

Lancelin South (Stage 2)
GING/2015/6-LS

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STRUCTURE PLAN



Prepared for **Lancelin South Pty Ltd**
Prepared by **Taylor Burrell Barnett**

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Lancelin South (Stage 2)
Structure Plan
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ENDORSEMENT

This Structure Plan is prepared under the provisions of the **Shire of Gingin Local Planning Scheme No. 9**.

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

11 January 2018..... Date

Signed for and on behalf of the Western Australian Planning Commission


.....

an officer of the Commission duly authorised by the Commission pursuant to section 16 of the *Planning and Development Act 2005* for that purpose, in the presence of:


..... Witness

11 January 2018..... Date

11 January 2028..... Date of Expiry



TABLE OF AMENDMENTS

Amendment No.	Summary of the Amendment	Amendment Type	Date Approved by WAPC

TABLE OF DENSITY PLANS

Density Plan No.	Area of Density Plan Application	Date Endorsed by WAPC



EXECUTIVE SUMMARY

This Structure Plan applies to the north-eastern portion of Lot 9001 Lancelin Road, Lancelin (the subject land). The subject land is located within the Shire of Gingin local government area, and is generally bound by Indian Ocean Drive to the east, Lancelin Road to the north, a 'Conservation' zoned area to the west and balance of Lot 9001 to the south. The subject land is located approximately 100km north of Joondalup and 128km north of the Perth CBD. The Lancelin townsite is approximately 2.2km to the north-west and the structure plan area would be accessible by proposed road linkages via Lancelin Road.

Development within Lancelin South (Stage 2) represents the next phase in the planning for Lancelin's growth. The Lancelin South Stage 1 area was initially rezoned from 'Rural' to 'Urban Development' and 'Conservation' zone under Amendment No. 93 to the Shire of Gingin Town Planning Scheme No. 8 (gazetted 12 April 2011). The Stage 1 land was subsequently zoned 'Future Development' under the new Shire of Gingin Local Planning Scheme No. 9 (LPS 9) (gazetted 24 September 2012). A further amendment to LPS 9 (Amendment 3) rezoned the balance area of Lancelin South from 'General Rural' to 'Future Development', 'Conservation' and 'Landscape Protection' (gazetted 25 September 2015). The zoning for the subject land within the Stage 2 Structure Plan area is 'Landscape Protection' and 'Future Development'.

This Structure Plan is for a north-eastern portion of the Lancelin South development area, as identified in the Shire of Gingin's *Local Planning Strategy* and provides for the development of 88 hectares out of a total site area of 456 hectares for residential purposes, to accommodate an extra 600 people (approximately). Some incidental land uses such as aged persons accommodation, bed & breakfast, consulting rooms, convenience store, family day care, guest house, home business/occupation/office, and retirement village may be contemplated over the longer-term. The land use permissibility is contained in the Zoning Table in LPS 9. The Structure Plan also includes areas classified as 'Landscape Protection' zone and 'Parks and Recreation' reserve.

The remainder of the Lancelin South area will accommodate the ultimate future population of approximately 8,000 people and will provide for landscape protection, public open space, a neighbourhood centre, local centres and schools. Due to the long-term development horizon to achieve the ultimate population for Lancelin South, this Structure Plan primarily focuses on the next intended staging area for approximately 315 lots. Planning of subsequent stages would be informed at the appropriate time by structure planning and detailed subdivision design.

There have been previous local structure plans approved over the Lancelin South development area:

- (a) *The Lancelin South Structure Plan* (LSSP) was adopted by the Shire of Gingin on 2 October 2007 and by the Western Australian Planning Commission (WAPC) in August 2009. The LSSP formed the basis for the rezoning of the Stage One area under Amendment 93 to TPS 8, and gave guidance to the future development of the balance area.
- (b) The WAPC gave its endorsement to the Lancelin South (Stage One) Structure Plan on 28 June 2011. The development of Lancelin South Stage One has commenced in accordance with the structure plan and the subdivision approval (WAPC ref: 143820) dated 11 July 2011. The land contained within the Lancelin South (Stage One) structure plan is excluded from the Stage 2 Structure Plan area.

The following **Summary Table** provides the key statistics and planning outcomes related to this Structure Plan.



SUMMARY TABLE – LANCELIN SOUTH STAGE 2

Item	Data	Structure Plan reference (section number)
Total area covered by the Structure Plan	88.7872 ha	Executive Summary
Area of each land use proposed:	Hectares Lot Yield	Part 1, section 5.1
• Residential	60.1483 ha 285 lots (av 2,000-5,000m ²)	
• Landscape Protection (Residential)	15.6108 ha 30 lots (av 2,000-5,000m ²)	
Total Estimated Lot Yield	315 lots for Stage 2 area (based on 2,000m ² average)	Part 2, section 11.1.1.1
Estimated No. of Dwellings	315 for Stage 2 area	Part 2, section 11.1.1.1
Estimated Residential Site Density	2-5 Dwellings per ha of Residential and Landscape Protection zoned land	Part 1, section 5.2
Estimated Population	~600 for Stage 2 area	Part 2, section 11.1.1.1
No. of High Schools	N/A for Stage 2 area	Part 2, section 9.3.2.1
No. of Primary Schools	N/A for Stage 2 area	Part 2, section 9.3.2.1
Estimated Commercial Floor Space	N/A for Stage 2 area	Part 2, section 9.3.2.1
Estimated area and percentage of Public Open Space	13.2105 ha (approx 14.88% POS provision, including Vegetation Screen)	Part 1, section 5.4 and Part 2, section 11.1.1
Estimated percentage of natural area	73.65% (Ridgeline POS)	Part 1, section 11.1.2.1

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PART ONE IMPLEMENTATION

1 INTRODUCTION

This Structure Plan comprises an Executive Summary, with key statistics on planning outcomes, and two Parts that contain the following components:

Part 1 – Implementation

Part 1 contains the structure plan map (**Plan 1**) and outlines the purpose and intent of the Structure Plan, including requirements that will be applied when assessing subdivision and development applications over the land to which the structure plan relates. This structure plan aligns with the Shire of Gingin Local Planning Scheme No. 9 (LPS 9) and relevant Western Australian Planning Commission (WAPC) policy requirements. This structure plan should be read in conjunction with the LPS 9 and policies.

Part 2 – Explanatory Section and Technical Appendices

Part 2 supports the Structure Plan in Part 1 by providing the background and explanatory information used to prepare the structure plan. It indicates staging, public open space and the matters for future consideration. Part 2 also includes the following technical reports prepared to inform the structure plan in Part 1:

- Environmental Report;
- Water Management Report;
- Traffic and Transport Assessment;
- Bushfire Hazard Level Assessment and Bushfire Management Plan;
- Desktop Study of Indigenous Heritage Significance;
- Visual Landscape Assessment; and
- Environmental Management Plan Framework for Conservation Zoned Land.

2 STRUCTURE PLAN AREA

This Structure Plan shall apply to the north-eastern portion of Lot 9001 Lancelin Road on Plan 73642, Lancelin, being the land contained within the inner edge of the line denoting the Structure Plan boundary on the Structure Plan Map (**Plan 1**).

3 OPERATION

This Structure Plan shall come into effect on the day it is approved by the WAPC pursuant to the Deemed Provisions Schedule 2, Part 4, clause 22 of the *Planning and Development (Local Planning Schemes) Regulations 2015* as amended (the *Regulations*).

The approval date is shown on the Endorsement Page of the Structure Plan.

4 STAGING

Lancelin South represents a long-term development that will accommodate the majority of the planned population growth in Lancelin and a significant proportion of the Shire's overall anticipated population growth, towards 2031 and beyond.

The Conditions under Schedule 9 of the LPS 9 effectively dictate the staging of subdivision within the Lancelin South area, where proposed beyond the Stage 1 structure plan area. These conditions in Schedule 9 of LPS 9 are quoted below:

- (2) No subdivision is to occur outside of the Lancelin South Stage 1 structure plan area unless:
- (i) 75% of Lancelin South Stage 1 has been subdivided and developed; or
 - (ii) Subdivision is provided for in an approved structure plan at a residential density of less than R5; or
 - (iii) Subdivision is provided for in an approved structure plan at a residential density equal to or greater than R5 on land that is at or above 35m AHD.

The three Conditions 2(i)-(iii) are capable of being mutually exclusive through using the conjunction "or", where it is interpreted that only one out of three conditions need to be addressed in order for subdivision to occur outside of the Lancelin South Stage 1 structure plan area. This Structure Plan has been prepared with a density code range of R2-R5, which complies with Schedule 9 Conditions 2(ii) and (iii) as underlined. The R2-R5 density coding does not limit development based on the 35m AHD contour line. There is flexibility in the conditions for development to occur across Lancelin South Stage 2.

4.1 SUBDIVISION STAGING

Detailed planning of street blocks, allocation of residential densities and distribution of public open space will be informed by detailed design and technical inputs, particularly as they relate to engineering, hydrology and the environment. This will be undertaken as part of subsequent subdivision processes to address WAPC, referral agency and local government requirements.

In light of the above caveat and the servicing conditions outlined in the following **section 4.2**, the proposed subdivision staging is summarised as follows and illustrated in Part 2 **Figure 11**:

- (a) The land generally above 35m AHD will be staged in a manner to be accessed from Lancelin Road by the indicative neighbourhood connector road shown on **Plan 1**. The stage would remain connected through to Lancelin South Stage 1 area through an east-west road connection along the southern edge of the 'Conservation' zoned area. The 'Conservation' zoned land would need to be surveyed to ensure the road is correctly aligned. The intention is for it to be installed for bushfire management purposes. This would provide for the minimum two different vehicular access routes to be provided for all stages of development.

The provision of public open space (and potentially drainage) is located to the west of the stage, in the lower part of the Stage 2 area and this could be brought on along with the staged subdivision. Along the southern boundary of the Structure Plan area, provision will be made for the retention of existing vegetation and landform along the ridgeline as a component of the indicative ecological linkage.

- (b) The lower-lying land, generally below 35m AHD will be staged in a manner to be accessed from Lancelin Road by the western indicative neighbourhood connector road shown on **Plan 1**. The road intersection to Lancelin Road is proposed to be used by daily traffic.

The staged area will be supported by the provision of public open space and drainage located immediately abutting the eastern edge of the 'Conservation' zoned area of land. Along the southern boundary, provision will be made for the managed rehabilitation of degraded land for the indicative ecological linkage (also refer to Part 1, **section 5.4.3** and Part 2, **section 11.1.2.2**).

Pursuant to clause 4.8.8.2 of LPS 9, an Environmental Management Plan Framework has been prepared in consultation with the Department of Biodiversity, Conservation and Attractions as part of this Structure Plan (refer **Appendix G**). In compliance with Schedule 7 of the LPS 9 and at the time of subdivision, the Environmental Management Plan Framework would be used for the preparation and implementation of an Environmental Management Plan to address the use and management of the land zoned 'Conservation'.

- (c) The eastern-most extent is within a 'Landscape Protection' zoned area as shown on the LPS 9 Scheme Map (refer **Figure 3** and Part 1, **section 5.3**). The staging intent would be for the managed installation of a vegetation screen to complement the existing remnant vegetation and ensure future intended development is inevident or blending.

To ensure that appropriate lead time is factored in to the visual landscape management measures, the proposed vegetation screen will be planted, reticulated and initially managed by the proponent. This will ensure that, as development occurs over time, the vegetation screen will have time to become established and contribute to the objectives of the visual landscape assessment. A 'succession approach' would be considered in the planting strategy to utilise fast growing native plants interspersed with slower growing, longer-lived species to ensure the screen becomes well established in order to be most effective for screening the future development.

Once a screen is established, it may then be appropriate to consider a basic amendment to rezone the Scheme Map to reflect the zones shown on **Plan 1**. The basic amendment is discussed further in Part 1, **section 7.5**.

4.2 SERVICING FOR STAGED SUBDIVISION AND DEVELOPMENT

The staging of subdivision and development will be primarily influenced by connections to service infrastructure, in particular electricity, water supply, and waste water treatment. Servicing the subject land will be dependent on the ability to connect infrastructure from Lancelin Road. The developer will upgrade service infrastructure in relation to the provision of self sufficient water and wastewater supply, and installation of electrical and telecommunication services by key service providers.

The indicative neighbourhood connector roads would provide access to Lancelin Road. These intersections will be useful to provide convenient access points for future residents, and for connecting services such as power and reticulated water. Additional internal roads will be constructed as subdivision unfolds.

Staged development will require clearing of vegetation and earthworks, management/clearing of vegetation in accordance with the Bushfire Management Plan, and construction of roads to create serviceable lots. The bushfire management measures will be implemented in order to ensure acceptable solutions are achieved. Whilst it is expected that clearing of vegetation will be required, clusters of low-threat vegetation will be retained wherever possible.

4.3 BALANCE OF LANCELIN SOUTH

The balance of the Lancelin South area would incorporate the remaining land within Lot 9001 Lancelin Road on Plan 73642 and would also include Lot 1 Old Ledge Point Road on Diagram 24526. Future structure planning would have regard to the *Lancelin South Structure Plan* (LSSP, refer **section 9.3.2.1**), which provides the context for the staged delivery of the balance of Lancelin South. The LSSP has broadly been used as the basis for the preparation of **Figure 6** in Part 2, as this aims to illustrate the context of Lancelin South Stage 1 and Stage 2 and the broader development vision for the balance of Lancelin South. The development of the balance of the Lancelin South area, however, is difficult to predict and plan for a long-term planning horizon and likely changing market demands that could occur during such a period of time.

In regard to staging of provision of schools, a primary school has previously been identified within the Lancelin South Stage 1 structure plan area. This is likely to be the first school site provided, when 1,500 dwellings are achieved or as required by the Department of Education. Within this (Stage 2) structure plan area, no primary schools are proposed. Within the balance of the Lancelin South area, the timing of delivery and location of future schools will be determined in consultation with the local government and the Department of Education as development is progressively undertaken and further demand arises. A district school and a further primary school may be required having regard to assessed student numbers based on population growth over time.

5 SUBDIVISION AND DEVELOPMENT REQUIREMENTS

5.1 LAND USE

The Structure Plan (**Plan 1**) outlines the following zones and reserves applicable under LPS 9 within the Structure Plan area:

- 'Residential' zone;
- 'Landscape Protection' zone;
- 'Parks and Recreation' reserve; and
- 'Roads' reserve.

5.2 RESIDENTIAL ZONE

5.2.1 DWELLING TARGET

Objective: to provide for approximately 315 dwellings within Stage 2 across the 'Residential' zone and portion of the 'Landscape Protection' zone.

5.2.2 RESIDENTIAL DENSITY

- (a) **Plan 1** defines the residential density range of R2-R5 that applies to the 'Residential' and 'Landscape Protection' zones.
- (b) Lot-specific residential densities are to be subsequently assigned in accordance with a Density Plan approved by the WAPC.
- (c) A Density Plan is to be submitted at the time of application for subdivision approval to the WAPC, and shall indicate the Residential Density Code applicable to each lot within the proposed subdivision and shall be generally consistent with the residential density ranges identified in the Structure Plan.
- (d) The Density Plan is to include a summary of the proposed dwelling yield of the proposed subdivision.
- (e) Approval of the Density Plan shall be undertaken at the time of determination of the subdivision application by the WAPC. The approved Density Plan shall then form part of the Structure Plan and shall be used for the determination of future development applications. The Density Plan shall be a guide for the ultimate normalisation of the Structure Plan on the Scheme Maps, via a basic scheme amendment.
- (f) Variations to the Density Plan will require further approval of the WAPC, with a revised Density Plan submitted generally consistent with the approved plan of subdivision issued by the WAPC. The revised Density Plan shall be consistent with Residential Density ranges identified on **Plan 1**.
- (g) A revised Density Plan, consistent with **section 5.2.2(f)** will replace, wholly or partially, a previously approved Density Plan, and shall then form part of the Structure Plan as outlined in **section 5.2.2(e)**.
- (h) A Density Plan is not required to be submitted as part of an application for subdivision approval if the WAPC considers that the subdivision is for one or more of the following:

- (i) the amalgamation of lots;
- (ii) consolidation of land for 'superlot' purposes to facilitate land assembly for future development;
- (iii) the purposes of facilitating the provision of access, services or infrastructure; or
- (iv) land which by virtue of its zoning or reservation under the Structure Plan cannot be developed for residential purposes.

5.2.2.1 LOCATIONAL CRITERIA

The allocation of residential densities on a Residential Density Code Plan will be in accordance with the criteria contained in Schedule 9 of the LPS 9, as follows:

- (a) Minimum lot sizes consistent with density codes below 'R5' where lots are located anywhere within the Structure Plan area.
- (b) Minimum lot sizes consistent with density codes equal to or greater than 'R5' where lots are located at/or above the 35m AHD contour line.

5.3 LANDSCAPE PROTECTION ZONE

The existing 'Landscape Protection' zone is shown on the LPS 9 Scheme Map, refer Part 2 **Figure 3**. The zone applies to a 500m wide eastern portion of Lot 9001 in order to identify and protect the landscape and scenic values along Indian Ocean Drive, through the siting of land uses and development.

Pursuant to clause 4.8.11.2 of LPS 9, a site level landscape and visual impact assessment has been undertaken as part of this Structure Plan to guide future subdivision, refer **section 9.3.1.4** and **Appendix F**. A vegetation screen, as indicated on the Structure Plan (**Plan 1**) will be installed by the proponent in accordance with section 4.1 of the Visual Landscape Assessment in **Appendix F**. The visual impact assessment (refer **Appendix F**) provides justification in relation to limited development of the 'Landscape Protection' zone to a discrete eastern component of the Stage 2 area, consistent with the Viewshed from Indian Ocean Drive as described further in **section 7.4**.

Consistent with clause 4.8.11.1 of LPS 9, subdivision and development in the 'Landscape Protection' zone shall be undertaken in accordance with this Structure Plan.

Consistent with clause 4.8.11.7 of LPS 9, all lots will be provided with a licensed water supply (refer **Appendix B** for further information on water licences).

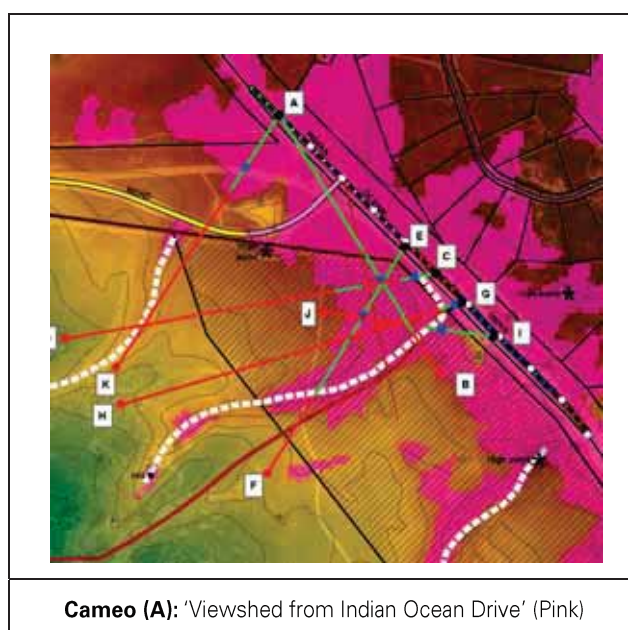
5.3.1 RESIDENTIAL DENSITY

Plan 1 defines the residential density range of R2-R5 that applies to the 'Landscape Protection' zone as shown on the Structure Plan. In accordance with clause 4.8.11.8 of LPS 9, only one building for residential purposes is permitted on any lot identified in the 'Landscape Protection' zone.

5.3.2 DEVELOPMENT REQUIREMENTS

As per clause 4.8.11.5, development approval is required for all development within the 'Landscape Protection' zone. The following requirements have regard to and expand upon the provisions contained in clause 4.8.11 of LPS 9.

- (a) To comply with clause 4.8.11.4 of the LPS 9, building envelopes are to be nominated on the Plan of Subdivision and thereafter shown on any applicable Local Development Plan (refer **section 6**).
- (b) As a condition of subdivision approval, Local Development Plans will be prepared for lots proposed within the 'Landscape Protection' zone shown on the Structure Plan (**Plan 1**). Details to be addressed by Local Development Plans are outlined in **section 6**.
- (c) Development, including clearing or earthworks for the purpose of subdivision or development, should be undertaken within the building envelope in order to be inevent when viewed from Indian Ocean Drive. The locations of building envelopes that vary the minimum setbacks contained in Table 1 of the R-Codes should have regard to **Cameo (A)** to firstly determine if the ground surface would be visible without the vegetation screen, and secondly determine if, with the vegetation screen in place, whether buildings to a maximum height of 5 metres would be inevent when viewed from Indian Ocean Drive.



- (d) Planting or revegetation within lots should be undertaken using endemic native species and in a manner consistent with achieving the requirements of the Bushfire Management Plan (refer **Appendix D**) and **section 7.1**.

5.4 PARKS AND RECREATION RESERVE

The open space network within the Structure Plan comprises public open space and drainage, a vegetation screen, and an ecological linkage.

5.4.1 LAND FOR PUBLIC OPEN SPACE AND DRAINAGE

At the time of subdivision, boundaries of proposed areas of public open space and drainage (POS) will be determined. The POS is to provide for passive recreation uses and some in a vegetated state. The POS areas may accommodate stormwater generated from the proposed development as generally indicated on the Structure Plan (**Plan 1**).

Public open space will be provided commensurate with staged subdivision areas. A western area of POS is likely to be located adjacent to the 'Conservation' zoned land developed as nature and recreation. A central area of POS is identified for passive recreation. When subdivision and development is in proximity to the vegetation screen or the ecological linkage, additional areas of POS (nature) will also be ceded and established.

Land for POS shall be ceded free of cost with management vested with the local government as part of the subdivision process and subsequently reserved for 'Parks and Recreation' in LPS 9. POS shall be provided throughout the Structure Plan area in accordance with the requirements of the WAPC's operational policy *Liveable Neighbourhoods*, ensuring a minimum 10% provision and a wide variety of active and passive uses are catered for. Boundaries for POS would be refined at design concept stage and confirmed at the subdivision stage.

5.4.2 VEGETATION SCREEN – INDIAN OCEAN DRIVE / LANCELIN ROAD INTERSECTION

To ensure that appropriate lead time is factored in to the visual landscape management measures, the proposed vegetation screen shown on the Structure Plan (**Plan 1**) will be planted, reticulated and initially managed by the proponent. This will ensure that, as development occurs over time, the vegetation screen will have time to become established and contribute to the objectives of the visual landscape assessment. The following **Table 1** outlines the recommendations for implementation.

TABLE 1 VEGETATION SCREEN RECOMMENDATIONS FOR IMPLEMENTATION

Item	Details
Ownership	Ceded as a Crown reserve, with Shire of Gingin identified as the most appropriate authority for vested management, such as for public open space; or included in road reserve.
Management	Proposed vegetation screen will be planted, reticulated and initially managed by the proponent. Reticulation is required to ensure survival. Maintenance of the system required for both short and long term. Undertake weed management at minimum quarterly treatments. Thin out trees and large shrubs as they grow to promote canopy spread.
Width	Wide enough for multiple rows of plants, in staggered layout e.g. nominally 20m. If trees are planted close together they will grow taller.
Species selection	As indicated in the Visual Landscape Assessment, refer Appendix F .
Bushfire Management	Vegetation Screen would be classified as Class D scrub vegetation. In accordance with the Bushfire Management Plan (refer Appendix D), Asset Protection Zones will be provided at all development-vegetation interfaces. This will be confirmed as part of a BMP addendum or revised BMP to accompany future subdivision applications where appropriate.

5.4.3 ECOLOGICAL LINKAGE

The Structure Plan generally provides for the retention of local characteristics of the environment through an east-west ecological linkage as indicated on **Plan 1**. The ecological linkage will aim to utilise existing vegetation through a mix of managed remnant and managed revegetated areas, which would encourage use by native fauna (predominately small birds and reptiles). The greenway is proposed through road reserves, public open space reserves and, in limited cases or where unavoidable, other land tenure that is determined to be appropriate in consultation with the local government.

The ecological linkage will consist of a western greenway, nominally 20m wide that is envisaged to be within road reserve, and an east-west ecological corridor that will be collocated with an area of POS that ranges in width from 20m-150m in order to retain a key ridgeline. Together the ecological linkages will form a green network connecting the north-south conservation areas west of the Structure Plan area to the Indian Ocean Drive and potentially land further to the south.

The component of the east-west ecological linkage that is shown on **Plan 1** within the 'Parks and Recreation' reserve incorporating the ridgeline, will aim to utilise existing vegetation. The component of the east-west ecological linkage that is shown within the 'Parks and Recreation' reserve may be included in POS calculations as per *Liveable Neighbourhoods*. It is anticipated the ecological corridor portion of the ecological linkage will function as nature or recreation categories of public open space.

The component that is shown on **Plan 1** along the northern side of the east-west indicative neighbourhood connector road is considered to mainly be delivered within a widened road reserve, wherever possible, and will require weed management and revegetation as 'low-threat' vegetation, for bushfire management purposes.

Roads and services shall traverse the shortest possible distance across the ecological linkage to minimise severance of vegetated areas, and to avoid remnant vegetation where possible, to maintain the integrity of the ecological linkage. The final location of the ecological linkage will be determined at the time of subdivision and in consultation with the Department of Biodiversity, Conservation and Attractions and the local government in relation to widths, function, management and interface treatment (fencing etc.).

5.5 ROADS RESERVE

5.5.1 INDIAN OCEAN DRIVE AND LANCELIN ROAD INTERFACE

No direct vehicle access is proposed to or from Indian Ocean Drive, within the 'Landscape Protection' zone, or 'Parks and Recreation' reserve.

Uniform fencing is to be provided along lot boundaries adjacent to Indian Ocean Drive, Lancelin Road or the vegetation screen, as a condition of subdivision approval. Uniform fencing is to be of a rural nature to minimise the visual impact on the viewshed from Indian Ocean Drive.

5.5.2 ROAD NETWORK

The Structure Plan depicts a high-level neighbourhood connector road network for the distribution of future traffic within Stage 2, and connections to Lancelin Road and Lancelin South (Stage 1). Future subdivision applications shall have regard to this indicative neighbourhood connector road network. The road network will be subject to detailed design as part of preparation of any subsequent subdivision application.

All vehicle access is to be taken from the local road network, with proposed intersections to Lancelin Road and a road connection through to the Stage 1 structure plan area.

The Structure Plan will incorporate a connected local street network that will provide legibility and permeability for walking, cycling and vehicles. As reflected in LPS 9, the road network would be classified under the 'Roads' reserve.

5.5.3 PEDESTRIAN MOVEMENT AND DUAL USE PATH PROVISION

A network of shared paths is shown on **Plan 1** along neighbourhood connector roads and along Lancelin Road, having regard to the *Lancelin South Structure Plan*. This network will encourage walking and cycling between Stages 1 and 2, and the Lancelin townsite.

In other areas within Stage 2, a local path network will provide for linkages to areas of POS, limited to one path on each applicable street. Local paths may not be necessary for every lower-order street within the Stage 2 area. This will be determined at detailed subdivision.

6 LOCAL DEVELOPMENT PLANS

6.1 REQUIREMENT FOR LOCAL DEVELOPMENT PLAN

Local Development Plans (LDPs) shall be prepared for the following lots:

- Lots adjoining public open space;
- Lots wholly or partly within the 'Landscape Protection' zone;
- Lots abutting or adjoining the Vegetation Screen;
- Lots located on or abutting the ridge that trends south and south-west from Lancelin Road;
- Lots abutting the Ecological Linkage; and/or
- Lots with the potential to accommodate grouped dwellings.

Notwithstanding the above listed instances, the local government may require that a LDP be prepared for an individual lot to address specific design issues within the Structure Plan area, as outlined in **section 6.3**.

Site-specific LDPs may be prepared by an owner and submitted to the local government pursuant to Schedule 2, Part 6 of the *Regulations*.

6.2 REQUIREMENT FOR DEVELOPMENT APPROVAL FOR LOTS SUBJECT TO A LOCAL DEVELOPMENT PLAN

The erection or extension of a single house on a lot contained within a LDP in the 'Residential' zone, which satisfies the requirements of the Residential Design Codes and the LDP, is exempt from the requirement to obtain development approval pursuant to Schedule 2, Part 7, subclause 61.(1)(c) or (d) and subclause 61.(4)(a) of the *Regulations*.

Clause 4.8.11.5 of LPS 9 requires development approval for all development within the 'Landscape Protection' zone.

6.3 ISSUES TO BE ADDRESSED IN AREAS THAT REQUIRE LOCAL DEVELOPMENT PLANS

Matters to be addressed in LDPs may include (but not be limited to) modifications to the deemed-to-comply provisions in regards to the following:

- Building envelopes and/or building exclusion areas that have been approved through a plan of subdivision;
- Minimum setbacks;
- Access and parking arrangements/restrictions;
- Dwelling orientation and passive surveillance;
- Setback variations;
- Dwelling heights;
- Roof pitch, materials and colours; and
- Revegetation requirements.

6.4 ADDITIONAL ISSUES TO BE ADDRESSED IN LOCAL DEVELOPMENT PLANS WITHIN THE LANDSCAPE PROTECTION ZONE

Matters to be addressed in LDPs may include (but not be limited to) the following recommendations of the Visual Landscape Assessment (and any addendums) contained in **Appendix F** and summarised below in **Table 2**.

TABLE 2 DEVELOPMENT REQUIREMENTS AND RECOMMENDED DEVELOPMENT RESPONSE

Development Requirement	Recommended Development Response
Height Limits	Maximum of 5 metres, measured to the top of the roof pitch.
Building Siting	Avoid areas within the Viewshed shown in Cameo (A) , and where the vegetation screen is installed as indicated on Plan 1 , areas that can be viewed from Indian Ocean Drive (refer to Appendix F). Avoid areas where portions of a 5 metre high house could be viewed from Indian Ocean Drive, without a vegetation screen. Housing design to suit block topography.
Roof Pitch	Roof pitch to be low and in accordance with the building height limit. Roof forms and lines need to appear to be compatible to the extent that any contrasts do not draw attention.
Materials and colours	The colours and textures do not need to be identical to those found in nature, but need to appear compatible to the extent that any contrasts do not draw attention. Colours – greens found in nearby vegetation, colour of sand.
Fencing	Rural-style fencing be utilised to reduce visual clutter.

7 OTHER REQUIREMENTS

7.1 BUSHFIRE MANAGEMENT PLAN

This Structure Plan is supported by a Bushfire Management Plan (BMP), *Bushfire Management Plan, Lancelin South Residential Development – Stage 2*, prepared by Strategen and contained in **Appendix D**.

The approach for bushfire management to support the Structure Plan is as follows:

- Undertake a Bushfire Hazard Level Assessment (BHL); and
- Preparation of a Bushfire Attack Level (BAL) assessment report and BMP.

These items will aid in planning with consideration of bushfire risk at the structure planning level. Further assessments would be undertaken for subsequent stages and can be prepared as addendums to the existing BMP or as an amended BMP.

Asset Protection Zones (APZs) will be implemented at all interfaces where proposed development abuts classified vegetation to ensure future assets are afforded an appropriate level of low fuel defendable space and to prevent development in high risk areas such as BAL-FZ and BAL-40. The width of the APZ is required to be a minimum distance to achieve a Bushfire Attack Level (BAL) of BAL-29 or lower, which will meet compliance with acceptable solutions A1.1 and A2.1 (refer to section 3.1 of the BMP in **Appendix D**). No buildings are permitted within the APZ. APZs will be determined once proposed lot layout is confirmed. This is to be documented in a brief addendum to the BMP or a revised BMP to accompany future subdivision applications where appropriate.

7.2 VISUAL LANDSCAPE ASSESSMENT ADDENDUM

A site level Visual Landscape Assessment was undertaken for the Structure Plan area in accordance with the Shire of Gingin Town Planning Scheme No. 9 clause 4.8.11.2 for guiding future subdivision and development, refer **Appendix F**. As documented in the report, the Visual Landscape Evaluation (VLE) was undertaken to understand the context of the 'Landscape Protection' zoned land and the surrounding landscape within the structure plan area. The VLE included viewshed analysis with a focus of possible views from Indian Ocean Drive, consistent with the *Indian Ocean Drive Planning Guideline* objectives.

As per clause 4.8.11.2, the land within the current 'Landscape Protection' zone as shown on TPS 9 Scheme Maps is located within the Stage (c) of the structure plan, as described in the preceding **section 4.1**. In the absence of a detailed design underpinning the Structure Plan itself, it was only possible to undertake the VLE and arrive at recommendations for consideration to ameliorate potential visual impacts during the detailed design phase of the structure plan area.

An addendum to the Visual Landscape Assessment would be prepared at the detailed design phase to take into account the Vegetation Screen, the extent of proposed earthworks, placement of building envelopes and proposed visual management/mitigation treatments. The objective should be to protect the viewshed from Indian Ocean Drive (IOD). The assessment should focus on the areas listed in **section 6** for Local Development Plans. An addendum should be scoped in consultation with Department of Planning, Lands and Heritage. The following cross-sections are recommended for inclusion:

- From the junction of Lancelin Road with western north-south track. Direction - southwesterly;
- From 70m north of centre of Lancelin Road/IOD intersection, southbound. Direction - 10° west of south;
- From 30m south of centre of Lancelin Road/IOD intersection, southbound. Direction - due south;

- From 200m south of centre of Lancelin Road/IOD intersection, southbound. Direction - southwest;
- From 240m south of centre of Lancelin Road/IOD intersection, southbound. Direction - 10° south of southwest.

7.3 WATER MANAGEMENT REPORT

A Water Management Report (WMR) has been prepared for this Structure Plan having regard to the guidelines for *Better Urban Water Management* (BUWM) (WAPC, 2008) (refer **Appendix B**). The Water Management Report supports this broad based structure plan and summarises the urban water management strategies proposed for Stage 2. As more detailed planning is undertaken for Lancelin South Stage 2, a Local Water Management Strategy (refer **section 7.3.1**) will be prepared to provide the higher level of engineering detail not included in the WMR.

Previous studies for Lancelin South relating to the hydrological, hydrogeological and environmental nature of the site concluded that, from an urban water management perspective, the site is not considered to be hydrologically constrained and drainage can be appropriately managed without any adverse impact to the environment or surrounding land users. The servicing for the site will be managed as per the water supply strategy detailed in the H3 Level Hydrogeological Assessment (URS, 2010) and is summarised in the WMR.

7.3.1 LOCAL WATER MANAGEMENT STRATEGY

Prior to subdivision being able to take place in Stage 2, a Local Water Management Strategy will be prepared to address local water sensitive urban design responses.

The Local Water Management Strategy will address the requirements under *Better Urban Water Management* (WAPC, 2008) and the Department of Water's *Local Water Management Strategy Guidelines* (DoW, 2008). The Local Water Management Strategy shall be prepared for the whole of the Stage 2 Structure Plan area.

Matters to address in the Local Water Management Strategy will include:

- Confirmation of the waste water treatment solution for Stage 2;
- Confirmation of the proposed stormwater management strategy (management of minor and major rainfall events). Stormwater management strategy to address water sensitive urban design and best management practices. In this location, road-side swales, infiltration at source, bottomless manholes, tree-pits and basins should be implemented where practicable; and
- Confirmation of requirements to mitigate flood risk.

In addition to the above list, consultation with Department of Water and Environment Regulation would be undertaken to confirm any site-specific requirements to be addressed.

Urban Water Management Plans (UWMP) will also be required prior to subdivision of the land and will be imposed as a condition of subdivision approval at each stage. The UWMPs will provide the practical implementation of the recommendations of the approved LWMS.

7.4 ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management Plan Framework (Framework) contained in **Appendix G** has been prepared in consultation with the Department of Biodiversity, Conservation and Attractions (DBCA) for the land zoned 'Conservation' located west of the structure plan boundary, in order to address clause 4.8.8.2 of LPS 9.

In accordance with clause 4.8.8.2 and Environmental Condition 2, Schedule 7 of the LPS 9, an Environmental Management Plan (EMP) will need to be prepared and implemented before subdivision can take place on land adjacent to the 'Conservation' zoned land. The Framework contained in **Appendix G** outlines the content for the future requirement of preparing an EMP. The preparation of the EMP prior to subdivision and in consultation with the Department of Biodiversity, Conservation and Attractions is reflected in **Table 3** in **section 8**.

7.5 LANDSCAPE PROTECTION ZONE – FUTURE BASIC AMENDMENT

This Structure Plan reflects the current 'Landscape Protection' zone that covers the eastern portion of Lot 9001 Lancelin Road. Pursuant to clause 4.8.11.3 of LPS 9 where a site level Landscape and Visual Impact Assessment indicates that a boundary adjustment to the 'Landscape Protection' zone is required this may take the form of a 'basic' amendment to LPS 9.

Accordingly, a future request may be made to the Shire of Gingin to prepare or adopt an amendment to LPS 9 to adjust the boundary of the 'Landscape Protection' zone, when supported by a site level Landscape and Visual Impact Assessment.

8 ADDITIONAL INFORMATION

Pursuant to Schedule 2, Part 4, clause 24 of the *Regulations 2015*, the WAPC may approve a structure plan that provides for further details of a proposed subdivision included in the structure plan to be submitted to, and approved by, the Commission before the subdivision is approved under Part 10 of the *Act*.

Prior to any subdivision or development of the land being supported, the following management plans, reports and strategies are to be prepared, as applicable, to the satisfaction of the relevant authority and provided at the relevant submission stage nominated in **Table 3**.

TABLE 3 MANAGEMENT PLANS, REPORTS AND STRATEGIES

Additional Information	Approval Stage	Consultation Required	Approving Authority
Local Water Management Strategy	Prepared and approved for whole of Stage 2, prior to subdivision application.	LG, DWER, WAPC	DWER
Urban Water Management Plan	Condition of Subdivision.	LG, DWER	LG
Density Plan	Prepared and submitted at the time of application for subdivision approval, refer section 5.2.2 .	LG	WAPC
Site Level Landscape and Visual Impact Assessment	Prepared as a component in the process of developing a detailed design, refer section 7.2 . Site Level Landscape and Visual Landscape Assessment to accompany subdivision applications, and to support a boundary adjustment to the 'Landscape Protection' zone.	LG, WAPC	WAPC
Vegetation Screen as shown on Plan 1	Proposal outlining the proposed Vegetation Screen, maintenance, land tenure, prior to subdivision application within the 'Landscape Protection' zone.	DBCA, LG, WAPC	LG
Local Development Plans	Condition of Subdivision.	LG	LG
Building Envelopes	Building envelopes (or building exclusion areas) to be identified on applications for subdivision in the 'Landscape Protection Zone' as shown on Plan 1 , and appropriate conditions applied in relation to it.	LG	WAPC
Environmental Management Plan	To be prepared and implemented prior to subdivision approval for land adjacent to the 'Conservation' zone.	DBCA, LG	LG
BMP addendums or amended BMP	Prepared to accompany subdivision applications.	DFES, LG	DFES, LG

DFES Department of Fire and Emergency Services

DWER Department of Water and Environmental Regulation

DBCA Department of Biodiversity, Conservation and Attractions

LG Shire of Gingin

WAPC Western Australian Planning Commission (Department of Planning, Lands and Heritage)



LEGEND

	LANCELIN SOUTH (STAGE 2) STRUCTURE PLAN BOUNDARY
	LOCALSCHEME RESERVES
	PARKS AND RECREATION AND DRAINAGE
	ROADS
	LOCALSCHEME ZONES
	RESIDENTIAL
	LANDSCAPE PROTECTION
	OTHER CATEGORIES
	INDICATIVE ECOLOGICAL LINKAGE
	VEGETATION EXISTING ROADS
	INDICATIVE NEIGHBOURHOOD CONNECTORS
	DUAL USE PATHS
	VEGETATION SCREEN (MAXIMUM 20m WIDTH)
	APPROPRIATE LANDSCAPE TREATMENT TO LANCELIN ROAD THROUGH CLUSTERS OF LOW THREAT VEGETATION AND/OR VEGETATION SCREEN
	APPROPRIATE DESIGN INTERFACE REQUIRED TO CONSERVATION ZONED LAND, ECOLOGICAL LINKAGE AND VEGETATION SCREEN
	WATER SUPPLY BORE FOR LANCELIN SOUTH
	LANCELIN SOUTH (STAGE 1) OGP AREA





PART TWO EXPLANATORY INFORMATION

9 PLANNING BACKGROUND

9.1 INTRODUCTION AND PURPOSE

This Structure Plan is prepared in accordance with Schedule 2 Part 4 of the *Planning and Development (Local Planning Schemes) Regulations 2015*.

The purpose of the Structure Plan is to facilitate the subdivision and development of Stage 2 of Lancelin South to accommodate the residential expansion of Lancelin. This expansion is contemplated through the Shire of Gingin *Local Planning Strategy* (refer **section 9.3.4.1**) and the *Lancelin South Structure Plan* (refer **section 9.3.2.1**). Development of Lancelin South Stage 1, incorporating the north-western section of Lot 9001, is already commencing consistent with an approved structure plan.

9.2 LAND DESCRIPTION

9.2.1 LOCATION

Lancelin is a small coastal township in the Shire of Gingin, approximately 100km north of Joondalup and 140km north of the Perth CBD. Lancelin has previously been earmarked in Government strategic planning documents to develop as a 'Major Local Centre' with a predicted population growth of between 5,000 and 10,000 people by 2031.

The Structure Plan area is located approximately 3 kilometres south-east of the Lancelin townsite; 3.5 kilometres north of Ledge Point; and to the west of the rural residential estate 'Seaview Park', refer **Figure 1**.

The facilities of the Lancelin Sport and Recreation Club are located west of the Structure Plan area (adjacent to the Stage 1 structure plan area). This established land use compliments the residential development envisaged by this Structure Plan by providing a high level of public amenity and community facilities close to a growing population. A future neighbourhood connector road connection from Lancelin South Stage 2, through to Stage 1 and thereafter through to Old Ledge Point Road, will provide a legible and reasonably direct route for residents to access these facilities in the future.

9.2.2 AREA AND LAND USE

The subject land is currently vacant. The land was previously used for livestock grazing.

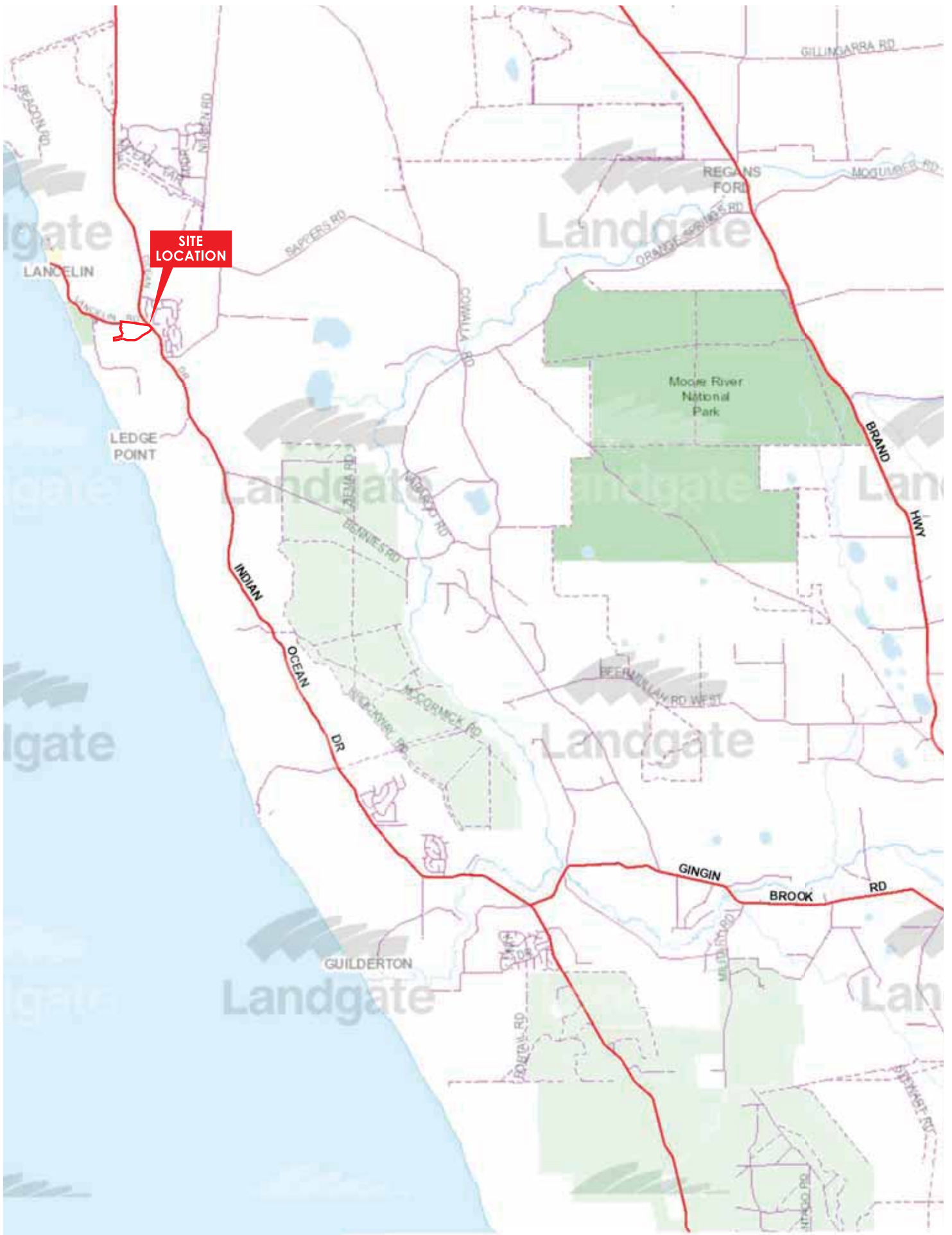
The surrounding area is the balance portion of Lot 9001 and Lot 1, both landholdings owned by the proponent. Beyond these landholdings, the area to the south and west is impacted upon by lime sand mining activities. The buffers identified in LPS 9 as Special Control Area 3 (SCA 3) are distant to Stage 2.

9.2.3 LEGAL DESCRIPTION AND OWNERSHIP

Table 4 below provides the legal description of the lots subject to this Structure Plan, refer **Figure 1**.

TABLE 4 LAND TENURE

Lot No.	C/T Details	Plan Number	Primary Interest Holder
9001	2816/596	Plan 73642	JB Matthews



LOCATION PLAN

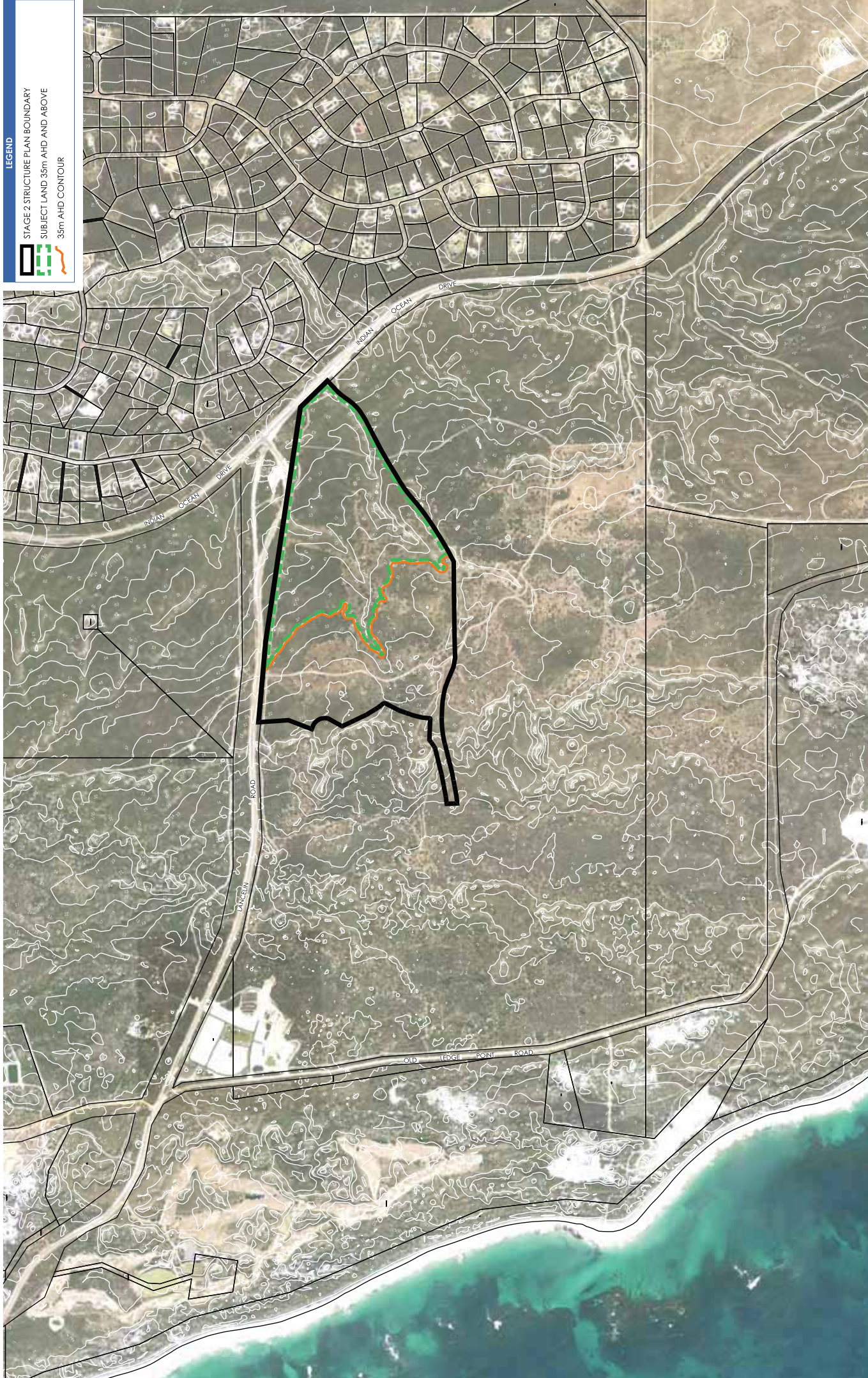
Lancelin South (Stage 2) Structure Plan



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 d: 03/01/2018
 p: 12/029/022C

figure

01



LEGEND

STAGE 2 STRUCTURE PLAN BOUNDARY

SUBJECT LAND 35m AHD AND ABOVE

35m AHD CONTOUR

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9.3 PLANNING FRAMEWORK

9.3.1 ZONES AND RESERVES – SHIRE OF GINGIN LOCAL PLANNING SCHEME NO. 9

The Shire of Gingin Local Planning Scheme No. 9 (LPS 9) was gazetted on 27 September 2012.

Amendment 3 rezoned Lot 1 Old Ledge Point Road and Lot 9001 Lancelin Road from 'General Rural' zone to the 'Future Development', 'Conservation' and 'Landscape Protection' zones. An extract of the current LPS 9 zoning is shown in **Figure 3**. The Stage 2 Structure Plan boundary is shown to be within the north-eastern portion of Lot 9001 Lancelin Road.



FIGURE 3 LOCAL PLANNING SCHEME NO. 9 EXTRACT

9.3.1.1 FUTURE DEVELOPMENT ZONE

The objectives of the 'Future Development' zone are:

- (a) designate land considered to be generally suitable for future development and to prevent such land being used or developed in a manner which could prejudice it's possible future use for planned development;
- (b) provide for the sustainable development of land in an orderly manner with appropriate levels of physical infrastructure and human services; and
- (c) ensure the orderly development of the land, through a requirement for the preparation and endorsement of a Structure Plan in accordance with the provisions of Part 4 of the deemed provisions, as a pre-requisite to subdivision or development of the land.

The subject area is referenced within Schedule 9 – Future Development Zones. The conditions in Schedule 9 have been considered during the preparation of this Structure Plan through:

- Details of staging (refer Part 1 **section 4**);
- Preparation of a site level Landscape and Visual Impact Assessment (refer Part 2 **section 9.3.1.4**);
- Identification of ecological linkages (refer Plan 1 and Part 1 **section 5.4.3**); and
- Requirement for an Environmental Management Plan through this Structure Plan, required to be prepared prior to subdivision adjacent to the 'Conservation' zone (refer Part 1 **section 8**).

This structure plan satisfies Condition 2 (ii) and (iii) of Schedule 9 in LPS 9 by providing for residential development at a residential density between R2-R5. The Structure Plan provides guidance for detailed subdivision design and staged development to take place outside of the Lancelin South Stage 1 structure plan area.

Stage 2 represents a unique staging opportunity for approximately 315 dwellings – providing a range of lot sizes of around R2-R5 densities (i.e. minimum lot sizes between 2,000m² and 5,000m²) within an area of coastal character, drawing on its environmental amenity and ease of access to Lancelin Road with the ability to facilitate the integration of further stages of residential development. This Structure Plan provides sufficient detail for the subdivision and development of Stage 2.

9.3.1.2 CONSERVATION ZONE

A portion of Lot 9001 is zoned 'Conservation', located immediately west of Stage 2 and contained within the Stage 1 structure plan area. The 'Conservation' zoned area is a minimum 22.49 hectares in area. This 'Conservation' zoned area is subject to Schedule 7 of LPS 9.

The land use permissibility within the 'Conservation' zone is limited. The Zoning Table does not identify any 'P' permitted or 'D' discretionary land uses. The zone considers the following land uses as 'A' discretionary uses that require advertising:

- Bed & Breakfast;
- Caretaker's Dwelling;
- Residential Building;
- Restaurant; and
- Single House.

The 'Conservation' zoned land is required to be retained in private ownership for the foreseeable future. It is understood at the time the zone was created, management obligations and responsibilities were not accepted by either the Department of Biodiversity, Conservation and Attractions or the local government, and in order to create the zone and effectively manage it, the parcel(s) would be required to be held in private ownership so the management responsibilities rested within the current (and possible future) landowner(s).

'Conservation' zoned area | Schedules 7 and 9 of LPS 9

The western boundary of the Lancelin South (Stage 2) Structure Plan abuts the 'Conservation' zone.

The 'Conservation' zone was introduced via Amendment 93 to TPS 8 in order to "*adequately protect areas considered high environmental value from urban development and environmental degradation*". This resulted in the minimum 22.49 hectares being zoned 'Conservation' as part of the first stage of rezoning of Lancelin South. The zoned land is specifically referenced within LPS 9 in Schedule 7 – Environmental Conditions of the LPS 9, with two environmental conditions outlined in the Scheme.

Pursuant to Schedule 9, Condition 1(iv) states that:

"When structure planning is undertaken for Lancelin South Stage 2 and beyond, the following is required:

...

(iv) Preparation of an Environmental Management Plan where structure planning is adjacent to the Conservation zone."

Pursuant to Schedule 7, Environmental Condition 2 states that:

"at the time of subdivision, the subdivider is to prepare and implement an 'Environmental Management Plan' to address the use and management of the land set aside for conservation purposes. The plan is to make provision for fencing, weed control, fire response and suppression, re-vegetation, and the design and maintenance of pathways and public viewing areas (restricted access)."

An Environmental Management Plan Framework (Framework) is contained in **Appendix G**. The Framework has been prepared in consultation with the Department of Planning, Lands and Heritage and Department of Biodiversity, Conservation and Attractions to address Condition 1(iv) of Schedule 9. The Framework outlines the requirements of an Environmental Management Plan that will need to be prepared and implemented at the time of subdivision of land adjacent to the 'Conservation' zoned land. This requirement is also contained in Part 1, section 8, **Table 3** of the Structure Plan.

Balance of Lancelin South | 'Conservation' zoned area | Schedule 9 of LPS 9

An area of approximately 70 hectares of 'Conservation' zoned land is located within the south-western corner of Lot 1 Old Ledge Point Road and was identified as part of Amendment 3 to LPS 9. This portion of land is distant from the Stage 2 Structure Plan area.

The landowner of Lot 1 Old Ledge Point Road is bound by Schedule 9 of the LPS 9. As a condition of the 'Future Development' zone, the proponent is bound by the Scheme to prepare an Environmental Management Plan where structure planning is adjacent to that area 'Conservation' zoned land.

9.3.1.3 LANDSCAPE PROTECTION ZONE

The eastern portion of the Structure Plan area is currently zoned 'Landscape Protection' on the Scheme Map. The objectives of the 'Landscape Protection' zone are to:

- (a) Preserve visual landscape quality;*
- (b) Protect and enhance landscape and scenic values through location and siting of land uses and development, and control over design and building materials;*
- (c) Maintain the integrity of the landscape which is visible from identified travel routes and recreation areas, consistent with visual management objectives identified within a landscape and visual impact study; and*
- (d) Provide for limited development, where the built form is consistent with zone objectives.*

The Structure Plan has regard to the zone objectives (refer **Table 5**) and has been subject to a landscape and visual impact study to determine the visual management outcomes (refer **section 9.3.1.4**).

TABLE 5 LANDSCAPE PROTECTION ZONE OBJECTIVES

Zone Objectives	Response
<i>Preserve visual landscape quality;</i>	<p>Partly/potentially consistent with objective. Visual landscape assessment identifies the ground surface that could be visible from Indian Ocean Drive.</p> <p>The visual landscape for much of the site may retain a largely natural character through a vegetation screen that will aim to obscure potentially visible development from motorists travelling along Indian Ocean Drive.</p> <p>Portions of the ground surface of dune ridges will remain visible to motorists and portions of residences, here and elsewhere, will be visible.</p>
<i>Protect and enhance landscape and scenic values through location and siting of land uses and development, and control over design and building materials;</i>	<p>Generally consistent with objective. The vegetation screen has been classified as Class D scrub vegetation in the Bushfire Management Plan. The requirements of the BMP have been addressed as part of the visual landscape assessment.</p> <p>LDPs will guide development for lots in visually sensitive areas, refer Part 1, section 6. Recommended development responses will generally be adequate to address issues. The 5m height limit will allow upper portions of some dwellings to be visible from Indian Ocean Drive.</p> <p>The LPS 9 requires development approval for all development within the 'Landscape Protection' zone.</p>
<i>Maintain the integrity of the landscape which is visible from identified travel routes and recreation areas, consistent with visual management objectives identified within a landscape and visual impact study; and</i>	<p>Potentially consistent with objective. Portions of the ground surface and portions of dwellings will be visible from Indian Ocean Drive and will be potentially screened by a planted vegetation screen. Portions of rooflines of some dwellings and elevated areas of topography such as dune ridges will remain visible. Landscape is protected through the main east-west dunal ridge will be retained within the 'Parks and Recreation' reserve and within the Ecological Linkage.</p> <p>The site's topography assist in reducing the extent of the site's visibility from Indian Ocean Drive.</p> <p>Limited development is proposed in the form of low density development, which will be subject to appropriate siting and design to address visual landscape management issues, and controls on built form to be 'blending' or 'inevident'.</p>
<i>Provide for limited development, where the built form is consistent with zone objectives.</i>	<p>Inconsistent with objective. The Structure Plan demonstrates that some development is likely be visible from Indian Ocean Drive, as explained within section 9.3.1.4.</p>

9.3.1.4 SITE LEVEL LANDSCAPE AND VISUAL LANDSCAPE ASSESSMENT

As required under clause 4.8.11.2 of LPS 9, a site level Landscape and Visual Impact Assessment, incorporating viewshed analysis, has been undertaken to guide subdivision and development within the 'Landscape Protection' zone.

Visual Management Objectives

This relates back to the objectives of the zone and the overarching visual management objectives as adopted in the *Indian Ocean Drive Planning Guideline* (WAPC 2014) to preserve the Indian Ocean Drive's key function as a scenic, coastal tourist route. The specific visual management objectives (from Appendix 1 of the *Planning Guideline*) apply:

- Protection and maintenance of natural areas;
- Blending of development in other areas, but inevent where there are key views such as the area southwest of Lancelin Road intersection; and
- Restoration and enhancement as required of existing development that is visible from the road.

Viewshed Analysis

The Structure Plan area requires consideration of visual impacts at a local level, noting the site’s potential for visibility in terms of the development area and its interface to Indian Ocean Drive within a defined and localised area.

Ecoscape was commissioned to prepare a Visual Landscape Assessment for the Stage 2 structure plan area, contained in **Appendix F**. A viewshed analysis was performed using a desktop conceptual model that was complemented by a site visit to confirm the results of the analysis. The visible extent of land from Indian Ocean Drive, to which the *Indian Ocean Drive Planning Guideline* identifies for ‘inevent’ or ‘blends’, has been identified through the Visual Landscape Assessment and is also reflected in **Cameo (A)** within Part 1 of the Structure Plan.

The following **Figure 4** demonstrates the topography within the Structure Plan area. It generally shows that the road level is comparable with the natural ground levels at the northern and eastern extents of Stage 2, where the landform is generally within the same contour intervals, being within 55-60m and 60-65m AHD.

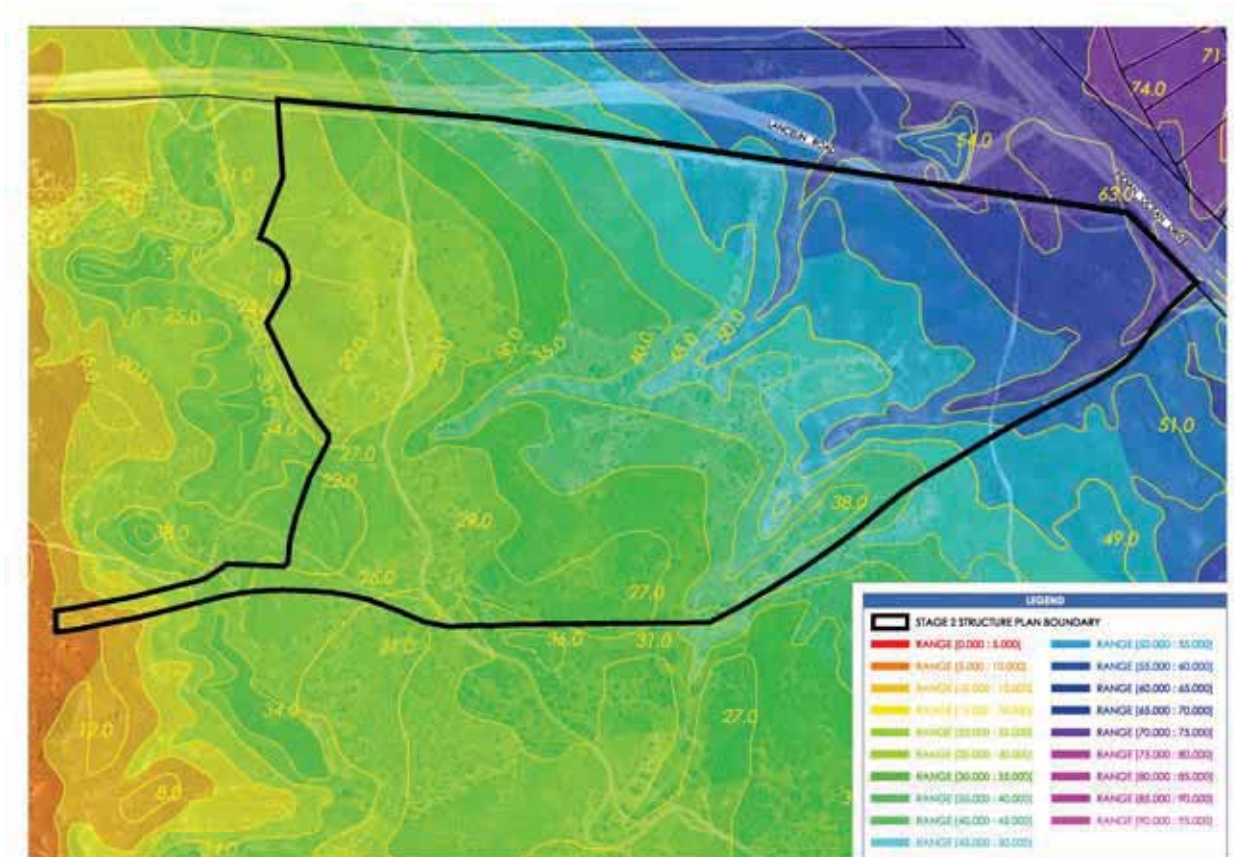


FIGURE 4 COLOUR REFERENCED TOPOGRAPHY ON AERIAL MAPPING FOR STRUCTURE PLAN AREA

The landform generally limits any prominent views from the wider rural hinterland to the east, or Indian Ocean Drive, as demonstrated in the maps contained in **Appendix F**. The landform allows certain areas of the development to have views of the Indian Ocean. Given existing landform and existing conditions, motorists travelling north may have glimpse views of the development due to a ridgeline (the east-west ecological linkage). This is confirmed by the viewshed analysis. However, motorists travelling south along Indian Ocean Drive are likely to notice some development within areas that would be visible in the vicinity of Indian Ocean Drive and on dune ridges. Given overall topography, however, motorists would not appreciate the overall scale of Lancelin South (Stage 2).

Extent of Structure Plan Area Visible from Indian Ocean Drive

The 'Landscape Protection' zone on the Scheme Maps was generated using an arbitrary width of 500m measured from the Indian Ocean Drive road reserve, and was zoned over land in the absence of any visual landscape assessment. As such the zone does not consider the topography of the site and its relationship to Indian Ocean Drive. In accordance with the provisions of the Scheme (refer **section 5.3**) a series of photographs and maps provide illustrative justification in support of reducing the extent of the 'Landscape Protection' zone nominally from 500m to the extent of the area shown as being within the Viewshed area as depicted in Map 02 in **Appendix F**. As an indication, the extent of the area is approximately:

- 327 metres when measured along the lot boundary along Lancelin Road to the Indian Ocean Drive intersection;
- 379 metres when measured perpendicular from the Indian Ocean Drive lot boundary to the 'Parks and Recreation' reserve; and
- 280 metres when measured parallel to the Indian Ocean Drive lot boundary and approximately mid-way within the viewshed area, as a 'width' of the zone.

The viewshed area as depicted in Map 02, is reflected as the refined extent of the 'Landscape Protection' zone as shown on the Structure Plan (refer **Plan 1**).

The physical characteristics of the subject land tend to present an 'enclosed' view type, whereby the vegetation and topography of the land obstructs long vistas towards the coastline. This prevents significant views from Indian Ocean Drive into Lancelin South Stage 2. At the intersection of Lancelin Road and Indian Ocean Drive, the visual landscape is disrupted by signage and the road design. The level of visual disruption is documented in Plate 6 in **Appendix F**.

When considering Indian Ocean Drive from the subject land, it is evident that views are constrained by existing vegetation both on-site and within the road reserve. By virtue of retaining the ridgeline within the 'Parks and Recreation' reserve motorists heading north cannot see into Stage 2. Further, given the levels of Indian Ocean Drive at the intersection to Lancelin Road, motorists heading south would have limited opportunities to catch glimpses between existing vegetation into the structure plan area.

Vegetation Screen

The Vegetation Screen is a strategic response to development being 'inevident'; or if this fails, 'visible but blending'. Existing endemic vegetation is estimated to grow to about 1.5-2.0m in height above natural ground level. Existing vegetation on-site would not substantially contribute to ensuring future dwellings are 'inevident'. A proposed landscape response is to plant a Vegetation Screen, nominally 20 metres wide and incorporating species that can grow to 6 metres in height.

The Vegetation Screen is indicated on the Structure Plan (**Plan 1**) and shown on Map 06 in **Appendix F**. The screen has been modelled to assist in improving the ability for development to be 'inevident' within the 'Viewshed from Indian Ocean Drive'. Where not 'inevident' the next strategies for the 'visible but blending' objective would be employed to maintain some views to landscapes behind development, as a backdrop, and to avoid dominant development at key focal points.

Strategic planting of certain flora species is proposed, to create additional visual screening to maintain the appearance of 'inevident' development. Given the existing firebreak along the extent of the Stage 2 area, the Visual Landscape Assessment proposes a vegetation screen of approximately 6m in height (as outlined in Table 7 in **Appendix F**). The vegetation screen has also been factored into the Bushfire Management Plan in **Appendix D**. The Visual Landscape Assessment has demonstrated through Map 06 and the cross-sections in section 8 of **Appendix F** that the strategic planting would have a positive effect in terms of screening the 'Landscape Protection' zone almost completely, thus limiting views into the Stage 2 Area. This would work to achieve the 'inevident' objective of the *Indian Ocean Drive Planning Guideline* (WAPC 2014).

Relevant building guidelines and planning controls at subdivision and development can generate high amenity settings. From a visual perspective, the building guidelines and planning controls would ensure that, notwithstanding the vegetation screen, any dwellings that could be seen would also be 'visible but blending'. Further, it is intended for lots to be able to replant existing vegetation, subject to vegetation clusters remaining less than 2,500m² in area and 20m to buildings, in order to remain classified as 'low-threat' vegetation clusters.

Should the above-mentioned landscape strategies be implemented, the result would be minimal visual interruption for motorists on Indian Ocean Drive. For motorists heading north on Indian Ocean Drive, views of houses would be obscured through the topography of the land and the planted vegetation screen. For motorists heading south, the planting of the Vegetation Screen together with careful consideration of building placement will ensure dwellings are 'inevident'. Where dwellings will be visible, heights of dwellings, materials and colours will be required to ensure dwellings 'blend' with the surrounding visual landscape.

Development Provisions

Where required to consider the 'inevident' objective of the *Indian Ocean Drive Planning Guideline*, the Structure Plan includes building height limits, building siting, roof pitch, materials and colours, and revegetation requirements as outlined within **section 5.3.2** and **Table 2** in **section 6.4**. This is proposed to be controlled through Local Development Plans as per **section 6**, in order to address the site constraints involved with achieving the visual management objectives of the *Indian Ocean Drive Planning Guideline*.

Basic Amendment

The 'Landscape Protection' zone currently requires 'limited development' to occur within the zoned area, which places restrictions on residential development opportunities. A boundary adjustment to the 'Landscape Protection' zone may be undertaken as part of a normalisation process, via a basic amendment to the Scheme, to reduce the extent of the current 'Landscape Protection' zone. The boundary adjustment provides the opportunity for lots to be zoned 'Residential'. Local Development Plans prepared under the Scheme having regard to the requirements outlined in **section 6** can continue to provide sufficient built form guidance.

9.3.2 DISTRICT STRUCTURE PLAN

9.3.2.1 LANCELIN SOUTH STRUCTURE PLAN

The *Lancelin South Structure Plan* (LSSP, refer **Figure 5**) was adopted by the Shire on 2 October 2007 as the basis for the initiation of Amendment 93 to rezone the first 1,000 lots of Lancelin South. The LSSP is considered to be outdated in some respects and does not closely correlate with the zones under LPS 9 (particularly the 'Conservation' zoned areas).

The LSSP comprised 538ha, with the design based on detailed investigation involving planning, environmental, engineering and ethnographic assessment, all of which is contained within the LSSP Report. This Stage 2 Structure Plan retains the basic principles and structure of the LSSP. Over time, the LSSP would effectively be superseded by this Stage 2 Structure Plan and other structure plans for the balance of Lancelin South.

The Lancelin South (Stage One) Structure Plan is estimated to provide for 1,000-1,250 dwellings. The Stage 2 Structure Plan will contribute approximately 315 lots towards the 4,000 lot yield proposed by LSSP whilst providing for opportunities to be well connected and integrated, leading towards a flexible development outcome for future staging.



FIGURE 5 LANCELIN SOUTH STRUCTURE PLAN

9.3.3 INDICATIVE MASTER PLAN

A Master Plan was previously adopted by the Shire of Gingin with Amendment 3. As part of preparing the Stage 2 Structure Plan, an update was made only in relation to this structure plan area as shown in **Figure 6**. The indicative Master Plan aims to reflect the direction for the Stage 2 area, with larger lots that provide a unique lot product not otherwise available in Stage 1.

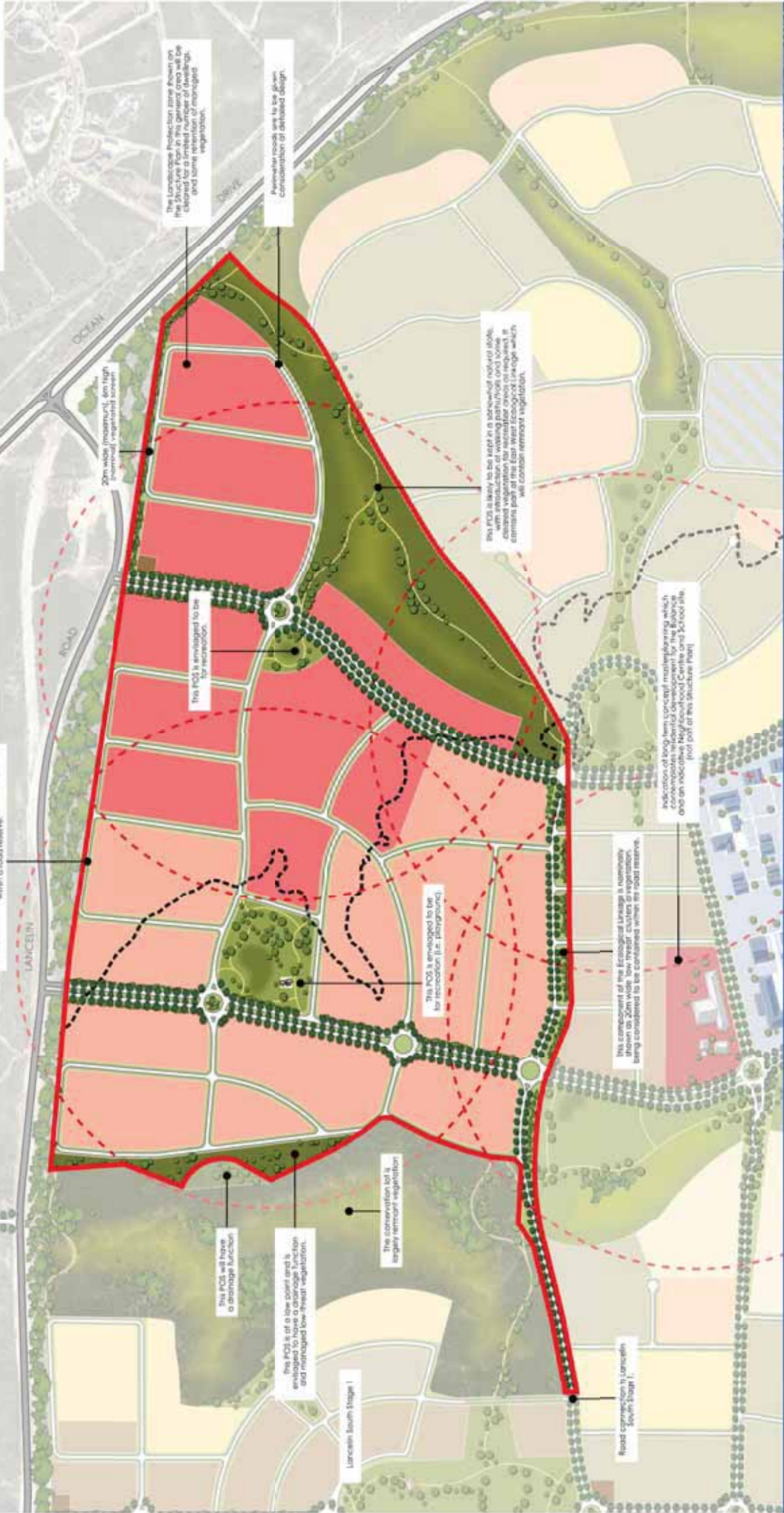
The indicative Master plan does not have any statutory weight and is prepared in response to the expectation that the 'staged' approach to preparing structure plans would still be able to integrate in terms of road connectivity, maintain the future ecological linkage network, and future provision of school site(s) and the neighbourhood centre.

The intention through the indicative Master Plan in **Figure 6** is to:

- Clearly delineate the Lancelin South (Stage 2) structure plan area, with the Stage 1 structure plan area and the balance of Lancelin South faded for reference.
- Depict the neighbourhood connector road network, including two connections onto Lancelin Road from the Stage 2 structure plan area, and an east-west connection through to the Stage 1 structure plan area. The two connections to Lancelin Road reflect the original intersection locations that were on the previous Master Plan used for the Balance Rezoning (Amendment 3).
- Demonstrate that the east-west neighbourhood connector provides an 'acceptable solution' from a bushfire management perspective for having two alternative routes from the Stage 2 structure plan area. This is described further within **Appendix D**.
- Have regard to the east-west ecological linkage along the ridgeline, and from a management perspective, show it within open space reserves and road reserves.
- Indicate 450m walkable catchments shown for the more active areas of public open space (i.e. some parks and future school ovals), Neighbourhood Centre, and indicative local centres (i.e. corner shops). This shows that the residents within the Stage 2 structure plan will be within walking distance to amenities.
- Identify the location of the Water Supply Bore for Lancelin South, which is also shown on the Structure Plan (**Plan 1**), to give context for the close proximity of the development to an available water supply. The developer (Lancelin South Pty Ltd) has now received its own Water and Waste Water Service Provider licence.

LEGEND

- LANCELIN SOUTH (STAGE 2) STRUCTURE PLAN BOUNDARY
- 2000 - 5000m² RESIDENTIAL LOTS
- 4000m² OR GREATER RESIDENTIAL LOTS
- LOCAL RETAIL / COMMERCIAL
- 35m AND CONTIGUOUS
- LANCELIN SOUTH WATER SUPPLY BORE
- 400m WALKABLE CATCHMENT



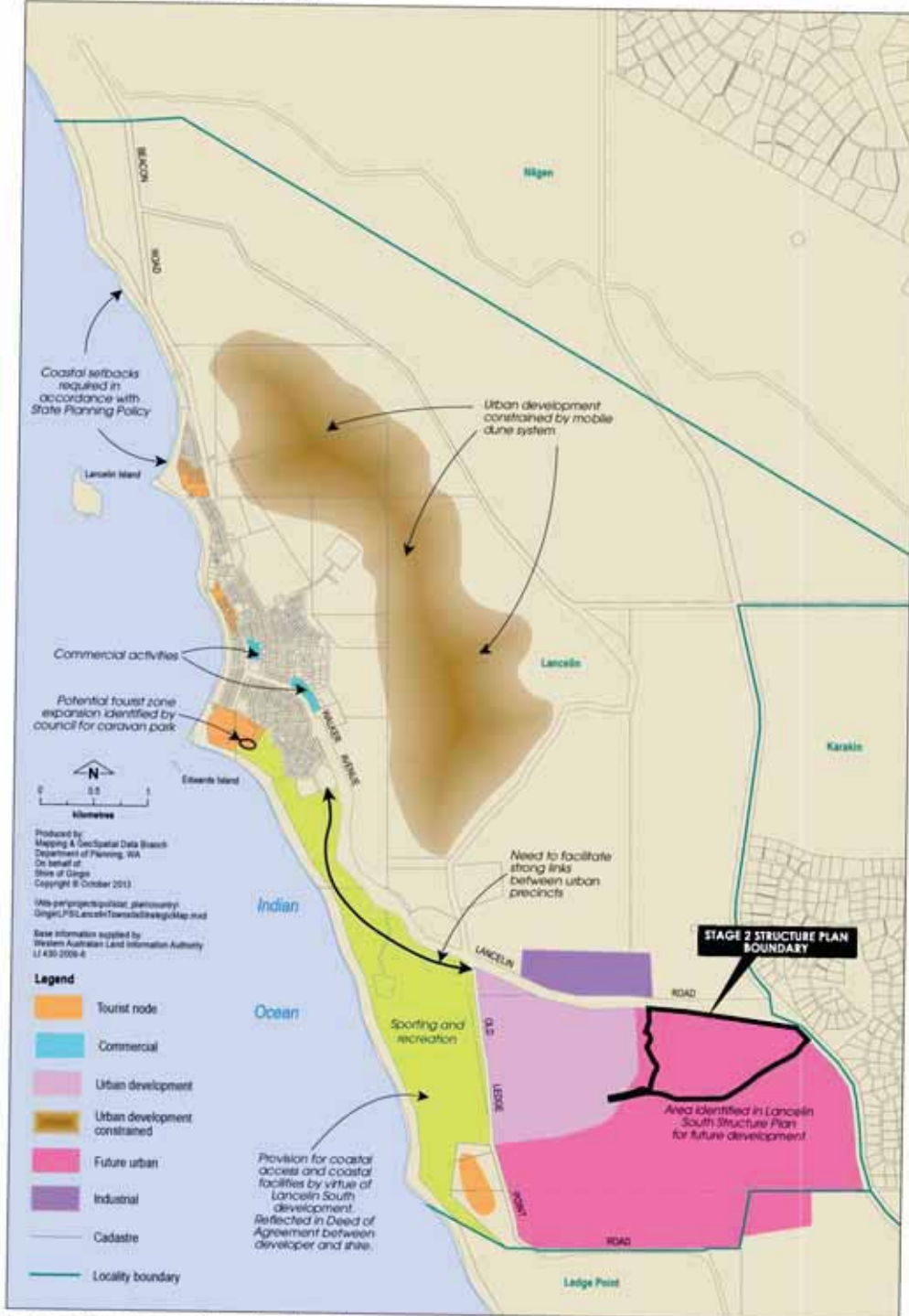
9.3.4 PLANNING STRATEGIES

9.3.4.1 SHIRE OF GINGIN LOCAL PLANNING STRATEGY

The Shire's Local Planning Strategy (LPS) was adopted by the Shire in 2012 and has been incorporated into the Scheme by reference. The LPS forms the basis for future land use, zoning, subdivision and development throughout the Shire. This is implemented through the statutory planning system, which include amendments to the Scheme.

Figure 7 shows the extent of the Stage 2 structure plan area within the 'Future Urban' area as shown on the LPS Map, consistent with the proposed land use expectations. The Structure Plan area is consistent with the area on the Strategy Map which has been "*identified in the Lancelin South Structure Plan for future development.*"

According to the 2011 ABS Census Data, the Lancelin locality had a population of 606 people and 858 dwellings recorded. The local government area recorded a population of 4,685 people and 4,047 dwellings. By the year 2026, the *WA Tomorrow* Population Report No. 10 predicts the Shire population to range between 5,800 persons (average annual growth rate 1.24% from 2011) and 6,320 persons (average annual growth rate 1.82% from 2011).



Lancelin townsite strategic map

Figure 4

FIGURE 7 LANCELIN TOWNSITE STRATEGIC MAP (SOURCE: SHIRE OF GINGIN LOCAL PLANNING STRATEGY)

9.3.5 PLANNING POLICIES

9.3.5.1 STATE PLANNING POLICY NO. 3.0: URBAN GROWTH AND SETTLEMENT

SPP 3 guides the planning of urban settlements that require additional guidance through growth strategies and subsequently local planning strategies. As referred to in **section 9.3.4.1**, Lancelin South is identified for future development in the *Shire of Gingin Local Planning Strategy*.

9.3.5.2 STATE PLANNING POLICY NO. 3.7: PLANNING FOR BUSHFIRE RISK MANAGEMENT

SPP 3.7 assists in reducing the risk of bushfire to people, property and infrastructure by encouraging a conservative approach to strategic planning, subdivision, development and other planning decisions proposed in bushfire-prone areas. Specifically it:

- addresses the land use planning elements of the Keelty report;
- elevates bushfire issues to be addressed by the highest level of planning policy available, giving it clear status and effect in the land use planning policy framework;
- emphasises the need to consider bushfire management measures in strategic level policy documents, including regional and local planning schemes, sub-regional and local planning strategies and structure plans, as well as during statutory planning processes for subdivision and development applications; and
- seeks to achieve the consistent implementation of bushfire management measures across the community.

Guidelines for Planning in Bushfire Prone Areas

Guidelines for Planning in Bushfire Prone Areas have also been prepared and are designed to supplement the objectives and policy measures established in SPP 3.7, to assist in their interpretation and provide advice on how bushfire risk is to be addressed when designing or assessing a proposal within a bushfire-prone area.

The Guidelines have been used in the preparation of the BMP (refer **section 10.4** and **Appendix D**). The Structure Plan demonstrates compliance with the SPP 3.7 and relevant Guidelines. The Bushfire Management Plan supports the future subdivision and development within the Structure Plan. The management measures documented in Section 3 of the Bushfire Management Plan (refer **Appendix D**) will be incorporated into development design as early as possible and confirmed at the subdivision stage.

9.3.5.3 INDIAN OCEAN DRIVE PLANNING GUIDELINE

The *Indian Ocean Drive Planning Guideline (IOD Guideline)* is an operational policy intended to guide location, siting and design of various land uses and development. The *IOD Guideline* sets out issues to be considered when development is to occur. The road has been established generally within flatter landforms avoiding steep dunes and passes through foredune plains and deflation basins. Views therefore are usually limited by landform and less so from vegetation. Views of relevance to the proposal are discussed within **section 9.3.1.4**.

Figure 5 on page 46 of the *IOD Guideline* identifies that the Stage 2 Structure Plan area to be outside of areas that provide important views. The subject land is within Landscape Character Unit 1 on Figure 4 on page 45 of the *IOD Guideline*. The *IOD Guideline* states that the area south-west of the Lancelin Road – Indian Ocean Drive intersection should be ‘inevident’, whereas other areas for development can ‘blend’. Where new dwellings are proposed in locations that are prominent from the road, measures to reduce visibility should be employed including placement behind dune ridges, vegetation screen planting, and building design, e.g. to reduce reflective surfaces.

The topography generally allows for development to be 'inevident' or to be 'visible but blending' with the landscape. The ridgeline is a carefully considered feature that can both help screen development (from motorists heading north) and to provide visual cues to retaining landscape and vegetation. Careful siting of development in future stages that are in the locality of Indian Ocean Drive would need to consider the maturity of the vegetation screen. Local Development Plans can incorporate provisions to limit the visibility of individual components that have potential to draw attention, such as reflective roofs and or roofs above situated higher than the landscape. The Structure Plan recommends that LDPs incorporate provisions regarding the building design and materials, i.e. 5m height limit. These are outlined further in Part 1, **section 6** and supported by the Visual Landscape Assessment in **Appendix F**.

The Structure Plan responds to the *IOD Guideline*. It proposes a vegetation screen to assist with ensuring development within this area is 'inevident'.

9.3.5.4 GOVERNMENT SEWERAGE POLICY

The State Government released the draft *Government Sewerage Policy* (November 2016) which will revoke and replace the current policy. The draft *Policy* requires consideration of sewage disposal at the earliest stage of planning, to ensure future development does not create new sewage-related health or environmental problems. The policy applies to structure plans, and the policy provisions are addressed in the Water Management Report (WMR) (refer **Appendix B**).

Reticulated sewer is defined as "a network of sewers provided by a water service provider that conveys sewage from any development or subdivision for treatment and disposal off-site (for example large scale centralised systems or smaller scale decentralised schemes that use innovative technology to service two or more lots)". This may include small package treatment plants or decentralised systems which operate through a combination of on-site secondary treatment systems linked to an off-site discharge / re-use system such as irrigation of an area of public open space. There is acknowledgement that there may be technical limitations affecting feasibility to connecting to reticulated sewerage such as distance from existing sewerage infrastructure or insufficient sewage flows.

Having regard to PlanView on the Department of Planning, Lands and Heritage website, the Stage 2 structure plan area is not contained within an identified public drinking water source area or a sewage sensitive area. This is also the finding of the WMR in **Appendix B**. Consistent with the policy measures in section 6 of the draft *Policy*, all subdivision and development should be connected to reticulated sewerage with on-site sewage disposal systems only being considered in specific circumstances as outlined in section 6.2 of the policy measures. Of particular relevance to Lancelin South Stage 2, exemptions 1(d) and 4 are relevant and are outlined in section 6.2 of the draft *Policy*, being:

" (1) Residential subdivision proposals for the creation of lots greater than:

...

(d) 2,000m² where the proposed lot is not in a public drinking water source area or a sewage sensitive area. For heavy soils, secondary treatment systems will be required to achieve this lot size (refer to Table 1 in Schedule 3)."

" (4) Residential subdivision in towns outside the Perth Metropolitan and Peel regions with existing sewerage schemes (as listed in Schedule 4) where:

(a) on-site sewage disposal is determine to be the best practicable option for servicing, and unsewered subdivision at the density proposed is specifically provided for through the provisions of the local planning scheme of a local structure plan endorsed by the Western Australian Planning Commission;

- (b) *proposed lots are not in a public drinking water source area or sewage sensitive area; and*
- (c) *the average lot size is not less than 1,000m², with a minimum of 950m². In heavy soils, larger lot sizes and/or secondary treatment systems will be required (refer to Table 1 in Schedule 3)."*

It is noted that the R2-R5 density code range applies minimum lot sizes between 2,000m² and 5,000m². Therefore, an exemption could be contemplated as an option for wastewater treatment and disposal.

Table 4 of the *Explanatory Notes* (2016) indicates that suitable sewage disposal systems for soil conditions 'deep limestone or sand over limestone' can include conventional septic or secondary treatment system – nutrient removal systems depending on the depth and type of sand. Considerations include:

- environmental impacts (sewage sensitive areas, public drinking water source areas, setbacks from water bodies, cumulative nutrient loads, etc.). It is noted that there are no such areas within 100 metres to the structure plan boundary;
- depth and type of sand. It is noted that groundwater is 19-63 metres below ground level;
- shallow limestone < 1.8 metres requires nutrient absorbing system; and
- prevent acidic wastewater from undermining constructions and foundations by dissolution of calcareous and limestone. It is noted there is an 'Extremely Low Probability of Occurrence' across the site and disturbance of Acid Sulphate Soils is unlikely due to the significant depth to groundwater.

9.3.6 OTHER APPROVALS AND DECISIONS

9.3.6.1 COMMUNITY FACILITIES

The LSSP contemplated that land can be set aside within Lancelin South to enable the establishment of any new or relocated community facilities, and will be provided at time of subdivision. Dependent on local government priorities and preferences, these facilities can be constructed by the local government using the developer contribution funds provided as part of the existing Development Deed between the landowner/developer and the Shire of Gingin.

Community facilities may be best considered in proximity to schools, the neighbourhood centre, within public open space or as combined facilities.

9.3.7 PRE-LOGGEMENT CONSULTATION

9.3.7.1 DEPARTMENT OF PLANNING

Consultation was undertaken with officers of the Department of Planning on 2 December 2015 in regard to the *Structure Plan Framework* (August 2015) and the manner and form of the Lancelin South (Stage 2) Structure Plan.

It was considered at that meeting that the Structure Plan:

- Would reference the zones and reserves of the scheme, and would refer to the appendices for the scope of details for Part 2;
- Could be detailed in relation to the Stage 2 Structure Plan area in relation to known staging areas for future subdivision and development; and less detailed for areas that will not be subdivided or developed for the short to medium term;
- Could consider the requirements of the 'Conservation' zone and 'Landscape Protection' zone;

- An Environmental Management Plan (EMP) for the 'Conservation' zoned land would address land use planning issues and how these are to be addressed, i.e. fencing, signage, access, building envelopes. The EMP would be prepared in consultation with DBCA. The Structure Plan has been supported by the preparation of an Environmental Management Plan Framework which has had input from DBCA;
- No firm discussion has been had with regard to the widths of ecological linkages. Edging and details are to be established and refined at the subdivision stage;
- Provide only enough detail as is able to be provided given the long-term staging of the development; and
- A high-level Water Management Report (WMR) would be acceptable.

The Proponent submitted a draft Structure Plan to the Department of Planning and Shire of Gingin on 17 February 2016. A meeting was scheduled with the Department of Planning on 18 March 2016. At that meeting, the Department noted that additional work was required to address Scheme provisions, namely Visual Landscape Analysis, and Ecological Linkages. Staging of the Structure Plan area was discussed, with the Department advised that the Structure Plan can relate solely to Stage 2; and defer the balance of Lancelin South to future structure planning.

As part of the scheme amendment to rezone the land (Amendment 3 to LPS 9) a meeting was held with the Department of Planning, noting the development of the *IOD Guidelines* which at that stage were due to be released for public comment in 2013. The guidelines were not intended to apply to known future developments, such as those identified in a Local Planning Strategy. Lancelin South, by virtue of being identified for future urban purposes within the Strategy, is a known development and technically the application of the guidelines cannot be enforced. Nonetheless, as part of the on-going development of Lancelin South the broad principles and intentions of the guidelines, primarily being to minimise the visual impact of development when viewed from Indian Ocean Drive, has been taken into consideration during the development of the Structure Plan.

10 SITE CONDITIONS AND CONSTRAINTS

10.1 BIODIVERSITY AND NATURAL AREA ASSETS

10.1.1 FLORA AND FAUNA

In 2007, Ecoscape undertook an assessment of over 1,000ha of land surrounding, and including, the land proposed to be covered by the Structure Plan as part of the progression of the LSSP and earlier Stage One structure plan. The subsequent Ecoscape Report focussed on providing an environmental assessment of the area, and included necessary spring surveys undertaken in accordance with the Environmental Protection Authority's (EPA) Guidance Statement No. 51 – *Guidance for the Assessment of Environmental Factors: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in WA*.

During the preparation of the LSSP and structure plan, numerous environmental investigations were undertaken and reported on. The Ecoscape Report used 61 reference sites in classifying existing vegetation type and condition, with the following key statements relating to the flora and fauna of the site:

- *“Flora – No Declared Rare Flora species, pursuant to subsection 2 of Section 23F of the Wildlife Conservation Act 1950 and listed by CALM or Listed as endangered or vulnerable species pursuant to s178 of the Environment Protection and Biodiversity Conservation Act 1999 were located during the survey; and*
- *Fauna – the main significant habitat adjacent to the study area is beachfront. Shorebirds, including many that are protected under international agreements utilise this area. A number of conservation significant fauna species were recorded from the study area, including a range of migratory shorebirds and the Priority 3 Black-striped snake.*
- *Although the Lancelin South development site is a relatively large block within Group 1 Bioregions, there are extensive areas of uncleared land to the north and south of the site in conservation reserves and it is expected that these areas support more intact habitats and faunal assemblages”.*

PGV Environmental (PGV) has undertaken a review of the existing flora and fauna studies relating to the lots, including those mentioned above prepared by Ecoscape, and provided the following summary:

“The habitat requirements for Carnaby’s Black Cockatoo include foraging (Banksia species, Parrot Bush and other Proteaceous shrubs), roosting (tall eucalypts and pines) or breeding habitat (Eucalypt trees). There are very few Proteaceous shrubs and no trees on the site and the foraging habitat assessment found a small area of foraging in the south east corner of the site. Therefore it is concluded that the site contains very little suitable habitat for Carnaby’s Black Cockatoo. Development of the site will not impact on this species.”

The PGV Report (**Appendix A**) goes on to state:

“The Level 2 Flora and Vegetation Survey of the whole of Lancelin South, of which the site is a large component, identified a total of 188 plant taxa, of which 42 are weed species (Ecoscape, 2007). A total of three Priority species have been identified on the site and an additional species that is at the edge of its range. There are three Priority species that have not been identified on the site but may possibly be present. No Declared Rare Flora were identified on the site or are likely to be on the site.

The Structure Plan includes an area totalling 70ha of vegetation that will be retained within the development and zoned as ‘Conservation’. This contains two of the dominant vegetation types on the site and is in ‘Very Good’ to ‘Excellent’ condition with some areas of ‘Fair’ to ‘Good’ condition.

A total of three Priority species have been identified on the site and an additional species that is at the edge of its range. All three of these species occur in the 70ha Conservation area in the southwest of the Structure Plan area. There are two priority species that have not been identified on the site but may possibly be present. No Declared Rare Flora were identified on the site or are likely to be on the site.

The management of fauna by relocating species prior to development will mitigate the impact on the Black Striped Snake and Brush-tail Wallaby. There have been Graceful Sun-moths recorded in the proposed Conservation Area. Consideration will need to be given to the Graceful Sun-moth and Carnaby's Black Cockatoo during development and if, according to the Significant Impact Guidelines 1.1, an action is likely to have a significant impact on an endangered and vulnerable species it will need to be referred under the EPBC Act."

The proposal is not anticipated to result in noticeable adverse environmental impacts based on the expert assessment provided above. Whilst some flora and fauna habitat will be lost as a result of inevitable construction, the urban area has been specifically designed to retain those areas that display the best characteristics for habitat retention and contain known priority flora species, via the provision of 'Conservation' zone, the provision of ecological linkages, retaining a ridgeline that is representative of the dunal network, and the larger lot sizes.

Priority flora species that are found to be present will be retained in public open space and/or road reserves where possible, or if on private land, outside of building envelopes where possible.

10.2 LANDFORM AND SOILS

10.2.1 LANDFORM

The overall Lancelin South area is undulating and contains three parallel north-south sand dunes and swales with minor ridges throughout (refer **Figure 8**). The tallest ridge is adjacent to the eastern boundary and the central portion of Lot 9001 contains the steepest slopes. The elevation over the structure plan area ranges from 18m AHD in the west to 65m AHD in the east.

Given the landform, there are significant sea views from those higher portions of the land, in the vicinity of Lancelin Road to the north and on the seaward side of the existing ridgelines. Given the elevation of Indian Ocean Drive, from a visual impact perspective, the development will not be overly prominent from the wider rural hinterland to the east. Conversely, the landform allows certain areas to provide commanding views towards the Indian Ocean, and with demand for coastal residential developments expected to remain constant into the future the development is ideally located to maximise uptake of lots.

10.2.2 SOIL CONDITIONS

Soil mapping previously undertaken identified the site as predominately located on the Quindalup Dune System. The Quindalup dunes are composed of unconsolidated sand (quartz grains) and shell fragments (Bolland, 1998). The shell fragments are mostly calcium carbonate, so the sands are alkaline.

More recent investigations reveal that the topsoil layer is fairly thin over the subject lot, however this can be up to 0.25m in thickness in some lower lying areas. Fine to medium grained white-cream coloured sand is then found below the topsoil layer which varies in compactness, generally between medium and very densely compacted. This sand also exists in some areas as cemented sand and is typical of coastal dune type areas.

Layers of well cemented limestone are found intermittently across the lots, which vary in thickness and can usually be broken up with an excavator and rock breaker. This will be required during the installation of services in some areas during future subdivision works.

10.2.3 EARTHWORKS

The Structure Plan recognises the site varies in elevation, and earthworks will be determined through detailed subdivision design and engineering plans for construction.

Earthworks, particularly within lot areas and road reserves will be required to ensure lot drainage will infiltrate on-site whilst road reserves will be designed for runoff to infiltrate close to source with larger events being directed towards and infiltrated within a dedicated infiltration system.

The site works component of the programme will involve clearing of vegetation and stripping of topsoil in the development areas, except where vegetation is to be retained in lots. It is expected that hard rock may be encountered on-site during earthworks programmes and also in trenching activities during the installation of services.

10.3 GROUNDWATER AND SURFACE WATER

RPS prepared an addendum to the existing Level H3 Hydrological Report prepared by URS Australia Pty Ltd. This addendum specifically related to the water supply and associated impacts generated by the remaining 3,000 lots for the balance of Lancelin South (excluding those 1,000 lots previously considered within Lancelin South Stage One).

RPS advises in their addendum that, in relation to the increased groundwater extraction required for an additional 3,000 lots, the *“existing groundwater model (URS 2010) was used to predict the drawdown impacts from increasing bore abstraction to 60 litres per second (L/s). The predicted drawdown is not expected to impact other Leederville Aquifer bore users or groundwater dependent ecosystems in the area.”*

Overall, the impacts on hydrology and groundwater are not expected to be noticeably different from those levels first anticipated, or at a level that will detrimentally affect the existing hydrology or groundwater systems.

10.4 BUSHFIRE HAZARD

In accordance with discussions with the Department of Planning, a Bushfire Attack Level (BAL) assessment and Bushfire Management Plan (BMP) has been prepared by Strategen for the Stage 2 area (refer **Appendix D**). The whole area inspected by Strategen is covered with native vegetation, which is dominantly heath and scrubland as described by AS3959, in an unmanaged condition (refer **Appendix D** for maps and photographs). There are small areas of previously cleared and pastured land that now support native vegetation regrowth and remnant introduced grasses.

Vegetation is long unburnt and grazing influence is negligible. Current vegetative fuel loads are high and represent a considerable fire hazard. If a wildfire were to occur under dry windy conditions fire behaviour will be extreme. The bush fire hazard rating for the proposed development and surrounding areas is currently high to extreme, due to vegetation types, fuel age and slopes in excess of 10 degrees.

Modifications to proposed development and surrounding vegetation to reduce BAL to 12.5 are feasible and the recommendations are outlined in **Appendix D**. As per **section 8** addendums or a revised Bushfire Management Plan would be prepared prior to subdivision.

10.5 HERITAGE

10.5.1 ABORIGINAL

A search of the Department of Aboriginal Affairs' *Aboriginal Heritage Inquiry System* has been undertaken and there are no registered Aboriginal Heritage sites recorded within the subject land. There is one listed 'Heritage Place', which is shown on the AHIS to broadly cover Lancelin as well as the subject land (Site ID 3237), refer **Appendix E**. This is listed as Ledge Point which is described as a Camp and Water Source.

10.5.2 EUROPEAN

A search of the Heritage Council's inherit database has been undertaken and no matches were recorded for the subject land.

10.6 COAST AND FORESHORES

The coast of the *Shires of Gingin and Dandaragan, Western Australia: Geology, Geomorphology and Vulnerability* (WAPC, March 2012) provides a broad-scale coastal stability and susceptibility assessment for future subdivision and development of coastal land.

Stage 2 is distant from the coast. The Lancelin South area generally falls within the assessment area between Ledge Point and Wedge Island and is regarded as the area of greatest variation in susceptibility, with rankings ranging from low in areas of rocky coast, to high on the flanks of large cusped forelands. The landforms were ranked moderately unstable, with several areas close to the high category. Overall, 57% of cells examined between Ledge Point and Wedge Island were of moderate, and 29% of moderate-to-high, vulnerability.

10.7 CONTEXT AND OTHER LAND USE CONSTRAINTS AND OPPORTUNITIES

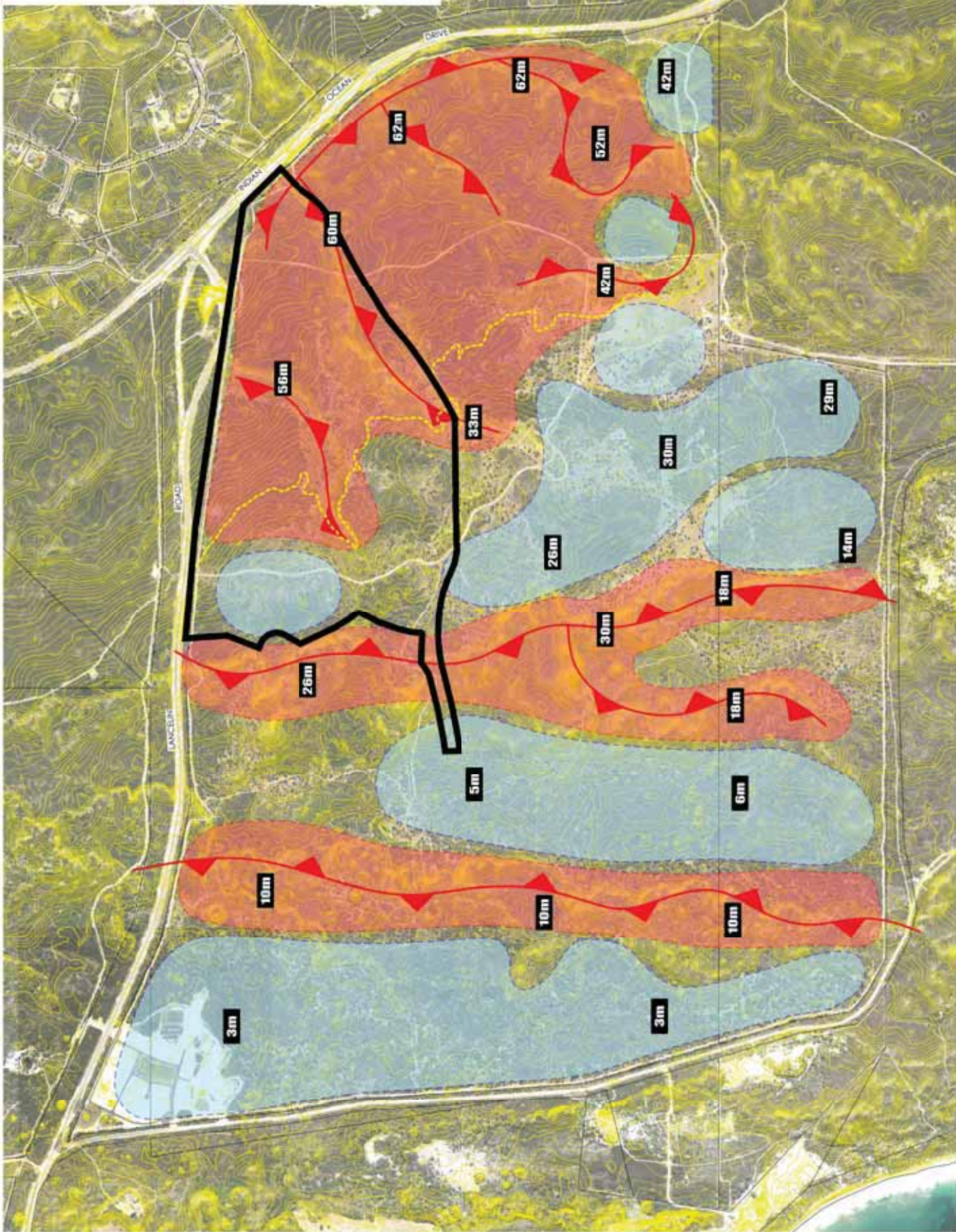
Figure 8, **Figure 9** and **Figure 10** provide a summary of opportunities and constraints for the Structure Plan area. These have been considered through the development of the Structure Plan and would be considered in subsequent subdivision designs.

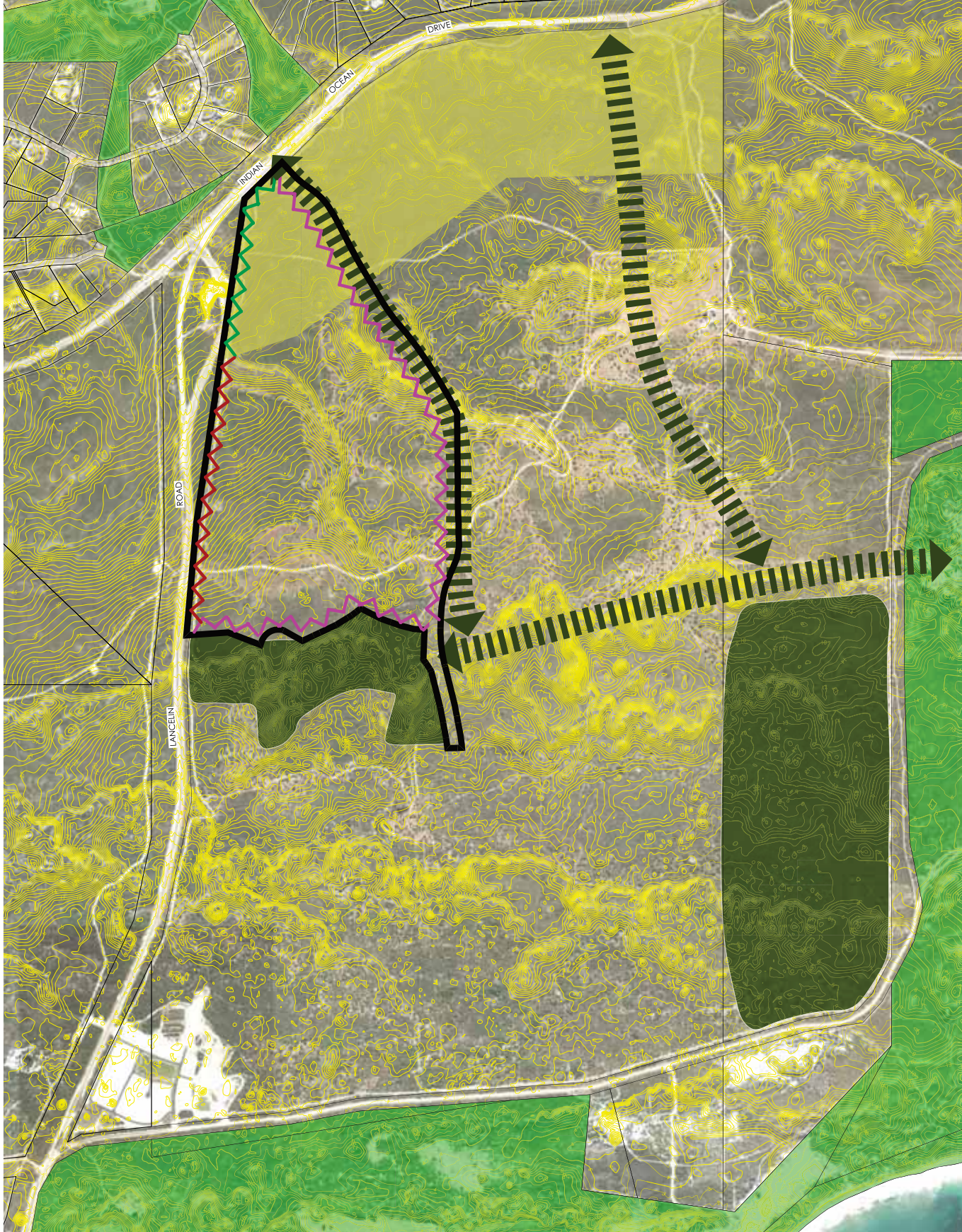
LEGEND

- STAGE 2 STRUCTURE PLAN BOUNDARY
- RIDGELINES
- HIGHER ELEVATED AREAS
- LOWER ELEVATION AREAS
- SPOT HEIGHTS
- 35 METRE AHD CONTOUR

ISSUES AND OPPORTUNITIES

- Utilise elevation, ridgelines and topography to capture views, deliver and retain elements of the natural landscape character where possible.
- Potential to provide a Viewing Point Opportunity within the subject site and near Lancelin Road for views over toward Leage Point and toward Lancelin.
- Consideration for the road network to align to contours to optimise views across lots and to avoid steep gradients.
- Sensitive use of earthwork to stop lots.
- Topography and land levels towards Indian Ocean Drive reduces the visual impact of development, resulting in it being 'invisible' or 'visible but blending' when viewed from Indian Ocean Drive.
- Low points and natural drainage lines retained and incorporated into stormwater drainage system, incorporation of drainage basins, and consideration of placement of public open space.












- LEGEND**
- STAGE 2 STRUCTURE PLAN BOUNDARY
 - CONSERVATION ZONED AREAS
 - PARKS AND RECREATION LOCAL SCHEME RESERVE AREAS (LPS No.9)
 - LANDSCAPE PROTECTION ZONE (LPS No.9)
 - ECOLOGICAL LINKAGES
 - INTERFACE TREATMENT
 - VEGETATED SCREEN TREATMENTS
 - VISUAL LANDSCAPE TREATMENTS

- ISSUES AND OPPORTUNITIES**
- Conservation zoned land provides protection of environmental values.
 - Green Linkages located on high and low lands, between Conservation zoned areas and areas outside the Structure Plan area that are reserved as Parks and Recreation, creating 'ecological linkages' for flora and fauna.
 - Ecological Linkages provide a direct connection between public open space and road reserves, or other tenure options to the satisfaction of the Shire of Gingin.
 - Attention to be given to the landuse and development potential adjacent to conservation areas and ecological linkages.
 - A series of connected walk trails and pedestrian linkages promoted.
 - Opportunity to adjust boundary of the Landscape Protection zone based on a site level Landscape and Visual Impact Assessment, via a Basic Amendment to the Scheme.
 - Public Open Space to encompass infiltration drainage, access, passive recreation, fire eadon, community amenity, vegetation retention and capturing views of interest.
 - Provision of 10% public open space in accordance with WAPC policy.
 - Bush fire hazard management in accordance with State Planning Policy 3.7 and Guidelines requirements.



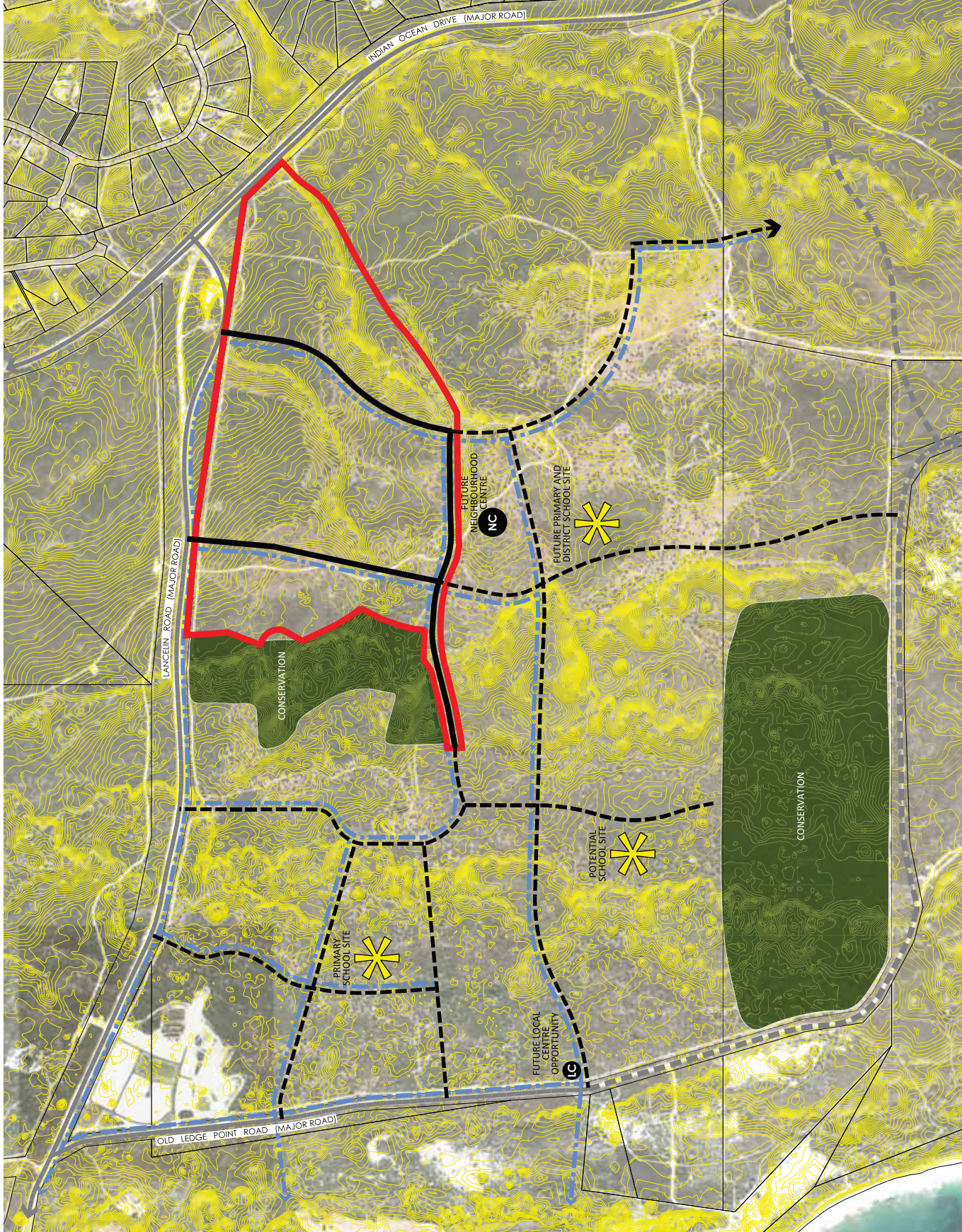
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LEGEND

-  STAGE 2 STRUCTURE PLAN BOUNDARY
-  SURROUNDING EXISTING MAJOR ROADS
-  SURROUNDING PROPOSED ROADS
-  INDICATIVE STAGE 2 STRUCTURE PLAN NEIGHBOURHOOD CONNECTOR NETWORK
-  LANCELIN SOUTH INDICATIVE NEIGHBOURHOOD CONNECTOR NETWORK
-  SCHOOL SITE
-  PEDESTRIAN / CYCLE LINKAGE OPPORTUNITIES

ISSUES AND OPPORTUNITIES

- Roads alignment to have regard to topography to optimize views for houses.
- Organic/fluid road network for distinct character and 'softer' development amenity.
- Improved road network to consider access to Lancelin for Old Ledge Point for ease of movement and emergency requirements.
- Neighbourhood road network takes into account the future neighbourhood centre, future schools, north-south and east-west connectivity, and interface to Conservation lots and public open space.
- Pedestrian and cycle linkages possible through to Lancelin South Stage One and Lancelin Town Centre and/or Beach. Pedestrian linkages to connect using the road network and open spaces.
- No direct lot access to major roads.
- No additional access point to Indian Ocean Drive (Main Roads WA approval required)
- Emergency access way connecting to Indian Ocean Drive, as an alternative link to the public road during emergencies, in accordance with the Guidelines for Planning in Bushfire Prone Areas.



INDICATIVE FUTURE ACCESS POINT TO INDIAN OCEAN DRIVE (FUTURE ALTERNATIVE HEAVY HAULAGE ROUTE)

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11 LAND USE AND SUBDIVISION REQUIREMENTS

11.1 LAND USE AND SUBDIVISION REQUIREMENTS WITHIN STAGE 2

Within the Structure Plan the following areas attributed to each of the following proposed uses:

- Residential development; and
- Public Open Space.

11.1.1 RESIDENTIAL

Stage 2 represents 88 ha of the Lancelin South overall area of 436 ha. Stage 2 is proposed to be developed for residential development, which represents approximately 75 ha of the total Structure Plan area of 88ha. The Structure Plan provides for a range of residential densities to facilitate the provision of a diversity of lot sizes and housing types, consistent with the intended lifestyle and development outcomes envisaged for Lancelin South.

The R-Code density range of R2-R5 complies with the provisions of LPS 9 and gives some flexibility to the proponent give regard to the requirements of bush fire management, efficiency in land development, capitalising on views and/or areas of amenity, and the visual management objectives for Indian Ocean Drive. The intention is to deliver approximately 315 residential dwellings, which in turn will assist in the delivery of the ultimate 4,000 residential dwellings for the whole Lancelin South area.

Lower densities (i.e. R2, R2.5) are limited to land below the 35m AHD contour line and the lot sizes would be in response to natural topography and to minimise visual impact in prominent locations. Opportunities for density equal to and greater than R5 has been contemplated for land above the 35m AHD contour line, and compliant minimum sized lots may be positioned in areas of high amenity including proximity to public open space.

Lancelin South is not intended to provide vast areas of conventional residential housing. Noting the site conditions and features, the Structure Plan has been able to positively respond to the landform whilst providing a range of residential housing options for future residents.

11.1.1.1 INDICATIVE DWELLING AND POPULATION YIELDS

The estimated dwelling yield for the Structure Plan is approximately 315 dwellings, however based on the density code range provided for, a higher or lower yield could be achieved to meet the market requirements whilst also responding to the site characteristics. Assuming a household size of 2.43 – 2.6 persons per occupied dwelling and an occupancy rate of 83%, a population of 635 to 680 is estimated for the Stage 2 area.

As required by Part 1, a Density Plan is to be submitted at the time of subdivision to the WAPC, indicating the density coding applicable to each lot within the subdivision. This is required to be consistent with the Structure Plan, and have regard to the locational criteria contained within Part 1. The Density Plan is to include a summary of the proposed dwelling yield of the subdivision.

11.1.2 PUBLIC OPEN SPACE

Public Open Space (POS) will be strategically located to provide the high amenity settings envisaged for Stage 2 by softening the development with green linkages and, in time, established park like settings.

POS would be separated into two categories:

- Recreation – public open space that is to be developed and will provide opportunities for passive and active recreation;
- Nature – public open space incorporating vegetation that is to be preserved to maintain natural attributes, including both topographical and remnant vegetation.

The location of POS has had regard to the issues and opportunities (refer **Figure 9**) and summarised as follows:

- POS along the southern ridge for retaining the landform, collocation for the east-west ecological linkage, and a mix of nature recreation purposes;
- Central POS located below the 35m AHD contour, and serves a drainage function; and
- Western POS provides an interface to the 'Conservation' zoned land and also serves a drainage function due to being within a low elevation area.

The total amount of POS provided will achieve the 10% requirement of the WAPC for the Lancelin South area. The POS areas will be confirmed at time of subdivision when a detailed Plan of Subdivision is prepared for Stage 2, and it is likely detailed landscaping plans will be required as a condition of subdivision approval to the satisfaction of the local government.

11.1.2.1 PUBLIC OPEN SPACE SCHEDULE

A public open space schedule is provided consistent with *Liveable Neighbourhoods* (draft 2015), refer **Table 6**.

This Structure Plan proposes relatively low-density residential development, and a corresponding low population yield (refer **section 11.1.1.1**) of approximately 600 people. As demonstrated in **Table 6**, 13.2105 ha (14.88%) of public open space is proposed within the Structure Plan area, which represents a staging surplus of 4.3318 ha. Given the broad nature of the Structure Plan, the POS locations on **Plan 1** are indicative and the final position and dimensions of POS will be subject to change.

This public open space composition has been formulated acknowledging a number of factors, including:

- The desire to protect land for the purposes of providing ecological linkages, which is intended to be provided within POS reserve(s) and road reserves;
- The nominally 20m wide Ecological Linkage within road reserve, along the southern boundary of the structure plan area, has not been credited towards public open space;
- The desire to incorporate a Vegetation Screen as public open space, which has not been credited. The Vegetation Screen will give an overall impression of 'inevident' development and thereby maintaining the character of Indian Ocean Drive; and
- The desire to create a sense of character and amenity for future residents, acknowledging the local vegetation in place and maintaining such vegetation in a manner that provides landscape, environmental and fire management outcomes.

TABLE 6 PUBLIC OPEN SPACE SCHEDULE

PUBLIC OPEN SPACE SCHEDULE Dated 3 January 2018 Lancelin South (Stage 2) Structure Plan		
Total site area (ha)		88.7872
Deductions		
Environmental	0.0000	
Infrastructure	0.0000	
Non Residential Land Uses	0.0000	
Other	0.0000	
Total Deductions		0.0000
<i>Gross Subdivisible Area (total site area minus deductions)</i>		<i>88.7872</i>
Required Public Open Space (10%)		8.8787
Unrestricted public open space – minimum 80%	7.1030	
Restricted public open space – maximum 20%	1.7757	
Breakdown of POS Provided		
Restricted Public Open Space		
	0.0000	
Total Restricted POS	0.0000	
Total Restricted POS Credited to a maximum of 20%		0.0000
Surplus Restricted POS Not Credited	0.0000	
Unrestricted Public Open Space: by function		
Sport		
Recreation	3.4807	
Nature	9.7298	
Total Unrestricted POS	13.2105	
Total Unrestricted POS		13.2105
Total		13.2105
POS Provision as Percentage of Gross Subdivisible Area		14.88%

Notes:

1. This schedule is to be read in conjunction with the Structure Plan (**Plan 1**) (TBB Plan 12/029/038T)

The local government will assume maintenance and management of the public open space, including the Vegetation Screen, once the areas are established by the proponent.

A Staging Plan is provided in **Figure 11** to indicate that the three overall staged components of the structure plan, will be supported by the provision of public open space. The staging is described in Part 1, **section 4**.

11.1.2.2 ECOLOGICAL LINKAGES

The EPA's Environmental Planning Bulletin 20 *Protection of natural areas through planning and development* notes that "Ecological linkages are a series of (both contiguous and non-contiguous) patches of native vegetation which, by virtue of their proximity to each other, act as habitat stepping stones which facilitate the maintenance of ecological processes and the movement of organisms within, and across, a landscape".

The EPA considers ecological linkages in the context of retaining naturally vegetated areas. In the case of Lancelin South, two 'Conservation' zoned areas have been identified for being supported with linkages via 'Ecological Corridors' as expressed in Schedule 9 of the LPS 9.

The ecological linkage has been proposed along the southern boundary of the proposed Stage 2 of the Lancelin South development. The final location, alignment and dimension of the ecological linkage is subject to detailed design.

The ecological linkage will connect through to a north-south ecological linkage to the west of Stage 2, which will in turn, provide a link between the 'Conservation' zoned portion of Lot 9001 Lancelin Road and the zoned portion of Lot 1 Old Ledge Point Road. The network of ecological linkages will protect significant environmental and cultural values within the locality. Indian Ocean Drive represents a physical barrier to link further east into the Seaview Park estate. However, the remnant vegetation within the Indian Ocean Drive road reserve, the Vegetation Screen, and any low-threat vegetation retained within the 'Landscape Protection' zone will provide a quasi-link for flora and fauna.

The following **Table 7** provides a summary description of the Ecological Linkage in response to Schedule 9 – Future Development zones of LPS 9, particularly Condition (1)(iii).

TABLE 7 ECOLOGICAL LINKAGE DESCRIPTION

Requirements (Schedule 9)	Description of Requirement
Linkage Widths	Ranging in width from 20m on average for the western greenway and for the eastern ecological corridor, contained within the 'Parks and Recreation' reserve which is of variable width.
Function	<p>The Ecological Linkage is located predominately within the <i>Melaleuca systema</i> / <i>Scaevola thesioides</i> / <i>Acacia lasiocarpa</i> vegetation complex, and a westerly component within 'Mainly Weeds'. The <i>Melaleuca</i> vegetation complex is regarded as being in 'Very Good – Excellent' condition in the eastern half and 'Poor' to 'Very Good' in the western half.</p> <p>The western greenway will function more for birds while the eastern ecological corridor will be wide enough to function as habitat for reptiles and small mammals as well as birds.</p> <p>It is not possible to avoid a degraded area to connect the Ecological Linkage with a future north-south ecological linkage, by virtue of the extent of the 'Mainly Weeds' area. Rehabilitation along the ecological linkage, particularly in degraded areas, will help to maintain the functionality of the Ecological Linkage as it traverses a vegetation complex from west to east.</p>
Management Requirements	<p>The component of the greenway identified as 'Mainly Weeds' is generally unavoidable. Mitigation measures may be employed, including weeding and planting of native vegetation to improve the resilience of this component of the overall ecological linkage.</p> <p>Management of the Ecological Linkage will be dependent upon the tenure of the Ecological Linkage. The Ecological Linkage is intended to be ceded through road reserves or reserves for recreation, which once vested, the Shire will be responsible for ongoing management.</p> <p>Services and infrastructure, including roads and transport corridors, should minimise fragmentation of the Ecological Linkages where possible.</p>
Interface with adjoining development	<p>The east-west ecological linkage interface with Stage 2 is proposed through a combination of public open space and road reserves. A public reserve interface generally is a preferred edge treatment compared to having housing lots immediately adjacent to vegetated areas. The location of roads and public areas near vegetated areas improves surveillance, deters vandalism and arson, and avoids individual properties advancing into retained areas.</p> <p>Roads also provide a firebreak, which can assist in addressing Bushfire management requirements (i.e. asset protection zones) and to provide a clear demarcation from encroaching of development.</p>

The east-west ecological linkage has been designed to take advantage of a number of environmental features as follows.

Landform and Soils

The east-west ecological linkage preserves the unique characteristics of the vegetation on soils that go from the younger Quindalup dune system at the western end and transition into the older Quindalup dunes at the eastern end, adjacent to Indian Ocean Drive. The linkage preserves dunes that have high elevations to mid-slope and lower elevations which provide an example of the range of inland dunal landform in the Lancelin area.

Vegetation

The vegetation in the east-west ecological linkage is mostly in 'Very Good – Excellent' condition, the highest condition rating within the Lancelin South area. Parts of the western Greenway are in 'Poor' condition due to past rural land use resulting in large areas of weeds. Avoiding the poorer quality areas is not possible with the intention of linking to the 'conservation' zoned land west of the Stage 2 structure plan area.

The east-west ecological linkage contains the *Melaleuca systema / Scaevola thesioides / Acacia lasiocarpa* vegetation type. The east-west ecological linkage in Stage 2 connects the western end to the north-south linkage in the Lancelin South development. The vegetation type in the proposed east-west ecological linkage complements and adds to the biodiversity of the retained native vegetation in the development.

The proposed east-west ecological linkage retains an additional vegetation type (being *Melaleuca systema / Scaevola thesioides / Acacia lasiocarpa*) to the future north-south ecological linkage (being *Melaleuca systema / Sphridium globulosum* and *Melaleuca systema / Scaevola thesioides / Acacia lasiocarpa – Calothamnus quadrifidus* or *Dryandra sessilis*) that traverses through the 'Conservation' zone in the Stage 1 Structure Plan Area, and southwards through the balance of Lancelin South. The retention of an additional vegetation type in the larger development improves the biodiversity retained within POS in the Lancelin South development. The proposed linkage also preserves an example of the transition of the vegetation from west to east across Stage 2.

Fauna

The ecological linkage is likely to be utilised by a number of species, with small birds predominately using the narrower western greenway and birds, reptiles and small mammals using the eastern ecological corridor as habitat. The linkage will not be continuous due to road crossings in some places. Research on ecological corridors in developed areas¹ on the Swan Coastal Plain indicates that small birds are able to move between areas of native vegetation along corridors that contain both native tree and understorey species. Most small birds are able to move across roads, driveways and other non-bushland areas for a distance of at least 50 metres.

Conclusion

The east-west ecological linkage along the southern boundary of the proposed Stage 2 of the Lancelin South development would result in:

- Preserving an example of inland Lancelin landform with a transition from younger to older Quindalup dunes;
- Preserving a variety of dunal landforms;
- Preserving vegetation in Very Good to Excellent condition being retained;
- Increase retention of biodiversity values (flora, vegetation and fauna) in the combined Lancelin South development; and
- Providing an east-west ecological linkage.

¹ M.J & A.R. Bamford Consulting Ecologists (2005). *Hope Valley Wattleup Redevelopment Project. Biodiversity Strategy: Fauna Assessment*. Prepared for RPS Bowman Bishaw Gorham. 2 May 2005.

- LEGEND**
- LANCELIN SOUTH STAGE 2 STRUCTURE PLAN BOUNDARY
 - LOCALSCHEME RESERVES**
 - PARKS AND RECREATION AND DRAINAGE ROADS
 - LOCALSCHEME ZONES**
 - RESIDENTIAL
 - LANDSCAPE PROTECTION
 - OTHER CATEGORIES**
 - INDICATIVE ECOLOGICAL LINKAGE
 - EXISTING ROADS
 - 35 METRE AHD CONTOUR
 - VEGETATION SCREEN (MAXIMUM 20m WIDTH)
 - APPROPRIATE LANDSCAPE TREATMENT TO LANCELIN ROAD THROUGH CLUSTER OF LOW-THREAT VEGETATION AND/OR VEGETATION SCREEN
 - APPROPRIATE DESIGN INTERFACES FOR TO CONSERVATION ZONED LAND, ECOLOGICAL LINKAGE AND VEGETATION SCREEN
 - WATER SUPPLY BORE FOR LANCELIN SOUTH
 - LANCELIN SOUTH (STAGE 1 ODP AREA)
 - STAGE (a) BOUNDARY
 - STAGE (b) BOUNDARY
 - STAGE (c) BOUNDARY



11.2 WATER MANAGEMENT

11.2.1 WATER MANAGEMENT REPORT

Previous studies relating to the hydrological and environmental nature of the site conclude that, from an urban water management perspective, the site is not considered hydrologically constrained due to the pervious geology, separation to groundwater and lack of surface water features. It is considered that drainage can be appropriately managed without any adverse impact to the environment or surrounding land users. The purpose of the Water Management Report (WMR) is to address all elements of the total water cycle that are relevant to the development area and associated catchment. The proponent has prepared a WMR to cover the Structure Plan area at a conceptual level, with detailed engineering design over the Stage 2 area (refer **Appendix B**). As detailed structure planning is undertaken for subsequent stages, WMR addendums will be prepared to provide the higher level of engineering details not included in the initial conceptual areas. This approach is in accordance with discussions with the Department of Planning, Lands and Heritage and the Department of Water and Environmental Regulation.

11.2.2 WATER SERVICING

The servicing for the site will be managed as per the water supply strategy detailed in the H3 Level Hydrogeological Assessment Report (URS, 2010) and as per the strategy outlined in the WMR prepared for the first stage of development for Lancelin South (Stage 2). It is summarised in the WMR. An addendum to the Hydrogeological Assessment Report was prepared (RPS, 2012) and outlines the impact of the additional abstraction required for the water supply for the remaining Structure Plan area. The addendum was approved by the (then) Department of Water and the investigation concluded that the additional abstraction for Structure Plan area would have minimal impacts on:

- Other bore users;
- Groundwater Dependent Ecosystems (namely Karakin Lakes); and
- Saline intrusion.

In 2017, Lancelin South Pty Ltd was granted a Water and Wastewater Service Provider licence. Lancelin South will be the Potable Service Provider for the Lancelin South Estate commencing in October 2017.

11.2.3 STORMWATER DRAINAGE

Water sensitive urban design initiatives will be implemented into the drainage design. In particular, stormwater runoff will be infiltrated as close as possible to its point of origin for groundwater recharge. Based on the undulating land and areas of POS strategically located throughout the Structure Plan, infiltration structures will be incorporated into selected sites, where appropriate. Given the sandy nature of the soils on-site, this is deemed an appropriate mechanism to manage stormwater on-site.

Lot drainage will be via soakwells to mimic the predevelopment hydrological regime. Soak wells within lots are proposed for lot runoff to promote direct infiltration close to source and to reduce the runoff volumes entering local drainage infrastructure.

Runoff up to the 1 year 1 hour ARI is to be treated within the development. Excess runoff from lots and runoff from road networks up to the 1 in 5 year ARI event shall be conveyed via a pipe network or via roadside conveyance swales so that the roads are functional during a 1 in 5 ARI event. Where road design allows, median and verge swales will be incorporated and constructed into the road reserve. Excess runoff from lots and runoff from roads above the 5 year ARI Event will be conveyed via the road reserve.

Infiltration basins for each sub-catchment will receive runoff via conveyance. Basins and roadside swales will incorporate water quality treatment areas.

Adequate separation distance (approximately 17.8m between the base of lot soakwells and maximum groundwater levels), from groundwater levels to drainage and lot infrastructure will be achieved as per the requirements of the BUWM guidelines, as will the separation requirements from the 100 year flood levels (within the drainage infrastructure) to lots.

11.3 INFRASTRUCTURE COORDINATION, SERVICING AND STAGING

The delivery of services to Lancelin South is both costly and complex. This is an accepted constraint on development and also an opportunity for the Lancelin town site. As a result, numerous service infrastructure upgrades will be required to be undertaken by the developer. The Structure Plan has considered and, where possible, provided for:

- The provision of self sufficient water supply serviced by new infrastructure; and
- The installation and investment of electrical and telecommunication services by key service providers.

11.3.1 ELECTRICITY

The existing Western Power infrastructure, consisting of three-phase overhead power cables located on the northern side of Lancelin Road, is deemed sufficient to provide a reliable source of power supply within the Structure Plan area.

Liaison with Western Power will be required during detailed design stages to ensure that sufficient switch gear and transformer facilities are included in the design, with land possibly given up to Western Power in order to adequately serve the structure plan area. Western Power is anticipated to confirm the extension of the electricity network, or any upgrades required within the structure plan area by way of a recommended condition of approval at time of subdivision.

11.3.2 TELECOMMUNICATIONS

Telecommunication services to the site are being provided by NBN Co with the implications on the National Broadband Network still to be finalised. Proposed communications infrastructure will share trenches with Western Power underground feed as per the communication standard estate development requirements.

11.3.3 GAS

There are no existing ATCO Gas services in the area. The nearest distribution main is about 75 km to the south from which no extensions to Lancelin are planned. For the structure plan area, any private use of gas would be bottled.

11.3.4 WATER

Water will be supplied via a private water service provider. The potable water supply will be obtained from groundwater abstraction from the Leederville aquifer. Investigations have identified groundwater as the most feasible water supply source. Water supply is summarised in the WMR.

11.3.5 WASTEWATER

As referred to in the WMR (refer **Appendix B**), the larger lots within Stage 2 (minimum 2,000m²) are regarded as appropriate for on-site wastewater disposal. The draft *Government Sewerage Policy* identifies that consideration may be given to an exemption from the mandatory provision of reticulated sewerage in certain circumstances and provided that the statutory authority is satisfied the proposal is capable of accommodating on-site disposal without endangering public health or the environment.

Stage 2 is not within a Public Drinking Water Source Area or a sewerage sensitive area. There are no significant wetlands or waterways within 100 metres of the Stage 2 boundary. Groundwater is approximately 19-63m below ground level within Stage 2. The northern Stage 2 boundary line is greater than 100 metres from bore 03/09 used for public drinking water. No private bores for drinking water will be required.

11.3.6 TECHNICAL NOTE ON ROAD UPGRADES – OLD LEDGE POINT ROAD

A traffic report has been prepared as an addendum to the 2007 Lancelin South traffic report and has been updated based on the local government's comments, in relation to the Lancelin South (Stage 2) structure plan. The technical note is contained in **Appendix C** and has been updated to reflect the most recently available traffic data provided by the Shire of Gingin.

The technical note focuses on the traffic generated in relation to Lancelin Road and Old Ledge Point Road. The technical note outlines the traffic considerations regarding demand and traffic data, and the time considerations for a proposed new haul road between Indian Ocean Drive and Old Ledge Point Road. It is noted that the technical analysis for triggers for road upgrades will not impact on the triggers agreed upon between the Shire of Gingin and the developer of Lancelin South in the Deed of Agreement. The Deed would be enacted before the traffic level warrants as identified in the technical note.

11.4 DEVELOPMENT CONTRIBUTION ARRANGEMENTS

No development contribution arrangements are required for the Structure Plan area as a Development Deed has already been entered into between the landowner/developer and the local government.

In March 2001, prior to any rezoning or development of Lancelin South, the developer entered into a Deed of Agreement (the 'Agreement') with the local government for the provision of community, maritime and other local community facilities associated with the development of land covered by the preceding Lancelin Coastal Village Structure Plan.

The Agreement has been updated several times since 2001, with the 18 June 2013 Council Resolution requiring the developer to provide a further revised Agreement, as follows:

"An amended draft Deed of Agreement – prepared by Cormiston Legal, ref SEP13071, which, at a minimum, includes provision for the construction and funding of an additional Lime Sand Haulage Route and Old Ledge Point Road and considers an alternative to "Occupancy Certificates" and population statistics as a trigger point for delivery of certain items."

The new Development Deed was executed in December 2013 and provides for the developer to provide the following at the appropriate time in the maturity of development at Lancelin South, when there is sufficient demand and sufficient funds available, in agreement with the Shire. Noting the above, there is overlap – for example the Sporting Fields can include space for AFL Ovals, Cricket Grounds, Soccer Fields, and Basketball Courts etc.

As such it is expected the following will be provided at the full cost of the developer:

- 15.43ha Sporting Fields, incorporating:
 - 2 Active Open Space/Ovals (size dependant on design/purpose) for AFL/cricket purposes, noting the town already has a AFL/cricket oval
 - 2 Netball Courts delivered in a staged manner, possibly co-located with the future schools
 - 2 Basketball Courts delivered in a staged manner, possibly co-located with the future schools
 - 2 Soccer Fields
 - 8 Tennis Courts, delivered in a staged manner, possibly co-located with the future schools
- 4 Local Parks/Playground – 2.9ha total (average 0.7ha); and
- 2 Neighbourhood Parks – 5ha total (average 2.5ha).

The following facilities could be upgraded at the discretion of the Shire, using funds available through the contributions made by the developer to the Communities Facilities Fund, noting these already exist in some instances and extensions would ensure their on-going suitability for a larger population into the future:

- 1 Local Community Centre;
- 1 Local Library;
- 1 Seniors Centre;
- 2 Childcare Centres (new facilities);
- 1 After School Care (new facility); and
- 1 Community Health Clinic.

The Development Deed also provides for the upgrade of Old Ledge Point Road to be commenced one year after the 50th dwelling in Lancelin South has been granted a building licence. The construction of the haulage route will be undertaken when the 1,250th building licence has been granted in the development, in a location to be agreed between the Developer and the local government.