

INSTALLATION GUIDE

ENVIRO-SPAN

This guide is based on engineering principles and good practice for the installation of arch culverts. Stream crossings are highly regulated in many areas. Check with your local regulatory agencies before installation to ensure that the ENVIRO-SPAN arch culvert is authorized for your specific crossing.

Please read this installation guide before starting work. Supervision by an engineer is recommended.



Preparation:

Make a detailed site plan for the access path based on:

- an initial site assessment;
- the stream hydrology;
- an assessment of the ground stability;
- other factors relating to the site.

Choose the location of the access path so that the wetted perimeter of the waterway sits entirely between the bankseats, with a width not exceeding 2100 mm (6.9 ft). For example, for a stream having a normal width of 1.070 mm (3.5 ft), we recommend choosing a 2150 mm (7 ft) ENVIRO-SPAN culvert.

Hydrological calculations should be performed to determine the peak flow carried by runoff from the upstream watershed, to ensure that the structure is properly sized for each application.

Warning:

- a. Do not travel on the ENVIRO-SPAN arch culvert with a tracked vehicle before backfilling at least 600 mm (24 in) above the arch.
- b. Do not travel on the ENVIRO-SPAN arch culvert with a wheeled vehicle before the minimum recommended backfill height above the arch (see data sheet).



Installation:

1. Select two straight timber logs which will serve as bankseat footings. Plastic pipes with rigid walls (Sclairpipe) and steel pipe (foundation piles) can also be used. The log dimensions are as follows:

Log diameter	200 mm (8 in) 300 mm (12 in)
Log length	Length of the structure + 1.200 mm (48 in)

The footings used to support the ENVIRO-SPAN arch culvert system can be installed without anchoring on ground slopes of 2% or less. When the slope exceeds 2%, it is recommended to anchor the logs with steel anchors at each end of the logs, and at intervals of 2.5 m (8 ft), if needed.

2. Place the logs parallel to the stream bed with a centre to centre spacing of 2,455 mm (96.65 in) corresponding to the width of the ENVIRO-SPAN arch culvert.



Note: If more than one log is necessary to achieve the required length, stagger the log joints from both sides of the structure to ensure its stability.

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3. Installing the sections:

- a. Install the first section at 600 mm (24 in) from one end of the log, positioning the culvert bankseats on the log footings.
- b. Place the second section next to the first one and place the connector on top of the two ENVIRO-SPAN sections so as to overlap the end rings of the two sections. No additional accessories are required.
- c. Continue adding sections up to the length specified in the design drawing.



4. Riprap:

For installations with seasonal flooding and during assembly, it is recommended to place inside the sections, one after the other,

- a. riprap along the bankseats
- b. a geogrid on the banks before placing riprap.



5. Coverage with a geotextile:

After assembly is completed, it is important to cover the entire structure with a TX-F type geotextile. The geotextile should cover the system and have an excess length of 300 mm (12 in) on each side of the ENVIRO-SPAN arch structure.



6. Backfilling:

- a. Backfilling can be done using local soil. Any stone exceeding 150 mm (6 in) in diameter must be removed.
- b. Backfilling should be laid in 300 mm layers (12 in) spread simultaneously and equally on each side of the structure.
- c. Each layer of backfill should be compacted using a vibrating plate or power shovel.
- d. Refer to the data sheet for the minimum and maximum fill heights.
- e. Take care not to displace the connectors when backfilling.

