

Abergwynant Hydro Scheme Refurbishment - Geomorphology Photo Survey

Reference: WROWENRENEWABLES2002

Site Survey and Report by John Howarth Hydropower Services

Date of Report: 23/02/2023

Photos taken: 21st Feb 2023, 20th July 2022

Basic Site Information

River: Afon Gwynant, LL40 1TS

Existing Intake Weir Grid Reference: 267967, 316977. Elevation 34.76m AOD*

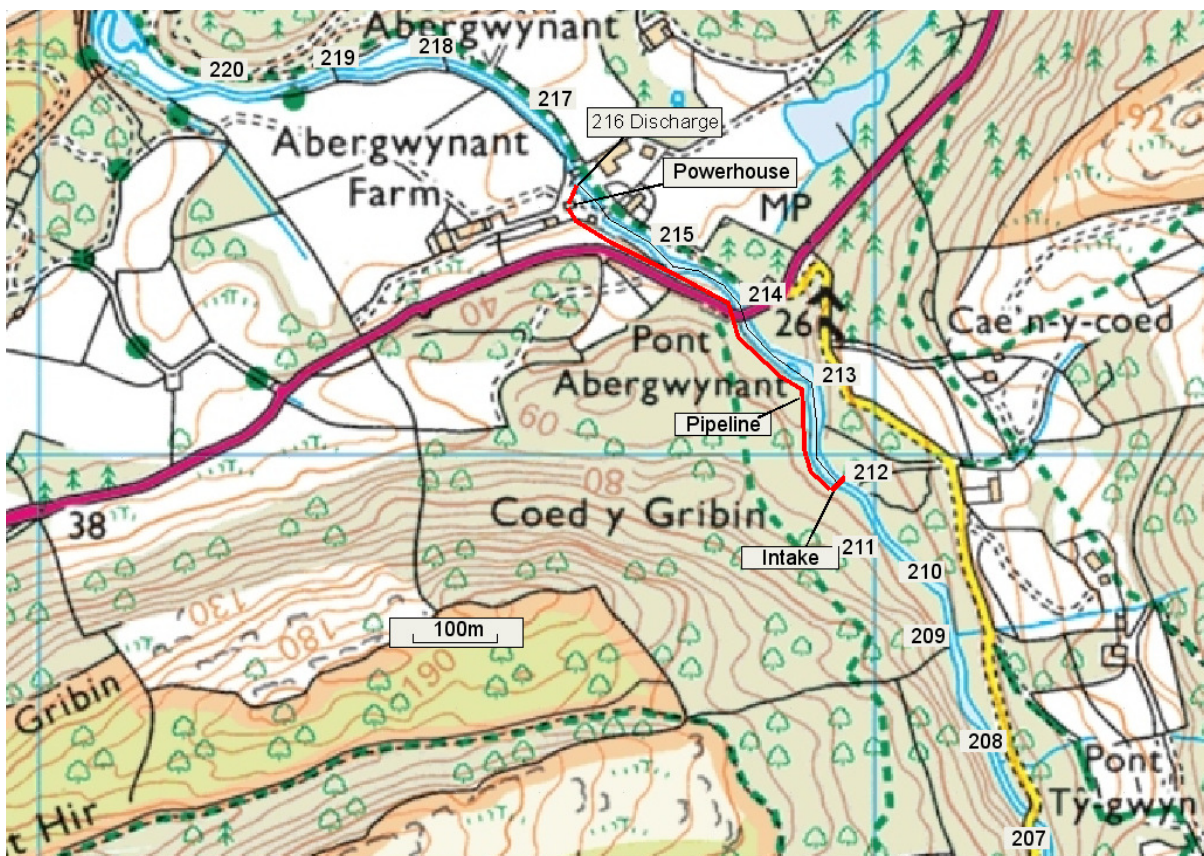
Discharge Point from Turbine into River: 267645, 317330. Invert Elevation (approx): 9.2m AOD*

Powerhouse: 267640, 317300. Existing Floor Level Elevation: 10.63m AOD*

Length of Depleted Reach: 510m, average bed slope = 4.7%.

*The relative levels of weir crest and existing powerhouse floor level are accurate having been surveyed by optical theodolite. However, the actual mAOD elevations are approximate. There is apparently an OS datum point on the road bridge parapet SH 67837, 17176, however no datum point is visible and the parapet may well have been altered slightly in height since 1973 when the datum was created. We couldn't access the exact invert level of the existing discharge at the river due to high water levels, so the level shown may vary by a few hundred mm.

The annotated map below shows the locations of the existing weir, pipeline, powerhouse and discharge, with numbered locations for the geomorphology photos.



In the photos below, for scale, the blue notebook often included in the frame, has dimensions of 21cm x 15cm.

Photo Location 207: Pont Ty Gwyn, GR: 268197,316553



Photo 207:1 View Upstream



Photo 207:2 View Downstream

Photo Location 208: GR: 268135, 316659



Photo 208:1 View Downstream

Photo Location 209: GR: 268092, 316768



Photo 209:1 View Downstream

Photo Location 210: GR: 268052, 316858



Photo 210:1 View Upstream



Photo 210:2 Substrate

Photo Location 211: GR: 268005, 316908



Photo 211:1 View Upstream



Photo 211:2 Substrate

Photo Location 212: Existing Intake Weir: GR: 267967, 316977



Photo 212:1 View Upstream from Weir



Photo 212:2 View looking downstream towards weir crest

At some stage, the right hand side wing wall, which probably used to incorporate a sluice gate and bypass channel, was breached to provide a wider and lower hole, to improve passage for fish around the weir.



Photo 212:3 View of weir from downstream

The height drop from the weir crest to downstream river water level on the day of this photo (20th July 2022, low river levels) was 2.2m. The main weir crest is 8.5m wide.

Photo Location 213: GR: 267933, 317093



Photo 213:1 View Upstream

Photo Location 214: GR: 267851, 317179



Photo 214:1 View upstream under road bridge

Photo Location 215: GR: 267741, 317256

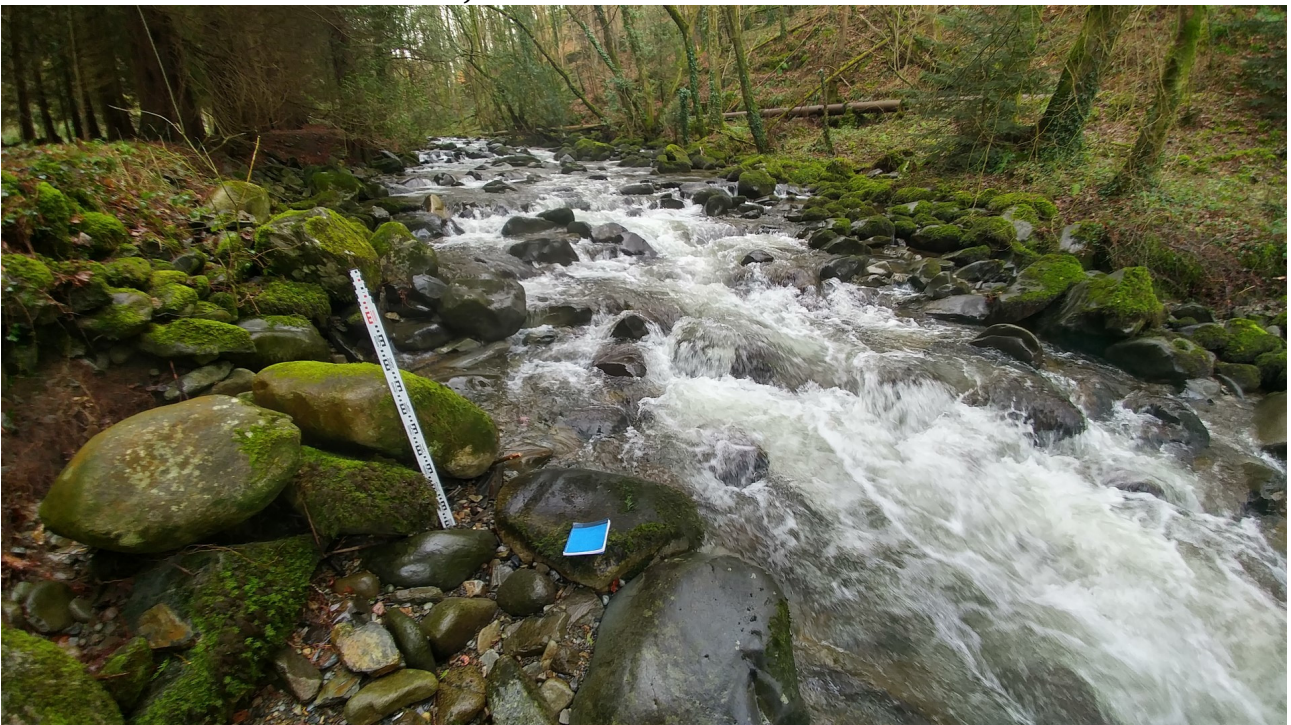


Photo 215:1 View upstream

Photo Location 216: Existing Outfall GR: 267645, 317330



Photo 216: View West across river to existing outfall screen

The existing powerhouse is 30m from the river, connected to the outfall by buried pipe. This will be replaced by a new larger diameter pipe and outfall screen at the same discharge location.

Photo Location 217: GR: 267595, 317416



Photo 217:1 View Upstream

Photo Location 218: GR: 267455, 317486



Photo 218:1 View Upstream

A vertical gabion wall on this LH bank shown prevented access to the river bed.

Photo Location 219: GR: 267363, 317462



Photo 219:1 View Upstream

The small discharge stream from the large pond (located about 50m upstream and to the left of this photo) emerges into the river here.

Photo Location 220: GR: 267204, 317446



Photo 220:1 View downstream showing division of river