

Marine Fields Local Structure Plan

Portions of Lots 509, 2520 and 9005
Via Indian Ocean Drive and Marine Drive
Cervantes

for Mathorf Properties Pty Ltd

OCTOBER 2015

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Via Indian Ocean Drive and Marine Drive, Cervantes



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Executive Summary

The Marine Fields Local Structure Plan (LSP) relates to portions of Lots 509, 2520 and 9005 as depicted on Figure 1 – Marine Fields LSP map.

The land subject of the LSP is located west of Indian Ocean Drive and lies south of the Hill River within the locality of Cervantes, with existing Rural/Residential development located adjacent the eastern edge of the LSP area. To the south there exists rural/residential zoned land; and to the west Parks and Recreation Reserve as well as privately owned “Rural” Lot 3111.

The LSP area is well positioned to accommodate rural/residential development, given the proximity of existing services, infrastructure, commercial development at Jurien Bay to the north and the Town of Cervantes to the south as well as existing and planned local recreation opportunities along the coast and at Hill River.

The LSP has been prepared following significant input from the Shire of Dandaragan, particularly during rezoning, and the Department of Planning.

Currently, the LSP area is zoned ‘Rural Residential’ as a consequence of Amendment No. 20 to the Shire of Dandaragan Local Planning Scheme No. 7 (LPS 7), Gazetted on 11 October 2013. Amendment No. 20 also inserted new text into Schedule 11 of the Scheme requiring the LSP address a range of issues relevant to the site including coastal management, road linkages, strategic firebreaks to minimise vegetation clearance, the reduction of lot sizes where disturbance of vegetation can be substantially reduced, poor drainage, building envelopes bushfire management, water supplies, fencing and setbacks.

The LSP area is therefore identified under the Scheme as having the potential to accommodate lifestyle opportunities; however the form and scale of this development is to be determined by this LSP having regard to a range of factors including foreshore management issues, road links, minimising vegetation clearance, ensuring proper drainage and bush fire management.

On this basis, the intended strategic outcome of the LSP will be to facilitate the establishment of a range of lots laid out appropriately to address these issues backed by management provisions to facilitate desirable development.

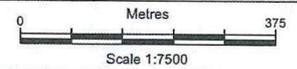
LEGEND

25mm at scale

-  Environmental Conservation
-  Low Lying Area below 6m
-  Dunes with potential for wind erosion
-  Strategic Firebreak (see text for details)
-  Indicative Building Envelope (approximately 2000m²)
-  Priority 3 Vegetation
-  Ecological Corridor
-  Local Structure Plan Area

NOTES

1. Lots have been clustered to conserve biodiversity, reduce the clearing of vegetation for fire protection and to take advantage of site conditions. No further subdivision of any lot within the structure plan will be supported.
2. Any on-site effluent disposal system on land below 6m AHD will need to be in the form of an approved Alternative Treatment Unit.
3. Where building envelopes are located on dunes with potential for wind erosion, the subdivider shall establish and consolidate a construction area within the building envelope at the time of subdivision.
4. No vegetation outside of the building envelope is to be removed except for the purposes of fire protection or access as approved by Council.
5. Location of Priority 3 vegetation to be protected from fire breaks, internal access ways and building envelopes.
6. Development on lots shall have a minimum roof area of 240m² and a minimum water storage tank of 120KL.



Date: 12 November 2015
Ref: 1720/2015/ Des12 LSP/A3 Fig 1

All dimensions and areas subject to survey

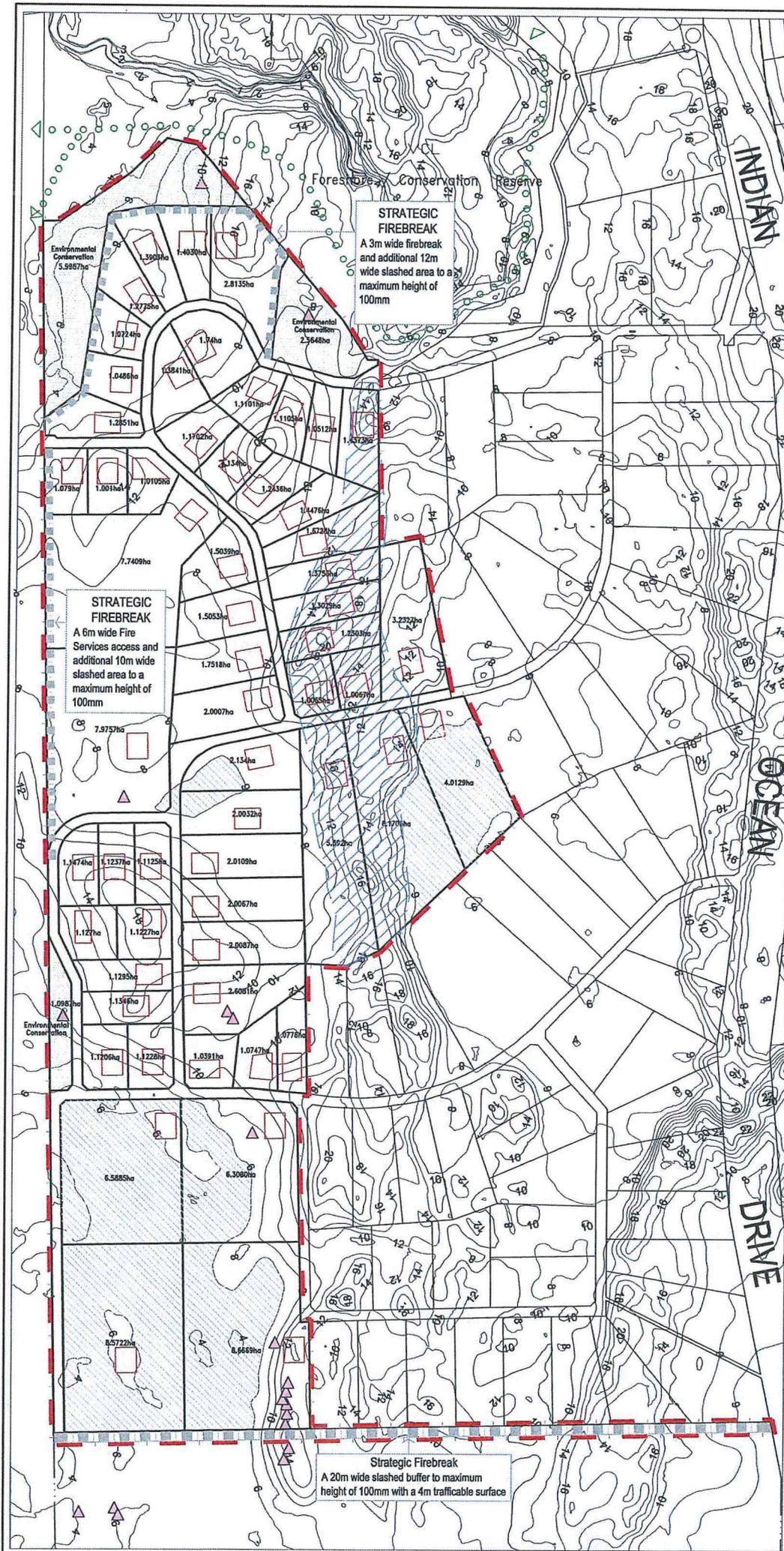
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A3



Figure 1
LOCAL STRUCTURE PLAN



The LSP delivers a development design having a desirable identity and sense of place, protecting and taking advantage of existing natural features, infrastructure and services in the locality.

The LSP will provide for the appropriate management of natural features, including the protection of significant tracts of native flora and deliver an appropriate setting for rural living in harmony with the natural features of the area. In particular, the LSP utilises the most favourable living environments while maximising vegetation retention.

The LSP includes an Implementation Section (Part 1), providing a framework with parameters guiding land use and development while the Explanatory Section (Part 2) provides the background technical and supporting information that has informed the outcomes and proposals depicted on the LSP map.

Table 1 – Local Structure Plan Summary

Item	Data	Section number referenced within the Outline Development Plan Explanatory Report
Total area covered by the structure plan	153 hectares	Part 2 - Section 1.1
Area of each land use proposed:		Part 2 - Sections 3.1, 3.2
- Rural Residential	143.34 hectares	
Estimated Area of Environmental Conservation	9.66 hectares	
Estimated lot yield	58 lots	Part 2 - Section 3.1
Estimated Population	Rural Residential lots = 2.5 ppd x 58 lots = 145 persons	

Pre - Lodgement Consultation

The Marine Fields LSP has been prepared through a collaborative process involving specialist consultants, the Shire and the Department of Planning. The following table summarises the nature of consultation undertaken and outcomes guiding preparation of the LSP. Elements of this consultation were conducted as part of processing the rezoning of the land via Amendment No. 20 to LPS 7.

Table 2 – Pre-Lodgement Consultation Summary

Agency	Date	Method	Outcomes
Environmental Protection Authority	5/6/2012	Letter	Following consultation with Department of Water, EPA decided not to assess Amendment 20 but, provided advice on native vegetation, effluent disposal and groundwater use.
Department of Planning	6/6/2013	Meeting	Considered subdivision design, vegetation clearance and Hill River flood levels.
Department of Water	11/6/2013	Email	Advice on flood levels confirming earlier information.
Department of Planning	6/2/2014	Meeting	Meeting at Council offices to consider subdivision pattern and to visit the site.
Department of Planning	3/4/2014	Meeting	Meeting at Department offices to agree adjustments to subdivision pattern.

PART ONE – IMPLEMENTATION

1.0 Local Structure Plan Area

This Local Structure Plan (LSP) shall apply to portions of Lots 509, 2520 and 9005 via Indian Ocean Drive and Marine Drive, Cervantes, otherwise defined as the land contained within the inner edge of the line denoting the LSP boundary, on **Figure 1 – Local Structure Plan**.

2.0 Local Structure Plan Content

This Local Structure Plan comprises:

- a) Part One – Implementation section

This section contains the LSP map and planning provisions, standards and requirements.

- b) Part Two – Explanatory section.

A reference guide to interpret and describe the implementation of Part One.

- c) Appendices – Technical reports and supporting plans and maps.

3.0 Operation

This LSP shall come into operation, once endorsed by the Western Australian Planning Commission (WAPC).

The words and expressions used in this LSP shall have the respective meanings given to them in the Scheme, or where not defined in the Scheme, as set out hereunder.

‘The Scheme’ shall mean the Shire of Dandaragan Local Planning Scheme No. 7 (LPS 7) (as amended) or such amendments or modifications thereto that may be current.

4.0 Intent

The intent of this LSP is:

- (i) To provide a basis for subdivision and development in accordance with the site's zoning and site characteristics.
- (ii) To produce sites attractive to those people seeking a lifestyle opportunity in this locality.
- (iii) To provide a range of lot sizes to facilitate the creation of a mix of living choices within the rural/residential genre.
- (iv) To address issues of coastal and river foreshore management including the potential for wind erosion.
- (v) To ensure there are adequate linkages between the subject LSP area and existing rural/residential development on adjacent land.
- (vi) To minimise vegetation clearance through appropriate siting of building envelopes and the use of strategic firebreaks.
- (vii) To provide for the appropriate management of bush fire risk in accordance with Western Australian Planning Commission policy.

5.0 Subdivision and Development Requirements

The LSP Map delineates and depicts the zones, agreed subdivision pattern, the alignment of roads, sizes of proposed lots and areas to be added to adjacent conservation reserves. Subdivision and development shall be generally in accordance with the LSP.

5.1 Lot size

Clause 4.2 of LPS 7 provides that lots within the 'Rural Residential' Zone should generally range in size between 2.0ha and 20.0ha. Schedule 11 of LPS 7 provides for the creation of a range of lot sizes with the potential to reduce the minimum lot size of 2ha where disturbance of native vegetation can be substantially reduced. A comparative planning exercise has shown that over 5ha of

vegetation disturbance can be avoided by reducing the minimum lot size to 1ha balanced by a range of larger lots. In accordance with this principle, no further subdivision of lots within the Structure Plan Area will be supported.

5.2 Coastal Management

The LSP is approximately 1km inland from the coast and therefore not subject to littoral processes. It does however, comprise coastal dune systems of which some dunes are cemented as limestone and others comprise loose sands.

The dunes comprising loose sands are identified on the LSP and building envelopes are shown on these dunes. At the time of subdivision, the subdivider is to establish a building area within the building envelope and to consolidate that building area through the use of materials such as crushed limestone and or gravel.

5.3 Bushfire Management

A Bushfire Management Plan is provided at Appendix 1 of this Structure Plan document, specifying the responsibilities of the developer, land owners and local authority. Landowners have responsibilities for land management under the *Bushfire Act 1954* (as amended).

At the time of subdivision, an updated and revised Bushfire Management Plan shall be prepared, submitted and approved by the local government.

New buildings are subject to a Bushfire Attack Level (BAL) assessment to AS 3959 and must be constructed to that standard. A memorial is to be placed on the Certificate of Title for those lots affected by the Bushfire Management Plan.

All dwellings shall provide 10,000 litres of water for firefighting purposes in addition to the 120,000 litre water tank.

5.4 Priority 3 Vegetation

Locations of Priority 3 vegetation (*stylidium Maritimum*) are shown on the Structure Plan. Some areas of this vegetation are located within proposed 'Environmental Conservation Reserve' while others are within proposed lots. Where these vegetation locations are within private lots, boundaries have been designed to avoid disturbance by fire breaking and building envelopes

positioned to also avoid disturbance as much as possible. Internal lot access shall be designed so as to avoid disturbing these areas of vegetation.

Building envelopes and associated Building Protection Zones (BPZ) and Hazard Separation Zones (HSZ) as well as lot boundaries and required firebreaks shall be designed/located so as to avoid impacts on vegetation, particularly Priority 3 vegetation as identified on the LSP. Where land is outside a building envelope, BPZ, HSZ and does not require clearing to enable access or fire breaks, that vegetation shall be protected and not cleared.

5.5 Drainage and Effluent Disposal

Low lying land below 6m AHD is identified on the LSP. This low lying land may be poorly drained and consequently, building envelopes have generally been located so as to cover land above 6m AHD. Should on-site effluent disposal facilities be proposed on land below 6m AHD, those systems shall be in the form of an approved Alternative Treatment Unit.

At development stage, the local government may impose other conditions to deal with drainage.

5.6 Water

All development for residential purposes shall have a minimum combined roof area of 240m² supplying a rainwater tank system of a minimum capacity of 120kl. This volume of water is designed to meet domestic needs inside the home. A memorial is to be placed on the Certificate of Title of lots advising that this volume of water is for internal domestic water supply only. For outdoor water use, a bore supplying second quality water is recommended.

5.7 Building Envelopes

To ensure that building envelopes reduce the disturbance on vegetation and address identified bushfire risk, a building envelope plan may be required at subdivision and development stage. Where required, the building envelope plan is to be informed by a vegetation survey and Bushfire Management Plan.

At the time of subdivision, for lots proposed on the Spearwood Dune system, a level building area along the ridge shall be established within the designated building envelope to the satisfaction of the Council. Disturbed areas shall be consolidated with the application of gravel and/or limestone

to avoid risks of wind erosion and maintain the integrity of the dune system and associated vegetation.

With the exception of bushfire mitigation, fencing and access, the clearing of native vegetation outside the building envelope is prohibited without the written approval of Council.

A landowner may apply to the Council for permission to vary the location of a building envelope.

5.8 Environmental Conservation Reserves

The land shown as 'Environmental Conservation' on the LSP shall be vested in the Crown free of cost at the time that adjacent land is subdivided.

At the time of subdivision, to facilitate the unhindered movement of transitional fauna populations, permeable fencing is required for lots abutting the land shown reserved 'Environmental Conservation', adjacent to the northern portion of the site.

A Foreshore Management Plan shall be required to be prepared under clause 5.10 of *State Planning Policy 2.6 - State Coastal Planning Policy* prior to subdivision, and implemented by the subdivider over that land shown reserved 'Environmental Conservation' adjacent to the Hill River.

The Foreshore Management Plan is to protect the foreshore and associated dune areas by identifying marked access points to avoid disturbance of vegetation and detail mechanisms to manage site works and any other issue determined to be appropriate by the relevant government agency.

5.9 Land Use Controls

Use class permissibility shall be in accordance with Table 1 of the Scheme as applicable to the 'Rural Residential' zone.

The use of land for 'Rural Pursuits' is qualified in accordance with Clause 5.14.2(x) of the Scheme and the keeping of livestock for commercial or domestic purposes is not permitted.

Endorsement Page

This structure plan is prepared under the provisions of the Shire of Dandaragan
Local Planning Scheme No. 7.

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

30 November 2015
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:

m. Wreclaw
Witness

4 December 2015
Date

30 Nov 2025 Date of Expiry

PART TWO – EXPLANATORY SECTION

1.0 Planning Background

1.1 Introduction and Purpose

MGA Town Planners (MGA) has been commissioned by Marthof Properties Pty Ltd to prepare the Marine Fields Local Structure Plan (LSP) over the land comprising Lots 509, 2520 and 9005 via Indian Ocean Drive and Marine Drive, Cervantes and measuring 153ha.

The LSP will guide the future development of the subject land, drawing on a variety of contemporary mechanisms with respect to sustainable and sensitive design.

This section of the report provides information as required under the WAPC Structure Plan Preparation Guidelines (2012) and the Shire of Dandaragan Local Planning Scheme No. 7, addressing relevant town planning, community and environmental issues within an explanatory report. The following provides the rationale informing preparation of the LSP and future subdivision in the LSP area.

Key aspects of the structure plan include:

- Providing for an orderly range of lot sizes, being suited to the prevailing landform and location of the LSP area in close proximity and between the townships of Jurien Bay and Cervantes.
- A demonstrated potential to deliver necessary sustainable environmental outcomes in relation to vegetation protection and the provision of services.
- A design providing appropriate interfacing with adjacent reserves.
- A high level of linkage and permeability in the local road network, with efficient access to neighbouring rural/residential areas and the regional road network.
- A development that minimises the risk of bush fire in accordance with WAPC Policy.

Project Team

The LSP has been prepared by the following team of consultants:

- MGA Town Planners – Statutory and Strategic Town Planning.
- Coffey Environments – Vegetation Assessment.
- JDSi, Consulting Engineers – Civil Engineering.
- Fireplan WA – Fire Management Plan.

1.2 Subject Land Description

1.2.1 Location

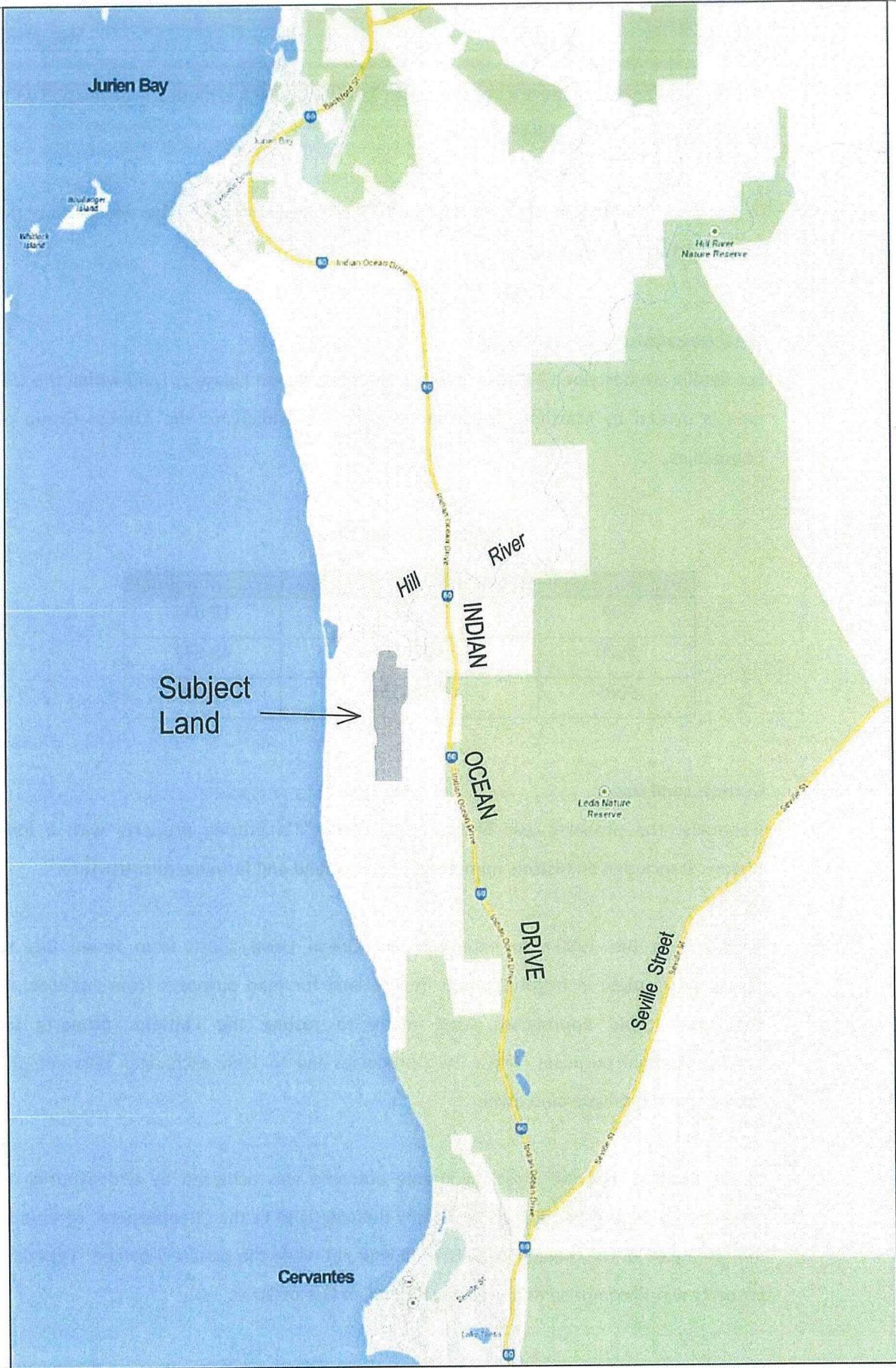
The locality of Cervantes is approximately 200km north of the Perth CBD in a coastal environment comprising large areas of reserved land and rural holdings. Jurien Bay and Cervantes Towns lie approximately 12km to the north and south of the LSP area respectively. These towns are predominantly fishing and tourism communities. The hinterland is mostly used for broad-acre farming.

Refer to Figure 2.

1.2.2 Local and Regional Context

As discussed, the LSP area is approximately mid-way between the coastal communities of Jurien Bay and Cervantes. Jurien Bay is shown in the Central Coast Regional Strategy, a Regional Strategy under SPP 1 - State Planning Framework Policy, to be a "District Centre". This status is reflected in an approved structure plan foreshadowing the town's growth along the coast down towards the Hill River and therefore much closer to the LSP area ultimately bringing urban amenities to within a short distance of the rural/residential estate. Jurien Bay has also been nominated by the State Government as a "Super Town", cementing its hierarchical position.

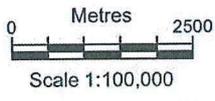
The subject area of Rural Residential zoning is west of Indian Ocean Drive, a regional tourist route. It is also south of the Hill River, a seasonal watercourse which meanders from east to west. The coast is approximately 1km to the west, separated by a reserve for Parks and Recreation.



25mm at scale

NOTES:

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A4



Date: 30 October 2015
Ref: 1720/2015/Location plan/A4 PB (2)
All dimensions and areas subject to survey

Figure 2
LOCATION PLAN
MARINE FIELDS

Marine Drive connects the area to the ocean foreshore which is modestly developed with car parking and bollards guiding access.

To the south is further reserved land and “Rural Residential” zoning which is yet to be planned and developed.

1.2.3 Legal Description and Ownership

Lot details are described below in **Table 3** and depicted on Figure 2. Land within the LSP area is owned by Marthof Properties Pty Ltd, a subsidiary of the Ardross Group of Companies.

Table 3 – Lot Details

Lot Number	CT Volume / Folio Number	Area (ha)
509	2582/877	18.084
2520	1974/14	49.841
9005	2706/150	757.4485

1.2.4 Current Land Use

Generally, the property was known as “Fatfields”, a grazing property with a long history. It included an historic homestead, cleared land and farming infrastructure.

Proposals in the 1990’s to extend Indian Ocean Drive south from Jurien Bay to Cervantes resulted in negotiations to secure land for road purposes from Fatfields. At the same time, approaches were made to rezone the Fatfields property for rural/residential purposes. These two processes led to land exchanges between the Crown and the private land owner.

It was decided that the most favourable outcome was achieved by endeavouring to rationalise uses and boundaries, generally defining land in the “Beekeepers” reserve to that area east of the Indian Ocean Drive alignment while the privately owned “Fatfields” property would comprise that area west of Indian Ocean Drive.

These exchanges were consequently agreed and effected but, by then, a decision had been taken to amend the route alignment of Indian Ocean Drive. This necessitated a

further land exchange leading to most of the LSP area being alienated from Crown ownership and transferred to the private land owner. The LSP area is therefore generally vacant having been formerly a Crown reserve.

The most significant development within the LSP area is an un-dedicated, gravel road linking Sailfish Way with Marine Drive. This route is contained within an easement and also contains power and telecommunications infrastructure. The unofficial road also provides alternative access and escape routes for neighbouring rural/residential development.

1.3 State Strategic and Statutory Planning Framework

1.3.1 State Planning Strategy

The State Planning Strategy (1996) (SPS) includes principles and objectives of relevance to the LSP. At page 13, the SPS recognises that one of the strongest forces shaping future development will be the myriad of lifestyle decisions being made by Western Australians. The SPS continues to acknowledge that the planning process must ensure that this “quality of life” factor is enhanced and that planning meets the needs of the population which is increasingly settling in areas of high amenity for lifestyle reasons.

The SPS is under review and a draft revision was published by the WAPC in 2012. Principles associated with the review include enabling diverse communities as well as encouraging regional development (page 13).

The LSP complements these principles and objectives by providing lifestyle choice in a high amenity, coastal environment and allowing diversity in a regional setting.

1.3.2 SPP 1 State Planning Framework Policy

SPP 1 lists planning documents forming part of the state’s planning framework. Included amongst these is the Central Coast Regional Strategy which identifies the Jurien Bay area as a growth centre as well as a centre providing a broad range of services.

Development in the Jurien Bay locality is therefore consistent with SPP1.

1.3.3 SPP 2.5 Land Use Planning in Rural Areas

At Clause 5.6, this SPP advises that the WAPC will support proposals for rural living precincts where the precinct is part of a settlement hierarchy endorsed in a planning

strategy. The recent rezoning of the LSP area confirms that it is an endorsed rural living precinct.

1.3.4 SPP 2 - Environment and Natural Resources Policy

State Planning Policy 2 (SPP 2) complements the objectives of the State Planning Strategy with respect to matters such as water resource management, soil and land quality and landscapes. This LSP integrates the conservation of natural resources including water resources by expanding the riparian zone associated with the Hill River. It also protects biodiversity by preserving vegetation in expanded reserves and on private lots as well as having regard to land capability factors.

1.3.5 Central Coast Regional Strategy

The Central Coast Regional Strategy of 1996 recognised Jurien Bay as the major urban centre along the coast from Geraldton in the north to the metropolitan area in the south. This led to structure planning and zonings anticipating the growth of Jurien Bay, following the coast down to the Hill River.

The LSP area is therefore close to future urban development and services including educational opportunities and commercial activities.

In addition, the LSP is also relatively close to the smaller township of Cervantes to the south, providing a range of additional services and opportunities. The LSP is consistent with the growth strategies identified for the Central Coast Region.

1.3.6 DC Policy 3.4 Subdivision of Rural Land

This policy recognises that rural living is essentially a residential land use and therefore has limited application. It nevertheless confirms that subdivision for this purpose should only occur on appropriately zoned land and on this basis, the LSP is consistent with the Policy.

1.4 Local Strategic and Statutory Planning Framework

1.4.1 Shire of Dandaragan Local Planning Scheme No.7

The land subject of the LSP is zoned 'Rural Residential' under LPS7 as a consequence of Amendment No.20. Amendment No.20 also adjusted Schedule 11 of the Scheme requiring preparation of this LSP as a prerequisite of subdivision and development.

Objectives of the 'Rural Residential' zone include subdivision generally into lots ranging between 2.0ha and 20.0ha (Clause 4.2) and while this LSP proposes subdivision into lots down to 1.0ha, it is apparent that this objective applies to the whole of the zoned area under the Scheme with the result that the objective remains "generally" true.

In particular, the modified Schedule at 4(b)(iv) notes the potential to reduce the minimum lot size where disturbance of native vegetation can be substantially reduced. Other requirements to be addressed in the LSP include coastal management issues, a north-south access road, the minimisation of land clearing through the provision of strategic firebreaks, protection against poor drainage in low lying areas, the identification of building envelopes and bush fire management.

See Figure 3 – TPS2 Existing Zoning

1.4.2 District Planning Strategy

The District Strategy is a broad statement of strategic land use and management intent for the Shire. Elements of the Strategy relevant to this LSP include a presumption against the subdivision of productive broadacre farming land and the assessment of use changes against soil/land units and their capability.

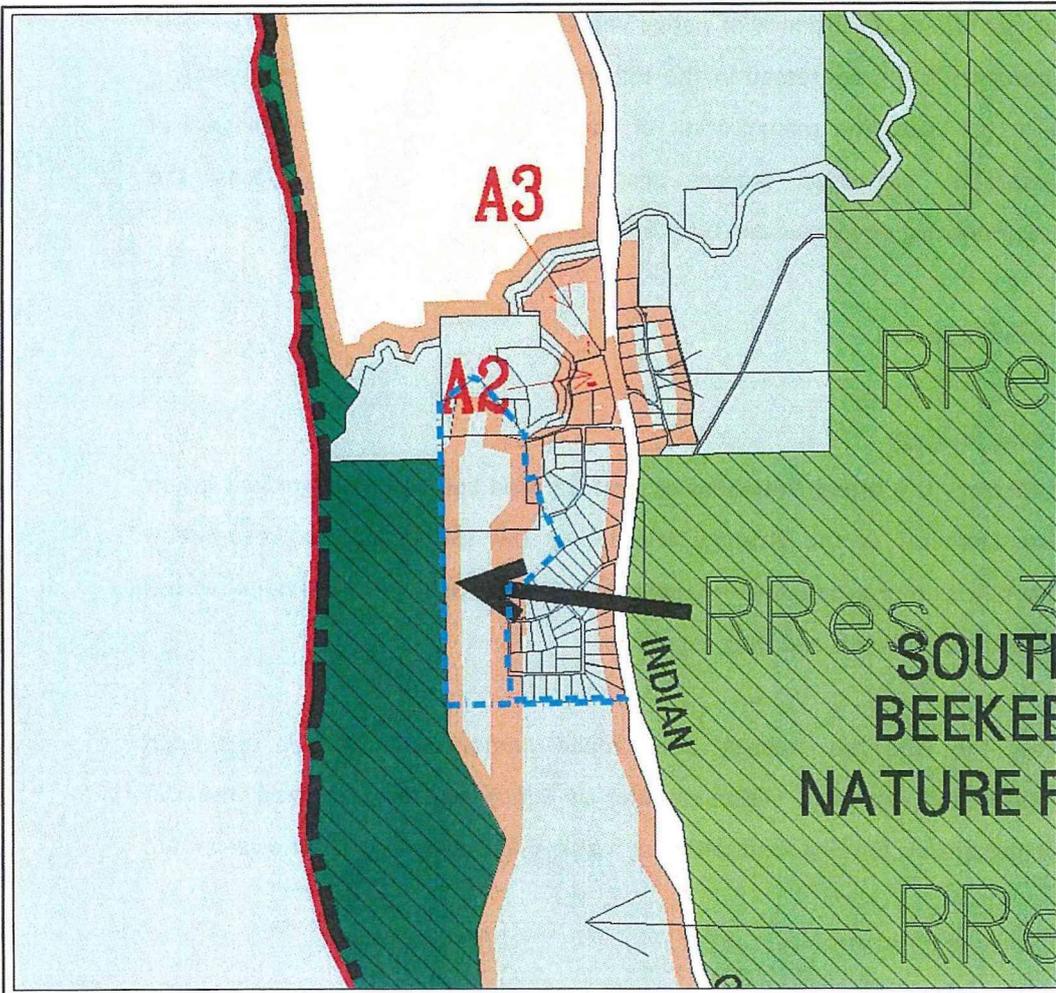
The fact that the land has recently been zoned demonstrates that it has been assessed against land capability factors. Insofar as subdivision is concerned, the LSP area is not productive farming land with the result that subdivision is an appropriate option.

1.4.3 Scheme Report

The Scheme Report has been prepared in accordance with legislated requirements and generally outlines a range of land use and development directions. In general, Marine Fields was an existing, zoned area at the time the Scheme Report was prepared with the result that it is a recognised area of development.

1.5 Environmental Planning Framework / Approvals

1.5.1 Commonwealth Legislation



25mm at scale

LEGEND

LOCAL SCHEME RESERVES

- Conservation
- Local Road
- Parks & Recreation

ZONES

- Special Development
- Rural Residential
- Rural

Local Structure Plan Limits

0 Metres 1000
Scale 1:40,000

A4

Date: 11 November 2015
Ref: 1720/2015/Des12 LSP/A4 TPS

All dimensions and areas subject to survey

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Figure 3
SHIRE OF DANDARAGAN
TOWN PLANNING SCHEME No. 7

The Environmental Protection and Biodiversity Conservation Act 1999 (the EPBC Act) is the Commonwealth Government legislation that applies to the development of the subject land. The EPBC Act provides a framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places defined in the Act as matters of National Environmental Significance (NES). Environmental assessments were included with Amendment No. 20 documentation and are included with this LSP in a series of Appendices attached digitally. This included a specific survey for the Graceful Sun Moth. No species registered as NES have been identified within the LSP area.

1.5.2 State Legislation and Environmental Conditions

State legislation applying to the LSP area includes the Environmental Protection (EP) Act 1986. The Act provides guidance on a range of environmental issues relating to the conservation, preservation, protection, enhancement and management of the environment. An environmental assessment has been undertaken in respect of the LSP area by Coffey Environments, being a 'Level 2' spring survey and a specific survey for the Graceful Sun Moth to satisfy the requirements of the EP Act. This information is digitally appended to this LSP.

The environmental ramifications of the development were assessed by the EPA as required by Section 38 of the EP Act during the process of determining Amendment 20 to LPS No. 7.

1.5.3 Hill River Flood Potential

A flood study undertaken by Jim Davies and Associates Pty Ltd in 2000 and reviewed in 2008 by the Water and Rivers Commission (now Department of Water) has been used to identify the zone boundaries agreed in Amendment 20 to LPS No. 7. This LSP does not propose any changes to the agreed zone boundaries.

1.5.4 Land Capability

Consistent with other environmental factors, an assessment of land capability was completed and included in documentation supporting Amendment 20 to LPS No. 7. A copy of the Land Capability Assessment is digitally appended to this LSP.

2.0 Site Conditions and Constraints

2.1 Biodiversity and Natural Assets

2.1.1 Preamble

Coffey Environments were commissioned to undertake a flora and vegetation survey as well as surveying for the presence of the Graceful Sun Moth in order to facilitate the EPA's assessment of Amendment 20 to LPS No. 7. Those surveys are appended to this LSP digitally.

2.1.2 Vegetation

The vegetation recorded from within the LSP area was considered to be fairly uniform with slight differences due to a fire approximately 8 years earlier (2006) and also due to slight differences in topography and landform. Dune ridges were recorded from the eastern side of the LSP area. The majority of the LSP area was covered in a tall scrub of *Melaleuca huegelii*, *Melaleuca cardiophylla* and *Acacia ericifolia*.

The earlier fire has altered vegetation types over the southern part of the LSP area, with *Acacia* species dominant. However, over time this may change as the *Acacia* species senesce and the perennial *Melaleuca* species that dominate the majority of the LSP area, colonise the previously burnt areas.

Beard (1979) mapped the vegetation of the LSP area as consisting of *Acacia lasiocarpa*, *Acacia Cyclops* (in the south) and *Melaleuca cardiophylla* (in the north) thickets with areas of *Acacia lasiocarpa* and *Melaleuca systema* heath. Beard's vegetation association is considered to be well represented locally and regionally with approximately 67,000ha protected within managed reserves, including Nambung National Park and Southern Beekeepers Nature Reserve.

Priority 3 *Stylidium maritimum* was recorded in high numbers across the LSP area. Several populations of *Stylidium Maritimum* are located in managed reserves, including Drover's National Park and Southern Beekeepers Nature Reserve, which are located approximately 14 km north and 3km east of the LSP area respectively.

There is no statutory obligation to conserve and protect Priority 3 flora however, the protection of all or portions of these populations is considered to be environmental best practice. For this reason, the Rural Residential zone boundaries have been adjusted to incorporate populations close to reserved areas within those reserves.

The presence of *Lomandra maritimum* led to a separate survey for the Graceful Sun Moth which failed to identify any specimens of this species in the area.

2.2 Landform and Soils

2.2.1 Soil Description

Soils are aeolian, generally comprising beach sands blown inland and overlying limestone. In places, limestone is evident on the surface.

Soils are generally light grey in colour with a yellow tinge occasionally evident in a narrow layer above limestone. There is little or no humus layer and the soils are impoverished in terms of nutrient content.

The majority of the LSP area lies within the Spearwood Dune System (calcarenite). A portion in the south-west as well as the east comprise deflation basins while the eastern edge of the Spearwood Dune System is defined by a ridge of Quindalup Dunes.

2.2.2 Landform and Topography

The LSP area is elongated in a north/south direction and generally comprises two dune ridges.

The more westerly ridge is cemented with limestone at or near the surface. This ridge does not continue south of Marine Drive. This ridge rises to a height of 18m – 20m AHD, creating a relief of 12m – 14m. More elevated portions of the ridge enable ocean views, particularly in a north-westerly direction where a saddle in the coastal dune system expands the available vista.

The eastern ridge is comprised of loose sands consolidated by vegetation. This ridge also rises to around 20m AHD producing similar relief. Again, the more elevated portions afford ocean views. Unlike the western ridge, the eastern ridge continues to the south of Marine Drive.

Gradients are generally gentle at between 0% and 5% with some dune faces between 5% and 10%. This pattern is varied in one small area north of Sailfish Way where the gradient reaches approximately 20%.

2.3 Land Capability

A Land Capability Assessment was included in the documentation supporting Amendment No. 20 to LPS 7 and is also digitally appended to this LSP.

In general, the LSP area was assessed as having fair capability for rural/residential development. The main limiting factors were wind erosion risk in sandy soils and difficulty of excavation in areas of limestone.

2.4 Groundwater and Surface Water

2.4.1 Groundwater

The LSP area lies within the Cervantes Sub - Area of the Jurien Groundwater Management Area. In general, ground water is less than 1000 ppm total soluble salts but hard (Ca CO₃/Ca HCO₃). There is an allocation of 29.72 Gl of which 23 Gl is allocated which is sufficient for in excess of 100,000 dwellings. No licences are required if usage is for domestic purposes and less than 1500 Kl per year.

2.4.2 Surface Water

The Hill River is aligned to the north of the LSP area, running from east to west towards the ocean. In the locality of the LSP, the riverbed contains water for much of the year. This is largely due to the influences of tides and groundwater. In summertime, a sandbar builds across the mouth of the river severing a direct connection to the ocean. Water is therefore brackish becoming fresher in winter and after heavy rainfall events.

As discussed earlier, the flood potential of the Hill River has been assessed and the zone boundary is adjusted to avoid the potential of proposed lots within the LSP area of being flooded. The LSP therefore expands the riparian zone protecting the river and its foreshores. By confining subdivision to the zoned area the potential for future housing to be flooded is avoided.

2.5 Heritage

2.5.1 Aboriginal Heritage

A search of the Aboriginal Heritage Enquiry System contained on the Department of Aboriginal Affairs website showed no recorded heritage sites within the LSP area. The course of the Hill River is however a registered site but is not impacted by this LSP.

2.5.2 European Heritage

Since the land is undeveloped there are no European heritage issues.

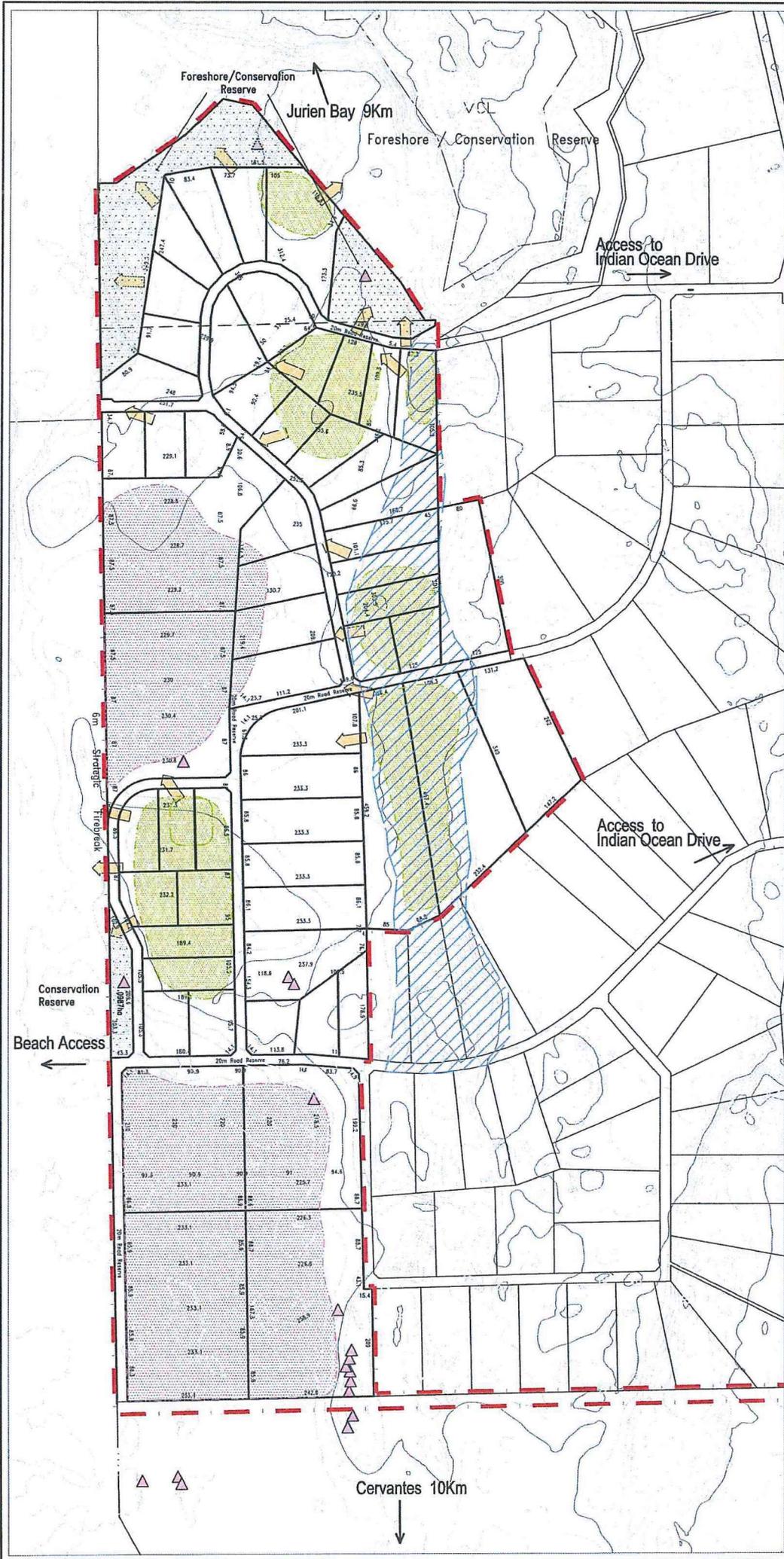
2.6 Context, Opportunities and Constraints

The following overviews opportunities and constraints identified during site and context analysis as well as Structure Plan preparation. **Figure 4** highlights identified opportunities and constraints.

See Figure 4 – Opportunities and Constraints

2.6.1 Environmental and Planning Opportunities

- The LSP lies between the towns of Jurien Bay and Cervantes where commercial, community and recreational services are available within reasonable proximity.
- The LSP area is well connected to nearby towns and the metropolitan region via Indian Ocean Drive.
- The coast and associated recreational opportunities are within 1km and connected via a properly constructed access track and associated parking.
- Portions of the LSP area offer ocean views and the potential for attractive lifestyle opportunities.
- Lot sizes can be manipulated to maximise outlook.
- The development creates the opportunity to provide a more appropriate riparian zone along the Hill River.



- NOTES: 25mm at scale
- Views
 - Conservation
 - Stylidium Maritimum (P3) Vegetation
 - Wind Erosion Risk
 - Low Amenity Area
 - High Amenity Area
- Local Structure Plan Limits



Date: 30 October 2015
 Ref: 1720/2013/Fire Plan Des 12/A3 O and C
 All dimensions and areas subject to survey

MGA	A3
TOWN PLANNERS	
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Figure 4
 OPPURTUNITIES & CONSTRAINTS
 MARINE FIELDS

- Areas of priority vegetation can be included in reserves.
- The effective extent of reserves can be increased by manipulating lot sizes to retain bushland on private lots adjacent to reserved areas.
- Access can be provided to the land locked Lot 3111.

2.6.2 Environmental and Planning Constraints

- Bushfire risk needs to be managed through the implementation of an appropriate Bushfire Management Plan.
- The Spearwood dune system comprising the more easterly ridge of dune aligned north/south through the LPS area is identified to consist of loose sand consolidated by vegetation. Wind erosion risks require management.
- The potential flood plain of the Hill River is a constraint to be managed within an appropriate riparian zone.
- While Priority 3 vegetation is not an absolute constraint, populations should be protected as much as reasonably possible.
- Bushland in general is a natural resource to be respected in the planning outcome.
- Areas of the LSP have less amenity than other areas impacting lot sizes and the density of home-sites.

3.0 Land Use and Subdivision

3.1 Land Use Pattern

3.1.1 Preamble

The LSP has been designed to reflect the directions set by Amendment No. 20 to LPS 7 as well as having regard to the physical characteristics of the site and the guidance of State and local planning policies/strategies. In following these directions, the following principles have been adopted.

Lot Sizes

- A range of lot sizes is proposed in accordance with Scheme provisions.
- Smaller lots are associated with areas of highest amenity.

Environment

- A substantial proportion of the Priority 3 vegetation within the LSP is included within expanded reserves.
- An appropriate riparian zone to accommodate the potential floodplain of the Hill River is provided.
- Vegetation clearance is minimised.

Connectivity

- Road systems are linked to provide dual access/egress to mitigate fire risk and for convenience.

3.1.2 Design Response to Opportunities and Constraints

The LSP design responds to the identified opportunities and constraints in the following ways:

- 58 Lots with a variety of lot sizes is proposed ranging between 1ha and 8.6ha.
- The areas of highest amenity accommodate the smaller lots and therefore the highest density of development.
- Building envelopes are clustered to share fire protection zones and minimise vegetation clearance.
- Larger lots adjoin reserves to integrate with private vegetation.

- Road systems are connected.
- Priority 3 vegetation is added to reserves.
- Potential flood plain is secured in a riparian zone along the Hill River.

3.1.3 Lot Size Variation

Schedule 11 of Council's Scheme allows lot sizes to be varied including lot size reductions below 2ha where it can be demonstrated. **Figure 5** provides a comparison of cleared areas for subdivision of the land into lots of a minimum size of 2ha versus subdivision into varied lot sizes down to a minimum of 1ha.

The figure shows that clearing is reduced by nearly 5ha by allowing flexibility in the minimum lot size.

Refer Figure 5 – Land Clearing Impact.

3.2 Movement Networks

3.2.1 Current Network

The current network comprises two cul-de-sac systems linked by an informal tract constructed merely to accommodate services.

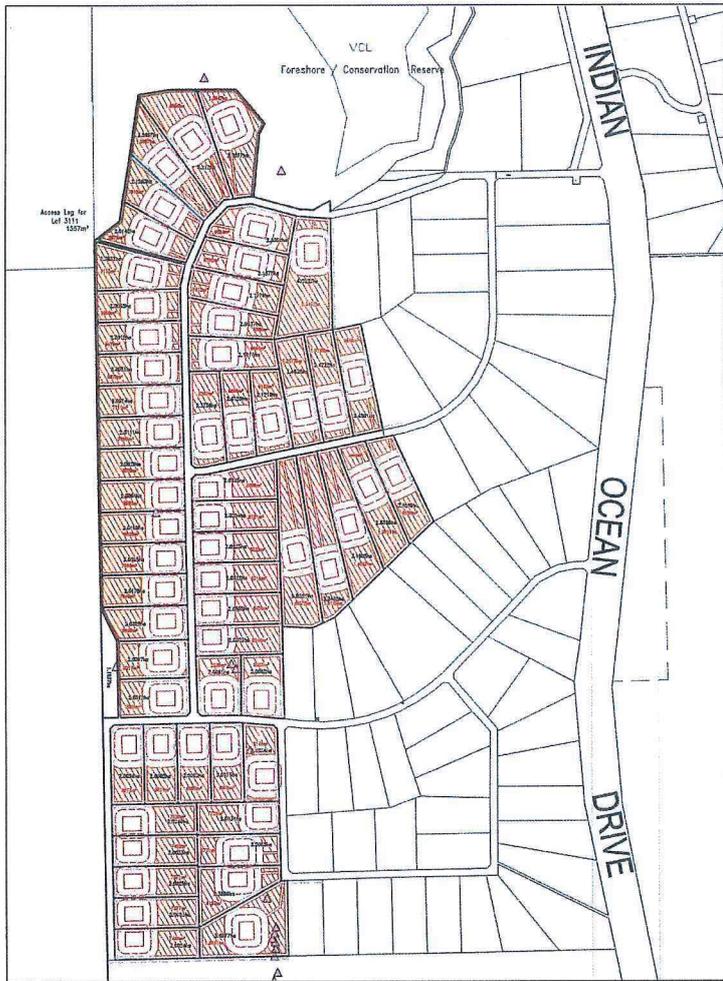
The northern system comprises Fatfield Way, Sailfish Way and Seahorse Retreat. All three roads currently finish in a cul-de-sac. Fatfield Way and Sailfish Way can only be connected to a through road system via this LSP.

The southern cul-de-sac system comprises Marine Drive and Homestead Loop. While Homestead Loop is a loop road as its name implies, each end connects to Marine Drive which is a cul-de-sac. Marine Drive continues west as a track providing access to the coast.

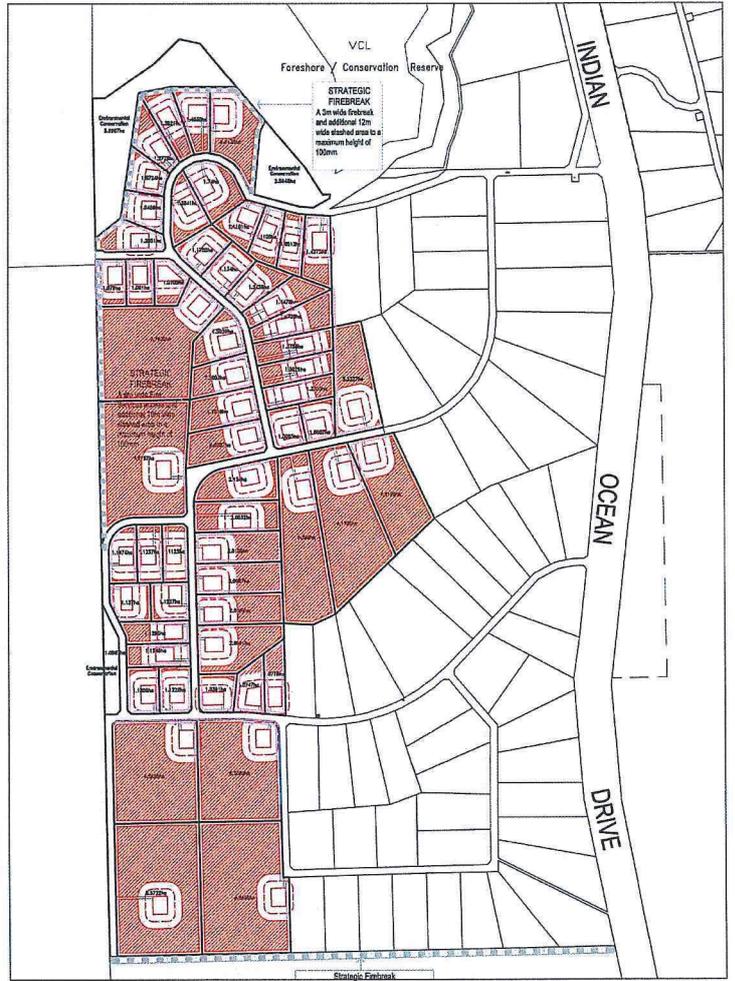
3.2.2 Proposed Road Network

The LSP proposes to connect the existing two cul-de-sac systems. Sailfish Way is shown to be extended through to Marine Drive utilising the existing track and confirming the protection of existing electricity and telecommunications cables within a road reserve.

Fatfield Way is linked to Sailfish Way while other, proposed local roads are looped



2Ha Design
Number of lots 58
Uncleared Area 60.4660ha



Current 2016 plan
Number of lots 58
Uncleared Area 65.3869ha

Figure 5
LAND CLEARING IMPACT

to maintain dual escape routes for emergency circumstances.

One short cul-de-sac is proposed, providing road frontage to the currently land-locked Lot 3111.

Consistent with the semi rural environment and likely low traffic volumes, no path systems are proposed. The rural style roads are un-kerbed with gravel shoulders providing opportunity for pedestrians to seek refuge in the event of potential conflict with vehicular traffic.

3.2.3 Water Management

Scheme provisions require 120 kl rainwater tanks collecting rain from roof catchments of 240m². In addition second quality water supplies are available from the superficial aquifer.

Soils are generally porous with the result that stormwater from other than dwelling roofs can be readily disposed of on these relatively large sites.

3.2.4 Infrastructure Coordination, Servicing and Staging

Services are available to the area including road access, power and telecommunications. Water supplies are to be secured from roof catchments augmented where necessary from bores accessing the superficial aquifer. Services are present in all of the existing streets plus the tracks and can be readily extended to any part of the LSP area. Development staging will therefore be market rather than service driven.

Effluent disposal is to be by on-site means. The size of lots provides opportunity for septic tanks/leak drains to be adequately separated from bores.

Free to air television is available through the use of normal, domestic TV antennae.