



ACO. creating

the future of drainage

## ACO Guide Wall

The ACO Guide Wall system comprises a basic unit of 1m installed length and also additional curved and cambered units of 0.5m installed length for optimum adaptation to even difficult types of terrain.

The ACO Guide Wall system permits guidance of amphibians, optimum safeguard against animals climbing in danger areas, stable ground works, ease of installation and optimum drainage characteristics.

Next to the barrier the base plate suppresses vegetation that would otherwise provide an opportunity for amphibians to climb over the wall. This is a significant advantage over alternative walls where the ground has to be mowed or cleared regularly.

### Benefits

- Integral drainage holes and joints enhances verge stability
- Contact surfaces are non-absorbent with minimal thermal conductivity, protecting amphibians
- Adaptable components for variations in terrain



### Applications

- Migratory paths in combination with ACO Climate Tunnels
- Creating embankments to guide wildlife away from dangerous road crossing

## System Overview



ACO Guide Wall - straight



ACO Guide Wall - riser



ACO Guide Wall - inside curve

Product Code	Description	Length [mm]	Width [mm]	Height [mm]	Weight [kg]
<b>ACO Guide Wall</b>					
17845	Wildlife Guide Wall straight	1000	470	450	49
18406	Wildlife Guide Wall dropper	540	470	450	24
18405	Wildlife Guide Wall riser	540	470	450	27
18408	Wildlife Guide Wall outside curve	530	470	450	25
18407	Wildlife Guide Wall inside curve	530	470	450	25



## Compatibility

ACO Guide Walls are compatible with ACO Climate Tunnel Entrances and ACO Stop Channels. The versatility of the system allows the guide walls to follow the contour requirements of the landscape, with riser/droppers and curved units

ACO Guide Wall and ACO Stop Channel

## The practical advantages

### Drainage characteristics

The wall unit itself has integral drainage holes in the reverse of the base, as well as provision for drainage at the butt joints, where geotextile is applied but is not visible. Surface water drains away vertically in the natural way, greatly enhancing the stability of embankments and verges.

### Stability

The material used, good component drainage capabilities, and a low centre of gravity combine to produce a high level of stability. Static calculation shows a verge construction capable of bearing a greater moving load ( $p=5.0 \text{ kN/m}^2$ ). No additional securing of components is needed in embankments of up to  $40^\circ$  (1:1.2). In addition, the integral overlapping joint prevents displacement of the units.



### Maintenance

Guide Wall units are manufactured from polymer concrete, a homogenous material resistant to various chemicals and salts. The butt joints are sealed due to their interlocking edges. Unsuitable materials, e.g. plain concrete, metals and silicon, are not used. Regular checks should be made to ensure that the system is functioning efficiently. At minimum this should include visual inspection prior to spring migration periods. A maintenance plan should be developed to keep the system free of accumulations of vegetation and leaves.

### Protection of amphibians

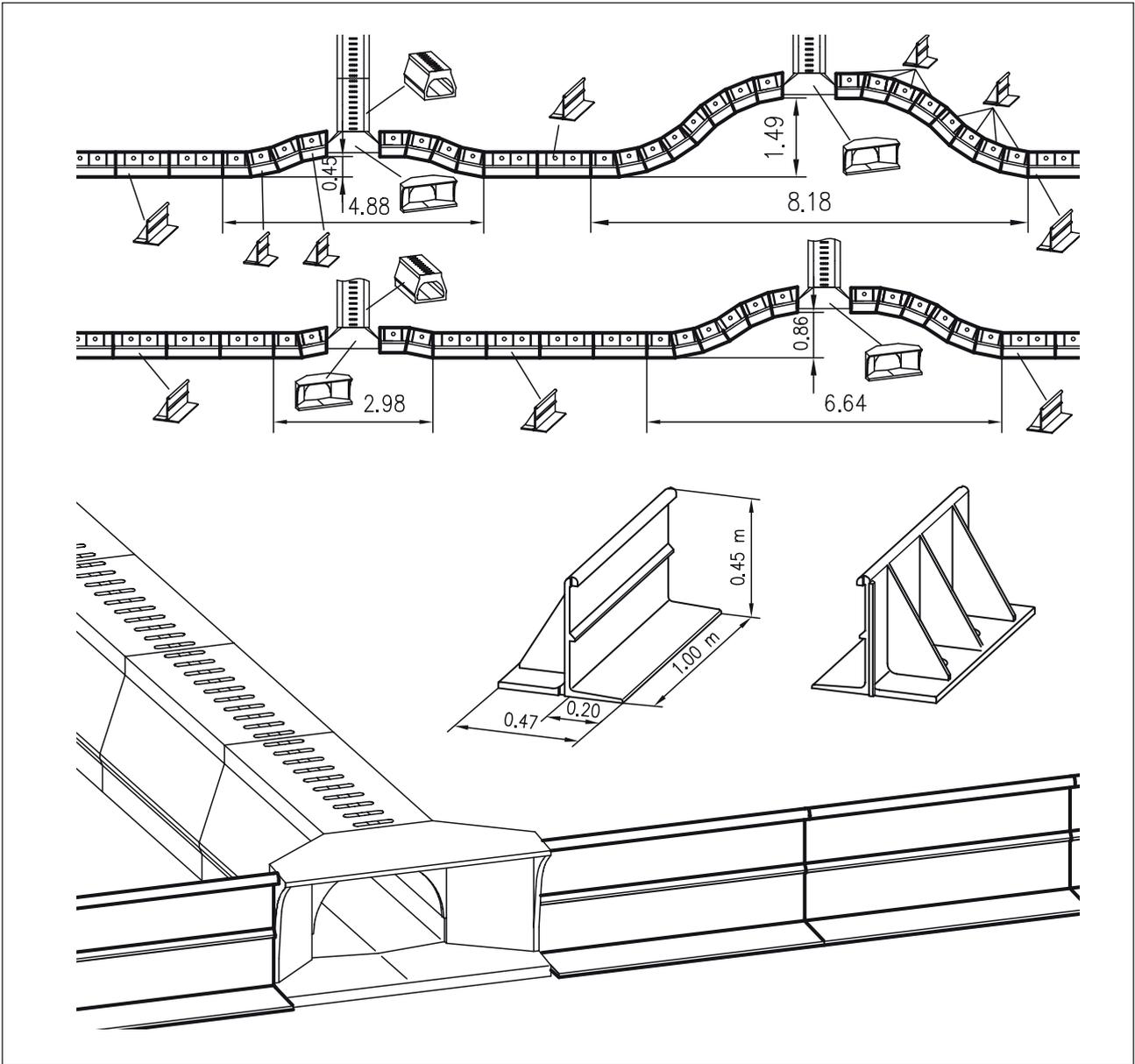
Smooth, non-absorbent surfaces with minimal thermal conductivity form an ideal contact zone for amphibians. The double lip to prevent animals climbing over helps reduce over-exertion when they move along the Guide Wall. The overlap joints ensure optimum contouring where units meet.



ACO Guide Wall and ACO Climate tunnel

The material characteristics, i.e. very low thermal coefficient of expansion and high dimensional stability, mean that joint opening is minimised. The drainage characteristics provide good drainage of water at the reverse whilst retaining moisture at the amphibian contact surfaces. This is a definite advantage, in particular for younger amphibians that most need the resulting moist conditions.

A major benefit of the ACO Guide Wall over competing products is that the base plate next to the barrier suppresses the vegetation growth that could otherwise provide a means for amphibians to climb over the wall.



Generally, units are positioned on a pre-compacted bedding material with good drainage properties, and then backfilled at the reverse, using a similar material with good drainage properties (if the local soil is too heavy).

Installation can be adapted to large-radius curves in the terrain simply by angling the unit horizontally or vertically to suit. Steep changes in elevation, approaches to crossings, and horizontal changes in direction are easily resolved without cutting or trimming by using standard units.

Practically any situation can be handled on site by using a combination of the five system elements. In critical terrain conditions units can be provided with additional anchorage by various methods in the footing area. Geotextile strips are applied to the reverse of the butt-joints, enhancing the vertical drainage effect. This helps prevent soil being washed away.

For detailed technical information please refer to the installation recommendations for the ACO Guide Wall system.

## Installation recommendations

As manufacturers we only give general guidelines on installation of the ACO Guide Wall amphibian systems. The specific design of an installation should always be decided by the designers, taking full account of all local conditions.

The ACO Guide Wall system should serve two purposes:

- As an amphibian guidance system to divert amphibians and small animals to the next road crossing,
- To accommodate the static and dynamic loadings as applicable to the installation, taking particular account of the drainage requirements.

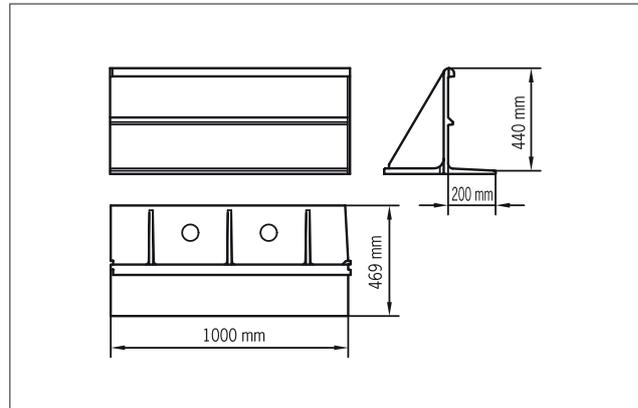
## General tips on Guide Walls

ACO Guide Wall systems are installed in approach areas in the vicinity of roadways. The minimum distance from Guide Walls to the edge of the roadway should be at least 1.50m. After installation the reverse side of the Guide Wall should be backfilled with earth up to the top edge.

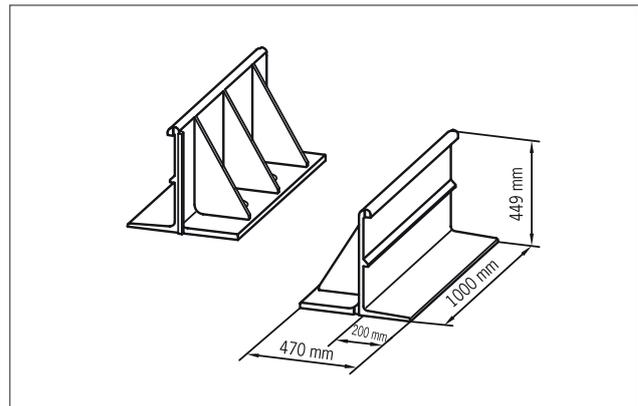
The Guide Wall can be installed in embankments with a slope of up to 40° without the need for additional provisions to secure it. In some cases additional provisions, such as steel bars, may be necessary to secure one point or a given length of the wall.

Large radius curves can be accommodated easily by angling units away from each other.

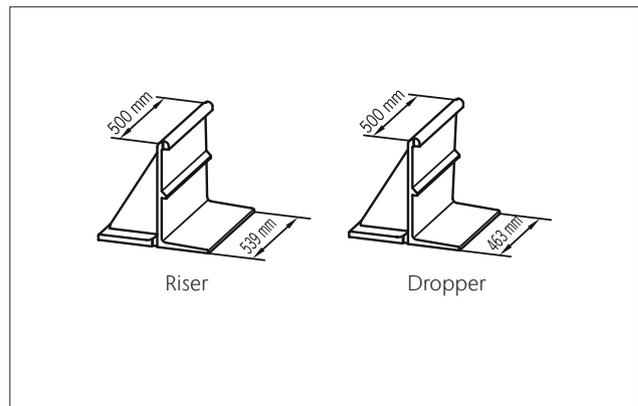
The gap between individual units should not exceed 3mm. Tight radius curves or steep changes in elevation are accommodated by using the Inside Curve, Outside Curve and Riser or Dropper units available. All system units can be combined freely as desired.



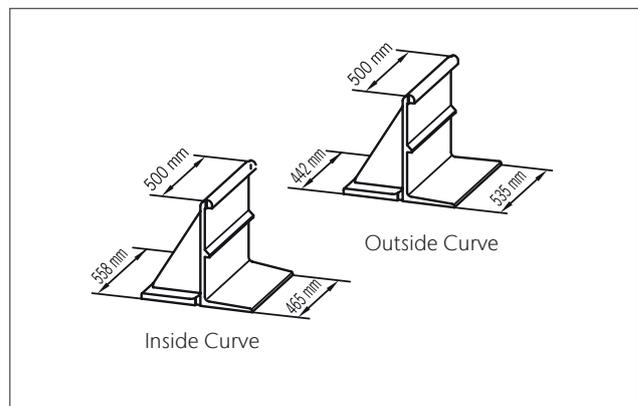
ACO Guide Wall



ACO Guide Wall



ACO Guide Wall riser and dropper



ACO Guide Wall inside and outside curve

## Tips on installing Guide Walls

Level the terrain in the vicinity of the Guide Wall, if necessary by excavation. Lay a layer of approx. 50–100mm thickness of gravel/sand mix and compact on a load-bearing foundation to act as bedding across the width of the base-plate.

Lay out the units starting at the Tunnel Entrance at the road crossing. Following the planned line, position the Guide Wall units on the gravel bedding, butted up against each other. Then clamp the elements together by means of the integral groove/spring/overlap system.

At each start and end element, as well as any trimmed element for which the integral securing system can not be used, an additional suitable fixing (e.g. a steel bar) is required through the circular holes in the base.

The Guide Wall system comprises a total of five units:

- **Standard unit** (l=1000mm)
- **Inside curve** (5°, l=500mm)
- **Outside curve** (5°, l=500mm)
- **Riser** (11.25°, l=500mm)
- **Dropper** (11.25°, l=500mm)

All system units can be combined freely as desired.

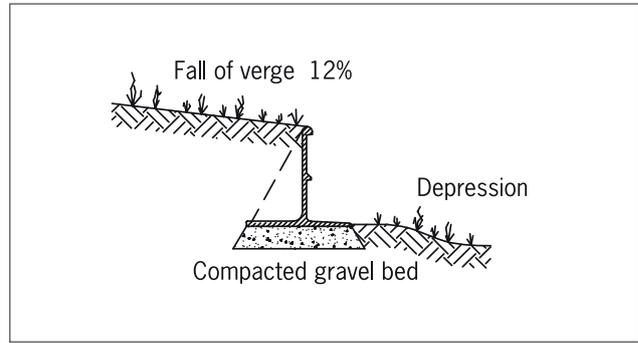
Large radius curves can be accommodated easily by simply angling the basic units to suit. Tight radius curves or steep changes in elevation are readily achieved by using the four available elements for curves or height adjustment. The vertical gap between the units should not exceed 3mm at any point.

Before back-filling up to the Guide Wall, use geotextile strips to tightly cover the reverse of all vertical joints. The geotextile should extend up to the top of the Guide Wall. The geotextile strips can easily be fixed to the Guide Wall at one or two fixing points, using acrylic adhesive for instance.

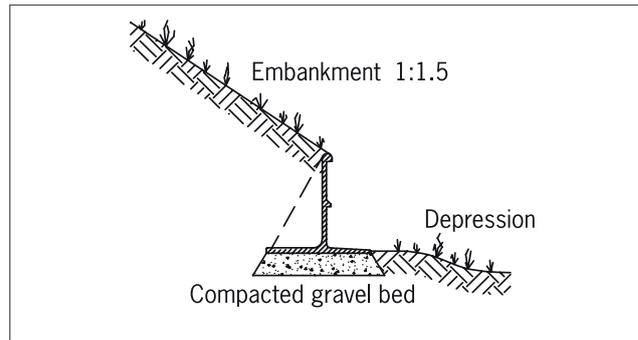
Select the backfill material according to specific local requirements; apply in layers and compact using light-duty equipment. If there are no specific requirements, any desired earth can be used, except in the verge areas. If the soil is of a heavy nature then another material that allows drainage should be used for backfilling, otherwise the drainage function of the vertical joints will be impaired.

Care should be taken that the units remain in their set positions during backfilling. In certain cases it may be necessary to install additional fixings, for instance using steel bars in the openings in the base. Special adaptations, for instance at bridge constructions, may require cutting and trimming of the Guide Wall to suit. Do not cover over the Guide Wall contact surfaces.

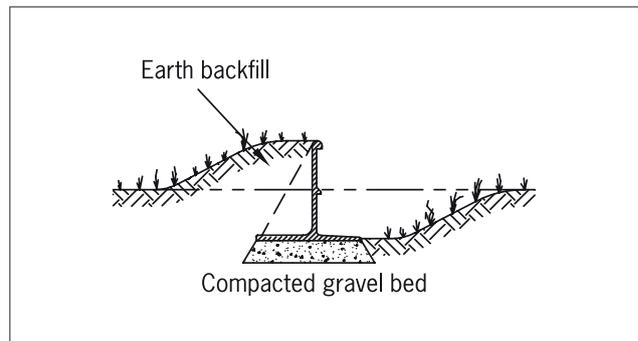
Fill in gaps of 3mm or more with polymer concrete material using an appropriate grouting tool. On no account should plain concrete, silicone, or PU foam be used.



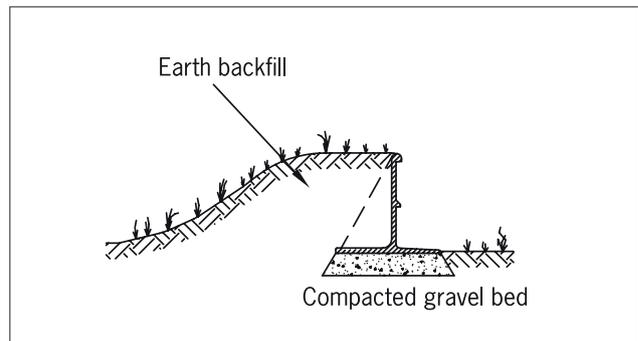
Installation – verge



Installation – embankment



Installation in level terrain, lower elevation



Installation in level terrain, same elevation

### ACO Water Management Contacts:

Sales: customersupport@aco.co.uk

Technical: technical@aco.co.uk

Tel: 01462 816666

[www.aco.co.uk](http://www.aco.co.uk)

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