Rain Garden Installation

NRCA Student: Carlos Barrantes[1]

Community Partner: Victoria Hoyland[2]

[1]Bunnell High Schooll; [2]The Nature Conservancy

Stormwater Management

Impervious surfaces, such as driveways, roofs, and sidewalks facilitate the movement of storm water. When it rains, runoff and pollutants flow into drains. These drains lead into local streams and the polluted storm water runoff can damage the local ecosystems.

Motivation for a Rain Garden at Bunnell

Bunnell High School has several areas affected by storm water runoff (Fig. 3). A rain garden could help address these issues, and bring many benefits such as pollution control, flooding protection, habitat creation, and water conservations. Further, a rain garden allows for storm water to slowly infiltrate back into the soil as the plants and soil filter pollutants.

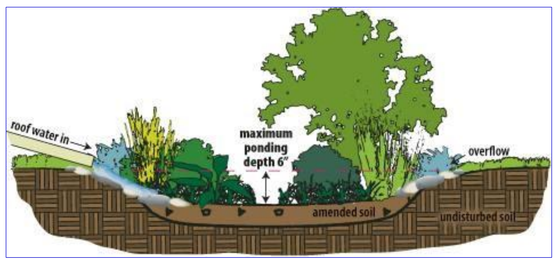


Figure 2. This is the general idea of how a rain garden looks and how it functions.

White Astilbe

Great Blue Lobelia

Planning the Rain Garden

- **Beginning in October 2018, a request for material donations of mulch, rocks, flowers, and perennials was sent to 2 garden centers in the Stratford area. Two plant species were selected to plant (see above).**
- **Several sites at Bunnell High School in Stratford, CT were evaluated to determine the best location for a rain garden (Fig. 3).**
- **CT ECO aerial imagery was used to check the elevation of the sites (Fig. 3).**
- **The cul-de-sac in front of the school was identified as the best location.**

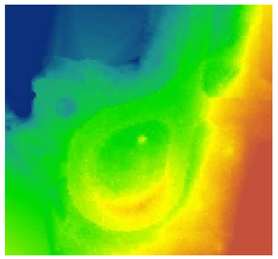
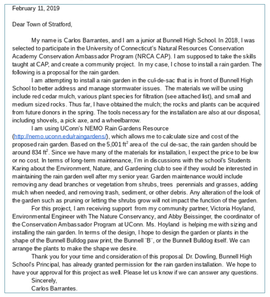


Figure 3. (left) evaluating sites at Bunnell High School; (middle) the selected garden site; (right) CT ECO aerial imagery of the selected site, kindly provided by V. Hoyland.

Meeting with Stakeholders

- **In December, a meeting was held to present the idea to Bunnell High School's Principal and Stratford town officials to gain all necessary approvals.**
- **A proposal was written (Fig 4.) and distributed to stakeholders of the project.**



February 11, 2019

Dear Town of Stratford,

My name is Carlos Barrantes, and I am a junior at Bunnell High School. In 2018, I was selected to participate in the University of Connecticut's Natural Resources Conservation Academy Conservation Ambassador Program (NRCA CAP). I am supposed to take the skills taught at CAP, and create a community project. In my case, I chose to install a rain garden. The following is a proposal for the rain garden.

I am attempting to install a rain garden in the cul-de-sac that is in front of Bunnell High School to better address and manage stormwater issues. The materials we will be using include red cedar mulch, various plant species for filtration (see attached list), and small and medium sized rocks. Thus far, I have obtained the mulch; the rocks and plants can be acquired from future donors in the spring. The tools necessary for the installation are also at our disposal, including shovels, a pick axe, and a wheelbarrow.

I am using UConn's NEMO Rain Gardens Resource (http://nemo.uconn.edu/raingardens/), which allows me to calculate size and cost of the proposed rain garden. Based on the 5,001 ft² area of the cul de-sac, the rain garden should be around 834 ft². Since we have many of the materials for installation, I expect the price to be low or no cost. In terms of long-term maintenance, I'm in de-cussions with the school's Students Karing about the Environment, Nature, and Gardening club to see if they would be interested in maintaining the rain garden well after my senior year. Garden maintenance would include removing any dead branches or vegetation from shrubs, trees perennials and grasses, adding mulch when needed, and removing trash, sediment, or other debris. Any alteration of the look of the garden such as pruning or letting the shrubs grow will not impact the function of the garden.

For this project, I am receiving support from my community partner, Victoria Hoyland, Environmental Engineer with The Nature Conservancy, and Abby Beissinger, the coordinator of the Conservation Ambassador Program at UConn. Ms. Hoyland is helping me with sizing and installing the rain garden. In terms of the design, I hope to design the garden or plants in the shape of the Bunnell Bulldog paw print, the Bunnell 'B', or the Bunnell Bulldog itself. We can arrange the plants to make the shape we desire.

Thank you for your time and consideration of this proposal. Dr. Dowling, Bunnell High School's Principal, has already granted permission for the rain garden installation. We hope to have your approval for this project as well. Please let us know if we can answer any questions.

Sincerely,

Carlos Barrantes.

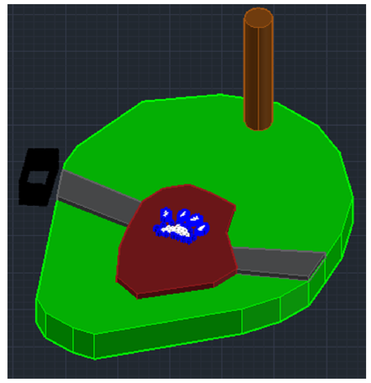
Figure 4. The proposal drawn up and finalized.

Rain Garden App

A Mobile App for designing, installing, and maintaining a Rain Garden

Check out UConn's Rain Garden App to design your own rain garden!

Rain Garden Design



Designed in AutoCAD

Blue: Great Blue Lobelia
White: White Astilbe
Grey: stones and rocks
Black: storm drain
Red: Cedar mulch
Green: cul de sac installation site
Brown: tree in the area

Future Directions

Since we started the planning process in the winter, installation will begin in spring 2019 when the ground is thawed and it is warm enough to plant. My family would help with the installation of the rain garden, and for future maintenance, we've asked the school's S.K.A.T.E.N.G. Club (Nature, Environment and Gardening Club) for help maintaining this garden long term.

With the rain garden in place, we hope to see more of the storm water runoff being directed to it, rather than flowing to the storm drains. Ideally the rain garden will discourage pollutants into local waterways, and improve water quality in the area.

References

https://www.como.gov/utilities/stormwater/stormwater-education/understanding-the-issue/attachment/04104-prop-caltrans-stormwater-runoff-graphic_paths_p4_11oct16-01-01-2/

Acknowledgements

I'd like to thank everyone that has helped me with this project, my community partner Victoria Hoyland, Abby Beissinger who is the CAP coordinator, Dr. Doweling, the principal of Frank Scott Bunnell High school, and to all the people who donated materials for this project.