

Silent Valley Hydro – Abstraction Licence Application (PRCBLAENAug123)

Geomorphology Survey – Stage 1

Date of survey: 24/10/18

Conditions: Dry, sunny, calm, 14°C

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.



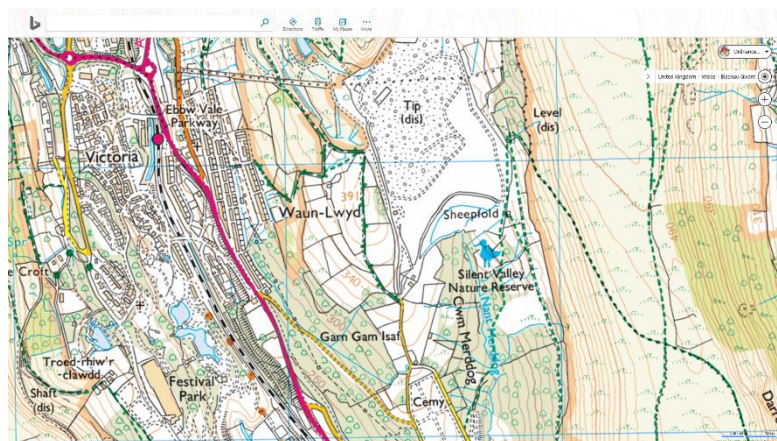
Existing diesel pumps at leachate pond



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 373m.

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

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

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



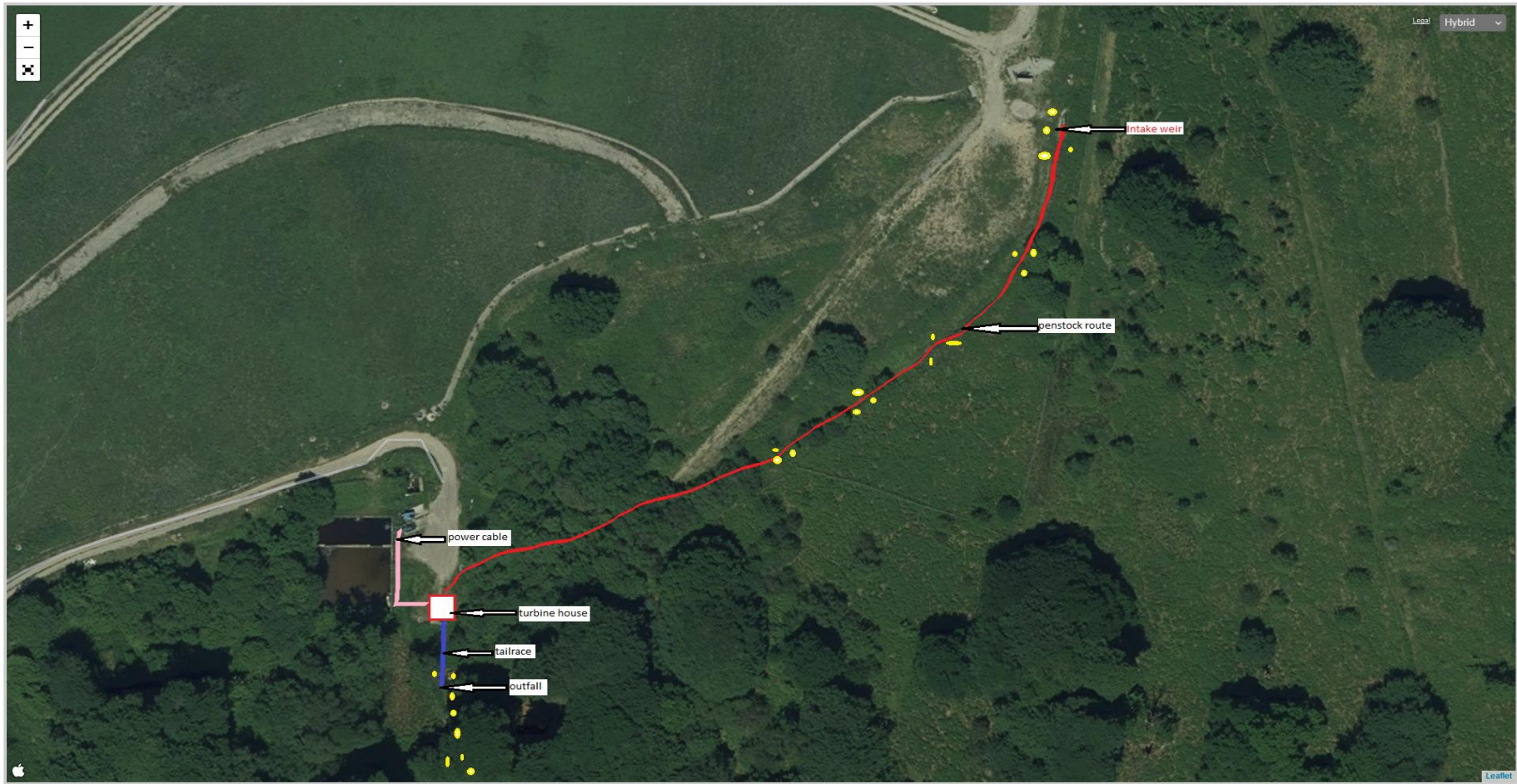
Concrete lined water channel



Start of natural stream from end of discharge point

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Annotated site map



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Wall structure at intake location

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Existing structure at intake location showing underground pipe surfacing



Detail of water channel 5m from intake position

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Manhole cover 5m north of intake position



Channel 20m downstream from intake



Upstream channel 20m downstream from intake

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Downstream channel 20m downstream from intake



Channel 50m downstream from intake



Upstream channel 50m downstream from intake

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Downstream channel 50m downstream from intake



Channel 100m downstream from intake



Upstream channel 100m downstream from intake



Downstream channel 100m downstream from intake



Channel 120m downstream from intake



Upstream channel 120m downstream from intake

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Downstream channel 120m downstream from intake

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End of depleted reach adjacent to outfall position (on left)

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Outfall position

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Depleted reach to natural stream



End of concrete channel and start of natural stream 10m downstream from outfall



Natural stream upstream 10m downstream from outfall



Natural stream downstream 10m downstream from outfall



Natural stream 40m downstream from outfall



Natural stream downstream 40m downstream from outfall



Natural stream 80m downstream from outfall



Natural stream downstream 80m downstream from outfall



Natural stream 100m downstream from outfall



Natural stream 100m downstream from outfall

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South of proposed turbine to outflow from hardstanding area adjacent to leachate tank

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Proposed location of turbine house adjacent to leachate tank