

## Department of Buildings and General Services Green Stormwater Infrastructure Annual Report

July 1, 2016

In accordance with Executive Order 06-12, the Department of Buildings and General Services developed a Green Stormwater Infrastructure (GSI) Implementation Work Plan that outlines actions the Department will take to promote the use and adoption of GSI. An internal BGS team was formed to address the short-term goals of the Department. Currently two members of the BGS team sit on the Interagency Green Infrastructure Council and report on the progress of this initiative.

### Fiscal Year 2016 Work Plan Progress:

**1) Consider new low impact development (LID) and green stormwater infrastructure (GSI) techniques be added to the BGS Design Guidelines during review.**

The 2016 BGS [Design Guidelines](#) will be updated to ensure compliance with Vermont Stormwater Management Manual. This will be done when the 2016 manual is published. When applicable, BGS incorporates these practices into project designs and oversees implementation during construction.

**2) Assist in the development of a stormwater auditing process for state lands and buildings.**

BGS has a prioritized list of properties with GSI suitability scores for each property. The higher suitability scores are high priority properties for GSI. BGS will use this list to identify opportunities during the planning and budgeting phase of building construction projects and parking lot repaving projects.

**3) Develop education and outreach about LID and GSI.**

BGS will consider the installation of signage where LID and GSI features have been incorporated into our facilities. (See page 3: Green Capitals Signage).

**4) Work with ANR to educate BGS engineers and staff about LID and GSI.**

The BGS GSI Team will identify appropriate educational opportunities and consider attending when possible.

### Recent Examples of GSI and LID:

#### New Projects:

- Vermont Veterans Memorial Cemetery Expansion – A site stormwater retention pond was constructed at the start of the construction project and is located at the southwest corner of the site. Its purpose is to collect all the site stormwater run-off and distribute to thirty-four catch basins for measured infiltration.

- Hyde Park State Office Building – In collaboration with the Lamoille County Conservation District, BGS is working to install a Green Stormwater Infrastructure parking lot project. The project is funded by a Lake Champlain Basin Program Grant entitled Stormwater Solutions 2 as part of a growing commitment by LCCD to raise public awareness about stormwater management practices to reduce stormwater runoff and future flooding impacts and implement GSI projects in Lamoille County. Upon investigation into the site a potential solution may be to “treat” the stormwater by installing an **infiltration gallery** and to prepare the parking area with staymat. All the adjoining landowners are interested in completing this project.

Figure 1: *Infiltration Gallery*



- Lamoille County Courthouse – BGS designed and constructed a large addition to the courthouse. On the back of the new addition, along Commonwealth Avenue, two stormwater underground **infiltration units** were installed and connected to site catch basins and storm trenches, to collect roof and site storm water run-off.

Figure 2: *Infiltration Units*



- Waterbury State Office Complex – Reconstructed Project – Drainage swales manage stormwater run-off from building roofs, circulation roads and parking lots for the entire complex. Water quality requirements for redeveloped areas will be met by removal of existing impervious surfaces. As part of this project, 7.58 acres of existing impervious surface was removed. This far exceeds 20% of the 6.47 acre redevelopment area, thus meeting the treatment requirements for redeveloped areas. However, the majority of the redeveloped impervious surfaces will also be treated by water quality swales as described below.

As shown on the **Proposed Surfaces Map**, new impervious surfaces include the rearranged parking layout, expanded parking and walkway areas as well as the two new buildings. Redeveloped areas include those where the impervious surface type changed (i.e. pavement to rooftop) or where grading occurred significantly altering the existing sub-base and impervious surface finished grades. Existing areas are those which remain unchanged or have minimal grading done (i.e. resurfacing).

The overall site has been broken out into drainage areas which each flow to one of three Points of Interest (POI). Each drainage area has several sub drainage areas that flow to a stormwater treatment swale which outlets at the corresponding POI.

The 10% pre-treatment requirement for grassed channels is met through the use of a berm near the beginning of each water quality swale. This berm allows water entering the swale to back up into the bermed area to provide a minimum of 10% of the water quality volume for the drainage area flowing to the swale. Each berm has a small diameter pipe at the invert of the storage area to slowly outlet stormwater into the treatment swale during small storm events, as well as an overflow weir to allow for overflow during larger storm events.

Figure 3: Existing Impervious Surface Map

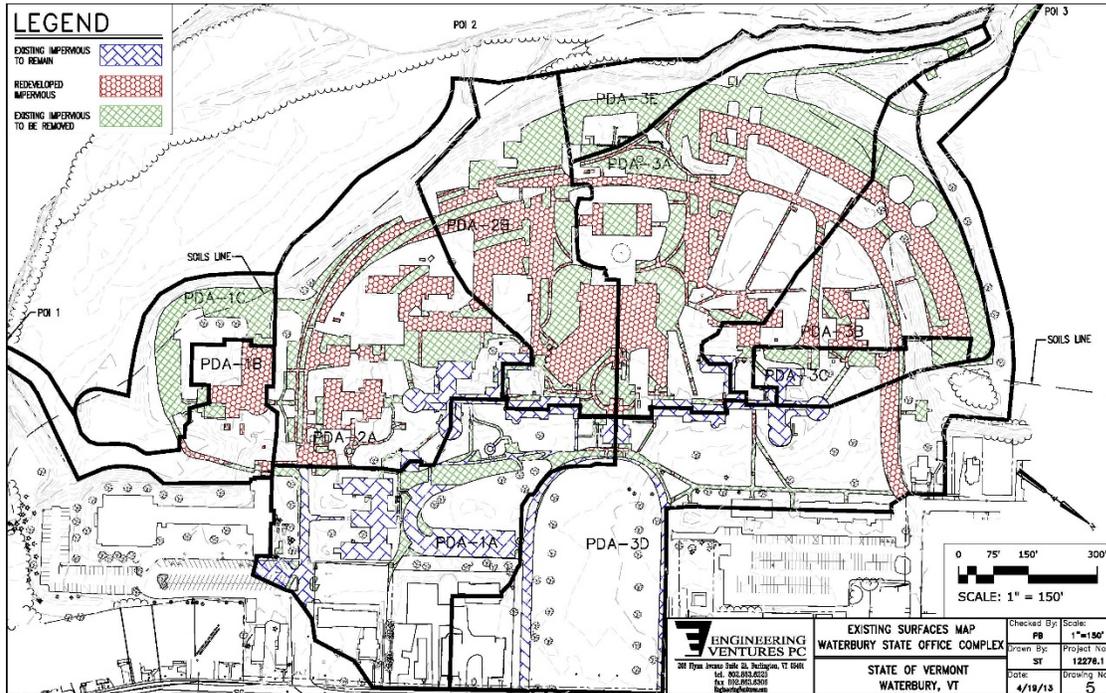


Figure 4: Proposed Impervious Surface Map

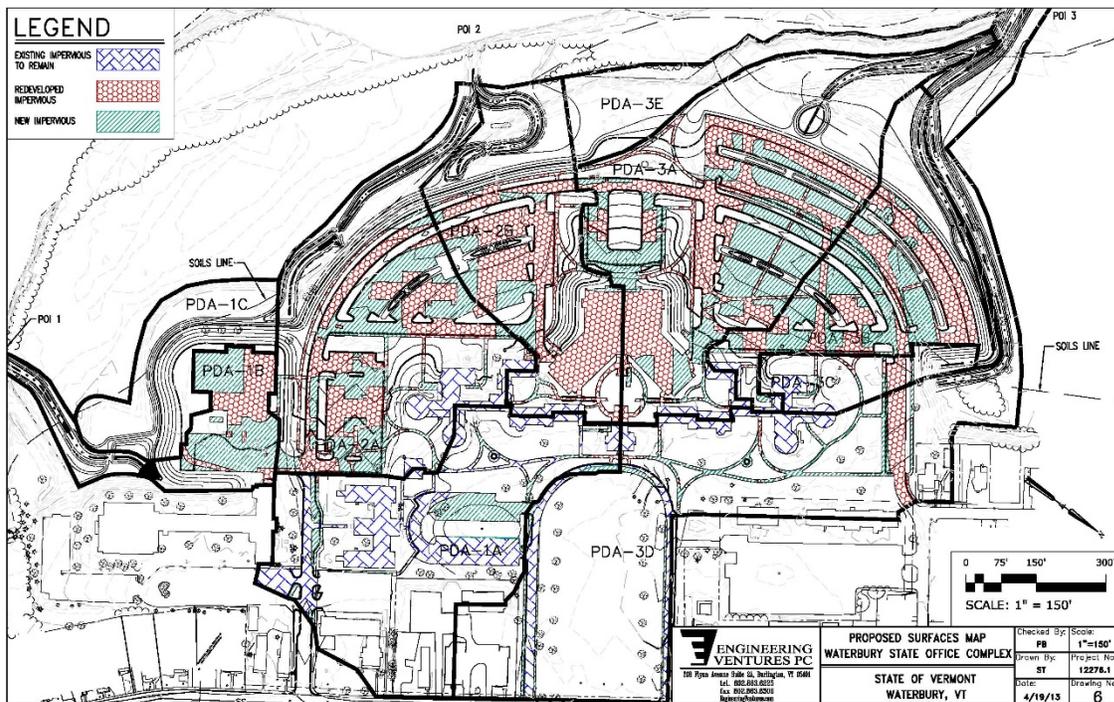


Figure 5: Waterbury State Office Complex Aerial 1



Figure 6: Waterbury State Office Complex Aerial 2

