

JBA Trust Mini Flume



Demonstration Information

Background

The mini flume is a model of the flow of water in a simple channel, driven by a system of recirculating pumps and featuring scale models of typical engineered structures such as weirs, bridges, culverts and debris screens.

The mini flume appeals equally to those with a keen interest in hydraulics and to those for whom it is an unknown science. It is particularly useful in helping to understand some of the causes of flooding and how good design and maintenance of rivers and drainage channels can help to manage flood risk.

JBA Trust delivers demonstrations around the country as part of our education and knowledge sharing programme. The mini flume can be transported in the back of a large car and can be set up inside, for example in a classroom or office.



Photos: Thomas Askham from North Yorkshire Fire and Rescue using the mini flume to demonstrate the potential dangers of weirs in rivers (left); David Mould from JBA explaining how good culvert screen design can save lives (right).

Demonstration capabilities

The mini flume has been developed to demonstrate open channel hydraulic flow.

It is self-contained and recirculates water from a sump.

Within the 1200mm long, 200mm wide rectangular channel the flume can demonstrate:

- Open channel flow
- In line weir and skewed weir (modular and non-modular)
- Sluice flow (free and submerged)
- Arched culvert flow
- Effect of blockage on culvert flow
- Trash screen hydraulics
- Hydraulic jump

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Facilities required

The requirements for the flume are:

- Demonstration space with enough room for the audience to gather around.
- Access to water (the mini flume needs around 100 litres to operate). We bring buckets and a hosepipe so the tap doesn't need to be near the demonstration (but it helps!).
- Within 50m of a 13amp/240v mains socket to power the pump.
- Access to a drain to empty the tank at the end of the demonstration (again, we bring buckets and a hosepipe so the tap doesn't need to be near the demonstration but it is easier if it's close by!).

Risk Assessment

The demonstrator must ensure that they have reviewed the risk assessment and updated it where necessary.

The risk assessment template is available from Alex Scott (please note, this is the risk assessment for the demonstrator not the delegates)

Dimensions

Dimensions (approximate): Channel length: 1200mm; Channel width: 200mm; Height when channel is positioned on water tank: 1200mm

