

# Installation

## GENERAL CONSIDERATIONS

ACO StormBrixx® SD/HD should be installed in accordance with the installation instructions and relevant legislation. Special attention should be paid to temporary work requirements in excavations. ACO can give guidance with respect to the most suitable methods of installation for the ACO StormBrixx® system.

Detailed installation methodologies will vary for all sites as each will have different aspects deserving particular consideration. Consequently, the relevant approvals should be sought from the consulting engineer and/or the installer.

Full technical data can be found online at [www.acostormbrixx.us](http://www.acostormbrixx.us)

## SITE CONSIDERATIONS

ACO StormBrixx® is designed to withstand loadings from landscaped areas, car parks and service yards (subject to design criteria) after installation and backfilling.

ACO StormBrixx® is not designed to provide a load platform for construction traffic and should be treated accordingly.

During construction, it is recommended that the install area be fenced off with high visibility fencing and any vehicular traffic is prohibited from using the footprint area of the ACO StormBrixx® system. This action will protect the long-term loading performance of ACO StormBrixx®. After install, it is also recommended to provide sign posts indicating maximum loads allowable over ACO StormBrixx®.



# 1

## EXCAVATION FOR ACO STORMBRIXX® SYSTEMS

If the ACO StormBrixx® system is to be located in areas of high groundwater table, contaminated land, close proximity to buildings, or where the risk of contamination from surface water is high, ACO recommends that the lining system be installed by an accredited lining contractor.

ACO StormBrixx® should be installed in accordance to local codes and requirements. Installation can vary depending upon individual site topography and conditions. Local engineering advice is recommended.

### 1a

#### EXCAVATE PIPE TRENCH

Excavate pipe trench and lay inlet pipe to required fall and invert level. Install pretreatment silt traps in appropriate locations in pipe run. An isolation chamber or forebay may be used (see design drawings, page 64).

### 1b

#### EXCAVATE MAIN INSTALL SITE

Excavate the hole or trench to required dimensions to receive ACO StormBrixx® system, along with any external inspection chamber(s) and/or silt trap(s).

Ensure that base plan dimensions of excavation allow for a 12" (300 mm) working space on all sides for site operatives to maneuver ACO StormBrixx® components, geotextile and geomembrane into position. Ideally, mark out the plan area with spray paint or chalk lines.

### 1c

#### GROUND PREPARATION

Ensure that the base of the excavation is smooth, level, and capable of withstanding required design loads. Angle the sides of excavation to prevent collapse and ensure safe access/conditions for site workers.

Remove any soft spots from excavation and replace with compacted granular material.



## Detention/Retention System Installation

1

### BEDDING LAYER

Lay a minimum 4" (100 mm) compacted bedding layer.

**It is essential that the bedding layer is correctly leveled and smooth.**

2

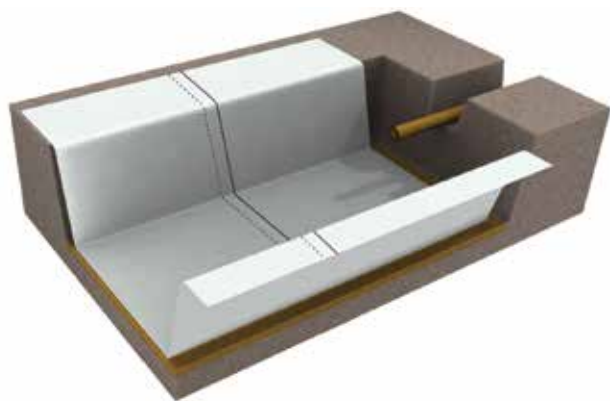
### GEOTEXTILE

Lay a geotextile on the base sides of the excavation with minimum 12" (300 mm) overlap at joints. Inspect the geotextile for damage. Wrap the geotextile up the side of the excavation.

3

### GEOMEMBRANE LINER

Install a geomembrane liner to comply with local standards and requirements as required.



4

### PLACEMENT

Assemble ACO StormBrixx® system to plan size and system configuration required upon on the geomembrane. Fix modules together using connectors.

5

### PIPE CONNECTOR FLANGES

Form hole(s) in the side panel of a layer using a hole saw and jigsaw to receive the inlet/outlet/inspection/vent pipe as required. Ensure top covers are installed on the top layer of the system.

6

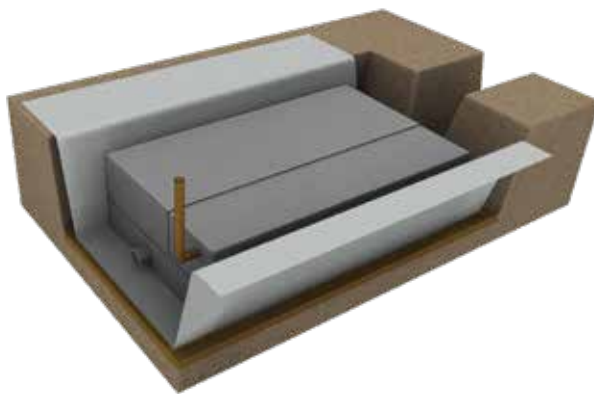
### FIT GEOMEMBRANE LINER

Cut the geomembrane around any pipe protrusions and weld the top hat to the geomembrane liner. Seal the geomembrane top hat to pipes and/or horizontal pipe connectors. Test joints for leaks.

Continue with geomembrane encapsulation using welded or taped joints. If protrusions exist for venting, repeat above. Check for leaks, test seals.

Continue with outer protection encapsulation of the system. Fold the corners of the protection fabric over-run at each end of the system.

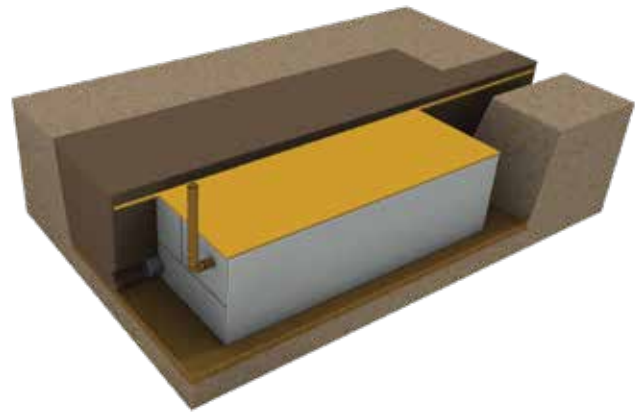
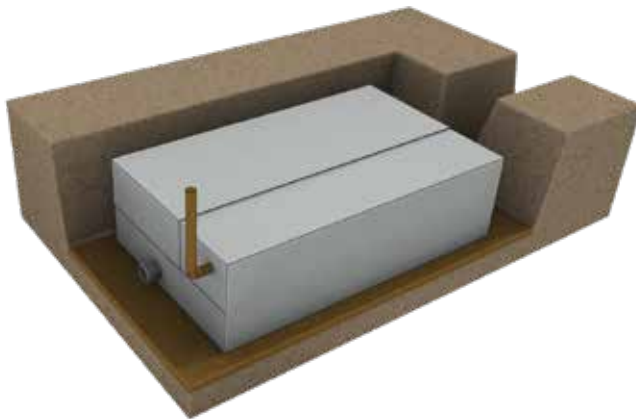
Complete encapsulation by wrapping the fabric horizontally around the system. Tape into position.



## 7

### INLET/OUTLET/VENT PIPE

Connect inlet/outlet/vent pipes and remote access units using appropriate adaptors. One 4" (100 mm) vent pipe should be used per 80,730 ft<sup>2</sup> (2286 m<sup>3</sup>) of the area to be drained.



## 8

### BACKFILL

**Sides:** Backfill evenly around excavation using subbase or selected granular material in layers of 6–12" (150–300 mm) and compact. The first 20" (500 mm) should be compacted by hand.

**Top:** Use a minimum 4" (100 mm) coarse sand protection layer over top of modules and geotextile then backfill. A minimum 16" (400 mm) backfill cover is required before compaction equipment is used. The area should be compacted using suitable compaction equipment.

**For hard landscaped areas consider using a minimum 6" (150 mm) coarse sand protection layer to maximize protection of liner.**

## 9

### COMPACTION

Landscaped and non-trafficked areas: Use native soil with a particle size of less than 1.6" (35 mm) within 12" (300 mm) atop of layers. Above this level, native soil may be used. Place backfill and compact in layers no greater than 12" (300 mm). The compaction plant over top of system must not exceed 5,000 lbs per 36" width (2268 kg to 900 mm width).

Trafficked areas: Use an appropriate subbase material as backfill. Compact in layers no greater than 12" (300 mm). The compaction plant over top of system must not exceed 5,000 lbs per 36" width (2268 kg to 900 mm width).

Where units are installed beneath a paved area, pavement subbase may form part of the backfill material. Minimum cover depth **MUST** be maintained (see installation detail per project).

## 10

### FINISHED PAVEMENT

The pavement construction or landscaping is completed over the ACO StormBrixx® system.

## Infiltration System Installation

1

### BEDDING LAYER

Lay a minimum 4" (100 mm) compacted bedding layer.

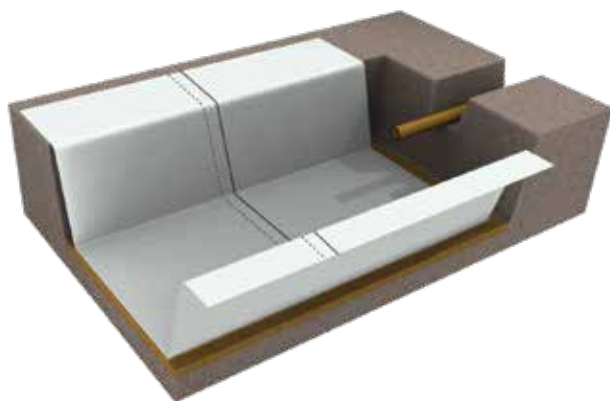
**It is essential that the bedding layer is correctly leveled and smooth.**



2

### GEOTEXTILE

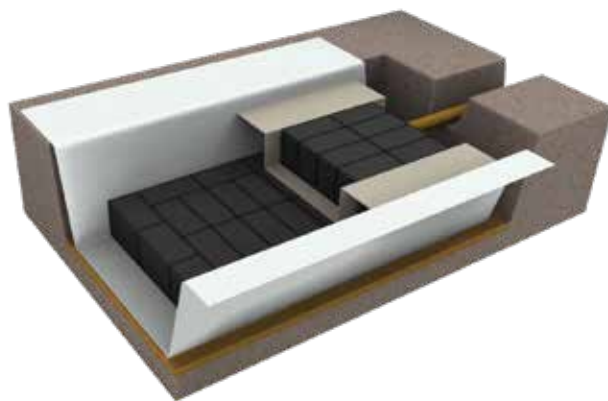
Lay a geotextile on the base sides of the excavation with minimum 12" (300 mm) overlap at joints. Inspect the geotextile for damage. Wrap the geotextile up the side of the excavation.



3

### PLACEMENT

Assemble ACO StormBrixx® to plan size and system configuration required and build upon on the geomembrane. Ensure any loose modules are fixed together using connectors.



4

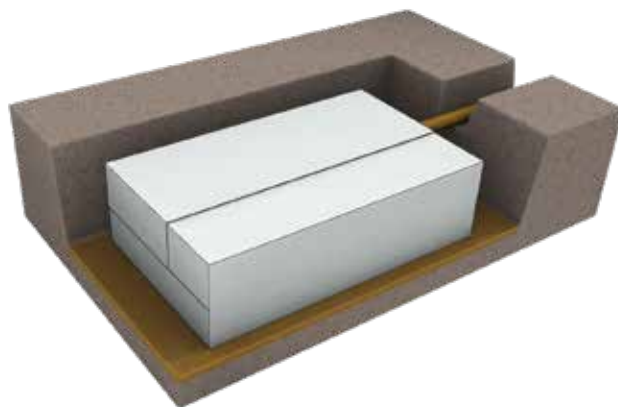
### PIPE CONNECTIONS

Form hole(s) in the side panel of a layer using a hole saw and jigsaw to receive the inlet/outlet/inspection/vent pipe as required. Insert a horizontal pipe connector and use geotextile to form a wrap around it. Secure using tape or jubilee clip. Ensure a minimum 2" (50 mm) of horizontal pipe connector extrusion remains exposed.

5

### FIT GEOMEMBRANE WRAP

Continue with the geotextile encapsulation of the ACO StormBrixx® system.



## 6

### INLET/OUTLET/VENT PIPE

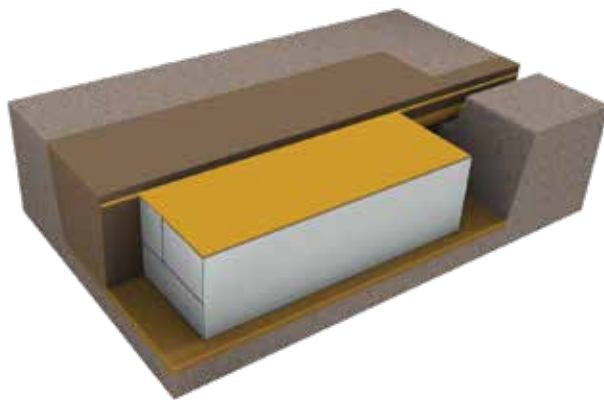
Connect inlet/outlet/vent pipes and remote access units using appropriate adaptors. One 4" (100 mm) vent pipe should be used per 80,730 ft<sup>2</sup> (2286 m<sup>3</sup>) of the area to be drained.

## 7

### BACKFILL

**Sides:** Backfill evenly around excavation using subbase or selected granular material in layers of 6–12" (150–300 mm) and compact. The first 20" (500 mm) should be compacted by hand.

**Top:** Use a minimum 4" (100 mm) coarse sand protection layer over top of modules and geotextile then backfill. A minimum 16" (400 mm) backfill cover is required before compaction equipment is used. The area should be compacted using suitable compaction equipment.



## 8

### COMPACTION

Landscaped and non-trafficked areas: Use native soil with a particle size of less than 1.6" (35 mm) within 12" (300 mm) atop of layers. Above this level, native soil may be used. Place backfill and compact in layers no greater than 12" (300 mm). The compaction plant over top of system must not exceed 5,000 lbs per 36" width (2268 kg to 900 mm width).

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Where units are installed beneath a paved area, pavement subbase may form part of the backfill material. Minimum cover depth MUST be maintained (see installation detail per project).

## 9

### FINISHED PAVEMENT

The pavement construction or landscaping is completed over the ACO StormBrixx® system.

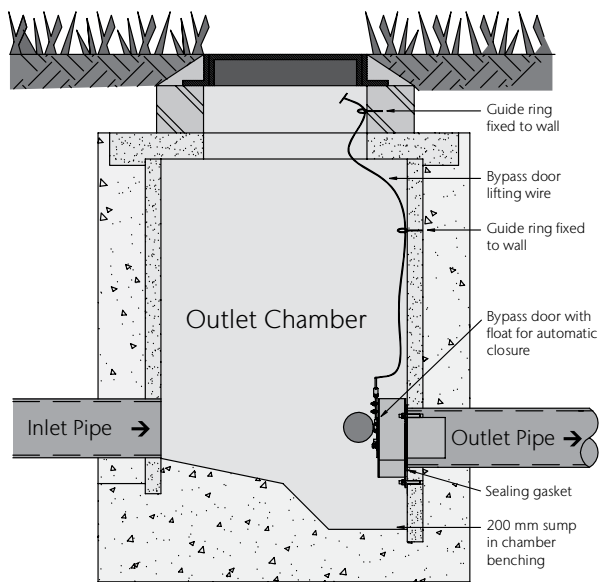
## ACO Q-Brake Vortex Installation

1

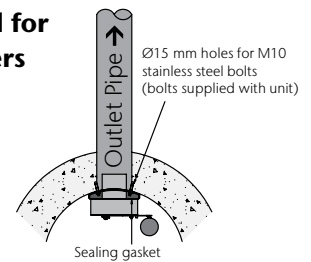
### CHAMBER CONSTRUCTION

Construct the housing chamber for the flow control unit. If the chamber has a curved wall, the diameter of the chamber should be specified on the order and Contract Review Document for the flow control unit.

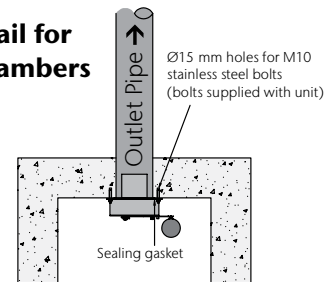
The base of the chamber must be at a level 200 mm below the bottom of the flow control unit. When the chamber base is benched, there must be a 200 mm deep sump below the bottom of the unit as shown on the sketch.



### Fixing installation detail for round manhole chambers



### Fixing installation detail for flat-sided manhole chambers



2

### MARK THE PLACEMENT OF THE ACO Q-BRAKE VORTEX

Bring the flow control unit up to the outlet pipe using the lifting eyes where appropriate. Ensure the unit is upright (arrow pointing up). Mark the position of the fixing holes on the chamber wall. Remove the unit and drill fixing holes to suit the M10 bolts supplied with the unit. (Note bolts are Rawlbolt R-XPT-S stainless steel M10 bolts requiring a Ø15 mm hole).

3

### SECURE THE ACO Q-BRAKE VORTEX

Place bolts into the drilled holes. Secure the flow control unit onto the bolts (again check it is upright). Ensure that the gasket is flat against the wall. Fit the nuts and tighten them to pull the unit against the gasket and seal it against the wall.

4

### SECURE THE REMOTE ACCESS CABLE

Fix the two wire guide rings (supplied) to the chamber wall, one approx mid height and one just under the access cover. Thread the remote access cable through the rings. Adjust the length of the wire by fixing the handle in the correct position and cut to length if necessary.

## ACO Q-Plate Installation

1

### CHAMBER CONSTRUCTION

Construct the chamber that is to house the ACO Q-Plate orifice control. Note that if the chamber has a curved wall (e.g. a concrete ring manhole), the diameter of the chamber should be specified on the order and Contract Review Document for the ACO Q-Plate Orifice control unit.

There should be a small sump under the outlet to ensure the orifice control does not easily block, ideally there should be upstream sediment and debris traps. When the chamber base is benched, there should be a minimum 200mm deep sump below the bottom of the unit as shown on the sketch.

2

### MARK THE PLACEMENT OF THE ACO Q-PLATE

Offer the ACO Q-Plate orifice control unit up to the outlet pipe. Ensure the unit is upright (arrow pointing vertically up) and that the orifice is correctly positioned at the invert of the outlet pipe.

Check there is a good seal between the orifice plate and the outlet pipe. Mark the position of the fixing holes on the chamber wall. Remove the unit and drill fixing holes to suit the bolts supplied with the unit.

3

### SECURE THE ACO Q-PLATE

Place bolts into the drilled holes. Secure the ACO Q-Plate orifice control onto the bolts (again check it is correctly aligned). Ensure that the gasket is flat against the wall. Fit the nuts and tighten them to pull the unit against the gasket and seal it against the wall.

4

### SECURE THE REMOTE ACCESS CABLE

If you have been supplied the Q-Plate with the drain down and bypass door fix the two wire guide rings (supplied) to the chamber wall, one approx mid-height and one just under the access cover.

Thread the bypass door lifting wire through the rings. Adjust the length of the wire by fixing the handle in the correct position and cut to length if necessary.