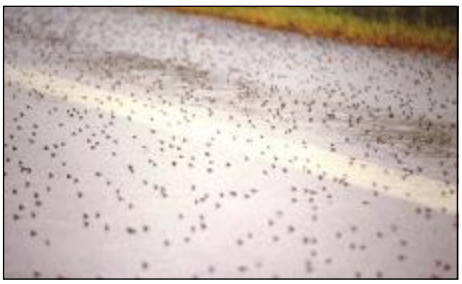
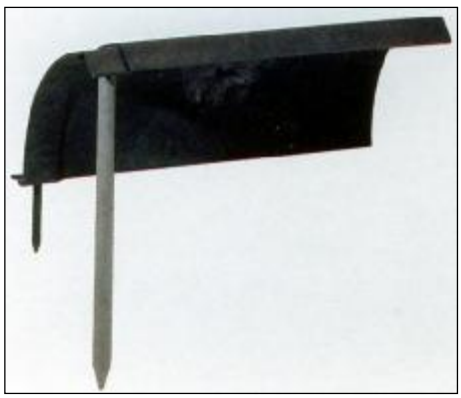
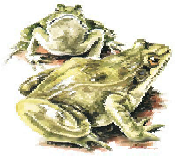
Hy-Tex **ACO Wildlife** Guidance Fence and Tunnel System





Protecting Our Amphibians, Reptiles & Small Mammals from Hazardous Areas



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Protecting Our Wildlife

The Wildlife & Countryside Act 1981, Conservation (Natural Habitats & c.) Regulations 1994 and E.C. 'Habitats and Species' Directive, along with other international conventions, provide legislation to conserve and protect Britain's reptiles and amphibians. In essence there are three levels of protection afforded to our 12 native species (through all life stages):

FULL PROTECTION

Crested newt, natterjack toad, smooth snake and sand lizard plus marine turtles.

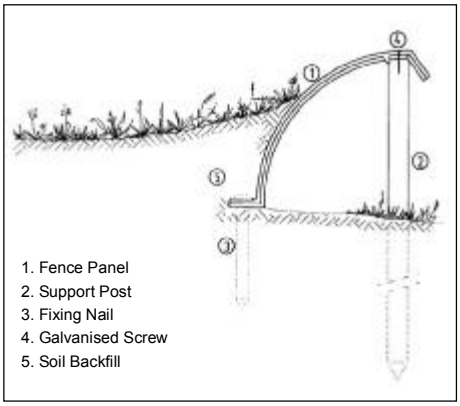
PARTIAL PROTECTION

Grass snakes, adders, common lizards and slow worms

TRADE PROTECTION

Common frog, common toad, smooth newt and palmate newt

PROTECTION LEVEL			IT IS ILLEGAL TO:
FULL	PARTIAL	TRADE	
◆	◆		Intentionally or deliberately kill, injure or capture
◆			Deliberately disturb
◆			Damage or destroy breeding sites or resting places used for shelter or protection
◆			Possess these animals or any parts derived of them unless acquired legally
◆	◆	◆	Sell, barter or exchange or transport for sale these animals or parts of them



Wildlife Hazards Every year thousands of amphibians are killed throughout Britain on roads that cross their migration paths, whilst encroaching urban developments, construction sites and industrial activities (such as quarrying) pose even greater threats to wildlife ecosystems. Amphibians, such as toads, spend much of their time on sheltered, dry land. But during the Spring mating season, seek water in which to spawn. The journey from land to water may be as much as a few kilometres, taking several days and crossing one or more roads and other hazardous areas. In Autumn the amphibians then make their way back to the sheltered ground in preparation for Winter.

Every time the amphibian is forced to cross a road, it risks being run-over by a car, and, on particularly busy roads, hundreds of thousands can be killed in a single night (e.g. on one road an estimated 10,000 toads cross in 5 days of early March). Motorists are also put at risk through distraction, or taking evasive action, due to these animals being on the road.

The Hy-Tex *ACO Wildlife Guidance System* has been designed with the fundamental requirements and well being of herpetofauna and small mammals alike, ensuring successful wildlife habitats where traffic and other developments pose a problem.

In comparison to the provision of replacement spawning grounds, the Hy-Tex *ACO Wildlife Guidance System*, which comprises of a sectional concave barrier and optional under road tunnel, is readily accepted by the animals.

A cordon fence can also be used to provide permanent protection to colonies from harm by preserving terrestrial habitats around breeding grounds (For example Greater Crested Newts need up to 500m of suitable over-wintering and feeding land around their ponds, as well as safe passage to surrounding populations, for viable survival).

The Hy-Tex *ACO Wildlife Guidance System* means that mitigation solutions specific to each project can be achieved. Safety and simplicity are the main principles of the system, with long-lasting materials used so that installation and maintenance are kept to a minimum.

Wildlife Fence The tough and durable recycled plastic fence acts as a barrier to amphibians approaching the road and guides them towards the safety of the tunnel entrance.

The curved shape of the interlocking fence panels prevent amphibians climbing over from the protected side, whilst allowing any animals on the dangerous side to climb over the curve and drop to safety. The arched shape also shelters the amphibians from the danger of predators and strong sunlight.

Landscaped backfill conceals the protecting fence from public view to create a discreet barrier whilst also subtly defining a safe area from future development.

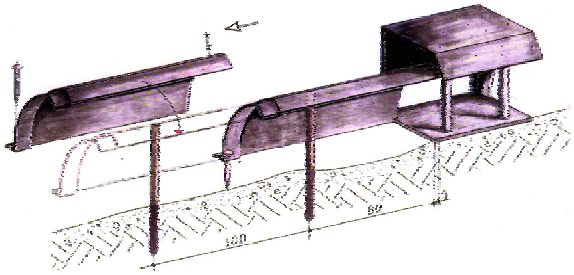
When installed along roadsides the prevention of traffic accidents, especially involving cyclists, has also been taken into consideration in the design of the fencing - with rounded edges and smooth outer surfaces of flexible recycled plastics reducing the risk of injury.

Finally installation is non-invasive, requiring only basic levelling, so does not involve deep trenching that can harm mature trees or compromise future root spread of new saplings.

Wildlife Tunnel The polymer concrete, metal free, tunnel sections have been designed for the safe passage of amphibians and small mammals alike - with a smooth surface to avoid risk of injury and a slotted upper surface to enable consistent ventilation and a humid environment along the full length of the tunnel that is favourable to amphibians.

The smoothness also allows for problem free cleaning of the tunnel (This is especially important at the beginning of the amphibian migration period as road salts and debris may be present in the tunnel).

The compact outer dimensions of the tunnel sections and installation flush to the road surface means that removal of large amounts of earth and road closures during installation are unnecessary. Even high levels of ground water pose no problem as the tunnel sections have a height of only 0.50m.



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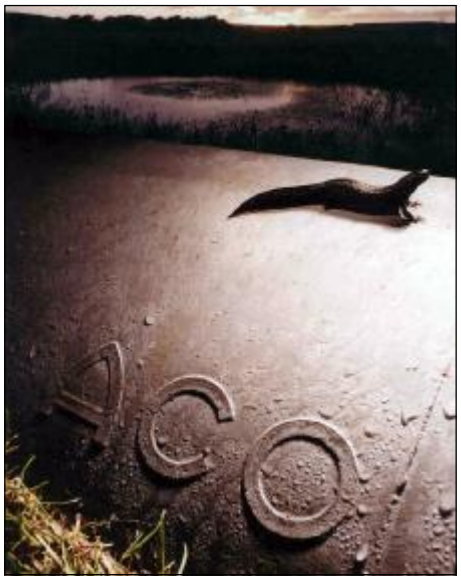


Photograph courtesy of Barry Kemp Conservation (01892 663942)

Wildlife Stopgrid Where side roads interrupt the path of Hy-Tex *ACO Wildlife Guidance* System amphibians need to be prevented from cross these minor roads or gaining access to the main road. Hy-Tex *ACO Wildlife Stopgrid* has been designed to act as a tunnel beneath side roads to provide a safe passage for amphibians trafficking along the guidance fence either side. Furthermore, the stainless steel grate has been designed to enable any amphibians already on the road to fall through the mesh to the safety of the channel.

The ready to install *Wildlife Stopgrid* does not require an additional concrete shroud and the grating confirms to DIN 19580 load class D400 so can be trafficked by cars and cyclists.

Case Study 1 - A283 Petworth Sussex

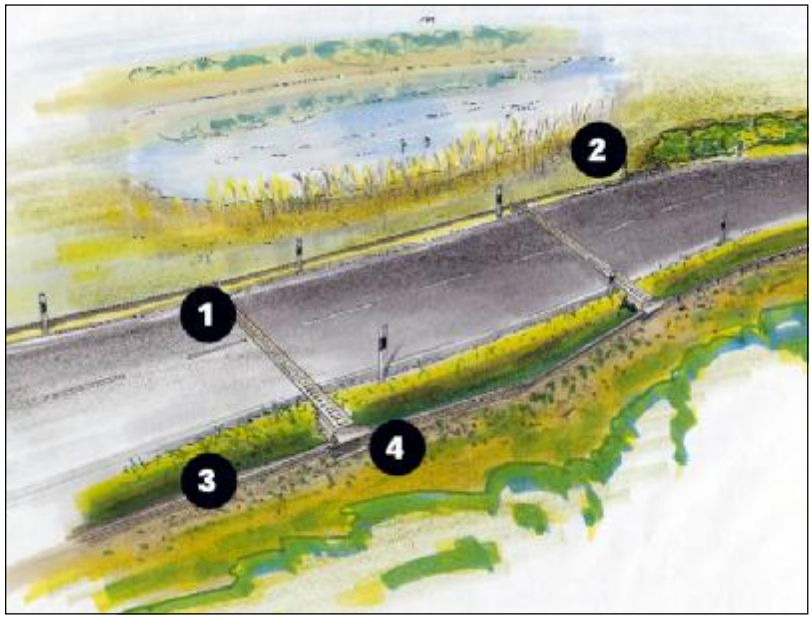
In previous years, in the pretty Sussex town of Petworth, locals have ferried in excess of 1,200 toads across busy roads to their breeding pond in Petworth Park. Now, however, after the successful installation of ACO Wildlife Fence and Tunnel system beneath this road, the toads have been able to cross safely to Lower Pond with only a single reported road casualty. The life saving tunnel was funded by Chicester District Council. A further 300m of Wildlife Fence was paid for with money raised by local group 'Petworth Amphibians' and installed over a fortnight by National Trust staff and volunteers.

Case Study 2 - Scole-Stuston A143

Two AT500 tunnels were installed for use by toads (Bufo bufo) and grass snakes (Natrix natrix) on the A143 in Scole-Stuston. Installation took place in February 1995 and the main contractor was Breheny Contractors Ltd.

Case Study 3 - Newhaven, East Sussex

4850 metres of ACO amphibian fencing was used to protect Great Crested Newts whilst a major conservation area of reed beds, wet meadows, scrub and ponds was created on the Ouse Estuary. The fencing formed safe habitats around the breeding ponds during the works. The fencing allowed amphibians to enter but prevented them from leaving.



1. 

2. 

3. 

4. 

1. AT500 Wildlife Tunnel 2. Wildlife Stopgrid
3. Wildlife Guidance Fence 4. Wildlife Tunnel Entrance

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Installation Guidelines

Installation photographs courtesy of Barry Kemp Conservation (01892 663942)

1. Ground Preparation/Setting Out The ground should be levelled in a 3m wide strip along the proposed line of the fence (1.5m either side of the midline of the fence). This will ensure that the base plate of each panel and the adjacent panels are positioned correctly and will also ensure that the correct height is maintained. On slopes the ground should be prepared, where possible, to give a constant gradient. Where changes in gradient cannot be avoided, panels should be spread over as long a section as possible. Similarly, changes in direction should be spread over a long run of panels to give a gentle curve rather than angular shifts in direction. The line of the fence should be pegged out carefully and checked in advance of fence construction. For straight lengths a builders 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 of 450mm. In harder ground, it may be necessary to use an auger or similar tool to loosen ground prior to the setting of posts. In some situations it may be necessary to shorten the posts using a saw. Where ground conditions prevent posts being driven in to their full depth for more that five posts in a row it will be necessary to set the posts in concrete footings (300 x 300 x 300mm) to maintain the strength and robustness of the fencing.

In all cases the posts should be vertical and the height of the posts should not vary by more than 2cm from the specified height of 400mm and should be rigorously checked.

3. Fixing Panels Panels should be positioned such that the base plate lies flush with the ground with no gaps underneath. Any gaps should be eliminated by the addition or removal of earth. Adjacent panels should overlap as far as possible and be attached to the support post by a screw. Screws should be galvanised to prevent rusting and slightly countersunk to give a neater appearance to the fence and to reduce susceptibility to vandalism. The baseplate of each panel should be secure by driving a 'nail' into the ground.

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 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 5cm. This will help prevent animals from attempting to burrow beneath the baseplate.

5. Checking Check the quality of the fence installation on a continual basis. 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' join and you should not be able to push a thin pencil through any gaps. The positions of posts and fixing should also be examined. This may avoid repeated visits to finally achieve a satisfactory standard of installation.

Note These are not manufacturer's guidelines. They were 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.

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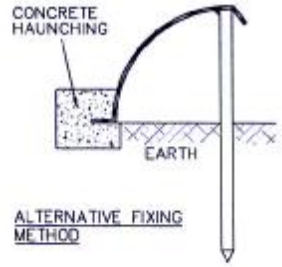

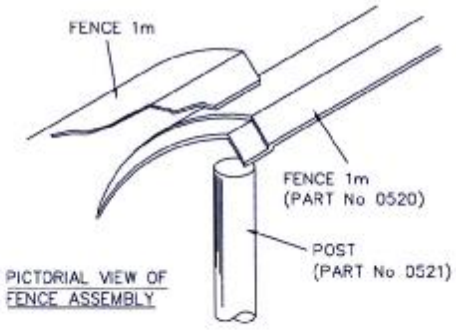

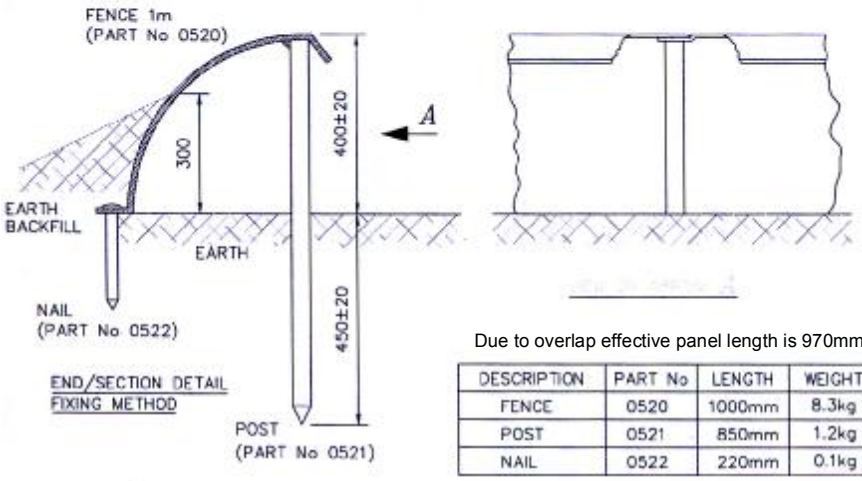

Due to overlap effective panel length is 970mm

DESCRIPTION	PART No	LENGTH	WEIGHT
FENCE	0520	1000mm	8.3kg
POST	0521	850mm	1.2kg
NAIL	0522	220mm	0.1kg

TUNNEL SECTIONS		
TYPE	**Part No.**	**Size**
AT200	**30500**	**500 x 260 x 400mm**
AT500	**0504**	**1000 x 600 x 500mm**

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