

Appendix 7R

Soil Sampling Technical Note



Celtic Energy Limited
9 Beddau Way
Castlegate Business Park
Caerphilly CF83 2AX

Tel: 029 2076 0990

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TECHNICAL NOTE – Nant Helen - Investigation of Soils within Planted Ancient Woodland Site.

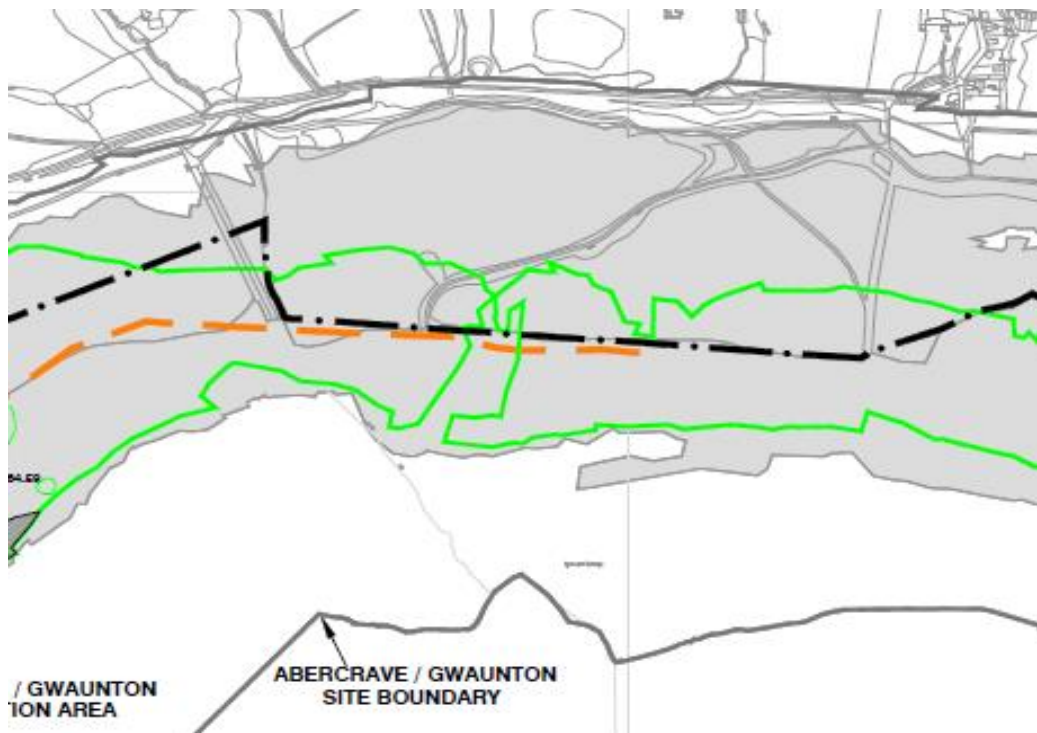
Dr R N Humphries CBIol CSci FRSB FBSSS FIQ

Natural Resources Manager

Background

A Planted Ancient Woodland Site (PAWS) was reported in the draft NANT HELEN COMPLEMENTARY RESTORATION EARTHWORKS EIA (Section 7.14.4) as occurring within the proposed location of an embankment to be built (see EIA Figure 7.4).

The PAWS and the proposed embankment are located within the excavation area of the former Abercrave / Gwaunton surface mine with the mined area no longer having any coal (the grey shadowed fill in the following extract from Figure 14.01 (Celtic Energy, Nant Helen Remainder EIA, 2011)).

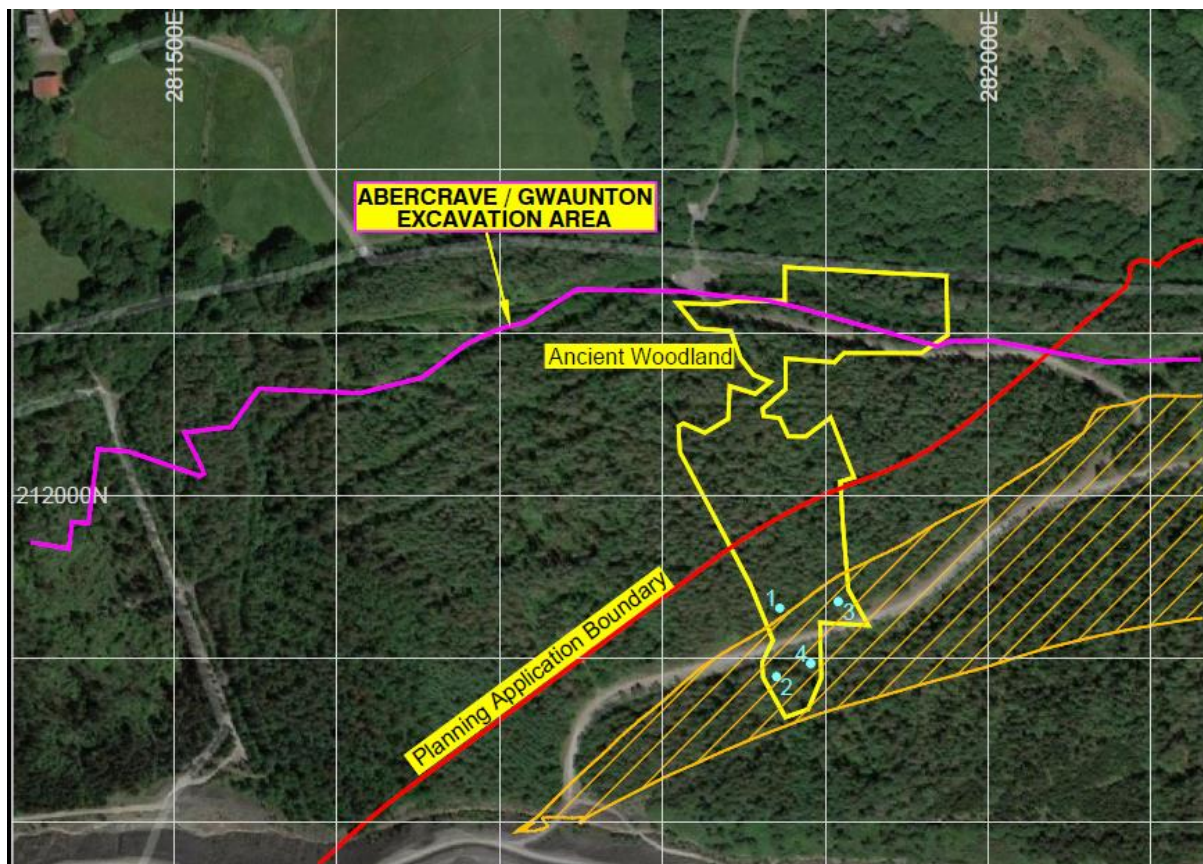


This is compelling evidence that the current plantation is likely to be on backfilled material following mining and extending over the area recorded as a PAWS, rather than as implied, the plantation replacing semi-natural woodland on the in situ woodland soils.

To solve the inconsistency between the recorded 'PAWS' and the mining records, the soils within the area of the 'PAWS' affected by the proposed raising of the embankment were examined to determine if they were backfilled 'spoil' or in situ woodland soils.

Method

The location and extent of the 'PAWS' (yellow line) within the application area (red line) and intersections with the proposed embankment works (orange hatch) on ground were marked using a GPS surveying system (see aerial image below). The purple line is the northern most extent of the surface mined land. Four representative locations (light blue and numbered) within the 'PAWS' and with safe access for a mini-tracked excavator were identified (see below).



Soil pits to a depth of about 1m were dug to expose the soil profile and provide material for examination. The features of the soil profile were recorded using standard soil survey descriptions (Hodgson, 1974). Photographs of each Pit are provided at the end of this Note.

Findings

At all four locations, the soil pits were within the European larch plantation where the ground had been deep 'forestry' ploughed to create parallel 0.3-0.5m high planting ridges at about 2.5m spacing. The pits were dug in the furrows between two ridges.

All four soil pits comprised backfilled Carboniferous Shale material. Soil Pits 1 and 2, and particularly Pit 2, had burnt colliery shale indicating an origin as ‘above ground’ deposited colliery waste. The predominantly clay profiles of Pits 3 and 4 were likely to be surfaced mined overburden.

Soil Pit 1 – 281872 E 211931 N

Depth cm	Description	Horizon
0-1	Moss/Litter	L
1-3	Dark Brown Humic / Stone Free	H
3-10	Clay Loam / 90% Grit / Grey Shale	Ah
10-70	80% Boulders & 20% Small Stones / Grey Shale	C

Soil Pit 2 – 281870 E 211889 N

Depth cm	Description	Horizon
0-1	Moss/Litter	L
1-3	Dark Brown Humic / Stone Free	H
3-10	Heavy Clay Loam / Stone Free / Grey Shale	Ah
10-90	Heavy Clay Loam/Clay / 40% Large Stones / Grey Shale	C

Soil Pit 3 – 281908 E 211935 N

Depth cm	Description	Horizon
0-1	Moss/Litter	L
1-3	Dark Brown Humic / Stone Free	H
3-10	Sandy Clay Loam / Stone Free / Grey Shale	Ah
10-70	Clay Loam / 20% Large Stones / Grey Shale + 30% Red Burnt Shale	C

Soil Pit 4 281891 E 211897 N

Depth cm	Description	Horizon
0-1	Moss/Litter	L
1-3	Dark Brown Humic / Stone Free	H
3-20	Heavy Clay Loam / Stone Free / Grey Shale	Ah
20-90	Heavy Clay Loam/Clay / 50% Large Stones / Grey Shale	C

There was no evidence of buried natural soil layers due to the forestry ploughing resulting in soil inversion in any of the Pits.

Conclusion

Clearly the original ancient woodland within the area now denoted as PAWS was surface mined during the extensive Abercrave / Gwaunton scheme. The in situ woodland soils were most likely disposed of within the progressive workings, as was the general practice into the early 1990s. Hence, the status of the ancient woodland site is more accurately referred to as having been ‘destroyed’. The planting of the current conifer plantation after the backfilling of the surface mine workings could

give the impression that it is a PAWS, whereas it is simply a plantation on a destroyed ancient woodland site.

Reference

Hodgson J M, 1974. Technical Monograph nNo. 5: Soil Survey Field Handbook. Soil Survey, Harpenden.



Soil Pit 1



Soil Pit 2



Soil Pit 3



Soil Pit 4