# Minnesota

In accordance with Ch 7083, Minnesota Pollution Control Agency has reviewed and registered the following EZflow products for use in trenches, beds, at-grades and mounds per technical requirements in Chapter 7080 and 7081.

| PRODUCT | SIZING | TRENCH WIDTH |
|---|---|---|
| 1202H/ 202H-GEO | 2.0 sf/lf | 24” width |
| 1203H/1203H-GEO | 3.0 sf/lf | 36” width |
| 0701A/0701A-GEO | * | * |

*EZflow 0701A and 0701A-GEO may be used to create the outside rows of a bed, mound or at-grade system. Doing so adds 1 sf/lf to the system sizing.

Any site where EZflow products are installed must meet the design, construction and installation requirements and Location & Isolation distances as noted in rules, Chapter 7080.0170.

An area of suitable soil must be available to install a subsurface sewage treatment system.

EZflow® by INFILTRATOR

APRIL 2019

# Installation Instructions for EZflow Systems in Minnesota



**Materials & Equipment Needed**

- EZflow Bundles
- Pipe for Header and Inlet
- Laser, Transit or Level
- EZflow Internal Pipe Couplers
- Backhoe
- Shovel & Rake

## Installation Instructions

The instructions for installation of EZflow products are given below. This product must be incorporated into a design and installed in accordance with Chapter 7080.2200 - 7080.2350 as well as the local units of government current ordinance requirements.

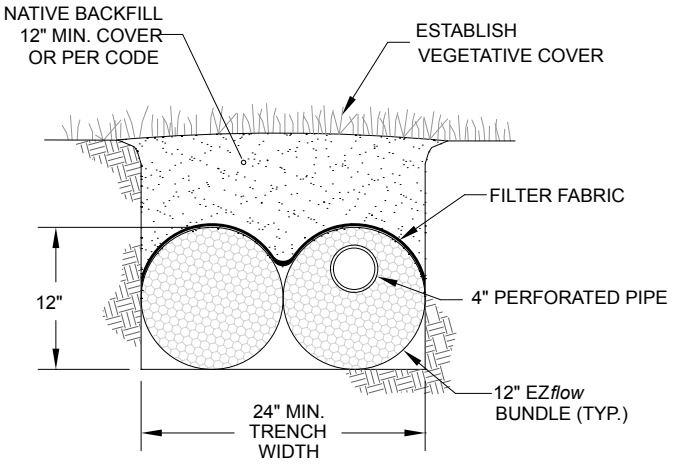
In cases where linear footage required is not in multiples of 10, installer may (a) reduce the product to needed length and refasten netting to the pipe or, (b) use an additional 5 or 10 feet of product to exceed the required trench length.

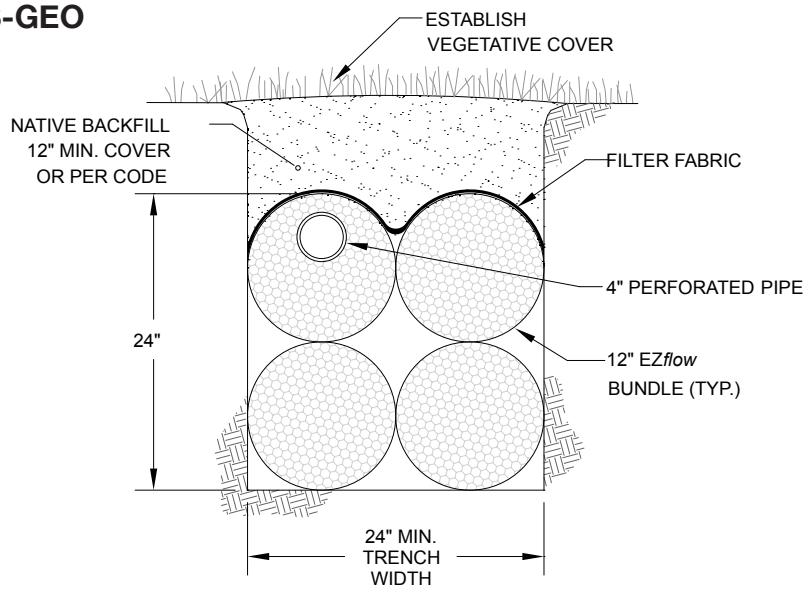
1. Prior to installing the EZflow system, stake or mark with paint the location of trenches and lines. Be careful to set correct tank, invert pipe, header line or drop box and trench bottom elevations before installation of pipe bundles.
2. Excavation into absorption area is only allowed when soil moisture content is at or less than the plastic limit.
3. Excavate trench to permitted depth. Once the trench is excavated, it shall not be exposed to rainfall prior to placement of the final backfill.
4. The bottom and sides of the soil treatment system to the top of the distribution medium shall be excavated in such a manner as to expose the original soil structure in an un-smeared and un-compacted condition.
5. Remove plastic EZflow shipping wrap prior to placing bundles in trench(es). Remove any plastic wrap in the trench before the system is covered.
6. Place EZflow bundle(s) in the EZflow configuration approved by system design permit specified for the particular site. The bundles containing pipe are joined end-to-end with an internal pipe coupler. Aggregate-only-bundles shall be butted against the other aggregate-only-bundles and do not require any type of mechanical connection.
7. The distribution pipes for gravity and pressure distribution must be laid level along contour.
8. The top of each 1202H-GEO and 1203H-GEO 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 that the fabric is on top and is in contact with the fabric contained in the adjacent bundle before backfilling. The span of fabric at each sidewall shall not exceed 180 degree reach (i.e. 9 o’clock to 3 o’clock).
9. Effluent supply pipe from septic tank or drop box will be connected to the pipe bundle in each trench or inserted into the pipe.
10. A vertical inspection port at least 4-inches in diameter shall be installed at the distal end of every trench. The inspection port should be located between a pipe-containing bundle and an adjacent aggregate-only-bundle. For easy installation, the inspection port can be vertically placed onto the trench bottom prior to the placement of the pipe-bundle and aggregate-only-bundle bundle.
11. The inspection pipe must be located at an end opposite from where the sewage tank effluent enters the medium. The inspection pipe must have 3/8” or larger perforations spaced vertically no more than 6” apart.
12. EZflow EPS bundles are flexible and can fit in curved trenches as necessary to avoid trees, boulders, or other obstacles.
13. The EZflow EPS Aggregate bundles not containing GEO must be covered with 36” to 48” wide non-woven geotextile or other approved barrier materials. The two outside bundles shall not be covered past the 3 or 9 o’clock position at risk of clogging sidewall areas.
14. The trenches or seepage beds shall be backfilled and crowned above finished grade to allow for settling. The top six inches of soil shall have the same texture as the adjacent soil.
15. A vegetative cover shall be established over the soil treatment system and shall be protected until the cover is established. The vegetative cover shall not interfere with the hydraulic performance of the system and shall provide adequate frost and erosion protection.

*Repeat steps 1 thru 15 for each required trench.*

## EZflow 1202H/1202H-GEO and 1204S/1204S-GEO

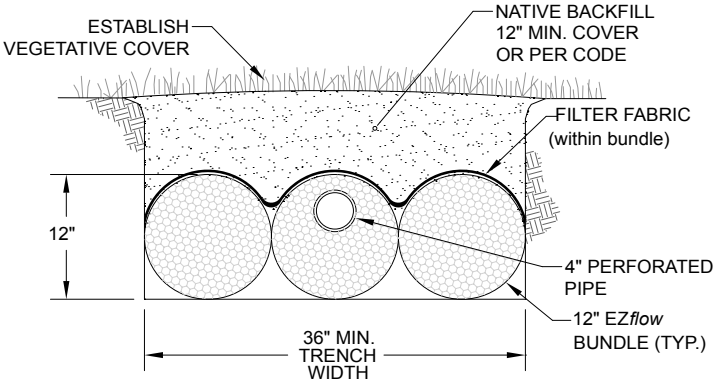
**Typical** (not to scale)

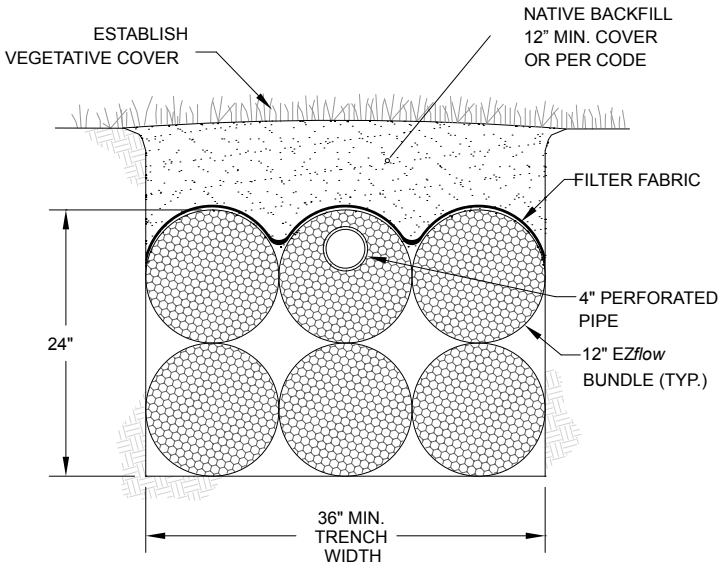



## EZflow 1203H/1203H-GEO and 1206H/1206H-GEO

**Typical** (not to scale)

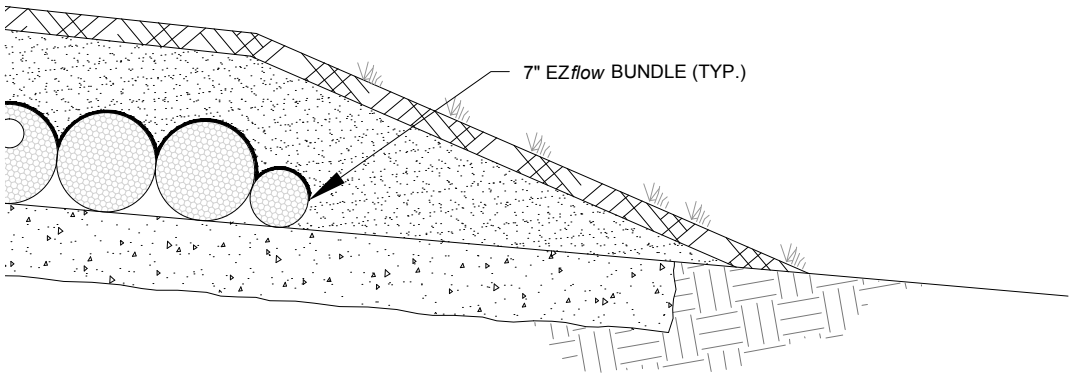



## EZflow 0701A/0701A-GEO

**Typical** (not to scale)

EZflow 0701A/0701A-GEO can only be used to extend the width of beds, mounds and at-grade systems. EZflow 0701A/0701A-GEO cannot be used in trench applications.



# SYSTEM SIZING – TRENCH

**TABLE 1:** Trench sizing for Classification I dwellings[1] and effluent treatment level C EZflow 1203H bundles. Sizing credit per trench foot = 3 sf/lf.

| Soil Loading Rate (gpd/sf)[2] | Total Required Trench Length (ft) | | | |
|---|---|---|---|---|
| | 2 bedrooms | 3 bedrooms | 4 bedrooms | 5 bedrooms |
| 1.20 | 84 | 125 | 167 | 209 |
| 0.78 | 129 | 193 | 257 | 321 |
| 0.68 | 148 | 221 | 295 | 368 |
| 0.60 | 167 | 250 | 334 | 417 |
| 0.52 | 193 | 289 | 385 | 481 |
| 0.50 | 200 | 300 | 400 | 500 |
| 0.45 | 223 | 334 | 445 | 556 |
| 0.42 | 239 | 358 | 477 | 596 |

**NOTES:**

1. Sizing for Classification II and III dwelling shall use design flows in Table IV of Section 7080.1860.
2. Soil loading rates and corresponding soil texture groups are based on Table IX of Section 7080.2150.
3. Bundles are produced in 5' and 10' lengths. Installer may round trench length to next 5' or 10' length or cut the last section of the product using Infiltrator's protocol for cutting EZflow bundles to achieve the specified trench length.

**TABLE 2:** Trench sizing for Classification I dwellings[1] and effluent treatment level C EZflow 1203H double stacked bundles at 34% bottom reduction[3]. Sizing credit per trench foot = 4.55 sf/lf.

| Soil Loading Rate (gpd/sf)[2] | Total Required Trench Length (ft) | | | |
|---|---|---|---|---|
| | 2 bedrooms | 3 bedrooms | 4 bedrooms | 5 bedrooms |
| 1.20 | 76[4] | 83 | 110 | 138 |
| 0.78 | 85 | 127 | 170 | 212 |
| 0.68 | 97 | 146 | 194 | 243 |
| 0.60 | 110 | 165 | 220 | 275 |
| 0.52 | 127 | 191 | 254 | 317 |
| 0.50 | 132 | 198 | 264 | 330 |
| 0.45 | 147 | 220 | 294 | 367 |
| 0.42 | 157 | 236 | 314 | 393 |

**NOTES:**

1. Sizing for Classification II and III dwelling shall use design flows in Table IV of Section 7080.1860.
2. Soil loading rates and corresponding soil texture groups are based on Table IX of Section 7080.2150.
3. As allowed under Section 7080.2210, Subpart 3(B), a bottom area reduction of 34% has been included in the trench sizing calculation. The 34% bottom area reduction is only applicable to Infiltrator's 1203H when double stacked.
4. Minimum trench length required by Infiltrator.
5. Bundles are produced in 5' and 10' lengths. Installer may round trench length to next 5' or 10' length or cut the last section of the product using Infiltrator's protocol for cutting EZflow bundles to achieve the specified trench length.

# SYSTEM CONFIGURATIONS

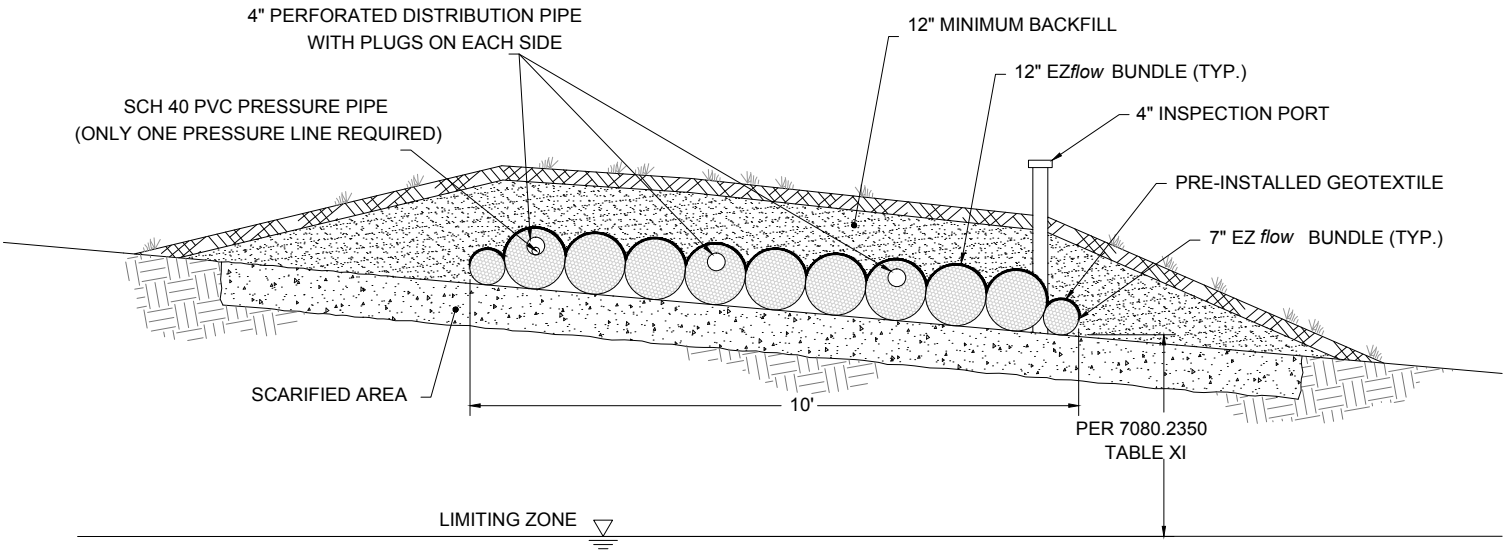
The area of the sewage treatment system shall not be used for vehicular traffic, parking, or underground utilities, to include water lines. Dozers, trucks, and other heavy vehicles shall not be allowed to run over the septic tank, field lines or other parts of the system. Sod or seed the drainfield area for erosion control, frost prevention and nutrient up take as may be required by Permit or local policy.

On both at-grade and bed systems, one bundle of 0701A/0701A-GEO can be added as the outside row on both sides to acheive an additional 1 sf/lf area credit.

Configurations shown below are examples only and are not intended to limit the use of other configurations.

## EZflow 1203/1203H-GEO and 0701A/0701A-GEO At-Grade Configuration

**Typical** (not to scale)



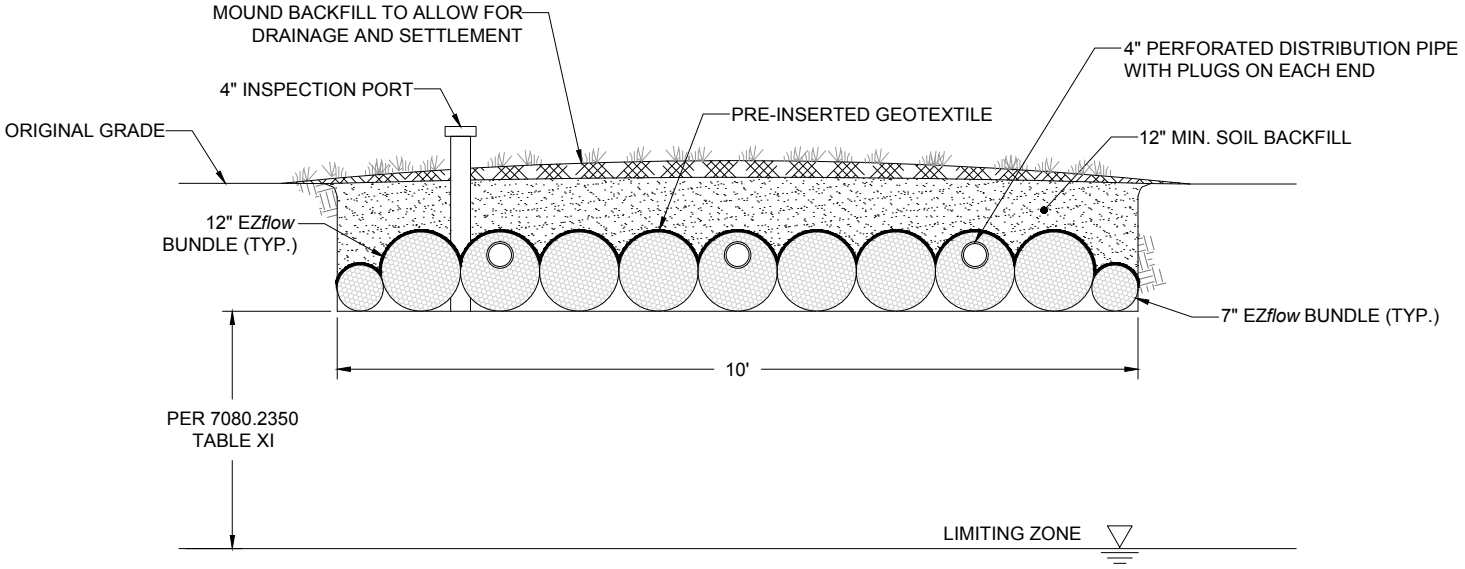

The 1203H At-Grade System may be used in an At-Grade system with the three cylindrical bundles placed in rows next to each other. (See drawing). The 1203H configuration is replicated to gain the approved At-Grade sizing. This configuration is installed at foot for foot with a conventional gravel At-Grade system.

**At-Grade System with Sand Base Layer:** The contact surface between the EZflow and native soil may be modified with the placement of washed sand to establish an even, consistent base for EZflow installation. Placement of a sand base layer categorizes the system as a Type III system, in accordance with part 7080.2300. A sand base layer shall meet the following requirements:

1. Sand may not raise the bottom elevation of the EZflow system from the existing ground surface elevation or change the slope of the bottom elevation of the EZflow system compared to existing ground surface grade at a site.
2. Sand shall be spread over the disturbed soil surface to fill gaps between uneven, rutted surficial features to provide an even, consistent surface for EZflow placement and support.
3. Sand shall be washed and meet the requirements of part 7080.2220, subpart 3, item C.
4. EZflow shall be installed on the native soil with base sand filling gaps, and at the gradient of the native soil in accordance with part 7080.2230.
5. System size shall be based upon the native soil hydraulic loading rate.

## EZflow 1203/1203H-GEO and 0701A/0701A-GEO Bed Configuration

**Typical** (not to scale)




The 1203H System may be used in a bed system with the three cylindrical bundles placed in rows next to each other. (See drawing). The 1203H configuration is replicated to gain the approved bed sizing. This configuration is installed at foot/foot with a conventional gravel bed system.

**NOTES:**

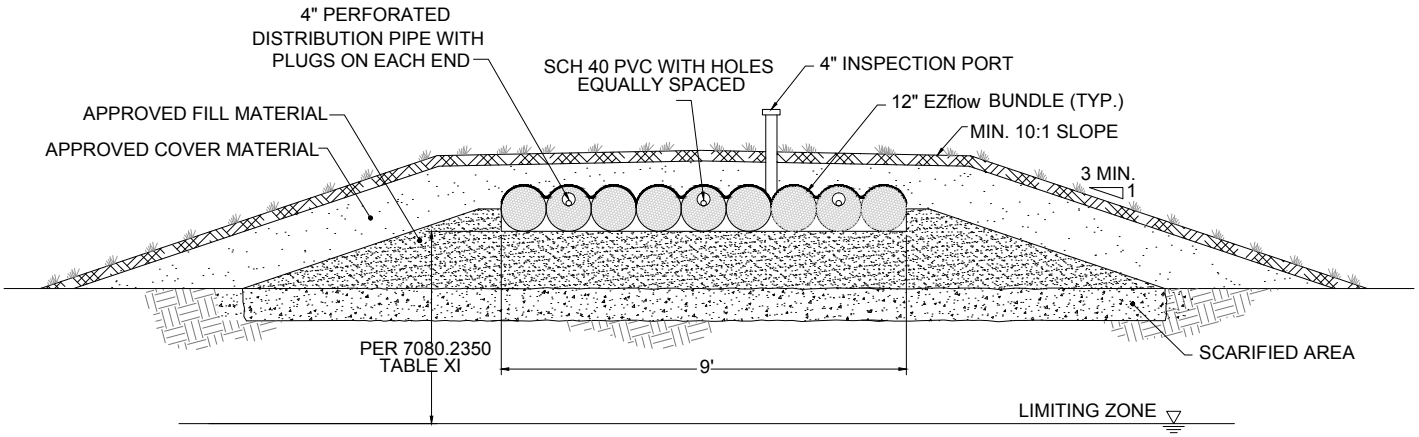
1. Both EZflow configurations with and without "GEO" must be covered with an external non-oven geotextile fabric in at-grade applications.
2. In at-grade systems, the use of pressure distribution must comply with 7080.2230, Subp. 3, C. At-grades located on sites sloping 1% or greater require only one distribution pipe located on the upslope edge of the distribution media.

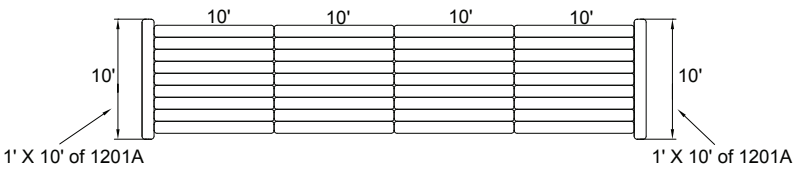
# SYSTEM CONFIGURATIONS

## Typical Mound Layouts Containing EZflow 1203H/1203-GEO and 0701A/0701A-GEO

### Minnesota 3 Bedroom Mound System

**Typical** (not to scale)




**7080 Sizing for a Distribution Cell for a 3 Bedroom Residence:**

150 GPD per Bedroom x 3 Bedroom = 450 GPD
450 GPD ÷ 1.2 GPD/SF = 375 SF

**Sizing for the Same Mound with EZflow Product:**

9' x 40' = 360 Sq Ft
1' x 10' = 10 Sq Ft
1' x 10' = 10 Sq Ft

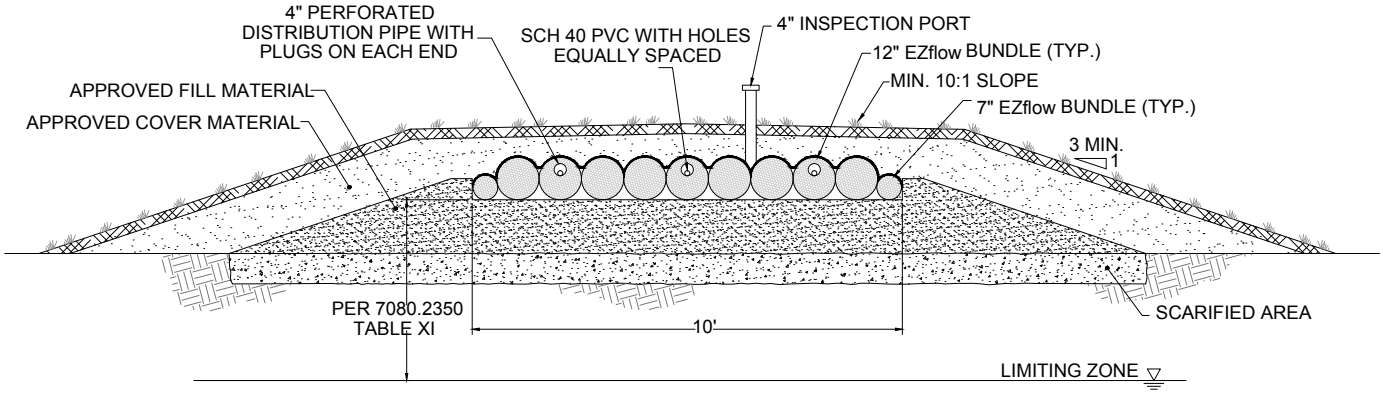
Total Square Footage = 380 Sq Ft

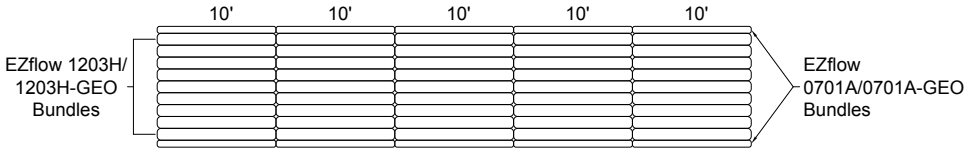
**NOTE:**

1. Both EZflow configurations with and without "GEO" must be covered with an external non-oven geotextile fabric in mound applications.

### Minnesota 4 Bedroom Mound System

**Typical** (not to scale)




**7080 Sizing for a Distribution Cell for a 4 Bedroom Residence:**

150 GPD per Bedroom x 4 Bedroom = 600 GPD
600 GPD ÷ 1.2 GPD/SF = 500 SF

**Sizing for the Same Mound with EZflow Product:**

10' x 50' = 500 Sq Ft

Total Square Footage = 500 Sq Ft

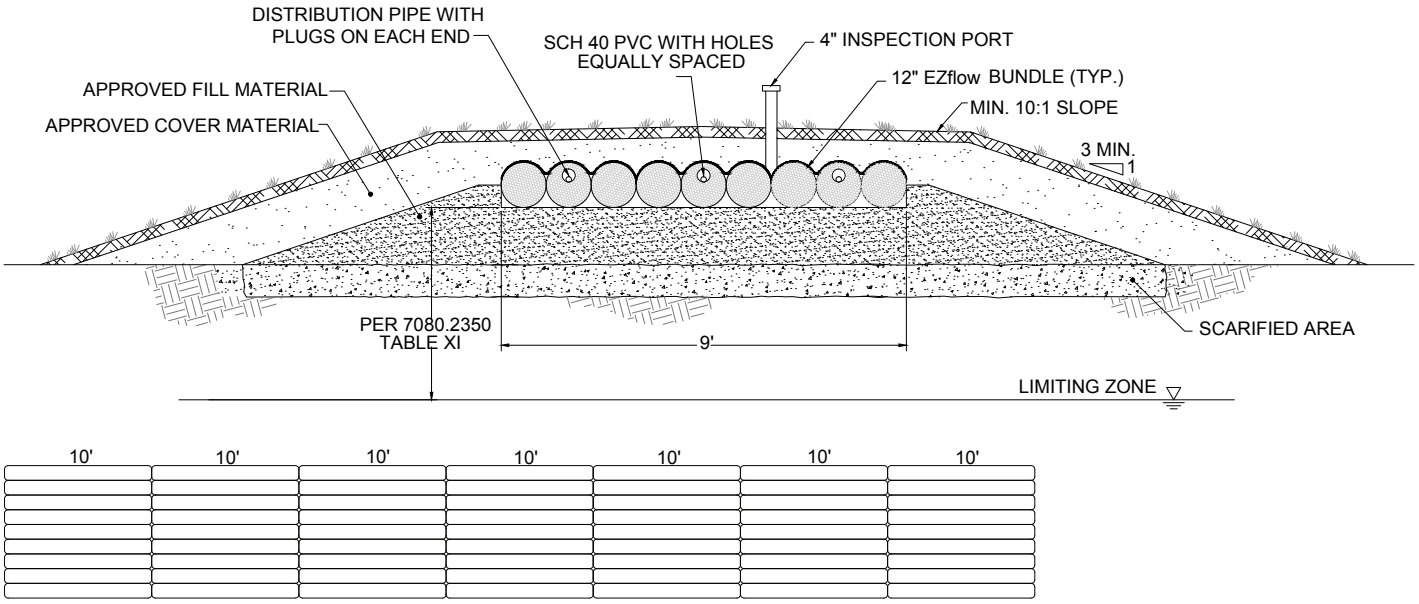
**NOTE:**

1. Both EZflow configurations with and without "GEO" must be covered with an external non-oven geotextile fabric in mound applications.

# SYSTEM CONFIGURATIONS

## Minnesota 5 Bedroom Mound System

**Typical** (not to scale)




**7080 Sizing for a Distribution Cell for a 5 Bedroom Residence:**

150 GPD per Bedroom x 5 Bedroom = 750 GPD
750 GPD ÷ 1.2 GPD/SF = 625 SF

**Sizing for the Same Mound with EZflow Product:**

9' x 70' = 630 Sq Ft

Total Square Footage = 630 Sq Ft

**NOTE:**

1. Both EZflow configurations with and without "GEO" must be covered with an external non-oven geotextile fabric in mound applications.

### EZflow Inspection

As required by state or local regulations, be sure to obtain proper installation inspection and authorization from the local government prior to covering the system. Septic tank, drop box, trench bottom, grade, depth, and cover shall be in accordance with state rules and regulations unless otherwise specified.

### Maintenance

Per Chapter 7080, the owner shall regularly have his system assessed, but in no case, less frequently than every three years.

## 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 SUBPARAGRAPH (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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The top of configurations with the suffix **"GEO"** contain a filter fabric pre-manufactured in between the netting and aggregate. The fabric is inserted to prevent soil intrusion. The installer shall make sure that the fabric is on top and is in contact with the fabric contained in the adjacent cylinder before backfilling. If not utilizing a **GEO** product, installer should use untreated building paper. Other barrier material may be used as approved by the state's DEC and manufacturer.

ISO 9001 Registered.

U.S. Patents: 4,759,661; 5,017,041; 5,156,488; 5,336,017; 5,401,116; 5,401,459; 5,511,903; 5,716,163; 5,588,778; 5,839,844 Canadian Patents: 1,329,959; 2,004,564 Other patents pending. Infiltrator, Equalizer, Quick4, and SideWinder are registered trademarks of Infiltrator Water Technologies. Infiltrator is a registered trademark in France. Infiltrator Water Technologies is a registered trademark in Mexico. Contour, MicroLeaching, PolyTuff, ChamberSpacer, MultiPort, PosiLock, QuickCut, QuickPlay, SnapLock and StraightLock are trademarks of Infiltrator Water Technologies.
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**Contact Infiltrator Systems' Technical Services Department for assistance at 1-800-221-4436**