Regional GSI Facility Summary

Overview

The University of Washington (UW) has expressed interest in constructing a new regional green stormwater infrastructure (GSI) facility adjacent to an existing UW-owned storm drainage outfall to Portage Bay. The facility will be constructed on UW property, and will be UW-owned and maintained. The intent is for the facility to act as a code-compliant alternative to addressing certain requirements of on-site stormwater management (OSM) for the Health Sciences Education Building (HSEB) and future projects within the San Juan Drainage Basin (the Basin). See table to right for comparison between the project-by-project approach and the regional facility approach.

Design Implementation

The UW Harris Hydraulics Lab building is located immediately adjacent to the Basin's storm drain outfall to Portage Bay. Outside the lab is an abandoned concrete flume which was historically used in conjunction with the teaching lab for civil engineering classes. While the flume is no longer being used for teaching purposes, its location and structured walls make it the ideal location for the proposed regional GSI facility.

We propose to repurpose the existing flume so that its walls contain the bioretention soil, plants, and related infrastructure necessary to treat stormwater directed to it. This repurposed facility will take on a new life as an educational tool for the UW, with potential for influent/effluent monitoring ports that would clearly exhibit the benefits of GSI facilities. Re-using the existing structure and limiting the amount of site disturbance will also demonstrate the implementation of sustainable design and construction.

Analysis

Options	Project-by-Project (Base Scope)	Regional GSI Treatment Facility (Value Add)
Mitigation Strategy	Install discrete stormwater facilities on each project site to meet the City of Seattle's OSM requirement.	Construct a regional GSI facility with the HSEB project in lieu of satisfying certain OSM requirements for HSEB and future development within the Basin.
Impacts to Future Flexibility/ Opportunities	↓ Restricts landscaping flexibility on future projects ↓ Increases the amount of stormwater infrastructure required on each project site ↓ OSM requirement may dictate paving materials and vegetated roof cover for future projects	↑ Future development within the Basin will not be required to consider the implementation of rain gardens, infiltrating or non-infiltrating bioretention, rainwater harvesting, permeable pavement facilities or surfaces, or vegetated roofs to satisfy the OSM requirement ↓ Regional facility occupies potential development area near the Harris Hydraulics Lab. An agreement with the City to maintain the facility will be required
Operations & Maintenance	↓ Required stormwater facilities are dispersed over a large area and each facility has independent stormwater infrastructure requiring maintenance ↓ Facilities may include vegetated roofs which require access by landscaping personnel	↑ Location is centralized and at ground level offering ease of access ↓ Facility requires a pump and pre-settling facility which will require periodic service ↓ Facility will accumulate a large amount of fine sediments and organics that will require frequent inspection and maintenance
Stormwater Environmental Benefit	↓ OSM provides flow control, which is not a recognized benefit in the San Juan Basin due to its piped outfall to Portage Bay ↓ 17 acres of pollution-generating surfaces are anticipated to remain untreated in full build-out of south campus	↑ Facility will be constructed early and will immediately begin providing treatment for the entire Basin (34 acres) ↑ Anticipated pollutant removal is significantly greater than with the project-by-project approach
Red Tape	↑ Stormwater permitting is per current drainage code and no special approval or agreement is required ↓ Future projects are subject to full City review of OSM compliance, which is typically the most onerous component of drainage review	↓ Requires UW to sign a memorandum of agreement with the City of Seattle ↑ SPU and SDCI have provided conditional approval for the facility ↑ Stormwater permitting for future projects will be more streamlined as OSM is typically the most onerous component of stormwater drainage review ↓ New projects in the basin that trigger water quality will still need to install facilities to meet those requirements
Cost	↑ Less up-front cost	↓ Higher up-front cost ↑ Future development in the Basin will recognize savings. (Estimated $1.49M to $1.87M in construction costs)

Plan