

EcoPure Biofilter™ Installation Guide

Field and Pre-Install at the Precast Facility

Note: EcoPure Biofilter is not recommended to be used as an erosion control device during site construction operations. EcoPure Biofilter should remain offline until site stabilization has occurred. Please contact your local ADS representative if you should have any questions.

Sections

1. Material list
2. EcoPure BioFilter pre-install at the precast facility
3. Vault installation – site contractor
4. EcoPure BioFilter installation – site contractor
5. Final field installation steps – site contractor
6. CA bypass method (if applicable) – precast facility/site contractor

Section 1: Material List

| Model | Outlet Manifold Assembly | Nominal Interior Vault Size (ft x ft) | 4" thin Pipe Couplers | Inlet Stand Pipe Assemblies (6") | 4" Rubber Boots | 6" Couplers/Sleeves cast into wall | Bypass Pipe Assembly ^c | Drain Down Module ^d | Length Infiltrator Chambers ^e (ft) | 6" Cleanout Risers | No. 57 Washed gravel (tons) | Filter Fabric (sy) | Filter Media Bags |
|--------------------------|--------------------------|---------------------------------------|-----------------------|----------------------------------|-----------------|------------------------------------|-----------------------------------|--------------------------------|---|--------------------|-----------------------------|--------------------|-------------------|
| EcoPure 60 | 1 | 5 x 8 | 1 | 2 | 1 | 6 | 1 | 1 | 16 | 2 | 2 | 1.7 | 1 |
| EcoPure 120 | 2 | 5 x 12.5 | 2 | 2 | 1 | 6 | 1 | 1 | 26 | 2 | 3.2 | 3.1 | 2 |
| EcoPure 180 | 3 | 5 x 18.5 | 3 | 2 | 1 | 6 | 1 | 2 | 40 | 2 | 5 | 4.7 | 3 |
| EcoPure 240 ^a | 4 | 5 x 13 (2x) | 4 | 4 | 2 | 6 | 2 | 2 | 52 | 4 | 6.4 | 6.2 | 4 |
| EcoPure 360 ^b | 6 | 5 x 18.5 (2x) | 6 | 4 | 2 | 6 | 2 | 4 | 80 | 4 | 10 | 9.4 | 6 |

- a. EcoPure 240 consists of two EcoPure 120 units installed side by side
 b. EcoPure 360 consists of two EcoPure 180 units installed side by side
 c. Bypass assembly may be replaced with weir wall (see CA Bypass Method)

- d. If applicable – required in CA
 e. Chambers to be pre-cut by the manufacturer to the length of the filter bay

Material List

1. Pretreatment cell
2. Biofiltration cell
3. Pipe or surface influent
4. Outlet pipe
5. High flow bypass (may be replaced by internal weir – see CA bypass method)
6. Biofiltration cell internal manifolds
7. FlexStorm® (if applicable)
8. Inlet riser pipe assemblies
9. Infiltrator chambers
10. Gravel (around chambers, not shown)
11. Cleanout

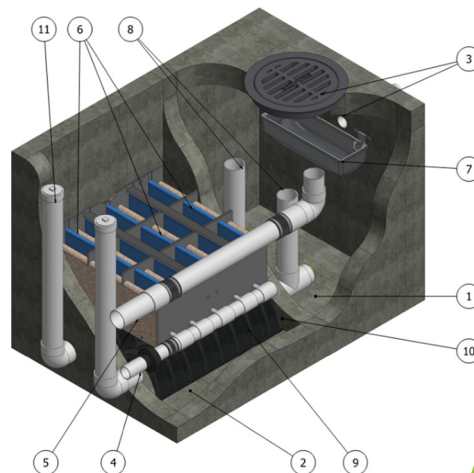
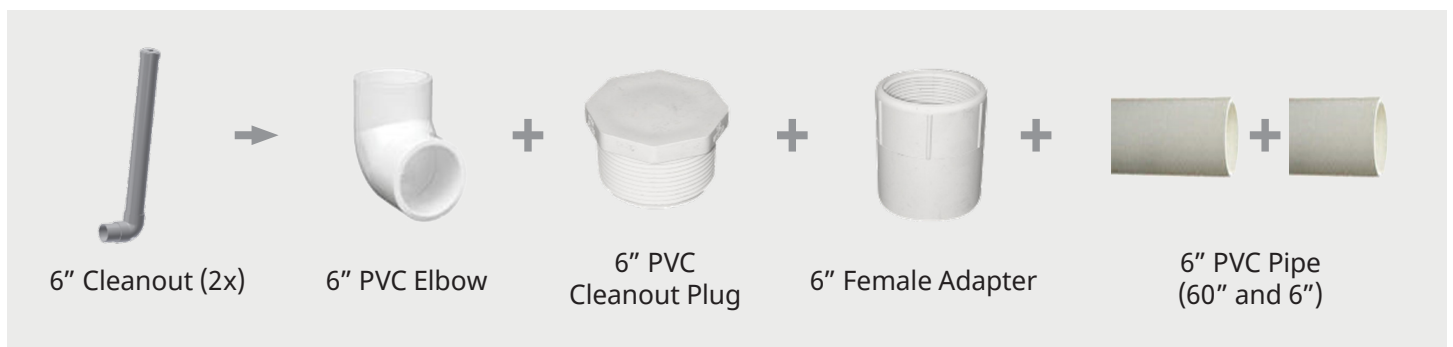
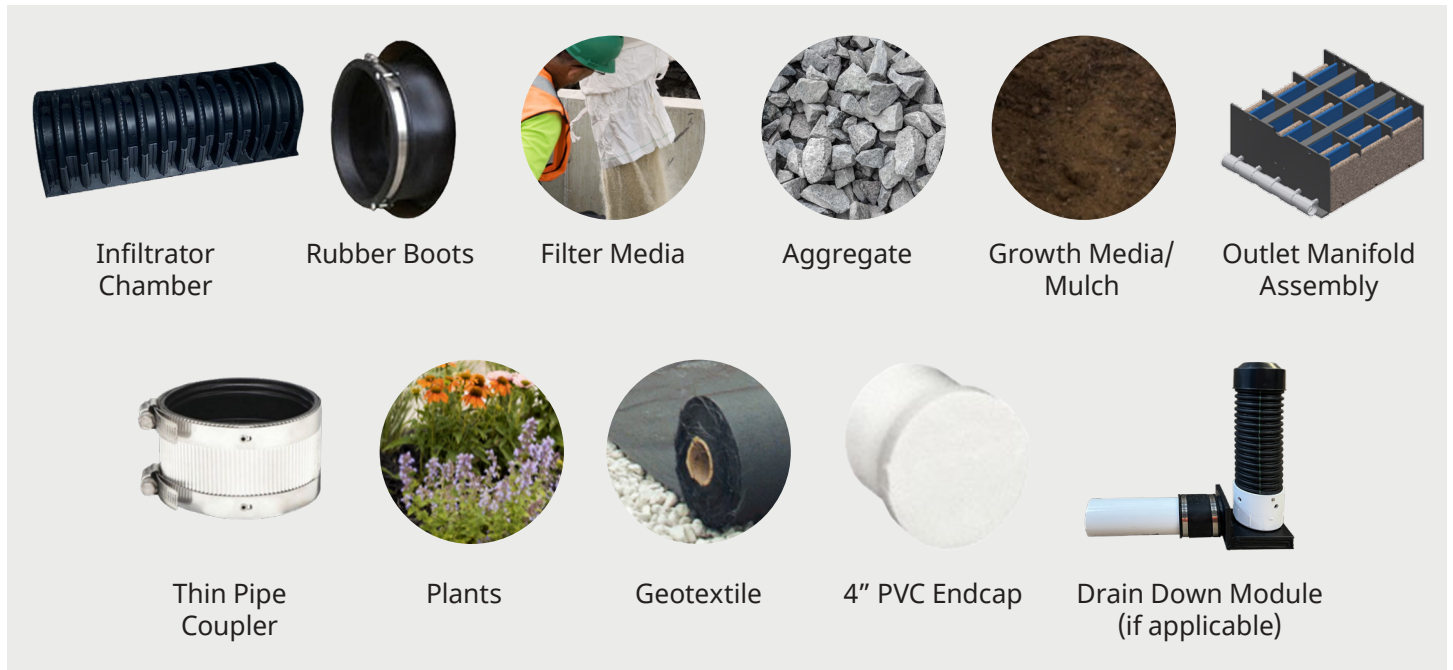


Table 1: EcoPure BioFilter Parts



Section 2: Pre-Install at the Precast Facility

Depending on the gross weight of the base section for the EcoPure BioFilter, several of these steps may occur at the job site. ADS anticipates that the precast vendor can/will perform steps 1-8 regardless of the size of the EcoPure. For the EcoPure 60 system the precast vendor will also perform step 9.

1. In the pretreatment cell, assemble and install 6" PVC tee pipes and fittings, which are marked and labeled, with standard PVC primer and glue. Consult the packing list/document (BOM) for the correct PVC components to create these "tee pipes" and other internal components to the system.
2. Install the bypass elbow in the pretreatment cell (figure 1). See drawing detail for assembly components. Use PVC glue and primer for all appropriate assembly parts. See figure 2 for Inlet Pipe Assembly parts breakdown.



Figure 1: Pipes in pretreatment cell, 2 inlet pipe assemblies and a bypass pipe/elbow

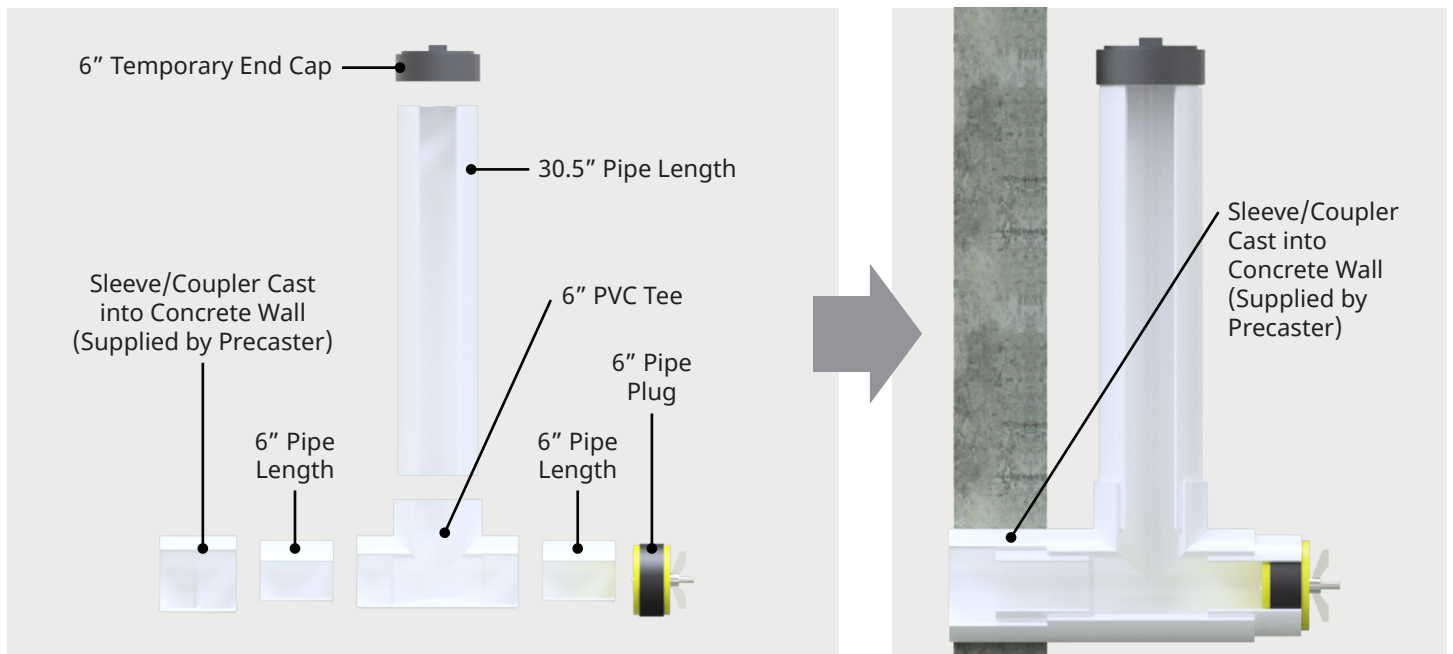


Figure 2: Parts breakdown for Inlet Pipe Assembly

3. Install the inlet filter basket (ADS FlexStorm filter) for trash capture in the pretreatment cell. Mark the holding bracket on the proper wall locations and mount the trash rack. Location will depend on if the EcoPure system has a throated entry or a piped entry and will typically be 3-4 inches below the inlet to the pretreatment cell. The FlexStorm inlet filter unit will be centered under either location. A hammer drill and ¼" (6 mm) bit will be needed to install the hardware (concrete anchors for the Inlet Filter mount). Note if a grated inlet is feeding the pretreatment cell a square or round FlexStorm will be installed to the underside of the vault top. See FlexStorm installation instructions for details.



Figure 3: FlexStorm filters bolted to wall

4. Install temporary rubber covers on top of standpipes. These will be removed later in field when unit is placed into operation. Install 6" (150 mm) wingnut gasketed pipe plugs in the bottom opening of the tee pipes, as shown in figure 2 above.

5. In the biofiltration cell, mark a perimeter line approximately 15" (375 mm) from the bottom of the cell along the walls of the unit. Next, place the two runs of precut chamber pieces lengthwise along the bottom of the cell (see figures 4 and 5). Their assembly should run wall to wall longways and create a cavity connecting the tee pipes in the pretreatment cell with the clean out riser located on the opposite wall of the biofiltration cell.



Figure 4: Chamber flush against the wall

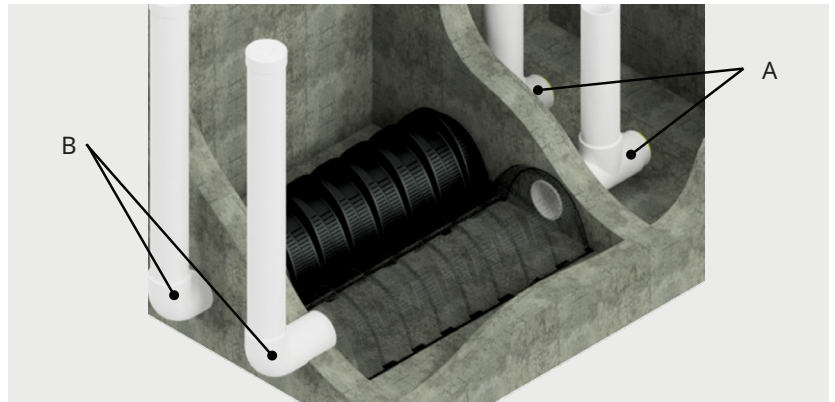


Figure 5: Install precut chambers covering inlet pipes A & cleanout pipes B (cleanout risers are installed on the job site, shown in this figure for clarity)

6. Place one strip of precut fabric over the ends of both chamber rows (4 fabric swatches in total), to limit any rock that could enter the chamber cavity after stone is added to the cell. Add clean "double-washed" 57 gravel/stone over the chambers and level even with the data line (15" (375 mm)). This type of washed stone is typical of septic field washed stone. Screenshot the stone ensure the gravel is level. Apply fabric swatches along the perimeter of the second cell as shown in figures 6 and 7. These fabric swatches are to limit the manifold media entering the gravel layer, media is sand like and may flow into the edges of the unit after the manifold(s) is placed into the biofiltration cell. Approximately 6-8" (150-200 mm) of fabric should be covering the rock base perimeter.



Figure 6: Fabric Perimeter

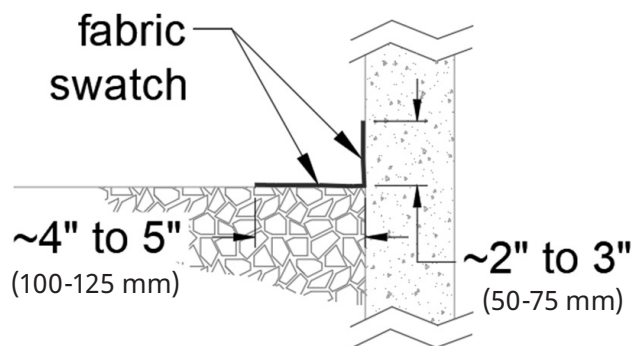


Figure 7: Fabric Perimeter

7. Install the EcoPure manifold(s) into the biofiltration cell. There are lifting points to be used to lower the unit into the vault. If the unit has more than one manifold, start with the manifold closest to the outlet. Bring the PVC exit piping in line with the exit point. The 4" (100 mm) PVC exit pipe should go through the wall via a booted connection. Care should be given to bringing the manifold down into the unit and it is recommended that one helper be in the vault to help guide the manifold unit into place. For multiple units, preinstall the special "thin" pipe coupler to the end of the manifold so to link it with the next manifold (if applicable). The thin pipe coupler can fold back on itself and will "snap" back over the subsequent manifold PVC effluent piping. At least one of these thin coupler's will be used to connect a single manifold to the exit pipe explained in Step #8. Tighten down the coupler and move to either capping the other end of the manifold or bringing in a 2nd or 3rd (and final) manifold. The final PVC manifold run (closest to the pretreatment cell) will be "capped" with the 4" (100 mm) PVC endcap. See figures 8 and 9.



Figure 8: Thin Pipe Coupler

8. Check the approved ADS submittal drawing to determine if the bypass is designed with the 6" (150 mm) PVC bypass pipe or a weir in the pretreatment cell. If the bypass is a weir this step can be skipped, see Section 6 CA Bypass Method section. The two 6" (150 mm) diameter bypass piping stubs (the 4" long PVC cut pieces) should be inserted into the wall couplers without glue or sent to the field with the rest of the bypass components for the contractor to install. The bypass PVC piping will use Ferncos linked together through the second cell (this will be suspended above the main EcoPure manifold). See figures 10 and 11.



Figure 9: EcoPure Manifolds (3 shown in vault)



Figure 11: Bypass pipes with Fernco

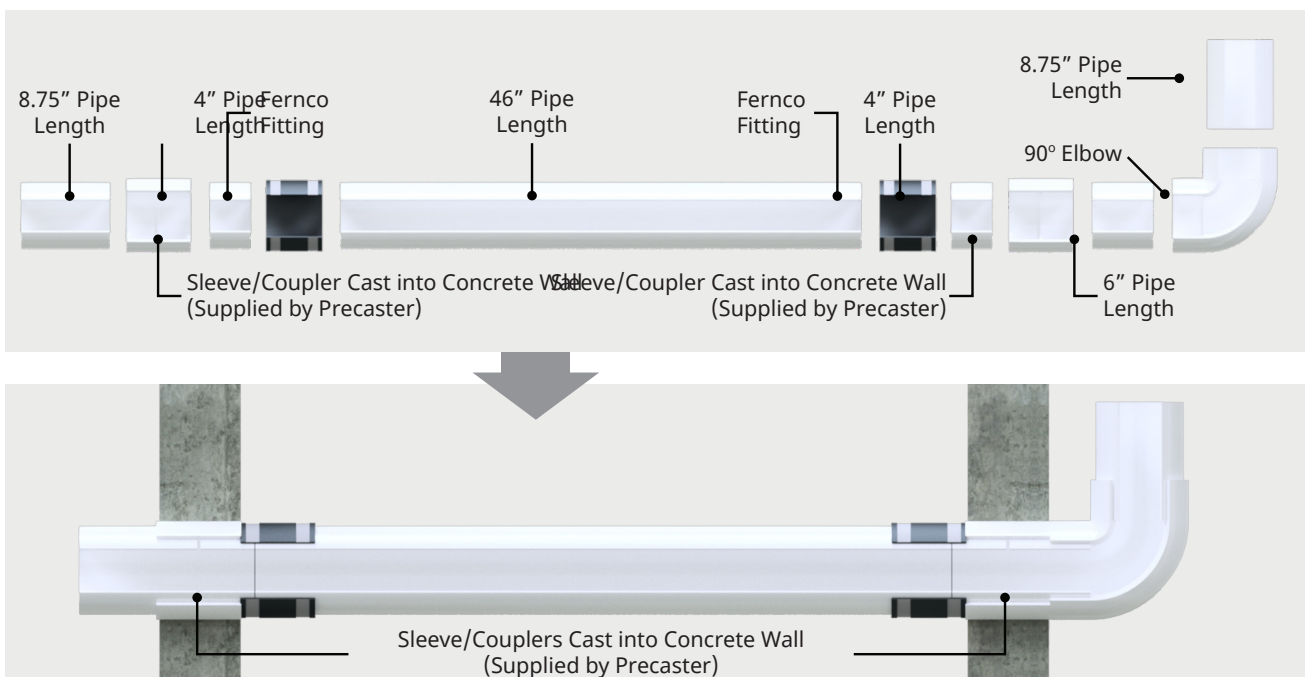


Figure 11: Parts Breakdown for bypass pipe

9. For the EcoPure 60, the precaster will add one super sack of biofiltration media to the second cell. For all other EcoPure models the super sacks of biofiltration media will be shipped alongside the vault to be installed by the site contractor. The biofiltration media super sacks weigh approximately 3800 lbs. The super sack should be lifted over the second cell and opened with the bag tie (located on the bottom) to release the media into the vault over the EcoPure manifold (see figure 12). For all other EcoPure units the super sacks will be installed on the job site, see section 4.



Figure 12: Filtration media bag, installing filter

Section 3: Vault Installation

1. Contact utility locator to mark any nearby underground utilities and make sure it is safe to excavate.
2. Reference the site plan and stake out the location of the EcoPure Biofilter vault.
3. Excavate the hole, providing any sheeting and shoring necessary to comply with all federal, state and local safety regulations.
4. Level the subgrade to the proper elevation. Verify the elevation against the EcoPure Biofilter vault dimensions, the invert elevations, and the site plans. Adjust the base aggregate, if necessary.
5. Have the soil bearing capacity verified by a licensed engineer for the required load bearing capacity. On solid subgrade, set the first section, or base section of the EcoPure Biofilter™ vault.
6. Check the level and elevation of the vault to ensure it is correct before installing the external components (i.e., clean out risers, if applicable, and effluent piping). All external piping will need to be installed prior to backfilling the EcoPure Vault. See Section 4 below.

Section 4: EcoPure Installation – Site Contractor

1. Connect and install all external piping together or separately run them to a downstream structure (i.e., a manhole or junction box). The external piping is as follows: a main treatment 4" (100 mm) PVC effluent pipe and a 6" (150 mm) PVC EcoPure Bypass pipe. All PVC piping is Schedule 40. Remove the end cap from the 4" (100 mm) outlet manifold pipe. Use Fernco fittings to attach the external piping to the 4" (100 mm) outlet and 6" (150 mm) bypass pipes. See figure 13. **All additional piping (couplers, bends, etc.) to link the EcoPure system to a downstream structure are not supplied by ADS and is the responsibility of the contractor.**
2. Install the cleanout riser pipes before the system is backfilled. See parts breakdown in figure 14. Level and PVC glue the cleanouts to the vault and cover the tops of the pipes with the supplied clean out caps. Typically, the final grade will be determined before the top section of cleanout fittings are attached and glued into place.
3. For all EcoPure systems except the EcoPure 60 the biofiltration media will be installed at the site. Super sacks weighing approximately 3800 lbs. will contain the biofiltration media. Lift the super sack over the second cell and cut the bag tie (located on the bottom of the super sack) to release the media into the vault over the EcoPure manifold. There should be one super sack of media provided per Ecopure manifold (up to three total per vault). All media bags supplied should be used and spread out evenly in this second cell of the vault. The biofiltration media will fill the second cell up to the top of the manifold. The remaining open space in the vault will be filled with clean fill / growth media as described in Step 4 below.
4. Once the filtration media is placed, the plant growth media will be added to the system and brought up to 4-6 (100 - 150 mm) inches from the top wall of the EcoPure (see figure 15). This plant growth media shall be sourced by the contractor, and can be clean fill from the site, or imported from a local supplier. Hand or minor excavator "raking" should be prepared to create an even surface for the final install of plants and landscaping mulch. Plant placement will depend on time of year and may not be performed going into a winter season at a given site.
5. With the inlet, outlet and clean out pipes set, partially backfill the vault to within a few inches of the top of the vault or a few inches below the precast throated inlet.

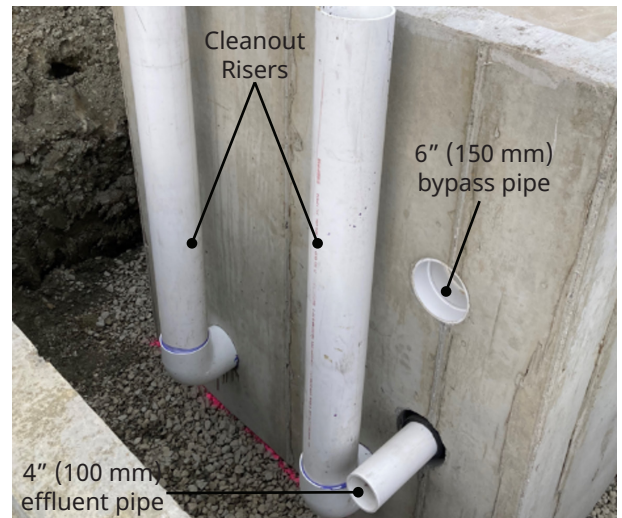


Figure 13: External Piping

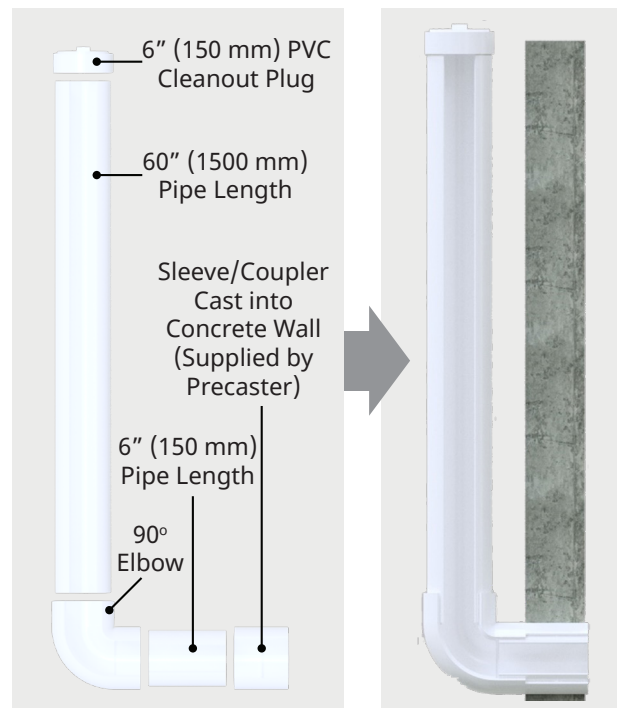


Figure 14: Parts breakdown for cleanout riser



Figure 15: Growth media

Section 5: Final Field Installation Steps – Site Contractor

1. Clean out pipe risers to be adjusted to final grade. Final backfill around the vault should be completed.
2. If a throated or curb inlet is to be set/poured, do this once the entire system is installed and they are running/pouring the curb and gutter line.
3. Remove temporary rubber inlet caps from the (standpipes) tee pipes in the pretreatment cell. Place the final pretreatment cell top slab on top of the unit and seal using standard concrete structure mastic.
4. The contractor/landscape architect will supply the plants. Install the planting using the EcoPure Landscape detail as a reference. Add mulch to complete the planter cell and EcoPure system.

Section 6: CA Bypass Method (if applicable)

1. Check plans to ensure the EcoPure unit utilizes a weir as the bypass option and not the 6" (150 mm) internal bypass pipe assembly.
2. See Section 2 step 7 for installation of the 4" (100 mm) PVC filter outlet pipe from the outlet manifold.
3. The weir wall must be installed in the pretreatment cell after the 4" (100 mm) filter outlet and the outlet pipe have been installed (see figure 16). has been installed.
4. Install the weir wall per the approved drawing.
5. Install the 3" (75 mm) Drain Down Module by inserting the pipe through the weir wall and grouting the connection.

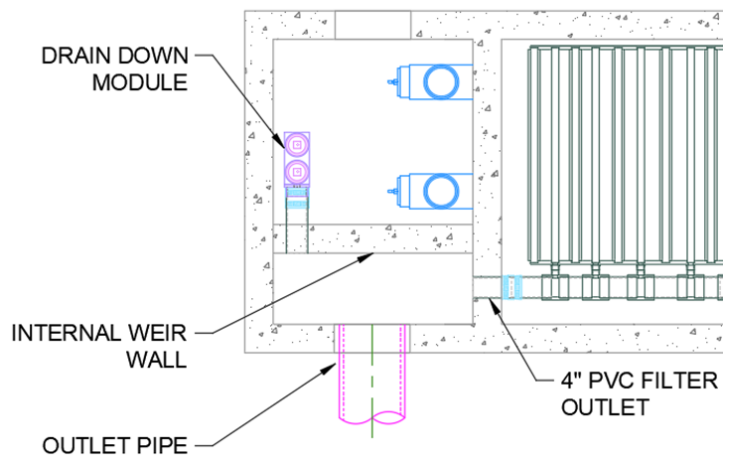


Figure 16: Weir wall bypass option

Call ADS at 1-800-821-6710 for further information or visit www.adspipe.com.

