Giddings Brook, Enosburg, Vermont

Giddings Brook in Enosburg Vermont has been found to be impaired by stormwater water quality as measured by the biological community of the stream. There are at least 13 significant discharges to the stream from the developed lands of Enosburg Falls. The largest discharge to the stream is the combined discharge of drainages 9, 10 & 16 which drain a large section of the central village. The recommended course of action is to install a stormwater treatment structure that controls both the water quality volume and the channel protection volume from these discharges near the outfall. A map showing the location of the discharges and a possible retrofit location on private land is provided. A diagram of two possible treatment structures and a cost estimate (excluding land costs) is provided.

Addressing the large discharges of stormwater to the brook will reduce contamination and stream channel erosion and will help prevent the stream from becoming declared stormwater impaired on the state of Vermont's 303d list of impaired waters. It will also reduce phosphorus currently being discharged to the Mississquoi River, Bay and Lake Champlain.

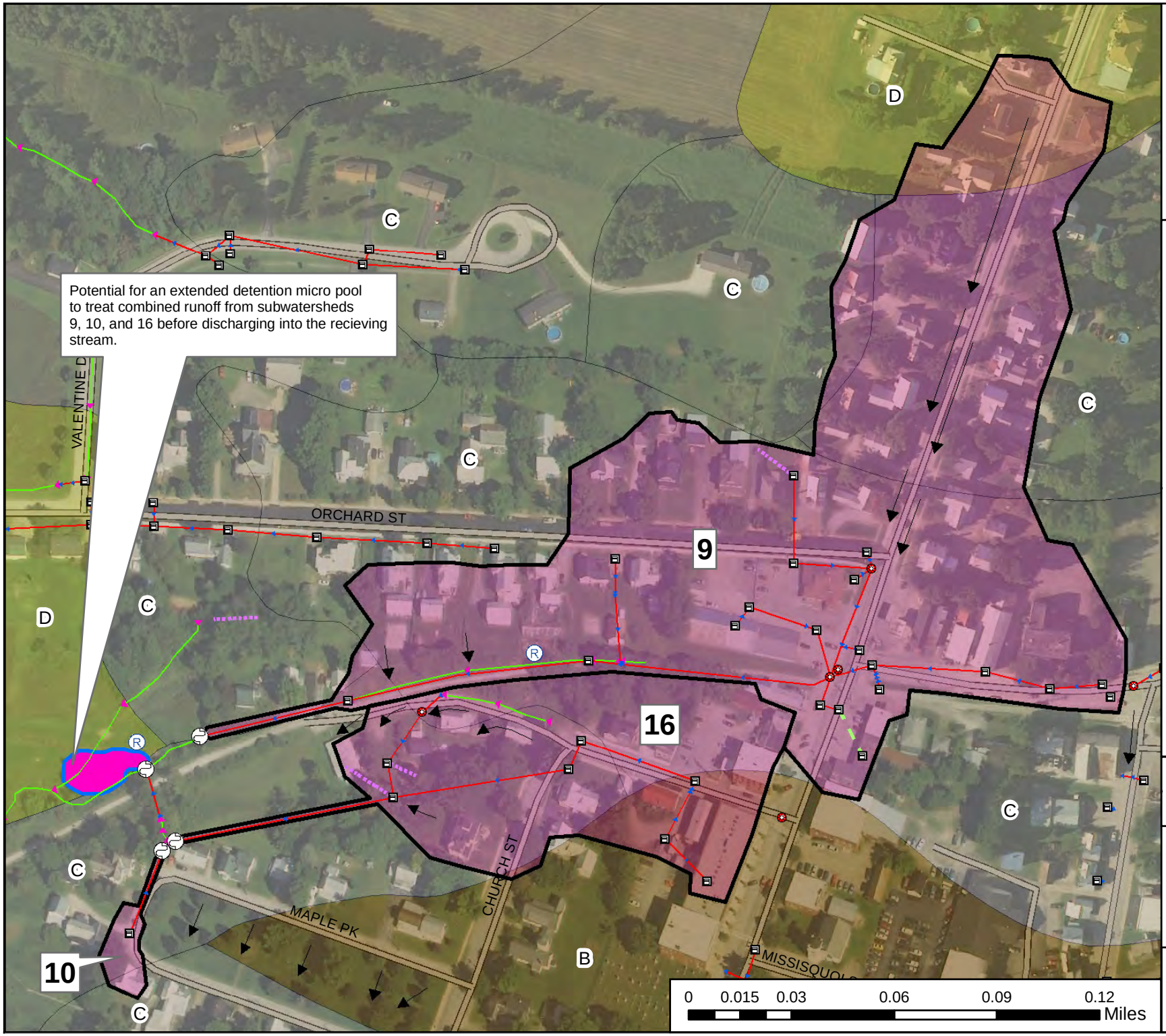
Macroinvertebrate Site Summary

Location:	Giddings Brook	**Location ID:**	521577
Town:	Enosburgh	**Bio Site ID:**	424000000001
Description:	Park at Maple Fields on Rt 105 near bridge. Walk along rail trail until adjacent to coordinates and walk down bank to stream.	**WBID:**	VT06-04
Stream Type:	Hybrid Low Gradient		

Date	Density	EOT Richness	BCG Intolerant Richness	PMA-O	B.I.	Amphipod + Isopod - Hyallela	EOT/EOT +C	PPCS-F	Sensitive COTE%	Shredders / Collector	IBI Score	Community Assessment
10/1/2018	339	3.0	2.0	70.2	6.18	18.9	0.084	0.373	16.519	0.000	20	F-Poor
9/23/2019	1320	7.0	4.0	53.2	6.04	45.5	0.020	0.328	5.682	0.000	18	Poor
IBI 5	≥ 500	≥ 15	≥ 14	≥ 75	≤ 4	0	≥ 0.5	≥ 0.57	≥ 28	≥ 0.5		
IBI 4	≥ 400	≥ 13	≥ 11	≥ 65	≤ 5	≤ 1	≥ 0.38	≥ 0.49	≥ 20	≥ 0.35		
IBI 3	≥ 300	≥ 11	≥ 9	≥ 55	≤ 6	≤ 5	≥ 0.26	≥ 0.41	≥ 13	≥ 0.2		
IBI 2	≥ 200	≥ 7	≥ 5	≥ 45	≤ 6.5	≤ 25	≥ 0.13	≥ 0.36	≥ 5	≥ 0.1		
IBI 1	≥ 0	≥ 0	≥ 0	≥ 0	>6.5	>25	≥ 0	≥ 0	≥ 0	≥ 0		


Stormwater Discharges to Giddings Brook
6 Enosburg Falls
18 Enosburg Falls
30 Enosburg Falls
17 Enosburg Falls
9 Enosburg Falls
28 Enosburg Falls
29 Enosburg Falls
16 Enosburg Falls
10 Enosburg Falls
34 Enosburg Falls
35 Enosburg Falls
12 Enosburg Falls
25 Enosburg Falls
33 Enosburg Falls
VCGI

Watershed Number	Action List	Proposed or Existing Stormwater Treatment Practice	Permit Number	Watershed Area (Acres)	Mapped Impervious Area (MIA)	EIA Equation (RANK)	Percent Effective Impervious Area	Projected Sediment Load (lbs)	Current BMP Sediment Reduction Credit	Sediment Load with Current Reductions (lbs)	Priority Action Sediment Reduction Credit	Sediment Load with Priority Action (lbs)	Current BMP Phosphorus Reduction Credit	Phosphorus Load with Current Reductions (lbs)	Priority Action Phosphorus Reduction Credit	Phosphorus Load with Priority Action (lbs)	Water Quality Volume (ft^3)	Channel Protection Volume (ft^3)
6 Enosburg Falls	3	Ext Det. Micro Pool		8.5	47.7	2	41.3	4,739	0%	4,739	30%	3,317	0%	13.2	15%	11.2	11711	18532
9 Enosburg Falls	1	Ext Det. Micro Pool/Combine with 10 & 16		13.0	60.3	2	54.8	9,334	0%	9,334	80%	1,867	0%	25.9	50%	13.0	23068	35875
10 Enosburg Falls	1	Combine with 9		0.2	66.4	2	61.4	149	0%	149	80%	30	0%	0.4	50%	0.2	369	569
12 Enosburg Falls	2	Ext Det. Micro Pool		4.3	62.2	2	56.9	3,186	0%	3,186	80%	637	0%	8.8	50%	4.4	7873	12209
16 Enosburg Falls	1	Combine with 9		4.0	48.1	2	41.7	2,235	0%	2,235	80%	447	0%	6.2	50%	3.1	5524	8738
17 Enosburg Falls				3.0	60.1	2	54.6	2,162	0%	2,162	40%	1,297	0%	6.0	25%	4.5	5344	8313
18 Enosburg Falls			4522-9010	2.4	39.9	4	21.1	764	30%	535	0%	764	7.5%	2.0	0%	2.0	1889	4401
28 Enosburg Falls				2.6	47.9	1	33.2	1,189	0%	1,189	0%	1,189	0%	3.3	0%	3.3	2940	5658
29 Enosburg Falls	3	Ext Det. Micro Pool		3.2	13.3	1	4.8	396	0%	396	80%	79	0%	1.1	50%	0.6	979	1947
30 Enosburg Falls	3	Pocket Pond	4522-9010	2.1	24.5	1	12.1	451	30%	316	50%	158	7.5%	1.2	42%	0.7	1115	2402
33 Enosburg Falls				4.2	38.8	1	24.2	1,477	0%	1,477	0%	1,477	0%	4.1	0%	4.1	3651	7412
34 Enosburg Falls				4.0	28.5	1	15.2	976	0%	976	0%	976	0%	2.7	0%	2.7	2413	5150
35 Enosburg Falls				0.4	91.7	3	91.7	501	0%	501	0%	501	0%	1.4	0%	1.4	1238	NA



Enosburg Falls

Action List 1
Subwatersheds 9, 10 & 16

This map shows high priority subwatersheds ranked by projected annual sediment and phosphorus loads as well as potential retrofit measures and locations.

Legend

Stormwater point features

- Catchbasin
- Dry Well
- Stormwater Manhole
- Sanitary Manhole
- Outfall
- Potential retrofit location

Stormwater linear features

- Storm line
- Swale
- Sanitary line
- Footing drain
- Roof drain
- Under drain
- Overland flow

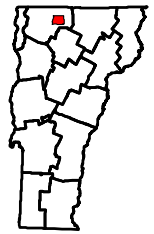
Stormwater area features

- Proposed treatment structure
- River
- Storage treatment structure
- Action List 1 Subwatershed

NRCS - Soils

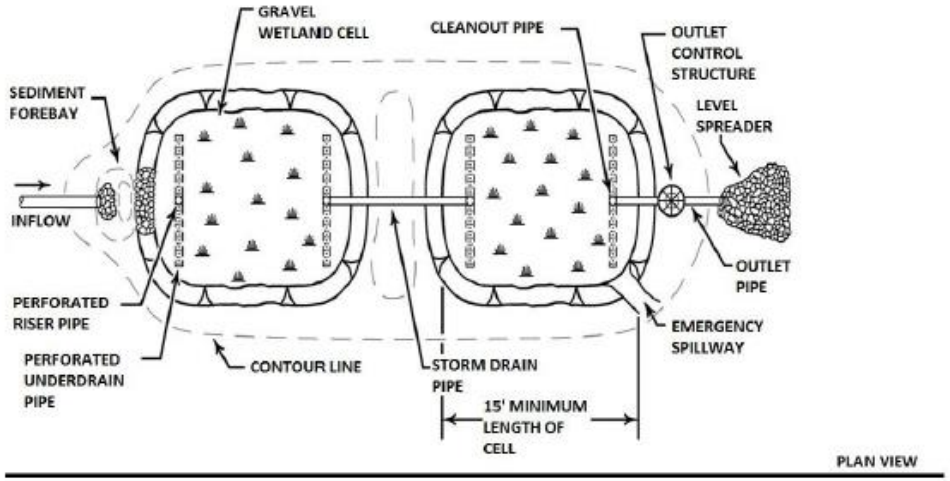
Hydrogroup

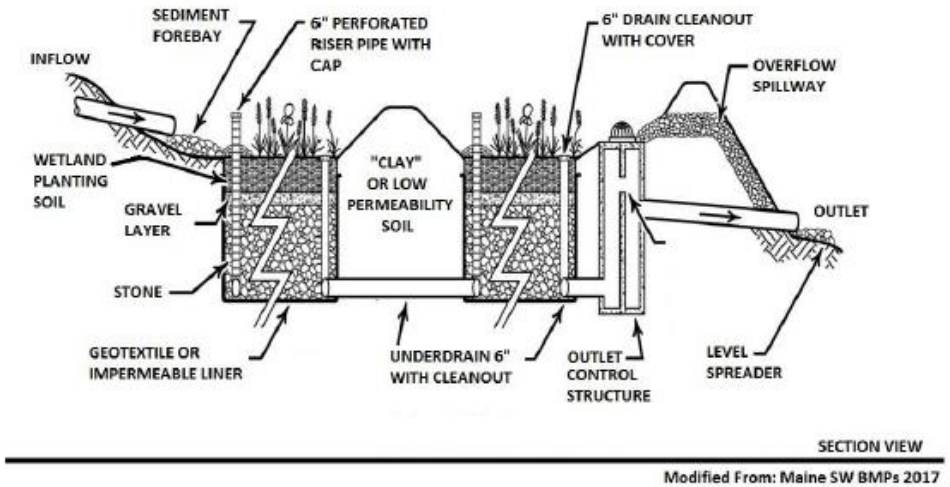
- A
- B
- C
- D



VTANR - DEC Stormwater
Creator: Collin Smythe
Date: 3/1/2009
Imagery Source: VCGI - Canadian border orthophotos
Data Sources: NRCS soils map, field data, town plans

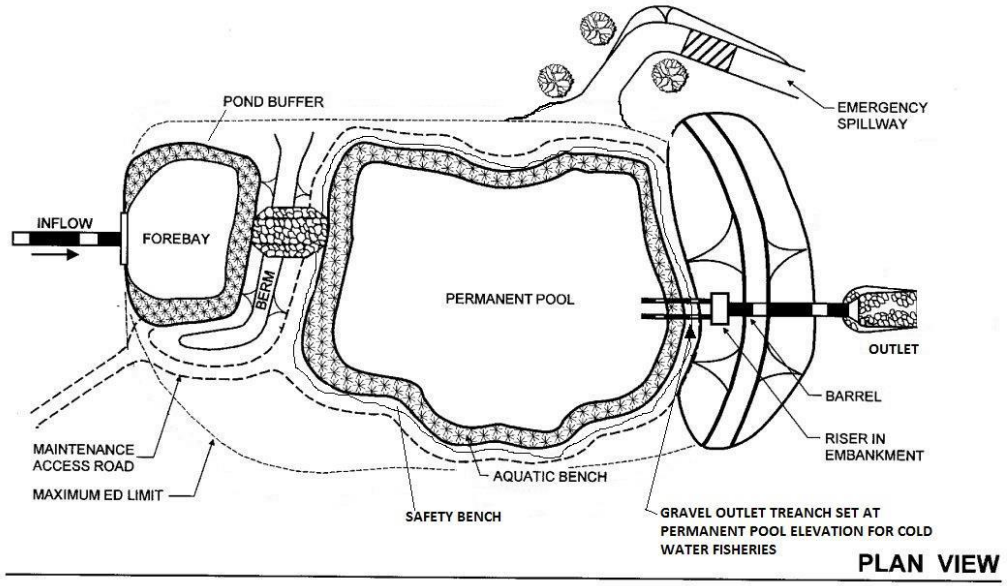

VALENTINE DR
ORCHARD ST
380
Possible Site
for a Stormwater
Treatment System
River Buffer
BISMARK ST
400
MAPLE PARK
Sewer
VCGI

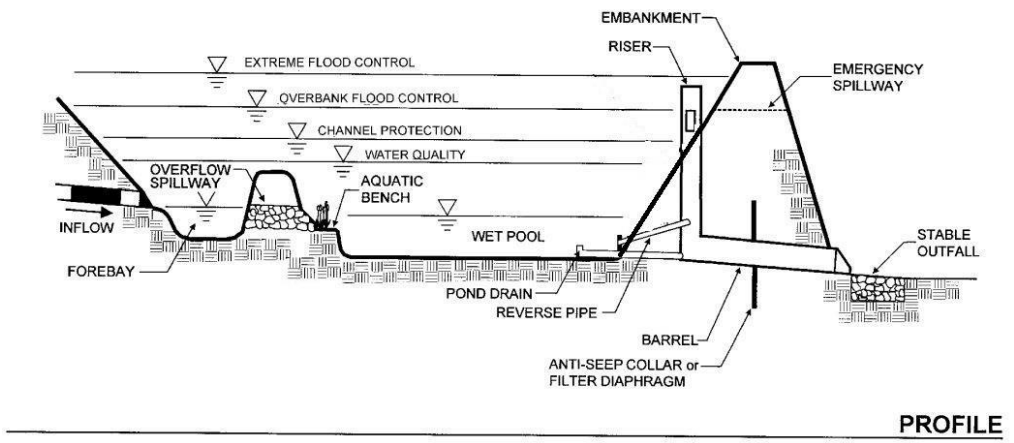




Modified From: Maine SW BMPs 2017

Gravel Wetland
Estimated cost $436,675





Extended Detention Micropool
Estimated cost $370,711