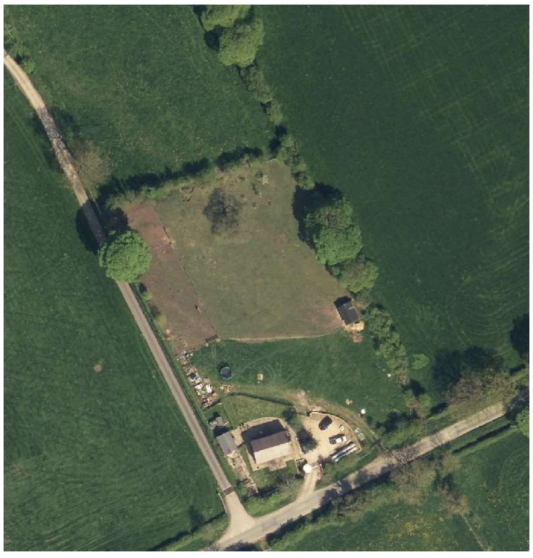
DELEGATED DECISION REPORT

SMD/2020/0571 **Valid 12/10/2020**	**HIGH UP FARM HIGH UP LANE** **POOLEND** **LEEK**	**INSTALLATION OF UNDERGROUND SLINKY LOOPS TO SERVE A DOMESTIC GROUND SOURCE HEAT PUMP.** **(FULL - MINOR)**

MAIN ISSUES
Impacts on character and appearance and ecology

DESCRIPTION OF SITE
Replacement cottage in isolated open countryside location. Red brick double fronted cottage with roadside frontage. Existing red brick out building to rear. To the rear of the dwelling's curtilage the applicant owns a 1ha area of rectangular field. A narrow concrete road leading to a farm flanks the side of the property. Surrounded by grazing fields, traditional hedgerow forms field and roadside boundaries. In an area of Landscape characterised as Dissected Sandstone Uplands.

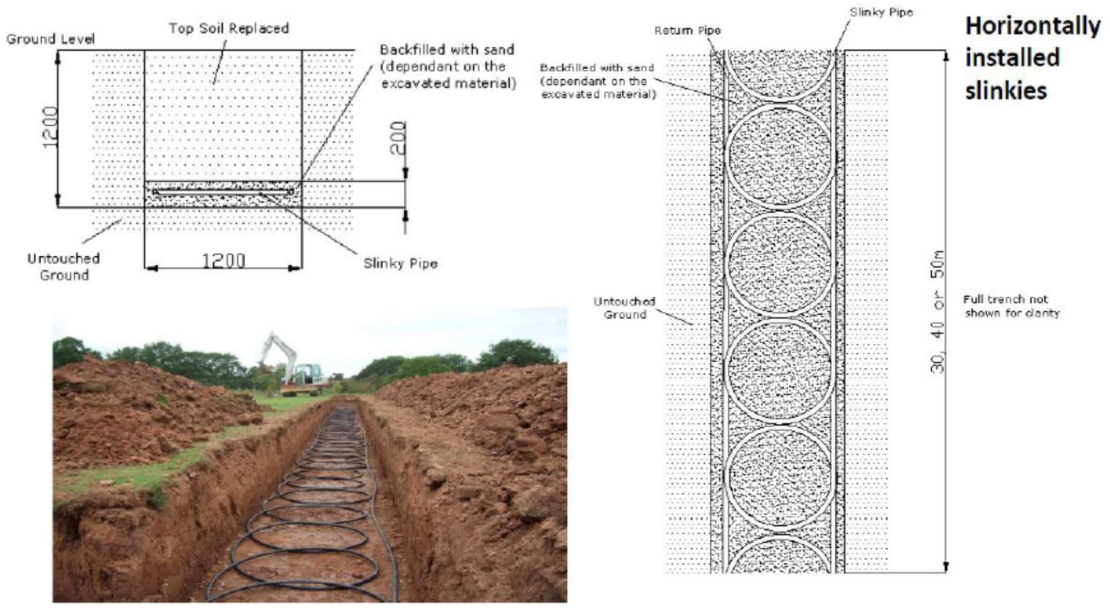


PROPOSAL
The installation of a ground loop array to provide the heat source for a Ground Source Heat Pump to be installed in the farmhouse at High Up Farm to replace or supplement the existing oil (kerosene) domestic heating system. The ground loop array would be installed in trenches dug and then covered over that form a kind of herringbone arrangement in the small field to the rear of the dwelling's curtilage.

A Ground Source Heat Pump is an electrically powered system that provides heating and hot water, using a compressor in a similar way that a fridge does, to compress a

coolant liquid to generate heat and transfer cold. In a GSHP the heat is transferred to a hot water tank to supply heating and hot water to a house, the cold is carried in the coolant liquid through the ground loops in the field, which have a large surface area, enabling the constant heat below the ground to warm the coolant up by a few degrees and the whole process continues. The constant heat below the ground in the field is actually heat from the sun warming the ground, annualised over the year. The source of the heat is therefore solar radiation stored in the ground.

The actual infrastructure required for this project consists of the below-ground installation of 4 x "slinky" pipes each in a 40m trench in the field, to absorb heat from the ground, all connected to a below-ground manifold with a feed and return connection going to a Ground Source Heat Pump unit which is located in the outbuilding.



RELEVANT LOCAL AND NATIONAL PLANNING POLICIES

Local Plan Development Plan Document (Adopted 2020)

S01 Spatial Objectives
SS1 Development Principles
SD2 Renewable/Low Carbon Energy
SS10 Other Rural Area Strategy
DC1 Design Considerations
DC3 Landscape Character

National Planning Policy Framework

SITE HISTORY / RELEVANT PREVIOUS APPLICATIONS
02/01328/FUL Replacement dwelling. Approved.

SMD/2016/0691 Domestic biomass outbuilding

CONSULTATIONS

Publicity
Site Notice expiry date: 13/11/2020
Neighbour consultation period ends: 13/11/2020
Press Advert: N/A

Public Comments
None

Town / Parish Comments
Leek Town Council: No Objection

OFFICER COMMENTS

Principle of Development
The Local Plan strategy SS10n for the other rural areas is, inter alia, to support the rural diversification and sustainability of the rural areas. Of specific relevance, decisions should ensure renewable energy schemes are of an appropriate scale, type and location that respect the qualities of the surrounding landscape.

Additionally, the Local Plan has dedicated policy SD2 for the provision of renewable energy sources. To deliver on this policy, the Council strives to meet part of the District's future energy demand through renewable or low-carbon energy sources (which could be through a variety of technologies). The Council will support small- and large- scale standalone renewable or low-carbon energy schemes subject to the following considerations:

- the degree to which the scale and nature of a proposal impacts on the landscape;
- the degree to which the developer has demonstrated any environmental/economic/social benefits of a scheme, as well as how any environmental or social impacts have been minimised;
- the impact on biodiversity and geological importance in accordance with policy NE 1;

Where agricultural land is proposed, poorer quality land should be utilised before higher quality agricultural land.

Impact on character and appearance
Ultimately there would be zero impact on character and appearance, the work is all subterranean in relatively shallow trenches, covered over and reseeded as pasture. Once complete there would be no obvious evidence, from casual observation, that the development had taken place.

Environmental and economic benefit

On the applicant's evidence:
Electricity is used to power the compressor and pumps in a GSHP. For each kilowatt of electric power supplied to run the ground source heat pump unit, around four

kilowatts of heat energy are produced. This means the heat pump has a "coefficient of performance" (COP) of 4.
Compare this to an electric boiler, which typically has a COP of 1 (1kW of electricity used to generate 1kW of heat). In practice then, a high COP of 4 means the system is 4 times more efficient and the end user benefits from significantly reduced carbon emissions compared to traditional heating systems.
Switching from an oil boiler to a GSHP will therefore save all of the carbon dioxide emissions associated with the use of heating oil as a fossil fuel, and by purchasing electricity from a 100% renewable tariff the electricity that is used is also from a renewable source.

Ecology and Biodiversity
The area of works (even taken as a maximum of the red edged area) is less than 0.5ha, so there is no doubt, this is not development covered by Environmental Impact Assessment Regs. There are no ponds or bodies of water within a 500m radius of the development and with a large working farm (Lower Foker) just 230m to the north, the site is surrounded by agriculturally active land. The land excavation is very unlikely to disturb protected species or have any notable ecology impacts. There are no designated areas of biological or geological importance within the vicinity. The agricultural land does not appear to be of any particular quality within a small 1ha parcel of ownership to the immediate rear of the dwelling's curtilage. Once the trenches are covered over and the land reseeded it could be presumably used to graze animals.

CONCLUSION / PLANNING BALANCE
Development to provide a dwelling with renewable energy on land within ownership without any adverse impacts. Development is acceptable and delivers on Local Plan commitments.

OFFICER RECOMMENDATION : APPROVE

Case Officer: Ben Hurst
Recommendation Date: 03/12/2020

X B.J. Haywood

Signed by: Ben Haywood
On behalf of Staffordshire Moorlands District Council