CITY OF ALBANY

LOCAL PLANNING SCHEME NO. 1

JOHNSTON CREEK RURAL RESIDENTIAL LOCAL STRUCTURE PLAN NO. 17

RURAL RESIDENTIAL AREA NO. 45
LOTS 1 & 973 NANARUP ROAD, LOWER KING

AYTON BAESJOU
PLANNING

ABN: 15 061 140 172
59 Peels Place
Albany WA 6330
Ph 9842 2304 Fax 9842 8494

Endorsement

This structure plan is prepared under the provisions of the City of Albany Local Planning Scheme No. 1.

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

10 April 2019 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:

Taryn Cox Witness

11 April 2019 Date

10 April 2029 Date of Expiry

Amendments:

Amendment No.	Summary of Amendment	Amendment Type	Date Approved (WAPC)

EXECUTIVE SUMMARY

The Local Structure Plan has been prepared to guide subdivision and development of Lots 1 and 973 Nanarup Road, Lower King, Albany, for Rural Residential purposes and 'Additional Uses' sites for short stay accommodation and aquaculture.

The land is located approximately 15 kilometres from the Albany Central Area and is currently used to agist stock.

The land is partially designated for rural residential development in the City of Albany Local Planning Strategy and will effectively form an extension of the Sheringa Park rural residential area which abuts its western boundary.

Key elements of the plan include:

- Provision for 28 rural residential lots ranging in size from 1.0ha to 4.0ha in area clustered on the more elevated areas of the property and two larger lots of 8.0ha and 9.5ha incorporating the creekline and surrounding lower lying land.
- Protection of Johnson Creek within an extended creek protection area.
- Provision for a secondary means of access and egress for Sheringa Park to the west which currently only has one point of access/egress in emergency situations.
- The designation of 'Additional Uses' sites for short stay accommodation and aquaculture.
- The incorporation of development and associated scheme provisions to minimise the export of nutrients into Oyster Harbour, provision for a buffer to rural land use to the north and incorporation of best practice bushfire management.

Key Outcomes of the Local Structure Plan area summarised in the Table below:

Table 1: Johnston Creek Rural Residential Local Structure Plan Summary

Item	**Data**		**Section number reference within the Local Structure Plan report**
Total area of local Structure Plan	60.71 ha		Part 1.0
Land Use Proposed	**Area**	**Lot Yield**	
Rural Residential	53.81 ha	28 lots	Part 1.0-4.0
Additional Uses • Aquaculture • Tourist Accommodation Creek Line Protection Area Building Exclusion Area	 2.9 ha 4.0 ha 3.45 ha 14.36ha	 1 lot 1 lot	 Part 1 - 4.4 Part 1 - 4.4 Part 1 - 4.2, Part 2 - 1.1, Appendix D Part 1 - 4.2, Part 2 - 1.1, Appendix D
Estimated dwellings Estimated holiday chalets Estimated Additional Population	29 12 70		Part 1 - 4.1

Contents

APPENDICES

PART 1. – IMPLEMENTATION

1.0 LOCAL STRUCTURE PLAN AREA

The Local Structure Plan Area consists of Lot 1 and Lot 973 Nanarup Road as shown below.

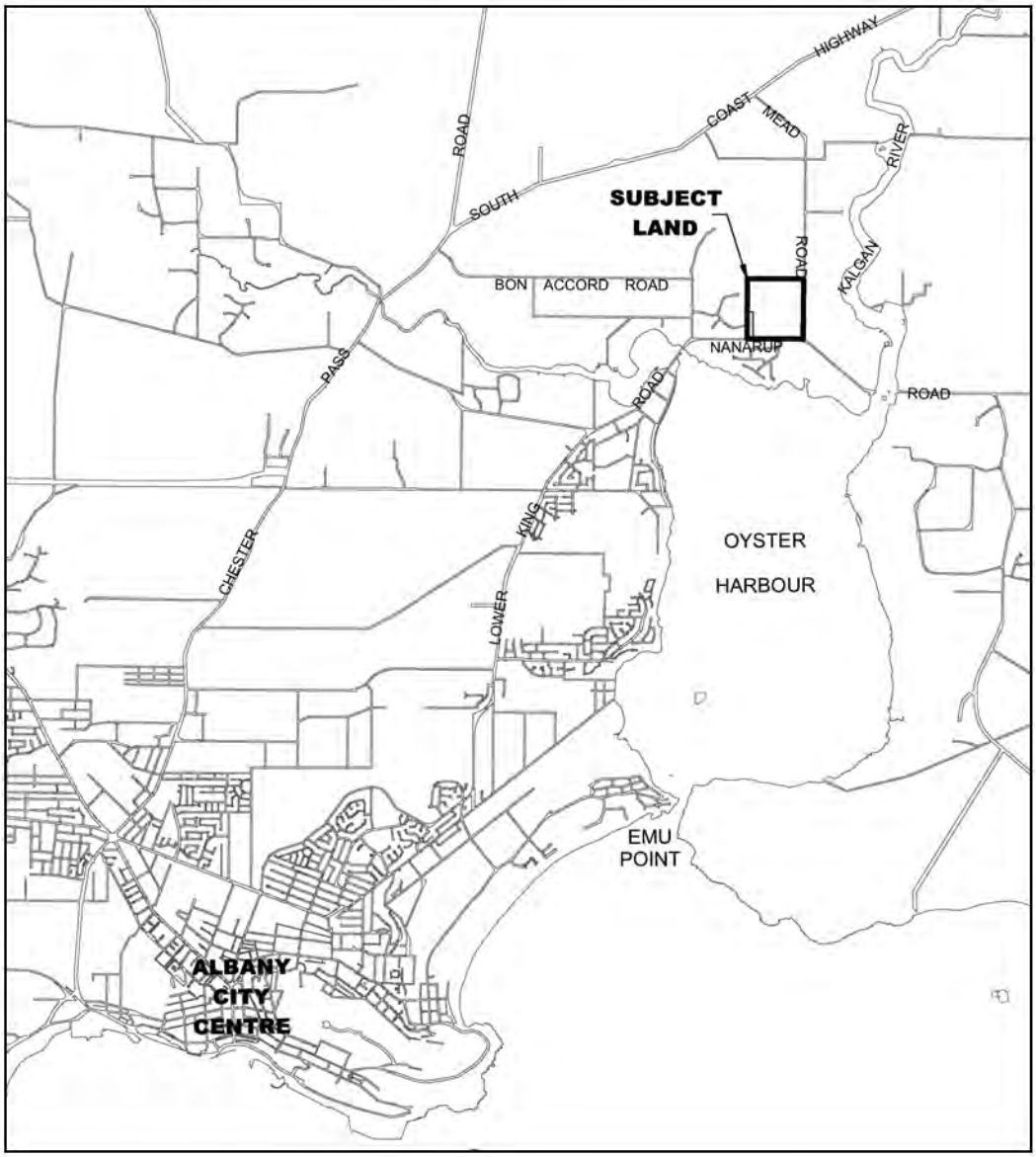


Table 2: Land Description

Land Description	Plan/ Diagram	*Vol*	*Folio*	*Area*	Street Address	Owner
Lot 1 Nanarup Rd	D37903	1533	461	2.9 ha	93 Nanarup Rd, Lower King.	Steven Craig Lucas
Lot 973 Nanarup Rd	P104135	2218	331	57.81 ha	133 Nanarup Rd, Lower King.	George Arthur Clark Pauleen Margaret Clark

2.0 OPERATION

This Local Structure Plan comes into effect on the date that it is endorsed by the Western Australian Planning Commission (WAPC).

3.0 STAGING

Subdivision and development may require staging to ensure that all lots have access to two public road access routes for emergency purposes.

4.0 SUBDIVISION AND DEVELOPMENT REQUIREMENTS

4.1 Land Use Permissibility

Land Use permissibility within the subject land shall be in accordance with the corresponding zone and reserves under the local planning scheme and due regard shall be given to the provisions of the structure plan.

4.2 Environmental Features

At the time of subdivision, Johnston Creek and drainage lines shall be subject to the preparation, approval and implementation of a Foreshore Management Plan.

4.3 Hazards and Separation Areas

a) Subdivision and development of residential lots shall have due regard to the provisions of the approved Bushfire Management Plan and BAL ratings.

b) Subdivision and development of residential lots shall have due regard to the provisions of the Government Sewerage Policy, including:
   i. Separation from the highest known seasonal groundwater level, supported by a Site and Soil Evaluation and hydrogeological assessment of the site under the wettest time of year conditions.
   ii. Separation from water resources such as waterways, surface or subsurface drainage systems.
   iii. Use of secondary treatment sewage with nutrient removal disposal systems.

4.4 Conditions of Subdivision Approval

a) At the time of subdivision the following conditions may be recommended, requiring the preparation, approval and/or implementation of :

   I. Foreshore Management Plan;

   II. Vegetative buffer to any lots abutting General Agriculture zoned land

   III. Urban water management plan;

   IV. Bushfire Management Plan, including BAL Contour Plan.

4.5 Local Development Plans (LDPs)

Local Development Plans will be prepared for parts of the subject land as identified on the Structure Plan Map, pursuant to the WAPC's Local Development Plan Framework and Schedule 2 *'Deemed Provisions' for the Local Planning Schemes'* of the *Planning and Development (Local Planning Schemes) Regulations 2015*.

I. Local Development Plan for the 'Holiday Accommodation' site is to address:

   a. Requirements of the Government Sewerage Policy

   b. How development will be consistent with the characteristics of the site, avoids conflict with any existing or future agricultural uses on the land to the north, and does not propose to clear, thin or otherwise modify remnant vegetation onsite for bushfire protection in order to increase developable areas.

   c. Preparation and endorsement of a Bushfire Management Plan and Emergency Evacuation Plan in accordance with State Planning Policy 3.7.

   d. Minimum setbacks of 30 m to Mead Rd, and maximum dwelling heights of 7.5 m to minimise the visual impacts of such buildings from Mead Road.

II. Local Development Plan for the 'Aquaculture' site is to address:

   a. All the proposed development including but not limited to proposed buildings, tanks and ponds, accessways and parking areas, effluent disposal systems, fences, pumping stations, pipes, drainage areas, signage and landscaping; and

   b. Precise details of the areas, heights, elevations, materials, colours and proposed staging of all development.

   c. appropriate landscaping and use of building colours, heights, materials and design to minimise visual impacts."

PART 2 – EXPLANATORY

1.0 PLANNING BACKGROUND.

The purpose of the Local Structure Plan is to provide a guide as to how Lot 1 and Lot 973 Nanarup Road can be subdivided for rural residential purposes, taking into account site conditions and constraints, including:

- land capability;
- vegetation and landscape protection;
- bushfire protection;
- creek line protection and management;
- onsite effluent disposal and retention of nutrients on site;
- access to and from Nanarup Road.
- provision of a screen/buffer to adjoining rural land.

Detailed background information relating to these matters, and it's context within the local planning framework, is contained in the Local Planning Scheme No. 1 Amendment No. 7 documentation.

1.1 State Planning Framework

Key elements of the structure plan ensure that the requirements of the relevant state planning framework can be achieved, specifically:

State Planning Policy 2.5 – Rural Planning (SPP 2.5) and associated Rural Planning Guidelines

The structure plan accords with SPP 2.5 in relation to the creation of new rural living areas, particularly through:

- Identification of the site for rural living in the local planning strategy.
- improved environmental and landscape outcomes, including a reduction in nutrient export through rehabilitation of Johnston Creek and minor drainage lines.
- ensuring land capability supports the proposed development, by requiring development exclusion areas, seasonal groundwater testing and effluent disposal setbacks to waterways.
- suitable buffers to adjacent agricultural land uses.
- Bushfire protection.

Draft Government Sewerage Policy (dGSP) (2016)

- The site is identified as a sewage sensitive area under the dGSP, due to its proximity to Oyster Harbour. The dGSP recommends 1 ha minimum lot sizes for unsewered development in sewerage sensitive areas.
- The dGSP also recommends that land only be zoned for onsite effluent disposal where the highest known groundwater level is more than 0.5m below the natural ground level. Based on the land capability report, there are sufficient areas on the subject site that meet this requirement to support the structure plan, however subdivision will need to be supported by a more detailed seasonal site and soil evaluation.
- The proposed lot layout and building envelopes ensure that development and associated onsite effluent disposal systems will be located on land with a high capability and well set back from more poorly drained land. 26 of the 28 lots are clustered on the more elevated areas of the property.
- As required by the dGSP, all on-site effluent disposal areas are setback a minimum of 100 metres from outer edge of the revegetated creek and drainage lines. Each proposed lot has sufficient area to accommodate on-site effluent disposal systems.
- No on-site effluent disposal areas are located within the development exclusion area which encompasses the lowest lying land adjacent to the creek and main drainage line. No effluent disposal areas are located within the Low or Very Low land capability areas. Refer to Appendix D - Land Capability Plan.
- Onsite effluent disposal with secondary treatment systems with nutrient removal shall be required, as per the dGSP recommendation for sewerage sensitive areas.
- Additional Uses Site AU 34 allows for up to 12 chalets and caretaker's dwelling. The 4 ha site can easily accommodate the effluent disposal area above the 100m set back from Johnston Creek, estimated to be approximately 4,500 m2. Approval of a Local Development Plan, including a detailed seasonal site and soil assessment will be required to address necessary development and management issues.
- The owner of Lot 1 (Additional Uses Site 35) advised he had no intention to subdivide his property and no site assessment has occurred here. Should the owner or a new owner wish to subdivide in the future then it will be necessary for a detailed site assessment to be carried out, compliance with the draft Government Sewerage Policy demonstrated and a minor modification to the Local Structure Plan approved. The proposed Additional Use of the property for aquaculture will also require a Local Development Plan to be approved to address necessary management issues.

State Planning Policy 2.9 Water Resources (SPP 2.9)

- Two larger lots of 9.5 ha and 8.0 ha encompass Johnson Creek and the adjacent lower lying land. Indicative building envelopes meet setback requirements. This will facilitate ongoing management of the creek line and retains a landscape corridor on either side of the creek with development restricted to the more elevated land.
- Preparation, approval and ongoing implementation of the foreshore management plan will also assist in achieving the objectives SPP 2.9 to protect, conserve and enhance water resources.

State Planning Policy 3.7 – Planning in Bushfire Prone Areas (SPP 3.7) and associated Guidelines

- The Bushfire Management Plan (Appendix C) demonstrates that this site can comply with the bushfire protection criteria in subsequent planning stages:
    - Element 1 – Location – All proposed lots will have a building enveloped subject to BAL-29 or below
    - Element 2 – Siting & Design – All proposed lots have sufficient areas surrounding the building envelopes to accommodate an asset protection zone
    - Element 3 – Vehicular access - each proposed lot will have two different vehicular access routes. The connection of the road system to Sheringa Park to the west, will provide both developments with the necessary secondary access/egress. Subdivision to create proposed Lots 14, 15 and 16 is contingent on Milne Close being extended through existing Lot 1 prior to provide two public vehicle access routes.
    - Element 4 – Water - a reticulated water supply will be provided.

- The proposed northern Additional Use site for 'Holiday Accommodation' and 'Chalet/Cottage units' is considered a 'vulnerable land use' under SPP 3.7. Approval of a Local Development Plan will be required prior to development approval, supported by an Emergency Evacuation Plan. It is considered that this tourism site can comply with the bushfire protection criteria in subsequent planning stages.

Appendix A

JOHNSTON CREEK RURAL RESIDENTIAL LOCAL STRUCTURE PLAN

Lots 1 & 973 Nanarup Road Lower King, City of Albany

ALL AREAS AND DIMENSIONS ARE SUBJECT TO SURVEY

Existing Emergency Access Way

Provide connection to Viscount Heights

Additional Uses Site A 34
Holiday Accommodation

Joint crossovers

Connection to Milne Close to be provided at such time as Lot 1 is subdivided

Additional Uses Site A 35
Aquaculture

Creation of Lots 14, 15 & 16, subject to provision of access to Milne Close

Replanting adjacent to creek line

Retain view corridor along creek line and adjacent river flats

Provide vegetated buffer to Nanarup Road

Intersection to be set back from Morilla Road intersection and designed to specification of City of Albany

Dam to be filled in

MILNE CLOSE

NANARUP ROAD

MEAD ROAD

MORILLA ROAD

ORIG A3
SCALE 1:4000
0 20 40 60 80 100

14-07-LSP(h)

LEGEND

- Subject Land
- Existing Lot Boundaries
- Proposed Lot Boundaries
- Existing Vegetation
- Revegetation
- Indicative Planting / Street Trees
- Existing Buildings
- Existing Crossing
- Existing Dams
- Creek Line
- Creek Line Protection Area
- Existing Drainage to be Retained
- Existing Drainage to be Filled In
- Relocated and Vegetated Drainage Line
- 100m Effluent Disposal Setback
- Indicative Effluent Disposal Areas
  Subject to detailed assessment at development stage
- EAW Emergency Access Way
- Building Exclusion Area
- Proposed Building Envelope
- Additional Uses Sites

March 2019

AYTON BAESJOU
PLANNING
59 Peels Place
ALBANY WA 6330
Ph 9842 2304 Fax 9842 8494

Appendix B

CITY OF ALBANY

LOCAL PLANNING SCHEME NO. 1

AMENDMENT NO. 7

AYTON BAESJOU
PLANNING

ABN: 15 061 140 172

59 Peels Place
Albany WA 6330
Ph 9842 2304 Fax 9842 8494

MINISTER FOR PLANNING

PROPOSAL TO AMEND A LOCAL PLANNING SCHEME

LOCAL AUTHORITY:	**CITY OF ALBANY**
DESCRIPTION OF LOCAL PLANNING SCHEME:	**LOCAL PLANNING SCHEME No. 1**
TYPE OF SCHEME:	**DISTRICT SCHEME**
SERIAL No. OF AMENDMENT:	**AMENDMENT No. 7**

PROPOSAL:

i) To rezone Lots 1 and 973 Nanarup Road, Lower King from the General Agriculture zone to the Rural Residential zone and incorporating them within area No. RR 11 as set out in Schedule 14 – Rural Residential zone of the Scheme text;

ii) Designate portion of Lot 973 as an Additional Uses Site and incorporate it within Schedule 2 – Additional Uses of the Scheme Text;

iii) Designate Lot 1 as an Additional Uses Site and incorporate it within Schedule 2 – Additional Uses of the Scheme Text; and

iv) Amend the Scheme maps accordingly.

LOCAL PLANNING SCHEME No. 1

AMENDMENT No. 7

CONTENTS

PLANNING AND DEVELOPMENT ACT 2005

RESOLUTION DECIDING TO AMEND A LOCAL PLANNING SCHEME

CITY OF ALBANY

LOCAL PLANNING SCHEME No. 1

DISTRICT SCHEME

AMENDMENT No. 7

RESOLVED that the Council, in pursuance of Section 75 of the Planning and Development Act 2005, amend the above local planning scheme by:

i) To rezone Lots 1 and 973 Nanarup Road, Lower King from the General Agriculture zone to the Rural Residential zone and incorporating them within area No. RR 11 as set out in Schedule 14 – Rural Residential zone of the Scheme text;

ii) Designate portion of Lot 973 as an Additional Uses Site and incorporate it within Schedule 2 – Additional Uses of the Scheme Text;

iii) Designate Lot 1 as an Additional Uses Site and incorporate it within Schedule 2 – Additional Uses of the Scheme Text; and

iv) Amend the Scheme maps accordingly.

Dated this _____day of _____ _____

_____

CHIEF EXECUTIVE OFFICER

CITY OF ALBANY

LOCAL PLANNING SCHEME NO. 1

AMENDMENT NO. 7

PROPOSED RURAL RESIDENTIAL ZONE; LOTS 1 & 973 NANARUP ROAD, LOWER KING.

PLANNING REPORT

Contents

Updated in accordance with City of Albany Item No. PD 109 OCM 15 December 2015.
Bushfire Management Plan updated September 2017
March 2018 - Bushfire Management Plan and Subdivision Concept Plan updated.
March 2019 - Updated in accordance with WAPC Schedule of Modifications date 13/02/19

1. INTRODUCTION

Lot 1 and Lot 973 Nanarup Road, Lower King are designated in the Albany Local Planning Strategy for both 'Rural Residential' and 'General Agriculture' purposes. The 'Rural Residential' component broadly relates to the more elevated land on the western portion of the property and the 'General Agriculture' portion covers the flatter, low lying land on either side of Johnson Creek.

Following the recent gazettal of the City of Albany's Local Planning Scheme No. 1, the landowner proposes to rezone the property for rural living purposes with a range of lot sizes which reflect the capability of the property.

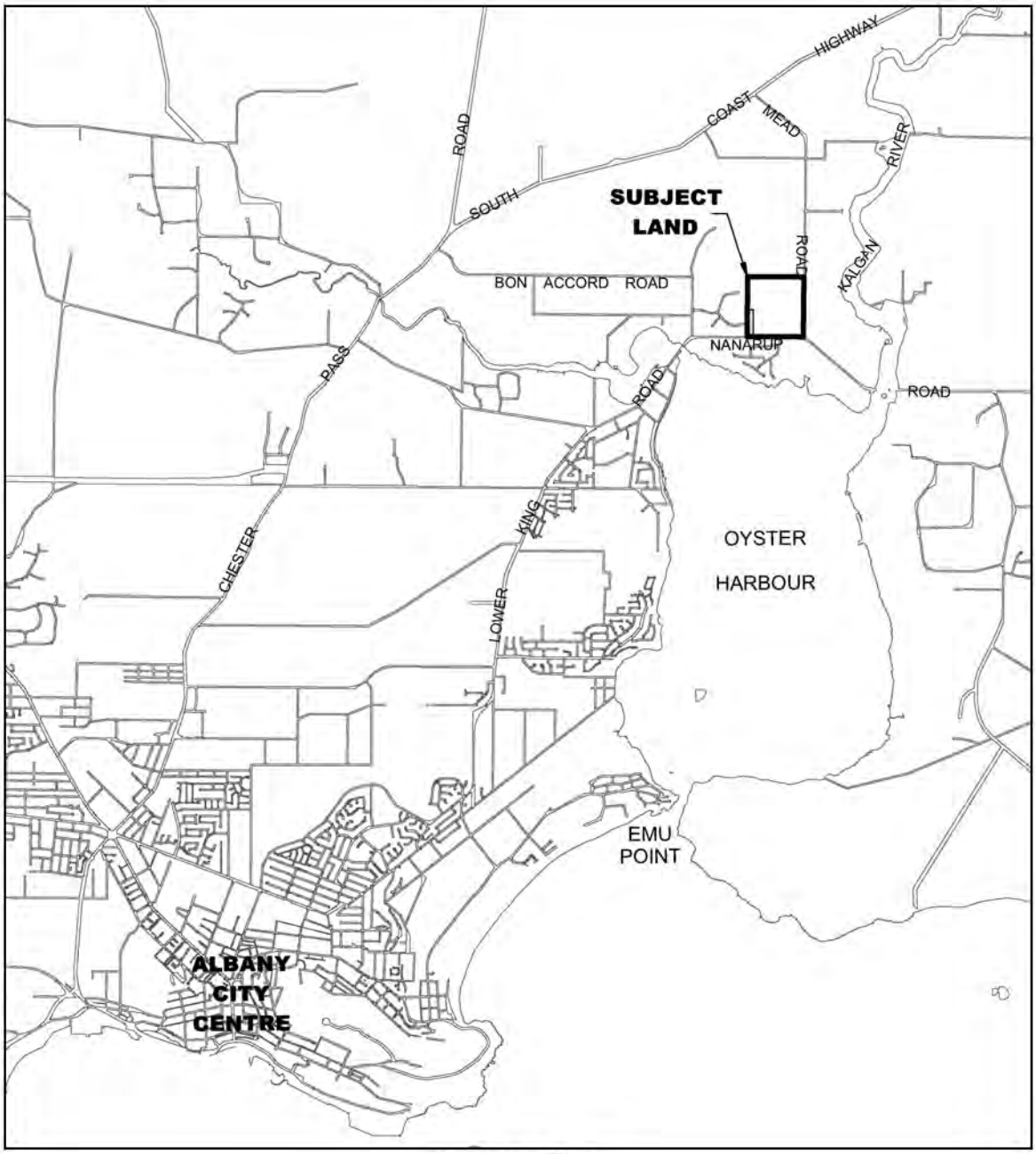
The following report provides background information and discussion in support of the proposal.

2. BACKGROUND

2.1 Location, Area & Zoning

Lot 1 and Lot 973 are located on the north west corner of Nanarup Road and Mead Road, Lower King, approximately 12km north east of the Albany city centre. Refer location plan below.

Lot 1 is 2.9ha in area and Lot 973 is 57.81ha in area and are currently zoned 'General Agriculture'.



Location Plan

2.2 Site Description

The site consists of gravelly lateritic upland areas to the west and north east which are separated by a shallowly incised valley formed by Johnson Creek.

The sloping terrain between the valley floor and upland gravelly areas is predominantly sandy and gently inclined. Slopes are generally less than 10%, apart from some moderate to moderately steep terrain within the central west which is covered in remnant vegetation.

The lowest point is in the south east corner of the property at approximately 6 metre AHD, rising to a high point of 44 metres AHD on the western boundary.

Most of the property has been cleared for pasture and agistment of stock (sheep). Two areas of remnant vegetation are located on the central western and north eastern slopes and consist of Jarrah-Marri-Sheoak forest. Some Taxandria, Melaleuca and Agonis species are located along either side of the creek line which has been fenced.

Apart from stock yards, a shed and a dwelling which is currently unused, the property is undeveloped. Access is currently provided from Nanarup Road where access over the main water pipeline is provided.

Existing vacant residence looking south to Oyster Harbour

Remnant vegetation abutting Johnston Creek.

View from Mead Road looking north west across Johnston Creek.

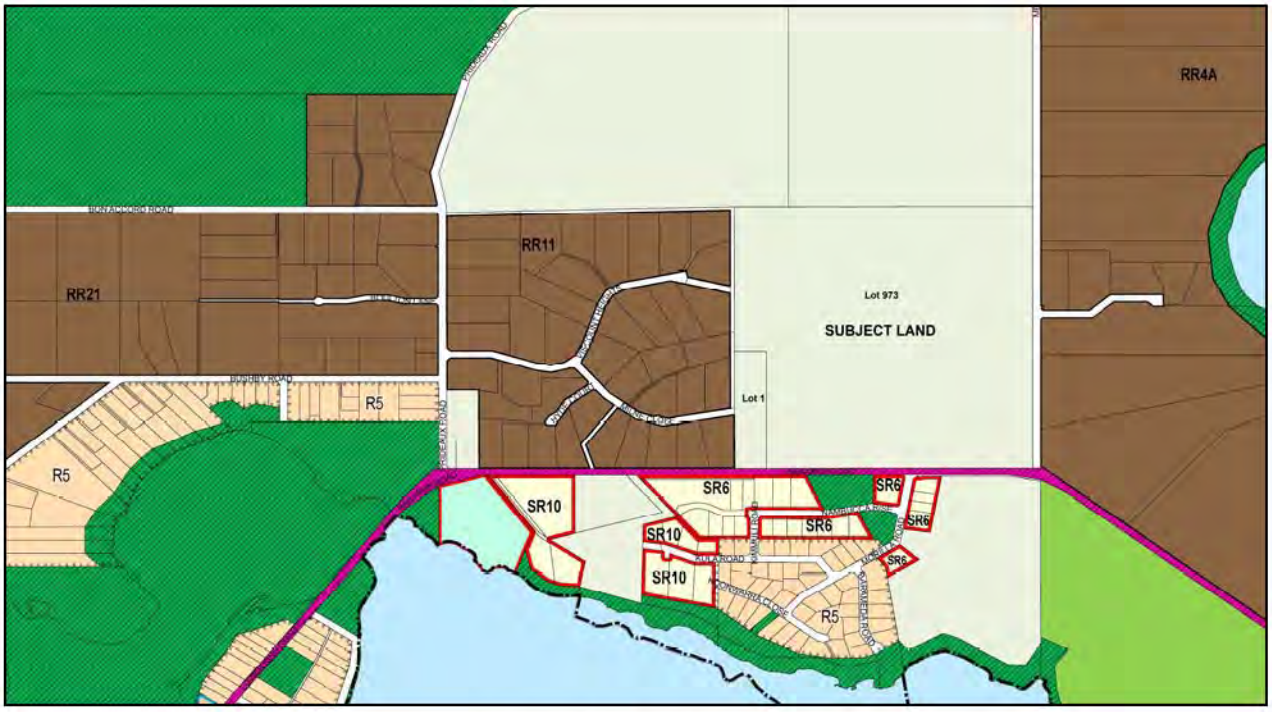
View from the north east corner of the property looking south to Oyster Harbour.

Remnant vegetation on the central western slopes.

View from the western slopes looking across Johnston Creek
to remnant vegetation in the north east corner of the property.

2.3 Surrounding Land Use and Zoning

To the west of Lot 1 and Lot 973 lies Sheringa Park which consists predominantly of one hectare rural residential lots. In the south west corner is a two hectare parcel of land which is zoned 'General Agriculture'. To the east is the Mead Road rural residential area which initially consisted of 10ha lots. More recently, a scheme amendment has provided for some of these lots to be further subdivided down to a minimum of one hectare. On the south side of Nanarup Road, land on the western side of Johnson Creek is predominantly zoned 'Special Residential' with a pocket of 'Residential' R5 land. Lot sizes range from 2000m^2 to 9556m^2. A corridor of land on either side of Johnson Creek, which runs south to Oyster Harbour, is zoned 'General Agriculture' and to the east is the Great Southern Grammar School. To the north, land is zoned General Agriculture and is used for agisting stock.



Zoning Map of Locality

LEGEND

LOCAL SCHEME RESERVES
(see scheme text for additional information)
- Local roads
- Parks and recreation
- Priority road

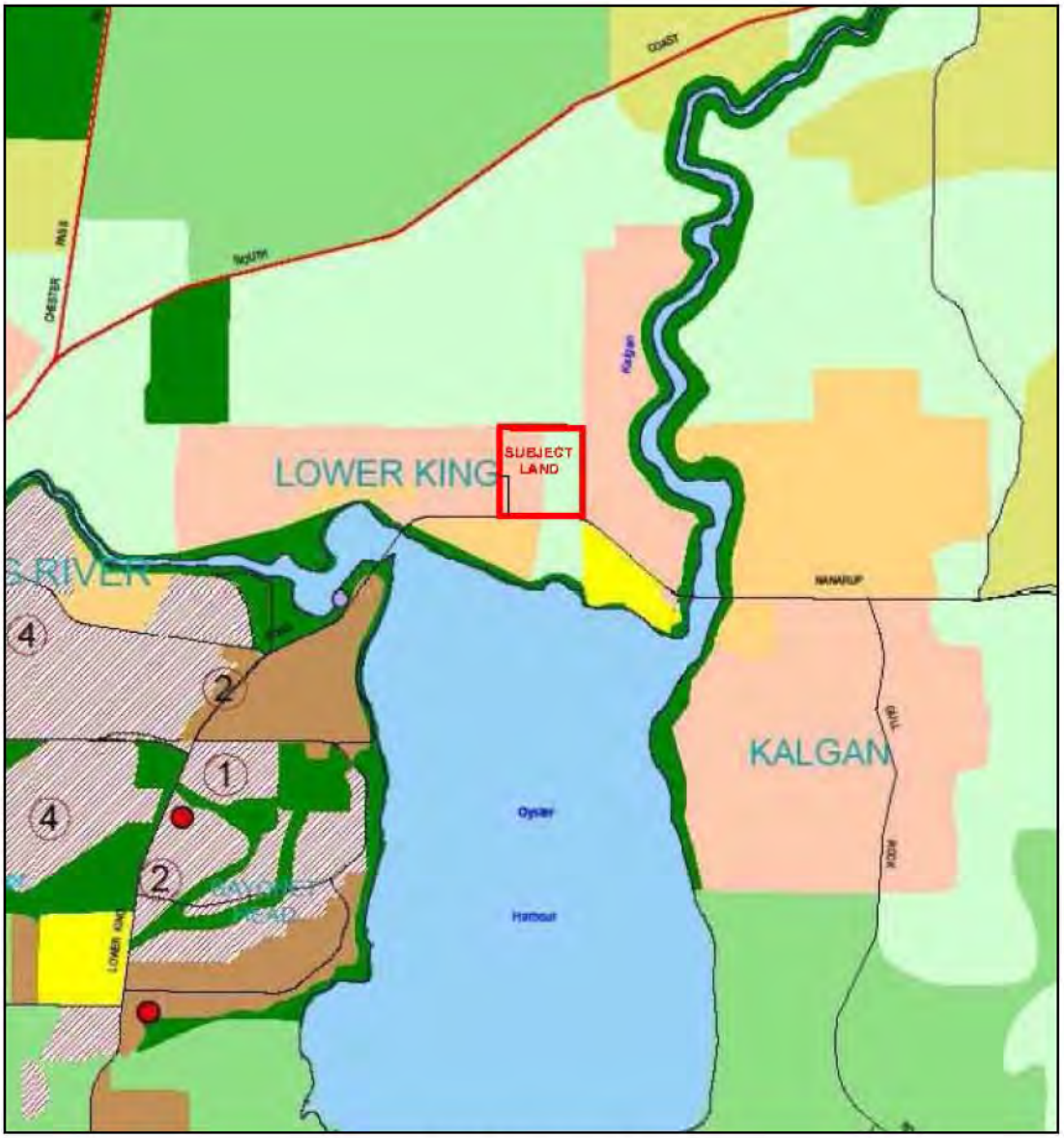
LOCAL SCHEME ZONES
(see scheme text for additional information)
- Clubs and institutions
- General agriculture
- Residential
- Rural residential
- Special residential

OTHER CATEGORIES
(see scheme text for additional information)
- R 20 R Codes
- A 1 Additional uses
- SR 1 Special residential area

3. PLANNING CONTEXT

The Albany Local Planning Strategy (ALPS), which was endorsed by the WAPC in June 2010, together with Council's Local Planning Scheme No. 1 are the key planning documents which provide guidance in terms of future use and development of land in the City.

The subject land is designated as 'Rural Residential' and 'General Agriculture' on the Strategic Plan: Urban (Map 9B). Refer extract below..



Extract of Map 9B

3.1 Albany Local Planning Strategy

Strategic objectives contained within Section 8.3.5 'Rural living' include:

"Ensure that future rural living areas are planned and developed in an efficient and coordinated manner by being located either adjacent to Albany as designated on the ALPS map or within existing rural townsites……."

Objectives are to:

- Discourage the creation of additional rural townsites for living purposes.
- Avoid the development of Rural Living areas on productive agricultural land, other important natural resource areas and areas of high bushfire risk, flooding and environmental sensitivity.
- Avoid the development of Rural Living areas on future and potential long-term urban areas.
- Provide for compact growth of selected existing rural townsites in accordance with table 5, based on land capability and available services and facilities.
- Minimise potential for generating land-use conflicts.

Actions include:

- Give top development priority to the subdivision of land currently zoned Special Residential and Special Rural within the City's current Town Planning Schemes and as designated on the ALPS maps (CoA, WAPC). Refer to the ALPS Map which designates the site for rural residential purposes.
- In the long term, maximise opportunities for existing rural living areas that do not have potential for future urban development to achieve higher sustainable lot yields based on land capability/suitability, service provision and local constraints. These areas would be given second priority to meet future demands (CoA, WAPC).
- Include Rural Residential, Rural Small Holding and Conservation zones with appropriate provisions in the LPS1 (CoA).

3.2 Albany Local Planning Scheme No. 1

Prior to considering any additional land to be rezoned to Rural Residential, Council's Local Planning Scheme No. 1 requires the proponent to address the following matters;

a) Compliance with the outcomes and recommendations of the Albany Local Planning Strategy;

b) Fire hazard assessment and Fire management Plan;

c) Land capability and suitability assessment.

d) Protection and enhancement of natural environment;

e) Protection and enhancement of visual amenity;

f) Provision of infrastructure and services;

g) Impacts on adjacent land uses;

h) Any potential site contamination;

i) Effluent disposal;

j) Location of building envelopes; and

k) Preparation of a Guide Plan for the subdivision showing proposed roads and connectivity between proposed/future and existing developments, lots, recreation areas and location of building envelopes.

The Scheme also incorporates a range of general provisions relating to rural residential zones which include:

- Building design, materials and colours.
- Fire Protection.
- Modifications to designated Building Envelopes/Setbacks.
- Fencing.
- Remnant Vegetation Protection and Clearing Controls.
- Tree Planting.

- Dams, Soaks and Bores.
- Keeping Animals.
- Effluent disposal.
- Water Supply.
- Electricity Supply.
- Stormwater Management and Drainage.
- Road and Battleaxe Access.
- Notification of Prospective Purchasers and successors in Titles.

The Scheme also provides for additional Special Provisions relating to a particular Rural Residential zone to be set out in Schedule 14 of the Scheme Text.

4. LAND CAPABILITY

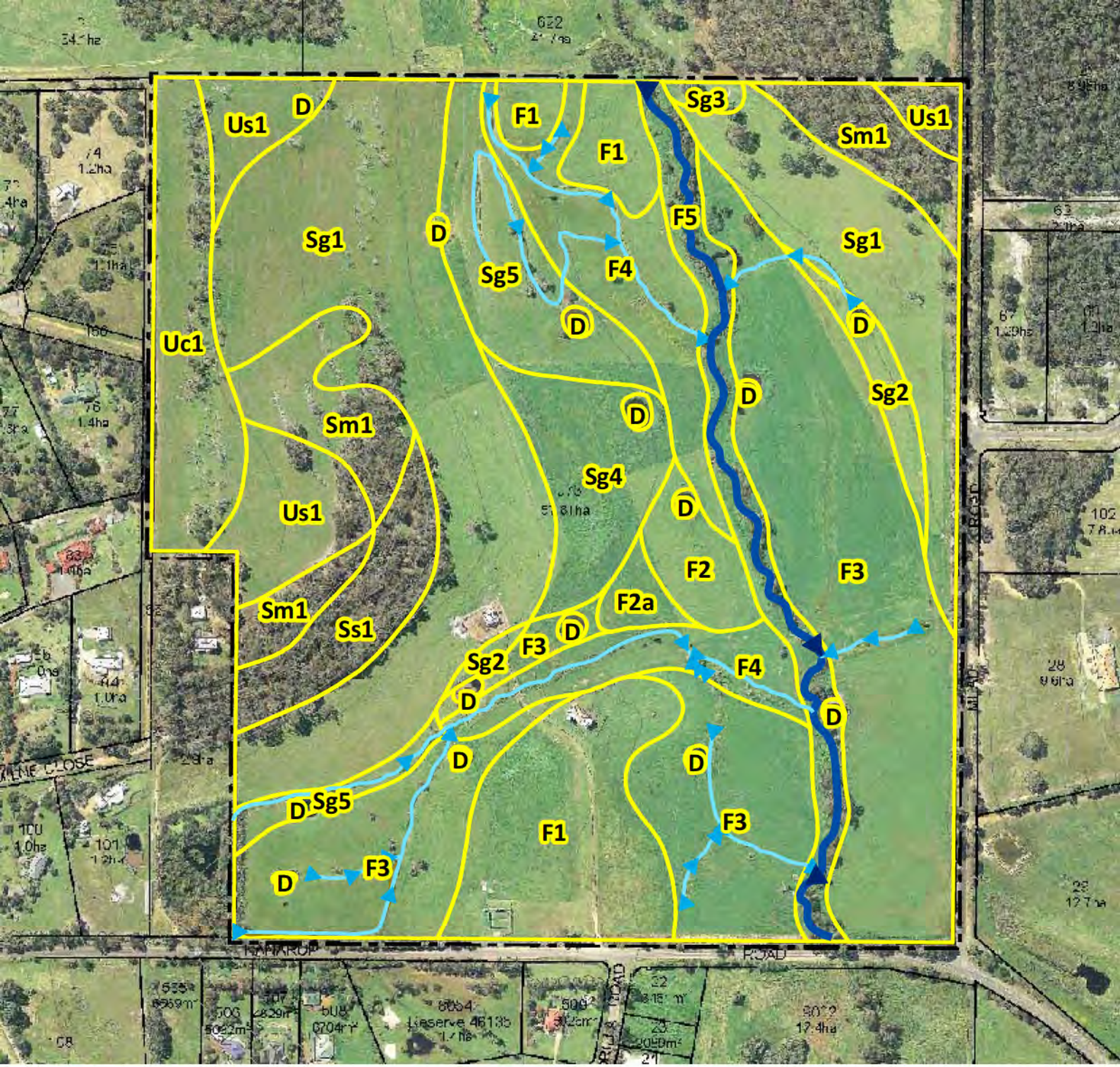
A detailed land capability assessment of the site has been carried out by Land Assessment Pty Ltd and is attached in Appendix A. An addendum is also attached providing additional information as requested by the WAPC.

Soil and landform conditions were surveyed in general accordance with the methodology outlined in DAFWA publications (van Gool et al 2005, Wells and King 1989). Some 25 soil test pits were excavated using a hand auger and a further 12 pits using a backhoe. Holes were dug to 2 metre depth where possible. Depth to groundwater was recorded where the water table (perched or otherwise) was encountered within any of the test pits. Subsoil sampling for PRI (Phosphorous Retention Index) analysis was also undertaken at a number of sites.

A description of the identified land units and land capability assessment are shown on Figures 4 and 5 overleaf.

Key findings from the assessment include:

- Depth to groundwater will not be a limiting factor for unsewered rural residential development within most of the slopes and upland areas. Depth to groundwater within the lower foot slopes and valley floor will however affect the type of on-site effluent disposal system, the amount of required soil fill material and, in some cases, preclude un-sewered development.
- Given the sandy nature of the soils, it is recommended intensive agricultural pursuits, such as piggeries and horticultural operations, not be permitted in the area. Appropriate provisions are required to minimise the export of nutrients from on-site effluent disposal systems and livestock excrement.
- The use of Health Department approved alternative effluent disposal systems that have a phosphate removing capability is recommended.



Upland terrain	Uc1	Crest; pale deep sands.
	Us1	Upper slopes (< 5 % gradient); pale shallow sand over laterite.
Valley slopes	Ss1	Moderately steep (15 – 25%); shallow gravels or sand; surface laterite.
	Sm1	Moderate gradient (10-15%); shallow gravels or sand; surface laterite.
	Sg	Gentle gradients (3 – 10%).
	Sg1	Pale deep sands; well drained.
	Sg2	Grey to yellow brown deep sands over clay; well drained.
	Sg3	Shallow sandy duplex soil; common granite outcrop.
	Sg4	Grey sandy duplex soil; humic pan over subsoil clay; imperfectly drained.
	Sg5	Semi wet soils (grey deep sands); imperfectly drained.
Valley floor (flats with < 3% gradient)	F1	Pale deep sands; moderately well drained
	F2	Grey sandy duplex soils; imperfectly drained.
	F2a	Semi wet soils (sandy duplex); imperfect to poorly drained.
	F3	Semi wet soils (grey sand over humic pan or clay); imperfect to poorly drained.
	F4	Semi wet soils (grey sand over humic pan or clay); poorly drained.
	F5	Watercourse and immediate margins.
Drainage Features	D	Dams or Soaks
		Drainage channel (excavated)
		Watercourse (seasonal)

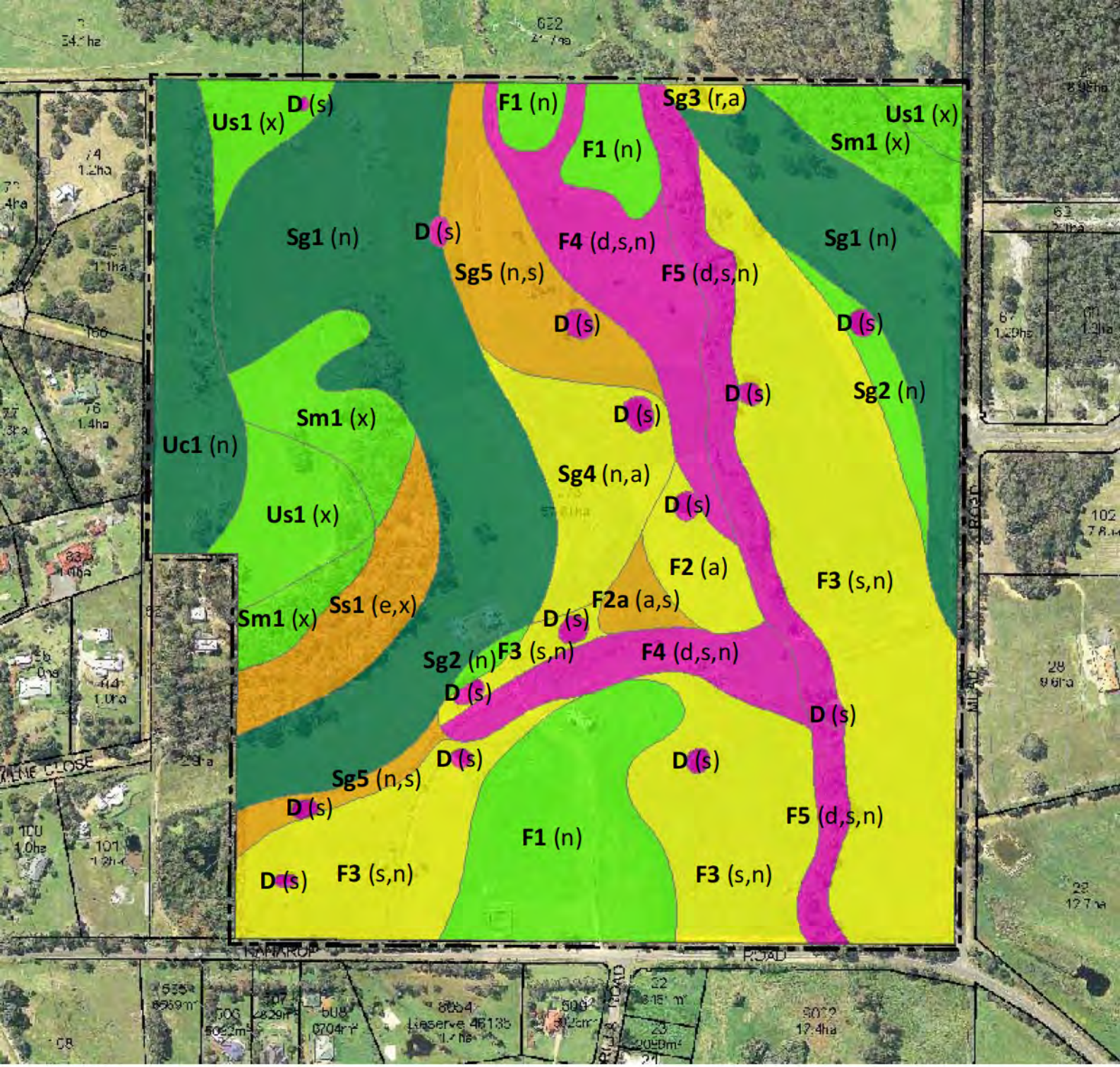
Figure 4:

Land Units

N

0 100 200 m

1:5,000 @ A4



Land Capability

- Fair to High - Minor Limitations
- Fair - Moderate Limitations
- Fair to Low - Moderate to Signifiant Limitations
- Low - Significant Limitations
- Very Low- Severe Limitations

Land Units

Labels in bold
Descriptions in Figure 4

Limitations

Labels in brackets
a soil absorption ability (depth to clay)
d drainage (stream pollution risk)
e erosion risk
n nutrient retention (poor)
r rock outcrop (granite)
s seepage and waterlogging
x excavation difficulties (shallow depth to laterite)

Figure 5:

Land Capability Assessment for Rural-Residential Development

N

0 100 200 m

1:5,000 @ A4

- Given the susceptibility to nutrient loss (and wind erosion) of most soils, it is recommended the keeping of live stock not be permitted without specific approval of Council. It is suggested that the keeping of livestock generally be restricted to the larger lots on the valley floor rather than the smaller 1ha sized lots on the sandy slopes and upland areas.
- Some rationalisation of the shallow open drains on the valley floor that have been formed to reduce water logging and improve the agricultural capability of the land is recommended in order to reduce their potential to act as a conduit for the movement of nutrients into the creek.
- Visual Impacts from Nanarup Road can be minimised by enhancing roadside vegetation, by protecting hill slope remnant vegetation and use of appropriate colours and materials for proposed buildings.
- Protection and enhancement of riparian vegetation along the margins of Johnson Creek is recommended in order to minimise nutrient loss and reduce potential erosion.
- Development within areas of very low capability (units F4, F5 & D) is not recommended.
- Larger lots are recommended in valley floor land units (F1, F2 and F3) and foot slopes (Sg3, Sg4 and Sg5) to accommodate future residences, their on-site effluent disposal systems (alternative, nutrient retentive systems) as well as providing for;
    - A 100m minimum setback from the creek and drainage channels for effluent disposal systems; and
    - An appropriate level of fill material to enable adequate separation from estimated highest water table levels.

5. SERVICES

5.1 Roads

Lot 973 fronts Nanarup Road and Mead Road, both of which have been developed to a bitumen standard.

Connection is also possible to the west via an extension of Viscount Heights which forms part of the Sheringa Park Estate. Subject to Lot 1 Nanarup Road being developed in the south west corner, a further connection via Milne Close may also be possible. Provision should at least be made for emergency access/egress purposes. A main access off Nanarup Road in the vicinity of the existing access is required with Viscount Heights providing the main secondary means of access and egress. Any restriction on access to and from Nanarup Road would result in all the traffic to the proposed development being drawn through the Sheringa Park Estate. While planning of the Estate has provided for connectivity through the subject land, the amenity of the Estate would be affected if the traffic was directed through the Estate without the main access being from Nanarup Road.

5.2 Scheme Water

Sheringa Park Estate, Nanarup Heights and the subject land are connected to scheme water. A reticulated water supply runs along Nanarup Road and Mead Road.

5.3 Power

The subject land is connected to the power supply in the area which can be extended to service the proposed development. The power lines will be placed underground within proposed road reserves in accordance with current policy.

5.4 Effluent Disposal

As scheme sewer is not available to service the area and cannot economically be provided, effluent disposal will be by way of on-site effluent disposal units. The type of disposal units will depend on the nature of the land which varies across the property and has been considered in the capability assessment undertaken by Land Assessment Pty Ltd.

5.5 Stormwater Management

As it is proposed that all development will generally be located within the well drained higher capability land, i.e. units Uc1, SG1, SG2 and F1, it is considered that the management of erosion and stormwater can easily be achieved with standard engineering and land practices. This includes;

- use of rainwater tanks to collect stormwater from rooves;
- use of soak wells;
- alignment of roads and driveways along contours where possible and use of open drainage swales where practical;
- kerbing and piping of stormwater on steeper sections of roads;
- use of detention and soakage basins along with drainage easements to manage stormwater from roads;
- stabilisation and revegetation of disturbed areas;
- revegetation of the drainage line.

A detailed stormwater management plan will be required at subdivision stage of development to ensure all these initiatives are brought together into an effective and sustainable plan. The large lot sizes ensure that there is ample room to accommodate the necessary drainage infrastructure.

5.6 Access to Facilities

The subject land is conveniently located in relation to a range of facilities which include;

- The Great Southern Grammar School, located one kilometre to the east.
- The Finders Park Primary School, located 6km to the south.
- The Lower King Pre-Primary School Centre, located 3.5km to the south west.
- The Lower King Liquor and General Store, located 1.5km to the west.
- The Bayonet Head Neighbourhood Shopping Centre, located 6km to the south.
- The Kalgan Progress Association Hall, located 3.5km to the east.

5.7 Fire Safety

A Bushfire Management Plan has been prepared for the site and is attached in Appendix 'B'.

5.8 Visual Impact

As Nanarup Road is an important tourist route leading out to Gull Rock, Nanarup Beach and Two Peoples Bay, the visual impact of more intensive development on Lot 973 requires consideration.

While vegetation within the road reserve partially screens the property, the broad river flats associated with Johnson Creek, provide a distinctive view corridor running to the north, framed by a prominent vegetated knoll along the central western boundary and to a lesser extent in the north east corner of the site.

Development of the site proposes to retain these two distinctive elements. A broad flat corridor on either side of the creek will be retained within two large lots with dwellings located further upslope. Remnant vegetation on the elevated portions of the property will be retained so that no development is visible on the skyline. Smaller lots will be predominantly clustered below the vegetation on the mid slopes. Development on the flatter elevated land along the central western and northwest corner of the property will be screened from Nanarup road by the existing remnant vegetation.

Additional planting is also proposed along Nanarup Road, together with revegetation of Johnson Creek and a distinctive avenue of street trees along the main access into the property from Nanarup Road. Landscaping associated with new dwellings on the property is also nominated on the Subdivision Concept Plan and provisions requiring appropriate materials and colours to be used are incorporated in the Scheme Provisions.

5.9 Impact on Adjacent Land Uses

Lot 973 is surrounded by rural living areas to the west, east and south. Rezoning and development for rural residential purposes will be compatible with the surrounding land use and can effectively reduce potential conflict associated with general agricultural activities in close proximity to rural living areas.

The only exception is along the northern boundary where the property to the north will remain within the General Agriculture zone. Lots have been designed so that they back onto the northern boundary in order to maximise the separation of residences from the 'General Agriculture' zone. The location of remnant vegetation along much of the boundary of the adjoining property, supplemented by revegetation on the subject land will also help to provide an effective buffer which will minimise potential conflict. Notification on titles of the lots abutting the northern boundary advising owners of the potential impact of rural pursuits is recommended.

6. AVAILABILITY OF RURAL LIVING LAND

The subject land is located centrally within a prime lifestyle area, located between the King River to the west and the Kalgan River to the east. Oyster Harbour is also located immediately to the south.

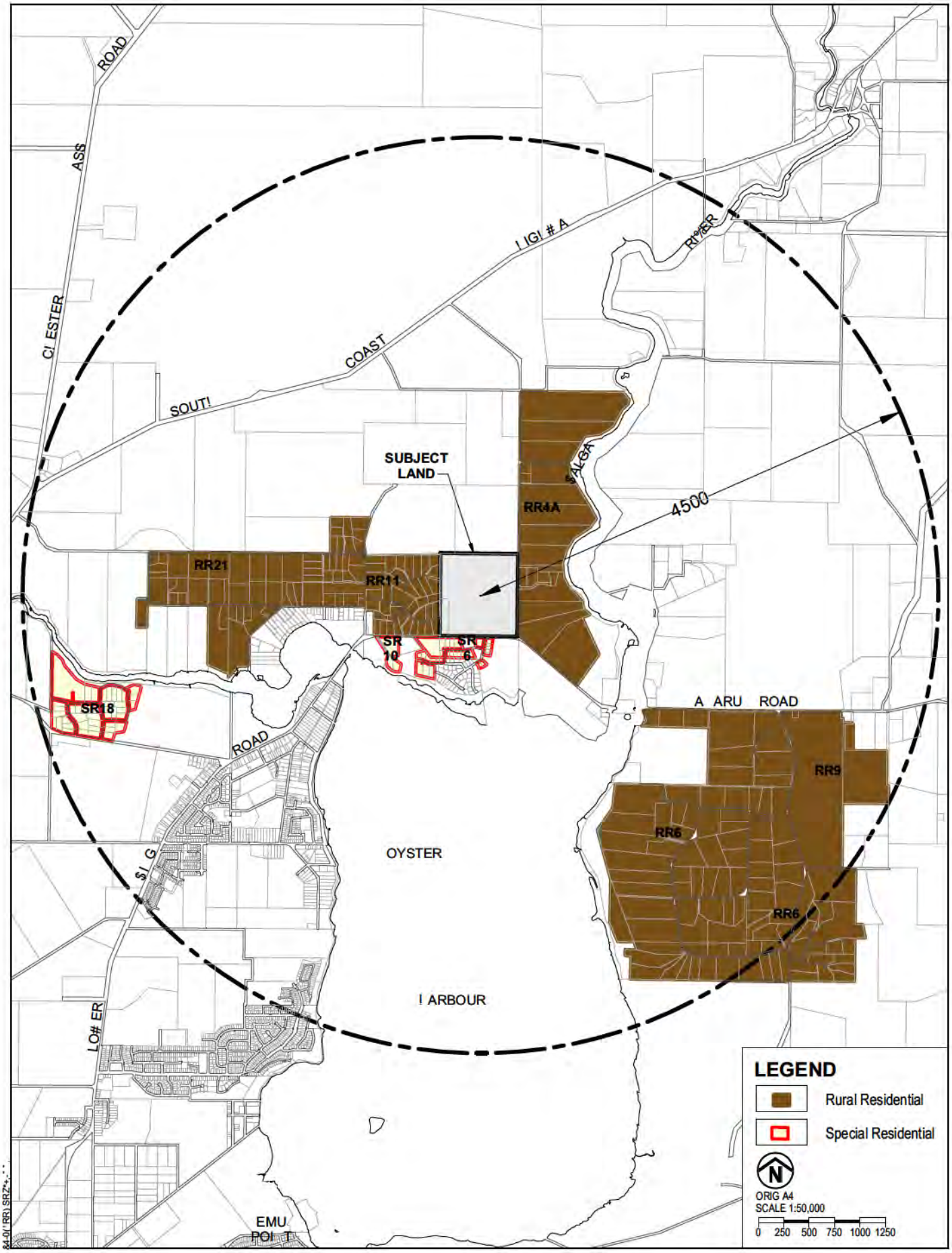
Within this north-eastern fringe of the City, there are 5 rural residential areas and 3 special rural areas within approximately 4.5km of the subject land.

Apart from RR 9 Gull Rock Road, which has yet to proceed to development, all of the areas are developed. Of the total 356 lots created, 87% of them have been developed. The 13% remaining undeveloped consists of 45 lots and only a few remain for sale. Refer table below and plan overleaf.

Table 1. Rural Living Land Availability (as at July 2014)

Area	Lots Currently Available for Development	Developed Lots	Vacant Lots	% Developed
RR 4A	18	13	5	72%
RR 6	97	90	7	93%
RR 9	Undeveloped	0	74 Lot Potential	0%
RR 11	41	41	0	100%
RR 21	63	58	5	92%
SR 6 & 10	85	76	9	89%
SR 18	52	33	19	65%
	356	**311**	**45**	**87%**

While RR 9 has gained subdivision approval, and has the potential to create an additional 74 lots, provision of scheme water is a constraint, requiring elevated water tanks to be provided and an extension of the main supply across the Kalgan River. Given the age of the proponent it is not clear whether the development will proceed within the immediate future.



AYTON BAESJOU
PLANNING
59 Peels Place
ALBANY WA 6330
Ph 9842 2304 Fax 9842 8494

EXISTING SPECIAL RESIDENTIAL AND RURAL RESIDENTIAL ZONES

City of Albany

The Sheringa Park Estate immediately to the west of the subject land has been fully developed and the Special Residential land on the opposite side of Nanarup Road is 89% developed, with only 9 vacant lots. To the east, the Mead Road rural residential area only has 5 vacant lots remaining, and while some remaining lots have further development potential, they are constrained by extensive areas of remnant vegetation and areas of low lying land subject to winter inundation.

Given the extent to which rural living areas have been developed in the north eastern fringe of the City, it is considered that there is scope for the subject land to be rezoned so that consideration can be given to subdivision and creation of additional lots to meet the demonstrated demand for the area.

As the timeline for completion of the rezoning and bringing the lots onto the market is likely to take up to 5 years, the lot supply in the area will continue to be reduced.

It should be borne in mind that there are many variables affecting the demand and supply of land. As economic conditions, servicing requirements and personal circumstances change over time, there are many reasons why land and individual lots may be with held from development. Overall however, it is considered there is no over supply of lots in the north east fringe of the city, and even with the inclusion of RR 9, which has yet to be developed, 72% of the available lots have already been developed.

7. LAND SUITABILITY

The suitability of Lot 973 Nanarup Road for Rural Residential development has already been identified within ALPS which designates the property for that purpose. This designation is justified for a number of reasons, including;

- The land capability assessment does not identify the land as high quality or priority agricultural land.
- Intensive farming of the property is not recommended given the sandy soils over much of the property and the potential for export of nutrients into the creek and nearby Oyster Harbour.
- The property has rural living lots to the east, west and south and its retention as agricultural land creates a potential conflict with the surrounding uses, particularly as the size of the property restricts the ability to incorporate appropriate buffers.
- The site is not located within an area identified for future fully serviced urban development. Its location to the east of King River suggests it will not be capable of being economically deep sewered in the foreseeable future.
- It is located in an area well suited for lifestyle lots and effectively represents a rounding off of such development.
- As noted in section 4.5 above, the property has ready access to schools, shops and community facilities.
- While the property has some low lying poorly drained land along the river flats, development can predominantly be accommodated on the more elevated land which is well drained and has a fair to high capability for rural residential development and the associated on-site effluent disposal.

8. AMENDMENT PROPOSAL

In accordance with ALPS, it is proposed to rezone Lot 973 Nanarup Road from the 'General Agriculture' zone to "Rural Residential" zone. As the adjoining lots in the south west corner, Lot 1, is a de-facto rural residential lot, it has also been included in the rezoning proposal at the request of the City of Albany.

Key elements of the proposal include:

- While ALPS only incorporates the western portion of Lot 973 within the rural residential designation, no doubt due to the poorer land capability associated with Johnson Creek, which runs north and south through the property, it is proposed to incorporate the whole site within the Rural Residential zoning for the following reasons;
    - The land capability on the eastern side of the creek is capable of accommodating development, particularly towards the north east corner which also has attractive elevated views to Oyster Harbour.
    - Incorporation of Johnson Creek and associated river flats will facilitate on going management of this significant feature which drains directly into Oyster Harbour. This will include revegetation of the area on either side of the creek, fencing and weed management. Management of land use within the river flats also requires careful consideration given concerns regarding the export of nutrients into the harbour.
    - As rural residential development occupies the land on the eastern side of Mead Road, retention of the 'General Agriculture' zoning is questionable given the potential for conflict with rural residential development in close proximity on either side.
    - From a visual aspect, the retention of a rural corridor on either side of Johnson Creek can be retained with larger lots on the river flats and setbacks for buildings so that they are located on more elevated land.

- Access to the site is currently provided from Nanarup Road close to where Morilla Road intersects on the opposite side of the road. The water main from Two Peoples Bay runs along side the southern boundary of the property within the Nanarup Road reserve and has been lowered to facilitate access to the subject land.

  Two other potential access points to the site would entail the extension of either or both of Viscount Heights and Milne Close which are located within the Sheringa Park rural residential estate to the west. Milne Close would also have to be extended through Lot 1 which is located adjacent to the south west corner of Lot 973.

  It is proposed that the main access to the property be retained on Nanarup Road, subject to its relocation further to the east so that the minimum separation to the Morilla Road intersection can be achieved, in accordance with Austroads (2005). This would enable the water main to be crossed as it is still below the level of Nanarup Road at this point.

  Sight distances along Nanarup Road are also well in excess of minimum requirements with a distance of 380 metres to the east and 500 metres to the west.

  A secondary access is proposed by extending Viscount Heights, utilising the ROW that has been provided for this purpose. This access way will benefit both the proposed development and Sheringa Park Estate by providing an alternative access and egress for both developments.

  At such time as Lot 1 is subdivided, consideration can be given to a third point of access by linking the proposed development with Milne Close.

  As only five lots are proposed with frontage to Mead Road, it is proposed that joint crossovers are used which will result in only three access points.

- Twenty nine lots are proposed ranging in size from a minimum of 1ha to 9.5ha. The smaller lots are clustered on the more elevated areas of the property where the land capability ratings are most suitable for development. In order to facilitate on-going management of the creek and retain the landscape qualities of the 'Rural' corridor, two large lots of 9.5ha and 8.0ha are proposed.

Both contain the creek so that they have access to both sides of the creek. Revegetation of the creek is proposed on both sides in order to minimise the potential for nutrients to be exported from surrounding properties into the waterway. A joint access way over the creek is proposed utilising an existing crossing point.

- In order to accommodate the additional development on the site while at the same time retaining a semi-rural aspect, strategically located revegetation is proposed. Existing vegetation along Nanarup Road needs to be consolidated together with revegetation along the main subdivisional road and individual house sites. Sheringa Park Estate is an example of how revegetation can transform a largely cleared site to create an attractively landscaped development. A vegetated buffer along the northern boundary will also help to minimise potential conflict with the rural use of land to the north.

- A 4ha lot is proposed in the north east corner of the property for short stay tourist accommodation. The elevated land, attractive views over Johnson Creek and through to Oyster Harbour, together with the remnant vegetation, provide an opportunity to provide an alternative land use to rural residential development. It is noted that Nanarup Road is a significant tourist route, providing access to attractions around King River, Oyster Harbour, the Kalgan River, Nanarup and Two Peoples Bay. It is recommended that up to twelve chalets could comfortably be accommodated on the site with appropriate setback from the remnant vegetation.

- In terms of future land use within the development, productive uses, particularly those that can contribute to the tourist industry are recommended. Uses such as bed and breakfast/farm stay, cottage industry, craft studios, public recreation and on the larger lots, rural pursuits (limited to existing cleared and pastured land only). Given the sandy soils, potential for export of nutrients and proximity to Oyster Harbour, intensive agriculture /horticulture is not recommended.

9. MANAGEMENT PROVISIONS

The objectives of the Rural Residential zone include the provision of small rural residential lifestyle lots and provide for residential and limited incidental land uses which whilst preserving amenity, ensuring landscape protection and conservation, controlling land use impacts and conflicts, and are in closer proximity to urban areas and have suitable urban servicing.

As the subject site has specific characteristics and constraints that need to be managed, it is logical to a include a separate Rural Residential area 'RR 45' with special provisions in LPS 1 to ensure the objectives of the local and state planning framework can be met, particularly in regards to protection of Johnston Creek. The special provisions provide for a range of uses, and guide structure planning, subdivision and development of the site in accordance with the zone objectives.

10. CONCLUSION

Lot 1 and Lot 973 Nanarup Road are the last of the remaining lots on the northern side of Nanarup Road between the King River and Kalgan River which have not been zoned for rural residential purposes. Rezoning to the Rural Residential zone is a logical extension of the Sheringa Park Estate to the west and is considered a more compatible use than its retention in the 'General Agriculture' zone.

Detailed land capability assessment concludes that the land is not prime agricultural land and that its continued use for agricultural purposes could result in the export of nutrients into the nearby Oyster Harbour. On the other hand, nor is the land located within an area that is likely to be developed for fully serviced urban development. It is instead, ideally suited for the creation of lifestyle lots which are a significant attraction for people wishing to live in Albany, particularly in a location such as this which has views through to Oyster Harbour and access to both tourist attractions and general amenities.

Management provisions are recommended which will address key issues such as bushfire risk, visual amenity and retention of nutrients within the site. There is also an opportunity to provide for tourist orientated activity, as well as small scale productive uses which will contribute to the tourist attraction of the area.

An assessment of current availability of rural living lots in the north eastern fringe indicates that approximately 87% of currently available lots have been developed and that by the time this proposal creates additional lots, there is likely to be very little supply remaining.

In order for the proposal to proceed, Council's support to initiate the required scheme amendment is respectfully requested.

PLANNING AND DEVELOPMENT ACT 2005

CITY OF ALBANY

LOCAL PLANNING SCHEME No. 1

AMENDMENT No. 7

RESOLVED that the Council, in pursuance of Section 75 of the Planning and Development Act 2005, amend the above local planning scheme by altering the Scheme Text and Maps as follows:

i) Rezone Lots 1 and 973 Nanarup Road, Lower King from the General Agriculture zone to the Rural Residential zone, designated as 'RR 45' and amending in Schedule 14 – Rural Residential zone of the Scheme text in the following manner:

Schedule 14 – Rural Residential Zone [cl.5.5.13]		
No.	**Specified Rural Residential Zone**	**Special Provisions Applying to Specified Rural Residential Zone**
RR45	Johnston Creek Rural Residential Zone	1. Subdivision of RR45 shall generally be in accordance with an approved Local Structure Plan, and supported by a Site and Soil Evaluation and hydrogeological assessment of the site under the wettest time of year conditions. 2. The minimum lot size is 1 hectare, however larger lots may be required over parts of the site in order to respond to site characteristics. 3. A maximum of two lots shall be supported over Johnston Creek. 4. Subdivision and development is to be in accordance with the requirements for sewerage sensitive areas in the relevant Government Sewerage Policy, including but not limited to: (a) Separation from the highest known seasonal groundwater level. (b) Separation from water resources such as waterways, surface or subsurface drainage systems. (c) Use of secondary treatment sewage with nutrient removal disposal systems. 5. The following land uses are 'P' permitted uses: • Single House 6. The following land uses are 'D' discretionary uses: • Ancillary Dwelling ; • Bed and Breakfast/Farmstay; • Industry – Cottage; • Recreation – Public; • Rural Pursuit (which shall be limited to existing cleared and pastured land only); and • Restaurant.

		7. Unless permissible by an 'Additional Use' zoning, all other uses are not permissible (X). 8. All development (including dwellings and outbuildings) and any Asset Protection Zones shall be located outside of any development exclusion area and/or revegetation area for the protection of Johnston Creek as shown on the approved Local Structure Plan, and shall achieve the following minimum setbacks: (a) 40 metres from Nanarup Road; and (b) 15 metres from all other lot boundaries. 9. At subdivision, a notification, pursuant to section 165 of the Planning and Development Act 2005 is to be placed on the certificates of title of lots abutting General Agriculture zoned land advising of the existence of an existing agricultural activity. 10. At subdivision, a vegetative buffer to the specifications of the state department responsible for health, is to be established on any lots abutting General Agriculture zoned land. An easement-in-gross shall be registered on the relevant lots to ensure the vegetative buffer is maintained by the relevant landowners accordingly. 11. At subdivision, a notification, pursuant to section 165 of the Planning and Development Act 2005 is to be placed on the certificates of title of proposed lots within 500 metres of the existing extractive industry, advising of its existence. 12. At subdivision, a Foreshore Management Plan for Johnston Creek, including revegetation of drainage lines as shown on the approved Local Structure Plan, is to be prepared and implemented to the specification of the state department responsible for water. 13. At subdivision, an easement-in-gross which requires the landowners to maintain the area the subject of the Foreshore Management Plan as implemented, is to be placed on the relevant certificates of title of the proposed lots.

ii) Designate a portion of Lot 973 as an Additional Uses Site and incorporate it within Schedule 2 – Additional Uses of the Scheme Text in the following manner:

Schedule 2 – Additional Uses [cl.4.5]			
No.	**Description of Land**	**Additional Use**	**Conditions**
AU34	Part Lot 973 Mead Road, Lower King	Holiday Accommodation (D) Chalet/Cottage units (D) Caretaker's Dwelling (D)	1. Development is to be generally in accordance with an approved Local Development Plan. Subject to advertising, minor variations to the Local Development Plan may be permitted by Local Government. 2. The Local Development Plan is to include the maximum number of Chalet/Cottage Units and/or Holiday Accommodation, which shall be determined in accordance with the requirements for sewerage sensitive areas in the relevant Government Sewerage Policy and supported by a Site and Soil Evaluation, a hydrogeological assessment of the site under the wettest time of year conditions and a proposed servicing strategy.

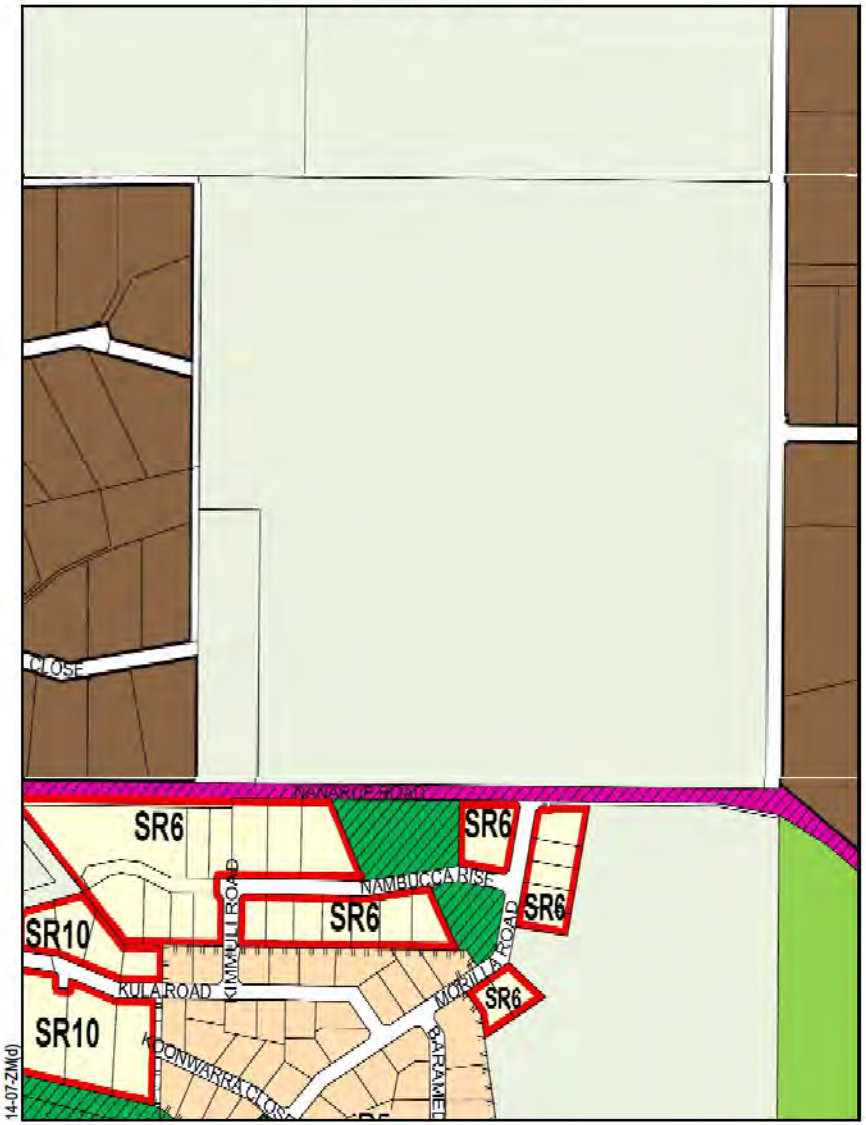
			3. Notwithstanding Condition 2, the maximum number of permissible holiday accommodation and/or chalet/cottage units shall be limited to 12 units with a maximum of two bedrooms per unit. 4. The Local Development Plan is to demonstrate that the development is consistent with the characteristics of the site, and avoids conflict with any existing or future agricultural uses on the land to the north. 5. A Bushfire Management Plan and Emergency Evacuation Plan is to be prepared, approved and implemented in accordance with State Planning Policy 3.7. 6. Any development which proposes to clear, thin or otherwise modify remnant vegetation onsite for bushfire protection in order to increase developable areas will not be permitted. 7. Any approval for holiday accommodation or chalet/cottage unit purposes shall limit the duration of occupancy by any person in those premises to a maximum of three months during any 12-month period. 8. Subdivision on the basis of any chalet/cottage units, holiday accommodation or caretaker's dwellings will not be supported. 9. All buildings shall be set back a minimum of 30 metres from Mead Road. 10. The maximum height of all dwellings shall not exceed 7.5 metres to minimise the visual impacts of such buildings from Mead Road.

iii) Designate Lot 1 as an Additional Uses Site and incorporate it within Schedule 2 – Additional Uses of the Scheme Text in the following manner:

Schedule 2 – Additional Uses [cl.4.5]			
No.	**Description of Land**	**Additional Use**	**Conditions**
AU35	Lot 1 (93) Nanarup Road, Lower King	Aquaculture (D)	1. Development is to be in accordance with an approved Local Development Plan which delineates: (a) All the proposed development including but not limited to proposed buildings, tanks and ponds, accessways and parking areas, effluent disposal systems, fences, pumping stations, pipes, drainage areas, signage and landscaping; and (b) Precise details of the areas, heights, elevations, materials, colours and proposed staging of all development. (c) appropriate landscaping and use of building colours, heights, materials and design to minimise visual impacts

iv) And amend the Scheme maps accordingly.

Existing Zoning



LEGEND

LOCAL SCHEME RESERVES
(see scheme text for additional information)

- Local roads
- Parks and recreation
- Priority road

LOCAL SCHEME ZONES
(see scheme text for additional information)

- Clubs and institutions
- General agriculture
- Residential
- Rural residential
- Special residential

OTHER CATEGORIES
(see scheme text for additional information)

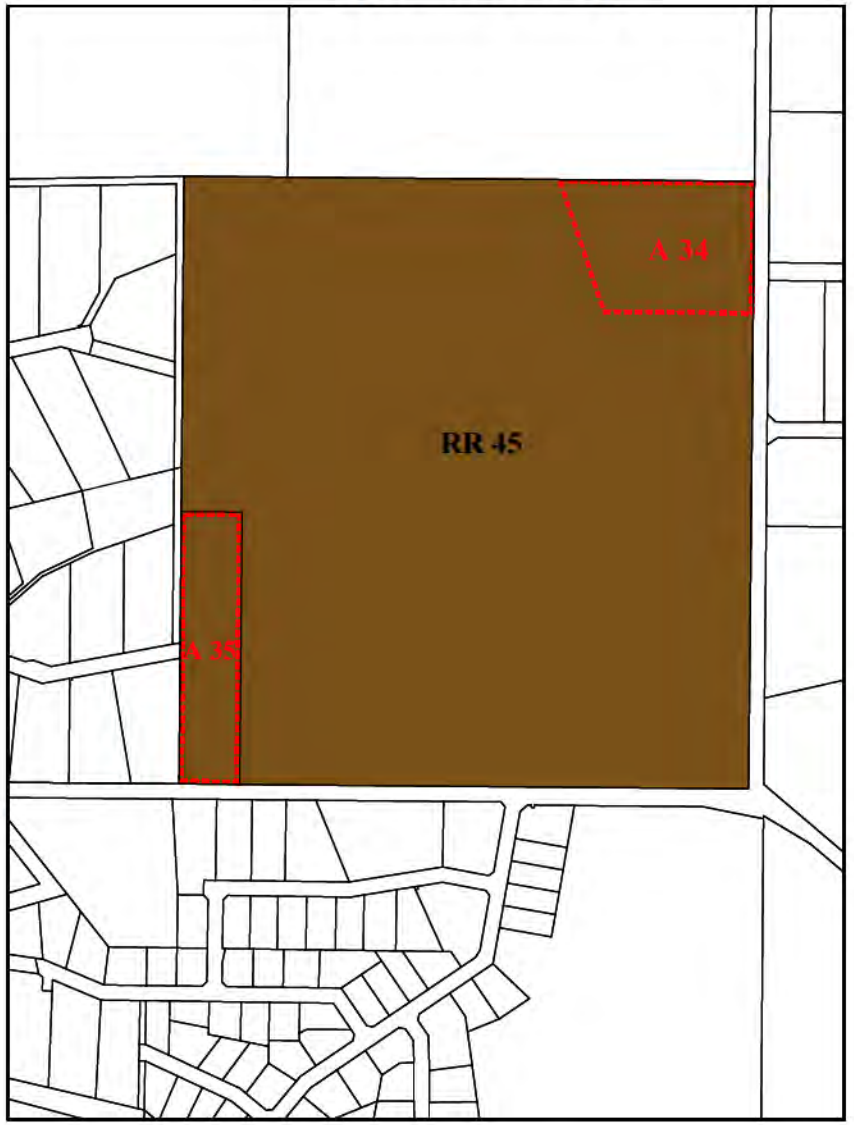
- R 20 R Codes
- A 1 Additional uses
- SR 1 Special residential area

N

ORIG A4
SCALE 1:10000

0 50 100 150 200 250

Proposed Zoning



AYTON BAESJOU
PLANNING
59 Peels Place
ALBANY WA 6330
Ph 9842 2304 Fax 9842 8494

CITY OF ALBANY
LOCAL PLANNING SCHEME No. 1
AMENDMENT NUMBER 7

ADOPTION

Adopted by resolution of the Council of the City of Albany at the Meeting of the Council held on the _____day of _____ 20____.

_____

Mayor

_____

Chief Executive Officer

FINAL APPROVAL

Adopted for final approval by resolution of the City of Albany at the Meeting of the Council held on the _____day of _____ 20_____ and the Common Seal of the City of Albany was hereunto affixed by the authority of a resolution of the Council in the presence of:

_____

Mayor

_____

Chief Executive Officer

Recommended/Submitted for Final Approval

_____

Delegated Under S.16
of the PD Act 2005

_____

Date

Final Approval Granted

_____

Minister for Planning

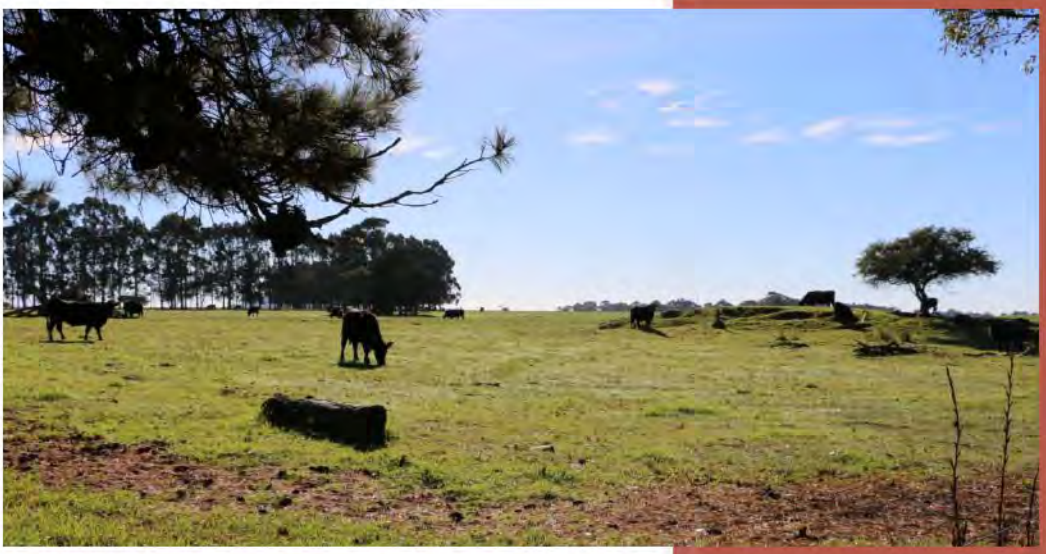
_____

Date

Appendix C

Lots 1 and 973 Nanarup Road,
Kalgan WA 6330

Bushfire Management Plan



14/03/2019

Kathryn Kinnear

Bio Diverse Solutions

DOCUMENT CONTROL

TITLE

Title: Lots 1 and 973 Nanarup Road Bushfire Management Plan
Author (s): Kathryn Kinnear
Reviewer (s): Nick Ayton
Job No.: AB005
Client: GA Clarke Nominees Pty Ltd.

REVISION RECORD

Revision	Summary	Revised By	Date
Draft id 18/07/2017	Internal QA Review	Bianca Theyer	18/07/2017
Draft id 18/07/2017	Issued to client for review	K.Kinnear	18/07/2017
Final id 5/09/2017	Updated to include client comment	K.Kinnear	5/09/2017
Final id 27/3/2018	Updated with new creek protection area BAL Contoured and as per DFES comments	K.Kinnear	27/3/2018
Final id 1/11/2018	Updated to address DFES comments	K.Kinnear	1/11/2018
Final id 13/02/2019	Updated to address WAPC comments	C.Cramer	13/02/2019
Final id 14/03/2019	Updated to address WAPC comments	C.Cramer	14/03/2019

The recommendations and measures contained in this assessment report are based on the requirements of the Australian Standards 3959 – Building in Bushfire Prone Areas, WAPC SPP3.7, Guidelines for Planning in Bushfire Prone Areas (WAPC, 2017) and CSIRO's research into Bushfire behaviour. These are considered the minimum standards required to balance the protection of the proposed dwelling and occupants with the aesthetic and environmental conditions required by local, state and federal government authorities. They DO NOT guarantee that a building will not be destroyed or damaged by a bushfire. All surveys and forecasts, projections and recommendations made in this assessment report and associated with this proposed dwelling are made in good faith on the basis of the information available to the fire protection consultant at the time of assessment. The achievement of the level of implementation of fire precautions will depend amongst other things on actions of the landowner or occupiers of the land, over which the fire protection consultant has no control. Notwithstanding anything contained within, the fire consultant/s or local government authority will not, except as the law may require, be liable for any loss or other consequences (whether or not due to negligence of the fire consultant/s and the local government authority, their servants or agents) arising out of the services rendered by the fire consultant/s or local government authority.

BIO DIVERSE SOLUTIONS

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

Bio Diverse Solutions
29 Hercules Crescent
Albany WA 6330

CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

1. Executive Summary

GA Nominees Pty Ltd commissioned Bio Diverse Solutions (Bushfire Consultants) to conduct a bushfire hazard assessment and prepare a Bushfire Management Plan to guide all future bushfire management for the proposed development of Local Structure Plan at Lot 1 and 973 Nanarup Road, Kalgan WA.

The proposed Structure Plan for the Subject Site consists of 27 residential lots ranging in size from 1.0 to 9.5ha (lifestyle size lots) and 2 Additional Uses sites with 1 of those for holiday accommodation (4.0ha) and one for aquaculture (2.9ha). The Structure Plan will also include the extension of two roads (Viscount Heights and Milne Close) from the neighbouring Sheringa Park Estate to the west.

The subject site was assessed as having internal areas of Forest Type A, Woodland Type B, Scrub Type D and Grassland Type G. BAL contouring across the subject site has allocated BAL 29 or less shall apply to any proposed dwellings on the lots. The existing dwelling has low fuel APZ areas associated with BAL 29. BAL 12.5 can be achieved on any internal grassland areas through site specific APZ areas (refer to BAL Contour Plan notation) around individual dwellings. All future buildings can achieve an APZ area associated with a BAL allocation of BAL 29, BAL 19 or BAL 12.5.

Holiday Accommodation is proposed in the north-eastern corner of the Subject Site (refer to Structure Plan Appendix A). The BAL Contouring (Figure 4) indicates that BAL 29 or less can apply to the proposed Holiday Accommodation, however further detailed BAL Assessment will be required prior to Development Approval to ensure no buildings are located in BAL FZ or BAL 40 areas. It is also noted that this lot will require an individual Bushfire Management Plan and Bushfire Emergency Evacuation Plan's (BEEP) as this is defined as a "Vulnerable land use" as per SPP3.7 (WAPC, 2015).

Access will be provided in two alternative directions to separate destinations. A temporary cul-de-sac to Milne Road will occur until Lot 1 is developed, a temporary EAW will be provided with associated easement until such time as the road connection is constructed. If it is not possible to get the easement then a note will be placed on the structure plan requiring deferral to creating lots 16 & 17 until access to Milne Close is provided.

An assessment to the WAPC Guidelines for Planning in Bushfire Prone Areas (vers 1.3, 2017) Acceptable Solutions of the 4 bushfire protection criteria is summarised below.

Table 1: Bushfire protection criteria applicable to the site

Element	Acceptable Solution	Applicable or not Yes/No	Meets Acceptable Solution
Element 1 – Location	A1.1 Development Location	Yes	Compliant BAL 29 or less applied to lots
Element 2 – Siting and Design	A2.1 Asset Protection Zone	Yes	Compliant, APZ in BAL 29 or less. Grasslands to have site specific APZ requirements.
Element 3 – Vehicular Access	A3.1 Two Access Routes A3.2 Public Road A3.3 Cul-de-sacs A3.4 Battle axes A3.5 Private driveways A3.6 Emergency Access Ways A3.7 Fire Service Access Ways A3.8 Firebreaks	Yes Yes Yes No Yes Yes No Yes	Compliant two access points to 2 destinations Compliant 1 temporary, Complaint N/A Compliant Temporary, Complaint N/A Compliant on parent lot, applicable to future lots
Element 4 – Water	A4.1 Reticulated areas A4.2 Non-reticulated areas A4.3 Individual lots in non-reticulated areas	Yes NA No	Compliant N/A N/A

2. Introduction

GA Nominees Pty Ltd commissioned Bio Diverse Solutions (Bushfire Consultants) to prepare a Bushfire Management Plan (BMP) to guide all future bushfire management for the proposed Structure Plan (SP) at Lot 1 and 973 Nanarup Road, Kalgan WA. This BMP has been prepared to assess the subject site to the current and endorsed Guidelines for Planning in Bushfire Prone Areas Vers 1.3 (WAPC, 2017) and State Planning Policy 3.7 (WAPC, 2015).

Such planning takes into consideration standards and requirements specified in various documents such as Australian Standard (AS) 3959-2009, Western Australian Planning Commission (WAPC) Guidelines for Planning in Bushfire Prone Areas Vers 1.3 (WAPC, 2017) and State Planning Policy 3.7 (WAPC, 2015). These policies, plans and guidelines have been developed by WAPC to ensure uniformity to planning in designated "Bushfire Prone Areas" and consideration of the relevant bushfire hazards when identifying or investigating land for future development.

2.1. Location

Lots 1 and 973 Nanarup Road (herein referred to as the Subject Site) is 62ha and located approximately 13km northeast of the Albany CBD in the suburb of Kalgan. The Subject Site is bound by Nanarup Road to the south, Mead Road to the east, a private rural property to the north and a residential development (Sheringa Park Estate) to the west. The location of the Subject Site is shown on Figure 1.

Figure 1: Location Plan

2.2. Development Proposal

The Structure Plan for the Subject Site consists of 27 residential lots ranging in size from 1.0 to 9.5ha (lifestyle size lots) and 2 Additional Uses sites with 1 of those for holiday accommodation (4.0ha) and one for aquaculture (4.0ha). The Structure Plan will also include the extension of two roads (Viscount Heights and Milne Close) from the neighbouring Sheringa Park Estate to the west. The Structure Plan (Ayton Baesjou Planning, 2018) showing the proposed lot layout has been included as Appendix A.

2.3. Statutory Framework

This document and the recommendations contained within are aligned to the following policy and guidelines:

- *Planning and Development Act 2005*;
- *Planning and Development Regulations 2009;*
- *Planning and Development (Local Planning Scheme) Regulations 2015;*
- State Planning Policy 3.7 Planning in Bushfire Prone Areas;
- Guidelines for Planning in Bushfire Prone Areas;
- *Building Act 2011;*
- *Building Regulations 2012;*
- Building code of Australia (National Construction Code);
- *Fire and Emergency Services Act 1998*.
- AS 3959-2009 "Construction of Buildings in Bushfire Prone Areas" current and endorsed standards;
- *Bushfires Act 1954*; and
- City of Albany Annual Fire Management Notice.

The publicly released Bushfire Prone Area Mapping (DFES, 2018) shows that the majority of the Subject Site is located within a Bushfire Prone Area (situated within 100m of >1 ha of bushfire prone vegetation). Bushfire Prone Area Mapping is shown on Figure 2.

Figure 2: Bushfire Prone Area Mapping

2.4. Suitably Qualified Bushfire Consultant

This BMP has been prepared by Kathryn Kinnear (nee White), who has 10 years operational fire experience with the (formerly) DEC (1995-2005) and has the following accreditation in bushfire management:

- Incident Control Systems;
- Operations Officer;
- Prescribed Burning Operations;
- Fire and Incident Operations;
- Wildfire Suppression 1, 2 & 3;
- Structural Modules – Hydrants and hoses, Introduction to Structural Fires, and Fire extinguishers; and
- Ground Controller.

Kathryn Kinnear currently has the following tertiary Qualifications:

- BAS Technology Studies & Environmental Management;
- Diploma Business Studies; and
- Graduate Diploma in Environmental Management.

Kathryn Kinnear is an accredited Level 2 Bushfire Practitioner (Accreditation No: BPAD30794). Bio Diverse Solutions are Silver Corporate Members of the Fire Protection Australia Association and Kathryn is a suitably qualified Bushfire Practitioner to prepare this Bushfire Management Plan.

3. Objectives

The objectives of this BMP are to assess the bushfire risks associated with the existing site and the proposed Structure Plan to reduce the occurrence of, and minimise the impact of bushfires, thereby reducing the threat to life, property and the environment. It also aims to guide the Structure Plan design by assessing the proposal according to the Bushfire Protection Criteria Acceptable Solutions as outlined in the Guidelines for Planning in Bushfire Prone Areas Vers 1.3 (WAPC, 2017).

The BMP aims to:

- Achieve consistency with objectives and policy measures of SPP 3.7 (WAPC, 2015);
- Assess any building requirements to AS3959-2009 (current and endorsed standards) and BAL Construction;
- Assess the Structure Plan proposal against the Bushfire Protection Criteria Acceptable Solutions as outlined in the Guidelines for Planning in Bushfire Prone Areas (WAPC, 2017);
- Understand and document the extent of the bushfire risk to the Subject Site;
- Prepare bushfire risk management measures for bushfire management of all land within the Subject Site with due regard to people, property, infrastructure and the environment;
- Nominate individuals and organisations responsible for fire management and associated works within the Subject Site; and
- Ensure alignment to the recommended assessment procedure which evaluates the effectiveness and impact of proposed, as well as existing, bushfire risk management measures and strategies.

4. Spatial consideration of bushfire threat

A site inspection was conducted on the 16th of May 2016 by Kathryn Kinnear to assess the current land use, topography/slope, vegetation and conditions of the site and its surroundings. Photographs of the Subject Site and surrounding areas were taken and have been presented in this report.

4.1. Land use

The site consists predominately of cleared rural land with two small areas of remnant vegetation one located in the northeast corner and the other in the central western portion of the site. The Subject Site is used for grazing a small head of sheep. There are two dwellings located on the Subject Site one adjacent to the western boundary of the site and the other in the central-southern portion of the site. Both dwellings consist of a small to medium sized house and a shed. Land use on the Subject Site is shown on Photographs 1 to 4.

Photograph 1 – View of shed in the central southern portion of the site.

Photograph 2 – View of grazing sheep in central portion of the site.

Photograph 3 – View of remnant vegetation and dead trees in the central western portion of the site.

Photograph 4 – View of house in central southern portion of the site.

4.2. Surrounding land uses

The Subject Site is surrounded by rural land to the north and east (east of Mead Road) and some residential developments (lifestyle size lots) to the west and south (south of Nanarup Road). The surrounding areas are shown on Photographs 5 to 8.

Photograph 5 – View looking west along Nanarup Road Reserve.

Photograph 6 – View looking north along Mead Road Reserve.

Photograph 7 – View of residential lifestyle lots to the west of the Subject Site.

Photograph 8 – View of remnant vegetation to the north east of the Subject Site.

4.3. Topography

The Subject Site generally slopes gradually from west to east, from a high point of 45m AHD along the western boundary to a flat low point of 10m AHD covering most of the eastern half of the site. The site rises back up in the north-eastern corner of the site to 25m AHD. Topographic contours (5 metre contours) are shown on Figure 3 (page 13).

The effective slopes (measured as per AS3959-2009) for the Subject Site are generally low ranging from 1.6 to 4.5 degrees downslope. The effective slopes for surrounding areas are also low ranging from 1.4 to 1.8 degrees downslope. The effective slopes for the Subject Site and surrounding areas are shown on Figure 3.

4.4. Bushfire fuels – Assessment Inputs

Bushfire Assessment inputs for the site has been calculated using the Method 1 procedure as outlined in AS3959-2009. This incorporates the following factors:

- WA adopted Fire Danger Index (FDI), being FDI 80;
- Vegetation Classes;
- Slope under classified vegetation; and
- Distance between proposed development site and classified vegetation.

Unmanaged Grasslands Type G have been mapped and classified as per AS3959 requirements. BAL calculations are shown in the Bushfire outputs Section 5. Vegetation classification occurred in May 2017 prior to the guideline methodology change in August 2017, hence vegetation mapped to 100m. Vegetation was assessed outside of the 100m boundary as per the requirements of AS3959-2009.

4.4.1. Vegetation

The subject site lies within the Jarrah Forest IBRA bioregion. Hearn et al (2002) describes the bioregion as; '*Duricrusted plateau of Yilgarn Craton characterised by Jarrah-Marri forest on laterite gravels and, in the eastern part, by Wandoo - Marri woodlands on clayey soils. Eluvial and alluvial deposits support Agonis shrublands. In areas of Mesozoic sediments, Jarrah forests occur in a mosaic with a variety of species-rich shrublands.*'

The vegetation has been mapped on a broad scale by J.S. Beard (Shepherd et al 2002) in the 1970's, where a system was devised for state-wide mapping and vegetation classification based on geographic, geological, soil, climate structure, life form and vegetation characteristics (Sandiford and Barrett 2010). A GIS search of J.S. Beards (DEC, 2005) vegetation classification places the Subject Site within one System and Vegetation Association (Source DEC Pre-European Vegetation GIS dataset, 2005):

- **System Association Name:** Kwornicup
- **Vegetation Association Number:** 3
- **Vegetation Description:** Medium forest; Jarrah-Marri.

The vegetation across the Subject Site and surrounding areas is consistent with rural farmland, with the majority of the site and surrounds comprising of heavily grazed pasture dominated by pasture grass species. There are three small patches of remnant vegetation located in the southwest corner, the northeast corner and the central western portion of the site. Areas of remnant vegetation in the southeast and central west are dominated by Jarrah and Marri trees with the occasional *Banksia* and *Acacia* scrub and the southwest corner of the site is dominated by Melaleuca and Sydney Golden Wattle Scrub.

All vegetation within 100m of the site / proposed development was classified in accordance with Clause 2.3 and Exclusions as per Clause 2.2.3.2 of AS 3959-2009. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified below. Each plot is representative of the Vegetation Classification to AS3959-2009 Table 2.3 and shown on the Vegetation Classification Mapping Figure 3, page 13.

Plot	1	Classification or Exclusion Clause	Forest Type A
			**Location:** In the southeast corner of the Subject Site. **Separation Distance:** 0m **Dominant species & description:** Jarrah/Marri trees with grassy understorey & scrubs. Occasional juvenile Eucalypt trees and scrubs, Becoming multilayered. Grasses include Kikuyu, Cooch and clover (200-300mm). Previously grazed. **Vegetation Coverage:** >30 – 70% **Surface fuel loading:** 25 – 35t/ha **Effective slope:** Upslope.
Photo Id 1: View of Forest Type A in the northeast corner of subject site. View from north east to south east.			
Plot	**2**	**Classification or Exclusion Clause**	**Grassland Type G**
			**Location:** Internal to site covering the majority of the site. **Separation Distance:** 0m. **Dominant species & description:** Paddock grasses; Kikuyu, clover, cape weed, occasional clumps of sedges. Less than 10% trees. **Average vegetation height:** 100 - 400mm. **Surface fuel loading:** 3 - 4t/ha. **Effective slope:** Downslope >0 – 5 degrees or upslope depending on final placement of dwelling.
Photo Id 2: View of Grassland Type G located in the southern portion of the site.			
Plot	**3**	**Classification or Exclusion Clause**	**Woodland Type B**
			**Location:** Central creek area of Subject Site. **Separation distance:** 0m. **Dominant species & description:** Currently grassland, scrub and woodland. Could become Woodland Type B in the future with regeneration anticipated along creek protection areas. Occasional Eucalypt trees and Melaleuca Scrub. Includes vegetative buffer in the north of the SP. **Vegetation coverage:** 10 - 30%. **Surface fuel loading:** could reach 15 - 25t/ha. **Effective slope:** Flat.
Photo Id 3: View from Nanarup Road to the northeast of central creek areas in the subject site.			

Plot	4	Classification or Exclusion Clause	Scrub Type D
			**Location:** Internal to the site in the southwest corner of the site. **Separation distance:** 0m. **Dominant species & description:** Dense Melaleuca and Sydney Golden Wattle Scrub. Not multilayered. **Average vegetation height:** 4m. **Surface fuel loading:** 25t/ha. **Effective slope:** Downslope 3.6 degrees or upslope depending on placement of dwelling.
Photo Id: Photo 4 view of Scrub Type D in the south west of the subject site. View from north to south.			
Plot	**5**	**Classification or Exclusion Clause**	**Forest Type A**
			**Location:** Internal to site in the central western portion of the site. **Separation distance:** 0m. **Dominant species & description:** Jarrah, Marri and Casuarina trees with occasional *Banksia* and *Acacia* scrub. Multilayered with grassy understorey (kikuyu, radish, lupins, clover (200-300mm)). **Vegetation height:** 10-15m. **Vegetation coverage:** >10 - 30%. **Surface fuel loading:** 25 - 35t/ha. **Effective slope:** Upslope.
Photo Id 5: View of Forest Type A in the central western portion of the site.			
Plot	**6**	**Classification or Exclusion Clause**	**Woodland Type B**
			**Location:** Internal to the site in the northwest paddock. **Separation distance:** 0m. **Dominant species & description:** Degraded, dead and dying Jarrah and Marri trees. Grazed grasses underneath, not multilayered. **Surface fuel loading:** 15-25t/ha. **Effective slope:** Upslope/flat land. The vegetation is in poor condition and some trees may remain which can be classified as future APZ areas.
Photo Id 6: View from west to east of dead/dying Jarrah and Marri in the north-west corner of the site.			

Plot	7	Classification or Exclusion Clause	Forest Type A
			**Location:** External to site in the property to the north. **Separation distance:** 40m. **Dominant species & description:** Dominated by Jarrah, Marri, Casuarina, *Acacia, Banksias*, grasses and juvenile trees. Multilayered. Some areas possible Woodland Type B but capable of regenerating to Forest Type A. Not fenced from livestock. **Average vegetation height:** 8-12m. **Vegetation coverage:** >30 – 70%. **Surface fuel loading:** 25 - 35t/ha. **Effective slope:** Downslope >0-5 degrees.

Photo Id 7: View from south to north of Forest Type A in adjacent property to the north of the subject site.

Plot	8a	Classification or Exclusion Clause	Low Fuel and Non-Vegetated areas (e)
 			Low fuel and non-vegetated areas associated with Buildings, roads and firebreaks. As per exclusion clause 2.2.3.2 (e) of AS3959

Photo Id 8 (top): View from west to east of Nanarup Road.

Photo Id 9: View of low fuel areas along north-western boundary, accessible strategic fire access (located outside subject site).

Plot	8b	Classification or Exclusion Clause	Low Fuel and Non-Vegetated areas (f)
 			Low fuel and non-vegetated areas associated with windbreaks, and low fuel areas associated with APZ areas around existing houses. **Note:** The CoA Fire Management Notice (FMN) requires lots >4000m2 to 100ha to have low fuel loads on the property, noted along the western side adjacent to the subject site were slashed/mowed grasses to 50mm. Also required under the provisions of the CoA FMN all established buildings are to have a minimum of 20m APZ around existing dwellings, which also accounts for the low fuel observed at the western perimeter of the subject site. Lots <4000m2 are to be completely fuel reduced, as noted under the CoA FMN. **Note:** Windbreaks with a single row of trees and maintained in a low fuel status as shown in photograph 10 are excluded under AS3959-2009.
Photo Id 10 (top): View of windbreak along western boundary. *Photo Id 11: View of low fuel areas along north-western boundary, adjacent to existing dwelling.*			
Plot	**9**	**Classification or Exclusion Clause**	**Grassland Type G**
			**Location:** Internal to site, also located in rural land to the north and the south of the subject site. **Separation Distance:** 0m internal and north, 17.6m (Nanarup Road reserve) to the south. **Dominant species & description:** Paddock grasses; Kikuyu, clover, cape weed, occasional clumps of sedges. Less than 10% trees. **Average vegetation height:** 100 - 400mm. **Surface fuel loading:** 3 - 4t/ha. **Effective slope:** Upslope/Flat land.
Photo Id 12: View of Grassland Type G located in the southern portion of the site.			

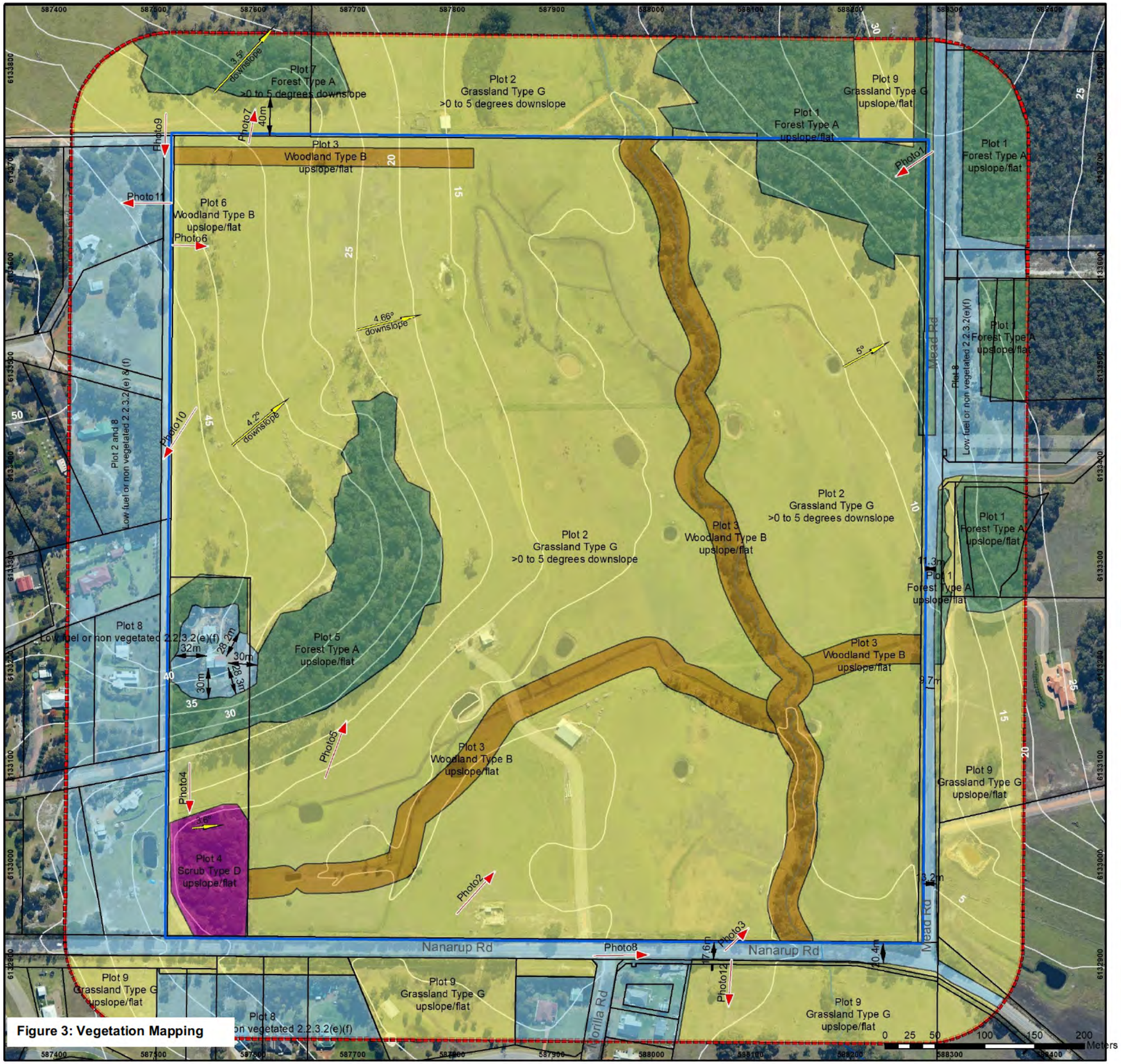


Figure 3: Vegetation Mapping

This BAL Plan was prepared by:
Kathryn Kinnear, Bio Diverse Solutions
Accreditation No: BPAD30794
Valid to: Feb 2017
Jurisdiction: Level 2 - WA

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

BIO DIVERSE SOLUTIONS

Unit 5A, 209 Chester Pass Rd
Albany, WA 6330
Australia
Tel: 08 9842 1575
Fax: 08 9842 1575

Overview Map Scale 1:100,000

Legend

- Subject Site
- 100m Assessment Boundary
- Cadastre
- 5m Contours
- Separation Distance
- Slope Degrees
- Photos

Vegetation

- Forest Type A
- Grassland Type G
- Low fuel or non vegetated 2.2.3.2
- Scrub Type D
- Shrubland Type C
- Woodland Type B

Scale
1:3,750 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: SLIP Virtual Mosaic WMS Service, Landgate 2016
Cadastre and Contours: Landgate 2016
Overview Map: World Topographic map service, ESRI 2012

CLIENT
George Clarke
Lot 973 Nanarup Road
Lower King, WA 6330

Vegetation Classes

BAL Assessor	*QA Check*	*Drawn by*
KK	**KK**	**BT**
STATUS	*FILE*	*DATE*
FINAL	**AB005**	**29/01/2019**

5. Bushfire Assessment Outputs

5.1. Bushfire Attack Levels (BAL)

Bushfire Attack Level (BAL) is the process in AS39598-2009 for measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact. The threat or risk of bushfire attack is assessed by an accredited BAL Assessor. BAL rating determinations are of 6 levels BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40, BAL FZ. Building is generally not recommended in BAL-40 or BAL-FZ areas. The BAL rating is determined by the distance of the building to vegetation, slope and vegetation type adjacent to the dwelling. Refer to Figure 4.

Figure 4: Building to BAL

Bushfire Attack Level (BAL) has been calculated using the Method 1 procedure as outlined in AS3959-2009. This incorporates the following factors:

- WA adopted Fire Danger Index (FDI);
- Vegetation Classes;
- Slope under classified vegetation; and
- Distance between proposed development site and classified vegetation.

The outcomes of the above inputs then allocate a specified BAL construction/setback for proposed buildings.

5.2. Fire Danger Index

The Western Australian adopted FDI is 80 as outlined in AS3959-2009 and endorsed by Australasian Fire and emergency Services Authorities Council. The FDI input for this project is also therefore 80.

5.3. Vegetation Classes

All vegetation within 100m of the Subject Site was classified to AS3959, as demonstrated on the Vegetation Classifications mapping. The vegetation classes (as described in Section 4.4) are shown on Figure 3 and listed below.

- Forest Type A;
- Woodland Type B;
- Scrub Type D;
- Grassland Type G; and
- Exclusions 2.2.3.2 (e) and (f).

5.4. Slope Under Classified Vegetation

Slope under classifiable vegetation (Effective Slope) was assessed in accordance with Section 2.2.5 of AS3959-2009. Table 2 below summarises the slopes assigned to each plot of classifiable vegetation for the BAL calculation.

Table 2: Effective slope allocation to classified vegetation

Plot Number	Vegetation Classification	Effective Slope
1	Forest Type A	Upslope/Flat land
2	Grassland Type G	Downslope >0 to 5 degrees
3	Woodland Type B	Upslope/Flat land
4	Scrub Type D	Downslope >0 to 5 degrees and upslope
5	Forest Type A	Upslope/Flat land
6	Woodland Type B	Upslope/Flat land
7	Forest Type A	Downslope >0 to 5 degrees
8	Low Fuel and Non-vegetated areas (e) and (f)	N/A
9	Grassland Type G	Upslope/Flat land

5.5. Method 1 BAL Calculation

A Method 1 BAL calculation (in the form of BAL contours) has been completed for the proposed development in accordance with AS 3959-2009 methodology. The BAL rating gives an indication of the level of bushfire attack (i.e. the radiant heat flux) that may be received by proposed buildings and subsequently informs the standard of building construction required to increase building tolerance to potentially withstand such impacts in line with the assessed BAL.

The assessed BAL ratings for the development are depicted as BAL contours, BAL ratings for the Subject Site are presented in Table 3 with BAL Contours for the Subject Site shown on Figure 5.

All proposed buildings will be located in areas subject to a BAL rating of BAL-29 or lower. Buildings located solely in grassland Type G are to have a specific APZ area to ensure the BAL 29 or less prevails on the dwellings.

Table 3: BAL Allocation

Lot number	Vegetation Type	Distance to Vegetation (m)	Effective Slope	Highest BAL Rating	Modified BAL Rating
1-5	Forest Type A (Plot 7) Grassland Type G (Plot 2) Grassland Type G (Plot 9)	31-<100m >20m >20m	Downslope >0-5 degrees Downslope >0-5 degrees Upslope	BAL FZ	BAL 12.5 can apply
6 -12	Forest Type A (Plot 7) Grassland Type G (Plot 2)	>50-<100m >20m	Downslope >0-5 degrees Downslope >0-5 degrees	BAL FZ	BAL 12.5 can apply
14 & 13	Forest Type A (Plot 7)	>31-<100m	Downslope >0-5 degrees	BAL FZ	BAL 29 can apply to BE
15	Forest Type A (Plot 5) Grassland Type G (Plot 2) Scrub Type D (Plot 4)	21-<100m >20m 13-<19m	Upslope Downslope >0-5 degrees Upslope	BAL FZ	BAL 29 can apply to BE
16 & 17	Forest Type A (Plot 5) Woodland Type B (Plot 3) Grassland Type G (Plot 2)	21-<100m 14-<20m >20m	Upslope Upslope/Flat Land Downslope >0-5 degrees	BAL FZ	BAL 29 can apply to BE
18, 21-23	Grassland Type G (Plot 2) Woodland Type B (Plot 3	>20m 14-<20m	Downslope >0-5 degrees Upslope/Flat Land	BAL FZ	BAL 12.5 can apply in BE
19	Scrub Type D (Plot 4) Grassland Type G (Plot 9) Woodland Type B (Plot 3)	13-<19m >20m 14-<20m	Upslope Upslope Upslope/Flat Land	BAL FZ	BAL 12.5 can apply in BE
Lot 24-28	Forest Type A (Plot 1) Grassland Type G (Plot 2)	21-<100m >20m	Upslope Downslope >0-5 degrees	BAL FZ	BAL 12.5, 19 and 29 can apply
20	Grassland Type G (Plot 2)	>20m	Downslope >0-5 degrees	BAL FZ	BAL 12.5 can apply

Where multiple BAL allocations are shown on Table 3, the highest BAL is to apply to the building depending on final placement of the building. Individual BAL assessments can be undertaken at Building Approval Stages by and Accredited BAL Assessor.

The following assumptions were applied in the BAL Contour Plan (Figure 5):

- Method 1 (AS3959-2009) Simplified procedure was used for vegetation classification and BAL Assessment process;
- The BAL Contour Plan was prepared by an Accredited Level 2 Bushfire Planning Practitioner (BPAD30794);
- The BAL Contour Map has been prepared in accordance with Department of Planning (WAPC) Guidelines for Planning in Bushfire Prone Areas (Version 1.3, 2017);
- Structure Plan nis based on plan as supplied by proponent (Appendix A);
- Subject site is located in a Bushfire Prone Area, see Figure 2 (SLIP, 2018);
- The Creek Protection areas will regenerate into Woodland Type B vegetation type;
- Areas indicated on the SP for streetscaping and vegetated buffers are noted to be Low fuel and will be to WAPC APZ requirements/standards. See Figure 6;
- Internal Grassland areas (Plot 2) are not mapped on the BAL Contour assessment, with setback distances shown on the BAL Contour map to indicate requirements to achieve BAL-29 or below; and
- Detailed BAL Assessments may be required at Building approval stages.

Note on internal grassland areas:
The lot contains significant areas of internal grasslands which are mapped as bushfire hazards (refer to Vegetation Classes Map). For practical purposes and to assist in identifying areas of 'least risk', the internal grasslands have been left off the BAL Contour Map (Plot 2). Setback distances to these areas are to be as per AS3959 and the following to apply:

Plot 2 – Grassland >0-5 degrees
9-<14m for BAL 29
14-<20m for BAL 19
20-<50m for BAL 12.5

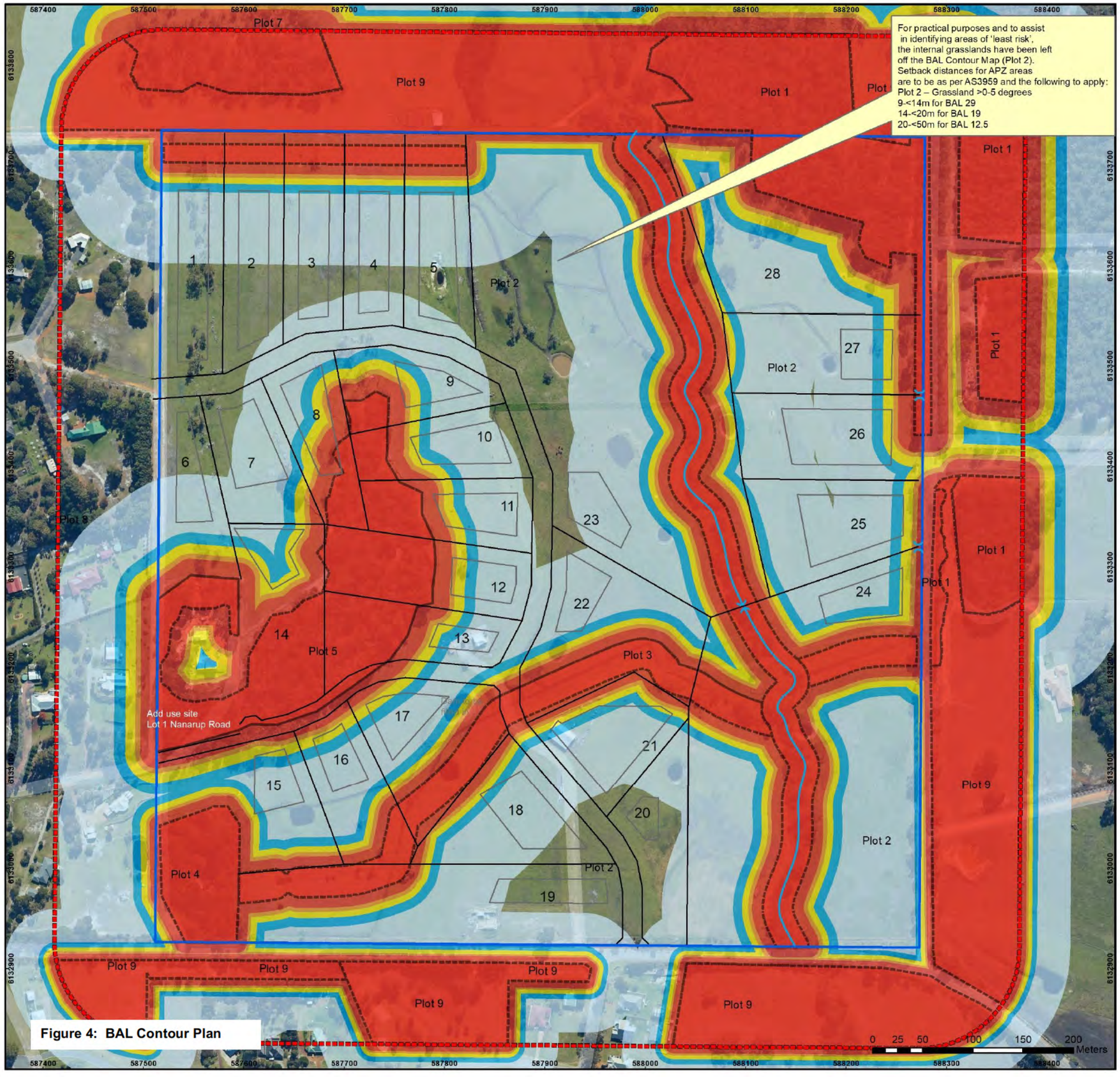


Figure 4: BAL Contour Plan

This BAL Plan was prepared by:
Kathryn Kinnear, Bio Diverse Solutions
Accreditation No: BPAD30794
Valid to: Feb 2017
Jurisdiction: Level 2 - WA

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

BIO DIVERSE SOLUTIONS

Unit 5A, 209 Chester Pass Rd
Albany, WA 6330
Australia
Tel: 08 9842 1575
Fax: 08 9842 1575

Overview Map Scale 1:100,000

Legend

- Subject Site
- 100m Assessment Boundary
- Building Envelopes
- Lot layout
- creekline
- BAL-FZ
- BAL-40
- BAL-29
- BAL-19
- BAL-12.5
- BAL-LOW

Scale
1:3,750 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: SLIP Virtual Mosaic WMS Service, Landgate 2016
Cadastre and Contours: Landgate 2016
Overview Map: World Topographic map service, ESRI 2012

CLIENT
George Clarke
Lot 973 Nanarup Road
Lower King, WA 6330

BAL Contour Plan

BAL Assessor	*QA Check*	*Drawn by*
KK	CC	CC
STATUS	*FILE*	*DATE*
FINAL	AB005	29/01/2019

6. Assessment to the bushfire protection criteria

The Guidelines for Planning in Bushfire Prone Areas (WAPC, 2017) outlines bushfire protection criteria which Structure Plans, subdivision and development proposals are assessed for compliance. The bushfire protection criteria (Appendix 4, WAPC, 2017) are a performance-based criterion utilised to assess bushfire risk management measures and they outline four elements, being:

- Element 1: Location
- Element 2: Siting and Design of Development;
- Element 3: Vehicle Access; and
- Element 4: Water.

(WAPC, 2017)

The Structure Plan is required to meet the "Acceptable Solutions" of each Element of the bushfire mitigation measures (WAPC, 2017). The proposal will be assessed against the bushfire protection criteria Acceptable Solutions for Elements A1, A2, A3 and A4. A summary of the assessment is provided below in Table 4. The following sections of this report outlines how the proposal complies with the bushfire protection criteria Acceptable Solutions as per the Guidelines for Planning in Bushfire Prone Areas (WAPC, 2017).

The Subject Site was assessed against the bushfire protection criteria Acceptable Solutions for Elements A1, A2, A3 and A4. Please refer to the summary table below and the detailed assessment in Sections 6.1-6.4.

Table 4: Bushfire protection criteria applicable to the site

Element	Acceptable Solution	Applicable or not Yes/No	Meets Acceptable Solution
Element 1 – Location	A1.1 Development Location	Yes	Compliant BAL 29 or less applied to lots
Element 2 – Siting and Design	A2.1 Asset Protection Zone	Yes	Compliant, APZ in BAL 29 or less. Grasslands to have site specific APZ requirements.
Element 3 – Vehicular Access	A3.1 Two Access Routes	Yes	Compliant two access to 2 destinations
	A3.2 Public Road	Yes	Compliant
	A3.3 Cul-de-sacs	Yes	Compliant, 1 temporary
	A3.4 Battle axes	Yes	Compliant
	A3.5 Private driveways	Yes	Compliant
	A3.6 Emergency Access Ways	Yes	Compliant
	A3.7 Fire Service Access Ways	No	N/A
	A3.8 Firebreaks	Yes	Compliant on parent lot, applicable to future lots
Element 4 – Water	A4.1 Reticulated areas	Yes	Compliant
	A4.2 Non-reticulated areas	NA	N/A
	A4.3 Individual lots in non-reticulated areas	N/A	N/A

6.1. Element 1: Location

Intent: To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure.

Acceptable Solutions

A1.1 Development Location: *the strategic planning proposal, subdivision and development application is located in an area that is or will, on completion, be subject to either a moderate or low Bushfire hazard level or BAL-29 or below (WAPC, 2017).*

Assessment to Acceptable Solutions

A1.1 Development Location: The publicly released Bushfire Prone Mapping (DFES 2018) indicates this area as bushfire prone. The BAL Contour Plan (Figure 5) prepared demonstrates the BAL Contours upon completed construction of the Structure Plan, demonstrating the dwellings could be subject to BAL 29 or less on the lots depending on final placement of buildings. No higher than BAL 29 should apply to any proposed dwellings on the lots. The existing dwelling has low fuel APZ areas associated with BAL 29.

BAL 12.5 can be achieved on any internal grassland areas through a minimum APZ area as specified on the BAL contour plan around individual dwellings. Refer to Section 6.2 for more detail on APZ areas. Grasslands are not exempt from the BAL assessment and calculation of AS3959 applicable to the site, however it is noted that site specific BAL assessments may be required at building approval stages depending on final location of the dwellings.

Holiday Accommodation is proposed in the north-eastern corner of the Subject Site (refer to Structure Plan Appendix A). The BAL Contouring (Figure 4) indicates that BAL 29 or less can apply to the proposed Holiday Accommodation, however further detailed BAL Assessment will be required prior to Development Approval to ensure no buildings are located in BAL FZ or BAL 40 areas. It is also noted that this lot will require an individual Bushfire Management Plan and Bushfire Emergency Evacuation Plan's (BEEP) as this is defined as a "Vulnerable land use" as per SPP3.7 (WAPC, 2015).

An Additional Use site is also proposed for the south-west corner, this lot will be utilised for Aquaculture and include the existing dwelling. The BAL Contouring (Figure 4) indicates that BAL 29 is achieved on the existing house and no other buildings are proposed as part of the Aquaculture enterprise.

It is noted that at the time of writing staged development is unknown. Staged development is to ensure the developer maintains grasslands and vegetation in accordance with the BAL contour Plan and APZ standards (See section 6.2).

Recommendations

The recommendations arising from the assessment of the Structure Plan to Element 1: Location:

- Development is deemed compliant to A1.1 due to:
  - No higher BAL allocation than BAL 29 will apply to buildings upon completion of Structure Plan; and
  - The existing house can maintain BAL 29 or less on the building.
- Additional Use – Holiday Accommodation site will require updated BAL contouring and detailed BMP and BEEP at DA stages.
- The developer will be responsible for the implementation of a notification on title pursuant to Section 70A of the Transfer of Land Act 1893 for all lots affected by an increase in construction standards consistent with a BAL rating/AS3959-2009 allocation to the lot and alerting the prospective owner(s) of the lots and successors in title of the Bushfire Management Plan.
- Individual BAL assessments may be considered on the lots by the new owners when dwelling design/placement is known and can be undertaken at building approval stages with the engagement of an Accredited Level 1 BAL Assessor.

6.2. Element 2: Siting and Design

Intent: To ensure that the siting and design of development minimises the level of bushfire impact.

Acceptable Solutions

A2.1 Asset Protection Zone (APZ): *every habitable building is surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:*

- ***Width:*** *Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a bushfire does not exceed 29kW/m² (BAL-29) in all circumstances.*
- ***Location:*** *the APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity (see explanatory notes).*
- ***Management:*** *the APZ is managed in accordance with the requirements of 'Standards for Asset Protection Zones'.*

(WAPC, 2017)

An Asset Protection Zone (APZ) is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level (WAPC, 2017). This is also defined as a "defendable zone". Any buildings will have an APZ utilising Low threat or non-vegetated areas as classified by AS3959-2009 Section 2.2.3.2. Any replanting, revegetation and landscaping across the lots is to be to an APZ standard as per WAPC Guidelines V 1.3 (WAPC, 2017) as outlined below.

WAPC Guidelines for an APZ (WAPC, 2017)

Fences: within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used.

Objects: within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.

Fine Fuel load: combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare.

Trees (> 5 metres in height): trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy. See Figure 6 (WAPC Figure 16, Appendix 4) below.

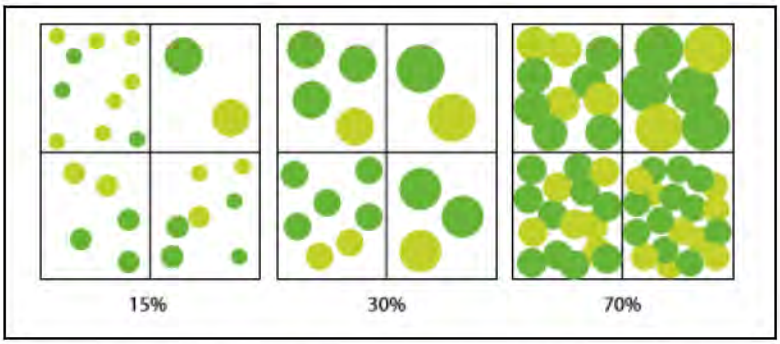


Figure 6: Tree Canopy Coverage – ranging from 15 to 70% at maturity (WAPC, 2017)

Shrubs (0.5 metres to 5 metres in height): should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m² in area, clumps of shrubs should be separated from each

other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.

Ground covers (<0.5 metres in height): can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.

Grass: should be managed to maintain a height of 100 millimetres or less.

(WAPC, 2017).

Assessment to Acceptable Solutions

A2.1 Asset Protection Zone (APZ): All future buildings can achieve an APZ area associated with a BAL allocation of BAL 29, BAL 19 or BAL 12.5. APZ areas will apply to some of the lots in BE's associated with setbacks of BAL 29 or less. APZ setbacks associated with BAL allocation is to apply to individual buildings and is dependent on final placement of the dwelling on the lot. It is recommended that an APZ area is depicted on plans submitted to the City of Albany at building approval stages with the certified BAL certificate. Additional distance (i.e. >21m to Forest Type A) may apply to the APZ area depending on final placement of the dwelling and distance to classifiable vegetation. The existing house is to maintain low fuel areas to APZ standards as documented in this report at all times.

APZ areas in Plot 2 (Grassland Type G) are to be the following:

- 9-<14m for BAL 29;
- 14-<20m for BAL 19; and
- 20-<50m for BAL 212.5.

Staged development of the subject site is to incorporate maintenance of internal grassland areas to APZ requirements to 100m from any from any dwellings or construction areas. The developer will be responsible for maintenance of the site until ownership is relinquished to new lot owners.

Any future plantings (buffers, streetscaping etc.) as shown in the SP are to be to WAPC APZ standard (Figure 6) as outlined in this report. The revegetation of the central creek area has been assessed as being a Woodland Type B and therefore will not need to comply to APZ standards. New lot owners are to conform to any planting on their lot for revegetation, screening or windbreaks to WAPC APZ standards.

The Structure Plan is deemed to be compliant with A2.1.

Recommendations

The recommendations arising from assessment of the Structure Plan to Element 2: Siting and design:

- A minimum APZ area consistent with BAL 29 or less will to apply to the lots, and is dependent on final placement of the dwelling;
- Staged construction is to ensure that internal grassland areas are maintained as per APZ areas to a minimum of 100m from any future dwellings or dwelling construction sites; and
- Any future landscaping, revegetation (excepting central creek area) or replanting is to conform to WAPC APZ standards.

6.3. Element 3: Vehicle Access

Intent: To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event.

Acceptable Solutions

A3.1 Two access routes: *Two different vehicular access routes are provided, both of which connect to the public road network, provide safe access and egress to two different destinations and are available to all residents/the public at all times and under all weather conditions.*

A3.2 Public road: *A public road is to meet the requirements in Table 5, Column 1.*

A3.3 Cul-de-sac (including a dead-end road): *A cul-de-sac and/or a dead-end road should be avoided in bushfire prone areas. Where no alternative exists (i.e. the lot layout already exists and/or will need to be demonstrated by the proponent), the following requirements are to be achieved: Requirements in Table 5, Column 2; Maximum length: 200 metres; and Turn-around area requirements, including a minimum 17.5 metre diameter head.*

A3.4 Battle-axe: *Battle-axe access leg should be avoided in bushfire prone areas. Where no alternative exists, (this will need to be demonstrated by the proponent) all of the following requirements are to be achieved: Requirements in Table 5, Column 3; Maximum length: 600 metres; and Minimum width: 6 metres.*

A3.5 Private driveway: *longer than 50 metres A private driveway is to meet all of the following requirements: Requirements in Table 5, Column 3; Required where a house site is more than 50 metres from a public road; Passing bays: every 200 metres with a minimum length of 20 metres and a minimum width of two metres (i.e. the combined width of the passing bay and constructed private driveway to be a minimum six metres); Turn-around areas designed to accommodate type 3.4 fire appliances and to enable them to turn around safely every 500 metres (i.e. kerb to kerb 17.5 metres) and within 50 metres of a house; and any bridges or culverts are able to support a minimum weight capacity of 15 tonnes. All-weather surface (i.e. compacted gravel, limestone or sealed).*

A3.6 Emergency access way: *An access way that does not provide through access to a public road is to be avoided in bushfire prone areas. Where no alternative exists (this will need to be demonstrated by the proponent), an emergency access way is to be provided as an alternative link to a public road during emergencies. An emergency access way is to meet all of the following requirements: – Requirements in Table 4, Column 4; – No further than 600 metres from a public road; – Provided as right of way or public access easement in gross to ensure accessibility to the public and fire services during an emergency; and – Must be signposted.*

A3.7 Fire service access routes (perimeter roads): *Fire service access routes are to be established to provide access within and around the edge of the subdivision and related development to provide direct access to bushfire prone areas for fire fighters and link between public road networks for firefighting purposes. Fire service access routes are to meet the following requirements: Requirements Table 5, Column 5; Provided as right of ways or public access easements in gross to ensure accessibility to the public and fire services during an emergency; Surface: all-weather (i.e. compacted gravel, limestone or sealed) Dead end roads are not permitted; Turn-around areas designed to accommodate type 3.4 appliances and to enable them to turn around safely every 500 metres (i.e. kerb to kerb 17.5 metres); No further than 600 metres from a public road; Allow for two-way traffic and Must be signposted.*

A3.8 Firebreak width: *Lots greater than 0.5 hectares must have an internal perimeter firebreak of a minimum width of three metres or to the level as prescribed in the local firebreak notice issued by the local government.*

Table 5: Vehicular Access Technical Requirements (WAPC, 2017)

Technical requirements	Public Road	Cul-de-sacs	Private Driveways	Emergency Access Ways (EAW)
Minimum trafficable surface (m)	*6	6	4	6
Horizontal clearance (m)	6	6	6	6
Vertical clearance (m)	4.5	4.5	4.5	4.5
Maximum grades	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15
Maximum crossfall	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius (m)	8.5	8.5	8.5	8.5
Maximum Length	N/A	200m	50m	600m

*Denotes the width can include a 4m wide paving with one metre wide constructed road shoulders

Assessment to Acceptable Solutions

A3.1 Two access routes: The Structure Plan meets the Acceptable Solution, with the design allowing for two-way traffic and safe egress from the Structure Plan via newly established road networks linking from the north west and the south. Access to and from the Structure Plan (entry/exit points) will be from Nanarup Road (south), from the west along Milne Close and Viscount Heights to the west and along Mead Road for lots fronting this road in the east. Refer to Figure 7.

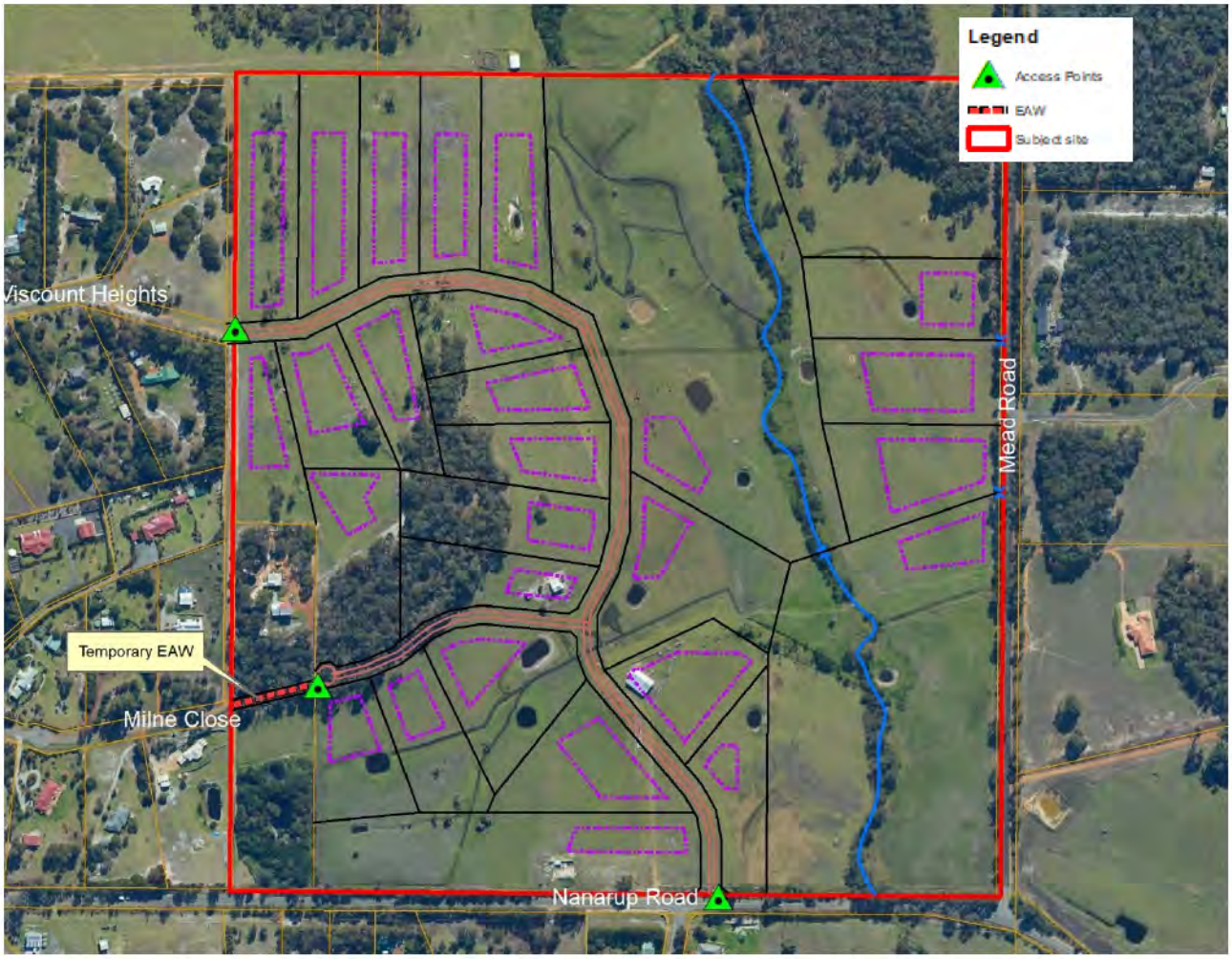


Figure 7: Access Plan

Nanarup Road and Mead Road are major arterial connecting roads. Viscount Heights and Milne Close link west to Prideaux Road which is also a connecting local road to the north and south. The link west to Milne Close will be constructed when Lot 1 is built/developed. A temporary cul-de-sac linked by a temporary EAW will exist until Lot 1 Nanarup Road is developed.

Subject site deemed compliant with A3.1

A3.2 Public roads: All internal public roads shall be constructed with a minimum of 20-21m road reserves measured, meeting the minimum construction requirements. The Vehicular Access Standards (Refer to Table 5 – Column 1) and relevant technical information shall be detailed in civil engineering designs at subdivision stage. The Structure Plan is deemed compliant to Acceptable Solution A3.2.

A3.3 Cul-de-sac: Cul-de-sacs are to be avoided in bushfire prone areas. A temporary cul-de-sac is proposed in the west to Milne Close until such time as Lot 1 Nanarup Road is subdivided. This measures 272m long and as is temporary in nature and will not remain in perpetuity. As the temporary cul-de-sac is >200m a temporary EAW (See A3.6) will be installed to link through to Milne Close. This will be gated but not locked. Cul-de-sacs are to meet the minimum technical requirements as per Table 5, column 2 and relevant technical information shall be detailed in civil engineering designs at subdivision stage.

With the inclusion of a temporary EAW along the temporary cul-de-sac to Milne Close, the Structure Plan is deemed to comply to Acceptable Solution A3.3.

A3.4 Battle-axe: No Battle axe lots are proposed, the SP is not assessed to Acceptable solution A3.4.

A3.5 Private driveways: Private driveways will conform to the minimum technical standards as outlined in Table 4 – Column 4. Where driveways exceed 50m a turnaround area will be required at the house to accommodate heavy duty vehicles, where a driveway exceeds 200m passing bays will be required along the driveway to allow emergency vehicles to pass safely. The SP is deemed compliant to Acceptable Solution A3.5.

A3.6 Emergency access ways: An Emergency Access Ways (EAW) will apply as a temporary measure in the south until such time as the linking public road to Milne Close is constructed through Lot 1 Nanarup Road. Refer to Figure 7. This small EAW will link the temporary cul-de-sac to Milne Close and can be gated but not locked. Signage is to be approved by the CoA. Gates are to be a minimum 3.6m to accommodate heavy vehicles. An easement in gross is to be provided for unimpeded access in an emergency bushfire event.

The temporary EAW to Milne Close is deemed compliant to this Acceptable Solution A3.6.

A3.7 Fire Service Access Routes: Fire Service Access (FSA) Routes will not be applied at this development. Any emergency access will be along the established internal roads, with a separate dedicated FSA not required. The Structure Plan is not assessed to this Acceptable Solution A3.7.

A3.8 Firebreaks: Firebreaks are in existence on the subject site and maintained regularly by the current owners. These will be maintained as per the CoA Fire break notice (updated annually) until developed. The newly established lots will require fire breaks to 3m as per the current CoA Fire Management Notice.

Recommendations

The recommendations from assessment of the SP to Element 3: Vehicular Access:

- Is deemed compliant with Element 3 as it meets the Acceptable Solutions as outlined A3.1 to A3.8;
- The developer implements the vehicular construction standards as outlined in Table 4;
- The temporary EAW is constructed to the minimum technical requirements of Table 5 and provided as an easement in gross;
- Engineering construction details on the road network particularly to meet maximum allowable grades is provided to the CoA prior to construction of each development stages; and
- Fire breaks as per the requirements in the CoA Management Notice maintained by the owner until the land is developed into urban land (annually updated).

6.4. Element 4: Water

Intent: To ensure that water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire.

Acceptable Solutions

A4.1 Reticulated areas: *The subdivision, development or land use is provided with a reticulated water supply in accordance with the specifications of the relevant water supply authority and Department of Fire and Emergency Services.*

A4.2 Non-reticulated areas: *Water tanks for firefighting purposes with a hydrant or standpipe are provided and meet the following requirements: Volume: minimum 50,000 litres per tank; Ratio of tanks to lots: minimum one tank per 25 lots (or part thereof); Tank location: no more than two kilometres to the further most house site within the residential development to allow a 2.4 fire appliance to achieve a 20 minute turnaround time at legal road speeds; Hardstand and turn-around areas suitable for a type 3.4 fire appliance (i.e. kerb to kerb 17.5 metres) are provided within three metres of each water tank; and Water tanks and associated facilities are vested in the relevant local government.*

A4.3 Individual lots within non-reticulated areas (Only for use if creating 1 additional lot and cannot be applied cumulatively): *Single lots above 500 square metres need a dedicated static water supply on the lot that has the effective capacity of 10,000 litres.*

Assessment to Acceptable Solutions

A4.1 Reticulated areas: The development will be provided with reticulated scheme water in accordance with the specifications of the relevant water supply authority (Water Corporation WA (WCWA)) and DFES requirements. This will be detailed in the detailed engineering drawings and be subject to approval from WCWA and DFES at subdivision condition stages, meeting the Acceptable Solution. Fire hydrant (street) outlets are required, these must be installed to WCWA standards installed in accordance with the *Water Corporation's No 63 Water Reticulation Standard* and are to be identified by standard pole and/or road markings and installed by the Developer.

Structure Plan upon construction is deemed compliant to this Acceptable Solution 4.1.

A4.2 Non-reticulated areas: The Structure Plan will be connected to reticulated water; therefore, water tanks will not be required, assessment to A4.2 not required.

A4.3 Individual lots within non-reticulated areas: The Structure Plan will be connected to reticulated water; therefore, water tanks will not be required and assessment to A4.3 not required.

Recommendations

The recommendations from assessment of the SP to Element 4: Water:

- Is deemed compliant with Element 4 through the provision of reticulated water to the development which will be detailed in the engineering drawings at development stages; and
- Fire hydrant (street) outlets are required, these must be installed to WCWA standards installed in accordance with the *Water Corporation's No 63 Water Reticulation Standard* and are to be identified by standard pole and/or road markings and installed by the Developer.

7. Other Fire Mitigation Measures

7.1. Evaporative air conditioners

Evaporative air conditioning units can catch fire as a result of embers from bushfires entering the unit. These embers can then spread quickly through the home causing rapid destruction. It can be difficult for fire-fighters to put out a fire in the roof spaces of homes.

It is also recommended that the developer:

- Ensure that suitable external ember screens are placed on roof top mounted evaporative air conditioners compliant with AS3959-2009 (current and endorsed standards) and that the screens are checked annually; and
- Maintain evaporative air conditioners regularly as per DFES recommendations, refer to the DFES website for further details: http://www.dfes.wa.gov.au

7.2. Barrier Fencing

In November 2010 the Australian Bushfire CRC issued a "Fire Note" (Bushfire CRC, 2010) which outlined the potential for residential fencing systems to act as a barrier against radiant heat, burning debris and flame impingement during bushfire. The research aimed to observe, record, measure and compare the performance of commercial fencing of Colourbond steel and timber (treated softwood and hardwood).

The findings of the research found that:

"*.. Colourbond steel fencing panels do not ignite and contribute significant heat release during cone calorimeter exposure*" (exposure to heat)

.."Colourbond steel (fencing) had the best performance as a non-combustible material. It maintained structural; integrity as a heat barrier under all experimental exposure conditions, and it did not spread flame laterally and contribute to fire intensity during exposure"

It is also noted that non-combustible fences are recommended by WAPC (APZ standards: Fences and sheds within the APZ are constructed using non-combustible materials e.g. colourbond iron, brick, limestone, metal post and wire). The developer will be encouraged to build Colourbond or non-combustible fences where applicable.

8. Conclusions and Recommendations

8.1. Overall fire threat

GA Clarke Nominees Pty Ltd commissioned Bio Diverse Solutions (Bushfire Consultants) on behalf of their client to prepare a Bushfire Management Plan to guide all future bushfire management for the proposed Structure Plan at Lots 1 and 975 Nanarup Road Lower King.

This BMP report provides details of the fire management strategies proposed to be implemented across the site as it is developed to ensure adequate protection of life, property and biodiversity assets. To ensure the mitigation measures are implemented responsibilities are outlined in the following sections for the developer and the City of Albany.

8.2. Future Lot owner's Responsibility

It is recommended the Future Property Owners shall be responsible for the following:

- To take measures to protect their own assets on their property;
- Implement this document, Bushfire Management Plan of Lot 1 and 973 Nanarup Road as it applies to their individual property;
- Where a lot has been identified as requiring an increased construction standard (i.e. BAL/AS3959-2009) ensure that the design and construction of any building is compliant with the requirements of AS3959-2009 (current and endorsed standards);
- An APZ area is to be depicted on a BAL plan submitted to the City of Albany at building approval stages with the certified BAL certificate.
- Any future landscaping, revegetation or replanting on the lots is to conform to WAPC APZ standards.
- Ensuring that suitable external ember screens are placed on roof top mounted evaporative air conditioners compliant with AS3959-2009 (current and endorsed standards) and that the screens are checked annually;
- It is the responsibility of the individual property owner to maintain in good order and condition APZ, firebreaks and driveway standards. Future modifications other than requirements as set out in this Bushfire Management Plan can only be done with written agreement from the CoA; and
- Individual BAL assessments may be considered on the lots by the new owners when dwelling design/placement is known and can be undertaken at building approval stages with the engagement of an Accredited Level 1 BAL Assessor.

8.3. Developer's responsibility

It is recommended the developer be responsible for the following:

- Implementation of the approved Bushfire Management Plan;
- Comply with standards as outlined by the CoA and WAPC conditions of subdivision;
- The developer will be responsible for the implementation of a notification on title pursuant to Section 70A of the *Transfer of Land Act 1893* for all lots affected by an increase in construction standards consistent with a BAL rating/AS3959-2009 allocation to the lot, and alerting the prospective owner(s) of the lots and successors in title of the Bushfire Management Plan
- Maintain any APZ areas of balance of land as per Guidelines for Planning in Bushfire Prone Areas (WAPC, 2017) (as outlined in this plan);

- Maintain fire protection measures across the site at all times (access, landscaped areas etc.);
- Maintaining the Subject Site to minimise bushfire fuels and mitigate the risk of bushfire in accordance with the CoA Management Notice (yearly advice brochure updated annually);
- Any future landscaping, revegetation (excepting central creek area) or replanting is to conform to APZ standards.
- Construct access with minimum standards outlined in Table 5;
- The EAW is constructed and provided as an easement in gross prior to issue of titles;
- Provide reticulated water as per WCWA standards;
- "Additional Use Tourist Accommodation" areas will require an individual Bushfire Management Plan's and Bushfire Emergency Evacuation Plan's (BEEP) per SPP3.7 (WAPC, 2015); and
- Modify this Bushfire Management Plan and/or BAL Contour Plan in accordance with any changes to the subdivision application plan.

Prior to development being given final approval by the City of Albany, the developer shall be required to carry out works that include the following but in respect to individual stages of development. Subsequent to the issue of final approval, the Developer shall have no further responsibilities to the provision of firefighting facilities and fire management on individual lots that pass from their ownership.

9. References

AS 3959-2009 Australian Standard, *Construction of buildings in bushfire-prone areas*, Building Code of Australia, Primary Referenced Standard, Australian Building Codes Board and Standards Australia.

Bushfire CRC (2010) *Managing Forest in South West Western Australia*, Research project undertaken by Dr Lachlan McCaw and Dr Roy Wittkuhn, retrieved from: http://www.bushfirecrc.com/projects/b11/managing-forest-fires-south-western-australia

City of Albany Fire Management Notice, yearly advise brochure, accessed July 2017 from: http://www.albany.wa.gov.au

Department of Fire and Emergency Services Website accessed July 2017: http://www.dfes.wa.gov.au

Hearn, R., Williams, K. and Comer, S. (2002) Jarrah Forest (JF2 Southern Jarrah Forest Sub-region), A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002, Department of Conservation and Land Management.

Sandiford, E.M. and Barrett, S. (2010). *Albany Regional Vegetation Survey, Extent Type and Status, A project funded by the Western Australian Planning Commission (EnviroPlanning "Integrating NRM into Land Use Planning" and State NRM Program), South Coast Natural Resource Management Inc. and City of Albany for the Department of Environment and Conservation*. Unpublished report. Department of Environment and Conservation, Western Australia.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2002) *Native Vegetation in Western Australia, extent Type and Status, Technical Report 249*, Department of Agriculture WA.

Western Australian Planning Commission (WAPC) (2017) Guidelines for Planning in Bushfire Prone Areas Version 1.3. Western Australian Planning Commission and Department of Planning WA, Government of Western Australia.

Western Australian Planning Commission (WAPC, 2015) State Planning Policy 3.2 Planning in Bushfire Prone Areas. Department of Planning WA and Western Australian Planning Commission.

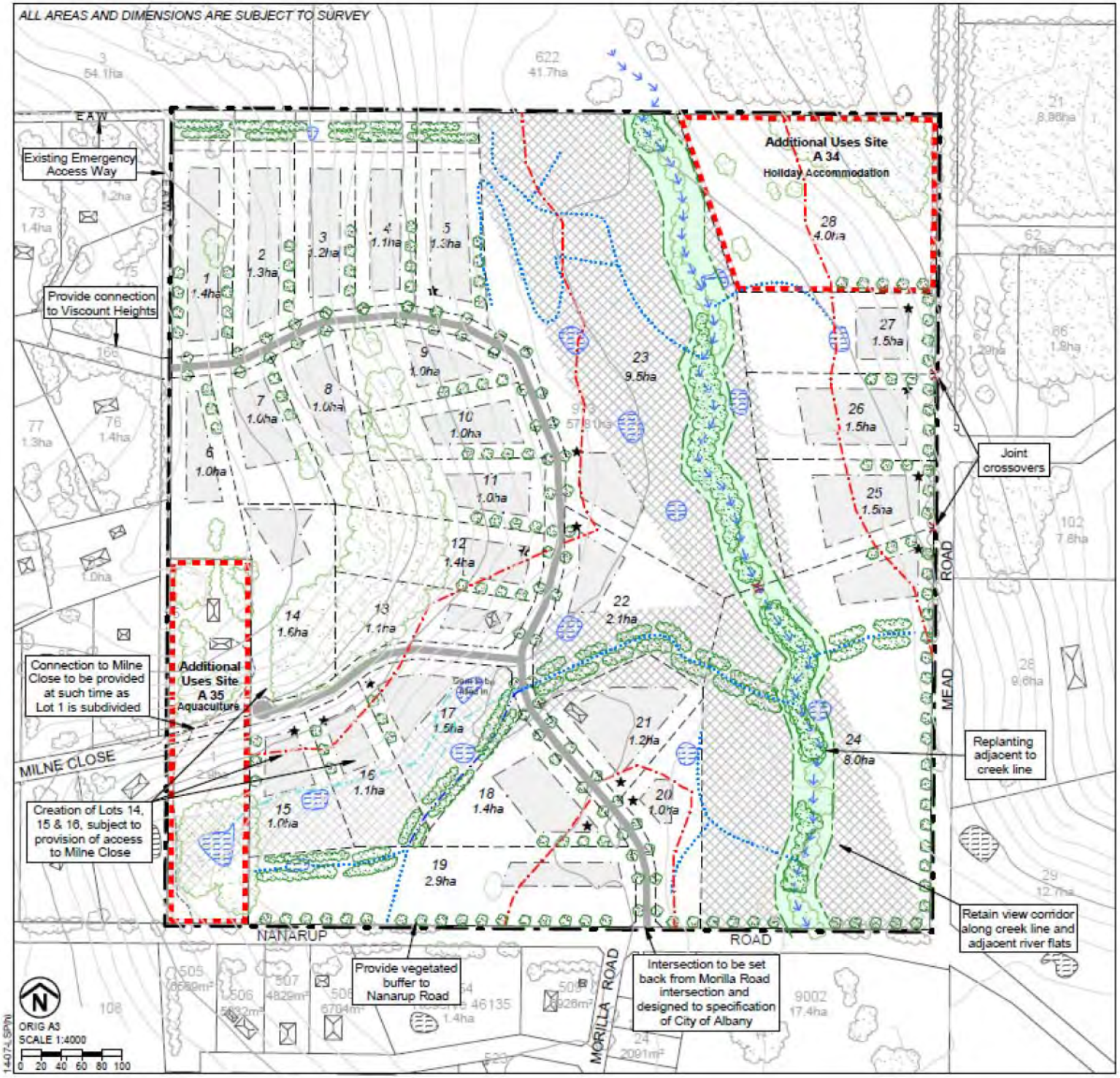
State Land Information Portal (SLIP) (2018) Map of Bushfire Prone Areas. Office of Bushfire Risk Management (OBRM) data retrieved from:
https://maps.slip.wa.gov.au/landgate/bushfireprone/

Appendices

Appendix A –Structure Plan

LOCAL STRUCTURE PLAN

Lots 1 & 973 Nanarup Road
Lower King, City of Albany
December 2018



LEGEND

- Subject Land
- Existing Lot Boundaries
- Proposed Lot Boundaries
- Existing Vegetation
- Revegetation
- Indicative Planting / Street Trees
- Existing Buildings
- Existing Crossing
- Existing Dams
- Creek Line
- Creek Line Protection Area
- Existing Drainage to be Retained
- Existing Drainage to be Filled In
- Relocated and Vegetated Drainage Line
- 100m Effluent Disposal Setback
- Indicative Effluent Disposal Areas
  Subject to detailed assessment at development stage
- EAW Emergency Access Way
- Building Exclusion Area
- Proposed Building Envelope
- Additional Uses Sites

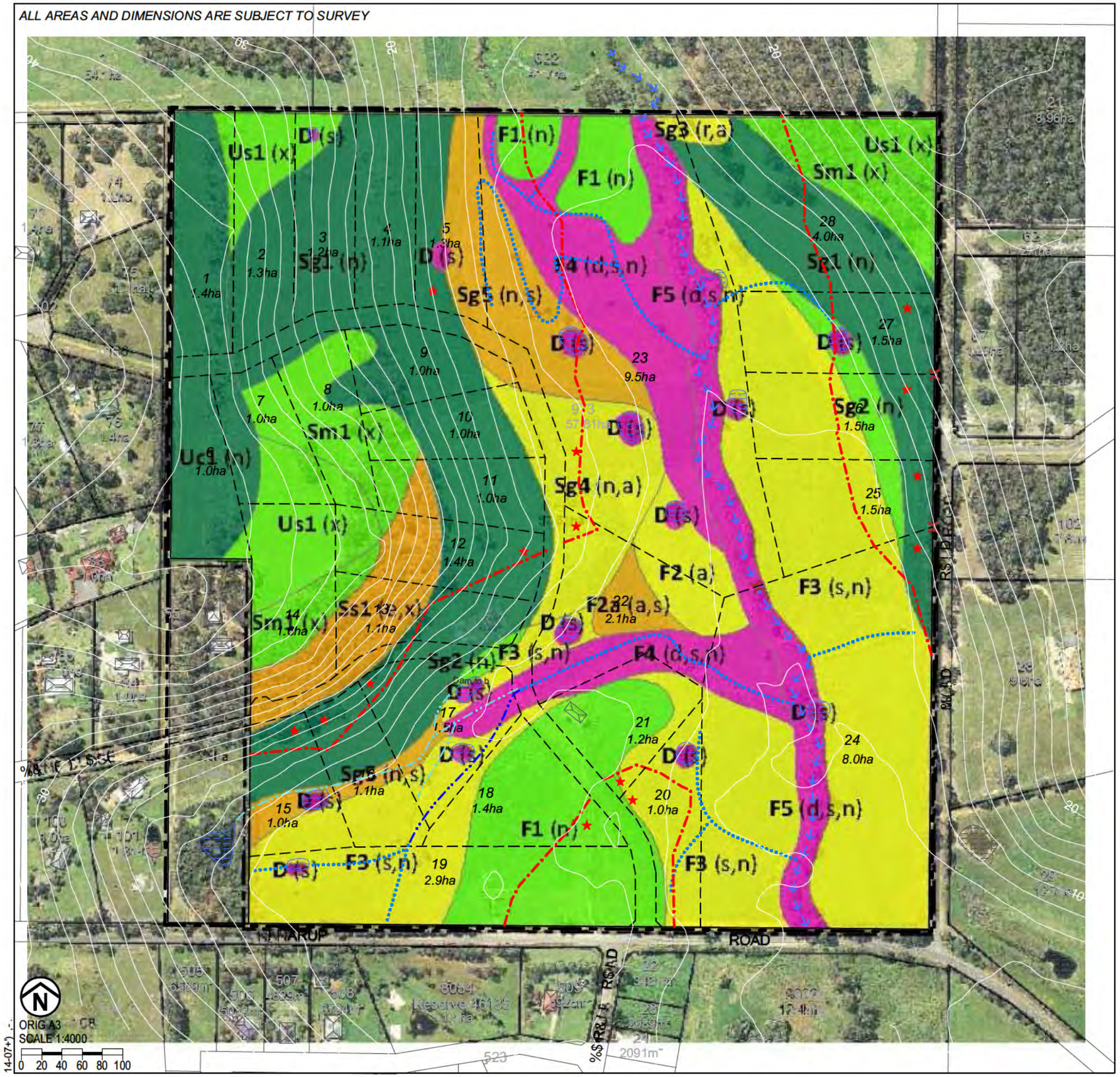
AYTON BAESJOU
PLANNING
59 Peels Place
ALBANY WA 6330
Ph 9842 2304 Fax 9842 8494

Appendix D

'! D CAPABILITY

Lots 1 & 973 anarup Road
Lower King, City of Albany
D cember 2018

ALL AREAS AND DIMENSIONS ARE SUBJECT TO SURVEY



LEGEND

- Subject Land
- Existing Lot Boundaries
- Proposed Lot Boundaries
- Existing Buildings
- Existing Crossing
- Existing Dams
- Creek Line
- Existing Drainage to be Retained
- Existing Drainage to be Filled In
- Relocated Drainage Line
- 100m Effluent Disposal Setback
- Indicative Effluent Disposal Areas
  Subject to detailed assessment at development stage

Land Capability

- Fair to High - Minor Limitations
- Fair - Moderate Limitations
- Fair to Low - Moderate to Signifiant Limitations
- Low - Significant Limitations
- Very Low- Severe Limitations

AYTON BAESJOU
PLANNING
59 Peels Place
ALBANY WA 6330
Ph 9842 2304 Fax 9842 8494