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Defence Housing Australia

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Urban Design and Landscape Report

Former Rifle Range, Fern Bay Popplewell Road, Fern Bay





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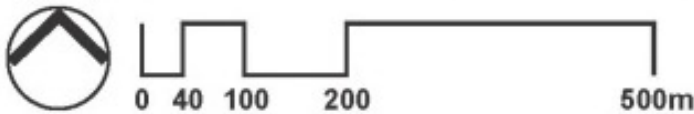
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SITE AND IMMEDIATE CONTEXT



Aerial showing the 115 ha Rifle Range site
Source: Nearmap



Executive summary

This Urban Design and Landscape Report is to accompany the Former Rifle Range Poppelwell Road, Fern Bay Planning Proposal to Port Stephens Council.

This report has been prepared by Architectus for Defence Housing Australia, the owner of the Former Rifle Range site at Fern Bay. The purpose of this report is to test the preferred urban design concepts to accompany the planning proposal to demonstrate typical street layouts, dwelling mix and development impact on the highly sensitive coastal site.

The objective of this study is to highlight key relevant issues to be addressed as part of the future master plan for the site. Key issues concerning the sites are:

- coastal dune location
- bushfire
- ecology
- indigenous heritage
- heritage
- access

The Fern Bay Rifle Range site is one of two sites on the Stockton Peninsula owned by Defence Housing Australia seeking amendments to their respective Local Environmental Plans (LEP) through a Planning Proposal. The other site being the Fort Wallace site located 2 km south of the Rifle Range. The Rifle Range and Fort Wallace sites are located in separate local government areas, being Port Stephens and Newcastle City respectively. Accordingly, a separate Planning Proposal and accompanying master plan and Urban Design Report will be submitted to each Council in order to amend the different LEPs.

The sites

The Fort Wallace and Fern Bay Rifle Range sites are located on the Stockton peninsula approximately 5km and 7km north of Newcastle CBD respectively. Although, relatively close to Newcastle, they are separated by the Hunter River with road access to Newcastle via the Stockton Bridge and ferry access between Newcastle and Stockton at the southern tip of the peninsula. Both sites have great amenity being located between Stockton Beach and the Hunter River.

The vision

The vision is to create a new place for the public and future residents to enjoy without compromising the site's unique history and coastal landscape character. The following planning and design principles underpin any future development of the site:

1. Touch lightly on the land
2. Embrace the coastal ecology
3. Celebrate history and cultural heritage
4. Open the gates to the public
5. Utilise interesting architectural forms

An indicative master plan has been developed (and included within this report) that embodies these best practice planning and design principles.



Site location plan showing both Defence Housing Australia sites - Fort Wallace to the south is within a separate local government area (Newcastle City Council) and is subject to a separate Planning Proposal.

Master Plan Vision -

“Stockton Rifle Range and Fort Wallace will be unique coastal communities with strong links to Newcastle CBD and a growing Hunter region.

The communities will be a place where the natural coastal landscape prevails over the built environment and a rich layer of cultural heritage is celebrated and made accessible to the public.

New buildings will be contemporary in design and character, with references to traditional coastal forms and materiality. Development will ‘touch lightly’ on the ground and minimise impacts on the site.”



Character images

Indicative Landscape Master Plan



- LEGEND**
- 01/ Extended road network from existing neighbourhood
 - 02/ Cluster Homes
 - 03/ Single Eco Home
 - 04/ Courtyard Homes
 - 05/ Townhouses
 - 06/ Dune Apartments
 - 07/ Central access spine (shared path)
 - 08/ Shared path to dunes
 - 09/ Vegetated detention basin
 - 10/ Community park
 - 11/ Potential play area
 - 12/ Firetrail / bushwalk
 - 13/ Dune boardwalk
 - 14/ Dune access car park
 - 15/ Worimi Conservation Lands

ARTIST'S IMPRESSION OF THE PROPOSED DEVELOPMENT

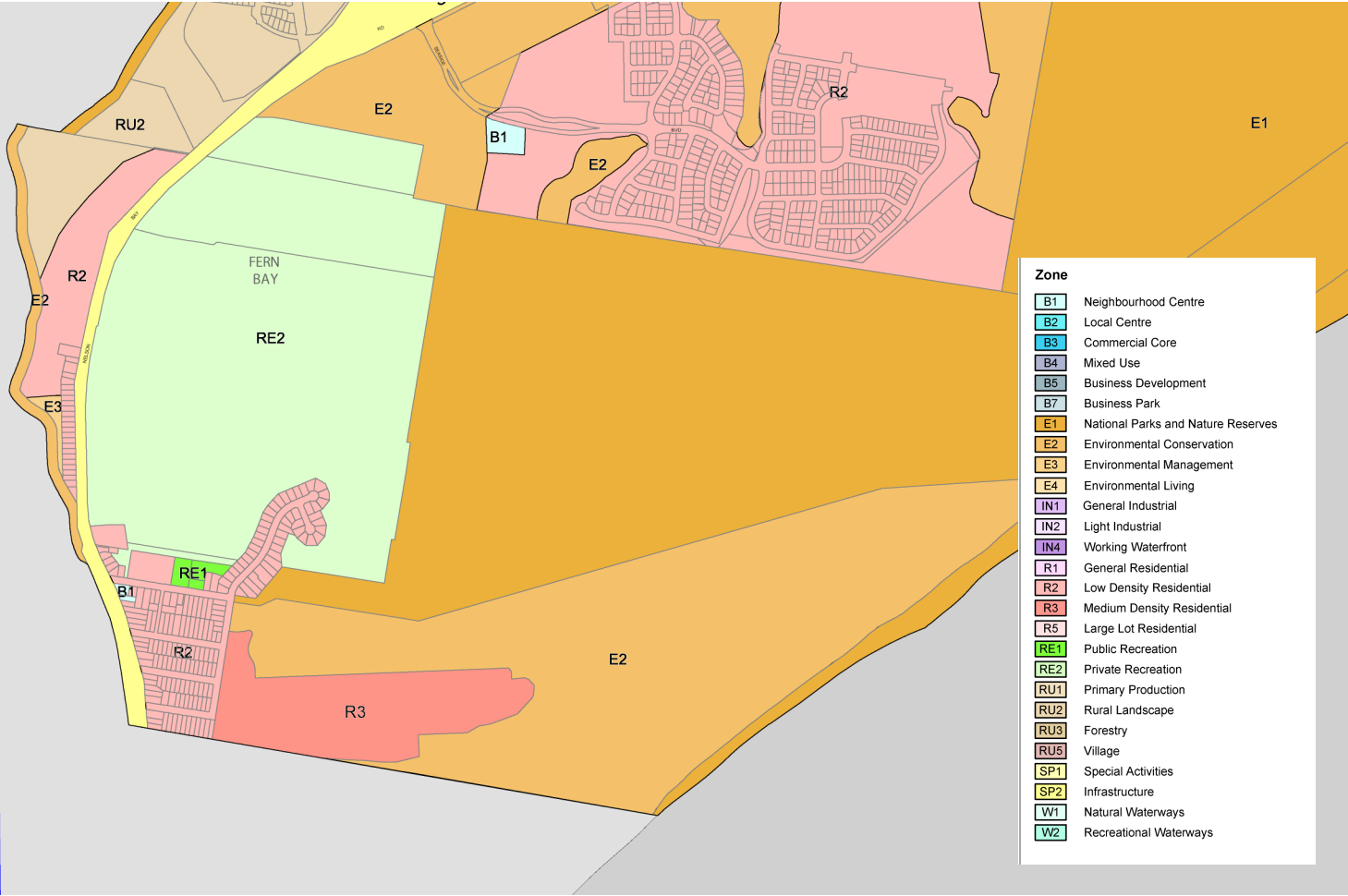


Proposed LEP Mapping

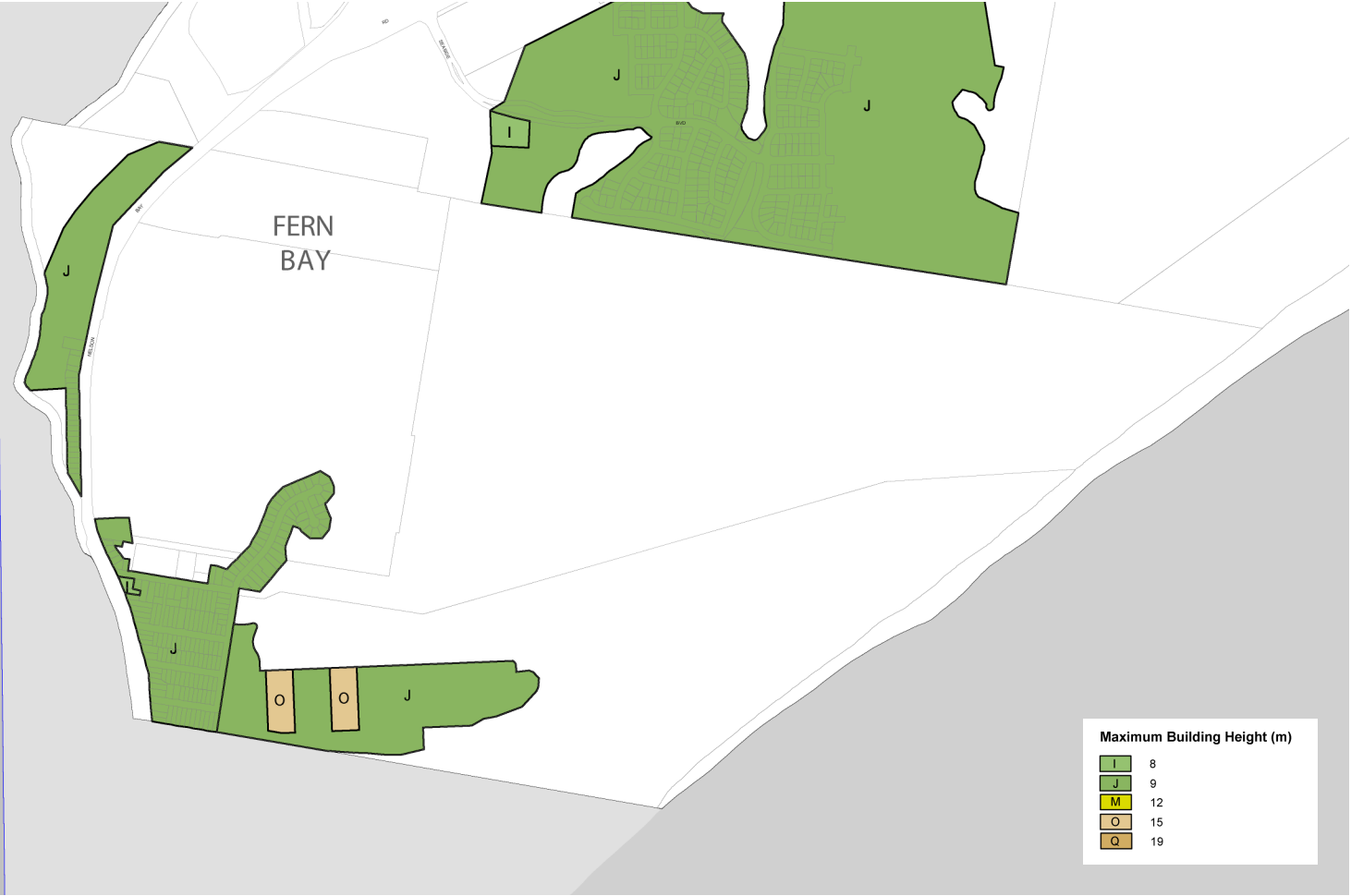
The proposed LEP controls are intended to strike the right balance between development and conservation of the site’s significant features. Sensitive ecological communities, heritage items and vulnerable coastal lands are proposed to be protected and enhanced, whilst the flatter, mostly featureless parts of the site are to be made available for housing and community amenities. Through new development, the historic site can be opened up to the public, new open space can be provided and degraded relics and vegetation communities can be restored.

An amended lot size map is also proposed to reflect the indicative master plan.

MAP 1 - Proposed Land Zoning Map



MAP 2 - Proposed Height of Buildings Map





Introduction



THE SITE IS PART OF THE STOCKTON PENINSULA,
WITH THE TOWN CENTRE OF STOCKTON SITING
ON THE HEADLAND LOCATED APPROXIMATELY
4.5KM TO THE SOUTH.

1.1.1 The site

The Rifle Range site is approximately 115 hectares in area and is located on the Stockton Peninsula approximately 7km north of Newcastle CBD. Much of the eastern half of the site is taken up by the extensive dune system behind Stockton Beach, however, there are strong traces within the landscape of its former use as a rifle range.

Fern Bay Rifle Range is within Port Stephens LGA.

The site is accessible from its west via Popplewell Road which links back to Newcastle via Nelson Bay Road across the Hunter River.

The site is bound by the Worimi Conservation Lands to the north, the Stockton Centre and Stockton Cemetery to the south, existing residential subdivision to the west and Stockton Beach and dune system to its east.

Key site features include:

- Historically used as a rifle range with the operational layout of the firing mounds still evident.
- The site topography is characterised by a large flat areas previously used as the range with steep dunes that block views to the east and low lying areas of regrowth to the north.
- Larger areas of remnant vegetation regrowth to the north of the site bordering the Worimi Conservation Lands and to the south bordering the Stockton Centre.

1.1.2 Purpose of this report

This report has been prepared by Architectus on behalf of Defence Housing Australia (DHA) for land at 14 Popplewell Road, Fern Bay, known as the Rifle Range site.

The site was formerly owned and utilised by Defence for training and has, at some points in its history, been open for public uses. The site is no longer required for Defence purposes and was purchased by DHA. The purpose of this report is to prepare concept options for the site that test the site's development potential in line with its changing uses and vision for the future of the site.

The concept options developed are intended to inform a planning proposal to Port Stephens Council by demonstrating the capacity of the site to accommodate development while responding to the site constraints.

1.1.3 Objectives of the master plan

Objectives of the master plan are:

- facilitate housing for defence personnel;
- provide a scheme that is supported by stakeholders;
- protect and improve the ecological condition of the site;
- create a master plan that provides public benefit eg. public parks, beach access, cycleways;
- provide a mix of dwelling types that will meet a variety of housing needs;
- locate density on already scarred landscape (minimise building in bush);

- provide housing types that sit lightly within the landscape;
- connect to the great open space network from the mountains to the sea;
- connect with and extend the great coastal walks of Newcastle eg. Merewether Baths/Anzac Memorial Walk/ Fort Scratchley;
- manage bushfire and APZs.

1.1.4 The team

This report was prepared in consultation with a team of technical specialist consultants in order to understand the site opportunities and constraints in detail.

The team included:

- Spackman Mossop Michaels, landscape architecture;
- Umwelt, ecological advice and indigenous heritage;
- Klienfelder, bushfire advice;
- Urbis, european heritage;
- BMT WBM, coast engineering advice;
- ADW Johnson, civil engineering;
- Better Transport Futures, traffic and transport; and
- Elton Consulting, community consultation.

Architectus worked collaboratively with specialists to ensure that the concept master plan was informed and feasible. Detailed reports from these consultants are provided as part of the Planning Proposal to Council.



To Maitland

Thornton

To Raymond Terrace

RAAF
Williamstown

To
Port Stephens

To Sydney

University of Newcastle

Kooragang

Fern Bay

RIFLE RANGE

Stockton Centre

FORT WALLACE

Waratah

Stockton

Newcastle CBD

Broadmeadow

Wickham

Adamstown

Merewether

Cardiff

Kotara

To Sydney

To Charlestown

THE SITE IS IN CLOSE PROXIMITY TO THE AMENITY AND SERVICES OF STOCKTON AND THE NEWCASTLE CBD. THE SITE IS ALSO WELL LOCATED TO THE WILLIAMTOWN RAAF BASE.

2.1 Site analysis

A comprehensive analysis of the site, its context, constraints and opportunities has been undertaken to inform development potential and a framework from which the master plan was developed. The following analysis underpins the structure of the master plan and identifies more broadly the developable and undevelopable areas on this highly ecologically sensitive site. The extensive analysis ranges from broad contextual analysis to detailed site analyses.

Contextual analysis includes:

- Environmental context
- Coastal processes
- Local context and destinations
- Transport
- Open space network

Detailed site analysis looks at:

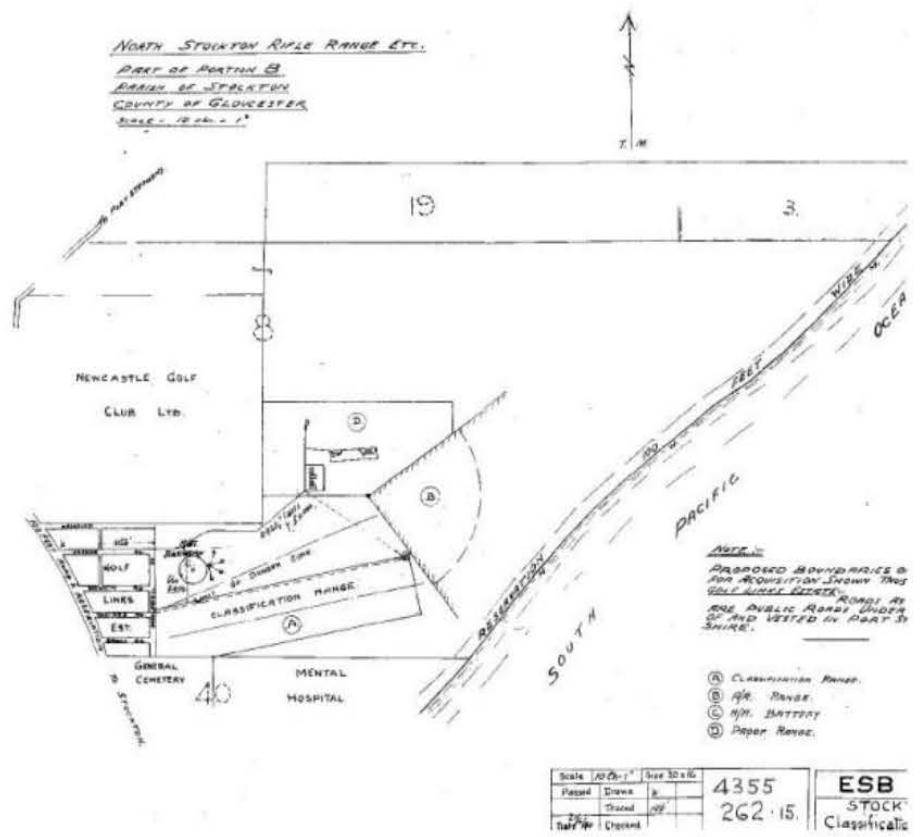
- Topography
- Ecology
- Landscape
- Coastal erosion
- Heritage
- Access and circulation
- Views
- Built form

The key site analysis findings are condensed into a combined constraints and opportunities diagram. Further detail regarding site analysis is provided in separate consultant reports undertaken specifically for this planning and urban design process.

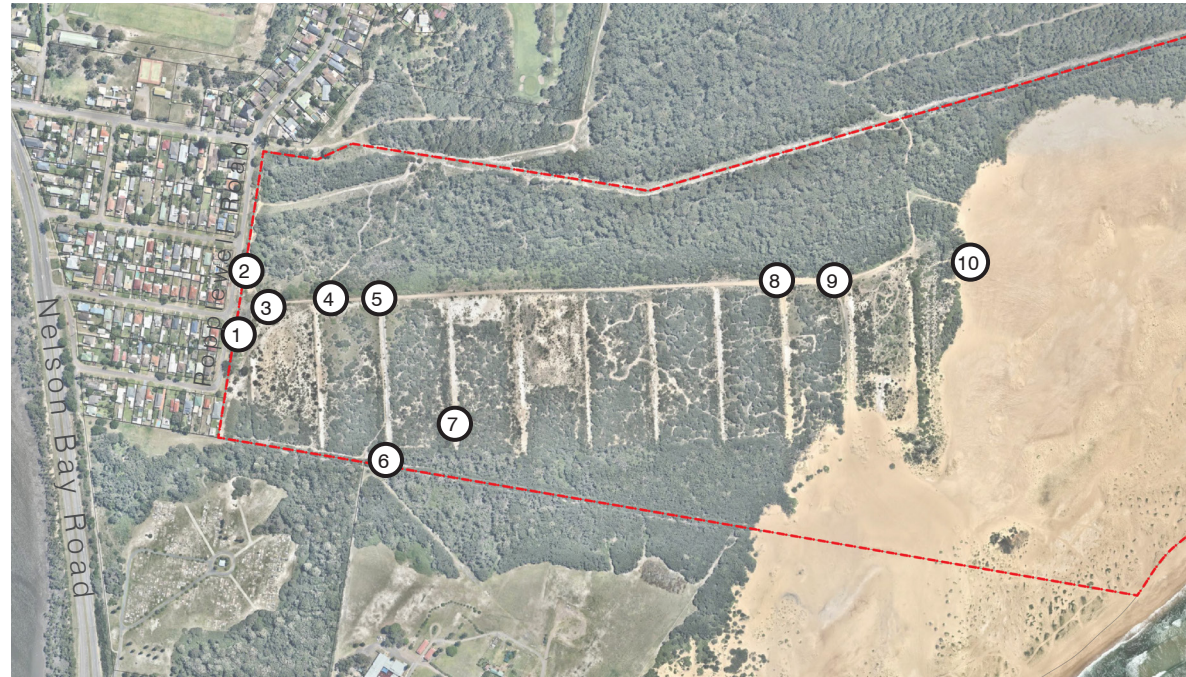
2.2 Existing built form

There is little existing built form on the site from the historical use of the site by Defence. Items include part of the Anti-Aircraft Battery; Links Battery and firing markers. The operational layout of the firing mounds is still evident.

The location of each item has been surveyed as part of the Urbis site heritage study.



Site photographs



1 Fencing to site frontage on Popplewell Rd



2 Looking south along Popplewell Rd



3 Looking east along the alignment of the old range



4 Looking west back to site access on Popplewell Road



5 Looking into the bush areas north of the old range



6 Informal track along southern site boundary



7 Looking north along an old firing mound



8 Looking west along the alignment of the old range



9 Looking north towards the old stop butt and dunes



10 View from the top of the dunes south across Stockton Beach towards Newcastle

2.3 Stockton Peninsula History

Aboriginal Heritage

The Stockton Peninsula was originally the land of the Worimi Tribe, who knew this place as “Burrinbingon”. Evidence of Aboriginal occupation is available throughout the region, extending back several tens of thousands of years. A series of Aboriginal archaeological and cultural / historical sites are situated along the peninsula, and are now known as the “Fern Bay Complex”. These sites indicate traditional Aboriginal hunting, fishing, and cultural activities occurring throughout this area.

European Heritage

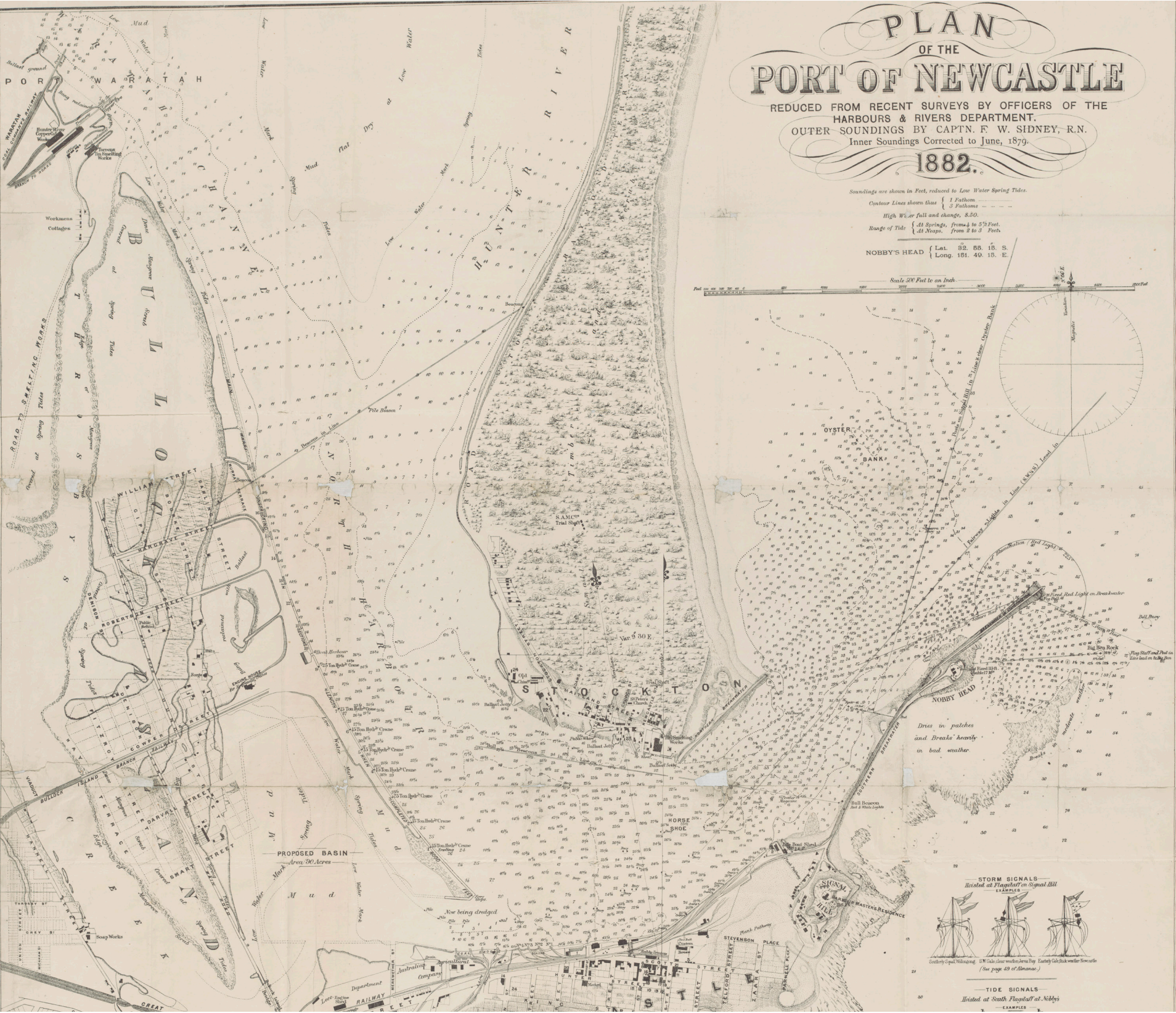
Lieutenant John Shortland stumbled upon Newcastle Harbour and the Hunter River while searching for escaped convicts in 1797. He named the Stockton Peninsula “Point Kent”.

From October 1800, Stockton became known as “Pirate Point”, when convicts escaping from Broken Bay in the Norfolk were wrecked on the southern point of the peninsula.

Newcastle was settled in June 1801, closed in February 1802 and later resettled in March 1804. From this time onwards, parts of the peninsula were granted to settlers, with the southernmost end of the peninsula generally becoming known as the “Private Township of Stockton”. Early industries in this area included saw milling, lime burning, salt works, an iron foundry, a tweed mill, a chemical plant, a tin smelter, coal mining, and ship building.

The Stockton residential suburb emerged from subdivisions made by the State Government in 1887. Vehicular and passenger ferries provided the only means of access across the harbour (aside from a long journey inland via Hexam) until the Stockton Bridge opened in 1971.

While the Stockton Peninsula may now be considered as the northern suburbs of Newcastle, it has its own distinctive seaside character.



Plan of the Port of Newcastle, National Library of Australia
<http://nla.gov.au/nla.obj-231510237/view>

2.4 Rifle Range

Aboriginal Heritage

The Rifle Range site has eight recorded sites of Aboriginal heritage: six on the mobile dune to the east side of the range (subsequently destroyed by sand mining activities), and two extant sites of scattered stone artefacts in the central portion of the range. It is possible that there are further Aboriginal archaeological deposits, including burials, on the site.

It is recommended that the following development principles are adopted:

- Restrict development in vegetated portion to south of the site, allowing a buffer to the Stockton Hospital and Cemetery.
- Avoid development in the northern vegetated portion of the site as this area has the highest archaeological potential.
- Investigate the possibility of minimising excavation works within the site in order to reduce potential to interact with sub-surface deposits.
- Consideration of Aboriginal cultural heritage awareness through interpretive signage, sympathetic plantings, use of open space etc. to recognise/promote heritage values.
- Aboriginal party consultation will need to be undertaken with reference to cultural values (outside archaeology).

European Heritage

The site remained undeveloped until range construction began in 1939-40, although the site was not formally acquired by the Commonwealth until 1942. The dunes and ocean were utilised as a safe background area, but nevertheless, substantial earthworks were required to develop the range's topography that exists today.

Constructed just prior to and during WWII, Fern Bay Rifle Range was a firing range used by military personnel due to the demand for shooting that could not be met by Adamstown Rifle Range. The range was constructed as a classification range of 50 targets in a concrete gallery,

firing mound at 900 yards, a telephone service, wind flags, storage facilities and a workshop.

The site has no associated heritage listings on any level. However, it does comprise two items with some heritage significance: the Anti-Aircraft battery and the remnants of the 1000 yard Rifle Range which constitutes cleared access ways from the central road at 100 yard intervals which are now overgrown.

The remnant Links Battery located to the north of the classification range was completed around 1940. The Links Battery comprised four Vickers 3.7 inch anti-aircraft guns. It consisted of four gun emplacements and a central command post in a standard layout. The battery contributed to the Newcastle Fortress coastal defence system against air bombardment and particularly to protect Fort Wallace.

A series of upgrades were undertaken from 1942 as a result of the arrival of two new types of fighter planes from Britain which were ordered to oppose the Japanese over Darwin. These planes utilised 20mm Hispano Cannons. New firing ranges were required to test these weapons and in response the Stockton range was equipped with a 20mm Accuracy Range.

After the war the Rifle Range was used for military, police, cadets, and civilian club rifle training until the range was closed in 1997. Mining of sand from the dunes took place from the 1950s until the present.

Opportunities for Future Uses

While the Rifle Range site has significant historic associations, the historic remains on site are in poor condition. There is the potential for the retention of undisturbed bushland areas for their spiritual context (aside from their ecological value), for heritage interpretation, and potentially for the structural pattern of the range to be incorporated in the master plan.

Images of parts of the Anti-Aircraft battery. (Source: GML)





Strategic planning framework and controls

3 Strategic planning context

3.1 Hunter Regional Plan

Architectus on behalf of Defence Housing Australia (DHA) prepared a submission on 23 March 2016 to the NSW Draft Hunter Regional Plan (DHRP) and Draft Plan for Growing Hunter City (DPGHC) 2015.

The DHRP sets out a 20-year plan prioritising the growing and diversifying of the Hunter economy as NSW's largest regional economy, and identifies subregional landscapes being the Western Hunter, Northern Tops, North East Coast and Hunter City (including Inner Newcastle) districts.

The DPGHC supplements the Regional Plan and follows the 20-year time frame, reinforcing the City as the gateway to the region by capitalising on assets for greater growth via its identified districts, Inner Newcastle, Inner West, Maitland-New England Highway Corridor, Northern Gateways and Northern Lake Macquarie.

The Stockton Rifle Range site (Port Stephens LGA, currently zoned E2 – Environmental Conservation) also has significant redevelopment potential. In both studies, the area is shown as 'Non-Urban Area' which may have the effect of precluding a future rezoning of the site. It was recommended that both plans show the site as 'Urban Area' or "Urban Area – For Investigation" to make way for the full assessment of the site's redevelopment potential.

The Fort Wallace site (Newcastle LGA, currently zoned SP2 - Defence) is shown as an 'Urban Area' in the DHRP, but as 'Non-Urban Area' in the DPGHC. It was submitted that the site's potential for renewal be recognised and shown as 'Urban Area' consistently in both documents.

Additionally, it was recommended that the Department of Planning and Environment consider the inclusion of both DHA sites within the Inner Newcastle District to recognise their strategic and visual relationship with the city and their potential to contribute to the goals for Hunter City.

Map showing extended 'Inner Newcastle District'



3.2 Port Stephens Planning Strategy (PSPS) 2011

Areas identified as Fern Bay - Fullerton Cove, to the north and west of the Rifle Range, have been identified as future growth areas within the Strategy. This area, including the subject sites, comprise the Eastern Growth Corridor identified within strategic planning for Port Stephens. The area has been recommended to increase in density over the next 15-20 years since the Strategy's release, with potential for:

42 infill residential dwellings; and

1,396 dwellings within green field residential zoned land.

The Strategy also recommends the opportunity to maximise access to existing infrastructure through density increases.

As the suburb (of Stockton or Fern Bay) is among the LGA's small centres with no available commercial floorspace, the need for commercial rezoning has also been identified.

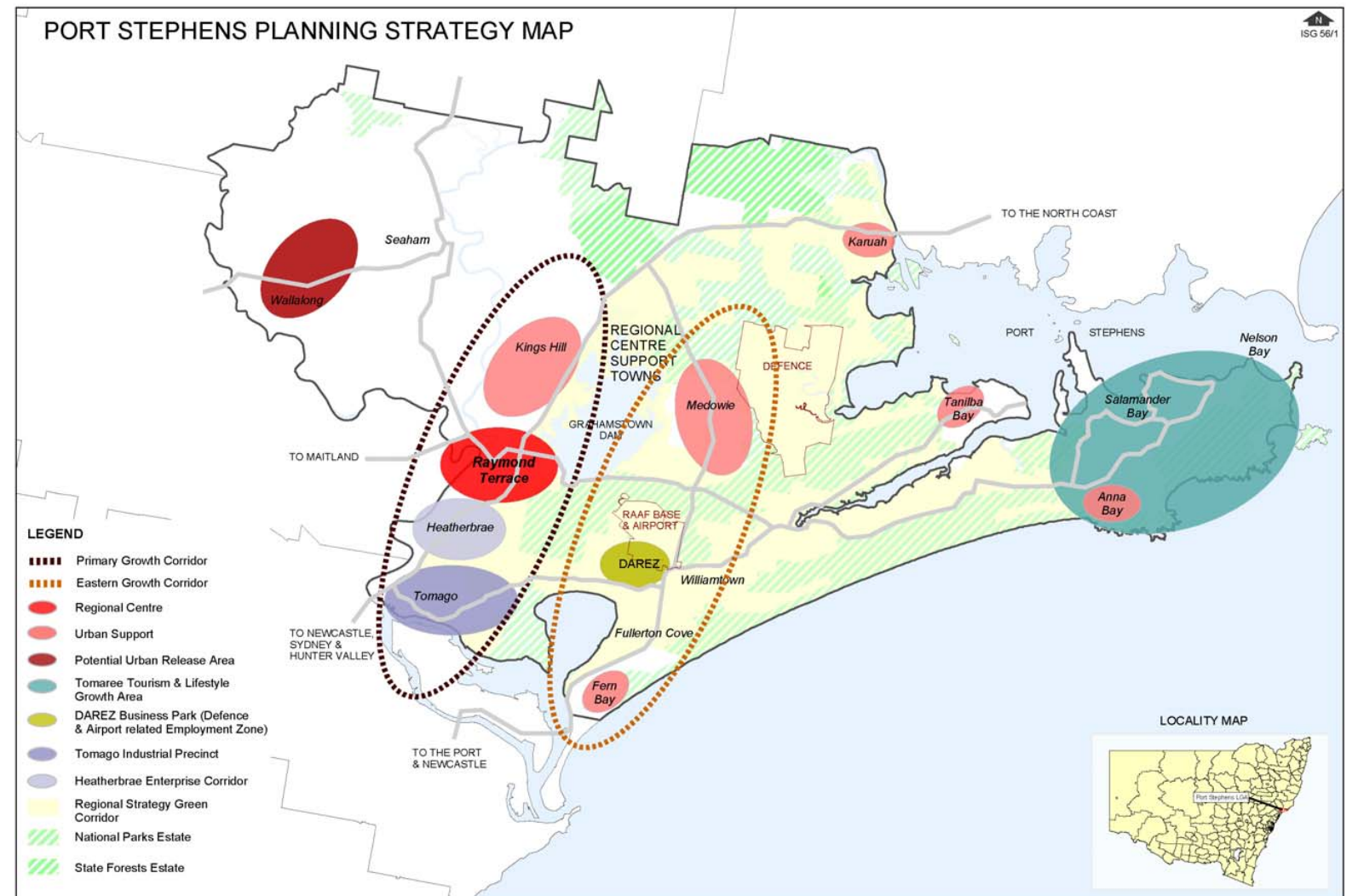
The Strategy predicts a need for an indicative 14,441 additional dwellings throughout the LGA, including infill and within rural areas.

3.3 Port Stephens Commercial and Industrial Lands Study

Fern Bay has been highlighted as one of the small centres within Port Stephens that will experience greater residential growth. It has been recommended within the Study for rezoning from 2A Residential to B1 Neighbourhood Centre. In consideration of the Newcastle Centre across the peninsula to the south, this is to accommodate the day-to-day needs of the local residents.

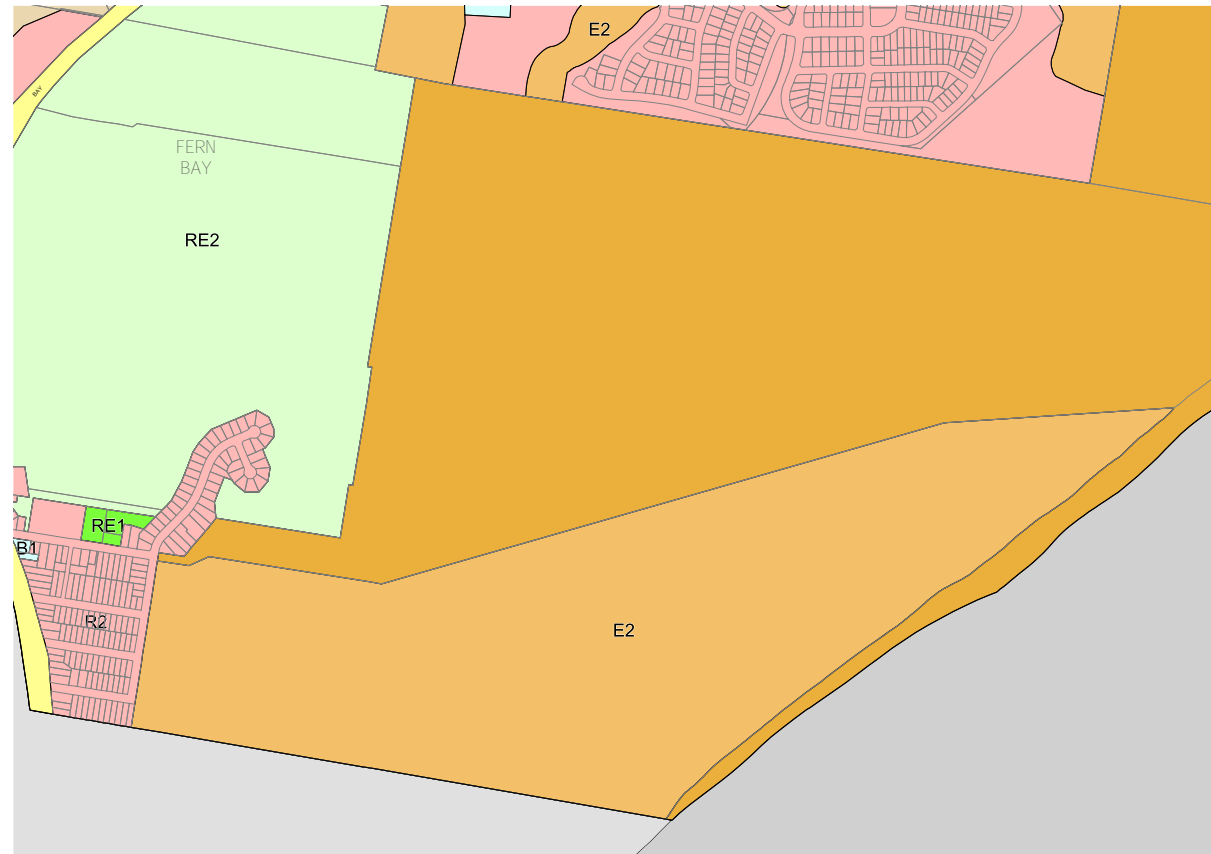


PSPS 2011 - Fern Bay - Fullerton Cove - Future Growth Area. The site is in close proximity to these future growth areas.



PSPS 2011 - Port Stephens Planning Strategy Map. The site is part of the Eastern Growth Corridor.

4 Local planning context



Land Zoning Map, Port Stephens LEP 2013

The subject site is zoned E2 Environmental Conservation. The E2 zone permits dwelling houses and dual occupancies. The beach to the east and large lots to the north are zoned E1 National Parks and Nature Reserves.

Land to the west is zoned R2 Low Density Residential, with some areas of public and private recreation.

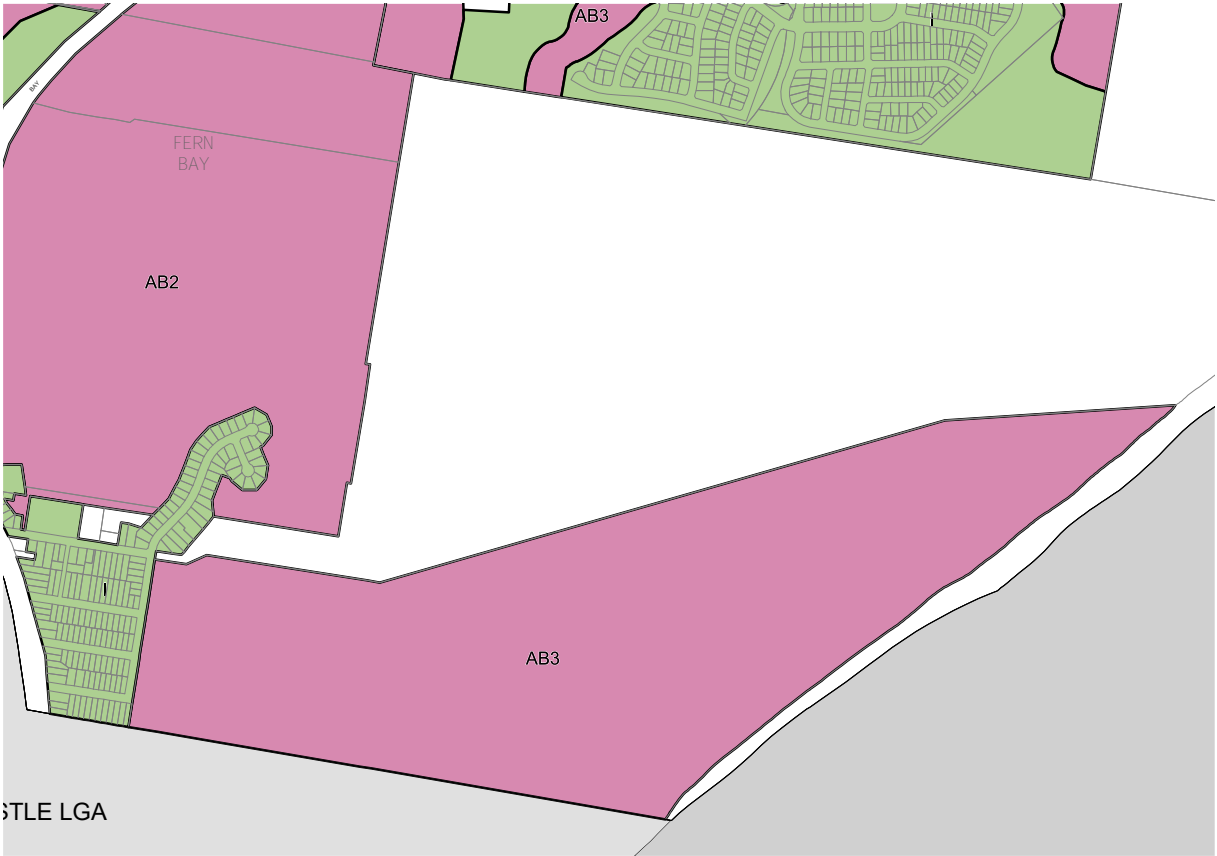
B1	Neighbourhood Centre
B2	Local Centre
B3	Commercial Core
B4	Mixed Use
B5	Business Development
B7	Business Park
E1	National Parks and Nature Reserves
E2	Environmental Conservation
E3	Environmental Management
E4	Environmental Living
IN1	General Industrial
IN2	Light Industrial
IN4	Working Waterfront
R1	General Residential
R2	Low Density Residential
R3	Medium Density Residential
R5	Large Lot Residential
RE1	Public Recreation
RE2	Private Recreation
RU1	Primary Production
RU2	Rural Landscape
RU3	Forestry
RU5	Village



Height of Buildings Map, Port Stephens LEP 2013

The subject site has no maximum height of buildings control. The adjoining residential areas are subject to a maximum height of J 9m.

I	8
J	9
M	12
O	15
Q	19



The minimum lot size applicable to the subject site is AB3 40ha. The adjoining residential areas are zoned I 500sqm.

B	200
F	400
G	450
I	500
M	600
Q	700
T	900
U	1000
V	2000
W	4000
Y	1 ha
Z1	2 ha
Z2	4 ha
AB1	10 ha
AB2	20 ha
AB3	40 ha



Site analysis

THE SITE'S WESTERN INTERFACE WITH POPPLEWELL ROAD



5.1 Purpose and scope

The project team has undertaken a thorough study of the physical site and its history in order to understand the site's unique and special characteristics. This examination has included site walks, document research and desktop review, site mapping, future projections relating to climate change and other studies by a range of specialist consultants.

Properly understanding the site is a crucial step in ensuring the creation of a sensitive, site-responsive and sustainable master plan. By clearly identifying the site's constraints and opportunities we are able to conserve areas of the site that are of special environmental and cultural value, and areas that could be suitable for new development, which could include public open space and amenities, streets, housing or other physical changes to the existing site.

The detailed site analysis includes:

- Topography
- Ecology
- Landscape
- Coastal erosion
- Heritage
- Access and circulation
- Views
- Built form

The detail of these analysis are presented in seperate consultant reports. This section summarises technical inputs where relevant to the recomend master plan for the site.



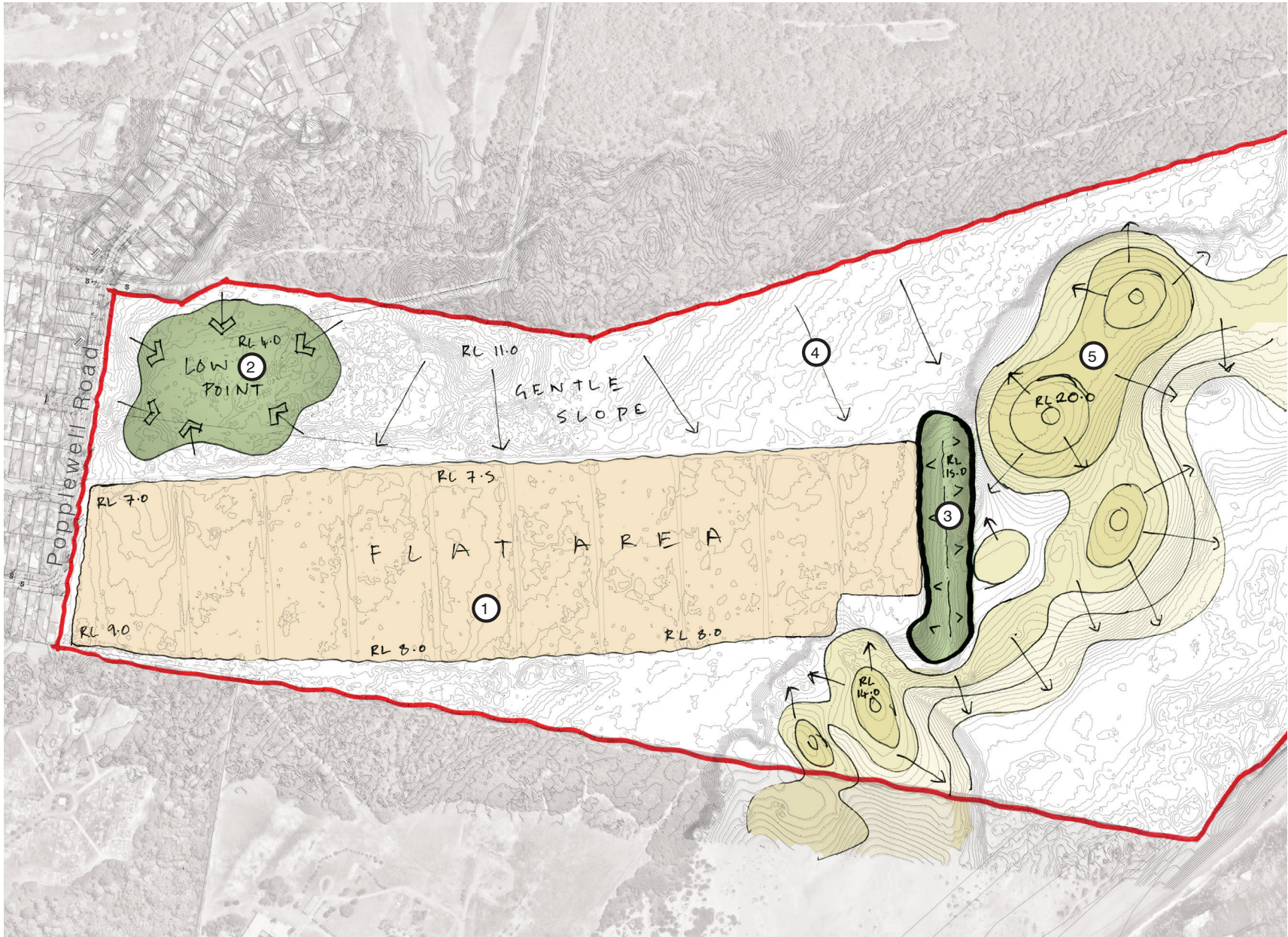
Aerial view of the site

SITE INTERFACE WITH POPPLEWELL ROAD





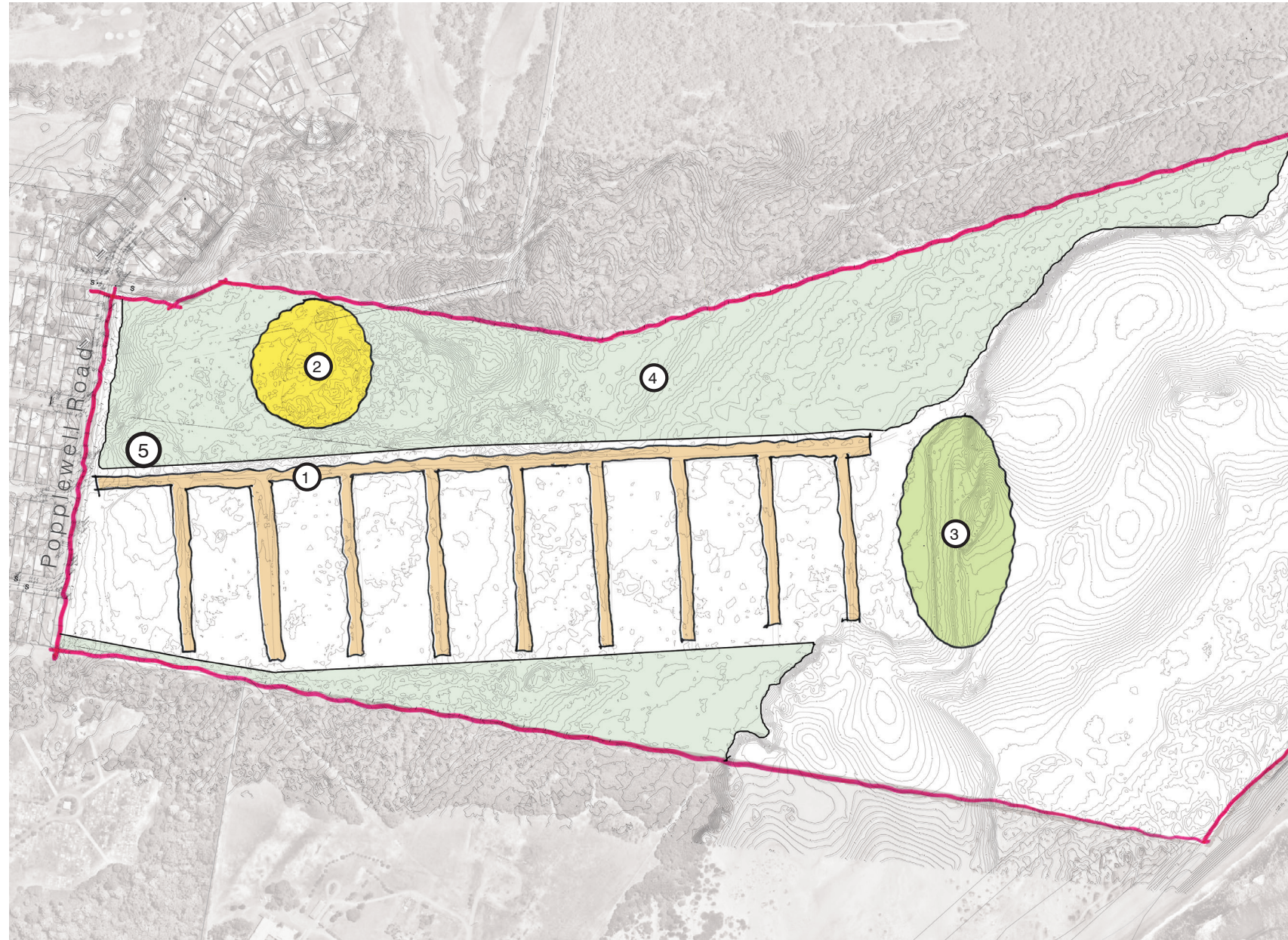
5.2 Topography



- ① Large, partially open flat area formed by remnant rifle range provides opportunity to accommodate residential development.
- ② Vegetated low point in north-west corner of the site - potential opportunity to accommodate drainage feature.
- ③ Large mound/'Stop Butt' to east of the site provides a visual and physical barrier to the dunes and beach.
- ④ Northern vegetated portion of the site slopes gently toward the flat rifle range ground.
- ⑤ Existing dunes to Stockton Beach rise approximately 12m from the Rifle Range. These are transient landforms that may require some vegetated stabilisation adjacent to any new development.



5.3 Heritage



- ① Consider the set-out of the old firing mounds as a heritage item for interpretation.
- ② Potential restoration, access and interpretation of the remnant anti aircraft battery.
- ③ Consider the heritage and interpretation opportunities associated with the range stop butt and remnant target facilities.
- ④ Buffer zone to the north of the old range to protect areas of archaeological potential.
- ⑤ Buffer zone adjacent to Popplewell Road to protect areas of Aboriginal archaeological potential.

Refer to the Urbis heritage report.



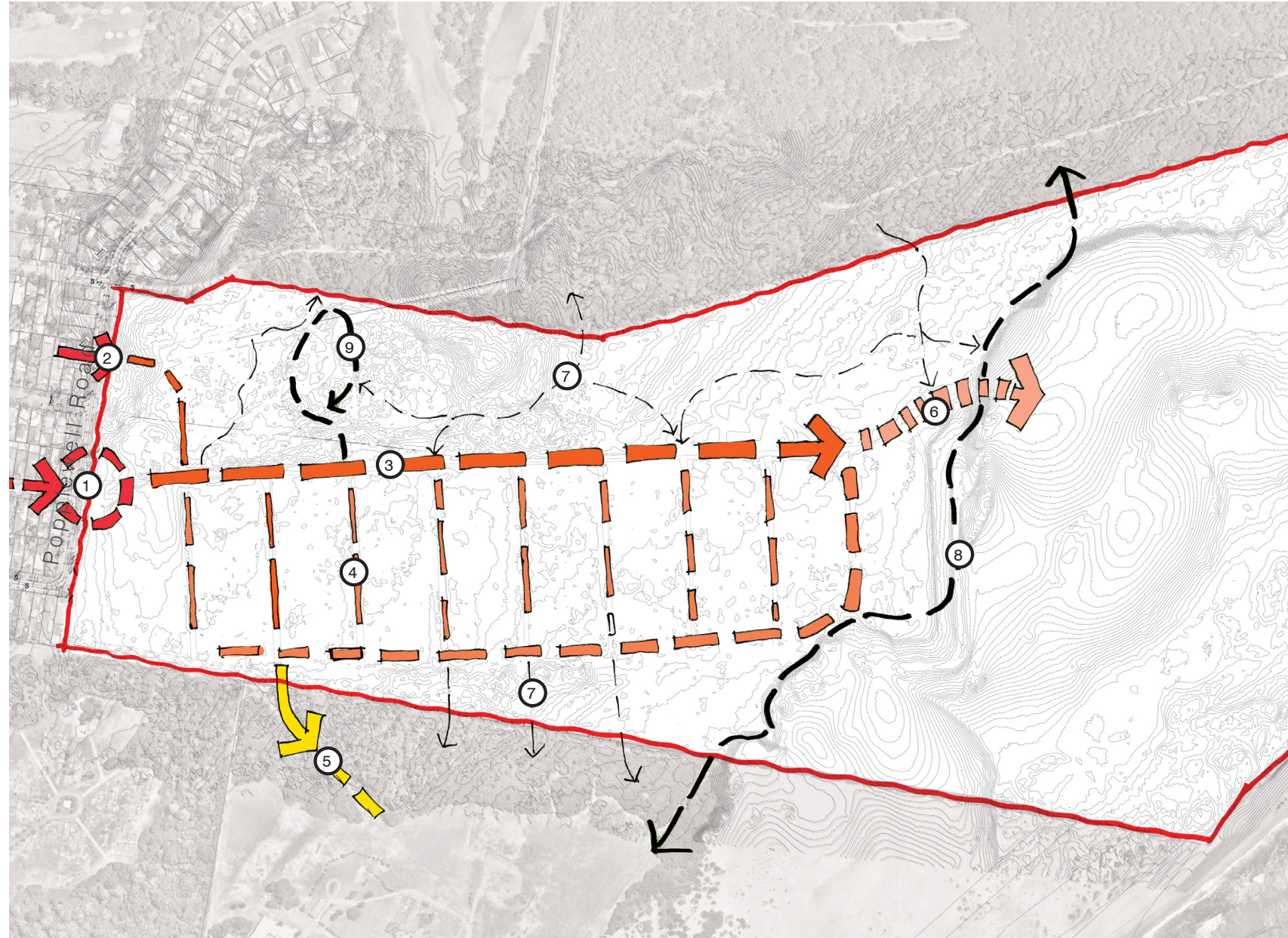
Image: Urbis

This topographic map illustrates the proposed North-South Link and Dune Link paths. The map features contour lines indicating elevation and a red boundary line. The North-South Link is a central path, and the Dune Link is a winding path to the right. Green arrows indicate directions, with labels 'FINGERS' and circled numbers 1, 2, and 3. Popplewell Road is labeled on the left side.

- Refer to the Umwelt ecology report.



5.5 Access and circulation

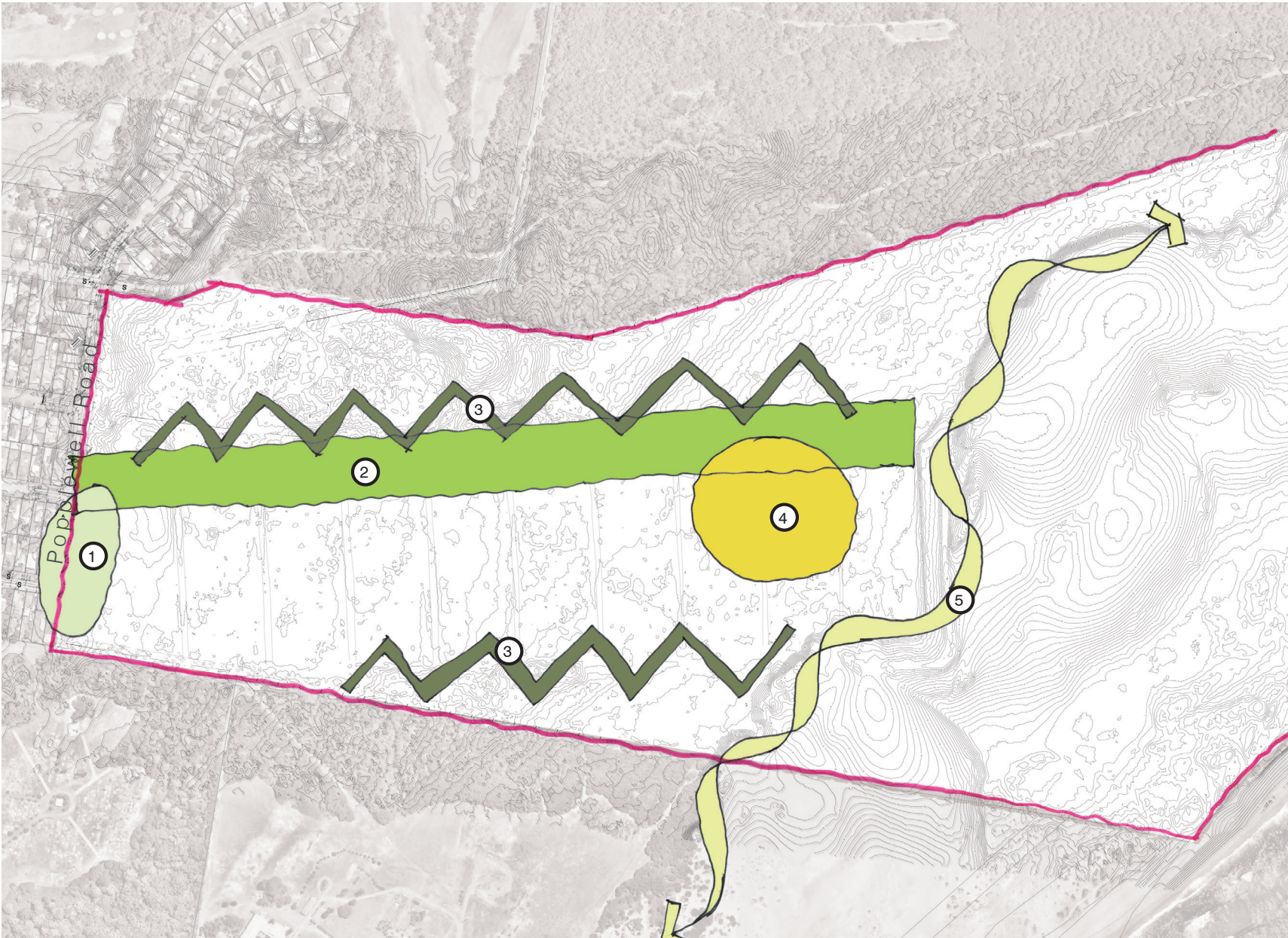


- ① Existing site access from Popplewell Road via Taylor Road.
- ② Potential additional access point via Popplewell Road.
- ③ Potential use of existing rifle range layout/ tracks to create primary axis (vehicular and/ or pedestrian).
- ④ Potential use of existing rifle range layout/ tracks to create secondary street network.
- ⑤ Potential future connection into future development site (Stockton Centre) to the south.
- ⑥ Potential public dune access where existing informal access exists.
- ⑦ Pedestrian tracks/bush links to land to north and south.
- ⑧ Potential north-south pedestrian dune connection - could connect with Stockton to the south and Fern Bay to the north.

Refer to the Better Transport Futures report.



5.6 Landscape



- ① Potential for a landscape interface to Popplewell Street.
- ② Consider a public domain/landscape link to the dunes and Stockton Beach.
- ③ Managed bushland edge to reinforce coastal character.
- ④ Consider a new public open space located within new development.
- ⑤ Potential north-south coastal dune link/bush walk/boardwalk.



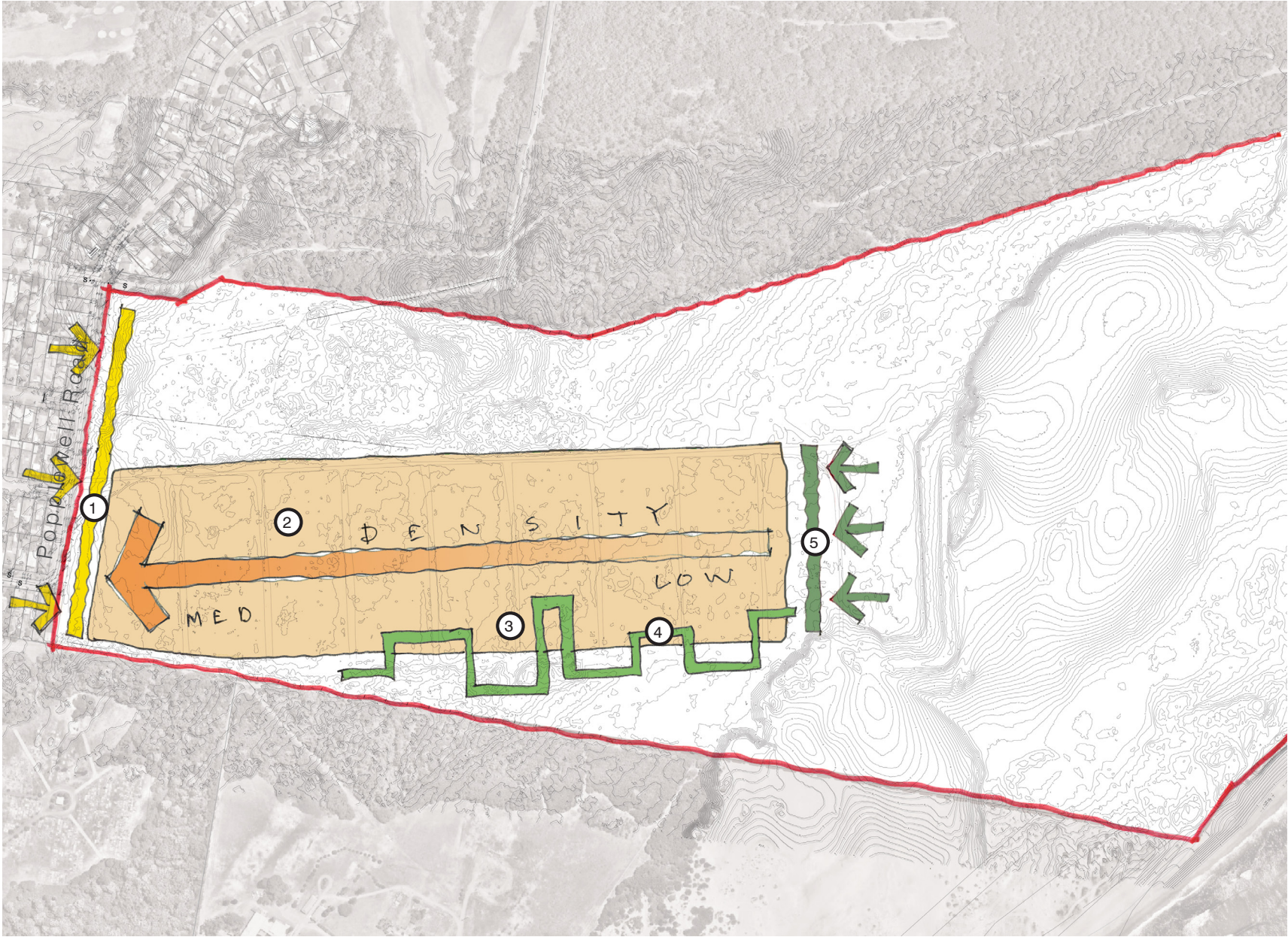
5.7 Views



- ① View along Taylor Road to site from Fullerton Street.
- ② Short range views into the site from adjacent street and properties.
- ③ Long view east-west along rifle range to dunes and range target/'Stop Butt'.
- ④ View corridors north-south along range firing mounds.
- ⑤ Localised views north into existing bushland areas.
- ⑥ Major dune formations block views from the rifle range east toward the ocean.
- ⑦ Expansive elevated views over Stockton beach from tops of dunes.



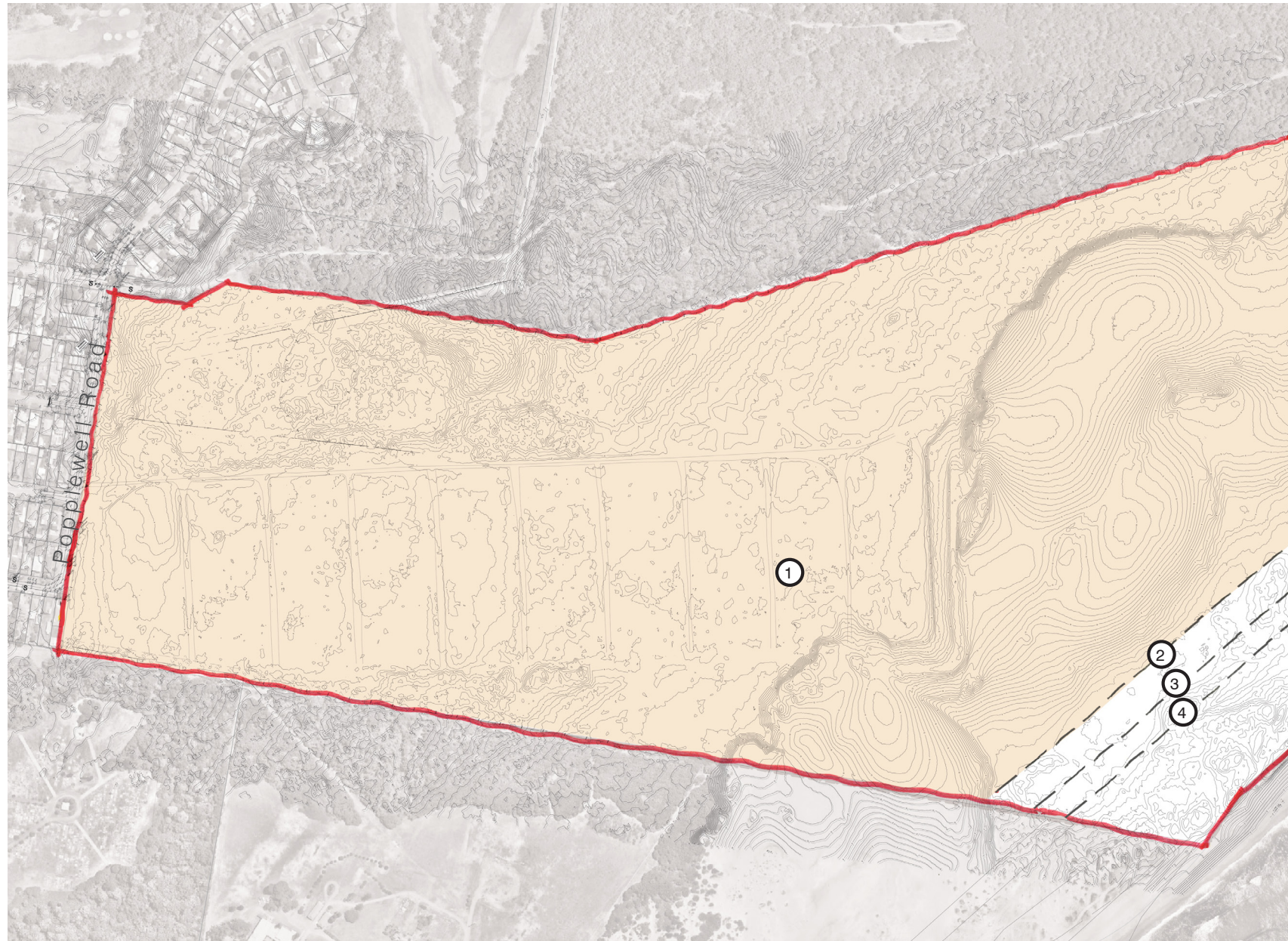
5.9 Built form



- ① Address the existing surrounding residential streets with the appropriate setback/built form.
- ② Utilise the disturbed flat areas of the rifle range for residential development.
- ③ Utilise housing typologies that sit lightly on the ground and require minimal earthworks - such as raised slab, steel frame construction.
- ④ Moderate the edge conditions to the surrounding bushland areas to increase ecological value and the sense of the coastal location.
- ⑤ Set the development back from the Dune environment to allow for ecological corridors and natural dune migration.



5.8 Coastal Erosion

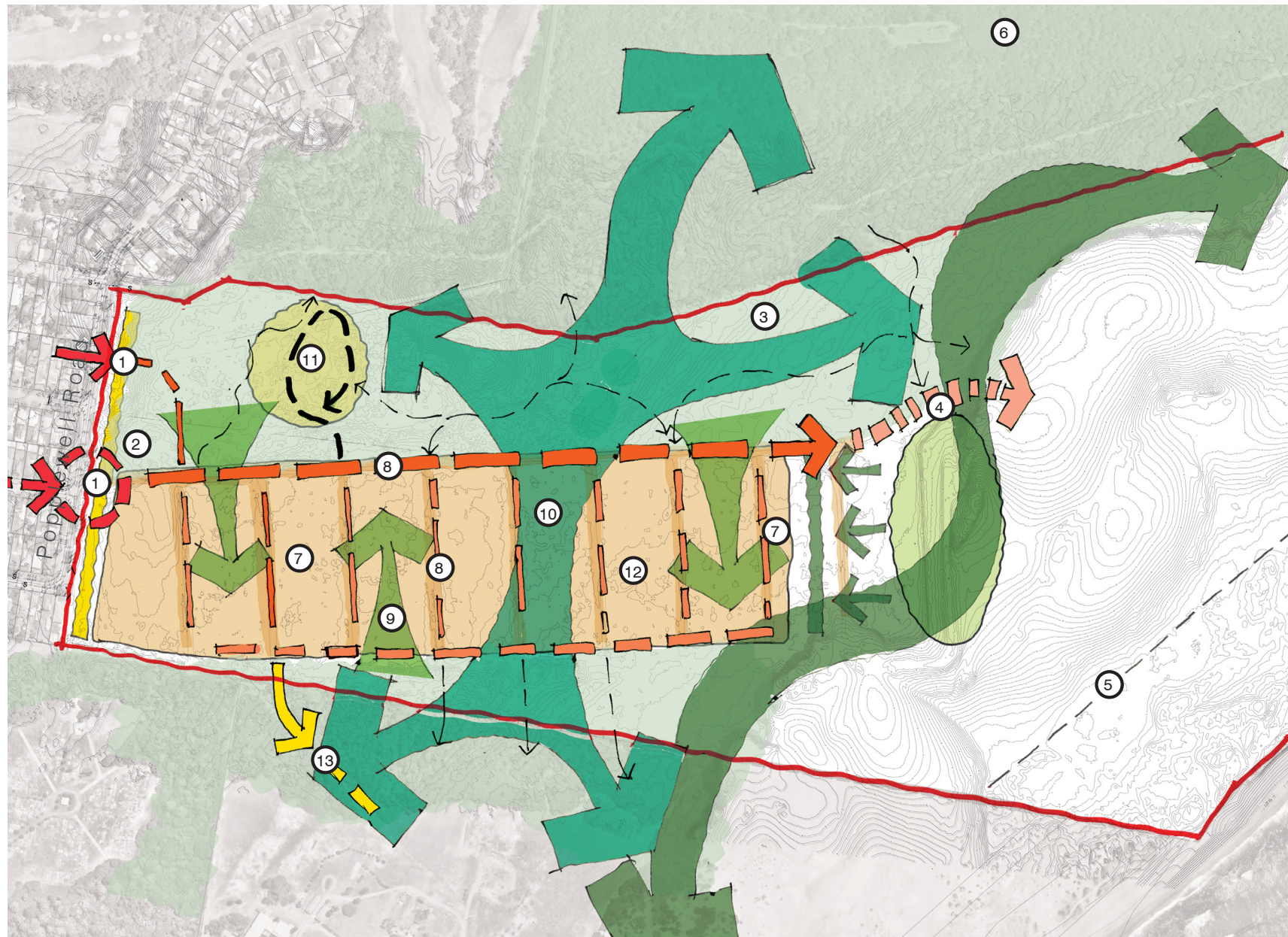


- ① Develop westward of the 'Best Estimate' 2100 Erosion Hazard Line
- ② 'Best Estimate' 2100 Erosion Hazard Line (0.9m sea level rise)
- ③ 'Likely' 2100 Erosion Hazard Line (0.4m sea level rise)
- ④ 'Almost Certain' 2100 Erosion Hazard Line (No sea level rise)

Refer to the BMT WBM coastal engineering report.



5.10 Consolidated constraints and opportunities



- ① Existing site access from Poppewell Road via Taylor Road. Potential second access point via Poppewell Road.
- ② Opportunity for a landscape interface to Poppewell Road to provide a green setback to new development and protect areas of Aboriginal archaeological potential.
- ③ Existing vegetation communities retained and protected.
- ④ Opportunity to retain and replant the degraded north-south coastal dune ecology. Potential for a public domain link to Stockton Beach where existing informal access is located.
- ⑤ 'Best Estimate' 2100 Erosion Hazard Line (0.9m sea level rise).
- ⑥ Worimi Regional Park north of the site.
- ⑦ Potential development in disturbed areas free from significant vegetation, heritage items and medium/high/extreme potential coastal erosion risks. Set the development back from the Dune environment to allow for ecological corridors and natural dune migration.
- ⑧ Potential use of existing rifle range layout/tracks to create street network.
- ⑨ Opportunity to encourage coastal vegetation communities into the future development site.
- ⑩ Potential to increase north-south ecological links through the site to connect Worimi bushland with more isolated vegetation to the south. Opportunity for new public open space within the development.
- ⑪ Potential restoration and interpretation of the remnant anti aircraft battery. Opportunity to provide walking tracks for public access to the heritage site.
- ⑫ Adopt sensitive housing designs that are lightweight in appearance, have a strong coastal character and minimise changes to natural water flows and drainage.
- ⑬ Potential future connection into future development site (Stockton Centre) to the south.

The proposal

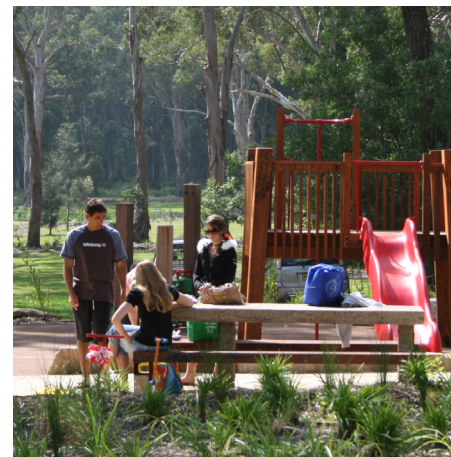
The master plan

6.1 The vision

Stockton Rifle Range and Fort Wallace will be unique coastal communities with strong links to Newcastle CBD and a growing Hunter region.

The communities will be a place where the natural coastal landscape prevails over the built environment and a rich layer of cultural heritage is celebrated and made accessible to the public.

New buildings will be contemporary in design and character, with references to traditional coastal forms and materiality. Development will ‘touch lightly’ on the ground and minimise impacts on the site.



6.2 Master plan principles



Touch lightly on the land

Buildings elevated (no slab on ground).

Streets to be as informal as possible (no kerb and gutter or avenue trees, informal parking).

Work with the existing natural topography to minimise earthworks (cut and fill).

Minimise areas of hard standing.



Embrace the coastal ecology

Regenerate natural vegetation. Endemic sp. only.

Buildings sit within the natural landscape and vegetation.

Minimise private open space and boundary fences.

Maximise views to the ocean, dunes, river and the bush.

Manage beach access to avoid further dune erosion.



Celebrate history and cultural heritage

Retain heritage structures as site features where ever possible.

Interpret the site history through its landscape.

Explore opportunities to connect with the Worimi reserve.



Create a diverse community

A mix of building typologies that provide for defence, private and affordable housing needs.

A range of open spaces that cater for a variety of resident requirements.

New recreation opportunities that appeal to visitors from Stockton, Newcastle and wider Hunter region.



Open the gates to the public

Provide public access via the local road, pedestrian and cycle networks.

Explore opportunities for improved public transport links to Newcastle CBD.

Establish new controlled pedestrian access to Stockton Beach and dune system.

Connect to greater public domain and open space networks eg Anzac Memorial Walk



Utilise interesting architectural forms

Staggered building heights.

Natural materials and finishes.

Articulated façades.

Vaulted and skillion roofs.

Varied street setbacks

6.3 Indicative master plan

The indicative master plan for Rifle Range demonstrates a best practice outcome within the proposed LEP controls. The master plan responds to the site's natural and historic constraints, proposes a diverse mix of housing to accommodate a real community and includes high quality public open space and streets.

The master plan respects the site's unique history and environmental character by reducing the development footprint to areas of the site with relatively few constraints. Rather than covering the site with low density development, the master plan proposes more energy efficient, environmentally-sensitive and higher density development with a smaller development footprint. Significant vegetation communities and historic elements will be retained and opened up to the public for their use and enjoyment.

The development will feel distinctly public, with access for all to streets, open space and the beach, as opposed to a gated community.

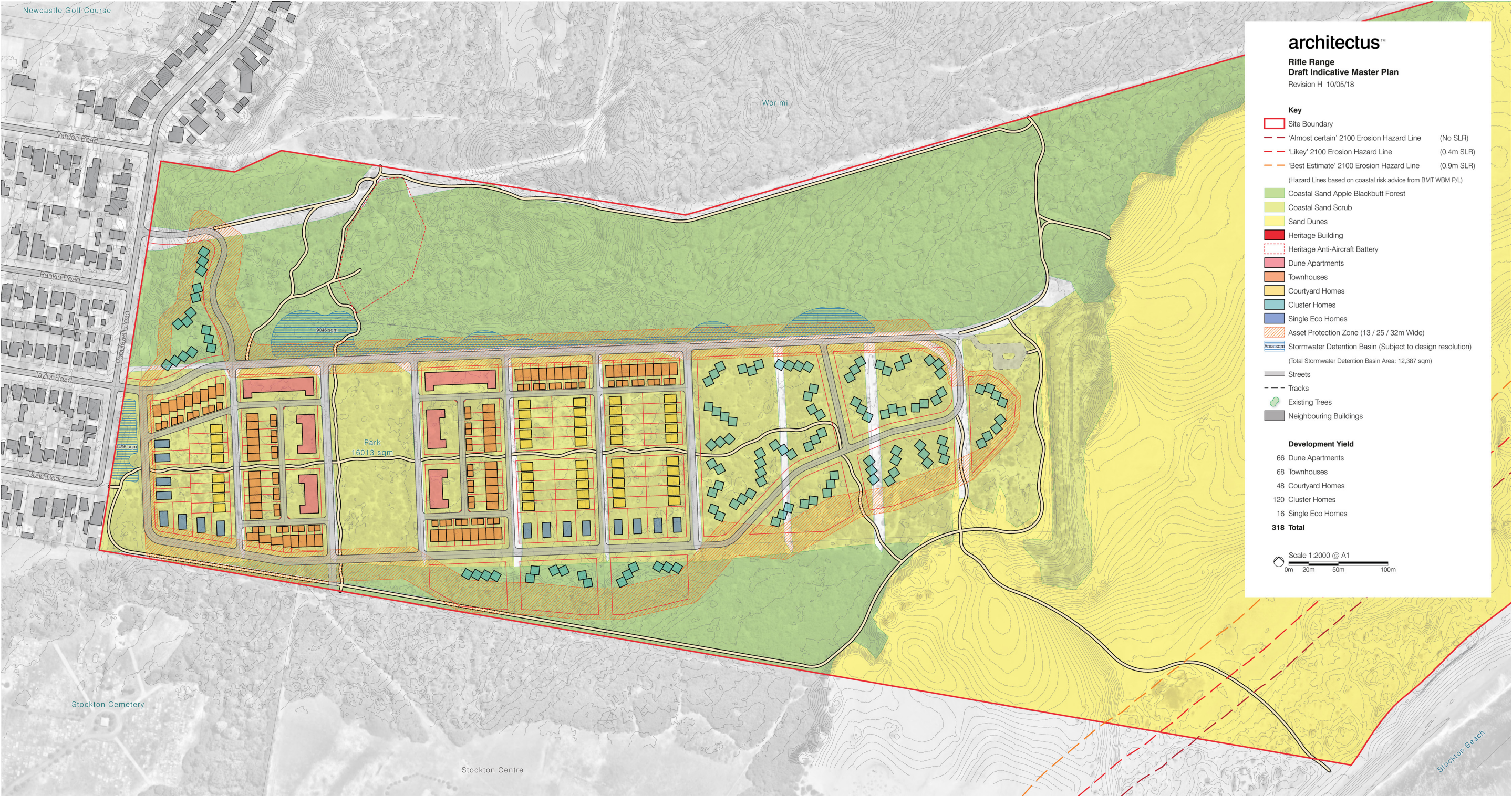
The development will be highly walkable and well vegetated throughout. Housing will generally recede into the landscape, allowing the natural environment to dominate.

The master plan envisages housing that not only nestles into the landscape but also responds to the site's coastal landscape character. Buildings will vary in height and type but all will adopt a coastal architectural vernacular and use natural materials and finishes typically found in coastal settings, such as timber, corrugated aluminium and natural stone.

The new community at Rifle Range will benefit from the unique and special qualities of the site but the wider public will benefit also through development of the site. Historic relics will be conserved, new public open space provided and existing vegetation communities will be protected and enhanced. The public realm and housing will be attractive, responsive to the locale and robust in design and construction.



Indicative Master Plan



Public domain



Incorporate robust local materials

Use timber, concrete, stone, gravel, steel and other locally available materials that relate to the site's coastal setting.

Select materials that are durable and lower maintenance.



Create a green canopy

Reduce ambient air temperatures through generous planting of street trees and shade trees in public spaces.

Ensure trees have sufficient area for root growth when planted next to streets and footpaths.



Maximise natural drainage

Maximise soft areas and use of permeable materials with high infiltration rates.

Use planted swales to collect and cleanse stormwater.

Minimise road area and consider use of permeable road materials.



Enhance habitat

Select indigenous plant species to encourage local fauna.

Where practical plant native shrubs and native grasses in place of turf.

Protect existing dune areas from walking and trampling through fencing and signage.

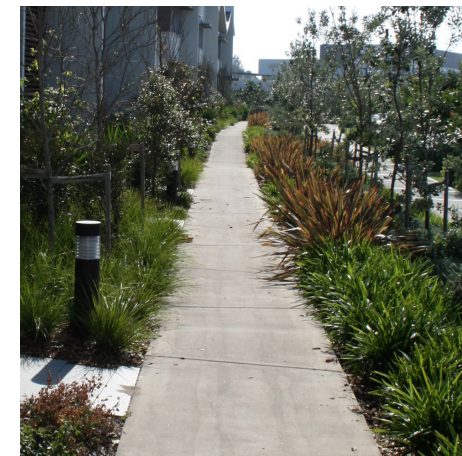


Create a public place

Design streets to feel public and accessible to all.

Avoid use of estate-style landscape elements such as entry walls and domestic landscape materials.

Encourage the public to walk and cycle through the development by providing pathways and signage.



Promote safety

Provide pedestrian and vehicle lighting.

Maintain clear sight lines.

Maximise passive surveillance by encouraging walking and outdoor activity.

Select non-slip materials and finishes.

Indicative Landscape Master Plan



- LEGEND**
- 01/ Extended road network from existing neighbourhood
 - 02/ Cluster Homes
 - 03/ Single Eco Home
 - 04/ Courtyard Homes
 - 05/ Townhouses
 - 06/ Dune Apartments
 - 07/ Central access spine (shared path)
 - 08/ Shared path to dunes
 - 09/ Vegetated detention basin
 - 10/ Community park
 - 11/ Potential play area
 - 12/ Firetrail / bushwalk
 - 13/ Dune boardwalk
 - 14/ Dune access car park
 - 15/ Worimi Conservation Lands

ARTIST'S IMPRESSION OF THE PROPOSED DEVELOPMENT



Landscape hierarchy



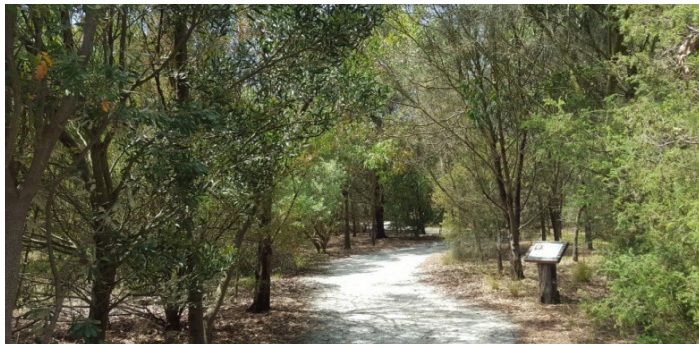
7.1 Community Interface

Permeable Edges

The Rifle Range development will tie into the neighbouring community fabric through an extension of the existing road network and infrastructure. A permeable edge condition will be achieved through clear sightlines, footpaths, and trails. Within the new Rifle Range community planting and firebreaks will delineate property boundaries rather than fences and other hard barriers. The intent is to create a neighbourhood character that emphasizes qualities of connectedness, community, and integrated with the surrounding bushland and coastal ecology.

Key Features

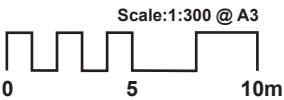
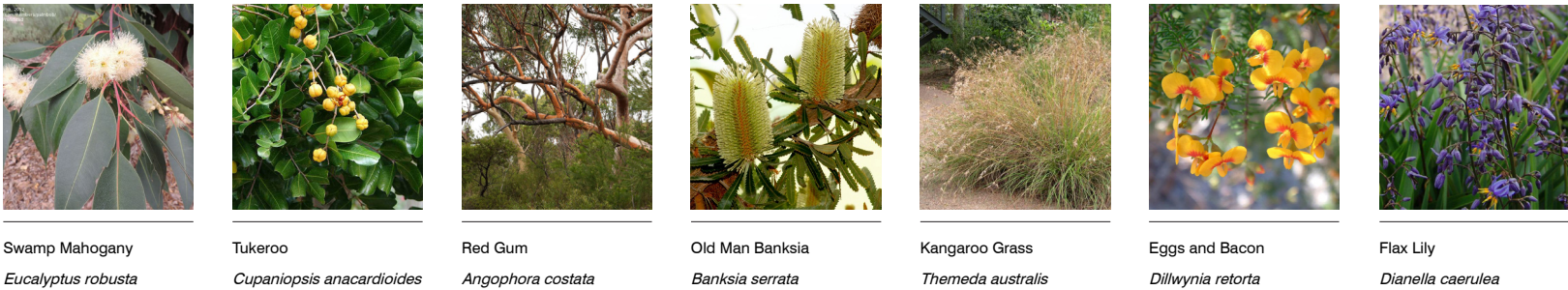
- 01/ Shared path to dunes
- 02/ Vegetated stormwater detention basin
- 03/ Extension of existing road infrastructure
- 04/ Central pedestrian access spine
- 05/ Firetrail / bushwalk



Community Interface section



Indicative planting palette



7.2 Community Park

Community Park

The public parklands emphasize openness, flexibility, and principles of “nature play” through the selection of play facilities, materials, and native planting palette. A large, open field will be complemented by picnic areas and shade structures constructed of natural materials and situated within the coastal heath landscape. These structures will provide spaces for community gathering and passive recreation near the centre of the Rifle Range development. The large field can be used for a range of activities, such as picnics, dog walking, organised sports, and outdoor exercise. Feature trees and native planting will provide cover from the sun. Robust, low-maintenance plants and flowers will blend play areas into the surrounding coastal heath landscape.

Key Features

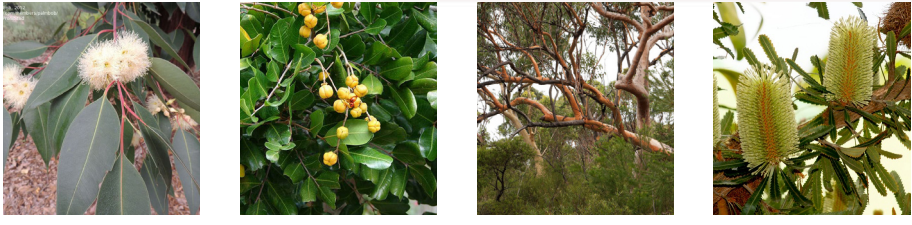
- 01/ Open lawn / field to accommodate potential sports uses
- 02/ "Nature play" playground
- 03/ Picnic area and shelters
- 04/ Feature tree planting
- 05/ Central access spine
- 06/ Neighbourhood access to walking trail



Community Park section



Indicative planting palette



Swamp Mahogany
Eucalyptus robusta

Tukeroo
Cupaniopsis anacardioides

Red Gum
Angophora costata

Old Man Banksia
Banksia serrata

Coastal Tea Tree
Leptospermum laevigatum

Pigface
Carpobrotus glaucescens

Hardscape palette

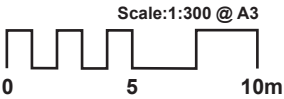


Stabilized sand path

Oyster shell aggregate concrete

Timber boardwalk

Timber shade structure



7.3 Great Streets

Key to great urban environments and places are great streets. Streets connect our communities and our homes, provide us with essential services for living, and present everyday opportunities for exercise and socialising.

Designing streets for people

The Master Plan envisages several types of streets that respond to future access requirements and the existing street network on the site. All streets will be:

- Publicly accessible, with footpaths and wayfinding signage.
- Well vegetated with local plant and tree species.
- Low-key and informal in appearance.
- Designed to accommodate all modes of transport (cars, pedestrians and bicycles)
- Designed appropriately for emergency and council maintenance vehicles.

The following pages show indicative designs and locations for the each type of roads within the proposed development. The designs will be the subject of further review and adjustment as the project progresses and information becomes available.



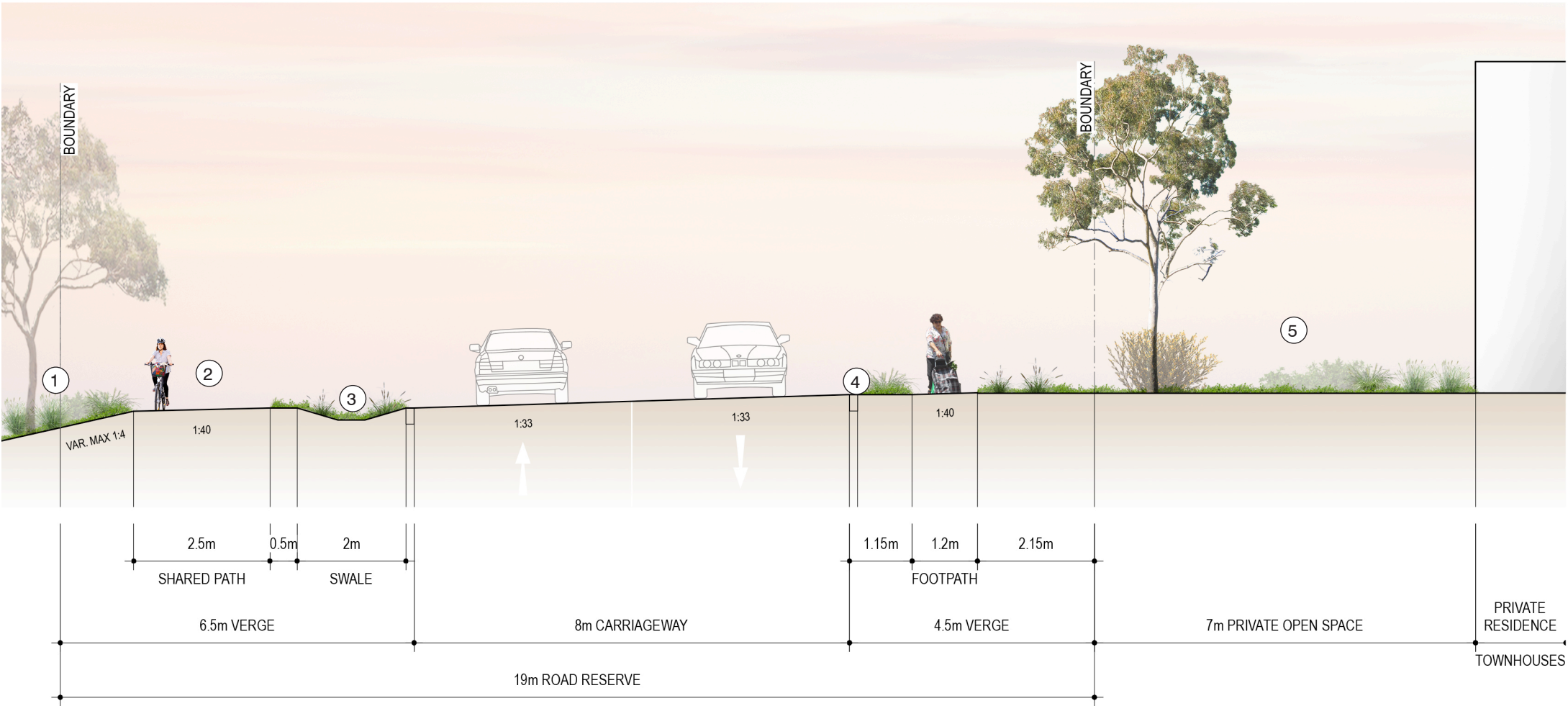
Road hierarchy



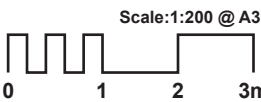
- LEGEND**
- Road Type #1
 - Road Type #2
 - Road Type #3
 - Road Type #4
 - Road Type #5
 - Road Type #6



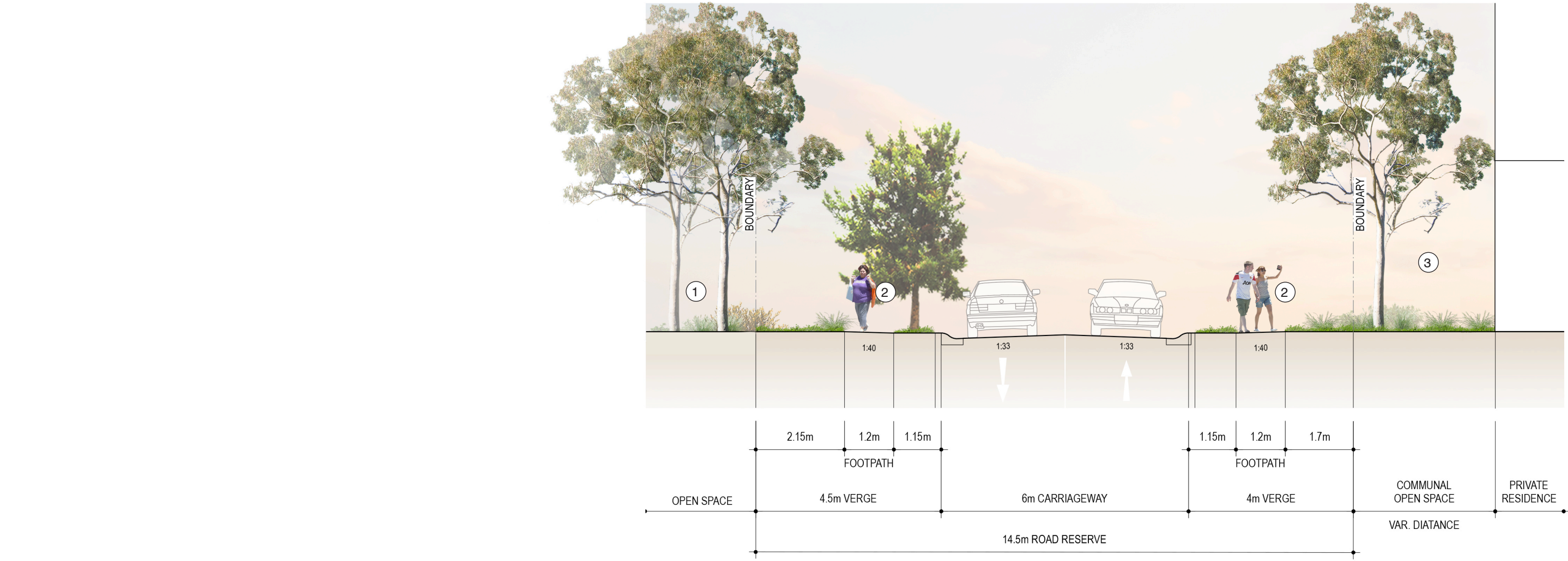
Road type 1 section



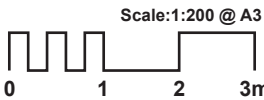
- 01/ Slope to drainage basin
- 02/ Shared path
- 03/ Kerbside vegetated swale
- 04/ Flush kerb
- 05/ Private yard (Single Eco Home)



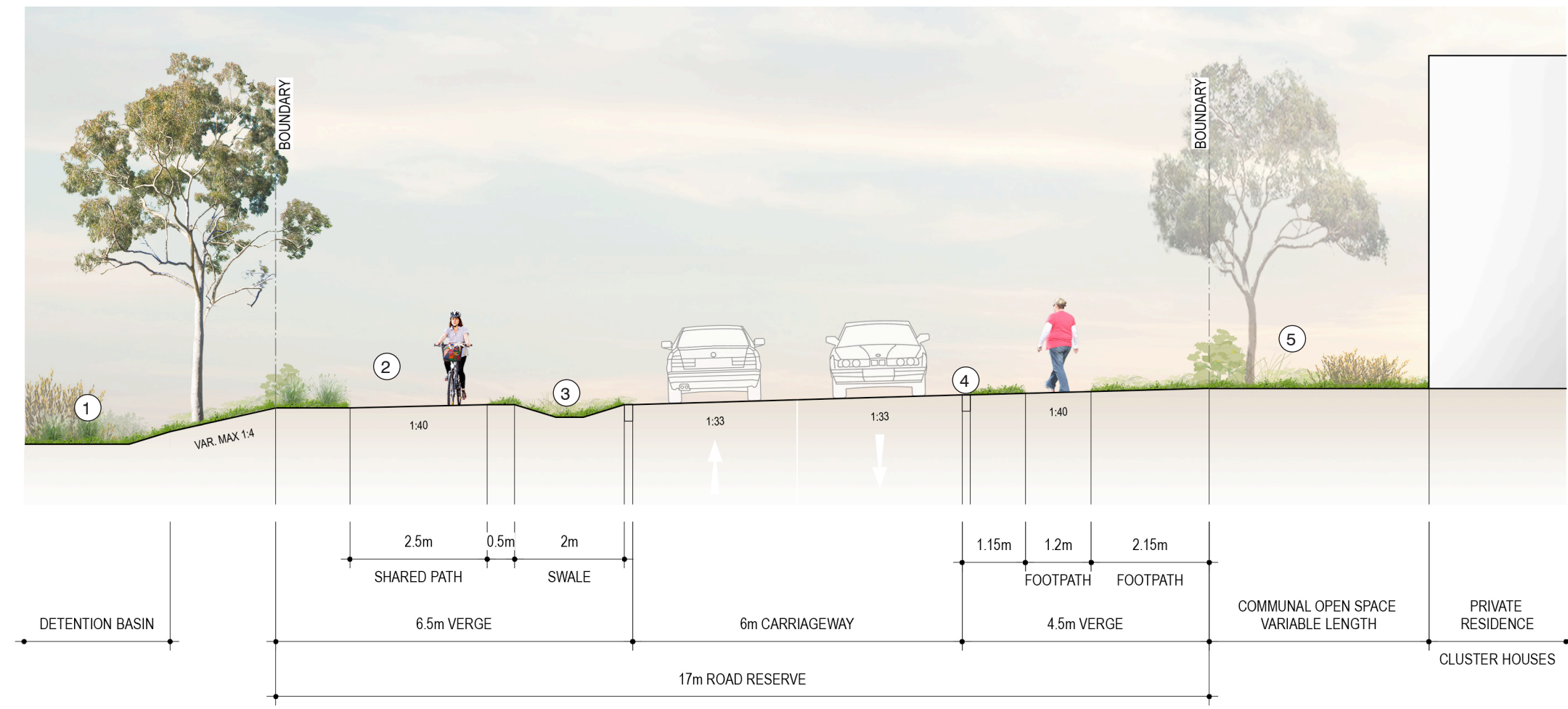
Road type 2 section



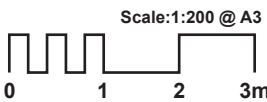
- 01/ Open space
- 02/ Footpath
- 03/ Eco Home / Dune Apartments



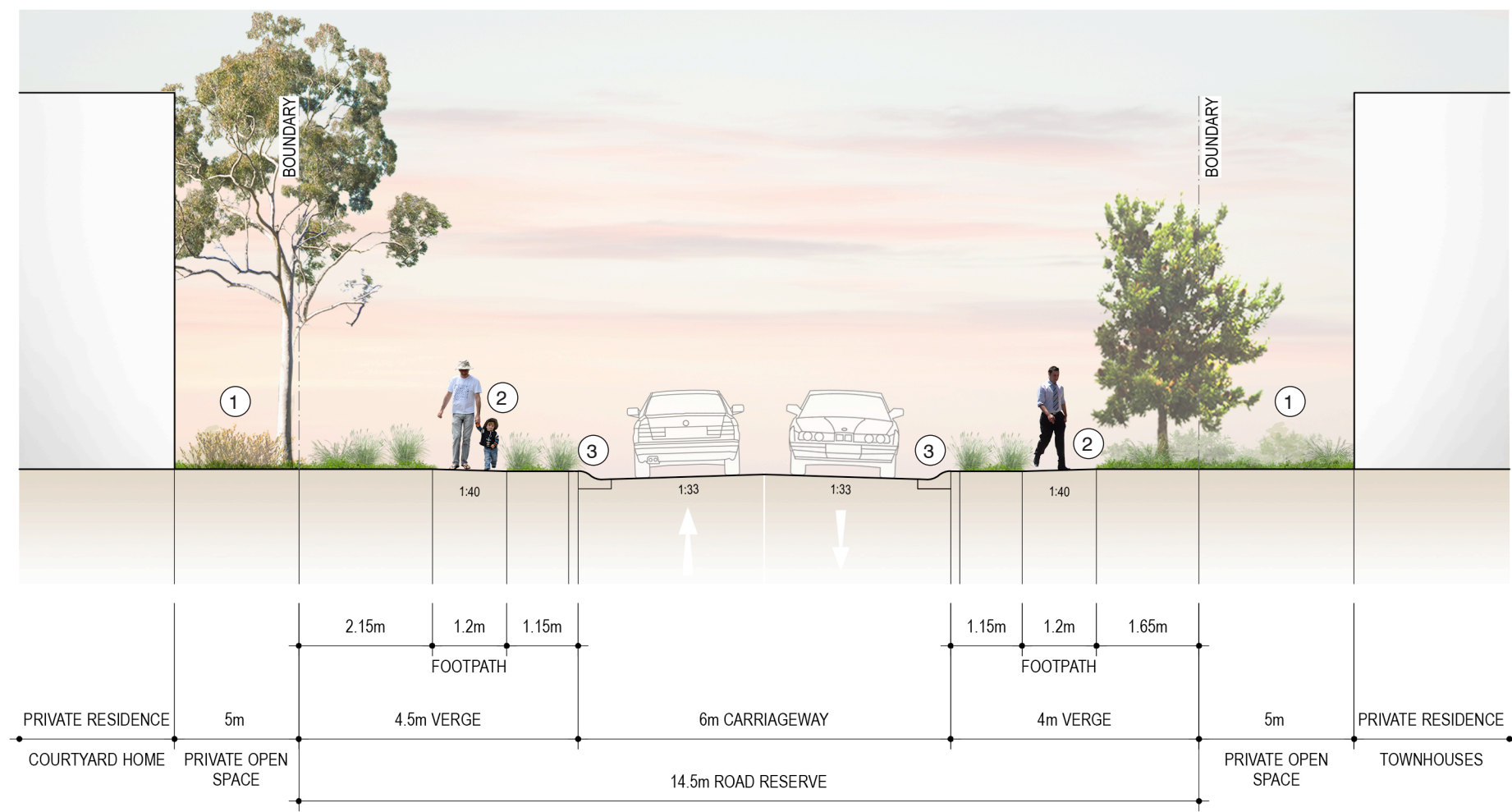
Road type 3 section



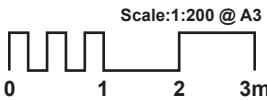
- 01/ Slope to drainage basin
- 02/ Shared path
- 03/ Kerbside vegetated swale
- 04/ Flush kerb
- 05/ Private yard (Single Eco Home)



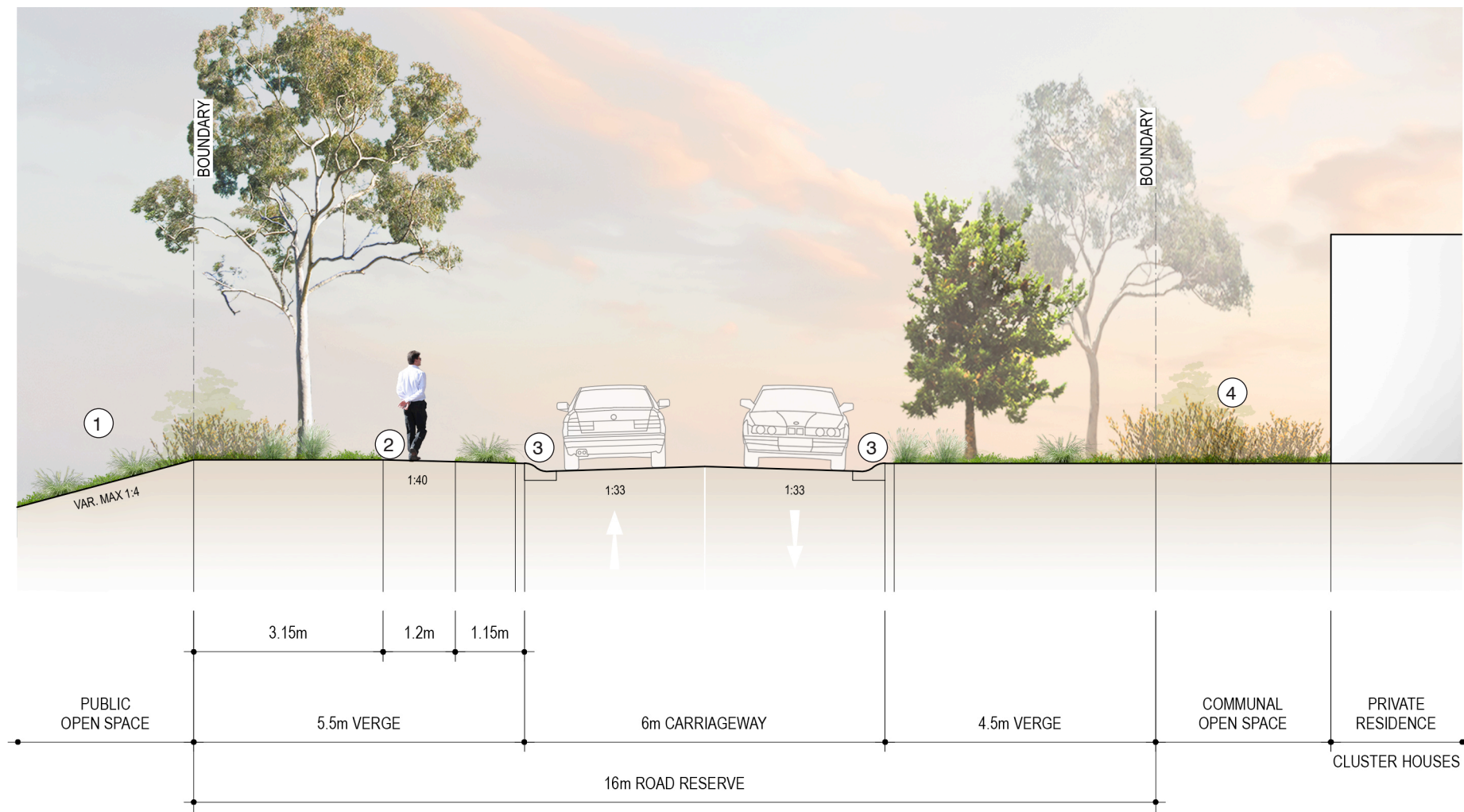
Road type 4 section



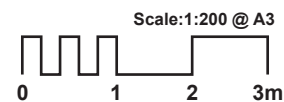
- 01/ Private open space
- 02/ Footpath
- 03/ Roll kerb



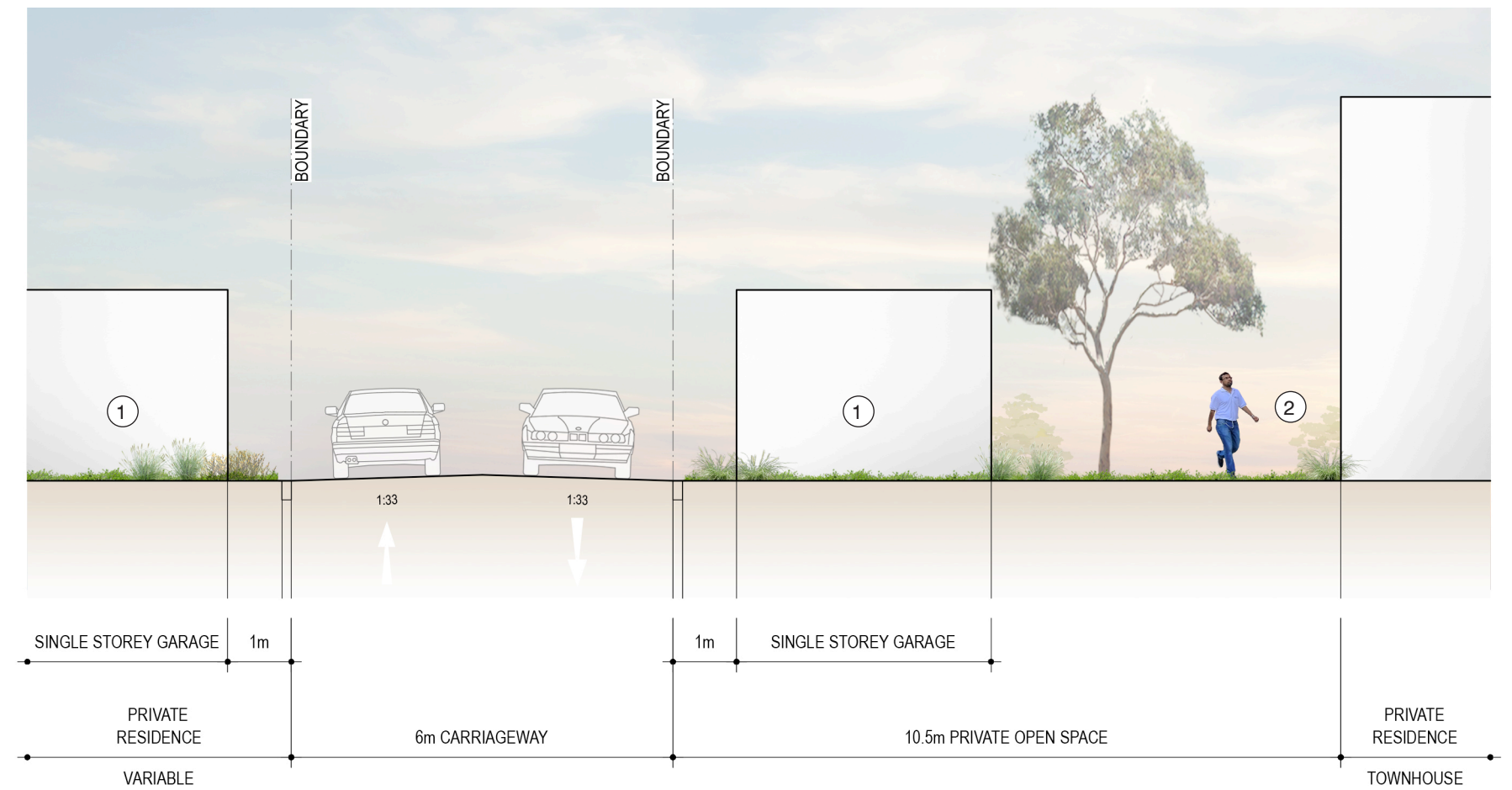
Road type 5 section



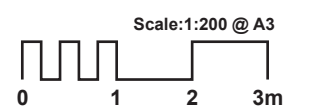
- 01/ Public access to parklands
- 02/ Footpath
- 03/ Roll kerb
- 04/ Communal open space (Cluster Houses)



Road type 6 section



- 01/ Indicative single storey garage structure
- 02/ Private yard (Townhouse)



8 Master plan housing mix

The design principles set out in the previous section were used to develop a range of residential typologies that would respond to the unique nature of the site. While these typologies are used only to inform the structure of the master plan, it is intended that the key outcomes of the the typologies will be established in a site specific to guide the future development of the site.

Four dwelling typologies have been developed to support the master planning of the site. The typologies demonstrate how the design principles can be

achieved in a range of densities in order to deliver a diversity of housing on the site, including dwelling size, configuration and tenure.

The typologies include coastal cluster homes, single eco-homes, courtyard homes, and townhouses / row houses.

The key features of each dwelling type, including approximate heights, density, materials and sustainability mechanisms have been set out on the

following pages. Indicative floor plans and lot plans have also been developed to show how the typologies could achieve the requirements of the market.

Single eco-homes



Currawong - Pittwater, NSW - by Architectus

Coastal cluster homes



Bundeena masterplan - by Architectus

Townhouses / row houses



Tubbs View + Hamilton Corner, Lindfield NSW - by BatesSmart



Lake Crackenback, NSW

Courtyard homes



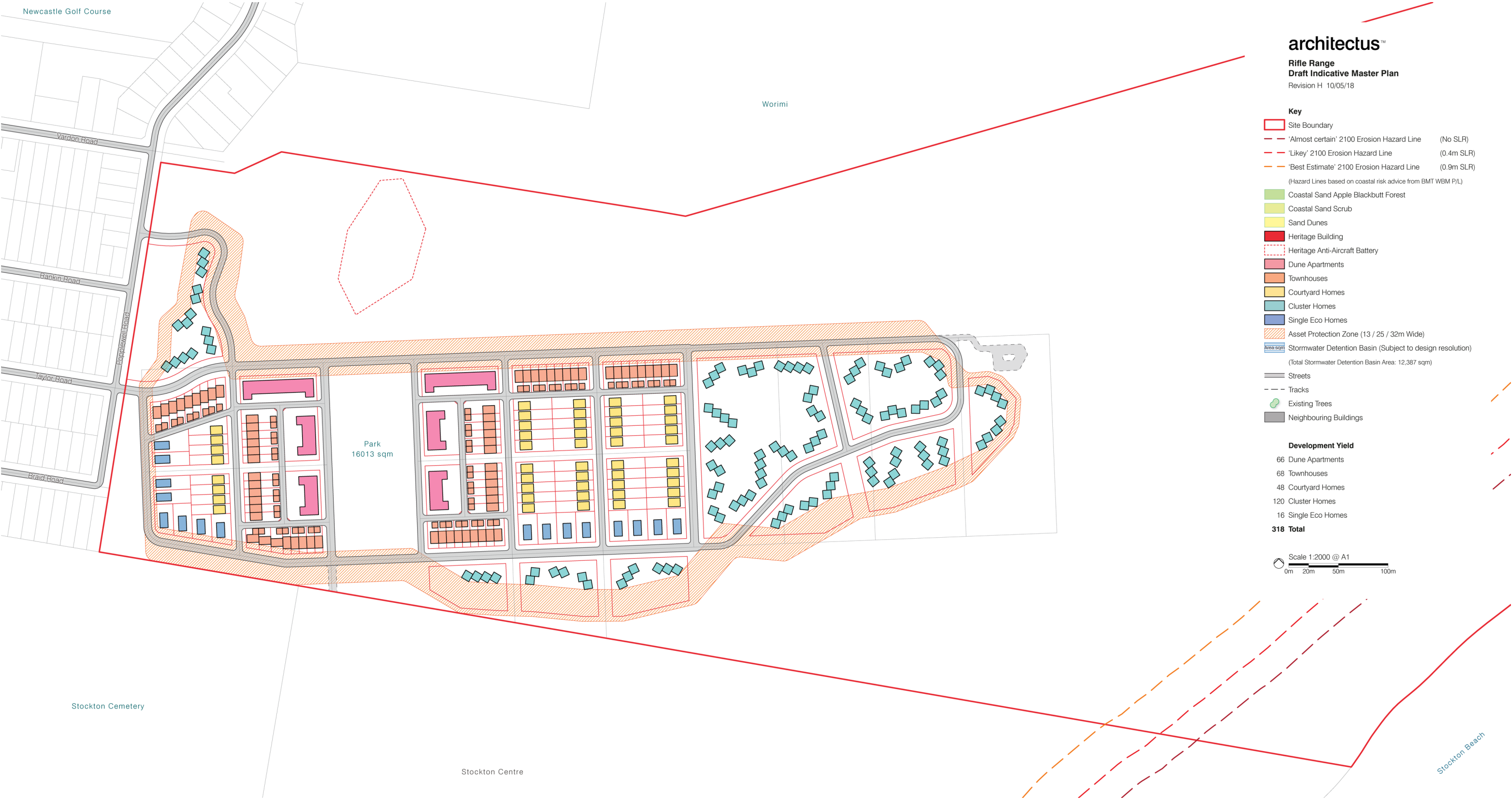
Little Bay, NSW

Dune Apartments



Viridian Noosa Residences - by JMA Architects

Indicative Housing Typology Diagram



8.1 Coastal cluster homes

Description: This dwelling typology provides an alternative to traditional towns houses or attached houses. By breaking down the layout into clusters of 2,3 and 4 they provide views through the development to natural to the bush and increase the sense of a connection with the surrounding landscape.

Building heights: 2 Storey

Dwelling Size: 3 bed = 120m²

Approx density: 20-30 dw/ha

Construction: Steel or timber frame with suspended composite concrete slab, skillion/vaulted roof.

External materials: Combination of corrugated metal sheet, timber panel cladding.

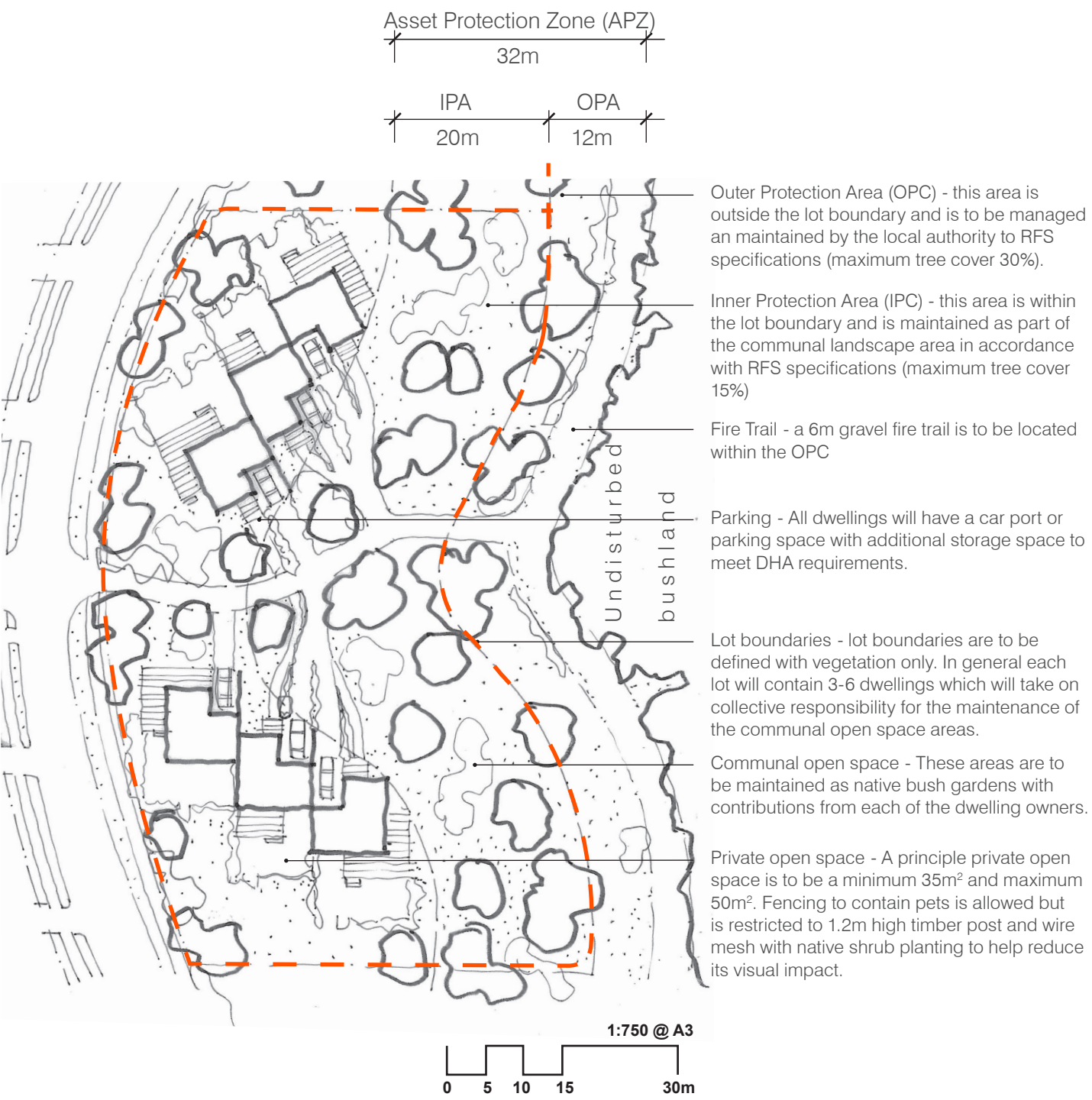
Sustainability: Passive solar design, locally sourced materials, naturally ventilated, high thermal performance, rain water harvesting, solar PV cells, minimise cut and fill, native drought tolerant species.



Bundeena masterplan - by Architectus



Typical layout 1:750



Outer Protection Area (OPA) - this area is outside the lot boundary and is to be managed and maintained by the local authority to RFS specifications (maximum tree cover 30%).

Inner Protection Area (IPA) - this area is within the lot boundary and is maintained as part of the communal landscape area in accordance with RFS specifications (maximum tree cover 15%).

Fire Trail - a 6m gravel fire trail is to be located within the OPA

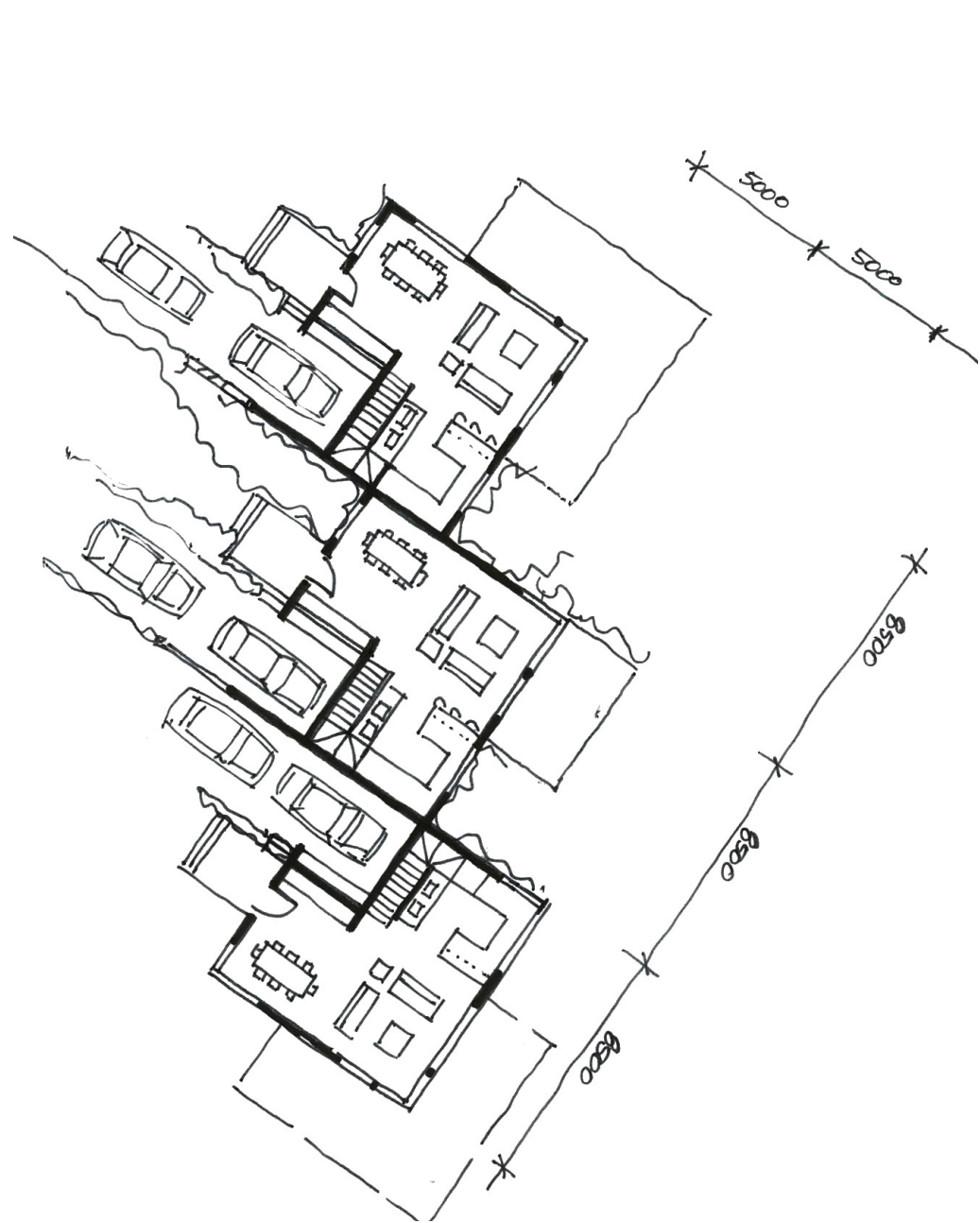
Parking - All dwellings will have a car port or parking space with additional storage space to meet DHA requirements.

Lot boundaries - lot boundaries are to be defined with vegetation only. In general each lot will contain 3-6 dwellings which will take on collective responsibility for the maintenance of the communal open space areas.

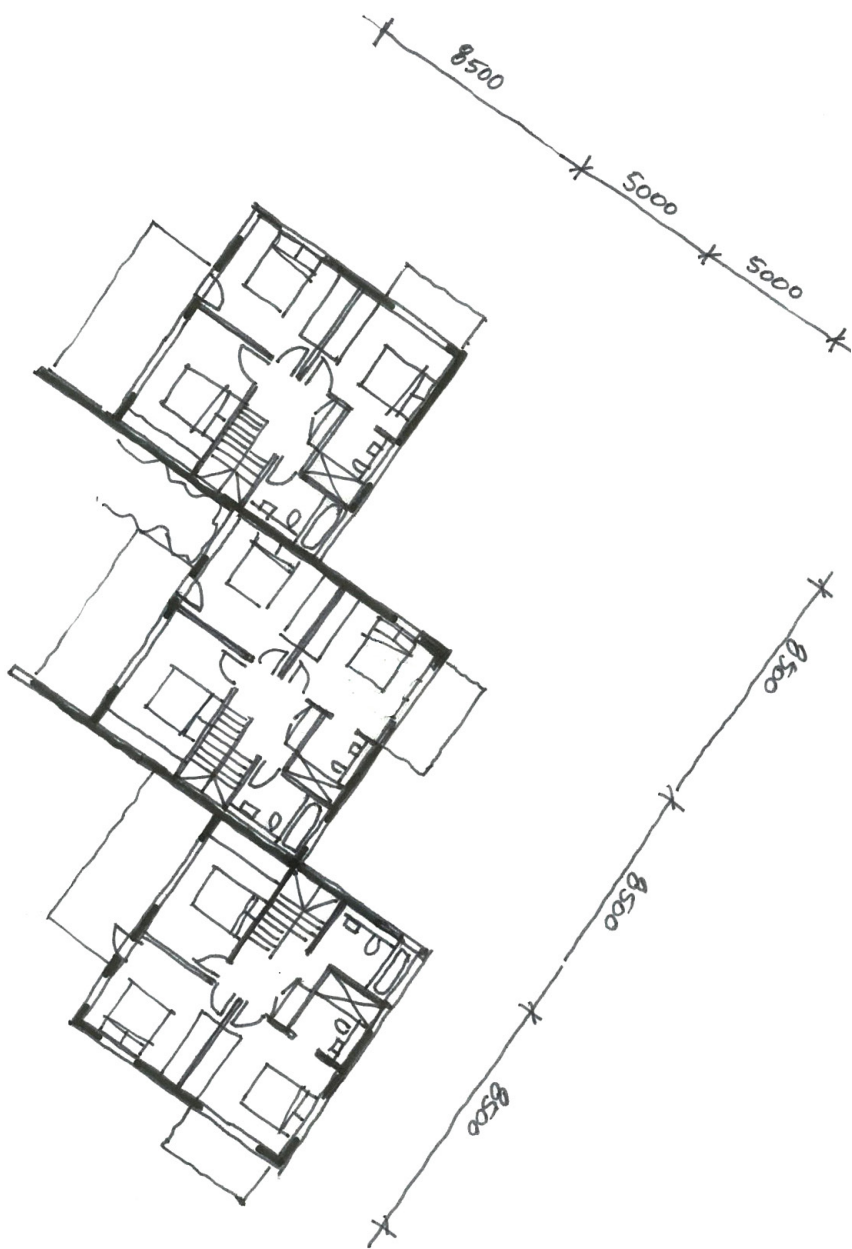
Communal open space - These areas are to be maintained as native bush gardens with contributions from each of the dwelling owners.

Private open space - A principle private open space is to be a minimum 35m² and maximum 50m². Fencing to contain pets is allowed but is restricted to 1.2m high timber post and wire mesh with native shrub planting to help reduce its visual impact.

Indicative ground floor plan 1:250



Indicative first floor plan 1:250

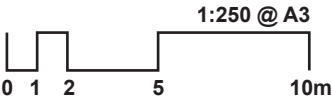


Indicative exterior finishes



Indicative dwelling sizes (exc external space):

3 bed = 110m²



CLUSTER HOUSES WILL NESTLE INTO A LANDSCAPE OF LOCAL NATIVE PLANT SPECIES



HOUSING WILL “TREAD LIGHTLY” ON THE LANDSCAPE TO MINIMISE DISTURBANCE TO THE SITE



8.2 Single eco-homes

Description: These homes are intended to be lightweight, climate responsive individual homes set within generous lots that are managed and maintained to contribute to the overall natural characteristics of the site.

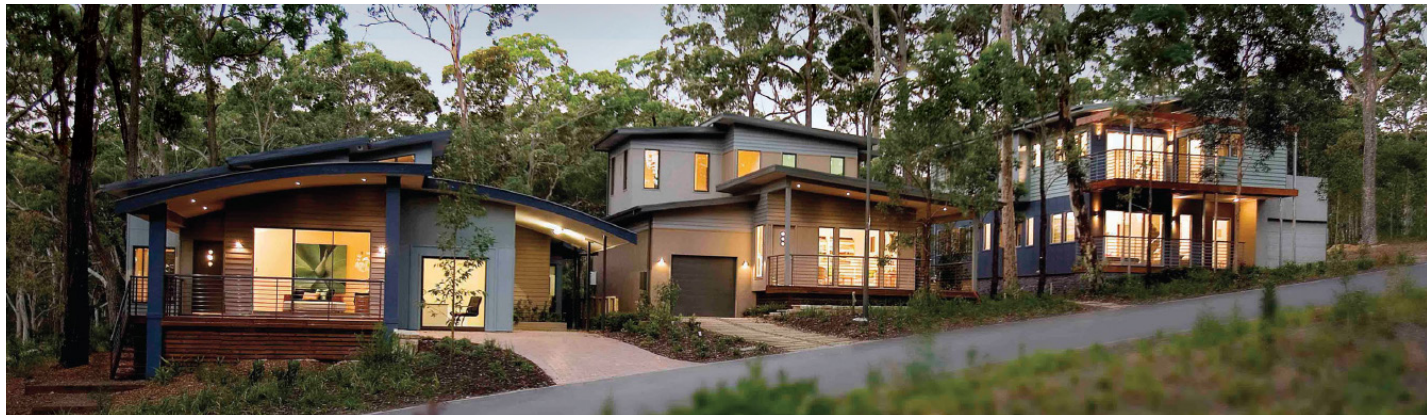
Building heights: 1-2 Storey

Approx density: 10-12 dw/ha

Construction: Steel or timber frame with suspended composite concrete slab, skillion/vaulted roof.

External materials: Combination of corrugated metal sheet, timber panel cladding.

Sustainability: Passive solar design, locally sourced materials, naturally ventilated, high thermal performance, rain water harvesting, solar PV cells, minimise cut and fill, native drought tolerant species.

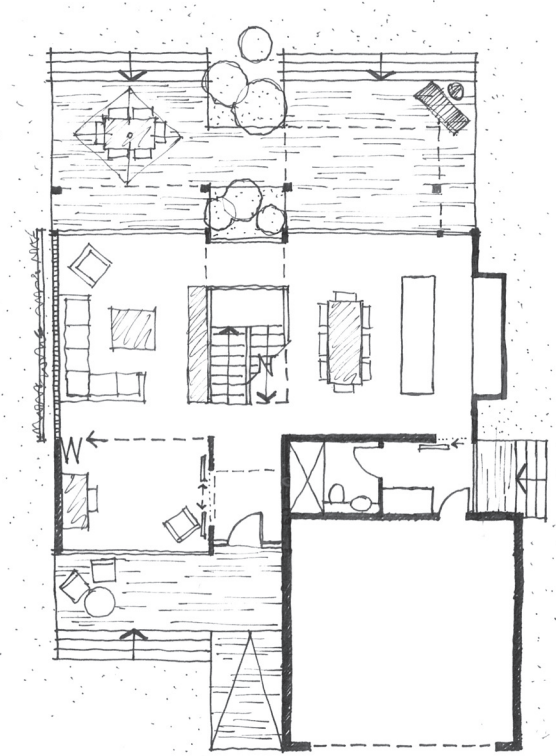


Murrays Beach - Lake Maquarie

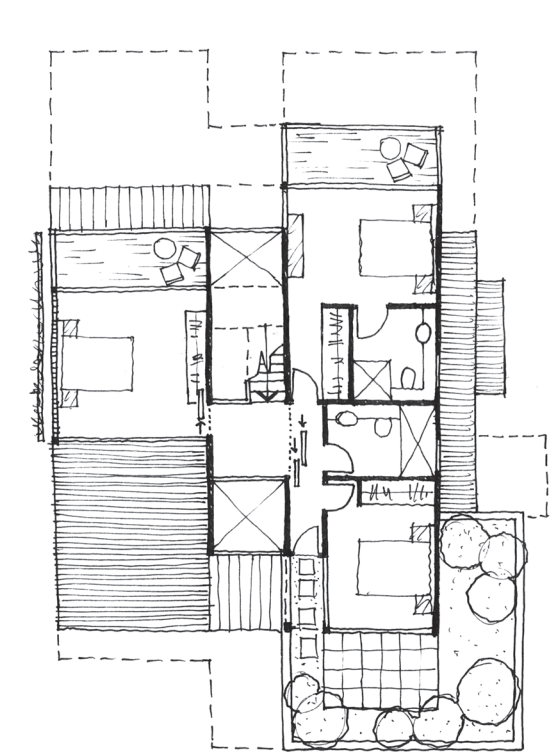


Currawong - Pittwater, NSW - by Architectus

Indicative ground floor plan 1:200



Indicative first floor plan 1:200



Indicative dwelling sizes (exc external space and garage): 3 bed = 160m²

Indicative exterior finishes



8.3 Courtyard homes

Description: This typology provides for a large family home including 4 bedrooms, 3 bathrooms, open plan living space, single garage and an ample rear garden. Dwellings are to be constructed on a zero lot line always on the same side with a 1.5m setback along the opposite boundary. This allows for a side pathway to access the rear garden and improves natural light and ventilation for the dwelling.

Building heights: 2 Storey

Lot Size: 380m² Dwelling Size: 4 Bed 200m²

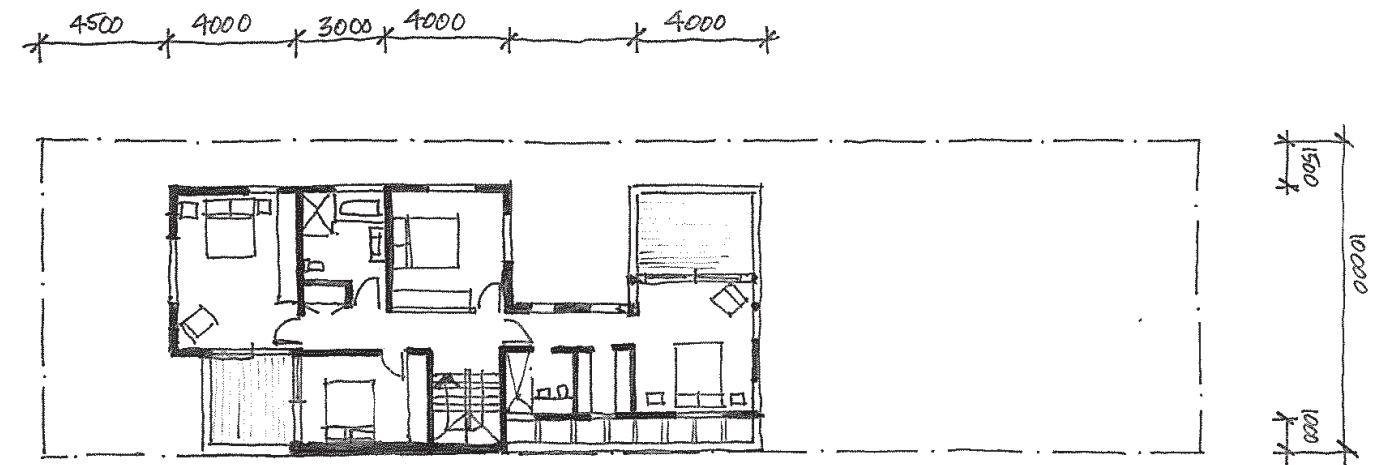
Approx density: 20 dw/ha

Construction: Steel or timber frame on concrete slab, skillion/vaulted roof.

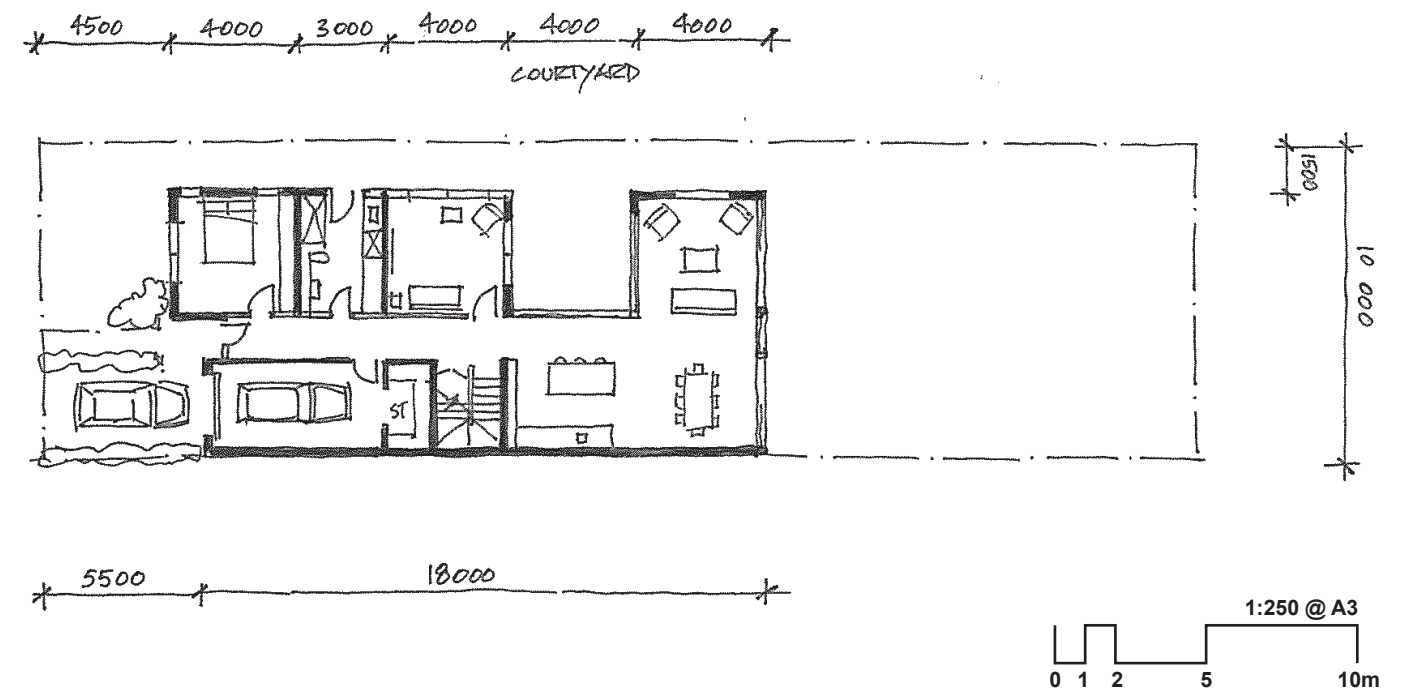
External materials: Combination of corrugated metal sheet, timber panel cladding and rendered masonry.

Sustainability: Passive solar design, locally sourced materials, naturally ventilated, high thermal performance, rain water harvesting, solar PV cells, minimise cut and fill, native drought tolerant planting.

Indicative first floor plan 1:250



Indicative ground floor plan 1:250



Little Bay, NSW



Little Bay, NSW



Example courtyard space

8.4 Townhouses / row houses with ‘fonzie flat’ (rear lane access)

Description: These 3 bedroom homes provide a compact attached dwellings in locations where increased densities are appropriate. The rear lane access allows the front elevation of the house to be free from garage doors and parked cars which promotes good passive surveillance and an attractive street frontage. Above the rear double garage it is possible to have a secondary dwelling or ‘Fonzie Flat’ that provides a self contained studio apartment that can provide additional family or guest accommodation, home occupation or rental return. The ‘fonzie flat’ also activates the laneway increasing safety and security through passive surveillance.

Building heights: 2 Storey

Lot Size: 240m² (varies) Dwelling Size: 3 bed = 150m², 1 Bed Stuidio = 30m²

Approx density: 25 dw/ha

Construction: Steel or timber frame on concrete slab, skillion/vaulted roof.

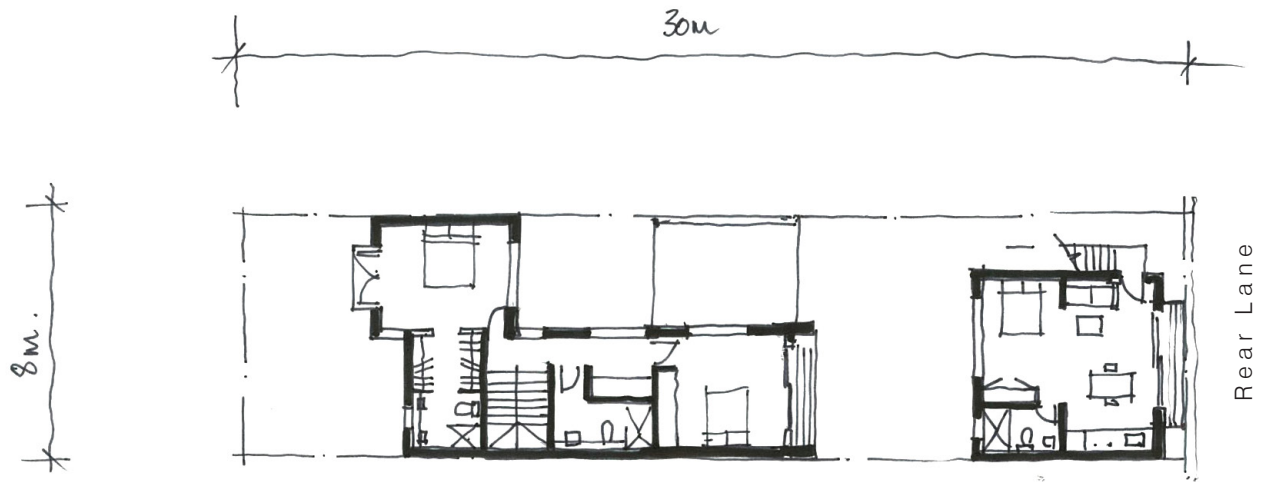
External materials: Combination of corrugated metal sheet, timber panel cladding and rendered masonry.

Sustainability: Locally sourced materials, naturally ventilated, high thermal performance, rain water harvesting, solar PV cells, minimise cut and fill, native drought tolerant planting.

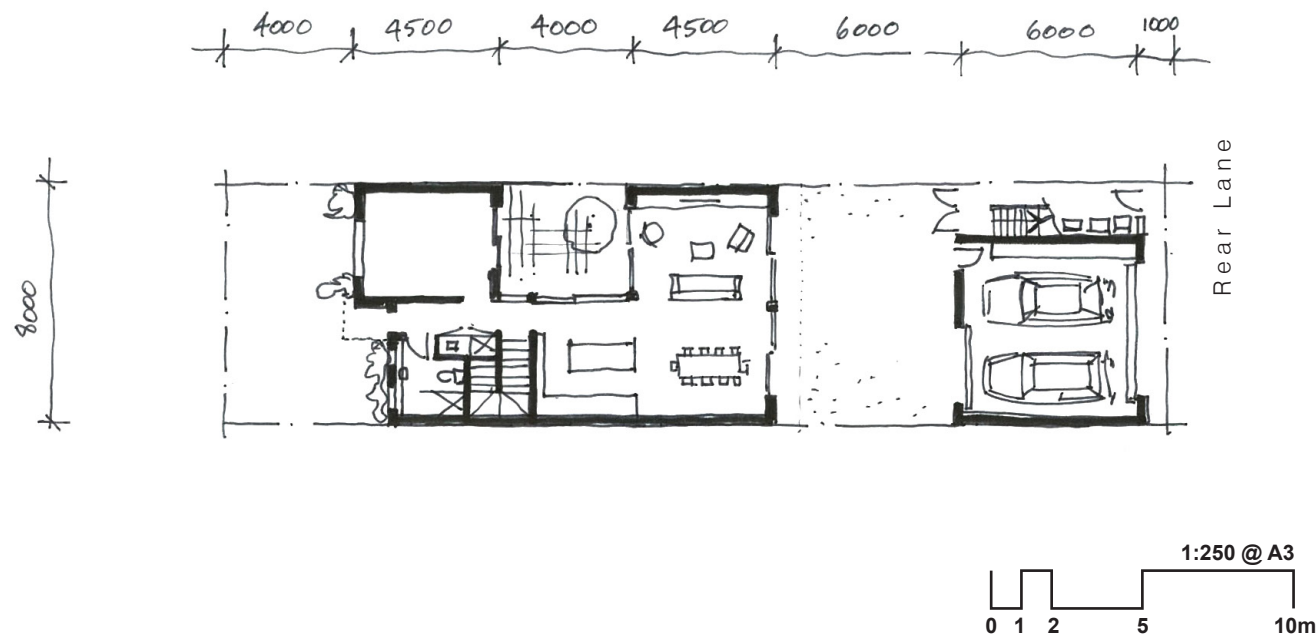


DHA's Hamilton Corner delopment Designed by Batessmart

Indicative first floor plan 1:250



Indicative ground floor plan 1:250



8.5 Dune apartments

Description: These apartment typologies are designed to minimise the overall building footprint and bulk and maximise visual connections with the surrounding landscape. Small footprints allow for up to 4 units per floor with the potential to allow for open undercroft spaces at ground floor and open stairwells and vertical circulation.

Building heights: 1-4 Storey

Approx density: 50-60 dw/ha

Construction: Steel frame concrete slab, skillion/vaulted roofs

External materials: Combination of corrugated metal sheet, timber panel cladding.

Sustainability: Passive solar design, locally sourced materials, naturally ventilated, high thermal performance, rain water harvesting, solar PV cells, minimise cut and fill, native drought tolerant species.

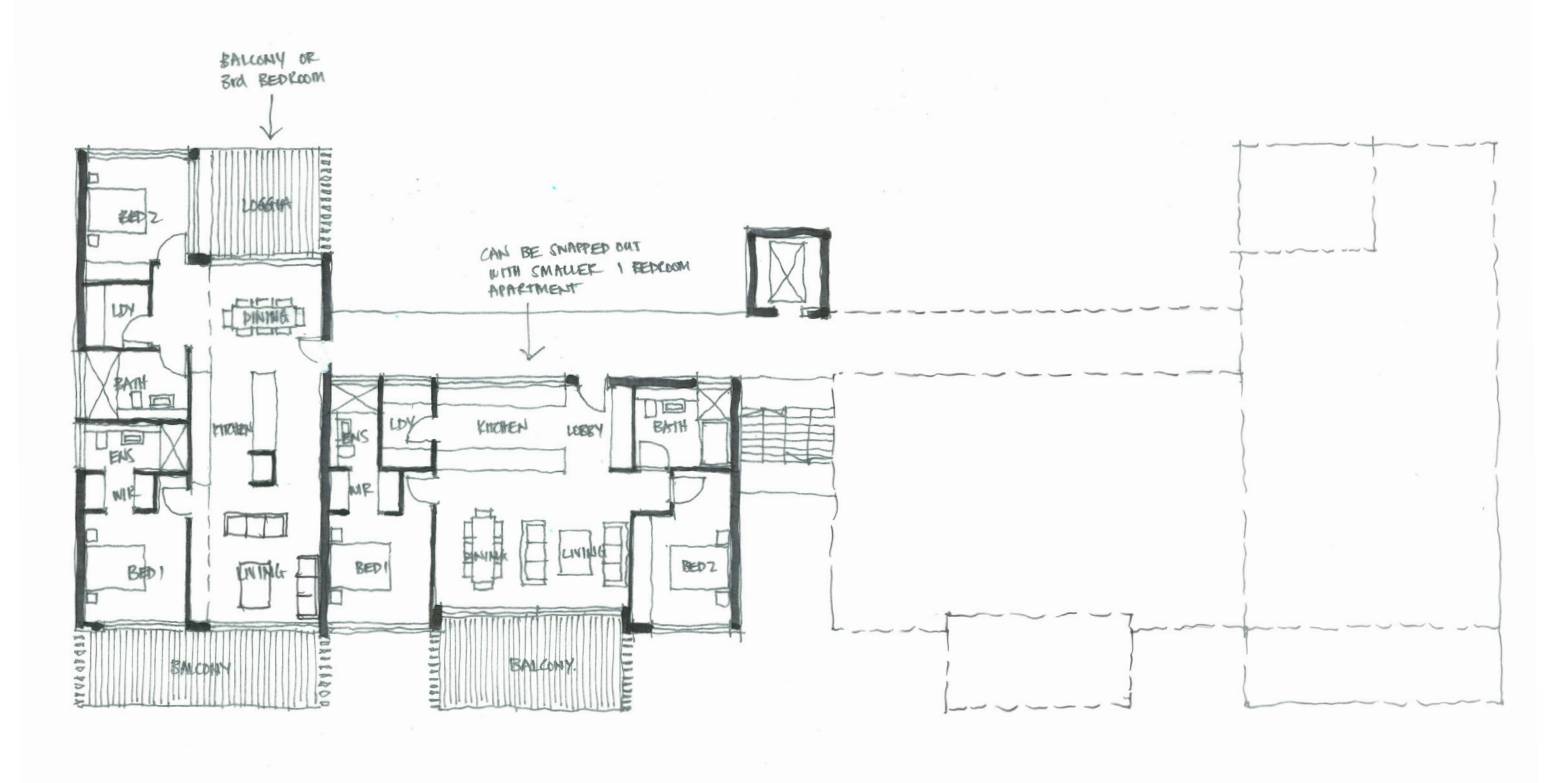


Viridian Noosa Residences - by JMA Architects

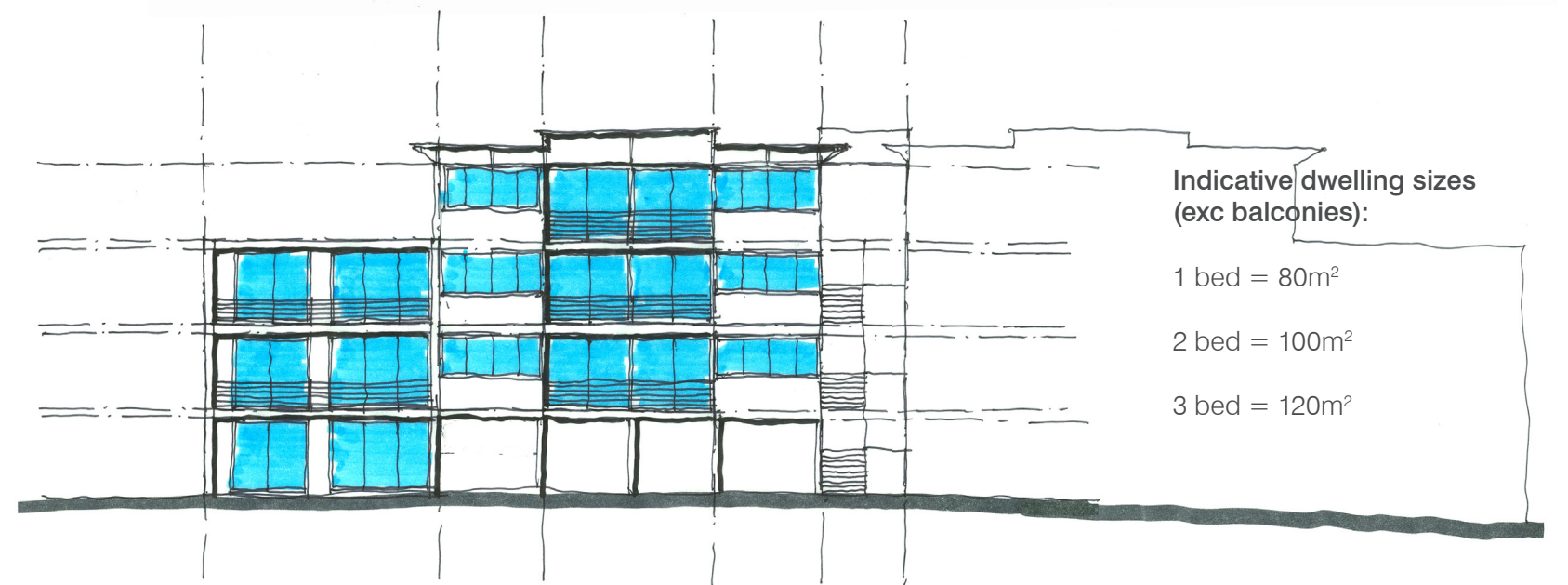


Timber coastal apartments - Wood Solutions

Indicative floor plan 1:250



Indicative front elevation 1:250



HOUSING MATERIALS WILL COMPLIMENT THE LOCAL ENVIRONMENT





Assessment

Justification and supporting design detail for the master plan have been provided throughout this report, with technical specialist assessments attached under separate covers as part of the Planning Proposal package. This section summarises the key urban design assessment criteria and key elements of technical reports to demonstrate the likely impacts and benefits of the proposal.

9.1 Compliance

Local planning controls

The proposal facilitates housing for a mix of defence members and the public. While housing for defence meets the objectives of the existing SP2 (Defence) zone with respect to land use, it is considered that the proposal would be better facilitated under a R2 Low Density Residential and RE1 Public Recreation zoning to ensure that the future vision for the land is clear.

A 9m height limit is proposed within R2 Low Density Residential areas. No height controls are currently applicable to the site.

Coastal Erosion

All dwellings shown in the master plan are west of the coastal hazard line in accordance with Council's policy position.

State Environmental Planning Policy 65 (SEPP 65)

SEPP 65 is not applicable as there are no apartments proposed on the site.

9.2 Access and movement

The proposal would increase the opportunity for the local community and visitors to move within and through the site, appreciating both the site's heritage values and filling in a 'missing link' from Fern Bay to the beach. The landscape strategy proposes pedestrian pathways that connect Popplewell Road, the key heritage items, proposed open space and the beach.

The proposed street network is based on the historic rifle range layout which has a grid-like pattern. The streets will provide direct access to the beach and views to adjacent bushland. The north-south street orientation will facilitate excellent solar access to dwellings.

A clear street hierarchy has been developed to encourage legibility, wayfinding and a sense of address for each building, as well as supporting the diversity of dwelling forms.

All streets have been designed to meet minimum road widths under Council's controls and relevant technical standards, and are intended to be dedicated to Council.

9.3 Character and context

The following features of the proposal aim to establish a coastal character and ameliorate any potential impacts of the development:

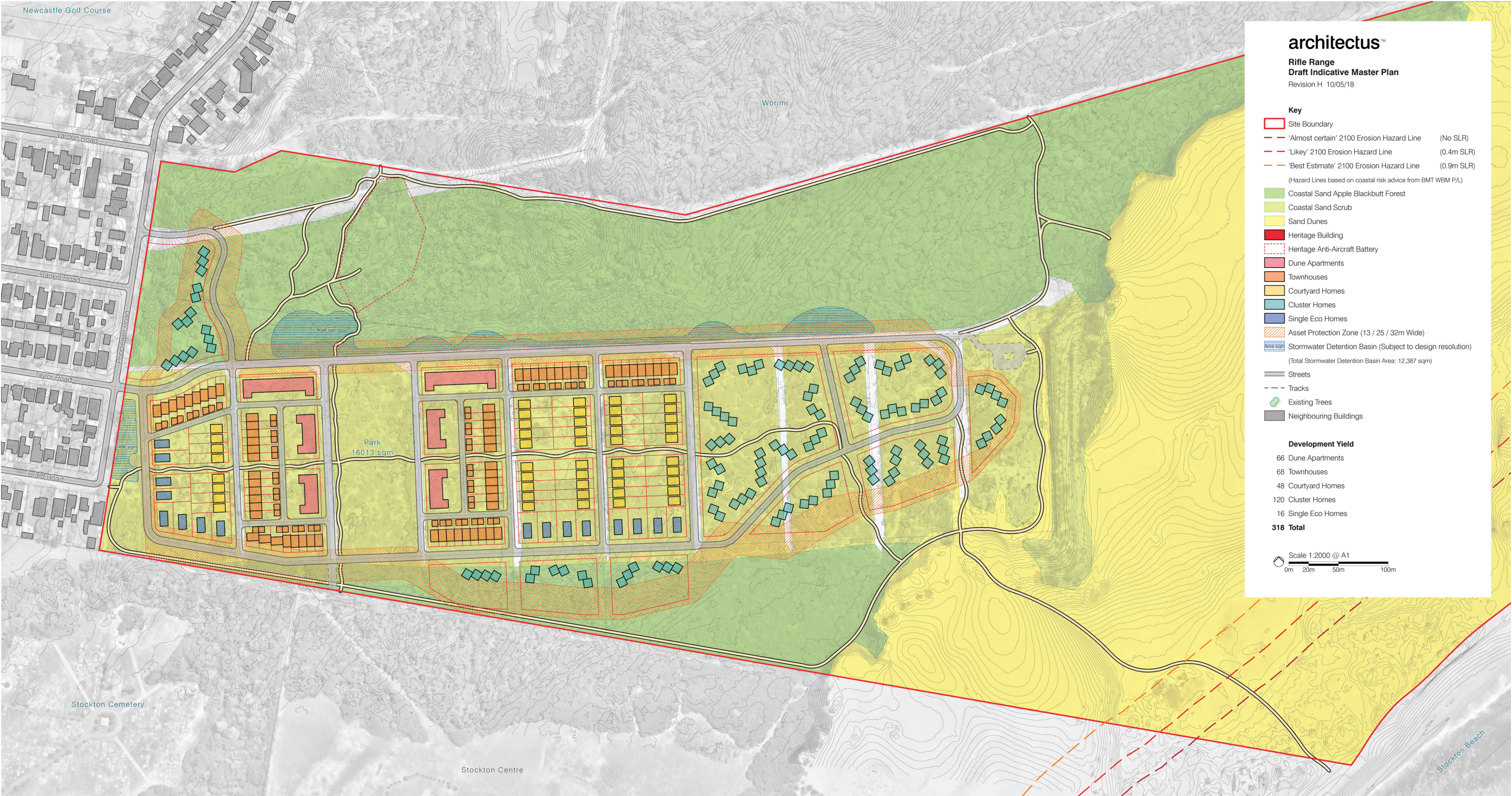
- develop will be concentrated on already disturbed areas in order to retain as much coastal vegetation as possible, and the urban layout will reinterpret the historic rifle range pattern;
- vegetation and landscape will provide a buffer between development and adjoining lands, including Popplewell Road and the beach, in order to visually contain the development;
- the development will softly transition into vegetated areas, with bushfire risk being managed by an appropriately designed APZ;
- streets will be kept as narrow as possible and verges will be generously planted with local shrubs and trees;
- a proposed coastal park will provide a visual, physical and ecological link between bushland areas in the north and south of the site;
- more compact dwelling typologies, such as terraces, allow for the site to be developed in a smaller footprint, with a view to retaining as much vegetated and items of heritage value as possible;
- the proposal limits dwelling heights to 9m in response to the visually sensitive nature of the site and the low-scale character of surrounding urban areas;
- the proposal facilitates an appropriate setback to key heritage items on the site, enabling views to and from the public domain.

9.4 Issues to be resolved through detailed master planning

The final design and area of public open spaces for dedication should be determined through consultation with Council and the community.

A site-specific DCP, Stage 1 DA or adopted master plan should be developed to lock in key objectives in the master plan for the development of the site. Appropriate flexibility should be allowed to enable new design approaches to be facilitated where they meet objectives.

Indicative Master Plan



Conclusion

The proposal is the result of engagement with a range of technical specialists, including coastal erosion, traffic, heritage, and archaeology, to develop a master plan that achieves the best practice planning and urban design principles in line with the changing vision for the future of the site.

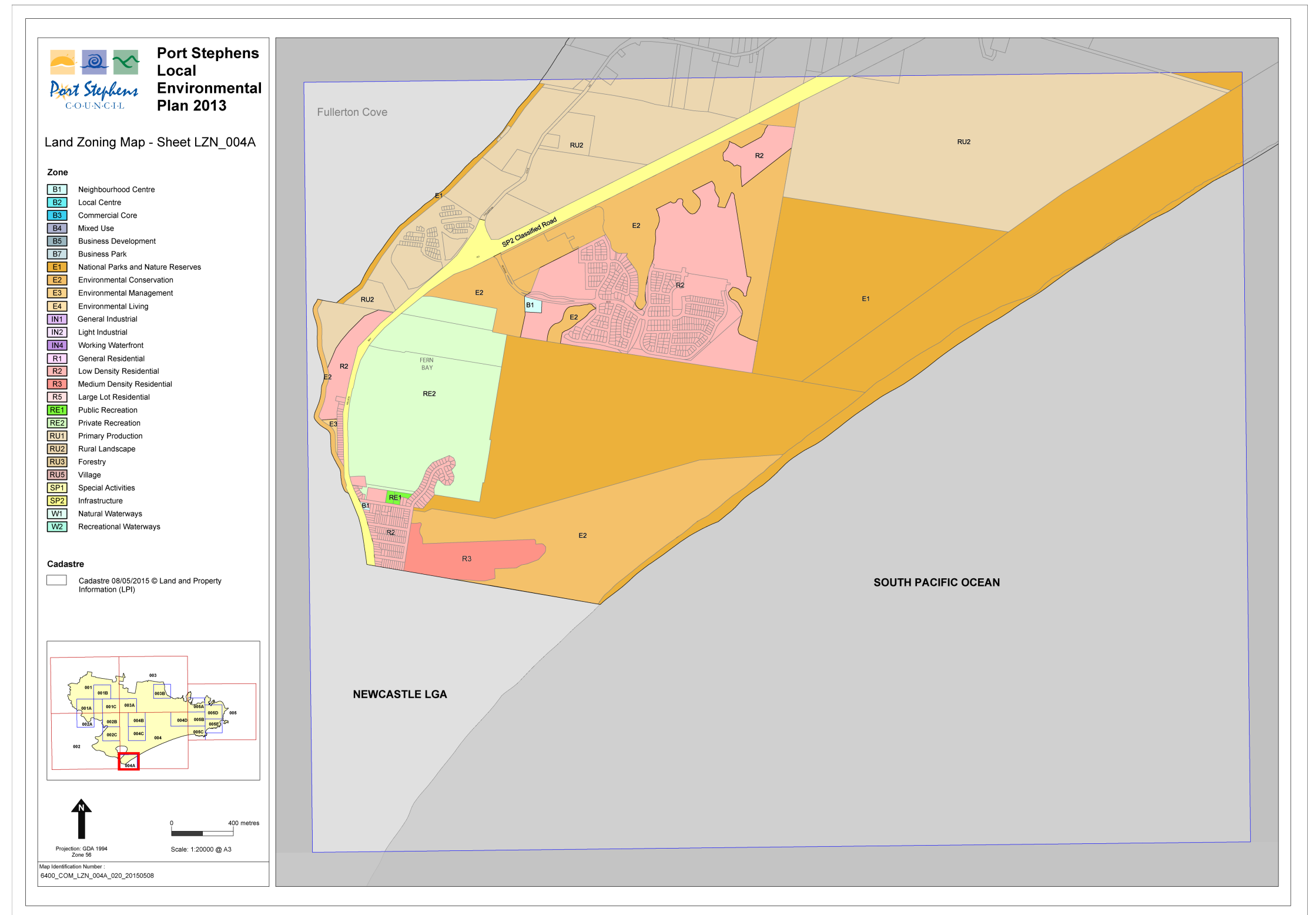
Having investigated the site and its context in detail, Architectus and Spackman Mossop Michaels are confident that the master plan, further refined and tested in detail, represents the best design and public domain outcome for the site.

11.1 Planning controls

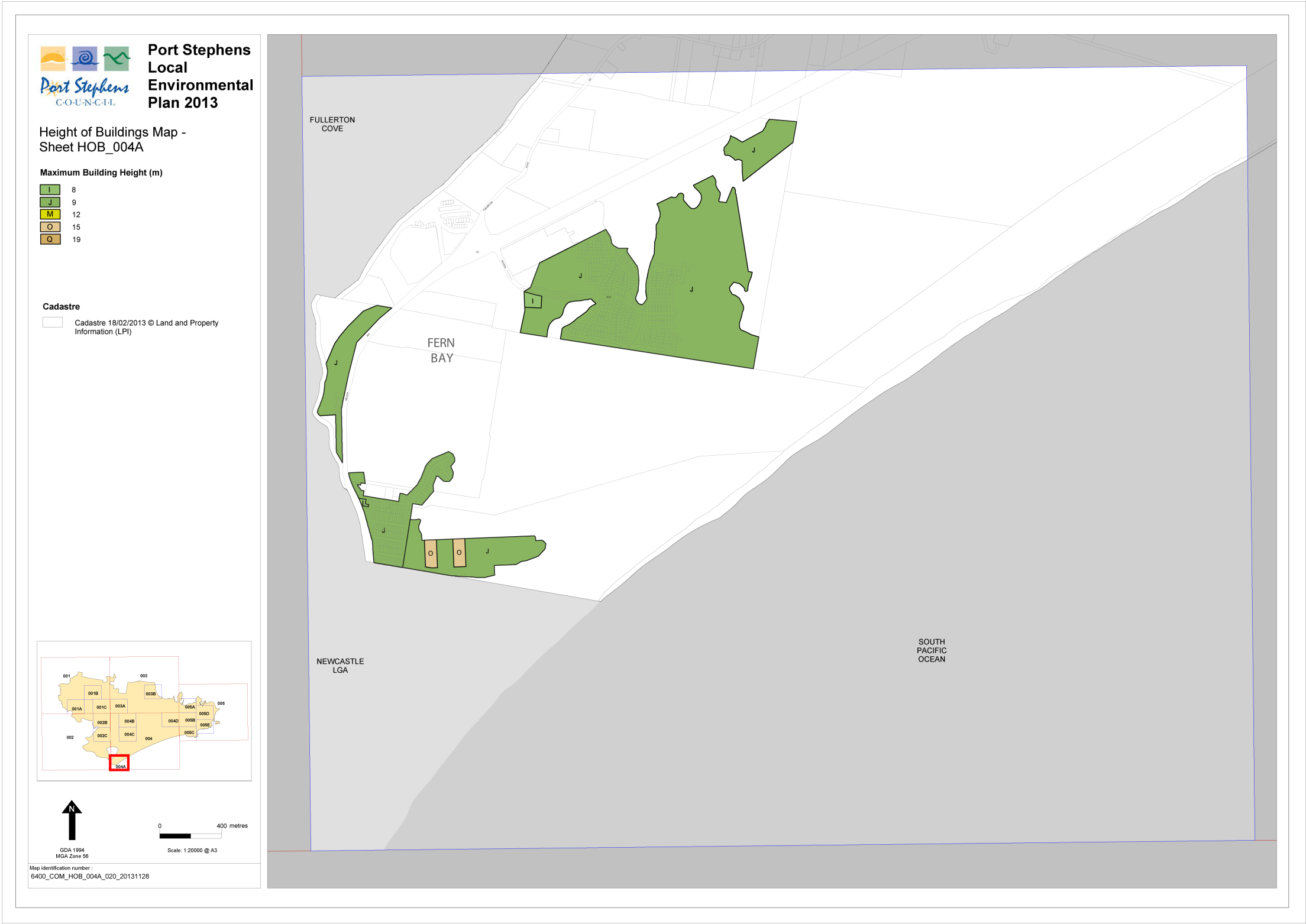
The proposed LEP controls are intended to strike the right balance between development and conservation of the site's significant features. Sensitive ecological communities, heritage items and vulnerable coastal lands are proposed to be protected and enhanced, whilst the flatter, mostly featureless parts of the site are to be made available for housing and community amenities. Through new development, the historic site can be opened up to the public, new open space can be provided and degraded relics and vegetation communities can be restored.

An amended lot size map is also proposed, as set out in the Planning Proposal report. The lot size map reflects the indicative concept master plan.

MAP 1 - Proposed Land Zoning Map



MAP 2 - Proposed Height of Buildings Map



Appendix A

Master plan options

Master plan options

The final recommended master plan was the result of the development and testing of a range of options for the sites development. These are included in the following pages to demonstrate the various benefits and constraints of each plan and highlight the reasoning for the final recommended master plan as set out in this report.

The master plans showed on the following pages are not recommended and are intended only to provide additional information on the urban design process undertaken.

Option one - 'Bush Streets'

Oversized medians within the streets (15m+) allow the native coastal vegetation to permeate the development.

Development is restricted to previously disturbed areas of the site (the old range).

A public linear park connects to the back of Stockton beach and dunes and could provide opportunities for cultural heritage interpretation.

Approximate development mix/yield (indicative only subject to testing)

Dune apartments/town houses	18,500	50	92
Medium density coastal clusters	15,000	30	45
Single eco-homes	17,000	10	17
TOTAL	50,000		154

Legend

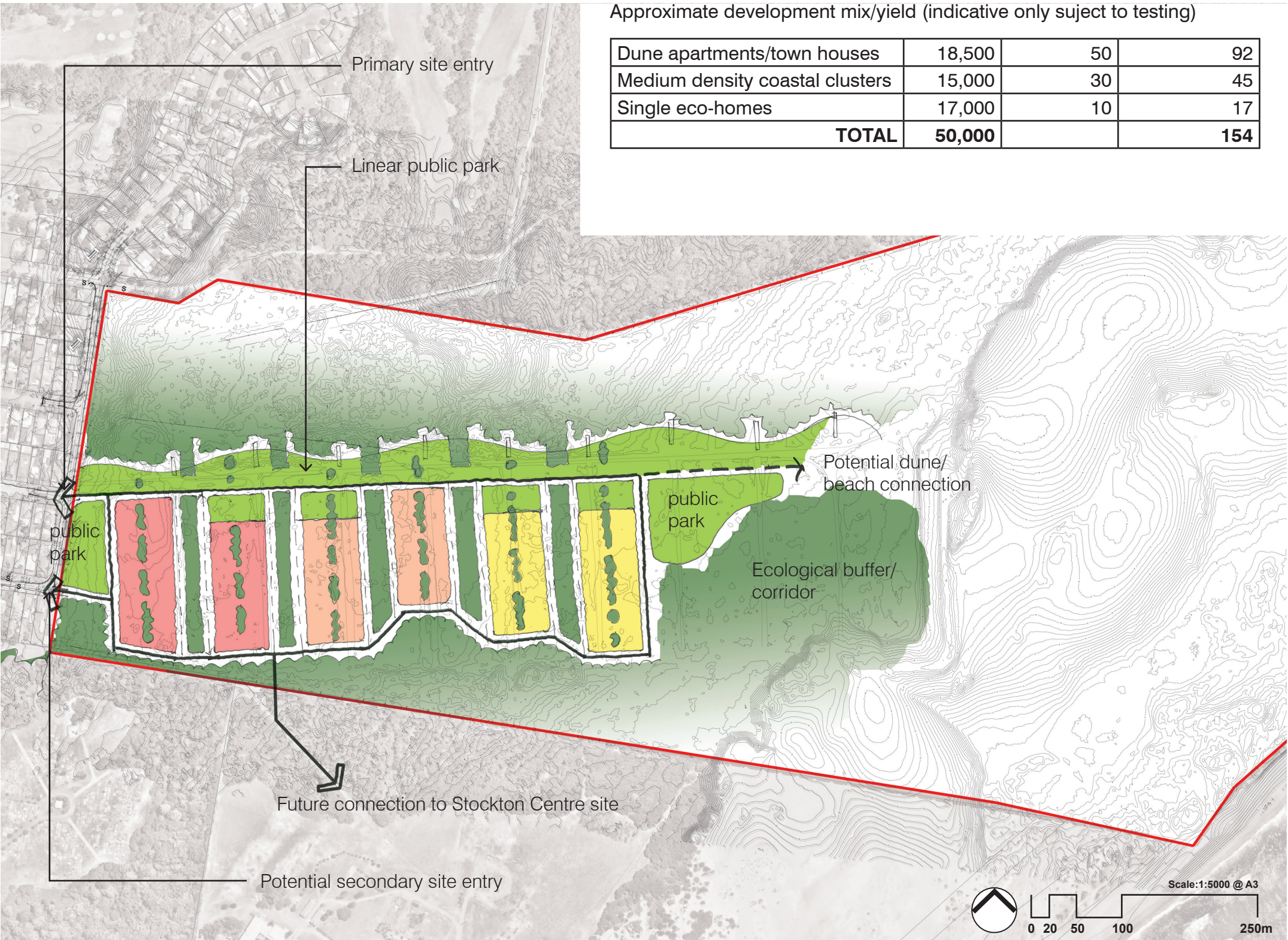
Dune apartments/town houses

Medium density coastal clusters

Single eco-homes

Public Open Space

Native bush/vegetation



Master plan options

Option two - 'Community clusters/ pods'

A number of individual residential precincts or 'pods' within the bush setting. Each pod could have its own central communal space/park.

The road network moves away from the regularity of the range setout.

Development is restricted to previously disturbed areas of the site (the old range).

A public linear park connects to the back of Stockton beach and dunes and could provide opportunities for cultural heritage interpretation.

Approximate development mix/yield (indicative only subject to testing)

Dune apartments/town houses	14,000	50	70
Medium density coastal clusters	19,500	30	58
Single eco-homes	13,000	10	13
TOTAL	46,500		141

Legend

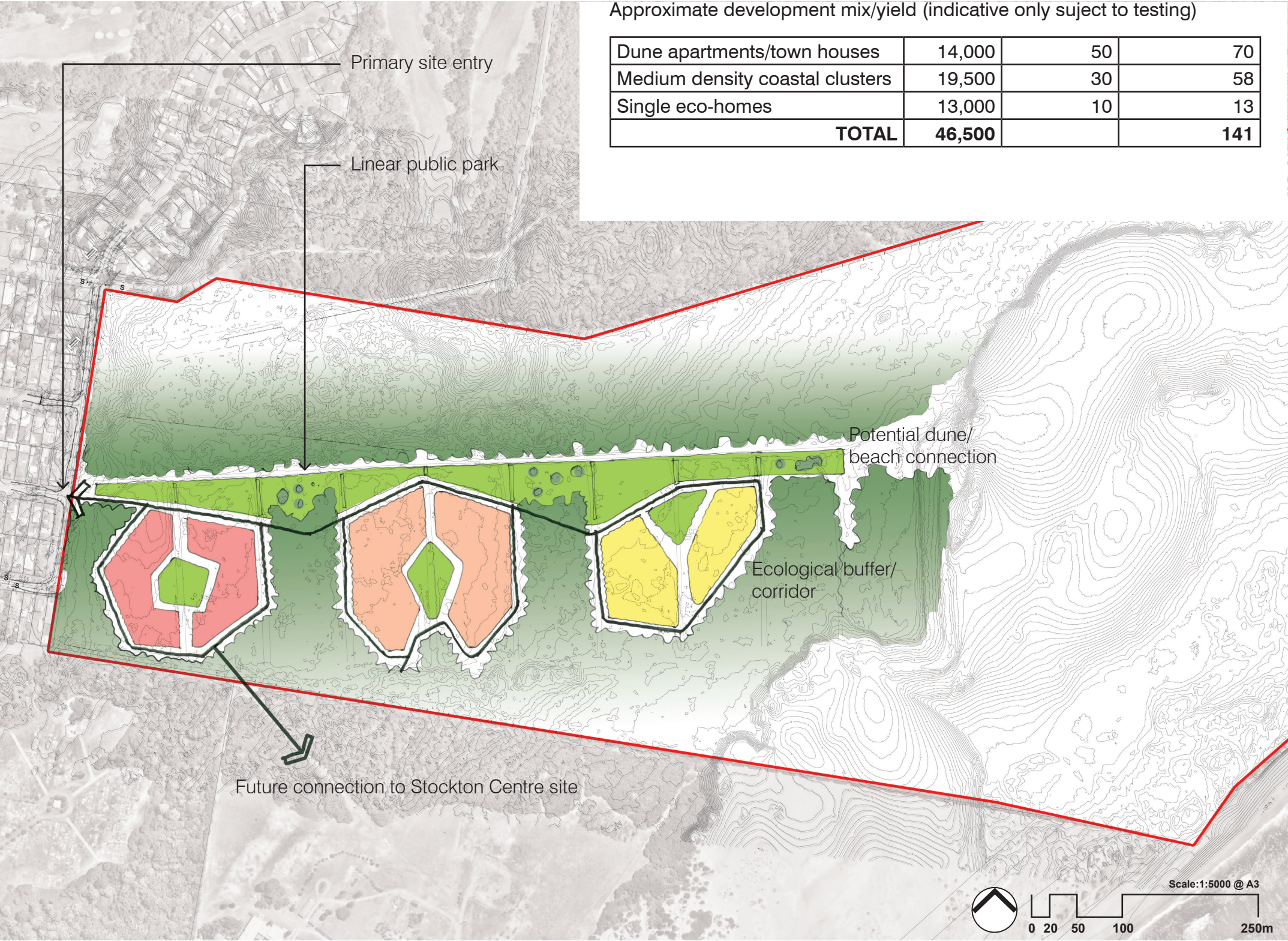
Dune apartments/town houses

Medium density coastal clusters

Single eco-homes

Public Open Space

Native bush/vegetation



Option three - 'Staggered range set-out'

Utilising the existing set-out of the rifle range firing mounds and staggering development parcels to allow for bushland encroachment. Streets would be very informal and may include dead ends to reinforce sense of bush environment.

Whilst development is main restricted to previously disturbed areas there is some proposed sensivly located 'Eco Town Houses' to the immediate north of the old range area.

Approximate development mix/yield (indicative only subject to testing)

Dune apartments/town houses	13,000	50	65
Medium density coastal clusters	26,000	30	78
Single eco-homes	12,500	10	12
TOTAL	51,500		155

Legend

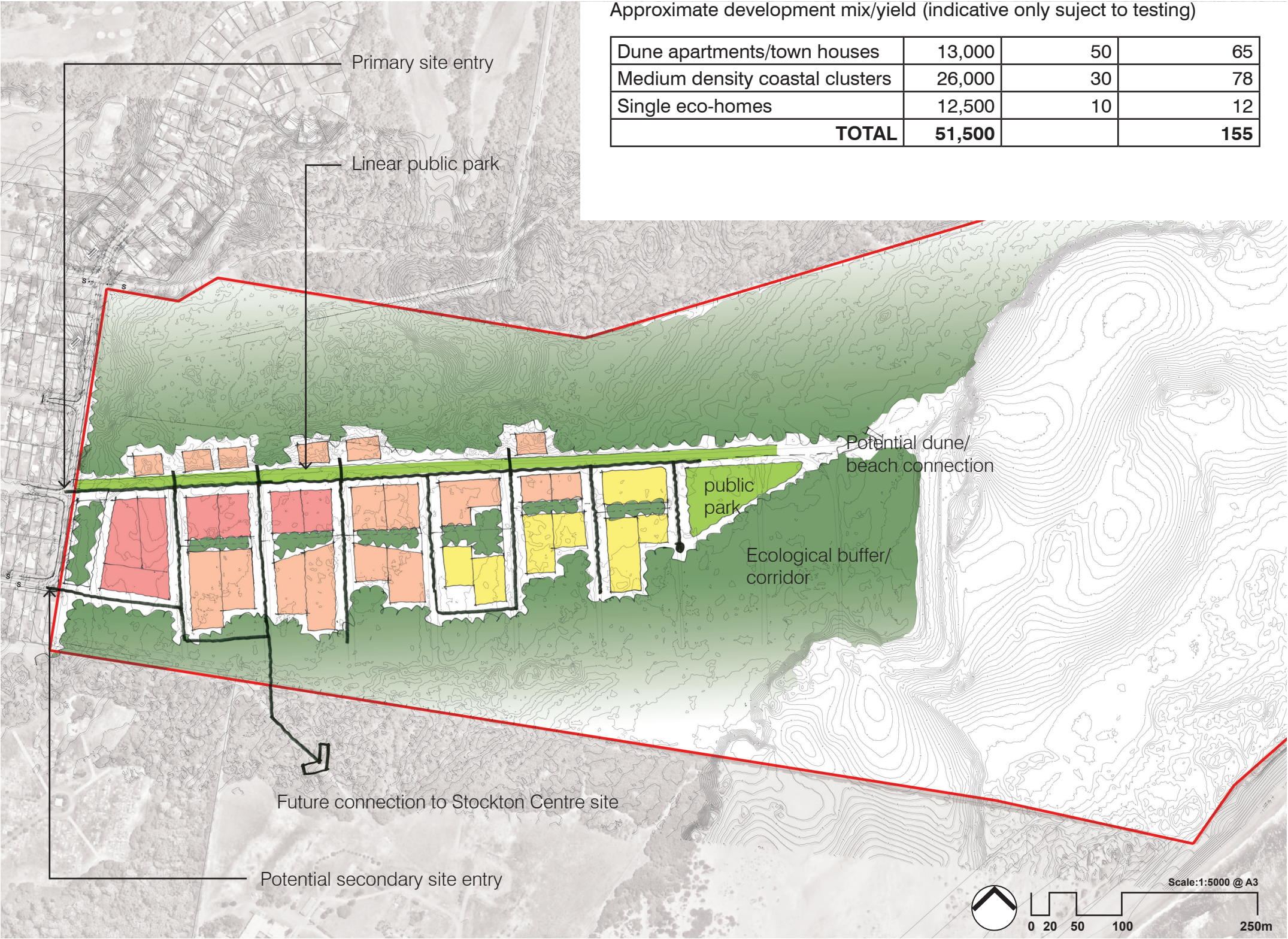
Dune apartments/town houses

Medium density coastal clusters

Single eco-homes

Public Open Space

Native bush/vegetation



Appendix B

Precedent studies

B Precedent studies

The Sea Ranch, California, USA



The Sea Ranch Coastal Landscape

Source: <https://noordinaryresort.com/2015/02/27/the-sea-ranch-ca/>

Environment

The Pacific Ocean coastline north of San Francisco features a windswept and rugged landscape. The Sea Ranch covers a section of this coastline approximately 16km in length, straddling Highway One as it winds along the hillside. This landscape is characterised by open meadows between hedgerows of cypress trees planted perpendicular to the coast as buffers to the wind. The vision was for a community of people to sensitively inhabit this place while preserving the quality and character of this environment.



The Sea Ranch Condominium One by Moore Lyndon Turnbull and Whitaker

Source: The Sea Ranch: Qualified Vernacular. Donlyn Lyndon, University of California Berkeley.

Dwellings

This property was purchased in 1964 by Oceanic Properties for the development of a new town. Landscape architect Lawrence Halprin was hired to plan the site based on ecological considerations. Guidelines were established to promote design continuity in developments, beginning with the prototype Condominium One by Moore Lyndon Turnbull and Whitaker. Over time, houses with more suburban formats have become more prevalent, dissolving the strength of the original community clustering intent.

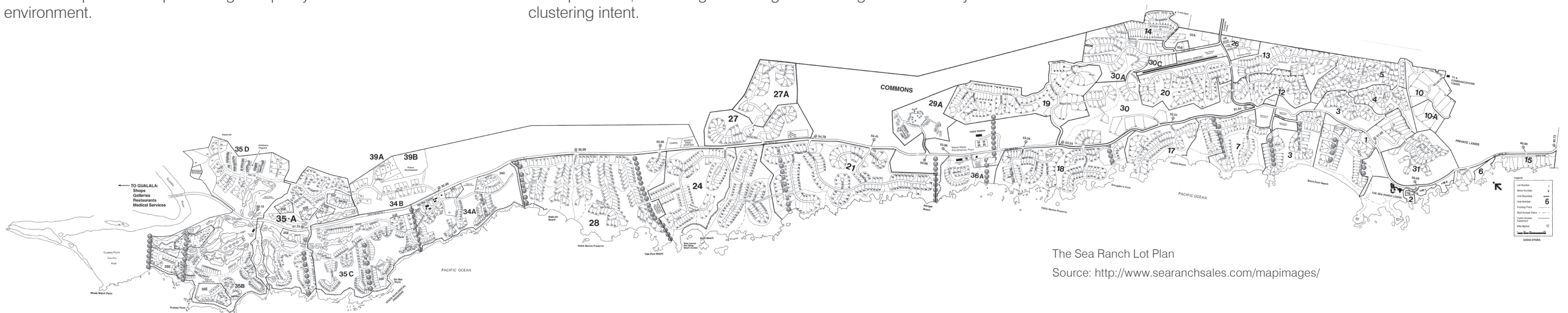


The Sea Ranch Condominium 1 by Moore Lyndon Turnbull Whitaker

Source: <http://ideasgn.com/architecture/condominium-1-sea-ranch-mltw/>

Lessons Learned

Architect and developer Al Boeke has stated that his idea was that “we would respect the land. We would build architecture... that seemed natural to this place.” This concept has been largely upheld by attracting environmentally inspired residents to build within site-specific controls; including a covenant, design principles, and design review process.



The Sea Ranch Lot Plan

Source: <http://www.searanchsales.com/mapimages/>

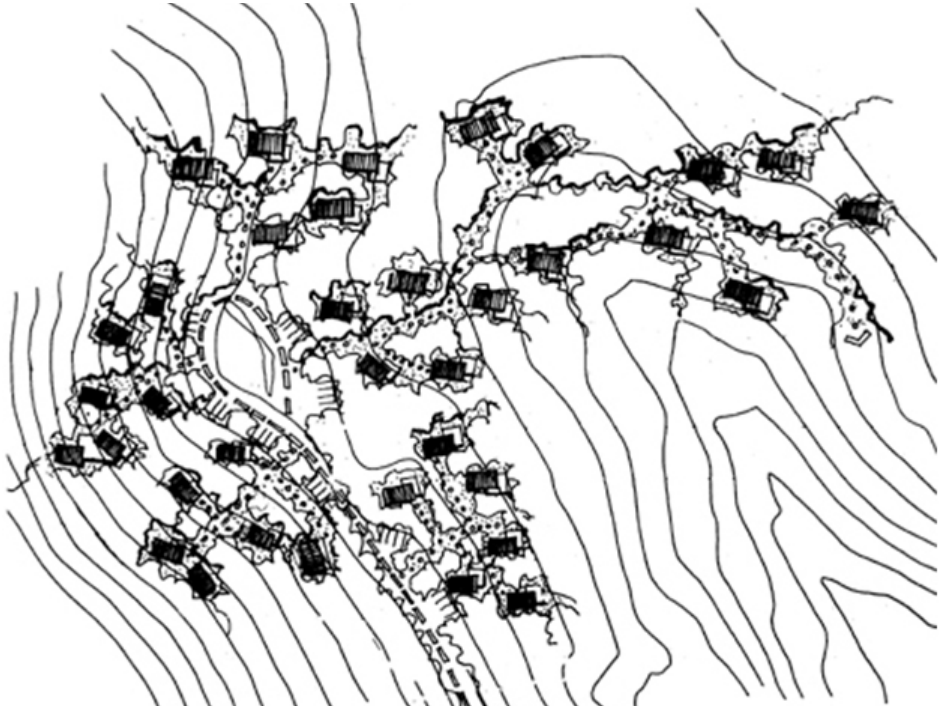
Murray’s Beach, NSW



Murray's Beach is located on the Wallarah Peninsula, facing onto Lake Macquarie
Source: Nearmap

Environment

The Wallarah Peninsula is a largely forested area of land between Lake Macquarie to the west and the Pacific Ocean to the east. The North Wallarah Peninsula Master Plan guides development of a series of small suburbs, including the lakeside village of Murray’s Beach. This low density housing development features a environment and community oriented character that integrates it with the coastal landscape.



The houses at Murray's Beach are arranged as clusters in the landscape.
Source: Architectus

Dwellings

Streets and housing lots are designed to be woven into the landscape, with lots sold individually and developed in accordance with a set of design guidelines. A *Design Essentials* document encourages the sensitive siting, scale, expression, and environmental performance of individual houses in harmony with the bush context. For example, houses should be sited along contours to minimise ground works for cut and fill, and placed within designated development envelopes away from existing trees.



The coastal forest landscape predominates throughout the Murray's Beach development.
Source: Architectus

Lessons Learned

The houses at Murray’s Beach are successful in expressing a continuity of landscape. The positioning and openings of houses is generally well staggered, allowing space in between for trees. Construction is mostly lightweight, with a harmonious material and colour palette. Private divisions such as solid fences are discouraged, creating a sense of openness throughout the bushland setting.

Generally, earlier constructions in Murray's Beach display a higher level of contextual harmony than more recent projects. Design regulations appear to have been relaxed, with increases in hard surface areas and more solid fencing materials. A system that relies upon design guidelines for quality control is dependent on the rigourousness of the application of development standards.

Little Bay, NSW



The Prince Henry Hospital Pathology Ward 1.
Source: <http://www.princehenrycommunity.com.au/assets/Uploads/images-and-pdfs/nursing-and-medical-museum/nursing-and-medical-museum/ward1pathology.jpg>

Environment

Little Bay, to the south-east of Sydney, has been home to the Prince Henry Hospital since 1881. The 1998 consolidation of the Prince Henry and Prince of Wales Hospitals made the Little Bay site available for redevelopment, with master planning by Landcom beginning in 2000. Several large precincts were developed separately, with design guidelines and design review processes to manage design outcomes, heritage conservation and adaptive reuse, housing diversity, and affordable housing provisions.



The Little Bay Master Plan features a wide diversity of housing type.
Source: Randwick DCP 2013

Dwellings

Little Bay has a high diversity of dwelling types; with apartments, terraces, townhouses, and houses. 1% of total dwellings are affordable housing. This variety facilitates community diversity in life stage and family type. There is also a Surf Life Saving Australia office, an Aboriginal Health College, community centres, and a retail precinct, providing local employment, education, and shopping. A variety of high quality public open spaces reinforce the coastal quality of the place and offer recreation opportunities in daily life.



Little Bay displays a successful blend of hertiage, new development, and landscape.
Source: Architectus

Lessons Learned

Little Bay is a highly livable example of new development integrated with the existing place and context. Separate but coherent developments of a range of scales create an attractive aesthetic, while offering opportunities for a range of people to live, work, and play. This has been achieved while conserving the local heritage features and natural coastal character and amenity.



Little Bay apartments, terraces, houses, heritage buildings, and beach.
Source: Nearmap

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