BURNS BEACH STRUCTURE PLAN

STRUCTURE PLAN NO. 10

This Structure Plan is prepared under the provisions of Part 9 of the City of Joondalup District Planning Scheme No. 2

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IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:

14 SEP 2007

In accordance with Schedule 2, Part 4, Clause 28 (2) and refer to Part 1, 2. (b) of the *Planning and Development (Local Planning Schemes) Regulations 2015.*

Date of Expiry: **19 October 2025**

Record of Amendments made to the Burns Beach Structure Plan

Amendment No.	*Description of Amendment*	Endorsed by Council	Endorsed by WAPC
1	Part 1 (Statutory Planning): • Renaming of Special Design Precinct to Northern Residential Precinct; • Inclusion of additional development provisions for the Northern Residential Precinct, including maximum wall and height provisions in the R40 and R60 density areas, and the provision for up to 4m high retaining walls; • Clarification of existing provisions in the Residential R20, Residential R40 and R60 and Local Shop precincts in relation to front fencing, building setbacks and garage setbacks for lots with rear laneway access; • Inclusion of the compliance with the City's District Planning Scheme No 2 in terms of land use permissibility and general provisions; • Deletion of "Shop" use from the Beach Shop/Lunch Bar and Restaurant Precinct and modification of the name of the Precinct; • Modification to the definition of Ground Lot Level in relation to the different Precincts. • Part 2 (Explanatory Report): • Additional background information on the design philosophy of the Northern Residential Precinct; • Amending existing areas and schedule of POS to reflect the final design of the Northern Residential Precinct and approved engineering plans resulting from subdivision approvals.	**27 March 2007**	**14/9/2007**
2	Amending Clause 6.2.1 to enable garages on corner lots in R40 and R60 density areas to be located at nil side setbacks on northern and eastern boundaries, and to clarify garage sightline requirements.	**19 June 2007**	**14/9/2007**
3	Recode portions of Burns Beach Estate from 'R20 Residential' to 'R40 & R25 Residential'	**17 February 2014**	
4	Part 1 (Statutory Planning): • Modify the 'Local Shop Precinct' boundary on Plan 1 to Lot 243 & 244 Grand Ocean Entrance only; • Modify the definition of 'Local Shop'; • Redefine the objectives for the 'Local Shop Precinct'; and • Include additional General Provisions for the	**3 June 2020**	**03/12/2020**

	'Local Shop Precinct'		

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FIGURES AND APPENDICES

EXECUTIVE SUMMARY

The Burns Beach site is located north of Burns Beach Road, west of Marmion Avenue, immediately north of the existing Burns Beach townsite. The subject land is approximately 290 hectares in area and consists of vegetated coastal land and portions of coastal dune ridges and landforms.

Just less than half of the site (144 hectares), reserved as Parks and Recreation under the Metropolitan Region Scheme, is to be retained for conservation purposes. The remaining portion of the western cell, totalling 147.5316 hectares, is to be developed for urban land uses.

The Burns Beach Structure Plan has determined the overall land use and form of development for the subject land. The Structure Plan has divided the site into the following precincts:

- Residential R20 Precinct;
- Residential R40 Precinct;
- Northern Residential Precinct;
- Local shop precinct;
- Beach kiosk/restaurant precinct; and
- Parks and Recreation Reserve.

The overall vision embraced by the Structure Plan is to create a development which is environmentally, socially and economically sustainable. The design philosophy was to create a high quality residential environment with a strong community focus and a real sense of identity. Burns Beach will be a landmark, leading edge development.

The Structure Plan has emerged from a comprehensive community and stakeholder consultation process. The consultation process provided a range of opportunities for stakeholders input and engaged stakeholders in the preparation on the Structure Plan. The Structure Plan enjoys broad stakeholder support.

This Structure Plan is divided into two parts:

Part 1 – Statutory Planning

Part 2 – Explanatory Report

Part 1 of the report outlines the objectives and provisions for each precinct and reservation. Part 2 provides further explanation about the site and the rationale for the urban design.

PART 1 – STATUTORY PLANNING

Part 1 of this Structure Plan is a general guide to future subdivision, zoning and development of the land included in the Burns Beach Structure Plan.

1.0 SUBJECT AREA

The Structure Plan area covers approximately 291 hectares of Lot 9017 on Deposited Plan 40143 and described on Certificate of Title Volume 2565 Folio 138 (refer Appendix 1). The land is bound by Marmion Avenue to the east, Burns Beach Road and the existing Burns Beach townsite to then south, the Indian Ocean to the west and vacant land to the north.

2.0 STRUCTURE PLAN PRECINCTS/RESERVATIONS

The Structure Plan divides the land into the following precincts:

- Residential R20 Precinct;
- Residential R40 and R60 Precinct;
- Northern Residential Precinct;
- Local shop precinct;
- Lunch bar and restaurant/cafe precinct; and
- Parks and Recreation Reserve.

The Burns Beach Structure Plan is shown at Plan 1 attached to this part of the report.

3.0 DEFINITIONS

The terms used in this part of the Structure Plan Report shall be interpreted in accordance with the City of Joondalup Local Planning Scheme No.3 and as set out hereunder:

"STOREY" shall mean the vertical space extending from one habitable floor of a building to the floor above (or if there is no floor above, between the floor level and the ceiling) and shall be deemed to be no more than 3.5 metres. A loft space within a roof shall not be defined as a storey, whether habitable or otherwise.

"LOFT" shall mean a habitable or non habitable space contained wholly within the roof of a building including a space served by dormer type windows which may project forward of the main roof pitch. A loft space is not permitted to have a balcony or terrace.

"BUILDING HEIGHT" shall mean the vertical distance at any point from natural ground level to the uppermost part of the building above that point (roof ridge, parapet or wall), excluding minor projections above that point. Minor projections include finials, chimneys, vent pipes, aerials or other appurtenance of like scale.

"GROUND LOT LEVEL" shall mean the finished level of the lot relative to the midpoint of the verge that it fronts (existing or established at subdivision stage) and immediately adjacent to the lot.

"SINGLE DWELLING" shall mean a dwelling standing wholly on its own green title or survey strata lot, together with any easement over adjoining land for support of a wall or for access or services and excludes dwellings on Certificates of Titles with areas held in common property.

"R CODES" shall mean the Residential Design Codes of Western Australia, October 2002 or any such amendments or modifications thereto that may be current.

"THE SCHEME" shall mean the City of Joondalup Local Planning Scheme No.3 (as amended) gazetted 23 October 2018 or such amendments or modifications thereto that may be current.

"PRIMARY STREET", in the case of a lot located on a corner, shall mean that street which the lesser length boundary faces as demonstrated by Figure 1 below.

"SECONDARY STREET", in the case of a lot located on a corner, shall mean that street which the greater length boundary faces by Figure 1 below.

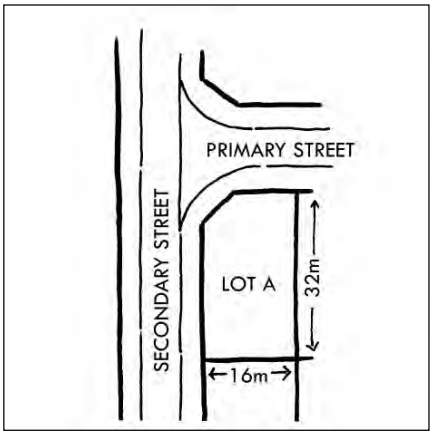

Figure 1: Primary & Secondary Street (not to scale)

4.0 THE SCHEME

Unless provided for by specific requirements of this Structure Plan, all requirements shall be in accordance with the provisions of the City of Joondalup Local Planning Scheme No. 3 or such amendments or modifications thereto that may be current.

5.0 RESIDENTIAL R20 PRECINCT

5.1 Objectives

The objectives for the Residential R20 Precinct are:

- To provide for a variety of lot sizes and single residential dwelling types at a maximum density of R20.
- To provide residential homesites which have the correct solar orientation to facilitate the construction of energy efficient dwellings;
- To provide homesites with coastal proximity that derive benefit from ocean views and access to cooling sea breezes;
- To provide homesites which overlook parkland areas and streets to maximise passive surveillance opportunities and promote attractive streetscapes.
- To maintain a high level of pedestrian connectivity, amenity and safety.
- To ensure that the impact on the visual quality and aesthetics of the area are minimised, air conditioning or cooling units, hot water systems, solar panels, bin storage areas, TV antennae, satellite dishes and radio masts should be located such that they are screened from public view and they are located in a position to minimise noise impacts on neighbouring residences.

5.2 Land Use and General Provisions

Land use permissibility and general provisions in the Residential R20 Precinct shall be the same as those within the Residential zone under the City's Local Planning Scheme No 3.

The R20 residential density codes shall apply to future development within the Residential R20 Precinct. All dwellings are required to comply with the Residential Design Codes unless otherwise provided for in this Structure Plan.

I. Dwellings constructed on corner lots must be designed to address both the primary and secondary street. Dwellings should face both the primary and secondary street at the corner and should be design to 'turn the corner' rather then focus visually interesting elevations only on the primary street. This can be achieved by the following:

- having habitable rooms and major openings facing both the primary and secondary street;
- by reducing the fencing along the secondary street boundary so that it is located at least 4 metres behind the front building line;
- having open style fencing along the front portion of the secondary street boundary rather than solid fencing.

Dwellings which address both the primary and secondary street are a

superior urban design and streetscape solution and also increase the opportunity for casual surveillance of the street and the security of the area.

II. The provisions of the City of Joondalup Policy 3.1.9 "Height and Scale of Buildings within a Residential Area" shall not apply.

III. Dwellings shall be constructed to a maximum height of 2 storeys with loft areas within the roof space permitted.

IV. The maximum building height measured from natural ground level shall be:

Maximum wall height (with pitched roof) – 6.5 metres
Maximum total height to roof ridge – 9.5 metres
Maximum wall and total height (parapet wall with concealed roof) – 7.5 metres

V. The maximum height of non permeable front fencing, inclusive of retaining walls, is limited to 1.3m above the midpoint of the verge that it fronts and immediately adjacent to the lot.

VI The ground lot level of each lot shall be +/-0.5 metres from the level of the verge at the front of the lot, measured from the mid point of the frontage of the lots. Lots with rear laneway access that are required to be accessed from the rear lane may be permitted to substitute +/-1.5 metres in lieu of +/-0.5 metres.

6.0 RESIDENTIAL R40 AND R60 PRECINCT

6.1 Objectives

- To provide for diversity in lot sizes and single dwelling types at selected sites at densities of R40 and R60 as indicated on the Structure Plan;

- To provide lots that maximise the benefits of good solar orientation and facilitate the construction of energy efficient dwellings;

- To provide for smaller homesites around the parklands areas, adjacent to the coast and the local shop site.

- To provide homesites which overlook parkland areas and streets to maximise passive surveillance opportunities and promote attractive streetscapes.

- To maintain a high level of pedestrian connectivity, amenity and safety.

- To ensure that the impact on the visual quality and aesthetics of the area are minimised, air conditioning or cooling units, hot water systems, solar panels, bin storage areas, TV antennae, satellite dishes and radio masts should be located such that they are screened from public view and they are located in a position to minimise noise impacts on neighbouring residences.

- To promote subdivision and housing development which provides for housing at higher densities as the neighbourhood matures.

Indicative photos of R40 residential development

6.2 Land Use and General Provisions

Land use permissibility and general provisions in the Residential R40 and R60 Precinct shall be the same as those within the Residential zone under the City's Local Planning Scheme No 3.

All dwellings are required to comply with the Residential Design Codes unless otherwise provided for in this Structure Plan.

I. To maximise solar penetration, solar accessible courtyards are required. A nil setback onto a nominated side boundary is permitted to facilitate this (excluding street setbacks). For north-south orientated lots the nil setback shall be on the western boundary (Refer Figure 2). For east-west orientated lots the nil setback shall be on the southern boundary (Refer Figure 2). Garages on corner lots may, however, be permitted to be located at nil side setback on northern or eastern side boundaries for a maximum depth of 8 metres, with the garage doors offset a minimum of 1.0m metre from the subject side boundary where the laneway is a minimum of 7.0 metres in width. Where laneways are less than 7.0 metres in width, garage doors are to be offset 1.5 metres from the subject side boundary.

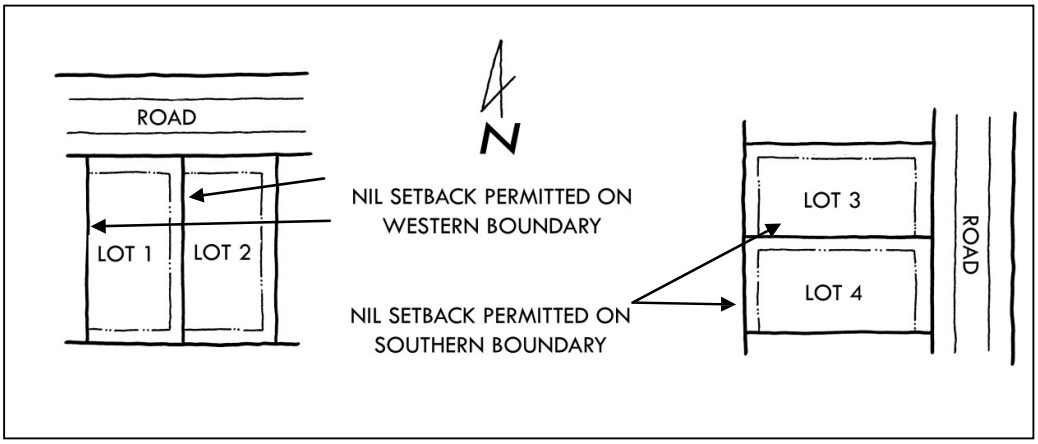

Figure 2: Nil Setback Provision (not to scale)

II. Walls which have a nil setback shall not be higher than 3.5m for 2/3 of the length of the balance of the boundary behind the front setback permitted.

III. For side boundaries not subject to a nil setback, and where a side wall contains a major opening to a habitable room (as defined in the R-Codes, but excluding bedroom and fully enclosed swimming pool or patio), the minimum side setback shall be 2 metres in order to maximise solar access.

IV. Setback to a secondary street shall be a minimum of 1.5 metres.

V. The ground floor of a dwelling, including the garage, must be setback a minimum of 1.5 metres from the rear boundary where the laneway is less than 7.0m in width. Where the laneway is 7.0m or wider the rear setback may be reduced to 1.0m. A 1.0 m visual truncation to the garage opening must be provided. The first floor is permitted to have a nil setback to the rear boundary.

VI. Each dwelling must provide a minimum of 2 on site covered car bays

VII. Where vehicular access is available from a dedicated rear laneway or internal private driveway, vehicular access and garage location must be from the rear laneway or internal private driveway.

VIII. With the exception of corner lots, the dwelling is to be designed to address and face the primary street, with clearly defined pedestrian path to the front of the residence.

IX. An outdoor living area with a minimum area of 20 sqm for R40 and 16 sqm for R60, and a minimum dimension of 4m which is directly accessed from a living area is to be provided in a location to best facilitate winter solar penetration. This may include space located in front of the street setback.

X. A minimum of 35% of the lot area is required to be provided as open space.

XI. The provisions of the City of Joondalup Policy 3.1.9 "Height and Scale of Buildings within a Residential Area" shall not apply.

XII. Dwellings shall be constructed to a maximum height of 2 storeys with loft areas within the roof space permitted.

XIII. The maximum building height measured from natural ground level shall be:

Maximum wall height (with pitched roof) – 6.5 metres
Maximum total height to roof ridge –9.5 metres
Maximum wall and total height (parapet wall with concealed roof) – 7.5 metres

XIV. The maximum height of non permeable front fencing, inclusive of retaining walls, is limited to 1.3m above the midpoint of the verge that it fronts and immediately adjacent to the lot.

XV. Dwellings constructed on corner lots must be designed to address both the primary and secondary street. Dwellings should face both the primary and secondary street at the corner and should be design to 'turn the corner' rather then focus visually interesting elevations only on the primary street. This can be achieved by the following:

- having habitable rooms and major openings facing both the primary and secondary street;
- by reducing the fencing along the secondary street boundary so that it is located at least 4 metres behind the front building line;
- having open style fencing along the front portion of the secondary street boundary rather than solid fencing.

XVI. The finished level of the lot shall be +/- 0.5 metres from the level of the verge at the front of the lot, measured from the mid point of the frontage of the lots. Lots with rear laneway access that are required to be accessed from the rear lane may be permitted to substitute +/- 1.5 metres in lieu of +/- 0.5 metres.

7.0 LOCAL SHOP PRECINCT

A local shop precinct is shown on the Structure Plan (refer Plan 1). A local shop precinct has been identified to allow for the development of a small convenience retail facility within the structure plan area.

Any mixed use development should be considered in regard to the objectives set out in section 7.1.

7.1 Objective

- To cater for the daily needs of the local community and generate local employment opportunities.
- To ensure that development is not detrimental to the amenity of adjoining owners or residential properties in the locality.
- To ensure any retail or commercial uses are reflective of the local needs of the surrounding residential catchment; and
- To promote active street interfaces and minimal street setbacks, to enhance the vitality and permeability of the area.

7.2 Land Uses

The following land uses are considered permissible uses in the Local Shop Precinct:

- Convenience Store
- Restaurant/Café
- Child Care Premises
- Shop

- Home Shop
- Office

Grouped or Multiple Dwellings should only be permitted in the Local Shop Precinct if it is consequent on, or naturally attaching, appertaining or relating to the predominant use of the land and it complies with any relevant development standards and requirements of the Scheme.

In regard to the development of a Child Care Premises, consideration should be given to a Retail/Commercial use component fronting Grand Ocean Boulevard to facilitate the development of convenience retail; complying with any relevant development standards and requirements of the Scheme.

No other land uses are permissible in the Local Shop Precinct including Single and Grouped Dwellings.

7.3 General Provisions

A small format retail/convenience shop facility is encouraged to be provided in this Precinct, together with other compatible uses in a mixed use development.

The permissibility's and incidental provisions are dealt with in preceding provisions.

Exterior lighting on buildings is to be configured to minimise any adverse effects (i.e. light overspill) on adjoining residential development.

On-site carparking is to be located at the rear, to be accessed from the rear laneway (Broulee Way) in accordance with main street design principles and the provisions of the Scheme.

Wholly residential or office development is not permitted to occupy any one lot within the precinct.

I. Non-residential development proposals within the local shop precinct shall be assessed in accordance with the Scheme, Council's policies, relevant Local Laws and the Building Codes of Australia, except where they have been varied in the following instances:

II. Buildings shall be constructed to a maximum height of 2 storeys with loft areas within the roof space permitted.

III. A minimum of two (2) on site car parking bays shall be provided for dwellings and shall be accessed from the rear laneway.

IV. The maximum building height measured from natural ground level shall be:

Maximum wall height (with pitched roof) – 6.5 metres
Maximum total height to roof ridge – 9.5 metres
Maximum wall and total height (parapet wall with concealed roof) – 7.5 metres

V. Setback from all street boundaries (primary and secondary) shall be a minimum of 2 metres. A larger setback is encouraged to cater for alfresco dining and footpath trading opportunities.

VI. Setback from a side boundary shall be a minimum of 1 metre for the ground floor and 1.5 metres from the first floor.

VII. Setback from the rear boundary shall be 1.5 metres for a garage or carport and 6 metres for the main building where the laneway is less than 7.0m in width. Where the laneway is 7.0m or wider the rear setback for the garage may be reduced to 1.0m. A 1.0 metre visual truncation to the garage opening must be provided.

VIII. To ensure that the impact on the visual quality and aesthetics of the area are minimised, air conditioning or cooling units, hot water systems, solar panels, bin storage areas, TV antennae, satellite dishes and radio masts should be located such that they are screened from public view and they are located in a position to minimise noise impacts on neighbouring residences.

IX. Buildings constructed on corner lots must be designed to address both the primary and secondary street. Buildings should face both the primary and secondary street at the corner and should be designed to 'turn the corner' rather than focus visually interesting elevations only on the primary street. This can be achieved by the following:

- having habitable rooms and major openings facing both the primary and secondary street;
- by reducing the fencing along the secondary street boundary so that it is located at least 4 metres behind the front building line;
- having open style fencing along the front portion of the secondary street boundary rather than solid fencing.
- Residential development within the local shop precinct shall be in accordance with the Mixed-Use Development Requirements of the Residential Design Codes.

X. A minimum of eight (8) on-site car parking bays shall be provided over the entire Precinct for future commercial development and shall be accessed from the rear laneway. The number of car parking bays shall be provided proportionate to the number of lots approved within the Precinct at the subdivision stage, to the satisfaction of the City of Joondalup.

8.0 LUNCH BAR AND RESTAURANT/CAFE PRECINCT

8.1 Objective

A lunch bar and restaurant/cafe are permitted within POS 6 as shown on the Structure Plan. The development of a lunch bar and a restaurant/cafe is proposed to provide for opportunities for the local population and visitors to the area to enjoy the coastal environment and to increase the vibrancy of the area as a destination beyond day light hours.

The provision of on-street car parking and parking areas in the vicinity of the precinct, together with the fact that the precinct is in a highly accessible area for pedestrians and cyclists, on site car parking for the lunch bar and restaurant/cafe should be minimised. The number of car bays required on site will be determined by Council and assessed against the merits of the specific case as part of a development application.

8.2 Land Use

The permissible land uses within this precinct are as follows:

- Lunch Bar
- Restaurant/café

No other land uses are permissible in this Precinct.

8.3 General Provisions

Development proposals within this precinct shall be assessed in accordance with the District Planning Scheme, Council's policies, relevant Local Laws and the Building Codes of Australia.

9.0 NORTHERN RESIDENTIAL PRECINCT

The land in this precinct is naturally very steep. Accordingly, special consideration must be given to the urban design and built form outcomes in the precinct.

9.1 Objectives

- To provide a Northern Residential Precinct within which endeavours will be made to maintain the general landform;
- To provide a variety of lot sizes and dwelling types with selected sites identified at a maximum density of R60 as indicated on the Structure Plan;
- To provide homesites which encourage the correct solar orientation and facilitate the construction of energy efficient dwellings;
- To provide homesites with ocean proximity that derive benefit from the cooling sea breezes;
- To maintain a high level of pedestrian connectivity, amenity and safety;
- To provide homesites which overlook parkland areas and streets to maximise passive surveillance opportunities and promote attractive streetscapes;

9.2 Land Use and General Provisions

Development of all lots within the Northern Residential Precinct shall be in accordance with the R25 residential density code except where defined on the approved Structure Plan at R40 and R60, and development shall be assessed in accordance with the Residential Design Codes, District Planning Scheme, Council's policies, relevant Local Laws and the Building Codes of Australia, except where they have been varied in the following instances:

Land use permissibility and general provisions in the Northern Residential Precinct shall be the same as those within the Residential zone under the City's District Planning Scheme No 2. For lots within the Northern Residential Precinct with a R25 residential density code, the provisions of the Residential R20 Precinct (ie. Clause 5.2 I-VI) apply.

Residential development within the Northern Residential Precinct shall be limited to;

- R25 – 305 dwellings
- R40 – land area of 6072m^2
- R60 – land area of 10452m^2

For lots within the Northern Residential Precinct with a R40 or R60 Residential Code, the relevant provisions of the Residential R40 and R60 Precinct apply, except where they have been varied below:

I. For lots coded R60, the plot ratio shall be 0.85 for both single/grouped dwellings and multiple dwellings.

II. Dwellings shall be constructed to a maximum height of 2 storeys with loft areas within the roof space permitted.

III. The maximum building height measured from natural ground level shall be:

Maximum wall height (with pitched roof) – 6.5 metres
Maximum total height to roof ridge – 9.5 metres
Maximum wall and total height (parapet wall with concealed roof) – 7.5 metres

IV Retaining walls within the Northern Residential Precinct are permitted up to a height of 4.0m in locations shown on Figure 3. Building Licence applications showing all details of the retaining walls are required to be submitted to Council for approval.

Retaining walls in excess of 4.0m may be approved by Council, with a Development Application for walls above 4.0m needing to be submitted for approval prior to the issuing of a Building Licence.

V The finished level of the lot shall be +1/-0.5 metres from the level of the verge at the front of the lot, measured from the mid point of the frontage of the lots. Lots with rear laneway access that are required to be accessed from the rear lane may be permitted to substitute +/-2 metres in lieu of the +1/- 0.5 metres.

Access to the swimming beach located to the north of the Northern Residential Precinct will be accommodated from the perimeter road at some stage in the future. A Management Plan will need to be prepared by the relevant State and Local Government authorities in conjunction with the developer of the Burns Beach Structure Plan area for this area of Park and Recreation reserve. The future formal access road to the swimming beach would need to connect at some point to the perimeter road separating the Parks and Recreation reserve and foreshore reserve from the developable area within the “Urban Development” zone proposed as part of this Structure Plan. It has therefore been indicated on Plan 1 of the Structure Plan that a future road providing formal vehicular access to the future northern swimming beach will be constructed in the future. However, the final alignment and form of this road and the facilities to be provided at the beach is subject to the Management Plan prepared by relevant State and Local

Government authorities, in conjunction with the developer of the Burns Beach Structure Plan area.

10.0 PARKS AND RECREATION RESERVE

The area depicted on the Structure Plan as "Parks and Recreation" Reserve is Reserved under the Metropolitan Region Scheme. Development of this land shall comply with the provisions applicable to "Parks and Recreation" Reserved land under the Metropolitan Region Scheme and the City of Joondalup District Planning Scheme No.2.

11.0 MODIFICATIONS TO THE STRUCTURE PLAN

All subdivision and development on the subject land must be generally in accordance with the Structure Plan.

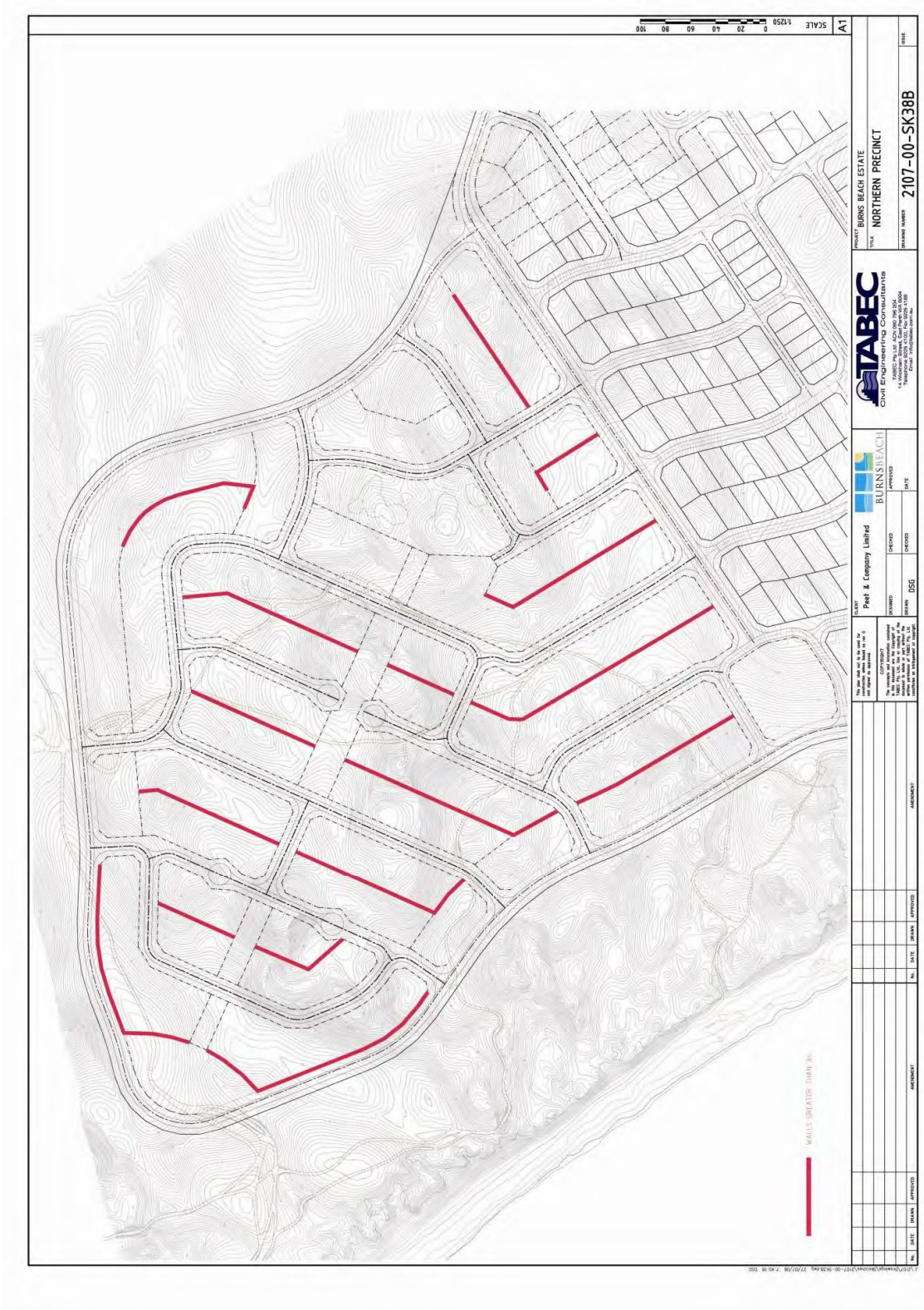

Figure 3: Retaining Walls Permitted to a Height of 4.0m

BURNSBEACH

PLAN 1 - STRUCTURE PLAN

Burns Beach

NORTH

Scale: 1:8000 @ A3

0 80 160 240m

PLAN: PACBB-2-004 REVISION: A
DATE: 11/12/2020 DRAWN: JP
PROJECTION: PCG 94 PLANNER: JH
DATUM: AHD CHECK: JH

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PART 2 – EXPLANATORY REPORT

1.0 INTRODUCTION

1.1 Purpose

The Burns Beach Local Structure Plan has been prepared to define the broad land use and road network framework over the subject land and fulfil the requirements of Part 3 of the City of Joondalup Local Planning Scheme No. 3. Approval of a Structure Plan is required to enable subdivision and development to proceed at Burns Beach.

1.2 Background

The 291 hectare land parcel was acquired by The Burns Beach Trust in 1969. The landholding included the adjacent suburb of Kinross which has now been developed for residential purposes.

The land was identified as having urban potential in the "Corridor Plan for Perth", produced by the then Metropolitan Regional Planning Authority in the 1970's. This was subsequently reinforced in "Planning for the Future of the Perth Metropolitan Region" published in 1987 and "Metroplan" and the "Urban Expansion Policy" both published in 1990.

In 1994 a proposal to develop approximately 260 hectares of the site for residential purposes was referred to the Environmental Planning Authority (EPA). The EPA assessed the proposal and in January 1998 advised that the proposal would not meet the EPA's objectives, but that a modified proposal to develop approximately 55 hectares of land would be acceptable.

In May 1997 the Western Australian Planning Commission (WAPC) initiated the Clarkson-Butler Amendment (MRS Amendment No. 992/33) which included the whole of the subject land in an Urban zone. The amendment was referred to the EPA and was subject to Public Environmental Review (PER).

The Burns Beach Property Trust, following the PER, submitted a revised development plan which proposed approximately 170 hectares for residential purposes and 120 hectares for Parks and Recreation. However, the EPA considered that the revised plan could not meet the EPA's objectives.

After considering appeals for over two year years, the Minister for Environment and Minister for Planning and Infrastructure approved MRS Amendment No. 992/33 in July 2003. As a condition of approval and as part of the appeal determination, the Burns Beach Property Trust agreed to provide an additional 24 hectares for Parks and Recreation Reservation resulting in a total of 144 hectares being reserved for Parks and Recreation (approximately 50% of the site) and 147.5 hectares being zoned Urban.

On the 9 March 2004 the City of Joondalup initiated Amendment No. 21 to District Planning Scheme No. 2 to rezone the 'Urban' portion of the site (147.5 hectares) to 'Residential Development' and include the reserved land (144 hectares) within a "Parks and Recreation" reservation to reflect the MRS zoning. This was referred by the City to the EPA who advised that the amendment did not need to be assessed as the Scheme is 'deemed assessed' by the EPA.

1.3 Project Team

The Burns Beach Structure Plan was prepared by a multi-disciplinary consultant team listed below:

Peet & Company	Developer/Project Manager
Development Planning Strategies	Town Planning and Urban Design
Tabec	Engineering Consultants
BSD	Environmental Consultants
Estill & Associates	Community Consultation
McNally Newton	Landscape Architecture Consultants

2.0 THE SUBJECT LAND

2.1 Location

The subject land is located approximately 30 kilometres north west of the Perth Central Business District and approximately 5 kilometres from the Joondalup Regional Centre within the municipality of the City of Joondalup (refer Plan 2).

The site is bound by a Parks and Recreation Reservation to the north, the Indian Ocean to the west, Marmion Avenue to the east and Burns Beach Road to the south. The suburb of Kinross is located to the east of Marmion Avenue. To the south of Burns Beach Road are the suburbs of Iluka and Beaumaris (refer Figure 1). North east of the site is the Tamala Park landfill site and further to the north are the suburbs of Mindarie and Clarkson. The existing Burns Beach Townsite is located directly to the south west of the subject land.

Given the strategic location of the site at the intersection of Marmion Avenue and Burns Beach Road and adjacent to the coast (Refer Plan 2), an excellent opportunity exists for the creation of a vibrant and integrated coastal community.

Plan 2: Location Plan

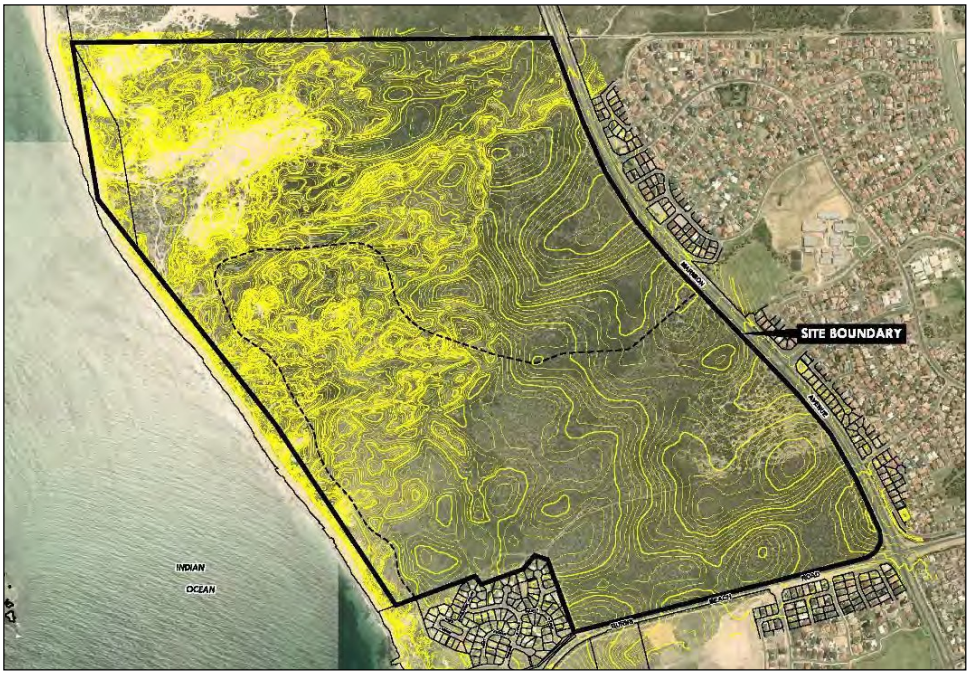
2.2 Land Ownership

The subject land is legally described as Portion of Lot 9017 on Deposited Plan 40143 and described on Certificate of Title Volume 2565 Folio 138 (refer Appendix 1). The site comprises approximately 291 hectares held in trust by Peet & Company Ltd on behalf of the Burns Beach Property Trust, comprising numerous shareholders.

2.3 Existing Land Uses

The site is currently vegetated vacant land which is traversed by numerous informal four wheel drive tracks (Refer Plan 4).

The landholding is divided into the northern portion (144 hectares) which is reserved as 'Parks and Recreation' Reserve under the MRS, with the remaining southern portion (147.5 hectares) zoned Urban under the Metropolitan Region Scheme.



Plan 4: Orthophoto

3.0 SUSTAINABILITY

The vision for the development of the Burns Beach site is to create a development which is environmentally, economically and socially sustainable.

The State Sustainability Strategy was released by the Government of Western Australia in September 2003. Sustainability is defined by the Strategy as meeting the needs of current and future generations through simultaneous environmental, social and economic improvement.

In developing Burns Beach, consideration will be given to the following sustainability goals referred to by the Strategy as outlined by the table below:

SUSTAINABILITY GOAL	BURNS BEACH RESPONSE
Reduce consumption of resources	Encouraging energy efficiency and water efficiency through design guidelines and consumer education for the private domain and the use of waterwise principles in the development of the public domain.
Protect biodiversity	Setting aside 144 hectares of bushland and foreshore reserve for conservation purposes. The area includes representative populations of flora and fauna endemic to the local area.
Reduce greenhouse emissions and become less carbon intensive	Encouraging less use of the private car through creating walkable neighbourhoods, local community focus points and convenient access to public transport systems.
Sustainable use and management of aquatic systems	Setting aside a foreshore reserve and preparation of a Foreshore Management Plan to protect and manage the coastal environment.
Provide tourism experiences involving the natural environment	Setting aside the foreshore reserve and large bushland conservation area will provide opportunities for tourism experiences.
Manage urban growth	The development of Burns Beach is necessary to accommodate the growing population of Perth, however the development is occurring through a carefully planned and fully consultative process to ensure that the urban growth is well managed.
Integrate land use and transport nodes	The Burns Beach area is in close proximity to the railway and bus services connecting with this railway. Part of the Structure Planning process has involved detailed discussions with the Public Transport Authority and the agreement to a bus route traversing the centre of the Burns Beach area.

Value and preserve the special cultural elements and built places that help generate a sense of place.	Preserving 144 hectares of bushland and foreshore reserve as special cultural elements of Burns Beach is integral to creating a strong sense of place.
Construct buildings that are less resource intensive and provide a better environment within which to live and work	Encouraging energy efficiency and water efficiency through design guidelines and consumer education for the private domain and the use of waterwise principles in the development of the public domain.
Support communities to fully participate in achieving a sustainable future	The Structure Plan has been prepared in a fully consultative manner, including workshops with community representatives. Community involvement will also occur through the formal advertising of the Structure Plan and through community development programs once Burns beach has been developed.
Meet community needs and enhance social capital	The community workshops held throughout the year have ensured that the community has ownership of the outcome and that the communities needs and desires are met and that the appropriate social capital is developed at Burns Beach. This includes the setting aside of a community purpose site as part of the Structure Plan.
Coordination in the provision of community services	The provision of community services at Burns Beach, including a primary school, community purpose site, local shop, public open space and areas for restaurants/cafes has been planned for inc close consultation withal relevant government agencies.
Provide diverse housing options that are well located and contribute to a sense of community	The Burns Beach Structure Plan proposes a range of residential densities and lot sizes and types across the site which facilitates the provision of diverse housing options. Smaller lots have been located in areas of high amenity and in proximity to community services.

The following sections and Section 10 outlines the approach to sustainability proposed at Burns Beach.

3.1 Sustainable Development at Burns Beach

Social Sustainability

The Burns Beach Estate will accommodate a range of socio-demographic groups through the creation of a range of lot sizes to cater for a variety of housing products thus encouraging social diversity.

The Burns Beach Estate has been designed to encourage social interaction and the development of a healthy community. The development as proposed will facilitate the creation of a healthy and socially interactive and active community as all allotments will strongly relate to and have ready and safe access to parkland, bushland, the ocean and beach environment and other areas of community focus. The development will facilitate active lifestyles through the provision of safe, quality and attractive walking, cycling and jogging trails along the coast and within the residential areas. Social interaction will be encouraged through the implementation of good urban design and development of community spaces and places.

To encourage and actively facilitate community creation and well being, a Resident's Community Association and other community groups will be established and sponsored at Burns Beach under the guidance of Peet & Company. Community newsletters, events and projects will also be encouraged by Peet & Company along with Neighbourhood Watch programs.

The Burns Beach Structure Plan embraces many Liveable Neighbourhood principles such as "walkability" and "permeability" which contribute to reducing car use, creating a greater sense of community, better access to services and using land more efficiently.

To assist in the creation of a strong sense of place and a community focal point, the Structure Plan proposes a small corner deli and café in the central area of the site to cater for the daily convenience needs of the future population. Vibrancy, liveability and amenity will be enhanced by cafés/restaurants at the coastal node and near the corner store where people can come to socialise and enjoy their lifestyle.

The implementation of all of the above principles at Burns Beach will significantly contribute towards ensuring the socially sustainability of the project is maximised.

Environmental Sustainability

The Burns Beach development is a residential settlement with minimal ecological footprint as almost half of the site is Reserved for Parks and Recreation and will be set aside for bushland conservation purposes and as foreshore reserve. A Foreshore Management Plan will be prepared to ensure that the coastal environment is protected and conservation principles are balanced with the need to provide people access and spaces along the coast.

Selected vegetation within public open spaces will also be retained where possible and appropriate.

The Burns Beach design encourages and facilitates walkability and in making provision for effective and efficient bus routes encourages the use of public transport leading to less use of the private car. This will assist in the reduction of the consumption of non-renewable resources and reducing air pollution and waste creation. Importantly, the site is in close proximity to railway services at Currambine and Joondalup.

Economic Sustainability

The Burns Beach development will create numerous jobs during its planning, design, development and construction phase. In addition, the development of a corner store, cafe, restaurant, kiosk and primary school will provide additional jobs in the area. Jobs in the local government will also be created for the maintenance of public open space, garbage collection and other local authority services. The creation of employment opportunities in the local area contributes towards environmental sustainability and social sustainability by reducing travel time and distance.

The urban design incorporated in the Burns Beach Structure Plan focuses on minimising the length of road required, whilst still providing a permeable and connected residential area. This contributes to sustainable development by efficiently using resources.

Residential development at Burns Beach will introduce an additional 1,600 families to the area and will support existing infrastructure and community services, including the northern railway line and bus services in the area and the Joondalup Regional Centre. It will also facilitate the logical extension of immediately adjacent services such as those within Marmion Avenue, in Kinross and in Iluka. The Estate as proposed will be economically sustainable and represents an efficient use of resources and existing infrastructure.

3.2 Greensmart

The Housing Industry Association (HIA) developed the GreenSmart concept as a practical environmental and sustainable approach to land development, home design and home construction. GreenSmart aims to increase energy efficiency, minimise waste and encourage better environmental management of housing product.

The GreenSmart checklist includes;

- solar passive design;
- water sensitive and waterwise design;
- improved waste management; and
- recycling and criteria related to reducing the consumption of energy.

Peet & Company are a GreenSmart Regional Partner and a number of Peet and Company employees are GreenSmart accredited. Peet & Company will seek to create and accredit the Burns Beach development as a GreenSmart Estate.

Examples of GreenSmart initiatives that will be implemented at Burns Beach include waterwise planting and solar lighting within public open space areas and the installation of waterwise reticulation technologies to automatically determine moisture levels on the soil profile and the need for reticulation. The use of waterwise principles in the landscape design at Burns Beach is outlined in more detail in Section 9.5.

In addition to the built form outcomes, GreenSmart concepts can be implemented through subdivision design. The key design principle relates to lot orientation and solar orientation which facilitates less energy consumption.

The day to day routine of people is also important with regard to an ongoing sustainable and GreenSmart lifestyle. Education programs will be run that relate to waterwise principles, saving energy, recycling and composting, walking, cycling and public transport use, fitness, health and physical activity courses and courses about sustainable gardening practices.

GreenSmart concepts will also be implemented in the landscape design of the parkland areas to reduce water consumption.

4.0 STATUTORY PLANNING CONSIDERATIONS

4.1 Existing Zoning

Metropolitan Region Scheme

Just over half of the subject land (147.5 hectares) is zoned 'Urban' under the Metropolitan Region Scheme (MRS). The remaining northern portion of the site (144 hectares) is reserved as 'Parks and Recreation'.

Local Authority

Amendment No. 21 to the City of Joondalup District Planning Scheme No. 2 rezoned the portion of the site zoned 'Urban' under the MRS to a 'Residential Development' zone . The portion reserved 'Parks and Recreation' under the MRS is already reserved as 'Parks and Recreation' under the Scheme.

The City of Joondalup DPS No. 2 was revoked upon gazettal of the City's Local Planning Scheme No. 3 (LPS 3) on 23 October 2018. Under the City's LPS 3, the Structure Plan area is zoned 'Urban Development', with a portion reserved for 'Parks and Recreation' in accordance with the MRS.

The adoption of a Local Structure Plan is required prior to the progression of subdivision and development of the site under Part 3 of LPS 3. The Residential Development zone permits a variety of land uses and densities as shown on an approved Structure Plan.

4.2 Local Authority Policies

The City of Joondalup Development Policies have been developed to address specific matters and aid the decision making process. The specific policies which are relevant to Burns Beach include:

Environmental Sustainability

The objectives of this policy include enhancing economic, social and environmental sustainability, and adopting appropriate management practices to facilitate sustainability. This policy has been addressed in detail in Section 11.0.

Subdivision and Development Adjoining Areas of Public Open Space

The objective of this policy is to increase the sense of safety and security for residents and users of open space and protect public property through surveillance of public space.

Leisure

This policy guides the provision of leisure services in making a contribution to

the quality of life of residents.

Public Art

The objective of this policy is to develop and promote cultural identity through the implementation of artworks in public spaces.

Council Reserves and Parks

The objective of this policy is to provide a variety of public open spaces which fulfil the community's recreational and environmental needs.

5.0 ENVIRONMENTAL CONSIDERATIONS

Environmental input into this Structure Plan has been provided by BSD Consultants, with engineering input provided by Tabec Consulting Engineers. The following section is a compilation of environmental and engineering input.

5.1 Topography

The topography of the site is undulating with levels varying from RL6.0mAHD to 52.0mAHD (Refer Plan 3). The area is dominated by a series of undulating sand dunes from the Quindalup and Spearwood systems.

Dune swales and ridges are pronounced in the north west of the development area. The topography is more gentle to the south east of the site.

The topography of the site offers opportunities to achieve views towards the coast from residential allotments.

5.2 Soils and Geology

The site is located on the coastal belt, which consists of the white Quindalup and yellow Spearwood quaternary dune systems. The Quindalup dune system is young calcareous sands formed from marine deposits as both fixed and mobile sand dunes that lie in a north-south orientation. The Quindalup dunes are geologically more recent and have transgressed over the older Spearwood dune system. The Spearwood dune system consists of dunes without any recognisable patterns, which have lithified to limestone. Both dune systems are overlaying a bedrock of Tamala limestone in parts. This limestone can be found at shallow depths.

The site contains an easily recognisable interface between the Quindalup and Spearwood systems and this is associated with a significant change in landform, topography and vegetation.

Geologically, the northwest part of the site and Parks and Recreation reserve to the north supports a number of dune formations including accretionary cuspate foreland and perched dune fields, dune blowouts and straddles a

large parabolic dune formation which extends into Tamala Park Landfill site.

5.3 Groundwater

The subject land is situated in an area underlain by the southern part of the regional unconfined aquifer known as the Gnangara Mound. The maximum water table height is approximately 1 to 2 metres AHD across the site, which means that the depth to groundwater varies from 10 to 45 metres.

The principal hydrogeological function of the site is in the superficial recharge and superficial groundwater outflow to the west.

Tamala Park landfill site to the north east of the site is a potential source of groundwater contamination. The original landfill cell is not lined and some leachate seepage has occurred into the groundwater. Capping and rehabilitation of the landfill cell will be completed this year and the potential for ongoing groundwater contamination will be reduced. Since 1982 the CSIRO has been monitoring groundwater down gradient of the landfill cell. The first 10 years monitoring data indicates that there has been very little impact on groundwater quality as a result of the landfill.

Future landfill cells at Tamala Park, which are currently under construction, will be fully lined and include leachate collection and recirculation.

Given the above and the fact that land fill operations are occurring 750 metres to the north-east of the site and groundwater is moving in a westerly direction, it is concluded that there is no significant risk that the groundwater beneath the Burns Beach site will be contaminated.

5.4 Vegetation and Flora

Bush Forever

The 144 hectares of land reserved for Parks and Recreation forms part of Bush Forever Site No.322. Bush Forever Site No.322 also includes 135 hectares of Crown Reserve 9917 immediately north of the subject land and 120 hectares of land west of Marmion Avenue. This large area (400 hectares) of contiguous regional open space is connected as an east-west link with Tamala Park (Bush Forever Site 323 of 166 hectares) through to Neerabup National Park (Bush Forever Site 383 of 1,600 hectares).

To the south and the north of the subject land, several existing Crown Coastal Reserves have been established along the coast extending from Mindarie Keys to Ocean Reef and Hillarys Marina.

In summary, the residential portion of the subject land (147.5 hectares) is surrounded by large conservation reserves totalling an area of 2,000 hectares which is five times the size of Kings Park. These reserves capture the complete range of landforms, geology, flora and fauna within the region.

Flora

The site is well vegetated however, cleared areas are found along Marmion Avenue with one particularly large patch extending 500 metres west.

Thirteen vegetation units within the Qunidalup and Spearwood vegetation units have been identified on the site by Alan Tingay and Associates (1999). These are mapped on Plan 6 and listed in Appendix 2. The Quindalup and Spearwood vegetation complexes are widespread in the region and significant regional conservation reserves occur in the immediate vicinity of the site and contain representative examples of all the above vegetation types. Most notably, 144 hectares of the site is reserved for Parks and Recreation.

The natural flora on the subject site has been the subject of numerous detailed studies over several years. These investigations have not identified any Declared Rare Flora (DRF). Four Priority Flora species were located in the site being; *Conostylis pauciflora* subsp. *euryhipis* (P3), *Stylidium maritima* ms (P3), *Jacksonia sericea* (P3) and *Sarcozona bicarinata* (P3). None of the vegetation units identified on the site are recognised as Threatened Ecological Communities by State (English and Blythe 1997) or Commonwealth listings (Environment Protection and Biodiversity Conservation Act 1999).

The condition of the vegetation on site ranges from very good condition to cleared, however in general the vegetation is in good condition.

In summary, the site contains no Declared Rare Flora species, contains no Threatened Ecological Communities, the vegetation is well represented in adjacent conservation reserves and 147.5 hectares has been approved for urban development by the Minister for the Environment and Minister for Planning and Infrastructure following amendments to the MRS and assessment by the EPA.

Significant tree specimens, specifically Christmas Trees in the south eastern corner for the site, have been surveyed and are proposed to be retained.

5.5 Fauna

One species of rare fauna was located in the area - Carnaby's Black-Cockatoo. Carnaby's Black-Cockatoo is classified as Endangered under the Environmental Protection and Biodiversity Conservation Act and the W.A. Wildlife Conservation Act. The main threats to the species are the loss of habitat.

Four Priority fauna species were listed by CALM as potentially occurring in the area but were not located during a field survey: Southern Brown Bandicoot (P4), Carpet Python (Schedule 4), Western Brush Wallaby (P4) and Native Bee (P3).

The Endangered and Priority fauna that occur on the site are relatively widespread in the region and unlikely to be directly or significantly impacted by the change in land use. The fauna will be protected in the significant nearby adjacent conservation reserves and on the 144 hectares of land to be set aside as a Parks and Recreation reservation.

5.6 Foreshore Reserve

The foreshore reserve is Reserved for Parks and Recreation under the MRS.

The width of the reserve conforms with the policy requirements of the Western Australian Planning Commission and has been agreed by the Minister for Environment and Minister for Planning and Infrastructure, following advice from the Coastal Planning Branch within the Department of Planning and Infrastructure.

A coastal dune and shoreline stability analysis was carried out as part of both previous EPA assessments. This analysis revealed that the coastline of the site has been relatively stable over the last 46 years, showing no consistent significant erosional processes.

Photo: Foreshore at Burns Beach

5.7 Aboriginal Heritage

An ethnographic survey over the site was undertaken by MacIntyre Dobson and Associates in 1994 (Macintyre Dobson and Associates (1994), Report on an Ethnographic Survey of the Burns Beach Kinross Project Area, Macintyre Dobson and Associates, Perth). An ethnographic site was identified in the north eastern corner of the site within the area Reserved for Parks and

Recreation. The Aboriginal Heritage site is a small southern tip of the mythological Waugal. The majority of the Waugal site extends through the Tamala Park landfill site. The Department of Indigenous Affairs list the site as Site 3567 on the permanent register as a mythological and artefact site. Further information regarding this site has been obtained from the Department of Indigenous Affairs.

The Section 18 application was undertaken by Halpern Glick Maunsell in November 1994. Permission to disturb the site was granted pursuant to Section 18 of the Aboriginal Heritage Act on 24 February 1995. The Section 18 clearance and extracts from the Department for Indigenous Affairs website regarding the Aboriginal heritage site are included in Appendix 4.

6.0 EXISTING MOVEMENT NETWORK

A traffic study has been completed by Riley Consulting. A copy of the full report is provided in Appendix 5.

The following section gives a description of the existing situation with regard to movement network in the vicinity of the subject land.

6.1 Regional Road Network

The site directly abuts Marmion Avenue to the east which is classified as an "Other Regional Road" in the Metropolitan Region Scheme. Marmion Avenue links the site to surrounding areas to the north and south. It is constructed as a four lane divided carriageway and has the capacity to accommodate approximately 50,000 to 60,000 vehicles per day. Current traffic flows along Marmion Avenue are in the order of 33,000 vehicles per day. Marmion Avenue experiences a significant peak movement southbound between 7:30am and 9am and northbound between 4:30pm and 6pm. During the afternoon, local school activities also generate an increase in traffic movements. The extension of both the Mitchell Freeway and the rail connection northwards can be expected to reduce peak hour traffic volumes along Marmion Avenue. It is expected that the Mitchell Freeway will be constructed to Shenton Avenue by 2006 and Burns Beach Road by 2008.

Current planning guidelines suggest a minimum intersection spacing of 300m to 1,000m should be used between intersections onto Marmion Avenue.

6.2 District Road Network

The site directly abuts Burns Beach Road to the south. Burns Beach Road provides important east-west district level access to surrounding areas,. Burns Beach Road is currently constructed to a rural standard as a single carriageway road west of Delgado Parade in Iluka. A higher standard of road construction has been undertaken in the eastern section and with the intersection of Marmion Avenue.

The location of new intersections with Burns Beach Road from the site will be heavily influenced by the need to achieve safe separation from proposed intersections to the south in Iluka.

6.3 Public Transport

There are three bus services in the locality of Burns Beach which connect the area with the Joondalup Regional Centre.

Burns Beach is well located to access the existing train service to Perth located at Currambine, approximately 1.5kms to the east of the site. By September 2004 the Northern Suburbs rail line will be extended to Clarkson, relieving the demand for parking at Currambine and also reducing peak period traffic volumes on Burns Beach Road east of Marmion Avenue.

7.0 COMMUNITY CONSULTATION

Peet and Company Ltd engaged Estill and Associates to undertake a community consultation process to obtain community feedback and input into the preparation of the Structure Plan. Peet and Company recognises the importance of providing stakeholders an opportunity to participate in the preparation of a development concept for the Burns Beach site. Providing this opportunity encourages stakeholders to express their views and influence the planning decisions that will ultimately affect them. Decisions reached through a consultative process result in better outcomes for all stakeholders.

The objectives of the community consultation process was to provide information and participative mechanisms through which stakeholders could provide informed input to the proposed development. Consultation and communication took place through face to face meetings and focus groups as well as through the Community Reference Group – 'The Burns Beach Western Cell Reference Group' comprising representatives from all stakeholder groups including residents, community groups and businesses.

The Community Reference Group was formed through advertisements in three community newspapers calling for expressions of interest to participate. The newspapers advertisements were published for two consecutive weeks in May 2004. An invitation letter was also sent to a comprehensive list of community interest groups in the Burns Beach, Kinross, Iluka and Currambine areas, including the Burns Beach Residents Association. All applications were assessed by Estill & Associates and a representative sample of the local stakeholders and key interest groups were invited to join the CRG. Applicants were chosen based on geographical representation and community group representation.

Individual stakeholder meetings were held with the Burns Beach Residents Association, Quinns Rock Environmental Group and Mike Lowry Liberal Party nominee for the Legislative Council in the seat of Mindarie.

Three Community Reference Group (CRG) meetings were held to promote the active

participation of key stakeholders in the community consultation process. CRG participants were invited to provide input to guide the setting of the agenda for each meeting. The first CRG meeting provided information and considered the community's vision for the site. The second CRG meeting consolidated community input and identified preferred options for the site. The third CRG meeting reviewed and finalised the development options for the Burns Beach Western Cell site.

Key issues which were identified by the community include:

- concern at potential impacts upon local business if additional major shopping facilities are included in the development;
- balancing beachfront conservation and recreational needs;
- provision of improved beach access;
- providing oceanside lifestyle opportunities that offer a range of lot sizes;
- compatibility of the new development with the existing community;
- need for active community consultation in the planning process;
- demonstrating sustainable development outcomes;
- compliance with statutory requirements;
- ensuring access to support facilities (school, parks, shops, safe beaches, etc);
- impact of potential new road transport links from existing to new development;
- need for beachside dual use path that is compatible with the foreshore reserve;
- preservation of Christmas trees and remnant bushland in the south east corner of the site;
- planning appropriate access to telecommunication facilities;
- no direct road access from the existing Burns Beach townsite to the new development; and
- minimise impacts on existing residents.

The extensive stakeholder consultation has resulted in a Structure Plan that enjoys broad stakeholder support. The consultation process identified and addressed community issues and priorities in preparing a plan suitable to be submitted for approval to the City of Joondalup.

Other concept plans discussed and endorsed by the CRG included:

- Foreshore Management Plan
- Drainage Management Plan
- Public Open Space (POS) Plan
- Coastal Node Plan
- Boulevard Development Concept Plan

The consultation process provided a range of opportunities for stakeholder input and engaged stakeholders in the preparation of a development concept plan. The plan

enjoys broad stakeholder support and notes items where different views were expressed. The Local Structure Plan is now considered suitable for submission.

A full copy of the Community Consultation Report has been attached at Appendix 6.

8.0 DEVELOPMENT OPPORTUNITIES AND CONSTRAINTS

The preceding sections have highlighted a number of development opportunities and constraints of the Burns Beach site. The purpose of this section is to consolidated and summarise the development opportunities and constraints.

- An opportunity is provided to create a development which is environmentally, economically and socially sustainable (including the accreditation of the development as GreenSmart).
- Approximately half of the site is to be retained in its current state as it is Reserved for Parks and Recreation under the MRS.
- The site has excellent access opportunities from Marmion Avenue and Burns Beach Road.
- The natural topography offers ocean views from a significant portion of the site.
- The opportunity exists to create a highly connected residential area that provides all future residents with access to the coastal environment along with existing and proposed nearby amenities and social infrastructure.
- The development of the site represents a logical extension of the urban front and the associated infrastructure and services.
- Integration of the site with the existing Burns Beach townsite is restricted due to the cul-de-sac design of the existing development, however the integration of the new community with the existing Burns Beach community will be provided for and access to the proposed infrastructure and amenity to be developed within Burns Beach will be provided for the existing community.
- An opportunity exists to increase the catchment by 1,600 families for the significant infrastructure, including the freeway and the railway, planned in the north west corridor.
- The development represents an opportunity to create local employment through the development and construction phases and within the local shop, kiosk, cafes, restaurants and a primary school.
- The development of the site is an opportunity to provide controlled access to the Foreshore Reserve through the preparation and implementation of a Foreshore Management Plan.
- The development of the site represents an opportunity to provide a mix of lots to facilitate socio-economic diversity along the coast.

The Urban zoned portion of the site complemented by the proposed 144 hectares of Parks and Recreation Reserve provides a unique opportunity to create a new vibrant coastal community.

9.0 CONTEXT ANALYSIS

A Context Plan has been prepared at Plan 5 to indicate the land use context of the Burns Beach site particularly in relation to formal active open space areas, community facilities, employment nodes and retail facilities. The following section demonstrates that the needs of the future community at Burns Beach will be adequately met by existing and proposed facilities within the site and in the surrounding areas.

9.1 Active Open Space

The Structure Plan proposes the creation of 19 areas of POS ranging in size from 0.15 to 3.93 hectares (not including POS 4 which directly abuts the Parks and Recreation Reserve). POS 12 is approximately the same size as Subiaco Oval.

Large active playing fields are proposed within POS 14 (3.93 hectares) adjacent to the Primary School site which will contain a senior oval (shared between Council and the Education Department) to cater for the active recreational needs of the future community. However, the majority of the POS areas are also of a large enough size to accommodate significant 'kick about' spaces and informal active recreation areas.

The site is also located in close proximity to many formal active playing fields including the senior oval at Kinross College (high school), the active playing fields in Iluka and the regional facilities at the Joondalup Arena.

9.2 Community Facilities

As shown on Figure 2, a number of existing community centres/facilities are in close proximity to Burns Beach. These include the community centre in Kinross, the community centre in Beaumaris and the community hall at the existing Burn Beach townsite. A community purpose site may be required within the Burns Beach Structure Plan area in the future, however the need and final location will be determined following further examination of community facilities in the areas by Council.

9.3 Employment

Employment will be provided at Burns Beach through the construction phase and in the longer term at the primary school, local shop, cafes and restaurants. Public and private employment opportunities will also be generated by the maintenance and service requirements of the future population and public spaces.

The site is also well located with regard to accessibility to employment opportunities. Burns Beach is in close proximity to the Joondalup Regional Centre which will provide employment opportunities to many future

residents at Burns Beach. Public transport (bus and train) services to Joondalup Regional Centre and Joondalup Service Trades Area are easily accessible from Burns Beach. Existing and proposed public transport services in the area also provide excellent accessibility to other employment nodes including the Perth Central Business District and Midland Regional Centre. Wangara Industrial Area is also extremely accessible from the site via the Mitchell Freeway or Wanneroo Road.

The Burns Beach Estate forms part of the total Burns beach – Kinross Estate developed on behalf of the syndicate of land owners by Peet and Company within which is located employment nodes including Kinross Primary School, Kinross College, a community centre, Kinross Care Centre and the local shops.

9.4 Retail Facilities

The Structure Plan identifies a Local Shop Precinct within the centre of the Structure Plan area. The Precinct will cater for the daily convenience needs of future residents and will generate local employment opportunities. An excellent distribution of shopping centres exists or is proposed within the general area surrounding Burns Beach to cater for shopping needs other than daily convenience shopping. Such facilities include the future Iluka Neighbourhood Centre, the Currambine Market Place, Lakeside Joondalup Shopping City (Regional Centre), Beaumaris City to the south and Ocean Keys Centre to the north. Whitford City Regional Centre is also less than 8 kilometres south of Burns Beach.

A strong recommendation from community representatives during the community consultation process was that they considered that as there was more than adequate provision of shopping centres nearby, a new shopping centre should not be located within the Burns Beach Estate. Instead, a corner store was considered desirable.

9.5 Public Transport

The Burns Beach Estate will be well serviced by existing and proposed bus services and railway services utilising Marmion Avenue, Burns Beach Road and the railway along the Mitchell Freeway. Importantly, a bus service will directly service the Burns Beach Estate using the central boulevard. This has been discussed in detail and agreed with the Public Transport Authority.

10.0 THE STRUCTURE PLAN

The Structure Plan has been formulated to guide future development of the subject land and substantiate the suitability of the land zoned 'Urban Development' under the City of Joondalup's Scheme.

The Structure Plan is attached at Plan 1 within Part 1 of this report.

10.1 Urban Design Vision & Objectives

The vision for the Burns Beach development is to create a high quality, vibrant coastal residential settlement embracing social, environmental and economic sustainability.

Through the implementation of innovative urban design, the vision is to create a premier new beachside estate with a high quality visual environment which promotes and encourages a relaxed, healthy and social lifestyle. Burns Beach is proposed to be a place with high levels of amenity and liveability in an attractive location where people by choice will want to live, work and play. The vision is to create a strong sense of place, identity and community at Burns Beach and enhance people's quality of life.

The coastal location of Burns Beach is naturally attractive and the design has been prepared to maximise the coastal lifestyle for all with access and connectivity to the coastline being maximised.

The development will incorporate the creation of a variety of quality landscaped parkland areas, bushland and coastal foreshore areas and quality streetscapes to ensure high levels of amenity for residents and visitors. Open spaces will be designed to encourage active recreational activities as well as more passive recreational activities.

The creation of vibrant and active community spaces and focal points will provide amenity, sense of place and areas for social interaction.

Burns Beach will be a pedestrian and cyclist friendly area. The Burns Beach design embraces the principle of walkability to areas of community focus. Footpaths and dual use paths are provided wherever necessary to create a safe walking and cycling environment and also to encourage these healthy activities.

Integral to the vision, is the creation of a central boulevard that connects the entire site to the coast, open space areas and community focal points and promotes the sites sense of identity. The central boulevard provides a range of experiences along its length enabling staging to be logically defined, with each stage of the development focusing on a landscaped open space. Importantly, the entire central boulevard and all of the open spaces it traverses will be developed as part of Stage 1 of the project.

The Structure Plan embraces the following objectives:

- To foster a sense of community and strong local identity;
- To maximise connectivity and walkability, particularly with the coast;
- To provide a variety of lot sizes and housing types to cater for the diverse housing needs of the community;

- To provide for a more comprehensive approach to the design of open space and urban water management and provide for a range of recreational needs;
- To provide a focus point for each neighbourhood to foster sense of place and identity; and
- To create a residential estate with very high levels of amenity.

With regard to the existing Burns Beach townsite, the development is a cul-de-sac design with development turning its back to the subject land. Accordingly, there is little physical opportunity for integration with the existing Burns Beach townsite development. However, from a community aspect, the urban design has aimed to ensure that residents from the old and new Burns Beach development are readily integrated as one community and will have access to the new infrastructure and amenity at Burns Beach.

10.2 Proposed Land Use

The Burns Beach Structure Plan (refer Plan 1) proposes the following mix of land uses over the subject land:

- Parks and Recreation reserves, including a foreshore reserve;
- Residential development ranging from R20 to R60 densities;
- Local shop, café, kiosk and restaurant;
- Primary school; and
- Public open space.

In addition, an existing Telstra switch site is located in the north eastern corner of the site. This site, totalling an area of 428m^2 will be created as part of the subdivision of the adjacent land.

The following sections provide a discussion regarding of each of the proposed land uses.

10.3 Residential Development

It is forecast that the site will yield approximately 1,600 single residential lots ranging in density from R20 to R60.

The majority of the subject land is proposed for residential development at a density of R20. Within the R20 Code however, a variety of lot sizes will be produced. In the western portion of the site nearest to the coast, the majority of the lots will be large family sized lots in the order of 600m^2. Smaller lots between 500m^2 – 600m^2 will be developed in the eastern portion of the site.

Higher density residential precincts will be provided by the Structure Plan in order to facilitate and promote housing, socio-economic and demographic diversity and to contribute to sustainability and the minimisation of urban sprawl. It is proposed that higher density allotments, up to R60, will be provided in areas of high amenity near or adjacent to open space and the central corner store in response to market influences and demand. The small lots will be in the order of 400m^2.


Photos: examples of medium density housing product

10.4 Northern Residential Precinct

The Northern Residential Precinct is located in the north western area of the site where the land is characterised by extremely steep topography. The key objective in this precinct is to provide quality residential outcomes whilst retaining the general landform of the site. Within this objective, the opportunities and constraints presented by the Precinct were examined and a design response was then formulated.

Philosophy

The topography of the Northern Residential Precinct with regard to slopes and grades is similar to that of the Minim Cove area in Mosman Park. Development of land which is to retain the general slope and height of the 'original' land form, will utilise retaining walls to help stabilise the natural landform, whilst providing for residential allotments that are capable of being developed upon in a standard manner.

A similar philosophy to that of Minum Cove has been utilised for the Northern Residential Precinct. Retaining walls are to be used in the development, to retain the natural height and general landform.

Whilst retaining walls are to be used, these walls are to be primarily situated along the common rear boundary of allotments. The retaining walls will be primarily obscured from the public realm, being screened by residential dwellings that will be located in front of the wall, minimising the impact that these walls will have on the surrounding street network, streetscape and public realm.

Photos from Minum Cove have been provided below to give an indication of the form of development envisaged.

Photos: Minum Cove

Open Space Spine

The Northern Residential Precinct has been designed around a central linear open space spine, traversing the precinct in a NW – SE direction. The alignment of the open space spine has been centred on a visual corridor to the northern beach area and foreshore reserve. The alignment of the spine also offers the gentlest grade within the open space area for pedestrian access, with the height difference between the foreshore reserve and the highest area within the precinct being distributed over the spine length of approximately 420 metres.

The open space spine which is to be a central focus of the Northern Residential Precinct links two relatively large areas of open space. These larger areas are primarily utilised for retention of remnant vegetation and also for drainage purposes. The central spine linking these, whilst proving a permeable open space network, have been incorporated within the urban fabric to be primarily utilised for passive recreation pursuits, with active pursuits to take place in the larger areas.

Solar Efficiency and Orientation

The road network and orientation of residential lots within the Northern Residential Precinct have been aligned to optimise the benefits gained by both solar orientation and natural wind directions.

The stepping of residential allotments through a terraced arrangement, will assist in ensuring the majority of dwellings receive direct sunlight from the northerly aspect, with the walls being terraced up the slope. The direction of the slope diminishes the impact of shadowing that would generally be associated with high retaining walls.

In addition to ensuring good solar orientation of lots as described in the below section, a critical design issue within the Northern Residential Precinct was the direction of prevailing winds. The design has ensured that the majority of residential lots have been orientated to maximise protection from the strong winds that occur at this coastal location.

The orientation of the internal road network on a north-northwest orientation assists with both enhancing sightlines of dwellings and commuters to the foreshore reserve, whilst also ensuring elements of the south west winds will flow throughout the built environment.

The open space spine, whilst providing a visual corridor within the precinct to the foreshore reserve, has also been orientated to provide some protection to any landscaping from the south west winds. This may assist with the establishment of new vegetation in the short-term and promote greater use of these areas with pedestrians being protected from the elements.

Retention of Natural Landform

The highest point in the Precinct is located generally at the eastern side of the Precinct. The land falls away from this high point in all directions. The lowest point in the Precinct is located in the north western corner, which is to be utilised to accommodate the drainage strategy for the Burns Beach Estate, and match in with the existing levels of the Foreshore Reserve.

In order to achieve the objective of maintaining the general overall landform and create quality homesites, development will be terraced from all boundaries of the Precinct to the natural high point in the centre of the Precinct. Retaining walls are required to terrace the residential lots, and maintain the general landform of the northern area.

Opportunities to accommodate the general landform within the residential lots and through alternative home construction techniques (rather than through the use of retaining walls at the lot boundaries) were investigated and researched by the project team. However, to be able to do this efficiently and effectively the lot sizes are required to be much larger than the average lot size desired by the current State and Local Governments. Current Government objectives require the achievement of higher density targets, sustainability criteria and a compact city. The State Government's Network City document requires the fuller use of urban land, limiting urban sprawl and encouragement to use public transport.

Greater residential densities are required to ensure that these Government initiatives are met. The provision of very large lots within the Northern Residential Precinct to accommodate level rises without the use of retaining walls directly conflicts with the Government's sustainability objectives and Network City. The use of retaining walls as proposed allows for the general landform to be retained whilst also providing quality homesites and lots sizes consistent with current State and Local Government policy.

The cross sections attached within Appendix 7 illustrate the location of retaining walls, roads and residential street blocks proposed in the Northern Residential Precinct. Retaining walls at the rear boundary of properties are to be constructed at a height of approximately 4 metres.

With the design of the Northern Residential Precinct rising to a central high point within the site, in addition to the rear retaining walls it is acknowledged that terracing of side boundaries will also be required to facilitate the rise of the topography. The height of the side retaining walls is envisaged to be less than that at the rear boundaries, with the exception of where these walls/lots adjoin open space areas and road reserves.

Density

The bulk of the development in the Northern Residential Precinct will conform with the R25 Code. A number of smaller pockets of R60 AND R40 development are proposed surrounding the large park at the high point of the Precinct, and also adjacent to the coastal road. These have been shown on the Structure Plan (Plan 1) and the below extract from the Structure Plan. The increased amenity value of the open space areas and coastal proximity provides the opportunity for increased density in these areas.

Residential Development within the Northern Residential Precinct shall be limited to;

- R25 – 305 dwellings
- R40 – land area of 6,072m^2
- R60 – land area of 10,452m^2

The urban design within the Northern Residential Precinct will result in many lots having ocean and inland views and views will also be ensured from the linear public open space system. The creation of these views will play an important role in the establishment of a strong sense of place at the Northern Residential Precinct. The open space spine has further been utilised to facilitate the retention of several stands of remnant trees.

Solar Orientation

Liveable Neighbourhoods outlines that good solar orientation is achieved by maximising the number of allotments with the primary axis (length) orientated within the range N20^{o}W to N30^{o}E, or E20^{o}N to E20^{o}S.

The Burns Beach Structure Plan maximises the creation of lots with the correct solar orientation. The vast majority of lots will have the primary axis orientated between the angles outlined by Liveable Neighbourhoods. Accordingly, dwellings constructed at Burns Beach will be able to comply with the Design for Climate Requirements of the Residential Design Codes 2002.

Subdivision designs will aim to provide lot dimensions (width and length) that respond appropriately to the lot orientation and that facilitate the siting of residential dwellings in a manner that maximises the energy efficiency of dwellings.

10.5 Design Guidelines

Part 1 of this report has set out the statutory provisions for development within the land use precincts at Burns Beach. The intent of the statutory provisions in Part 1 of this report is to ensure that built form, particularly on the smaller lots, has a high level of visual amenity and is consistent with the objectives of the Structure Plan. The provisions relate to setbacks, garages, building height and corner lot treatments amongst other issues.

Indicative elevations and images to illustrate what the development on the higher density residential lots may look like have been provided above. These do not form part of Part 1 of this report and are indicative only.

Particular attention has been given to the design of dwellings and fencing on corner lots throughout the Estate. It is considered integral that dwellings constructed on corner lots are designed to address both street frontages in order to increase passive surveillance opportunities, increase aesthetic appeal and positively contribute to the neighbourhood streetscape. In addition, side fencing must be controlled to ensure that the secondary street frontage is active. Fencing will be controlled through design guidelines administered by Peet & Company and is not addressed by Part 1 of the Structure Plan. The below photos demonstrate good and bad examples of corner lot dwellings.

Photo 1:
Unacceptable corner treatment

Photo 2:
Good example of addressing both streets

Photo 3:
Good example of address both streets and use of open style fencing

In addition to the statutory provisions contained in Part 1 of this report, design guidelines and protective covenants will be prepared for all lots within the Estate to address visual amenity and built form quality including building form, roof form, fencing and architectural character. In addition, sustainability issues such as waterwise and GreenSmart principles will be encouraged by Peet & Company.

10.6 Open Space

Parks and Recreation Reserve

The Structure Plan which covers 291 hectares of land west of Marmion Avenue includes 144 hectares of land which has recently been reserved under the Metropolitan Region Scheme and the City's District Planning Scheme No.2 as Parks and Recreation. This area of land, which forms almost half of the land holding has been included in the Structure Plan for the following reasons:

- This land remains in private ownership and is currently still part of Lot 9017. The entire lot must be included on any future subdivision application and therefore the whole site must be included in the Structure Plan.

- The 144 hectares reserved for Parks and Recreation forms an integral part of the vision for Burns Beach and the sustainability objectives referred to in the report.

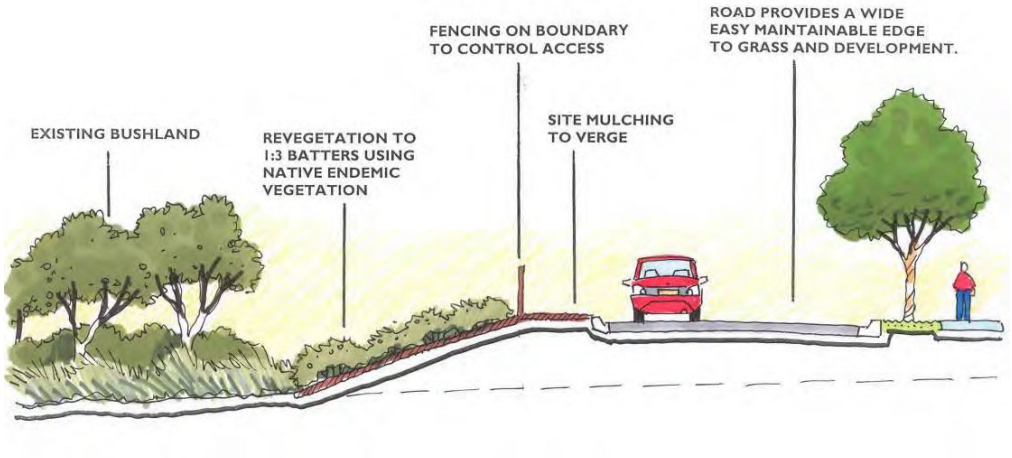
- The 144 hectares of Parks and Recreation Reserve includes the Foreshore Reserve which is a critical element of the Structure Plan and the urban design philosophy at Burns Beach.

- The proposed land uses within the Urban zoned land and preliminary landscape designs for public open spaces cannot be considered in isolation from the fact that almost half of the land (144 hectares) owned in freehold will be set aside for bushland and foreshore conservation purposes.

Accordingly, the land reserved for Parks and Recreation forms an integral part of the Structure Plan and is therefore included in the Plan.

The Parks and Recreation Reserve has been set aside for representative bushland retention. The interface of the reserve and the proposed development will be designed to minimise impacts on both land uses.

It is proposed that the road dividing the two areas form the significant maintainable boundary between them. As such no grass or exotic planting is proposed on the reserve side of the road and endemic revegetation may be required to the edge of the road as a result of civil construction. A fenced edge is to be considered to minimise unauthorised access.



TYPICAL CONSERVATION ZONE BOUNDARY – IN FILL

To the north of the proposed urban development area and adjacent to the Parks and Recreation Reserve within the Structure Plan area that will be vested in the Department of Conservation and Land Management for its care and management, a possible future swimming beach has been identified. This beach would be located approximately 600 metres north of the area of the Structure Plan zoned "Urban Development", being that area able to be developed. As can be seen on the orthophoto (refer Plan 4), current vehicular access to this area of beach is via 4WD using existing sand tracks.

As the Burns Beach area develops, formal access to this beach through the Parks and Recreation reserve will be required by the general community. A Management Plan will need to be prepared by the relevant State and Local

Government authorities in conjunction with the developer of the Burns Beach Structure Plan area for this area of Park and Recreation reserve. The Management Plan would identify formal vehicular access to the swimming beach and also outline the desired facilities at the beach which may include a car park, ablution facilities and a possible surf club.

The future formal access road to the swimming beach would need to connect at some point to the perimeter road separating the Parks and Recreation reserve and foreshore reserve from the developable area within the "Urban Development" zone proposed as part of this Structure Plan. It has therefore been indicated on Plan 1 of the Structure Plan that a future road providing formal vehicular access to the future northern swimming beach will be constructed in the future. However, the final alignment and form of this road and the facilities to be provided at the beach is subject to the Management Plan prepared by relevant State and Local Government authorities, in conjunction with the developer of the Burns Beach Structure Plan area.

Foreshore Reserve

A Foreshore Reserve along the entire length of the development area is Reserved under the MRS for Parks and Recreation.

Importantly, at the termination of the central boulevard within the foreshore reserve a coastal open space and community use area is proposed providing visual and physical access to the coastal environs. This coastal node will form an important part of Stage 1 of the project. This area will incorporate BBQ's, kiosk, café, restaurant, shelters, grassed areas and boardwalks within a pleasant landscape environs (refer above to POS 6).

A Foreshore Management Strategy (FMS) for the portion of the foreshore fronting the urban zoned land has been prepared by BSD Consultants to support this Structure Plan (refer Appendix 3). The objective of the FMS is to ensure that the foreshore is managed and developed in a sustainable manner in order that it will be cherished by the community for its environmental, social and recreational values. The FMS outlines the context within which detailed management and rehabilitation plans can be prepared and implemented. The FMS provides the basis for the preparation of the Foreshore Management Plan by clearly outlining the constraints, opportunities and management issues related to the foreshore at Burns Beach.

A Foreshore Management Plan will be prepared in consultation with the City of Joondalup and the State Government as part of the subdivision of the land.

Public Open Space

The Public Open Space proposed at Burns Beach has been located and designed based on the following criteria:

- the POS has been located such as to provide legibility in the neighbourhood, community focus points and facilitate a sense of place and identity to each neighbourhood in accordance with accepted planning and urban design principles;
- the POS has been equitably spaced so as each resident will be able to walk to an area of open space from their home;
- a variety and range POS areas have been proposed, in contrast to one large active open space, in order to accommodate the needs of a wide range of people and user age groups and contribute to their quality of life;
- Liveable Neighbourhood states that a balance between neighbourhood parks and larger playing fields is favoured;
- the POS has been distributed throughout the Structure Plan area to facilitate its use for stormwater drainage as well as service the recreational needs of the future population;
- the vast majority of the POS areas proposed are of significant size, almost all being greater then 5000m2, and will be able to be used by the future residents for active recreational pursuits whilst also not burdening the local government with inefficient maintenance programs and costs;
- an extremely large space of 3.9 hectares is proposed to contain a senior oval (shared with the primary school) to cater for the formal active recreational needs of the future community;
- there are two additional active playing field facilities in close proximity to the Burns Beach area (Iluka and Kinross); and
- the POS proposed within the Burns Beach Structure Plan is in accordance with all of the requirements of Element 4 - Public Parkland of Liveable Neighbourhoods.

Public open spaces areas have been evenly distributed throughout the Structure Plan area to ensure maximum accessibility for future residents and provide a neighbourhood focus. The open space provision will offer a range of active and passive recreational opportunities for residents of the estate.

In total 19 areas of public open space are proposed, ranging in size from 0.15ha to 3.93ha with the largest site co-located with the primary school proposed as a senior oval to accommodate formal active recreation requirements. The open space areas that will provide the most community focus for Burns Beach will be the central open space (POS 8a, 8b and 9) and the coastal node (POS 6).

The Structure Plan has been designed to ensure that all future residents are within easy walking distance to a park and that each neighbourhood has its own park that functions as a community focus area. In addition, the POS areas have been designed to ensure that there is an equitable mix between active and passive recreation spaces.

As specifically requested by the City of Joondalup, POS 11 in the north eastern corner of the site directly abutting the Parks and Recreation Reserve has been reduced from that shown in the original concept plan in order to allow POS 15 in the south eastern corner of the site to be increased in size to protect the Christmas trees and native vegetation.

The street layout ensures easy pedestrian and cycle access to open space areas throughout the development and passive surveillance through the location of housing fronting open space.

There will be stormwater drainage accommodated in some of the POS areas (as shown in Table 1), typically in the form of landscaped dry swales and basins.

Car parking will also be provided at most of the POS areas to accommodate visitors to the parks. This has been indicatively shown on the Structure Plan.

All of the POS areas will be developed to a high standard. In order to facilitate the long term maintenance of the quality parkland areas, it is proposed to seek initiation of differential rating within the Burns Beach Estate to fund any additional resources and maintenance costs beyond that which may be considered the average. This matter will be discussed with the City of Joondalup further as a separate issue to the Structure Plan.

Table 1 on the following page shows the public open space calculations for the Structure Plan.

Table 1: Burns Beach Structure Plan Public Open Space Schedule

BURNS BEACH PUBLIC OPEN SPACE SCHEDULE

TOTAL AREA (HECTARES)			147.5316
DEDUCTIONS			
• Telstra Site			0.0428
• Corner Store/Café (approximate area only)			0.0800
• Primary School			3.5000
• Drainage Sump			0.1296
• Drainage (50% of 2.6310 = 1:10 year storm events)			1.2305
TOTAL			4.9829
NETT SUBDIVISABLE AREA			142.5487
10% Public Open Space Requirement			14.2549
PUBLIC OPEN SPACE			
POS 1A	PAW (no credit)	*0.0635*	
	Total POS Area	0.4311	
	Drainage Swale = 0.3630 (Assumed 50% POS credit)	*0.1815*	0.2496
POS 1B	Total POS Area	0.1530	0.1530
POS 1C	Total POS Area	0.5447	0.5447
POS 2	PAW (no credit)	0.0675	
	Total POS Area	0.7580	0.7580
POS 3	Total POS Area	0.4718	
	Drainage Swale = 0.2770 (Assumed 50% POS credit)	*0.1385*	0.3333
POS 4	Total POS Area	0.0827	0.0827
POS 5	Total POS Area	0.7244	
	Pos (Median) (no credit)	0.1218	
	POS (R.O.W)	0.0601	0.7244
POS 6	Total POS Area	0.6447	
	Drainage Swale = 0.1930 (Assumed 50% POS credit)	*0.0965*	0.5482
POS 7	Total POS Area	1.188	
	Drainage Swale = 0.4240 (Assumed 50% POS credit)	*0.2120*	0.976
POS 8A	Total POS Area	0.7045	
	Drainage Swale = 0.4810 (Assumed 50% POS Credit)	0.2405	0.4640
POS 8B	Total POS Area	0.4569	0.4569
POS 9	Total POS Area	0.6565	0.6565
POS 10	Total POS Area	0.5127	
	Drainage Swale = 0.3500 (Assumed 50% POS credit)	*0.1750*	0.3377
POS 11	Total POS Area	0.55430	
	Drainage Swale = 0.0920 (Assumed 50% POS credit)	*0.0460*	0.508
POS 12	Total POS Area	1.2717	1.2717
POS 13A	Total POS Area	0.8617	
	Drainage Swale = 0.2810 (Assumed 50% POS credit)	*0.1405*	0.7212
POS 13B	Total POS Area	0.3367	0.3367
POS 14	Total POS Area	3.9339	3.9339
POS 15	Total POS Area	1.6627	
	Drainage Swale = 0.1296	*0.1296*	1.5331
TOTAL			14.5534
SURPLUS			0.2985

Note: Surplus of Open Space may be amended through the preparation of Subdivision Applications. 10% POS shall be provided within the entire Structure Plan area.

Retention of Native Vegetation Within Public Open Space

It is important to emphasise the history and background regarding the protection of native vegetation at Burns Beach. Section 1.2 gives a detailed background regarding the MRS Amendment and the approval by the Environmental Protection Authority to the current zoning. A Public Environmental Review was undertaken as part of the MRS Amendment process resulting in 144 hectares in the northern portion of the site being required to be reserved for Parks and Recreation primarily to protect what is considered to be the most significant vegetation on the site. This is now reflected under both the MRS and the District Planning Scheme. The Environmental Protection Authority has approved the zoning of 147.5 hectares at Burns Beach for residential purposes.

No Declared Rare Flora or Threatened Ecological Communities have been identified on the site, however a few Priority Flora species have been found on the site (refer Section 5.4 of Part 1). One species of rare fauna (Carnaby's Black Cockatoo) and a few Priority Fauna species would potentially occur on the site. However, as determined as part of the Public Environmental Review, these rare and priority flora and fauna species and their habitat will be adequately protected within the large (144 hectares) Parks and Recreation Reserve to be set aside by Peet and Company.

The vegetation over the entire site was mapped as part of the previous Public Environmental Review. This mapping and the zoning boundary is shown at Plan 6.

Within the area zoned Urban which is to be subdivided for residential purposes, the retention of native vegetation within the proposed open space areas will be limited for a number of reasons. These include:

- The required earthworks regime to provide land suitable for urban development with regard to topography, separation from groundwater, installation of infrastructure and services and structural soundness of the ground/fill;
- The need to provide useable open space areas for the community including spaces for informal active recreation; and
- Almost half of the site containing what is considered to be the most significant vegetation is to be retained within the extremely large (144 hectares) conservation area as shown on the Structure Plan.

The location of public open space areas has been based upon a number of criteria as follows:

- Accessibility and walkability to open space areas for all future residents;
- Equitable spacing of open space areas to provide a local neighbourhood focus and recreation opportunities;
- Opportunities for open space areas to accommodate a stormwater drainage function; and
- Opportunities for the retention of selected significant stands of native vegetation where possible taking consideration of the require earthworks regime (ie. the large area adjacent to the Burns Beach Road/Marmion Avenue intersection).

Importantly, the practice of the Western Australian Planning Commission has been to ensure that no more than 20% of the POS within a locality is preserved as bushland. This policy aims to ensure that useable active and passive spaces are provided for the community. Liveable Neighbourhoods emphasises that parkland areas must meet the recreational and social needs of the community. The Liveable Neighbourhoods documents states as follows:

"*The Commission will need to be satisfied that the active and passive recreation needs of the future residents will be adequately catered for before it will agree to parkland being set aside for these purposes (protection of bushland and wetlands)*".

Given that almost half of the site (144 hectares) is being set aside for bushland conservation and considering the concerns that have been expressed by the City of Joondalup regarding the provision of open spaces suitable for active recreation, it is justified that the majority of the POS areas at Burns Beach be developed as urban parklands that maximise the useability and opportunity for informal active recreation.

Advice from the project environmental consultants, BSD, indicates that the condition and diversity of the vegetation with the land zoned Urban is relatively consistent. With the exception of the Christmas Trees in the south eastern corner of the site (to be retained within POS 15), there are no specific areas of vegetation that deserve protection over others. Importantly, as can been seen on Plan 6, the vast majority of the vegetation units present within the Urban zoned portion of the site are also located within the portion of the site reserved for Parks and Recreation and will be well preserved and protected within the large contiguous area of conservation reserve. The 144 hectare Parks and Recreation Reserve contains a good representation of the vegetation units and species present at the site.

Previous experience has shown that the retention of small pockets of remnant vegetation within urban parkland areas is not sustainable in the long term. The vegetation degrades over a number of years as a result of weed infestation and human and domestic animal disturbance. In addition, many local residents become concerned about fire risk. McNally Newton have advised that this has been experienced in Beaumaris/Iluka.

The Burns Beach Structure Plan was formulated in close consultation with community representatives at community workshops prior to lodgement of the Structure Plan with the City of Joondalup. The form and location of public open space was identified as one of a number of issues requiring feedback from the community. The majority of key stakeholders and local residents expressed a desire to achieve a balance between conservation and recreation land uses on POS. The most significant issues from a POS and bushland perspective were a strong desire to:

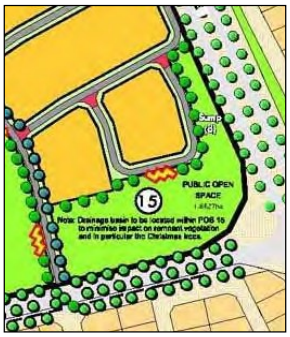
- Enhance and preserve the integrity of the foreshore reserve;
- Manage the interface between the development and the bushland to the north;
- Retain bushland near the school if possible to complement the proposed school oval;
- Preserve the Christmas Trees and remnant bushland on the corner of Burns Beach Road and Marmion Avenue.

Consultation participants expressed a desire to see a sporting oval, barbecues and parks with passive recreation and space for community facilities such as a community hall included as part of a balanced plan. The use of local plantings and indigenous species were also seen as desirable. Participants expressed a desire to preserve some areas of existing bushland as noted above. Some concern was expressed with regard to the potential for future deterioration of small pockets of remnant bushland creating an unpleasant environment.

The Development Concept Plan and the Public Open Space plan enjoyed the widespread support of Community Reference Group members. At the conclusion of the workshops the community had a good understanding of the necessary earthworks regime and the need to provide a balance of useable open space and bushland retention.

For the above reasons, there will be selected areas of POS areas where pockets of remnant vegetation will be retained. These include POS 2, 4, 11 and 15 (Christmas trees and stands of significant trees). The Christmas trees within POS 15 have been surveyed and are represented by black dots on the below plan. The entire area of POS 15 will be retained as natural bushland. There will be no areas of manicured landscaping, lawn or exotic plantings. It is possible that significant tree stands may also be able to be retained in POS 13, depending on final detailed engineering design. A survey of the mature

trees within this area is currently being undertaken by BSD environmental consultants on behalf of Peet & Company. It is intended that a number of mature native trees will be retained in POS 13 and POS 2.



Landscape Design Principles

The landscape design and implementation of the Burns Beach project is to be undertaken under the umbrella of a series of guiding principles. These will determine the overriding and philosophical approach to the projects public open space areas and streetscape design.

These landscape design and implementation principles include;

1. Provision of a visually aesthetically pleasing place to live and recreate.
2. Provision of a range of public amenities and facilities that cater for a range of user and age groups.
3. Provision of suitable landscape responses to the sites location and climate and development needs and pressures such as planning layout, standards and earthworks requirements.
4. Character reinforcement of the coastal nature of the site and subsequent development within the bounds of expectation.
5. Implementation of sustainable landscape planning, practices and implementation where possible within the bounds of viability, standards and expectation.
6. Consideration is to be given to the ongoing maintenance and management issues and cost.

The design and implementation of the landscape areas shall where possible incorporate sustainable development principles.

Sustainability principles include theoretical and practical items such as;

- Waterwise principles in stormwater management and plantings;
- Maintenance minimisation for all landscape designs;
- Minimised bore numbers;
- Alternate irrigation strategies such as moisture sensors;

- Swale construction;
- Suitable materials sourcing, selection and use;
- Recycled use of existing on site assets;
- Use of suitable planting palette responsive to the site and intended design outcomes;
- Purchaser education and demonstration on landscape maintenance needs and strategies.

McNally Newton has prepared an indicative plant species list which will be used as a guide for the POS areas. Many species that will be used will be native species as indicated on the below species list. It is important to note that the final landscape design and planting regime will be largely based upon the need to plant species that are suited to the harsh coastal environment and the micro climate at Burns Beach.

Those species that will be suitable for use as street trees have been indicated in the below list. In accordance with the principles contained within Liveable Neighbourhoods and solar passive design principles, deciduous trees will be used as street trees in many locations, and also within appropriate POS areas, as they provide shade in summer yet allow the winter sun to penetrate into indoor and outdoor living and recreating areas. Native tree species will however be considered for use within median strips.

Australian Native Species

- *Trees :*
  Agonis flexuosa – Native Peppermint (ST)
  Agonis flexuosa 'After Dark' – Burgundy Native Peppermint
  Araucaria heterophylla - Norfolk Island Pine (ST)
  Araucaria columnaris – Cook Island Pine (ST)
  Casuarina equistifolia – Coastal She-Oak
  Callistris presseii – Rottenest Island Pine
  Corymbia maculata – Spotted Gum
  Eucalyptus gomphocephala – Tuart
  Eucalyptus nichollii – Willow Leaf Peppermint
  Eucalyptus platypus – Round Leaf Moort
  Ficus macrophylla – Moreton Bay Fig
  Ficus rubiginosa – Port Jackson Fig
  Melaleuca lanceolata – Rottenest Island Tea Tree (ST)
  Melaleuca quinqernervia – Broad Leaf Paperbark (ST)

- *Shrubs :*
  Adenathos sericea – Albany Woolly Bush
  Anigozanthus sp. – Kangaroo Paw
  Callistemon 'Little John' – Dwarf Bottlebrush
  Calocephalus brownii – Cushion Bush
  Calothamnus quadrifidus – One Sided Bottlebrush
  Conostylis candicans – Grey Cottonhead
  Chamelaucium spp. – Geraldton Wax

Lomandra longifolia – Spiny Headed Mat Rush
Melaleuca acerosa – Coastal Honey Myrtle
Melaleuca hueglii – Chenille Honey Myrtle
Olearia axillaris – Coastal Daisy
Scaevola spp. – Fan Flower
Westringia fruticosa - Coastal Rosemary

- *Groundcovers:*
  Brachycome sp – Swan River Daisy
  Carex petreii – Red Sedge
  Gazania spp. - Gazania
  Grevillea crithmifolia – Coastal Grevillea
  Grevillea thelmanniana – Spider Net Grevillea
  Hibbetia scandens – Snake Vine
  Lechenaulta biloba - Blue Lechenaultia
  Lechenaultia formosa - Red Lechenaultia
  Myoporum parvifolium – Creeping Boobialla
  Erigeron spp. – Seaside Daisy
  Westringia White Rambler – Prostrate Native Rosemary

Note : (ST) = Suitable Street Tree Species

Exotic Species

- *Trees :*
  Cupressus sempervirens – Pencil Pine
  Erythrina indica – Coral Tree (ST)
  Fraxinus raywoodii – Claret Ash
  Liquidamber styraciflua – Liquidamber (ST)
  Metrosideros excelsa – New Zealand Christmas Tree (ST)
  Olea europa – Olive Tree
  Platanus acerifolia – London Plane Tree (ST)
  Pyrus usseriensis – Macnhurian Pear (ST)
  Quercus agrifolia - California Cork Oak
  Sapium sebiferum – Chinese Tallow Tree (ST)
  Tipuana tipu – Pride of Bolivia (ST)
  Ulmus parvifolia – Chinese Elm

- *Shrubs:*
  Astelia Silver Spear - Astelia
  Dietes spp. – Iris
  Hibiscus spp. – Hibiscus
  Hebe spp. - Veronica
  Kniphofia spp. – Red Hot Poker
  Nerium oleander - Oleander
  Plumbago auriculata – Plumbago
  Phormium tenax – New Zealand Flax
  Rhapiolepis indica – Indian Hawthorn
  Rosmarinus spp. – Rosemary

Strelitzia spp. – Bird of Paradise
Trachelospermum jasminoides – Star Jasmine
Viburnum tinus – Viburnum

- *Groundcovers:*
  Agapanthus orientalis – Agapanthus
  Bougainvillea spp. - Bougainvillea
  Festuca glauca – Blue Fescue
  Juniperus conferta – Shore Juniper

Note : (ST) = Suitable Street Tree Species

All plants species are subject to availability and are to be chosen in conjunction with the City.

Planting Themes and Locations

Background
Coastal plantings must contend with strong salt and sand-laden winds, high solar radiation levels and poor, sandy soils. The retention of the natural vegetation within the Foreshore Reserve of the Burns Beach development will assist in providing a protective barrier of salt tolerant front-line plants that will allow developing landscapes within the Public Open Space areas and streetscapes behind to survive and flourish.

Approach
Planting will typically consist of a mix of drought and salt tolerant Australian Native and Exotic species. Australian natives typically will be planted in informal arrangements to create a natural setting within Public Open Space areas. Where more structure is required, such as in streetscapes, inclusive of medians and verges, natives will be planted in single species mass planting arrangements. Areas of exotic plantings will almost predominantly occur within manicured areas of Public Open Space and will always be in single species mass planting arrangements.

Plantings within the Burns Beach development will broadly be categorised into three landscape zones.

- ***Zone 1*** (Primary Dune System), closest to the beach is where only the toughest plants will survive. Typically this zone can be considered as being between Foreshore Reserve extremity and 500 metres from the beachfront. Public Open Space areas broadly categorised as Zone 1 plantings include : **POS 1a, 1b, 1c, 3 and 6.**

  Zone 1 plants must survive wind blasting, direct salt deposits and sometimes sea-water droplets. Suitable plants include but is not limited to those with fleshy or leathery leaves and some grasses and sedges. **Calocephalus spp**, **Conostylis spp, Grevillea spp**. and

Gazania spp. are tough front-line ground covers, useful for soil binding. **Carex spp.** and **Lomandra spp.** are suitable grasses and sedges.

Araucaria spp., **Casuarina spp, Melaleuca spp.** and **Agonis spp.** are suitable trees for this zone both as street trees and Public Open Space specimens. Exotic trees suitable for this zone include **Metrosideros** and **Olea**.

- ***Zone 2*** (Secondary Dune System) is directly behind the primary dunes, approximately 500 metres to one kilometre from the beachfront. Gently undulating hollows and the primary dune system provide protection for planting in this region. POS areas broadly categorised as Zone 2 plantings include : **POS 2, 5, 8, 9 and 10.**

  Zone 2 plants are typically less tolerant of salt exposure and need a protective barrier, which will be provided by the development of housing and the natural undulating topography of Zone 1. Suitable shrubs typically include **Adenathos spp, Brachycome spp, Callistemon spp,** and **Lechenaultia spp**.

  Corymbia maculata, Eucalyptus spp, Melaleuca quinqernervia, are suitable Australian Native trees for this zone both within streetscapes and POS areas. Exotic trees suitable for this zone include **Erythrina spp, Platanus spp.** and **Liquidamber spp.**

- ***Zone 3*** (Tertiary Dune System) is broadly located between the secondary dune system, approximately one kilometre from the beachfront through to Marmion Avenue, approximately 1.5 kilometres from the beachfront. POS areas broadly categorised as Zone 3 plantings include : **POS 11, 12, 13, 14 and 15.**

  Zone 3 plants are the least salt and wind tolerant species. These plantings will occur far enough away from the beachfront where the establishing urban development and associated landscapes prior to zone 3 will redirect or capture salt laden winds over this zone. Suitable plant species typically include all natives species, **Hibiscus spp**, **Hebe spp**, **Phormium spp** and **Viburnum spp**.

  All native trees, **Fraxinus raywoodii, Pyrus usseriensis, Sapium sebiferum** and **Tipuana tipu** and exotic trees considered suitable for this zone, both within POS areas and streetscapes.

Summary

It is possible, through appropriate design and plant selection, to have an attractive, thriving landscape in the harsh coastal environment that is a mix of Australian Native and Exotic species, to create natural and manicured settings

to benefit of the local and wider community. The final selection of plant species for the Burns Beach Estate will take place at a later stage with detailed landscaping plans being prepared in close consultation with the City of Joondalup.

Landscape Visions

A description of the vision for each of the POS areas is provided below.

POS 1A

This area forms the North eastern extent of the development cell and as such is intended to provide a gateway into the adjacent recreation reserve and the northern beaches. In doing view and pedestrian corridors will be established. The shallow slope through this area will allow the development of passive recreational space, in combination with terraced garden beds. Planting will be hardy coastal species and in keeping with the proximity of the reserves will predominantly be indigenous species. The drainage requirement within this reserve will be addressed through the provision of grassed swales with the aim of maximising public use of the land area.

POS 1B

This area provides a landscaped corridor enabling continuous pedestrian access to the foreshore from this development precinct. Views along and across the corridor will be maximised to provide passive surveillance. Hardy coastal species will be planted in terraced gardens providing intimate seating and passive recreational areas. Disabled access will be reviewed to determine if a safe route is possible to Australian Standards without prejudicing the viability of the space as an attractive linear parkland.

POS 1C

This area is a continuation of the linear parkland that provides views to the north east and pedestrian access through to the foreshore. At a minimum width of 26m(approx) a variety of passive recreational spaces are proposed including the incorporation of public art, intimate seating areas and view points. The landscape will combine screening to limit the northerly wind and be relatively open in nature to ensure views into the area are maintained for passive surveillance. The linear parkland and the clear pedestrian links increase the legibility of the precinct and serves to connect the terraced road alignment.

POS 2

This area provides the opportunity to retain and protect an existing stand of eucalyptus. The levels and design of the surrounding area have been manipulated to ensure these trees form the essence of the POS design. The character of the park will be influenced by the existing trees and the extent of the understorey that is retained. The undulating topography of the existing dunal form will be reflected in the landscape to provide shelter to planting areas and users of the passive recreation areas provided. The area provides

the South Eastern extent of a linear parkland that connects to the foreshore reserve. Continuity of plant species and landscape materials will assist in defining this link.

Northern Residential Precinct Open Space Concept

POS 3

The coastal location allows for a public area to be developed as a manicured parkland providing passive recreational facilities adjacent to the foreshore reserve. This POS will serve as an activity node that will allow the public the benefits of a parkland setting adjacent the foreshore reserve whilst protecting the foreshore reserve. The drainage requirement will be addressed as a grassed swale in order to maximise the public use of the area when dry. Uses within the area will extend to bbq and picnic facilities with shelter. Pedestrian links to the foreshore and surrounding residential areas will be provided.

POS 4

The character of this park is intended to be natural due to adjacent proximity to the Parks and Recreation Reserve. This POS will consist totally of native endemic species.

POS 5

The character of this park is intended to be manicured due to necessary earthworks in this area and the and the need to provide usable open space in close proximity to higher density housing types.

Preliminary landscape design proposals include the provision of manicured edge treatments, smaller level kickabout areas, seating, shade and pedestrian linkage to surrounding residential areas. Possible landscape hard scape treatments and public structures may be used to provide a more intimate environment and a higher level of public amenity. Some car parking is proposed.

POS 6 – Coastal Node

This area includes land which is located within the foreshore Parks and Recreation Reserve. The area within the foreshore reserve is degraded. The landscape design will extend the usable open space at this key node. It is considered essential to extend this open space area towards the coast to achieve the objective of providing a strong community focus point and bringing people into contact with the ocean environment in a controlled setting. The Foreshore Management Plan will provide details of how this area is to be developed and managed to ensure that environmental protection is well balanced with human access to the beach.

The character of the park area is intended to be a mix of natural and manicured due to proximity to the foreshore reserve and the need to provide usability and pedestrian linkages. The primary coastal activity node will include features such as a café/restaurant, beach kiosk, a landscaped park with BBQ's, shelters, grassed area, grassed swales to accommodate stormwater drainage, play equipment and also a lookout tower and boardwalk to the beach as well as public conveniences. Such features will be an integral part of the key activity node, providing the catalyst for activity and socialisation in this community focal point. Possible landscape hard scape

treatments and public structures may be used to provide a more intimate environment and a higher level of public amenity.

The Structure Plan indicatively shows the proposed location of a restaurant, cafe and kiosk within the coastal node. It is envisaged that the coastal node will be similar to the open space and café/kiosk developments at Trigg Beach and Floreat Beach which have both proven to be extremely popular destinations.

Some car parking is proposed adjacent to the coastal node to accommodate people visiting the restaurant, kiosk, accessing the beach and other community facilities such as picnic facilities.

POS 7

The character of this park is intended to be manicured due to earthworks in the areas and the need to provide usable open space in close proximity to higher density lots.

Preliminary landscape design proposals include the provision of manicured edge treatments, smaller level kickabout areas, seating, shade and pedestrian linkage to surrounding residential areas. Possible landscape hard scape treatments and small public structures may be used to provide a more intimate environment and a higher level of public amenity. Some car parking is proposed adjacent to the POS.

POS 8A, 8B and 9 – Central Park

The character of this park is intended to be manicured as it is the central open space area functioning as the heart of the Estate. As such the need to provide usability and public facilities is paramount. Any proposed use within this open space areas should respond to the shelter partly provided by the rise in ground level on the western side.

Preliminary landscape design proposals include the provision of manicured edge treatments, larger level kickabout areas, seating, shade and pedestrian linkage to surrounding residential areas. Possible landscape hard scape treatments and small public structures may be used to provide a more intimate environment and a higher level of public amenity. Some car parking is proposed adjacent to the POS.

Adjacent land uses include a local shop and cafe to assist in the provision of public amenity to this central area. It is envisaged that the local shop/café and the central park will read as a fully integrated central focus of the Burns Beach Estate. Roads around this POS will be treated to reduce traffic speed on all edges and enable easy pedestrian access to the POS.

POS 10

The character of this park is intended to be a mix of natural and manicured.

Preliminary landscape design proposals include the provision of manicured edge treatments, smaller level kickabout areas, seating, shade and pedestrian linkage to surrounding residential areas. Possible landscape hard scape treatments may be used to provide a more intimate environment and a higher level of public amenity. Some car parking is proposed adjacent to the POS area.

POS 11

The character of this park is intended to be natural due to adjacent proximity to the Parks and Recreation Reserve. This POS will consist totally of native endemic species.

POS 12

The character of this park is intended to be manicured due to its proximity to high density lots, its function as a central feature and the need to provide usable open space. The circular area will be approximately 150m wide at any point as such provides ample space for informal recreation and safe public use.

Preliminary landscape design proposals include the provision of manicured edge treatments, smaller level kickabout areas, seating, shade and pedestrian linkage to surrounding residential areas. Possible landscape hard scape treatments may be used to provide more a intimate environment and a higher level of public amenity. A central feature set on axis from the entry boulevard would assist in the creation of sense of place. Some car parking is proposed adjacent to this POS area.

POS 13

The character of this park is intended to be a mix of retention of existing native tree species, natural plantings and manicured landscaping.

The entry boulevard is proposed to traverse the park to enable a landscape feel upon arrival. Manicured edge treatments, smaller level kickabout areas, seating, shade and pedestrian linkage to surrounding residential areas will be provided at the park. Possible landscape hard scape treatments may be used to provide a more intimate environment and a higher level of public amenity.

A central feature set on axis from the entry boulevard would assist in the creation of a sense of place. Some car parking is proposed adjacent to the POS area.

POS 14

The character of this park will be manicured due as it will function as a formal active recreation space. This creates the need for level earthworks and alteration to existing grades resulting in the loss of native vegetation. The provision of seating, shade and pedestrian linkages to surrounding residential areas is also proposed. Some car parking is proposed adjacent to the POS.

POS 15

The character of this park is intended to be wholly natural due to the retention of existing Christmas trees (Nyutsia floribunda) and other remnant vegetation. The area will also function as an entry statement for the estate from Marmion Avenue.

The central boulevard and the open space areas provided along its length are critical elements in the vision for Burns Beach and the objectives for the Structure Plan. The central boulevard and POS 6, 8, 9, 12 and 13 will all be fully developed as part of Stage 1 of the Estate. The landscape quality and themes will set the tone for the Estate and will demonstrate Peet & Company's commitment to the development of a quality benchmark Estate. Future stages of development will all resonate the quality and tone that will be set up front as part of Stage 1 and the streetscape treatments along the central boulevard and the landscape designs within the open space areas.

10.7 Educational Facilities

The Structure Plan proposes a primary school site on Burns Beach Road. The primary school has been located on Burns Beach Road to be central to its catchment north and south of Burns Beach Road.

The primary school site has been located adjacent to the proposed formal active playing fields (POS 15). Conforming with Education Department policy, the primary school site has been reduced to 3.5 hectares in area as the oval will be co-located with the adjacent POS. The oval shown on the Structure Plan is a senior sized oval.

The location and indicative layout of the primary school has been supported by the Education Department.

In consultation with the Education Department, it has been ensured that bulk earthworks result in a relatively flat site for the school buildings to be constructed. In addition, the oval is proposed to be sunken to create an amphitheatre effect. The majority of the oval is proposed to be located within the POS area. Legal agreements can be entered into between the relevant stakeholders to ensure that the shared oval facility is constructed and managed to all parties satisfaction.

The primary school site has been provided with adequate road frontage and opportunity for parking and drop off and pick up facilities on the northern side of the school site.

With regard to high school facilities, high school students from the Burns Beach development fall within the catchment of Kinross College located to the east of Marmion Avenue.

10.8 Commercial Facilities

In an endeavour to create community vitality and a high level of liveability at Burns Beach, the Structure Plan proposes an integrated local shop/café opposite the central park within the Estate. It is envisaged that the local shop would provide daily conveniences for the local community.

The proposed site maximises exposure for the local shop to the local catchment, ensuring both commercial viability and their function as a hub of community interaction and community focus.

The Community Reference Group strongly supported the development of a small retail facility at the Burns Beach and did not support a larger neighbourhood centre as originally proposed at the corner of Marmion Avenue and Burns Beach Road.

Car parking for the corner store will be predominantly on street car parking as indicated on the Structure Plan. However, access to the precinct by local residents is encouraged to be via walking and cycling. The permeable design and central location facilitates this.

A beach kiosk and restaurant is also proposed to be developed within the coastal node (POS 6) to provide amenity for local residents and also for visitors to the beach.

Larger retail areas in nearby localities will cater for the weekly and greater shopping needs of the future population at Burns Beach. The Currambine Marketplace shopping centre at the corner of Marmion Avenue and Shenton Avenue and the Joondalup Regional Centre will provide district and regional shopping facilities for Burns Beach. The proposed Iluka Neighbourhood Centre will also provide service to the future residents at Burns Beach.

10.9 Community Facilities

A community purpose site within the Burns Beach Structure Plan area may be required in the future. However, the need and final location of such a site will be determined following further examination of community facilities in the area by the City of Joondalup.

10.10 Movement Network

An important element in developing a coastal community is providing strong connectivity to all facilities, particularly the beach environment, by designing and building a highly connected movement system including roads, footways and cycleways.

The traffic report prepared by Riley Consulting provides a detailed description of the proposed movement network. A full copy of the report has been provided at Appendix 5. A discussion of the existing movement network surrounding the site has been provided in Section 6.0 of this report.

External Roads/Site Entry Points

Primary vehicular access to the site is to be provided from Marmion Avenue at the intersection with Edinburgh Avenue to the east. The sight lines and visibility are good in this location and spacing from other existing intersections conforms to the required standards. The four way intersection is proposed to be controlled by a round-a-bout, similar to the existing round-a-bout at the Marmion and Shenton Avenue intersection. The provision of a round-a-bout has been agreed with Main Roads Western Australia and the Department for Planning and Infrastructure. However, the final form of this intersection will be subject to further detailed analysis at the time of subdivision to ensure appropriate operation of the intersection in the long term.

A second access point from Marmion Avenue is proposed at the northern edge of the development site. This road will function as a left-in/left out only in order to encourage most traffic to use the central boulevard to access Marmion Avenue.

The proposed access points to the site from Marmion Avenue have been discussed with the Department for Planning and Infrastructure and the City of Joondalup. Both authorities have shown support for the two access points proposed.

Entry into the site is proposed from three points along Burns Beach Road. Importantly, Burns Beach Road will provide the main access to the proposed primary school site from surrounding areas.

The most easterly access point to Burns Beach Road is proposed to function as a left-in/left out only to avoid conflicts with the existing intersection to the south and traffic accessing and egressing the primary school area. However, this access point is necessary in order to facilitate pick up and drop off traffic in a clockwise direction around the primary school site.

Once developed, Riley Consulting has estimated that the site is likely to generate a daily trip rate of 9 trips per day per residential lot. Based on a lot yield of approximately 1,600 lots, the daily traffic generation from the site will be approximately 14,400 vehicles per day.

With regard to Marmion Avenue, an additional 6,850 vehicles per day could be expected. This would increase the typical daily traffic volumes on Marmion Avenue from 33,000 to 39,900 vehicles per day. However, it is expected that this traffic volume would be reduced once the railway and freeway are extended further north to Burns Beach Road. The capacity of Marmion Avenue is 50,000 to 60,000 vehicles per day.

Internal Road Network

The internal road network provides a connected, legibile and permeable residential environment with convenient and easy access to community focus points.

The traffic report classifies each internal road as a Neighbourhood Connector, Higher Order Access Street, Access Street or a Service Road. These classifications are based on the anticipated traffic volumes on each of the roads.

The central east-west boulevard will vary in width between 22 and 25 metres to allow the creation of a traditional boulevard with a dual carriageway, a high quality landscaped median strip and on street car parking where appropriate. The other main connector roads will be mix of single and dual carriageway roads and they will all have a high quality streetscape. These roads vary in width from 12 metres to 22 metres depending on the design, function and anticipated traffic volume on each section of road. The traffic report (Appendix 5) contains further information and analysis regarding the proposed road reserves, particularly the central boulevard and the varying treatments proposed along its length.

The small lot precincts have been designed with laneway access to allow for rear loading and avoid domination of the streetscape by crossovers and garages. All laneways will have a minimum width of 6 metres.

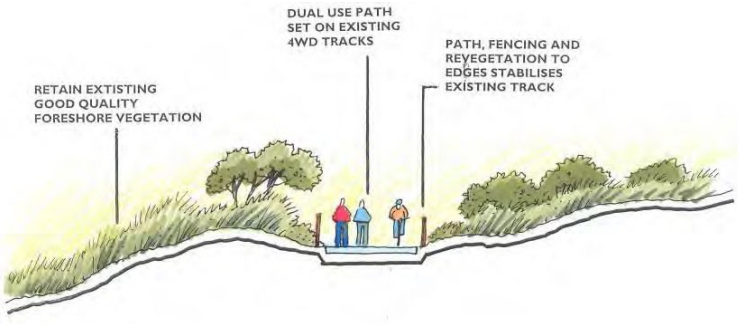
Figure 5 in the traffic report (refer Appendix 5) shows the anticipated traffic volumes on internals road and the forecast increases to external roads.

Pedestrian and Cyclist Movement

Pedestrian and cycle movements across the subject land are proposed to be accommodated by a series of interconnected and pedestrian/cyclist paths. Plan 7 shows the proposed dual use path network. The general philosophy is to provide safe walking and cycling environments and to connect areas of interest with residential neighbourhoods. The path network connects public open space/foreshore areas, local shops, the school and recreation areas. The permeable road network also facilitates efficient pedestrian and cyclist movement through the area.

The Foreshore Management Plan (FMP) will locate pedestrian access points from the development to the beach abutting the Structure Plan area. In addition, the FMP will establish the route for regional dual use pathways along the coast connecting to the existing pathway through Iluka and ultimately to Mindarie Keys to the north.

The cross section below indicates how the dual use paths along the foreshore will integrate with the environment.



TYPICAL FORESHORE ACCESS PATH

Public Transport

There are several bus services in the locality of Burns Beach providing connections to regional shopping facilities and the railway station in Joondalup. Consultation with the Public Transport Authority regarding the subject land has resulted in agreement to re-routing an existing bus service to generally follow the central boulevard (Refer Plan 7).

The proposed bus route will provide an accessible public transport service for all future residents in Burns Beach which connects to Joondalup Regional Centre and Joondalup Railway Station. The northern railway line provides quick and efficient access to Perth and other major destinations. The extension of the northern railway line will reduce the traffic load on the road network in the area.

In a local context, the bus service will provide comprehensive links between community facilities including the primary school, public open space and the foreshore. The bus service will also provide a link between the development and Kinross College (high school) to the east during morning and afternoon school times.

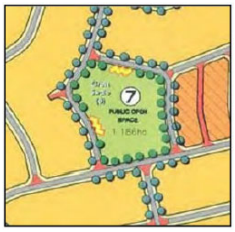
11.0 COMPLIANCE ANALYSIS

The purpose of this section is to demonstrate how the Structure Plan complies with relevant City of Joondalup policies, particularly Policy 2.6.4 – Environmental, Social and Economic Sustainability.

Section 3.0 outlines how the proposed development at Burns Beach addresses sustainability objectives.

City of Joondalup Policy Objective	Burns Beach Structure Plan Response
• Enhance environmental, social and economic sustainability	• 144 ha (equating to almost half of the landholding) is Reserved as Parks and Recreation; • Where practical, significant vegetation, specifically a large stand of Christmas Trees in the south-eastern corner of the site, will be retained; • Protection of the foreshore through the preparation and implementation of a Foreshore Management Plan; • Appropriately located community use spaces within the foreshore reserve to encourage a healthy lifestyle and community well being and to provide access to the beach areas; • Protection of the natural landform where possible; • Creation of a walkable environment to reduce the use of the private car; • Securing public transport services to the area; • Encouragement of social interaction and the creation of a healthy community through the provision of useable parkland spaces, a sports oval and path networks; • Provides a variety of lot sizes to accommodate a range of socio-economic and demographic groups; • Creation of community groups, community projects and community development plans; • Creating local employment opportunities at the school, local shop and cafes and restaurants; • Promotes the efficient use of existing infrastructure including roads, railways and services.

City of Joondalup Policy Objective	Burns Beach Structure Plan Response
• Protect and enhance the natural and human environments for the benefit of present and future generations	• 144 ha (equating to almost half of the landholding) is Reserved as Parks and Recreation; • Where practical, significant vegetation, specifically a large stand of Christmas Trees in the south-eastern corner of the site, will be retained; • Protection of the foreshore through the preparation and implementation of a Foreshore Management Plan; • Appropriately located community use spaces within the foreshore reserve to encourage a healthy lifestyle and community well being and to provide access to the beach areas; • Creation of a walkable environment to reduce the use of the private car; • Securing public transport services to the area; • Encouragement of social interaction and the creation of a healthy community through the provision of useable parkland spaces, a sports oval and path networks; • Creation of community groups, community projects and community development plans; • Creating local employment opportunities at the school, local shop and cafes and restaurants;
• Minimise, as far as practicable, any adverse environmental impacts	• 144 ha (equating to almost half of the landholding) is Reserved as Parks and Recreation; • Where practical, significant vegetation, specifically a large stand of Christmas Trees in the south-eastern corner of the site, will be retained; • Protection of the foreshore through the preparation and implementation of a Foreshore Management Plan; • Appropriately located community use spaces within the foreshore reserve to encourage a healthy lifestyle and community well being and to provide access to the beach areas; • Ensure public transport routes service the site

City of Joondalup Policy Objective	Burns Beach Structure Plan Response
• Take advantage of and maximise environmentally beneficial opportunities	• Facilitating the controlled access and management of a large bushland conservation reserve (144 hectares) and the foreshore reserve to eliminate uncontrolled human access; • Implement Water Sensitive Urban Design; • Retention of the natural landform where practical.
• Adopt appropriate management practices to facilitate sustainability	• Foreshore Management Plan to ensure sustainable use and management of the foreshore reserve; • Community development initiatives will be supported and facilitate d by Peet & Company contribute to social sustainability.
• Increase the sense of safety and security for open space and protect public property through surveillance of public space	• The Structure Plan facilitates and maximises the outlook and casual surveillance of areas of open space through road frontage, lot orientation towards parkland areas and visually permeable fencing requirements. 
• Encourage the provision of leisure services in making a contribution to the quality of life of residents	• Equitable distribution of quality public open space throughout the development encouraging both active and passive recreational pursuits; • Provision of numerous pedestrian walkways and cycle paths throughout the whole development and particularly along the foreshore and fronting the Parks and Recreation reserve; and • Provision of a large formal active recreation space in the south of the site, to be shared with the primary school, further encourages community participation in active leisure pursuits;

City of Joondalup Policy Objective	Burns Beach Structure Plan Response
	• Natural character of the area encourages active community participation in leisure pursuits, maximise social benefit, contribute positively to health and well being and foster a sustainable community.
• Develop and promote cultural identity through the implementation of artworks in public spaces	• Public art will be planned for and encouraged at Burns Beach as it is a significant contributor to the development of a sense of place and pride in the local community; • Public art is proposed in a number of the more high profile parks for public enjoyment and possible interpretation of local natural and historic topics; and • Public art must reflect the local area and be constructed of suitable materials to withstand the local coastal environment and public attention. • Proposals will be sought from professional art groups in WA    
• Provide a variety of public open spaces which fulfil the community's recreational and environmental needs	• The Structure Plan provides a variety of open space areas, which incorporate both active and passive recreational opportunities as well as environmental protection in a large 144 hectare bushland conservation area. • Open spaces have been located and designed to accommodate some natural vegetation.

12.0 SERVICING INFRASTRUCTURE

12.1 Siteworks

There is likely to be pockets of limestone encountered on the site due to its coastal location. If any limestone is encountered, it will be broken up prior to use as structural fill. The majority of limestone encountered should be broken up by bulldozers.

Towards the west of the site, Calcareous Sand of the Safety Bay Unit is present. This sand is often poorly cemented and very low strength but if reconstituted, can provide a suitable foundation material.

Earth working of the site may require areas of insitu rock to be ripped and relocated and compacted in deeper fill areas.

Sand will be used to fill required areas. In areas of cut, this will require over excavation of rock and replacement with sand.

Earthworking of the site will be required to create level lots for dwelling construction with changes in elevation being accommodated by the construction of retaining walls. The height of retaining walls will vary depending on the natural topography, as the general landform will remain, though benched. Retaining walls across the development will be limited in height as much as possible. Within the Northern Residential Precinct retaining walls are necessary to realise the desire to retain the general landform and create a terraced product that has a point of difference to Beach and the majority of coastal developments in Perth. The retaining walls will have a maximum height of 4 metres dependant on the adopted provisions detailed in Part 1.

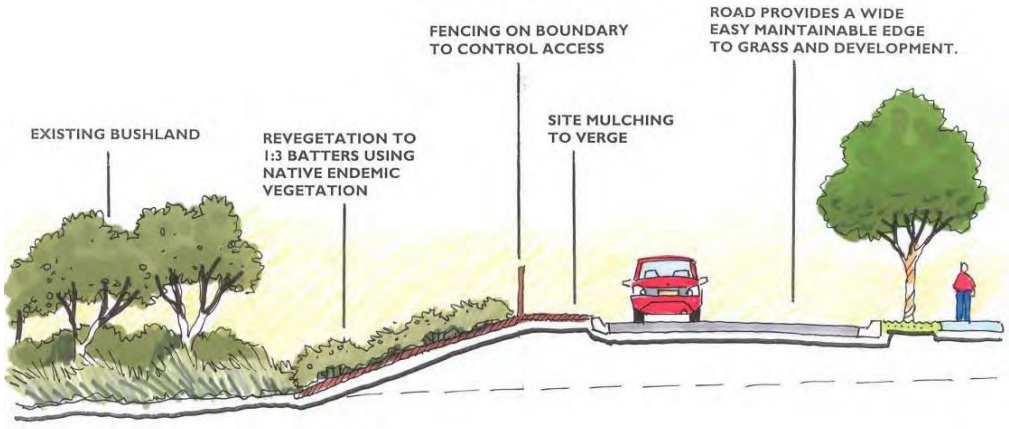
Retention of existing vegetation will be possible in some of the POS areas. A stand of Christmas Trees at the south-east corner of the site have been identified for retention and this will be accommodated in the bulk earthworks design. Existing stands of trees at the top of the ridgeline in the Northern Residential Precinct have also been specifically identified for retention within POS 2A. The proposed terracing of the lots in this precinct using retaining walls at the rear of lots has enabled the retention of these mature trees.

12.2 Roadworks

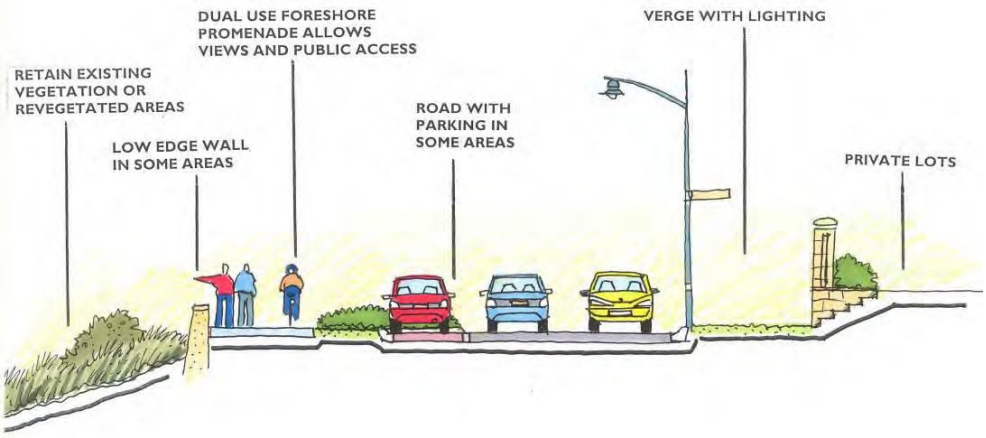
All roads within the development will be constructed to City of Joondalup engineering standards. The roads will generally be black asphalt, however some sections will be constructed with red asphalt in areas where special treatment or traffic calming are required. Intersection thresholds and other areas where aesthetic appeal is desired will utilise brick paving treatments. Road reserve widths have been discussed in Section 9.8.

The vertical alignment of the roads abutting the foreshore reserve and

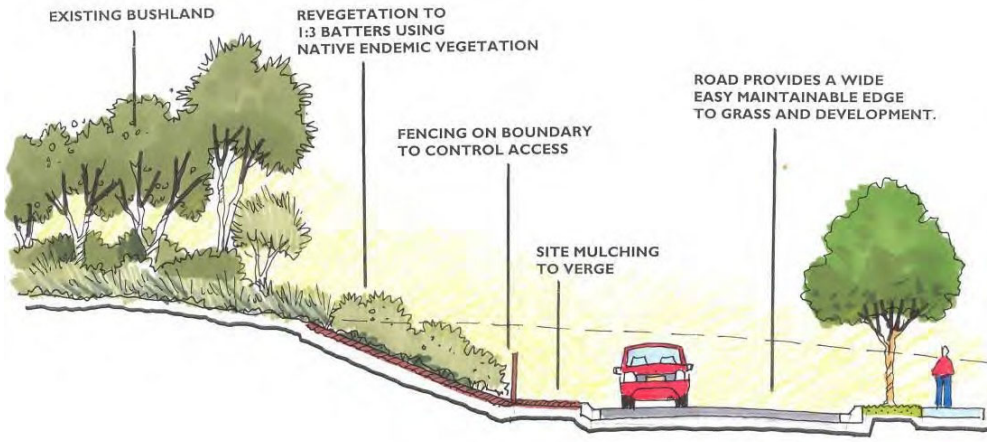
Regional Open Space has been sensitively designed to minimise batter impacts on these areas. The cross sections provided on the following page indicate how this interface is likely to be treated.



TYPICAL CONSERVATION ZONE BOUNDARY – IN FILL



TYPICAL FORESHORE PROMENADE



TYPICAL CONSERVATION ZONE BOUNDARY – IN CUT

12.3 Service Infrastructure

Sewer Reticulation

The Water Corporation has sufficient capacity in the surrounding sewer network installed to the south and east of the site to cater for the proposed development of the site. All lots within the proposed development will be provided with a gravity sewer connection installed in accordance with Water Corporation requirements.

The western portion of the site will discharge via a gravity sewer to the existing Burns Beach Pump Station No. 5 located in Burns Beach Road adjacent to the foreshore. The remainder of the site (portion adjacent to Marmion Avenue) will discharge to two existing gravity sewers. One is located within Edinburgh Drive (extended to the west side of Marmion Avenue) and the other terminates in the eastern verge of Marmion Avenue immediately north of Burns Beach Road. The latter connection point will require a sewer pipe to be bored underneath Marmion Avenue. Earthworks in the north-east area of the site will be required to achieve gravity flow from this area.

Water Reticulation

Water supply planning has allowed sufficient capacity in the surrounding water reticulation network installed to the south and east of the site to cater for the proposed development. All new lots constructed will be provided with scheme water supply in accordance with Water Corporation requirements.

The surrounding water reticulation network includes a 700mm main in Marmion Avenue and a 300mm main in Burns Beach Road. New mains to be constructed within the proposed development will generally be up to 250mm diameter. Subject to detailed design, there may be a requirement for a short section of a larger diameter main that connects to the 700mm pipe. If this is required it would be considered a prefunded item.

Stormwater Drainage

All stormwater drainage generated from new road construction will be contained on site in accordance with City of Joondalup criteria.

Water sensitive urban design principles in the management of stormwater and the design of open space areas will be implemented at Burns Beach. This is an environmentally and aesthetically superior solution to the traditional drainage sumps as the stormwater infiltrates into the ground at source.

Drainage design will embrace best practise water sensitive design principles to ensure adequate management of first flush stormwater events and treatment of drainage waters particularly adjacent to foreshore areas to meet the objective of being consistent with the protection of natural drainage; treatment processes; and conservation of biodiversity. Implementation of water sensitive urban design and best management practices will reduce the risk of polluting the groundwater and assist to remove nutrients.

Conceptual design has been carried out for the purpose of calculating land area requirements for drainage. To ensure that the land requirement was not underestimated, Tabec assessed drainage requirements based on providing for 1 in 10 year events in maximum 0.9m deep shallow sided basins, designed in accordance with City of Joondalup criteria (being 1 in 8 side slopes). This approach is considered to be the option that has the greatest land requirement. Of the area required for the shallow sided basins, a 50% POS credit has been assumed.

Future detailed design of POS areas may necessitate that deeper fenced basins are appropriate, particularly in areas where shallow sided basins would consume a large portion of a POS (eg. POS 1, 3 and 10). In these instances, the area required for the deeper fenced basin would be less than 50% of the area required for a shallow sided basin. As such, there will be no reduction in effective (creditable) POS area. Typically, shallow swale type basins consume 3 to 4 times the land area that a deep basin consumes.

It is noted that the basin located in POS 15 could be constructed as a deeper fenced sump if a shallow basin can not be constructed without impacting significantly on the existing vegetation, particularly the Christmas trees.

Of the total POS provision of 16.0651 Ha, 14.3921 Ha is claimed as POS with an area of 1.6730 Ha not credited. Of this non-credited area 1.3601 Ha is

used for drainage. Should the nature of the drainage basins be changed from shallow to deep, the provision of 14.3921 of POS would not be reduced. The land area required for the deep basins would originate from the 1.3601 Ha area that has not been credited as POS.

Drainage reserves will be provided of sufficient area to accommodate deeper fenced basins in accordance with Council policy.

In all cases, the detailed design of both shallow and deep basins will be carried out in accordance with City of Joondalup criteria.

All roads will be kerbed and drainage water will be collected in a network of pits and pipes. The drainage networks have discharge points in basins constructed in open space areas.

Minor roads that abut public open space may utilise flush kerbing to allow direct infiltration rather than collecting stormwater and discharging to the drainage basins.

Power, Gas and Telecommunications

Existing high voltage mains in Marmion Avenue and Burns Beach Road can be utilised to supply power to the proposed development. Initial stages of development will require the installation of both high and low voltage underground power. It is proposed that the overhead powerlines along Burns Beach Road will be placed underground.

To assist in the visual amenity of the development, street lighting from Western Power 'Streetvision' range will be utilised.

Gas and communications services are available in adjacent existing development to the south and east of the site. Both of these services will be extended to include the proposed development. The services from the development at Beaumaris to the south will be extended into the development Burns Beach. These services will include access to Broadband.

Discussions have been held with Broadcast Engineering Services who operate a MATV communications and data cabling system in the adjacent suburb of Iluka. The system includes access (via underground cabling) to high speed Internet, free to air local television, a limited selection of free to air satellite stations and pay TV (Foxtel or similar).The headworks infrastructure for these facilities are already installed at Iluka therefore access is provided by additional underground cabling. There would be no requirement for any new telecommunication towers, aerials or the like as part of the system.

13.0 TIMING & STAGING

Amendment No.21 to the City of Joondalup Town Planning Scheme, which will rezone the land to Urban Development Zone, has been adopted by the City of

Joondalup. The Amendment has now been forwarded to the Western Australian Planning Commission. Accordingly it is expected that the Amendment will be finalised and endorsed by the Minister for Planning and Infrastructure before the end of 2004.

The proposed Local Structure Plan is also anticipated to be approved by the end of 2004. Accordingly, subdivision of the subject land is expected to commence in early 2005 with the initial stage adjacent to the coast and the existing Burns Beach townsite. It is anticipated that the Estate will be developed over a period of 10 years.

14.0 CONCLUSION

The proposed Structure Plan provides for the creation of a quality, well planned and integrated residential community. The proposed design will facilitate the creation of a vibrant coastal community that is physically and visually well connected to the coast and its natural setting and facilitates a vibrant coastal community. Significant community facilities and areas are proposed including a large bushland conservation area (144 hectares), a foreshore reserve, a primary school, the formal active recreation space, varied areas of landscaped public open space, beachside activity node and local convenience shopping. The centrally located boulevard together with strong north-south and east-west road linkages provides for an estate which is fully connected with the ocean and has a strong sense of place and identity.

The Burns Beach project as proposed in this Structure Plan will result in the creation of a premier coastal settlement. Burns Beach will be a landmark, leading edge Estate that embraces sustainability principles.

The Structure Plan has evolved from a comprehensive consultation process and now enjoys broad stakeholder support.

It is now requested that the City of Joondalup and the Western Australian Planning Commission endorse the Local Structure Plan for Lot 9017 Burns Beach Road.