

22 December 2020

To: Durham Conservation Commission & Planning Board
From: Joshua Meyrowitz, 7 Chesley Drive, Durham
Re: UNH Stormwater Mitigation Efforts over Last 10 years

As I hope is apparent from my prior meeting comments and written input, I strive for accuracy and precision in my presentations to Town bodies. Given some passing comments by Conservation Commission members on December 9, 2020, I thought it best to check my assertion on p. 5 of my submitted PDF on "[CDA's 'Alleged Outcroppings'](#)" that "**UNH has worked to reduce flow into Brook, while Plaza promises only not to significantly increase it.**" Therefore, I reached out to UNH's Director of Campus Planning, Douglas Bencks, to see what, if anything, UNH has done to address stormwater runoff into College Brook and flooding downstream.

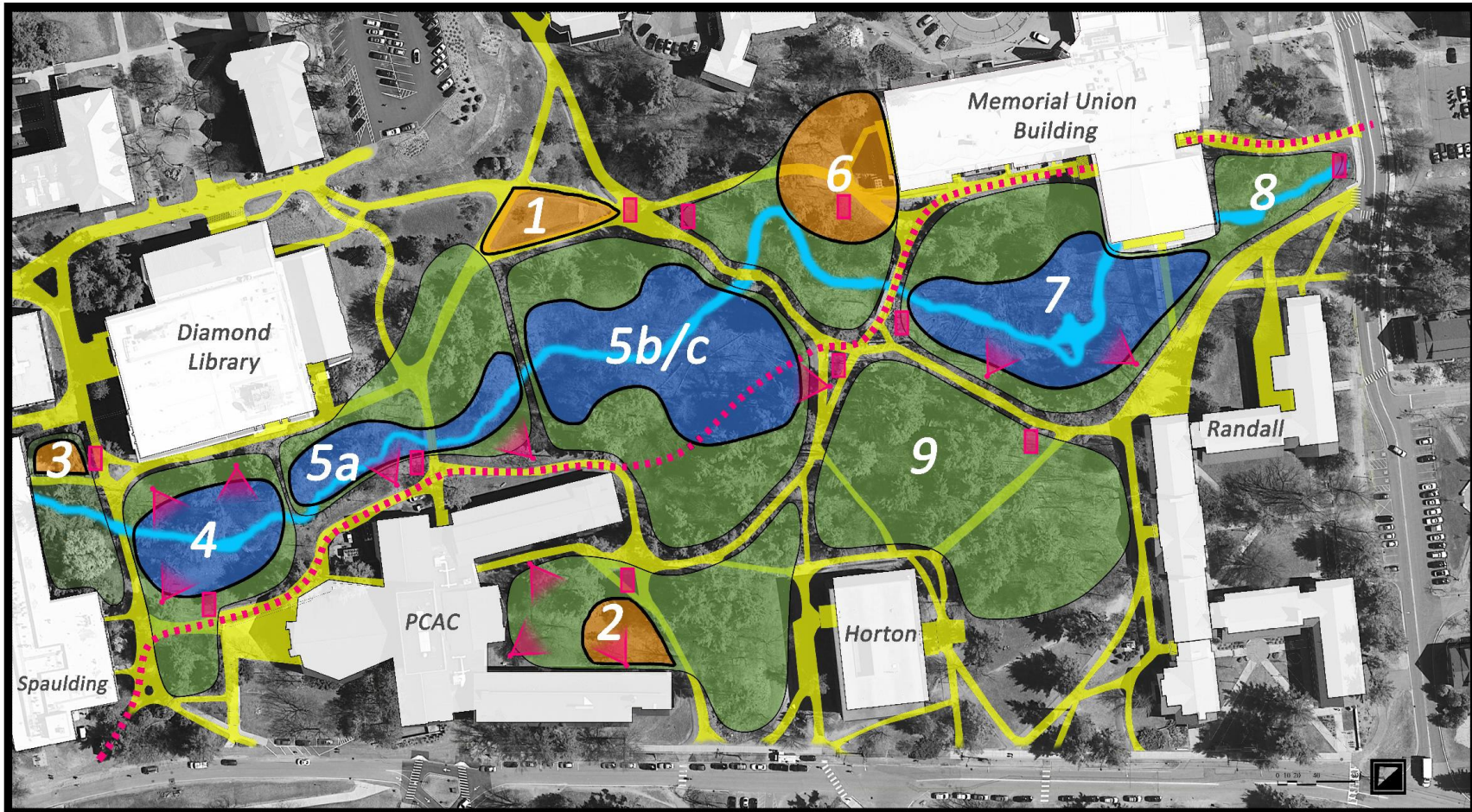
As indicated below, Mr. Bencks confirmed UNH's efforts over the last 10 years to remediate negative impact to College Brook. Interestingly, Tighe & Bond (also working on the Mill Plaza project) was involved in the major UNH efforts. Mr. Bencks additionally informed me that the mitigation project at parking Lot B was overseen by the [UNH Stormwater Center](#) under the guidance of Tom Ballestero and Jamie Houle. Thus, Mill Plaza representatives at your prior meetings should have been familiar with these UNH efforts.

In further clarification, Mr. Bencks noted that the Hamilton Smith rain garden is part of the Dell rain garden, done in 2 phases, with Ham Smith portion most recent. He also added that "this work has all been completed since 2007," the date of the [College Brook Report](#).

*From: Bencks, Douglas <Doug.Bencks@unh.edu>
Date: Mon, Dec 21, 2020 at 5:58 PM
Subject: UNH stormwater improvements
To: Joshua Meyrowitz <prof.joshua.meyrowitz@gmail.com>*

Josh, As we discussed the University has been making stormwater improvements along the College Brook for the past decade to remediate at least some of the negative impacts the University made on the College Brook over many decades. Attached are two illustrations depicting these recent improvements. The first is the College Brook Ravine Action Plan with the two rain gardens and the erosion control identified that we have been completed over the past ten years. The other file is a site image of the area that was modified to address stormwater run off from Lot B. This project was overseen by the UNH Stormwater Center using state grant funding.

*Doug Bencks, University Architect and Director of Campus Planning
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LEGEND

- Existing Paths
- Stormwater Management Improvement
- Stream Improvement
- Invasive Control & Native Vegetation Restoration
- Interpretive Signage
- Benches with Views
- ADA Accessible Route w. Boardwalk

PRIORITIZED PROJECT LIST

1. The Dell (Bio-retention / Raingarden)
2. PCAC Courtyard (Bio-retention / Raingarden)
3. Spaulding (Bio-retention / Raingarden)
4. PCAC Pond (Buffer enhancement)
5. PCAC College Brook
 - a. Stream bank erosion control, Log veins
 - b. Wet meadow establishment
 - c. boardwalk
6. MUB West (Steep slope erosion control)
7. MUB Central (Blow down removals, Forested wet meadow, Log veins)
8. MUB East (Invasives removal, Native vegetation restoration)
9. Horton (Invasives removal, Native vegetation restoration)

TYPES OF IMPROVEMENTS

Stormwater Management - Erosion from run-off from adjacent impervious areas has impacted the Ravine and Brook in many locations. Edges of walkways, drainage from roofs and lawn areas, all contribute drainage which flows to the Brook overland and through pipes causing erosion on the way. Effective stormwater management with Bio-retention areas or Raingardens upstream of the Brook will slow the water down, allow more of it to infiltrate prior to getting to the stream, allow for debris and pollutants to be removed prior to entering the stream as well as lower the temperature of water as it enters the Brook.

Specific stormwater management projects can be envisioned at the following locations:

1. The Dell, collecting and detaining and infiltrating drainage from the Thompson Hall parking lot and the sloping lawn of The Dell.
2. The Rear of Spaulding Hall, collecting and detaining and infiltrating drainage from Cowart Courtyard
3. PCAC Courtyard - collecting roof, courtyard and pathway drainage, along with runoff from the Academic Way closed drainage system into a bio-retention area in the courtyard.
4. Southwest Corner of the MUB - There is currently a very steep slope at the southwestern corner of the MUB that is actively eroding. Drainage and erosion cross the path and continues down a very steep slope into the Brook. Mitigation of the steep slope with natural retaining walls and planting uphill of the walkway and re-vegetation of the bank below the walk will help to eliminate this issue.

Stream Restoration -

1. Log Veins - The stream channel has deepened overtime, removing the potential for the stream to top its banks and inundate the floodplain areas. Log Veins were discussed as a means to slow down the rush of water that continues to scour the channel.
2. Adjust the level of the Brook - In flood plain areas reestablish the potential for utilization of the flood plain by either lowering the plain or raising the channel of the stream creating either an open wet meadow in the case of the flood plain area by PCAC or a forested wet meadow in the area adjacent to the MUB.

Invasives Control - Invasives are rampant throughout the Woodland buffers adjacent to the Brook. Including the following species: Acer Platanoides (Norway Maple), Rosa multiflora (Multiflora Rose), Berberis thunbergii (Japanese Barberry), Eonymus alatus (Burning Bush), Fraxinus alnus (Glossy Buckthorn), Calostrotus orbiculatus (Oriental Bittersweet), Polygonum cuspidatum (Japanese Knotweed), Lonicera japonica (Japanese Honeysuckle), Aggressive Native Plantings - Poison Ivy is also found throughout the Ravine. Although native, the aggressive and harmful aspects of this plant makes it a candidate for removal. Systemic removal of these species and replacement with natives is recommended. With each project undertaken invasives should be removed in and adjacent to the specific project area such that when the projects are complete all invasives will be eradicated. This assumes that following each project maintenance is vigilant to watch for and remove new infestations.

Native Vegetation Restoration - Native vegetation planting should be an integral part of each new project. Creation of a varied native canopy, understory and ground plan will enhance the habitat, protect against erosion and provide passersby with a more aesthetically pleasing environment.

Illustration of Green Methods and Land Stewardship - Another by-product of Stabilization and Enhancement would be the example the specific projects would provide to those moving in and through the Ravine. Means and methods that provide stormwater management, erosion control, promote native plantings, and enhance natural stream conditions along the Brook would be evident and available for observation and teaching opportunities. Interpretive signage should be included with each project explaining the purpose of the work.

Experience and Aesthetics - This space is an important crossroads in the middle of campus that can provide direct contact with an inviting, natural, native landscape. Although this experience is very important it is thought of as more of a by-product of main goal of Stabilization and Enhancement. Seating opportunities should be established with benches throughout the space.

ADA Accessibility - The Ravine Master Plan by HJL Turner Group and CRMA recommended the installation of a boardwalk through and across the Ravine. This pedestrian connection would provide an accessible path through the Ravine, connecting users directly to this resource without the environmental damage associated with standard asphalt pathways.



University of New Hampshire Ravine Action Plan

October 21, 2013

Produced in partnership with:



