

Design, Access & Heritage Statement

Proposal to install a biomass boiler at Southwood House Farm, Ticknall

1. Introduction

The National Trust is seeking full planing and listed building consent to install a biomass boiler and associated underground pipework at Southwood House Farm, Staunton Lane, LE65 1RG. The system would provide decentralised renewable energy to the former farmhouse which is now a large holiday cottage sleeping up to 14 people.

2. Site Location and Access

Southwood House Farm is located on the National Trust's Calke Abbey estate. The farmhouse itself is located off Staunton Lane at the south-eastern end of a drive that is shared with the Tollgate Brewery. The farmhouse is a Grade II listed building (list entry 1414940¹) which has a number of outbuildings within its curtilage.

Infront of the farmhouse (to the northeast) is an area of grass and hardstanding used by holiday cottage guests as informal parking and circulation space. The main garden of the farmhouse is to the rear (southwest).

The building chosen to house the biomass boiler is a former piggery/stables located opposite the farmhouse (to the northeast) with the two buildings facing one another at a distance of some 20m. As such, the building is well located to allow easy access for vehicles delivering fuel to the biomass boiler.



Outbuilding formerly used as piggery and stables

¹ <https://historicengland.org.uk/listing/the-list/list-entry/1414940>

3. Other options considered

To the south of the farmhouse is another outbuilding containing several internal spaces which were also considered as options for housing a biomass boiler and fuel store. This building is believed to date to the late 18th Century.



The room at the northern end of the building (right hand side of photo above) is small and contains an interior wall and a brick built historic stove. It was therefore considered too constrained to contain the biomass boiler and associated fuel store.

The room to the south (left hand side) of the building contains a cellar and suspended timber floor. In order to support the biomass boiler within this space a steel structure would be required to ensure that the floor could support the weight of the boiler. This was considered too great an intervention within the historic building and would also create additional expense.

The most promising space, located towards the centre of the building, currently houses a sit-on mower for the gardening team. This space was not considered large enough to house both the biomass boiler and fuel store. It would also be necessary for the flue to pass through a first floor space above before exiting through the roof.

For the reasons set out above, this outbuilding was ruled out in favour of the outbuilding to the north. This former piggery/stables has the benefit of three interior spaces which may be easily linked, as well as louvered window openings that will provide ventilation for the biomass system.

4. Historic significance

Paragraph 189 of the NPPF requires applicants to describe the significance of any heritage assets affected by their proposals.

The list entry for the farmhouse at Southwood House Farm describes the building as ‘a good example of the evolution of a gentleman’s farmhouse over at least three centuries, retaining evidence of each historical phase. The current building includes fabric dating from at least as early as the mid-17th Century.

The only part of the house in which interventions will be carried out as part of this application is the existing boiler room, described by the list entry as follows:

“There is an opening in the original gable wall of the kitchen giving access to the dairy which has a brick floor and low level brick shelves on arched supports.”



Boiler room

A Vernacular Building Survey carried out for the National Trust in 1989 describes the outbuilding to the northeast as follows: “Facing the farmhouse are a range of single storey brick piggeries, now used as a stable”. As can be seen on page 1 of this statement, the building is structurally sound but some of the external joinery is in a poor state of repair.

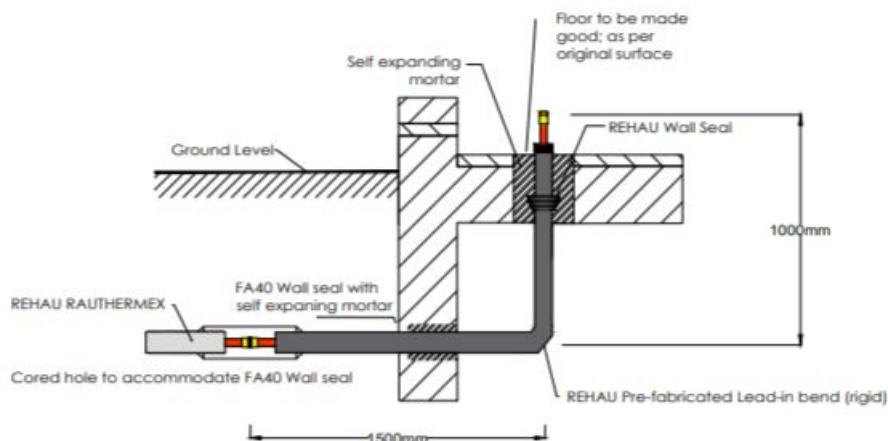
5. Proposal

The outbuilding will contain a wood pellet fuel store, a biomass boiler and thermal store, each to be located in different rooms. In the small lean-to adjacent there will be a pipe to allow fuel to be delivered into the fuel store. There will be ancillary connections between items of equipment including a screw auger feeding fuel into the biomass boiler. See drawing SW-ELE-M002.

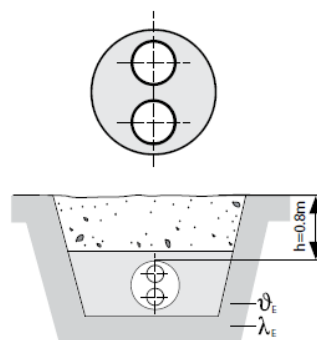
The floors appear to comprise mainly of concrete over red brick and it is unlikely that a new plinth will be required – this will be confirmed by the contractor at a later stage.

All internal partition walls within the outbuilding will be retained. A penetration will be required between the lean-to and outbuilding to accommodate a fuel pipe and vent pipe, each around 150mm diameter. A penetration will be required between the fuel store and boiler room to accommodate a screw auger of around 200mm, once installed the penetration will be sealed. A further penetration will be required to connect the boiler and thermal store with pipework of around 200mm, which will again be sealed.

The district heating pipework will exit the building via a 300mm penetration made in the floor of the thermal store (see diagram below). Pipework will then pass below ground to the farmhouse where it will enter the building below ground through another 300mm penetration in the floor. The district heating pipe will enter each of the buildings as detailed in Drawing SW-ELE-M002 – detail below.



Externally, the trench will be approximately 1000mm in depth (800mm to the top of the district heating pipework) and approximately 450 – 600mm wide. The trench will have a layer of sand at the bottom to protect the pipe. Excavated soil will be reinstated above and compacted.



The oil boiler in the house will be decommissioned and safely removed by the installation contractor in addition to the oil tank located nearby in the garden. A new heat exchanger will be installed in place of the existing boiler and connected into the district heating pipe and existing wet heating system. The hot water storage cylinders, secondary heating pipework, associated equipment and emitters will be retained.

The installation contractor will connect the new heat exchanger into the existing house pipework and integrate into the secondary heating system utilising existing controls from the old system where possible. The house system will not be affected other than some integration pipework in the plantroom.



No new external lighting is proposed in association with this development.

In order to mitigate the impact on nesting swallows (refer to Protected Species Survey and ecology statement below) a small opening will be created in the south gable end of the outbuilding, and a ceiling will be installed above the thermal store to create a space for birds to enter and nest.

Example of gable end entrance for swallows

6. Heritage impact of the development

Physical impacts on the listed farmhouse will be limited to a single penetration for district heating pipework, entering the building below ground and emerging through the floor, as illustrated on page 4 of this statement. The existing boiler will be replaced by a heat exchanger and some of the connections will be modified. The existing modern flue above the boiler room will be removed, which can be considered a minor enhancement.

Physical impacts on the curtilage listed outbuilding will involve a number of small penetrations within the walls and roof, and a flue (finished black) to be installed on the rear facing roof slope. The internal plan form will be retained, with biomass boiler, fuel store and thermal tanks being installed within adjacent rooms. The external joinery will be retained and refurbished to ensure that the building is secure. A small opening in the gable end will be created for swallows and a ceiling will be installed above the thermal store.

In order to install the pipework between the outbuilding and main house, a trench will be dug then backfilled with ground surfaces returned to their present state (grass and informal hardstanding).

In relation to below ground archaeology, the nearby settlement of Ticknall has a rich history of medieval pottery production and there are over 30 known pottery sites within the surrounding area. In 2006, during the installation of a new water main at Southwood House Farm, a dump of 15th and 16th century pottery waste was recovered c.100m north-west of the farmhouse along the driveway linking to Staunton Lane (SK 3590 2153). This find indicates the possibility of a nearby kiln site surviving as buried archaeology. The National Trust will therefore commission and carry out archaeological monitoring of the proposed trenching, via the provision of a watching brief.

Overall the installation of a biomass boiler at Southwood House Farm is considered to have a minor impact on the fabric of the listed buildings. This will be off-set by the repair and refurbishment of external joinery, helping to secure the future condition of the building fabric.

The overall setting impact will be positive due to the removal of an oil tank within the garden.

7. Justification and public benefit

Paragraph 196 of the NPPF states that where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal.

The farmhouse currently uses a fossil fuel heating system comprising of an oil boiler located in a boiler room within the listed farmhouse building. The proposed scheme will offer the benefits of a replacement renewable heating system, while also removing the risks associated with an oil boiler from the most sensitive historic building on site.

8. Ecological survey

The Calke Estate includes many buildings and features used by a range of bat species. To inform the biomass project at Southwood House Farm a protected species survey was undertaken of the outbuildings:

Andrew Chick, Protected Species Survey of Outbuildings at Southwood House Farm, Staunton Lane, Ticknall, August 2019

Survey work comprised of preliminary assessment for use by protected species and bat activity survey. A summary of the survey findings is below:

- The construction of the building is considered to offer limited potential to support roosting bats and no evidence of bat roosting was identified.
- The activity survey found no evidence of bats emerging from the building although it recorded five species of bats foraging and commuting around the survey building, including occasional, brief entrance to the building via the open stable door.
- Evidence of common bird species nesting was recorded within the building; no use by Schedule 1 bird species was identified.
- Evidence of badger activity was noted in the orchard area to the north of the survey building where it is believed a sett exists.

Ecological Impact

The survey and impact assessment covers all potential ecological receptors. The proposed works are not considered likely to give rise to any significant adverse impact on ecology; the favourable conservation status of bat species will be unaffected and other wildlife species will be protected via sensitive working methods. Recommendations and best practice working methods have been incorporated into the proposals and are summarised below:

- As a precaution all contractors will be warned of the possibility of bats and will be informed that they must stop work at once if they see or suspect a bat is present – a procedure will be provided.
- Use of mechanical diggers and excavators will be restricted to the front (south) of the stable block away from the area used by badgers; any trenches will be covered over at night and ramps will be placed in any trenches so that a badger can escape in the unlikely event that it does fall in; any pipes over 200mm in diameter will be capped off over night.
- The works will avoid the active bird nesting season (March to September inclusive); if works are needed during this period a search for active nests will be undertaken by a suitably trained and experienced ecologist and any active nests will be protected from disturbance.
- Access to the outbuilding by swallows will be retained via a new opening in the gable end. A ceiling will be installed within the thermal store to allow swallows to nest above.

9. Traffic, transport and sustainability

Fuel deliveries will be infrequent, potentially generating two vehicle movements per month in winter, and are therefore expected to have no significant impacts on traffic and transport.

The National Trust is very aware of the sustainability issues surrounding the supply of biomass fuels. This project proposes the use of pellet as primary fuel which, although it cannot be sourced from within the South Derbyshire area, can and will be sourced from UK based suppliers. We are also aware of the issues in quality of wood fuels and therefore require the use of the latest quality standard for wood pellets, the ENplus European wood pellet accreditation scheme. Having the ENplus accreditation certifies that the pellet we buy is in optimum condition not just when it leaves the factory but when it's delivered into our fuel store. It will have met stringent quality criteria covering size, moisture content, heat output, ash content and melting point and other elements.

The National Trust has put together a framework of suppliers of biomass wood pellet who are accredited traders of ENplus-A1 pellets and are registered on the Government's biomass suppliers list. This allows us to ensure that each fuel delivery is carried out using the closest source and sustainable fuel delivery possible.

10. Planning policies

Paragraph 154 of the NPPF requires that 'When determining planning applications for renewable and low carbon development, local planning authorities should: a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions; and b) approve the application if its impacts are (or can be made) acceptable.'

Paragraph 196 of the NPPF states that 'Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal...'. In this case we consider that the very limited harm to the historic significance of the farmhouse and outbuilding at Southwood House Farm will be off-set by the conservation benefits of removing an oil tank from the garden, removing an oil boiler and flue from the listed farmhouse, and repairing the outbuilding joinery. Notwithstanding these positive

factors, we also consider that the harm would be outweighed by the public benefits of providing a renewable heating system for the holiday cottage.

In relation to the Local Plan for South Derbyshire:

- The proposal is generally supported by Policy S3 Environmental Performance.
- In accordance with Policy SD1 Amenity and Environmental Quality, the proposal is not expected to lead to significant adverse impacts on the environment or amenity. A modern biomass boiler will be used with limited noise and emissions. The outbuilding is located some 20m from the farmhouse which is in use as a holiday cottage.
- Policy SD6 Sustainable Energy and Power Generation is also relevant to this scheme. In accordance with SD6 Part i) the proposal is not considered to give rise to unacceptable impacts on landscape, townscape, ecology or heritage. In accordance with Part ii) it does not give rise to unacceptable impacts on amenity or safety. In relation to SD6 Part iii) the fuel will be sourced from UK based and accredited suppliers in accordance with National Trust current sourcing arrangements (refer to section 9 of this report).
- In accordance with Policy BNE2 Heritage Assets, Part A, the proposal seeks to protect, conserve and enhance the historic buildings and their settings, as far as reasonably practicable. In accordance with Part D, the proposal finds a sensitive use for the disused outbuilding that will help to secure its long-term conservation.
- The proposal meets the requirements of Policy BNE3 Biodiversity Part B by providing a Protected Species Survey detailing the likely impacts of the scheme and proposing mitigation measures.
- In line with Policy BNE10 Heritage, this proposal has been assessed against the requirements of national planning policy.