

Cavidrain Invert - Cavern/Station Box Invert Drainage

General Advice

These instructions should be read in conjunction with the contract specification and drawings. They are intended to provide guidance in normal installation situations. If there are any questions related to the design, unusual installation challenges, or any doubt, consult ABG for further advice. In all situations, responsibility for installation remains with the Installer.

Description

Cavidrain Invert is a pre-formed drainage layer comprising of a large cusped HDPE core developed specifically for the drainage of cavern/station box inverts. **Cavidrain Invert** is a collector and transporter of water and replaces an invert drainage trench.

Products Supplied

- **Cavidrain Invert**
- **Terrex** (geotextile)
- **Abseal Butyl Tape**

Equipment Required

- Sharp knife
- Spreader boards
- ITW gun, nails and washers

Preparation for Laying and Storage

Cavidrain Invert is supplied in panels which are usually 3.94m long x 920mm wide. The panels are supplied stacked on pallets and should be stored on a flat dry surface and covered with a tarpaulin. Individual panels weigh approx. 2.2kg/m² and can be manoeuvred by hand. They should not be dragged across surfaces. Pallets should be moved using mechanical plant such as a crane or a forklift.

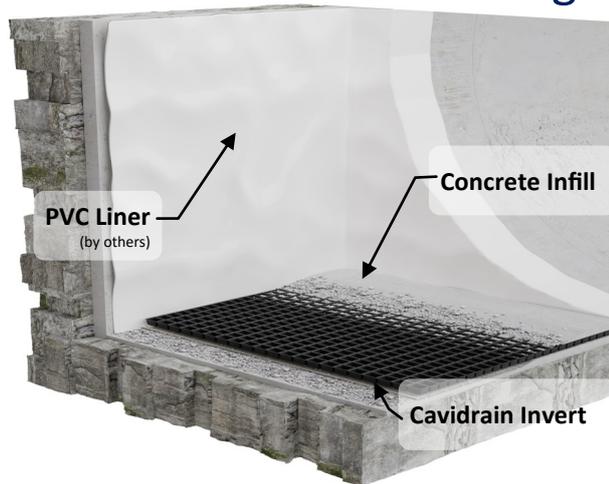


Fig. 1: Cavidrain Invert station box cut-away diagram

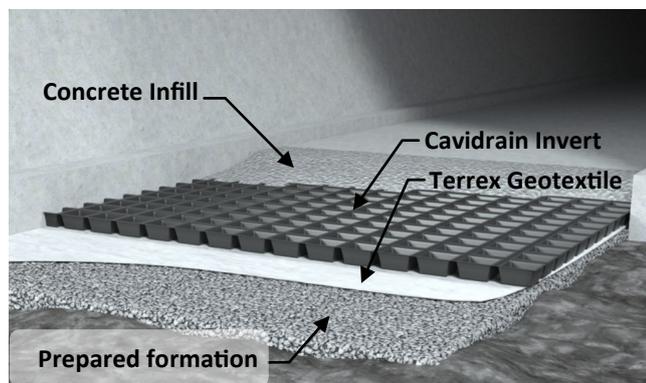


Fig. 2: Cavidrain Invert general layout



Fig. 3: Use spreader boards during installation

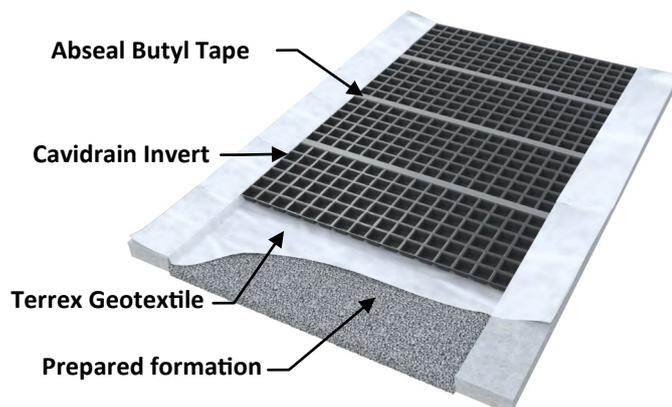


Fig. 4: Cavidrain Invert installation detail

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Installing Cavidrain Invert

Step 1.1

Choose the starting point and direction of laying (usually the downstream end). Consider the intended access point for placing the concrete infill to avoid any unnecessary need to traffic directly over **Cavidrain Invert** panels. Spreader boards should be used for foot traffic over panels (Fig. 3). Temporary diversion of any significant water flow may be required.

Step 1.2

Formation should be levelled with crushed aggregate or no-fines concrete as necessary.

Step 1.3

Place a layer of **Terrex** geotextile on the formation to prevent fines migrating up into the flow channels of **Cavidrain Invert**.

Step 1.4

Lay the first **Cavidrain Invert** panel. Panels can be held in place with shot fired pins & washers if required.

Step 1.5

Lay the next panel of **Cavidrain Invert** with the edges of adjacent panels abutted or overlapped as required.^{NOTE1} (Fig. 4)

Step 1.6

Once a bay of panels is laid out, the joints can be taped and sealed with **Abseal Butyl Tape** (Fig. 5). Note: The **Cavidrain Invert** panels should be wiped dry and the tape warmed to achieve a satisfactory bond.

Step 1.7

Inspect finished joints between panels ensuring no voids exist through which wet concrete can escape.

Steel Fixing, Formwork and Concreting Base

Step 2.1

Place the transverse stop end formwork on top of a Cavidrain rib to ensure concrete does not flow below the formwork (Fig. 6). Where necessary, fold the **Terrex** geotextile over the stop end formwork to prevent debris from getting under the Cavidrain.



Fig 5: Cavidrain Invert installed ready for concrete infill



Fig 6: Formwork placed along rib of Cavidrain Invert

Step 2.2

Carefully pour the concrete to fill to 50mm above the cusps. This ensures the cusps are filled and prevents movement of the panels.^{NOTE 2}

Step 2.3

Place any steel specified.

Step 2.4

Pour concrete to full slab depth.

Notes

1. Jointing details will vary depending on the specific project requirements. Contact ABG Technical Department for further guidance.
2. Reinforcement may be constructed directly on the Cavidrain using suitable spacers and plates.

Terms and Conditions

Site specific engineering design should be carried out after site investigation has provided all the necessary information. The assessment of suitable safety factors in relation to each particular project must always remain the responsibility of the design engineer.