

July 2025

Road 1 Data Centre, Macquarie Park, NSW

SSDA Design Report



Stockland

COX

Greenbox

COX Architecture acknowledge the Traditional Custodians of the land, the Wallumedegal People, on which the project site is located.

We pay our respects to the First Nations Elders past, present and future for they hold the memories, the traditions, the culture and hopes of Australia's First Nations peoples.

Project Information

Discipline	Representation
Client	Stockland
Architect	Greenbox
Design Architect	COX Architecture
Planner	Urbis
Landscape	Arcadia
Waste	Elephants Foot
Traffic	CBRK
Structure	ARUP
Services	ARUP
Civil/Stormwater	ARUP/Northrop
Surveyor	LTS Surveyors
ESD Consultant	ARUP
Acoustic	ARUP
Wind	ARUP
Accessibility & BCA	McKenzie Group
Arborist	Birds Tree Consultancy Pty Ltd
Security	ARUP
Quantity Surveyor	Linesight
DDA	Jensen

Document Register

Issue	Amendment	Date	Checked
A	SSDA Issue	25/07/25	Ramin Jahromi
B	SSDA Issue	09/12/25	Ramin Jahromi

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01

Introduction

1.1 Introduction

This Architectural Design Report has been prepared by Cox Architecture with the support of Greenbox Architecture on behalf of Stockland to accompany a State Significant Development Application (SSDA) for a data centre development. The proposal site is 1-5 Khartoum Road, Macquarie Park. The site has pre-existing approved demolition development application for the removal of the warehouse and office buildings on site. Specifically, this SSDA seeks development consent for:

- Site preparation works including tree removal and earthworks.
- Construction and operation of a 10-storey data centre development, with a maximum height of 72.8 metres and a combined total gross floor area (GFA) of approximately 13,307sqm including:
 - Lobby and ancillary spaces: 5,857sqm
 - Offices: 878sqm
 - Four storeys of technical data floor space accommodating 8 data halls: 6,572sqm
- Vehicle access via Road 22 (Murrell Street) and Future Road 1 with 19 parking spaces to be located within the building footprint.
- Construction of part Road 1 and part of Road 23 as contained within the subject site.
- Landscaping and associated public domain works.
- Business identification signage zones.
- 19 diesel generators for back up power.
- Extension and augmentation of physical infrastructure and utilities including extension of water link main from Road 22 (Murrell Street) to Waterloo Road and secondary water connections

The purpose of the project is to facilitate the delivery of a data centre, at a strategically located site and deliver a built form that is consistent with the desired future character of Macquarie Park.



1.2 Project Overview

Project Summary

Descriptor	Project Details
Project Area	The area subject of the data centre development is 8,096sqm. The site is legally described as part of Lot 2 in the Deposited Plan 1043041
Proposed Use	Data centre with ancillary office space.
Project Description	<p>Site preparation works including tree removal and earthworks.</p> <p>Construction and operation of 10-storey data centre development, with a maximum height of 72.8 metres and a combined total gross floor area (GFA) of approximately 13,307sqm including.</p> <ul style="list-style-type: none"> • Lobby and ancillary spaces: 5,857sqm • Offices: 878sqm • 4 storeys of technical data floor space accommodating 8 data halls: 6,572sqm <p>Vehicle access via Road 22 (Murrell Street) and Future Road 01 with 19 parking spaces to be within the building footprint.</p> <p>Associated landscaping including trees, shrubs and grasses.</p> <p>Business identification signage zones.</p> <p>Provision of required utilities, including diesel generator back up power system.</p>
Gross Floor Area	13,307sqm
Building Height	72.80m over 10 storeys
Floor Space Ratio	1.66:1
Data Halls	8
Deep Soil Area	11.48% (15.82% excluding roads)
Car Parking	19 including 1 DDA space
Motorbike Spaces	3 spaces
Bicycle Spaces	28 total (10 hoops internal, 4 hoops external)
Utilities	19 diesel generators for back-up power
Power Consumption	IT Load 34.3MW
Operations and Management	The facility will be operated on a 24-hour, 7 day a week basis.
Existing Services and Infrastructure	Extension and augmentation of physical infrastructure and utilities including extension of water link main from Road 22 (Murrell Street) to Waterloo Road and secondary water connections.
Job Numbers	Construction: 250 / Operational: 50

1.2 Project Overview

Response to SEARs

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) dated 14 March 2025 issued for the SSDA (SSD-80814238). Specifically, this report has been prepared to respond to the SEARS requirement issued below. Additional SEARs requirements beyond this scope of this architectural design report are addressed in the accompanying reports prepared by other consultants as part of this SSDA submission.

Item	Description of Requirement	Section Reference (this Report)
3. Design Quality		
3	Demonstrate how the development will achieve: <ul style="list-style-type: none"> design excellence in accordance with any applicable EPI provisions. good design in accordance with the seven objectives for good design in Better Placed. 	Pg. 9 Pg. 22-24
3	Where required by an EPI or concept approval, demonstrate that the development has been subject to a competitive design process, or reviewed by the State Design Review Panel (SDRP) where required under the NSW SDRP: Guidelines for Project Teams. Recommendations are to be addressed prior to lodgement.	<i>Exemption has been provided</i> Pg. 53-59
4. Built Form and Urban Design		
4	Explain and illustrate the proposed built form, including a detailed site and context analysis to justify the proposed site planning and design approach.	Pg. 20, Pg. 28-40 <i>Refer to architectural drawings</i>
4	Demonstrate how the proposed built form (layout, height, bulk, scale, separation, setbacks, interface and articulation) addresses and responds to the context, site characteristics, street-scape and existing and future character of the locality	Pg. 47-48
4	Demonstrate how the building design will deliver a high-quality development, including consideration of façade design, articulation, materials, finishes,	Pg. 42-48
4	Assess how the development complies with the relevant accessibility	<i>Refer to BCA & Accessibility Report by McKenzie Group</i>

1.2 Project Overview

Design Excellence

This project has been granted an exemption from the Design Competition process, subject to the following conditions as outlined by City of Ryde Council:

- The proponent's architect, Greenbox Architecture, must partner with a design excellence architect who has received a RAIA award or commendation within the past 10 years. - Cox Architecture
- The team must include a registered landscape architect. - Arcadia
- The proposal has been reviewed by the State Design Review Panel (SDRP), with a representative from Council's Urban Design Review Panel participating as the Council Nominee.
- The development responds to SDRP advice and Council's site-specific design excellence matters.

Site-specific design excellence matters for consideration are listed in the table below:

Item	Description of Requirement	Section Reference (this Report)
1	The proposed data centre meets or exceeds the design excellence provisions in Ryde LEP, cl 6.13.	Pg. 10
2	The design should be proposing commercial/active land uses (not parking or servicing) at the ground plan and any data centre functions should be elevated above the ground level.	Pg. 32, Pg. 34
3	Minimises environmental impacts on adjoining future development. This may be demonstrated by site-wide and built-form option studies for minimising noise, heat, wind, electro-magnetic radiation, and visual impacts.	<i>Refer to ESD Report by ARUP</i>
4	Provides active frontages facing the public domain, particularly along the site's southern boundary, achieved via the following: <ul style="list-style-type: none"> a. A mix of uses at ground level servicing the wider community, and b. Eliminating fencing along the site's street-facing edges. c. Avoiding parking and servicing to the ground plane, instead prioritising d. Pedestrian amenity, particularly noting the proximity particularly noting that e. The site will be walking distance from the metro and the DPPI design guide f. Shows numerous pedestrian paths and open space nearby. 	Pg. 30-34
5	Responds to it's immediate context, noting that the site is located next to three data centres and should be architecturally distinguished as demonstrating design excellence.	Pg. 25
6	Minimises environmental impacts on neighbouring residents and biodiversity, especially noise, light pollution, and heat.	<i>Refer to ESD Report by ARUP</i>
7	Demonstrates how existing trees on the site are to be retained and maintained, particularly along the Eastern boundary.	<i>Refer to Landscape Report by Arcadia</i>
8	Optimises waste heat reuse, including district heating, as a means to maximise energy efficiency and provide benefits to buildings/facilities within the surrounding precinct.	<i>Refer to ESD Report by ARUP</i>

1.2 Project Overview

Ryde LEP - Design Excellence

6.13	Description of Requirement	Section Reference (this Report)
1	Ensure that development exhibits design excellence that contributes to the natural, cultural, visual and built character values of Ryde.	Pg. 47-48
2	This clause applies to land identified as "Design Excellence" on the Design Excellence Map .	Yes
3	Development consent must not be granted for development to which this clause applies unless the consent authority considers that the development exhibits design excellence.	<i>Site has displayed design excellence through reviews by the SDRP</i>
4	<p>The consent authority must have regard to:</p> <ul style="list-style-type: none"> a. whether a high standard of architectural design, materials and detailing appropriate to the building type and location will be achieved b. whether the form and external appearance of the development will improve the quality and amenity of the public domain c. whether the development detrimentally impacts on view corridors d. whether the development detrimentally impacts on any land protected by solar controls established in the Ryde Development Control Plan e1. the requirements of the Ryde Development Control Plan e2. for development on land identified as "Macquarie Park Precinct" on the Macquarie Park Corridor Map f. how the development addresses: <ul style="list-style-type: none"> (i) the suitability of the land for development, (ii) existing and proposed uses and use mix, (iii) heritage issues and street-scape constraints, (iv) the relationship of the development with other development (v) bulk, massing and modulation of buildings, (vi) street frontage heights, (vii) environmental impacts, (viii) the achievement of the principles of ecologically sustainable development, (ix) pedestrian, cycle, vehicular and service access, circulation and requirements, (x) the impact on, and any proposed improvements to, the public domain, (xi) achieving appropriate interfaces at ground level, (xii) integration of landscape design, 	<ul style="list-style-type: none"> a. 05. Facade Design b. Pg. 47-48 c. Refer to Visual Impact Assessment d. Pg. 60-63 e1. Pg. 14-16, Pg. 26 e2. We are in alignment with the Macquarie Park Corridor Vision f. 04. Building Massing, 05. Facade Design
5	Development consent must not be granted to the following development to which this Plan applies unless a competitive design process has been held in relation to the proposed development	<i>Exemption has been provided</i>
6	<p>Subclause (5) does not apply if--</p> <ul style="list-style-type: none"> (a) the consent authority certifies in writing that a competitive design process is not required, and (b) a design review panel reviews the development, and (c) the consent authority takes into account the advice of the design review panel. 	<i>Exemption has been provided</i>
7	In deciding whether to grant development consent to the development application, the consent authority is to take into account the results of the competitive design process.	<i>Exemption has been provided</i>

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02

Site and Context

2.1 Strategic Context

Data Centres

This diagram highlights the strategic location of the proposed data centre within Macquarie Park — a key metropolitan centre undergoing significant transformation into a leading innovation and technology precinct.

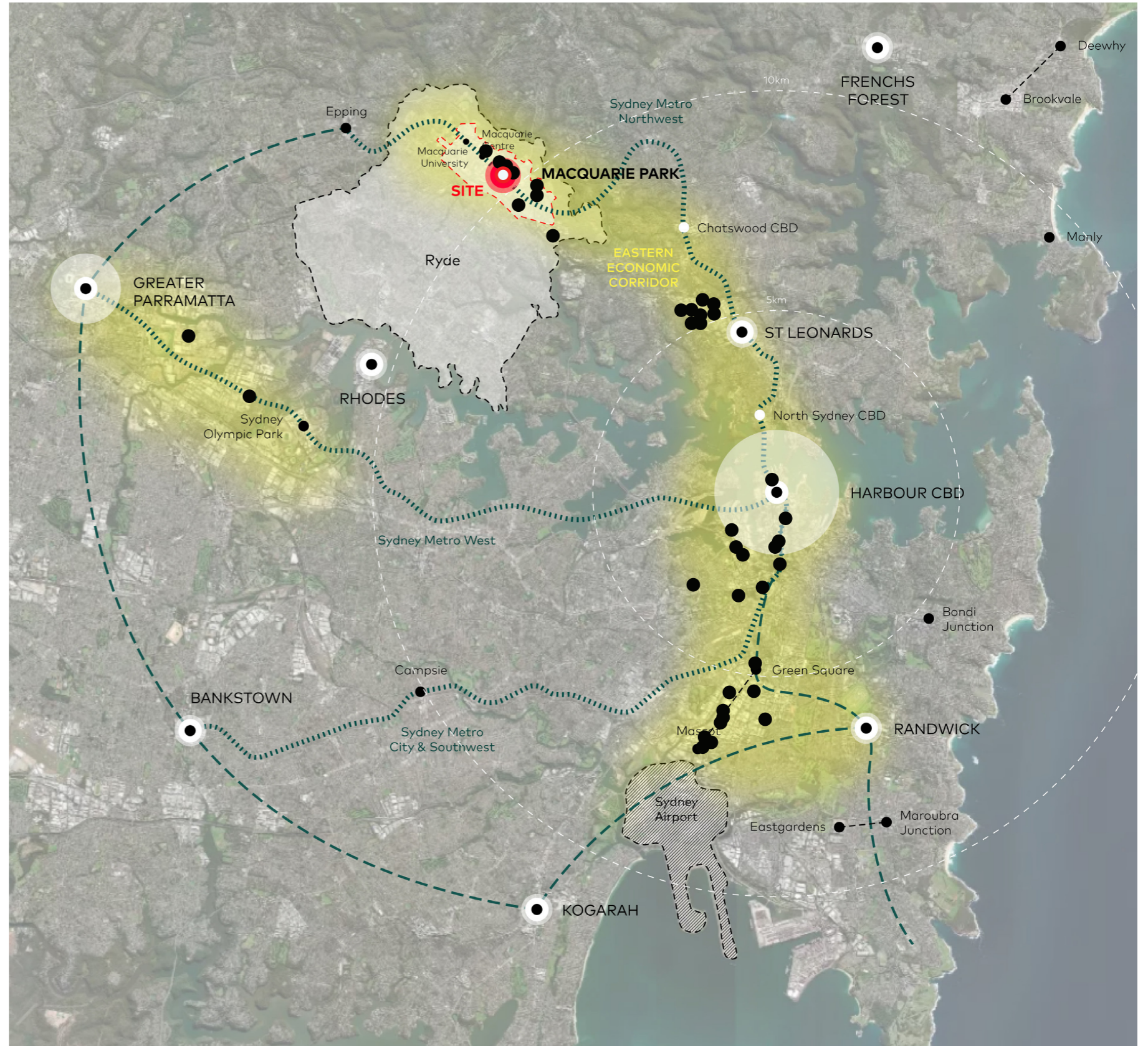
As part of Sydney's Eastern Economic Corridor, Macquarie Park is evolving into a major employment hub, anchored by Macquarie University, leading research institutions, and global tech and pharmaceutical companies.

The area is supported by growing public transport infrastructure, including Sydney Metro and future light rail connections, reinforcing its accessibility and long-term growth potential.

The site's placement within this emerging innovation ecosystem positions the data centre to support critical digital infrastructure at the heart of Sydney's future-focused economy.

Legend

- ⬢ Macquarie Park
- Site
- Health & Education Centre
- Metropolitan Centre
- Data Centre
- ||||| Train Link
- Planned Train Link 0-10 yrs
- Light Rail Investigation



Data Centre Locations, extract from 'Data Centre Map' Website

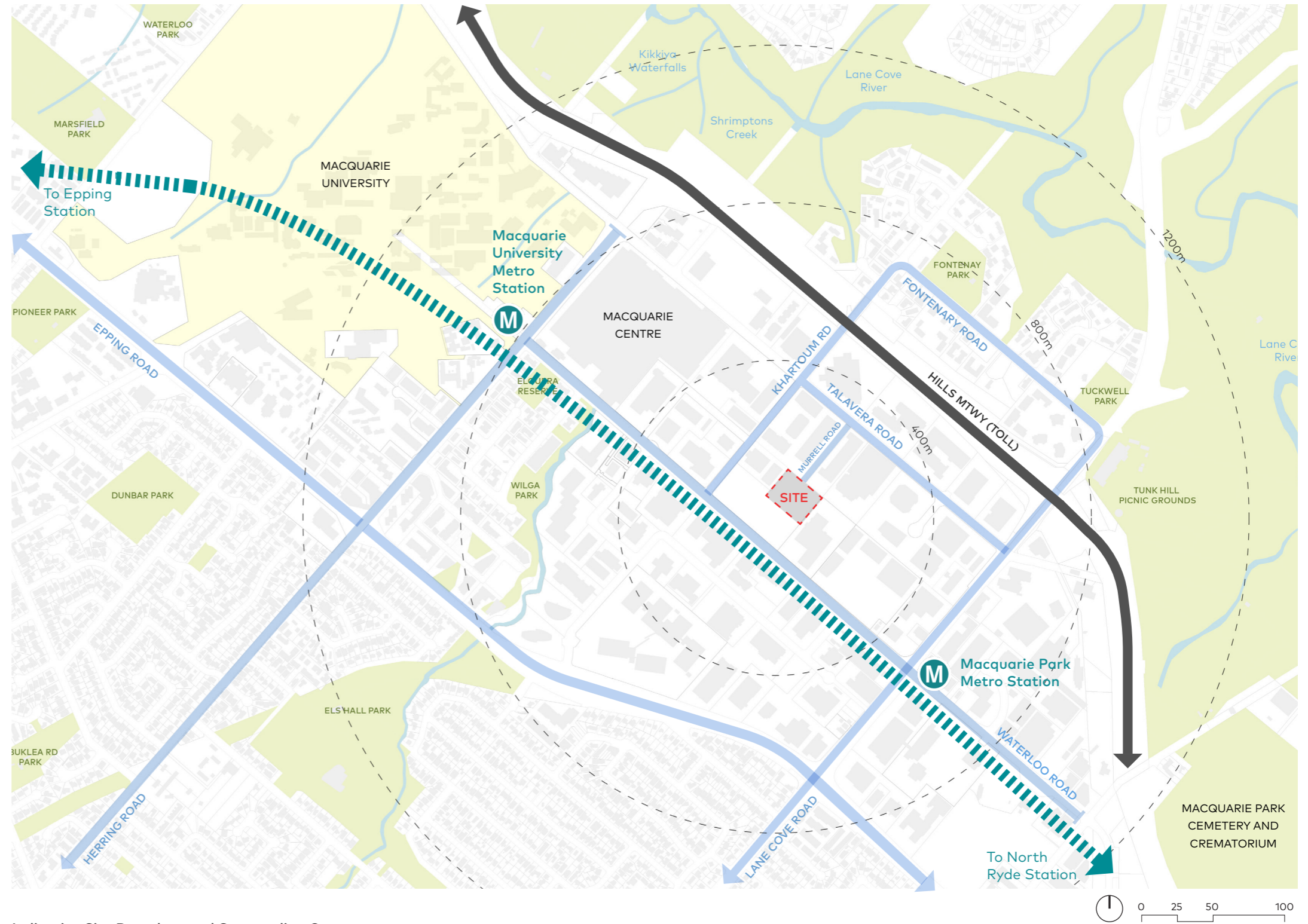
2.2 Project Context

The site is located at 1-5 Khartoum Road, Macquarie Park, within the City of Ryde LGA, approximately 12km north-west of the Sydney CBD.

This proposal sits on an 8,096sqm site area. It is within 800m walking distance of Macquarie University and Macquarie Park Metro Stations. It also has access to high-frequency bus services and strong connections to the regional road network via the M2 Motorway.

The site is currently occupied by an office warehouse building and is adjacent to a double-storey car park, all occupied by one tenant.

Macquarie Park is recognised as Greater Sydney's fourth largest concentration of jobs, according to the NSW Government's metropolitan planning strategies.

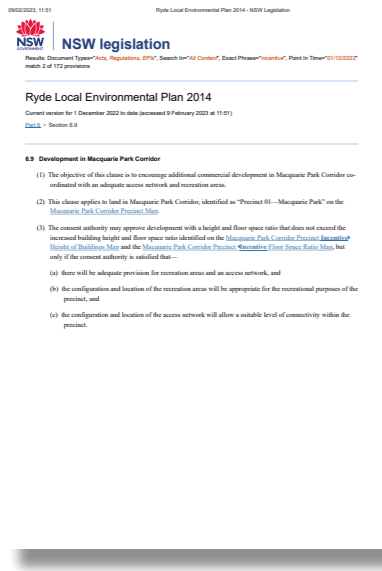


Indicative Site Boundary and Surrounding Context

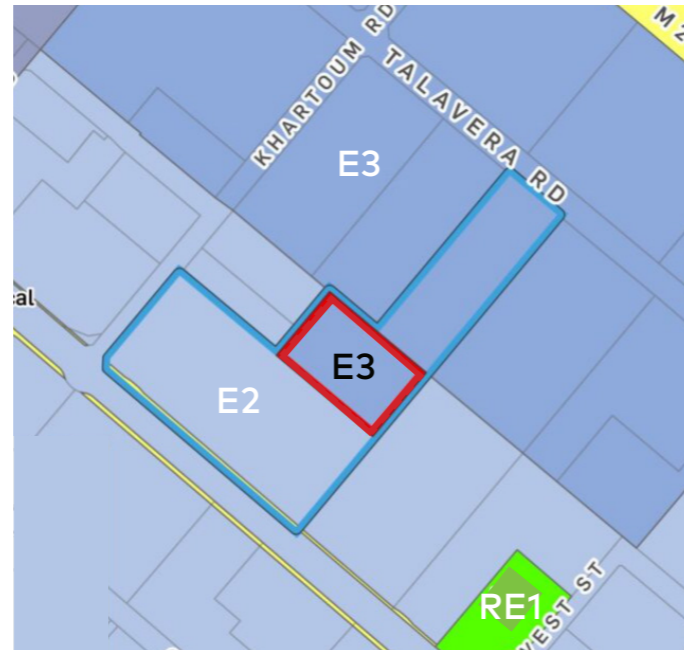
- Legend**
- Site
 - Metro
 - Arterial Roads
 - M1 Highway
 - Radius from Subject Site

2.3 Planning Framework LEP Controls

Statutory

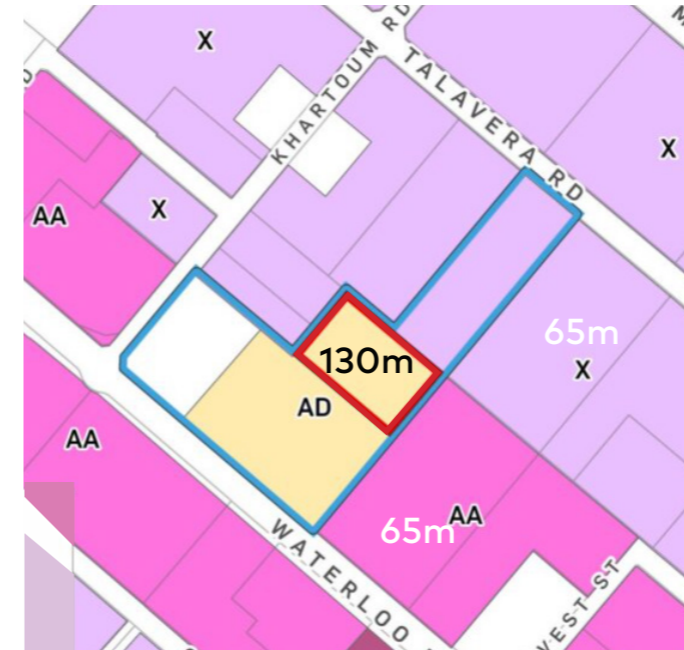


Ryde LEP 2014

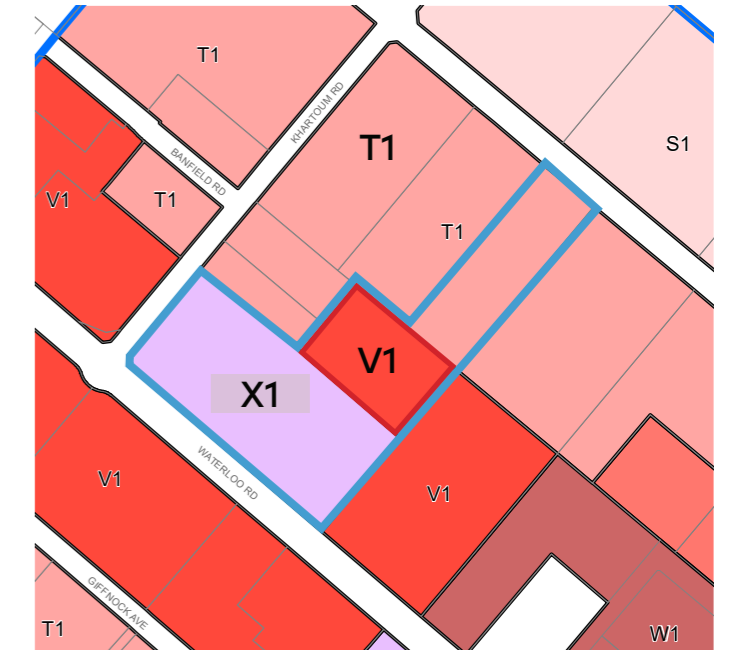


Land Zoning
E3 Productivity Support Zoning

Ryde LEP - Key Controls



Incentive Height of Buildings
Incentive bonus as part of Macquarie Park Corridor
AD - 130m



Incentive FSR
Incentive bonus as part of Macquarie Park Corridor
V1 - 3.00

Legend

- Site
- Lot Boundary

2.3 Planning Framework Macquarie Park Design Guide

Design Guideline



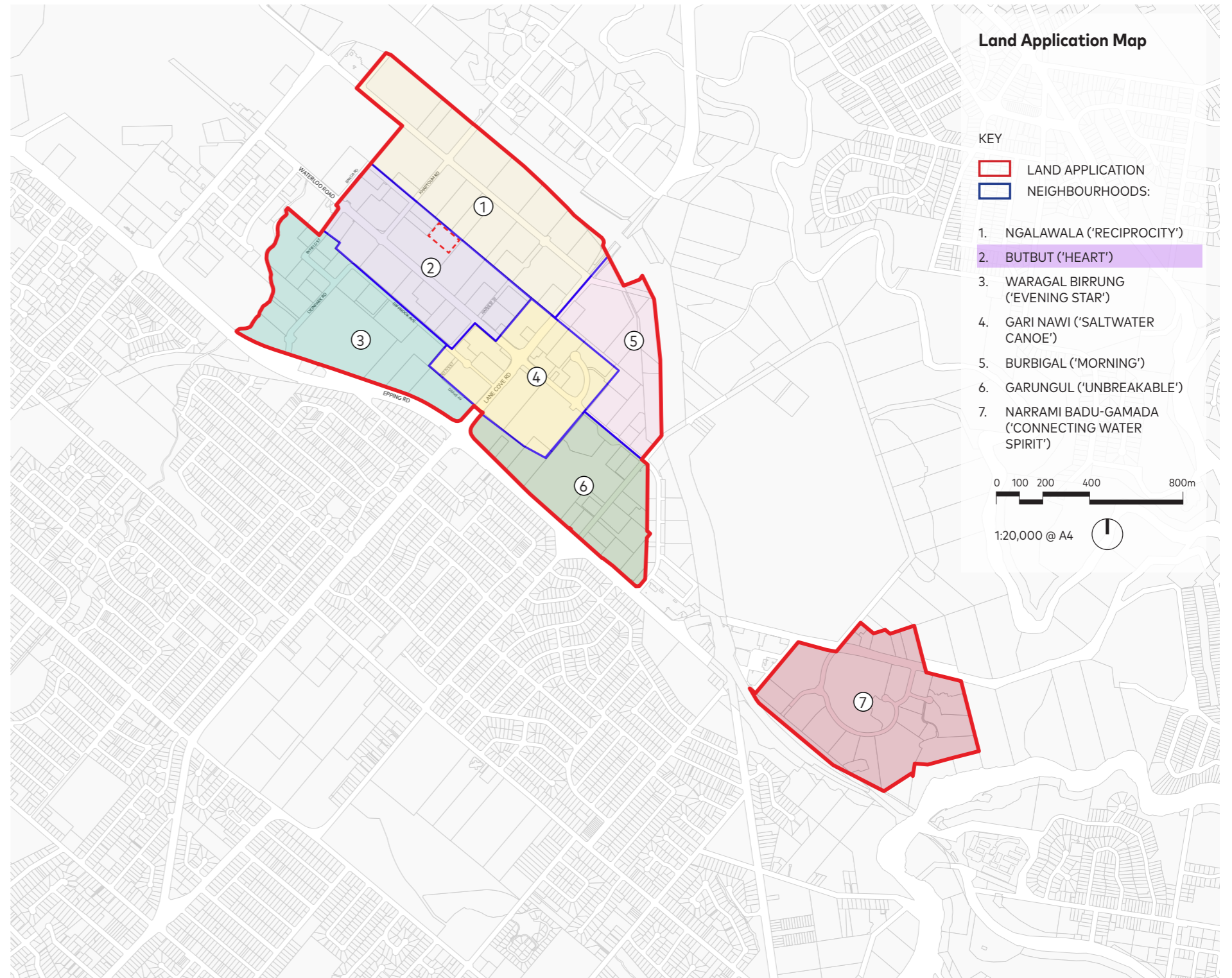
Macquarie Park Design Guide 2024

Macquarie Park Design Guide locates the site within the Butbut neighbourhood. The intention of the design guide is that the site forms part of a commercial district. The proposed data centre is seen as an appropriate addition to the emerging community of technology, infrastructure and commercial space.

Legend

 Site

Macquarie Park Design Guide 'Neighbourhoods'



2.3 Planning Framework Macquarie Park Design Guide

Non-Statutory
Design Guideline



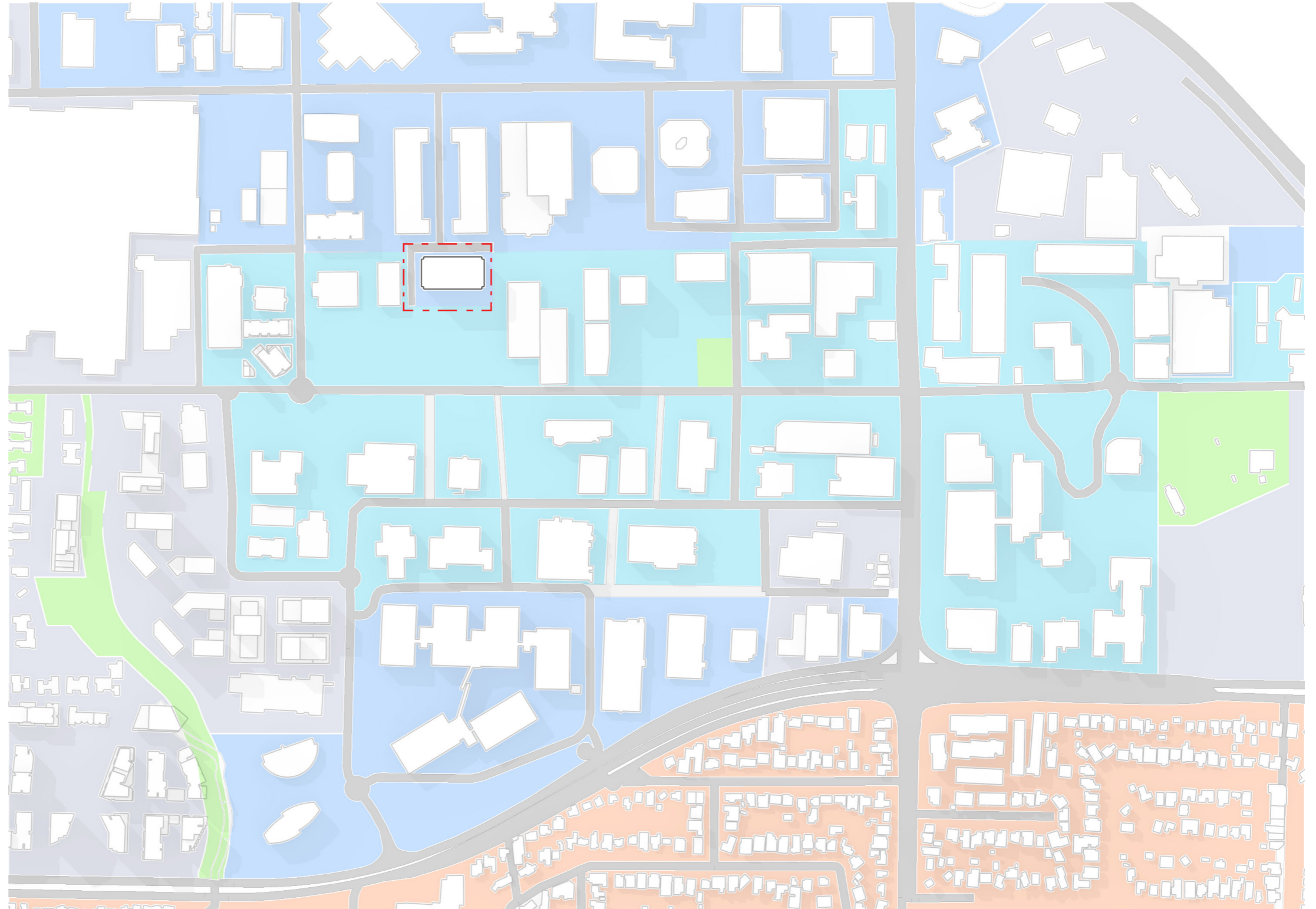
Macquarie Park Urban Design Framework 2024

The site is zoned E3 – Economic Productivity, permitting data centres but not residential uses like Build-to-Rent (BTR). Macquarie Park has long supported data centre development, with growing demand driven by AI and tech expansion. Clustering near other centres, CBDs, universities, and health hubs ensures low latency and access to skilled labour and R&D – making this a strategically ideal location.

Legend

- Site
- Stage 1 Boundary
- Productivity Support Zone (E3)
- Commercial Centre Zone (E2)
- Low Density Residential (R2)
- Mixed Used (MU1)

Macquarie Park Design Guide Framework



2.4 Connection with Country Principles

Since 2020, Stockland has been working closely with the MPark First Nations Working Group (FNWG).

Through walks on Country and ongoing conversations, the FNWG has shared insights into MPark's connection to the broader Wallumatta - including stories, places, waters, and sacred ochre.

This journey has shaped a set of guiding principles that prioritise thoughtful, meaningful engagement over process-driven approaches. These principles support Stockland in contributing genuinely and respectfully.

We acknowledge the significance of flora and fauna with its ability to feed and mend, non-human existences on Nura, the sound of the wind in the trees which is the voices of ancestors talking, crying, singing, and the smell of the forest and its ability to heal. We acknowledge the nearby riverbanks, angophora trees, mangroves, moreton bay and port jackson fig buttress roots, oyster shells and sandstone.

**Refer to Arcadia's Landscape Report for more information.*

Sensing

The initial point of engagement with Country. This is where we begin to build a relationship with the land, waters, and skies through presence and attentiveness. It marks the moment where people meet on Country and begin to understand the cultural significance of this place as the foundation of the project.

Imagining

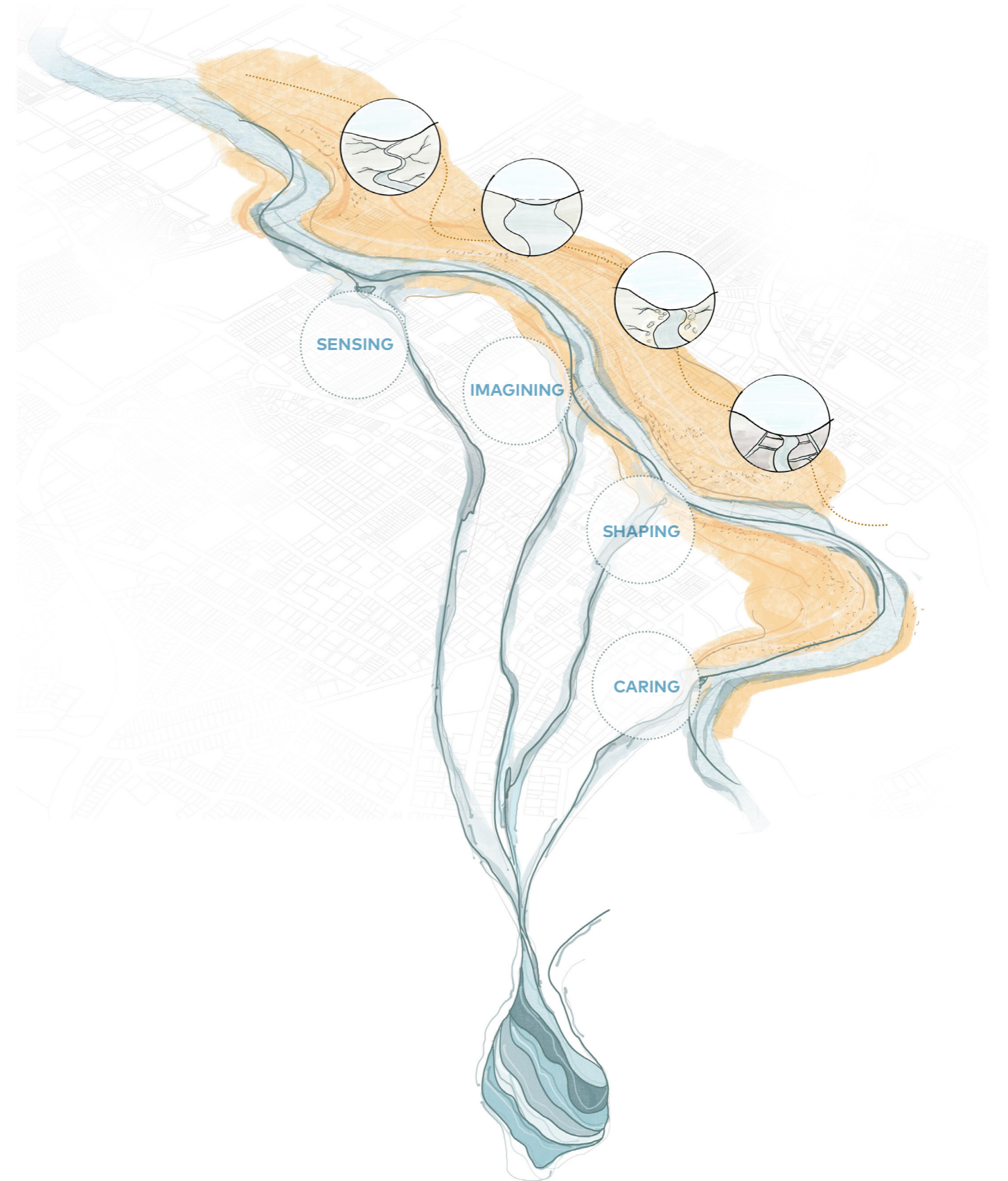
A process of deep listening and learning. What is the cultural lore, stories, and enduring knowledge systems held by Traditional Custodians. Understanding what has come before, what persists, and how stories of place can guide design. It relies on humility and a willingness to be shaped by Country.

Shaping

Opening ourselves to the knowledge, values, and ways of being that emerge from a deepening connection to Country. This stage is about translating with care Darug cultural knowledge and community ambitions into principles that inform design. Rather than imposing form, we allow design principles to emerge through dialogue, respect, and a shared commitment to honouring place and its custodians.

Caring

Establishing long-term strategies, systems, and responsibilities to ensure Country is nurtured, protected, and sustained - recognising that our actions today have lasting impacts on Country and community for generations to come.



2.4 Connection with Country

Indigenous History

Heritage

The Wallumedegal people are the Traditional Custodians of the area known as Wallumatta, spanning the north bank of the Parramatta River from Lane Cove (Turrumburra) to Parramatta (Burramatta). Their name, shared with Governor Phillip by Bennelong, means 'snapper people', derived from wallumai (black snapper) and matta (water place). Surrounded by neighbouring clans—the Cameragal, Wangal, and Cadigal—the Wallumedegal lived as fisher-hunter-gatherers, thriving in the rich riverine and estuarine landscape.



Precinct Actions

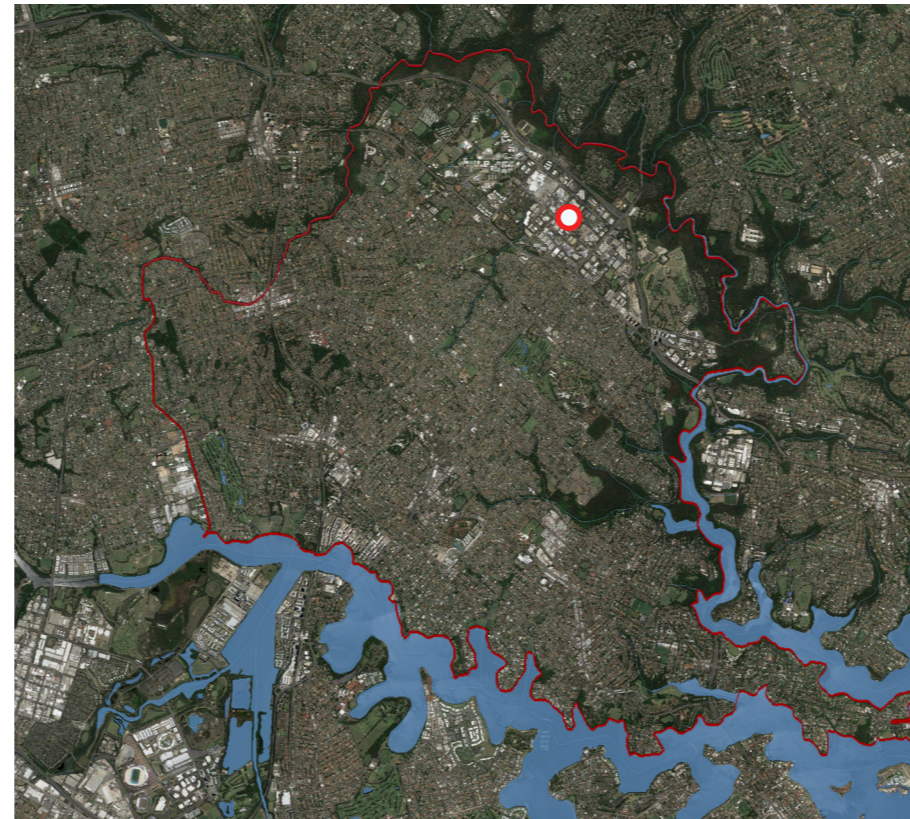
Engagement is ongoing and meaningful. Key actions taken in a physical sense include integrating first nation landscape design in publicly accessible areas and green spaces (lobby entry and northern public areas), the identification and protection of key trees, and the specification of indigenous new flora and fauna.

Place Strategy

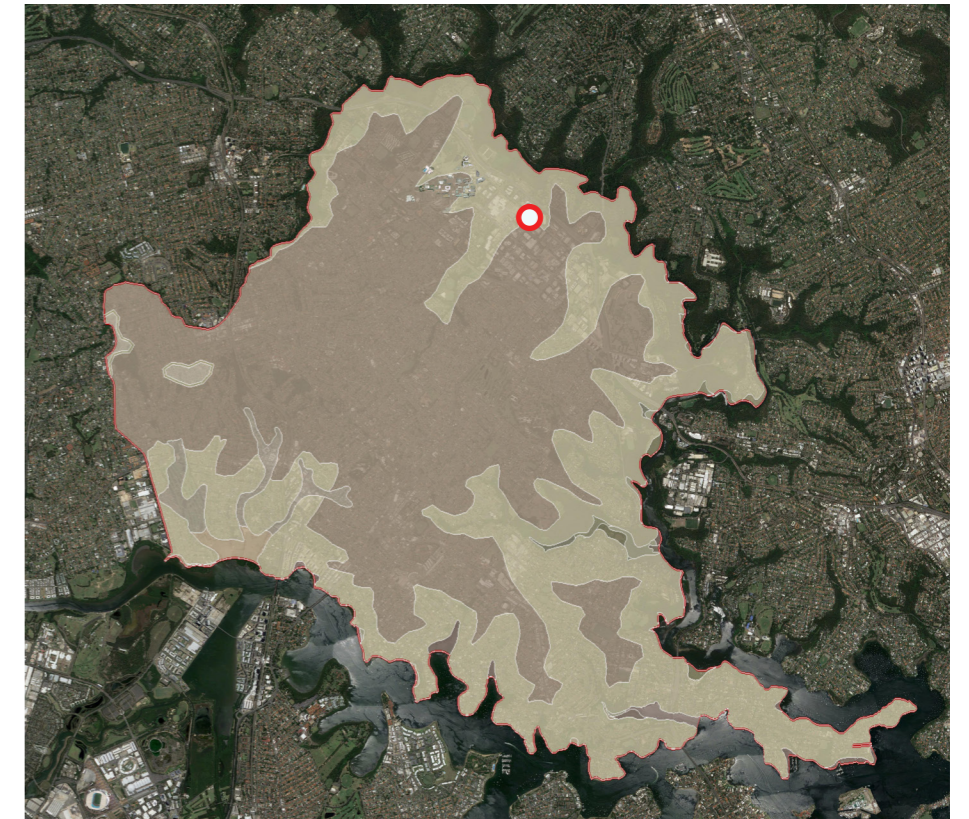
The immediate site is located within Butbut (Neighbourhood 2 as per the Macquarie Park Innovation Precinct) which will remain as the main business core of the area, supplying 1,000 new jobs. This neighbourhood is seen as the 'healing heart' of Wallumatta.

Legend

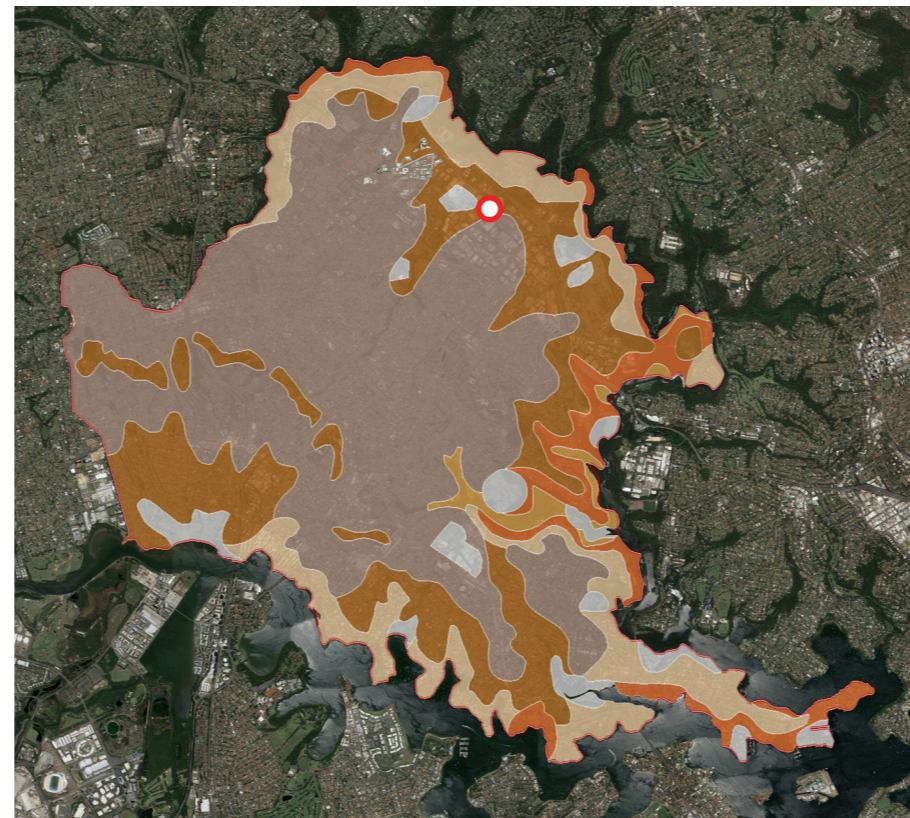
-  Wallumatta Boundary
-  Site



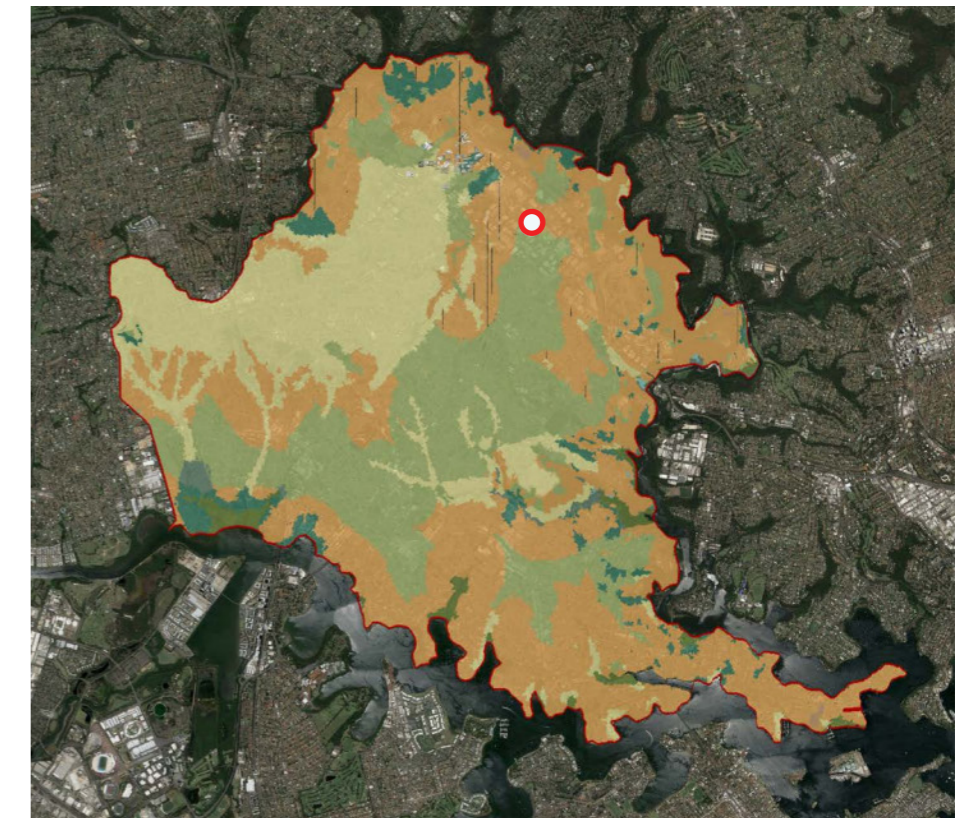
Wallumatta



Wallumatta Geology



Wallumatta Soil



Wallumatta Historical Vegetation

2.5 Site and Context Analysis

The site is located within an emerging commercial and mixed-use area that reflects Macquarie Park's broader transformation into a diverse and innovation-led precinct.

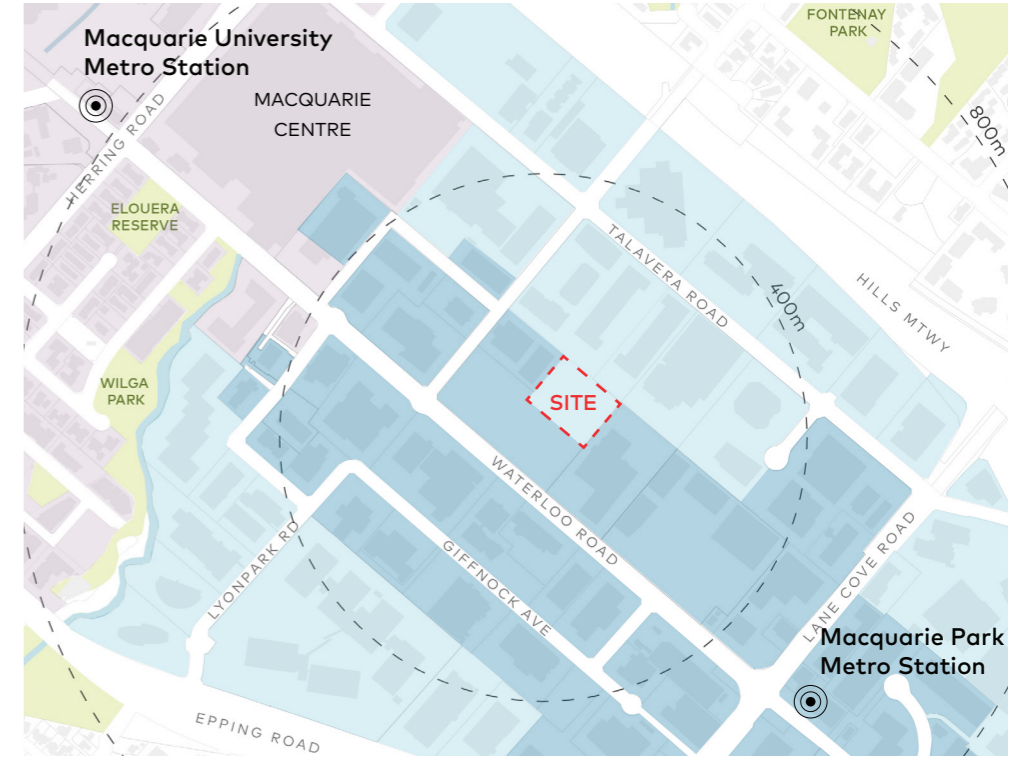
With proximity to Macquarie University, major arterial roads, and two Metro stations, the area is well-positioned for future-focused industries, particularly in technology and research.

Ongoing investment is delivering new roads and public domain upgrades that will enhance connectivity and permeability across the precinct.

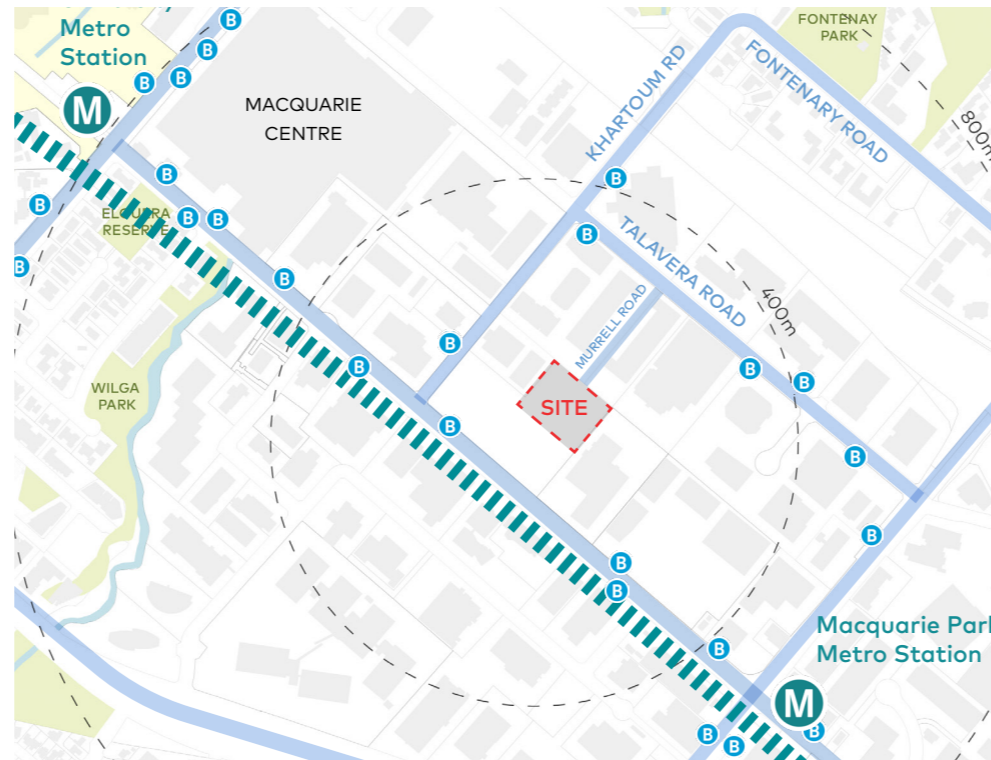
The site's generous topography has been thoughtfully integrated into the design, creating a natural distinction between pedestrian access and vehicular servicing, while supporting efficient and functional site planning.



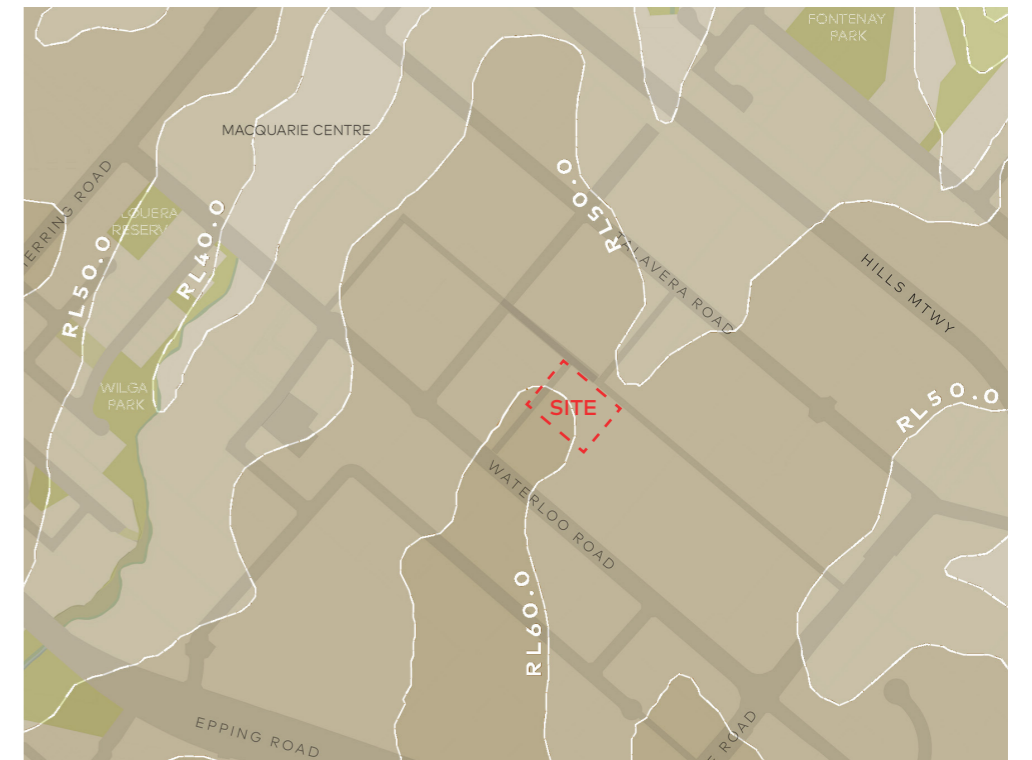
Cycle Connections



Building Uses



Vehicle and Pedestrian Circulation



Topography

Legend

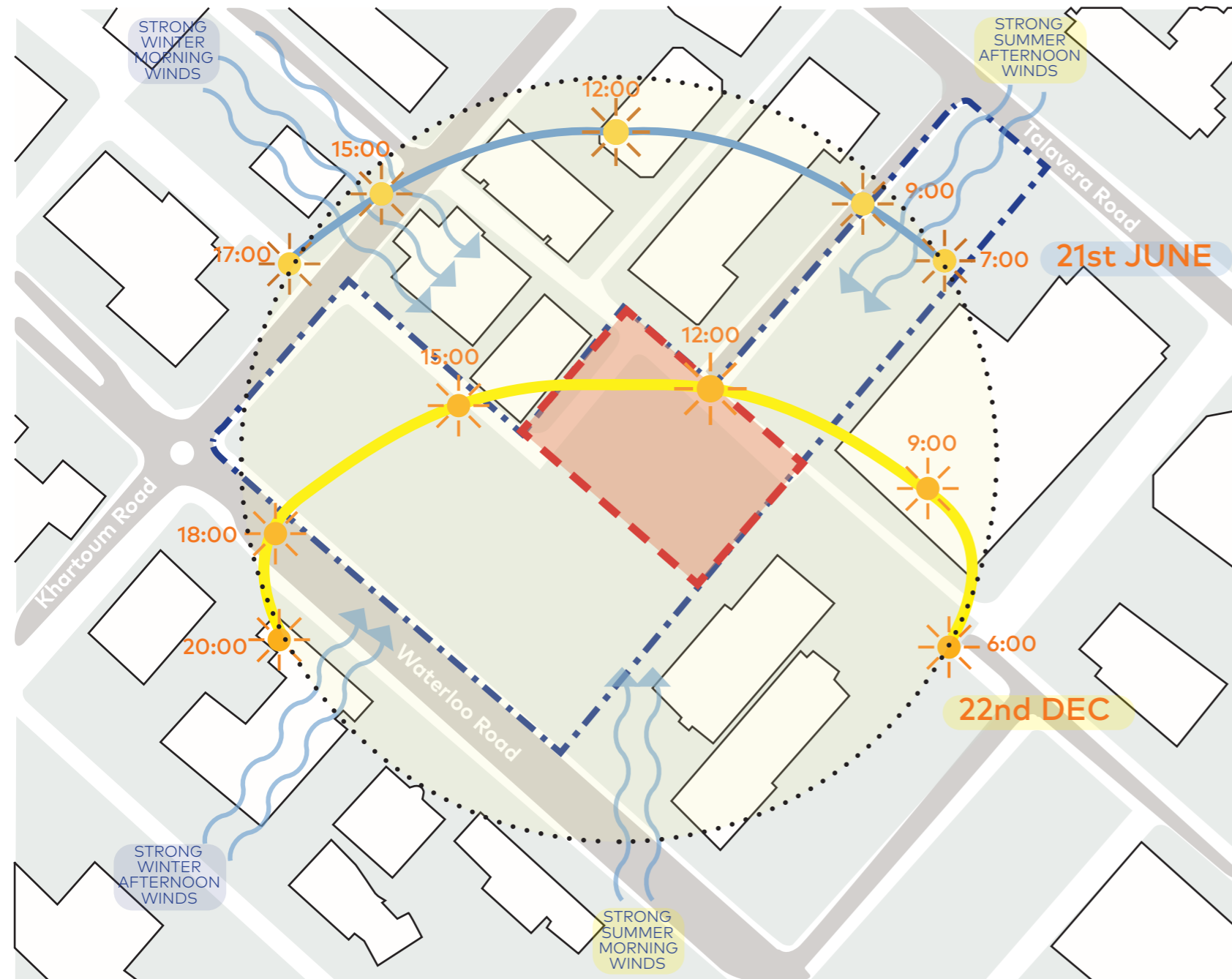
- - - Site
- - - Metro
- Arterial Roads
- Shared Cycle Route
- Radius from Subject Site
- ● ● Informal Cycle Route
- Business Zone
- Commercial Zone
- Mixed Use Zone
- Green Space



2.6 Existing Condition Site Analysis

The site has received demolition DA in late 2024. The existing conditions of the site can be seen in the images to the right.

The site is oriented to the northeast and northwest, with its primary street frontage facing northeast, angled towards the rest of the future precinct.



Environmental Conditions Diagram



1. Existing driveway



2. Existing warehouse upper level



3. Existing driveway



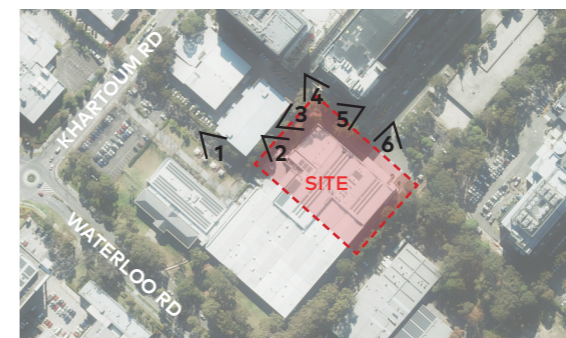
4. Existing driveway



5. Existing warehouse boundary



6. Existing warehouse lower level



Legend

- Site
- Lot Boundary
- Wind
- Winter Sun Path
- Summer Sun Path

C O X

03

Urban Design Response

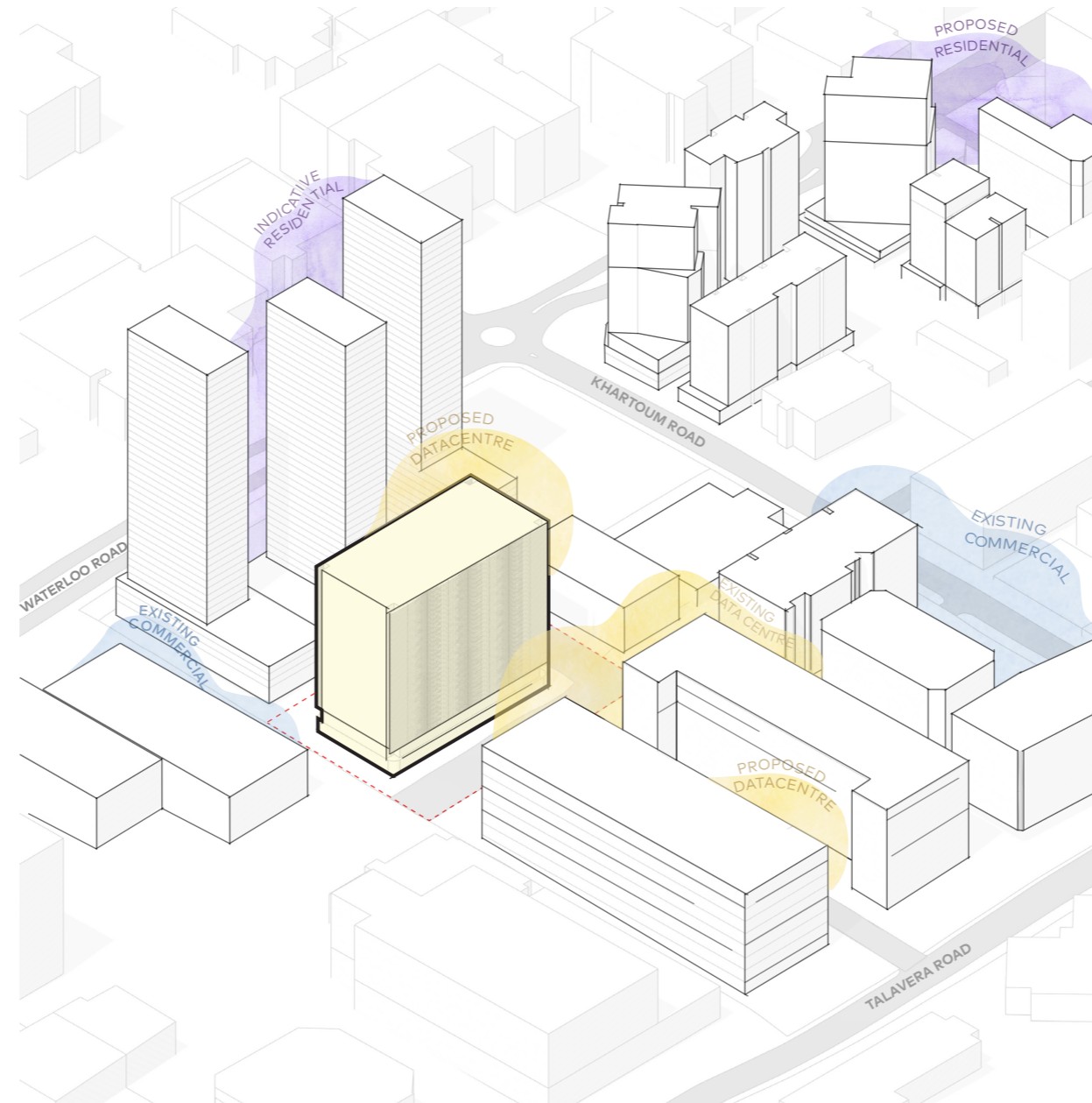
3.1 NSW 'Better Placed' Objectives An Emerging Precinct

As a Better Fit project, the design responds to local topography, street alignments, and future land uses, creating an entry condition that engages with the future park and residential precinct while maintaining a robust, functional built form.

It is Better for Community through the addition of new roads (Road 01 and Road 23), which increase permeability and connection across the site, and through active ground plane uses such as office space and end-of-trip facilities that contribute to a more diverse and walk-able precinct.

As Better Value, the development delivers critical digital infrastructure in a location of strategic importance, clustering with other data centres to enable operational efficiencies while contributing long-term employment and servicing capacity to support the innovation economy. Its durable, adaptable design ensures resilience and lasting contribution to the district's economic and urban evolution.

NOTE: Residential massing on Waterloo Road is indicative only and included to aid in providing long term context considered in the proposed Data Centre design.



Precinct Typologies Diagram



Better Fit
Contextual, local and of its place



Better for Community
Inclusive, connected and diverse



Better Value
Creating and adding value



Better Working
Functional, efficient and fit for purpose



Better Performance
Sustainable, adaptable and durable



Better Look and Feel
Engaging, friendly and attractive

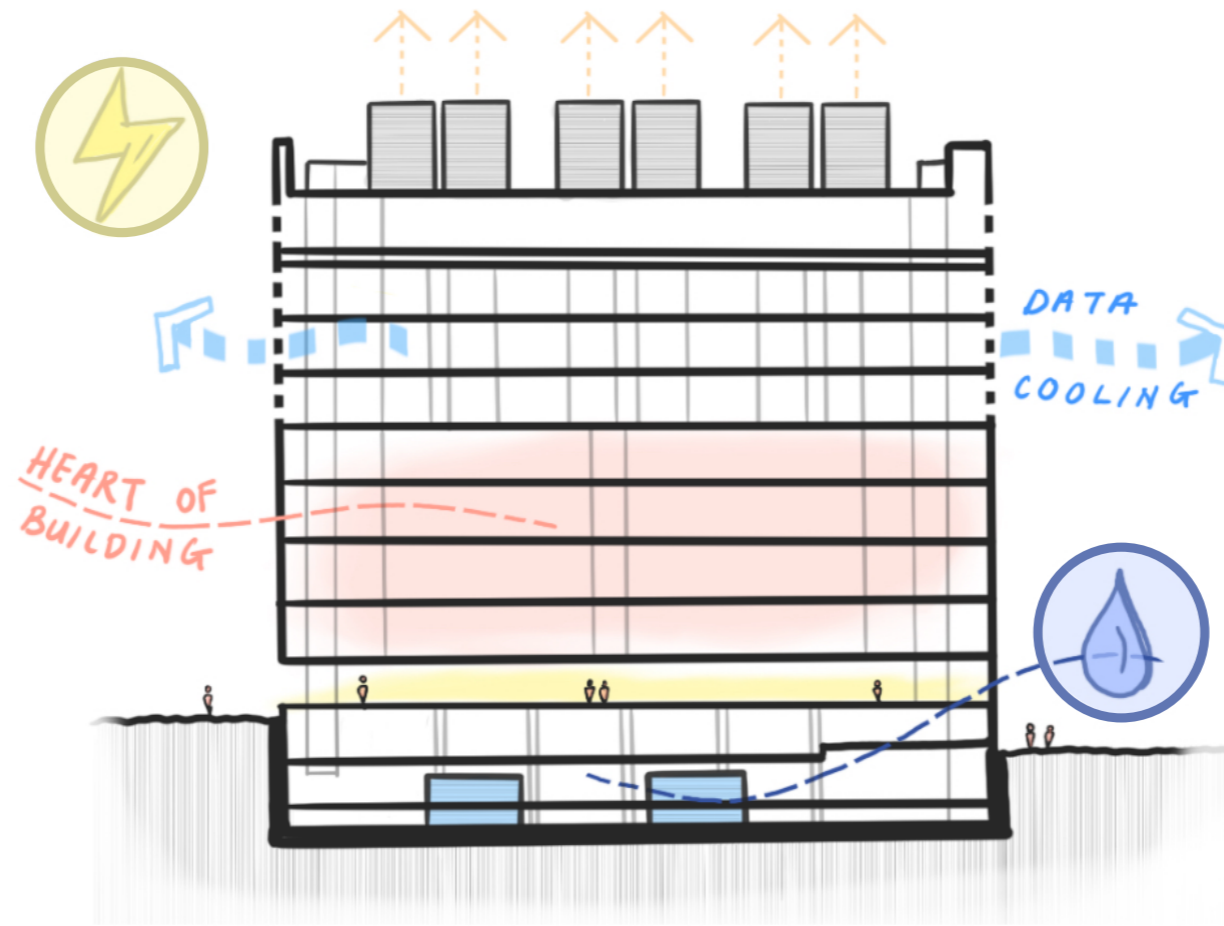


Better for People
Safe, comfortable and livable

3.1 NSW 'Better Placed' Objectives A Sustainable Development

The proposed data centre embodies Better Working through its functional, efficient, and adaptable design. A regular grid structure and generous floor-to-floor heights support flexible internal layouts, allowing for seamless upgrades as technology evolves. Key operational areas are clearly organised, supporting ease of access, maintenance, and long-term functionality.

In line with Better Performance, the facility is designed for sustainability, durability, and future-readiness. It achieves a leading PUE through efficient energy use and effective heat rejection via cooling towers. A well-considered water strategy incorporates large rainwater tanks. Together, these features ensure the building delivers long-term environmental, operational, and economic value.



- An efficient PUE exceeding industry
- The use of cooling towers to reject heat
- Rainwater tanks capturing ~95% of roof runoff
- A regular grid for potential future adaptability
- A typology that is built for longevity

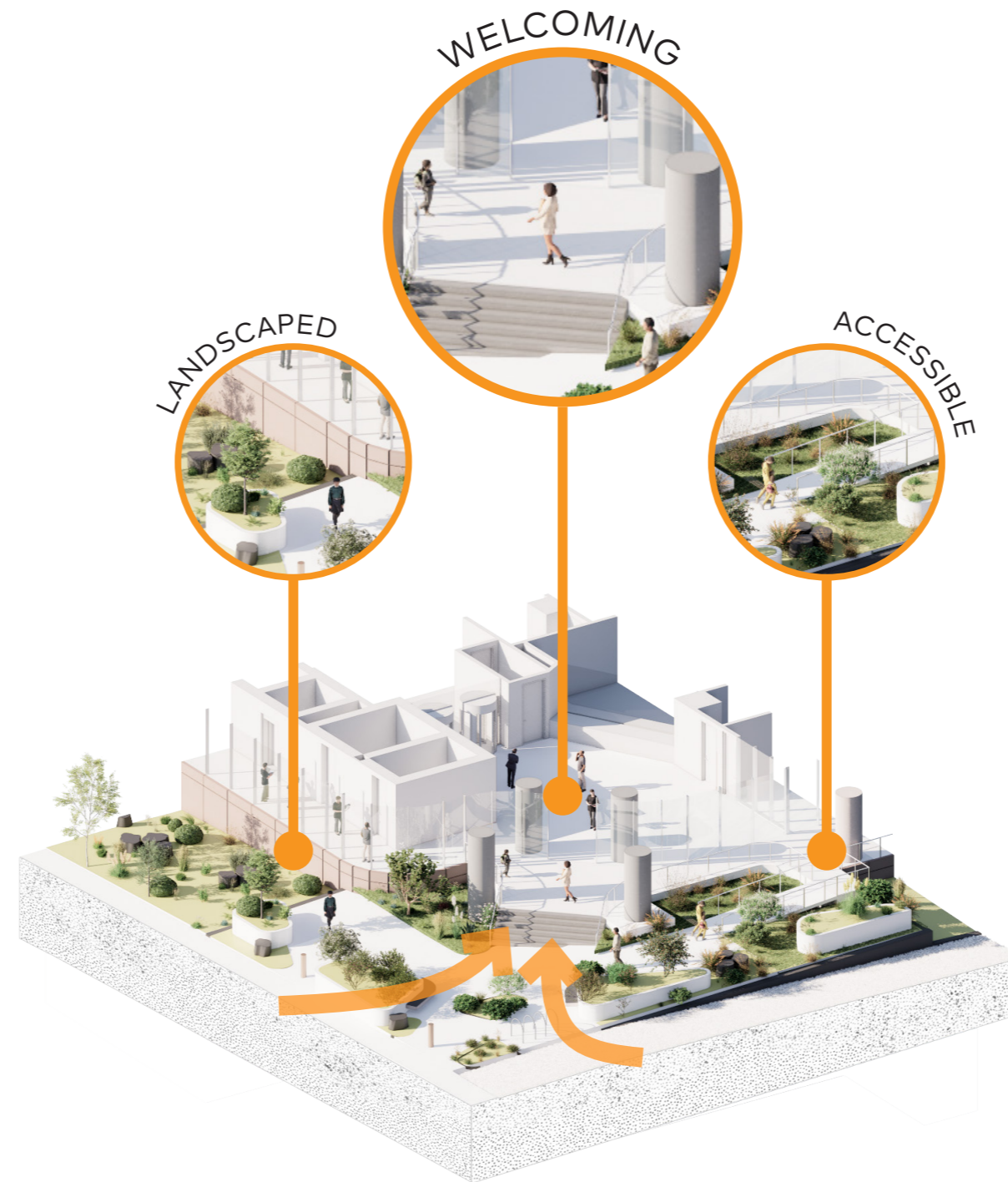
Summary of ESD Initiatives

- Better Fit**
Contextual, local and of its place
- Better for Community**
Inclusive, connected and diverse
- Better Value**
Creating and adding value
- Better Working**
Functional, efficient and fit for purpose
- Better Performance**
Sustainable, adaptable and durable
- Better Look and Feel**
Engaging, friendly and attractive
- Better for People**
Safe, comfortable and livable

3.1 NSW 'Better Placed' Objectives Facade Articulation

The proposed data centre embraces a people-centric design approach, aligning with the Better for People and Better Look and Feel principles. Ground-adjacent levels prioritise visual transparency and accessibility, creating a welcoming and inclusive street-scape. The entry is clearly defined, accessible, and complemented by integrated landscaping that softens the built form and enhances public amenity.

Architecturally, the building presents a refined and purposeful façade, designed with material variation, depth, and rhythm to provide visual interest and reduce perceived bulk. These elements work together to create a safe, attractive, and engaging interface with the public realm, contributing positively to the evolving urban character of Macquarie Park.



Ground Plane Diagram

- 

Better Fit
Contextual, local and of its place
- 

Better for Community
Inclusive, connected and diverse
- 

Better Value
Creating and adding value
- 

Better Working
Functional, efficient and fit for purpose
- 

Better Performance
Sustainable, adaptable and durable
- 

Better Look and Feel
Engaging, friendly and attractive
- 

Better for People
Safe, comfortable and livable

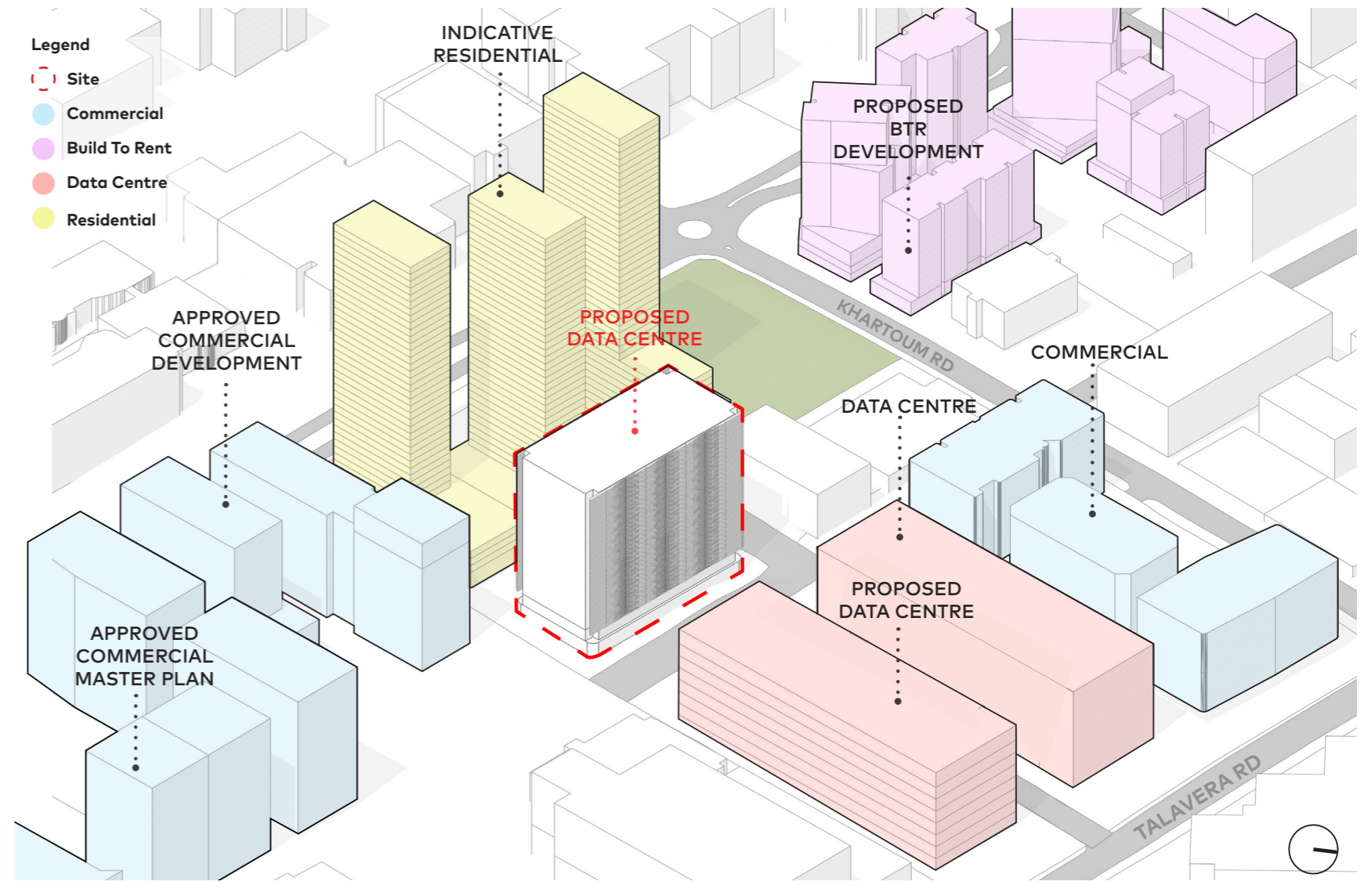
3.2 Building Massing An Emerging Precinct

Macquarie Park at present follows a traditional business park setting. Home to major technology, pharmaceutical and research-based industries, the area is however evolving into a more integrated and future-focused urban centre.

Supported by substantial public and private investment, Macquarie Park is seeing a shift in character - with increased building heights, a growing residential population, and enhanced transport and public domain infrastructure.

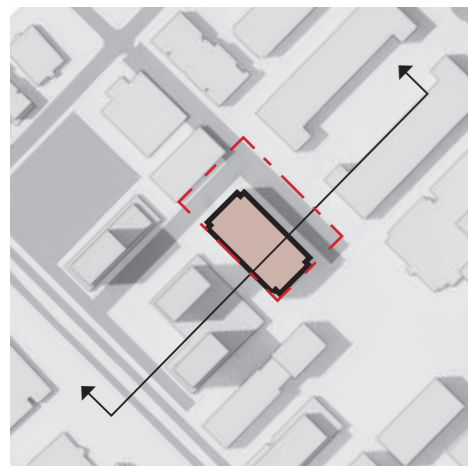
The site, embedded within this changing urban fabric yet set away from the proposed commercial core, provided an ideal setting for a high-tech usage such as a data centre.

As the area matures into a key metropolitan hub within Sydney's Innovation Corridor, the data centre is well-positioned to serve the region's expanding technological and operational demands - all while aligning with the area's future-focused vision.

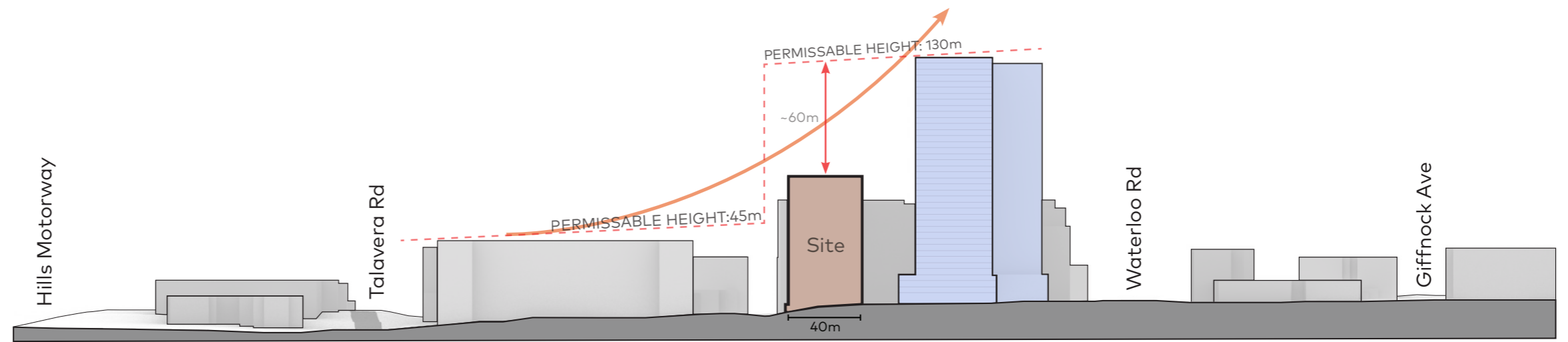


Future Condition of Macquarie Park

NOTE: Residential massing on Waterloo Road is indicative only and included to aid in providing long term context considered in the proposed Data Centre design



Key Plan



Site Permissible Height Section

3.2 Building Massing Setbacks

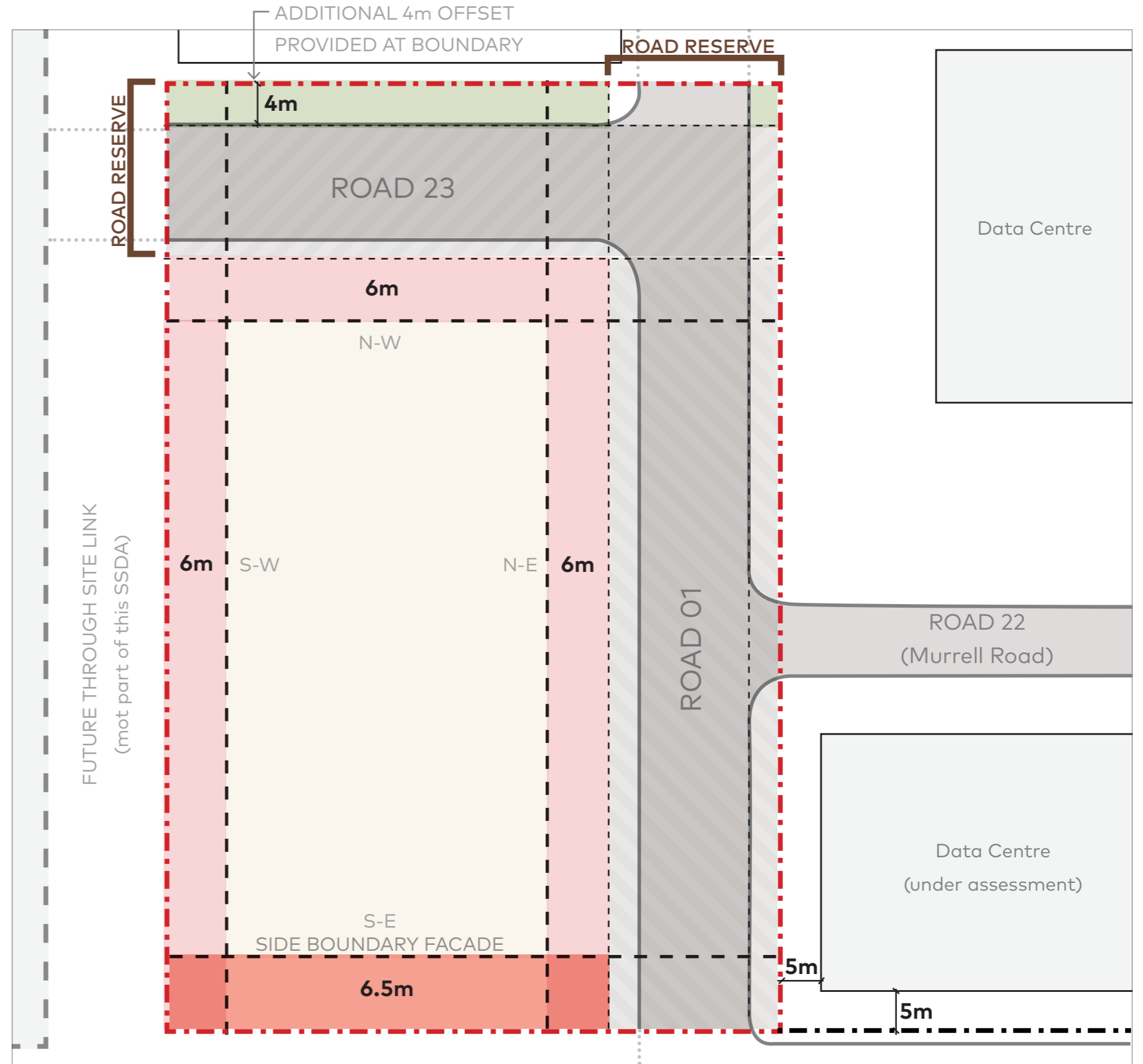
The data centre complies with the Macquarie Park Design Guide setbacks along the north-west, south-west, and north-east boundaries.

To the south-east, a 6.5m setback is proposed instead of 9m, prioritising the preservation of significant planting verges adjacent to the neighbouring building. These trees are considered more valuable than maximising the full rear setback, especially given the building's 72.8m height, which would limit the viability of new tree planting in this zone. Therefore an additional 4m has been provided than what is required on this alternate boundary facing the public realm.

Furthermore, the south-eastern facade on a side boundary, is designed to allow for future ADG compliant development on the adjoining site to this side boundary.

It is also noted that the adjacent data centre (to the lower right of our proposed data centre), currently under assessment, only proposes a 5m setback.

The proposed setbacks have been reviewed and discussed through the SDRP process.



Building Setbacks Diagram

Legend

- SSDA Application Boundary
- Proposed Data Centre
- Setback
- Reduced Setback
- Road Reserve
- Planting Verge

3.3 Contextual Views

A visual analysis was undertaken to assess how the proposed data centre integrates within the evolving Macquarie Park context.

Figure 1 demonstrates that the development will be largely screened by future residential towers along Waterloo Road, minimising its visual prominence.

Additionally, the proposal does not utilise the full 130-metre permissible height, reducing its impact on the skyline.

This approach ensures the building remains respectful of its surroundings while supporting a gradual and appropriate transition in height across the precinct.



View 1: Existing View; Khartoum Road/Waterloo Road Intersection



View 1: Proposed View; Khartoum Road/Waterloo Road Intersection

**Refer to Urbis' Visual Impact Assessment for more information.*



View 2: Existing View; Waterloo Road



View 1: Proposed View; Waterloo Road
*Built Form on Waterloo Road is indicative



Key Plan

3.4 Structure Plan

The proposed data centre is located in close proximity to existing and planned data centres, supporting a more sustainable cluster model that allows for shared infrastructure and operational efficiencies.

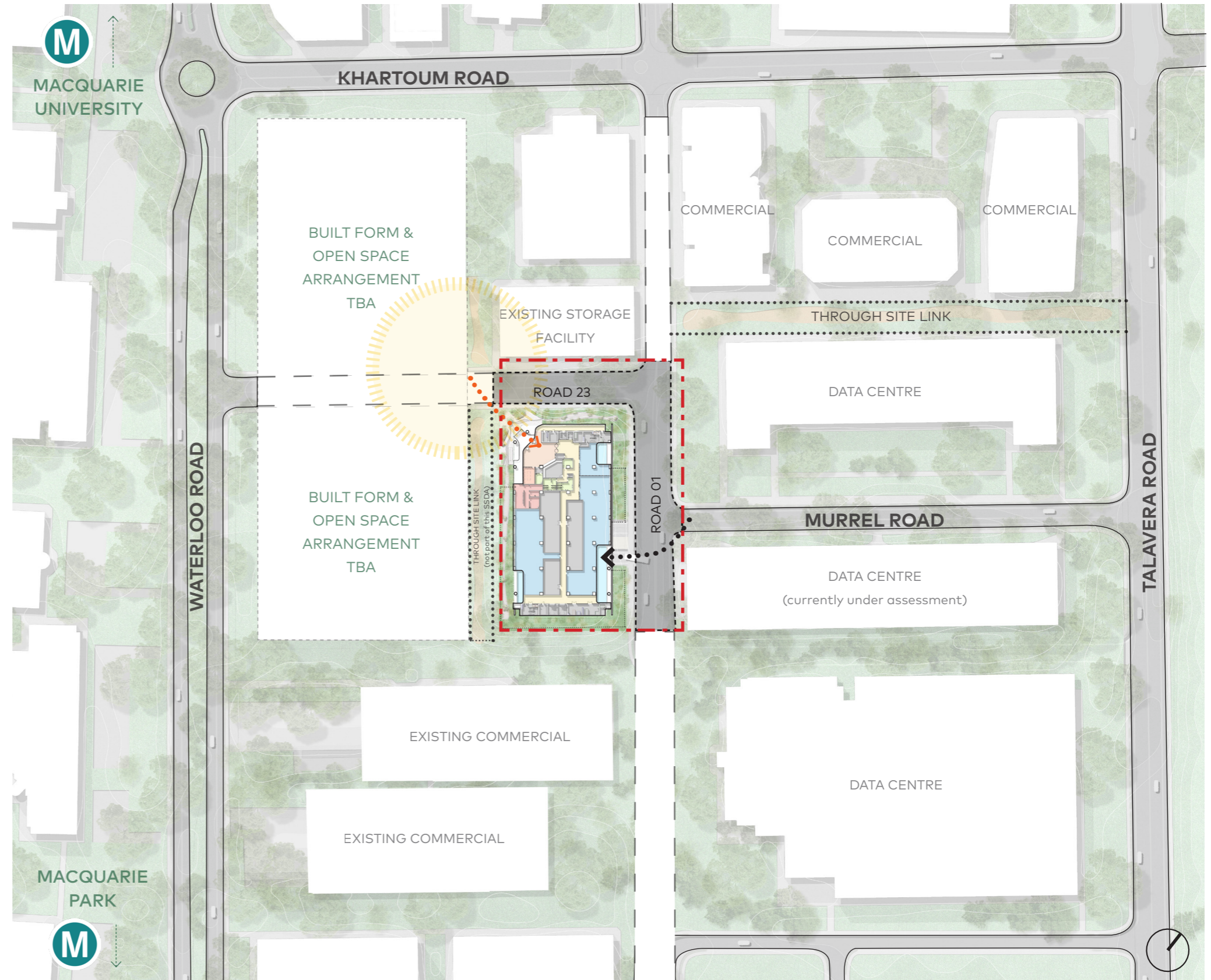
The development proposes two new roads – Road 01 and Road 23 – which will continue to improve permeability through the precinct, support future development, and contribute to a more connected and active street network.

The site also benefits from proximity to key existing roads, including Waterloo Road, Khartoum Road and Talavera Road, as well as convenient access to the M2 Motorway.

There is an opportunity for future connections linking Waterloo Road to Road 23, as well as Road 01 extending to Talavera Road and Khartoum Road—further strengthening connectivity across the precinct.

In addition, two future through-site links are proposed immediately west of the site (not part of this SSDA), along with another link between the commercial and data centre neighbours to the northeast, enhancing permeability throughout the wider area.

Holistically, this aligns with Stockland's adoption of a finer grain approach to the precinct, prioritising the creation of new public spaces and links sequentially across the cluster of sites in the area.



Structure Plan

3.5 Ground Plane Urban Design Principles

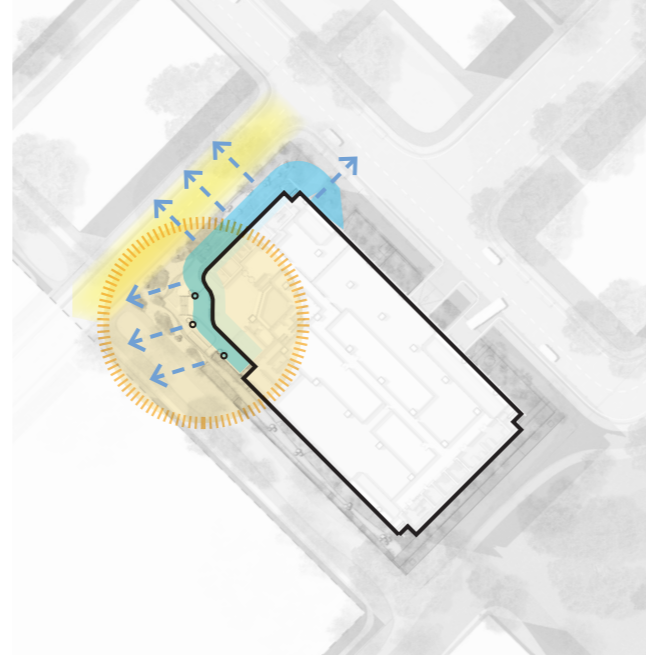
The diagrams to the right highlight the key urban design principles that form the foundation of the proposed ground plane:

1. North-West Perimeter Activation: The design prioritises activating the Road 23 frontage to create an engaging interface with the broader precinct. Lobby and office areas are strategically positioned along the northern edge to foster visual and physical interaction with the public realm.

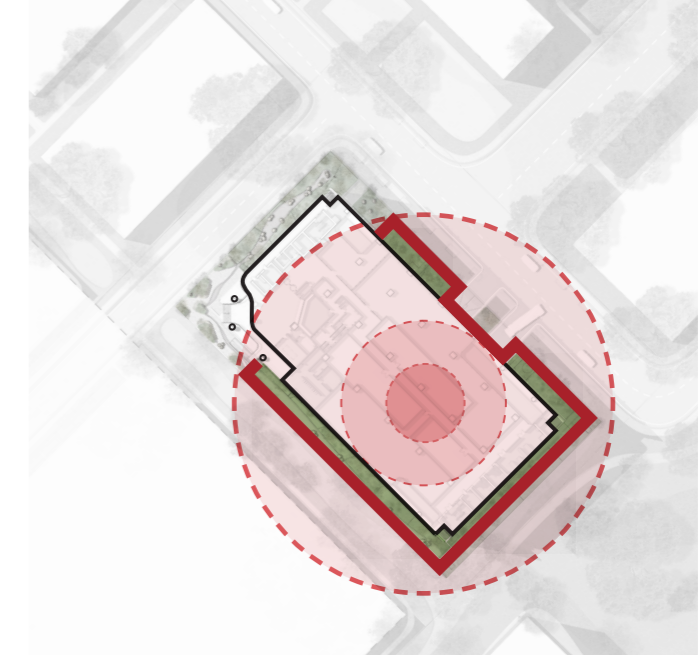
2. Security: As data centres require robust security, the design incorporates a layered security approach using fencing and dense landscaping. Planting not only screens the secure perimeter but also softens its visual impact, blending security infrastructure into the surrounding environment.

3. Articulation: The building presents an orthogonal footprint, balanced by a sculpted, organic entry that creates a welcoming threshold. This gesture adds visual interest and supports intuitive way-finding for users and visitors.

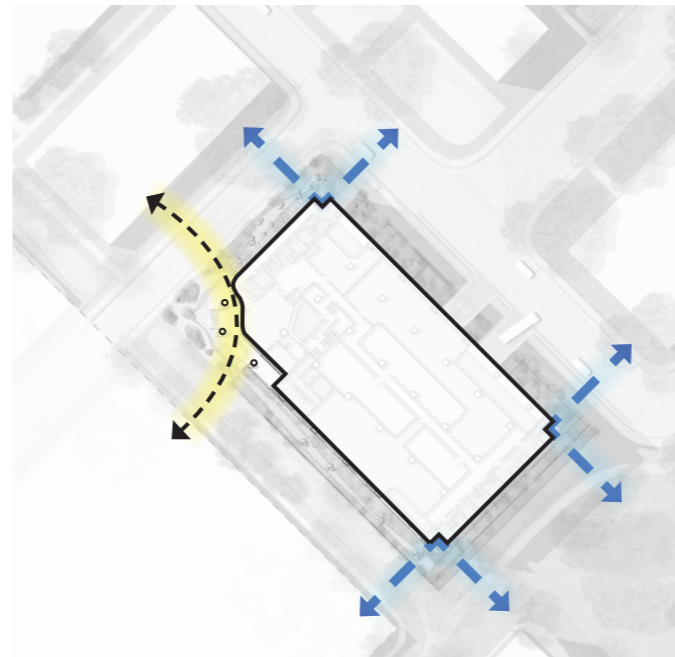
4. Leveraging on Topography: The scheme leverage's the site's natural gradient, locating the main entry and end-of-trip (EOT) facilities on the higher northern edge to encourage activity along Road 23, while placing vehicular access and service entries on Road 01 to minimise their visibility and operational impact.



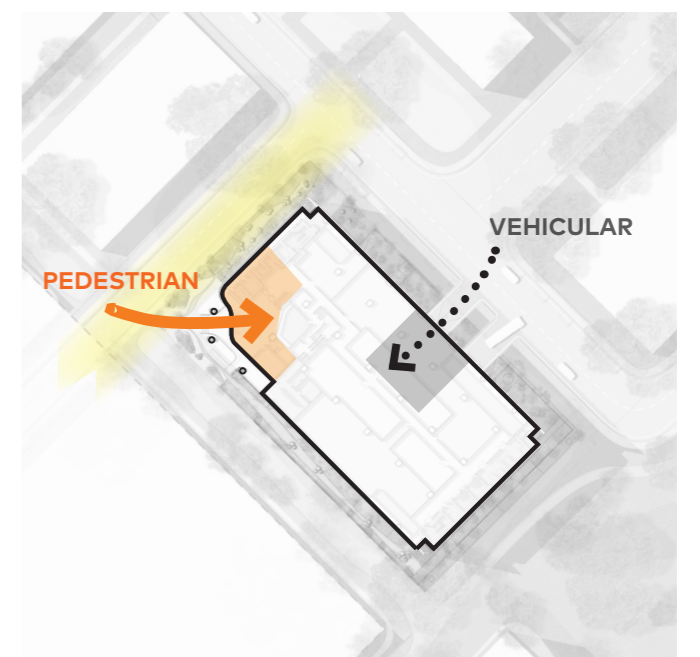
1. North-West Perimeter Activation



2. Security



3. Articulation



4. Leveraging on Topography



3.6 Ground Plane Urban Design Response Landscape Strategy

The landscape strategy balances security requirements with activation and public amenity, particularly along Road 23, Road 01, the through-site-link and the north-eastern corner where the main building entry is located.

Activation is achieved through integrated seating in raised planters, bike racks, small gathering spaces, and native planting to create a more inviting streetscape.

At the same time, discrete security elements such as boulders, bollards, and fencing are incorporated into the landscape design as protective measures that align with the overall security strategy.

All planting is native, and engagement with the local Indigenous community is ongoing to support a precinct-wide approach to Connection with Country.

Legend

- 1 Entry Forecourt
 - 2 Seating
 - 3 Feature Paving
 - 4 Bike Racks
 - 5 Battered Planting
 - 6 Swale Planting
 - 7 CwC Design Principles Integration
 - 8 Outdoor Breakout Space
 - 9 Removeable Bollards
 - 10 Barrier Boulders
 - 11 Overland Flow Swale
 - 12 Street Tree Planting
 - 13 Fence
- Fence
 --- Site Boundary



Landscape Strategy Plan



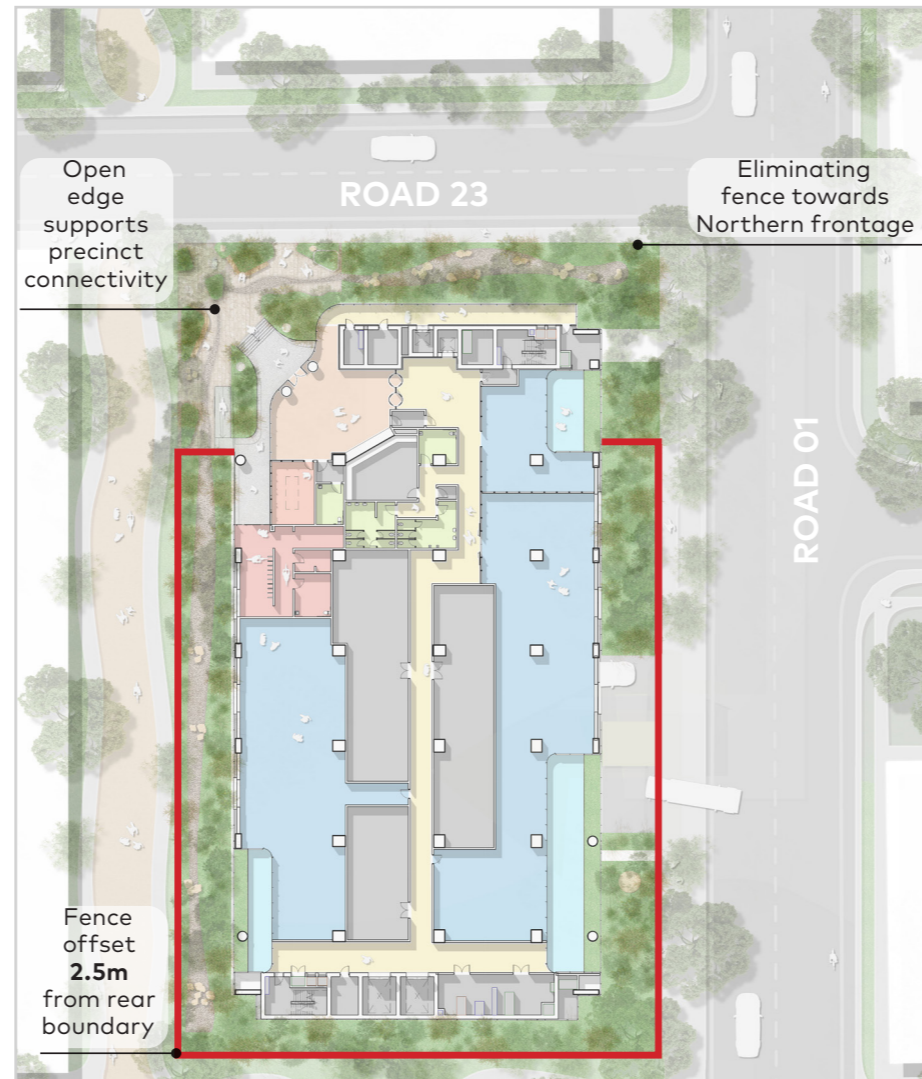
3.6 Ground Plane Urban Design Response Security Strategy

Typical data centres respond to security requirements by incorporating physical barriers such as fencing and gates around the entire site. However, understanding the importance of balancing security with public amenity, fencing was removed along the north-west façade and north-eastern/south-western edges early in the site strategy.

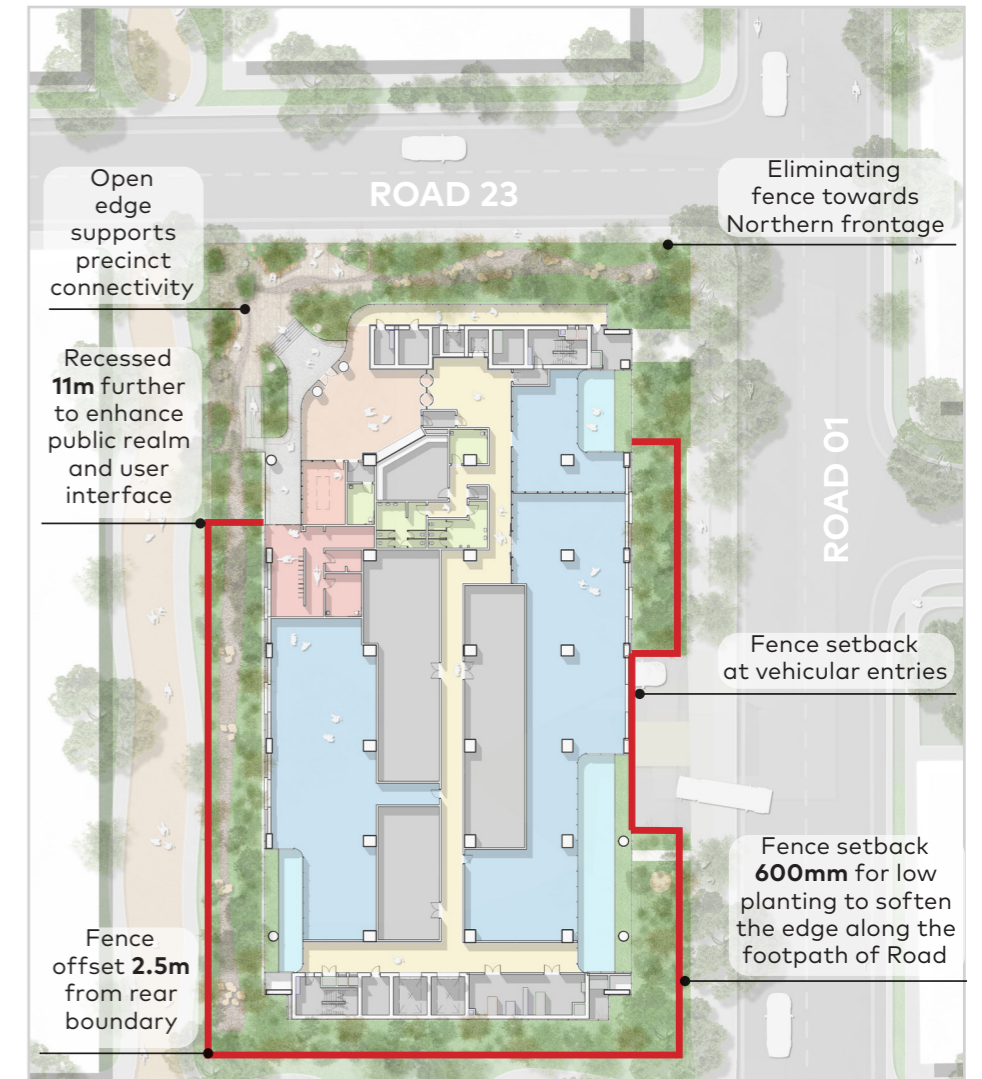
Following the second SDRP, the security approach was further refined to better support the public realm and broader urban strategy of the precinct. This included increased building setbacks and additional planting to help blur the lines between security and landscape. Security is maintained through controlled access points and strategic building planning, rather than relying solely on perimeter fencing.



Typical Data Centre Fence



SDRP 1 Data Centre Fence



Proposed Data Centre Fence

3.6 Ground Plane Urban Design Response

Upper Ground Floor Plan

The design takes advantage of the site's natural topography, with the primary pedestrian entry located at the elevated north-west corner—facing the future park and potential residential precinct.

This entry point is designed to be more organic and fluid in contrast to the otherwise structured, orthogonal form of the data centre, aiding in way-finding and creating a welcoming arrival experience.

At this level, the program includes office space, storage, and end-of-trip facilities, all contributing to ground plane activation and engaging the frontages along Road 23 and Road 01. Inset terraces further enhance street-level activity and provide passive surveillance toward the future through-site link (not included in this SSDA).

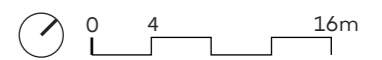
Security fencing has been carefully recessed or removed where possible to reduce visual impact and create a more open, approachable interface while maintaining necessary operational security.

Legend

- ⋮ Site
- Office
- EOT
- Storage
- Amenities
- Services / Core
- Circulation
- Lobby
- ←--- Carpark Entry
- ←--- Loading Dock Entry



Upper Ground Floor Plan



3.6 Ground Plane Urban Design Response

Ground Plane Activation

The ground plane features an organic entry, contrasting with the orthogonal form of the data centre above. This enhances way-finding and strengthens the relationship between the building, landscape, and public domain.

Lighting Strategy

Lighting is proposed at ground and pedestrian level to meet CPTED requirements. Façade lighting is limited to the north and west edges, where glazing occurs and pedestrian activity will be highest, as shown in the adjacent image.

Art

The approach to the art strategy on the site is to embed art in the detailing and materiality; with First Nations principles meaningfully expressed through the lighting and landscaping. Of particular note, is area 7 indicated in previous landscape drawings.

This SSDA forms part of an ongoing wider precinct where commissioned art works are located in meaningful locations and ways across the 7 hectares.



Main Entrance

Organic focus in contrast to the orthogonal data centre



North-East Facade; Road 23 and Main Entry

Activation of the ground plane through glazing, crafted materiality and greenery



Westerb Facade, Through-Site Link and Recessive Fencing

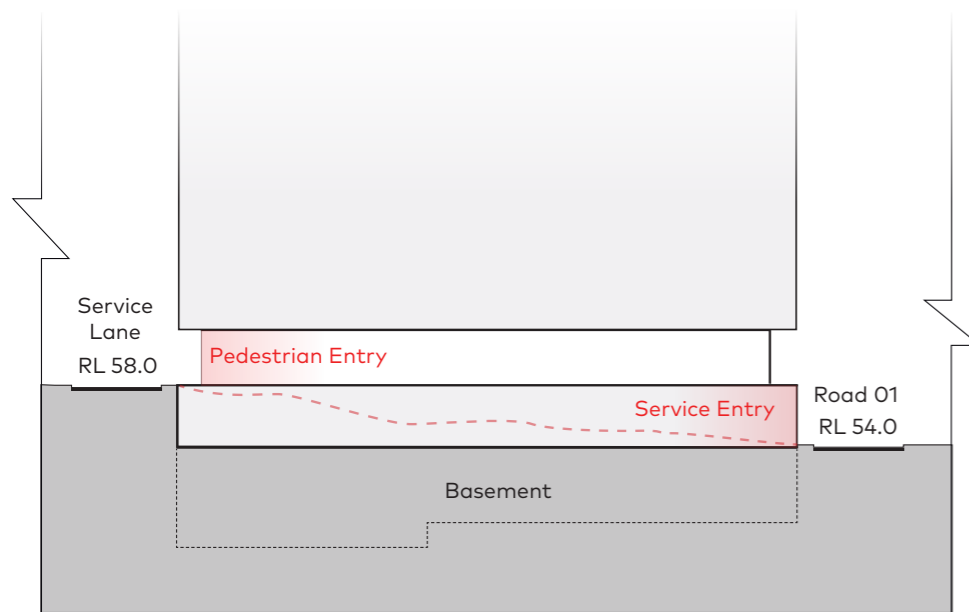
Seamless integration of building, landscape and public domain flora and fauna

3.6 Ground Plane Urban Design Response Lower Ground Floor Plan

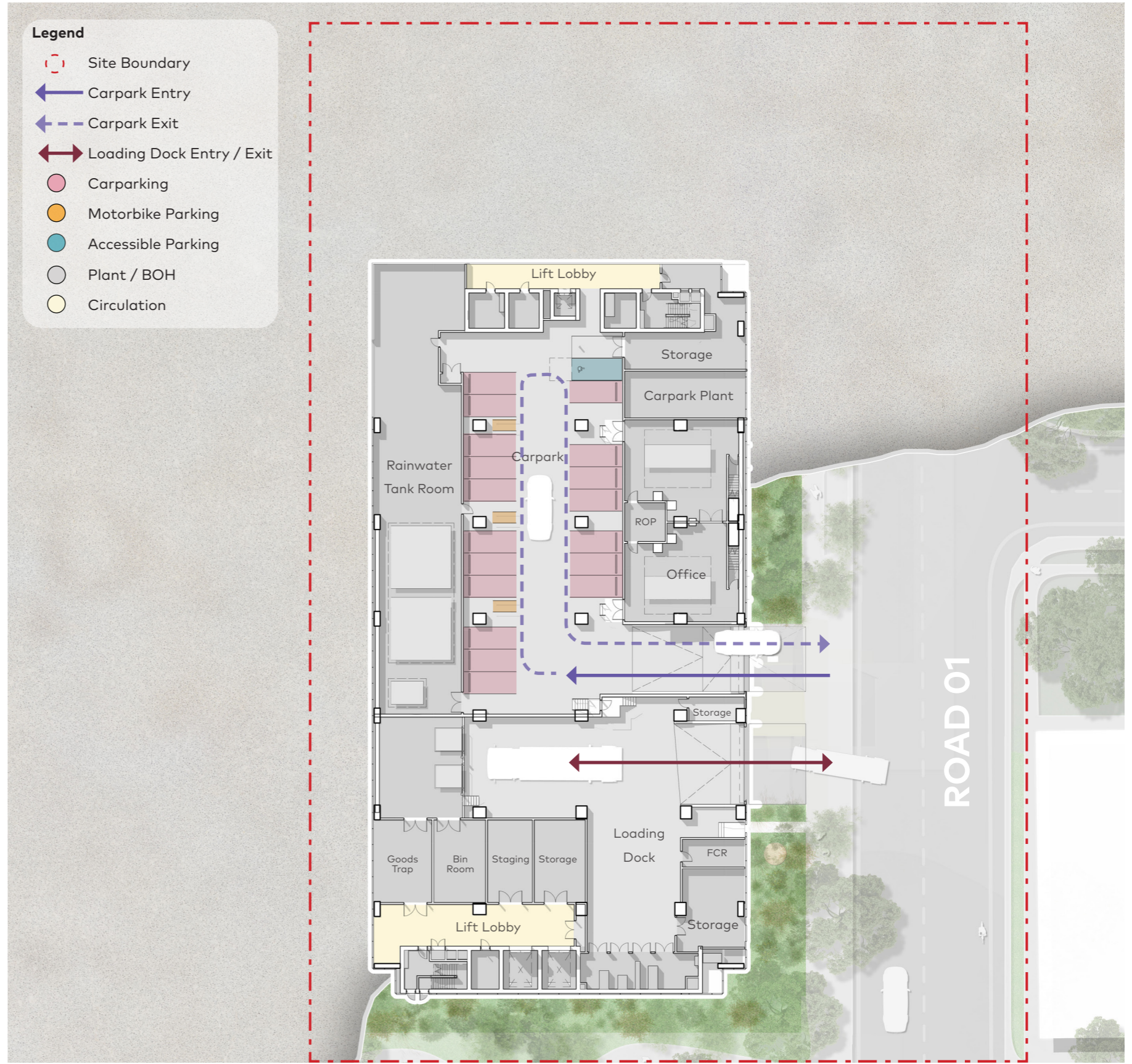
The vehicular entry is located along Road 01, taking advantage of the lower topography on the eastern façade. This level accommodates:

- 19 car parking spaces (including 1 accessible space)
- 3 motorbike spaces
- a loading dock
- back-of-house functions including storage, bin rooms, goods traps, and rainwater tank rooms

The rooms are efficiently arranged to support the operational needs of the facility while minimising impact on the public realm.



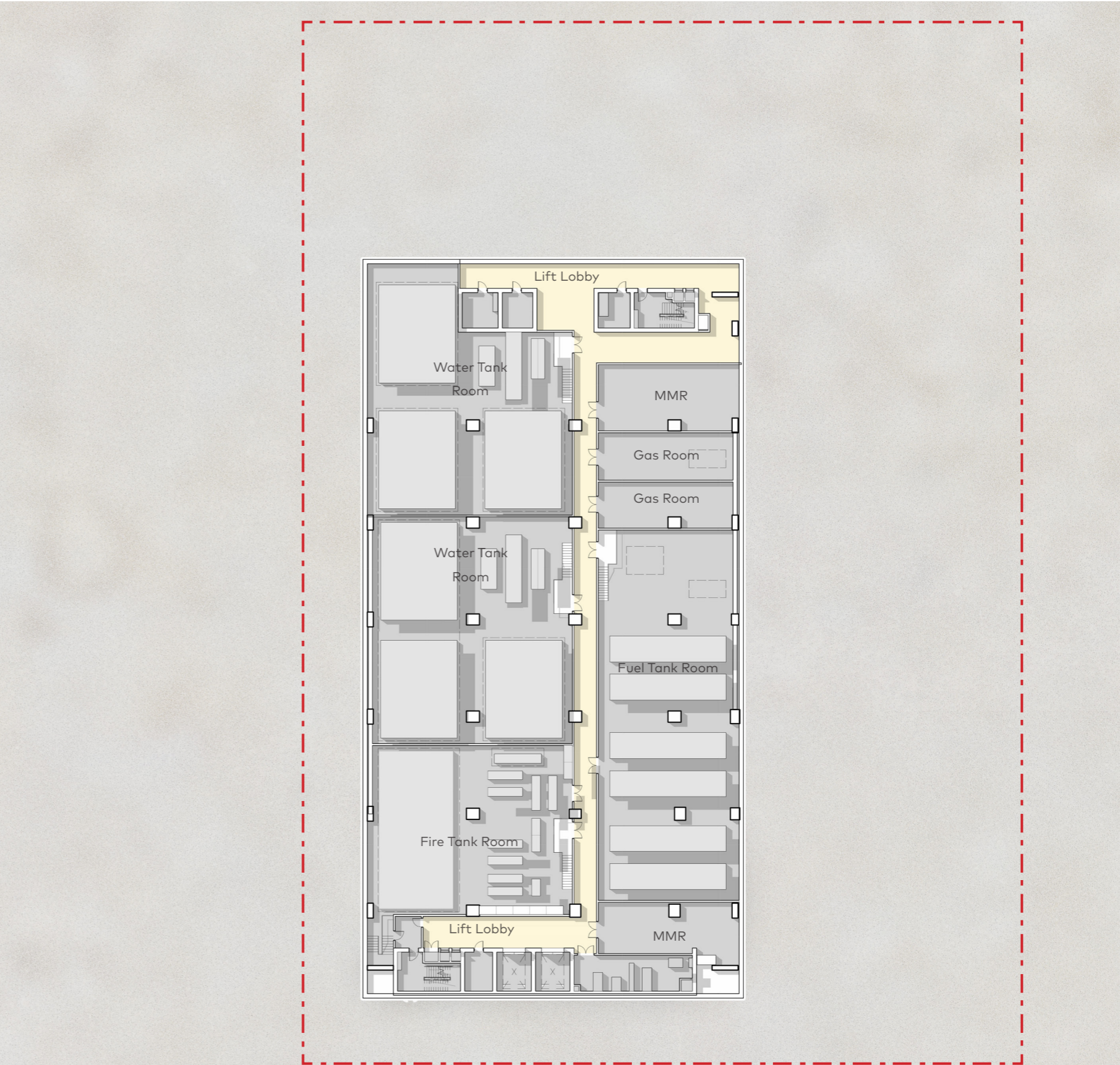
Topography Section



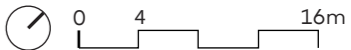
Lower Ground Floor Plan; Access, Servicing and Parking

3.6 Ground Plane Urban Design Response Basement Floor Plan

The basement level accommodates essential services such as fuel tank rooms, fire tank rooms, and water tank rooms, as well as MMRs and gas rooms. Locating these functions maximises above-ground space for operational and public-facing uses while allowing secure, consolidated servicing zones below.



Basement Floor Plan



3.7 Building Function

General Building Arrangement

1. Office

Located at ground level, the office spaces activate Road 01 and Road 23, contributing to a lively street interface. The largely glazed, terraced façade creates a welcoming entry and gives the impression of the data centre 'floating' above.

2. Data Halls

Positioned at the core of the building, the data halls house the critical IT infrastructure and server racks—forming the heart of the facility.

3. Generators

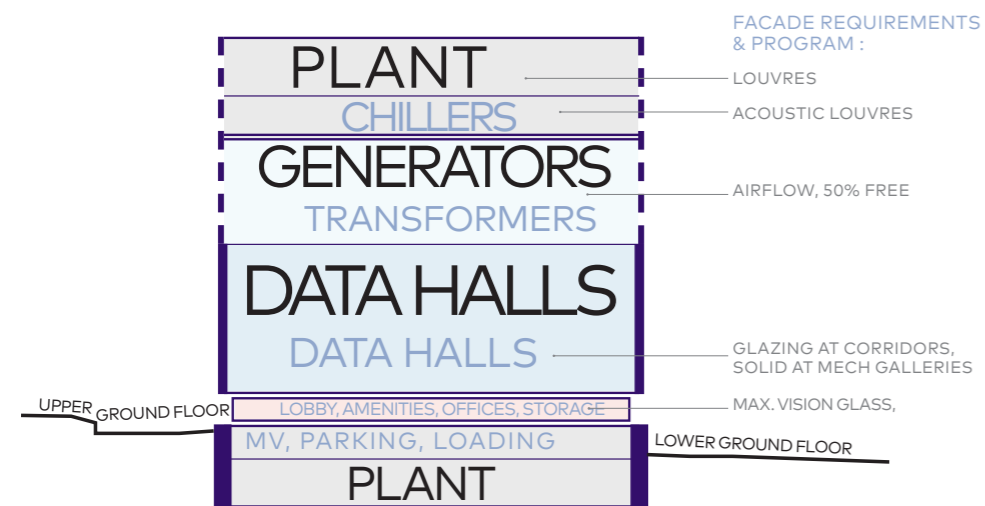
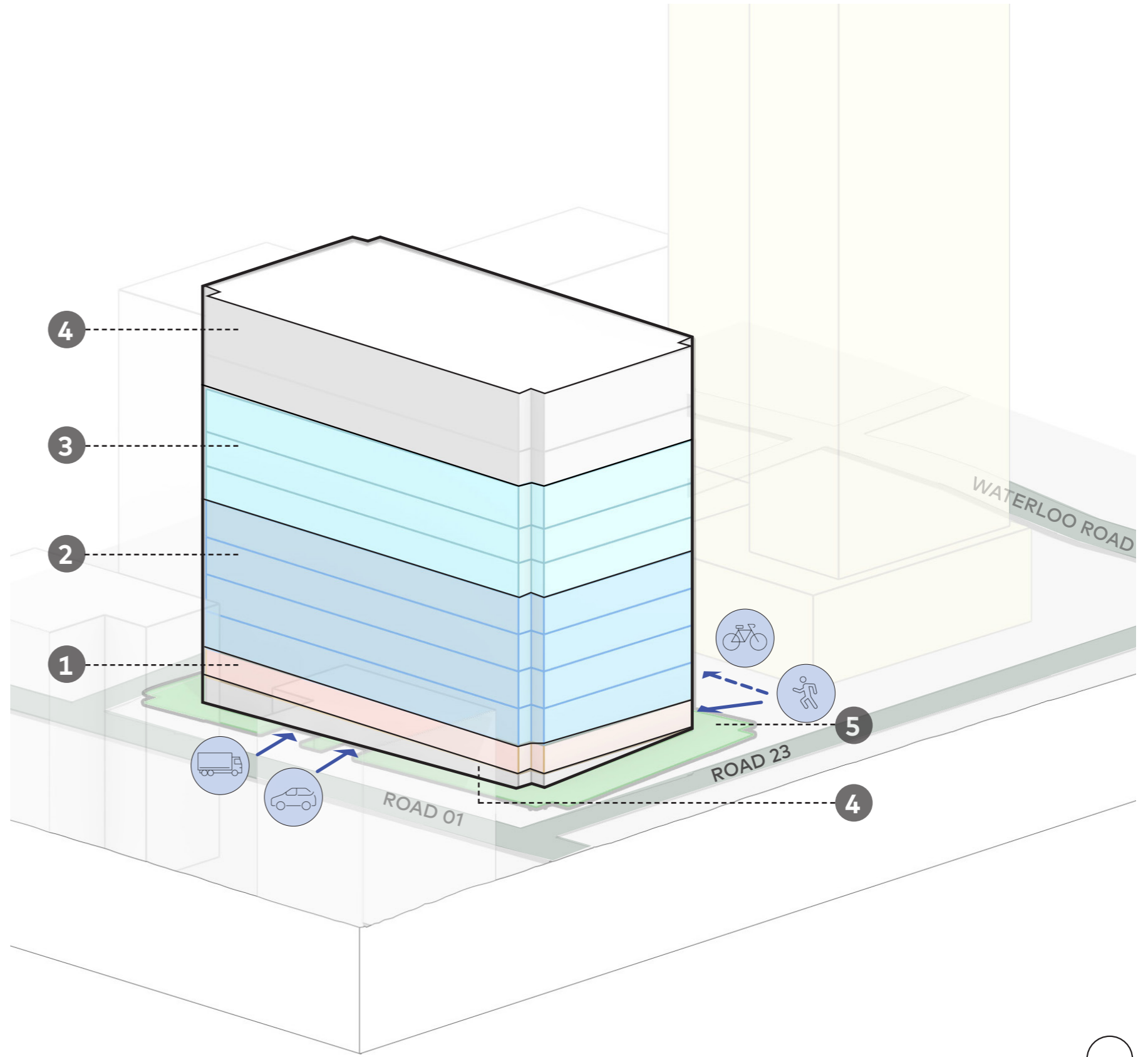
Generators and transformers sit above the data halls, ensuring reliable backup power and uninterrupted operation. Noise emission is limited via acoustic louvres on the internal face of the façade.

4. Plant

The uppermost levels house cooling infrastructure, including chillers and air systems, essential for regulating heat from the data halls. This is therefore removed from the public realm, freeing more space at ground for engagement.

5. Landscape

Landscaping is integrated around the site to enhance amenity, soften the building's edges, and provide a secure, natural buffer to the surrounding precinct.



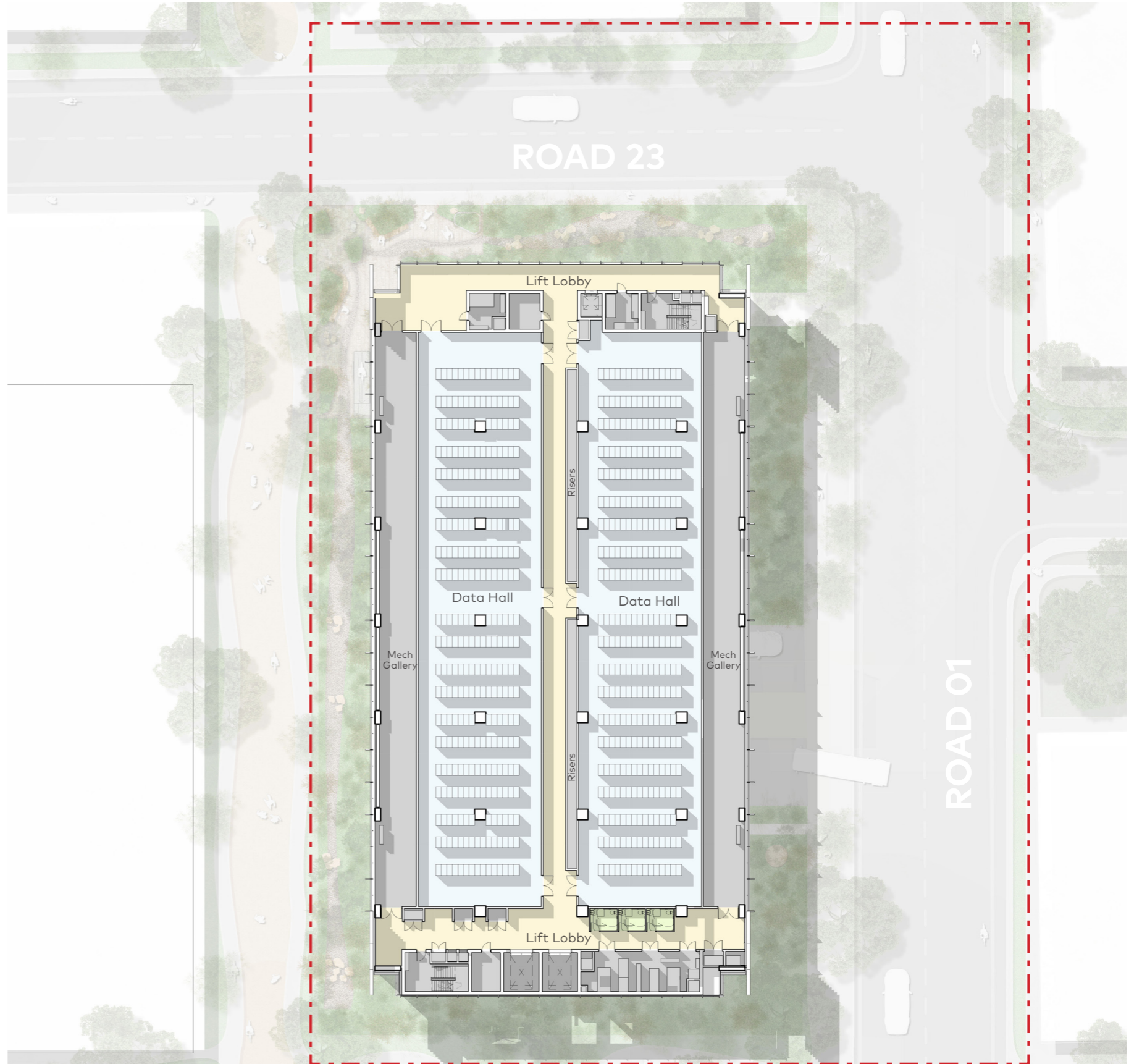
Data Centre Arrangement Diagram

3.8 Upper Levels Internal Planning Data Halls Floor Plan (L01-L04)

The data halls are the core of the data centre, housing servers and IT equipment in a tightly controlled environment to ensure continuous operation.

Mechanical galleries run on the outer edges of the data halls, containing essential services like cooling pipes, power, and cabling—enabling maintenance without disrupting operations; while the central spine acts as the circulation space.

The northern lift lobby is fully glazed throughout the floor plans in order to boost activity, light and views.



Typical Data Halls Floor Plan



3.8 Upper Levels Internal Planning Electrical Levels Floor Plan (L05-L07)

Electrical levels house the critical infrastructure that ensures uninterrupted power supply to the data halls. These levels contain generators, transformers and battery rooms.

The battery rooms, in particular, require effective ventilation, which directly informed our façade strategy. To support this, waterproof louvres with 50% free open area have been integrated into the façade, allowing the building to "breathe" while maintaining weather protection and meeting operational requirements.

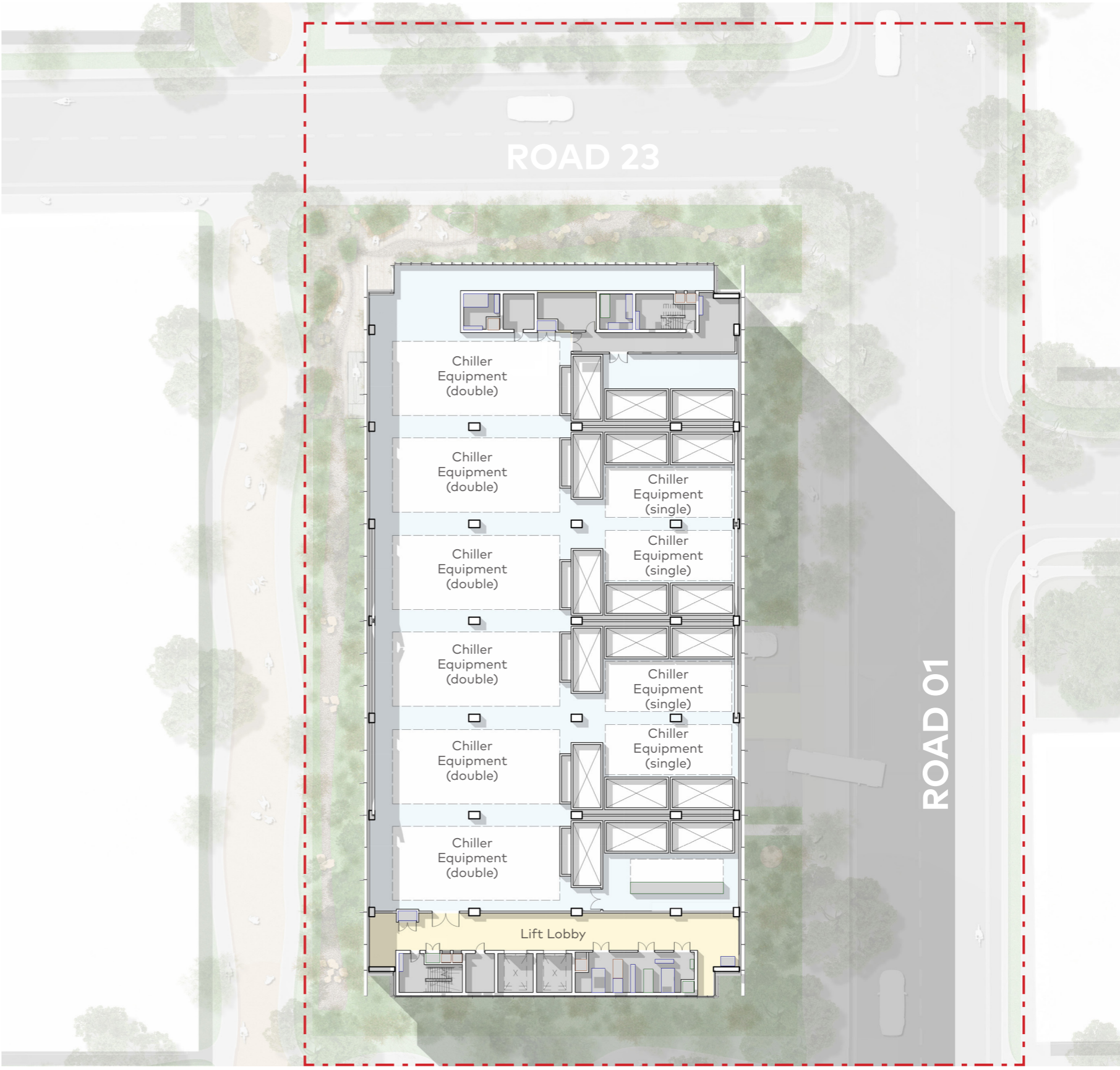


Typical Electrical Levels Floor Plan

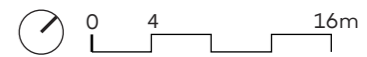


3.8 Upper Levels Internal Planning Chiller Plant Plan

The chiller plant contains the data centre's cooling system, responsible for removing the significant heat generated by IT equipment in the data halls below. Here the chilled water is produced, which is circulated through the building to maintain precise temperature and humidity levels.



Chiller Plant Floor Plan



3.8 Upper Levels Internal Planning Roof Plan

The roof plan is highly organised, functional, and rational—reflecting the operational clarity of the data centre below. It accommodates key plant infrastructure, including chillers, cooling towers, exhausts, and louvres, all arranged for efficient servicing, ventilation, and heat rejection.

The layout is not only practical but expressive of the building's function, with plant zones aligned directly above the data halls and electrical spaces, reinforcing the vertical servicing logic of the design.

This visible order on the roof communicates the performance-driven nature of the building and supports ongoing maintenance and future adaptability. While additional roof coverings were explored, they were not considered to improve the visual outcome and would introduce extra infrastructure requiring further engineering and water/power use. We believe the current roof design offers a highly organised and honest expression of high-tech architecture within the skyline.

For reference, imagery of other data centres in the adjacent area can be found below.



Data centres in Macquarie Park:
(Left) 4 Eden Park Drive; (Right) 6/8 Giffnock Avenue



Roof Plan



C O X

04

Facade Design

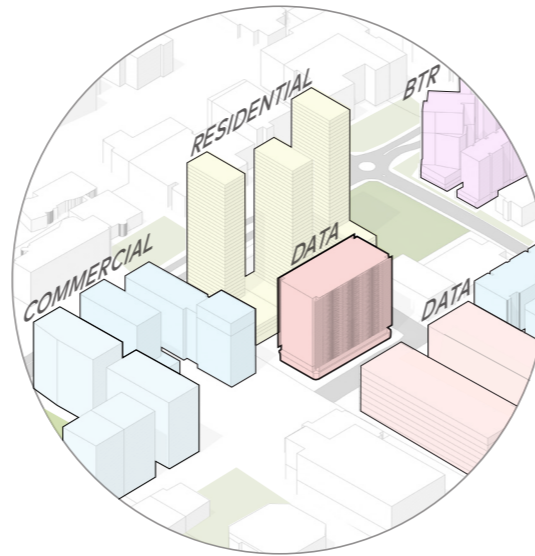
4.1 Building Envelope Design Principles Facade Studies

We explored the concept of vessels of activity, aiming to create a singular form. Through the analysis of precedents across different typologies, emerging themes became apparent: monolithic materiality, big box moves, relationship to neighbours.

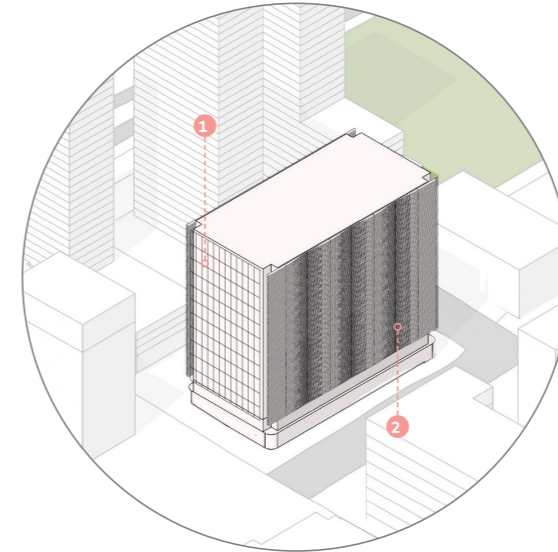
Each precedent has a clean, cohesive facade whilst embracing its size and scale. We sought to create an elegant and unified façade for the 72.8m tall data centre. Through monolithic materiality, large scale form and sensitive relationship to neighbours, we identified objectives to help guide our facade design.

As a result, we have developed 3 key design principles to align to when designing the facade of the data centre:

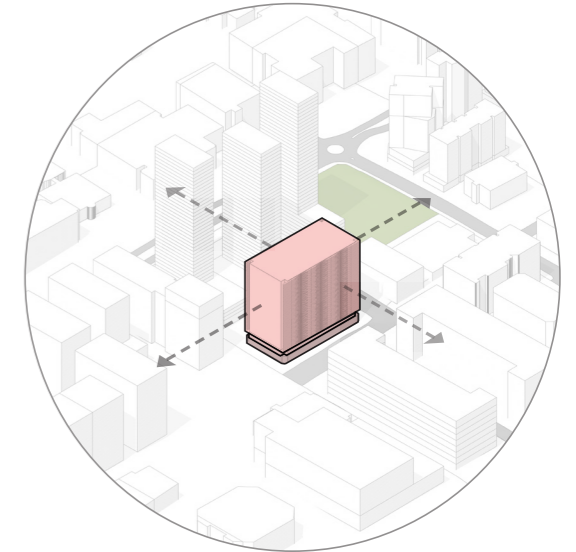
- To contribute to **a diverse precinct** within Macquarie Park by responding sensitively to its surroundings. Strengthening connections with neighbouring developments and aligning with the broader urban fabric ensures the data centre integrates seamlessly within the context of this dynamic innovation precinct.
- A **unified material response** is adopted to deliver a clean, elegant, and cohesive building envelope. The façade is conceived as both a functional and performative element—balancing aesthetics with operational efficiency to reflect the building’s purpose.
- Acknowledging the inherent scale and utilitarian nature of data centres, the design embraces **big box moves**. Rather than concealing the building’s form, the approach accepts its presence in the everyday urban landscape and seeks to celebrate it through confident, purpose-driven design gestures.



A Diverse Precinct



Unified Material Response



Big Box, Big Moves



Educational
RMIT Design Hub, Melbourne
Sean Godsell Architects



Civic
The New Museum, New York
SANAA



Institutional
Institut du Monde Arabe, Paris
Ateliers Jean Nouvel

4.2 Facade Types

Functional Facade - Commercial Facade

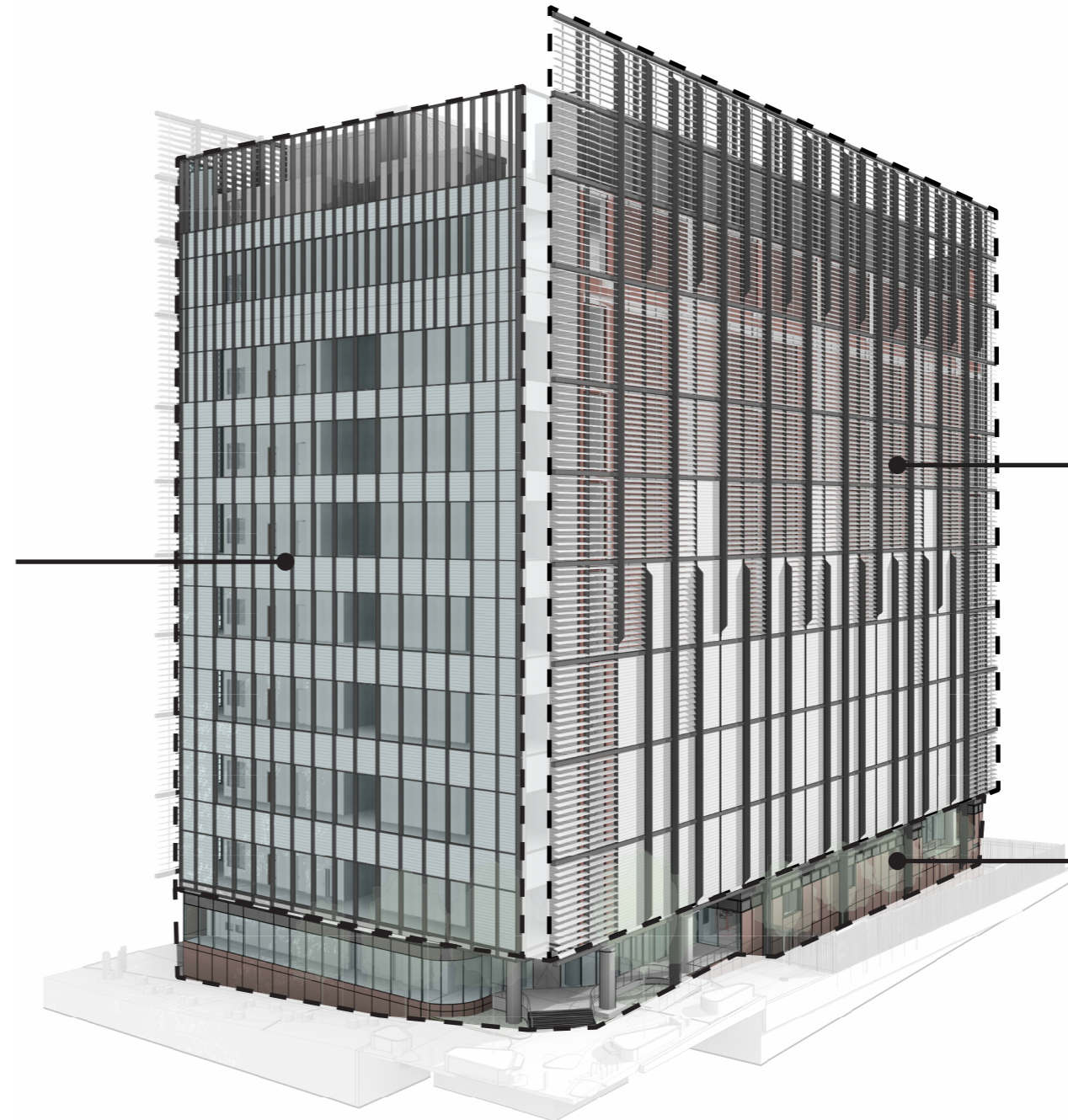
The facade has been designed from diverging approaches defined by the internal operation of the building, resulting in the emergence of two distinct 'zones' - the **commercial facades** and the **functional facades**:

- The **functional facades**, are located on the building's North-Eastern and South-Western faces, and protect much of the critical operational spaces for the data centre behind. Hence, these facades have been rationalised to embrace the strict technical requirements demanded of them whilst seamlessly integrating subtle architectural feature to enhance their overall visual appeal

- The **commercial facades**, lying on the building's North-western and South-eastern faces, cover circulation spaces (North) and one of the buildings' cores (South). As such, these have been designed to highlight internal activity where possible, balancing a mix of transparency and solidity to create an activated relationship with the wider context of the precinct

Commercial Facade

- transparency
- activity
- activation



Functional Facade

- technical
- security
- expression

Ground Plane Facade

Facade 3D view

4.3 Building Envelope Design Response Commercial Facade



Glass Curtain Wall
50% Solid (Section J requirements)



Glass Window Wall
Solid panelling,
concrete-related
materiality

4.3 Building Envelope Design Response

Functional Facade

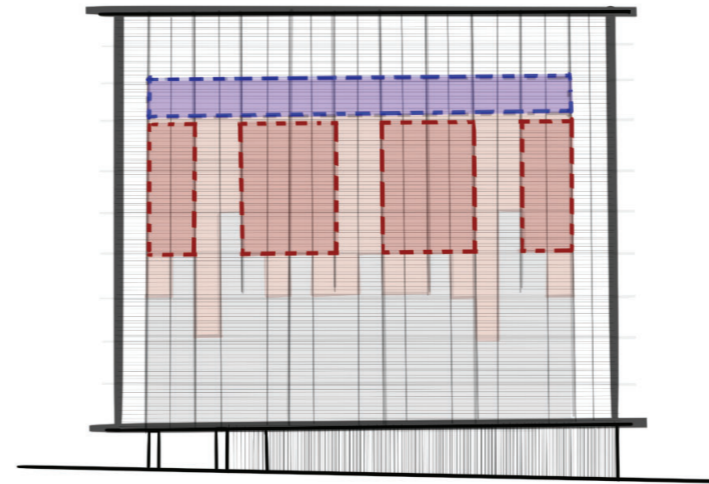
The diagrams to the right highlight the key design responses implemented to the proposed data centre in order to reduce the bulk and scale of this 72.8m tall building:

1. Functionality: The façade's primary role is to support the operational performance of the data centre—ensuring safety, ventilation, and climate control. The design embraces this by expressing the functionality of key elements such as waterproof and acoustic louvres. Rather than concealing these features, their deliberate articulation informs the overall architectural language, celebrating the performance-driven nature of the building.

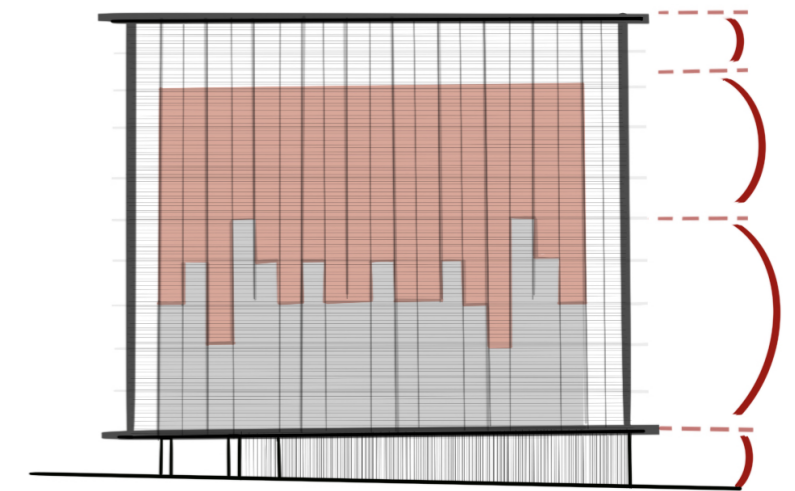
2. Subtle Variation: To mitigate the visual mass of the building, the façade incorporates subtle variation in depth, texture, and materiality. These design moves help to break down the scale while also improving environmental performance. Selective use of colour also adds further visual interest.

3. Expression: Verticality is also a core design principle to elongate the building visually and introduce a refined sense of proportion. Screening elements, expressed as slender vertical forms, create rhythm across the façade and lend a sense of elegance to the building. The horizontal elements also reduce the scale of the building, creating a more refined and human-scaled appearance.

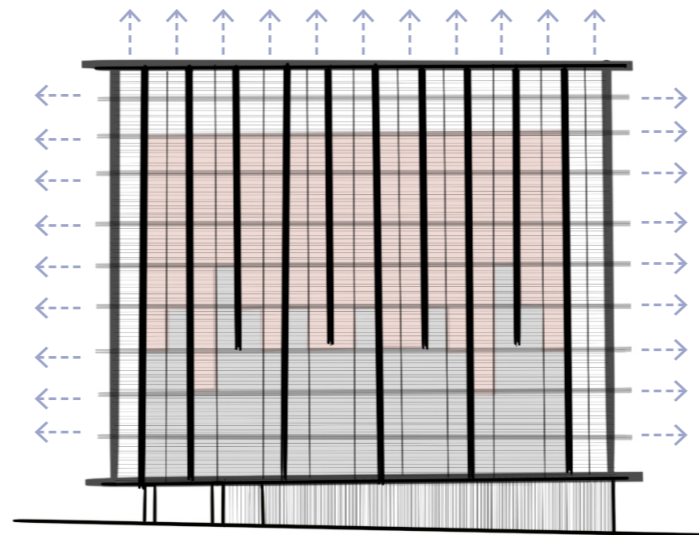
4. Visually Diminish: Strategic design gestures at the building's edges and corners reduce its visual weight. By simplifying or recessing treatments in these areas, the mass appears lighter and more sculpted. This approach creates an illusion of the building 'dissolving' into the sky, helping to soften the impact of its overall scale and better integrate it into the surrounding precinct.



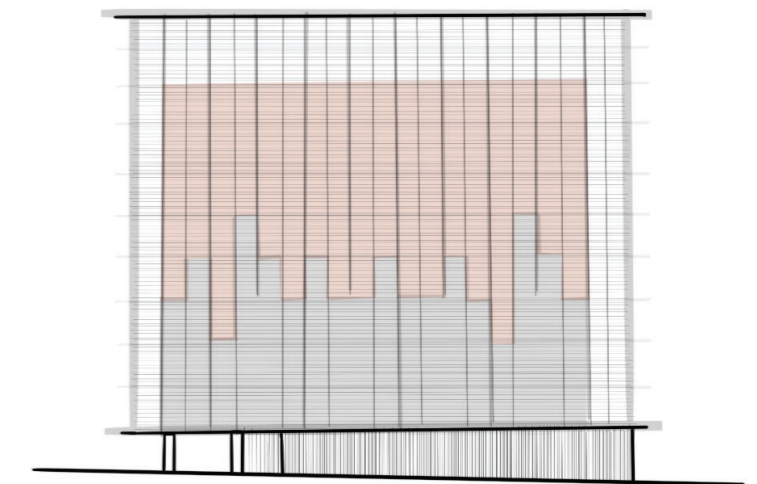
1. Functionality



2. Subtle Variation



3. Expression



4. Visually Diminish

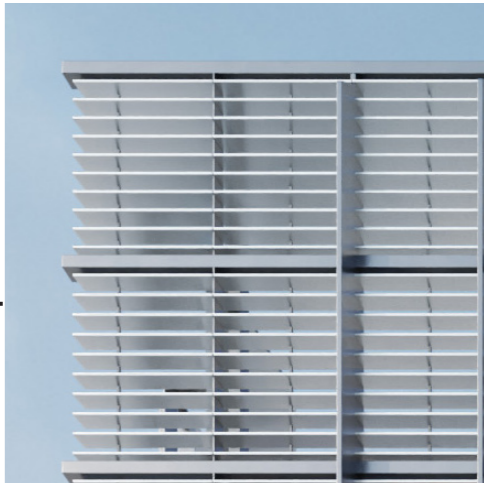
Functional Facade Sketch Elevations

4.3 Building Envelope Design Response

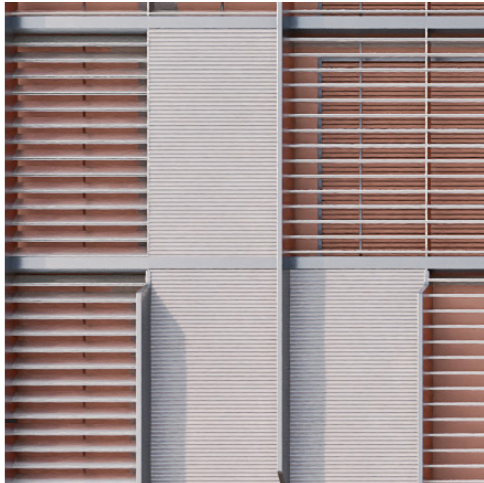
Functional Facade



Architectural louvres



Textured solid panels



Solidity and glazing

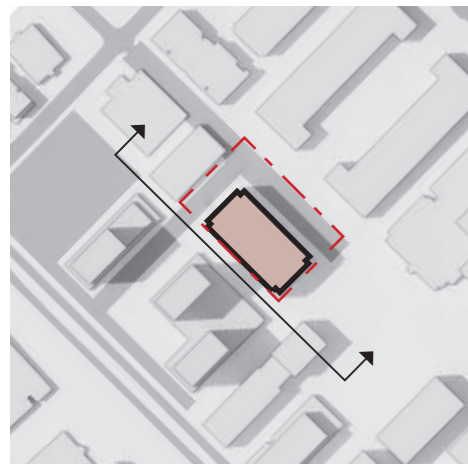


4.4 Elevation Studies South-West Facade

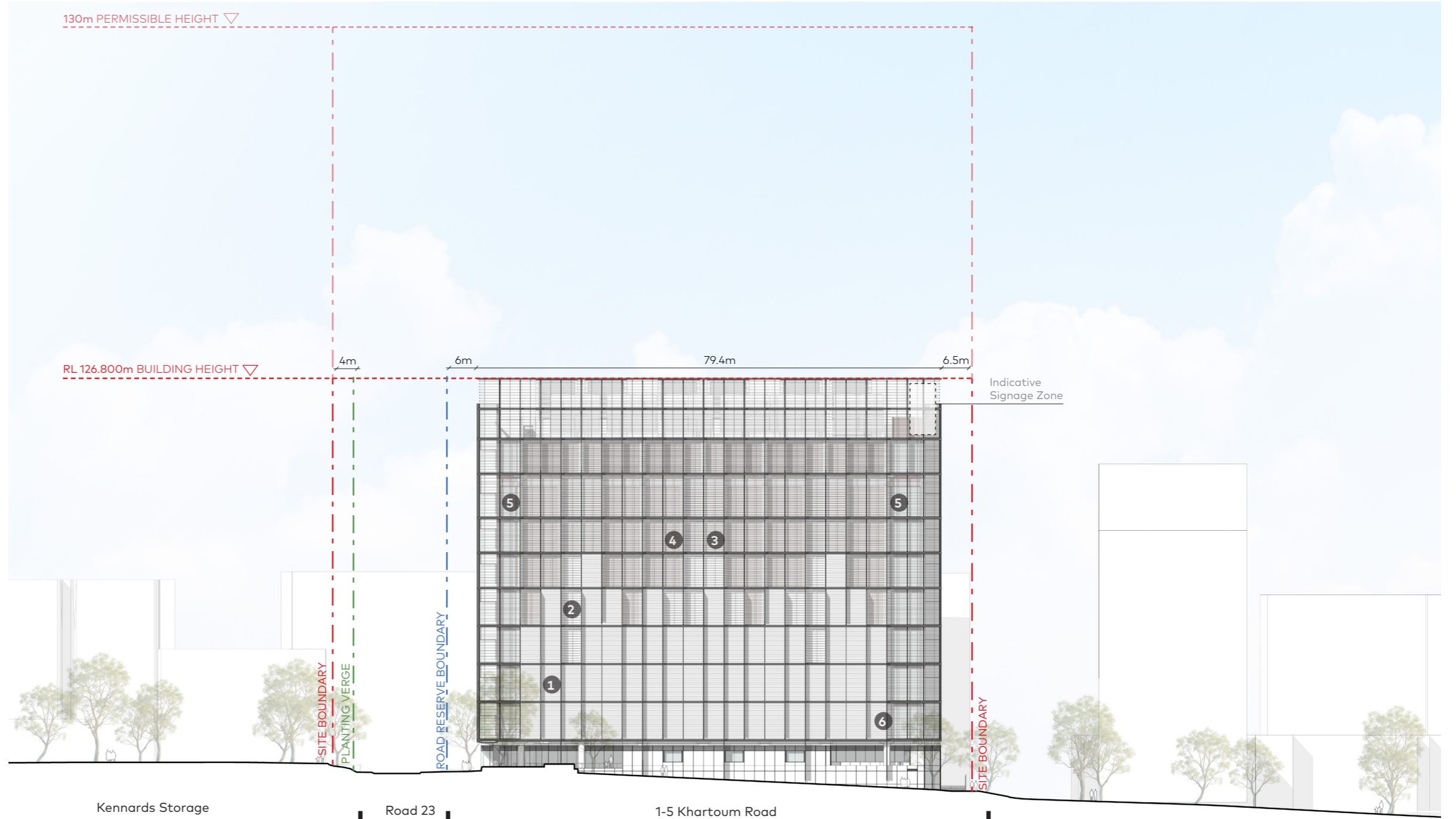
The north-east and south-west facades of the data centre are predominantly functional, driven by the operational requirements of the data halls. The need for louvres in these zones informed the overall façade concept, with the louvred screen becoming a unifying architectural element.

Glazing has been maximised at the edges to create a sense of activation. In response to SDRP feedback, the extent of architectural louvres has been reduced and replaced with ribbed fibre cement panels at lower levels to minimise aluminium use and reduce embodied carbon.

The inner skin is painted in a warm terracotta tone to add visual depth, while vertical fins bring elegance, rhythm, and proportion. Material reduction at the top and edges helps visually dissolve the building into the sky.



Key Plan



EXISTING DEVELOPMENT		PROPOSED ROAD		PROPOSED DEVELOPMENT				
1 Fibre Cement Ribbed Panel*	2 Architectural Aluminium (Low Carbon) Louvre*	3 Inner Wall Paint*	4 Performance Louvre*	5 Vision Glass*	6 Architectural Aluminium (Low Carbon) Fin*			

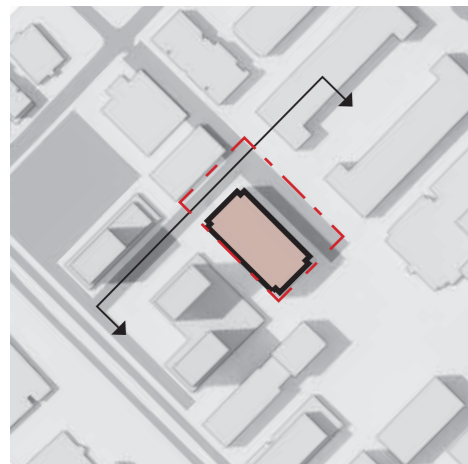
*note: all finishes are indicative

4.4 Elevation Studies North-West Facade

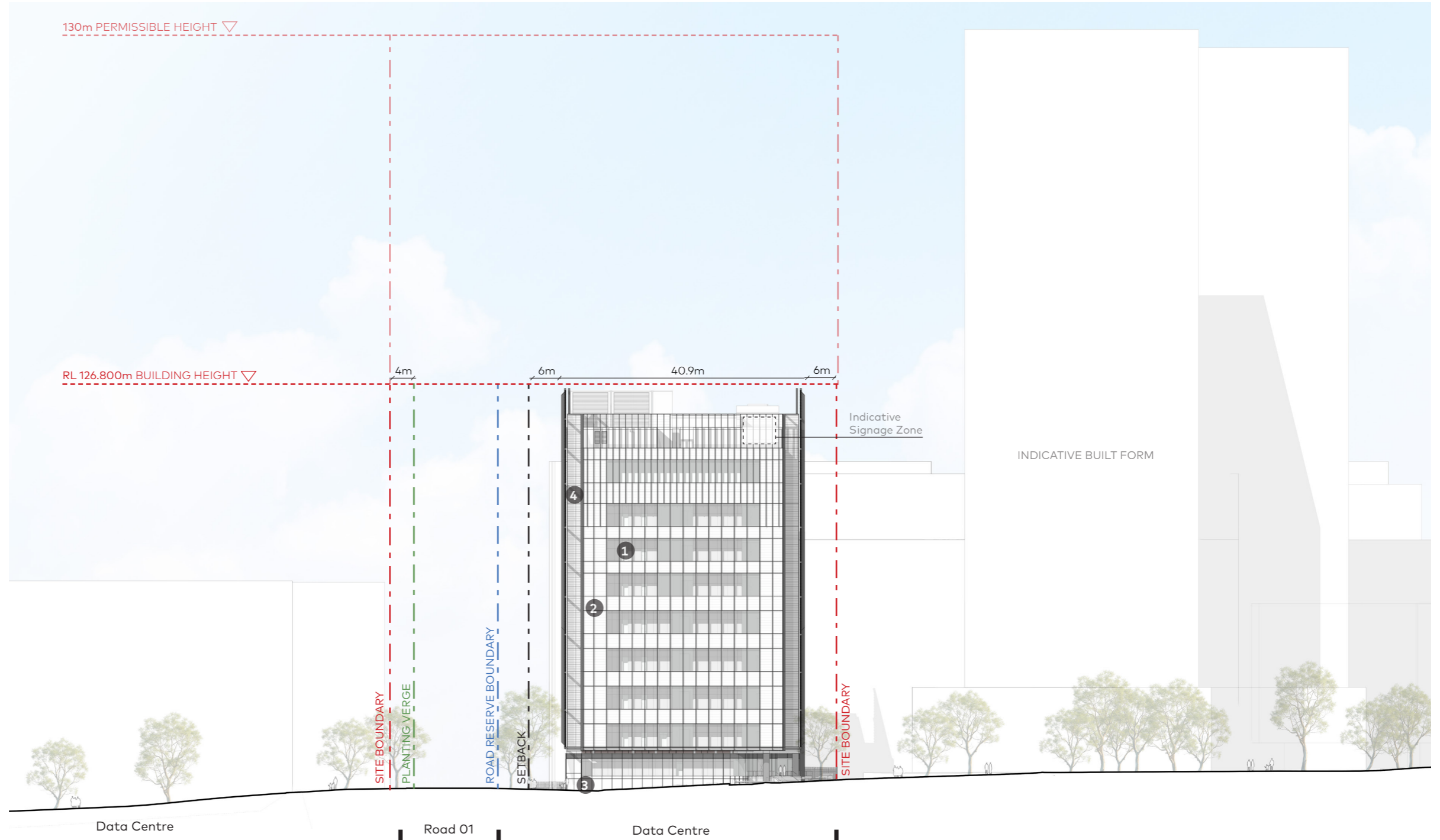
The north-west and south-east façades are designed to resemble a commercial building, using glazing and glazed shadowboxes to help the data centre blend into the future character of the precinct.

The screen steps down at the plant level to reduce perceived bulk and scale, allowing the functional screens running adjacent to extend beyond and create a visually diminishing effect.

Vertical elements are used to reinforce proportion and contribute to the illusion of the building fading into the sky. As the north-western façade accommodates circulation zones, clear glazing has been meet Section J requirements and avoid overexposure to the sun.



Key Plan



EXISTING DEVELOPMENT PROPOSED ROAD PROPOSED DEVELOPMENT FUTURE DEVELOPMENT

1 Clear Glass*

2 Glazed Shadowbox*

3 GRC Panel*

4 Low Carbon Aluminium*

***note: all finishes are indicative**

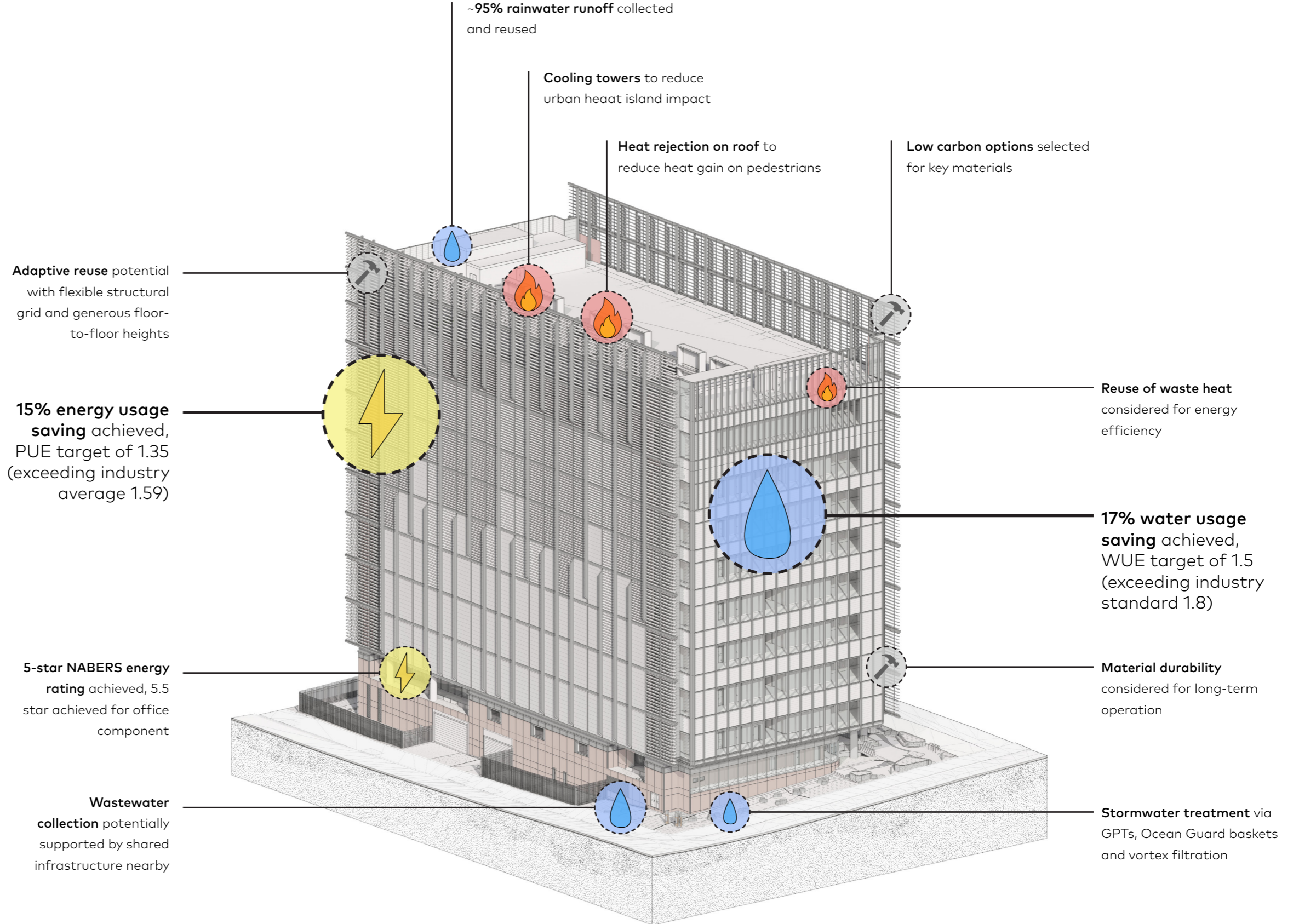
C O X

05
ESD

5.1 ESD Initiatives

The proposed data centre employs many strategies aimed towards sustainability. Most notably, the proposal:

- saves 15% on energy usage and achieves 1.35 Power Use Effectiveness (PUE), well in excess of industry average
- achieves a 5-star NABERS energy rating, and 5.5-stars for the office component on the entry level
- minimises water usage through metering, rainwater harvesting and high-efficiency systems, realising a Water Use Efficiency (WUE) of 1.5 and saving 17% on water usage overall
- collects and resues approximately 95% of rainwater runoff from the roof and facades
- minimises its urban heat island impact through deployment of cooling towers on its roof
- employs low-carbon options for key building elements where possible to create a durable and sensitive material palette





C O X

06
Appendices

6.2 SDRP 1 Advice & Recommendations

Item	Description of Requirement	Section Reference (this Report)	Comments
Connection with Country			
1	Integrate the precinct-wide Connecting with Country approach into the data centre site. Develop a more meaningful response to the site's unique topography, its relationship to place and its role in providing healthy places for human and non-human kin.	Pg. 17-18	- Commissioning of a wider 3D terrain map of Wallumatta - Curating a Precinct Brief
2	Engage with local Aboriginal communities and cultural advisors to identify and develop opportunities to heal Country through landscape, management of water, deep soil, tree canopy and supporting local ecologies.	Pg. 18	- MPark First Nations Group - Walks on Country - Koorabung Restoration
3	Refer to the Connecting with Country Framework and case studies on the GANSW website for more information and guidance.	-	-
Site Strategy and Landscape			
4	Increase the activation of the public realm and improve the ground and first floor public interfaces through the following opportunities: a. Reduce the amount of inactive uses fronting Road 01 (northern frontage) by incorporating active uses such as tenancies, additional building lobbies or office space.	Pg. 30-32	- Fence reduced, entry developed
4	b. Relocate the ground floor EoT facilities to the intersection of Road 01 and Road 23 and provide a direct entry and windows to increase activity and safety at this primary corner.	Pg. 32	- Glazing added, EOT relocated
4	c. Demonstrate how the future through-site link adjoining the southern frontage will be safe and inviting for passers-by.	Pg. 33	- Added activity through EOT relocation, glazing, landscaping and active terraces incorporated on western ground plane
5	Interrogate the current security strategy and implement alternative solutions: a. Forgo the fence entirely and use the building façade as the security line to accommodate significant landscaping and tree canopy adjoining the public realm.	Pg. 31	- Fence line reduced where possible
5	b. If the fence requirement cannot be challenged, make the fence an integrated design element through varying materials, height and colours that align with the architecture and landscape approach. Set the fence back wherever possible, to maximise landscape and tree canopy adjoining the public realm.	-	<i>*Refer to Landscape Report by Arcadia</i>
6	a. Maximise tree retention. Provide an arborist assessment of the significance of existing trees and a drawing that identifies trees to be retained and removed, and advice on tree protection.	-	<i>*Refer to Landscape Report by Arcadia</i>
6	b. Adhere to the minimum 25% canopy cover target and tree size requirements of the MPDG for the site. Demonstrate how canopy cover has been maximised for biodiversity, shade, and amenity. Consideration should be given to the widespread Macquarie Park landscape character of large trees defining the street-scape, not buildings.	-	<i>*Refer to Landscape Report by Arcadia</i>
7	Increase deep soil provision to meet the minimum requirements of the MPDG of 20%. Pursue shifting services, altering the building envelope, and reducing hard stand to ensure deep soil is maximised within the site.	-	<i>*Refer to Landscape Report by Arcadia</i>
8	Prioritise the use of native species for all landscaping.	-	<i>*Refer to Landscape Report by Arcadia</i>

6.2 SDRP 1 Advice & Recommendations

Item	Description of Requirement	Section Reference (this Report)	Comments
9	Demonstrate how the current bulk and scale of the building can be reduced or visually 'diminished'. a. Maximise tree retention. Provide an arborist assessment of the significance of existing trees and a drawing that identifies trees to be retained and removed, and advice on tree protection.	-	<i>*Refer to Landscape Report by Arcadia</i>
9	b. Incorporate reliefs and/or setbacks to produce greater articulation in the façade and rooftop plant screening devices.	Pg 44-48	- Reducing material - Adding visual interest
10	Demonstrate how the design of the facility provides appropriate interfaces with the adjoining residential towers. Include visual analysis of the building from the ground through to the upper levels of the three buildings, noting the southern, western and 'fifth' façades (rooftop) will all be visible from parts of the residential towers.	Pg. 33, 46, 51	-
11	Further develop the design of the western façade to appear as an active frontage, with visibility into the corridors and circulation spaces from the public realm. Explore developing a comparable interface for the eastern façade by reconfiguring the corridors and circulation spaces with the core (lift, stairwell, services, risers).	-	- Not possible - Adding visual interest
12	Test and quantify any adverse amenity impacts on the future residential towers and their communal outdoor spaces, including: a. overshadowing of the dwellings and communal and private outdoor spaces	Pg. 55-59	- Analysis demonstrates that the proposal has a significantly reduced impact from a building proposed up to the maximum LEP height
12	b. heat generation and local microclimate impacts	-	<i>*Refer to ESD Report by ARUP</i>
12	c. air quality and emissions	-	<i>*Refer to ESD Report by ARUP</i>
12	d. acoustic impacts, noting the 24-hour operation of the facility.	-	<i>*Refer to ESD Report by ARUP</i>
Sustainability			
13	Develop robust ESD initiatives and ambitious performance targets, and clearly illustrate how they will be achieved.	Pg. 50	- PUE target of 1.35 -5-star NABERS energy -WUE target of 1.5
14	Demonstrate a thorough consideration of all approaches to reducing the GHG emissions of this facility. This should include construction, supply chain, procurement, materials (such as CLT), servicing and operation.	-	<i>*Refer to ESD Report by ARUP</i>
15	Demonstrate the lifecycle planning of the facility for: a. continued upgrades and refurbishment as a data centre	-	<i>*Refer to ESD Report by ARUP</i>
15	b. adaptation to accommodate other uses such as commercial or residential	-	<i>*Refer to ESD Report by ARUP</i>
15	c. dismantling and deconstruction of materials for other uses.	-	<i>*Refer to ESD Report by ARUP</i>
16	Consider onsite water capture and recycling to reduce water use, and incorporate landscape into these systems, such as through WSUD and wetlands as water treatment systems.	Pg. 50	- 200kL rainwater tank capturing ~95% runoff - 17% saving in water use
17	Illustrate how the project will contribute to NSW's Net Zero emissions goal by 2050. Refer to 'NSW, DPIE, Net Zero Plan, Stage 1: 2020-2030' for further information.	-	-
18	Clear visualisation of the developed façade treatment/design including a 3D model and 1:50 plans/sections of the detail.	Pg. 44-48	<i>*Refer to architectural drawings</i>

6.3 SDRP 2 Advice & Recommendations

Item	Description of Requirement	Section Reference (this Report)	Comments
Connection with Country			
1	Demonstrate how outcomes from the FNWG, such as the First Nations landscape principles, are being applied to the site strategy and architectural response. Provide detail on how engagement has informed these outcomes and how the physical elements of these can be experienced	-	- Stockland has established, and continues to foster, strong relationships with Traditional Custodians and knowledge holders. This includes the establishment in 2020 of the MPark First Nations Group (FNWG). This collaboration is exemplified where meaningful engagement with the Darug community has been integral and ongoing across the entire Stockland landholdings within MPark regardless of projects and boundaries. Specifically for this part of the site the selection of materials and planting will remain a key focus with natives specified. Further careful consideration has been given to providing meaningful and inspired design in key landscaped areas (refer to Landscape report by Arcadia and to this report identifying Area 7 as a place for CWC integration in the landscape plan page 30) and will continue to further develop during the detailed design phase to honour cultural knowledge and Country.
2	Provide clarity on the integrated art strategy for the site. Ensure any use of First Nations stories or artwork are endorsed by the FNWG and provide a meaningful part of the wider precinct strategy.	Pg. 33	- The approach to the art strategy on the site is to embed art in detailing, materiality, and First Nations principles meaningfully and inspired through developing the landscaping especially Area 7 indicated in previous landscape drawings. This SSSDA forms part of an ongoing wider precinct where commissioned artworks are in meaningful locations and across the overall 7-hectare site.
3	Establish Indigenous Cultural Intellectual Property (ICIP) protocols specific to the project, that cover all project phases.	Pg. 17-18	- All IP rights from any stakeholders will be preserved.
Site Strategy and Landscape			
4	Maximise opportunities for additional deep soil within the residual site. Consider the following opportunities: a. consolidating all underground utilities and services, and/or shifting some to within the building footprint	-	- The design has maximised deep soil within a site that has significant infrastructure on the site. Consideration is requested given the site provides 30% of the site for road infrastructure to be dedicated to authorities and the requirement for both services for this site and future adjacent sites within the wider Lot. We cannot relocate services to sit under the built form. <i>* Refer to Landscape report by Arcadia for details.</i>

6.3 SDRP 2 Advice & Recommendations

Item	Description of Requirement	Section Reference (this Report)	Comments
4	b. introducing stratavaults to connect disparate areas of deep soil to maximise soil volume for landscaping, including for street tree pits (both between tree pits and from the tree pits through to the onsite landscape)	-	- We have maximised locations where we can provide deep soil. * Refer to Landscape report by Arcadia for details.
4	c. further reducing hardstand areas, such as around the entry, between the two driveways and within the 600mm fence setback to Road 01	-	- Further reduction of hardstand has been considered where practical. * Refer to Landscape report by Arcadia for details.
4	d. utilising permeable pavements for any required hardstand areas (e.g., egress footpaths, entry pathways, MV Room access, etc.)	-	- Permeable pavements have been deployed where practical. * Refer also to Landscape report by Arcadia for details.
5	Explore additional opportunities for increasing canopy within the residual site. Canopy calculations must be provided separately for the residual site and dedicated streets.	-	- The tree canopy achieved is 27.7% and this complies with the 25% as per the MPDG. We have maximised opportunities for tree canopy. Refer to point 8 below for further reasons as to why we cannot add further trees. * Refer also to Landscape report by Arcadia for details.
6	Refine and expand the landscape strategy to actively demonstrate how it will deliver a lush and inviting environment. For example, through incorporating diverse endemic planting, and green buffers to soften the visual impact, perceived scale and intensity of the facility.	-	- A comprehensive landscape strategy has been provided in preparation for this SSD. * Refer to Landscape report by Arcadia for details.
7	Provide detailed justification for the removal of established trees, including site constraints or design requirements that prevent retention. Where retention is not feasible, identify and implement appropriate offset planting measures to maintain overall canopy cover and landscape quality.	-	- The site sits predominately on a built form warehouse site with trees only located on boundaries. Trees that have been removed due to this proposal are especially to the Southern side boundary. Trees have been removed given both the likelihood of not surviving due to built-form and solar orientation and the requirement to locate services to service a high-tech building and to provide for services across the wider precinct, noting this site sits in the middle of a large landholding. * Refer also to Landscape report by Arcadia and to the Arborist report by Birds Tree Consultancy Pty Ltd.
8	Explore all opportunities to increase street tree planting, landscaping and WSUD within Road 01 and Road 23, in line with the provisions of the MPDG. This should include demonstration of how all landscaping zones have been maximised, whether for additional street trees, swales, garden beds and so forth.	-	- Street planting has been maximised where possible to comply with both requirements stipulated to meet roads to be dedicated to authorities and create safe visual sightlines acceptable for both pedestrian and vehicles especially on approach to intersections. Large native trees have been proposed as per the MPDG and locations are as per the Public Domain Technical Manual. * Refer also to Landscape report by Arcadia.

6.3 SDRP 2 Advice & Recommendations

Item	Description of Requirement	Section Reference (this Report)	Comments
9	Test the design and configuration of the fence to demonstrate that it will be a recessive element of the landscape. This should include consideration of colour, materiality, viewing distance/angle and benchmarking against successful fence designs that utilise visually recessive materials such as mesh, as used in the Surry Hills Police Station.	Pg. 31-33	- The design process considered several fence types including making this a customised feature. This approach was not considered consistent with the design approach and a recessive fence type was preferred. Alternate fences including the Surry hills Police Station reference were investigated after being advised to investigate. This fence type is considered similar in its recessive nature however we have been advised does not comply with the security regulation we need to meet. The chosen fence with a detailed and considered façade and with a layered landscaping should make this fence as per out intent recede.
10	Continue to explore opportunities to reduce the impact of the fence on landscape and amenity, by exploring the following: a. reducing the extent of the fence – particularly in front of the EoT facilities on the upper ground floor	Pg. 31	- The fence has been significantly set back and replaced with built form defensive security measures to enhance the public realm.
10	b. realigning the fence where possible to provide space for more significant landscape – such as pulling the fence away from the southeastern boundary to retain established trees, or provide space for replacement plantings	Pg. 31	- The fence has been offset where possible.
Architecture			
11	The proposal is located adjacent to sites that may accommodate future residential development, including BTR uses on both Stockland owned land and neighbouring properties at 7-9 Khartoum Road and 69-71 Waterloo Road. Visual impact must be appropriately assessed to ensure no unreasonable amenity impacts on future residents in relation to bulk, scale and light spill. a. Revisit the design of the rooftop (aka 'fifth façade') to improve the visual amenity and reduce solar gain to the plant equipment.	Pg. 40	- Arrangement of roof defined by function of data centre creates strong visual language. We have considered covering the roof however do not see this as either visually improving the general outlook or adding infrastructure that then requires further engineering and use of power/water to service the functions. The view is that the roof design presents a highly organised and honest expression of high-tech in the skyline.
11	b. Provide a visual impact assessment that illustrates how the facility will appear from surrounding sites at different times of day, including morning, midday and evening conditions.	-	* Refer to Visual Impact Assessment by Urbis
11	c. Include a visual analysis from multiple viewpoints, specifically at ground level of adjacent sites and key heights corresponding to future residential towers on adjacent properties	-	* Refer to Visual Impact Assessment by Urbis
11	d. Undertake testing of visible light transmission (VLT) to demonstrate potential light spill and glare impacts on adjacent and future residential uses.	-	- VLT testing and assessment will be further analysed during design development phase.
11	e. Demonstrate how the design mitigates visual and lighting impact for sensitive residential interfaces through architectural treatment, screening or landscape integration	Pg. 43	- The façade have been consider mitigating visual and lighting impacts. Refer to pg 43 demonstrating this consideration.

6.3 SDRP 2 Advice & Recommendations

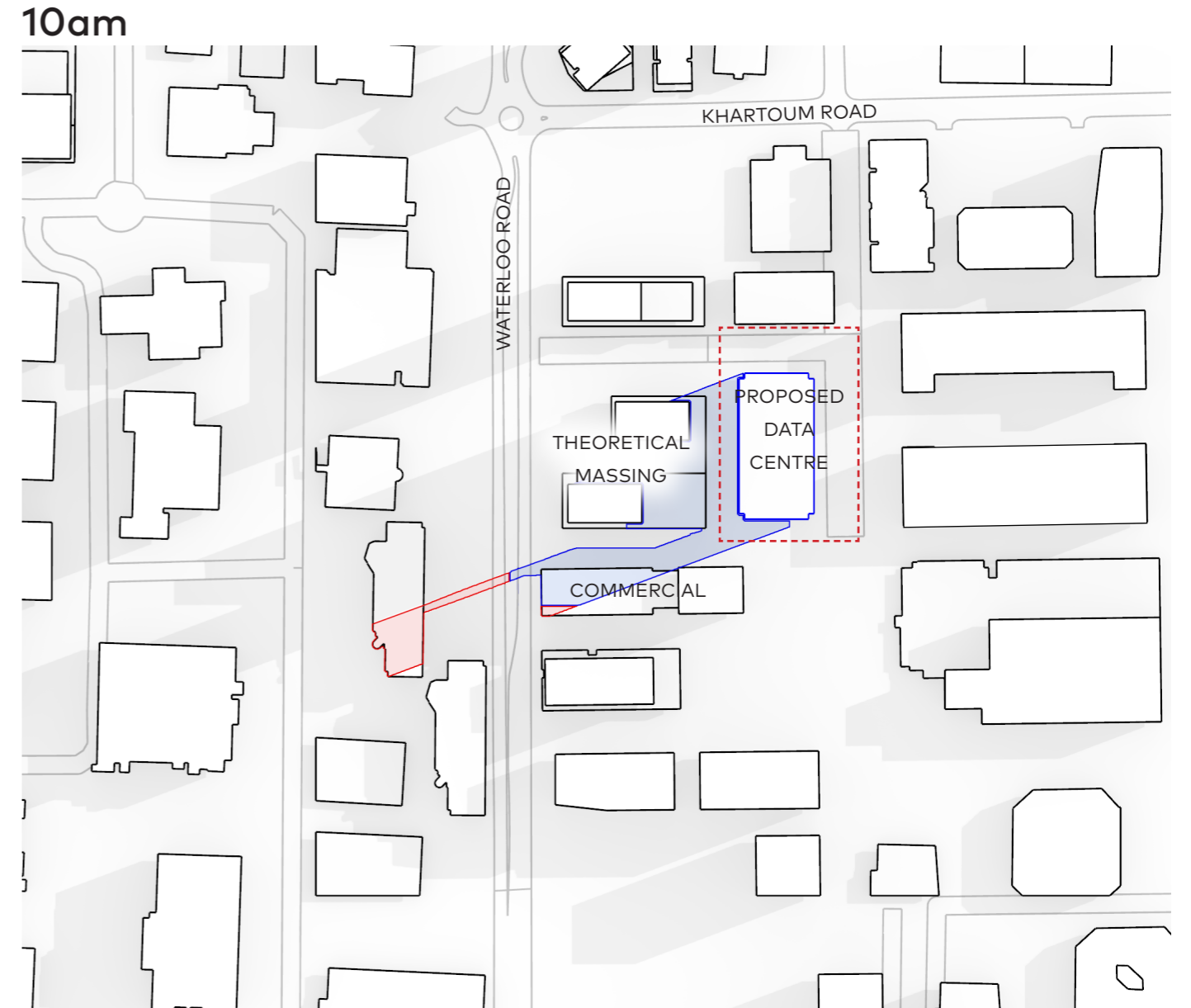
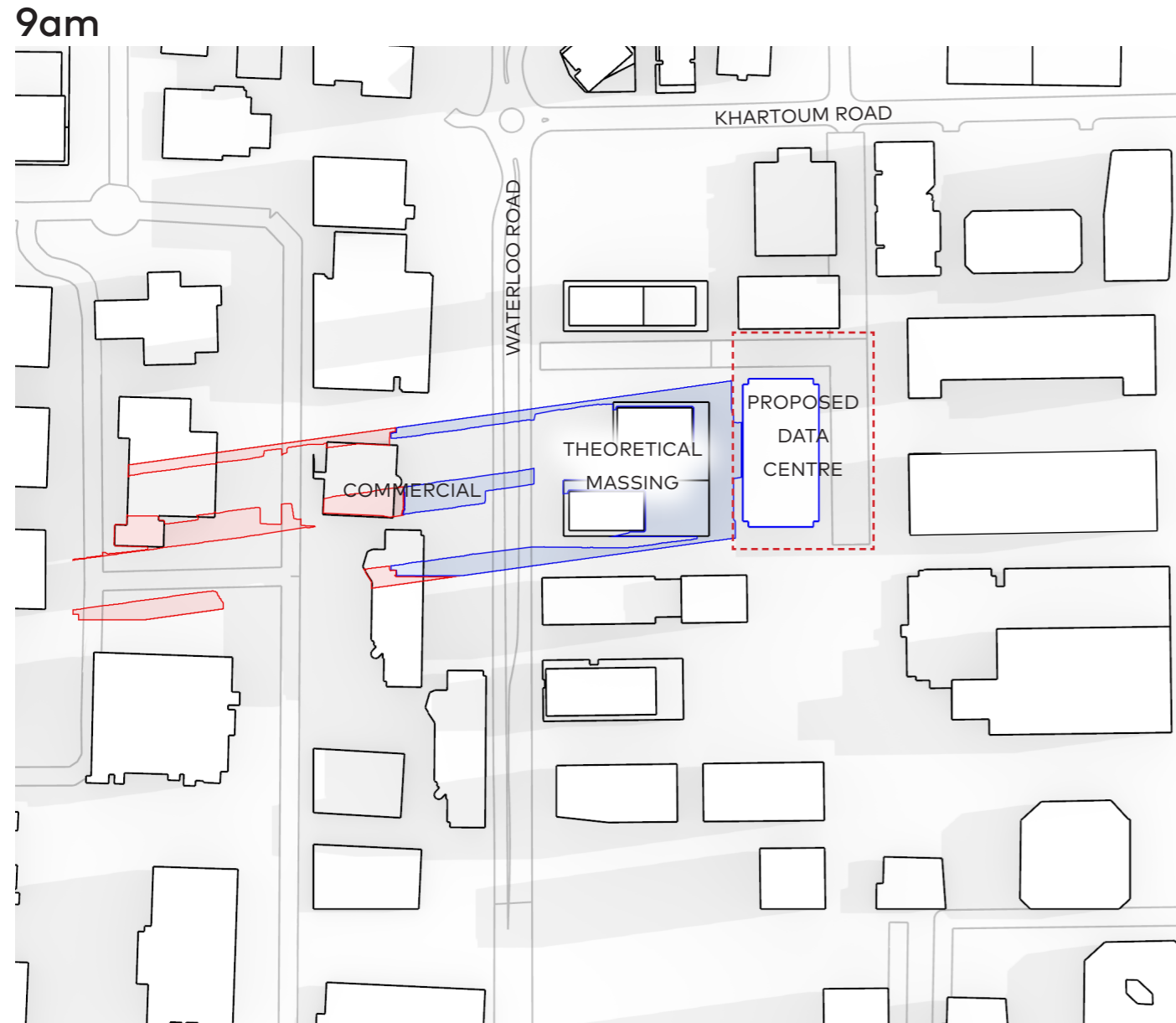
Item	Description of Requirement	Section Reference (this Report)	Comments
12	Ensure the façade uses materials that are low maintenance, durable and suited to their orientation. a. Provide external and internal access and cleaning requirements for the multiple layers of the façade.	-	- Building maintenance plan to be finalised during design development phase. It is the intent to keep materials and details as low maintenance as practical.
12	b. Utilise materials that are self-finishing and don't require repainting, for example adopting integrally coloured GRC instead of the painted fibre cement cladding (FCO1) sheeting.	-	- Self-finishing materials where practical will be considered during design development phase.
12	c. Ensure any use of full height glazing/curtain walls have an effective sun shading solution to minimise summer heat gain	Pg. 48	- Performance glazing and other detail strategies to minimise heat gain to be considered during design development phase.
12	d. Explore prototyping the multi layered northeast/southwest façade at full scale to test colour, transparency and the interplay between inner- and outer- façade layers.	-	- Further prototyping will be considered during design development phase.
Sustainability and climate change			
13	Provide comparative analysis against recent, high performing data centre projects in Australia to establish relevance and ambition of the proposed targets. a. reducing the extent of the fence – particularly in front of the EoT facilities on the upper ground floor	-	<i>* Refer to ESD Report by ARUP</i> - Comparative assessment is provided in the SSD ESD Report based on global benchmarks (PUE study) and local benchmarks (NABERS Energy). Note that the current PUE target is equivalent to a 5-star NABERS Energy rating which is best practice in the Australian market. Data centre operators generally do not regularly share achieved PUEs in operation, so it is not possible to provide any further detail.
14	Explore further opportunities for sustainable onsite energy generation, such as PV on roof or integrated within the facade, and heat recovery systems.	Pg. 50	<i>* Refer to ESD Report by ARUP</i> - Through design development, opportunities to integrate PV will be explored however at this stage, the building footprint constraints us from providing ground-based arrays and the mechanical plant at roof constrains roof mounted arrays. Façade PV arrays have been considered but not considered suitable due to the overall design excellence and technical constraints required for the façade. No heat recovery systems have been integrated as no heating demand is available, we will continue to investigate this opportunity through design development.
15	Identify components of the facility that could be powered by onsite energy such as the ground floor premises, public lighting, irrigation systems and other low-load operational functions.	Pg. 50	<i>* Refer to ESD Report by ARUP</i> - Subject to Item 14, if PV was available, it would be used to cover base building operations and office components.
16	Demonstrate how the embodied emissions (i.e., carbon) have been minimised throughout the design and maintenance of the facility.	Pg. 50	<i>* Refer to ESD Report by ARUP</i> - The majority of embodied carbon associated with the building is in its structure. The design team have focused on providing efficient structural solutions which minimise material and therefore embodied carbon.

6.3 SDRP 2 Advice & Recommendations

Item	Description of Requirement	Section Reference (this Report)	Comments
17	Provide greater clarity on the life cycle of the facility, such as how dismantling would occur and what post-life adaptation options could include.	-	<p><i>* Refer to ESD Report by ARUP</i></p> <p>- As presented at the SDRP meeting on July 10, the focus for building life cycle is on structure; this is well suited to adaptive reuse in the future. It has high floor to floor heights and high floor loading allowances which will enable a variety of future uses. The structure is robust and has long service life of >50 years.</p>
18	Identify opportunities for precinct wide interconnected systems, including energy networks, resource sharing and recovery systems. For example, waste heat reuse, shared battery storage or water recycling.	-	<p><i>* Refer to ESD Report by ARUP</i></p> <p>- As noted in Item 14, the team will continue to investigate opportunities to integrate precinct wide system such as sharing heat. This will require careful consideration to balance against the security requirements of the data centre and any potential impacts on its primary operations.</p>

6.3 Shadow Analysis Winter Solstice

There is no overshadowing on any existing residential developments. The analysis demonstrates that the proposal has a significantly reduced impact from a building proposed up to the maximum LEP height. As a consequence, the shadow cast on adjoining properties will achieve improved solar access amenity to future planned development and open spaces

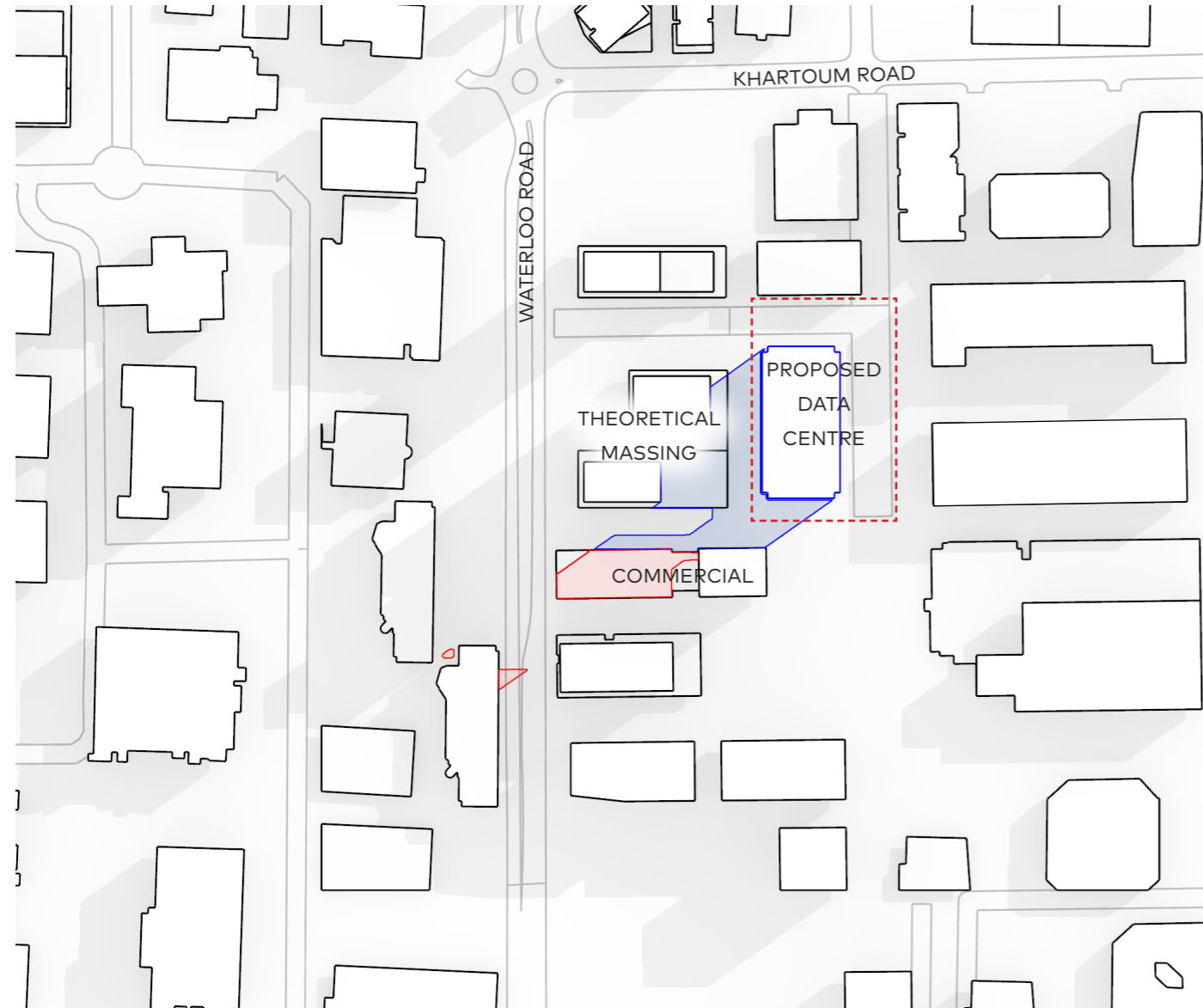


WINTER SOLSTICE - 21st June

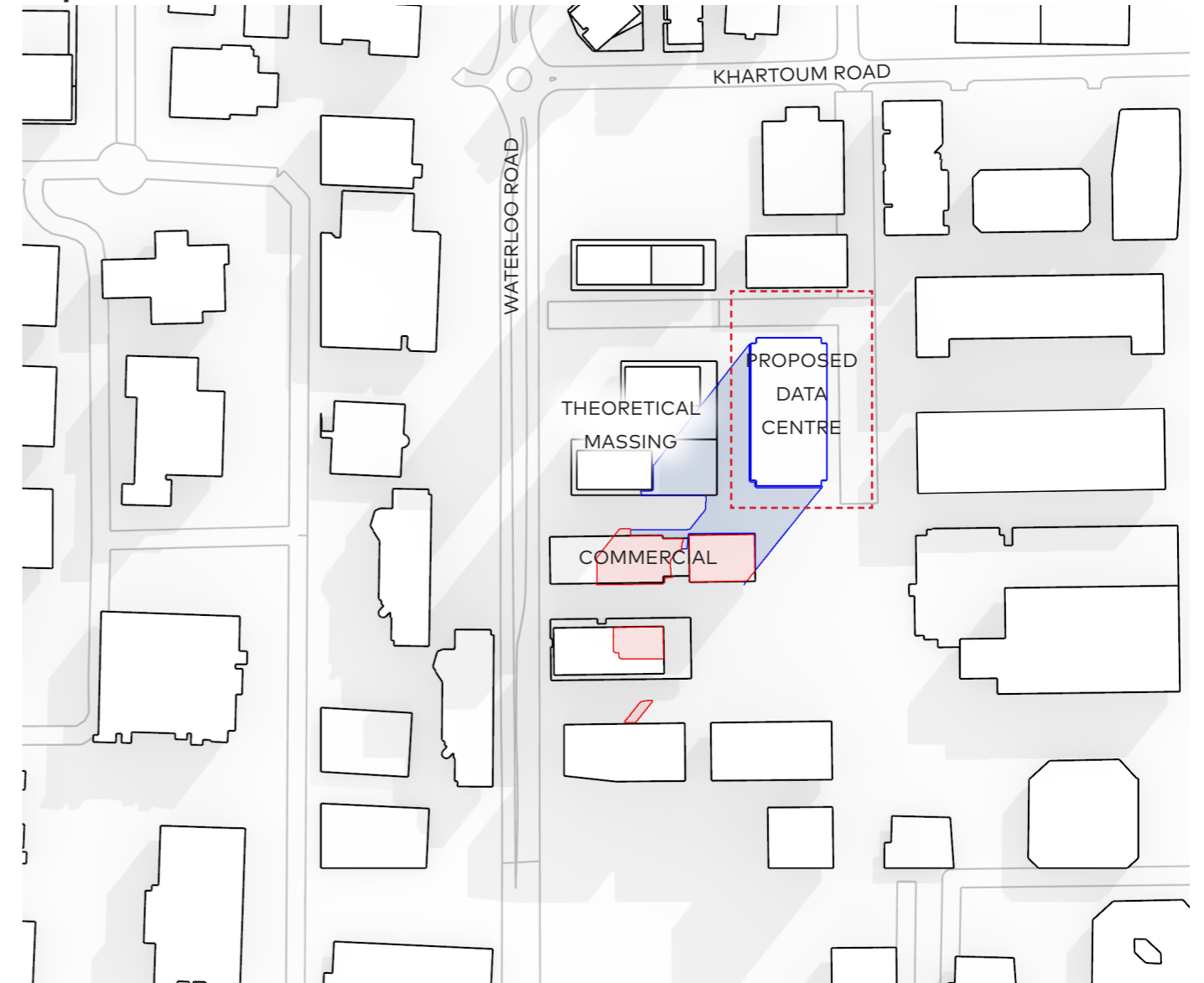
- PROPOSAL SHADOW
- COMPLIANT HEIGHT SHADOW

6.3 Shadow Analysis Winter Solstice

11am



12pm

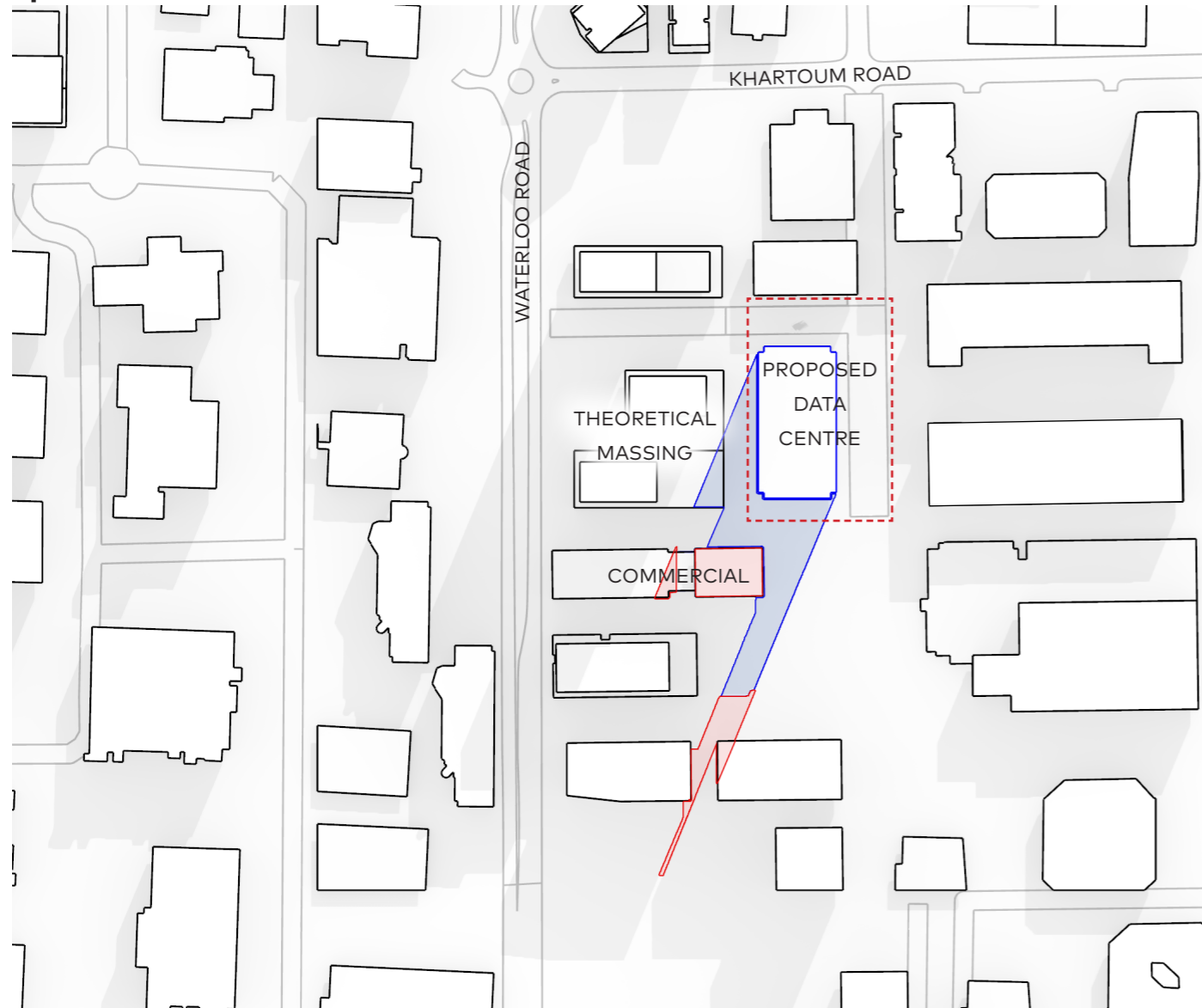


WINTER SOLSTICE - 21st June

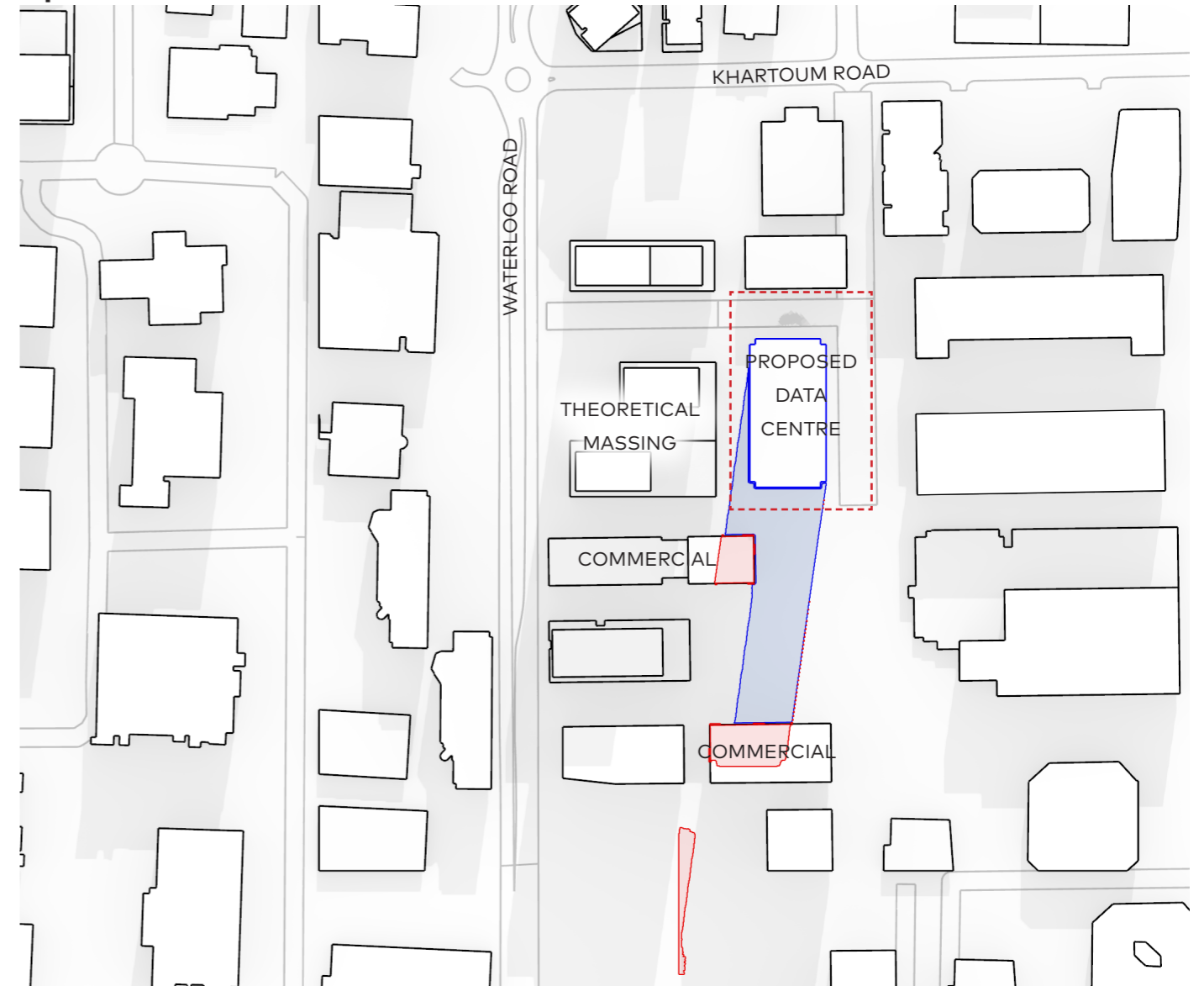
- PROPOSAL SHADOW
- COMPLIANT HEIGHT SHADOW

6.3 Shadow Analysis Winter Solstice

1pm



2pm

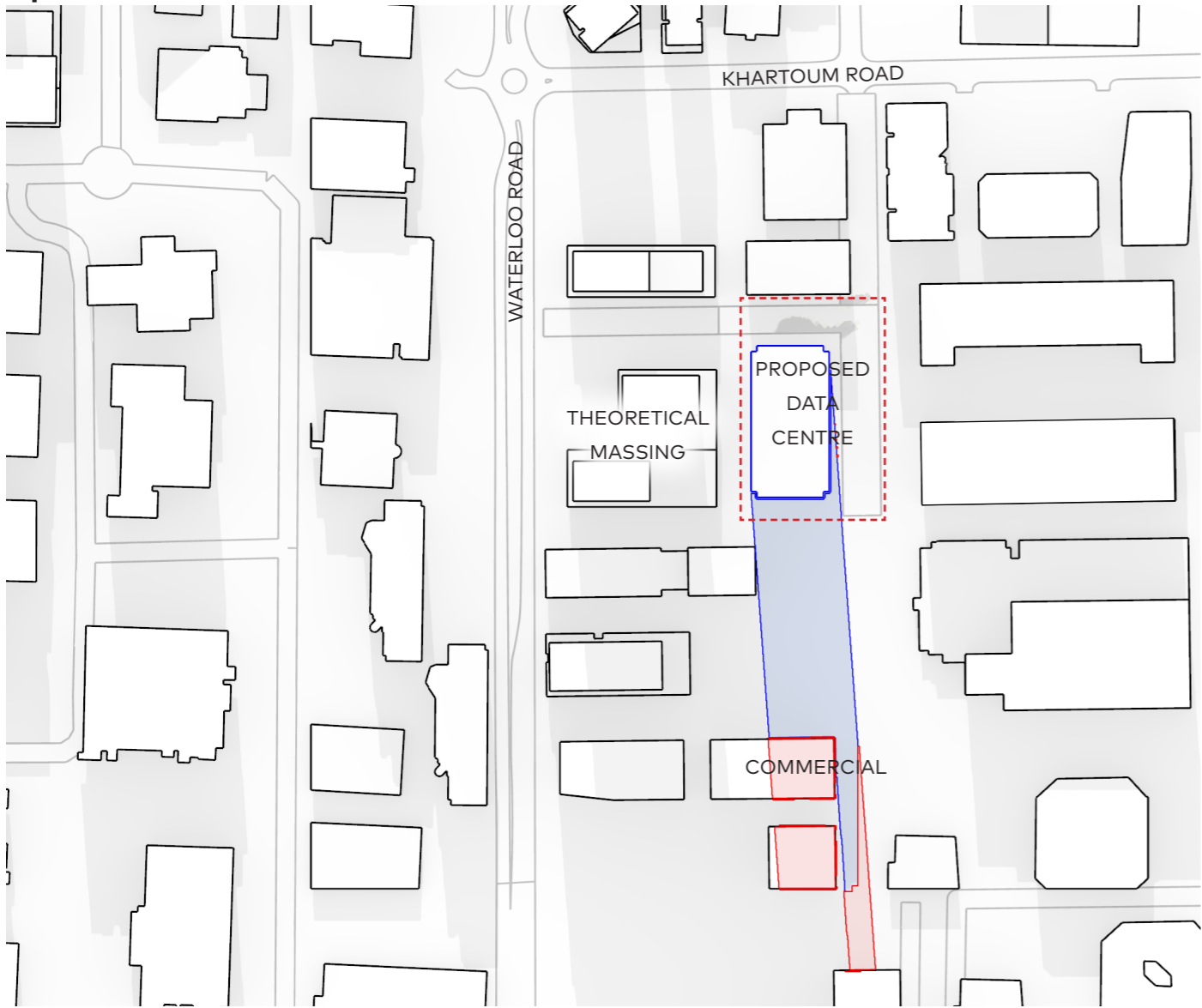


WINTER SOLSTICE - 21st June

- PROPOSAL SHADOW
- COMPLIANT HEIGHT SHADOW

6.3 Shadow Analysis Winter Solstice

3pm



WINTER SOLSTICE - 21st June

- PROPOSAL SHADOW
- COMPLIANT HEIGHT SHADOW

