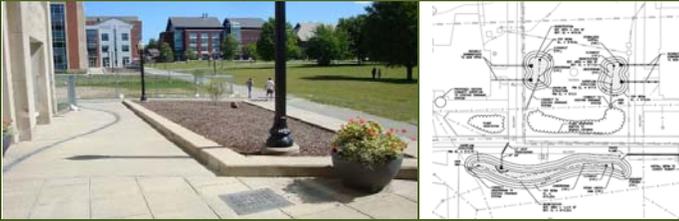


Site C4/5: Education/Gentry Buildings and Sundial Garden

Integrating Stormwater and Landscape Management

Project Summary



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

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.

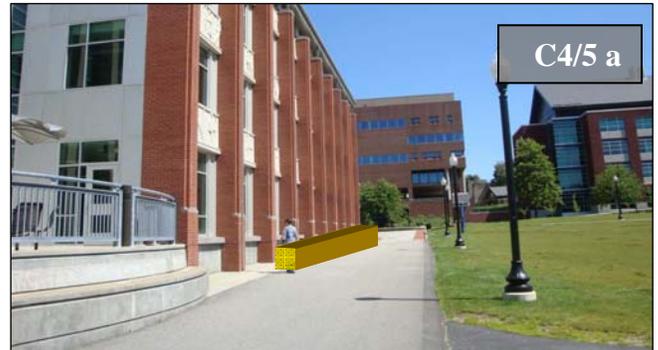


Figure 1. (C4/5-a) Potential location for stormwater planter boxes. (C4/5-b) Potential location for a cistern. (C4/5-c/d) Compaction in the Sundial Garden area and the proposed location of soil amendments and bioretention. (C4/5-e) Proposed location of larger bioretention project.

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.

| Sizing Calculations for Site C4 and C5 | | | |
|--|---------|---------|--------|
| Parameter | Value | | |
| | C4/5-a* | C4/5-d* | C4/5-e |
| Drainage Area, A (acres) | 0.12 | 0.07 | 0.47 |
| Imperviousness, I (%) | 100 | 100 | 72 |
| Volumetric Runoff Coefficient, Rv | 0.95 | 0.95 | 0.70 |
| Rainfall Depth, P (in) | 1 | 1 | 1 |
| Water Quality Volume, WQv (cf) | 403 | 251 | 1184 |
| Depth of the Filter Bed, d (ft) | 2.5 | 2.5 | 2.50 |
| Hydraulic Conductivity, k (ft/day) | 1 | 1 | 1 |
| Max. Ponding Depth, hmax (in) | 3 | 9 | 6 |
| Average Ponding Depth, h (ft) | 0.125 | 0.375 | 0.25 |
| Drawdown Time, t (days) | 1 | 2 | 2 |
| Surface Area Required, Af (sq. ft) | 384 | 113 | 538 |
| Surface Area Provided (sq ft) | 400 | 1000 | 1,215 |
| Treatment Provided (% of 1") | 100 | 100 | 100 |

*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

Sites C4 and C5. Education Building, Gentry Building, and Sundial Garden

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.

| Maintenance Activities for site C4/C5 | |
|--|------------------------------------|
| Activity Schedule | Frequency |
| <ul style="list-style-type: none"> • Water once a week during the first two months, and then as needed and depending on rainfall to promote plant growth and survival. • 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. | As Needed (following construction) |
| <ul style="list-style-type: none"> • Prune and weed bioretention area to maintain appearance. • Remove accumulated trash/debris. | Regularly (Monthly) |
| <ul style="list-style-type: none"> • Inspect inflow area for sediment accumulation and remove any accumulated sediment or debris. • Inspect bioretention area for dead or dying vegetation. Plant replacement vegetation as needed. | Annually |
| <ul style="list-style-type: none"> • Remove and replace existing mulch. | Every 2 to 3 Years |