AQUATIC CONTROL ENGINEERING LTD

Installation, Operation and Maintenance Instructions

Product Type: Weir Mounted Eel Pass

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Installation, Operation and Maintenance Manual

Aquatic Control Engineering Ltd are specialist suppliers and installers of fish and eel migration equipment, designed and manufactured in the UK.

This document sets out the requirements and procedures for the installation, operation and maintenance of the equipment.

This version of the document is a general guide for standard arrangements, however due to the custom-built nature of ACE eel passage equipment, there may be site specific requirements that are not detailed within this document. The IOM document should be read in conjunction with the ACE design submission documents, as these detail the inclusions on the equipment, and also refer to inherent risks that may still require mitigation during operation. For more details, please contact ACE.

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V 2.0

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1. Introduction and Purpose

ACE elver passes can be used where either a natural or man-made structure creates a barrier to the upstream migration of elvers, and are available in a number of forms. The key design features of a successful elver pass include:

- A substrate (commonly synthetic brush) to give elvers refuge when tired
- A steady flow of water to moisten the substrate and keep the elvers wet
- An attractant flow at the lower end of the pass
- Sufficient pass to allow the elvers to overcome the barrier on the upstream and downstream sides

This document refers to a gravity fed eel pass, fitted to a moving weir such as tilting weir or weir penstock.

2. Technical and Material specifications (summary)

Below is a description of the type of pass supplied, and the materials used in it's construction.

The pass supplied for this project is a gravity fed, channel mounted pass. The pass is fitted to a moving weir leaf, and incorporates either floats or wheels to keep the lower end of the pass at the right level in the downstream watercourse. The pass also incorporates a debris deflector and lid to reduce debris entering the pass, and predation from above.

The pass has a unique hinge assembly which encloses an EPDM seal to reduce leakage and prevent eels becoming trapped. The hinge also allows virtually 180 degrees of movement, to allow it to be used at the full range of weir movement, at any water level.

Technical Specification:

Substrate Type:	30 x 30 Brush substrate (in channel)
Pass Type:	Channel

Materials (key components):

Channel	UV Stabilised HDPE (High Density Polyethylene) 200mm Internal width
Elver Brush	HDPE backing board (12mm thick) Brilon Brush, at 70mm trim Bristles are at a 30mm staggered pitch
Fixings	A4 Stainless Steel
Fixing bracket/debris shield	Stainless Steel 316

3. Safety Considerations

The elver pass system is designed to be user-friendly and allow for maintenance and operation to be carried out safely by competent personnel.
Any modifications or maintenance on actuated weirs should be carried out under locked-off isolation.
The likelihood of injury when using the equipment is low, however we recommend the following be avoided during use:

- Trapping of fingers when moving the eel pass

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- Maintenance tasks without relevant competency and isolation of electrical equipment.
- Falling into the watercourse during inspection/maintenance of the channel.

Before use, an inspection of the visible elements of the pass is advised to check for damage/vandalism to ensure trouble-free operation. Any defects should be reported and rectified before continuing the operation.

4. Storage

Prior to installation, we recommend the equipment be stored on a flat stable ground, dirt free, and ideally kept dry.

5. Operation

The pass is designed to adjust to level automatically, in line with the weir adjustments and water levels. The pass should have a small amount of water flowing down it, and have the lower end submerged to allow access to eels. On first installation, it may be necessary to adjust the position or water volume of the float to ensure it floats at the correct level in the water.

6. Cleaning and Maintenance

The pass is designed to keep debris away from the entry point, however minor siltation or vegetation growth may occur from deposits of carried silt or seeds. In this case, the pass can be cleaned using a hose/jet and a brush.

Care should be taken when carrying this work out to avoid over reaching, excessive manual handling and falling into the watercourse.

7. Disposal

1. Remove the pass equipment and sort materials into groups.
2. Dispose of all metallic items via registered scrap dealers.
3. Dispose of all recyclable materials via registered carriers/local recycling. (HDPE can be recycled into reusable material, however used in it's pure form in this construction).

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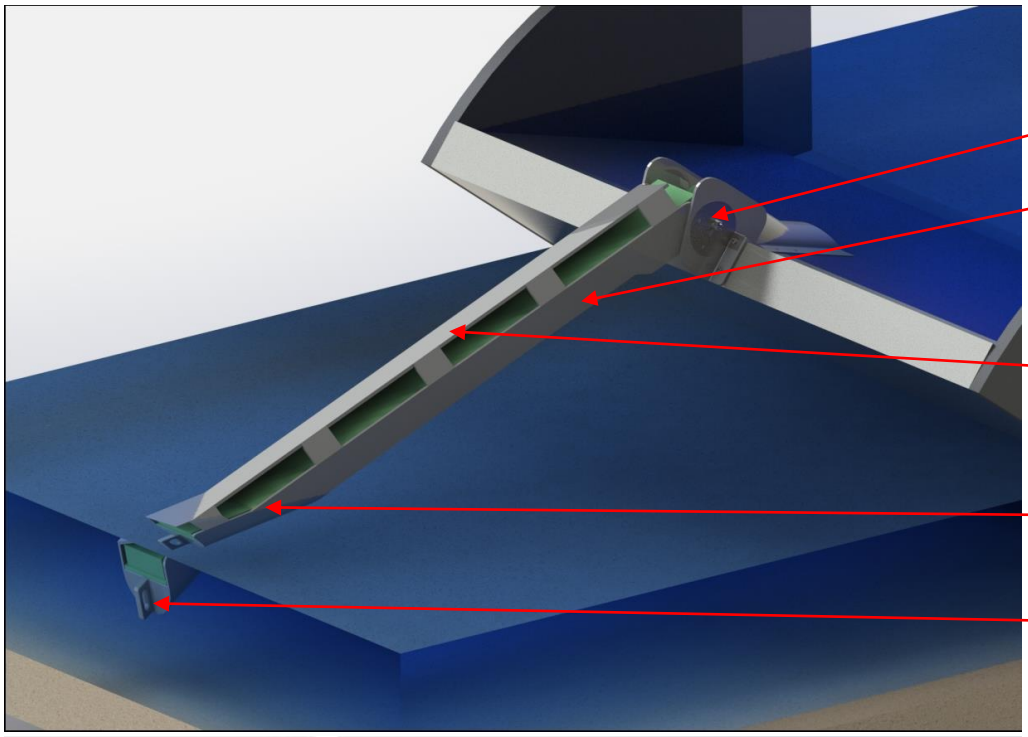
Appendices

A. Drawings



Downstream View

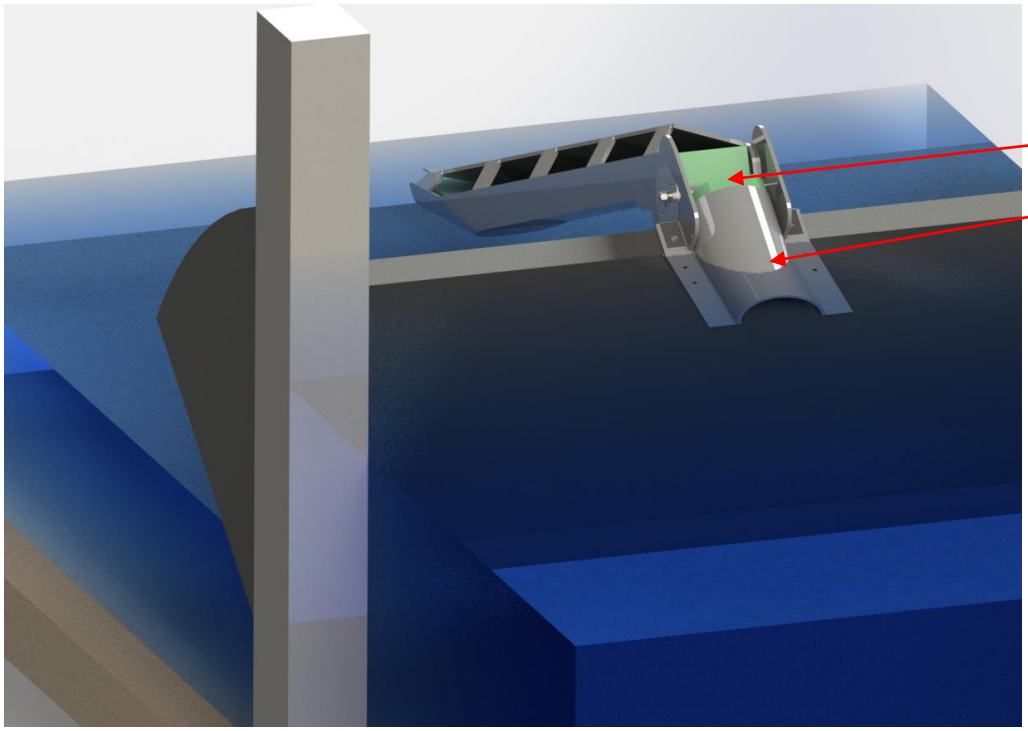
1- Hinge assembly

2- Channel section

3- Anti-predation lid

4- Float

5- Lifting eye



Upstream View

6- Exit substrate

7- Debris baffle

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