

SUNNY HEIGHTS DEVELOPMENT URBAN DESIGN

Prepared for Changda International NZ Ltd.

1 July 2016

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Bibliographic reference for citation:

Boffa Miskell Limited 2016. *SUNNY HEIGHTS DEVELOPMENT URBAN DESIGN: Urban Design Preliminary Design Report*. Report prepared by Boffa Miskell Limited for Changda International NZ Ltd.

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Status: FINAL Revised	Revision / version: [2]	Issue date: 1 July 2016

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1.0 Introduction/Background

- 1.1 This report outlines the preliminary urban design for the Sunny Heights Development Masterplan which will inform the detailed design of stages 1, 2 and 3 of the development. The report has been structured based on the Auckland Design Manual recommended composition for a Design Philosophy Statement.
- 1.2 Changda International New Zealand Limited (Changda) own approximately 42 hectares of land at the intersection of West Hoe Heights Road and Sunnyheights Road in an area currently known as “West Hoe Heights, Orewa Extension”. The landholding comprises lots: 1 DP 204866, 1 DP 203050, 2 DP 204866, 3 DP 170969, 45 DP 187725, 1 DP 486639, 2 DP 486639. Additionally Changda is considering the integration of part of the Kakariki Views road designation (paper road) to facilitate the development.
- 1.3 Over the past 2 years, Changda has been actively working with consultants and the Auckland Council to advance its plans to transform this greenfield area into a new master planned community. Within this period several development schemes have been considered, these schemes have evolved from a typical suburban residential area to an integrated development aimed at creating a demographically diverse and engaged community with mixed density, supporting facilities and diverse housing typologies.
- 1.4 Following recommendations by the Auckland Development Committee, the area has been approved as a Special Housing Area under the Housing Accords and Special Housing Areas Act 2013. Changda has been working with the Housing Project Office (HPO) to develop a development plan in accordance with the provisions of the Unitary Plan, to facilitate the delivery of new homes to meet some of Auckland’s demand.
- 1.5 Changda understands that creating a vibrant and engaging environment is the biggest contributor to the development of a healthy community with positive social and economic outcomes. Therefore this proposed masterplan addresses wider social and economic development goals as well as housing supply needs.

2.0 Context Analysis

- 2.1 The site is located some 2.5 km north west of Orewa urban area in a low/medium density residential zone and at the intersection of Sunnyheights Road and West Hoe Heights Road. The area is currently in pasture and retains a rural character. The site is included within Auckland’s metropolitan urban limit (MUL), is surrounded by existing suburban areas to the east and south, and new developments proposed to the west will be developed within the next 10 years.
- 2.2 Access to and from the Northern Motorway is 2.5km to the south west. It is located 7.5km north of the Silverdale interchange and a future Northern Bus Line Station. The principal road access points for the site are located at Sunnyheights Road (east of 44 Sunnyheights Road) and West Hoe Heights Road (between 161 and 171 West Hoe Heights Road). Public transport in Orewa is currently limited to bus routes within the township and to the areas north and south of Orewa. The nearest bus stop to the site is

in Grosvenor Place, approximately 15 minutes' walk away. However the volume of housing developments projected for the area will lead to increased bus routes in the future including buses running through West Hoe Heights Road. A bus stop at Sunnyheights Road is expected to be located halfway between the Sunnyheights - West Hoe Heights roads intersection and the western access to the site.

- 2.3 Orewa beach is approximately 20 minutes' walk away via Alice Eaves Scenic Reserve, or a 5 minute drive via West Hoe Heights Road.

3.0 Site Analysis

- 3.1 The site is located within a system of gullies and streams south of the Alice Eaves Scenic Reserve. Within this reserve a couple of walkways connect to Orewa beach. Ridges to the south, east and west boundaries define a bowl-like site with primary slopes facing inwards and north towards the scenic reserve.
- 3.2 The Nukumea Stream passes through the north west corner of the site and along the north east boundary with adjacent SEA area.
- 3.3 The property was previously utilised for pastoral farming purposes and is largely devoid of built structures. In some areas the site is very steep, with slopes of 1:2 particularly in the vicinity of the northern and southern boundaries. The middle of the site contains 8.5 hectares of vegetated area which is classified as a Significant Ecological Area (SEA) under the relevant statutory planning documents. A small tributary of the Nukumea Stream flows through this vegetated area.

Constraints

- 3.4 Topography and geotechnical: The site is characterised by slopes ranging from moderate to steep (Figure 01: Slope and instability). There is extensive visible evidence of instability across the property in the form of escarpments. Development of the property must ensure that stability is not compromised, particularly on steep slopes of more than 20° (Figure 02: Slopes map). Unstable ground and steep slopes over 30° in some areas are major development constraints that will challenge the technical and economic feasibility of any development on the site.
- 3.5 SEA: As outlined in 3.2 above, a 8.5 hectare vegetated area with a small tributary creek of the Nukumea Stream has been designated as an SEA at the centre of the site. This area must be retained and therefore places a limitation on the developable area of the site.
- 3.6 Existing landfill: A closed landfill is located within the southern portion of the site, encompassing an area of approximately 2 hectares. The closed landfill area further constrains the development potential, due to current regulations for works near landfills and risk of leachate discharging onto inhabitable areas.
- 3.7 Adjacent residential areas: The effects of the Sunny Heights Development over adjacent existing and proposed suburban developments needs to be considered to ensure neighbours' acceptance and support.

Opportunities

- 3.8 Location: From a planning perspective the site has been identified as suitable for intensification as it is within the defined urban limits, is relatively close to transport links, Orewa town centre, the beach, and other amenities.
- 3.9 Orientation/Aspect: Located on a north facing slope, the site enables maximum overall sunlight exposure, while its shape and north/south orientation allows for east/west orientation of individual lots to maximize solar access. The varied slopes also allow for a variety of housing typologies that can contribute to a range of architectural designs and housing choice.
- 3.10 Views: Coastal and distant views contribute to visual amenity and therefore add value to those parts of the site facing the scenic reserve (to the north), west towards the afternoon sun (to the west), and especially to areas facing the sea (to the east).
- 3.11 Natural amenity: The SEA offers opportunities to benefit from what is effectively a natural reserve area in the centre of the site. Its associated visual, and ecological features can be used to create attractive natural environments for passive recreation and other leisure pursuits.

4.0 Design Response

- 4.1 The overall design objectives are defined by Changda's aspirations, the site's specific topographical and geotechnical constraints and good urban design practice as follows:
- Define a commercially viable subdivision in tune with current market trends to create a comprehensive/mixed density community.
 - Use existing features and amenity to add value to the development. In particular the existing SEA, sea views and Alice Eaves Reserve.
 - Enhance amenity through provision of open spaces for recreation, opportunities for interaction with nature and through the legibility of the urban form.
 - Specific principles defining the concept subdivision design are aligned with Auckland Council's Auckland Design Manual guidelines and principles described in the Sunny Heights Development Design Criteria Report.

Urban Structure

- 4.2 The overall subdivision concept responds to the constraints defined by the existing SEA and the steep topography. These conditions prescribe three key development areas: East, West and South, surrounding the ecological area within the centre of the site (Figure 03: Overall concepts – Section 6).
- 4.3 Within these development areas five primary neighbourhoods are defined using the road network and the land form. The roads have been defined following the contours as much as possible to minimise associated earthworks and retaining walls. This road network has been rationalised to different road typologies to provide appropriate levels of service to the different housing densities and number of lots per road.

- 4.4 Each neighbourhood has easy access to one of the three open spaces defined to provide amenity to the development. All active open spaces are located adjacent to the SEA to provide a natural backdrop to leisure activities and allow these open spaces to be extensions of the SEA's vegetation and natural habitats. The principal open space is located at the centre of the development for ease of access. With approximately 5,000m² of total area, including 4,500m² of flat area in a shape that allows for a small soccer field. (Refer to Preliminary Landscape design report).
- 4.5 A central north-south bush walk links the existing SEA and the main open space with the Alice Eaves Reserve to the north providing pedestrian access to Orewa beach and West Hoe Heights Road to the south facilitating vehicular access to Orewa Village.
- 4.6 The overall urban structure concept is the basis for the proposed Subdivision Masterplan (Figure 04: Illustrative Master Plan).

East-West connection

- 4.7 From West to East two activity nodes are located proximate to the main entrances to the subdivision: local corner shops near the Sunnyheights Road entrance to the west, and a childcare facility near the West Hoe Heights Road entrance to the east. These activity nodes are defined to support the predominant residential land use with basic services at an appropriate local scale.
- 4.8 The centrally located open space is aligned with these activity nodes and is connected to them via an east-west pedestrian/cycling path at the core of the development. The purpose of this connection is to encourage active transport (walking and cycling) and provide opportunities for community engagement and to foster a sense of community and identity. (Figure 05: Activity nodes concept).

Yield and Typologies

- 4.9 The subdivision layout provides a mix of typologies to offer a varied product to suit market demands, ensure a diverse social/age mix, and offer opportunities for residents to move within the development (e.g. downsizing from a family home to a terrace or apartment). This can contribute to the creation of a diverse and enduring community rather than the typical suburban "one-generation" model comprising a single typology of typically 3-4 bedroom family homes.
- 4.10 While most lots are 400m² or more (approximately 41% of total lots), the remaining 59% of lots are shared between smaller 300m² zero lot, 150m²-200m² terraces and 80m² apartments.
- 4.11 There are 26 lots (4.7% of total number of lots) of 600m² or more, which are larger than the average size for this development.
- 4.12 To encourage walking, cycling and social interaction, the number of rear lots are kept to a minimum. These comprise 3.5% of total number of lots (20 lots). The remainder have street frontage to either a public or a private road.
- 4.13 The following is a summary of areas and yield:

Areas:

Developable area (private lots):	210,763m ² (50%)
Public roads:	55,668m ² (13%)
Private Roads:	5,443m ² (1.3%)
Pedestrian lanes:	2,167m ² (0.5%)
Commercial/Community facilities:	2,098m ² (0.5%)
Reserve	137,287m ² (33%)
Pump Stations	793m ² (0.2%)
Existing paper road to remain	6,390m ² (1.5%)
Total combined area	420,609m² (100%)

Yield:

Detached:	253 units (44.3%)
Smaller detached (Zero lot):	142 units (25%)
Terraces:	93 units (16.3%)
Apartments:	82 units (14.3%)
Total dwellings:	570 units (100%)
Commercial:	2 units
Utilities:	2 units
Total units:	574 units

Progressive density increase

- 4.14 To minimise potential adverse effects of medium density areas over adjacent neighbours, larger lots (400m² and above) are located at the site's boundaries, to create a better interface between neighbouring properties of more conventional suburban lots (around 600m²) and the proposed smaller lots at the centre of the site. Thereby (apartments and terraces) are located in the lower land at the centre of the site, next to the central open space to compensate for their lack of private outdoor living areas (Figure 06: Density arrangement).

Landform and topography

- 4.15 The five neighbourhoods are defined by their location within the site and the site's landform such as ridges and gullies, slope, orientation and aspect (Figure 07: Site's features). The significant constraints defined by the steep topography and geotechnical conditions means extensive earthworks are required to enable a technically and economically feasible subdivision.
- 4.16 Within those constraints the subdivision design minimises landform changes to preserve its overall shape. Wherever possible fills from excavations are retained or

integrated into the building platform and the land sloped to appear as 'natural' as possible; using planted batter slopes instead of retaining walls where practicable.

- 4.17 The proposed cuts and fills enable the existing non-developable 1:2 slopes to become developable slopes ranging from 1:3 to 1:5. This generates opportunities to create habitable private outdoor living areas and reasonably flat public open spaces.

Movement Network

- 4.18 Connections and connectivity: A network of roads, shared paths and bush walks provide movement choice and connectivity for private vehicles and active transport (walking and cycling) from the site to key adjacent locations, the centre of Orewa and greater Auckland (Figure 08: Movement network plan).
- 4.19 A key overall design objective for the movement network is to provide a safe environment for all users. The subdivision's roads are defined with a geometric design to manage traffic speed; buffers between carriageway and footpath act as physical barriers between cars and pedestrians; narrow carriageways with edges defined by a change in paving material and planted kerb buildouts which visually reduce the width of the carriageway and slow traffic (Figure 09: Typical local road cross section).
- 4.20 Within the site's topographical constraints, the road network has been defined to maximise permeability and movement options defining urban blocks. However, there are some locations where slopes are too steep for a compliant road, in such locations cul-de-sacs are used. These cul-de-sacs are connected by pedestrian/cycling links to allow pedestrian shortcuts and encourage walking/cycling.

Road Hierarchy and speed management

- 4.21 To help people understand where they are within the subdivision, and how to navigate it, 5 road typologies provide access to different levels of vehicular service and housing density areas. A variety of trees/planting help to identify the different streets, destinations and intersections. Trees and planting on berms or build outs into the on-street parking lane also help to reduce the risks of injury to pedestrians/cyclists, when vehicles traverse one type of road to the other, by slowing them down as they approach local areas. The following is a summary of roads' design specifications:
- Public Local Road (17.5m wide, 50+ lots, up to 40km/h proposed design speed environment)
 - Public Lane (14m wide, for up to 20-50 lots, up to 30Km/h proposed design speed environment)
 - Public Access Way (12m wide, for up to 20 lots, up to 30Km/h proposed design speed environment)
 - Private Access Way (10m wide, for up to 20 lots, up to 20Km/h proposed design speed environment) (Figure 10: Road hierarchy).
 - Private Access Way (8.5m wide, for up to 20 lots, up to 20Km/h proposed design speed environment) (Figure 10: Road hierarchy).
- 4.22 Carriageway widths are minimised as much as practicable while long stretches of straight roads are avoided and corner radii tightened to discourage speeding and

ensure slowed vehicle movements. To define direct routes and minimise exposure of pedestrians and cyclists to vehicular traffic, crossing points are located following desire lines for (i.e. directly in front of links to bus stops located on Sunnyheights Road and West Hoe Height Road).

Orientation and Outlook

- 4.23 The shape and predominant north-south orientation of the site prescribes predominant north-south roads and blocks that in turn define east-west lots. This orientation predominantly avoids south facing lots and ensure good overall solar access.
- 4.24 Areas within the site with significant sea and distant views have been identified and used to define lots with visual amenity and added visual value (Figure 11: Sea views map). These high quality views are managed with the design of fronts and backs of houses to maximise their value and avoid undermining the privacy of neighbours. Lots are defined to have only one public face to ensure privacy and quality outlook.
- 4.25 The high density areas (terraces and apartments) have direct access to public open spaces (adjacent or across the road), so that residents of these can enjoy views and outlook beyond their property boundaries.

Public and Private Space

- 4.26 To maximise usage and leverage of public areas and minimise Crime Prevention Through Environmental Design (CPTED) issues, the edges of open spaces are defined by private lots directly overlooking them or across public roads. Housing typologies for lots directly adjacent to open spaces are proposed to offer opportunities to overlook both the street frontage with their back facing the open space (Figure 12: Typical Terrace typology plan).
- 4.27 The topography of public open spaces ensures flat areas for active recreation have reasonable levels of passive surveillance from adjacent roads and private properties (Figure 13: Open space cross section).
- 4.28 Lots have generally been defined to have only one public “front” and a private “back” with three boundaries adjoining neighbouring properties. Due to the sloped nature of the subdivision lots at the higher portion of a block will overlook lots located at the lower portion of the block. This is proposed to be managed with screen planting along the back/shared boundary and, where possible, lots within a block are staggered to maximise privacy of backyard outdoor living areas (Figure 14: Block cross section).
- 4.29 Rear lanes for apartments are defined as “back space”: secure and free from general public access.

Vehicle access

- 4.30 Due to the steep topography, most, if not all sites, have a significant grade difference between the street and garage/parking area levels. In general the depth of a lot allows for transitions at the front boundary. This transition is particularly important for sites below street level to provide drivers with adequate forward visibility of the footpath and potential pedestrians in their direction of travel.

- 4.31 Large lots fronting busy roads such as West Hoe Heights and Sunnyheights Roads, allow for internal manoeuvring or at least a three-point turn, to avoid reversing onto heavy or fast traffic. Smaller lots fronting quieter roads with no room for an internal three-point turn will have restrictions on the treatment of fences and verges to maximise visibility over the footpath and carriageway.
- 4.32 Dominance of garages along street frontage is avoided by using house typologies with habitable indoor spaces fronting the street (Figure 12: Typical terrace plan).
- 4.33 To minimise disruption of the street's amenity by vehicle crossings in denser streets, the proposed walk-up apartments have a rear lane for vehicular access and parking. Where possible terraces and small detached (Zero lot) typologies have 'pairs' of vehicle crossings, to maximise the length of planted berms (Figure 15: typical street plan).
- 4.34 While creating a pedestrian friendly environment is a key design objective, manoeuvring of an 8m long truck has been considered for all roads serving more than 6 dwellings. This provides access for emergency vehicles, rubbish collection and moving in or out of the subdivision to 96% of the dwelling units.

Walkable neighbourhoods

- 4.35 The overall movement network creates several connections to promote walking and cycling between internal and external destinations across the five neighbourhoods. Key pedestrian connections are:
- a 2.5m wide shared walking/cycling path between the east and west development areas separated by the SEA to allow connections between residents of these two areas. This path is also the main/central pedestrian connection between the proposed local shops, main/central open space and child care facility, to support their patronage, social interaction and community engagement.
 - Two pedestrian links to proposed bus stops on Sunnyheights Road and West Hoe Heights to encourage walking, cycling and facilitate the use of public transport and connections with the rest of the city.
 - Two connections (one from each development area) to the north and west through the Alice Eaves Scenic Reserve, and towards and the Orewa beach to the east (Figure 16: pedestrian links).
- 4.36 In addition to speed management devices mentioned earlier, road design for the subdivision includes the following to provide a safe environment for pedestrians and encourage walking/cycling:
- Grouped vehicle crossings and planted berms indicate the pedestrian-oriented nature of the space between the property boundary and the kerb.
 - Housing typologies to include indoor living spaces overlooking the street from ground and first floors. Front boundary and fence treatments are controlled to facilitate this passive surveillance while ensuring privacy (Figure 17: Passive surveillance).
 - Cul-de-sacs where turning areas are required have two access/egress points for pedestrians, to allow options and additional connections to the wider movement network. Planting, textures and/or materials are used to indicate these road end/turning areas. These are multipurpose spaces providing opportunities for

children's play and casual social interactions where residents can get to know each other and thus create a sense of community and identity (Figure 18: Typical cul-de-sac plan).

5.0 Conclusions

- 5.1 The 8.5 hectare SEA coupled with topographical and geotechnical unstable ground conditions define a constrained site with varied slopes ranging from gentle to moderately steep.
- 5.2 These slopes are facing north which allows for maximum overall sunlight exposure, while the shape and north-south orientation allows for predominantly east-west orientation of lots to maximize solar access.
- 5.3 Coastal distant views from the highest points of the site also contribute to visual amenity and value added to lots facing north towards the scenic reserve, west towards the afternoon sun, and particularly to those facing east towards the sea.
- 5.4 The SEA offers a particular opportunity to leverage the benefits of what is effectively a natural reserve area at the centre of the site, with its associated visual and environmental benefits.
- 5.5 The subdivision concept responds to the constraints defined by the existing SEA and the steep topography. These conditions prescribe three key development areas: East, West and South, surrounding the existing SEA located at the centre of the site.
- 5.6 Within this structure, activity nodes are defined to support the predominant residential land use with basic services at local scale.
- 5.7 The centrally located open space is aligned with these activity nodes and is connected to them at a comfortable five minutes walking distance (400m) via an east-west pedestrian/cycling path to encourage active transport (walking and cycling) and provide opportunities for casual social interactions, community engagement and foster a sense of community and identity.
- 5.8 In accordance with the projects objectives the subdivision layout includes a mix of typologies to offer a varied product to suit market demands, but also to ensure a diverse social/age mix, and offer opportunities for residents to move within the development.
- 5.9 The overall movement network provides several connections to promote walking and cycling between internal and external destinations, with key pedestrian connections to nearby natural amenity and public transport.
- 5.10 In addition to speed management devices the road design for the subdivision offers passive surveillance while ensuring privacy to provide a safe environment for pedestrians and encourage walking/cycling:
- 5.11 Elements such as planting, textures and/or materials are used to indicate road end/turning areas that create multipurpose spaces providing opportunities for children's play and casual social interactions to create a sense of community and identity.
- 5.12 The layout includes only 20 rear lots (3.5% of total lots) to encourage walking, cycling and community integration. The remainder have street frontage to either a public or a private road.

5.13



Figure 01: Slope and instability: View from site to east showing main gully, steep slopes and evidence of instability.

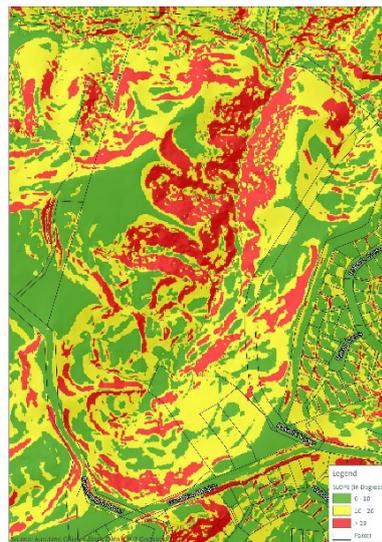


Figure 02: Slope map: Steep slopes (greater than 20°) in red, and moderate slopes (10° to 20°) in yellow.

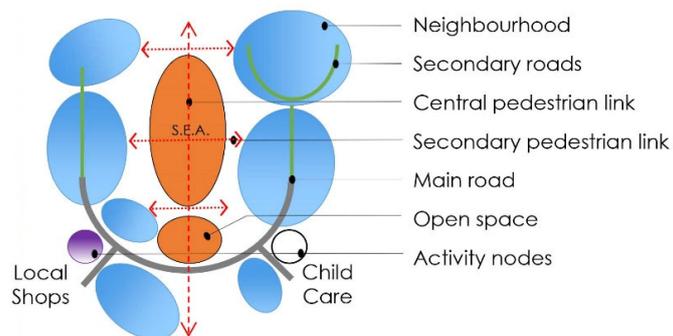


Figure 03: Overall subdivision concept.

6.0 Figures

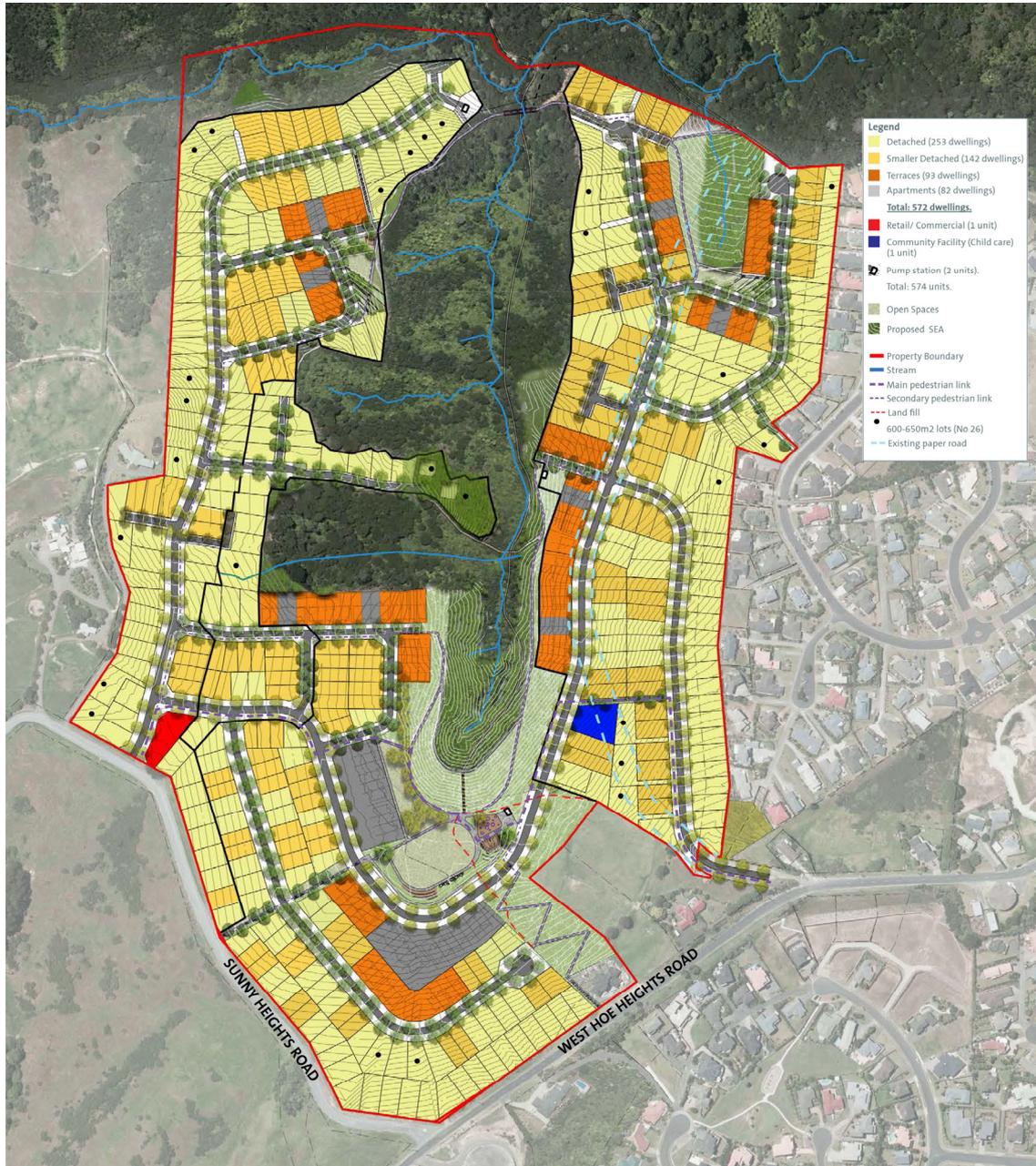


Figure 04: Illustrative Master Plan.

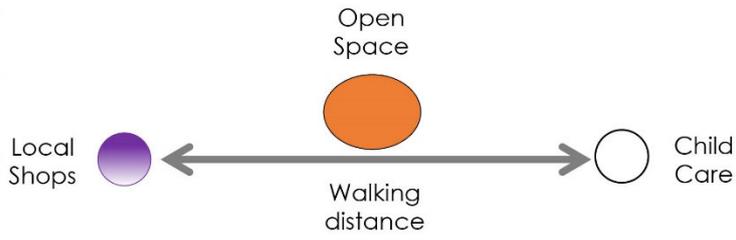


Figure 05: Activity nodes concept.



Figure 06: Density arrangement.

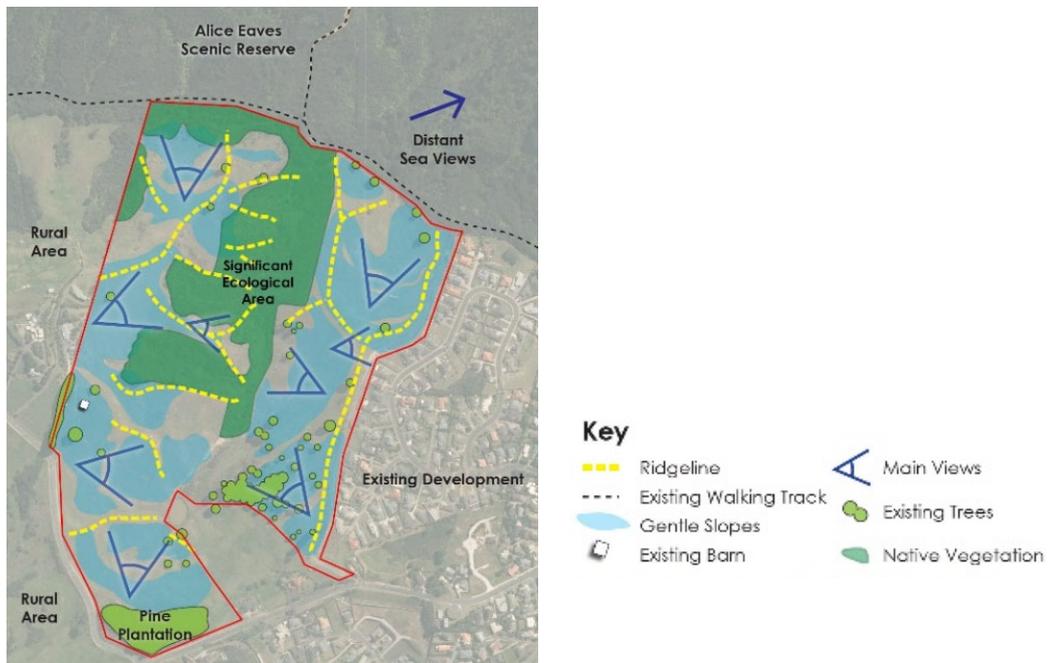


Figure 07: Site's features.



Figure 08: Movement Network Plan, showing pedestrian links (orange), vehicular links (black).

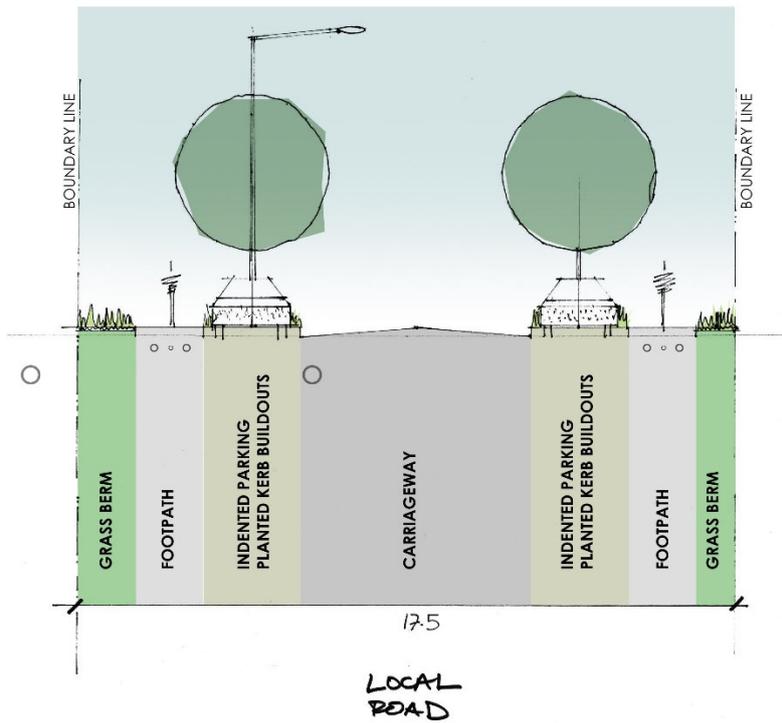


Figure 09: Typical local road cross section.

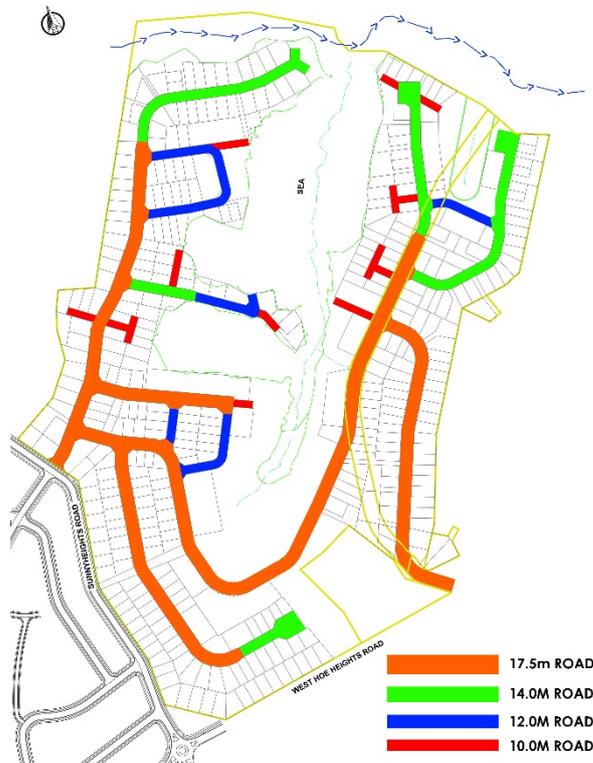


Figure 10: Road Hierarchy.



Figure 11: Sea views map, showing areas with sea views (in green).

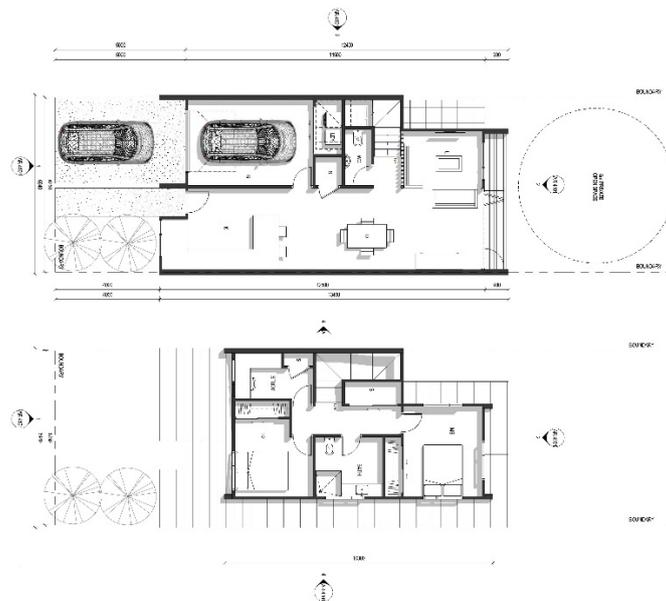


Figure 12: Typical terrace plan, showing double aspect and kitchen overlooking the street.

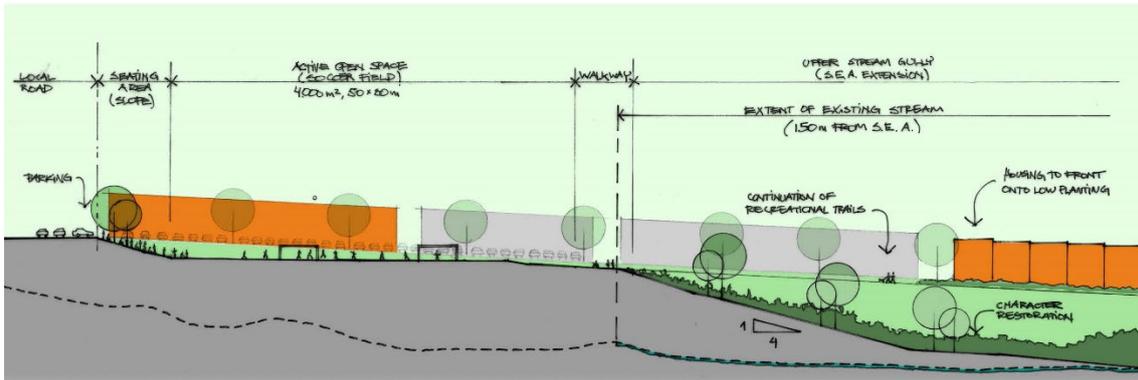


Figure 13: Open space cross section, showing flat active open space and SEA extension (1:4 slope) surrounded by apartments (grey) and terraces (orange).

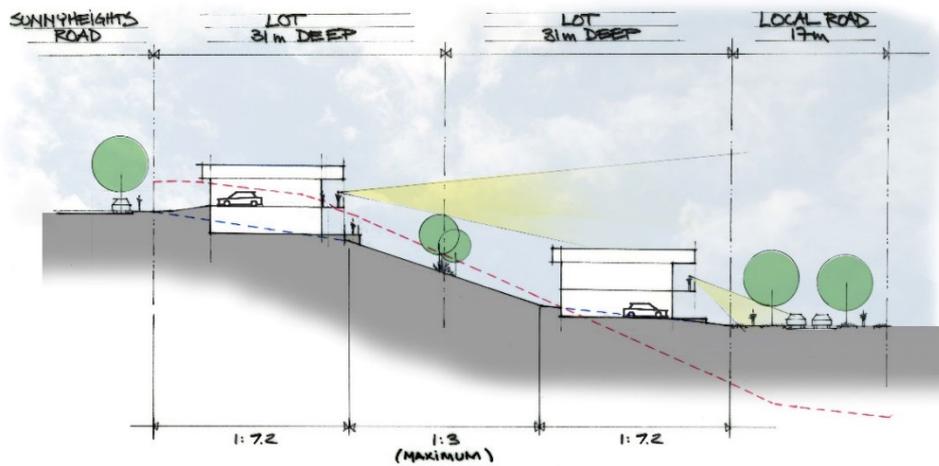


Figure 14: Block cross section, showing lots slopes at 1:7.2, transition slopes at 1:3, back boundary planting for privacy, distant views, and passive surveillance over street.

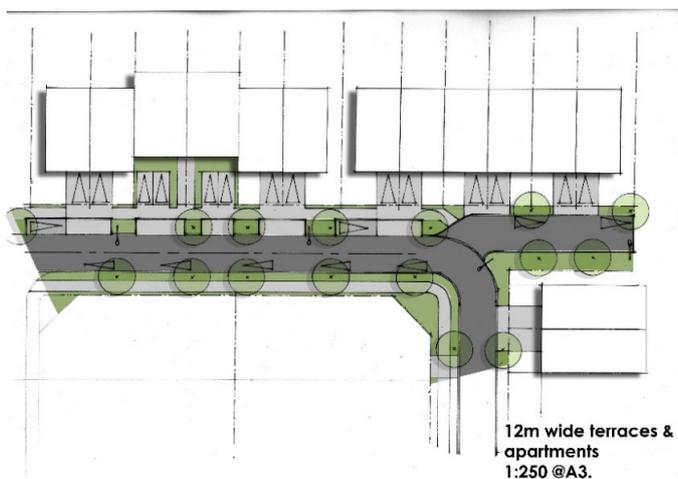


Figure 15: Typical street plan.



Figure 16: Pedestrian links (in orange).

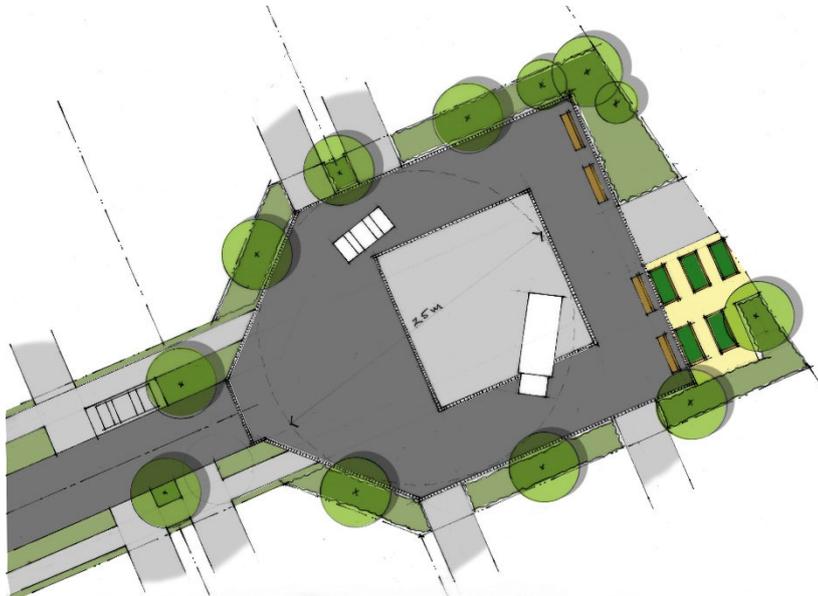


Figure 17: Typical cul-de-sac/playground space.