Impervious Cover TMDL
Field Survey and Analysis Report

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SECTION 1. Introduction
As part of their responsibilities under the Clean Water Act, the Connecticut Department of Environmental Protection (CTDEP) has developed and issued a Total Maximum Daily Load (TMDL) analysis for Eagleville Brook. The Eagleville Brook watershed is located in Mansfield, Connecticut and includes much of the University of Connecticut (UConn) campus; the watershed is listed by the state as an impaired waterbody. The TMDL, approved by the Environmental Protection Agency (EPA) in February 2007, is the first in the nation based not on a specific pollutant(s), but on impervious cover, a landscape indicator that integrates the many impacts of urban development.

The Center for Land Use Education and Research (CLEAR) is the project lead on investigating opportunities to reduce, remove, or manage existing impervious cover to meet the TMDL by which the UConn and Mansfield communities can address the TMDL, and monitor progress toward the TMDL goals, through a watershed-based management plan. The objectives of the project are to: (1) create a specific TMDL Water Quality Management Plan for Eagleville Brook, that can be followed by the UConn and the Town of Mansfield; (2) identify opportunities for best practices that can be implemented in the near term, and; (3) document a general methodology by which other regulated communities and entities can address impervious cover-based TMDLs.

CLEAR has collaborated with the Center for Watershed Protection (CWP) and Horsley Witten Group (HW) as a part of this project to complete a field assessment of stormwater retrofit opportunities in the Eagleville Brook watershed. This report summarizes the findings from 51 sites that were surveyed, recommends a prioritization framework for the projects identified and presents schematic designs for the priority concepts.

This report is organized as follows:

Section 1. Introduction – provides an introduction to the Impervious Cover TMDL Field Survey and Analysis Report.

Section 2. Field Assessment and Prioritization Methodology - provides a summary of the protocol for the retrofit inventory field assessment, lists the criteria that were used to prioritize the identified projects and discusses the assumptions made in calculating costs, pollutant removal, runoff reduction, etc. for each practice.

Section 3. Field Assessment Summary - briefly summarizes field findings and provides a list of the high priority projects.

Section 4. Priority Retrofit Projects - provides a brief description of each of the high priority projects.
SECTION 2. Field Assessment and Prioritization Methodology

2.1 Stormwater Retrofit Inventory
Potential stormwater retrofit opportunities at 51 project sites in the Eagleville Brook watershed were assessed during the retrofit inventory (Attachment A, Map A.1.). Stormwater retrofits are structural stormwater management practices that can be used to address existing stormwater management problems within a watershed. They are an essential element of a watershed restoration program because they can help improve water quality, increase groundwater recharge, provide channel protection, and control overbank flooding. Without using stormwater retrofits to address existing problems and to help establish a stable, predictable hydrologic regime by regulating the volume, duration, frequency, and rate of stormwater runoff, the success of many other watershed restoration strategies -- such as bank stabilization, riparian reforestation, and aquatic habitat enhancement -- cannot be guaranteed. In addition to the stormwater management benefits they offer, stormwater retrofits can be used as demonstration projects, forming visual centerpieces that can be used to help educate residents and/or students while building interest in watershed restoration.

Stormwater retrofits can be broken into three general categories: offsite storage, onsite nonresidential, and onsite residential. Offsite storage retrofits, such as ponds and wetlands, generally provide the widest range of watershed restoration benefits because of their ability to treat relatively large drainage areas. However, onsite retrofit practices, such as bioretention and filtration practices, can provide a substantial benefit when applied to a large number of sites within a subwatershed.

In the Eagleville Brook watershed, candidate project areas on the UConn campus and in the City of Mansfield were identified prior to field work using aerial photography, stakeholder input, and information gathered during earlier watershed site visits prior to field work. Candidate project sites were mostly located on the UConn campus due to the high amount of impervious cover found there. The City of Mansfield is largely rural residential with little opportunity for implementing retrofits. The campus was divided into three regions that each of three teams visited throughout field work, which occurred from 7/12/09-7/16/09. A map of sites visited can be found in Attachment A.

Using the Retrofit Reconnaissance Inventory (RRI) field form developed by CWP, the stormwater retrofit potential of each site was evaluated by analyzing existing drainage patterns, drainage areas, impervious cover, available space, and other site constraints (e.g. conflicts with existing utilities and land uses, site access, and potential impacts to natural areas). Unless there were obvious site constraints and/or evidence that a particular stormwater retrofit would offer few or no watershed benefits, a stormwater retrofit concept was developed. More detail on conducting the RRI protocol can be obtained directly from Schueler et al. (2007). The scanned RRI field forms can be found in Attachment E.

Each proposed stormwater retrofit was based on the size of the project site, the particular constraints and characteristics of the project site, the size of the drainage area to be treated, the current use of the land by the University, and the amount of impervious cover within the drainage area. During the field investigation, observed impervious areas that were already disconnected...
were noted and recorded. Additionally, several discrepancies in the original watershed boundary provided by CT Department of Environmental Protection were identified during the field assessments. The watershed boundary was revised based on these findings. The original and revised boundaries can be found in Attachment A, Map A.2.

2.2 Project Prioritization Framework
A variety of stormwater management practices were proposed on the UConn campus, including rain gardens, bioretention, downspout disconnection, green roofs, swale enhancement, soil amendments, dry swales, porous pavement, cisterns, sand filters, constructed wetlands, floodplain reconnection, impervious cover removal, tree plantings, pervious area restoration and stormwater planters. CWP & HW used professional judgment to rank the preliminary concepts from high to low priority for further investigation based on the following factors:

- Impervious area treated
- Pollutant removal capability
- Runoff reduction
- Feasibility
- Cost
- Demonstration / education
- Maintenance

The water quality volume for each practice was calculated using the following equation based on criteria established in CT’s stormwater design manual:

\[
WQ_v = \frac{[(P)(R_v)(A)]}{12}
\]

Where:

- \( WQ_v \) = water quality volume (acre-feet),
- \( P \) = target rainfall depth (inches)
- \( R_v = 0.05 + 0.009(I) \), where \( I \) is the percent impervious cover of the site, and
- \( A \) = site drainage area (acres)

This calculation is based on 1” of rainfall multiplied by the contributing impervious area to the practice. Runoff reduction refers to annual reduction in stormwater runoff. Pollutant removal estimates were calculated from drainage area, impervious cover, practice proposed, annual precipitation of 49” per year and removal estimates per practice based on Schueler et al. (2007). The top ten preliminary retrofit concepts have been developed into 25% detailed concepts. A brief description of each project can be found in Section 4, project concept sheets for the high priority projects can be found in Attachment C and design drawings for the high priority projects can be found in Attachment D.

2.3 Project Assumptions
Disconnection from impervious surfaces was defined prior to field work as a length of drainage to a pervious area with the same length as the impervious surface itself. Disconnected areas are shown in Attachment A, Map A.1.
Practice cost assumptions were derived from Schueler et al (2007) and are summarized in Attachment B, Table B.3. Cost data are estimates only and reflect the cost of construction and not design and engineering. For a complete list of assumptions associated with these retrofit cost estimates, see Schueler et al (2007), Appendix E.

Runoff reduction and event mean concentration pollutant removal efficiencies were derived primarily from the Runoff Reduction Technical Memo (CWP and CSN, 2008) and Virginia Department of Conservation and Recreation Best Management Practice Clearinghouse (http://www.vwrrc.vt.edu/swc/NonProprietaryBMPs.html). A summary table of these efficiencies can be found in Attachment B, Table B.4. Runoff reductions were amended in some cases due to soil permeability.

SECTION 3. Field Assessment Summary

A total of 51 sites were visited by three teams during the field inventory. 110 projects were identified at those sites and priority projects were selected via the criteria stated above. Table 1 summarizes the drainage area and impervious cover for the watershed, high priority projects, all projects together and the area determined to be disconnected when in the field. A summary of project benefits for high priority and all projects is displayed in Table 2. A summary of project benefits for the high priority projects can be found in Table 3. Attachment B contains summary tables for all the projects assessed.

High priority projects treat approximately 31 acres of impervious cover and approximately 2.6% of the watershed. These high priority projects are estimated to remove approximately 33 lbs of total phosphorus and result in an annual runoff reduction of 18,881 cubic feet of stormwater. During the field assessment, 53 acres of impervious cover were determined to be already disconnected. A complete list of all project sites can be found in Attachment B. If implemented, these stormwater retrofits will improve stormwater runoff quality and recharge, mitigate some of the effects of existing impervious cover, and serve as demonstration and education sites for staff, students and visitors on the UConn campus. It should be duly noted that some stormwater pollutants particularly chloride in road salts are not significantly removed by stormwater treatment practices and may negatively affect biological communities and water quality – source control is the best way to reduce the concentration of these pollutants in urban watersheds.

<table>
<thead>
<tr>
<th>Table 1. Watershed &amp; Project Summary</th>
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</thead>
<tbody>
<tr>
<td>Total Watershed Area (acres)</td>
</tr>
<tr>
<td>High Priority Projects</td>
</tr>
<tr>
<td>Area Treated</td>
</tr>
<tr>
<td>All Projects*</td>
</tr>
<tr>
<td>Area Treated</td>
</tr>
<tr>
<td>Disconnected Area¹</td>
</tr>
</tbody>
</table>

*Assumes B7g option 1; Discounts C15 (already completed); Discounts double treatment by A2.

¹ Disconnection from impervious surfaces was defined prior to field work as a length of drainage to a pervious area with the same length as the impervious surface itself.
<table>
<thead>
<tr>
<th>Project Type</th>
<th>Impervious Cover Drainage Area Treated (acres)</th>
<th>Watershed Treated (%)</th>
<th>TP Removed (lb/yr)</th>
<th>TN Removed (lb/yr)</th>
<th>TSS Removed (lb/yr)</th>
<th>Runoff Reduction (cf)</th>
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</thead>
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<td>High Priority Projects</td>
<td>31.88</td>
<td>2.6</td>
<td>33</td>
<td>207</td>
<td>6,433</td>
<td>18,881</td>
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<tr>
<td>All Projects</td>
<td>127.19</td>
<td>22</td>
<td>72</td>
<td>517</td>
<td>14890</td>
<td>55,167</td>
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<td>Site ID</td>
<td>Location</td>
<td>Retrofit</td>
<td>DA IC (acres)</td>
<td>Cost(^2)</td>
<td>TP Removed (lb/yr)</td>
<td>TN Removed (lb/yr)</td>
</tr>
<tr>
<td>---------</td>
<td>----------------</td>
<td>---------------------------</td>
<td>---------------</td>
<td>------------</td>
<td>--------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>A3</td>
<td>F Lot</td>
<td>Terraced bioretention</td>
<td>1.64</td>
<td>$89,000</td>
<td>2.3</td>
<td>20.0</td>
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<td>1.6</td>
<td>13.8</td>
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<td>A5a</td>
<td>Motor Pool</td>
<td>Sand filter</td>
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<td>$56,000</td>
<td>1.3</td>
<td>4.6</td>
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<td>A5b</td>
<td>Central Warehouse</td>
<td>Green roof</td>
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<td>$545,000</td>
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<td>8.0</td>
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<td>A8a</td>
<td>Hurley Hall</td>
<td>Bioretention</td>
<td>0.51</td>
<td>$5,000</td>
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<td>1.6</td>
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<tr>
<td>A8b</td>
<td>Hurley Hall</td>
<td>Rain gardens</td>
<td>0.81</td>
<td>$16,000</td>
<td>0.2</td>
<td>1.86</td>
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<td>A8c</td>
<td>Hurley Hall</td>
<td>Rain gardens</td>
<td>0.88</td>
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<td>2.7</td>
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<td>A11a-d</td>
<td>Lot 9</td>
<td>Bioretention &amp; grass swale</td>
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<td>$52,000</td>
<td>1.9</td>
<td>16.0</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B3</td>
<td>Baseball Field Batting Cage</td>
<td>Gravel Wetland</td>
<td>15.11</td>
<td>$250,000</td>
<td>13.3</td>
<td>49.2</td>
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<td>B5a</td>
<td>Parking Lot Y</td>
<td>Swale to Bioretention</td>
<td>1.32</td>
<td>$43,500</td>
<td>1.7</td>
<td>14.6</td>
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\(^2\) Cost reflects an estimate of construction costs only and does not include further design and engineering.
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<thead>
<tr>
<th>Site ID</th>
<th>Location</th>
<th>Retrofit</th>
<th>DA IC (acres)</th>
<th>Cost²</th>
<th>TP Removed (lb/yr)</th>
<th>TN Removed (lb/yr)</th>
<th>TSS Removed (lb/yr)</th>
<th>Runoff Reduction (%)</th>
<th>Runoff Reduction (cf)</th>
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</thead>
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<td>B5b</td>
<td>Parking Lot Y</td>
<td>Swale to Bioretention</td>
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<td>$18,500</td>
<td>0.7</td>
<td>6.1</td>
<td>155</td>
<td>60%</td>
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<td>B11a</td>
<td>Parking Lot W</td>
<td>Bioretention</td>
<td>0.86</td>
<td>$27,500</td>
<td>1.1</td>
<td>9.1</td>
<td>230</td>
<td>60%</td>
<td>1553</td>
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<tr>
<td>B11b</td>
<td>Parking Lot W</td>
<td>Bioretention</td>
<td>1.38</td>
<td>$33,000</td>
<td>1.3</td>
<td>11.0</td>
<td>275</td>
<td>60%</td>
<td>1864</td>
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<tr>
<td>B11c</td>
<td>Parking Lot W</td>
<td>Swale to Bioretention</td>
<td>1.02</td>
<td>$34,000</td>
<td>1.3</td>
<td>11.4</td>
<td>286</td>
<td>60%</td>
<td>1932</td>
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<tr>
<td>B11d</td>
<td>Parking Lot W</td>
<td>Bioretention</td>
<td>0.92</td>
<td>$34,000</td>
<td>1.3</td>
<td>11.3</td>
<td>283</td>
<td>60%</td>
<td>1916</td>
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<tr>
<td>C4e</td>
<td>School of Education</td>
<td>Bioretention</td>
<td>0.34</td>
<td>$12,500</td>
<td>0.45</td>
<td>4.2</td>
<td>105</td>
<td>40%</td>
<td>474</td>
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<tr>
<td>C4/5a</td>
<td>GENT</td>
<td>Stormwater planters</td>
<td>0.12</td>
<td>$10,500</td>
<td>0.2</td>
<td>1.4</td>
<td>36</td>
<td>40%</td>
<td>161</td>
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<tr>
<td>C4/5d</td>
<td>GENT</td>
<td>Bioretention</td>
<td>0.07</td>
<td>$3,000</td>
<td>0.1</td>
<td>0.9</td>
<td>22</td>
<td>40%</td>
<td>100</td>
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<tr>
<td>C16</td>
<td>Torrey Life Sciences</td>
<td>Bioretention</td>
<td>0.28</td>
<td>$10,500</td>
<td>0.4</td>
<td>3.5</td>
<td>87</td>
<td>40%</td>
<td>115</td>
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<tr>
<td>C17</td>
<td>Quad in front of chemistry bldg</td>
<td>Bioretention</td>
<td>0.51</td>
<td>$19,000</td>
<td>0.7</td>
<td>6.2</td>
<td>157</td>
<td>40%</td>
<td>707</td>
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<tr>
<td>C18</td>
<td>Eagleville Rd</td>
<td>Bioretention</td>
<td>0.85</td>
<td>$31,000</td>
<td>1.2</td>
<td>10.3</td>
<td>259</td>
<td>40%</td>
<td>1170</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>31.88</strong></td>
<td><strong>$1,350,000</strong></td>
<td><strong>32.5</strong></td>
<td><strong>207.5</strong></td>
<td><strong>6433</strong></td>
<td>~</td>
<td><strong>18,881</strong></td>
</tr>
</tbody>
</table>
SECTION 4. Priority Retrofit Projects
A brief description of each high priority project can be found below. Detailed information concerning each of these projects can be found in Appendices C & D and locations can be found in Attachment A, Map A.1.

Site A3/A4
The site, Lot F, is two parking areas separated by a grassed slope, and is located over a former landfill with an impervious cap. Currently, runoff is captured in a storm drain system that discharges directly to Eagleville Brook. The proposed concept calls for the installation of two bioretention facilities. Runoff would be conveyed to each practice using paved flumes and overflow would be overland flow to the Brook.

Site A5a/b
The site is the motor pool and warehouse east of the facilities building; indications of oil spillage on the completely impervious lot are evident. Currently no stormwater treatment exists on the site despite the potential for automotive contaminants. The concept at this site is a perimeter sand filter around the motor pool parking lot and a green roof on the warehouse.

Site A8
This site is a quad area of the Hurley Hall Student Residences. Erosion is pervasive at the site as indicated by gullies in the turf area, sand and gravel on the walkways and yard inlets full of sediment. Bioretention is proposed in three locations to capture walkway runoff. An underdrain will be required due to the compacted conditions at the site; soil amendments are also recommended.

Site A11a-d
This is a highly visible site across from the campus visitor center. The parking lot is in poor condition and untreated runoff is conveyed directly to the storm drain system. The proposed concept calls for the installation of two linear bioretention areas in the medians and two small bioretention cells in existing landscaped areas.

Site B3
The site is located near the baseball fields in the SE portion of the campus. The drainage area is large (55 acres) and the practice has the potential to manage significant volumes of runoff and impervious surfaces. The concept proposes using a diversion manhole to direct flows into a pretreatment forebay that discharges to a gravel based wetland system. Flows are then forced upward through gravel filters to a vegetated wetland surface.

Site B5a/b
The site, nested within drainage area of site B3, is located along the edge of Parking Lot Y. Currently, runoff is conveyed to an underground detention pipe system, however, some drainage appears to bypass the inlets and contribute to damage of a reinforced slope at the low end of the lot. The proposed concept calls for the installation of paved flumes from two lots at strategic locations into bioretention cells.
Site B11a-d
This site, a large, underused lot that is showing signs of decay, is located near the reservoir and Greek housing area. A portion of the site drains out of the Eagleville Brook watershed and the remaining portions of the lot are divided into four catchments that capture untreated stormwater runoff. Four bioretentions are proposed at the site. Some pavement removal and lot restriping would be required. Overflow ties back into the existing drainage.

Site C4/5
The Education and Gentry buildings are located in the center of campus and are separated by a Sundial Garden quad area. Soils in the garden and in adjacent areas are very compacted; roof leaders from the buildings are directly connected to the storm drain system. Multiple projects are proposed for the site, including directing front roof leaders to stormwater planter beds; capturing rooftop runoff in cisterns near the main entrance of the building; soil amendments in the Sundial Garden; tree plantings to reduce runoff; and direction of two downspouts near a side entrance into a bioretention facility in the Sundial Garden.

Site C16/17
This site is located between the Chemistry building and Pharmaccy/Biology building; soils are very compacted and little landscaping exists. Rooftop runoff from the Chemistry building connects directly to the storm drain system. The quad area and parking lot convey untreated stormwater directly to the Brook, which has been piped deep underneath the quad area. The proposed concept calls for the installation of three bioretention areas to capture rooftop and impervious area runoff.

Site C18
Eagleville Road runs through the center of campus and receives a significant amount of pedestrian use. The road is very wide in locations and runoff is directed to catch basins along the edge of the street. The proposed concept calls for removal of impervious cover along the road edge and installation street planter areas. The stormwater treatment facilities will also help to calm traffic and improve pedestrian safety on this busy road.

Literature Cited


Attachment A. Watershed Maps
Map A.1. Stormwater Retrofit Opportunities in the Eagleville Brook Watershed

- Watershed
- Disconnected Impervious Cover

Priority Projects
- High
- Medium
- Low
Attachment B. Stormwater Retrofit Project Summary & Calculation Assumptions
<table>
<thead>
<tr>
<th>Site ID#</th>
<th>Location</th>
<th>Retrofit</th>
<th>Landscape Plan Campus District</th>
<th>DA (acres)</th>
<th>%IC</th>
<th>DA IC (acres)</th>
<th>WQv (cf)</th>
<th>Tv</th>
<th>Tv/WQv</th>
<th>% treatment of 1st inch runoff</th>
<th>Priority (H, M, L)</th>
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<td>A1a</td>
<td>North campus barber stylists</td>
<td>Bioretention</td>
<td>Campus Streets</td>
<td>0.39</td>
<td>80%</td>
<td>0.32</td>
<td>1100.84</td>
<td>1100.84</td>
<td>100</td>
<td>1100.84</td>
<td>M</td>
</tr>
<tr>
<td>A1b</td>
<td>North campus barber stylists</td>
<td>Bioretention</td>
<td>Campus Streets</td>
<td>0.35</td>
<td>100%</td>
<td>0.35</td>
<td>1191.59</td>
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<td>M</td>
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<tr>
<td>A2</td>
<td>Corner of Eagleville Rd and Hunting Lodge Rd</td>
<td>Floodplain reconnection</td>
<td>n/a</td>
<td>254.20</td>
<td>58%</td>
<td>146.93</td>
<td>526149.15</td>
<td>526149.15</td>
<td>N/A</td>
<td>M</td>
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<td>A3</td>
<td>F Lot</td>
<td>Terraced bioretention</td>
<td>Perimeter Areas</td>
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<td>100%</td>
<td>1.64</td>
<td>5648.47</td>
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<td>A4</td>
<td>F Lot</td>
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<td>A5a</td>
<td>Motor Pool</td>
<td>Sand filter</td>
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<td>4601.19</td>
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<td>60.9</td>
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<td>A5b</td>
<td>Central Warehouse</td>
<td>Green roof</td>
<td>Perimeter Areas</td>
<td>0.93</td>
<td>100%</td>
<td>0.93</td>
<td>3207.83</td>
<td>3207.83</td>
<td>100</td>
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<tr>
<td>A6a</td>
<td>Alan T Busby suites (student housing)</td>
<td>Rain garden</td>
<td>Independent Residential Communities</td>
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<td>65%</td>
<td>0.15</td>
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<td>100</td>
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### Table B.1. Site Characteristics

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<th>%IC</th>
<th>DA IC (acres)</th>
<th>WQv (cf)</th>
<th>Tv</th>
<th>Tv/WQv</th>
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<th>Tv</th>
<th>Tv/WQv</th>
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Table B.1. Site Characteristics

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<th>Tv</th>
<th>Tv/WQv</th>
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### Table B.2. Cost and Pollutant Load Removal

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<th>Site ID</th>
<th>Location</th>
<th>Retrofit</th>
<th>Cost ($)</th>
<th>TP Removed (lb/yr)</th>
<th>TN Removed (lb/yr)</th>
<th>TSS Removed (lb/yr)</th>
<th>Runoff Reduction (cu ft)</th>
<th>Priority (H, M, L)</th>
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<td>A10a</td>
<td>X lot south of Farmer Brown's</td>
<td>Wetland</td>
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<td>0.9</td>
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<td>Bioretention &amp; grass swale</td>
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<td>0.5</td>
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<td>475</td>
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<td>Outlet Stillling Basin (forebay)</td>
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<td>Ice Rink Service Area</td>
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### Table B.2. Cost and Pollutant Load Removal

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<thead>
<tr>
<th>Site ID</th>
<th>Location</th>
<th>Retrofit</th>
<th>Cost ($)</th>
<th>TP Removed (lb/yr)</th>
<th>TN Removed (lb/yr)</th>
<th>TSS Removed (lb/yr)</th>
<th>Runoff Reduction (cu ft)</th>
<th>Priority (H, M, L)</th>
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<td>828</td>
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<td>TN Removed (Ib/yr)</td>
<td>TSS Removed (Ib/yr)</td>
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<td>0.5</td>
<td>12</td>
<td>101</td>
<td>H</td>
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<tr>
<td>C4e</td>
<td>School of Education</td>
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<td>$12,500</td>
<td>0.48</td>
<td>4.2</td>
<td>105</td>
<td>474</td>
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<tr>
<td>C4f</td>
<td>School of Education</td>
<td>Bioretention</td>
<td>$800</td>
<td>0.03</td>
<td>0.2</td>
<td>6</td>
<td>27</td>
<td>M</td>
</tr>
<tr>
<td>C5a</td>
<td>GENT</td>
<td>Planters</td>
<td>$5,500</td>
<td>0.1</td>
<td>0.7</td>
<td>18</td>
<td>83</td>
<td>H</td>
</tr>
<tr>
<td>C5b</td>
<td>GENT</td>
<td>Cistern</td>
<td>$3,500</td>
<td>0.1</td>
<td>0.9</td>
<td>20</td>
<td>84</td>
<td>M</td>
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<tr>
<td>C5c</td>
<td>GENT</td>
<td>Planting</td>
<td>$1,500</td>
<td>0.03</td>
<td>0.2</td>
<td>7</td>
<td>0</td>
<td>M</td>
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<tr>
<td>C5d</td>
<td>GENT</td>
<td>Bioretention</td>
<td>$1,500</td>
<td>0.1</td>
<td>0.4</td>
<td>10</td>
<td>47</td>
<td>H</td>
</tr>
<tr>
<td>C6</td>
<td>William H Hall dorm</td>
<td>Bioretention</td>
<td>$4,500</td>
<td>0.2</td>
<td>1.5</td>
<td>38</td>
<td>340</td>
<td>M</td>
</tr>
<tr>
<td>C7</td>
<td>Pavement in front of GENT</td>
<td>IC removal/soil amendment</td>
<td>$10,500</td>
<td>0.4</td>
<td>3.4</td>
<td>86</td>
<td>105</td>
<td>L</td>
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<td>C8</td>
<td>WRMA art museum</td>
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<td>$1,500</td>
<td>0.1</td>
<td>0.4</td>
<td>11</td>
<td>50</td>
<td>M</td>
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<tr>
<td>C9</td>
<td>Student Union</td>
<td>Swale and Bioretention</td>
<td>$9,000</td>
<td>0.4</td>
<td>3.0</td>
<td>75</td>
<td>338</td>
<td>M</td>
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<tr>
<td>C10</td>
<td>North parking garage</td>
<td>Green roof</td>
<td>$475,500</td>
<td>1.0</td>
<td>7.0</td>
<td>248</td>
<td>1259</td>
<td>L</td>
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<tr>
<td>C11</td>
<td>Hillside Rd near HJT</td>
<td>Bioretention</td>
<td>$8,500</td>
<td>0.3</td>
<td>2.8</td>
<td>70</td>
<td>317</td>
<td>M</td>
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<tr>
<td>C12a</td>
<td>Harriet S Jorgenson theatre</td>
<td>Porous pavement</td>
<td>$144,500</td>
<td>0.5</td>
<td>3.9</td>
<td>122</td>
<td>542</td>
<td>M</td>
</tr>
<tr>
<td>Site ID</td>
<td>Location</td>
<td>Retrofit</td>
<td>Cost ($)</td>
<td>TP Removed (lbyr)</td>
<td>TN Removed (lbyr)</td>
<td>TSS Removed (lbyr)</td>
<td>Runoff Reduction (cu ft)</td>
<td>Priority (H, M, L)</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------</td>
<td>-----------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>------------------------</td>
<td>-------------------</td>
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<tr>
<td>C12b</td>
<td>Harriet S Jorgenson theatre</td>
<td>Green roof</td>
<td>$479,500</td>
<td>1.0</td>
<td>7.0</td>
<td>250</td>
<td>1268</td>
<td>L</td>
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<tr>
<td>C12c</td>
<td>Harriet S Jorgenson theatre</td>
<td>Street trees</td>
<td>$6,000</td>
<td>0.1</td>
<td>0.8</td>
<td>20</td>
<td>92</td>
<td>M</td>
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<tr>
<td>C13a</td>
<td>UTEB engineering bldg</td>
<td>Bioretention</td>
<td>$9,000</td>
<td>0.4</td>
<td>3.0</td>
<td>75</td>
<td>339</td>
<td>M</td>
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<tr>
<td>C13b</td>
<td>UTEB engineering bldg</td>
<td>Green roof</td>
<td>$105,500</td>
<td>0.2</td>
<td>1.5</td>
<td>55</td>
<td>278</td>
<td>L</td>
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<tr>
<td>C14</td>
<td>auditorium</td>
<td>Porous pavement</td>
<td>$19,500</td>
<td>0.1</td>
<td>0.5</td>
<td>16</td>
<td>73</td>
<td>L</td>
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<tr>
<td>C15-opt1</td>
<td>Gant science complex</td>
<td>Green roof</td>
<td>$158,000</td>
<td>0.3</td>
<td>2.3</td>
<td>82</td>
<td>417 already completed</td>
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<tr>
<td>C15-opt2</td>
<td>Gant science complex</td>
<td>Planters</td>
<td>$24,500</td>
<td>0.4</td>
<td>3.3</td>
<td>82</td>
<td>0</td>
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<tr>
<td>C16</td>
<td>Torrey Life Sciences</td>
<td>Bioretention</td>
<td>$10,500</td>
<td>0.4</td>
<td>3.5</td>
<td>87</td>
<td>115</td>
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<tr>
<td>C17</td>
<td>Quad in front of chemistry bldg</td>
<td>Bioretention</td>
<td>$19,000</td>
<td>0.7</td>
<td>6.2</td>
<td>157</td>
<td>707</td>
<td>H</td>
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<tr>
<td>C18</td>
<td>Eagleville Rd</td>
<td>Bioretention</td>
<td>$31,000</td>
<td>1.2</td>
<td>10.3</td>
<td>260</td>
<td>1170</td>
<td>H</td>
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<tr>
<td>C19a</td>
<td>Student Health Services</td>
<td>IC removal</td>
<td>$2,000</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>L</td>
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<tr>
<td>C19b</td>
<td>Student Health Services</td>
<td>Porous pavement</td>
<td>$80,000</td>
<td>0.3</td>
<td>2.2</td>
<td>67</td>
<td>299</td>
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<tr>
<td>C19c</td>
<td>Student Health Services</td>
<td>Green roof</td>
<td>$50,000</td>
<td>0.1</td>
<td>0.7</td>
<td>26</td>
<td>132</td>
<td>M</td>
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<tr>
<td>C20</td>
<td>School of Nursing</td>
<td>Bioretention</td>
<td>$4,500</td>
<td>0.2</td>
<td>1.4</td>
<td>35</td>
<td>158</td>
<td>L</td>
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<tr>
<td>C21</td>
<td>Wood Hall</td>
<td>Bioretention</td>
<td>$6,500</td>
<td>0.2</td>
<td>2.1</td>
<td>52</td>
<td>471</td>
<td>M</td>
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<tr>
<td>C22</td>
<td>Pharmacy/Biology Bldg</td>
<td>Green roof</td>
<td>$211,500</td>
<td>0.4</td>
<td>3.1</td>
<td>110</td>
<td>559</td>
<td>L</td>
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<tr>
<td>C23</td>
<td>Quad adjacent to ITE Bldg</td>
<td>Pervious area</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>0</td>
<td>M</td>
</tr>
<tr>
<td>C24</td>
<td>Old central warehouse</td>
<td>Bioretention</td>
<td>$2,500</td>
<td>0.1</td>
<td>0.8</td>
<td>20</td>
<td>92</td>
<td>L</td>
</tr>
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</table>
Table B.3. Practice Cost Assumptions

<table>
<thead>
<tr>
<th>Practice</th>
<th>Qualifier</th>
<th>Unit Cost ($/cf treated)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Roof</td>
<td>Extensive green roof</td>
<td>$170.00</td>
<td>Appendix E -- assumes &quot;Extensive&quot; green roof system</td>
</tr>
<tr>
<td>Rooftop Disconnection</td>
<td>100-900 ft² of rooftop, 1&quot; of rainfall, $50 per disconnection</td>
<td>$1.00</td>
<td>Derived from programs evaluated in Portland, OR</td>
</tr>
<tr>
<td>Rain Tank/Cistern</td>
<td>Cistern or larger storage device</td>
<td>$15.00</td>
<td>Appendix E</td>
</tr>
<tr>
<td>Soil Amendments</td>
<td></td>
<td>$7.50</td>
<td>Appendix E</td>
</tr>
<tr>
<td>Filter Strip</td>
<td>Width = 25 to 75 ft</td>
<td>$6.00</td>
<td>Appendix E</td>
</tr>
<tr>
<td>Permeable Pavement</td>
<td></td>
<td>$120.00</td>
<td>Appendix E</td>
</tr>
<tr>
<td>Grass Channel</td>
<td>3 - 5% of CDA</td>
<td>$6.25</td>
<td>Half of water quality swale. Can also use $15/lf (WDNR, 2003)</td>
</tr>
<tr>
<td>Bioretention</td>
<td>&gt; 0.5 acre treated</td>
<td>$10.50</td>
<td>Table E.4 &amp; Section D.3. Can also use $25 per sf (WDNR, 2003)</td>
</tr>
<tr>
<td>Rain Garden</td>
<td>&lt; 0.5 acre treated</td>
<td>$30.00</td>
<td>Table E.4 &amp; Section D.1. Can also use $15 per sf (WDNR, 2003)</td>
</tr>
<tr>
<td>Stormwater Planters</td>
<td></td>
<td>$26.00</td>
<td>Appendix E</td>
</tr>
<tr>
<td>Infiltration</td>
<td>3 - 5% of CDA</td>
<td>$15.00</td>
<td>Appendix E, Table E.4. Can also use $10 per sf (WDNR, 2003)</td>
</tr>
<tr>
<td>Dry Wells/French Drain</td>
<td></td>
<td>$11.50</td>
<td>Appendix E</td>
</tr>
<tr>
<td>Dry Swale</td>
<td>3 - 5% of CDA</td>
<td>$12.50</td>
<td>Appendix E, Table E.4</td>
</tr>
<tr>
<td>Wet Swale</td>
<td>3 - 5% of CDA</td>
<td>$12.50</td>
<td>Assumed to be same as Dry Swale</td>
</tr>
<tr>
<td>Extended Detention Pond</td>
<td>2 -- 4% of CDA</td>
<td>$3.00</td>
<td>Appendix E, Table E.4. Can also use $3800 per impervious acre.</td>
</tr>
<tr>
<td>Filtering Practice</td>
<td>3 -- 5% of CDA</td>
<td>$20.00</td>
<td>Appendix E, Table E.4. Assumes structural filter.</td>
</tr>
<tr>
<td>Constructed Wetland</td>
<td>3 -- 6% of CDA</td>
<td>$7.00</td>
<td>Appendix E. Can also use $2900 per impervious acre.</td>
</tr>
</tbody>
</table>
### Table B.3. Practice Cost Assumptions

<table>
<thead>
<tr>
<th>Practice</th>
<th>Qualifier</th>
<th>Unit Cost ($/cf treated)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet Pond</td>
<td>3 -- 5% of CDA</td>
<td>$5.00</td>
<td>Appendix E. Can also use $8350 per impervious acre.</td>
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<tr>
<td>Regenerative Design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catch Basin Insert</td>
<td></td>
<td>$4.00</td>
<td>From EPA Website: <a href="http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&amp;Rbutton=detail&amp;bmp=77">http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&amp;Rbutton=detail&amp;bmp=77</a></td>
</tr>
<tr>
<td>Downspout Disconnection to Rain Barrel</td>
<td>1 or several 55-gallon barrels</td>
<td>$25.00</td>
<td></td>
</tr>
<tr>
<td>Impervious Cover Removal</td>
<td></td>
<td>$20.00</td>
<td></td>
</tr>
<tr>
<td>Reforestation/Tree Planting/Native Landscaping</td>
<td></td>
<td>$5.00</td>
<td>Based on guidance in the Chesapeake Bay Riparian Handbook and City of Portland Stormwater Management Manual</td>
</tr>
</tbody>
</table>

**References**

- City of Portland Stormwater Management Manual is available online at: http://www.portlandonline.com/BES/index.cfm?c=47952
- Chesapeake Bay Riparian Handbook is available online at: http://www.chesapeakebay.net/pubs/subcommittee/nsc/forest/sect06.pdf
- Wisconsin Department of Natural Resources (WDNR). 2003. Rain gardens: A how-to manual for homeowners. Madison, WI.

**List of Acronyms**
<table>
<thead>
<tr>
<th>Practice</th>
<th>Qualifier</th>
<th>Unit Cost ($/cf treated)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDA</td>
<td>Contributing Drainage Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cf</td>
<td>cubic foot/feet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sf</td>
<td>square foot/feet</td>
<td></td>
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### Table B.4. Runoff Reduction & EMC Pollutant Removal Efficiencies, Derived from Runoff Reduction Technical Memo (CWP & CSN, 2008) and Virginia DCR BMP Clearinghouse (http://www.vwrrc.vt.edu/swc/NonProprietaryBMPs.html)

<table>
<thead>
<tr>
<th>Practice</th>
<th>Soil Permeability Low/None</th>
<th>Soil Permeability Moderate</th>
<th>TP EMC Reduction (%)</th>
<th>Total TP Reduction (%)</th>
<th>TN EMC Reduction (%)</th>
<th>Total TN Reduction (%)</th>
<th>TSS EMC Reduction (%)</th>
<th>Total TSS Reduction (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Roof</td>
<td>45%</td>
<td>-</td>
<td>0%</td>
<td>45%</td>
<td>0%</td>
<td>45%</td>
<td>50%</td>
<td>70%</td>
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<tr>
<td>Rooftop Disconnection</td>
<td>25%</td>
<td>50</td>
<td>0%</td>
<td>25%</td>
<td>0%</td>
<td>25%</td>
<td>50%</td>
<td>60%</td>
</tr>
<tr>
<td>Rain Tank/Cistern</td>
<td>40%</td>
<td>-</td>
<td>0%</td>
<td>75%</td>
<td>0%</td>
<td>75%</td>
<td>0%</td>
<td>75%</td>
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<tr>
<td>Soil Amendments</td>
<td>50%</td>
<td>-</td>
<td>0%</td>
<td>50%</td>
<td>0%</td>
<td>50%</td>
<td>0%</td>
<td>50%</td>
</tr>
<tr>
<td>Permeable Pavement</td>
<td>45%</td>
<td>75</td>
<td>25%</td>
<td>59%</td>
<td>25%</td>
<td>59%</td>
<td>65%</td>
<td>80%</td>
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<tr>
<td>Grass Channel</td>
<td>10%</td>
<td>10%</td>
<td>15%</td>
<td>23%</td>
<td>20%</td>
<td>28%</td>
<td>30%</td>
<td>35%</td>
</tr>
<tr>
<td>Bioretention / Rain Garden</td>
<td>40%</td>
<td>80</td>
<td>25%</td>
<td>55%</td>
<td>40%</td>
<td>64%</td>
<td>50%</td>
<td>70%</td>
</tr>
<tr>
<td>Stormwater Planters</td>
<td>40%</td>
<td>40%</td>
<td>25%</td>
<td>55%</td>
<td>40%</td>
<td>64%</td>
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<td>20%</td>
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<td>25%</td>
<td>55%</td>
<td>40%</td>
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<tr>
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<td>40%</td>
<td>60</td>
<td>20%</td>
<td>20%</td>
<td>25%</td>
<td>25%</td>
<td>40%</td>
<td>40%</td>
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<tr>
<td>Constructed Wetland</td>
<td>0%</td>
<td>-</td>
<td>50%</td>
<td>50%</td>
<td>25%</td>
<td>25%</td>
<td>50%</td>
<td>50%</td>
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<tr>
<td>Wet Pond</td>
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<td>50%</td>
<td>30%</td>
<td>30%</td>
<td>50%</td>
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**References**


**List of Acronyms**

<table>
<thead>
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<th>Acronym</th>
<th>Description</th>
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<tr>
<td>BMP</td>
<td>Best Management Practice</td>
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<tr>
<td>EMC</td>
<td>Event Mean Concentration</td>
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<tr>
<td>TP</td>
<td>Total Phosphorus</td>
</tr>
<tr>
<td>TN</td>
<td>Total Nitrogen</td>
</tr>
<tr>
<td>TSS</td>
<td>Total Suspended Solids</td>
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<td>VA DCR</td>
<td>Virginia Department of Conservation and Recreation</td>
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</table>
Attachment C. Concept Sheets for High Priority Projects
Site A3/4: F Lot
Terraced Parking Lot Bioretention

Project Summary

<table>
<thead>
<tr>
<th>Parameter</th>
<th>A3</th>
<th>A4</th>
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<tbody>
<tr>
<td>Impervious Cover Treated (acres)</td>
<td>1.64</td>
<td>1.13</td>
</tr>
<tr>
<td>Runoff Reduction Volume (cu ft per 1” rain event)</td>
<td>1130</td>
<td>550</td>
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<tr>
<td>TN Removal (lb/yr)</td>
<td>19.91</td>
<td>13.75</td>
</tr>
<tr>
<td>TP Removal (lb/yr)</td>
<td>2.31</td>
<td>1.6</td>
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<tr>
<td>TSS Removal (lb/yr)</td>
<td>500.81</td>
<td>345.9</td>
</tr>
<tr>
<td>Estimated Cost</td>
<td>$89,000</td>
<td>$41,000</td>
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</table>

1 Although this project has no actual infiltration a reduced level of runoff reduction is calculated to account for extended filtration and evapotranspiration.

Site Description
The proposed retrofit concept is located on the UConn Campus in the F Lot. The site is a terraced parking lot, with an upper and lower parking area separated by a grassed slope (Figure 1). The site is over a former landfill with an impervious cap.

Existing Conditions
Runoff from both lots is captured in an enclosed storm drain system, which discharges directly to Eagleville Brook. Grassed areas, including a sloped island between the upper and lower parking areas and below the lower parking area, currently receive no runoff from the parking lot.

Proposed Concept
Install two bioretention areas, one in the sloped island between the upper and lower parking area (Site A3), and one below the lower parking area (Site A4). Figure 2 shows locations of proposed practices as seen in the field. Convey runoff to each practice using paved flumes. Each of the filters will allow 6-9” of ponding depth above the filter. Two bioretention filters, constructed in fill (i.e., above the landfill cap) will capture runoff from the upper parking lot. The filter bed will be sloped, ranging from 6” to 18”, constructed above the existing grade. An underdrain will be installed at the lower
end of each filter. This underdrain will tie into an overflow structure which will then convey stormwater to a very deep storm drain system.

At the lower site A4, the practice will be excavated to a filter depth of 12”, then captured in an underdrain and conveyed to Eagleville Brook. The site overflow for this practice is a spillway which allows overland flow to the Brook.

**Preliminary Concept Designs**

A 25% concept design for the proposed retrofit can be found in attachment B, which includes preliminary plan views, cross sections and project details. These initial plans will require field survey and more information on drainage pipes, utilities, and soils (among other things) before going to construction plans.

**Preliminary Hydrologic Calculations**

Preliminary sizing of the bioretention area was completed based on guidance provided in the 2004 Connecticut Stormwater Quality Manual. These computations are summarized in the following table.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A3</td>
<td>A4</td>
</tr>
<tr>
<td>Drainage Area, A (acres)</td>
<td>1.64</td>
</tr>
<tr>
<td>Imperviousness, I (%)</td>
<td>100</td>
</tr>
<tr>
<td>Volumetric Runoff Coefficient, Rv</td>
<td>0.95</td>
</tr>
<tr>
<td>Rainfall Depth, P (in)</td>
<td>1</td>
</tr>
<tr>
<td>Water Quality Volume, WQv (cf)</td>
<td>5,648</td>
</tr>
<tr>
<td>Depth of the Filter Bed, d (ft)</td>
<td>1</td>
</tr>
<tr>
<td>Hydraulic Conductivity, k (ft/day)</td>
<td>1</td>
</tr>
<tr>
<td>Max. Ponding Depth, hmax (in)</td>
<td>9</td>
</tr>
<tr>
<td>Average Ponding Depth, h (ft)</td>
<td>0.375</td>
</tr>
<tr>
<td>Drawdown Time, t (days)</td>
<td>2</td>
</tr>
<tr>
<td>Surface Area Required, Af (sq ft)</td>
<td>2,054</td>
</tr>
<tr>
<td>Surface Area Provided (sq ft)</td>
<td>3,125</td>
</tr>
<tr>
<td>Treatment Provided (% of 1”)</td>
<td>100</td>
</tr>
</tbody>
</table>

**Design Considerations**

For site A3, the greatest design constraint is the landfill cap below the filter proposed in the sloped median between the two parking areas. The proposed design assumes that the filter is completely in fill, with the bottom of the filter adjacent to the existing ground surface. Designers should investigate the possibility of excavating slightly into the landfill cap, providing a flat filter bottom at a depth of 18”.

Three potential constraints need to be investigated:

- Electric lines are in the vicinity of the proposed filter, and their locations need to be confirmed.
- The filter is shallow due to potentially high groundwater table. Need to confirm depth of high groundwater.
- Available mapping suggest that the landfill cap does not extend to this area of the F Lot site. Need to confirm.

**Maintenance**

Maintenance is important for bioretention areas, particularly in terms of ensuring that they continue to provide measurable stormwater management benefits over time. The routine maintenance activities typically associated with bioretention areas are summarized in the table below.

<table>
<thead>
<tr>
<th>Maintenance Activities for Sites A3/A4</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity Schedule</strong></td>
<td></td>
</tr>
<tr>
<td>Water once a week during the first two months, and then as needed and depending on rainfall to promote plant growth and survival.</td>
<td>As Needed (following construction)</td>
</tr>
<tr>
<td>For the first six months following construction, the site should be inspected at least twice after storm events that exceed a half-inch. Inspectors should look for bare or eroding areas in the contributing drainage area or around the bioretention area, and ensure they are immediately stabilized with grass cover.</td>
<td>Regularly (Monthly)</td>
</tr>
<tr>
<td>Prune and weed bioretention area to maintain appearance.</td>
<td></td>
</tr>
<tr>
<td>Remove accumulated trash and debris.</td>
<td></td>
</tr>
<tr>
<td>Inspect inflow area for sediment accumulation and remove any accumulated sediment or debris.</td>
<td></td>
</tr>
<tr>
<td>Inspect bioretention area for dead or dying vegetation. Plant replacement vegetation as needed.</td>
<td></td>
</tr>
<tr>
<td>Remove and replace existing mulch</td>
<td></td>
</tr>
<tr>
<td>Every 2 to 3 Years</td>
<td></td>
</tr>
</tbody>
</table>
Site A-5: Warehouse and Motor Pool
Perimeter Sand Filter/ Green Roof at Stormwater Hotspots

<table>
<thead>
<tr>
<th>Parameter</th>
<th>A-5a</th>
<th>A-5b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impervious Cover Treated (acres)</td>
<td>1.33</td>
<td>0.93</td>
</tr>
<tr>
<td>Runoff Reduction Volume (cu ft per 1” rain event)</td>
<td>0</td>
<td>1,444</td>
</tr>
<tr>
<td>TN Removal (lb/yr)</td>
<td>4.63</td>
<td>8.0</td>
</tr>
<tr>
<td>TP Removal (lb/yr)</td>
<td>1.25</td>
<td>1.1</td>
</tr>
<tr>
<td>TSS Removal (lb/yr)</td>
<td>212.96</td>
<td>284</td>
</tr>
<tr>
<td>Estimated Cost</td>
<td>$56,000</td>
<td>$545,400</td>
</tr>
</tbody>
</table>

**Project Summary**

**Site Description**
The proposed retrofit concept is located on the UConn Campus at the motor pool and warehouse east of the facilities building (Figure 1). The motor pool’s parking area is entirely impervious, with some indications of oil spillage near the fueling area. The warehouse has a large, flat roof.

**Existing Conditions**
Runoff from this site is captured in an enclosed storm drain system. Although there appears to be a trap to capture drainage from inside the building, presumably leading to the sanitary sewer system, there is currently no stormwater treatment on the site. Consequently, the potential for automotive contaminants (i.e., oil, antifreeze, brake fluid) to come into contact with stormwater is high (Figure 2).

**Proposed Concept**
Install a perimeter sand filter to capture motorpool parking lot runoff (Site A5a), and a green roof on the rooftop (Site A5b). Convey overflow from these practices to the existing storm drain system.

![Figure 1. Drainage areas to two proposed practices, a sand filter (A5-a) and green roof (A5-b).](image)

![Figure 2. Motorpool parking lot (top) and existing external rooftop drains from warehouse to storm drain (lower).](image)
**Preliminary Concept Designs**

A 25% concept design for the proposed retrofit can be found in attachment B, which includes preliminary plan views, cross sections and project details. These initial plans will require field survey and more information on drainage pipes and utilities before going to construction plans.

**Preliminary Hydrologic Calculations**

Preliminary sizing was completed based on guidance provided in the 2004 Connecticut Stormwater Quality Manual. These computations are summarized in the following table.

<table>
<thead>
<tr>
<th>Sizing Calculations for Sites A-5a/b</th>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A-5a</td>
<td>A-5b</td>
</tr>
<tr>
<td>Drainage Area, A (acres)</td>
<td>0.92</td>
<td>0.93</td>
</tr>
<tr>
<td>Imperviousness, I (%)</td>
<td>97</td>
<td>100</td>
</tr>
<tr>
<td>Volumetric Runoff Coefficient, Rv</td>
<td>0.92</td>
<td>0.95</td>
</tr>
<tr>
<td>Rainfall Depth, P (in)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Water Quality Volume, WQv (cf)</td>
<td>4,600</td>
<td>3,208</td>
</tr>
<tr>
<td>Porosity</td>
<td>--</td>
<td>0.4</td>
</tr>
<tr>
<td>Depth of the Filter Bed, d (ft)</td>
<td>1.5</td>
<td>--</td>
</tr>
<tr>
<td>Hydraulic Conductivity, k (ft/day)</td>
<td>3.5</td>
<td>--</td>
</tr>
<tr>
<td>Max. Ponding Depth, hmax (in)</td>
<td>12</td>
<td>--</td>
</tr>
<tr>
<td>Average Ponding Depth, h (ft)</td>
<td>0.5</td>
<td>--</td>
</tr>
<tr>
<td>Drawdown Time, t (days)</td>
<td>1</td>
<td>--</td>
</tr>
<tr>
<td>Surface Area Required, Af (sq. ft)</td>
<td>986</td>
<td>--</td>
</tr>
<tr>
<td>Media Depth Required (in)</td>
<td>--</td>
<td>2.5</td>
</tr>
<tr>
<td>Surface Area Provided (sq ft)</td>
<td>600</td>
<td>40,520</td>
</tr>
<tr>
<td>Treatment Provided (% of 1&quot;)</td>
<td>61</td>
<td>100</td>
</tr>
</tbody>
</table>

**Design Considerations**

For site A-5a, the depths and locations of storm drainage needs to be confirmed. Available storm drain infrastructure maps suggest that no storm drains exist within the parking lot, or in the adjacent road, but field investigations indicate at least one storm drain structure in the parking lot, and an additional structure near the entrance of the lot treated by practice A-5a. Mapping needs to be validated.

In addition, the filter at site A-5a is relatively close to mapped water and electric lines. The specific location of these utilities needs to be verified in the field.

For site A-5b, the roof’s structural integrity needs to be verified to confirm that a green roof is a feasible option. Lessons learned from other green roof installations on campus should be incorporated into planning, construction, and long-term maintenance.

**Maintenance**

The routine maintenance activities typically associated with sand filters (A-5a) and green roofs (A-5b) are summarized in the tables below.

**Maintenance Activities for Sandfilters**

<table>
<thead>
<tr>
<th>Activity Schedule</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Remove blockages and obstructions from inflows.</td>
<td>As Needed (following construction)</td>
</tr>
<tr>
<td>• Relieve clogging.</td>
<td></td>
</tr>
<tr>
<td>• Stabilize contributing drainage area and side-slopes to prevent erosion.</td>
<td></td>
</tr>
<tr>
<td>• Inspection and cleanup.</td>
<td>Annually</td>
</tr>
<tr>
<td>• Cleanout wet sedimentation chambers.</td>
<td>Every 2 to 3 Years</td>
</tr>
<tr>
<td>• Replace top sand layer.</td>
<td>Every five years</td>
</tr>
</tbody>
</table>

**Maintenance Activities for Green Roofs**

<table>
<thead>
<tr>
<th>Activity Schedule</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Water to promote plant growth and survival.</td>
<td>As Needed (Following Construction)</td>
</tr>
<tr>
<td>• Inspect the green roof and replace any dead or dying vegetation.</td>
<td>Semi-Annually (Quarterly During First Year)</td>
</tr>
<tr>
<td>• Inspect the waterproof membrane for leaking or cracks. Repair as needed.</td>
<td></td>
</tr>
<tr>
<td>• Inspect outflow and overflow areas for sediment accumulation. Remove any accumulated sediment or debris.</td>
<td></td>
</tr>
<tr>
<td>• Inspect the green roof for dead, dying, or invasive vegetation. Plant replacement vegetation as needed.</td>
<td></td>
</tr>
</tbody>
</table>
Site A8: Hurley Hall
Rooftop Disconnection with Bioretention

Project Summary

<table>
<thead>
<tr>
<th>Parameter</th>
<th>A8a</th>
<th>A8b</th>
<th>A8c</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impervious Cover Treated (acres)</td>
<td>0.51</td>
<td>0.81</td>
<td>0.88</td>
</tr>
<tr>
<td>Runoff Reduction Volume (cu ft per 1” rain event)</td>
<td>184</td>
<td>212</td>
<td>304</td>
</tr>
<tr>
<td>TN Removal (lb/yr)</td>
<td>1.62</td>
<td>1.86</td>
<td>2.68</td>
</tr>
<tr>
<td>TP Removal (lb/yr)</td>
<td>0.19</td>
<td>0.21</td>
<td>0.31</td>
</tr>
<tr>
<td>TSS Removal (lb/yr)</td>
<td>40.79</td>
<td>46.9</td>
<td>67.39</td>
</tr>
<tr>
<td>Estimated Cost</td>
<td>$4,900</td>
<td>$15,900</td>
<td>$22,800</td>
</tr>
</tbody>
</table>

Site Description
The proposed concepts are located in the quad area of the Hurley Hall Student Residences, which are located on the UConn Campus on the north side of N Eagleville Road. The quad area is terraced and slopes toward Eagleville Rd.

Existing Conditions
Runoff from the walkways along the quad area drain to the central grass quad area. Gully erosion is evident in the quad area and along walkways, and sand and gravel has accumulated on the paths. Yard inlets in the quad area are full of sediment. Rooftop runoff from the residences is conveyed via internal roofdrains in the storm drain system.

Proposed Concept
Install bioretention areas in three locations in the quad area to capture walkway runoff. These three locations are shown in Attachment B. Install trench drains across the walkway to intercept runoff and convey it into the bioretention practices.

Construct a forebay area at the bioretention inlets to dissipate the energy and velocity of the runoff entering the bioretention areas. The bioretention areas should have a filter depth of 24 inches and provide 6-9 inches of ponding depth.

Site A8. Hurley Hall

Figure 1. Runoff from quad walkways resulting in erosion (top); Sediment accumulation on walkways and in quad area (bottom).

Due to the compacted nature of the quad soils, an underdrain should be included in the design of the larger bioretention areas. The underdrain and overflow should tie into existing yard drains. The smaller areas in the center of the quad can be designed to overflow into existing yard inlets.

Soils in the quad should be amended as shown on the site plan to improve porosity and infiltration. Landscaping can be incorporated into these amended areas.

Preliminary Concept Designs
25% concept designs for the proposed retrofit can be found in attachment B. Preliminary plan views and project details are included. These initial plans will need to be further refined as this project proceeds towards construction.
Preliminary Hydrologic Calculations
Preliminary sizing of the bioretention area was completed based on guidance provided in the 2004 Connecticut Stormwater Quality Manual. These computations are summarized in the table below.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A8a</td>
</tr>
<tr>
<td>Drainage Area, A (acres)</td>
<td>0.51</td>
</tr>
<tr>
<td>Imperviousness, I (%)</td>
<td>92</td>
</tr>
<tr>
<td>Volumetric Runoff Coefficient, Rv</td>
<td></td>
</tr>
<tr>
<td>Rainfall Depth, P (in)</td>
<td>1</td>
</tr>
<tr>
<td>Water Quality Volume, WQv (cf)</td>
<td>1631</td>
</tr>
<tr>
<td>Depth of the Filter Bed, d (ft)</td>
<td>2.5</td>
</tr>
<tr>
<td>Hydraulic Conductivity, k (ft/day)</td>
<td>1</td>
</tr>
<tr>
<td>Max. Ponding Depth, hmax (in)</td>
<td>9</td>
</tr>
<tr>
<td>Average Ponding Depth, h (ft)</td>
<td>0.375</td>
</tr>
<tr>
<td>Drawdown Time, t (days)</td>
<td>2</td>
</tr>
<tr>
<td>Surface Area Required, Af (sq. ft)</td>
<td>709</td>
</tr>
<tr>
<td>Surface Area Provided (sq ft)</td>
<td>200</td>
</tr>
<tr>
<td>Treatment Provided (% of 1&quot;)</td>
<td>28.2</td>
</tr>
</tbody>
</table>

*note two bioretention areas are combined

Design Considerations
- While utility constraints are expected to be minimal, detailed utility mapping should be obtained before completing the final project design.
- This project presents an opportunity for students and faculty at Uconn to be involved in the final design and construction of this project.

Maintenance
- Maintenance is important for bioretention areas, particularly in terms of ensuring that they continue to provide measurable stormwater management benefits over time. The routine maintenance activities typically associated with bioretention areas are summarized in the table below.

<table>
<thead>
<tr>
<th>Maintenance Activities for Bioretention</th>
<th>Activity Schedule</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water once a week during the first two months, and then as needed and depending on rainfall to promote plant growth and survival.</td>
<td>As Needed (following construction)</td>
<td></td>
</tr>
<tr>
<td>For the first six months following construction, the site should be inspected at least twice after storm events that exceed a half-inch. Inspectors should look for bare or eroding areas in the contributing drainage area or around the bioretention area, and immediately stabilized with grass cover.</td>
<td>As Needed (following construction)</td>
<td></td>
</tr>
<tr>
<td>Prune and weed bioretention area to maintain appearance.</td>
<td>Regularly (Monthly)</td>
<td></td>
</tr>
<tr>
<td>Remove accumulated trash and debris.</td>
<td>Regularly (Monthly)</td>
<td></td>
</tr>
<tr>
<td>Inspect inflow area for sediment accumulation and remove any accumulated sediment or debris.</td>
<td>Annually</td>
<td></td>
</tr>
<tr>
<td>Inspect bioretention area for dead or dying vegetation. Plant replacement vegetation as needed.</td>
<td>Every 2 to 3 Years</td>
<td></td>
</tr>
<tr>
<td>Remove and replace existing mulch</td>
<td>Every 2 to 3 Years</td>
<td></td>
</tr>
</tbody>
</table>
**Site A-11: Lot 9**  
Parking Lot Bioretention

<table>
<thead>
<tr>
<th>Parameter</th>
<th>\textit{A11a-d}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impervious Cover Treated (acres)</td>
<td>1.39 acres</td>
</tr>
<tr>
<td>Runoff Reduction Volume (cu ft per 1” rain event)</td>
<td>1,538 cf</td>
</tr>
<tr>
<td>TN Removal (lb/yr)</td>
<td>16.02 lb/yr</td>
</tr>
<tr>
<td>TP Removal (lb/yr)</td>
<td>1.90 lb/yr</td>
</tr>
<tr>
<td>TSS Removal (lb/yr)</td>
<td>409.61 lb/yr</td>
</tr>
<tr>
<td>Estimated Cost</td>
<td>$51,700</td>
</tr>
</tbody>
</table>

**Site Description**  
The proposed retrofit concept is located on the UConn Campus in Lot 9, across from the Visitors Center. The parking lot is heavily used, and in relatively poor condition.

**Existing Conditions**  
Runoff from the site is captured in an enclosed storm drain system, and conveyed to the north. Small landscaped areas to the north receive no drainage from the lot or other impervious areas.

**Proposed Concept**  
Install linear bioretention areas (grassed swales) in medians between existing parking areas. Convey stormwater to these swales using curb cuts. Install 6” check dams along the swale. Existing storm drain structures will act as overflow for large storm events.

Construct two small bioretention cells in the existing landscaped areas. Use curb cuts to receive direct parking lot runoff. In addition, capture small storm runoff from swales in the median via a 6” dip within the swale. Yard drains in these structures will be tied in to existing storm drain structures in the road.

**Preliminary Concept Designs**

*Figure 1.* Total drainage area to proposed retrofit practices in Lot 9.

*Figure 2.* Current parking configuration looking north (above), and existing northeast landscaped area to be converted to bioretention (below).
A 25% concept design for the proposed retrofit can be found in attachment B, which includes preliminary plan views, cross sections and project details. These initial plans will need to be further refined as this project proceeds towards construction.

**Preliminary Hydrologic Calculations**

Preliminary sizing of the bioretention area was completed based on guidance provided in the 2004 *Connecticut Stormwater Quality Manual*. These computations are summarized in the following table.

### Sizing calculations for Site A11

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value*</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Drainage Area, A (acres)</strong></td>
<td>1.41</td>
<td>1.41</td>
<td></td>
</tr>
<tr>
<td><strong>Imperviousness, I (%)</strong></td>
<td>98</td>
<td>98</td>
<td></td>
</tr>
<tr>
<td><strong>Volumetric Runoff Coefficient, Rv</strong></td>
<td>0.93</td>
<td>0.93</td>
<td></td>
</tr>
<tr>
<td><strong>Rainfall Depth, P (in)</strong></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Water Quality Volume, WQv (cf)</strong></td>
<td>4,790</td>
<td>4,790</td>
<td></td>
</tr>
<tr>
<td><strong>Depth of the Filter Bed, d (ft)</strong></td>
<td>--</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td><strong>Bottom width (ft)</strong></td>
<td>2</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td><strong>Side slopes</strong></td>
<td>3:1</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td><strong>Hydraulic Conductivity, k (ft/day)</strong></td>
<td>--</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Drawdown Time, t (days)</strong></td>
<td>--</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Max. Ponding Depth, hmax (in)</strong></td>
<td>--</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td><strong>Average Ponding Depth, h (ft)</strong></td>
<td>0.5</td>
<td>0.375</td>
<td></td>
</tr>
<tr>
<td><strong>Cross-Sectional Area (ft)</strong></td>
<td>1.75</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td><strong>Length Required (ft)</strong></td>
<td>2,740</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td><strong>Length Provided (ft)</strong></td>
<td>650</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td><strong>Surface Area Required, Af (sq ft)</strong></td>
<td>--</td>
<td>1,495</td>
<td></td>
</tr>
<tr>
<td><strong>Surface Area Provided (sq ft)</strong></td>
<td>--</td>
<td>1,550</td>
<td></td>
</tr>
<tr>
<td><strong>Treatment Provided (% of 1&quot;)</strong></td>
<td>24</td>
<td>75</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Table summarizes total length of both swales and bios

### Maintenance Activities for Site A-11

<table>
<thead>
<tr>
<th>Activity Schedule</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water once a week during the first two months, and then as needed and depending on rainfall to promote plant growth and survival.</td>
<td>As Needed (following construction)</td>
</tr>
<tr>
<td>For the first six months following construction, the site should be inspected at least twice after storm events that exceed a half-inch. Inspectors should look for bare or eroding areas in the contributing drainage area or around the bioretention area, and make sure they are immediately stabilized with grass cover.</td>
<td>Regularly (Monthly)</td>
</tr>
<tr>
<td>Prune and weed bioretention area to maintain appearance.</td>
<td>Annually</td>
</tr>
<tr>
<td>Remove accumulated trash and debris.</td>
<td></td>
</tr>
<tr>
<td>Inspect inflow area for sediment accumulation and remove any accumulated sediment or debris.</td>
<td></td>
</tr>
<tr>
<td>Inspect bioretention area for dead or dying vegetation. Plant replacement vegetation as needed.</td>
<td>Every 2 to 3 Years</td>
</tr>
</tbody>
</table>

### Design Considerations

Some key design considerations include the following:

- Confirm location of underground electric lines at northeast filter area.
- The proposed filters will require a parking lot reconfiguration. Angled parking, combined with one-way traffic, may be needed to accommodate these swales.
- Available mapping does not indicate how storm drainage from the parking lot connects to the storm drain network in the street and needs to be field-verified.
- The Sasaki Landscaping Plan indicates that tree plantings at the eastern edge of Lot 9 may reduce the lot size. This design does not account for that parking lot loss. An alternative design may utilize only one swale, or an alternative to parking lot swales, such as parking lot tree planters.
Site B3: Christian Field/Batting Cages  
Gravel-based Wetland Systems

**Project Summary**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impervious Cover Treated (acres)</td>
<td>15.1 acres</td>
</tr>
<tr>
<td>Runoff Reduction Volume (cu ft per 1” rain event)</td>
<td>0</td>
</tr>
<tr>
<td>TN Removal (lb/yr)</td>
<td>49.19</td>
</tr>
<tr>
<td>TP Removal (lb/yr)</td>
<td>13.28</td>
</tr>
<tr>
<td>TSS Removal (lb/yr)</td>
<td>2,262.73</td>
</tr>
<tr>
<td>Estimated Cost</td>
<td>$250,100</td>
</tr>
</tbody>
</table>

**Site Description**
The proposed retrofit concept is located by the baseball fields and batting cages in the southeastern portion of the UConn Campus.

**Existing Conditions**
Existing drainage pipe system collects runoff from pervious and impervious surfaces for 55 acre drainage area and discharges into Red Brook (Figure 1). Existing 24 inch pipe runs along open field areas with inlets, likely under baseball field and across Stadium Road. Some of this area is currently managed by upgradient stormwater BMPs. Because a portion of this conveyance appears to have been a former stream, there is likely a shallow depth to groundwater. The location of inlets or manholes in the vicinity of the site were not found. The pipe invert at the outfall is less than 5 feet.

**Proposed Concept**
Proposed installation of a gravel based wetland system with forebay, designed offline with approximately 5,050 sq ft of available surface area (Figure 2). Use a diversion manhole to divert flows from existing drain line into pretreatment forebay with outlet structure that discharges into bottom of chambered, gravel wetland system. Flows are forced up through gravel filters to a vegetated wetland surface where additional pollutants can be removed via plant uptake. Overflow from the wetland is discharged back into existing stormdrain. An emergency spillway drains into existing low area/wetland to the southwest.

This project is feasible and very attractive, as few locations on campus offer the ability to manage significant volumes of runoff and impervious surfaces. Available surface area limits available treatment capability; however additional retrofit projects in the drainage area (i.e, B5a/b) may help reduce sizing requirements.

![Figure 1. Drainage areas to proposed gravel wetland system include additional proposed retrofits.](image1.png)

![Figure 2. Gravel based wetland system with underground chambers, pretreatment sediment forebay, and retaining wall.](image2.png)
**Preliminary Concept Designs**

A 25% concept design for the proposed retrofit can be found in attachment B, which includes preliminary plan views, cross sections, and project details (Figure 3). These initial plans will require field survey and more information on drainage pipes, utilities, and soils (among other things) before going to construction plans.

- Must verify location of all existing storm drain infrastructure. Double check potential utility conflicts (i.e., sewerline).
- Final design to include cleanouts for gravel wetland and maintenance access for forebay.
- May need to relocate existing fence and install guardrail along road.

**Maintenance**

Maintenance will generally be related to landscaping practices and sediment removal from pretreatment forebay to prevent clogging. Inspect semi-annually for the first year of operation and annually after the first year as well as after major storm events. The routine maintenance activities typically associated with gravel-based wetlands are summarized in the table below.

**Design Considerations**

- Sizing of facility is constrained by space and grade. Note the height of retaining wall, depth of forebay, and available head driving upflow filter. Sizing of facility can potentially be reduced if additional retrofits are installed within the drainage area upgradient.

---

**Figure 3.** Typical cross section of gravel wetland showing underground storage chambers and vegetated surface where water pushed up from below is designed to pond.

**Preliminary Hydrologic Calculations**

Preliminary sizing of the gravel based wetland system was completed based on guidance provided in the 2009 Rhode Island Stormwater Manual (public review draft) and are summarized in the table below.

<table>
<thead>
<tr>
<th>Sizing calculations for Site B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
</tr>
<tr>
<td>Drainage Area, A (acres)</td>
</tr>
<tr>
<td>Imperviousness, I (%)</td>
</tr>
<tr>
<td>Volumetric Runoff Coefficient, Rv</td>
</tr>
<tr>
<td>Rainfall Depth, P (in)</td>
</tr>
<tr>
<td>Water Quality Volume, WQv (cf)</td>
</tr>
<tr>
<td>Surface Area Required, Af (sq ft)</td>
</tr>
<tr>
<td>Surface Area Provided (sq ft)</td>
</tr>
<tr>
<td>Treatment Provided (% of 1&quot;)</td>
</tr>
</tbody>
</table>

**Cost Considerations**

$30/sf, not including utility/main drainage pipe relocation.
Site B5: Parking Lot Y
Managing Parking Lots with Bioswales

Project Summary

<table>
<thead>
<tr>
<th>Parameter</th>
<th>B5a</th>
<th>B5b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impervious Cover Treated (acres)</td>
<td>1.32</td>
<td>0.5</td>
</tr>
<tr>
<td>Runoff Reduction Volume (cu ft per 1” rain event)</td>
<td>2,485</td>
<td>1,044</td>
</tr>
<tr>
<td>TN Removal (lb/yr)</td>
<td>14.6</td>
<td>6.13</td>
</tr>
<tr>
<td>TP Removal (lb/yr)</td>
<td>1.69</td>
<td>0.71</td>
</tr>
<tr>
<td>TSS Removal (lb/yr)</td>
<td>367.18</td>
<td>154.29</td>
</tr>
<tr>
<td>Estimated Cost</td>
<td>$43,500</td>
<td>$18,300</td>
</tr>
</tbody>
</table>

Site Description
The proposed retrofit sites are located in the grassed area along the western edge of Parking Lot Y on the UConn campus. The Y Lot is a large parking lot (upper lot) currently draining to existing inlets that discharge toward Lot 8 then, ultimately, towards Site B3 (proposed gravel based wetland).

Existing Conditions
The entire lot (2.2 acres) drains towards the western edge of the parking area to one of two inlets along the curb (~1.8 impervious acres). These inlets convey stormwater northward to an underground detention pipe system with an offline Vortechnic device (WQ Unit) in Lot 8.* Snow storage for Lot Y is over the hill and results in large sand deposits beyond the parking lot edge.

*Lot 8 surface drainage appears to bypass inlets at low end of parking lot, likely contributing to slope damage of reinforced slope.

Proposed Concept
Remove existing curb at each side of double inlets and install paved flumes to allow surface drainage from parking lot to enter forebays of two bioretention cells excavated in existing grassed areas (Sites A and B, Figure 1). Install curb cuts/paved flumes at other strategic locations to better distribute runoff into practices (Figure 2). Bioretention designed with sediment forebays, underdrains, and an overflow mechanism back into existing inlets (Figure 3).

Figure 1. Drainage areas to two proposed bioretention cells.
Figure 2. Proposed location of bioretention/swale system in grassed edge of Parking Lot Y. Curb cuts allow inflow to forebays at strategic locations along system.
Figure 3. Remove curb along sides of double inlets to allow surface runoff into bioretention area through paved flume with riprap channel. Primary overflow where ponded water “backs up” into existing inlet (blue arrow).
Emergency spillways provided (into wooded area). Use shallow swales along full length of parking lot to convey flow to bioretention. Use riprap channels to convey runoff from curb cuts/paved flume to small pretreatment forebays and to dissipate the energy and velocity of runoff. Existing inlet acts as primary overflow and emergency spillway provided for overflow into wooded slope. The bioretention areas should have a filter depth of 24 inches and provide 6-9 inches of ponding depth. Due to the compacted nature of the soils, include an underdrain that ties back into the existing drains.

**Preliminary Concept Designs**
A 25% concept design for the proposed retrofit can be found in attachment B, which includes preliminary plan views, cross sections and project details. These initial plans will require field survey and more information on drainage pipes, utilities, and soils (among other things) before going to construction plans.

**Preliminary Hydrologic Calculations**
Preliminary sizing of the bioretention area was completed based on guidance provided in the 2004 Connecticut Stormwater Quality Manual. These computations are summarized in the table below.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drainage Area, ( A ) (acres)</td>
<td>1.5</td>
<td>0.6</td>
</tr>
<tr>
<td>Imperviousness, ( I ) (%)</td>
<td>85</td>
<td>77</td>
</tr>
<tr>
<td>Volumetric Runoff Coefficient, ( R_v )</td>
<td>0.82</td>
<td>0.74</td>
</tr>
<tr>
<td>Rainfall Depth, ( P ) (in)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Water Quality Volume, ( WQ_v ) (cf)</td>
<td>4591</td>
<td>1740</td>
</tr>
<tr>
<td>Depth of the Filter Bed, ( d ) (ft)</td>
<td>2.50</td>
<td>2.50</td>
</tr>
<tr>
<td>Hydraulic Conductivity, ( k ) (ft/day)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Max. Ponding Depth, ( h_{max} ) (in)</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Average Ponding Depth, ( h ) (ft)</td>
<td>0.375</td>
<td>0.375</td>
</tr>
<tr>
<td>Drawdown Time, ( t ) (days)</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Surface Area Required, ( A_f ) (sq. ft)</td>
<td>1996</td>
<td>757</td>
</tr>
<tr>
<td>Surface Area Provided (sq ft)</td>
<td>1800</td>
<td>1500</td>
</tr>
<tr>
<td>Treatment Provided (% of 1&quot;)</td>
<td>90</td>
<td>100</td>
</tr>
</tbody>
</table>

**Design Considerations**
- A retrofit of the Y Lot would help reduce the volume ultimately discharging to Site B-3.
- Possible conflict with electric cables and existing light pole(s).
- Compare feasibility of various design alternatives for raising exiting inlet structures.
- Incorporate educational signage.

**Maintenance**
Maintenance is important for bioretention areas, particularly in terms of ensuring that they continue to provide measurable stormwater management benefits over time. The routine maintenance activities typically associated with bioretention areas are summarized in the table below.

<table>
<thead>
<tr>
<th>Maintenance Activities</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water once a week during the first two months, and then as needed and depending on rainfall to promote plant growth and survival.</td>
<td>As Needed (following construction)</td>
</tr>
<tr>
<td>For the first six months following construction, the site should be inspected at least twice after storm events that exceed a half-inch. Inspectors should look for bare or eroding areas in the contributing drainage area or around the bioretention area, and make sure they are immediately stabilized with grass cover.</td>
<td>Regularly (Monthly)</td>
</tr>
<tr>
<td>Prune and weed bioretention area to maintain appearance.</td>
<td>Annually</td>
</tr>
<tr>
<td>Remove accumulated trash and debris.</td>
<td></td>
</tr>
<tr>
<td>Inspect inflow areas/forebays for sediment accumulation and remove any accumulated sediment or debris.</td>
<td></td>
</tr>
<tr>
<td>Inspect bioretention area for dead or dying vegetation. Plant replacement vegetation as needed.</td>
<td></td>
</tr>
<tr>
<td>Remove and replace existing mulch. Every 2 to 3 Years</td>
<td></td>
</tr>
</tbody>
</table>

**Cost Considerations**
Added costs if new overflow inlets are required; relocation of electrical lighting a possibility.
Site Description
The proposed retrofit concepts are located in Parking Lot W in the northern portion of UConn campus near the reservoir and Greek Housing area. This large parking lot is showing signs of decay and is, reportedly, underused.

Existing Conditions
The upper northwest and eastern portions of the parking lot drain out of the watershed. The remaining portions of the lot (~ 6 acres) are divided into four separate catchments that drain to surface inlets. There are currently no stormwater practices treating the runoff. Soils at this site appear suitable for infiltration.

Proposed Concept
Concepts to use bioretention facilities to capture and treat runoff from the four drainage areas:

Area A: Block inlets and use curb cuts/sidewalk cross drains to direct runoff into forebay and bioretention area. Shape cell to avoid existing trees. Overflow to manage/treat drainage area of approximately 1 acre. Underdrain and outlet overflow back into existing stormdrain.

Area B: Remove pavement to install a 5 ft wide bioretention to manage/treat parking lot and upslope pervious area of approximately 2.6 acres. Restripe parking area, bioretention located in island between travel lanes as shown on sketch; no pretreatment, stone check dams.

Area C: Grass channel and/or forebay for pre-treatment flowing into bioretention along edge of lot. Convert existing inlet to manhole at low point, provide positive drainage to grass channel/forebay flowing into bioretention. Overflow via rip rap spillway back into existing drainage feature.

Area D: Block existing inlet and divert runoff to bioretention area via curb cuts/paved flume into forebay then into bioretention. Overflow ties back into existing drainage inlet. No underdrain required. May need to relocate existing electric lines.

Figure 1. Location of proposed bioretention cells. Two portions of lot drain out of the Eagleville Brook watershed (outside of pink line).

Figure 2. Approximate location of proposed bioretention cells in parking lot. Restriping of lot will be required around landscape island bioretention to alter current traffic flow patterns. Loss of only four or five spaces anticipated.
**Preliminary Concept Designs**

25% concept designs for proposed retrofits can be found in attachment B, which includes preliminary plan views and project details. These initial plans will require field survey and more information on drainage pipes, utilities, and soils (among other things) before going to construction plans.

**Preliminary Hydrologic Calculations**

Preliminary sizing of the bioretention area was completed based on guidance provided in the 2004 *Connecticut Stormwater Quality Manual*. These computations are summarized in the table below.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drainage Area, A (acres)</td>
<td>0.98 2.57 1.38 1.09</td>
</tr>
<tr>
<td>Imperviousness, I (%)</td>
<td>88 54 74 84</td>
</tr>
<tr>
<td>Volumetric Runoff Coefficient, Rv</td>
<td>0.84 0.53 0.72 0.81</td>
</tr>
<tr>
<td>Rainfall Depth, P (in)</td>
<td>1 1 1 1</td>
</tr>
<tr>
<td>Water Quality Volume, WQv (cf)</td>
<td>2972 4962 3598 3193</td>
</tr>
<tr>
<td>Depth of the Filter Bed, d (ft)</td>
<td>2.50 2.50 2.50 2.50</td>
</tr>
<tr>
<td>Hydraulic Conductivity, k (ft/day)</td>
<td>1 1 1 1</td>
</tr>
<tr>
<td>Max. Ponding Depth, hmax (in)</td>
<td>9 9 9 9</td>
</tr>
<tr>
<td>Average Ponding Depth, h (ft)</td>
<td>0.375 0.375 0.375 0.375</td>
</tr>
<tr>
<td>Drawdown Time, t (days)</td>
<td>2 2 2 2</td>
</tr>
<tr>
<td>Surface Area Required, Af (sq. ft)</td>
<td>1292 2157 1564 1388</td>
</tr>
<tr>
<td>Surface Area Provided (sq ft)</td>
<td>1125 1350 1400 2200</td>
</tr>
<tr>
<td>Treatment Provided (% of 1&quot;)</td>
<td>87 63 90 100</td>
</tr>
</tbody>
</table>

**Design Considerations**

- Existing water lines and drainage pipes at site A to be verified in order to finalize location of inlet and determine if culvert under access road is required.
- Try to protect existing trees during excavation.
- At Site B, the only location for bioretention is island constructed between travel lanes, most runoff will enter in the upper portion, so provide forebay in first cell, may require check dams to terrace facility. Raise existing inlets to act as overflow.
- Design and excavation of bioretention and inlet structures at site C to save large tree.
- Feasible and likely cost effective, though site B is undersized given contributing watershed.
- No significant loss of parking spaces, though lot will need to be restriped.

**Maintenance**

Maintenance is important for bioretention areas, particularly in terms of ensuring that they continue to provide measurable stormwater management benefits over time. The routine maintenance activities typically associated with bioretention areas are summarized in the table below.

<table>
<thead>
<tr>
<th>Maintenance Activities</th>
<th>Activity Schedule</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prune and weed bioretention area to maintain appearance.</td>
<td>Regularly (Monthly)</td>
<td></td>
</tr>
<tr>
<td>Remove accumulated trash and debris.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspect inflow area for sediment accumulation and remove any accumulated sediment or debris.</td>
<td>Annually</td>
<td></td>
</tr>
<tr>
<td>Inspect bioretention area for dead or dying vegetation. Plant replacement vegetation as needed.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Other Considerations**

It was reported that a stormwater master plan has been proposed that will divert stormwater from this area to Swan Lake, and ultimately out of the watershed.
Site C4/5: Education/Gentry Buildings and Sundial Garden
Integrating Stormwater and Landscape Management

Project Summary

<table>
<thead>
<tr>
<th>Parameter</th>
<th>C4/5-a</th>
<th>C4/5-d</th>
<th>C4/5-e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impervious Cover Treated (acres)</td>
<td>0.12</td>
<td>0.07</td>
<td>0.34</td>
</tr>
<tr>
<td>Runoff Reduction Volume (cu ft per 1” rain event)</td>
<td>162</td>
<td>101</td>
<td>474</td>
</tr>
<tr>
<td>TN Removal (lb/yr)</td>
<td>1.42</td>
<td>0.89</td>
<td>4.17</td>
</tr>
<tr>
<td>TP Removal (lb/yr)</td>
<td>0.16</td>
<td>0.1</td>
<td>0.48</td>
</tr>
<tr>
<td>TSS Removal (lb/yr)</td>
<td>35.73</td>
<td>22.25</td>
<td>104.98</td>
</tr>
<tr>
<td>Estimated Cost</td>
<td>$11,000</td>
<td>$3,000</td>
<td>$13,000</td>
</tr>
</tbody>
</table>

Site Description
The proposed retrofit concept is located on the UConn Campus at the Education and Gentry Buildings. These two buildings are mirrored in design, and are separated by the Sundial Garden quad area.

Existing Conditions
The roof leaders from both buildings are directly connected to the stormdrain system. The adjacent green space in the Sundial Garden is highly compacted. Across the walkway in the student center quad, the soils are somewhat compacted. Several areas of localized soil erosion were noted.

Proposed Concept
Several retrofit opportunities were identified at each building (Figure 1). The locations of these projects are shown in attachment B:

- C4/5 (a) – Direct the front roof leaders into raised stormwater planter beds.
- C4/5 (b) – Direct the two downspouts near the main building entrances into cisterns. Water from the cistern can be used to water the building landscaping.
- C4/5 (c) – Amend the soils to restore the pervious area in the Sundial Garden and plant trees and a vegetative buffer along the southwest edge of the garden to reduce runoff and soil erosion.
- C4/5 (d) – Divert the two downspouts above the building side entrance into a bioretention area in the Sundial Garden. These bioretention areas can be incorporated into additional landscaping plans for this Garden.
- C4/5 (e) – Construct a large linear bioretention area along the walkway. Divert the walkway and terrace runoff into the area using berms or trench drains.
**Preliminary Concept Designs**

25% concept designs for the proposed retrofits can be found in attachments B. Preliminary plan views and project details are included. These initial plans will need to be further refined as this project proceeds towards construction.

**Preliminary Hydrologic Calculations**

Preliminary sizing of the bioretention areas was completed based on guidance provided in the 2004 *Connecticut Stormwater Quality Manual*. These computations are summarized in the table below.

<table>
<thead>
<tr>
<th>Sizing Calculations for Site C4 and C5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Drainage Area, A (acres)</td>
</tr>
<tr>
<td>Imperviousness, I (%)</td>
</tr>
<tr>
<td>Volumetric Runoff Coefficient, Rv</td>
</tr>
<tr>
<td>Rainfall Depth, P (in)</td>
</tr>
<tr>
<td>Water Quality Volume, WQv (cf)</td>
</tr>
<tr>
<td>Depth of the Filter Bed, d (ft)</td>
</tr>
<tr>
<td>Hydraulic Conductivity, k (ft/day)</td>
</tr>
<tr>
<td>Max. Ponding Depth, h_{max} (in)</td>
</tr>
<tr>
<td>Average Ponding Depth, h (ft)</td>
</tr>
<tr>
<td>Drawdown Time, t (days)</td>
</tr>
<tr>
<td>Surface Area Required, Af (sq. ft)</td>
</tr>
<tr>
<td>Surface Area Provided (sq ft)</td>
</tr>
<tr>
<td>Treatment Provided (% of 1&quot;)</td>
</tr>
</tbody>
</table>

*note, planters and sundial garden practices combined

**Design Considerations**

- Site soils are compacted, so underdrains are needed in the bioretention and planter box designs.
- While utility constraints are expected to be minimal, detailed utility mapping should be obtained before completing the final project design.
- Construction of a new building being planned for a nearby site in the student center quad area may affect the project design for concept C4/5 (e). Therefore, the construction of project C4/5 (e) should not occur until after the new building is constructed.
- Projects (b) and (d) are good opportunities for student involvement and education. Students and faculty at Uconn can be involved in the final design and construction of this project.
- The Sasaki landscape architecture company has developed a landscaping plan for the Sundial Garden area. These plans can be incorporated with the proposed stormwater and soil amendment projects into a final design for this area.

**Maintenance**

Maintenance is important for bioretention areas, particularly in terms of ensuring that they continue to provide measurable stormwater management benefits over time. The routine maintenance activities typically associated with bioretention/planter boxes areas are summarized in the table below.

<table>
<thead>
<tr>
<th>Maintenance Activities for site C4/C5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity Schedule</td>
</tr>
<tr>
<td>Water once a week during the first two months, and then as needed and depending on rainfall to promote plant growth and survival.</td>
</tr>
<tr>
<td>For the first six months following construction, the site should be inspected at least twice after storm events that exceed a half-inch. Inspectors should look for bare or eroding areas, and make sure they are immediately stabilized.</td>
</tr>
<tr>
<td>Prune and weed bioretention area to maintain appearance.</td>
</tr>
<tr>
<td>Remove accumulated trash/debris.</td>
</tr>
<tr>
<td>Inspect inflow area for sediment accumulation and remove any accumulated sediment or debris.</td>
</tr>
<tr>
<td>Inspect bioretention area for dead or dying vegetation. Plant replacement vegetation as needed.</td>
</tr>
<tr>
<td>Remove and replace existing mulch.</td>
</tr>
</tbody>
</table>
Site Description
The proposed concept is located on the UConn Campus in a quad area between the Chemistry Building and the Pharmacy/Biology Building. The quad is grassed and contains a few small trees, but otherwise lacks landscaping. Soils are extremely compacted, and several dirt and concrete pathways traverse the area. The perimeter is characterized by bare soils and sediment deposition.

Existing Conditions
Runoff from the Chemistry building rooftop is conveyed underground and into the stormdrain system via external roof drains. Yard drains located in the quad area capture surface runoff from the quad and adjacent impervious areas (paved pathways, driving lanes, and wide sidewalks). On the northwest corner of the quad, runoff from the Life Sciences parking lot is conveyed to an inlet located along the quad. Runoff from these areas is conveyed directly to Eagleville Brook, which is piped deep underneath the quad area, approximately 20-22’ below grade.

Proposed Concept
Install three bioretention areas in the quad area to capture rooftop and impervious area runoff. Direct the external roof downspouts from the Chemistry Building to the proposed bioretention areas by

<table>
<thead>
<tr>
<th>Parameter</th>
<th>C17a/b</th>
<th>C16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impervious Cover Treated (acres)</td>
<td>0.51</td>
<td>0.28</td>
</tr>
<tr>
<td>Runoff Reduction Volume (cu ft per 1” rain event)</td>
<td>707</td>
<td>115</td>
</tr>
<tr>
<td>TN Removal (lb/yr)</td>
<td>6.23</td>
<td>3.46</td>
</tr>
<tr>
<td>TP Removal (lb/yr)</td>
<td>0.72</td>
<td>0.4</td>
</tr>
<tr>
<td>TSS Removal (lb/yr)</td>
<td>156.7</td>
<td>87.07</td>
</tr>
<tr>
<td>Estimated Cost</td>
<td>$18,600</td>
<td>$10,300</td>
</tr>
</tbody>
</table>

Figure 1. Drainage area (top); External roof drains and proposed retrofit locations for bioretention areas with forebays in the grassy quad area adjacent to the Chemistry Building (middle), location of C16 (bottom).
Design Considerations
- There is a building below the quad which may limit the size and extent of concept.
- While utility constraints are expected to be minimal, detailed utility mapping should be obtained before completing the final project design. The main stormdrains are 20-22’ below grade and may not constrain the project, however, there may be shallower connection pipes that will need to be avoided.
- This project presents an opportunity for students and faculty at Uconn to be involved in the final design and construction of this project.

Preliminary Concept Designs
25% concept designs for the proposed retrofit can be found in attachments B. Preliminary plan views and project details are included. These initial plans will need to be further refined as this project proceeds towards construction.

Preliminary Hydrologic Calculations
Preliminary sizing of the bioretention area was completed based on guidance provided in the 2004 Connecticut Stormwater Quality Manual. These computations are summarized in the table below.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Site C-17/16</th>
<th>C16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drainage Area, A (acres)</td>
<td>0.55</td>
<td>0.32</td>
<td></td>
</tr>
<tr>
<td>Imperviousness, I (%)</td>
<td>92.8</td>
<td>88.7</td>
<td></td>
</tr>
<tr>
<td>Volumetric Runoff Coefficient, Rv</td>
<td>0.89</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td>Rainfall Depth, P (in)</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Water Quality Volume, WQv (cf)</td>
<td>1767</td>
<td>982</td>
<td></td>
</tr>
<tr>
<td>Depth of the Filter Bed, d (ft)</td>
<td>2.50</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>Hydraulic Conductivity, k (ft/day)</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Max. Ponding Depth, hmax (in)</td>
<td>9</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Average Ponding Depth, h (ft)</td>
<td>0.375</td>
<td>0.375</td>
<td></td>
</tr>
<tr>
<td>Drawdown Time, t (days)</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Surface Area Required, Af (sq. ft)</td>
<td>768</td>
<td>427</td>
<td></td>
</tr>
<tr>
<td>Surface Area Provided (sq ft)</td>
<td>1145</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>Treatment Provided (% of 1&quot;)</td>
<td>100</td>
<td>29</td>
<td></td>
</tr>
</tbody>
</table>

*note two bioretention areas are combined

Maintenance
Maintenance is important for bioretention areas, particularly in terms of ensuring that they continue to provide measurable stormwater management benefits over time. The routine maintenance activities typically associated with bioretention areas are summarized in the table below.

<table>
<thead>
<tr>
<th>Maintenance Activities for Bioretention</th>
<th>Activity Schedule</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water once a week during the first two</td>
<td>as needed</td>
<td>As Needed</td>
</tr>
<tr>
<td>months, and then as needed and</td>
<td>(following construction)</td>
<td></td>
</tr>
<tr>
<td>depending on rainfall to promote plant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>growth and survival.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For the first six months following</td>
<td></td>
<td></td>
</tr>
<tr>
<td>construction, the site should be</td>
<td></td>
<td></td>
</tr>
<tr>
<td>inspected at least twice after storm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>events that exceed a half-inch.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspectors should look for bare or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>eroding areas in the contributing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>drainage area or around the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bioretention area, and immediately</td>
<td></td>
<td></td>
</tr>
<tr>
<td>stabilized with grass cover.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prune and weed bioretention area to</td>
<td>regularly</td>
<td>REGULARLY</td>
</tr>
<tr>
<td>maintain appearance.</td>
<td>(MONTHLY)</td>
<td></td>
</tr>
<tr>
<td>Remove accumulated trash and debris.</td>
<td>annually</td>
<td></td>
</tr>
<tr>
<td>Inspect inflow area for sediment</td>
<td>annually</td>
<td></td>
</tr>
<tr>
<td>accumulation and remove any</td>
<td>annually</td>
<td></td>
</tr>
<tr>
<td>accumulated sediment or debris.</td>
<td>annually</td>
<td></td>
</tr>
<tr>
<td>Inspect bioretention area for dead or</td>
<td>annually</td>
<td></td>
</tr>
<tr>
<td>dying vegetation. Plant replacement</td>
<td>annually</td>
<td></td>
</tr>
<tr>
<td>vegetation as needed.</td>
<td>annually</td>
<td></td>
</tr>
<tr>
<td>Remove and replace existing mulch</td>
<td>every 2 to 3 years</td>
<td></td>
</tr>
</tbody>
</table>

Site C17. Chemistry Building Quad
Site C-18: North Eagleville Road
Integrating Stormwater, Landscaping, and Traffic Calming Measures

Site Description
The proposed retrofit concept is located on the UConn Campus along North Eagleville Road. This road runs through campus and separates Central Campus and Swan Lake from North Campus, several student housing residences, and privately owned churches (Figure 1).

Existing Conditions
Runoff from the crowned roadway drains to catch basins that are located along the edge of the street. The existing roadway is very wide, up to 44 feet from curb to curb in some locations. The University has expressed concern over a dangerous situation with high pedestrian and vehicle traffic along this roadway, and has taken action by painting no driving areas along the edge of the roadway in an attempt to slow car traffic. Some of these areas are used in the project design.

Proposed Concept
In select areas along the edge of the roadway, remove impervious cover and install street planter areas. These areas should contain a perimeter 6” curb and curb cuts installed to direct the roadway runoff into these areas. The planter areas should provide 6 inches of ponding depth as measured from the roadway surface to the low point in the filter surface. The filter media depth should be 6-12 inches deep. An underdrain is needed for the design of each street filter. The underdrain and overflow should tie into the stormwater network.

Project Summary

<table>
<thead>
<tr>
<th>Parameter</th>
<th>C18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impervious Cover Treated (acres)</td>
<td>1.25 acres</td>
</tr>
<tr>
<td>Runoff Reduction Volume (cu ft per 1” rain event)</td>
<td>881</td>
</tr>
<tr>
<td>TN Removal (lb/yr)</td>
<td>7.76</td>
</tr>
<tr>
<td>TP Removal (lb/yr)</td>
<td>0.9</td>
</tr>
<tr>
<td>TSS Removal (lb/yr)</td>
<td>195.25</td>
</tr>
<tr>
<td>Estimated Cost</td>
<td>$23,100</td>
</tr>
</tbody>
</table>

Figure 1. Drainage area (top) and proposed location(s) of street filter designs along North Eagleville Road.

Figure 2. Remove pavement along existing road shoulder to edge of existing curb (top). Example street planters with curb cuts from Portland, OR (bottom).
Preliminary Concept Designs
A 25% concept design for the proposed retrofit can be found in attachment B, which includes preliminary plan views, cross sections and project details. These initial plans will require field survey and more information on drainage pipes, utilities (among other things) before going to construction plans.

Preliminary Hydrologic Calculations
Preliminary sizing of the street filter area was completed based on bioretention guidance provided in the 2004 Connecticut Stormwater Quality Manual. These computations are summarized in the table below.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drainage Area, A (acres)</td>
<td>1.25</td>
</tr>
<tr>
<td>Imperviousness, I (%)</td>
<td>100</td>
</tr>
<tr>
<td>Volumetric Runoff Coefficient, Rv</td>
<td>0.95</td>
</tr>
<tr>
<td>Rainfall Depth, P (in)</td>
<td>1</td>
</tr>
<tr>
<td>Water Quality Volume, WQv (cf)</td>
<td>4,300</td>
</tr>
<tr>
<td>Depth of the Filter Bed, d (ft)</td>
<td>2.50</td>
</tr>
<tr>
<td>Hydraulic Conductivity, k (ft/day)</td>
<td>1</td>
</tr>
<tr>
<td>Max. Ponding Depth, hmax (in)</td>
<td>6</td>
</tr>
<tr>
<td>Average Ponding Depth, h (ft)</td>
<td>0.25</td>
</tr>
<tr>
<td>Drawdown Time, t (days)</td>
<td>1</td>
</tr>
<tr>
<td>Surface Area Required, Af (sq. ft)</td>
<td>3909</td>
</tr>
<tr>
<td>Surface Area Provided (sq ft)</td>
<td>2,000</td>
</tr>
<tr>
<td>Treatment Provided (% of 1&quot;)</td>
<td>51</td>
</tr>
</tbody>
</table>

Design Considerations
- While utility constraints are expected to be minimal, detailed utility mapping should be obtained before completing the final project design.
- At crosswalk areas, pedestrian bridges can be incorporated into the design so that people can cross over the street filter area.
- Current concept design sets a 24’ road width, uniform along Eagleville rd. Wider road (and bike lanes) can be obtained by either narrowing the filters themselves or expanding into the sidewalk.
- Designs can serve to calm traffic along the roadway. This project should be integrated with University efforts to calm traffic along the road and also with the Sasaki Landscape Plan.

Maintenance
Maintenance is important for these street filter areas, particularly in terms of ensuring that they continue to provide measurable stormwater management benefits over time. The routine maintenance activities typically associated with bioretention areas are summarized in the table below.

<table>
<thead>
<tr>
<th>Maintenance Activities for site C-18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity Schedule</td>
</tr>
<tr>
<td>Frequency</td>
</tr>
<tr>
<td>Water once a week during the first two months, and then as needed and depending on rainfall to promote plant growth and survival.</td>
</tr>
<tr>
<td>For the first six months following construction, the site should be inspected at least twice after storm events that exceed a half-inch. Inspectors should look for bare or eroding areas in the contributing drainage area or around the street filter area, and make sure they are immediately stabilized.</td>
</tr>
<tr>
<td>Trim trees to prevent line of sight issues.</td>
</tr>
<tr>
<td>Prune and weed the filter area to maintain appearance.</td>
</tr>
<tr>
<td>Remove accumulated trash and debris.</td>
</tr>
<tr>
<td>Inspect inflow area for sediment accumulation and remove any accumulated sediment or debris.</td>
</tr>
<tr>
<td>Inspect filter area for dead or dying vegetation. Plant replacement vegetation as needed.</td>
</tr>
<tr>
<td>Remove and replace existing mulch Every 2 to 3 Years</td>
</tr>
</tbody>
</table>
Attachment D. Design Drawings for High Priority Projects
**Parameter Specification**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planting Soil</td>
<td>Filter Media</td>
<td>Sand 85-88%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Silt 8-12%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clay &lt; 2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Organic Matter 5-5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N/A USDA soil types loamy sand or sandy loam.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The organic matter shall be well aged (6-12 months), well aerated</td>
</tr>
<tr>
<td>Mulch</td>
<td></td>
<td>Finely shredded softwood</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aged 6 months, minimum.</td>
</tr>
<tr>
<td>Filter Fabric</td>
<td></td>
<td>Mirafi 140N, Geotex 351 or approved equivalent.</td>
</tr>
<tr>
<td>Gravel Layer (underdrain)</td>
<td></td>
<td>AASHTO M-43 0.375&quot; to 0.75&quot;</td>
</tr>
<tr>
<td>Underdrain Piping</td>
<td></td>
<td>ASTM D 1785 or AASHTO M-278</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 inch perforated schedule 40 PVC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3/8&quot; perf. @ 6&quot; on center, 4 holes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T's and Y's as needed depending on underdrain</td>
</tr>
<tr>
<td>Pea Gravel Layer</td>
<td></td>
<td>2 to 4 inch layer of washed stone</td>
</tr>
</tbody>
</table>

**Biotreatment Construction Sequence and Required Inspections**

1. **Construction Notice**
   - All work shall be performed in accordance with the approved construction contract and plans. The contractor shall provide the municipal engineer or their representative with a copy of the construction contract and plans. The contractor shall also ensure that all applicable permits and approvals are obtained before starting the work.

2. **Preparation**
   - Before construction begins, the site shall be cleared of all obstructions and debris. The site shall be graded to the final grade and profile as shown in the plans.

3. **Drainage**
   - All drainage work shall be performed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the drainage plans and specifications.

4. **Grading**
   - The site shall be graded to the final grade and profile as shown in the plans. The contractor shall provide the municipal engineer or their representative with a copy of the grading plans.

5. **Structural Work**
   - All structural work shall be performed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the structural plans.

6. **Quality Control**
   - All work shall be performed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the quality control plans.

7. **Inspections**
   - All work shall be inspected by the municipal engineer or their representative. The contractor shall provide the municipal engineer or their representative with a copy of the inspection plans.

8. **Final Acceptance**
   - All work shall be accepted by the municipal engineer or their representative. The contractor shall provide the municipal engineer or their representative with a copy of the final acceptance plans.

**Biotreatment Construction Details**

1. **Section A-C**
   - The section shall be constructed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the section A-C plans.

2. **Section A-D**
   - The section shall be constructed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the section A-D plans.

3. **Section A-E**
   - The section shall be constructed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the section A-E plans.

4. **Section A-F**
   - The section shall be constructed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the section A-F plans.

5. **Section B-C**
   - The section shall be constructed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the section B-C plans.

6. **Section B-D**
   - The section shall be constructed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the section B-D plans.

7. **Section B-E**
   - The section shall be constructed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the section B-E plans.

8. **Section B-F**
   - The section shall be constructed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the section B-F plans.

9. **Section C-D**
   - The section shall be constructed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the section C-D plans.

10. **Section C-E**
    - The section shall be constructed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the section C-E plans.

11. **Section C-F**
    - The section shall be constructed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the section C-F plans.

12. **Section D-E**
    - The section shall be constructed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the section D-E plans.

13. **Section D-F**
    - The section shall be constructed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the section D-F plans.

14. **Section E-F**
    - The section shall be constructed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the section E-F plans.

**Note:** The biotreatment system shall be designed and constructed in accordance with the approved plans and specifications. The contractor shall provide the municipal engineer or their representative with a copy of the biotreatment system plans and specifications.
Attachment E. Retrofit Reconnaissance Inventory (RRI) Field Forms
### Retrofit Reconnaissance Investigation

**WATERSHED:** EAGLESVILLE

**SUBWATERSHED:**

**UNIQUE SITE ID:** A1

<table>
<thead>
<tr>
<th>DATE:</th>
<th>ASSESSED BY:</th>
<th>CAMERAS ID:</th>
<th>PICTURES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/14/09</td>
<td>DSB, DDS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**GPS ID:** LMK ID:

LAT: LONG:

### SITE DESCRIPTION

**Name:** NORTH CAMPUS BARBER STYLISTS

**Address:**

**Ownership:**
- [ ] Public
- [ ] Private
- [ ] Unknown

**If Public, Government Jurisdiction:**
- [ ] Local
- [ ] State
- [ ] DOT
- [ ] Other: DOT & PRIVATE

**Corresponding USSR/USA Field Sheet?**
- [ ] Yes
- [x] No

If yes, Unique Site ID:________

### Proposed Retrofit Location:

**Storage**
- [ ] Existing Pond
- [ ] Below Outfall
- [x] In Road ROW
- [ ] Other:

**On-Site**
- [ ] Hotspot Operation
- [ ] Small Parking Lot
- [ ] Individual Street
- [ ] Individual Rooftop
- [ ] Small Impervious Area
- [ ] Landscape / Hardscape
- [ ] Other:

### DRAINAGE AREA TO PROPOSED RETROFIT

**Drainage Area = _______**

**Imperviousness = _______**

**Impervious Area = _______**

**Notes:**

### EXISTING STORMWATER MANAGEMENT

**Existing Stormwater Practice:**
- [ ] Yes
- [x] No
- [ ] Possible

**If Yes, Describe:**

### Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

**SMALL TURF AREA AT INTERSECTION OF STORS RD & ______. DRAINAGE FROM ONE LANE OF ROAD AND SMALL PORTION OF SMALL LOWERED PARKING LOT DRAIN TO GRASSED ROW AT EXISTING YARD INLET**

### Existing Head Available and Points Where Measured:
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- Water Quality
- Demonstration / Education
- Adjoining / Repair
- Channel Protection
- Flood Control
- Other: ________________  

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other: ________________  

Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:

" **TWO PRACTICES, BIORETENTION IN LANDSCAPE, ARE WEST (AREA) DRY SWALE AND NORTH OF SITE IN LS ARE ADJACENT TO EAGLEVILLE RD."  

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other: ________________  

Possible Conflicts Due to Adjacent Land Use?  
- Yes  
- No  

If Yes, Describe: ____________________________________________________________

**Conflicts with Existing Utilities:**

<table>
<thead>
<tr>
<th>Yes</th>
<th>Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires
- Other: ________________  

**Potential Permitting Factors:**

<table>
<thead>
<tr>
<th></th>
<th>Probable</th>
<th>Not Probable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dam Safety Permits Necessary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impacts to Wetlands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impacts to a Stream</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Floodplain Fill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impacts to Forests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impacts to Specimen Trees</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- How many? ________________
- Approx. DBH ________________  

**Other factors:** ____________________________________________________________

**Soils:**

- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):
  - Yes  
  - No  

Unique Site ID: ________________  

Page 2 of 4
Retrofit Reconnaissance Investigation

SKETCH

Extricate BCauthority
400 sq ft more
MAX IT OUT.

Stors Rd.

Area: Diagram to practice.
Road: ~200' x 100' = 2,000SF

PARK Lot:
+ 100' x 30
+ 10' x 15 = 4,800 SF
TOTAL 1A = 6,800 SF

EXISTING INLET

Riprap Channel
Road & Small Forebay

Riprap Channel
Road & Small Forebay

PEA: Steam
3D Imaging
Property Survey

Fungi already
Going into
Grassed Aera/Grass

Up Hill

Unique Site ID: _______
SKETCH

- Curb cut
- Dry swale
- Parking lot
- Road
- Rolled asphalt around S.D.
- LS area
- Excavate dry swale
- Sand 400 s.f.
**Possible Conflict w/ Waters but Lines Appear to Be Under Highway.**

**Follow-up Needed to Complete Field Concept**

<table>
<thead>
<tr>
<th>Task</th>
<th>Box 1</th>
<th>Box 2</th>
<th>Box 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirm property ownership</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Confirm drainage area</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Confirm drainage area impervious cover</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Confirm volume computations</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Complete concept sketch</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Obtain existing stormwater practice as-builts</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Obtain site as-builts</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Obtain detailed topography</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Obtain utility mapping</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Confirm storm drain invert elevations</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Confirm soil types</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Other:</td>
<td>☐</td>
<td>☐</td>
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</tr>
</tbody>
</table>

**Initial Feasibility and Construction Considerations**

**Site Candidate for Further Investigation:**

- YES ☐
- NO ☐
- MAYBE ☐

**Is Site Candidate for Early Action Project(s):**

- YES ☐
- NO ☐
- MAYBE ☐

**If No, Site Candidate for Other Restoration Project(s):**

- YES ☐
- NO ☐
- MAYBE ☐

If YES, Type(S):

**Unique Site ID:** A1
WATERSHED:  Elkhorn   SUBWATERSHED:  X    UNIQUE SITE ID:  A/0

DATE:  7/14/09      ASSESSED BY:  D.C.     CAMERA ID:  045380     PICTURES:  120-130

GPS ID:  LMK ID:  LAT:  LONG:

SITE DESCRIPTION

Name:  Lot South of Farmer Brown's
Address:

Ownership:  [ ] Public  [ ] Private  [ ] Unknown
If Public, Government Jurisdiction:  [ ] Local  [ ] State  [ ] DOT  [ ] Other:  None

Corresponding USSR/USA Field Sheet?  [ ] Yes  [x] No  If yes, Unique Site ID:

Proposed Retrofit Location:

Storage
[ ] Existing Pond  [ ] Above Roadway Culvert  [ ] Below Outfall  [ ] In Conveyance System
[ ] In Road ROW  [ ] Near Large Parking Lot  [ ] Other:

On-Site
[ ] Hotspot Operation  [ ] Small Parking Lot  [ ] Individual Rooftop  [ ] Small Impervious Area
[ ] Individual Street  [ ] Landscape/Hardscape  [ ] Underground  [ ] Other:

DRAINAGE AREA TO PROPOSED RETROFIT

Drainage Area ≈
Imperviousness ≈ _______%  Impervious Area ≈ _______

Notes:

Drainage Area Land Use:
[ ] Residential  [ ] SFH (< 1 ac lots)  [ ] Institutional
[ ] SFH (> 1 ac lots)  [ ] Industrial  [ ] Transport-Related
[ ] Townhouses  [ ] Park  [ ] Other:
[ ] Multi-Family  [ ] Commercial  [ ] Undeveloped

EXISTING STORMWATER MANAGEMENT

Existing Stormwater Practice:  [ ] Yes  [ ] No  [ ] Possible
If Yes, Describe:

"Lot drains north towards Farmer Brown's & enters storm drain in northeast corner of FB's lot"

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

"Lot has some tracking & standing in accumulations of sand at low points on "L" of lot, pooled water in ditches in NW corner"

Existing Head Available and Points Where Measured:
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- [ ] Water Quality
- [ ] Recharge
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Demonstration / Education
- [ ] Repair
- [ ] Other: __________________________

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

**Proposed Treatment Option:**
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [ ] Swale
- [ ] Other: __________________________

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

"With bench drains, reduced flow east into existing swale, add bench on upper swale to protect east parking lot from flooding. BEE on north end of lot on bench on lower swale. On 'L' shaped either direct to swales on private land, obtain easements for add BEE at funded portion of lot."

**SITE CONSTRAINTS**

<table>
<thead>
<tr>
<th>Adjacent Land Use:</th>
<th>Access:</th>
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<tbody>
<tr>
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<td>☑ Industrial</td>
<td>☑ Utilities</td>
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<td>☑ Transport-Related</td>
<td>☑ Tree Impacts</td>
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<tr>
<td>☑ Undeveloped</td>
<td>☑ Structures</td>
</tr>
<tr>
<td>☑ Other:</td>
<td>☑ Property Ownership</td>
</tr>
</tbody>
</table>

**Possible Conflicts Due to Adjacent Land Use?**
- ☑ Yes
- [ ] No

**If Yes, Describe:**

**Conflicts with Existing Utilities:**
- [ ] None
- [ ] Unknown
- ☑ Yes Possible
- ☑ Sewer
- ☑ Water
- ☑ Gas
- ☑ Cable
- ☑ Electric
- ☑ Electric to Streetlights
- ☑ Overhead Wires
- ☑ Other: __________________________

**Potential Permitting Factors:**

- Dam Safety Permits Necessary: [ ] Probable [ ] Not Probable
- Impacts to Wetlands: [ ] Probable [ ] Not Probable
- Impacts to a Stream: [ ] Probable [ ] Not Probable
- Floodplain Fill: [ ] Probable [ ] Not Probable
- Impacts to Forests: [ ] Probable [ ] Not Probable
- Impacts to Specimen Trees: [ ] Probable [ ] Not Probable
- How many? __________________________
- Approx. DBH __________________________

**Other factors:**

**Soils:**
- Soil auger test holes: [ ] Yes [ ] No
- Evidence of poor infiltration (clays, fines): [ ] Yes [ ] No
- Evidence of shallow bedrock: [ ] Yes [ ] No
- Evidence of high water table (gleying, saturation): [ ] Yes [ ] No
NAME OF FIELD:  

DESIGN OR DELIVERY NOTES:  

FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT:

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch
- Obtain existing stormwater practice as-buils
- Obtain site as-buils
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types
- Other: 

INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS:

SITE CANDIDATE FOR FURTHER INVESTIGATION:  

YES  NO  MAYBE

IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):  

YES  NO  MAYBE

IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):  

YES  NO  MAYBE

IF YES, TYPE(S):  

Unique Site ID:_______
### Retrofit Reconnaissance Investigation (RRI)

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<td>Long:</td>
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### Site Description

- **Name:** Lot
- **Address:**

- **Ownership:**
  - [ ] Public
  - [ ] Private
  - [ ] Unknown

- **If Public, Government Jurisdiction:**
  - [ ] Local
  - [ ] State
  - [ ] DOT
  - [x] Other: UCONN

- **Corresponding USSR/USA Field Sheet?**
  - [ ] Yes
  - [ ] No

- **If yes, Unique Site ID:**

### Proposed Retrofit Location:

#### Storage
- [ ] Existing Pond
- [ ] Below Outfall
- [ ] In Road ROW
- [ ] Other:

#### On-Site
- [ ] Hotspot Operation
- [ ] Small Parking Lot
- [ ] Individual Street
- [ ] Underground
- [ ] Other:

### Drainage Area to Proposed Retrofit

- **Drainage Area ≈**
- **Imperviousness ≈**
- **Impervious Area ≈**

### Drainage Area Land Use:

- [ ] Residential
- [ ] SFH (< 1 ac lots)
- [ ] SFH (> 1 ac lots)
- [ ] Transport-Related
- [x] Industrial
- [ ] Park
- [ ] Multi-Family
- [ ] Undeveloped
- [ ] Commercial
- [ ] Other:

### Existing Stormwater Management

- **Existing Stormwater Practice:**
  - [ ] Yes
  - [ ] No
  - [ ] Possible
  - **If Yes, Describe:**

  - [Diagram: Drains to north to storm drain]

### Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

- [Diagram: Well used lot in poor condition adjacent to visitor's center]

### Existing Head Available and Points Where Measured:
### Proposed Retrofit

**Purpose of Retrofit:**
- Water Quality
- Demonstration / Education
- Recharge
- Repair
- Channel Protection
- Flood Control

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other:

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**
- Long linear swales/br. offset from street lights
- Br. in existing islands at north end of lot

### Site Constraints

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other:

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

**Access:**
- No Constraints
- Constrained due to:
  - Slope
  - Utilities
  - Structures
  - Property Ownership
  - Other:

**Conflicts with Existing Utilities:**
- None
- Unknown
- Sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires
- Other:

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
- How many?
- Approx. DBH

**Other factors:**

**Soils:**
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):
DESIGN OR DELIVERY NOTES

New visitor center ~ good opportunity for educational display

FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

☐ Confirm property ownership
☐ Confirm drainage area
☐ Confirm drainage area impervious cover
☐ Confirm volume computations
☐ Complete concept sketch

☐ Obtain existing stormwater practice as-builds
☐ Obtain site as-builds
☐ Obtain detailed topography
☐ Obtain utility mapping
☐ Confirm storm drain invert elevations
☐ Confirm soil types

☐ Other:

INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

SITE CANDIDATE FOR FURTHER INVESTIGATION: ☒ YES ☐ NO ☐ MAYBE
IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S): ☐ YES ☒ NO ☐ MAYBE
IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S): ☐ YES ☒ NO ☐ MAYBE

IF YES, TYPE(S):
## Retrofit Reconnaissance Investigation

### Unique Site ID: A2

### Site Description

**Name:** A2 WETLAND RESTORATION SITE  
**Address:** COUNCIL OF EAGLEVILLE RD & HUNTING LODGE RD

- **Ownership:** Local, State, DOT, Other:  
- **Corresponding USSR/USA Field Sheet?** Yes

**Proposed Retrofit Location:** WETLAND RESTORATION

- **Existing Pond:** Yes  
- **Above Roadway Culvert:** Yes  
- **Below Outfall:** Yes  
- **In Road ROW:** Yes  
- **On-Site:** Yes  
- **Near Large Parking Lot:** Yes

### Drainage Area to Proposed Retrofit

- **Drainage Area:** 2.57 Acres
- **Imperviousness:**
- **Impervious Area:**

**Notes:** DRAINAGE AREA CALCULATED BY COLLEEN AT CDR OFFICE - INCLUDES MOST OF CAMPUS

### Existing Stormwater Management

- **Existing Stormwater Practice:** Yes

**If Yes, Describe:**

### Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

**Drained Wetland Area - Reduced connection to stream due to excessive downcutting and armoring, vegetation primarily invasive phragmites and reed canary grass, also sedge crown vetch, goldenrod, sensitive ferns, gale, alder, skunk cabbage, powerline ROW.**

**Existing Head Available and Points Where Measured:**

- **Two tracts draining from the west meet up in Eagleville here - confluence just above hunting lodge road in two locations, another small channel in central portion of wetland.**
## Proposed Retrofit

**Purpose of Retrofit:**
- Water Quality
- Channel Protection
- Other: [ ]
- Recharge
- Repair
- Demonstration / Education
- Flood Control

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

**Proposed Treatment Option:**
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [ ] Bioretention
- [ ] Filtering Practice
- [ ] Infiltration
- [ ] Swale
- [ ] Other:

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

1. Invasive Species Management

2. Recreation of floodplain area adjacent to Eagleville Brook to provide additional storage & treatment capacity. Will entail pulling back stream banks and excavation to recreate natural conditions; consider adding wetland "filter" area to help collect road sediments.

## Site Constraints

### Adjacent Land Use:
- Residential: [ ]
- Commercial: [ ]
- Institutional: [ ]
- Industrial: [ ]
- Transport-Related: [ ]
- Park: [ ]
- Undeveloped: [ ]

**Possible Conflicts Due to Adjacent Land Use?**
- Yes: [ ]
- No: [ ]

If Yes, Describe:

### Access:
- [ ] No Constraints
- [ ] Space
- [ ] Utilities
- [ ] Tree Impacts
- [ ] Structures
- [ ] Property Ownership
- [ ] Other:

### Conflicts with Existing Utilities:
- None: [ ]
- Unknown: [ ]
- Yes: [ ]
- Possible: [ ]

- Sewer: [ ]
- Water: [ ]
- Gas: [ ]
- Cable: [ ]
- Electric: [ ]
- Overhead Wires: [ ]

**Potential Permitting Factors:**
- Dam Safety Permits Necessary: [ ]
- Impacts to Wetlands: [ ]
- Impacts to a Stream: [ ]
- Floodplain Fill: [ ]
- Impacts to Forests: [ ]
- Impacts to Specimen Trees: [ ]

**How many?**
- Approx. DBH:

**Other factors:**

### Soils:
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):

**Unique Site ID:**
**Design or Delivery Notes**

| Confirm property ownership | Obtain existing stormwater practice as-builts |
| Confirm drainage area     | Obtain site as-builts                        |
| Confirm drainage area impervious cover | Obtain detailed topography                   |
| Confirm volume computations | Obtain utility mapping                        |
| Complete concept sketch   | Confirm storm drain invert elevations         |
|                          | Confirm soil types                           |

**Follow-up Needed to Complete Field Concept**

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch
- Obtain existing stormwater practice as-builts
- Obtain site as-builts
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types

**Initial Feasibility and Construction Considerations**

- This project involves wetland restoration work — will require extensive permitting.
- Potential mitigation credits/check with state.
- Need to completely document degraded status.

**Site Candidate for Further Investigation:**

- Yes [X] No [ ] Maybe [ ]

**Is Site Candidate for Early Action Project(s):**

- Yes [X] No [ ] Maybe [ ]

**If No, Site Candidate for Other Restoration Project(s):**

- Yes [X] No [ ] Maybe [ ]

If yes, type(s):
## Retrofit Reconnaissance Investigation

**Watershed:** Eagleville  
**Subwatershed:**   
**Unique Site ID:** A3

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</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

### Site Description

- **Name:** [Name]  
- **Address:** [Address]

- **Ownership:**  
  - Public  
  - Private  
  - Unknown

- **If Public, Government Jurisdiction:**  
  - Local  
  - State  
  - DOT  
  - Other:

- **Corresponding USSR/USA Field Sheet?**  
  - Yes  
  - No  
  - If yes, Unique Site ID:

### Proposed Retrofit Location:

- **Storage:**
  - Existing Pond  
  - Below Outfall  
  - In Road ROW  
  - Other:

- **On-Site:**
  - Hotspot Operation  
  - Individual Rooftop  
  - Small Parking Lot  
  - Individual Street  
  - Underground  
  - Small Impervious Area  
  - Landscape / Hardscape  
  - Other:

### Drainage Area to Proposed Retrofit

- **Drainage Area:**
  - Imperviousness ≈ [Value]%
  - Impervious Area ≈ [Value]

- **Drainage Area Land Use:**
  - Residential  
  - SFH (< 1 ac lots)  
  - SFH (> 1 ac lots)  
  - Townhouses  
  - Multi-Family  
  - Commercial  
  - Institutional  
  - Industrial  
  - Transport-Related  
  - Park  
  - Undeveloped  
  - Other:

### Existing Stormwater Management

- **Existing Stormwater Practice:**  
  - Yes  
  - No  
  - Possible

- **If Yes, Describe:**

  [Description]

### Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

- Park and Lot plans to two storm inlets at the top of the slope. Then to the SD network.

### Existing Head Available and Points Where Measured:

- [Measurement]
### PROPOSED RETROFIT

**Purpose of Retrofit:**
- Water Quality
- Demonstration / Education
- Recharge
- Channel Protection
- Repair
- Flood Control
- Other:

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other:

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

Pea Gravel Diaphragm @ Edge of Parking Lot
Use Either Bituminous Asphalt or Trench Prior to Convey Flows @" Over Slope to Practice
(Larger Storms to Existing S.D.)

Bioretention Filter Entirely in Fill Due to Landfill Cap Below Surface.

### SITE CONSTRAINTS

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other:

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

**Access:**
- No Constraints
- Constrained due to:
  - Slope
  - Space
  - Utilities
  - Tree Impacts
  - Structures
  - Property Ownership
  - Other:

**Conflicts with Existing Utilities:**
- None
- Unknown
- Yes
- Possible
- sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires
- Other:

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
- How many?
  - Approx. DBH

**Soils:**
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):


**DESIGN OR DELIVERY NOTES**

Need to ensure that infrastructure above landfill cap is acceptable.

**FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT**

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch
- Obtain existing stormwater practice as-builts
- Obtain site as-builts
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types
- Other:

**INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS**

**SITE CANDIDATE FOR FURTHER INVESTIGATION:**

- Yes □ No □ Maybe □

**IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):**

- Yes □ No □ Maybe □

**IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):**

- Yes □ No □ Maybe □

If yes, type(s):

Unique Site ID: A

Page 4 of 4
**WATERSHED:** Eagleville  |  **SUBWATERSHED:**  |  **UNIQUE SITE ID:** A4

**DATE:**  |  **ASSESSED BY:**  |  **CAMERA ID:**  |  **PICTURES:**  

**GPS ID:**  |  **LMK ID:**  |  **LAT:**  |  **LONG:**

### SITE DESCRIPTION

**Name:**  
**Address:**  

**Ownership:**  
- Public  
- Private  
- Unknown

**If Public, Government Jurisdiction:**  
- Local  
- State  
- DOT  
- Other:

**Corresponding USSR/USA Field Sheet?**  
- Yes  
- No  
- If yes, Unique Site ID:

### Proposed Retrofit Location:

**Storage:**  
- Existing Pond  
- Below Outfall  
- In Road ROW  
- Other:

- Above Roadway Culvert  
- In Conveyance System  
- Near Large Parking Lot

**On-Site:**  
- Hotspot Operation  
- Individual Roof Top  
- Small Parking Lot  
- Individual Street  
- Underground  
- Other:

### DRAINAGE AREA TO PROPOSED RETROFIT

**Drainage Area **  
**Imperviousness **  
**Impervious Area **

**Notes:**

### EXISTING STORMWATER MANAGEMENT

**Existing Stormwater Practice:**  
- Yes  
- No  
- Possible

**If Yes, Describe:**

### Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

SW FLOWS TO ONE SD IN CORNER OF THE LOT.

### Existing Head Available and Points Where Measured:

n +4" TO OUTER C STREAM
## PROPOSED RETROFIT

### Purpose of Retrofit:
- Water Quality
- Demonstration / Education
- Repair
- Channel Protection
- Flood Control

### Retrofit Volume Computations - Target Storage:

### Retrofit Volume Computations - Available Storage:

### Proposed Treatment Option:
- Extended Detention
- Wet Pond
- Created Wetland
- Filtering Practice
- Infiltration
- Bioretention
- Swale
- Other:

### Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:

**BYPASS EXISTING STORM DRAIN W/DIVERSION TO SWALE. CREATE BIORETENTION FILTER (V1-2' DEEP). OVERFLOW BERM TO CHANNEL AT U.D. TO CHANNEL.**

## SITE CONSTRAINTS

### Adjacent Land Use:
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other:

### Possible Conflicts Due to Adjacent Land Use?
- Yes
- No

### Access:
- No Constraints
- Constrained due to
  - Slope
  - Space
  - Utilities
  - Tree Impacts
  - Structures
  - Property Ownership
  - Other:

### Conflicts with Existing Utilities:

**Yes Possible**
- Sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires
- Other: **POSSIBLE**

### Potential Permitting Factors:
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
  - How many?
  - Approx. DBH
  - Other factors:

### Soils:
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):
**DESIGN OR DELIVERY NOTES**

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch
- Obtain existing stormwater practice as-builts
- Obtain site as-builts
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types

**FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT**

**INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS**

**SITE CANDIDATE FOR FURTHER INVESTIGATION:**

- [ ] YES
- [ ] NO
- [ ] MAYBE

**IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):**

- [ ] YES
- [ ] NO
- [ ] MAYBE

**IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):**

- [ ] YES
- [ ] NO
- [ ] MAYBE

**IF YES, TYPE(S):**

**Unique Site ID:**
NOTE: TO CONFIRM THIS
NEED TO CONFIRM THIS
NEED TO CONFIRM THIS
NEED TO CONFIRM THIS
NEED TO CONFIRM THIS
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**Retrofit Reconnaissance Investigation**

**WATERSHED:** Farville Brook  
**SUBWATERSHED:**  
**UNIQUE SITE ID:** A5

**DATE:** 7/15/2009  
**ASSESSED BY:**  
**CAMERA ID:**  
**PICTURES:** 73-82

**GPS ID:**  
**LMK ID:**  
**LAT:**  
**LONG:**

### Site Description

**Name:** Facilities/maintenance  
**Address:**

**Ownership:**  
- [ ] Public  
- [ ] Private  
- [ ] Unknown  

**If Public, Government Jurisdiction:**  
- [ ] Local  
- [ ] State  
- [ ] DOT  
- [ ] Other: UConn

**Corresponding USSR/USA Field Sheet?**  
- [x] Yes  
- [ ] No  

- **If yes, Unique Site ID:**

### Proposed Retrofit Location:

**Storage**
- [ ] Existing Pond  
- [ ] Below Outfall  
- [ ] In Road ROW  
- [ ] Other:

**On-Site**
- [ ] Above Roadway Culvert  
- [ ] In Conveyance System  
- [ ] Near Large Parking Lot  
- [ ] Underpark

**Individual Rooftop**
- [ ] Individual Street  
- [ ] Landscape / Hardscape  
- [ ] Other:

### Drainage Area TO PROPOSED RETROFIT

<table>
<thead>
<tr>
<th>Drainage Area</th>
<th>%</th>
<th>Imperviousness</th>
<th>%</th>
</tr>
</thead>
</table>

**Notes:**

- Potential sewage cross-connection between facilities + bus yard

### Existing Stormwater Management

- **Existing Stormwater Practice:**
  - [ ] Yes  
  - [ ] No  
  - [ ] Possible

**If Yes, Describe:**

- rooftops for facilities drain to storm drain

- bus maintenance lot - no lift

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

- bus maintenance lot - very stained + silt

### Existing Head Available and Points Where Measured:
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- Water Quality [X]
- Demonstration / Education
- Recharge
- Repair
- Channel Protection
- Flood Control
- Other: **rooftop storage / infiltration**

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other: ____________

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**
- two large rooftops for facilities-green roof installations
- rainwater collection in cisterns
- loading areas
- bus maintenance lot's and filter installation for treatment of high pollutant loading from buses; SW corner of lot

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional [X]
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other: ____________

**Possible Conflicts Due to Adjacent Land Use?**
- Yes [X]
- No

**If Yes, Describe:**

**Conflicts with Existing Utilities:**
- None
- Unknown

**Yes**
- **Possible**
  - Sewer
  - Water
  - Gas
  - Cable
  - Electric
  - Electric to Streetlights
  - Overhead Wires
  - Other: ____________

**Potential Permitting Factors:**
- Dam Safety Permits Necessary: None
- Impacts to Wetlands: Probable
- Impacts to a Stream: Probable
- Floodplain Fill: Probable
- Impacts to Forests: Probable
- Impacts to Specimen Trees: Probable
- How many?
- Approx. DBH: ____________

**Other factors:**

**Soils:**
- Soil auger test holes: None
- Evidence of poor infiltration (clays, fines): Yes [X] No
- Evidence of shallow bedrock: Yes [X] No
- Evidence of high water table (gleying, saturation): Yes [X] No

**Unique Site ID:** ________
### DESIGN OR DELIVERY NOTES

### FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

- [ ] Confirm property ownership
- [ ] Confirm drainage area
- [X] Confirm drainage area impervious cover
- [ ] Confirm volume computations
- [ ] Complete concept sketch
- [ ] Obtain existing stormwater practice as-buils
- [ ] Obtain site as-buils
- [X] Obtain detailed topography
- [ ] Obtain utility mapping
- [ ] Confirm storm drain invert elevations
- [ ] Confirm soil types
- [ ] Other: __________

### INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

<table>
<thead>
<tr>
<th>SITE CANDIDATE FOR FURTHER INVESTIGATION:</th>
<th>YES</th>
<th>NO</th>
<th>MAYBE</th>
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</thead>
<tbody>
<tr>
<td>IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):</td>
<td></td>
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<tr>
<td>IF YES, TYPE(S):</td>
<td></td>
<td></td>
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</table>

Unique Site ID: _______
---

**WATERSHED:** Eagleville Brook  
**SUBWATERSHED:**  
**UNIQUE SITE ID:** A10

**DATE:** 7/15/09  
**ASSESSED BY:** A. T. Bucky  
**CAMERA ID:**  
**PICTURES:** 94-101

**GPS ID:**  
**LMK ID:**  
**LAT:**  
**LONG:**

---

**SITE DESCRIPTION**

**Name:** Student housing - Alan T. Bucky  
**Address:**

**Ownership:**  
- Public  
- Private  
- Unknown  
- Other: UCONN

**If Public, Government Jurisdiction:**  
- Local  
- State  
- DOT  
- Other:  

**Corresponding USSR/USA Field Sheet?**  
- Yes  
- No  
If yes, Unique Site ID:

---

**PROPOSED RETROFIT LOCATION:**

**Storage**
- Existing Pond  
- Below Outfall  
- In Road ROW  
- Other:

**Above Roadway Culvert**

**In Conveyance System**

**Near Large Parking Lot**

**On-Site**
- Hotspot Operation  
- Small Parking Lot  
- Individual Street  
- Underground  
- Individual Rooftop  
- Small Impervious Area  
- Landscape / Hardscape  
- Other:

---

**DRAINAGE AREA TO PROPOSED RETROFIT**

**Drainage Area ≈**  
**Imperviousness ≈** %  
**Impervious Area ≈**

**Drainage Area Land Use:**
- Residential  
- SFH (< 1 ac lots)  
- SFH (> 1 ac lots)  
- Townhouses  
- Multi-Family  
- Commercial  
- Institutional  
- Industrial  
- Transport-Related  
- Park  
- Undeveloped  
- Other:

---

**EXISTING STORMWATER MANAGEMENT**

**Existing Stormwater Practice:**  
- Yes  
- No  
- Possible  
If Yes, Describe:

> "Rooftop runoff drains to swales and then into valley. One small grass and compacted soil; another is rip rap small."

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

> "New housing/parking lot with little treatment but opportunities for education/student involvement in rain garden implementation."

**Existing Head Available and Points Where Measured:**
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- [ ] Water Quality
- [X] Demonstration/Education
- [ ] Recharge
- [ ] Repair
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Other:

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

**Proposed Treatment Option:**
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [X] Bioretention
- [ ] Filtering Practice
- [ ] Infiltration
- [ ] Swale
- [ ] Other:

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

1. Install BE behind housing unit near volleyball to treat rooftops
2. Replace impervious BE facility

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- [X] Residential
- [ ] Commercial
- [ ] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other:

**Possible Conflicts Due to Adjacent Land Use?**
- [ ] Yes
- [X] No

**If Yes, Describe:**

**Access:**
- [ ] No Constraints
- [ ] Constrained due to:
  - [ ] Slope
  - [X] Utilities
  - [ ] Tree Impacts
  - [ ] Structures
  - [ ] Property Ownership
  - [ ] Other:

**Conflicts with Existing Utilities:**
- [ ] None
- [ ] Unknown

**Yes**

<table>
<thead>
<tr>
<th>Possible</th>
<th>Sewer</th>
<th>Water</th>
<th>Gas</th>
<th>Cable</th>
<th>Electric</th>
<th>Electric to Streetlights</th>
<th>Overhead Wires</th>
<th>Other:</th>
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</tbody>
</table>

**Potential Permitting Factors:**

**Dam Safety Permits Necessary**
- [ ] Probable
- [ ] Not Probable

**Impacts to Wetlands**
- [ ] Probable
- [ ] Not Probable

**Impacts to a Stream**
- [ ] Probable
- [ ] Not Probable

**Floodplain Fill**
- [ ] Probable
- [ ] Not Probable

**Impacts to Forests**
- [ ] Probable
- [ ] Not Probable

**Impacts to Specimen Trees**
- [ ] Probable
- [ ] Not Probable

How many?

Approx. DBH

**Other factors:**

**Soils:**
- Soil auger test holes: [ ] Yes [X] No
- Evidence of poor infiltration (clays, fines): [ ] Yes [ ] No
- Evidence of shallow bedrock: [ ] Yes [ ] No
- Evidence of high water table (gleying, saturation): [ ] Yes [ ] No
Design or Delivery Notes:

"Good project for student involvement"

Follow-up Needed to Complete Field Concept:

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch

- Obtain existing stormwater practice as-buils
- Obtain site as-buils
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types

Other:

Initial Feasibility and Construction Considerations:

Site Candidate for Further Investigation: YES

Is site candidate for early action project(s): YES

If no, site candidate for other restoration project(s): YES

If yes, type(s): 

Other projects exist but outside of watershed

Unique Site ID: ________

Page 4 of 4
**WATERSHED:** [Name]
**SUBWATERSHED:** [Name]
**UNIQUE SITE ID:** A7

**DATE:** 7/15/09
**ASSESSED BY:** [Name]
**CAMERA ID:** [Name]
**PICTURES:** 102-108

**GPS ID:** LMK ID: LAT: LONG:

### SITE DESCRIPTION

**Name:** Northwestern Dining Hall
**Address:**
**Ownership:**
- [ ] Public
- [ ] Private
- [ ] Unknown
- **If Public, Government Jurisdiction:**
  - [ ] Local
  - [ ] State
  - [ ] DOT
  - [ ] Other: UConn
**Corresponding USSR/USA Field Sheet?:** [ ] Yes [ ] No

**Proposed Retrofit Location:**

- [ ] Existing Pond
- [ ] Existing Outfall
- [ ] Above Roadway Culvert
- [ ] In Conveyance System
- [ ] In Road ROW
- [ ] Near Large Parking Lot
- [ ] Other:

### DRAINAGE AREA TO PROPOSED RETROFIT

<table>
<thead>
<tr>
<th>Drainage Area</th>
<th>Imperviousness</th>
<th>Impervious Area</th>
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**Drainage Area Land Use:**
- [ ] Residential
- [ ] SFH (< 1 ac lots)
- [ ] SFH (> 1 ac lots)
- [ ] Townhouses
- [ ] Multi-Family
- [ ] Commercial
- [ ] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other:

### EXISTING STORMWATER MANAGEMENT

**Existing Stormwater Practice:**
- [ ] Yes
- [ ] No
- [ ] Possible

**If Yes, Describe:**

> Roofleaders directly into ground; drain to storm drains in center of quad

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

> Grade of bare ground in center of quad
> Many storm drains clogged w/ trash & sand

**Existing Head Available and Points Where Measured:**

---

Page 1 of 4

Unique Site ID:____
### PROPOSED RETROFIT

**Purpose of Retrofit:**
- Water Quality
- Demonstration / Education
- Other: __________
- Recharge
- Repair
- Channel Protection
- Flood Control

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Infiltration
- Swale
- Other: __________

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

- [Insert description]

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other: __________

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

**If Yes, Describe:**

**Conflicts with Existing Utilities:**
- None
- Unknown
- Yes
- Possible
  - Sewer
  - Water
  - Gas
  - Cable
  - Electric
  - Electric to Streetlights
  - Overhead Wires
  - Other: __________

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
- How many? __________
- Approx. DBH __________

**Other factors:**

**Soils:**
- Soil auger test holes:
  - Yes
  - No
- Evidence of poor infiltration (clays, fines):
  - Yes
  - No
- Evidence of shallow bedrock:
  - Yes
  - No
- Evidence of high water table (gleying, saturation):
  - Yes
  - No
**Design or Delivery Notes**

**Follow-up Needed to Complete Field Concept**

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch
- Obtain existing stormwater practice as-buils
- Obtain site as-buils
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types

Other:______________________

**Initial Feasibility and Construction Considerations**

**Site Candidate for Further Investigation:**

- YES
- NO
- MAYBE

**Is Site Candidate for Early Action Project(s):**

- YES
- NO
- MAYBE

**If No, Site Candidate for Other Restoration Project(s):**

- YES
- NO
- MAYBE

If YES, type(s):____________

Page 4 of 4

Unique Site ID:_________
**WATERSHED:** [Redacted]  
**SUBWATERSHED:** [Redacted]  
**UNIQUE SITE ID:** A Z

**DATE:** 7/15/2009  
**ASSESSED BY:** [Redacted]  
**CAMERA ID:** 01 [Redacted]  
**PICTURES:** 109-116

**GPS ID:**  
**LMK ID:**  
**LAT:**  
**LONG:**

**SITE DESCRIPTION**

**Name:** [Redacted]  
**Address:** [Redacted]

**Ownership:**  
- [ ] Public  
- [ ] Private  
- [ ] Unknown  
**If Public, Government Jurisdiction:**  
- [ ] Local  
- [ ] State  
- [ ] DOT  
- [x] Other: [Redacted]

**Corresponding USSR/USA Field Sheet?**  
- [ ] Yes  
- [x] No  
**If yes, Unique Site ID:** [Redacted]

**Proposed Retrofit Location:**

**Storage**  
- [ ] Existing Pond  
- [ ] Below Outfall  
- [ ] In Road ROW  
- [ ] Other:

**On-Site**  
- [ ] Hotspot Operation  
- [ ] Small Parking Lot  
- [ ] Individual Street  
- [ ] Underground  
- [ ] Individual Rooftop  
- [ ] Small Impervious Area  
- [ ] Landscape / Hardscape  
- [ ] Other:

**DRAINAGE AREA TO PROPOSED RETROFIT**

**Drainage Area ≈** [Redacted]  
**Imperviousness ≈** [Redacted] %  
**Impervious Area ≈** [Redacted]

**Drainage Area Land Use:**  
- [x] Residential  
- [ ] Institutional  
- [ ] Industrial  
- [ ] Transport-Related  
- [ ] Park  
- [ ] Undeveloped  
- [ ] Commercial  
- [ ] Other:

**EXISTING STORMWATER MANAGEMENT**

**Existing Stormwater Practice:**  
- [ ] Yes  
- [ ] No  
- [ ] Possible

**If Yes, Describe:**

- Intrerior of buildings drain to central grass quad w/low slope  
- Sidewalk drainage of buildings  
- Exterior of buildings drain downslope to N Eagleville

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

- Gully erosion evident in interior of quad  
- Lots of sand/soil on sidewalks  
- Storm drain full of sediment

**Existing Head Available and Points Where Measured:**

**Page 1 of 4**  
**Unique Site ID:** [Redacted]
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- [ ] Water Quality
- [ ] Demonstration / Education
- [ ] Recharge
- [ ] Repair
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Other: ____________

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

**Proposed Treatment Option:**
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Infiltration
- [ ] Swale
- [ ] Bioretention
- [ ] Other: ____________

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

1. a) Address erosion of bench drains across paths from bluffs to quad and to be paved or tee planters.
2. b) BP blur Hall / dining area near large oak.
3. c) BP @ bottom of hill near Enderle Rd. add bench drain / gully

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- [ ] Residential
- [ ] Commercial
- [ ] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other: ____________

**Possible Conflicts Due to Adjacent Land Use?**
- [ ] Yes
- [ ] No

**If Yes, Describe:**

**Conflicts with Existing Utilities:**
- [ ] None
- [ ] Unknown
- [ ] Yes
- [ ] Possible

<table>
<thead>
<tr>
<th>Potential Permitting Factors</th>
<th>Probable</th>
<th>Not Probable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dam Safety Permits Necessary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impacts to Wetlands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impacts to a Stream</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Floodplain Fill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impacts to Forests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impacts to Specimen Trees</td>
<td>Probable</td>
<td>Not Probable</td>
</tr>
<tr>
<td>How many?</td>
<td>Approx. DBH: ____________</td>
<td></td>
</tr>
</tbody>
</table>

**Other factors:**

**Soils:**
- Soil auger test holes:  
- Evidence of poor infiltration (clays, fines):  
- Evidence of shallow bedrock:  
- Evidence of high water table (gleying, saturation):  

- [ ] Yes
- [ ] No
<table>
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<tr>
<th>WATERSHED:</th>
<th>SUBWATERSHED:</th>
<th>UNIQUE SITE ID:</th>
<th>A9</th>
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</thead>
<tbody>
<tr>
<td>DATE:</td>
<td>7/11/09</td>
<td>ASSESSED BY:</td>
<td>RRI</td>
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<tr>
<td>GPS ID:</td>
<td>LMK ID:</td>
<td>CAMERA ID:</td>
<td>PICTURES:</td>
</tr>
</tbody>
</table>

**SITE DESCRIPTION**

Name: Farmer Brown's
Address: 

Ownership: □ Public □ Private □ Unknown
If Public, Government Jurisdiction: □ Local □ State □ DOT □ Other:

Corresponding USSR/USA Field Sheet? □ Yes □ No If yes, Unique Site ID: 

**Proposed Retrofit Location:**

Storage
- □ Existing Pond
- □ Below Outfall
- □ In Road ROW
- □ Other:

On-Site
- □ Above Roadway Culvert
- □ In Conveyance System
- □ Near Large Parking Lot
- □ Small-Parking Lot
- □ Individual Street
- □ Underground
- □ Individual Rooftop
- □ Small Impervious Area
- □ Landscape / Hardscape
- □ Other:

**DRAINAGE AREA TO PROPOSED RETROFIT**

Drainage Area = □ □
Imperviousness = □% □
Impervious Area = □

Notes:

**EXISTING STORMWATER MANAGEMENT**

Existing Stormwater Practice: □ Yes □ No □ Possible

If Yes, Describe:

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

- Grass parking lot, very composed (acts as IC), 1/2 drains N/NW into hard/wooded area 1/2 to SE storm drain
- Some of southern parking lot drains to this lot

Existing Head Available and Points Where Measured:
## PROPOSED RETROFIT

### Purpose of Retrofit:
- [x] Water Quality
- [ ] Recharge
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Demonstration / Education
- [ ] Repair
- [ ] Other: 

### Retrofit Volume Computations - Target Storage:  

### Retrofit Volume Computations - Available Storage:  

### Proposed Treatment Option:
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [ ] Bioretention
- [ ] Filtering Practice
- [x] Infiltration
- [ ] Swale
- [ ] Other: 

### Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:

```
modified porous pavement
```

## SITE CONSTRAINTS

### Adjacent Land Use:
- [ ] Residential
- [ ] Commercial
- [x] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other: 

### Access:
- [x] No Constraints
- [ ] Constrained due to:
  - [ ] Slope
  - [ ] Space
  - [ ] Utilities
  - [ ] Tree Impacts
  - [ ] Structures
  - [ ] Property Ownership
  - [ ] Other: 

### Possible Conflicts Due to Adjacent Land Use?
- [ ] Yes
- [ ] No

### Conflicts with Existing Utilities:
- [x] None
- [ ] Unknown

### Yes Possible
- [ ] Sewer
- [ ] Water
- [ ] Gas
- [ ] Cable
- [ ] Electric
- [ ] Electric to Streetlights
- [ ] Overhead Wires
- [ ] Other:

### Potential Permitting Factors:
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
  - How many? 
  - Approx. DBH

### Other factors:

### Soils:
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):
- [ ] Yes
- [x] No

---

Page 2 of 4

Unique Site ID: 

FUTURE LAND USE UNCERTAIN
- IF PROPOSED DEVELOPMENT, INSTALL TREATMENT PRACTICES
- IF PARKING GARAGE INSTALLED, LEAVE SOME OPEN SPACE IF FEASIBLE.

FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

☐ Confirm property ownership
☐ Confirm drainage area
☐ Confirm drainage area impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing stormwater practice as-builts
☐ Obtain site as-builts
☐ Obtain detailed topography
☐ Obtain utility mapping
☐ Confirm storm drain invert elevations
☐ Confirm soil types
☐ Other:

INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

SITE CANDIDATE FOR FURTHER INVESTIGATION:
☐ YES ☐ NO ☐ MAYBE

IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):
☐ YES ☐ NO ☐ MAYBE

IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):
☐ YES ☐ NO ☐ MAYBE

IF YES, TYPE(S):
Retrofit Reconnaissance Investigation

WATERSHED: EAGLEVILLE BROOK  
SUBWATERSHED:  
UNIQUE SITE ID: B-1 A-D

<table>
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<td>LMK ID: N/A</td>
<td>LAT: N/A</td>
<td>LONG: N/A</td>
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**SITE DESCRIPTION**

Name: Parking Lot I, sites a through d.

Address: ____________________________

Ownership: [ ] Public [ ] Private [ ] Unknown

If Public, Government Jurisdiction: [ ] Local [ ] State [ ] DOT [ ] X Other: UConn

Corresponding USSR/USA Field Sheet? [ ] Yes [ ] No [ ] If yes, Unique Site ID: ____________________________

**Proposed Retrofit Location:**

Storage:

- [ ] Existing Pond
- [ ] Below Outfall
- [ ] In Roadway Culvert
- [ ] In Conveyance System
- [ ] In Road ROW
- [ ] Other: Exist. wetland acts as storage retrofit

On-Site:

- [ ] Hotspot Operation
- [ ] Small Parking Lot
- [ ] Individual Rooftop
- [ ] Small Impervious Area
- [ ] Individual Street
- [ ] Landscape / Hardscape
- [ ] Underground
- [ ] Other: ____________________________

**DRAINAGE AREA TO PROPOSED RETROFIT**

Drainage Area ≈ 6.7 ac (all sites)

Imperviousness ≈ 44% (all sites) %

Impervious Area ≈ 3.0 ac (all sites)

Notes: 4 separate sites draining to 3 separate locations

**EXISTING STORMWATER MANAGEMENT**

Existing Stormwater Practice: [ ] Yes [ ] No [ ] Possible

Sort of. Site C drains to natural wetland area that is isolated from drainage network that currently manages IC.

Part of the parking lot drains to Kings Brook that is outside of Eagleville Brook TMDL watershed.

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

Parking lot in poor condition at low point (see sketch), pavement cracking, sediment deposition on parking lot, staining from standing water.

Sediment (mostly winter sanding) is collecting in existing isolated wetland.

Existing Head Available and Points Where Measured:

4 ft +/- at area b to invert of pipe.
### Proposed Retrofit

**Purpose of Retrofit:**
- [x] Water Quality
- [] Recharge
- [x] Channel Protection
- [x] Flood Control
- [] Demonstration / Education
- [] Repair
- [x] Other:

**Retrofit Volume Computations - Target Storage:**
See Spreadsheet

**Retrofit Volume Computations - Available Storage:**
See spreadsheet and sketch

**Proposed Treatment Option:**
- [x] Extended Detention
- [x] Wet Pond
- [x] Created Wetland
- [x] Bioretention
- [x] Filtering Practice
- [x] Infiltration
- [x] Swale
- [x] Other: Outlet Stilling Basin

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

- a) Bioretention at SW edge of parking lot treating small area (12,640 sq ft)
- b) Bioretention within parking lot island (removing existing IC), treating 29,580 sq ft.
- c) Regrading/repaving when parking lot is repaired, install swale and/or trench drain with forebay prior to discharge to isolated wetland
- d) Outlet stilling basin at pipe outfall to Kings Brook drainage area

### Site Constraints

**Adjacent Land Use:**
- [x] Residential
- [x] Commercial
- Institutional
- [x] Industrial
- [x] Transport-Related
- Park
- Undeveloped Other:

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

**Access:**
- [x] No Constraints
- Constrained due to:
  - [x] Slope
  - [x] Space
  - Utilities
  - Tree Impacts
  - Structures
  - Property Ownership
  - Other: Possible utilities

**Conflicts with Existing Utilities:**
- [x] None
- [ ] Unknown

**Yes** Possible
- Sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires
- Other:

**Potential Permitting Factors:**
- Dam Safety Permits Necessary: Probable Not Probable
- Impacts to Wetlands: Probable Not Probable
- Impacts to a Stream: Probable Not Probable
- Floodplain Fill: Probable Not Probable
- Impacts to Forests: Probable Not Probable
- Impacts to Specimen Trees: Probable Not Probable
- How many? ____________
  - Approx. DBH: ____________

**Other factors:**
- Probable high groundwater in parking lot

**Soils:**
- Soil auger test holes: Yes No
- Evidence of poor infiltration (clays, fines): Yes No
- Evidence of shallow bedrock: Yes No
- Evidence of high water table (gleying, saturation): Yes No
See Aerial.

Note: Center parking lot due to be closed.

630 ft²

Raise ex. inlet to act as overflow

Convert striped paving to broad area

Speed bump/berm to divert flow towards bio.

Ex. bldg.
### FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

<table>
<thead>
<tr>
<th>Note</th>
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<tbody>
<tr>
<td>□ Confirm property ownership</td>
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<td>□ Confirm drainage area</td>
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<td>□ Complete concept sketch</td>
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<td>□ Other:</td>
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<tr>
<td>□ Obtain existing stormwater practice as-builts</td>
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<tr>
<td>□ Confirm storm drain invert elevations</td>
</tr>
<tr>
<td>□ Confirm soil types</td>
</tr>
</tbody>
</table>

### INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

Feasible, but Site c) drains to isolated wetland, not contributing to existing drainage area to Eagleville Brook

Site b and d) drain to Kings Brook, therefore not part a priority for TMDL.

<table>
<thead>
<tr>
<th>Site Candidate for Further Investigation: Yes</th>
<th>No</th>
<th>Maybe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Candidate for Early Action Project(s): Yes</td>
<td>No</td>
<td>Maybe</td>
</tr>
<tr>
<td>If No, Site Candidate for Other Restoration Project(s): Yes</td>
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<td>Maybe</td>
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<tr>
<td>If Yes, Type(s):</td>
<td></td>
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</table>
**WATERSHED: EAGLEVILLE BROOK**

**SUBWATERSHED:**

**UNIQUE SITE ID: B-10 A & B**

**DATE: 7/16/09**

**ASSESSED BY: RC/PS/JR/CA (B-TEAM)**

**CAMERA ID: OLYMPUS RC’S PENTAX**

**PICTURES: 2097-2104**

**GPS ID:**

**LMK ID:**

**LAT:**

**LONG:**

### SITE DESCRIPTION

**Name:** Northwood Apartments parking lot

**Address:**

**Ownership:**

- [ ] Public
- [ ] Private
- [ ] Unknown

If Public, Government Jurisdiction:

- [ ] Local
- [ ] State
- [ ] DOT
- [ ] Other: UConn

**Corresponding USSR/USA Field Sheet?**

- [ ] Yes
- [X] No

If yes, **Unique Site ID:**

### Proposed Retrofit Location:

**Storage**

- [ ] Existing Pond
- [ ] Below Outfall
- [ ] In Road ROW
- [ ] Other:

**Above Roadway Culvert**

- [ ] Hotspot Operation
- [ ] Individual Rooftop
- [ ] Small Parking Lot
- [ ] Landscape / Hardscape
- [ ] Individual Street
- [ ] Underground
- [ ] Other:

### DRAINAGE AREA TO PROPOSED RETROFIT

- **Drainage Area** $\approx 1.0$ ac (both sites)
- **Imperviousness** $\approx 98\%$
- **Impervious Area** $\approx 1.0$ ac (both sites)

**Notes:**

### EXISTING STORMWATER MANAGEMENT

**Existing Stormwater Practice:**

- [ ] Yes
- [X] No
- [ ] Possible

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

Two separate drainage areas. Parking lot and driveway drain to inlets via paved flow areas. Parking lot edge is not curbed but drains towards interior of lot.

**Existing Head Available and Points Where Measured:**

No head limitations.
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- [x] Water Quality
- [x] Recharge
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Demonstration / Education
- [ ] Repair
- [ ] Other: __________

**Retrofit Volume Computations - Target Storage:**
See Spreadsheet

**Retrofit Volume Computations - Available Storage:**
See spreadsheet and sketch

**Proposed Treatment Option:**
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [x] Bioretention
- [ ] Infiltration
- [ ] Swale
- [ ] Other: __________

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

a) bioretention to manage/treat small drainage area of approximately half the drainage total area. May require reconfiguration of parking spaces in the immediate vicinity of inlet.

b) bioretention to manage/treat small parking lot of approximately half the drainage total (same as a).

Note, project is currently under design to refurbish housing, including re-paving. Design engineer, BSC Group out of Glastonbury, CT. (Kurt Prochorena is the contact) are open to our proposed concept, including bioretention. BSC will take the first crack at design, we are to peer review.

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- [x] Residential
- [ ] Commercial
- [ ] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other: __________

**Possible Conflicts Due to Adjacent Land Use?**
- [x] Yes
- [ ] No

**If Yes, Describe:**

**Access:**
- [x] No Constraints
- Constrained due to:
  - [ ] Slope
  - [ ] Space
  - [ ] Utilities
  - [ ] Tree Impacts
  - [ ] Structures
  - [ ] Property Ownership
  - [ ] Other: __________

**Conflicts with Existing Utilities:**

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<td>Overhead Wires</td>
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**Potential Permitting Factors:**

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<td>Impacts to Wetlands</td>
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<tr>
<td>Impacts to a Stream</td>
<td>Probable</td>
<td>Not Probable</td>
</tr>
<tr>
<td>Floodplain Fill</td>
<td>Probable</td>
<td>Not Probable</td>
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<tr>
<td>Impacts to Forests</td>
<td>Probable</td>
<td>Not Probable</td>
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<tr>
<td>Impacts to Specimen Trees</td>
<td>Probable</td>
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<tr>
<td>How many? Approx. DBH __________</td>
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</table>

**Other factors:**

**Soils: Site B-9 d.**

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<tr>
<th>Soil auger test holes:</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>Evidence of poor infiltration (clays, fines):</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Evidence of shallow bedrock:</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Evidence of high water table (gleysing, saturation):</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
SKETCH

See Aerial.

Ex. 2-way
travel lane
30+ ft

Ex. flow path

Ex. inlet

α =

Re-configure parking spaces into 400 sq.ft +

Exit B.R. inlet area (each)
**Design or Delivery Notes**

a & b) runoff diverted to bioretention area overland via current paved drainage flow-path, modify parking lot to create island at existing inlets, raise inlet grate as overflow structure.

**Follow-up Needed to Complete Field Concept**

<p>| | |</p>
<table>
<thead>
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<tr>
<td>Confirm soil types</td>
<td></td>
</tr>
<tr>
<td>Other:________________</td>
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**Initial Feasibility and Construction Considerations**

Feasible and part of current refurbishment project for housing.

**Site Candidate for Further Investigation:**

- YES
- NO
- MAYBE

**Is Site Candidate for Early Action Project(s):**

- YES
- NO
- MAYBE

**If No, Site Candidate for Other Restoration Project(s):**

- YES
- NO
- MAYBE

If Yes, Type(s):_________________
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<td>GPS ID:</td>
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**SITE DESCRIPTION**

Name: W Parking Lot
Address: ____________________________________________

Ownership: [ ] Public [ ] Private [ ] Unknown
If Public, Government Jurisdiction: [ ] Local [ ] State [ ] DOT [ ] Other: UConn

Corresponding USSR/USA Field Sheet? [ ] Yes [x] No
If yes, Unique Site ID: ______________________

**Proposed Retrofit Location:**

Storage
[ ] Existing Pond [ ] Above Roadway Culvert [ ] On-Site
[ ] Below Outfall [ ] In Conveyance System [ ] Hotspot Operation [ ] Individual Rooftop
[ ] In Road ROW [x] Near Large Parking Lot [ ] Individual Street [ ] Landscape / Hardscape
[ ] Other: ______________________

**DRAINAGE AREA TO PROPOSED RETROFIT**

Drainage Area ≈ 6.0 ac (all sites)
Imperviousness ≈ 69% (all sites)
Impervious Area ≈ 4.2 ac (all sites)

Drainage Area Land Use:
[ ] Residential [ ] Institutional
[ ] SFH (< 1 ac lots) [ ] Industrial
[ ] SFH (> 1 ac lots) [ ] Transport-Related
[ ] Townhouses [ ] Park
[ ] Multi-Family [ ] Undeveloped
[ ] Commercial [ ] Other: ______________________

**EXISTING STORMWATER MANAGEMENT**

Existing Stormwater Practice: [ [] Yes [x] No [ ] Possible
If Yes, Describe: ______________________

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

Four separate drainage areas. Parking lot drains to inlets via paved flow areas with curbing.

**Existing Head Available and Points Where Measured:**

No head limitations.
### Proposed Retrofit

**Purpose of Retrofit:**
- Water Quality
- Recharge
- Channel Protection
- Flood Control
- Demonstration / Education
- Repair
- Other: 

**Retrofit Volume Computations - Target Storage:**
See Spreadsheet

**Retrofit Volume Computations - Available Storage:**
See spreadsheet and sketch

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other: 

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

a) swale and bioretention to manage/treat drainage area of approximately 1 acre. Provide curb cuts in existing asphalt berm to direct runoff to swale and then bioretention.

b) bioretention to manage/treat parking lot and upslope pervious area of approx. 2.6 acres. Bioretention located in island between travel lanes as shown on sketch, no pretreatment.

c) grass channel and/or forebay for pre-treatment flowing into bioretention in parking lot island.

d) filter strip or forebay for pre-treatment flowing into bioretention at edge of parking lot.

### Site Constraints

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other:

**Possible Conflicts Due to Adjacent Land Use?** Yes  No

If Yes, Describe:

**Conflicts with Existing Utilities:**
- None
- Unknown

**Yes**  **Possible**
- Sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires
- Other:

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
- How many? Approx. DBH
- Other factors:

**Soils: Site B-9 d.**

- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):

- Yes  No
See Aerial.

Sidewalk bridge (see x-sect)

Block - shut ex. inlet

groove

punt to maintain positive drainage

4" Steel Pl.

Forebay

Blowet Area

outflow

1,125 sq. ft.

Sidewalk

drive - 3 stc

B)

1,150 ft^2

Raise ex inlets as overflow

check dam

Angled Parking
See Aerial.

D)

Ex. S. D. (block shut)

Curb cuts.

Forebier

Biovorl.

2,200 sq. ft.

RIP Rep. over. flow

Over. flow
a) runoff diverted to bioretention area via curb cuts into grass channel as pre-treatment. Provide culvert under access road and channel into bioretention. Rip Rap overflow spillway.

b) only location for bioretention is island constructed between travel lanes, most runoff will enter in the upper portion, so provide forebay in fist cell, may require check dams to terrace facility. Raise existing inlets to act as overflow.

c) convert existing inlet to manhole at low point, provide positive drainage to grass channel/forebay flowing into bioretention. Save large tree. Overflow via rip rap spillway back into drive isle.

d) runoff diverted to bioretention area via curb cuts into filter strip and/or forebare flowing into bioretention. Overflow via rip rap spillway back into drive isle.

**FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT**

- [ ] Confirm property ownership
- [ ] Confirm drainage area
- [ ] Confirm drainage area impervious cover
- [ ] Confirm volume computations
- [ ] Complete concept sketch
- [ ] Obtain existing stormwater practice as-builts
- [ ] Obtain site as-builts
- [ ] Obtain detailed topography
- [ ] Obtain utility mapping
- [ ] Confirm storm drain invert elevations
- [ ] Confirm soil types
- [ ] Other:____________________

**INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS**

Feasible and likely cost effective, though site b) is undersized given contributing watershed.

**SITE CANDIDATE FOR FURTHER INVESTIGATION:** [X] YES [ ] NO [ ] MAYBE

**IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):** [ ] YES [X] NO [ ] MAYBE

**IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):** [ ] YES [ ] NO [X] MAYBE

**IF YES, TYPE(S):**____________________
**Watershed:** Eagleville Brook  
**Subwatershed:** Unique Site ID: B-2 a & B

**Date:** 7/14/09  
**Assessed By:** RC/KC/LL JR/ET (DEP (B-TEAM))  
**Camera ID:** Olympus RC’s Pentax  
**Pictures:** 41-48 and 1973-1974 (Pentax)

**GPS ID:** N/A  
**LMK ID:** N/A  
**Lat:** N/A  
**Long:** N/A

### Site Description

**Name:** Ice rink service area/access road and rooftop  
**Address:**

**Ownership:**
- [ ] Public
- [ ] Private
- [ ] Unknown

If Public, Government Jurisdiction:
- [ ] Local
- [ ] State
- [ ] DOT
- X Other: UConn

**Corresponding USSR/USA Field Sheet?**
- [ ] Yes
- [ ] No

If Yes, Unique Site ID:

**Proposed Retrofit Location:**

**Storage**
- [ ] Existing Pond
- [ ] Below Outfall
- [ ] In Road ROW
- [ ] Other:

**On-Site**
- [ ] Hotspot Operation
- [ ] Small Parking Lot
- [ ] Individual Street
- [ ] Underground
- [ ] Other:

**Drainage Area to Proposed Retrofit**

- Drainage Area ≈ 1.4 ac (all sites)
- Imperviousness ≈ 61% (all sites)%
- Impervious Area ≈ 0.8 ac (all sites)

**Notes:** 2 separate site

**Existing Stormwater Management**

**Existing Stormwater Practice:**
- [ ] Yes
- X No
- [ ] Possible

Existing roof drains somewhat disconnected by drain to storm drain within 20 ft.

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

Existing ice storage area drains from stockpile onto paved surface, discharges to drainage inlets, dumpster directly connected to paving surface behind ice rink (see photo).

Down spout erosion dissipaters.

**Existing Head Available and Points Where Measured:**

7 ft +/- at downspouts to invert of pipe.
### Retrofit Reconnaissance Investigation

#### Proposed Retrofit

**Purpose of Retrofit:**
- [x] Water Quality
- [x] Water Recharge
- [x] Channel Protection
- [x] Flood Control
- [ ] Demonstration / Education
- [ ] Repair
- [ ] Other:

<table>
<thead>
<tr>
<th>Retrofit Volume Computations - Target Storage:</th>
<th>Retrofit Volume Computations - Available Storage:</th>
</tr>
</thead>
<tbody>
<tr>
<td>See Spreadsheet</td>
<td>See spreadsheet and sketch</td>
</tr>
</tbody>
</table>

**Proposed Treatment Option:**
- [x] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [x] Bioretention
- [x] Filtering Practice
- [ ] Infiltration
- [x] Swale
- [x] Other: filter strip/relocation of ice storage area

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

a) Dry swale with 1 foot ponding depth; leave inlets at existing elevation, add underdrain, treating 24,140 sq ft.

a) Relocation of ice storage, filter strip/or swale for area (total DA to inlets = 36,150 sq ft)

### Site Constraints

**Adjacent Land Use:**
- [ ] Residential
- [ ] Commercial
- [x] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [x] Other: ball fields, concession stands

**Possible Conflicts Due to Adjacent Land Use?**
- [x] Yes
- [ ] No

**If Yes, Describe:** Pedestrian access during sporting events may be a problem with spectator safety crossing the swale

**Conflicts with Existing Utilities:**
- [ ] None
- [ ] Unknown
- [x] Possible

| Yes | Possible | | | | 
|-----|----------|---|---|---|---|
|     | Sewer    | Water | Gas | Cable | Electric |
|     |          |       |     |       | to Streetlights |
|     |          |       |     |       | Overhead Wires |
|     |          |       |     |       | Other: |

**Potential Permitting Factors:**

<table>
<thead>
<tr>
<th>Dam Safety Permits Necessary</th>
<th>Probable</th>
<th>Not Probable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impacts to Wetlands</td>
<td>Probable</td>
<td>Not Probable</td>
</tr>
<tr>
<td>Impacts to a Stream</td>
<td>Probable</td>
<td>Not Probable</td>
</tr>
<tr>
<td>Floodplain Fill</td>
<td>Probable</td>
<td>Not Probable</td>
</tr>
<tr>
<td>Impacts to Forests</td>
<td>Probable</td>
<td>Not Probable</td>
</tr>
<tr>
<td>Impacts to Specimen Trees</td>
<td>Probable</td>
<td>Not Probable</td>
</tr>
</tbody>
</table>

**How many?**

- [ ] Approx. DBH

**Other factors:**
- [ ] Probable high groundwater in parking lot

**Soils:**
- Soil auger test holes:
  - [x] Yes
  - [ ] No
- Evidence of poor infiltration (clays, fines):
  - [x] Yes
  - [ ] No
- Evidence of shallow bedrock:
  - [x] Yes
  - [ ] No
- Evidence of high water table (gleying, saturation):
  - [x] Yes
  - [ ] No

**Access:**
- [ ] No Constraints
- Constrained due to
  - [ ] Slope
  - [x] Space
  - [ ] Utilities
  - [ ] Tree Impacts
  - [ ] Structures
  - [ ] Property Ownership
  - [ ] Other: Vending sheds

**Possible Conflicts Due to Existing Utilities:**
- [ ] None
- [ ] Unknown
- [ ] Probable
- [ ] Not Probable

<table>
<thead>
<tr>
<th>Sewer</th>
<th>Water</th>
<th>Gas</th>
<th>Cable</th>
<th>Electric</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>to Streetlights</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Overhead Wires</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Other:</td>
</tr>
</tbody>
</table>

**Other factors:**
- [ ] Probable high groundwater in parking lot
See Aerial.

a) b) See aerial for sketch.
DESIGN OR DELIVERY NOTES

Site a swale could be very shallow to avoid conflicts with spectators.

Move dumpster away from storm drain (site b).

Add berm or swale in front of snow storage area and direct snowmelt away from paved surface.

Downspouts could be collected in cisterns and used to supplement irrigation to the field.

FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

☐ Confirm property ownership  ☐ Obtain existing stormwater practice as-builts
☐ Confirm drainage area  ☐ Obtain site as-builts
☐ Confirm drainage area impervious cover  ☐ Obtain detailed topography
☐ Confirm volume computations  ☐ Obtain utility mapping
☐ Complete concept sketch  ☐ Confirm storm drain invert elevations
☐ Confirm soil types

☐ Other: ____________________________

INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

Feasible, but
Site a) may have constraints with spectators and safety concerns with a swale

Site b) snowmelt may not pose a concern during regular icing activities, likely only a potential water quality issue during complete ice replacement.

SITE CANDIDATE FOR FURTHER INVESTIGATION: ☐ YES ☐ NO ☒ MAYBE
IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S): ☐ YES ☒ NO ☐ MAYBE
IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S): ☐ YES ☐ NO ☐ MAYBE
IF YES, TYPE(S): ____________________________
### Retrofit Reconnaissance Investigation

**WATERSHED:** EAGLEVILLE BROOK  
**SUBWATERSHED:**  
**UNIQUE SITE ID:** B-3

|---------------|-----------------------------------------------|---------------------------------|----------------------------------------|

**GPS ID:** N/A  
**LMK ID:** N/A  
**LAT:** N/A  
**LONG:** N/A

### Site Description

**Name:** Christian Field – Adjacent to batting cages.  
**Address:**  
**Ownership:**  
- Public  
- Private  
- Unknown  
- Local  
- State  
- DOT  
- Other: UConn

**Corresponding USSR/USA Field Sheet?**  
- Yes  
- No  
- If yes, Unique Site ID:

**Proposed Retrofit Location:**

- Storage  
  - Existing Pond  
  - Below Outfall  
  - In Road ROW  
  - Other:

- On-Site  
  - Hotspot Operation  
  - Small Parking Lot  
  - Individual Street  
  - Underground  
  - Other:

**Drainage Area to Proposed Retrofit**

- Drainage Area ≈ 55.0 ac  
- Imperviousness ≈ 27.4% (all sites)  
- Impervious Area ≈ 15.1 ac (all sites)

**Drainage Area Land Use:**

- Residential  
  - SFH (< 1 ac lots)  
  - SFH (> 1 ac lots)  
  - Townhouses  
  - Multi-Family  
  - Commercial  
- Institutional  
- Industrial  
- Transport-Related  
- Park  
- Undeveloped  
- Other:

**Existing Stormwater Management**

**Existing Stormwater Practice:**  
- Yes  
- No  
- Possible

**If Yes, Describe:**

Existing drainage pipe system collects runoff from pervious and impervious surfaces and discharges to Red Brook.

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

Ex 24 inch Pipe runs along open area of fields with inlets, likely under baseball field, across Stadium Road.

Clearly part of conveyance is a former stream, thus should have shallow depth to groundwater.

**Existing Head Available and Points Where Measured:**

Unable to locate final inlets or manholes in vicinity of site, but pipe invert at outfall less than 5 feet.
### Proposed Retrofit

<table>
<thead>
<tr>
<th>Purpose of Retrofit:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☒ Water Quality</td>
</tr>
<tr>
<td>☐ Demonstration / Education</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Retrofit Volume Computations - Target Storage:</th>
</tr>
</thead>
<tbody>
<tr>
<td>See Spreadsheet</td>
</tr>
</tbody>
</table>

**Proposed Volume Computations - Available Storage:**

<table>
<thead>
<tr>
<th>Retrofit Volume Computations - Available Storage:</th>
</tr>
</thead>
<tbody>
<tr>
<td>See spreadsheet and sketch</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Proposed Treatment Option:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ Extended Detention</td>
</tr>
<tr>
<td>☐ Filtering Practice</td>
</tr>
</tbody>
</table>

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

Proposed gravel based wetland system with forebay, designed offline with approx 4,700 sq ft of surface area available.

### Site Constraints

<table>
<thead>
<tr>
<th>Adjacent Land Use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Residential</td>
</tr>
<tr>
<td>☐ Industrial</td>
</tr>
<tr>
<td>☒ Undeveloped</td>
</tr>
</tbody>
</table>

**Possible Conflicts Due to Adjacent Land Use?**

- ☐ Yes
- ☐ No

If Yes, Describe:

Access:

- ☐ No Constraints
- ☒ Constrained due to:
  - ☐ Slope
  - ☒ Space
  - ☐ Utilities
  - ☐ Tree Impacts
  - ☐ Structures
  - ☐ Property Ownership
  - ☐ Other: DA large per avail surface area

**Conflicts with Existing Utilities:**

- ☐ None
- ☐ Unknown

**Yes**

- ☒ Sewer
- ☐ Water
- ☒ Gas
- ☒ Cable
- ☒ Electric
- ☒ Electric to Streetlights
- ☐ Overhead Wires
- ☐ Other:

**Potential Permitting Factors:**

- Dam Safety Permits Necessary: ☐ Probable ☒ Not Probable
- Impacts to Wetlands: ☒ Probable ☐ Not Probable
- Impacts to a Stream: ☒ Probable ☐ Not Probable
- Floodplain Fill: ☒ Probable ☐ Not Probable
- Impacts to Forests: ☒ Probable ☐ Not Probable
- Impacts to Specimen Trees: ☒ Probable ☐ Not Probable
  - How many? ___________
  - Approx. DBH ___________

**Other factors:** _______________________________________________________________________

**Soils:**

<table>
<thead>
<tr>
<th>Soil auger test holes:</th>
<th>☐ Yes</th>
<th>☒ No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence of poor infiltration (clays, fines):</td>
<td>☐ Yes</td>
<td>☒ No</td>
</tr>
<tr>
<td>Evidence of shallow bedrock:</td>
<td>☐ Yes</td>
<td>☒ No</td>
</tr>
<tr>
<td>Evidence of high water table (gleying, saturation):</td>
<td>☐ Yes</td>
<td>☒ No</td>
</tr>
</tbody>
</table>
SKETCH

See Aerial.
**DESIGN OR DELIVERY NOTES**

- Off-line design with diversion manhole
- Upflow wetland will minimize required head
- Surface area limits available treatment capability

---

**FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT**

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch
- Obtain existing stormwater practice as-builts
- Obtain site as-builts
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types
- Other: [ ]

---

**INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS**

Feasible and very attractive, few locations on campus offer the ability to management significant volumes of runoff and impervious surface

---

**SITE CANDIDATE FOR FURTHER INVESTIGATION:** [X] YES  [ ] NO  [ ] MAYBE

**IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):** [ ] YES  [X] NO  [ ] MAYBE

**IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):** [ ] YES  [ ] NO  [ ] MAYBE

If yes, type(s): [ ]
# Retrofit Reconnaissance Investigation

## Watershed: Eagleville Brook

### Subwatershed:

<table>
<thead>
<tr>
<th>Unique Site ID: B-4 a-c</th>
</tr>
</thead>
</table>

### Date: 7/14/09

**Assessed By:** RC/KC/LL/JR/ET (B-Team)  
**Camera ID:** Olympus RC’s Pentax  
**Pictures:** 1982-1987

### GPS ID:  
**LMK ID:**  
**Lat:**  
**Long:**

## Site Description

**Name:** Parking Lot D  
**Address:**

**Ownership:**
- [ ] Public  
- [ ] Private  
- [ ] Unknown

If Public, Government Jurisdiction:
- [ ] Local  
- [ ] State  
- [ ] DOT  
- [ ] Other: UConn

**Corresponding USSR/USA Field Sheet?**
- [ ] Yes  
- [x] No  
If yes, Unique Site ID:

## Proposed Retrofit Location:

### Storage
- [ ] Existing Pond  
- [ ] Below Outfall  
- [ ] In Road ROW  
- [ ] Other: Near Large Parking Lot

### On-Site
- [x] Hotspot Operation  
- [ ] Individual Rooftop
- [ ] Small Parking Lot  
- [x] Individual Street  
- [ ] Landscape / Hardscape  
- [ ] Underground  
- [ ] Other:

## Drainage Area to Proposed Retrofit

<table>
<thead>
<tr>
<th>Drainage Area</th>
<th>Imperviousness</th>
<th>Impervious Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>≈ 3.7 ac (all sites)</td>
<td>≈ 76.2%</td>
<td>≈ 2.7 ac (all sites)</td>
</tr>
</tbody>
</table>

**Notes:** Large parking lot, ultimately drains to Site B-3

## Existing Stormwater Management

**Existing Stormwater Practice:**
- [ ] Yes  
- [x] No  
- [ ] Possible

**If Yes, Describe:**

## Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

Large parking lot currently drains to existing inlets and discharges in three directions towards Site B-3. Inlets drain fairly large areas. Snow storage is over the hill, resulting in large sand deposits beyond parking lot edge.

## Existing Head Available and Points Where Measured:

No head limitations, site is on a hill at least 15 above Alumni Drive.
### PROPOSED RETROFIT

**Purpose of Retrofit:**
- Water Quality
- Recharge
- Channel Protection
- Flood Control
- Demonstration / Education
- Repair
- Other:__________________________

### Retrofit Volume Computations - Target Storage:
See Spreadsheet

### Retrofit Volume Computations - Available Storage:
See spreadsheet and sketch

### Proposed Treatment Option:
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other:__________________________

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

a) terraced bioretention at western edge of parking lot. Currently water ponds along curb-line, very flat slope to ex. Inlet. Retrofit involve removing curb at parking lot edge to sheet flow into a forebay and then into bios, overflow back into storm drain system draining to B-3. Guard rail for vehicle safety will be needed.

b) area for bioretention obtained from re-striping parking lot spaces to minimum width (e.g. 8 feet) to maintain same number of spaces. Modify existing inlet as overflow.

c) diversion structure out of existing inlet and new pipe to bioretention areas adjacent to entrance drive to parking lot, overflow back into drainage system.

### SITE CONSTRAINTS

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other:__________________________

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

**If Yes, Describe:**
- Access:
  - No Constraints
  - Constrained due to:
    - Slope
    - Space
    - Utilities
    - Tree Impacts
    - Structures
    - Property Ownership
    - Other: Site b requires re-striping

**Conflicts with Existing Utilities:**
- None
- Unknown
- Possible

<table>
<thead>
<tr>
<th>Utility</th>
<th>Yes</th>
<th>Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electric</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electric to Streetlights</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhead Wires</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
- How many?_____________________
- Approx. DBH__________________
- Other factors:________________

**Soils:**
- Soil auger test holes:
  - Yes
  - No
- Evidence of poor infiltration (clays, fines):
  - Yes
  - No
- Evidence of shallow bedrock:
  - Yes
  - No
- Evidence of high water table (gleying, saturation):
  - Yes
  - No
a) Overflow Inlet
510 ft.
Terraced bio

Ex. Parking lot

Ex. Parking lot

b) 800 ft^2

biorift.
New overflow St.

Maintain overflow flow path
raise ex inlet 2"  to act as overflow

Ex. Parking lot

Adjust parking lot limits by re-stripping lot a space 8' wide

C) Convert ex inlet
diversion str.
900 ft^2

New biorift
overflow back to drainage sys.
### DESIGN OR DELIVERY NOTES

a) delivery by sheet flow to terraced bioretention, overflows to terraces using stone, weir walls or pipes (pipes more costly but less construction tolerance issues.

b) sheet flow to area currently occupied by drive isle.

c) flow spillter from existing drainage inlets to new pipe to bio at bottom of hill. Great opportunity for demonstration site.

### FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

- [ ] Confirm property ownership
- [ ] Confirm drainage area
- [ ] Confirm drainage area impervious cover
- [ ] Confirm volume computations
- [ ] Complete concept sketch
- [ ] Obtain existing stormwater practice as-builts
- [ ] Obtain site as-builts
- [ ] Obtain detailed topography
- [ ] Obtain utility mapping
- [ ] Confirm storm drain invert elevations
- [ ] Confirm soil types
- [ ] Other: ___________________________

### INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

Feasible and good potential demonstration site. May not be necessary if Site B-3 is implemented, but on the other hand, since B-3 has area limitations, up gradient sites will reduce area/volume requirements downgradient.

### SITE CANDIDATE FOR FURTHER INVESTIGATION:

- [x] YES
- [ ] NO
- [ ] MAYBE

### IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):

- [ ] YES
- [ ] NO
- [x] MAYBE

### IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):

- [ ] YES
- [ ] NO
- [ ] MAYBE

IF YES, TYPE(S): ___________________________
### Retrofit Reconnaissance Investigation

<table>
<thead>
<tr>
<th>Watershed: EAGLEVILLE BROOK</th>
<th>Subwatershed:</th>
<th>Unique Site ID: B-5 a&amp;b</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date:</strong> 7/15/09</td>
<td><strong>Assessed By:</strong> RC/PS/JR (B-TEAM)</td>
<td><strong>Camera ID:</strong> OLYMPUS RC'S PENTAX</td>
</tr>
<tr>
<td><strong>Pictures:</strong> 1989-2014</td>
<td><strong>GPS ID:</strong></td>
<td><strong>LMK ID:</strong></td>
</tr>
<tr>
<td><strong>Site Description</strong></td>
<td><strong>LAT:</strong></td>
<td><strong>LONG:</strong></td>
</tr>
</tbody>
</table>

#### Name:
Parking Lot Y and 8 Lot

#### Address:

#### Ownership:
- Public
- Private
- Unknown

#### If Public, Government Jurisdiction:
- Local
- State
- DOT
- Other: UConn

#### Corresponding USSR/USA Field Sheet?
- Yes
- No

#### Proposed Retrofit Location:

- **Storage**
  - Existing Pond
  - Below Outfall
  - In Road ROW
  - Other:

- **On-Site**
  - Hotspot Operation
  - Small Parking Lot
  - Individual Street
  - Underground
  - Other:

#### Drainage Area to Proposed Retrofit

- **Drainage Area** ≈ 2.2 ac (all sites)
- **Imperviousness** ≈ 82 %
- **Impervious Area** ≈ 1.8 ac (all sites)

#### Drainage Area Land Use:
- Residential
- Institutional
- SFH (< 1 ac lots)
- SFH (> 1 ac lots)
- Townhouses
- Multi-Family
- Commercial
- Other:

#### Notes:
Large parking lot, ultimately drains to Site B-3

#### Existing Stormwater Management

- **Existing Stormwater Practice:**
  - Yes
  - No
  - Possible

#### If Yes, Describe:
Lot 8 contains existing underground detention pipe systems with Vortechnic device (WQ Unity), designed offline. Detention consists of 15 rows of 48" dia pipes with cleanouts. Drainage to system is via 3 inlets a low end of parking lot; appears drainage bypasses inlets and slope damage to hillside reinforced slope is evident. Slope failure evident at Shenkman Training Center cut slope (unrelated to this structure), but appears to be from overland flow above slope (see photos).

#### Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:
Y Lot is a large parking lot currently draining to existing inlets and discharges toward Lot 8 then towards Site B-3. Inlets drain fairly large areas. Snow storage is over the hill, resulting in large sand deposits beyond parking lot edge.
Retrofit Reconnaissance Investigation

**Existing Head Available and Points Where Measured:**

No head limitations, existing inlets can serve as overflow back into drainage network.

**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- ☑ Water Quality
- ☑ Recharge
- ☐ Channel Protection
- ☐ Flood Control
- ☐ Demonstration / Education
- ☐ Repair
- ☐ Other:

**Retrofit Volume Computations - Target Storage:**
See Spreadsheet

**Retrofit Volume Computations - Available Storage:**
See spreadsheet and sketch

**Proposed Treatment Option:**
- ☑ Extended Detention
- ☐ Wet Pond
- ☐ Created Wetland
- ☑ Bioretention
- ☐ Filtering Practice
- ☐ Infiltration
- ☐ Swale
- ☐ Other:

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

a) swales from both sides to bioretention system in center, existing inlet as overflow.

b) swales from both side to bioretention system in center, existing inlet as overflow.

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- ☐ Residential
- ☐ Commercial
- ☑ Institutional
- ☐ Industrial
- ☐ Transport-Related
- ☐ Park
- ☐ Undeveloped
- ☐ Other:

**Possible Conflicts Due to Adjacent Land Use?**
- ☑ Yes
- ☐ No

**If Yes, Describe:**
- ☐ Access:
  - ☐ No Constraints
  - ☐ Constrained due to:
    - ☐ Slope
    - ☐ Space
    - ☐ Utilities
    - ☐ Tree Impacts
    - ☐ Structures
    - ☐ Property Ownership
    - ☐ Other:

**Conflicts with Existing Utilities:**
- ☐ None
- ☑ Unknown

**Yes**
- ☐ Sewer
- ☐ Water
- ☐ Gas
- ☐ Cable
- ☐ Electric
- ☑ Electric to Streetlights
- ☐ Overhead Wires
- ☐ Other:

**Potential Permitting Factors:**
- ☐ Dam Safety Permits Necessary
- ☐ Probable
- ☐ Not Probable
- ☐ Impacts to Wetlands
- ☐ Probable
- ☐ Not Probable
- ☐ Impacts to a Stream
- ☐ Probable
- ☐ Not Probable
- ☐ Floodplain Fill
- ☐ Probable
- ☐ Not Probable
- ☐ Impacts to Forests
- ☐ Probable
- ☐ Not Probable
- ☐ Impacts to Specimen Trees
- ☐ Probable
- ☐ Not Probable
  - ☐ How many? __________
  - ☐ Approx. DBH __________

**Other factors:**

**Soils:**
- ☐ Soil auger test holes:
- ☑ Yes
  - ☐ No
- ☐ Evidence of poor infiltration (clays, fines):
- ☑ Yes
  - ☐ No
- ☐ Evidence of shallow bedrock:
- ☑ Yes
  - ☐ No
- ☐ Evidence of high water table (gleying, saturation):
- ☑ Yes
  - ☐ No
See Aerial.

\[ a \div b \]

- Grass Channel
- Ex. conc. curvb.
- New curb cuts
- Ex. light poles
- Forebay
- Bio-vol.
- Remove curb.
- Ex. s.d/inlet @ L.P.
- Overflow to ex. inlet
- Forebay
- New curb cuts
- Grass Channel

5a) \(1,575 \text{ ft}^2\)
5b) \(1,200 \text{ ft}^2\)
### DESIGN OR DELIVERY NOTES

a) delivery by sheet flow to swales (curbing to be remove or curb cuts provided), shallow swale along full length of parking lot western side to bioretention in center, use existing inlet (raised if necessary) for overflow.

b) Same as a.

### FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

- [ ] Confirm property ownership
- [ ] Confirm drainage area
- [ ] Confirm drainage area impervious cover
- [ ] Confirm volume computations
- [ ] Complete concept sketch
- [ ] Obtain existing stormwater practice as-builts
- [ ] Obtain site as-builts
- [ ] Obtain detailed topography
- [ ] Obtain utility mapping
- [ ] Confirm storm drain invert elevations
- [ ] Confirm soil types
- [ ] Other:____________________

### INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

Feasible and good potential demonstration site. May not be necessary if Site B-3 is implemented, but on the other hand, since B-3 has area limitations, up gradient sites will reduce area/volume requirements downgradient.

### SITE CANDIDATE FOR FURTHER INVESTIGATION:

- [x] YES
- [ ] NO
- [ ] MAYBE

**IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):**
- [ ] YES
- [ ] NO
- [x] MAYBE

**IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):**
- [x] YES
- [ ] NO
- [ ] MAYBE

**IF YES, TYPE(S):** __________________________
### Retrofit Reconnaissance Investigation

#### Watershed: Eagleville Brook

<table>
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<tr>
<th>Subwatershed:</th>
<th>Unique Site ID: B-6 a-c</th>
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#### Date: 7/15/09

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### Site Description

Name: Hillside Road and Access Drive to Lot 8

Address:

Ownership:

- [ ] Public
- [ ] Private
- [ ] Unknown

If Public, Government Jurisdiction:

- [ ] Local
- [ ] State
- [ ] DOT
- [ ] Other: UConn

Corresponding USSR/USA Field Sheet?

- [ ] Yes
- [ ] No

If yes, Unique Site ID:

Proposed Retrofit Location:

- [ ] Existing Pond
- [ ] Below Outfall
- [ ] In Road ROW
- [ ] Other: access drive

- [ ] Above Roadway Culvert
- [ ] In Conveyance System
- [ ] Near Large Parking Lot

- [ ] Hotspot Operation
- [ ] Individual Rooftop
- [ ] Small Parking Lot
- [ ] Small Impervious Area
- [ ] Individual Street
- [ ] Landscape / Hardscape
- [ ] Underground

- [ ] Other: access drive

### Drainage Area to Proposed Retrofit

- Drainage Area ≈ 0.5 ac (site c only)

- Imperviousness ≈ 50%

- Impervious Area ≈ 0.4 ac (site c only)

**Notes:** Large parking lot, ultimately drains to Site B-3

### Existing Stormwater Management

Existing Stormwater Practice:

- [ ] Yes
- [ ] No
- [ ] Possible

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

Lot 8 is a large parking lot currently draining to existing underground facility and then southwest to outfall into Red Brook (via proposed Site B-3), but some of the parking lot bypasses existing inlets and flows down the access drive from Hillside Road. Site B-6 consists of 3 sites, but only one is within the drainage area to Eagleville Brook (Site c). Some drainage that by-passes Lot 8 flows downgradient to existing inlets on the access drive that drain towards Hillside Drive.

Sites a & b) would be a good example for the landscape architect and applicable throughout the campus.
Existing Head Available and Points Where Measured:

No head limitations, existing inlets can serve as overflow back into drainage network.

PROPOSED RETROFIT

Purpose of Retrofit:

☒ Water Quality ☐ Recharge ☐ Channel Protection ☐ Flood Control
☐ Demonstration / Education ☐ Repair ☐ Other: ___________________________

Retrofit Volume Computations - Target Storage:

See Spreadsheet

Retrofit Volume Computations - Available Storage:

See spreadsheet and sketch

Proposed Treatment Option:

☐ Extended Detention ☐ Wet Pond ☐ Created Wetland ☒ Bioretention
☐ Filtering Practice ☐ Infiltration ☐ Swale ☐ Other: _________________

Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:

a & b) swales roadway with culverts to bioretention system, existing inlet as overflow.

c) rooftop planters to collect and treat runoff off of NE end of Co-op building, then small bioretention to collect runoff from access road.

SITE CONSTRAINTS

Adjacent Land Use:

☐ Residential ☐ Commercial ☒ Institutional ☐ Industrial ☐ Transport-Related ☐ Park
☐ Undeveloped ☐ Other: _______________________

Possible Conflicts Due to Adjacent Land Use? ☒ Yes ☐ No

If Yes, Describe:

Access:

☐ No Constraints Constrained due to
☐ Slope ☐ Space
☐ Utilities ☐ Tree Impacts
☐ Structures ☐ Property Ownership
☐ Other: __________________________

Conflicts with Existing Utilities:

☐ None ☒ Unknown

Yes Possible

☒ Sewer ☐ Water ☐ Gas ☐ Cable ☐ Electric
☒ Electric to Streetlights ☐ Overhead Wires
☐ Other: __________________________

Potential Permitting Factors:

☐ Dam Safety Permits Necessary ☐ Probable ☐ Not Probable
☐ Impacts to Wetlands ☐ Probable ☐ Not Probable
☐ Impacts to a Stream ☐ Probable ☐ Not Probable
☐ Floodplain Fill ☐ Probable ☐ Not Probable
☐ Impacts to Forests ☐ Probable ☐ Not Probable
☐ Impacts to Specimen Trees

How many? __________________________

Approx. DBH _________________

☐ Other: __________________________

Other factors: __________________________

Soils:

Soil auger test holes: ☐ Yes ☐ No

Evidence of poor infiltration (clays, fines): ☐ Yes ☐ No

Evidence of shallow bedrock: ☐ Yes ☐ No

Evidence of high water table (gleying, saturation): ☐ Yes ☐ No
See Aerial.

- Overflow
- Hillside Drive
- Speed bump
- Convert to new flow diversion structure
- New S.D.
- Ex. S.D.
- Ex. Inlet
- Courtyard
- Rooftop planters
- Divert downsputs to planters with overflow back to drainage network.
**DESIGN OR DELIVERY NOTES**

a & b) delivery by sheet flow to swales (curbing to be remove or curb cuts provided), shallow swale along full length of SW side of Hillside Driave to bioretention, use existing inlets (raised if necessary) for overflow.

c) Downspout modification to planter. Trench drain in Lot 8 access drive to diversion manhole or inlet to bioretention adjacent to plaza in Co-op, overflow to existing inlets.

---

**FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT**

<table>
<thead>
<tr>
<th>✓ Confirm property ownership</th>
<th>✓ Obtain existing stormwater practice as-builds</th>
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<tr>
<td>✓ Confirm drainage area</td>
<td>☐ Obtain site as-builds</td>
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<td>☐ Confirm drainage area impervious cover</td>
<td>☐ Obtain detailed topography</td>
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<td>☐ Confirm volume computations</td>
<td>☐ Obtain utility mapping</td>
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<td>☐ Complete concept sketch</td>
<td>☐ Confirm storm drain invert elevations</td>
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<tr>
<td>☐ Other:</td>
<td>☐ Confirm soil types</td>
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---

**INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS**

Feasible but sites a&b not within watershed, and Site c is small an will be costly, but high profile in plaza of Co-op.

---

**SITE CANDIDATE FOR FURTHER INVESTIGATION:** ☑ YES ☐ No ☐ MAYBE

**IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):** ☐ YES ☑ NO ☐ MAYBE

**IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):** ☐ YES ☑ No ☐ MAYBE

**IF YES, TYPE(S):**
Retrofit Reconnaissance Investigation

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<th>SUBWATERSHED:</th>
<th>UNIQUE SITE ID: B-7 a-g</th>
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| DATE: 7/15/09 | ASSESSED BY: RC/PS/JR (B-TEAM) | CAMERA ID: OLYMPUS RC’S PENTAX | PICTURES: 2025-2070 |

| GPS ID: | LMK ID: | LAT: | LONG: |

**SITE DESCRIPTION**

Name: Memorial Stadium-Greer Field House-Uconn Foundation-Alumni Center

Address:

Ownership: [ ] Public [ ] Private [ ] Unknown
If Public, Government Jurisdiction: [ ] Local [ ] State [ ] DOT [ ] Other: [ ] UConn

Corresponding USSR/USA Field Sheet? [ ] Yes [ ] No [ ] If yes, Unique Site ID:

**Proposed Retrofit Location:**

- Storage
  - [ ] Existing Pond
  - [ ] Above Roadway Culvert
  - [ ] Below Outfall
  - [ ] In Conveyance System
  - [ ] In Road ROW
  - [ ] Near Large Parking Lot
  - [ ] Other:

- On-Site
  - [ ] Hotspot Operation
  - [ ] Individual Rooftop
  - [ ] Small Parking Lot
  - [ ] Individual Street
  - [ ] Landscape / Hardscape
  - [ ] Underground
  - [ ] Other: access drive

**DRAINAGE AREA TO PROPOSED RETROFIT**

- Drainage Area ≈ 4.1 ac (all sites)
- Imperviousness ≈ 71 %
- Impervious Area ≈ 2.0 ac (all sites)

**Drainage Area Land Use:**

- [ ] Residential
- [x] Institutional
- [ ] SFH (< 1 ac lots)
- [ ] SFH (> 1 ac lots)
- [ ] Townhouses
- [ ] Multi-Family
- [ ] Commercial
- [ ] Other: undeveloped

**EXISTING STORMWATER MANAGEMENT**

- Existing Stormwater Practice: [ ] Yes [ ] No [ ] Possible
- If Yes, Describe:

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

- Existing paved access drive to stadium and field house, parking and offices, enclosed drainage inlets, and curbing.
- Stadium bleachers drain to clogged inlets then to drainage network on Stadium Road.
- Note, parking lot in front of field house has recently been replaced with porous concrete pavement.

**Existing Head Available and Points Where Measured:**

- No head limitations.
### PROPOSED RETROFIT

**Purpose of Retrofit:**
- Water Quality
- Recharge
- Channel Protection
- Flood Control
- Demonstration / Education
- Repair
- Other: __________

**Retrofit Volume Computations - Target Storage:**

See Spreadsheet

**Retrofit Volume Computations - Available Storage:**

See spreadsheet and sketch

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other: __________

**Rooftop planter, permeable pvmt**

### Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:

a) swale to bioretention in small island in parking lot, overflow inlet back to drainage network.
b) bioretention in depressed area behind Alumni Center, inlets modified to bypass low flows.
c) rooftop downspout disconnection to rain garden/bioretention in side yard of Tasker Admissions Bldg.
d) bioretention in parking lot islands in Uconn Foundation, existing inlet as overflow.
e) bioretention in front lawn area of Alumni Center, modify inlet in parking lot to divert low flows to bio.
f) permeable asphalt or concrete.
g) green roof or rooftop planter for small roof area of Greer Field House.

### SITE CONSTRAINTS

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other: __________

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

If Yes, Describe:

Access:
- No Constraints
- Constrained due to:
  - Slope
  - Space
  - Utilities
  - Tree Impacts
  - Structures
  - Property Ownership
  - Other: __________

**Conflicts with Existing Utilities:**
- None
- Unknown

**Yes**
- Sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires
- Other: __________

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees

- How many? __________
- Approx. DBH __________

Other factors: __________

**Soils:**
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):

- Yes
- No
See Aerial.

a) Remove 2-3' Pavement, install shallow gross channel.

b) Raise ex. inlet grate 2" (only to flow during larger storms).

New inlet and pipe to bioret.

Prop. gross channel

Sherman Family Starts Complex Field

2'-3' high Ret wall
See Aerial.

d)

UConn Foundation Parking lot

Hillside Drive
Sidewalk

new
overflow
inlet
outflow to
ex. s.d. sys.

BioGt.

valve exist
inlet vein
2" +

ex. s.d.

1000 ft +

Alumni Drive

Foxboy

Alumni Center

Convert ex. inlet to flow diversion structure
a-g) dense area with several space limitations requires multiple practices to manage relatively small amount of impervious cover.

b) good site for bioretention, modify existing catch basins by raising rim elevations to allow small flow over bank into bio. Small wall and swale need to convey runoff from area along Sherman field complex to bio.

c) easy downspout modification to capture small rooftop area.

d) existing inlets to be modified as overflow from bio in parking lot island.

e) inlet in parking lot modified to flow-split small storms to bio area, larger storms to remain in existing drainage network.

f) only viable option is permeable pavement.

g) small area of sloping rooftop off of field house could be managed by green roof or by rooftop planter

**FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT**

<p>| | | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
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<tr>
<td>Confirm property ownership</td>
<td>Confirm drainage area impervious cover</td>
<td>Confirm volume computations</td>
<td>Complete concept sketch</td>
</tr>
<tr>
<td>Obtain existing stormwater practice as-builts</td>
<td>Obtain site as-builts</td>
<td>Obtain detailed topography</td>
<td>Obtain utility mapping</td>
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<tr>
<td>Confirm storm drain invert elevations</td>
<td>Confirm soil types</td>
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<tr>
<td>Other: _____________________________</td>
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**INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS**

Feasible but all sites fairly constrained due to limited open space. Sites b and e are the most cost effective (see spreadsheet)

**SITE CANDIDATE FOR FURTHER INVESTIGATION:** ☒ YES ☐ NO ☐ MAYBE

**IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):** ☐ YES ☒ NO ☐ MAYBE

**IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):** ☐ YES ☒ NO ☐ MAYBE

If YES, TYPE(S): _____________________________
**Watershed: Eagleville Brook**

**Subwatershed:**

**Unique Site ID: B-8 a&b**

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**Site Description**

Name: South Parking Garage and Access Drive

Address: ____________________________

Ownership: [ ] Public [ ] Private [ ] Unknown

If Public, Government Jurisdiction: [ ] Local [ ] State [ ] DOT [ ] Other: UConn

Corresponding USSR/USA Field Sheet? [ ] Yes [ ] No

If yes, Unique Site ID: ____________________________

**Proposed Retrofit Location:**

<table>
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<tr>
<th>Storage</th>
<th>On-Site</th>
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<tr>
<td>[ ] Existing Pond</td>
<td>[ ] Hotspot Operation</td>
</tr>
<tr>
<td>[ ] Below Outfall</td>
<td>[ ] Small Parking Lot</td>
</tr>
<tr>
<td>[ ] In Road ROW</td>
<td>[ ] Individual Rooftop</td>
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<tr>
<td>[ ] Other:</td>
<td>[ ] Small Impervious Area</td>
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<tr>
<td>[ ] Near Large Parking Lot</td>
<td>[ ] Landscape / Hardscape</td>
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**Drainage Area to Proposed Retrofit**

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<th>Imperviousness</th>
<th>Impervious Area</th>
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<td>≈ 3.2 ac (both sites)</td>
<td>94%</td>
<td>≈ 3.0 ac (both sites)</td>
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Notes: drainage area from parking garage could be diverted to Red Brook and site B-3.

**Existing Stormwater Management**

<table>
<thead>
<tr>
<th>Existing Stormwater Practice:</th>
<th>Yes</th>
<th>No</th>
<th>Possible</th>
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<tr>
<td>If Yes, Describe:</td>
<td></td>
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</tbody>
</table>

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

Parking deck scuppers drain along columns to existing enclosed drainage network. Deck and access drive currently drain to Stadium Road network, but could be diverted to System that drains past the Burton-Shenkman Facility to Red Brook.

**Existing Head Available and Points Where Measured:**

No head limitations.
### PROPOSED RETROFIT

**Purpose of Retrofit:**
- [x] Water Quality
- [ ] Recharge
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Demonstration / Education
- [ ] Repair
- [x] Other: Re-use for irrigation of Memorial Stadium

### Retrofit Volume Computations - Target Storage:
See Spreadsheet

### Retrofit Volume Computations - Available Storage:
See spreadsheet and sketch

### Proposed Treatment Option:
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [ ] Bioretention
- [ ] Filtering Practice
- [ ] Infiltration
- [ ] Swale
- [x] Other: Green Roof and Cistern

### Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:

a) green roof over central parking area on roof of garage.

b) cistern collects runoff from parking garage scuppers for re-use as irrigation for adjacent Memorial Stadium field. Could divert drainage from inlets in access road behind parking garage to draining network draining towards Red Brook.

### SITE CONSTRAINTS

**Adjacent Land Use:**
- [ ] Residential
- [ ] Commercial
- [x] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other:

**Possible Conflicts Due to Adjacent Land Use?**
- [ ] Yes
- [x] No

**If Yes, Describe:**

**Access:**
- [ ] No Constraints
- [ ] Constrained due to:
  - [x] Slope
  - [ ] Space
  - [ ] Utilities
  - [ ] Tree Impacts
  - [ ] Structures
  - [ ] Property Ownership
  - [ ] Other:

**Conflicts with Existing Utilities:**
- [ ] None
- [x] Unknown

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<tr>
<td>overhead wires</td>
<td></td>
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<tr>
<td>other:</td>
<td></td>
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</table>

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- [ ] Probable
- [x] Not Probable
- Impacts to Wetlands
- [ ] Probable
- [x] Not Probable
- Impacts to a Stream
- [ ] Probable
- [x] Not Probable
- Floodplain Fill
- [ ] Probable
- [x] Not Probable
- Impacts to Forests
- [ ] Probable
- [x] Not Probable
- Impacts to Specimen Trees
  - How many?
  - Approx. DBH
  - [ ] Probable
  - [x] Not Probable

**Other factors:**

**Soils:**
- Soil auger test holes:
- [ ] Yes
- [x] No
- Evidence of poor infiltration (clays, fines):
- [ ] Yes
- [ ] No
- Evidence of shallow bedrock:
- [ ] Yes
- [ ] No
- Evidence of high water table (gleying, saturation):
- [ ] Yes
- [ ] No
See Aerial.

a) Add Green Roof Canopy

b) Cistern - See Aerial
### DESIGN OR DELIVERY NOTES

a) rooftop canopy structure would be needed to cover central area of parking garage.

b) cistern for irrigation located as close as possible to field area. Would require pumps for irrigation, underground structure. Diversion of drainage from Stadium Road to Red Brook drainage feasible, but would need to verify system capacity and coordinate storage of Site B-3 with other up gradient sites such as B-4 and B-5.

### FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch
- Other: ____________________

- Obtain existing stormwater practice as-builts
- Obtain site as-builts
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types

### INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

Feasible but costly given limited area treated.

### SITE CANDIDATE FOR FURTHER INVESTIGATION:

- Yes ☒
- No ☐
- Maybe ☐

### IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):

- Yes ☐
- No ☒
- Maybe ☐

### IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):

- Yes ☐
- No ☒
- Maybe ☐

If yes, type(s): ____________________
**Watershed: Eagleville Brook**  
**Subwatershed:**  
**Unique Site ID:** B-9 a-d

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<th><strong>Pictures:</strong> 2073-2082</th>
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<td><strong>Lat:</strong></td>
<td><strong>Long:</strong></td>
</tr>
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**Site Description**

Name: Hilltop Residence Halls Driveway, Garrigus Suites Parking Lot and Driveway and Alumni Drive  
Address:  
Ownership: [ ] Public [ ] Private [ ] Unknown  
If Public, Government Jurisdiction: [ ] Local [ ] State [ ] DOT [ ] Other: UConn  
Corresponding USSR/USA Field Sheet? [ ] Yes [x] No If yes, Unique Site ID:  

**Proposed Retrofit Location:**  
Storage  
[ ] Existing Pond  
[ ] Below Outfall  
[ ] In Road ROW  
[ ] Other:  
On-Site  
[ ] Hotspot Operation  
[ ] Small Parking Lot  
[ ] Individual Street  
[ ] Underground  
[ ] Other:  

**Drainage Area to Proposed Retrofit**

<table>
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<tr>
<th>Drainage Area ≈ 0.9 ac (all sites)</th>
<th>Imperviousness ≈ 75 %</th>
<th>Impervious Area ≈ 0.7 ac (all sites)</th>
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**Notes:**

**Existing Stormwater Management**

Existing Stormwater Practice: [ ] Yes [x] No [ ] Possible  
If Yes, Describe:  

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

Four separate facilities. Overland flow from driveways and parking lots drain to existing inlets at driveway entrances and on Alumni Drive.  
Existing turf areas have poor grass cover and significant compaction, soil amendments would be beneficial.  

**Existing Head Available and Points Where Measured:**

No head limitations.
### PROPOSED RETROFIT

**Purpose of Retrofit:**
- Water Quality
- Recharge
- Channel Protection
- Flood Control
- Demonstration / Education
- Repair
- Other: 

**Retrofit Volume Computations - Target Storage:**
See Spreadsheet

**Retrofit Volume Computations - Available Storage:**
See spreadsheet and sketch

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other: 

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

a) bioretention to manage/treat small drainage area (8,120 sf) from driveway on both sides of entrance.

b) bioretention to manage/treat small parking lot (12,830 sf) within existing landscape island.

c) bioretention to manage/treat small driveway and entrance off Alumni Drive (7,570 sf).

d) swale to bioretention to manage/treat small section of Alumni Drive (9,350 sf).

### SITE CONSTRAINTS

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other: 

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

If Yes, Describe:

**Conflicts with Existing Utilities:**
- None
- Unknown
- Yes
- Possible
  - Sewer
  - Water
  - Gas
  - Cable
  - Electric
  - Electric to Streetlights
  - Overhead Wires
  - Other: 

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
- Impacts to Forests
- Impacts to Specimen Trees
- How many?
  - Approx. DBH

**Other factors:**

**Soils: Site B-9 d.**
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):

**Soil auger test holes:**
- Yes
- No
See Aerial.

a) 

Ex. Path
Flow path

Paved Flume

Biozet. F.B.

Overflow
ALUMNI DRIVE

Flow diversion.

Sheet flow

225 $A^2$

Paved Flume Process

150 spft

Raise Inlet as overflow

b) 

2-CellTerraced Bio-retention

Overflow

Hydro.

Timber beam

Bio + 1

270 $A^2$

(b both cells)

Speedbump/berm
Flow diversion
See Aerial

Install Curb cuts before (up-gradient) on ex. Inlets

Convert ex curb inlet to yard drain - rarluc grate 2" as overflow

Alumni Drive

Paved Flume

Rip Rop Overflow

400 ft² biovel.
a) runoff diverted to bioretention area overland via asphalt berms and swales in turf areas. Soil amendments and small scale rain garden projects

b) runoff directed to bioretention in landscape island via sheet flow, some berming/speed bumps may be required.

c) bioretention area will require curb cut and speed-bump/berm to divert flows to facility, existing inlet as overflow.

d) swale as pretreatment and speed bump/berm to divert flow from both sides of street to facility.

FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

- [ ] Confirm property ownership
- [ ] Confirm drainage area
- [ ] Confirm drainage area impervious cover
- [ ] Confirm volume computations
- [ ] Complete concept sketch
- [ ] Obtain existing stormwater practice as-builts
- [ ] Obtain site as-builts
- [ ] Obtain detailed topography
- [ ] Obtain utility mapping
- [ ] Confirm storm drain invert elevations
- [ ] Confirm soil types
- [ ] Other: ________________________________

INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

Feasible but costly given limited area treated.

SITE CANDIDATE FOR FURTHER INVESTIGATION: ☒ YES ☐ NO ☐ MAYBE

IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S): ☐ YES ☒ NO ☐ MAYBE

IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S): ☐ YES ☒ NO ☐ MAYBE

IF YES, TYPE(S): ________________________________
**WATERSHED:** Eagleville  
**SUBWATERSHED:**  
**UNIQUE SITE ID:** C

<table>
<thead>
<tr>
<th>DATE:</th>
<th>7/15/09</th>
<th>ASSESSED BY: A.R.</th>
<th>CAMERA ID:</th>
<th>PICTURES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPS ID:</td>
<td>LMK ID:</td>
<td>LAT:</td>
<td>LONG:</td>
<td></td>
</tr>
</tbody>
</table>

### SITE DESCRIPTION

**Name:** School of Business  
**Address:**

Ownership:  
- [ ] Public  
- [ ] Private  
- [ ] Unknown  
- [ ] Other: \(\square\)

If Public, Government Jurisdiction:  
- [ ] Local  
- [ ] State  
- [ ] DOT  
- [ ] Other: \(\square\)

**Corresponding USSR/USA Field Sheet?**  
- [ ] Yes  
- [x] No  
**If yes, Unique Site ID:**

### Proposed Retrofit Location:

**Storage**  
- [ ] Existing Pond  
- [ ] Below Outfall  
- [ ] In Road ROW  
- [ ] Other: \(\square\)

**On-Site**  
- [ ] Above Roadway Culvert  
- [ ] In Conveyance System  
- [ ] Near Large Parking Lot  
- [ ] Other: \(\square\)

### DRAINAGE AREA TO PROPOSED RETROFIT

<table>
<thead>
<tr>
<th>Drainage Area</th>
<th>Imperviousness</th>
<th>%</th>
<th>Impervious Area</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes: (A) 0.187</td>
<td>0.019</td>
<td>0.019</td>
<td>0.019</td>
<td>0.019</td>
</tr>
<tr>
<td>(B) 0.187</td>
<td>0.019</td>
<td>0.019</td>
<td>0.019</td>
<td>0.019</td>
</tr>
<tr>
<td>(C) 0.187</td>
<td>0.019</td>
<td>0.019</td>
<td>0.019</td>
<td>0.019</td>
</tr>
<tr>
<td>(D) 0.187</td>
<td>0.019</td>
<td>0.019</td>
<td>0.019</td>
<td>0.019</td>
</tr>
</tbody>
</table>
| Total: | 18545 sf | 54.2%

**Drainage Area Land Use:**
- [x] Institutional  
- [ ] Residential  
- [ ] SFH (< 1 ac lots)  
- [ ] SFH (> 1 ac lots)  
- [ ] Townhouses  
- [ ] Multi-Family  
- [ ] Commercial  
- [ ] Other: \(\square\)

### EXISTING STORMWATER MANAGEMENT

**Existing Stormwater Practice:**
- [x] Yes  
- [ ] No  
- [ ] Possible  

**If Yes, Describe:**

### Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

External downspouts directing connected to storm drain system. In area of bldg runoff from irrigated landscaped area is conveying lots of mattock sediment that has clogged an existing French drain.

### Existing Head Available and Points Where Measured:
**DESIGN OR DELIVERY NOTES**

- Water harvested by the cistern can be used for site landscape irrigation.
- Turf area near outdoor classroom should be restored; soil was heavily compacted.
- All BR areas should have 0-9” ponding depth & underground. Underground should tie into existing storm drain system.

**FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirm property ownership</td>
<td>Obtain existing stormwater practice as-builts</td>
<td></td>
</tr>
<tr>
<td>Confirm drainage area</td>
<td>Obtain site as-builts</td>
<td></td>
</tr>
<tr>
<td>Confirm drainage area impervious cover</td>
<td>Obtain detailed topography</td>
<td></td>
</tr>
<tr>
<td>Confirm volume computations</td>
<td>Obtain utility mapping - detailed</td>
<td></td>
</tr>
<tr>
<td>Complete concept sketch</td>
<td>Confirm storm drain invert elevations</td>
<td></td>
</tr>
<tr>
<td>Confirm soil types</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS**

- BR areas would be good educational/demo sites. Students can be involved in planning, design, and build.

**SITE CANDIDATE FOR FURTHER INVESTIGATION:**

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>MAYBE</th>
</tr>
</thead>
</table>

**IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):**

| YES | NO | MAYBE |

**IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):**

| YES | NO | MAYBE |

**IF YES, TYPE(S):**
See aerial for A, B, C

Site D

Construct trench drain

Disconnect 3 downspouts

Excavate to maintain 6" ponding from lower graded end of cell.

Construct BR area to capture runoff from 3 root downspouts + overlaid flow from landscape/hardscape outdoor classroom area

School of Business

Outdoor Classroom Area

Landscaped Area - Exit Programs

Location

grade
## PROPOSED RETROFIT

### Purpose of Retrofit:
- [ ] Water Quality
- [ ] Recharge
- [x] Demonstration / Education
- [ ] Repair
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Other: Runoff Reduction

### Retrofit Volume Computations - Target Storage:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>472 CF</td>
<td>100 CF</td>
<td>572 CF</td>
<td>1535 CF</td>
</tr>
</tbody>
</table>

TV = WQ + UQ

### Retrofit Volume Computations - Available Storage:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>T_V = WQ</td>
<td>T_V = WQ</td>
<td>T_V = UQ</td>
<td></td>
</tr>
</tbody>
</table>

TV = 1375 CF

### Proposed Treatment Option:
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [x] Bioretention
- [ ] Filtering Practice
- [ ] Infiltration
- [ ] Swale
- [ ] Other: Cistern or rainwater box

### Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:

1. Install cisterns along hillsides to capture runoff. Can also design rainscapes.
2. Construct swale to capture downspout runoff.
3. Construct dry area to capture rooftop and terrace area runoff.

## SITE CONSTRAINTS

### Adjacent Land Use:
- [ ] Residential
- [ ] Commercial
- [ ] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other:

### Possible Conflicts Due to Adjacent Land Use?
- [ ] Yes
- [ ] No

If Yes, Describe:

### Conflicts with Existing Utilities:
- [ ] None
- [ ] Unknown

<table>
<thead>
<tr>
<th>Yes</th>
<th>Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sewer</td>
</tr>
<tr>
<td></td>
<td>Water</td>
</tr>
<tr>
<td></td>
<td>Gas</td>
</tr>
<tr>
<td></td>
<td>Cable</td>
</tr>
<tr>
<td></td>
<td>Electric</td>
</tr>
<tr>
<td></td>
<td>Electric to Streetlights</td>
</tr>
<tr>
<td></td>
<td>Overhead Wires</td>
</tr>
</tbody>
</table>

### Potential Permitting Factors:
- [ ] Dam Safety Permits Necessary
- [ ] Impacts to Wetlands
- [ ] Impacts to a Stream
- [ ] Floodplain Fill
- [ ] Impacts to Forests
- [ ] Impacts to Specimen Trees

<table>
<thead>
<tr>
<th>How many?</th>
<th>Approx. DBH</th>
</tr>
</thead>
</table>

### Other factors:

- [ ] Compaction

### Soils:
- Soil auger test holes:
- Evidence of poor infiltration (clay, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Unique Site ID:** C1
**WATERSHED:** Eagleville  
**SUBWATERSHED:**  
**UNIQUE SITE ID:** C10

**DATE:** 7/14/09  
**ASSESSED BY:** N06/kc  
**CAMERA ID:**  
**PICTURES:**

**GPS ID:**  
**LMK ID:**  
**LAT:**  
**LONG:**

### SITE DESCRIPTION

**Name:** North Parking Garage (NPARK)  
**Address:**

**Ownership:**  
[ ] Public  [ ] Private  [ ] Unknown  
[ ] Local  [ ] State  [ ] NOT  [ ] Other: Other:

**Corresponding USSR/USA Field Sheet?**  
[ ] Yes  [ ] No  
If yes, Unique Site ID:

### Proposed Retrofit Location:

**Storage**
- [ ] Existing Pond  
- [ ] Below Outfall  
- [ ] In Road ROW  
- [ ] Other:

**On-Site**
- [ ] Hotspot Operation  
- [ ] Small Parking Lot  
- [ ] Individual Street  
- [ ] Other:

- [ ] Small Impervious Area  
- [ ] Landscape / Hardscape  
- [ ] Other:

### DRAINAGE AREA TO PROPOSED RETROFIT

**Drainage Area ≈** 0.811 acres  
**Imperviousness ≈** 10.2 %  
**Impervious Area ≈** 3838.6 ft²

**Drainage Area Land Use:**
- [ ] Institutional  
- [ ] Residential  
- [ ] SFH (< 1 ac lots)  
- [ ] SFH (> 1 ac lots)  
- [ ] Townhouses  
- [ ] Multi-Family  
- [ ] Commercial  
- [ ] Park  
- [ ] Undeveloped  
- [ ] Other:

### EXISTING STORMWATER MANAGEMENT

**Existing Stormwater Practice:**  
[ ] Yes  [X] No  [ ] Possible

If Yes, Describe:

### Existing Head Available and Points Where Measured:

N/A

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

Parking Deck. Runoff from structure flows directly to storm drain system. No treatment.
Retrofit Reconnaissance Investigation

PROPOSED RETROFIT

Purpose of Retrofit:
- Water Quality
- Demonstration / Education
- Channel Protection
- Other: Flood Reduction

Retrofit Volume Computations - Target Storage:
\[ W_Q = 2797 \text{ cu ft} \]

Retrofit Volume Computations - Available Storage:
\[ T_V = W_Q \]

Proposed Treatment Option:
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other: Green Roof Deck

Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:
- Construct off corner top parking deck

SITE CONSTRAINTS

Adjacent Land Use:
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other:

Possible Conflicts Due to Adjacent Land Use?  
- Yes  
- No

Conflicts with Existing Utilities:
- None
- Unknown
- Sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires
- Other:

Potential Permitting Factors:
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
- How many?
- Approx. DBH

Other factors:

Soils:
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):
See aerial
- similar to Concept B-8A

**FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT**

- Confirm property ownership
- Obtain existing stormwater practice as-builds
- Confirm drainage area
- Obtain site as-builds
- Confirm drainage area impervious cover
- Obtain detailed topography
- Confirm volume computations
- Obtain utility mapping
- Complete concept sketch
- Confirm storm drain invert elevations
- Confirm soil types
- Other: _______________________

**INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS**

**SITE CANDIDATE FOR FURTHER INVESTIGATION:**
- YES  NO  MAYBE

**IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):**
- YES  NO  MAYBE

**IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):**
- YES  NO  MAYBE

If yes, type(s): _______________________

Unique Site ID: C10
**WATERSHED:** Eagleville

**SUBWATERSHED:**

**UNIQUE SITE ID:** C11

**DATE:** 7/16

**ASSESSED BY:**

**CAMERA ID:**

**PICTURES:**

**GPS ID:**

**LMK ID:**

**LAT:**

**LONG:**

### SITE DESCRIPTION

**Name:** Hillside Ed near HJT

**Address:**

**Ownership:**
- [ ] Public
- [ ] Private
- [ ] Unknown
- [ ] Local
- [ ] State
- [ ] DOT
- [ ] Other: Other

**Corresponding USSR/USA Field Sheet?**
- [ ] Yes
- [ ] No
- [ ] If yes, Unique Site ID:

### Proposed Retrofit Location:

**Storage**
- [ ] Existing Pond
- [ ] Below Outfall
- [ ] In Road ROW
- [ ] Other:

**On-Site**
- [ ] Hotspot Operation
- [ ] Small Parking Lot
- [ ] Individual Rooftop
- [ ] Small Impervious Area
- [ ] Individual Street
- [ ] Landscape / Hardscape
- [ ] Underground
- [ ] Other:

### DRAINAGE AREA TO PROPOSED RETROFIT

- **Drainage Area ≈** 0.284 acre
- **Imperviousness ≈** 97.81%
- **Impervious Area ≈** 998.4 sf

### EXISTING STORMWATER MANAGEMENT

**Existing Stormwater Practice:**
- [ ] Yes
- [ ] No
- [ ] Possible

**If Yes, Describe:**

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

Road runoff drains to CBS, then to Eagleville brook

**Existing Head Available and Points Where Measured:**

---

**Unique Site ID:** C11
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- Water Quality
- Demonstration / Education
- Other: Runoff Reduction

**Retrofit Volume Computations - Target Storage:**
\[ WQU = 791 \text{ CF} \]

**Retrofit Volume Computations - Available Storage:**
\[ T \cdot V = WQU \]

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Swale
- Bioretention
- Filtering Practice
- Infiltration
- Other:

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**
- Block broad swales & construct curb cut + grass swale to convey road runoff to grassed area. Construct terraced BR area at 1-2' ponding depth + to underdrain into existing storm drain.

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other:

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

**Conflicts with Existing Utilities:**
- None
- Unknown
- Yes
- Possible:
  - Sewer
  - Water
  - Gas
  - Cable
  - Electric
  - Electric to Streetlights
  - Overhead Wires
  - Other:

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
- How many?
  - Approx. DBH

**Soils:**
- Soil auger test holes:
  - Yes
  - No
- Evidence of poor infiltration (clays, fines):
  - Yes
  - No
- Evidence of shallow bedrock:
  - Yes
  - No
- Evidence of high water table (gleying, saturation):
  - Yes
  - No

**Access:**
- No Constraints
- Constrained due to:
  - Slope
  - Space
  - Utilities
  - Tree Impacts
  - Structures
  - Property Impacts
  - Other:

**Other factors:**
See aerial.
## DESIGN OR DELIVERY NOTES


## FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

- [ ] Confirm property ownership
- [ ] Confirm drainage area
- [ ] Confirm drainage area impervious cover
- [ ] Confirm volume computations
- [ ] Complete concept sketch
- [ ] Obtain existing stormwater practice as-builts
- [ ] Obtain site as-builts
- [ ] Obtain detailed topography
- [ ] Obtain utility mapping
- [ ] Confirm storm drain invert elevations
- [ ] Confirm soil types
- [ ] Other:

## INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

- Good education demo project. Can involve students in design/build.

---

### SITE CANDIDATE FOR FURTHER INVESTIGATION:

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>MAYBE</th>
</tr>
</thead>
</table>

### IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>MAYBE</th>
</tr>
</thead>
</table>

### IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>MAYBE</th>
</tr>
</thead>
</table>

### IF YES, TYPE(S):

---

Unique Site ID: C11
**WATERSHED:** Eagleville  
**SUBWATERSHED:**  
**UNIQUE SITE ID:** C12

**DATE:** 7/14/04  
**ASSESSED BY:**  
**CAMERA ID:**  
**PICTURES:**

**GPS ID:**  
**LMK ID:**  
**LAT:**  
**LONG:**

**SITE DESCRIPTION**

Name: Harriet S. Jorgensen Theatre (HT)
Address: 

Ownership:  
[ ] Public  
[ ] Private  
[ ] Unknown  
[ ] Other:  

If Public, Government Jurisdiction:  
[ ] Local  
[ ] State  
[ ] DOT  
[ ] Other: UConn

Corresponding USSR/USA Field Sheet?  
[ ] Yes  
[ ] No  
If yes, Unique Site ID: 

**Proposed Retrofit Location:**

Storage  
[ ] Existing Pond  
[ ] Above Roadway Culvert  
[ ] Below Outfall  
[ ] In Conveyance System  
[ ] In Road ROW  
[ ] Near Large Parking Lot  
[ ] Other: 

On-Site  
[ ] Hotspot Operation  
[ ] Small Parking Lot  
[ ] Small Impervious Area  
[ ] Individual Street  
[ ] Landscape / Hardscape  
[ ] Underground  
[ ] Other: 

**DRAINAGE AREA TO PROPOSED RETROFIT**

Drainage Area ≈  
Imperviousness ≈  
Impervious Area ≈

Notes:

| 0.35 | 0.817 | 0.123 | 0.280 |
| 15206 | 35401 | 5379 |

**EXISTING STORMWATER MANAGEMENT**

Existing Stormwater Practice:  
[ ] Yes  
[ ] No  
[ ] Possible  
If Yes, Describe: 

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

internal roof drains are connected directly to storm drain system.

Existing Head Available and Points Where Measured:
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- Water Quality
- Demonstration / Education
- Recharge
- Repair
- Channel Protection
- Flood Control
- Other: Forest reduction

**Retrofit Volume Computations - Target Storage:**
- $1200$ cu ft
- $2400$ cu ft
- $4260$ cu ft

**Retrofit Volume Computations - Available Storage:**
- $TU = \text{WQA}$

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other:

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**
- A. replace asphalt parking lot with concrete patio with permeable pavement.
- B. Construct green roof on bldg.
- C. Install street trees along Jorgenson Rd to treat roadway runoff.

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other:

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

**If Yes, Describe:**

**Conflicts with Existing Utilities:**
- None
- Unknown
- Yes
- Possible
- Sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires
- Other:

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Probable
- Not Probable
- Impacts to Wetlands
- Probable
- Not Probable
- Impacts to a Stream
- Probable
- Not Probable
- Floodplain Fill
- Probable
- Not Probable
- Impacts to Forests
- Probable
- Not Probable
- Impacts to Species Trees
- Probable
- Not Probable
- How many?
- Approx. DBH

**Other factors:**

**Soils:**
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):
SKETCH

See aerial for sites A, B, C.

Concept C

Curb cuts

Sidewalk

Series of connected street tree pits. Install underground storm system. 6-in. ponding depth except for wetland to relocate street lights.

Unique Site ID: C12
- Need to confirm structural roof capacity before designing green roof.
- PF system would need to include underground in design.

Follow-up needed to complete Field Concept

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch
- Obtain existing stormwater practice as-builts
- Obtain site as-builts
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types

Other:

Initial Feasibility and Construction Considerations

Project ☐ is a good project for student involvement

Site Candidate for Further Investigation: ☐

Is Site Candidate for Early Action Project(s): ☐

If No, Site Candidate for Other Restoration Project(s): ☐

If Yes, Type(s):
## Retrofit Reconnaissance Investigation

**Watershed:** Eagle Hill  
**Subwatershed:**  
**Unique Site ID:** C13

**Date:** 7/14/09  
**Assessed By:** [Signature]  
**Camera ID:**  
**Pictures:**

**GPS ID:**  
**LMK ID:**  
**Lat:**  
**Long:**

### Site Description

**Name:** Engineering Bldg. (UTEB)  
**Address:**

**Ownership:**  
- [ ] Public  
- [ ] Private  
- [ ] Unknown  
- [ ] Local  
- [ ] State  
- [ ] DOT  
- [ ] Other: Conn.

**Corresponding USSR/USA Field Sheet:**  
- [ ] Yes  
- [ ] No  
**If yes, Unique Site ID:**

### Proposed Retrofit Location:

**Storage**  
- [ ] Existing Pond  
- [ ] Below Outfall  
- [ ] In Road ROW  
- [ ] Other:  
- [ ] Above Roadway Culvert  
- [ ] In Conveyance System  
- [ ] Near Large Parking Lot

**On-Site**  
- [ ] Hotspot Operation  
- [ ] Small Parking Lot  
- [ ] Individual Street  
- [ ] Landscape / Hardscape  
- [ ] Individual Rooftop  
- [ ] Small Impervious Area  
- [ ] Underground

### Drainage Area to Proposed Retrofit

**Drainage Area:**  
**Imperviousness:**  
**Impervious Area:**

**Notes:**

### Existing Stormwater Management

**Existing Stormwater Practice:**  
- [ ] Yes  
- [ ] No  
- [ ] Possible

**If Yes, Describe:**

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

> internal root conveyance bldg  
> road runoff drains to storm drain system

**Existing Head Available and Points Where Measured:**
### PROPOSED RETROFIT

**Purpose of Retrofit:**
- Water Quality
- Recharge
- Channel Protection
- Flood Control

**Retrofit Volume Computations - Target Storage:**
- 646 CF
- 619 CF

**Retrofit Volume Computations - Available Storage:**
- TV = WQV

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other:

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**
- (A) Construct BR area to capture road way & sidewalk runoff
- (B) Install green roof on portion of existing eng. bidg.

### SITE CONSTRAINTS

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other:

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

**Access:**
- No Constraints
- Constrained due to:
  - Slope
  - Space
  - Utilities
  - Tree Impacts
  - Structures
  - Property Ownership
  - Other:

**Conflicts with Existing Utilities:**
- None
- Unknown
- Yes
  - Possible: Sewer, Water, Gas, Cable, Electric, Electric to Streetlights, Overhead Wires
- Other:

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
- How many?
  - Approx. DBH

**Other factors:**

**Soils:**
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):
- Confirm soil types.
- Check inw. elevation of CB at (A) to determine depth of media.

**FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT**

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch
- Obtain existing stormwater practice as-builts
- Obtain site as-builts
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types
- Other:

**INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS**

- Good education/demo project. Students can be involved in design/build of (A)

**SITE CANDIDATE FOR FURTHER INVESTIGATION:**

**IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):**

**IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):**

If yes, type(s):
Retrofit Reconnaissance Investigation

**Watershed:** Eagleville

**Subwatershed:**

**Unique Site ID:** C14

**Date:** 7/11/09

**Assessed By:** [Redacted]

**Camera ID:**

**Pictures:**

**GPS ID:**

**LMK ID:**

**Lat:**

**Long:**

### Site Description

**Name:** Auditorium Rd.

**Address:** Near Hegenberger Rd. intersection + Hill Blvd.

**Ownership:**

- [ ] Public
- [ ] Private
- [ ] Unknown

If Public, Government Jurisdiction:

- [ ] Local
- [ ] State
- [ ] DOT
- [ ] Other: [Redacted]

**Corresponding USSR/USA Field Sheet?**

- [ ] Yes
- [ ] No

If yes, unique Site ID: [Redacted]

### Proposed Retrofit Location:

**Storage**

- [ ] Existing Pond
- [ ] Below Outfall
- [ ] In Road ROW
- [ ] Other:

**On-Site**

- [ ] Above Roadway Culvert
- [ ] In Conveyance System
- [ ] Near Large Parking Lot
- [ ] Hotspot Operation
- [ ] Small Parking Lot
- [ ] Individual Street
- [ ] Landscape / Hardscape
- [ ] Individual Rooftop
- [ ] Small Impervious Area
- [ ] Underground
- [ ] Other:

### Drainage Area to Proposed Retrofit

<table>
<thead>
<tr>
<th>Drainage Area</th>
<th>Imperviousness</th>
<th>Impervious Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.047 acre</td>
<td>100%</td>
<td>2043 sq ft</td>
</tr>
</tbody>
</table>

**Drainage Area Land Use:**

- [ ] Residential
- [ ] SFH (< 1 ac lots)
- [ ] SFH (> 1 ac lots)
- [ ] Townhouses
- [ ] Multi-Family
- [ ] Commercial
- [ ] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other:

### Existing Stormwater Management

**Existing Stormwater Practice:**

- [ ] Yes
- [ ] No
- [ ] Possible

If Yes, Describe:

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

Road route drains to CB, no treatment.

Area is temporary parking area; appears to be under construction; replacing asphalt with paper blocks (non-permanently).

Existing head available and points where measured:
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- Water Quality
- Demonstration / Education
- Repair
- Channel Protection
- Flood Control
- Other: [blank]

**Retrofit Volume Computations - Target Storage:**


**Retrofit Volume Computations - Available Storage:**


**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other: [blank]

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**
- design area as permeable pavement

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other: [blank]

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

**If Yes, Describe:**

**Conflicts with Existing Utilities:**
- None
- Unknown
- Yes
- Possible

- Sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires
- Other: [blank]

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
  - How many?
  - Approx. DBH: [blank]

**Other factors:**

**Soils:**
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):

- Yes
- No

**Unique Site ID:** C14
- see aerial

- Permeable pavers blocks

- Gravel reservoir

Underdrain - connect to existing storm drain system.
## DESIGN OR DELIVERY NOTES

<table>
<thead>
<tr>
<th>Follow-up Needed to Complete Field Concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Confirm property ownership</td>
</tr>
<tr>
<td>□ Confirm drainage area</td>
</tr>
<tr>
<td>□ Confirm drainage area impervious cover</td>
</tr>
<tr>
<td>□ Confirm volume computations</td>
</tr>
<tr>
<td>□ Complete concept sketch</td>
</tr>
<tr>
<td>□ Obtain existing stormwater practice as-builts</td>
</tr>
<tr>
<td>□ Obtain site as-builts</td>
</tr>
<tr>
<td>□ Obtain detailed topography</td>
</tr>
<tr>
<td>□ Obtain utility mapping</td>
</tr>
<tr>
<td>□ Confirm storm drain invert elevations</td>
</tr>
<tr>
<td>□ Confirm soil types</td>
</tr>
</tbody>
</table>

□ Other: ________________________________

### INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

<table>
<thead>
<tr>
<th>Site Candidate for Further Investigation:</th>
<th>□ YES</th>
<th>□ NO</th>
<th>□ Maybe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is Site Candidate for Early Action Project(s):</td>
<td>□ YES</td>
<td>□ NO</td>
<td>□ Maybe</td>
</tr>
<tr>
<td>If NO, Site Candidate for Other Restoration Project(s):</td>
<td>□ YES</td>
<td>□ NO</td>
<td>□ Maybe</td>
</tr>
<tr>
<td>If YES, Type(s):</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Retrofit Reconnaissance Investigation

**WATERSHED:** EagleVille **SUBWATERSHED:** **UNIQUE SITE ID:** C15

**DATE:** 7/14/109 **ASSESSED BY:** ACV/AC **CAMERA ID:** **PICTURES:**

**GPS ID:** **LMK ID:** **LAT:** **LONG:**

**SITE DESCRIPTION**

Name: Bart Science Complex

Address: 

Ownership: □ Public □ Private □ Unknown
If Public, Government Jurisdiction: □ Local □ State □ DOT □ Other: V/A/N

Corresponding USSR/USA Field Sheet? □ Yes □ No If yes, Unique Site ID:

**Proposed Retrofit Location:**

Storage
□ Existing Pond □ Above Roadway Culvert
□ Below Outfall □ In Conveyance System
□ In Road ROW □ Near Large Parking Lot
□ Other:

On-Site
□ Hotspot Operation □ Individual Rooftop
□ Small Parking Lot □ Small Impervious Area
□ Individual Street □ Landscape / Hardscape
□ Underground □ Other:

**DRAINAGE AREA TO PROPOSED RETROFIT**

Drainage Area ≈ 0.2109 acre
Imperviousness ≈ 100 %
Impervious Area ≈ 1771 sf

**Notes:**

**EXISTING STORMWATER MANAGEMENT**

Existing Stormwater Practice: □ Yes □ No □ Possible
If Yes, Describe:

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

Plaza is a roof with tile, water drains through tile. Voido is drained by an underlying drain system.

Existing Head Available and Points Where Measured:

Page 1 of 4 Unique Site ID: C15
PROPOSED RETROFIT

Purpose of Retrofit:
- Water Quality
- Demonstration / Education
- Recharge
- Repair
- Channel Protection
- Flood Control
- Other: Runoff Reduction

Retrofit Volume Computations - Target Storage:

Retrofit Volume Computations - Available Storage:

Proposed Treatment Option:
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other: Green Roofs / Planters

Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:
- install multiple intensive green roofs or planters boxed to capture rainfall

SITE CONSTRAINTS

Adjacent Land Use:
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other:

Possible Conflicts Due to Adjacent Land Use? Yes/No

Access:
- No Constraints
- Constrained due to:
  - Space
  - Utilities
  - Tree Impacts
  - Structures
  - Property Ownership
  - Other:

Conflicts with Existing Utilities:
- None
- Unknown
- Yes Possible
  - Sewer
  - Water
  - Gas
  - Cable
  - Electric
  - Electric to Streetlights
  - Overhead Wires
  - Other:

Potential Permitting Factors:
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees

How many?
- Approx. DBH

Other factors:

Soils:
- Soil auger test holes
- Evidence of poor infiltration (clays, fines)
- Evidence of shallow bedrock
- Evidence of high water table (gleying, saturation): Yes/No
12" to 24" media

1" gravel layer

drainage layer

Drains

Tie into existing drainage system

Under the surface
- Since plaza is designed to handle constant foot traffic, it should be adequate to hold intensive GR load. Need to confirm this.

**Follow-up Needed to Complete Field Concept**

- [ ] Confirm property ownership
- [ ] Confirm drainage area
- [ ] Confirm drainage area impervious cover
- [ ] Confirm volume computations
- [ ] Complete concept sketch
- [ ] Obtain existing stormwater practice as-builts
- [ ] Obtain site as-builts
- [ ] Obtain detailed topography
- [ ] Obtain utility mapping
- [ ] Confirm storm drain invert elevations
- [ ] Confirm soil types
- [ ] Other: ____________________________

**Initial Feasibility and Construction Considerations**

- Green roof study is currently occurring in plaza.
  
  Check design plans to confirm existing site drainage configuration.

**Site Candidate for Further Investigation:**

- [ ] Yes  [ ] No  [ ] Maybe

**Is Site Candidate for Early Action Project(s):**

- [ ] Yes  [ ] No  [ ] Maybe

**If No, Site Candidate for Other Restoration Project(s):**

- If Yes, Type(s):  [ ] Yes  [ ] No  [ ] Maybe

Page 4 of 4

Unique Site ID: ________
**Retrofit Reconnaissance Investigation**

**WATERSHED:** Eagleville  
**SUBWATERSHED:**  
**UNIQUE SITE ID:** C16

<table>
<thead>
<tr>
<th>DATE:</th>
<th>7/16/09</th>
<th>ASSESSED BY:</th>
<th>CAMERA ID:</th>
<th>PICTURES:</th>
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</thead>
<tbody>
<tr>
<td>GPS ID:</td>
<td></td>
<td>LMK ID:</td>
<td>LAT:</td>
<td>LONG:</td>
</tr>
</tbody>
</table>

**SITE DESCRIPTION**

Name: Torrey Life Sciences Bldg.
Address:  

Ownership:  
- [ ] Public  
- [x] Private  
- [ ] Unknown  
If Public, Government Jurisdiction:  
- [ ] Local  
- [ ] State  
- [ ] DOT  
- [x] Other: UConn  

Corresponding USSR/USA Field Sheet?  
- [x] Yes  
- [ ] No  
If yes, Unique Site ID:  

**Proposed Retrofit Location:**

- [ ] Storage  
  - Existing Pond  
  - Below Outfall  
  - In Road ROW  
  - Other:  
  - Above Roadway Culvert  
  - In Conveyance System  
  - Near Large Parking Lot  
- [ ] On-Site  
  - Hotspot Operation  
  - Small Parking Lot  
  - Individual Street  
  - Underground  
  - Small Impervious Area  
  - Individual Rooftop  
  - Landscape / Hardscape  
  - Other:  

**DRAINAGE AREA TO PROPOSED RETROFIT**

<table>
<thead>
<tr>
<th>Drainage Area</th>
<th>0.319 acre</th>
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</thead>
<tbody>
<tr>
<td>Imperviousness</td>
<td>28.7%</td>
</tr>
<tr>
<td>Impervious Area</td>
<td>0.273 ac</td>
</tr>
</tbody>
</table>

**EXISTING STORMWATER MANAGEMENT**

Existing Stormwater Practice:  
- [ ] Yes  
- [x] No  
- [ ] Possible  
If Yes, Describe:  

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

> External downsputs are discharge to compacted grass area. Runoff flows to low-lying CB in grased area. Parking lot runoff drains to quad area & CB.

Existing Head Available and Points Where Measured:
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- [ ] Water Quality
- [ ] Recharge
- [ ] Demonstration/Education
- [ ] Repair
- [ ] Channel Protection
- [ ] Other: **Runoff Reduction**

**Retrofit Volume Computations - Target Storage:**
- 982 cf

**Retrofit Volume Computations - Available Storage:**
- 700 cf

**Proposed Treatment Option:**
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [ ] Bioretention
- [ ] Filtering Practice
- [ ] Infiltration
- [ ] Swale
- [ ] Other:

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**
- Construct (3) BF areas to treat rooftop and parking lot runoff.
- Block CB's in parking lot area to divert runoff to BF areas.

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- [ ] Residential
- [ ] Commercial
- [ ] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other:

**Possible Conflicts Due to Adjacent Land Use?**
- [ ] Yes
- [x] No

**Access:**
- [x] No Constraints
- [ ] Constrained due to
  - Slope
  - Space
  - Utilities
  - Tree Impacts
  - Structures
  - Property Ownership
  - Other:

**Conflicts with Existing Utilities:**
- [ ] None
- [ ] Unknown
- [ ] Yes
- [ ] Possible

<table>
<thead>
<tr>
<th>Yes</th>
<th>Possible</th>
<th>Sewer</th>
<th>Water</th>
<th>Gas</th>
<th>Cable</th>
<th>Electric</th>
<th>Electric to Streetlights</th>
<th>Overhead Wires</th>
<th>Other:</th>
</tr>
</thead>
</table>

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
  - How many? __________
  - Approx. DBH __________

**Other factors:**

**Soils:**
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):
- [ ] Yes
- [ ] No

**Unique Site ID:** C16
SKETCH

Parking lot

Unik CPs
install 3" beam
round.

Pea gravel for treated

Br area
6-9" ponding

trench drain into
existing storm drain
system.
Design or Delivery Notes

Follow-up Needed to Complete Field Concept

☐ Confirm property ownership
☐ Confirm drainage area
☐ Confirm drainage area impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing stormwater practice as-builds
☐ Obtain site as-builds
☐ Obtain detailed topography
☐ Obtain utility mapping
☐ Confirm storm drain invert elevations
☐ Confirm soil types
☐ Other: ____________________________

Initial Feasibility and Construction Considerations

- Good education lever
- Involves students in design and build

Site Candidate for Further Investigation:

☐ Yes ☐ No ☐ Maybe

Is Site Candidate for Early Action Project(s):

☐ Yes ☐ No ☐ Maybe

If No, Site Candidate for Other Restoration Project(s):

☐ Yes ☐ No ☐ Maybe

If Yes, Type(s): ____________________________

Unique Site ID: C16
**WATERSHED:** Eagleville  
**SUBWATERSHED:**  
**UNIQUE SITE ID:** C17

**DATE:** 7/10/09  
**ASSESSED BY:** Lack  
**CAMERA ID:**  
**PICTURES:**

**GPS ID:**  
**LMK ID:**  
**LAT:**  
**LONG:**

**SITE DESCRIPTION**

**Name:** Quad in front of Chemistry & PBB bldgs.  
**Address:**

**Ownership:**  
Public [X]  
Private [ ]  
Unknown [ ]  
Local [ ]  
State [ ]  
DOT [ ]  
Other: UConn [X]

**Corresponding USSR/USA Field Sheet?**  
Yes [ ]  
No [X]  
If yes, Unique Site ID:

**Proposed Retrofit Location:**

**Storage**  
- Existing Pond [ ]  
- Below Outfall [ ]  
- In Road ROW [ ]
- In Conveyance System [ ]
- Near Large Parking Lot [ ]
- Other:

**On-Site**  
- Above Roadway Culvert [ ]
- Hotspot Operation [ ]
- Small Parking Lot [ ]
- Individual Rooftop [ ]
- In Conveyance System [ ]
- Individual Street [ ]
- Small Impervious Area [ ]
- Landscape / Hardscape [X]
- Underground [ ]
- Other:

**DRAINAGE AREA TO PROPOSED RETROFIT**

- Drainage Area = 0.55 ac
- Imperviousness = 93%
- Impervious Area = 22,405 sf

**Drainage Area Land Use:**

- Residential [X]
- SFH (< 1 ac lots) [ ]
- SFH (> 1 ac lots) [ ]
- Townhouses [ ]
- Multi-Family [ ]
- Commercial [ ]
- Institutional [X]
- Industrial [ ]
- Transport-Related [ ]
- Park [ ]
- Undeveloped [ ]
- Other:

**EXISTING STORMWATER MANAGEMENT**

**Existing Stormwater Practice:**  
Yes [ ]  
No [X]  
Possible [ ]

If Yes, Describe:

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

- Catchbasins drain runoff directly to piped Eagleville Brook.

Existing Head Available and Points Where Measured:

- Stormdrain is 20+2/ below grade.
### Retrofit Reconnaissance Investigation

#### Proposed Retrofit

**Purpose of Retrofit:**
- [X] Water Quality
- [ ] Demonstration / Education
- [ ] Recharge
- [ ] Repair
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Other:

#### Retrofit Volume Computations - Target Storage:

\[ W_{QU} = 1767 \text{ CF} \]

#### Retrofit Volume Computations - Available Storage:

\[ T_{V} = 1380 \text{ CF} \]

#### Proposed Treatment Option:

- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [X] Bioretention
- [ ] Filtering Practice
- [ ] Infiltration
- [ ] Swale
- [ ] Other:

#### Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:

Install 2 BR areas in the quad to capture rooftop and patio area runoff. Direct downspouts into BR area via pipe & construct forebay area to dissipate energy at inlet.

### Site Constraints

#### Adjacent Land Use:

- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other:

Possible Conflicts Due to Adjacent Land Use?  
- [ ] Yes  
- [X] No

If Yes, Describe:

#### Access:

- [X] No Constraints
- Constrained due to:
  - [ ] Slope
  - [ ] Space
  - [ ] Utilities
  - [ ] Tree Impacts
  - [ ] Structures
  - [ ] Property Ownership
  - [ ] Other:

#### Conflicts with Existing Utilities:

- Unknown
- Yes  Possible

- [ ] Sewer
- [ ] Water
- [ ] Gas
- [ ] Cable
- [ ] Electric
- [ ] Electric to Streetlights
- [ ] Overhead Wires
- [ ] Other:

Noted: These are very deep

#### Potential Permitting Factors:

- Dam Safety Permits Necessary
- Probable  Not Probable
- Impacts to Wetlands
- Probable  Not Probable
- Impacts to a Stream
- Probable  Not Probable
- Floodplain Fill
- Probable  Not Probable
- Impacts to Forests
- Probable  Not Probable
- Impacts to Specimen Trees
- Probable  Not Probable
- How many?  Approx. DBH

#### Other factors:

Soils are compacted, fill

Soils need to include underdrain in design.

#### Soils:

- Soil auger test holes:
  - [ ] Yes  [ ] No
- Evidence of poor infiltration (clays, fines):
  - [ ] Yes  [ ] No
- Evidence of shallow bedrock:
  - [ ] Yes  [ ] No
- Evidence of high water table (gleying, saturation):
  - [ ] Yes  [ ] No

**Unique Site ID:** C17
Serendipity Network
The in-outflow to existing
24" - 28" medium depth

-9" Pounding

-9" Pounding to dissipate

Changing area:
Connect to mound
Install pipe to

Chem. Block
DESIGN OR DELIVERY NOTES

- Need to avoid utilities. Stormdrains are deep underground surface (20-22')
- Need updated stormdrain mapping to design overflow.
- Soils are compacted/fill. Need to include underdrains in design.

FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

☐ Confirm property ownership
☐ Confirm drainage area
☐ Confirm drainage area impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing stormwater practice as-builts
☐ Obtain site as-builts
☐ Obtain detailed topography
☐ Obtain utility mapping
☐ Confirm storm drain invert elevations
☐ Confirm soil types
☐ Other:

INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

- Good demo/project. Involve students in design/construct.

SITE CANDIDATE FOR FURTHER INVESTIGATION:

YES ☒ NO ☐ MAYBE ☐

IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):

YES ☐ NO ☒ MAYBE ☐

IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):

YES ☐ NO ☒ MAYBE ☐

IF YES, TYPE(S):
**Retrofit Reconnaissance Investigation**

**WATERSHED:** Eagleville  
**SUBWATERSHED:**  
**UNIQUE SITE ID:** C18

**DATE:** 7/16/09  
**ASSESSED BY:** 4/4/09  
**CAMERA ID:**  
**PICTURES:** 1

**GPS ID:**  
**LMK ID:**  
**LAT:**  
**LONG:**

### SITE DESCRIPTION

**Name:** Eagleville Rd.  
**Address:**

**Ownership:**  
- [ ] Public  
- [ ] Private  
- [x] Unknown  
- [x] DOT  
- [ ] Other: Other?

**If Public, Government Jurisdiction:**  
- [ ] Local  
- [x] State  
- [ ] DOT  
- [ ] Other: Other?

**Corresponding USSR/USA Field Sheet?**  
- [ ] Yes  
- [x] No  
**If yes, Unique Site ID:**

### Proposed Retrofit Location:

**Storage**  
- [ ] Existing Pond  
- [ ] Below Outfall  
- [ ] In Road ROW  
- [ ] Other: Other:

**On-Site**  
- [ ] Above Roadway Culvert  
- [ ] In Conveyance System  
- [ ] Near Large Parking Lot  
- [ ] Individual Roofop  
- [ ] Small Parking Lot  
- [ ] Individual Street  
- [ ] Underground  
- [ ] Small Impervious Area  
- [ ] Landscape / Hardscape  
- [ ] Other:

### DRAINAGE AREA TO PROPOSED RETROFIT

**Drainage Area:** 54319 SF  
**Imperviousness:** 100%  
**Impervious Area:** 54319 SF

### Drainage Area Land Use:

- [ ] Residential  
- [x] Institutional  
- [ ] Industrial  
- [ ] Transport-Related  
- [ ] Park  
- [ ] Undeveloped  
- [ ] Other:

### EXISTING STORMWATER MANAGEMENT

**Existing Stormwater Practice:**  
- [ ] Yes  
- [x] No  
- [ ] Possible  

**If Yes, Describe:**

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

- Runoff from crowned roadway drains to CBS along street.  
- Dangerous traffic situation w/ pedestrians & traffic.

**Existing Head Available and Points Where Measured:**
### PROPOSED RETROFIT

**Purpose of Retrofit:**
- Water Quality
- Demonstration / Education
- Other: Traffic Calming

**Retrofit Volume Computations - Target Storage:**

\[ W_{QV} = 4300 \text{ CF} \]

**Retrofit Volume Computations - Available Storage:**

\[ T_V = 3450 \text{ CF} \]

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Other: Streetscape BioRetention

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**
- Remove IC and install traffic calming bump-out bioretention areas along the road, particularly at pedestrian crossings.

### SITE CONSTRAINTS

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other: 

**Possible Conflicts Due to Adjacent Land Use?**
- Yes [X] No

**Conflicts with Existing Utilities:**
- None
- Unknown
- Yes
- Possible
  - Sewer
  - Water
  - Gas
  - Cable
  - Electric
  - Electric to Streetlights
  - Overhead Wires
  - Other:

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
  - How many?
    - Approx. DBH

**Other factors:**

**Soils:**
- Soil auger test holes:
  - Yes [X] No
- Evidence of poor infiltration (clays, fines):
  - Yes [X] No
- Evidence of shallow bedrock:
  - Yes [X] No
- Evidence of high water table (gleying, saturation):
  - Yes [X] No

Unique Site ID: C18
- Designs also serve as traffic calming devices. (dual purpose)
- High priority: partner with university efforts to calm traffic along road. Also partner with landscaping efforts.

FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch
- Obtain existing stormwater practice as-builts
- Obtain site as-builts
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types
- Other:__________________________

INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

- Good education/demo project. Involve students in design/build.

SITE CANDIDATE FOR FURTHER INVESTIGATION: [ ] YES [ ] NO [ ] MAYBE
IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S): [ ] YES [ ] NO [ ] MAYBE
IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S): [ ] YES [ ] NO [ ] MAYBE
IF YES, TYPE(S):__________________________

Unique Site ID: C18
Retrofit Reconnaissance Investigation

WATERSHED: Eagleville Subwatershed: Unique Site ID: C19
DATE: 11/20/2009 ASSESSED BY: CAMER A ID: 32
GPS ID: LMK ID: 10.41.01 LAT: LONG:

SITE DESCRIPTION

Name: Student Health Services
Address:

Ownership: □ Public □ Private □ Unknown
If Public, Government Jurisdiction: □ Local □ State □ DOT □ Other: W/ON

Corresponding USSR/USA Field Sheet? □ Yes □ No If yes, Unique Site ID:

Proposed Retrofit Location:

Storage
□ Existing Pond □ Above Roadway Culvert
□ Below Outfall □ In Conveyance System
□ In Road ROW □ Near Large Parking Lot
□ Other:

On-Site
□ Hotspot Operation □ Individual Rooftop
□ Small Parking Lot □ Small Impervious Area
□ Individual Street □ Landscape/Hardscape
□ Underground □ Other:

DRAINAGE AREA TO PROPOSED RETROFIT

Drainage Area = Imperviousness = 100 %
Impervious Area =

Notes:

Drainage Area Land Use:
□ Residential □ Institutional
□ SFH (< 1 ac lots) □ Industrial
□ SFH (> 1 ac lots) □ Transport-Related
□ Townhouses □ Park
□ Multi-Family □ Undeveloped
□ Commercial □ Other:

EXISTING STORMWATER MANAGEMENT

Existing Stormwater Practice: □ Yes □ No □ Possible
If Yes, Describe:

lot drain to storm drain

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

excess impervious basin lot condition

Existing Head Available and Points WhereMeasured:
## PROPOSED RETROFIT

### Purpose of Retrofit:
- □ Water Quality
- □ Demonstration/Education
- □ Recharge
- □ Channel Protection
- □ Flood Control
- □ Repair
- □ Other: [Human Health] [Tranquility]

### Retrofit Volume Computations - Target Storage:
- 125, 661, 294 CF

### Retrofit Volume Computations - Available Storage:
- TV = WDU

### Proposed Treatment Option:
- □ Extended Detention
- □ Wet Pond
- □ Created Wetland
- □ Bioretention
- □ Filtering Practice
- □ Infiltration
- □ Swale
- □ Other: [PP/Col/5 cm removal]

### Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:
- (remove excess [C is in front and hillslope])
- P is front + 1/6 of back int
- Install pipe as long for most remotion of plants [plant 4 inches low]

## SITE CONSTRAINTS

### Adjacent Land Use:
- □ Residential
- □ Commercial
- □ Institutional
- □ Industrial
- □ Transport-Related
- □ Park
- □ Undeveloped
- □ Other:

### Possible Conflicts Due to Adjacent Land Use?
- □ Yes
- □ No

### Conflicts with Existing Utilities:
- □ None
- □ Unknown
- □ Yes
- □ Possible
- □ Sewer
- □ Water
- □ Gas
- □ Cable
- □ Electric
- □ Electric to Streetlights
- □ Overhead Wires
- □ Other:

### Potential Permitting Factors:
- □ Dam Safety Permits Necessary
- □ Impacts to Wetlands
- □ Impacts to a Stream
- □ Floodplain Fill
- □ Impacts to Forests
- □ Impacts to Specimen Trees
  - How many?
  - Approx. DBH
- □ Probable
- □ Not Probable

### Other factors:

### Soils:
- Soil auger test holes:
- □ Yes
- □ No
- Evidence of poor infiltration (clays, fines):
- □ Yes
- □ No
- Evidence of shallow bedrock:
- □ Yes
- □ No
- Evidence of high water table (gleying, saturation):
- □ Yes
- □ No
SKETCH

- Convey existing lot to permeable pavement
- Green roof
- Install green roof on lower portion of roof
- Rezone IC plant trees
- Vegetation island
Proposed
Green roof can be viewed from higher office windows. Nice aesthetic qualities

FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

☐ Confirm property ownership
☐ Confirm drainage area
☐ Confirm drainage area impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing stormwater practice as-builts
☐ Obtain site as-builts
☐ Obtain detailed topography
☐ Obtain utility mapping
☐ Confirm storm drain invert elevations
☐ Confirm soil types

☐ Other: ______________________

INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

SITE CANDIDATE FOR FURTHER INVESTIGATION:
☐ YES ☐ NO ☐ MAYBE

IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):
☐ YES ☐ NO ☐ MAYBE

IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):
☐ YES ☐ NO ☐ MAYBE
IF YES, TYPE(S): ________________
Retrofit Reconnaissance Investigation

WATERSHED: Eagleville  
SUBWATERSHED:  
UNIQUE SITE ID: C2

DATE: 7/15/09  
ASSESSED BY:  
CAMERA ID:  
PICTURES:  

GPS ID:  
LMK ID:  
LAT:  
LONG:  

SITE DESCRIPTION

Name: Parking area in front of student union  
Address:  

Ownership:  
If Public, Government Jurisdiction: □ Public □ Private □ Unknown □ Local □ State □ DOT □ Other: Unknown  
Corresponding USSR/USA Field Sheet? □ Yes □ No  
If yes, Unique Site ID:  

Proposed Retrofit Location:

Storage
□ Existing Pond □ Below Outfall □ In Road ROW □ Other:  
□ Above Roadway Culvert □ In Conveyance System □ Near Large Parking Lot  
On-Site
□ Hotspot Operation □ Small Parking Lot □ Individual Rooftop  
□ Small Impervious Area □ Individual Street □ Landscape / Hardscape  
□ Underground □ Other:  

DRAINAGE AREA TO PROPOSED RETROFIT

Drainage Area ≈ 0.657  
Imperviousness ≈ 49.5%  
Impervious Area ≈ 46.94

Drainage Area Land Use:
□ Institutional  
□ Residential □ SFH (< 1 ac lots)  
□ SFH (> 1 ac lots) □ Transport-Related  
□ Townhouses □ Park  
□ Multi-Family □ Undeveloped  
□ Commercial □ Other:  

EXISTING STORMWATER MANAGEMENT

Existing Stormwater Practice: □ Yes □ No □ Possible  
If Yes, Describe:  

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

Street runoff drains to storm drain system

Existing Head Available and Points Where Measured:

John
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- [ ] Water Quality
- [ ] Demonstration / Education
- [x] Repair
- [ ] Other: ____________
- [ ] Recharge
- [ ] Channel Protection
- [ ] Flood Control

**Retrofit Volume Computations - Target Storage:**
- ____________

**Retrofit Volume Computations - Available Storage:**
- ____________

**Proposed Treatment Option:**
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [ ] Bioretention
- [ ] Other: Permeable Pave
- [ ] Filtering Practice
- [ ] Infiltration
- [ ] Swale
- [ ] Other: ____________

Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:

- Convene parking area to pervious concrete
- Underground should be utilized in design

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- [ ] Residential
- [ ] Commercial
- [ ] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other: ____________

**Access:**
- [ ] No Constraints
- [x] Constrained due to
  - [ ] Slope
  - [ ] Utilities
  - [ ] Structures
  - [ ] Tree Impacts
  - [ ] Property Ownership
  - [ ] Space
  - [ ] Other: ____________

**Possible Conflicts Due to Adjacent Land Use?**
- [ ] Yes
- [x] No

**Conflicts with Existing Utilities:**
- [ ] None
- [ ] Unknown

**Yes**

- Sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires
- Other: ____________

**Potential Permitting Factors:**
- Dam Safety Permits Necessary: [ ] Probable
- Impacts to Wetlands: [ ] Probable
- Impacts to a Stream: [ ] Probable
- Floodplain Fill: [ ] Probable
- Impacts to Forests: [ ] Probable
- Impacts to Specimen Trees: [ ] Probable
- How many? Approx. DBH: ____________

**Other factors:**

**Soils:**
- Soil auger test holes: [ ] Probable
- Evidence of poor infiltration (clays, fines): [ ] Probable
- Evidence of shallow bedrock: [ ] Probable
- Evidence of high water table (gleying, saturation): [ ] Probable

**Unique Site ID:** C2
- Construct in conjunction w/ previous concrete lot to be built across the street.

**FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT**

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch
- Obtain existing stormwater practice as-builts
- Obtain site as-builts
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types

**INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS**

- Check underlying soils. Will likely need inclusion in design.

**SITE CANDIDATE FOR FURTHER INVESTIGATION:**
- YES  NO  MAYBE

**IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):**
- YES  NO  MAYBE

**IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):**
- YES  NO  MAYBE

**IF YES, TYPE(S):**
**Watershed:** Eagle Lake  
**Subwatershed:**  
**Unique Site ID:** C20

**Date:** 7/16/2023  
**Assessed By:**  
**Camera ID:**  
**Pictures:** 134-135

**GPS ID:**  
**LMK ID:**  
**Lat:**  
**Long:**

### Site Description

**Name:** School of Nursing  
**Address:**  
**Ownership:**  
- [ ] Public  
- [ ] Private  
- [x] Unknown  
**If Public, Government Jurisdiction:**  
- [ ] Local  
- [ ] State  
- [ ] DOT  
- [x] Other: COMM

**Corresponding USSR/USA Field Sheet:**  
- [ ] Yes  
- [x] No  
**If yes, Unique Site ID:**

### Proposed Retrofit Location:

**Storage**
- [ ] Existing Pond  
- [ ] Below Outfall  
- [ ] In Road ROW  
- [ ] Other:

**On-Site**
- [x] Hotspot Operation  
- [x] Small Parking Lot  
- [ ] Individual Street  
- [ ] Underground  
- [ ] Landscape / Hardscape  
- [ ] Other:

### Drainage Area to Proposed Retrofit

- **Drainage Area:** 0.125 acre  
- **Imperviousness:** 99%  
- **Impervious Area:** 1,982 sq ft

**Notes:**

### Existing Stormwater Management

**Existing Stormwater Practice:**  
- [ ] Yes  
- [x] No  
- [ ] Possible

**If Yes, Describe:**

### Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

- External downsputs are directly connected to stormdrain system.  
- Blg drain to Swan Lake, parking lot to Eagle Lake?

**Existing Head Available and Points Where Measured:**

---

Page 1 of 4  
Unique Site ID: C20
### PROPOSED RETROFIT

**Purpose of Retrofit:**
- [ ] Water Quality
- [ ] Recharge
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Demonstration / Education
- [ ] Repair
- Other: Runoff Reduction

**Retrofit Volume Computations - Target Storage:**
395 c.f.

**Retrofit Volume Computations - Available Storage:**

#### Proposed Treatment Option:
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [ ] Bioretention
- [ ] Filtering Practice
- [ ] Infiltration
- [ ] Swale
- [ ] Other:

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

- [ ] 2nd most downstream point: 1 convex right turn. 1.5 ft. to be added
- [ ] 14 ft. vertical or 30 ft. horizontal.

#### SITE CONSTRAINTS

**Adjacent Land Use:**
- [ ] Residential
- [ ] Commercial
- [ ] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other:

**Possible Conflicts Due to Adjacent Land Use?**
- [ ] Yes
- [ ] No

**If Yes, Describe:**

**Conflicts with Existing Utilities:**
- [ ] None
- [ ] Unknown

**Yes**
- [ ] Sewer
- [ ] Water
- [ ] Gas
- [ ] Cable
- [ ] Electric
- [ ] Electric to Streetlights
- [ ] Overhead Wires
- [ ] Other:

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
- How many?
  - Approx. DBH

**Other factors:**

**Soils:**
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):
  - Yes
  - No

<table>
<thead>
<tr>
<th>Access:</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] No Constraints</td>
</tr>
<tr>
<td>Constrained due to</td>
</tr>
<tr>
<td>[ ] Slope</td>
</tr>
<tr>
<td>[ ] Space</td>
</tr>
<tr>
<td>[ ] Utilities</td>
</tr>
<tr>
<td>[ ] Tree Impacts</td>
</tr>
<tr>
<td>[ ] Structures</td>
</tr>
<tr>
<td>[ ] Property Ownership</td>
</tr>
<tr>
<td>[ ] Other:</td>
</tr>
</tbody>
</table>

---

Page 2 of 4

Unique Site ID: 620
**FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT**

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch
- Obtain existing stormwater practice as-builts
- Obtain site as-builts
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types
- Other: ________________________________

**INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS**

- Good
design.
- Demo project
- Ravel steam

**SITE CANDIDATE FOR FURTHER INVESTIGATION:**  
[ ] YES  [ ] NO  [ ] MAYBE

**IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):**  
[ ] YES  [ ] NO  [ ] MAYBE

**IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):**  
[ ] YES  [ ] NO  [ ] MAYBE

**IF YES, TYPE(S):**
**SITE DESCRIPTION**

Name: John Smith
Address:

Ownership: □ Public □ Private □ Unknown
If Public, Government Jurisdiction: □ Local □ State □ DOT □ Other: Other:

Corresponding USSR/USA Field Sheet? □ Yes □ No If yes, Unique Site ID:

**Proposed Retrofit Location:**

<table>
<thead>
<tr>
<th>Storage</th>
<th>On-Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Existing Pond</td>
<td>□ Hotspot Operation</td>
</tr>
<tr>
<td>□ Below Outfall</td>
<td>□ Small Parking Lot</td>
</tr>
<tr>
<td>□ In Road ROW</td>
<td>□ Individual Street</td>
</tr>
<tr>
<td>□ Near Large Parking Lot</td>
<td>□ Underground</td>
</tr>
<tr>
<td>Other:</td>
<td>□ Other:</td>
</tr>
</tbody>
</table>

**DRAINAGE AREA TO PROPOSED RETROFIT**

Drainage Area ≈ 0.121 acres
Imperviousness ≈ 100%

Impervious Area ≈ 4,438 sf

**Existing Stormwater Management**

Existing Stormwater Practice: □ Yes □ No □ Possible
If Yes, Describe:

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

- Hillside with some pedestrian use, some shade
- External downspouts directly connected to storm drain system

**Existing Head Available and Points Where Measured:**
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- [x] Water Quality
- [ ] Recharge
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Demonstration / Education
- [ ] Repair
- Other: Retrofit

**Retrofit Volume Computations - Target Storage:**

589,675

**Retrofit Volume Computations - Available Storage:**

TV = \( w_0 q_u \)

**Proposed Treatment Option:**
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [x] Bioretention
- [ ] Filtering Practice
- [ ] Infiltration
- [ ] Swale
- [ ] Other:

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

potential to disconnect entire building w/ BR

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- [ ] Residential
- [ ] Commercial
- [x] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other:

**Possible Conflicts Due to Adjacent Land Use?**
- [ ] Yes
- [ ] No

**If Yes, Describe:**

**Access:**
- [x] No Constraints
- Constrained due to
  - [ ] Slope
  - [ ] Space
  - [ ] Utilities
  - [ ] Tree Impacts
  - [ ] Structures
  - [ ] Property Ownership
  - [ ] Other:

**Conflicts with Existing Utilities:**
- [x] None
- [ ] Unknown

**Yes**
- [ ] Sewer
- [ ] Water
- [ ] Gas
- [ ] Cable
- [ ] Electric
- [ ] Electric to Streetlights
- [ ] Overhead Wires
- [ ] Other:

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
  - How many?
  - Approx. DBH

**Other factors:**

**Soils:**
- Soil auger test holes:
  - [ ] Yes
  - [ ] No
- Evidence of poor infiltration (clays, fines):
  - [ ] Yes
  - [ ] No
- Evidence of shallow bedrock:
  - [x] Yes
  - [ ] No
- Evidence of high water table (gleying, saturation):
  - [ ] Yes
  - [x] No

Page 2 of 4
Design or Delivery Notes

Good Student involvement project

- Alternative option: do simple downstream disconnect must ensure restored permeability of turf areas.
- Possible to disconnect entire building.

Follow-up Needed to Complete Field Concept

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch
- Obtain existing stormwater practice as-buils
- Obtain site as-buils
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types

Other:

Initial Feasibility and Construction Considerations

Good education demo involve students in design build.

Site Candidate for Further Investigation:

Yes □ No □ Maybe □

Is Site Candidate for Early Action Project(s):

Yes □ No □ Maybe □

If No, Site Candidate for Other Restoration Project(s):

Yes □ No □ Maybe □

If Yes, Type(s):
**WATERSHED:** Eaglesville  
**SUBWATERSHED:**  
**UNIQUE SITE ID:** C22

**DATE:** 7/14/99  
**ASSESSED BY:**  
**CAMERA ID:**  
**PICTURES:**

**GPS ID:**  
**LMK ID:**  
**LAT:**  
**LONG:**

**SITE DESCRIPTION**

**Name:** Pharmacy Bldg (PB)  
**Address:**

**Ownership:**  
**If Public, Government Jurisdiction:**  
- Public  
- Private  
- Unknown  
- Local  
- State  
- DOT  
- Other: UNKN

**Corresponding USSR/USA Field Sheet?**  
- Yes  
- No  
**If yes, Unique Site ID:**

**Proposed Retrofit Location:**

**Storage**
- Existing Pond  
- Below Outfall  
- In Road ROW  
- Other:  

**On-Site**
- Above Roadway Culvert  
- In Conveyance System  
- Near Large Parking Lot  
- Other:  

**DRAINAGE AREA TO PROPOSED RETROFIT**

**Drainage Area ≈ 0.300 acres**  
**Imperviousness ≈ 100%**  
**Impervious Area ≈ 1570.1 sf**

**Notes:**

**EXISTING STORMWATER MANAGEMENT**

**Existing Stormwater Practice:**  
- Yes  
- No  
- Possible

**If Yes, Describe:**

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

*Internal roof drains connect directly to storm drain system*

**Existing Head Available and Points Where Measured:**

**Page 1 of 4**
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- Water Quality
- Demonstration / Education
- Recharge
- Repair
- Channel Protection
- Flood Control
- Other: Runoff Reduction

**Retrofit Volume Computations - Target Storage:**
1243 CF

**Retrofit Volume Computations - Available Storage:**
7 V = WQU

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Biotreatment
- Filtering Practice
- Infiltration
- Swale
- Other: Green Roof

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**
- Install GRs on lawn, root area

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other:

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

**Conflicts with Existing Utilities:**
- Sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires
- Other:

**Soils:**
- Soil auger test holes: Yes No
- Evidence of poor infiltration (clays, fines): Yes No
- Evidence of shallow bedrock: Yes No
- Evidence of high water table (gleying, saturation): Yes No

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
- How many? Approx. DBH

**Other factors:**

**Access:**
- No Constraints
- Constrained due to: Slope
- Utilities
- Structures
- Property Ownership
- Other:

Unique Site ID: 522
See aerial.
Grades
Nice aesthetic quality for adjacent taller bldg addition
Need to confirm structural capacity on rooftop

Follow-up Needed to Complete Field Concept
☐ Confirm property ownership
☐ Confirm drainage area
☐ Confirm drainage area impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing stormwater practice as-buils
☐ Obtain site as-buils
☐ Obtain detailed topography
☐ Obtain utility mapping
☐ Confirm storm drain invert elevations
☐ Confirm soil types
☐ Other:

Initial Feasibility and Construction Considerations

Site Candidate for Further Investigation: ☐ YES ☐ NO ☐ MAYBE
Is Site Candidate for Early Action Project(s): ☐ YES ☐ NO ☐ MAYBE
If no, Site Candidate for Other Restoration Project(s): ☐ YES ☐ NO ☐ MAYBE
If yes, type(s): ____________________________

Unique Site ID: _______
Retrofit Reconnaissance Investigation

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**SITE DESCRIPTION**

Name: Quad adjacent to ITE RIdg
Address:

Ownership:  
- [ ] Public  
- [ ] Private  
- [ ] Unknown  
If Public, Government Jurisdiction:  
- [ ] Local  
- [ ] State  
- [ ] DOT  
- [ ] Other:  

Corresponding USSR/USA Field Sheet?  
- [ ] Yes  
- [ ] No  
If yes, Unique Site ID:

**Proposed Retrofit Location:**

- [ ] Existing Pond  
- [ ] Below Outfall  
- [ ] In Road ROW  
- [ ] Other:  
- [ ] Above Roadway Culvert  
- [ ] In Conveyance System  
- [ ] Near Large Parking Lot  
- [ ] On-Site  
- [ ] Hotspot Operation  
- [ ] Small Parking Lot  
- [ ] Individual Street  
- [ ] Underground  
- [ ] Individual Rooftop  
- [ ] Small Impervious Area  
- [ ] Landscape / Hardscape  
- [ ] Other:

**DRAINAGE AREA TO PROPOSED RETROFIT**

Drainage Area ≈  
Imperviousness ≈  
Impervious Area ≈

- [ ] Drainage Area Land Use:  
  - [ ] Residential  
  - [ ] SFH (< 1 ac lots)  
  - [ ] SFH (> 1 ac lots)  
  - [ ] Townhouses  
  - [ ] Multi-Family  
  - [ ] Commercial  
  - [ ] Institutional  
  - [ ] Industrial  
  - [ ] Transport-Related  
  - [ ] Park  
  - [ ] Undeveloped  
  - [ ] Other:

**EXISTING STORMWATER MANAGEMENT**

Existing Stormwater Practice:  
- [ ] Yes  
- [ ] No  
- [ ] Possible

If Yes, Describe:

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

Turf area is highly compacted. Runoff drains to  
yard inlet. No landscaping in area. Only turf.

Existing Head Available and Points Where Measured:
### Proposed Retrofit

**Purpose of Retrofit:**
- [ ] Water Quality
- [ ] Demonstration / Education
- [ ] Recharge
- [ ] Repair
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Other:  

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

**Proposed Treatment Option:**
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [ ] Bioretention
- [ ] Erosion Practice
- [ ] Infiltration
- [ ] Swale
- [ ] Other: ____________

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

- tree plantings
- previous area restoration

---

### Site Constraints

**Adjacent Land Use:**
- [ ] Residential
- [ ] Commercial
- [ ] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other: ____________

**Access:**
- [ ] No Constraints
- Constrained due to:
  - [ ] Slope
  - [ ] Utilities
  - [ ] Tree Impacts
  - [ ] Structures
  - [ ] Property Ownership
  - [ ] Other: ____________

**Possible Conflicts Due to Adjacent Land Use?**
- [ ] Yes
- [ ] No

**If Yes, Describe:**

**Conflicts with Existing Utilities:**
- [ ] None
- [ ] Unknown

**Yes Possible**
- [ ] Sewer
- [ ] Water
- [ ] Gas
- [ ] Cable
- [ ] Electric
- [ ] Electric to Streetlights
- [ ] Overhead Wires
- [ ] Other: ____________

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
  - How many? ____________
  - Approx. DBH ____________

**Other factors:**

**Soils:**
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):
- see aerial
### DESIGN OR DELIVERY NOTES


### FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

- [ ] Confirm property ownership
- [ ] Confirm drainage area
- [ ] Confirm drainage area impervious cover
- [ ] Confirm volume computations
- [ ] Complete concept sketch
- [ ] Obtain existing stormwater practice as-buils
- [ ] Obtain site as-buils
- [ ] Obtain detailed topography
- [ ] Obtain utility mapping
- [ ] Confirm storm drain invert elevations
- [ ] Confirm soil types
- [ ] Other: 

### INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS


### SITE CANDIDATE FOR FURTHER INVESTIGATION:
- [ ] YES
- [ ] NO
- [ ] MAYBE

### IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):
- [ ] YES
- [ ] NO
- [ ] MAYBE

### IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):
- [ ] YES
- [ ] NO
- [ ] MAYBE

**IF YES, TYPE(S):**


---

Page 4 of 4

Unique Site ID: [23]
**Retrofit Reconnaissance Investigation**

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**SITE DESCRIPTION**

Name: Old Central Warehouse (OCR)
Address: (Blank)
Ownership: ☑ Public  ☐ Private  ☐ Unknown  ☑ Other: Unknown
If Public, Government Jurisdiction: ☑ Local  ☐ State  ☑ DOT  ☐ Other: (Blank)
Corresponding USSR/USA Field Sheet? ☐ Yes  ☑ No  If yes, Unique Site ID: (Blank)

**Proposed Retrofit Location:**

**Storage**
- ☑ Existing Pond  ☐ Above Roadway Culvert
- ☑ Below Outfall  ☐ In Conveyance System
- ☑ In Road ROW  ☐ Near Large Parking Lot
- ☐ Other: (Blank)

**On-Site**
- ☑ Hotspot Operation  ☑ Small Parking Lot  ☑ Individual Rooftop
- ☑ Small Impervious Area  ☑ Individual Street  ☑ Landscape / Hardscape
- ☑ Underground  ☐ Other: (Blank)

**DRAINAGE AREA TO PROPOSED RETROFIT**

Drainage Area ≈ 0.3 ac
Imperviousness ≈ 94%
Impervious Area ≈ 0.19 ac

**Drainage Area Land Use:**
- ☑ Residential  ☑ Institutional
- ☔ SFH (< 1 ac lots)  ☑ Industrial
- ☑ SFH (> 1 ac lots)  ☑ Transport-Related
- ☒ Townhouses  ☑ Park
- ☑ Multi-Family  ☑ Undeveloped
- ☐ Commercial  ☐ Other: (Blank)

**EXISTING STORMWATER MANAGEMENT**

Existing Stormwater Practice: ☑ Yes  ☒ No  ☐ Possible
Explain the existing stormwater management:

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

Runoff Drain to CB in parking lot

Existing Head Available and Points Where Measured:
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- Water Quality
- Channel Protection
- Flood Control
- Demonstration / Education
- Repair
- Runoff Reduction

**Retrofit Volume Computations - Target Storage:**

888 cf

**Retrofit Volume Computations - Available Storage:**

Tv = 230 cf

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other:

Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:

Construct BR to capture runoff. Block BR in parking lot.

Alt design: replace parking lot asphalt with permeable pavement.

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other:

**Possible Conflicts Due to Adjacent Land Use?**  Yes  No

If Yes, Describe:

**Access:**
- No Constraints
- Constrained due to:
  - Slope
  - Space
  - Utilities
  - Tree Impacts
  - Structures
  - Property Ownership
  - Other:

**Conflicts with Existing Utilities:**
- None
- Unknown

**Yes  Possible**
- Sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees

- How many?  ___________
  - Approx. DBH __________

**Other factors:**

**Soils:**
Soil auger test holes:  Yes  No
Evidence of poor infiltration (clays, fines):  Yes  No
Evidence of shallow bedrock:  Yes  No
Evidence of high water table (gleying, saturation):  Yes  No

Unique Site ID: C24
See Aerial
DESIGN OR DELIVERY NOTES

- BR area is likely undersized (space constrained) for project DA
- Low Priority
- Several site constraints - utilities, slope, space
- Alt design is permeable pavement on lot.

FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

☐ Confirm property ownership
☐ Confirm drainage area
☐ Confirm drainage area impervious cover
☐ Confirm volume computations
☐ Complete concept sketch

☐ Obtain existing stormwater practice as-buils
☐ Obtain site as-buils
☐ Obtain detailed topography
☐ Obtain utility mapping
☐ Confirm storm drain invert elevations
☐ Confirm soil types

Other:

INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

SITE CANDIDATE FOR FURTHER INVESTIGATION: ☐ YES ☐ NO ☐ MAYBE
IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S): ☐ YES ☐ NO ☐ MAYBE
IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S): ☐ YES ☐ NO ☐ MAYBE

IF YES, TYPE(S):
**WATERSHED:** Eagleville  
**SUBWATERSHED:**  
**UNIQUE SITE ID:** C3

**DATE:** 7/15/09  
**ASSESSED BY:** HACK  
**CAMERA ID:**  
**PICTURES:**

**GPS ID:**  
**LMK ID:**  
**LAT:**  
**LONG:**

### SITE DESCRIPTION

- **Name:** University Library (Entrance Way)
- **Address:**
- **Ownership:**
  - [ ] Public
  - [ ] Private
  - [ ] Unknown
- **If Public, Government Jurisdiction:**
  - [ ] Local
  - [ ] State
  - [ ] DOT
  - [ ] Other: [^]
- **Corresponding USSR/USA Field Sheet:**
  - [ ] Yes
  - [ ] No
  - If yes, Unique Site ID:

### Proposed Retrofit Location:

- **Storage**
  - [ ] Existing Pond
  - [ ] Below Outfall
  - [ ] In Road ROW
  - [ ] Other:
- **On-Site**
  - [ ] Hotspot Operation
  - [ ] Small Parking Lot
  - [ ] Individual Street
  - [ ] Individual Rooftop
  - [ ] Landscape / Hardscape
  - [ ] Other:

### DRAINAGE AREA TO PROPOSED RETROFIT

- **Drainage Area ≈ 0.031 acre**
- **Imperviousness ≈ 99%**
- **Impervious Area ≈ 1342 sq ft**

**Notes:**

### EXISTING STORMWATER MANAGEMENT

- **Existing Stormwater Practice:**
  - [ ] Yes
  - [x] No
  - [ ] Possible

**If Yes, Describe:**

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

- Internal root drains from Library Entrance toward C B from GR.
- Roadway storm system.

**Existing Head Available and Points Where Measured:**

[^]: Other: [^]
## PROPOSED RETROFIT

### Purpose of Retrofit:
- [ ] Water Quality
- [ ] Recharge
- [ ] Channel Protection
- [ ] Flood Control
- [X] Demonstration / Education
- [ ] Repair
- [ ] Other: [Redacted]

### Retrofit Volume Computations - Target Storage:
\[ WQ_0 = 106 \text{ cf} \]

### Retrofit Volume Computations - Available Storage:
\[ T_0 = 77 \text{ cf} \]

### Proposed Treatment Option:
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [X] Bioretention
- [ ] Filtering Practice
- [ ] Infiltration
- [ ] Swale
- [ ] Other: [Redacted]

### Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:

Daylight root drains + create BR area.

## SITE CONSTRAINTS

### Adjacent Land Use:
- [ ] Residential
- [ ] Commercial
- [X] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other: [Redacted]

### Possible Conflicts Due to Adjacent Land Use?
- [ ] Yes
- [X] No

### If Yes, Describe:

### Conflicts with Existing Utilities:
- [X] None
- [ ] Unknown

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<td>Electric to Streetlights</td>
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<tr>
<td></td>
<td>Overhead Wires</td>
</tr>
<tr>
<td></td>
<td>Other: [Redacted]</td>
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### Potential Permitting Factors:
- Dam Safety Permits Necessary: [ ] Probable [ ] Not Probable
- Impacts to Wetlands: [ ] Probable [ ] Not Probable
- Impacts to a Stream: [ ] Probable [ ] Not Probable
- Floodplain Fill: [ ] Probable [ ] Not Probable
- Impacts to Forests: [ ] Probable [ ] Not Probable
- Impacts to Specimen Trees: [ ] Probable [ ] Not Probable
- How many? [Redacted]
  Approx. DBH [Redacted]

### Other factors:

### Soils:
- Soil auger test holes: [ ] Yes [ ] No
- Evidence of poor infiltration (clays, fines): [ ] Yes [ ] No
- Evidence of shallow bedrock: [ ] Yes [ ] No
- Evidence of high water table (gleying, saturation): [ ] Yes [ ] No
SKETCH

- Tie into existing drain
- Construct riser over foundation
- 6" piping
- 4" riser
- Library
- parking
- Bus stop

Unique Site ID: C3
**DESIGN OR DELIVERY NOTES**

- Need to confirm DA vs. dual space

---

**FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT**

- [ ] Confirm property ownership
- [x] Confirm drainage area - check bldg drainage
- [ ] Confirm drainage area impervious cover
- [ ] Confirm volume computations
- [ ] Complete concept sketch
- [ ] Obtain existing stormwater practice as-buils
- [ ] Obtain site as-buils
- [ ] Obtain detailed topography
- [ ] Obtain utility mapping
- [x] Confirm storm drain invert elevations
- [ ] Confirm soil types

- Other:

---

**INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS**

- Check space availability

- Could be good student driven project - students can be involved in design/build.

---

**SITE CANDIDATE FOR FURTHER INVESTIGATION:**

- [ ] YES  [ ] NO  [ ] MAYBE

**IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):**

- [ ] YES  [x] NO  [ ] MAYBE

**IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):**

- [ ] YES  [x] NO  [ ] MAYBE

**IF YES, TYPE(S):**

---

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Unique Site ID: 03.
**Retrofit Reconnaissance Investigation (RRI)**

**Watershed:** EAGLEVILLE  
**Subwatershed:**  
**Unique Site ID:** C4

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**Site Description**

**Name:** School of Education (CUE)  
**Address:**  
**Ownership:**  
- [ ] Public  
- [ ] Private  
- [ ] Unknown  
- **[ ] Other:** institution

**Corresponding USSR/USA Field Sheet?**  
- [ ] Yes  
- [X] No  
- If yes, Unique Site ID:  

**Proposed Retrofit Location:**

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<tr>
<td>[ ] Below Outfall</td>
<td>[X] Individual Rooftop</td>
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<tr>
<td>[ ] In Road ROW</td>
<td>[ ] Small Parking Lot</td>
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<td>[ ] Near Large Parking Lot</td>
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<td>[ ] Other</td>
<td>[ ] Individual Street</td>
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<td>[ ] Above Roadway Culvert</td>
<td>[ ] Landscape / Hardscape</td>
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<td>[ ] In Conveyance System</td>
<td>[ ] Underground</td>
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**Drainage Area to Proposed Retrofit**

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**Existing Stormwater Management**

**Existing Stormwater Practice:**  
- [ ] Yes  
- [X] No  
- [ ] Possible

**If Yes, Describe:**  

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

*Roof leaders are directly connected to stormdrain*  
*Adjacent green space is highly compacted. Lots of localized soil erosion.*

**Existing Head Available and Points Where Measured:**
Retrofit Reconnaissance Investigation

**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- Water Quality
- Demonstration / Education
- Repair
- Channel Protection
- Other: Bioretention planters

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Infiltration
- Swale
- Bioretention
- Other: Cistern vegetation

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

A. Direct front leaders into storm water planters
B. 2 downspouts at bldg. front directed to cistern. Use water to irrigate plants & landscaping
C. Plant trees / landscaping opportunities
D. Divert 2 side downspouts to bioretention area in quad.
E. Construct a large linear bioretention area along walkway. Divert walkway & terrace runoff into area.

**SITE CONSTRAINTS**

- Small bioretention in rear of bldg. to capture roof drainage

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

If Yes, Describe:
- New bldg. construction planned.

**Conflicts with Existing Utilities:**

- None
- Unknown
- Yes: Possible
  - Sewer
  - Water
  - Gas
  - Cable
  - Electric
  - Electric to streetlights
  - Overhead wires
  - Other: Storm drain

**Potential Permitting Factors:**

- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees

- How many?
  - Approx. DBH

- Other factors:

**Soils:**
- Soil auger test holes: Yes
- Evidence of poor infiltration (clays, fines): Yes
- Evidence of shallow bedrock: Yes
- Evidence of high water table (gleying, saturation): Yes

**Compacted**

- use underdrains.
- Use water from cistern to irrigate landscaping.
- Several opportunities at this site to disconnect IC.
- Many projects at sites C4 & C5 can be designed similarly.
- New bidg is being constructed planned for adjacent site. This may influence/affect project C.
- Soils are compacted. Need to include underdrains in bioretention designs.

FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

☐ Confirm property ownership  ☐ Obtain existing stormwater practice as-builts
☐ Confirm drainage area  ☐ Obtain site as-builts
☐ Confirm drainage area impervious cover  ☐ Obtain detailed topography
☐ Confirm volume computations  ☐ Obtain utility mapping
☐ Complete concept sketch  ☐ Confirm storm drain invert elevations
☐ Confirm soil types

Other:

INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

- Projects B & D are good for student education/demo. Students can be involved in design/build.
- Timing of project C should be after construction of new bidg in quad area.
- Can package construction for sites C4 & C5 due to design similarities.

SITE CANDIDATE FOR FURTHER INVESTIGATION:
[ ] YES  [ ] NO  [ ] MAYBE

IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):
[ ] YES  [ ] NO  [ ] MAYBE

IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):
[ ] YES  [ ] NO  [ ] MAYBE

IF YES, TYPE(S):
**WATERSHED:** EAGLEVILLE  
**SUBWATERSHED:**  
**UNIQUE SITE ID:** CS

**DATE:** 7/15/09  
**ASSESSED BY:** AKHAC  
**CAMERA ID:**  
**PICTURES:**  
**GPS ID:**  
**LMK ID:**  
**LAT:**  
**LONG:**

### SITE DESCRIPTION

- **Name:** Charles B. Lentry Bldg. (GTNT)  
- **Address:**

#### Ownership:
- Public  
- Private  
- Unknown  
- Local  
- State  
- DOT  
- Other: Institute

- **Corresponding USSR/USA Field Sheet?** Yes  
- **If yes, Unique Site ID:**

#### Proposed Retrofit Location:

- **Storage**  
  - Existing Pond  
  - Below Outfall  
  - In Road ROW  
  - Other:

- **On-Site**  
  - Above Roadway Culvert  
  - In Conveyance System  
  - Near Large Parking Lot  
  - Other:

- **Individual Rooftop**
- **Small Impervious Area**
- **Landscape / Hardscape**
- **Underground**

### DRAINAGE AREA TO PROPOSED RETROFIT

<table>
<thead>
<tr>
<th>Drainage Area</th>
<th>Imperviousness</th>
<th>Impervious Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.00 0.061 0.087 0.034</td>
<td>100 100 0 100</td>
</tr>
</tbody>
</table>

#### Notes:
- \[DA = 0.000 + 0.061 + 0.087 + 0.034\]
- \[IC = 100 100 0 100\]

### EXISTING STORMWATER MANAGEMENT

- **Existing Stormwater Practice:** No  
- **If Yes, Describe:**

### Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

Roof leaders directing water to stormdrain.  
Adjacent green space is highly compacted.  
Lots of localized soil erosion.

### Existing Head Available and Points Where Measured:
**Proposed Retrofit**

**Purpose of Retrofit:**
- [ ] Water Quality
- [X] Demonstration / Education
- [ ] Recharge
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Repair
- [ ] Other:

**Retrofit Volume Computations - Target Storage:** See spreadsheet

**Retrofit Volume Computations - Available Storage:** See spreadsheet

**Proposed Treatment Option:**
- [X] Bioretention, Planters
- [ ] Other: Cistern, Plantings
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [ ] Infiltration
- [ ] Swale
- [ ] Filtering Practice

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

- A. Direct front roof leaders into stormwater planters
- B. Direct 2 downspouts at bldg front into cistern. Use water to irrigate landscaping.
- C. Plant trees / landscaping opportunities
- D. Divert 2 side downspouts into bioretention area in quad.
- E. Bioretention. See C4E0 concept.

**Site Constraints**

<table>
<thead>
<tr>
<th>Adjacent Land Use:</th>
<th>Access:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>X No Constraints</td>
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<tr>
<td>Commercial</td>
<td>Constrained due to</td>
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<tr>
<td>Institutional</td>
<td>Space</td>
</tr>
<tr>
<td>Industrial</td>
<td>Utilities</td>
</tr>
<tr>
<td>Transport-Related</td>
<td>Structures</td>
</tr>
<tr>
<td>Park</td>
<td>Property Ownership</td>
</tr>
<tr>
<td>Undeveloped</td>
<td>Other:</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

**Conflicts with Existing Utilities:**
- [ ] None
- [ ] Unknown
- Yes

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<tr>
<th>Possible</th>
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<tbody>
<tr>
<td>Sewer</td>
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<tr>
<td>Water</td>
</tr>
<tr>
<td>Gas</td>
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<tr>
<td>Cable</td>
</tr>
<tr>
<td>Electric</td>
</tr>
<tr>
<td>Electric to Streetlights</td>
</tr>
<tr>
<td>Overhead Wires</td>
</tr>
<tr>
<td>Other: Stormdrain</td>
</tr>
</tbody>
</table>

**Potential Permitting Factors:**

- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
- How many?
- Approx. DBH

**Soils:**

- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):

- Yes
- No

Compacted.

Use underdrains in designs.
DESIGN OR DELIVERY NOTES

- Use water from cistern to irrigate landscaping.
- Several opportunities at this site to disconnect IC.
- Many projects at sites C4 & C5 can be designed similarly.
- New bidg is being constructed for adjacent site. This may influence/later project C.
- Soils are compacted. Need to include underdrains in bioretention designs.

FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

☐ Confirm property ownership
☐ Confirm drainage area
☐ Confirm drainage area impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing stormwater practice as-builts
☐ Obtain site as-builts
☐ Obtain detailed topography
☐ Obtain utility mapping
☐ Confirm storm drain invert elevations
☐ Confirm soil types
☐ Other:

INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

- Projects B & D are good for student education/demo. Students can be involved in design/build.
- Timing of project C should be after construction of new bidg in quad area.
- Can package construction for sites C4 & C5 due to design similarities.

SITE CANDIDATE FOR FURTHER INVESTIGATION:

☐ YES ☐ NO ☐ MAYBE

IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):

☐ YES ☐ NO ☐ MAYBE

IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):

☐ YES ☐ NO ☐ MAYBE

IF YES, TYPE(S):
**WATERSHED:** Eagleville  
**SUBWATERSHED:**  
**UNIQUE SITE ID:** C6

**DATE:** 7/15/09  
**ASSESSED BY:** EACk  
**CAMERA ID:**  
**PICTURES:**

**GPS ID:**  
**LMK ID:**  
**LAT:**  
**LONG:**

**SITE DESCRIPTION**

**Name:** Don W. William H. Hall (Hall)  
**Address:**

**Ownership:**  
- Public  
- Private  
- Unknown  
- Local  
- State  
- DOT  
- Other:  

**Corresponding USSR/USA Field Sheet?**  
- Yes  
- No  
**If yes, Unique Site ID:**

**Proposed Retrofit Location:**

**Storage**  
- Existing Pond  
- Below Outfall  
- In Road ROW  
- Other: Above Roadway Culvert  
- In Conveyance System  
- Near Large Parking Lot

**On-Site**  
- Hotspot Operation  
- Small Parking Lot  
- Individual Street  
- Underground  
- Individual Rooftop  
- Small Impervious Area  
- Landscape / Hardscape  
- Other:

**DRAINAGE AREA TO PROPOSED RETROFIT**

- Drainage Area: 0.122 acres  
- Imperviousness: 100%  
- Impervious Area: 527.5 square feet

**Drainage Area Land Use:**  
- Residential  
- SFH (< 1 ac lots)  
- SFH (> 1 ac lots)  
- Townhouses  
- Multi-Family  
- Commercial  
- Institutional  
- Industrial  
- Transport-Related  
- Park  
- Undeveloped  
- Other:

**EXISTING STORMWATER MANAGEMENT**

**Existing Stormwater Practice:**  
- Yes  
- No  
- Possible  

If Yes, Describe:

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

External Downspouts directly connected to storm drain system

**Existing Head Available and Points Where Measured:**
### Proposed Retrofit

**Purpose of Retrofit:**
- Water Quality
- Demonstration / Education
- Recharge
- Channel Protection
- Flood Control
- Other: Runoff Reduction

**Retrofit Volume Computations - Target Storage:**
- 425 CF

**Retrofit Volume Computations - Available Storage:**
- WQTV

### Proposed Treatment Option:
- Extended Detention
- Filtering Practice
- Wet Pond
- Infiltration
- Created Wetland
- Swale
- Bioretention
- Other:

### Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:
- Opportunity to disconnect downspouts to grassed area + connect BR areas w/ undrains. Undrains should connect to existing storm drain system.
- Alternative concept would be to restore the surrounding site, soils & do a simple downspout connection. Need to confirm soil types & degree of compaction.

### Site Constraints

#### Adjacent Land Use:
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped

#### Access:
- No Constraints
- Constrained due to:
  - Slope
  - Space
  - Utilities
  - Tree Impacts
  - Structures
  - Property Ownership
  - Other:

#### Possible Conflicts Due to Adjacent Land Use?
- Yes
- No

#### Conflicts with Existing Utilities:
- None
- Unknown

#### Yes Possible
- Sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires
- Other:

### Potential Permitting Factors:
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
  - How many? Approx. DBH

#### Other factors:

### Soils:
- Soil auger test holes:
  - Yes
  - No

- Evidence of poor infiltration (clays, fines):
  - Yes
  - No

- Evidence of shallow bedrock:
  - Yes
  - No

- Evidence of high water table (gleying, saturation):
  - Yes
  - No
See aerial for BP opps.

- 6-9'' ponding depth by underdrains
**Design or Delivery Notes**

- Potential to involve students in design and construction

---

**Follow-up Needed to Complete Field Concept**

<table>
<thead>
<tr>
<th>☐ Confirm property ownership</th>
<th>☐ Obtain existing stormwater practice as-buils</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Confirm drainage area</td>
<td>☐ Obtain site as-buils</td>
</tr>
<tr>
<td>☐ Confirm drainage area impervious cover</td>
<td>☐ Obtain detailed topography</td>
</tr>
<tr>
<td>☐ Confirm volume computations</td>
<td>☐ Obtain utility mapping</td>
</tr>
<tr>
<td>☐ Complete concept sketch</td>
<td>☐ Confirm storm drain invert elevations</td>
</tr>
<tr>
<td>☐ Other:</td>
<td>☐ Confirm soil types</td>
</tr>
</tbody>
</table>

**Initial Feasibility and Construction Considerations**

- Good student design/education project. Involve students in design/build
- Need to confirm underlying soils

---

**Site Candidate for Further Investigation:**

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>MAYBE</th>
</tr>
</thead>
</table>

**Is Site Candidate for Early Action Project(s):**

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>MAYBE</th>
</tr>
</thead>
</table>

**If No, Site Candidate for Other Restoration Project(s):**

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>MAYBE</th>
</tr>
</thead>
</table>

**If Yes, Type(s):**
**WATERSHED:** Eagleville  
**SUBWATERSHED:**  
**UNIQUE SITE ID:** C7

**DATE:** 5/09  
**ASSESSED BY:**  
**CAMERA ID:**  
**PICTURES:**

**GPS ID:**  
**LMK ID:**  
**LAT:**  
**LONG:**

**SITE DESCRIPTION**

**Name:** pavement area in front of QS (first building)  
**Address:**

**Ownership:**  
- [ ] Public  
- [ ] Private  
- [ ] Unknown  
- [ ] Local  
- [ ] State  
- [ ] DOT  
- [ ] Other: Conn

**Corresponding USSR/USA Field Sheet?**  
- [ ] Yes  
- [x] No  
If yes, Unique Site ID:

**Proposed Retrofit Location:**

- [ ] Existing Pond  
- [ ] Above Roadway Culvert  
- [ ] Below Outfall  
- [ ] In Conveyance System  
- [ ] In Road ROW  
- [ ] Near Large Parking Lot  
- [ ] Other:

- [ ] Hotspot Operation  
- [ ] Small Parking Lot  
- [ ] Individual Street  
- [ ] Underground  
- [ ] Landscape / Hardscape  
- [ ] Other:

**DRAINAGE AREA TO PROPOSED RETROFIT**

**Drainage Area:** $0.001$ acre  
**Imperviousness:** $100\%$  
**Impervious Area:** $2650sf$

**Notes:**

**EXISTING STORMWATER MANAGEMENT**

**Existing Stormwater Practice:**  
- [ ] Yes  
- [x] No  
- [ ] Possible

If Yes, Describe:

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

Runoff from impervious area drains to storm drain system.

**Existing Head Available and Points Where Measured:**
### PROPOSED RETROFIT

**Purpose of Retrofit:**
- [ ] Water Quality
- [ ] Recharge
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Demonstration / Education
- [ ] Repair
- [ ] Runoff Reduction

**Retrofit Volume Computations - Target Storage:**

172 of

**Retrofit Volume Computations - Available Storage:**

**Proposed Treatment Option:**
- [ ] Extended Detention
- [x] Wet Pond
- [ ] Created Wetland
- [ ] Bioretention
- [ ] Filtering Practice
- [ ] Infiltration
- [ ] Swale
- [ ] Other: **Removal**

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

Remove pavement & restore underlying area

by restoring perviousness & planting turf.

### SITE CONSTRAINTS

**Adjacent Land Use:**
- [ ] Residential
- [ ] Commercial
- [x] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other:

**Possible Conflicts Due to Adjacent Land Use:**
- [x] Yes
- [ ] No

**If Yes, Describe:**

Transportation, maybe old construction

**Access:**
- [ ] No Constraints
- [ ] Constrained due to
  - [ ] Slope
  - [ ] Space
  - [ ] Utilities
  - [ ] Tree Impacts
  - [ ] Structures
  - [ ] Property Ownership
  - [ ] Other:

**Conflicts with Existing Utilities:**
- [ ] None
- [ ] Unknown
- [ ] Yes
  - [ ] Possible
    - [ ] Yes
      - Sewer
      - Water
      - Gas
      - Cable
      - Electric
      - Electric to Streetlights
      - Overhead Wires
    - [ ] No
      - Other:

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
- How many?
- Approx. DBH

**Other factors:**

**Soils:**
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):
- [ ] Yes
- [ ] No

**Unique Site ID:**
see aerial
**DESIGN OR DELIVERY NOTES**

- Area may have been used for construction access. It is recommended that temporary rubber matting be used instead of permanent pavement.

- Road appears to serve no particular area.

**FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT**

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch
- Obtain existing stormwater practice as-buils
- Obtain site as-buils
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types

**INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS**

- [ ] Low priority

**SITE CANDIDATE FOR FURTHER INVESTIGATION:**

**IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):**

**IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):**

**IF YES, TYPE(S):**
### Retrofit Reconnaissance Investigation

#### Watershed: Eagleville

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<th>Date:</th>
<th>7/15/06</th>
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</thead>
<tbody>
<tr>
<td><strong>Watershed:</strong></td>
<td>Eagleville</td>
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<td><strong>Subwatershed:</strong></td>
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<td>KAC/MA</td>
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<tr>
<td><strong>LAT:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>LONG:</strong></td>
<td></td>
</tr>
</tbody>
</table>

#### Site Description

- **Name:** William Kent
- **Address:** Museum (WPM A)
- **Ownership:**
  - Public: No
  - Private: Yes
  - Unknown: No
- ** If Public, Government Jurisdiction:**
  - Local: No
  - State: No
  - DOT: No
  - Other: Yes
- **Corresponding USSR/USA Field Sheet?**
  - Yes: No
  - No: Yes
  - If yes, Unique Site ID: |

#### Proposed Retrofit Location:

- **Storage**
  - Existing Pond: No
  - Below Outfall: No
  - In Road ROW: No
  - Other:

- **On-Site**
  - Hotspot Operation: No
  - Small Parking Lot: Yes
  - Individual Street: No
  - Landscape / Hardscape: No
  - Other: No

#### Drainage Area to Proposed Retrofit

- **Drainage Area:** 0.036 acre
- **Imperviousness:** 100%
- **Impervious Area:** 1573.8 SF

#### Notes:

#### Existing Stormwater Management

- **Existing Stormwater Practice:**
  - Yes: No
  - No: Yes
  - Possible: No

- **If Yes, Describe:**

#### Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

External downspouts directly connected to storm drain system.

#### Existing Head Available and Points Where Measured:
## Proposed Retrofit

**Purpose of Retrofit:**

- [ ] Water Quality
- [ ] Recharge
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Demonstration / Education
- [ ] Repair
- [ ] Runoff Reduction

**Retrofit Volume Computations - Target Storage:**

125 CF

**Retrofit Volume Computations - Available Storage:**

\[ WQU = TV \]

**Proposed Treatment Option:**

- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [ ] Bioretention
- [ ] Infiltration
- [ ] Swale
- [ ] Other:

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

Disconnect downsputs on S side of bridge

Convey runoff to constructed BR area

Avoid structural elements

## Site Constraints

**Adjacent Land Use:**

- [ ] Residential
- [ ] Commercial
- [ ] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other:

**Possible Conflicts Due to Adjacent Land Use?**

- [ ] Yes
- [ ] No

**Access:**

- [ ] No Constraints
- Constrained due to
  - [ ] Slope
  - [ ] Space
  - [ ] Utilities
  - [ ] Tree Impacts
  - [ ] Structures
  - [ ] Property Ownership
  - [ ] Other:

**Conflicts with Existing Utilities:**

- [ ] None
- [ ] Unknown
- [ ] Yes
  - [ ] Sewer
  - [ ] Water
  - [ ] Gas
  - [ ] Cable
  - [ ] Electric
  - [ ] Electric to Streetlights
  - [ ] Overhead Wires
  - [ ] Other:

**Potential Permitting Factors:**

- [ ] Dam Safety Permits Necessary
- [ ] Probable
- [ ] Not Probable
- [ ] Impacts to Wetlands
- [ ] Probable
- [ ] Not Probable
- [ ] Impacts to a Stream
- [ ] Probable
- [ ] Not Probable
- [ ] Floodplain Fill
- [ ] Probable
- [ ] Not Probable
- [ ] Impacts to Forests
- [ ] Probable
- [ ] Not Probable
- [ ] Impacts to Specimen Trees
- [ ] Probable
- [ ] Not Probable

**How many?**

- [ ] Approx. DBH

**Soils:**

- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):

**Other factors:**

- [ ] Yes
- [ ] No

**Compacted Fill**
Retrofit Reconnaissance Investigation

**SKETCH**

- **UMBA bldg.**
- **Cobble feeder to disperse energy**
- **6-9" ponding depth**
- **Avoid sewer line when connecting underground to storm sewer system.**
- **Walkway**

- **Existing C8 underground should connect here or to existing sew network.**
DESIGN OR DELIVERY NOTES

- Major foundation/drainage work is underway around rear of bldg. Further investigation needed.

FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

☐ Confirm property ownership
☐ Confirm drainage area
☐ Confirm drainage area impervious cover
☐ Confirm volume computations
☐ Complete concept sketch

☐ Obtain existing stormwater practice as-builts
☐ Obtain site as-builts
☐ Obtain detailed topography
☐ Obtain utility mapping
☐ Confirm storm drain invert elevations
☐ Confirm soil types

☐ Other:

INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

- Obtain subsite drainage plans for bldg before completing design.
- Good student education/demo site can involve students in design/build.

SITE CANDIDATE FOR FURTHER INVESTIGATION:
☐ YES ☐ NO ☐ MAYBE

IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):
☐ YES ☐ NO ☐ MAYBE

IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):
☐ YES ☐ NO ☐ MAYBE

IF YES, TYPE(S):
**WATERSHED:** Eagleville  
**SUBWATERSHED: **  
**UNIQUE SITE ID:** C9

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<td>LMK ID:</td>
<td></td>
<td>LAT:</td>
<td>LONG:</td>
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</tbody>
</table>

**SITE DESCRIPTION**

**Name:** UCconn Student Union  
**Address:**

**Ownership:**  
- [ ] Public  
- [ ] Private  
- [ ] Unknown  
- [ ] DOT  
- [ ] Other: Institutional

**If Public, Government Jurisdiction:**  
- [ ] Local  
- [ ] State  
- [ ] DOT  
- [ ] Other: Institutional

**Corresponding USSR/USA Field Sheet?**  
- [ ] Yes  
- [x] No

**If yes, Unique Site ID:**

**Proposed Retrofit Location:**

**Storage**
- [ ] Existing Pond  
- [ ] Below Outfall:  
- [ ] In Road ROW  
- [ ] Other:

**On-Site**
- [ ] Above Roadway Culvert  
- [ ] In Conveyance System  
- [ ] Near Large Parking Lot  
- [ ] Individual Street  
- [ ] Underground  
- [ ] Small Parking Lot  
- [ ] Individual Rooftop  
- [ ] Small Impervious Area  
- [ ] Landscape / Hardscape  
- [ ] Other:

**DRAINAGE AREA TO PROPOSED RETROFIT**

**Drainage Area =** 0.399 ac  
**Imperviousness =** 0.53  
**Impervious Area =** 10.320 sf

**Drainage Area Land Use:**  
- [x] Institutional  
- [ ] Residential  
- [ ] Industrial  
- [ ] SFH (< 1 ac lots)  
- [ ] SFH (> 1 ac lots)  
- [ ] Transport-Related  
- [ ] Townhouses  
- [ ] Park  
- [ ] Multi-Family  
- [ ] Undeveloped  
- [ ] Commercial  
- [ ] Other:

**EXISTING STORMWATER MANAGEMENT**

**Existing Stormwater Practice:**  
- [ ] Yes  
- [x] No  
- [ ] Possible

**If Yes, Describe:**

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

Rooftop runoff & runoff from terrace area drain (sheetflow)  
Dawn steep slope: erosion from slope is resulting in high sediment loads to storm drain. Slope also experiences heavy foot traffic

**Existing Head Available and Points Where Measured:**
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- [x] Water Quality
- [ ] Demonstration / Education
- [ ] Recharge
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Repair
- [ ] Other:

**Retrofit Volume Computations - Target Storage:**

\[ W_{QV} = 846 \text{ CF} \]

**Retrofit Volume Computations - Available Storage:**

\[ T_v = w_{QV} \]

**Proposed Treatment Option:**
- [x] Bioretention
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [ ] Infiltration
- [ ] Swale
- [ ] Other:

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

Construct BR area near existing yard drain to capture runoff. Create a terraced check dam system down the slope to dissipate runoff energy.

Can also construct a permeable pavement walkway (stairs) up heavy traffic area on slope.

---

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- [x] Institutional
- [ ] Commercial
- [ ] Residential
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other:

**Possible Conflicts Due to Adjacent Land Use?**
- [ ] Yes
- [x] No

**Conflicts with Existing Utilities:**
- [ ] None
- [ ] Unknown
- [ ] Yes
- [ ] Possible

- [ ] Sewer
- [ ] Water
- [ ] Gas
- [ ] Cable
- [ ] Electric
- [ ] Electric to Streetlights
- [ ] Overhead Wires
- [ ] Other:

**Potential Permitting Factors:**

- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
  - How many?
  - Approx. DBH

**Other factors:**

**Soils:**

- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):

- [ ] Old
- [x] New

Compacted fill soils.
SKETCH

ROOF (no downspouts)

Sheet flow runoff

- Option: Install sw planters

- Install cobble distributors

PATIO Area

EXISTING PLANTER

REMEENABLE PAVEMENT WALKWAY (LOFT)

Grass Swale

Grass Swale

PEA gravel filter

6-9" pending

Existing yard drain

Tie underdrain into existing storm drain system

Page 3 of 4
- High visibility
- Project area is somewhat slope constrained. Need to include check dams/energy dissipators in design.
- Soils are compacted: need to include underdrains in designs.

FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT:

☐ Confirm property ownership
☐ Confirm drainage area
☐ Confirm drainage area impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing stormwater practice as-builts
☐ Obtain site as-builts
☐ Obtain detailed topography
☐ Obtain utility mapping
☐ Confirm storm drain invert elevations
☐ Confirm soil types
☐ Other:

INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS:

Higher priority site => lots of sediment in/around storm drain.
- Good education/demo project. High visibility. Involve students in design/build.

SITE CANDIDATE FOR FURTHER INVESTIGATION: ☒ YES ☐ NO ☐ MAYBE
IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S): ☐ YES ☐ NO ☐ MAYBE
IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S): ☐ YES ☐ NO ☐ MAYBE
IF YES, TYPE(S):
**WATERSHED:** None | **SUBWATERSHED:** None | **UNIQUE SITE ID:** C100

**DATE:** 7/16 | **ASSESSED BY:** None | **CAMERA ID:** None | **PICTURES:** None

**GPS ID:** None | **LMK ID:** None | **LAT:** None | **LONG:** None

### SITE DESCRIPTION

**Name:** [Blank]

**Address:** [Blank]

**Ownership:** Public [X] Private [ ] Unknown [ ]

If Public, Government Jurisdiction: Local [X] State [ ] DOT [ ] Other [ ]

**Corresponding USSR/USA Field Sheet?** Yes [X] No [ ]

If yes, Unique Site ID: [Blank]

### Proposed Retrofit Location:

**Storage**
- Existing Pond [ ]
- Below Outfall [ ]
- In Road ROW [ ]
- Other: [ ]

**On-Site**
- Above Roadway Culvert [X]
- In Conveyance System [ ]
- Near Large Parking Lot [ ]
- Other:

### DRAINAGE AREA TO PROPOSED RETROFIT

**Drainage Area ≈** [Blank] ft²

**Imperviousness ≈** [Blank] %

**Impervious Area ≈** 2.49 acres

**Notes:** [Blank]

### EXISTING STORMWATER MANAGEMENT

**Existing Stormwater Practice:** Yes [X] No [ ] Possible [ ]

If Yes, Describe:

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

Exisiting Swale Captures Parking Lot Drainage.

**Existing Head Available and Points Where Measured:**
### Retrofit Reconnaissance Investigation

**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- [ ] Water Quality
- [ ] Demonstration / Education
- [X] Recharge
- [X] Repair
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Other: ____________________________

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

**Proposed Treatment Option:**
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [X] Bioretention
- [ ] Filtering Practice
- [ ] Infiltration
- [ ] Swale
- [ ] Other: ____________________________

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

- **DIVERT FLOW FROM EXISTING SWALE TO BIORETENTION PRACTICE. OVERFLOW TO EXISTING STORM DRAIN. INSTALL UNDERDRAIN + ATTACH TO STORM DRAIN.**

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- [ ] Residential
- [ ] Commercial
- [ ] Institutional
- [X] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other: ____________________________

**Possible Conflicts Due to Adjacent Land Use?**
- [ ] Yes
- [ ] No

**Conflicts with Existing Utilities:**
- [ ] None
- [ ] Unknown
- [ ] Yes
- [ ] Possible

- [ ] Sewer
- [ ] Water
- [ ] Gas
- [ ] Cable
- [ ] Electric
- [ ] Electric to Streetlights
- [ ] Overhead Wires
- [ ] Other: ____________________________

**Potential Permitting Factors:**

- Dam Safety Permits Necessary: [ ] Probable, [ ] Not Probable
- Impacts to Wetlands: [ ] Probable, [ ] Not Probable
- Impacts to a Stream: [ ] Probable, [ ] Not Probable
- Floodplain Fill: [ ] Probable, [ ] Not Probable
- Impacts to Forests: [ ] Probable, [ ] Not Probable
- Impacts to Specimen Trees: [ ] Probable, [ ] Not Probable

  How many? ____________________________

  Approx. DBH ________________________

**Other factors:** ____________________________

**Soils:**
- Soil auger test holes: [ ] Yes, [ ] No
- Evidence of poor infiltration (clays, fines): [ ] Yes, [ ] No
- Evidence of shallow bedrock: [ ] Yes, [ ] No
- Evidence of high water table (gleying, saturation): [ ] Yes, [ ] No

---

Unique Site ID: 900
**DESIGN OR DELIVERY NOTES**

Investigate Drainage Area in more detail (Storm Drain Maps).

**FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT**

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch

- Obtain existing stormwater practice as-builts
- Obtain site as-builts
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types

**Other:**

**INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS**

| SITE CANDIDATE FOR FURTHER INVESTIGATION: | YES | NO | MAYBE |
| IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S): | YES | NO | MAYBE |
| IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S): | YES | NO | MAYBE |

If yes, type(s):
<table>
<thead>
<tr>
<th>WATERSHED: EAGLEVILLE</th>
<th>SUBWATERSHED:</th>
<th>UNIQUE SITE ID: CIO1</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE: 7/16</td>
<td>ASSESSED BY:</td>
<td>PICTURES:</td>
</tr>
<tr>
<td>GPS ID:</td>
<td>LMK ID:</td>
<td>LAT:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LONG:</td>
</tr>
</tbody>
</table>

**SITE DESCRIPTION**

- **Name:**
- **Address:**
- **Ownership:**
  - [ ] Public
  - [ ] Private
  - [ ] Unknown
- **If Public, Government Jurisdiction:**
  - [ ] Local
  - [ ] State
  - [ ] DOT
  - [ ] Other:
- **Corresponding USSR/USA Field Sheet?**
  - [ ] Yes
  - [ ] No
  - If yes, Unique Site ID:

**Proposed Retrofit Location:**

- **Storage**
  - [ ] Existing Pond
  - [ ] Below Outfall
  - [ ] In Road ROW
  - [ ] Other:

- **On-Site**
  - [ ] Above Roadway Culvert
  - [ ] In Conveyance System
  - [ ] Near Large Parking Lot
  - [ ] Individual Rooftop
  - [ ] Small Parking Lot
  - [ ] Individual Street
  - [ ] Landscape / Hardscape
  - [ ] Underground
  - [ ] Other:

**DRAINAGE AREA TO PROPOSED RETROFIT**

- **Drainage Area**~
- **Imperviousness**~
- **Impervious Area**~69 acres

**Drainage Area Land Use:**

- [ ] Residential
- [ ] Institutional
- [ ] SFH (< 1 ac lots)
- [ ] Industrial
- [ ] SFH (> 1 ac lots)
- [ ] Transport-Related
- [ ] Townhouses
- [ ] Park
- [ ] Multi-Family
- [ ] Undeveloped
- [ ] Commercial
- [ ] Other:

**EXISTING STORMWATER MANAGEMENT**

- **Existing Stormwater Practice:**
  - [ ] Yes
  - [ ] No
  - [ ] Possible

- **If Yes, Describe:**

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

> **CURRENTLY** DRAINAGE FROM PARKING LOT CONVEYED VIA CURBS TO STORM DRAIN.

**Existing Head Available and Points Where Measured:**
### PROPOSED RETROFIT

**Purpose of Retrofit:**
- Water Quality
- Demonstration / Education
- Recharge
- Channel Protection
- Other:

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other:

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

Curb cuts & swales to convey to proposed practice, overflow to existing storm drain.

### SITE CONSTRAINTS

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other:

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

**If Yes, Describe:**

**Conflicts with Existing Utilities:**
- None
- Unknown
- Yes
- Possible

<table>
<thead>
<tr>
<th>Utilities</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electric</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electric to Streetlights</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhead Wires</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Other factors:**

**Soils:**
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Probable
- Not Probable
- Impacts to Wetlands
- Probable
- Not Probable
- Impacts to a Stream
- Probable
- Not Probable
- Floodplain Fill
- Probable
- Not Probable
- Impacts to Forests
- Probable
- Not Probable
- Impacts to Specimen Trees
- Probable
- Not Probable
- How many?
- Approx. DBH

**Other factors:**

**Unique Site ID:** C101
SKETCH

EXISTING STORM DRAIN

CURB CUT

PARKING LOT

COP CUT

UNDERDRAIN (IF NEEDED)

FILTER BED

OVERFLOW TO STORM DRAIN

SA X 1,500 SF
DESIGN OR DELIVERY NOTES

FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch
- Obtain existing stormwater practice as-buils
- Obtain site as-buils
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types
- Other:

INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

SITE CANDIDATE FOR FURTHER INVESTIGATION:

IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):

IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):

IF YES, TYPE(S):

Unique Site ID: 0101
**Watershed:** Eagle

**Subwatershed:**

**Unique Site ID:** C102

**Date:** 7/11/20

**Assessed By:**

**Camera ID:**

**Pictures:**

**Site Description**

**Name:** Towers Residence Hall

**Address:**

**Ownership:**

- Public
- Private
- Unknown

**If Public, Government Jurisdiction:**

- Local
- State
- DOT
- Other:

**Corresponding USSR/USA Field Sheet?**

- Yes
- No

**If yes, Unique Site ID:**

**Proposed Retrofit Location:**

- **Storage**
  - Existing Pond
  - Above Roadway Culvert
  - Below Outfall
  - In Road ROW
  - Near Large Parking Lot
  - Other:

- **On-Site**
  - Hotspot Operation
  - Individual Parking Lot
  - Individual Street
  - Underground
  - Other:

**DRAINAGE AREA TO PROPOSED RETROFIT**

- **Drainage Area:**
  - Imperviousness: _____%
  - Impervious Area: _____ acres

**Drainage Area Land Use:**

- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other:

**Existing Stormwater Management**

- **Existing Stormwater Practice:**
  - Yes
  - No
  - Possible

- **If Yes, Describe:**

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

*Parking Lot Drainage Captured by a Single Storm Drain*

**Existing Head Available and Points Where Measured:**
<table>
<thead>
<tr>
<th>PROPOSED RETROFIT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose of Retrofit:</strong></td>
</tr>
<tr>
<td>☑ Water Quality</td>
</tr>
<tr>
<td>☑ Demonstration / Education</td>
</tr>
<tr>
<td>☐ Repair</td>
</tr>
</tbody>
</table>

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

<table>
<thead>
<tr>
<th>Proposed Treatment Option:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ Extended Detention</td>
</tr>
<tr>
<td>☐ Filtering Practice</td>
</tr>
<tr>
<td>☐ Infiltration</td>
</tr>
<tr>
<td>☐ Bioretention</td>
</tr>
</tbody>
</table>

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

Trench drain to convey flows to bioretention. Overflow to existing storm drain.

<table>
<thead>
<tr>
<th>SITE CONSTRAINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adjacent Land Use:</strong></td>
</tr>
<tr>
<td>☑ Residential</td>
</tr>
<tr>
<td>☐ Industrial</td>
</tr>
<tr>
<td>☐ Undeveloped</td>
</tr>
<tr>
<td><strong>Possible Conflicts Due to Adjacent Land Use?</strong> ☑ Yes  ☐ No</td>
</tr>
</tbody>
</table>

**Conflicts with Existing Utilities:**

<table>
<thead>
<tr>
<th>Yes</th>
<th>Possible</th>
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<tbody>
<tr>
<td>☑</td>
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<td>☐</td>
<td>☑ Gas</td>
</tr>
<tr>
<td>☐</td>
<td>☑ Cable</td>
</tr>
<tr>
<td>☐</td>
<td>☑ Electric</td>
</tr>
<tr>
<td>☑</td>
<td>☑ Electric to Streetlights</td>
</tr>
<tr>
<td>☑</td>
<td>☑ Overhead Wires</td>
</tr>
<tr>
<td>☐</td>
<td>☐ Other:</td>
</tr>
</tbody>
</table>

**Potential Permitting Factors:**

| Dam Safety Permits Necessary | Probable | Not Probable |
| Impacts to Wetlands | Probable | Not Probable |
| Impacts to a Stream | Probable | Not Probable |
| Floodplain Fill | Probable | Not Probable |
| Impacts to Forests | Probable | Not Probable |
| Impacts to Specimen Trees | Probable | Not Probable |
| How many? |  |
| Approx. DBH |  |

**Other factors:**

- Other:

**Soils:**

- Soil auger test holes: ☑ Yes  ☐ No
- Evidence of poor infiltration (clays, fines): ☑ Yes  ☐ No
- Evidence of shallow bedrock: ☑ Yes  ☐ No
- Evidence of high water table (gleying, saturation): ☑ Yes  ☐ No
SKETCH

NOTE: EXISTING WATER/SEWER

POTENTIAL CONFLICTS
### DESIGN OR DELIVERY NOTES

#### POTENTIAL UTILITY CONFLICTS

### FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

<table>
<thead>
<tr>
<th>Task</th>
<th>Action</th>
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<tbody>
<tr>
<td>Confirm property ownership</td>
<td>Obtain existing stormwater practice as-builts</td>
</tr>
<tr>
<td>Confirm drainage area</td>
<td>Obtain site as-builts</td>
</tr>
<tr>
<td>Confirm drainage area impervious cover</td>
<td>Obtain detailed topography</td>
</tr>
<tr>
<td>Confirm volume computations</td>
<td>Obtain utility mapping</td>
</tr>
<tr>
<td>Complete concept sketch</td>
<td>Confirm storm drain invert elevations</td>
</tr>
<tr>
<td>Obtain existing stonnwater practice as-builts</td>
<td>Confirm soil types</td>
</tr>
</tbody>
</table>

### INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

### SITE CANDIDATE FOR FURTHER INVESTIGATION:

- [ ] YES
- [ ] NO
- [ ] MAYBE

### IS SITE CANDIDATE FOR EARLY ACTION PROJECT(S):

- [ ] YES
- [ ] NO
- [ ] MAYBE

### IF NO, SITE CANDIDATE FOR OTHER RESTORATION PROJECT(S):

- [ ] YES
- [ ] NO
- [ ] MAYBE

IF YES, TYPE(S):__

Unique Site ID: C102
### Retrofit Reconnaissance Investigation (RRI)

<table>
<thead>
<tr>
<th><strong>WATERSHED:</strong></th>
<th><strong>SUBWATERSHED:</strong></th>
<th><strong>UNIQUE SITE ID:</strong></th>
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<tbody>
<tr>
<td>Edenville</td>
<td></td>
<td>C103</td>
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<tr>
<th><strong>DATE:</strong></th>
<th><strong>ASSESSED BY:</strong></th>
<th><strong>CAMERA ID:</strong></th>
<th><strong>PICTURES:</strong></th>
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</tbody>
</table>

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<tr>
<th><strong>GPS ID:</strong></th>
<th><strong>LMK ID:</strong></th>
<th><strong>LAT:</strong></th>
<th><strong>LONG:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Site Description

**Name:** TOWERS HALLS

**Address:**

**Ownership:**
- [ ] Public
- [ ] Private
- [ ] Unknown
- [ ] Local
- [ ] State
- [ ] DOT
- [ ] Other:

**If Public, Government Jurisdiction:**
- [ ] Local
- [ ] State
- [ ] DOT
- [ ] Other:

**Corresponding USSR/USA Field Sheet?**
- [ ] Yes
- [ ] No
  - If yes, Unique Site ID:

### Proposed Retrofit Location

**Storage**
- [ ] Existing Pond
- [ ] Below Outfall
- [ ] In Road ROW
- [ ] In Conveyance System
- [ ] Near Large Parking Lot
- [ ] Other:

**On-Site**
- [ ] Hotspot Operation
- [ ] Small Parking Lot
- [ ] Individual Street
- [ ] Landscape / Hardscape
- [ ] Underground
- [ ] Other:

### Drainage Area to Proposed Retrofit

<table>
<thead>
<tr>
<th><strong>Drainage Area ÷</strong></th>
<th><strong>Imperviousness ÷</strong></th>
<th><strong>Impervious Area ÷</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>.12 acres</td>
</tr>
</tbody>
</table>

**Notes:**

### Existing Stormwater Management

**Existing Stormwater Practice:**
- [ ] Yes
- [ ] No
- [ ] Possible

**If Yes, Describe:**

*EXISTING BIOTRANSWETION W/ SOME CONVEYANCE ISSUES (FLOW BYPASSES) CAPTURES FLOW FROM IMMEDIATE AREA.*

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

*REMAINDER OF SITE FLOWS TO STORM DRAIN SYSTEM.*

**Existing Head Available and Points Where Measured:**

---

Page 1 of 4

Unique Site ID: C103
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- [ ] Water Quality
- [ ] Demonstration / Education
- [ ] Repair
- [ ] Channel Protection
- [ ] Flood Control
- [ ] Other:

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

**Proposed Treatment Option:**
- [ ] Extended Detention
- [ ] Wet Pond
- [ ] Created Wetland
- [ ] Bioretention
- [ ] Filtering Practice
- [ ] Infiltration
- [ ] Swale
- [ ] Other:

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

```
EXPAND TO ~ 400 SF
CONVERT ADDITIONAL DRAINAGE
WITH TRENCH DRAINS.
```

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- [ ] Residential
- [ ] Commercial
- [ ] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped
- [ ] Other:

**Access:**
- [ ] No Constraints
- [ ] Slope
- [ ] Space
- [ ] Tree Impacts
- [ ] Structures
- [ ] Property Ownership
- [ ] Other:

**Conflicts with Existing Utilities:**
- [ ] None
- [ ] Unknown
- [ ] Yes
- [ ] Possible
  - [ ] Sewer
  - [ ] Water
  - [ ] Gas
  - [ ] Cable
  - [ ] Electric
  - [ ] Electric to Streetlights
  - [ ] Overhead Wires
  - [ ] Other:

**Potential Permitting Factors:**
- [ ] Dam Safety Permits Necessary
- [ ] Impacts to Wetlands
- [ ] Impacts to a Stream
- [ ] Floodplain Fill
- [ ] Impacts to Forests
- [ ] Impacts to Specimen Trees
  - [ ] How many?
  - [ ] Approx. DBH
  - [ ] Other factors:

**Soils:**
- [ ] Soil auger test holes:
- [ ] Evidence of poor infiltration (clays, fines):
- [ ] Evidence of shallow bedrock:
- [ ] Evidence of high water table (gleying, saturation):
SKETCH

- Grubbed Island
- Expand to about 400 SF
- Existing Bioretention
- Trench
- Drains to capture flow
- Street
- Exit 50 to Alt 1S Overflow
## FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

- Confirm property ownership
- Confirm drainage area
- Confirm drainage area impervious cover
- Confirm volume computations
- Complete concept sketch
- Obtain existing stormwater practice as-builts
- Obtain site as-builts
- Obtain detailed topography
- Obtain utility mapping
- Confirm storm drain invert elevations
- Confirm soil types
- Other:

## INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

<table>
<thead>
<tr>
<th>Site Candidate for Further Investigation:</th>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is Site Candidate for Early Action Project(S):</td>
<td>Yes</td>
<td>No</td>
<td>Maybe</td>
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<tr>
<td>If no, Site Candidate for Other Restoration Project(S):</td>
<td>Yes</td>
<td>No</td>
<td>Maybe</td>
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</tbody>
</table>

If yes, type(s): [ ]
### Retrofit Reconnaissance Investigation (RRI)

**WATERSHED:** Eagleville  
**SUBWATERSHED:** C104  
**UNIQUE SITE ID:** C104

<table>
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<tr>
<th>Date</th>
<th>Assessed By</th>
<th>Camera ID</th>
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<td>7/16</td>
<td>PEPY CA/SR</td>
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<th>LAT:</th>
<th>LONG:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Site Description

**Name:** Towers Residence Hall

**Address:**

**Ownership:**

- [ ] Public
- [ ] Private
- [ ] Unknown

**If Public, Government Jurisdiction:**

- [ ] Local
- [ ] State
- [ ] DOT
- [ ] Other:

**Corresponding USSR/USA Field Sheet?**

- [ ] Yes
- [ ] No

**If yes, Unique Site ID:**

### Proposed Retrofit Location

**Storage:**

- [ ] Existing Pond
- [ ] Below Outfall
- [ ] In Road ROW
- [ ] Other:

**On-Site:**

- [ ] Above Roadway Culvert
- [ ] In Conveyance System
- [ ] Near Large Parking Lot

**Proposed Retrofit Location:**

- [ ] Storage
- [ ] On-Site

### Drainage Area to Proposed Retrofit

<table>
<thead>
<tr>
<th>Drainage Area</th>
<th>Imperviousness</th>
<th>Impervious Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>16,754 ft²</td>
<td>65%</td>
<td>.22 acres</td>
</tr>
</tbody>
</table>

**Drainage Area Land Use:**

- [ ] Residential
- [ ] SFH (< 1 ac lots)
- [ ] SFH (> 1 ac lots)
- [ ] Townhouses
- [ ] Multi-Family
- [ ] Commercial
- [ ] Institutional
- [ ] Industrial
- [ ] Transport-Related
- [ ] Park
- [ ] Undeveloped

**Other:**

### Existing Stormwater Management

**Existing Stormwater Practice:**

- [ ] Yes
- [ ] No
- [ ] Possible

If Yes, Describe:

**Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:**

**Existing Head Available and Points Where Measured:**
**PROPOSED RETROFIT**

**Purpose of Retrofit:**
- Water Quality
- Demonstration / Education
- Channel Protection
- Flood Control
- Other:

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

**Proposed Treatment Option:**
- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other:

**Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:**

![Small Bioretention (Rain Gardens) to Capture Road Drainage](image)

**SITE CONSTRAINTS**

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other:

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

**Access:**
- No Constraints
- Constrained due to:
  - Slope
  - Utilities
  - Structures
  - Tree Impacts
  - Property Ownership
  - Other:

**Conflicts with Existing Utilities:**
- None
- Unknown
- Yes
- Possible

- Sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires
- Other:

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
- How many?________
- Approx. DBH________

**Other factors:**

**Soils:**
- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):

**Unique Site ID:** c109
## Design or Delivery Notes

Need to confirm location of sewer.

May need to fingerprint around sewer/water.

## Follow-up Needed to Complete Field Concept

<table>
<thead>
<tr>
<th>Confirm property ownership</th>
<th>Obtain existing stormwater practice as-buils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirm drainage area</td>
<td>Obtain site as-buils</td>
</tr>
<tr>
<td>Confirm drainage area impervious cover</td>
<td>Obtain detailed topography</td>
</tr>
<tr>
<td>Confirm volume computations</td>
<td>Obtain utility mapping</td>
</tr>
<tr>
<td>Complete concept sketch</td>
<td>Confirm storm drain invert elevations</td>
</tr>
<tr>
<td></td>
<td>Confirm soil types</td>
</tr>
</tbody>
</table>

Other:

## Initial Feasibility and Construction Considerations

Site Candidate for Further Investigation: **Maybe**

Is Site Candidate for Early Action Project(s): **No**

If No, Site Candidate for Other Restoration Project(s): **No**

If Yes, Type(s):

Unique Site ID: 424
**WATERSHED:** Eagleville  |  **SUBWATERSHED:**  |  **UNIQUE SITE ID:** C105

**DATE:**  |  **ASSESSED BY:**  |  **CAMERA ID:**  |  **PICTURES:**
7/16  |  |  |  

**GPS ID:**  |  **LMK ID:**  |  **LAT:**  |  **LONG:**  
|  |  |  |  

### SITE DESCRIPTION

**Name:** Towers Residence  
**Address:**  

**Ownership:**  
- Public  
- Private  
- Unknown  

**If Public, Government Jurisdiction:**  
- Local  
- State  
- DOT  
- Other:  

**Corresponding USSR/USA Field Sheet?**  
- Yes  
- No  

**If yes, Unique Site ID:**  

### Proposed Retrofit Location:

**Storage**  
- Existing Pond  
- Above Roadway Culvert  
- Below Outfall  
- In Road ROW  
- Other:  

**On-Site**  
- Hotspot Operation  
- Small Parking Lot  
- Individual Street  
- Underground  
- Other:  

### DRAINAGE AREA TO PROPOSED RETROFIT

**Drainage Area ≈**  
**Imperviousness ≈**  
**Impervious Area ≈**  

**Drainage Area Land Use:**  
- Residential  
- SFH (< 1 ac lots)  
- SFH (> 1 ac lots)  
- Townhouses  
- Multi-Family  
- Commercial  
- Other:  

### EXISTING STORMWATER MANAGEMENT

**Existing Stormwater Practice:**  
- Yes  
- No  
- Possible  

**If Yes, Describe:**  

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

- Bare and compacted soil  
- Erosion in courtyard  

**Existing Head Available and Points Where Measured:**
**PROPOSED RETROFIT**

<table>
<thead>
<tr>
<th>Purpose of Retrofit:</th>
<th></th>
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<tbody>
<tr>
<td>Water Quality</td>
<td>Recharge</td>
</tr>
<tr>
<td>Demonstration / Education</td>
<td>Repair</td>
</tr>
<tr>
<td>Channel Protection</td>
<td>Flood Control</td>
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</tbody>
</table>

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

**Proposed Treatment Option:**

- Extended Detention
- Wet Pond
- Created Wetland
- Bioretention
- Filtering Practice
- Infiltration
- Swale
- Other:

Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:

**SITE CONSTRAINTS**

<table>
<thead>
<tr>
<th>Adjacent Land Use:</th>
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</thead>
<tbody>
<tr>
<td>Residential</td>
</tr>
<tr>
<td>Industrial</td>
</tr>
<tr>
<td>Undeveloped</td>
</tr>
</tbody>
</table>

Possible Conflicts Due to Adjacent Land Use?  
Yes  No

If Yes, Describe:

**Access:**

- No Constraints
- Constrained due to:
  - Slope
  - Space
  - Utilities
  - Tree Impacts
  - Structures
  - Property Ownership
  - Other:

**Conflicts with Existing Utilities:**

- None
- Unknown

Yes  Possible

- Sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires
- Other:

Potential Permitting Factors:

- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees

How many?

- Approx. DBH

Other factors:

**Soils:**

- Soil auger test holes:
- Evidence of poor infiltration (clays, fines):
- Evidence of shallow bedrock:
- Evidence of high water table (gleying, saturation):

Yes  No
SKETCH

WATER EROSION BARS

TOWER LOOP RD.

TREE PLANTING

SOIL AMENDMENTS THROUGHOUT
### DESIGN OR DELIVERY NOTES

<table>
<thead>
<tr>
<th>Follow-up Needed to Complete Field Concept</th>
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<tbody>
<tr>
<td>□ Confirm property ownership</td>
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<tr>
<td>□ Confirm soil types</td>
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<tr>
<td>□ Other:</td>
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</tbody>
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### INITIAL FEASIBILITY AND CONSTRUCTION CONSIDERATIONS

<table>
<thead>
<tr>
<th>Site Candidate for Further Investigation:</th>
<th>□ Yes</th>
<th>□ No</th>
<th>□ Maybe</th>
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<tr>
<td>Is Site Candidate for Early Action Project(s):</td>
<td>□ Yes</td>
<td>□ No</td>
<td>□ Maybe</td>
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<tr>
<td>If No, Site Candidate for Other Restoration Project(s):</td>
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<td>□ No</td>
<td>□ Maybe</td>
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<tr>
<td>If Yes, Type(s):</td>
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</table>
Site ID: C105

Storm structures

- Stormwater Pipes
- UCONN Water Pipes
- UCONN Steam Pipes
### Retrofit Reconnaissance Investigation

**Watershed:**  
**Subwatershed:**  
**Unique Site ID:** C106

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<td></td>
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</table>

**Site Description**

**Name:**  
**Address:**  

**Ownership:**  
- [ ] Public  
- [ ] Private  
- [ ] Unknown

If Public, Government Jurisdiction:  
- [ ] Local  
- [ ] State  
- [ ] DOT  
- [ ] Other:

Corresponding USSR/USA Field Sheet?  
- [ ] Yes  
- [ ] No  
If yes, Unique Site ID:

**Proposed Retrofit Location:**

**Storage**  
- [ ] Existing Pond  
- [ ] Above Roadway Culvert  
- [ ] Below Outfall  
- [ ] In Conveyance System  
- [ ] In Road ROW  
- [ ] Near Large Parking Lot  
- [ ] Other:

**On-Site**  
- [ ] Hotspot Operation  
- [ ] Small Parking Lot  
- [ ] Individual Street  
- [ ] Underground  
- [ ] Landscape / Hardscape  
- [ ] Other:

**Drainage Area to Proposed Retrofit**

**Drainage Area:**  
**Imperviousness:**  
**Impervious Area:**

**Notes:**

**Existing Stormwater Management**

**Existing Stormwater Practice:**  
- [ ] Yes  
- [ ] No  
- [ ] Possible

If Yes, Describe:

Describe Existing Site Conditions, Including Existing Site Drainage and Conveyance:

STORMWATER CONVEYED TO STORM DRAIN IN SW CORNER OF THE LOT.

Existing Head Available and Points Where Measured:
### PROPOSED RETROFIT

**Purpose of Retrofit:**
- Water Quality
- Demonstration / Education
- Repair
- Channel Protection
- Flood Control
- Other: __________

**Retrofit Volume Computations - Target Storage:**

**Retrofit Volume Computations - Available Storage:**

---

**Proposed Treatment Option:**
- Extended Detention
- Filtering Practice
- Wet Pond
- Infiltration
- Created Wetland
- Swale
- Bioretention
- Other: __________

Describe Elements of Proposed Retrofit, Including Surface Area, Maximum Depth of Treatment, and Conveyance:

![Diagram: Trench drains convey SW to proposed bioretention, overflow to storm drain network.]

---

### SITE CONSTRAINTS

**Adjacent Land Use:**
- Residential
- Commercial
- Institutional
- Industrial
- Transport-Related
- Park
- Undeveloped
- Other: __________

**Possible Conflicts Due to Adjacent Land Use?**
- Yes
- No

If Yes, Describe:

**Conflicts with Existing Utilities:**
- None
- Unknown

Yes POSSIBLE
- Sewer
- Water
- Gas
- Cable
- Electric
- Electric to Streetlights
- Overhead Wires
- Other: STEAM

**Potential Permitting Factors:**
- Dam Safety Permits Necessary
- Impacts to Wetlands
- Impacts to a Stream
- Floodplain Fill
- Impacts to Forests
- Impacts to Specimen Trees
  - How many? __________
  - Approx. DBH __________

**Access:**
- No Constraints
- Constrained due to
  - Slope
  - Space
  - Utilities
  - Structures
  - Tree Impacts
  - Property Ownership
  - Other: __________

**Soils:**
- Soil auger test holes: Yes
- Evidence of poor infiltration (clays, fines): Yes
- Evidence of shallow bedrock: Yes
- Evidence of high water table (gleying, saturation): Yes

*Unique Site ID: 106*
### DESIGN OR DELIVERY NOTES

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<td>Confirm soil types</td>
<td></td>
</tr>
</tbody>
</table>

- Other:

### FOLLOW-UP NEEDED TO COMPLETE FIELD CONCEPT

<table>
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<tr>
<td>If No, Site Candidate for Other Restoration Project(s):</td>
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If Yes, Type(s):  

Unique Site ID: C00