Summary of alternatives report

Introduction

1. Following a meeting between Gerald Eve and the London Borough of Camden in April 2023, officers requested further details on how the roof of the Institute of Education ('IoE') had become the preferred location for the Air Source Heat Pumps ('ASHP'). Officers requested further information on which alternatives has been considered prior to reaching the decision that the IoE was the most appropriate option.

2. A detailed report was subsequently prepared by Ramboll identifying other buildings within Bloomsbury which were initially considered for the proposal but were subsequently discounted for a range of reasons. The reasons noted in the report are as follows:

   - Ownership

   – Spatial

   – Operational

   - Planning

   – Structural loading

   - Secondary M&E

   – Heritage status

3. This note provides a summary of the Ramboll report, which concludes that the ability to develop the ASHP on the roof of alternative buildings is constrained for multiple reasons, and that the only building that Is capable of accommodating the full ASHP capacity, and securing substantial environmental benefits, is the IoE.

4. This report includes the key reasons for why other buildings were excluded from consideration and should be read in conjunction with the comprehensive report prepared by Ramboll.

Student Central

5. This building was initially considered to be a potential location for the ASHP, but Birkbeck have a long lease on the building and do not wish to be a member of the consortium. It is therefore not possible to develop on the roof of this building whilst Birkbeck are in situ.

SOAS Phillips Building

6. This is a Grade II* building also designed by Denis Ladsun and therefore has the same listed status as the IoE.

7. In terms of any visual impact arising from the proposals, it would be expected that considerations would be similar to the IoE, given it is of a similar form and is of the same heritage value. Therefore, whilst externally there appears to be sufficient space to house the required plant, any plant would likely have similar visibility issues as the IoE due to the low parapet.

8. Furthermore, the wet riser system above the basement level would not be suitable for the size of the pipework and cabling required to power the ASHP, meaning additional internal or external alterations would be required to accommodate this. This would require far more extensive interventions to the listed fabric, would affect the useable teaching space and would cause disruption to students and staff due to a significant proportion of the classrooms requiring partitioning for the new pipework and power supplies.

9. Furthermore, due to the lightwell within the existing building and the height and area of the proposed plant, any installation would likely affect the quality of internal space.

10. SOAS are also progressing with plans to install solar PV across the entire roof which would hinder plant installation in this location, although this is not yet at planning application stage.

SOAS Library

11. This is a Grade II listed building adjacent to the Phillips Building with an existing solar array on the roof.

12. Even if the solar array were to be re-located, it would not be possible to accommodate the full ASHP requirement as the area has been found to be sufficient for just one unit.

13. Furthermore, given the low parapet, the roof area and the lower height of this building relative to others considered, it would not be possible to set the ASHP back from the edge of the roof to limit the visual impact. Given this and the other factors noted, it would likely form a far more visible and obtrusive addition than the IoE option.

14. This impact should also be considered in the context of the wider setting and the relationship of the building with other heritage assets.

Institute of Education – Service Yard

15. Whilst the service yard area was considered, this has subsequently been discounted for operational reasons. In particular, the service yard forms part of a fire exit route for the building, and it would not be possible to maintain this route, and access for fire and emergency vehicles, whilst accommodating the full extent of the equipment required.

Bonham Carter Building

16. A structural assessment was completed in 2021 which looked at accommodating a far reduced ASHP load. This assessment demonstrated that the low capacity ASHP tested at that time was at the loading limits of the roof. The property could therefore only be considered suitable for a proportion of the heat pumps with the rest of the capacity needing to be located on the roof of another building.

17. Furthermore, even with partial capacity in mind, it should be noted that Bonham Carter Building has been earmarked for an upwards extension to accommodate additional student housing in the forthcoming University of London Estates Strategy, which is currently being discussed with Camden Council.

18. As the ASHP works are anticipated for completion by 2024, the works would therefore be carried out in advance of any building extension. Therefore, at the stage the extension to the building is progressed, the installed equipment would need to be removed during the construction works. During this period, a significant proportion of the heating service to the network would be lost, meaning it would be necessary for carbon intense assets to be deployed. This would result in a significant increase in carbon emissions which would significantly reduce the environmental benefits of the development.

Warburg Institute

19. The majority of the roof to this building is glass panelled and therefore unsuitable for the density of plant required to supply the heat network.

20. The building has also been discounted due to its spatial limitations.

Stewart House

21. The building has two levels of roof (Level 6 and 4) which have been considered for ASHP installation. The Level 6 roof is unable to accommodate additional plant, due to existing chillers at this level.

22. In relation to the Level 4 roof, this contains roof lights serving the lower floors and also provides light to the inward facing rooms at levels 4-6. Therefore, whilst it is understood that there is sufficient space to accommodate the equipment, its location would seriously impede light to the fourth-floor windows and would also affect the skylights, thereby affecting the quality of internal accommodation to the floors below.

23. Notwithstanding the above, and whilst externally the building has sufficient area to accommodate the required plant, significant additional infrastructure would be required internally. However, it has been found that the existing risers are heavily congested and additional risers would therefore be required.

If these are to be accommodated, these would reduce the useable space within the building, whilst also having an impact on the building's external appearance.

24. Furthermore, to supply this location with power and hydraulic connections to the district heating network, significant cabling and pipework would be required to traverse either internally or externally to the property.

25. Other factors which remove this building from consideration include noise impacts, given the proximity to windows and potential structural issues, given the roof would likely require significant reinforcements to carry the additional loads.

Senate House

26. Senate House is a Grade II* listed building which is formed of a number of wings.

27. In relation to the southern wing, there is no wet riser system as this part of the building utilises radiant heaters. In the absence of this, it would not be possible to accommodate the distribution pipework. Furthermore, the interiors of the building are listed and if risers were to be accommodated these would involve substantial interventions to the listed fabric.

28. In terms of the remaining wings, it has been found that structurally, the building could only accommodate partial capacity in the form of a single ASHP unit sized for local demand. Further distribution pipework between the tiers of the roof would also be required either internally or externally to distribute to the heating network.

29. Furthermore, as this building is Grade II* listed, it would have similar sensitivities to the Institute of Education in terms of any visual impact.

Alternatives

30. As noted above several of the roofs of the buildings investigated were found to have partial capacity for the ASHP. However, where split capacity has been considered this would still require the roof of the IoE to be used, which would unlikely be a preferable situation.

31. It should also be noted that in order to pursue any of the divided capacity options, the installation of significant areas of new pipework and cabling would be required.

Alternative Option 1

32. As previously identified a number of buildings have the potential for partial capacity. An option has therefore been explored considering the installation of multiple heating assets across the roofs of Senate House, SOAS (Phillips), IoE and Bonham Carter Building. It should be highlighted that for this option, installations would be required on the roofs of three Grade II* listed buildings, whereas the preferred option seeks to confine this to one.

33. Furthermore, if this option were pursued all properties would require significant reinforcement works. This option would also necessitate the need for significant pipework and cabling infrastructure in order to link all properties to the DHN (refer to p.26-28 of the Ramboll Report). Increased demand would also be placed on already congested plantrooms.

34. Given the above, this is not considered to be a technically feasible or a desirable alternative to the preferred option.

Alternative Option 2

35. The most feasible option considers splitting the capacity between the Institute of Education and Bonham Carter Building. However, initial structural and spatial investigations determine that the roof is only able to accommodate 50% of the capacity, with the remaining capacity needing to be located on the roof of the IoE. Whilst this would reduce the amount of plant on the roof of the Grade II* listed building, there would still be a visual impact arising from the remaining plant and therefore it is unclear whether this would, in practice, reduce any visual harm to this building.

36. Furthermore, if more detailed investigations determine that Bonham Carter Building does not have capacity for the remaining ASHP, the roof of Senate House could be used as it has already been confirmed that this building has capacity to accommodate the remaining plant. However, should the reserve be required, this would mean plant would be located on the roof of two Grade II* listed buildings, resulting in potential visual harm to both.

37. Furthermore, and as already noted, Bonham Carter House has been earmarked for future re-development in the University of London's forthcoming Estates Strategy. Given the programme for completion of these works, even if this building was determined to be suitable for partial capacity, the carbon savings would be seriously reduced through the need to remove the plant and use other heating sources during the construction works.

Conclusion

38. Noting the heritage status of the Institute of Education, there has been significant work undertaken by the project team to find a suitable alternative location for the ASHP. However, on the basis of the above, it is evident that the IoE remains the most feasible and suitable option for this purpose.

39. In considering the acceptability of the proposals careful consideration should be given to the substantial environmental benefits which this development would deliver.