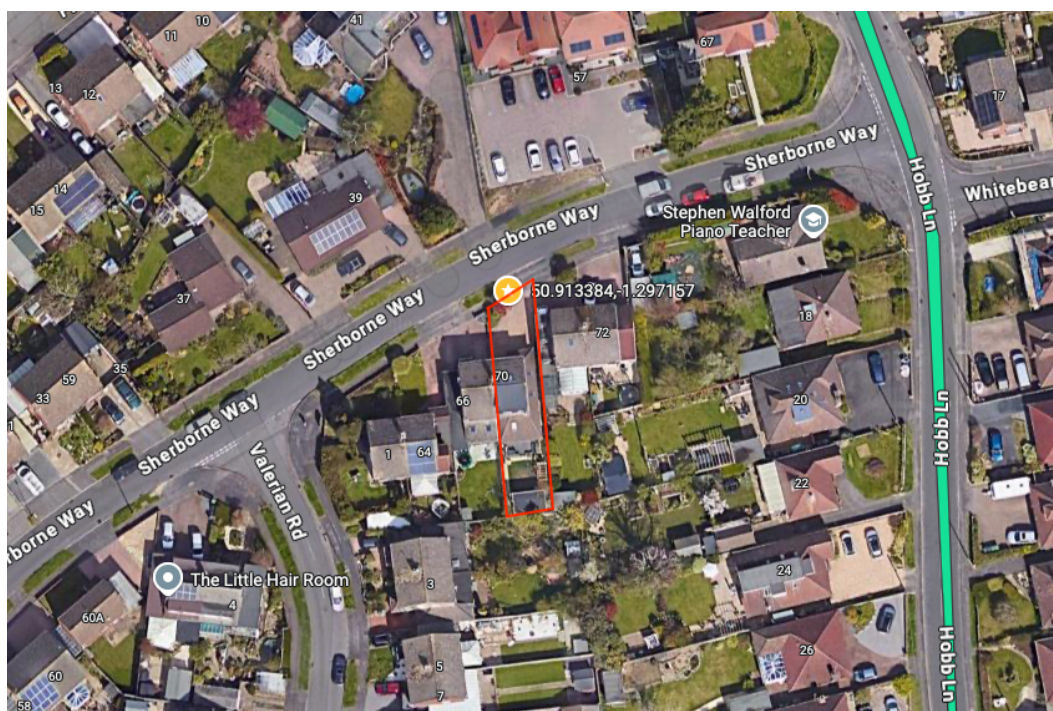


Design Statement



68 Sherborne Way is a semi-detached house set in the residential suburb of Hedge End. British Gas have offered the opportunity to professionally install an air source heat pump. This would replace the ageing and inefficient combination gas boiler, providing an energy efficient replacement for both heating and hot water. The air source heat pump proposed is a Vaillant Arotherm Plus 7kW model and the specification sheet is attached (see document 'Vaillant 7kW specification sheet').

Reason for planning permission being sought:

- Location - Front of property facing a highway.
- Noise – Marginally exceeds MCS noise assessment by 1dB.

Location:

The proposed location for the heat pump will be at the front of the property and will be visible from the highway. The make and model of heat pump has been specifically selected due to its appearance, compact size & performance. Its overall colour and appearance are in line with the house. The white element matches the uPVC windows, fascia & guttering. The black part of the fan grill is in line with the house front door. A small front garden offers an amount of visual shielding and in daily use there are cars parked on the drive obscuring the view further. Overall, it is not expected to negatively detract from the local street scene.

Consideration has been given to locating the heat pump at the side or rear of the property. However, there are insufficient clearances to meet manufacturer requirements in either of these positions. The front has been selected as it offers the required clearances and keeps the heat pump as far from the boundary as possible.

Noise:

The MCS 020 assessment (attached document 'MCS-020 Full Power') result is 43dB, exceeding the permitted development limit of 42dB by 1dB.

The overall system is designed with this in mind and sets out to mitigate any potential excess noise in the following ways:

- Heating using low flow temperatures - The system has been designed to provide heating using a low flow temperature of 45 degrees. This allows the heat pump to operate within the MCS permitted development limit when providing heating. The 'Vaillant 7kW specification sheet' (attached) shows noise output at 45-degree water temperature is lower than when at full power. When using this lower sound level, it passes the MCS020 assessment for permitted development. I have attached the assessment document for reference ('MCS at 45-degree design temp' document).
- Hot Water using smart controls & timers – Producing hot water may be when the heat pump works harder and potentially exceeds the MCS limit. However, heating a tank of hot water requires only a short cycle of heat pump usage. As such, the production of hot water can easily be scheduled for points in the day where it is unlikely to cause disturbance and background noise levels are naturally higher. This may be further mitigated as the property benefits from solar panels and battery storage. As such, will be able to divert excess electricity to heat water via the tank's immersion heater. This subsequently reduces the effort (and therefore potential noise) required from the heat pump even further.
- The Vaillant heat pump is one of the quietest domestic units available from mainstream manufacturers. Regular servicing by their network of support engineers will ensure optimum performance over the heat pumps lifecycle.
- The heat pump is to be mounted on a specifically built base with feet designed to absorb and reduce vibrations and subsequent noise.

Consideration has been given to the addition of a sound barrier, fence or baffle to reduce potential noise levels at the assessment point. A small fence has been considered but will likely add a reflective surface to the MCS assessment and may therefore prove counter productive in terms of overall noise propagation. Given the mitigation above a fence is unlikely to be required.

MCS Noise Assessment

It is important to acknowledge that the MCS methodology is rightly designed to err on the side of caution. This can be seen from the steps where the figures are rounded. A good example of this can be seen on the assessment at step 9. The result at step 9 is 42.1dB which is then rounded up to 43dB at step 10 to give the final result. It's understandable for the approach to be cautious, however in reality, 42.1dB is as close to being within the allowance as it could get. Given this context, the real-world noise level is unlikely to materially impact any neighbouring property.

Climate Change & Environmental Emergency

Thank you for considering this application to help move towards a low carbon heating solution. It is noted that Eastleigh Borough Council has declared a climate change and environmental emergency. The removal of this gas boiler and replacement with a low carbon heating system is directly in line with the councils objectives to support greener initiatives. I trust that planning decisions reflect all these factors for the long term good of the borough.

Given the careful design and specific considerations to reduce potential noise as much as possible, it is believed that the benefits of carbon reduction outweigh the marginal noise excess of up to 1dB.