



Former Port Kembla Primary School Site

URBAN DESIGN ANALYSIS REPORT

Final Report

Prepared by Studio GL for Olly Vujic

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1-1 The site

The former Port Kembla Primary School site is located on Military Road, Port Kembla. The 2.195 ha site known as Lot 1 in DP 811699 is a trapezoidal-shaped block bounded on the south-west by Military Road, the south-east by Marne Street, the north-east by Reservoir Street and the north by Electrolytic Street.

The site is located within close proximity to Port Kembla Town Centre. It is situated within a predominantly residential area with the Port and steelworks to the north.

The highest point of the elevated site is in the centre where the former multi-storey school building was located. Extant foundations of the former school building remain in the form of a hardstand. From there the site falls to the south and north and more steeply to its western boundary.

Though little is known of the Aboriginal use of the subject site it is close to Hill 60 where Aboriginal lived prior to the resumption of the site for military purposes and Aboriginal children attended the primary school. The nearby foreshore provides a rich source of foodstuffs.

Although the study area no longer contains the school buildings it has historical significance as a site of education of the children of the Port Kembla region since 1916.

The school officially opened in June 1917. After years of health concerns due to the neighbouring copper smelter, the school closed in 1999 and was relocated to its current site on Gloucester Boulevard in 2000. The Military Road site was bought by Port Kembla Copper in 2001.

The abandoned school building was destroyed by fire in January of 2013. Later that month, the remains of the school were demolished and the site has remained vacant since. The block is fenced around the perimeter prohibiting entry to the site. (Source: Office of Environment & Heritage-Data number: 2700588).

Since 2013, the physical remains have fallen into poor condition through a combination of vandalism, illegal dumping and weathering. The current owners, who purchased the site in 2015, maintain the site with regular slashing of the grassed areas.

The site is currently zoned B4 Mixed Use. It is largely surrounded by low density residential (R2) to the east and south with a small provision of Light Industrial (IN2) to the north west of the site towards the Town Centre (B2 Local Centre).



Figure 1 Former Port Kembla Public School site



1-2 Background

In June 2016, an Urban Design report was prepared by DWA, to accompany a Draft Planning Proposal to amend the current zone and planning controls for the former Port Kembla Primary School site.

In November 2018, in response to the Draft Planning Proposal, the Department of Planning & Environment issued a Gateway Determination Report that did not support the proposed amendment to the existing planning provisions. The amendments sought included changes to zoning, floor space ratio, minimum lot size and building height controls, to allow medium-density residential development of the site.

The reason for the determination related to the assessment that the proposal was not consistent with Direction 1.2 and 1.4 and Action 1.2.1 of the Illawarra-Shoalhaven Regional Plan (and section 9.1 Ministerial Direction 5.10). The assessment also indicated that the proposal was considered inconsistent with the aims of State Environmental Planning Policy (Three Ports) 2013, and the objectives of section 9.1 Ministerial Direction 1.1 Business and Industrial Zones.

In Council's report on the Draft Planning Proposal, a range of urban design issues were identified, including insufficient design criteria to support high quality outcomes for the site. Council also requested additional design massing options and the development of design principle, and additional information relating to:

- Development of the site as a whole or the provision of streets.
- Options for building heights.
- Provision of a buffer to the Port.
- Low, medium and high density options.
- Addressing the lack of character direction.
- Limited information relating to building massing or Gross Floor Space calculations.
- Consideration of the broader connections and key crossings.
- Consideration of public/private open space and street grid alignment.
- Consideration of the local housing market.

To address Council's concerns, the owners of the site commissioned Studio GL in December 2019, to prepare an Urban Design Analysis Report in support of a Planning Proposal for a change of zoning, floor space ratio, minimum lot size and heights of buildings.

This Urban Design Analysis Report includes design options and recommendations for the site to allow a development that will deliver:

- A good urban design outcome.
- An increase in density that will support the Town Centre.
- A range of housing types, including affordable housing.
- Open space.
- An appropriate response to the constraints afforded by the potential expansion of the Port.

Following further assessment by Wollongong Council, Studio GL were engaged to expand the analysis and consider and integrate the recommendations within the Heritage Interpretation Management Plan created by John Oultram Heritage & Design, and the Draft Connecting with Country framework published by the NSW Government Architect.



1-3 Purpose of this report

This urban design analysis report has been provided to support a Planning Proposal that seeks to alter the primary planning controls, including permissible land use zoning, height and FSR.

The aim is to facilitate redevelopment of the site to accommodate R3 Medium Density Residential, to provide for an increase in residential density and housing diversity and allow for complimentary uses such as aged care and child care facilities along with an improvement in local amenity by allocating a portion of the site to public open space.

The report considers regional and local context including topography, views and urban character; site context, site access, open space, building typology and built form massing and scale. Impacts of existing surrounding development on the site are considered as well as impacts of the proposed development within the local context.

Additionally, given the heritage importance of the site, consideration has been given to both the Indigenous and European heritage, and ways of incorporating and interpreting this heritage in a meaningful and engaging way.

Document review

A review of relevant planning controls as well as an analysis of other relevant documentation has been undertaken, including:

- Wollongong LEP and DCP controls;
- State Environmental Planning Policy (Three Ports) 2013;
- Section 9.1 Ministerial Directions;
- Port Kembla Land Use Conflict Management Study 2018; and
- Port Kembla 2505 Revitalisation Plan.
- Acoustic Feasibility Study by Wilkinson Murray Pty Limited dated 7 Nov 2019.
- Updated contamination report by Douglas Partners dated 2016.

Report Structure

The report is structured in five (5) parts. Chapter 1 provides an introduction to the study and Chapter 2 provides analysis that considers the site's location with respect to the wider context and key planning controls including heritage, land use, zoning and urban character.

Chapter 3 Urban design principles – this chapter identifies design principles that will influence the built form so that it contributes positively to the character of the local area.

Chapter 4 illustrates possibilities for developing the site with 3D modelling and graphics used to highlight the issues such as; building envelopes, solar access and potential views, sound mitigation and site access.

Chapter 5 evaluates the preferred development option against relevant high-level urban design criteria and proposes recommendations for amendments to the existing planning controls.





CHAPTER 2

CONTEXT ANALYSIS

2-1 Planning policy context

Illawarra-Shoalhaven Regional Plan

The Illawarra-Shoalhaven Regional Plan sets out the NSW Government's 'strategic policy, planning and decision making framework to guide the region to sustainable growth over the next 20 years'. The plan sets out a series of goals for the region and a range of directions that flow from these goals.

The Regional Plan sets out five goals for the Illawarra- Shoalhaven Region:

- A prosperous Illawarra-Shoalhaven.
- A variety of housing choices, with homes that meet needs and lifestyles.
- A region with communities that are strong, healthy and well-connected.
- A region that protects and enhances the natural environment.
- A region that makes appropriate use of agricultural and resource lands.

Relevance to this study

The redevelopment of the former Port Kembla Public School site would achieve the second, third and fourth of the above five goals, with the fifth not being relevant for an urban site.



Wollongong Development Control Plan (WDCP) 2009

The Wollongong Development Control Plan (WDCP) 2009 provides planning controls within the LGA as to ensure a high standard of design. The sections of the DCP that are of particular relevance to the site are Chapter B03 - Mixed Use Development and E11 - Heritage Conservation.

Relevance to this study

The objectives of the DCP for mixed use development are as follows:

- To discourage any development which is, in the opinion of Council, unreasonably detrimental to the surrounding locality in regard to its proposed use, design, height, bulk/form, external appearance and streetscape character.
- To minimise any potential adverse impact upon neighbouring land uses in term of amenity, noise, overlooking or loss of privacy.
- To ensure that mixed use developments can satisfactorily function totally within their designated site, in terms of on-site car parking, off-street loading/unloading areas and manoeuvring areas and waste disposal.
- To ensure that design, placement and height of buildings takes into account any site constraints.

- To optimise, balance and/or retain a minimum mix of uses in all business/ commercial centres so that they provide an efficient local service role to their communities, in addition to any specialised role they may have.
- In order that a broad range of business functions are attracted to commercial zones, the non-residential component of mixed use developments are to be designed and located so that both retail and commercial/office functions may be catered for.
- To ensure all mixed use developments make provision for a high standard of landscaping.
- To ensure that mixed use developments have particular regard to whether any trees or other vegetation on the land should be preserved.

The objectives of the DCP for heritage conservation use development are as follows:

- To conserve the environmental heritage of the City in accordance with the principles contained in the Burra Charter;
- To integrate conservation issues and management into the planning and development control process;
- To ensure that any development with respect to a heritage site is undertaken in a manner that is sympathetic to, and does not detract from the identified significance of the site;

- To encourage innovative approaches to the conservation of Wollongong's heritage and to provide incentives for good management practice;
- To encourage and guide recording and interpretation of significant heritage throughout the development process.

Response to existing planning controls:

- There is conflict with the existing B4 mixed use zone (FSR and HOB) in delivering an economically viable mixed use area.
- Providing mixed use across the site (particularly in the form of commercial) would further diffuse the vitality of the Town Centre. (Refer Hill PDA Report)
- Mixed use zoning may be appropriate for part of the site to allow for potential mix of residential with aged-care/child-care facilities

Opportunity to rezone part of the site to Open Space, either RE1 Public or RE2 Private.

- To provide public open space close to the Town Centre with expansive views of the coast to the east, the Port to the north and the escarpment to the west.
- To provide a green buffer between the industrial lands to the north and north-west and potential land uses across the rest of the site.
- To provide a public area where the heritage significance of the former school site may be interpreted.

Wollongong Local Environmental Plan (WLEP) 2009

The Wollongong Environmental Plan (LEP) commenced in 2009 and provides provisions for land use and building controls within the Wollongong LGA.

The LEP excludes lands identified as port lands, which are designated as State Significant and are subject to the NSW Department of Planning, State Environmental Planning Policy (Three Ports) 2013 and NSW Ports 30 Year Masterplan.

The target site is currently zoned B4 Mixed Use. There is an additional clause in the LEP pertaining to the site. It reads:

7.17 Former Port Kembla Public School

- (1) This clause applies to land at Military Road, Port Kembla, being Lot 1, DP 811699.
- (2) Development consent must not be granted to development for the purposes of tourist and visitor accommodation on land to which this clause applies unless the consent authority is satisfied that the development will not result in the accommodation containing more than 10 bedrooms.

B4 zone also requires non-residential uses on the ground floor.

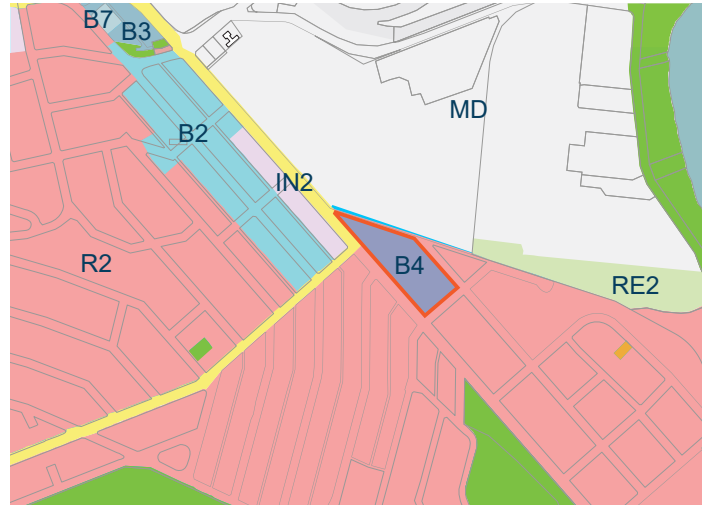


Figure 2 Land is zoned B4 - Mixed Use (WLEP 2009)

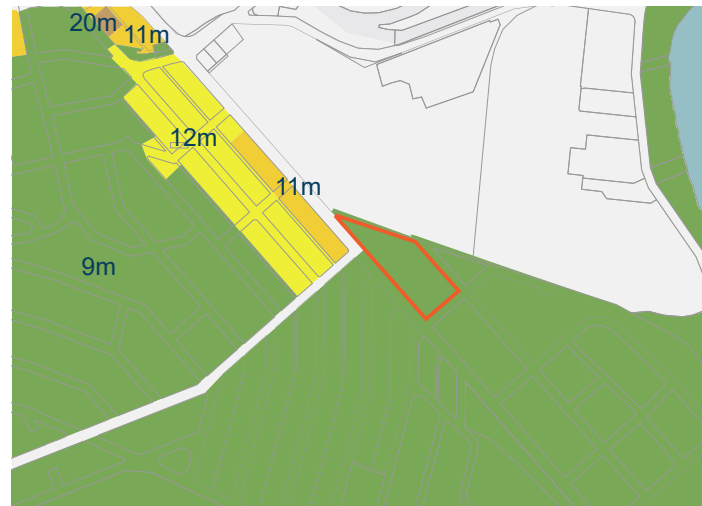


Figure 4 Maximum building height is 9m (WLEP 2009)

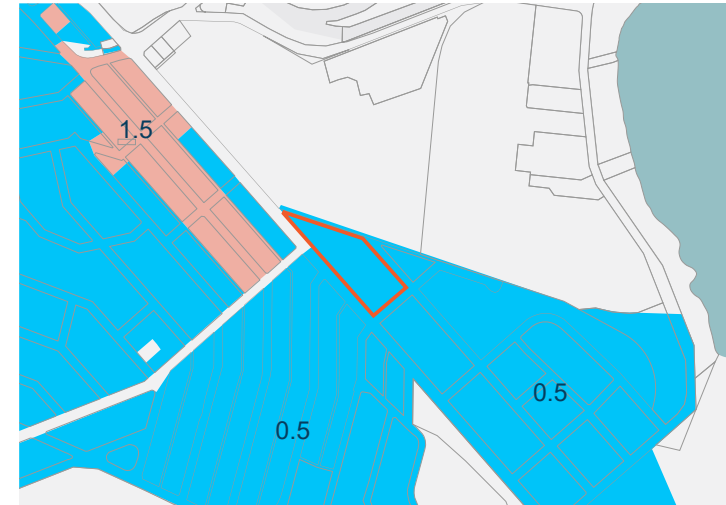


Figure 3 Floor Space Ratio is 0.5:1 (WLEP 2009)

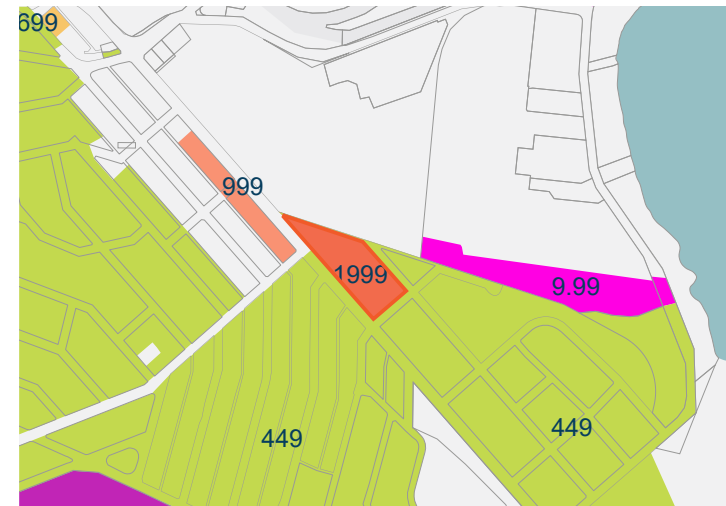


Figure 5 Minimum lot size is 1999 sqm (WLEP 2009)

Port Kembla 2505 Revitalisation Plan

Released in 2018, the Port Kembla 2505 Revitalisation Plan was developed by Wollongong Council, with input from Studio GL, HillPDA and John Oultram Heritage & Design. The document sets out the 25 year aspirational vision for the future of Port Kembla. It identifies suburb-wide actions, and drills down into five precincts where detail is provided on "key moves" to deliver change across the suburb.

One of these precincts focuses on the Military Rd Spine. It identifies this significant road as: *"Military Rd is the green spine running through Port Kembla, connecting key destinations and promoting an active lifestyle by making walking and cycling fun and convenient."*

One of the key moves for Military Rd is to alter the character of the road, to reflect location and primary use, with a possible shift in character for the Church St to Hill 60 section, that reflects the local traffic use, and its pedestrian priority, with improved walkability and accessibility. This change of character could occur part way along the subject site boundary along Military Rd.



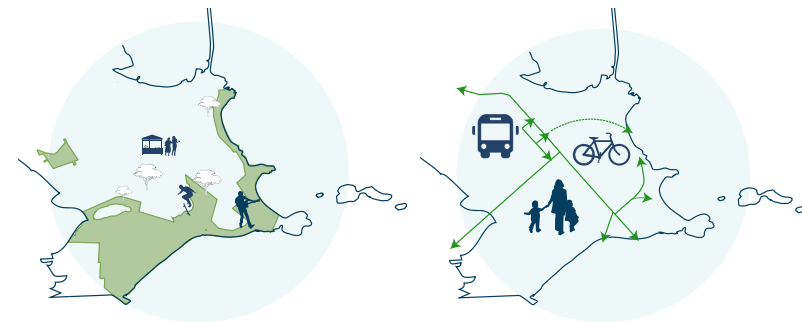
Cover page



Community priorities



Artist impression of Military Road Spine



Key strategies

2-2 Spatial context

Port Kembla is located on a peninsula 8km south of Wollongong, providing good access to employment, a broad range of services and tertiary educational facilities. It contains a seaport, large areas of industrial land, a commercial Town Centre and surrounding residential areas.

The suburb is located between Wollongong and Lake Illawarra, with the Illawarra escarpment to the west. It is a beachside suburb encircled by large areas of public open space that provide a high level of amenity. Notable beaches are North Beach and Port Kembla Beach. Port Kembla Beach has a surf club, Port Kembla Pool and located at the north end of the beach are playing fields.

The Coomaditchy Lagoon is located west of the beach and is surrounded by an environmental conservation zone. The Coomaditchy area is of high significance to the local Aboriginal people. Port Kembla Beach forms the northern part of a stretch of beaches that terminate at the entry to Lake Illawarra.

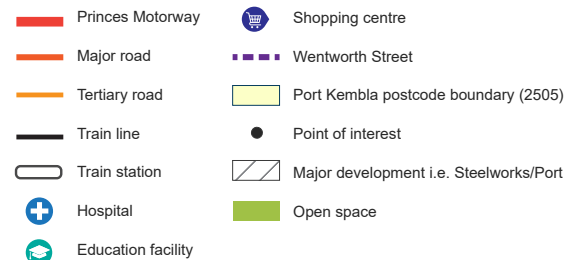


Figure 6 Wider context analysis map

2-2 Spatial context

Port Kembla's highest point is Hill 60 which overlooks Red Point and Five Islands and was originally the site of an Aboriginal settlement. Aboriginal inhabitants were evicted from the area to facilitate use by the army during World War II as a location for a coastal gun emplacement known as the Illowra Battery Gun Emplacement. Aboriginal children also attended the primary school. It is now a public lookout with 360 degree views up and down the coast and west to the escarpment.

The suburb is well serviced by roads being adjacent to the Princes Motorway, the major artery that links Wollongong with Sydney and the South Coast. Port Kembla Train Station has a regular service to Wollongong (13 min) with an hourly commuter service to Sydney (via a change at Wollongong). There are also bus services connecting Port Kembla to Wollongong and Dapto.

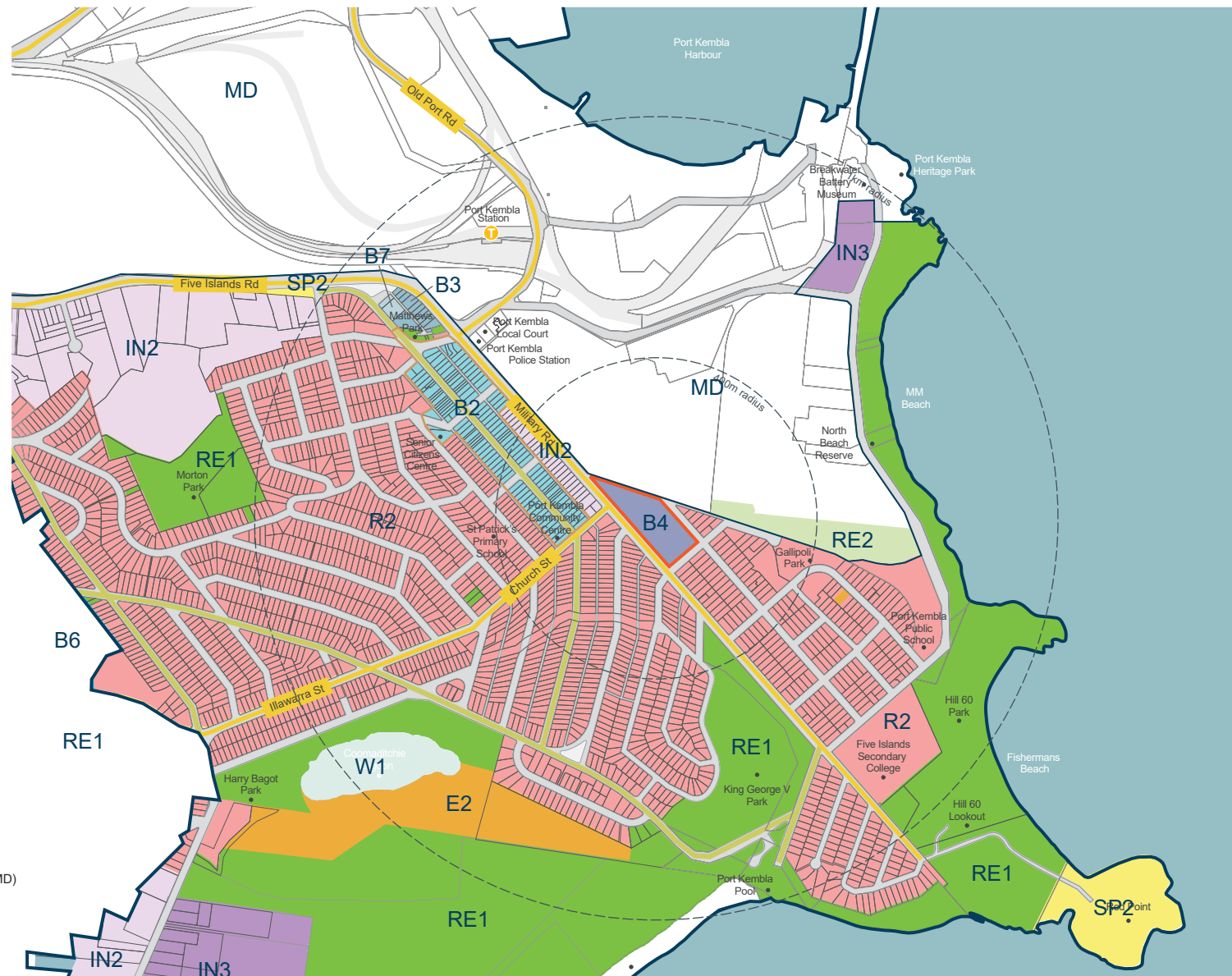
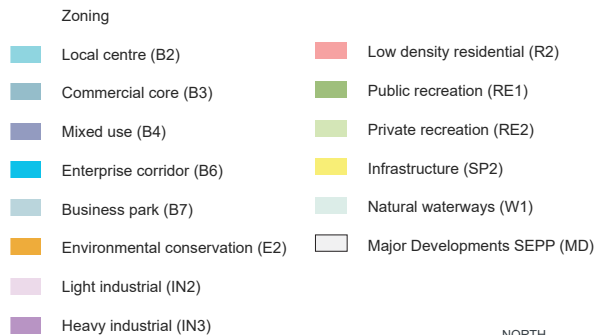


Figure 7 Context and zoning overlay analysis map

2-3 Site context

The former Port Kembla Public School site is located on the northern side of Military Road near the intersection with Church Street. The site is within 150m of Wentworth Street and is surrounded by low density residential to the east and west with a small provision of light industrial lands to the north west of the site. To the north of the site, at a lower elevation, is the Port and steelworks.

Military Road is the major access road into Port Kembla, running in a south east direction with links to Hill 60 Lookout Red Point, playing fields, the northern end of Port Kembla Beach, Port Kembla Pool and the Surf Club.

Within the 'walkable catchment' is the Port Kembla Community Centre, St Patrick's Primary School and a Senior Citizens' Centre. Port Kembla Train Station is located within a kilometre of the site (10-15 min walk) with a service to Wollongong and an hourly commuter service to Sydney (via change at Wollongong).



Figure 8 Site context and zoning overlay analysis map

2-8 Site context



Views south-west to Port Kembla beach



Views north-east to MM beach



Views west to the escarpment



View north over steelworks to the Port



Views south over Port Kembla to southern escarpment

2-4 Topography & views

Generally, Port Kembla is characterised by steep, undulating topography that falls towards the coastline to the north, south and east. It also falls inland to the west. It contains a number of localized high points, including the subject site.

The site benefits from distant views to the ocean to the north and south-east, district views to the south and panoramic views of the escarpment from north-west to south-west. The site also captures views to Five Islands, Mount Keira and Mount Kembla and Illawarra escarpment (refer to Figure 12 on page 19). The dramatic level change between the site and land to the north affords views to the steelworks and the Port.

Also refer to section 2-8 for reference to views and connections to the physical context, that are of importance for the site's connection to Country.

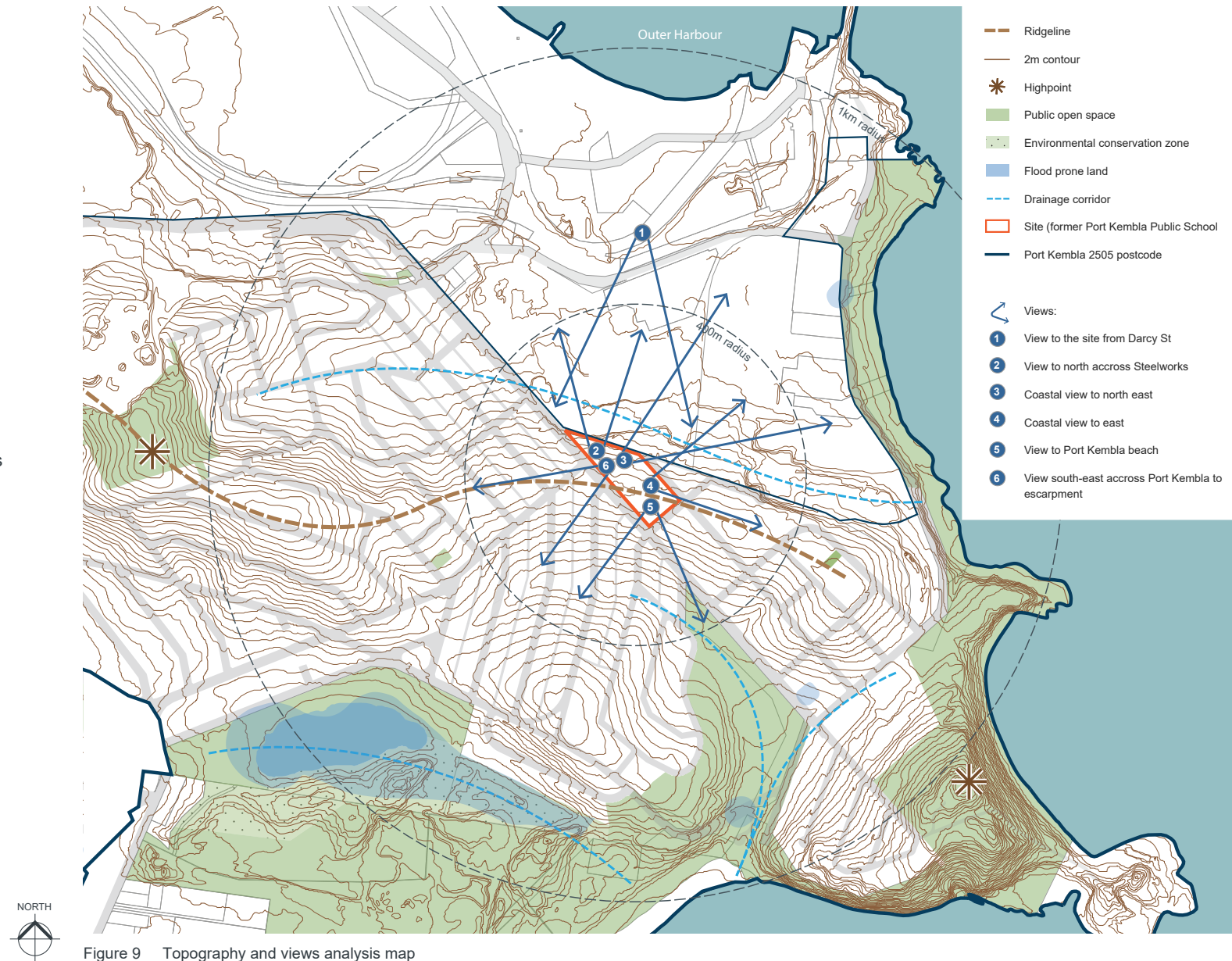


Figure 9 Topography and views analysis map

2-5 Public transport & cycle routes

The site is approximately a 10km (15min) drive from Wollongong City Centre via Military Road/Five Islands Road and the Princes Motorway.

Port Kembla Station to Wollongong Station Public is a 13 min train ride. From Wollongong Station there are regular commutes to Sydney's CBD. The station is a 10-15 min walk from the subject site along Military Road, however, the station is not conveniently located as it is within the Port and industrial area, which does not present as a pleasant pedestrian environment.

The site is well located on a bus route with a bus stop at the southern end of the site and another on nearby Wentworth Street. The bus connects to the train station and to Wollongong. It is an approximate 45 min. journey to Wollongong by bus.



Figure 10 Transport and cycle routes analysis map

2-6 Road hierarchy

The urban structure of roads and blocks in Port Kembla is of a fractured irregular urban grid. The grid contains four major streets, including Military Road, that encircle the Town Centre. The remaining streets are mostly local streets and there are a number of narrow lanes (6m wide), which are a third order road.

The road layout is influenced by the topography, however, most roads run perpendicular to rather than along contours. This makes pedestrian access challenging as it is difficult to avoid climbing hills on the way to local destinations like the Town Centre, train station and beach. The subject site is ideally located as it has level access to Wentworth Street.

Military Road is the major road to/from the north, being an extension of Five Islands Road. The wide carriageway is maintained for the length of Military Road to Olympic Boulevard near Port Kembla Beach. Most traffic, particularly trucks, turn at Church Street, and Military Road becomes a local street east of Church Street, servicing the residential areas, beaches and playing fields.



Figure 11 Road hierarchy analysis map

2-7 Urban character

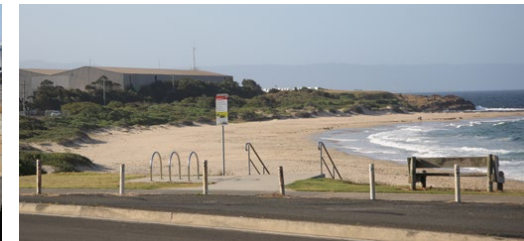
The urban character around the site is associated with the industrial areas of the Port and steelworks and by the proximity to the coastline and beaches. Due to the history of the Port and steelworks and the extent of these lands within the suburbs boundary, Port Kembla's urban character is both physically and socially dominated by heavy industry.



Wentworth Street, being the focus of the Town Centre, was once a thriving retail strip, unfortunately, due to the decline in local employment and the development of the Warrawong Shopping Centre, the shopping strip has suffered. Although, there are many vacant tenancies, it is an attractive street that is lined with street trees. There appears to be a resurgence of activity in pockets along the street, primarily of artist studios and workshops and cafes.

The residential areas of Port Kembla are a haphazard assortment of architectural styles. The dwellings are smaller bungalows typical of a suburb established around the employment areas of a Port. Many have or are being renovated or replaced by newer, larger homes particularly along the coastline. There are some recently developed medium density 3-4 storey apartments and townhouses. Generally, the houses and gardens across the suburb are very well maintained.

The coastline, beaches and open space form a major part in the character of Port Kembla as the area of open space is almost equivalent in size as the residential areas. The large areas of open space are mostly adjacent to the beaches with the exception of Morton Park. There is however, very little public open space near the Town Centre.



2-8 Connecting with Country

The recently released Draft Connecting with Country document, provides 'A draft framework for understanding the value of Aboriginal knowledge in the design and planning of places'.

Two strategies are proposed, Strategy One relates to "Pathways for Connecting", and Strategy Two relates to "Considering project life cycles with an Aboriginal perspective".

Strategy One is most relevant for this proposal, and the following summarises the four pathways that can be employed to seek to Connect to Country, and design with Aboriginal values as a valuable contributor to the creation of great places.

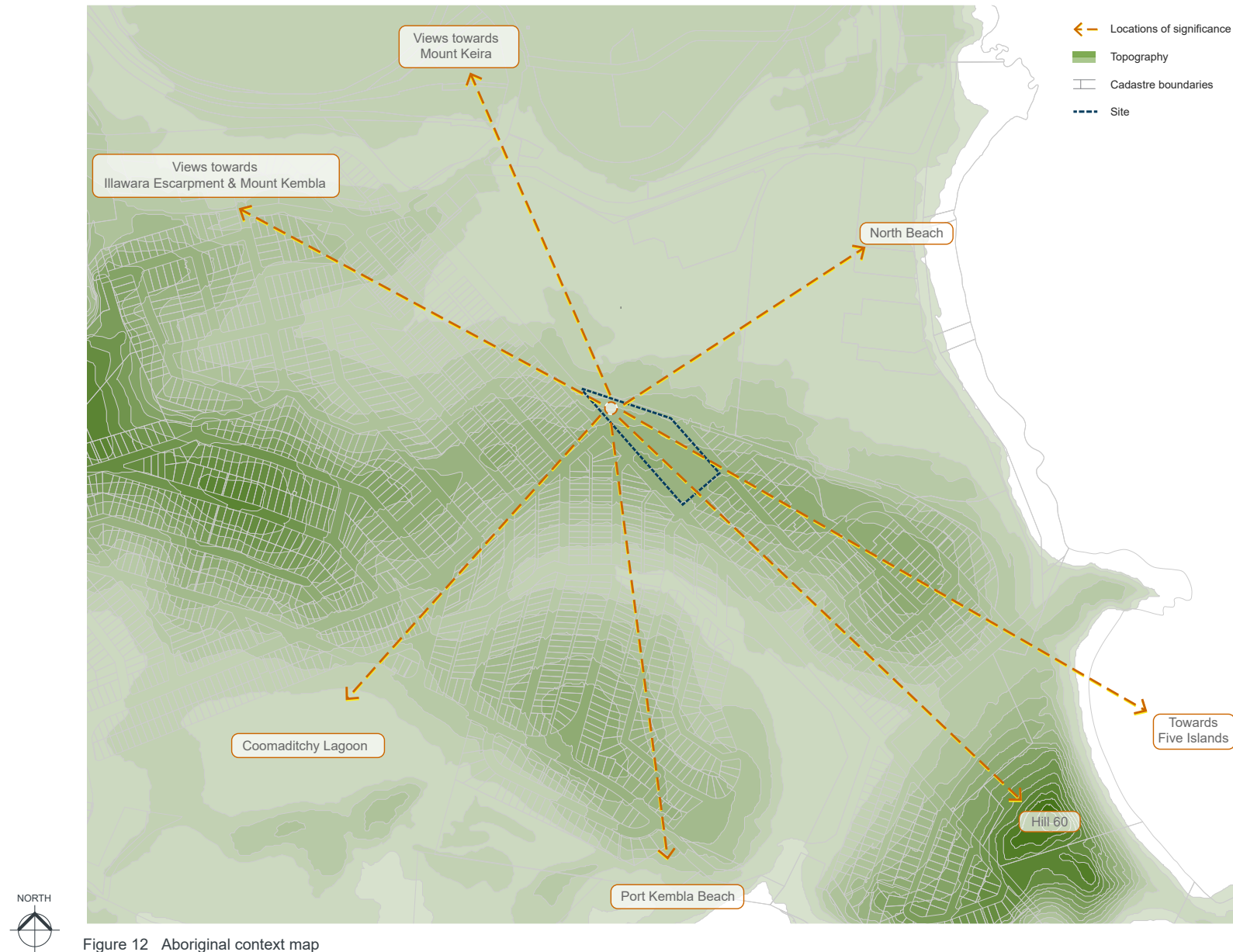


Figure 12 Aboriginal context map

2-8 Connecting with Country

PATHWAY 1:

Learning from first languages and placenames

Engage with First Nations' languages and the meaning of first placenames to learn more about Country. First placenames universally describe the physical character and purpose of Country, e.g. Parramatta – the eel's water place.

This pathway relates to the value of cultural expression, which can take many forms, including ceremony, food, song, and dance. Language is identified as the most primal of all these forms.

Aboriginal communities have an on-going dialogue with Country, with place names providing a direct link with who Country is. Names can be very descriptive of the nature of the place and cultural lore and it's lessons are shared by naming of certain phenomena, such as the Dharawal calendar, that identifies six seasons in Sydney through observing specific events such as the ripening of the Lilly Pillies.

Consideration of the names applied to place prior to European influence will provide an insight into what was valued, what was observed, and what was considered worthy of being passed down to future generations. Aboriginal languages relate very specifically to place, and to the community that have occupied that place for millennia.

PATHWAY 2:

Develop mutually beneficial relationships with Country

Relationships between people are forged by sharing emotions and experiences, and the same is true for relationships with Country. Making decisions affecting Country that not only benefit people but also address the needs of Country takes time and deep understanding.

In order to make beneficial changes to a place it is necessary to gain a deep and comprehensive understanding of that place. Aboriginal belief gives Country a real and tangible presence, she is considered to have a spirit and be a living entity, therefore worthy of respect and to be cared for as if a member of the family.

When a place is considered as more than just a site, or a plot of land, but as a part of a greater entity that needs to work as a system, changes can be proposed that are beneficial, rather than detrimental. This also extends to the idea that the deep connection between humans and nature can be extended to encompass a connection between culture and place.

Consultation with local Aboriginal communities needs to be done in a way that recognises the depth of the connection, and that works on establishing a long term relationship that can then inform the future direction of place making.



Source: Draft Connecting with Country framework

2-8 Connecting with Country

PATHWAY 3:

Reawakening memories of cultural landscapes

In addition to doing a site analysis, encourage walking on Country and using all the senses, including sight, to more deeply understand places. This must be done by walking with Aboriginal knowledge-holders and Traditional Custodians.

Aboriginal people walk Country to develop a sense of place and to experience and communicate with the place utilising all their senses. In order for others to gain an insight into what Aboriginal people know about place, it is imperative that we walk Country with Traditional Custodians, who can share their knowledge and guide us to what is present and what we need to understand.

This concept of walking Country acknowledges that a place is not just a physical or visual experience, but encompasses all the senses to create a 'visceral spatial understanding of Country' which can then be translated into meaningful and strategic proposals for change.

The augmentation of the traditional site analysis, via the inclusion of the Aboriginal cultural practice of walking Country, would lead to a deeper understanding of place and an acknowledgement that changes will have far reaching impacts that need to be considered.

PATHWAY 4:

Finding common ground

Through sharing knowledge and ways of knowing we can begin to find common approaches that will support the health and wellbeing of Country. In this way, Aboriginal knowledge systems can be supported and better appreciated with input from Western scientific knowledge systems. Aboriginal ways of knowing and eco-systemic thinking observes natural phenomena from a holistic point of view where those natural phenomena sit comfortably within complex systems. Being guided by this kind of knowledge system may be challenging in systems and processes where Western science and culture has predominated.

Culture is a learnt behaviour. It is learnt from people you interact with, as well as from the natural and spiritual world that you inhabit. Aboriginal culture is passed from generation to generation through the sharing of knowledge and interaction with Country.

The Aboriginal form of cultural knowledge poses a very different way of viewing the World to that held by those from a different cultural background, so it is imperative that everyone acknowledge that all viewpoints have value and can provide insights that can improve and deepen the outcome of a project.

Aboriginal cultural knowledge and intellectual property needs to be retained by Aboriginal people, and they need to control how it is shared with others.



Source: Draft Connecting with Country framework

For the sharing to be effective it needs to be co-operative and iterative, and not just 'applied' as an afterthought. It will take time to integrate Aboriginal cultural knowledge into the planning and development of places, and it will take conscious inclusion to make that integration valuable and tangible.

The augmentation of the traditional site analysis, via the inclusion of the Aboriginal cultural practice of walking Country, would lead to a deeper understanding of place and an acknowledgement that changes will have far reaching impacts that need to be considered.

2-9 Heritage built form

Although the study site no longer contains the school buildings it has historical significance as a site of education of the children of the Port Kembla region since 1916, with the school officially opening in June 1917.

The school closed in 1999, due to contamination concerns arising from the proximity of the chimney (visible in adjacent image, since demolished), and was relocated to its current site on Gloucester Boulevard in 2000. The abandoned school building was destroyed by fire in January of 2013 and later that month, the remains of the school were demolished. The site has remained vacant since.

The former Port Kembla Public School site has social and cultural value as the school site and buildings served an important function in the community for more than 80 years (source: Office of Environment & Heritage - Data number: 2700588).



Source: Wollongong City Library (Illawarra Mercury Collection)



Figure 13 Aerial image (May 2012) showing the former chimney and school buildings (source: nearmap.com.au)

2-10 Landscape character

The site is mainly grassed except for the remnant hardstands that were the foundations of the former school buildings and old netball/playing courts. There are trees that line the Military Road boundary of the site which are of little significance, however the significant lean of the trees to the north may indicate strong prevailing winds from the south. There are a few clusters of trees across the site and scrub at the northern corner of the site where the topography drops steeply.

Surrounding the site, there is a row of low street trees along Military Road, north of the Church Street intersection. On the industrial site on the north side of Electrolytic Street there is an elevated densely vegetated strip of land. This land, although located on an industrial site, is an extension of the existing R2 Private Recreation zone that runs to the coast.

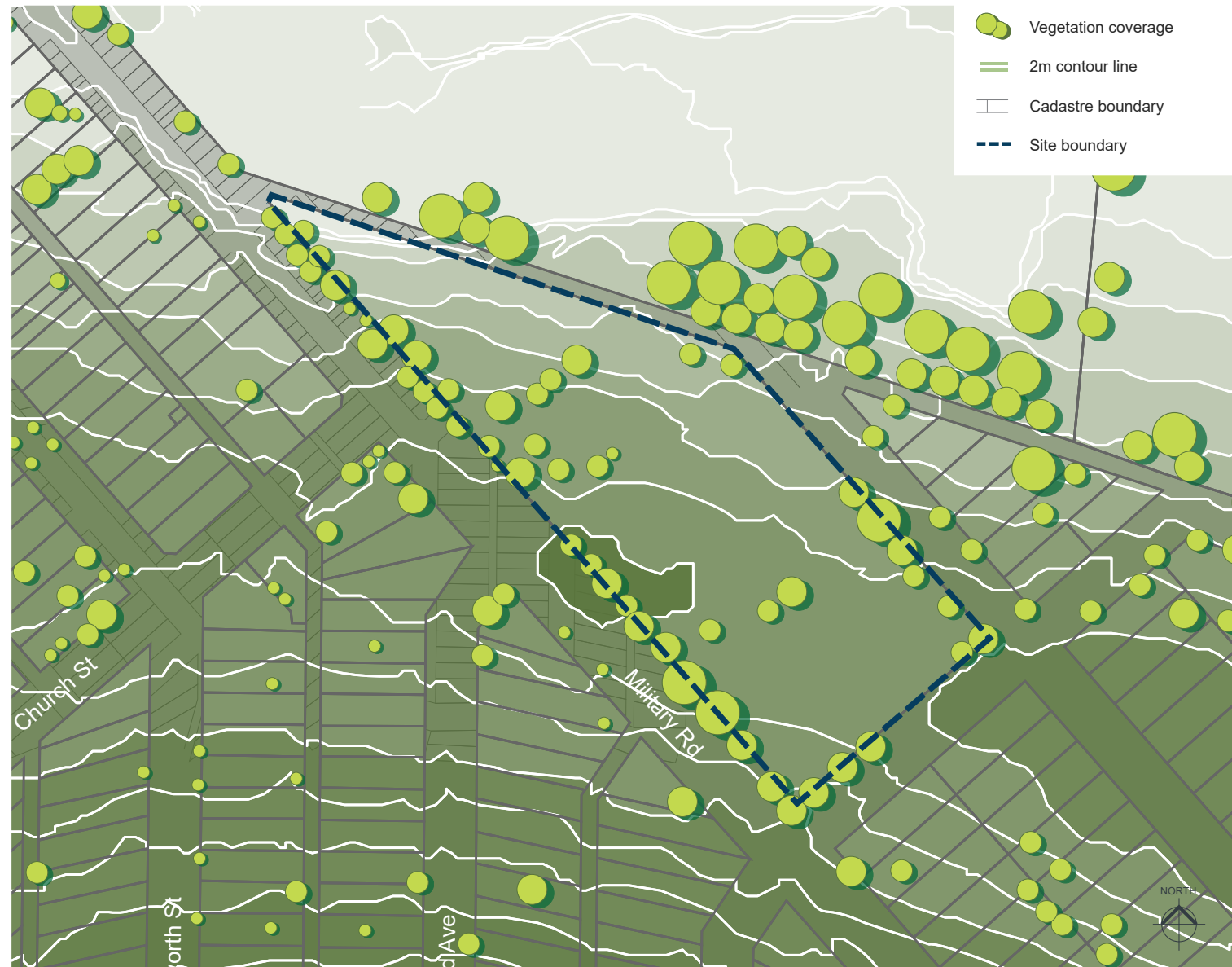


Figure 14 Landscape character analysis map

2-11 Opportunities & constraints

Opportunities

1. Large (2.195 ha) vacant site with opportunity to provide a well designed master plan;
2. Proximity to Town Centre;
3. Level access to Town Centre;
4. Potential to increase residential density to support the nearby Town Centre;
5. A range of diverse housing types including affordable housing;
6. Potential to provide aged care and or childcare close to Town Centre;
7. Proximity to beach, playing fields and schools;
8. Views to Five Islands, Mount Keira and Mount Kembla and Illawarra escarpment and steel works;
9. Access to public transport;
10. Street access on all sides of site;
11. Potential to create new streets and lanes that:
 - Link into existing grid,
 - Provide vehicle access to site away from Military Road,
 - Provide through site pedestrian links,
 - Create a number of blocks that increases street frontage,
12. Potential to provide open space close to Town Centre
13. Located on proposed bike route.
14. Provide a 'green' gateway to Port Kembla residential area.
15. Potential to improve Military Road through development contributions to:
 - Widen verge along site frontage
 - Improve footpath and include active transport link (Council's proposed bike route along Military Road)
 - Provide a safer pedestrian crossing from site to Church Street.
16. Potential to provide a publicly accessible open space where a connection to Country can be interpreted and celebrated.
17. Potential to interpret the heritage significance of the former Port Kembla Public School into proposed development.
18. Provide an area to reflect and interpret the heritage significance of the former Port Kembla Public School;

Constraints


1. Noise from existing and potential expansion of Port to north and light industrial to north west;
2. Site contamination;
3. Existing zoning of B4 – any commercial development would further drain the economic vitality of the Town Centre,
4. FSR and heights – limited development potential.
5. Steep slope to north-west corner of the site.

2-11 Opportunities and constraints

- Barrier
- Views from site
- Connections to points of interest
- Key landmarks
- Unsafe intersection
- Train station
- Parking area
- Open space
- Cadastre boundary
- Major road
- Extent of Port Kembla 2505 postcode
- Site boundary



Figure 15 Opportunity and constraints analysis map



CHAPTER 3

URBAN DESIGN PRINCIPLES

3-1 Site specific controls

The preceding section analysed the key characteristics and features of the local area and the site. This chapter identifies design principles that will influence land use, density and height that will allow a built form on the site that will contribute positively to the character of the local area as well as support the Town Centre and local employment areas.

Principles for land use and density:

A number of urban design considerations were addressed during the design of the different schemes that led to the preparation of this proposal:

Land use & density – The site of the former Port Kembla Primary School site on Military Road is currently zoned B4 Mixed Use. During the analysis and review of previous economic studies for the area, it became apparent that the potential for commercial and retail spaces on the site would likely draw activity away from Wentworth Street, Port Kembla's main street, currently zoned B2 Local Centre. To address this potential incompatibility of uses, the proposal considers the site to be divided between RE2 Private Recreation to the north, and R3 Medium Density Residential zone to the south.



3-1 Site specific controls

Noise - The site is located in close proximity to the Port and steelworks, located to the north, which are the main sources of noise. As a result of the topography of the place, the noise travels south towards the site located at a higher level. To address this situation, the proposal considers a number of measures to minimise potential impacts to future residents and the community in general. Overall the proposed layout uses the built form of some buildings to 'shield' residential areas located further from the noise source. A vegetated berm is proposed along the northern edge of the site where it is zoned R3 Medium Density Residential, along Electrolytic Street, this would allow for a reduction of noise being received by residents. Further mitigation is also proposed at the level of the building facade. (Section 5-4 provides additional information).

Street character - The proposed built form creates front setbacks compatible with the surroundings, with special consideration where areas for heritage interpretation have been proposed. The taller built form located towards the north and west of the site, along Military Road, provides a generous front setback to allow for a high level of amenity for residential units located on the ground level, for vegetation planting in private open spaces, and for the preservation of existing street trees and planting of new ones. The setback provides visual privacy and noise mitigation for future residents of the proposed scheme, as well as for existing residents to the west of Military Road, including St Stephen's Anglican Church.

The built form located to the south and east is of smaller scale in the form of terrace houses and townhouses, and proposes a 4.5m setback along Reservoir Street and 3m along Marne Street, in line with the existing built form in the area.

Interface - The built form proposed for the site has been arranged considering the immediate and surrounding context. The multi-residential buildings are found to the west and north of the site, closer to Port Kembla's main commercial street, and adjacent to Military Road to respond to its hierarchy and width, allowing for a consistent 6m front setback. Additional setback related to the location of the former school building, and in recognition of a potential area of heritage interpretation may be provided where indicated.

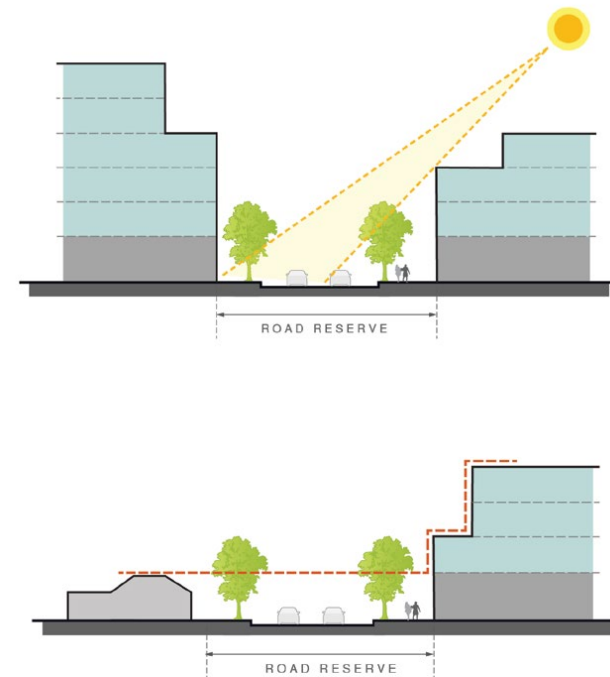
The built form to the south and east is of a smaller scale and height, to respond to the existing built form along Marne Street and Reservoir Street which are predominantly detached single family homes.

Solar access - The orientation and location of the site provides a high level of solar access for future residents.

Taller buildings are located to the west of the site, with the main façades facing north and east, creating sunny courtyards for the use of residents. The buildings are separated to maximise solar access to the residential units. This built form proposes setbacks

of the top levels, as well as generous setbacks fronting Military Road, in order to minimise potential solar access impacts to residents on the western side of the road.

The terrace houses along Reservoir Street have been positioned to the east of the site, and oriented to the north east to maximise solar access. The compact scale and reduced height of the terrace houses allow for the townhouses located to the south to also receive generous amounts of natural light.



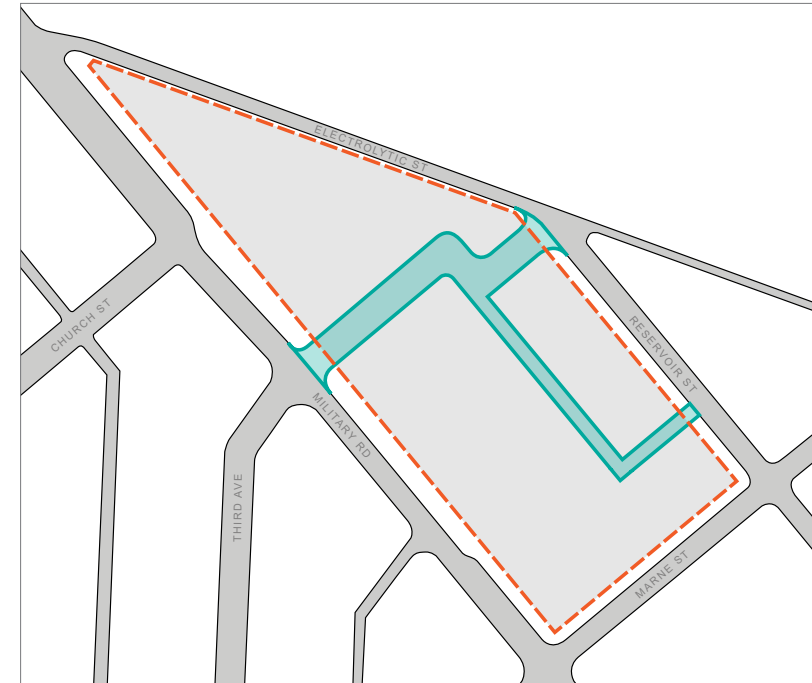
3-1 Site specific controls

Road hierarchy – The site is currently bounded by roads on all sides, but has no vehicular access into or across the site. In order to improve access and blend the site into the surrounding context it is necessary to provide new streets within the proposed development. Generally the intent was to limit the quantum of new streets, whilst proving sufficient access and connection. For both pedestrians and vehicles, to support the proposed level of development.

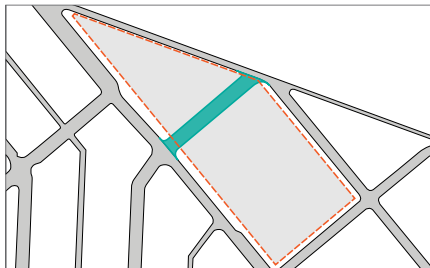
The preferred concept proposes a new 20m road reserve running from the intersection of Military Road and Third Avenue, towards the intersection of Reservoir Street and Electrolytic Street. This road dog legs part way through the site to simplify the location where it intersects with Reservoir Street. A laneway, with a reduced width of 6m, runs from this dogleg towards Marne Street, but then turns and terminates at Reservoir Street. This layout provides a cross link through the site, as an extension of Third

Avenue, and enables rear lane access to the terraces fronting Reservoir Street, whilst also limiting significant vehicle movement within the site, thereby supporting pedestrian and cycle access.

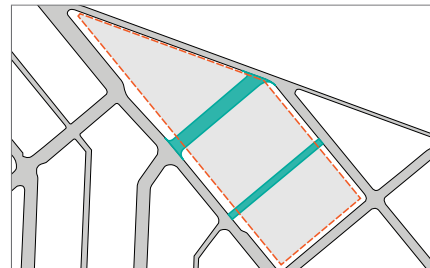
A series of options were considered as identified in the adjacent diagrams, including a concept where the new street travelled straight between Military Road and Electrolytic Street. The proximity and odd angles that this layout generated were deemed less than ideal due to poor visibility and geometry. The ability to wrap the proposed landscape berm was also considered advantageous, as it improves noise mitigation. In relation to the potential loss of view lines from this point across towards the Port, it is proposed that the detailed design of the interpretation park incorporate the berm and provide elevated opportunities for viewing significant elements as pedestrians utilise this amenity.



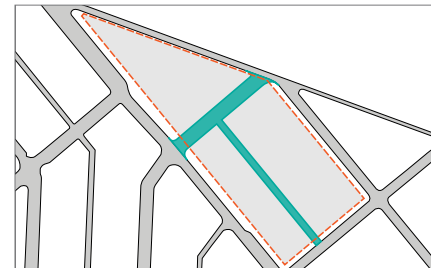
Preferred concept 1



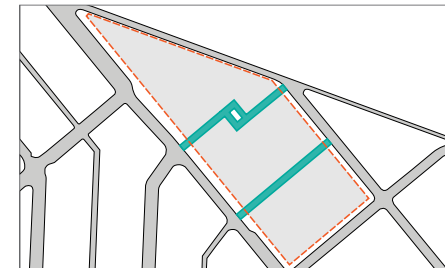
Indicative concept 1



Indicative concept 2



Indicative concept 3



Indicative concept 4

3-2 Key site characteristics

In order to inform the development of the options and an appropriate building outcome for this site, the following key site characteristics were also considered important in determining the potential building envelope:

Site area – The former Port Kembla Primary School site on Military Road, Port Kembla, described as Lot 1 in DP 811699 is a large, trapezoidal-shaped block of land measuring 2.195 ha. Being a large, vacant site there is the opportunity for a well-designed master plan, providing a range of housing types and improved site access.

Location - The site is located close to the Town Centre with the Port and steelworks to the north. It is bounded on the south-west by Military Road, the south-east by Marne Street, the north-east by Reservoir Street and the north by Electrolytic Street. Due to its location and with the wide carriageway of Military Road along it's long south-west boundary there is an opportunity to increase the density and height controls to support the Town Centre with the impacts of overshadowing and loss of privacy not being minimal.

Urban Character - Being in close proximity to the Town Centre surrounded by low density residential provides the opportunity to transition to medium density residential to provide a range of housing types and the increase in density would support the nearby Town Centre.

Landscape Character - Located on the edge of the Town Centre this site could provide much needed open space close to the Town Centre, as well as large areas of communal open space for medium density residential. A landscaped buffer and berm along the northern boundary would assist with attenuating the noise from the existing and potential expansion of the Port activity

Orientation - The large site provides good access to sunlight with provision for north-facing public open space.

Topography - The elevated site falls slightly to the north and south from the centre of the site and more steeply away to the north-west corner. The result of this is that a range of well-considered building heights would allow views to the coast and to the escarpment from potential development.

Building Typology – A range of building types such as single dwellings, terraces and multi-storey apartments would provide diverse housing choice including affordable housing potentially up to 5%. The large site has the potential to include other building types such as aged-care and child care facilities if there is a demand, which are permissible in an R3 zone.

Potential Impacts - The large size and location of the site means that a considered urban design approach can be utilised to maintain and potentially improve the amenity of nearby neighbours, as environmental impacts including loss of privacy, impact on views and overshadowing can be minimised.

Impacts to the site are noise from the industrial lands to the north and north-west and potential expansion of Port activity to the north. This can be managed by well-designed landscape devices such as berms or with appropriate building typology where the building use would not be significantly affected by nearby industrial uses.



Source: Studio GL

3-3 Heritage interpretation

In response to Council's request for additional information on integration of heritage interpretation, the following section provides a conceptual indication of what may be appropriate.

These ideas are conceptual only and provide an indication of what may be considered as the design is developed.

The Heritage Interpretation Management Strategy, prepared by John Oultram Heritage & Design, identifies two primary themes that are relevant with regard to interpretation and education about the history of this site. These themes are:

- Aboriginal occupation & settlement
- Post European historical development
 - * Development of Port Kembla
 - * Development of the former Port Kembla Public School

Three forms of interpretation are proposed:

- Retention of landscape
- Demolished structures
- Introduced devices.

Each of these will be addressed as follows:

Retention of landscape

The site has few mature trees, which are generally located on the boundaries of the site. The majority of these trees are located along the boundary fronting Military Road and provide a welcome buffer. These trees become sparser towards the southern end of

this boundary, with a large gap evident opposite Third Avenue. Some screening is provided to Marne Avenue and Reservoir Street, with no significant plantings being present fronting Electrolytic Street.

Generally mature trees will be retained where possible, especially in the areas designated for interpretation.

Demolished structures

There are a series of demolished structures on site, relating to a former use as a primary school. These include footings of the primary school building erected in 1916, and an Infants Building erected in 1953, along with associated buildings on site. There is also evidence remaining of playground facilities such as game courts and concrete pathways.

Interpretation of this aspect of the sites history will be via both introduced devices (interpretation plaques and similar, refer below) and via identification of the location of the former buildings via markings of the footings within public areas.

Introduced devices

Given that there is no remaining identified physical evidence or built form (beyond footings) of either the Aboriginal occupation, or Post -European historic development of this site, it is proposed that the majority of the interpretation will be via introduced devices. This term 'refers to features, sculptures, plaques and the like that may demonstrate, describe or reflect an important aspect of the site'.

It is proposed that this interpretation be split across two locations on the site, to best represent the relevant themes.

One site will be at the northern most point of the site, a triangular area bounded by Military Road and Electrolytic Street. This area has a range of existing mature trees, and is a prominent site, both as the site is approached from the north along Military Road, and as a vantage point towards prominent locations within the greater context. This area will be the location for interpretation relating to the aboriginal occupation of the site. This may take a number of forms, including the design of the landscaped publicly accessible open space, the provision of interpretation panels, and the use of art work to tell the story of the past inhabitants of this place. Any interpretation would require the input and involvement of the local indigenous community, as it would be a telling of their stories and a representation of their on-going connection to this Country. Layout and interpretation area will allow views to Five Islands, Mount Keira and Mount Kembla and Illawarra escarpment and steel works

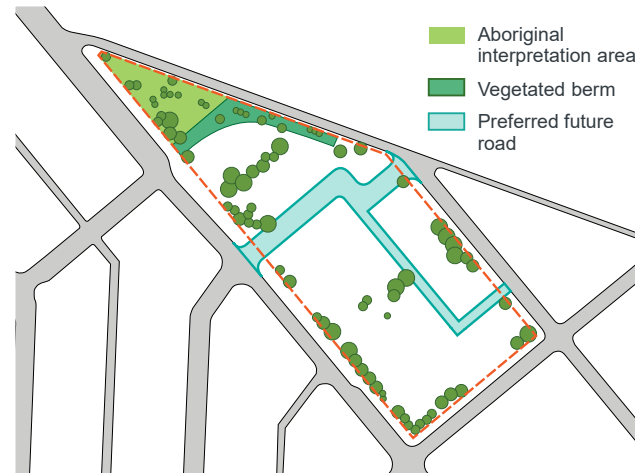
The other site for interpretation would be a piece of the site fronting Military Road, adjacent to the location of the original 1916 school building, since demolished. This site would contain interpretation elements such as artwork, and panels, relating to the history of the school on this site and the conflicts that arose that eventually forced its relocation.

3-3 Heritage interpretation

Indigenous heritage

The former Port Kembla Primary School site is a significant location adjacent to several places of importance for the Tharawal Nation, with connections to the area that became known as Hill 60, Five Islands, Coomaditchy Lagoon, Port Kembla Beach, and with views towards North Beach Mount Keira, Mount Kembla, and the Illawarra escarpment. The presence of these significant locations, as well as the sites position as a local high point, increase its potential importance for the local Indigenous community.

In recognition of this, the area zoned R2 Private Recreation may be developed as a location for interpretation and representation of Country. This may occur through the use of native vegetation, traditional materials, and educational information provided through visual content, to create a place of gathering, contemplation and connection with Country. The proposed vegetated berm along the northern edge of the area facing Electrolytic St may also provide a location for contemplation and connection with Country, taking advantage of its elevated vistas to provide views of the surrounding context, in combination with native vegetation and materials.



Source: Draft Connecting with Country framework, GANSW



Source: Draft Connecting with Country framework, GANSW



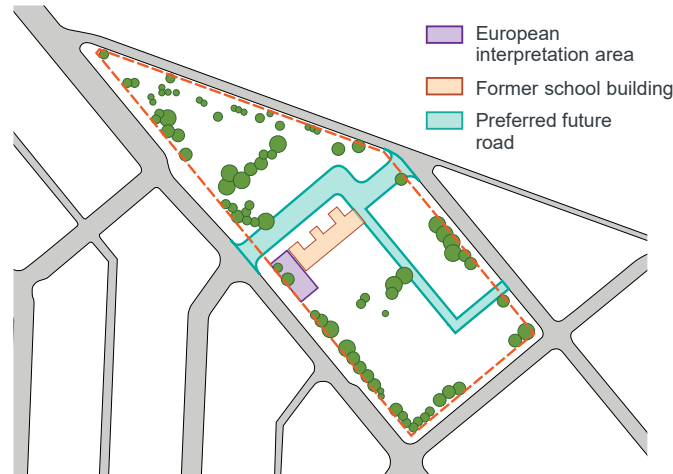
Source: Draft Connecting with Country framework, GANSW

3-3 Heritage interpretation

European heritage

The site was the location of the former Port Kembla Primary School, which played an important role in the community of Port Kembla. Remains of the original buildings and paths can still be found on site, in the form of foundations and concrete paths. The proposal considers the importance that the school building had in the wider context, as well as its proportions, height, and spatial location on the site.

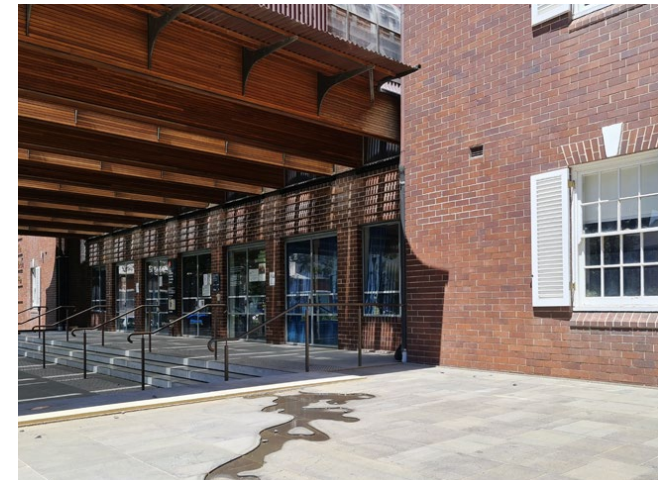
To recognise this historic connection, given that the built form no longer exists, the proposed residential apartment building located immediately south of the proposed new street connecting Military Road and Reservoir Street, honours the history of the former school building by maintaining a similar scale, height and proportion. The original set back of the school from Military Road is also maintained. The space between any future building and Military Road could then become an area of heritage interpretation, utilising introduced devices such as materials on the ground, potential furniture, artwork including murals, as well as historic visual material presented on interpretive panels. This material would provide a glimpse into the historic relevance of this site and connect it to what was an almost 100 year connection between this site and the education of the children of Port Kembla.



Source: Studio GL



Source: Studio GL



Source: Studio GL



CHAPTER 4

INDICATIVE DESIGN CONCEPTS

4-1 Indicative Design Concept 1

- Building typologies
- Detached houses
 - Apartments
- Other land uses
- Proposed open space
 - Roads
 - ① Number of storeys



Figure 16 Indicative Concept 1 - Model View



Figure 17 Indicative Concept 1 - Plan View

4-2 Indicative Design Concept 2

- Building typologies
- Terraces
 - Townhouses
 - Aged care facility
 - Apartments
- Other land uses
- Proposed open space
 - Roads
 - ① Number of storeys



Figure 18 Indicative Concept 2 - Model View



Figure 19 Indicative Concept 2 - Plan View

4-3 Indicative Design Concept 3

- Building typologies
- Detached houses
 - Workshops
 - Apartments
- Other land uses
- Proposed open space
 - Roads
 - ① Number of storeys



Figure 20 Indicative Concept 3 - Model View



Figure 21 Indicative Concept 3 - Plan View

4-4 Indicative Design Concept 4

- Building typologies
- Detached houses
 - Four-plex
 - Apartments
- Other land uses
- Proposed open space
 - Roads
 - ① Number of storeys



Figure 22 Indicative Concept 4 - Model View



Figure 23 Indicative Concept 4 - Plan View

4-5 Indicative Design Concept 5

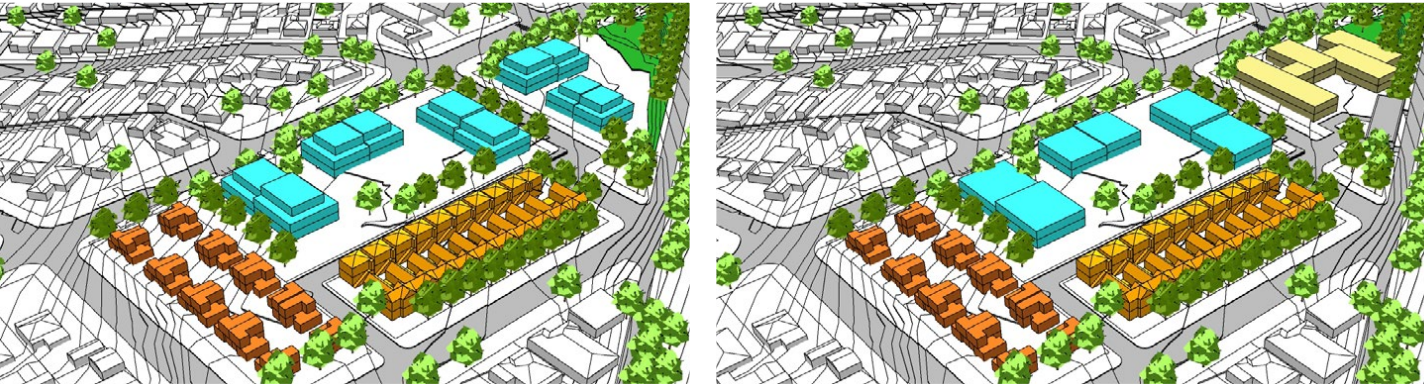
- Building typologies
- Detached houses
 - Apartments
- Other land uses
- Proposed open space
 - Roads
 - ① Number of storeys



Figure 24 Indicative Concept 5 - Model View



Figure 25 Indicative Concept 5 - Plan View



CHAPTER 5

PREFERRED DESIGN CONCEPTS

5-1 Preferred Concept 1 (Without aged care)

Building typologies

■ Terraces	(10 dw)
■ Townhouses	(18 dw)
■ Apartments	(66 dw)

Other land uses

■ Proposed open space	
■ Roads	
① Number of storeys	

This scheme considers green open space and residential buildings in the triangular precinct to the north of the site. The residential units are located towards the south of the triangle, allowing for the provision of a densely vegetated bermed area to the north and east acting as a buffer zone between the residents and the activity of the port. Building design will also focus bedrooms to the rear.

Terraces, townhouses and more residential units are distributed throughout the rest of the site, with heights ranging between 2 storeys (9m) and 3 storeys (11m).



Figure 26 Preferred Concept 1 - Plan View

5-1 Preferred Concept 1

- Building typologies
- Terraces (10 dw)
 - Townhouses (18 dw)
 - Apartments (66 dw)
- Other land uses
- Proposed open space
 - Roads



Figure 27 Preferred Concept 1 - Model View

5-2 Preferred Concept 2 (With aged care)

Building typologies

 Terraces	(10 dw)
 Townhouses	(18 dw)
 Aged care facility	
 Apartments	(29 dw)

Other land uses

 Proposed open space	
 Roads	
① Number of storeys	

This scheme considers green open space and an aged care facility in the triangular precinct to the north of the site. The program within the aged care facility would allow for habitable areas to be located towards the west and south of the building, with non-habitable and service areas to the north and east, towards the port. Protection from adjoining Port noise is also provided by a multistorey carpark onto Electrolytic Street.

Terraces, townhouses and residential units are distributed throughout the rest of the site, with heights of 2 storeys (9m).



Figure 28 Preferred Concept 2 - Plan View

5-2 Preferred Concept 2

- Building typologies
- Terraces (10 dw)
 - Townhouses (18 dw)
 - Aged care facility
 - Apartments (29 dw)
- Other land uses
- Proposed open space
 - Roads

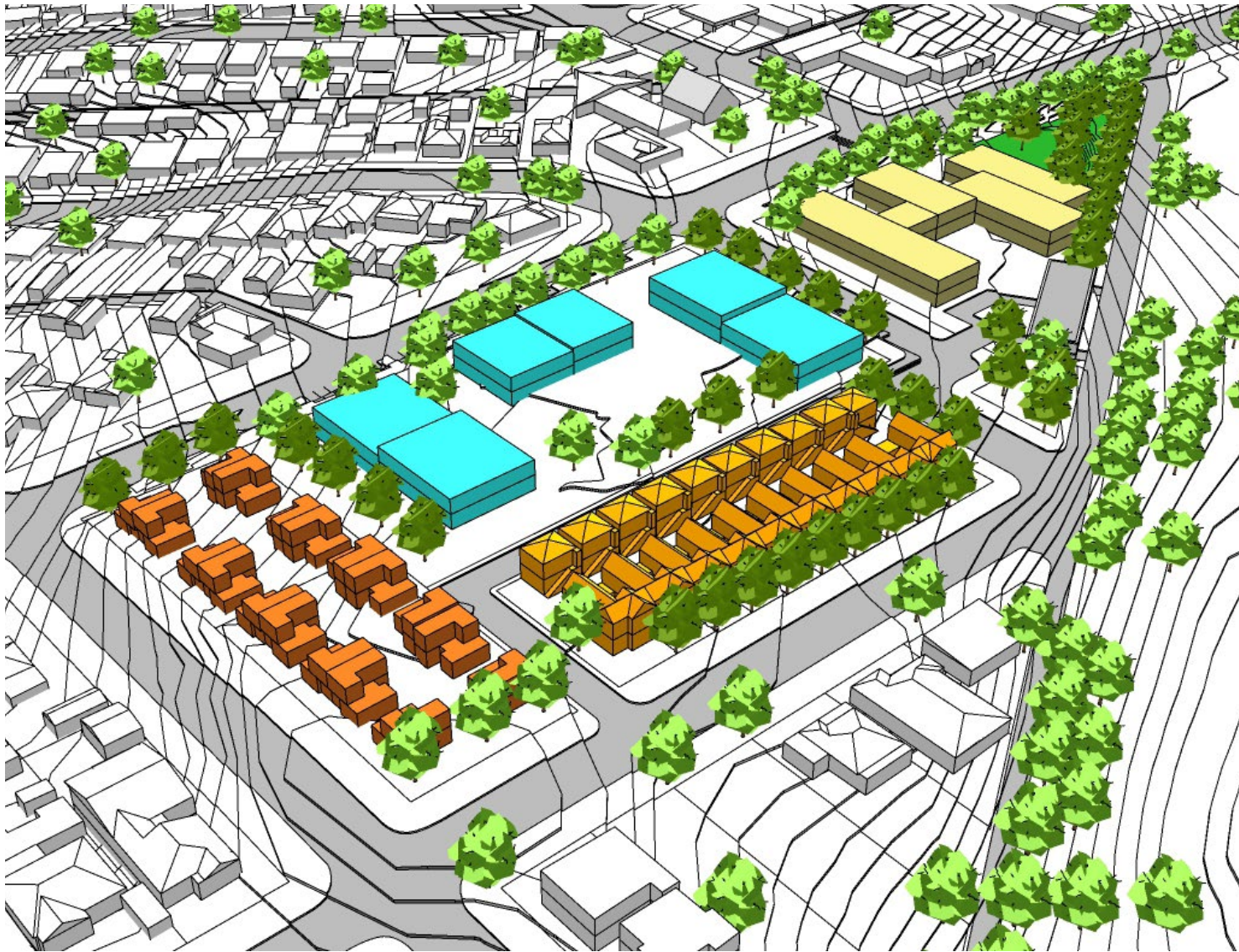


Figure 29 Preferred Concept 2 - Model View

5-3 Approximate area estimates

Preferred Option 1

Total Site Area	21,940 m²
Developable Area (Net)	17,100 m ² (78%)
Roads	3,150 m ² (14%)
Open Space	1,690 m ² (8%)
Overall GFA	8,570 m ²
Overall Gross FSR	0.39 : 1
Overall Net FSR	0.50 : 1



Preferred Option 2

Total Site Area	21,940 m²
Developable Area (Net)	17,100 m ² (78%)
Roads	3,150 m ² (14%)
Open Space	1,690 m ² (8%)
Overall GFA	8,293 m ²
Overall Gross FSR	0.39 : 1
Overall Net FSR	0.50 : 1



Note: all areas above are approximate and based on a preliminary sketch design only. Some areas (sqm) in the schedules have been rounded up/ down.

5-4 Recommendations

Since the closure and later fire that destroyed the historic school, this large site close to the Port Kembla town centre has been vacant. The proposed development identifies how this site could be integrated into the local area and provide a buffer to the port lands.

This proposal has been designed to include measures that ameliorate conflict with the heavy industrial uses of the Port and its associated noise impacts. Development has been set back from the corner of the site which is closest to the boundary of the port and a new open space is proposed for this area. Other elements include locating the building types so as to provide increased noise attenuation and/or the use of a landscape berm and increased landscape setback. This proposed development could be reflected in the strategic planning controls in the Wollongong Local Environmental Plan 2009 as follows:

Building Height - The site currently has a maximum building height of 9m. This height, when combined with the FSR, encourages development close to the port lands. The proposed development recommends increasing the maximum height to 3 storeys (11m) in the centre of the site and towards the noise source to allow provision of an increased landscape setback to the port lands. The preferred concept also steps down to 3 storeys and 2 storeys along Military Road and to 2 storeys along Marne Street and Reservoir Street, in recognition of the interface with nearby properties.

Floor Space Ratio - Floor Space Ratio – the current FSR for the site is 0.5:1 across the entire site. The proposals presented, as indicated in the approximate areas estimates (refer to Section 5.3), result in an overall Net FSR of approximately 0.5:1 across the site.

The adjacent map (refer to Figure 30) proposes the retention of the allowable FSR within the site. The northern most block (Block A) would have no FSR allowable, to ensure it remained as open space, the adjacent block (Block B) would retain an FSR of 0.5:1, as well as the two central blocks (Block C and D). The southern most block (Block E) would retain an FSR of 0.5:1, to match the surrounding residential properties.



Figure 30 Recommended building heights.

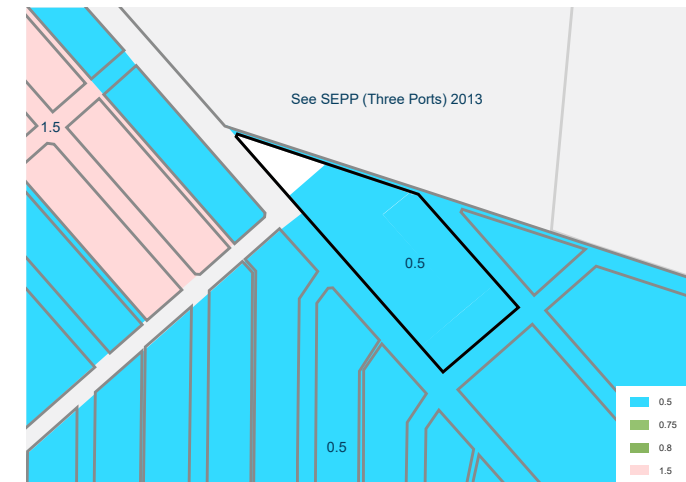


Figure 31 Recommended floor space ratio.

5-4 Recommendations

Zoning - The site is currently zoned B4 Mixed Use. Permissible uses in this zoning include residential flat buildings, seniors housing and shop top housing. To avoid development that would impact on the viability of the nearby town centre it is recommended that this is altered to R3 Medium Density Residential with additional setbacks to mitigate the impact of the port, and RE2 Private Recreation for the northern part of the site.

Minimum Lot Size - The site currently has a minimum lot size of 1999m² across the site. While this lot size is appropriate for residential flat buildings, it does not allow for smaller scale individual lot development. To make the site compatible with the surrounding area, it is proposed that the minimum lot size be reduced to 449 m² generally, with a zone of 200m² minimum lot size facing Reservoir and Marne Streets, to encourage small lot development, such as townhouses and villas, in proximity to the neighbouring residential properties.

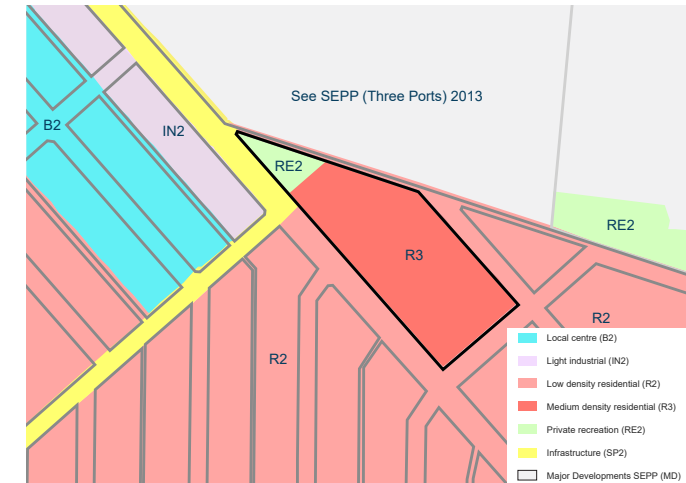


Figure 32 Recommended land use zoning.

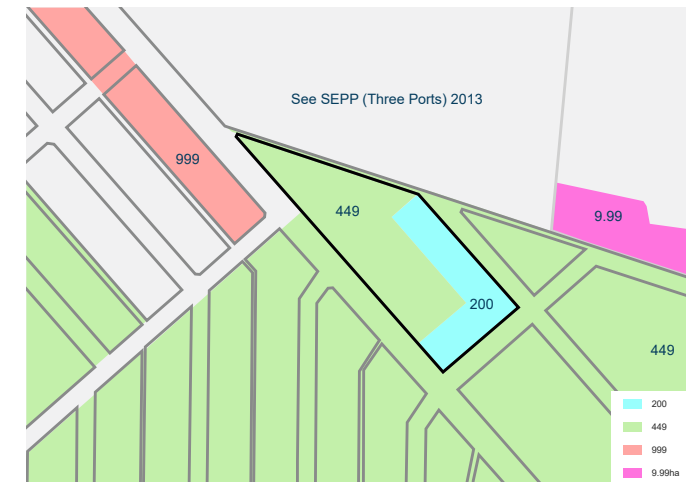


Figure 33 Recommended minimum lot size.

"Figure 34 Recommended development controls plan" on page 47 shows the high level conceptual controls proposed for the entire subject site.

5-4 Recommendations



Figure 34 Recommended development controls plan

5-4 Recommendations

Noise mitigation

The block facing Electrolytic Street is to have a 10m minimum setback to allow for noise minimisation options to screen port activity from residents. This setback should be vegetated, in addition to any landforming option.

Blocks with exposure east and north towards the port, and south-west towards Military Road, are to include a 1.5m articulation zone to be utilised for noise mitigation. Refer to *Development Near Rail Corridors And Busy Roads Interim Guideline, NSW*. This zone also encourages facade articulation and modulation. Refer to "Figure 35 Noise mitigating facade treatment" on page 48.

Interface along Military Road: A minimum setback of 6m is required along Military Road. This setback is to be vegetated to enhance the interface between the street and the development. Built form should be built to the alignment for a minimum of 60% of the boundary. This is designed to create a built form edge to Military Road, to balance the scale of the street.. See "Figure 36 Section A - Military Road interface" on page 49.

An additional setback here could also recognise the location of the former school building, and enable and area for heritage interpretation of this structure.

Interface along Reservoir Street: To provide continuity and be consistent with the interface of existing buildings along the southern side of Reservoir Street, a minimum setback of 4.5m is proposed. Sites facing this street should also have a 1.5m noise mitigation facade articulation zone. See "Figure 38 Section C - Reservoir Street interface" on page 50.

Interface along Marne Street: To provide continuity and be consistent with the interface of existing buildings along the northern side of Marne Street, a minimum setback of 3m is required. Sites facing this street should also have a 1.5m facade articulation zone to encourage facade modulation variety. See "Figure 39 Section D - Marne Street interface" on page 50.

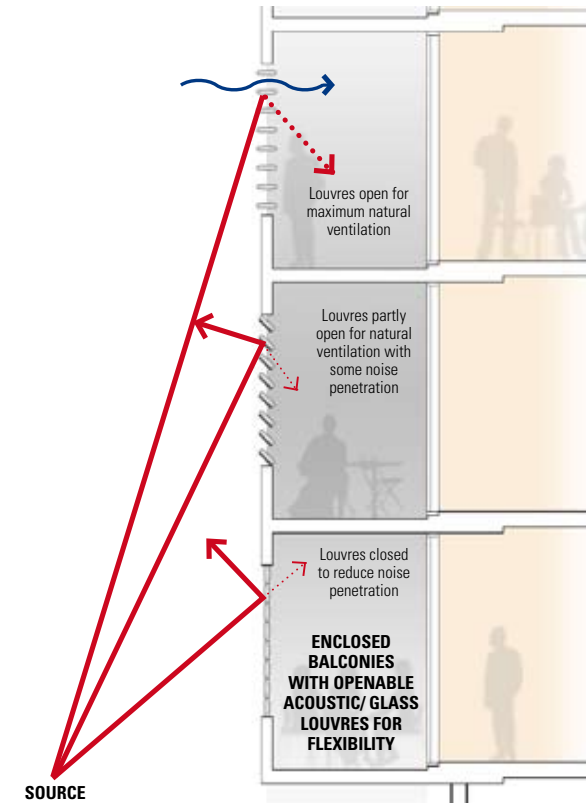


Figure 35 Noise mitigating facade treatment
(Source: *Development Near Rail Corridors And Busy Roads Interim Guideline, NSW*)

5-4 Recommendations

These adjacent sections (Figure 36 and Figure 37) show the high level conceptual interface controls proposed for residential flat buildings on the site.

Interface along Military Road: As indicated, and also illustrated in the plan, the deep, vegetated setback to Military Road is designed to enhance this interface and allow a transition from the potential noise and air quality source to the building, so impacts to residents are mitigated.

Interface along New Internal Street: With 4.5 metre setbacks to both sides of this street, there is the opportunity for trees and landscaping, which will enhance the pedestrian amenity of this new road.

Facade articulation zone: The 1.5 m facade articulation zone allows for modulation of the built form, and the creation of interest along what would be otherwise long uninterrupted facades.

Upper level setback: In setting the upper floor back by 3m, the upper most floor recedes, which minimises the bulk and scale of the residential flat building.

Raised ground floor: The proposed raising of the ground floor, by a 1 metre maximum height, enhances the security and privacy of residents on the ground floor. This also provides an opportunity for additional height at the entries to this building, and allows for some natural ventilation of basement parking, especially in the event of mechanical failure.

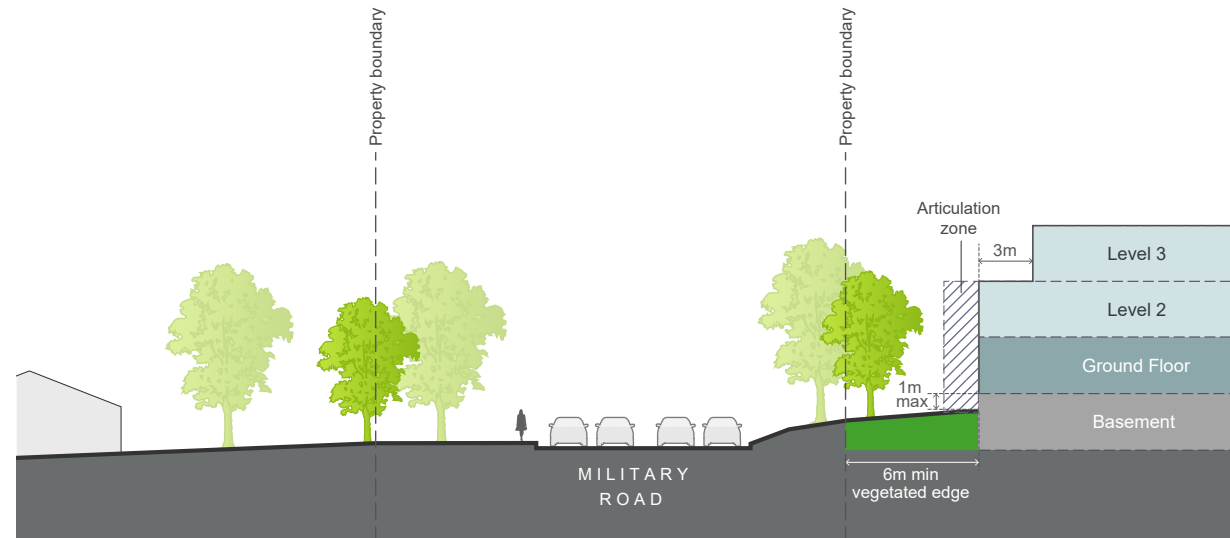


Figure 36 Section A - Military Road interface

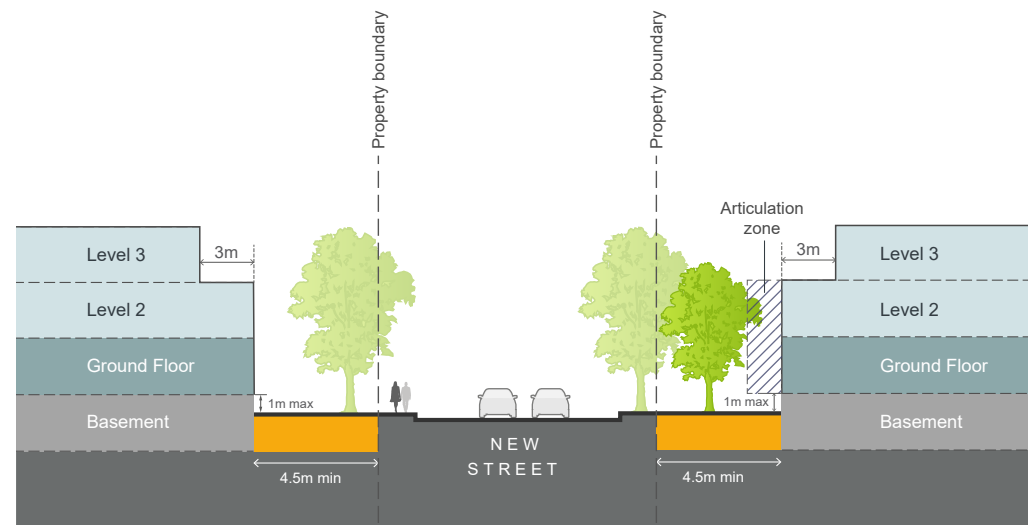


Figure 37 Section B - New Internal Street interface

5-4 Recommendations

The adjacent sections (Figure 38 and Figure 39) show the high level conceptual interface controls proposed for residential medium density buildings on the site.

Facade articulation zone: The 1.5 metre articulation zone allow for modulation of the built form, especially where the built form might comprise attached dwellings, such as terraces.

Noise mitigation: Noise mitigation is indicated on the facade facing Reservoir Street. This facade is exposed to potential noise from the Port, and the provision of attached dwelling style residences, in combination with other noise mitigation measures, would reduce the impacts of noise on the residents. The use of a roof form would further deflect noise, reducing noise impacts further into the site.

This proposed development has been designed to provide accommodation in Port Kembla on a vacant site which is close to the town centre and the amenities of the area, including the local primary school and the beach. The proposed development will:

- Help to support the economic vibrancy of the Town Centre by providing new housing that is within easy walk of the centre;
- Provide a range of housing types including smaller, more affordable housing; and
- Provide new residential dwellings with a high level of amenity.

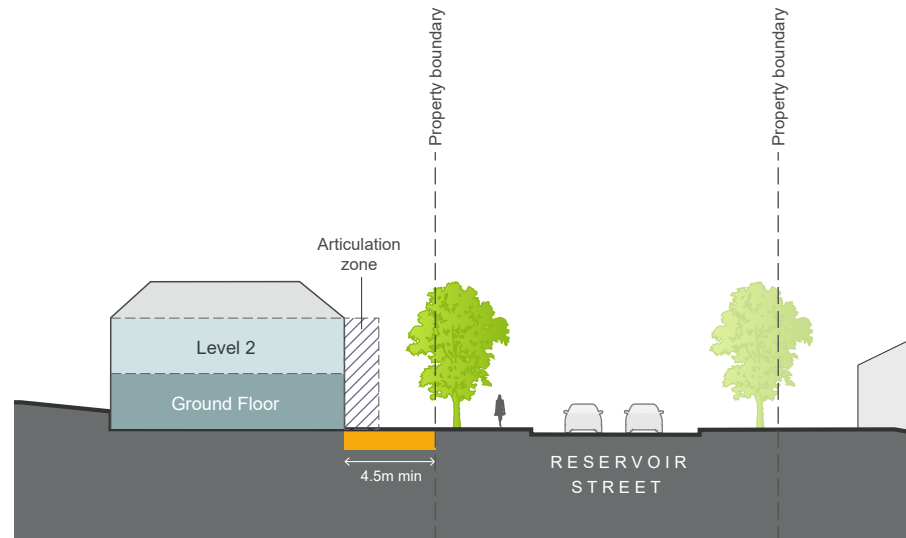


Figure 38 Section C - Reservoir Street interface

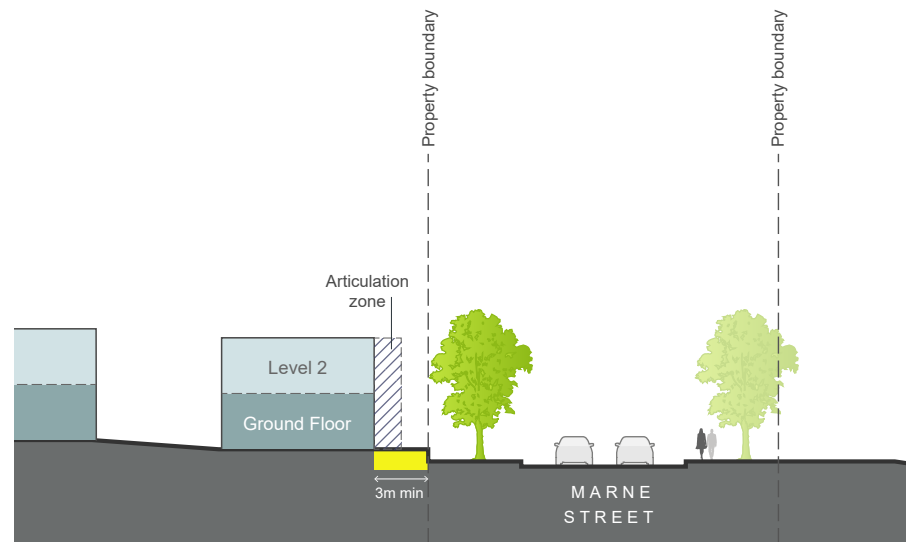
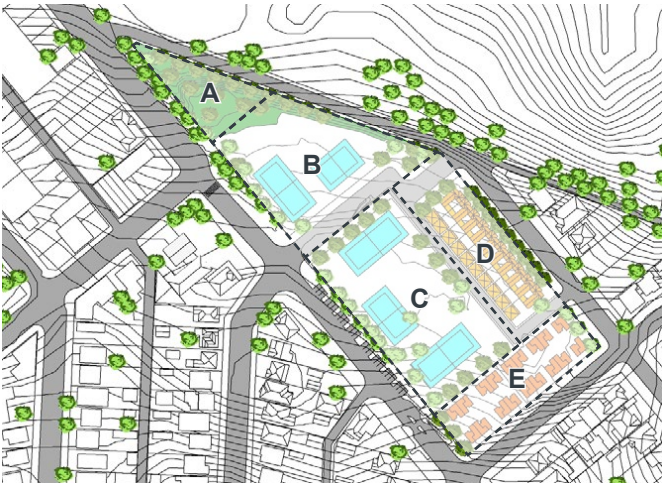


Figure 39 Section D - Marne Street interface

5-5 Precinct specific FSR calculations

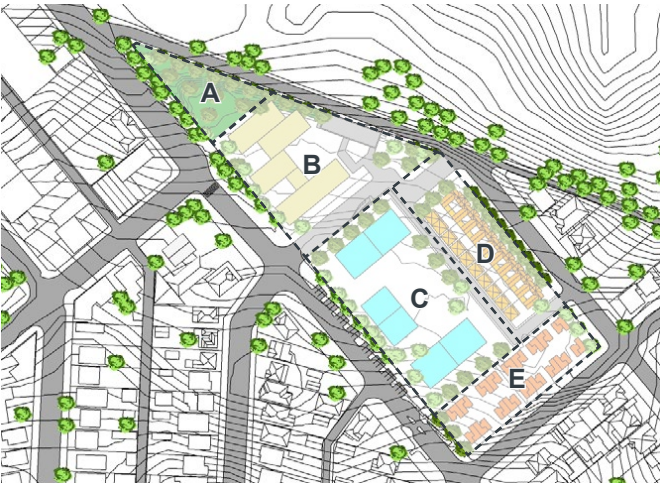
Preferred Option 1

Precinct	Gross FSR	Net FSR
Precinct A	0.00:1	0.00:1
Precinct B	0.35:1	0.43:1
Precinct C	0.47:1	0.55:1
Precinct D	0.53:1	0.66:1
Precinct E	0.34:1	0.35:1
Overall	0.39:1	0.50:1



Preferred Option 2

Precinct	Gross FSR	Net FSR
Precinct A	0.00:1	0.00:1
Precinct B	0.52:1	0.64:1
Precinct C	0.29:1	0.34:1
Precinct D	0.53:1	0.66:1
Precinct E	0.34:1	0.35:1
Overall	0.39:1	0.50:1



Note: all calculations above are approximate and based on a preliminary sketch design only.

5-6 Addendum precinct specific calculation

Preferred Option 1

Total GROSS Site Area (from CAD)	21,943 m ²	measure total site area from CAD
Total GROSS Site Area	21,943 m ²	check with above if equal (or very close)
Total NET Site Area	17,096 m ²	check that this shows sum of development blocks only
Total GROSS FSR	0.39	:1
Total NET FSR	0.50	:1

Development Precinct A

Residential Apartments						
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Residential GBA 100% of envelope	Residential GFA 75% of GBA	"Apartment area" 90% of GFA	No. of apartments based on dwelling mix
Block A-1 (Residential, Apartments)	m ²	m ²	m ²	m ²	m ²	0
Block A-2 (Residential, Apartments)	m ²	m ²	m ²	m ²	m ²	0
Subtotal	m ²	m ²	m ²	m ²	m ²	0

Net FSR 0.00 : 1

Residential Medium Density					
Block ID No. and description project specific	Block area as measured in CAD	No. of typology as counted	Building envelope per typology	Garage & circulation per typology	Residential GFA 90% of env minus circ
Block A-3 (Residential, Terraces)	m ²	dw	m ²	m ²	m ²
Block A-4 (Residential, Townhouses)	m ²	dw	m ²	m ²	m ²
Block A-5 (Residential, Fourplex)	m ²	dw	m ²	m ²	m ²
Subtotal	m ²	dw	n/a	n/a	m ²

Net FSR 0.00 : 1

Other uses (commercial)				
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Commercial GBA 95% of envelope	Commercial GFA 90% of GBA
Block A-6 (Commercial, Workshops)	m ²	m ²	m ²	m ²
Block A-7 (Commercial, Aged care facility)	m ²	m ²	m ²	m ²
Subtotal	m ²	m ²	m ²	m ²

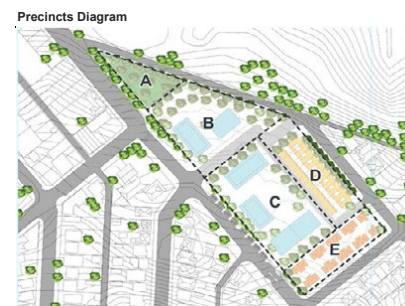
Net FSR 0.00 : 1

Non-developable land	
Description project specific	Area as measured in CAD
Open space	1,688 m ²
Other (if applicable)	m ²
Roads	m ²
Subtotal	1,688 m ²

Precinct A GROSS Site Area (from CAD)	1,688 m ²	measure total site area from CAD
Precinct A GROSS Site Area	1,688 m ²	check with above if equal
Precinct A NET Site Area (Developable)	m ²	check that this shows sum of development blocks only
Precinct A GROSS FSR	0.00 : 1	
Precinct A NET FSR	0.00 : 1	

Dwelling Mix	Assumed dwelling mix	Typical dwelling size
1-Bedroom	30%	55 m ²
2-Bedroom	50%	77 m ²
3-Bedroom	20%	99 m ²
Average dwelling size		75 m²

Site numbers	
Total Roads	3,150 m ²
Total Open Space	1,688 m ²
Overall GFA	8,570 m ²



Development Precinct B

Residential Apartments						
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Residential GBA 100% of envelope	Residential GFA 75% of GBA	"Apartment area" 90% of GFA	No. of apartments based on dwelling mix
Block B-1 (West building, 3 storeys)	4,904 m²	1,656 m²	1,656 m²	1,242 m²	1,118 m²	14
Block B-2 (East building, 3 storeys)	m²	1,176 m²	1,176 m²	882 m²	794 m²	10
Subtotal	4,904 m²	2,832 m²	2,832 m²	2,124 m²	1,912 m²	24

Net FSR0.39 : 1

Residential Medium Density					
Block ID No. and description project specific	Block area as measured in CAD	No. of typology as counted	Building envelope per typology	Garage & circulation per typology	Residential GFA 90% of env minus circ
Block B-3 (Residential, Terraces)	m²	dw	m²	m²	m²
Block B-4 (Residential, Townhouses)	m²	dw	m²	m²	m²
Block B-5 (Residential, Fourplex)	m²	dw	m²	m²	m²
Subtotal	m²	dw	n/a	n/a	m²

Net FSR0.00 : 1

Other uses (commercial)				
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Commercial GBA 95% of envelope	Commercial GFA 90% of GBA
Block B-6 (Commercial, Workshops)	m²	m²	m²	m²
Block B-7 (Commercial, Aged care facility)	m²	m²	m²	m²
Subtotal	m²	m²	m²	m²

Net FSR0.00 : 1

Non-developable land	
Description project specific	Area as measured in CAD
Open space	m²
Other (if applicable)	m²
Roads	1,200 m²
Subtotal	1,200 m²

Precinct B GROSS Site Area (from CAD)	6,104 m²	measure total site area from CAD
Precinct B GROSS Site Area	6,104 m²	check with above if equal
Precinct B NET Site Area (Developable)	4,904 m²	check that this shows sum of development blocks only
Precinct B GROSS FSR	0.35 : 1	
Precinct B NET FSR	0.43 : 1	

Development Precinct C

Residential Apartments						
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Residential GBA 100% of envelope	Residential GFA 75% of GBA	"Apartment area" 90% of GFA	No. of apartments based on dwelling mix
Block C-1 (North building, 3 storeys)	6,615 m ²	1,752 m ²	1,752 m ²	1,314 m ²	1,183 m ²	15
Block C-2 (Central building, 3 storeys)	m ²	1,368 m ²	1,368 m ²	1,026 m ²	923 m ²	12
Block C-3 (South building, 3 storeys)	m ²	1,752 m ²	1,752 m ²	1,314 m ²	1,183 m ²	15
Subtotal	6,615 m ²	4,872 m ²	4,872 m ²	3,654 m ²	3,289 m ²	42

Net FSR0.50 : 1

Residential Medium Density					
Block ID No. and description project specific	Block area as measured in CAD	No. of typology as counted	Building envelope per typology	Garage & circulation per typology	Residential GFA 90% of env minus circ
Block C-3 (Residential, Terraces)	m ²	dw	m ²	m ²	m ²
Block C-4 (Residential, Townhouses)	m ²	dw	m ²	m ²	m ²
Block C-5 (Residential, Fourplex)	m ²	dw	m ²	m ²	m ²
Subtotal	m ²	dw	n/a	n/a	m ²

Net FSR0.00 : 1

Other uses (commercial)				
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Commercial GBA 95% of envelope	Commercial GFA 90% of GBA
Block C-6 (Commercial, Workshops)	m ²	m ²	m ²	m ²
Block C-7 (Commercial, Aged care facility)	m ²	m ²	m ²	m ²
Subtotal	m ²	m ²	m ²	m ²

Net FSR0.00 : 1

Non-developable land	
Description project specific	Area as measured in CAD
Open space	m ²
Other (if applicable)	m ²
Roads	1,117 m ²
Subtotal	1,117 m ²

Precinct C GROSS Site Area (from CAD)	7,732 m ²	measure total site area from CAD
Precinct C GROSS Site Area	7,732 m ²	check with above if equal
Precinct C NET Site Area (Developable)	6,615 m ²	check that this shows sum of development blocks only
Precinct C GROSS FSR	0.47 : 1	
Precinct C NET FSR	0.55 : 1	

Development Precinct D

Residential Apartments						
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Residential GBA 100% of envelope	Residential GFA 75% of GBA	"Apartment area" 90% of GFA	No. of apartments based on dwelling mix
Block D-1 (Residential, Apartments)	m ²	m ²	m ²	m ²	m ²	0
Block D-2 (Residential, Apartments)	m ²	m ²	m ²	m ²	m ²	0
Subtotal	m²	m²	m²	m²	m²	0

Net FSR

0.00 : 1

Residential Medium Density					
Block ID No. and description project specific	Block area as measured in CAD	No. of typology as counted	Building envelope per typology	Garage & circulation per typology	Residential GFA 90% of env minus circ
Block D-3 (Terrace corner)	2,640 m ²	2 dw	243 m ²	48 m ²	351 m ²
Block D-4 (Terrace mid)	m ²	8 dw	243 m ²	48 m ²	1,404 m ²
n/a	m ²	dw	m ²	m ²	m ²
Subtotal	2,640 m²	10 dw	n/a	n/a	1,755 m²

Net FSR

0.66 : 1

Other uses (commercial)				
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Commercial GBA 95% of envelope	Commercial GFA 90% of GBA
Block D-6 (Commercial, Workshops)	m ²	m ²	m ²	m ²
Block D-7 (Commercial, Aged care facility)	m ²	m ²	m ²	m ²
Subtotal	m²	m²	m²	m²

Net FSR

0.00 : 1

Non-developable land	
Description project specific	Area as measured in CAD
Open space	m ²
Other (if applicable)	m ²
Roads	698 m ²
Subtotal	698 m²

Precinct D GROSS Site Area (from CAD)	3,338 m ²	measure total site area from CAD
Precinct D GROSS Site Area	3,338 m ²	check with above if equal
Precinct D NET Site Area (Developable)	2,640 m ²	check that this shows sum of development blocks only
Precinct D GROSS FSR	0.53 : 1	
Precinct D NET FSR	0.66 : 1	

Development Precinct E

Residential Apartments						
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Residential GBA 100% of envelope	Residential GFA 75% of GBA	"Apartment area" 90% of GFA	No. of apartments based on dwelling mix
Block E-1 (Residential, Apartments)	m²	m²	m²	m²	m²	0
Block E-2 (Residential, Apartments)	m²	m²	m²	m²	m²	0
Subtotal	m²	m²	m²	m²	m²	0

Net FSR0.00 : 1

Residential Medium Density					
Block ID No. and description project specific	Block area as measured in CAD	No. of typology as counted	Building envelope per typology	Garage & circulation per typology	Residential GFA 90% of env minus circ
Block D-3 (Residential, Townhouse E1)	1,348 m²	8 dw	86 m²	22 m²	461 m²
Block D-4 (Residential, Townhouse E2)	1,589 m²	10 dw	86 m²	22 m²	576 m²
n/a	m²	dw	m²	m²	m²
Subtotal	2,937 m²	18 dw	n/a	n/a	1,037 m²

Net FSR0.35 : 1

Other uses (commercial)				
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Commercial GBA 95% of envelope	Commercial GFA 90% of GBA
Block D-6 (Commercial, Workshops)	m²	m²	m²	m²
Block D-7 (Commercial, Aged care facility)	m²	m²	m²	m²
Subtotal	m²	m²	m²	m²

Net FSR0.00 : 1

Non-developable land	
Description project specific	Area as measured in CAD
Open space	m²
Other (if applicable)	m²
Roads	144 m²
Subtotal	144 m²

Precinct E GROSS Site Area (from CAD)	3,081 m²	measure total site area from CAD
Precinct E GROSS Site Area	3,081 m²	check with above if equal
Precinct E NET Site Area (Developable)	2,937 m²	check that this shows sum of development blocks only
Precinct E GROSS FSR	0.34 : 1	
Precinct E NET FSR	0.35 : 1	

Preferred Option 2

Total GROSS Site Area (from CAD)	21,943 m ²	measure total site area from CAD
Total GROSS Site Area	21,943 m ²	check with above if equal (or very close)
Total NET Site Area	17,096 m ²	check that this shows sum of development blocks only
Total GROSS FSR	0.39 : 1	
Total NET FSR	0.50 : 1	

Development Precinct A

Residential Apartments						
Block ID No. and description	Block area	Building envelope	Residential GBA	Residential GFA	"Apartment area"	No. of apartments
project specific	as measured in CAD	as measured in CAD	100% of envelope	75% of GBA	90% of GFA	based on dwelling mix
Block A-1 (Residential, Apartments)	m ²	m ²	m ²	m ²	m ²	0
Block A-2 (Residential, Apartments)	m ²	m ²	m ²	m ²	m ²	0
Subtotal	m²	m²	m²	m²	m²	0

Net FSR

0.00 : 1

Residential Medium Density					
Block ID No. and description	Block area	No. of typology	Building envelope	Garage & circulation	Residential GFA
project specific	as measured in CAD	as counted	per typology	per typology	100% of enw minus circ
Block A-3 (Residential, Terraces)	m ²	dw	m ²	m ²	m ²
Block A-4 (Residential, Townhouses)	m ²	dw	m ²	m ²	m ²
Block A-5 (Residential, Fourplex)	m ²	dw	m ²	m ²	m ²
Subtotal	m²	dw	n/a	n/a	m²

Net FSR

0.00 : 1

Other uses (commercial)				
Block ID No. and description	Block area	Building envelope	Commercial GBA	Commercial GFA
project specific	as measured in CAD	as measured in CAD	95% of envelope	90% of GBA
Block A-6 (Commercial, Workshops)	m ²	m ²	m ²	m ²
Block A-7 (Commercial, Aged care facility)	m ²	m ²	m ²	m ²
Subtotal	m²	m²	m²	m²

Net FSR

0.00 : 1

Non-developable land	
Description	Area
project specific	as measured in CAD
Open space	1,688 m ²
Other (if applicable)	m ²
Roads	m ²
Subtotal	1,688 m²

Precinct A GROSS Site Area (from CAD)	1,688 m ²	measure total site area from CAD
Precinct A GROSS Site Area	1,688 m ²	check with above if equal
Precinct A NET Site Area (Developable)	m ²	check that this shows sum of development blocks only
Precinct A GROSS FSR	0.00 : 1	
Precinct A NET FSR	0.00 : 1	

Dwelling Mix Option 2

Assumed dwelling mix

Typical dwelling size

1-Bedroom	30%	55 m ²
2-Bedroom	50%	77 m ²
3-Bedroom	20%	99 m ²
Average dwelling size		75 m²

Dwelling Numbers Option 2

Terraces	10
Townhouses	18
Apartments	29

Average dwelling size

57

Site numbers

Total Roads	3,159 m ²
Total Open Space	1,688 m ²
Overall GFA	8,293 m ²

Precincts Diagram



Development Precinct B

Residential Apartments						
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Residential GBA 100% of envelope	Residential GFA 75% of GBA	"Apartment area" 90% of GFA	No. of apartments based on dwelling mix
Block B-1 (West building, 4 storeys)	m ²	m ²	m ²	m ²	m ²	0
Block B-2 (East building, 3 storeys)	m ²	m ²	m ²	m ²	m ²	0
Subtotal	m²	m²	m²	m²	m²	0

Net FSR

0.00 : 1

Residential Medium Density					
Block ID No. and description project specific	Block area as measured in CAD	No. of typology as counted	Building envelope per typology	Garage & circulation per typology	Residential GFA 100% of env minus circ
Block B-3 (Residential, Terraces)	m ²	dw	m ²	m ²	m ²
Block B-4 (Residential, Townhouses)	m ²	dw	m ²	m ²	m ²
Block B-5 (Residential, Fourplex)	m ²	dw	m ²	m ²	m ²
Subtotal	m²	dw	n/a	n/a	m²

Net FSR

0.00 : 1

Other uses (commercial)				
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Commercial GBA 95% of envelope	Commercial GFA 90% of GBA
Block B-6 (Commercial, Workshops)	m ²	m ²	m ²	m ²
Block B-7 (Commercial, Aged care facility)	4,904 m ²	3,610 m ²	3,430 m ²	3,249 m ²
Subtotal	4,904 m²	3,610 m²	3,430 m²	3,249 m²

Net FSR

0.66 : 1

Non-developable land	
Description project specific	Area as measured in CAD
Open space	m ²
Other (if applicable)	m ²
Roads	1,200 m ²
Subtotal	1,200 m²

Precinct B GROSS Site Area (from CAD)	6,260 m ²	measure total site area from CAD
Precinct B GROSS Site Area	6,104 m ²	check with above if equal
Precinct B NET Site Area (Developable)	4,904 m ²	check that this shows sum of development blocks only
Precinct B GROSS FSR	0.53 : 1	
Precinct B NET FSR	0.66 : 1	

Development Precinct C

Residential Apartments						
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Residential GBA 100% of envelope	Residential GFA 75% of GBA	"Apartment area" 90% of GFA	No. of apartments based on dwelling mix
Block C-1 (North building, 5 storeys)	6,615 m ²	1,128 m ²	1,128 m ²	846 m ²	761 m ²	10
Block C-2 (Central building, 4 storeys)	m ²	1,080 m ²	1,080 m ²	810 m ²	729 m ²	9
Block C-3 (South building, 4 storeys)	m ²	1,128 m ²	1,128 m ²	846 m ²	761 m ²	10
Subtotal	6,615 m ²	3,336 m ²	3,336 m ²	2,502 m ²	2,252 m ²	29

Net FSR0.34 : 1

Residential Medium Density					
Block ID No. and description project specific	Block area as measured in CAD	No. of typology as counted	Building envelope per typology	Garage & circulation per typology	Residential GFA 100% of env minus circ
Block C-3 (Residential, Terraces)	m ²	dw	m ²	m ²	m ²
Block C-4 (Residential, Townhouses)	m ²	dw	m ²	m ²	m ²
Block C-5 (Residential, Fourplex)	m ²	dw	m ²	m ²	m ²
Subtotal	m ²	dw	n/a	n/a	m ²

Net FSR0.00 : 1

Other uses (commercial)				
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Commercial GBA 95% of envelope	Commercial GFA 90% of GBA
Block C-6 (Commercial, Workshops)	m ²	m ²	m ²	m ²
Block C-7 (Commercial, Aged care facility)	m ²	m ²	m ²	m ²
Subtotal	m ²	m ²	m ²	m ²

Net FSR0.00 : 1

Non-developable land	
Description project specific	Area as measured in CAD
Open space	m ²
Other (if applicable)	m ²
Roads	1,117 m ²
Subtotal	1,117 m ²

Precinct C GROSS Site Area (from CAD)	7,732 m ²	measure total site area from CAD
Precinct C GROSS Site Area	7,732 m ²	check with above if equal
Precinct C NET Site Area (Developable)	6,615 m ²	check that this shows sum of development blocks only
Precinct C GROSS FSR	0.32 : 1	
Precinct C NET FSR	0.38 : 1	

Development Precinct D

Residential Apartments						
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Residential GBA 100% of envelope	Residential GFA 75% of GBA	"Apartment area" 90% of GFA	No. of apartments based on dwelling mix
Block D-1 (Residential, Apartments)	m ²	m ²	m ²	m ²	m ²	0
Block D-2 (Residential, Apartments)	m ²	m ²	m ²	m ²	m ²	0
Subtotal	m²	m²	m²	m²	m²	0

Net FSR

0.00 : 1

Residential Medium Density					
Block ID No. and description project specific	Block area as measured in CAD	No. of typology as counted	Building envelope per typology	Garage & circulation per typology	Residential GFA 90% of env minus circ
Block D-3 (Terrace corner)	2,640 m ²	2 dw	243 m ²	48 m ²	351 m ²
Block D-4 (Terrace mid)	m ²	8 dw	243 m ²	48 m ²	1,404 m ²
n/a	m ²	dw	m ²	m ²	m ²
Subtotal	2,640 m²	10 dw	n/a	n/a	1,755 m²

Net FSR

0.66 : 1

Other uses (commercial)				
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Commercial GBA 95% of envelope	Commercial GFA 90% of GBA
Block D-6 (Commercial, Workshops)	m ²	m ²	m ²	m ²
Block D-7 (Commercial, Aged care facility)	m ²	m ²	m ²	m ²
Subtotal	m²	m²	m²	m²

Net FSR

0.00 : 1

Non-developable land	
Description project specific	Area as measured in CAD
Open space	m ²
Other (if applicable)	m ²
Roads	698 m ²
Subtotal	698 m²

Precinct D GROSS Site Area (from CAD)	3,338 m ²	measure total site area from CAD
Precinct D GROSS Site Area	3,338 m ²	check with above if equal
Precinct D NET Site Area (Developable)	2,640 m ²	check that this shows sum of development blocks only
Precinct D GROSS FSR	0.53 : 1	
Precinct D NET FSR	0.66 : 1	

Development Precinct E

Residential Apartments						
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Residential GBA 100% of envelope	Residential GFA 75% of GBA	"Apartment area" 90% of GFA	No. of apartments based on dwelling mix
Block E-1 (Residential, Apartments)	m ²	m ²	m ²	m ²	m ²	0
Block E-2 (Residential, Apartments)	m ²	m ²	m ²	m ²	m ²	0
Subtotal	m²	m²	m²	m²	m²	0

Net FSR

0.00 : 1

Residential Medium Density					
Block ID No. and description project specific	Block area as measured in CAD	No. of typology as counted	Building envelope per typology	Garage & circulation per typology	Residential GFA 90% of env minus circ
Block E-3 (Residential, Townhouse E1)	1,348 m ²	8 dw	86 m ²	22 m ²	461 m ²
Block E-4 (Residential, Townhouse E2)	1,589 m ²	10 dw	86 m ²	22 m ²	576 m ²
n/a	m ²	dw	m ²	m ²	m ²
Subtotal	2,937 m²	18 dw	n/a	n/a	1,037 m²

Net FSR

0.35 : 1

Other uses (commercial)				
Block ID No. and description project specific	Block area as measured in CAD	Building envelope as measured in CAD	Commercial GBA 95% of envelope	Commercial GFA 90% of GBA
Block E-6 (Commercial, Workshops)	m ²	m ²	m ²	m ²
Block E-7 (Commercial, Aged care facility)	m ²	m ²	m ²	m ²
Subtotal	m²	m²	m²	m²

Net FSR

0.00 : 1

Non-developable land	
Description project specific	Area as measured in CAD
Open space	m ²
Other (if applicable)	m ²
Roads	144 m ²
Subtotal	144 m²

Precinct E GROSS Site Area (from CAD)	3,081 m ²	measure total site area from CAD
Precinct E GROSS Site Area	3,081 m ²	check with above if equal
Precinct E NET Site Area (Developable)	2,937 m ²	check that this shows sum of development blocks only
Precinct E GROSS FSR	0.34 : 1	
Precinct E NET FSR	0.35 : 1	

