

# **ORDINARY COUNCIL MEETING**

## **ATTACHMENTS BOOKLET - Item 9.2**

### **Under Separate Cover**

**Tuesday, 12 November 2024**





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URBIS

# PLANNING PROPOSAL REQUEST

Lot 212 in Deposited Plan  
1112512, Oulton Avenue, Concord West

Prepared for  
**OULTON RHODES PTY LTD**  
15 May 2024

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# EXECUTIVE SUMMARY

## OVERVIEW

This Planning Proposal (**Planning Proposal**) has been prepared by Urbis Ltd on behalf of Oulton Rhodes Pty Ltd (**the proponent**) to initiate an amendment to the *Canada Bay Local Environmental Plan 2013* (**CBLEP 2013**) as it relates to land at Oulton Avenue, Concord West, legally referred to as Lot 212 in Deposited Plan (DP) 1112512 (**the site**).

The Planning Proposal seeks support from the City of Canada Bay Council (**Council**) to amend the zoning and development standards applying to the site to facilitate its density uplift to accommodate a high-quality residential development.

Specifically, the Planning Proposal seeks to amend the CBLEP 2013, by way of the following:

- Amend the Land Zoning Map from MU1 Mixed Use to R4 High Density Residential;
- Amend the Height of Building Map from 24 metres to 46 metres; and
- Amend the Floor Space Ratio Map from 1.1:1 to 2.1:1.

This proponent-initiated Planning Proposal has clear strategic and site-specific merit. The site is within close proximity to transport, services and infrastructure, including Concord Hospital and is an appropriate location for additional housing. The proposal specific seeks to unlock the potential of the site to deliver a high-quality residential development in a location highly suitable for density uplift.

The site presents a unique opportunity to mark the entry into Rhodes whilst still achieving the desired scale and transition in response to the surrounding context. The accompanying reference scheme demonstrates the proposed uplift sought will not result in unacceptable impacts to adjoining development in terms of overshadowing, visual privacy or noise.

The proposed changes to the planning controls will ensure that residential flat buildings become permissible unlocking the potential of this strategically located site to facilitate a new contextually appropriate development consistent with the vision, objectives and key principles detailed within relevant strategic plans, including:

- Greater Sydney Region Plan: A Metropolis of Three Cities;
- Our Greater Sydney 2056: Eastern Harbour City District Plan;
- Canada Bay Local Strategic Planning Statement; and
- Canada Bay Local Housing Strategy.

## BACKGROUND AND PLANNING CONTEXT

Pursuant to CBLEP 2013, the site is currently zoned MU1 Mixed Use zone with a maximum building height control of 24 metres and maximum floor space ratio (**FSR**) control of 1.1:1.

The site is located on the edge of Rhodes, which is identified as an important Strategic Centre in the Eastern District Plan, with significant opportunities to create new places to live, work and visit. Rhodes was formerly a primarily industrial suburb that is currently the focus of significant urban renewal and is transitioning to a high-density mixed use/ residential area. As such, the built form of Rhodes has changed radically in the past 10 years with intense urban growth and a move away from industrial lands and detached housing to predominantly apartment buildings and commercial offices.

The subject site represents one of a limited number of undeveloped land parcels capable of delivering a new housing development within close proximity to Rhodes. The site is strategically located and sized to facilitate high density development, increasing the supply and diversity of housing within Rhodes.

The site is in a previously predominately industrial area which was made up of warehousing and local industrial uses. The main Northern Railway line runs north south adjacent to the east of the site. A pedestrian tunnel connects the site to the north under Homebush Bay Drive.

To the immediate north of the site is Rhodes West, a former industrial area which was rezoned to MU1 Mixed Use (formerly B4 Mixed Use) and now includes substantial high density residential, office and retail

redevelopment including the Rhodes Waterside Shopping Centre. To the immediate south of the site is a modern master-planned residential community (Liberty Grove) and on the eastern side of the railway line is an area of existing low-density housing.

To the north-east of the site is the Rhodes Corporate Park currently zoned SP4 Enterprise (formerly B7 Business Park) which is identified as an Employment Lands Investigation Area to be explored for renewal and future growth opportunities.

Further north of the site is the Rhodes Precinct, one of Sydney's most significant urban renewal precincts. The precinct is made up of land to the east and west of Rhodes railway station between the rail line and Concord Road. The Rhodes Precinct was rezoned in October 2021 following the finalisation of the Rhodes Place Strategy, which provides for uplift for new housing and employment uses in Rhodes East and Rhodes West.

## INDICATIVE REFERENCE SCHEME

An indicative reference scheme has been prepared by SJB Architects to support the request for proposed amendments to the CBLEP 2013.

Specifically, the accompanying reference scheme relates to a part 8 and part 12 storey residential flat building development accommodating 89 dwellings. The reference scheme demonstrates that a high-quality urban outcome with appropriate transitional separation between the existing and future context is achievable. This includes providing an appropriate interface with the scale and character of the adjacent land.

The reference scheme provided includes a maximum building height of 45.9 metres and FSR of 2.06:1. The proposed concept presents a vision for the site that would see the delivery of a new residential development which would contribute to an improved public domain, the revitalisation of the locality and help deliver better public connections to the broader area.

The vision underpinning the reference scheme is to create a vibrant, well connected, and high-quality residential development, which supports Council's desire for increased housing diversity in Canada Bay LGA. The design seeks to minimise the impacts of the challenging interfaces and improve the public domain to create a comfortable, safe and activated development which benefits both residents and the local community.

The key features of the reference scheme are summarised in the table below.

Table 1 Key Features of Reference Scheme

Item	Proposed
Land use	Residential flat building
Number of storeys	Part 8 storeys and part 12 storeys
Height of building	45.9 metres
Floor space ratio	2.06:1
Gross floor area (GFA)	8,534sqm
Unit mix	1-bedroom: 26 units (30%) 2-bedroom: 37 units (40%) 3-bedroom: 26 units (30%)
Total number of units	89 dwellings
Car parking spaces	101 spaces
Communal open space	1,650sqm



## PLANNING OUTCOMES

The Planning Proposal would achieve the following key planning outcomes and public benefits:



This Planning Proposal has clear strategic and site-specific merit. The site is within close proximity to transport, services and infrastructure, including Concord Hospital and is an appropriate location for additional housing. The proposal seeks to unlock the potential of the site to deliver a high-quality residential development in a location highly suitable for density uplift.



The site presents a unique opportunity to mark the entry into Rhodes whilst still achieving the desired scale and transition in response to the surrounding context. The accompanying reference scheme demonstrates the proposed uplift sought will not result in unacceptable impacts to adjoining development in terms of overshadowing, visual privacy or noise.



The proposal will facilitate the delivery of additional housing in a highly accessible location with access to essential services including schools, health facilities, shops and public transport. The site represents one of a limited number of undeveloped land parcels capable of delivering a new housing development within close proximity to Rhodes. The site is strategically located and sized to facilitate high density development, increasing the supply and diversity of housing within Rhodes.



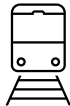
The proposal demonstrates a high level of consistency with the strategic planning framework governing the Greater Sydney Region including the Greater Sydney Regional Plan and the Eastern City District Plan. The proposal aligns with State planning strategic goals which seek to intensify residential development around significant transport infrastructure and in proximity to employment nodes including Concord Hospital. The proposal will support the attainment of a 30-minute city, as outlined within the District Plan.



The proposal demonstrates a high level of consistency with Council's local planning framework. The proposal will contribute to meeting Council's housing targets as set out in the Local Housing Strategy through the provision of 89 additional dwellings within walking distance to Rhodes, which is identified as a Strategic Centre.



The proposal will deliver significant improvements to the public domain experience resulting in safer, greener and more connected spaces. The proposal will deliver public benefits to the local community including the provision of vital new pedestrian and cycle infrastructure and road upgrades. The proposed mechanism to deliver the public benefits associated with the land use change and uplift will be via a Voluntary Planning Agreement (VPA).



The proposal will improve active transport connections and strengthen links to public transport. The proposal also capitalises on existing and planned infrastructure with sustainable benefits by reducing reliance on private vehicular transportation, being strategically located close to Rhodes railway station.



The proposal creates an appropriately scaled edge to the broader Rhodes urban renewal precinct and has the potential to service the commercial core and release pressure of residential encroachment on adjacent low density residential zoned land. The proposal will establish a new and cohesive skyline for the Rhodes peninsula enabling the integration of the site with the existing higher density mixed use character of Rhodes West as well as the emerging future built form envisaged for Rhodes East in the Rhodes Place Strategy.



The proposal will not result in unacceptable amenity impacts to adjoining development in terms of overshadowing, visual privacy or noise. The proposal will provide a built form that responds directly to the emerging context through a considered building envelope and positioning which protects the amenity of adjoining land including existing views.



The reference scheme minimises the impacts of the environmental interfaces to create a comfortable, safe and activated development which benefits both residents and the local community. The siting and design of the proposed apartment buildings optimise future residential amenity by locating the residential accommodation above the podium and orienting the majority of apartments to the west and north, away from noise sources such as the railway line and road. This will provide a pleasant aspect for the apartments, as well as increasing solar access and natural surveillance of the public open space. Façade design solutions that can accommodate the dual objectives of acoustic amenity and natural ventilation and balcony winter gardens have been incorporated to further mitigate against noise pollution.

**It is demonstrated that there is clear strategic and site-specific merit in progressing the Planning Proposal, the intended outcomes are appropriate and should be forwarded to the Department of Planning, Housing and Infrastructure for Gateway Determination.**

# 1. INTRODUCTION

## 1.1. OVERVIEW

This Planning Proposal (**Planning Proposal**) has been prepared by Urbis Ltd on behalf of Outlon Rhodes Pty Ltd (**the proponent**) to initiate an amendment to the *Canada Bay Local Environmental Plan 2013* (**CBLEP 2013**) in relation to Lot 212 in Deposited Plan (**DP**) 1112512, Oulton Avenue, Concord West (**the site**).

Pursuant to the CBLEP 2013, the site is currently zoned MU1 Mixed Use zone and has a maximum building height control of 24 metres and maximum floor space ratio (**FSR**) control of 1.1:1.

The intended outcome of the future Planning Proposal is to amend the CBLEP as follows:

- Amend the Land Zoning Map from MU1 Mixed Use to R4 High Density Residential;
- Amend the Height of Building Map from 24 metres to 46 metres; and
- Amend the Floor Space Ratio Map from 1.1:1 to 2.1:1.

The proposed changes to the planning controls will ensure that residential flat buildings become permissible unlocking the potential of this strategically located site to facilitate a new contextually appropriate development consistent with the vision, objectives and key principles detailed within relevant strategic plans, including:

- Greater Sydney Region Plan: A Metropolis of Three cities
- Our Greater Sydney 2056: Eastern Harbour City District Plan
- Canada Bay Local Strategic Planning Statement
- Canada Bay Local Housing Strategy

The accompanying reference scheme demonstrates a high-quality urban outcome with appropriate transitional separation between the existing and future context. This includes achieving an appropriate interface with the scale and character of the adjacent land.

At a high level, the Planning Proposal seeks to achieve the following key objectives:

- Provide additional housing supply in a highly accessible location to support local workers.
- Support Rhodes' role as a Health and Education Precinct drawing from the close proximity to Concord Hospital.
- Improve active transport connections and strengthen links to public transport.
- Improve the public domain experience for safer, greener, and more vibrant spaces.
- Support orderly and economic use of otherwise underutilised land.
- Provide a height of building control that responds appropriately to the variable development forms while ensuring compatibility with the transitioning context of the site and locality.

The vision underpinning the reference scheme is to create a vibrant, well connected, and high-quality residential development which supports Council's desire for increased housing diversity in the Rhodes Peninsula. The design seeks to minimise the impacts of the challenging interfaces and improve the public domain to create a comfortable, safe and activated development which benefits both residents and the local community.

## 1.2. REPORT STRUCTURE

This Planning Proposal has been prepared in accordance with Section 3.33 of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**) and the Department of Planning, Housing and Infrastructure (**DPHI**) guideline '*Local Environmental Plan Making Guideline*' dated August 2023.

The relevant sections of the Planning Proposal are listed below:

- **Section 2:** Detailed description of the site, the existing development and local and regional context.
- **Section 3:** Project background including pre-lodgement and scoping proposal advice.
- **Section 4:** Current strategic and statutory planning framework relevant to the site, including State and local planning controls.
- **Section 5:** Key features of the proposed indicative reference scheme which is intended to be delivered as an outcome of the Planning Proposal.
- **Section 6:** Comprehensive description and assessment of the Planning Proposal in accordance with the DPHI Guideline.
- **Section 7:** Conclusion and justification.

### 1.3. PROJECT TEAM

This Planning Proposal has been prepared through significant collaboration with the project team and is supported by a range of technical inputs as shown in **Table 2** below.

Table 2 Planning Proposal Project Team

Technical Input	Consultant	Appendix
Urban Design Report	SJB Architects	<b>Appendix A</b>
Survey Plan	Veris	<b>Appendix B</b>
Transport Impact Assessment	Stantec	<b>Appendix C</b>
Site Servicing Assessment – Electrical and Lighting	Haron Robson	<b>Appendix D</b>
Preliminary Site Investigation	Douglas Partners	<b>Appendix E</b>
Acoustic and Vibration Assessment	Renzo Tonin	<b>Appendix F</b>
Air Quality Assessment	Todoroski Air Sciences	<b>Appendix G</b>
Geotechnical Assessment	Douglas Partners	<b>Appendix H</b>
Site Servicing Assessment – Hydraulic Services	Harris Page & Associates	<b>Appendix I</b>
LEP Mapping	Urbis	<b>Appendix J</b>

## 2. SITE ANALYSIS

### 2.1. SITE LOCATION

The Planning Proposal relates to land at Oulton Avenue, Concord West, legally referred to as Lot 212 in Deposited Plan (DP) 1112512 (**the site**). The subject site is an irregularly shaped allotment, located at the corner of Homebush Bay Drive, the rail corridor and the Oulton Avenue slip road as illustrated at **Figure 1**.

The site is currently a vacant lot with some existing intermittent vegetation and trees and is generally flat. Photographs of the existing development and surrounding context are provided at **Figure 2** and **Figure 3**. The site is located within excellent proximity to a number of key transport connections, as well as a variety of essential services including schools, hospitals, business services and retail facilities.

The surrounding development includes:

- To the north of the site is the elevated Homebush Bay Drive. Further north is the Rhodes Waterside Shopping Centre, as well as an IKEA and numerous commercial and office developments.
- To the south and south-west of the site is Liberty Grove housing development, a large estate comprising numerous residential flat buildings ranging in height from 3 to 12 storeys.
- To the east, the site directly adjoins the Northern Railway line. Further east across the railway lines is a public reserve (Mutton Reserve) and areas of low-density residential housing that form the suburb of Concord West
- To the west of the site is the Oulton Avenue slip road and Homebush Bay Drive. Further west is parkland and natural bushland which adjoins the Parramatta River foreshore.

Figure 1 Aerial Photograph



Source: Urbis



## 2.2. SITE DESCRIPTION

The key features of the site are summarised in the following table.

Table 3 Site Description

Site Characteristic	Description
<b>Legal Description</b>	Lot 212 in Deposited Plan (DP) 1112512
<b>Site Ownership</b>	Oulton Rhodes Pty Ltd
<b>Existing Use/Structures</b>	Vacant land with some existing intermittent vegetation.
<b>Site Area</b>	4,168sqm
<b>Topography</b>	The topography within the site has been heavily influenced by adjacent infrastructure including Homebush Bay Drive and the rail corridor. The high point of site is located to the south, with the site flattening to the north.
<b>Flooding/Overland Flow</b>	The site is not identified as flood prone land.
<b>Heritage</b>	The site is not identified as a heritage item on the State Heritage Register or on the CBLEP 2013 and is not located within a conservation zone.
<b>Aboriginal Archaeology</b>	There are no confirmed Aboriginal archaeological site records located within the site area on the Aboriginal Heritage Information Management System (AHIMS).
<b>Bushfire</b>	The site is not identified as bushfire prone land.
<b>Biodiversity</b>	The site does not contain any existing significant features of the natural environment in terms of biodiversity and ecology. The site has been subject to considerable vegetation disturbance as a result of historical use of the grounds. As such, no remnant native trees or ground cover species are present within the site and vegetated areas of the site consist of planted trees and shrubs and hardstand areas.
<b>Geotechnical</b>	A Geotechnical Investigation Report prepared by Douglas Partners and attached at <b>Appendix H</b> outlines that the site is considered suitable for a proposed multi-storey unit development from a geotechnical perspective.
<b>Contamination</b>	A Preliminary Site Investigation (PSI) prepared by Douglas Partners and attached at <b>Appendix E</b> confirms that the risk for significant contamination being present and preventing the use of the site for high density residential purposes is low to medium.
<b>Vehicular Access</b>	The site is serviced by the Homebush Bay Drive slip road and Oulton Avenue however vehicular access to the site is not currently provided. Whilst the site does not currently have vehicle access, vehicle access to the site is possible via the existing road network.
<b>Pedestrian and Bicycle Infrastructure</b>	The immediate locality has well established pedestrian and bicycle infrastructure. A shared path is provided along the northern side of the site below the Homebush Bay Drive offramp, allowing for easy connection to Walker Street and Rhodes Station located 750m to the north, as well as over the railway corridor to Harrison Avenue and Concord West. Footpaths are generally provided on both sides of the road on Oulton Avenue and connect with shared paths that run parallel with Rider Boulevard, providing further connection to the northern end of Rhodes and across the Bennelong Bridge to Wentworth Point. Sydney Olympic Park and its surrounds including Bicentennial Park also have an expansive network of shared paths and cycling paths.
<b>Public Transport</b>	The site is well-serviced by various forms of public transport. The site is located 750 metres from Rhodes railway station and 2km from Concord West railway station. Both stations are served by the T9 Northern Line operated by Sydney Trains which provides connections north to Epping and Hornsby and south to Strathfield with ongoing connections to the Sydney Central Business District (CBD). The site is located less than 3km of the future Metro West station at Strathfield North which will provide high frequency connections to the Sydney CBD. The site is also well-serviced by bus routes. Concord Road has a high frequency of services, which service the surrounding suburbs. The 410 Route with stops located to the east of the site along Concord Road, connects the development with Macquarie Park to the north and towards Hurstville in the south.

Site Characteristic	Description
	There are additional bus stops along Rider Boulevard that includes the 458-route connecting Concord West towards Burwood to the south and towards Ryde in the north.
<b>Open Space</b>	The site is located close to an extensive network of open space consisting of sports and recreational facilities, wetlands and reserves, as well as dedicated areas for public and private use. Sydney Olympic Park and its associated parks and wetlands are located to the west of the site. It can be accessed via a walking and cycling trail that runs alongside the existing wetlands and watercourse of Powell's Creek. Other open spaces within the vicinity include Lewis Berger Park on the Parramatta River and Bradley Reserve within Liberty Grove. Directly to the east of the rail corridor is Mutton Reserve, an underused local park.
<b>Essential Infrastructure</b>	<p>The site is located close to a variety of essential services including:</p> <ul style="list-style-type: none"> <li>▪ A sub-regional shopping centre (Rhodes Waterside Shopping Centre) is located on the northern side of the Homebush Bay Drive.</li> <li>▪ Passive and active public open spaces and recreation activities. Rhodes Foreshore Park, Bradley Reserve and Mutton Reserve are located within 800 metres of the site while Bicentennial Park is a 20-minute walk south of the site which provides access to playgrounds, cycle and walkways and public BBQ spaces.</li> <li>▪ The site is located 700 metres from Concord Repatriation General Hospital referred to commonly as Concord Hospital which provides 500 beds and an emergency department to service the needs of the local community.</li> <li>▪ There are a number of early learning centres, primary schools and high schools in the surrounding areas of the site. These schools include Concord West Public, St Ambrose' Primary and Wentworth Point Public. Marsden High School is located in Meadowbank to the north.</li> <li>▪ Numerous community facilities including Rhodes Community Centre, The Learning Space and Wentworth Point Community Centre and Library are located within 2.5km of the site accessible by bus and train connections.</li> </ul>

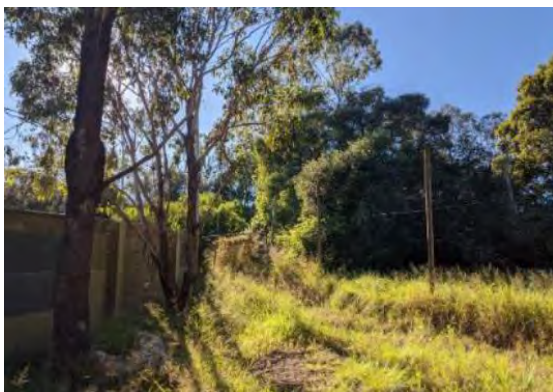
Figure 2 Site Photographs



Picture 1 View from Homebush Bay Drive pedestrian ramp



Picture 2 View from centre of site towards Rhodes Waterside Shopping Centre and IKEA



Picture 3 View of site from Liberty Grove



Picture 4 Primary access to the site from Oulton Avenue

## 2.3. LOCAL CONTEXT

The subject site represents one of a limited number of undeveloped land parcels capable of delivering a new housing development within close proximity to Rhodes town centre. The site is strategically located and sized to facilitate high density development, increasing the supply and diversity of housing within Rhodes.

The site is in a previously predominately industrial area which was made up of warehousing and local industrial uses. The main Northern Railway line runs north south adjacent to the east of the site. A pedestrian tunnel connects the site to the north under Homebush Bay Drive.

To the immediate north of the site is Rhodes West, a former industrial area which was rezoned to MU1 Mixed Use (formerly B4 Mixed Use) and now includes substantial high density residential, office and retail redevelopment including the Rhodes Waterside Shopping Centre. To the immediate south of the site is a modern master-planned residential community (Liberty Grove) and on the eastern side of the railway line is an area of existing low-density housing.

As shown in **Figure 4**, to the north-east of the site is the Rhodes Corporate Park currently zoned SP4 Enterprise (formerly B7 Business Park) which is identified as an Employment Lands Investigation Area to be explored for renewal and future growth opportunities.

Further north of the site is the Rhodes Precinct, one of Sydney's most significant urban renewal precincts. The precinct is made up of land to the east and west of Rhodes railway station between the rail line and Concord Road. The Rhodes Precinct was rezoned in October 2021 following the finalisation of the Rhodes Place Strategy, which provides for significant uplift in Rhodes East following the earlier rezoning and subsequent uplift in Rhodes Central and West.



Figure 3 Photographs of Surrounding Development



Picture 5 Looking south-east towards a 12-storey residential building located within the Liberty Grove complex.



Picture 6 Looking south-east towards the vehicle entrance into the Liberty Grove residential complex

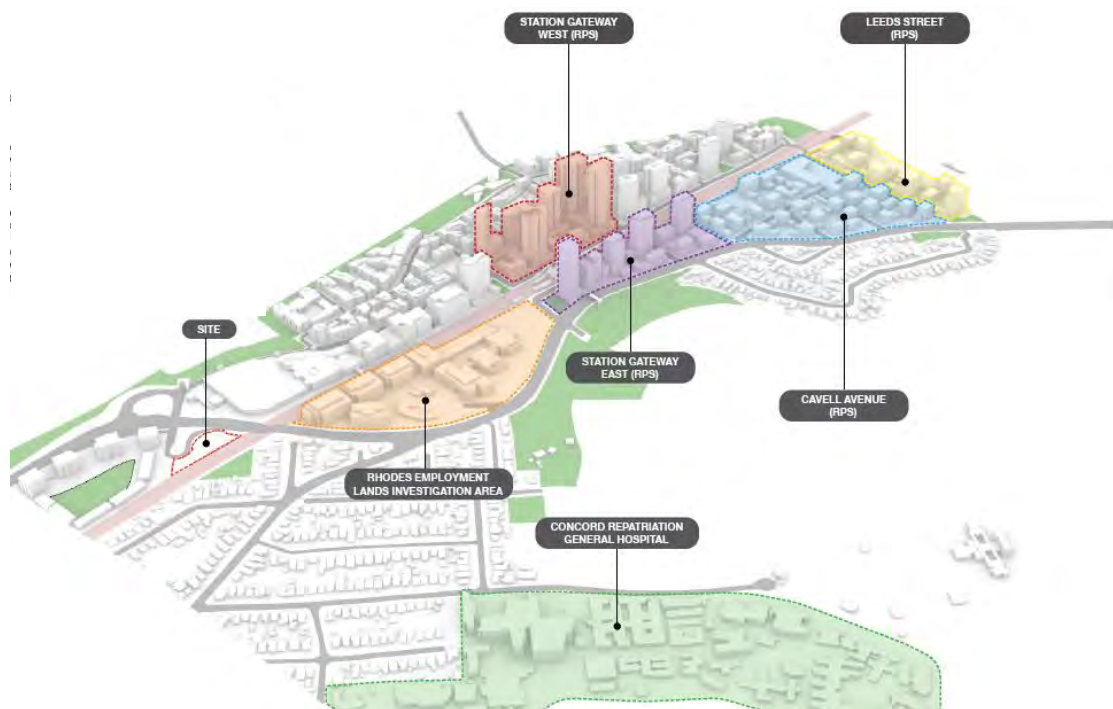


Picture 7 Looking south-east towards residential building located within the Liberty Grove complex.



Picture 8 Looking north across Homebush Bay Drive towards commercial office development in Rhodes.

Figure 4 Emerging Built Form Context



Source: SJB Architects

## 2.4. REGIONAL CONTEXT

The site is located in Concord West, within the Canada Bay Local Government Area (LGA) and is strategically positioned approximately 11.5km west of the Sydney CBD and 7km to the east of the Parramatta CBD.

Rhodes is identified as an important Strategic Centre in the Eastern District Plan, with significant opportunities to create new places to live, work and visit. Rhodes was formerly a primarily industrial suburb that is currently the focus of significant urban renewal and is transitioning to a high-density mixed use/residential area. As such, the built form of Rhodes has changed radically in the past 10 years with intense urban growth and a move away from industrial lands and detached housing to predominantly apartment buildings.

The site has extremely good access to public transport, services and amenities including Rhodes railway station (approx. 750 metres) and is close to Sydney Olympic Park and Rhodes Waterside Shopping Centre. The site is also located less than 3km of the future Metro West Corridor at Strathfield North which will provide high frequency connections to the Sydney CBD. The closest school, Concord West Public School is approximately 250 metres south-east of the site, and the closest major hospital, Concord Hospital is less than 1km from the site.

Vehicle access to the site is possible via the existing road network. The site provides opportunities for good views to surrounding areas and has a northerly aspect ensuring excellent solar access. Bradley Reserve, Mutton Reserve and Oulton Park are both located within 150 metres of the site and provide open space areas for public recreation.

The area is dissected by two key roads. Homebush Bay Drive provides linkages to the North Shore and Western Sydney while Concord Road links the area with the inner west and Sydney CBD. Land north of Homebush Bay Drive forms part of Rhodes West as well as key commercial precincts including Rhodes Corporate Park. East of Concord Road is Concord Hospital which is part of a wider health cluster. Liberty Grove and Concord West transition to mainly residential suburbs with a mixture of apartments and detached housing.

As shown in **Figure 5**, the broader urban context features a range of open spaces, public parks and harbour foreshore with many recreational opportunities.

Figure 5 Regional Context Map



Source: SJB Architects



### 3. PROJECT BACKGROUND AND CONSULTATION

#### 3.1. SITE COMPATIBILITY CERTIFICATE

The proponent has previously submitted a Site Compatibility Certificate (SCC) to DPHI with respect to a proposed affordable housing development at the site. This request was accompanied by a proposed concept which included a development with a maximum building height 94.5 metres and FSR of 5:1. Access to the site was proposed via the Oulton Avenue and Homebush Bay Drive intersection, effectively creating a fourth approach to the existing signalised intersection. During the assessment of the SCC, the Proponent received feedback from DPHI and Council stating that rather than pursuing a SCC application, the preferred planning approval pathway was for the proponent to submit a Planning Proposal and Planning Agreement.

#### 3.2. INITIAL SCOPING PROPOSAL

Noting the above, a Scoping Proposal was prepared and submitted to Council in September 2023. The reference scheme submitted with the Scoping Proposal maintained a maximum building height of 95 metres and FSR of 5:1 and retained access to the site via the Oulton Avenue and Homebush Bay Drive intersection.

Council officers subsequently held a pre-lodgement meeting with the proponent in November 2023 and issued feedback on the Scoping Proposal, including comments from NSW Government agencies. In its feedback, Council considered that the proposed building envelope was not consistent with the scale of the existing and desired future context for this part of Concord West. As such Council advised that the scale and density be reconsidered, including a reduction to the height and FSR.

In addition, Council noted that development on the site would be constrained by its interface with an elevated motorway, an off-ramp to the motorway and by its extended boundary to the railway line. In this respect, it was Council's view that the proposed architectural interventions achieved a sub-optimal level of amenity.

Further, as part of feedback received by agencies, TfNSW raised an objection to the proposed vehicle access being provided directly from the intersection of Oulton Avenue and Homebush Bay Drive and suggested an alternative vehicle access be provided at the southern end of the Oulton Avenue slip road.

#### 3.3. REVISED SCOPING PROPOSAL

In February 2024, in response to comments received from Council and TfNSW, the proponent submitted a revised concept which included reduced heights and FSR and which relocated the vehicle access to the Oulton Avenue slip road at the southern end of the site.

In March 2024, Council commissioned Studio GL to prepare a review of a Scoping Proposal to provide supplementary advice on the revised proposal. A summary of the key matters raised in the supplementary advice (dated 14 March 2024) and how this proposal addresses these comments is provided in **Table 4**.

Table 4 Summary of Council Feedback

Matter	Proposal
One 12-storey building and one 8-storey building in the locations identified is supported. Adjustment of maximum height of building to 42.1m for the 12-storey tower	The reference scheme proposes a 12-storey and 8-storey building consistent with the feedback received from Council.
The maximum height of building shown in the concept is to be inclusive of bonus heights under the SEPP (Housing) 2021.	Noted.
Single aspect apartments are not supported where they face the railway line or Homebush Bay Drive.	No single aspect apartments are proposed to face the railway line or Homebush Bay Drive.
Requirement to meet building separation distances.	The proposed building envelopes meet the required building separations.

Matter	Proposal
Requirement to provide affordable housing.	A component of affordable housing will be considered as part of a future development application for the site.
Meeting of minimum floor to floor heights - It is recommended that all levels with only residential uses have a floor-to-floor height of 3.2m.	All residential levels of the development provide floor-to-floor heights of 3.2 metres.
Landscape plans should be prepared which includes both the TfNSW land and existing access to the underpass. The landscape plans need to show tree planting and landscaping strategies in greater detail.	Landscape plans have been prepared and are included within the Urban Design Report provided at <b>Appendix A</b> .
As TfNSW is unlikely to approve a fourth access road from the intersection, vehicular traffic to the site will be provided through the left-in left-out access from the Oulton Avenue off-ramp. As such the concept design should include two different 'front doors'.	Vehicle access has been relocated and is provided via the Oulton Avenue slip road at the southern end of the site. The submitted reference scheme provides two front doors, one that addresses the drop off and pick up from the vehicular entry in the podium, and one that addresses pedestrian and cycle entry at ground level.
Provide additional amount of deep soil to ensure the area to the north of the lobby is adequately landscaped.	Generous deep soil areas are proposed to the north of the lobby.
Resolution of the cantilever and/or supporting structure and the landscape including tall screening trees and pedestrian, cycle and vehicle access needs to be resolved and shown in greater detail.	Various landscaping elements are proposed adjacent to main pedestrian and cycle entrance including areas of deep soil capable of accommodating tall screening trees.
Given the location of the site close to a strategic centre and a railway station the number of car parks should align with the car parking requirements set out in the Canada Bay DCP.	The proposal provides a total of 101 car spaces which complies with Council's DCP requirements.

## 4. PLANNING FRAMEWORK

### 4.1. STRATEGIC PLANNING CONTEXT

The Planning Proposal is consistent with and supports a range of strategic planning outcomes established by Council and the NSW Government.

This section provides a brief overview of the strategic planning policies governing development in NSW and how the vision and intended outcomes for the site will implement or otherwise be consistent with the relevant plans and policies.

Detailed consistency of the proposal with the relevant State and local strategic planning documents is demonstrated in **Section 6** of this report.

Table 5 Strategic Planning Framework

Document	Description
<b>Greater Sydney Region Plan: A Metropolis of Three Cities:</b>	<p>The Plan identifies Rhodes as a Strategic Centre and an area of high urban growth and more intense development. The proposal aligns directly with the vision of the Greater Sydney Region as a “city for people... with great places that keep people and communities connected”. Specifically, the proposal supports and aligns with the following objectives of the Plan:</p> <ul style="list-style-type: none"> <li>Provide greater housing supply and a range of housing types in the right locations.</li> <li>Provide a range of housing types, tenures and price points to meet demand.</li> <li>Link the delivery of new homes in the right location with local infrastructure.</li> <li>Investigate opportunities for supply and diversity of housing around centres to create more walkable neighbourhoods.</li> </ul> <p>The proposal would increase the supply of diverse housing types within the Canada Bay LGA by providing housing tailored to the market. The site is in a readily accessible location, close to existing and proposed infrastructure, such as the Northern Railway line. The proposal also assists in the creation of a walkable neighbourhood by reducing car parking and maximising on-site bicycle and motorbike parking.</p>
<b>Eastern City District Plan</b>	<p>The District Plan contains strategic directions, planning priorities and actions that seek to implement the objectives and strategies within the Region Plan at the district-level. The Structure Plan identifies the key centres, economic and employment locations, land release and urban renewal areas and existing and future transport infrastructure to deliver growth aspirations.</p> <p>The proposal supports and aligns to the following priorities of the Plan:</p> <ul style="list-style-type: none"> <li>Delivering affordable housing for key worker and student populations.</li> <li>Improving transport, walking and cycling connections across the precinct.</li> <li>Providing housing supply, choice and affordability, with access to jobs, services and public transport.</li> </ul> <p>Demand for residential accommodation within Sydney is likely to continue to grow. The NSW Government has identified the area which the site is located adjacent to as an urban renewal precinct. Rhodes is an important Strategic Centre in the Eastern City District Plan, with significant opportunities to create a great new place to live, work and visit. The proposal would positively contribute to housing affordability by providing appropriately priced and diverse housing within close proximity to jobs, public transport, recreation, and local shopping, facilities and services.</p>
<b>Canada Bay Local Strategic Planning Statement</b>	<p>The LSPS identifies a housing priority to provide housing supply, choice and affordability in key locations. The LSPS identifies that the population growth to 2036 will need to be accommodated in 14,300 additional dwellings. The LSPS also identifies active transport connections throughout Rhodes and beyond as a key short-term action for Canada Bay Council.</p>
<b>Canada Bay Local Housing Strategy</b>	<p>The proposal is consistent with the Canada Bay Local Housing Strategy which includes a number of objectives and actions in order to achieve Council’s desired outcome for housing including:</p>

Document	Description
	<ul style="list-style-type: none"> <li>Large-scale urban renewal to deliver high density housing in the form of apartments as outlined under State Government plans.</li> <li>Ensuring that high density dwelling yields are comprised of sufficient dwelling diversity.</li> <li>Local centres are planned to provide opportunities for alternative low and moderate-scale housing, within walking distance of services and access to public transport.</li> <li>Housing diversity and choice to be further addressed by infill development around centres in the form of low-rise medium density, to provide a wider range of housing forms whilst being respectful of local neighbourhood character.</li> <li>Identify and protect character areas with sensitive infill development, as part of retaining a diversity of housing types and residential streetscapes.</li> </ul>

## 4.2. STATUTORY PLANNING FRAMEWORK

### 4.2.1. Canada Bay Local Environmental Plan 2013

The *Canada Bay Local Environmental Plan 2013* (CBLEP 2013) is the principal Environmental Planning Instrument applying to the site.

#### 4.2.1.1. Land Use Zoning

The site is zoned MU1 Mixed Use under the CBLEP 2013. The relevant zone objectives include:

- To encourage a diversity of business, retail, office and light industrial land uses that generate employment opportunities.
- To ensure that new development provides diverse and active street frontages to attract pedestrian traffic and to contribute to vibrant, diverse and functional streets and public spaces.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To encourage business, retail, community and other non-residential land uses on the ground floor of buildings.

In the MU1 zone, the following land uses are permitted with consent:

*Amusement centres; Boarding houses; Building identification signs; Business identification signs; Car parks; Centre-based child care facilities; Commercial premises; Community facilities; Entertainment facilities; Function centres; Information and education facilities; Light industries; Local distribution premises; Medical centres; Oyster aquaculture; Passenger transport facilities; Places of public worship; Recreation areas; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Shop top housing; Tank-based aquaculture; Tourist and visitor accommodation; Vehicle repair stations; Any other development not specified in item 2 or 4*

In the MU1 zone, the following land uses are prohibited:

*Agriculture; Air transport facilities; Airstrips; Animal boarding or training establishments; Biosolids treatment facilities; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Correctional centres; Crematoria; Depots; Electricity generating works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial training facilities; Industries; Jetties; Moorings; Open cut mining; Recreation facilities (major); Recreation facilities (outdoor); Residential accommodation; Resource recovery facilities; Rural industries; Sewage treatment plants; Signage; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Warehouse or distribution centres; Waste disposal facilities; Water recreation structures; Water supply systems*

Figure 6 Land Zoning Map

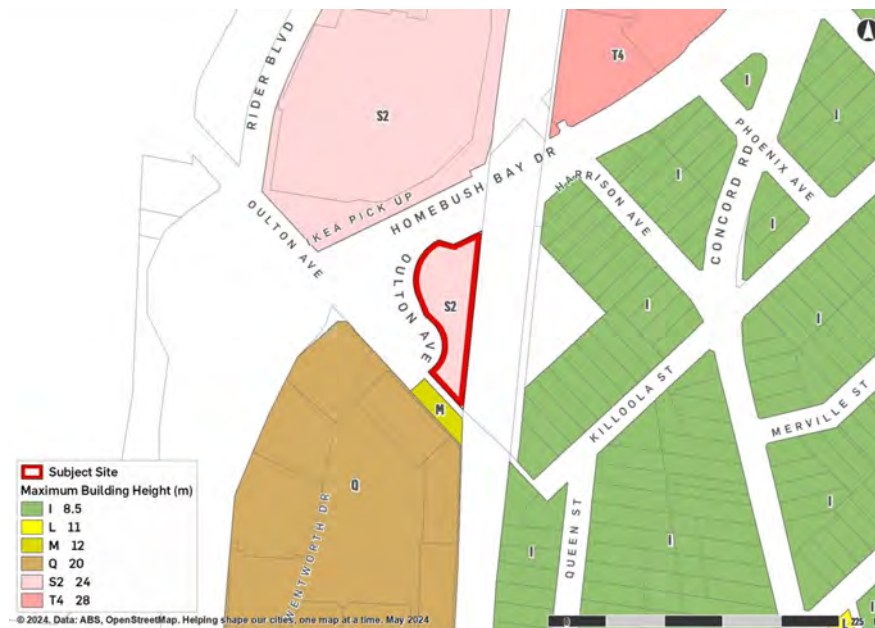


Source: Urbis, 2023

#### 4.2.1.2. Height of Buildings

The site has a maximum building height of 24 metres in accordance with clause 4.3 of the CBLEP 2013.

Figure 7 Height of Building Map



Source: Urbis, 2023

#### 4.2.1.3. Floor Space Ratio

The site has a maximum FSR of 1.1:1 in accordance with clause 4.4 of the CBLEP 2013.



Figure 8 Floor Space Ratio Map



Source: Urbis, 2023

#### 4.2.1.4. Heritage

The site is not identified as a local heritage item, nor is it located within a heritage conservation area. The closest heritage item is I393 (House), located to the east of the site and on the other side of the rail corridor approximately 112 metres away from the site. The next closest heritage item is I107 (Concord West Public School), also on the other side of the rail corridor and approximately 169 metres from the site.

Figure 9 Heritage Map



Source: Urbis, 2023

## 5. PROPOSED DEVELOPMENT OUTCOME

### 5.1. ALTERNATIVE OPTIONS

Prior to determining the preferred scheme, the project team undertook massing studies and considered several alternative master plan schemes. The scheme underwent an iterative design process to ensure that it met the aims of the project objectives and to respond to the feedback received from Council and various other stakeholders. Each version was tested with a particular focus on amenity and impact.

As demonstrated in **Figure 10** overleaf, when compared to the initial concept, the massing in the proposed reference scheme clearly shows a lessened impact on neighbours whilst still achieving good amenity for residents. A comparison of the shadow studies from the initial and proposed massing indicates a reduced impact due to the smaller building footprints and lower height. A summary of the pros and cons of the initial and proposed reference scheme is provided below.

#### Initial Massing

Pros:

- Creates a gateway site to anchor the southern end of the Rhodes Peninsula.
- Orientated north-south to maximise solar access to all apartments.

Cons:

- Height of the main tower impacts solar access to existing developments including Liberty Grove and Bradley Reserve.
- Bulk and scale of development is out of proportion to surrounding built form.

#### Proposed Massing

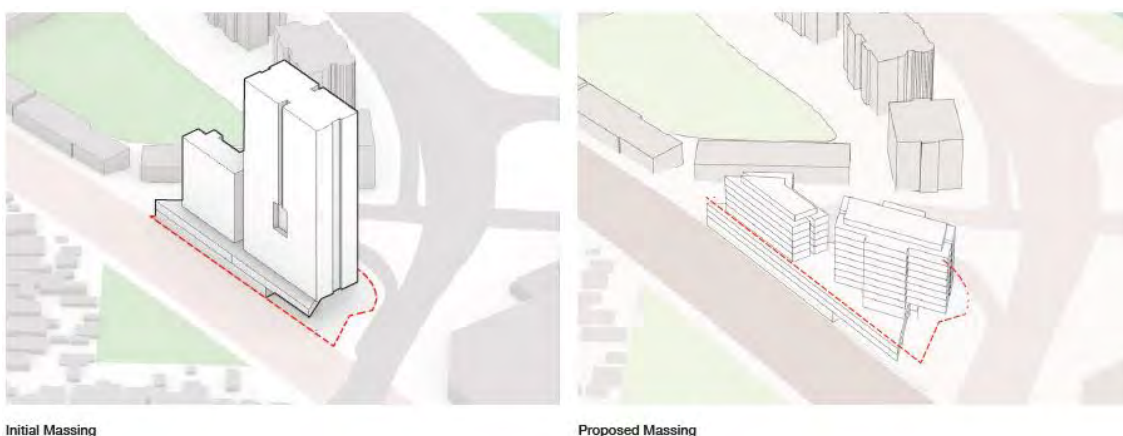
Pros:

- Shorter towers will reduce overshadowing to surrounding development.
- Visual impacts of the development are lessened by reduced bulk and scale.
- Dual aspect floor plate in the shorter tower.

Cons:

- Less efficient floorplate.

Figure 10 Alternative Massing Options



Initial Massing

Proposed Massing

Source: SJB Architects

## 5.2. INDICATIVE REFERENCE SCHEME

The Planning Proposal is supported by a reference scheme prepared by SJB Architects (refer to **Appendix A**) to support the request for proposed amendments to the *Canada Bay Local Environmental Plan 2013*.

Specifically, the accompanying reference scheme relates to a part 8 and part 12 storey residential flat building accommodating a diversity of housing options. The accompanying reference scheme demonstrates a high-quality urban outcome with appropriate transitional separation between the existing and future context. This includes achieving an appropriate interface with the scale and character of the adjacent land.

The reference scheme provides a maximum building height of 45.9 metres and a maximum floor space ratio of 2.06:1. The proposed massing seeks to create a gateway site to anchor the southern end of the Rhodes Peninsula. The proposed concept presents a bold vision for the site that would see the delivery of a new residential flat building which would contribute to an improved public domain, the revitalisation of the locality and help deliver improved connections to the broader area.

The vision underpinning the reference scheme is to create a vibrant, well connected, and high-quality residential development which supports Council's desire for increased housing diversity in the Rhodes Peninsula. The design seeks to minimise the impacts of the challenging interfaces and improve the public domain to create a comfortable, safe and activated development which benefits both residents and the local community.

The key features of the reference scheme are summarised in the table below. Extracts of some of the plans are provided as figures on the following pages.

Table 6 Key Features of Reference Scheme

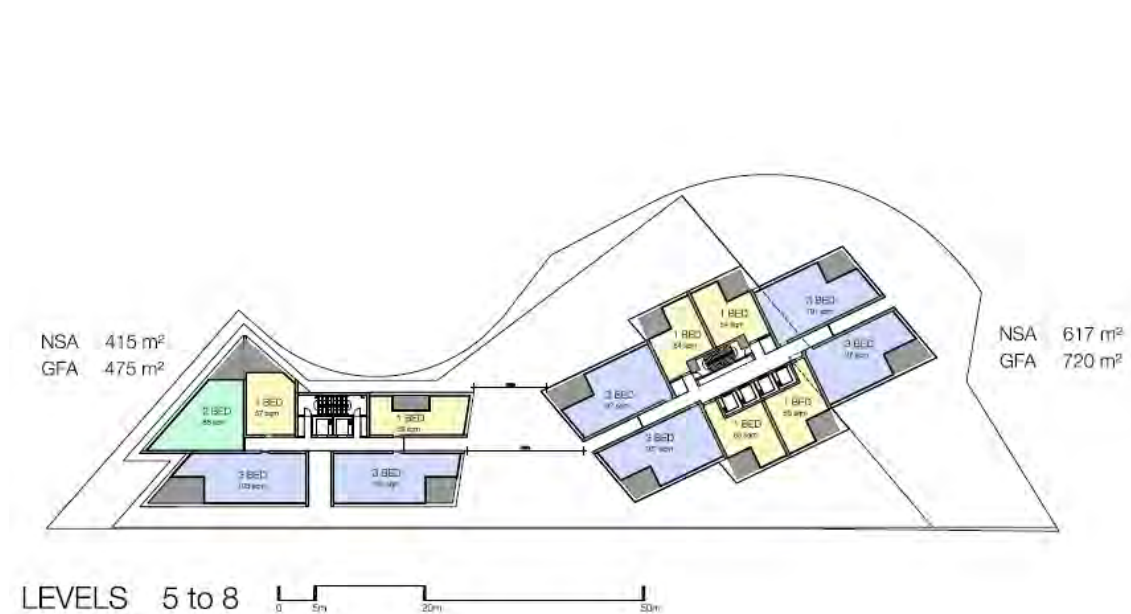
Item	Proposed
Land use	Residential flat building
Number of storeys	Part 8 storeys and part 12 storeys
Height of building	45.9 metres
Floor space ratio	2.06:1
Gross floor area (GFA)	8,534sqm
Unit mix	1-bedroom: 26 units (30%) 2-bedroom: 37 units (40%) 3-bedroom: 26 units (30%)
Total number of units	89 dwellings
Car parking spaces	101 spaces
Communal open space	1,650sqm

Figure 11 Level 1 Floor Plan



Source: SJB Architects

Figure 12 Typical Floor Plans – Levels 5 to 8



Source: SJB Architects



NSA 617 m<sup>2</sup>  
GFA 720 m<sup>2</sup>

LEVELS 8 to 12

Figure 14 Section Plan

SECTION 01

### 5.3. VISION AND OBJECTIVES

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PLANNING PROPOSAL REQUEST\_OULTON AVENUE

The following key project objectives have informed the reference scheme:

- **Improvement of Public Domain** - Existing pedestrian and cycle connections through the site can be improved to create better public amenity and link existing public open spaces.
- **Safety & Activation** - Activations that encourage a feeling of safety when entering and passing the site should be evident. Passive surveillance gained from a lobby or common areas along with clear lines of sight and well-lit passages can make users feel safer and dissuade poor behaviour.
- **A mix of housing** - Encouraging a mix of residents in the Rhodes and Concord West area to create a more integrated and diverse society. Providing homes for essential workers within the precinct including health workers and encouraging a mixture of household types activate the area throughout the day.
- **Greening** - Maximising green space within the development is a priority including providing communal open space.
- **Contribution to Rhodes Skyline** - Rhodes skyline is an important urban marker and identifier. The development can extend that skyline across Homebush Bay Drive to create a southern gateway to the precinct.
- **Amenity** - Impacts on amenity to both the development and its surroundings should be minimised. This includes solar access, visual impacts, acoustic impacts and air quality.
- **Accommodating Traffic and Access** - Traffic and access to the site has been carefully considered to minimise impact on surrounding networks.
- **Dealing with Interfaces** – Provide acceptable design responses to the interfaces on lower levels with Homebush Bay Drive and the rail corridor that mitigate increased acoustic and air pollution.

## 5.4. BUILDING MASSING

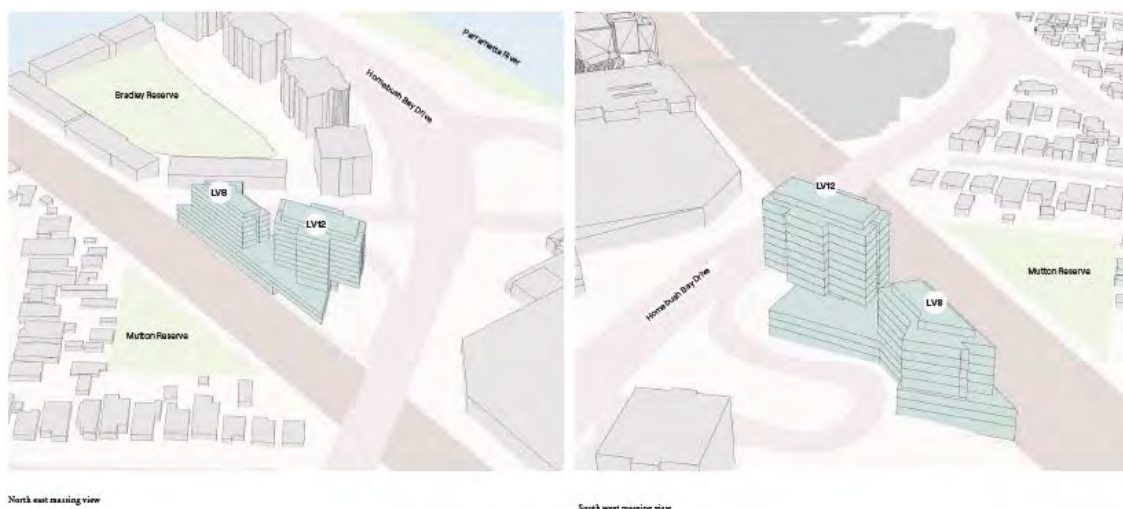
The proposed massing has been derived having regard to the strategic planning framework for Rhodes as well responding to the site opportunities and the surrounding urban character and context. The built form response depicted in the reference scheme provides two towers with the taller form located to the north commensurate with the Council vision to increase building scales towards the Rhodes central.

Overall, the proposed massing:

- Provides a distinct podium with two discrete residential towers sitting above with a maximum built form height of 12 storeys stepping down to 8 storeys further south towards the R3 zoned land. The podium contains parking above-ground uses which enables the residential development to be elevated above the level of the motorway and railway line.
- Provides a transition between the lower scale development to the south and the taller built form of Rhodes Peninsular to the north with a stepped massing of the towers.
- Includes building envelopes with vertical indentations/articulation to reduce the perceived bulk and scale and to break up the continuity of the street wall to provide a finer-grain context.
- Achieves the building separation requirements as outlined in the ADG. There is a minimum distance of 35 metres to the closest neighbouring building, with setbacks provided along the western boundary to maximise building separation. The other site boundaries are not adjacent to buildings and are separated by Homebush Bay Drive and the rail corridor.
- Incorporates a recessed level to create a defined podium which can accommodate communal open space and the design will be able to incorporate different facade treatments to separate the podium and tower form.
- Provides the communal open space on the roof of the podium, to minimise the impact of the rail corridor and Homebush Bay Drive.

Figure 15 shows the proposed massing of the reference scheme.

Figure 15 Proposed Massing



Source: SJB Architects

## 5.5. PUBLIC DOMAIN

The proposed concept has an opportunity to improve the public domain surrounding the site. The northern boundary is adjacent to an established pedestrian and cycle connection. This connection links Liberty Grove with Rhodes Station and Concord West. It is highly used by school children and commuters. The public domain and pedestrian experience require improvements to ensure a positive experience for users.

Improvement of the public domain will create an opportunity for activation and play both for future residents and existing users. In this regard, the development concept includes:

- An opportunity for a pocket park within the subject site with good solar access and passive surveillance.
- Activating the existing pedestrian connection below Homebush Bay Drive with planting and street furniture to create better amenity for residents and other local users.
- Perimeter planting to minimise the impacts the adjacent rail corridor.

## 5.6. AMENITY

The accompanying reference scheme seeks to achieve good amenity for the residents whilst minimising the impacts to surrounding neighbours. Amenity to residents including good solar access, high quality common areas and cross-ventilation have been prioritised through architectural solutions such as winter gardens, sun shading, screening and greening to mitigate the impacts of a constrained site.

Amenity is a key principle for the development considering the constraints of the site. The balance is achieving good amenity for the residents whilst minimising impacts to surrounding neighbours.

As outlined in the Urban Design Report provided at **Appendix A**, the design has addressed noise and air pollution impacts by incorporating the following recommendations adopted in the reference design to be implemented in the future DA design and construction:

- Acoustic treatment of the wintergardens including a window header section trickle vent to allow free air movement through the facade when all operable sliding and awning windows are fully closed.
- The façade design incorporates trickle vents to allow natural air flow through acoustically treated baffles in the window head and can be open or closed by the occupants.
- Awning windows, at high and low levels, are set out to opposite corners of the wintergarden to mitigate a 'direct line' of sound transmission through the facade.
- An acoustically treated soffit further dampens any noise transmission from below by restricting the amount of noise that can be reflected back down towards the low-level awnings.

Impacts to the existing amenity of neighbours have been minimised through careful consideration of built form and testing of solar and visual impacts. SJB Architects have undertaken a high-level compliance assessment against the key principles of the Apartment Design Guidelines (ADG) which demonstrates the reference scheme is capable of complying with the ADG with specific reference to the following areas:

- Solar access and building orientation
- Natural ventilation

## 5.7. SAFETY AND ACTIVATION

The existing condition of the site does not facilitate activation or a sense of safety. Considered design solutions which encourage a feeling of safety when entering and passing through the site are a key focus of the development concept. Passive surveillance of the public domain from both residents and lobby spaces has been provided as well as clear lines of sight create safer and more welcoming open space.

## 5.8. ACCESS AND PARKING

Safe and efficient access to the site is a key consideration in the design proposal. Existing access to the site is limited to pedestrian connections under the Homebush Bay Drive off-ramp and through the existing underpass to Rhodes Station.

The reference scheme provides vehicle access from the Homebush Bay Drive slip road at the southern end of the site as per recommendations from TfNSW. A driveway will provide vehicle access to the site's car parking, pick up and drop off, and loading areas. The access will facilitate two-way movements by both cars and service vehicles associated with the site. Loading and servicing activities are proposed to occur within a designated loading dock on the ground floor (Level 1), with car parking provided above ground on Levels 2 to 3.

The loading dock will be designed to accommodate Council's waste truck and 8.8-metre medium rigid vehicles. A pick-up and drop-off loop for cars is also proposed on the ground floor level. High quality secure bicycle parking facilities will be provided on the ground level of the development for use by residents, with potential for separate visitor bicycle parking to also be provided.

Pedestrian access to the development will be from Oulton Avenue via a through-site link running under the off-ramp.

## 5.9. UTILITIES AND SERVICES

The proposal delivers residential dwellings and will result in a net population increase. Notwithstanding, it is considered that the site is well located to accommodate diverse housing with adequate services and infrastructure available nearby to meet the anticipated needs of the likely future residents.

The Proponent is investigating the capacity of the surrounding infrastructure network. Preliminary investigations have identified that infrastructure upgrades may be required and can be delivered for sewer, power, communications and water.

The services design team is engaging with Sydney Water, Ausgrid and other service providers to identify the needs and upgrade requirements to service the proposed community.

The Proponent will fund all required infrastructure upgrades necessary to deliver the final development outcome.

## 5.10. LANDSCAPING

Creating high quality green spaces within the development will be an important factor in mitigating the impacts of challenging interfaces and seamlessly integrating with the adjacent public domain. The development concept incorporates a landscaped ground plane which improves the existing pedestrian and cycle connections to Rhodes Station and Liberty Grove. The landscaped podium and rooftop gardens with shared amenity for residents provides additional opportunities for greening. An extract of the landscaping masterplan is provided at **Figure 16**.

Key elements of the landscape strategy include:

- Dense foliage buffer planting to the railway corridor boundary.



- Maintain canopy trees to off ramp frontage to soften building elevation.
- Screen planting to southern boundary to soften building elevation.
- Grass or groundcovers to verge to maintain clear sightlines around driveway.
- Embellishment of existing shared pedestrian and cycle pathway to Outlon Avenue along northern boundary.
- Ground level outdoor landscaped communal zone.
- New general-purpose sports court under off ramp.
- New seating in new fern gardens under off ramp.
- New DDA compliant ramp to replace existing pedestrian access to Homebush Bay Drive.
- Ornamental trees and garden beds to highlight forecourt building entrance.

Figure 16 Landscape Concept

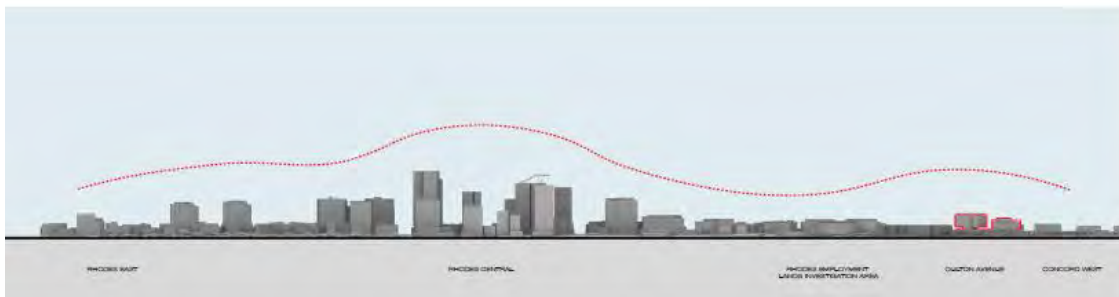


Source: SJB Architects

## 5.11. CONTRIBUTION TO RHODES SKYLINE

Rhodes skyline is an important urban marker and identifier. Rhodes West has been established as the apex of this skyline with future proposals for Rhodes East increasing the heights of built form at the top of the peninsula. Potential future development within Rhodes Corporate Park and the Hewlett Packard site will extend this skyline to Homebush Bay Drive. As shown in **Figure 17**, the development therefore seeks to provide a southern anchor for the Rhodes skyline to act as a gateway site for the southern end of the Peninsula.

Figure 17 Cross Section of Rhodes Skyline



Source: SJB Architects

## 5.12. PLANNING AGREEMENT

From ongoing consultation, Council have indicated that the preferred approach for delivering public domain works would be via a Voluntary Planning Agreement (VPA). It is anticipated that public domain works outside of the site and the immediate surrounds may be able to offset a part of the Section 7.11 contribution. This aspect of the VPA will require further investigations.

Overall, there are a variety of public benefits that could be delivered as part of the VPA including:

- The potential to improve the public domain and safety to the site and surrounds including the quality and safety of the underpass located in the north of the site.
- The potential to leverage and extend the existing network of pedestrian and cycling paths.
- The potential to provide a formal link between Liberty Grove and Rhodes Central.
- The potential to reduce Council costs associated with maintaining the formerly owned RMS land that surrounds the land parcel.
- The potential to improve the quality of the switch-back pedestrian ramp.

The above public benefits are commensurate with the scale of the development. Should the proponent and Council agree to an offer of public benefit, a draft VPA would be separately placed on public exhibition prior to the gazettal of this Planning Proposal. These benefits can be secured through several mechanisms including the amended LEP as well conditions associated with future development consents.

## 5.13. DRAFT DEVELOPMENT CONTROL PLAN

It is not anticipated that future development of the site will require preparation of a site-specific DCP. Existing controls provided within the City of Canada Bay Development Control Plan (DCP) will continue to apply and guide future development within the site. However, if required, indicative future-built form controls can be further developed into a site specific DCP, for public exhibition with the Planning Proposal.

## 6. THE PLANNING PROPOSAL

This Planning Proposal has been prepared in accordance with Section 3.33 of the EP&A Act and the DPHI guideline 'Local Environmental Plan Making Guideline' dated August 2023.

This section addresses each of the matters to be addressed as outlined in the guidelines, including:

- Objectives and intended outcomes.
- Explanation of provisions.
- Justification including need for proposal, relationship to strategic planning framework, environmental, social and economic impacts, and State and Commonwealth interests.
- Draft LEP maps which articulate the proposed changes.
- Likely future community consultation.

### 6.1. PART 1: OBJECTIVES AND INTENDED OUTCOMES

#### 6.1.1. Objectives

The primary objective of the Planning Proposal is to rezone the site and amend the CBLEP 2013 built form development standards to facilitate the development of a new residential flat building development which achieves a contextually appropriate built form outcome on this strategically located site.

The proposed LEP amendments will allow for the redevelopment of the site to make a meaningful contribution toward Council's requirement to enable a pipeline of new dwelling supply for the medium term (2021-2026) to meet its District Plan housing targets.

Given the limited opportunities for housing growth to occur in Rhodes, large sites like this, are vital to enable the steady continuum of housing supply in locations well-served by public transport.

In addition, the proposal will deliver multiple other tangible public domain improvements. The built form response depicted in the reference scheme provides two towers with the taller form located to the north commensurate with the Council vision to increase building scales towards the Rhodes central.

The proposed amendments to CBLEP 2013 have the objective of enabling future development that would achieve the following:

- Provide additional housing supply in a highly accessible location to support local workers.
- Support Rhodes' role as a Health and Education Precinct drawing from the close proximity to Concord Hospital.
- Improve active transport connections and strengthen links to public transport.
- Improve the public domain experience for safer, greener, and more vibrant spaces.
- Support orderly and economic use of otherwise underutilised land.
- Provide a height of building control that responds appropriately to the variable development forms while ensuring compatibility with the transitioning context of the site and locality.

The accompanying reference scheme demonstrates a high-quality urban outcome with appropriate transitional separation between the existing and future context. This includes achieving an appropriate interface with the scale and character of the adjacent land.

#### 6.1.2. Intended Outcomes

The intended outcome of the Planning Proposal is to amend the CBLEP 2013 as follows:

- Amend the Land Zoning Map from MU1 Mixed Use to R4 High Density Residential;
- Amend the Height of Building Map from 24 metres to 46 metres; and
- Amend the Floor Space Ratio Map from 1.1:1 to 2.1:1.

Ultimately, this will enable the achievement of a range of regional and local strategic planning objectives including increased housing growth within an accessible and connected location. Redevelopment would also contribute to enhancing the public domain, activation and achieving the 18-hour economy.

The proposed changes to the planning controls will ensure that residential flat buildings become permissible unlocking the potential of this strategically located site and facilitate a new contextually appropriate development consistent with the vision, objectives and key principles detailed within relevant strategic plans.

## **6.2. PART 2: EXPLANATION OF PROVISIONS**

### **6.2.1. Land To Which the Plan Will Apply**

The land that is proposed to be included in the LEP amendment is located at Oulton Avenue, Concord West, and is legally described as Lot 212 in Deposited Plan (DP) 1112512.

### **6.2.2. Intended Provisions**

#### **6.2.2.1. Land Zoning**

The proposed amendment seeks to rezone the site from a MU1 Mixed Use zone to R4 High Density Residential zone. This outcome can be achieved by amending the LEP land zoning map. Refer to **Figure 23** in **Section 6.4**.

#### **6.2.2.2. Height of Buildings**

The proposed amendment seeks a maximum permissible height of 46 metres across the site. This outcome can be achieved by amending the LEP height of building map. Refer to

Figure 24 in Section 6.4.

### 6.2.2.3. Floor Space Ratio

The proposed amendment seeks a maximum permissible FSR of 2.1:1 across the site. This outcome can be achieved by amending the LEP floor space ratio map. Refer to **Figure 25** in **Section 6.4**.

## 6.3. PART 3: JUSTIFICATION OF STRATEGIC AND SITE-SPECIFIC MERIT

The LEP Making Guideline identifies that the Minister (or delegate) must be satisfied that the proposal has strategic and site-specific merit and that identified potential impacts can be readily addressed during the subsequent LEP making stages.

Consistent with the assessment criteria outlined in the LEP Making Guideline, **Table 7** outlines an assessment against the criteria for strategic and site-specific merit.

Table 7 Assessment against LEP Making Guideline

Assessment Criteria	Consistency
<b>Strategic merit – does the proposal:</b>	
<i>Give effect to the relevant regional plan outside of the Greater Sydney Region, the relevant district plan within the Greater Sydney Region, and/or corridor/precinct plans applying to the site.</i>	<b>Yes.</b> The Planning Proposal is consistent with the objectives and actions of: <ul style="list-style-type: none"> <li>Greater Sydney Region Plan; and</li> <li>Eastern City District Plan.</li> </ul>
<i>Demonstrate consistency with the relevant LSPS or strategy that has been endorsed by the Department or required as part of a regional or district plan.</i>	<b>Yes.</b> The Planning Proposal is consistent with the objectives and actions of: <ul style="list-style-type: none"> <li>Canada Bay Local Strategic Planning Statement; and</li> <li>Canada Bay Local Housing Strategy.</li> </ul>
<i>Respond to a change in circumstances that has not been recognised by the existing planning framework.</i>	<b>Yes.</b> The Planning Proposal seeks to build upon the vision of the Rhodes Place Strategy which resulted in an uplift in the density and scale of built form, further supporting Rhodes evolution as a Strategic Centre.
<b>Site-specific merit – does the proposal give regard and assess impacts to:</b>	
<i>The natural environment on the site to which the proposal relates and other affected land.</i>	<b>Yes.</b> The Planning Proposal has site-specific merit having regard to the following matters: <ul style="list-style-type: none"> <li>the natural environment;</li> <li>existing, approved, and likely future uses; and</li> <li>available and proposed services and infrastructure. The site-specific merits of the Planning Proposal are detailed in <b>Section 6.3.3</b> of this report.</li> </ul>
<i>Existing uses, approved uses, and likely future uses of land in the vicinity of the land to which the proposal relates.</i>	
<i>Services and infrastructure that are or will be available to meet the demands arising from the proposal and any proposed financial arrangements for infrastructure provision.</i>	

### 6.3.1. Section A – Need for the Planning Proposal

**Q1. Is the planning proposal a result of an endorsed local strategic planning statement, strategic study or report?**

**Yes.** The Planning Proposal is a proponent-initiated application. The Planning Proposal has been prepared to give effect to a number of planning priorities and actions contained within the following documents:



- Canada Bay Local Housing Strategy (LHS)
- Canada Bay Local Strategic Planning Statement (LSPS)

The Planning Proposal is consistent with the Canada Bay LHS and LSPS which include a number of objectives and actions in order to achieve Council's desired outcome for housing. Rhodes is an important Strategic Centre in the Eastern City District Plan, with significant opportunities to create a great new place to live, work and visit. The proposal supports the growth of the Rhodes Precinct by positively contributing to housing supply and diverse housing within close proximity to jobs, public transport, recreation, and local shopping, facilities and services.

The NSW Government has identified the area which the site is located adjacent to as an urban renewal precinct. The Rhodes Planned Precinct is identified as new mixed-used community close to jobs and public transport that will contribute to these housing targets. The LSPS also identifies active transport connections throughout Rhodes and beyond as a key short-term action for Canada Bay Council. In this respect, the proposal will assist in the creation of a walkable neighbourhood by reducing car parking and maximising on-site bicycle and motorbike parking.

**Q2. *Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way?***

**Yes.** This proposed amendments to the CBLEP 2013 is the best means of achieving the objectives and intended outcomes of the Planning Proposal which seeks to facilitate the delivery of a high-density residential development to meet the local demand for additional housing supply and diversity.

Without an amendment to the statutory planning controls, the reference scheme cannot be achieved, and the associated public and community benefits would be lost. The site is a logical and appropriate place to concentrate future growth, being strategically located adjacent to a precinct that is undergoing significant uplift and urban renewal.

Accordingly, a Planning Proposal will achieve the anticipated built form and development outcomes outlined in **Section 5** of this report.

Notwithstanding the above, the following alternative strategies were considered:

1. Lodge a Development Application with a Clause 4.6 variation the current CBLEP 2013 controls; and
2. Lodge a Site Compatibility Certificate request with DPHI
3. Lodge a Planning Proposal which includes rezoning the site and amendments to the LEP height and FSR controls.

Each of these items are discussed in full below:

1. Lodging a Development Application was initially considered as the MU1 zone permits a mixed-use development incorporating residential, retail and commercial uses. The current built form controls of a maximum building height of 24 metres with a maximum FSR of 1.1:1 is considered obsolete and not reflective of a suitable density for such a strategic site, close to an employment node and high frequency existing and future public transport. Further, economic analysis was undertaken which determined that the site would not be suitable for accommodating retail or commercial uses given the site's location.

A Development Application could be submitted with a Clause 4.6 variation to the building height control. There are however limitations to the practical application of this clause to vary development standards. As the current control is highly restrictive to building height it would not be appropriate for the clause to be used to support the intended development concept. Consequently, this option was not pursued. The extent in numeric variation from the current built form controls in comparison to the proposal would unlikely be supported through the use of Clause 4.6 Exceptions to development standards.

2. The proponent has previously submitted a Site Compatibility Certificate (**SCC**) to DPHI with respect to a proposed affordable housing development at the site. During the assessment process, the Proponent received feedback from DPHI and Council stating that rather than a SCC application, the preferred planning approval pathway was for the Proponent to submit a Planning Proposal and Planning Agreement.

3. Rezoning the site and amending the built form LEP controls is considered the most appropriate approach as it would enable a timelier delivery of a residential development. The built form and proposed amendments to the CBLEP 2013 controls can only be achieved through a Planning Proposal. Therefore, this Planning

Proposal is the best means of achieving the intended outcome for the site to enable a residential flat development without the zoning requirement that currently exists requiring retail or business premises within a shop top housing land use characterisation.

### 6.3.2. Section B – Relationship to Strategic Planning Framework

**Q3.** *Will the planning proposal give effect to the objectives and actions of the applicable regional, of district plan or strategy (including any exhibited draft plans or strategies)?*

**Yes.** The Planning Proposal will give effect to the objectives and actions of the applicable regional and district planning strategies detailed below:

- Greater Sydney Regional Plan (**GSRP**)
- Eastern City District Plan (**District Plan**)

Table 8 Relationship to Strategic Planning Framework

Objective	Consistency
<b>Greater Sydney Region Plan: A Metropolis of Three Cities</b>	
<b>Direction 1: A City Supported by Infrastructure</b>	
<b>Objective 2: Infrastructure aligns with forecast growth</b>	<p>This Planning Proposal maximises the use of existing infrastructure by co-locating housing in close proximity to existing infrastructure and supporting the longevity of that infrastructure. The site is located adjacent to the Rhodes Planned Precinct, in walking distance to public transport, Concord Hospital, shops and services, several schools, businesses, and parks and open space.</p> <p>The proposed uplift will ensure the public transport infrastructure is optimised. The site is located approximately 750 metres from the Rhodes railway station entrance. The proposal positively contributes to this objective by placing density in a highly convenient location that will encourage use of existing and new transport infrastructure. Delivering density in the right location, such as the subject site, will help to drive better travel behaviour in future residents and workers, encouraging increased reliance on public transport.</p> <p>The Planning Proposal has also demonstrated that existing utility infrastructure can with augmentation as required to support the proposed residential development on the site. This is documented in the attached site services reports.</p> <p>Further, the public benefit offer accompanying this Planning Proposal facilitates the delivery of infrastructure to not only support the existing local community but also represents the first step in new infrastructure provision to improve local connectivity and to forward plan for strategic connections.</p>
<b>Objective 4: Infrastructure use is optimised</b>	
<b>Objective 5: Benefits of growth realised by collaboration of governments, community and business</b>	<p>This Planning Proposal will assist in the collaboration of government, community and business as follows:</p> <ul style="list-style-type: none"> <li>▪ Redevelopment of this site for residential development would assist government in contributing towards housing targets for the centre, ensuring the proposal positively contributes to housing and economic policy of government.</li> </ul> <p>The proposal would result in the realisation of significant public benefits including:</p> <ul style="list-style-type: none"> <li>▪ The potential to improve the public domain and safety to the site and surrounds including the quality and safety of the underpass located in the north of the site.</li> <li>▪ The potential to leverage and extend the existing network of pedestrian and cycling paths.</li> <li>▪ The potential to provide a formal link between Liberty Grove and Rhodes Central.</li> <li>▪ The potential to reduce Council costs associated with maintaining the formerly owned RMS land that surrounds the land parcel.</li> <li>▪ The potential to improve the quality of the switch-back pedestrian ramp.</li> </ul>
<b>Direction 4: Housing the City</b>	

Objective	Consistency
<p><b>Objective 10: Greater housing supply</b></p> <p><b>Objective 11: Housing is more diverse and affordable</b></p>	<p>The NSW Government has identified a need for 725,000 additional homes by 2036 to meet demand based on current population projections of an additional 1.7 million people in Greater Sydney. As part of this an unprecedented level of supply, including a range of housing types, tenures, and price points will be needed to meet demand.</p> <p>The GSRP forecasts an overall population growth of 325,000 over the next 20-year period (2016-2036) for the Eastern City District. This equates to the need of an additional 157,500 homes between 2016-2036.</p> <p>This Planning Proposal seeks to facilitate a new high density residential development which would permit the development of apartments. The indicative concept design at <b>Appendix A</b> proposes 89 new dwellings. The Planning Proposal would therefore directly contribute to the dwelling supply needed to meet the dwelling targets for the district.</p> <p>The concentration of density in this location will also enable the retention of existing low-density residential areas to the east of the site, preserving local character and creating housing diversity. The concentration of density within walking distance of public transport nodes is considered an appropriate location for additional housing. The provision of additional housing in general terms has the potential to contribute to greater housing affordability as increasing the overall housing stock will impact market conditions.</p>
<b>Direction 5: A City of Great Places</b>	
<b>Objective 12: Great places that bring people together</b>	<p>It is noted that <i>To create great places, the mechanisms for delivering public benefits need to be agreed early in the planning process.</i> The Planning Proposal is consistent with this objective, as it has taken a local place-based approach to planning, reviewing the actual local characteristics and infrastructure needs of a local place, and proposing mechanisms to secure needed public benefits of the community early, while respecting the desired low-density character of the area.</p> <p>The proposal will deliver significant improvements to the public domain experience resulting in safer, greener and more connected spaces. The proposal will deliver public benefits to the local community including the provision of vital new pedestrian and cycle infrastructure upgrades. The proposed mechanism to deliver the public benefits associated with the land use change and uplift will be via a Voluntary Planning Agreement (VPA).</p>
<b>Direction 6: A Well Connected City</b>	
<b>Objective 14: A Metropolis of Three Cities – integrated land use and transport creates walkable and 30-minute cities</b>	<p>The site is located nearby existing jobs and services and is well serviced by public transport, being located approximately 750 metres (10 min walk) from Rhodes railway station and approximately 280 metres (4 mins walk) to bus services on Rider Boulevard. The proposal will therefore encourage active transport options and support the attainment of a 30-minute city.</p>
<b>Objective 15: The Eastern, GOP and Western Economic Corridors are better connected and more competitive</b>	<p>Rhodes is defined in the GSRP as a Strategic Centre forming part of the 'Eastern Economic Corridor' and is identified as a major commercial office precinct.</p> <p>The site's location just outside of the defined commercial core represents an appropriate location for residential uplift which will provide housing is a location which is highly accessible to jobs, whilst not eroding the commercial importance of the core itself. Concentrating housing growth in Rhodes supports the desired integrated land use and transport model and it also encourages walkable centres. For these reasons, this proposal supports this objective.</p>
<b>Direction 7: Jobs and Skills for the City</b>	
<b>Objective 22: Investment and business activity in centres</b>	<p>The Planning Proposal would result in a number of direct economic benefits, during the construction stage and during ongoing operations.</p>
<b>Direction 9: An Efficient City</b>	

Objective	Consistency
<b>Objective 33: A low-carbon city contributes to net-zero emissions by 2050 and mitigates climate change</b>	The Planning Proposal facilitates the promotion of walkable neighbourhoods and low carbon transport options due to its proximity to public transport, being within walking distance of the Rhodes railway station, as well as existing bus services. The site's proximity to public transport would provide opportunities for residents to conveniently use public transport thereby reducing private vehicle trip movements and assisting the objective to create low-carbon cities. Further, sustainability measures would be explored in any future redevelopment of the site.

Eastern City District Plan	
<b>Planning Priority E1. Planning for a city supported by infrastructure</b>	The Planning Proposal maximises the use of existing infrastructure sustainably by co-locating housing in proximity to existing infrastructure and supporting the longevity of that infrastructure. In addition, the proposal seeks to leverage its proximity to the future Metro West line. The Metro West will support the growth of western Sydney to deliver additional employment and residential capacity, providing housing in close proximity to services and jobs. The site is within 750 metres walking distance of Rhodes railway station which will provide excellent access to this future high frequency public transport service. The site is located less than 3km of the future Metro West Corridor at Strathfield North which will provide high frequency connections to the Sydney CBD.
<b>Planning Priority E5. Providing housing supply, choice and affordability, with access to jobs, services and public transport</b>	The Planning Proposal will facilitate the delivery of new dwellings with excellent access to public transport and job markets in accordance with the vision of the District Plan. The proposal will deliver new housing that meets the local housing demand for different housing types and price points.  Excellent public transport access and proximity to Rhodes, Macquarie Park, Sydney CBD and Parramatta CBD makes the site a highly attractive location for residential uses. The current DPHI approach is seeking to balance residential intensification whilst maintaining a strong employment function. The subject site can play an important role in this regard as it allows for housing close to the commercial core of Rhodes.
<b>Planning Priority E10. Delivering integrated land use and transport planning and a 30-minute city</b>	The site is located nearby existing jobs and services and is well serviced by public transport, being located approximately 750 metres (10 min walk) from Rhodes railway station and approximately 280 metres (4 mins walk) to bus services on Rider Boulevard. The proposal will therefore encourage active transport options and support the attainment of a 30-minute city.

**Q4. *Is the planning proposal consistent with a Council LSPS that has been endorsed by the Planning Secretary or GSC, or another endorsed local strategy or strategic plan?***

**Yes.** The Planning Proposal is consistent with the following relevant local strategy and planning studies as detailed below:

- Canada Bay Local Strategic Planning Statement (LSPS)
- Canada Bay Local Housing Strategy (LHS)
- Canada Bay Community Strategic Plan
- Rhodes Planned Precinct

**Canada Bay Local Strategic Planning Statement**

The LSPS is a Council strategic document legislated by the EP&A Act in March 2018, under provisions to shift to a strategic-led planning framework. The Canada Bay LSPS identifies growth opportunities and will shape future amendments to the Canada Bay LEP and DCP.

The LSPS identifies a housing priority to provide housing supply, choice and affordability in key locations. Rhodes Planned Precinct is identified as new mixed-used community close to jobs and public transport that will contribute to these housing targets. The LSPS also identifies active transport connections throughout Rhodes and beyond as a key short-term action for Canada Bay Council.

The LSPS provides the following commentary in relation to housing:

- **Population & Dwellings** – The population is due to increase by 32,000 by 2036 for the LGA, which represents a 23% increase. The LSPS identifies that the population growth to 2036 will need to be accommodated in 14,300 additional dwellings. The structure plan shows opportunities for dwellings to be located in the 0-10-year period. New housing for Canada Bay's growing population has largely occurred on remediated industrial land.
- **Jobs** - Future jobs growth is to be focused in the local centres and Rhodes Planned Precinct which is designated as a Strategic Centre in the Eastern City District Plan. Jobs are concentrated around several key centres, particularly Rhodes/Concord Hospital Strategic Centre, which accommodates 10,500 jobs. The nearby Concord Hospital precinct supports a further 2,800 workers. A significant proportion of residents (79% in 2016) travel to work outside the LGA, so good transport connections to employment centres outside the LGA are important.
- **Housing Diversity** - Council's Housing Strategy has identified a need for affordable housing and a diversity of housing types, to create a greater range of housing choices and ensure the availability of the full suite of possible housing typologies. The proposal aims to provide new housing that meets the local housing demand for different housing types and price points to cater for the projected growth.
- **Affordable Housing Contributions** - Council will implement affordable housing contribution schemes to apply to areas of up zoning or increased developmental capacity. The affordable housing contribution schemes will be given effect through the LEP and Housing SEPP.
- **Rhodes Planned Precinct** - Provision of housing as part of the Rhodes Planned Precinct is critical to ensuring new businesses are supported by a full spectrum of necessary skills. New social and cultural infrastructure, including a new primary school, affordable housing and open space/recreation facilities, are required to support the anticipated population of 10,000 new residents.
- **Local Character** - Council have stated that local character areas will be a new planning layer and represent a new body of work. This approach to identifying local character and desired future character will guide development and deliver place based strategic planning outcomes for Canada Bay.

### Canada Bay Local Housing Strategy

The proposal is consistent with the Canada Bay LHS which includes a number of objectives and actions in order to achieve Council's desired outcome for housing including:

- Large-scale urban renewal to deliver high density housing in the form of apartments as outlined under State Government plans.
- Ensuring that high density dwelling yields are comprised of sufficient dwelling diversity.
- Local centres are planned to provide opportunities for alternative low and moderate-scale housing, within walking distance of services and access to public transport.
- Housing diversity and choice to be further addressed by infill development around centres in the form of low-rise medium density, to provide a wider range of housing forms whilst being respectful of local neighbourhood character.
- Identify and protect character areas with sensitive infill development, as part of retaining a diversity of housing types and residential streetscapes.
- Ensure that housing in the LGA provides opportunities for essential workers, low-income households and other groups through the requirement the private sector provide affordable housing as part of larger redevelopment.

### Canada Bay Community Strategic Plan

Your future 2030 is the Community Strategic Plan for the future of the City of Canada Bay. The plan reflects the aspirations and priorities of the community that were identified following extensive engagement, using a variety of methods, from September 2017 until February 2018.

The plan identifies themes, goals and strategies that will provide direction for the delivery of outcomes from 2018 until 2030 stating "No one entity can deliver all of the outcomes we need for our future. All levels of government, businesses, community groups and residents have a level of responsibility to work together and contribute."

The plan identifies five key themes:



- Inclusive, involved and prosperous
- Environmentally responsible
- Easy to get around
- Engaged and future focussed
- Visionary, smart and accountable.

The plan addresses the need for major urban transformation projects to cater for population growth including new residential areas in Rhodes. The development of the site will allow for the development a new residential area within Rhodes that aims to provide new housing that meets the local housing demand for different housing types and price points to cater for the projected growth of approximately 9,976 people in the area by 2030. The proposed upgrades to the surrounding public domain will increase accessibility and walkability within the Concord West and southern Rhodes area connecting to the railway station in the north.

### Rhodes Planned Precinct

The Rhodes Precinct was rezoned in October 2021 following the finalisation of the Rhodes Place Strategy which provides for significant uplift in Rhodes East following the earlier rezoning and subsequent uplift in Rhodes Central and West. The Rhodes Precinct is made up of four character areas - Station Gateway West; Station Gateway East; Cavell Avenue; and Leeds Street.

The Station Gateway West provides maximum building heights ranging between 113 metres (33 storeys) and 151.5 metres (45 storeys). The Station Gateway East provides maximum building heights ranging between 32 metres (10 storeys) and 117 metres (37 storeys). Cavell Avenue provides maximum building height up to 36 metres (11 storeys) and Leeds Street provides maximum building height up to 57 metres (18 storeys).

Overall, the Rhodes Place Strategy aims to deliver:

- Approximately 4,200 new homes;
- Up to 1,100 new jobs;
- A new primary school;
- Upgrades to Rhodes railway station;
- A new ferry wharf;
- Improved pedestrian and walking paths;
- 2.3 hectares of new public open space including a foreshore park and promenade on the Parramatta River; and
- Excellence in design and sustainability, including dual reticulation for development, incentives to exceed BASIX targets and tree canopy targets.

In addition to the Rhodes Place Strategy, the Employment Lands Investigation Area consisting of the Rhodes Corporate Park and the Hewlett Packard site is also exploring renewal and future growth opportunities.

The built form of Rhodes has changed radically in the past 10 years with significant urban growth and a move away from industrial lands and detached housing to predominantly apartment buildings the Strategy demonstrates the strategic significance and continued forecast growth for Rhodes. Whilst the site does not form part of the Rhodes Precinct, the site is in close proximity to the precinct, located at the southern end of the peninsula and shares many of the same attributes.

**Q5. *Is the planning proposal consistent with applicable State and regional studies or strategies?***

**Yes.** The Planning Proposal is consistent with the Future Transport Strategy 2056.

The Future Transport Strategy 2056 (**Transport Strategy**) was released by the NSW Government on 20 October 2017. The Transport Strategy sets the 40-year vision, directions and outcomes framework for

transport mobility in NSW, to guide long-term transport investment. The Transport Strategy aims to respond to the significant contemporary changes affecting transport and customer mobility in Sydney.

The strategy addresses six state-wide principles to guide planning and investment to ensure a modern, innovative and resilient transportation network will be developed to address the needs of the growing population expected to increase by 12 million people by 2056.

Key principles of this development that will support the delivery of the Strategy through its close proximity to transport connections include:

- **Successful Place** – The liveability, amenity and economic success of communities and places should be enhanced by transport.
- **Accessible services** – Transport should enable everyone to get the most out of life, wherever they live and whatever their age, ability or personal circumstances.
- **Sustainability** – The transport system should be economically and environmentally sustainable, affordable for customers and support emissions reductions.

The development of the site will provide 89 one bedroom, two-bedroom and three-bedroom dwellings to assist in delivering residential accommodation with numerous accessible transport routes that residents can utilise to suit their lifestyles. This will allow for a greater access to jobs, education and services in a centralised location that can provide accessible, affordable, and sustainable transportation for residents.

**Q6. Is the planning proposal consistent with applicable State Environmental Planning Policies?**

**Yes.** The Planning Proposal is consistent with relevant State Environmental Planning Policies (SEPP) as identified and discussed in **Table 9**.

Table 9 Consistency with SEPPs

SEPP	Consistency	Comment
<b>SEPP (Housing) 2021</b>	Consistent	<p>The objective of the SEPP (Housing) 2021 is to incentivise the supply of affordable and diverse housing in the right places. While the Planning Proposal will deliver a modest increase in housing to meet local demand with a greater diversity of form, it does not rely upon the provisions of the Housing SEPP.</p> <p>Part 4 of the SEPP (Housing) 2021 also provides a statutory framework to guide the design quality of residential apartment development. The reference scheme has been assessed against the ADG. Based on that assessment, the following is noted:</p> <ul style="list-style-type: none"> <li>▪ 82% of apartments achieve the ADG guideline of 2 hours of sunlight between 9am and 3pm in mid-winter.</li> <li>▪ 60% of apartments (ground floor to Level 10) are cross ventilated.</li> </ul> <p>SJB Architects have addressed the design principles of the ADG at <b>Appendix A</b>. A detailed assessment would be required to accompany any future DA.</p>
<b>SEPP (Transport and Infrastructure) 2021</b>	Consistent	<p>The SEPP (Transport and Infrastructure) 2021 aims to facilitate the efficient delivery of infrastructure across the State. Any future development may require existing utility services to be upgraded and/or augmented to enable the future residential population to be accommodated. Further details would need to be provided during any future DA. In addition, any future DA submitted for this site may trigger the referral requirements for traffic generating development of the to the TfNSW.</p>
<b>SEPP (Biodiversity and Conservation) 2021</b>	Consistent	<p>The provisions of the SEPP (Biodiversity and Conservation) 2021 will be addressed in a future DA.</p>

SEPP	Consistency	Comment
<b>SEPP (Resilience and Hazards) 2021</b>	Consistent	Chapter 4 of the SEPP (Resilience and Hazards) 2021 sets out the statutory planning framework to manage the remediation of contaminated land. In the context of a development application a consent authority is required to consider whether land is contaminated and if it is contaminated whether the site can be made suitable for the proposed development prior to granting development consent. The Preliminary Site Investigation prepared by Douglas Partners (refer to <b>Appendix E</b> ) confirms that the risk for significant contamination being present and preventing the use of the site for high density residential purposes is low to medium.
<b>SEPP (Sustainable Buildings) 2022</b>	Consistent	The SEPP (Sustainable Buildings) 2022 supports and encourages the delivery of sustainable residential development. The SEPP requires residential development to achieve mandated levels of energy and water efficiency. Demonstration of sustainability outcomes is required at future DA stage.
<b>SEPP (Exempt and Complying Development Codes) 2008</b>	Consistent	The Planning Proposal does not contain provisions that would contradict or hinder the application of this SEPP.

In addition, while not a SEPP, consideration have been given to *Development Near Rail Corridors and Busy Roads – Interim Guideline*. The provisions of the interim guideline would need to be considered in the assessment of acoustic impacts associated with the Homebush Bay Drive on any future redevelopment proposed. Suitable mitigation and management measures would need to be provided so that a satisfactory level of amenity can be achieved, which would be explored through the detailed design phase associated with any future DA.

**Q7** *Is the planning proposal consistent with applicable Ministerial Directions (s.9.1 directions)?*

**Yes.** The Planning Proposal is consistent with relevant Ministerial Directions under Section 9.1 of the EP&A Act as identified and summarised in **Table 10**.

Table 10 Consistency with s9.1 Ministerial Directions

Ministerial Direction	Consistency	Comment
<b>1. Planning Systems</b>		
<b>1.1 Implementation of Regional Plans</b>	Consistent	The proposal is consistent with the land use strategy, goals, directions and actions contained within the Eastern City District Plan as discussed within Question 3.
<b>1.2 Development of Aboriginal Land Council Land</b>	Not applicable	The site is not identified within the land application area of the <i>State Environmental Planning Policy (Aboriginal Land) 2019</i> .
<b>1.3 Approval and Referral Requirements</b>	Consistent	This direction aims to ensure that LEP provisions encourage the efficient and appropriate assessment of development. The relevant requirements of this direction have been considered in the preparation of this Planning Proposal and proposed LEP amendments.
<b>1.4 Site Specific Provisions</b>	Consistent	The objective of the direction is to discourage unnecessarily restrictive site-specific planning

Ministerial Direction	Consistency	Comment
		controls. This has been prepared in accordance with the provisions of the Standard Instrument and in a manner consistent with CBLEP 2013. If requested by Council, site-specific provisions will be supported by a draft site-specific DCP to provide guidance for future development on the site.
<b>1.4A Exclusion of Development Standards from Variation</b>	Not applicable	Not applicable to this Planning Proposal.
<b>Focus area 1: Planning Systems – Place-based</b>		
<b>1.5 Parramatta Road Corridor Urban Transformation Strategy</b>	Not applicable	Not applicable to this Planning Proposal.
<b>1.6 Implementation of North West Priority Growth Area Land Use and Infrastructure Implementation Plan</b>	Not applicable	Not applicable to this Planning Proposal.
<b>1.7 Implementation of Greater Parramatta Priority Growth Area Interim Land Use and Infrastructure Implementation Plan</b>	Not applicable	Not applicable to this Planning Proposal.
<b>1.8 Implementation of Wilton Priority Growth Area Interim Land Use and Infrastructure Implementation Plan</b>	Inconsistent	Not applicable to this Planning Proposal.
<b>1.9 Implementation of Glenfield to Macarthur Urban Renewal Corridor</b>	Not applicable	Not applicable to this Planning Proposal.
<b>1.10 Implementation of Western Sydney Aerotropolis Plan</b>	Not applicable	Not applicable to this Planning Proposal.
<b>1.11 Implementation of Bayside West Precincts 2036 Plan</b>	Not applicable	Not applicable to this Planning Proposal.
<b>1.12 Implementation of Planning Principles for the Cooks Cove Precinct</b>	Not applicable	Not applicable to this Planning Proposal.
<b>1.13 Implementation of St Leonards and Crows Nest 2036 Plan</b>	Not applicable	Not applicable to this Planning Proposal.
<b>1.14 Implementation of Greater Macarthur 2040</b>	Not applicable	Not applicable to this Planning Proposal.
<b>1.15 Implementation of the Pyrmont Peninsula Place Strategy</b>	Not applicable	Not applicable to this Planning Proposal.
<b>1.16 North West Rail Link Corridor Strategy</b>	Not applicable	Not applicable to this Planning Proposal.
<b>1.17 Implementation of the Bays West Place Strategy</b>	Not applicable	Not applicable to this Planning Proposal.

Ministerial Direction	Consistency	Comment
<b>1.18 Implementation of the Macquarie Park Innovation Precinct</b>	Not applicable	Not applicable to this Planning Proposal.
<b>1.19 Implementation of the Westmead Place Strategy</b>	Not applicable	Not applicable to this Planning Proposal.
<b>1.20 Implementation of the Camellia-Rosehill Place Strategy</b>	Not applicable	Not applicable to this Planning Proposal.
<b>1.21 Implementation of South West Growth Area Structure Plan</b>	Not applicable	Not applicable to this Planning Proposal.
<b>1.22 Implementation of the Cherrybrook Station Place Strategy</b>	Not applicable	Not applicable to this Planning Proposal.
<b>Focus Area 2: Design and Place</b>		
<b>Focus Area 3: Biodiversity and Conservation</b>		
<b>3.1 Conservation Zones</b>	Not applicable	The site is not identified as a heritage conservation area and is not located close to a conservation area.
<b>3.2 Heritage Conservation</b>	Not applicable	There are no local or state heritage items located within the site or surrounds. The Planning Proposal is consistent with the Ministerial Directions and does not seek to remove existing provisions to protect items of environmental heritage.
<b>3.3 Sydney Drinking Water Catchments</b>	Not applicable	Not applicable to this Planning Proposal.
<b>3.4 Application of C2 and C3 Zones and Environmental Overlays in Far North Coast LEPs</b>	Not applicable	Not applicable to this Planning Proposal.
<b>3.5 Recreation Vehicle Areas</b>	Not applicable	Not applicable to this Planning Proposal.
<b>3.6 Strategic Conservation Planning</b>	Not applicable	Not applicable to this Planning Proposal.
<b>3.7 Public Bushland</b>	Not applicable	Not applicable to this Planning Proposal.
<b>3.8 Willandra Lakes Region</b>	Not applicable	Not applicable to this Planning Proposal.
<b>3.9 Sydney Harbour Foreshores and Waterways Area</b>	Not applicable	Not applicable to this Planning Proposal.
<b>3.10 Water Catchment Protection</b>	Not applicable	Not applicable to this Planning Proposal.
<b>Focus Area 4: Resilience and Hazards</b>		
<b>4.1 Flooding</b>	Not applicable	Not applicable to this Planning Proposal.
<b>4.2 Coastal Management</b>	Not applicable	Not applicable to this Planning Proposal.
<b>4.3 Planning for Bushfire Protection</b>	Not applicable	Not applicable to this Planning Proposal.



Ministerial Direction	Consistency	Comment
<b>4.4 Remediation of Contaminated Land</b>	Choose an item.	A Preliminary Site Investigation ( <b>PSI</b> ) prepared by Douglas Partners and attached at <b>Appendix E</b> confirms that the risk for significant contamination being present and preventing the use of the site for high density residential purposes is low to medium.
<b>4.5 Acid Sulfate Soils</b>	Consistent	The site is identified as Class 5 acid sulfate soils. Further assessment can be carried out, if necessary, as part of any future DA.
<b>4.6 Mine Subsidence and Unstable Land</b>	Not applicable	Not applicable to this Planning Proposal.
<b>Focus Area 5: Transport and Infrastructure</b>		
<b>5.1 Integrating Land Use and Transport</b>	Consistent	The site is extremely well located to make use of existing services and employment opportunities and will complement and support these existing uses. The increased density on the site also supports the patronage of the Rhodes railway station and accords with the key direction from the State government, which seeks to co-locate increased densities within the walking catchment of public transport nodes.  The provision of increased housing supply within a walkable neighbourhood reduces the need for car dependency. The site's proximity to public transport will provide for increased opportunities to live, work and play within the LGA through the provision of residential accommodation adjacent to key employment nodes and therefore facilitating a walkable neighbourhood.
<b>5.2 Reserving Land for Public Purposes</b>	Consistent	This Planning Proposal is consistent with this direction in that it does not create, alter or reduce existing zonings or reservations of land for public purposes.
<b>5.3 Development Near Regulated Airports and Defence Airfields</b>	Not applicable	Not applicable to this Planning Proposal.
<b>5.4 Shooting Ranges</b>	Not applicable	Not applicable to this Planning Proposal.
<b>Focus Area 6: Housing</b>		
<b>6.1 Residential Zones</b>	Consistent	The proposal seeks to rezone the site from MU1 Mixed Use to R4 High Density Residential to permit residential flat buildings. The current shortcoming of the built form controls is that they do not provide sufficient scope to achieve reasonable residential density outcomes for such a strategically located site.  The Planning Proposal will make efficient use of existing and planned services and infrastructure and has the potential to accelerate housing supply and assist in the achievement of infill housing targets.  The proposed density will also assist in alleviating the pressure associated with the current housing shortage, will provide additional affordable rental accommodation in a highly sought after location and provides for significant residential opportunity within a centre that has limited future potential to supply growing demand.

Ministerial Direction	Consistency	Comment
		Residential accommodation in this location will have minimal impact on the natural environment or resource lands as the site and surrounding sites are already developed for urban purposes.
<b>6.2 Caravan Parks and Manufactured Home Estates</b>	Not applicable	Not applicable to this Planning Proposal.
<b>Focus Area 7: Industry and Employment</b>		
<b>7.1 Employment Zones</b>	Consistent	The current MU1 zone permits shop top housing. Economic analysis was undertaken which determined that the site would not be suitable for accommodating retail or commercial uses given the site's location. As such the Planning Proposal seeks to rezone the site from MU1 Mixed Use to R4 High Density Residential zone to permit residential flat buildings.  The site is located within proximity to major existing retail and commercial developments across Homebush Bay Drive to the north which provide ample opportunities for jobs and shopping.
<b>7.2 Reduction in non-hosted short-term rental accommodation period</b>	Not applicable	Not applicable to this Planning Proposal.
<b>7.3 Commercial and Retail Development along the Pacific Highway, North Coast</b>	Not applicable	Not applicable to this Planning Proposal.
<b>Focus Area 8: Resources and Energy</b>		
<b>8.1 Mining, Petroleum Production and Extractive Industries</b>	Not applicable	Not applicable to this Planning Proposal.
<b>Focus Area 9: Primary Production</b>		
<b>9.1 Rural Zones</b>	Not applicable	Not applicable to this Planning Proposal.
<b>9.2 Rural Lands</b>	Not applicable	Not applicable to this Planning Proposal.
<b>9.3 Oyster Aquaculture</b>	Not applicable	Not applicable to this Planning Proposal.
<b>9.4 Farmland of State and Regional Significance on the NSW Far North Coast</b>	Not applicable	Not applicable to this Planning Proposal.

### 6.3.3. Section C – Environmental, Social and Economic Impact

**Q8.** *Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?*

No. The site is currently vacant land with some intermittent vegetation. The site is not mapped as comprising ecologically sensitive land or areas of biodiversity under any EPI and therefore does not contain any existing significant features of the natural environment in terms of biodiversity and ecology.

The site has been subject to considerable vegetation disturbance as a result of historical use of the grounds. As such, no remnant native trees or ground cover species are present within the site and vegetated areas of the site consist of planted trees and shrubs and hardstand areas. Notwithstanding, if required, a biodiversity assessment can be undertaken as part of a future DA.

**Q9.** *Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?*

### 6.3.3.1. Built Form and Context

This application is supported by an Urban Design Report (refer to **Appendix A**) that demonstrates how a residential development of between 8 to 12 storeys consisting of approximately 89 dwellings can be accommodated on the site.

Impacts such as privacy, overshadowing, noise, and bulk and scale are important and have been well examined through the preparation of the Urban Design Report. A thorough interrogation of the floor plates has ensured that acceptable building forms can be accommodated on site. Noise considerations, solar access and privacy to this site have been carefully considered and have been a major contributor to the built form proposed.

Whilst the predominant building typology to the east of the site across the railway lines consists of detached are dwelling houses of one and two storeys in height, most of the land surrounding the site is afforded much greater density under the LEP. Further, this area to the east is however earmarked as a Housing Diversity Investigation Area for future uplift.

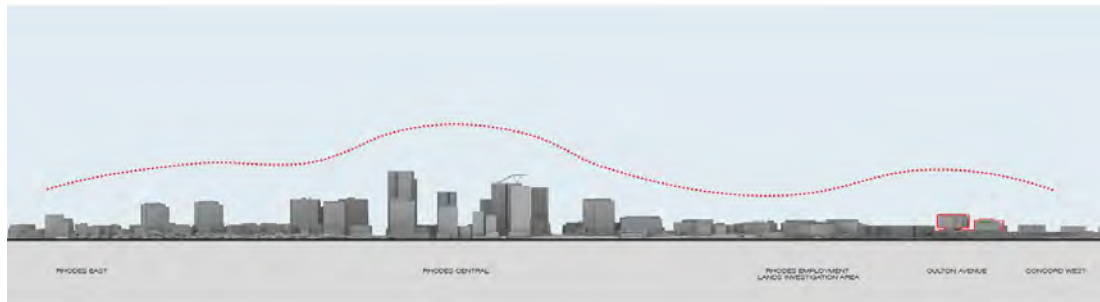
The site is located within proximity to major existing retail and mixed-use developments across Homebush Bay Drive to the north with which are afforded similar density controls. Further to the north of the site, within central Rhodes, the density of the MU1 zone increases with properties having a maximum building height of 151.5 metres and a maximum floor space ratio of 15.3:1 which is much greater than the proposed concept development height of 45.9 metres.

Overall, it is considered that the preferred development concept will not cause any unacceptable impacts of the existing uses, approved uses or preferred future uses of the adjoining and surrounding properties. The potential impacts of the development can be avoided, minimised, or mitigated through the careful siting and design of the proposed residential flat building.

Particular, regard has been given to the potential impacts of the proposed development on the adjoining including:

- **Bulk and scale:** The proposed building height and floor space provides an appropriate transition between the higher form to the north of the site and lower form to the south. Rhodes skyline is an important urban marker and identifier with increasing the heights of built form at the top of the Peninsula. Potential future development within Rhodes Corporate Park and the Hewlett Packard site will extend this skyline to Homebush Bay Drive.
- As shown in **Figure 18**, the development will provide a southern anchor for the redevelopment of Rhodes. The reference scheme ensures that there are minimal impacts to existing view corridors. The area is in transition and identified for residential intensification, and the proposed development will be compatible with future development. View analysis demonstrating the visual impact of the proposed development from Brays Bay Reserve is provided at **Figure 19** and demonstrates that the proposed built form will sit comfortably within the surrounding context and the massing will not dominate the skyline.

Figure 18 Rhodes Skyline



Source: SJB Architects

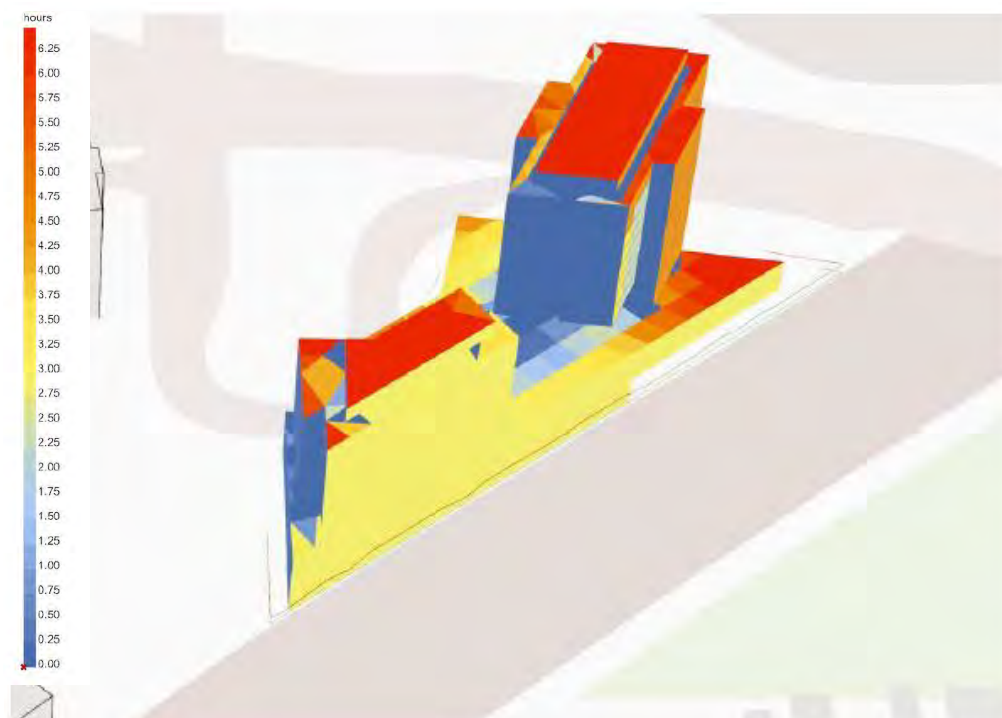
- **Building setbacks:** The building has been situated to comply with the requirements of the ADG and provide increased setbacks to the railway line and road. There is a minimum distance of 35 metres to the closest neighbouring building, with setbacks provided along the western boundary to maximise building separation. The other site boundaries are not adjacent to buildings and are separated by Homebush Bay Drive and the rail corridor.
- **Open space and landscaping:** The front, side and rear building setbacks will be landscaped to enhance the streetscape and provide a visual screen between the development, the adjoining infrastructure and nearby residential properties. The existing trees along the eastern boundary will be retained and protected, where possible, to retain the existing tree cover and landscape character. Areas of deep soil landscaping capable of accommodating high level trees is proposed to the main pedestrian entry point at the northern end of the site.
- **Solar access:** As shown in **Figure 20**, the property benefits from excellent solar access. The eastern, northern and most of the western facades achieve a minimum of 2 hours of solar access. Solar studies of the development demonstrate that solar access particularly to the towers is driven by orientation of the built form rather than impacts from neighbours. As outlined above, the building has been sited and designed to minimise the potential shadow impacts of the proposed building on the adjoining residential properties to the west and south.
- **Overshadowing:** Overshadowing analysis of Bradley Reserve indicates some impact to the southern section of the park; however, this is limited to the late afternoon and overall, the park receives good solar access. As show in **Figure 21**, shadow analysis indicates that the proposed development would only result in minor impacts on residential areas including to the northern facades of the two nearest apartment buildings in Liberty Grove, however this is restricted to before 10am, and to a handful of properties in Concord West after 3pm.

Figure 19 Viewpoint of Proposal from Brays Bay Reserve



Source: SJB Architects

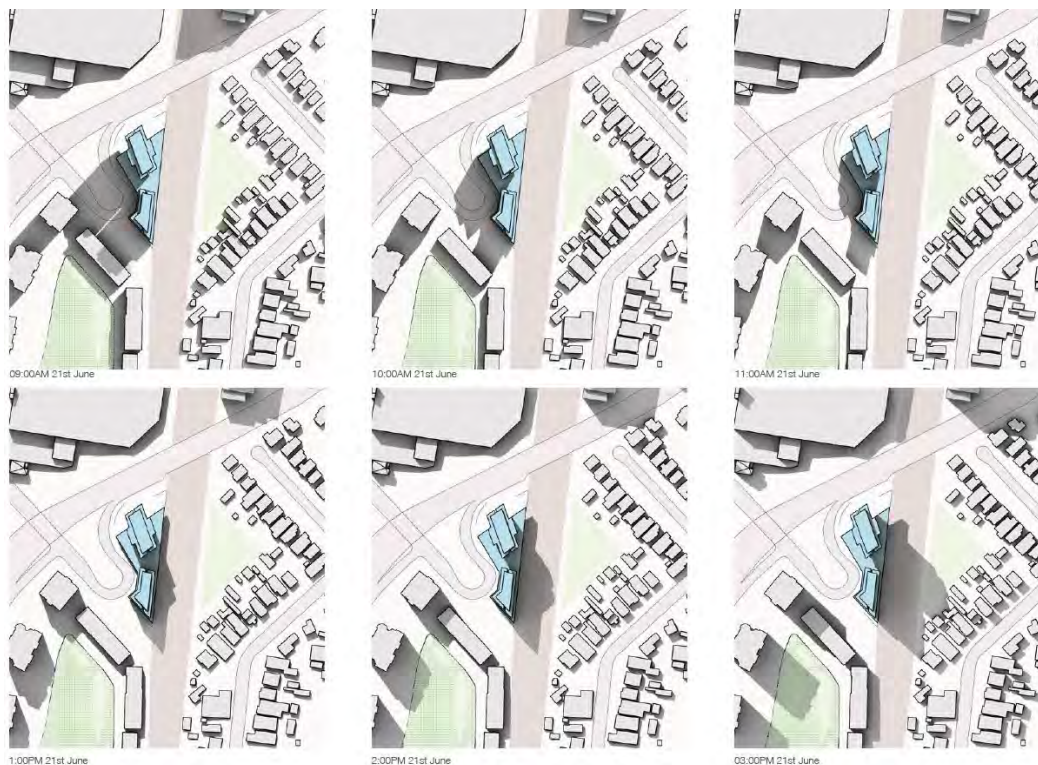
Figure 20 Solar Access Analysis



Source: SJB Architects



Figure 21 Overshadowing Analysis



Source: SJB Architects

- **Amenity:** The siting and design of the proposed apartment buildings optimise the future residential amenity by orienting the majority of apartments to the west and north, away from noise sources such as the railway line and road. This will provide a pleasant aspect for the apartments, as well as increasing natural surveillance of the public open space and surrounding local road network. The number of apartments with an eastern aspect has been minimised to reduce the potential impacts associated with traffic noise and air quality impacts. The apartments along the western and southern elevations have been designed to minimise potential overlooking and privacy impacts.

The ADG establishes 10 design principles for residential flat development, which include context, scale, built form, density, landscape, amenity, resource energy and water efficiency, safety and security, social dimensions and aesthetics. The proposal aims to meet all relevant requirements of ADG. An Urban Design Report at **Appendix A** provides a preliminary assessment of the ADG. Any future DA would need to demonstrate compliance with the key criteria of the ADG.

A summary of the reference scheme's ability to comply with key ADG criteria is provided below:

- **Deep soil:** The reference scheme has concentrated deep soil within the main pedestrian and cycle entrance to the north as well as the eastern part of the site, with additional landscaped setbacks on the western and southern boundaries. The deep soil calculations for the site demonstrate that 7% deep soil can be achieved which meets the requirements for sites greater than 1,500sqm. This is subject to a more detailed landscape design in the next stage of design.
- **Building Separation:** There is a minimum distance of 35 metres to the closest neighbouring building, with setbacks provided along the western boundary to maximise building separation, which exceeds the ADG guidelines. Other site boundaries are not adjacent to buildings and are separated by Homebush Bay Drive and the rail corridor.
- **Cross ventilation:** The building envelopes have small floor plate sizes which deliver 6-8 units per floor plate making the requirement for 60% of cross ventilated apartments possible.
- **Solar Access:** As illustrated in **Figure 20**, the constrained and irregularly shaped site results in a building orientation that minimises impacts to neighbours. Modelling undertaken suggests that 82%

of units will achieve greater than 2 hours sunlight during this time. Compliance with ADG solar access requirements will depend on the arrangement of individual units on the floor plate. This will be undertaken at the next stage of design.

- **Communal Open Space:** The reference scheme has provided the communal open space on the roof of the podium, to minimise the impact of the rail corridor. Approximately 1,650sqm of communal open space is provided within the reference scheme (including within the podium and ground level). This equates to 39.6% of the total site area which meets the requirements of the ADG.
- **Minimum Floor to Ceiling Heights:** The reference scheme has been modelled based on a floor-to-floor height of 3.2m which allows for compliance with minimum floor to ceiling requirements.

Overall, the proposed layout and design of the development concept has been specifically planned to respond to the surrounding environment, including:

- Providing amenity to residents through good solar access, high quality common areas and cross-ventilation which are prioritised through architectural solutions such as winter gardens, sun shading, screening and greening to mitigate the impacts of a constrained site.
- Reducing impacts to the existing amenity of neighbours through careful consideration of built form and testing of solar and visual impacts.
- Locating residential dwellings on the upper tower levels of the building above the parking levels away from the noisier roads and railway line.
- The internal design co-locates complementary uses, including accommodation areas, administration areas, social areas and community areas for ease of access.
- Maximising the solar access and residential outlook from the rooms where it is indicated that 82% of the facade of the reference scheme achieves greater than 2 hours sunlight.
- Increasing the setbacks along the southern and western boundaries to minimise any potential overshadowing and amenity impacts on the existing and likely future residential development to the south and west of the site.
- The small floor plate sizes deliver 6-8 units per floor plate making the requirement for 60% of cross ventilated apartments possible.
- Creating high quality green spaces within the development will be an important factor in mitigating the impacts of challenging interfaces and seamlessly integrating with the adjacent public domain.
- Approximately 1,650sqm of communal open space is provided within the reference scheme (excluding the public open space) contributing to 39.6% of the total site area.
- Locating access to the communal open spaces of the building to provide for natural surveillance of the surrounding public domain below.
- Protecting and retaining trees, where possible, along the northern and eastern boundaries of the site to maintain the existing landscape character and provide for visual screening and buffer between the proposed building and Homebush Bay Drive and railway line.

The proposed layout and design of the development concept has also been specifically planned to respond to the existing and likely future context of the site and immediate locality as summarised below:

- The proposal is capable of providing a high standard of architectural design that has been carefully considered with regard to various relevant setback and building separation requirements and will contribute to the amenity of the surrounding public domain.
- Rhodes skyline is an important urban marker and identifier. The development will provide a southern anchor for the redevelopment of Rhodes.
- The improvements to the public domain through landscaping will ensure the high-quality design of the proposal integrates with the surrounding street network and invites members of the public into the site.
- The use of subtle boundaries between public and private areas including landscaping and paving design to possibly extend the adjacent public domain into the site.

- The raising of the podium to contain parking above-ground will allow the residential development to sit above the level of the motorway.
- Screening and other architectural responses will seek to minimise the appearance of the parking levels when viewed from ground.
- Winter gardens may also be utilised to reduce the impact on individual units to reduce to respond positively to different interface conditions.
- The building footprint is set back by over 35 metres to the nearest neighbouring building with setbacks provided along the western boundary to maximise building separation.

### 6.3.3.2. Traffic and Transport

The Transport Impact Assessment prepared by Stantec (refer **Appendix C**) outlines impact of the proposed development concept on the surrounding traffic network and the sites close proximity to public transportation and provision of bicycle parking to reduce the number of residents using private car transportation. A summary of the key findings is presented below.

- Impact on traffic generation: SIDRA modelling of the existing traffic generation conditions surrounding the site indicates that all intersections along Oulton Avenue near the site currently operate satisfactorily at both the weekday AM and PM peak hours, with minimal delays and queuing. It is anticipated that the proposed development of the site will generate around 17 and 13 vehicle trips in the AM and PM peak hours respectively. Such an increase in traffic could not be expected to compromise the safety or function of the surrounding road network.
- Proximity to public transportation: The site is relatively well serviced by public transport, being located approximately 750 metres (10 min walk) from Rhodes Station and around 280 metres (4 mins walk) to bus services on Rider Boulevard. The site is also within the TfNSW On-Demand public transport area.
- Bicycle Parking: The reference scheme generates a bicycle parking requirement for 63 resident bicycle spaces. The reference scheme includes bicycle parking on level 1 in the public domain. It is expected as part of future design stages, that the provision meets this minimum requirement.
- Car Parking: The reference scheme generates a parking requirement for 64 car parking spaces. Rhodes West DCP also includes a requirement for one accessible car parking space to be provided per adaptable apartment. The proposal includes 101 car parking spaces on site which exceeds this requirement and can be reduced to encourage other travel modes given the site location in close proximity to a shared path facility and Rhodes station.
- Loading: One loading bay is provided as part of the proposal which satisfies DCP requirements.

### 6.3.3.3. Noise and Vibration

The site is located on a busy arterial road and adjacent to a railway line and consideration will need to be given to the relevant provisions within the Development Near Rail Corridors and Busy Roads – Interim Guideline.

The Acoustic and Vibration Assessment carried out by Renzo Tonin and Associates (refer to **Appendix F**) indicates that reasonable controls can be incorporated into the building design to comply with relevant Standards and Policies for internal noise levels (to protect residents from road and rail noise).

Noise emission goals for the project operation have been determined in accordance with the EPA's Noise Policy for Industry. This would apply primarily to plant and equipment noise, which would be reviewed in detail after development approval stage.

The following mitigation measures have been recommended in respect of noise and vibration:

- Acoustic assessment of mechanical services equipment will need to be undertaken during the detail design phase of the development to ensure that they shall not either singularly or in total emit noise levels which exceed the noise limits in EPA's NPfI.
- As noise control treatment can affect the performance of the mechanical services system, it is recommended that consultation with an acoustic consultant be made during the initial phase of mechanical services system design in order to reduce the need for revision of mechanical plant and noise control treatment.

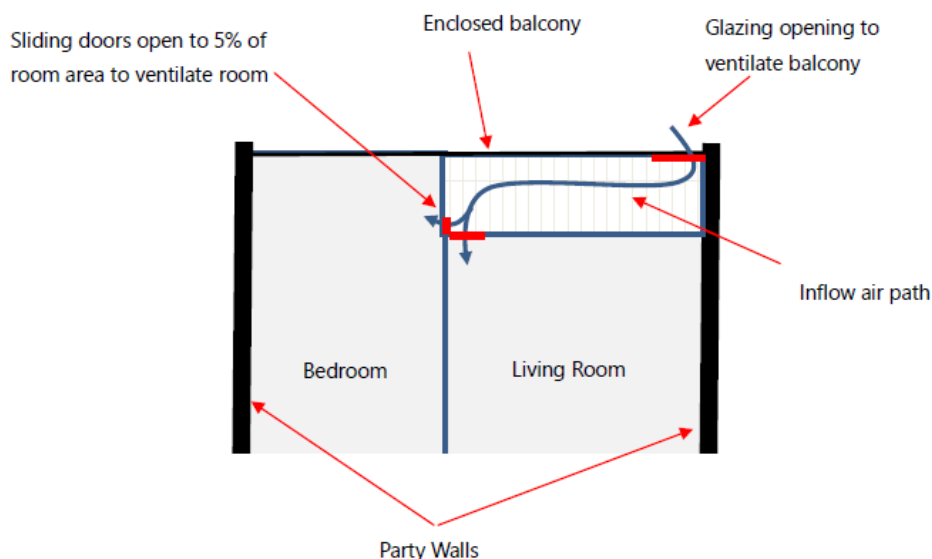
- Mechanical plant noise emission can be controllable by appropriate mechanical system design and implementation of common engineering methods that may include any of the following:
- Procurement of 'quiet' plant.
- Strategic positioning of plant away from sensitive neighbouring premises, maximising the intervening shielding between the plant and sensitive neighbouring premises.
- In-duct lining and commercially available silencers or acoustic attenuators for air discharge and air intakes of plant.
- Adoption of specific glazing systems as outlined in the report.

These measures are typically undertaken post development approval.

To ensure that natural ventilation and acoustic compliance to apartments can be achieved, two options have been considered.

- Option 1 - Having a wide (4-5m) shallow balcony outside an apartment living room. Passive ventilation in this scenario is provided by having the wintergarden to external window open at one end of the balcony, and the sliding door from living room to balcony open at the opposite end of the balcony area. An indicative sketch for a one-bedroom apartment is shown below.

Figure 22 Sketch of Wintergarden/Enclosed Balcony



Source: Renzo Tonin & Associates

- Option 2 – Using the balcony balustrade to act as a noise screen and providing ventilation via a low height window to the room (below balustrade level). This can be used for apartments with a relatively deep living room balcony (more than 2m). The design requires use of a solid balustrade (no gaps), a noise absorptive lining to underside of balcony over (50mm Echosoft) and a low-level openable window to the room (below balustrade height for the purpose of ventilating the space). Typically, this approach can be used for apartments above 6 levels or further above the noise source.

A winter garden design offers a number of potential benefits:

- When the wintergarden windows are closed, there is a reduction in noise level in both the winter garden itself and in the rooms inside the apartment that open onto it. These are both obvious acoustic benefits, however, are reliant on the windows to the winter garden being closed to achieve it.
- More importantly, when the winter garden windows are partially open (a relatively small amount, sufficient to provide ventilation of the balcony and in turn the rooms behind it), the apartments will receive

both fresh air, and a degree of noise attenuation (approximately 4dB(A) better than what may be expected in the event that the winter garden was not enclosed.

Further as outline in the Urban Design Report provided at **Appendix A**, various acoustic treatments can be included in the final design of the development to mitigate noise impacts. This includes:

- Incorporating window vents to winter gardens to allow ventilation through the facade when all operable sliding and awning windows are fully closed.
- Providing awning windows, at high and low levels, in opposite corners of the winter gardens to mitigate a 'direct line' of sound transmission through the facade.
- Including acoustically treated soffits to further dampen any noise transmission from below by restricting the amount of noise that can be reflected back down towards the low-level awnings.

#### 6.3.3.4. Air Quality

An Air Quality Assessment was conducted by Todoroski Air Sciences (refer to **Appendix G**). Air dispersion modelling was used to predict the potential for air quality impacts at the site due to traffic air emissions and diesel freight trains.

The emissions modelling results show that 24-hour average PM2.5, 1-hour average NO2 and annual average NO2 levels at the Project would be below the relevant impact assessment criteria at any sensitive receptor location and height.

With regards to the *State Environmental Planning Policy (Infrastructure) 2007*, the assessment demonstrates that the general Project design and location is adequate to prevent the potential adverse impacts of vehicle emissions from the adjacent classified road on the development.

Overall, the assessment demonstrates that potential future residences at the Project are not predicted to experience any significant air quality related health impacts due to nearby air emission sources.

#### 6.3.3.5. Contamination

The Preliminary Site Investigation (**PSI**) prepared by Douglas Partners (refer to **Appendix E**) indicates that the main contamination risks on the site are considered to be associated with previous development works such as filling and demolition of former buildings, and site maintenance activities. The potential for contamination to be present from industry or other similar sources is considered to be generally low to medium.

The site history information indicates that the site has largely been unoccupied, with only two small buildings evident in the aerial photographs reviewed as part of this investigation. It appears to have been used as a carpark for adjacent industrial premises.

On the basis of the investigation undertaken to date and the information available, it is considered that the risk of significant contamination being present, that prevents the use of the site for high density residential purposes, is low to medium. It is also considered that the land can be made suitable for the intended use subject to implementation of an appropriate contamination management strategy, including remediation where required.

As part of a future Development Application, a Detailed Site Investigation is necessary in order to properly assess the contamination characteristics of the site. It is also suggested that a copy of the SAS be obtained for review.

#### 6.3.3.6. Geotechnical

A Geotechnical Assessment was carried out by Douglas Partners and is attached **Appendix H**. The report considers the site suitable for the proposed multi-storey unit development from a geotechnical perspective and outlines key considerations for the future redevelopment. These considerations include that statement that excavation is likely to be required, vibration associated with rock hammering will need to be considered to ensure minimal impact on neighbouring sites and temporary ground anchors will likely be required to support the shoring walls until the basement slabs have been constructed.

The assessment outlines that additional investigations will be required on the site for the future detailed design process which will include groundwater level assessment.



Overall, it is considered that each of the above issues can be managed and/or mitigated as demonstrated in the suite of specialist consultant reports prepared for this application.

#### **6.3.3.7. Utility Services**

The proposal delivers residential dwellings and will result in a net population increase. Notwithstanding, it is considered that the site is well located to accommodate housing with adequate services and infrastructure available nearby to meet the anticipated needs of the likely future residents.

Haron Robson have prepared a Services Investigation Report (refer to **Appendix D**) to assess the availability of utilities infrastructure to the site. The key findings are summarised below:

##### **Electricity**

The development site is not currently provided with a frontage to an available high voltage network asset and will require a network main extension to service the proposed development.

Subject to Ausgrid application, liaising, design and approval, the existing HV mains located to the north of the site in Homebush Bay Drive or to the southwest corner of the site at the corner of Oulton Avenue and Wentworth Drive may be extended to service the proposed development.

##### **Telecommunications**

The development site is not currently provided with a frontage to an available telecommunications network asset and will require a network extension to service the proposed development.

Subject to a Telecommunications Service Provider application, liaising, design and approval, the existing NBNetCo pit & duct network located to the southwest of the site at the corner of Oulton Avenue and Wentworth Drive may be extended to service the proposed development. There is also an Optus Fibre network to the north of the site on the other side of Homebush Bay Drive.

##### **Hydraulic Services**

Harris Page & Associates have reviewed the hydraulic servicing for the site and proposed development (**Appendix I**).

The development site is not currently provided with a frontage to an available sewer main asset and will require a sewer main extension to service the proposed development. Subject to authority application, liaising, design and approval, the existing Ø225 PVC sewer main located in Rider Boulevard may be extended to service the proposed development.

The proposed development site currently is provided with an existing Ø375 stormwater asset located within the western property boundary and may be available for site stormwater discharge subject to authority application.

The development site southern boundary abuts an existing Ø450PE authority water main located within Oulton Avenue. Subject to authority application, liaising, design and approval, the existing Ø450PE may service the site via new authority mains connections to service domestic cold water and fire protection systems.

The development site southern western boundary borders on an existing Ø75NY 210kPa authority gas main located within Oulton Avenue. Subject to authority application process, the existing Ø75NY 210kPa may service the site via new authority mains connection.

#### **Q10. *Has the planning proposal adequately addressed any social and economic effects?***

**Yes.** The Planning Proposal is considered to have a number of social and economic benefits including:

- **Renewal of vacant land in a strategically located site.** The Planning Proposal will facilitate the redevelopment of vacant and disused land into a high-quality residential development with public domain enhancements that positively contributes to the evolution of the Rhodes. Optimising the potential to redevelop the site will assist State Government and Council to deliver the targets set out in the District Plan but also, importantly will ensure that new housing and employment opportunities can be delivered with greater certainty.



- **Direct and indirect jobs will be created during the construction stages.** The Planning Proposal will deliver a range of direct and indirect construction jobs.
- **Economic benefits associated with future residential density:** Increased residential density would contribute to increased retail turnover for local businesses and the activation of a night time economy. Such density is required to realise the vision for an active 18-hour economy.
- **Public domain improvements:** The Planning Proposal will significantly improve the site's interface with the adjacent public domain and infrastructure through inclusion of improved site access and extensive landscaping as well as the provide the opportunity to champion sustainability and a greener future.
- **Delivering additional housing in appropriate location:** The Planning Proposal will help provide a range of apartment typologies that are suited to the demographics of the LGA. Redevelopment of the subject site will accommodate an additional 89 new dwellings. The Planning Proposal supports the State government's current direction of increasing density and broadening land uses in proximity to public transport infrastructure. The key public benefit of this proposal is to deliver additional housing to the Rhodes area.

The Planning Proposal will therefore have positive social and economic benefits for the broader community.

### 6.3.4. Section D – Infrastructure (Local, State and Commonwealth)

#### **Q11. *Is there adequate public infrastructure for the planning proposal?***

The site is located within close proximity of the commercial core of Rhodes and Rhodes railway station, providing excellent access to existing and proposed services and infrastructure, including:

- **Public transport:** The site is located within 750 metres walking distance of the entrance to Rhodes railway station and the adjoining bus interchange, providing excellent access to existing and future public transport.
- **Traffic generation:** The Traffic Impact Assessment submitted in support of this Planning Proposal confirms that the additional traffic impacts from the proposed development will be minimal and will have acceptable impacts on the street network operation.
- **Utility services:** The proponent has undertaken a desktop review into the availability of services to which indicates that the site enjoys the benefit of sewer, water, power, gas and telecommunications however no application for connection of a future development has been made at this stage.
- **Health and community services:** Concord Hospital is located within 1km of the site. A range of community services are located within the southern fringe of the Rhodes town centre including a Medical Centre and Rhodes Medical Imaging.
- **Education facilities:** The site is within walking distance of Concord West Public School and Concord West Rhodes Preschool.
- **Retail and commercial services:** The Rhodes Central Waterside Shopping Centre is located on the northern side of Homebush Bay Drive, providing access to department stores, supermarkets, specialty shops and entertainment uses. More traditional main street retail and commercial uses are located within the southern part of the town centre, including daily convenience needs, local services and entertainment and lifestyle activities.

Overall, it is considered that the site is well located to accommodate additional housing with adequate services and infrastructure available to meet the anticipated needs of the likely future residents.

### 6.3.5. Section E – State and Commonwealth interests

#### **Q11. *What are the views of state and federal public authorities and government agencies consulted in order to inform the Gateway determination?***

The Gateway Determination will advise the public authorities to be consulted as part of the Planning Proposal process. A number of public authorities were consulted as part of the Scoping Proposal and pre-lodgement stage of this Planning Proposal. Any issues raised will be incorporated into this Planning Proposal following consultation in the public exhibition period.

The following agencies are expected to be consulted as part of the Gateway process:

- NSW Department of Planning, Housing and Infrastructure
- Ausgrid
- Transport for NSW
- NSW State Emergency Services
- Jemena Gas Networks Ltd
- Sydney Water
- Environment Protection Authority

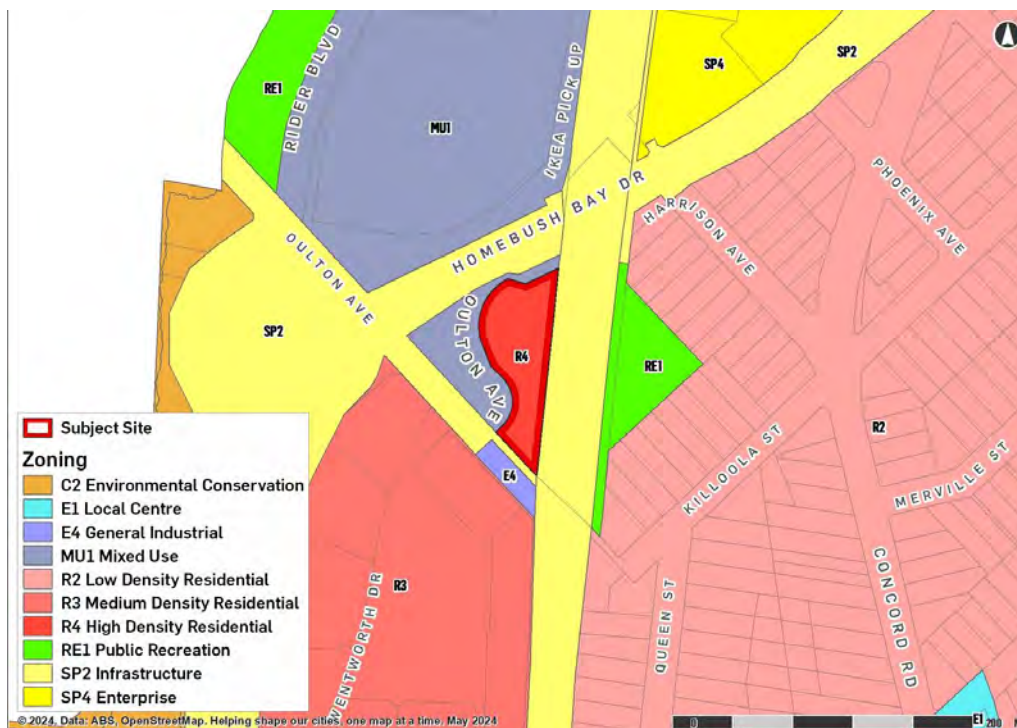
## 6.4. PART 4: MAPS

This Planning Proposal seeks to amend the following planning maps contained in CBLEP 2013 as they apply to the site:

- Land Zoning.
- Height of Buildings.
- Floor Space Ratio.

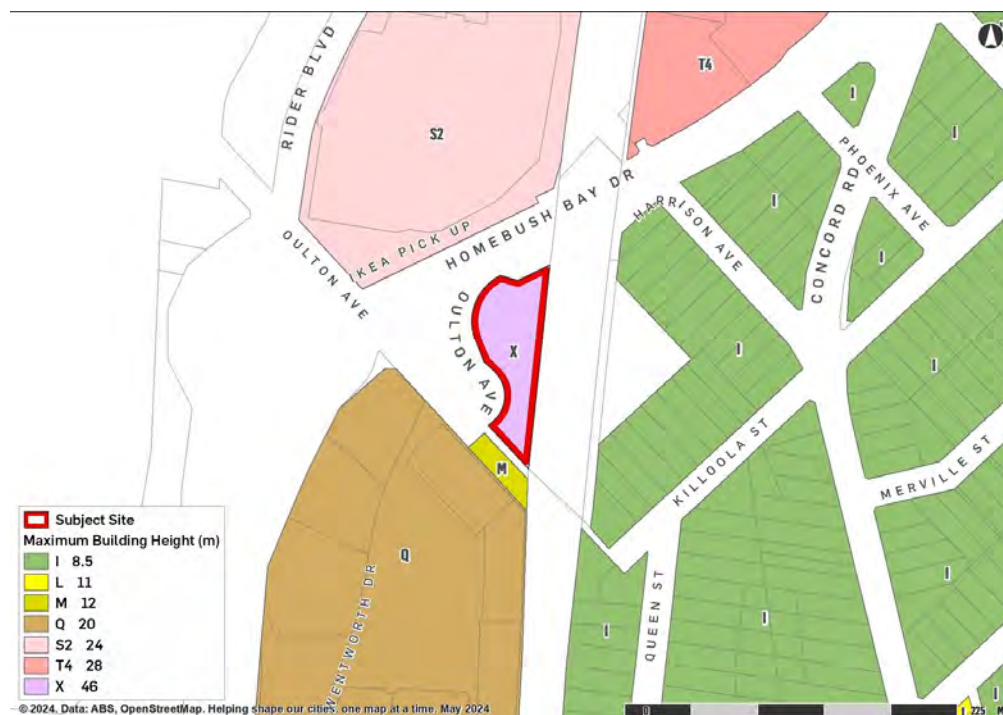
The proposed map amendments are provided in **Figure 23** to **Figure 25** and also found in **Appendix J**.

Figure 23 Proposed Zoning Map



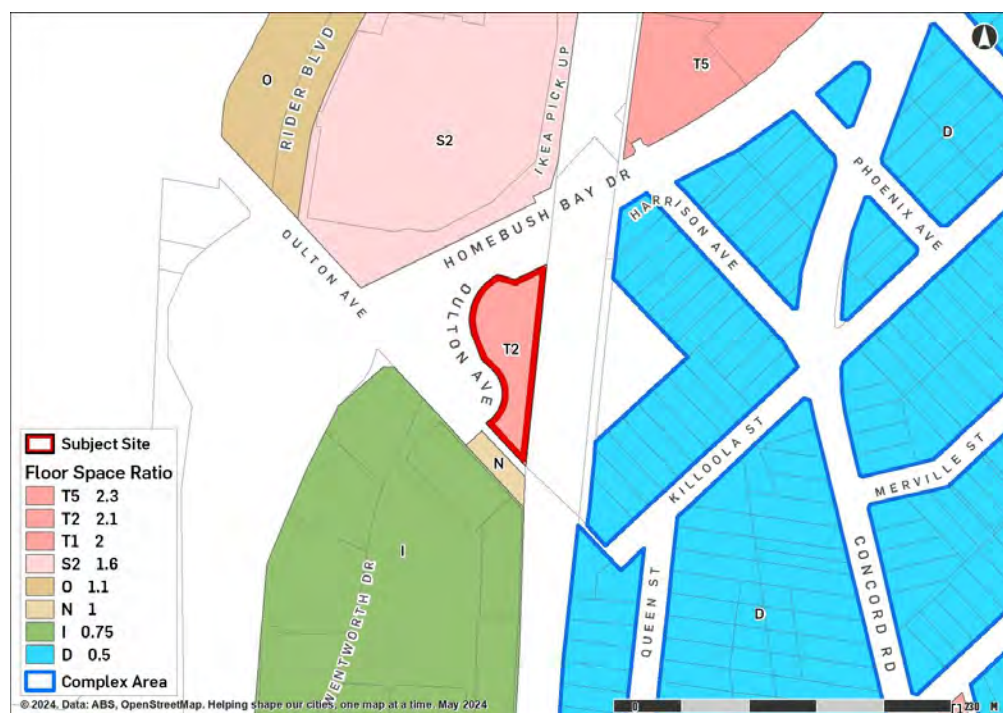
Source: Urbis, 2024

Figure 24 Proposed Height of Buildings Map



Source: Urbis, 2024

Figure 25 Proposed Floor Space Ratio Map



Source: Urbis, 2024

## 6.5. PART 5: COMMUNITY CONSULTATION

Section 3.34 of the EP&A Act requires the relevant Planning Proposal Authority to consult with the community in accordance with the Gateway Determination. In accordance with the requirements of the LEP Making Guideline, it is expected that the Planning Proposal will be publicly exhibited for at least 28 days.

It is anticipated that the public exhibition would be notified by way of:

- A public notice in local newspaper(s).
- A notice on the City of Canada Bay Council website.
- Written correspondence to adjoining and surrounding landowners

As part of the public consultation process, the proponent will review all submissions, discuss with Council and DPHI as required, and provide written comments in response to assist in the assessment of the Planning Proposal.

As part of the Gateway Determination, consultation will also be undertaken with any relevant agencies and stakeholders.

## 6.6. PROJECT TIMELINE

The following table sets out the anticipated project timeline in accordance with the LEP Making Guideline. The key milestones and overall timeframe will be subject to further detailed discussions with Council and DPHI.

Table 11 Anticipated Project Timeline

Process	Indicative Timeframe
Consideration by Canada Bay Council	May 2024 – September 2024
Planning Proposal referred to the DPHI	September 2024
Gateway Determination by DPHI	October 2024
Commencement and completion of public exhibition	November 2024
Consideration of submissions and consideration of the proposal post-exhibition	February 2024
Proposal reported back to Council for endorsement	March 2025
Date of submission to the DPHI to finalise the LEP	April 2025
Legal Drafting of the LEP	April 2025 – May 2025
Notification of the LEP	May 2025

## 7. CONCLUSION

The Planning Proposal seeks support from the City of Canada Bay Council (**Council**) to amend the zoning and development standards applying to the site to facilitate its density uplift to accommodate a high-quality residential development.

Specifically, the Planning Proposal seeks to amend the CBLEP 2013, by way of the following:

- Amend the Land Zoning Map from MU1 Mixed Use to R4 High Density Residential;
- Amend the Height of Building Map from 24 metres to 46 metres; and
- Amend the Floor Space Ratio Map from 1.1:1 to 2.1:1.

The proposed changes to the planning controls will ensure that residential flat buildings become permissible unlocking the potential of this strategically located site to facilitate a new contextually appropriate development consistent with the vision, objectives and key principles detailed within relevant strategic plans, including:

- Greater Sydney Region Plan: A Metropolis of Three Cities;
- Our Greater Sydney 2056: Eastern Harbour City District Plan;
- Canada Bay Local Strategic Planning Statement; and
- Canada Bay Local Housing Strategy.

The Planning Proposal sets out the justification for the proposed LEP amendment. It is supported by an indicative reference scheme that includes a detailed site and context analysis and demonstrates that the proposal is sound and suitable for its locality.

It is considered that the proposed amendments to CBLEP 2013 would result in an improved development outcomes and generate significant economic and community benefit for the following reasons:

- The Planning Proposal has clear strategic and site-specific merit. The site is within close proximity to transport, services and infrastructure, including Concord Hospital and is an appropriate location for additional housing. The proposal seeks to unlock the potential of the site to deliver a high-quality residential development in a location highly suitable for density uplift.
- The site presents a unique opportunity to mark the entry into Rhodes whilst still achieving the desired scale and transition in response to the surrounding context. The accompanying reference scheme demonstrates the proposed uplift sought will not result in unacceptable impacts to adjoining development in terms of overshadowing, visual privacy or noise.
- The proposal will facilitate the delivery of additional housing in a highly accessible location with access to essential services including schools, health facilities, shops and public transport. The site represents one of a limited number of undeveloped land parcels capable of delivering a new housing development within close proximity to Rhodes. The site is strategically located and sized to facilitate high density development, increasing the supply and diversity of housing within Rhodes.
- The proposal demonstrates a high level of consistency with the strategic planning framework governing the Greater Sydney Region including the Greater Sydney Regional Plan and the Eastern City District Plan. The proposal aligns with State planning strategic goals which seek to intensify residential development around significant transport infrastructure and in proximity to employment nodes including Concord Hospital. The proposal will support the attainment of a 30-minute city, as outlined within the District Plan.
- The proposal demonstrates a high level of consistency with Council's local planning framework. The proposal will contribute to meeting Council's housing targets as set out in the Local Housing Strategy through the provision of 89 additional dwellings within walking distance to Rhodes, which is identified as a Strategic Centre.
- The proposal will deliver significant improvements to the public domain experience resulting in safer, greener and more connected spaces. The proposal will deliver public benefits to the local community including the provision of vital new pedestrian and cycle infrastructure and road upgrades. The proposed



mechanism to deliver the public benefits associated with the land use change and uplift will be via a Voluntary Planning Agreement (VPA).

- The proposed residential accommodation and landscape strategy will improve passive surveillance of the surrounding public domain including the existing pedestrian tunnel under Homebush Bay Drive.
- The proposal will improve active transport connections and strengthen links to public transport. The proposal also capitalises on existing and planned infrastructure with sustainable benefits by reducing reliance on private vehicular transportation, being strategically located close to Rhodes railway station.
- The proposal creates an appropriately scaled edge to the broader Rhodes urban renewal precinct and has the potential to service the commercial core and release pressure of residential encroachment on adjacent low density residential zoned land. The proposal will establish a new and cohesive skyline for the Rhodes peninsula enabling the integration of the site with the existing higher density mixed use character of Rhodes West as well as the emerging future built form envisaged for Rhodes East in the Rhodes Place Strategy.
- The proposal will not result in unacceptable amenity impacts to adjoining development in terms of overshadowing, visual privacy or noise. The proposal will provide a built form that responds directly to the emerging context through a considered building envelope and positioning which protects the amenity of adjoining land including existing views.
- The reference scheme minimises the impacts of the challenging interfaces to create a comfortable, safe and activated development which benefits both residents and the local community. The siting and design of the proposed apartment buildings optimise future residential amenity by locating the residential accommodation above the podium and orienting the majority of apartments to the west and north, away from noise sources such as the railway line and road. This will provide a pleasant aspect for the apartments, as well as increasing solar access and natural surveillance of the public open space. Trickle vents and balcony winter gardens have been incorporated to further mitigate against noise pollution.

The Planning Proposal has been prepared in accordance with the LEP Making Guideline and is considered appropriate as it has significant strategic and site-specific merit.

Accordingly, it is **recommended** the Planning Proposal is endorsed by Council and referred to DPHI for Gateway Determination.



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This report is dated 9 May 2024 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Ltd (**Urbis**) opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of Oulton Rhodes Pty Ltd (**Instructing Party**) for the purpose of Planning Proposal (**Purpose**) and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

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This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

## **APPENDIX A                      URBAN DESIGN REPORT**

## **APPENDIX B      SURVEY PLAN**

## **APPENDIX C                      TRANSPORT IMPACT ASSESSMENT**

## **APPENDIX D                      SITE SERVICING ASSESSMENT – ELECTRICAL AND LIGHTING**

## **APPENDIX E                      PRELIMINARY SITE INVESTIGATION**



## **APPENDIX F                      ACOUSTIC AND VIBRATION ASSESSMENT**

## **APPENDIX G                      AIR QUALITY ASSESSMENT**

## **APPENDIX H                      GEOTECHNICAL ASSESSMENT**

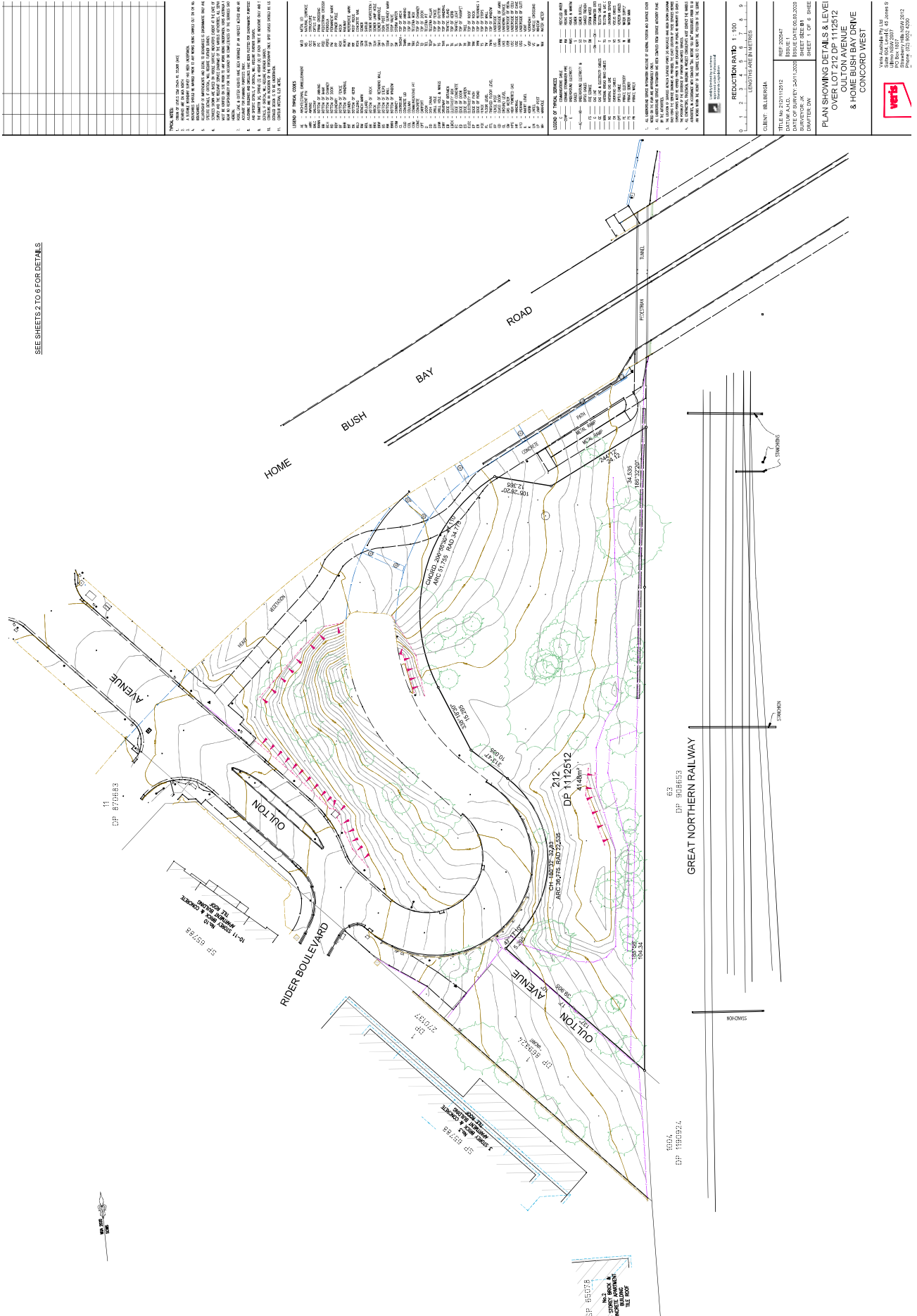
# **APPENDIX I                      SITE SERVICING ASSESSMENT – HYDRAULIC SERVICES**

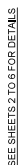
## APPENDIX J      LEP MAPPING

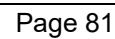


The logo for URBIS.COM.AU, featuring the text "URBIS.COM.AU" in a bold, sans-serif font. Above the text is a horizontal bar with a gradient from blue to green.



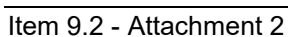


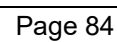






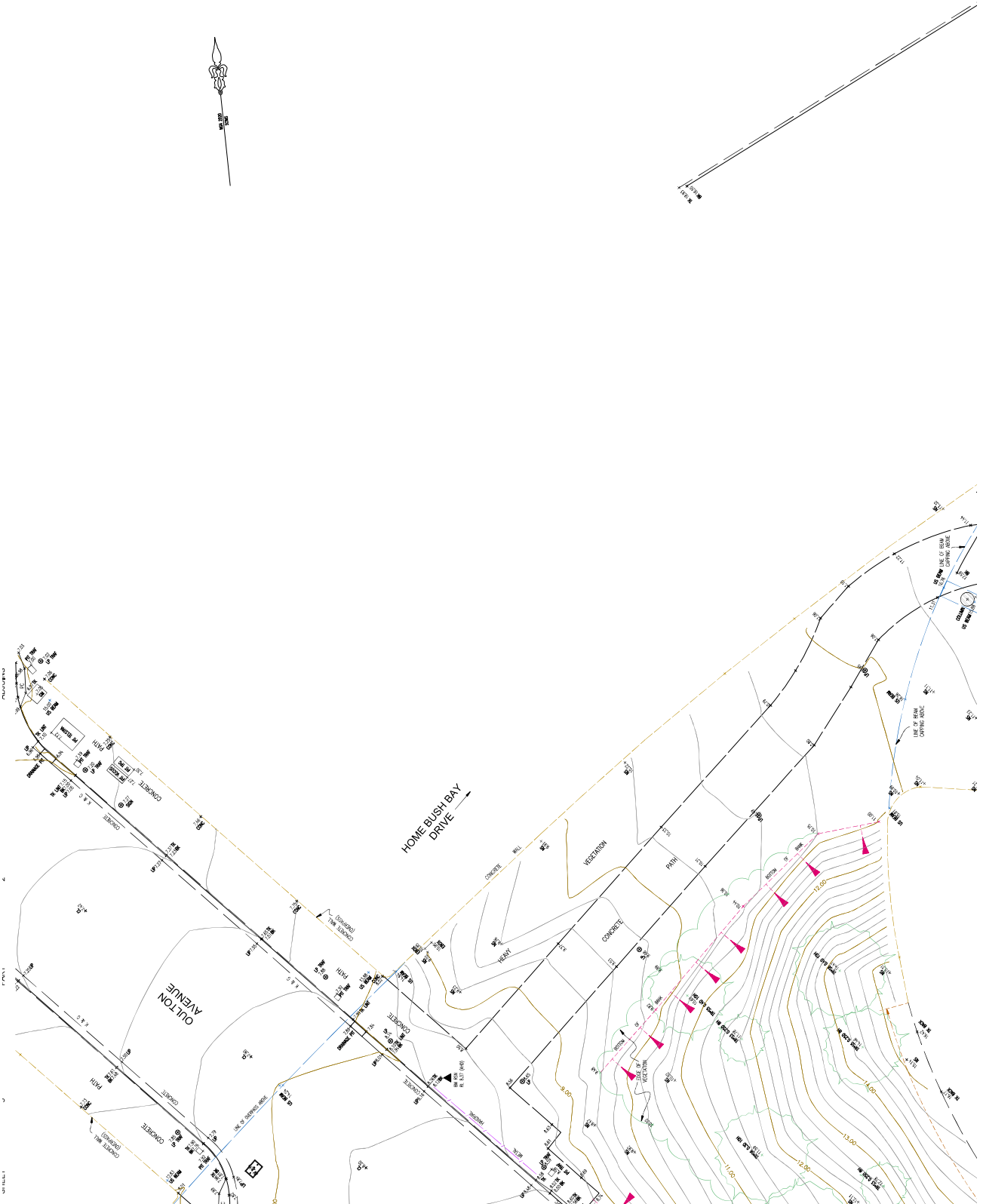








1. SITE AREA: 1.0000 HECTARE (247,100 SQ M)	2. PROJECT NAME: OVERLOT 212 DP 112512	3. CLIENT: BILLERSEA	4. REDUCTION RATIO: 1:500
5. DATE OF SURVEY: 24/11/2023	6. DATE OF PLAN: 06/03/2024	7. DATE OF ISSUE: 06/03/2024	8. SHEET 6 OF 8 SHEETS
9. PROJECT LOCATION: OVERLOT 212 DP 112512	10. PROJECT ADDRESS: OULTON AVENUE & HOME BUSH BAY DRIVE	11. PROJECT TYPE: CONCORD WEST	12. PROJECT STATUS: APPROVED
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## Oulton Avenue, Concord West

### Transport Impact Assessment

Prepared for: Oulton Rhodes Pty Ltd

Ref: 300304032 | Date: 09 May 2024



## Revision

Revision	Date	Comment	Author	Quality Check	Approved By
A-Dr	09 May 2024	Draft – Issued for PP submission	William Xie	Brett Maynard	Brett Maynard

### Brett Maynard

For and on behalf of

**Stantec Australia Pty Ltd**

**L9, 203 Pacific Highway, St Leonards NSW 2065**

## Acknowledgment of Country

In the spirit of reconciliation, Stantec acknowledges the Traditional Custodians of country throughout Australia and their connections to land, sea and community. We pay our respect to their Elders past and present, and extend that respect to all Aboriginal and Torres Strait Islander peoples.

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300304032

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Appendix A. Concept Site Access Plans

# 1. Introduction

## 1.1 Background

A planning proposal is being lodged with City of Canada Bay Council (Council) for a proposed high-density residential development at Oulton Avenue, Concord West, which can be identified as lot 212 in DP1112512. The reference scheme comprises 89 apartments, across two towers between five and eight storeys, together with two levels of basement car parking.

Oulton Rhodes Pty Ltd engaged Stantec to complete a Transport Impact Assessment to accompany the planning proposal.

## 1.2 Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

- existing traffic and parking conditions surrounding the site
- suitability of the proposed parking in terms of supply (quantum) and layout
- service vehicle requirements
- pedestrian and bicycle requirements
- the traffic generating characteristics of the proposed development
- suitability of the proposed access arrangements for the site
- the transport impact of the development proposal on the surrounding road network.

## 1.3 References

In preparing this report, reference has been made to the following:

- The City of Canada Bay Development Control Plan (CB DCP)
- Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004
- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2018
- Australian Standard / New Zealand Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS/NZS 2890.6:2022
- Oulton Avenue Urban Design Report prepared by SJB dated April 2024
- other documents and data as referenced in this report.



## 2. Strategic Context

### 2.1 Relevant State Strategies and Plans

#### 2.1.1 A Metropolis of Three Cities – The Greater Sydney Region Plan

A *Metropolis of Three Cities -The Greater Sydney Region Plan* is a NSW Government report that establishes a 40-year strategic land use plan for Sydney. The plan was developed concurrently with Future Transport Strategy 2056, which aims to deliver better connectivity and accessibility for the residents of Greater Sydney. The land use vision for Greater Sydney is a metropolis of three cities:

- the Eastern Harbour City (Sydney CBD)
- the Central River City (Greater Parramatta)
- the Western Parkland City (around the new Western Sydney Airport).

Consistent with Future Transport, one of the key elements of the plan is the vision of a 30-minute city which aims to provide transport infrastructure and services that enable people to reach their nearest metropolitan or Strategic Centre within 30 minutes, seven days a week.

The site is within the Central City District and the Central River City (Greater Parramatta). The Metropolis of Three Cities introduces housing targets of 207,500 for the Central City District (which includes the site) between 2016 to 2036.

The site is centrally positioned between several locations within Sydney that have been identified as 'Strategic Centres', which are classified as future hubs for employment. These include Norwest, Castle Hill, Epping and Macquarie Park. In the future, Concord West will have the potential to act as a connective hub between Strategic Centres.

#### 2.1.2 Future Transport 2056

The *Future Transport Strategy 2056* (Future Transport) is a 40-year strategy for Sydney and regional NSW prepared by TfNSW. The plan includes several initiatives relevant to the site including:

- 0-10 year committed projects:
  - WestConnex (completed)
  - NorthConnex (completed)
  - Priority cycleway links in the Central River City
  - Sydney Metro West
  - Parramatta Light Rail stage 1 and 2 (stage 1 close to completion).
- 0-10 year investigation:
  - Improved bus services between Parramatta and centres to the north and south of Parramatta
  - Parramatta inner ring road (improvements to existing surface roads)
  - T-Way to T-Way link
  - Safe cycleway network within 10 kilometres of Parramatta
  - Parramatta to Epping mass transit/ train link.
- 20+ years visionary:
  - Central City strategic road corridor (NorthConnex to Southern Sydney).

#### 2.1.3 Eastern City District Plan

The *Eastern City District Plan* was also produced by the State Government and complements at a more specific level the themes identified in the Region Plan. It presents a 20-year plan to manage growth in the context of economic, social and environmental matters to achieve the 40-year vision identified in Greater Sydney. It contains the planning priorities and actions for implementing the Metropolis of Three Cities, at a district level and is a bridge between regional and local planning.

The Plan introduces several priorities of relevance including:

- Planning Priority E1 Planning for a city supported by infrastructure:
  - Prioritise infrastructure investments to support the vision of A Metropolis of Three Cities.
  - Sequence growth across the three cities to promote north-south and east-west connections.
  - Align forecast growth with infrastructure provision.





- Sequence infrastructure provision using a place-based approach.
- Planning Priority E2 Working through collaboration:
  - Identify, prioritise and deliver Collaboration Areas which are a new way for stakeholders to work together to deliver coordinated planning in locations that have great potential to grow their vibrancy, diversity and productivity, with improved employment and education opportunities, enhanced liveability and sustainability.
- Planning Priority E10 Delivering integrated land use and transport planning and a 30-minute city:
  - Integrate land use and transport plans to deliver the 30-minute city.
  - Investigate, plan and protect future transport and infrastructure corridors.
  - Investigate and plan for the land use implications of potential long-term regional transport connections.
- Planning Priority E19 Reducing carbon emissions and managing energy, water and waste efficiently:
  - Support initiatives that contribute to the aspirational objective of achieving net-zero emissions by 2050, especially through the establishment of low-carbon precincts in Planned Precincts, Collaboration Areas, State Significant Precincts and Urban Transformation projects.

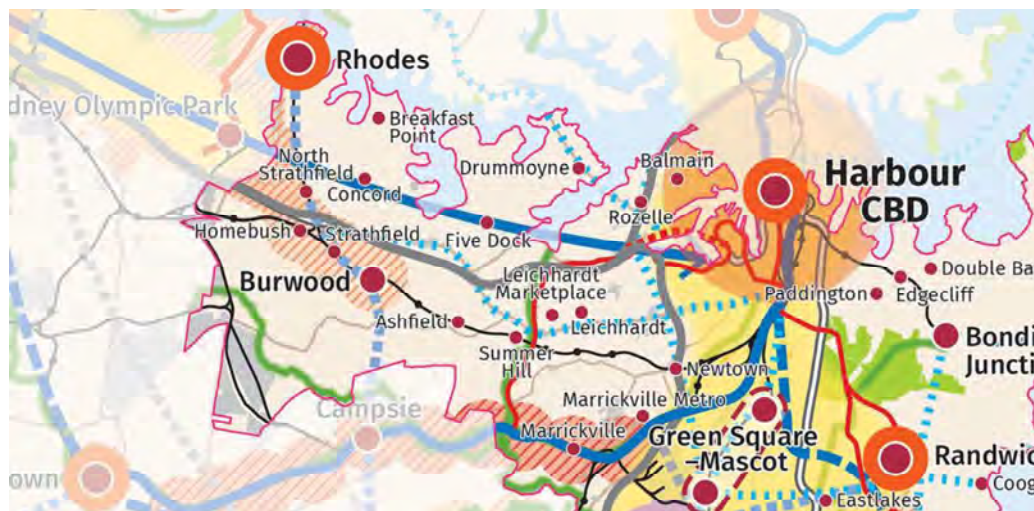
In achieving these Planning Priorities, the Plan embeds a series of Actions to be delivered, monitored and reported, ultimately giving effect to the Plan and integrating local opportunities with the Greater Sydney vision of the metropolis of three cities. Action 47 of the Plan refers to six specific actions to strengthen Rhodes. The six specific actions include:

- Protect capacity for job targets and a diverse mix of uses to strengthen and reinforce the economic role of the centre.
- Consider development initiatives that encourage the development of large floorplate mixed use buildings.
- Improve connections across the centre, including permeability of the rail line.
- Expand the function and type of land uses in the centre.
- Promote place-making initiatives to improve the quality of public spaces.

These actions align with various transport objectives identified earlier in this report for the planning proposal.

Additionally, the location of this site being in Concord West, is directly adjacent to Rhodes, which represents an important Strategic Centre in the Eastern City District Plan, with significant opportunities to create a great new place to live, work and visit. The Eastern City District is reproduced at Figure 2.1.

**Figure 2.1: The Eastern City District Plan**



Source: Eastern City District Plan, accessed May 2024

## 2.2 Relevant Local Strategies and Plans

### 2.2.1 Rhodes Place Strategy

The Department of Planning, Industry and Environment has prepared a master plan for the Rhodes Precinct. The precinct is made up of land to the east and west of Rhodes train station, bounded by Parramatta River to the north and Mary Street East to the south, noting the current draft strategy excludes the site. This master plan consists of rezoning



the Rhodes area to allow around 1,500 dwellings and 310 jobs over the precinct in the next 20 years. The document represents an insight into contemporary thinking around the future vision for the precinct.

The strategy includes guiding principles for future design and development outcomes across the entire Rhodes precinct, prioritised to balance state government priorities, community aspirations and best planning practices for a sustainable future. The guiding principles are reproduced below, with those related to transport highlighted in bold:

**1. Design open space for amenity**

- Existing and proposed open space should be designed for amenity rather than relying on interventions, improvements and/or retrofits that compromise the intent or quality of the space

**2. Prioritise pedestrians**

- The pedestrian experience must be prioritised to improve transport outcomes.

**3. Minimise overshadowing of open space**

**4. Plan for density near public transport**

- The highest concentration of new residents and development will be nearest to public transport.

**5. Balance of density and public benefit**

**6. Celebrate new open space on Parramatta River**

**7. Create a varied and permeable skyline**

**8. Share views across the precinct**

**9. Design streets and public areas for human comfort**

- People walking in or using public areas should feel a sense of openness and activity with taller buildings set back from active building podiums.

**10. Create a sense of variety and uniqueness in character areas**

While the proposed development is located outside of the Rhodes Precinct, connecting to the pedestrian and cycling network, particularly with the site's proximity to direct access to public transport, would be support this strategy. This reference scheme documents such a connection, thus directly supporting this strategy

## 2.2.2 City of Canada Bay Cycle Network Planning

The City of Canada Bay are currently developing a new bike plan. The previous bike plan was developed in 2005 and reviewed in 2014. The 2014 review identified the 'railway route' along John Whitton Bridge, Blaxland Road, Australand site link, Harrison Avenue, Killoola Street and Queen Street as one of the seven major routes (MR6) in the LGA, noting that it is currently incomplete.

The current interim bike map illustrates Council's intention to provide a future connection directly across Homebush Bay Drive to link the northern and south shared paths on the eastern edge of the railway. This would mitigate the requirement for cyclists to use the existing crossing that is convoluted and involves multiple flights of stairs. This connection was also illustrated in an interactive map used during public consultation for the new bike plan. The site's proposed connection to this wider network generally is in line and supports this strategy.



Figure 2.2: Canada Bay Interim Bicycle Network



Source: Interim Bike Network Plan, City of Canada Bay Council, accessed May 2024

## 2.3 Relevant Transport Opportunities

### 2.3.1 Sydney Metro

Sydney Metro north west, city and south west is currently Australia's largest public transportation project, which seeks to deliver over 65 kilometres of metro rail between Rouse Hill and Bankstown with 31 new metro stations. Stage 1 services began operating in May 2019 using automated metro trains with the expansion into the Sydney CBD and beyond to the south-west expected to be completed in 2024.

Sydney Metro aims to provide a metro train every two minutes in each direction within the Sydney CBD. Train services entering the Sydney CBD are proposed to increase from about 120 an hour to 200 services beyond 2024.

In addition, planning is currently underway for the Sydney Metro West, proposed to connect Greater Parramatta with the Sydney CBD. The project intends to double rail capacity between the two CBDs and comprises seven confirmed stations including at Sydney Olympic Park.

The NSW Government also recently announced planning for Sydney Metro Greater West, indicatively planned between St Marys Railway Station and Western Sydney Aerotropolis.

An overview of the future Sydney Metro network is shown at Figure 2.3.

As it applies to planning in relation to the subject site, particularly with its proximity and connections to the Rhodes Precinct, the Sydney Metro network are planned to considerably increase rail network capacity by introducing new high-capacity rail connections from the Sydney CBD to other key economic centres in the broader Sydney area.



Figure 2.3: Existing and Planned Sydney Metro Route Upgrades



Source: Page 8, Westmead to The Bays and Sydney CBD Environmental Impact Statement Summary, Sydney Metro, 2020

The planned expansion of Sydney's Metro network will significantly increase passenger travel by rail right across Sydney, aggressively reduce travel times and improve the overall perception of public transport more generally.

The intended future Sydney Metro network will certainly improve accessibility and travel times for workers, particularly to/from Sydney CBD while create opportunities for real change in travel behaviour for all users. Sydney Metro Greater West will also ensure the new Western Sydney Aerotropolis is accessible to the Sydney CBD via a continuous rail network with a limited need to route or line change.

### 2.3.2 Parramatta Light Rail Stage 2

The Parramatta Light Rail (PLR) Stage 1 route will connect Westmead with Carlingford via the Parramatta CBD, with services expected to commence in 2023. PLR Stage 1 will provide a high frequency transport service to support existing residential catchments as well as several priority urban renewal precincts in the greater Parramatta to Olympic Peninsula Priority Urban Renewal Area, including Parramatta North, Camellia, Rydalmere and the Carlingford Corridor (including Telopea and Dundas).

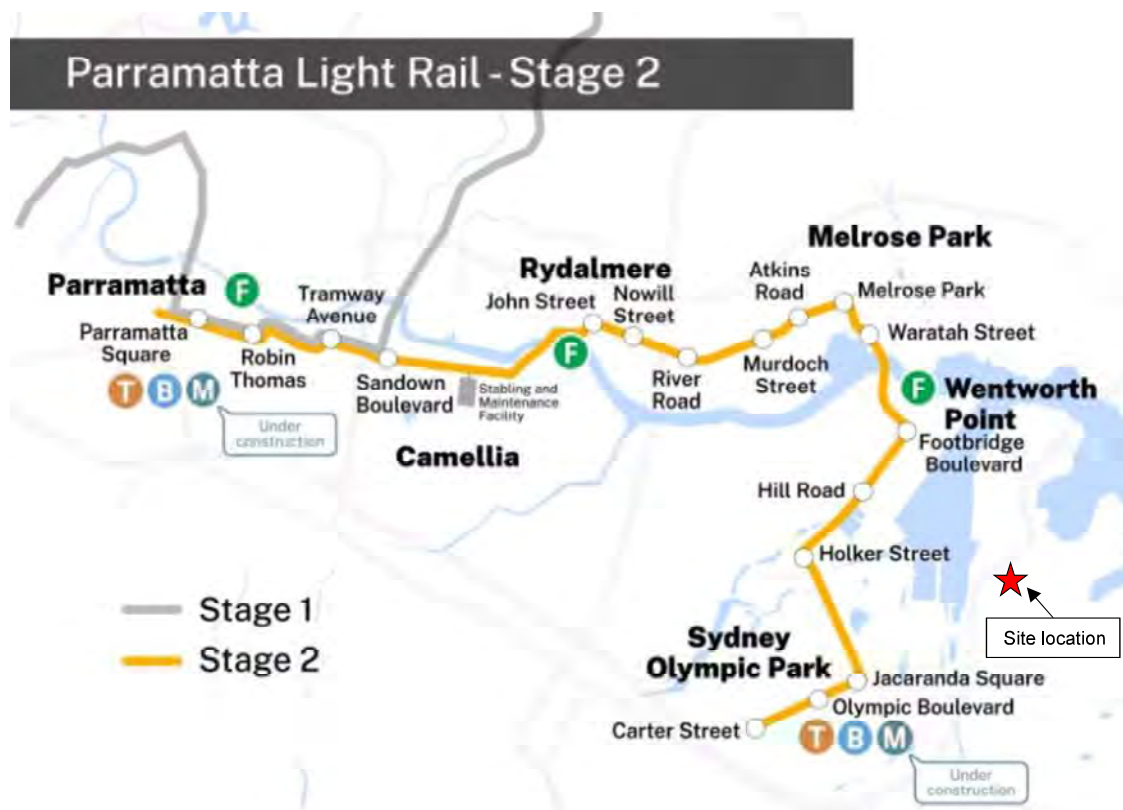
PLR Stage 2 proposes to provide a high frequency transport service to support existing residential catchments as well as several priority urban renewal precincts in the greater Parramatta to Olympic Peninsula Priority Urban Renewal Area, including Ermington, Melrose Park, Wentworth Point and Sydney Olympic Park. It will also provide interchange opportunities to Sydney Metro West, heavy rail in Parramatta and Sydney Olympic Park, and ferry services at Rydalmere and Sydney Olympic Park.

As it relates to the subject site, PLR Stage 2 is expected to improve accessibility for residents at Wentworth Point, decreasing the need to rely on heavy rail services at Rhodes Station.





Figure 2.4: Parramatta Light Rail Stage 2 Alignment



Source: Parramatta Light Rail Stage 2, NSW Government, accessed May 2024



## 3. Local Context

### 3.1 Location

The subject site is located at Oulton Avenue, Rhodes, with the lot legally described as lot 212 in DP1112512. The site of approximately 4,200sqm has an approximate frontage of 120 metres to Oulton Avenue, along an off-ramp coming from Homebush Bay Drive directly to the north. The site currently has a land use classification as B4 – Mixed Use and is vacant, occupied by dense vegetation.

The surrounding properties predominantly include residential uses to the south and a mix of uses, mainly comprising retail and high-density residential to the north.

The location of the subject site and its surrounding environs is shown in Figure 3.1 and Figure 3.2. The subject site and its surrounding sites with land zoning are shown in Figure 3.3.

**Figure 3.1: Subject Site and Its Environs**



Base image source: Sydway





**Figure 3.2: Aerial Photo of the Site**



**Figure 3.3: Land Zoning Map**



## 3.2 Road Network

### 3.2.1 Key Roads

Roads are classified according to the functions they perform. The main purpose of defining a road's functional class is to provide a basis for establishing the policies which guide the management of the road according to their intended service or qualities.

In terms of functional road classification, State roads are strategically important as they form the primary network used for the movement of people and goods between regions, and throughout the State. Transport for NSW (TfNSW) is responsible for funding, prioritising and carrying out works on State roads. State roads generally include roads classified as freeways, state highways, and main roads under the Roads Act 1993, and the regulation to manage the road system is stated in the Australian Road Rules.

TfNSW defines four levels in a typical functional road hierarchy, ranking from high mobility and low accessibility, to high accessibility and low mobility. These road classes are:



Arterial Roads – Controlled by TfNSW, typically no limit in flow and designed to carry vehicles long distance between regional centres.

Sub-Arterial Roads – Managed by either Council or TfNSW under a joint agreement. Typically, their operating capacity ranges between 10,000 and 20,000 vehicles per day, and their aim is to carry through traffic between specific areas in a sub region or provide connectivity from arterial road routes (regional links).

Collector Roads – Provide connectivity between local sites and the sub-arterial road network, and typically carry between 2,000 and 10,000 vehicles per day.

Local Roads – Provide direct access to properties and the collector road system and typically carry between 500 and 4,000 vehicles per day.

A summary of the surrounding road network near the site is presented at Table 4.1.

**Table 3.1: Surrounding Road Network near the Site**

Road Name	Class	Description
Homebush Bay Drive	Arterial Road (MR200)	<ul style="list-style-type: none"> <li>North-south connector between Concord Road to the north and the M4 Western Motorway to the south</li> <li>Six-lane, bi-directional configuration near the site</li> <li>Approximate 21m road width and variable road reserve</li> <li>70km/h speed limit near the site</li> <li>Parking is not permitted on either side of the road</li> </ul>
Concord Road (North of intersection with Homebush Bay Drive)	Arterial Road (MR200)	<ul style="list-style-type: none"> <li>North-south connector between Ryde Bridge to the north and Homebush Bay Drive to the south</li> <li>Six-lane, bi-directional configuration near the site</li> <li>Approximate 21m road width and variable road reserve</li> <li>70km/h speed limit near the site</li> <li>Parking is not permitted on either side of the road</li> </ul>
Oulton Avenue	Local road	<ul style="list-style-type: none"> <li>East-west local road between Homebush Bay Drive to the east and Rider Boulevard to the west</li> <li>Bi-directional configuration west of Wentworth Drive</li> <li>Approximate 16m road width and variable road reserve</li> <li>50km/h speed limit</li> <li>Parking is not permitted on either side of the road</li> </ul>

### 3.3 Car Parking

Given the site's location, there is minimal on-street parking provided near the site, with Rider Boulevard being the closest road with on-street parking. The site is also located near the Rhodes Waterside shopping centre which contains approximately 2,400 publicly accessible car parking spaces.

### 3.4 Public Transport

The site is relatively well serviced by public transport, being located approximately 800 metres (10 min walk) from Rhodes Station and around 280 metres (4 mins walk) to bus services on Rider Boulevard. The site is also within the TfNSW On-Demand public transport area.

A review of the public transport available near the site is summarised in Table 3.2 and shown indicatively in Figure 3.4.

**Table 3.2: Public Transport Provision**

Service	Route #	Route Description	Location of Stop	Distance to Nearest Stop	Frequency On/Off Peak
Bus	458	Ryde to Burwood	Rider Boulevard	280m	30 mins
	526	Burwood to Rhodes Shopping Centre	Rider Boulevard	400m	15 mins/ 30 mins
Train	T9		Rhodes Station	800m	5-10 mins/ 15 mins



**Figure 3.4: Surrounding Public Transport Network**



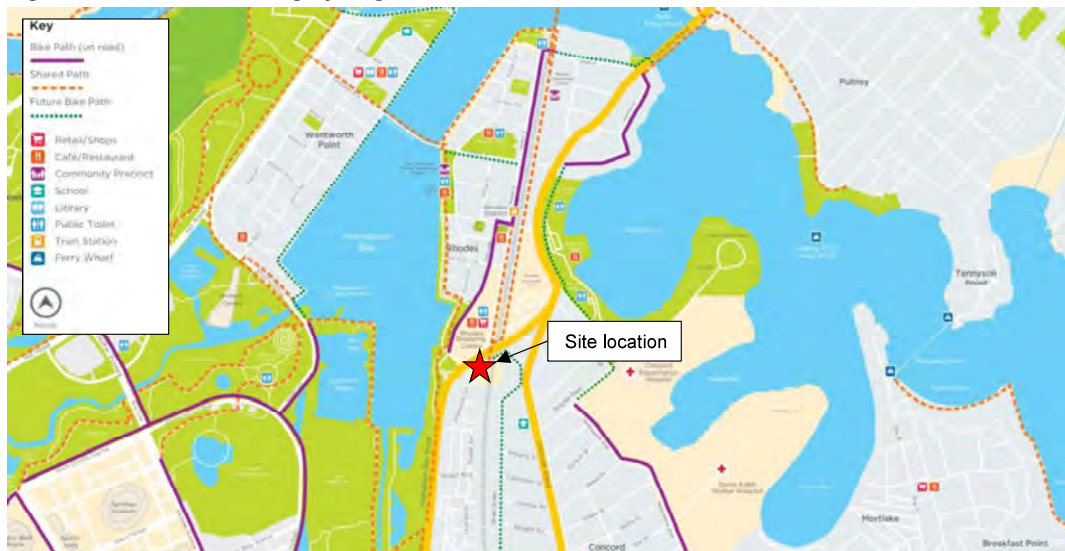
Base image source: [https://transportnsw.info/document/5670/21569\\_ts\\_r6\\_network\\_map\\_20211205.pdf](https://transportnsw.info/document/5670/21569_ts_r6_network_map_20211205.pdf), accessed May 2024

### 3.5 Pedestrian and Cycling Infrastructure

The site is well supported by surrounding pedestrian and cyclist infrastructure. A shared path is provided along the northern side of the site below Homebush Bay Drive, allowing for easy connection to Walker Street and Rhodes Station to the north, as well as over the railway corridor to Harrison Avenue and Concord West. Footpaths are generally provided on both sides of the road on Oulton Avenue and connect with shared paths that run parallel with Rider Boulevard, providing further connection to the northern end of Rhodes and across the Bennelong Bridge to Wentworth Point. Sydney Olympic Park and its surrounds including Bicentennial Park also have an expansive network of shared paths and cycling paths.

The surrounding cycling infrastructure is shown in Figure 3.5.

**Figure 3.5: Surrounding Cycling Network**



Base image source: [https://www.canadabay.nsw.gov.au/sites/default/files/Homebush\\_Bay\\_Cycle\\_Map\\_FINAL\\_Website\\_version\\_2.pdf](https://www.canadabay.nsw.gov.au/sites/default/files/Homebush_Bay_Cycle_Map_FINAL_Website_version_2.pdf), dated September 2016



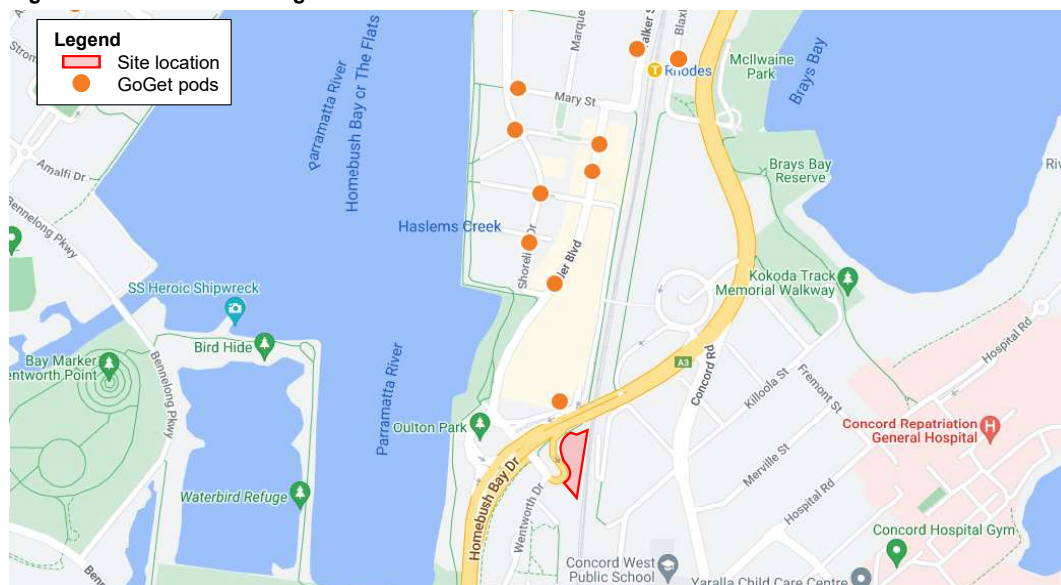


### 3.6 Local Car Sharing Initiatives

GoGet (along with other car share schemes) has become increasingly common throughout Sydney and is now recognised as a viable transport option for drivers throughout Sydney. They are now a well-utilised service especially in the inner suburbs due to limited parking availability and the expense involved in parking close to the Sydney CBD. GoGet offer a viable alternative to the private car for trips where distances are short and are likely to be of benefit to future tenants and commercial residents of the proposed development.

GoGet car share pods located close to the site are shown in Figure 3.6, with the closest pod located at Rhodes Waterside Shopping Centre.

**Figure 3.6: Surrounding GoGet Pod Locations**



Base image source: GoGet, accessed May 2024

### 3.7 Crash Data

Reported crash data was sourced from the Transport for NSW (TfNSW) Centre for Road Safety for the most recent five-year period available (2018 to 2022). During the reporting period, 12 crashes were recorded in the vicinity of the site along Oulton Avenue and Homebush Bay Drive, which are shown in Figure 3.7 and are broken down as follows:

- No fatalities
- Three seriously injured
- Five moderately injured
- Four minor/ other injured

It should be noted that none of these occurred directly along the off-ramp from Homebush Bay Drive on Oulton Avenue.

**Figure 3.7: Crash History (2018-2022)**



Base image source: TfNSW Interactive Crash Statistics, accessed May 2024



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## 4. Development Proposal

The proposal involves a residential development on the lot, providing high-density residential dwellings across two towers, one which is five storeys high and another which is eight storeys high. The proposal comprises 89 units making up 8,534 sqm GFA, which is broken down in Table 4.1.

**Table 4.1: Development Schedule**

Use	Description	Number of apartments
Residential	1 bedroom	26
	2 bedroom	37
	3 bedroom	26
	<b>Total</b>	<b>89</b>

The sole vehicle access is proposed on Oulton Avenue, along the Homebush Bay Road off-ramp. The access will facilitate two-way movement for cars and service vehicles, via a left-in, left-out arrangement. Walking and cycling access is available from the existing shared path adjacent to Homebush Bay Drive, which connects to Oulton Avenue immediately west of the site.

Parking will be provided within two levels of basement car parking within the site (levels 2 and 3). Loading and servicing is proposed to occur on level 1 in the south-eastern corner of the site.

The level 1 plan for the planning proposal is illustrated in Figure 4.1 and a typical basement level is shown in Figure 4.2.

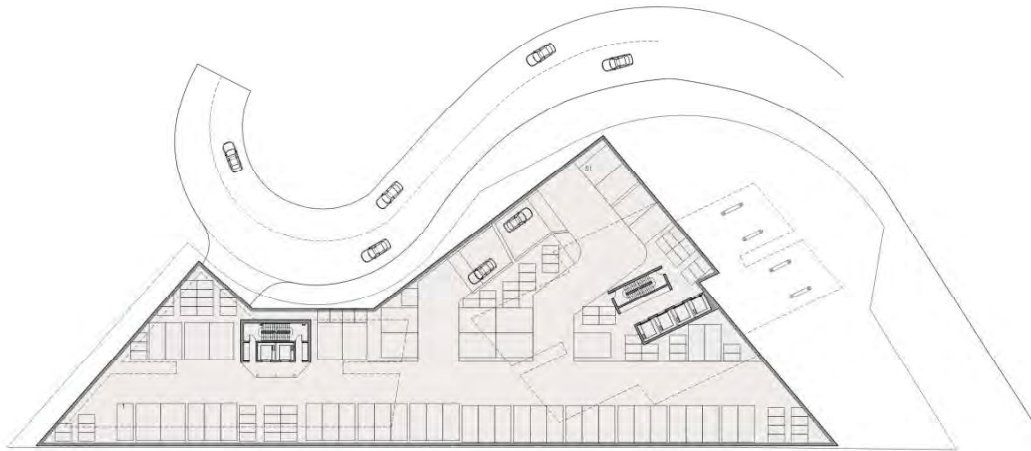
**Figure 4.1: Level 1 Plan**



Base image source: SJB, Urban Design Report, dated April 2024



**Figure 4.2: Typical Basement Level Plan**



Base image source: SJB, Urban Design Report, dated April 2024





## 5. Parking and Loading Assessment

### 5.1 Car Parking

The car parking provision requirements for different development types are set out in the CB DCP. A review of the car parking requirement rates and the residential yield results in a parking requirement for the proposed development is summarised in Table 5.1.

**Table 5.1: CB DCP Car Parking Requirements**

Description	Use	Size	Car Parking Rate	Car Parking Requirement
Residential	1 bedroom	26 apartments	0.3 spaces per dwelling	8
	2 bedroom	37 apartments	0.7 spaces per dwelling	26
	3 bedroom	26 apartments	1 space per dwelling	26
	Visitor	-	1 space per 20 apartments (maximum)	4
<b>Total</b>				<b>64</b>

Table 5.1 indicates the proposal generates a parking requirement of 64 car parking spaces, including 60 for residents and a maximum of 4 spaces for residential visitors.

The current proposal indicates the provision of 101 car parking spaces, which exceeds the above requirement. As such, there is opportunity to reduce car parking provision, particularly noting the provision of active travel infrastructure in proximity to the site, as well as proximity to public transport as well. Further detail on car parking provision will be provided as part of future planning applications.

### 5.2 Bicycle Parking

The bicycle parking rates applicable to the site are outlined in the CB DCP. Table 5.2 sets out the bicycle parking requirements for the proposal.

**Table 5.2: CB DCP Bicycle Parking Requirements**

Description	Use	Size	Bicycle Parking Rate	Bicycle Parking Requirement
Residential	Resident	89 apartments	2 spaces per dwelling (resident)	45
	Visitor		2 per 10 dwellings (visitor)	18
			1 space per 12 apartments (minimum)	7
Total				63

Table 5.2 indicates the proposal generates a requirement for 63 bicycle parking spaces including 45 spaces for residents and 18 spaces for visitors, noting the minimum provision for visitors is 7 spaces.

The proposal includes bicycle parking areas on the level 1 for use for visitors and potentially residents (for short return trips) with the provision within the public domain. It is expected as part of future design stages, that on-site provision will meet this minimum requirement through residential storage cages and any dedicated secure bicycle parking for residents within the basement parking area. Further detail on bicycle parking provision will be provided as part of future planning applications.

### 5.3 Loading and Servicing

CB DCP specifies a maximum loading bay requirement of one space per 50 apartments for the first 200 apartments. The proposal includes one loading bay, accommodating up to one 12.5-metre-long heavy rigid vehicle (HRV), and as such, the proposal satisfies this requirement.

The design of the loading dock will be developed further as part of future planning applications.



## 5.4 Site Layout Review

A strategic review of the proposed site layout has been completed, with the focus being on the site access arrangement and noting further revision of the layout is expected as part of future design stages. The left-in, left-out access arrangement has been developed in response to feedback from Council and TfNSW relating to the previous scoping report, where an alternative access to the site was initially considered via the Oulton Avenue/ Homebush Bay Drive on-ramp traffic signals. A concept sketch of the site access has been prepared, which shows the left-in, left-out access arrangement is feasible, subject to adopting certain recommendations including:

- Ensuring any obstructions to minimum sight line requirements as per AS2890.1:2004 and AS2890.2:2018 are removed.
- Widening of driveway to allow a service vehicle (12.5m HRV) and a B99 to be stored within the site without conflict.
- Modification of lift core to accommodate widened access driveway and to improve visibility between entering and exiting vehicles.
- Recommend providing contrasting pavement/ entry treatment at the site access to minimise any potential for driver confusion.

Given the position of the access along the off-ramp from Homebush Bay Drive, typical advance signage should also be considered (warning of a concealed driveway and potentially reduced speed on approach to the access). The concept sketch which documents a sight line assessment, vehicle swept paths and design advice is included in Appendix A.

Swept path assessment conducted as part of the sketch documents that based on the indicative plans provided that a 12.5m HRV can enter the site, access the loading area, and exit the site in a forward direction.

The car park layout is to be reviewed in future design stages against the requirements of the relevant Australian Standards (AS/NZS2890.1:2004, AS2890.2:2018 and AS/NZS2890.6:2022) and Council requirements and is expected to be designed in accordance with these requirements.

Further detail of the parking and traffic configuration internal to the site will be developed further as part of future planning applications.



## 6. Traffic Impact Assessment

Traffic generation rates for the proposed uses have been sourced from the TfNSW Guide to Traffic Generating Developments 2002 (the Guide) and Technical Direction: Updated Traffic Surveys (TDT 2013/ 04a).

The TDT 2013/ 04a recommends a traffic generation rate of 0.19 and 0.15 vehicle trips per dwelling in the AM and PM peak hours respectively for high density residential flat buildings. The TDT 2013/04a defines high density residential flat buildings as those that are close to public transport, greater than six storeys and almost exclusively residential in nature. Given the reference scheme includes eight storeys and is less than 800 metres walking distance from Rhodes Station, these rates are considered appropriate for the site.

Based on the above and considering the 89 apartments in the reference scheme, it is anticipated the proposed development of the site will generate around 17 and 13 vehicle trips in the AM and PM peak hours respectively.

On this basis, the proposal is expected to generate minimal traffic and thus would not have any adverse impact on the function, operation, or safety of the surrounding road network. The identified traffic generation is negligible in the context of Homebush Bay Drive and associated off-ramp traffic and would be within existing typical daily traffic fluctuations, including at the nearby Oulton Avenue traffic signals.

Furthermore, the active transport infrastructure in the immediate vicinity to the site and the site's proximity to public transport is expected to reduce resident and visitor reliance on private vehicle travel, as well as providing alternatives to private car travel during times of congestion on the arterial road network.



## 7. Overview Green Travel Plan

### 7.1.1 Travel Plan Framework

Transport is a necessary part of life, but it has economic, public health and environmental consequences. The transport sector is one of the fastest growing emissions sectors in Australia, and therefore is one of the key opportunities for reducing greenhouse gases. As well as delivering better environmental outcomes, providing a range of travel choices with a focus on walking, cycling and public transport will have major public health benefits and will ensure a strong and prosperous community.

The physical infrastructure being provided as part of the development is only part of the solution. A green travel plan (GTP) will ensure that the transport infrastructure, services and policies both within and external to the site are tailored to the users and coordinated to achieve the most sustainable outcome possible.

### 7.1.2 What is a GTP?

A Green Travel Plan (GTP) is a package of measures aimed at promoting sustainable travel and reducing reliance on the private car. It is not designed to be 'anti-car' however it will encourage and support people's aspirations for carrying out their daily business in a more sustainable way. Travel plans can provide both:

- measures which restrict car use (disincentives or 'sticks')
- measures which encourage or support sustainable travel, reduce the need to travel or make travelling more efficient (incentives or 'carrots').

The travel plan would promote the use of transport, other than the private car, provide choice for residents to travel to and from the site, which is more sustainable and environmentally friendly.

Indeed, there are a range of "non-car" transport options that are available at the site which have been described in this report.

Given the developments aim to reduce private travel to the site, the implementation of a GTP would be beneficial.

## 7.2 Key Objectives

The aim of the GTP is to bring about better transport arrangements for working at and visiting the site. The key objectives of the travel plan are:

- To encourage the use of public transport.
- To encourage walking and cycling to/from the site.
- To reduce the use of car, in particular single car occupancy.
- Where necessary to use the car, encourage more efficient use.

It is the intention therefore that the travel plan will deliver the following benefits:

- Enable higher public and active travel mode share targets to be achieved.
- Contribute to greenhouse gas emission reductions and carbon footprint minimisation.
- Contribute to healthy living for all.
- Contribute to social equity and reduction in social exclusion.
- Improve knowledge and contribute to learning.

## 7.3 Site Specific Measures

Several opportunities exist to provide residents and visitors with incentives to consider alternative modes of travel to and from site.

The following potential measures and initiatives could be implemented to encourage more sustainable travel modes:

1. Provide a Travel Access Guide (TAG) which would be provided to all residents and publicly available to all visitors. The document would be based on facilities available at the site and include detail on the surrounding public transport services and active transport initiatives. The TAG would be updated as the surrounding transport environment changes.
2. Providing public transport information boards/ apps to inform residents and visitors of alternative transport options (the format of such information boards would be based upon the TAG).



3. Providing a car sharing pod(s) on-site or nearby and promoting the availability of car sharing pods for trips that require the use of private vehicles.
4. Providing bicycle facilities including secure bicycle parking for residents, bicycle racks/ rails for visitors and shower and change room facilities.
5. Regularly promoting cycling and walking to residents.
6. Providing a regular newsletter to all residents bringing the latest news on sustainable travel initiatives in the area.

## 7.4 Information and Communication

Several opportunities exist to provide residents and visitors with information about nearby transport options. Connecting residents and visitors with information would help to facilitate journey planning and increase their awareness of convenient and inexpensive transport options which support change in travel behaviour.

These include:

- Transport NSW provides public transport timetables and journey planning through their Transport Info website: <http://www.transportnsw.info>.
- Council provides a number of services and a range of information and events to encourage people of all levels of experience to travel by bicycle, including a Council cycling map: [https://www.canadabay.nsw.gov.au/sites/default/files/Homebush\\_Bay\\_Cycle\\_Map\\_FINAL\\_Website\\_version\\_2.pdf](https://www.canadabay.nsw.gov.au/sites/default/files/Homebush_Bay_Cycle_Map_FINAL_Website_version_2.pdf).

In addition, connecting residents and visitors via social media may provide a platform to informally pilot new programs or create travel-buddy networks and communication.

## 7.5 Monitoring of the GTP

There is no standard methodology for monitoring the GTP, but it is suggested that it be monitored to ensure that it is achieving the desired benefits and modify it if required. It will not be possible at this stage to state what additional modifications might be made as this will be dependent upon the particular circumstances prevailing at that time.

The GTP should be monitored on a regular basis, e.g. yearly, by carrying out travel surveys. Travel surveys will allow the most effective initiatives of the GTP to be identified, and conversely less effective initiatives can be modified or replaced to ensure the best outcomes are achieved. It will clearly be important to understand people's reasons for travelling the way they do: - any barriers to changing their behaviour, and their propensity to change.

To ensure the successful implementation of the GTP, a Travel Plan Coordinator (TPC) should be appointed to ensure the successful implementation of the GTP. This could be the building manager or a member of the body corporate.

## 7.6 Summary

The proposal would be able to develop and utilise a travel plan to actively promote increased use of sustainable transport modes. Although it is difficult to predict what measures might be achievable, the above measures provide a framework for the site and implementation of a future travel plan.



## 8. Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

- The planning proposal proposes a high-density residential development on the site along Oulton Avenue, Concord West, legally described as lot 212, DP1112512. The reference scheme comprises of comprising 89 apartments across two towers between five and eight storeys, together with two storeys of basement car parking.
- The reference scheme generates an on-site parking requirement of 64 car space including 60 car spaces for residents and four for visitors. The current proposal includes 101 car parking spaces on site which exceeds this requirement and can be reduced to encourage other travel modes given the site location in close proximity to a shared path facility and Rhodes station.
- The reference scheme generates an on-site parking requirement of 63 bicycle parking spaces including 45 spaces for residents and 18 for visitors. The reference scheme includes bicycle parking on level 1 in the public domain. It is expected as part of future design stages, that the provision meets this minimum requirement. Also, it is recommended that secure bicycle parking be provided for residents within the basement car park.
- One loading bay is provided as part of the proposal which satisfies CB DCP requirements.
- The proposed parking layout and loading areas will be progressed as part of future development applications to be consistent with the dimensional requirements as set out in CB DCP and Australian/New Zealand Standard for Off Street Car Parking (AS/NZS2890.1:2004, AS2890.2:2018 and AS/NZS2890.6:2022).
- The proposal is expected to generate up to 17 vehicle movements in any peak hour. As such, the proposal is expected to generate minimal traffic and thus would not have any adverse impact on the function, operation, or safety of the surrounding road network. The site's proximity to public transport and an active transport network will reduce reliance of residents and visitors on private vehicle usage, providing alternatives to private car travel during times of congestion on the arterial road network.
- The proposed development would be able to develop (in future planning stages) and utilise a travel plan to actively promote increased use of sustainable transport modes.



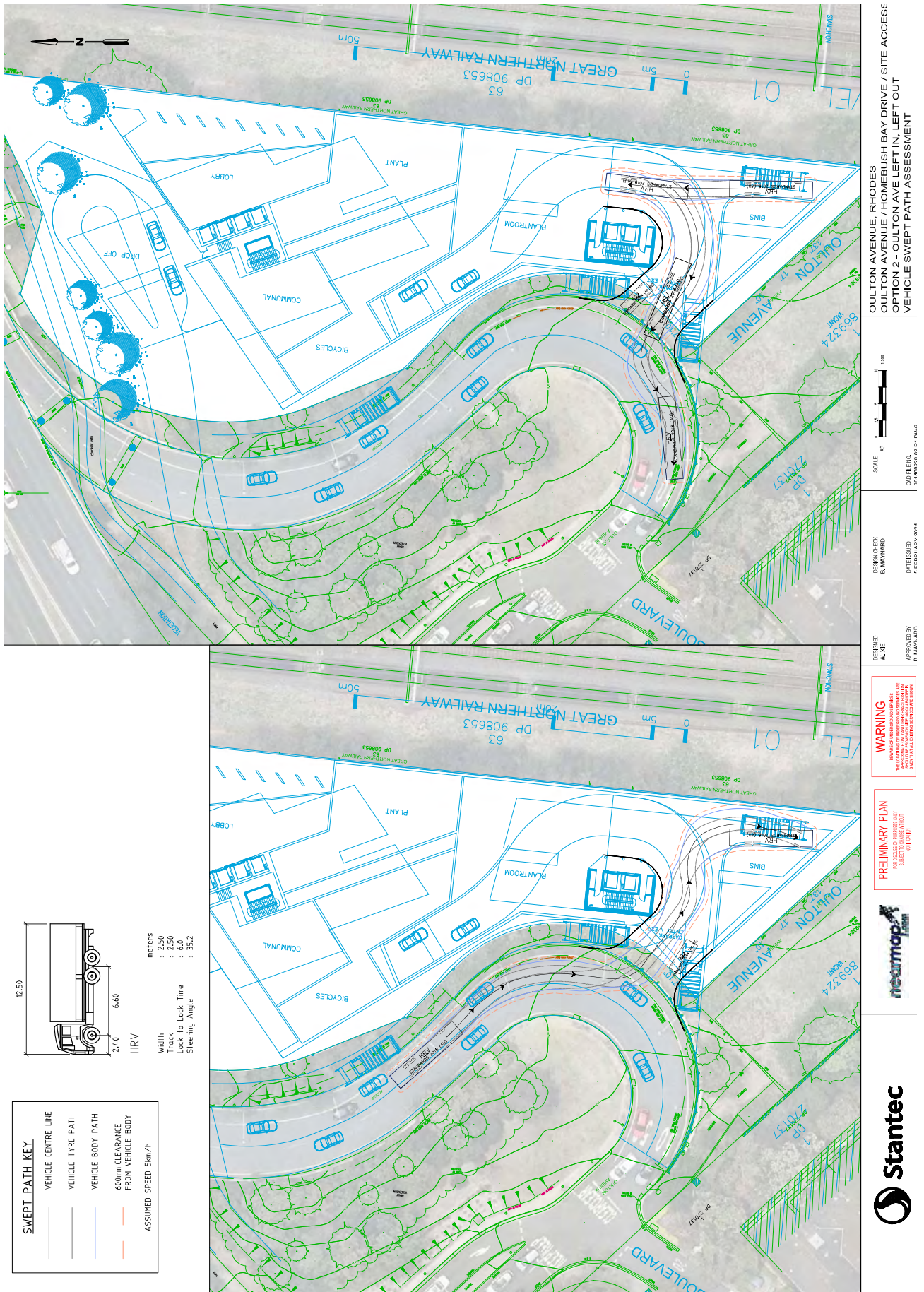


## Appendix A. Concept Site Access Plans

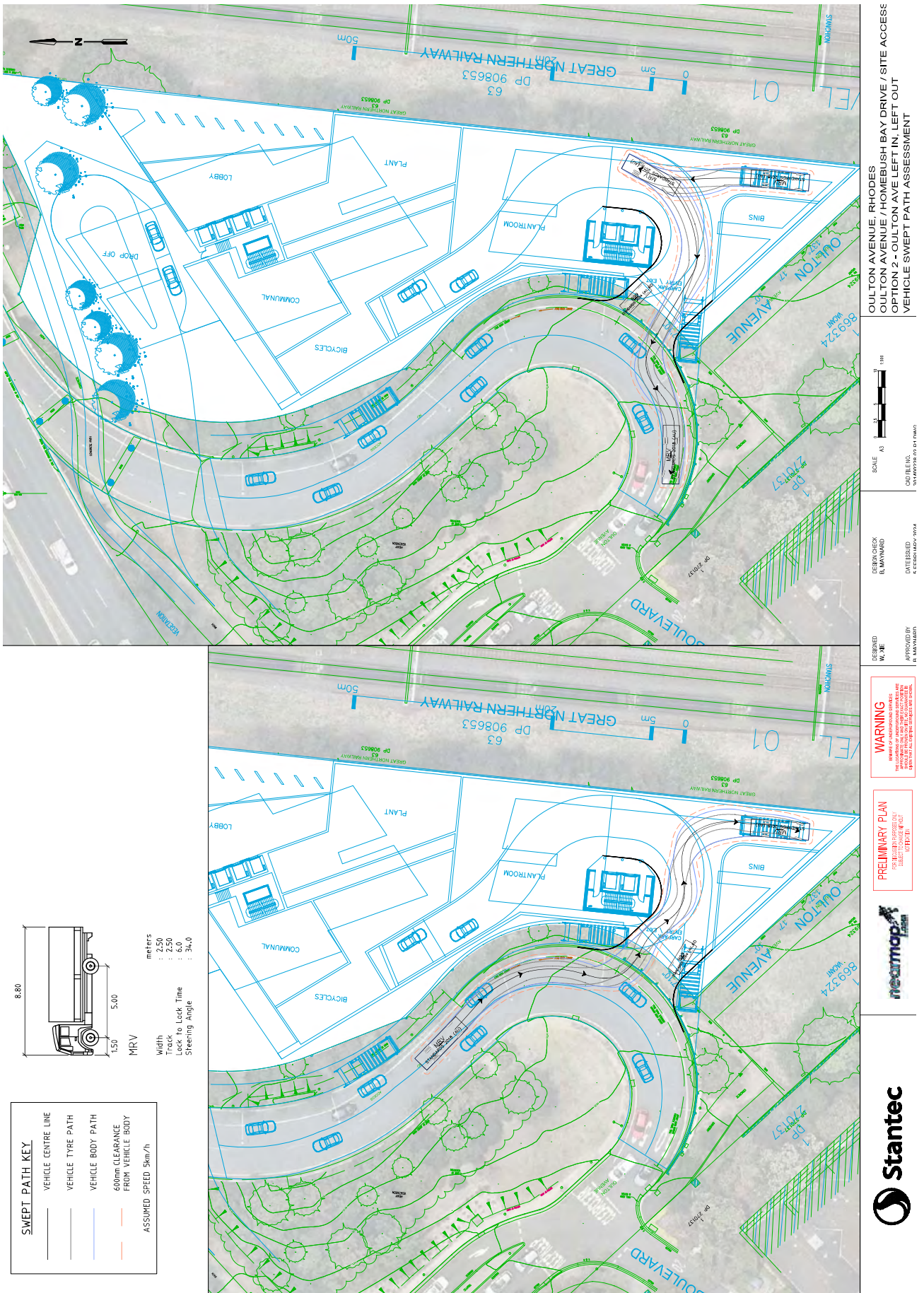


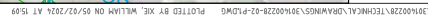


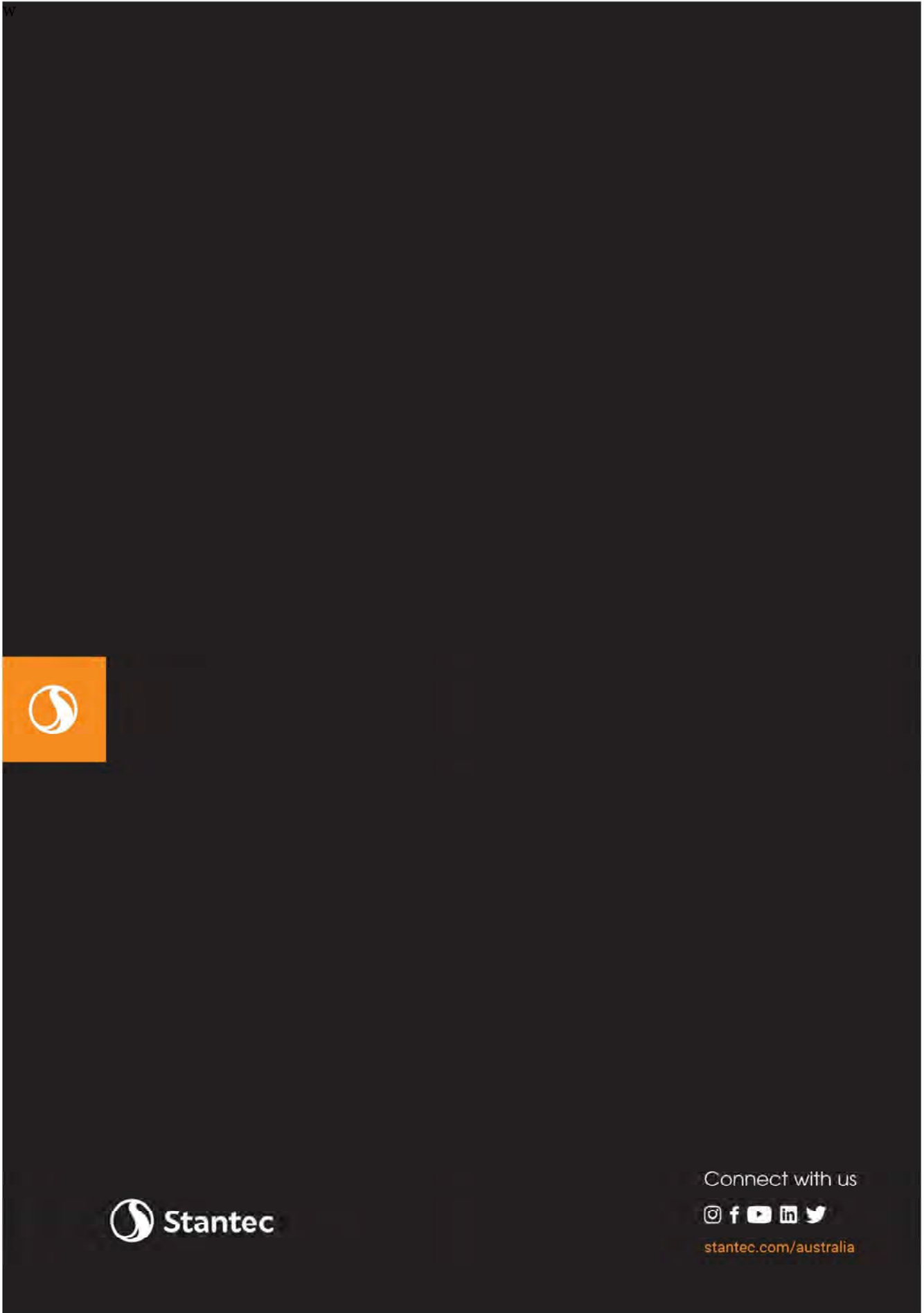












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# HARON ROBSON

1 May 2024

Urbis  
Angel Place, Level 3, 123 Pitt Street  
Sydney, NSW 2000

Attention: Cristopher Croucamp

**RE: OULTON AVENUE CONCORD WEST  
ELECTRICAL & TELECOMMUNICATIONS SERVICES SITE SERVICING ASSESSMENT**

Please find attached the Haron Robson Electrical & Telecommunications Services Site Servicing Assessment Report for the above project.

Should you have any questions on this matter please do not hesitate to contact the undersigned at this office.

Yours faithfully  
HARON ROBSON



Tom Russell  
Technical Director

trussell@haronrobson.com.au

Attachment (1) Haron Robson Electrical & Telecommunications Site Servicing Assessment (V2)

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## Electrical & Telecommunications Services Site Servicing Assessment

For

Oulton Avenue Concord West NSW 2138

This report, dated 01/05/2024, has been prepared by Haron Robson Pty Ltd for Billbergia Pty Ltd, Locked Bag 1400, Meadowbank NSW 2114.

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**ELECTRICAL & TELECOMMUNICATIONS SERVICES SITE SERVICING ASSESSMENT  
OULTON AVENUE CONCORD WEST  
DATE ISSUED: 01/05/2024**

**1 EXECUTIVE SUMMARY**

The following authority infrastructure is available (subject to authority approvals) to service the proposed development at Oulton Avenue Concord West, as outlined within this report:

- Ausgrid High Voltage Electricity Network
- NBNCo National Broadband Network
- Optus Telecommunication Fibre Network

There are some minor Council lighting assets at the northern boundary of the site that may need relocation depending on site survey information for exact positioning of the assets.

**2 INTRODUCTION**

**2.1 Purpose of this Report**

The following Electrical & Telecommunications Services Site Servicing Assessment provides a high-level overview of the available electrical & telecommunications infrastructure within the vicinity of the proposed development at Oulton Avenue Concord West.

**2.2 Project Overview**

The proposed development consists of the following elements:

- Ground floor level Carpark Entry & Exit / Lobby area
- Two levels of car parking
- A Podium Level
- Two residential towers of eight (8) storeys & twelve (12) storeys respectively
- A total of 101 car parking spaces & 89 apartments

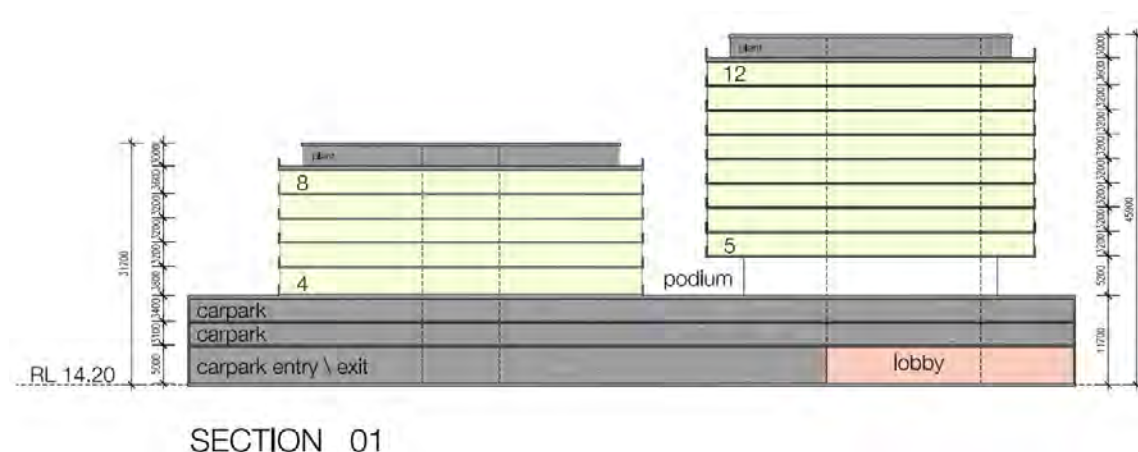


Image Courtesy of SJB Architects



**ELECTRICAL & TELECOMMUNICATIONS SERVICES SITE SERVICING ASSESSMENT  
OULTON AVENUE CONCORD WEST  
DATE ISSUED: 01/05/2024**



*Proposed development site plan taken from Google Maps*



**ELECTRICAL & TELECOMMUNICATIONS SERVICES SITE SERVICING ASSESSMENT**  
**OULTON AVENUE CONCORD WEST**  
**DATE ISSUED: 01/05/2024**

**2.3 Scope of Electrical Services**

The following related services are expected to be provided to the proposed development:

- Electrical Supply
- National Broadband Network connectivity
- General power, lighting & telecommunication services
- Electronic fire detection & alarm services
- Security, access control & CCTV and intercom services

**2.4 Limitations**

The information contained within this report is subject to the various asset authority applications and their approval process.



**ELECTRICAL & TELECOMMUNICATIONS SERVICES SITE SERVICING ASSESSMENT  
OULTON AVENUE CONCORD WEST  
DATE ISSUED: 01/05/2024**

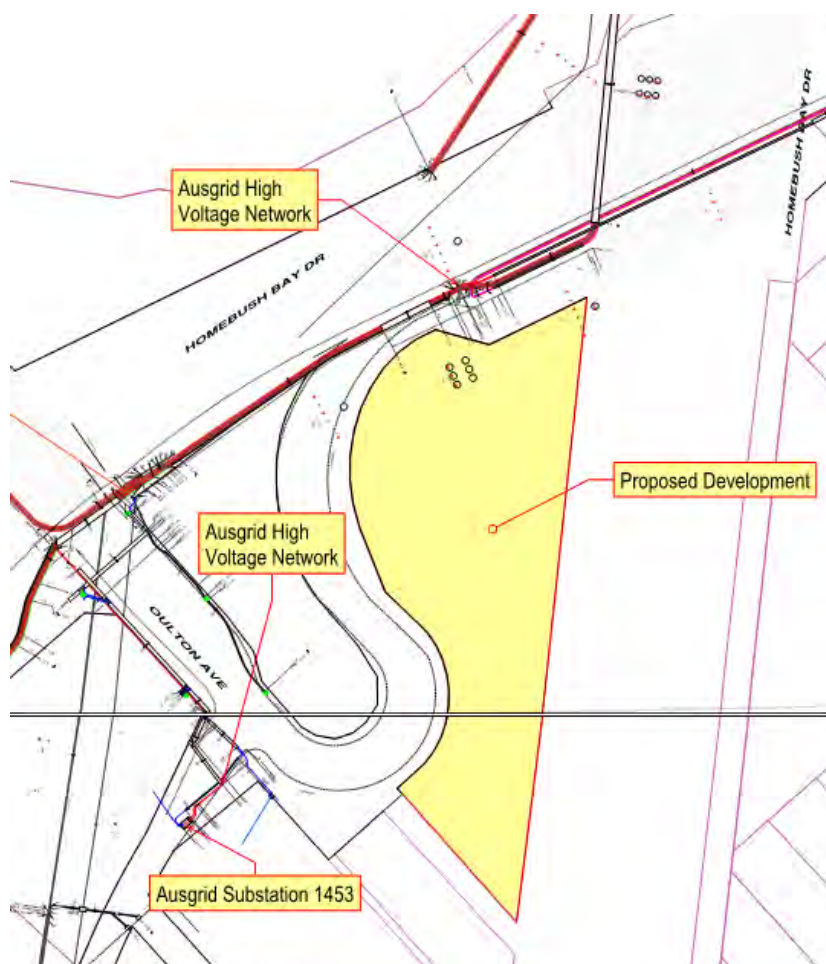
**3 INFRASTRUCTURE**

The following is an overview of existing authority infrastructure within the vicinity of the proposed development.

**3.1 Electricity Network**

The development site is not currently provided with a frontage to an available high voltage network asset and will require a network main extension to service the proposed development.

Subject to Ausgrid application, liaising, design and approval, the existing HV mains located to the north of the site in Homebush Bay Drive or to the southwest corner of the site at the corner of Oulton Avenue & Wentworth Drive may be extended to service the proposed development.

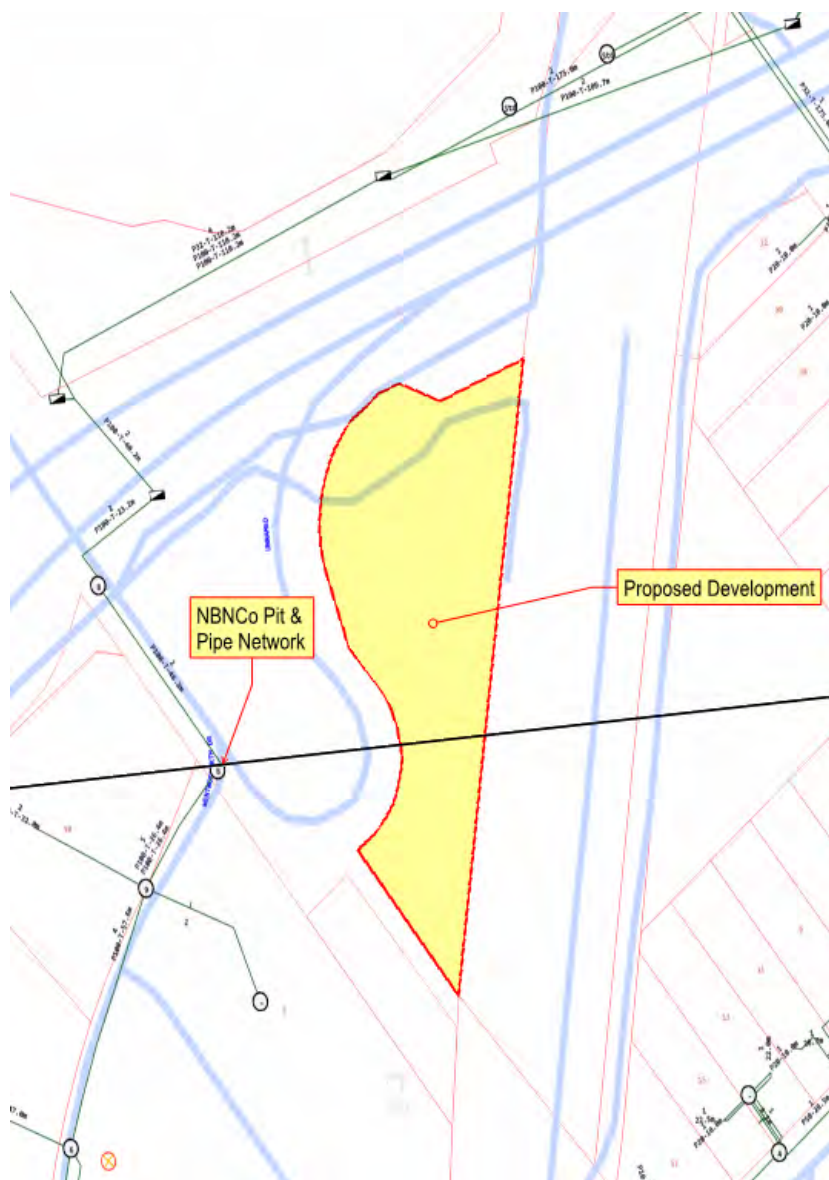


*Ausgrid electricity network map*



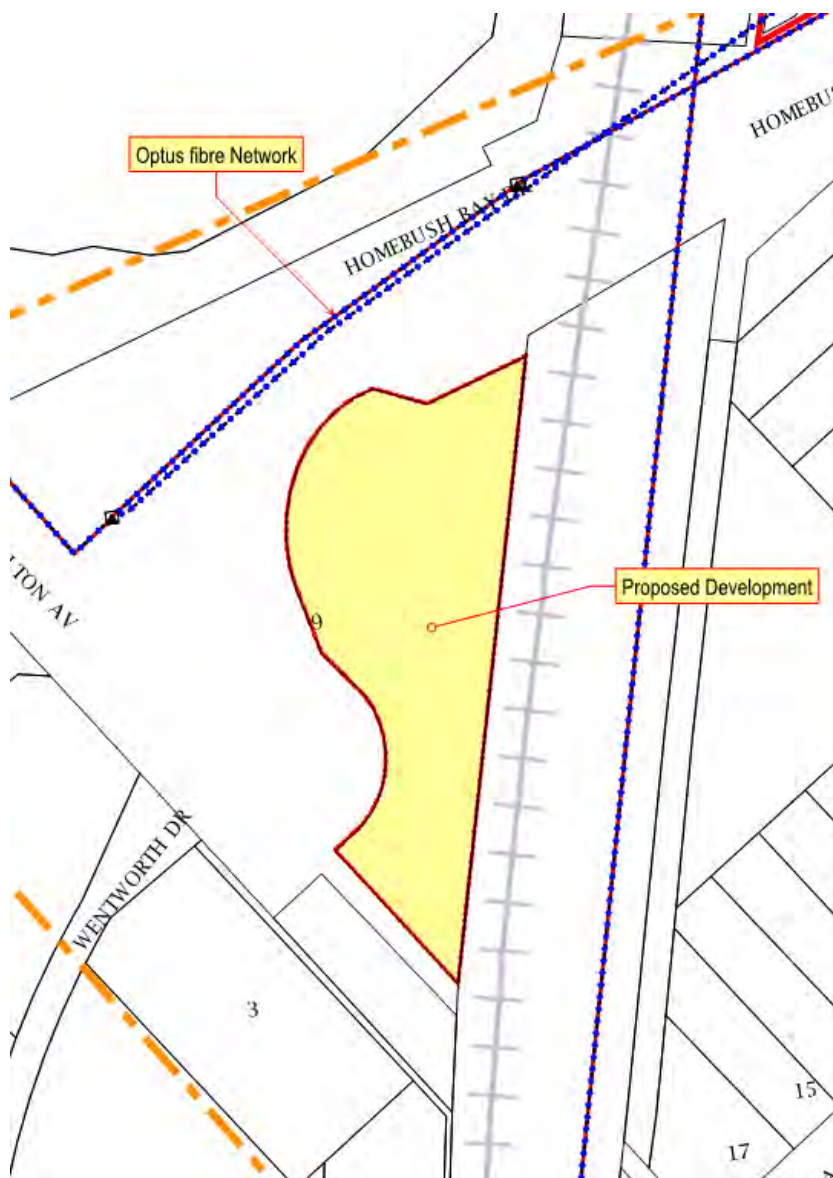
The development site is not currently provided with a frontage to an available telecommunications network asset and will require a network extension to service the proposed development.

Subject to a Telecommunications Service Provider application, liaising, design and approval, the existing NBNCo pit & duct network located to the southwest of the site at the corner of Oulton Avenue & Wentworth Drive may be extended to service the proposed development. There is also an Optus Fibre network to the north of the site on the other side of Homebush Bay Drive.



NBNCo pit & pipe network map

**ELECTRICAL & TELECOMMUNICATIONS SERVICES SITE SERVICING ASSESSMENT**  
**OULTON AVENUE CONCORD WEST**  
**DATE ISSUED: 01/05/2024**



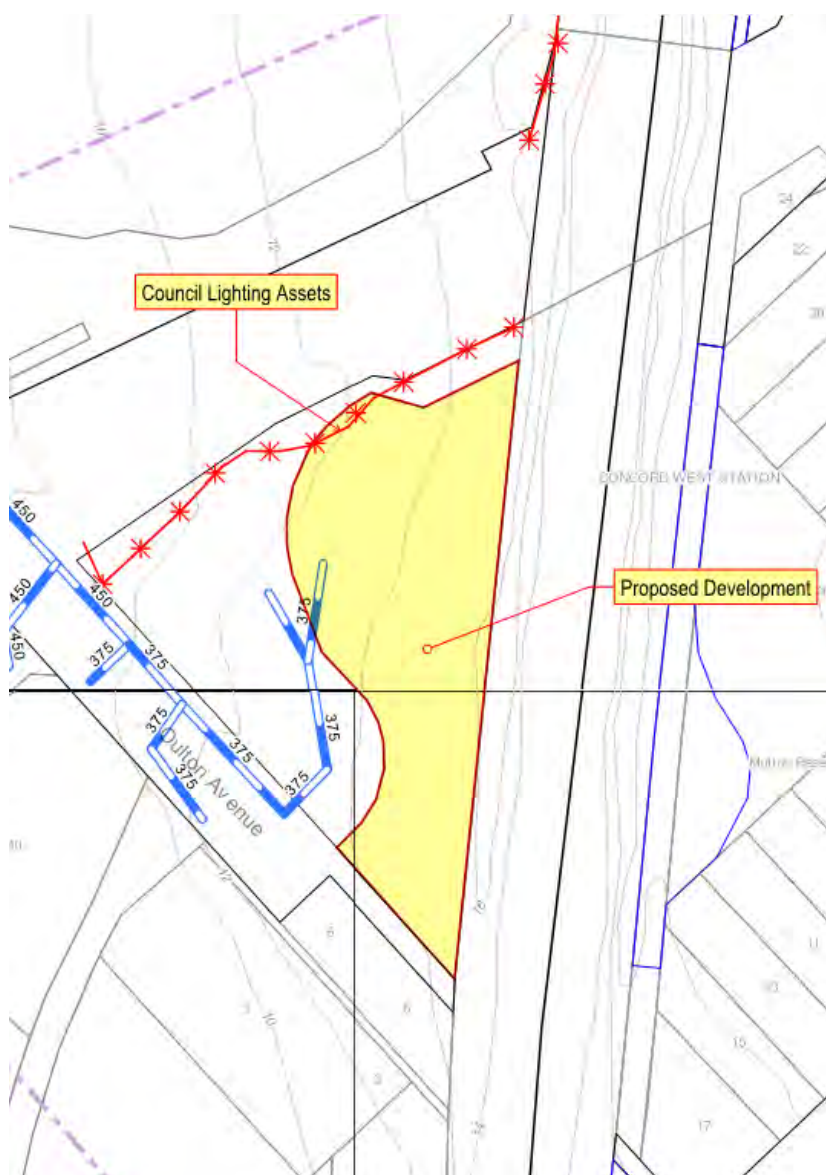
*Optus fibre network map*



**ELECTRICAL & TELECOMMUNICATIONS SERVICES SITE SERVICING ASSESSMENT  
OULTON AVENUE CONCORD WEST  
DATE ISSUED: 01/05/2024**

**3.3 Other Related Services**

During our investigations we identified that there is an existing Council owned pathway lighting along the northern boundary servicing the pedestrian link from Homebush Bay drive to the underpass to Oulton Avenue. The Council plan shows that there may be Council assets on the proposed development lot. A detailed survey should be undertaken to realise the exact position & cable routes of these assets to ascertain their impact on the proposed site.



City of Canada Bay Asset map



Report on  
Preliminary Site Investigation (Contamination)

Lot 212 DP 1112512  
Oulton Avenue, Rhodes

Prepared for  
Billbergia Developments Pty Ltd

Project 99878.00  
May 2024

Integrated Practical Solutions





## Document History

### Document details

Project No.	99878.00	Document No.	R.001
Document title	Report on Preliminary Site Investigation (Contamination) Lot 212 DP 1112512		
Site address	Oulton Avenue, Rhodes		
Report prepared for	Billbergia Developments Pty Ltd		
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### Document status and review

Revision	Prepared by	Reviewed by	Date issued
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Revision 0	P Oitmaa	J Russell	11 May 2021
Revision 1	P Oitmaa	J Russell	14 May 2024

### Distribution of copies

Revision	Electronic	Paper	Issued to
Draft A	1	-	Billbergia Developments Pty Ltd
Revision 0	1	-	Billbergia Developments Pty Ltd
Revision 1	1	-	Billbergia Developments Pty Ltd

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

	Signature	Date
Author		14 May 2024
Reviewer	pp	14 May 2024



FS604853

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## Report on Preliminary Site Investigation (Contamination)

Lot 212 DP 1112512

Oulton Avenue, Rhodes

---

### 1. Introduction

This report prepared by Douglas Partners Pty Ltd (DP) presents the results of a Preliminary Site Investigation (Contamination) undertaken on Lot 212 DP 1112512, Oulton Avenue, Rhodes. The investigation was undertaken for Billbergia Developments Pty Ltd, developers of the site.

It is understood that the proposed development will be for residential purposes and will include two separate towers of 8 and 12-storeys including three to four levels of shared podium/above-ground carpark.

The Preliminary Site Investigation was undertaken to:

- assess the previous land uses to evaluate the potential for soil and groundwater contamination on the site;
- provide a preliminary assessment of the suitability of the site for the proposed development; and
- provide recommendations for additional investigation, if required.

The Preliminary Site Investigation has been prepared to address the requirements of *State Environmental Planning Policy No 55 – Remediation of Land*. The overall approach for the Preliminary Site Investigation included a review of available historical information and an inspection of the site by an engineer. Details of the investigation are given in this report, as well as comments on the issues outlined above.

Notes that should be read in conjunction with this report are included in Appendix A.

### 2. Site Description

Lot 212 DP 1112512 is located between the southbound slip lane off Homebush Bay Drive (onto Oulton Avenue) and the main northern rail corridor. The Liberty Grove residential precinct is located to the south of the site.

The site dips gently to the south and west, and is some 5 m above the rail corridor. It is currently vacant and vegetated with grass, shrubs and trees.

The location of the site is shown on Drawing 1 in Appendix B.

### 3. Regional Geology and Hydrogeology

The Sydney 1:100 000 Geological Series Sheet indicates that the site is underlain by Ashfield Shale which typically comprises a residual clay profile overlying variably weathered dark grey shale, laminite and siltstone. An extract from the geological map overlain by 2 m surface contours is shown in Figure 1.

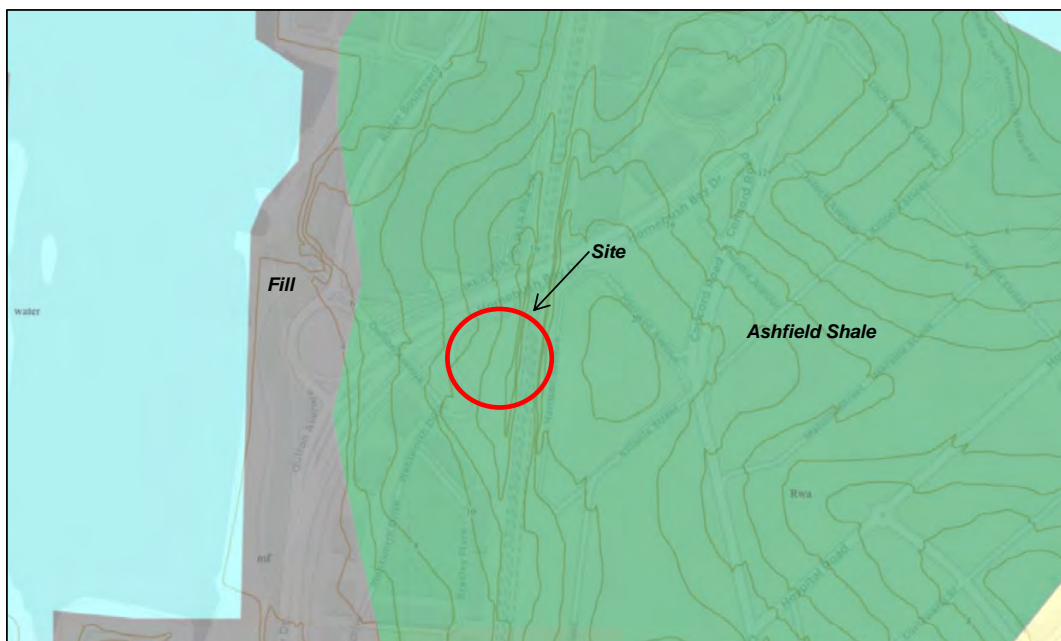


Figure 1: Extract from geological map overlain by 2 m surface contours

The topography of the site suggests that regional groundwater is likely to flow in a westerly direction. Groundwater in this geology is typically of poor quality (i.e. saline/high dissolved salts) and low yield and is not considered to be a high value potential resource. The regional groundwater table is also likely to be at considerable depth.

### 4. Scope of Works

The scope of the Preliminary Site Investigation was as follows:

- Review various readily available historical documents including historical aerial photographs, the Section 10.7 planning certificate, historical land title information, the EPA Contaminated Land register and groundwater bore licences to assess the nature of previous activities that may have occurred on the site;
- Undertake a site inspection to observe and document any obvious contamination risks; and



- Provide a Preliminary Site Investigation report which comments on the historical uses of the site, the potential for soil and groundwater contamination to be present, and provides recommendations for follow up action (if required).

## 5. Site History

### 5.1 Aerial Photographs

Aerial photographs from 1930, 1951, 1961, 1978, 1986, 1998, 2004 and 2020 were used to assess historical land-use patterns on the site. The aerial photographs are included in Appendix C.

The 1930 photograph shows that the site is vacant. Industrial premises are located to the north of the site and numerous residential dwellings have been constructed on the eastern side of the rail corridor in what is now Concord West.

The 1951 photograph shows additional housing in Concord West, new industrial buildings to the south and north, and some land reclamation on the eastern side of Homebush Bay. A small building is located near the northern boundary of the development site. The 1961 photograph shows similar conditions with an additional small building near the south-western corner of the site.

The 1978 photograph shows similar conditions to 1951 with the 1961 building in the south-western corner of the site demolished. The 1986 photograph shows that the site has been sealed with asphalt/bitumen for use as a carpark, presumably for one of the industrial premises nearby.

The 1998 photograph shows that Homebush Bay Drive has been constructed. The industrial buildings to the north and south of the site have been demolished and Liberty Grove to the south appears to have commenced construction.

The 2004 photograph shows that the off-ramp from Homebush Bay Drive to Oulton Avenue has been constructed, as has Liberty Grove to the south and Rhodes Shopping Centre to the north. The development site remains vacant.

### 5.2 Planning Certificate

The Section 10.7(2) planning certificate for the site was obtained from Canada Bay Council. The certificate states that the land is not known to be significantly contaminated within the meaning of the *Contaminated Land Management Act 1997* NSW, is not the subject of a management order, is not the subject of an approved voluntary management proposal, and is not the subject of an ongoing maintenance order.

The certificate also confirms that a Site Audit Statement (SAS) was previously prepared for the site in 2002 (Ref SAS R98003B by CH2M Hill Australia Pty Ltd dated 14 October 2002). It is assumed that the SAS did not identify the land as being significantly contaminated as this was not noted on the Section 10.7(2) planning certificate.



The planning certificate is included in Appendix D.

### 5.3 Historical Land Titles

Historical land title information was obtained for the site and is summarised in Table 1.

**Table 1: Summary of Previous Owners**

Date	Registered Owner	Possible Use
1911 to 1920	Allen Taylor	Vacant land
1920 to 1986	Lewis Berger and Sons (Aust.) Ltd	Vacant land, carpark
1986 to 1991	BJN Investments Pty Ltd	Carpark
1991 to 2004	Orica Australia Pty Ltd	Carpark
2004 to 2007	Walker Corporation Pty Ltd	Vacant land
2007 to 2015	Ikea Pty Ltd	Vacant land
2015 to date	Oulton Rhodes Pty Ltd	Vacant land

The information from the title deeds is included in Appendix E.

### 5.4 Contaminated Lands Register

The site is not identified as being significantly contaminated under the *Contaminated Lands Management Act 1997* as at 11 January 2021 based on an online search of the register. Further, the site is not on the 14 December 2020 version of the 'List of NSW Contaminated Sites Notified to EPA'.

Several sites in Rhodes either are or were subject to management including Homebush Bay Sediments adjoining former industrial premises, and former industrial premises in Marquet Street, Mary Street and Walker Street. These sites are to the north and west of the development site.

### 5.5 Licenced Groundwater Bores

A search of licenced groundwater bores indicates that the closest bore is on the eastern side of Homebush Bay as shown in Figure 2. The bore is likely to be a monitoring well as the water would likely be saline or brackish at this location. This well is approximately 200 m down-gradient of the development site.



Figure 2: Location of licenced groundwater bore

## 5.6 Previous Assessments

The Section 10.7(2) planning certificate notes that a SAS was previously prepared for the site in 2002. It is assumed that the site was investigated at this time and the investigation(s) and any subsequent remedial work would have informed the SAS. Douglas Partners has assumed that no further remediation work is required in relation to the 2002 SAS, however would require a copy of the SAS to confirm.

## 6. Results of Inspection

An engineer from DP undertook an inspection of the site on 4 November 2020. The site is heavily vegetated with grass, shrubs and trees and obvious signs of significant contamination were not observed. Photographs of the site are shown in Figures 3 and 4.





Figure 3: Site photograph looking south-west from bridge (4 November 2020)



Figure 4: Site photograph looking south-east from path (4 November 2020)





## 7. Preliminary Conceptual Site Model

The site history information indicates that the site has largely been unoccupied, with only two small buildings evident in the aerial photographs reviewed as part of this investigation. It appears to have been used as a carpark for adjacent industrial premises.

Potentially contaminating activities that may have occurred on the site include:

- The placement of potentially contaminated fill on the site;
- Demolition of buildings containing hazardous building materials (e.g. lead, asbestos, PCBs etc.);
- Contaminants associated with building/site maintenance (e.g. pesticides, herbicides); and
- Contaminants associated with chemical/paint manufacturing on the adjacent sites (e.g. fallout from manufacturing processes).

The use of groundwater on the site is not proposed. The quality of the groundwater from a land-use perspective will therefore only be of significance if volatile contaminants are present in groundwater. Given the site history and the up-gradient location relative to the adjacent industrial sites, the potential for groundwater contamination by volatile contaminants is considered to be generally low.

The human receptors to soil contamination are likely to be the residents and visitors to the site. Construction personnel may also be receptors during the construction phase of the project.

The ecological receptors are likely to be limited to the flora and fauna that grow/live on the site. The area is not known to be ecologically significant.

Exposure pathways are expected to be primarily limited to dermal contact and ingestion of potentially contaminated soils on the site by humans and fauna, and phytotoxic exposure to flora.

## 8. Conclusions and Recommendations

On the basis of the results of this Preliminary Site Investigation, the main contamination risks are considered to be associated with previous development works such as filling and demolition of former buildings, and site maintenance activities. The potential for contamination to be present from industry or other similar sources is considered to be generally low to medium.

The beneficial use (abstraction) of groundwater is not currently proposed and the groundwater table is likely to be well below the level of the proposed development. The site is also up-gradient of the former industrial premises. The risk of groundwater contamination impacting upon the proposed use of the site is therefore considered to be low.

On the basis of the investigation undertaken to date and the information available, it is considered that the risk of significant contamination being present, that prevents the use of the site for high density residential purposes, is low to medium. It is also considered that the land can be made suitable for the intended use subject to implementation of an appropriate contamination management strategy, including remediation where required.



As part of a future Development Application, a Detailed Site Investigation is considered necessary in order to properly assess the contamination characteristics of the site. It is also suggested that a copy of the SAS be obtained for review.

## 9. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for a project at Lot 212 DP 1112512, Oulton Avenue, Rhodes, in accordance with instructions received from the client. The report is provided for the use of Billbergia Developments Pty Ltd for this project only and for the purpose(s) described in the report. It should not be used for other projects or by a third party.

The results provided in the report are based on a desktop review only and intrusive investigations have yet to be undertaken on the site.

This report must be read in conjunction with all of the attached notes and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion given in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

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**Douglas Partners Pty Ltd**

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## Appendix A

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About this Report

# About this Report

## Douglas Partners



### Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

### Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

### Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

### Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;

- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

### Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

July 2010

## *About this Report*

### **Site Anomalies**

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

### **Information for Contractual Purposes**

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

### **Site Inspection**

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

July 2010

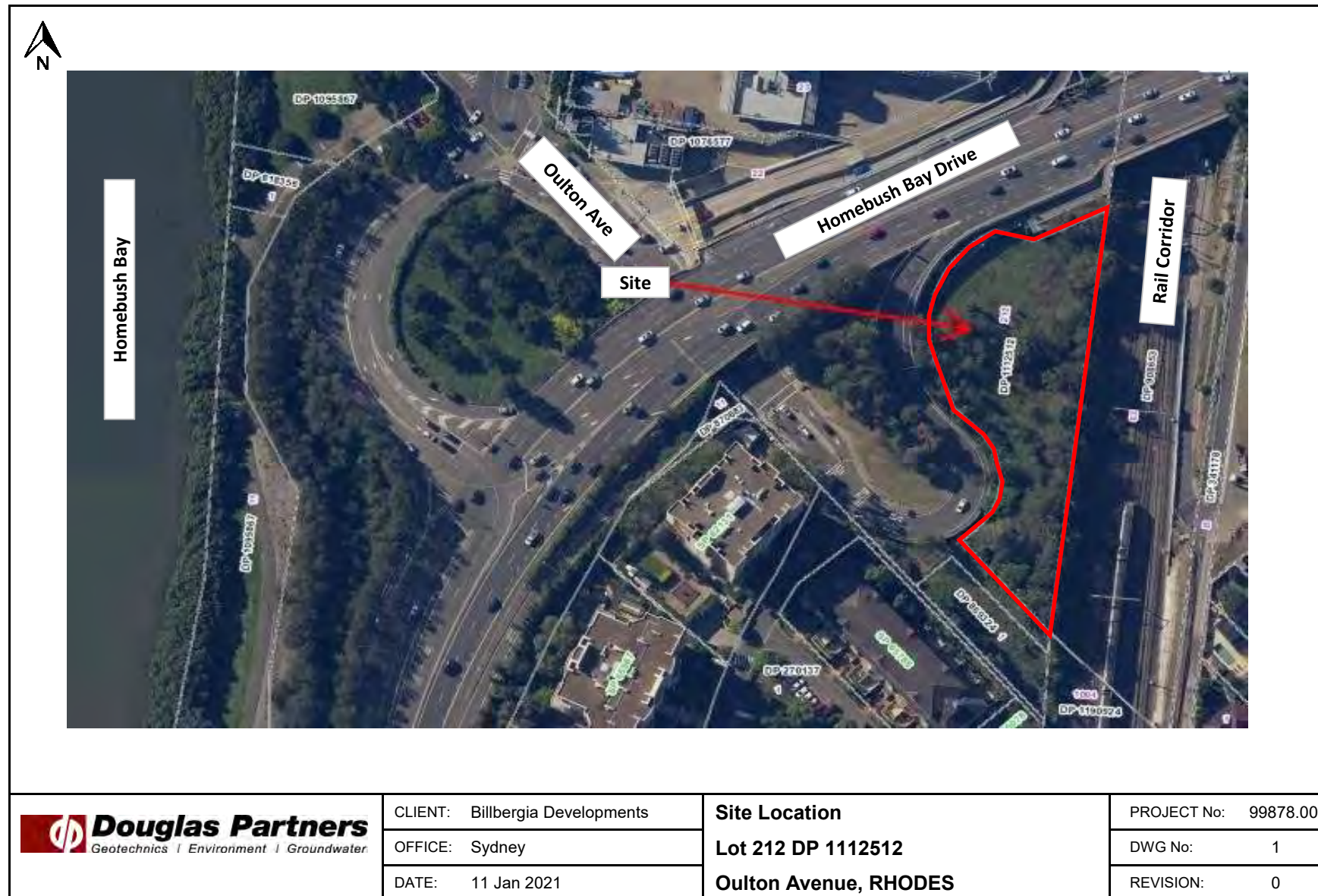


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## Appendix B

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Drawing



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## Appendix C

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Historical Aerial Photographs

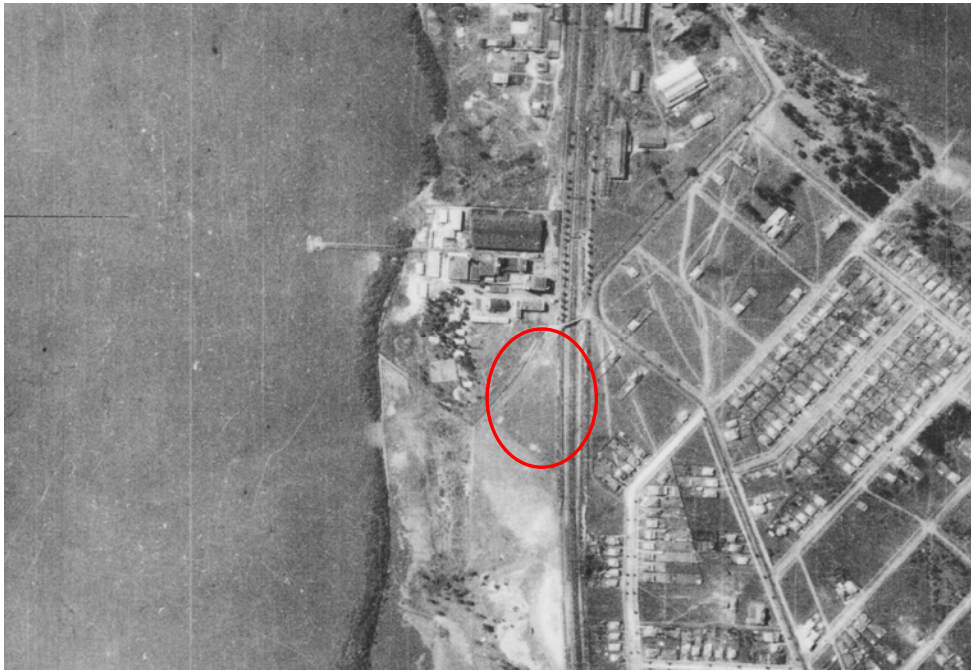


Photo 1 - 1930 Image



Photo 2 - 1951 Image



#### Historical Aerial Photos

Oulton Avenue

**RHODES**

CLIENT: Billbergia Developments

PROJECT: 99878.00

PLATE No: 1

REV: 0

DATE: 02-Dec-20



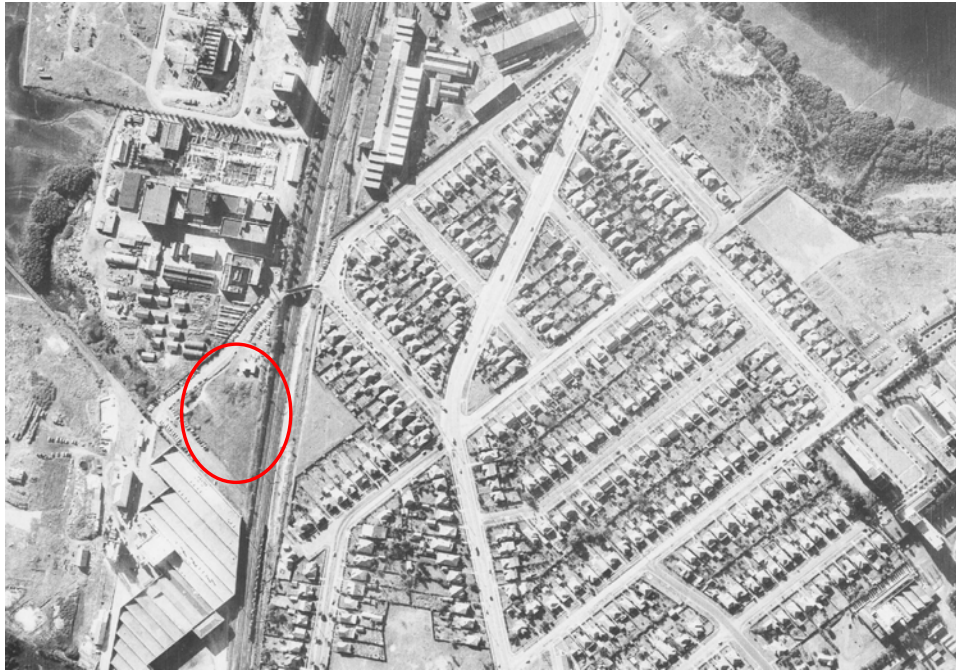


Photo 3 - 1961 Image



Photo 4 - 1978 Image



#### Historical Aerial Photos

Oulton Avenue

**RHODES**

CLIENT: Billbergia Developments

PROJECT: 99878.00

PLATE No: 2

REV: 0

DATE: 02-Dec-20



Photo 5 - 1986 Image



Photo 6 - 1998 Image



#### Historical Aerial Photos

Oulton Avenue

**RHODES**

CLIENT: Billbergia Developments

PROJECT: 99878.00

PLATE No: 3

REV: 0

DATE: 02-Dec-20






Photo 7 - 2004 Image



Photo 8 - 2020 Image

 <b>Douglas Partners</b> <small>Geotechnics   Environment   Groundwater</small>	<b>Historical Aerial Photos</b>  <b>Oulton Avenue</b>  <b>RHODES</b>  CLIENT: Billbergia Developments	PROJECT: 99878.00
		PLATE No: 4
		REV: 0
		DATE: 02-Dec-20

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## Appendix D

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Planning Certificate



**APPLICANT:** P Oitmaa  
96 Hermitage Road  
WEST RYDE NSW 2114

**PLANNING CERTIFICATE - under section 10.7  
Environmental Planning and Assessment Act 1979**

---

**Property:** Oulton Avenue CONCORD WEST NSW 2138

**Title:** Lot 212 DP 1112512

**Certificate No:** PC2020/2787 **Certificate Date:** 04/12/2020

**Receipt No:** Online Receipt **Certificate Fee:** \$53.00

**Land No:** 36277 **Applicant's Ref:** Oulton

**Planning Certificate****Property:** Oulton Avenue CONCORD WEST NSW 2138**Certificate No.:** PC2020/2787**Certificate Date:** 04/12/2020**SECTION 10.7(2)**

In accordance with the requirements of section 10.7(2) of the Environmental Planning and Assessment Act (1979) ("the Act"), the following prescribed matters relate to the land at the date of this certificate.

**ITEM 1 - Names of relevant planning instruments and DCPs****1. *The following environmental planning instruments apply to the carrying out of development on the land:***

Canada Bay Local Environmental Plan 2013

State Environmental Planning Policy No. 19 – Bushland in Urban Areas  
State Environmental Planning Policy No. 21 – Caravan Parks  
State Environmental Planning Policy No. 33 – Hazardous and Offensive Development  
State Environmental Planning Policy No. 50 – Canal Estates  
State Environmental Planning Policy No. 55 – Remediation of Land  
State Environmental Planning Policy No. 64 – Advertising and Signage  
State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Development  
State Environmental Planning Policy No. 70 – Affordable Housing (Revised Schemes)  
State Environmental Planning Policy (Affordable Rental Housing) 2009  
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004  
State Environmental Planning Policy (Concurrences and Consent) 2018  
State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017  
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008  
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004  
State Environmental Planning Policy (Infrastructure) 2007  
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007  
State Environmental Planning Policy (Primary Production and Extractive Industries) 2007  
State Environmental Planning Policy (State and Regional Development) 2011  
State Environmental Planning Policy (State Significant Precincts) 2005  
State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017  
Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005

**2. *The following proposed environmental planning instruments apply to the carrying out of development on the land and are or have been the subject of community consultation or on public exhibition under the Environmental Planning and Assessment Act 1979:***

Planning Proposal – Staged Implementation of LSPS

Housing Diversity State Environmental Planning Policy (Housing Diversity SEPP)

State Environmental Planning Policy (Environment)

**Planning Certificate**

**Property:** Oulton Avenue CONCORD WEST NSW 2138

**Certificate No.:** PC2020/2787

**Certificate Date:** 04/12/2020

**3. The following development control plans apply to the carrying out of development on the land:**

Rhodes West Development Control Plan

**ITEM 2 - Zoning and land use under relevant LEPs**

**1. (a) Zoning details in the instruments identified in item 1(1) above**

**Zone B4 Mixed Use**

**1 Objectives of zone**

- To provide a mixture of compatible land uses.
- To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.

**2 Permitted without consent**

Environmental protection works

**3 Permitted with consent**

Boarding houses; Building identification signs; Business identification signs; Child care centres; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hotel or motel accommodation; Information and education facilities; Light industries; Medical centres; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Seniors housing; Shop top housing; Any other development not specified in item 2 or 4

**4 Prohibited**

Agriculture; Air transport facilities; Airstrips; Animal boarding or training establishments; Biosolids treatment facilities; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Correctional centres; Crematoria; Depots; Electricity generating works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Farm stay accommodation; Forestry; Freight transport facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial training facilities; Industries; Jetties; Moorings; Open cut mining; Recreation facilities (major); Recreation facilities (outdoor); Residential accommodation; Resource recovery facilities; Rural industries; Sewage treatment plants; Signage; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Warehouse or distribution centres; Waste disposal facilities; Water recreation structures; Water supply systems

**Additional permitted uses**

No additional uses apply



## Planning Certificate

Property: Oulton Avenue CONCORD WEST NSW 2138

Certificate No.: PC2020/2787

Certificate Date: 04/12/2020

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- (b) *Are there development standards applying to the land, which fix minimum land dimensions for the erection of a dwelling house on the land?*

No fixed minimum land dimensions apply to this land

- (c) *Does the land include or comprise critical habitat?*

The land does not include or comprise critical habitat under an EPI

- (d) *Is the land within a heritage conservation area?*

The land is not within a heritage conservation area

- (e) *Is there a heritage item situated on the land?*

There are no heritage items situated on the land

2. (a) *Zoning details in the instruments identified in item 1(2) above*

No draft zoning applies to the land

***Additional permitted uses***

No draft additional uses apply

- (b) *Are there development standards applying to the land, which fix minimum land dimensions for the erection of a dwelling house on the land?*

No fixed minimum land dimensions apply to the land under a draft environmental planning instrument

- (c) *Does the land include or comprise critical habitat?*

The land does not include or comprise critical habitat under a draft EPI

- (d) *Is the land within a draft heritage conservation area?*

The land is not within a draft heritage conservation area

- (e) *Is there a draft heritage item situated on the land?*

There are no draft heritage items situated on the land

---

**ITEM 2A - Zoning and land use under State Environmental Planning Policy (Sydney Region Growth Centres) 2006**

***Is the land identified within any zone under Part 3 of State Environmental Planning Policy (Sydney Region Growth Centres) 2006, a Precinct Plan, or a Proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act?***

No

---

**ITEM 3 – Complying Development Exclusions**

**Planning Certificate**

Certificate No.: PC2020/2787

Property: Oulton Avenue CONCORD WEST NSW 2138

Certificate Date: 04/12/2020

***Is the land, land on which complying development may be carried out under clauses 1.17A(1)(c) to (e),(2),(3) and (4), 1.18 (1)(c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008?***

***Housing Code***

Yes, under the Housing Code complying development may be carried out on the land.

***Rural Housing Code***

Yes, under the Rural Housing Code complying development may be carried out on the land.

***Low Rise Housing Diversity Code***

Yes, under the Low Rise Housing Diversity Code complying development may be carried out on the land.

***Greenfield Housing Code***

Yes, under the Greenfield Housing Code complying development may be carried out on the land.

***Inland Code***

Yes, under the Inland Housing Code complying development may be carried out on the land.

***Housing Alterations Code***

Yes, under the Housing Alterations Code complying development may be carried out on the land.

***General Development Code***

Yes, under the General Development Code complying development may be carried out on the land.

***Commercial and Industrial Alterations Code***

Yes, under the General Commercial and Industrial Code complying development may be carried out on the land.

***Commercial and Industrial (New Buildings and Additions) Code***

Yes, under the General Commercial and Industrial (New Buildings and Additions) Code complying development may be carried out on the land.

***Container Recycling Facilities Code***

Yes, under the Container Recycling Facilities Code complying development may be carried out on the land.

***Subdivisions Code***

Yes, under the Subdivisions Code complying development may be carried out on the land.

**Planning Certificate**

Certificate No.: PC2020/2787

Property: Oulton Avenue CONCORD WEST NSW 2138

Certificate Date: 04/12/2020

---

**Demolition Code**

Yes, under the Demolition Code complying development may be carried out on the land.

**Fire Safety Code**

Yes, under the Fire Safety Code complying development may be carried out on the land.

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**ITEM 4 – Repealed**

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**ITEM 4A – Repealed**

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**ITEM 4B – Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works**

*Has the owner (or any previous owner) of the land consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act)?*

No

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**ITEM 5 – Mine subsidence**

*Is the land proclaimed to be in a mine subsidence district within the meaning of section 15 of the Mine Subsidence Compensation Act 1961?*

No

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**ITEM 6 – Road widening and road realignment**

*Is the land affected by any road widening or road realignment under:*

- (a) Division 2 of Part 3 of the Roads Act 1993; or*
- (b) Any environmental planning instrument; or*
- (c) Any resolution of the Council?*

No

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**ITEM 7 – Council and other public authority policies on hazard risk restrictions**

- (a) Whether or not the land is affected by a policy adopted by the Council that restricts the development of the land because of the likelihood of:-*

**Planning Certificate**

**Certificate No.:** PC2020/2787

**Property:** Oulton Avenue CONCORD WEST NSW 2138

**Certificate Date:** 04/12/2020

- |       |                     |     |
|-------|---------------------|-----|
| (i)   | land slip           | No  |
| (ii)  | bushfire            | No  |
| (iii) | tidal inundation    | No  |
| (iv)  | subsidence          | No  |
| (v)   | acid sulphate soils | Yes |

The land is identified as being within Class 5 on the Acid Sulfate Soil Map under the Canada Bay LEP 2013. Works prohibited without Council approval (except as provided by subclause 4 of clause 6.1 of the Canada Bay LEP 2013) include:

- Works within 500 metres of adjacent Class 1, 2, 3 or 4 land that is below 5 metres Australian Height Datum by which the watertable is likely to be lowered below 1 metre Australian Height Datum on adjacent Class 1, 2, 3 or 4 land.

- |      |                    |     |
|------|--------------------|-----|
| (vi) | land contamination | Yes |
|------|--------------------|-----|

Council has adopted by resolution a policy on contaminated land that applies to all land within the City of Canada Bay. Please note that this statement refers to whether or not Council has a policy regarding contamination and is not a statement on whether the property is affected by contamination or potential contamination.

- (b) *Whether or not the land is affected by a policy adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the Council that restricts the development of the land because of the likelihood of:-***

- |       |                     |    |
|-------|---------------------|----|
| (i)   | land slip           | No |
| (ii)  | bushfire            | No |
| (iii) | tidal inundation    | No |
| (iv)  | subsidence          | No |
| (v)   | acid sulphate soils | No |
| (vi)  | land contamination  | No |

**ITEM 7A – Flood related development controls information**

- 1. *Whether or not development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.***

No

- 2. *Whether or not development on the land or part of the land for any other purpose is subject to flood related development controls.***

**Planning Certificate**

Certificate No.: PC2020/2787

Property: Oulton Avenue CONCORD WEST NSW 2138

Certificate Date: 04/12/2020

No

---

**ITEM 8 – Land reserved for acquisition**

*Is there an environmental planning instrument, or proposed environmental planning instrument referred to in clause 1 which makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Environmental Planning and Assessment Act 1979?*

No

---

**ITEM 9 – Contributions plans**

*The name of each contributions plan applying to the land is:-*

City of Canada Bay S7.12 Fixed Levy Contributions Plan

Renewing Rhodes Contributions Framework

---

**ITEM 9A - Biodiversity certified land**

*Is the land biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016 (including land certified under Part 7AA of the Threatened Species Conservation Act 1995)?*

No

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**ITEM 10 – Biodiversity stewardship sites**

*Has Council been notified by the Chief Executive of the Office of Environment and Heritage that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016 (including biobanking agreements under Part 7A of the Threatened Species Conservation Act 1995)?*

No

---

**ITEM 10A – Native vegetation clearing set asides**

**Under section 60ZC of the Local Land Service Act 2013, has Council been notified by Local Land Services (or is it registered in the public register under that section) that the land contains a set aside area?**

No



**Planning Certificate**

Certificate No.: PC2020/2787

Property: Oulton Avenue CONCORD WEST NSW 2138

Certificate Date: 04/12/2020

**ITEM 11 – Bush fire prone land**

- |     |  |     |
|-----|--|-----|
| (a) | <i>All of the land is bush fire prone land.</i>  | No  |
| (b) | <i>Some of the land is bush fire prone land.</i> | No  |
| (c) | <i>None of the land is bush fire prone land.</i> | Yes |
- 

**ITEM 12 – Property vegetation plans**

*Has Council been notified (by the person or body that approved the plan) of the existence of a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force) applying to the land?*

No

---

**ITEM 13 – Orders under Trees (Disputes Between Neighbours) Act 2006**

*Has Council been notified that an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land?*

No

---

**ITEM 14 – Directions under Part 3A**

*Is there a direction by the Minister in force under section 75P (2) (c1) of the Environmental Planning and Assessment Act 1979 that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect?*

No

---

**ITEM 15 – Site compatibility certificates and conditions for seniors housing**

- (a) *Has a current site compatibility certificate (seniors housing), of which the Council is aware, been issued under State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 in respect of proposed development on the land?*

No

- (b) *Have any terms of a kind referred to in clause 18(2) of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land?*

No

---

**ITEM 16 – Site compatibility certificates for infrastructure, schools or TAFE establishments**

**Planning Certificate**

Certificate No.: PC2020/2787

Property: Oulton Avenue CONCORD WEST NSW 2138

Certificate Date: 04/12/2020

***Has a valid site compatibility certificate (infrastructure) or a site compatibility certificate (schools or TAFE establishments), of which the Council is aware, been issued?***

No

**ITEM 17 – Site compatibility certificates and conditions for affordable rental housing**

1. ***Has a current site compatibility certificate (affordable rental housing), of which the Council is aware, been issued in respect of proposed development on the land?***

No

2. ***Have any terms of a kind referred to in clause 17(1) or 38(1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 been imposed as a condition of consent to a development application in respect of the land?***

No

**ITEM 18 – Paper subdivision information**

***Has a development plan been adopted that applies to the land or that is proposed to be subject to a consent ballot?***

No

**ITEM 19 – Site verification certificates**

***Has Council been made aware of a current site verification certificate that has been issued in respect of the land?***

No

**ITEM 20 – Loose – fill asbestos insulation**

***Has Council been notified that the land includes any residential premises (within the meaning of Division 1A of Part 8 of the Home Building Act 1989) that are listed on the register that is required to be maintained under that Division?***

No. Contact NSW Fair Trading for more information.

**ITEM 21 – Affected building notices and building product rectification orders**

1. ***Is any affected building notice in force in respect of the land?***

No

2. ***Is any building product rectification order in force in respect of the land that has not been fully complied with?***

No

**Planning Certificate**

Certificate No.: PC2020/2787

Property: Oulton Avenue CONCORD WEST NSW 2138

Certificate Date: 04/12/2020

---

3. Has a notice of intention to make a building product rectification order been given in respect of that land that is outstanding?

No

---

**ITEM 22 – Matters arising under the Contaminated Land Management Act 1997**

*Section 59(2) of the Contaminated Land Management Act 1997 prescribes the following additional matters to be specified in planning certificates:-*

- (a) *At the date of this certificate, is the land (or part of the land) to which this certificate relates significantly contaminated land?*

No

- (b) *At the date of this certificate, is the land to which this certificate relates subject to a management order?*

No

- (c) *At the date of this certificate, is the land to which this certificate relates the subject of an approved voluntary management proposal?*

No

- (d) *At the date of this certificate, is the land to which this certificate relates subject to an ongoing maintenance order?*

No

- (e) *At the date of this certificate, is the land to which this certificate relates the subject of a site audit statement and a copy of such a statement has been provided to the Council?*

Yes, Council's records indicate that the site is subject to Site Audit Statement No. R98003B prepared by Mr Ross McFarland of CH2M Hill Australia Pty Ltd dated 14 October, 2002. To obtain a copy of the Site Audit Statement, see Council's Contaminated Land Policy for Access to Information.

---

**GENERAL INFORMATION**

The absence of any reference to a matter affecting the land shall not imply that the land is not affected by that matter not referred to in this certificate.

Information provided under section 10.7(2) is in accordance with the matters prescribed under schedule 4 of the Environmental Planning and Assessment Regulation 2000 and is provided only to the extent that the Council has been notified by the Department of Public Works or Department of Planning.

**Planning Certificate****Certificate No.:** PC2020/2787**Property:** Oulton Avenue CONCORD WEST NSW 2138**Certificate Date:** 04/12/2020

---

When advice in accordance with section 10.7(5) is requested the Council is under no obligation to furnish any advice. If advice is provided Council draws your attention to section 10.7(6) and schedule 6 of the *Environmental Planning and Assessment Act 1979* which have the effect that Council shall not incur any liability in respect of advice provided in good faith pursuant to section 10.7(5), including the furnishing of advice in respect of contaminated land.

Any enquiries regarding State and Regional Environmental Planning Policies should be directed to the Department of Planning at [http:// www.planning.nsw.gov.au](http://www.planning.nsw.gov.au)

Please contact Council's Strategic Planning section for further information about this Planning Certificate.

---



Peter Gainsford  
**General Manager**

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## Appendix E

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### Land Title Information





ABN: 36 092 724 251  
Ph: 02 9099 7400  
(Ph: 0412 199 304)

Level 14, 135 King Street, Sydney  
Sydney 2000  
GPO Box 4103 Sydney NSW 2001  
DX 967 Sydney

**Summary of Owners Report**

**Address: - Oulton Avenue, Concord West**

**Description: - Lot 212 D.P. 1112512**

<b><u>Date of Acquisition and term held</u></b>	<b><u>Registered Proprietor(s) &amp; Occupations where available</u></b>	<b><u>Reference to Title at Acquisition and sale</u></b>
27.04.1911 (1911 to 1920)	Allen Taylor (Gentleman)	Vol 862 Fol 242
01.06.1920 (1920 to 1986)	Lewis Berger and Sons (Australia) Limited	Vol 862 Fol 242
11.11.1986 (1986 to 1991)	BJN Investments Pty Limited	Vol 862 Fol 242 Now 6/736510
23.12.1991 (1991 to 2004)	ICI Australia Operations Pty Ltd Now Orica Australia Pty Limited	6/736510 Now 9/1047108
23.01.2004 (2004 to 2007)	Walker Corporation Pty Limited	9/1047108 Now 212/1112512
10/-9/2007 (2007 to 2015)	Ikea Pty Limited	212/1112512
02.06.2015 92015 to date)	# Oulton Rhodes Pty Ltd	212/1112512

**# Denotes current registered proprietor**

**Leases and Easements: - NIL**

Yours Sincerely  
Mark Groll  
11 December 2020

Email: [mark.groll@infotrack.com.au](mailto:mark.groll@infotrack.com.au)

1



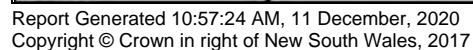
**Ref :** Oulton Ave, Rhodes

**Locality :** CONCORD WEST

**Parish : CONCORD**

LGA : CANADA BAY

**County : CUMBERLAND**



This information is provided as a searching aid only. Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

Page 1 of 5



LAND  
REGISTRY  
SERVICES

# Historical Title



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

11/12/2020 10:56AM

FOLIO: 6/736510

First Title(s): OLD SYSTEM

Prior Title(s): VOL 862 FOL 242

Recorded	Number	Type of Instrument	C.T. Issue
19/9/1986	DP736510	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
30/1/1991	DP736510	DEPOSITED PLAN	FOLIO CREATED CT NOT ISSUED
31/1/1991		AMENDMENT: VOL FOL INDEX	
23/12/1991	E154191	TRANSFER	EDITION 1
27/3/2001	7408114	DEPARTMENTAL DEALING	
1/3/2002	8398988	DEPARTMENTAL DEALING	
4/7/2002	8741469	CAVEAT	
9/1/2003	9247437	CHANGE OF NAME	
15/1/2003	DP1047108	DEPOSITED PLAN	FOLIO CANCELLED

\*\*\* END OF SEARCH \*\*\*

Oulton Ave, Rhodes

PRINTED ON 11/12/2020

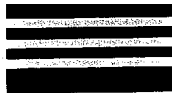
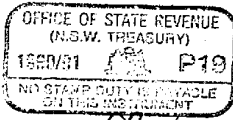
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Received: 11/12/2020 10:56:34

P 13

STAMP DUTY



E  
154191 B

**TRANSFER**  
REAL PROPERTY ACT, 1900

T

R

DESCRIPTION  
of LAND  
of (a)

Torrens Title Reference	If Part Only, Delete Whole and Give Details	Location
Vol 2988 Fol 239 Vol 862 Fol 242  Now 1/964055 6/736510	WHOLE	Parish of Concord County of Cumberland
TRANSFEROR of (b)  BJN Investments Pty Ltd In Liquidation		

STATE  
of (c)

(the abovenamed TRANSFEROR) hereby acknowledges receipt of the consideration of \$8,848,213  
and transfers an estate in fee simple  
in the land above described to the TRANSFEREE

TRANSFEREE  
of (d)

ICI Australia Operations Pty Ltd 1 Nicholson Street Melbourne Vic  -as joint tenants/tenants in common-	1	OFFICE USE ONLY
--	---	-----------------

NANCY  
of (e)

PRIOR  
ENCUMBRANCES  
of (f)

subject to the following PRIOR ENCUMBRANCES 1. T201646  
2. 3.

DATE 15 MAY 1991

We hereby certify this dealing to be correct for the purposes of the Real Property Act, 1900.

EXECUTION  
of (g)

Signed in my presence by the transferor who is personally known to me

*[Signature]*  
Name of Witness (BLOCK LETTERS)  
BOGDAN NOWAK GOMI HOWELS  
10 STEWART STREET,  
IS SAMANTHA CAT TEMPESTONE  
Address and occupation of Witness  
VIC 3106 ACCOUNTANT (FEPA)  
Signed in my presence by the transferee who is personally known to me

*[Signature]*  
Signature of Transferor  
LIQUIDATOR OF  
BJN INVESTMENTS PTY LTD  
ROBERT KUS  
*[Signature]*  
Signature of Transferor  
JAMES GREGORY O'BRIEN  
(SECRETARY)

of (g)

Signed in my presence by the transferee who is personally known to me

*[Signature]*  
Name of Witness (BLOCK LETTERS)  
PETER JOSEPH HADER  
15/10 DENBIGH ROAD ARMADALE  
Address and occupation of Witness  
VIC 3143 - SOLICITOR  
NICHOLAS J WORMALD,  
SOLICITOR FOR THE TRANSFEREE

*[Signature]*  
Signature of Transferee  
REHAR STEPHEN KNEEONE  
(SECRETARY)

BE COMPLETED  
BY LODGING PARTY  
of (h)  
of (i)

LODGED BY FREEHILL, HOLLINGDALE & PAGE SOLICITORS MLC CENTRE, MARTIN PLACE SYDNEY 2000 TEL: 2 5 5000 DELIVERY BOX 210 L.N. 361 SYDNEY Ref: EKS Delivery Box Number 270		LOCATION OF DOCUMENTS	
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Release: 1.1  
www.lpi.nsw.com.au

# CHANGE OF NAME

New South Wales  
Real Property Act 1900



9247437C

PRIVACY NOTE: this information is legally required and will become part of the public record

(A) LAND	Torrens Title Folio: 6/736510		
(B) REGISTERED DEALING	Number		Torrens Title
(C) LODGED BY	Delivery Box <b>5990</b>	Name, Address or DX and Telephone Minter Ellison DX 117 Sydney Reference: SAJT: 20-2171630	CODE <b>CN</b>
(D) REGISTERED PROPRIETOR	ICI Australia Operations Pty Limited (ACN 004 117 828)		
(E) NEW NAME	Orica Australia Pty Limited (ACN 004 117 828)		

(F) I, the registered proprietor referred to above, apply to have my new name recorded in the Register in respect of the above land

## (G) STATUTORY DECLARATION BY THE APPLICANT

I ANDREW FLANNERY

solemnly and sincerely declare that—

- I am the solicitor of the Applicant
- 

I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act 1900.

and I certify this application to be correct for the purposes of the Real Property Act 1900.

Made and subscribed at Sydney in the State of New South Wales  
on 24 December 2002 in the presence of—

Signature of witness:

Name of witness:

Address of witness:

Qualification of witness:

Signature of applicant:

All handwriting must be in block capitals.

Page 1 of 1

LAND AND PROPERTY INFORMATION NSW



**ASIC**

Australian Securities and Investments Commission

**National Names Index**

Index of corporate and business names

SEARCH TIPS

Extracted from ASIC's database at 15:31:58 on 23/12/2002

**Name** ORICA AUSTRALIA PTY LTD

**ACN** 004 117 828

**ABN** 99 004 117 828

**Type** Australian Proprietary Company, Limited By Shares

**Registration Date** 23/06/1925

**Status** Registered

**Locality of Registered Office** East Melbourne VIC 3002

**Jurisdiction** Australian Securities & Investments Commission

**Previous State** VIC

**Previous Number** C0010754M

**Former Name(s)** ICI AUSTRALIA OPERATIONS PROPRIETARY LIMITED  
NOBEL (AUSTRALASIA) PROPRIETARY LIMITED  
NOBEL (AUSTRALASIA) LIMITED

These are the documents most recently received by ASIC from this organisation. Page numbers are if processing is complete and the document is available for purchase.

Received	Number	Pages	Description
09/08/2002	0E7496647	1	304A Notification of Change to Officeholders of Aus Company
09/07/2002	0E7392178	1	304A Notification of Change to Officeholders of Aus
08/07/2002	0E7389694	1	304A Notification of Change to Officeholders of Aus

COMPLETE DOCUMENT



Biller Code: 17301  
Ref: 2290041178281

You can find out more about this company or order copies of the documents from the following ASIC information brokers:

1. <http://www.asic.gov.au/aci-bin/mc030c>

23/Dec/2002



ASIC Free Company Name Search

Page 2 of 2

National Data Centre Pty Ltd  
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<http://www.search.asic.gov.au/cgi-bin/mse030a>

23/Dec/2002



LAND  
REGISTRY  
SERVICES

# Historical Title



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

11/12/2020 10:56AM

FOLIO: 9/1047108

First Title(s): OLD SYSTEM

Prior Title(s): 6/736510

Recorded	Number	Type of Instrument	C.T. Issue
-----	-----	-----	-----
15/1/2003	DP1047108	DEPOSITED PLAN	FOLIO CREATED EDITION 1
23/1/2004	AA354858	WITHDRAWAL OF CAVEAT	
23/1/2004	AA354859	TRANSFER	EDITION 2
21/3/2004	AA501351	DEPARTMENTAL DEALING	
28/5/2007	DP1112512	DEPOSITED PLAN	FOLIO CANCELLED RESIDUE REMAINS
15/5/2014	AI580195	DEPARTMENTAL DEALING	

\*\*\* END OF SEARCH \*\*\*

Oulton Ave, Rhodes

PRINTED ON 11/12/2020

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Release: 2.1  
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# TRANSFER

New South Wales  
Real Property Act 1900



AA354859B

PRIVACY NOTE: this information is legally required and will

## STAMP DUTY

Office of State Revenue use only

NEW SOUTH WALES DUTY  
13-01-2004 0001791301-001  
SECTION 18(2)  
DUTY \$ \*\*\*\*\*2.00

## (A) TORRENS TITLE

Lot 9 DP 1047108, Lot 22 DP 624240, Lot 4 DP 1062327, Lot 5 DP 1062327,  
Lot 6 DP 1062327, Lot 7 DP 1062327 and Lot 13 DP 1062327

## (B) LODGED BY

CITYLINK

48t REF

Delivery Name, Address or DX and Telephone

REGALITIES

MINTER ELLISON

88 Phillip Street

DX 177 SYDNEY (Tel: 9921 8888)

Reference: HDO: 20-2171630 (853798)

CODES

T

TW

(Sheriff)

## (C) TRANSFEROR

SARKEM PTY LIMITED ABN 97 000 075 034 and ORICA AUSTRALIA PTY LIMITED  
ABN 99 004 117 828

## (D) CONSIDERATION

The transferor acknowledges receipt of the consideration of \$ 11,250,000.00

and as regards

## (E) ESTATE

the land specified above transfers to the transferee an estate in fee simple

## (F) SHARE

TRANSFERRED

## (G)

Encumbrances (if applicable):

## (H) TRANSFEE

WALKER CORPORATION PTY LIMITED ABN 95 001 176 263

## (I)

TENANCY:

## (J) DATE

22 JANUARY 2004

Certified correct for the purposes of the Real Property Act 1900  
and executed on behalf of the corporation named below by the  
authorised person(s) whose signature(s) appear(s) below  
pursuant to the authority specified.  
Corporation: SEE ANNEXURE FOR EXECUTION  
Authority:

Signature of authorised person:

Signature of authorised person:

Name of authorised person:

Name of authorised person:

Office held:

Office held:

Certified correct for the purposes of the Real Property Act 1900  
and executed on behalf of the corporation named below by the  
authorised person(s) whose signature(s) appear(s) below  
pursuant to the authority specified.  
Corporation: SEE ANNEXURE FOR EXECUTION  
Authority:

Signature of authorised person:

Signature of authorised person:

Name of authorised person:

Name of authorised person:

Office held:

Office held:

All handwriting must be in block capitals.

Page 1 of 3  
number additional  
pages sequentially

Land and Property Information NSW.

ET

**Annexure A to Transfer**

**Parties:**


SARKEM PTY LIMITED ABN 97 000 075 034;  
ORICA AUSTRALIA PTY LIMITED ABN 99 004 117 828; AND  
WALKER CORPORATION PTY LIMITED ABN 95 001 176 263

**Dated:** 22 JANUARY 2004

Certified correct for the purposes of the Real  
Property Act 1900 and executed on behalf of the  
corporation named below by the authorised  
person(s) whose signature(s) appear(s) below  
pursuant to the authority specified.

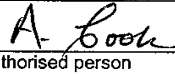
Corporation SARKEM PTY LIMITED ABN 97 000 075 034

Authority section 127 of the Corporations Act 2001 (Cth)

  
Signature of authorised person

WILLIAM O REYNOLDS  
Name of authorised person

Director  
Office held

←  ←  
Signature of authorised person


ANNETTE COOK  
Name of authorised person

← Director/Secretary ←  
Office held

Certified correct for the purposes of the Real  
Property Act 1900 and executed on behalf of the  
corporation named below by the authorised  
person(s) whose signature(s) appear(s) below  
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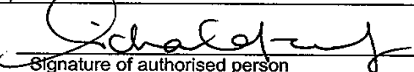
Corporation ORICA AUSTRALIA PTY LIMITED ABN 99 004 117 828

Authority section 127 of the Corporations Act 2001 (Cth)

  
Signature of authorised person

JAMES W. HALL  
Name of authorised person

Director  
Office held

←  ←  
Signature of authorised person

M. HENLEY  
Name of authorised person

← Director/Secretary ←  
Office held

Certified correct for the purposes of the Real Property Act 1900 and executed on behalf of the corporation named below by the authorised person(s) whose signature(s) appear(s) below pursuant to the authority specified.

Corporation WALKER CORPORATION PTY LIMITED ABN 95 001 176 263

Authority section 127 of the Corporations Act 2001 (Cth)

Signature of authorised person

JOHN. H. HUGHES

Name of authorised person

Director

Office held

Signature of authorised person

LANGLEY. A. WALKER

Name of authorised person

Director/~~Secretary~~

Office held



LAND  
REGISTRY  
SERVICES

# Historical Title



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

11/12/2020 10:56AM

FOLIO: 212/1112512

First Title(s): OLD SYSTEM

Prior Title(s): 9/1047108

Recorded -----	Number -----	Type of Instrument -----	C.T. Issue -----
28/5/2007	DP1112512	DEPOSITED PLAN	FOLIO CREATED EDITION 1
10/9/2007	AD402667	TRANSFER	EDITION 2
20/5/2014	AI591456	CAVEAT	
2/6/2015	AJ536143	TRANSFER	EDITION 3
9/9/2016	AK741550	MORTGAGE	EDITION 4
23/12/2019	AP802271	DISCHARGE OF MORTGAGE	EDITION 5
23/12/2019	AP803085	PRIORITY NOTICE	
24/12/2019	AP804337	MORTGAGE	EDITION 6

\*\*\* END OF SEARCH \*\*\*

Oulton Ave, Rhodes

PRINTED ON 11/12/2020

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Received: 11/12/2020 10:55:37



Form: 01T  
Licence: 03-08-144  
Licensee: Freehills

(1)

# TRANSFER



New South Wales  
Real Property Act 1900

AD402667W

**PRIVACY NOTE:** Section 31B of the Real Property Act 1900 (RP Act) authorises the Registrar General to collect the information required by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

## STAMP DUTY

Office of State Revenue use only

NEW SOUTH WALES DUTY  
04-09-2007 0004541692-001  
SECTION 18(2)

## A) TORRENS TITLE

If appropriate, specify the part transferred  
212/1112512

## B) LODGED BY

Delivery Box  <b>27C</b>	Name, Address or DX and Telephone Freehills DX 361 Sydney  Reference (optional): BJW:2260421	Codes <b>T</b> <b>TW</b> (Sheriff)
--------------------------------	--	---

## C) TRANSFEROR

Walker Corporation Pty Limited ACN 001 176 263

## D) CONSIDERATION

The transferor acknowledges receipt of the consideration of \$300,000.00 and as regards

## E) ESTATE

the land specified above transfers to the transferee an estate in fee simple.

## F) SHARE

### TRANSFERRED

## G)

Encumbrances (if applicable): 1. 2. 3.

## H) TRANSFEREE

IKEA Pty Limited (formerly known as Aust Scan Pty Limited) ACN 006 270 757

## I)

TENANCY:

## DATE

31 / 08 / 2007  
dd mm yyyy

J) I certify that the transferor, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this transfer in my presence.

Certified correct for the purposes of the Real Property Act 1900 by the transferor.

Signature of witness:

Signature of transferor:

Name of witness:


Address of witness:

see annexure A

I certify that the transferee, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this transfer in my presence.

Certified correct for the purposes of the Real Property Act 1900 by the transferee.

Signature of witness:

Signature of transferee: 

Name of witness:

Address of witness:

If signed on the transferee's behalf by a solicitor, licensed conveyancer or barrister, insert the signatory's full name and capacity below:

**PHILLIP RATTENBURY**  
**(SOLICITOR FOR TRANSFEREE)**

Page 1 of 2  
number additional  
pages sequentially

ALL HANDWRITING MUST BE IN BLOCK CAPITALS

Sydney00530633


➤ **Annexure "A" to transfer from Walker Corporation Pty  
Limited ACN 001 176 263 to IKEA Pty Limited (formerly  
known as Aust Scan Pty Limited) ACN 006 270 757  
dated**

---

Certified correct for the purposes of the Real Property Act 1900 and  
executed on behalf of the corporation named below by the authorised  
person(s) whose signature(s) appear(s) below pursuant to the  
authority specified.

Corporation: Walker Corporation Pty Limited  
(ACN 001 176 263)

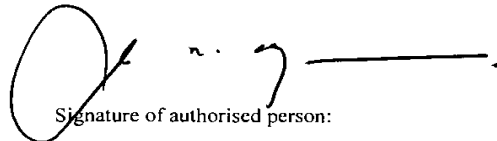
Authority: Section 127 of the Corporations Act 2001

  
Signature of authorised person:

**MARK WILKINSON**

Name of authorised person:

Office held: **DIRECTOR**

  
Signature of authorised person:

**JOHN HUGHES**

Name of authorised person:

Office held: **DIRECTOR**

LAND  
REGISTRY  
SERVICES

## Title Search

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH  
-----FOLIO: 212/1112512  
-----

SEARCH DATE	TIME	EDITION NO	DATE
-----	----	-----	----
11/12/2020	10:55 AM	6	24/12/2019

LAND  
-----

LOT 212 IN DEPOSITED PLAN 1112512  
AT CONCORD WEST  
LOCAL GOVERNMENT AREA CANADA BAY  
PARISH OF CONCORD COUNTY OF CUMBERLAND  
TITLE DIAGRAM DP1112512

FIRST SCHEDULE  
-----

OULTON RHODES PTY LTD

(T AJ536143)

SECOND SCHEDULE (2 NOTIFICATIONS)  
-----

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 AP804337 MORTGAGE TO THE UNITING CHURCH (NSW) TRUST  
ASSOCIATION LIMITED

NOTATIONS  
-----

UNREGISTERED DEALINGS: NIL

\*\*\* END OF SEARCH \*\*\*

Oulton Ave, Rhodes

PRINTED ON 11/12/2020

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Acoustics  
Vibration  
Structural Dynamics

## OUTLON AVE, RHODES (LOT 212)

### Noise and Vibration Assessment

14 May 2024

Billbergia

TL665-01F02 Noise and Vibration Assessment (r3)



Sydney Melbourne Brisbane Gold Coast Kuwait Singapore

Renzo Tonin & Associates ABN 29 117 462 861

Level 1/418A Elizabeth St SURRY HILLS NSW 2010 | PO Box 877 STRAWBERRY HILLS NSW 2012

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## Document details

Detail	Reference
Doc reference:	TL665-01F02 Noise and Vibration Assessment (r3)
Prepared for:	Billbergia
Attention:	William McGarry

## Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Authorised
29.9.2020	Issued	0	1	T.Taylor		
24.2.2021	Issued		2	T.Taylor		T.Taylor
24.2.2024	Issued		3	T.Taylor		T.Taylor

### Important Disclaimer:

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This document is prepared for the particular requirements of our Client referred to above in the 'Document details' which are based on a specific brief with limitations as agreed to with the Client. It is not intended for and should not be relied upon by a third party and no responsibility is undertaken to any third party without prior consent provided by Renzo Tonin & Associates. The information herein should not be reproduced, presented or reviewed except in full. Prior to passing on to a third party, the Client is to fully inform the third party of the specific brief and limitations associated with the commission.

In preparing this report, we have relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the Client and/or from other sources. Except as otherwise stated in the report, we have not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

We have derived data in this report from information sourced from the Client (if any) and/or available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination and re-evaluation of the data, findings, observations and conclusions expressed in this report.

We have prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

The information contained herein is for the purpose of acoustics only. No claims are made and no liability is accepted in respect of design and construction issues falling outside of the specialist field of acoustics engineering including and not limited to structural integrity, fire rating, architectural buildability and fit-for-purpose, waterproofing and the like. Supplementary professional advice should be sought in respect of these issues.

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RENZO TONIN &amp; ASSOCIATES

14 MAY 2024

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## 1 Introduction

Renzo Tonin & Associates was engaged to undertake a Noise and Vibration Assessment for a proposed residential development at the site at the eastern end of Oulton Ave, Rhodes (Lot 212).

This assessment investigates the effects of external noise and vibration intrusion onto the development site from road traffic (Homebush Bay Drive) and rail movements (the northern rail line). The advice is based on a detailed study of noise and vibration measurements on the site using both long term logging and attended measurements.

In addition, this site suitability report will include an analysis of the noise impacts and proposed acoustic design of the site with reference to other noise impacted sites in the Canada Bay local government area. This comparison to other sites/developments approved by Council is proposed as a means to demonstrate that the site (with appropriate acoustic design) can provide good acoustic amenity to future occupants in a manner consistent with other development approved by Council.

The work documented in this report was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian Standard / NZS ISO 9001. Appendix A contains a glossary of acoustic terms used in this report.

The report is based on the concept design set out in the Urban Design Report by SJB dated April 2024.

## 2 Site description

The site (Lot 212) is located at the eastern end of Outlon Ave, Rhodes.

The site is located between Homebush Bay Drive and the Northern Rail Line. As a consequence, the site is impacted by external noise.

Development in the vicinity of the site is as follows:

- The northern and western edges of the site are bounded by Homebush Bay Drive, which carries high level of road traffic. Further to the north/west (on the opposite side of Homebush Bay Drive) is commercial development.
- The eastern edge is bounded by the Northern Rail Line, which carries high volume of passenger rail and freight rail. Further to the east (other side of the rail corridor) is residential development.
- The southern edge of the site is bounded by residential development (the Liberty Grove precinct).

It is proposed to construct two residential apartment buildings (one 12 storeys, one 8 storeys) with common podium level for communal areas and car parking.

An aerial photograph showing the site and surrounds is presented below.

Figure 1: Proposed site plan and measurement locations



### 3 Ambient and background noise surveys

Two unattended long-term noise monitors were installed from 3 to 11 September 2020 to determine the existing level of ambient and background noise levels pertinent to the site. In addition, a short term attended noise measurement was made on 11 September 2020. Long-term noise monitoring and short-term noise measurement locations are shown in the table above and detailed in Table 1 below.

In addition, a supplementary logger was placed off site at 452 Concord Road, 6m from the western property boundary. This was done because at the subject site, Homebush Bay Drive is elevated and the only feasible locations to install noise loggers was below road deck level. Loggers placed below road deck level are partially screened from road traffic noise. The logger at 451 Concord Road is of assistance as it provides a typical difference between average daytime and average night time traffic noise on Concord Road/Homebush Bay Drive.

**Table 1: Noise monitoring locations**

Location ID	Description
<b>Long-term noise monitoring</b>	
Location 1	Noise monitor installed on the eastern side of the site, 15m from the centre of the Northern Rail Line corridor. The microphone position had uninterrupted line of site to all tracks. Noise measured at this location is relevant for the assessment of rail noise impact on the site and establishing background noise levels (used when setting noise emission goals for the site).
Location 2	Noise monitor installed centrally within the site, 1.5m above the ground. The microphone position was partially shielded from both the Northern Rail Line and from Homebush Bay Drive. The primary purpose of this logger is to establish ambient noise levels at ground between the proposed development and Homebush Bay Drive (a potential open space area within the development). The logger is also useful for examining typical difference between daytime and night time road traffic noise levels at the site.
Location 3	452 Concord Road, 6m from eastern boundary of the site. The microphone position generally was unshielded from Concord Road (minor amount of vegetation screening). The primary purpose of this logger is to establish typical difference between daytime and night time road traffic noise levels on Concord Road/Homebush Bay Drive..
<b>Short-term measurements</b>	
S1	Attended noise measurements were undertaken on the pedestrian bridge adjacent to Homebush Bay Drive. The measurement was made at a distance of 10m from the nearest lane of road traffic on Homebush Bay Drive (excluding the slip lane). The microphone was placed 5m above deck level and had a clear line of site to all lanes of traffic on Homebush Bay Drive.

The noise monitors record noise levels on a continuous basis and stores data every fifteen minutes. The noise loggers were calibrated before and after measurements and no significant deviation in calibration was noted. The noise monitoring equipment used here complies with Australian Standard 1259.2-1990 "Acoustics - Sound Level Meters" and is designated as Type 2 instruments suitable for field use.

Short term measurements were made using a XL2 Type 1 sound analyser on fast response mode.

The results of the background and ambient noise monitoring conducted on site are presented in [Appendix B](#).

### 3.1 Results of long-term noise monitoring

#### 3.1.1 Road traffic noise

The traffic noise levels have been taken from the representative  $L_{Aeq(15/9hr)}$  for the week for both day time (7am to 10pm) and night time (10pm to 7am) periods. The measured noise levels are presented in Table 2 below.

**Table 2: Representative day and night road traffic noise levels**

Monitoring Location (refer to Figure 1)	Survey Period	Measured Noise Level
Location L1 – Representative of the proposed eastern facades (train noise)	Day time (7am to 10pm) 3 to 11 September	65dB(A) $L_{eq(15hr)}$
	Night time (10pm to 7am) 3 to 11 September	64dB(A) $L_{eq(9hr)}$ 91dB(A) $L_{(max)}^3$
Location L2 – Representative of ground level ambient noise levels in the western outdoor areas on the site.	Day time (7am to 10pm) 3 to 11 September	58dB(A) $L_{eq(15hr)}$
	Night time (10pm to 7am) 3 to 11 September	56dB(A) $L_{eq(9hr)}$
Location L3 (452 Homebush Bay Drive) Representative of typical day time/night time difference on Concord/Homebush Bay Road.	Day time (7am to 10pm) 3 to 11 September	75dB(A) $L_{eq(15hr)}$
	Night time (10pm to 7am) 3 to 11 September	72dB(A) $L_{eq(9hr)}$
Location S1 – Homebush Bay Road traffic at 10m from nearest lane (excluding slip lane)	Day time (7am to 10pm) 11 September	72dB(A) $L_{eq(15hr)}$
	Night time (10pm to 7am) 3 to 11 September	N/A

Notes:

- Noise levels presented are facade corrected values.
- Representative external noise levels in measured  $L_{Aeq}$  over 15 hour and 9 hour day and night period respectively.
- Loudest typical 90% of night time rail passbys.

Using the table above, noise levels incident on the proposed building façade can be determined. For the purpose of calculations, the following façade noise levels will be used:



**Table 3: Road Traffic Noise Levels for the purpose of façade acoustic performance calculations**

Assessment Location	Measured Noise Levels, dB(A)	
	Day Time	Night Time
	Leq, 15 hr	Leq, 9 hr
Eastern façade - facing rail line (Zone A)	65	64 (Peak noise for freight rail passby - 91dB(A) <sub>L(max)</sub> )
Western Facade - 20m from Homebush Bay Drive, 180 degree view of Road (Zone B)	70.5	68.5
Western Facade - 25m from Homebush Bay Drive, 90 degree view of Road (Zone C)	67.5	65.5

### 3.1.2 Background noise

Table 4 below presents the results of the long-term unattended noise monitoring for background noise.

**Table 4: Background noise levels from long-term noise monitoring**

Noise Monitoring		Representative Background Noise Levels in dB(A)	Day <sup>1</sup>	Evening <sup>2</sup>	Night <sup>3</sup>
Location	Duration				
Location L1 – eastern side of site	3 to 11 September 2020.	LA90	51	47	40
		LAeq	64	63	62
Location L2 – western side of site	3 to 11 September 2020.	LA90	50	47	39
		LAeq	59	57	56

Notes:

Day, Evening & Night assessment periods are defined in accordance NSW EPA's Noise Policy for Industry as follows.

- Day is defined as 7:00am to 6:00pm, Monday to Saturday; 8:00am to 6:00pm Sundays & Public Holidays.
- Evening is defined as 6:00pm to 10:00pm, Monday to Sunday & Public Holidays
- Night is defined as 10:00pm to 7:00am, Monday to Saturday; 10:00pm to 8:00am Sundays & Public Holidays

## 4 External noise intrusion assessment

### 4.1 Criteria

#### 4.1.1 Mandatory Criteria

We note that there are no noise controls for development adjacent to busy roads/rail lines in the Canada Bay DCP.

Being located adjacent to a major road and in the vicinity of a rail line, the acoustic requirements of *SEPP Infrastructure* and the NSW Planning document *Development Near Rail Corridors and Busy Roads* will be applicable to any future development on the site. See Appendix B.

The noise criteria outlined in the documents above have been considered and the relevant criteria for this development have been summarised as shown in Table 5 below.

**Table 5: Recommended internal noise criteria for road traffic noise**

Type of Occupancy	Windows Condition	Target Internal Noise Level	
		Day, - Leq (15hour)	Night, - Leq (9hour)
Bedrooms	Closed	-	35dB(A)
	Open	-	45dB(A)
Open-plan Living/Dining/Kitchen	Closed	40dB(A)	40dB(A)
	Open	50dB(A)	50dB(A)

In the event that compliance with the “windows open” goal cannot be achieved, the *Development Near Rail Corridors and Busy Roads* document recommends that the apartment have supplementary ventilation provided (to enable the apartment to have fresh air even if the occupant choses to keep their windows closed).

#### 4.1.2 Non-mandatory Criteria - Late Night Freight Rail Movements / Sleep Disturbance

The criteria above are mandatory and address long term (9hr or 15hr) average noise levels when setting noise goals.

In the case of a site that is impacted by late night freight rail movements, there can be a risk associated with this approach:

- If the number of late night freight rail movements is relatively low, a situation can arise where relatively thin glass can meet the 9 hour average noise level requirement of the *Development Near Rail Corridors and Busy Roads*. However even if compliant with the 9 hour goal, the momentary noise level during a freight train passby can be relatively high and could result in sleep disturbance.

- The subject site is at risk to this problem.

A study of sleep disturbance impacts typically involves review of short term peak noise events ( $L_{\max}$ ) as opposed to the 9 hour average noise levels adopted in the *Development Near Rail Corridors and Busy Roads* document.

Although there is differing opinion as to what  $L_{\max}$  noise level is acceptable, the EPA *Environmental Criteria for Road Traffic Noise* presents a number of studies of  $L_{\max}$  noise events and the associated probability of sleep disturbance. Although the *Environmental Criteria for Road Traffic Noise* has since been superseded by the EPA *Road Noise Policy*, the studies in that report are of assistance when considering the impact of the freight rail noise.

Although there is variability between studies, looking at the collated information in the *Environmental Criteria for Road Traffic Noise* (figure B3, extracted in Appendix E) we note:

- With  $L_{\max}$  events exceeding 45dB(A), a risk arises of sleep disturbance.
- The guidelines then identify an estimate of awakenings per 100 events, as follows:
  - 45dB(A) $L_{\max}$  – 0 awakenings per 100 events.
  - 50dB(A) $L_{\max}$  – 1 awakenings per 100 events.
  - 55dB(A) $L_{\max}$  – 2 awakenings per 100 events.
  - 60dB(A) $L_{\max}$  – 3 awakenings per 100 events.
  - 65dB(A) $L_{\max}$  – 5 awakenings per 100 events.
  - 70dB(A) $L_{\max}$  – 7 awakenings per 100 events.
- The EPA guidelines make a further comment that “maximum internal noise levels below 50-55dB(A) are unlikely to cause awakening reactions”. This comment has been reiterated in the Road Noise Policy, which superseded the *Environmental Criteria for Road Traffic Noise*

There appears to be approximately 8 rail movements past the sight per night (10pm-7am).

For the purpose of analysis, a target internal noise level of 50-55dB(A) $L_{\max}$  for 90% of freight rail passbys will be targeted when conducted façade design.

## 4.2 Glazing design recommendations

Recommended glazing systems are presented below. See façade noise model – Appendix F.

For facades facing the rail line, additional discussion has been included to address  $L_{max}$  (peak/sleep disturbance events). For sleeping areas, glazing systems have been determined with a view to achieving peak event noise levels of 50-55dB(A) $L_{max}$ .

**Table 6: Indicative Façade Systems – North Building**

Facade	Primary Noise Source	Room Type	Façade Element	Glazing Requirement / Comment
East	Rail Noise	Bedroom	Awning Window (up to 4m <sup>2</sup> )	Minimum (to meet SEPP): 10.38mm laminated to achieve 35dB(A) $L_{eq}$ . To achieve $L_{max}<55$ dB(A): 12.5mm.
			Sliding Door (greater than 4m <sup>2</sup> )	Minimum (to meet SEPP): 10.38mm laminated to achieve 35dB(A) $L_{eq}$ . To achieve $L_{max}<55$ dB(A): 12.5mm/12mm airgap/6mm Insulated Glazed Unit  Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.
		Living Room	Windows and Sliding Doors (up to 10m <sup>2</sup> )	10.38mm Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 6.38mm glass to sliding door.
			Windows and Sliding Doors (greater than 10m <sup>2</sup> )	12.38mm Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.
North	Road and Rail	Bedroom	Awning Window / Sliding Door (up to 4m <sup>2</sup> )	12.5mm V-lam Hush.
			Sliding Door (greater than 4m <sup>2</sup> )	12.5mm/12mm airgap/6mm Insulated Glazed Unit Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.
		Living Room	Windows and Sliding Doors (up to 8m <sup>2</sup> )	12.38mm. Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.
			Windows and Sliding Doors (greater than to 8m <sup>2</sup> )	12.5mm V-lam Hush Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.

**Table 7: Indicative Façade Systems – North Building (Continued)**

Façade	Primary Noise Source	Room Type	Façade Element	Glazing Requirement / Comment
West	Road	Bedroom	Awning Window (up to 3m <sup>2</sup> )	10.38mm
			Awning Window / Sliding Door (up to 6m <sup>2</sup> )	12.5mm V-lam Hush Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.
		Living Room	Windows and Sliding Doors (up to 11m <sup>2</sup> )	10.38mm. Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 6.38mm glass to sliding door.
			Windows and Sliding Doors (greater than to 11m <sup>2</sup> )	12.38mm. Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.
South	Road and Rail	Bedroom	Awning Window (up to 3m <sup>2</sup> )	10.38mm
			Awning Window / Sliding Door (up to 6m <sup>2</sup> )	12.5mm V-lam Hush. Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.
		Living Room	Windows and Sliding Doors (up to 11m <sup>2</sup> )	10.38mm. Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 6.38mm glass to sliding door.
			Windows and Sliding Doors (greater than to 11m <sup>2</sup> )	12.38mm. Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.

**Table 8: Indicative Façade Systems – South Building**

Facade	Primary Noise Source	Room Type	Façade Element	Glazing Requirement / Comment
East	Rail Noise	Bedroom	Awning Window (up to 4m <sup>2</sup> )	Minimum (to meet SEPP): 10.38mm laminated to achieve 35dB(A) <sub>Leq</sub> . To achieve L <sub>max</sub> <55dB(A): 12.5mm.
			Sliding Door (greater than 4m <sup>2</sup> )	Minimum (to meet SEPP): 10.38mm laminated to achieve 35dB(A) <sub>Leq</sub> . To achieve L <sub>max</sub> <55dB(A): 12.5mm/12mm airgap/6mm Insulated Glazed Unit  Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.
		Living Room	Windows and Sliding Doors (up to 10m <sup>2</sup> )	10.38mm Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 6.38mm glass to sliding door.
			Windows and Sliding Doors (greater than 10m <sup>2</sup> )	12.38mm Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.
North	Road and Rail	Bedroom	Awning Window (up to 3m <sup>2</sup> )	10.38mm
			Awning Window / Sliding Door (up to 6m <sup>2</sup> )	12.5mm V-lam Hush. Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.
		Living Room	Windows and Sliding Doors (up to 11m <sup>2</sup> )	10.38mm. Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 6.38mm glass to sliding door.
			Windows and Sliding Doors (greater than 11m <sup>2</sup> )	12.38mm. Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.



**Table 9: Indicative Façade Systems – South Building (Continued)**

Façade	Primary Noise Source	Room Type	Façade Element	Glazing Requirement / Comment
West	Road	Bedroom	Awning Window (up to 3m <sup>2</sup> )	10.38mm
			Awning Window / Sliding Door (up to 6m <sup>2</sup> )	12.5mm V-lam Hush Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.
		Living Room	Windows and Sliding Doors (up to 11m <sup>2</sup> )	10.38mm. Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 6.38mm glass to sliding door.
			Windows and Sliding Doors (greater than to 11m <sup>2</sup> )	12.38mm. Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.
South	Road and Rail	Bedroom	Awning Window (up to 3m <sup>2</sup> )	10.38mm
			Awning Window / Sliding Door (up to 6m <sup>2</sup> )	12.5mm V-lam Hush. Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.
		Living Room	Windows and Sliding Doors (up to 11m <sup>2</sup> )	10.38mm. Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 6.38mm glass to sliding door.
			Windows and Sliding Doors (greater than to 11m <sup>2</sup> )	12.38mm. Alternatively – use enclosed balcony/winter garden design. 6mm glass to balcony enclosure. 10.38mm glass to sliding door.

With respect to the above:

- All operable window/door elements are to have acoustic seals (equal to q-lon).
- Indicative  $R_w$  values for façade elements as follows:
  - 6mm glass –  $R_w$  29.
  - 6.38mm laminated glass –  $R_w$  31
  - 10.38mm laminated glass –  $R_w$  35
  - 12.38mm laminated glass –  $R_w$  37
  - 12.5mm V-lam Hush glass –  $R_w$  39.
  - 12.5mm V-lam Hush / 12mm airgap / 6mm double glazed system –  $R_w$  42.

- For all glazing systems, it is necessary to ensure that the acoustic performance of the window/sliding door frame does not downrate the acoustic performance of the glass. This can be particularly difficult for 12.5mm V-lam hush. Any window frame supplier should provide test reports to demonstrate that their frame will not downrate the acoustic performance of the nominated glass.
- External walls and roof are assumed to be masonry. If light weight external wall elements are used, these need to be reviewed in detail and may also impact the glazing requirements for that room (as the cumulative result of noise through window and external wall element needs to be considered).

The above treatments are indicative only. A detailed review of façade systems is required once a more detailed layout is available.

### 4.3 Ventilation/Fresh Air Supply and Acoustics

In accordance with the DoP *Development Near Rail Corridors and Busy Roads* Guideline:

*If the internal noise levels with windows or doors open exceed the criteria by more than 10dBA, the design of the ventilation for these rooms should be such that occupants can leave windows closed, if they so desire, and also to meet the ventilation requirements of the Building Code of Australia.*

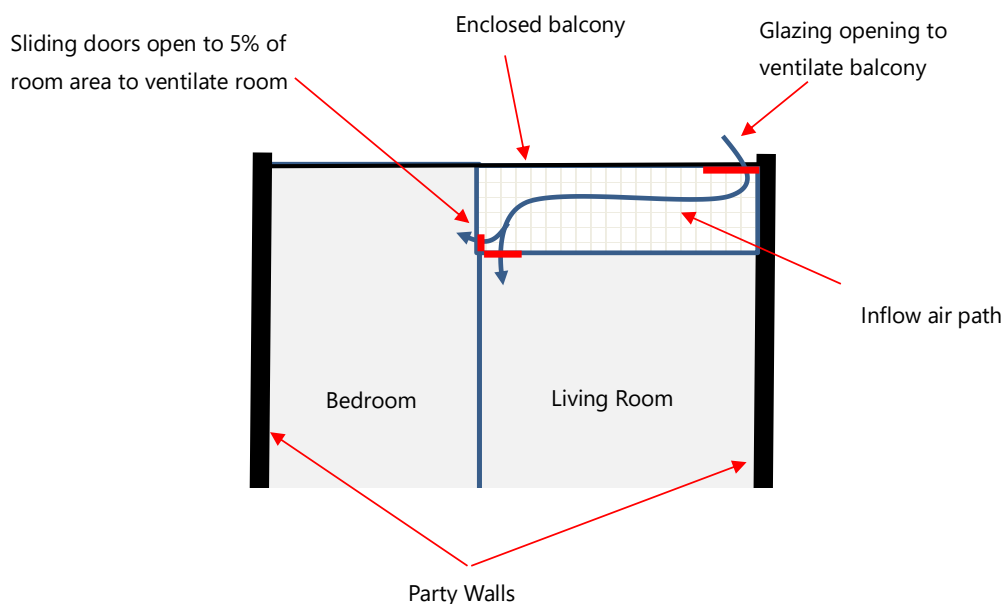
In effect, this means that if the “windows open” criteria (table 5) are exceeded, a ventilation system must be provided to meet BCA requirements.

We note that the guideline uses the term “should”, as opposed to “must”, and so strictly speaking the Guideline does not appear to impose a mandatory criteria with respect to meeting ventilation requirements. However, all façades are expected to be exposed to external noise levels such that the “windows open” criteria outlined above and in section 4.1.1 will be exceeded. Supplementary fresh air (natural or fan assisted) “should” be provided to the apartments.

The Apartment Design Guideline Section 4J also provides design guidance for buildings in high noise environment. The Apartment Design Guideline does NOT require that there must be a passive ventilation solution for apartments. The ADG (section 4J) merely provides design guidance for buildings located on sites that are impacted by external noise.

There are two primary options that may be considered to help provide acoustically protected natural ventilation:

- Option 1 – A wintergarden/enclosed balcony. Having a wide (4-5m) shallow balcony outside an apartment living room. Passive ventilation in this scenario is provided by having the wintergarden to external window open at one end of the balcony, and the sliding door from living room to balcony open at the opposite end of the balcony area. An indicative sketch for a one-bedroom apartment is shown below.



- Option 2 – Using the balcony balustrade to act as a noise screen and providing ventilation via a low height window to the room (below balustrade level). This can be used for apartments with a relatively deep living room balcony (more than 2m). The design requires use of a solid balustrade (no gaps), a noise absorptive lining to underside of balcony over (50mm Echosoft) and a low level openable window to the room (below balustrade height for the purpose of ventilating the space). **Typically, this approach can be used for apartments above 6 levels or further above the noise source.**

#### 4.4 Acoustic Amenity of Outdoor Spaces

Although not typically a mandatory criteria for residential development, the EPA *Road Noise Policy* sets guidance with respect to acoustic amenity of outdoor spaces:

- Passive recreation spaces – 55dB(A)<sub>Leq(15hr)</sub>.
- Active recreation spaces – 60dB(A)<sub>Leq(15hr)</sub>.

If considering the amenity of residential balconies or communal outdoor areas, the above criteria are useful as guidance.

On review of table 3, all facades are potentially exposed to road/rail noise levels exceeding 60dB(A), with the exception of at ground level on the western side of the development (below deck level of Homebush Bay Drive, shielded from rail noise by the building itself).

In order to maximise the amenity of private and communal outdoor space, the following can be considered:

- Communal outdoor open space:
  - o It is reasonable to target a noise level of 60dB(A) at these locations.
  - o Ground floor, west of the building form will have reasonable amenity (<60dB(A)).
  - o If considering communal outdoor areas in other locations, we recommend that this is above deck level of Homebush Bay Drive, with a noise screen around the perimeter (approx. 1.8m high). Design of this nature would enable noise levels of approximately 60dB(A) to be achieved.
- With respect to apartment balconies:
  - o Use of winter gardens will provide benefit, however relies on the winter garden window being closed, or substantially closed (making the space more an indoor space, as opposed to outdoor space).
  - o The winter garden provides benefit in terms of amenity of the private outdoor space and assists in providing acoustically protected natural ventilation of indoor spaces.

#### 4.5 Discussion with respect to comparable sites.

In addition to the analysis outlined above, we have examined the site in comparison to other development on noise impacted sites within the Canada Bay Council local government area. A site of specific interest is 135 Victoria Road, Drummoyne.

With respect to the 135 Victoria Road development:

- The northern frontage of the site lies adjacent to Victoria Road, a busy arterial road. The rear façade faces Formosa Street, which is a quiet local road.
- The road traffic noise level incident on the Victoria Road façade has been measured to be 73dB(A)<sub>Leq(15hr)</sub> during the daytime and 70dB(A)<sub>Leq(9hr)</sub> at night. This is higher than the noise levels incident on any façade at the Outlon Road development (70.5dB(A)<sub>Leq(15hr)</sub> for the Homebush Bay Drive façade, 65dB(A)<sub>Leq(15hr)</sub> for the rail corridor façade).
- An obvious distinction between the Outlon Ave site and the Victoria Road site is that Outlon Ave is impacted by external noise on both front and back facades whereas at Victoria Road the noise impact is on the front façade only. At Victoria Road, there was an opportunity to create dual aspect apartments, such that there was at least a façade that was not substantially noise affected. The development at Outlon Ave does not have this opportunity.
- However of critical importance in the Victoria Road development, is the fact that not all apartments are dual aspect. There is a proportion of apartment that have a single frontage only, facing Victoria Road.

On inspection of the site at Victoria Road (and review of the floor plans), acoustic treatments have been implemented to the single fronted apartments on Victoria Road. The apartments have two balconies, one of which can be enclosed using operable glass louvres (whereas the other balcony is completely open). This indicates that a precedent for approving single fronted apartments in the Canada Bay Local government area provided that appropriate acoustic treatments are applied (in this case, in the form of a winter garden and acoustic glazing). We note that use of acoustic glazing and wintergarden designs is one of the design guidance items recommended in the Apartment Design Guideline for development in noise affected areas.

A winter garden design offers a number of potential benefits:

- When the wintergarden windows are closed, there is a reduction in noise level in both the winter garden itself and in the rooms inside the apartment that open onto it. These are both obvious acoustic benefits, however are reliant on the windows to the winter garden being closed to achieve it.
- More importantly, when the winter garden windows are partially open (a relatively small amount, sufficient to provide ventilation of the balcony and in turn the rooms behind it), the apartments will receive both fresh air, and a degree of noise attenuation (approximately 4dB(A) better than what may be expected in the event that the winter garden was not enclosed. However at Victoria Road even with the winter garden approach, under "natural ventilated"/"windows open" conditions:
  - It is unlikely that noise levels in the winter garden will be reduced to 60dB(A) (an EPA target for active outdoor areas) and
  - It is unlikely that internal noise levels in living rooms will achieve 50dB(A) or the bedrooms will achieve 45dB(A) (being the window open/naturally ventilated target in the *Development Near Rail Corridors and Busy Roads* guideline).

As noted in section 4.3, a similar strategy may be considered at Outlon Ave, however the outcome that can be achieved will be better compared to Victoria Road:

- The road traffic noise at Outlon Road is lower. The Homebush Bay Road façade is 2.5dB(A) quieter and the rail façade is 8dB(A) quieter (see table 3).
- In addition to the enclosure of the balconies, use of acoustic lining to the underside of the soffit can be included in the more noise effected apartments to provide additional noise protection.
- By adopting this, and by strategically opening the winter garden window and internal window as detailed in section 4.3, a 6-7dB(A) benefit can be achieved.
- Bearing in mind that the site is already at least 2.5dB(A) quieter compared to Victoria Road, the acoustic amenity of the wintergarden and internal room under windows open/naturally ventilated conditions will be significantly better in comparison to Victoria Road.
- Through design similar to the acoustically treated winter garden:
  - Noise levels on balconies will be reduced to approximately 57-63dB(A) (depending on the façade) and

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- the window open/naturally ventilated target for internal spaces in the *Development Near Rail Corridors and Busy Roads* guideline will be achievable in many apartments within the development.

Through appropriate acoustic design, the acoustic amenity under both windows open/naturally ventilated conditions that will be achievable will be the proposed Outlon Ave development will be better compared to which would be likely to have been achieved 135 Victoria Road.



## 5 Rail Vibration assessment

### 5.1 Tactile Vibration

#### 5.1.1 Rail Tactile Vibration Criteria

Section 3.6.3 of the Department of Planning publication "*Development Near Rail Corridors & Busy Roads – Interim Guideline*" provides recommended vibration criteria documents to refer to when establishing train vibration criteria for residential buildings. Documents referred to are:

- Assessing Vibration: A technical guideline (DECC 2006)
- German Standard DIN 4150, Part 3 – 1999
- British Standard BS 7385 – 199
- Australian Standard AS 2670.2 - 1990

The above documents have been reviewed and the criterion for assessment of tactile vibration from train pass-bys affecting the proposed development is quantified using:

- Assessing Vibration: A technical guideline (DECC 2006)
- British Standard BS6472: 1992 "*Evaluation of Human Exposure to Vibration in Buildings (1Hz to 80Hz)*"

It is noted that EPA guideline "*Assessing Vibration: A technical guideline* (DECC 2006)" is based on the British Standard BS6472:1992. The criteria curves presented in BS6472:1992 are identical to those in Australian Standard AS2670.2 1990 and the International Standard 2631-2:1989.

Criteria for continuous vibration from the British Standard BS6472:1992 for residential spaces, offices and commercial workshop environments are shown in Figure 2 below.

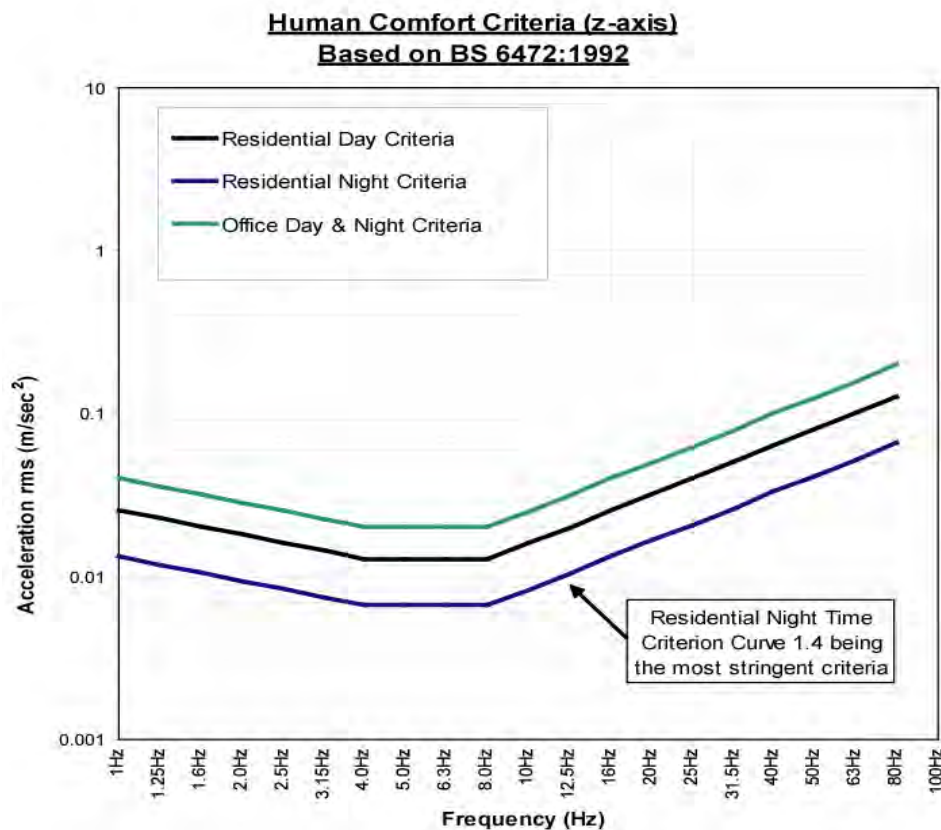


Figure 2: Tactile Vibration Criteria for Residential Buildings

Table 2.4 of the Department of Environment Climate Change's document "Assessing Vibration: A technical guideline (DECC 2006)" presents acceptable vibration dose values for intermittent vibration. Table 10 below outlines DECC's requirements.

Table 10: Acceptable VDV<sub>s</sub> for intermittent vibration in residential buildings  $\text{m/s}^{1.75}$

Location	Period	Preferred VDV $\text{m/s}^{1.75}$
Residence	Day time (7am – 10pm)	0.20
	Night time (10pm – 7am)	0.13

### 5.1.2 Instrumentation

Train vibration levels were measured using the Sinus SoundBook multi-channel analyser and PCB accelerometers on the ground floor of the 2-storey building on site (Location 2) as shown in figure above. Three accelerometers (x, y & z) were magnetically fixed to a steel bracket that has been glue fixed to bare concrete slab.

In addition, a Sigicom vibration logger was used to continuously measure vibration levels between 9 and 11 September 2020.

All instruments were calibrated before and after measurement. No significant drift in calibration was observed.

### 5.1.3 Measured Tactile Train Vibration & Assessment to BS6472 and DECC

Rail vibration levels were measured by vibration logger, installed approximately in line with the eastern façade of the development (the closest point to the rail line). The logger measured continuously. Results of the train vibration survey were plotted against night and day criterion of British Standard BS6472-1992 "Evaluation of Human Exposure to Vibration in Buildings (1Hz to 80Hz)" as shown above. Vibration levels were compliant with the Residential Night Time curve (the most stringent applicable).

In addition, the measured train vibration levels were used to calculate the vibration dosage values (VDV) and then compared to the acceptable levels from the Table 2.4 of DECC guideline.

**Table 11: Acceptable VDV for intermittent vibration in residential buildings m/s<sup>1.75</sup>**

Location	Period	Preferred VDV m/s <sup>1.75</sup>	Measured VDV m/s <sup>1.75</sup>	Complies
Residence	Day time (7am – 10pm)	0.20	<0.15	Yes
	Night time (10pm – 7am)	0.13	<0.1	Yes

## 5.2 Predicted Ground-borne Rail Noise Inside Proposed Building

Regenerated or ground-borne rail noise is the low rumble heard inside buildings with vicinity of railway tunnels or railway tracks due to ground vibration generated by passing trains which propagate through soil and rock up into building elements such as foundation, wall and floors which re-radiates as audible sound.

Train vibration levels measured on site on 11/9/2020 were used to predict the regenerated rail noise inside the proposed building from train pass-bys. These calculated noise levels inside apartments are summarised in

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**Table 12** below and compared to ground-borne noise criteria.

**Table 12: Predicted Ground-borne Rail Noise Levels**

Floor Level	Proposed Occupancy	Calculated <sup>1</sup> Ground-borne Rail Noise L <sub>Amax</sub> (Slow) inside Apartments <sup>3</sup>		DOP Criteria for Ground-borne Rail Noise L <sub>Amax</sub> (Slow)	Comply? (Yes/No)
		Apartment on Eastern Facade	Apartment Away from Eastern Facade		
Ground Floor	Living, dining and kitchen	40dB(A)	35dB(A)	40dB(A)	Exceeds for apartment located on eastern façade. Complies for apartment located away from eastern façade.
	Sleeping areas	39dB(A)	34dB(A)	35dB(A)	
Level 1	Living, dining and kitchen	41dB(A)	36dB(A)	40dB(A)	
	Sleeping areas	40dB(A)	35dB(A)	35dB(A)	
Level 2	Living, dining and kitchen	38dB(A)	33dB(A)	40dB(A)	
	Sleeping areas	37dB(A)	32dB(A)	35dB(A)	
Level 3	Living, dining and kitchen	35dB(A)	30dB(A)	40dB(A)	Complies
	Sleeping areas	34dB(A)	29dB(A)	35dB(A)	Complies

Notes:

1. Ground-borne noise calculations were based upon the measured L<sub>Amax</sub> (Slow) of 95% of train pass-events as per DOP Guideline 2008

2. Exceedance of 1dB is insignificant and not discernible.

3. Based on 95<sup>th</sup> percentile rail movements.

With respect to the above:

- Measurements indicate a likely exceedance of structure borne noise criteria for apartment located on the eastern façade for the first three levels.
- While an exceedance, the Department of Planning Guidelines do permit use of these spaces for residential development in the following circumstances:
  - o The rail source is a surface track (as opposed to tunnel).
  - o The apartments in question have a line of sight to the track, and the airborne noise (through the façade, into the room) is expected to exceed the structure borne noise level.
  - o The apartments on the eastern façade fall into this category.
- If feasible, avoiding a residential use on the ground floor and first floor on the eastern façade is beneficial.
- Apartments located away from the eastern façade (and potentially therefore not facing the rail corridor) are expected to be compliant with the DoP guideline.

## 6 Noise Emission Assessment

There are no specific noise emission goals for the site set out in the Canada Bay DCP. In the absence of this, the EPA Noise Policy for Industry is the most commonly adopted noise emission guideline for plant and equipment.

For commercial tenancies, if proposed:

- In the event there was a retail tenant proposing a licenced premises, patron/music noise would be subject to Office of Liquor and Gaming acoustic criteria.
- In the event a gym or similar was proposed, it is typically necessary to develop appropriate criteria (typically, an assessment of intermittent noise events from weight drops or similar).

An analysis of these types of retail/commercial use is not covered in this report.

### 6.1 Criteria - EPA Noise Policy for Industry

The NSW Environment Protection Authority (EPA) sets out noise criteria in its Noise Policy for Industry (NPfI) to control the noise emission from industrial sources.

The NPfI sets noise emission goals based on two sets of acoustic criteria:

- Intrusive criteria and
- Amenity Criteria

#### 6.1.1 Intrusiveness Criteria

These criteria require that industrial noise does not exceed the background noise level by an excessive margin, preventing significant changes in the noise characteristic pertinent to the development site and surrounds. This is commonly referred to as the 'background plus 5' criterion. That is, the noise level from new industrial development, assessed in periods of 15 minutes, should not exceed the existing background noise level (measured in the absence of that development) by more than 5dB(A).

Based on the background noise levels presented in section 3, the intrusiveness criteria are as follows:



**Table 13 - Noise Policy for Industry - Intrusiveness Noise Criteria**

Receiver	Time of day	Rating Background Noise Level (dB(A) <sub>L90</sub> )	Intrusiveness Noise Criteria (dB(A) <sub>L<sub>eq</sub>(15min)</sub> )
Oulton Ave / adjoining residences	Day	50	55
	Evening	47	52
	Night	37	42

### 6.1.2 Amenity and Project Amenity Criteria

Amenity criteria serve primarily to avoid “noise creep” – for example, if a number of industrial noise sources are permitted to increase the background noise level by 5dB(A) (as permitted by the Intrusiveness Criteria) there would be a point where the cumulative noise level is unacceptable.

A limit on the ultimate acceptable noise level is therefore included in the NPfI as a way of ensuring that cumulative noise impact from industrial growth is curtailed. This limit is set using the Amenity and Project Amenity Criteria. These criteria are determined with reference to ambient noise conditions and the land use of nearby development (residential, commercial, industrial etc).

The Amenity Noise Level is found in table 2.2 of the Noise Policy for Industry.

It is the *Project* Amenity Criteria that sets a site-specific noise emission goal for a development. The Project Amenity Noise Level is typically 2dB(A) below the Amenity Noise level unless there is an exception (discussed in more detail after the following table).

**Table 14 - Noise Policy for Industry - Amenity and Project Amenity Noise Levels**

Receiver	Noise amenity area	Time of day	Amenity Noise Level dB(A) <sub>L<sub>eq</sub>(Period)</sub>	Project (Site Specific) Amenity Noise Level dB(A) <sub>L<sub>eq</sub>(15min)</sub>
Residential	Suburban	Day	55	53
		Evening	45	43
		Night	40	38
Commercial premises	All	When in use	65	63

Notes:

- Daytime 7.00 am to 6.00 pm; Evening 6.00 pm to 10.00 pm; Night-time 10.00 pm to 7.00 am
- On Sundays and Public Holidays, Daytime 8.00 am - 6.00 pm; Evening 6.00 pm - 10.00 pm; Night-time 10.00 pm - 8.00 am.
- The LA<sub>eq</sub> index corresponds to the level of noise equivalent to the energy average of noise levels occurring over a measurement period.
- The Project Amenity Noise Level is typically 2dB(A) below Recommended Amenity Noise Level, unless there is an exception, as detailed below.

While in some circumstances amendments to the Project Amenity Criteria can be applied (such as in high traffic noise areas), this is not appropriate for the subject site. The residential development in the vicinity of the site will become screened as a result of the proposed development (reducing the impact of road/rail noise traffic on them).

### 6.1.3 Maximum noise level event assessment

The potential for sleep disturbance from maximum noise level events, from the proposed development, needs to be considered. Section 2.5 of the NPfI provides sleep disturbance trigger levels, summarised as shown in the table below.

**Table 15: Sleep disturbance criteria**

Receiver	Sleep Disturbance Trigger Levels, 10:00pm to 7:00am	
	L <sub>Aeq</sub> , 15 minute	L <sub>AFmax</sub>
All residential	Greater than 40dB(A) or RBL plus 5dB, whichever is the greater	52dB(A) or RBL plus 15dB, whichever is the greater

On applying the on-site measured background noise levels, the triggers are as follows:

**Table 16: Sleep disturbance noise trigger levels**

Receiver	Sleep Disturbance Trigger Levels, 10:00pm to 7:00am	
	L <sub>Aeq</sub> , 15 minute	L <sub>AFmax</sub>
All residential	44dB(A)	54dB(A)

Where noise from the proposed development is predicted to exceed the sleep disturbance trigger levels above, a more detailed noise level assessment is required. The detailed assessment is required to cover the maximum noise level, the extent to which the maximum noise level exceeds the RBL, and the frequency of events occurring during the night time.

## 6.2 Recommended noise control measures

Where necessary, noise amelioration treatment will be incorporated in the design to ensure that noise levels comply with the recommended EPA's NPfI noise emission criteria noted in Section 6.1 above.

As details of mechanical plant at this stage have not been finalised, the following in-principal recommendations are provided:

- Acoustic assessment of mechanical services equipment will need to be undertaken during the detail design phase of the development to ensure that they shall not either singularly or in total emit noise levels which exceed the noise limits in EPA's NPfI (section 6.1).
- As noise control treatment can affect the performance of the mechanical services system, it is recommended that consultation with an acoustic consultant be made during the initial phase of mechanical services system design in order to reduce the need for revision of mechanical plant and noise control treatment;
- Mechanical plant noise emission can be controllable by appropriate mechanical system design and implementation of common engineering methods that may include any of the following:
- Procurement of 'quiet' plant;

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- Strategic positioning of plant away from sensitive neighbouring premises, maximising the intervening shielding between the plant and sensitive neighbouring premises;
- In-duct lining and commercial available silencers or acoustic attenuators for air discharge and air intakes of plant;

Acoustic design of this nature is typically undertaken post after development approval.

## 7 Internal sound insulation

Internal walls and floors shall comply with the National Construction Code of Australia 2019 (formally Building Code of Australia). All services and doors shall comply with the requirements of the NCC 2019. Appendix C presents a summary of acoustic provisions outlined in Part F5 of the NCC 2019.

## 8 Conclusion

Renzo Tonin & Associates has completed a Noise and Vibration Assessment of the proposed residential development at the eastern end of Oulton Ave, Rhodes (Lot 212). The assessment includes investigation of noise impacts onto the site from nearby roads and potential noise impacts from future mechanical plant servicing the development.

The assessment has found that reasonable controls can be incorporated into the building design to comply with relevant Standards and Policies for internal noise levels (to protect residents from road and rail noise).

Noise emission goals for the project operation have been determined in accordance with the EPA's Noise Policy for Industry. This would apply primarily to plant and equipment noise, which would be reviewed in detail after development approval stage.

## APPENDIX A Glossary of terminology

The following is a brief description of the technical terms used to describe noise to assist in understanding the technical issues presented.

Adverse weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient noise	The all-encompassing noise associated within a given environment at a given time, usually composed of sound from all sources near and far.
Assessment period	The period in a day over which assessments are made.
Assessment point	A point at which noise measurements are taken or estimated. A point at which noise measurements are taken or estimated.
Background noise	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the L90 noise level (see below).
Decibel [dB]	The units that sound is measured in. The following are examples of the decibel readings of every day sounds: 0dB The faintest sound we can hear 30dB A quiet library or in a quiet location in the country 45dB Typical office space. Ambience in the city at night 60dB CBD mall at lunch time 70dB The sound of a car passing on the street 80dB Loud music played at home 90dB The sound of a truck passing on the street 100dB The sound of a rock band 115dB Limit of sound permitted in industry 120dB Deafening
dB(A)	A-weighted decibels. The A- weighting noise filter simulates the response of the human ear at relatively low levels, where the ear is not as effective in hearing low frequency sounds as it is in hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter.
dB(C)	C-weighted decibels. The C-weighting noise filter simulates the response of the human ear at relatively high levels, where the human ear is nearly equally effective at hearing from mid-low frequency (63Hz) to mid-high frequency (4kHz), but is less effective outside these frequencies.
Frequency	Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
Impulsive noise	Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.
Intermittent noise	The level suddenly drops to that of the background noise several times during the period of observation. The time during which the noise remains at levels different from that of the ambient is one second or more.
L <sub>Max</sub>	The maximum sound pressure level measured over a given period.
L <sub>Min</sub>	The minimum sound pressure level measured over a given period.



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L <sub>1</sub>	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
L <sub>10</sub>	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.
L <sub>90</sub>	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L90 noise level expressed in units of dB(A).
L <sub>eq</sub>	The “equivalent noise level” is the summation of noise events and integrated over a selected period of time.
Reflection	Sound wave changed in direction of propagation due to a solid object obscuring its path.
SEL	Sound Exposure Level (SEL) is the constant sound level which, if maintained for a period of 1 second would have the same acoustic energy as the measured noise event. SEL noise measurements are useful as they can be converted to obtain L <sub>eq</sub> sound levels over any period of time and can be used for predicting noise at various locations.
Sound	A fluctuation of air pressure which is propagated as a wave through air.
Sound absorption	The ability of a material to absorb sound energy through its conversion into thermal energy.
Sound level meter	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.
Sound pressure level	The level of noise, usually expressed in decibels, as measured by a standard sound level meter with a microphone.
Sound power level	Ten times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power.
Tonal noise	Containing a prominent frequency and characterised by a definite pitch.

## APPENDIX B Criteria and design methodology

### B.1 State Environmental Planning Policy (Infrastructure) 2007

The NSW State Environmental Planning Policy (Infrastructure) 2007 (known as 'ISEPP') came into force in NSW on 1 January 2008 to facilitate the effective delivery of infrastructure across the State. The aim of the policy includes identifying the environmental assessment category into which different types of infrastructure and services development fall and identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure.

Pertinent to noise assessment, the ISEPP includes the following clauses:

#### 87 *Impact of rail noise or vibration on non-rail development*

1. *This clause applies to development for any of the following purposes that is on land in or adjacent to a rail corridor and that the consent authority considers is likely to be adversely affected by rail noise or vibration:*
  - a. *a building for residential use,*
  - b. *a place of public worship,*
  - c. *a hospital,*
  - d. *an educational establishment or child care centre.*
2. *Before determining a development application for development to which this clause applies, the consent authority must take into consideration any guidelines that are issued by the Director-General for the purposes of this clause and published in the Gazette.*
3. *If the development is for the purposes of a building for residential use, the consent authority must not grant consent to the development unless it is satisfied that appropriate measures will be taken to ensure that the following LAeq levels are not exceeded:*
  - a. *in any bedroom in the building - 35 dB(A) at any time between 10 pm and 7am,*
  - e. *anywhere else in the building (other than a garage, kitchen, bathroom or hallway) - 40 dB(A) at any time.*

#### 102 *Impact of road noise or vibration on non-road development*

2. *This clause applies to development for any of the following purposes that is on land in or adjacent to the road corridor for a freeway, a tollway or a transitway or any other road with an annual average daily traffic volume of more than 40,000 vehicles (based on the traffic volume data published on the website of the RTA) and that the consent authority considers is likely to be adversely affected by road noise or vibration:*
  - f. *a building for residential use,*
  - g. *a place of public worship,*

- h. a hospital,
- i. an educational establishment or child care centre.
- 4. Before determining a development application for development to which this clause applies, the consent authority must take into consideration any guidelines that are issued by the Director-General for the purposes of this clause and published in the Gazette.
- 5. If the development is for the purposes of a building for residential use, the consent authority must not grant consent to the development unless it is satisfied that appropriate measures will be taken to ensure that the following LAeq levels are not exceeded:
  - b. in any bedroom in the building - 35 dB(A) at any time between 10 pm and 7am,
  - j. anywhere else in the building (other than a garage, kitchen, bathroom or hallway) - 40 dB(A) at any time.
- 6. In this clause, "freeway", "tollway" and "transitway" have the same meanings as they have in the Roads Act 1993

#### **B.1.1 Department of Planning publication 'Development near rail corridors and busy roads – Interim guideline'**

To support the Infrastructure SEPP, the NSW Department of Planning released the *Development in Rail Corridors and Busy Roads – Interim Guideline* (December 2008). The Guideline assists in the planning, design and assessment of developments in, or adjacent to, major transport corridors in terms of noise, vibration and air quality. While the ISEPP applies only to roads with an AADT greater than 40,000 vehicles, the guideline is also recommended for other road traffic noise affected sites.

#### **B.1.2 Clarification of ISEPP noise limits**

The Guideline clarifies the time period of measurement and assessment. Section 3.4 'What Noise and Vibration Concepts are Relevant' and Table 3.1 of Section 3.6.1 confirms that noise assessment is based over the following time periods:

- Daytime 7:00am - 10:00pm  $L_{Aeq(15hr)}$
- Night-time 10:00pm - 7:00am  $L_{Aeq(9hr)}$

The noise criteria nominated in the ISEPP apply to internal noise levels with windows and doors closed. However, as the preliminary noise assessment is based on measurements/predictions at external locations, equivalent external noise criteria has been established. The equivalent external noise criterion is used to determine which areas of the development may require acoustic treatment in order to meet the internal noise requirements of the ISEPP. The equivalent external goals have been determined on the following basis:

- The ISEPP states: "If internal noise levels with windows or doors open exceed the criteria by more than 10dBA, the design of the ventilation for these rooms should be such that occupants

can leave windows closed, if they so desire, and also to meet the ventilation requirements of the Building Code of Australia.” The internal criteria with windows open is therefore 10dB(A) above the criteria explicitly outlined in the ISEPP.

- The generally accepted noise reduction through an open window from a free-field external position is 10dB(A). Windows/doors are assumed to be open no more than 5% of room floor area, in accordance with the Building Code of Australia (BCA) ventilation requirements.

Table 17 presents the ISEPP internal noise criteria along with the equivalent external noise criteria for residential premises.

**Table 17: ISEPP noise criteria for new residential development**

Room	Location	L <sub>Aeq, 15hr</sub> Day 7am – 10pm	L <sub>Aeq 9hr</sub> Night 10pm – 7am
Living rooms*	Internal, windows closed	40	40
	Internal, windows open	50	50
	External free-field (allowing windows to remain open)^	60	60
Bedrooms*	Internal, windows closed	40	35
	Internal, windows open	50	45
	External free-field (allowing windows to remain open)^	60	55

Notes: \* Requisite for 40,000AADT Roads only under ISEPP 2007.

^ ISEPP Guideline states that where internal noise criteria are exceeded by more than 10dB(A) with windows open mechanical ventilation is required. External goals have been calculated on the basis of nominal 10dB(A) reduction through an open window to a free-field position. Windows open to 5% of floor area in accordance with the BCA requirements.

## APPENDIX C Internal sound insulation

### C.1 National Construction Code 2019

The National Construction Code of Australia (NCC) outlines minimum requirements for inter-tenancy (party) walls and ceiling/ floors to maintain privacy. This includes the incorporation of penetration of a service through a floor or through more than one sole-occupancy unit.

NCC nominates required Weighted Sound Reduction Indexes ( $R_w$ ) and spectrum adaptation factor ( $C_{tr}$ ) for partition constructions, of different space/ activity types in adjoining units. The  $R_w$  and  $R_w + C_{tr}$  are single number descriptors for quantifying the attenuating performance of partitions for typical intrusive noises produced inside residences. The higher the rating, the greater the isolation provided by the partition.

Spectrum adaptation factors are commonly used to compensate for the fact that certain kinds of sounds are more readily transmitted through insulating materials than others insulate.

The adaptation factor  $C_{tr}$  has now been introduced for most building elements which require an airborne sound insulation rating. The only exception is a wall which separates a dwelling from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification. Therefore, both the  $C_{tr}$  factor and the  $R_w$  of the building element will need to be considered in most cases.

The  $C_{tr}$  factor takes into account lower frequency level sounds, and has been chosen in large part, in recognition of the problem of the high bass frequency outputs of modern home theatre systems and music reproduction equipment.

The Deemed-to-Satisfy Provisions also have impact sound insulation requirements for floors. The terms to describe the impact sound insulation of the floor is the weighted normalised impact sound pressure level ( $L_{n,w}$ ). The lower the  $L_{n,w}$  of the floor, the better the performance of the floor in terms of impact sound insulation.

The following section represents a summary of acoustic provisions outlined in the Part F5 of the NCC.

### C.2 Sound insulation provision of NCC 2019

The acoustic provisions for inter-tenancy walls and floors in Class 2 and 3 buildings are outlined in the National Construction Code of Australia and the following is an extract from the NCC:

*"F5.2 Determination of airborne sound insulation ratings*

*A form of construction required to have an airborne sound insulation rating must –*

- a. *have the required value for weighted sound reduction index ( $R_w$ ) or weighted sound reduction index with spectrum adaptation term ( $R_w + C_w$ ) determined in accordance with AS/NZS 1276.1 or ISO 717.1 using results from laboratory measurements; or*
- b. *comply with Specification F5.2.*

**F5.3 Determination of impact sound insulation ratings**

- a. *A floor in a building required to have an impact sound insulation rating must –*
  - i. *have the required value for weighted normalised impact sound pressure level with spectrum adaptation term ( $L_{n,w}$ ) determined in accordance with AS/ISO 717.2 using results from laboratory measurements; or*
  - ii. *comply with Specification F5.2.*
- b. *A wall in a building required to have an impact sound insulation rating must –*
  - i. *for a Class 2 or 3 building be of discontinuous construction;*
- c. *For the purposes of this part, discontinuous construction means a wall having a minimum 20 mm cavity between 2 separate leaves, and*
  - i. *for masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and*
  - ii. *for other than masonry, there is no mechanical linkage between leaves except at the periphery.*

**F5.4 Sound insulation rating of floors**

- a. *A floor in a Class 2 or 3 building must have an  $R_w + C_{tr}$  (airborne) not less than 50 and an  $L_{n,w}$  (impact) not more than 62 if it separates –*
  - i. *sole-occupancy units; or*
  - ii. *a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification.*

**F5.5 Sound insulation rating of walls**

- a. *A wall in a Class 2 or 3 building must –*
  - i. *have an  $R_w + C_{tr}$  (airborne) not less than 50, if it separates sole-occupancy units; and*
  - ii. *have an  $R_w$  (airborne) not less than 50, if it separates a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification; and*
  - iii. *comply with F5.3(b) if it separates:*
    - (A) *a bathroom, sanitary compartment, laundry or kitchen in one sole-occupancy unit from a habitable room (other than a kitchen) in an adjoining unit; or*
    - (B) *a sole-occupancy unit from a plant room or lift shaft.*



- b. *A door may be incorporated in a wall in a Class 2 or 3 building that separates a sole-occupancy unit from a stairway, public corridor, public lobby or the like, provided the door assembly has an  $R_w$  not less than 30.*
- c. *Where a wall required to have sound insulation has a floor above, the wall must continue to –*
  - i. *the underside of the floor above; or*
  - ii. *a ceiling that provides the sound insulation required for the wall.*

*F5.6 Sound insulation rating of services*

- a. *If a duct, soil, waste or water supply pipe, including a duct or pipe that is located in a wall or floor cavity, serves or passes through more than one sole-occupancy unit, the duct or pipe must be separated from the rooms of any sole-occupancy unit by construction with an  $R_w + C_{tr}$  (airborne) not less than –*
  - i. *40 if the adjacent room is a habitable room (other than a kitchen); or*
  - ii. *25 if the adjacent room is a kitchen or non-habitable room.*
- b. *If a storm water pipe passes through a sole-occupancy unit it must be separated in accordance with (a)(i) and (ii).*

*F5.7 Sound insulation of pumps*

*A flexible coupling must be used at the point of connection between the services pipes in a building and any circulating or other pumps."*

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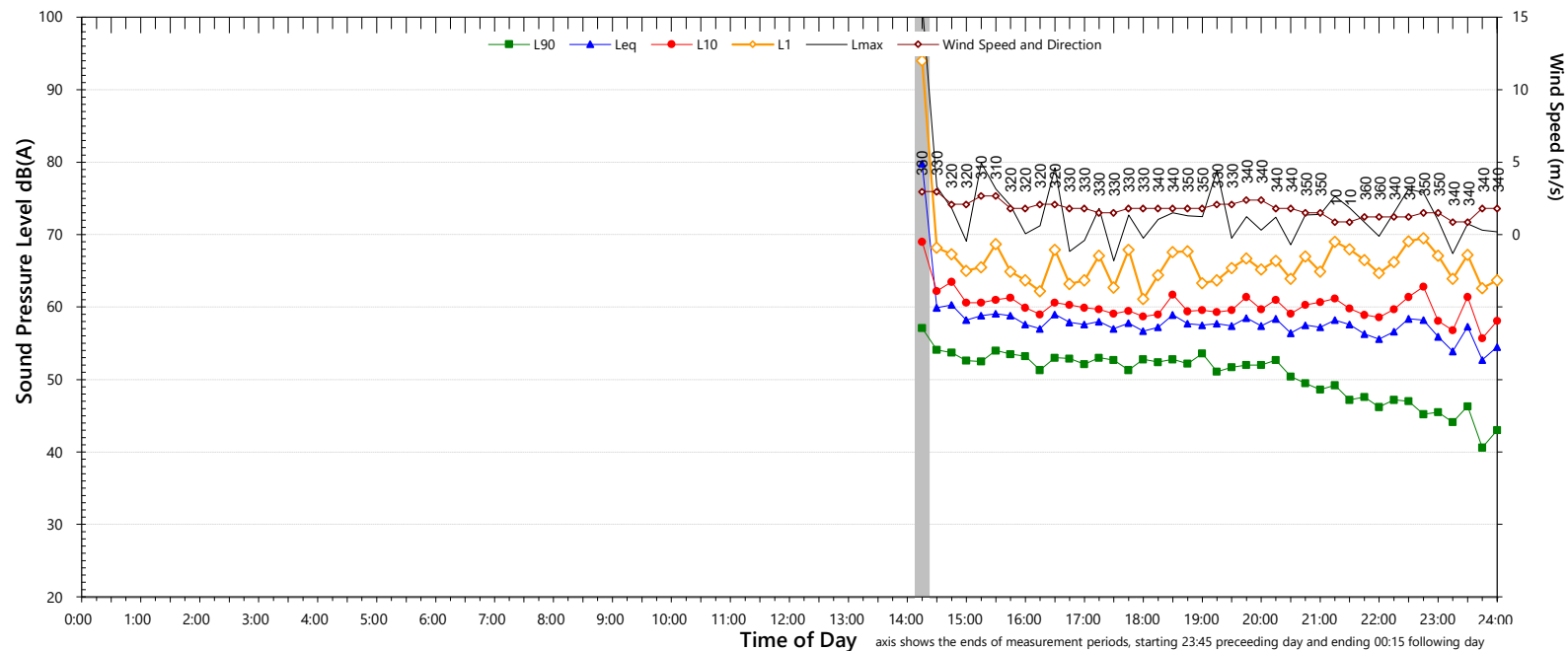
14 MAY 2024

**APPENDIX D**      Results of long-term noise measurements

## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Traffic

Thursday, 3 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	-	47	39
L <sub>Aeq</sub>	-	58	56
Night Time Maximum Noise Levels			(see note 7)
L <sub>Max</sub> (Range)	71	to	80
L <sub>Max</sub> - L <sub>eq</sub> (Range)	16	to	26

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

NSW Road Noise Policy (1m from facade)			(see note 6)
Descriptor	Day	Night <sup>5</sup>	
	7am-10pm	10pm-7am	
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	60	59	
L <sub>eq</sub> 1hr upper 10 percentile	61	60	
L <sub>eq</sub> 1hr lower 10 percentile	60	56	

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

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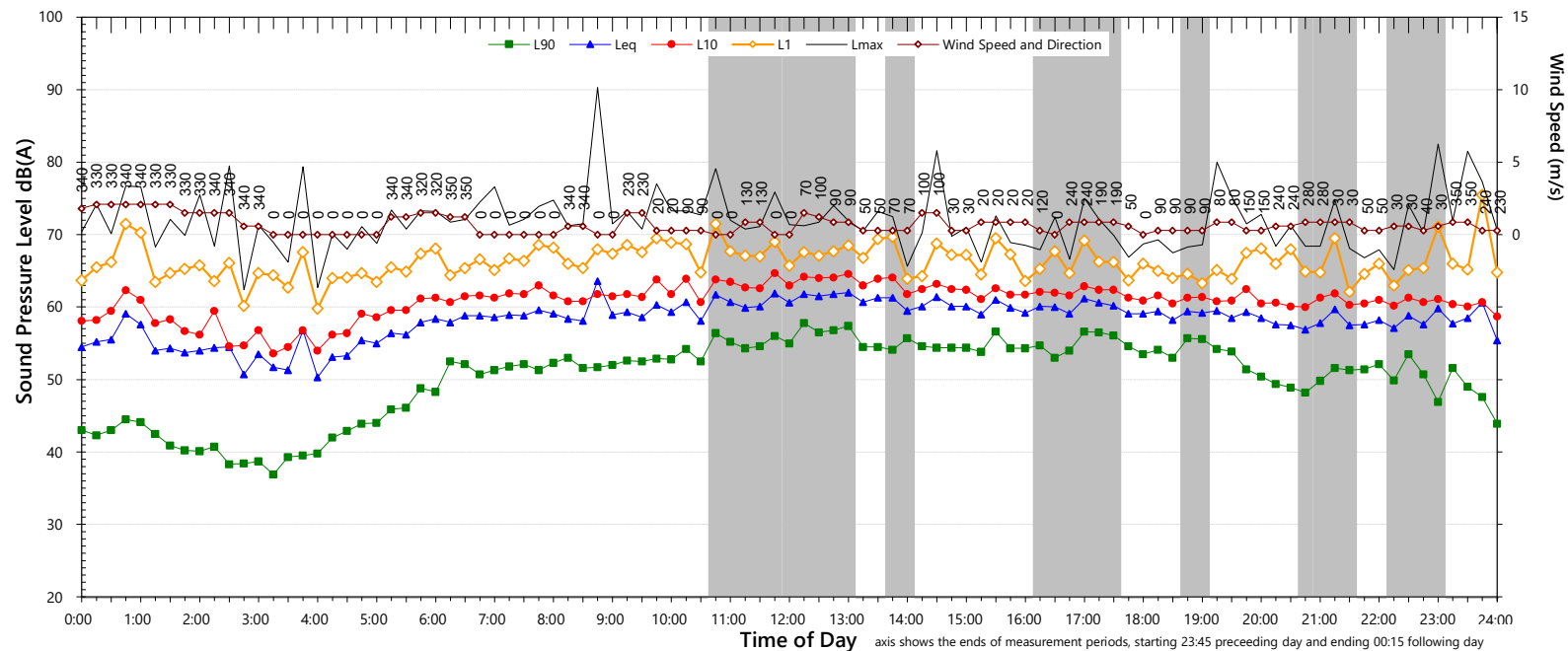
TL665-01L01 Oulton Ave, Rhodes - Traffic (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Traffic

Friday, 4 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	-	-	-
LA <sub>eq</sub>	-	-	-
Night Time Maximum Noise Levels (see note 7)			
L <sub>Max</sub> (Range)	73	to	82
L <sub>Max</sub> - L <sub>eq</sub> (Range)	17	to	27

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night <sup>5</sup>
	7am-10pm	10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	62	58
L <sub>eq</sub> 1hr upper 10 percentile	63	61
L <sub>eq</sub> 1hr lower 10 percentile	61	55

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: 2020-09-03\_SLM\_001\_123\_Rpt\_Report.txt

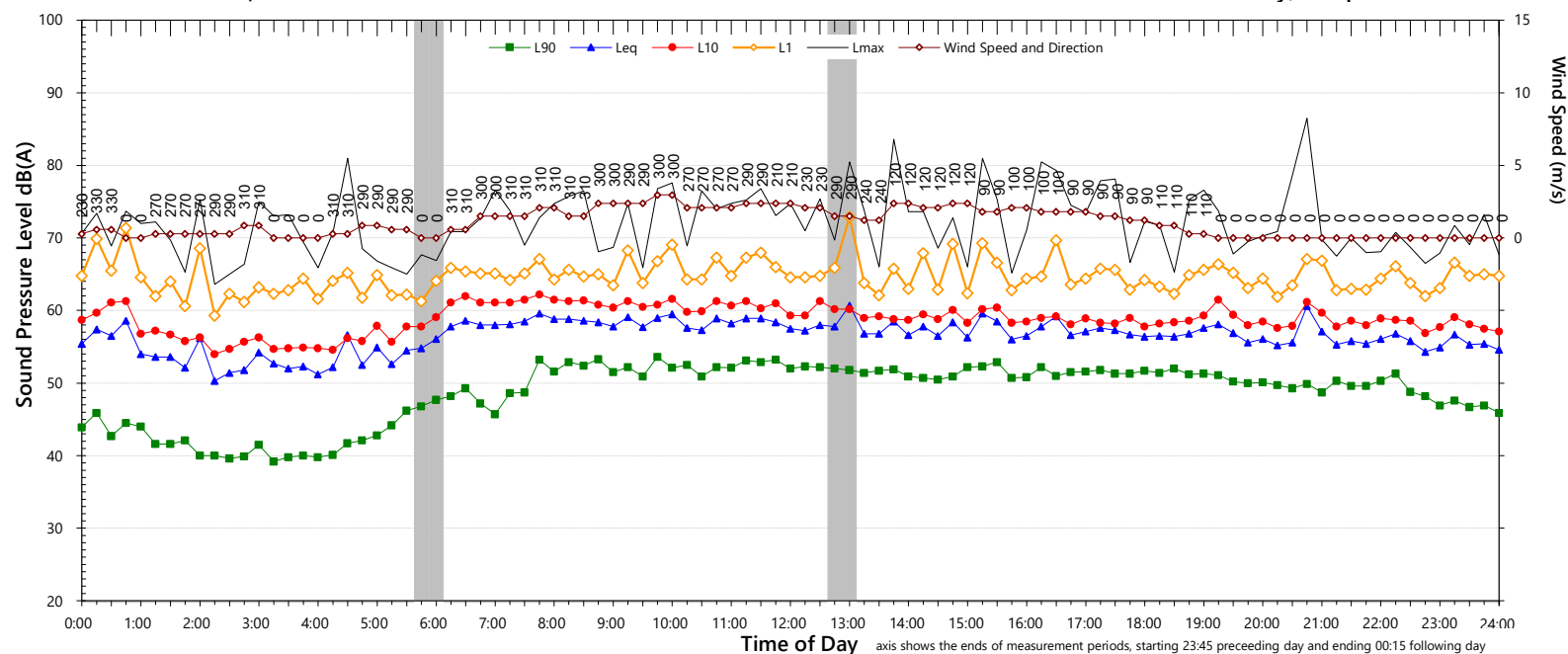
TL665-01L01 Oulton Ave, Rhodes - Traffic (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Traffic

Saturday, 5 September 2020



NSW Noise Policy for Industry (Free Field)

Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	51	49	38
L <sub>Aeq</sub>	58	57	54

Night Time Maximum Noise Levels

(see note 7)

L <sub>Max</sub> (Range)	68	to	78
L <sub>Max</sub> - L <sub>eq</sub> (Range)	15	to	25

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: 2020-09-03\_SLM\_001\_123\_Rpt\_Report.txt

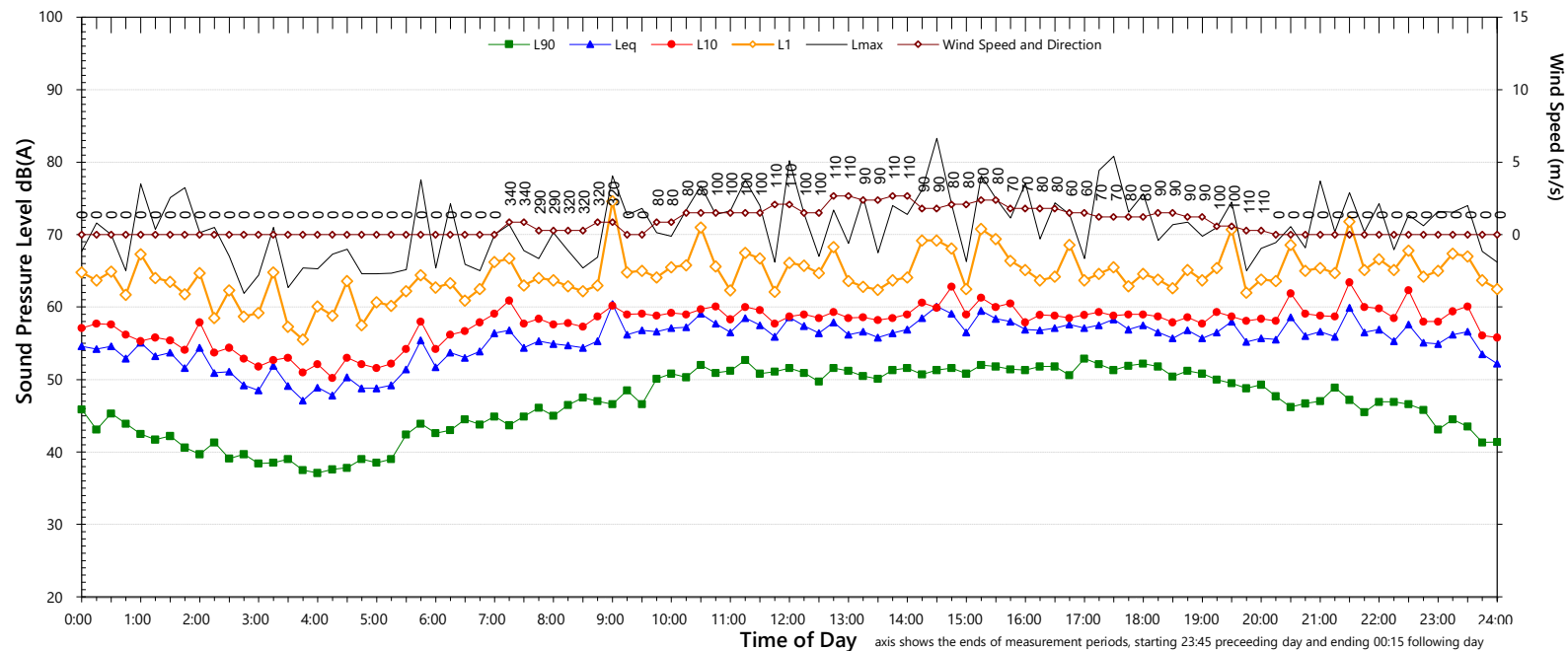
TL665-01L01 Oulton Ave, Rhodes - Traffic (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Traffic

Sunday, 6 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	47	46	39
L <sub>Aeq</sub>	57	57	56
Night Time Maximum Noise Levels (see note 7)			
L <sub>Max</sub> (Range)	70	to	78
L <sub>Max</sub> - L <sub>eq</sub> (Range)	16	to	22

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night <sup>5</sup>
	7am-10pm	10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	60	58
L <sub>eq</sub> 1hr upper 10 percentile	61	60
L <sub>eq</sub> 1hr lower 10 percentile	59	56

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: 2020-09-03\_SLM\_001\_123\_Rpt\_Report.txt

TL665-01L01 Oulton Ave, Rhodes - Traffic (r0)

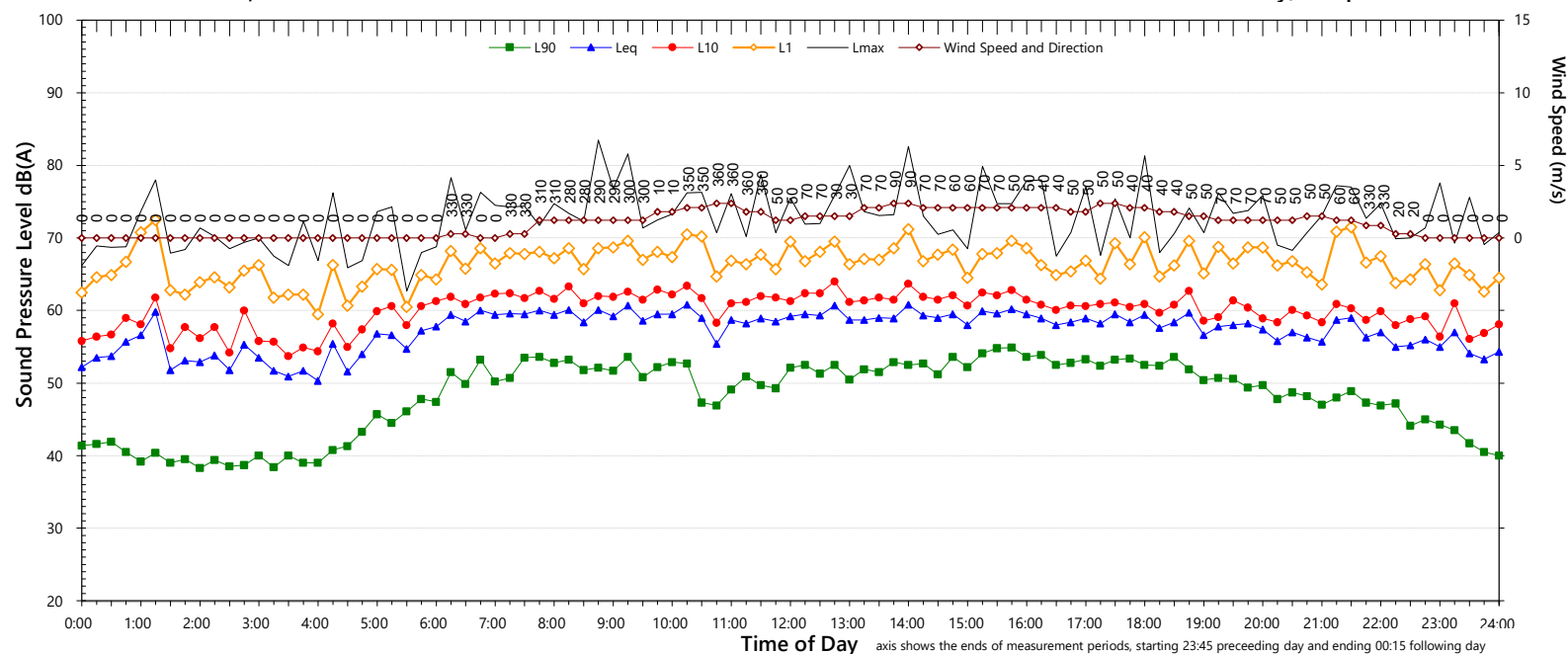
QTE-26 Logger Graphs Program (r33)



## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Traffic

Monday, 7 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	50	47	38
L <sub>Aeq</sub>	59	58	56
Night Time Maximum Noise Levels (see note 7)			
L <sub>Max</sub> (Range)	72	to	79
L <sub>Max</sub> - L <sub>eq</sub> (Range)	17	to	25

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day 7am-10pm	Night <sup>5</sup> 10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	61	58
L <sub>eq</sub> 1hr upper 10 percentile	62	60
L <sub>eq</sub> 1hr lower 10 percentile	60	56

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: 2020-09-03\_SLM\_001\_123\_Rpt\_Report.txt

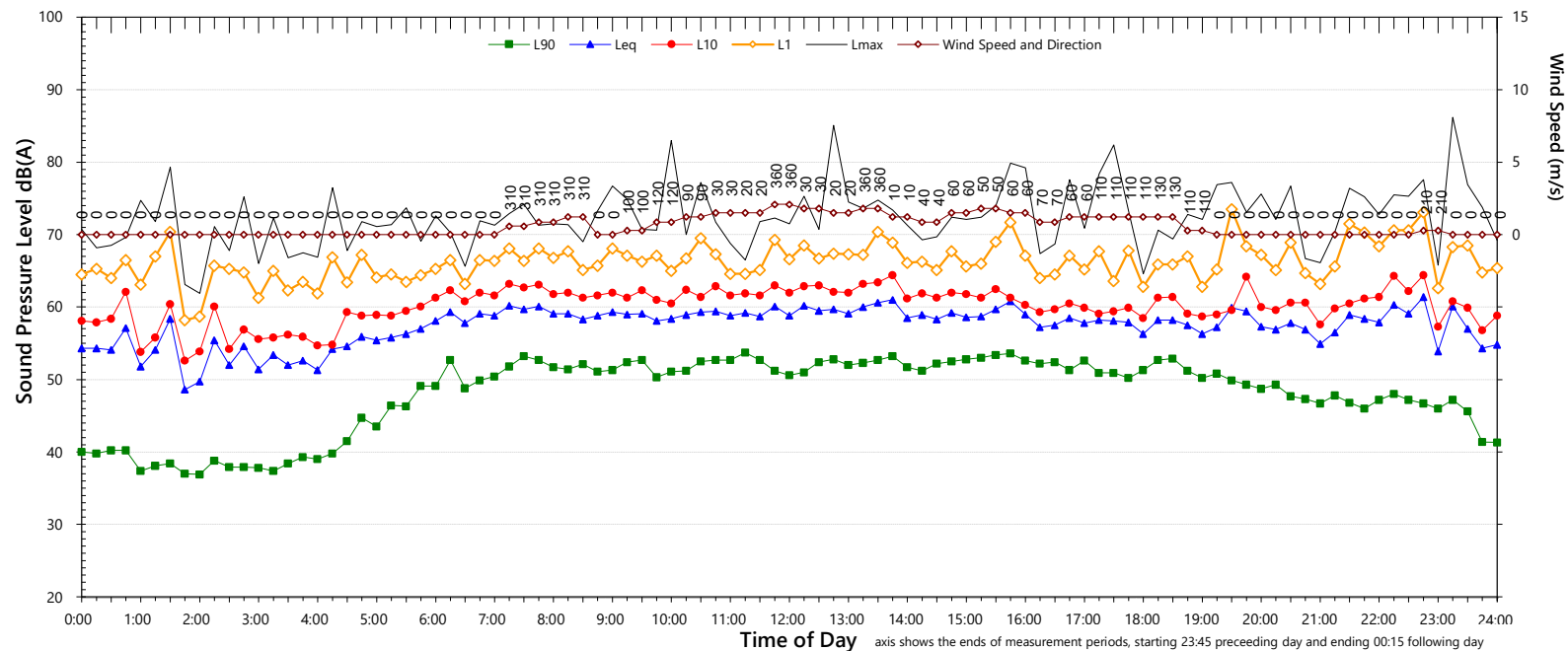
TL665-01L01 Oulton Ave, Rhodes - Traffic (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Traffic

Tuesday, 8 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	51	47	39
L <sub>Aeq</sub>	59	58	57

Night Time Maximum Noise Levels		(see note 7)	
L <sub>Max</sub> (Range)	69	to	86
L <sub>Max</sub> - L <sub>eq</sub> (Range)	15	to	29

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

NSW Road Noise Policy (1m from facade)			(see note 6)
Descriptor	Day	Night <sup>5</sup>	
	7am-10pm	10pm-7am	
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	61	59	
L <sub>eq</sub> 1hr upper 10 percentile	62	61	
L <sub>eq</sub> 1hr lower 10 percentile	60	57	

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: 2020-09-03\_SLM\_001\_123\_Rpt\_Report.txt

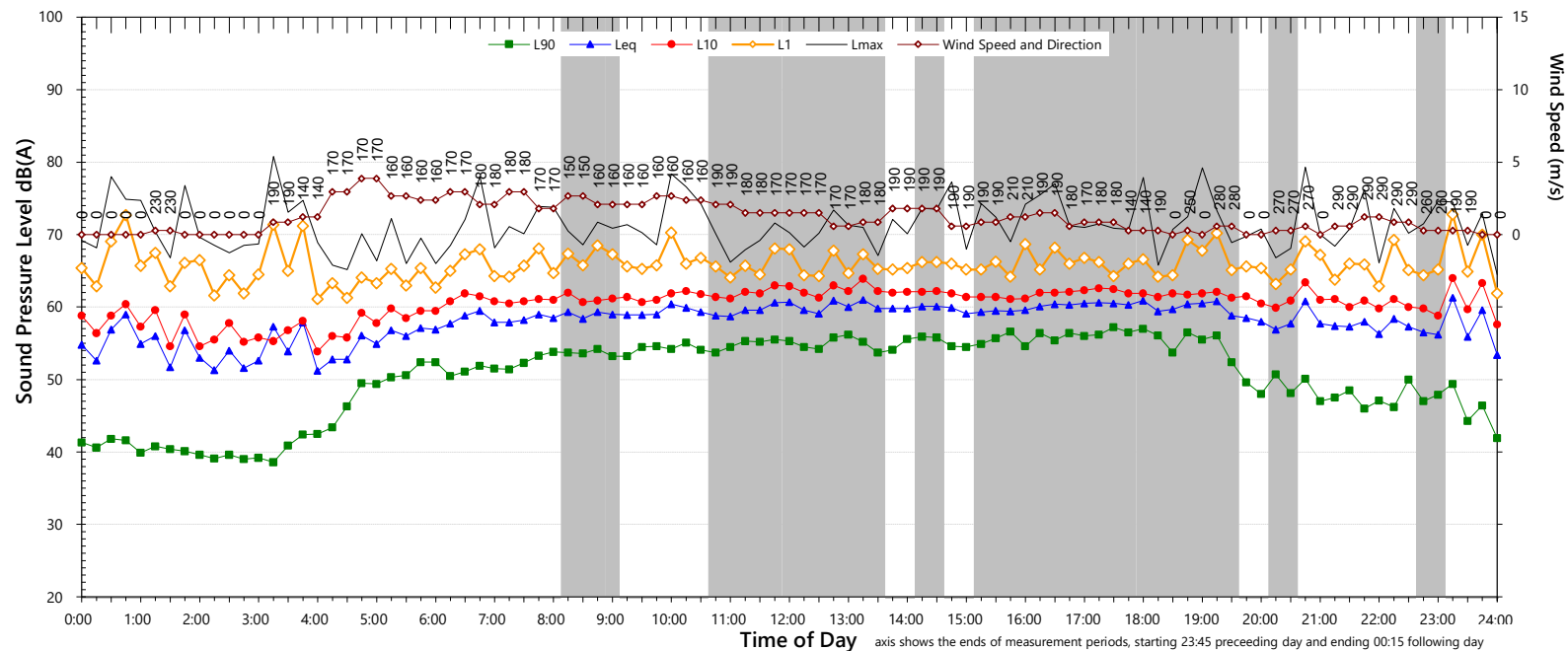
TL665-01L01 Oulton Ave, Rhodes - Traffic (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Traffic

Wednesday, 9 September 2020



### NSW Noise Policy for Industry (Free Field)

Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	-	-	-
LA <sub>eq</sub>	-	-	-

### Night Time Maximum Noise Levels

(see note 7)

L <sub>Max</sub> (Range)	74	to	78
L <sub>Max</sub> - L <sub>eq</sub> (Range)	16	to	22

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

### NSW Road Noise Policy (1m from facade)

(see note 6)

Descriptor	Day	Night <sup>5</sup>
	7am-10pm	10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	61	60
L <sub>eq</sub> 1hr upper 10 percentile	62	61
L <sub>eq</sub> 1hr lower 10 percentile	60	56

Data File: 2020-09-03\_SLM\_001\_123\_Rpt\_Report.txt

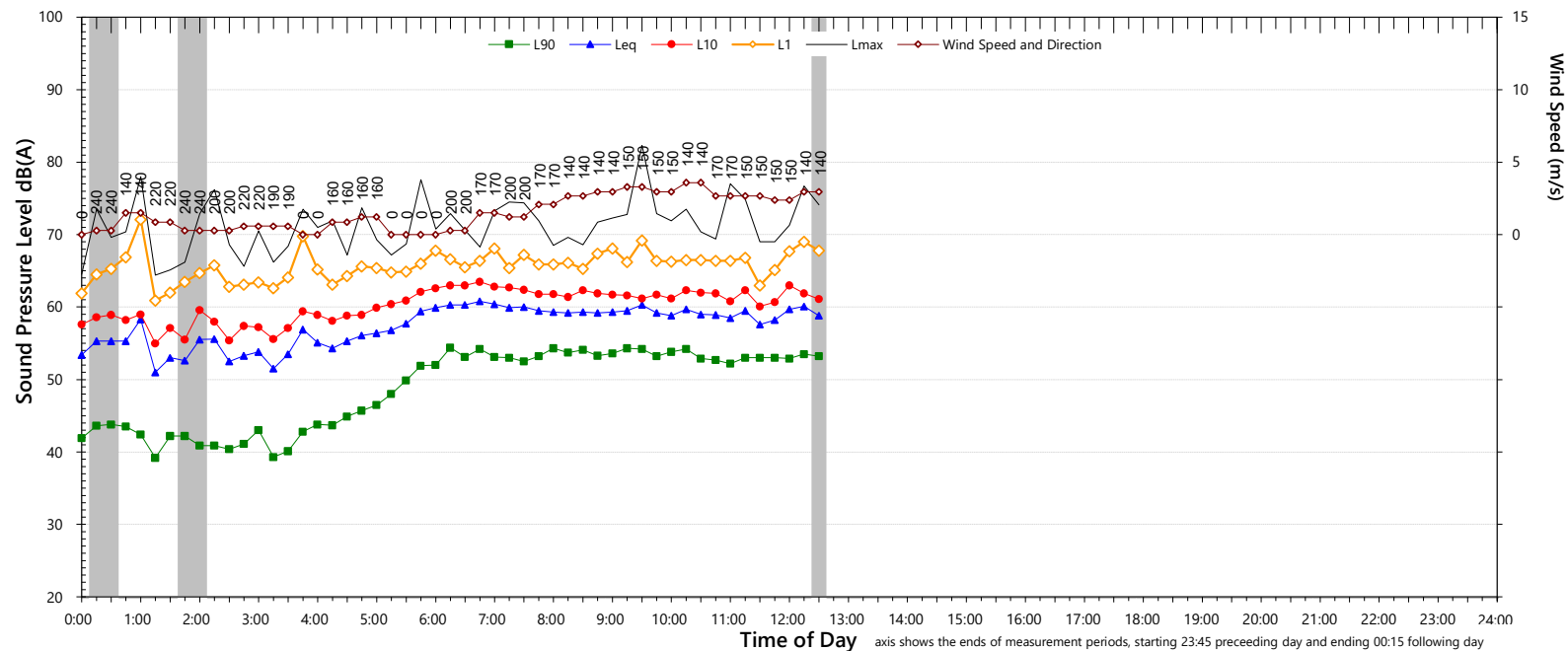
TL665-01L01 Oulton Ave, Rhodes - Traffic (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Traffic

Thursday, 10 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	-	-	-
L <sub>Aeq</sub>	-	-	-
Night Time Maximum Noise Levels (see note 7)			
L <sub>Max</sub> (Range)	-	to	-
L <sub>Max</sub> - L <sub>eq</sub> (Range)	-	to	-

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night <sup>5</sup>
	7am-10pm	10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	62	-
L <sub>eq</sub> 1hr upper 10 percentile	62	-
L <sub>eq</sub> 1hr lower 10 percentile	61	-

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: 2020-09-03\_SLM\_001\_123\_Rpt\_Report.txt

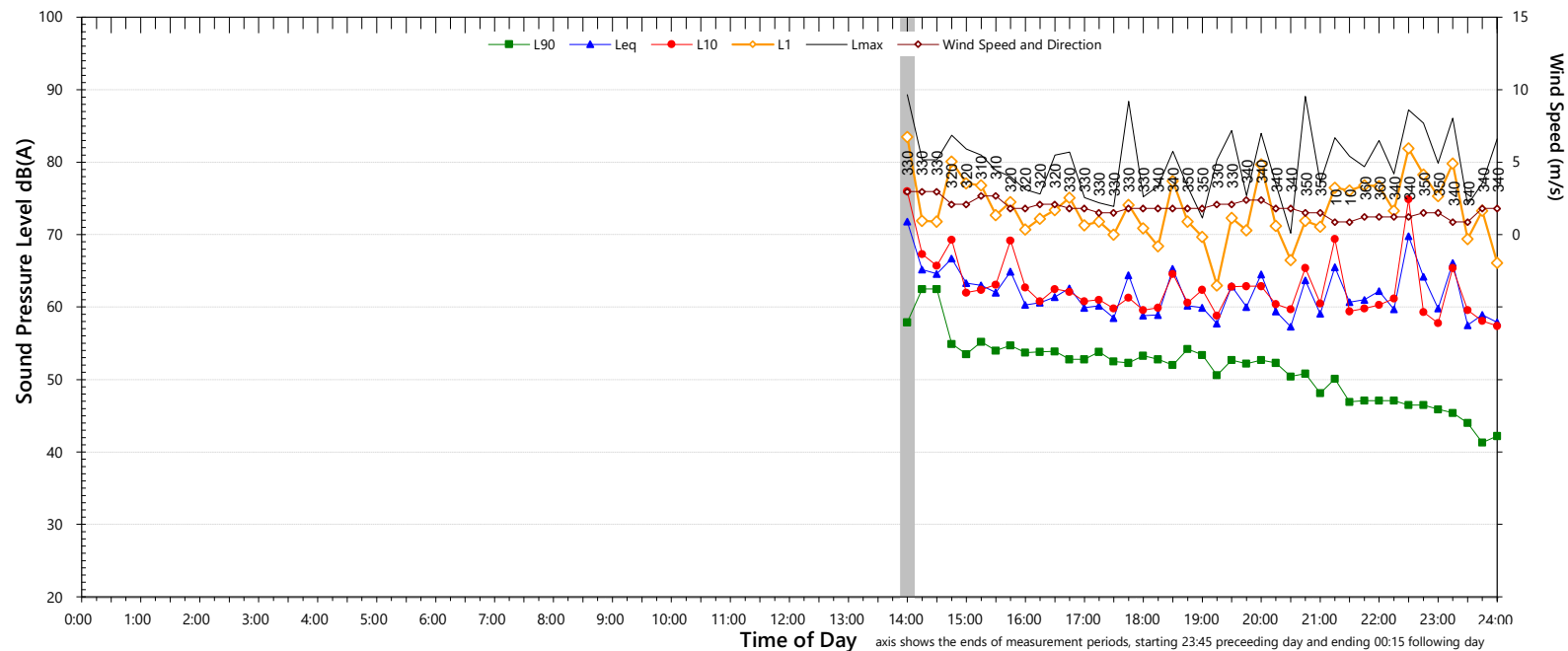
TL665-01L01 Oulton Ave, Rhodes - Traffic (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Train

Thursday, 3 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	-	47	40
LA <sub>eq</sub>	-	62	63
Night Time Maximum Noise Levels			(see note 7)
L <sub>Max</sub> (Range)	79	to	93
L <sub>Max</sub> - L <sub>eq</sub> (Range)	21	to	27

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night <sup>5</sup>
	7am-10pm	10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	65	65
L <sub>eq</sub> 1hr upper 10 percentile	66	68
L <sub>eq</sub> 1hr lower 10 percentile	64	59

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: Manual Import

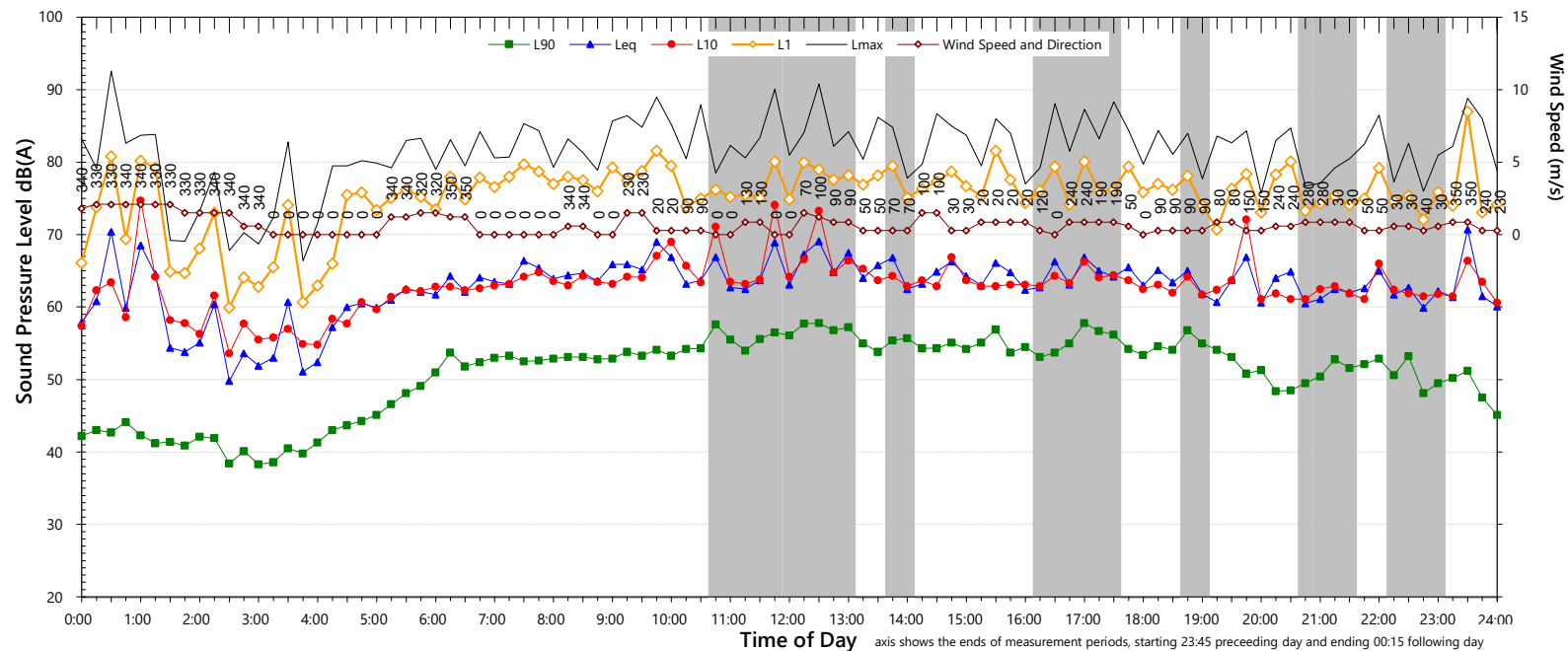
TL665-01L02 Oulton Ave, Rhodes - Train (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Train

Friday, 4 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	-	-	-
L <sub>Aeq</sub>	-	-	-
Night Time Maximum Noise Levels (see note 7)			
L <sub>Max</sub> (Range)	72	to	90
L <sub>Max</sub> - L <sub>eq</sub> (Range)	19	to	26

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> Values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night <sup>5</sup>
	7am-10pm	10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	67	65
L <sub>eq</sub> 1hr upper 10 percentile	67	69
L <sub>eq</sub> 1hr lower 10 percentile	66	59

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: Manual Import

TL665-01L02 Oulton Ave, Rhodes - Train (r0)

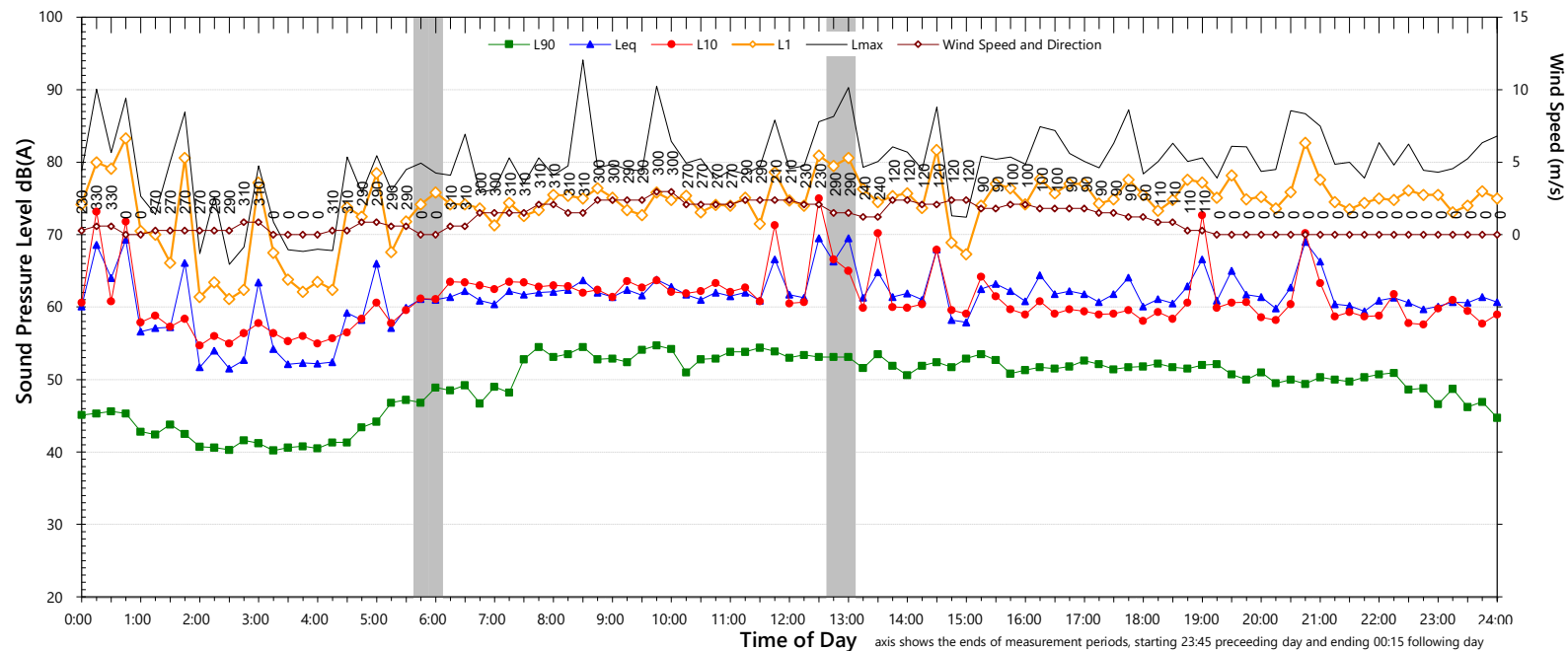
QTE-26 Logger Graphs Program (r33)



## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Train

Saturday, 5 September 2020



NSW Noise Policy for Industry (Free Field)

Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	51	50	39
L <sub>Aeq</sub>	63	63	60

Night Time Maximum Noise Levels

(see note 7)

L <sub>Max</sub> (Range)	67	to	91
L <sub>Max</sub> - L <sub>eq</sub> (Range)	18	to	36

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

NSW Road Noise Policy (1m from facade)

(see note 6)

Descriptor	Day 7am-10pm	Night <sup>5</sup> 10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	66	63
L <sub>eq</sub> 1hr upper 10 percentile	67	66
L <sub>eq</sub> 1hr lower 10 percentile	64	55

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: Manual Import

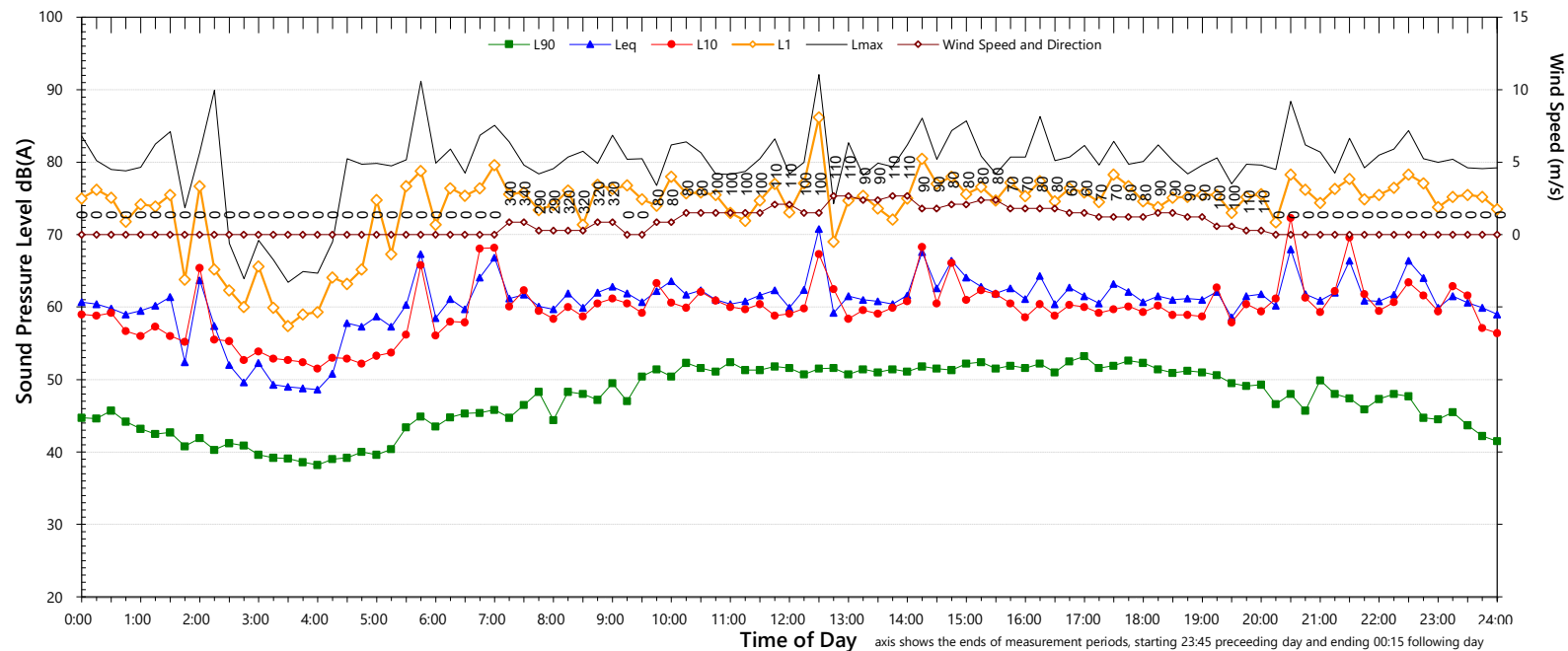
TL665-01L02 Oulton Ave, Rhodes - Train (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Train

Sunday, 6 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	49	46	40
L <sub>Aeq</sub>	63	63	63

Night Time Maximum Noise Levels		(see note 7)	
L <sub>Max</sub> (Range)	75	to	90
L <sub>Max</sub> - L <sub>eq</sub> (Range)	20	to	26

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night <sup>5</sup>
	7am-10pm	10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	65	65
L <sub>eq</sub> 1hr upper 10 percentile	67	67
L <sub>eq</sub> 1hr lower 10 percentile	64	61

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

Data File: Manual Import

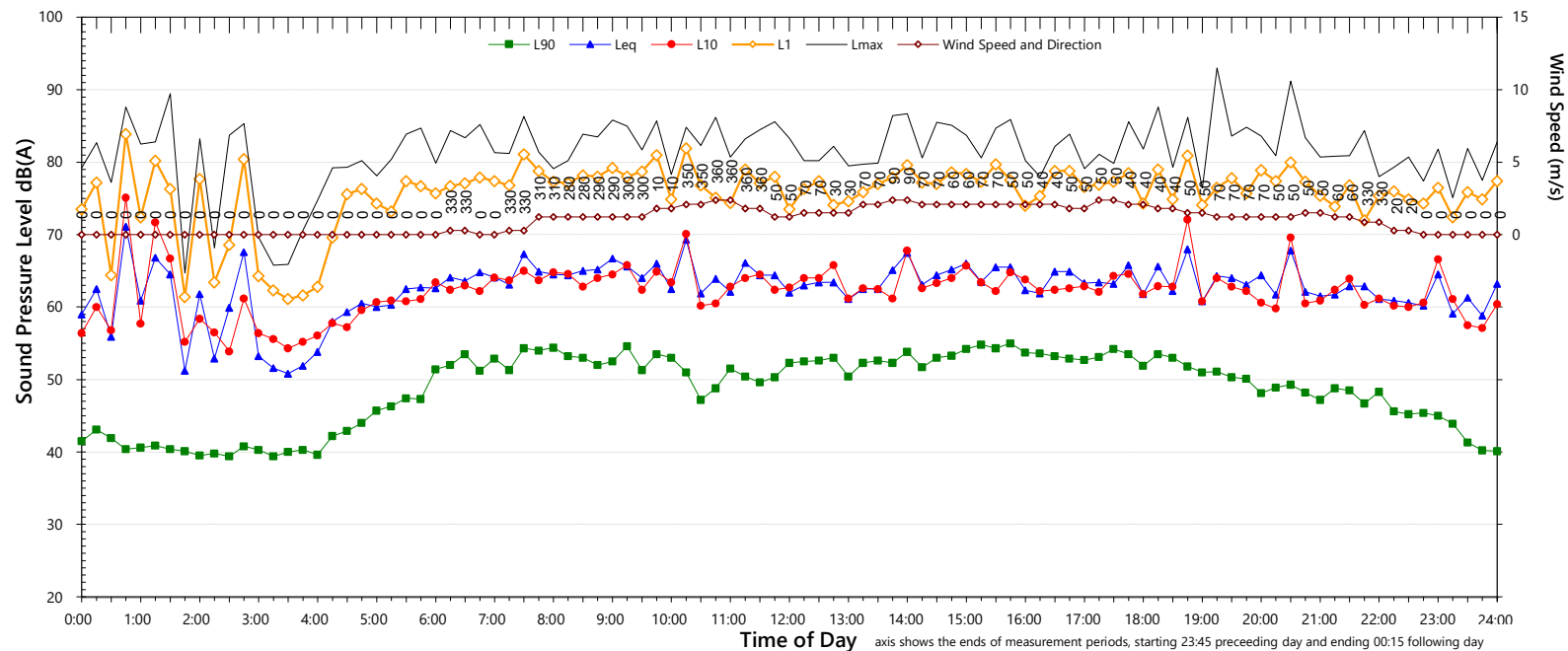
TL665-01L02 Oulton Ave, Rhodes - Train (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Train

Monday, 7 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	50	48	39
L <sub>Aeq</sub>	65	64	62

Night Time Maximum Noise Levels		(see note 7)	
L <sub>Max</sub> (Range)	77	to	88
L <sub>Max</sub> - L <sub>eq</sub> (Range)	20	to	27

NSW Road Noise Policy (1m from facade)			(see note 6)
Descriptor	Day	Night <sup>5</sup>	
	7am-10pm	10pm-7am	
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	67	64	
L <sub>eq</sub> 1hr upper 10 percentile	68	66	
L <sub>eq</sub> 1hr lower 10 percentile	66	61	

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: Manual Import

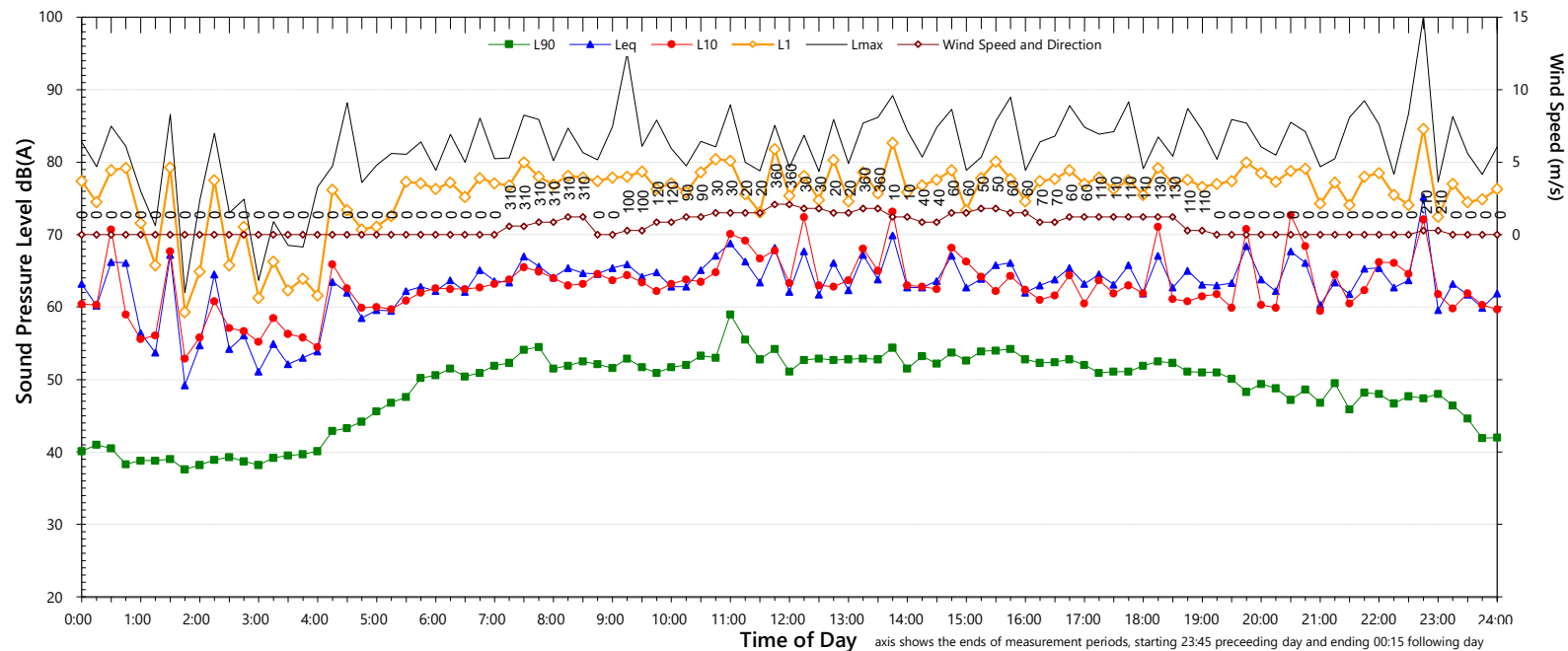
TL665-01L02 Oulton Ave, Rhodes - Train (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Train

Tuesday, 8 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	51	47	40
L <sub>Aeq</sub>	65	65	64
Night Time Maximum Noise Levels (see note 7)			
L <sub>Max</sub> (Range)	80	to	100
L <sub>Max</sub> - L <sub>eq</sub> (Range)	20	to	31

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night <sup>5</sup>
	7am-10pm	10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	68	66
L <sub>eq</sub> 1hr upper 10 percentile	69	68
L <sub>eq</sub> 1hr lower 10 percentile	67	62

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: Manual Import

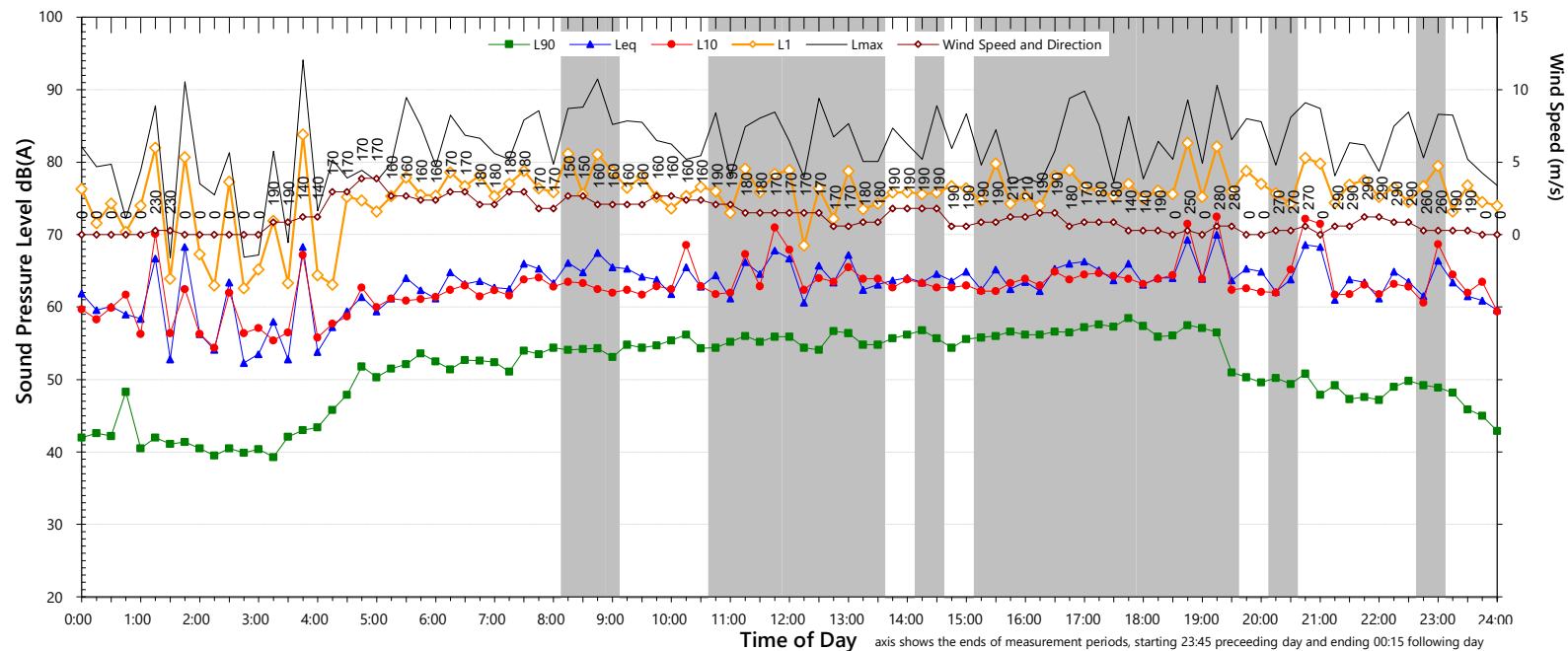
TL665-01L02 Oulton Ave, Rhodes - Train (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Train

Wednesday, 9 September 2020



### NSW Noise Policy for Industry (Free Field)

Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	-	-	-
LA <sub>eq</sub>	-	-	-

### Night Time Maximum Noise Levels

(see note 7)

L <sub>Max</sub> (Range)	76	to	93
L <sub>Max</sub> - L <sub>eq</sub> (Range)	18	to	31

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

### NSW Road Noise Policy (1m from facade)

(see note 6)

Descriptor	Day	Night <sup>5</sup>
	7am-10pm	10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	67	65
L <sub>eq</sub> 1hr upper 10 percentile	69	68
L <sub>eq</sub> 1hr lower 10 percentile	66	60

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: Manual Import

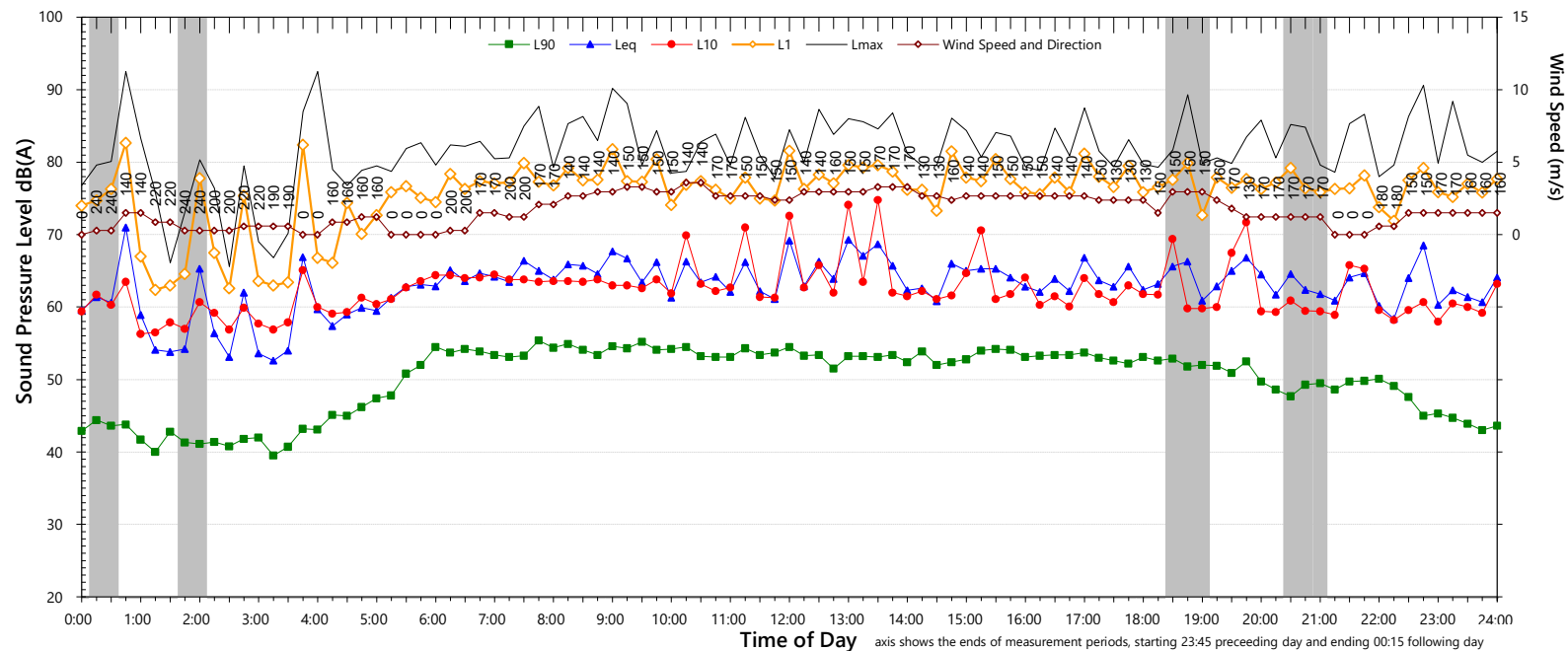
TL665-01L02 Oulton Ave, Rhodes - Train (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Train

Thursday, 10 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	52	-	-
L <sub>Aeq</sub>	65	-	-
Night Time Maximum Noise Levels (see note 7)			
L <sub>Max</sub> (Range)	76	to	91
L <sub>Max</sub> - L <sub>eq</sub> (Range)	19	to	26

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night <sup>5</sup>
	7am-10pm	10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	67	65
L <sub>eq</sub> 1hr upper 10 percentile	69	67
L <sub>eq</sub> 1hr lower 10 percentile	66	60

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: Manual Import

TL665-01L02 Oulton Ave, Rhodes - Train (r0)

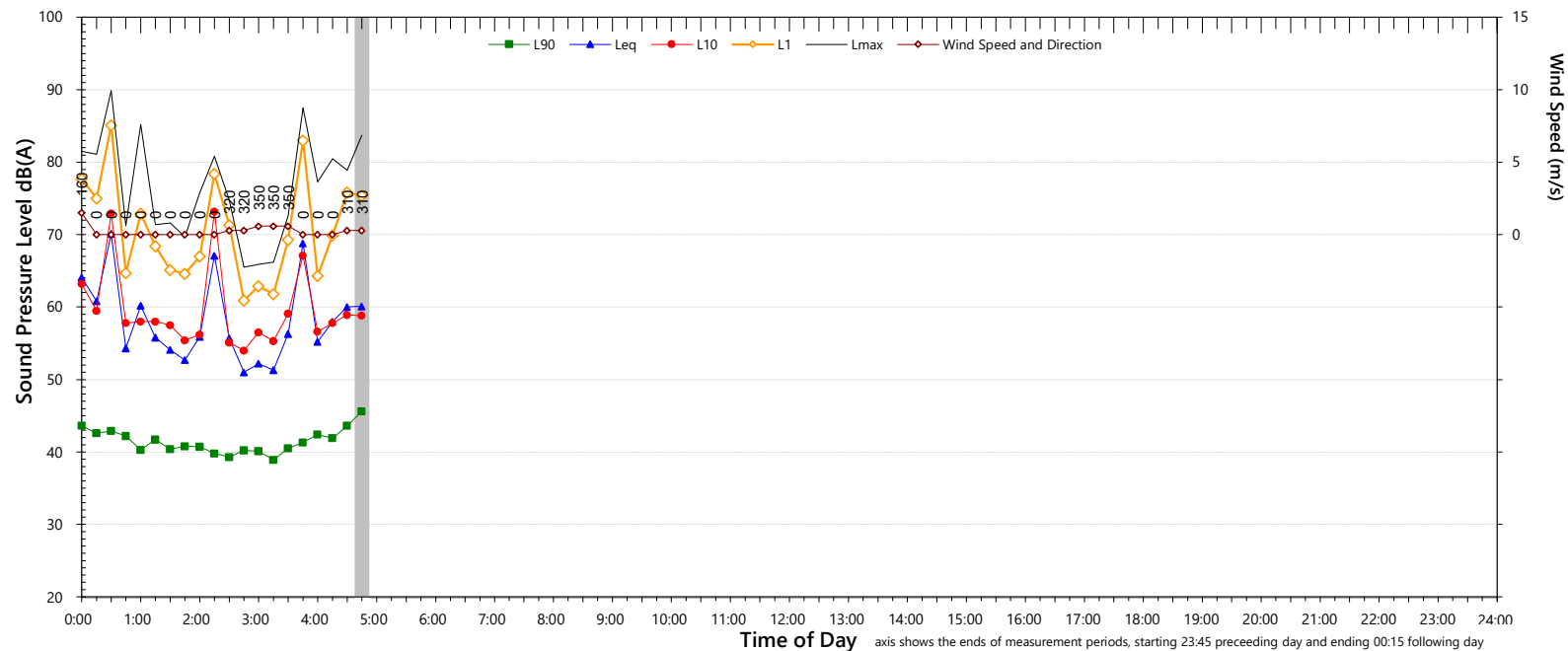
QTE-26 Logger Graphs Program (r33)



## Unattended Noise Monitoring Results

Oulton Avenue, Rhodes - Train

Friday, 11 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	-	-	-
L <sub>Aeq</sub>	-	-	-
Night Time Maximum Noise Levels			(see note 7)
L <sub>Max</sub> (Range)	-	to	-
L <sub>Max</sub> - L <sub>eq</sub> (Range)	-	to	-

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night <sup>5</sup>
	7am-10pm	10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	-	-
L <sub>eq</sub> 1hr upper 10 percentile	-	-
L <sub>eq</sub> 1hr lower 10 percentile	-	-

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: Manual Import

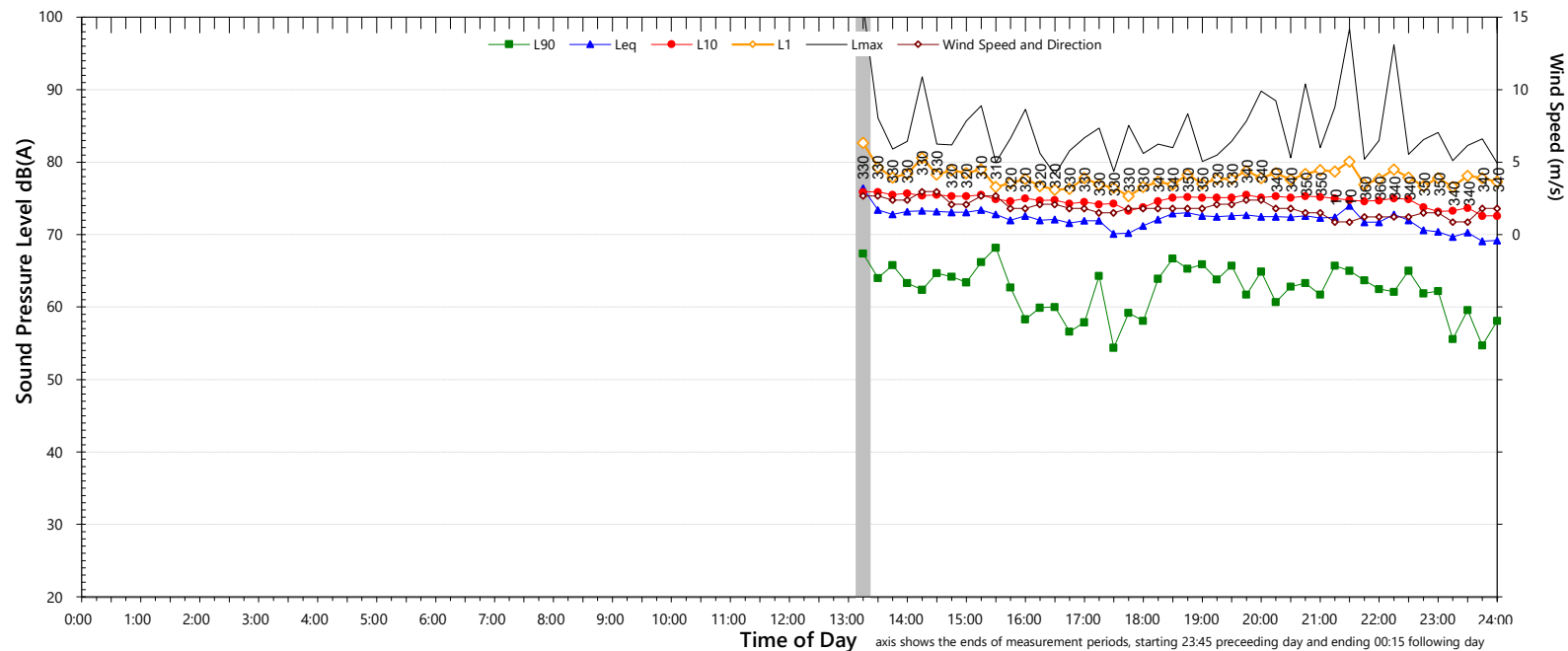
TL665-01L02 Oulton Ave, Rhodes - Train (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

### Concord Rd

Thursday, 3 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	-	62	48
LA <sub>eq</sub>	-	73	71
Night Time Maximum Noise Levels (see note 7)			
L <sub>Max</sub> (Range)	86	to	96
L <sub>Max</sub> - L <sub>eq</sub> (Range)	19	to	25

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day 7am-10pm	Night <sup>5</sup> 10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	75	73
L <sub>eq</sub> 1hr upper 10 percentile	76	76
L <sub>eq</sub> 1hr lower 10 percentile	74	69

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: 2020-09-03\_SLM\_000\_123\_Rpt\_Report.txt

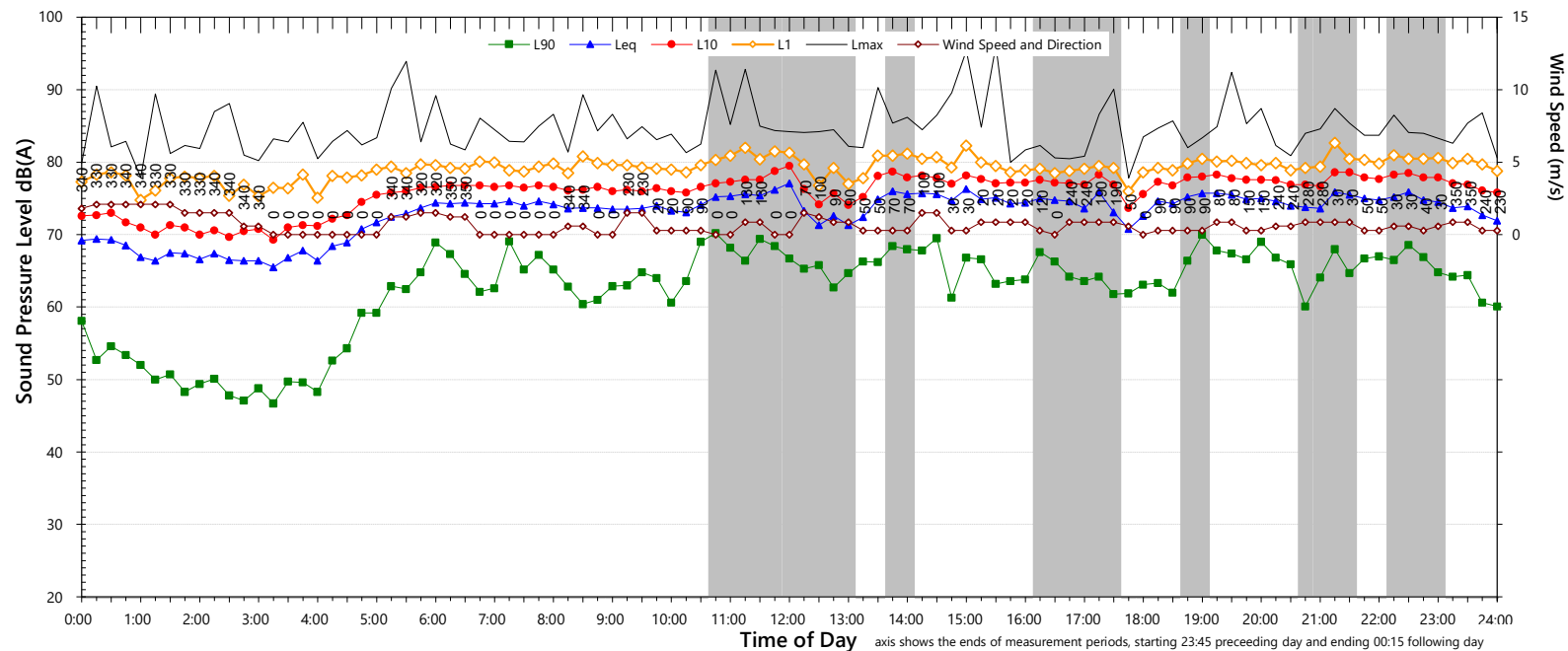
TL665-01L03 Concord Rd - Traffic (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

### Concord Rd

Friday, 4 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	-	-	-
L <sub>Aeq</sub>	-	-	-
Night Time Maximum Noise Levels			(see note 7)
L <sub>Max</sub> (Range)	84	to	90
L <sub>Max</sub> - L <sub>eq</sub> (Range)	15	to	22

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night <sup>5</sup>
	7am-10pm	10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	77	74
L <sub>eq</sub> 1hr upper 10 percentile	78	76
L <sub>eq</sub> 1hr lower 10 percentile	76	70

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: 2020-09-03\_SLM\_000\_123\_Rpt\_Report.txt

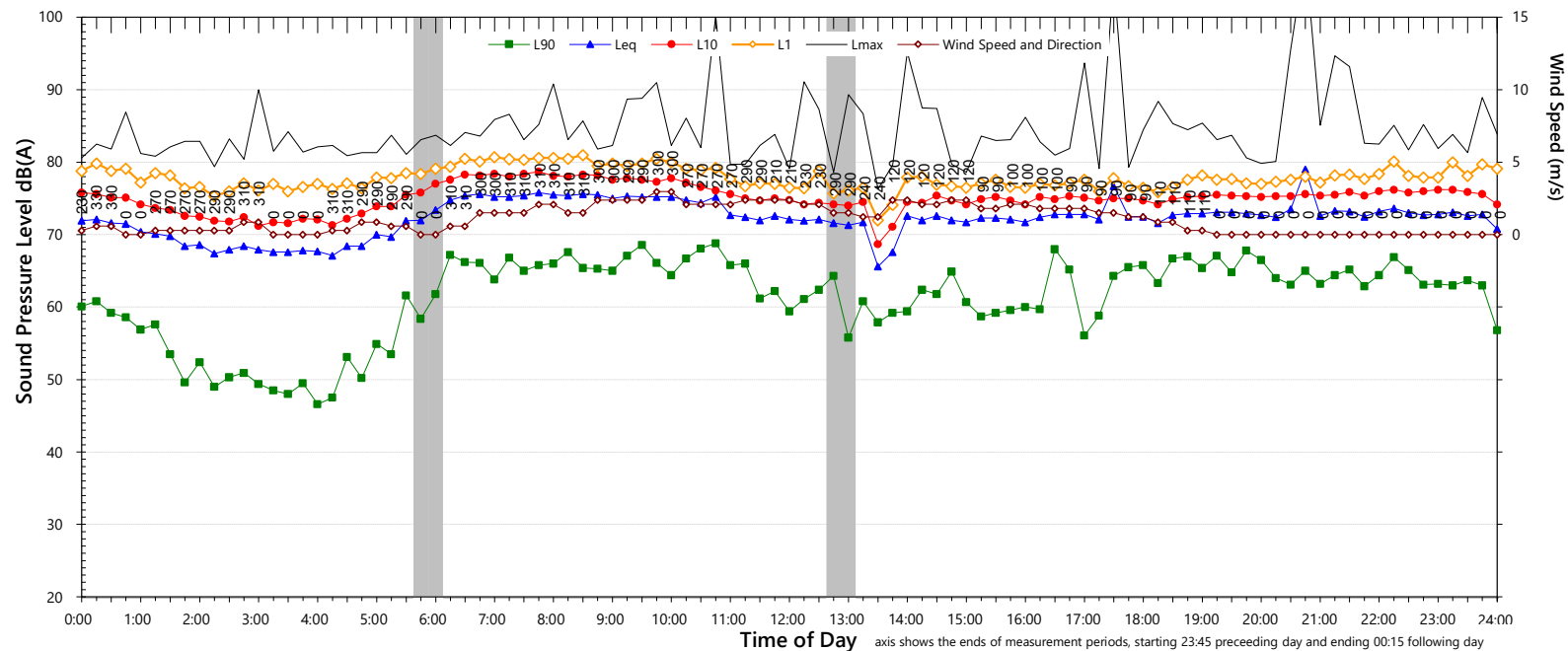
TL665-01L03 Concord Rd - Traffic (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Concord Rd

Saturday, 5 September 2020



NSW Noise Policy for Industry (Free Field)

Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	59	63	47
L <sub>Aeq</sub>	74	74	71

Night Time Maximum Noise Levels

(see note 7)

L <sub>Max</sub> (Range)	83	to	89
L <sub>Max</sub> - L <sub>eq</sub> (Range)	16	to	19

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

NSW Road Noise Policy (1m from facade)

(see note 6)

Descriptor	Day 7am-10pm	Night <sup>5</sup> 10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	76	73
L <sub>eq</sub> 1hr upper 10 percentile	78	75
L <sub>eq</sub> 1hr lower 10 percentile	75	69

Data File: 2020-09-03\_SLM\_000\_123\_Rpt\_Report.txt

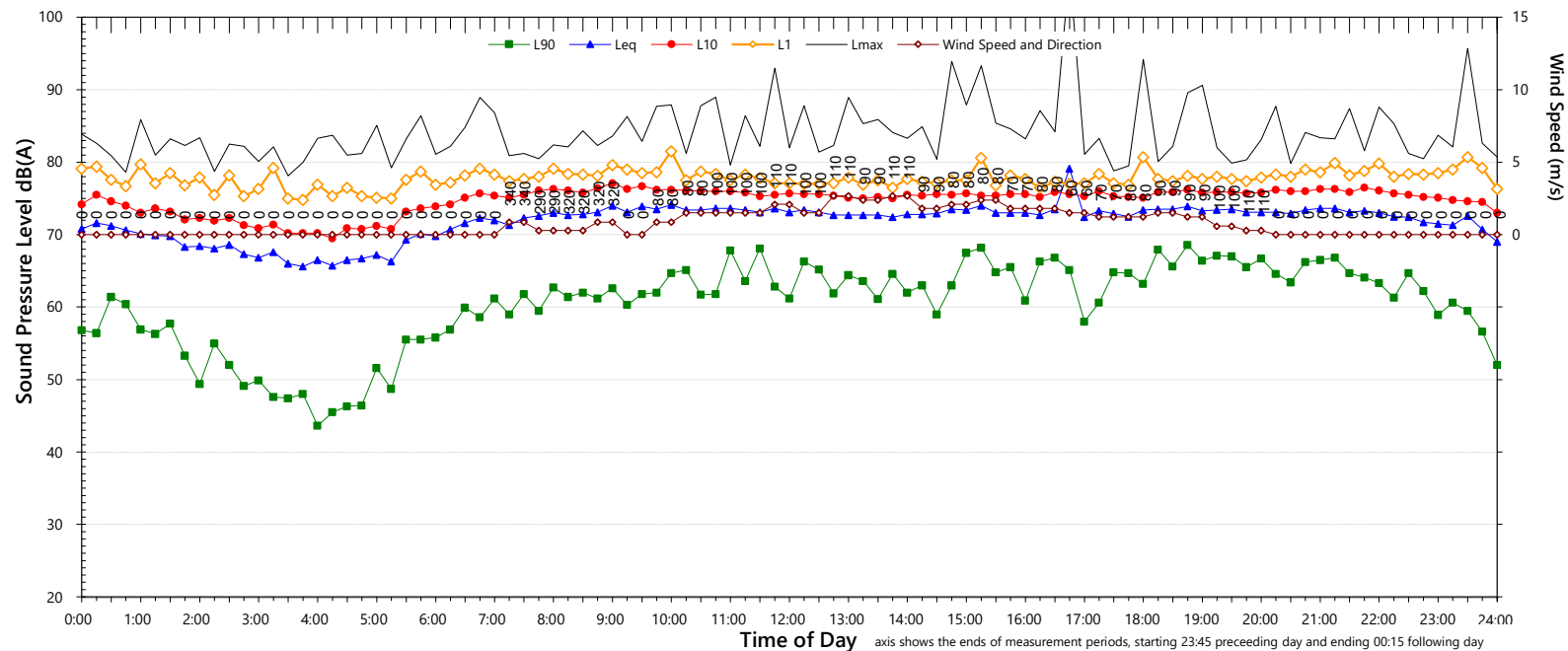
TL665-01L03 Concord Rd - Traffic (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

### Concord Rd

Sunday, 6 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	61	64	48
L <sub>Aeq</sub>	73	73	72

Night Time Maximum Noise Levels		(see note 7)	
L <sub>Max</sub> (Range)	84	to	96
L <sub>Max</sub> - L <sub>eq</sub> (Range)	15	to	25

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night <sup>5</sup>
	7am-10pm	10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	76	74
L <sub>eq</sub> 1hr upper 10 percentile	76	77
L <sub>eq</sub> 1hr lower 10 percentile	75	70

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: 2020-09-03\_SLM\_000\_123\_Rpt\_Report.txt

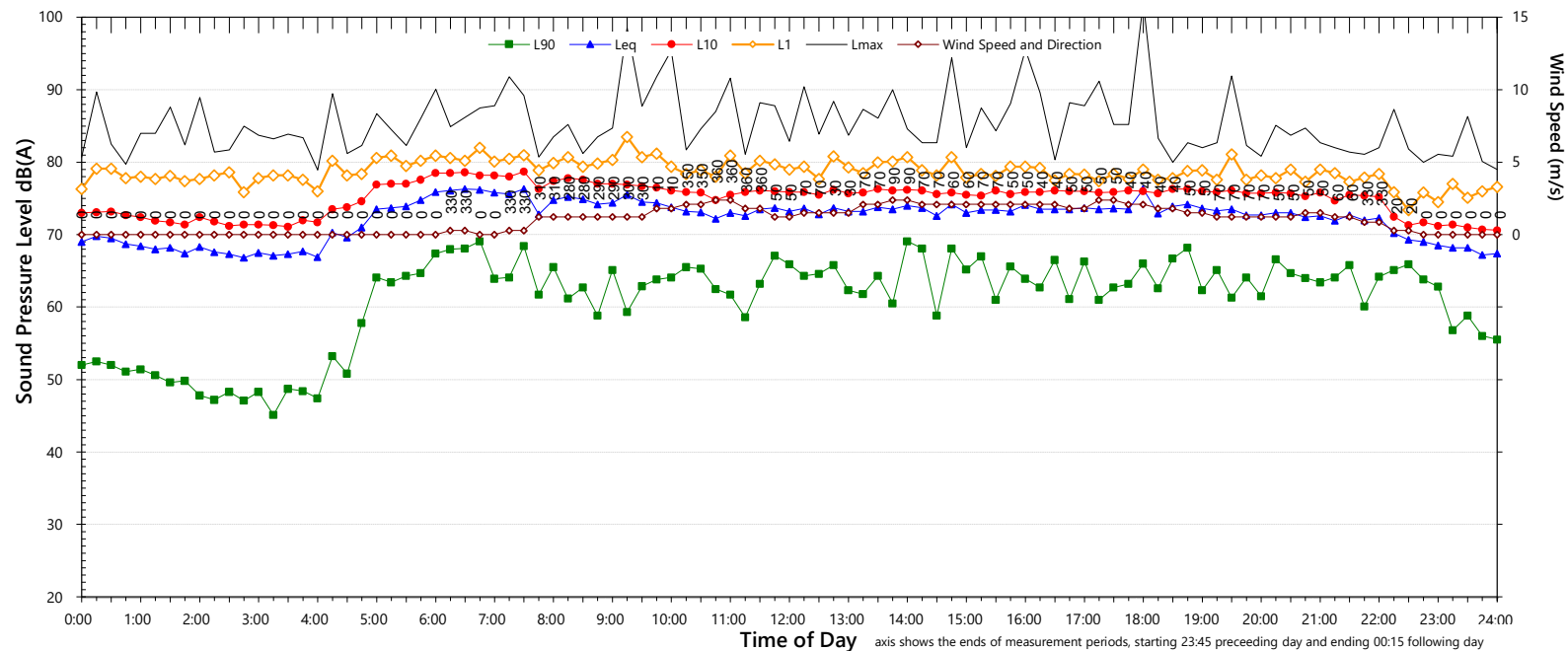
TL665-01L03 Concord Rd - Traffic (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

### Concord Rd

Monday, 7 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	61	61	48
L <sub>Aeq</sub>	74	73	71
Night Time Maximum Noise Levels			(see note 7)
L <sub>Max</sub> (Range)	85	to	90
L <sub>Max</sub> - L <sub>eq</sub> (Range)	18	to	20

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> Values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

NSW Road Noise Policy (1m from facade)			(see note 6)
Descriptor	Day	Night <sup>5</sup>	
	7am-10pm	10pm-7am	
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	76	74	
L <sub>eq</sub> 1hr upper 10 percentile	77	77	
L <sub>eq</sub> 1hr lower 10 percentile	75	69	

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: 2020-09-03\_SLM\_000\_123\_Rpt\_Report.txt

TL665-01L03 Concord Rd - Traffic (r0)

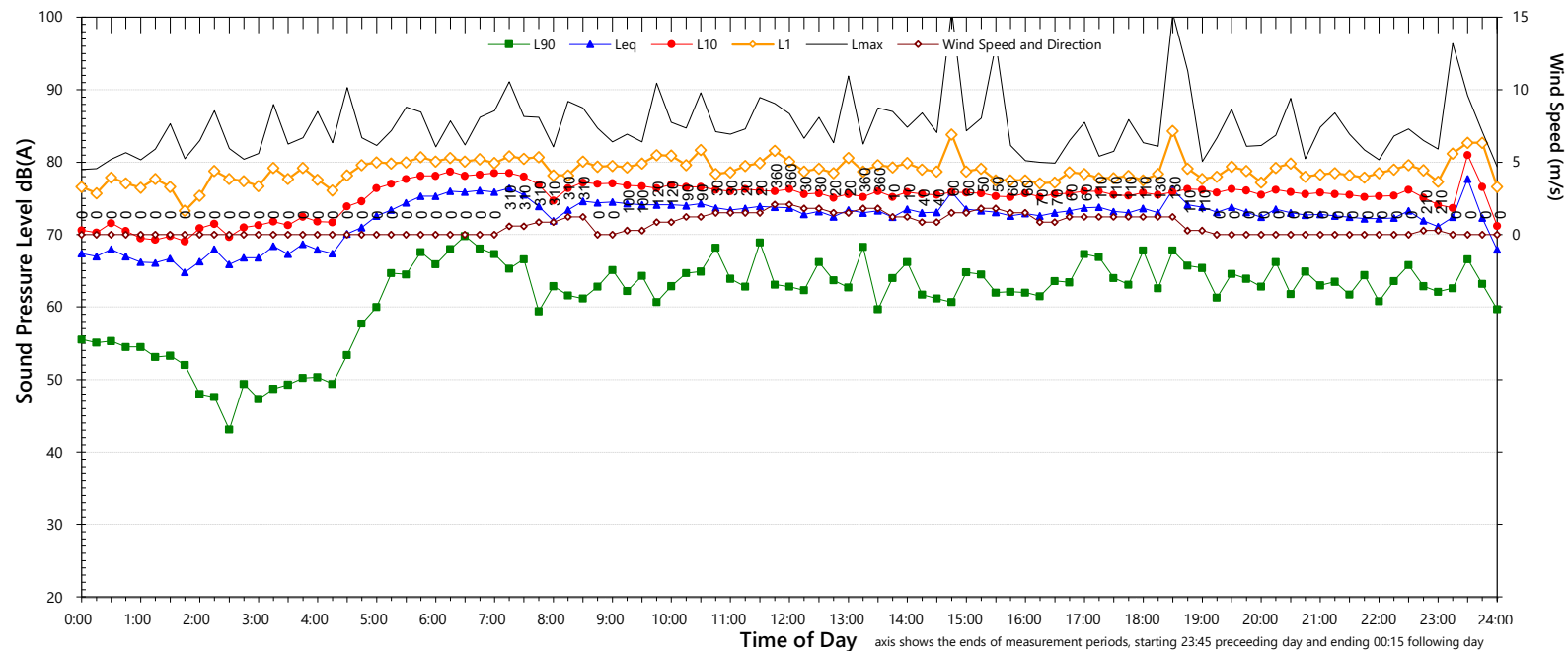
QTE-26 Logger Graphs Program (r33)



## Unattended Noise Monitoring Results

### Concord Rd

Tuesday, 8 September 2020



#### NSW Noise Policy for Industry (Free Field)

Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	61	62	48
LA <sub>eq</sub>	74	73	72

#### Night Time Maximum Noise Levels

(see note 7)

L <sub>Max</sub> (Range)	82	to	96
L <sub>Max</sub> - L <sub>eq</sub> (Range)	15	to	26

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> Values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

#### NSW Road Noise Policy (1m from facade)

(see note 6)

Descriptor	Day 7am-10pm	Night <sup>5</sup> 10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	76	74
L <sub>eq</sub> 1hr upper 10 percentile	77	77
L <sub>eq</sub> 1hr lower 10 percentile	75	70

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: 2020-09-03\_SLM\_000\_123\_Rpt\_Report.txt

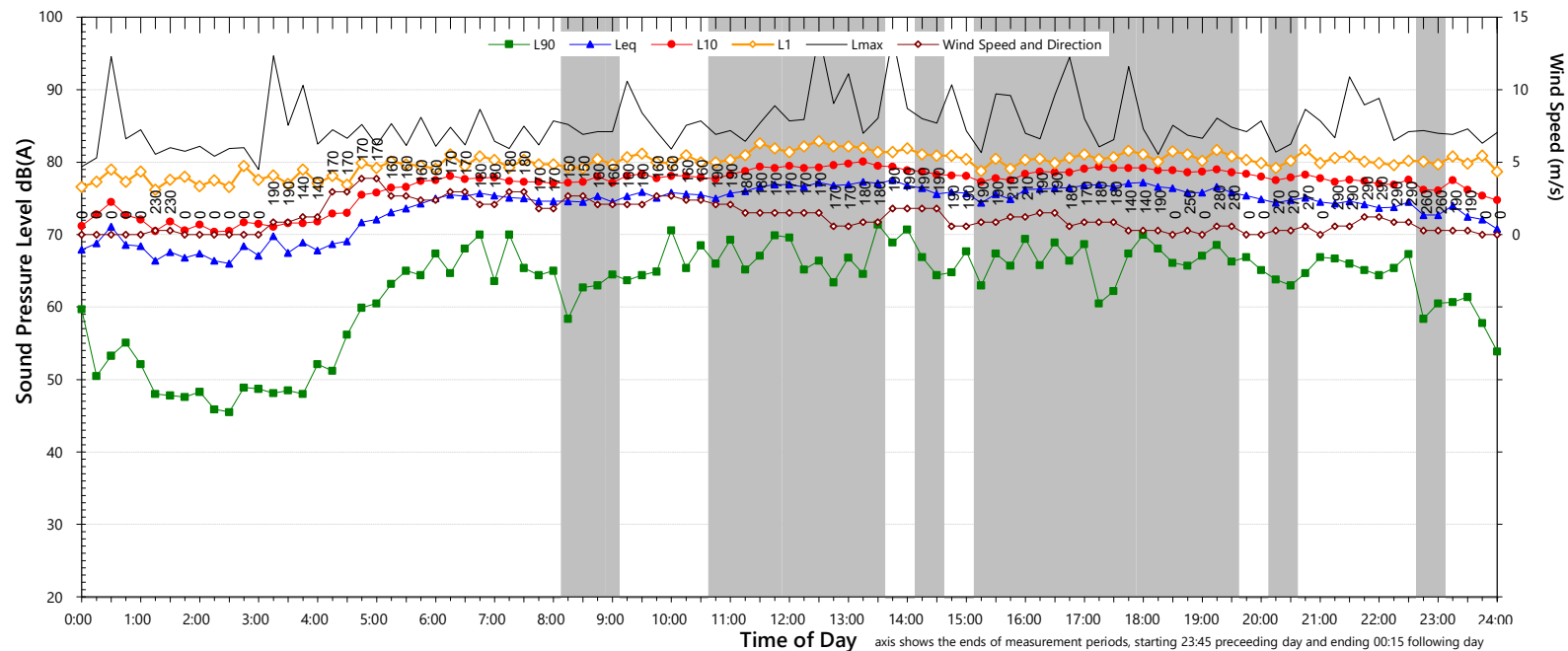
TL665-01L03 Concord Rd - Traffic (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Concord Rd

Wednesday, 9 September 2020



### NSW Noise Policy for Industry (Free Field)

Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	-	-	-
LA <sub>eq</sub>	-	-	-

### Night Time Maximum Noise Levels

(see note 7)

L <sub>Max</sub> (Range)	85	to	100
L <sub>Max</sub> - L <sub>eq</sub> (Range)	17	to	24

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

### NSW Road Noise Policy (1m from facade)

(see note 6)

Descriptor	Day 7am-10pm	Night <sup>5</sup> 10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	78	76
L <sub>eq</sub> 1hr upper 10 percentile	79	78
L <sub>eq</sub> 1hr lower 10 percentile	77	71

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: 2020-09-03\_SLM\_000\_123\_Rpt\_Report.txt

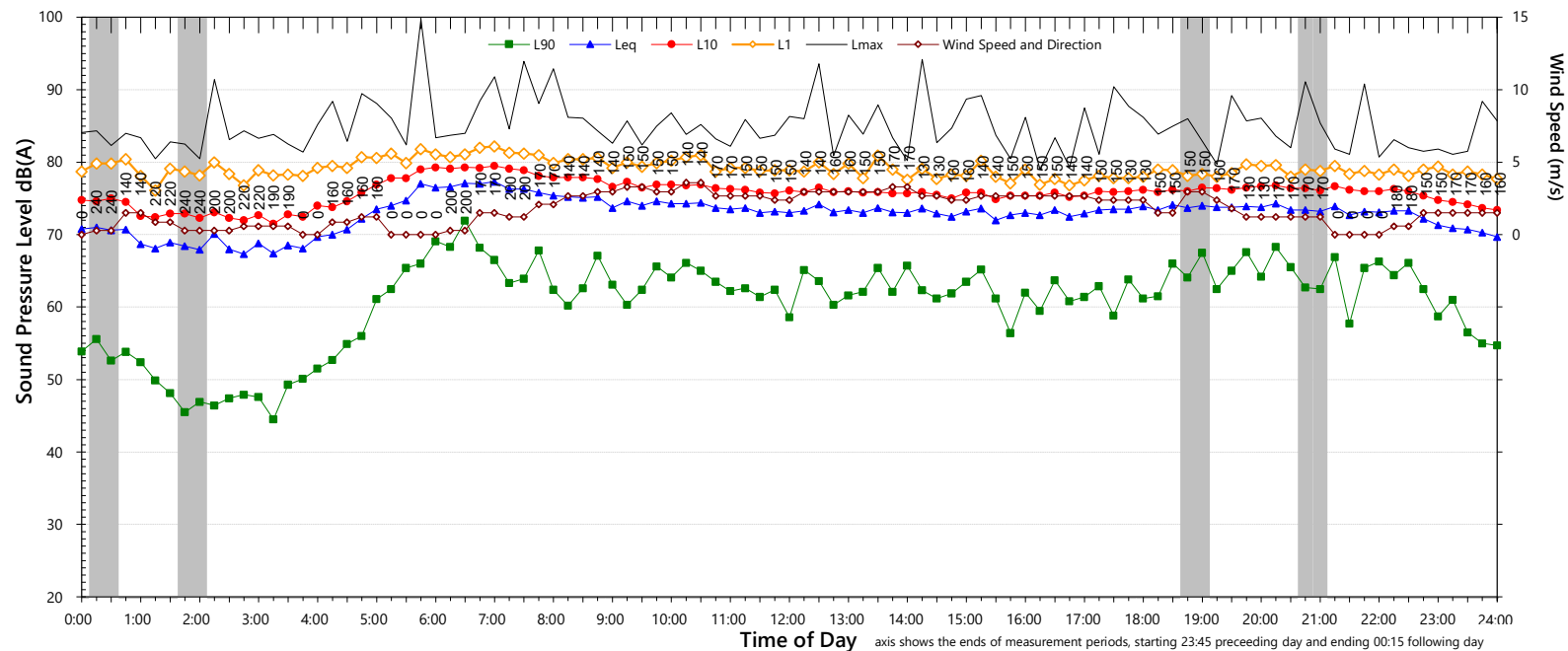
TL665-01L03 Concord Rd - Traffic (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Concord Rd

Thursday, 10 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	60	-	47
L <sub>Aeq</sub>	74	-	72
Night Time Maximum Noise Levels (see note 7)			
L <sub>Max</sub> (Range)	83	to	96
L <sub>Max</sub> - L <sub>eq</sub> (Range)	16	to	22

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night <sup>5</sup>
	7am-10pm	10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	76	74
L <sub>eq</sub> 1hr upper 10 percentile	77	77
L <sub>eq</sub> 1hr lower 10 percentile	75	70

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: 2020-09-03\_SLM\_000\_123\_Rpt\_Report.txt

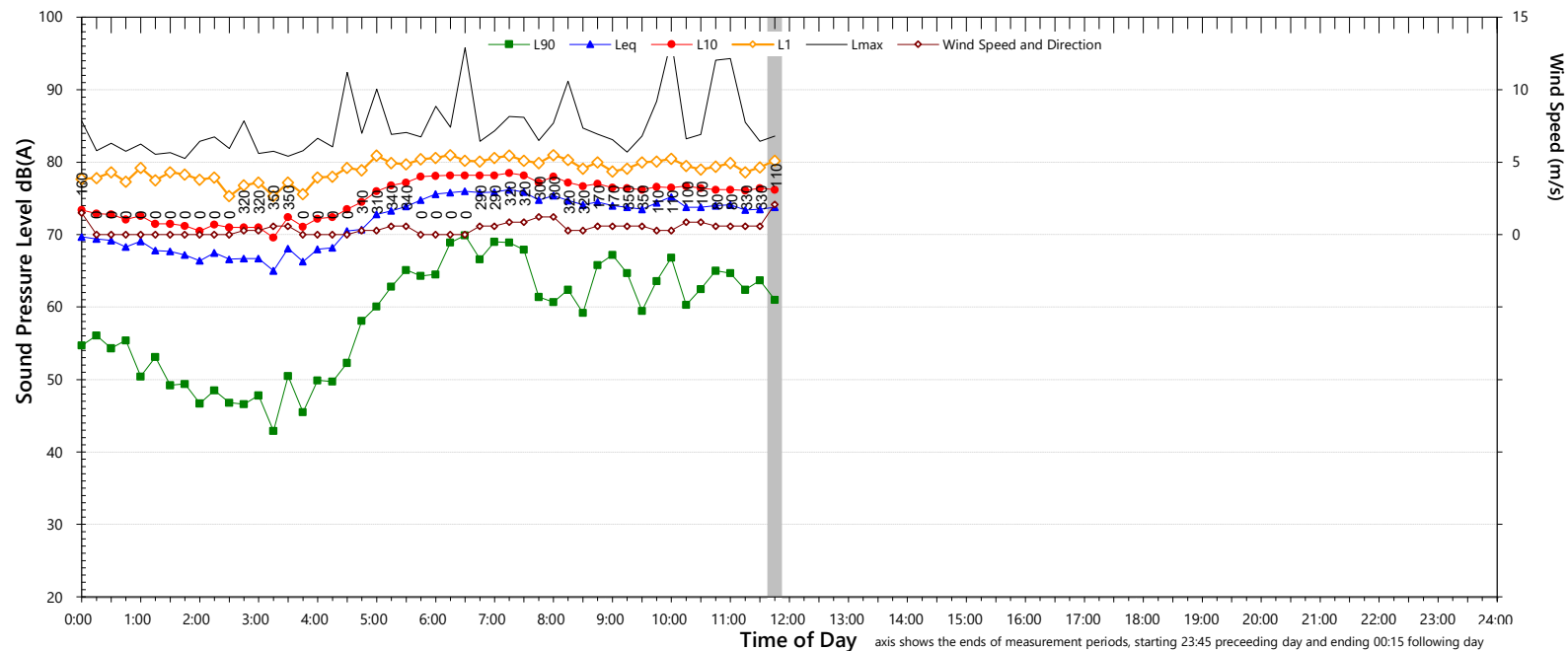
TL665-01L03 Concord Rd - Traffic (r0)

QTE-26 Logger Graphs Program (r33)

## Unattended Noise Monitoring Results

Concord Rd

Friday, 11 September 2020



NSW Noise Policy for Industry (Free Field)			
Descriptor	Day <sup>2</sup>	Evening <sup>3</sup>	Night <sup>4,5</sup>
L <sub>90</sub>	-	-	-
L <sub>Aeq</sub>	-	-	-
Night Time Maximum Noise Levels			(see note 7)
L <sub>Max</sub> (Range)	-	to	-
L <sub>Max</sub> - L <sub>eq</sub> (Range)	-	to	-

Notes:

1. Shaded periods denote measurements adversely affected by rain, wind or extraneous noise - data in these periods are excluded from calculations.

3. "Evening" is the period from 6pm till 10pm

6. Graphed data measured in free-field; tabulated results facade corrected

4. "Night" relates to the remaining periods

7. Night time L<sub>Max</sub> Values are shown only where L<sub>Max</sub> > 65dB(A) and where L<sub>Max</sub> - L<sub>eq</sub> ≥ 15dB(A)

NSW Road Noise Policy (1m from facade) (see note 6)		
Descriptor	Day	Night <sup>5</sup>
	7am-10pm	10pm-7am
L <sub>eq</sub> 15 hr and L <sub>eq</sub> 9 hr	77	-
L <sub>eq</sub> 1hr upper 10 percentile	78	-
L <sub>eq</sub> 1hr lower 10 percentile	76	-

2. "Day" is the period from 8am till 6pm on Sundays and 7am till 6pm on other days

5. "Night" relates to period from 10pm on this graph to morning on the following graph.

Data File: 2020-09-03\_SLM\_000\_123\_Rpt\_Report.txt

TL665-01L03 Concord Rd - Traffic (r0)

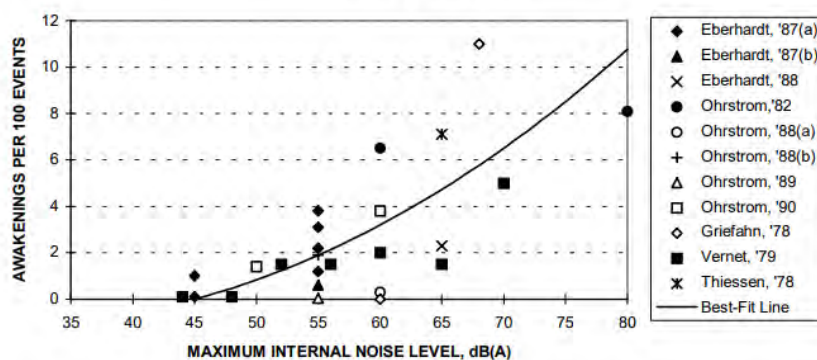
QTE-26 Logger Graphs Program (r33)

## APPENDIX E Extract from EPA Environmental Criteria for Road Traffic Noise (Sleep Disturbance Studies)

An extract from the review of sleep disturbance studies in the ECRTN is presented below.

**Figure B3 Awakenings due to noise (compiled from various studies)**

Bullen et al. (1996)

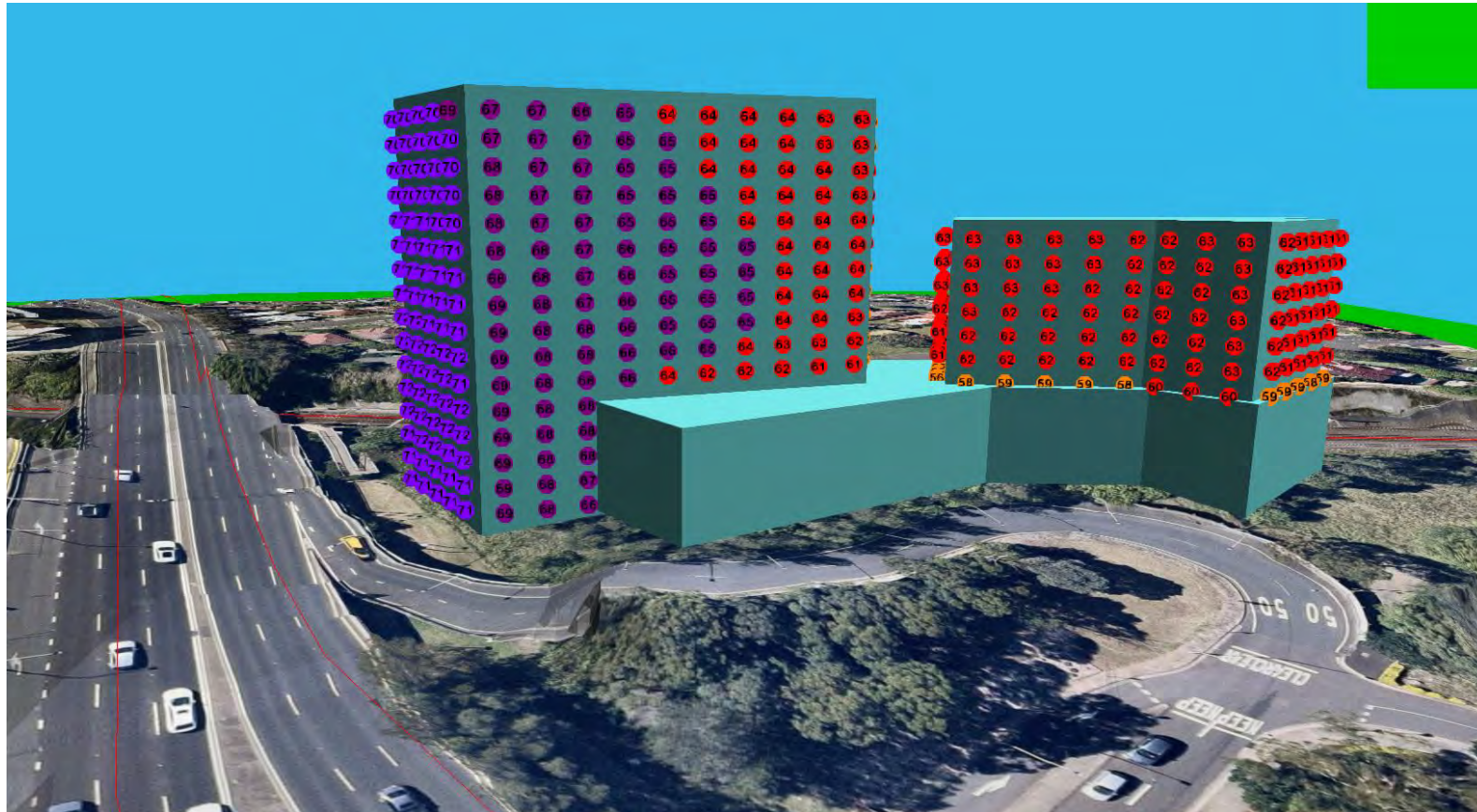


RENZO TONIN &amp; ASSOCIATES

14 MAY 2024

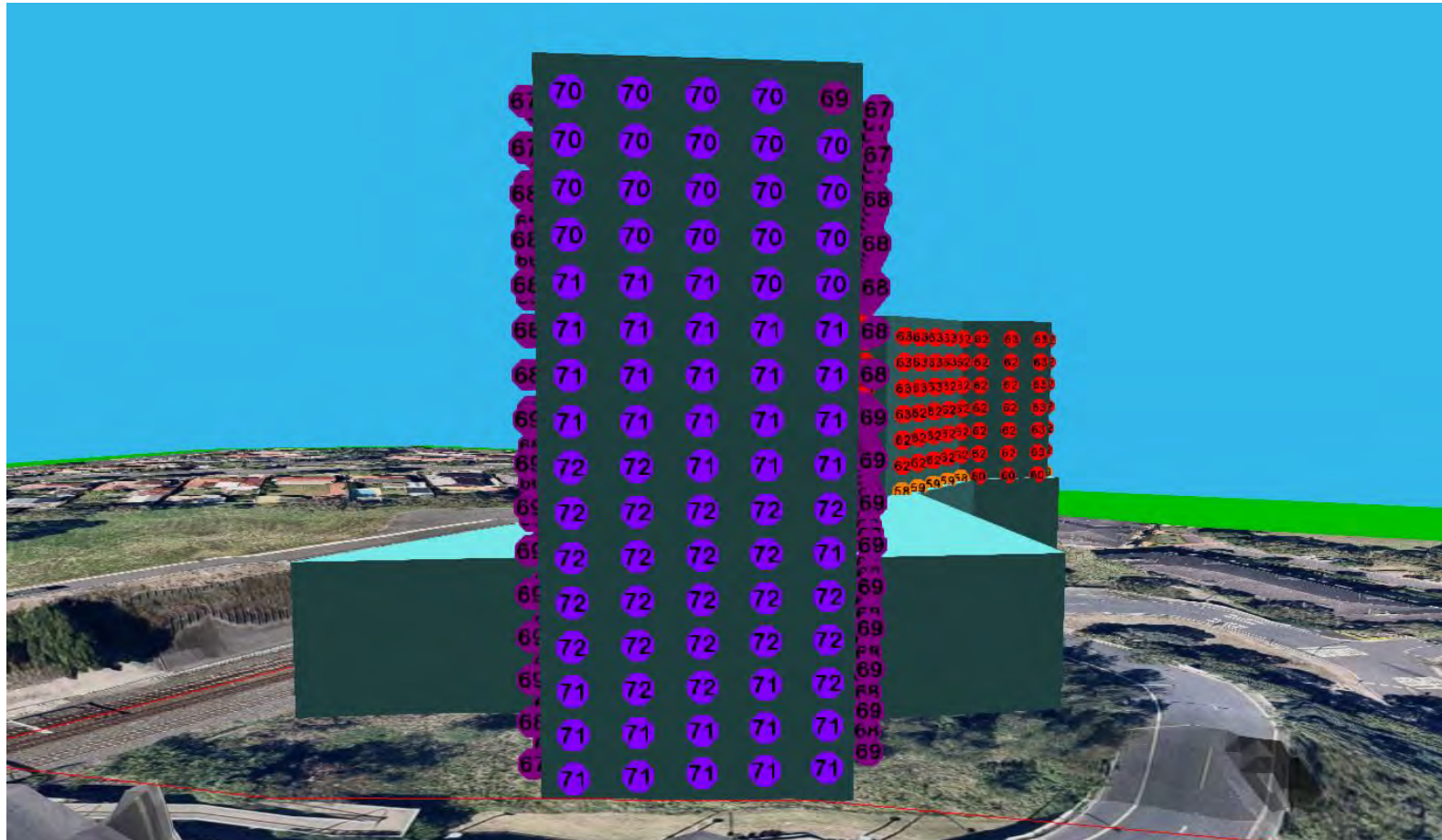
## APPENDIX F      Façade Noise Impact Modelling

**View From West (Daytime)**

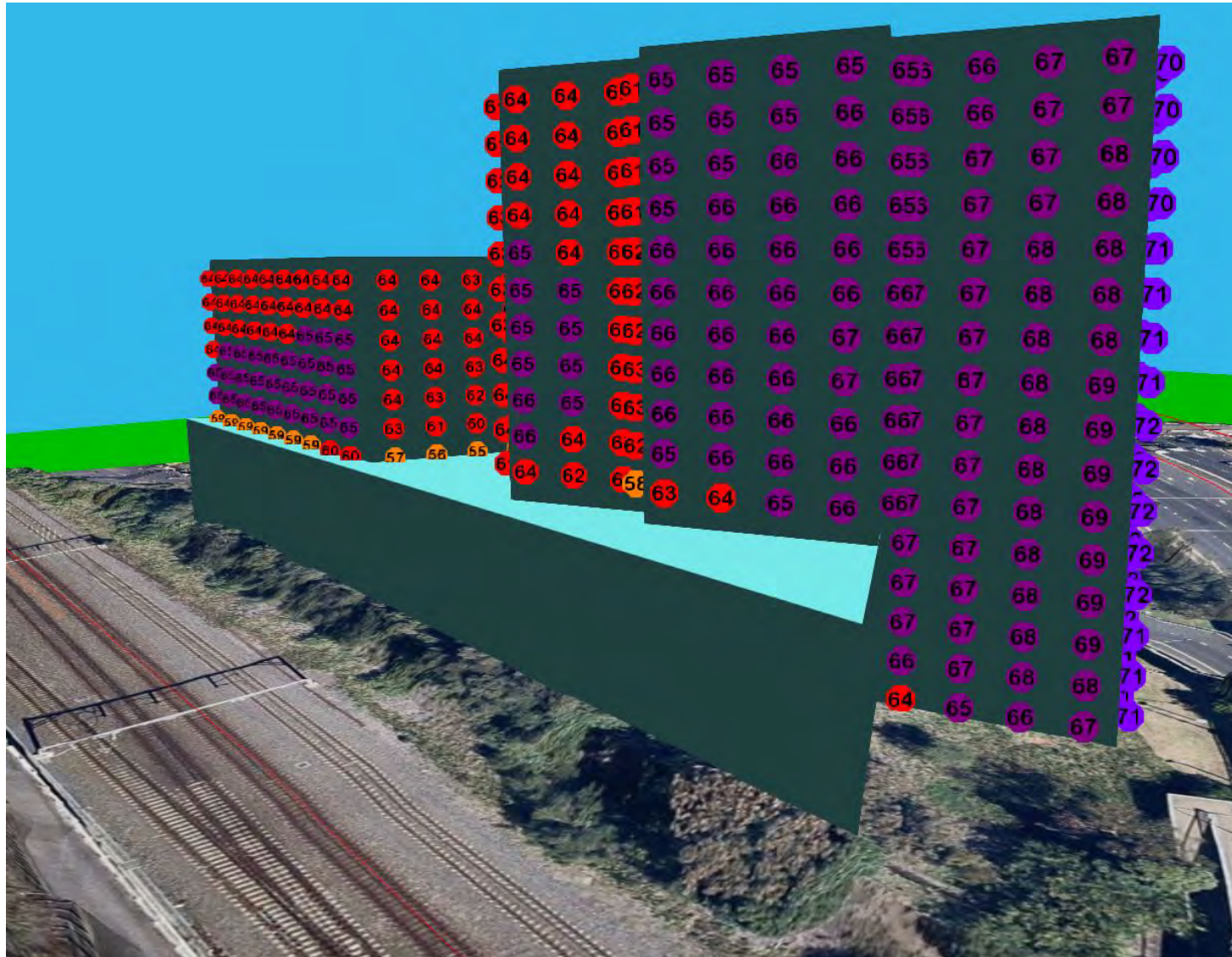




**View From North (Daytime)**



**View From North-East (Daytime)**

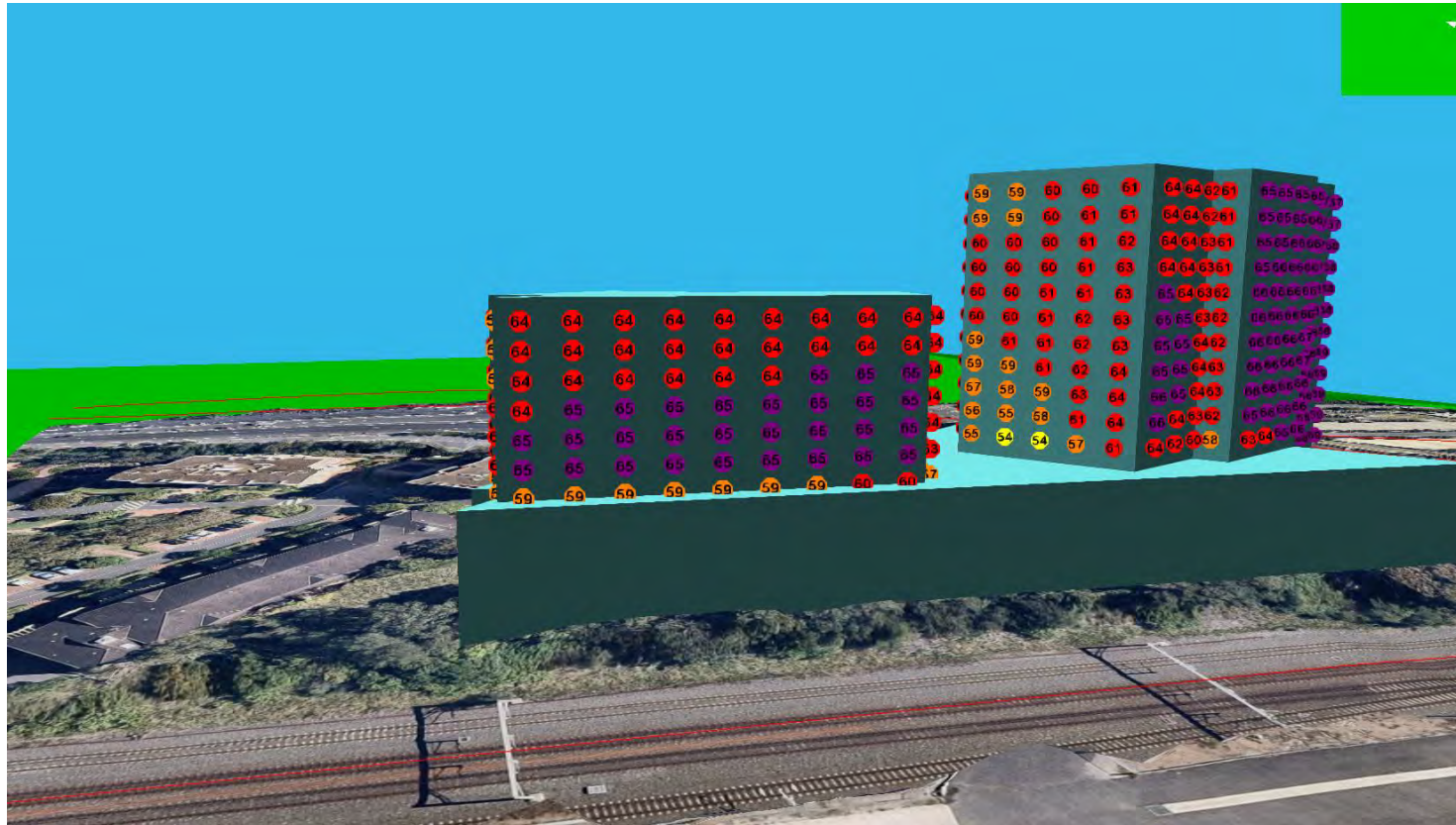


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14 MAY 2024



**View From South-East (Daytime)**



RENZO TONIN & ASSOCIATES

14 MAY 2024



30 April 2024

William John McGarry  
Oulton Rhodes Pty Ltd  
Via email: [wjm@developmentservices.com.au](mailto:wjm@developmentservices.com.au)

**RE: Air Quality Assessment – Proposed Residential Development at Lot 212 Oulton Avenue Rhodes**

Dear William,

Todoroski Air Sciences has completed an air quality assessment for a future proposed residential housing development located at Lot 212 Oulton Avenue, Rhodes (hereafter referred to as the Project). This air quality assessment uses air dispersion modelling to determine the potential human health impacts of road traffic air emissions and diesel freight trains to future residents at the Project site.

**Project background**

The Project involves the construction of a residential development at Lot 212 Oulton Avenue, Rhodes.

**Figure 1** presents the Project location and nearby roadways. The proposed site is located along Homebush Bay Drive, Oulton Avenue, and the Great Northern Railway line. Homebush Bay Drive is classified as a State road with significant traffic volumes. The Homebush Bay Drive roadway is raised approximately 7 metre (m) above ground level. The Project is located within a low density residential area to the southwest and east opposite the Railway line.

**Figure 2** presents an indicative layout for the Project to form part of the Planning Proposal. **Table 1** provides a summary of the proposed use of each level of the Project and the height of each level. The Project is proposed to be built in a two-staged process with a northern and southern building.

Levels 1 to 3 would be used for carparking. Residential units would be located on levels 4 and above with a rooftop level. It is expected that the carparking on levels 1 to 3 would be the most exposed Project areas to road traffic and transport emissions from the raised Homebush Bay Drive roadway and Great Northern Railway line. The higher residential at levels Level 4 and above are further away from the road and would have lower levels of exposure to traffic and transport pollutants than the lower levels.

20071156\_OultonAve\_Rhodes\_AQ\_240430.docx

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Table 1: Proposed use by Project level

Level	Use	RL height (m)	
		Stage 1 Southern Building	Stage 2 Northern Building
Roof	-	42.7	56.5
Level 12	Residential	-	53.5
Level 11	Residential	-	49.9
Level 10	Residential	-	46.7
Level 9	Residential	-	43.5
Level 8	Residential	39.1	40.3
Level 7	Residential	35.9	37.1
Level 6	Residential	32.7	33.9
Level 5	Residential	29.5	30.7
Level 4	Communal/Residential	25.7	27.5
Level 3	Carparking	22.3	22.3
Level 2	Carparking	19.2	19.2
Level 1	Carparking	14.2	14.2





Figure 1: Location of Project

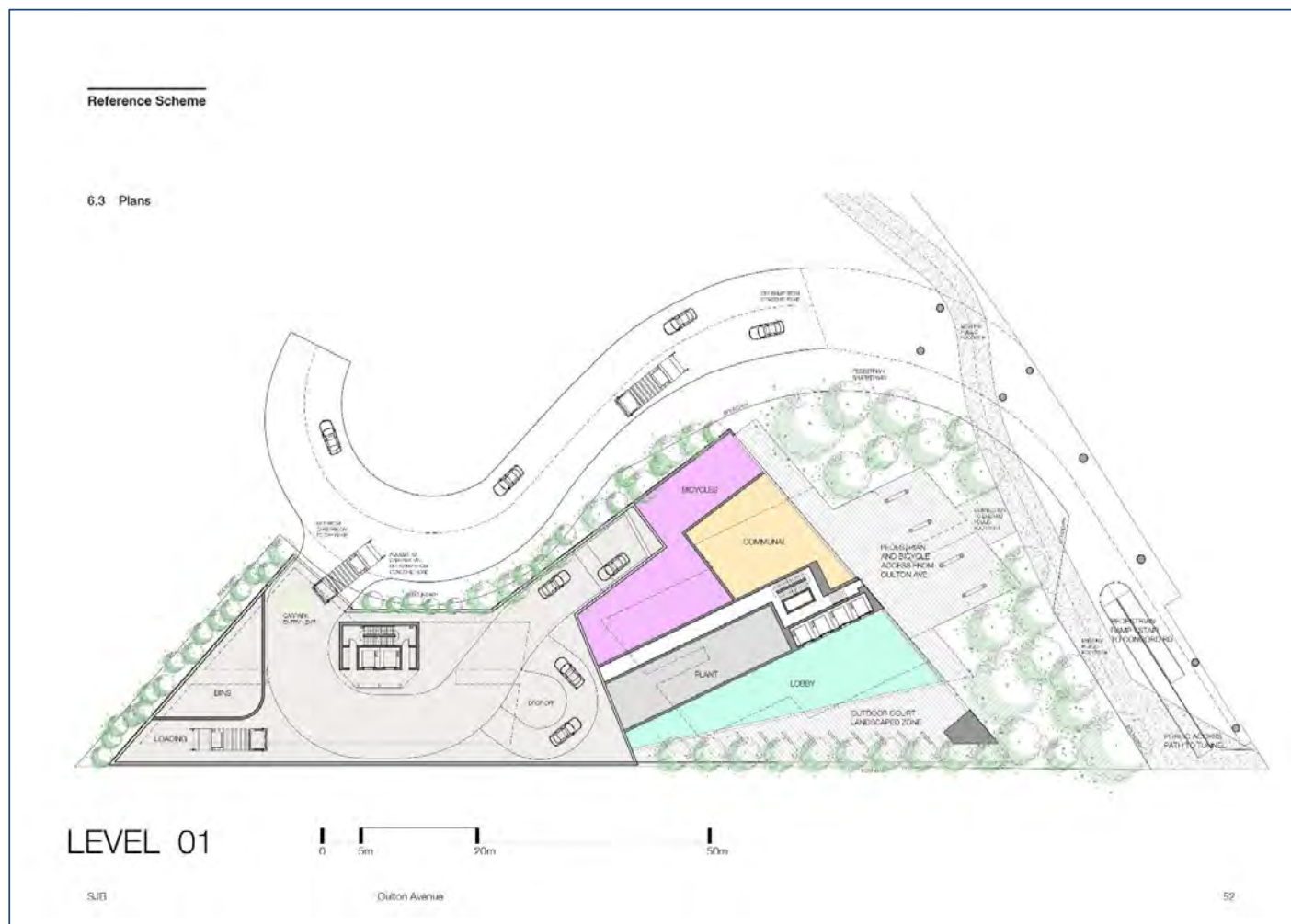


Figure 2: Indicative Project layout



### Impact Assessment Criteria

Air quality criteria are benchmarks set to protect the general health and amenity of the community in relation to air quality. The criteria are set to protect the most sensitive persons in the community.

**Table 2** summarises the air quality goals that are relevant to this study as outlined in the New South Wales (NSW) Environment Protection Authority EPA document *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (NSW EPA, 2022)*. PM<sub>2.5</sub> and NO<sub>2</sub> are considered to be the critical pollutants with regard to potential impacts from traffic and transport emissions.

**Table 2: NSW EPA air quality impact assessment criteria**

Pollutant	Averaging period	Criterion	Impact
PM <sub>2.5</sub>	24-hour	25 µg/m <sup>3</sup>	Cumulative
	Annual	8 µg/m <sup>3</sup>	Cumulative
NO <sub>2</sub>	1-hour	164 µg/m <sup>3</sup>	Cumulative
	Annual	31 µg/m <sup>3</sup>	Cumulative

µg/m<sup>3</sup> = microgram per metre cubed

In line with recent major road projects such as the Western Harbour Tunnel (**RMS, 2020**), where the background levels are above or near to the 8µg/m<sup>3</sup> annual PM<sub>2.5</sub> criterion, a change in annual average PM<sub>2.5</sub> of 1.7µg/m<sup>3</sup> has been considered an acceptable health risk based on the increase of risk in all-cause mortality for ages 30 and over.

For this assessment, as the ambient annual average PM<sub>2.5</sub> levels in the vicinity of the Project are generally at or above the NSW EPA criterion of 8µg/m<sup>3</sup> (as outlined in the Local Air Quality Conditions section below), an incremental annual average PM<sub>2.5</sub> criterion of 1.7µg/m<sup>3</sup> has been adopted to evaluate the health risk impacts from potential future traffic and transport emissions at the proposed development.

### Local meteorological conditions

The Bureau of Meteorology (BoM) Sydney Olympic Park Automatic Weather Station (AWS) (Archery Centre) has been used to represent local meteorological conditions that would be experienced within the vicinity of the Project site.

From a review of the latest five years of meteorological data, the 2018 calendar period was found to be most representative of the prevailing conditions in the area. Annual and seasonal windroses prepared from data collected for the 2018 calendar year at the Sydney Olympic Park AWS (Archery Centre) are presented in **Figure 3**.

On an annual basis, winds are predominately from the northwest and west-northwest. In summer, winds predominately range from the northeast to south-southeast. Autumn follows a similar distribution to the annual trends with winds most frequent from the northwest and west-northwest. In winter, winds are predominantly from the west-northwest and northwest. In spring, winds are predominately from the southeast quadrant.

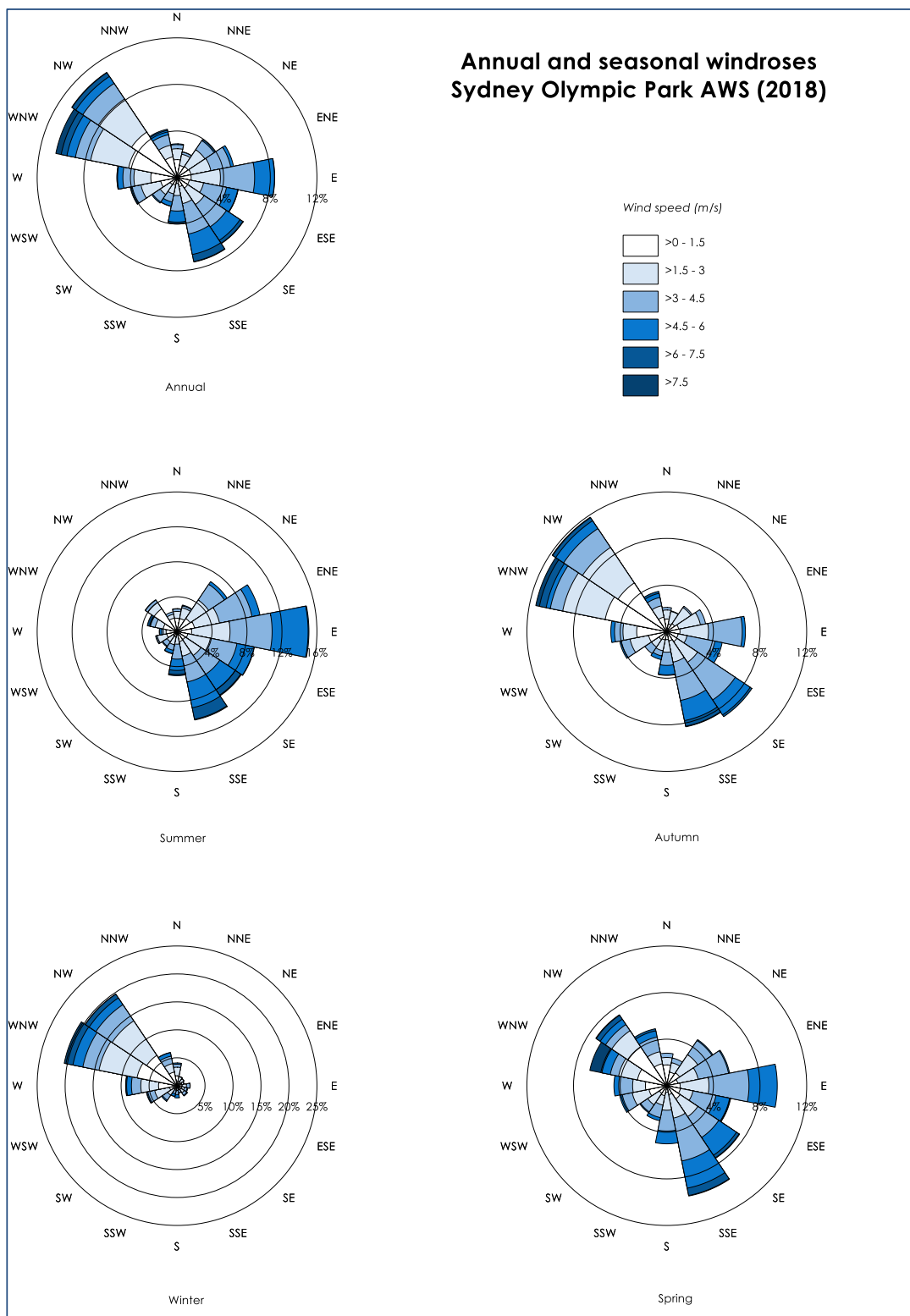


Figure 3: Annual and seasonal windroses for Sydney Olympic Park AWS (2018)

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### Local air quality conditions

Data from the nearest air quality monitors operated by the NSW Department of Planning, Industry and Environment (DPIE) was used to quantify the existing background level for assessed pollutants at the Project site. The nearest DPIE monitoring station is at Chullora located approximately 7.2km south-southwest of the site.

**Table 3** and **Table 4** summarise the PM<sub>2.5</sub> and NO<sub>2</sub> levels measured at the Chullora site, respectively.

The annual average PM<sub>2.5</sub> levels recorded at Chullora for the 2015 to 2019 period are at or above the relevant criterion of 8µg/m<sup>3</sup>. As such, the incremental criterion as described in the Impact Assessment Criteria section, has been adopted.

The data in **Table 3** indicates maximum 24-hour PM<sub>2.5</sub> level for the 2015 to 2019 period exceeded the 25µg/m<sup>3</sup> criterion on occasion. It is noted that there was a significant increase in the frequency of exceedances of the 24-hour average PM<sub>2.5</sub> criterion in 2019, predominately due to smoke associated with the 2019/2020 bushfires. The 70<sup>th</sup> percentile of the measured levels of 9.7µg/m<sup>3</sup> for the 2018 period was adopted to represent the background level in line with the State Environment Protection Policy (Air Quality Management) guidance (**Victorian Government, 2001**).

**Table 3: Summary of PM<sub>2.5</sub> levels at Chullora (µg/m<sup>3</sup>)**

Year	Annual average	Maximum 24-hour average	Number of days above 24-hour average criterion	70 <sup>th</sup> percentile 24-hour average level
<b>Criteria</b>	<b>8</b>	<b>25</b>	-	-
2015	8.0	37.2	1	9.1
2016	8.0	49.4	5	8.7
2017	9.5	44.7	8	10.2
2018	8.6	29.1	3	9.7
2019	11.7	97.6	18	10.2

The data in **Table 4** indicates annual average and 1-hour average NO<sub>2</sub> levels are below the relevant criterion for the period reviewed. Consistent with the meteorological data set used, the 2018 NO<sub>2</sub> monitoring data was applied to represent background concentrations at the Project.

**Table 4: Summary NO<sub>2</sub> levels at Chullora (µg/m<sup>3</sup>)**

Year	Annual average	Maximum 1-hour average	Number of hours above 1-hour average criterion
<b>Criteria</b>	<b>31</b>	<b>164</b>	-
2015	24.4	101.5	0
2016	24.4	86.5	0
2017	22.6	112.8	0
2018	22.6	107.2	0
2019	22.6	131.6	0

### Traffic emissions estimations

Daily traffic volumes for Homebush Bay Drive were obtained from the NSW RMS Traffic Viewer station 29001 at Homebush Bay Drive. A daily traffic volume of approximately 88,000 for the available 2016 year was selected to represent the vehicle numbers along Homebush Bay Drive (**NSW RMS, 2020**).

Diurnal traffic profiles for weekdays and weekend days from traffic viewer station 29001 were similarly adopted for Homebush Bay Drive.

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The total traffic volume along Oulton Avenue was assumed to be 15% of the traffic along Homebush Bay Drive. This assumption is comparable to the average ratio of morning and afternoon peak hour traffic volumes for Homebush Bay Drive and Oulton Avenue in *Transport Impact Assessment Proposed Mixed Use Development Sites 2a & 3a, Precinct B Walker Street Rhodes* (**Thompson Stanbury Associates, 2010**). The traffic volumes along Oulton Avenue travelling underneath the Homebush Bay Drive overpass and along the Homebush Bay Drive Ramp off (intersecting at Wentworth Drive) were each assumed to be 2.5% of the traffic along Homebush Bay Drive. The traffic volumes along Oulton Avenue travelling along the Homebush Bay Drive on/off ramps (west of Oulton Park) were each assumed to be 5% of the traffic along Homebush Bay Drive.

The shape of the known diurnal profiles of vehicles per hour of day for Homebush Bay Drive were used to develop the hourly traffic profile shapes for the other modelled roads (Wentworth Drive and Bradley Place) for which hourly traffic data are not available. The total number of vehicles along Wentworth Drive and Bradley Place were assumed to be 1,000 and 500 vehicles, respectively.

In the modelling, the traffic volumes along Homebush Bay Drive and Oulton Avenue were increased by 10% to account for a potential future increase in traffic.

**Appendix A** provides the hourly vehicle profiles for weekdays and weekends that were applied in the model.

The traffic composition along Wentworth Drive and Bradley Place was assumed to be 6.7% heavy vehicles as per the RMS Tool for Roadside Air Quality (TRAQ) default settings for local/residential roads. The default TRAQ traffic composition of 8.8% heavy vehicles for arterial roads was adopted for Oulton Avenue. The diurnal traffic compositions for weekdays and weekend days from traffic viewer station 29001 was adopted for Homebush Bay Drive.

Hourly NO<sub>x</sub> and PM<sub>10</sub> emission rates for free flowing traffic were obtained from the TRAQ. The settings used in TRAQ to estimate the emission rates are summarised in **Appendix A**. Emission factors from the **US EPA (2008)** were used to calculate the emission rates for idling queuing vehicles.

PM<sub>2.5</sub> was assumed to be 92% of PM<sub>10</sub> per the **US EPA emission factors (2008)**. As a conservative measure, NO<sub>2</sub> was assumed to be 50% of NO<sub>x</sub>, whereas a value between 10% and 20% may be more realistic.

#### **Railway emissions estimations**

The hourly transport volumes of diesel freight trains running along the Great Northern Railway were derived from the Transport NSW Rail Freight Access (**Transport NSW, 2020**) for the number of train paths at the Main North rail freight line.

Potential air emissions associated with Great Northern Railway have assumed three locomotives in notch 1 based on Class 81 locomotive emission factors (**Lilley, 1996**) estimated to be travelling at a speed of 40 km/hr.

The hourly diesel train profiles for weekdays and weekends, and the emission rates that were applied in the model are summarised in **Appendix B**.

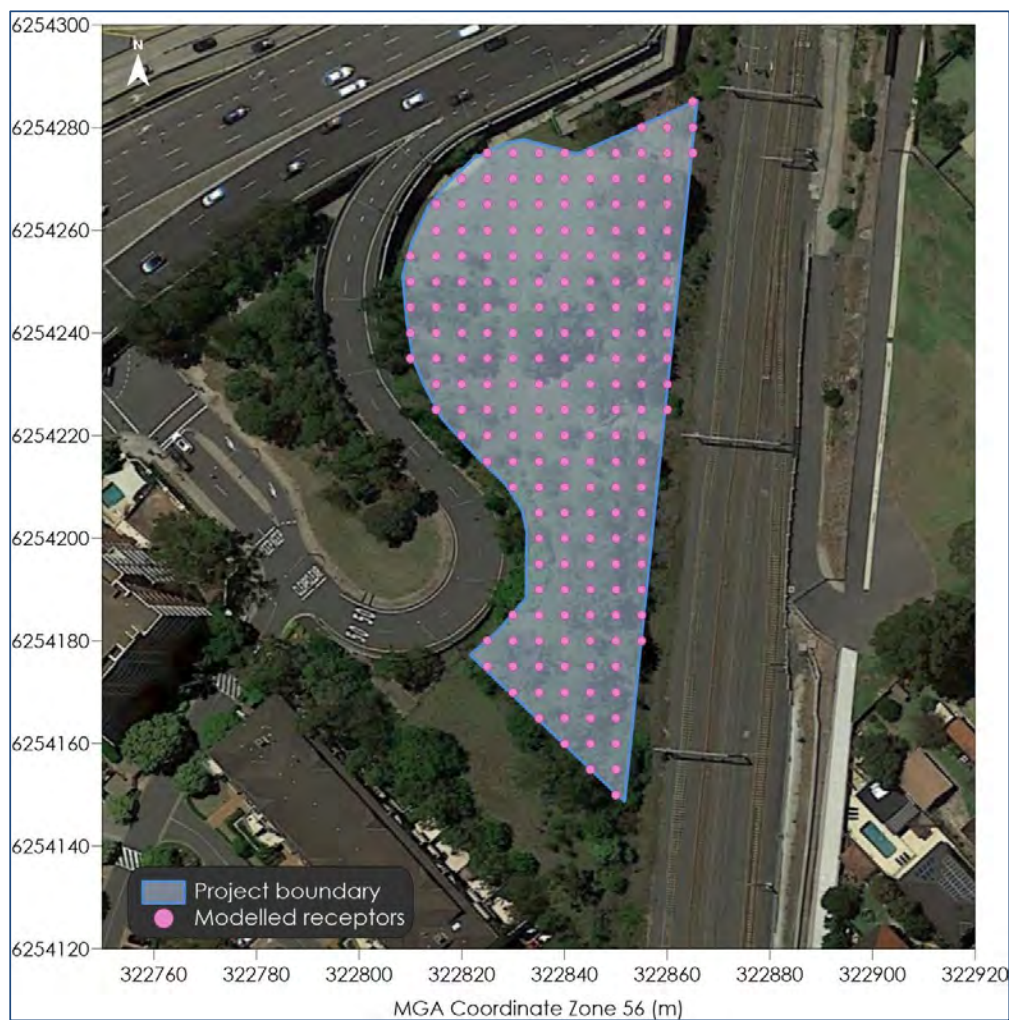
### Modelling methodology

The CAL3QHCR roadway pollution dispersion model was used to estimate impacts from Homebush Bay Drive, Oulton Avenue, Wentworth Drive, Bradley Place, and the Great Northern Railway on the Project. The model was set up with free flow and queue links for idling emissions at intersections.

Site specific meteorological data used in the model were obtained by running The Air Pollution Model (TAPM) with observations from Sydney Olympic Park AWS (Archery Centre) for the 2018 calendar year.

Receptors have been modelled at the Project site at various receptor heights. Receptor heights at ground level (0m) to 12m have been assessed in this study at 3m intervals.

**Figure 4** presents the modelled receptor map covering the Project site. Receptors were modelled with a 5m spacing.



### Assessment of potential air quality impacts

Predicted incremental and cumulative pollutant impacts at the Project are presented in **Table 5** for the most impacted receptor at the Project site (see **Figure 4**). The results indicate the predicted 1-hour and annual average NO<sub>2</sub> and 24-hour and annual average PM<sub>2.5</sub> impacts at the Project site do not exceed the relevant cumulative or incremental criteria. The results also indicate that a height of 6m above ground level is most impacted due to the nearby raised Homebush Bay Drive roadway.

For illustrative purposes, isopleths diagrams showing the spatial distribution of the predicted incremental impacts associated with the roadways and railway at ground level and the most impacted height, (6m above ground level) are presented in **Appendix C**. The isopleth diagrams indicated that the most impacted area on the Project site at any height is to the north-northwest.

**Table 5: Predicted incremental and cumulative impacts**

Receptor height above ground modelled (m)	Pollutant	Averaging period	Maximum incremental impact (µg/m <sup>3</sup> )	Background (µg/m <sup>3</sup> )	Cumulative impact (µg/m <sup>3</sup> )	NSW EPA criterion (µg/m <sup>3</sup> )	Incremental criteria (µg/m <sup>3</sup> )
0	PM <sub>2.5</sub>	24-hour	2.9	9.7	12.6	<b>25</b>	-
		Annual	1.0	-	-	-	<b>1.7</b>
	NO <sub>2</sub>	1-hour	37.5	107.2	144.7	<b>164</b>	-
		Annual	4.0	22.6	26.6	<b>31</b>	-
3	PM <sub>2.5</sub>	24-hour	3.0	9.7	12.7	<b>25</b>	-
		Annual	1.1	-	-	-	<b>1.7</b>
	NO <sub>2</sub>	1-hour	37.6	107.2	144.8	<b>164</b>	-
		Annual	4.1	22.6	26.7	<b>31</b>	-
6	PM <sub>2.5</sub>	24-hour	3.1	9.7	12.8	<b>25</b>	-
		Annual	1.1	-	-	-	<b>1.7</b>
	NO <sub>2</sub>	1-hour	37.2	107.2	144.4	<b>164</b>	-
		Annual	4.3	22.6	26.9	<b>31</b>	-
9	PM <sub>2.5</sub>	24-hour	2.8	9.7	12.5	<b>25</b>	-
		Annual	1.0	-	-	-	<b>1.7</b>
	NO <sub>2</sub>	1-hour	35.2	107.2	142.4	<b>164</b>	-
		Annual	3.9	22.6	26.5	<b>31</b>	-
12	PM <sub>2.5</sub>	24-hour	2.2	9.7	11.9	<b>25</b>	-
		Annual	0.8	-	-	-	<b>1.7</b>
	NO <sub>2</sub>	1-hour	32.1	107.2	139.3	<b>164</b>	-
		Annual	3.1	22.6	25.7	<b>31</b>	-

### Summary and conclusions

This study has assessed the potential air quality impacts associated with traffic and rail emissions on the proposed residential development located at Lot 212 Oulton Avenue, Rhodes.

Air dispersion modelling was used to predict the potential for air quality emissions from road traffic and diesel freight trains to impact future residents at the Project site.

The background data indicate that annual average PM<sub>2.5</sub> levels would generally already be above the 8µg/m<sup>3</sup> cumulative criterion in the vicinity of the Project regardless of any impact from road and transport traffic. As

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such the incremental annual average  $PM_{2.5}$  criterion of  $1.7\mu g/m^3$  applied to major road projects was adopted to assess the potential impacts from road traffic. The predicted incremental  $PM_{2.5}$  exposure due to road traffic and diesel freight trains emissions at the proposed residential development would be within an acceptable incremental level at any receptor location and height.

The emissions modelling results show that 24-hour average  $PM_{2.5}$ , 1-hour average  $NO_2$  and annual average  $NO_2$  levels at the Project would be below the relevant impact assessment criteria at any sensitive receptor location and height.

The levels of air pollutants experienced at the Project would be consistent with those experienced at the existing surrounding high rise residential land uses in the vicinity of Homebush Bay Drive.

With regards to the State Environmental Planning Policy (Infrastructure) 2007, the assessment demonstrates that the general Project design and location is adequate to prevent the potential adverse impacts of vehicle emissions from the adjacent classified road on the development.

Overall, the assessment demonstrates that potential future residences at the Project are not predicted to experience any significant air quality related health impacts due to nearby air emission sources.

Yours faithfully,  
Todoroski Air Sciences



Katie Trahair

#### DOCUMENT CONTROL

Report Version	Date	Prepared by	Reviewed by
DRAFT - 001	10/12/2020	E McDougall	K Trahair
DRAFT - 002	3/02/2021	E McDougall	K Trahair
DRAFT - 003	27/04/2022	K Trahair	
FINAL - 001	3/02/2023	K Trahair	A Todoroski
FINAL - 002	29/04/2024	E Aragnou	

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## Appendix A – Road emissions estimation

Table A-1: Diurnal traffic profiles – Homebush Bay Drive

Hour of day	Northbound				Southbound			
	Weekday		Weekend		Weekday		Weekend	
	Number of vehicles per hour	Heavy vehicle %	Number of vehicles per hour	Heavy vehicle %	Number of vehicles per hour	Heavy vehicle %	Number of vehicles per hour	Heavy vehicle %
0	278	9%	594	4%	464	10%	803	3%
1	193	16%	328	5%	298	15%	473	5%
2	160	24%	216	9%	244	17%	348	5%
3	197	20%	190	9%	240	19%	306	7%
4	568	17%	265	11%	399	16%	329	7%
5	2069	11%	722	8%	1021	10%	541	6%
6	3607	10%	1510	7%	2208	8%	965	6%
7	3279	10%	1532	7%	3133	6%	1500	5%
8	3347	9%	1921	5%	3192	6%	1911	5%
9	3090	11%	2475	4%	2702	8%	2485	4%
10	2692	12%	2730	3%	2600	11%	2846	3%
11	2562	11%	2941	3%	2604	12%	2900	3%
12	2654	10%	3015	3%	2719	12%	2886	3%
13	2641	9%	2978	3%	2846	11%	2937	3%
14	2595	7%	2875	2%	3251	10%	2904	3%
15	2679	6%	2807	2%	3414	7%	3021	3%
16	2923	4%	2820	2%	3232	7%	2897	3%
17	3232	3%	2836	2%	2979	6%	2880	2%
18	2819	3%	2523	2%	3091	4%	2726	2%
19	1967	3%	1885	2%	2517	4%	1932	3%
20	1563	4%	1569	2%	1827	4%	1604	2%
21	1416	3%	1482	2%	1716	3%	1620	2%
22	1096	3%	1275	2%	1414	3%	1487	2%
23	623	6%	829	4%	858	5%	1082	3%

Table A-2: Diurnal traffic profiles – Oulton Avenue, travelling along Oulton Avenue underneath the Homebush Bay Drive overpass and along the Homebush Bay Drive Ramp off (intersecting at Wentworth Drive)

Hour of day	Number of vehicles per hour			
	Northbound		Southbound	
	Weekday	Weekend	Weekday	Weekend
0	7	15	12	20
1	5	8	7	12
2	4	5	6	9
3	5	5	6	8
4	14	7	10	8
5	52	18	26	14
6	90	38	55	24
7	82	38	78	38
8	84	48	80	48
9	77	62	68	62
10	67	68	65	71
11	64	74	65	72
12	66	75	68	72
13	66	74	71	73
14	65	72	81	73
15	67	70	85	76

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Hour of day	Number of vehicles per hour			
	Northbound		Southbound	
	Weekday	Weekend	Weekday	Weekend
16	73	71	81	72
17	81	71	74	72
18	70	63	77	68
19	49	47	63	48
20	39	39	46	40
21	35	37	43	41
22	27	32	35	37
23	16	21	21	27

Table A-3: Diurnal traffic profiles – Oulton Avenue, travelling along the Homebush Bay Drive on/off ramps (west of Oulton Park)

Hour of day	Number of vehicles per hour			
	Northbound		Southbound	
	Weekday	Weekend	Weekday	Weekend
0	14	30	23	40
1	10	16	15	24
2	8	11	12	17
3	10	10	12	15
4	28	13	20	16
5	103	36	51	27
6	180	76	110	48
7	164	77	157	75
8	167	96	160	96
9	154	124	135	124
10	135	137	130	142
11	128	147	130	145
12	133	151	136	144
13	132	149	142	147
14	130	144	163	145
15	134	140	171	151
16	146	141	162	145
17	162	142	149	144
18	141	126	155	136
19	98	94	126	97
20	78	78	91	80
21	71	74	86	81
22	55	64	71	74
23	31	41	43	54

Table A-4: Diurnal traffic profiles – Wentworth Drive and Bradley Place

Hour of day	Number of vehicles per hour			
	Wentworth Drive		Bradley Place	
	Weekday	Weekend	Weekday	Weekend
0	8	16	4	8
1	5	9	2	5
2	4	7	2	3
3	4	6	2	3
4	9	6	4	3
5	29	13	15	7
6	57	26	29	13
7	65	33	33	17

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Hour of day	Number of vehicles per hour			
	Wentworth Drive		Bradley Place	
	Weekday	Weekend	Weekday	Weekend
8	64	45	32	22
9	59	59	30	30
10	54	66	27	33
11	53	70	26	35
12	54	71	27	35
13	55	69	28	35
14	61	69	30	34
15	64	69	32	35
16	68	68	34	34
17	69	68	35	34
18	62	60	31	30
19	45	44	23	22
20	35	38	18	19
21	33	37	16	18
22	26	31	13	15
23	15	21	8	11

Table A-5: Summary of TRAQ settings

Parameter	Settings			
	Wentworth Drive	Bradley Place	Oulton Avenue	Homebush Bay Drive
Road type	Local/residential	Local/residential	Arterial	Commercial arterial
Heavy vehicle %	6.7%	6.7%	8.8%	Variable (See Table A-7 below)
Grade	0%	0%	0% ±4%	0% ±2%
Vehicle fleet	2026	2026	2026	2026
Local land use	residential	residential	residential	residential

Table A-6: Traffic emission rate, Oulton Avenue, Wentworth Drive and Bradley Place

Road	Grade	NO <sub>x</sub> emission rate		PM <sub>10</sub> emission rate	
		Freeflow (g/vehicle/km)	Idling (g/vehicle/hr)	Freeflow (g/vehicle/km)	Idling (g/vehicle/hr)
Oulton Avenue	-4	0.17	6.13	0.05	0.10
	0	0.32		0.05	
	4	0.62		0.06	
Wentworth Drive	0	0.29	-	0.05	-
Bradley Place					

Table A-6: Traffic emission rate, Homebush Bay Drive

Heavy vehicle %	Grade	NO <sub>x</sub> emission rate		PM <sub>10</sub> emission rate		Heavy vehicle %	Grade	NO <sub>x</sub> emission rate		PM <sub>10</sub> emission rate	
		Freeflow (g/vehicle/km)	Idling (g/vehicle/hr)	Freeflow (g/vehicle/km)	Idling (g/vehicle/hr)			Freeflow (g/vehicle/km)	Idling (g/vehicle/hr)	Freeflow (g/vehicle/km)	Idling (g/vehicle/hr)
2%	-2	0.16	4.11	0.04	0.02	11%	-2	0.28	6.78	0.06	0.13
	0	0.22		0.04			0	0.40		0.06	
	2	0.27		0.04			2	0.55		0.06	
3%	-2	0.17	4.41	0.04	0.04	12%	-2	0.29	7.08	0.06	0.14
	0	0.24		0.04			0	0.43		0.06	
	2	0.30		0.05			2	0.59		0.06	
4%	-2	0.18	4.70	0.05	0.05	15%	-2	0.34	7.97	0.06	0.18
	0	0.26		0.05			0	0.49		0.06	
	2	0.33		0.05			2	0.69		0.07	
5%	-2	0.20	5.00	0.05	0.06	16%	-2	0.35	8.26	0.07	0.19
	0	0.28		0.05			0	0.51		0.07	
	2	0.36		0.05			2	0.73		0.07	
6%	-2	0.21	5.30	0.05	0.07	17%	-2	0.36	8.56	0.07	0.20
	0	0.30		0.05			0	0.53		0.07	
	2	0.40		0.05			2	0.76		0.07	
7%	-2	0.22	5.59	0.05	0.08	19%	-2	0.39	9.15	0.07	0.22
	0	0.32		0.05			0	0.58		0.07	
	2	0.43		0.05			2	0.82		0.08	
8%	-2	0.24	5.89	0.05	0.09	20%	-2	0.41	9.45	0.07	0.23
	0	0.34		0.05			0	0.60		0.07	
	2	0.46		0.05			2	0.86		0.08	
9%	-2	0.25	6.19	0.05	0.11	24%	-2	0.46	10.64	0.08	0.28
	0	0.37		0.05			0	0.68		0.08	
	2	0.50		0.06			2	0.99		0.09	
10%	-2	0.27	6.48	0.06	0.12	-	-	-	-	-	-
	0	0.39		0.06			-	-		-	
	2	0.53		0.06			-	-		-	



## Appendix B – Rail emissions estimation

Table B-1: Diurnal traffic profiles – Great Northern Railway (diesel only)

Hour of day	Number of vehicles per hour	
	Northbound	Southbound
0	0	0
1	1	0
2	0	1
3	2	2
4	0	1
5	1	0
6	0	0
7	0	0
8	0	0
9	0	0
10	2	2
11	1	2
12	0	2
13	2	0
14	2	1
15	0	0
16	0	0
17	0	1
18	0	1
19	1	0
20	0	2
21	2	0
22	0	2
23	2	0

Table B-2: Rail emission rate

Notch	Assumed speed (km/hr)	NO <sub>x</sub> emission rate		PM <sub>10</sub> emission rate	
		Emission factor (g/train/km)	Emission rate (g/train/hr)	Emission factor (g/train/km)	Emission rate (g/train/hr)
Locomotive in notch 1	40	2491 <sup>1</sup>	62.28	34.0 <sup>1</sup>	0.85

<sup>1</sup>Source: Lilley, 1996

### Appendix C – Isopleth diagrams



Figure C-1: Predicted incremental maximum 24-hour average PM<sub>2.5</sub> concentrations (µg/m<sup>3</sup>) – Ground level 0m



Figure C-2: Predicted incremental annual average PM<sub>2.5</sub> concentrations (µg/m<sup>3</sup>) – Ground level 0m

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Figure C-3: Predicted incremental maximum 1-hour average  $\text{NO}_2$  concentrations ( $\mu\text{g}/\text{m}^3$ ) – Ground level 0m



Figure C-4: Predicted incremental annual average  $\text{NO}_2$  concentrations ( $\mu\text{g}/\text{m}^3$ ) – Ground level 0m





Figure C-5: Predicted incremental maximum 24-hour average PM<sub>2.5</sub> concentrations (µg/m³) – 6m above ground level



Figure C-6: Predicted incremental annual average PM<sub>2.5</sub> concentrations (µg/m³) – 6m above ground level





Figure C-7: Predicted incremental maximum 1-hour average  $\text{NO}_2$  concentrations ( $\mu\text{g}/\text{m}^3$ ) – 6m above ground level



Figure C-8: Predicted incremental annual average  $\text{NO}_2$  concentrations ( $\mu\text{g}/\text{m}^3$ ) – 6m above ground level



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**MEADOWBANK NSW 2114**

Project 99878.01  
14 May 2024  
99878.01.R.001.Rev1  
PMO

Attention: Mr Bill McGarry

Dear Sirs

**Report on Geotechnical Assessment**  
**Proposed Residential Development**  
**Lot 212 DP 1112512, Oulton Avenue, Rhodes**

## 1. Introduction

This report presents the results of a geotechnical assessment undertaken for a proposed residential development on Lot 212 DP 1112512, Oulton Avenue, Rhodes. The assessment was undertaken for Billbergia Developments Pty Ltd, developers of the site.

It is understood that the proposed development will be for residential purposes and will include two separate towers of 8 and 12-storeys including three to four levels of shared podium/above-ground carpark.

The geotechnical assessment was undertaken using available published information and knowledge from projects within Rhodes/Liberty Grove and within similar geological settings. Details of the likely geotechnical conditions on the site and preliminary comments relevant to design and construction are provided in this report. Intrusive assessment will be required to confirm subsurface conditions and provide design information during the detailed design phase of the project.

A preliminary assessment of contamination risks was also undertaken at the same time as this geotechnical assessment and is reported separately (Ref. 99878.00.R.001).

## 2. Site Description

Lot 212 DP 1112512 is located between the southbound slip lane off Homebush Bay Drive (onto Oulton Avenue) and the main northern rail corridor. The Liberty Grove residential precinct is located to the south of the site.

The site dips gently to the south and west, and is some 5 m above the rail corridor. It is currently vacant and vegetated with grass, shrubs and trees.

The location of the site is shown on Drawing 1 in Appendix B.



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### 3. Regional Geology and Hydrogeology

The Sydney 1:100 000 Geological Series Sheet indicates that the site is underlain by Ashfield Shale which typically comprises a residual clay profile overlying variably weathered dark grey shale, laminite and siltstone. An extract from the geological map overlain by 2 m surface contours is shown in Figure 1.

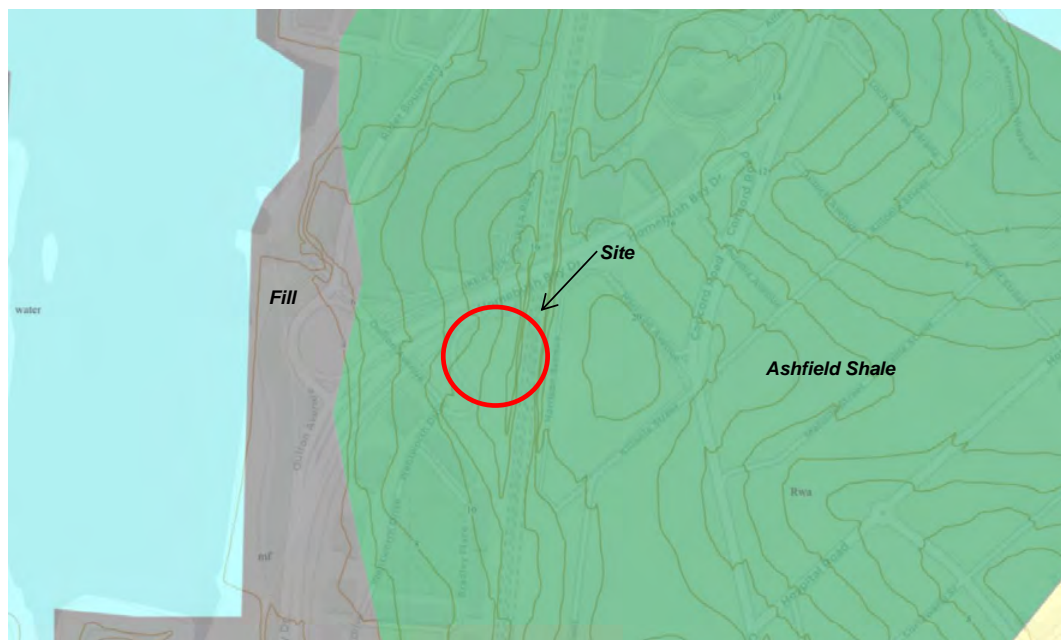


Figure 1: Extract from geological map overlain by 2 m surface contours

The topography of the site suggests that regional groundwater is likely to flow in a westerly direction. Groundwater in this geology is typically of poor quality (i.e. saline/high dissolved salts) and low yield and is not considered to be a high value potential resource. The regional groundwater table is also likely to be at considerable depth.

### 4. Site Inspection

An engineer from Douglas Partners undertook an inspection of the site on 4 November 2020. It is understood that site conditions have not changed since the inspection. The site is heavily vegetated with grass, shrubs and trees. Photographs of the site are shown in Figures 2 and 3.



Figure 2: Site photograph looking south-west from bridge (4 November 2020)



Figure 3: Site photograph looking south-east from path (4 November 2020)



## 5. Likely Geotechnical Conditions

Douglas Partners has undertaken numerous projects near the development site including in Liberty Grove (prior to redevelopment), Rhodes Shopping Centre, Rhodes Corporate Park, Homebush Bay Drive and the Main Northern Railway. On the basis of these investigations, the site is likely to be underlain by:

- Filling may be present if placed during previous developments;
- A layer of residual clayey soils (1.5 m to 3 m deep) derived from the Ashfield Shale bedrock. The clays are typically highly plastic and moderately reactive to changes in moisture content;
- Shale/laminite bedrock (15 m to 20 m deep). The rock is likely to have a deep weathered profile and may be extremely low to low strength to depths in the order of 5 m to 8 m, underlain by low to medium strength rock;
- Sandstone bedrock beneath the shale/laminite; and
- Groundwater should be well below the ground surface. Seepage will occur along the top of the bedrock and through joints/partings within the rock mass.

Intrusive investigation will be required to confirm the actual geotechnical conditions on the site once development planning has progressed.

## 6. Geotechnical Considerations for Redevelopment

The following comments are provided in relation to the geotechnical aspects of the proposed redevelopment project:

- The site is considered suitable for a proposed multi-storey unit development from a geotechnical perspective;
- Excavation may be required in filling, residual soils and Ashfield Shale bedrock. Excavation in filling, soil and highly weathered rock should be readily achievable using hydraulic excavators with bucket attachments. Excavation in low strength and stronger shale will probably require the use of rock hammers for effective removal;
- Vibrations associated with rock hammering will need to be considered and appropriate plant used to ensure vibrations on adjacent sites are kept within tolerable levels;
- Bulk excavation for basements is not proposed, however some excavations will likely be required (site forming, footings, lift pits etc.) which will need to be battered or shored for stability. Soldier piles with infill shotcrete panels would be a suitable shoring system with temporary ground anchors if required;
- Based on the site geology, seepage into minor excavations during construction and in the long term should be able to be managed using sump and pump systems. Seepage may also occur in pad footing and bored pile excavations which will need to be removed during the construction process; and



- Bored piles founded in the stronger bedrock will likely be required to support column loads. Design parameters for piles will need to be confirmed following intrusive investigations during the detailed design process.

Additional geotechnical investigation will be required on the site as part of the detailed design process once the redevelopment scheme has been approved. This includes groundwater level assessment.

## 7. Limitations


Douglas Partners (DP) has prepared this report for this project at Lot 212 DP 1112512, Oulton Avenue, Rhodes, in accordance with instructions received from the client. This report is provided for the use of Billbergia Developments Pty Ltd for this project only and for the purposes as described in the report. It should not be relied upon for other projects or by a third party. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

All advice provided in this letter is based on a desktop assessment. The advice may need to be updated following intrusive investigations.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

Yours faithfully  
**Douglas Partners Pty Ltd**

Reviewed by

  
**Peter Oitmaa**  
Principal

pp  
**Scott Easton**  
Principal

Attachments:    A:    Notes About this Report  
                         B:    Drawing



# About this Report

## Douglas Partners



### Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

### Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

### Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

### Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;

- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

### Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

July 2010

## *About this Report*

### **Site Anomalies**

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

### **Information for Contractual Purposes**

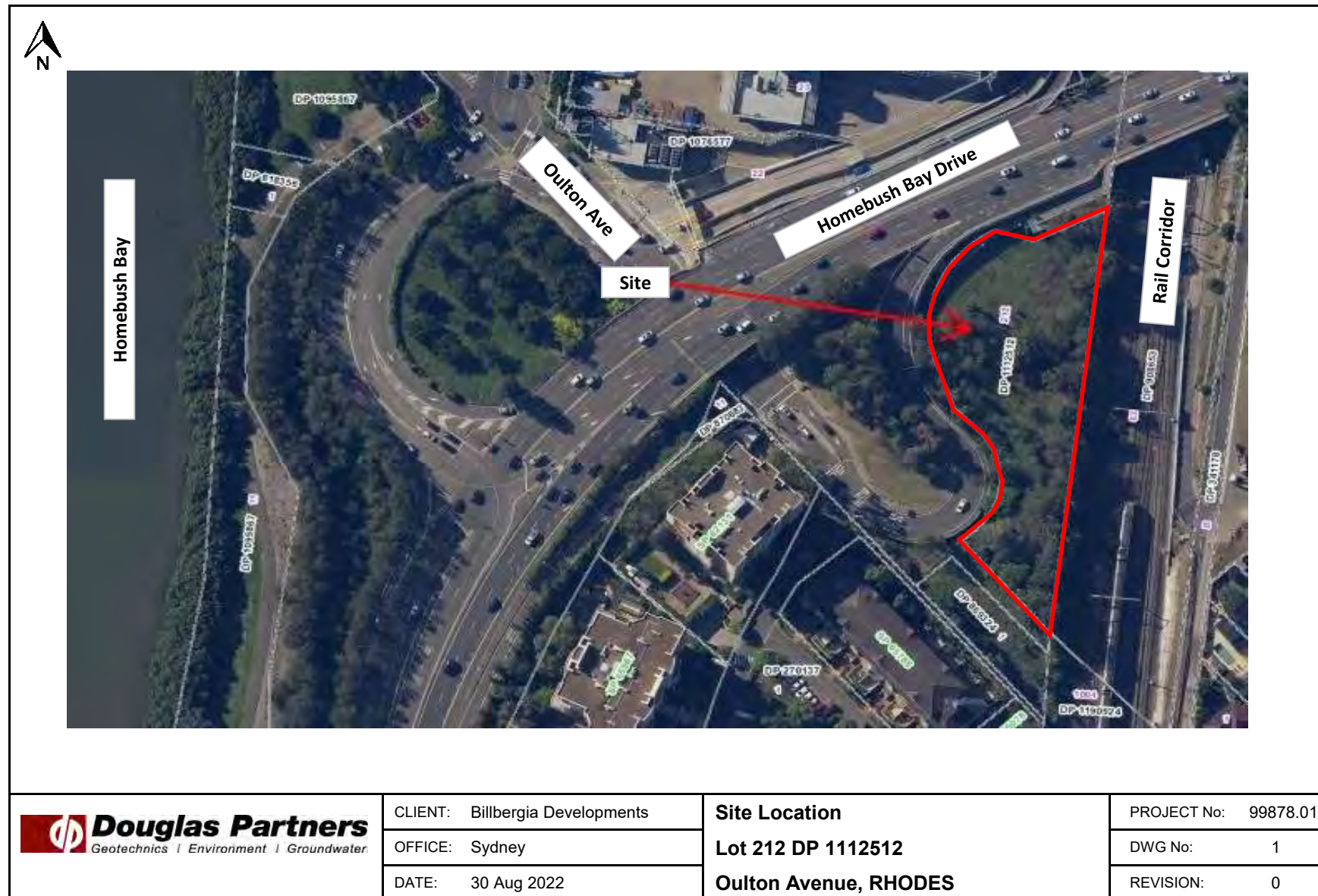
Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

### **Site Inspection**

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

July 2010





# *Oulton Avenue Concord West*

---

## *Hydraulic Services Site Servicing Assessment*



### **Prepared for:**

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## Revision

Revision	Date	Comment	Approved by
<b>P1</b>	21.09.22	Client Review	KJ
<b>A</b>	26.09.22	Final	KJ

# Contents

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## 1.0 Executive Summary

The following authority infrastructure is available to service the proposed Outlon Avenue development as outlined within this report:

- Sewer
- Stormwater
- Domestic Cold Water (including supply for fire protection services)
- Natural Gas

## 2.0 Introduction

### 2.1 Purpose of this Report

The following Hydraulic Services Site Servicing Assessment provides a high-level overview of the available hydraulic services infrastructure within the vicinity of the proposed Oulton Avenue Concord West development.

### 2.2 Project Overview

The proposed development consists of:

- Ground Floor Concourse / Lobby
- Three (3) level car park
- Podium
- Nine (9) & twenty-two (22) level residential tower respectively



Image Courtesy of SJB Architects

OULTON AVENUE CONCORD WEST  
HYDRAULIC SERVICES- SITE SERVICING ASSESSMENT

PAGE 4

### ***2.3 Scope of Hydraulic Services***

The following services are expected to be provided to the proposed development:

- Cold Water
- Hot Water
- Fire Protection Services
- Natural Gas
- Sewer Drainage and Sanitary Plumbing Systems
- Roof Plumbing & Stormwater Drainage Services

### ***2.4 Limitations***

Information contained within this report is subject to authority application and approval processes.



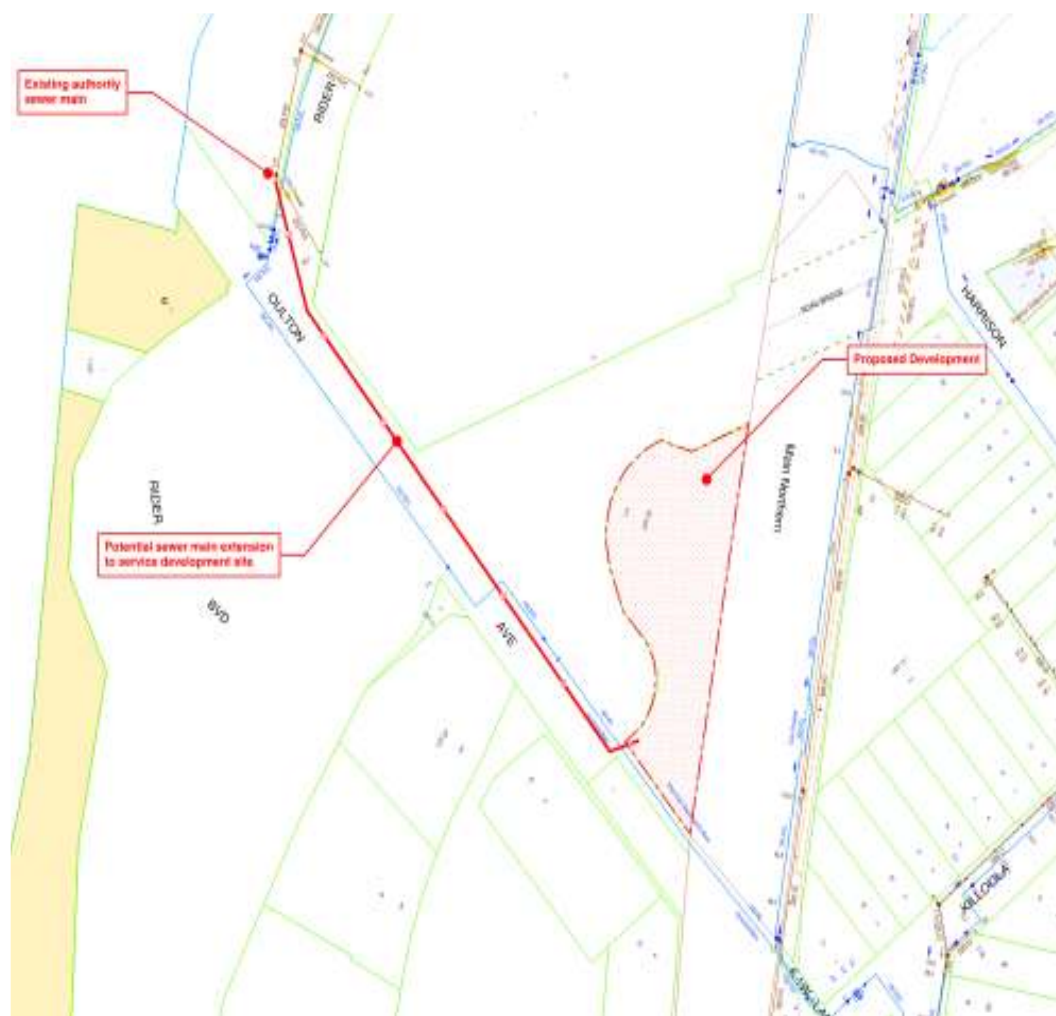
## 3.0 Infrastructure

The following is an overview of existing authority infrastructure within the vicinity of the proposed development.

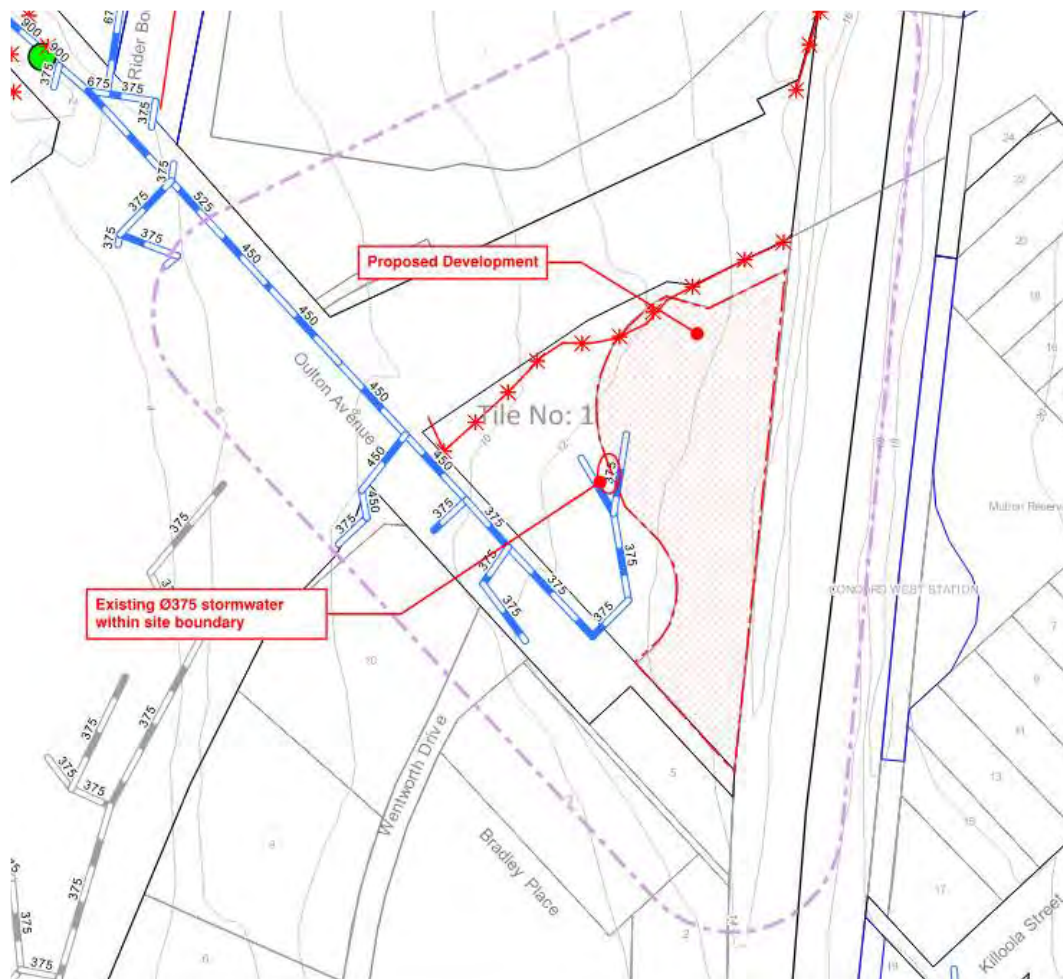
### 3.1 Sewer

The development site is not currently provided with a frontage to an available sewer main asset and will require a sewer main extension to service the proposed development.

Subject to authority application, liaising, design and approval, the existing Ø225 PVC sewer main located in Rider Boulevard may be extended to service the proposed development.



The proposed development site currently is provided with an existing Ø375 stormwater asset located within the western property boundary and may be available for site stormwater discharge subject to authority application.



### 3.3 Cold Water

The development site southern boundary abuts an existing Ø450PE authority water main located within Oulton Avenue.

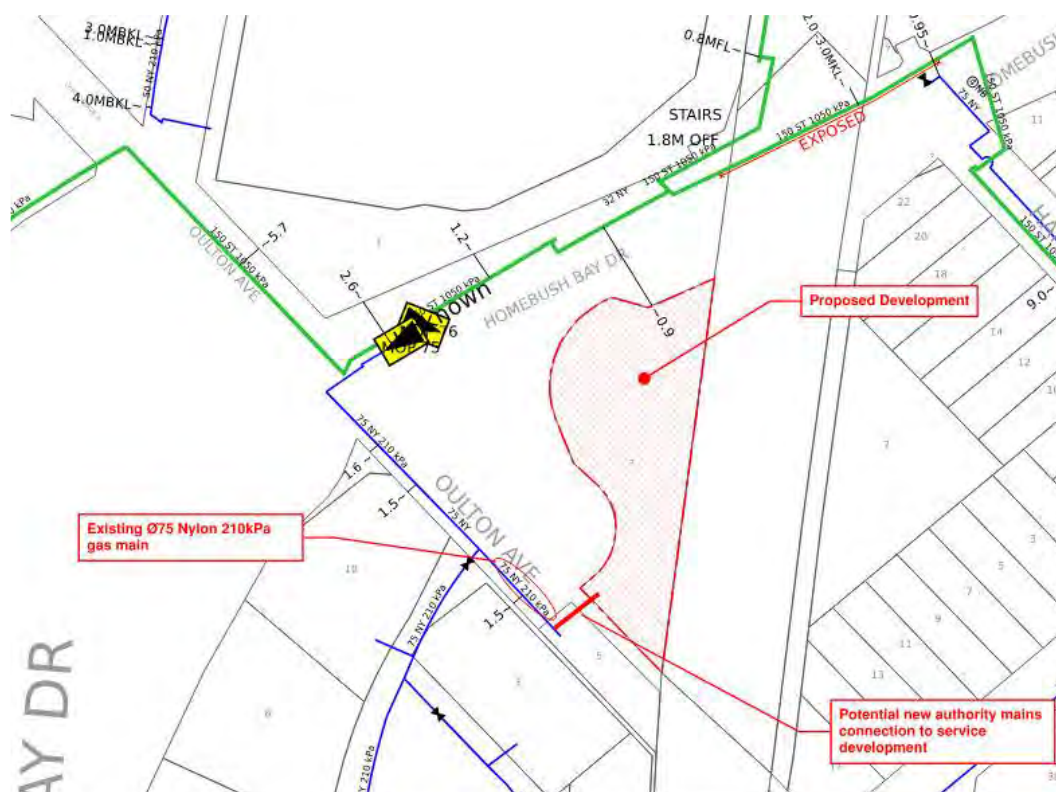
Subject to authority application, liaising, design and approval, the existing Ø450PE may service the site via new authority mains connections to service domestic cold water and fire protection systems.



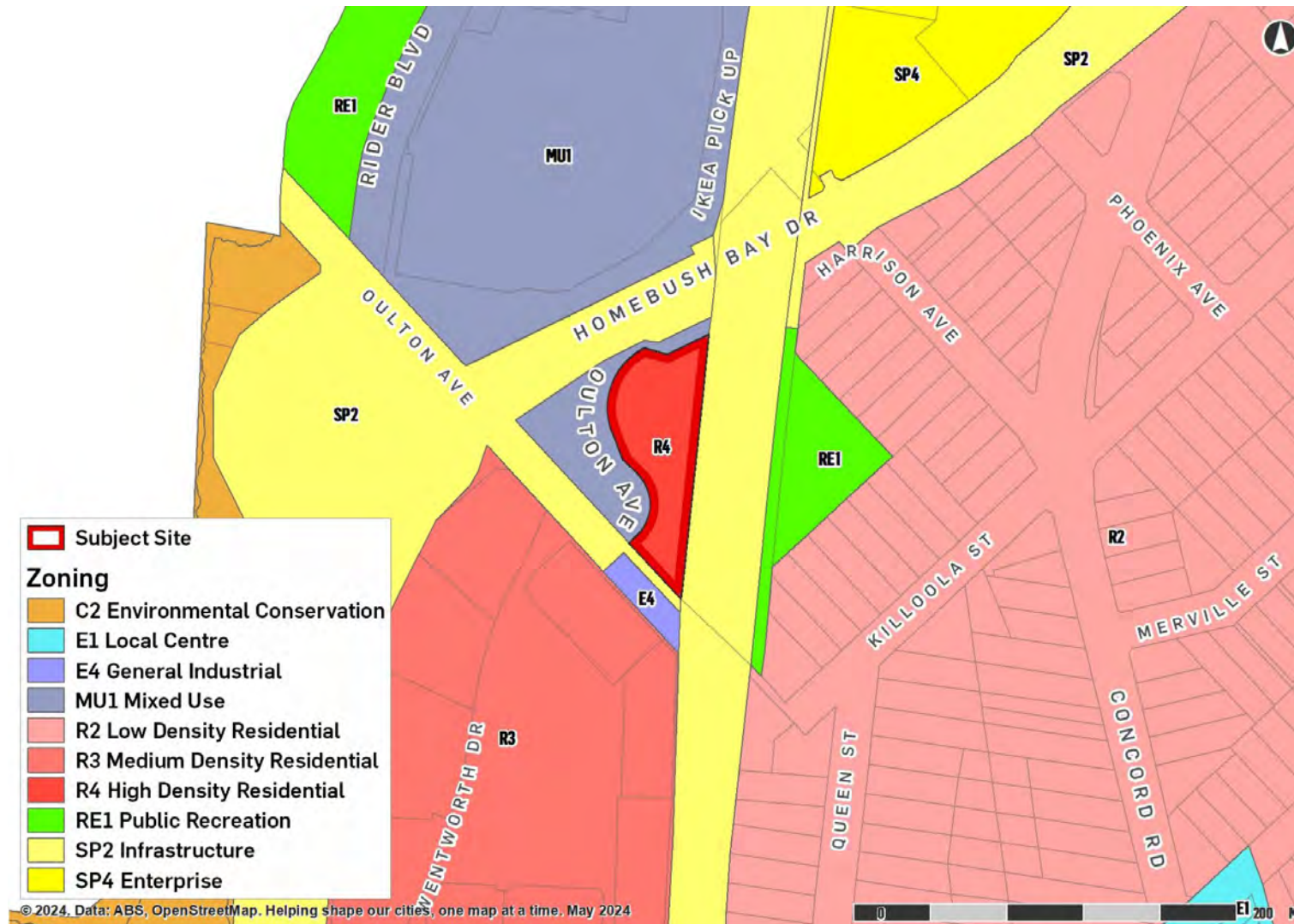
### 3.4 Gas

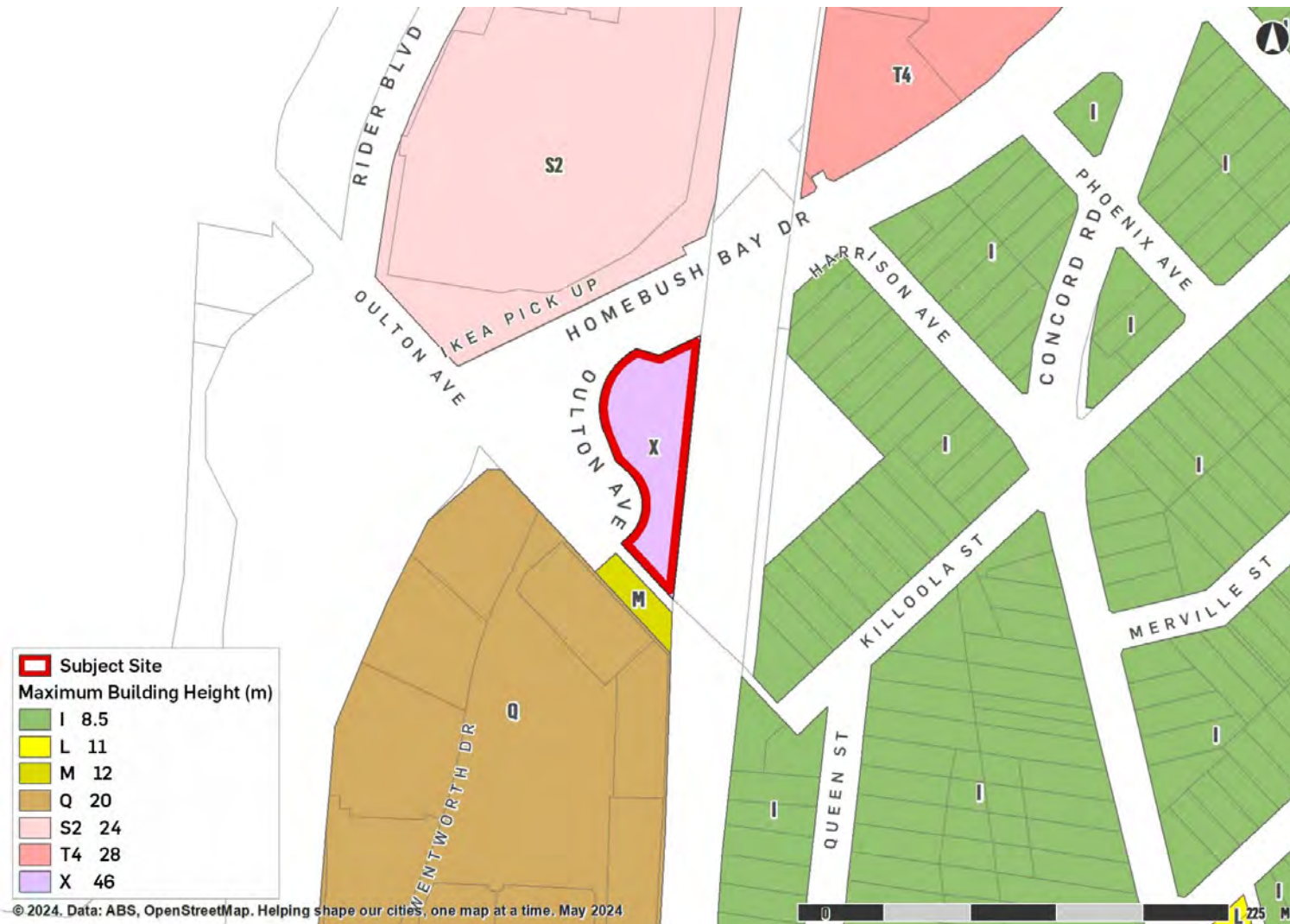
The development site southern western boundary borders on an existing Ø75NY 210kPa authority gas main located within Oulton Avenue.

Subject to authority application process, the existing Ø75NY 210kPa may service the site via new authority mains connection.

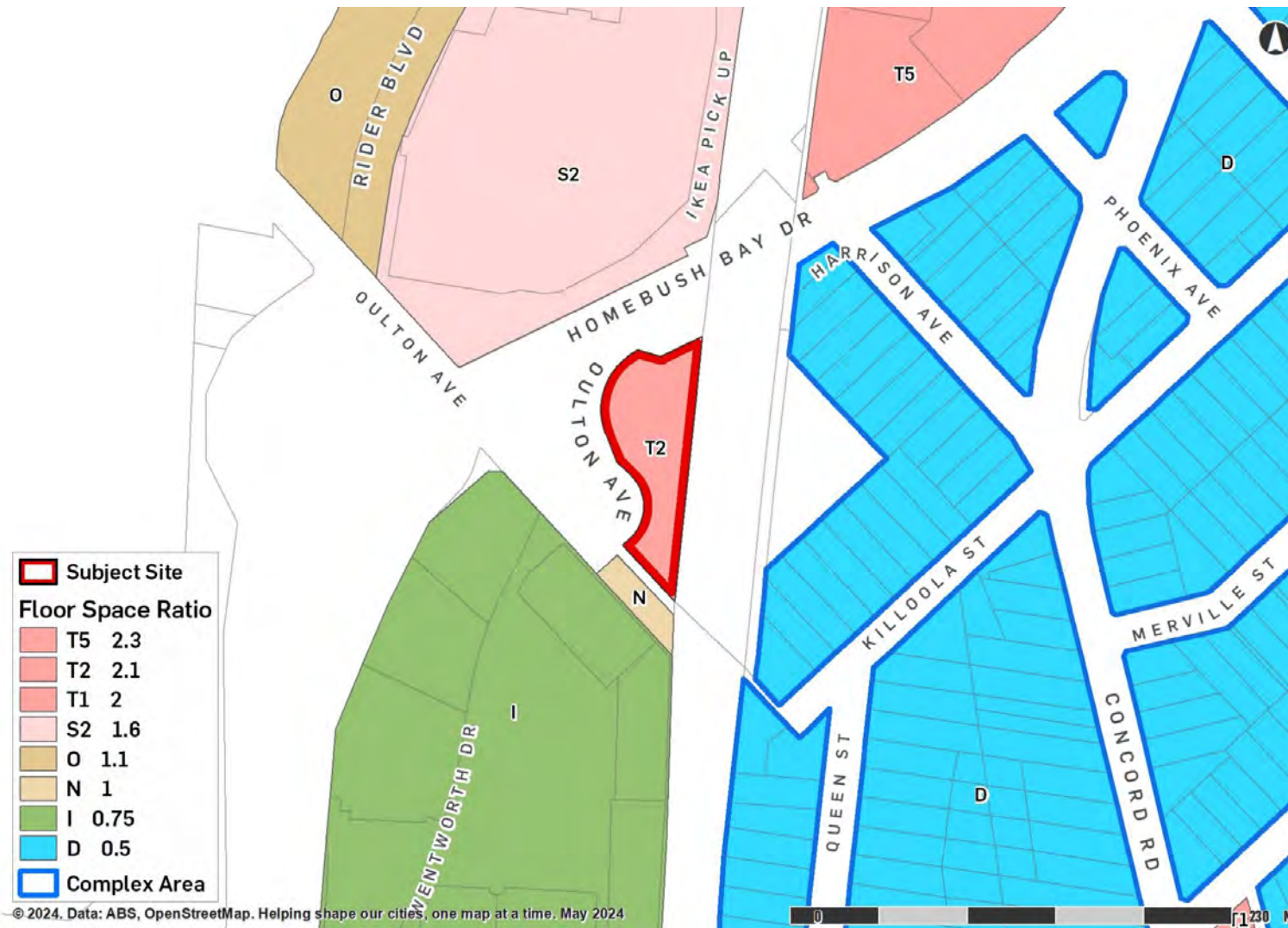














SJB Architects

# Oulton Avenue Urban Design Report

Oulton Avenue,  
Concord West

Prepared for  
Bilbergia

Issued  
May 2024

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# We create spaces people love



SJB is passionate about the possibilities  
of architecture, interiors, urban design and  
planning. Let's collaborate.

Ref: #4416  
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SJB would like to acknowledge the traditional custodians of the land on which we live and practice and pay our respects to elders, past, present and future. In particular, we would like to acknowledge the 60,000+ years of continuous engagement of this land by Aboriginal and Torres Strait culture.

The journey of Aboriginal and Torres Strait Islander people and their knowledge of this land is incredibly rich – its importance to the future of our country should never be underestimated.

**Certified Management Systems**

ISO 9001:2015 Quality Management System  
ISO 45001:2018 Occupational Health & Safety Management System  
ISO 14001:2015 Environmental Management System





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## Introduction



## Introduction

### 1.1 Purpose of this Report

This urban design report has been developed to support the Planning Proposal for the site. The subject site represents one of a limited number of undeveloped land parcels capable of delivering a new housing development within close proximity to Rhodes town centre. The site is strategically located and sized to facilitate high density development, increasing the supply and diversity of housing within Rhodes.

This report presents a bold vision for the site that would see the delivery of a new residential flat building and improved public domain which would contribute to the revitalisation and help deliver improved connections to the broader area.

As identified in the SEPP (Affordable Rental Housing) 2009, a site compatibility certificate is applicable for sites within 800 metres of a railway station in the Sydney Region. The site is located 750m from Rhodes Station via a pedestrian and cycle path along the rail corridor.



Figure 01: Satellite image of site within wider context

City of Canada Bay

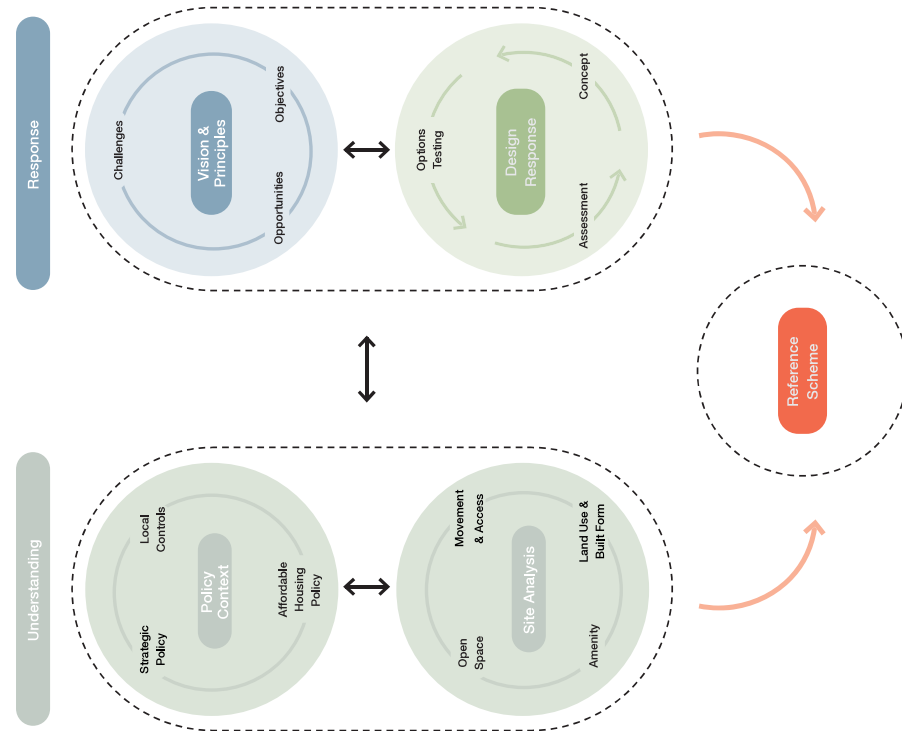


## Introduction

### 1.2 Process

The process undertaken within this report begins with an understanding of place. A preliminary context analysis looks at relevant strategic policies and frameworks that guide the overarching planning methodology and regional principles that will underpin development at Oulton Avenue. A site analysis looks at regional and local spatial, environmental and social aspects of Rhodes to understand the need for housing diversity as well as to provide a foundational understanding of the challenges and opportunities present.

A response follows the understanding of the development site. The response includes a vision and principles for redevelopment of the Oulton Avenue site that takes into account the learning from the 'understanding' such as the challenges and opportunities. The Vision and Principles deliver a design response as a series of key moves and options testing.



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**Policy Context**

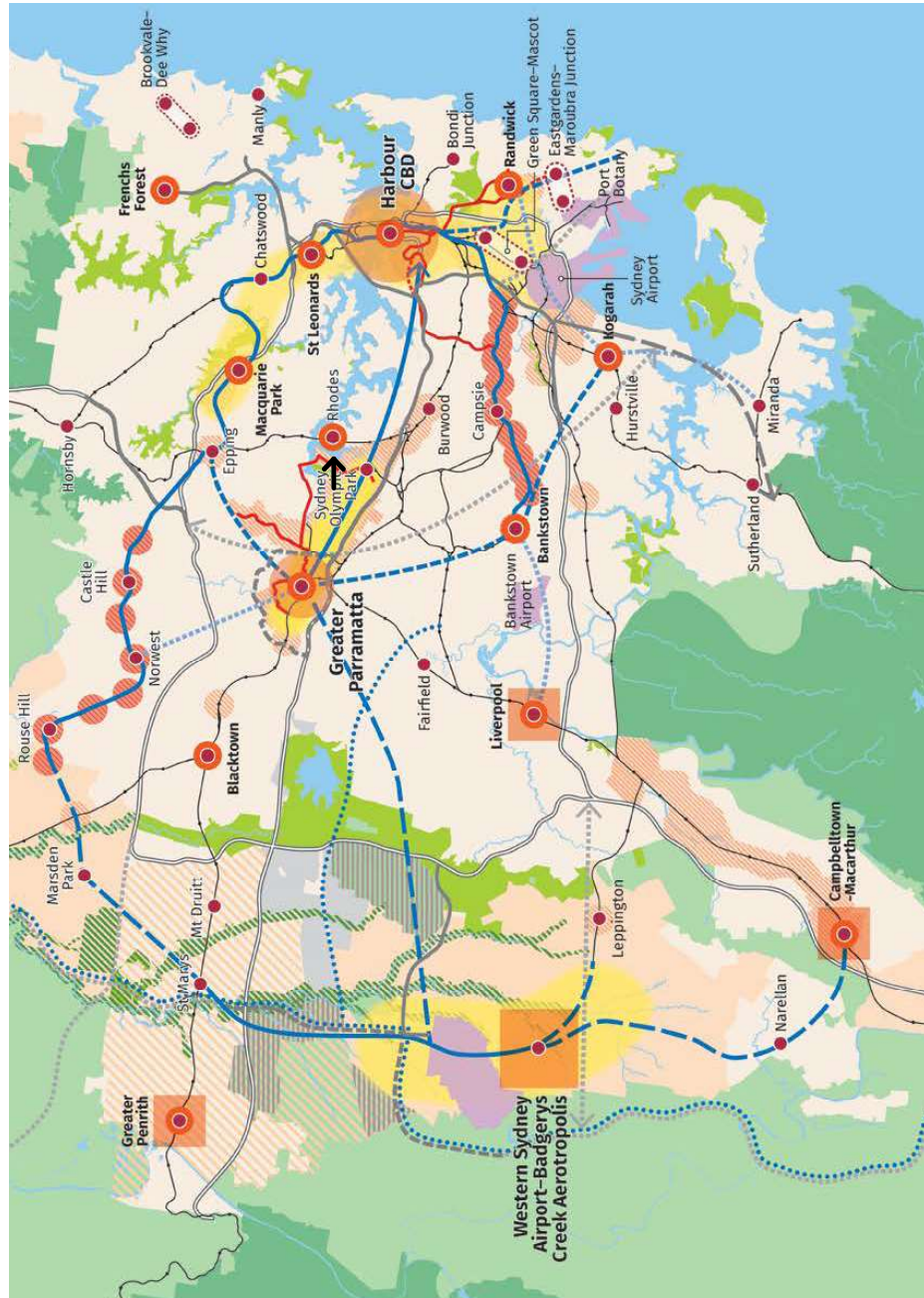


Figure 02: A Metropolis of Three Cities Plan (Source: Greater Sydney Commission, 2018)

City of Canada Bay

## Policy Context

### 2.1 Greater Sydney Region Plan 2018

In March 2018, the Greater Sydney Commission (GSC) released the Greater Sydney Region Plan, A Metropolis of Three Cities (the Plan). The Plan is built on a vision of three cities where most residents live within 30 minutes of their place of work, education, health facilities and services. This vision seeks to bring together land use and transport planning to boost Greater Sydney's liveability, productivity and sustainability by spreading the benefits of growth.

#### Key implications for the study

- The GSRP is a very high level document that identified Rhodes as a Strategic Centre, Commercial Office Precinct, and Health and Education Precinct.
- Rhodes is identified as an area of high urban growth and more intense development.

## Policy Context

### 2.2 Eastern City District Plan 2018

The Eastern City District Plan was approved in March 2018 and guides the transition of the District within the context of greater Sydney's Three Cities. Its objective is to improve the District's social, economic and environmental assets. The District Plan identifies that growth in the Eastern City will be supported by previously unparalleled levels of city-scale infrastructure investment including transport, public realm and sporting and cultural institutions, which will attract and retain new and existing businesses in the Harbour City.

Planning Priority ES promotes *providing housing supply, choice and affordability with access to jobs, services and public transport*. It identifies the need for housing diversity and choice coordinated with local infrastructure to create liveable, walkable neighbourhoods.

#### Key implications for the study

- The promotion of Rhodes as both a Commercial Office Precinct and a Health and Education Precinct will make it an attractive place to live.
- It identifies a future mass transit connection north-south connecting Rhodes to other centres such as Burwood and Hurstville.
- Housing diversity close to strategic centres is promoted in this plan.

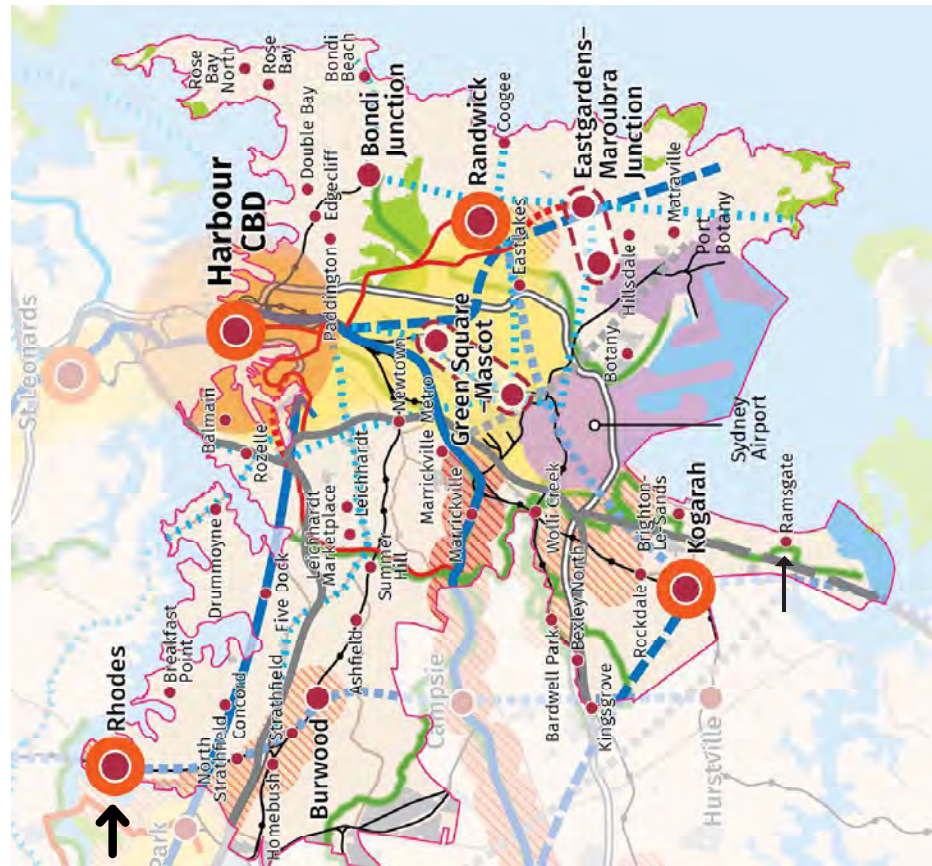


Figure 03: Eastern City District Plan (Source: Greater Sydney Commission, 2018)

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## Policy Context

### 2.3 Canada Bay Local Strategic Planning Statement 2020

The Local Strategic Planning Statement (LSPS) sets the development vision for the LGA with a time horizon to 2040.

The LSPS aligns with the Eastern District Plan that designates Rhodes as a Strategic Centre. Four themes are put forward to guide the future action. The themes include:

- Infrastructure and Collaboration
- Liveability
- Productivity
- Sustainability

The LSPS identifies a housing priority to *provide housing, supply, choice and affordability in key locations*. Rhodes Planned Precinct is identified as new mixed-used community close to jobs and public transport that will contribute to these housing targets.

The LSPS also identifies active transport connections throughout Rhodes and beyond as a key short term action for Canada Bay Council.

#### Key implications for the study

- The LSPS predicts increased demand for apartments of 10.1% to total 63.8% of all housing stock and an increase in demand for social and affordable housing by 14% by 2036.
- Affordable and diverse housing is a key priority for Council particularly in key centres including Rhodes
- Active transport is a priority connecting centres with train stations and key infrastructure.

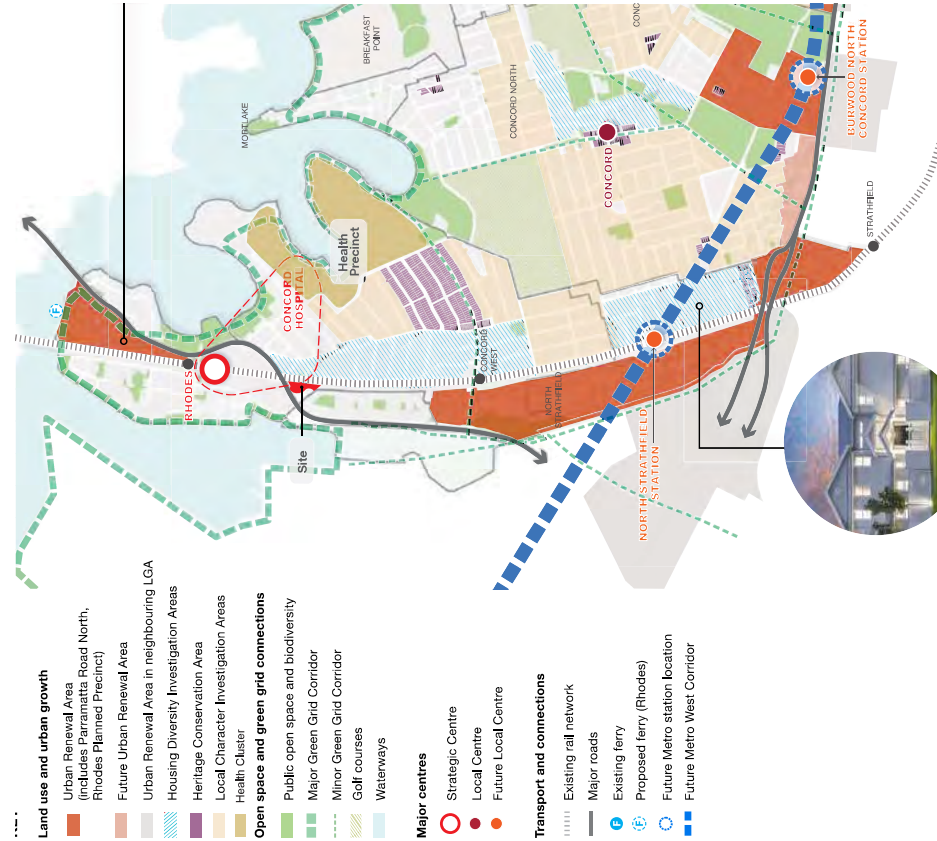
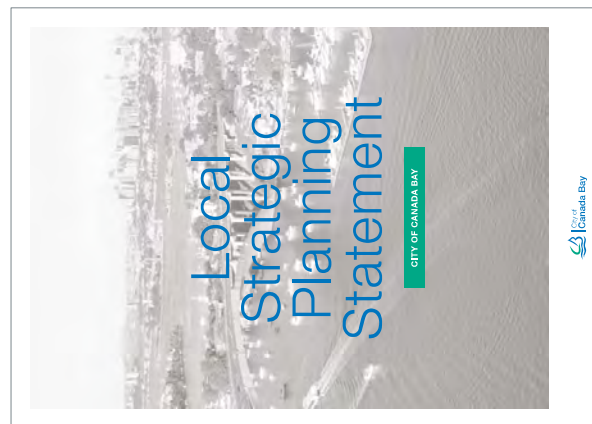


Figure 04: LSPS Structure Plan (Source: Canada Bay Council, 2020)

## Policy Context

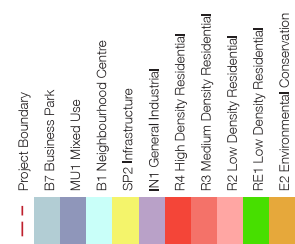
### 2.4 Canada Bay Local Environment Plan 2013



#### 01 Land Zoning Map

The subject site is zoned as MU1 Mixed Use.

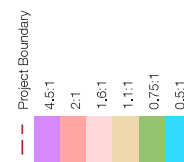
#### Key



#### 02 Floor Space Ratio Map

There is an FSR control of 1:10:1 for the subject site. FSR is concentrated along the rail corridor and Homebush Bay Drive.

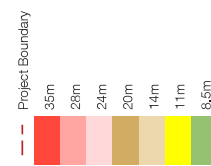
#### Key



#### 03 Height of Buildings Map

The subject site has height controls of 24m. There is a concentration of height along the rail corridor and Homebush Bay Drive.

#### Key



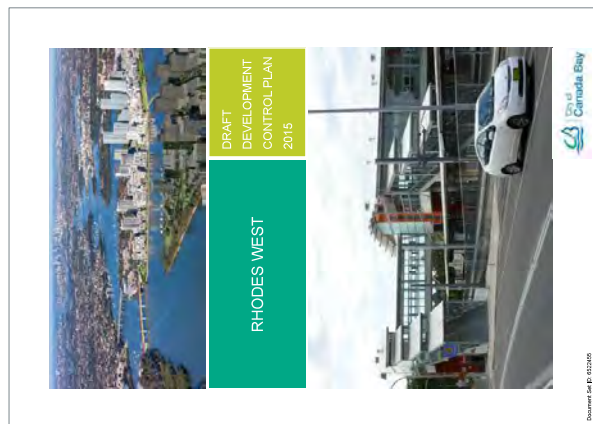


## 2.5 Rhodes West Draft Development Control Plan 2015

### Policy Context

The draft Rhodes West DCP was developed in 2015 to support the development of this particular precinct. The vision for Rhodes West is to:

- Create a diverse and visually interesting commercial centre supported by high density residential community;
- Integrate the new community of Rhodes West with the existing surrounding communities through bus, pedestrian and connections and the provision of new community facilities, which are accessible to all;
- Engender a meaningful 'sense of place' and community with a network of activity areas that combined neighbourhood shops, recreation opportunities, and public open space with residential dwellings;
- Create a range of high quality public open spaces and community facilities;
- Ensure high quality architecture design that contributes positive to the role of Rhodes as a Health and Education precinct; and
- Demonstrate leadership in ESD initiatives.



#### Key implications for the study

- The site is included in the Rhodes West DCP as part of Precinct A.
- It is identified in the cycle strategy and potentially accommodating a future commuter cycleway.

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Oulton Avenue



Figure 05: Rhodes West Cycle Strategy (Source: Canada Bay Council, 2015)

**Policy Context**

2.6 Canada Bay Affordable Housing Policy 2017

City of Canada Bay aims to assist people earning low to moderate incomes to live and work in the area through provision of affordable rental housing. Council currently owns 27 dwellings located within North Strathfield and Concord West which range from 1-3 bedrooms.

Affordable Housing - Housing that leaves the sufficient family household income to meet other household needs. This has become understood to mean housing that costs no more than 30% of a family's gross income in rent.

**City of Canada Bay Eligibility Criteria**

- Permanently employed in the City of Canada Bay LGA in priority employment sectors
- An Australian citizen or permanent resident not living in subsidised housing (including NSW Department of Housing)
- Not own property or assets which could be used to assist in housing needs.
- Income thresholds for 2021/2022 are set at \$52,795 to \$125,535 depending on household compositions.

**Employment Sectors**

- Health Services (including support and ancillary staff)
- Childcare
- Public Primary or Secondary Education (including support and ancillary staff)
- Emergency Services (including support and ancillary staff)
- Public Transport
- City of Canada Bay employee
- Retail
- Labourers
- Manufacturing
- Hospitality



Figure 06: Canada Bay Affordable Housing Policy 2017

Figure 07: Canada Bay Draft Affordable Housing Contribution Scheme 2020

**Policy Context**

**2.7 Strategic Opportunities**

Through the redevelopment of the Oulton Avenue site, there is an opportunity to:

**1.**

Improve active transport  
connections and  
strengthen links to public  
transport

**2.**

Provide housing diversity  
and affordability options to  
support local workers

**3.**

Improve the public domain  
experience for safer,  
greener and more vibrant  
spaces

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Oulton Avenue

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**Site Analysis**

## Site Analysis

### 3.1 Urban Context

The subject site is located in the suburb of Concord West, located 12 kilometres west of Sydney CBD. The site sits on the boundary of Liberty Grove, Rhodes and Concord West in the southern part of the Rhodes peninsula.

The area is transected by two key roads: Homebush Bay Drive provides linkages to the North Shore and Western Sydney while Concord Road links the area with the inner west and Sydney CBD.

Land north of Homebush Bay Drive forms part of Rhodes West and Rhodes town centre as well as key commercial precincts including Rhodes Corporate Park. East of Concord Road is Concord Hospital which is part of a wider health cluster. Liberty Grove and Concord West transition to mainly residential suburbs with a mixture of apartments and detached housing.

The area has two train stations including Rhodes station and Concord West station. The site is within an 800m walking catchment of Rhodes station and a 1.4km walking catchment of Concord West station. Both stations are supported by a number of bus services connecting the area with the North Shore, Parramatta and Sydney CBD.

The suburbs broader urban context features a range of open spaces, public parks and harbour foreshore with many recreational opportunities.



Figure 08: Urban Context

City of Canada Bay

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## Site Analysis

### 3.2 Local Context

The subject site is an irregular shaped allotment, located at the corner of Homebush Bay Drive, the rail corridor and Oulton Avenue. The site is legally described as Lot 212 DP 1112512 and comprises a site area of approximately 4168m<sup>2</sup>.

The site does not have any development on it and currently accessible from three points for pedestrians and cyclists:

- A pedestrian and cycle path from Oulton Avenue connecting to Liberty Grove and Rhodes Waterside
- Homebush Bay Drive underpass along the rail corridor connecting to Rhodes Station
- A ramp connecting to a pedestrian path on Homebush Bay Drive over the rail corridor, linking the site to Concord West.

The site is located within excellent proximity to a number of key transport, education, business, health and retail facilities. The site is within 200m of Rhodes Waterside and 300m to the waterfront along Lewis Berger Park



Site Boundary  
Key View Locations

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Figure 03: Local Context and View Locations

City of Canada Bay



## Site Analysis

### 3.3 Site Photos



① View from Oulton Avenue



⑤ View of site from Liberty Grove



⑨ View from Pedestrian Ramp



② Off ramp of Homebush Bay Drive, crossing in front of site



⑥ View from centre of site towards Rhodes and Ikea



⑩ View under Off Ramp looking towards Oulton Avenue



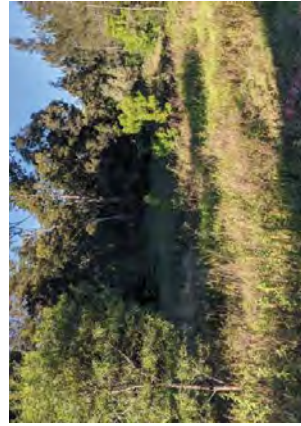
③ Primary access to site from Oulton Avenue



⑦ Pedestrian ramp to Homebush Bay Drive



⑪ Existing character of retaining wall of Homebush Bay Drive



④ View of site from pedestrian ramp



⑧ Pedestrian ramp to Homebush Bay Drive



⑫ Existing character of pedestrian path, towards Oulton Avenue

## Site Analysis

### 3.4 Open Space Network

#### Greater Context

The site is located within an extensive network of open space consisting of sports and recreational facilities, wetlands and reserves, as well as dedicated areas for public and private use.

Sydney Olympic Park and its associated parks and wetlands are located to the west of the site. It can be accessed via a walking and cycling train that runs alongside the existing wetlands and watercourse of Powell's Creek.

Other open spaces within the vicinity include Lewis Berger Park on the Paramatta River and Bradley Reserve within Liberty Grove. Directly to the east of the rail corridor is Mutton Reserve, an underused local park.

#### Key Open Spaces:

- |                                |                               |
|--------------------------------|-------------------------------|
| 1. Wool-la-ra                  | 12. Mutton Reserve            |
| 2. Olympic Park Archery Centre | 13. Churchill Tucker Reserve  |
| 3. Bay Marker                  | 14. Midlaine Park             |
| 4. Brickpit Ring Walk          | 15. Brays Bay Reserve         |
| 5. Badu Mangroves              | 16. Rivendell                 |
| 6. Waterbird Refuge            | 17. Rhodes Park               |
| 7. Bicentennial Park           | 18. Dame Eadith Walker Estate |
| 8. Bradley Reserve             | 19. Ron Routley Oval          |
| 9. Liberty Grove Village Green | 20. Arthur Walker Reserve     |
| 10. Lewis Berger Park          |                               |
| 11. Rhodes Foreshore Park      |                               |

#### Key

- Site Boundary
- Underground Railway Line
- Train Station
- Public Open Space
- Bushland and Environmental Conservation
- Private Open Space



Figure 10: Greater Context: Existing Network of Open Space

Oulton Avenue

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## Site Analysis

### 3.5 Environment

#### Topography

The topography within the site's context has been heavily influenced by infrastructure including Homebush Bay Drive and the rail corridor. The context of the Rhodes Peninsula within the Parramatta River does provide views of waterways and the wetlands of Olympic Park.



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## Site Analysis



Figure 12: Immediate Context: Existing and Potential Future Open Space Network



Figure 13: Existing pedestrian pathway connecting Oulton Avenue to Homebush Bay Drive and Rhodes Station.



Figure 14: Lewis Berger Park (No. 10 Open Space Network Greater Context Plan)

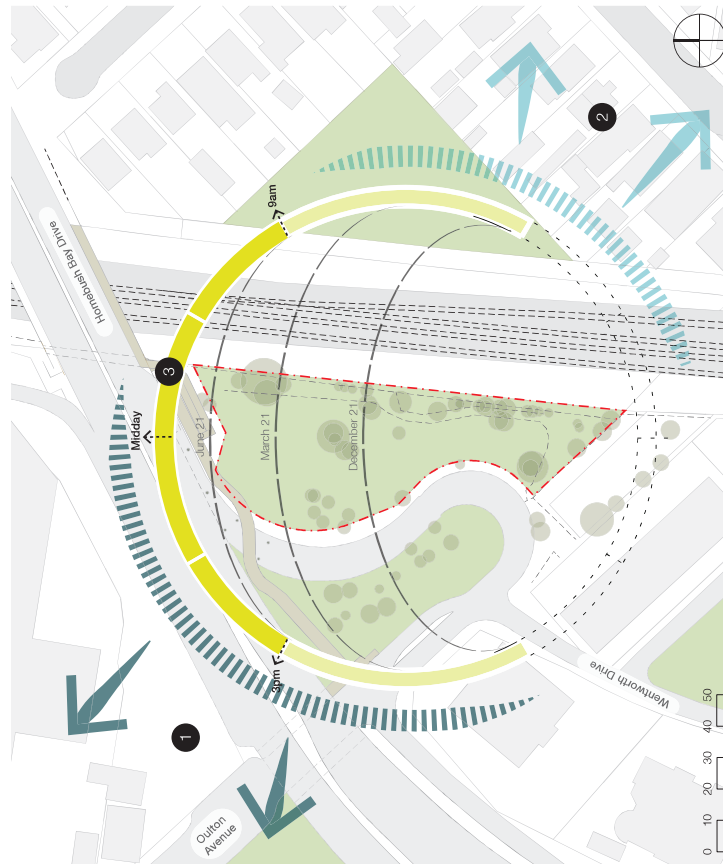
### Immediate Context

1. Potential extending of the open space onto the site with the inclusion of a pocket park and better amenity.
2. Potential better activation and passive surveillance of Mutton Reserve which is currently underused.

### Key Local Open Spaces

The images above are two key open spaces located within the immediate vicinity of the site. Future development on the site has the potential to respond to its significant location the local network of open spaces. Redevelopment of the site offers the possibility for a better integrated open space network and improved amenity within the local context, particularly in regard to pedestrian and cycle connections, recreational opportunities, views and streetscape quality.

### Site Analysis



### Views and Solar

1. Landscape views to west including Olympic Park and wetlands
2. Views of city and harbour to east
3. Good solar access, site oriented North-South.

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Oulton Avenue



### Topography on Site

1. Large amount of fill to west of off-ramp
2. High point of site to the south
3. Site flattens to the north, location of existing access

© ID



## Site Analysis

### 3.6 Movement and Access



#### Local Movement and Access

Traffic flow within the local area is managed with traffic lights located at key intersections. To the east of the site is the intersection between Oulton Avenue and access to Homebush Bay Drive. This is the key traffic intersection for the site. It also provides a local crossing for pedestrians crossing between Liberty Grove and Rhodes.

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Oulton Avenue



#### Access and Movement on Site

1. Key pedestrian connection between Liberty Grove to Rhodes station and Concord West
2. Shareway underpass connecting site to Rhodes under Homebush Bay Drive
3. Pedestrian connection from site to Concord West Public School
4. Proposed future bike path in Homebush Bay Cycling Map joint Council/SOP initiative.

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## Site Analysis

### 3.7 Land Use and Amenity

The subject site is located within a MU1 Mixed Use Zone that extends across Homebush Bay Drive to Rhodes Centre and primarily comprises of commercial, retail and high density residential. This area contains Rhodes Waterside Shopping Centre and extends to Rhodes Station.

Across Oulton Avenue is Liberty Grove, which is zoned Medium Density Residential with a mixture of apartments, townhouses and detached dwellings.

The site's location has access to considerable amenity and services within the local context. The Rhodes Shopping Centre is conveniently located within walking distances as is both Rhodes and Concord West Neighbourhood Centres. Several health, educational and other community facilities are found within the local area, including four childcare centres and Concord Hospital. The subject site lies within a network of open spaces that provide a range of sport and recreational facilities.

#### Amenity and Services

	Open Space		Accommodation
	Sports and Recreation		Car parking
	Community Service		Retail
	Medical Service		Cafe
	Educational Institution		Restaurant
	Childcare Centre		Bar
	Gallery/Museum		Entertainment

#### Key

	Site Boundary
	Underground Railway Line
	Train Station
	Rhodes MU1 Mixed Use
	Neighbourhood Centre
	Rhodes Centre High Density Residential
	Liberty Grove Medium Density Residential
	Hospital precinct
	Rhodes Corporate Park

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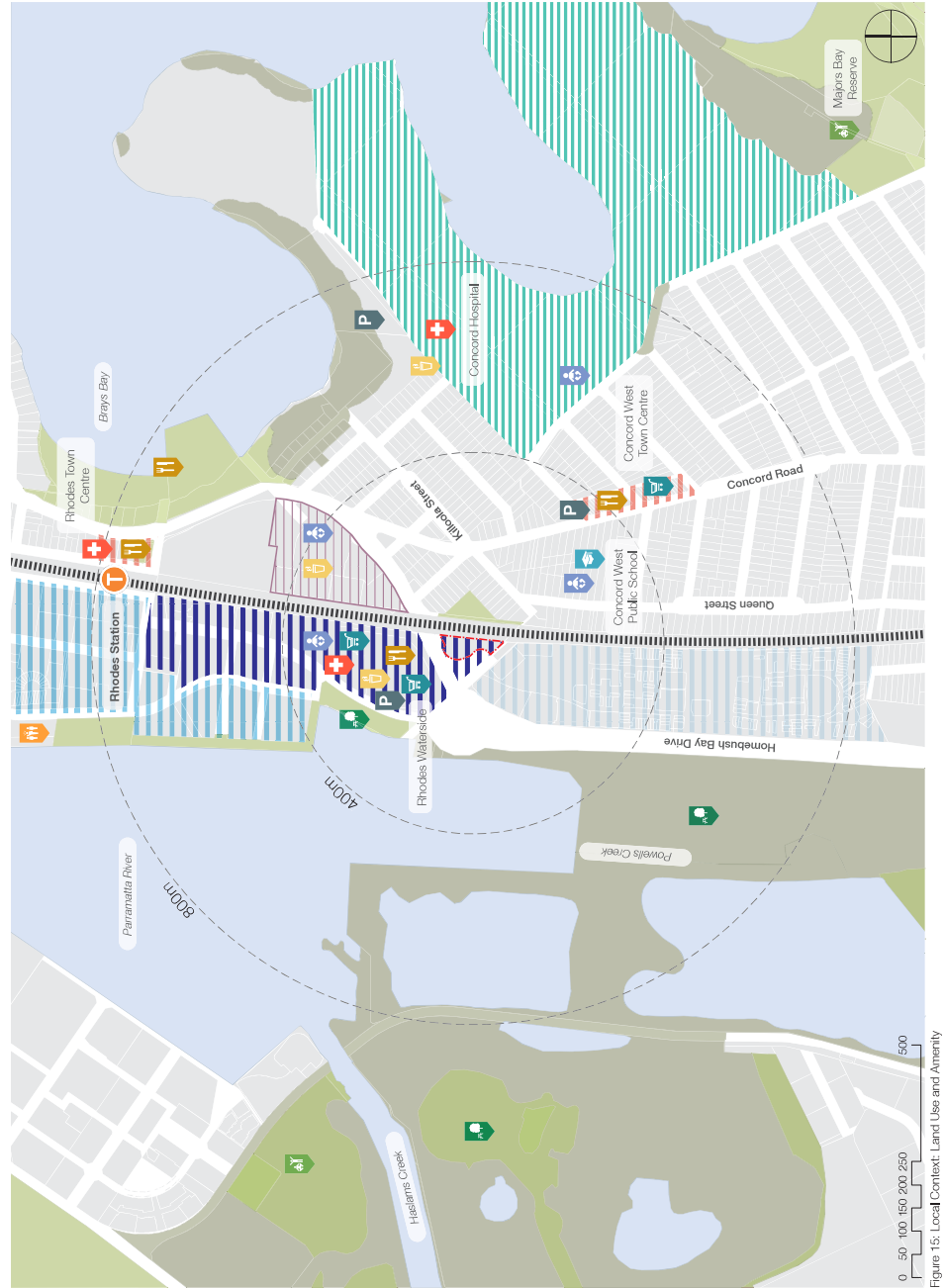


Figure 15: Local Context: Land Use and Amenity

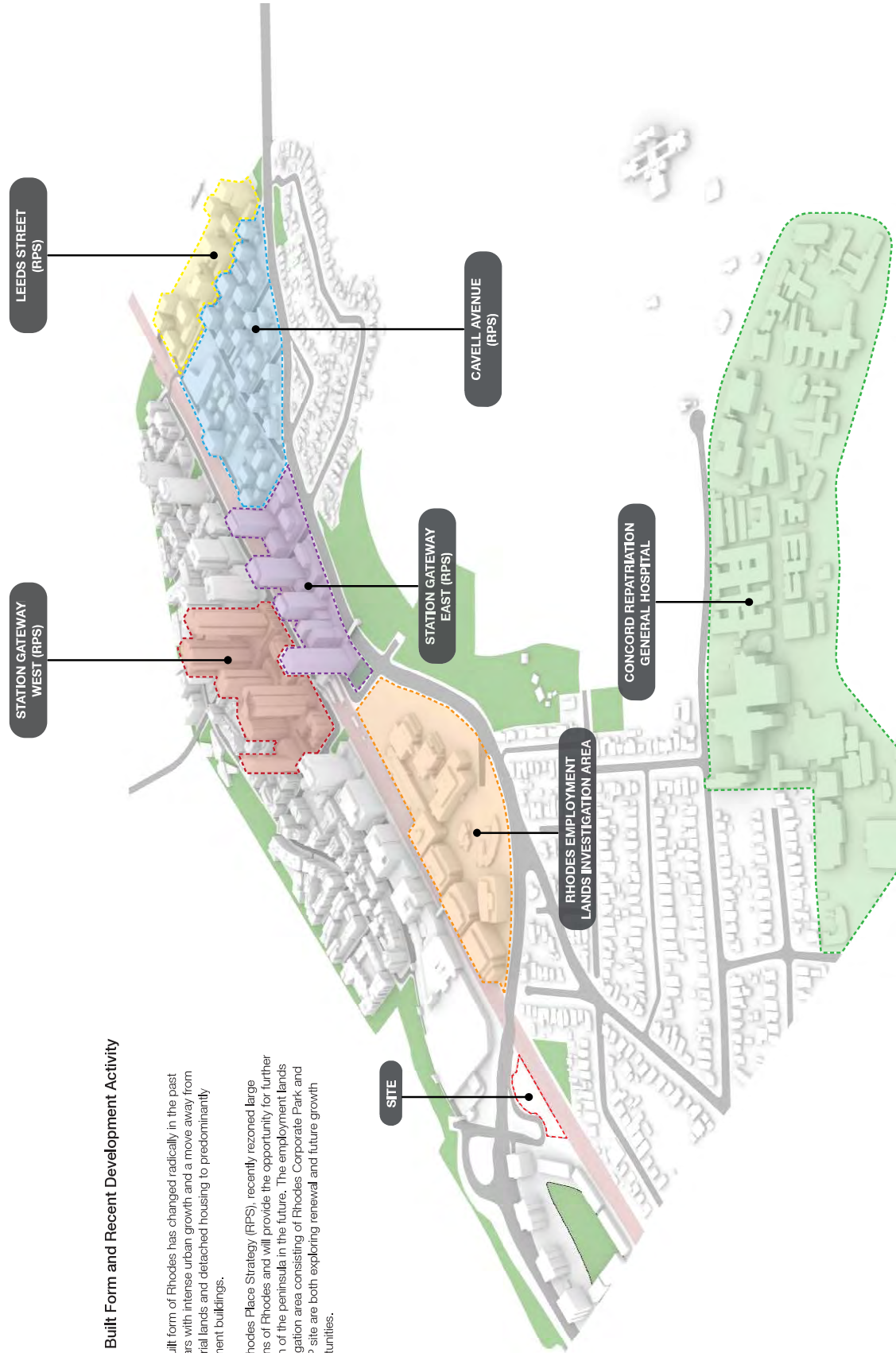
Oulton Avenue

## Site Analysis

### 3.8 Built Form and Recent Development Activity

The built form of Rhodes has changed radically in the past 10 years with intense urban growth and a move away from industrial lands and detached housing to predominantly apartment buildings.

The Rhodes Place Strategy (RPS), recently rezoned large sections of Rhodes and will provide the opportunity for further growth of the peninsula in the future. The employment lands investigation area consisting of Rhodes Corporate Park and the HP site are both exploring renewal and future growth opportunities.



## Site Analysis

### 3.9 Constraints

1. The site is surrounded by physical barriers including the rail line and Homebush Bay Drive that disconnect the site from its context
2. Noise from major roads and rail line (not only passenger line but also freight line)
3. Switch back ramp crossing occupies the western end of the site
4. There are no sight lines leading up to the site
5. Potential overshadowing of Liberty Grove and Concord West, including Multon Reserve
6. Impact of use on surrounding housing
7. Underpass located in the north of the site is currently in bad condition
8. Site access points are limited

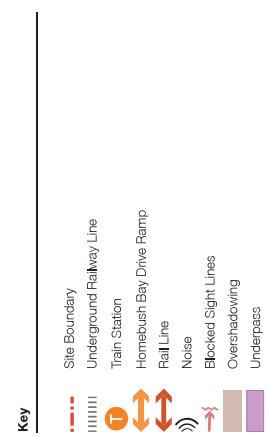


Figure 16: Opportunities

Oulton Avenue

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## Site Analysis

### 3.10 Opportunities

1. Potential to improve public domain and safety
2. Potential to improve safety and accessibility to reach rail overpass
3. Potential to extend and improve existing pedestrian and cycling paths
4. Potential to provide link between Liberty Grove and Rhodes Central
5. Potential to support the hospital precinct
6. Proximity to train station
7. Proximity to Rhodes and Concord West town centres
8. Proximity to retail (Rhodes Waterside Shopping Centre) and schools
9. Proximity to open space
10. Proximity to medium density residential
11. Site's existing height controls - 24m
12. Views over the wetlands and Bicentennial Park to the west and views to the city to the east
13. Potential to increase affordable housing in the area
14. Potential to improve quality of switch-back ramp
15. Potential to improve quality and safety of the underpass located in the north of the site

#### Key

- Site Boundary
- Underground Railway Line
- Train Station
- Public domain
- Rail Overpass
- Cycling and Pedestrian Pathways Extension
- Link
- Hospital Precinct
- Town Centre
- Shopping Centre
- School
- Open green space
- Medium density housing
- Views

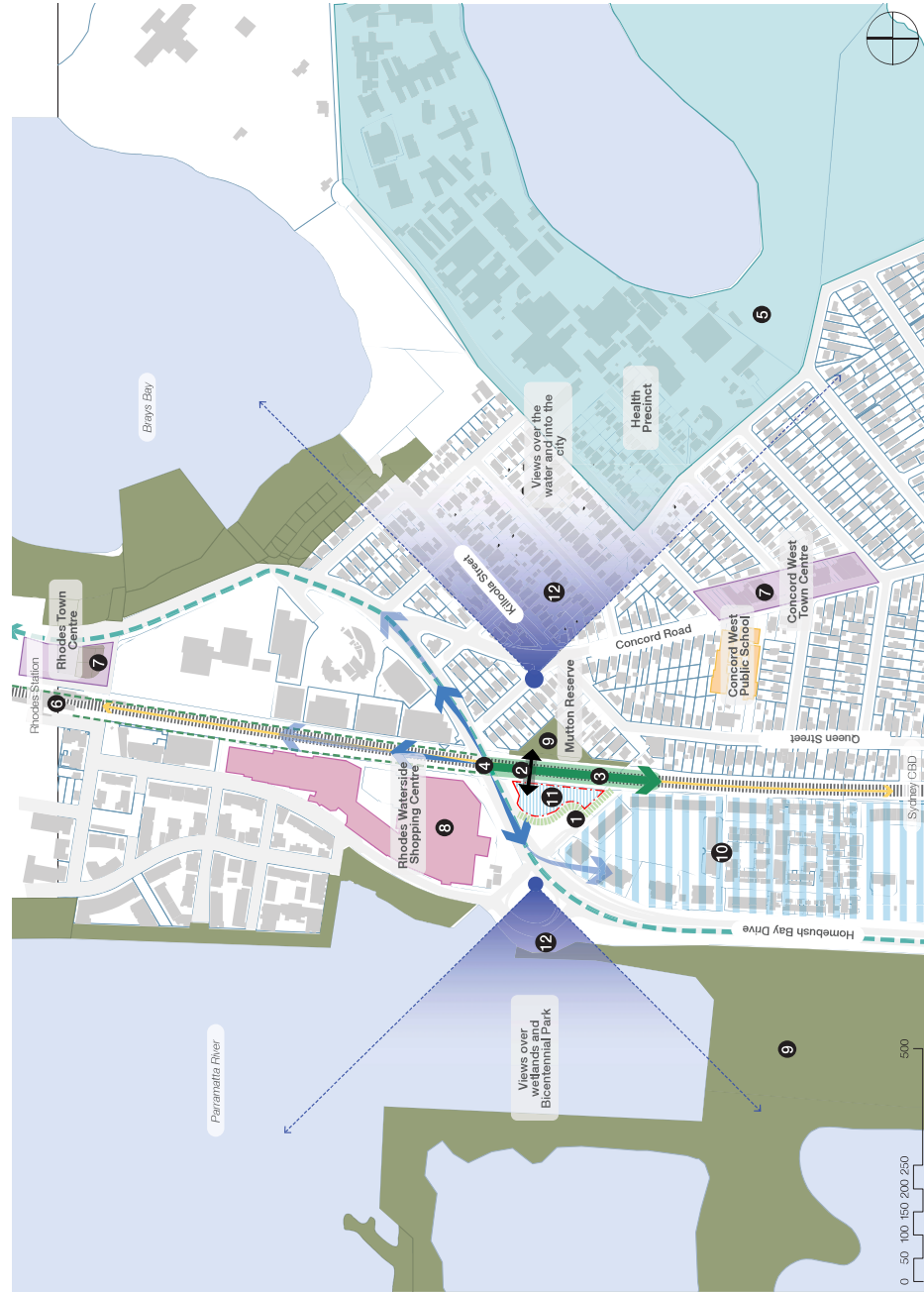


Figure 17: Opportunities

Oulton Avenue

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# 4

## Vision and Principles



## Vision and Principles

### 4.1 Vision

“To create a vibrant, well connected and high quality residential development which supports Council’s vision for increased housing diversity in the Rhodes Peninsula. To minimise the impacts of challenging interfaces and improve the public domain in order to create a comfortable, safe and activated development which benefits both residents and the local community.”



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## Vision and Principles

### 4.2 Project Objectives

Eight project objectives have been distilled from the findings of the strategic and context analysis:



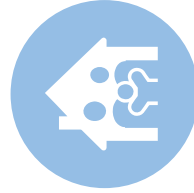
#### Improvement of Public Domain

Existing pedestrian and cycle connections through the site can be improved to create better public amenity and link existing public open spaces.



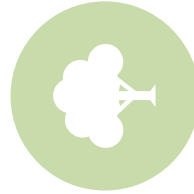
#### Safety & Activation

Activations that encourage a feeling of safety when entering and passing the site should be evident. Passive surveillance gained from a lobby or common areas along with clear lines of sight and well lit passages can make users feel safer and dissuade poor behaviour.



#### Affordable Housing

Encouraging a mix of residents in the Rhodes and Concord West area to create a more integrated and diverse society. Providing homes for key workers within the precinct including health workers and encouraging a mixture of household types activate the area throughout the day.



#### Greening

Maximising green space within the development is a priority including providing communal open space.



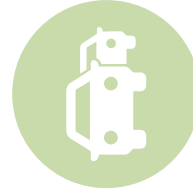
#### Contribution to Rhodes skyline

Rhodes skyline is an important urban marker and identifier. The development can extend that skyline across Homebush Bay Drive to create a southern gateway to the precinct.



#### Amenity

Impacts on amenity to both the development and its surroundings should be minimised. This includes solar access, visual impacts, acoustic impacts and air quality.



#### Accommodating Traffic and Access

Traffic and access to the site should be carefully considered to minimise impact on surrounding networks.



#### Dealing with our Interfaces

Interfaces on lower levels with Homebush Bay Drive and the rail corridor create increased acoustic and air pollution.

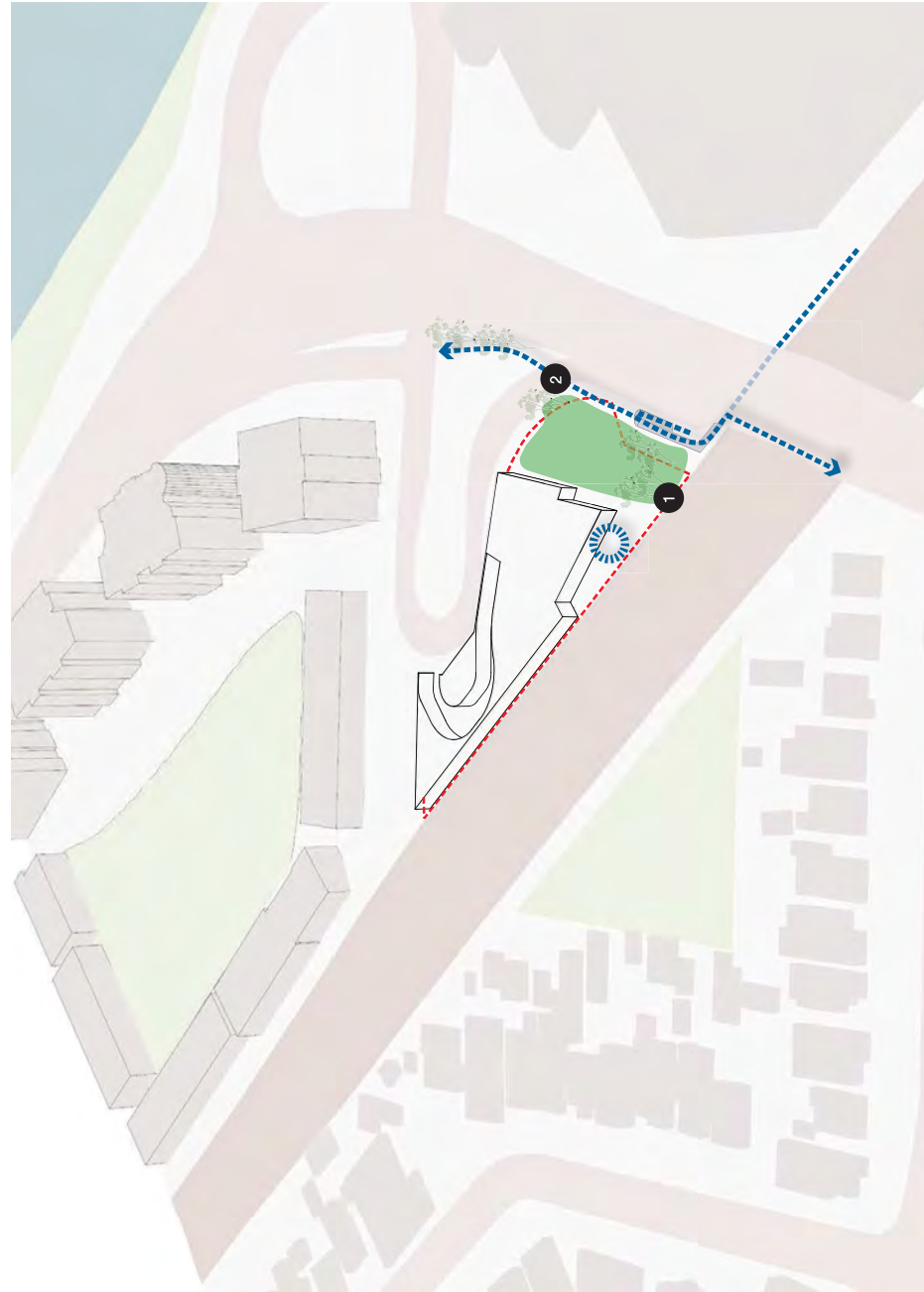


## Vision and Principles

### 4.3 Improvement of Public Domain and Pedestrian Experience

The development has an opportunity to improve the public domain surrounding the site. The northern boundary is adjacent to an established pedestrian and cycle connection. This connection links Liberty Grove with Rhodes Station and Concord West. It is highly used by school children and commuters. The public domain and pedestrian experience is in need of improvements to ensure a positive experience for users. Improvement of the public domain will create an opportunity for activation and play both for future residents and existing users.

1. Opportunity for pocket park within subject site with good solar access and passive surveillance.
2. Activating the existing pedestrian connection below Homebush Bay Drive with planting and street furniture will create better amenity for residents and other local users.

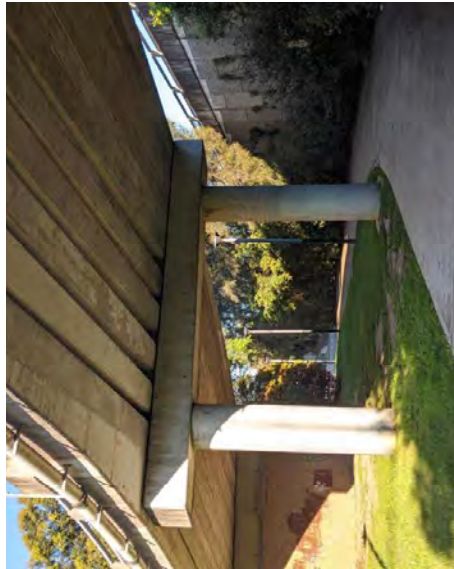




### Vision and Principles

The existing condition below highlights the need for improvements of the public domain including planting, street furniture and better lighting.

#### Existing Condition



Existing condition - Below off-ramp



Existing condition - Below off-ramp

The precedents below demonstrate how the use of street furniture can be used to activate the public domain and create spaces for people to linger.

#### Precedents





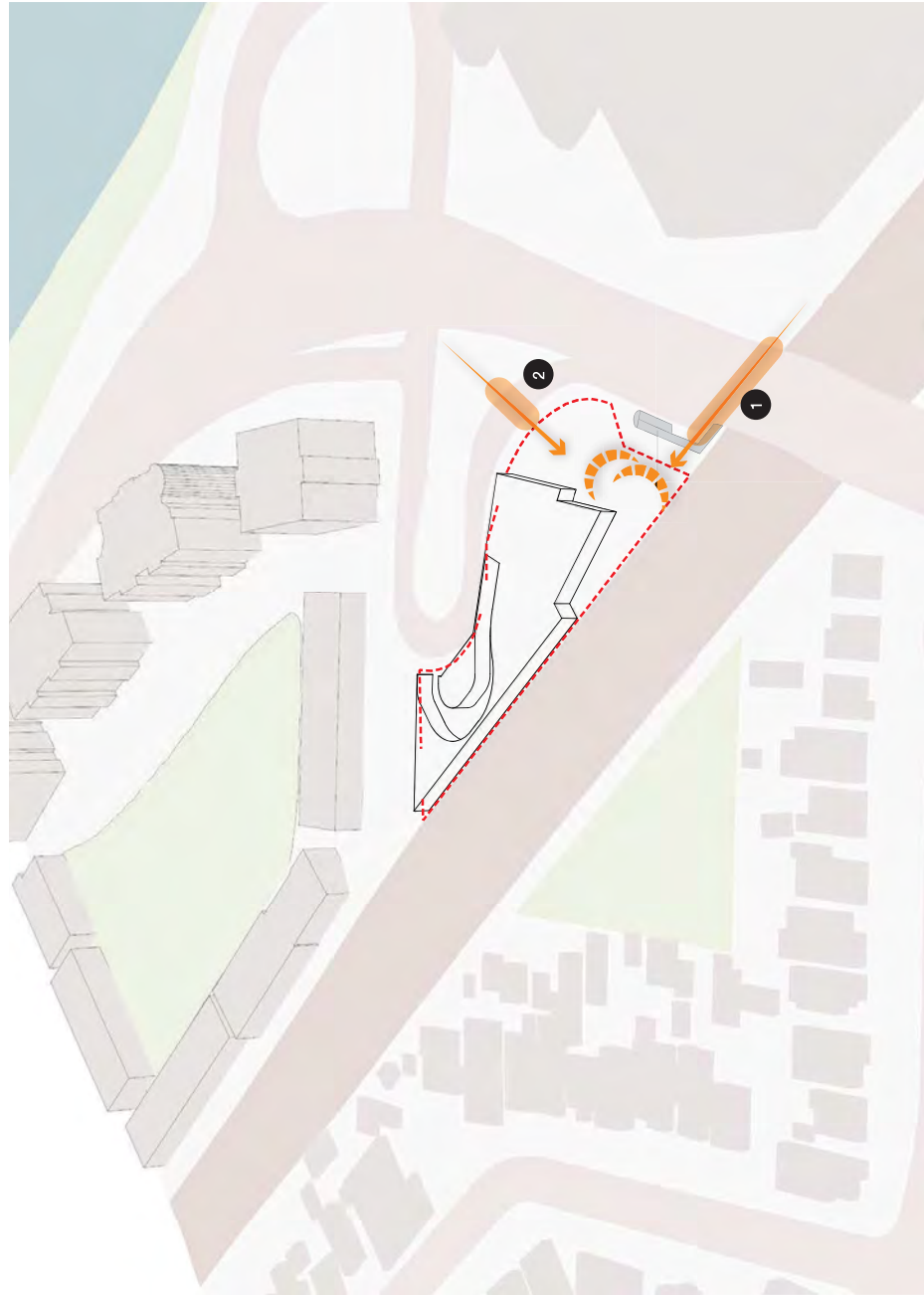


## Vision and Principles

### 4.4 Safety & Activation

The existing condition of the site does not facilitate activation or a sense of safety. Considered design solutions which encourage a feeling of safety when entering and passing through the site are a key focus. Passive surveillance of the public domain from both residents and lobby spaces as well as clear lines of sight create safer and more welcoming open space.

1. The existing underpass connecting Rhodes Station under Homebush Bay Drive has limited lines of sight and poor lighting. Opportunities to improve that will assist in better connecting the site to Rhodes town centre and train station.
2. Current lack of landscaping and street furniture as part of the pedestrian and cycle link along the edge of the site limit activation and discourage the use of the open space.





### Vision and Principles

The existing condition lacks clear lines of sight or passive surveillance which create spaces that are unsafe, particularly at night.

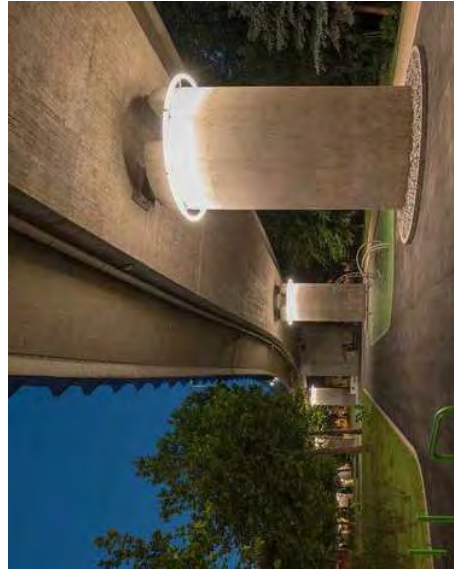
#### Existing Condition



Homebush Bay Drive underpass

Lighting solutions, public art and creative activation of underpasses contribute to improvements to a sense of safety in public spaces.

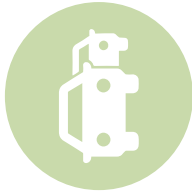
#### Precedents



Below off-ramp

Oulton Avenue

SJB

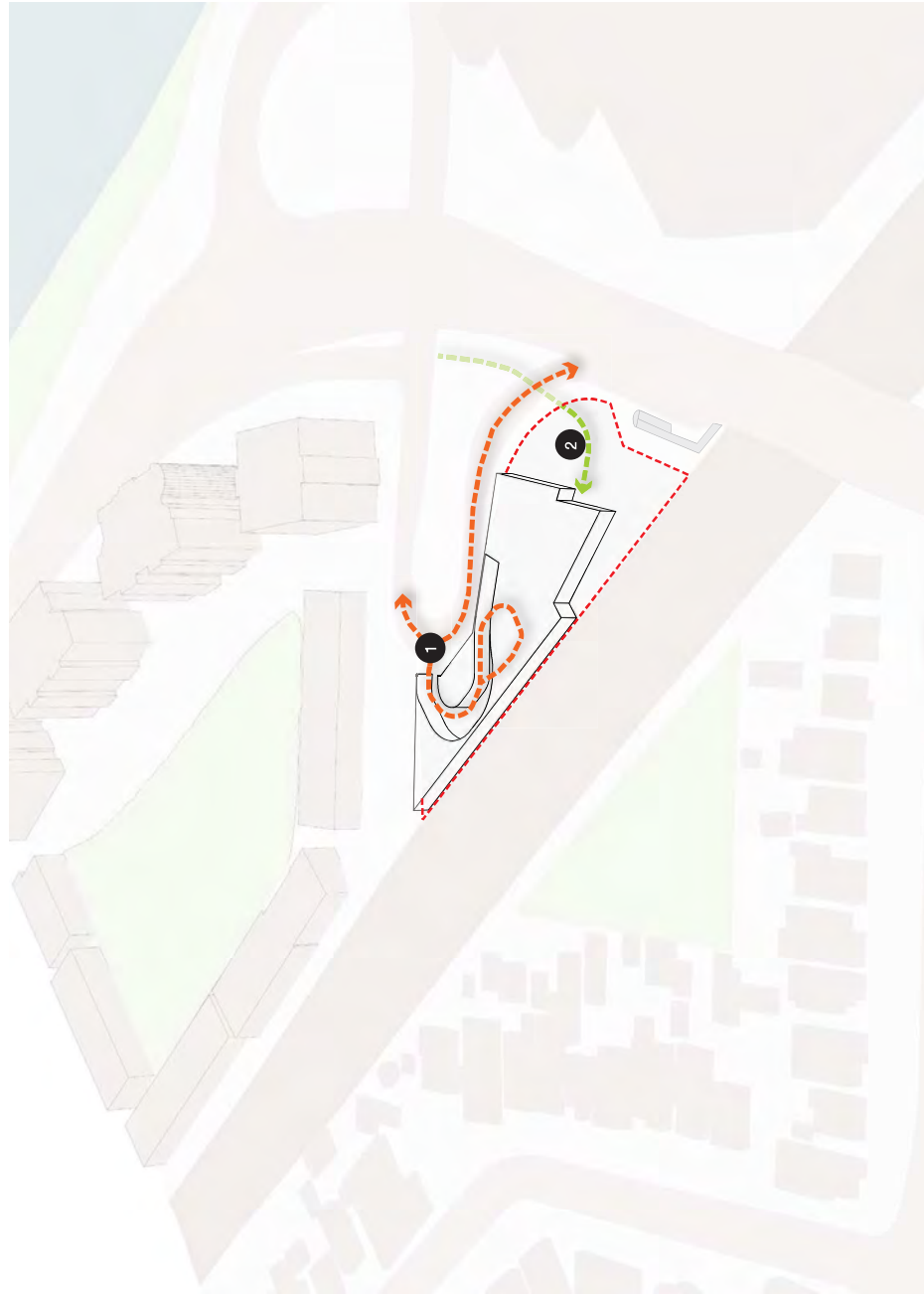


## Vision and Principles

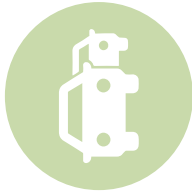
### 4.5 Accommodating Traffic and Access

Safe and efficient access to the site is a key consideration in the design proposal. Existing access to the site is limited to pedestrian connections under the Homebush Bay Drive off-ramp and through the existing underpass to Rhodes Station.

1. Vehicular access to parking and drop off bay will be provided from the off ramp
2. Pedestrian access to the development will be from Oulton Avenue through site link running under the off-ramp







### Vision and Principles

There is no existing vehicular access to the site, with access only via pedestrian connections to Oulton Avenue.

#### Existing Condition



Oulton Avenue



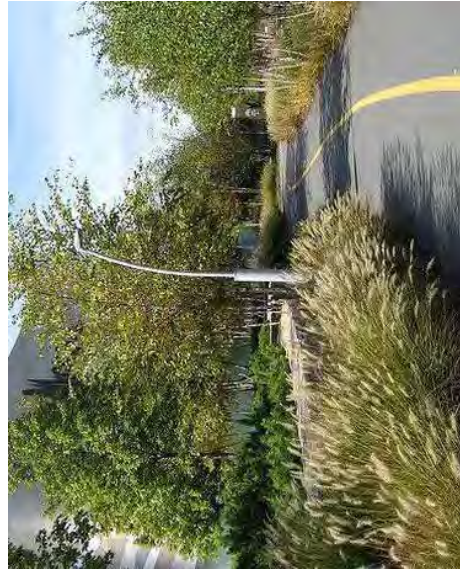
Existing pedestrian path

SJB

Oulton Avenue

Improving the existing pedestrian and cycle connection and integrating traffic calming measures will create a safe experience for all users.

#### Precedents



36

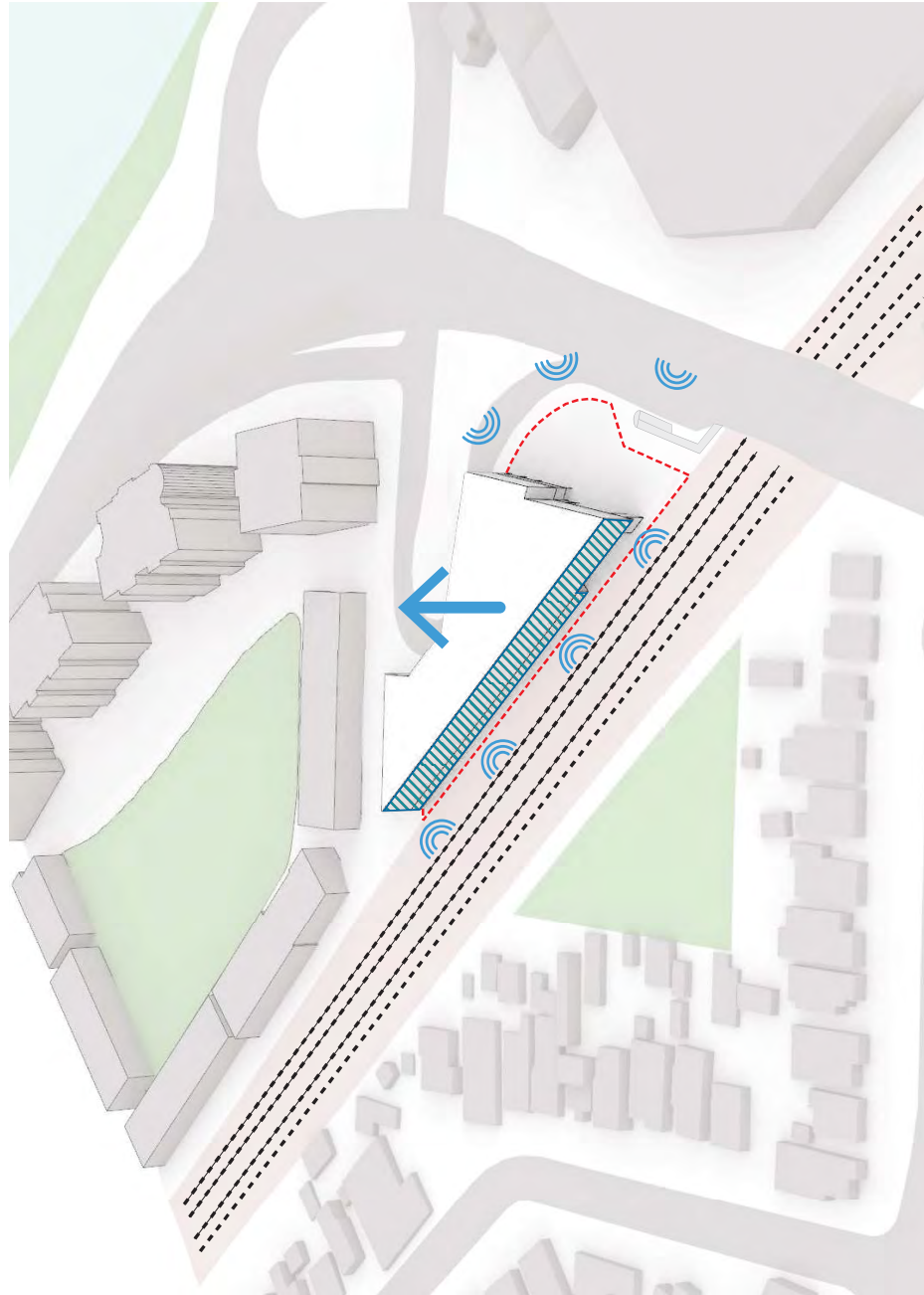


## Vision and Principles

### 4.6 Responding positively to different interface conditions

The site has a number of key interfaces which have a significant impact on the development of the site. Impacts of noise and air pollution from the rail corridor and Hornebush Bay Drive can be minimised through design solutions.

Raising the podium to contain parking above-ground allows the residential development to sit above the level of the motorway. Screening and other architectural responses will seek to minimise the appearance of the parking levels when viewed from ground. Winter gardens may be utilised to reduced the impact on individual units.







## Vision and Principles

The existing interfaces with Homebush Bay Drive and the rail corridor create a challenge and opportunity requiring creative design solutions.

### Existing Condition



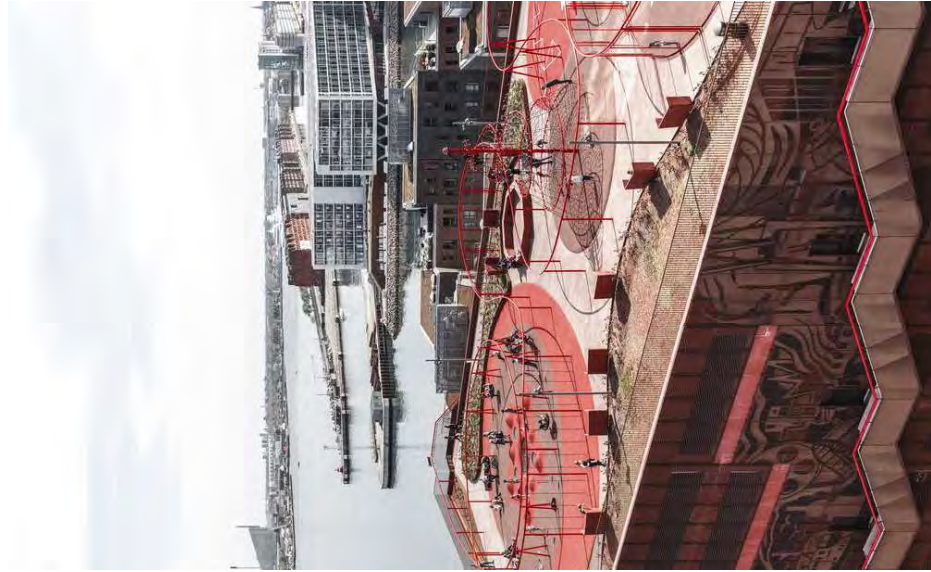
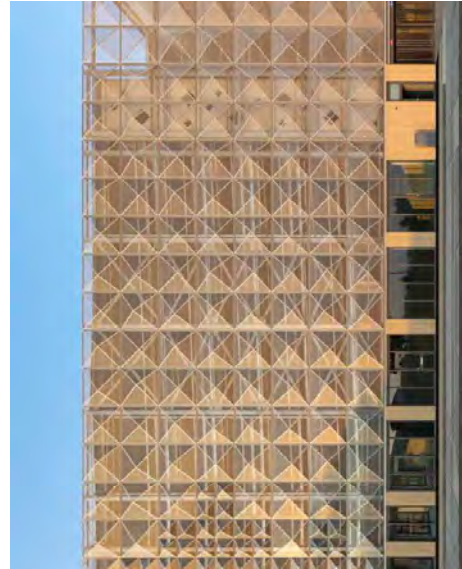
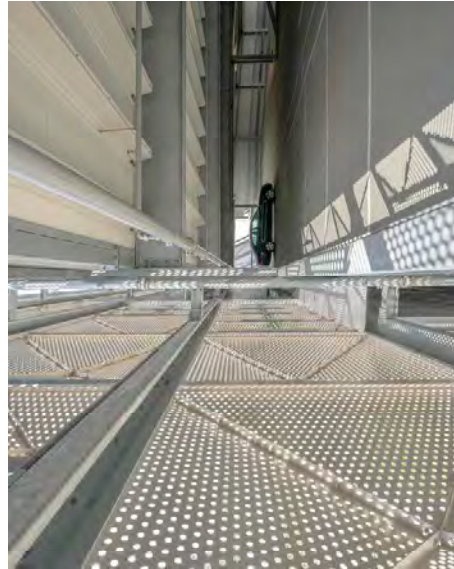
Interface of site and rail corridor



SJB

Above ground car parking within the podium can reduce the impact of challenging interfaces. Creative screening solutions and art treatments of this work to improve the visual impact for passers-by.

### Precedents



Oulton Avenue

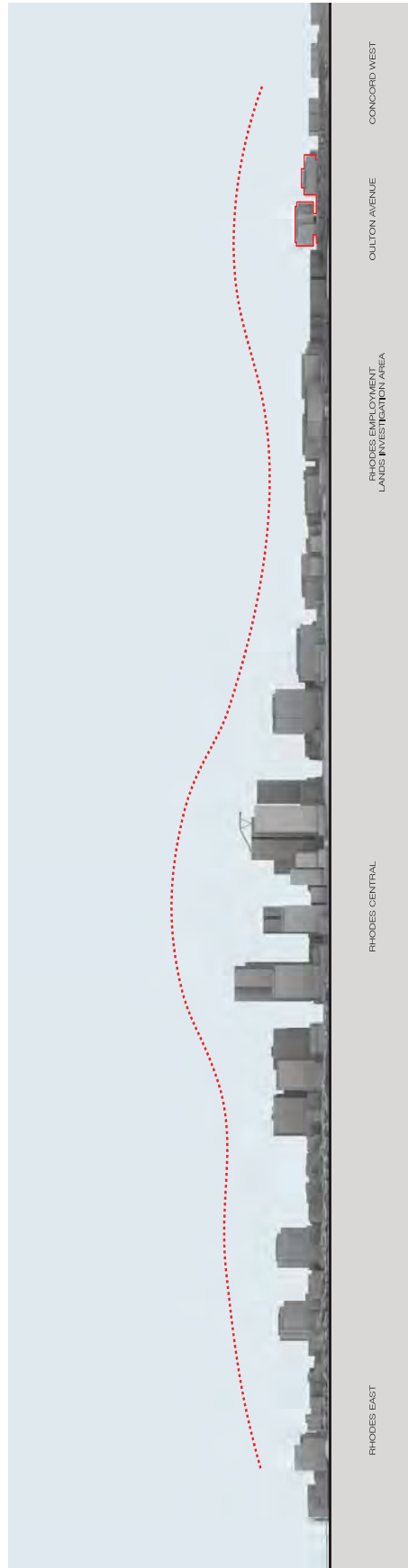


## Vision and Principles

### 4.7 Contribution to Rhodes Skyline

Rhodes skyline is an important urban marker and identifier. Rhodes West has been established as the apex of this skyline with future proposals for Rhodes East increasing the heights of built form at the top of the peninsula.

Potential future development within Rhodes Corporate Park and the HP site will extend this skyline to Homebush Bay Drive. The development will provide a southern anchor for the redevelopment of Rhodes.



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Oulton Avenue

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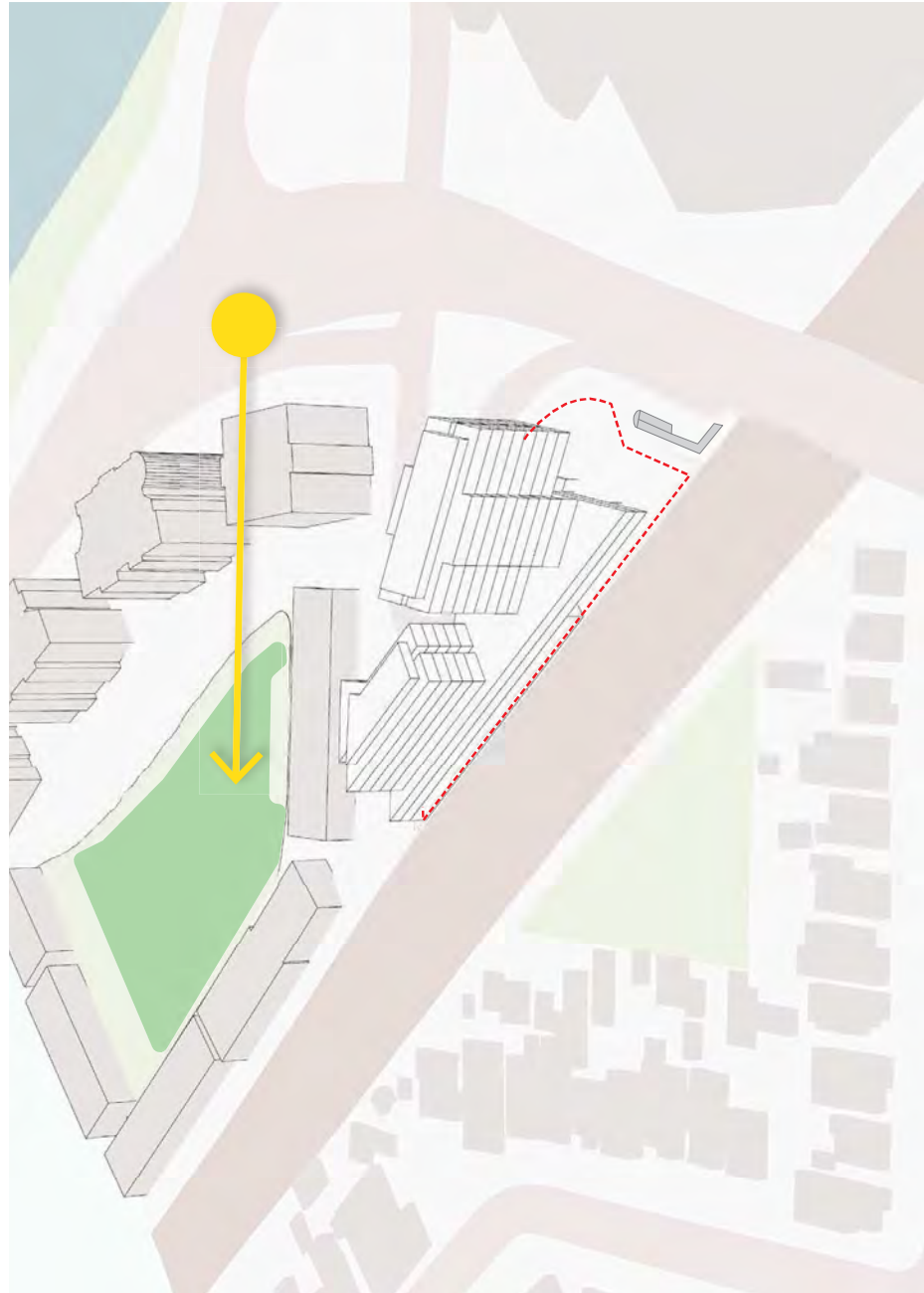


## Vision and Principles

The Rhodes Precinct was rezoned in October 2021 following the finalisation of the Rhodes Place Strategy, this provides for significant uplift in Rhodes East following earlier rezoning and subsequent uplift in Rhodes Central and West. It demonstrates the strategic significance and forecast growth for the Rhodes Peninsula.

### Rhodes East Place Strategy





4.1

Children's Amenity

## Vision and Principles

### 4.8 Amenity

Amenity is a key principle for the development considering the constraints of the site. The balance is achieving good amenity for the residents whilst minimising impacts to surrounding neighbours.

Amenity to residents including good solar access, high quality common areas and cross-ventilation are prioritised through architectural solutions such as winter gardens, sun shading, screening and greening to mitigate the impacts of a constrained site.

Impacts to the existing amenity of neighbours should be minimised through careful consideration of built form and testing of solar and visual impacts.

4.10





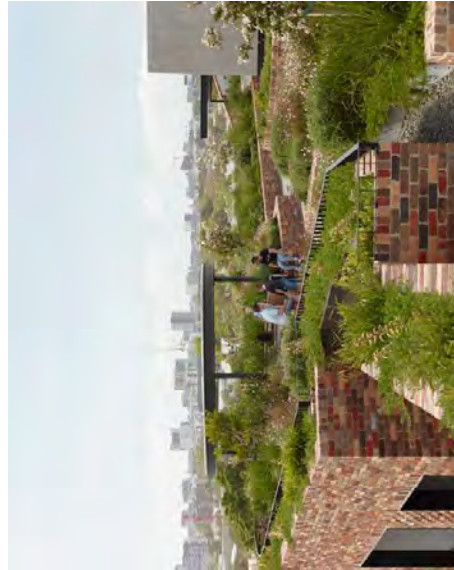
## Vision and Principles

The following precedents demonstrate methods used to improve amenity for residents within a constrained site; this could include a landscaped podium, high quality common areas and winter gardens.

### Precedents

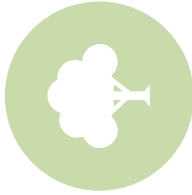


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Oulton Avenue

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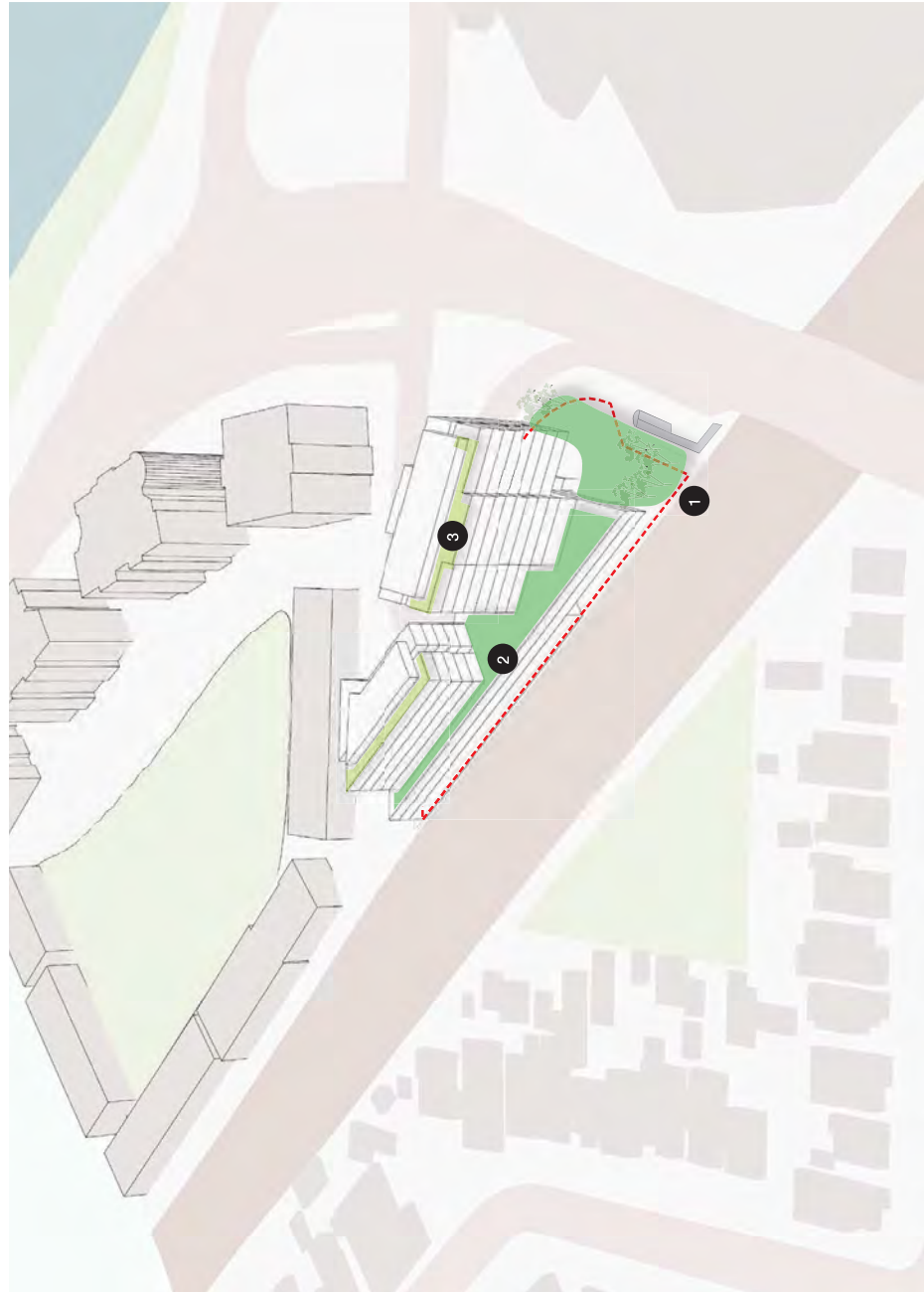


## Vision and Principles

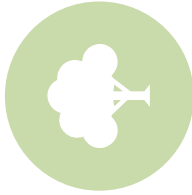
### 4.9 Greening

Creating high quality green spaces within the development will be an important factor in mitigating the impacts of challenging interfaces and seamlessly integrating with the adjacent public domain.

1. A landscaped ground plane which improves the existing pedestrian and cycle connections to Rhodes Station and Liberty Grove
2. Landscaped podium with shared amenity for residents
3. Opportunities of greening of the tower rooftops







## Vision and Principles

The precedents highlight the potential methods of greening used at multiple levels within the development including the ground plane, podium domain interface, podium common areas and rooftops.

### Precedents

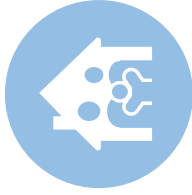


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Oulton Avenue

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## Vision and Principles

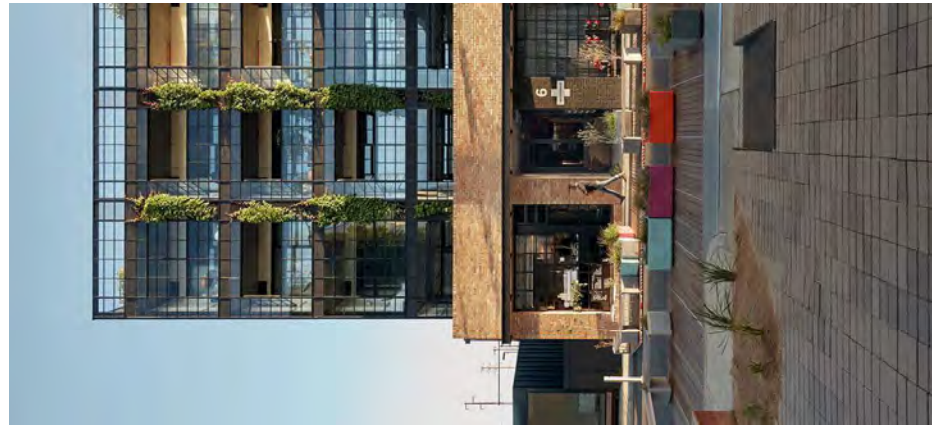
### 4.10 Affordable Housing

The strategic vision for Rhodes as a Health and Education Precinct strengthens the needs for housing diversity within the area. The site's location on the edge of both the housing diversity investigation area and the Health Precinct provide an opportunity for a well-connected development serving both Rhodes and the Concord Hospital health precinct.

The development proposal will incorporate affordable housing and will align with Council's Affordable Housing Policy particularly in relation to targeted employment sectors.

The design will ensure the affordable housing units are indiscernible from the remaining units with high quality, robust materials used to ensure that the building requires low maintenance and has a long life-span.

#### Precedents



Nightingale 1, Breathe Architecture

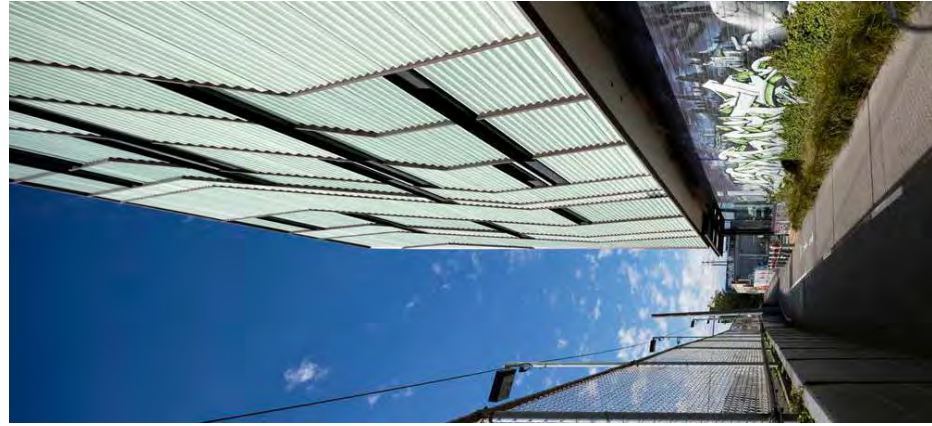
Oulton Avenue



The Commons, Breathe Architecture



The Commons, Breathe Architecture



The Commons, Breathe Architecture

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5

**Massing Refinement**

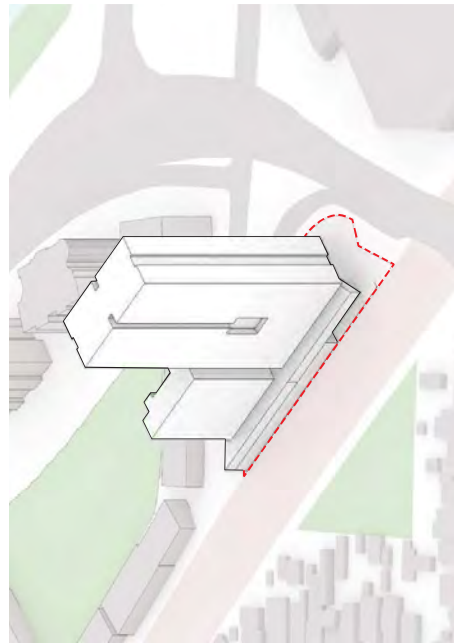


## Massing Refinement

### 5.1 Massing Studies

The scheme underwent an iterative design process to ensure that it met the aims of the project objectives. Each version was tested with a particular focus on amenity and impact.

The proposed massing demonstrated in the reference scheme clearly showed a lessened impact on neighbours whilst still achieving good amenity for residents. Shadow analysis on the following page compares the initial massing with the refined scheme.



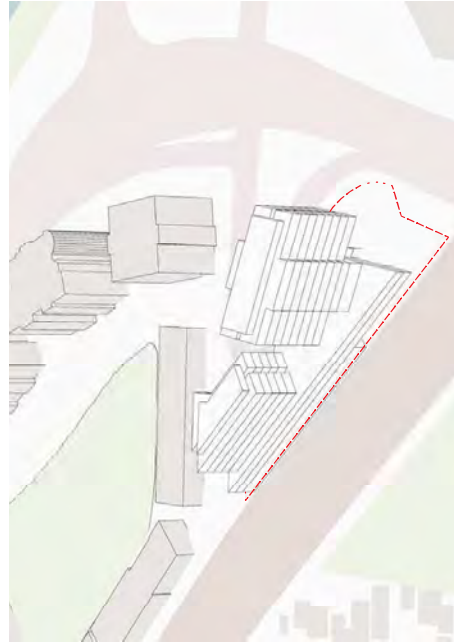
Initial Massing

#### Pros

- Creates a gateway site to anchor the southern end of the Rhodes Peninsula.
- Orientated north-south to maximise solar access to all apartments.

#### Cons

- Height of the main tower has too much impact on neighbouring existing developments including Liberty Grove and Bradley Reserve.
- Bulk and scale of development is out of proportion to surrounding built form.



Proposed Massing

#### Pros

- Creates a gateway site to anchor the southern end of the Rhodes Peninsula.
- Shorter towers will improve solar access to surrounding development.
- Visual impacts of the development are lessened by reduced bulk and scale.
- Dual aspect floor plate in the shorter tower.

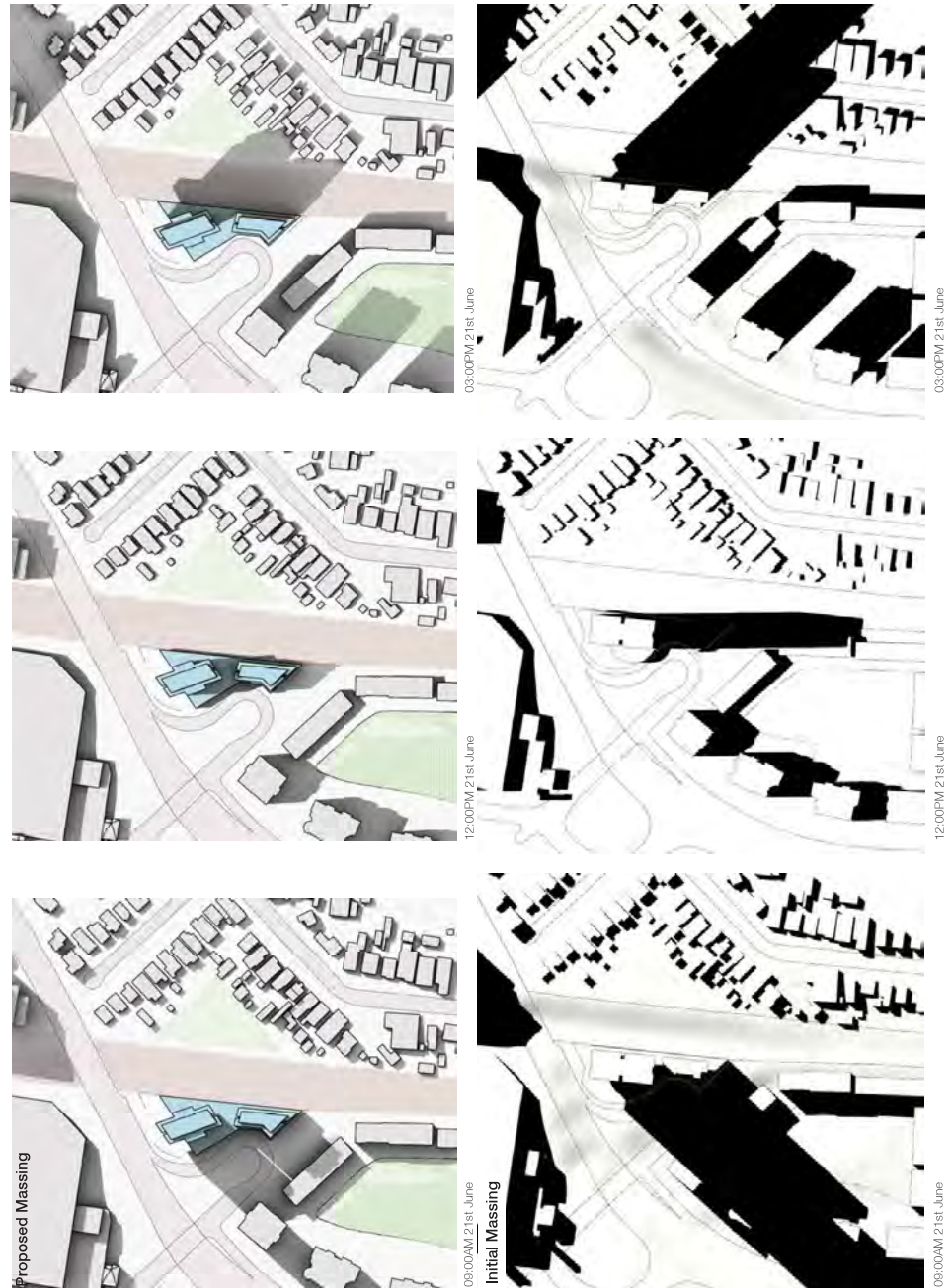
#### Cons

- Less efficient floorplate

## Massing Refinement

### 5.2 Shadow Analysis

A comparison of the shadow studies from the initial and proposed massing indicates a reduced impact due to the smaller building footprints and lower height. The reduced height of the proposed massing has significant less impact on the existing residential.



6

**Reference Scheme**

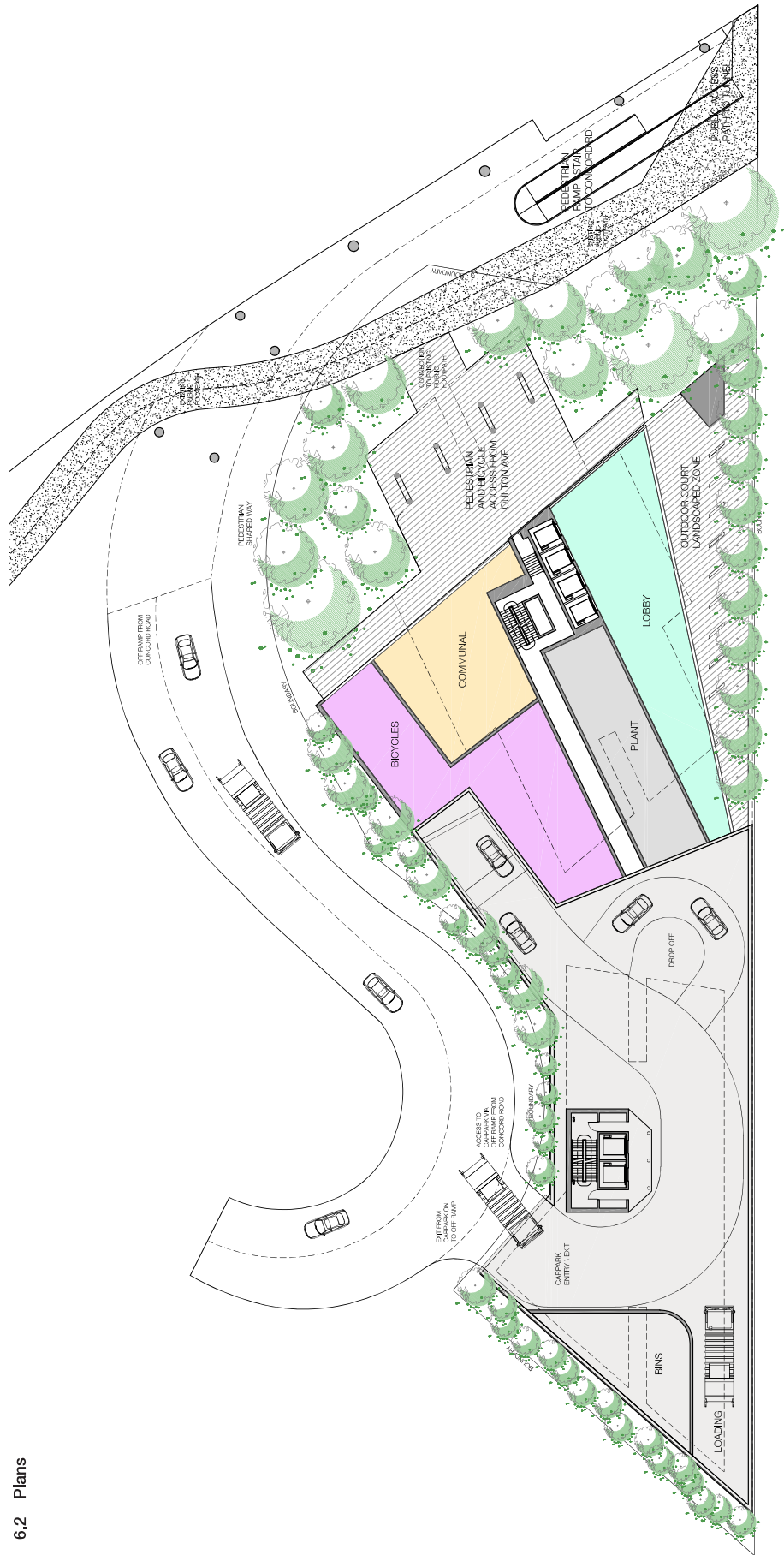
## Reference Scheme

### 6.1 3D Massing



Reference Scheme

6.2 Plans



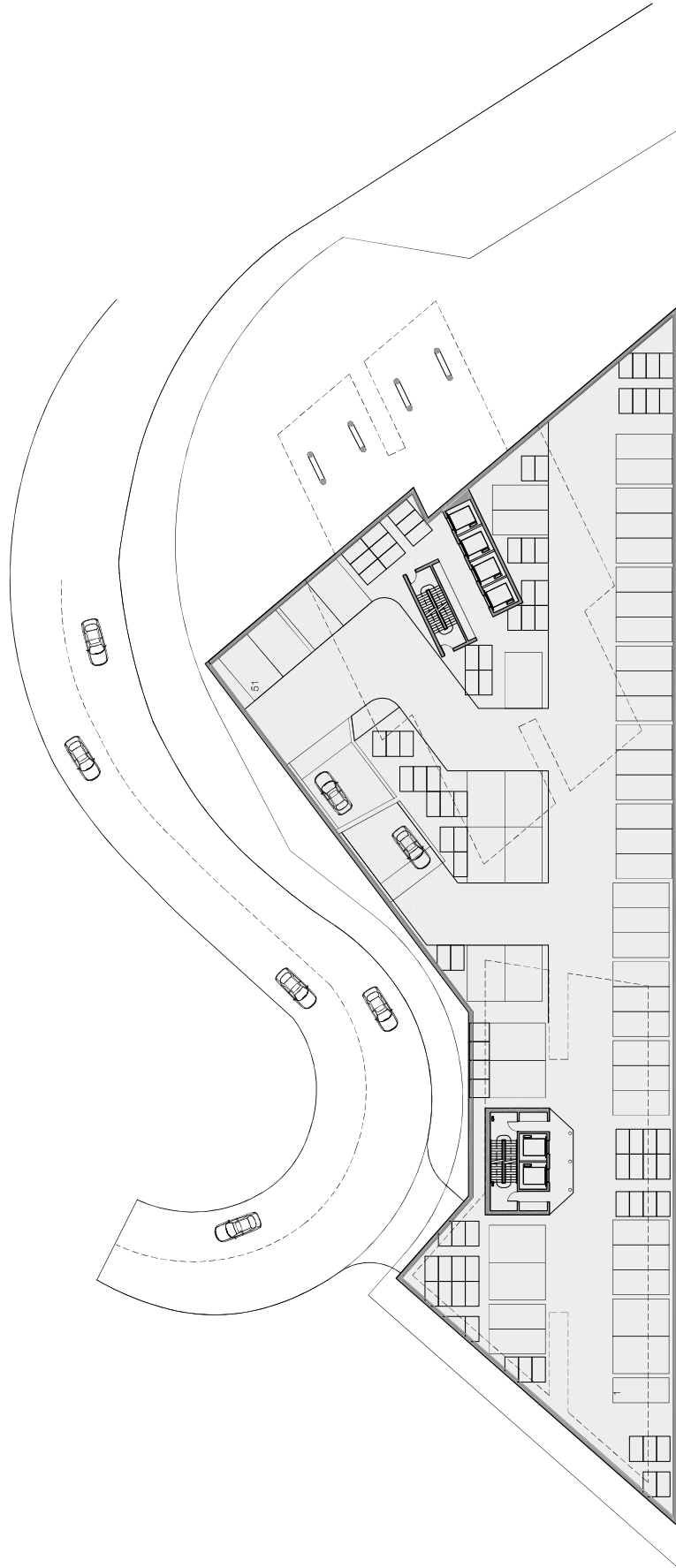
LEVEL 01

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Oulton Avenue



Reference Scheme



LEVELS 02 - 03

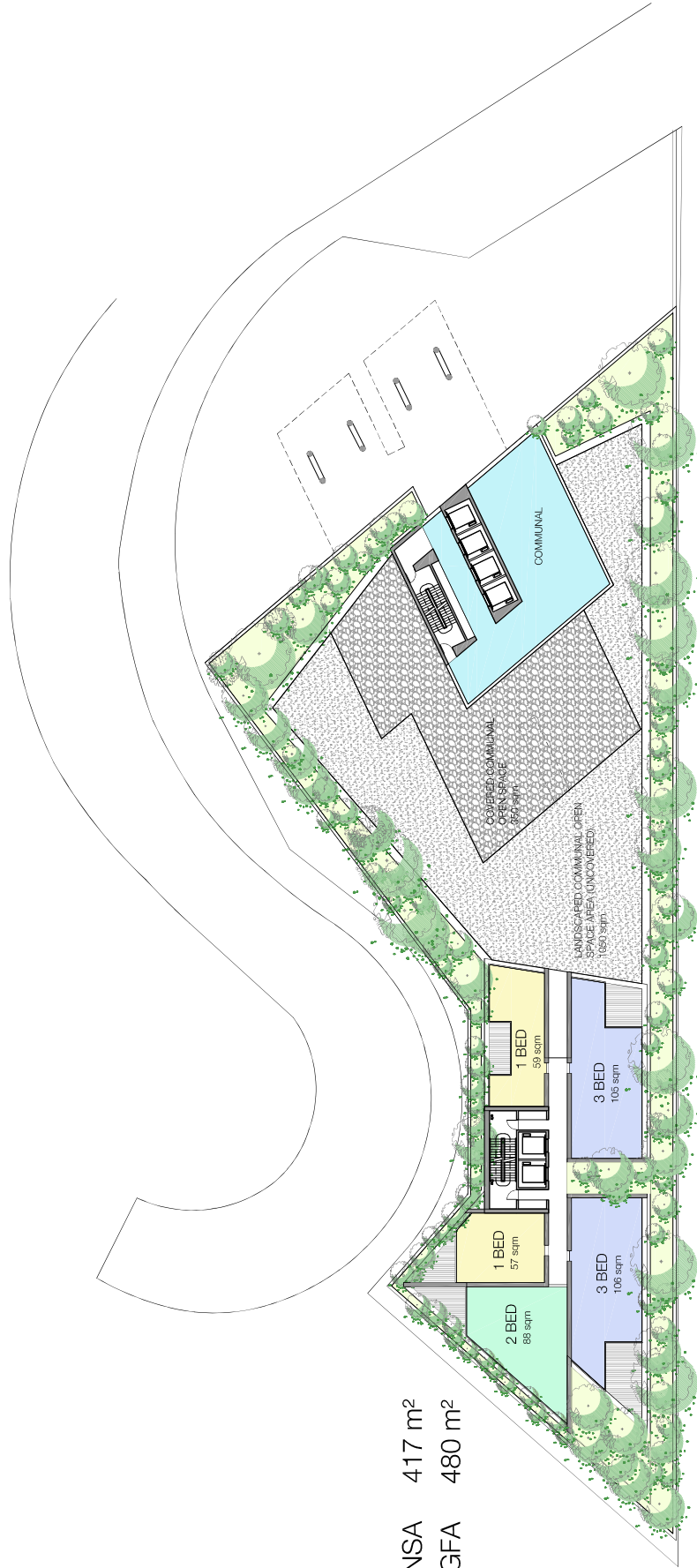
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0 5m 20m 50m

Reference Scheme

NSA 417 m<sup>2</sup>  
GFA 480 m<sup>2</sup>



LEVEL 04

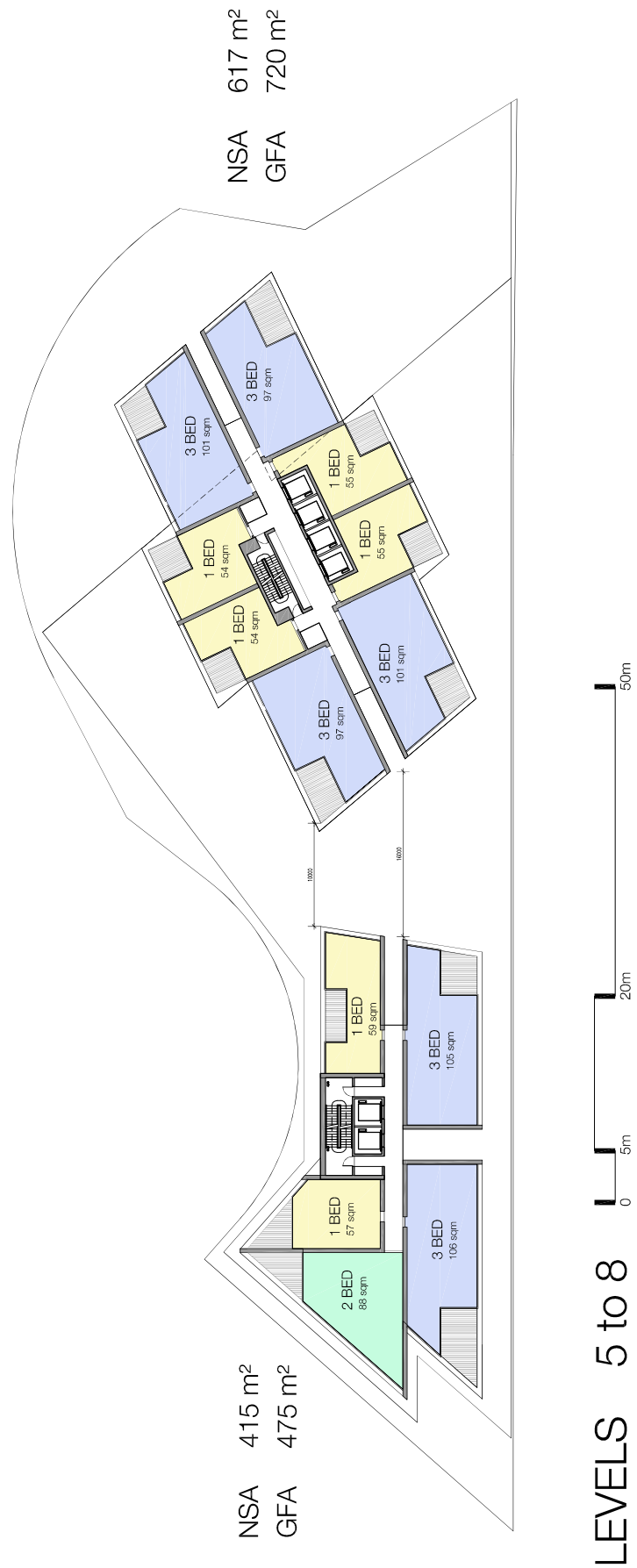


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**Reference Scheme**

Low Rise



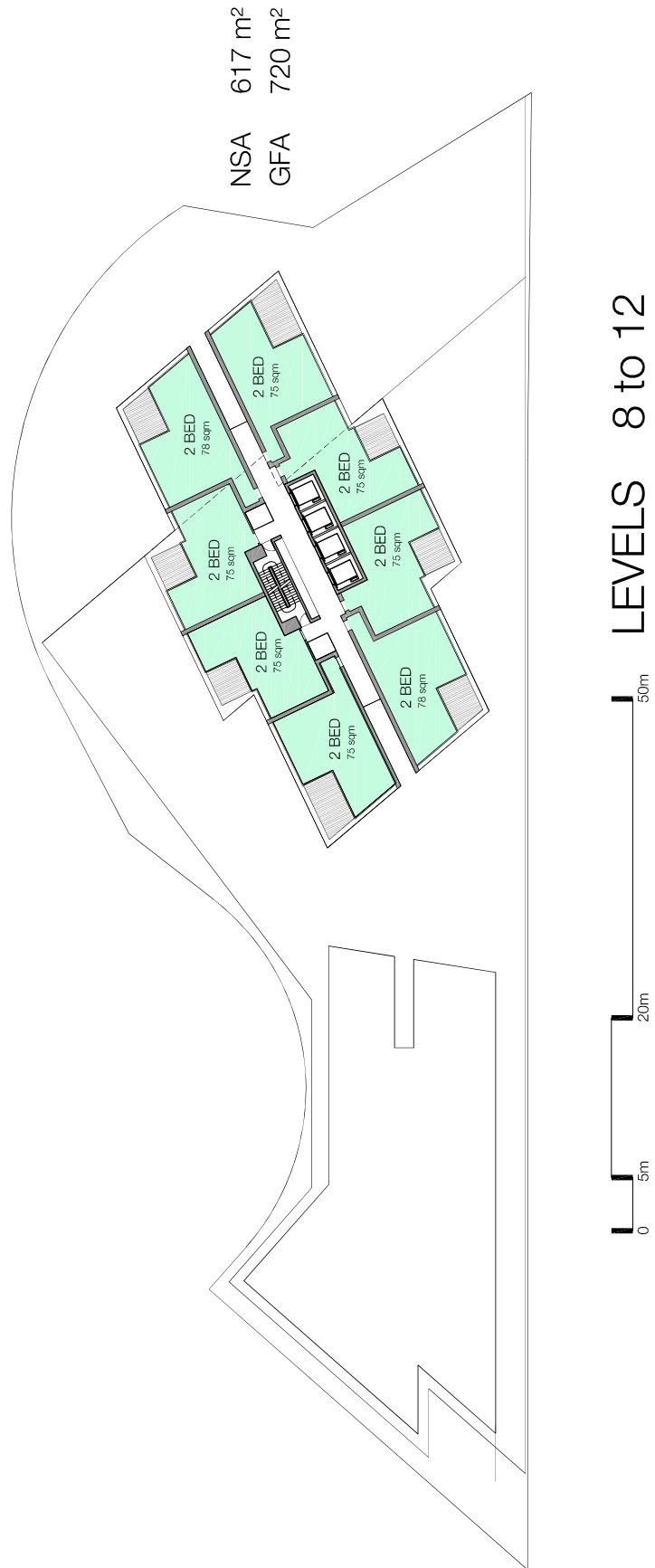
LEVELS 5 to 8

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Reference Scheme

High Rise

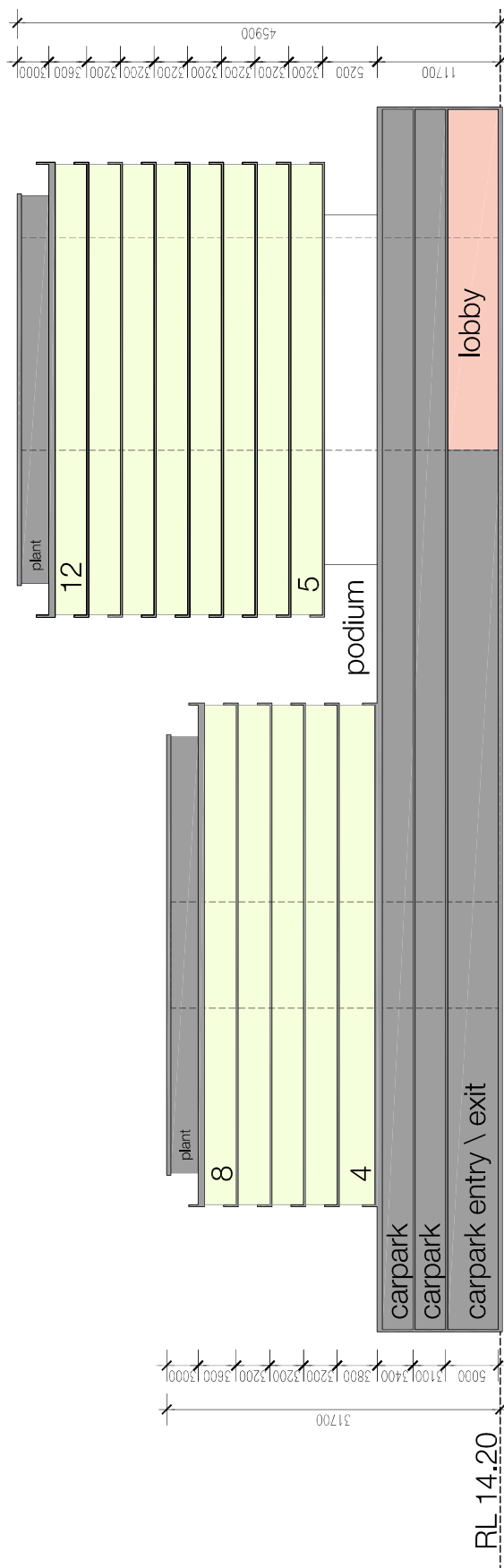


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### 6.3 Sections



## SECTION 01



## Reference Scheme

## 6.4 Area schedule

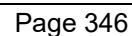
[illegible]

Oulton Avenue

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7

**Landscape Concept Design**









### Groundcovers / Climbers / Aquatics



drawing title  
**Planting Palette**  
scale  
NTS @ A3



8

**Environmental Assessment**

## Environmental Assessment

### 8.1 Shadow Analysis

A comparison of the shadow studies from the initial and proposed massing indicates a reduced impact due to the smaller building footprints and lower height. The reduced height is clearly evident at 12:00pm where the eastern apartments of Liberty Grove have had almost all impact removed.



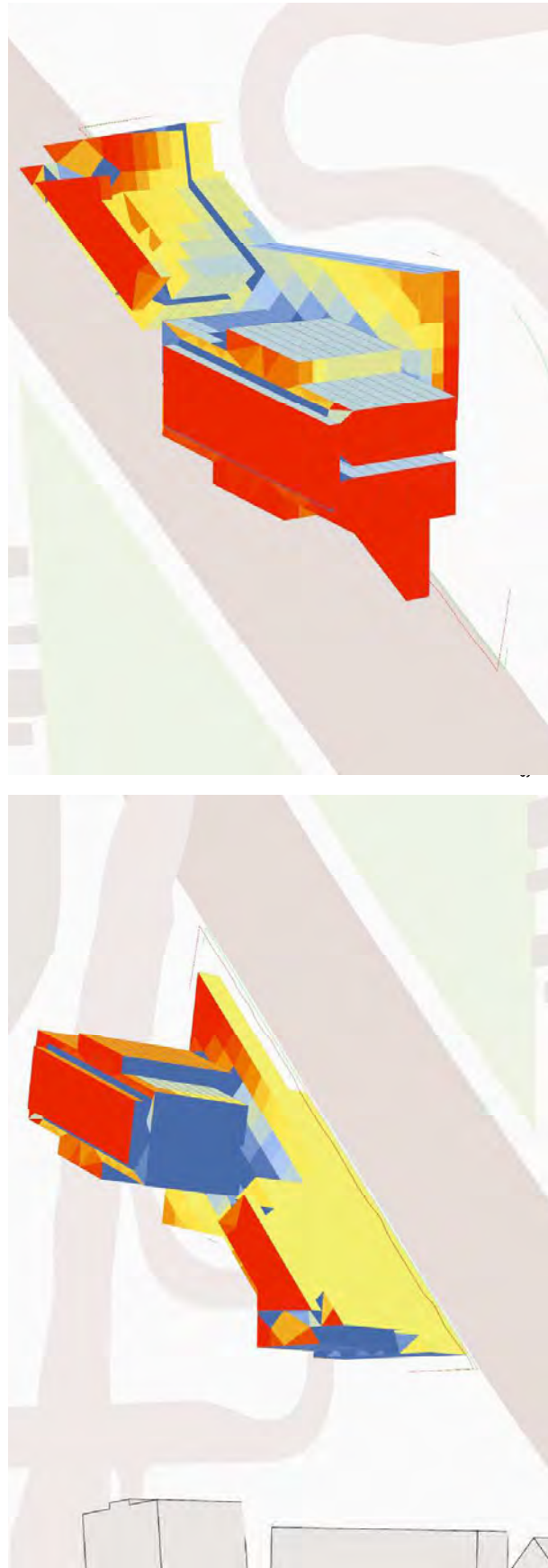
62

Charm Avenue

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Environmental Assessment

8.2 Solar Insolation



Solar insolation studies of the development demonstrate that solar access particularly to the towers is driven by orientation of the built form rather than impacts from neighbours. The eastern, northern and most of the western facades achieve a minimum of 2 hours of solar access.

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**Environmental Assessment**

**8.3 Solar Insolation - Impact to Liberty Grove**



Existing Condition

Solar insolation analysis no impact to the eastern facades of the apartment buildings in Liberty Grove.



Proposed Development

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Oulton Avenue

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Environmental Assessment



Existing Condition

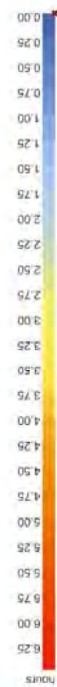
Solar insolation analysis indicates some impact to the northern facade of two apartment buildings in Liberty Grove. Whilst they are impacted, the facades would still receive more than 2 hours of solar access.

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Proposed Development



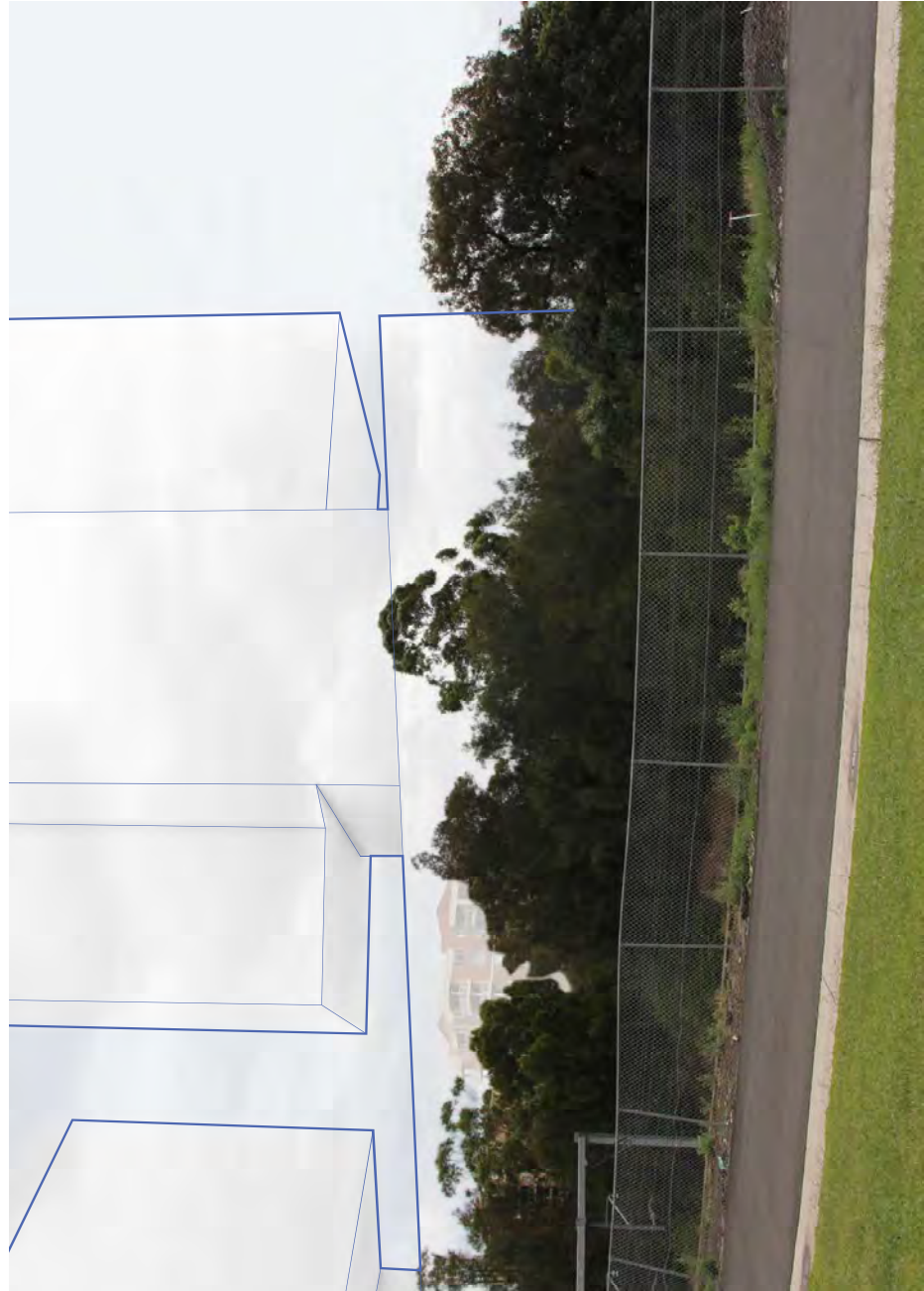
66



## Environmental Assessment

### 8.4 View Analysis

View analysis demonstrating the visual impact of the proposed development from Mutton Reserve in Concord West.



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Children's Services

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## Environmental Assessment

View analysis demonstrating the visual impact of the proposed development from Brays Bay Reserve in Concord West.



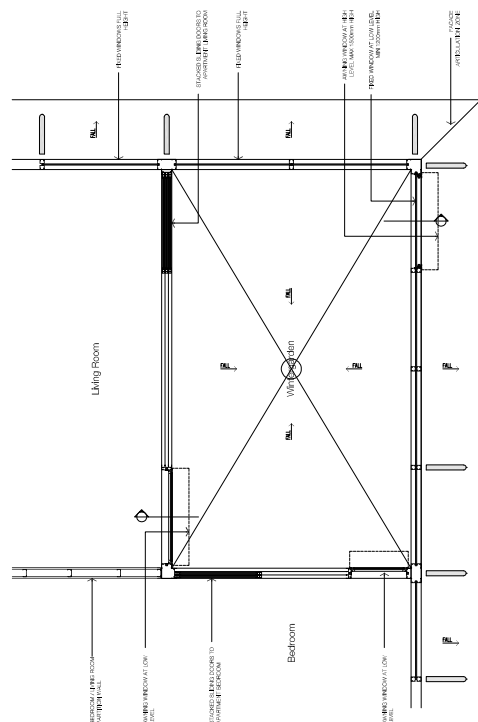
69

Children's Services

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## Environmental Assessment

### 8.5 Acoustic Treatment

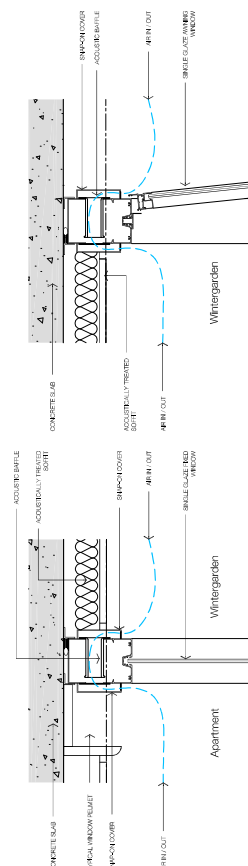
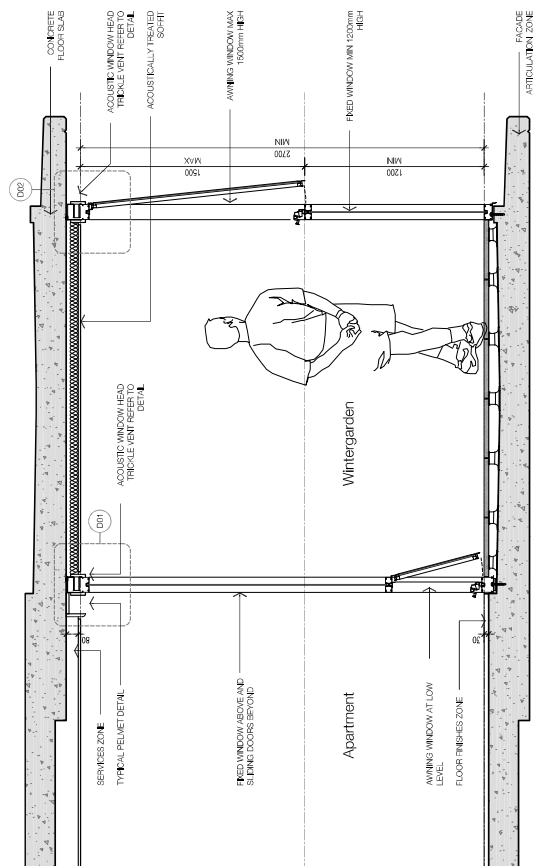


Acoustic treatment of the wintergardens **relies** on a window header section **trickle vent** to allow free air movement through the facade when all operable sliding and awning windows are fully closed.

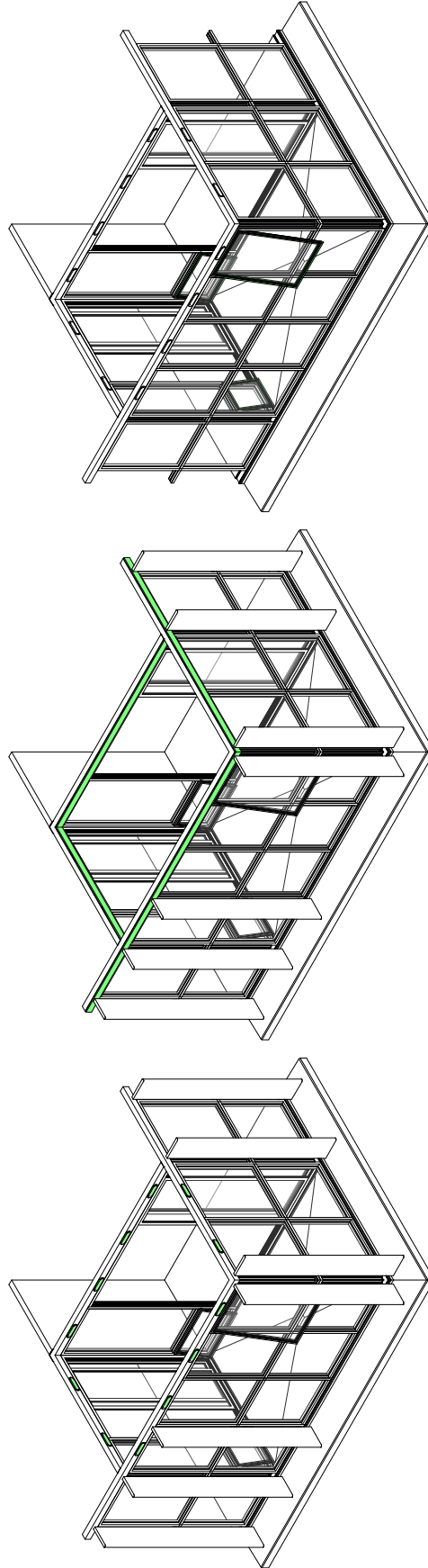
The trickle vent takes air in through acoustically treated baffles in the window head and can be open or closed by the occupants.

Awning windows, at high and low levels, are set out to opposite corners of the wintergarden to mitigate a 'direct line' of sound transmission through the facade.

An acoustically treated soffit further dampens any noise transmission from below by restricting the amount of noise that can be reflected back down towards the low level awnings.



# Acoustic Treatment



Acoustic baffles are inserted into the window head dampening any noise transmission from outside to inside.

Snap-on covers are fitted over the acoustic baffles to both the exterior and exterior face of the window header section.

Awning windows are set out at opposite corners to mitigate a 'direct line' of sound transmission through the facade.



# Acoustic Treatment



Acoustically treated baffles in the window head allow free movement of air through the facade when all operable sliding and awning windows are closed.



The trickle vent can be closed off from inside if desired by sliding closed the open vents.



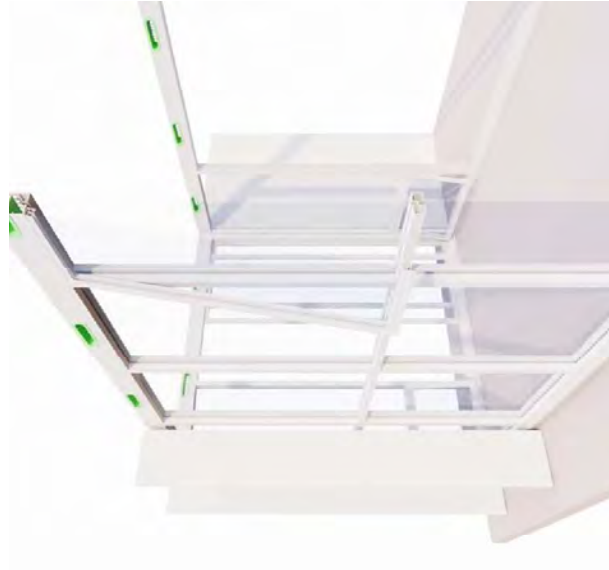
### Acoustic Treatment



Detailed view of the window header trickle vent system showing acoustically treated baffle and operable vent to the apartment side.



Awning windows at opposite corners to mitigate a 'direct line' of sound transmission through the facade.



Fixed windows to the exterior facade of the wintergarden set out to minimum height FFL +1200mm to provide a barrier to noise transmission from below.

## Environmental Assessment

### 8.6 SEPP 65 / ADG Assessment

This proposal seeks the approval of a high level planning envelope for the site that includes changes to Height of Building and Floor Space Ratio controls. Subsequent development proposals will need to be consistent with these controls as well as with the controls required within the Apartment Design Guide (ADG).

The reference scheme illustrated in Chapter 7 above has been developed based on the principles and parameters set out in the ADG and the adjacent table highlights compliance with the relevant key controls. More detailed assessment will need to be undertaken at the next stage of planning.

Theme	Control	Response
Deep Soil	Sites greater than 1,500m <sup>2</sup> - 7% deep soil zone area (% of site area)	The reference scheme has concentrated deep soil within the drop off zone and eastern part of the site, with additional landscaped setbacks on the western and southern boundaries.  The deep soil calculations for the site demonstrate that 7% deep soil can be achieved. This is subject to a more detailed landscape design in the next stage of design.
Building Separation	Minimum required separation distances from buildings to the side and rear boundaries are as follows: up to 12m (4 storeys) 6m 3m up to 25m (6-8 storeys) 9m 4.5m	The buildings within the reference scheme achieve building separation requirements as outlined in the ADG.  There is a minimum distance of 35m to the closest neighbouring building, with setbacks provided along the western boundary to maximise building separation. The other site boundaries are not adjacent to buildings and are separated by Homebush Bay Drive and the rail corridor.
Cross Ventilation	At least 60% of apartments are naturally cross ventilated in the first nine storeys of the building.	The building envelopes in the reference scheme have floor plates that are generally between 480-715m <sup>2</sup> GFA. These small floor plate sizes deliver 6-8 units per floor plate making the requirement for 60% of cross ventilated apartments possible. More detailed assessment will need to be undertaken at the next level of planning.
Solar Access	Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter in the Sydney Metropolitan Area	As illustrated in 7.1 Solar Insolation, the constrained and irregularly shaped site result in a building orientation that is minimises impacts to neighbours. Modelling undertaken suggests that 72% of the facade of the reference scheme achieves greater than 2 hours sunlight during this time. Compliance with ADG solar access requirements will depend on the arrangement of individual units on the floor plate. This will be undertaken at the next stage of design.
Communal Open Space	Communal open space has a minimum area equal to 25% of the site	The reference scheme has provided main communal open space on the roof of the podium (approximately 1,400sqm), to minimise the impact of the rail corridor and a small portion at ground (outdoor court zone) of approximately 250sqm (as per Landscape reference scheme).
Minimum Floor to Ceiling Heights	Minimum ceiling height for apartment and mixed use buildings Habitable rooms 2.7m	The reference scheme has been modelled based on a floor to floor height of 3.1m which allows for compliance with minimum floor to ceiling requirements.

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**Conclusion**



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Oulton Avenue

## Conclusion

### 9.1 Conclusion

Rhodes is identified as both a strategic centre and Health and Education Precinct within Greater Sydney Region Plan and Eastern Sydney District Plan. With investigations by Council into housing diversity in the surrounding area, the development presents a unique opportunity as one of few undeveloped land parcels capable of delivering new housing within close proximity to Rhodes town centre.

The proposal for the site includes:

- New residential accommodation that broadens the diversity available within close proximity to the town centre
- Revitalised existing pedestrian and cycle connections linking Liberty Grove and Rhodes train station.
- A new ramp connecting the site to the Homebush Bay Drive overpass
- Improved public domain including a pocket park and drop-off zone increasing safety and activation.

In order to realise the project opportunities and deliver the identified community benefits adjustments to the existing LEP controls are required:

1. An increase in permissible FSR for the subject site from 1:1:1 to 2:06:1
2. A increase in permitted Height of Building from 24m to 46m

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SJB Architects

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## Oulton Ave, Concord West Urban Design Review of Planning Proposal

Final Report  
Prepared by Studio GL for City of Canada Bay Council  
July 2024



## Document Information

Job title	Outlon Avenue, Rhodes
Client	City of Canada Bay Council
Job number	23033
Report title	Outlon Avenue, Concord West: Urban Design Review of Planning Proposal
File name	23033_Outlon-Avenue_Urban-Design-Review_PP

Revision	Date	Prepared by	Approved by
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### Appendix



## Chapter 1 Introduction

1-1 Background

1-2 Drawings & Documents Reviewed

## 01 Introduction

### 1-1 Background

#### Introduction

Studio GL have been commissioned by the City of Canada Bay Council (Council) to undertake an Urban Design Review of the Planning Proposal (PP) for a site at Oulton Avenue in Concord West.

Council previously commissioned Studio GL to prepare a review of an initial Scoping Proposal (September 2023) and a revised Scoping Proposal (February 2024) for development on this site.

The concept design for the Scoping Proposal had not been formally lodged but the proponent was seeking high level advice from Council regarding the indicative proposal. The Scoping Proposal was reviewed, and Studio GL's urban design recommendations advised changes to improve safety, surveillance and amenity on and around this site, and that a less intense development on this site would be more appropriate for such a challenging location.

Since the Scoping Proposal review, Council has met with the applicant and the proponent has responded to Council's advice with a revised design and Planning Proposal.

The purpose of this report is to review the revised design and provide urban design commentary on the detailed Planning Proposal.

#### Location

The site is located on Oulton Avenue in Concord West, and is identified as Lot 212 in Deposited Plan (DP) 1112512. The irregularly shaped lot is approximately 4,168m<sup>2</sup> and is situated between three major infrastructure corridors, with Homebush Bay Drive to the north, an off-ramp to the west and the T9 Northern Railway Line to the east. The site is currently undeveloped and adjoins a shared pedestrian and cycle path that provides connections to the northern side of Homebush Bay Drive, the eastern side of the railway line and to Rhodes Train Station. The site currently contains a large area of vegetation and tree canopy coverage.

The site is subject to the City of Canada Bay Local Environmental Plan (CBLEP) 2013 and the Canada Bay Development Control Plan (CBDPC) 2023. The site is currently zoned MU1 Mixed Use and has a maximum building height control of 24 metres and a maximum floor space ratio (FSR) control of 1.1:1.

#### Proposed development

The Planning Proposal seeks to amend the CBLEP to support the development of residential apartment buildings on the site.

The proposed amendments to the CBLEP include:

- Amend the Land Zoning Map from MU1 Mixed Use to R4 High Density Residential.
- Amend the Height of Buildings Map from 24 metres to 46 metres.
- Amend the Floor Space Ratio Map from 1.1:1 to 2.1:1.



## 01 Introduction

### 1-2 Drawings & Documents Reviewed

The following documents were reviewed during the review of the Planning Proposal (May 2024):

Canada Bay Local Environmental Plan	Canada Bay Council, 2013
Canada Bay Development Control Plan	Canada Bay Council, 2023
SEPP 65 and the Apartment Design Guide	NSW Government
Better Placed - An integrated design policy for the built environment of New South Wales	Government Architect NSW, May 2017

Oulton Avenue Planning Proposal Request	Urbis, 15 May 2024
Appendix A - Urban Design Report	SJB Architects, May 2024
Appendix B - Survey Plan	Versis
Appendix C - Transport Impact Assessment	Stantec, 9 May 2024
Appendix D - Site Servicing Assessment - Electrical and Lighting	Haron Robson, 1 May 2024
Appendix E - Preliminary Site Investigation	Douglas Partners, May 2021
Appendix F - Acoustic and Vibration Assessment	Renzo Tonin, 14 May 2024
Appendix G - Air Quality Assessment	Todoroski Air Sciences, 30 April 2024
Appendix H - Geotechnical Assessment	Douglas Partners, 14 May 2024
Appendix J - LEP Mapping	Urbis

#### Note:

The Planning Proposal also identified the following Appendix but these were not provided to Council with the initial submission.

- Appendix I - Site Servicing Assessment Hydraulic Services



## 01 Introduction

### Disclaimer

To assist with understanding the context and scale of buildings and infrastructure surrounding this site, Studio GL created a simple 3D model. This model is not based on detailed survey information and much of the key information, such as the height of surrounding buildings and infrastructure (including the height of Homebush Bay Drive), was not available.

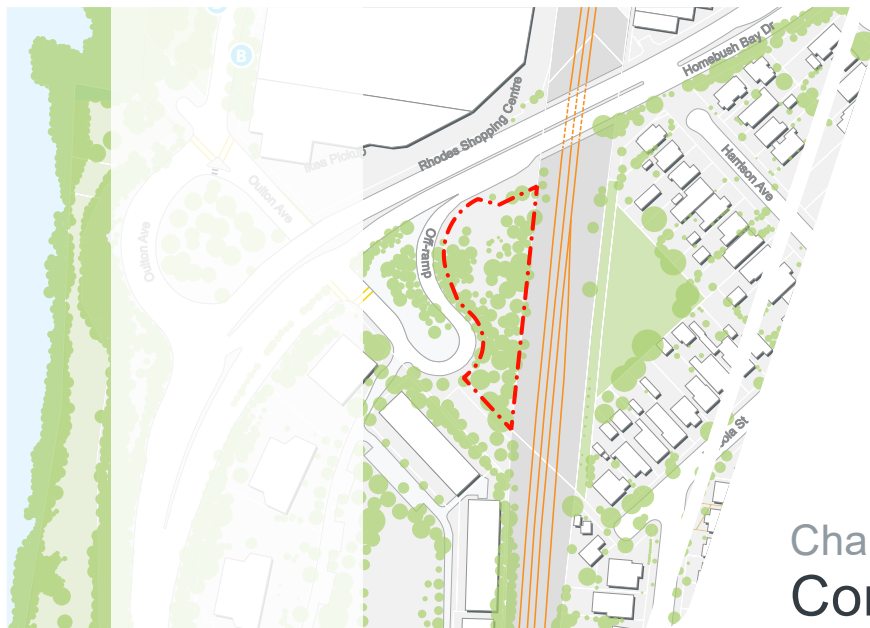
For the review of the Scoping Proposal the applicant provided Council with a 3D model to assist with their assessment of the Planning Proposal, which Council made available to Studio GL. This model was provided without any topography or surrounding built form context and so the location of the building with regard to the extent of excavation and surrounding development has been estimated.

Views of the model and the surrounding context should not be relied on for detailed assessment of the Planning Proposal.

It is recommended that a detailed survey of the site and surrounding context be prepared to support the Planning Proposal. This should include the height of Homebush Bay Drive and the railway line, and the height of nearby buildings in Liberty Grove and the Rhodes Shopping Centre.



Figure 1 Indicative 3D model of the Planning Proposal shown in its local context, prepared by Studio GL



## Chapter 2 Context

- 2-1 Local Context
- 2-2 Site Context
- 2-3 Photographic Study
- 2-4 Existing Local Planning Controls

## 02 Context

### 2-1 Local Context

The Oulton Avenue site is located approximately 16km to the west of the Sydney CBD. The site is approximately 800m to the south of Rhodes Train Station and 500m (as the crow flies) to the west of Concord Repatriation General Hospital.

The site is within 400m of two parks zoned RE1 Public Recreation and Concord West Public School. The school and one of the open spaces are located on the eastern side of the railway line and so access to these facilities is via Homebush Bay Drive. The site is located on a narrow peninsular with Homebush Bay just over 200m to the west, Yaralla Bay approximately 600m to the north-east and Majors Bay approximately 800m to the south-east.

The site is located on the northern edge of Concord West, a predominantly low rise suburb to the east of the railway line. The site adjoins Liberty Grove, a medium density master planned suburb to the south-west.

The site is south of Rhodes, an important Strategic Centre in the Eastern City District Plan. The Rhodes Place Strategy (2021) establishes a long term vision for an area predominantly located to the north-east of the Rhodes Railway Station. Plans for this area include approximately 4,200 new homes, workspaces for over 1,100 new jobs, 23,000m<sup>2</sup> of public space and a new primary school, however no more than 3,000 new homes can be developed prior to major transport intervention.



Figure 2 Local context plan over aerial photo (2023)



## 02 Context

The site is bounded by Homebush Bay Drive to the north, an off ramp from Homebush Bay Drive to the west and the T9 Northern Railway Line to the east. Homebush Bay Drive is a 6 lane arterial road with a 70km/h speed limit that connects the M4 Western Motorway to the south with areas to the north of the Parramatta River. The Homebush Bay Drive overpass directly to the north-east of site is the only opportunity for vehicles to cross the railway line within the local area. The T9 Northern Railway Line to the east accommodates both passenger and freight connections.

Oulton Avenue is located on both sides of Homebush Bay Drive and passes under Homebush Bay Drive near the site, before curving to the south to connect with Homebush Bay Drive at a signalised intersection. Directly to the north of site, on the northern side of Homebush Bay Drive, is the Rhodes Waterside Shopping Centre, a large centre which includes an IKEA, Aldi, Coles and Kmart.

There are several heritage items on the eastern side of the railway line, however there are no heritage items on the western side of the railway line within the site's local context.





## 02 Context

### 2-2 Site Context

The surrounding context is dominated by rail and vehicular infrastructure. The T9 Northern Line railway runs along the eastern site boundary. The unusual shape of the site is partly due to a two-lane one-way 70km/hr off ramp that provides access from Homebush Bay Drive to Oulton Avenue. This road provides an exit for vehicles travelling southbound on Homebush Bay Drive connecting to Rhodes.

The area around the site has poor quality and limited pedestrian infrastructure. The key pedestrian route to Rhodes Train Station is through a narrow tunnel under Homebush Bay Drive and along a pedestrian pathway, with no surveillance from

surrounding streets. Access to Concord West is via a narrow ramp that links Homebush Bay Drive along the northern boundary of the site. Pedestrian access along Homebush Bay Drive is only provided until Harrison Avenue.

The eastern side of the railway is characterised predominantly by low rise single and double-storey detached dwellings. On the western side of the railway, north of Homebush Bay Drive, is a strategic centre, while south of Homebush Bay Drive, where the site is located, is characterised by medium scale residential apartment buildings between 4-10 storeys high.



Figure 4 Site location map

## 02 Context

### 2-3 Photographic Study



Figure 5 Oulton Avenue context map



## 02 Context



Figure 6 View of the site from Oulton Avenue looking north (Google, 2021)

◀ View of the site from Oulton Avenue looking north. The site is currently undeveloped with scattered trees.



Figure 7 View of the site from the pedestrian ramp looking south-west (Google, 2021)

◀ View of the site from the pedestrian ramp which connects the site with Homebush Bay Drive. The level change between the natural topography of the site and the elevated Homebush Bay Drive is evident in this image.



Figure 8 View of the site from the western side of Oulton Avenue looking east (Google, 2021)

◀ View of the site looking east from the western side of Oulton Avenue. The off ramp from Homebush Bay Drive forms the western edge of the site boundary. Access to the site and the pedestrian tunnel connecting to Rhodes Train Station is via a pathway under the off ramp. The ramp also restricts views into the site.

## 02 Context

### 2-3 Photographic Study

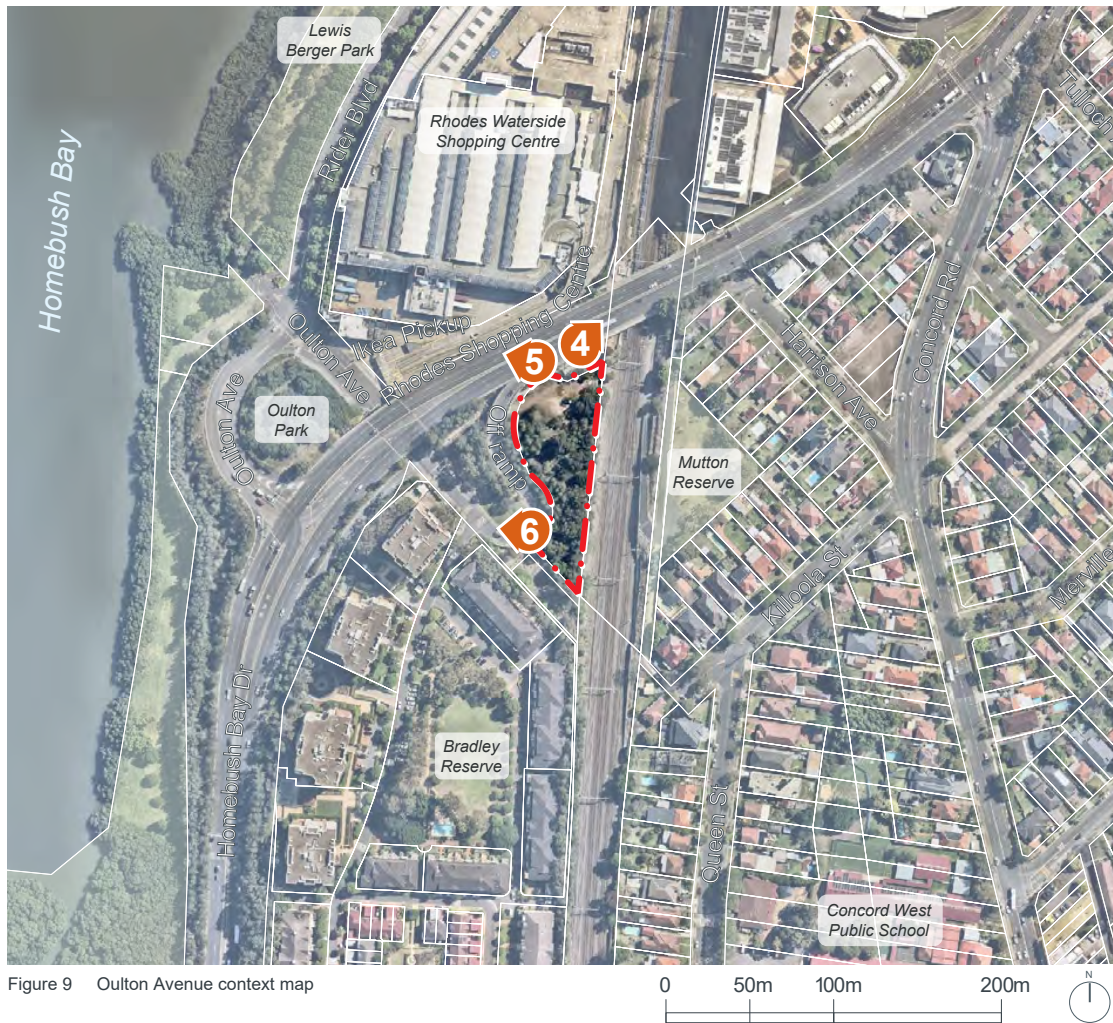


Figure 9 Oulton Avenue context map



## 02 Context



Figure 10 View from Homebush Bay Drive looking north-east (Google, 2022)

Looking north-east from Homebush Bay Drive, which adjoins the site to the north. Homebush Bay Drive features 3 traffic lanes in either direction. This image shows Homebush Bay Drive where it passes over the railway line.



Figure 11 View from Homebush Bay Drive looking west (Google, 2022)

Looking west from Homebush Bay Drive, which adjoins the site to the north. The upper storeys of Rhodes Waterside Shopping Centre can be observed, as well as distant views of development.



Figure 12 View from Oulton Avenue looking north-west (Google, 2021)

Looking west from Oulton Avenue along the western edge of the site boundary. This part of Oulton Avenue is a two-lane one-way off ramp used by vehicles exiting Homebush Bay Drive, travelling in a south-westerly direction. A 10 storey residential apartment building, part of Liberty Grove, is located to the west of Oulton Avenue.



## 02 Context

### 2-3 Photographic Study



## 02 Context



Figure 14 View from Homebush Bay Drive looking south-west

View looking south-west towards the pedestrian/cycle ramp from the southern edge of the Homebush Bay Drive pedestrian underpass. The site is located behind the ramp. The existing pedestrian/cycle ramp blocks the view from the site to the pedestrian underpass.



Figure 15 View from northern edge of site looking north

View looking north towards the pedestrian/cycle ramp overpass, with the pedestrian/cycle path underpass tunnel (beneath Homebush Bay Drive) in the background. The pedestrian/cycle ramp provides a connection between the western and eastern sides of the railway line.



Figure 16 View from shared path looking south towards Homebush Bay Drive

View looking south from the shared path on the northern side of Homebush Bay Drive. The image is taken on the opposite side of the pedestrian/cycle tunnel to the site.



## 02 Context

### 2-3 Photographic Study



Figure 17 Oulton Avenue context map



## 02 Context



Figure 18 View from Oulton Avenue looking north-east

◀ View of the location of the proposed pedestrian and cycleway access to the site from the Oulton Avenue off-ramp intersection. Views of the site are limited from this direction.



Figure 19 View from Mutton Reserve looking west

◀ View of the site looking over the railway line from the Mutton Reserve open space in the east. From this location the tallest point of Rhodes Waterside Shopping Centre, the 10 storey residential apartment buildings (part of Liberty Grove) and the existing mature trees are clearly visible, forming a skyline 'edge' to the park.



Figure 20 View from pedestrian overpass looking south

◀ View of the site from the pedestrian overpass to the north of Homebush Bay Drive. The 10 storey residential apartment building (part of Liberty Grove) can be observed in the centre-right of the background. The existing trees on and around the site are clearly visible from this location.

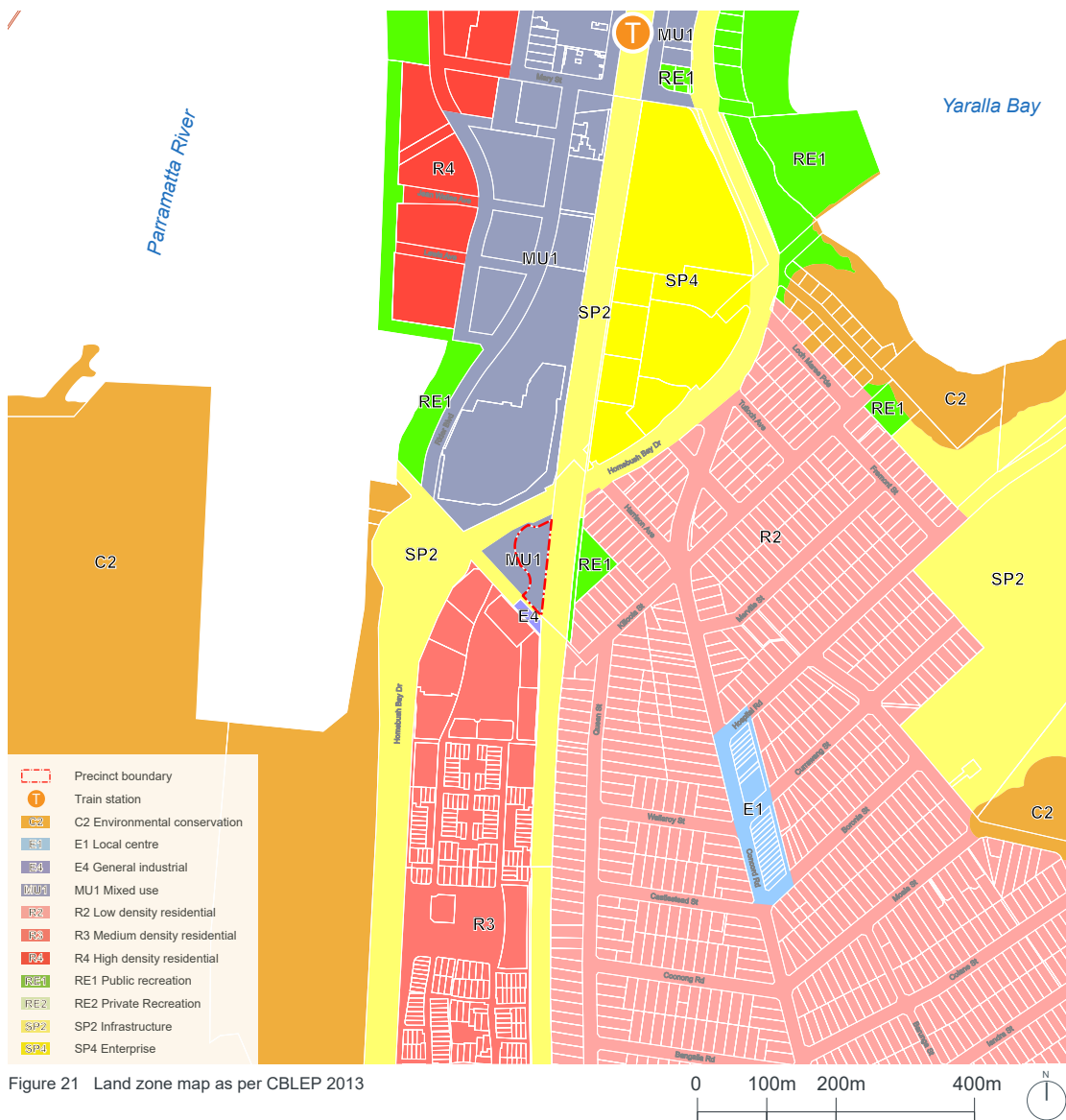
## 02 Context

### 2-4 Existing Local Planning Controls

#### Canada Bay Local Environmental Plan (CBLEP) 2013

The site and the adjoining off ramp are currently zoned MU1 Mixed Use. This pocket of land is situated between three different transport corridors zoned SP2 Infrastructure, with the T9 Northern Line to the east of the site, Oulton Avenue to the west, and Homebush Bay Drive to the north of the site. On the opposite side of Homebush Bay Drive, and on the western side of the railway line, there is a larger MU1 Mixed Use

zone that extends past Rhodes Train Station, with an R4 High Density Residential zone adjoining it to the west. On the south-western side of Oulton Avenue is a R3 Medium Density Residential zone which is characterised by residential apartment buildings. A large R2 Low Density Residential zone is located to the east, which predominantly features detached houses.





## 02 Context

The maximum height of buildings on the site is currently 24 metres. This is the same maximum building height as that for Rhodes Waterside Shopping Centre which is located directly to the north of the site, on the opposite side of Homebush Bay Drive. A small lot directly to the south of the site, which is zoned E4 General Industrial, has a maximum building height of 12 metres.

The R3 Medium Density Residential zone to the south-west of the site has a maximum building height of 20 metres. The R2 Low Density Residential zone that makes up a large portion of Concord West has a maximum building height of 8.5 metres. The SP4 Enterprise zone to the north-east of the site, on the opposite side of the railway line and Homebush Bay Drive has a maximum building height of 28 metres. The land around the Rhodes Train Station has a combination of maximum building heights which range from 20 metres up to 127 metres.

The FSR of the site is currently 1.1:1. The MU1 Mixed Use and R4 High Density Residential zones to the north of the site have an FSR control of 1.1:1, except for Rhodes Waterside Shopping Centre which has a maximum FSR of 1.6:1. The R3 Medium Density Residential zone to the south-west of site has an FSR control of 0.75:1.

Another LEP control relevant to the Planning Proposal is Clause 6.11 Mix of dwelling sizes in residential flat buildings and mixed use development. The main objective of the clause is "to ensure the provision of a mix of dwelling types in residential flat buildings and provide housing choice for different demographics, living needs and household budgets". To achieve the desired housing mix, Council requires "at least 20% of the dwellings, to the nearest whole number of dwellings, in the development will be studio or 1 bedroom dwellings, and at least 20% of the dwellings, to the nearest whole number, in the development will have at least 3 bedrooms".

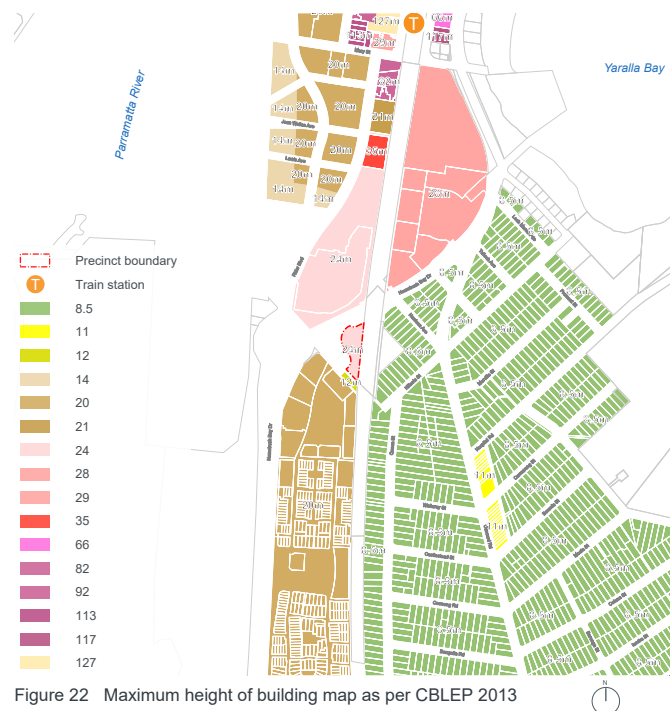


Figure 22 Maximum height of building map as per CBLEP 2013

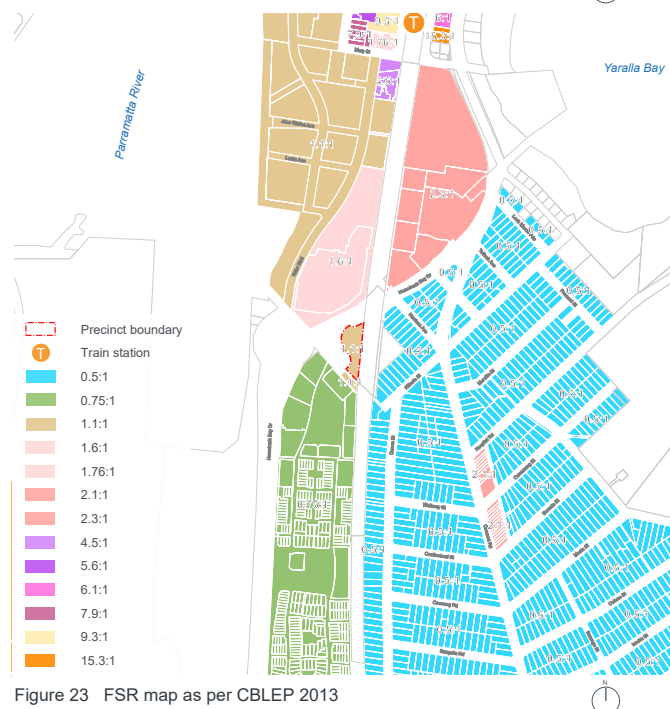


Figure 23 FSR map as per CBLEP 2013

## 02 Context

### 2-4 Existing Local Planning Controls

#### DCP Part F - Multi-dwelling Housing, Multi Dwelling Housing (Terraces), Manor Houses & Residential Flat Buildings

If the site is rezoned to R4 High Density Residential, Part F of the CBDP is relevant to this Planning Proposal. It contains relevant planning controls that are likely to apply to residential apartment buildings. This chapter also adopts design quality principles from the SEPP65 and the Apartment Design Guide.

Areas to highlight for this PP include:

#### F3.3 Solar access to neighbours

Objectives	
O1	To minimise the amount of overshadowing of neighbouring developments and outdoor spaces to maintain their amenity.

#### F3.10 Access to views

Objectives	
O1	To protect and enhance opportunities for vistas and public views from streets and public places.
O2	To ensure views to and from the site are considered at the site analysis stage.
O4	To recognise the value of view sharing whilst not restricting the reasonable development potential of the site.

#### F3.11 Safety and Security

Objectives	
O1	To facilitate a safe physical environment by promoting crime prevention through design.
O2	To facilitate the security of residents and visitors and their property and enhance community safety and well-being.
O3	To ensure a development relates well with the public domain and contributes to an active pedestrian-orientated environment.

Controls	
C1	Ensure lighting is provided to all pedestrian paths, shared areas, parking areas and building entries for multi unit development.
C2	High walls which obstruct surveillance are not permitted.
C3	Buildings adjacent to public streets or public spaces should be designed so residents can observe the area and carry out visual surveillance. At least one window of a habitable room should face the street or public space.
C7	Balconies and windows should be positioned to allow observation of entrances.

#### F4.2 Building setbacks

Setbacks define the overall footprint of a building and the outer extremities of that building in relation to the front, side and rear boundaries.

Objectives	
O1	To integrate new development with the established setback character of the street.
O2	Preserve significant vegetation which contributes to the public domain and allows for street landscape character to be enhanced.
O3	Ensure adequate separation between buildings consistent with the established character and rhythm of built elements in the street.
O4	To ensure adequate separation between buildings for visual and acoustic privacy.
O5	Maximise solar access to achieve amenity for neighbours.

## 02 Context

### F4.4 Heights of buildings

Height is an important control because it has a major impact on the physical and visual amenity of a place. Building height is also critical in addressing impacts from development such as solar access, privacy and view loss.

Objectives	
O1	To ensure that buildings are compatible with the height, bulk and scale of the existing and desired future character of the locality.
O2	To minimise visual impact, disruption of views, loss of privacy and loss of sunshine to existing residential development.

### F4.5 Bulk and Scale

Objectives	
O1	To ensure that buildings are compatible with the bulk and scale of the desired future character of the locality.
O2	To minimise the effects of voids in the bulk and scale of buildings.

Mass of development should consider: overshadowing and privacy, streetscape, building setback, parking and landscape requirements, visual impact upon existing views, existence of significant trees on site, the size and shape of the allotment, and site topography.

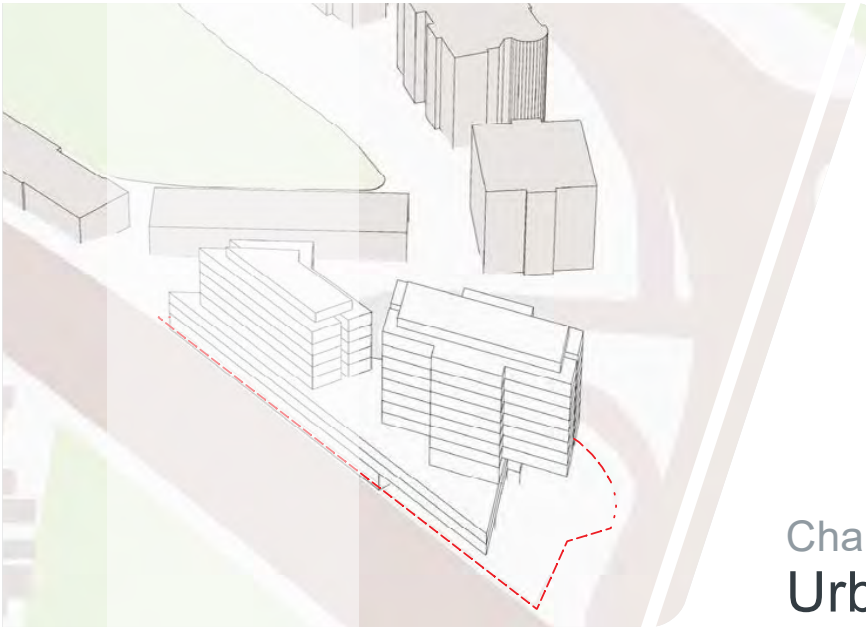
### F4.6 Landscaped area

Objectives	
O1	To enhance the existing streetscape.
O2	To enhance the quality & amenity of the built form.
O3	To provide privacy and shade.
O4	To minimise the extent of hard paved areas and create rainwater filtration.
O5	To preserve and enhance native wildlife populations and habitat through appropriate planting of indigenous vegetation.
O6	To provide large consolidated areas of landscaping that are usable and sustainable and that can be maintained long term.

Controls	
C1	Landscape areas need to be consistent with the definition in Part K of the DCP.  Note: Synthetic turf, permeable paving and gravel do not form part of landscaped area calculation.
C2	Landscaping that has an area of less than 1.5m x 1.5m must not be included in landscaped area calculations.
C3	Landscaped open space may comprise both communal and private open space and is to be provided in accordance with the provided table (in DCP document).
C4	Existing trees are to be retained and integrated into a new landscaping scheme, wherever possible. Suitable replacement trees should be provided.
C6	The majority of the front building setback and private courtyard areas of all development should comprise landscaping, where possible, in accordance with the definition in this DCP.
C9	A significant landscaped setting is to be established for pathways and paved areas.
C10.	Pathways and driveways are to be located a minimum of 1.0 metre from common boundaries.

### Deep soil zones

Controls	
C12	A deep soil zone must not contain any buildings, structures, services or impervious surfaces.
C13	A minimum of 7% of the site area must be provided as a deep soil zone.
C14	Deep soil zones must be provided within front and rear setbacks and may be provided within side setbacks if appropriate.
C15	At least 10% of the deep soil zone must be communal landscaped open space.
C16	A deep soil zone must have minimum dimensions of 2m (L) x 2m (W).



## Chapter 3 Urban Design Review

3-1 Approach

3-2 Design review

## 03 Urban Design Review

### 3-1 Approach

The following commentary is an Urban Design review that assesses the proposed design of the Planning Proposal, which is documented in the Urban Design Report prepared by SJB (May 2024) and supported by relevant technical documentation (Appendix A-J). The proposed changes to controls outlined in the CBLEP and CBDP have also been considered.

To undertake this review, it is necessary to understand the key considerations to ensure successful places and built environments. This review uses *Better Placed - An integrated design policy for the built environment of New South Wales, Sept 2017* to assess the urban design of the proposed Concept Plans. *Better Placed* is 'about enhancing the design quality of our built environment, raising expectations and raising standards, about working better and creating better environments'. The approach to this urban design review focuses on the issues relevant to developing a site on the edge of a Strategic Centre.

The seven objectives listed in *Better Placed* have been used to structure the assessment and identify key issues, responses and suggested recommendations:

1. Better fit - contextual, local and of its place
2. Better performance – sustainable, adaptable and durable
3. Better for community - inclusive, connected and diverse
4. Better for people – safe, comfortable and liveable
5. Better Working – functional, efficient and fit for purpose
6. Better Value – creating and adding value
7. Better look and feel – engaging, inviting and attractive



*"Better Placed confirms our collective wishes for the future design of our infrastructure, architecture, and public spaces, and endorses the power of design to enable a better and resilient future for our communities." (Better Placed, Sept 2017. p5)*

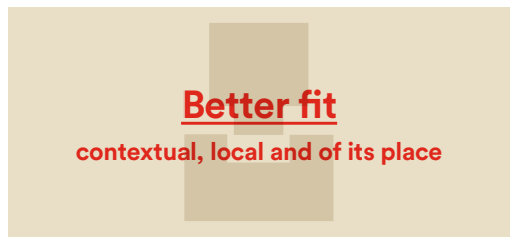


## 03 Urban Design Review

### 3-2 Design review

#### Objective 1 Better fit – contextual, local and of its place

*“Good design in the built environment is informed by and derived from its location, context and social setting. It is place-based and relevant to and resonant with local character, and communal aspirations. It also contributes to evolving character and setting.”*



#### Planning Proposal

The Planning Proposal is for a residential apartment building which features two towers located over a car park podium. The podium is 11.7m high and contains 3 levels of carparking. The northern tower is 12 storeys in height and the southern tower is 8 storeys in height.

Plans show a lobby, communal space and bike storage space to the north, with vehicular access, loading access and a dedicated 'drop off' zone to the south within the carpark podium on the Ground Floor. The Ground Floor has a floor-to-floor height of 5m. The plans show levels 2-3 as parking and storage with direct lift access to the towers above. The floor-to-floor heights of these storeys are 3.1m and 3.4m respectively. The plan for Level 4 shows residential uses in the southern tower (floor-to-floor height of 3.8m), communal space in the northern tower (floor-to-floor height of 5.2m), and communal open space allocated on the podium, part of which

is under the cantilevered upper storeys of the northern tower. The plans show Levels 5-12 are residential floor plates with a typical floor-to-floor height of 3.2m for residential floors, and 3.6m for the top floor. An additional 3m storey has been allocated for 'Rooftop Plant'. Based off these floor-to-floor heights, the proposed building is 45.9m in height. The proposal seeks to rezone the Maximum Height of Buildings LEP control to 46m.

Appendix A of the Urban Design Report comments on the site in relation to the Rhodes Skyline. Figure 25 on page 27 is used to show the proximity of the site from Rhodes Central, and the various existing building heights that exist within the context. Appendix A states "The development will provide a southern anchor for the redevelopment of Rhodes".

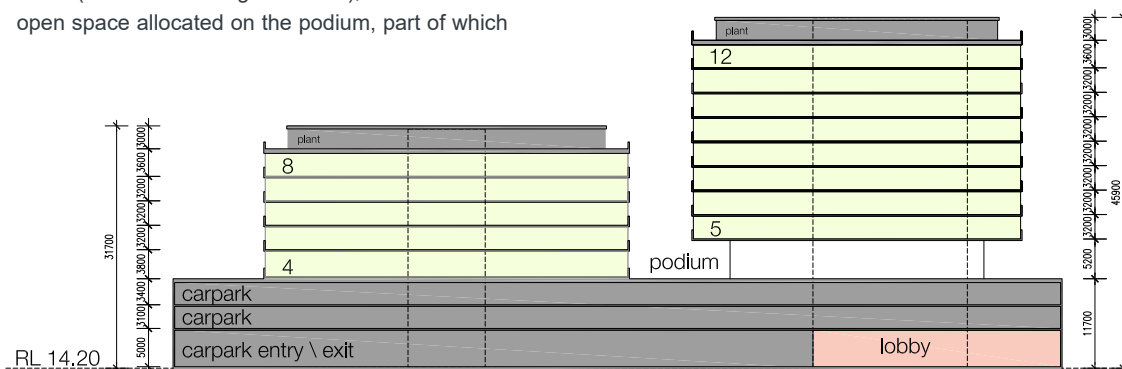


Figure 24 Reference Scheme: Section 01 from Appendix A: Urban Design Report

## 03 Urban Design Review

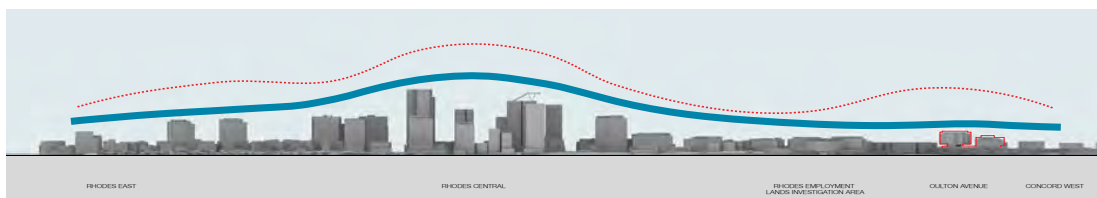


Figure 25 Contribution to Rhodes Skyline Diagram from Appendix A with SGL annotations in blue

### Response

Given the close proximity of 4-10 storey apartment buildings, the proposal to locate a 12 storey tower close to Homebush Bay Drive and the shorter 8 storey tower at the rear, adjacent to the 4 storey development at Liberty Grove, is supported.

The floor-to-floor heights identified in Figure 24 on page 26 are generous for what is proposed. With 3m allocated for Rooftop Plant, and the generous floor-to-floor height for top storey residential apartments and Level 4, the proposed maximum building height could accommodate an additional storey of development if the floor-to-floor heights are rearranged and redistributed within the building envelope.

A more appropriate LEP Maximum Height of Buildings control is 42m for the northern tower and 30m for the southern tower, with floor-to-floor heights identified in Figure 26. In developing recommendations, it is assumed that the proposed 5m Ground Floor floor-to-floor height is needed to support access and loading for vehicles from the off-ramp. A 3.2m floor-to-floor height for carparking levels is recommended to allow for adaptability in the future. Height should not be redistributed within the building envelope.

The proposed 3m floor-to-floor height for the Rooftop Plant is unnecessary. It is recommended that this floor-to-floor height is revised to a maximum of between 1-1.5m. If the lift overrun requires more space, Clause 3(b) in Section 5.6 of the CBLEP (2013) permits lift overruns to exceed the maximum building height if they are considered "fully integrated into the design of the roof feature".

Storey	Floor to floor height (m)	
	Southern Tower	Northern Tower
Level 1 (GF)	5.0	
Level 2	3.2	
Level 3	3.2	
Level 4	3.2	3.6
Level 5	3.2	3.2
Level 6	3.2	3.2
Level 7	3.2	3.2
Level 8	3.2	3.2
Level 9	-	3.2
Level 10	-	3.2
Level 11	-	3.2
Level 12	-	3.2
Rooftop Plant	1-1.5	1-1.5

Figure 26 SGL recommended floor-to-floor heights

While the Planning Proposal does not make reference to the inclusion of affordable housing, given the scale of the proposed development it may be able to access the Affordable Housing State Environmental Planning Policy (SEPP) provisions, and by providing 10-15% affordable housing be eligible for height and floor space ratio bonuses of 20-30%. Access to any additional height or FSR should be contingent on minimising any additional overshadowing to existing residences and public open spaces.

In regard to the Rhodes Skyline, the Oulton Avenue site does not play a significant role. Figure 25 shows it would be taller than existing buildings in direct proximity, however this is due to the site's elevation as well as its constrained and highly visible location from Homebush Bay Drive. It is recommended that this building be required to be of Design Excellence standard given the highly prominent location of the site between three major infrastructure corridors.

## 03 Urban Design Review

### 3-2 Design review

#### Objective 2 Better performance – sustainable, adaptable and durable

*“Environmental sustainability and responsiveness is essential to meet the highest performance standards for living and working. Sustainability is no longer an optional extra, but a fundamental aspect of functional, whole of life design.”*

**Better performance**  
sustainable, adaptable and durable

#### Planning Proposal

The proposed development has a building depth ranging from approximately 14.7m to 25.6m. Each apartment has a section that is a maximum of approximately 18m when measuring the shortest depth from glassline to glassline. The building separation ranges from approximately 10m to 24.6m between the northern and southern tower.

The internal configuration of the floor plans (Appendix A) show that there are no single aspect apartments facing the railway. Almost all the proposed apartments feature a dual aspect.

Appendix A includes a solar insolation analysis which demonstrates that solar access, particularly to the two towers, is driven by built form orientation. The study identifies that the northern, eastern and most of the western facade achieve a minimum of 2

hours of solar access (see Figure 27). Apartments along the southern facade, and some along the western facade do not achieve 2 hours of solar access. The Planning Proposal report states that approximately 82% of the proposed facade receives the 2 hours of sunlight. Appendix A provides a different number stating that approximately 72% of the facade receives 2 hours of sunlight.

The Planning Proposal includes two levels of above ground car parking (Levels 2 and 3) within the building envelope forming a podium, with vehicular access provided from the Ground Floor (Level 1). The Planning Proposal Request report identifies the provision of 101 car spaces. Appendix A identifies that Level 2 and Level 3 have a floor-to-floor height of 3.1m and 3.4m respectively.

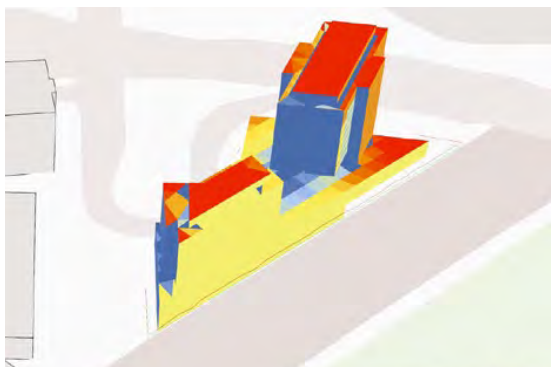
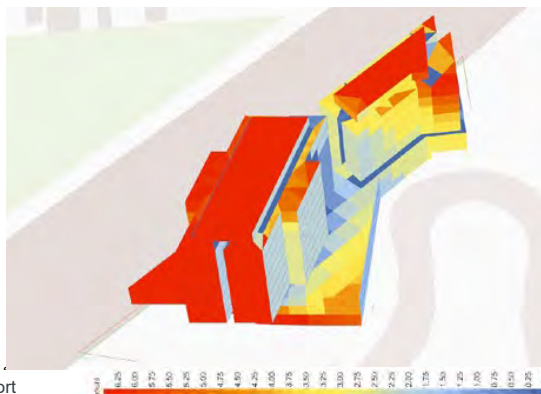


Figure 27 Solar Insolation Study from Appendix A: Urban Design Report



## 03 Urban Design Review

### Response

In regard to apartment orientation, the floor plans (Appendix A) feature no single aspect apartments facing the railway line. This is supported. In regard to building separation, the ADG requires a minimum of 18m between habitable rooms/balconies, and 12m between habitable and non-habitable rooms for buildings five to eight storeys in height. The architectural plans indicate the proposed design achieves less than these minimums, which can be addressed in detailed design but this approach will reduce design flexibility for the future development.

The solar insolation study shows that façades of the proposed development will achieve 2 hours of solar access. The study identified that the southern facade and parts of the western facade do not achieve the 2 hours of solar access. It is noted that analysis of this study against the proposed floor plans reveals that the façades that do not receive 2 hours of solar access are part of apartments that receive the solar access on a different facade, reflecting the importance of dual aspect apartments. The inclusion of narrow floorplates and dual aspect apartments is supported.

The solar insolation study also shows the impact on Liberty Grove, with the accompanying text "Solar insolation analysis indicates some impact to the northern facade of two apartment buildings in Liberty Grove. Whilst they are impacted, the facades would still receive more than 2 hours of solar access". The reduction in solar access is likely to be greatest for 3 Bradley Place and the extent of the reduction in solar access is not clear in the proposal.



Figure 28 Solar insolation study of Liberty Grove with the building at 3 Bradley PI highlighted by Studio GL

Category D Residential parking		
No. of bedrooms per dwelling	Max. no. of car parks (DCP)	Max. no. of car parks required for PP
Studio	0.1	-
1	0.3	8
2	0.7	26
3+	1	26
Visitor parking		
Any	1 space per 20 dwellings	4
PP		
Total		64

Figure 29 Maximum car-parking calculations based on CCB DCP

Given the unique site constraints, providing two levels of car-parking above ground within a podium is acceptable, however providing two different floor-to-floor heights is unnecessary. Due to the proximity of the site to Rhodes Train Station and a shift towards sustainable modes of transport, it is recommended that each level of car-parking has a 3.2m floor-to-floor height to increase adaptability and allow for the possible future conversion of these spaces to alternative uses.

'Part B General Control' of the Canada Bay DCP provides 'maximum' car parking rates for residential developments. The site is classified as Category D, which requires 0.3 car parking spaces for units with 1 bedroom, 0.7 car parking spaces for units with 2 bedrooms, 1 space for units with 3 or more bedrooms and 1 visitor car park for every 20 dwellings. Under these DCP requirements, the proposed dwelling mix requires 64 car spaces (60 residential car parks and 4 visitor car spaces).

The Planning Proposal report identifies that the proposal delivers 101 car parking spaces, although if the floor plans for Level 2-3 (Appendix A) are identical each plan would deliver 51 spaces creating a total of 102 spaces. 102 spaces exceeds the maximum DCP requirement by 38 spaces. It is recommended that the number of car parking spaces is reduced to align with the Canada Bay DCP. If additional car parking spaces are proposed they should count towards the overall FSR given they are above ground and contribute to the overall bulk and scale of the development.

## 03 Urban Design Review

### 3-2 Design review

#### Objective 3 Better for community - inclusive, connected and diverse

*"The design of the built environment must seek to address growing economic and social disparity and inequity, by creating inclusive, welcoming and equitable environments. Incorporating diverse uses, housing types and economic frameworks will support engaging places and resilient communities."*

**Better for community**  
inclusive, connected and diverse

#### Planning Proposal

The Planning Proposal identifies that the proposed residential apartment building would include 89 dwellings in total, with a combination of 1-bedroom, 2-bedroom and 3-bedroom apartments. The proposed dwelling mix is for 26 one-bedroom apartments (30%), 37 two-bedroom apartments (40%) and 26 three-bedroom apartments (30%). The one-bedroom and three-bedroom apartments are predominantly within levels 5-8. Levels 8-12 consist of only two-bedroom apartments (Figure 30).

The Planning Proposal makes reference to the "delivery of housing in a highly accessible location with access to essential services including schools, health facilities, shops and public transport". It also states one of the objectives is to encourage a mix of residents to encourage a more integrated and diverse society. "Providing homes for essential workers within the precinct including health workers and encouraging a mixture of household types to activate the area throughout the day".

The Planning Proposal states that "A component of affordable housing will be considered as part of the future development application for the site", however does not identify how much of the development would be affordable.

It also acknowledges the existing shared path connecting the site within a wider pedestrian and cycle network (see Figure 31 on page 31). The Planning Proposal seeks to upgrade the existing shared path and ramp, and landscape the area to the north of the building to support clear sight lines and promote pedestrian safety (see Figure 32 on page 31).

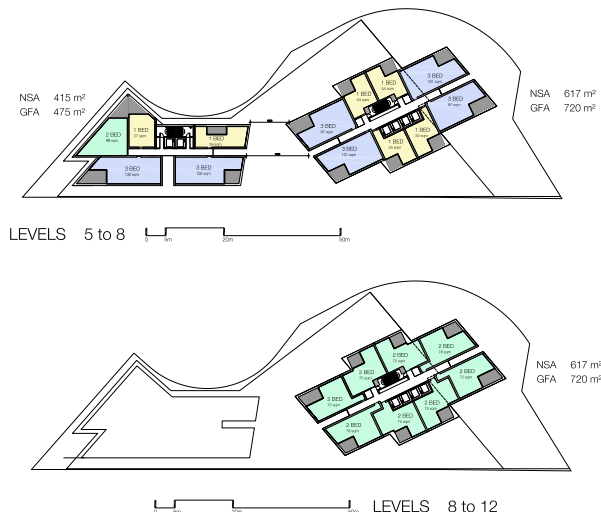


Figure 30 Reference Scheme Plans: Levels 05-12 from  
Appendix A: Urban Design Report



## 03 Urban Design Review



Figure 31 Existing shared path on site (Google, 2021)



Figure 32 Photo-realistic visualisation of the Planning Proposal from Appendix A: Urban Design Report

### Response

The proposed dwelling mix is consistent with Council's requirement for at least 20% of the dwellings to be 1-bedroom apartments, and at least 20% of apartments to be 3-bedroom apartments. This diverse dwelling mix is supported.

It is noted that Appendix A includes a floor plan titled 'Levels 5 to 8' and 'Levels 8 to 12'. Both titles refer to 'Level 8', and show a different floor plan. It is assumed that the second plan has been mislabelled and is actually 'Levels 9-12' as this reflects the dwelling mix identified in the Planning Proposal. The labelling should be updated to ensure a clear understanding of what is proposed.

The intention to provide homes for essential workers within the precinct is supported. Providing a mix of household types to activate the area is also encouraged and will be beneficial to the development. As this proposal is for a substantial increase in height and FSR, it is recommended that the proposal provides a minimum of 5% affordable housing in line with Council's Affordable Housing Strategy.

The proposal would also benefit from considering how the development will meet the needs of different demographics, for instance families or the elderly. This is particularly important considering the isolated nature of the site between three major infrastructure corridors. For instance, is there safe opportunities for children's outdoor play?

The proposed landscaping to the north of the development, and the upgrade of the shared path and ramp is strongly supported. This will transform the overall character of the site, helping to support the creation of a place in an area that currently presents as an unsafe and neglected thoroughfare.

## 03 Urban Design Review

### 3-2 Design review

#### Objective 4 Better for people – safe comfortable and liveable

*"The built environment must be designed for people with a focus on safety, comfort and the basic requirement of using public space. The many aspects of human comfort which affect the usability of a place must be addressed to support good places for people."*

#### Planning Proposal

The Planning Proposal identifies that "the existing condition of the site does not facilitate activation or a sense of safety" and proposes a residential apartment building that will help to activate the site. Adjoining the site is part of an existing pedestrian and cycle pathway (see Figure 33 and Figure 35), and a pedestrian ramp that links the elevated Homebush Bay Drive with the ground level (Figure 34), and connects to an active transport underpass beneath Homebush Bay Drive that links to the Rhodes Train Station. The existing active transport underpass has low passive surveillance, particularly as the current pedestrian ramp blocks sight lines to and from the underpass.

As part of the proposed development, a new DDA compliant pedestrian ramp is proposed closer to Homebush Bay Drive and a new pedestrian pathway is proposed to be located to the south of the ramp. This will provide clear sight lines between the underpass and the lobby of the proposed development, and remove the need for pedestrians to travel along a narrow pathway between the structure supporting Homebush Drive and the pedestrian ramp. For further information on the proposed ramp, see Objective 6 on pg 38-39.

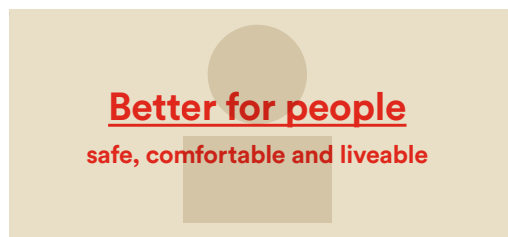


Figure 33 View of the site with the active transport ramp in the rear, blocking sight lines to the active transport tunnel



Figure 34 View showing the pedestrian tunnel and ramp up to Homebush Bay Drive in the northern corner of the site.



Figure 35 View of the site looking east showing the pedestrian pathway along the edge of Homebush Bay Drive.

## 03 Urban Design Review

The site is surrounded by large scale transport infrastructure on three sides. Homebush Bay Drive and Oulton Avenue form the northern and western edge of the site, and carry high levels of vehicular traffic. The T9 Northern Railway Line forms the eastern site edge and carries high volumes of passenger and freight rail. The Planning Proposal reference scheme involves the use of wintergardens instead of balconies to mitigate noise and air pollution generation by the infrastructure corridors.

Appendix F: Acoustic and Vibration Assessment provides an acoustic and vibration study for the proposed development. This includes facade noise impact modelling (see Figure 36, Figure 37 & Figure 38) which reflects the noise impacts of the site from the nearby roads, railway line and potential noise impacts from the future mechanical plant servicing the development. The assessment identifies that the site is at risk of late night freight rail movements and sleep disturbance, "where relatively thin glass can meet the 9 hour average noise level requirement of the Development Near Rail Corridors and Busy Roads. However even if compliant with the 9 hour goal, the momentary noise level during a freight train passby can be relatively high and could result in sleep disturbance".

Appendix F provides glazing design recommendations for each facade of the proposed building to address L<sub>max</sub> (peak/sleep disturbance events) and identifies that all operable windows and door elements are to have acoustic seals. Other recommendations include the use of either wintergardens or the use of a balcony balustrade to act as a noise screen and provide ventilation via a low height window to the room (below the level of the balustrade).

Appendix A provides a detailed design for the proposed wintergardens which are designed to ensure the acoustic treatment of apartments. The wintergardens are also designed to provide some ventilation through a trickle vent.

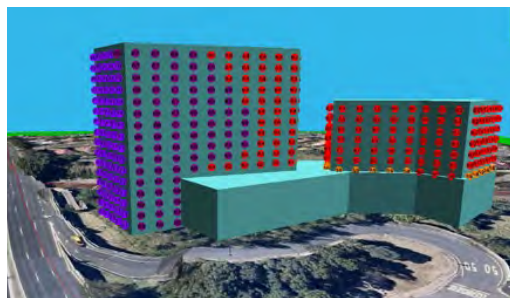


Figure 36 Facade Noise Impact Modelling: View from West (Daytime) from Appendix F

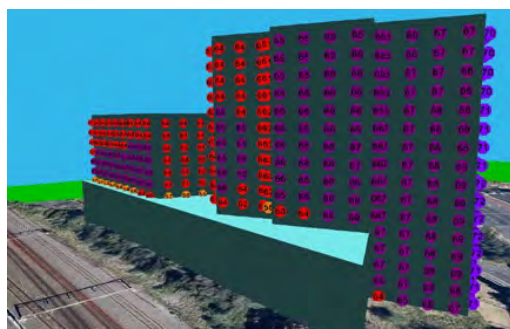


Figure 37 Facade Noise Impact Modelling: View from North-East (Daytime) from Appendix F

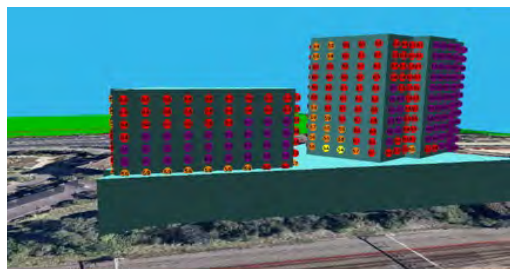


Figure 38 Facade Noise Impact Modelling: View from South-East (Daytime) from Appendix F

Appendix F also identifies that "In accordance with the DoP Development Near Rail Corridors and Busy Roads Guideline: *If the internal noise levels with windows or doors open exceed the criteria by more than 10dBA, the design of the ventilation for these rooms should be such that occupants can leave windows closed, if they so desire, and also to meet the ventilation requirements of the Building Code of Australia.*"



## 03 Urban Design Review

### 3-2 Design review

#### Objective 4 Better for people – safe comfortable and liveable

The report documents that all façades of the proposed built form exceed the 'windows open' criteria and state that "Supplementary fresh air (natural or fan assisted) 'should' be provided to apartments". The Acoustic and Vibration Assessment concludes that "reasonable controls can be incorporated into the building design to comply with relevant Standards and Policies for internal noise levels".

Appendix G: Air Quality Assessment identifies that "The levels of air pollutants experienced at the Project would be consistent with those experienced at the existing high rise residential land uses

in the vicinity of Homebush Bay Drive". It also states that "the assessment demonstrates that the general Project design and location is adequate to prevent the potential adverse impacts of vehicular emissions from the adjacent classified road on the development".

In relation to overshadowing impacts of the proposed development, Appendix A provides a shadow analysis that identifies some overshadowing of the neighbouring properties to the south at 9:00am, no overshadowing at 12:00pm, and some overshadowing of the western facade of buildings that front Mutton Reserve on the eastern side of the railway line.

#### Planning Proposal shadow analysis



#### SGL modeled shadow analysis



## 03 Urban Design Review

### Response

In regard to safety, providing a new DDA compliant ramp closer to Homebush Bay Drive, and a new pedestrian pathway to the south of the ramp connecting with the underpass tunnel is strongly supported. This will reduce areas of low visibility along this important route and establish clear sight lines between the proposed development and areas of pedestrian movement that currently have low passive surveillance. Proposed landscaping around the ramp is also "to be low to maintain sight lines for casual surveillance". This is strongly supported.

Appendix F and Appendix A provide documentation that the use of wintergardens can ensure suitable acoustic treatment of apartments. Given that Appendix F documents that all façades of the proposed built form are expected to exceed the 'windows open' acoustic standard, it is also recommended that supplementary ventilation is a requirement for all apartments.

Appendix G states that the levels of air pollutants experienced on the site would be consistent with those experienced at the existing surrounding high rise residential developments within the vicinity of Homebush Bay Drive. The report identifies that the worst air pollution is experienced at approximately 6m above ground level. For this reason, the use of above ground car-parking is appropriate to minimise habitable space in the most polluted part of the site.

The Interim Guideline for Development Near Rail Corridors and Busy Roads notes that the more confined a space that is adjacent to or over a roadway, the less opportunity air pollutants have to disperse. It also recommends using vegetative screens and barriers where appropriate and states "Landscaping has the added benefit of improving aesthetics and minimising visual intrusion from an adjacent roadway". The Landscape Concept Design plan in Appendix A documents the intention to "dress existing wall with vertical garden of native ferns and epiphytes", referring to the wall against Homebush Bay Drive. This is supported.

In relation to the overshadowing impacts of the proposed development, the shadow diagrams provided as part of the Urban Design Report Appendix A appear to show slightly reduced overshadowing impacts when compared to the SGL modelled impacts. The difference is most noticeable in the morning. It is not known why this is the case, although as noted in the introduction, detailed survey information of the local area is limited. There is a possibility that the Planning Proposal shadow analysis may have been completed using a flat terrain, as a lack of topography would impact the extent of shadows. The Planning Proposal modelling also seems to reflect a slightly different shaped built form to that which is proposed in the architectural plans, with building articulation shown differently.

The SGL shadow analysis illustrates the approximate scale and location of shadow impact of the proposed development on the surrounding context in a model with topography. The model has been created using the provided survey (Appendix B). The survey did not include RLs for adjoining properties so it is noted that these heights are approximate only.

Nevertheless both the PP shadow analysis and the SGL modelled shadow analysis appear to show that neighbouring apartments will continue to receive a minimum of 2 hours of direct sunlight.

It is recommended that any development on this site does not reduce solar access to any of the neighbouring apartments to less than two hours during mid-winter. This recommendation is inclusive of any potential future development permitted under a SEPP which would allow additional height above the LEP controls, such as 30% additional height for the provision of 15% affordable housing.

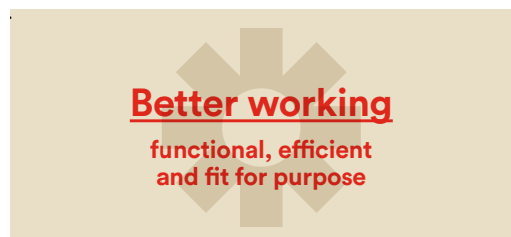


## 03 Urban Design Review

### 3-2 Design review

#### Objective 5 Better Working – functional efficient and fit for purpose

*“Having a considered, tailored response to the program or requirements of a building or place, allows for efficiency and usability with the potential to adapt to changes over time. Buildings and spaces which work well for their proposed use will remain valuable and well-utilised.”*



#### Planning Proposal

Development on the Oulton Avenue site is challenging and complex due to its location between three infrastructure corridors and given it has no street address. As a result, the proposal features separate entrances for active transport and for vehicles. Access to the apartment building for pedestrians and cyclists is via the shared path to the north of the site, viewed in Figure 39. Vehicular access to the site is via the Oulton Avenue off-ramp from Homebush Bay Drive which also includes a "drop off" spot on the ground floor, and leads to residential parking on Levels 02 and 03. The proposed ground floor plan currently shows a lobby space that acts as an entrance point for both pedestrians, cyclists and those arriving by vehicle.

The northern tower of the proposed built form features a number of cantilevered elements. Levels 5-12 are cantilevered to the north of the building above the pedestrian and cycle entrance to the lobby, and to the south and west above the podium and communal open space.

The ground floor plan, which is titled "Level 01", shows that eight structural columns will support the cantilevered element to the north of the building (see Figure 39). The "Level 4" floor plan, which shows the communal open space on top of the podium, does not show any structural support for the cantilevered elements to the south or west of the northern tower (see Figure 40).

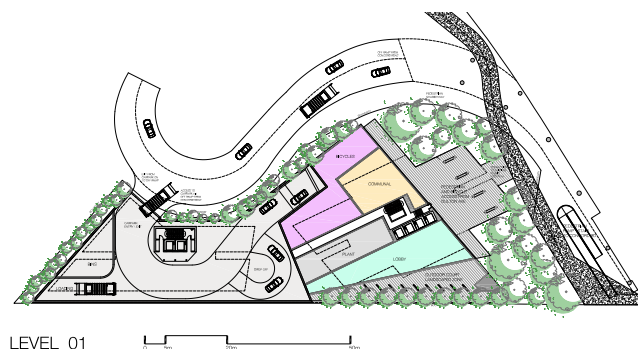


Figure 39 Reference Scheme Plans: Level 01 from Appendix A: Urban Design Report



Figure 40 Reference Scheme Plans: Level 04 from Appendix A: Urban Design Report

## 03 Urban Design Review

### Response

A single lobby that connects both the vehicular entry through the car park and the active transport entry to the north of the building is supported. The design of the lobby should be improved to increase safety and amenity. The current lobby design is narrow, particularly where it connects with the car-park entrance. It is recommended that the lobby design is refined so that there is a clear line of sight directly between the vehicular drop off point, the lifts and to where access from the active transport pathway occurs. It is important to consider the range of people who will be arriving at the apartment building via all modes of transport. For instance, if it is a visitor or delivery, there needs to be an obvious and safe entrance for them.

The floor plans in Appendix A indicate the placement of eight structural columns to support the cantilevered feature to the north of the built form (see Figure 39 on page 36). Identifying the location of the structural columns is supported given they contribute to the structural integrity of the building, however it is noted that the entrance to the lobby is located in the undercroft of the cantilevered northern upper storeys. It is recommended that the entrance treatment to the lobby and this undercroft area is of high quality to ensure it is safe and accessible, as well as promoting passive surveillance of the proposed landscaped area to the north.

It is considered unlikely that the cantilevered elements to the south and west of the northern tower above the podium would feature no structural support. It is recommended that the Level 4 floor plan is refined to show realistic structural supports as structural supports will impact on the character of the communal open space on the podium.



Figure 41 Photo-realistic visualisation of the northern facade of the Planning Proposal from Appendix A: Urban Design Report

Figure 41 is a photo-realistic visualisation of the development outlined in Planning Proposal (pg 75 of Appendix A). This view does not show the structural columns to support the cantilevered elements to the north of the building, and appears to show the car parking podium directly under the tower element, substantially reducing the landscaped area in front of the development. As the cantilever is not shown, an understanding of what this building entrance treatment will look like from the shared active transport pathway is not clear. It is also noted that this visualisation shows two cars to the north of the building despite no vehicular access to the north of the building being proposed in the Planning Proposal. The ground floor plan and Landscape Concept Design Plan identify this space as a pedestrian and cycle entrance. The current photo-realistic visualisation is misleading. It is recommended that this visualisation is refined to reflect the Planning Proposal Reference Scheme design to provide an accurate understanding of what is being proposed.

## 03 Urban Design Review

### 3-2 Design review

#### Objective 6 Better Value – creating and adding value

*“Good design generates ongoing value for people and communities and minimises costs over time. Creating shared value of place in the built environment raises standards and quality of life for users, as well as adding return on investment for industry.”*

**Better value**  
creating and adding value

#### Planning Proposal

A Landscape Concept Design has been included within Appendix A which demonstrates the proposed landscaping. The design generally reflects a landscaped open space to the north of the proposed building and narrow vegetation strips along the boundaries, with an exception for the southern half of the eastern boundary where the podium is built to the boundary.

The Landscape Concept Design Plan identifies a range of strategies including the use of planting to screen and soften the building elevation to the south, use of vegetation as a buffer to the railway line, and the use of vertical gardens to dress existing blank walls. The Landscape Concept Plan also looks outside the site boundary and provides urban activation strategies like seating along the existing pedestrian pathway, showing consideration for how the site fits into a wider network. The Landscape Concept Design Plan includes an Indicative Plant Schedule and makes reference to "tall open canopy trees to allow sightlines through and over open space areas", and an "ornamental tree to highlight development entrance".

The Landscape Concept Design does not identify deep soil zone areas. Page 73 of Appendix A identifies the ADG requirement of 7% deep soil zone area for sites greater than 1500m<sup>2</sup>, and identifies that the proposed design has "concentrated deep soil within the drop off zone and eastern part of

the site, with additional landscaped setbacks in the western and southern boundaries". The Planning Proposal does not identify how much of the site will be deep soil, but states "the deep soil calculations for the site demonstrate that 7% deep soil can be achieved. This is subject to a more detailed landscape design in the next stage of design".

The Landscape Concept Design Plan also documents "outdoor court landscaped zone" along the eastern boundary and "dense foliated buffer planting" (see page 59 of Appendix A), however this is located in an undercroft space located beneath carparking within the Level 02 and Level 03 podium.

The Planning Proposal Report identifies the development will include the delivery of a "New DDA compliant ramp to replace the existing pedestrian access to Homebush Bay Drive". The Landscape Concept Plan (pg 58-61 of Appendix A) and the artist impression (pg 75 of Appendix A) show that the new ramp has been positioned to the north-west of the existing ramp closer to Homebush Bay Drive. It also proposes a new pedestrian pathway providing access to the pedestrian underpass positioned to the south of the proposed new ramp with a clear sight line between the proposed development and the pedestrian underpass.

## 03 Urban Design Review

### Response

The Landscape Concept Design within Appendix A is generally supported. The plan is thoughtful and considers not just the area within the site boundary but also how the site will fit within its immediate context.

Providing a "New DDA compliant ramp to replace the existing pedestrian access to Homebush Bay Drive" is strongly supported as it should increase passive surveillance to and from the existing pedestrian underpass and the proposed development. The delivery of this new ramp and pedestrian pathway would provide value and increased safety for both residents of the site and would be of public benefit to the wider community. The Planning Proposal identifies that the delivery of the proposed new ramp will be through a Voluntary Planning Agreement (VPA). A VPA is supported, but it is recommended that this and the wider landscaping improvements are also supported by an in principle agreement with Transport for NSW who are the land owners.

The Landscape Concept Plan and Indicative Plant Schedule in Appendix 1 complement the proposed development. The documented intention to preserve sight lines and to use landscaping to identify the building entrance for pedestrians is supported.

In regard to deep soil, the Planning Proposal does not identify deep soil zone areas on the landscape plan or provide a percentage for deep soil zone site coverage. The Oulton Avenue site is approximately 4,168m<sup>2</sup> in size. The ADG requires sites greater than 1,500m<sup>2</sup> to have a minimum of 7% deep soil coverage across the site, with a minimum dimension of 6m, however the ADG also states that sites greater than 1,500m<sup>2</sup> may be able to provide 15% deep soil.

Figure 42 reflects the proposed Landscape Concept Design, with SGL deep soil zone area calculations annotated over. The area highlighted in green is approximately 671m<sup>2</sup>, which is approximately 16% of the site area. Given the hostile context and the ADG control, it is recommended the minimum deep soil zone percentage requirement for this site is 15%.



Figure 42 Landscape Concept Design from Appendix A: Urban Design Report with SGL annotations showing deep soil calcs in dark green

## 03 Urban Design Review

### 3-2 Design review

#### Objective 7 Better look and feel – engaging, inviting and attractive

*"The built environment should be welcoming and aesthetically pleasing, encouraging communities to use and enjoy local places. The feel of a place, and how we use and relate to our environments is dependent upon the aesthetic quality of our places, spaces and buildings. The visual environment should contribute to its surroundings and promote positive engagement."*

**Better look and feel**  
engaging, inviting and attractive

#### Planning Proposal

The Planning Proposal seeks to change the CCBLEP maximum building height from 24m to 46m and the maximum FSR from 1.1:1 to 2.1:1. The proposed built form is 45.9m in height, while the FSR is 2.06:1.

Level 01 contains ground floor amenity and vehicular access, while Levels 02-03 feature car parking.

Along the eastern site boundary, approximately 68.5m of the ground floor is built to the boundary with zero setback, with the northern section setback 2m-12m. Levels 02-03 are both built to the eastern boundary with zero side setback. This results in a blank podium wall that is approximately 117m in length.

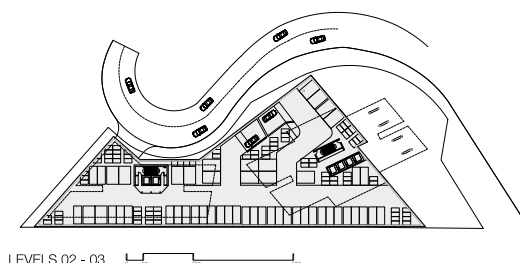


Figure 43 Reference Scheme Plans: Level 02-03 from Appendix A: Urban Design Report

#### Response

It is recommended that the maximum height of building is approximately 42m for the northern tower and 30m for the southern tower. See Objective 1 on page 26-27 for a building height break down of SGL recommendations.

SGL has calculated that the Planning Proposal built form has an FSR of approximately 2.1:1 (see Appendix page 48 for FSR breakdown). This FSR calculation includes the wintergardens as they are semi-enclosed spaces that contribute to the overall bulk and scale of the building. A FSR of 2.1:1 is supported.

It is noted that the Planning Proposal provides 37 additional car spaces in relation to the maximum car parking requirement identified in the CCB DCP. The CCB DCP identifies that "Any parking in excess of the [maximum] requirements will be counted as Gross Floor Area (GFA)". It is recommended that the proposal reduces the number of car spaces, or if the 102 car parks are retained, the overall bulk and scale of the building will need to be reduced to comply with the maximum FSR of 2.1:1.

The proposed height and scale of the built form, which features an 8 storey tower and a 12 storey tower, is supported. Given the topography, the proposed 8 storey tower fits in with the existing context of Liberty Grove which features 10-storey



## 03 Urban Design Review

apartment buildings. The 12 storey tower is slightly taller than that of the site's surrounding context, but given the highly constrained site, an increase to a 12-storey height is appropriate. The site location between three infrastructure corridors will result in a high level of visibility for train passengers and vehicles travelling southbound along Homebush Bay Drive. As the site is highly visible, it is recommended that the buildings' architecture and delivery are to a design excellence standard.

In regard to the podium, which is proposed to be built to the eastern boundary with zero setback and 117m long, this is not supported. It is recognised that the site is highly constrained by its irregular shape, and that certain distances are required within the podium to allow for suitable vehicular turning circles, however a reduced length and/or areas of increased setback to allow landscaping along the eastern boundary is recommended. The site is highly visible from trains passing by, and from Mutton Reserve on the eastern side of the railway line (see Figure 44 and Figure 45).



Figure 44 Existing view of the site from Mutton Reserve

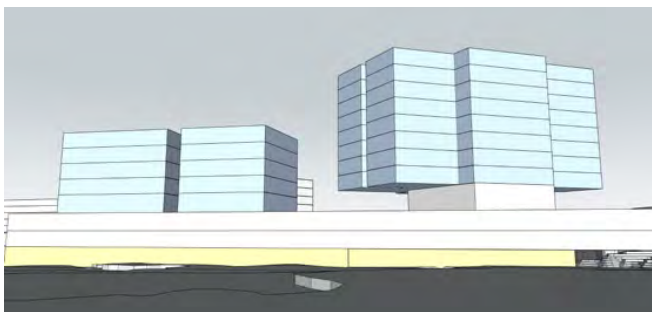


Figure 45 SGL sketch up model: view of the proposed development from Mutton Reserve (looking west)

The Planning Proposal states that "the existing trees along the eastern boundary will be retained and protected, where possible, to retain the existing tree cover and landscape character". 117m of the 138m eastern boundary is built with zero setback, which only leaves 21m for tree retention and landscaping. The minimal setback that is proposed along the podium only occurs at Level 01 (the Ground Floor). Any vegetation shown on the landscape plan in this location is in the undercroft of the podium where it will receive limited natural light or rain.

A landscaped buffer along the rail boundary would strengthen the desired future character of the development for both residents of the site, the local community and the surrounding context. This desired future character for this area is more in keeping with the conditions seen along Duntroon Avenue in St Leonards (Figure 46) as opposed to the more urban conditions along the train line as seen at Burwood (Figure 47).

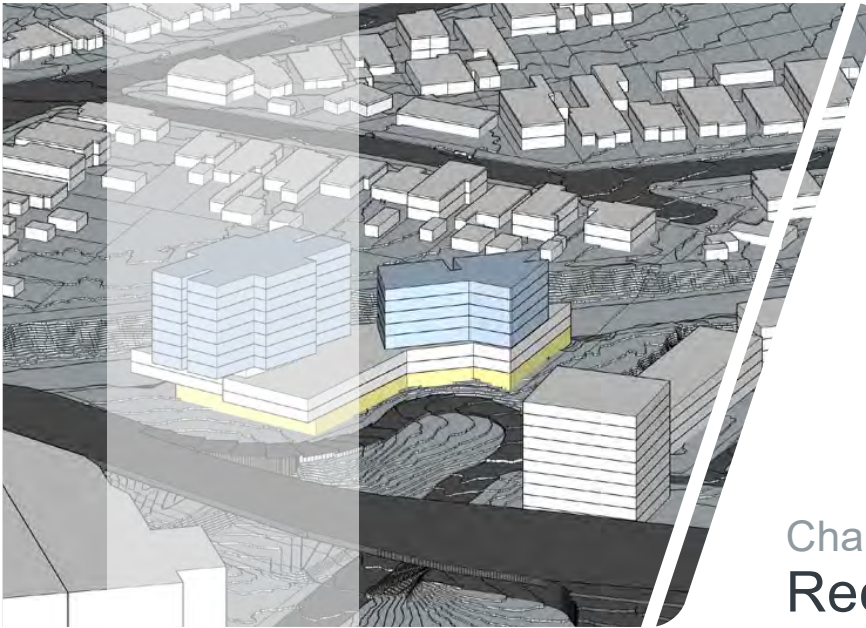
A nil or small setback to the rail line will likely increase the cost, complexity and risk that is associated with excavating and developing immediately adjacent to a working railway line.



Figure 46 Approx. 6m built form setback along rail line at St Leonards



Figure 47 Nil built form setback along rail line at Burwood



## Chapter 4 Recommendations

4-1 Overview

4-2 Overview of recommendations

## 04 Recommendations

### 4-1 Overview

The urban design review of the Planning Proposal has identified a series of key recommendations to improve the future development outcomes at the Oulton Avenue site and to increase the compatibility of the development with the local context.

The Planning Proposal review and recommendations detailed in Chapter 3 have been summarised here in Chapter 4. These recommendations have been informed by the physical and strategic context, and the design objectives identified in Better Placed (Chapter 3).

The review has taken into consideration the proposed amendments to the CBLEP controls including Land Use, Height of Buildings and Floor Space Ratio.

The Planning Proposal has been assessed against the Better Placed design objectives which include:

- Better fit - contextual, local and of its place
- Better performance – sustainable, adaptable and durable
- Better for community - inclusive, connected and diverse
- Better for people – safe, comfortable and liveable
- Better Working – functional, efficient and fit for purpose
- Better Value – creating and adding value
- Better look and feel – engaging, inviting and attractive

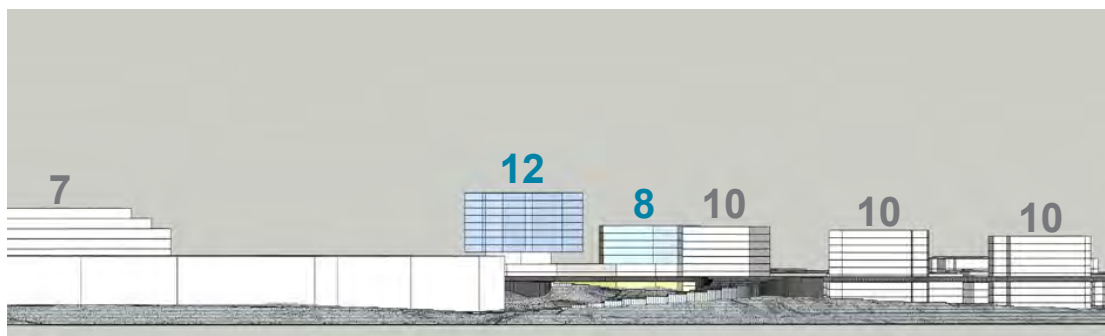


Figure 48 South-eastern View: Planning Proposal with proposed building heights in storeys

## 04 Recommendations

### 4-2 Overview of recommendations

#### 4.2.1 Better fit

- A maximum FSR of 2:1 is supported.
- An apartment building with a 12 storey tower close to Homebush Bay Drive and a shorter 8 storey tower to the south is supported.
- The proposed floor-to-floor heights are considered generous and unnecessary for what is proposed. It is accepted that the ground floor may require a floor-to-floor height of up to 5m for loading and access. It is recommended that the car-parking and residential levels have a floor-to-floor height of 3.2m. It is understood that Level 4 may require a 3.6m floor-to-floor height to create an appropriate under-croft space. A 3m floor-to-floor height for 'rooftop plant' is not supported. It is recommended that 'rooftop plant' has a maximum floor-to-floor allocation of 1-1.5m. Using these floor-to-floor dimensions, the recommended maximum height of building is 42m for the northern tower and 30m for the southern tower.
- Given the scale of development it is recommended that the proponent considers the provision of affordable housing. Any additional height or FSR gained through a SEPP will need to be contingent on minimising impacts of any additional overshadowing to existing residences and public open space.
- It is recommended that the built form proposed is of design excellence standard, given its prominent location and greater height compared with the surrounding context.

#### 4.2.2 Better performance

- The design choice to have no single aspect apartments facing the railway line is supported.
- The proposed building separation can be accommodated, but it is less than the ADG recommends, which will reduce flexibility during design development.
- Ensuring that façades which do not receive 2 hours of solar access are part of an apartment that receives the solar access on a different facade is supported. The use of narrow floor

plates and dual aspect apartments are generally supported.

- The solar insolation study, which ensures neighbouring properties are not negatively impacted by the proposed overshadowing and still receive 2 hours of solar access, is supported.
- Given the unique site constraints, providing two levels of car-parking above ground within a podium is considered acceptable, however providing two different floor to floor heights seems unnecessary. A floor-to-floor height of 3.2m is recommended for car-parking levels to increase future adaptability.
- It is recommended that the proposed number of car-parks is revised to 64 car-parks to align with the CCB DCP maximum car-parking rates. If the 38 additional car-parks are proposed, they should be counted towards the overall FSR calculations and the bulk of the building reduced.

#### 4.2.3 Better for community

- The proposed dwelling mix is supported.
- It is noted that Appendix A includes floor plans for 'Levels 5 to 8' and 'Levels 8-12', which each show a different dwelling mix for level 8. It is recommended that the labelling of floor plans is revised to provide a clear understanding of what is proposed, e.g. Levels 5-8 and Levels 9-12.
- The intent to provide housing for essential workers is supported and more detail around this intent would be desirable.
- Providing a mix of household types to activate the area is supported and encouraged.
- It is recommended that the proposal provides a minimum of 5% affordable housing in line with Council's Affordable Housing Strategy.
- The proposal would benefit from considering how the development would meet the needs of different demographic grounds e.g. is there safe opportunities for children's play?
- The proposed landscaping to the north of the site and the upgrade of the shared path and ramp is strongly supported.

## 04 Recommendations

### 4.2.4 Better for people

- Providing a new DDA compliant ramp closer to Homebush Bay Drive, and a new pedestrian/cycle pathway to the south of the ramp connecting with the underpass tunnel is strongly supported.
- Ensuring landscaping around the ramp allowing for clear sight-lines between the development, the shared path, the ramp and the underpass tunnel is strongly supported.
- The use of wintergardens with trickle vents to mitigate noise pollution is supported.
- It is recommended that the proposed built form has supplementary ventilation where 'windows open' acoustic standards cannot be met.
- Locating two levels of above-ground podium car-parking is supported as the highest level of air pollution experienced was documented at 6m above ground level.
- Use of vertical landscaping on the wall of Homebush Bay Drive is supported.
- The overshadowing impacts indicate that neighbouring properties receive a minimum of 2 hours of solar access. While achieving the minimum standards is supported, it is recommended that future modelling of the proposed built form is done on a model with the terrain to provide a more accurate representation of overshadowing impacts with a particular focus on the impacts on 3 Bradley Place, Liberty Grove.
- It is recommended that any development on this site does not reduce solar access to any of the neighbouring apartments to less than 2 hours during mid-winter. This includes any potential future development permitted under a SEPP which would allow additional height above the proposed new LEP controls.

### 4.2.5 Better working

- A single lobby that connects both the vehicular entry through the car park and the active transport entry to the north of the building is supported. It is recommended that the design of the lobby is improved so that it is not on an angle and allows a generous and clear line of sight between the two entrances.
- Indicating the placement of eight structural columns to support the cantilever at the north of the building is supported. It is noted that the entrance to the lobby is in the undercroft of the cantilever. It is recommended that the entrance treatment of the lobby is of high quality to ensure it is safe, accessible and promotes passive surveillance.
- It is recommended that the Level 4 floor plan is refined to show any structural elements that would be needed to support the cantilevered parts of the northern tower.
- It is recommended that the photo-realistic visualisation (on pg 75 of Appendix A) is refined to more accurately reflect what is proposed. The view does not show the structural columns to support the cantilevered elements, and appears to show the car-parking podium under the tower element, substantially reducing the landscaped area at the front. It is also recommended that the cars are removed from the visualisation given there is no proposed vehicular access identified in their location.



## 04 Recommendations

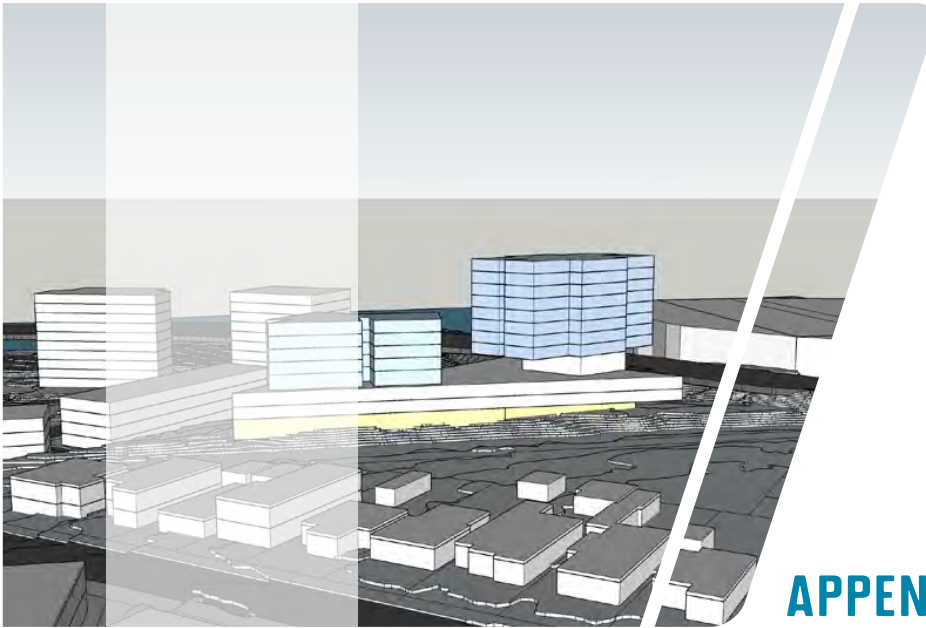
### 4-2 Overview of recommendations

#### 4.2.6 Better value

- The Landscape Concept Design plan within Appendix A is generally supported.
- Providing a new DDA compliant ramp to replace the existing pedestrian access to Homebush Bay Drive, and a new pedestrian pathway to the south of the ramp is strongly supported and is of high value to both the future residents of the site and the local community.
- While it is identified that the proposed new ramp will be delivered through a Voluntary Planning Agreement, it is recommended that this and the wider landscaping improvements, are also supported by an 'in principle' agreement with Transport for NSW who are the land owners.
- The documented intention to preserve sight lines and use landscaping to identify the building entrance for pedestrians is supported.
- It is recommended that the landscape plan is refined to identify deep soil zones. Given the size of the site and its hostile context it is recommended that the minimum deep soil coverage percentage requirement is 15%. This is achievable within the current proposed landscape design.

#### 4.2.7 Better look and feel

- As identified in Section 4.2.1, a maximum building height of 42m is recommended for the northern tower and 30m for the southern tower.
- A maximum FSR of 2.1:1 is supported. Including wintergardens in the FSR calculations is also supported.
- As identified in section 4.2.2, any car-parks in excess of the maximum requirements are to be counted towards the overall GFA and FSR, as per the CCB DCP. As such, it is recommended that the proposal reduces the number of car spaces, or if the 102 car parks are retained, the overall bulk and scale of the building will need to be reduced to comply with the maximum FSR of 2.1:1.
- Locating the taller 12 storey tower close to Homebush Bay Drive is supported as this site will be highly visible. It is recommended that the architecture and delivery of this tower are of design excellence standard.
- Proposing a carparking podium with a zero setback to the eastern boundary is not ideal. While it is recognised that the site is constrained by its irregular shape, and that certain distances are required within the podium to allow for suitable turning circles, an increased setback is recommended where possible to allow for increased landscaping along the eastern boundary.
- A 117m long blank podium wall is not supported as it would have a negative impact on the local character of the area particularly when viewed from a train or Mutton Reserve on the eastern side of the railway line. A reduced length and/or areas of increased setback are recommended.
- It is also noted that a nil or small setback to the railway line may increase the cost, complexity and risk associated with excavating and developing directly adjacent to a working railway line.



## APPENDIX

## Appendix

### Planning Proposal FSR Review

The FSR of the Planning Proposal scheme was reviewed by Studio GL and the calculation results are generally in accordance with the 2.1:1 FSR proposed by the proponent.

Total Site Area	4,168 m <sup>2</sup>
Total FSR	2.12 : 1
Total FSR* (if excess car spaces are included)	2.48 : 1
Total GFA (res, comm, retail, other)	8,834 m <sup>2</sup>
Total GFA* (if excess car spaces are included)	10,354 m <sup>2</sup>

*Notes:*  
Winter gardens were included in Studio GL's testing of the residential GFA of the proposed scheme which appears to be consistent with the proponents figures. \*Studio GL's GFA calculations have a second calculation that accounts for 38 car spaces which exceed the maximum number of parking spaces required by the CCB DCP. The additional 1520m<sup>2</sup> of FSR is based on a 'rule of thumb' that each car space requires approximately 40m<sup>2</sup> per space.

Area calculation by level	Measured area (GBA)	Residential GFA	Carparking component
	as measured in CAD	as measured in CAD (inc. WG)	additional to DCP maximum
Level 1 (Ground floor)	2,352 m <sup>2</sup>	686 m <sup>2</sup>	m <sup>2</sup>
Level 2-3 - Car Park	5,475 m <sup>2</sup>	m <sup>2</sup>	1,520 m <sup>2</sup>
Level 4 - Residential	998 m <sup>2</sup>	673 m <sup>2</sup>	m <sup>2</sup>
Level 5-8 - Residential	6,683 m <sup>2</sup>	4,688 m <sup>2</sup>	m <sup>2</sup>
Level 9-12 - Residential	3,928 m <sup>2</sup>	2,787 m <sup>2</sup>	m <sup>2</sup>
<b>Subtotal</b>	<b>19,436 m<sup>2</sup></b>	<b>8,834 m<sup>2</sup></b>	<b>1,520 m<sup>2</sup></b>

Figure 49 FSR calculations prepared by Studio GL of the proposed scheme

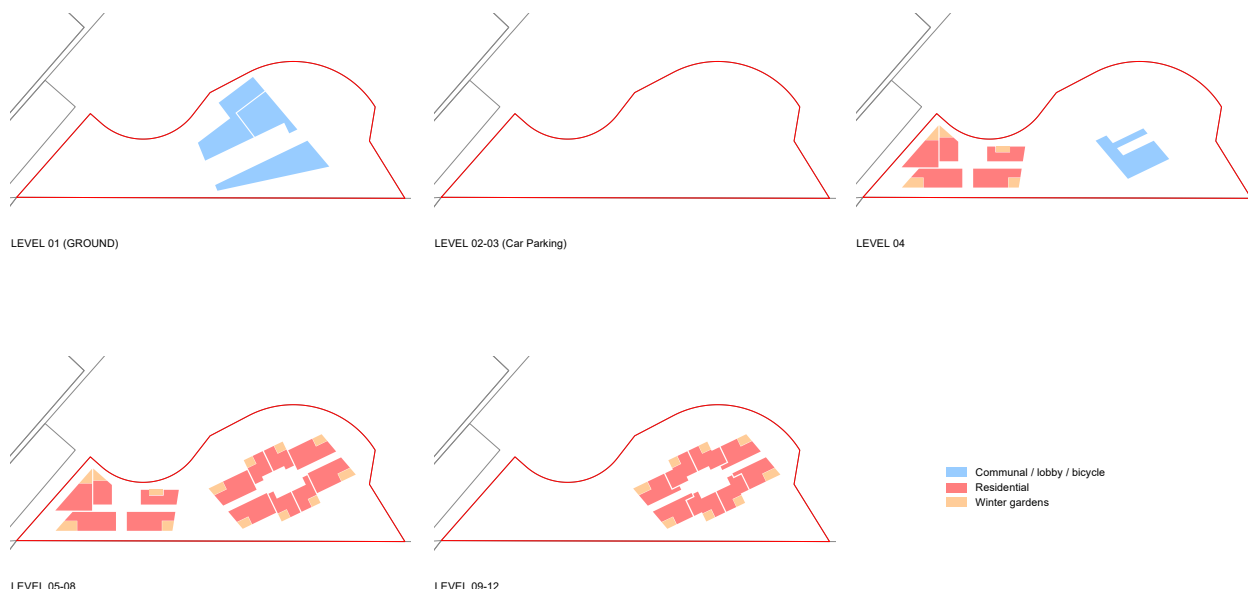


Figure 50 GFA areas used by Studio GL to calculate FSR of the proposed scheme

## Appendix

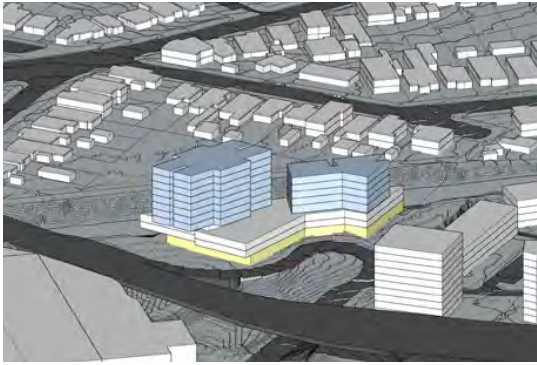


Figure 51 South-eastern View: Planning Proposal

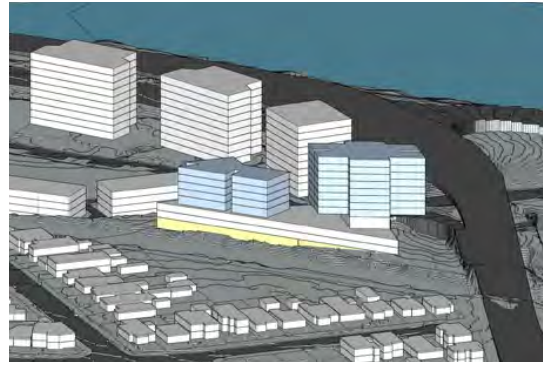


Figure 52 South-western View: Planning Proposal

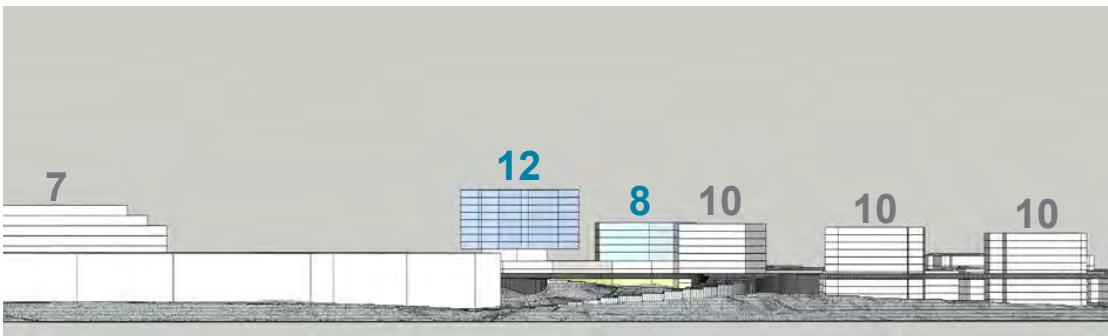


Figure 53 South-eastern View: Planning Proposal with proposed building heights in storeys







6 August 2024

Mark Dennett  
City of Canada Bay Council

Sent via email: [mark.dennett@canadabay.nsw.gov.au](mailto:mark.dennett@canadabay.nsw.gov.au)

Dear Mark

## Re: Oulton Ave, Concord West - Affordable Housing Contributions Analysis

### Background

The City of Canada Bay Council (**Council**) has received a planning proposal (**the Proposal**) for Lot 212 Oulton Avenue, Concord West (**the Site**) from Oulton Rhodes Pty Ltd (**the Proponent**). The Site represents an irregularly shaped, ~4,200sqm unimproved allotment. The planning proposal contemplates:

- Rezoning from MU1 Mixed Use to R4 High Density Residential.
- Amending the maximum floor-space-ratio (FSR) from 1.1:1 to 2.1:1.
- Amending the maximum building height from 24m to 46m.

Atlas Economics (**Atlas**) is engaged by Council to carry out a Feasibility Analysis (**the Study**) to investigate the capacity of the development to contribute to Affordable Housing, if the Proposal is delivered. The findings will inform Council's Affordable Housing Contribution Scheme (**AHCS**).

### Scope and Purpose

The overarching objective of the Study is to understand the financial capacity of the Proposal to contribute to Affordable Housing (**AH**) and remain feasible. To meet the requirements of the brief, Atlas carried out the following:

- Review of the Site under existing planning controls to assess its value 'as is' (i.e. the opportunity cost of land).
- Review of Council's policies (i.e. s7.11 Contribution Plans and Planning Agreements) to understand a development's obligations to contribute to infrastructure, public benefit and Affordable Housing.
- Feasibility modelling - development under existing planning controls (**Base Case**) and under the Proposal.
- Assessment of the capacity of development under the Proposal to contribute to AH.

For development to be feasible to undertake, a site's value as a development opportunity needs to exceed its value in existing use. The value of the Site in its existing use is also referred to as the Opportunity Cost of Land, i.e. it is the value that is foregone if the Site were to be rezoned and developed.

### Council's Planning Agreements Policy

The 2023 Canada Bay Planning Agreements Policy & Procedures Manual (**the Policy**) sets out Council's policy which applies to development applications lodged pursuant to the Environmental Planning and Assessment Act 1979 and planning proposals seeking to amend the Canada Bay Local Environmental Plan (LEP).

Two contribution plans apply in the Canada Bay LGA - s7.11 and s7.12 which fund the delivery of public infrastructure within specified areas. Additionally, the Policy sets out the requirements for Voluntary Planning Agreements (**VPA**) that enable development contributions to be delivered along with planning proposals and development applications. Should a proposal result in a value uplift (a higher site value resulting from amended planning controls), Council considers contributions of up to 50% of the value uplift as appropriate.

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### Assumptions and Limitations

Atlas highlights the necessity for assumptions and acknowledges the limitations of a desktop analysis such as this.

- We have not searched the title, plans or planning certificates and assume there are no impediments to the Site as a development opportunity.
- A desktop estimate of site value in existing use is made. We have not sighted any financial information nor carried out a physical inspection of the Site.
- Generic feasibility testing is based on high-level revenue and cost assumptions and does not consider site-specific nuances typically considered in detailed feasibility analysis. If there are contamination, adverse ground conditions or geotechnical issues that affect the cost of development, the analysis would require revision.
- The feasibility analysis assumes there are no extraordinary costs (e.g. contamination, geotechnical constraints, asbestos removal, etc.) that would be applicable in a development of the Site.

The development feasibility is based on revenue and cost assumptions relevant at the time of the Study. Should there be any significant changes in market movements, Atlas reserves the right to review the analysis and report.

## The Proposal

The Proposal contemplates the delivery of two, 8- and 12- storey residential buildings. This includes ground level communal facilities, podium carparking (levels 2 to 3) and 89 apartments across the upper levels.

**Table 1** summarises key parameters of the Proposal, which form the feasibility assumptions under the Proposal.

**Table 1: Development Yields (Proposal Case)**

Parameters	Proposal
Total GFA	~8,530sqm
Implied FSR	2.1:1
Dwelling Yield	89 apartments
Car Spaces	101
Height of Building	45.9m
No. of Storeys	8-12 storeys

Source: Urbis (2024)

## Base Case (Existing Planning Controls)

The Base Case underpins the Opportunity Cost of Land and is the value of the Site 'as is'. This is represented by the highest and best use of the Site under existing planning controls, influenced by its land size, location and permitted land uses.

The Site is zoned MU1 Mixed Use and is unimproved with intermittent vegetation. Surrounding development includes the Liberty Grove estate, a large-scale development southwest of the Site, comprising numerous apartment buildings of up to 12 storeys. Immediately north of the Site is Rhodes West, a former industrial precinct recently rezoned to MU1 Mixed Use. Much of the area has since been gradually redeveloped for high density residential, office and retail uses.

The Site is currently subject to a FSR of 1.1:1 under the LEP, equivalent to a maximum GFA of ~4,600sqm, including potential for shop top housing. Given that the Site currently comprises vacant land with potential to accommodate higher density development, its highest and best use is deemed to be as a development site. A notional scheme under the existing controls is developed for the purposes of identifying the value of the Site 'as is'. This is outlined in **Table 2**.

**Table 2: Development Yields (Base Case)**

Parameters	Proposal
Existing FSR	1.1:1
Total GFA	~4,600sqm
Residential GFA	~4,130 sqm
Non-residential GFA	~460sqm

Parameters	Proposal
Dwelling Yield	42 apartments
Car Spaces	32
Height of Building	24m
Building Storeys	6 storeys

Source: Atlas

Based on existing planning controls, the Site could theoretically accommodate a 6- storey development with potential for ground floor retail/ commercial uses and 42 apartments across the upper floors. Compared to the Base Case, the Proposal represents a planning uplift of ~4,400sqm of residential floorspace. This is equivalent to approx. 47 additional apartments.

## Feasibility Modelling

This section undertakes feasibility modelling of the Site under the Base Case and Proposal to assess:

- Value of the Site 'as is' (under existing planning controls), i.e. the Opportunity Cost of Land.
- Value of the Site if developed in accordance with the Proposal and with an Affordable Housing contribution.

The overarching objective of the feasibility analysis is to test the capacity of the Proposal to contribute to Affordable Housing and remain feasible to develop.

### Methodology

The financial feasibility analysis relies on the Residual Land Value (RLV) method.

The RLV approach involves assessing the value of the development under the Proposal, considering total potential revenue and development costs, and making a further deduction for the profit and risk a developer would require in delivering the project. The RLV can be defined as the maximum price a developer would be prepared to pay for a site in exchange for the opportunity to develop a particular development scheme whilst achieving target hurdle rates for profit and project return.

For there to be an incentive to develop, the RLV must exceed the value of a site in its existing use as to 'displace' that use. Accordingly, the value of existing uses and any premium that a developer may need to be pay in order to consolidate a development site, are fundamental to the viability of new development.

The key steps in the generic feasibility analysis are:

- **Step 1:** Assess the value of the Site under the current planning framework (i.e. existing use value).
- **Step 2:** Carry out feasibility modelling to identify the site value under the Proposal and the % Affordable Housing contributions that can viably be made.

### Assumptions and Hurdle Rates

Cost and revenue assumptions are generic. Revenue assumptions adopted are informed by a property market appraisal and consultation with selling agents active in the locality. Cost assumptions adopted are derived from standard industry cost publications and past experience.

In assessing if a development is feasible, the key performance indicators relied on are development margin and project IRR.

The objective of feasibility testing is to assess if, at various residential densities and configurations, development margin and project IRR are within acceptable range. Where either development margin or project IRR falls below the acceptable range, it is concluded that development is not feasible and the site is more valuable 'as is', in its current use.

Benchmark hurdle rates and their 'feasible' ranges for development are indicated in **Table 3**.

**Table 3: Benchmark Hurdle Rates**

Hurdle Rates	Feasible	Marginal to Feasible	Not Feasible
Development Margin/ Profit Margin	>20%	18%-20%	<18%
Project IRR	>18%	16%-18%	<16%

Source: Atlas

The adopted cost and revenue assumptions are detailed in SCHEDULE 2.

#### Affordable Housing Contributions

The Planning Proposal seeks to enable development of 89 apartments. This is approximately 47 apartments more than could be developed under the Base Case (42 apartments).

The feasibility modelling iteratively includes AH contributions to examine the Proposal's capacity to contribute by applying a % contribution on the 47 apartments enabled by the Planning Proposal.

The feasibility testing has assumed the provision of AH contributions is through dedication of completed dwellings.

**Table 4** outlines the implications of AH contributions by dedication of completed dwellings at various rates applied on the number of additional dwellings enabled by the Planning Proposal (47 apartments).

**Table 4: Affordable Housing Contribution Rates**

% Contribution	No. of Completed Dwellings for AH	Completed GFA for AH	Equivalent % AH Contribution on Total (Dwellings and GFA)
(a)	(b) = (a x 47 additional apartments)	(c) = (a x 4,400sqm GFA)	(d) = (b ÷ 89 apts) or (c ÷ 8,530sqm GFA)
5%	2.4	220	3%
10%	4.7	441	5%
12%	5.6	529	6%
15%	7.1	661	8%

Source: Atlas

The feasibility implications of providing AH contributions through dedication of completed dwellings represents revenue foregone from the sale of dwellings to the market. The results are summarised in the next section.

#### Feasibility Modelling Results

This section summarises the feasibility modelling outcomes if developed under the Base Case and the Proposal. This includes iterative testing of AH contributions at various rates (10%, 12% and 15%) are tolerated, as illustrated in **Table 5**.

**Table 5: Feasibility Testing Outcomes, Base Case and the Proposal**

Parameters	Base Case (no AH)	The Proposal			
		No AH	10% AH	12% AH	15% AH
FSR	1.1:1	2.1:1	2.1:1	2.1:1	2.1:1
Residential GFA	4,130sqm	8,530sqm	8,530sqm	8,530sqm	8,530sqm
Non-residential GFA	460sqm	-	-	-	-
Total GFA	4,600sqm	8,530sqm	8,530sqm	8,530sqm	8,530sqm
Apartment Yield	42	89	89	89	89
AH Contributions (No. of Dwellings Dedicated)	-	-	4	5	7
AH Contributions (Revenue Foregone)	-	-	\$5.7 million	\$6.8 million	\$8.5 million
Assumed Cost of Land	\$9.7 million	\$9.7 million	\$9.7 million	\$9.7 million	\$9.7 million
<b>Residual Land Value (RLV)</b>	<b>\$9.7 million</b>	<b>\$18.7 million</b>	<b>\$16.0 million</b>	<b>\$15.5 million</b>	<b>\$14.7 million</b>
<b>% Value Uplift</b>		<b>91%</b>	<b>64%</b>	<b>58%</b>	<b>50%</b>
Project Return (IRR)	18.3%	29.9%	26.7%	26.0%	25.0%
Development Margin	19.0%	40.0%	33.2%	31.9%	29.8%
<b>Feasible?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>

Source: Atlas

The modelling shows that if the Proposal is progressed, the Site could contribute 15% Affordable Housing of **additional residential GFA** and still remain feasible to develop. The residual land value would be \$14.7 million, which is higher than the Opportunity Cost of Land of \$9.7 million (under the Base Case). This represents an incentive for the Proponent to proceed with and undertake the Proposal, compared to retaining the Site under existing planning controls.

The RLV under the Proposal of \$14.7 million represents a 50% value uplift compared to the Base Case, broadly aligning to Council's VPA Policy which requires a 50% sharing of the value uplift with the community.

The feasibility modelling finds that the development (as envisaged in the Planning Proposal) has the potential to contribute 7 dwellings (equivalent to ~8% of the total 89 apartments or total residential GFA proposed).

#### Hybrid Contributions

In circumstances where the AH dwelling dedication requirement is not a round integer, top-up cash contributions would be required.

Based on Council's Affordable Housing Contribution Scheme, the dollar contribution rate is based on the LGA median strata unit price. As at Q4 2023, this was recorded at \$1.035m. At an average unit size of 85sqm GFA, the median strata unit price is equivalent to \$12,176/sqm GFA. The equivalent dollar (\$) cash contribution at various % contribution rates are calculated and outlined in **Table 6**.

**Table 6: AH Dollar Contributions at Various % AH Rates**

% Contribution	Dollar Contribution Rates
Median Strata Unit Price	\$1,035,000 (\$12,176/sqm GFA)
(a)	(b) = (a x \$12,176/sqm)
5%	\$609
10%	\$1,218
12%	\$1,461
15%	\$1,826

Source: Atlas, DCJ

**Table 7** draws on relevant AH cash contributions in **Table 6** to calculate the required top-up contributions for various % AH contribution rates.

**Table 7: Top-up Cash Contributions**

% Contribution	No. of Completed Dwellings Required (GFA)	Dwellings Dedicated (GFA)	Contribution Shortfall (GFA)	Cash Contribution Top-Up
(a)	(b) = (a x 47 additional apartments)	(c)	(d) = (b - c)	(e) = (d x column b in <b>Table 6</b> )
5%	2.4 (231sqm)	2 (196sqm)	34sqm	\$20,700
10%	4.7 (462sqm)	4 (393sqm)	69sqm	\$84,018
12%	5.6 (554sqm)	5 (491sqm)	63sqm	\$92,054
15%	7.1 (693sqm)	7 (688sqm)	5sqm	\$9,132

Source: Atlas

At a contribution of 15% on additional residential GFA (or 8% on overall residential GFA), the development would make a contribution of 7 completed dwellings (or 688sqm residential GFA). A small cash top-up contribution would be required, as shown in **Table 7**.

We trust this assists Council in its consideration of required AH contributions for the Site.

Yours sincerely

**Lynelle Chua**  
Consultant  
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## SCHEDULE 1

## Analysis of Recent Sales Activity

### Residential End Sale Values

A review of residential unit sales activity indicates the prices that could be achieved on completion of new residential apartments within the Site.

**Table S1-1: Sales Evidence of Modern Apartments, Rhodes**

Address	Suburb	Sale Price (\$/sqm internal)	Sale Date	Comments
<b>1-bedroom Units</b>				
707/8 Walker St	Rhodes	\$760,000 (\$11,700)	Jul 2024	Circa 2021 development. Level 7 unit. Provides one bathroom, study, single car space and balcony with district views.
1401/8 Walker St	Rhodes	\$750,000 (\$12,500)	Jul 2023	Circa 2021 development. Level 14 unit, providing one bathroom, single basement car space and balcony with a northwesterly aspect. Unobstructed water and district views.
1610/8 Walker St	Rhodes	\$755,000 (\$12,580)	May 2023	Circa 2021 development. Level 16 unit with one bathroom, single basement car space and balcony with water and district views. Marketed to investors.
<b>2-bedroom Units</b>				
1110/7 Rider Blvd	Rhodes	\$1,150,000 (\$14,200)	Apr 2024	Circa 2013 development. Modern, well-presented. Provides two bathrooms, balcony with water views and single car space.
905/8 Walker St	Rhodes	\$1,126,000 (\$14,250)	Dec 2023	Circa 2021 development. Level 9 unit, providing two bathrooms, single basement car space and balcony with water views.
801/7 Rider Blvd	Rhodes	\$1,160,000 (\$13,030)	Dec 2023	Circa 2013, level 8 unit providing two bathrooms, study nook, single car space and balcony with water and district views.
<b>3-bedroom Units</b>				
1606/63 Shoreline Blvd	Rhodes	\$1,606,888 (\$16,100)	Jun 2024	Circa 2014 unit, providing two bathrooms, tandem basement car space, large balcony with excellent water views.
1230/4 Marquet St	Rhodes	\$1,700,000 (\$15,460)	May 2024	Modern unit within 'Sienna by the Bay'. Provides two bathrooms, study, two car space and balcony with views to the Sydney Olympic Park.
402/87 Shoreline Dr	Rhodes	\$1,300,000 (\$11,820)	May 2024	Circa 2021 development. Level 10 unit with study, two bathrooms, tandem car space and balcony with district views.

Source: various

The Site is situated to the northern end of Concord West, surrounded by apartment developments to its south in Liberty Grove, and to its north in Rhodes. In Concord West, existing apartment developments mostly reflect older style, residential flat buildings. Many are clustered around the eastern side of the Concord West station. Apartment developments in Liberty Grove are also mostly circa 2000s, medium rise developments. To understand likely end sale values of new apartments in the locality, the Study analysed recently constructed unit sales in Rhodes.

Modern, high rise apartment developments are situated in Rhodes. This includes the most recently delivered Rhodes Central project, being progressed in stages. Recent re-sales reflect prices on the upper end of the observed value range. Overall, modern apartments in Rhodes reflect sale prices ranging from ~\$12,000/sqm to ~\$16,000/sqm of Net Saleable Area (NSA). As illustrated in **Table S1-1**, apartments on the higher building levels typically attract higher price points. This is attributed to the superior water/ district views from higher levels, attracting a market premium.

There are limited apartment projects currently selling off-the-plan in and around Concord West (i.e. north of Parramatta Road). New apartment projects are predominantly focused in areas south of Parramatta Road.

**Table S1-2** outlines few examples of these new residential projects.

**Table S1-2: Off-the-Plan Apartment Sales, Comparable Areas Surrounding the Site**

Address	Starting Price	Avg. NSA (sqm)	Avg. \$/sqm NSA	Comments
'Rhodes Central' 34-38 Walker St, Rhodes				Currently selling off-the-plan is 'Rhodes Central' most recent apartment release stage, comprising two buildings of 40 and 45 storeys. The development represents a large-scale project set to deliver up to 600 units in entirety. Units have been progressively delivered over the last 3 years.  The development is situated 1km north of the Site and 240m from the Rhodes station. Communal facilities include a pool, rooftop garden/ BBQ and cinema room. Completion is expected late 2024.  Informal discussions with the selling agent indicate that 85% of units have sold, with strong demand from owner-occupiers and overseas buyers. Units on levels 10 to 30 have completed sold. The unit mix includes over 30% of 3- bedroom units; only one of which remains available for sale.
1b	\$650,000 to \$900,000	55	\$11,210 to \$18,000	
2b	\$1.12 to \$1.6m	94	\$11,920 to \$17,020	
3b	\$1.59m to \$1.8m	116	\$13,710 to \$15,520	
'The Halston' 25 George St, North Strathfield				Situated 950m north of North Strathfield station. Development will comprise a 4-storey apartment complex with 127 units across three buildings. This includes a range of one- to four- bedroom floorplans.  Over 60% of units have sold to date, with one- bedroom units fully sold. Features include a central courtyard and no additional notable on-site amenity. Currently under construction, with expected completion early 2025.
1b	\$614,000 to \$694,000	50	\$13,000 to \$14,000	
2b	\$1.05m	76	\$13,000 to \$14,000	
3b	\$1.35m	103	>\$13,000	

Source: various

Analysis of off-the-plan apartment sales reflect values ranging from some \$11,000/sqm to \$15,500/sqm NSA in North Strathfield and Rhodes. This represents a nominal price premium compared to established, modern apartments in the locality, and is aligned with the premium expected to be paid for 'brand new' dwellings.

Sale prices within 'Rhodes Central' appear within the lower price range compared to observed prices in 'The Halston'. This is largely attributed to its larger unit sizes. 'Rhodes Central' comprises taller buildings which will provide units with water and district views. It will also provide a higher level of building amenity. The lower price range reflects lower level units of up to 10 storeys (\$11,200/sqm to \$13,700/sqm NSA), with prices increasing with building levels.

Feasibility testing has adopted revenue assumptions in the order of \$13,000/sqm to \$15,500/sqm NSA.

## Retail End Sale Values

To understand likely end sale values for ground floor retail/commercial floorspace within the Site (Base Case), a review of comparable sales was carried out. This is summarised in **Table S1-3**.

**Table S1-3: Modern, Retail Sales in Comparable Areas to the Site**

Address	Suburb	Sale Price (Sale Date)	NLA sqm	Analysis (\$/sqm NLA)
Ground floor, 88-90 Rider Boulevard	Rhodes	\$2.9m (Oct 2023)	155sqm	\$18,710
Situated 200m southwest of Rhodes station. Modern ground floor retail with upper floor apartments. Sold after a 7- month marketing campaign. Sold with net passing income reflecting 6% yield, leased to a restaurant.				
Shop 2, 56 Fairlight St	Five Dock	\$1.38m (For Sale)	218sqm	\$6,330
Ground floor commercial/retail property within new mixed use development comprising upper floor apartments. Currently occupied by commercial tenants, for sale with asking price reflecting a potential yield of 5%. Previously sold vacant possession for \$1.1m in 2021, reflecting a rate of \$5,050/sqm NLA.				
G14, 1 Markham Pl	Ashfield	\$650,000 (For Sale)	58sqm	\$11,210
Situated within the Ashfield town centre. Modern, ground floor retail/ commercial property with upper floor apartments. Comprises office fit-out. For sale in vacant possession condition.				

Source: various

There have been very limited retail transactions in Concord West and surrounding localities. A review of modern ground floor retail/ commercial sales indicates prices ranging from some \$6,300/sqm to \$18,700/sqm of NLA. Feasibility testing has adopted retail revenue assumptions of \$8,000/sqm NSA, based on the notional scheme under the Base Case scenario.

### Development Site Sales

An analysis of development site sales indicates the prices the market could be willing to pay for residential development opportunities in and around Concord West. This reflects the underlying value of the Site as a development opportunity.

**Table S1-4: Sales Evidence of Development Sites**

Address	Site Area (Zone)	Development Type	Dwelling Yield	FSR (GFA)	Sale Price (Sale Date)	Analysis (\$/sqm GFA)
52-56 Ramsay Rd Five Dock	1,670sqm (MU1)	Apartments	26	2.5:1 (4,175sqm)	\$13.8m (Apr 22)	\$3,310
Amalgamated site comprising 3 aged RFBs sold in-one-line within the Five Dock Town Centre. Proposal is a 4-storey apartment complex with ground floor retail.						
22.1002-4 Rothwell Ave Concord West	6,080sqm (MU1)	Apartments	88	1.4:1 (8,510sqm)	\$12.6m (2017/21)	\$1,480
Amalgamated, 3-lot site progressively acquired over 2017 and 2021. Industrial warehouses, sold without DA consent. Subsequently approved for a 3- storey development including 88 apartments.						
195-199 Great North Rd Five Dock	1,150sqm (MU1)	Apartments	30	2.5:1 (2,871sqm)	\$9.4m (Jun 18)	\$3,270
Main retail strip location. Three lots sold in-one-line. Appears to be an off-market transaction without development consent. Development comprises a 5-storey apartment complex including ground floor retail.						
223 Great North Rd Five Dock	1,260sqm (MU1)	Apartments	34	2.6:1 (3,264sqm)	\$9.25m (Jan 18)	\$2,830
Main retail strip location. Existing 2-storey, freestanding retail building with holding income. Advertised as a development site with planning approval sought thereafter. Development comprises 2 buildings ranging 4-6 storeys, including ground floor retail.						

Source: Various

There has been a dearth of development site sales transacted in recent years; though the prices paid fall within a relatively 'tight' range of \$2,800/sqm to \$3,300/sqm GFA for sites with floorspace potential (~2,900sqm to 4,200sqm GFA). The sale at 2-4 Rothwell Avenue in Concord West reflects a lower price point of \$1,500/sqm GFA, attributed to its substantially higher GFA potential.

Feasibility testing adopted an existing use value of ~\$2,100/sqm GFA for the Site, indicating a site value of \$9.7m 'as is'.

## SCHEDULE 2

## Generic Feasibility Modelling Assumptions

### Project Timing

The site is assumed to be appropriate rezoned to R4 High Density Residential. Planning and design are assumed to be progressed immediately upon settlement. Thereafter a development application is assumed to occur with pre-sales occurring shortly thereafter.

Construction is assumed from Month 18 and is assumed to be completed in 21 months following the commencement of off-the-plan sales.

### Revenue Assumptions

Average end sale values are adopted based on market research and analysis.

#### Base Case

A notional scheme was prepared based on development of the Site under existing planning controls. This forms the Base Case development scenario, comprising a 6-storey development with ground floor retail floorspace and 42 apartments across the upper building levels. Average end sale values under the Base Case include:

- Non-residential - \$8,000/sqm
- Residential:
  - 1 bedroom units - \$13,000/sqm
  - 2 bedroom units - \$13,500/sqm
  - 3 bedroom units - \$15,000/sqm

#### Proposal

The Proposal envisages development of two, 8- and 12- storey residential flat buildings with 89 apartments. Given the higher building levels and likely superior aspect, residential end sale values under the Proposal are expected to achieve higher prices than the Base Case:

- Residential:
  - 1 bedroom units - \$13,500/sqm
  - 2 bedroom units - \$14,000/sqm
  - 3 bedroom units - \$15,500/sqm

Under both Base Case and Proposal, it is assumed that 50% of the apartments would be pre-sold prior to completion of construction and the balance would be sold post completion at an average rate of 5 units per month.

Other revenue assumptions:

- GST is excluding on non-residential sales and included on the residential sales.
- Sales commission at (2.5% residential, 1.5% non-residential) and marketing costs of 1% on gross sales.
- Legal cost on sales included at \$1,500 per unit.

### Cost Assumptions

- Assumed cost of land based on deemed opportunity cost of land (\$9.7 million).
- Due diligence assumed at 1% of land price and stamp duty at NSW statutory rates.
- Construction costs are estimated with reference to cost publications and professional experience:

- Retail/ commercial construction (warm shell) assumed at \$3,000/sqm of building area.
- Residential construction assumed \$3,750/sqm of building area, balconies at \$1,000/sqm.
- Podium car parking at \$25,000 per car space.
- Construction contingency at 5%.
- Professional fees and application fees at 8% of construction costs.
- Development management fees at 1% of construction costs.
- Statutory fees:
  - DA fees based on Council's 2024-25 fees and charges guidelines.
  - CC fees of 0.5% of construction costs.
  - Long service levy of 0.25% of construction costs.
  - s7.11 contributions at \$12,376 (1 bedroom), \$18,661 (2 bedroom) and \$20,000 (3 bedroom).
  - Housing and Productivity contributions at \$30/sqm (retail/ commercial) and \$10,000/dwelling.
  - Proposed water infrastructure charges at \$833.68/ET from July 2026. This is assumed to be equivalent to \$667/apartment, based on a unit conversion rate of 1 ET per 0.8 apartments.
- Finance costs:
  - 100% debt funding at interest capitalised monthly at 6% per annum.
  - Establishment fee at 0.35% of peak debt.

### Hurdle Rates and Performance Indicators

Target hurdle rates are dependent on the perceived risk associated with a project (planning, market, financial and construction risk). The more risk associated with a project, the higher the hurdle rate.

Key hurdle rates assumed for the feasibility modelling are development margin and project return (IRR).

- Development margin - 20%.
- Discount rate/ project return - 18%.

If the resulting profit from this feasibility analysis is sufficient to meet the target hurdles (target development margin and discount rate), the project is considered financially feasible for development.





4 November 2024

Mark Dennett  
City of Canada Bay Council

Sent via email: [mark.dennett@canadabay.nsw.gov.au](mailto:mark.dennett@canadabay.nsw.gov.au)

Dear Mark

## Re: Oulton Ave, Concord West - Affordable Housing Contributions Analysis and Review of Proponent's Comments

### Background

The City of Canada Bay Council (**Council**) received a planning proposal (**the Proposal**) for Lot 212 Oulton Avenue, Concord West (**the Site**) from Oulton Rhodes Pty Ltd (**the Proponent**). The Site represents an irregularly shaped, ~4,200sqm unimproved allotment. The planning proposal contemplates:

- Rezoning from MU1 Mixed Use to R4 High Density Residential.
- Amending the maximum floor-space-ratio (FSR) from 1.1:1 to 2.1:1.
- Amending the maximum building height from 24m to 46m.

Council is seeking to prepare an Affordable Housing Contribution Scheme (**AHCS**) that would specify an Affordable Housing Contribute rate to be applied to the Site.

### Atlas' Feasibility Findings and Urbis Review

In August 2024, Atlas Economics (**Atlas**) carried out a feasibility analysis to investigate the capacity of the development to contribute to Affordable Housing. The feasibility findings indicated there was capacity for the development to contribute up to 15% for Affordable Housing on additional residential Gross Floor Area (**GFA**), based on the Proposal scheme. This is equivalent to 8% on overall residential GFA.

In September 2024, the Proponent engaged Urbis to provide an independent review of Atlas' feasibility analysis, to assess the appropriateness of the feasibility inputs and overall findings (**Urbis Review**). The Urbis Review carried out feasibility testing based on development yields envisaged in the Proposal to arrive at a residual land value. The Urbis Review additionally opined on the value of the Site under the current planning controls.

This paper should be read in conjunction with Atlas' Feasibility Analysis (dated August 2024) issued under separate cover.

### Urbis Review and Atlas' Comments

Principally, the Urbis Review finds that:

- The development under the Proposal cannot afford to contribute to any Affordable Housing.
- The site value under the Proposal before any Affordable Housing contributions (\$5.2 million) is less than the site value under current planning controls (\$11 million).

If the site value under the Proposal is less than the site value under current planning controls, this suggests the Proposal is not feasible. The Proponent would be better off pursuing a development under the existing planning controls. It would not make commercial sense to incur the time and expense associated with a planning proposal if it results in an outcome that is financially worse than a development under existing planning controls.

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Atlas has reviewed the Urbis Review and provide comment principally on two key matters:

- The assessment methodology used.
- Inputs and conclusion reached.

## Assessment Methodology

### Atlas' Site Values

Atlas utilised the Residual Land Value (RLV) methodology to assess the development's capacity to contribute to Affordable Housing. The outcomes were cross-checked against development site sales evidence. This method was utilised both in:

- The Base Case (i.e. development under current planning controls); and
- The Proposal (i.e. development as proposed in the planning proposal) - before and after Affordable Housing.

The resultant residual land values under both scenarios were \$9.7 million and \$18.7 million respectively. After Affordable Housing, the residual land value reduces to \$14.7 million. This is summarised in **Table 1**.

**Table 1: Atlas' Site Values**

Scenario	Residual Land Value	\$/sqm GFA	Rounded
Base Case - current planning controls, 4,590sqm GFA	\$9,700,000	\$2,113	\$2,100
Proposal Case (no Affordable Housing), 8,530sqm GFA	\$18,700,000	\$2,192	\$2,200
Proposal Case (with 15% Affordable Housing on additional GFA), 8,530sqm GFA	\$14,700,000	\$1,723	\$1,700

Source: Atlas

Without Affordable Housing contributions, Atlas' modelling results show a site value of \$2,100/sqm to \$2,200/sqm GFA.

### Urbis Review's Site Values

Urbis utilised the RLV methodology to assess the site value of the Proposal (before and after Affordable Housing). In contrast, Urbis did not use the RLV methodology to assess the site value under the current planning controls. Instead, the site value was directly inferred from development site sales evidence.

The resultant site values under both scenarios are summarised in **Table 2**.

**Table 2: Urbis' Site Values**

Scenario	Residual Land Value	\$/sqm GFA	Rounded
Base Case - current planning controls, 4,590sqm GFA	\$11,000,000	\$2,396	\$2,400
Proposal Case (no Affordable Housing), 8,530sqm GFA	\$5,200,000	\$610	\$600
Proposal Case (with 15% Affordable Housing on additional GFA), 8,530sqm GFA	\$2,000,000	\$234	\$200

Source: Atlas

Without Affordable Housing contributions, the Urbis Review concludes site values of \$2,400/sqm GFA (Base Case) and \$600/sqm GFA (Proposal). The value of the site under the Base Case is 4 times higher than the Proposal. This is puzzling.

There is no reason why development under the current planning controls and the proposed controls (both being apartment developments) would result in significantly different site values. A development under the current planning controls would result in a 6/7 storey building, and under the Proposal an 8/12 storey building. The cost of construction for a taller building would be slightly higher. Equally, the revenue achievable in a taller building would also be slightly higher.

The use of different assessment methodologies can often result in different site value outcomes. The Urbis Review utilised the RLV approach for the Proposal but utilised the Direct Comparison approach for the Base Case.

Any RLV modelling outcomes should always be checked against the sales of development sites. Owing to the use of multiple cost and revenue inputs, there is a risk that the residual land value can be distorted (e.g. assumptions that are too high/ low). In this case, the site values suggest that the site is more valuable under current planning controls than under the Proposal.

We suggest that if the Urbis Review had used the RLV approach for both scenarios (adopting consistent assumptions), the site values arrived at would not be as different as they are (4 times).

### Check against Development Site Sales

The table below is an extract of development site sales analysed in the Urbis Review. Some of the site sales were also analysed in the Atlas feasibility analysis. For ease of reference, the sites analysed in the Urbis Review are discussed.

Address	Sale Date	Sale Price	Site Area (m <sup>2</sup> )	Zoning	FSR	Potential GFA (sq.m)	DA	Est. Yield	Unit Site Value (\$/Unit)	GFA Value (\$/m <sup>2</sup> )	Site Area Value (\$/m <sup>2</sup> )
1-9 Marquet Street and 4 Mary Street, Rhodes	May-24	\$65,500,000	2,917	MU1 Mixed Use	7.9:1	23,002	Yes	257	\$254,864	\$2,848	\$22,455
2-4 Pope Street, Ryde	Nov-23	\$7,500,000	1,447	MU1 Mixed Use	1.80:1	2,605	Yes	86	\$87,209	\$2,879	\$5,183
1-20 Railway Road and 50 Constitution Road, Meadowbank	Oct-23	\$65,000,000	7,773	MU1 Mixed Use	2.82:1	21,950	Yes	352	\$184,659	\$2,961	\$8,362
"Kings Bay Village" 129 – 153 Parramatta Road & 53-75 Queens Road, Five Dock	Aug-23	\$260,000,000	31,200	MU1 Mixed Use	3.00:1	93,618	No	1123	\$231,523	\$2,777	\$8,333
363 Victoria Road, Gladesville	Mar-23	\$11,000,000	1,650	B4 Mixed Use & B6 Enterprise Corridor	2.6:1	4,231	Yes	54	\$203,704	\$2,600	\$6,667
20-24 Railway Parade & 2-4 Burleigh Street, Burwood	May-22	\$28,750,000	1,315	B4 Mixed Use	6.00:1	7,890	No	95	\$302,632	\$3,644	\$21,863
33-41 Blaxland Road, 444-446 Concord Road and 1-5 Llewellyn Street, Rhodes	Dec-21	\$77,836,500	5,541	B4 Mixed Use	5.70:1	31,584	No	379	\$205,373	\$2,464	\$14,047

Source: Urbis

The Urbis Review's analysis of site sales evidence indicates that development site values in the Canada Bay LGA and surrounding locality broadly range from \$2,500/sqm to \$3,600/sqm of GFA. This includes several large-scale projects with potential GFA exceeding ~20,000sqm.

Atlas acknowledges that there is a dearth of site sales activity in Rhodes and comparable localities, resulting in dated sales being referenced in the feasibility analysis sales (>12 months old). Accordingly, Atlas has additionally carried out market investigations to understand movements in prices paid for development sites in the last few years.

Development site values are influenced by a range of factors, including the cost of construction. Residential construction prices have increased by over 30% in the past 24-months across Greater Sydney, driven by significant increases in the cost of building material and labour (RLB, 2024). This reduces market appetite for development opportunities, which in turn, adversely impacts market willingness to pay for sites.

The Study analysed the following site sale which demonstrates the extent of price movements in the last 24 to 36 months:

- **2-4 Pope Street, Ryde:** Development site in the town centre. Sold in November 2023 with development consent for a 5-storey mixed use development comprising 72 serviced apartments and ground floor retail/ commercial floorspace.

The 2023 sale of this site was analysed in the Urbis Review. This site however also sold two years prior - for **\$9.5m in Aug 2021** without development consent (\$3,650/sqm GFA) and subsequently for **\$7.5m in Nov 2023** (\$2,880/sqm) with development consent. This represents a **~20% reduction** despite the advantage of planning certainty in 2023.

Overall, development site values range from \$2,500/sqm to \$3,600/sqm of GFA (relying on dated sales in 2021/ 22). Whilst increases in construction prices are likely to adversely impact site values, the impact can be observed to be ~20%. If a 20% discount were applied, the range of analysed sales would be in the order of \$2,000/sqm to \$2,800/sqm GFA.

Atlas' site values (\$2,100/sqm GFA in Base Case and \$2,200/sqm in Proposal Case) are consistent with what developers are observed to be paying for sites. The Base Case is slightly less valuable with the presence of non-residential floorspace.

The Urbis Review's concluded site values (\$2,400/sqm GFA in the Base Case and \$600/sqm in the Proposal Case) is however at odds with what developers are observed to be paying for development sites. Despite the increase in construction costs over the last three years, there has been no evidence of developers paying \$600/sqm GFA for development sites in locations such as Concord West.

### Perverse Outcome

The selective use of the RLV approach and Direct Comparison approach in the Urbis Review has resulted in a perverse outcome. The results indicate that the Proposal is not commercially viable as it has a site value 4 times lower than under the current planning controls. Given the Proponent is progressing with the proposal, it appears this outcome is not the case.

## Inputs and Conclusion

The Urbis Review assessed and commented on the general appropriateness of Atlas' feasibility inputs. The key feasibility inputs disagreed with are:

- Construction cost.
- Soft costs (s7.11 contributions, landholding costs and cost of debt).

It is relevant to highlight that any change in feasibility inputs should be applied across both scenarios (Base Case and Proposal Case), as both are development scenarios. Any resulting difference between the two scenarios would therefore be relative and will not have a material impact on the development's capacity to make Affordable Housing contributions.

Notwithstanding, we provide comment on the key inputs as follows.

### Construction Cost

The construction cost rates adopted in Atlas' feasibility testing had regard to the relative height of the buildings (6/7 storeys in Base Case and 8/12 storeys in Proposal Case) as well as the provision of deck (not basement) parking in both.

**Table 3: Atlas' Assumed Construction Costs**

	Base Case	Proposal Case
Gross building area	4,745sqm	10,066sqm
(Residential GFA x 115%)	(4,130sqm x 115%)	(8,530sqm x 115%)
Residential construction (\$/sqm gross building area)	\$3,500	\$3,750
Balconies (10% x gross building area)	\$1,000	\$1,000
Deck parking	\$25,000	\$25,000
Overall Build Cost including contingency	\$20,168,825	\$43,341,926
(before professional fees and soft costs)	\$4,399/sqm GFA	\$4,952/sqm GFA
	\$433,000/ unit	\$475,000/ unit

Source: Atlas

While Atlas are not quantity surveyors, reference is made to construction cost publications. RLB publish a construction cost calculator for residential buildings up to 10 storeys and 10-20 storeys by capital city. The following rates are extracted for Greater Sydney capital city.

**Table 4: RLB Construction Cost Calculator (2024)**

Residential Multi Storey	Rate (\$/sqm)		Rate (\$/unit)	
	Low	High	Low	High
Up to 10 storeys	\$3,650	\$4,950	\$328,500	\$445,500
10-20 storeys	\$3,950	\$5,500	\$355,500	\$495,000

Source: RLB <https://www.rlb.com/ccc/#construction-cost-indicator>

The Atlas construction cost rates fall within the RLB cost ranges and are towards the upper end:

- Base Case (up to 10 storeys) \$433,000 per unit - which is towards the upper end of \$328,500 to \$445,500 per unit.
- Proposal Case (8 to 12 storeys) \$475,000 per unit - which is towards the upper end of \$355,500 to \$495,000 per unit.

The RLB construction cost calculator provides a cost range for deck parking - \$33,750 to \$58,000 per space. It would appear that Atlas' assumed rate of \$25,000 per space requires adjustment.

An adjustment to \$35,000 per space is made for both scenarios - Base Case and Proposal Case.

### Soft Costs

The Urbis Review has correctly identified an error in the s7.11 contribution rates used. The rates require correction.

Landholding costs were allowed for in the feasibility modelling - estimates were made for land tax, council and water rates.

The cost of debt was assumed at 6% per annum (nominal). The Urbis Review suggests a range of 7%-12% is more appropriate. We make an adjustment to the interest rate to 7%.

### Revised Feasibility Outcomes

The revised feasibility modelling outcomes are shown in **Table 5**.

**Table 5: Revised Feasibility Modelling Outcomes**

Parameters	Base Case (no AH)	The Proposal			
		No AH	10% AH	12% AH	15% AH
FSR	1.1:1	2.1:1	2.1:1	2.1:1	2.1:1
Residential GFA	4,130sqm	8,530sqm	8,530sqm	8,530sqm	8,530sqm
Non-residential GFA	460sqm	-	-	-	-
Total GFA	4,600sqm	8,530sqm	8,530sqm	8,530sqm	8,530sqm
Apartment Yield	42	89	89	89	89
AH Contributions (No. of Dwellings Dedicated)	-	-	4	5	7
AH Contributions (Revenue Foregone)	-	-	\$5.7 million	\$6.8 million	\$8.5 million
Assumed Cost of Land	\$9.5 million	\$9.5 million	\$9.5 million	\$9.5 million	\$9.5 million
<b>Residual Land Value (RLV)</b>	<b>\$9.5 million</b>	<b>\$17.8 million</b>	<b>\$15.1 million</b>	<b>\$14.6 million</b>	<b>\$13.8 million</b>
<b>% Value Uplift</b>	<b>-</b>	<b>88%</b>	<b>59%</b>	<b>54%</b>	<b>45%</b>
Project Return (IRR)	18.3%	29.9%	26.7%	26.0%	25.0%
Development Margin	18.3%	40.0%	33.2%	31.9%	29.8%
<b>Feasible?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>

Source: Atlas

In the Planning Proposal, several public benefit items were identified as potential development outcomes under the Proposal. This included provision of a linkage between Liberty Grove and Rhodes Central, extensions to existing pedestrian and cycling paths and improvement to public domain and improvements to the public domain (i.e. safety of underpass, quality of switchback pedestrian ramp). If these public benefit items are secured through a Voluntary Planning Agreement (VPA), the quantum of Affordable Housing should be reviewed.

### Affordable Housing Contributions

The revised feasibility modelling affirms that the development under the Proposal could have the capacity to contribute 660sqm residential GFA to Affordable Housing. This represents 15% of the additional residential GFA enabled by the planning proposal [(8,530sqm - 4,130sqm) x 15%].

The contribution could be made in the form of dedication of completed dwellings or an equivalent cash payment. If the former method of contribution were selected and where the dwelling dedication requirement is not a round integer, top-up cash contributions would be required.

Based on Council's Affordable Housing Contribution Scheme, the dollar contribution rate is based on the LGA median strata unit price. As at Q2 2024, this was recorded at \$1.05m. At an average unit size of 85sqm GFA, the median strata unit price is equivalent to \$12,353/sqm GFA. The equivalent dollar (\$) cash contribution at various % contribution rates are calculated and outlined in **Table 6**.



**Table 6: AH Dollar Contributions at Various % AH Rates**

% Contribution	Dollar Contribution Rates
Median Strata Unit Price	\$1,050,000 (\$12,353/sqm GFA)
(a)	(b) = (a x \$12,353/sqm)
5%	\$618
10%	\$1,235
12%	\$1,482
15%	\$1,853

Source: Atlas, DCJ

**Table 7** draws on relevant AH cash contributions in **Table 6** to calculate the required top-up contributions for various % AH contribution rates. Depending on the size of the completed units, 660sqm GFA could be equivalent to 7.3 dwellings (assuming an average of 90sqm per unit).

**Table 7: Top-up Cash Contributions**

% Contribution	Quantum of Residential Required (GFA)	Dwellings Dedicated (GFA)*	Contribution Shortfall (GFA)	Cash Contribution Top-Up
(a)	(b) = (a x 4,400sqm GFA)	(c)	(d) = (b - c)	(e) = (d x column b in <b>Table 6</b> )
5%	220sqm	2 (180sqm)	40sqm	\$24,720
10%	440sqm	4 (360sqm)	80sqm	\$98,800
12%	528sqm	5 (450sqm)	78sqm	\$115,596
15%	660sqm	7 (630sqm)	30sqm	\$55,590

\*assuming average 90sqm GFA per unit

Source: Atlas

At a contribution of 15% on additional residential GFA (or 8% on overall residential GFA), the development would make a contribution of 7 completed dwellings (or 660sqm residential GFA). A small cash top-up contribution would be required, as shown in **Table 7**.

We trust this assists Council in its consideration of required Affordable Housing contributions for the Site.

Yours sincerely

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## Transport for NSW

2 November 2023

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City of Canada Bay Council  
Locked Bag 1470  
Drummoyne NSW 1470**Attention:** Karen Judd**PRE-PLANNING PROPOSAL - SCOPING PAPER – LOT 212 DP1112512, OULTON AVENUE, CONCORD WEST**

Dear Mr Clark,

Thank you for providing Transport for NSW (TfNSW) with an opportunity to comment on the above amended proposal, which was referred to us by Council in correspondence dated 4 October 2023.

We note that the current proposal for the site seeks to amend the *Canada Bay Local Environmental Plan 2013* (the LEP) to:

- Amend the Land Zoning Map from MU1 Mixed Use to R4 High Density Residential.
- Amend the Height of Buildings Map from 24m up to a building height of 95m.
- Amend the Floor Space Ratio Map from 1.1:1 up to 5:1.

It is noted that Council is also seeking feedback on the following:

- Identify potential key issues that need addressing as part of the Planning Proposal.
- Gauge agency in principle view/support for the Proposal.
- Provide direction on information and/or studies required for the Planning Proposal.
- Seek early engagement if resolution of issues is needed before the Planning Proposal is lodged.

TfNSW's detailed comments are provided in **TAB A**. It is requested that the comments provided are satisfactorily addressed and/or considered by the proponent and Council in the preparation of a planning proposal for the site, *prior* to any submission of the planning proposal to the Department of Planning and Environment (DPE) for Gateway review.

Please note that the comments provided above and within **TAB A** are of a preliminary nature. They are not to be interpreted as binding upon TfNSW, and may change should the nature of the Planning Proposal change or further consultation with TfNSW be conditioned as part of any future Gateway Determination.

Should you have any questions or further enquiries in relation to this matter, please don't hesitate to contact Andrew Popoff, Senior Land Use Planner, via phone on 0413 459 225 or email: [andrew.popoff@transport.nsw.gov.au](mailto:andrew.popoff@transport.nsw.gov.au).

Yours sincerely

Carina Gregory  
**Senior Manager Strategic Land Use (Eastern)**  
**Land Use, Network & Place Planning, Greater Sydney Division**

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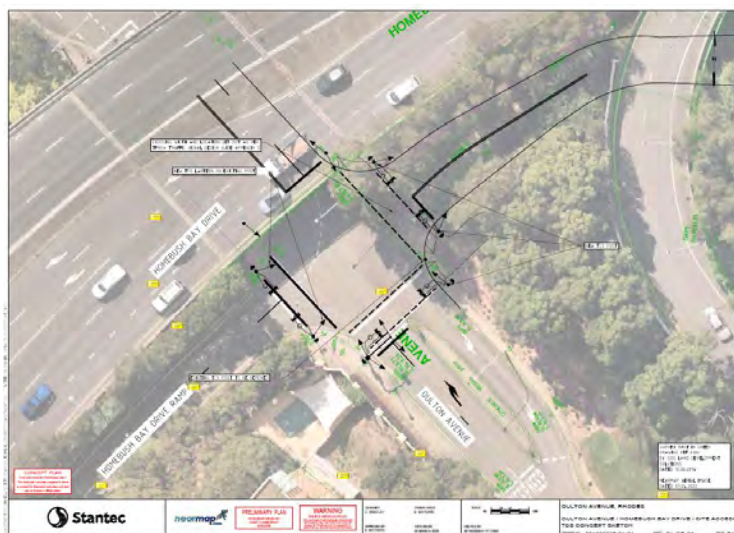
## TAB A – Detailed TfNSW Comments - Scoping paper – Lot 212 DP1112512 Oulton Avenue, Concord West

### Site Access Arrangements:

#### Comment:

TfNSW notes that the proponent proposes a site access arrangement via a proposed fourth leg at the traffic signals illustrated within **Figure 1** below. This proposed fourth leg via the layout depicted below raises the following issues:

- The existing arrangements (i.e. signage and lane arrows) for traffic flows along Oulton Avenue heading northbound currently causes some degree of driver confusion. The proposed arrangement illustrated below (i.e. right turn into the site) within **Figure 1** will subsequently worsen the abovementioned driver confusion as vehicles will become unsure if this right turn lane is for the proposed residential tower site or the Rhodes Waterside Retail Centre.
- TfNSW's own SCATS Data highlights that Oulton Avenue has significantly more traffic on it during the weekend peaks as well as worse local traffic congestion when compared against the weekday peaks. The Stantec Transport Impact Assessment Report did not conduct analysis of the weekend peak impacts.
- The proposed new access arrangement would need to introduce at least one additional phase to this signalised intersection which will result in a worsening of signal operational performance.
- The lack of detailed SIDRA Modelling output results within the Stantec Transport Impact Assessment (TIA) Report to allow TfNSW to confirm that the correct traffic signal arrangements (i.e. existing and future) were modelled.
- There does not appear to be adequate details provided (i.e. proper concept plans) as to how to treat the area between the Traffic Signals and the off-load ramp bridge structure for both the proposed public access road and shared path users. There are inadequate details provided with the shared path and the existing lighting (which is necessary for shared path safety).
- We note that the proposed public access road would go underneath the bridge structure for the off-load ramp from Homebush Bay Drive to Oulton Ave. Council's Memorandum of Understanding (Annexure 3) Point 10 indicates that a minimum height clearance of 4.6m must be provided to the underside of this bridge structure. As indicated within **Figure 2** on the following page, a proposed new public access road to the development site would subsequently require some degree of excavation to occur to the existing ground level under this bridge structure in order to achieve the minimum 4.6m height clearance.
- Noting the bullet point above, as a minimum, TfNSW require a 3m space around any part of the off-load ramp bridge structure (i.e. underside of the deck, retaining wall and pier supports) to remain clear for inspection and maintenance purposes. This means that nothing should be permitted to be built or block the abovementioned 3m envelope from the underside of the deck, retaining wall and pier supports.
- Mindful of the points raised above, the proposed new public access road would require the piers that support the bridge structure for the off-load ramp from Homebush Bay Drive to Oulton Ave to be protected with appropriate barriers from vehicular impact in accordance with Austroads Guide to Road Design Part 6 – Roadside Design, Safety and Barriers.
- Noting that the proposed new public access road would result in some degree of excavation underneath the bridge structure for the off-load ramp from Homebush Bay Drive to Oulton Ave, further design details and information would need to be provided indicating that the new public access road would not negatively impact the structural integrity of the bridge structure's retaining wall and piers.



**Figure 1 – Proponent's suggested site access arrangements**

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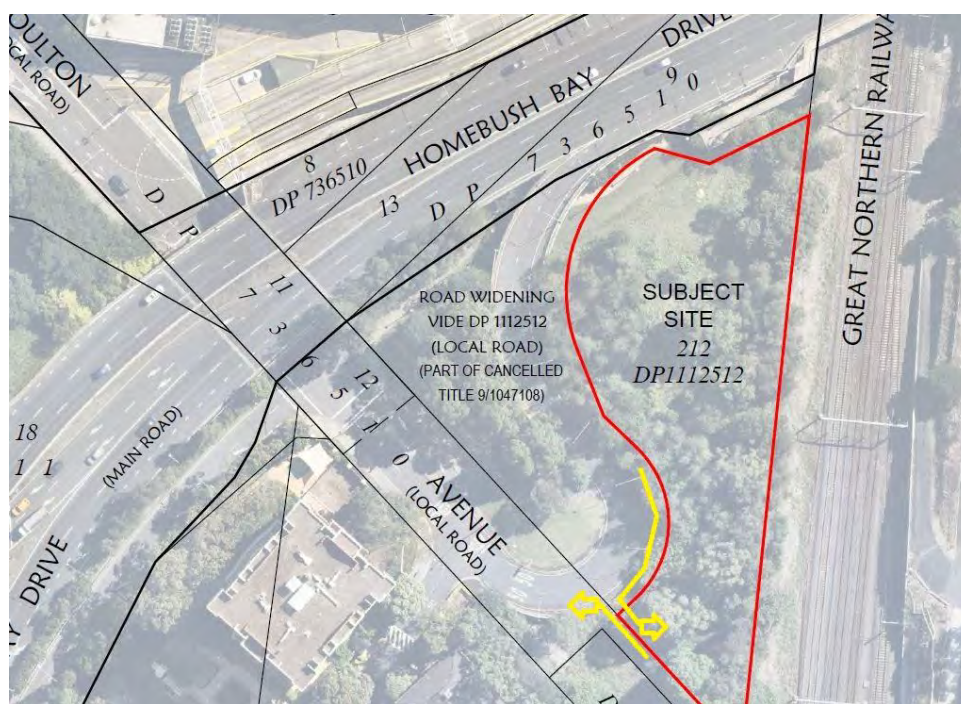


**Figure 2 – Underside of Off-load ramp bridge structure**

Recommendation:

Noting the various concerns / issues raised above, TfNSW is highly unlikely to consent to the proposed changes at the existing traffic signals TCS#3907 depicted within **Figure 1** under Section 87(4) of the *Roads Act 1993*.

As an alternative, TfNSW recommend that an Austroads, AS2890.1 and AS2890.2 compliant left-in / left-out vehicular access be investigated further at the southern boundary of the site as depicted in yellow within **Figure 3** below.



**Figure 3 – TfNSW recommended Access Arrangements to the site**

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**Sydney Trains:**Comment / Recommendation:

- The subject site is located immediately adjacent to Sydney Trains' operational rail corridor and rail infrastructure facilities such as rail tracks, overhead wiring structures, catenary and the like. Further, Homebush Bay Drive Rail Overbridge is located to the north, in close proximity to the site.
- Given the proximity of rail land and critical rail infrastructure, the Applicant/Developer is requested to consult with Sydney Trains during the Planning Proposal process to ensure that all relevant Sydney Trains matters of consideration are taken into account. While all efforts to combine Sydney Trains' comments with the TfNSW Cluster will be made, Sydney Trains should be referred to as a separate agency/rail authority.
- Rail specific matters to consider early in the design process include (but are not limited to) the requirements set out within State Environmental Planning Policy (Transport and Infrastructure) 2021, DPE's 'Development Near Rail Corridors and Busy Roads – Interim Guideline', and TfNSW AMB standard 'T HR CI 12090 ST Airspace and External Developments' (accessed via <https://www.transport.nsw.gov.au/industry/asset-management-branch>) and items such as:
  - The inclusion of rail specific details on relevant plans/drawings such as surveys, cross sections and the like;
  - Geotechnical/structural assessments shall include rail specific considerations to demonstrate that the potential future development shall not adversely affect existing rail infrastructure facilities and the operation of the rail network;
  - The future design of the development must incorporate anti-throw mechanisms for any openings within 20m and facing the rail corridor to prevent the throwing of objects onto rail infrastructure facilities;
  - Provision of a setback distance between the proposed development and the eastern boundary is required. An adequate setback must be maintained across the entire length of the common boundary with the rail corridor/TAHE land (horizontally and vertically) to enable the construction and future maintenance of all buildings and ancillary structures without any reliance on, use of, or works within, TAHE land.
- Council should also consider how this future development site will be serviced. TAHE (the owner of rail land) will not allow a private party to utilise its rail corridor for any works/infrastructure (especially for drainage) and requests that such matters be considered early in the process to ascertain the need for alternate solution, collection of developer contributions or reconsideration of development potential.
- Additionally, Sydney Trains' internal systems indicate that there is an existing vehicular rail access gate within the subject site that may be used to access the operational rail corridor for maintenance and emergency operations. Any future development on the subject site must consider how critical rail access shall be maintained at all times, during and post-construction.
- Finally, Council is advised that at this stage Sydney Trains comments are based on the high-level nature of the information provided, and should not be taken as approval for any specific initiative or option proposed. We reserve the right to amend and/or provide further responses as additional information and details become available.
- Should Council have any queries relating to this matter please contact TfNSW (Sydney Trains) Town Planning Management via email to [DA\\_sydneytrains@transport.nsw.gov.au](mailto:DA_sydneytrains@transport.nsw.gov.au).

**Active Transport / Parking:**Comment / Recommendation:

- We note the Memorandum of Understanding (Annexure 3) Point 7 indicates reviewing opportunities to remove the structural steel ramp to Homebush Bay Drive and replace with lifts. TfNSW raise no objections in principle to the introduction of a lift, provided that the ramp to Homebush Bay Drive is retained to ensure walkers, riders and those depending on assisted devices have access maintained when the lift is out of service. Further details associated with who will fund/construct, ownership and maintenance responsibilities of the proposed lift should be provided to TfNSW.
- The existing ramp should be upgraded, if required, to ensure its widths and grades are compliant with Austroads standards.
- The subject site sits on the 'Rhodes to North Strathfield' corridor of Transport for NSW's [Strategic Cycleway Corridors](#) network and on Council's existing and planned cycling networks (Section 2.7 Transport Impact Assessment (TIA)). The proposal must provide seamless walking and cycling connections from the site to these cycling networks, including to the ramp up to Homebush Bay Drive (p16 TIA).
- We recommend that visitor bike parking facilities be located adjacent to retail shopfronts and apartment lobby entrances for convenience and to enable passive surveillance (Section 4.2 TIA).

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- The reference design should nominate the following key Transport for NSW design guides as references for street design and design of its walking and cycling paths:
  - Walking Space Guide;
  - Cycleway Design Toolbox;
  - Network Planning in Precincts Guide; and
  - Design of Roads and Streets.
- In addition to the above, we recommend that the proposal ensure that:
  - Onsite car parking is capped at the rates indicated in the Rhodes West DCP (Section 4.1 TIA indicates 177 vehicle spaces will be provided, where the DCP requires only 162 spaces);
  - Access into the site is consolidated and situated away from primary pedestrian desire lines (Section 4.4 TIA) and that segregation of pedestrians, cyclists and vehicles are illustrated within the Stantec Transport Impact Assessment Report;
  - The design of any internal streets is in accordance with the Design of Roads and Streets guide, and that in all cases, priority is given to crossing pedestrians and riders (Section 4.4 TIA);
  - Internal walking and cycling paths are provided with sufficient shade and shelter;
  - The public domain includes appropriate greening and canopy; and
  - Access to public transport stops and stations is improved (p8 TIA).

**General:****Comment / Recommendation:**

- As indicated on page 2 of this correspondence, TfNSW's own SCATS Data highlights that Oulton Avenue has significantly more traffic on it during the weekend peaks, as well as worse local traffic congestion when compared against the weekday peaks. Therefore the Stantec Transport Impact Assessment Report should be updated to also conduct analysis of the weekend peak impacts.
- We note the lack of detailed SIDRA Modelling output results within the Stantec Transport Impact Assessment Report. This subsequently makes it difficult for TfNSW to confirm that the correct traffic signal arrangements (i.e. existing and future) were modelled and to validate the results. Therefore the Stantec Transport Impact Assessment Report should be updated to provide detailed SIDRA Modelling output results within an Appendix.
- The nearby shared path connects to Homebush Bay Dr (between Harrison Ave and the off ramp) Rhodes, along the western side of the train line, from Rhodes towards Parramatta River Shoreline (connecting to Bennelong Bridge, Ryde Bridge and Sydney Olympic Park). This path also connects through to the southern section of Liberty Grove where there are connections to Queen St, Concord West and Victoria Ave, Concord West (which connects to Bicentennial Park). Any proposed significant changes to this path should be initially discussed with Council and TfNSW.
- The Stantec Transport Impact Assessment Report should also provide some further preliminary high level details with regard to the site's constructability (i.e. access arrangements, types of vehicles, likely impacts to adjacent roads due to concrete pours, delivery of large structural items to the site, etc).

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Billbergia Developments Pty Ltd  
Locked Bag 1400  
MEADOWBANK NSW 2114

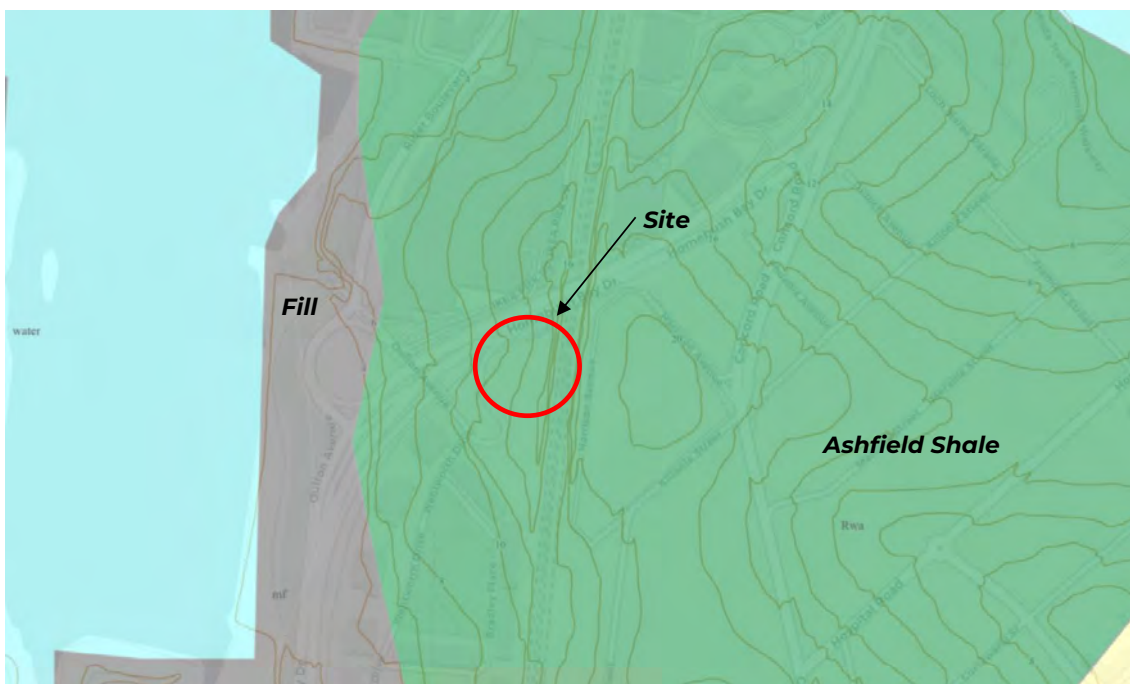
Project 99878.02  
15 August 2024  
R.001.Rev0  
PMO

Attention: Bill McGarry

## Report on Acid Sulfate Soil Conditions Proposed Residential Development Lot 212 DP 1112512, Oulton Avenue, Rhodes

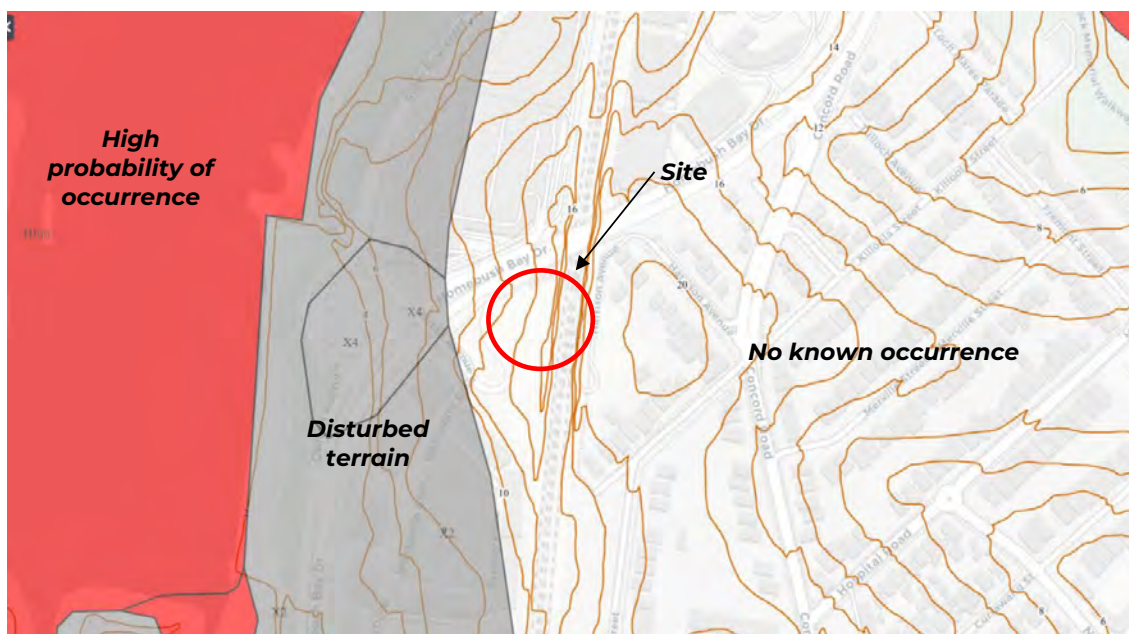
This letter provides confirmation of acid sulfate soil potential on the above site. The advice is provided in the context of a multi-storey unit development over basement parking.

The *Sydney 1:100 000 Geological Series Sheet* indicates that the site is underlain by Ashfield Shale of the Wianamatta Group. This unit typically comprises black to dark grey shale and laminite. An extract of the mapping is provided in Figure 1.



**Figure 1: Extract from geological map overlain by 2 m surface contours**

The *Prospect/Parramatta River 1:25 000 Acid Sulfate Soil Risk Map* indicates no known occurrence of acid sulfate soils on the development site. This is to be expected based on the mapped geology outlined above. An extract of the mapping is provided in Figure 2.



**Figure 2: Extract from acid sulfate soil risk map overlain by 2 m surface contours**

The *Canada Bay Local Environmental Plan 2013* shows that the site is on Class 5 land with reference to acid sulfate soils. Class 5 land is land for which development consent is specifically required in relation to acid sulfate soils where:

- Works are within 500 m of adjacent Class 1, 2, 3 or 4 land that is below RL 5 m Australian Height Datum (AHD); and
- Where the water table is likely to be lowered below RL 1 m AHD on adjacent Class 1, 2, 3 or 4 land.

Ashfield Shale exhibits very low permeabilities and the regional groundwater table is likely to be well below the ground surface on the development site. Although the development site is within 500 m of Class 1, 2, 3 or 4 land that is below 5 m AHD, the proposed basement excavation is unlikely to lower the groundwater on this adjacent land. As such, specific controls in relation to acid sulfate soils are unlikely to be required.



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Page 3 of 3

Please contact the undersigned if you have any questions on this matter.

Yours faithfully

**Douglas Partners Pty Ltd**

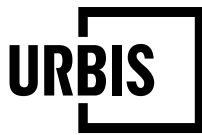
A handwritten signature in blue ink, appearing to read 'Peter Oitmaa'.

**Peter Oitmaa**  
Principal

Reviewed by

A handwritten signature in blue ink, appearing to read 'Scott Easton'.

**Scott Easton**  
Principal

**ANGEL PLACE  
LEVEL 8, 123 PITT STREET  
SYDNEY NSW 2000**URBIS.COM.AU  
Urbis Ltd  
ABN 50 105 256 228

24 July 2024

William John McGarry  
Director  
Oulton Rhodes Pty Ltd  
[wjm@developmentservices.com.au](mailto:wjm@developmentservices.com.au)

Dear William,

**ECONOMIC ASSESSMENT – LOT 212 DP 1112512, OULTON AVENUE, CONCORD WEST**

This letter comprises an economic assessment of Oulton Rhodes Pty Ltd's landholdings at Lot 212 DP 1112512, Oulton Avenue, Concord West (subject site), in the Rhodes Strategic Centre within the Canada Bay local government area (LGA). The assessment has focused on determining the suitability of the subject site for residential, retail and commercial land uses.

The purpose of this assessment is to support a planning proposal that seeks to rezone the subject site from Zone MU1 Mixed Use to R4 High Density Residential in accordance with Local Planning Direction 7.1: Employment Zones issued by the Minister for Planning to relevant planning authorities under section 9.1(2) of the *Environmental Planning and Assessment Act 1979*. The directions apply to planning proposals lodged with the Department of Planning, Housing and Infrastructure (DPHI).

Therefore, this assessment has given consideration to the objectives of the Local Planning Directions in assessing the suitability of the subject site for residential, retail and commercial land uses.

The objectives of Direction 7.1: Employment Zones are to:

- (a) *encourage employment growth in suitable locations,*
- (b) *protect employment land in employment zones, and*
- (c) *support the viability of identified centres.*

Direction 7.1 applies to all relevant planning authorities when preparing a planning proposal that will affect land within an existing or proposed Employment zone (including the alteration of any existing Employment zone boundary). As the subject site is located on land in Zone MU1 Mixed Use and the planning proposal includes rezoning the site to Zone R4 High Density Residential, Direction 7.1 is relevant.

Direction 7.1 requires that a planning proposal must:

- (a) *give effect to the objectives of this direction,*

Lett-0724-Oulton Avenue Concord West Economic Assessment





- (b) retain the areas and locations of Employment zones,*
- (c) not reduce the total potential floor space area for employment uses and related public services in Employment Zones*
- (d) not reduce the total potential floor space area for industrial uses in E4, E5 and W4 zones, and*
- (e) ensure that proposed employment areas are in accordance with a strategy that is approved by the Planning Secretary.*

A planning proposal may be inconsistent with the terms of this direction only if the relevant planning authority can satisfy the Planning Secretary (or an officer of the Department nominated by the Secretary) that the provisions of the planning proposal that are inconsistent are:

- (a) justified by a strategy approved by the Planning Secretary, which:*
  - i. gives consideration to the objective of this direction, and*
  - ii. identifies the land which is the subject of the planning proposal (if the planning proposal relates to a particular site or sites), or*
- (b) justified by a study (prepared in support of the planning proposal) which gives consideration to the objective of this direction, or***
- (c) in accordance with the relevant Regional Strategy, Regional Plan or District Plan prepared by the Greater Cities Commission or the Department of Planning and Environment which gives consideration to the objective of this direction, or Local Planning Directions.*

(our emphasis added)

## EXECUTIVE SUMMARY

The rezoning of the subject site from Zone MU 1 Mixed Use to Zone R4 High Density Residential is supported by an economic assessment of land use success factors that finds that the subject site is not a suitable location for encouraging employment growth through commercial or retail uses, as summarised below:

- **Commercial** – Given the low levels of demand for commercial floorspace in the local area and across Sydney, the subject site's highly isolated location outside of a contiguous and recognised commercial hub, and the limited accessibility and availability of car parking, overall the site is not suitable for commercial uses (despite its proximity to potential workers and access to amenities and services).
- **Retail** – While the subject site enjoys close proximity to a large and growing prospective customer base of local residents and workers, it suffers from poor vehicle accessibility, low levels of exposure to passing vehicle and pedestrian traffic and significant existing nearby retail competition. It is, therefore, not suitable for retail uses.

It is noted that Shop Top Housing is a permitted use in the MU1 Mixed Use Zone which has a requirement for housing to be located above retail or business premises.



Furthermore, for the reasons outlined in this economic assessment of land use success factors, protecting the subject site for employment uses would, in effect, render the site sterile as it is not suitable for commercial or retail uses.

Additionally, the planning proposal is unlikely to adversely impact on the viability of the Rhodes Strategic Centre as there are opportunities for growth in employment in more suitable locations including recently rezoned sites in the Rhodes Strategic Centre under the Rhodes Place Strategy.

While the subject site is not suitable for employment uses, it is highly suited for residential uses by virtue of enjoying excellent access to amenities and services, being close to major employment opportunities, and being well-serviced by public and private transport infrastructure. It also has potential to achieve attractive views with an appropriate design response. Given the housing supply and affordability issues being faced across Greater Sydney, the site represents a key opportunity to contribute additional housing supply in a high-amenity location.

We therefore recommend the site be developed to solely accommodate residential uses.

## **1. SUBJECT SITE, LOCAL CONTEXT AND PROPOSED DEVELOPMENT**

### **Subject Site and Local Context**

The subject site is an irregularly shaped 0.42 ha allotment located at the corner of Homebush Bay Drive, the rail corridor, and the Oulton Avenue slip road, as shown in Map 1, overleaf. The site is relatively flat but currently vacant and undeveloped, only accommodating vegetation and trees. It is currently zoned MU1 Mixed Use under the *Canada Bay Local Environmental Plan 2013*.

Access to the subject site is currently somewhat constrained due to the site being bordered by the railway line to east, the elevated Homebush Bay Drive to the north, Oulton Avenue to the west and medium and high density residential uses to the south. However, a tunnel under Homebush Bay Drive provides pedestrian access to the northern boundary of the site, and vehicular access to the site is likely to be possible from Oulton Avenue. Rhodes train station is also located with a 10-minute walk of the subject site, providing public transport connections to the Sydney CBD and the North Shore.



Map 1 – Subject Site



The subject site is located in an area that previously predominately accommodated warehousing and local industrial uses. However, the area has since transitioned and now primarily accommodates residential, retail and commercial uses. As a result, the site currently benefits from close proximity to a range of services, amenities, and economic opportunities.

As shown in Map 2, overleaf, the Rhodes Waterside sub-regional shopping centre is situated immediately north of the subject site providing over 26,000 sq.m of floorspace to cater to the convenience and discretionary retail and services needs of the local resident and worker populations. The shopping centre is anchored by a Coles supermarket, ALDI supermarket, Kmart, Bing Lee and Reading Cinemas which are supported by over 110 specialty stores. Rhodes Waterside is also co-located with IKEA.

High density residential and commercial office uses are located further north, while Rhodes Corporate Park is situated north-east of the subject site on the opposite side of the railway line. To the immediate south of the site is a modern master-planned medium-high density residential community (Liberty Grove), while low-density residential uses are located further south of the site and on the eastern side of the railway line. Concord Repatriation General Hospital is situated further to the east, overlooking Yaralla Bay, while Sydney Olympic Park is located to the south-west of the subject site.





Map 1 – Surrounding Land Uses





## Proposed Development

Oulton Rhodes Pty Ltd is currently seeking to lodge a planning proposal that would amend the *Canada Bay Local Environmental Plan 2013* in relation to the subject site as follows:

- Amend the Land Zoning Map from MU1 Mixed Use to R4 High Density Residential
- Amend the Height of the Building Map from 24 metres to 46 metres
- Amend the Floor Space Ratio Map from 1.1:1 to 2.1:1.

The planning proposal is supported by a reference scheme prepared by SJB Architects which proposes an 89-unit apartment building on the site comprising:

- 26 one-bedroom units
- 37 two-bedroom units
- 26 three-bedroom units
- 101 car parking spaces.

To further inform and support the planning proposal and reference scheme, Urbis has been engaged by Oulton Rhodes Pty Ltd to determine the suitability of the subject site for residential, retail and commercial land uses and consider the impact of Direction 7.1: Employment Zones.

## 2. LAND USE SUCCESS FACTOR ANALYSIS

In order to determine the suitability of the subject site for residential, retail and commercial land uses, we have undertaken a land use success factor analysis. This analysis assesses the subject site and its key characteristics against the key success factors for residential, retail and commercial land uses to identify which type of use best aligns to the inherent characteristics of the site. The following three tables (overleaf) outline the findings of this assessment.



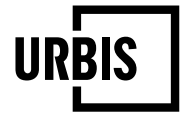


Table 1 – Residential Success Factors Analysis

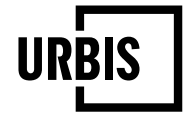
Factor	Description	Subject Site Rating	Commentary
<b>Attractive views and quiet surroundings</b>	<p>Attractive views and northerly aspects that maximise light and climate benefits are key to the success of residential uses.</p> <p>Quiet surroundings and sufficient privacy are also important factors for residential uses.</p>	<b>Moderate</b>	<ul style="list-style-type: none"> <li>As per the reference scheme, attractive views and northerly aspects can be achieved at the site by incorporating a raised podium containing above-ground car parking with the <b>residential apartments sitting above the level of the motorway</b>, with the <b>majority of apartments oriented to the north and west</b>.</li> <li>The site is situated immediately adjacent to the elevated Homebush Bay Drive, a major arterial road, and adjacent to a railway line. This has potential to generate <b>noise, odour and privacy disturbances</b> for residents. However, as demonstrated by the reference scheme, these impacts can be mitigated by <b>minimising the number of apartments with an eastern aspect</b> and <b>introducing the use of winter gardens and a trickle vent system</b>.</li> </ul>
<b>Access to amenities and services</b>	<p>Easy access to shops, open / recreational spaces, health services, schools, entertainment and dining options are very important for the success of residential uses.</p>	<b>High</b>	<ul style="list-style-type: none"> <li><b>Retail:</b> Rhodes Waterside sub-regional shopping centre provides significant convenience and discretionary retail immediately north of the subject site while DFO Homebush is located 2 km south of the site.</li> <li><b>Open/recreational space:</b> Oulton Park, Bradley Reserve and Mutton Reserve are all located within 150 metres of the subject site. Ron Routley Oval, Majors Bay Reserve and Concord Golf Club (1.5 km to the south-east), in addition to Sydney Olympic Park (~2 km to the south-west), also provide additional recreational amenity to the broader area.</li> </ul>



Factor	Description	Subject Site Rating	Commentary
			<ul style="list-style-type: none"> <li>▪ <b>Health services:</b> Concord Repatriation General Hospital is situated 600 metres east of the subject site.</li> <li>▪ <b>Schools:</b> The local area features a mix of public and private schools, including Concord West Public School, directly east of the subject site, The McDonald College (3.6 km to the south) and Newington Public School (6 km to the west).</li> <li>▪ <b>Entertainment and dining:</b> There are numerous entertainment and dining options within walking distance of the subject site. This includes a substantial offer within Rhodes Waterside, including Reading Cinemas, and further north near Rhodes train station. Sydney Olympic Park, ~2 km south-west of the subject site also provides a variety of entertainment options.</li> </ul>
<b>Employment opportunities</b>	Access to employment opportunities is increasingly important for residential uses, with residents preferring to live close to work in order to minimise travel times and improve work/life balance.	<b>High</b>	<ul style="list-style-type: none"> <li>▪ Rhodes Corporate Park, immediately north-east of the subject site, supports <b>significant office-based employment</b> across its 86,000 sq.m of commercial office uses.</li> <li>▪ Rhodes Waterside shopping centre and the various retail and commercial uses located further north supports <b>substantial retail, services and office-based jobs</b> within walking distance of the subject site.</li> </ul>



Factor	Description	Subject Site Rating	Commentary
			<ul style="list-style-type: none"> <li>The Concord Repatriation General Hospital is situated 600 metres east of the subject site and supports <b>significant employment in the Health Care and Social Assistance industry</b>.</li> <li>The nearby Rhodes train station also provides <b>convenient access to the significant employment opportunities in the Sydney CBD</b>.</li> </ul>
<b>Transport accessibility</b>	Access to good public transport and road infrastructure are critical to the success of residential uses, particularly linkages to the major employment centres and amenities.	<b>High</b>	<ul style="list-style-type: none"> <li><b>Rhodes train station is located within a 10-minute walk of the subject site</b>, providing convenient public transport connections to the Sydney CBD and the North Shore, while Concord West train station is also accessible via car (7 mins).</li> <li>The site has potential to access <b>Homebush Bay Drive</b> which provides linkages to the North Shore and Western Sydney, while the nearby <b>Concord Road</b> connects to the Inner West and the Sydney CBD.</li> <li>The subject site is also located <b>approximately 3 km from the future Metro West station at North Strathfield</b> which will provide high-frequency connections between Parramatta and the Sydney CBD.</li> </ul>



Factor	Description	Subject Site Rating	Commentary
OVERALL		Suitable	The subject site is highly suited for residential uses by virtue of enjoying excellent access to amenities and services, being close to major employment opportunities, and being well-serviced by public and private transport infrastructure. It also has potential to achieve attractive views with an appropriate design response. Given the housing supply and affordability issues being faced across Greater Sydney, the site represents a key opportunity to contribute additional housing supply in a high-amenity location.



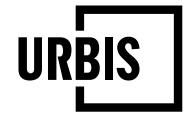
Table 2 – Retail Success Factors Analysis

Factor	Description	Subject Site Rating	Commentary
<b>Proximity to customers</b>	Being located close to potential customers is very important to the success of any retail uses as proximity is a key determinant of visitation and spending.	<b>High</b>	<ul style="list-style-type: none"> <li>The subject site is located close to <b>high density residential and commercial uses which provide a large customer base</b> (over 20,000 residents in Rhodes and Concord West) for any potential retail uses at the site to service.</li> <li>The Canada Bay LGA is projected to accommodate an additional <b>~9,800 residents and ~3,500 workers by 2041</b> which will drive increased demand for retail uses across the LGA.</li> <li><b>Less than 20% of projected resident population growth</b> and approximately <b>75% of projected employment growth</b> in the LGA by 2041 is projected to occur within the suburbs of Rhodes, Concord West and North Strathfield.</li> </ul>
<b>Accessibility and availability of car parking</b>	Easy access to main roads, public transport, and the provision of ample car parking spaces for customers is critical to achieving significant customer draw and high frequency of visits.	<b>Low-Moderate</b>	<ul style="list-style-type: none"> <li>Vehicle access to the site can only occur via Oulton Avenue however this is likely to be challenging for large traffic volumes typically associated with retail uses as <b>Oulton Avenue is a one-directional slip road serving as an exit ramp from Homebush Bay Drive.</b></li> <li>Alongside potential vehicle access challenges, the <b>irregular shape of the site is not well-suited to enable frequent and high volumes of traffic to access on-site car parking</b> for retail uses.</li> </ul>





Factor	Description	Subject Site Rating	Commentary
			<ul style="list-style-type: none"> <li>Rhodes train station is located with a 10-minute walk of the subject site, and the site is also located approximately 3 km from the future Metro West station at North Strathfield.</li> </ul>
High visibility to passing vehicle and pedestrian traffic	Retail developments benefit from increased visitation if they have good levels of exposure to passing traffic along major roads and exposure to pedestrian traffic	Low	<ul style="list-style-type: none"> <li>Retail uses at the subject site are unlikely to be able to achieve significant levels of visibility to passing vehicle traffic or pedestrian traffic as the site has only one street frontage (to an exit ramp) and views to the site are obscured by the elevated Homebush Bay Drive and barricades along Oulton Avenue.</li> </ul>
Availability of choice and competing supply	The number, location, scale, and quality of competing retail uses in an area can influence the number of customers that a new retail development is able to attract.	Low	<ul style="list-style-type: none"> <li>Rhodes Waterside sub-regional shopping centre is situated immediately north of the subject site and provides significant convenience and discretionary retail uses, while DFO Homebush is located 2 km south of the site.</li> <li>Rhodes Corporate Park, immediately north-east of the subject site, also provides a small-scale food and beverage retail offer for local workers, and enjoys direct access to Rhodes Waterside.</li> </ul>



Factor	Description	Subject Site Rating	Commentary
OVERALL		Not Suitable	While the subject site enjoys close proximity to a large and growing prospective customer base of local residents and workers, it suffers from poor vehicle accessibility, low levels of exposure to passing traffic and significant existing nearby retail competition. It is, therefore, not suitable for retail uses.

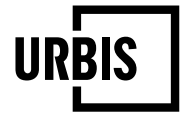
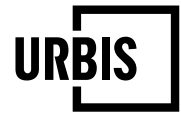


Table 3 – Commercial Success Factors Analysis

Factor	Description	Subject Site Rating	Commentary
<b>Proximity to worker population</b>	Being located close to potential workers is very important to the success of commercial developments, with workers preferring to work close to where they live in order to minimise travel times and improve work/life balance.	High	<ul style="list-style-type: none"> <li>The subject site is located close to <b>high density residential uses which provide a large pool of potential workers</b> (over 20,000 residents in Rhodes and Concord West) for any potential commercial uses at the site.</li> <li>The Canada Bay LGA is projected to accommodate an additional <b>~9,800 residents by 2041</b> which will drive increased demand for local employment across the LGA.</li> </ul>
<b>Access to amenities and services</b>	Easy access to shops, dining options, and other services are very important for the success of commercial uses as these amenities are now required in order to attract skilled workers.	High	<ul style="list-style-type: none"> <li><b>Retail and services:</b> Rhodes Waterside sub-regional shopping centre provides significant convenience and discretionary retail and services immediately north of the subject site.</li> <li><b>Dining:</b> There are numerous dining options within walking distance of the subject site. This includes the substantial offer within Rhodes Waterside, and further north near Rhodes train station. Rhodes Corporate Park, immediately north-east of the subject site, also provides a small-scale food and beverage retail offer for local workers.</li> </ul>



Factor	Description	Subject Site Rating	Commentary
<b>Accessibility and availability of car parking</b>	Easy access to main roads and public transport, and the provision of ample car parking spaces for employees and visitors are critical to the success of commercial uses.	<b>Low-Moderate</b>	<ul style="list-style-type: none"> <li>Vehicle access to the site can only occur via Oulton Avenue however this is likely to be challenging for the larger traffic volumes typically associated with some commercial uses (e.g. business premises) as <b>Oulton Avenue is a one-directional slip road serving as an exit ramp from Homebush Bay Drive.</b></li> <li>Alongside potential vehicle access challenges, the <b>irregular shape of the site is not well-suited to enable frequent and high volumes of traffic to access on-site car parking</b> for some commercial uses (e.g. business premises).</li> <li><b>Rhodes train station is located with a 10-minute walk of the subject site</b>, and the site is also located <b>approximately 3 km from the future Metro West station at North Strathfield.</b></li> </ul>
<b>Located within an existing commercial hub</b>	As demonstrated by CBDs, commercial uses perform best when clustered together in order to achieve agglomeration benefits.	<b>Low</b>	<ul style="list-style-type: none"> <li>The subject site is <b>highly isolated and does not sit within a contiguous and recognised commercial hub.</b> The only use directly neighbouring the site is medium and high density residential.</li> <li>While the subject site is located <b>relatively close to the existing commercial uses in Rhodes Corporate Park</b>, the <b>railway line and Homebush Bay Drive represent significant geographic barriers to access</b> between the two sites.</li> </ul>



Factor	Description	Subject Site Rating	Commentary
			<ul style="list-style-type: none"> <li><b>Over 10% of the existing commercial floorspace in Rhodes is currently vacant</b>, reflecting low levels of demand for commercial floorspace in the local area and across Sydney following the uptick in hybrid working post-COVID.</li> </ul>
OVERALL		Not Suitable	Given the low levels of demand for commercial floorspace in the local area and across Sydney, the subject site's highly isolated location outside of a contiguous and recognised commercial hub, and the limited accessibility and availability of car parking, overall the site is not suitable for commercial uses (despite its proximity to potential workers and access to amenities and services).





### 3. CONCLUSION

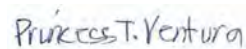
Based on the Land Use Success Factors Analysis, we find the following in respect of the subject site:

- **Suitable for Residential Uses**
  - ✓ Enjoys excellent access to amenities and services
  - ✓ Located close to major employment opportunities
  - ✓ Well-serviced by public and private transport infrastructure.
  - ✓ Potential to achieve attractive views with an appropriate design response
  - ✓ Represents a key opportunity to contribute additional housing supply in a high-amenity location
- **Not Suitable for Retail Uses**
  - ✗ Limited accessibility and availability of car parking
  - ✗ Low levels of exposure to passing traffic
  - ✗ Significant existing nearby retail competition
  - ✓ Located close to a large and growing prospective customer base of local residents and workers
- **Not Suitable for Commercial Uses**
  - ✗ Low levels of demand for commercial floorspace in the local area
  - ✗ Highly isolated and does not sit within a contiguous and recognised commercial hub
  - ✗ Limited accessibility and availability of car parking
  - ✓ Located close to potential workers
  - ✓ Enjoys excellent access to amenities and services.

Therefore, the subject site is not a suitable location for encouraging employment growth, and protecting the subject site for employment uses would, in effect, render the site sterile as it is not suitable for commercial or retail uses. Additionally, the planning proposal is unlikely to adversely impact on the viability of the Rhodes Strategic Centre as there are opportunities for growth in employment in more suitable locations including recently rezoned sites in the Rhodes Strategic Centre under the Rhodes Place Strategy.

We therefore recommend the site be developed to solely accommodate residential uses.

Yours sincerely,



Princess Ventura  
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## **LOCAL PLANNING PANEL**

### **PLANNING PROPOSAL**

### **MINUTES**

*Halliday Room  
City of Canada Bay Council  
1A Marlborough Street  
Drummoyne*

*5 August 2024*

Panel: Jason Perica (Chair)  
Lindsey Dey (Expert Panel Member)  
Heather Warton (Expert Panel Member)  
Ruth Frettingham (Community Member)

Council staff: Mark Dennett, Senior Strategic Planner



A meeting of the Local Planning Panel was held in the Halliday Room, Canada Bay Civic Centre, Drummoyne on 5 August 2024 in relation to a Planning Proposal at Oulton Avenue, Concord West. Please note Planning Proposal meetings are not public meetings and therefore are not open to the public.

A site inspection was conducted by Panel members and Council staff from 10.30am to 11.15am.

The applicant and their representatives addressed the Panel from 12.45pm to 1.45pm.

The planning proposal meeting concluded at 2:45pm.

1. Apologies:

No apologies.

2. Disclosures of Pecuniary and Non-Pecuniary Interest:

No conflicts of interest.

3. Reports:

Planning Proposal PP2024/0005 – Oulton Avenue, Concord West.

Jason Perica  
Panel Chairperson:

5 August 2024

**ITEM 1 PLANNING PROPOSAL; PP2024/0005; OULTON AVENUE, CONCORD WEST**

This proponent-initiated Planning Proposal seeks to amend the Canada Bay Local Environmental Plan 2013 (CBLEP) at Oulton Avenue, Concord West to: amend the Land Zoning Map from MU1 Mixed Use to R4 High Density Residential; amend the Height of Building Map from 24m to 46m; and amend the Floor Space Ratio Map from 1.1:1 to 2.1:1. The proposal seeks to allow redevelopment of the site for potentially 89 dwellings (based on a reference scheme).

The Panel's role is to provide advice to Council for their consideration. In providing advice, the Panel considered the strategic merit and site-specific merit of the Planning Proposal.

The Panel considered the Council staff report (including attachments), and heard from the applicant and their representatives in their address to the Panel, together with matters observed during the site inspection.

**RESOLVED**

The Panel:

1. Supports the Planning Proposal proceeding to Gateway, subject to the comments and recommendations below.
2. Agrees with Council staff about the strategic merit of changing the zoning, height and FSR of the site, given the surrounding context. The main strategic merit issue is the impact on "employment land" and supply. In this regard the Panel supports the Council staff recommendation for an Economic Impact Assessment, although also notes the site is zoned Mixed Use MU1, and shop top housing is currently permissible, which provides for limited employment provision.
3. Agrees with Council staff about the site-specific considerations regarding the site, related to the Planning Proposal. However, there is limited information and analysis regarding the biodiversity values and associated potential constraints of the site, and a Biodiversity/Ecological Impact Assessment should be done by the proponent prior to submission to Gateway.
4. The key constraints for the site are access, being bound by major roads, slip lane/road with limited visibility, a rail line, and constraints related to slope and site shape. In this regard, options for vehicular access are limited. The proposed rezoning to High Density Residential will reduce the likelihood of traffic impacts associated with commercial truck movements into the surrounding constrained network.

5. Supports the Council staff recommendations related to:
  - a. A split height limit in the LEP of 42m towards the north and 30m towards the south. These heights should be preferably determined with referenced to maximum RLs;
  - b. A 6% affordable housing component (in perpetuity) of the total Gross Floor Area;
  - c. Application of LEP Design Excellence provisions to the site;
  - d. Provision of an Economic Impact Assessment, Noise and Vibration Assessment peer review and an Acid Sulphate Soil Assessment prior to Gateway;
  - e. Review of visual impact and shadow diagrams (i.e. a comprehensive analysis of the impact of future development, particularly on Liberty Grove);
  - f. Provision of a draft Planning Agreement with the Planning Proposal;
  - g. A draft Development Control Plan (“DCP”) to guide future development of the site to be included in exhibition material.
6. Identifies the following matters to be considered and addressed at the appropriate time, related to the proposal:
  - a. Revision of the Reference Scheme so that car parking is provided at no more than the maximum DCP parking rate (provided on-site) and assuming that this is the lesser of the applicable rate in the Guide to Traffic Generating Development as per Objective 3J-1 of the Apartment Design Guide. The minimum bicycle space rate is to be provided and preferably exceeded;
  - b. The layout and visual impacts of the proposed above ground car park upon the surrounding public and private properties, as well as issues raised by TfNSW;
  - c. Incorporation of Council’s Transport and Traffic specialist input to the Planning Proposal consideration;
  - d. Considering the adjoining privately-owned site to the south and the Council land to the south-west, and whether it is appropriate to include these sites in the Planning Proposal and/or the site-specific DCP, given interface, connection, aesthetic and access issues which will be altered and that should be considered in terms of the implications of the Planning Proposal for the subject site;
  - e. The height of the southern building (with or without any potential future bonuses under the Housing SEPP) must consider the shadow impacts on the northern face of the Liberty Grove development to the south;
  - f. The VPA to consider appropriate improvements to the public domain around the site (which also benefit the subject site) and potential compensatory tree cover loss from tree removal at the site.



### VOTING




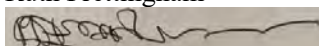
The voting in respect of this matter was 4/0.

For: Perica, Dey, Warton, Frettingham.

Against: Nil.

### ADOPTION OF MINUTES:

We, the undersigned members of the Canada Bay Local Planning Panel, certify that these Minutes are an accurate record of the Planning Proposal Meeting of 5 August 2024.

PANEL MEMBERS	
Jason Perica 	Lindsey Dey 
Heather Warton 	Ruth Frettingham 

## K2 (K25) Oulton Avenue, Concord West



Figure K25-1 Aerial photo (source: nearmap.com)

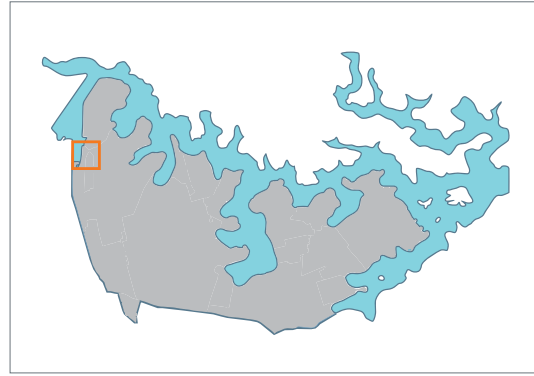


Figure K25-2 Council area map



Figure K25-3 Oulton Avenue, Concord West - Location Plan



## K25.1 Desired future character

### Vision Statement

*"The Oulton Avenue site will provide a high level of passive surveillance to the public domain, high quality active transport links that provide improved connectivity and safety for both residents of the site and the wider community, high quality landscaping of the public domain and create a safe, healthy and attractive place for future residents."*

## K25.2 General Objectives

- O1 To facilitate the development of a high quality residential development.
- O2 To improve publicly accessible active transport links for residents and the local community.

## K25.3 Built Form Envelopes

- O3 To concentrate height and density closer to the Rhodes centre and Homebush Bay Drive and sensitively transition towards lower existing residential dwellings in Liberty Grove.
- O4 Protect the solar access and privacy of existing neighbouring properties.

### Controls

C1.	All development is to conform with the maximum heights and number of storeys as shown in Figure K25-4 Building Envelope Controls Plan and Figure K25-6 and Figure K25-7 Sections.								
C2.	All development is to comply with the setbacks shown in Figure K25-4 Building Envelope Controls Plan and Figure K25-6 and Figure K25-7 Sections.								
C3.	<p>Built form is to be adaptable and able to accommodate to a variety of uses over time. The following floor to floor heights apply:</p> <table border="1"> <thead> <tr> <th>Use</th><th>Minimum height</th></tr> </thead> <tbody> <tr> <td>Car parking</td><td>3.2m</td></tr> <tr> <td>Residential</td><td>3.2m</td></tr> <tr> <td>Community</td><td>3.6m</td></tr> </tbody> </table>	Use	Minimum height	Car parking	3.2m	Residential	3.2m	Community	3.6m
Use	Minimum height								
Car parking	3.2m								
Residential	3.2m								
Community	3.6m								
C4.	Roof forms, plant and lift overruns are to be designed to be simple compact forms that are visually unobtrusive. They should not exceed 1-1.5m in height.								

- C5. Direct solar access (sunshine) to windows of principal living areas and to the principal area of open space of existing neighboring dwellings, particularly along the south western boundary, should not be reduced to less than 2 hours between 9.00am and 3.00pm on 21 June (mid winter). This solar access requirement also applies to any potential future development permitted under a SEPP which would allow additional height above the proposed LEP maximum building height.

### Building Envelope Controls Plan

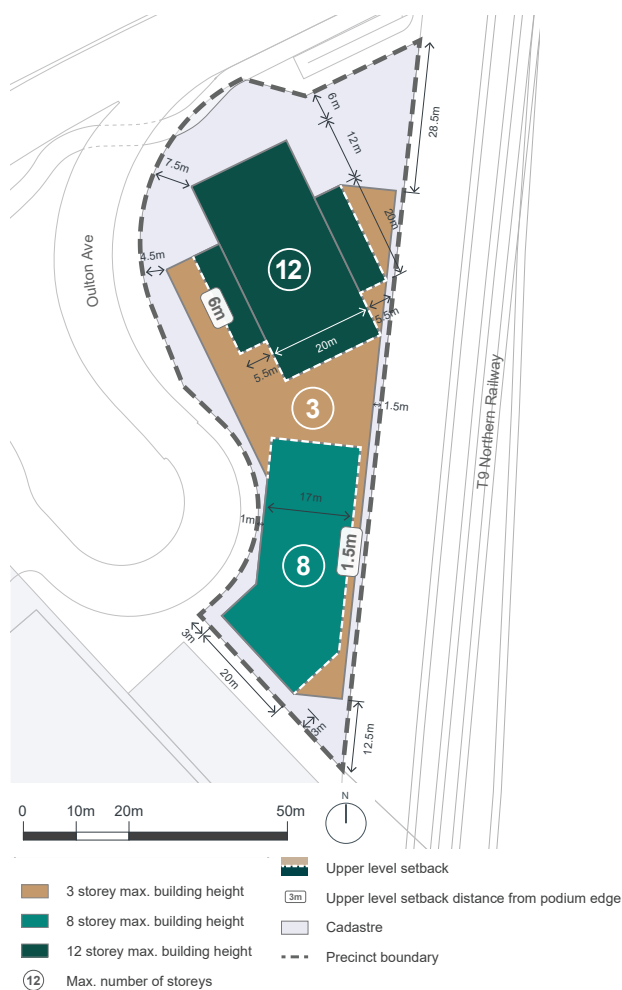


Figure K25-4 Building Envelope Controls Plan

## K25 (K25) Oulton Avenue, Concord West

### Building Envelope Controls Sections

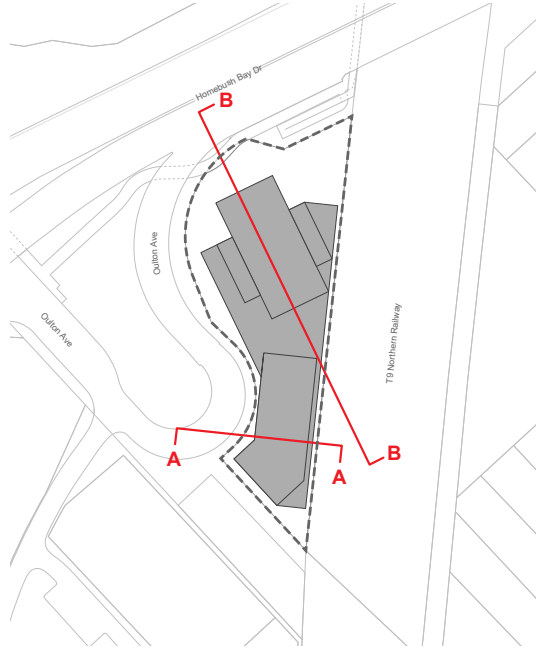


Figure K25-5 Section key



Figure K25-6 Section A: Western boundary to Eastern boundary

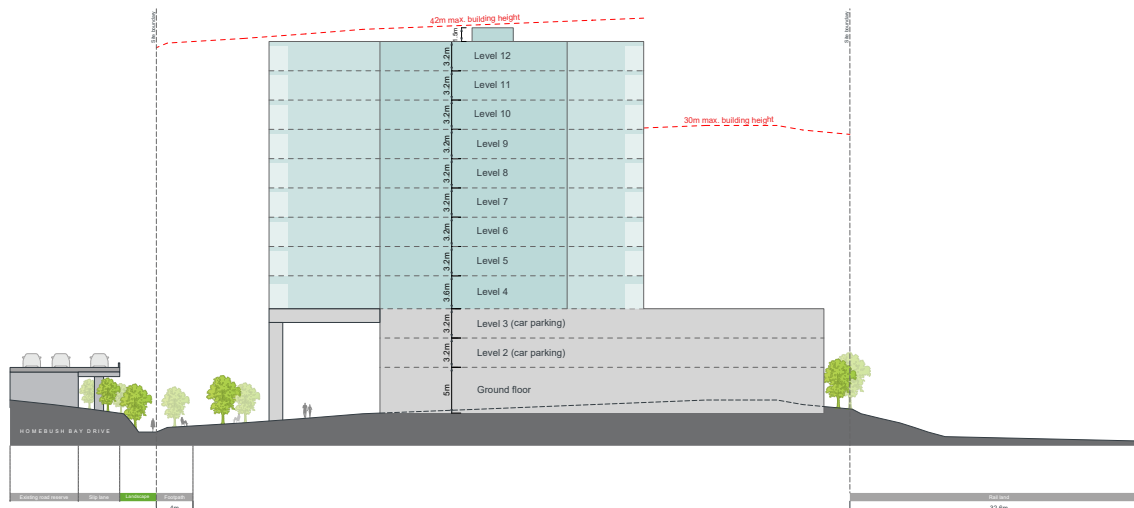


Figure K25-7 Section B: Northern boundary to eastern boundary through 12 storey tower

#### K25.4 Massing and articulation

- O1 To ensure the scale and density of future development is compatible with the surrounding context.

Controls	
C6.	The maximum overall density of the built form is not to exceed the maximum FSR shown in the LEP. Built form should achieve good levels of natural lighting, ventilation and amenity, through the design of building, building depth and separation distances.
C7.	Ensure the built form exhibits high design quality, and minimise overshadowing of neighbouring buildings and private open spaces.
C8.	To ensure the built form is seen as being within a landscaped setting when viewed from Mutton Reserve, a maximum of 65% of the eastern boundary can have a 1.5m minimum side setback (to be confirmed with TfNSW and Sydney Trains). The remaining 35% of the eastern boundary is to have a generous landscaped side setback of 3m or more.
C9.	Wintergardens, while desirable to address the noise and air pollution challenges of the site, are to be included in total GFA and FSR calculations as they contribute to the overall bulk and scale of the built form.

#### K25.5 Safety

- O1 To ensure the safety of pedestrians and cyclists accessing, or passing through the site and visitors and residents arriving by car through a building design that creates clear sight lines and maximises the opportunities for passive surveillance of communal spaces and the public domain.

#### Controls

C10.	New development is to address and define the public domain to the north, with publicly accessible spaces, lobbies, windows and balconies that overlook the public domain, maximising opportunities for public surveillance.
C11.	Establish and maintain clear sight lines between the lobby of the building and the shared path (see Figure K25-9), particularly: <ul style="list-style-type: none"> <li>the entry to the underpass (north)</li> <li>where it passes beneath the Oulton Avenue off-ramp</li> </ul>
C12.	The arrival lobby within the car park is to have a defined drop off zone and clear lines of sight to the lifts and the northern landscaped area.

#### K25.7 Visual and Acoustic Privacy

- O1 To maximise visual and acoustic privacy to adjoining properties and within the development itself.
- O2 To protect building users from negative impacts (noise, air quality, vibration) from road and rail corridors.

#### Controls

C13.	The following noise levels are not to be exceeded: <ul style="list-style-type: none"> <li>a) 35dB(A) in any bedroom in the residential accommodation at any time between 10:00pm and 7:00am;</li> <li>b) 40db(A) anywhere else in the residential accommodation (other than a garage, kitchen, bathroom or hallway) at any time.</li> </ul>
C14.	Development should consider appropriate acoustic and air quality provisions in line with the Department of Planning's 'Development Near Rail Corridors and Busy Roads - Interim Guideline' (see Part B12.7 Transport Corridor Amenity Impacts of CCB DCP).



## K25 (K25) Oulton Avenue, Concord West

### Public Domain Controls Plan

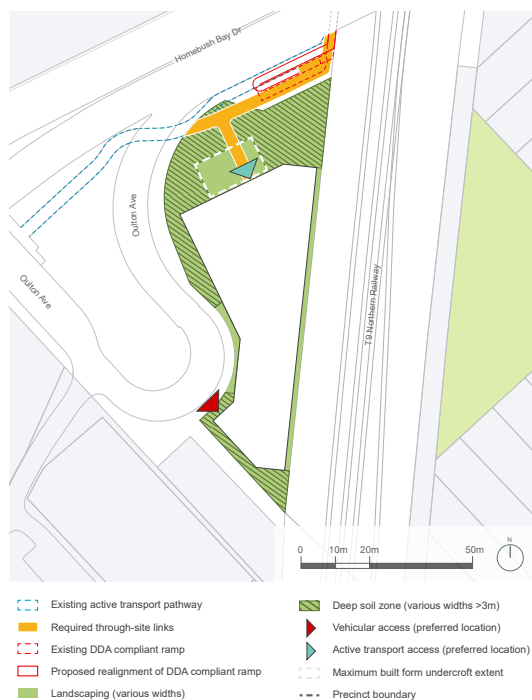


Figure K25-8 Public Domain Plan

### K25.9 Movement and Access Network

- O1 To provide suitable access to the site for vehicles and suitable access across the site for pedestrians and cyclists.
- O2 To promote active transport and the use of public transport.
- O3 To provide a safe environment for all including children, disabled people and the elderly.

#### Controls

C15.	Active transport links and vehicular access points are to be provided as shown in Figure K25-8 Public Domain Plan.
C16.	The main pedestrian and active transport entrance is to be located on the northern facade of the built form with strong visual and physical (pathway) connections to the public domain and the active transport path that exists along the northern site boundary.

### K25.10 Landscape Design

- O1 Areas around the building and along the northern boundary of the site are to contribute to the desired future character of the location.
- O2 To promote high quality landscape design as an integral component of the overall design of the new development, softening the appearance of the future built form and the existing vehicular infrastructure (including Homebush Bay Drive).
- O3 To maintain the local micro-climate, encourage native fauna and flora habitats, and reduce climatic impacts on buildings and outdoor spaces.
- O4 To allow adequate provision on site for infiltration of stormwater, deep soil tree planting, landscaping and areas of communal outdoor recreation.
- O5 To provide for on-site stormwater absorption.

#### Controls

C17.	Deep soil zones are to cover at least 15% of the site area.
C18.	Calculation of deep soil areas is not to include any land that has a minimum dimension of less than 3m.
C19.	A landscape architect is to be engaged to ensure that: <ul style="list-style-type: none"> <li>a) the architectural planning and building footprint result in adequate deep soil zones and suitable depths for planter boxes to provide generous healthy long term landscape on the podium;</li> <li>b) the deep soil zones are located in areas where canopy and landscape outcomes will best serve the future users and general architectural amenity;</li> <li>c) species selection considers site suitability, shade requirements and size.</li> </ul>
C20.	A setback is required along the length of the eastern boundary to ensure construction and future maintenance of all built form and ancillary structures does not require use of, or works within, rail owned land. A 1.5m minimum landscaped setback has been assumed, however this depth and requirements for treatment of this setback are to be confirmed with TfNSW and Sydney Trains.

### K25.12 Interface with the Public Domain

- O1 To improve the quality, accessibility and amenity of the shared active transport routes and the public domain in the vicinity of the development.

Controls	
C21.	Public domain improvements via a voluntary planning agreement with Council, should include the following: <ul style="list-style-type: none"> <li>a) the provision of a new DDA compliant pedestrian and cycle ramp to improve the visibility of the entry to the underpass and the lobby of the new building;</li> <li>b) the relocation of the existing public pathway to the south of the ramp to increase opportunities for surveillance along the shared path;</li> <li>c) landscaping requirements that are unobtrusive and promote sight lines to the residential lobby.</li> </ul>
C22.	The northern site boundary cannot be fenced and is to remain publicly accessible as the public pedestrian and cycle pathway is located on both sides of the boundary.

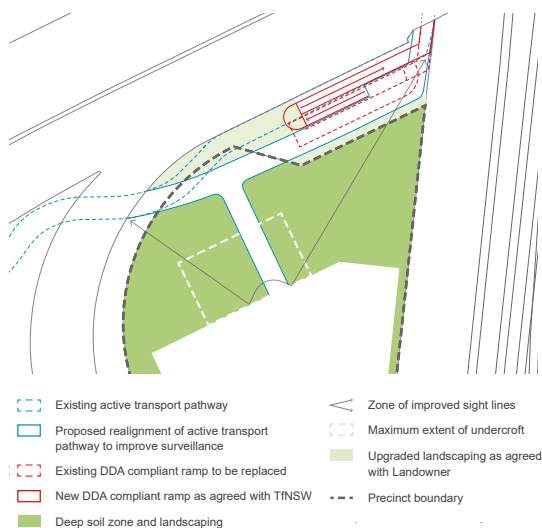


Figure K25-9 Public Domain Plan (detail)

### K25.13 Car Parking

- O1 To provide safe and legible vehicular access to the site.
- O2 To minimise the visual impact of above ground car parking areas.
- O3 To ensure that on-site car parking and driveways do not dominate or detract from the appearance of the development and the local character.

Controls	
C23.	On-site parking is designed so that it: <ul style="list-style-type: none"> <li>a) is contained within the building envelope;</li> <li>b) utilises appropriate articulation and screening to break down the bulk and scale of the built form.</li> </ul>
C24.	Facades screening car parks from the street and views from the public domain are to be of high quality and allow natural lighting and ventilation.
C25.	For parking rates, refer to Part B of this DCP.



Figure K25-10 Examples of above ground car-parking that allows natural lighting and ventilation, and incorporates landscaping and visual screening.



# Oulton Avenue, Rhodes (Lot 212)

## Residential development – Acoustic Peer Review

City of Canada Bay  
1a Marlborough St Drummoyne NSW 2047 | [www.canadabay.nsw.gov.au](http://www.canadabay.nsw.gov.au)

Report Reference: 240595 - Oulton Avenue Residential Development - Acoustic Peer Review - R0

Date: 11 October 2024

Revision: R0

Project Number: 240595

**PULSE WHITE NOISE ACOUSTICS** Suite 601, L6, 32 Walker St, North Sydney NSW 2060  
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City of Canada Bay  
1a Marlborough St Drummoyne NSW 2047 | [www.canadabay.nsw.gov.au](http://www.canadabay.nsw.gov.au)



## DOCUMENT CONTROL

Project Name:	Oulton Avenue, Rhodes (Lot 212)
Project Number:	240595
Report Reference:	240595 - Oulton Avenue Residential Development - Acoustic Peer Review - R0
Client:	City of Canada Bay

Revision	Description	Reference	Date	Prepared	Checked	Authorised
0	Draft	240595 - Oulton Avenue Residential Development - Acoustic Peer Review - R0	11/10/24	Matthew Harrison	Alex Danon	Matthew Harrison

## PREPARED BY:

Pulse White Noise Acoustics Pty Ltd  
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Address: Suite 601, Level 6, 32 Walker Street, North Sydney, 2060  
Phone: 1800 4 PULSE

This report has been prepared by Pulse White Noise Acoustics Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with City of Canada Bay.

Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of City of Canada Bay  
No warranties or guarantees are expressed or should be inferred by any third parties.  
This report may not be relied upon by other parties without written consent from Pulse White Noise Acoustics.

This report remains the property of Pulse White Noise Acoustics Pty Ltd until paid for in full by the client, City of Canada Bay.

Pulse White Noise Acoustics disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

City of Canada Bay  
1a Marlborough St Drummoyne NSW 2047 | [www.canadabay.nsw.gov.au](http://www.canadabay.nsw.gov.au)



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## 1 INTRODUCTION

I am a Director of Pulse White Noise Acoustics Pty Ltd, a noise and vibration consultancy based in Sydney. I have practiced as a consulting engineer in acoustics for approximately 30 years. I was awarded a B.E. (Mech) in 1991 and a MEngSc (Noise and Vibration) in 1997. I am a current committee member and was recently Chairman of the NSW division of the Australian Acoustical Society (AAS). My curriculum vitae is annexed hereto in Appendix B.

I have been engaged by the City of Canada Bay to provide them with an independent Peer Review of the Noise and Vibration Assessment, prepared by Renzo Tonin & Associates, for the proposed residential development to be located at the eastern end of Oulton Ave, Rhodes (Lot 212).

The Renzo Tonin & Associates (RTA) noise and vibration impact assessment (NVIA) for the development was documented in Report No. "TL665-01F02 Noise and Vibration Assessment (r3)", dated 24<sup>th</sup> February 2024 (the RTA report). The RTA assessment investigates the effects of external noise and vibration intrusion onto the development from road traffic on Homebush Bay Drive located to the north and west of the site, and rail movements from the northern rail line located to the east of the site.

In preparing this Peer Review, I have been provided with and reviewed the following documents:

- 1) Site location survey (named as "Attachment B - Site Survey")
- 2) **Site serving assessment report (named as "Attachment D - Site Servicing Assessment\_PP-2024-1063")**
- 3) The noise and vibration impact assessment (NVIA) report by RTA – (named as 'Attachment F – Noise and Vibration Assessment')
- 4) Architectural drawings contained in the Urban Design Report – (named 'Attachment K – Urban Design Report')

### 1.1 Proposed Development

The proposed residential development consists of two residential apartment buildings, one being 12 storeys in height and the other 8 storeys.

The key components of the development include the following:

- Two residential towers of eight (8) storeys & twelve (12) storeys respectively
- 89 apartments (30% 1 bed, 40% 2 bed and 30% 3 bed)
- A podium Level (communal areas)
- Two levels of car parking (providing a total of 101 car parking spaces)
- Ground floor level (lobby area) with carpark entry & exit

The 3-D massing of the proposed development can be seen in the below figure.



North east massing view

South west massing view

The elevation is shown in Figure 7.

The site plan for Level 01 illustrates the building's footprint and surrounding infrastructure. The building is divided into several functional zones: a pink 'BEDROOM' area, a yellow 'COMMUNAL' area, a grey 'PLANT' area, and a light blue 'LOBBY' area. To the left of the building is a parking lot with several car symbols and a 'LANDSCAPE' area. A curved road with dashed lines and car symbols runs along the top and left sides of the site. A 'PROVISION' area is located near the parking lot. The right side of the plan shows a 'ROADSIDE' area with a dashed line and a 'LANDSCAPE' area with a dashed line. A scale bar at the bottom indicates distances of 0, 5m, 20m, and 50m. The text 'LEVEL 01' is written at the bottom left.

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Figure 3 – Floor plans – Level 2 - 3

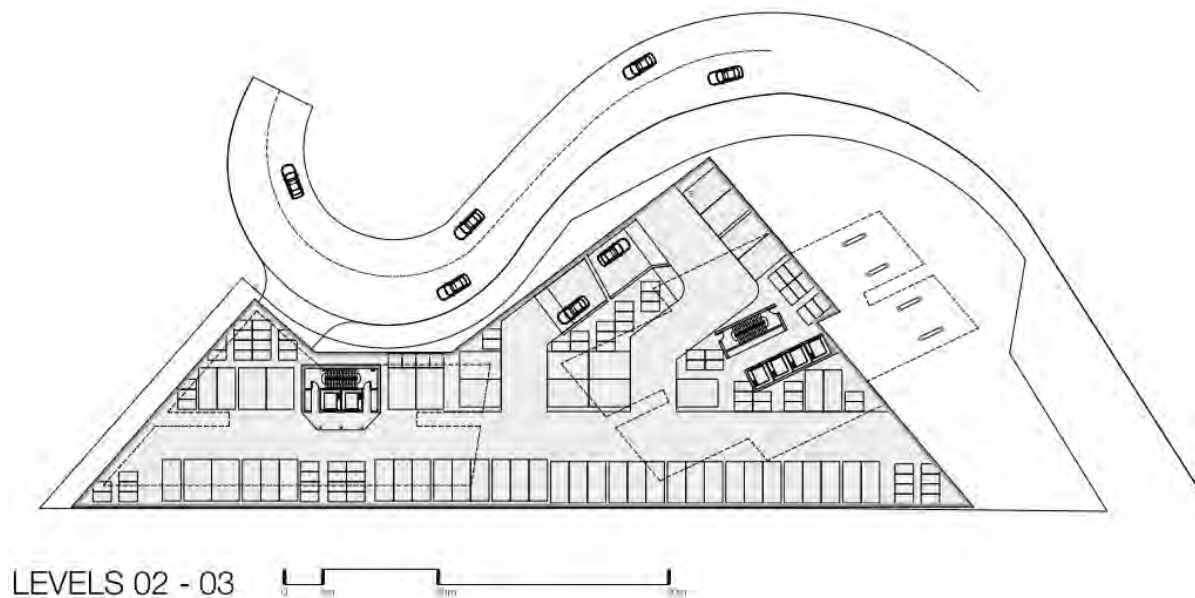
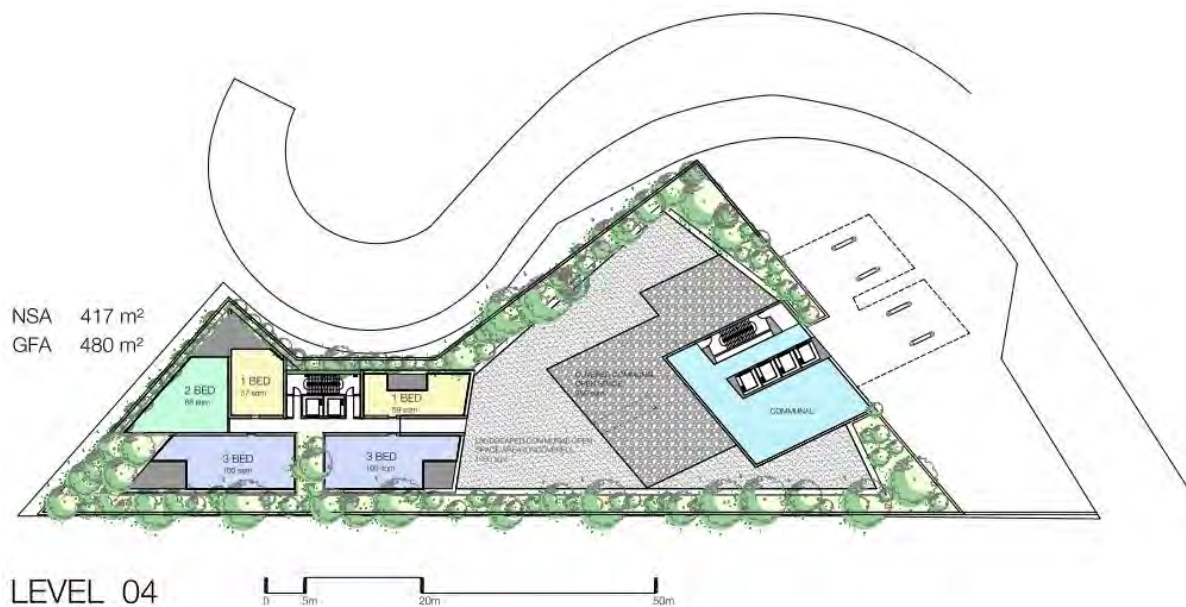


Figure 4 – Floor plans – Level 4



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Figure 5 – Floor plans – Level 5 - 8

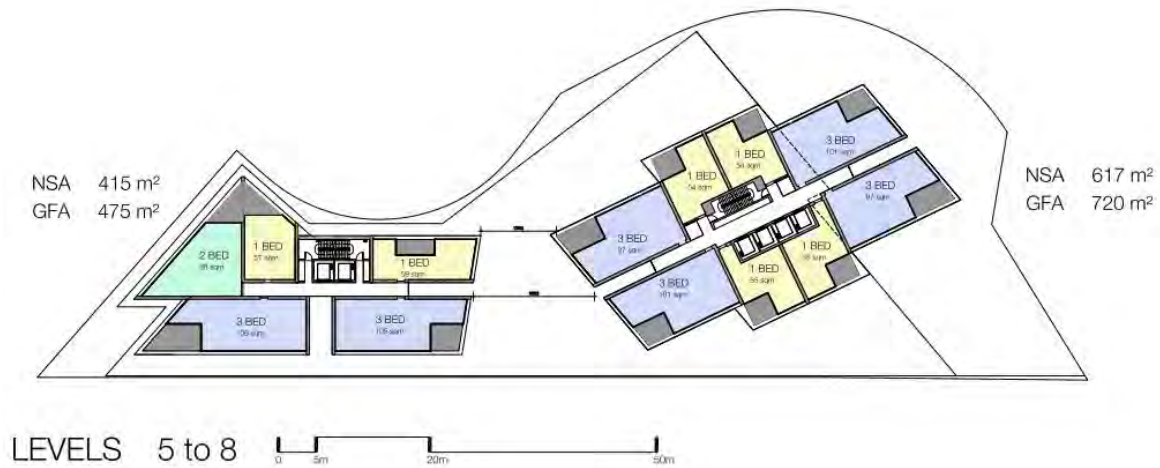
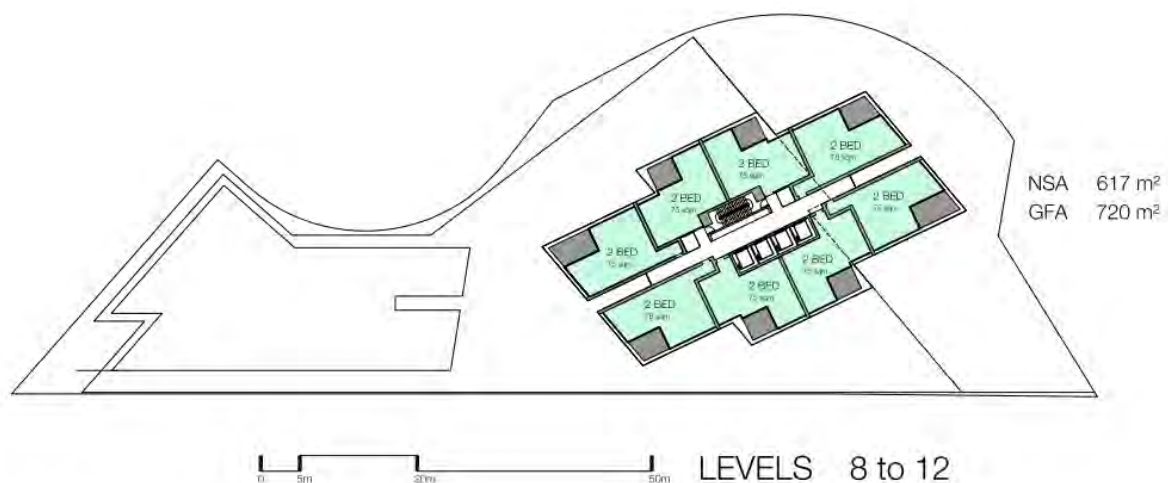


Figure 6 – Floor plans – Level 8 - 12

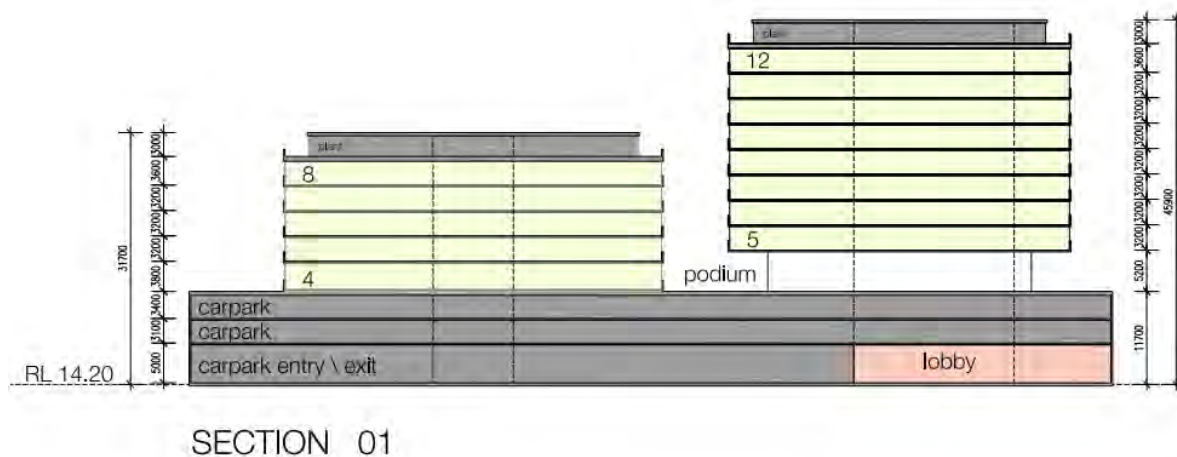




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Figure 7 – Development cross-section



## 1.2 Site Location

The proposed residential development is located at the eastern end of Oulton Ave, Rhodes (Lot 212). The site is located between Homebush Bay Drive and the Northern Rail Line. Consequently, the site is exposed to relatively high levels of external noise.

The development site is described below:

- The northern and western edges of the site are bounded by Homebush Bay Drive, which carries high levels of road traffic.
- Further to the north/west (on the opposite side of Homebush Bay Drive) are commercial developments (including Ikea).
- The eastern edge is bounded by the Northern Rail Line, which carries a high volume of passenger rail and freight rail. Further to the east (other side of the rail corridor) are residential developments.
- The southern edge of the site is bounded by residential developments (the Liberty Grove precinct).



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## 2 REVIEW OF RTA NOISE IMPACT ASSESSMENT

### 2.1 Noise Level Monitoring

The noise level monitoring for the development was conducted at the locations identified in Figure 1 of the RTA report. This figure is reproduced as Figure 8 below for reference.

Figure 8 – Noise monitoring locations



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Two unattended long-term noise monitors were installed from 3 to 11 September 2020. These monitoring locations are shown as L1 and L2 (the red dots) in Figure 8 above.

It is relevant to note that the monitoring period falls between the two NSW COVID lockdown periods in NSW, which were:

- 15 March 2020 – 1 July 2020.
- 25 June 2021 to 11 October 2021.

It is likely that the traffic during the monitoring period was lower than what might be expected during typical post or pre COVID periods, and this may have resulted in lower traffic noise level measurements.

An additional noise monitor was also located at 452 Concord Road, some distance north of the site. The RTA report indicates that this monitor was located 6m from the western boundary of the site – however, I suspect that this should read "6m from the eastern boundary of the site".

The location of this supplementary location is shown in Figure 9 below.

Figure 9 – Supplementary noise monitoring location at 452 Concord Road





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The Google Streetview image of the logger location at 452 Concord Road is given below. This shows a vacant site that has been cleared for future development.

Figure 10 – Streetview image of supplementary noise monitoring location at 452 Concord Road



Attended short term noise levels were also measured at Location S1 (the yellow dot) in Figure 8 above. The noise level measured at this location, located approximately 10m from the roadway, has been indicated in Table 2 of the RTA report as being an Leq,15hr noise levels. It is quite unlikely that this is a 15 hour "spot" measurement, and the measurement is more likely to be a 15-minute measurement made at some unspecified time during the day.

The RTA report notes:

- L1: Noise monitor is located on the eastern side of the site, 15m from the centre of the Northern Rail Line corridor. The microphone position had uninterrupted line of site to all tracks. Noise measured at this location is relevant for the assessment of rail noise impact on the site and establishing background noise levels (used when setting noise emission goals for the site)
- L2: Noise monitor installed centrally within the site, 1.5m above the ground. The microphone position was partially shielded from both the Northern Rail Line and from Homebush Bay Drive. The primary purpose of this logger is to establish ambient noise levels at ground between the proposed development and Homebush Bay Drive (a potential open space area within the development). The logger is also useful for examining typical difference between daytime and night time road traffic noise levels at the site.
- L3: 452 Concord Road, 6m from eastern boundary of the site. The microphone position generally was unshielded from Concord Road (minor amount of vegetation screening). The primary purpose of this logger is to establish typical difference between daytime and night time road traffic noise levels on Concord Road/Homebush Bay Drive.

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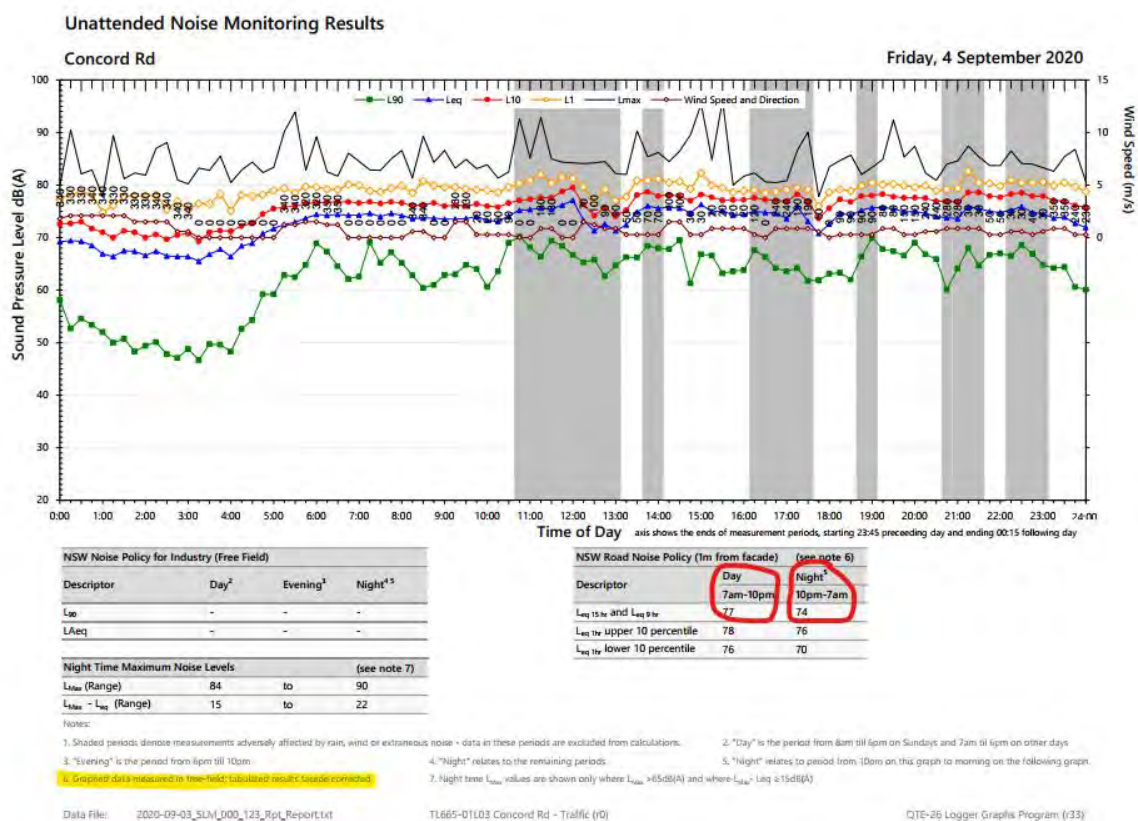
S1: Attended noise measurements were undertaken on the pedestrian bridge adjacent to Homebush Bay Drive. The measurement was made at a distance of 10m from the nearest lane of road traffic on Homebush Bay Drive (excluding the slip lane). The microphone was placed 5m above deck level and had a clear line of site to all lanes of traffic on Homebush Bay Drive.

The noise logging data at each measurement location is given in Appendix D of the RTA report.

It is important to note that the graphed noise levels in Appendix D of the RTA report are free field noise levels, whereas the summary table presented below the graphs have been façade corrected by adding 2.5 dB to the Leq,15hr and Leq,9hr noise levels.

An example of the graphed data for Friday 4 September, 2020 at 452 Concord Road is shown below in Figure 11.

Figure 11 – Noise monitoring results from RTA report



The representative day and night traffic noise levels given in Table 2 of the RTA report (i.e. Error! Reference source not found. of this report below) are therefore the logarithmic average of the day and nighttime levels for the entire monitoring period, which has then been converted back to a free-field noise level by subtracting the 2.5 dB that was added previously.

The summary of the measured noise levels at these monitoring locations is given in Table 2 of the RTA report. These measurements are summarised below in Figure 12 below. I have validated that these summary levels are the logarithmic average of the façade corrected levels for each day's Leq,15hr and Leq,9hr noise levels which have

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been returned to free-field levels by subtracting 2.5 dB. Note 1 under Table 2 of the RTA report is therefore incorrect (see below).

Figure 12 – Façade noise levels from RTA report

**Table 2: Representative day and night road traffic noise levels**

Monitoring Location (refer to Figure 1)	Survey Period	Measured Noise Level
Location L1 – Representative of the proposed eastern facades (train noise)	Day time (7am to 10pm) 3 to 11 September	65dB(A) $L_{eq}(15hr)$
	Night time (10pm to 7am) 3 to 11 September	64dB(A) $L_{eq}(9hr)$ 91dB(A) $L_{(max)}^3$
Location L2 – Representative of ground level ambient noise levels in the western outdoor areas on the site.	Day time (7am to 10pm) 3 to 11 September	58dB(A) $L_{eq}(15hr)$
	Night time (10pm to 7am) 3 to 11 September	56dB(A) $L_{eq}(9hr)$
Location L3 (452 Homebush Bay Drive) Representative of typical day time/night time difference on Concord/Homebush Bay Road.	Day time (7am to 10pm) 3 to 11 September	75dB(A) $L_{eq}(15hr)$
	Night time (10pm to 7am) 3 to 11 September	72dB(A) $L_{eq}(9hr)$
Location S1 – Homebush Bay Road traffic at 10m from nearest lane (excluding slip lane)	Day time (7am to 10pm) 11 September	72dB(A) $L_{eq}(15hr)$
	Night time (10pm to 7am) 3 to 11 September	N/A

Notes:

1. Noise levels presented are ~~façade~~ **free field** corrected values.
2. Representative external noise levels in measured  $L_{Aeq}$  over 15 hour and 9 hour day and night period respectively.
3. Loudest typical 90% of night time rail passbys.

The noise levels that have been used in the RTA report to determine the noise mitigation measures are summarised in Table 3 of the RTA report (i.e., Figure 13 below).





Figure 13 – Façade noise levels from RTA report

**Table 3: Road Traffic Noise Levels for the purpose of façade acoustic performance calculations**

Assessment Location	Measured Noise Levels, dB(A)	
	Day Time	Night Time
	Leq, 15 hr	Leq, 9 hr
Eastern façade - facing rail line (Zone A)	65	64 (Peak noise for freight rail passby - 91dB(A) <sub>L(max)</sub> )
Western Facade - 20m from Homebush Bay Drive, 180 degree view of Road (Zone B)	70.5	68.5
Western Facade - 25m from Homebush Bay Drive, 90 degree view of Road (Zone C)	67.5	65.5

## 2.2 Façade Noise Levels – PWNA & RTA Comparison

I have used the noise levels from the long-term noise monitoring location at 452 Concord Road (6m from the site's eastern boundary) to calculate the road traffic noise levels at the facades of the proposed development. These levels have been used rather than the short-term measurements at S1 because this spot level measurement is not considered representative of the long term day's Leq,15hr and Leq,9hr noise levels at the site.

The measurements made at Location L1 have been used to model the train noise on the eastern façade of the development.

These calculated façade noise levels on the proposed development for the daytime period, compared to those calculated by RTA, are shown in Figure 14 to Figure 17 below.

The façade noise levels calculated by RTA and PWNA are in close agreement and the façade levels used for noise intrusion given in Table 3 of the RTA report can be generally supported, with the exception of the levels on the north-eastern façade closest to Homebush Bay Drive. Both the RTA and PWNA models indicates that noise levels on this façade are as follows:

- Daytime Leq,15hr noise level 72 dBA
- Nigh-time Leq,9hr noise 70 dBA

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Figure 14 – Calculated northern and western façade noise levels (PWNA daytime results)

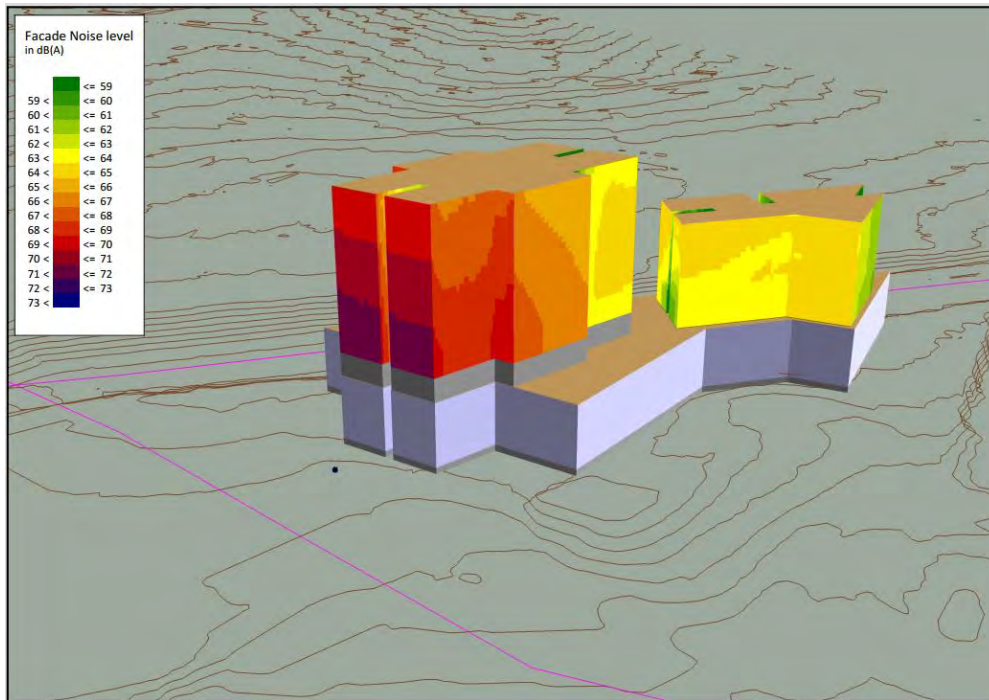
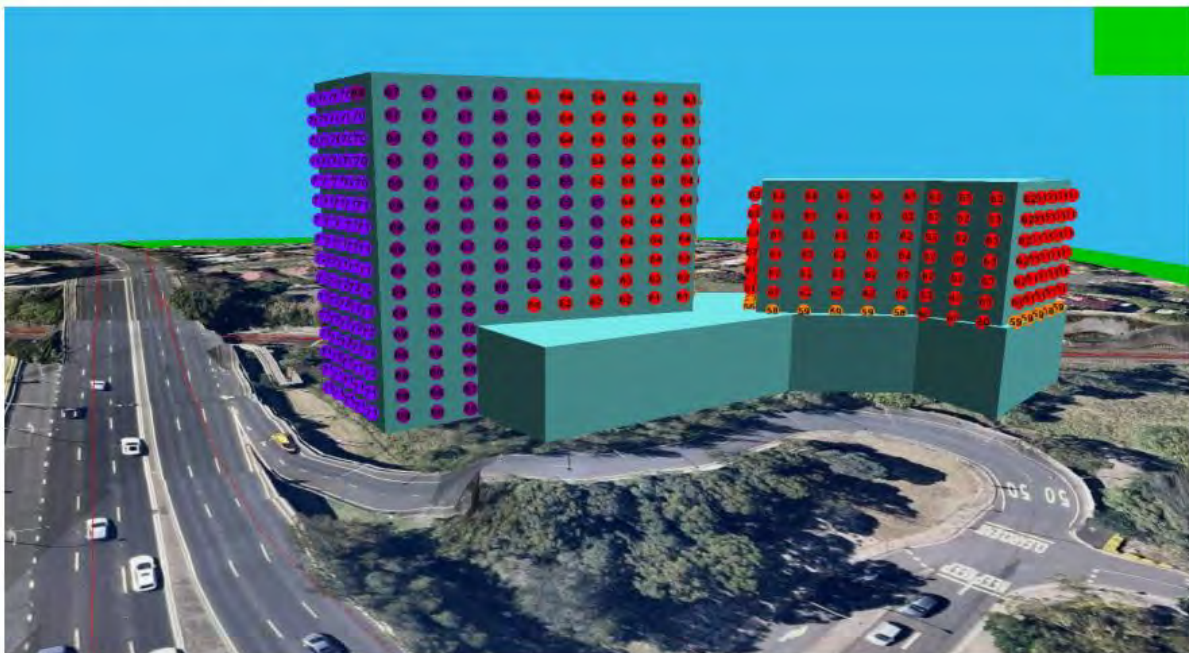


Figure 15 - Calculated northern and western façade noise levels (RTA daytime results)

**View From West (Daytime)**





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Figure 16 – Calculated eastern façade noise levels (PWNA daytime results)

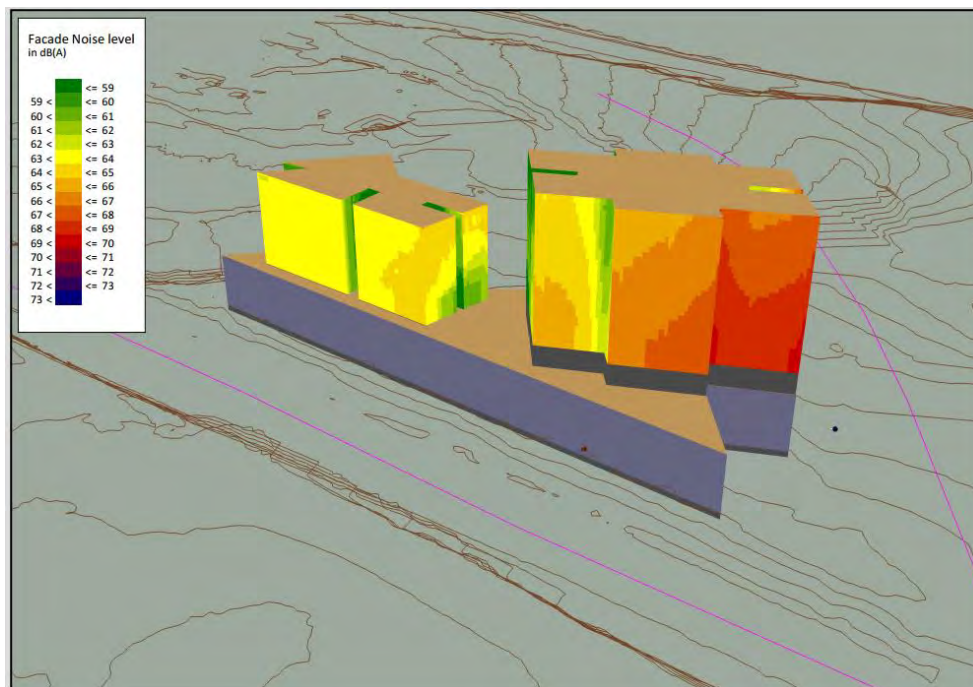
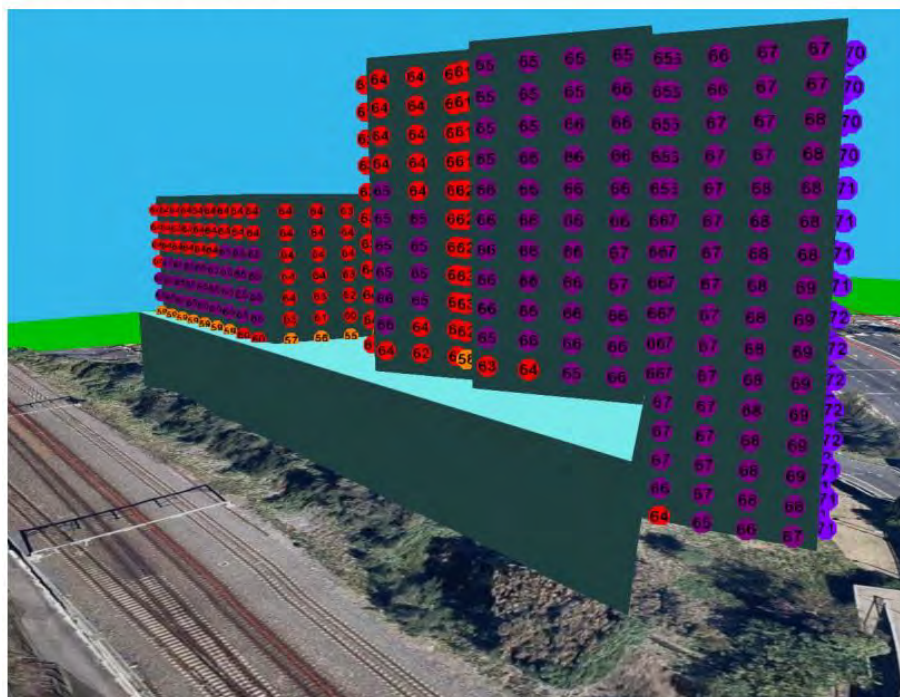


Figure 17 – Calculated eastern façade noise levels (RTA daytime results)

**View From North-East (Daytime)**



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## 2.3 Review of External Noise Intrusion Assessment

### 2.3.1 Noise intrusion Criteria

The internal noise criteria provided in Section 4 of the RTA report are supported.

### 2.3.2 Noise intrusion design recommendations

The glazing recommendation provided in Section 4.2 of the RTA report are generally supported.

As I do not have detailed apartment layouts, it is not possible for us to provide detailed glazing selections for the proposed development.

I further support selecting glazing constructions on the eastern façade to achieve the sleep disturbance criteria in bedrooms to less than 50-55 dBA L<sub>max</sub>.

As the open window conditions can not be complied with, supplementary ventilation must be provided to the apartments (with the possible exception of the southern façade located furthest away from Homebush Bay Drive.

If passive ventilation is being considered for the provision of supplementary ventilation, I would recommend that the performance of any proposed design be validated with both acoustic and air-flow modelling.

### 2.3.3 Outdoor Acoustic Amenity

As discussed in Section 4.4 of the RTA report, the acoustic amenity of outdoor spaces, such as the communal terrace area, should be assessed. I believe the more appropriate noise criterion of 55 dBA Leq,15hr for passive recreational spaces should be selected.

As noted in the RTA, this may be achieved by the use of a high perimeter (glazed) noise screen around the outdoor communal area. A height of approximately 2.1 m (to be confirmed) is recommended to achieve the passive noise criteria (rather than the active noise criterion).

It is not practical to achieve the passive noise criterion for private balconies. The use of wintergardens can be considered although they may not provide a suitable environment for typical balcony uses such as barbeque use.

## 2.4 Review of rail vibration and regenerated noise assessment

Rail vibration criteria (tactive vibration and regenerated noise)

The rail vibration criteria provided in Section 5.1 is supported.

Section 5.1.2 refers to a figure showing the vibration measurement location (presumably Location L1 in Figure 1 of the RTA report).

Section 5.1.2 of the RTA report indicates:

*Train vibration levels were measured using the Sinus SoundBook multi-channel analyser and PCB accelerometers on the ground floor of the 2-storey building on site (Location 2) as shown in figure above. Three accelerometers (x, y & z) were magnetically fixed to a steel bracket that has been glue fixed to bare concrete slab.*

Location 2 is much further away from the rail line than the proposed building façade of the proposed development and **shouldn't** be used to calculate regenerated noise levels in the building. Perhaps this is a typo and this should read Location 1.

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A photo of the actual vibration measurement set-up, such as the accelerometer mounting, would have been useful in confirming the measurement location.

Table 12 of the RTA report confirms that regenerated noise levels will exceed the ground borne noise criteria in apartments on the eastern side of the development up to Level 3. I agree that where these rooms have a window facing the rail line, this regenerated noise will be lower than the noise intrusion through the façade and can be effectively ignored. Where rooms do not have a window facing the rail line, this exception does not apply.

A review of the apartment room layouts would be required to determine whether the building should incorporate some level of vibration mitigation.

## 2.5 Review of External Noise Emission Assessment

### 2.5.1 Noise emission criteria

The noise emission criteria for the development generally supported.

The area around the site has been classified as “suburban”, which is appropriate for residential receivers potentially affected by noise emissions from the development that are located further away from Homebush Bay Drive.

The high-rise residential development located close to Homebush Bay Drive would be better classified as “urban” which has noise limits set 5 dB higher than the “suburban” classification.



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### 3 CONCLUSION

The assessment of the proposed development to be located at Oulton Avenue Rhodes (Lot 212) documented in Report No. "TL665-01F02 Noise and Vibration Assessment (r3)", dated 24<sup>th</sup> February 2024, contains an appropriate level of detail and appears to accurately assess the anticipated acoustic impacts on the development.

Some areas of potential concern include the following:

- The noise monitoring was conducted in between the two NSW COVID lockdown periods in NSW, which were:
  - 15 March 2020 –1 July 2020.
  - 25 June 2021 to 11 October 2021.
- It is likely that the traffic during the monitoring period was lower than what might be expected during typical post or pre COVID periods, and this may have resulted in lower traffic noise level measurements.
- Consideration should be given to confirming whether these noise levels are sufficiently representative of current and future levels. This is important because these levels have been used in the 3D models to predict the façade noise levels and subsequently the façade noise mitigation measures (i.e. glazing recommendations).
- The calculated regenerated noise levels in apartments up to Level 3 may exceed the relevant noise criteria. Some recommendations should be provided to address these predicted exceedances.