Inn Brook, Stowe, Vermont

Inn Brook in Stowe Vermont has been found to be impaired by iron leachate water quality as measured by the biological community of the stream. There are at least 6 stormwater discharges to the stream from the developed lands at Stowe Mt Resort that also contribute to the degradation. The largest discharge to the stream is the combined discharge of drainages 267, 268 & 270 which drain a large section of the Toll House area. The recommended course of action is to install a stormwater treatment structure near the Toll House Tennis Courts that treats the iron runoff from the Toll House culvert and controls both the water quality volume and channel protection volume from these discharges. A map showing the location of the discharges and a possible retrofit location on SMR land is provided

Correcting the iron contamination with limestone below the Toll House will restore the quality of the water. Addressing the larger discharges of stormwater to the brook will reduce contamination and stream channel erosion. It will also reduce phosphorus currently being discharged to the Winooski River, and Lake Champlain. Stowe Mt Resort implemented a similar stormwater practice on Big Spruce Brook which is described at: https://dec.vermont.gov/sites/dec/files/wsm/mapp/docs/mapp_WQRP_Big_Spruce_Brook_Iron_Seep_2010.pdf

Macroinvertebrate Site Summary

Location:	Inn brook	**Location ID:**	502036
Town:	Stowe	**Bio Site ID:**	493238201006
Description:	Located above first private road below the "Inn."	**WBID:**	VT08-12
Stream Type:	Small High Gradient		

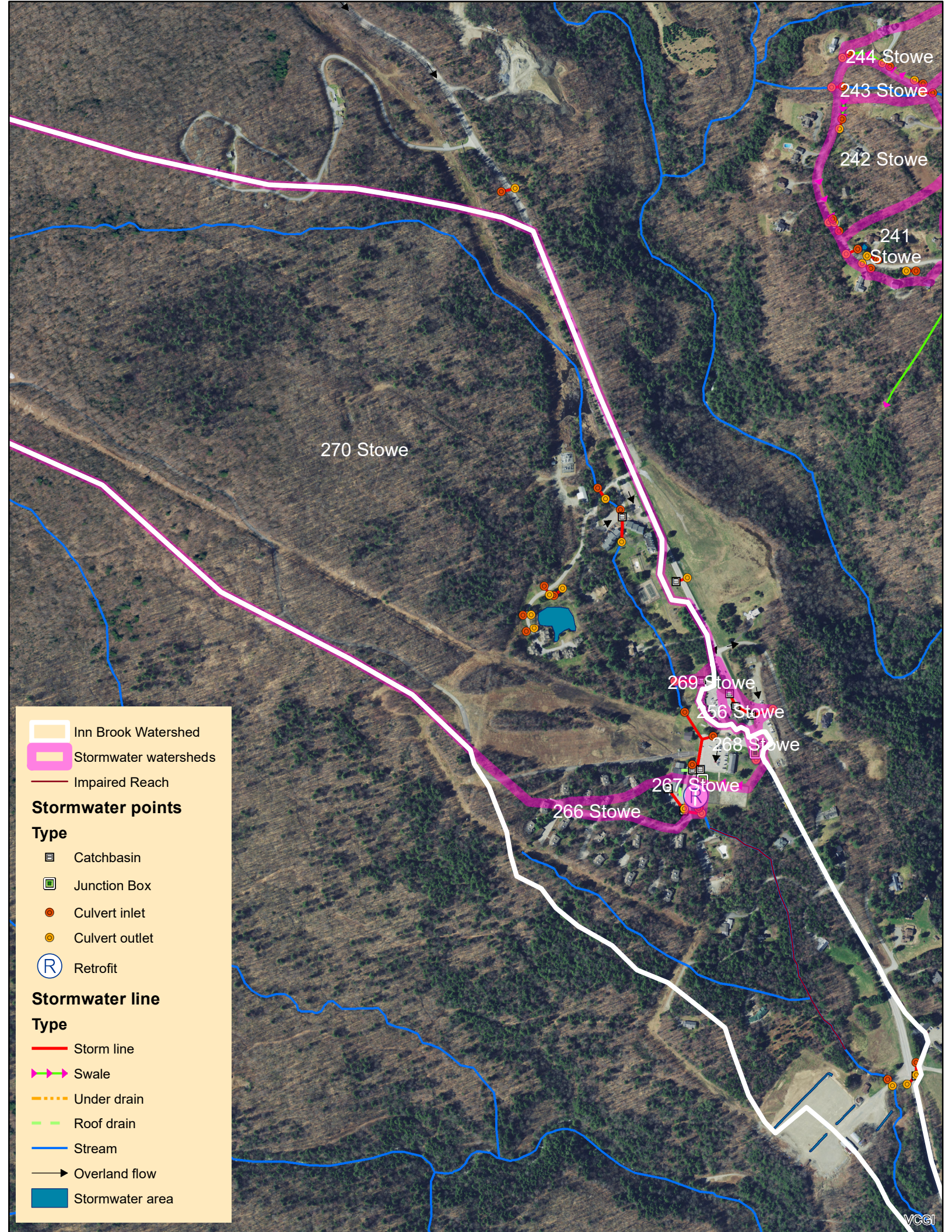
Date	Density	Richness	EPT Richness	PMA-O	B.I.	Oligo.	EPT/EPT + Chiro	PPCS-F	Community Assessment
9/14/2000	203	21.0	3.0	26.5	4.88	67.39	0.23	0.41	Poor
9/4/2001	334	23.5	5.0	55.7	4.02	1.41	0.48	0.52	Poor
9/29/2005	494	25.5	7.5	54.7	1.71	7.80	0.85	0.36	Poor
9/14/2006	240	33.0	12.0	54.6	3.27	32.50	0.57	0.60	Poor
9/6/2013	411	38.0	14.0	53.9	3.50	1.62	0.56	0.61	Fair
Full Support	≥ 300	≥ 27	≥ 16	≥ 45	≤ 4.5	≤ 12	≥ 0.45	≥ 0.4	
Indeterminate	≥ 250	≥ 26	≥ 15	≥ 40	≤ 4.65	≤ 14.5	≥ 0.43	≥ 0.35	
Non-Support	< 250	< 26	< 15	< 40	> 4.65	> 14.5	< 0.43	< 0.35	

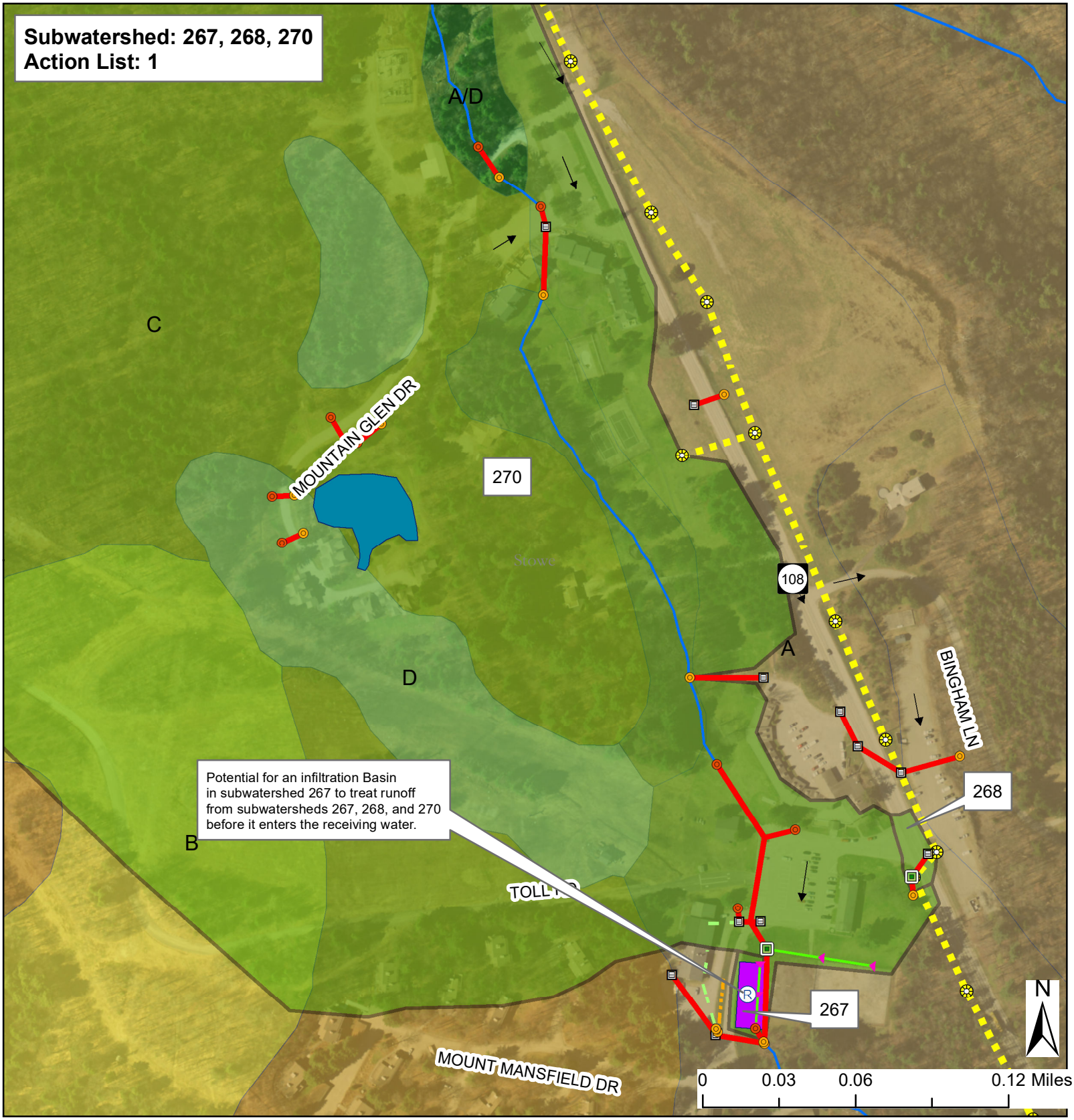
*Scoring Guidelines for Stream Type SHG and WQ Class B(2).

Watershed Number	Action List #	Proposed Action	Proposed or Existing Stormwater Treatment Practice	Permit Number	Watershed Area (Acres)	Percent Mapped Impervious Area (MIA)	Percent Effective Impervious Area	Projected Sediment Load (lbs)
256 Stowe			CB		0.9	79.26	76.0	834
266 Stowe					2.6	34.54	20.3	790
267 Stowe	1	Combine with 268 & 270 in IB with limestone subbase	LS-IB/GS		0.2	20.49	9.3	43
268 Stowe	1	Combine with 270 in infiltration basin on 267	LS-IB/GS/CB		0.2	83.45	76.2	212
269 Stowe			CB		1.0	70.77	59.5	757
270 Stowe	1	Combine with 268 in infiltration basin on 267. Load adjusted to impervious.	LS-IB/CB		349.5	2.51	0.4	24824

Watershed Number	Current BMP Sediment Reduction Credit	Sediment Load with Current Reductions (lbs.)	Priority Action Sediment Reduction Credit	Sediment Load with Priority Action (lbs.)	Projected Phosphorus Load (lbs.)	Current BMP Nitrogen or Phosphorus Reduction Credit	Nitrogen or Phosphorus Load with Current Reductions (lbs.)	Priority Action Nitrogen or Phosphorus Reduction Credit	Nitrogen or Phosphorus Load with Priority Action (lbs.)
256 Stowe	0%	834	0%	834	2.3		2.3		2.32
266 Stowe	0%	790	0%	790	2.2		2.2		2.19
267 Stowe	0%	43	90%	4	0.1	0%	0.1	90%	0.01
268 Stowe	0%	212	90%	21	0.6	0%	0.6	90%	0.06
269 Stowe	0%	757	0%	757	2.1	0%	2.1		2.10
270 Stowe	0%	24824	90%	2482	69.0	0%	69.0	90%	6.90

Watershed Number	Action List	Water Quality Volume (Acre-Feet)	Channel Protection (Acre-Feet)	Estimated Basin Construction Cost	Estimated Other BMP Construction Cost	Cost of Sediment Removal Per Pound (based on annual sediment load)	Cost of Nitrogen or Phosphorus Removal Per Pound (based on annual nutrient load)	# LID-Roof Raingardens to Treat Water Quality Volume
256 Stowe	0	0.05	0.07					24
266 Stowe	0	0.04	0.10					22
267 Stowe	1	0.00	0.01	$76,203		$8	$7,163	1
268 Stowe	1	0.01	0.02					6
269 Stowe	0	0.04	0.08					21
270 Stowe	1	1.40	0.97					702


244 Stowe
243 Stowe
242 Stowe
241 Stowe
270 Stowe
269 Stowe
256 Stowe
268 Stowe
267 Stowe
266 Stowe
Inn Brook Watershed
Stormwater watersheds
Impaired Reach
Stormwater points
Type
Catchbasin
Junction Box
Culvert inlet
Culvert outlet
Retrofit
Stormwater line
Type
Storm line
Swale
Under drain
Roof drain
Stream
Overland flow
Stormwater area
VCGI

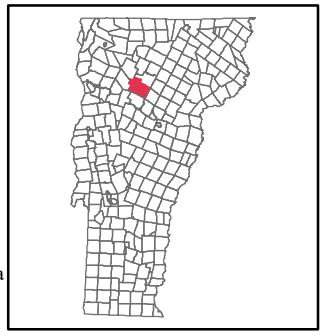


Stowe, VT

DEC Stormwater Infrastructure Mapping Project

This map shows high priority subwatersheds which are ranked by connectedness, percent of impervious cover, field observations, and potential retrofit measures and locations.

The data shown on this map is only as accurate as the available sources and field observations allowed and should be used as a basic planning level tool only.



VERMONT

Stormwater points

- Pipe Cross (not connected)
- Catchbasin
- Dry Well
- Drop Inlet
- Grate/Curb Inlet
- Yard drain
- CB tied to sanitary sewer
- Junction Box
- Stormwater Manhole
- Outfall
- Culvert inlet
- Culvert outlet
- Control Structure
- Treatment feature (see notes)
- Retrofit
- Unknown Point
- Information Point

Stormwater line

- Storm line
- Storm line (old Sanitary line)
- Tunnel (storm)
- Combined sewer
- Sanitary line
- Swale
- Footing drain
- Under drain
- Roof drain
- Infiltration pipe
- French drain
- Trench drain
- Emergency spillway
- Stream
- Overland flow

NRCS - Soils

- A
- B
- C
- D

SubwatershedID

- Priority Subwatershed
- Stormwater Treatment Area
- Potential Stormwater Treatment Area

Creator: Jim Pease, David Ainley
DEC - WID - Clean Water Initiative Program
Plotted Date: 8/10/2021
Data Sources: VTRANS Roads data, VT Hydrography data set, DEC Stormwater database, NRCS soils survery
Imagery Source: VCGI Best Available Imagery