

StormGarden Installation Guide



Foundation Bed Preparation

Use standard construction procedures for the construction of the bed for StormGarden Systems. As with any construction project, take all standard safety precautions.

- Prepare the sub-grade in accordance with the project specification and any available geotechnical report prepared for the project. Consult project geotechnical engineer when available.



- Follow the project plans for the foundation geometry dimensions, location and elevations. The bottom of the StormGarden must not vary in elevation from the plan dimensions.
- Use a small clean angular stone for the top two (2) inches under the StormGarden vault only to assist in meeting proper elevations.



- Use spray paint (as shown above), chalk line, or another type of guide line to indicate the placement of the StormGarden unit.

Site Access

Prepare the site for easy access before delivery of the precast units or the arrival of the crane, and communicate the truck route to the Rotondo Environmental Solutions (RES) representative.

Delivery

Provide access for the trucks delivering the units to be unloaded next to the crane, and include a convenient turn around for the trucks to back into the unloading area. Expect rutting on non-paved surfaces due to the weight of the trucks, so a piece of equipment should be available to repair and level the surface.



Crane Selection

A representative from the crane company should visit the jobsite prior to the selections of the size crane. **The project SAFETY Inspector should provide the crane company representative with all job requirements prior to arrival so that onsite delays can be avoided!** The crane representative and/or contractor should determine the distance from center of the crane's position to the center of the final position of the precast units. The RES representative will provide the maximum section weight of the StormGarden. The weight and the distance from the center of the crane's position to the center of the final position of the precast units determines the crane size. The filter chambers are the heaviest pieces with all of the internal components preinstalled.

Locate the crane as close to the installation as possible. The staging area for the crane must be stabilized and crane supplier should be prepared to provide outrigger mats.

- The crane company must provide all rigging cables and shackles. **All cables should be adequately sized to pick the heaviest section! The cables should be free of any deformed kinks to insure full capacity is provided!**

Other Considerations

Other opportunities to improve site conditions before installation include the following precautions.

- Clear all tree branches and remove or shield overhead obstacles (i.e. wires, etc) that may interfere in any way during emplacement of the StormGarden units.
- Dewater the site to a level below the bottom of the footing. A properly dewatered site will speed up the job and result in better workmanship.

StormGarden Modules

StormGarden vaults and top slabs have specific lift points based on the center of gravity. Four cables with a minimum length of 20' are needed. Coordinate the supply of these cables between the RES representative and the crane supplier. Coordinate the lifting mechanisms necessary to connect the cables to the unit (type and source) with your RES representative.



3. Verify that elevation of stone bed matches elevation indicated on submittal prior to setting filter chamber. Fine tune elevation with additional stone if necessary, ensuring that stone bed is level and compacted.



Setting StormGarden Modules

The StormGarden system is produced to a very tight tolerance which will contribute to a high quality installation. The StormGarden system is most often shipped as an assembled system with all internal components pre-installed. It is imperative to system operation that internal components remain sealed from potential contamination from silt, trash, and other pollutants during the construction phase, so **pre-installed plywood sealing off the filter chamber and filter fabric must remain in place prior to site stabilization.**

1. Select a crew of five to seven depending on the size of the job and experience of the workers. Assign one as the leader (decision maker) to provide the signals to the crane operator. Have a short safety meeting between all crew members before beginning to set units. Have one crew member at each corner of the StormGarden vault while setting.
2. Stay out from underneath the unit until the unit is set on the foundation bed. Using spray paint or other indicator, mark the stone bed where the corner of the StormGarden is to be set. For systems with multiple chambers, such as with certain pretreatment configurations, ensure that pieces are sitting flush with each other and the separation between the filter and pretreatment chambers is minimal.

4. For systems with multiple chambers, ensure that height is level between the multiple chambers.





5. After the vault has been set, the top slab can be lowered directly onto the vault.

Backfill Procedure

Review and follow the backfilling procedures on the approved project drawings. The following are provided to assist with understanding the backfilling approach.

1. Verify with the site Geotechnical Engineer that backfill material gradations are within the acceptable range specified on the approved drawings.
2. Place and compact backfill in layers until the density is not less than 95% of the maximum dry density.
3. Use mechanical tampers or approved compacting equipment to compact all backfill and embankment immediately adjacent to each side of the installation.



Ensure protection measures (filter fabric, plywood sealing openings) stay in place throughout the construction phase. These protective measures will be removed by the landscaper during activation.

Activation

Once the site has been stabilized and construction is approaching closeout, contact your RES representative to have a landscaper sent out to the job site.

During activation, the landscaper will remove protective measures and install the final components of the system (mulch and tree).



After the StormGarden mulch and tree have been installed and protective measures have been removed, the unit is fully activated.

Adequate care may need needed to ensure the installed tree survives transplantation. Ensure the StormGarden receives water either during storm events or by watering the unit with a hose at least bi-weekly during the first few months after activation to ensure the plant is receiving enough water.

