

Under Oregon Administrative Rule (OAR) 340-071-0117, (2005 Revised OAR 340-071-0135), Infiltrator Water Technologies has received approval from the Oregon Department of Environmental Quality (DEQ) to install the EZflow 1201P configuration in the State of Oregon. The DEQ has also approved various EZflow products for use in Standard Disposal Trenches, Capping Fill Systems, Sand Filter Systems, Seepage Trench Systems, Steep Slope Systems, Curtain Drains, Tile Dewatering Systems, and Pressurized Distribution Systems.

## Materials & Equipment Needed

- EZflow Bundles
- EZflow barrier Paper or DEQ approved geotextile on non-GEO products only
- EZflow Internal Pipe Couplers
- Pipe for Header and Inlet
- Backhoe
- Laser, Transition

## Installation Instructions

The instructions for installation of EZflow products are given below. EZflow products must be installed in accordance with OAR Chapter 340, Divisions 071 & 073, as well as the DEQ or local unit of government with jurisdiction.

1. After the DEQ or local unit of government with jurisdiction has determined sizing, configuration, and layout for the EZflow system, stake or mark with paint the location of trenches and lines. Set tank, invert pipe, header line or distribution box and trench bottom elevations before installation of pipe bundles.
2. The proper elevation of solid PVC effluent pipe going to each trench should be determined to ensure compliance with the required maximum trench bottom depth as shown on the approved permit. This trench depth may vary depending on system height and configuration used.
3. Remove plastic EZflow shipping bags prior to placing bundles in the trench(es). Remove any plastic bags in the trench before system is covered.
4. The top of each 1201P-GEO and 1202H-GEO bundle contains a geotextile pre-inserted between the netting and aggregate. The geotextile is present to prevent soil intrusion and shall be placed facing upward. If using the 1202H-GEO, the bundles shall be placed with the geotextile on top and in contact with the geotextile contained in the adjacent bundle before backfilling.
5. For EZflow products not containing GEO, only the top of the upper bundle should be covered with 60 lb. untreated building paper available from EZflow. Other material such as DEQ approved geotextile may be used. A geotextile cover is necessary in sandy soils.

## Installation Instructions for EZflow Systems in Oregon



6. Place EZflow bundle(s) in the EZflow configuration per permit. The top or center-most bundles containing pipe are joined end to end with an internal pipe coupler. Any additional aggregate only bundles, should be butted against the other aggregate-only bundles and do not require any type of connection.
7. Header or lead lines from the distribution/drop box or device will be connected to top or center-most pipe bundle in each trench or inserted into pipe.
8. The EZflow drainfield systems should be installed in a level trench in all directions (both across and along the trench bottom) and should follow the contour of the ground surface elevation (uniform depth), with all continuous, adjoining 10-foot bundles placed end to end, with central bundle distribution pipe connected.
9. EZflow bundles are flexible and can fit in curved trenches as may be necessary to avoid trees, boulders, or other obstacles.
10. Final contours and landscaping should be done in a manner to promote surface water runoff.

Repeat steps 1 thru 10 for each required trench.

As required by state or local regulations, be sure to obtain proper installation inspection from the DEQ or local unit of government with jurisdiction prior to covering the system.

After the system has been completely covered, vehicular traffic across or along the trenches shall be avoided.

As required by DEQ or local unit of government with jurisdiction, sod or seed the drainfield area to control erosion, as may be required by permit or local policy.

EZflow is approved in Oregon by the DEQ and the Uniform Building Code Division.

### DEQ approvals include:

- Standard disposal trenches
- Capping fill systems
- Sandfilter gravel-less absorption trenches
- Seepage trenches
- Steep slope systems
- Curtain drains
- Tile dewatering systems
- Pressure distribution systems

### Building Code approvals include:

- Foundation drains
- Roof drain systems

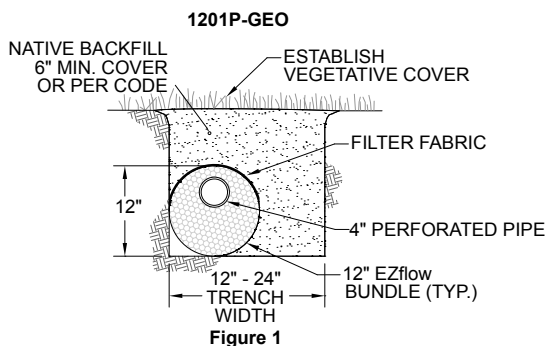
## Standard Disposal Trenches

### The 1201P/1201P-GEO

A. The 1201P drainfield system consists of one, 12-inch diameter bundle across the bottom of a trench 12-to-24 inches wide. The 1201P bundle contains aggregate and a four-inch diameter perforated flexible plastic pipe as is typically used in septic system drainlines. The pipe shall be certified as complying with ASTM F-667. The netting for the central bundle is tied off at both ends of the pipe. The pipe may be connected by an internal coupling device to allow continuous flow from one section to the next.

B. The difference between 1201P and 1201P-GEO is the GEO filter fabric. The top of the bundle contains a filter fabric pre-manufactured in between the netting and aggregate. The fabric is inserted to prevent soil intrusion. The installer shall make sure the fabric is on top before final backfilling.

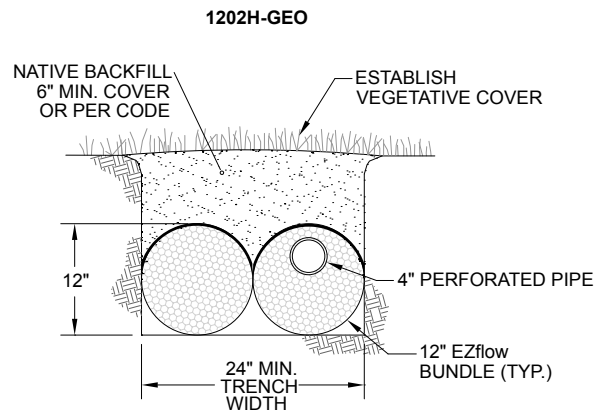
C. Site, soil and design requirements of the 1201P system shall be the same as required for the standard stone filled disposal system (containing drain media 12-inches deep) as described in OAR Chapter 340, Divisions 71 & 73.



D. EZflow 1201P will be sized at the same required linear foot sizing for standard 2-foot wide gravel trench. For example, if the sizing for a 2-foot gravel trench requires 100-linear feet of trench, the 1201P system will be sized at 100-linear feet.

### The 1202H/1202H-GEO

The 1202H drainfield system (two, 12-inch diameter bundles) may be used in a horizontal configuration within a 24-inch wide disposal trench. The bundles shall be placed side-by-side and in contact with each other. Serial distribution methods limit the maximum effluent depth to no more than 6-inches higher than the invert level of the perforated piping within the higher trenches. The minimum backfill depth is 6-inches when equal distribution methods are used, and 12-inches with serial distribution methods. The brand 1202H will be sized at the same required linear foot sizing for standard 2-foot wide gravel trench. For example, if the sizing for a 2-foot gravel trench requires 100-linear feet of trench, the 1202H system will be sized at 100-linear feet. The bundle with pipe may be installed on either side within the trench.



**Figure 2**

### The 1003T

The 1003T product (three, 10-inch diameter bundles) may be used in either a triangular or horizontal configuration at all locations where a gravity-fed disposal trench (containing drain media 12-inches deep) would otherwise be allowed. The bundles shall be placed in a triangular configuration when installed within a 24-inch wide trench. One bundle shall contain piping and be centered and in contact with the other two bundles. When used in a horizontal configuration, the bundles must be placed side-by-side and in contact with each other, within a trench at least 30-inches wide. The center bundle shall contain piping. Serial distribution methods limit the maximum effluent depth to no more than 6-inches higher than the invert level of the perforated piping within the higher trenches. The minimum backfill depth is 6-inches when equal distribution methods are used, and 12-inches with serial distribution methods. EZflow 1003T will be sized at the same required linear foot sizing for standard 2-foot wide gravel

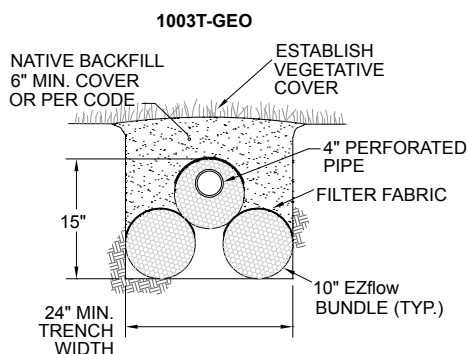


Figure 3

trench. For example, if the sizing for a 2-foot gravel trench requires 100-linear feet of trench, the 1003T system will be sized at 100-linear feet.

### The Capping Fill System

#### The 1201P/1201P-GEO

The 1201P-GEO drainfield system consists of one, 12-inch diameter bundle installed in a 12-inch wide trench. See figure 1 for example configuration.

#### The 1202H

The 1202H drainfield system may also be installed in a horizontal configuration in a capping fill system, within a 24-inch wide trench that is a minimum of 12-inches deep. See figure 2 for example configuration.

#### The 1003T

The 1003T drainfield system may also be installed in a capping fill system. The 1003T in the horizontal configuration is installed in a 30-inch wide trench that is a minimum of 12-inches deep. The 1003T triangular configuration is installed in a 24-inch wide trench that is a minimum of 17-inches deep, with the cap placed in accordance with the requirements of OAR Chapter 340 Division 71. See Figure 3 for example configuration.

### Conventional Sand Filter System Using Gravelless Absorption Trenches – The 1001P/1001P-GEO

The 1001P/1001P-GEO drainfield system (10-inch diameter bundles containing 4-inch diameter perforated polyethylene piping, placed end to end within the trench) may be used fol-

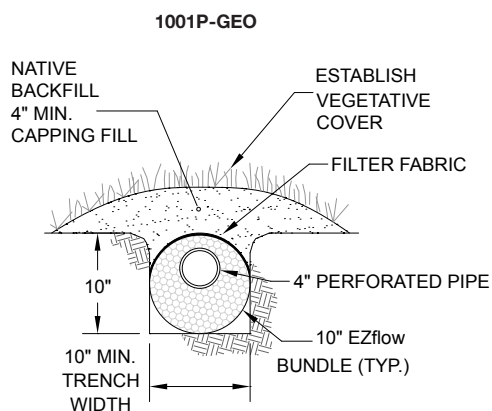


Figure 4

lowing a sand filter in lieu of the chamber described in OAR Chapter 340 Division 71. Construction shall conform to all requirements described within Chapter 340 Division 71 with the following modifications:

- The perforated pressure piping shall be placed within the 4-inch diameter perforated polyethylene piping with orifices at the 12 o'clock position.
- Because the top of the bundle will be at the natural ground surface, a capping fill shall be used to cover the installation. Soil texture from the surface to the trench bottom shall not be finer than silty clay loam.

See the Oregon Chamber Design and Installation Manual for additional options and information.

### Seepage Trench System

#### 1004S/1004S-GEO, 1204S/1204S-GEO

Both the 10-inch and 12-inch diameter bundles may be installed in seepage trenches in lieu of drain media. Four or more bundles can be placed in a 24-inch wide trench. At least one of the top bundles shall contain perforated piping. Serial distribution methods limit the maximum effluent depth to no more than 6-inches higher than the invert level of the perforated piping within the higher trenches. The minimum backfill depth is 6-inches when equal distribution methods are used, and 12-inches with serial distribution methods. See Figure 5 for example configuration.

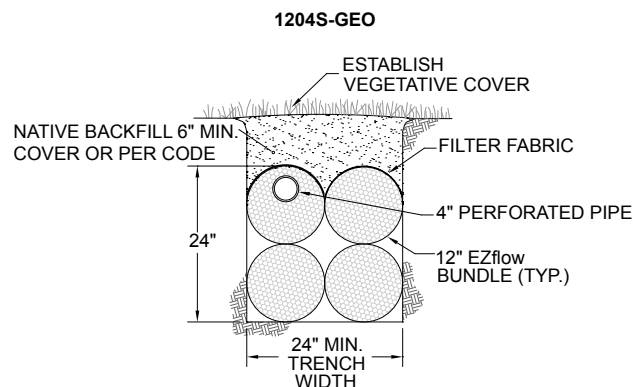


Figure 5

### Steep Slope Systems

#### 1001A/1001A-GEO, 1001P/1001P-GEO 1201A/1201A-GEO, 1201P/1201P-GEO

Both the 10-inch and 12-inch diameter bundles may be used within seepage trenches in a steep slope system in lieu of drain media. Four bundles can be placed in a 24-inch wide trench. At least one of the top bundles shall contain the perforated piping. Serial distribution methods limit the maximum effluent depth to no more than 6 inches higher than the invert level of the perforated piping with the higher trenches. GEO product can only be used at the top of the configuration. See Figure 5 for example configuration.

### Curtain Drains I001A/1001A-GEO, 1001P/1001P-GEO, 1201A/1201A-GEO, 1201P/1201P-GEO

The 10-inch or 12-inch diameter bundles can be used in a 12-inch minimum width trench in lieu of pipe and drain media in curtain drains. Pipe-containing bundles shall be on the bottom, and additional bundles may be stacked so as to provide the equivalent media depth required. GEO product can only be used at the top of the configuration. See Figure 6 for example configuration.

### Tile Dewatering Systems

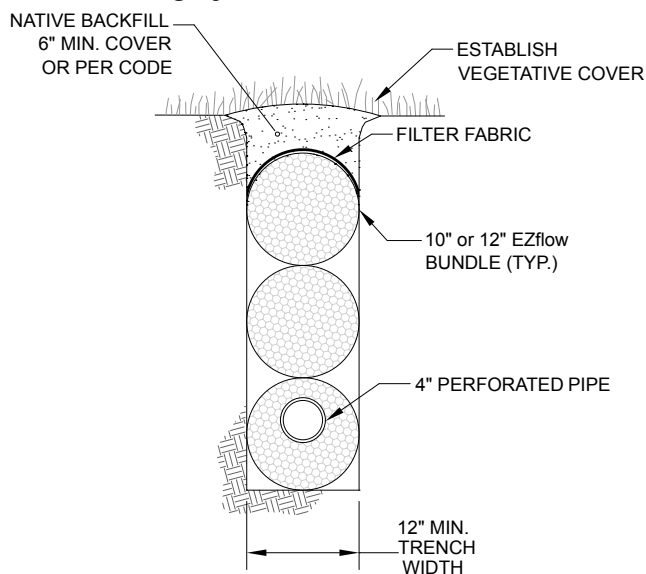


Figure 6

The 10-inch or 12-inch diameter bundles can be used in a 12-inch minimum width trench in lieu of pipe and drain media within field collection drainage tile trenches. If there is a concern that the volume of groundwater to be collected and drained exceeds the carrying capacity of the 4-inch diameter corrugated pipe in the bottom cylinder, then two stacks bundles (containing piping in both of the base bundles) may be placed, provided the trench is not less than 20-inches wide. See Figure 6 for example configuration.

### Pressurized Distribution

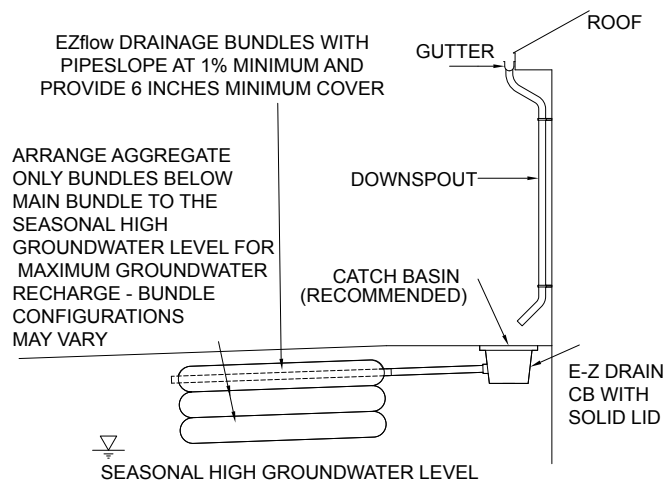
Disposal systems using 10-inch or 12-inch diameter bundles in lieu of drain media can utilize pressurized distribution. The perforated pressure piping shall be placed within the 4-inch diameter pipe with orifices at the 12 o'clock position. Orifice shields shall not be required.

### Non-DEQ Regulated Systems Other Applications

#### 1. Roof Run-off Drain Systems:

The 10-inch or 12-inch diameter bundles can be used.

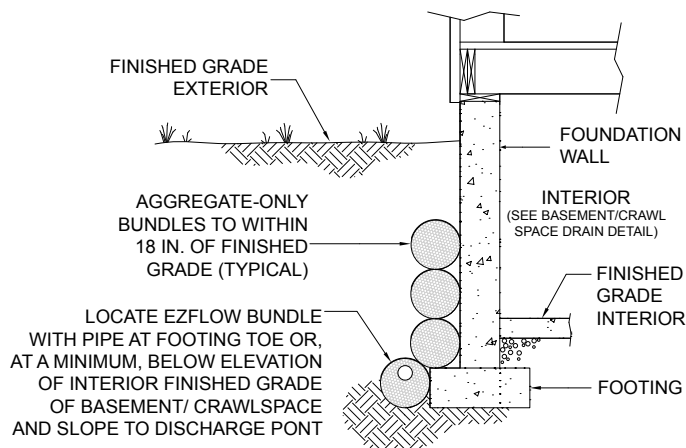
#### EZflow Roof Drain Systems



#### 2. Foundation Drain Systems:

The 10-inch or 12-inch diameter bundles can be used.

#### Foundation Drain Detail



## INFILTRATOR WATER TECHNOLOGIES, LLC. STANDARD LIMITED WARRANTY

(a) The structural integrity of each EZflow by Infiltrator expanded polystyrene drainfield system and other accessories manufactured by EZflow by Infiltrator ("Units"), when installed and operated in a leachfield of an onsite septic system in accordance with Infiltrator's instructions, is warranted to the original purchaser ("Holder") against defective materials and workmanship for one year from the date that the septic permit is issued for the septic system containing the Units; provided, however, that if a septic permit is not required by applicable law, the warranty period will begin upon the date that installation of the septic system commences. To exercise its warranty rights, Holder must notify Infiltrator in writing at its Corporate Headquarters in Old Saybrook, Connecticut within fifteen (15) days of the alleged defect. Infiltrator will supply replacement Units for Units determined by EZflow by Infiltrator to be covered by this Limited Warranty. EZflow by Infiltrator's liability specifically excludes the cost of removal and/or installation of the Units.

(b) THE LIMITED WARRANTY AND REMEDIES IN SUB-PARAGRAPH (a) ARE EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE UNITS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE

(c) This Limited Warranty shall be void if any part of the EZflow system is manufactured by anyone other than EZflow by Infiltrator. The Limited Warranty does not extend to incidental, consequential, special or indirect damages. Infiltrator shall not be liable for penalties or liquidated damages, including loss of production and profits, labor and materials, overhead costs, or other losses or expenses incurred by the Holder or any third party. Specifically excluded from Limited Warranty coverage are damage to the Units due to ordinary

wear and tear, alteration, accident, misuse, abuse or neglect of the Units; the Units being subjected to vehicle traffic or other conditions which are not permitted by the installation instructions; failure to maintain the minimum ground covers set forth in the installation instructions; the placement of improper materials into the system containing the Units; failure of the Units or the septic system due to improper siting or improper sizing, excessive water usage, improper grease disposal, or improper operation; or any other event not caused by Infiltrator. This Limited Warranty shall be void if the Holder fails to comply with all of the terms set forth in this Limited Warranty.

Further, in no event shall Infiltrator be responsible for any loss or damage to the Holder, the Units, or any third party resulting from installation or shipment, or from any product liability claims of Holder or any third party. For this Limited Warranty to apply, the Units must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and Infiltrator's installation instructions.

(d) No representative of Infiltrator has the authority to change or extend this Limited Warranty. No warranty applies to any party other than the original Holder.

The above represents the Standard Limited Warranty offered by Infiltrator. A limited number of states and counties have different warranty requirements. Any purchaser of Units should contact Infiltrator's Corporate Headquarters in Old Saybrook, Connecticut, prior to such purchase, to obtain a copy of the applicable warranty, and should carefully read that warranty prior to the purchase of Units.



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