Silent Valley Hydro – Abstraction Licence Application (PRCBLAENAUG123)

Geomorphology Survey – Stage 1

Date of survey: 24/10/18

Conditions: Dry, sunny, calm, 14^0C

Overview

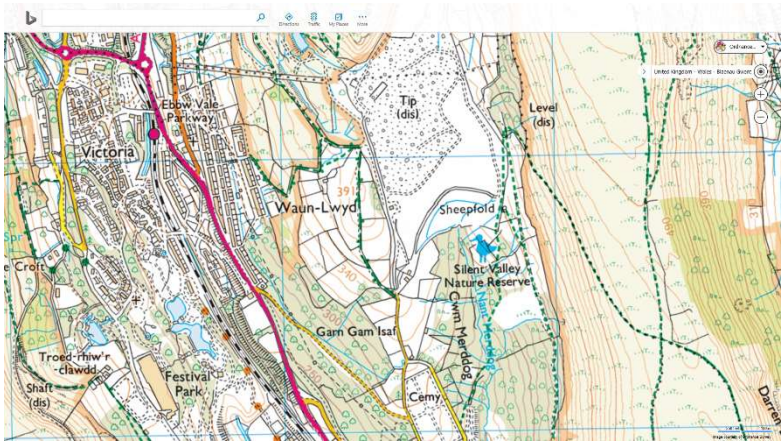
The proposed micro-hydro scheme is intended to generate sufficient electricity to power an electric pump to take leachate from the landfill site into a leachate pond, which is then drained to a sewer in Cwm. The electric pump is intended to replace diesel pumps currently used for this purpose.

Existing diesel pumps at leachate pond

Leachate sump

Basic site information

The proposed micro-hydro site is at the South East corner of the Silent Valley landfill site NP23 6PZ), on Nant Merrdog.



Silent Valley location map

The proposed weir crest is at GR SO 18801 06833, at 373 mAOD.

The invert of the proposed outfall is at GR SO 18655 06691, at 316 mAOD.

The location and finished floor level of the proposed turbine house is at GR SO 18651 06709, at 319 mAOD.

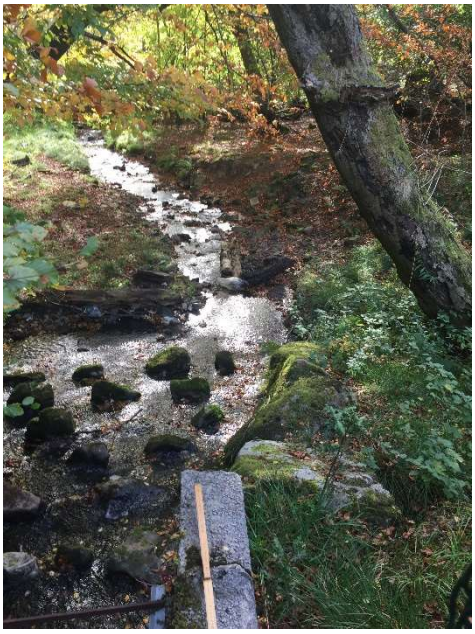
The length of the depleted reach is 210m and the bed slope is 27.1%.

The water supply source is through a 675mm diameter concrete underground pipe which currently flows down a concrete lined channel to the discharge point, where the water enters a natural stream.

No photographs have been taken upstream from the intake point as the supply is from an underground pipe which is not visible from the surface.

Water source via underground concrete pipe

Concrete lined water channel



Start of natural stream from end of discharge point

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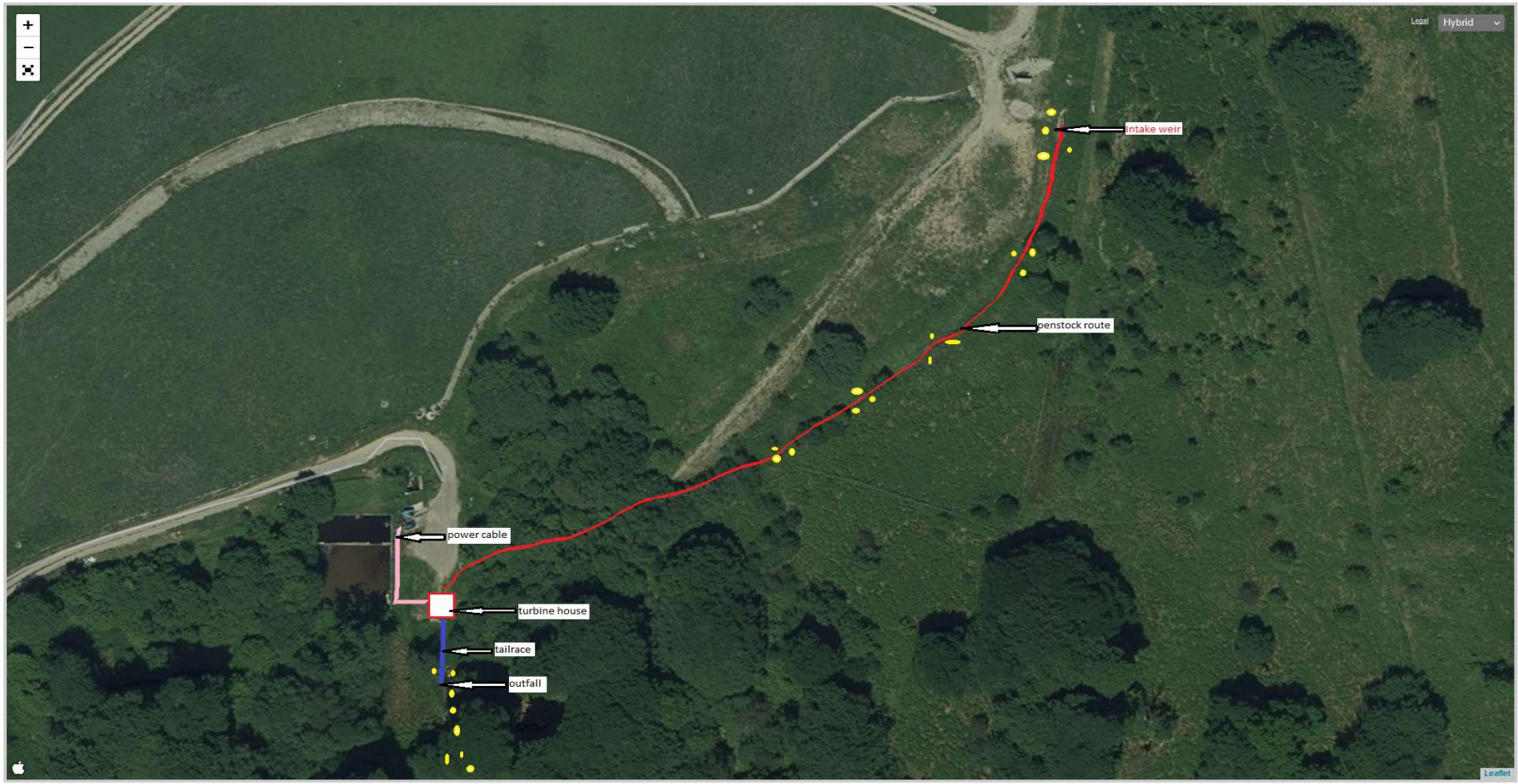
Annotated site map



1. Wall structure at intake location (SO 18799 06833)

2. Existing structure at intake location showing underground pipe surfacing (SO 18799 06833)

3. Detail of water channel 5m from intake position (SO 18799 06831)

4. Manhole cover 5m north of intake position (SO 18799 06844)

5. Channel 20m downstream from intake (SO 18790 06797)

6. Upstream channel 20m downstream from intake (SO 18790 06797)

7. Downstream channel 20m downstream from intake (SO18790 06797)

8. Channel 50m downstream from intake (SO 18769 06775)

9. Upstream channel 50m downstream from intake (SO 18769 06775)

10. Downstream channel 50m downstream from intake (SO 18769 06775)

11. Channel 100m downstream from intake (SO 18744 06754)

12. Upstream channel 100m downstream from intake (SO 18744 06754)

13. Downstream channel 100m downstream from intake (SO 18744 06754)

14. Channel 120m downstream from intake (SO 18729 06746)

15. Upstream channel 120m downstream from intake (SO 18729 06746)

16. Downstream channel 120m downstream from intake (SO 18729 06746)

17. End of depleted reach adjacent to outfall position (on left) (SO 18655 06691)

18. Outfall position (SO 18655 06691)

19. Depleted reach to natural stream (SO18655 06691)

20. End of concrete channel and start of natural stream 10m downstream from outfall (SO 18655 06682)

21. Natural stream upstream 10m downstream from outfall (SO 18655 06682)

22. Natural stream downstream 10m downstream from outfall (SO 18655 06682)

23. Natural stream 40m downstream from outfall (SO 18656 06655)

24. Natural stream downstream 40m downstream from outfall (SO 18656 06655)

25. Natural stream 80m downstream from outfall (SO 18658 06621)

26. Natural stream downstream 80m downstream from outfall (SO 18658 06621)

27. Natural stream 100m downstream from outfall (SO 18655 06600)

28. Natural stream 100m downstream from outfall (SO 18655 06600)

29. South of proposed turbine to outflow from hardstanding area adjacent to leachate tank (SO 18651 06709)

30. Proposed location of turbine house adjacent to leachate tank (SO 18651 06709)