

STORMTANK

STORMWATER
STORAGE MODULES

STORMTANK INSTALLATION INSTRUCTIONS

StormTank Stormwater Storage Modules Site Preparation & Installation Instructions

SECTION A: Basin Excavation and Base Preparation

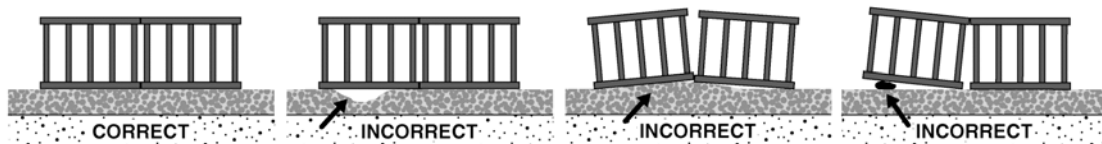
1. Stake out and excavate to proper elevation per approved plans.
2. Excavation elevation must be a minimum of 6" (152 mm) below designed finish StormTank elevation, as shown on site plans, to allow for proper base material installation. Native soil is to be scraped level and compacted to at least 95% standard proctor density at base elevation. Base should be prepared and approved by the Geotechnical Engineer of Record in such a manner to provide a 2000 psf bearing capacity for each unit, and so that settlements are less than 1" total and ½" differential between any two (2) units within the system. Consider specific site conditions such as excavation drainage, wall slopes, and weather that will vary by site.
3. Excavation should be a minimum of 1' (305 mm) larger than proposed StormTank dimensions in length and width to allow for adequate space for side backfill materials. NOTE: In an installation using geogrid, the excavation should be even larger (per design engineer specs).
4. Install specified geotextile fabric and/or liner material to cover the entire base area of excavation. Geotextile fabric and/or liner material seams must be overlapped a minimum of 2' (610 mm). (See "lined detention" or "infiltration" cross section drawings for clarity of material placement)



CAUTION: Erosion may occur between soil and stone interface, so these layers MUST be separated by geotextile fabric.

5. Apply a minimum of 6" (152 mm) of ¾" (19 mm) angular, clean fill (stone) meeting ASTM standard D2321. Use a walk-behind, plate-style vibrator to level and compact base fill to within a 1% slope maximum. Rake and vibrate base material to result in a flat and level surface that has no voids, lumps, or debris in base fill (Fig. 1).

Fig. 1



continued

STORMTANK

STORMWATER
STORAGE MODULES

STORMTANK INSTALLATION INSTRUCTIONS

6. Inspect excavation and base materials for smoothness, compaction, bearing capacity, and level. Correct any unsatisfactory conditions. Inspect for presence of water at excavation base level and ensure that StormTank structure is installed well above existing site water table.



CAUTION: Base preparation is critical to proper installation and operation of StormTank System. DO NOT PROCEED UNTIL BASE IS PROPERLY PREPARED.

SECTION B: StormTank Module Placement

1. Assemble StormTank Modules per assembly instructions.
2. Lay out perimeter of StormTank basin in the prepared excavation. Stake out and run lines to confirm all corners of installation will be square and true (Fig. 2). Measure basin diagonals to ensure basin area is square.
3. Lay geotextile material on the base fill material allowing enough extra material at each end to allow for the wrapping of the basin sides and at minimum 2' (305 mm) top surface overlap.
4. Rows of geotextile material must be overlapped by a minimum of 2' (305mm) or greater if recommended by the geotextile or liner manufacturer.
5. Install individual StormTank modules by hand placing them side by side. Install modules in the proper direction as shown by the StormTank submittal reference drawings (Fig. 3).
6. Place modules against one another making sure the top/bottom platens are in alignment in all directions to within 1/4" (6.4 mm) maximum (Fig. 4). This 1/4" (6.4 mm) tolerance confirms proper base preparation and/or module assembly.

Fig. 2

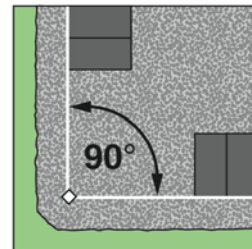


Fig. 3

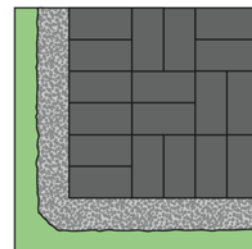
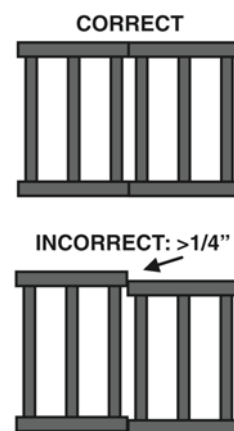


Fig. 4



continued

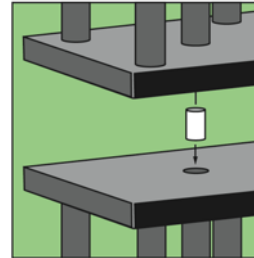
STORMTANK

STORMWATER
STORAGE MODULES

STORMTANK INSTALLATION INSTRUCTIONS

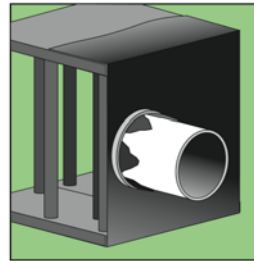
- If the tank is a double stack configuration:
- Install the bottom module first.
 - Insert 2 stacking pins (2 per module) into the top of the lower module (Fig. 5).
 - Place the upper module directly on top of the first module in the same direction, making sure to engage the stacking pins.
 - Complete each double stack as you install.

Fig. 5



- Install the required modules to completion. Take great care to avoid damage to geotextile or liner material during placement. If damage occurs, cover or repair that portion of the material with an undamaged piece in accordance with geotextile manufacturer recommendations.
- Identify locations of inlet, inspection ports and any other penetrations of the StormTank. NO pipe penetrations shall be made in top/bottom panels of module. Mark side panel(s) to allow for inlet/outlet pipe penetration (NOTE: Pipe must be installed between columns). Remove side panel(s) and cut to ensure no other product materials are damaged during cutting process. Reinstall side panel(s) and position inlet/outlet pipe with boot (supplied by others) if specified (Fig. 6). Fully wrap and secure connection area with geotextile material or liner. Support all pipe at StormTank connection point and in trenches during backfill operations to prevent damage to tank, liner or pipe.

Fig. 6



NOTE: Maximum pipe OD not to exceed 14" (356 mm).



CAUTION: Complete the placement of all StormTank modules per basin plans prior to proceeding to next phase (Section C).

SECTION C: Side Backfill

- Pull geotextile fabric from base and securely wrap all module sides. If correctly cut for length the fabric should be long enough to provide full side-module coverage and wrap the top surface of the perimeter modules by 2' (610 mm) minimum. All seams on existing geotextile should overlap by 2' (610 mm) minimum. Correct any errors.
- Install geotextile fabric to fully cover the top of the StormTank modules allowing a 1' (305 mm) minimum wrap over the side of the perimeter modules and a 2' (610 mm) minimum overlap at any row-to-row seams.

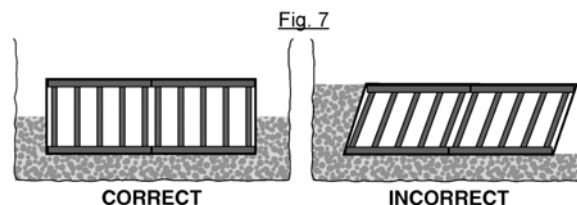
Continued

STORMTANK

STORMWATER
STORAGE MODULES

STORMTANK INSTALLATION INSTRUCTIONS

3. Inspect all geotextile fabric, paying special attention to StormTank basin corners. Ensure that no voids or damage exists which will allow sediment into the StormTank system.
4. Separate stone backfill from native soil walls to prevent erosion of soil into stone by adding geotextile to the native soil side walls.
5. Start to backfill sides using 12" (305 mm) lifts of $\frac{3}{4}$ " (19 mm) angular clean fill material (stone) meeting ASTM standard D2321. Backfill sides "evenly" around the StormTank perimeter. **DO NOT complete backfilling of one side of the installation without having the opposite side backfilled to within a single 1' (305 mm) lift (Fig. 7).**



CAUTION: Completion of the side backfill must be completed to the top elevation of the StormTank Modules prior to proceeding to next phase (Section D).

SECTION D: Top Fill

1. Confirm proper placement of the StormTank's top cover of geotextile fabric as explained in Section C-2.
2. **DO NOT drive on the bare modules without a minimum of 12" (305 mm) backfill cover.**
3. **"Place"** top cover of 12" (305 mm) of $\frac{3}{4}$ " (19 mm) angular clean fill material (stone) meeting ASTM standard D2321, using a small, low ground pressure, track-type vehicle or similar equipment (Maximum gross operating load of 6,000 lbs. [2721 kg] or less). Use a walk-behind, plate-style vibrator to level and compact top fill to ensure full coverage at specified depth. Cover this stone layer with geotextile fabric prior to placing additional top fill materials.
4. Brentwood recommends the installation of geogrid-type material (base reinforcement or biaxial geogrid) with 3' (approx. 1 m) lap at seams to be installed for full coverage over the entire excavated area at a height of 8" (203 mm) above the StormTank.

continued

STORMTANK

STORMWATER STORAGE MODULES

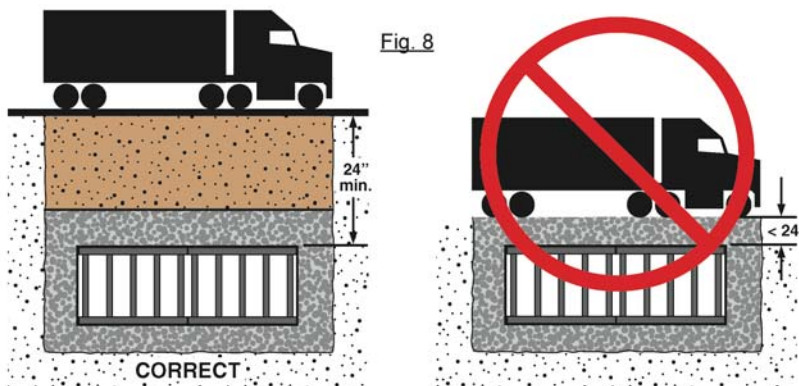
STORMTANK INSTALLATION INSTRUCTIONS

5. **“Place”** clean fill soil top cover in 12” (305 mm) maximum loose lifts and compact with vibratory plate or walk-behind roller (do not use drivable roller compactors) to a minimum of 95% standard proctor density to design grade elevation. If installation is under a parking area, appropriate sub base materials should be used as referenced by engineering drawings. The distance from the bottom of the StormTank System to the final grade elevation should not exceed 11’ (3.35 m). Top fill will vary based on StormTank System height.
6. Finish backfill with specified surface; topsoil with grass, macadam, concrete, etc



CAUTION: Driving on modules with equipment heavier than a low ground pressure vehicle (Maximum gross operating load of 6,000 lbs. [2721 kg] or less) should be avoided until a full 24” (610 mm) base has been placed as cover.

Once completely installed, a StormTank stormwater system can support a fully-factored HS-25 load (Fig. 8).



7/20/09 - Supersedes earlier versions.