Installation of Permanent Amphibian Fencing

Notes for Guidance

Introduction:

The ACO permanent amphibian fence consists of curved fence panels, constructed of molded plastic, supported at the front by long plastic posts. Once installed, the curved shape of the panels results in a concave barrier, restricting amphibians from moving from one side, while the convex shape on the other side of the fence permits the free movement of amphibians. Although the fencing materials are relatively straightforward, great attention to detail and adequate supervision of fence installation are essential in order to ensure that the fence fulfills its function as an effective amphibian barrier and to avoid the need for costly improvements to the fence at the end of the job.

The key to successful installation starts with adequate ground preparation, and contractors should ensure that the cost of this item has been included when pricing the job. Costing should also include ground preparation at the base of the fence panels. On stony or rocky ground fence installation may be more complicated, and a provisional sum should be included in the contract amount to cover any additional costs that are incurred in the event that such conditions are encountered.

Installation

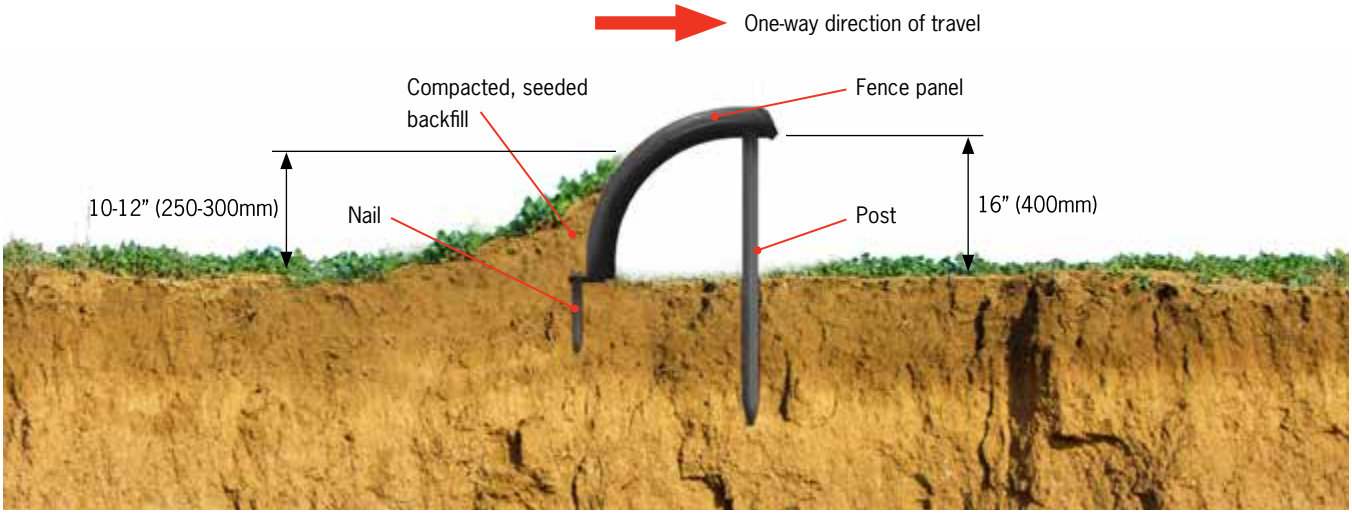
1. Ground preparation/setting out

The rigidity of the fence panels means that in order to ensure a smooth fence line it is necessary for the ground to be fully prepared before installation begins. The ground should be leveled in a 10 ft (3m) wide strip along the proposed line of the fence 5 ft (1.5m) either side of the midline of the fence). This will ensure that the base plate of each panel lies at the correct angle and that adjacent panels are positioned correctly in relation to one another. Levelling of a 10 ft (3m) wide strip will also help to ensure that the correct fence height is maintained. On slopes the ground should be prepared, where possible, to give a constant gradient. Where changed in gradient cannot be avoided, these should be spread over as long a section of fence as possible in order to avoid difficulties in fixing the panels tightly together. Similarly, changes in fence direction should be spread over a long run of panels to give a gentle curve rather than angular shifts in direction. Abrupt changes in directions are best dealt with by connecting two straight runs of fence panels with a miter joint sealed with glass fiber matting. The line of the fence should be pegged out carefully and checked in advance of fence construction. For straight lengths of fence, a builder's line should be used to ensure the accuracy of installation.

2. Fixing posts

In soft to firm ground conditions the posts can normally be driven with a mallet to the correct depth. In harder ground, or in soils with a significant stone content, it may be necessary to use an auger, or similar tool, to loosen the ground prior to the setting of posts. In some situations, for example, where there are large stones or rock outcrops close to the surface, it may be permissible to shorten the posts using a saw. Where ground conditions prevent posts from being driven to their full depth for more than five posts in a row it will be necessary to set the posts in concrete footings 12" x 12" x 12" (300 x 300 x 300mm) to maintain the strength and robustness of the fencing.

In all cases the posts should be vertical and set in the correct position relative to the two adjacent panels (i.e. the center point of the post should be immediately beneath the center of the overlap between the top of adjacent panels.) The height of the posts should not vary more than 20mm from the specified height and should be rigorously checked, as too low a fence will not work and too high a fence may be unstable.



ACO Data Sheet

ACO Data Sheet

3. Fixing Panels

Panels should be positioned such that the base plate fits flush with the ground with no gaps underneath. Any gaps should be eliminated by the addition or removal of earth prior to the final placement of each panel. Adjacent panels should overlap as far as possible and be attached to the support post by a small self-tapping carriage bolt or flat-head screw and washer (not supplied by manufacturer). The panels and post should be pre-drilled prior to the fixing of the screw. The panel drill hole should be minimum 1/8" (3mm) oversized to allow for expansion/contraction and positioned at the mid-point of the overlap between panels (drill holes close to the edge of the panel) and slightly offset from the apex of the panel. Fixings should be stainless or galvanized (to prevent rusting) and slightly recessed to give a neater appearance to the fence and to reduce its susceptibility to vandalism. The baseplate of each panel should be secured by driving a "nail" into the ground, this holds the panel in place during backfilling.

The best way to install the fence is to begin at one end and work along, panel by panel, so that a tight finish between panels is achieved, with no gaps greater than 1/8" (3mm). If a fence is started in several places, difficulties may be experience in joining the different sections. Similarly, long runs of fence posts should not be installed prior to the attachment of panels, since there is a danger of inaccuracies in post spacing leading to the post positions being out of sequence with the panels. Where panels do not fit perfectly it may be acceptable to pull them together using a nut and bolt fixing through a hold drilled through the overlap between panels (see drawing 1).

4. Backfilling

The area around the baseplate on the outside (convex side) of each panel should be covered in fine soil, which should be strongly compacted to discourage amphibians from burrowing under the fence. Further layers of lightly compacted soil should be added so that the backfill extends to a height of 10-12" (250-300mm) above the baseplate, and slopes gradually away from the fence to ground level. Sufficient soil should also be placed alongside the inside bottom edge of each panel (i.e. the side nearest the posts) so that when this is compacted the base of the fence is buried to a depth of 2" (50mm). This will help prevent animals from attempting to burrow beneath the baseplate. It may be considered desirable to seed the backfill on the outside of the fence with grass to stabilize the backfill and improve the visual appearance of the fence.

5. Checking

Check the quality of the fence installation on a continual basis, as faults are far easier to rectify as soon as they are made rather than at a later stage. In particular check that the fence is at the correct height and that there are no gaps between panels. The aim is for a "watertight" joint and you should certainly not be able to push a thin pencil through any gaps. The position of posts and fixing should also be examined. If necessary, go over the fence with a set of colored tapes, color coding different problems, so that the installers will recognize the fault being highlighted. This may avoid repeated visits to finally achieve a satisfactory standard of installation.

Summary

1. Careful ground preparation and setting out is vital.
2. Changes in a gradient or direction must be gradual rather than sudden (unless miter joints are utilized)
3. Maintain quality checks with every panel.
4. Carefully inspect final installation.

Note:
These are not manufacturer's guidelines. They have been drawn up by Herpetofauna Consultants International as a result of field trials and early applications of this new type of fencing in order to assist contractors. A professional advisory service is available on request, including consultancy management of this work.

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