



L'EXPÉRIENCE TERRAIN

INSTALLATION MANUAL



INFILTRATUBE

Solution for the infiltration
of rainwater and treated
wastewater into the plot.

Designed and manufactured in France



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THE PURPOSE OF THIS INSTALLATION MANUAL IS TO GUIDE THE USER IN THE USE OF THE INFILTRATUBE PRODUCT LINE FOR THE INFILTRATION OF STORM WATER OR CLEAR WATER AFTER ON-SITE TREATMENT. BEFORE INSTALLING THE SYSTEM, REFER TO LOCAL BUILDING CODES AND PLANS.

THE ILLUSTRATIONS SHOW EXAMPLES OF STRUCTURES, INSTALLATION, AND HANDLING.

1

DESIGN OF THE INFILTRATION NETWORK

The wastewater management policy that has been promoted for many years, combined with an increase in surface imperviousness, has led to numerous problems:

- concentration of pollutants
- an increase in the frequency and severity of flooding events
- the need to redesign sewer systems whenever new projects are undertaken
- a decline in groundwater recharge capacity

BENEFITS OF INFILTRATING STORMWATER OR TREATED CLEAR WATER INTO THE PLOT

Water Infiltration on the Plot

Water regulation and infiltration at the plot level offer numerous environmental and economic benefits; They:

- ▶ create reusable reserves (stormwater) on-site,
- ▶ reduce the rate of surface imperviousness,
- ▶ delay rainfall runoff, thereby reducing flood levels and volumes,
- ▶ help recharge groundwater and water bodies,
- ▶ help combat heat islands and drought,
- ▶ improve the urban living environment (less heavy construction, etc.),

It is necessary to promote water infiltration as close as possible to where it falls in order to limit the impact on the environment.

WHAT IS THE INFILTRATUBE?

- ▶ Designed for rainwater infiltration or for use following an approved treatment process, the Infiltratube features PP fiber technology developed by ATE, allowing for installation without gravel. The fiber provides a contact surface and conductivity equivalent to that of gravel.
- ▶ The INFILTRATUBE can be installed in all types of soil.
- ▶ It is a 3-in-1 product (no need for gravel or geotextile).
- ▶ Its rigid bar shape and crush resistance > SN4 ensure quick and efficient installation.



Find the interactive document for calculating the size of the infiltration pipe on our website. ▶

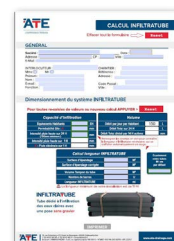


FIGURE 1: OVERVIEW OF THE INFILTRATUBE

2 | PREPARATION

THE METHODOLOGY FOR DESIGNING THE INFILTRATION OF RAINWATER OR TREATED WATER IS BASED, INITIALLY, ON VARIOUS STAGES:

1 - A preliminary soil study

Every construction site is unique. There are many different soil compositions, which affect the soil's ability to allow water to infiltrate. A geotechnical and hydrogeological study allows us to determine—based on the soil characteristics and surrounding features (such as wells, houses, etc.)—the location, orientation, and depth of the infiltration system, as well as the choice of materials; this ensures the performance and longevity of the water infiltration system.

2 - Defining the solutions to be used and the actions to be implemented

Infiltration zones can be combined with temporary (or buffer) water storage reservoirs, depending on the volume of water collected and the soil's capacity to "absorb" that water..

3 - Defining an installation strategy

EXCAVATING TRENCHES

Water Infiltration on the Plot

THERE ARE TWO OPTIONS FOR EXCAVATING THE GROUND:

A: Trenches can be separate to accommodate each row of Infiltratube pipes



FIGURE 2: TRENCH INSTALLATION IN ROWS

B: The trench can also cover the entire surface area of the infiltration zone



FIGURE 3: FULL-AREA TRENCH INSTALLATION

INSTALLATION AND CONNECTIONS

Water Infiltration on the Plot

- The Infiltratube system can be installed downstream of various water management:

1 - RAINWATER MANAGEMENT

The infiltration trench can be installed:

- directly at the outlet of gutters, either individually or collectively
- following a rainwater collection tank (overflow) *FIGURE 4
- following a rainwater storage tank



FIGURE 4: RAINWATER INFILTRATION

2 - OUTLET FROM WASTEWATER TREATMENT SYSTEMS

The infiltration area can also be located at the outlet of your approved on-site wastewater treatment system. (Eloy Waters Standard). *FIGURE 5



FIGURE 5: RAINWATER INFILTRATION

3

INSTALLATION OF THE INFILTRATUBE

INSTALLATION DEPTH

Water Infiltration on the Plot

- ▶ INFILTRATUBE pipes can be installed at a water table depth of:
at least 40 cm below the surface to:
 - Minimize root interference with the product
 - Minimize loss of efficiency
 - at least 100 cm deep for:
 - Roadways (SN4 - light traffic)
 - ▶ The distance between the water table and the maximum elevation of the groundwater table must not be less than 1 meter; otherwise, a raised mound installation must be selected.
 - ▶ The installation must not be located within:
 - 3 meters of a tree
 - 3 meters of a fence
 - 35 meters from a well
 - 5 meters from a dwelling
 - ▶ The geohyrotechnical study determines the installation depth based on soil type and hydrogeological conditions (rising water table, etc.).
 - ▶ Typically installed at depths ranging from 0.40 to 3.00 m, the Infiltratube SN4 can technically reach a depth of 7.40 m under light traffic, subject to validation by a soil study and clearance requirements.
- Follow the specifications in FASCICULE 70 (legislation applicable in France)

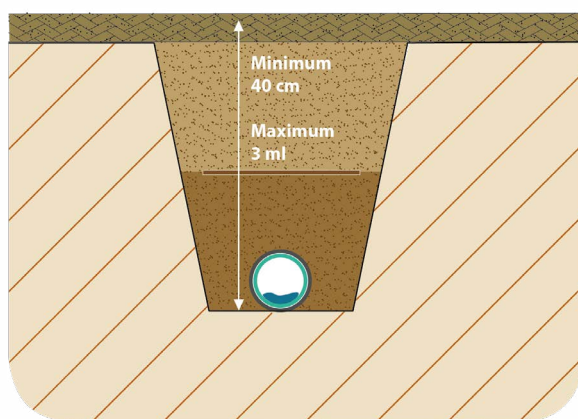


FIGURE 6: DIAGRAM OF INSTALLATION DEPTH FOR THE INFILTRATION SYSTEM

INSTALLATION BED

Water Infiltration on the Plot

► The infiltration system is installed on level ground, preferably across the full width of the trench. The pipes are sloped at a rate of 5 mm per meter along their length to direct the flow toward the bottom of the pipe.

► Before installing the INFILTRATUBE, scarify the subgrade with a toothed bucket. This work must be performed under dry conditions.

- See French. Dtu 64.1 :

6.4 Earthwork

6.4.2.2 Earthwork

► On sloped terrain, the INFILTRATUBE sections are laid perpendicular to the slope; each row is fed by an individual pipe from a distribution manhole.

► Installation against the slope is prohibited (between 0 and 0.5%)



FIGURE 7: DIAGRAM SHOWING INSTALLATION DEPTH OF THE INFILTRATION SYSTEM

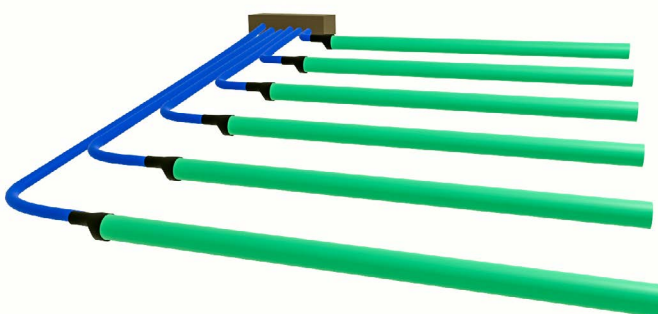


FIGURE 8: EXAMPLE OF A SLOPED SITE

SYSTEM INSTALLATION

Water Infiltration on the Plot

► First, position the distribution manhole; it must be level.

► Using Sancel pipes and fittings, make the distribution connections.

► Position the Ø 100/200 adapters



FIGURE 9:
Ø100/200 ADAPTER

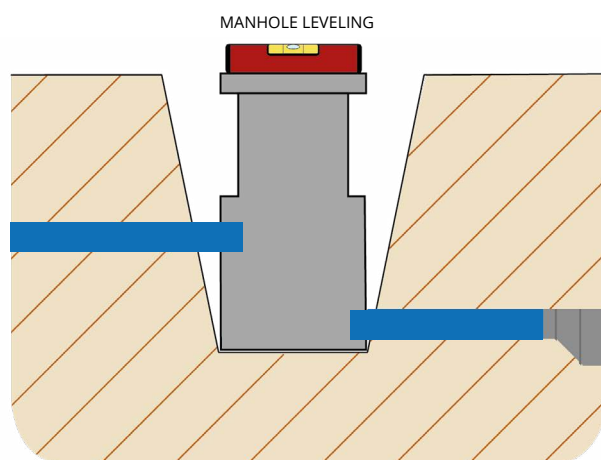


FIGURE 10: DIAGRAM OF MANHOLE LEVELING
INLET WITH A DROP, IF POSSIBLE

INSTALLATION OF THE INFILTRATUBE

Water Infiltration on the Plot

- Place the INFILTRATUBE directly on the soil at the bottom of the trench and connect one end to the adapter.
- Ideally, position the fiber weld facing upward.

FIGURE 11:
EXAMPLE OF
INFILTRATUBE INSTALLATION



THE SLEEVE FOR THE INFILTRATUBE

Water Infiltration on the Plot

- Two INFILTRATUBE pipes are connected by a push-fit connection using a compatible coupling. The connection is secured by tabs that prevent the tubes from coming apart. Each INFILTRATUBE section comes with a coupling.
- Other connection accessories ...
- If you need to cut the tubes to length, use a pair of scissors to cut the fiber and a saw or angle grinder to cut the tube.

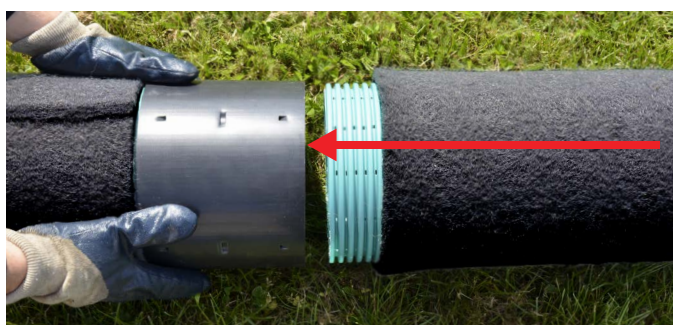


FIGURE 12: CONNECTING TWO BARS
BY SLIDING THEM TOGETHER USING THE SLEEVE



FIGURE 13:
Ø100/200 REDUCER



FIGURE 14:
Ø200 PLUG

DIFFERENT INSTALLATION METHODS

Water Infiltration on the Plot

1 - INSTALLATION ON AN INFILTRATION TRAY

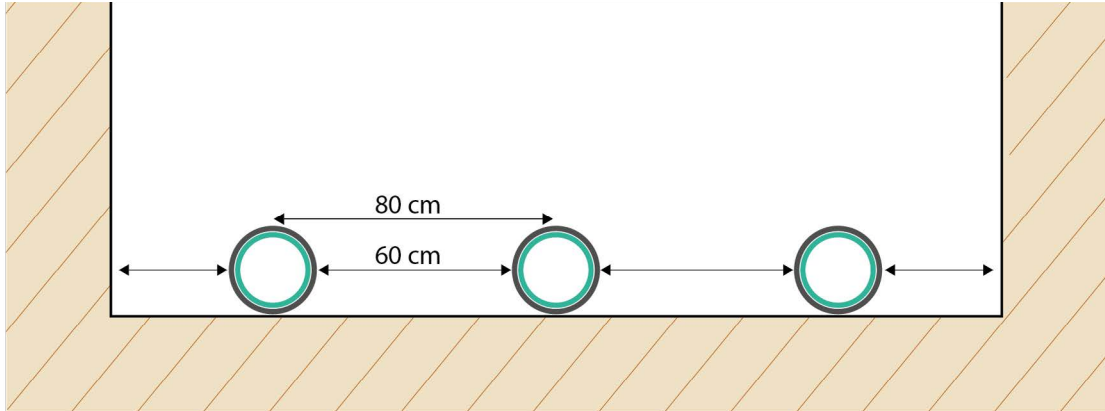


FIGURE 15: DIAGRAM OF INSTALLATION ON A TRAY

2 - INSTALLATION IN INFILTRATION TRENCHES

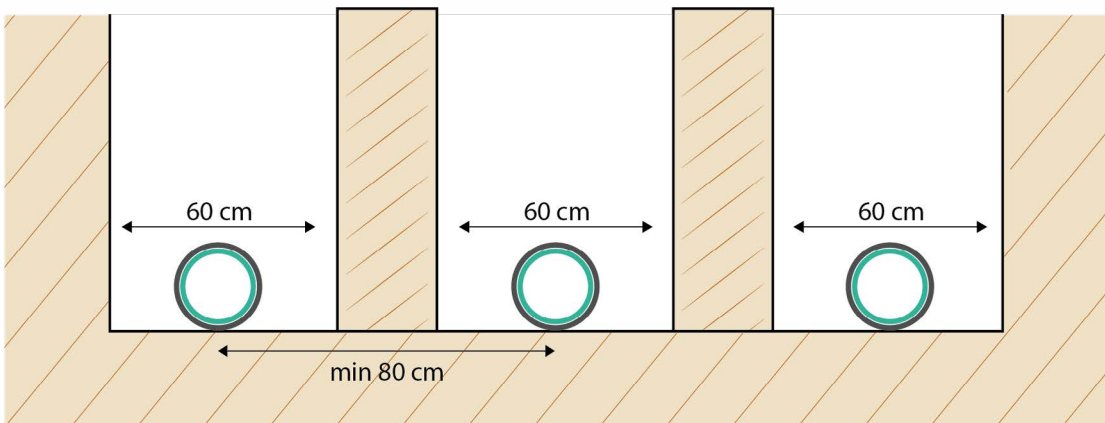


FIGURE 16: DIAGRAM OF TRENCH INSTALLATION

The infiltration basin method should be preferred to optimize the construction of the structure.

If space does not permit this, the trench method may be used.

DISTRIBUTION MANHOLES, LOOP MANHOLES, AND CONNECTING PIPES

Water Infiltration on the Plot

Connect the infiltration system:

- ▶ to the inlet of the distribution manhole
- ▶ and to the outlet of the loop manhole.



FIGURE 17: EQUIPMENT REQUIRED FOR INSTALLING THE INFILTRATUBE



FIGURE 18: LOOP AND DISTRIBUTION MANHOLE



FIGURE 19: VENTED PLUG

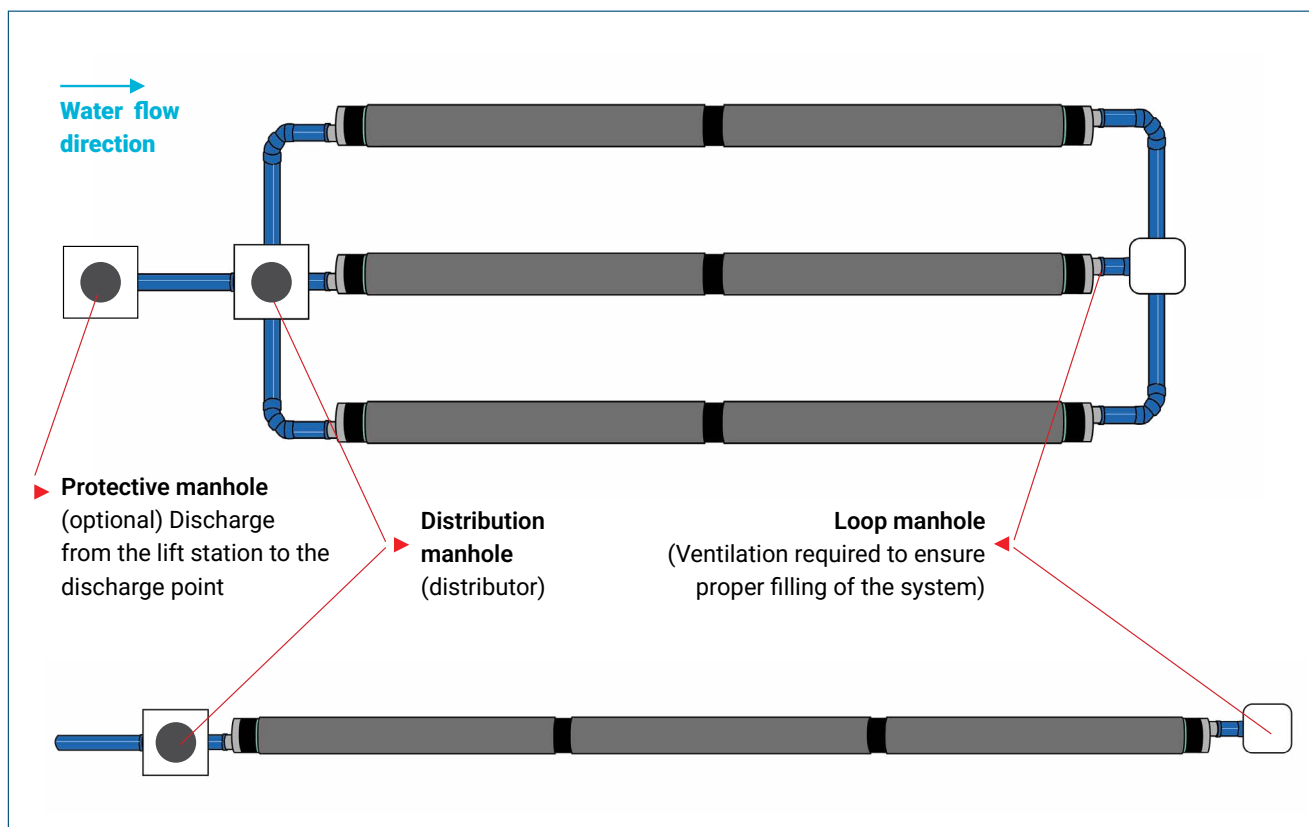


FIGURE 20:
LAYOUT DIAGRAM OF DISTRIBUTION AND LOOP MANHOLES

DISSIPATION DEVICE

Water Infiltration on the Plot

In the event of a lift, a dissipation device will be installed.

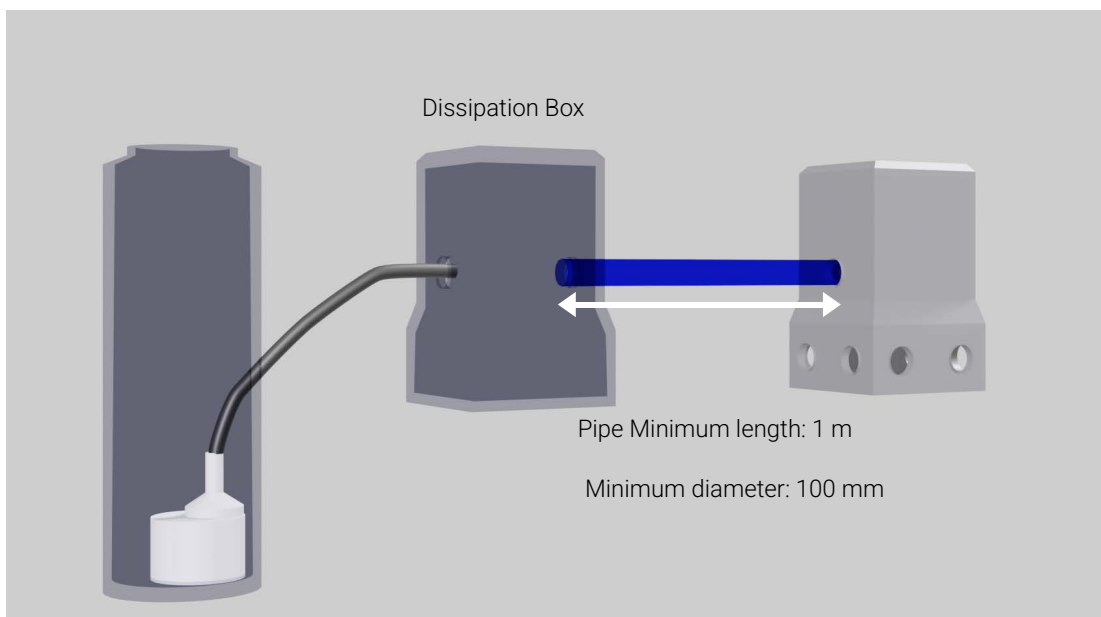
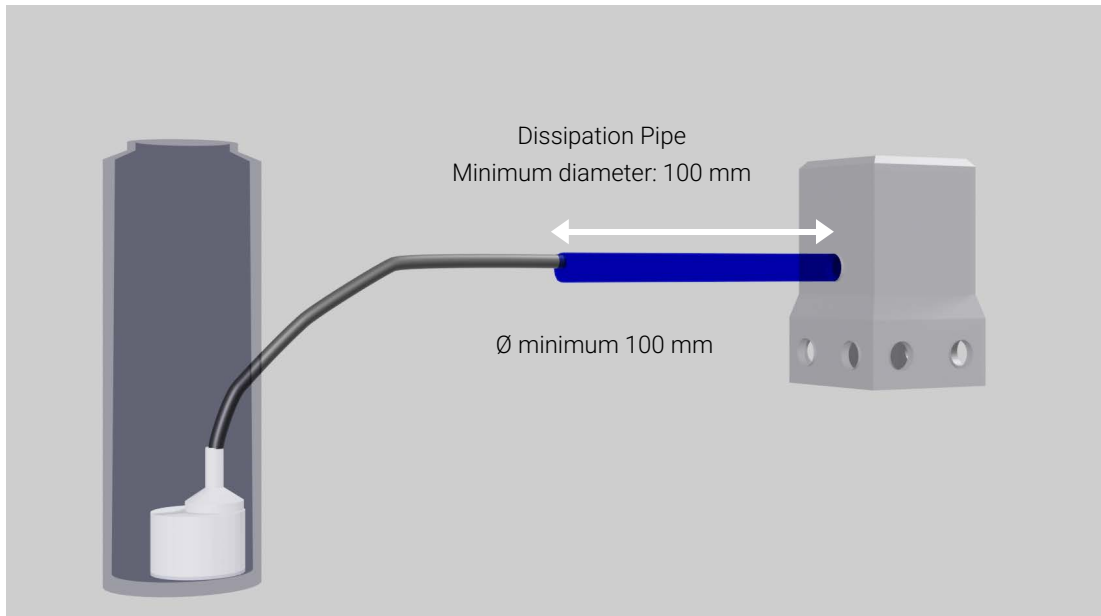


FIGURE 21 A AND B: DIAGRAM OF DISSIPATION DEVICES

BACKFILLING

Water Infiltration on the Plot

- The soil used for backfilling must be free of mud and foreign matter.

The maximum size of stones in the soil is < 40 mm.

The soil may be considered sufficiently dry for use when it does not stick to a shovel or to the hand.

See French. Dtu 64.1 :

6.4 Backfilling

6.4.1 General Precautions

- Backfilling is performed in layers of 20 to 30 cm maximum.



FIGURE 22: PRESENCE OR ABSENCE OF MUD IN THE BACKFILL

- The infiltration system must be marked 20 cm above the bars with brown warning mesh to facilitate future work and minimize the risk of damage.

If the water table is at -40 cm/TN, the mesh is buried shallowly, flush with the ground but covered.



FIGURE 23: INSTALLATION OF THE BROWN WARNING MESH



FIGURE 24: MANUAL COMPACTION OF THE BACKFILL LAYERS

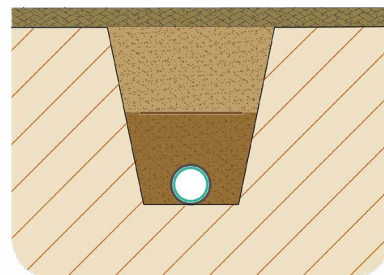
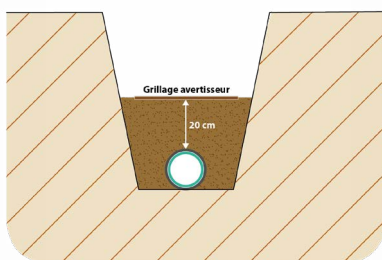
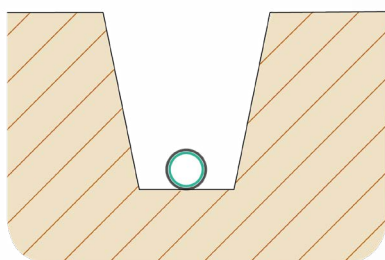


FIGURE 25 A, B, AND C: SCHEMATIC CROSS-SECTION FOR MARKING UTILITY LINES

4

ENTRETIEN DU RÉSEAU

► To ensure the long-term effectiveness of the infiltration system, it is recommended that the system be inspected:

- At the end of construction, to verify that the installed system is in good condition (no crushing, no significant reverse slope, etc.)
- At the end of the first and second years of operation, an inspection—combined with cleaning if necessary—will be scheduled.
- If both annual inspections confirm proper operation, subsequent inspections may be gradually spaced out to every 2 to 5 years.
- If a specific event occurs (flooding, etc.)

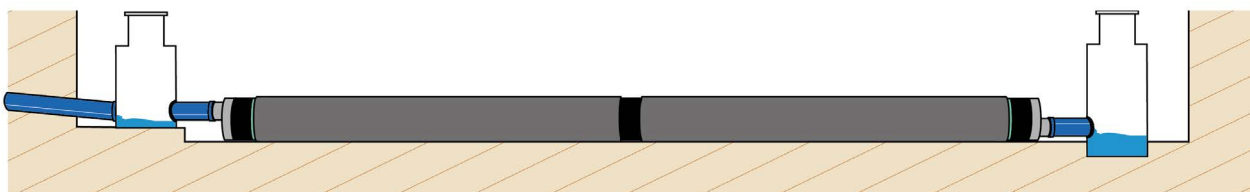


FIGURE 26: CROSS-SECTION OF THE INFILTRATUBE SYSTEM WITH MANHOLES

► Maintenance and inspection may be performed by the project owner for lengths of up to 20 m; beyond that, these operations must be performed by professionals.

OUTLETS

Water Infiltration on the Plot

► For stormwater infiltration systems, a safety overflow must be installed.

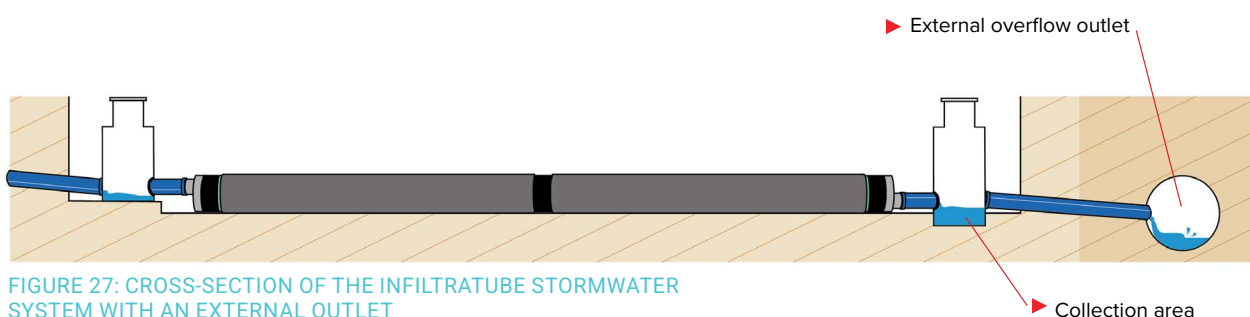


FIGURE 27: CROSS-SECTION OF THE INFILTRATUBE STORMWATER SYSTEM WITH AN EXTERNAL OUTLET

► This may be:
if regulations permit, a public outlet (sewer system/ditch);
otherwise, discharge onto the property.



FIGURE 28: INTERIOR VIEW OF THE INFILTRATUBE

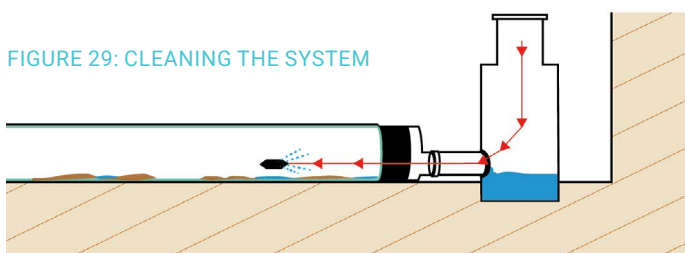


FIGURE 29: CLEANING THE SYSTEM

5

WARRANTY AND SUPPORT

WARRANTY

Water Infiltration on the Plot

- ✓ A 10-year warranty for installation work, provided the company you hire is covered by the appropriate insurance.
- ✓ Manufacturer's warranty for the Infiltratube system.
- ✓ It is important to note that the lifespan of the infiltration system is significantly longer than that of a traditional system.
- ✓ Based on experience, the estimated lifespan exceeds 25 years.
- ✓ Maintenance is essential to ensure the proper functioning of the infiltration system. This maintenance can be performed by the homeowner or by a professional installer.

SUPPORT AND SIZING

Water Infiltration on the Plot

► How do you calculate, on-site, the volume and sizing of the storage pipes that will retain and disperse the maximum amount of water?

ATE simplifies your calculation of the volume of infiltration structures.

Find the interactive document for calculating the size of the Infiltratube on our website.

FIELD EXPERIENCE

Water Infiltration on the Plot



L'EXPÉRIENCE TERRAIN

A.T.E. is a French industrial SME founded and based in Château-Gontier, in the Mayenne department (53), since 2001, specializing in drainage, infiltration, and stormwater management. For over 20 years, A.T.E. and its teams have been known and recognized for the quality of their products, their commitment to innovation, and the development of new products that are increasingly tailored to installers' needs.

This is how A.T.E. developed, marketed, and supported installers in the implementation of the INFILTRATUBE.

VISIT OUR WEBSITE FOR MORE INFORMATION ABOUT THE
INFILTRATUBE



<https://www.ate-drainage.com/en/produits/infiltratube-sn4/>



