

3.0 Concept Design

3.1 Design Principles

The principles involved in the design of a Data Centre are typically four fold. The primary elements are Data Halls, Power and Cooling Plant, Ancillary Space and Circulation. Data halls are large spaces designed to accommodate rows of data storage servers, which use electrical power and create a quantity of heat.

Localised plant located within the data halls includes cooling plant which circulates cool air and removes heat from the servers. Internal and external plant consists of switchgear to control the data halls, cooling plant to serve the local conditioning plant and back up plant for use in emergency situations, where loss of power or cooling could result in catastrophic failure of the Data Centre. Externally plant includes cooling and generators.

Ancillary accommodation contains the facilities required to run and secure the building. Office and meeting accommodation for a small number of people is provided as well as a security office and a control centre. A loading bay and build rooms allow deliveries to be handled and for server racks to be constructed on site.

With regard to the choice of a site for a Data Centre there are two primary concerns, these being the ability to provide sufficient power and the ability to provide data connectivity. The proposed site responds well to these requirements, and in addition provides the ability to extend and consolidate the existing Teledata data centre within the adjacent Delta House.

The location of the data centre on the chosen site also directly responds to the issues of commercial and employment opportunities identified within the Wythenshawe masterplan document specifically building on the success of Delta House as a market leading data centre.

The above criteria, and in particular the necessary size and the data halls themselves together with operational adjacencies required by the supporting plant, drive and define the layout and footprint of the proposed data centre.

Commercial and Employment Opportunities

The existing site has a significant amount of vacant office space and empty commercial buildings. The proposal seeks to reuse this surplus space, above the shops along the Birtles, to create managed office space and studios for creative industries.

The managed office space will be co-working type office space with agile working lounges, meeting rooms and amenity. Larger private office accommodation will be available utilising the shared amenity. For the creative industries smaller 150-300 sqft well priced studio units will be offered on short term leases. Creating a varied range of users across the Civic Centre. Opportunities will be explored for the creation of new more modern retail provision along the Birtles.

Building on the success of Delta House as a market leading data centre the proposal is to find opportunities to expand shared, neutral infrastructure in a state of the art Data Centre.

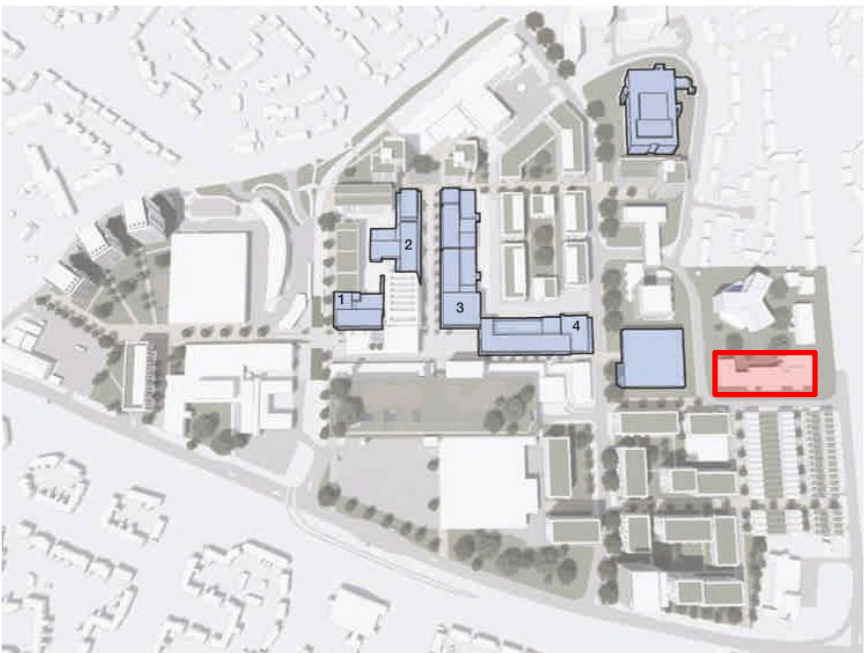
Originally the Barclays building was designed as a data centre with small windows and limited natural light so re-purposing it for a modern data/ IT market should be an ideal fit.

Another employment opportunity will be the supermarket proposed on the former Gala Bingo site.

The Birtles & Hale Top

Upper floors of retail

FF & 2F	Floor Area
Block 1	1,600m2
Block 2	2,540m2
Block 3	4,700m2
Block 4	3,120m2
Total	11,960m2



Extract from Wythenshawe Masterplan document

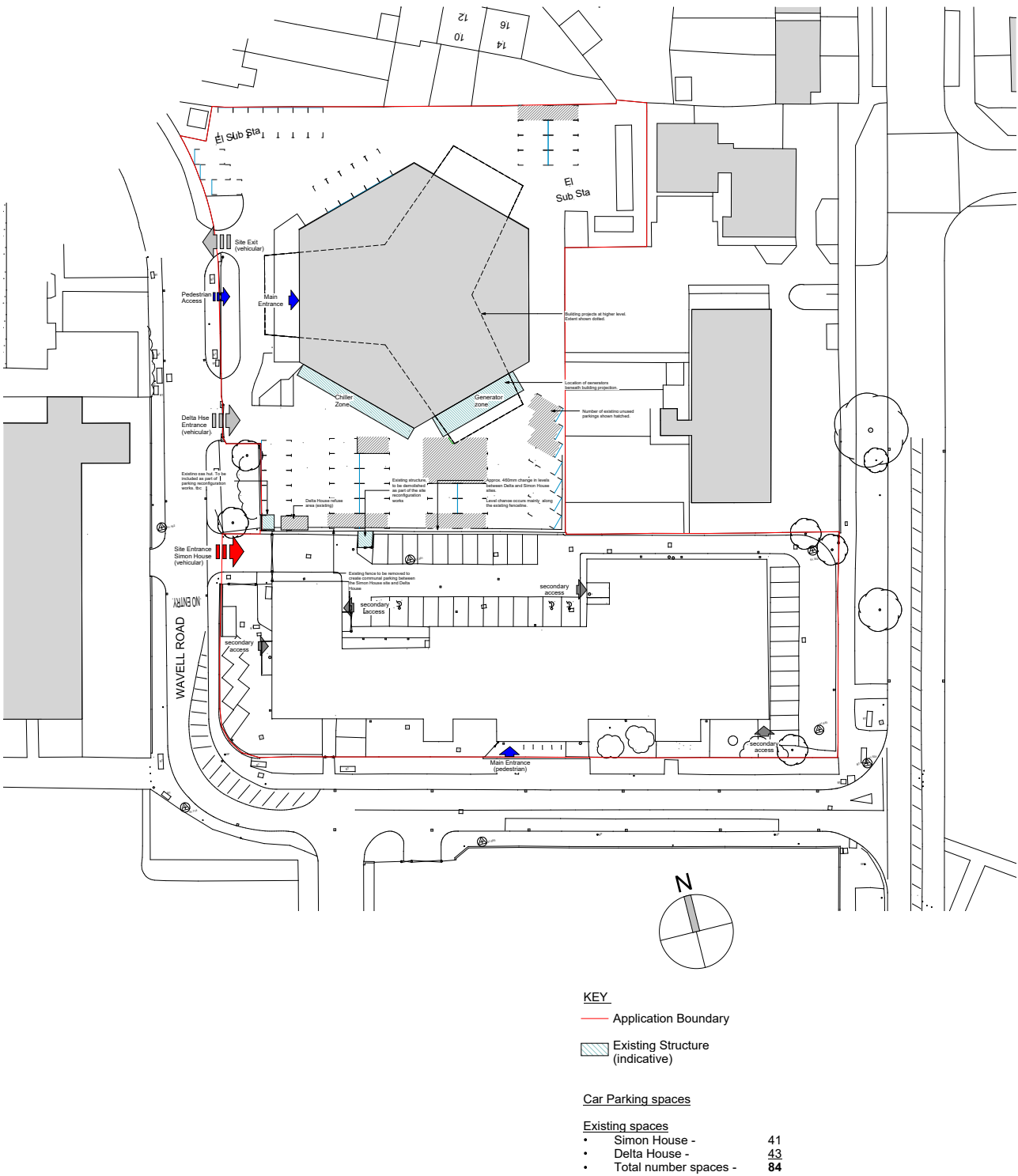
3.2 Design Principles/Site Layout

The following principals underpin the general layout of the proposal.

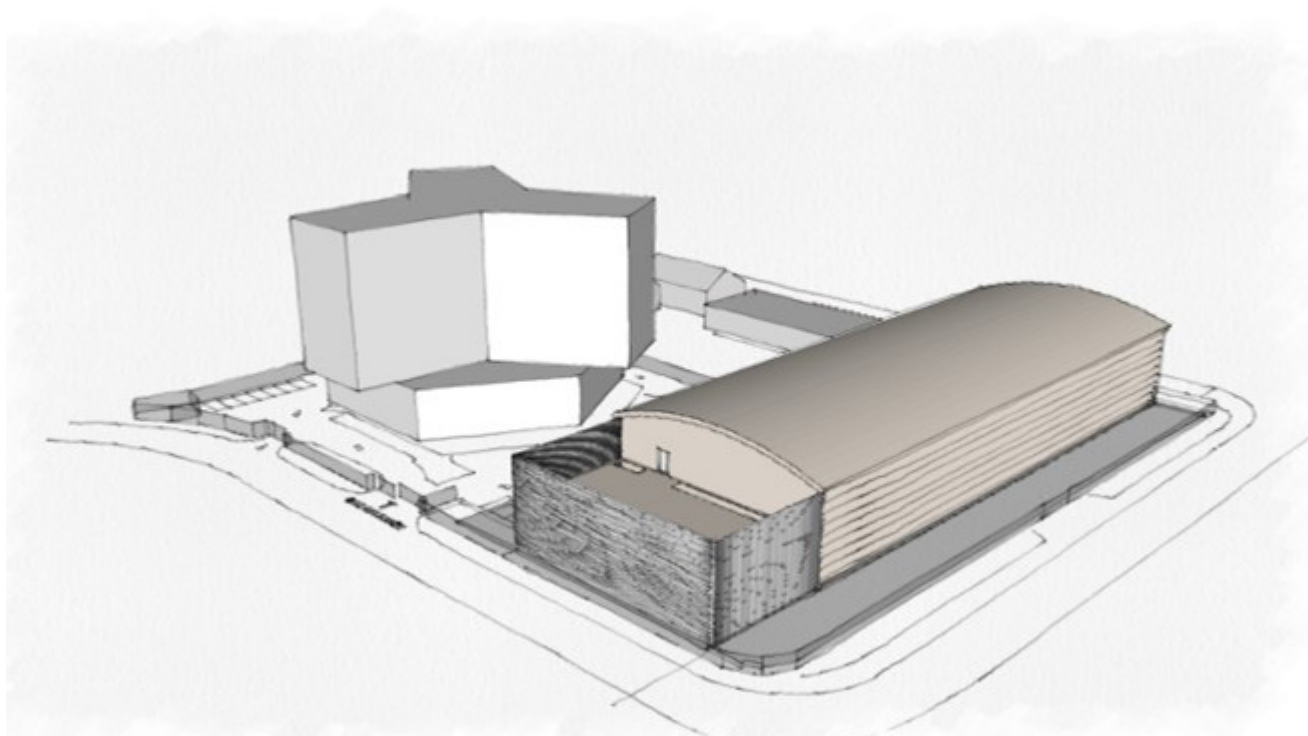
- The building is to be constructed in the same location as the existing Simon House building.
- There will be a single point of entry to both Delta House and Simon House within the consolidated site to create a single campus
- Opportunity for the client to create a campus and provide enhanced security, operational efficiencies and safeguard future availability.
- Loading bay/Goods entry area located to the Front/Northern elevation next to reception area.
- External plant located along the Western elevation away form the existing DeeDee’s Nursery. Plant enclosed with full height louvres to comply with technical requirements and to improve the architectural appearance.
- Opportunity to introduce planting and green spaces to the East and South Elevations.



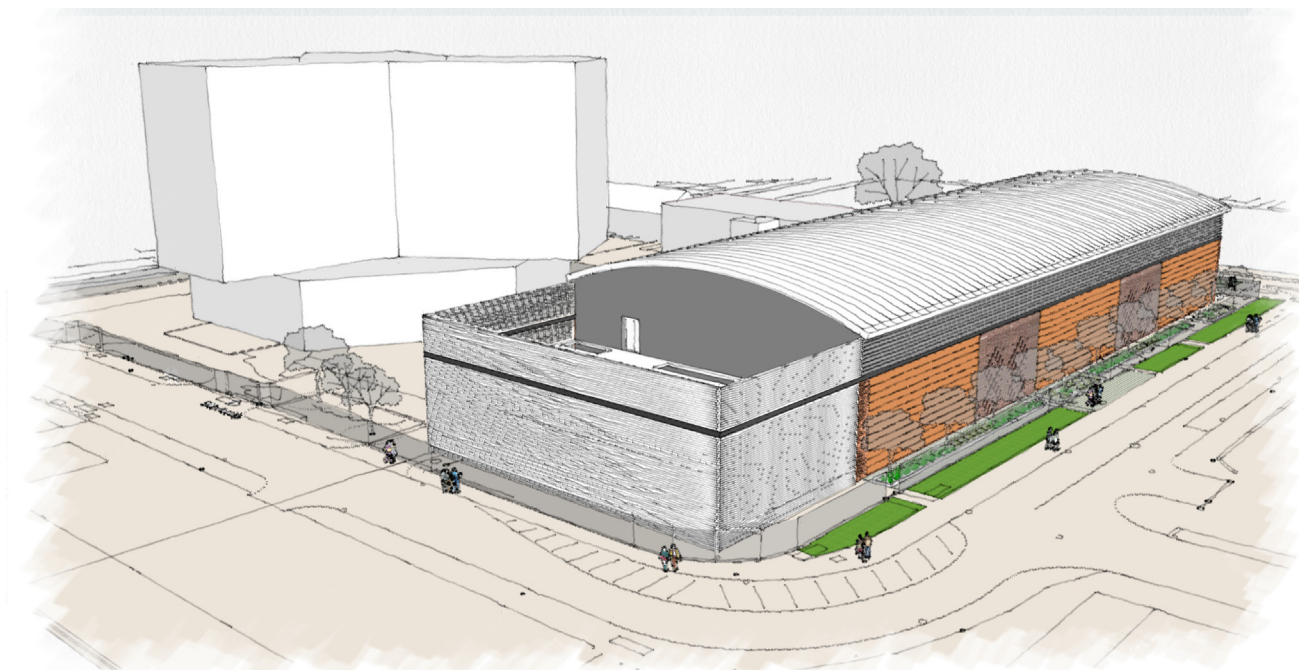
View of Delta House from Wavell Road



Existing Site Plan



Initial concept design presented during the initial Pre-App discussions 28.03.2023



Concept design presented during the initial Pre-App discussions 20.04.2023

3.3 Design Principles/Design Development

The initial scheme presented to MCC on 28.03.2023 proposed a subtle metal clad building with the use of colour and texture in the materials to create interest.

Some of the key comments raised by MCC:

- The requirements to introduce various materials to break down the main elevations namely the East and South along Wavell Road.
- To take into consideration the Wythenshawe Masterplan with the proposal for residential development in the vacant site south of the site along Wavell Road.
- To introduce green spaces within the site.

The design team took the feedback and presented a more developed design to MCC taking into account the key items raised during the initial meeting.

The design response was to:

- Introduce bays to the facades to break down the length of the facade.
- Introduce a variety of materials including brick, terracotta and metal panels, to add texture and colour to complement the surrounding with particular emphasis on the Wavell Road facades to the East and South.
- Incorporate horizontal banding in the form of a metal profile along all the elevations to unite the building and tie it in with the external plant area. This is also in keeping with the architectural detail in buildings close to the site.
- Introduce an upper storey/zone of profiled metal panels of a similar shape to louvres reflecting the industrial function of the proposed building.
- Be attentive to create a cohesive and integrated design.
- Introduce landscaped planting and green areas including trees and shrubs to enhance the surrounding environment and increase urban greening.

3.3 Mass and Scale

There are a variety of building typologies within the local context and consideration was taken to ensure that the mass of the proposed building sits comfortably within it's context.

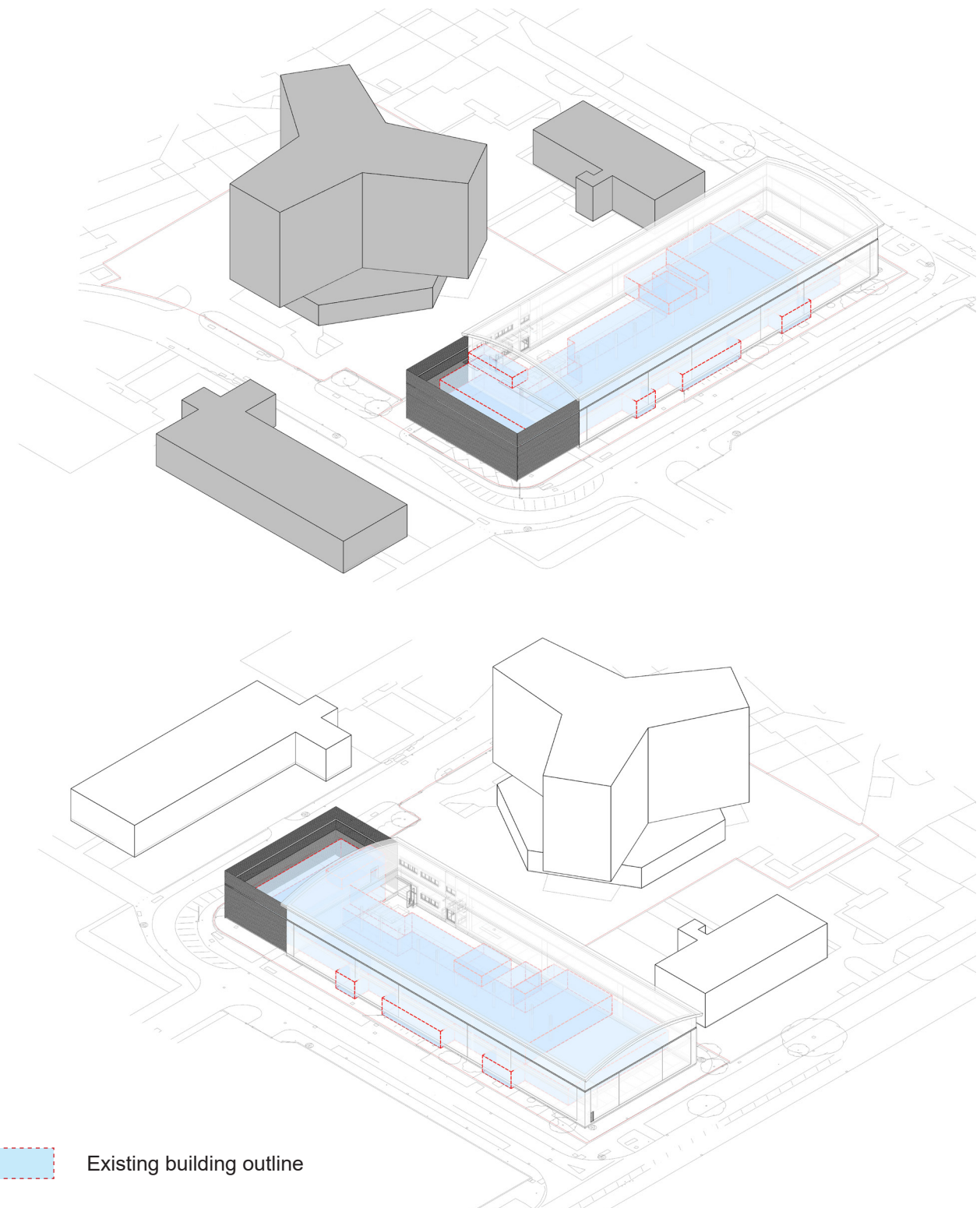
The site falls within the area allocated for development as part of Wythenshawe CC masterplan, and consideration has been taken of the proposed residential scheme on the vacant site directly to South of Simon House and to the shell site to the South West.

The proposed building footprint has been carefully designed to be the slimmest possible in terms of operational data centre halls and plant that needs to be accommodated as well as providing a variety of materials to break down the continuous frontage along Wavell Road and improve the views as one approaches the building to the South and West.

The scale of the proposed building is comparable in height to Simon House with the height difference at the eaves of the proposed building to the highest point of the existing being approximately. 3.5m.

The proposed building design uses floor to floor height of 5.35m which are compatible with modern data centre design. The proposed façade mitigates the scale between the floor heights and how it is perceived in its context. The larger building elements are divided to reduce scale and include patterning and range of finishes to introduce interest and respect the adjacent residential proposals.

Where the building addresses the public realm human scale elements of the building are incorporated to provide the smaller scale.



3D Views of existing massing superimposed onto the proposed building

4.0 Design Proposal

4.1 Proposal Description

The planning application is made for:

The demolition of an existing part one part two storey building and the change of use from office use to Sui Generis (mixed use - data centre and offices)

‘Erection of a data centre (Use Class Sui Generis) building and other associated works including landscaping, car and cycle parking, refuse storage, lighting and security.

The proposed development is for a new data centre (Sui Generis), providing approximately 4300m² of floor space within a two storey building with external plant. The building would have an overall height of approximately 13.25m to the top of the roof ridge and 10.25m to the top of the external plant screen (measurements from ground floor level).

Generators and chillers are located in the external plant area.

Externally there are shared parking and cycle facilities within the curtilage of the Delta house site

Landscaping improvements include new planting and trees along the perimeter of the South and East facade, and within the car parking areas.

Site signage, directional signage and roadway signage will be provided as required by local highway authority. Road markings shall be included at junctions, pedestrian crossings and designated parking bays will be looked at in conjunction with the existing Delta house parking area.

4.2 Internal Layout

The building has been arranged over two floor levels with a footprint that is set out by the data halls size. Each floor contains one data hall and plant areas. Vertically both data halls and plant areas are stacked one over the other. Power and cooling are provided externally to the West of the site, by generators and chillers.

The building entrance is located on the Northern side of the building facing the Delta House and away from Wavell road: this includes a single point of entry to the site, and a loading bay for deliveries of equipment.

Once in the building there is a reception/security area, access to the building facilities are through the secure lock into the building. To the eastern side of the ground floor there is a wheelchair accessible WC of a central lobby which also contains the vertical connections: passenger lift and staircase. Further down there is a secure lock which provides access to the storage/debox area and loading bay. Plant rooms are located to the south eastern part of the building.

On the western side of the ground floor there is data hall with associated cooling corridor with a circulation corridor on three sides. There is a second escape staircase to the far end south western part of the building with access direct external access.

The high performance computing data hall are occupying ground and first floors with circulation provided by an internal access corridor on the northern and eastern side of the building.

Areas				
Building	GIA (m2)	GIA (ft2)	GEA (m2)	GEA (ft2)
Existing - Simon House *				
Ground Floor	1470.91	15832.74	1619.88	17436.24
First Floor	1007.03	10839.58	1077.28	11595.74
Total	2477.94	26672.32	2697.16	29031.99
Building	GIA (m2)	GIA (ft2)	GEA (m2)	GEA (ft2)
Proposed Building**				
Ground Floor	2075.35	22338.88	2149.76	23139.82
First Floor	2077.52	22362.24	2149.76	23139.82
Total	4152.87	44701.12	4299.52	46279.65
*Please note existing areas are based on survey information provided				
** GEA may increase/decrease and are subject to final building systems and external envelop thermal requirements				

Area Schedule

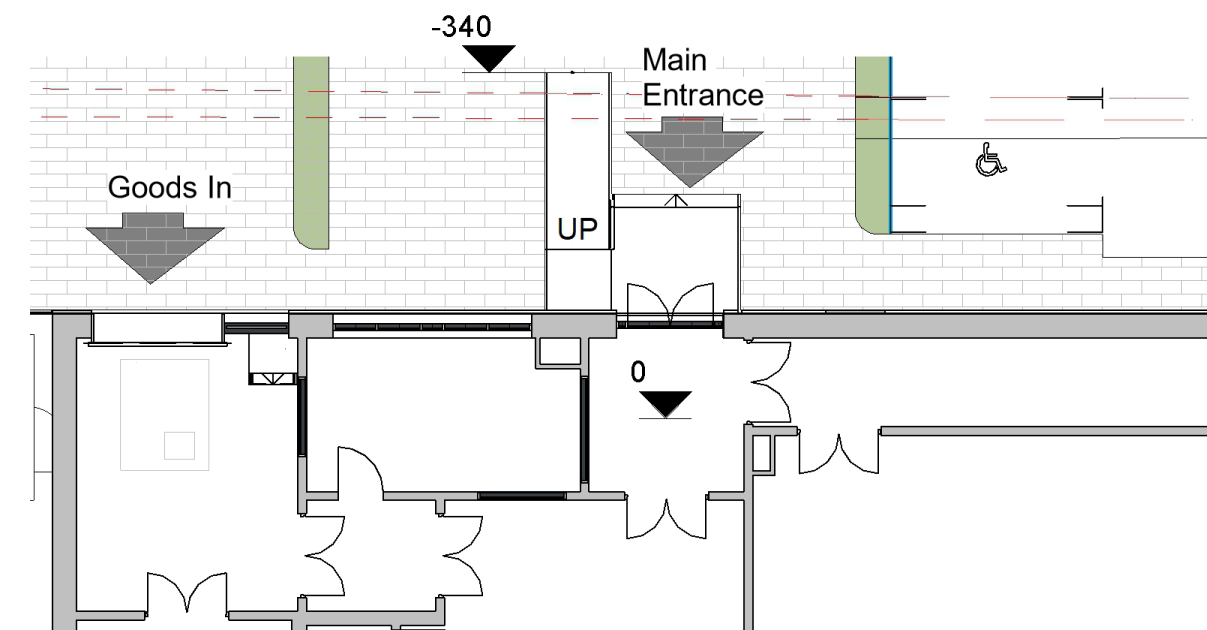
4.0 Design Proposal

4.3 Main Entrance and Loading Bay

The loading bay is located adjacent to the main entrance area off the north of the building from the Delta House. The main entrance has stepped/ramped access to negotiate the external level change of approximately 340mm.

The loading bay is serviced by one scissor lift for rear loading/unloading of delivery vehicles. The scissor lifts will incorporate all safety features including steel mesh curtains.

There is stepped access internally within the delivery/goods area to manage the 340mm level change and create more space externally for goods delivery



Partial floor plan - main entrance

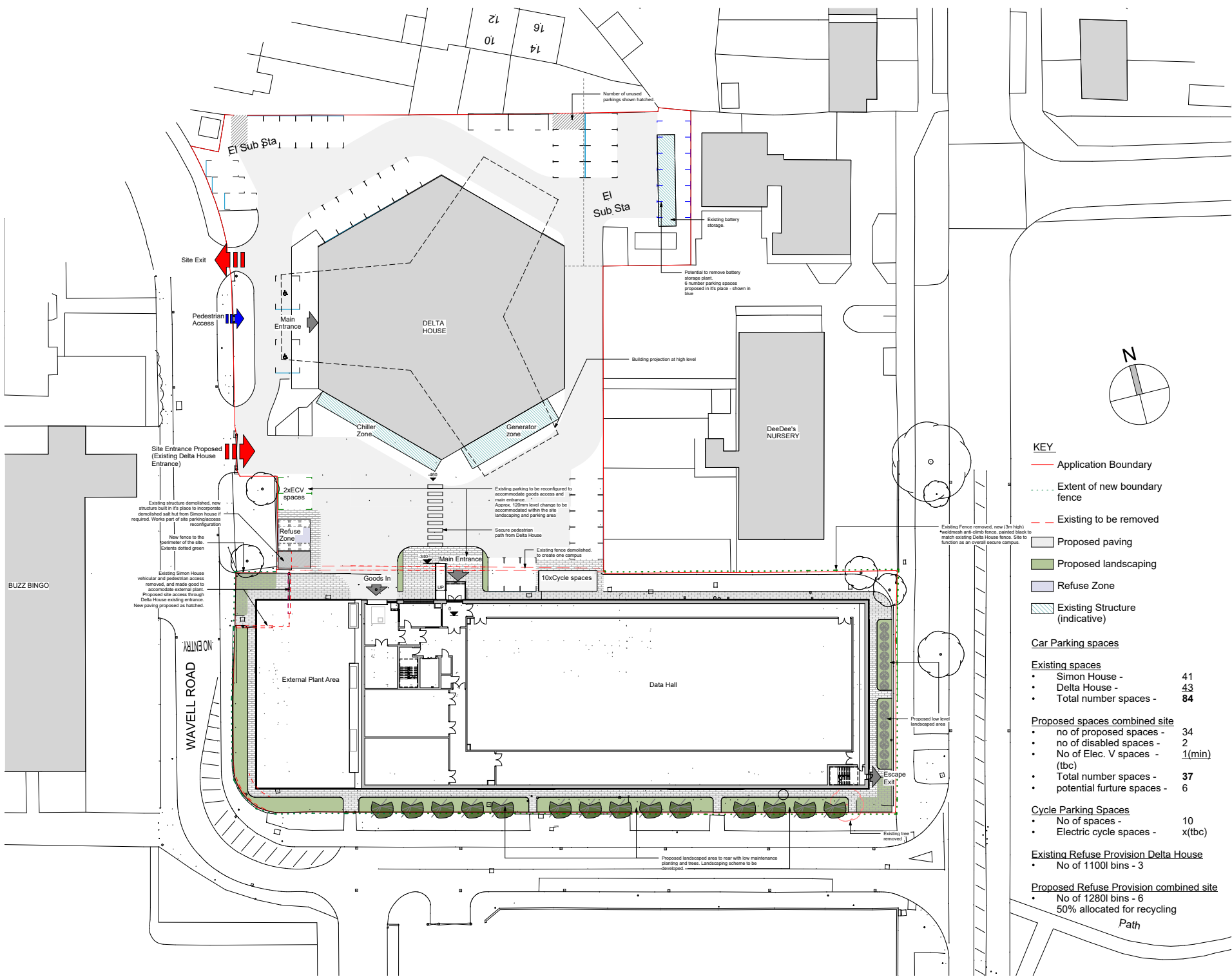


Artists impression - view towards main entrance from parking area



Image of scissor lift

4.4 Site Layout and Design



Proposed Site Plan

The proposed scheme looks to consolidate both Delta House and Simon House sites.

The design team have looked at a number of measures to incorporate the client aspirations and site constraints.

The main challenge posed by the combining of both sites is the level change of approximately 460mm between Delta house and Simon House

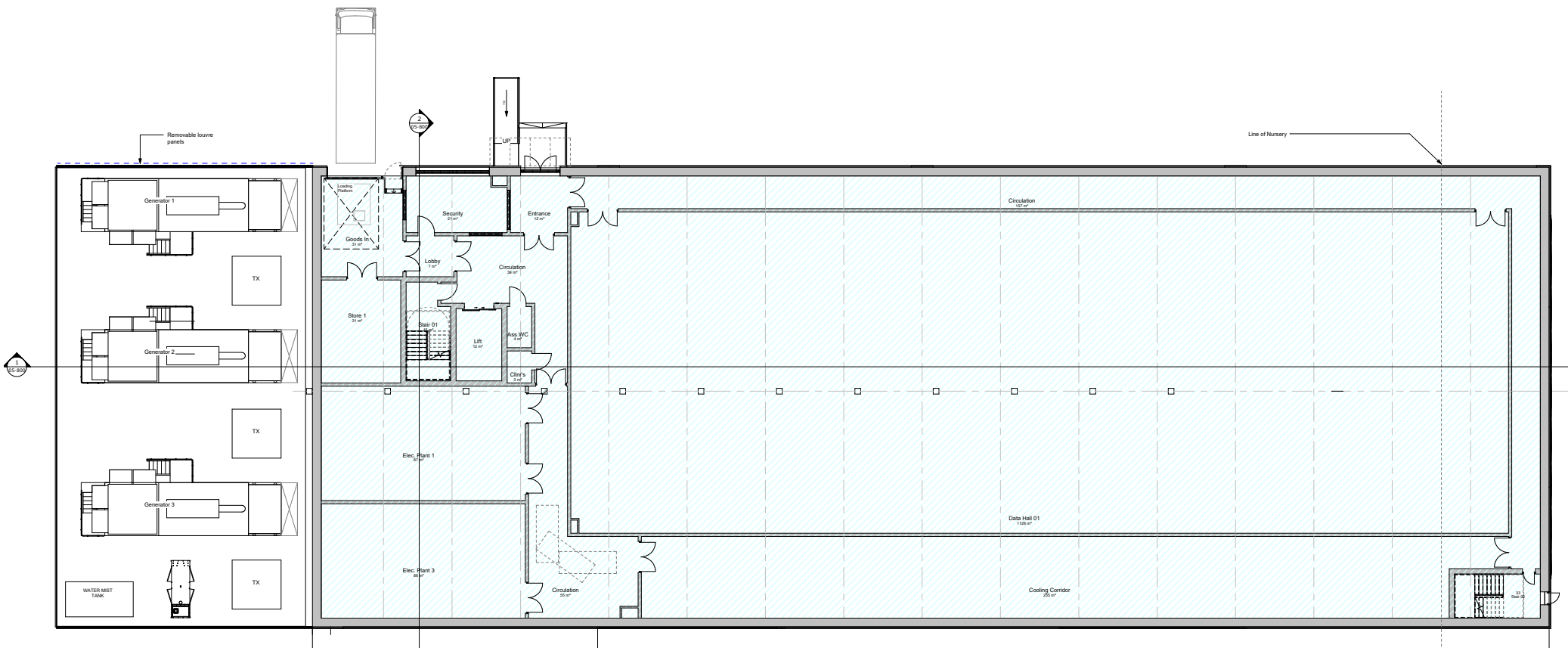
The level change will be managed externally within parking area with the remaining difference by the introduction of stepped/ramped access to the proposed building.

The consolidation of the site has provided an opportunity to reconfigure the existing parking spaces, allow for an efficient site layout and introduce sustainable measures.

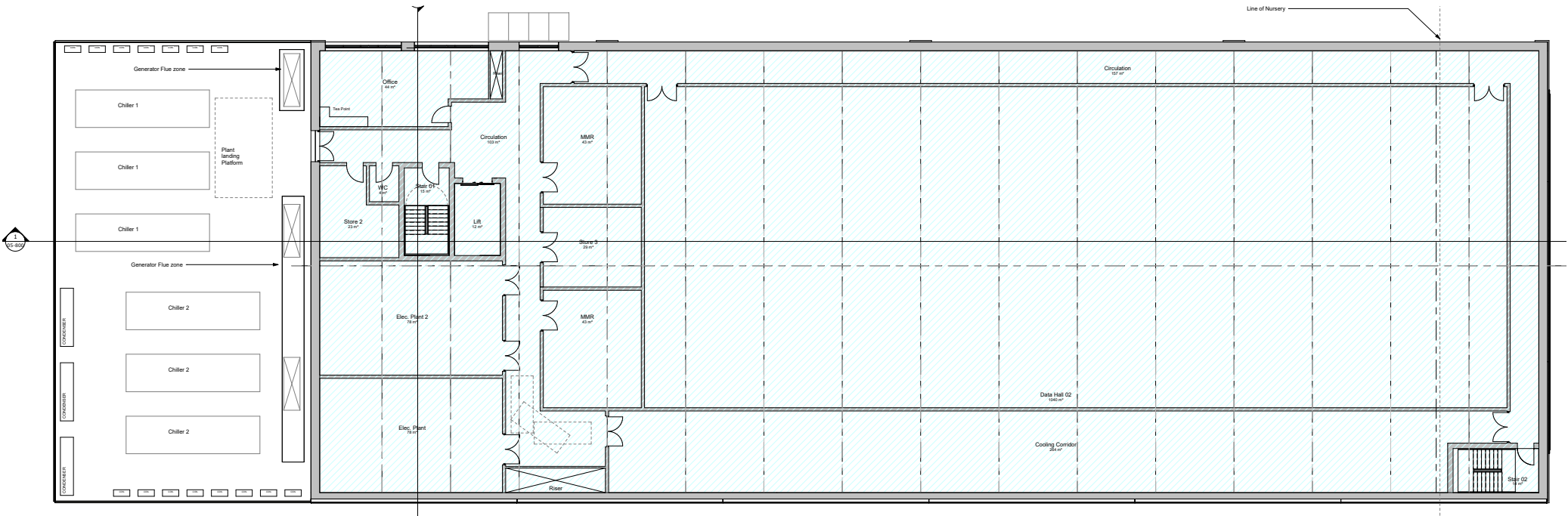
Some of the key items introduced following the reconfiguration are:

- Typically 43 parking bays
- 2 x accessible parking spaces included within the total
- 2 x electric vehicle charging bays included within the total
- 10 x covered cycle spaces
- A consolidated refuse collection area for the combined sites
- Secure pedestrian passage from Delta House to the proposed building
- Site attenuation beneath the reconfigured parking area.

4.5 Proposed Layouts

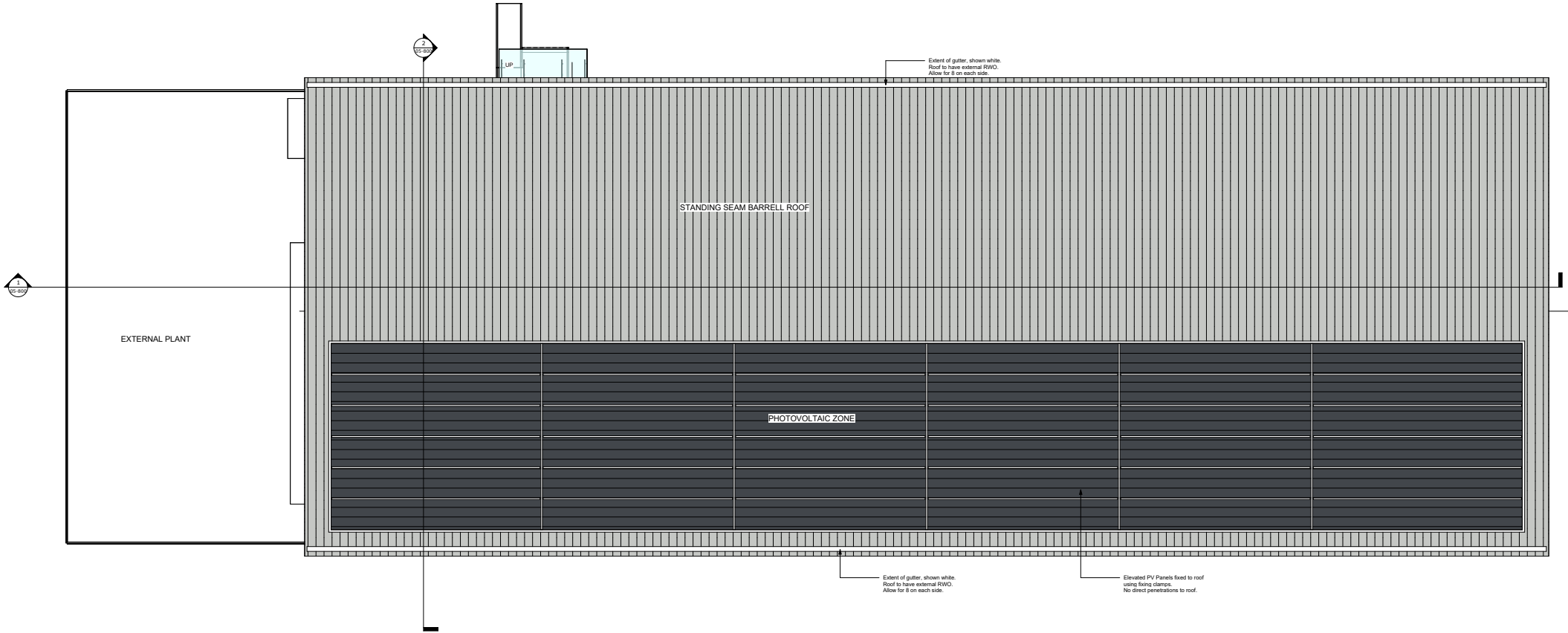


Ground Floor Plan



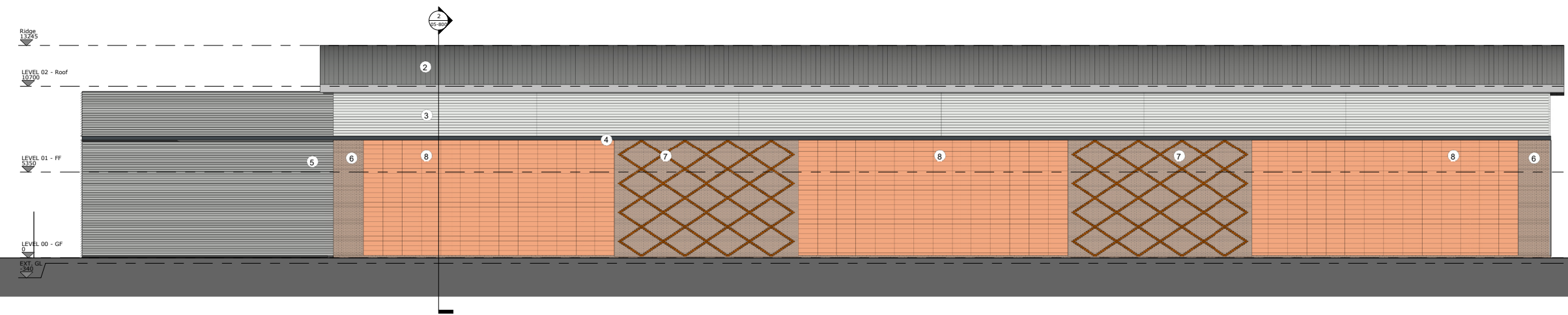
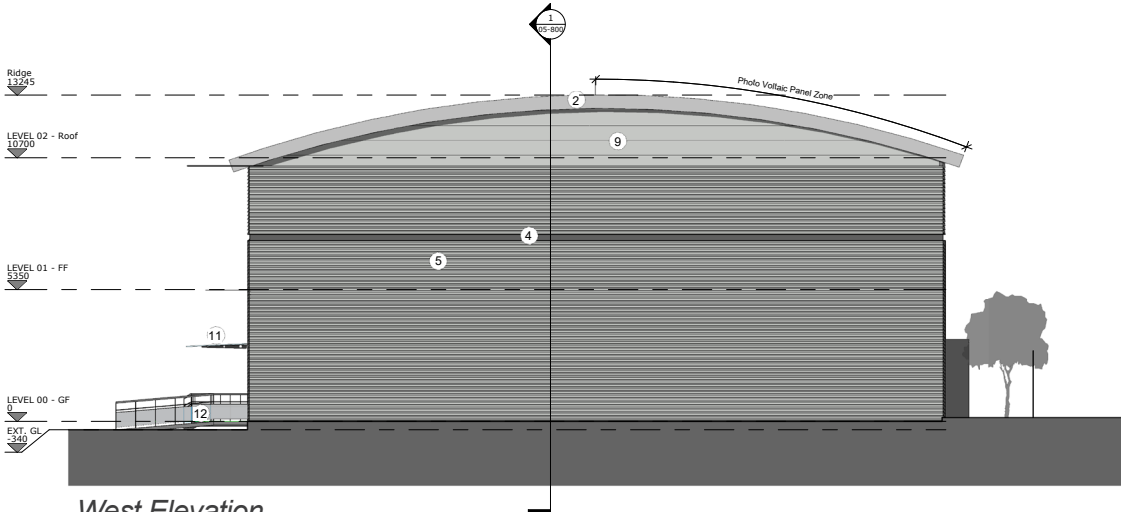
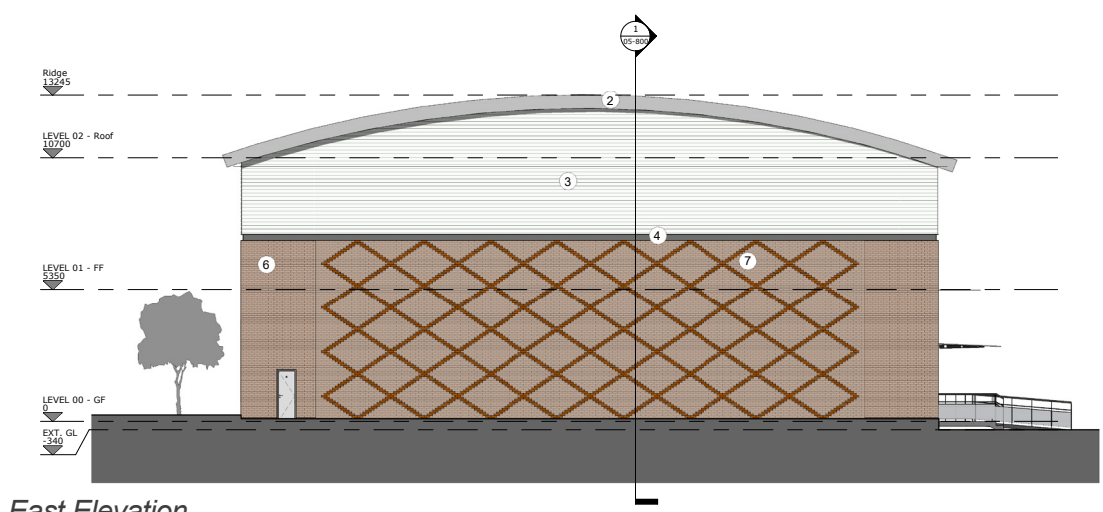
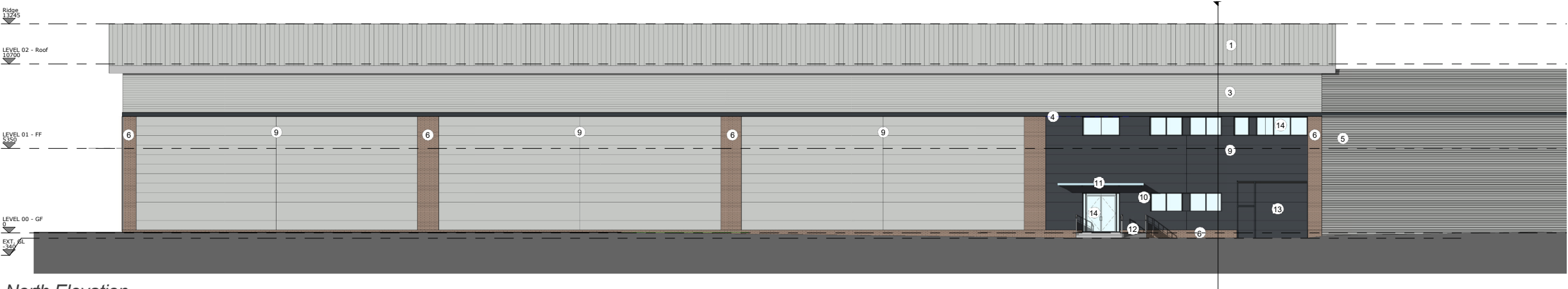
First Floor Plan

4.5 Proposed Layouts



Roof Plan

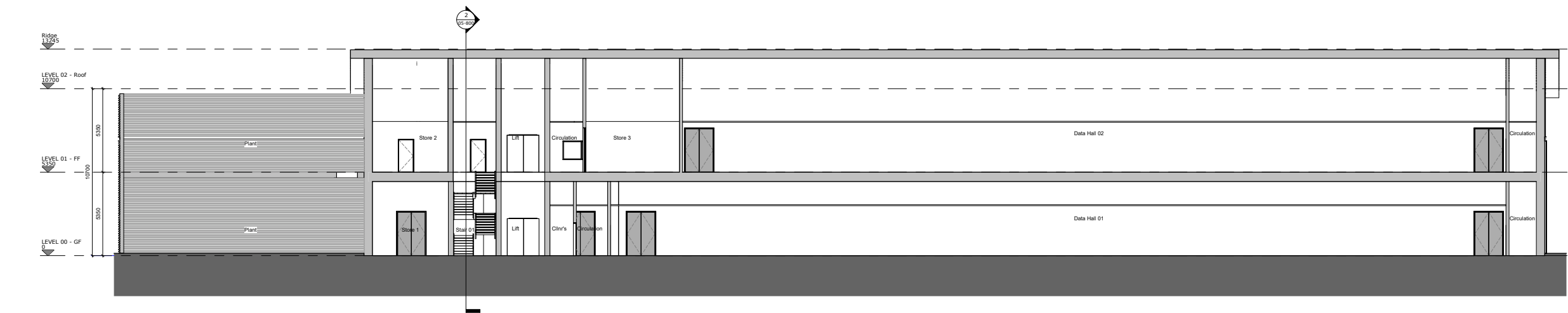
4.6 Proposed Elevations



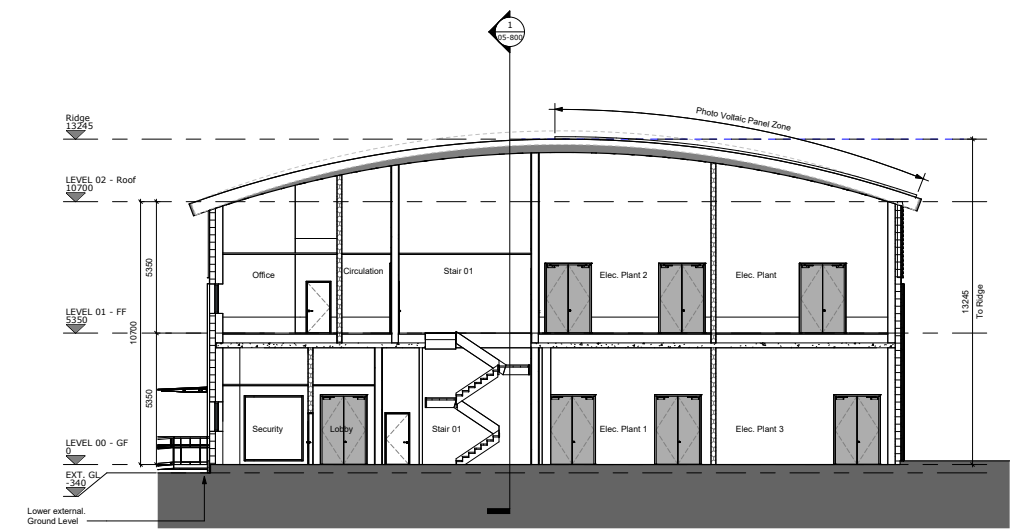
KEY - PROPOSED MATERIALS

- ① Standing seam roof
- ② Standing seam roof with PV panels
- ③ Corrugated/Louvre metal panels
- ④ Architectural feature band
- ⑤ Louvred Screens
- ⑥ Brick piers/plinth
- ⑦ Patterned brick panels
- ⑧ Terracotta panels
- ⑨ Insulated metal panels
- ⑩ Indicative signage
- ⑪ Glazed canopy
- ⑫ DDA compliant stairs/ramp up
- ⑬ Sectional door with side panel pass door
- ⑭ PPC window/door system

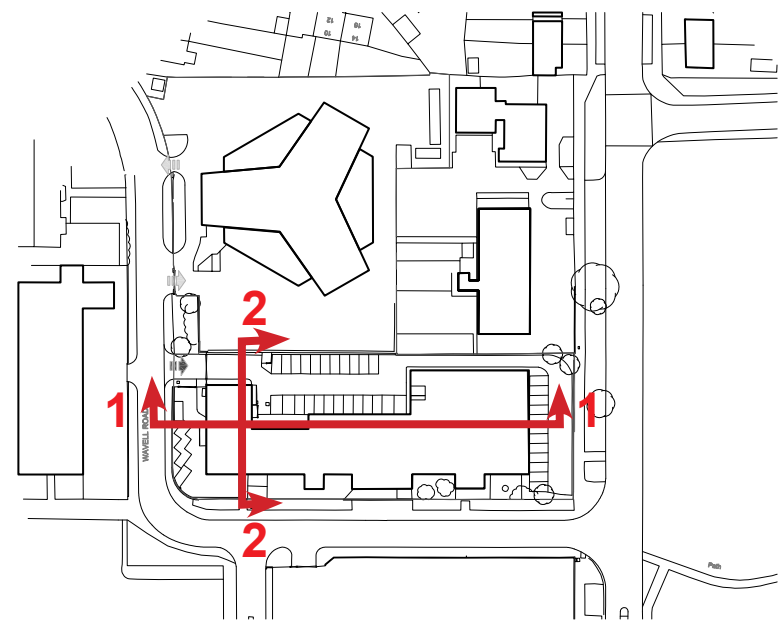
4.7 Proposed Sections



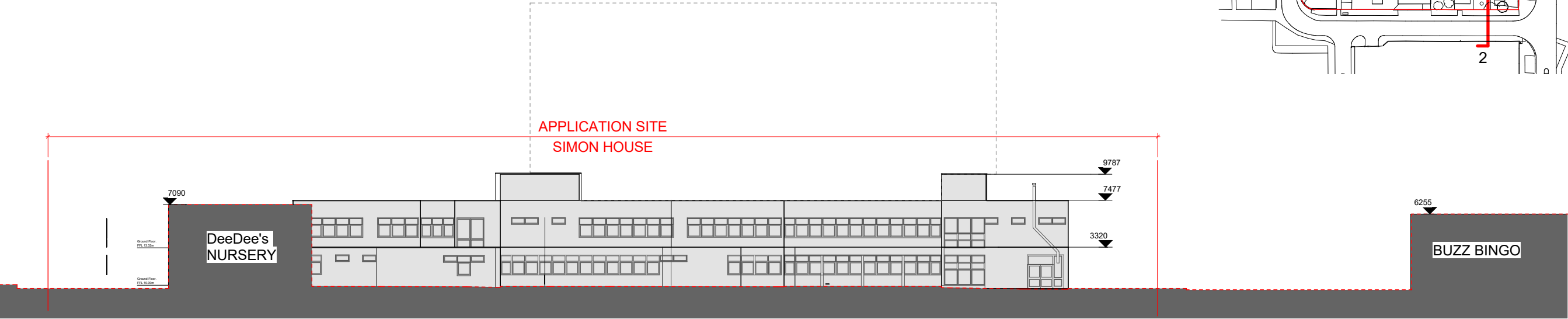
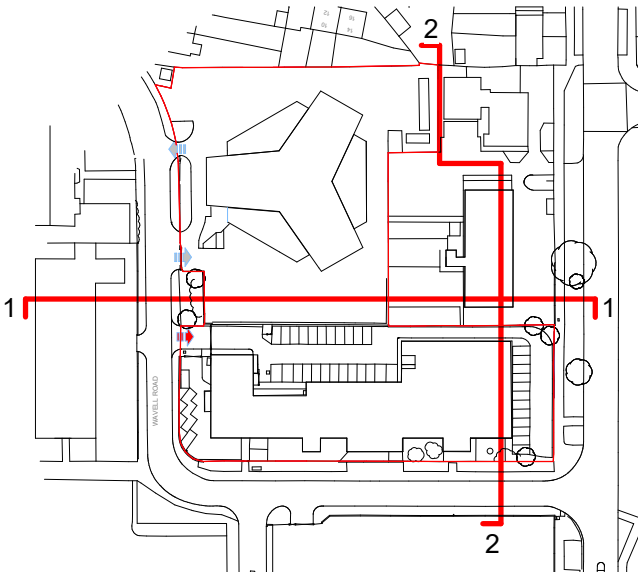
Section 1



Section 2



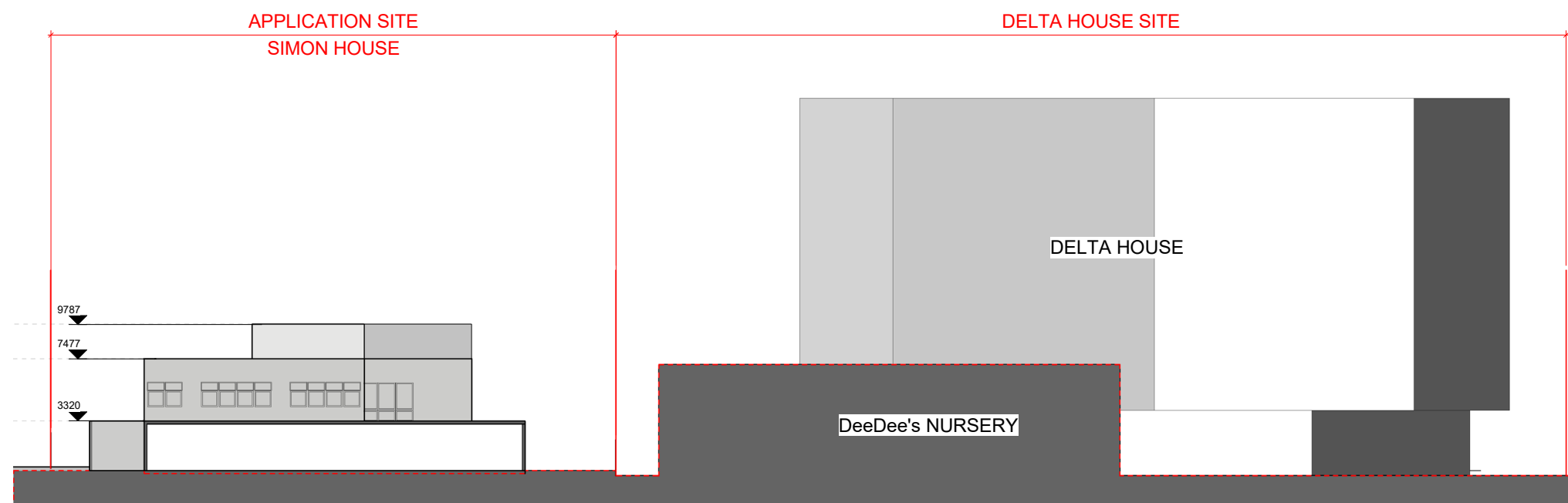
4.8 Contextual Elevations



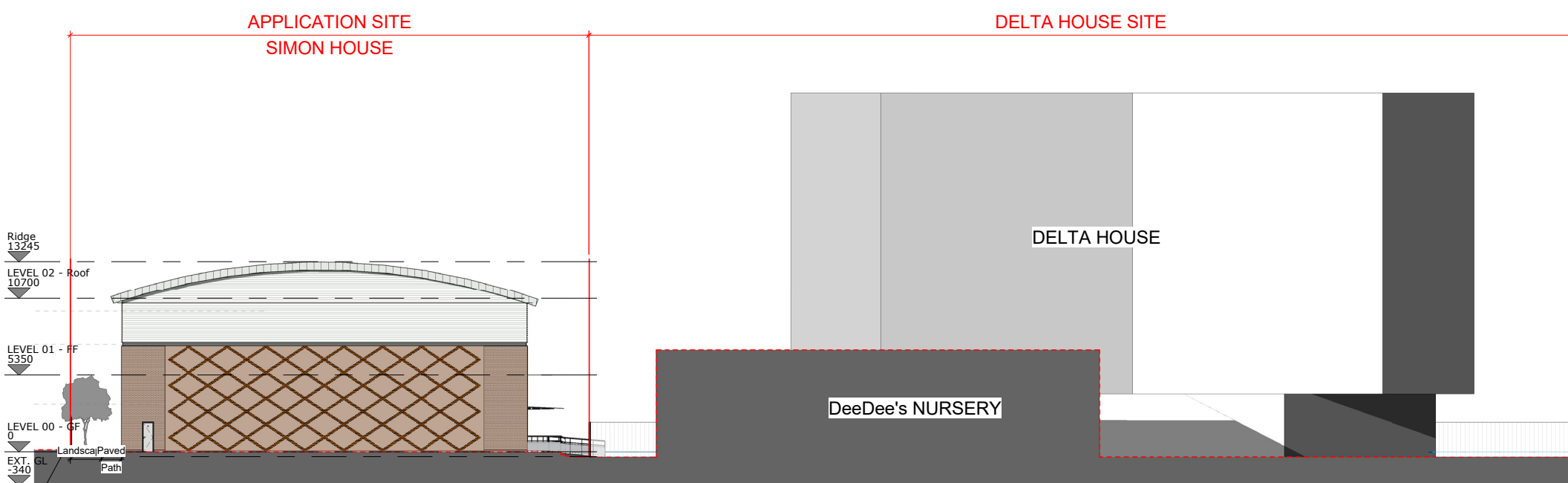
Contextual Elevations - North Existing



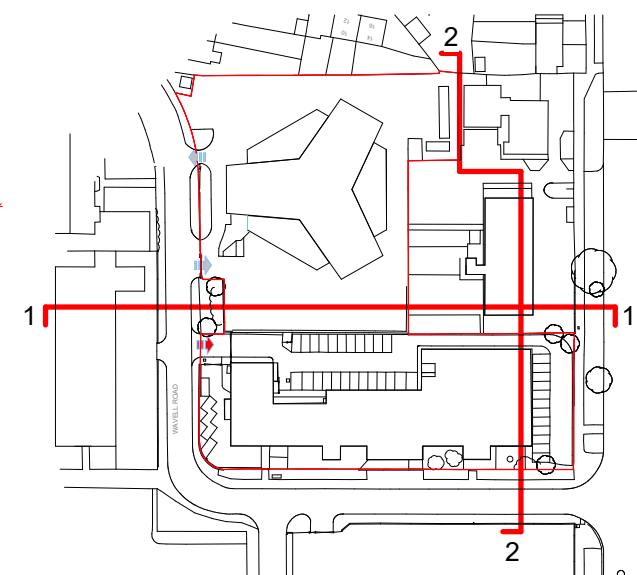
Contextual Elevations - North Proposed



Contextual Elevations - East Existing



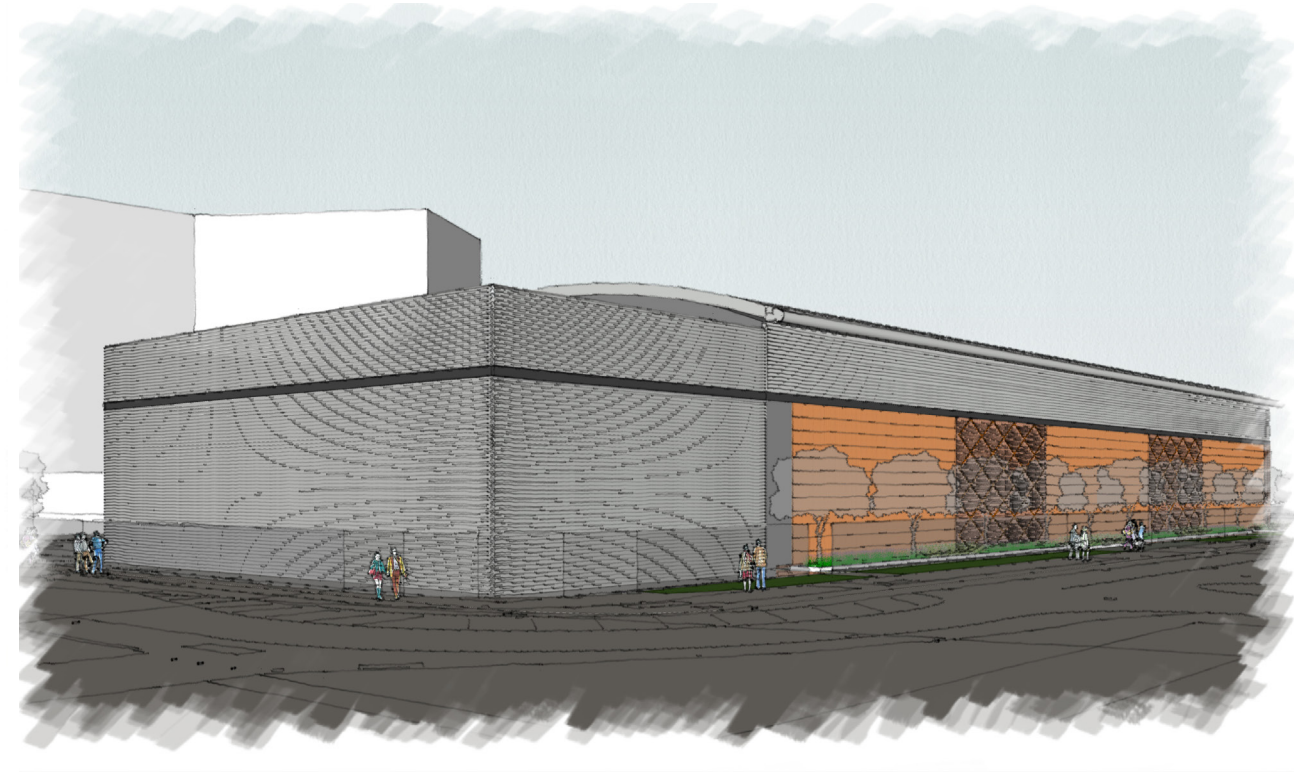
Contextual Elevations - East Proposed



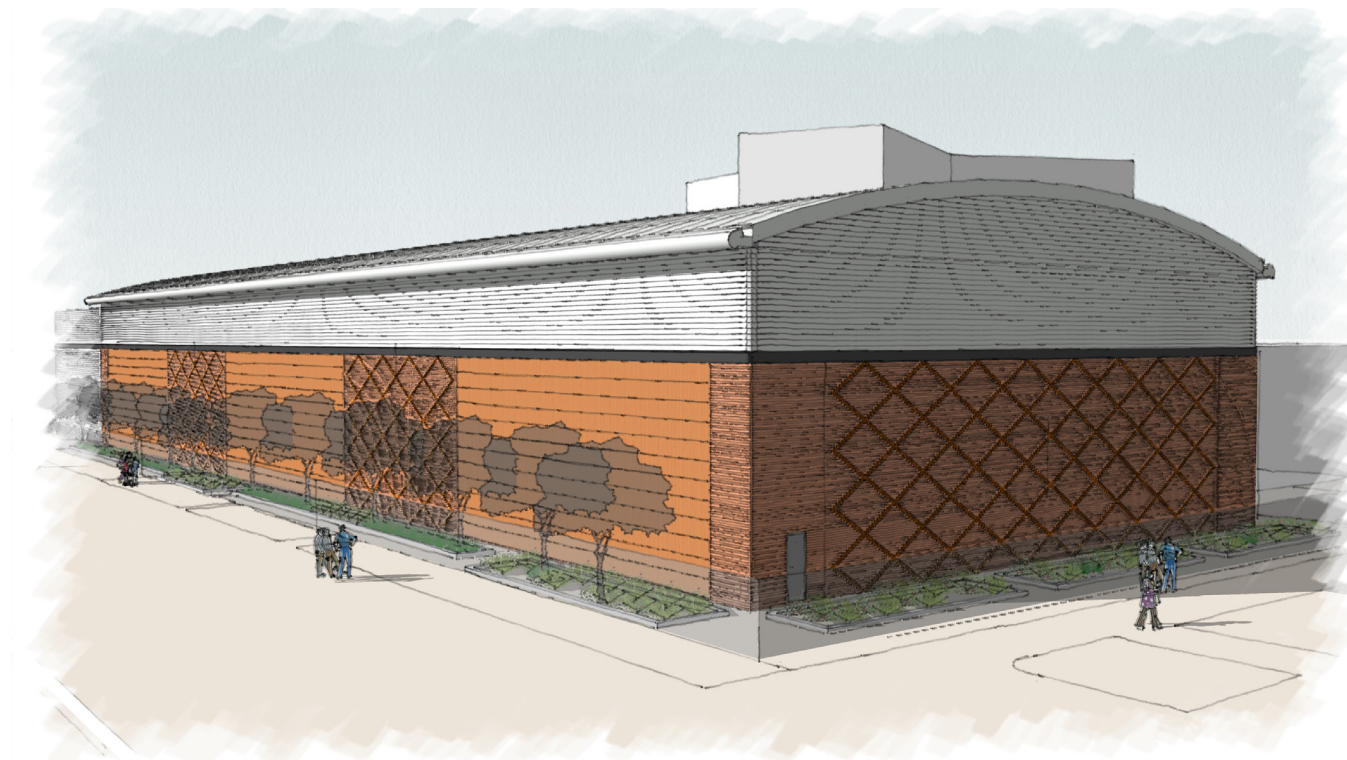
4.9 Proposed 3d Views



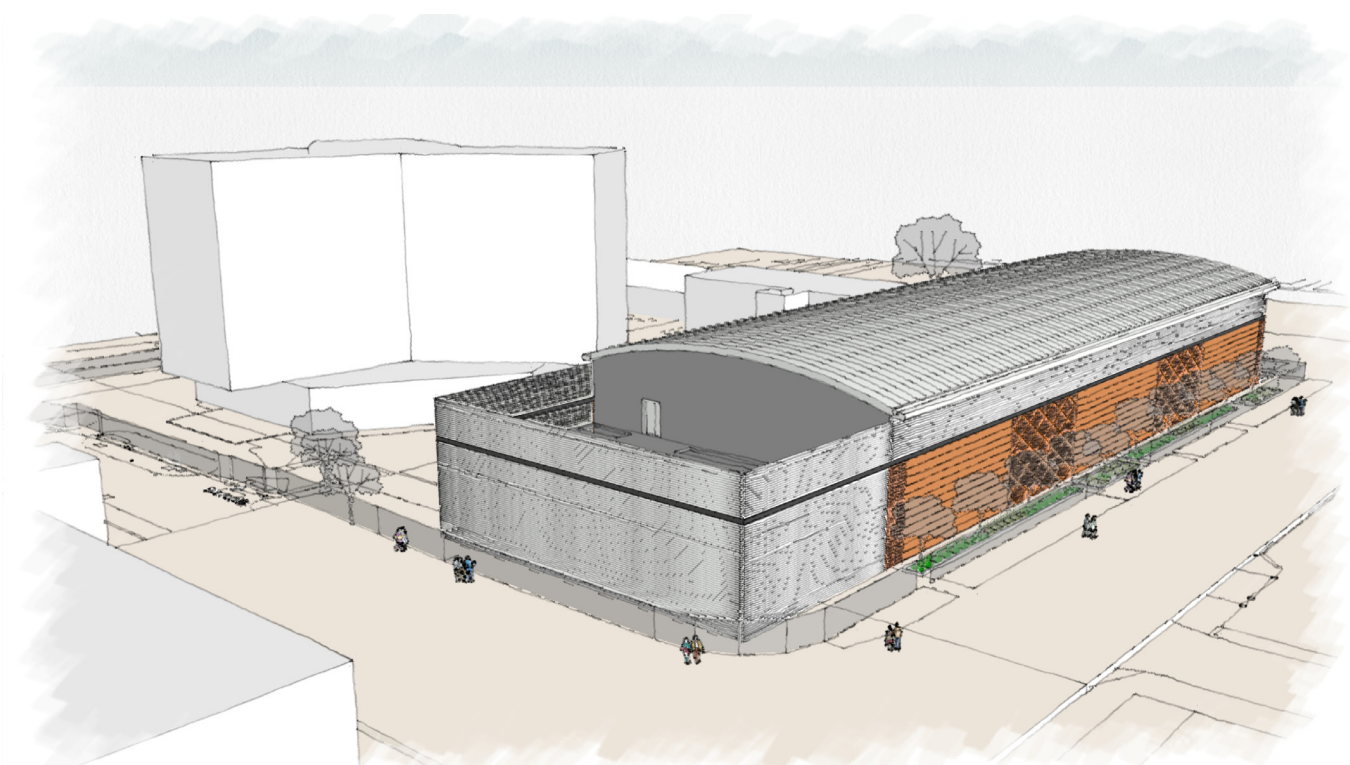
Artist impression - View from Wavell towards North and West elevations



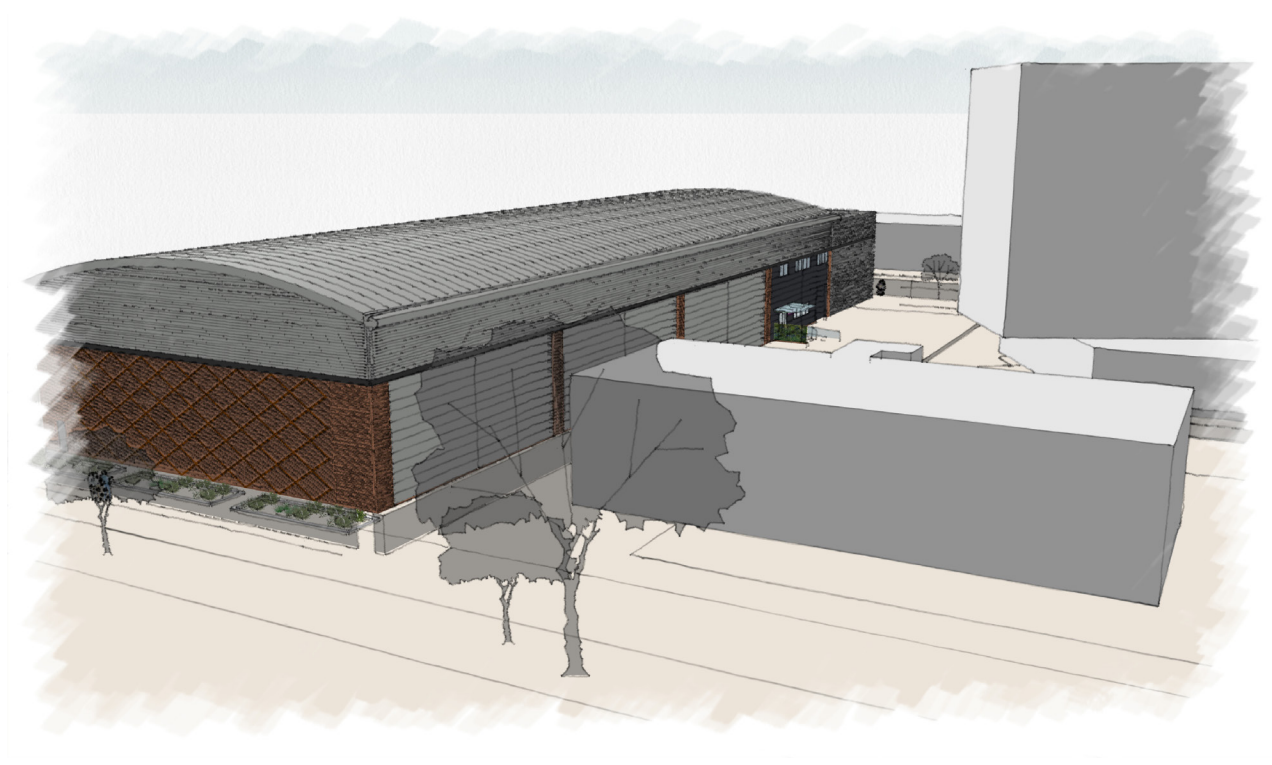
Artist impression - View from Wavell towards West and South elevations



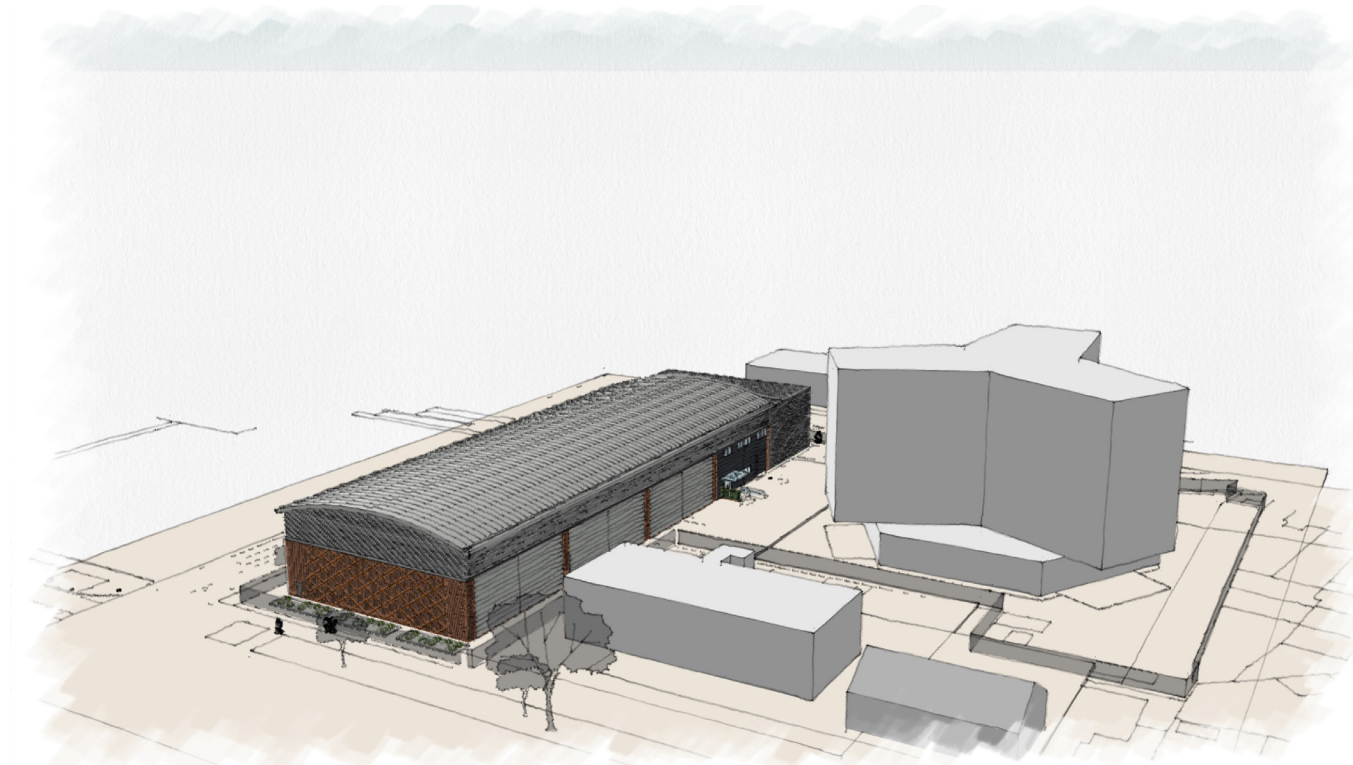
Artist impression - View from Wavell towards North and West elevations



Artist impression - View from Wavell towards North and West elevations



Artist impression - View from Wavell towards West and South elevations



Artist impression - View from Wavell towards North and West elevations