

Infiltration Retrofit in the Helen Avenue Cul-de-Sac, Design Phase Engineering



Services / Expertise

Stormwater Project Scoping
Stormwater BMP Design
Retrofit Planning and Design
Stormwater Flow Restoration & Modeling
Phosphorus TMDL Compliance & Modeling
Project Development

Markets

Municipal Government

Project Location

South Burlington, Vermont

Date Completed

2019

Project Owner

City of South Burlington

Project ID#

18-059-A

Project Manager

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Project Team

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Site-specific soil evaluation throughout the Helen Ave. drainage revealed sandy soils and shallow groundwater.

THE City of South Burlington contracted Stone to advance design of an infiltration practice or practices in the Helen Ave. cul-de-sac as identified in the Potash Brook Flow Restoration Plan (FRP). The project incrementally evaluated infiltration feasibility and, if feasible, progressed designs to the 100% level. The initial phase included investigation of additional potential contributing drainage areas along Helen Avenue, and infiltration feasibility in the cul-de-sac and in upgradient portions of the drainage area. The proposed improvement is consistent with previously developed Potash Brook Flow Restoration Plan (FRP) for the 5.7-acre drainage area, which includes 2.15 acres of impervious surfaces (38% impervious).

An initial evaluation of existing information showed sandy soils that should pose few limitations to siting and success of infiltrating stormwater retrofits. The City's GIS infrastructure data and an Act 250 design plan, though, showed that an unnamed tributary to Potash Brook was culverted immediately south of the cul-de-sac.

Stone completed a series of soil augers in the right-of-way in the cul-de-sac and the contributing drainage area, finding that subsurface conditions were not, in fact, suitable for infiltration-based stormwater retrofits. The concept recommended in the Potash Brook FRP for the Helen Ave. cul-de-sac was not advised to be advanced further for design work. We thus offered recommendations for shifting the City's implementation of the Potash Brook FRP to rely on other retrofits considered but not included in the regulatory Plan, and for screening of other infiltration BMPs to the east considering the challenging subsurface conditions encountered in advancing design work for the Helen Avenue retrofits.