

## Camden SMART Rubble Project

Camden SMART now has over 50 stormwater management sites throughout Camden City. Many of the sites have one or more rain gardens which were originally constructed without a border. Damage has occurred to some of these sites. A border was needed to both define and protect the garden.



Tobiah Horton, Rutgers Assistant Professor and Extension Specialist in Landscape Architecture developed a project which reuses concrete rubble. Clean concrete rubble was obtained from an Authority contractor. The Camden PowerCorps were assigned to make and install rubble borders as part of rain garden maintenance.

Tobiah demonstrated to the PowerCorps members how to form the concrete into pieces. Gloves and eye protection were worn. The concrete pieces were sorted by size. Several pieces of concrete were already in the shape and size needed. Larger pieces were moved so that they could be broken into the size needed. The concrete was shaped into a block, using a sledge hammer and chisel. Some of the pieces had the edges shaped or smoothed. Pallets were stacked with four or five rows of the finished rubble blocks. These were wrapped in plastic and tied with rope for transportation to the installation site.

This collaborative project, supervised by Camden County Municipal Utilities Authority Staff, reuses material which would otherwise go to a landfill, teaches PowerCorps members how to use tools, and protects the stormwater management features. Many of the tools used by the PowerCorps were purchased by Camden Greenways Inc. Tools were also borrowed from Rutgers and the Camden County Tool Library for this project.

The first site installed was the Jackson Street rain garden. This site is located very close to the rubble pile and was the easiest to transport the rubble. The rain garden at this site had no border or definition before this project. Our O&M staff moved the material to the site. A small trench was dug around the raingarden, about 1/3 of the size of the height of the pieces deep. The pieces were then placed into this shallow trench. The soil was packed around each block to secure it from moving. The installation was finished the same day by the PowerCorps members.

The Camden County Library on Ferry Avenue has two Camden SMART rain gardens and both now have downspout splash blocks and a rubble border installed. The new border solved a problem at the site which was caused by vandals throwing much smaller rocks that had previously been used in these gardens. The rubble border pieces are much larger and more difficult to move or throw. This border prevents landscapers from cutting into the gardens by mistake.

The third site for the rubble is the two large Gateway CSO rain gardens. These rain gardens are in an isolated area and have been damaged in the past. The border and rubble pieces help to identify and protect the rain garden.

The fourth site is the Dudley Grange Park rain garden. This garden is in a Camden City Park and has been replanted and had a new drain added. The border was installed as a team project by both the Camden and Philadelphia PowerCorps.

The Brimm School rain garden was chosen for the next rubble border. The border was installed a few days after another Camden SMART event was held at the school "Imagine A Day Without Water 2017". Future sites for the rubble border will be chosen as they become available.