

4.1.3 Services integration

New reinforced concrete services trenches will be provided below the ground floor slab within the internal footprint of the new building. We have designed them to work around the foundations and ground beams. Within the thoroughfare between phases 1 and 2, the existing services trenches will be replaced with a new, wider RC trench.

Services will be distributed vertically through the building in dedicated risers. On the upper floors, they will be distributed horizontally at high level, below the steel beams.



Fig. 21: SWEC phasing diagram - phase 1 (l), phase 2 (r)

4.2 ISS

The ISS is a single storey building that contains UKPN and British Museum switchboards. The building will be supported on mass concrete pad foundations bearing onto the dense gravel. Along the boundary with the 1A Montague Street party wall, the foundations will match the depth of the existing, so that they do not apply surcharge onto the basement retaining walls. At this stage, an allowance should be made to underpin the Hirayama Studio wall which the ISS will abut to facilitate the construction of the new foundations. The proposals are all to be confirmed following the site investigations, which are due to take place in early 2024.

The ground floor will comprise a suspended RC slab spanning between the pad foundations. New RC trenches are needed within the ground floor structure to distribute the electrical services. The trench will extend to the Museum boundary and beneath the existing railings, to allow UKPN electrical services to connect into the site.

The existing railings are proposed to be temporarily dismantled to provide construction access to the ISS site. They will be re-built to match the existing arrangement to the architect's details, following construction of the ISS.

At this stage there are two options for the superstructure. We proposed a cellular loadbearing masonry building supporting an RC roof. However, UKPN may require the structure to be a steel portal frame. We have asked UKPN to confirm their requirements, and we are awaiting their response at the time of writing. At this stage, an allowance should be made for a steel frame as shown on the UKPN requirements drawing.

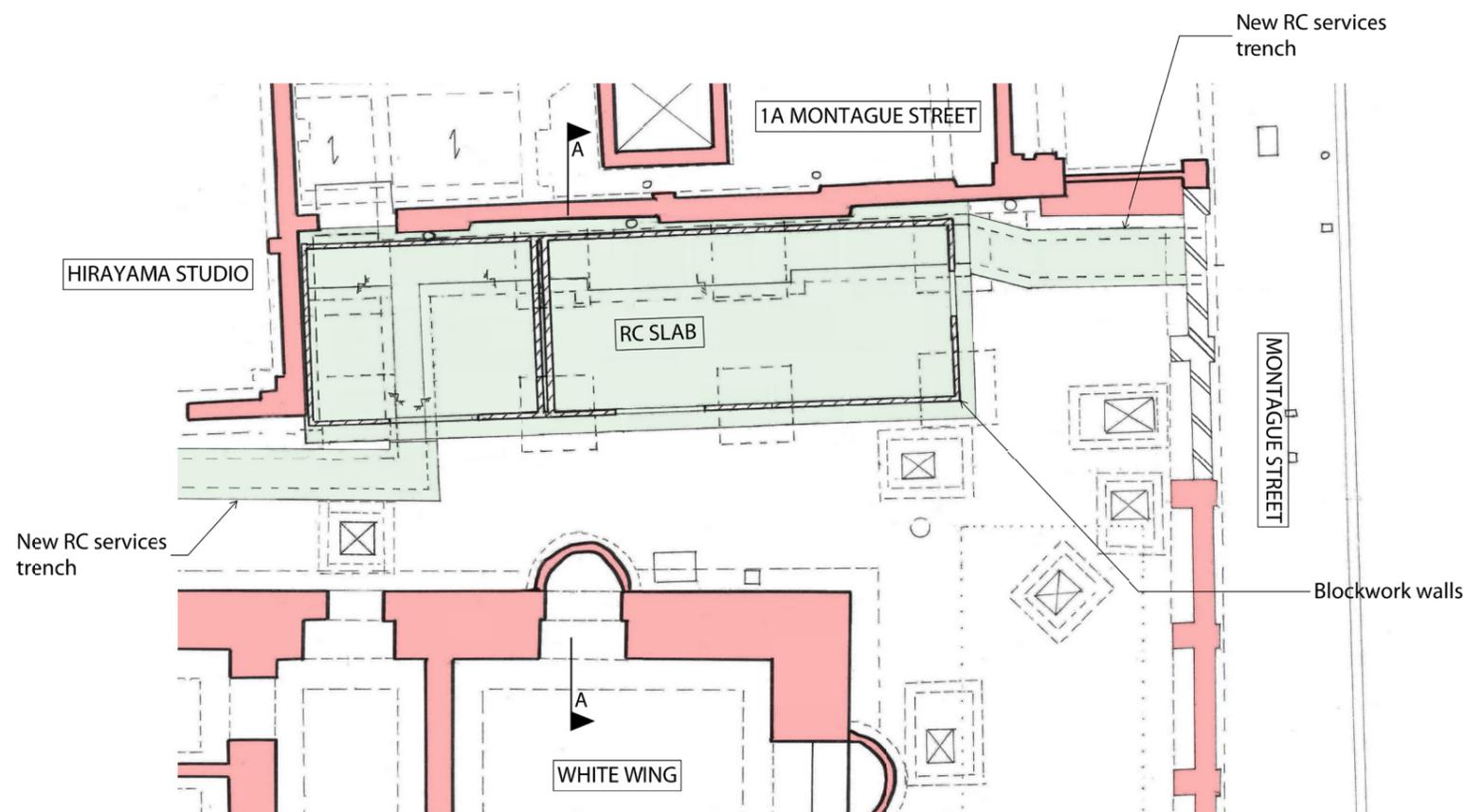


Fig. 22: Proposed ground floor plan

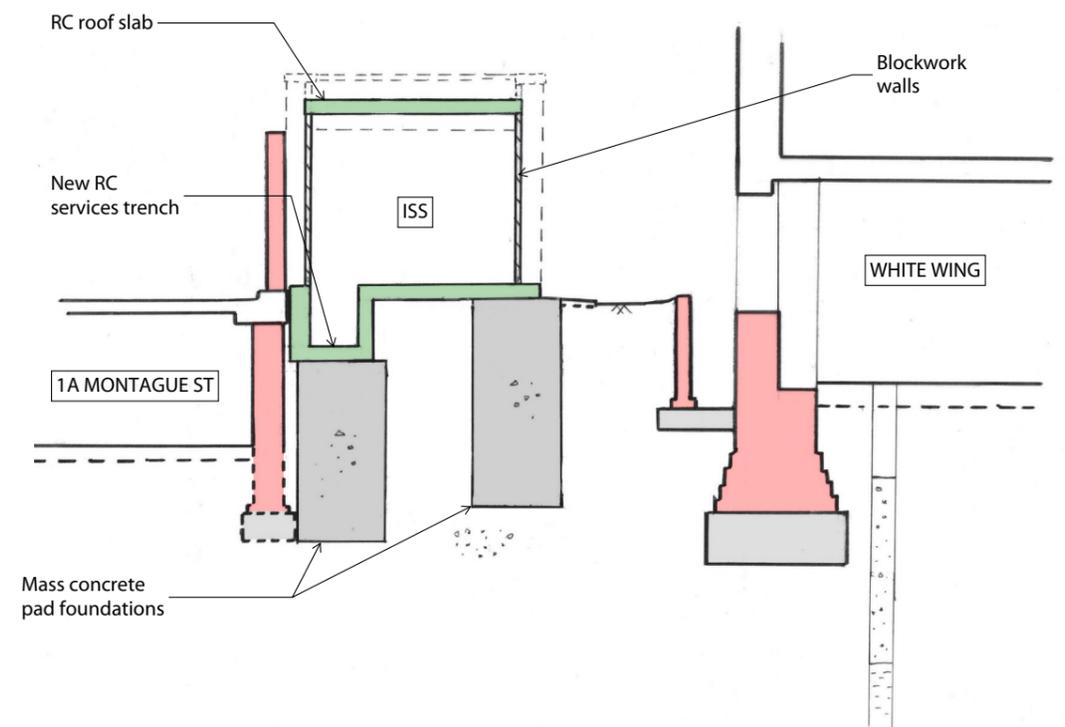


Fig. 23: Proposed section

5.0 Services distribution

5.1 Introduction

During Stage 3, we have developed the services distribution routes and integration within the existing fabric with the M&E engineer, building on the Stage 2 design principles. The proposals are described below.

5.2 Services distribution proposals

The proposal is to create a resilient 'ring main' for the electrical and heating services linking the SWEC and the ERB to feed the entire estate.

The overall approach to the new services distribution within the Level 01 footprint involves:

- Re-using existing trenches as far as practical to limit interventions.
- Working around the existing listed fabric as far as practical and fitting new service runs and trenches within existing roads and corridors.
- To facilitate the services distribution routes in the roads and corridors, we will divert some below ground drainage runs locally to free up sufficient space.
- The service trenches have been positioned to fit between existing walls and projecting piers within the building, to maintain existing load paths of the existing structure and alterations of Grade I listed fabric.

This section discusses the services integration for the areas along the 'ring main' that require structural works. For details on the reuse of existing services trenches and buried services in the ground, refer to the M&E Engineer's information. Some diversions of existing buried services will also be needed to accommodate the new trenches, as noted by the M&E engineer.

West Road

Externally along the West Road, the services will be buried in the ground (no RC trench is needed). Existing surface water below ground drainage in the road draining into the Duveen building will be diverted to create sufficient space for new buried services. This presents an opportunity to rationalise the arrangement and avoid discharging the surface water from the road into the building. We propose to lay a new surface water run along the road adjacent to the Duveen Building, which then connects to the existing combined water run to the south by the SWEC building, as shown on drawing 1910/41/310. The existing pipes into the Duveen building will be capped and grouted up.

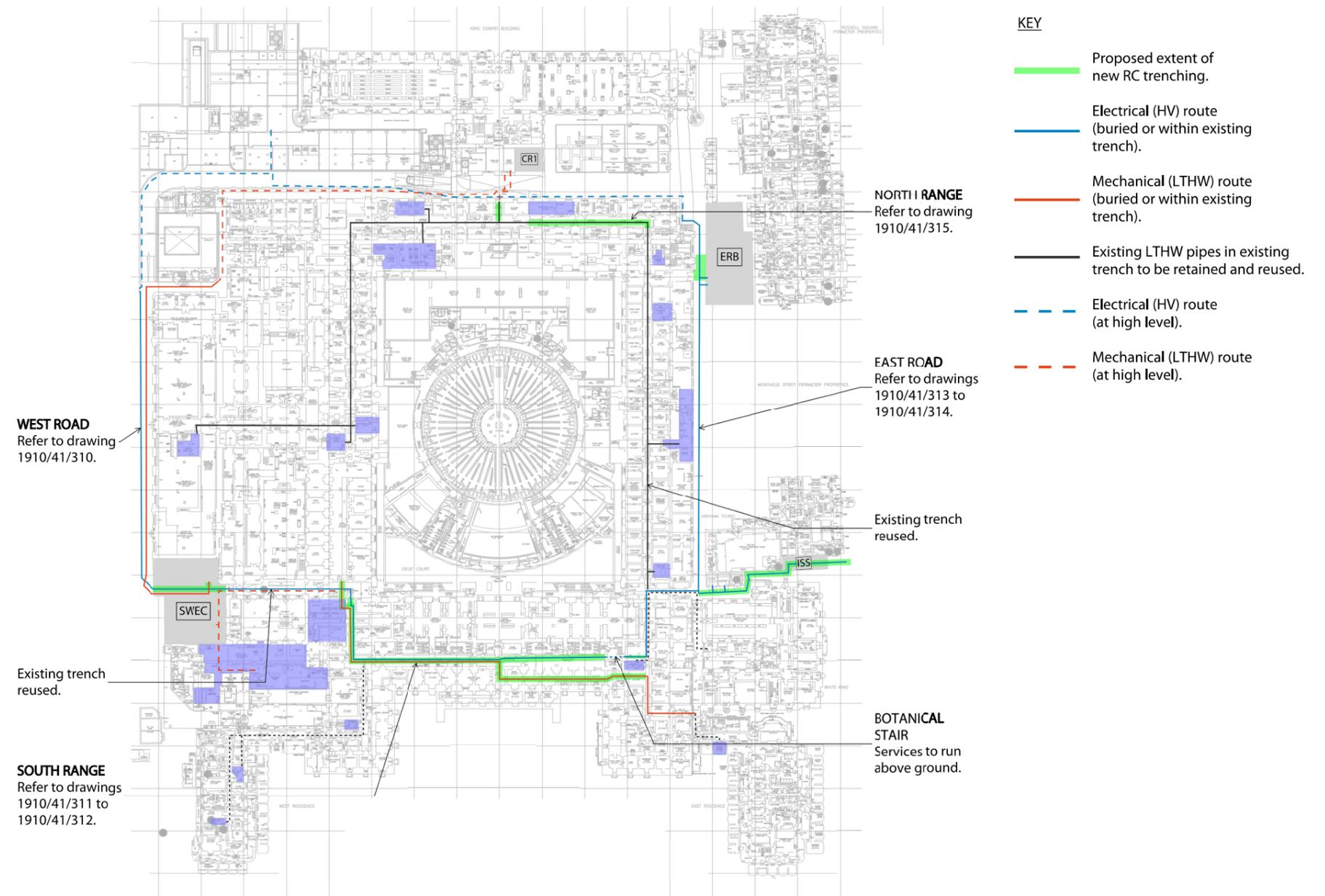


Fig. 24: Site plan showing proposed services distribution routes