

## **Noise Statement**

**Ref: 231206NS-v1 (6<sup>th</sup> December 2023)**

**Project: Hydropower scheme for Ifan W. Jones at Tŷ Mawr, Mallwyd, SY20 9HS**

The hydro turbine proposed for this installation is a turgo, and they are known for their quiet running in comparison with the more traditional pelton turbines. This is because water is not forced out sideways against the turbine's metal casing, as it is with peltons, but instead it drops down below the turbine into a relatively large concrete chamber before it drains away down the tailrace. In addition to this the generator will be direct coupled to the turbine avoiding the use of belt drives or gear boxes which can be noisy.

The power house walls will consist of an external box section cladding and an interior plywood lining with 50mm insulation between, which will deaden any noise emitted by the turbine or generator. The roof will also include 50mm of insulation under the box section roof. Usually, with the power house door closed, it is difficult to hear a turgo turbine running further than 15 to 20 metres away from a power house. In addition to this, the presence of the running water in the nearby stream often proves louder than the turbine at these distances.

Sound measurements carried out by Gwynedd County Council's environmental health officer (Euron Thomas) in 2012, at a similar Greenearth Hydro installation, found that the noise levels 2 metres away from the power house, with the power house door closed and the turbine operating at 12.5 kilowatts, was 54 decibels. The background noise level, measured with the turbine off with the microphone at the same position, was 49 decibels.

'Yr Allt', the nearest property not owned by the applicant, is about 195 metres north east of the power house.