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Weldale St Reading (221160/NMA)

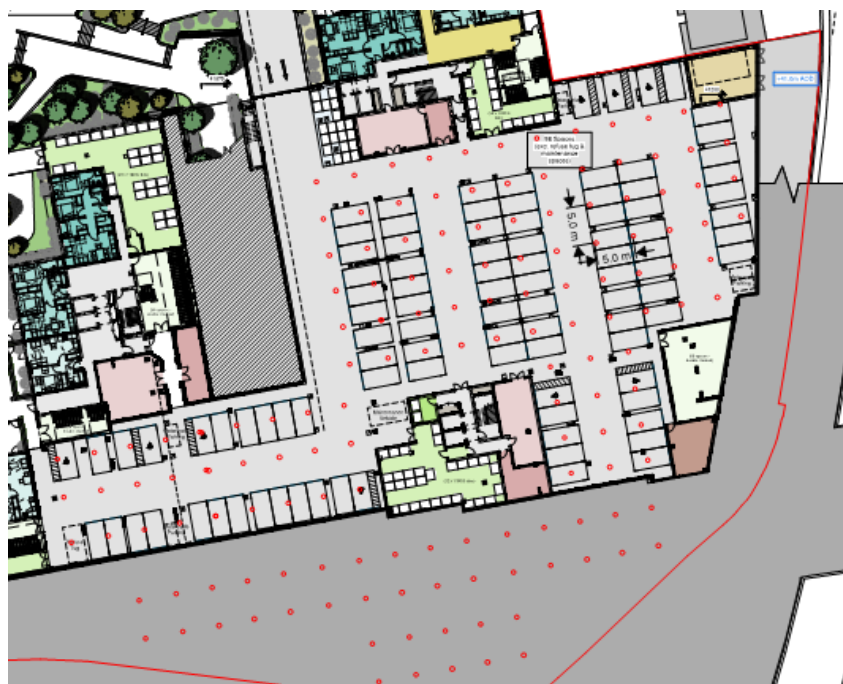
Dear Emma,

Further to the planning officers comments 06 October 2022 we would make the following comments.

1. Heat pumps (ground source vs air source)

During the concept stages of the project, design options were explored to move away from direct fossil fuels to an approach better considering decarbonised grid, and updated building regulations where carbon factors are significantly reduced for electricity due to the high percentages of renewable electricity generation in the UK (2013 Part L electricity = 0.519kgCO₂/kWh, 2021 Part L electricity = 0.136kgCO₂/kWh). As part of this study, the use of ground source heat pumps was explored with the assistance of ground source heat pump specialists, Kensa, and was discounted for reasons of practicality. For a ground source system to serve the development would have required circa 200No. 100metre depth closed loop boreholes. The site area is compact relative to the number of properties, and studies indicated there would be insufficient development area within the site boundary to accommodate this system.

The borehole layout was mapped out as below, which goes beyond the site boundary. In practice the area required would be even more significant when considering the limitations of substructure on the pipework layout:-



As an alternative, the strategy was developed to include the use of local ducted air source heat pumps in each property. Whilst air source heat pumps seasonal efficiency is reduced compared to ground source heat pumps, the lack of need for central pumps, pipework and transmission heat and pressure losses gives similar levels of overall system efficiency, and along with high performance building fabric, retains the approach of decarbonisation. It also brings other benefits, with only a single standing charge for each apartment to make energy costs more affordable, opposed to a centrally managed and metered system with running costs to be apportioned to occupants.

2. District heating.

Whilst decentralised hot water heat pumps are proposed, there is still a route to providing heat energy via a future district heating connection. Future district heating could be provided by removing the air source heat pumps within each apartment and forming a plant space in the basement car park area to provide a district heating connection. The district heating would serve a central hot water heating system with a piped system following the same route as the cold water distribution route to each apartment to provide domestic hot water metered connections.

Yours sincerely

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