type[1]	Class[2]	DA (ac)	IA (ac)[3]	% Difference in Q03[4]		Design Notes
						BMP Outlet	Watershed Outlet	
M1	East Campus Pond	DB	E	80.18	49.22	-58.1	-13.4	Existing UVM design. Max. det. time= < 12 hrs. Stor. Vol. = 11.3 ac-ft
M2/ M9	Quarry Ridge	DB	E	7.44	4.2	-59.7	-1.1	Max det. time= 12.5 hrs
M3A	Queensbury Pond (modified)	IB	P	8.99	4.17	-86.5	-0.8	Max. ponding depth=10'; Exfiltration=2.41 in/hr
M4	Sheraton	DB	E	9.81	6.70	-52.4	-0.2	Max det. time= 9.9 hrs
M5A3	Main St (UVM modified)	DB	P	64.15	26.59	-39.0	-3.4	UVM design. Max. det. time= < 12 hrs. Stor. Vol. =8.5 ac-ft; with smaller low flow orifice of 5.8" than existing
M6 / M7A3	North Campus (UVM modified)	DB	P	86.25	48.16	-46.3	-7.7	UVM design. Max. det. time= < 12 hrs. Stor. Vol. =21.5 ac-ft.; perm pool elevation 236.0, with smaller low flow orifice of 7.3" than existing and raised to 9-ft embankment
M7B	Open area east of Case Pkwy	URC	S	7.04	3.19	-100.0	-0.1	Field size: 40'(w) x 74'(l) x 3.5'(h); Exf. = 2.41 in/hr
M7C	Case Pkwy center island	Bio	S	0.86	0.50	-100.0	0.1	Bio surface area: 700 sf
M7D	140 East Ave residence	Bio	S	0.63	0.36	0.0	0.0	Bio surface area: 1,550 sf
M8	Burlington COOP	DB	E	3.73	1.62	-100.0	-0.4	Max det. time= 2hrs
V1	Patchen Woods	VS	E	0.48	0.32	-50.0	-0.3	
V2	Patchen Woods	VS	E	0.91	0.81	-100.0	-0.11	

[1] Bio=bioretention; DB=detention basin, IB= infiltration basin; UDC= underground detention chamber; URC=underground recharge chambers; and VS=vegetated swale

[2] P=Primary BMP; S= Secondary BMP that drains to a primary BMP; E=Existing practice

[3] Impervious area shown here is based on the most recent/ accurate information that was used to size potential retrofits and may not correspond exactly with GIS layers used in the VTBMPDSS model

[4] Percent difference in high flows is negative when showing a reduction. The model was run with all BMPs turned on and then with individual BMPs turned off, one at a time, to quantify differences in flow and relative performance at the outlet of individual BMPs. Differences at each BMP outlet were determined by comparing the inflows and outflows. 100% represents no surface discharge; BMPS with less than 50% at the BMP outlet could be opportunities to enhance performance. Differences in flow at the watershed outlet are intended as a relative comparison of BMP effectiveness, but are not absolute or additive. Individual BMP values do not add up to corresponding total watershed reductions due to other losses in the system.

[4] Relative performance for #16 appears low because #16B is already managing a large portion of the drainage area.

Estimated Project Costs

This section provides estimates of construction costs for the various stormwater retrofit facilities based on volume managed, the type of BMP, and the type of project site. The total cost for implementation of the restoration scenario presented here is $9,740,000.

The cost estimates were developed based on the following assumptions and design decisions:

1. **Design Control Volumes** are based on the estimated runoff volume associated with the one-year storm event for underground systems or green infrastructure-type practices. Control volumes for large, above-ground infiltration or detention basins are based on the estimated runoff associated with the one hundred year storm event plus approximately two feet of freeboard volume. Underground systems and green infrastructure-type practices were conceptually designed as off-line practices that only accept runoff from the one-year event. Runoff volumes for all storm events were determined based on HydroCAD® model results that rely on the Soil Conservation Service (SCS) TR-55 and TR-20 hydrologic methods.
2. Table 4 summarizes **Unit Costs** for each BMP and **Site Adjustment Factors** that were derived from research by the Charles River Watershed Association and Center for Watershed Protection, as well as from our experience with actual construction. Underground detention chambers (UDC) and underground recharge chamber (URC) systems were typically designed using Stormtech SC-740™ chamber systems. A Stormtech SC-310™ system was used at Site 23A/B due to a shallow existing drainage system. Cost estimates for the retrofit sites described as "GI/URC" were calculated as bioretention treatment systems followed by Stormtech SC-740™ chambers for recharge benefits. The cost adjustment factors were used to account for site-specific differences typically related to project size, location, and complexity. Retrofits of existing BMPs, for example, generally cost less than new installations.

Table 4. Retrofit unit costs and adjustment factors

BMP	Base Cost ($/ft^3)
Detention Basin	$2
Infiltration Basin	$4
Underground Chamber (infiltration or detention)	$12
Bioretention	$10
Green Infrastructure/ Underground Chamber Combo	$22
Site Type	**Cost Multiplier**
Existing BMP retrofit	0.25
New BMP in undeveloped area	1.00
New BMP in partially developed area	1.50
New BMP in developed area	2.00
Adjustment factor for large aboveground basin projects	0.50

3. For certain retrofit locations, additional **Site-Specific Costs** were added to the construction costs. For example, Sites #13, #22, and M3A will require significant drainage or utility reconstruction. Site M5A3 will require ledge removal if constructed. Site M7A3 will require elevating the existing electric transmission lines to provide adequate clearance for the basin berm construction. Site-specific construction items are described in detail in the Retrofit

Summary Sheets provided as part of the Revised Field Findings Memo (dated October 14), except for the most recent retrofit concepts by UVM for M5A3 and M7A3, which were updated after submittal of the Revised Field Findings Memo. Table 3 provides information on the key design elements of M5A3 and M7A3.

4. **Base Construction Cost** is the product of the design control volume, the unit cost, and the site adjustment factor. Site-specific costs were added to this result for the applicable retrofit sites.
5. **Permits & Engineering Costs** were estimated at either 20% or 35% of the construction cost depending on the scale of the project. The largest projects (in terms of control volume) were estimated at 20% and the smaller projects at 35%. Certain large-scale projects that are likely to include high levels of engineering or permitting effort were assigned a 35% fee, despite their overall size.
6. **Land Acquisition Cost** was added to the total costs for facilities located on private, non-UVM properties. Retrofits that may require partial land acquisition fees were marked up by $150,000; retrofits possibly requiring total land acquisition were marked up by $300,000. These land acquisition estimates are considered to be place-holders at this time and may require adjustments based on current land values and the willingness of land owners to grant easements for the proposed drainage improvements. It was assumed that no land acquisition fees would be necessary for privately owned Sites 22, 22B, and 23A/B due to possible Residual Designation Authority (RDA) applicability. Site M1A was also not assigned a land acquisition fee due to possible existing agreements between UVM and the Centennial Court Apartments property management; however additional refinement of costs for UVM property may require inclusion of a land acquisition cost.
7. **Total Project Cost** is the sum of the base construction cost, permitting & engineering costs, and land acquisitions costs; it does not include operation & maintenance costs.
8. **Relative Cost** is described in terms of total project costs and represented by dollar signs. A project costing less than $100,000 is given $; a project between $100,000 and $250,000 is given $$; a project between $250,000 and $500,000 is given $$$; and a project greater than $500,000 is given $$$$.
9. **Costs per Impervious Acre** treated was calculated by dividing the sum of the construction costs and the permitting & engineering costs by the total impervious area directed to each BMP. Impervious areas used in this calculation are displayed in Table 3. Land acquisition costs and operation & maintenance costs are not included as part of this calculation.
10. **Operation & Maintenance** costs were estimated separately for each BMP, but are <u>not</u> included in the total construction costs. We assume that annual O&M is approximately 3% of project construction costs, with a cap at $10,000.

Each of the numbered descriptions above provides clarification to the corresponding columns in Table 5. The spreadsheet used to develop Table 5 is provided separately as supporting information.

Table 5. BMP Cost Summary Table

Site ID	Site Name	BMP Type	Class	Design Control Volume[1] (ft3)	Base Unit Cost[2] ($/cu.ft.)	Site Adjust. Factor[2]	Site Specific Cost[3]	Base Constr. Cost[4]	Permits & Eng.[5]	Land Cost[6]	Total Project Cost[7]	Relative Cost[8]	Cost/ Imp. Acre[9]	O&M[10]
12A	University soccer field	IB	E	2,700	-	-	-	-	-	-	-	-	-	-
13	Patchen Rd depression	URC	P	66,800	$4	0.25	$25,000	$91,800	$33,000	$150,000	$280,000	$$$	$25,000	$2,800
14A/B	Chamberlin School	URC	P	35,200	$12	1.50	$0	$633,600	$127,000	$0	$770,000	$$$$	$76,000	$10,000
15	Jaycee Park	DB	P	11,300	$12	1.50	$0	$203,400	$72,000	$0	$280,000	$$$	$48,000	$6,200
16	I-89 outfall	DB	P	566,000	$2	1.00	$0	$1,132,000	$227,000	$150,000	$1,510,000	$$$$	$72,000	$10,000
16B	I-89 cloverleaf (NE)	UDC	S	320,000	$2	0.50	$0	$320,000	$112,000	$0	$440,000	$$$	$27,000	$9,600
17	Jug handle @ Spear & Main St.	UDC	S	73,000	$12	1.50	$0	$1,314,000	$263,000	$0	$1,580,000	$$$$	$217,000	$10,000
18	Fielding Lane Condos	URC	P	21,700	$4	1.00	$0	$86,800	$31,000	$300,000	$420,000	$$$	$23,000	$2,700
18A	Patchen Rd & Pine St	URC	P	8,600	$12	1.50	$0	$154,800	$55,000	$150,000	$360,000	$$$	$35,000	$4,700
20	Grove St Parking Lot	URC	P	4,800	$12	2.00	$0	$115,200	$41,000	$0	$160,000	$$	$62,000	$3,500
20A	SD Ireland Property	URC	P	28,700	-	-	-	-	-	-	-	-	-	-
21	Dumont Ave (south)	URC	P	1,100	$12	1.50	$0	$19,800	$7,000	$0	$30,000	$	$23,000	$600
22	Best West.(N)	IB	P	181,000	$4	0.50	$50,000	$412,000	$145,000	$0	$560,000	$$$$	$26,000	$10,000
22A	Best West. (W)	IB	P	30,000	$4	0.50	$0	$60,000	$21,000	$0	$90,000	$	$75,000	$1,800
23A/B	Staples Plaza	UDC	S	11,600	$12	2.00	$0	$278,400	$56,000	$0	$340,000	$$$	$139,000	$8,400
25	Picard Circle	URC	P	14,700	$12	1.50	$0	$264,600	$53,000	$0	$320,000	$$$	$20,000	$8,000
26	Duval St	URC	P	1,100	$22	1.50	$0	$36,300	$13,000	$150,000	$200,000	$$	$42,000	$1,100
27	Clover St	URC	P	1,700	$12	1.50	$0	$30,600	$11,000	$150,000	$200,000	$$	$30,000	$1,000

Site ID	Site Name	BMP Type	Class	Design Control Volume[1] (ft3)	Base Unit Cost[2] ($/cu.ft.)	Site Adjust. Factor[2]	Site Specific Cost[3]	Base Constr. Cost[4]	Permits & Eng.[5]	Land Cost[6]	Total Project Cost[7]	Relative Cost[8]	Cost/ Imp. Acre[9]	O&M[10]
200	N Henry Court	URC	P	600	$22	1.50	$0	$19,800	$7,000	$0	$30,000	$	$60,000	$600
207	Fletcher Allen green space	Bio	S	3,700	$10	1.00	$0	$37,000	$13,000	$0	$50,000	$	$59,000	$1,200
208	Fletcher Allen parking lot	Bio	S	2,700	$10	1.00	$0	$27,000	$10,000	$0	$40,000	$	$70,000	$900
M1A	Centennial Court Apts.	IB	S	30,800	$4	1.00	$0	$123,200	$44,000	$0	$170,000	$$	$59,000	$3,700
M3A	Queensbury (modified)	IB	P	26,700	$4	0.25	$25,000	$51,700	$19,000	$150,000	$230,000	$$	$24,000	$1,600
M5A3	Main St (UVM modified)	DB	P	370,900	$2	0.50	$100,000	$470,900	$95,000	$0	$570,000	$$$$	$22,000	$10,000
M7A3	North Campus (with extra DA)	DB	P	1,008,000	$2	0.25	$100,000	$604,000	$121,000	$0	$730,000	$$$$	$16,000	$10,000
M7B	Open area east of Case Pkwy	URC	S	6,300	$12	1.50	$0	$113,400	$40,000	$0	$160,000	$$	$38,000	$3,500
M7C	Case Pkwy center island	Bio	S	1,000	$10	1.50	$0	$15,000	$6,000	$0	$30,000	$	$42,000	$500
M7D	140 East Ave residence	Bio	S	1,800	$10	1.50	$0	$27,000	$10,000	$150,000	$190,000	$$	$103,000	$900

See preceding text for footnotes.

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Potash Brook Flow Restoration Plan

Table D-1: BMP Ranking Criteria Key

Category	ID	Criteria	Technical Description	Description
Cost/Operations	A	Project Cost per Impervious Acre	The project costs per impervious acre were grouped into categories from $2/acre to $500,000/acre based on the range of projects proposed. Cost estimates were developed using the latest unit costs from VTrans as well as local experience. More expensive projects are ranked lower.	Project Costs include additional engineering, permitting, and construction. Transportation and utility conflicts, as well as overall constructability is also reflected in the cost.
Project Design Metrics	B	Impervious Acres Managed (ac)	Natural groupings within the range of impervious managed for the proposed projects were identified. More impervious managed receives a higher score.	The more impervious managed by a project, the higher the potential pollutant reduction. Additionally, the goal of the FRP is to manage existing impervious surfaces.
	C	Channel Protection Volume (CPv) Mitigated, (i.e.. 1-year Storm)	Groupings within the range of CPv volume storage were identified. The largest grouping receives the highest score. The CPv was estimated in HydroCAD, using local rainfall data.	The Channel Protection Volume (CPv) is the volume of stormwater runoff generated from the 1-year design storm (1.98" in Burlington). A BMP which provides CPv storage was determined to reduce the High-flow (Q0.3%), which is the flow rate exceeded 0.3% of the time (output from the State's BMPDSS model). Mitigating the CPv reduces channel erosion and excessive pollutant loading from streams.
	D	Volume Infiltrated (ac-ft)	Natural groupings within the range of volumes infiltrated for the BMPs were identified to which relative points were be assigned. The largest volume infiltrated was assigned the highest score. Volumes were calculated in HydroCAD.	The Volume Infiltrated indicates the amount of stormwater runoff that is infiltrated into the groundwater, and provides baseflow for the stream. The TMDL flow targets include a low-flow target, which is addressed by an infiltration-based BMP.
Project Implementation	E	Permitabilty	Permitabilty is simplified into two categories to reflect the common scenarios in permitting, as 1) minimal permitting, versus 2) Complex permitting issues. An itemized list of permits was included to inform the ranking, but was not used in the scoring.	Permitabilty is a measure of the expected level of effort to permit the project, based on knowledge that each type of permit takes varying amounts of time. Some common permits include Stormwater Construction, Local Zoning, Act 250 amendments, VTRANS ROW, etc.
	F	Land Availability	Public land is preferred, followed by regulated private land, and private land where the owners are known to be open to participate. Private land, in which participation of the owner is unknown is lower priority.	Land availability is critical for BMPs requiring open space for detention and access for the City. Properties owned by the City are ranked the highest, followed by privately owned land that has an expired permit, which provides leverage for owner participation.
	G	Flood Mitigation	Flood mitigation is categorized by the scale of the impact.	Flood mitigation is categorized by the scale of the impact. A neighborhood flooding issue is weighed more heavily than a localized drainage issue.
	H	TMDL Flow Target Addressed (Q03, Q95)	More weight is on BMPs that address both TMDL targets- the high-flow (Q0.3%) and low-flow targets (Q95%). The high-flow target is addressed by detention BMPs which storage the CP volume.	The goal of the FRP is to implement projects which address the TMDL flow targets. The high-flow target is measured as a **reduction** in the stream flow rate exceeded 0.3% of the time, while the low-flow target is an **increase** in the stream flow rate exceeded 95% of the time (baseflow). Projects which address both targets through storage or infiltration of the 1-year design storm are weighted the highest, followed by projects which address just the high-flow. Projects which do not address the full 1-year storm volume are weighted the lowest.
	I	Lake Champlain Phosphorus TMDL	Yes or no whether the proposed practice will provide benefit toward the Lake Champlain Phosphorus TMDL. This will be determined once the TMDL compliance metrics are released.	The Lake Champlain Phosphorus TMDL has been developed in the effort to reduce nutrient loading and consequential toxic algal blooms in Lake Champlain. The TMDL will require stormwater BMPs to meet a certain level of Total Phosphorus reduction. Each BMP will be evaluated against the TMDL compliance metrics, and scored yes or no if the project meets the TMDL standards.
	J	Other Project Benefits/Constraints	This criteria is to account for indirect project benefits like infrastructure improvements (e.g. aging culvert replacement, wetlands enhancement, and if it addresses an expired permit), or potential constraints (e.g. utility issues encountered during construction).	This criteria is to account for indirect project benefits like infrastructure improvements, community benefits, habitat creation, etc, as well as things that might constrain the project such as the potential of encountering utilities during construction.

Potash Brook Flow Restoration Plan
Table D-2: BMP Ranking Scoring Key

Category	ID	Criteria	Quality	Score
Cost/Operations	A	Project Cost per Impervious Acre	$1.00 - $24,999	4
			$25,000 - $49,999	3
			$50,000 - $99,999	2
			$100,000 - $199,999	1
			$200,000 - $499,999	0
			$500,000 +	-1
Project Design Metrics	B	Impervious Acres Managed (ac)	>10 acres	6
			>5-10 acres	5
			>4-5 acres	4
			>2-4 acres	3
			>1-2 acres	2
			≤ 1 acre	1
			0 acres	0
	C	Channel Protection Volume (CPv) Mitigated, (ie. 1-year Storm)	>0.6 ac-ft	5
			>0.4-0.6 ac-ft	4
			>0.2-0.4 ac-ft	3
			>0.05-0.2 ac-ft	2
			>0-0.05 ac-ft	1
			0 ac-ft	0
	D	Volume Infiltrated (ac-ft)	>2 ac-ft	5
			1 - 2 ac-ft	4
			0.5 - 1 ac-ft	3
			0.1 - 0.5 sc-ft	2
			>0.01 - 0.1 ac-ft	1
			no infiltration	0
Project Implementation	E	Permitabilty	Minimal Issues/Concerns or no permits	2
			Complex issues/Potential permit denial	0
	F	Land Availability	City owned	4
			Non City owned regulated (expire permit)	3
			Non City owned/Participatory Owner	2
			Unknown	0
			Not City owned/Non participatory owner	-2
	G	Flood Mitigation (Is existing flooding issue mitigated by project?)	Neighborhood Wide Flooding Issue	3
			Infrastructure damage (e.g. Wet Basement)/Single Property	2
			Nuisance Issue (ie. ponding, puddles, etc).	1
			None	0
	H	TMDL Flow Target Addressed (Q03, Q95)	High and Low Flow Targets	3
			High Flow Target	2
			No target addressed in BMPDSS (just WQ treatment)	1
	I	Lake Champlain Phosphorus TMDL	Addressed TMDL	1
			Does not address TMDL	0
	J	Other Project Benefits/Constraints	Infrastructure Improvement (e.g. Culvert Replacement)	1
			Educational/Functional Benefit	1
			Recreational Benefit	1
			Natural Habitat Creation/Protection	1
			Outfall Erosion Control	1
			Utility Issues/Uncertainty	-1

APPENDIX E

PROPOSED BMP COST ESTIMATES,
PRIORITIZATION RANKING,
AND
IMPLEMENTATION SCHEDULE

Potash Brook Flow Restoration Plan
Table E-1: Project Cost Estimates

BMP ID	Project Name	Retrofit Description	Impervious Area Managed (acres)	Design Control Volume (ac-ft)	Design Control Volume (cf)	Base Unit Cost[1] ($/cf)	Site Adjustment Factor[1]	Base Construction Cost[2]	Permits & Engineering Contingency	BMP Footprint Area (acres)	Land Cost	Summed Project Cost	Minimum Project Cost[3]	Final Project Cost	Cost per Impervious Acre	O&M
PB0001	1050 Hinesburg Road	Detention Pond	0.7	0.11	4,835	$2	1.5	$14,505	$ 5,077	0.065	$7,800	$ 27,382	$ 25,000	$ 27,382	$ 26,478	$ 435
PB0002	110 Kimball Ave - North Infiltration Basin	Retrofit Existing Infiltration Basin	0.58	0.02	1,045	$4	0.25	$1,045	$ 366	NA	$0	$ 1,411	$ 25,000	$ 25,000	$ 2,449	$ 31
PB0003	110 Kimball Ave - South Infiltration Basin	Retrofit Existing Infiltration Basin	0.9	0.05	2,309	$4	0.25	$2,309	$ 808	NA	$0	$ 3,117	$ 10,000	$ 10,000	$ 3,308	$ 69
PB0004	189 Cloverleaf Detention Pond	Detention Pond	12.1	1.13	49,179	$2	0.5	$49,179	$ 9,836	1.19	$0	$ 59,015	$ 25,000	$ 59,015	$ 4,861	$ 1,475
PB0005	189 Ramp Detention Pond	Detention Pond	5.8	0.35	15,159	$2	1.5	$45,477	$ 15,917	0.33	$39,600	$ 100,993	$ 25,000	$ 100,993	$ 10,627	$ 1,364
PB0006	30 Kimball Ave Swale Retrofit	Retrofit Existing Detention Pond	1.0	0.03	1,089	$2	0.25	$545	$ 191	NA	$0	$ 735	$ 25,000	$ 25,000	$ 703	$ 16
PB0007	Adelphia Cable Pond Retrofit	Retrofit Existing Detention Pond	2.7	0.09	3,746	$2	0.25	$1,873	$ 656	NA	$0	$ 2,529	$ 25,000	$ 25,000	$ 951	$ 56
PB0008	Adirondack Street	Underground detention	3.5	0.58	25,265	$12	2	$606,355	$ 212,224	0.217	$26,040	$ 844,620	$ 25,000	$ 844,620	$ 232,439	$ 10,000
PB0009	Airport Drive	Infiltration Gallery	3.6	0.46	19,820	$12	1.5	$356,756	$ 71,351	0.091	$10,920	$ 439,028	$ 25,000	$ 439,028	$ 118,182	$ 10,000
PB0010	Ashbrook Drive	Detention pond	0.9	0.18	7,754	$2	1.5	$23,261	$ 8,141	0.089	$10,680	$ 42,082	$ 25,000	$ 42,082	$ 35,579	$ 698
PB0011	Blue Mall Infiltration	Infiltration Gallery	2.4	0.37	15,987	$12	2	$383,676	$ 134,287	0.11	$13,015	$ 530,978	$ 25,000	$ 530,978	$ 215,397	$ 10,000
PB0012	Brookwood Drive	Detention Pond	24.5	2.00	87,033	$2	1.5	$261,099	$ 91,385	0.344	$41,280	$ 393,763	$ 25,000	$ 393,763	$ 14,392	$ 7,833
PB0013	Burlington Price Chopper	Gravel wetland	11.5	1.23	53,550	$10	2	$1,071,002	$ 374,851	0.11	$13,223	$ 1,459,075	$ 25,000	$ 1,459,075	$ 125,945	$ 10,000
PB0014	Chelsea Circle	Infiltration Basin	1.8	0.29	12,720	$4	1.5	$76,317	$ 15,263	0.196	$23,520	$ 115,101	$ 25,000	$ 115,101	$ 50,350	$ 2,290
PB0015	Church of Jesus Christ of Latterday Saints	Detention Swale	1.6	0.10	4,312	$2	1.5	$12,937	$ 4,528	0.093	$11,160	$ 28,625	$ 25,000	$ 28,625	$ 11,032	$ 388
PB0016	Community Bible Church Infiltration	Infiltration Trench	6.2	0.91	39,727	$12	1.5	$715,081	$ 250,278	0.083	$9,960	$ 975,319	$ 25,000	$ 975,319	$ 156,497	$ 10,000
PB0017	Domino's	Detention Pond	1.3	0.23	10,062	$2	1.5	$30,187	$ 6,037	0.145	$17,400	$ 53,624	$ 25,000	$ 53,624	$ 26,954	$ 906
PB0018	Dorset Commons Ponds	Detention Pond	5.0	0.60	26,223	$2	1.5	$78,669	$ 27,534	0.513	$61,560	$ 167,764	$ 25,000	$ 167,764	$ 21,210	$ 2,360
PB0019	Dupont Park Stormwater Project	Detention Pond	4.2	0.27	11,718	$2	1.5	$35,153	$ 7,031	0.223	$26,760	$ 68,944	$ 25,000	$ 68,944	$ 10,143	$ 1,055
PB0020	Dynapower	Retrofit Existing Detention Pond	6.5	0.95	41,469	$2	0.25	$20,735	$ 4,147	NA	$0	$ 24,881	$ 25,000	$ 25,000	$ 3,828	$ 622
PB0021	East Terrace Detention Pond	Detention Pond	2.3	0.34	14,985	$2	1.5	$44,954	$ 8,991	0.401	$48,120	$ 102,065	$ 25,000	$ 102,065	$ 23,663	$ 1,349
PB0022	Eastwood Commons Ponds Expansion	Retrofit Existing Detention Pond	20.8	0.73	31,712	$2	0.25	$15,856	$ 3,171	NA	$0	$ 19,027	$ 25,000	$ 25,000	$ 916	$ 476
PB0023	Easy Self Storage	Detention Pond	1.2	0.20	8,843	$2	1.5	$26,528	$ 9,285	0.140	$16,800	$ 52,613	$ 25,000	$ 52,613	$ 29,597	$ 796
PB0024	Economou Farm Pond	Retrofit Existing Detention Pond	1.5	0.67	29,142	$2	0.25	$14,571	$ 2,914	NA	$0	$ 17,485	$ 25,000	$ 25,000	$ 11,952	$ 437
PB0025	Exit 13 Gravel Wetland	Gravel wetland	5.6	0.57	24,699	$10	0.5	$123,493	$ 43,222	0.434	$52,080	$ 218,795	$ 25,000	$ 218,795	$ 29,931	$ 3,705
PB0026	Exit 14 Gravel Wetland	Gravel wetland	1.9	0.29	12,807	$10	0.5	$64,033	$ 22,412	0.372	$44,640	$ 131,085	$ 25,000	$ 131,085	$ 44,790	$ 1,921
PB0027	Fairpoint Communications	Detention Pond	4.8	0.59	25,744	$2	1.5	$77,232	$ 15,446	0.260	$31,200	$ 123,878	$ 25,000	$ 123,878	$ 19,477	$ 2,317
PB0028	Faith United Methodist Church	Detention Pond	1.0	0.15	6,490	$2	2	$25,962	$ 9,087	0.116	$13,920	$ 48,968	$ 25,000	$ 48,968	$ 33,983	$ 779
PB0029	Golf Course Road South	Detention Pond	1.7	0.23	10,106	$2	1	$20,212	$ 4,042	0.117	$14,040	$ 38,294	$ 25,000	$ 38,294	$ 14,556	$ 606
PB0030	Gonzo's Underground	Underground Detention	8.7	0.45	19,646	$12	2	$471,493	$ 165,023	0.21	$25,026	$ 661,542	$ 25,000	$ 661,542	$ 72,986	$ 10,000
PB0031	Grandview Drive North Detention Pond	Detention Pond	1.4	0.14	6,186	$2	1.5	$18,557	$ 6,495	0.066	$7,920	$ 32,971	$ 25,000	$ 32,971	$ 18,141	$ 557
PB0032	Grandview Drive West Detention Pond	Detention Pond	1.9	0.18	7,786	$2	1.5	$23,358	$ 8,175	0.034	$4,132	$ 35,666	$ 25,000	$ 35,666	$ 16,704	$ 701
PB0033	Hawthorne Circle Detention Pond	Detention Pond	2.5	0.15	6,534	$2	1.5	$19,602	$ 6,861	0.093	$11,160	$ 37,623	$ 25,000	$ 37,623	$ 10,378	$ 588
PB0034	Helen Ave Cul De Sac	Infiltration Basin	2.2	0.35	15,420	$4	1.5	$92,521	$ 32,383	0.093	$11,160	$ 136,064	$ 25,000	$ 136,064	$ 58,071	$ 2,776
PB0035	Hinesburg Road	Detention Pond	1.3	0.14	6,011	$2	1.5	$18,034	$ 6,312	0.070	$8,400	$ 32,746	$ 25,000	$ 32,746	$ 19,147	$ 541
PB0036	I-89 Swale	Detention Pond	1.9	0.53	23,130	$2	1.5	$69,391	$ 13,878	0.384	$46,080	$ 129,349	$ 25,000	$ 129,349	$ 43,596	$ 2,082
PB0037	Iby Street Gravel Wetland	Gravel wetland	1.1	0.07	2,919	$10	1.5	$43,778	$ 15,322	0.062	$7,440	$ 66,540	$ 25,000	$ 66,540	$ 51,829	$ 1,313
PB0038	INS Building Pond A Retrofit	Retrofit Existing Retention Pond	1.0	0.04	1,742	$2	0.25	$871	$ 305	NA	$0	$ 1,176	$ 25,000	$ 25,000	$ 1,196	$ 26
PB0039	INS Building Pond B Retrofit	Retrofit Existing Detention Pond	0.6	0.04	1,742	$2	0.25	$871	$ 305	NA	$0	$ 1,176	$ 25,000	$ 25,000	$ 1,926	$ 26
PB0040	Joy Drive Detention Pond	Detention Pond	1.3	0.21	9,148	$2	1.5	$27,443	$ 5,489	0.119	$14,280	$ 47,211	$ 25,000	$ 47,211	$ 24,586	$ 823
PB0041	Kennedy Drive Pond 2 Expansion	Retrofit Existing Detention Pond	2.4	0.16	6,926	$2	0.25	$3,463	$ 1,212	NA	$0	$ 4,675	$ 25,000	$ 25,000	$ 1,981	$ 104
PB0042	Kennedy Drive Pond 3 Expansion	Retrofit Existing Detention Pond	4.8	0.18	7,623	$2	0.25	$3,812	$ 762	NA	$0	$ 4,574	$ 25,000	$ 25,000	$ 949	$ 114
PB0043	Kennedy Drive Pond 4 Expansion	Retrofit Existing Detention Pond	4.8	0.25	10,977	$2	0.25	$5,489	$ 1,921	NA	$0	$ 7,410	$ 25,000	$ 25,000	$ 1,550	$ 165
PB0044	Kennedy Drive Pond 7 Expansion	Retrofit Existing Detention Pond	8.7	0.58	25,395	$2	0.25	$12,698	$ 4,444	NA	$0	$ 17,142	$ 25,000	$ 25,000	$ 1,978	$ 381
PB0045	K-Mart Plaza Infiltration	Infiltration Gallery	7.7	0.86	37,592	$12	2	$902,215	$ 180,443	0.32	$38,400	$ 1,121,058	$ 25,000	$ 1,121,058	$ 140,894	$ 10,000
PB0046	Knoll Circle	Detention Pond	2.2	0.80	34,935	$2	1.5	$104,805	$ 36,682	0.352	$42,240	$ 183,727	$ 25,000	$ 183,727	$ 65,503	$ 3,144
PB0047	Lane Press Roof	Infiltration Basin	4.2	0.69	30,100	$4	1.5	$180,600	$ 63,210	0.55	$66,000	$ 309,810	$ 25,000	$ 309,810	$ 58,468	$ 5,418
PB0048	Laurel Hill Drive	Infiltration Basin	1.8	0.41	17,642	$4	1.5	$105,851	$ 37,048	0.16	$19,200	$ 162,099	$ 25,000	$ 162,099	$ 77,662	$ 3,176
PB0049	Lilac Lane Infiltration Basin	Infiltration Basin	0.8	0.13	5,706	$4	1.5	$34,238	$ 6,848	0.027	$3,240	$ 44,326	$ 25,000	$ 44,326	$ 48,344	$ 1,027
PB0050	Lindenwood Drive Detention Pond	Detention Pond	2.2	0.21	8,930	$2	1.5	$26,789	$ 9,376	0.440	$52,800	$ 88,966	$ 25,000	$ 88,966	$ 16,500	$ 804

Potash Brook Flow Restoration Plan
Table E-1: Project Cost Estimates

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PB0051	Logwood Neighborhood Detention Pond	Detention Pond	18.4	0.61	26,397	$2	1.5	$79,192	$ 15,838	0.47	$56,280	$ 151,310	$ 25,000	$ 151,310	$ 5,154	$ 2,376
PB0052	Marcotte Central School	Detention Pond	1.8	0.19	8,102	$2	1.5	$24,306	$ 8,507	0.204	$24,480	$ 57,294	$ 25,000	$ 57,294	$ 17,966	$ 729
PB0053	Marine Connection	Detention Swale	4.7	0.21	9,322	$2	1.5	$27,966	$ 5,593	0.2	$24,000	$ 57,559	$ 25,000	$ 57,559	$ 7,088	$ 839
PB0054	Meadowland Bus. Park Pond #2	Retrofit Existing Detention Pond	2.9	1.70	74,226	$2	0.25	$37,113	$ 7,423	NA	$0	$ 44,536	$ 25,000	$ 44,536	$ 15,142	$ 1,113
PB0055	Merchant's Bank Detention Pond	Detention Pond	3.2	0.23	9,932	$2	2	$39,727	$ 13,904	0.101	$12,120	$ 65,751	$ 25,000	$ 65,751	$ 16,916	$ 1,192
PB0056	Miller Research Farm	Detention Pond	5.0	2.36	102,976	$2	1.5	$308,928	$ 61,786	0.773	$92,760	$ 463,473	$ 25,000	$ 463,473	$ 66,139	$ 9,268
PB0057	Nicklaus Circle	Detention Pond	2.2	0.54	23,392	$2	2	$93,567	$ 32,748	0.292	$35,040	$ 161,355	$ 25,000	$ 161,355	$ 56,644	$ 2,807
PB0058	North Country Credit Northwest Infiltration	Infiltration Trench	0.2	0.03	1,133	$12	2	$27,181	$ 9,514	0.006	$720	$ 37,415	$ 25,000	$ 37,415	$ 174,094	$ 815
PB0059	North Country Credit South Infiltration	Infiltration Gallery	0.6	0.12	5,184	$12	1.5	$93,306	$ 32,657	0.03	$3,125	$ 129,087	$ 25,000	$ 129,087	$ 203,749	$ 2,799
PB0060	O'Brien Drive Underground Infiltration	Underground Detention	2.9	0.54	23,348	$12	1.5	$420,267	$ 147,093	0.11	$13,015	$ 580,375	$ 25,000	$ 580,375	$ 197,409	$ 10,000
PB0061	Olympiad Apartments & Office Bldg Pond Retrofits	Retrofit Existing Detention Pond	3.7	0.06	2,396	$2	0.25	$1,198	$ 240	NA	$0	$ 1,437	$ 25,000	$ 25,000	$ 390	$ 36
PB0062	Panurgy Infiltration Basin	Infiltration Basin	0.8	0.08	3,528	$4	0.25	$3,528	$ 706	NA	$0	$ 4,234	$ 25,000	$ 25,000	$ 5,293	$ 106
PB0063	Park Rd Detention Pond	Detention Pond	1.3	0.42	18,339	$2	1.5	$55,016	$ 11,003	0.23	$27,600	$ 93,620	$ 25,000	$ 93,620	$ 51,984	$ 1,650
PB0064	Pillsbury Manor Infiltration Basin Retrofit	Retrofit to Infiltration Basin	0.4	0.07	2,962	$4	0.25	$2,962	$ 1,037	NA	$0	$ 3,999	$ 25,000	$ 25,000	$ 10,019	$ 89
PB0065	Quarry Hill South	Detention Swale	2.5	0.48	20,822	$2	1.5	$62,465	$ 21,863	0.399	$47,880	$ 132,208	$ 25,000	$ 132,208	$ 33,505	$ 1,874
PB0066	Queen City Park Road Detention Pond	Detention Pond	3.0	0.45	19,689	$2	0.5	$19,689	$ 3,938	0.63	$75,600	$ 99,227	$ 25,000	$ 99,227	$ 7,929	$ 591
PB0067	Shaws West	Underground Detention	1.7	0.16	6,839	$12	2	$164,134	$ 57,447	0.07	$8,447	$ 230,028	$ 25,000	$ 230,028	$ 129,256	$ 4,924
PB0068	South Burlington High School Infiltration	Infiltration Basin	3.1	0.44	19,297	$4	1.5	$115,782	$ 23,156	0.22	$26,400	$ 165,339	$ 25,000	$ 165,339	$ 44,851	$ 3,473
PB0069	South Burlington High School North	Underground Infiltration	4.3	0.69	30,013	$12	2	$720,308	$ 252,108	0.16	$19,551	$ 991,967	$ 25,000	$ 991,967	$ 228,267	$ 10,000
PB0070	South Meadows Pond	Retrofit Existing Detention Pond	4.7	0.37	16,117	$2	0.25	$8,059	$ 1,612	NA	$0	$ 9,670	$ 25,000	$ 25,000	$ 2,044	$ 242
PB0071	Southview Drive	Underground Detention	4.8	0.71	30,971	$12	2	$743,308	$ 260,158	0.37	$44,334	$ 1,047,799	$ 25,000	$ 1,047,799	$ 208,801	$ 10,000
PB0072	Staples Plaza Underground Detention Basin	Underground Detention	1.6	0.20	8,625	$12	2	$206,997	$ 72,449	0.07	$8,977	$ 288,423	$ 25,000	$ 288,423	$ 170,069	$ 6,210
PB0073	Stonehedge Circle	Detention Pond	1.3	0.20	8,843	$2	1.5	$26,528	$ 9,285	0.16	$18,720	$ 54,533	$ 25,000	$ 54,533	$ 28,423	$ 796
PB0074	Sugartree Lane	Detention Pond	1.1	0.12	5,009	$2	1.5	$15,028	$ 3,006	0.05	$6,000	$ 24,034	$ 25,000	$ 25,000	$ 17,108	$ 451
PB0075	Swift Estates Pond	Retrofit Existing Detention Pond	3.6	0.33	14,201	$2	0.25	$7,100	$ 1,420	NA	$0	$ 8,520	$ 25,000	$ 25,000	$ 2,388	$ 213
PB0076	Technology Park Pond Retrofit	Retrofit Existing Detention Pond	0.03	0.27	11,805	$2	0.25	$5,902	$ 1,180	NA	$0	$ 7,083	$ 25,000	$ 25,000	$ 238,633	$ 177
PB0077	Temple Detention Pond	Detention Pond	0.9	0.19	8,364	$2	1.5	$25,091	$ 5,018	0.14	$16,800	$ 46,909	$ 25,000	$ 46,909	$ 32,727	$ 753
PB0078	The Pines	Retrofit Existing Detention Pond	5.8	0.22	9,365	$2	0.25	$4,683	$ 937	NA	$0	$ 5,619	$ 25,000	$ 25,000	$ 961	$ 140
PB0079	UMall Detention Pond	Retrofit Existing Detention Pond	15.0	0.91	39,596	$2	0.25	$19,798	$ 6,929	NA	$0	$ 26,727	$ 25,000	$ 26,727	$ 1,786	$ 594
PB0080	UMall Infiltration 1	Retrofit Infiltration Gallery	5.5	0.31	13,547	$12	0.25	$40,641	$ 14,225	NA	$0	$ 54,866	$ 25,000	$ 54,866	$ 9,890	$ 1,219
PB0081	UMall Infiltration 2	Retrofit Infiltration Gallery	15.3	0.03	1,394	$12	0.25	$4,182	$ 1,464	NA	$0	$ 5,645	$ 25,000	$ 25,000	$ 369	$ 125
PB0082	UMall Sears Auto Pond	Gravel Wetland	9.3	0.61	26,670	$10	0.25	$66,674	$ 23,336	NA	$0	$ 90,010	$ 25,000	$ 90,010	$ 9,684	$ 2,000
PB0083	UVM Bio Research Complex	Bioretention	0.9	0.20	8,668	$10	1.5	$130,027	$ 45,509	0.104	$0	$ 175,536	$ 25,000	$ 175,536	$ 191,667	$ 3,901
PB0084	UVM Forestry Research Center - East Roof	Infiltration Gallery	0.4	0.06	2,396	$12	1	$28,750	$ 10,062	0.011	$0	$ 38,812	$ 25,000	$ 38,812	$ 95,055	$ 862
PB0085	UVM Forestry Research Center - West Roof	Infiltration Gallery	0.1	0.02	697	$12	1	$8,364	$ 2,927	0.034	$0	$ 11,291	$ 25,000	$ 25,000	$ 104,974	$ 251
PB0086	Vermont National Country Club Pond B	Retrofit Existing Detention Pond	8.6	0.43	18,600	$2	0.25	$9,300	$ 1,860	NA	$0	$ 11,160	$ 25,000	$ 25,000	$ 1,293	$ 279
PB0087	Vermont National Country Club Pond C	Retrofit Existing Detention Pond	0.5	0.85	36,939	$2	0.25	$18,469	$ 3,694	NA	$0	$ 22,163	$ 25,000	$ 25,000	$ 46,732	$ 554
PB0088	VT Gas Detention Pond	Detention pond	3.1	0.17	7,492	$2	2	$29,969	$ 10,489	0.099	$11,880	$ 52,339	$ 25,000	$ 52,339	$ 13,093	$ 899
PB0089	Wellesley Grove	Detention pond	2.1	0.27	11,718	$2	1.5	$35,153	$ 7,031	0.294	$35,280	$ 77,464	$ 25,000	$ 77,464	$ 19,659	$ 1,055
PB0090	Windridge Court	Infiltration Basin	0.6	0.10	4,312	$4	1.5	$25,875	$ 9,056	0.085	$10,200	$ 45,131	$ 25,000	$ 45,131	$ 60,479	$ 776
PB0091	Woodcrest Drive	Infiltration Basin	2.4	0.50	21,606	$4	1.5	$129,635	$ 25,927	0.224	$26,880	$ 182,441	$ 25,000	$ 182,441	$ 65,362	$ 3,889
PB0092	Woodlands Industrial Park	Retrofit Existing Detention Pond	3.9	0.37	16,161	$2	0.25	$8,080	$ 2,828	NA	$0	$ 10,909	$ 25,000	$ 25,000	$ 2,804	$ 242
PB0093	Worcester Street	Underground Detention	3.8	0.56	24,394	$12	2	$585,446	$ 204,906	0.258	$30,905	$ 821,258	$ 25,000	$ 821,258	$ 206,899	$ 10,000
PB0094	Dorset Park Pond	Detention Pond	5.9	0.30	13,024	$2	0.25	$16,512	$ 3,302	NA	$0	$ 19,815	$ 10,000	$ 19,815	$ 3,331	$ 495
PB0095	Hannaford's Pond	Detention Pond	7.8	0.34	14,723	$2	0.25	$17,362	$ 3,472	NA	$0	$ 20,834	$ 10,000	$ 20,834	$ 2,687	$ 521
PB0096	Lowes Pond	Detention Pond	10.1	0.20	8,538	$2	0.25	$14,269	$ 2,854	NA	$0	$ 17,123	$ 10,000	$ 17,123	$ 1,703	$ 428
PB0097	Vermont National Country Club Pond B	Detention Pond	8.6	0.92	40,119	$2	0.25	$30,059	$ 6,012	NA	$0	$ 36,071	$ 10,000	$ 36,071	$ 4,181	$ 902
PB0098	Technology Park Pond 1	Detention Pond	3.8	0.37	15,987	$2	0.25	$17,993	$ 3,599	NA	$0	$ 21,592	$ 10,000	$ 21,592	$ 5,720	$ 540
PB0099	Lot A Mountain View Pond	Detention Pond	2.6	0.02	784	$2	0.25	$10,392	$ 2,078	NA	$0	$ 12,470	$ 10,000	$ 12,470	$ 4,888	$ 312
PB0100	Kennedy Dr Pond 1	Detention Pond	1.3	0.05	2,047	$2	0.25	$11,024	$ 2,205	NA	$0	$ 13,228	$ 10,000	$ 13,228	$ 9,912	$ 331

Potash Brook Flow Restoration Plan
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BMP ID	Project Name	Retrofit Description	Impervious Area Managed (acres)	Design Control Volume (ac-ft)	Design Control Volume (cf)	Base Unit Cost[1] ($/cf)	Site Adjustment Factor[1]	Base Construction Cost[2]	Permits & Engineering Contingency	BMP Footprint Area (acres)	Land Cost	Summed Project Cost	Minimum Project Cost[3]	Final Project Cost	Cost per Impervious Acre	O&M
PB0101	Quarry Hill Pond	Detention Pond	6.2	0.00	0	$2	0.25	$10,000	$ 2,000	NA	$0	$ 12,000	$ 10,000	$ 12,000	$ 1,940	$ 300
PB0102	Heatherfield P1	Detention Pond	0.9	0.00	0	$2	0.25	$10,000	$ 2,000	NA	$0	$ 12,000	$ 10,000	$ 12,000	$ 13,356	$ 300
PB0103	Heatherfield P2	Detention Pond	7.1	0.03	1,220	$2	0.25	$10,610	$ 2,122	NA	$0	$ 12,732	$ 10,000	$ 12,732	$ 1,799	$ 318
PB0104	Heatherfield P3	Detention Pond	2.7	0.05	2,222	$2	0.25	$11,111	$ 2,222	NA	$0	$ 13,333	$ 10,000	$ 13,333	$ 4,924	$ 333
PB0105	Winding Brook	Detention Pond	3.3	0.11	4,661	$2	0.25	$12,330	$ 2,466	NA	$0	$ 14,797	$ 10,000	$ 14,797	$ 4,457	$ 370
PB0106	Mountainview Pond b	Detention Pond	0.6	0.08	3,398	$2	0.25	$11,699	$ 2,340	NA	$0	$ 14,039	$ 10,000	$ 14,039	$ 23,024	$ 351
PB0107	Farrell St Pond	Detention Pond	11.0	0.05	2,004	$2	0.25	$11,002	$ 2,200	NA	$0	$ 13,202	$ 10,000	$ 13,202	$ 1,197	$ 330

Notes:

1. Project costs are based on the Horsley-Witten Spreadsheet Method
2. $10,000 is added to the base construction cost for a CMAC valve installation.
3. Minimum project costs are $10,000 for simple retrofits and $25,000 otherwise. The "Final Project Cost" is the greater of the "Summed Project Costs" or the "Minimum Project Costs".

Potash Brook Flow Restoration Plan
Table E-2: Potash Brook Watershed BMP Project Scoring

ID #	Project Name	Expired Permit	MS4	BMP Type [1]	Project Cost Estimate [2]	Retrofit Description	Total Score [3]
PB0001	1050 Hinesburg Road	No Permit	South Burlington	DP	$27,000	There is an existing wet depression here where stormwater is already routed. Propose to retrofit pond to meet CPv standards.	11
PB0002	110 Kimball Ave - North Infiltration Basin	1-1504a	South Burlington	IB	$25,000	Runoff is bypassing infiltration basin and sheet flowing to a swale with direct discharge to the brook. Add trench along west edge of parking lot to direct runoff to infiltration basin. Expand basin to accommodate increased volume.	15
PB0003	110 Kimball Ave - South Infiltration Basin	1-1504b	South Burlington	IB	$10,000	Retrofit outlet structure and add proposed outlet control riser that was not constructed.	17
PB0004	189 Cloverleaf Detention Pond	No Permit	VTrans	DP	$59,000	Add outlet structure to area that is already depressed to detain stormwater. Reroute stormline from Shelburne Rd to this area.	21
PB0005	189 Ramp Detention Pond	2-0619	VTrans	DP	$101,000	Detain stormwater from a large section of Dorset St. Intercept stormline near Kennedy Dr and reroute to the area between 189 ramps.	21
PB0006	30 Kimball Ave Swale Retrofit	1-1526; 6269-9030	South Burlington	DS	$25,000	Retrofit existing swale detention to meet CPv. Expand swale to accommodate modified outlet structure.	15
PB0007	Adelphia Cable Pond Retrofit	1-1000; 6291-9030	South Burlington	DP	$25,000	Reroute drainage from Kimball Ave to this detention pond behind Adelphia Cable. Retrofit and expand existing pond to detain CPv.	17
PB0008	Adirondack Street	2-0312	South Burlington	UD	$845,000	Construct underground detention chambers under ROW and grassed shoulder.	15
PB0009	Airport Drive	No Permit	BTV	IG	$439,000	Construct subsurface infiltration chambers in southernmost lot where houses will be removed. Intercept stormline running south down Airport Dr.	20
PB0010	Ashbrook Drive	2-0101	South Burlington	DP	$42,000	Reroute stormwater and detain southwest of Dorset St behind apartment buildings.	14
PB0011	Blue Mall Infiltration	2-0144	South Burlington	IG	$531,000	Construct underground infiltration chambers in the southwest edge of parking lot. Overflow to existing stormline that flows to Dorset St.	16
PB0012	Brookwood Drive Pond	2-0794; 2-0619	South Burlington	DP	$394,000	Construct new detention pond to detain this large outfall. Forebay to be located in empty lot near Brookwood Dr.	22
PB0013	Burlington Price Chopper	No Permit	Burlington	GW	$1,459,000	Construct new gravel wetland in area between parking lot and stream to the south of parking lot.	14
PB0014	Chelsea Circle	2-0767	South Burlington	IB	$115,000	Construct new infiltration basin constructed to south of existing swale, which receives flow from Chelsea Cir condos and Timberlane Dental parking lot. Neighborhood icing and flooding issues can be mitigated with this project.	21
PB0015	Church of Jesus Christ of Latterday Saints	2-0179; 6318-9030	South Burlington	DS	$29,000	Add detention to swale to the west of parking area with outlet control to detain CPv	16
PB0016	Community Bible Church Infiltration	No Permit	South Burlington	IT	$975,000	Construct linear infiltration trench (perforated pipe) along back of several businesses.	20
PB0017	Domino's	No Permit	South Burlington	DP	$54,000	Construct a new detention pond behind parking area. Add catchbasin along Swift St to also capture half of the road drainage.	10
PB0018	Dorset Commons Pond	1-0242	South Burlington	DP	$168,000	Construct new detention pond in wooded area behind Dorset Commons.	21
PB0019	Dumont Park Stormwater Project	No Permit	South Burlington	DP	$69,000	Construct new detention pond to the north of Barrett St where two stormlines converge.	20
PB0020	Dynapower	1-0618	South Burlington	DP	$25,000	Reroute roof drainage to existing detention pond. Formalize pond and retrofit to detain CPv.	22

Potash Brook Flow Restoration Plan
Table E-2: Potash Brook Watershed BMP Project Scoring

ID #	Project Name	Expired Permit	MS4	BMP Type [1]	Project Cost Estimate [2]	Retrofit Description	Total Score [3]
PB0021	East Terrace Detention Pond	No Permit	South Burlington	DP	$102,000	Construct new linear detention basin near the outfall to the east side of East Terrace.	14
PB0022	Eastwood Commons Pond Expansion	1-1438	South Burlington	DP	$25,000	Reroute area to the west of existing pond (eastern side of Shaw's plaza) to this pond. Add a new connection between these stormwater systems to the east of the Shaw's property. Expand pond and modify outlet structure to accommodate additional drainage.	23
PB0023	Easy Self Storage	2-0167	South Burlington	DP	$53,000	Create new detention basin to the north of the storage area.	16
PB0024	Economou Farm Pond	1-1241d	South Burlington	DP	$25,000	Retrofit existing dry pond to detain CPv. Expand pond and retrofit outlet structure. Add forebay.	19
PB0025	Exit 13 Gravel Wetland	No Permit	VTrans	GW	$219,000	Propose new gravel wetland in depressed triangle greenspace between ramps. Reroute several culverts to this area.	25
PB0026	Exit 14 Gravel Wetland	No Permit	VTrans	GW	$131,000	Propose new gravel wetland in depressed triangle greenspace between ramps. Reroute several culverts to this area.	20
PB0027	Fairpoint Communications	2-0212	South Burlington	DP	$124,000	Construct new detention pond to the east of property in grassed area. Two outfalls on site drain to wetland swales that need to be rerouted to the east.	19
PB0028	Faith United Methodist Church	No Permit	South Burlington	DP	$49,000	Construct new underground detention behind church (northwest) in grassy area. Current outfall is eroded.	13
PB0029	Golf Course Road South	1-1241	South Burlington	DP	$38,000	Construct new detention basin at the end of pipe before it enters the golf course. Existing infrastructure already drains to swale.	17
PB0030	Gonzo's Underground	2-0811	South Burlington	UD	$662,000	Propose to intercept stormline that flows west along Williston Rd to underground detention chambers under grassed area in front of Budget Car Rental / Gonzo's plaza.	16
PB0031	Grandview Drive North Detention Pond	2-0238; 2-0737	South Burlington	DP	$33,000	Construct new surface detention BMP following outfall, which is currently broken and experiencing significant erosion.	14
PB0032	Grandview Drive West Detention Pond	2-0238; 2-0737	South Burlington	DP	$36,000	Construct new surface detention basin to the west of Dorset St. Reroute stormline away from brook to new BMP.	13
PB0033	Hawthorne Circle Detention Pond	No Permit	South Burlington	DP	$38,000	Construct new detention basin in greenspace formed in the triangle between three garages.	13
PB0034	Helen Ave Cul De Sac	No Permit	South Burlington	IB	$136,000	Construct new infiltration basin in the cul de sac at the end of Helen Ave, which would provide significant water quality benefit.	16
PB0035	Hinesburg Road	No Permit	South Burlington	DP	$33,000	Reroute stormwater to existing catchbasin on Deane St and detain to the west of Hinesburg Rd to the south of existing houses.	16
PB0036	I-89 Swale	No Permit	VTrans	MF	$129,000	Construct median filter in depressed area between north and south I-89 lanes. Reroute several culverts.	21
PB0037	Iby Gravel Wetland	No Permit	South Burlington	GW	$67,000	Construct new gravel wetland at the end of Iby St to capture stormwater for the street.	15
PB0038	INS Building Pond A Retrofit	1-0969	South Burlington	RP	$25,000	Retrofit existing detention pond. Add forebay and construct outlet structure with low flow orifice to meet CPv standards.	13
PB0039	INS Building Pond B Retrofit	1-0969b	South Burlington	DP	$25,000	Retrofit existing detention pond. Add forebay and construct outlet structure with low flow orifice to meet CPv standards.	13

Potash Brook Flow Restoration Plan
Table E-2: Potash Brook Watershed BMP Project Scoring

ID #	Project Name	Expired Permit	MS4	BMP Type [1]	Project Cost Estimate [2]	Retrofit Description	Total Score [3]
PB0040	Joy Dr Detention Pond	No Permit	South Burlington	DP	$47,000	Construct new surface BMP in adjacent flat area near the Green Mountain Power transmission corridor.	12
PB0041	Kennedy Dr Pond 2 Expansion	1-1582b; 2-1069	South Burlington	DP	$25,000	Retrofit existing detention pond to accommodate additional drainage from The Edge and 1 Twin Oaks.	18
PB0042	Kennedy Dr Pond 3 Expansion	1-1582c	South Burlington	DP	$25,000	Drainage for offices to the east of Timber Ln currently discharges to a swale along Kennedy Dr heading west (direction of the existing pond). Reroute culvert that crosses under access ramp to pond to pond. Expand pond and retrofit to detain CPv.	19
PB0043	Kennedy Dr Pond 4 Expansion	1-1582d; 1-0237; 1-1023; 1-1290	South Burlington	DP	$25,000	Reroute stormline from Chatham Green and swale along Hinesburg Rd to existing detention pond. Expand pond to accommodate additional drainage area and detain CPv.	20
PB0044	Kennedy Dr Pond 7 Expansion	1-1582g; 1-0233	South Burlington	DP	$25,000	Reroute stormline that currently outfalls behind Key Bank to existing detention pond. Expand pond footprint to accommodate additional drainage area and detain CPv.	22
PB0045	K-Mart Plaza Infiltration	No Permit	South Burlington	IG	$1,121,000	Construct new underground infiltration chambers in K-Mart parking lot.	17
PB0046	Knoll Circle	2-0220	South Burlington	DP	$184,000	Construct new surface detention basin with swale inlet. Current stormline draining subdivision already enters swale, which also drains area to the west.	18
PB0047	Lane Press Roof	1-1337	South Burlington	IB	$310,000	Capture roof drainage in a new infiltration basin. Roof drains already flows to grassed area where treatment is proposed.	23
PB0048	Laurel Hill Drive	No Permit	South Burlington	IB	$162,000	Construct new infiltration basin to the north of houses before stormline pipe enters riparian buffer.	16
PB0049	Lilac Ln Infiltration Basin	No Permit	South Burlington	IB	$44,000	Formalize infiltration basin in depressed area at the end of Lilac Ln.	13
PB0050	Lindenwood Drive Detention Pond	No Permit	South Burlington	DP	$89,000	Add catchbasins and infrastructure to reroute stormwater to the east of Lindenwood Dr. Part of Brewer Pkwy drains to this area as well. Propose to create one detention basin to detain drainage from both streets. Lindenwood Dr has existing puddling and icing issues. This BMP would also mitigate those issues.	17
PB0051	Logwood Neighborhood Detention Pond	No Permit	South Burlington	DP	$151,000	Construct new end of pipe surface impoundment BMP behind Lean Dental Group. Outfall is currently eroded.	21
PB0052	Marcotte Central School	No Permit	South Burlington	DP	$57,000	Construct new detention basin in wooded area directly south of school parking lot. Route outfall to existing stormline. Potential educational benefit.	16
PB0053	Marine Connection	No Permit	South Burlington	DS	$58,000	Add detention to existing swale near the back of the large Marine Connection building. Expand swale to accommodate additional volume.	16
PB0054	Meadowland Business Park Pond 2	1-1269_4290-9020.3 Lot 10	South Burlington	DP	$45,000	Retrofit existing detention pond. Add forebay and construct outlet structure with low flow orifice to meet CPv standards.	22
PB0055	Merchant's Bank Detention Pond	2-1171; 6275-9030; 6269-9030; 2-0939	South Burlington	DP	$66,000	Route stormwater from Allstate Insurance west to Merchant's Bank and provide detention in grassed area	18

Potash Brook Flow Restoration Plan
Table E-2: Potash Brook Watershed BMP Project Scoring

ID #	Project Name	Expired Permit	MS4	BMP Type [1]	Project Cost Estimate [2]	Retrofit Description	Total Score [3]
PB0056	Miller Research Farm	No Permit	UVM	DP	$463,000	Reroute culvert east across Spear St and detain water to the south of the UVM farm.	24
PB0057	Nicklaus Circle	1-1241, 4049-9030	South Burlington	DP	$161,000	Construct new linear detention feature to the north of Nicklaus Cir where the stormline and swale converge.	17
PB0058	North Country Credit North West Infiltration	No Permit	South Burlington	IT	$37,000	Install perforated pipe to the north of parking lot in grassed area to infiltrate stormwater.	10
PB0059	North Country Credit South Infiltration	No Permit	South Burlington	IG	$129,000	Construct underground infiltration chambers in the southeast corner of parking lot. Overflow to existing stormline.	11
PB0060	O'Brien Drive Underground Detention	No Permit	South Burlington	UD	$580,000	Construct underground storage chambers in open lot between existing houses.	16
PB0061	Olympiad Apartments & Office Building Pond Retrofit	1-1452	South Burlington	DP	$25,000	Retrofit existing detention pond. Add forebay, clean out vegetation, and ensure pond detains CPv.	17
PB0062	Panurgy Infiltration Basin	3409-9010	South Burlington	IB	$25,000	Retrofit and expand existing infiltration basin to infiltrate the CPv.	14
PB0063	Park Road Detention Pond	1-1241	South Burlington	DP	$94,000	Propose to reroute swale on southern side of Park Rd to the north and detain in wooded area.	16
PB0064	Pillsbury Manor Infiltration Basin Retrofit	1-1015	South Burlington	IB	$25,000	Retrofit existing pond to infiltration basin. Overflow to existing culvert.	15
PB0065	Quarry Hill South	6322-9030	South Burlington	DS	$132,000	Add detention to existing swale running northeast behind garages.	17
PB0066	Queen City Park Road Detention Pond	No Permit	VTrans	DP	$99,000	Add detention to existing depressed area where stormlines already outfall. Drainage from Shelburne Rd is assumed to be already rerouted to larger depression to the north (see project entitled 189 Cloverleaf).	19
PB0067	Shaws West	No Permit	South Burlington	UD	$230,000	Construct underground detention in vegetated island along west side of parking lot. Reroute last catchbasin in southwest corner of parking to this area.	10
PB0068	South Burlington High School Infiltration	No Permit	South Burlington	IB	$165,000	Construct new infiltration basin to the southeast of sports field in currently wooded area.	21
PB0069	South Burlington High School North	6174-INDS.A	South Burlington	IG	$992,000	Construct dry wells to infiltrate stormwater from the high school parking lot and middle school roof. Potential educational benefit.	23
PB0070	South Meadows Pond	1-0661	Burlington	DP	$25,000	Retrofit existing detention pond to meet CPv standards. Add forebay and expand pond. Upgrade outlet structure.	19
PB0071	Southview Drive	No Permit	South Burlington	UD	$1,048,000	Construct underground detention chambers in ROW and grassed area. Road is 30ft wide and could be narrowed for storage.	19
PB0072	Staples Plaza Underground Detention B	No Permit	South Burlington	UD	$288,000	Construct underground detention chambers in southeast corner of parking lot.	11
PB0073	Stonehedge Circle	2-0100	South Burlington	DP	$55,000	Construct bioretention along road in grassed area with discharge to existing catchbasin.	13
PB0074	Sugartree Lane	2-0878	South Burlington	DP	$25,000	Expand existing depressed area at the end of Sugartree Ln , which appears to be an abandoned detention area. Reroute catchbasins to pond. Upgrade pond outlet.	16
PB0075	Swift Estates Pond	No Permit	South Burlington	DP	$25,000	Retrofit existing detention pond to meet CPv standards. Add forebay and upgrade outlet structure.	15
PB0076	Technology Park Pond Retrofit	1-1458 P4	South Burlington	DP	$25,000	Retrofit existing detention pond to meet CPv standards. Upgrade outlet structure and expand pond to accommodate additional storage.	11

Potash Brook Flow Restoration Plan
Table E-2: Potash Brook Watershed BMP Project Scoring

ID #	Project Name	Expired Permit	MS4	BMP Type [1]	Project Cost Estimate [2]	Retrofit Description	Total Score [3]
PB0077	Temple Detention Pond	No Permit	South Burlington	DP	$47,000	Propose new detention pond in depressed area in front of Temple by intersection of Dorset St and Swift St. Stormwater already collects in this area.	9
PB0078	The Pines	1-1117	South Burlington	DP	$25,000	Retrofit existing pond to meet CPv standards. Add forebay and outlet structure with low flow orifice; expand pond.	20
PB0079	UMall Detention Pond	1-0503c; 6282-9030	South Burlington	DP	$27,000	Retrofit existing detention pond to detain CPv. Upgrade outlet structure and expand pond.	23
PB0080	UMall Infiltration 1	1-0503b; 6282-9030	South Burlington	IG	$25,000	Retrofit existing infiltration gallery to infiltrate the CPv.	22
PB0081	UMall Infiltration 2	1-0503a; 6282-9030	South Burlington	IG	$55,000	Retrofit existing infiltration gallery to infiltrate the CPv.	25
PB0082	UMall Sears Auto Pond	1-0503d; 6282-9030; 2-0619	South Burlington	GW	$90,000	Construct large gravel wetland in unused section of parking lot in Umall (to the east of the party store). Reroute Dorset St stormline here.	22
PB0083	UVM Bio Research Complex	5269-9003.R	UVM	DP	$176,000	Construct bioretention to treat stormwater in grassed area near the center of complex. Potentially move BMP if site is built-out further.	13
PB0084	UVM Forestry Research Center - East Roof	No Permit	UVM	IG	$39,000	Construct dry well to capture and infiltrate roof drain. Potential educational benefit.	15
PB0085	UVM Forestry Research Center - West Roof	No Permit	UVM	IG	$25,000	Construct dry well to capture and infiltrate roof drain. Potential educational benefit.	12
PB0086	Vermont National Country Club Pond B	1-1241b	South Burlington	DP	$25,000	Retrofit existing detention pond. Add forebay and expand pond.	21
PB0087	Vermont National Country Club Pond C	1-1241c	South Burlington	DP	$25,000	Retrofit existing detention pond. Add forebay and expand pond.	17
PB0088	VT Gas Detention Pond	2-0228; 6293-9030	South Burlington	DP	$52,000	Reroute stormline from Swift St to grassed area to the north of VT Gas property and construct new	17
PB0089	Wellesley Grove	2-1023	South Burlington	DP	$77,000	Add outlet control to existing depression to detain stormwater. Outfall is currently eroded.	15
PB0090	Windridge Court	2-0824	South Burlington	IB	$45,000	Construct new infiltration basin to infiltrate stormwater to the west of this small development.	15
PB0091	Woodcrest Drive	No Permit	South Burlington	IB	$182,000	Infiltrate stormwater to the southwest of drainage area. Reroute stormline south to new BMP. Construct new swale to drain the end of Woodcrest Dr, which is currently eroding slope following road.	18
PB0092	Woodlands Industrial Park	1-0526/ 6279-9030	South Burlington	DP	$25,000	Reroute roof drainage to existing detention pond. Retrofit pond to accommodate additional volume and detain CPv.	18
PB0093	Worcester Street	2-0312	South Burlington	UD	$821,000	Construct underground detention chambers under ROW and grassed shoulder.	15
PB0094	Dorset Park Pond	1-1033	South Burlington	DP	$20,000	Retrofit pond with CMAC valve.	21
PB0095	Hannaford's Pond	1-1214	South Burlington	DP	$21,000	Retrofit pond with CMAC valve.	17
PB0096	Lowes Pond	1-1214	South Burlington	DP	$17,000	Retrofit pond with CMAC valve.	17
PB0097	Vermont National Country Club Pond B	1-1241b	South Burlington	DP	$36,000	Retrofit pond with CMAC valve.	19
PB0098	Technology Park Pond 1	1-1254	South Burlington	DP	$22,000	Retrofit pond with CMAC valve.	15
PB0099	Lot A Mountain View Pond	1-1536	South Burlington	DP	$12,000	Retrofit pond with CMAC valve.	13

Potash Brook Flow Restoration Plan
Table E-2: Potash Brook Watershed BMP Project Scoring

ID #	Project Name	Expired Permit	MS4	BMP Type [1]	Project Cost Estimate [2]	Retrofit Description	Total Score [3]
PB0100	Kennedy Dr Pond 1	1-1582a	South Burlington	DP	$13,000	Retrofit pond with CMAC valve.	17
PB0101	Quarry Hill Pond	3602-INDS	South Burlington	DP	$12,000	Retrofit pond with CMAC valve.	14
PB0102	Heatherfield P1	3658a	South Burlington	DP	$12,000	Retrofit pond with CMAC valve.	12
PB0103	Heatherfield P2	3658b	South Burlington	DP	$13,000	Retrofit pond with CMAC valve.	17
PB0104	Heatherfield P3	3658c	South Burlington	DP	$13,000	Retrofit pond with CMAC valve.	16
PB0105	Winding Brook	3691-INDS	South Burlington	DP	$15,000	Retrofit pond with CMAC valve.	18
PB0106	Mountainview Pond b	3805-INDS	South Burlington	DP	$14,000	Retrofit pond with CMAC valve.	12
PB0107	Farrell St Pond	5080-INDO	South Burlington	DP	$13,000	Retrofit pond with CMAC valve.	21

Notes:

1. BMP Type Abbreviations: GW: Gravel Wetland, GS: Grass Swale, RS: Retention Swale, ST: Settling Tank, OF: Control orifice, IB: Infiltration Basin, IT: Infiltration Trench, DP: Detention Pond, UD: Underground Detention, RP: Retention Pond, DS: Detention Swale, DW: Dry Well, IG: Infiltration Gallery, SF: Sand Filter, BR: Bioretention, MF: Median Filter.

2. Project costs estimates are rounded.

3. Total score is based on scoring criteria and scoring key presented in Tables D-1 and D-2 in Appendix D.

Potash Brook Flow Restoration Plan
Table E-3: Potash Brook Watershed BMP Project Implementation Schedule

ID #	Project Name	Expired Permit	MS4	BMP Type [1]	Retrofit Description	Implementation Year	Project Cost Estimate [2]	Project Cost Estimate w/ Inflation [3]
PB0012	Brookwood Drive Pond	2-0794; 2-0619	South Burlington	DP	Construct new detention pond to detain this large outfall. Forebay to be located in empty lot near Brookwood Dr.	2018	$394,000	$443,000
PB0082	UMall Sears Auto Pond	1-0503d; 6282-9030; 2-0619	South Burlington	GW	Construct large gravel wetland in unused section of parking lot in Umall (to the east of the party store). Reroute Dorset St stormline here.	2019	$90,000	$104,000
PB0091	Woodcrest Drive	No Permit	South Burlington	IB	Infiltrate stormwater to the southwest of drainage area. Reroute stormline south to new BMP. Construct new swale to drain the end of Woodcrest Dr, which is currently eroding slope following road.	2019	$182,000	$211,000
PB0094	Dorset Park Pond	1-1033	South Burlington	DP	Investigate option to retrofit pond with under drain and include CMAC valve to detain CPv.	2019	$20,000	$23,000
PB0105	Winding Brook	3691-INDS	South Burlington	DP	Investigate option to retrofit pond with CMAC valve to detain CPv.	2019	$15,000	$17,000
PB0107	Farrell St Pond	5080-INDO	South Burlington	DP	Investigate option to retrofit pond with CMAC valve to detain CPv.	2019	$13,000	$15,000
PB0051	Logwood Neighborhood Detention Pond	No Permit	South Burlington	DP	Construct new end of pipe surface impoundment BMP behind Lean Dental Group. Outfall is currently eroded.	2020	$151,000	$180,000
PB0066	Queen City Park Road Detention Pond	No Permit	VTrans	DP	Add detention to existing depressed area where stormlines already outfall. Drainage from Shelburne Rd is assumed to be already rerouted to larger depression to the north (see project entitled 189 Cloverleaf).	2020	$99,000	$118,000
PB0022	Eastwood Commons Pond Expansion	1-1438	South Burlington	DP	Reroute area to the west of existing pond (eastern side of Shaw's plaza) to this pond. Add a new connection between these stormwater systems to the east of the Shaw's property. Expand pond and modify outlet structure to accommodate additional drainage.	2021	$25,000	$31,000
PB0024	Economou Farm Pond	1-1241d	South Burlington	DP	Retrofit existing dry pond to detain CPv. Expand pond and retrofit outlet structure. Add forebay.	2021	$25,000	$31,000
PB0029	Golf Course Road South	1-1241	South Burlington	DP	Construct new detention basin at the end of pipe before it enters the golf course. Existing infrastructure already drains to swale.	2021	$38,000	$47,000
PB0050	Lindenwood Drive Detention Pond	No Permit	South Burlington	DP	Add catchbasins and infrastructure to reroute stormwater to the east of Lindenwood Dr. Part of Brewer Pkwy drains to this area as well. Propose to create one detention basin to detain drainage from both streets. Lindenwood Dr has existing puddling and icing issues. This BMP would also mitigate those issues.	2021	$89,000	$109,000
PB0063	Park Road Detention Pond	1-1241	South Burlington	DP	Propose to reroute swale on southern side of Park Rd to the north and detain in wooded area.	2021	$94,000	$116,000
PB0067	Shaws West	No Permit	South Burlington	UD	Construct underground detention in vegetated island along west side of parking lot. Reroute last catchbasin in southwest corner of parking to this area.	2021	$230,000	$283,000
PB0072	Staples Plaza Underground Detention B	No Permit	South Burlington	UD	Construct underground detention chambers in southeast corner of parking lot.	2021	$288,000	$354,000
PB0086	Vermont National Country Club Pond B	1-1241b	South Burlington	DP	Retrofit existing detention pond. Add forebay and expand pond.	2021	$25,000	$31,000
PB0087	Vermont National Country Club Pond C	1-1241c	South Burlington	DP	Retrofit existing detention pond. Add forebay and expand pond.	2021	$25,000	$31,000
PB0102	Heatherfield P1	3658a	South Burlington	DP	Investigate option to retrofit pond with CMAC valve to detain CPv.	2021	$12,000	$15,000
PB0103	Heatherfield P2	3658b	South Burlington	DP	Investigate option to retrofit pond with CMAC valve to detain CPv.	2021	$13,000	$16,000
PB0104	Heatherfield P3	3658c	South Burlington	DP	Investigate option to retrofit pond with CMAC valve to detain CPv.	2021	$13,000	$16,000
PB0004	189 Cloverleaf Detention Pond	No Permit	VTrans	DP	Add outlet structure to area that is already depressed to detain stormwater. Reroute stormline from Shelburne Rd to this area.	2022	$59,000	$75,000
PB0007	Adelphia Cable Pond Retrofit	1-1000; 6291-9030	South Burlington	DP	Reroute drainage from Kimball Ave to this detention pond behind Adelphia Cable. Retrofit and expand existing pond to detain CPv.	2022	$25,000	$32,000
PB0013	Burlington Price Chopper	No Permit	Burlington	GW	Construct new gravel wetland in area between parking lot and stream to the south of parking lot.	2022	$1,459,000	$1,848,000
PB0019	Dumont Park Stormwater Project	No Permit	South Burlington	DP	Construct new detention pond to the north of Barrett St where two stormlines converge.	2022	$69,000	$87,000

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ID #	Project Name	Expired Permit	MS4	BMP Type [1]	Retrofit Description	Implementation Year	Project Cost Estimate [2]	Project Cost Estimate w/ Inflation [3]
PB0031	Grandview Drive North Detention Pond	2-0238; 2-0737	South Burlington	DP	Construct new surface detention BMP following outfall, which is currently broken and experiencing significant erosion.	2022	$33,000	$42,000
PB0032	Grandview Drive West Detention Pond	2-0238; 2-0737	South Burlington	DP	Construct new surface detention basin to the west of Dorset St. Reroute stormline away from brook to new BMP.	2022	$36,000	$46,000
PB0037	Iby Gravel Wetland	No Permit	South Burlington	GW	Construct new gravel wetland at the end of Iby St to capture stormwater for the street.	2022	$67,000	$85,000
PB0083	UVM Bio Research Complex	5269-9003.R	UVM	DP	Construct bioretention to treat stormwater in grassed area near the center of complex. Potentially move BMP if site is built-out further.	2022	$176,000	$223,000
PB0002	110 Kimball Ave - North Infiltration Basin	1-1504a	South Burlington	IB	Runoff is bypassing infiltration basin and sheet flowing to a swale with direct discharge to the brook. Add trench along west edge of parking lot to direct runoff to infiltration basin. Expand basin to accommodate increased volume.	2023	$25,000	$33,000
PB0003	110 Kimball Ave - South Infiltration Basin	1-1504b	South Burlington	IB	Retrofit outlet structure and add proposed outlet control riser that was not constructed.	2023	$10,000	$13,000
PB0006	30 Kimball Ave Swale Retrofit	1-1526; 6269-9030	South Burlington	DS	Retrofit existing swale detention to meet CPv. Expand swale to accommodate modified outlet structure.	2023	$25,000	$33,000
PB0011	Blue Mall Infiltration	2-0144	South Burlington	IG	Construct underground infiltration chambers in the southwest edge of parking lot. Overflow to existing stormline that flows to Dorset St.	2023	$531,000	$693,000
PB0015	Church of Jesus Christ of Latterday Saints	2-0179; 6318-9030	South Burlington	DS	Add detention to swale to the west of parking area with outlet control to detain CPv	2023	$29,000	$38,000
PB0018	Dorset Commons Pond	1-0242	South Burlington	DP	Construct new detention pond in wooded area behind Dorset Commons.	2023	$168,000	$219,000
PB0020	Dynapower	1-0618	South Burlington	DP	Reroute roof drainage to existing detention pond. Formalize pond and retrofit to detain CPv.	2023	$25,000	$33,000
PB0023	Easy Self Storage	2-0167	South Burlington	DP	Create new detention basin to the north of the storage area.	2023	$53,000	$69,000
PB0027	Fairpoint Communications	2-0212	South Burlington	DP	Construct new detention pond to the east of property in grassed area. Two outfalls on site drain to wetland swales that need to be rerouted to the east.	2023	$124,000	$162,000
PB0034	Helen Ave Cul De Sac	No Permit	South Burlington	IB	Construct new infiltration basin in the cul de sac at the end of Helen Ave, which would provide significant water quality benefit.	2023	$136,000	$177,000
PB0038	INS Building Pond A Retrofit	1-0969	South Burlington	RP	Retrofit existing detention pond. Add forebay and construct outlet structure with low flow orifice to meet CPv standards.	2023	$25,000	$33,000
PB0039	INS Building Pond B Retrofit	1-0969b	South Burlington	DP	Retrofit existing detention pond. Add forebay and construct outlet structure with low flow orifice to meet CPv standards.	2023	$25,000	$33,000
PB0045	K-Mart Plaza Infiltration	No Permit	South Burlington	IG	Construct new underground infiltration chambers in K-Mart parking lot.	2023	$1,121,000	$1,463,000
PB0047	Lane Press Roof	1-1337	South Burlington	IB	Capture roof drainage in a new infiltration basin. Roof drains already flows to grassed area where treatment is proposed.	2023	$310,000	$404,000
PB0055	Merchant's Bank Detention Pond	2-1171; 6275-9030; 6269-9030; 2-0939	South Burlington	DP	Route stormwater from Allstate Insurance west to Merchant's Bank and provide detention in grassed area	2023	$66,000	$86,000
PB0057	Nicklaus Circle	1-1241, 4049-9030	South Burlington	DP	Construct new linear detention feature to the north of Nicklaus Cir where the stormline and swale converge.	2023	$161,000	$210,000
PB0061	Olympiad Apartments & Office Building Pond Retrofit	1-1452	South Burlington	DP	Retrofit existing detention pond. Add forebay, clean out vegetation, and ensure pond detains CPv.	2023	$25,000	$33,000
PB0062	Panurgy Infiltration Basin	3409-9010	South Burlington	IB	Retrofit and expand existing infiltration basin to infiltrate the CPv.	2023	$25,000	$33,000
PB0064	Pillsbury Manor Infiltration Basin Retrofit	1-1015	South Burlington	IB	Retrofit existing pond to infiltration basin. Overflow to existing culvert.	2023	$25,000	$33,000
PB0070	South Meadows Pond	1-0661	Burlington	DP	Retrofit existing detention pond to meet CPv standards. Add forebay and expand pond. Upgrade outlet structure.	2023	$25,000	$33,000
PB0074	Sugartree Lane	2-0878	South Burlington	DP	Expand existing depressed area at the end of Sugartree Ln , which appears to be an abandoned detention area. Reroute catchbasins to pond. Upgrade pond outlet.	2023	$25,000	$33,000

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PB0076	Technology Park Pond Retrofit	1-1458 P4	South Burlington	DP	Retrofit existing detention pond to meet CPv standards. Upgrade outlet structure and expand pond to accommodate additional storage.	2023	$25,000	$33,000
PB0078	The Pines	1-1117	South Burlington	DP	Retrofit existing pond to meet CPv standards. Add forebay and outlet structure with low flow orifice; expand pond.	2023	$25,000	$33,000
PB0079	UMall Detention Pond	1-0503c; 6282-9030	South Burlington	DP	Retrofit existing detention pond to detain CPv. Upgrade outlet structure and expand pond.	2023	$27,000	$35,000
PB0080	UMall Infiltration 1	1-0503b; 6282-9030	South Burlington	IG	Retrofit existing infiltration gallery to infiltrate the CPv.	2023	$25,000	$33,000
PB0081	UMall Infiltration 2	1-0503a; 6282-9030	South Burlington	IG	Retrofit existing infiltration gallery to infiltrate the CPv.	2023	$55,000	$72,000
PB0089	Wellesley Grove	2-1023	South Burlington	DP	Add outlet control to existing depression to detain stormwater. Outfall is currently eroded.	2023	$77,000	$100,000
PB0090	Windridge Court	2-0824	South Burlington	IB	Construct new infiltration basin to infiltrate stormwater to the west of this small development.	2023	$45,000	$59,000
PB0092	Woodlands Industrial Park	1-0526/ 6279-9030	South Burlington	DP	Reroute roof drainage to existing detention pond. Retrofit pond to accommodate additional volume and detain CPv.	2023	$25,000	$33,000
PB0010	Ashbrook Drive	2-0101	South Burlington	DP	Reroute stormwater and detain southwest of Dorset St behind apartment buildings.	2024	$42,000	$56,000
PB0026	Exit 14 Gravel Wetland	No Permit	VTrans	GW	Propose new gravel wetland in depressed triangle greenspace between ramps. Reroute several culverts to this area.	2024	$131,000	$176,000
PB0044	Kennedy Dr Pond 7 Expansion	1-1582g; 1-0233	South Burlington	DP	Reroute stormline that currently outfalls behind Key Bank to existing detention pond. Expand pond footprint to accommodate additional drainage area and detain CPv.	2024	$25,000	$34,000
PB0046	Knoll Circle	2-0220	South Burlington	DP	Construct new surface detention basin with swale inlet. Current stormline draining subdivision already enters swale, which also drains area to the west.	2024	$184,000	$247,000
PB0056	Miller Research Farm	No Permit	UVM	DP	Reroute culvert east across Spear St and detain water to the south of the UVM farm.	2024	$463,000	$622,000
PB0009	Airport Drive	No Permit	BTV	IG	Construct subsurface infiltration chambers in southernmost lot where houses will be removed. Intercept stormline running south down Airport Dr.	2025	$439,000	$608,000
PB0041	Kennedy Dr Pond 2 Expansion	1-1582b; 2-1069	South Burlington	DP	Retrofit existing detention pond to accommodate additional drainage from The Edge and 1 Twin Oaks.	2025	$25,000	$35,000
PB0042	Kennedy Dr Pond 3 Expansion	1-1582c	South Burlington	DP	Drainage for offices to the east of Timber Ln currently discharges to a swale along Kennedy Dr heading west (direction of the existing pond). Reroute culvert that crosses under access ramp to pond to pond. Expand pond and retrofit to detain CPv.	2025	$25,000	$35,000
PB0043	Kennedy Dr Pond 4 Expansion	1-1582d; 1-0237; 1-1023; 1-1290	South Burlington	DP	Reroute stormline from Chatham Green and swale along Hinesburg Rd to existing detention pond. Expand pond to accommodate additional drainage area and detain CPv.	2025	$25,000	$35,000
PB0100	Kennedy Dr Pond 1	1-1582a	South Burlington	DP	Investigate option to retrofit pond with CMAC valve to detain CPv.	2025	$13,000	$18,000
PB0005	189 Ramp Detention Pond	2-0619	VTrans	DP	Detain stormwater from a large section of Dorset St. Intercept stormline near Kennedy Dr and reroute to the area between 189 ramps.	2026	$101,000	$144,000
PB0014	Chelsea Circle	2-0767	South Burlington	IB	Construct new infiltration basin constructed to south of existing swale, which receives flow from Chelsea Cir condos and Timberlane Dental parking lot. Neighborhood icing and flooding issues can be mitigated with this project.	2026	$115,000	$164,000
PB0025	Exit 13 Gravel Wetland	No Permit	VTrans	GW	Propose new gravel wetland in depressed triangle greenspace between ramps. Reroute several culverts to this area.	2026	$219,000	$312,000
PB0049	Lilac Ln Infiltration Basin	No Permit	South Burlington	IB	Formalize infiltration basin in depressed area at the end of Lilac Ln.	2026	$44,000	$63,000
PB0054	Meadowland Business Park Pond 2	1-1269_4290-9020.3 Lot 10	South Burlington	DP	Retrofit existing detention pond. Add forebay and construct outlet structure with low flow orifice to meet CPv standards.	2026	$45,000	$64,000
PB0065	Quarry Hill South	6322-9030	South Burlington	DS	Add detention to existing swale running northeast behind garages.	2026	$132,000	$188,000

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PB0001	1050 Hinesburg Road	No Permit	South Burlington	DP	There is an existing wet depression here where stormwater is already routed. Propose to retrofit pond to meet CPv standards.	2027	$27,000	$40,000
PB0017	Domino's	No Permit	South Burlington	DP	Construct a new detention pond behind parking area. Add catchbasin along Swift St to also capture half of the road drainage.	2027	$54,000	$79,000
PB0030	Gonzo's Underground	2-0811	South Burlington	UD	Propose to intercept stormline that flows west along Williston Rd to underground detention chambers under grassed area in front of Budget Car Rental / Gonzo's plaza.	2027	$662,000	$972,000
PB0068	South Burlington High School Infiltration	No Permit	South Burlington	IB	Construct new infiltration basin to the southeast of sports field in currently wooded area.	2027	$165,000	$242,000
PB0069	South Burlington High School North	6174-INDS.A	South Burlington	IG	Construct dry wells to infiltrate stormwater from the high school parking lot and middle school roof. Potential educational benefit.	2027	$992,000	$1,457,000
PB0084	UVM Forestry Research Center - East Roof	No Permit	UVM	IG	Construct dry well to capture and infiltrate roof drain. Potential educational benefit.	2027	$39,000	$57,000
PB0085	UVM Forestry Research Center - West Roof	No Permit	UVM	IG	Construct dry well to capture and infiltrate roof drain. Potential educational benefit.	2027	$25,000	$37,000
PB0033	Hawthorne Circle Detention Pond	No Permit	South Burlington	DP	Construct new detention basin in greenspace formed in the triangle between three garages.	2028	$38,000	$57,000
PB0035	Hinesburg Road	No Permit	South Burlington	DP	Reroute stormwater to existing catchbasin on Deane St and detain to the west of Hinesburg Rd to the south of existing houses.	2028	$33,000	$50,000
PB0036	I-89 Swale	No Permit	VTrans	MF	Construct median filter in depressed area between north and south I-89 lanes. Reroute several culverts.	2028	$129,000	$195,000
PB0095	Hannaford's Pond	1-1214	South Burlington	DP	Investigate option to retrofit pond with CMAC valve to detain CPv.	2028	$21,000	$32,000
PB0096	Lowes Pond	1-1214	South Burlington	DP	Investigate option to retrofit pond with CMAC valve to detain CPv.	2028	$17,000	$26,000
PB0097	Vermont National Country Club Pond B	1-1241b	South Burlington	DP	Investigate option to retrofit pond with CMAC valve to detain CPv.	2028	$36,000	$54,000
PB0098	Technology Park Pond 1	1-1254	South Burlington	DP	Investigate option to retrofit pond with CMAC valve to detain CPv.	2028	$22,000	$33,000
PB0099	Lot A Mountain View Pond	1-1536	South Burlington	DP	Investigate option to retrofit pond with CMAC valve to detain CPv.	2028	$12,000	$18,000
PB0101	Quarry Hill Pond	3602-INDS	South Burlington	DP	Investigate option to retrofit pond with CMAC valve to detain CPv.	2028	$12,000	$18,000
PB0106	Mountainview Pond b	3805-INDS	South Burlington	DP	Investigate option to retrofit pond with CMAC valve to detain CPv.	2028	$14,000	$21,000
PB0008	Adirondack Street	2-0312	South Burlington	UD	Construct underground detention chambers under ROW and grassed shoulder.	2029	$845,000	$1,316,000
PB0093	Worcester Street	2-0312	South Burlington	UD	Construct underground detention chambers under ROW and grassed shoulder.	2029	$821,000	$1,279,000
PB0021	East Terrace Detention Pond	No Permit	South Burlington	DP	Construct new linear detention basin near the outfall to the east side of East Terrace.	2030	$102,000	$164,000
PB0040	Joy Dr Detention Pond	No Permit	South Burlington	DP	Construct new surface BMP in adjacent flat area near the Green Mountain Power transmission corridor.	2030	$47,000	$75,000
PB0052	Marcotte Central School	No Permit	South Burlington	DP	Construct new detention basin in wooded area directly south of school parking lot. Route outfall to existing stormline. Potential educational benefit.	2030	$57,000	$91,000
PB0053	Marine Connection	No Permit	South Burlington	DS	Add detention to existing swale near the back of the large Marine Connection building. Expand swale to accommodate additional volume.	2030	$58,000	$93,000
PB0058	North Country Credit North West Infiltration	No Permit	South Burlington	IT	Install perforated pipe to the north of parking lot in grassed area to infiltrate stormwater.	2030	$37,000	$59,000
PB0059	North Country Credit South Infiltration	No Permit	South Burlington	IG	Construct underground infiltration chambers in the southeast corner of parking lot. Overflow to existing stormline.	2030	$129,000	$207,000
PB0060	O'Brien Drive Underground Detention	No Permit	South Burlington	UD	Construct underground storage chambers in open lot between existing houses.	2030	$580,000	$931,000
PB0075	Swift Estates Pond	No Permit	South Burlington	DP	Retrofit existing detention pond to meet CPv standards. Add forebay and upgrade outlet structure.	2030	$25,000	$40,000
PB0088	VT Gas Detention Pond	2-0228; 6293-9030	South Burlington	DP	Reroute stormline from Swift St to grassed area to the north of VT Gas property and construct new detention pond.	2030	$52,000	$83,000

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PB0071	Southview Drive	No Permit	South Burlington	UD	Construct underground detention chambers in ROW and grassed area. Road is 30ft wide and could be narrowed for storage.	2031	$1,048,000	$1,732,000
PB0016	Community Bible Church Infiltration	No Permit	South Burlington	IT	Construct linear infiltration trench (perforated pipe) along back of several businesses.	2032	$975,000	$1,660,000
PB0028	Faith United Methodist Church	No Permit	South Burlington	DP	Construct new underground detention behind church (northwest) in grassy area. Current outfall is eroded.	2032	$49,000	$83,000
PB0048	Laurel Hill Drive	No Permit	South Burlington	IB	Construct new infiltration basin to the north of houses before stormline pipe enters riparian buffer.	2032	$162,000	$276,000
PB0073	Stonehedge Circle	2-0100	South Burlington	DP	Construct bioretention along road in grassed area with discharge to existing catchbasin.	2032	$55,000	$94,000
PB0077	Temple Detention Pond	No Permit	South Burlington	DP	Propose new detention pond in depressed area in front of Temple by intersection of Dorset St and Swift St. Stormwater already collects in this area.	2032	$47,000	$80,000

Notes:

1. BMP Type Abbreviations: GW: Gravel Wetland, GS: Grass Swale, RS: Retention Swale, ST: Settling Tank, OF: Control orifice, IB: Infiltration Basin, IT: Infiltration Trench, DP: Detention Pond, UD: Underground Detention, RP: Retention Pond, DS: Detention Swale, DW: Dry Well, IG: Infiltration Gallery, SF: Sand Filter, BR: Bioretention, MF: Median Filter.

2. Project costs estimates are based on 2014 dollars and are rounded.

3. Project costs have been inflated based on the year of implementation and an annual 3% inflation rate.