



INSTALLATION GUIDELINE



DRAINTUBE® geocomposite

Liquid drainage
and/or Gas collection
under building



DRAINTUBE *is manufactured by*

AFITEX-TEXEL Geosynthetics Inc.

1300 2e rue, Parc Industriel

Sainte-Marie de Beauce (Québec) Canada G6E 1G8

DATE: 01/06/2022

Synopsis

GENERAL DESCRIPTION	3
1 HANDLIND AND STORAGE	3
2 INSTALLATION.....	3
2.1 DRAINTUBE® DESCRIPTION	3
2.2 PUTTING INTO PLACE	4
2.3 TRANSVERSE CONNECTIONS (AT THE END OF A ROLL)	4
2.4 SIDE BY SIDE CONNECTIONS	5
2.5 SPECIFIC POINTS.....	6
3 TERMINATION.....	7
3.1 CONNECTION TO A COLLECTOR TRENCH	7
3.2 QUICK CONNECT SYSTEM.....	8
4 REPAIR.....	9
5 UPPER LAYERS INSTALLATION	9
5.1 GEOSYNTHETIC INSTALLATION.....	9
5.2 BACKFILL PLACEMENT	10
TABLE OF FIGURES.....	11

General Description

The product consists of geotextile layers comprised of short synthetic fibers of 100% polypropylene or polyester, which are needle punched together. Corrugated polypropylene pipes with two perforations per valley at 180-degree spacing and rotated 90 degrees per valley are inserted longitudinally between the geotextile layers during the manufacturing process at uniform intervals. DRAINTUBE® is manufactured in Canada.

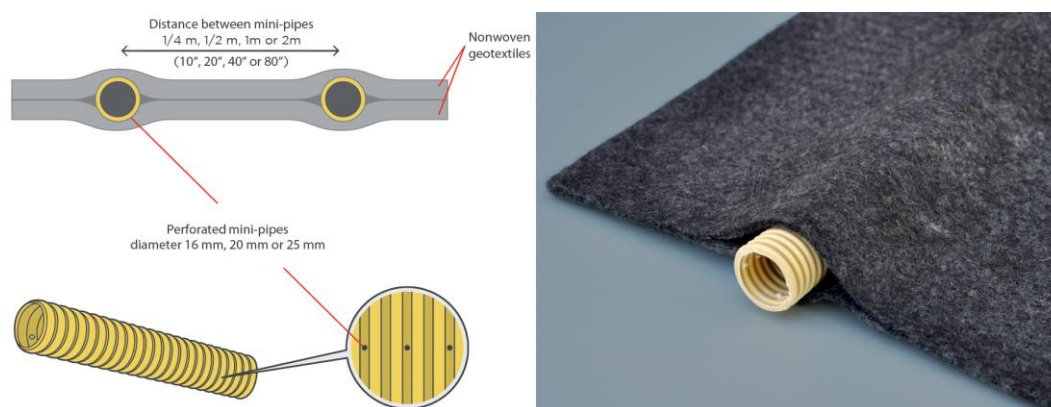
1 HANDLING AND STORAGE

Rolls of DRAINTUBE® geocomposite shall be shipped to the job site in a manner that will not cause damage to the rolls. The rolls shall be stored flat on a smooth surface (no wooden pallets) away from dirt, mud and excessive heat. For more detailed handling and storage information, please refer to ASTM D4873. The contractor shall handle the rolls so that they are not damaged in any way.

2 INSTALLATION

2.1 DRAINTUBE® description

DRAINTUBE® geocomposite is supplied on rolls 3.98 m (13 ft.) wide and 75 m (246 ft.) long (figures 1 & 2).



Figures 1: DRAINTUBE® structure



Figure 2: DRAINTUBE® packaging

2.2 Putting into place

DRAINTUBE® is unrolled on a base which has been graded and compacted to the required elevation (figure 3). Ensure that the product is properly oriented.



Figure 3: DRAINTUBE® installation

Protect underlying layers from damage during placement of the geocomposite. Use sandbags or equal to weigh down the geocomposites prior to backfilling to prevent displacement by the wind.

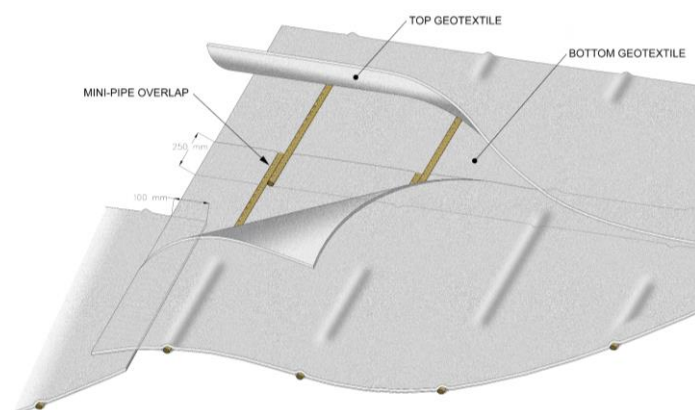
2.3 Transverse Connections (at the end of a roll)

Connection at the leading or terminating edge of the DRAINTUBE® shall be overlapped such that the upper geotextile layer can be rolled back 150 mm (6 in.) minimum and the end of the next roll inserted into the opening. Mini-pipes may be either overlapped by 250 mm (10 in.) minimum (figures 4) or connected using snap coupler fittings supplied by the geocomposite manufacturer (figures 5). Connection method

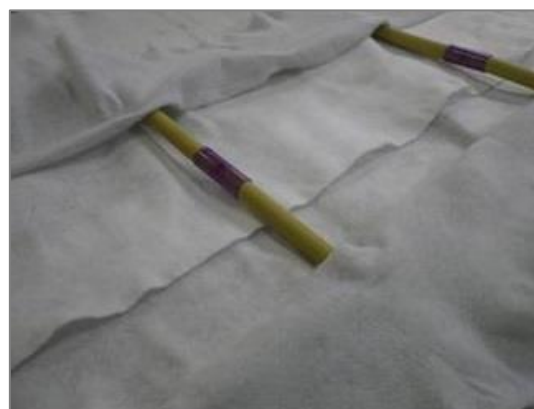
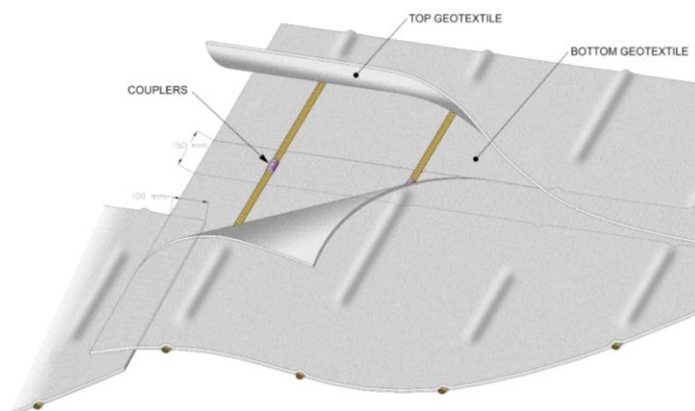
requirements shall be at the engineers' discretion. Mechanical connections are recommended under high compressive loads.

Overlapped geotextiles shall be secured using sewn seams, welds (hot air or flame) or additional overlap.

The mini-pipes of the geocomposite must always be maintained between the geotextile layers to prevent contamination by soil particles.



Figures 4: Transverse connections without couplers



Figures 5: Transverse connections with couplers

2.4 Side by Side Connections

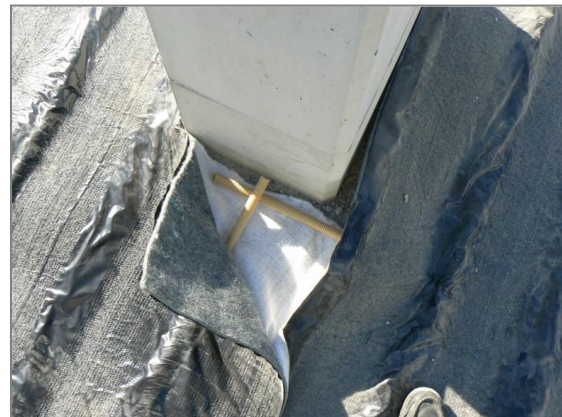
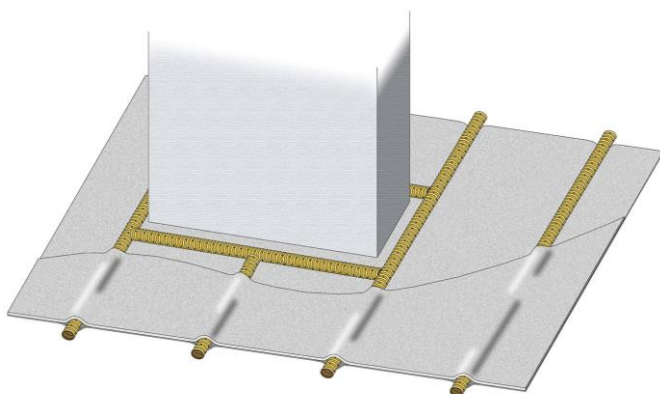
Connections along the side of the DRAINTUBE® roll shall be overlapped 100 mm (4 in.) minimum and shall be secured using sewn seams, additional overlap, or welds (figure 6). Connection method requirements shall be at the direction of the engineer.



Figure 6: Side by side connections

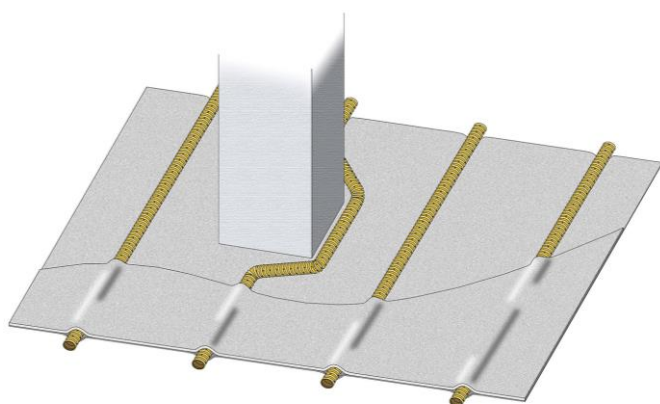
2.5 Specific points

In case of wide posts, DRAINTUBE® is cut next to the post. The mini-pipe(s) interrupted by the post are cut off about 100 mm (4 in.) upstream of the post. A mini-pipe is then positioned at 90° angle between the drainage layer and the filter layer so as to link the closest two mini-pipes (figures 7).



Figures 7: Side by side connections

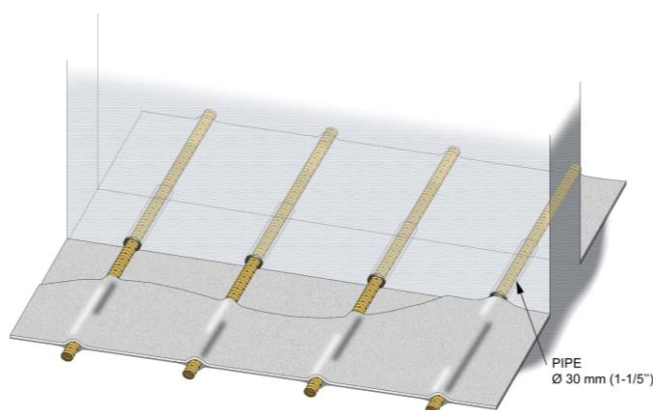
In case of a narrow post less or equal to 300 mm (12 in.) width, the mini-pipe is then derived along the side of the post (figures 8).



Figures 8: Passing of a narrow post

Cross walls which interrupt mini-pipes must be passed as follows (figures 9):

- formation of mounds of highly permeable granular material (in case of groundwater),
- separation of these mounds from the form base by a geotextile filter on either side of the cross wall (in case of groundwater),
- linking of the two mounds by drainage channels at least 30 mm (1-1/5") diameter.

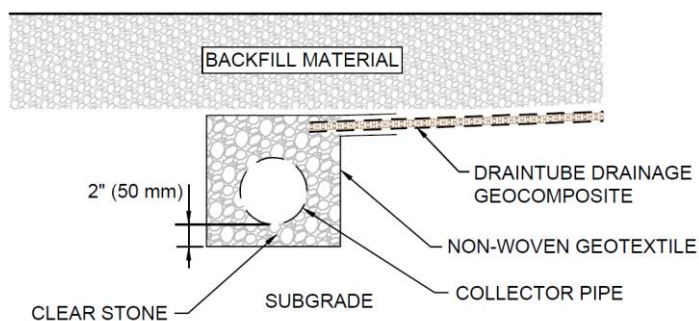


Figures 9: Passing of a cross wall

3 TERMINATION

3.1 Connection to a collector trench

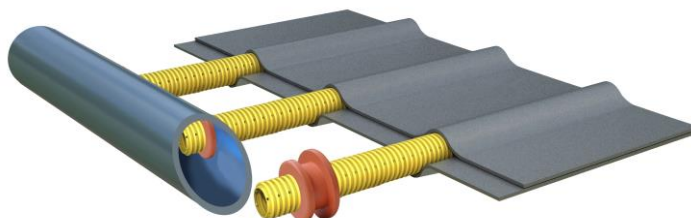
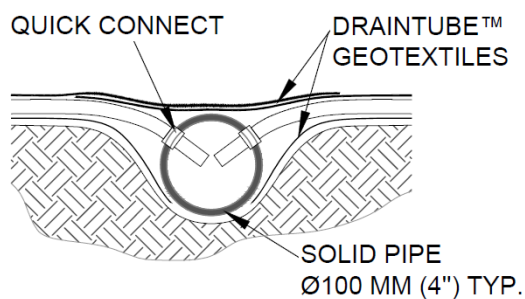
Connection to a collector trench requires an overlap of a minimum of 200 mm (8 in.) and a geotextile cover (figures 10).



Figures 10: Connection to a collector trench

3.2 Quick Connect system

DRAINTUBE® can be connected directly to a collector drain using the Quick Connect system (figures 11 & 12). For vacuum applications, this allows a positive connection of the mini-pipes to the collector drain.



Figures 11: Quick Connect system



Figure 12: Connection to a plain drain with Quick Connect

4 REPAIR

Prior to covering the deployed DRAINTUBE® drainage geocomposite, each roll shall be inspected for damage. Any rips, tears or damaged areas on the geocomposite shall be repaired.

If a section of pipe is damaged during installation, add a piece of undamaged pipe of the same diameter next to the damaged pipe, extending a minimum of 150 mm (6 in.) beyond each end of the damaged section of pipe.

If the geotextile is ripped or torn, install an undamaged piece of the same material under the hole that extends a minimum of 150 mm (6 in.) beyond the hole in all directions to ensure that protection of the geomembrane is maintained.

If the area to be repaired is more than 50 percent of the width of the panel, then the damaged area shall be cut out and replaced with undamaged material. Damaged geotextile shall be replaced by the same type of geotextile.

5 UPPER LAYERS INSTALLATION

5.1 *Geosynthetic installation*

DRAINTUBE® shall not stay uncovered for more than 14 days after deployment.

Low ground pressure All-Terrain Vehicle (ATV) that exerts a maximum load of 6 psi may be used on DRAINTUBE®. It shall be operated to avoid abrupt stops, starts, and/or turns. ATV tires shall be clean, and no passengers are allowed on the ATV. No other equipment shall be operated on the top surface of the geocomposite drainage layer without permission from the Engineer.

Geosynthetic (geomembrane, geogrid, etc.) is to be installed without displacing the DRAINTUBE® (figures 13).



Figures 13: Upper geosynthetic layer placement

5.2 Backfill placement

The geocomposite drainage layer shall be covered with the specified material within 14 days of deployment. The backfill shall be free of foreign matter which could damage the geocomposite drainage layer. Backfill may usually be placed directly on DRAINTUBE® (figure 14). Care should be taken to avoid displacement of the geocomposite.



Figure 14: Backfilling

The backfill shall not be dropped directly onto the drainage geocomposite from a height greater than 1 meter (3 ft.). The backfill shall be pushed over the geocomposite drainage layer in an upward tumbling motion that prevents wrinkles in the drainage layer.

Low ground pressure All-Terrain Vehicle (ATV) that exerts a maximum load of 6 psi may be used on DRAINTUBE®. It shall be operated to avoid abrupt stops, starts, and/or turns. ATV tires shall be clean and no passengers are allowed on the ATV. No other equipment shall be operated on the top surface of the geocomposite drainage layer without permission from the Engineer.

The contractor must maintain a minimum of 300 mm (12 in.) of backfill between DRAINTUBE® and the backfill equipment or use adapted lightweight equipment. Heavy equipment like dumpers shall operate on access roads with a minimum thickness of 1 m (3 ft.) above the DRAINTUBE®.

Table of figures

Figures 1: DRAINTUBE® structure	3
Figure 2: DRAINTUBE® packaging	4
Figure 3: DRAINTUBE® installation.....	4
Figures 4: Transverse connections without couplers	5
Figures 5: Transverse connections with couplers	5
Figure 6: Side by side connections	6
Figures 7: Side by side connections	6
Figures 8: Passing of a narrow post	7
Figures 9: Passing of a cross wall	7
Figures 10: Connection to a collector trench.....	8
Figures 11: Quick Connect system	8
Figure 12: Connection to a plain drain with Quick Connect	8
Figures 13: Upper geosynthetic layer placement	9
Figure 14: Backfilling	10