

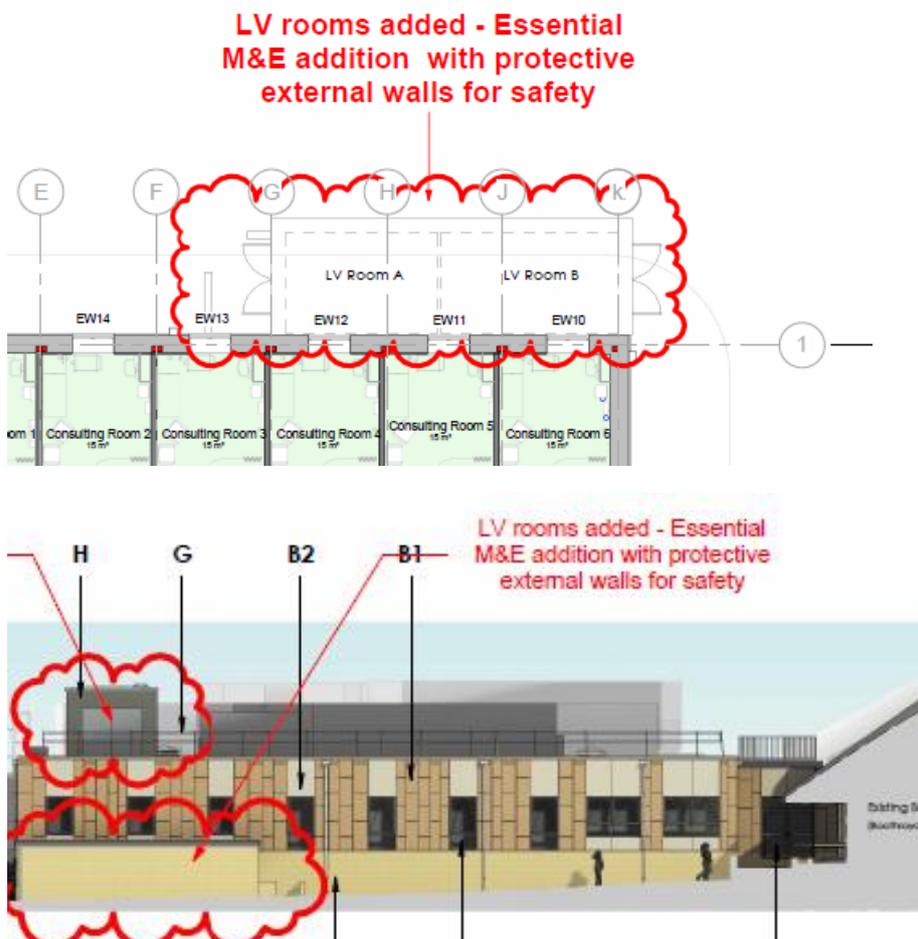
LV Rooms added (North Elevation)

It was identified through detailed design development that the existing hospital electrical infrastructure could not adequately support the new building's power demands. As a result, additional electrical infrastructure was required, including the installation of two Low Voltage (LV) panels.

These panels needed to be positioned in close proximity to the building to maintain efficient cable runs and operational safety. For fire safety and maintenance accessibility, the LV panels were housed within an external outbuilding accessible only from outside the main building envelope, thereby reducing internal fire load and ensuring compliance with IET Wiring Regulations (BS 7671).

The north elevation was selected as the most appropriate location based on spatial availability, access for maintenance personnel, and separation from public areas. To mitigate safety risks during maintenance, a self-supporting wall was constructed adjacent to the LV room entrance to prevent door swings from impeding pedestrian routes. This wall also functions as a sacrificial barrier to absorb impacts in the unlikely event of vehicular collision, thus safeguarding the electrical equipment.

A protective crash rail was also installed along the north elevation to further enhance resilience and protect critical infrastructure.



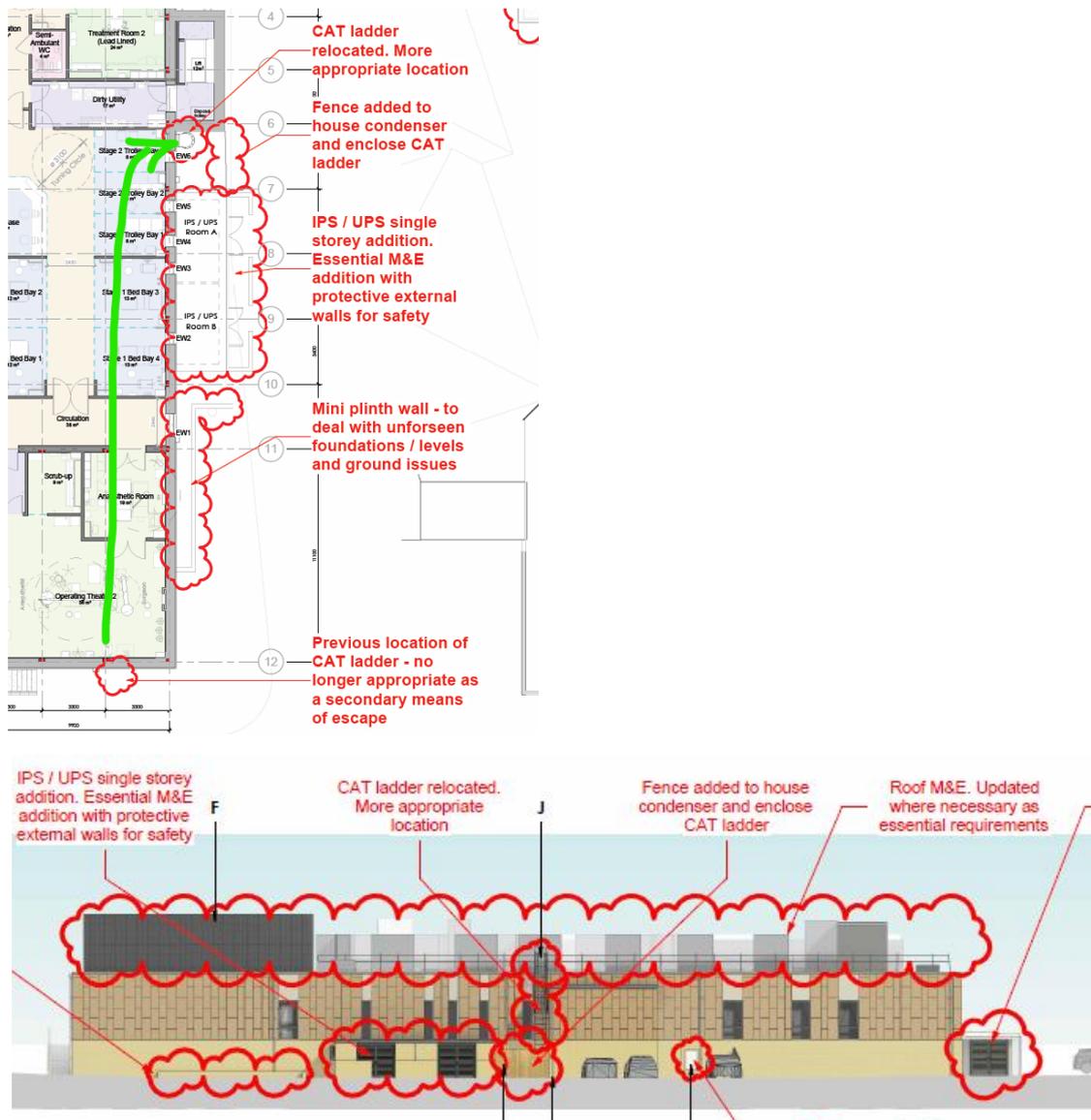
CAT Ladder relocated (East Elevation)

The original location of the CAT ladder on the south elevation was reviewed and deemed unsuitable following design changes to the roof layout.

As part of a reassessment of fire strategy and safe access provisions, escape distances for a secondary means of escape were recalculated in accordance with Approved Document B of the Building Regulations.

A new location was identified that met the required safety criteria while also allowing the ladder to be enclosed within a secure area, thereby preventing unauthorised access and enhancing site safety.

The revised placement offers improved functionality and reduces visual and physical obstruction, particularly as the original location was along a pedestrian route where it may have posed both a hazard and a point of concern in terms of appearance and usability.



New enclosed staircase added (to replace a CAT ladder). (West Elevation)

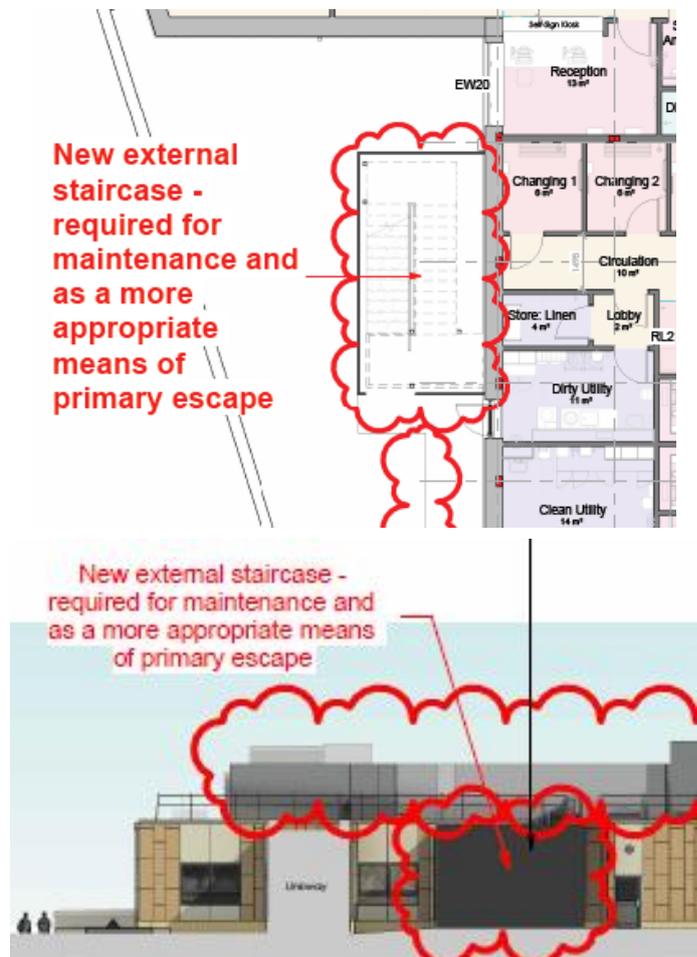
The existing CAT ladder on the west elevation was replaced with an external staircase, following a design review which concluded that a staircase would offer a significantly safer and more practical primary means of access to the roof.

Unlike a CAT ladder, the staircase facilitates the movement of maintenance personnel and the transport of equipment in compliance with CDM Regulations 2015, which require safe access for maintenance activities. The revised access solution enhances both functionality and user safety.

The staircase structure was clad on three sides with metal panels finished in RAL7016 to ensure visual coherence with the building façade while maintaining weather protection.

The cladding was terminated at parapet height to reduce visual impact, as a fully enclosed roofed structure was considered disproportionate in scale and contextually inappropriate. This design approach ensured a modest and functional appearance that remains sympathetic to the surrounding architecture.

Access to the staircase is controlled via a lockable gate to restrict entry to authorised maintenance personnel only.



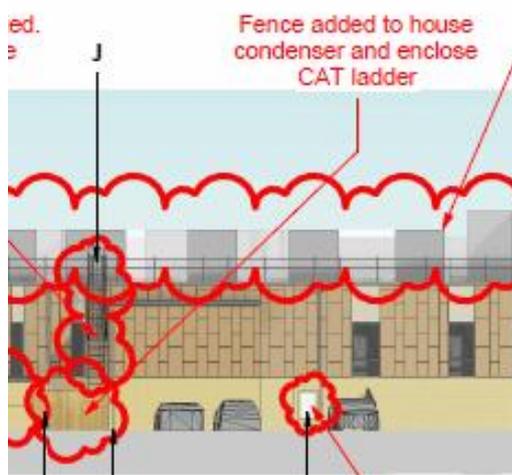
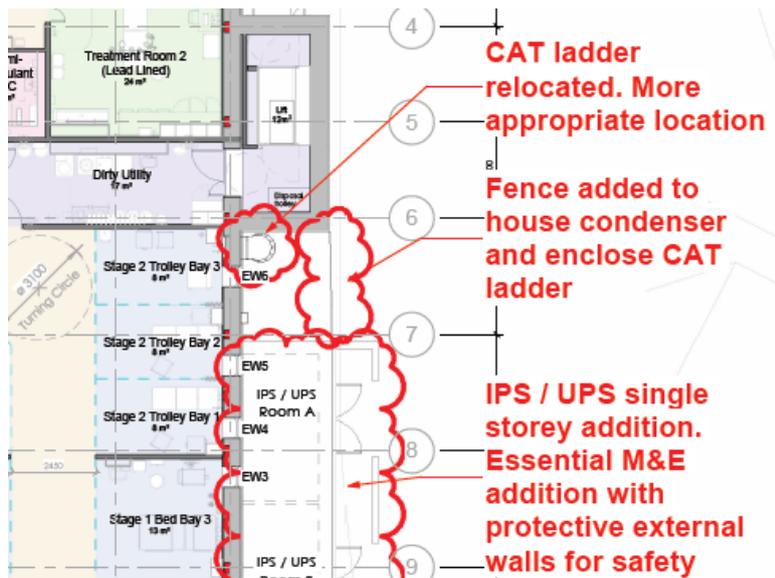
Fence added (East Elevation)

The proposed relocation of the CAT ladder to the area between the IPS/UPS rooms and the lift was reassessed due to significant health and safety and security concerns.

Its placement in this location could have enabled unauthorised access to the roof, presenting a risk to both personnel and infrastructure. In line with fire safety strategy and best practice, it was determined that the CAT ladder should serve exclusively as a secondary means of escape from the roof in emergency scenarios, rather than as a primary access route.

The newly installed external staircase provides the designated primary access, ensuring safe and controlled maintenance entry. To fully secure the CAT ladder, a vertical close-boarded timber fence was installed between the IPS/UPS rooms and the lift. This enclosure, fitted with a lockable gate, restricts access to authorised personnel only.

Additionally, the space within this secure area accommodates condenser pumps, offering a suitable and protected environment for essential air conditioning equipment, while maintaining compliance with mechanical services requirements.



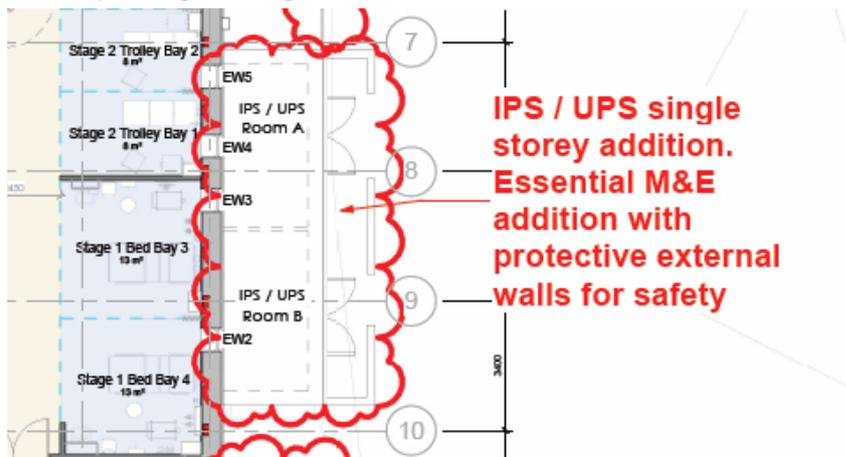
IPS / UPS rooms added (East Elevation)

Similar to the LV panel installation, the IPS (Instant Power Supply) and UPS (Uninterruptible Power Supply) rooms form a critical component of the building's electrical infrastructure.

Due to the technical specification of the equipment and the need to optimise internal space planning, it was determined that these rooms would be best accommodated within an external outbuilding, accessible from outside. This arrangement allows for improved environmental control and ventilation, ensuring the reliable operation of sensitive power equipment.

Locating the rooms externally also minimises the fire load and operational risk to the main building and its occupants.

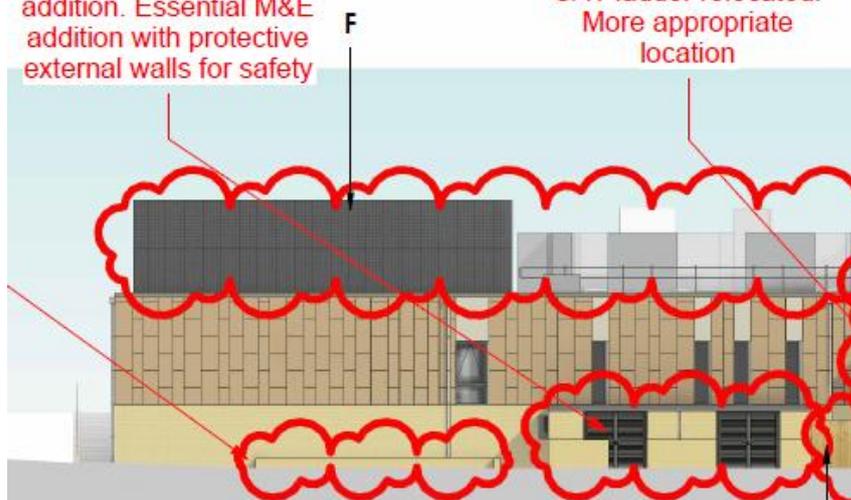
To further enhance safety, a self-supporting wall was constructed adjacent to the IPS/UPS outbuilding. This wall prevents obstruction of pedestrian routes by allowing maintenance doors to open freely and safely, and it serves as a sacrificial barrier, designed to absorb impacts in the unlikely event of a collision or external incident, thereby safeguarding the critical infrastructure within.



IPS / UPS single storey addition. Essential M&E addition with protective external walls for safety

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CAT ladder relocated. More appropriate location

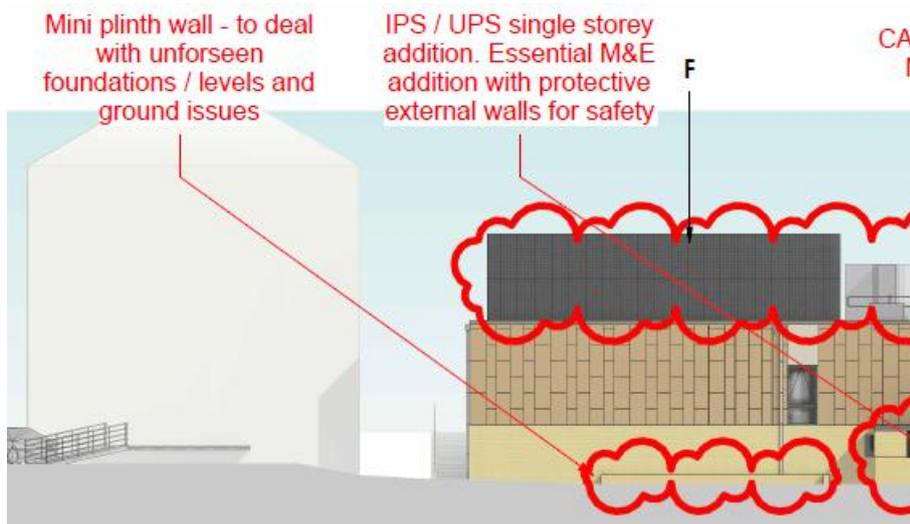
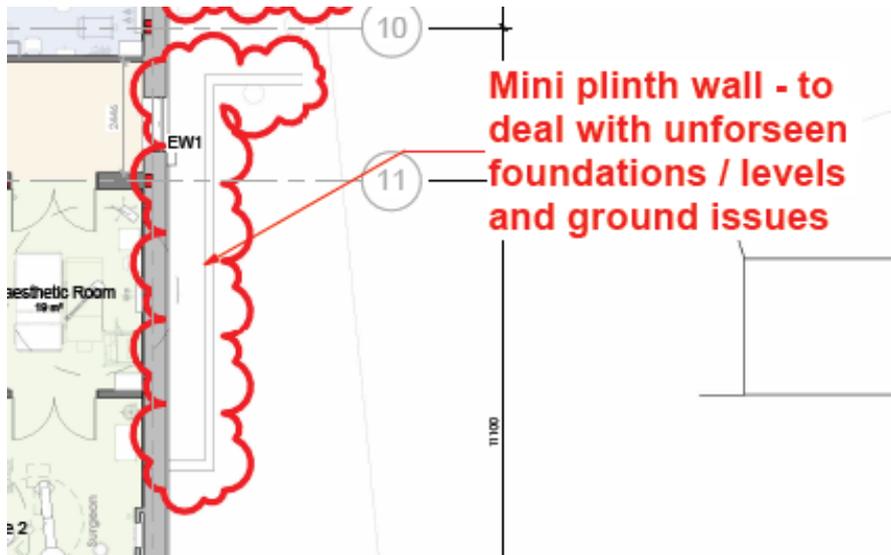


Mini plinth wall added (East Elevation)

The south-east corner of the building sits at the lowest point in the surrounding topography and is densely occupied by essential services and infrastructure, resulting in several spatial and level-related constraints.

During the implementation of the landscaping plan, sections of the structural foundations were found to be exposed. As these foundations are critical to the integrity of the building, any modification, such as cutting into them, was deemed unacceptable.

To address this, a practical and visually coherent solution was developed: a low plinth wall was introduced to conceal the exposed elements. This design not only preserved the structural integrity of the building but also allowed the landscaping and pedestrian pathway to function as intended. The wall worked effectively with the existing ground levels and enabled the formation of a DDA-compliant (Disability Discrimination Act) accessible route. This approach successfully resolved the competing requirements of structural protection, aesthetics, and accessibility.

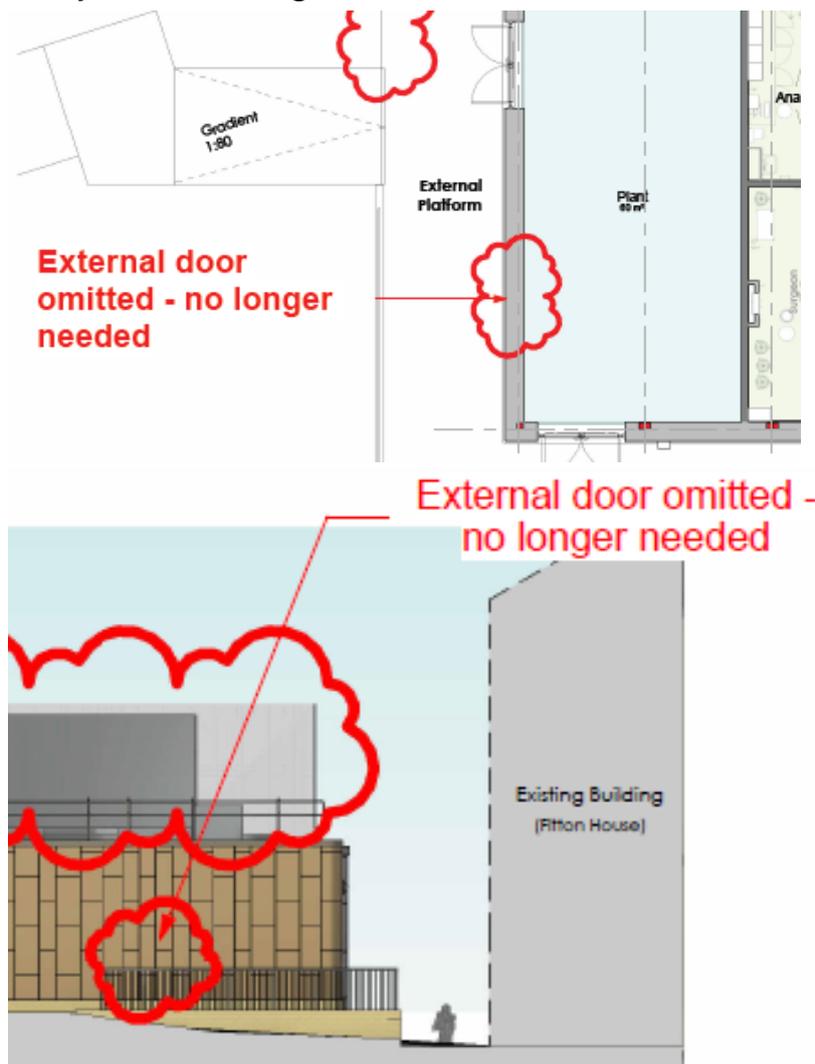


External door omitted (West Elevation)

The original design included a large plant room requiring two means of escape, along with a smaller adjacent plant room that only required a single point of access. However, during the refinement of the mechanical and electrical (M&E) layout, it was determined that a single, larger plant room would be more operationally efficient and spatially effective. As a result, the internal partition was removed to consolidate the two spaces.

The new combined plant room configuration featured three external doors, exceeding the necessary means of escape and access requirements. Given the revised M&E layout and the need to align key services along the perimeter wall, the door located at the far south end of the west elevation became redundant. The remaining two doors provided sufficient access and egress in accordance with Approved Document B of the Building Regulations.

The removal of the third door was therefore both functionally and visually appropriate, offering a cleaner elevation and having no adverse impact on the building's operation, safety, or surrounding context.



Walkway wall and railing omitted (West Elevation)

As the project progressed on site, the walkway and retaining wall design underwent refinement to address emerging technical and structural constraints. The initial proposal involved a retained walkway supported by deep foundations in close proximity to the existing Boothroyd building. This raised concerns over potential interference with the existing foundations, prompting a reassessment of the design. In parallel, the incorporation of a gas membrane, introduced as a precautionary measure to mitigate ground gas risks, rendered the original solution of a retaining wall with earth banked beneath the building unfeasible, as it would restrict necessary undercroft ventilation.

A revised detail was developed featuring a single deep foundation along the west elevation perimeter, supporting a reinforced retaining wall to stabilise the adjacent ground. This solution preserved structural integrity and ensured adequate airflow below the building in compliance with guidance in CIRIA C665.

The new approach eliminated the need for a separate perimeter wall and handrail at a level change, allowing for a more traditional pathway design using pin kerbs and regraded landscaping, resulting in a more elegant, buildable, and context-sensitive solution.

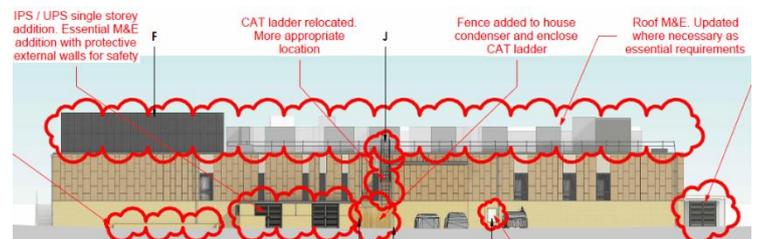
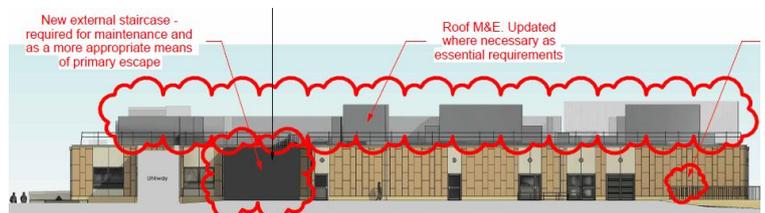
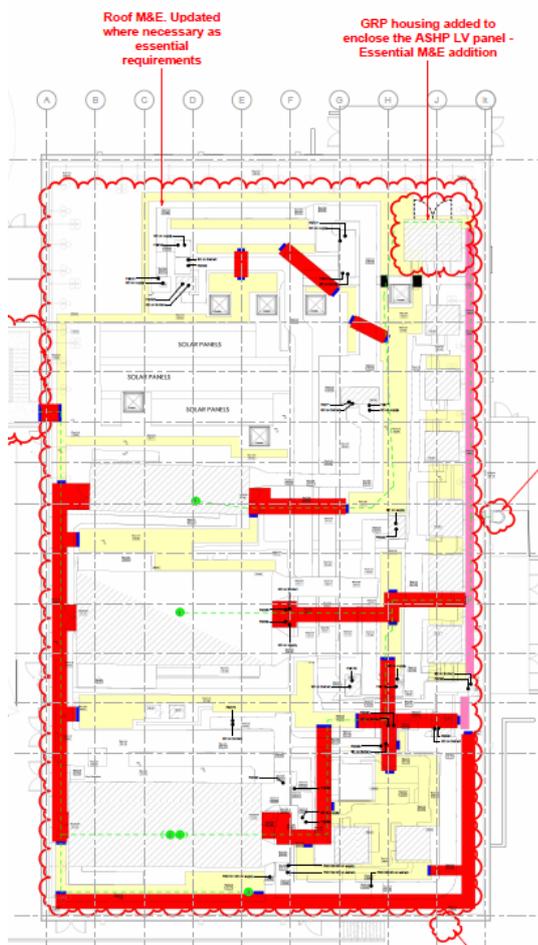


Roof M&E Updated (Roof Plan)

The initial M&E design developed at RIBA Stage 3 was found to be insufficient once the project progressed into RIBA Stage 4, where detailed specifications and operational requirements were fully defined. It became clear that the volume and scale of plant necessary to meet the building's performance standards were significantly greater than originally anticipated. This led to essential changes to the rooftop M&E strategy, which, although challenging within the constraints of the existing layout, were critical to the building's functionality.

Every effort was made to minimise the visual impact of the additional rooftop plant, including careful placement, screening, and maintaining the smallest feasible footprint.

These changes were instrumental in supporting the building's ambition to achieve a BREEAM Excellent rating, which necessitated enhanced sustainability systems and energy performance measures, many of which relied on rooftop services. There were no viable alternatives in terms of location or massing that met these technical and programme requirements. As such, the final design represents a considered and contextually appropriate response that balances functional necessity with architectural sensitivity.

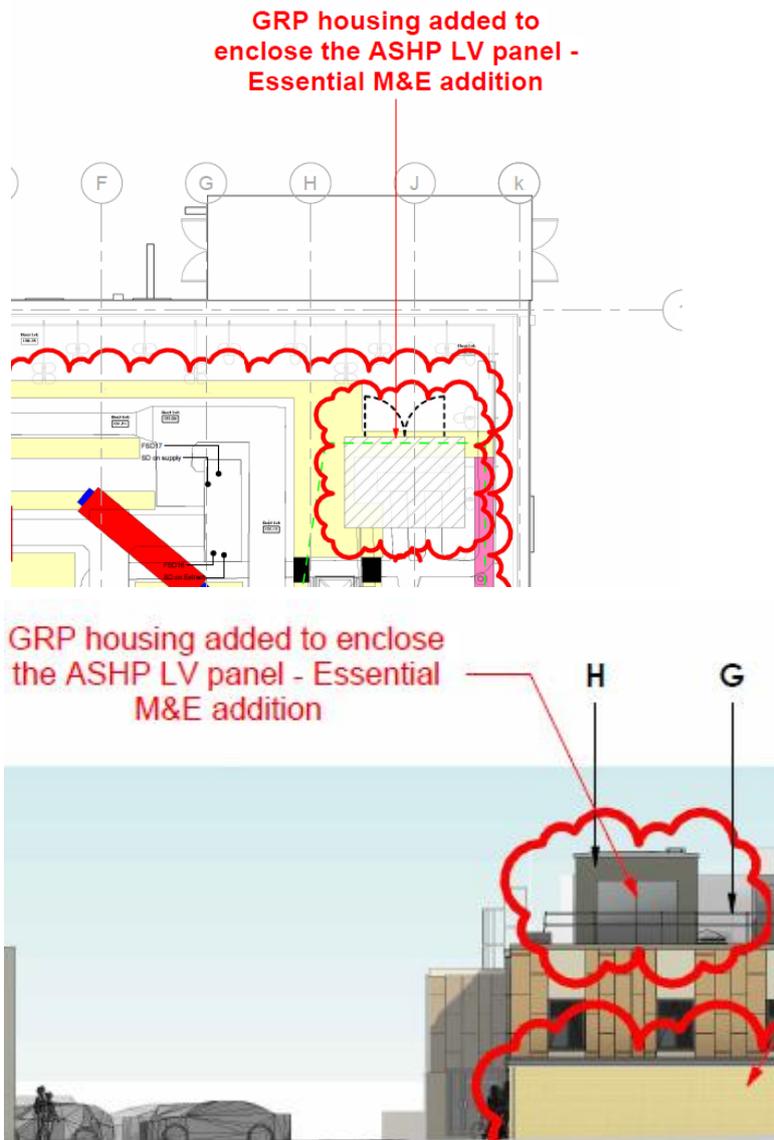


GRP housing added (Roof Plan)

Like the LV and IPS/UPS rooms, the GRP housing serves as a protective enclosure for a critical component of the building's power infrastructure, specifically the Air Source Heat Pump (ASHP) Low Voltage (LV) panel. As the ASHP units are located on the roof, the LV panel must be positioned in close proximity to ensure efficient operation and compliance with electrical safety standards (BS EN 61439).

The GRP enclosure is primarily functional, designed to meet regulatory size requirements while minimising its visual impact. To achieve this, the GRP was specified in a grey finish closely matching the existing plant equipment on the roof, allowing it to blend seamlessly with the rooftop plant area.

This design approach reduces the architectural prominence of the enclosure, ensuring it complements the overall building aesthetic and respects the visual character of the surrounding context.



Emergency hatch added (East Elevation)

Following the specialist recommendation to install a gas membrane, the undercroft area of the building now constitutes a substantial enclosed volume requiring adequate cross ventilation to ensure safe environmental conditions. This was achieved through a considered ventilation design that complies with relevant building and health and safety regulations.

Given that electrical services are routed within the undercroft, an emergency access hatch was installed as a precautionary measure. Although routine access to this space is neither anticipated nor required, providing the hatch mitigates risks by allowing emergency entry if needed.

Omitting the hatch initially could have led to costly and time-consuming retrofitting, potentially impacting the building's operational timeline and, by extension, NHS service delivery. Therefore, the decision to include the hatch was deemed a prudent and necessary safeguard, balancing safety, functionality, and project continuity.

