



**Macquarie University**  
**Central Animal Facility**  
Architecture  
Development Application  
Design Report

Revision C

Prepared for  
**Macquarie University**


October 2024



# Document Control

## MQU - Central Animal Facility

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# Contents

<b>00</b>	<b>Executive Summary</b>	<b>5</b>	<b>04</b>	<b>Facade Design Concept</b>	<b>39</b>
0.1	Overview	5	4.1	Facade Strategy	40
0.2	Building Description	5	4.2	Facade Look and Feel	41
			4.3	Facade Module and Materiality	42
<b>01</b>	<b>Site Analysis + Context</b>	<b>6</b>	4.4	Elevation - North & South	44
1.1	Site Location and Context	7	4.5	Elevation - East & West	45
1.2	Existing Buildings	9	4.6	Photomontage	46
1.3	Environment and Climate	10	<b>05</b>	<b>Urban Design Review &amp; Pre-Lodgement Panel</b>	
1.4	Site Features and Topography	11		<b>Comment Response</b>	<b>54</b>
1.5	Existing Access and Circulation	12			
1.6	Existing Site Constraints	13	<b>06</b>	<b>Appendices - Architectural Drawings</b>	<b>58</b>
1.7	Existing Surroundings	14			
<b>02</b>	<b>Response to Macquarie University Urban Design Guidelines and Design Excellence Strategy</b>	<b>15</b>			
2.1	Proposed Site Considerations	16			
2.2	Site Staging	17			
2.3	Existing Macquarie University Design Guidelines	18			
2.4	Proposed Macquarie University Design Guidelines	18			
2.5	Site Plan	21			
<b>03</b>	<b>Architectural Response</b>	<b>22</b>			
3.1	Conceptual Framework	23			
3.2	Response to Place	24			
3.3	Architectural Concept Framework	26			
3.4	Building Form and Massing	27			
3.5	Facade Design Narrative	28			
3.6	Architectural Planning - Floor Plan	29			
3.7	Building GFA	33			
3.8	Building Access and Circulation	34			
3.9	Building Sections	35			
3.10	Solar Analysis	37			
3.11	Potential Future Scenario	38			



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# Executive Summary

## 0.1 Overview

This report accompanies a Development Application that seeks approval for the redevelopment of the Macquarie University Central Animal Facility (MQU Central Animal Facility).

The site is located at 13A Research Park Drive within the Macquarie University Campus, which is legally described as Lot 2000 in DP1305792.

Biomedical research at Macquarie University is supported by two animal facilities - the Central Animal Facility and the Zebrafish Facility. The existing MQU Central Animal Facility is a research rodent facility currently located at 15 Research Park Drive adjacent to the site. The building is 20 years old and was subject to a refurbishment in 2012. The building has reached its capacity as a rodent research facility and can no longer support the research activities it is required to accommodate at present nor future growth. The existing Zebrafish facility was constructed in 2010 and is part of a larger research facility within the Macquarie University Private Hospital. It is also currently at capacity and in need of redevelopment.

The proposed development comprises the construction of a new purpose-built facility that will accommodate the MQU Central Animal Facility (inclusive of a new Zebrafish facility) to support the growth in biomedical research at Macquarie University.

The Development Application seeks approval for the following components:

- Site preparation works including tree removal, earthworks and the demolition of existing demountable and storage containers located on the site;
- Construction and use of a three storey (including plant) building with a gross floor area of approximately 3,000m<sup>2</sup> for the purposes of a biomedical research facility; and
- Associated landscaping and public domain works.

For a detailed project description refer to the Statement of Environmental Effects prepared by Ethos Urban.

## 0.2 Building Description

The building consists of a three-storey building, accommodating the following:

### Ground Floor:

- Entry and Administration areas
- Amenities and Change facilities
- Rat and Mice Holding
- Cage Wash and Cage Prep
- Feed / Bedding Store
- Mice Procedure Rooms
- Dirty Quarantine Suite
- Support Rooms

### Level 1:

- Mice Laboratories
- Rat Laboratories
- Equipment Stores
- AA Quarantine Suite

### Level 2:

- Zebrafish Laboratories
- Building Plant



**01**  
**Site Analysis + Context**





01

Site Analysis + Context

1.1 Site Location and Context

Historical Context

Macquarie University is located within the Dharug Country. Dharug lands embrace the earth, rivers and sea. It is a land rich in Dreaming and teaches through the language, culture and memories of the elders.

Macquarie University recognises the custodianship of the land on which the campus is situated - the Wallumattagal clan of the Dharug Nation. In 2022, Macquarie University's main campus in Macquarie Park adopted a new name – Wallumattagal Campus – to recognise the Traditional Custodians of the land on which the University is situated, the Wallumattagal Clan. The name honours Australia's first peoples' profound and lasting spiritual connection to country and culture and acknowledges their contribution to sustaining our environments since time immemorial. It celebrates Aboriginal and Torres Strait Islander cultures as a critical part of our national identity and history.

At the time of the arrival of Europeans at Sydney Cove in January 1788, the Wallumedegal or Wallumattagal were the traditional owners of the area we now call Ryde.

In the First Fleet reports, the Wallumattagal were said to occupy the north shore of Port Jackson (Sydney Harbour) immediately opposite Sydney Cove and west along the north shore of the Parramatta River. Later accounts suggested that the territory commenced further west to Lane Cove River.

The Wallumattagal had lived for generations as fisher-hunter-gatherers in a rich environment of river flats, mangrove swamps and creeks - fishing with pronged spears and handlines, gathering shellfish, hunting birds and small game and collecting a variety of edible bushfood plants.

It is likely that the clan name Wallumedegal (Wallumattagal) was derived from wallumai the snapper fish (*Pagrus auratus*), combined with matta, a word used to describe a place, but more often a water place, as with Parramatta and Cabramatta. The Wallumedegal then would be the 'snapper people' and the fish itself their clan totem.

The task of fishing was divided along gender lines. Flshing from canoes with handlines was an everyday social activity for women, who hugged their small children between their knees and keeping their hands free for paddling. Whilst men speared fish from the rocks or waded into shallow water.

Bark was use to handcraft canoes for the Wallumattagal Clan. The bark for canoes was taken from the stringybark (*Eucalyptus obliqua*) or from the goomun or fir tree (*Casuarina* species).

Although canoes were used for general transport, it played an integral part of fishing for the Wallumattagal People in Paramatta River and Lane Cove Rivers. It consisted of a three to four long pieces of bark tied with vines or cord.

A stone hatchet or axe, mago, was used to cut the bark and a canoe could be made in a day. Two paddles (goinniea) of 60-90 cm long were used to move the canoes and seaweed or fern was used as seating and for maintaining a central fire used for cooking in the canoe.

Vegetation

Ryde is home to a number of native vegetation communities. The natural vegetation supports a rich variety of animal life and native plant species. The geology of the area includes shale, sandstone and saline wetlands.

The Blue Gum High Forest is a critically endangered ecological community in Ryde. The rich shale substrate is found in elevated slopes, gullies, ridgelines and crests. The soil is moderately deep with a fertile clay layer.

The seasonal appearance of blue gums leaves an abundance of colours and bark along the ground. From light to dark greens and browns, the Blue Gum High Forest is easily recognised.





## Location

The development site is known as 13a Research Park Drive (13aRPD) and is located in the Science/Medicine precinct of the campus. Currently on the site is an existing demountable, which will be removed and two storage containers, which will be relocated.

The proposed site is flanked by existing CAF directly north and the Mercure Sydney Macquarie Park Hotel further beyond; a carpark to the west; Building 3 (F9B) on Science Road to the south; and Building 13 on Research Park Drive (F9C) and the Macquarie University Hospital to the east.

The location of the new MQU - Central Animal Facility will be at 13aRPD and close to public transport links and parking.

Many of the MQU - Central Animal Facility current research programs include direct collaboration with researchers from 13 research groups. The most critical external relationship for the MQU - Central Animal Facility is to ensure proximity to Macquarie University Hospital '2 Technology Place' (FMHHS), where the additional PC2 laboratories are located.



Precinct Map

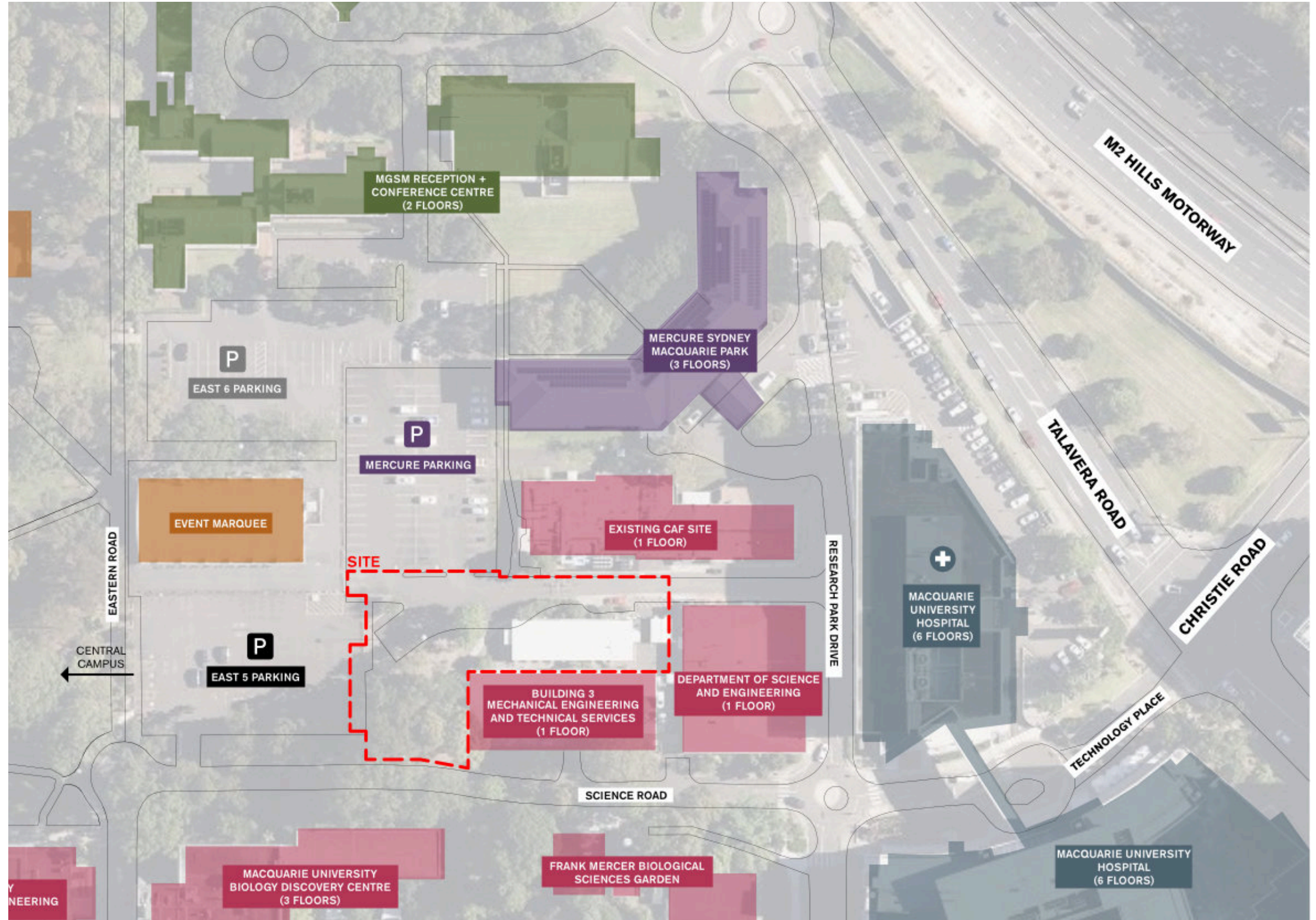






## 1.2 Existing Buildings

The diagrams adjacent indicate the existing surrounding buildings.



Existing Buildings





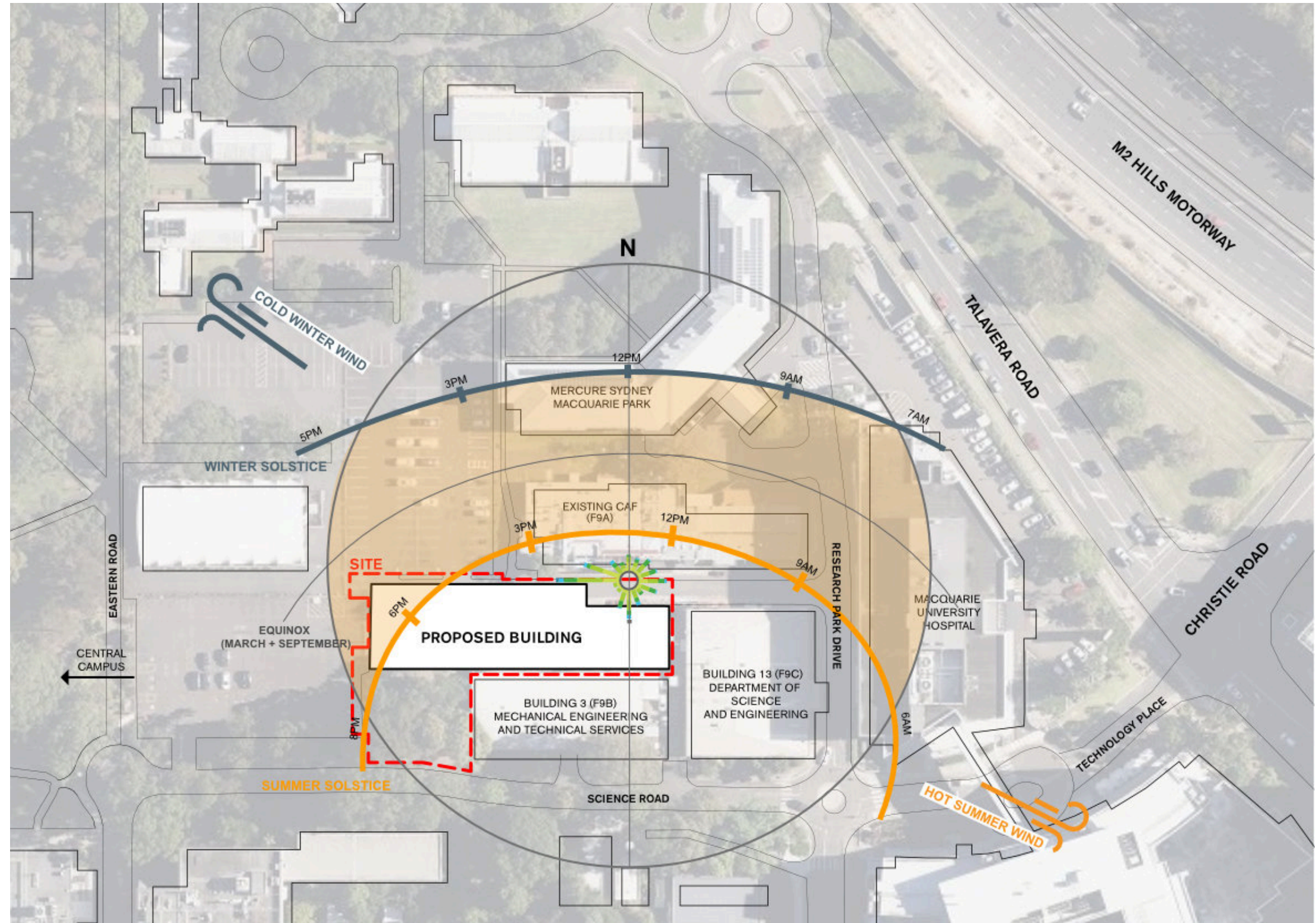
### 1.3 Environment and Climate

The site broadly has a North – South orientation. The northern boundary of the site running along the access road receives good sun exposure, with access to early morning Summer and Winter sun from the east through to the early afternoon. The site may, however, experience some overshadowing particularly at ground floor level both from the existing MQU - Central Animal Facility building and Building 13 (F9C) located to the east.

The site receives unimpeded afternoon solar access during both the Summer and Winter months.

Solar access will be further optimised upon future demolition of the existing MQU - Central Animal Facility building currently located to the north. (subject to a separate application)

Strong summer winds occur mainly from the east and south-east. Cold winter winds are from the west and north - west.



Environmental Analysis

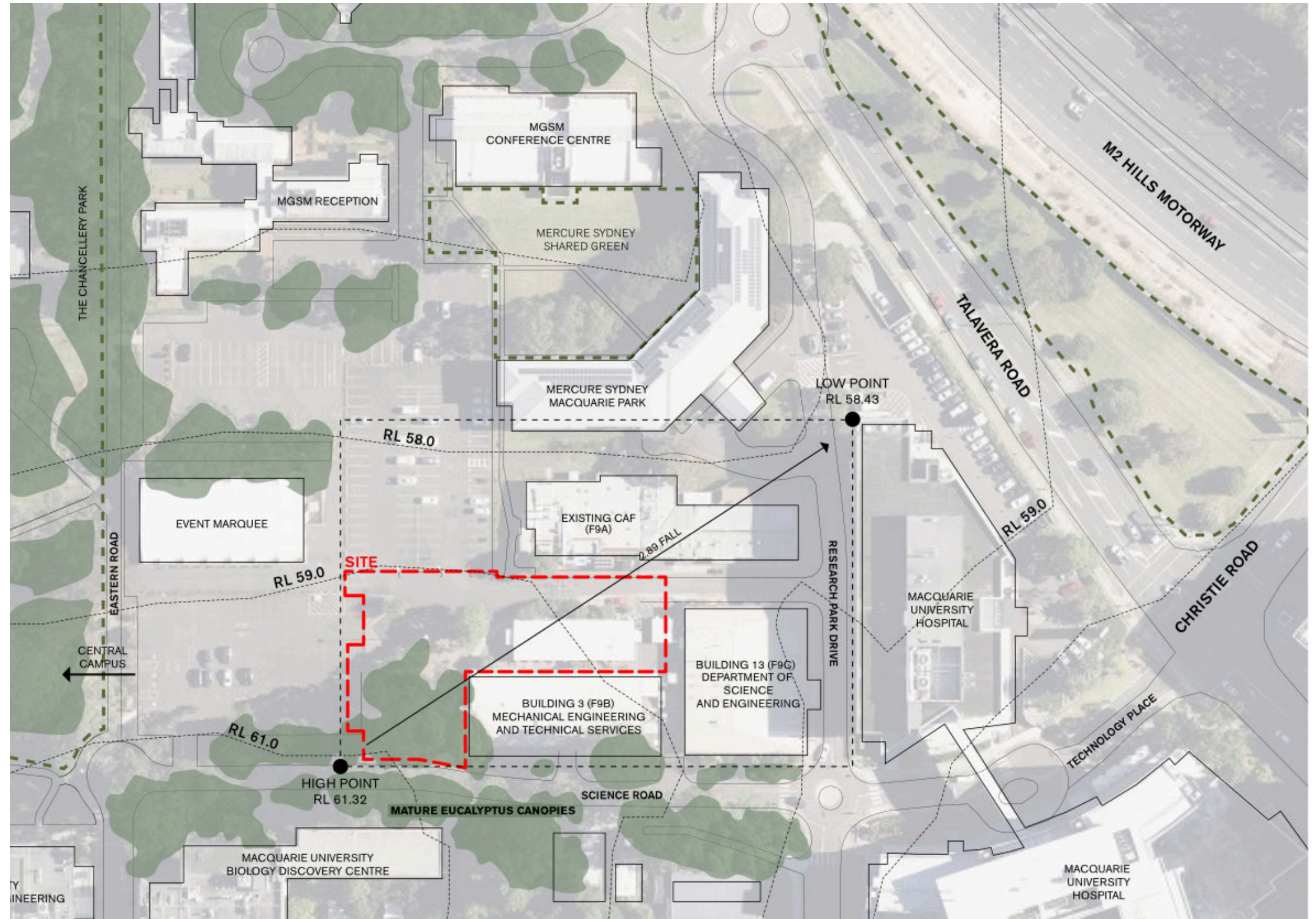




#### 1.4 Site Features and Topography

The topography of the site is largely flat with a slight fall of approximately 1.3 meters from the highest point at the south-west corner at RL 60.8 to the lowest point at the north-east corner at RL 59.5

There is a cluster of eucalypt gums located in the south – west corner of the site. Science Road is an avenue of eucalypt gums that sets up a shaded canopy along the south of the site. There is also a significant Hoop Pine located in this vicinity that will be kept on site and maintained.



Topography and Open Space



# 01

## Site Analysis + Context

### 1.5 Existing Access and Circulation

The diagrams adjacent indicate the vehicular and pedestrian access paths for the broader University campus.

#### Public Transport and Vehicular Access:

The site is a 7 min walk from the Macquarie train station. The site is also serviced by the university shuttle bus which runs along Research Park Drive.

The majority of vehicles accessing the site arrive via the Macquarie University entrance located off Talavera Road, leading to Research Park Drive.

A vehicular access road is located to the north of the site which currently also provides access to the Mercure Sydney Macquarie Park carpark. It is, however, intended that in the future access to this carpark will no longer be via this road, instead access to the carpark will be from the north via Management Drive.

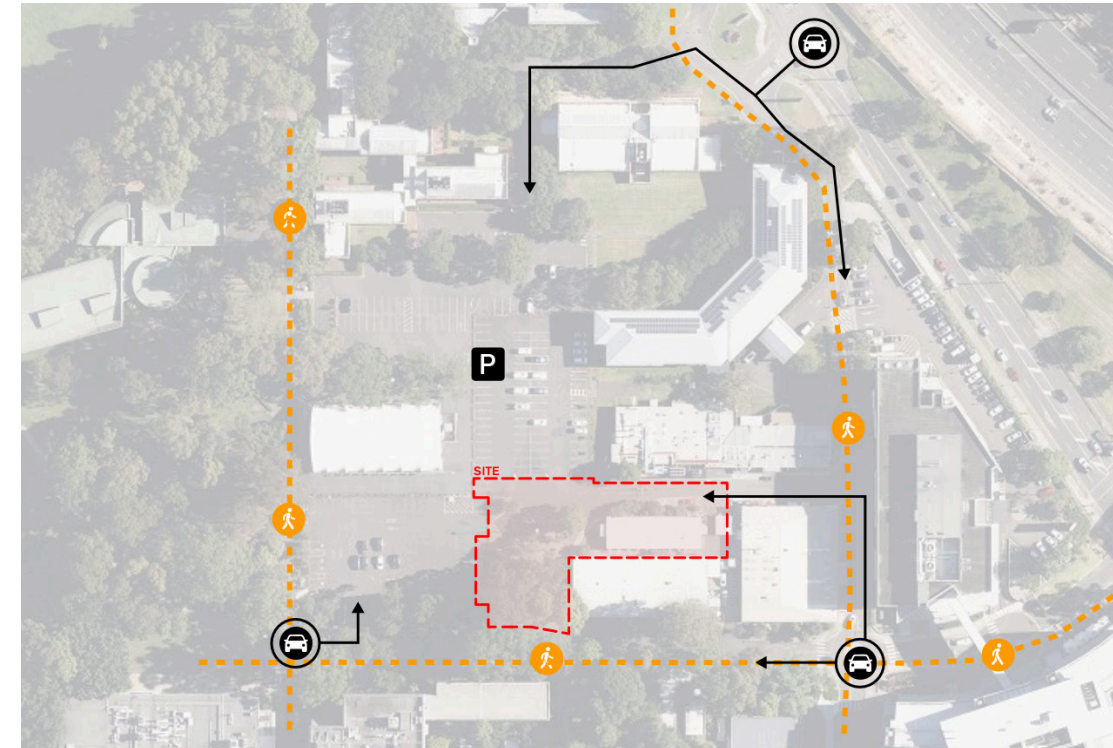
The site currently has no dedicated on-site parking.

#### Pedestrian Access:

Pedestrian access is provided from the north via either the vehicular access road noted above, or via the existing MQU - Central Animal Facility facility to the north. The site can also be accessed via Science Road to the south.



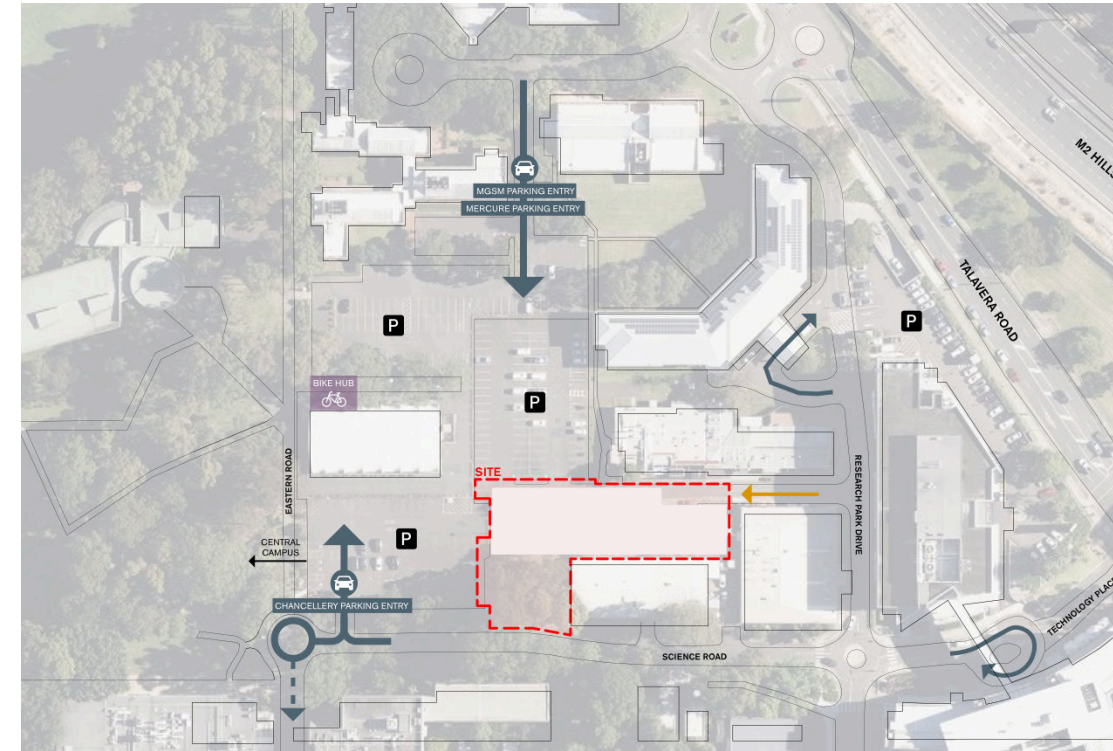
Campus Vehicular vs Pedestrian Access



Key Vehicular vs Pedestrian Access



Modes of Access within Campus



Modes of Access around Site

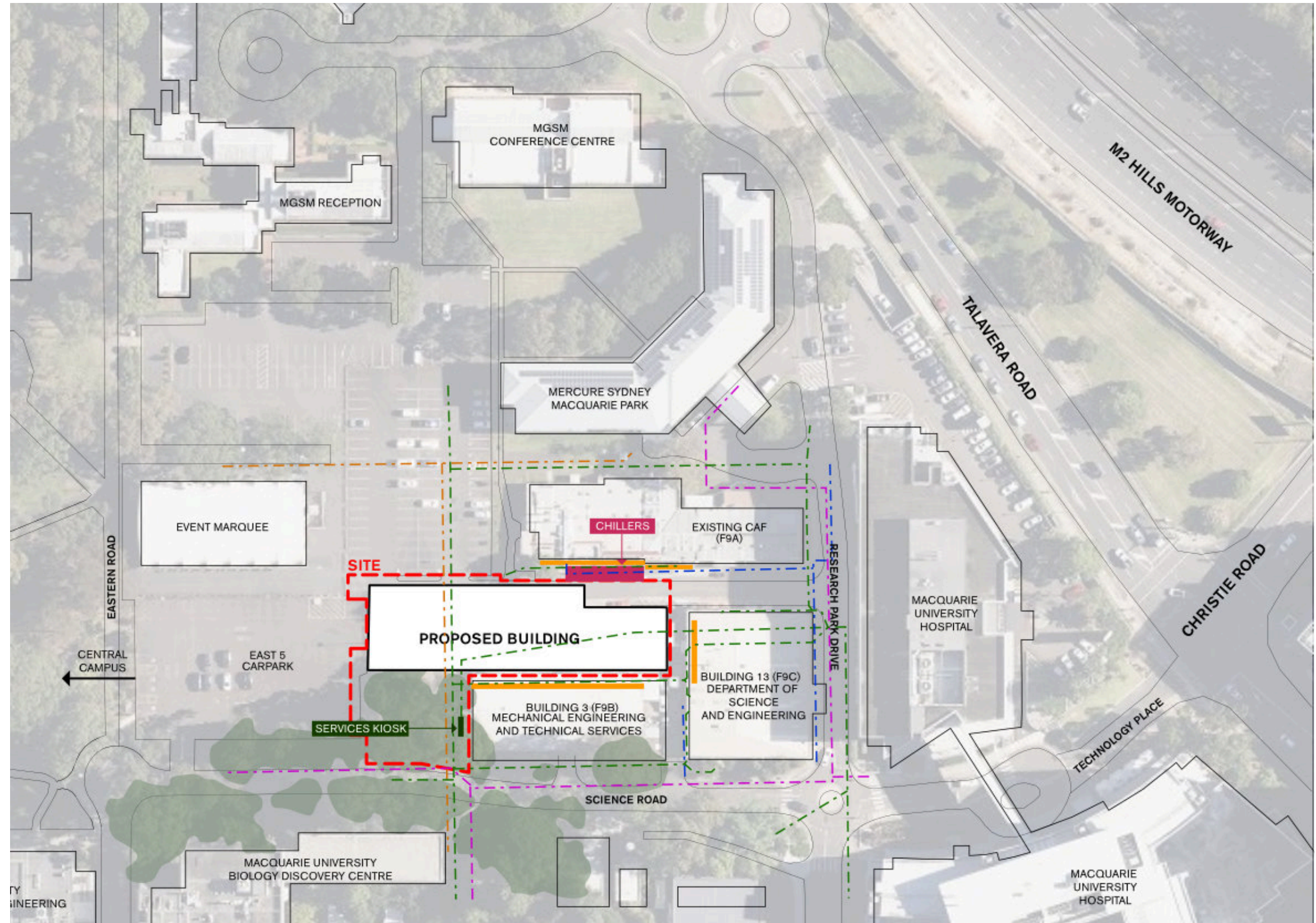




### 1.6 Existing Site Constraints

There are a number of existing site constraints due largely to the surrounding facilities. These are as follows:

- Proximity to Building 3 (F9B) Mechanical Engineering and Technical Services
- Proximity to Building 13 (F9C) Department of Science and Engineering
- Proximity to the existing MQU - Central Animal Facility building, in particular maintenance access to the existing chillers which will remain operational until the new facility is commissioned
- In ground services – stormwater, sewage, electrical and communications
- Existing services kiosk
- Existing carpark East 5 to the west
- Tree cluster located to the south west





01

Site Analysis + Context

1.7 Existing Surroundings

The photos are taken of the existing surroundings of the site, noting the robust amounts of eucalyptus trees creating a tree canopy along Science Road and the adjacent carparks nearby.



1 LOOKING WEST DOWN SCIENCE ROAD



2 LOOKING TOWARDS SITE FROM ADJACENT CARPARK



3 EXISTING CHANCELLERY CARPARK ADJACENT



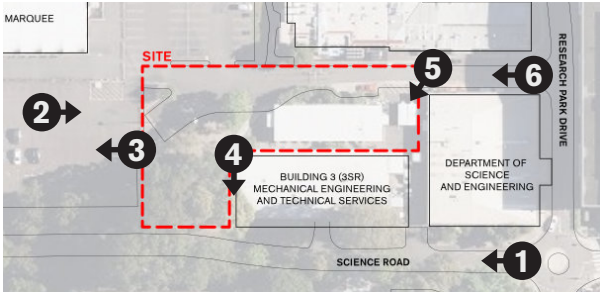
4 PATH LOOKING TOWARDS SCIENCE ROAD



5 EXISTING DEMOUNTABLE TO BE RELOCATED



6 EXISTING SERVICE LANE AND DEPARTMENT OF SCIENCE FACILITY ADJACENT





**02**

**Response to Macquarie  
University Urban Design  
Guidelines and Design  
Excellence Strategy**





# 02

## Proposed Site Location Options

### 2.1 Proposed Site Considerations

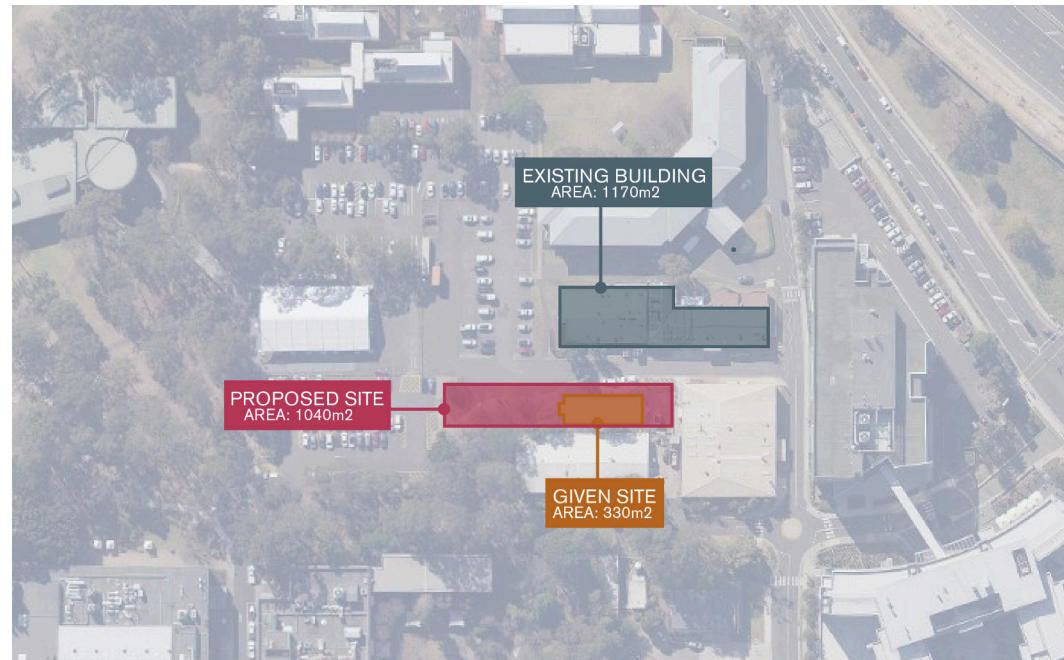
A number of site location options were considered during the Site Feasibility Phase. The narrow site imposed restrictions on the available footprint, especially when considering the specific corridor arrangements required in animal facilities.

The site location options investigated are outlined adjacent.

**Option 03 was determined to be the most appropriate Option as it:**

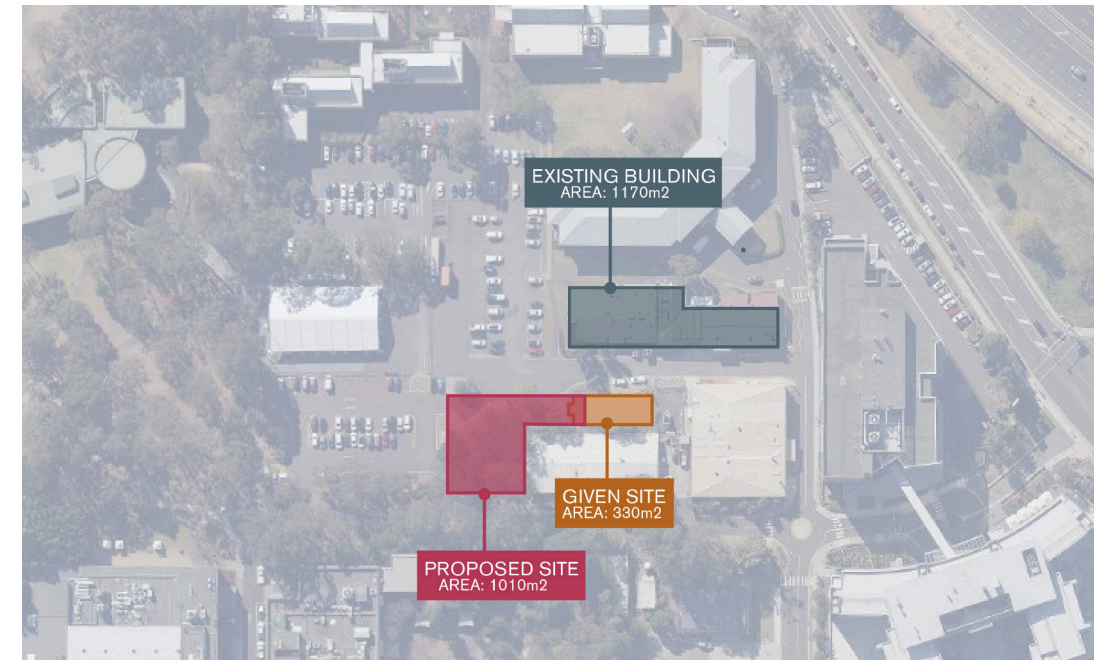
- Did not impact East 5 carpark
- Did not require the demolition of Building 13 (F9C)
- Provided a workable building width footprint
- Had minimal impact on the Mercure carpark

Consideration was also given to the masterplan opportunities for the future Science and Medicine Precinct. Whilst not part of the current scope of this project, these masterplan opportunities are outlined in the diagrams adjacent in order to provide contextual reference.



Option 01:

Extension of the existing site to the north slightly and to the west



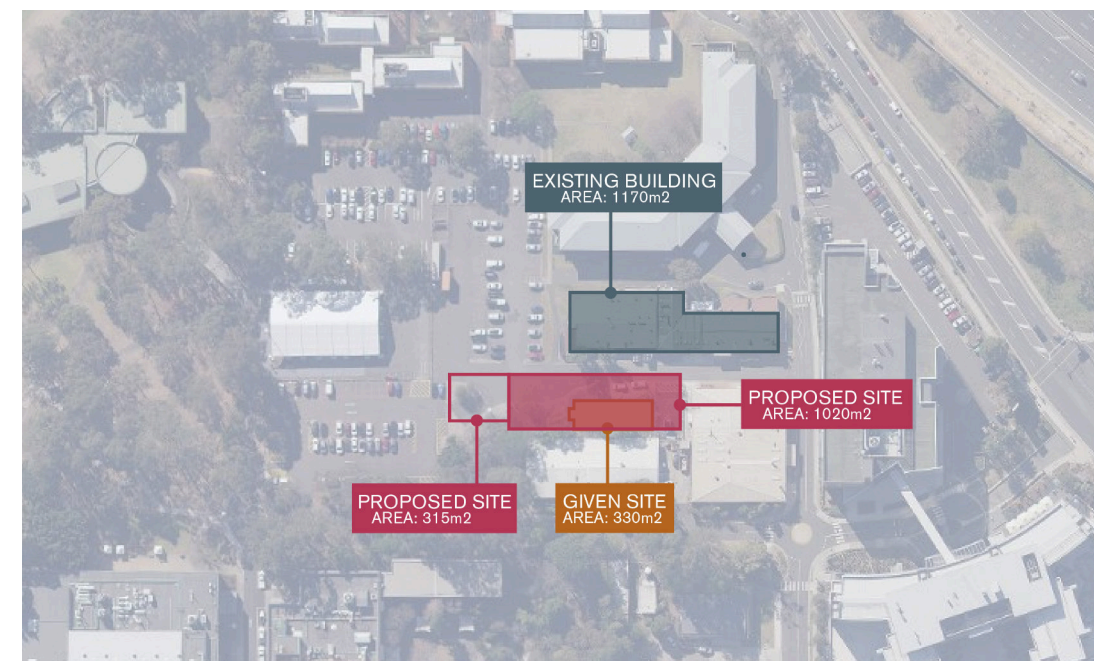
Option 02:

Extension of the existing site to the south and west of Building 3SR



Option 03 (preferred):

Extension of the existing site to the north -with a stepped footprint - and the west



Option 04:

Extension of the existing site to the north and the west



# 02

## Site Staging

### 2.2 Site Staging

The following site staging will be required:

#### **PART A – Relocation of 13aRPD** (previously completed)

The Dementia research group (24 open plan workstations and six offices) has been relocated from the demountable located at 13a Research Park Drive to another existing building within the Macquarie University campus.

#### **PART B – Relocation of Storage Containers on 13aRPD**

The storage containers currently located at 13aRPD will be relocated.

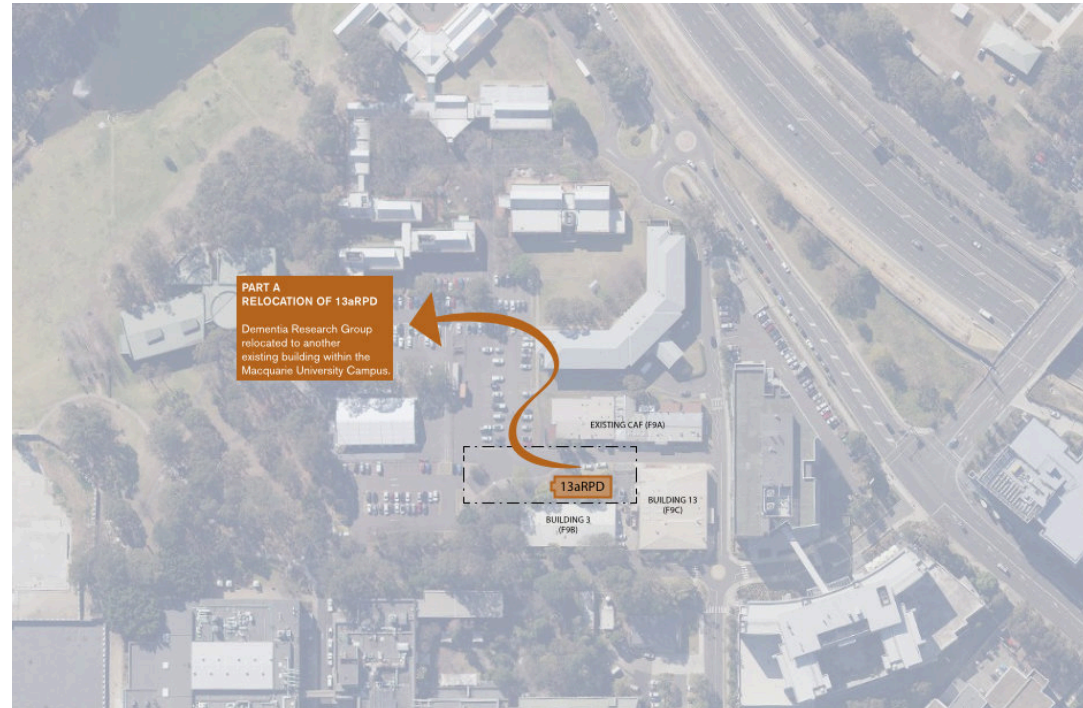
#### **PART C – Construction of a standalone MQU - Central Animal Facility at 13aRPD**

A new MQU - Central Animal Facility of approximately 3,000 sqm GFA will be constructed, and the staff, animals, and equipment will be decanted from the old facility to the new facility.

#### **PART D – Demolition of Existing CAF**

On completion and full occupancy of the new CAF facility the existing CAF building will be demolished.

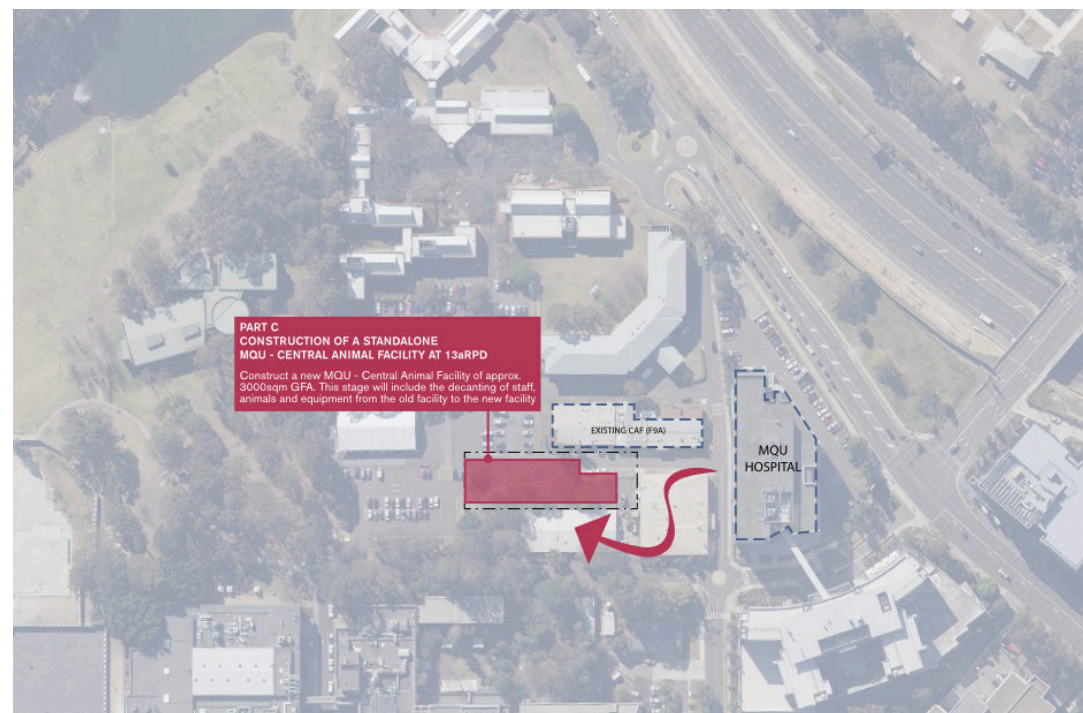
Whilst Parts A, B and C form part of the project scope, Part D is not part of the project scope.



PART A - Relocation of 13aRPD



PART B - Relocation of storage container on 13aRPD



PART C - Construction of a standalone biomedical animal facility (BAF) at 13aRPD



PART D - Demolition / Repurpose 15RPD



The following information details the lot controls from the Macquarie University Design Excellence Strategy & Urban Design Guidelines 2018, as well as the design's response to them. Whilst the design deviates from the lot controls due to the retention of existing buildings and the evolution of the University's Masterplan, the design considers the built form and lot controls, the overall Precinct Planning Framework, and public domain guidelines and principles.

**LEGEND**

- PROPOSED SITE BOUNDARY
- PRIMARY ROAD
- SECONDARY ROAD
- SHARED WAY
- SECONDARY PEDESTRIAN
- STREET WALL
- GROUND FLOOR ACTIVATION
- BUILDING ADDRESS
- FEATURE CORNER IDENTITY
- SERVICE ACCESS ZONE



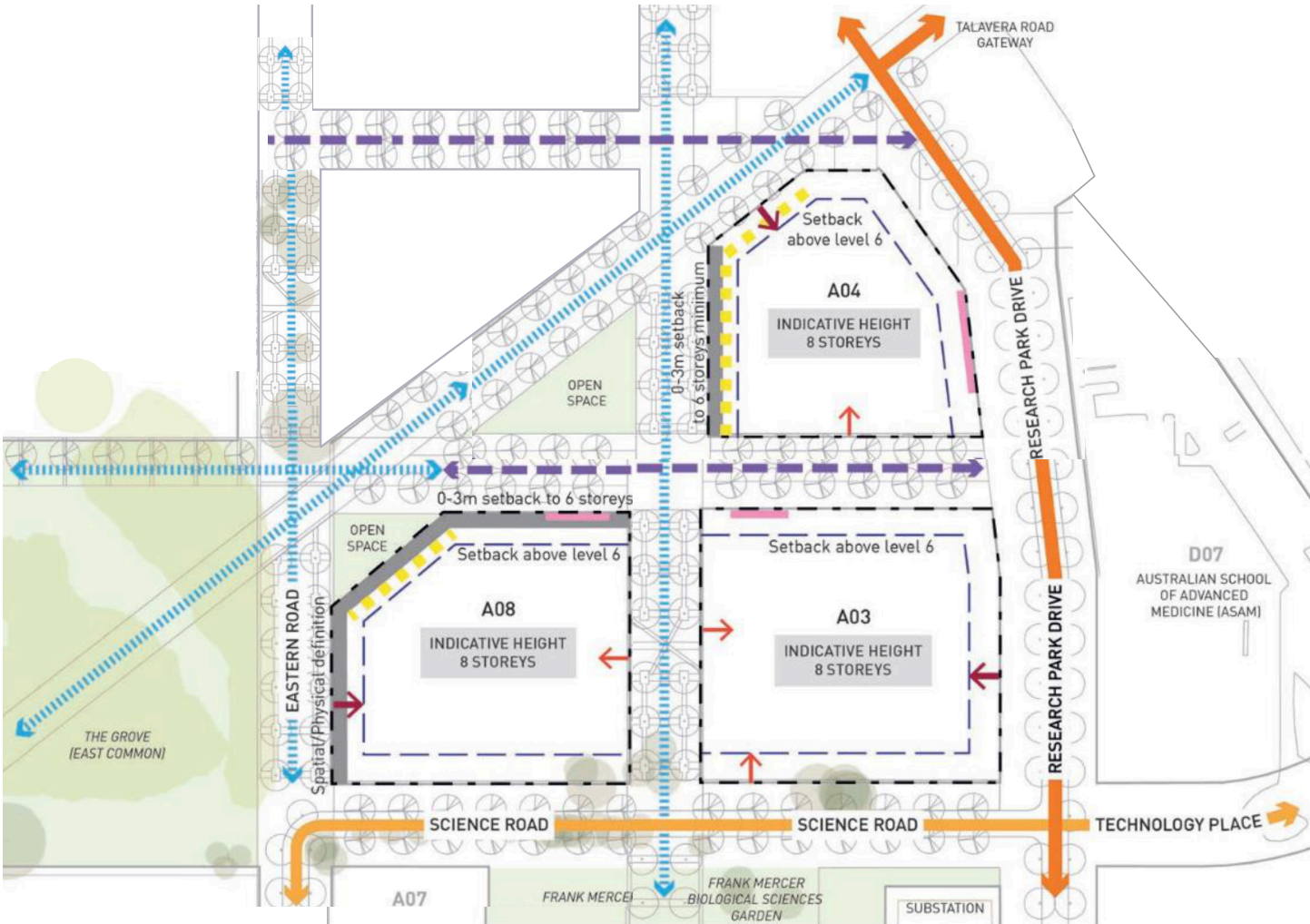
Strategy	Alignment
<b>Macquarie University Design Excellence Strategy &amp; Urban Design Guidelines 2018</b>	
1. Primary and secondary access along Research Park Drive and Science Road	Existing primary roads - Research Park Drive and Science Road - will be maintained. The main address for the proposed development will be from Science Road in line with Macquarie University Design Guidelines.
2. Pedestrian access way along diagonal Talavera Road Gateway and Eastern Road Connection	Proposed pedestrian connections along Talavera Road Gateway and Eastern Road Connection nominated in Macquarie University Design Guidelines will be maintained and has been taken into consideration for this project.
3. Service access from shared access way along Northern frontage	Service access path is maintained along the northern frontage. The proposed development's service access zone will be retained in line with Macquarie University Design Guidelines.
4. North South connection along Western frontage	The proposed north south connection along the western lot frontage will shift in response to the location of the proposed development. The connection between Science Road and the future open green space will still be achieved in line with Macquarie University Design Guidelines.
5. Retain significant trees on site and in the surrounds	All high value trees have been retained on site in line with Macquarie University Design Guidelines.
Built form height of 8 storeys	The development sits within the height limit of 8 storeys in line with Macquarie University Design Guidelines.



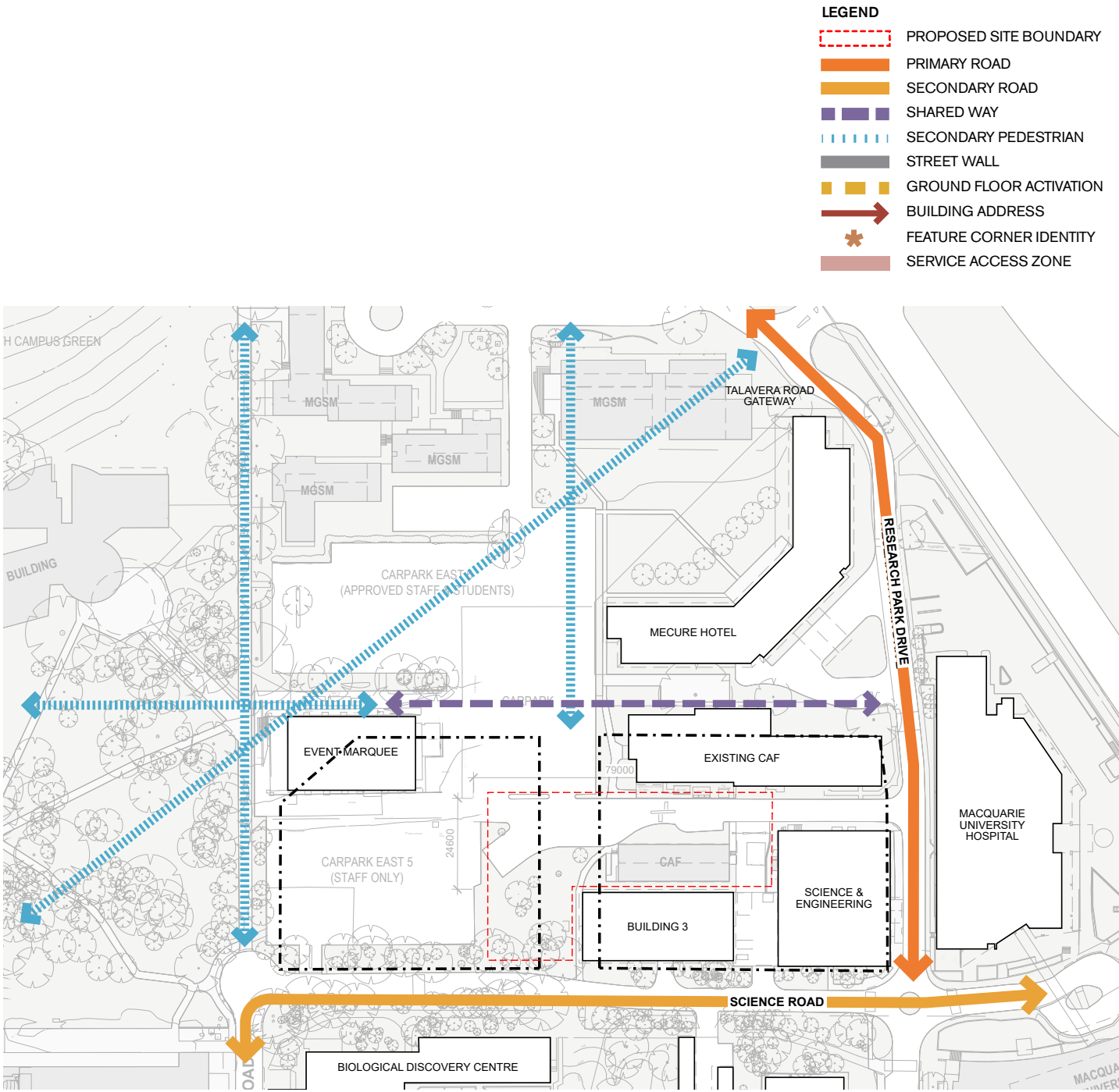
# Response to Macquarie University Urban Design Guidelines and Design Excellence Strategy

## 2.3 Existing Macquarie University Design Guidelines

The below diagrams compares the lot controls provided in the Design Guidelines to the existing site context. This shows the current usage of the primary roads - Research Park Drive and Science Road - as well as the diagonal pedestrian connection from the Talavera Road Gateway.



DESIGN GUIDELINE LOT CONTROLS



EXISTING CONTEXT



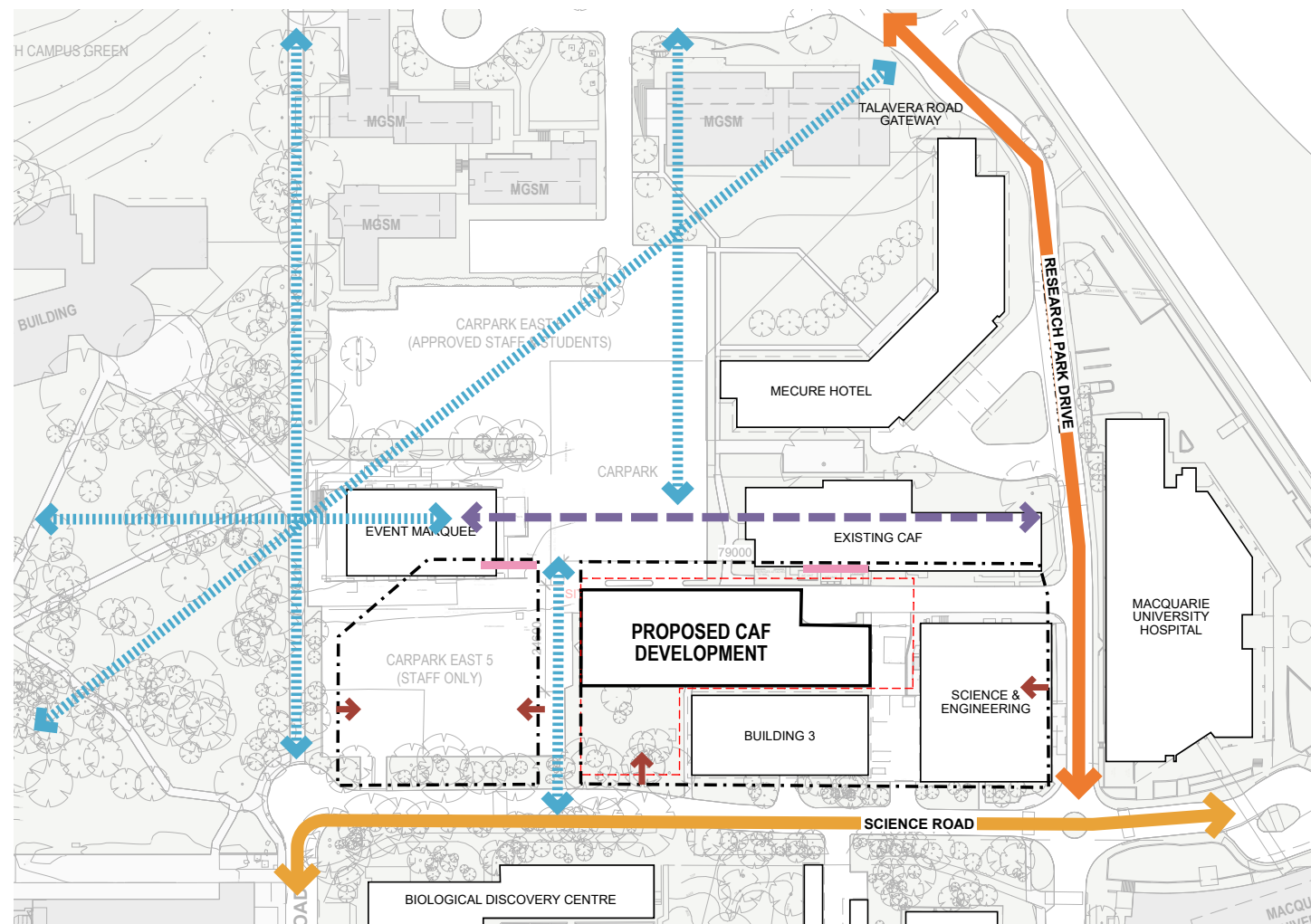
## Response to Macquarie University Urban Design Guidelines and Design Excellence Strategy

### 2.3 Existing Macquarie University Design Guidelines

The below diagram compares the lot controls provided in the Design Guidelines to the proposed development. The proposed development is serviced from the existing shared access way along the North in line with Macquarie University Design Guideline. The building's address is from the secondary access road - Science Road.

The location of the proposed MQU - Central Animal Facility Building has resulted from the positioning of existing buildings on site and has been sited with consideration of a future integrated development to the south and east of the building in the future. As a result, the North-

South connection along the Western frontage of Lot A03 has shifted left in response to the siting of the proposed MQU - Central Animal Facility Building. The original intended connection between the open green space and Science Road is still achieved.



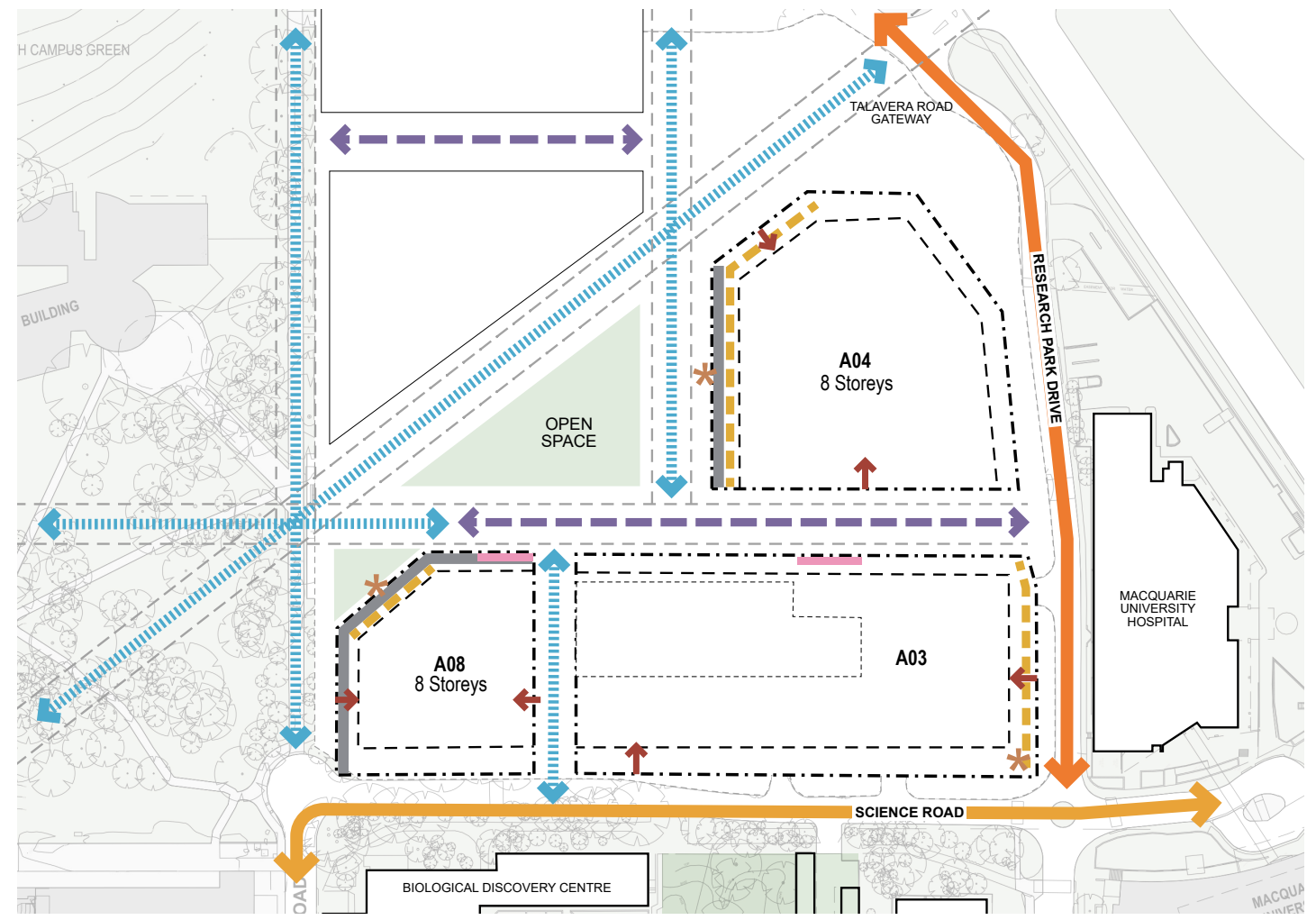
SUBJECT DA

### 2.4 Proposed Macquarie University Design Guidelines

Once the surrounding buildings in Lot A03 are demolished a new future integrated development can be built to complete the lot control plan. This future development will then achieve a prominent feature corner identity, ground floor activation and street address off Research Park Drive and separated services access from the Northern shared way in line with the original intent of the Guidelines and lot aspirations.

As demonstrated the amended lot control plan continues to maintain all primary and secondary roads, key pedestrian and services access ways as well as maintaining the surrounding existing significant trees

and green landscaping to the campus. Only minor adjustments to lot sizes and shifting of secondary pedestrian routes have been made to allow for development to occur keeping inline with the original intent of the Guidelines.



PROPOSED FUTURE LOT CONTROLS





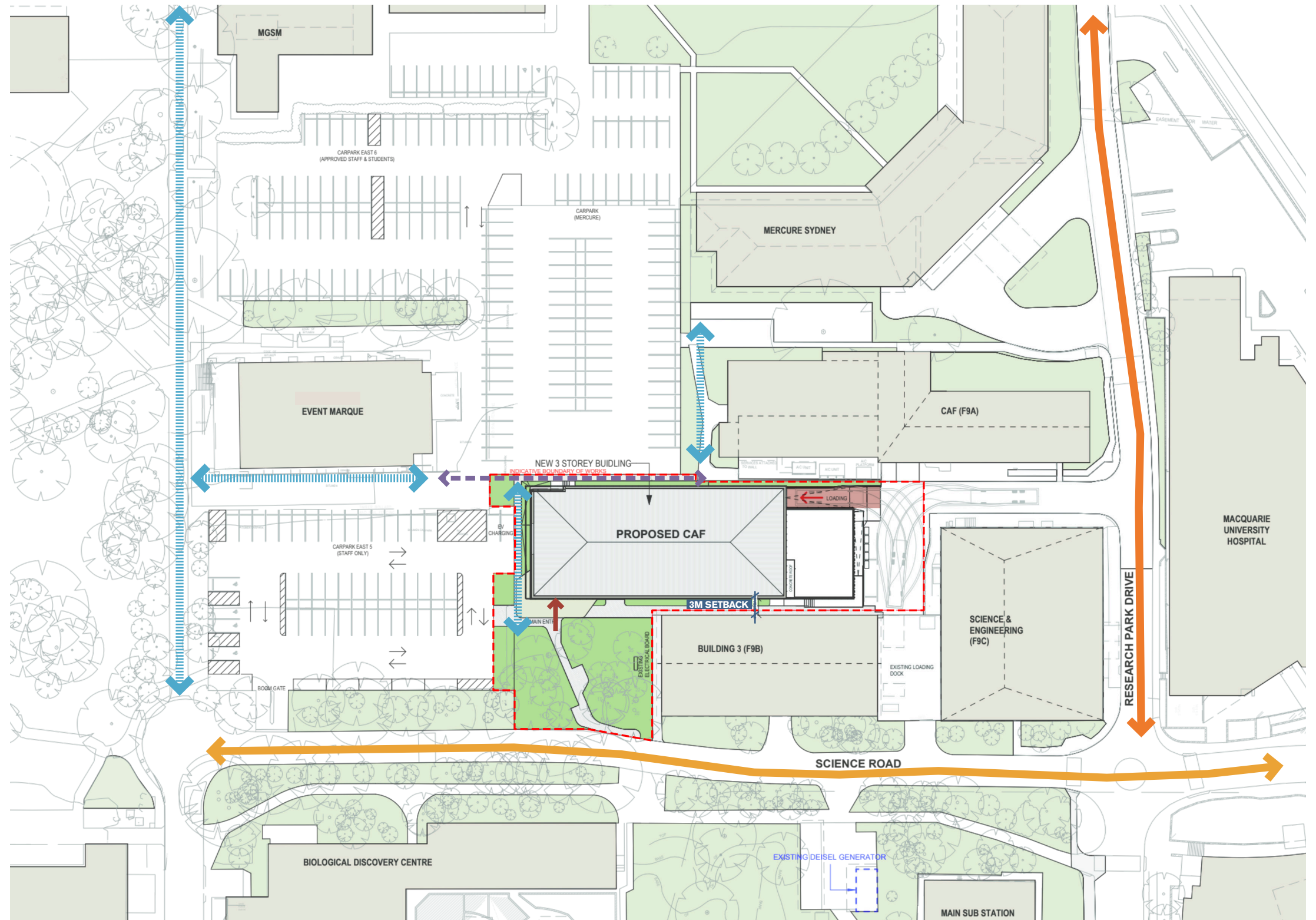
## 2.5 Site Plan

The proposed building is sited to respond to the MQU Campus Masterplan Design Guidelines and aspirations for a connected campus. Main roads and pedestrian connections have been maintained.

Research Park Drive along the east remains as the main road connection with Science Road acting as a secondary road access. Logistics vehicular access is via Research Park Drive to the desired service access zone.

Pedestrian paths outlined in MQU Campus Masterplan Guidelines has been maintained along the western facade. The proposed building also sits within the connections paths for the future development of the surrounding site.

Landscaped green buffer zones are proposed along the Western and Northern Facades of the building to soften against the adjacent existing carparks.



Site Plan

- LEGEND**
- PROPOSED SITE BOUNDARY
  - PRIMARY ROAD
  - SECONDARY ROAD
  - SHARED WAY
  - SECONDARY PEDESTRIAN
  - ➔ BUILDING ADDRESS
  - SERVICE ACCESS ZONE



**03**  
**Architectural Response**





—

03

Architectural Response

3.1 Conceptual Framework

Design Drivers

The key design drivers for the project are summarised within the below three main principles:

Function:

The new MQU - Central Animal Facility laboratory building's footprint, form, and massing is driven by efficient internal planning. This approach aims to create an environment where staff can carry out their daily tasks and research with maximum efficiency and effectiveness. By adhering to strict planning guidelines, the building will achieve an optimal functional outcome for its users.

Comfort and Connection:

The building is designed to be a place where staff can take pride, fostering a sense of ownership and belonging. The aim is to create a workplace that resonates with quality and comfort, attracting and retaining top-tier staff and researchers to elevate Macquarie University's offerings. Spaces will be designed with both staff and visitors in mind, ensuring they are appropriate and comfortable for everyone. The design emphasises ample access to natural light and views, along with a strong connection to the surrounding landscape to enhance well-being and foster a connection to the environment.

Context:

Responding to its context, the architectural design of the MQU - Central Animal Facility laboratory building will seamlessly integrate with Macquarie University's design standards and the existing campus' urban framework and fabric. This approach ensures that the building not only complements its surroundings but also offers opportunities for Designing on Country, acknowledging and respecting the Indigenous heritage and traditional lands upon which it stands.



Function

- Drive the footprint, form and massing by efficient internal planning
- Create spaces that allow staff to carry out their daily tasks and research efficiently and effectively
- Adhere to strict planning guidelines to achieve the optimal functional outcome for users.



Comfort and Connection

- Create a building/workplace that staff are proud of
- Attract and retain good quality staff and researchers to help elevate Macquarie University offerings
- Provide spaces that are appropriate and comfortable for all staff and visitors
- Promote connections to the outside, access to natural light where possible and connection to landscape



Context

- Create a high quality architectural response that aligns with Macquarie University design standards
- Create a building that is reflective of the quality of research undertaken within
- Respond to the natural beauty surrounding the site



—

03

Architectural Response

3.2 Response to Place

“Aboriginal and Torres Strait Islander traditions describe the land, sea, and sky as a unified ‘cosmoscape’. The skyscape is often perceived as a reflection of the landscape, complete with rivers and forests inhabited with fish, birds, animals, and ancestral beings...” - (Clarke, 2007/08)

**Sky:** Aboriginal people are careful observers of the stars as they believe that the stars are the homes of their ancestors, animals, plants and spirit. In their culture, everything on the land is reflected in the sky.

**Rivers:** The rivers have a deep connection to Aboriginal people as they are essential to spiritual and cultural practices, as well as environmental management, food production, language and law. Water connects People and Communities to land, and to each other.

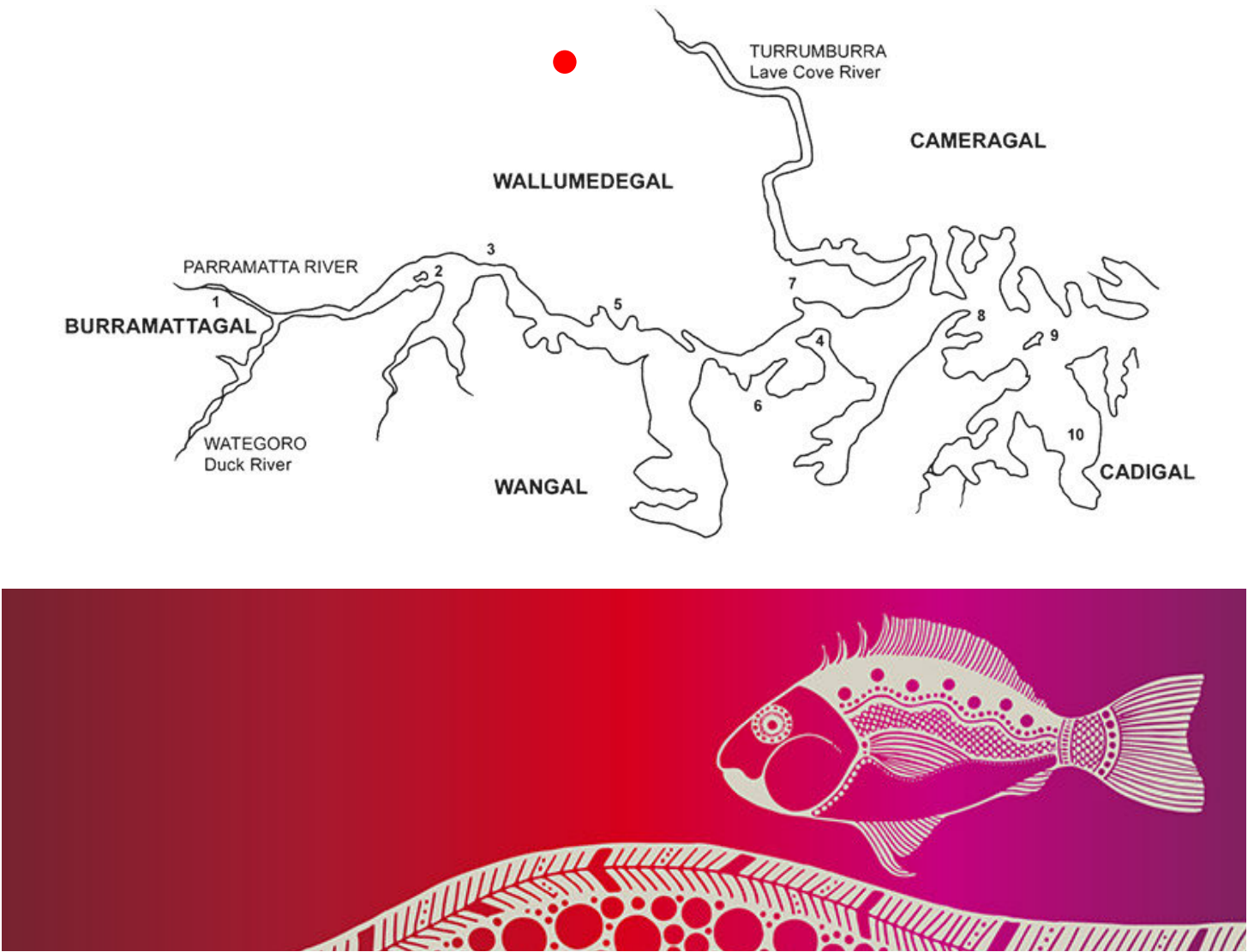
**Land:** To Aboriginal people, land means considerably more than dirt, rocks and minerals but it is a living ecosystem that supports and is supported by people and their way of life. Values and Identities are anchored to the land.

“Country means much more than land, it is their / our place of origin in cultural, spiritual and literal terms. It includes not only land but also skies and waters... Their/our belonging, nurturing and reciprocal relationships come through our connection to Country. In this way Country is key to our health and wellbeing” (Dr Daniele Hromek, Defining Country, GANSW Designing with Country)

Designing with Country is understanding and sharing knowledge about cultural significance and place. It involves listening to past stories, peeling back the layers of history and understanding what was / is on Country.

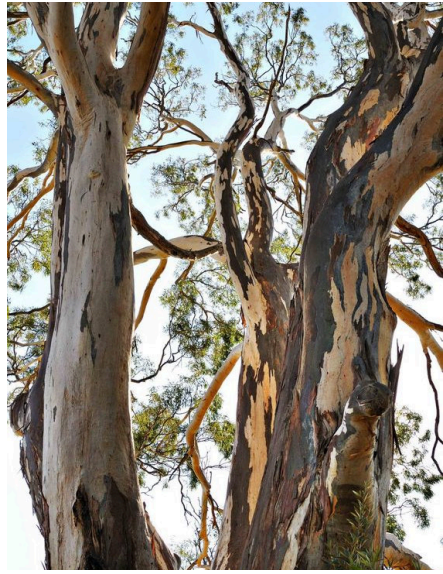
Design on Country is fundamental to the site analysis and investigation of the land in which the development will be built upon. This understanding has led to various design principles such as Connection to Land which has influenced the building massing and a façade patterning derived from the stringybark (*Eucalyptus obliqua*). Stories of the Wallumattagal people could be weaved into the future interior design scheme.

Further integration of designing with Country is embedded into the landscape design with geometry and cultural design elements as well as careful selection of flora and landscaping to represent endemic species to the region.





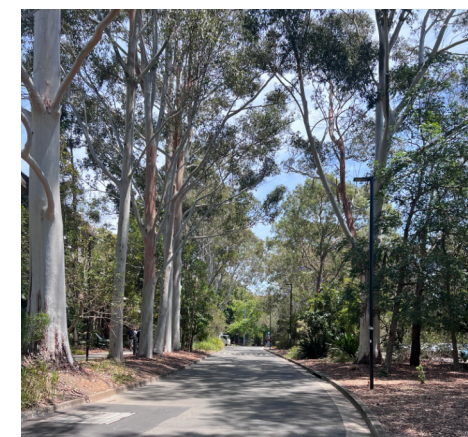
## Architectural Response



### BARK (“NUWI”)

Bark was used to handcraft canoes for the Wallumattagal Clan. Although canoes were used for general transport, it played an integral part of fishing for the Wallumattagal People in Paramatta River and Lane Cove Rivers. It consisted of a three to four long pieces of bark tied with vines or cord.

A stone hatchet or axe, mago, was used to cut the bark. Two paddles (goinnia) of 60-90cm long were used to move the canoes and seaweed or fern was used as seating and for maintaining a central fire used for cooking in the canoe.



### BLUE GUM HIGH FOREST

The Blue Gum High Forest is a critically endangered ecological community in Ryde. The rich shale substrate is found in elevated slopes, gullies, ridgelines and crests. The soil is moderately deep with a fertile clay layer.

The seasonal appearance of blue gums leaves an abundance of colours and bark along the ground. From light to dark greens and browns, the Blue Gum High Forest is easily recognised.

### GEOLOGY & WATERWAYS

The geology of the area includes shale, sandstone and saline wetlands.



## Architectural Response

### 3.3 Architectural Concept Framework

The following three key design concepts have been developed through a deep investigation and thoughtful response to the context, site, and project-specific design aspirations and form the basis of the overarching Architectural design concept for the project.

#### Hidden in plain sight

The overarching design principle for the project is to create a new university building that seamlessly integrates with the existing campus framework and urban fabric.

The design embraces clean lines and a simple, refined aesthetic, presenting a building that seamlessly blends with other university structures on site, subtly masking its specialised function. This approach responds to the privacy requirements of the internal research functions housed within the building, ensuring clarity while remaining hidden in plain sight.

#### Scale and Mass – Massing

The building's massing strategy focuses on breaking down the form to create a more horizontal bulk and scale. This is achieved through careful proportions and slight changes in material articulation, resulting in a simple form that acts as a jewel nestled quietly within its context. The design also introduces a feature perforated screen to the main public areas providing natural lighting and transparency, building articulation and relief to the building form.

#### Urban camouflage – Façade

Drawing direct inspiration from the surrounding gum trees that exist on site, the façade design pays homage to nature. The stringy bark of the gum trees serves as a reference for the façade's pattern and colour palette, creating a harmonious link between the building and its natural surroundings. The building is envisioned to sit in the shadow of these majestic gums, with a façade that is light-reflective, refined, and subtly camouflaged within its urban context.

The adjacent precedent images have provided inspiration for the external façade design. The precedents demonstrate how the use of horizontal datum lines, changes in materiality and the use of proportions have helped to break down the overall mass and scale of the building forms.



### HIDDEN IN PLAIN SIGHT



### URBAN CAMOUFLAGE



### SCALE AND MASS

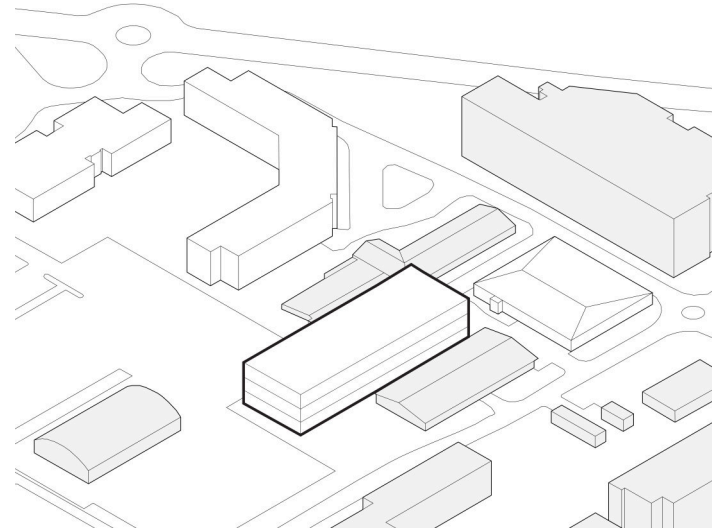


## Architectural Response

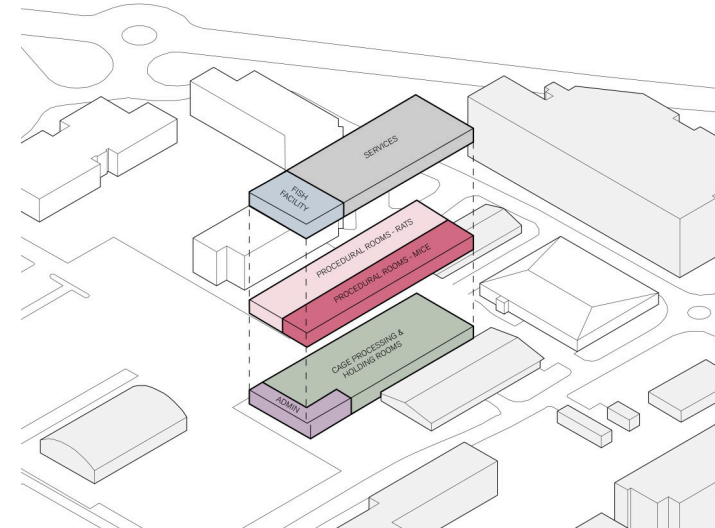
### 3.4 Building Form and Massing

The driving force behind the architectural footprint, form, and massing of the new CAF building is the emphasis on efficient internal planning. The diagram adjacent demonstrates how the buildings form and massing has been developed as a direct response to the internal function of the building.

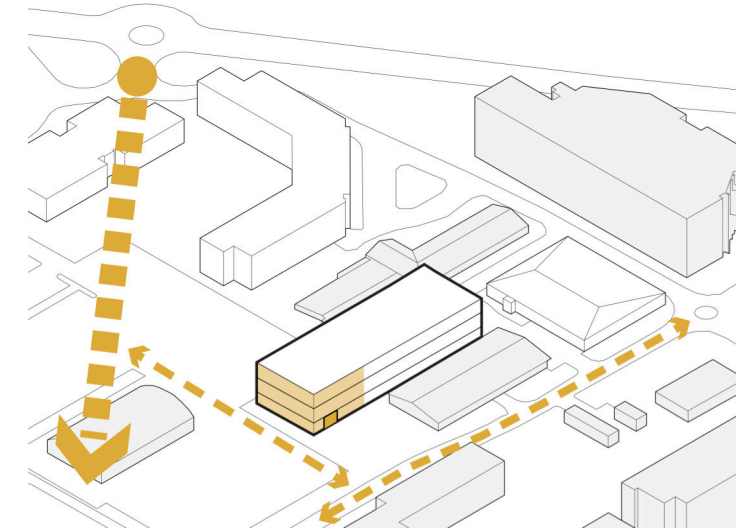
The 3-storey mass of the building houses the cage processing, holding rooms, shared support and front of house facilities on ground level; and animal laboratories for rats and mice on level 01 and zebrafish research department on level 02. Loading dock and back of house facilities are situated on ground and services plant space are located on level 02 as enclosed and unenclosed spaces.



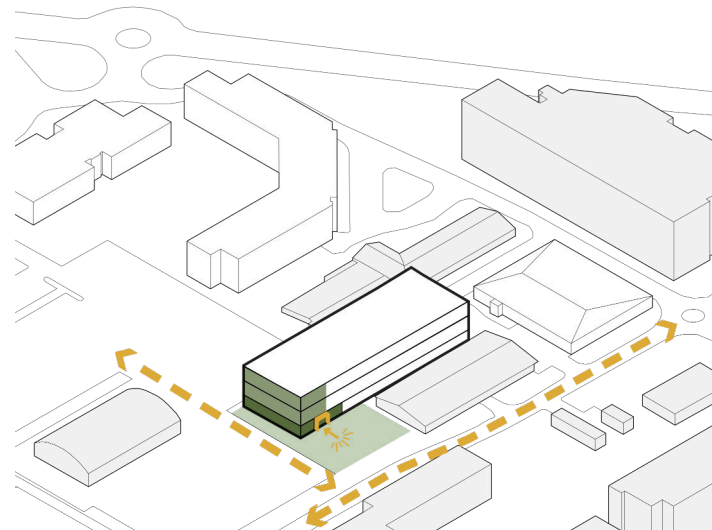
MASS



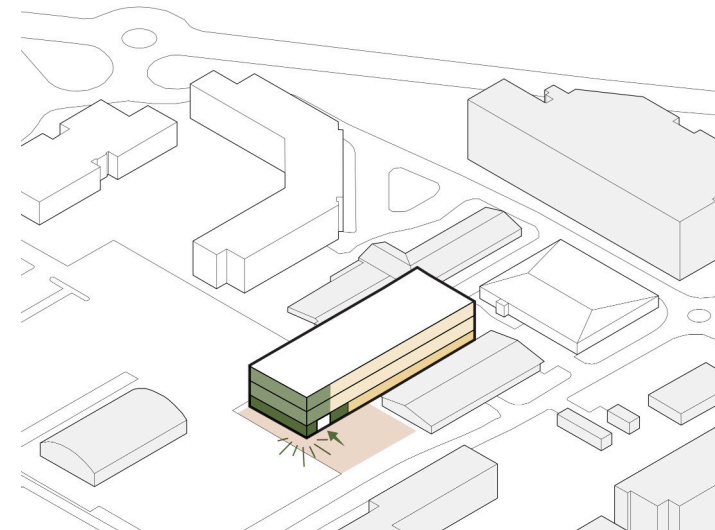
FUNCTION



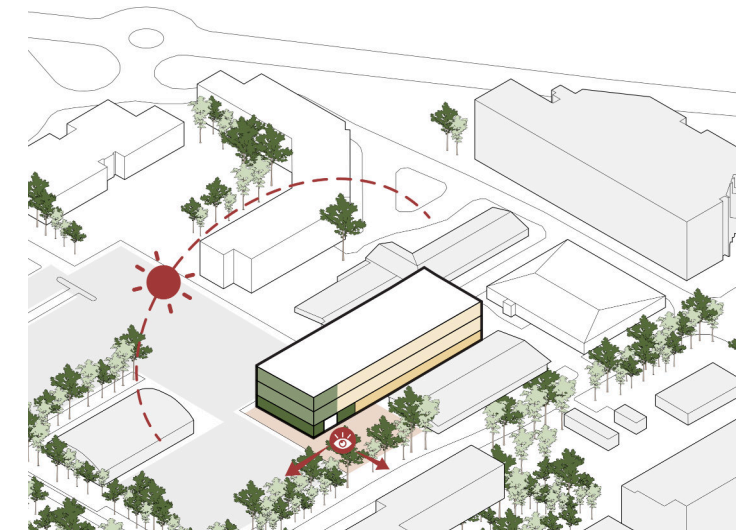
CONNECT



ENTRY



IDENTITY



CAMOUFLAGE



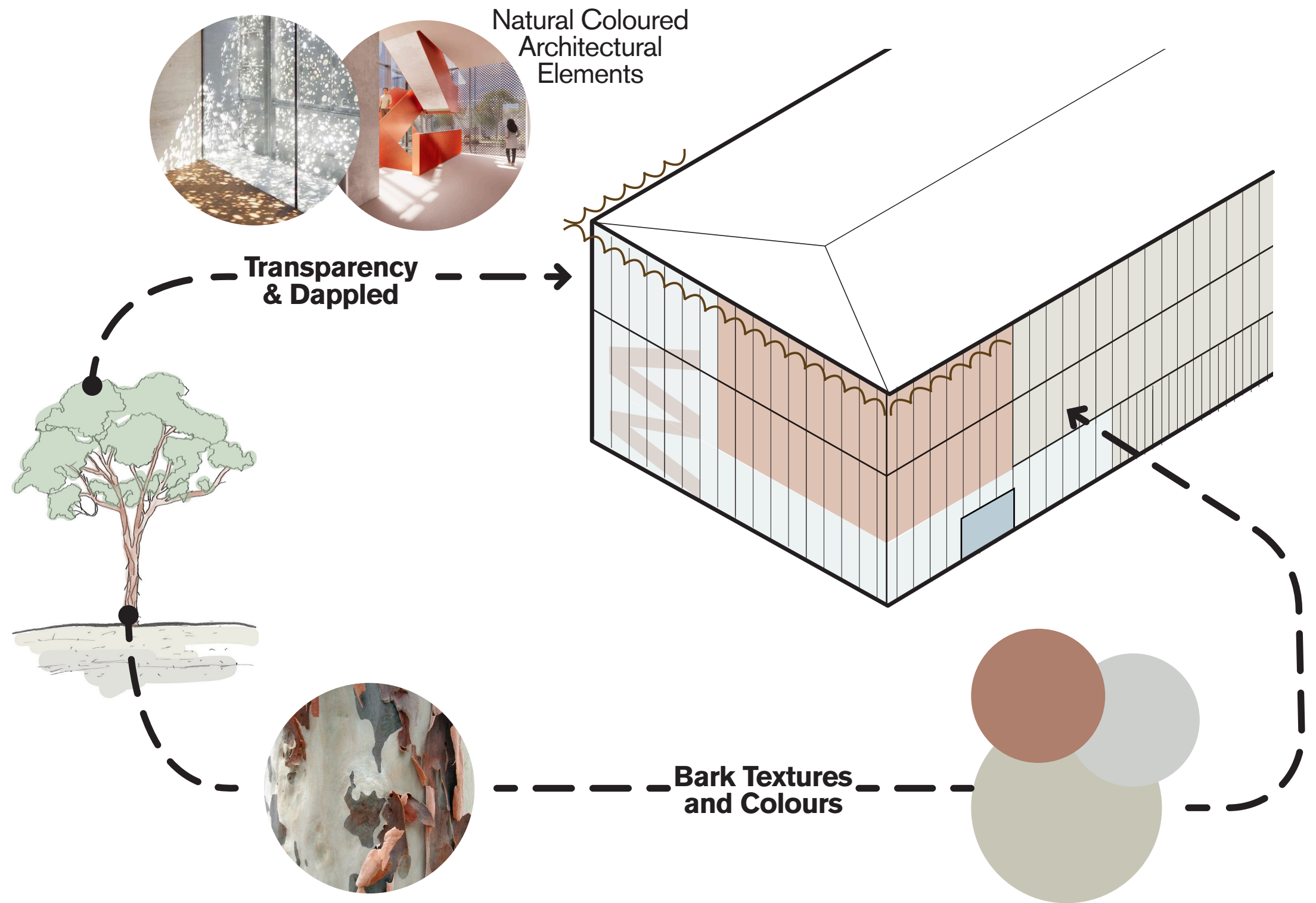
### 3.5 Facade Design Narrative

The façade design draws inspiration directly from the blue gum forest and the existing presence of the gum trees that exist on site. The façade design aims to take cues from the natural patterns and textures present in the forest. The overarching aim is to craft a building that serves as a hidden gem within its surroundings. In line with this vision, the design strikes a balance between subtlety and impact.

Inspiration is drawn from the leaves of the eucalypt gum trees that catch the sunlight and shimmer in the breeze, the façade aims to be light and reflective, subtly drawing attention to its presence without overpowering and fitting in with the natural setting that surrounds it.

Central to the design concept is the incorporation of the string bark pattern found in the gum trees. This feature material pattern adds layers of sophistication and depth to the façade, echoing the organic forms of its natural inspiration.

In addition the design aims to reference elements of the site's geology and waterways into the podium texture and materiality. By creating a transparent entry and ground plane the design allows for a podium that opens up and creates a sense of connection outwards to the existing landscape and context.





3.6 Architectural Planning - Floor Plan

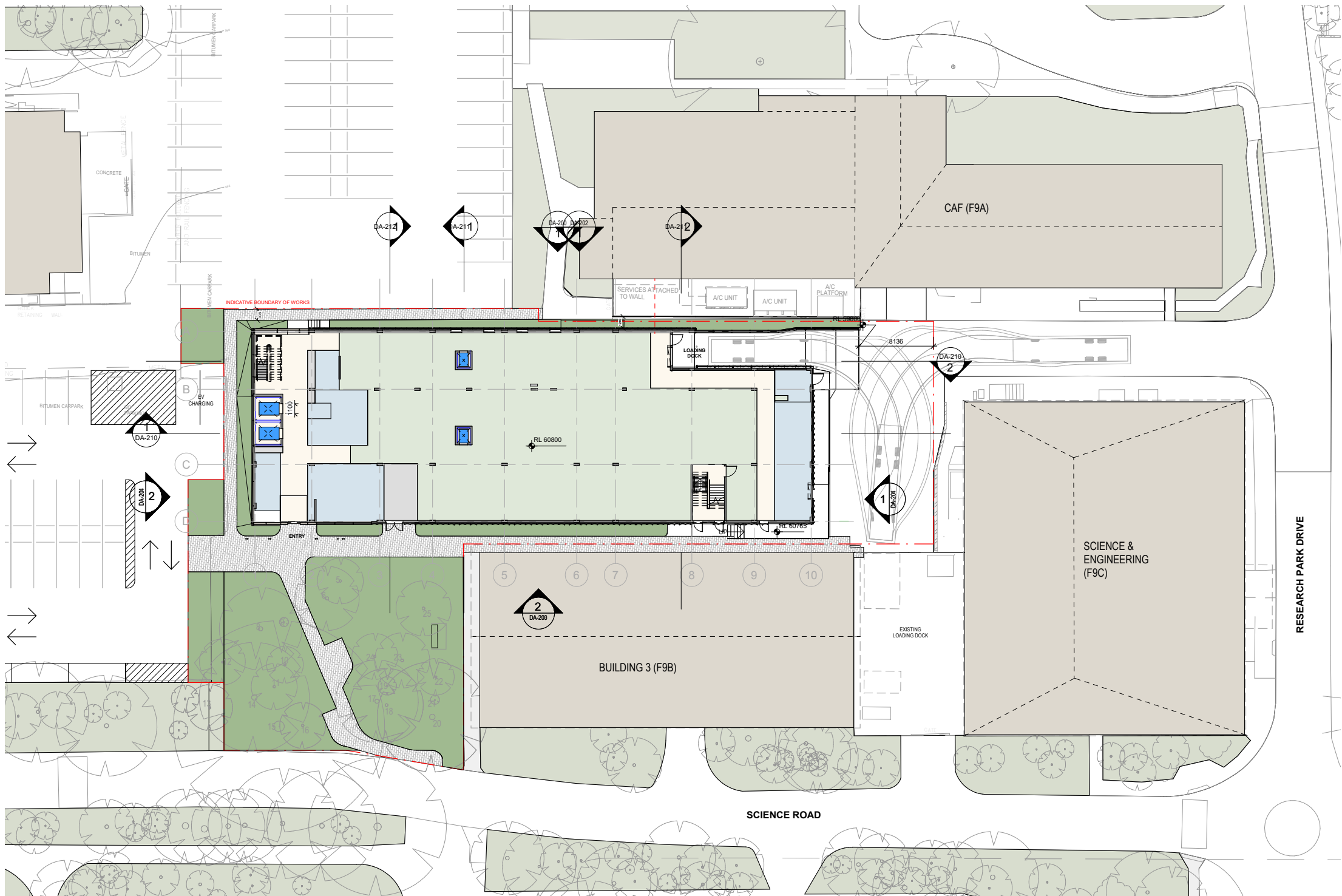
Ground Level

This is the lowest floor of the facility and accommodates the following:

- Entry
- Office and Office Support Areas
- Change Room
- Rat Holding
- Mice Holding
- Cage Wash and Cage Prep
- Feed / Bedding Store
- Mice Procedure Room
- Micro-Injection / Transgenic Mice Room
- Dirty Quarantine Suite
- Support Rooms – Consumables Store, Waste, Gas Bottles, Hazardous Materials

LEGEND:

- SERVICES / PLANT / ENGINEERING
- CIRCULATION / LIFT / STAIRS
- SHARED OFFICE ADMIN. / SUPPORT / AMENITIES
- LABORATORY
- PROPOSED LANDSCAPE  
\*please refer to landscape drawings for more information/detail





03

Architectural Response

3.6 Architectural Planning - Floor Plan

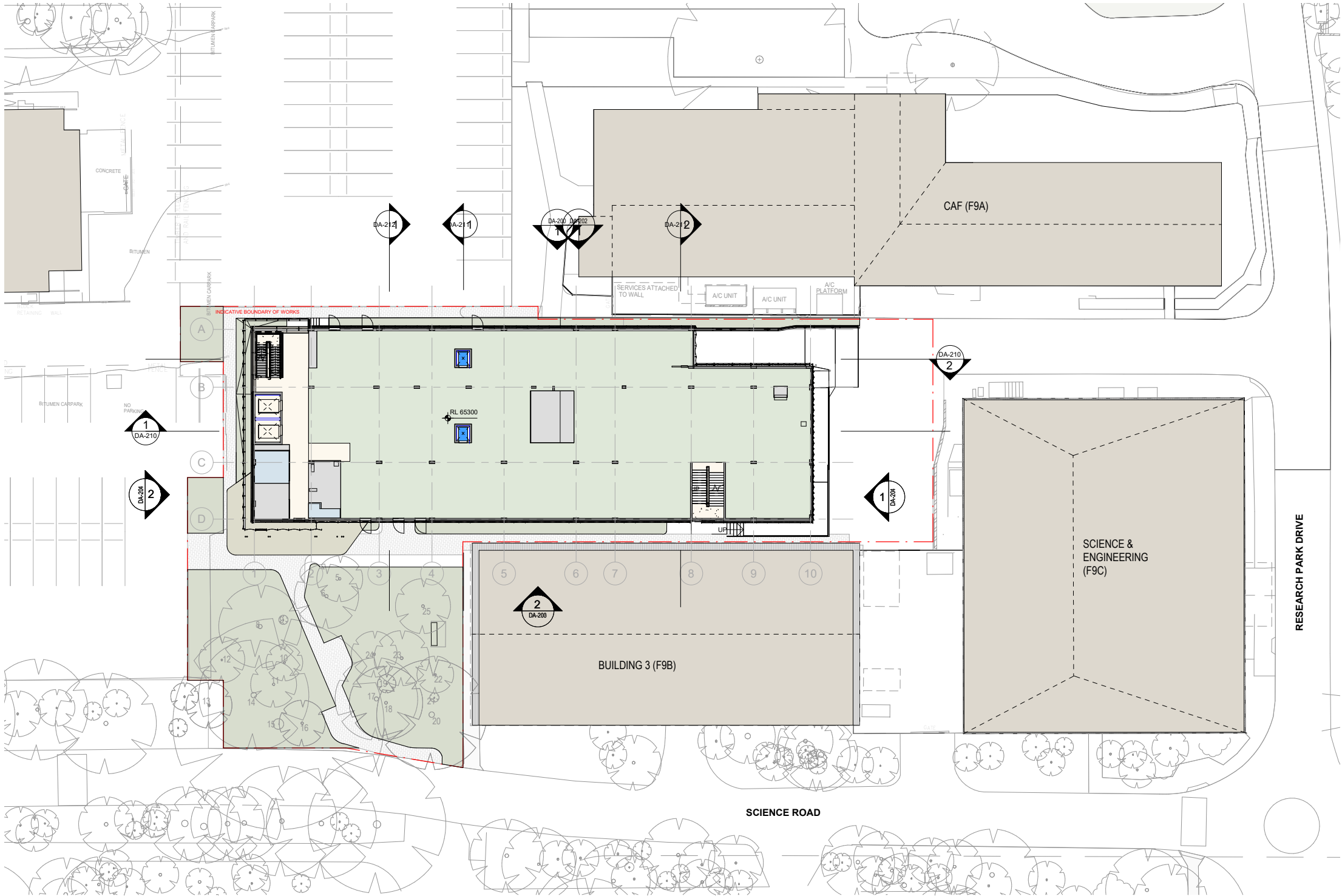
Level 01

This level houses the following program:

- Mice Laboratories
- Rat Laboratories
- Equipment Stores
- AA Quarantine Suite

LEGEND:

- SERVICES / PLANT / ENGINEERING
- CIRCULATION / LIFT / STAIRS
- SHARED OFFICE ADMIN. / SUPPORT / AMENITIES
- LABORATORY
- PROPOSED LANDSCAPE  
\*please refer to landscape drawings for more information/detail





3.6 Architectural Planning - Floor Plan

Level 02

This level accommodates the Zebrafish facility including the following:

- Fish Holding Room, Washroom and Pump Room
- Injection Room
- Screening Room
- Confocal Room
- Behaviour Rooms
- Store and Equipment Room
- Fish Quarantine Area
- Building plant including switch room, steam generator and zebrafish plant

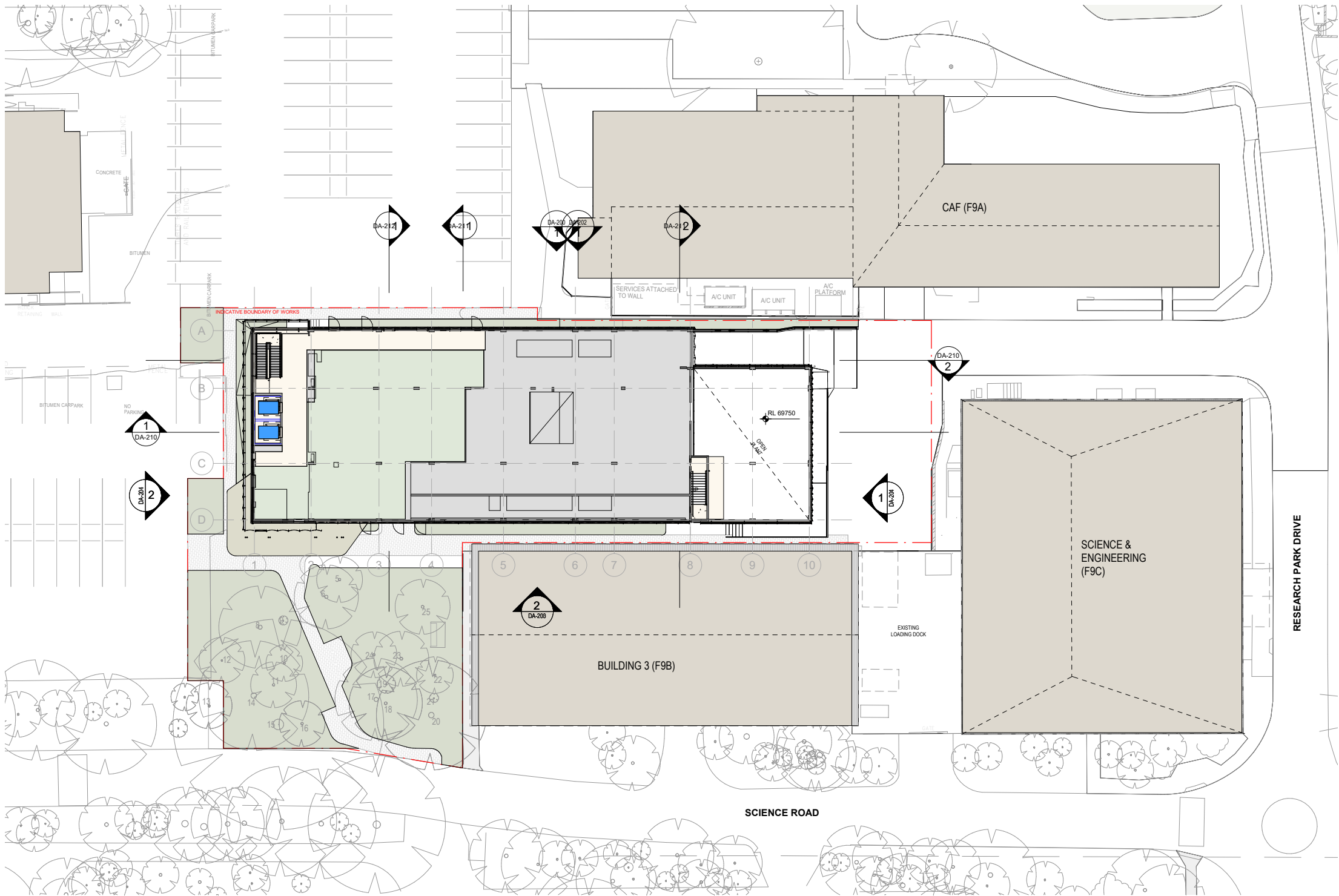
Building plant is located at this level as enclosed and unenclosed plant areas. The roof plant is located on a concrete slab, with louvres to enclosed plant areas.

The main plant accommodated at roof level includes the following:

- Air Handling Units
- Chillers
- Condensers
- Manifolded Exhaust System
- 

LEGEND:

- SERVICES / PLANT / ENGINEERING
- CIRCULATION / LIFT / STAIRS
- SHARED OFFICE ADMIN. / SUPPORT / AMENITIES
- LABORATORY
- PROPOSED LANDSCAPE  
\*please refer to landscape drawings for more information/detail

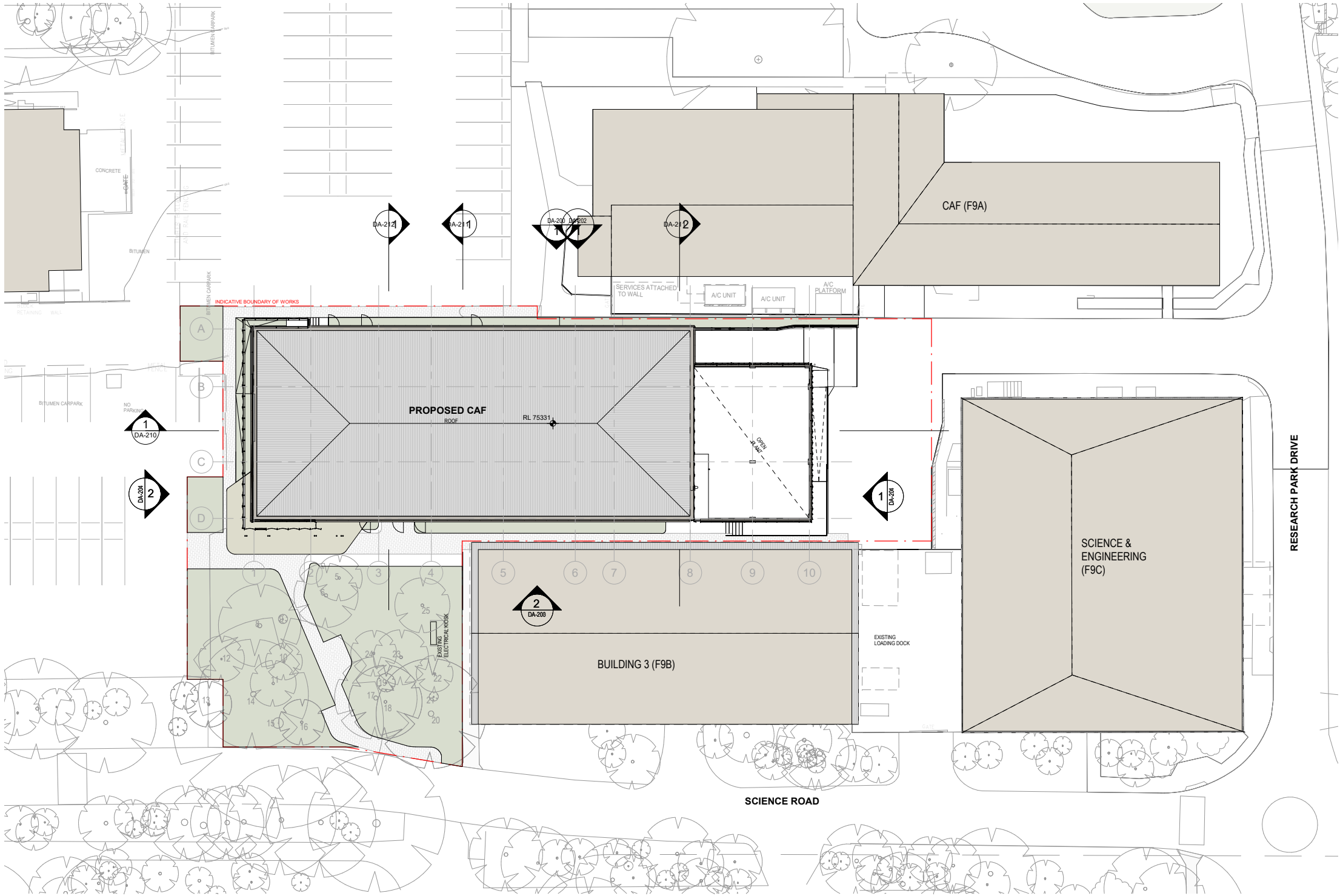




3.6 Architectural Planning - Floor Plan

Roof

The roof is constructed of a steel structure with a light weight metal roof. The unenclosed plant area will be screened with perforated metal screens in line with the facade design.







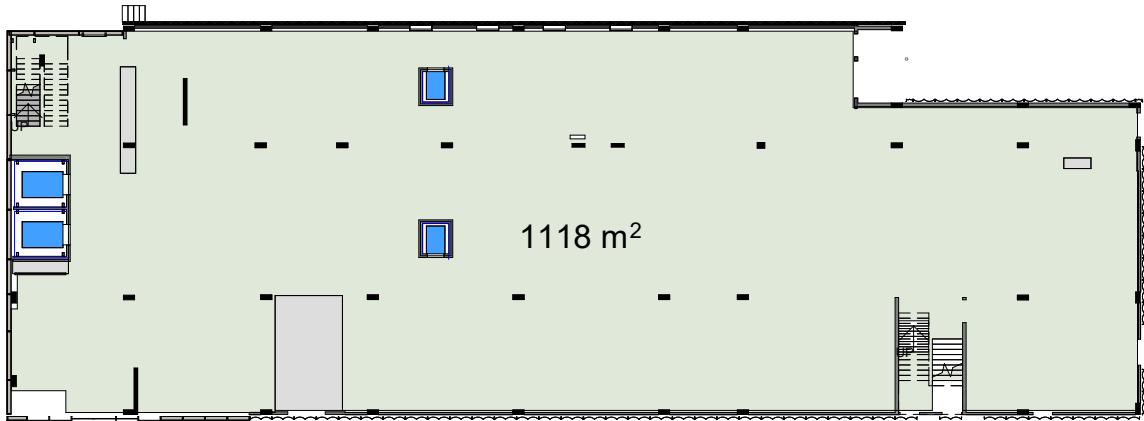
3.7 Building GFA

GFA CALCULATIONS:

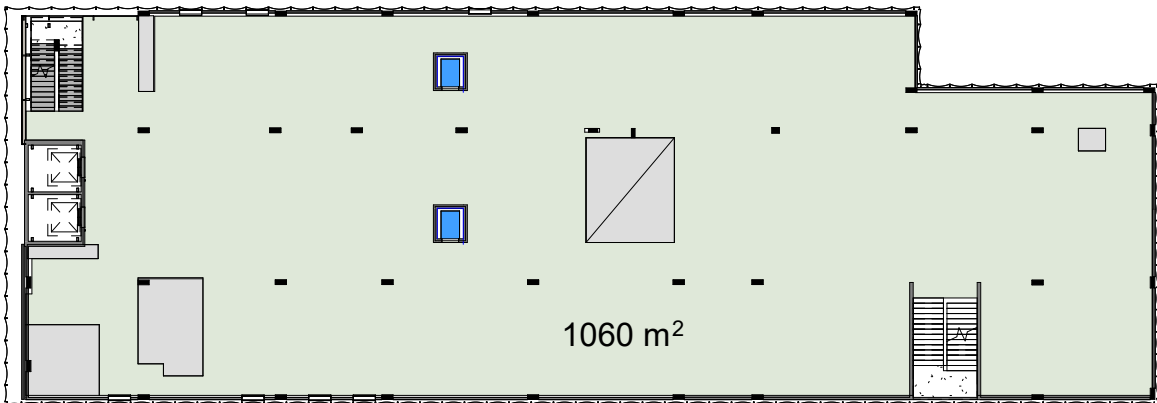
Ground	1118 sqm
Level 01	1060 sqm
Level 02	403 sqm

**TOTAL** 2581 sqm

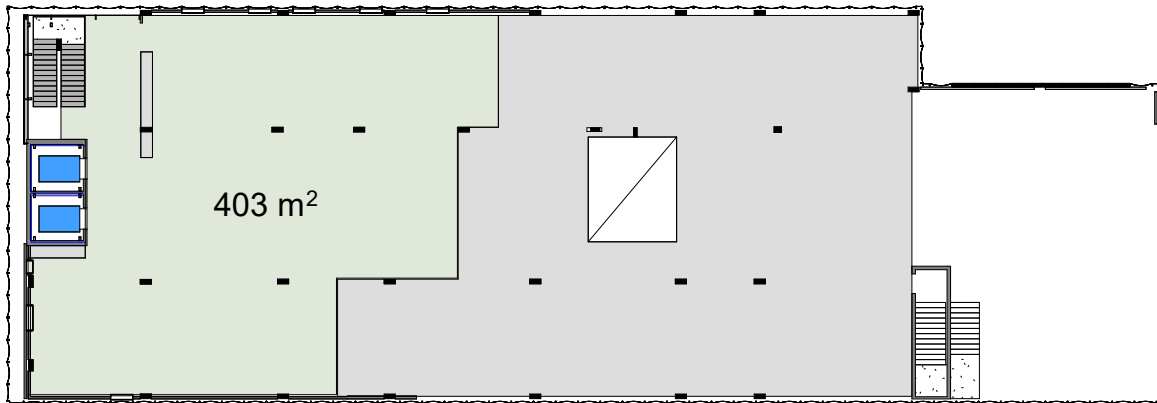
\*GFA figure do not include:  
- Grey plant / engineering area  
- Common vertical circulation such as lifts and stairs  
\*\*Stairs calculated once only



Ground



Level 01



Level 02



### 3.8 Building Access and Circulation

#### Vehicular Access and Logistics

Vehicular access for visitor drop off will be provided via Science Road to the south.

Logistics access is via the existing service road to the north. A loading dock is located at the eastern end of the building which can accommodate the following vehicles:

- Waste trucks 12.5m long.
- Gas deliveries 7.1-7.4m long trucks.
- Stockfeed trucks 7-11m long.

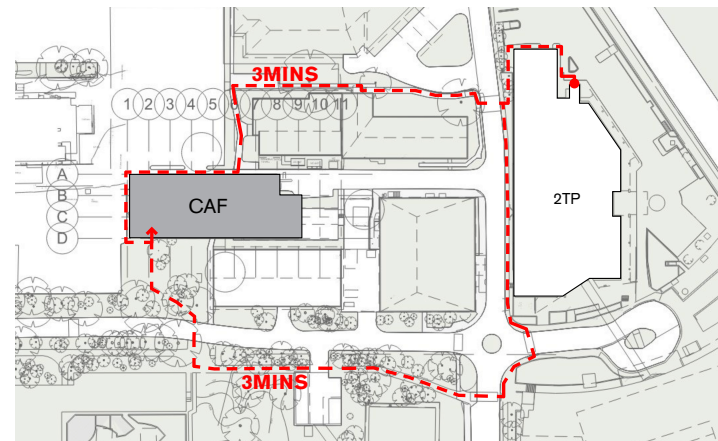
#### Pedestrian Access

The main pedestrian entry is located on the south western façade. This enables two key pedestrian access paths:

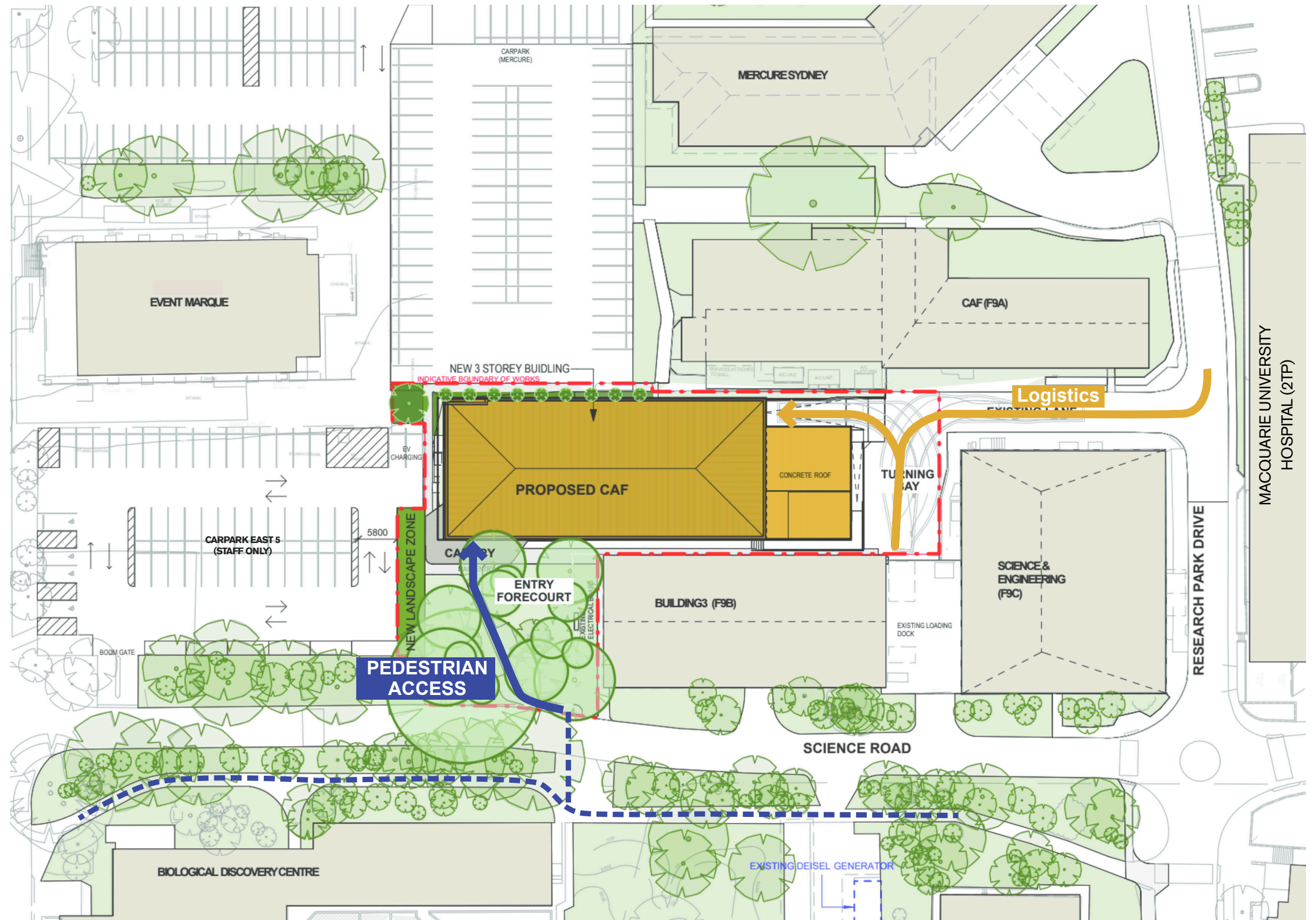
- via the extension of the existing pedestrian pathway from the existing MQU - Central Animal Facility building to the north
- via the pedestrian pathway along Science Road to the south.

Whilst pedestrian access is also possible via the loading dock, this is to provide access to/from the loading dock only and not an alternative facility entry point as it was a strong User request to minimise movement in and out of the facility, in order to control access to the PC2 containment zones.

Given the strong relationship between the new MQU - Central Animal Facility and the Users in Building 2TP, pedestrian access paths and travel times have been considered between these two buildings.



Pedestrian Access Travel Paths and Times



Site Plan

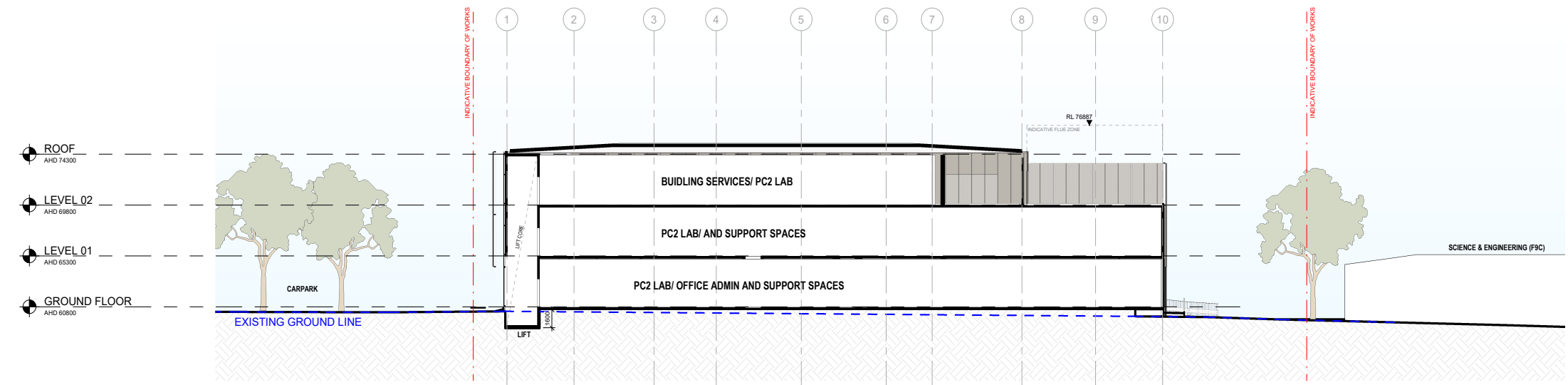


03  
Architectural Response

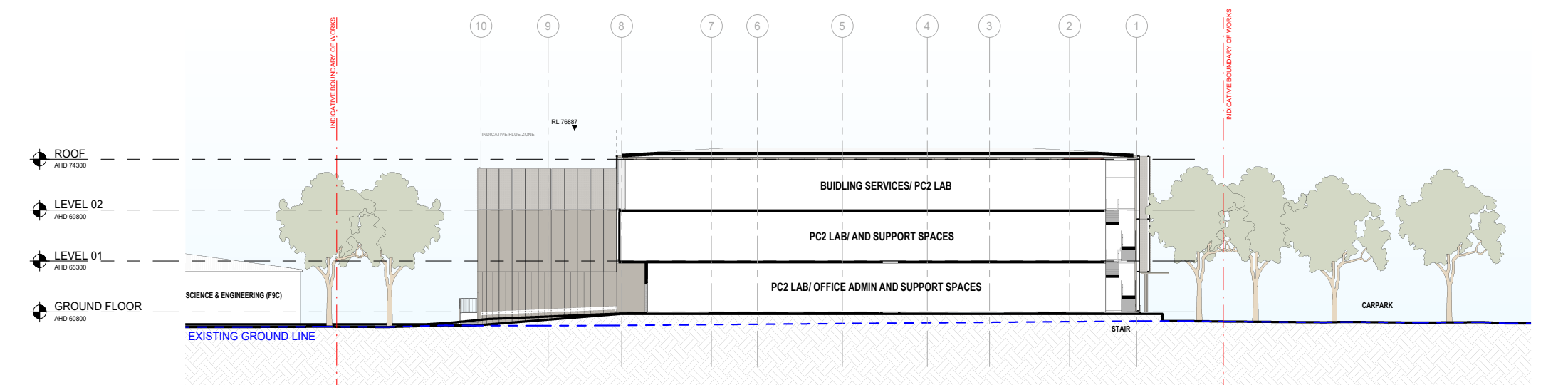
3.9 Building Sections

North and South building sections show how the building is split across three storeys.

- Ground - PC2 Lab / Office Admin and Support Spaces
- Level 01 - PC2 Lab and Support Spaces
- Level 02 - PC2 Lab / Building Services



1 SECTION LOOKING NORTH  
SCALE 1 : 200



2 SECTION LOOKING SOUTH  
SCALE 1 : 200



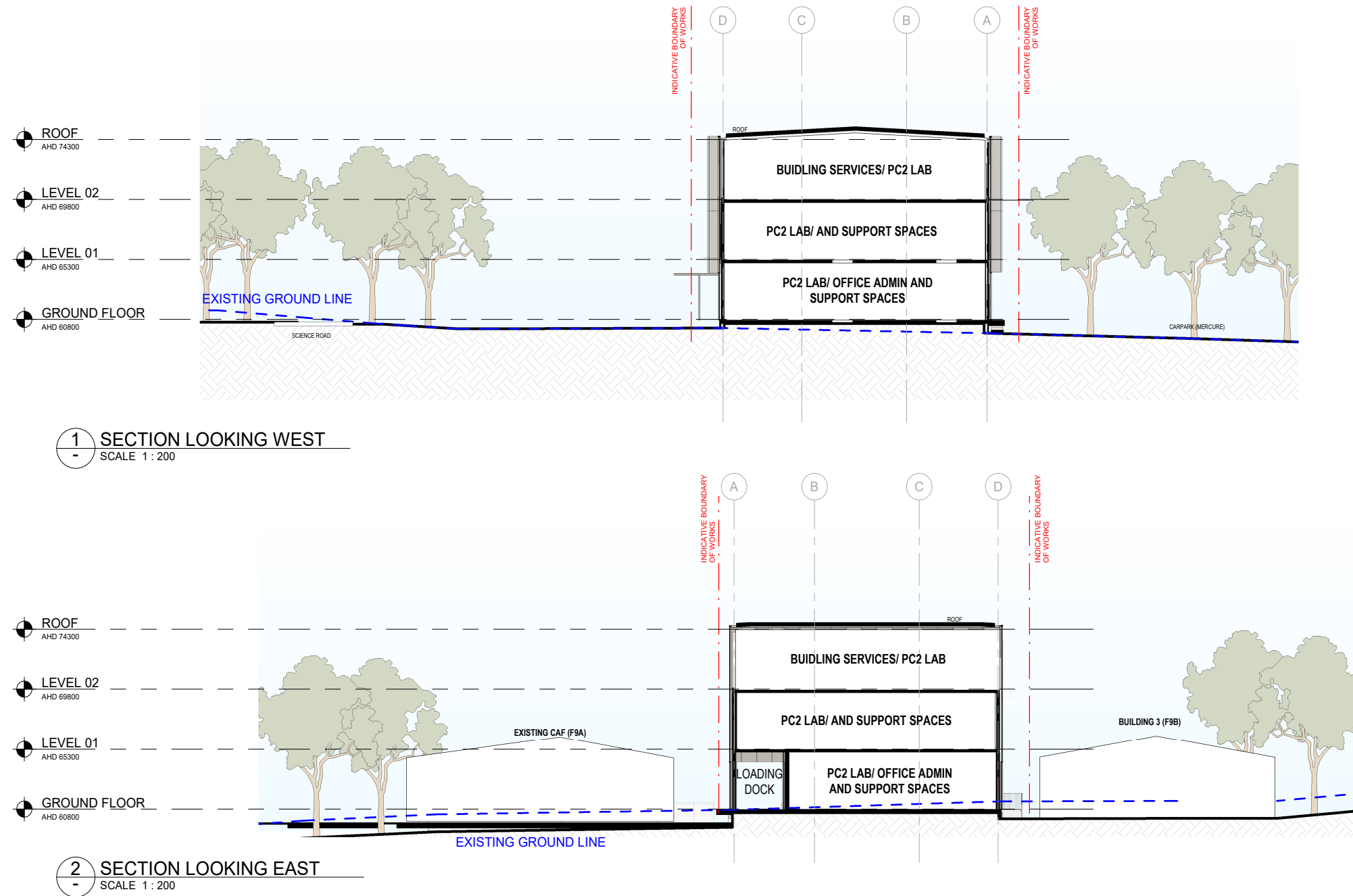
03

Architectural Response

3.9 Building Sections

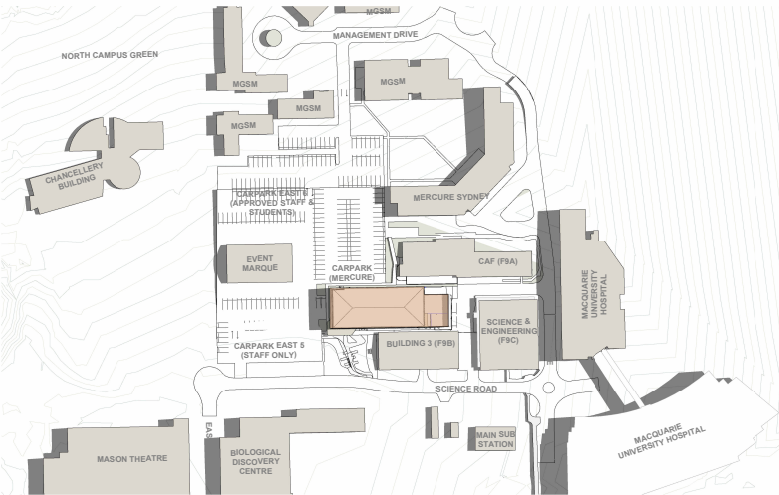
East and West building sections show how the building is split across three storeys.

- Ground - PC2 Lab / Office Admin and Support Spaces
- Level 01 - PC2 Lab and Support Spaces
- Level 02 - PC2 Lab / Building Services

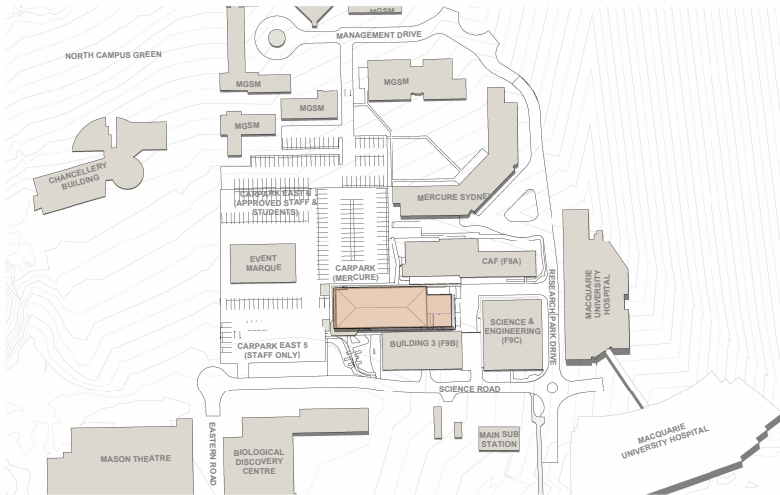




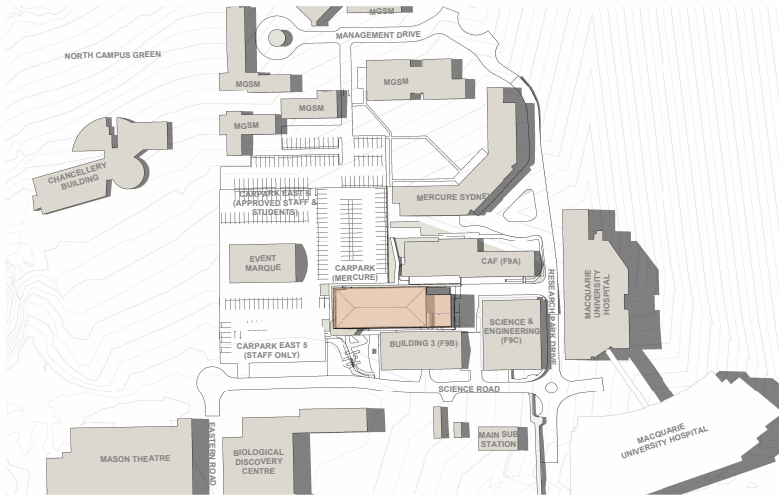
3.10 Solar Analysis



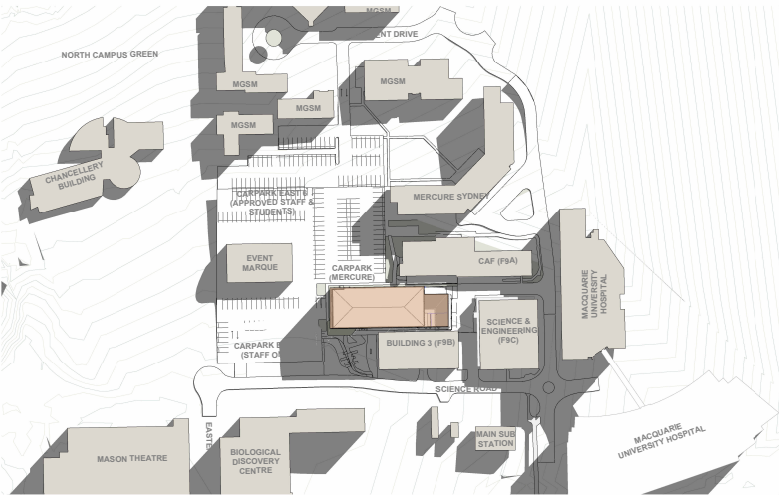
1 DA - SHADOW DIAGRAM - DEC 21 - 9AM  
SCALE 1 : 2000



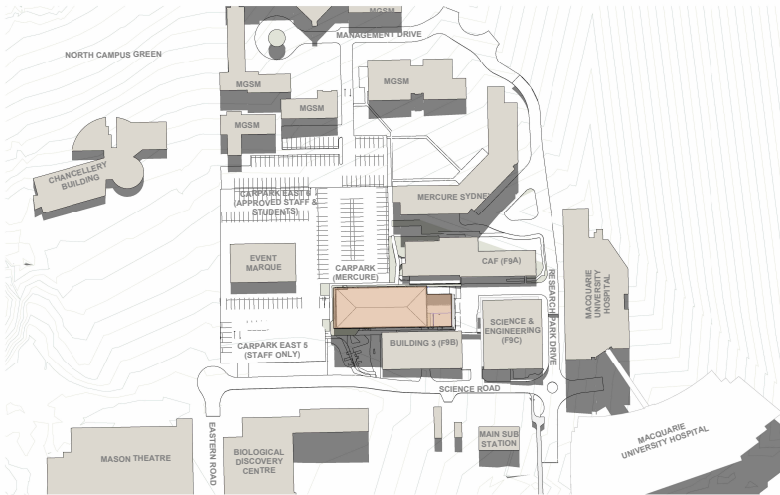
2 DA - SHADOW DIAGRAM - DEC 21 - 12PM  
SCALE 1 : 2000



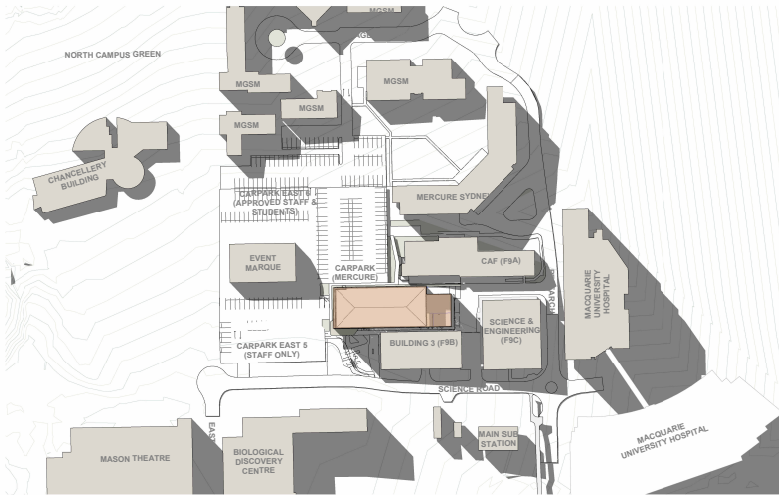
3 DA - SHADOW DIAGRAM - DEC 21 - 3PM  
SCALE 1 : 2000



4 DA - SHADOW DIAGRAM - JUN 21 - 9AM  
SCALE 1 : 2000



5 DA - SHADOW DIAGRAM - JUN 21 - 12PM  
SCALE 1 : 2000



6 DA - SHADOW DIAGRAM - JUN 21 - 3PM  
SCALE 1 : 2000



### 3.11 Potential Future Scenario

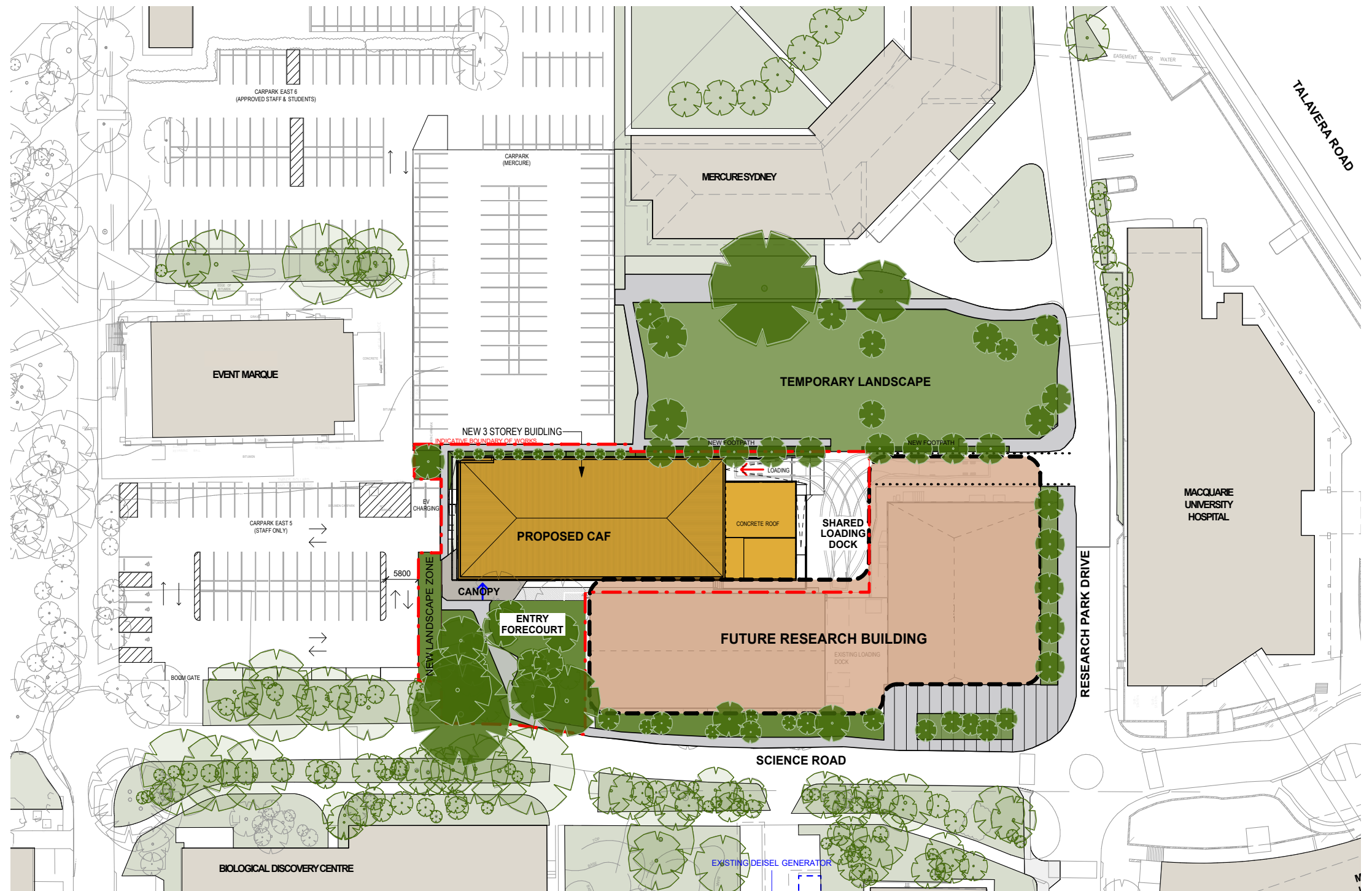
The adjacent diagram depicts a potential future scenario for the demolition of existing MQU - Central Animal Facility.

Following the decanting of the existing facility into the proposed CAF building the existing building will likely be demolished as it has reached its end of life.

Once removed the proposed MQU - Central Animal Facility building will be better integrated into the landscape, creating some relief and openness to the north further softening the building into its context and aligning with the broader campus design principles.

Future tree avenue planting and landscaped area to the north of the proposed MQU - Central Animal Facility will also aid in providing some screening and act as a green buffer.

Landscaped green buffer zones are proposed as part of the development application along the Western and Northern Facades of the building to soften against the adjacent existing carparks.





**04**  
**Facade Design Concept**





# 04

## Facade Design Concept

### 4.1 Facade Strategy

The key strategic moves for the proposed facade are demonstrated in the diagram adjacent.

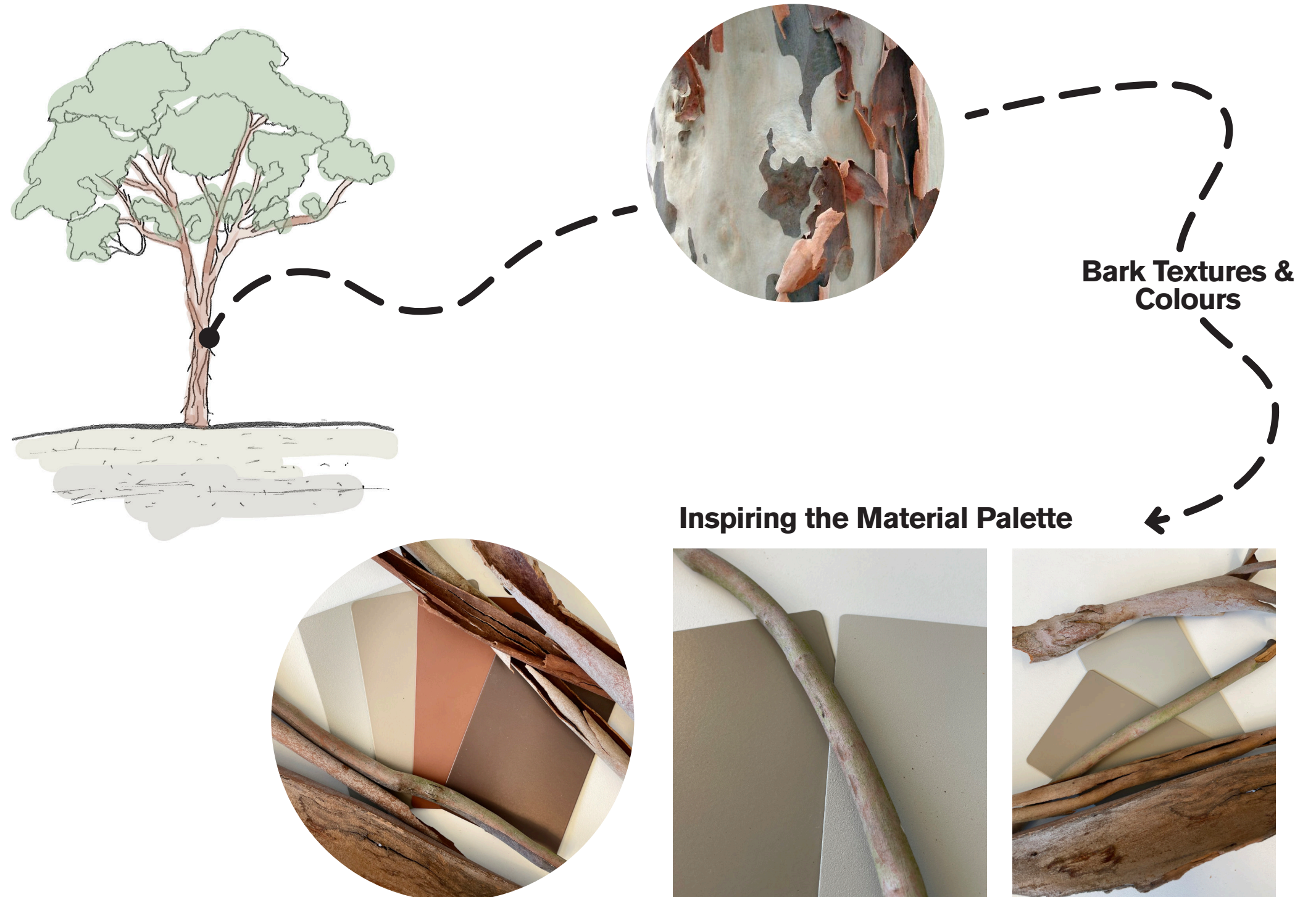
Taking inspiration from the surrounding context of the site, the canopy of eucalyptus trees begins to direct the material palette.

#### Façade Colour

The facade materiality aims to allow the building to feel “hidden in plain sight” and situated within the series of eucalyptus trees. The glazing and transparency in moments of the building facade design aims to mimic the dappled lighting through the canopy of the trees.

#### Façade Pattern

An organic façade pattern inspired by the stringy bark of eucalyptus trees is proposed for the façade of the building. With the folded panels to repeat keeping it simple and clean, with doubled panels along the ground level to keep the building grounded. This pattern is intended to create the appearance of an elegant floating box and directly references the existing eucalypt context.



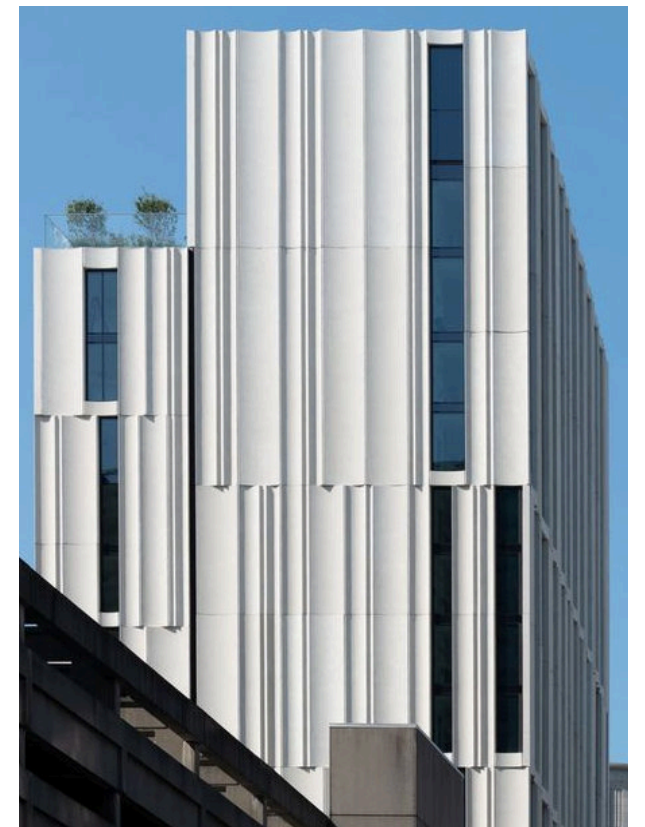
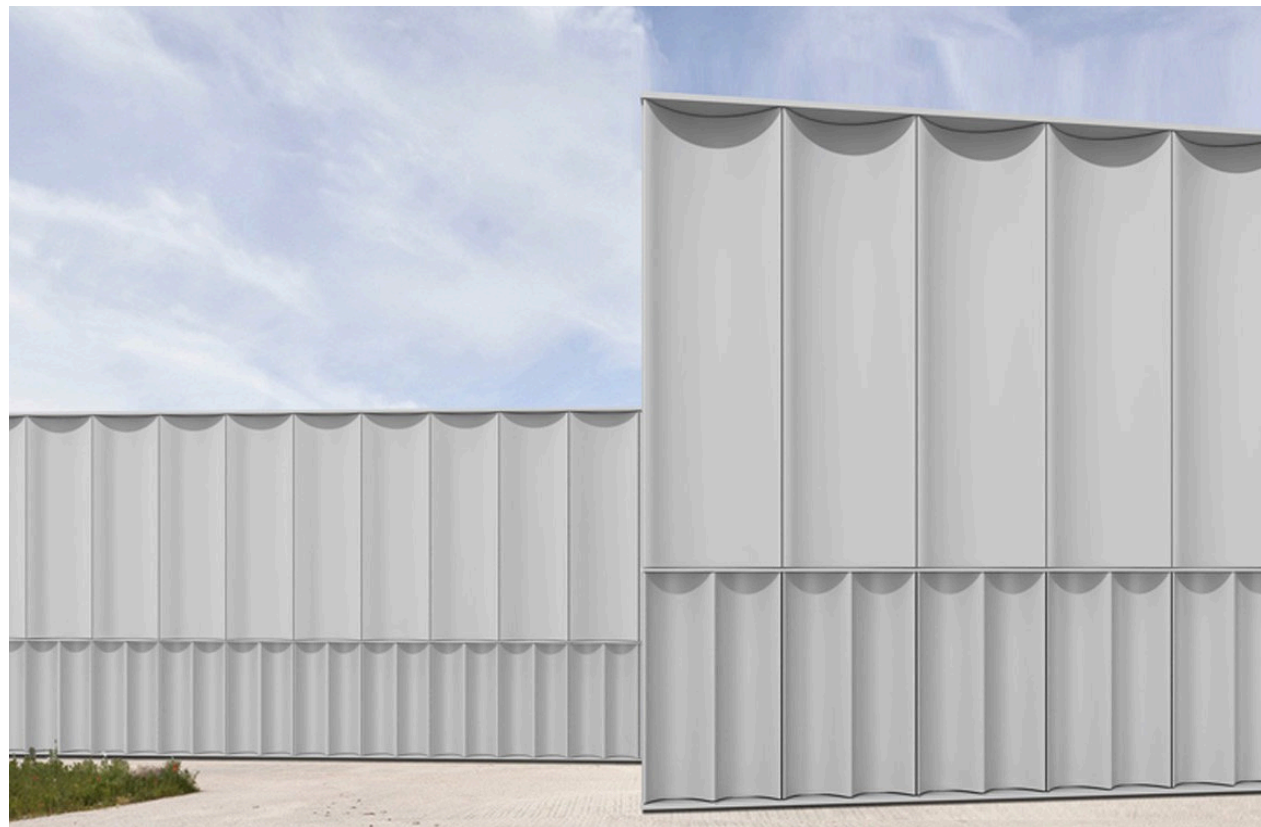
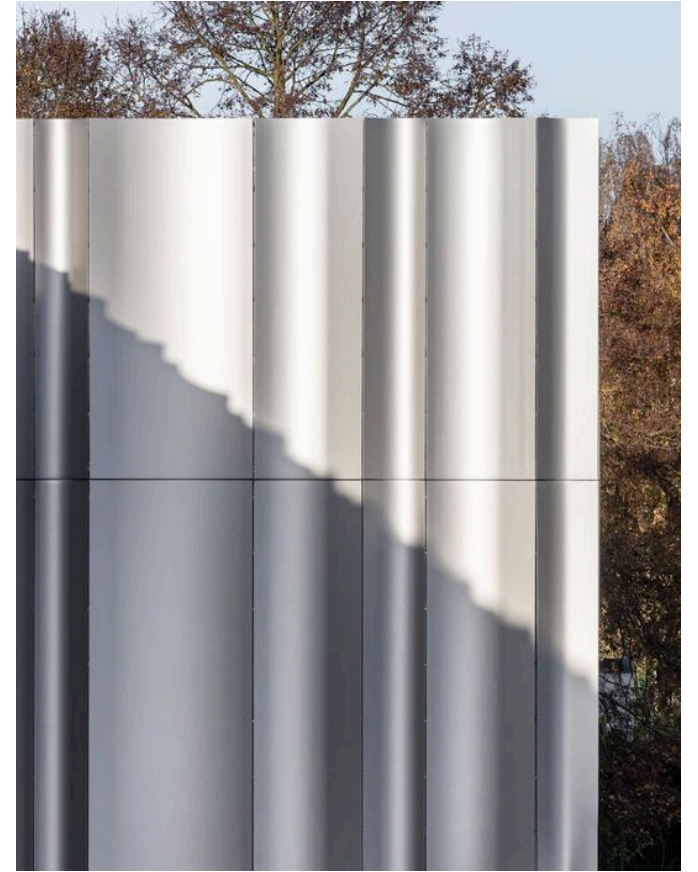


## Facade Design Concept

### 4.2 Facade Look and Feel

The material selection for the proposed MQU - Central Animal Facility is inspired by the canopy of eucalyptus trees south of the site. Taking upon the colours and character of the eucalyptus trees, the calming and warm palette of the silvery leaves and earthy bark is translated into the facade rhythm and colour.

This facade approach creates a visual harmony with the surrounding landscape, specifically the peeling of the bark along the trees. The folded metal panels and perforations along the facade echoes the natural elements of the eucalyptus canopy and invites soft dappled lighting into the building enhancing the connection between the built environment and nature.





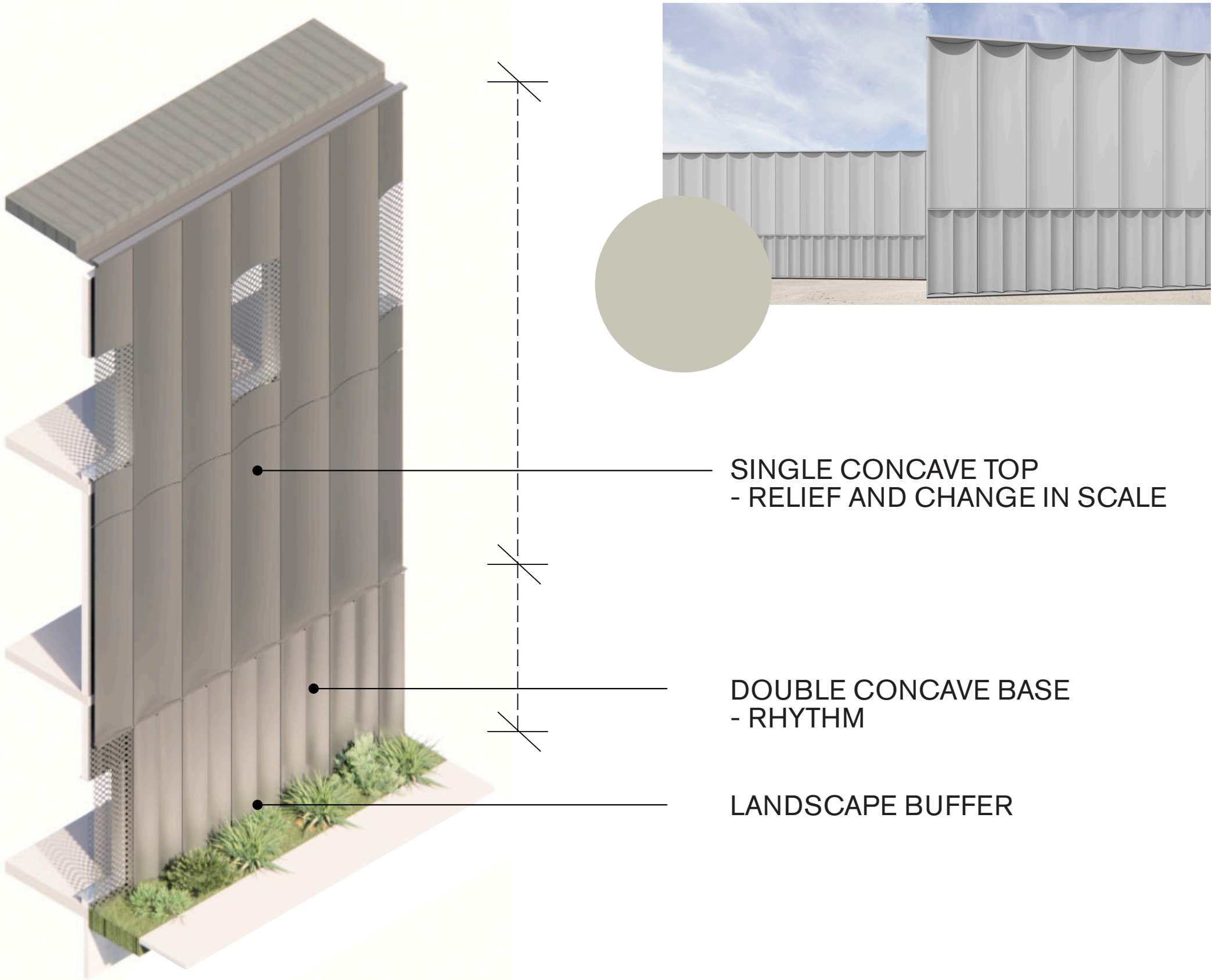
04  
Facade Design Concept

4.3 Facade Module and Materiality

The key strategic move for the proposed facade is the simplistic folded metal panels.

The panels are doubled at ground level creating a grounding effect for the building and single panels above to accentuate the subtle reflections of sunlight along the facade.

The rhythm created along the facade begins to represent the organic movement of bark along eucalpt trees.

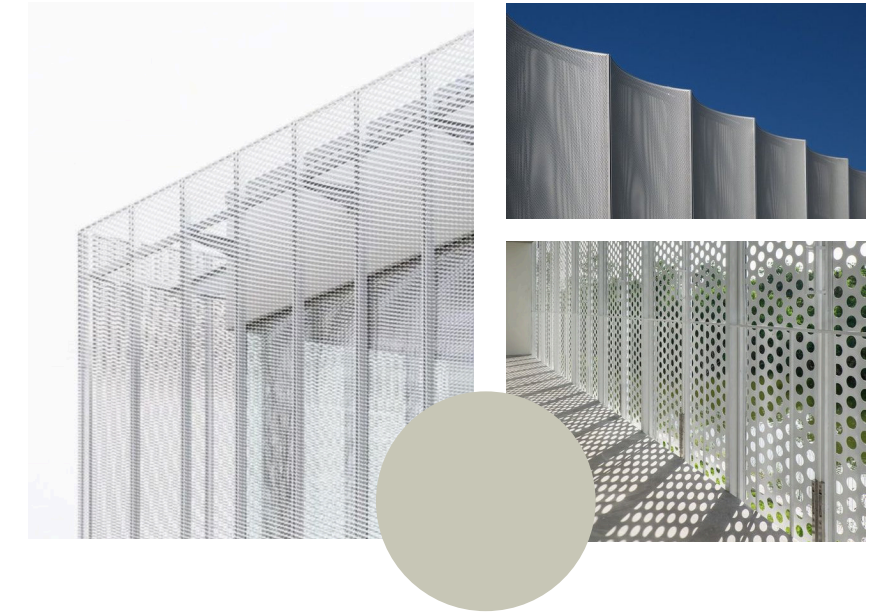
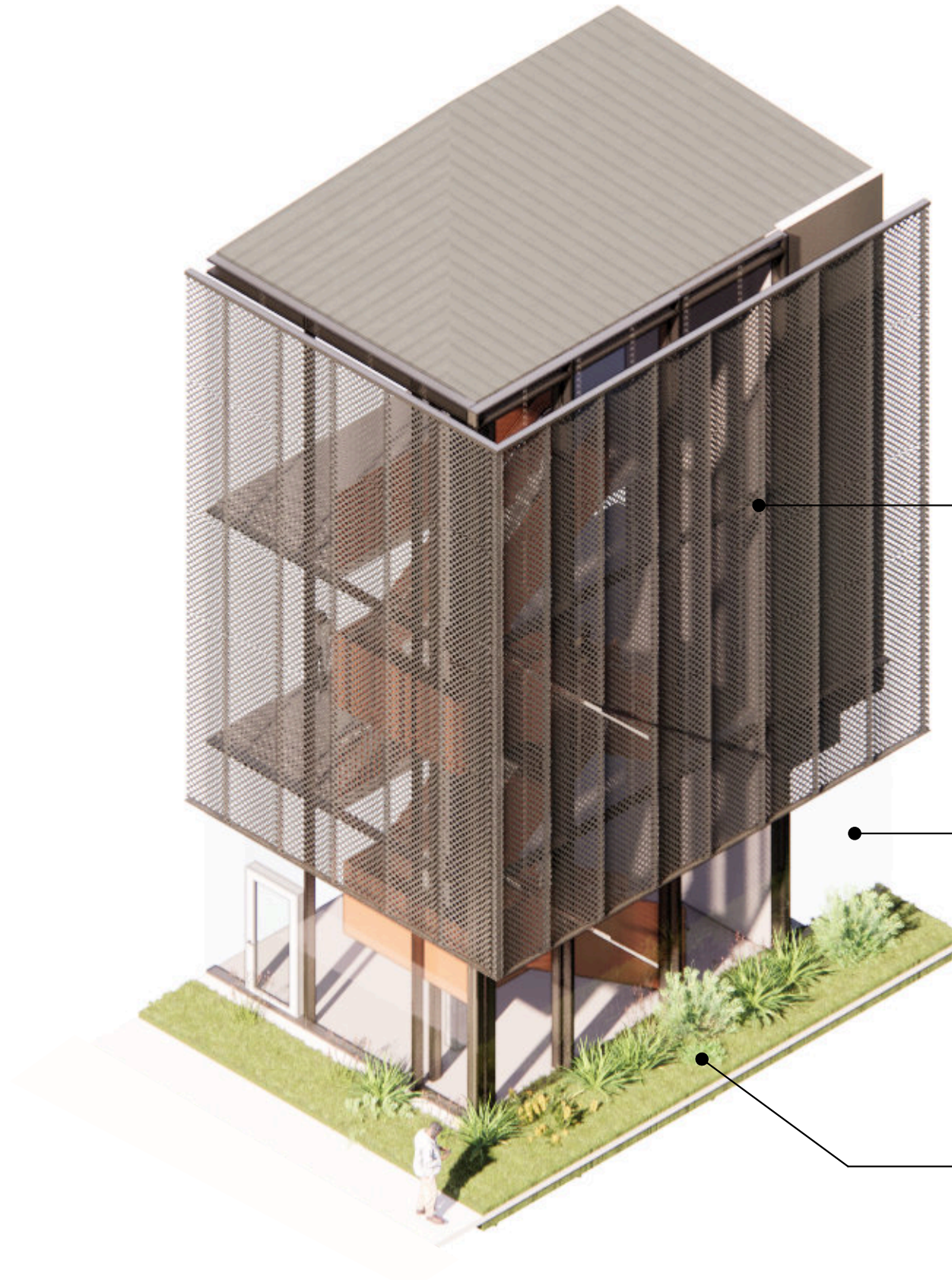




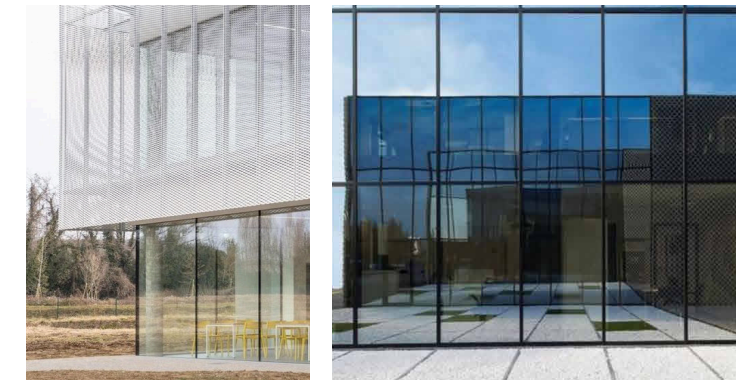
## Facade Design Concept

### 4.3 Facade Module and Materiality

The perforated panels along the west of the building represents the dappled lighting through the canopy of green leaves of the eucalypt trees. This aims to guide the natural conditionis of the context into the building and allow the experience through the western stairs to mimic the atmosphere of walking under the canopy of trees with the sunlight dappling through.



FEATURE PERFORATED VEIL  
- DAPPLED LIGHT



GLAZED GROUND PLANE  
- ACTIVATED PEDESTRIAN  
LEVEL AND RHYTHM

LANDSCAPE BUFFER



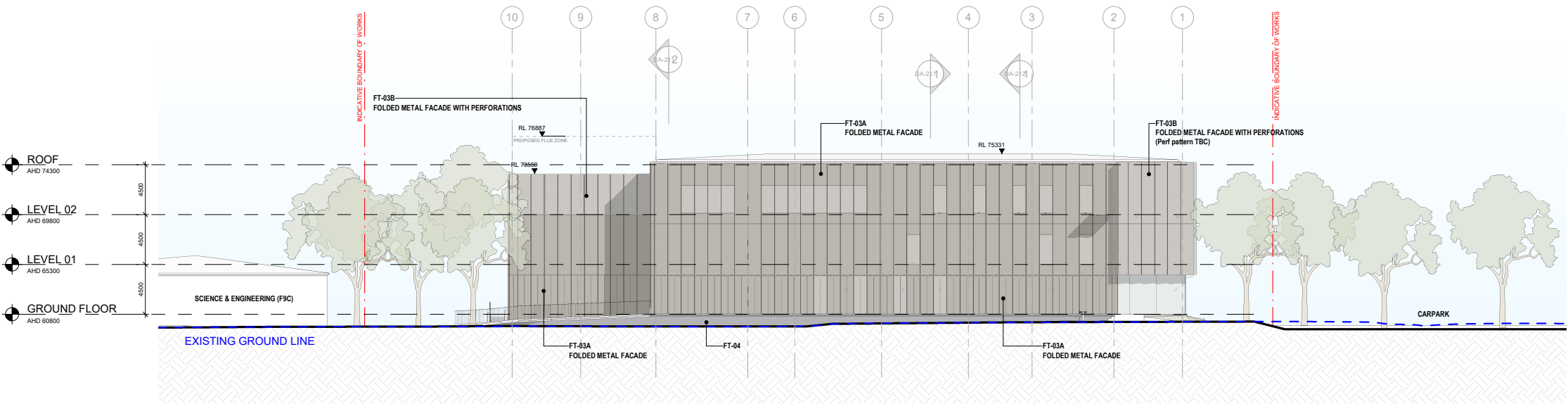
04

Facade Design Concept

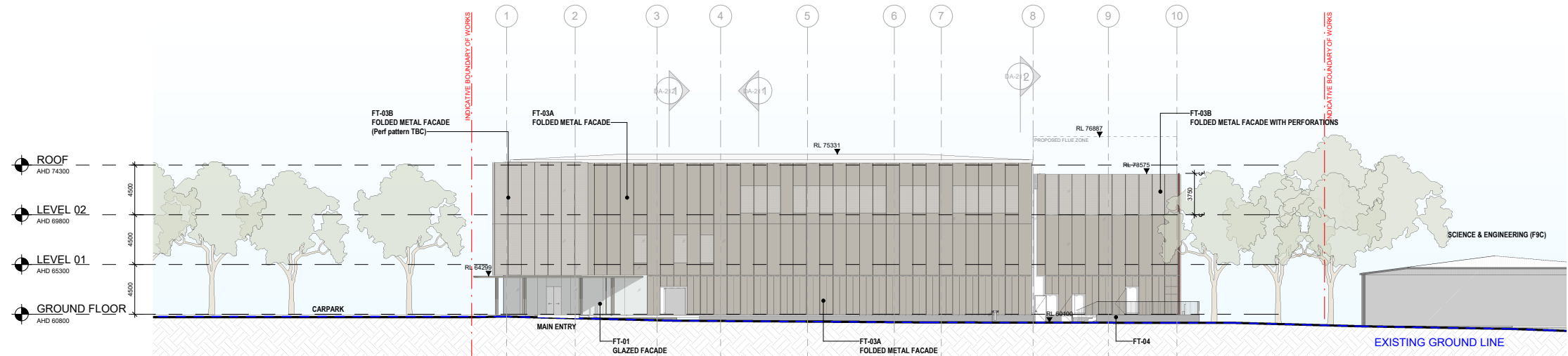
4.4 Elevation - North & South

The facade design for the north and south elevations aim to maintain a simple massing and use single and double metal panel modules to create rhythm in the facade.

Allowing double metal panel modules along the ground level mimic the intricate peeling bark seen on the eucalypt trees on site.



1 ELEVATION NORTH  
SCALE 1:200



2 ELEVATION SOUTH  
SCALE 1:200



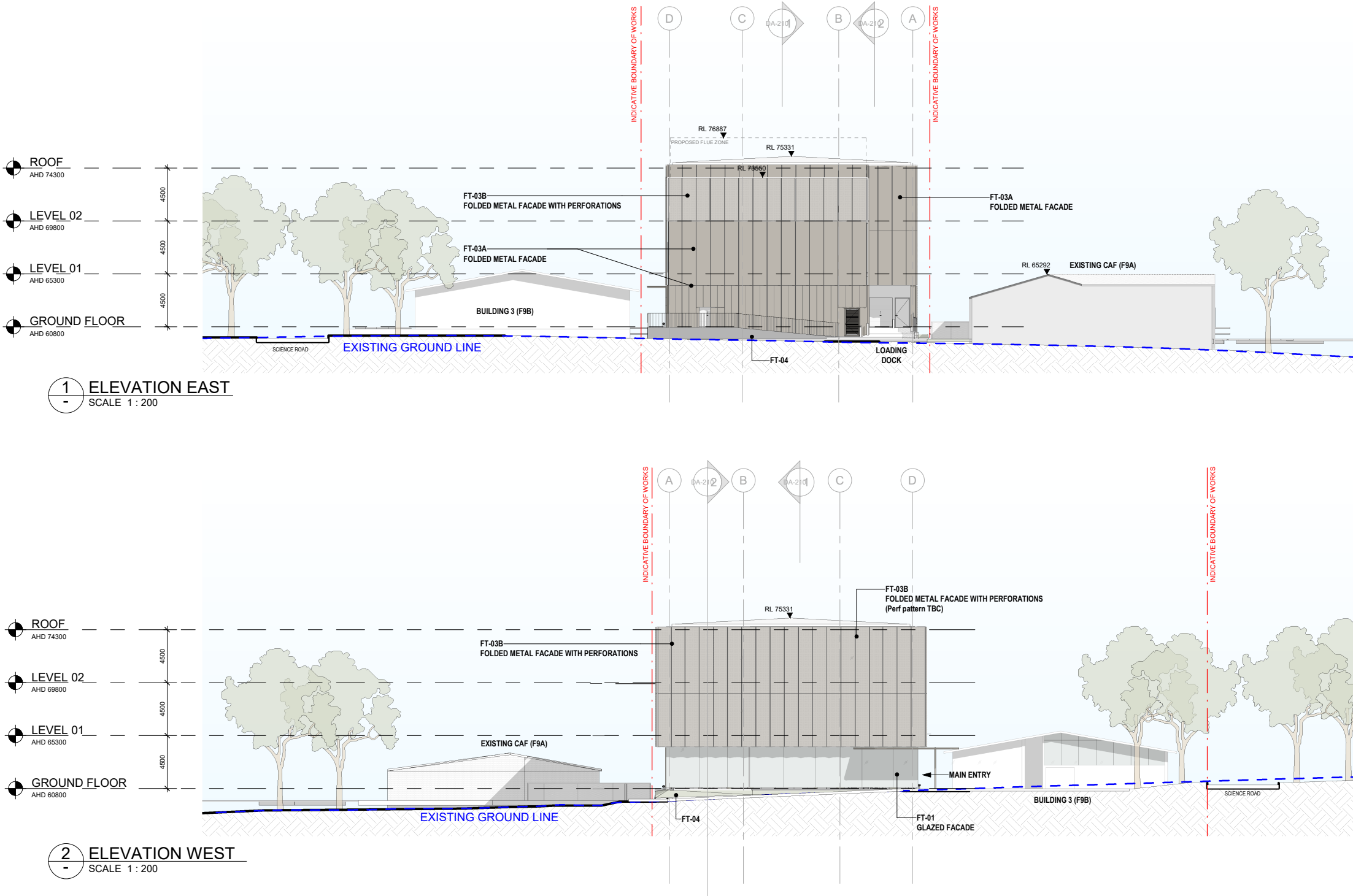
04

Facade Design Concept

4.5 Elevation - East & West

The east facade faces the loading laneway entered from Research Park Drive. This facade is kept simple to prevent distraction from the rest of the building.

The west facade is the key facade with glazing throughout for lighting to enter the building. On Level 01 and 02 a specially designed perforated panel hopes to allow dappled lighting to fill the atmosphere representing the canopy of eucalypt trees.





## 04 Facade Design Concept

### 4.6 Photomontage

View from existing adjacent carpark looking at west facade of proposed MQU - Central Animal Facility



EXISTING VIEW FROM ADJACENT CARPARK



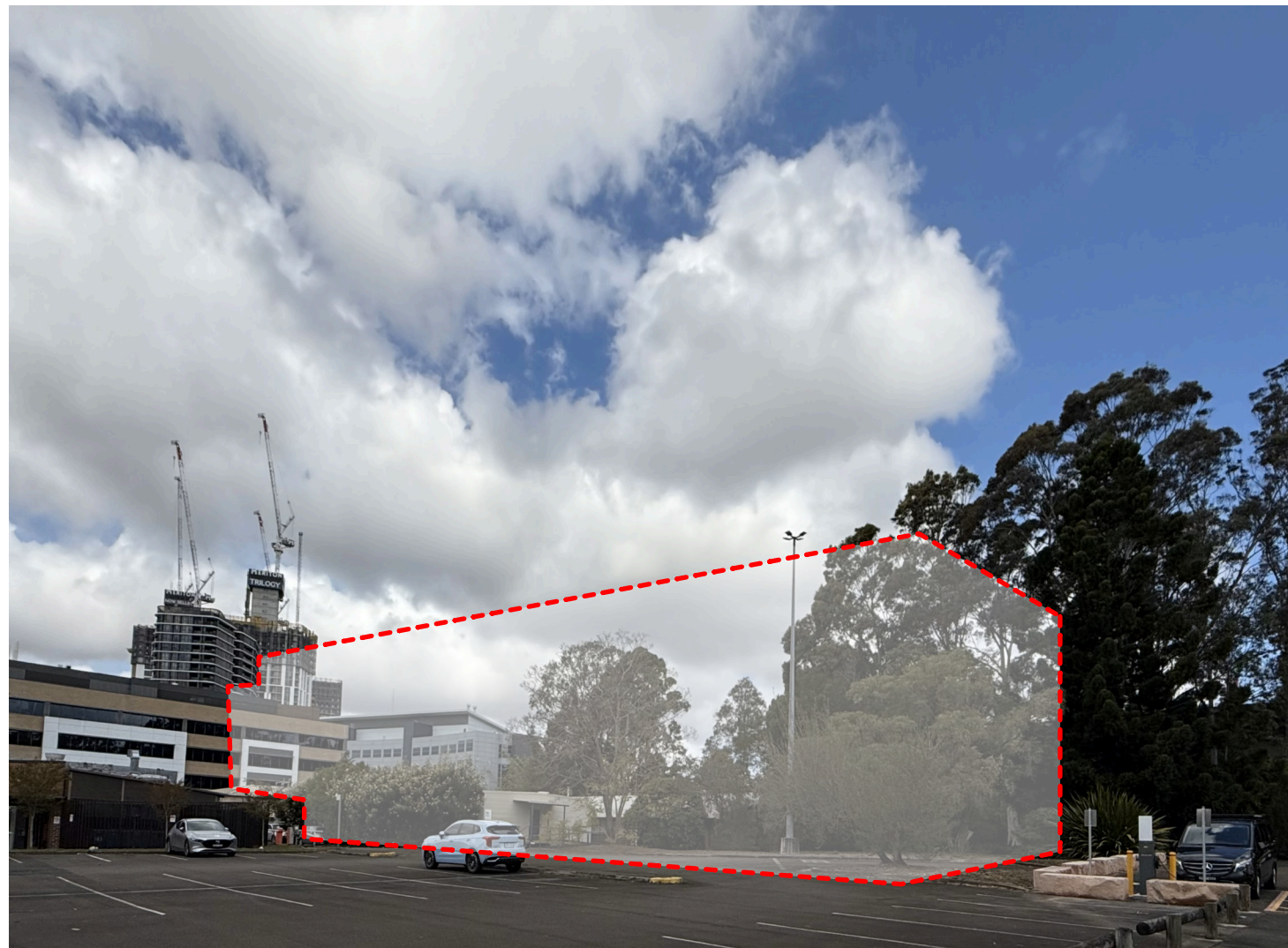
PROPOSED VIEW OF WEST FACADE FROM ADJACENT CARPARK



## 04 Facade Design Concept

### 4.6 Photomontage

View from adjacent carpark looking at north west corner of proposed  
MQU - Central Animal Facility



EXISTING VIEW FROM CARPARK ADJACENT



PROPOSED VIEW OF NORTH WEST CORNER FROM ADJACENT CARPARK



# 04

## Facade Design Concept

### 4.6 Photomontage

View from Research Park Drive looking towards existing MQU - Central Animal Facility



EXISTING VIEW FROM RESEARCH PARK DRIVE



PROPOSED VIEW FROM RESEARCH PARK DRIVE



# 04

## Facade Design Concept

### 4.6 Photomontage

View along loading laneway



EXISTING VIEW ALONG LOADING LANEWAY



PROPOSED VIEW ALONG LOADING LANEWAY



# 04

## Facade Design Concept

### 4.6 Photomontage

View from Science Road with proposed MQU - Central Animal Facility camouflaging behind the canopy of eucalypt trees



EXISTING VIEW FROM SCIENCE ROAD



PROPOSED VIEW FROM SCIENCE ROAD



## Facade Design Concept - Facade View (Northern Corner View)





## Facade Design Concept - Facade View (Western View)





## Facade Design Concept - Facade View (Science Road Entry View)





**05**  
**Urban Design Review &  
Pre-Lodgement Panel  
Comment Response**





Urban Design Review & Pre-Lodgement Panel Comment Response

UDRP Comments	Response / Relevant Section of the Report
<i>CONTEXT AND NEIGHBOURHOOD CHARACTER</i>	
<p>The Panel is aware that there is an approved Macquarie University Concept Plan, Campus-wide Design Excellence Strategy and Urban Design Guidelines.</p> <p>The Panel understands that the University is currently reviewing the 2014 master plan in particular around the Health and research precinct.</p> <p>This proposal is not consistent with the current master plan and associate design excellence strategy in that the building is located.</p> <p>As the University's Plan and Guidelines sets an important framework for delivering the University's vision, the Panel considers that it is imperative that the Concept Plan and Guidelines be formally amended to relocate and adjust the future links to accommodate the current amended DA proposal and its impacts. Similar amendments that reflect other recent projects on the campus which depart from the Concept Plan might also be captured at the same time.</p> <p>The proposed building footprint is located across a 'secondary pedestrian-only zone' pathway that traverses north-south. It is not understood how the proposed building impacts the underlying framework or facilitates or hinders future development on the site where the development departs from the adopted masterplan and in the absence of detail as to the impacts and/or wider amendments proposed that would make the siting of the proposed building acceptable. This needs to be explained in any future development application.</p> <p>The proposed building is tightly sited between existing single storey buildings to the north and south and east. It is understood that these adjacent buildings may be removed. Without the removal of these buildings – the proposal is considered to be located too close in a context where buildings are otherwise generally sited in a landscape setting. It feels like a building squeezed'.</p> <p>A 'future research' building is indicated adjacent to the south and west – The panel queries if the siting of the proposed building will allow sufficient space on the balance of the site.</p>	<p>Refer to Design Report: 2.1 Proposed Site Consideration 2.3 Existing Macquarie University Design Guidelines 2.4 Proposed Macquarie University Design Guidelines 3.11 Potential Future Scenario</p> <p>The proposed location of MQU - Central Animal Facility acknowledges the existing framework while accommodating future development requirements. One of the key drivers for the siting of the proposed MQU - Central Animal Facility is a result of evolving research needs within the health and research precinct. The building' is required to be within close proximity of 2TP and Macquarie University Hospital as this is essential for its intended research function and aims to foster collaboration and streamline the translation of research into clinical trials and patient care.</p> <p>The proposed siting has also taken into consideration a staged development of the corner lot with the current close proximity to existing MQU buildings only being a temporary condition.</p> <p>The existing surrounding buildings to the proposed MQU - Central Animal Facility have also reached their end of life and are due to be demolished in the future, making way for futrue research expansion in line with the University's strategic vision. Once these buildings have been removed the proposed MQU - Central Animal Facility will be well integrated into the landscape, creating an open, softened context that aligns with the broader campus design principles.</p> <p>The buidling has also been positioned to retain and enhance the existing landscape amenity and mature eucalypt &amp; gum trees along Science Road in line with MQU Urban Design Guidelines. Whilst the proposed location of the new facility sits closely adjacent to the existing MQU - Central Animal Facility, it aims to foster the future development of an integrated precinct.</p> <p>The potential future research building to the South-West has also been considered, and the remaining site will provide ample space for its development. Some high level desktop studies have been undertaken to ensure the remaining site is adequately proportioned to allow for a future research building without compromising the siting or functionality of the MQU - Central Animal Facility.</p>

UDRP Comments	Response / Relevant Section of the Report
<i>BUILT FORM AND SCALE</i>	<p>Refer to Design Report: 2.4 Proposed Macquarie University Design Guidelines 3.8 Building Access and Circulation 3.11 Potential Future Scenario 4.6 Photomontage</p> <p>The form and massing of the proposed building has been reconfigured to enhance the clarity and simplicity of the design, particularly around the loading dock area. The original design intent was to maintain a pure and elegant rectangular form, and the revised approach successfully retains this purity while addressing the functional requirements of the loading area.</p> <p>To achieve this, the building is divided into two distinct, forms: 1) The main CAF research building, which retains its pure rectangular massing, serving as the primary architectural expression of the facility. 2) An adjacent, smaller square box which houses the unenclosed plant functions. This secondary simple form compliments the main form, while ensuring that functional elements such as the loading dock are well integrated into the overall design.</p> <p>By lowering the plant screen to the secondary object, the separation between the two forms becomes more pronounced, offering a clean and cohesive design solution. This approach resolves concerns about the dilution of the building's form caused by the loading dock and plant area. Additionally, the space between the two forms allows for efficient access to the loading area without interrupting the purity of the architectural expression.</p> <p>The end result is a composition that maintains the integrity of the original rectangular form while providing a simple and refined architectural language.</p> <p>The interface with the adjacent carpark is softened with proposed landscaped green buffer zones and pedestrian friendly paths to respond to the public domain of the contextand supports the evolving masterplan connections.</p>
<i>DENSITY</i>	<p>Noted</p>



Urban Design Review & Pre-Lodgement Panel Comment Response

UDRP Comments	Response / Relevant Section of the Report
<p><i>SUSTAINABILITY</i></p> <p>Sustainability was not discussed in the context of the meeting.</p> <p>The Panel encourages the adoption of ambitious sustainability targets for the project and these should be included in any further documentation for the DA.</p>	<p>The Proposed development sits within the wider structure of the overall sustainability goals and strategy for the whole Campus. Provisions have been made within the proposed design to allow for future incorporation of sustainability initiatives such as rooftop solar panels etc.</p> <p>The design of the buidling has also factored in key environmetal factors such as optimising natural lght where possible, minimising heat gain and integration of landscape into the design to enhance and preserve the microclimate</p>
<p><i>LANDSCAPE</i></p> <p>The building is located largely on the site of an existing roadway, parking area and relocatable building. It preserves the existing trees along Science Road that create the 'street front' and entry to the proposed development.</p> <p>The proposal sits rather awkwardly between the existing buildings and adjacent carpark.</p> <p>The pathway around the perimeter of the building bisects existing car spaces and parking aisles. Landscape (even in a temporary form) can enable a more positive contextual fit and improve the functionality of the adjacent spaces.</p>	<p>Refer to Design Report: 3.11 Potential Future Scenario Refer to Landscape Report for landscape proposal.</p> <p>In response to the siting of the proposed MQU - Central Animal Facility the landscape design softens the interface between the proposed facility with the adjacent buildings and carpark. The landscape design provides an improved public domain for pedestrian movement in the area making it a better contextual fit and considers the functionality of the adjacent buildings.</p>
<p><i>AMENITY</i></p> <p>It is understood that the proposal has a low population density and internal spaces are required to be controlled with respect to climate and lighting.</p> <p>Most internal areas have daylight excluded.</p> <p>It is supported that the circulation space, amenities and areas where daylight is not required to be excluded are provided with controlled daylight.</p>	<p>Refer to Design Report: 4.4 Elevation - North &amp; South 4.5 Elevation - East &amp; West</p> <p>Lighting is maximised along the western facade, the north west corner and the south west corner to enhance the front of house experience and staff office spaces. Windows with perforated folded metal panels also aim to bring daylight into circulation and research spaces where possible.</p>

UDRP Comments	Response / Relevant Section of the Report
<p><i>SAFETY</i></p> <p>The proximity of the proposed building to other existing buildings creates narrow undefined spaces capable of concealment and creating security issues.</p> <p>These spaces and the loading dock may create safety issues as they are hidden from view from the main pedestrian and vehicle thoroughfares.</p>	<p>To address security concerns regarding the proposed building's proximity to existing structures, the design has considered and incorporated CPTED principles by enhancing natural surveillance through open sightlines and clearly defining boundaries with landscaping and signage. Additionally, ensuring regular maintenance, oversight and lighting in the loading dock and surrounding spaces will promote a sense of safety.</p> <p>A campus wide security strategy is in place and the proposed development has factored in elements such CCTV security, passive surveillance as well as the incorporation of MQU Design guidelines and standards to meet security requirements.</p>
<p><i>AESTHETICS</i></p> <p>The proposed external appearance is provided with good proportions. The perforated screen provides for climate control, privacy and provides refinement with delicate detailing to an otherwise simple form.</p> <p>The Panel can see the development of a colour palette that would see the building integrate closely with the natural landscape – this is supported.</p> <p>The preliminary detailing is supported and should be fully documented as part of the 'stamped' approved documents for all elements of the building – to ensure integrity of the design is carried through to construction.</p> <p>Accordingly, the Panel would seek a full description of the resolved design intent at the time of formal DA lodgement, including annotated large scale elevations and sections and 3D views of each primary facade type.</p>	<p>Refer to Design Report: 4.1 Facade Strategy 4.2 Facade Look and Feel 4.3 Facade Module and Materiality 4.4 Elevations 4.6 Photomontage</p>



Urban Design Review & Pre-Lodgement Panel Comment Response

Council Pre-Lodgement Panel Comments	Response / Relevant Section of the Report
<i>Council Design Comments</i>	
The proposed development has negligible visual and overshadowing impacts on surrounding development, given its 3-storey built form. Any application should demonstrate this occurs.	Refer to Design Report: 3.10 Solar Analysis
The proposal is inconsistent with the Green Links and Movement Hierarchy established by the Macquarie University Design Guidelines (Figure 2, Figure 3, Figure 4). Further information on proposed guideline amendments is required to determine urban design impacts and prevent ad-hock planning. As outlined above, its recommended that the applicant pursue the masterplan amendments and provide appropriate information with the DA demonstrating it has occurred.	Given the 3 storey built form and setback from the primary and secondary roads the proposed development will have minor impacts to the existing visual amenity of the surrounding area. In addition, the existing buildings act as a visual screen for the proposed development from key pedestrian pathways.
Separation distances between buildings (particularly to CAF F9A and Building 3 F9B) appear to be less than the NCC requirement. The proponent should demonstrate how fire protection of façade openings and egress paths will be achieved.	Refer to Design Report: 2.3 Existing Macquarie University Design Guidelines 2.4 Proposed Macquarie University Design Guidelines
	The proposed design considers the requirement for an amended lot control plan. For this proposal, the design continues to maintain all primary and secondary roads, key pedestrian and services access ways as well as retaining the existing significant trees and green landscaping on the campus. Only minor adjustments to lot sizes and shifting of secondary pedestrian routes will be required to allow for development to occur. Overall, this remains inline with the original intent of the Guidelines.
	Building separation between the proposed MQU - Central Animal Facility and surrounding buildings meet the requirements for fire separation and protection of facade openings and egress paths.
	Refer to BCA Report and Fire Engineer Report for more information on building separation between the proposed MQU - Central Animal Facility and the adjacent Building 3 F9B and Existing MQU - Central Animal Facility.

Council Pre-Lodgement Panel Comments	Response / Relevant Section of the Report
<i>Planning Comments</i>	
A detailed floor plan shall be submitted in support of the development application.	Refer to Design Report: 3.6 Architectural Planning - Floor Plan
A detailed Site Plan shall be submitted detailing all setbacks & landscaping area, and pedestrian & vehicle access arrangements.	Refer to Design Report: 2.5 Site Plan
Adequate buffer distance should be provided between existing buildings and car parking area (particularly building 3- F9B, and carpark east 5) to facilitate adequate pathways and deep soil landscaping area.	3.8 Building Access & Circulation Vehicular Access & Logistics 3.11 Potential Future Scenario
A detailed GFA calculation summary across university precinct should be provided in support of the development application.	Information on set backs, landscaped areas, pedestrian and vehicular access arrangements is demonstrated in the diagrams on section 2.5 and 3.8 of this report.
	Deep soil landscaped green buffer zones are proposed as part of the development application along the Western and Northern Facades of the buidling to soften against the adjacent existing carparks to facilitate pathways and allow adequate space for planting zones between buildings. The existing landscape zone to the south has been preserved for deep soil planting and retention of existing mature trees. Refer to Landscape Plan for further details.



**Appendix  
Architectural Development  
Application Drawing Set**





