Will the green infrastructure prevent people from walking on the sidewalk, or block driveways and building entrances?

DEP works with the Department of Transportation (DOT) to ensure that ROW Bioswales and Stormwater Greenstreets comply with the City's requirements for pedestrian access and safety.

Will the green infrastructure have a fence around it?

Each ROW Bioswale and some Stormwater Greenstreets have tree guards that deter foot traffic. Frequent walking on the soil reduces its ability to absorb rainwater and should be avoided.

Who removes litter and maintains the plants?

The City is responsible for green infrastructure maintenance. DEP funds specialized NYC Parks maintenance crews who visit each location regularly to ensure it is clear of litter. Other maintenance activities include tree pruning, removal and replacement of dead plants, clearing the curb inlets and outlets, and keeping the soil aerated and free of weeds.

Will the sidewalk be damaged by green infrastructure construction?

During construction, DEP fully replaces the sidewalk flags directly around the ROW Bioswale or Stormwater Greenstreet.

Can the green infrastructure be moved to another location?

DEP determines green infrastructure locations based on a number of factors. In addition to meeting DOT pedestrian and vehicle clearance and safety requirements, the green infrastructure must be precisely located to collect stormwater runoff from the street. It also must be installed in an area where the underlying soil can absorb water. DEP is building the maximum number of ROW Bioswales and Stormwater Greenstreets that can fit in the public right-of-way to reduce CSO discharges into New York City's waterways. Once the locations are deemed final, the green infrastructure cannot be relocated.

Will street parking be affected by green infrastructure?

ROW Bioswales are designed to have no impact on street parking. When Stormwater Greenstreets are proposed, DEP and DOT work to minimize parking impacts.

Will green infrastructure prevent street flooding?

ROW Bioswales and Stormwater Greenstreets are designed to manage stormwater in typical rain events, but will not prevent street flooding. Green infrastructure will improve street drainage, which may reduce large puddles and standing water in some rainstorms.

Can green infrastructure be built on private property?

DEP offers a Green Infrastructure Grant Program for private property owners in the combined sewer areas of New York City.

Aside from improved harbor water quality, does green infrastructure provide any other benefits?

The plants and trees in green infrastructure installations contribute to a greener, more beautiful street. The trees' shade can reduce street temperatures in summer. Through a process called evapotranspiration, trees and plants cool and clean the air by absorbing stormwater through their roots, and releasing oxygen and water vapor through their leaves. The leaves also capture carbon dioxide and particles in the air, which can improve air quality and reduce asthma rates. Green infrastructure can also provide habitat—including food and shelter—for many species of birds and other wildlife.

What can I do to help?

Residents can learn more about how green infrastructure functions by participating in the Bioswale-Care program and becoming a volunteer steward. For more information about upcoming workshops in your borough, contact GIOutreach@dep.nyc.gov.

For more information on DEP's Green Infrastructure Program, call the Bureau of Public Affairs at (718) 595-6500, email GIOutreach@dep.nyc.gov, or visit our website at nyc.gov/dep.

NYC GREEN INFRASTRUCTURE

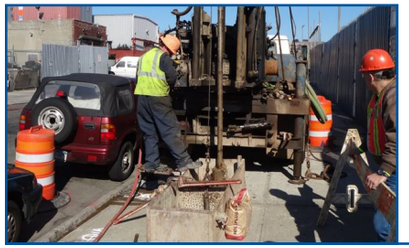
Green infrastructure collects and manages stormwater runoff from impervious surfaces, such as streets and sidewalks. The New York City Department of Environmental Protection (DEP) is building Right-of-way Bioswales, Stormwater Greenstreets, and other stormwater management practices to reduce combined sewer overflow (CSO) discharges into New York City's waterbodies. Green infrastructure is a more cost-effective way to improve water quality in New York City, and will save New Yorkers billions of dollars. Green infrastructure also helps create a more sustainable city. Benefits of green infrastructure include neighborhood beautification, improved air quality, and reduced air temperature during hot weather.

Green Infrastructure Design and Construction Process

You may notice the following activities on your block during the green infrastructure design and construction process.

Green Sidewalk Spray-Paint

To start the process, design teams first visit potential green infrastructure locations. Each potential location that complies with the City's pedestrian and vehicle clearance requirements is marked with green spray-paint.



Geotechnical Investigations

At each potential location, the City collects and tests the underlying soil to ensure it can absorb stormwater. Contractors typically use a drilling machine similar to the one pictured. After the testing is complete, the hole is filled and capped with concrete.

Surveying

If the soil conditions are acceptable, the design team surveys the green infrastructure location and prepares construction drawings. Engineers work with utility companies in advance to eliminate conflicts with existing service lines.

Construction

Construction begins with the removal of existing pavement. Next steps include excavation, and backfilling with layers of stone and engineered soil designed to hold stormwater. The contractor then pours new concrete sidewalk, curbs, and inlets. Next the contractor installs plants, usually including a tree, along with a tree guard. The City inspects each completed green infrastructure installation to ensure it collects stormwater properly.

Operations & Maintenance

During a typical rainstorm, the green infrastructure installation collects stormwater running off the street and sidewalk before it enters the combined sewer system. The City is responsible for green infrastructure maintenance. NYC Parks & Recreation crews will remove litter, sediment, and weeds from each installation on a regular basis.

Frequently Asked Questions

What is a Right-of-way Bioswale?

The *right–of-way* (or ROW) is the area between the two property lines along the street that includes the sidewalks and paved roadway. A bioswale is a planted area that collects stormwater. DEP uses the term ROW Bioswale to describe planted areas in the sidewalk that are designed to collect and manage stormwater that runs off the streets and sidewalks when it rains.

What is a Stormwater Greenstreet?

Stormwater Greenstreets, like ROW Bioswales, are planted areas designed to collect and manage stormwater that runs off the streets and sidewalks. However, Stormwater Greenstreets are typically constructed in the roadway, are usually larger than ROW Bioswales, and have varying lengths, widths and soil depths based on the characteristics of the existing roadway.

Why is the City building ROW Bioswales and Stormwater Greenstreets in this area?

ROW Bioswales and Stormwater Greenstreets are both types of green infrastructure. Green infrastructure collects stormwater runoff from rooftops, streets, and sidewalks before it goes into the combined sewer system and contributes to Combined Sewer Overflow (CSO) pollution in surrounding waterbodies. Green infrastructure is a more cost-effective way to manage stormwater in New York City and will save New Yorkers billions of dollars over the next 20 years.

Will all ROW Bioswales and Stormwater Greenstreets have trees?

All ROW Bioswales and Stormwater Greenstreets have grasses, perennials and shrubs, and trees are included wherever feasible.

Will the tree roots crack the sidewalk?

Sometimes, older tree roots break sidewalks because the tree pit is not large enough for the tree roots. The City's standard ROW Bioswales and Stormwater Greenstreets are at least 10 feet long, which gives the tree roots more space. As the tree grows, the tree roots are less likely to break up the sidewalk.

Will the tree roots interfere with utility service lines?

During design and construction, DEP coordinates with utility companies to ensure that green infrastructure installations will not directly interfere with existing underground and above-ground utility service lines.

Will the green infrastructure attract mosquitoes?

Mosquitoes require a minimum of 72 hours in standing water for larvae development. ROW Bioswales and Stormwater Greenstreets are designed to drain in 48 hours or less.