Macquarie Park Data Centre Campus

IC3 Super West site at 17-23 Talavera Road, Macquarie Park.

Architectural Design Report Rev B

26 October 2022

Contents

Introduction

HDR Architecture have been appointed by Macquarie Data Centres (MDC) to undertake the architectural services for the proposed development of the Macquarie Park Data Centre Campus IC3 Super West site at 17-23 Talavera Road, Macquarie Park.

This Architectural design report serves to support the State Significant Development Application (SSDA) relating to the proposed development.

Fig 01. Indicative view of IC3 Super West building from West (note adjacent car park building not shown for clarity purposes)

Executive Summary

This Architectural design report has been prepared by HDR Architecture on behalf of Macquarie Data Centres (MDC) C/- GIDDIS Project Management.

The following Architectural design report has been produced to support the Environmental Impact Statement (EIS) prepared by Willowtree Planning PTY Ltd (Willowtree Planning).

The EIS has been submitted to the New South Wales (NSW) Department of Planning, Industry and Environment (DPIE), in support of an application for State Significant Development (SSD), for the construction and operation of a data centre, involving earth works, provision of infrastructure and expansion of an existing data centre at 17 – 23 Talavera Road, Macquarie Park (Lot 527 DP 752035).

The proposal represents an extension to the approved data centre (LDA/2018/0322) to allow for additional data storage capacity at the subject site, improving the overall operational efficiencies and provision of technology services to customers and the wider locality.

The proposal involves the construction and operation of an expansion to an existing data centre located at 17-23 Talavera Road, Macquarie Park (Lot 527 in DP 752035), comprising:

- a seven-storey building
- ancillary office space and staff amenities
- a back-up power system
- associated infrastructure, car parking, loading docks and landscaping

The subject site is located within the City of Ryde Local Government Area (LGA). The proposal seeks to operate 24 hours per day, seven (7) days per week.

The particulars of this proposal are summarised below:

- Minor earthworks involving cut and fill works
- Infrastructure comprising civil works and utilities servicing
- Construction of a seven (7) storey building extension, comprising up to:
  - 15 data halls
  - 20 backup generators
  - Fitout of the building for use as a data centre (on an as-needs basis)

Site Description

The site is described as Lot 527 DP 752035, commonly known as 17 – 23 Talavera Road, Macquarie Park. The site has a total area of approximately 20,000m2, with access achieved via Talavera Road.

The site forms part of the Macquarie Park Corridor, which is the strategic centre of Macquarie Park, being a health and education precinct and an important economic and employment powerhouse in Sydney's North District.

The site is described through its current commercial setting as an existing Data Centre (LDA/2018/0322), adjoining surrounding commercial premises along Talavera Road, and forming part of the wider Macquarie Park Corridor.

The site is situated approximately 12.5 km northwest of the Sydney CBD and 11.3 km northeast of Parramatta. It is within close proximity to transport infrastructure routes (predominantly the bus and rail networks), as well as sharing direct links with the wider regional road network, including Talavera Road, Lane Cove Road, Epping Road and the M2Motorway.

These road networks provide enhanced connectivity to the subject site and wider locality. Additionally, the site is located within close proximity to active transport links, such as bicycle routes, providing an additional mode of accessible transport available to the subject site

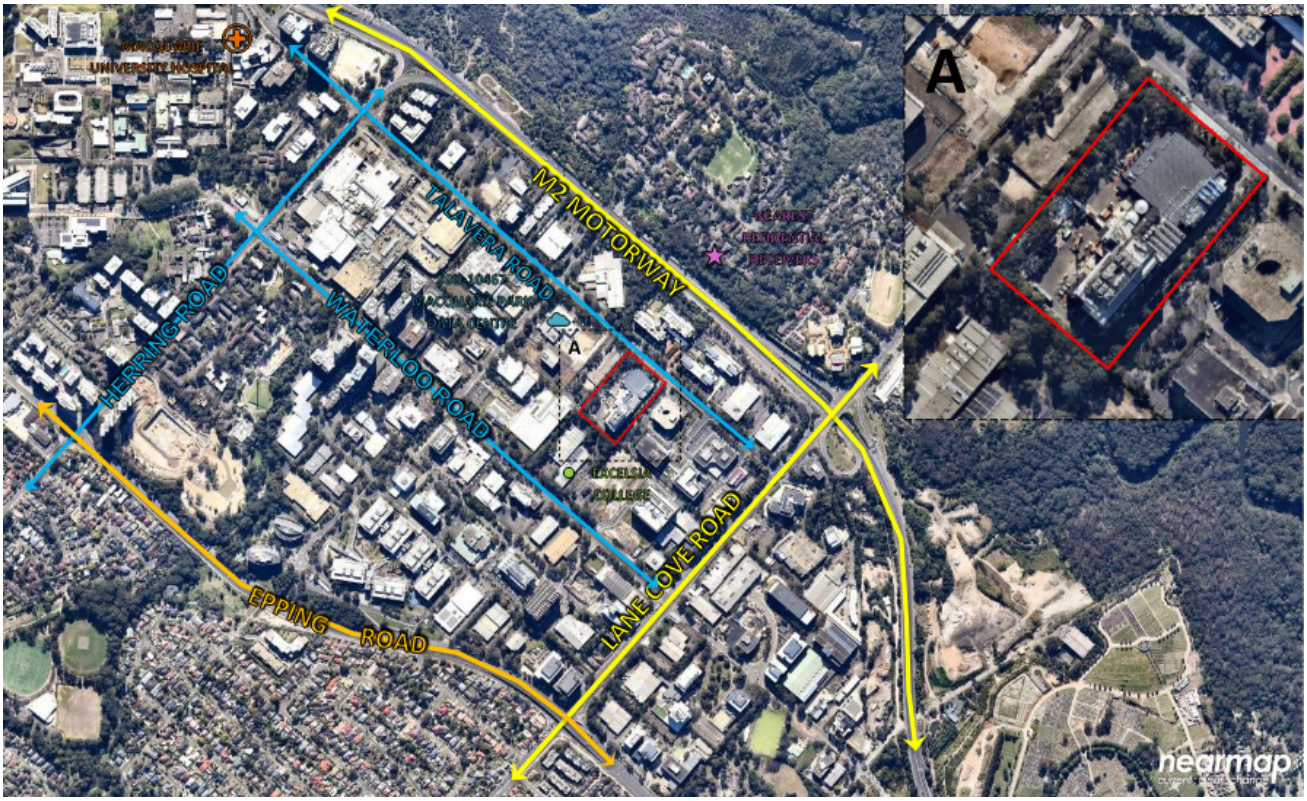


Fig 02. Site context and location plan

Site Analysis

The subject site is located within Macquarie Park, and forms part of the strategic centre of the Macquarie Park Corridor. The subject site is bound to the north-east by Talavera Road, which is accessible via Lane Cove Road (which connects directly to the M2Motorway) and Khartoum Road. The Macquarie Park Corridor is already a key economic contributor for the wider catchment, with further strategic intent to evolve as a health and education precinct, together as an important economic and employment powerhouse for Sydney's North District.

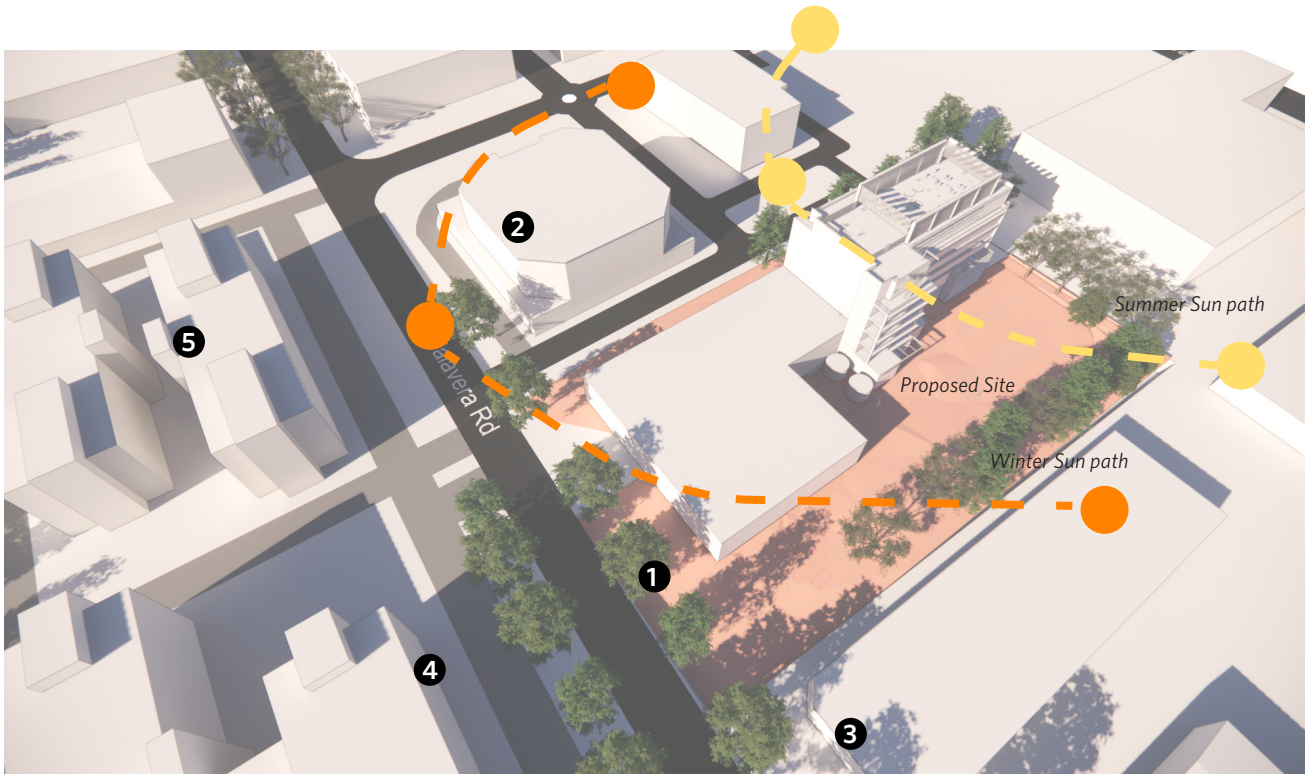


Fig 03. Indicative site analysis diagram from above highlighting Sun path and surrounding massing.

Fig 04. View on Site

Fig 05. Neighbouring site East

Fig 06. Neighbouring site West

Fig 07. Neighbouring site North

Fig 08. Neighbouring site North

Site Access

Access to the subject site is currently obtained via Talavera Road, along the north-eastern boundary of the subject site.

The site is within close proximity to transport infrastructure routes (predominantly the bus and rail networks), as well as sharing direct links with the wider regional road network, including Talavera Road, Lane Cove Road, Epping Road and the M^2 Motorway. These road networks provide enhanced connectivity to the subject site and wider locality. Additionally, the subject site is located within close proximity to active transport links, such as bicycle routes, providing an additional mode of accessible transport available to site users.

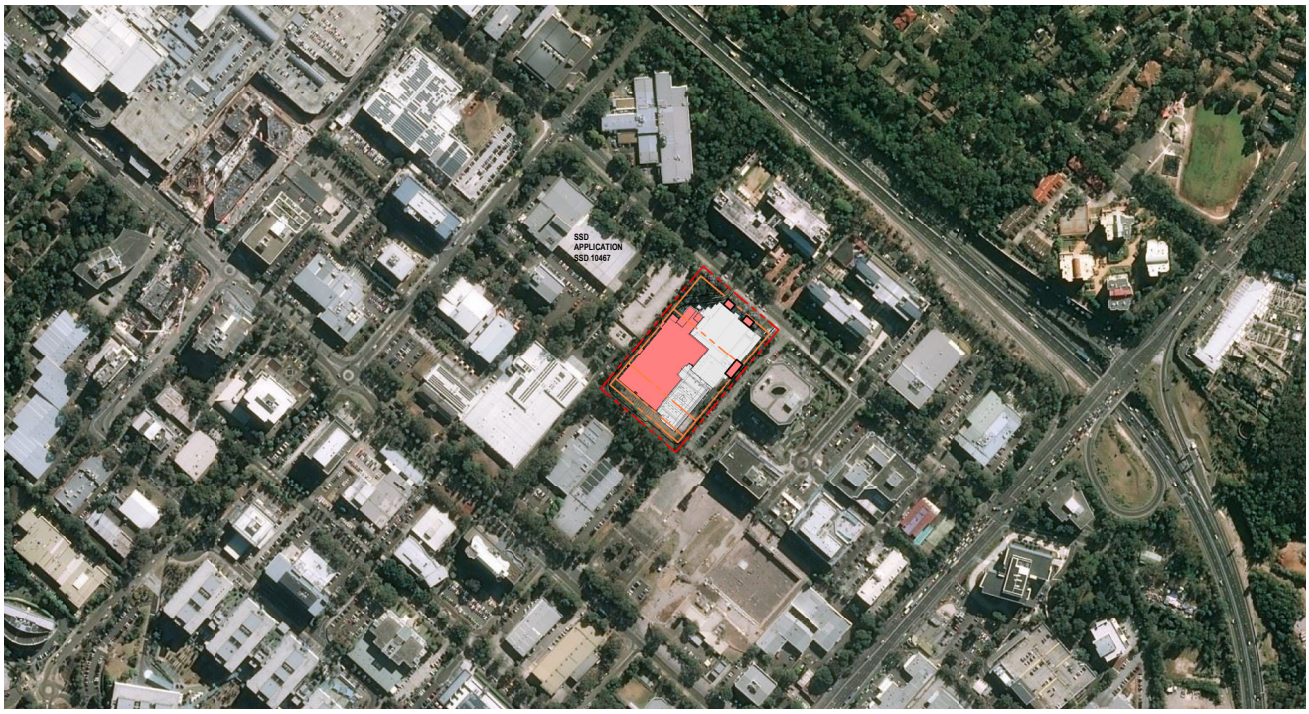


Fig 09. Proposed Site

Fig 10. View towards site from East

Fig 11. View towards site from West

LEP Setbacks + Height Limit

The proposed building has been designed within the LEP setbacks and has the capacity to employ incentive provisions under Clause 6.9 of the RLEP2014, to achieve a height of 45m .

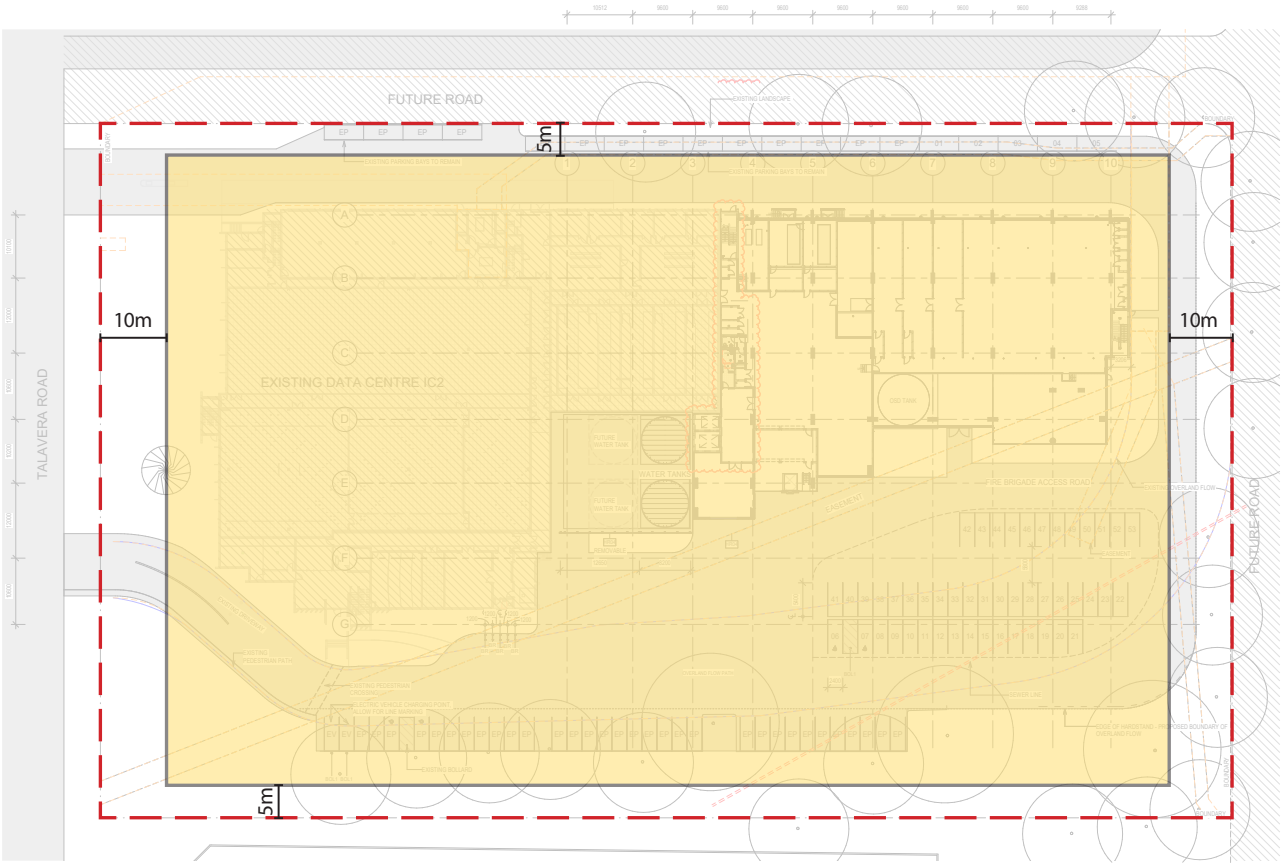


Fig 12. Plan highlighting LEP setback requirements

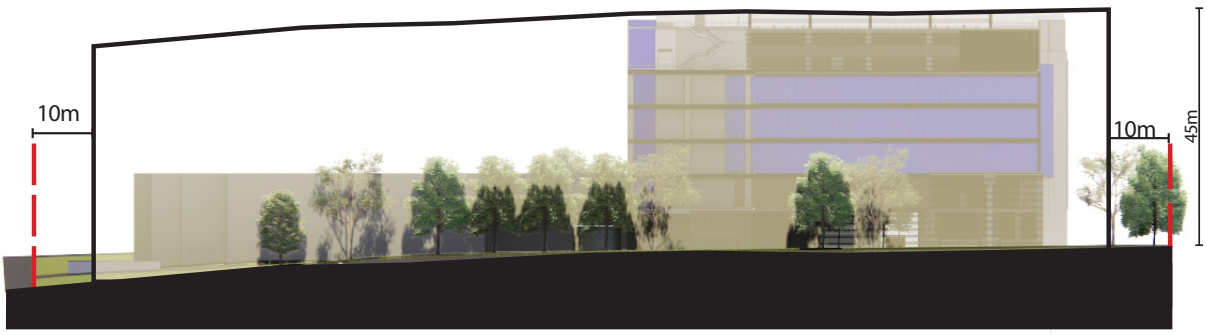


Fig 13 Elevation highlighting LEP setback requirements

Site Constraints

A number of constraints currently exist on the site and are highlighted in the diagram below. The new development looks to work within the parameters of the constraints.

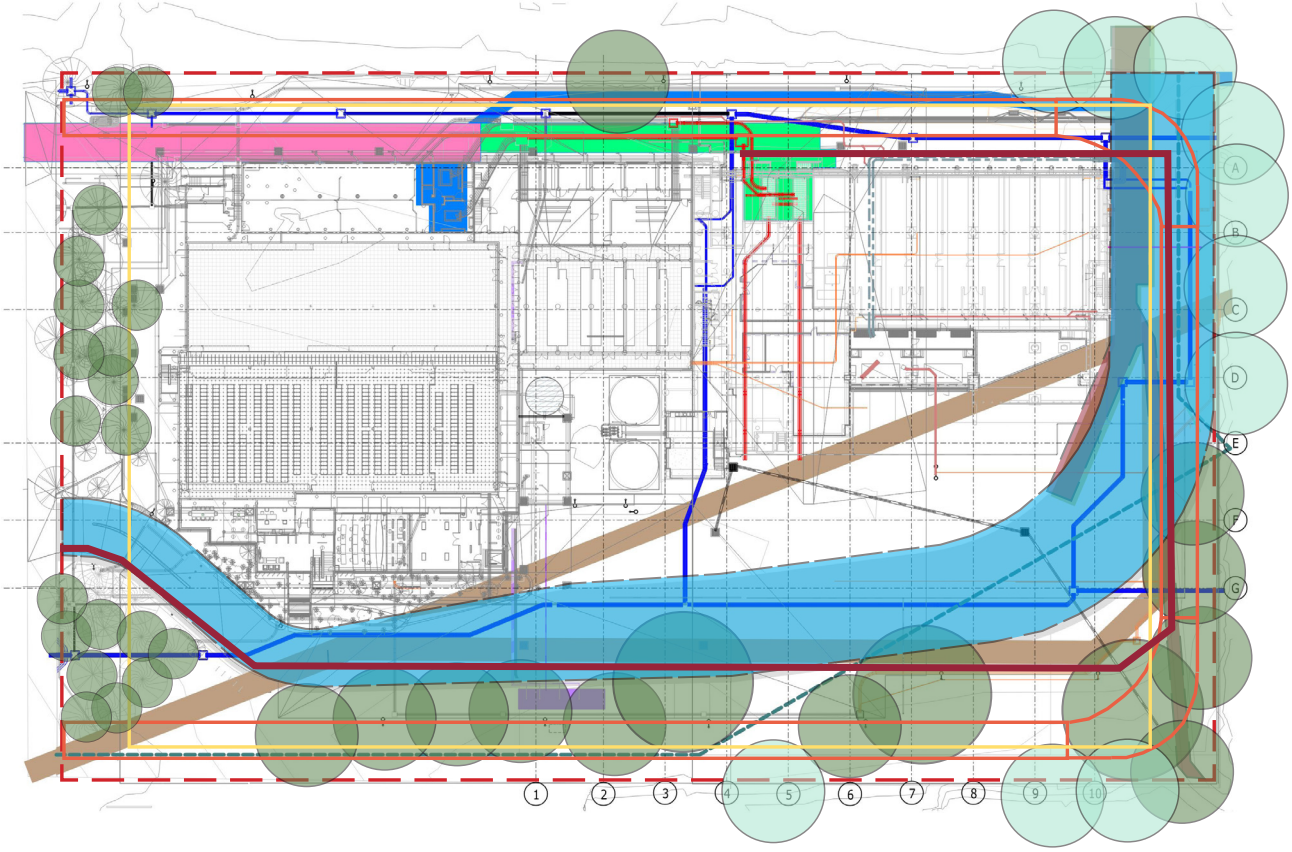


Fig 14. Diagram highlighting site constraints

- Site Boundary
- LEP Set Back Conditions
- Stormwater Easement
- Sewer
- Easement
- Overland Flow
- Fire Brigade Access
- HV Easement

- Trees on Site
- Trees off Site

Design Principles

The design of the proposal, whilst differing in scale from the existing built form, will achieve an overall cohesive visual outcome. A sympathetic and considered palate of forms, articulation and materials will result in an overall "one building" outcome, with each building element respecting the other

1. Adopt vertical emphasis already established on campus

2. Emphasis placed on Macquarie Data Centre brand through colour and materials palette adopted in the Stage 1 development to ensure a cohesive campus.

3. Showcase secure nature of the building as well as plant that highlight the technical prowess

Fig 15 +16 . Principle 1 adopt vertical emphasis established on campus

Fig 17 . Maintain Colour and Materiality established on campus

Fig 18 +19 . Showcase Secure nature of building

Design Principles

The diagrams below set out the thought process for the design development of Stage 2 of the proposed data hall expansion project:

1. The form of the development is fundamentally designed around the function of the data hall.

2. The mass is elevated to address site constraints including the overland flow requirements across the site

3. Markers are pushed towards the southern and northern boundaries to act as markers along the major Talavera arterial route and proposed new road

4. The tree bund along Talavera road is maintained to keep the character of the site surrounds.

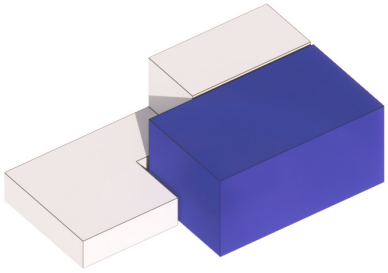


Fig 20. Mass of Data Hall Expansion Zone

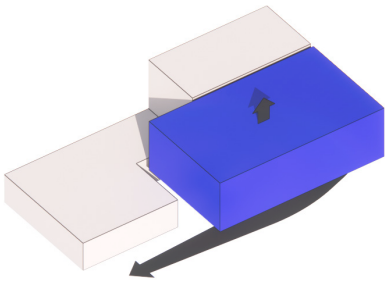


Fig 21. Lift mass to accommodate overland flow

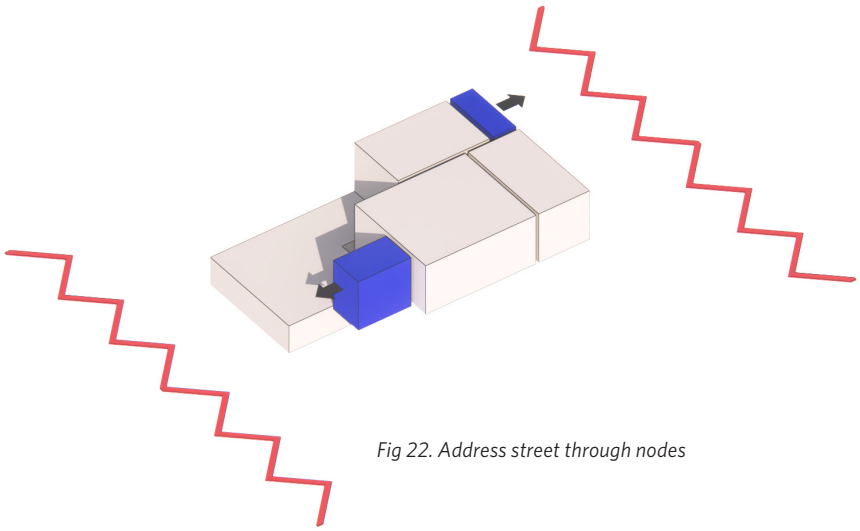


Fig 22. Address street through nodes

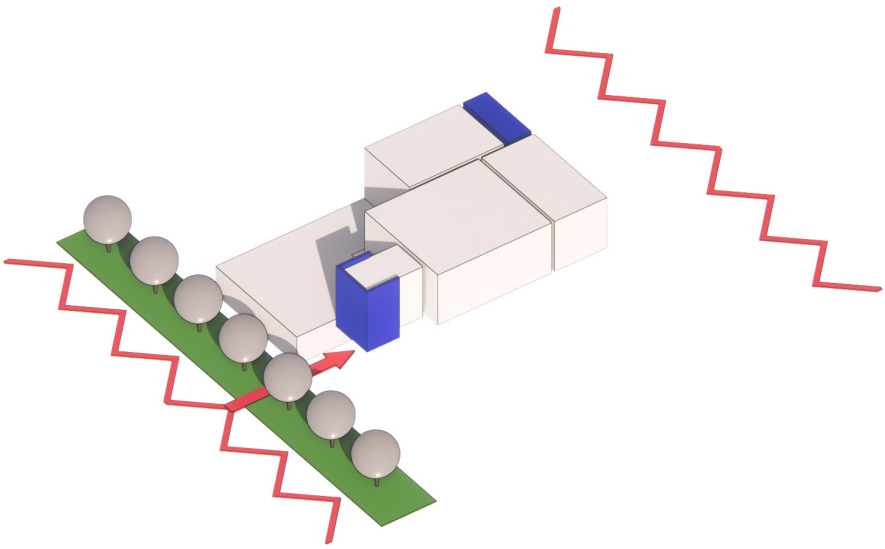
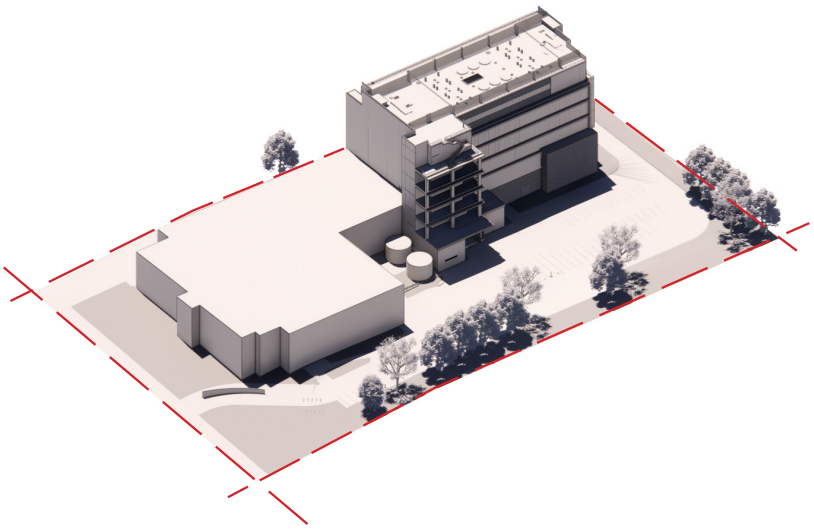


Fig 23. Maintain Tree vegetation to Talavera Rd

Design Evolution

On 20 September 2019, development consent was granted for alterations and additions to an existing data centre, including a new six (6) storey addition to the rear and an additional 23 on grade car parking spaces.

Stage 1 of the development consent has been completed, while Stage 2 has not commenced. The intent of this development application (SSD-24299707) is to complete a further expansion of the constructed data centre, which would encapsulate the above mentioned Stage 2 works, plus additional built form.



Fif 24. Stage 1 IC3 East - Completed

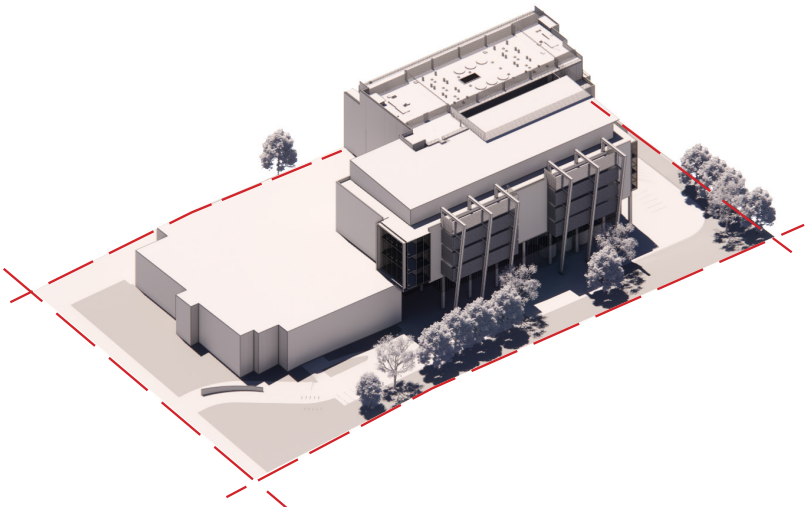
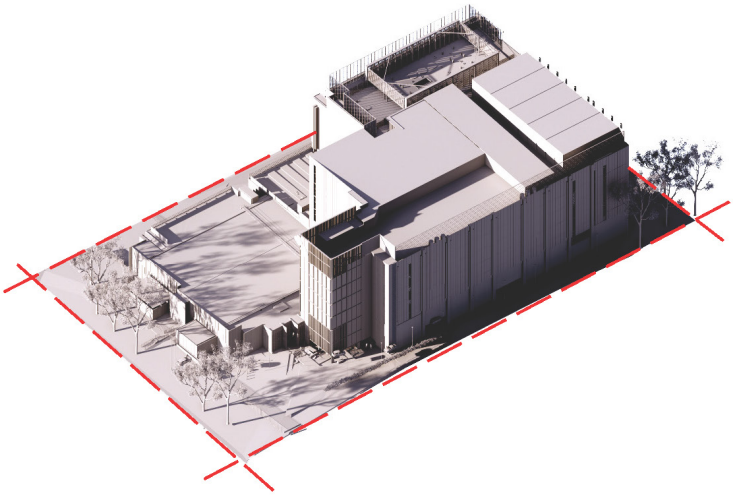


Fig 25, Stage 1 IC3 West - DA Approved



Building Siting

The Stage 2 building is sited towards the west of the Campus. Two entrance points are maintained in their existing location and are connected by a perimeter road which acts as a service road for logistics, access to car parking and as a fire egress zone.

The floor plate has been designed to best practices of data centre design and to fit seamlessly with the existing Stage 1 building. Towards the Talavera Rd boundary the building has been purposely set back to allow a landscaped area to the entry point. This allows the proposed building to nestle into its surroundings and cohesively address the form and architecture of the existing building.

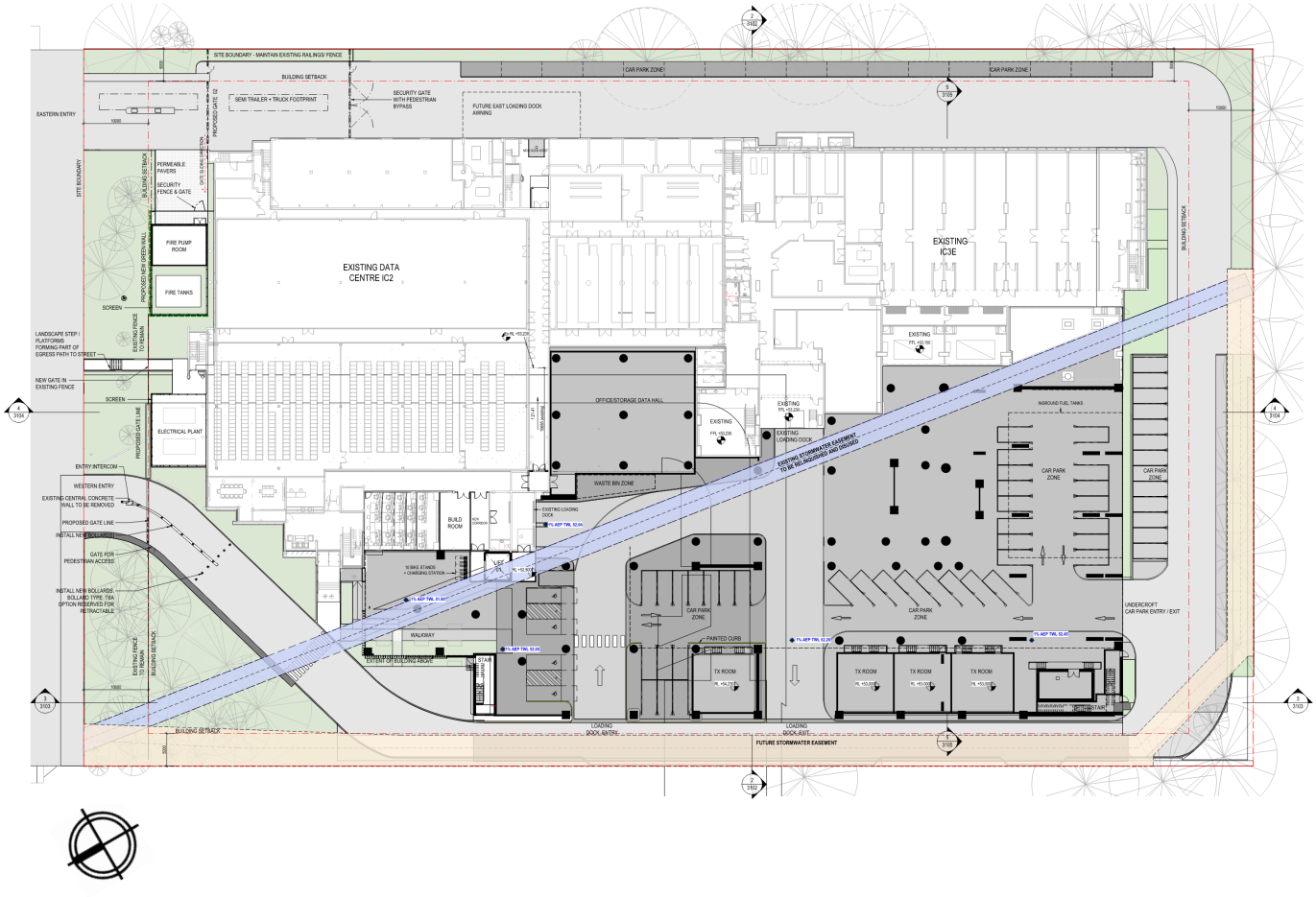


Fig 27. Proposed ground floor plan

Building Mass

The proposed development would be in keeping in terms of scale of nearby developments. The proposed height of the new built form 45m.

The subject site has the capacity to employ incentive provisions under Clause 6.9 of the RLEP2014, to achieve a height of 45m

The design of the proposal has to take into consideration the best practice of data centre design. Consideration has also been given, not only to the operation of the facility once fully completed, but also to the incremental fit out of the building and data halls.

The building shall comprise seven (7) levels above ground, including ground floor, Level 1, 1B, 5 levels of data halls (one being shared with extensive enclosed and rooftop plant areas). Basements are not proposed.

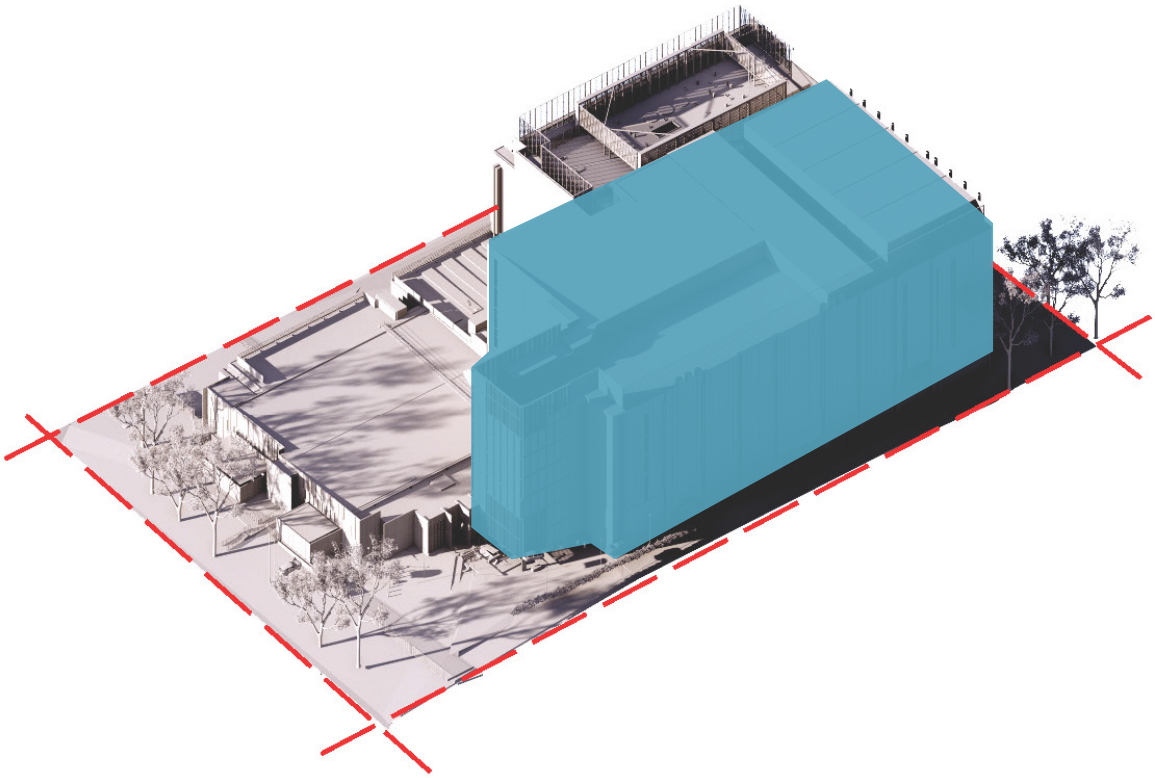


Fig 28. Indicative view of building from above showing proposed mass in blue

Building Envelope

Envelope design has been developed to include a precast concrete and/or insulated sandwich panel facade (with decorative cladding). Areas of glazed façade are provided as part of the design development to permit natural light to selected areas without compromising the integrity of the data centre. A concrete roof (with waterproof membrane) has been provided with drainage to eaves gutters. The roof includes enclosed plant/pump rooms, as well as external areas for the mechanical plant. Consideration has been given to Council's requirements of building form, finish and articulation.

Fig 29. Proposed palette of materials

Fig 30. Indicative view of main entry

Views and Vistas

The proposed building has been set back considerably from the Talevera Rd boundary . By maintaining the tree bund along Talevera road the building is viewed through the vegetation. This creates a permeated view from the public roadway allowing the building to nestle into its surroundings.

The tree bund extends across the entire frontage on the site boundary apart from where access points are required to egress the site.

With no vegetation in this zone the building acts as a node that aids as an entrance identifier.

Please refer to the Visual Impact Assessment carried out by Geoscapes for a measured analysis of views and vistas from the surrounding area towards the site.

Fig 31. Indicative permeated view of proposed building

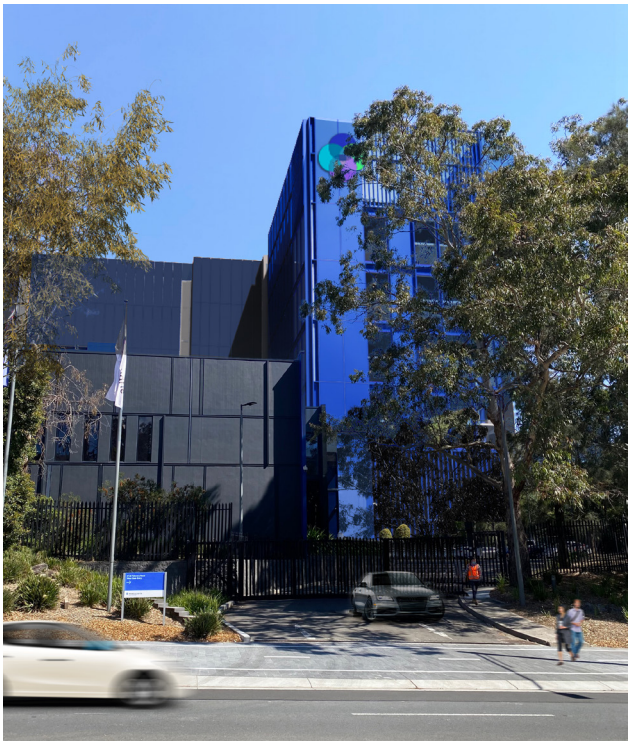
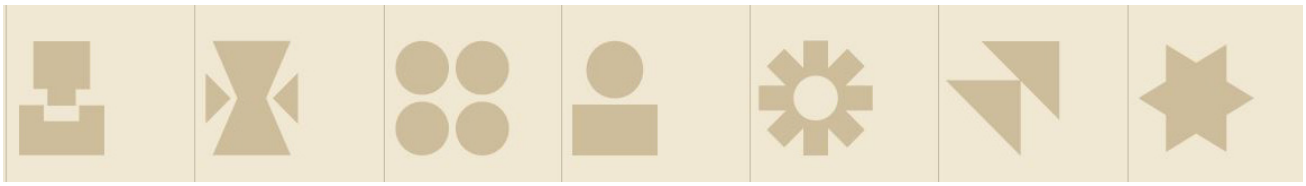


fig 32. Main entrance to site. Proposed building acts as node to aid wayfinding

Better Placed Design

In response to GANSW's Better Placed document '**An integrated design policy for the built environment in NSW.**' we consider the new development to be a well designed, better connected and creates the best possible outcome for the local community.

We have outlined our key points in response to the reports main Objectives in the diagram below.



Objective 1	Objective 2	Objective 3	Objective 4	Objective 5	Objective 6	Objective 7
Better Fit	**Better Performance**	**Better for Community**	**Better for People**	**Better Working**	**Better Value**	**Better Look and Feel**
The siting of the building has been carefully considered to respect the surroundings, connect to existing thoroughfares and enable a positive outlook from the building	The building has been designed to meet Section J +10%	Increasing the capacity and capability of secure data storage and cloud-based infrastructure is of regional, state and national significance. The provision of data storage provides a platform for a competitive digital economy, with increased capacity creating the conditions for multinationals to enter the Australian market	Comfort for occupants is of utmost importance for the Data Centre. Stringent thermal, acoustic and lighting requirements will be met to ensure a comfortable environment is provided. Natural Light, oversight of vegetation and successful planning are all seen as key factors in the Health and Well being of Staff and Visitors.	The proposed development is an expansion to the existing data centre, co-located with an existing facility that is demonstrated to operate consistent with character of local area. The expansion would further support the secure operation of business to business and business to consumer services, helping provide employment-generating opportunities in the professional services, start-up and creative industries in the City of Ryde LGA,	The new building and its associated landscape will raise standards and quality to the Precinct. This will act as a catalyst for further investment and bring staff to the area.	The new building will be aesthetically pleasing and endure a sense of place.

fig 33. Better Placed Summary