



PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2018/988

Date: 30 July 2019



THE CONSULTANCY BUREAU

UPDATED BUSHFIRE MANAGEMENT PLAN

FOR

**LOT 24 – SP142997 AND LOT 1 – RP429296
AT 24 BUSHMAN DRIVE AND 68 WYATT
ROAD, JIMBOOMBA**

by

**L.S. Hawkes, B.Sc.(For), MIFA, MRFAQ
The Consultancy Bureau Pty Ltd
February 2019**

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MANAGEMENT CONSULTANCY SERVICES

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1. Introduction

A parcel of land totalling 42.5ha is proposed for reconfiguration to 311 residential lots and two commercial lots. (see Site Plan No. 1).

The site is mapped as containing areas of Bushfire Hazardous lands.

This triggers an assessment of any mitigating actions required to ensure the safety of people and property on the site.

2. Description of the Site

The site is east to the interstate railway line with the upgraded Wyatt Road as the southern and eastern boundary. (see Photograph Nos. 1 & 2)

There is existing rural residential which forms the entire northern boundary. (see Photograph No. 3)

A major creek system traverses west to east (see Aerial Photograph and Site Plan No. 1).

Slopes are generally gentle towards the central watercourse with a regrowth forest of Ironbark and Spotted Gum. (see Photograph No. 4)

The proposed development is detailed on the Site Plan No. 1. There are three development nodes (A, B & C) with a significant riparian retention zone encompassing the creek system. The retained creek system is largely vegetated with some evidence of erosion. (see Photograph Nos. 5 & 6)

Lands to the west include potential residential lands.



3. Assessment of the Potential Bushfire Hazard Status of the Site and Surrounds

State Planning Policy (SPP) Bushfire Hazard Mapping confirms the medium and high hazard over most of the site and parts of surrounding lands. (see SPP Map)

Onsite assessment confirms the vegetation is a regrowth forest with largely a grassy understorey (see Photograph No. 7).

This is a medium hazard situation and includes most of the proposed retained riparian zone. The development nodes will be cleared and low hazard.

The railway line and Wyatt Road provide low hazard separation. The lands to the north are largely managed rural residential and a low threat situation. (see Photograph No. 8)

Lands to the west and south include areas of low threat vegetation mixed with small areas of possible assessable vegetation for Construction Standard requirements.

4. Mitigating Actions

4.1 General

- The public roads will be constructed in accordance with the design criteria QFES Guideline 2015.
- The reticulated hydrant system will be implemented in accordance with the Fire Hydrant and Vehicle Access Guideline 2015.

4.2 DEVELOPMENT NODE “A”

Access

The proposed design provides a perimeter road system except for the medium density along the railway line (see Site Plan No. 1).



Separation

The roading design provides adequate separation from the retained creek vegetation.

Water Supply

The entire estate will be provided with reticulated water.

Vegetation Management

The retained vegetation in the creek system will be subject to a Vegetation Management Plan.

4.3 DEVELOPMENT NODE “B”

Access

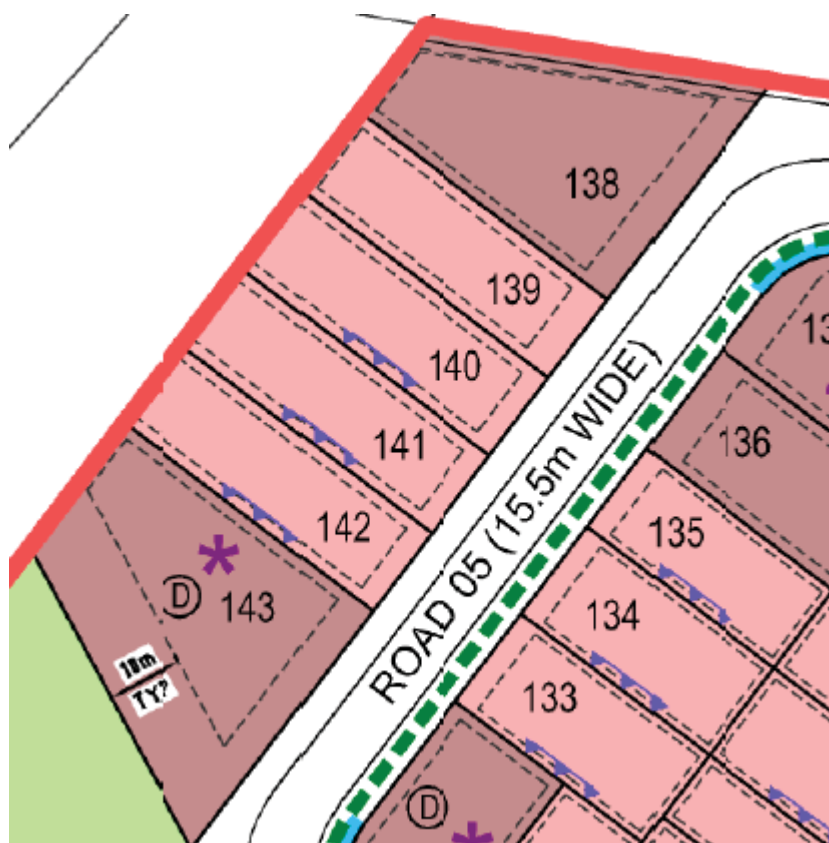
The proposed design includes a largely perimeter roading network, except for lots 138 – 143, where adjoining the interstate railway line; lot 121 and lot 99, where adjoining existing rural residential lots to the north; and lots 80-81 where adjoining a small area of the central gully system.

Separation

The roading system generally provides adequate separation from the retained creek vegetation. Where lots are located outside the roading system:

- Lots 138 – 143 along the western boundary adjoin the interstate railway in a considerable cutting (see Photograph No. 9). Lots 138 – 142 do not require further separation; however, the southern boundary of lot 143 will require a 10m managed vegetation zone from adjoining retained/rehabilitated creek vegetation to provide sufficient separation from hazardous vegetation. This has been shown as a 10m setback adjacent to the public open space. (see Site Plan No. 1)





- Lots 121 and 99 along the northern boundary adjoin low threat vegetation, as such no further action or separation is necessary.
- Lots 80 – 81 adjoin the central gully system, which has an area of 0.5ha. This is considered a low bushfire threat situation due to the quantity of vegetation within the area. As such, no further separation is required.

Water Supply

As for Development Node “A”.

Vegetation Management

The retained vegetation in the creek system will be subject to a vegetation management plan.



The 10m managed vegetation zone within lot 143 will need to consist of low bushfire threat vegetation (i.e. mown grass and larger trees where they do not form a continuous canopy) and must be managed by the property owner.

4.4 DEVELOPMENT NODE “C”

Access

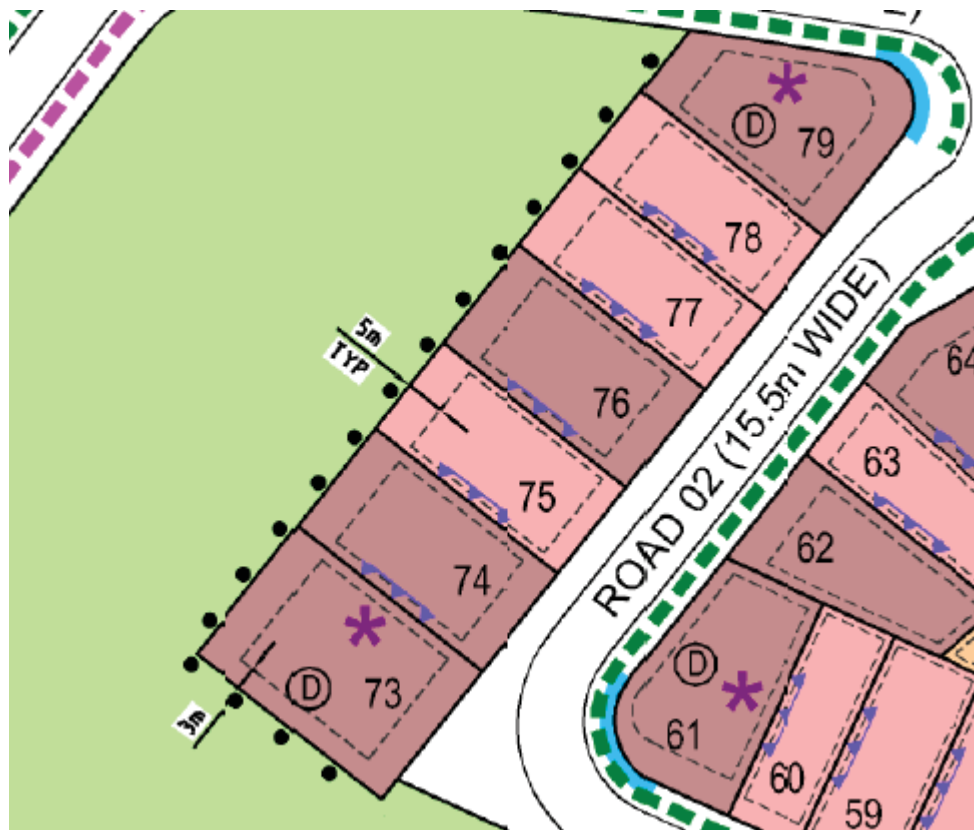
The proposed design includes a largely perimeter roading network, except for lots 73 – 79, lots 3 – 5, and lots 309 and 49, which adjoin the retained creek vegetation.

Separation

The roading system generally provides adequate separation from the retained creek vegetation. Where lots are located outside the roading system:

- The southern boundary of Lot 73 adjoins retained creek vegetation. A 10m managed vegetation zone is required to provide sufficient separation from hazardous vegetation. Lot 73 provides an increased southern (side) setback area of 3m (refer to sheet 1 of the Plan of Development and below extract). An additional 7m managed vegetation zone within the proposed open space, adjacent to Lot 73’s southern boundary, is required to provide a defence line from the minor hazard of the gully systems. This requirement is reflected in the amended vegetation management plan.





- The western boundary of Lots 73 – 79 adjoin retained creek vegetation, as such a 10m managed vegetation zone is required to provide sufficient separation from hazardous vegetation. An increased western (rear) setback of 5m is provided (refer to sheet 1 of the Plan of Development and below extract). A further 5m managed vegetation zone within the proposed open space is required. This requirement is reflected in the amended vegetation management plan.
- The managed vegetation zone will have a 1.5m pedestrian gravel trail. The path will continue along the southern boundary of Lot 73 and connect back to the road network. The path is for fire separation and pedestrian fire access only. Refer to Sheet 1 of the Plan of Development and the above extract.



- The southern boundary of lot 49 adjoins retained creek vegetation and will require a 10m managed vegetation zone to provide appropriate separation from hazardous vegetation. The 10m wide zone can be accommodated within the open space adjacent to the southern boundary (see vegetation management plan), as such, no further setbacks within the lot are required.
- Lots 1 – 5 and lot 309 adjoin a small gully, which has an area of 0.38Ha. This is considered a low bushfire threat situation due to the quantity of vegetation within the area. As such, no further separation is required.

Water Supply

As for Development Node “A” and “B”.

Vegetation Management

The retained vegetation in the creek system will be subject to a Vegetation Management Plan.

The managed vegetation zone within lot 73-79 will need to consist of low bushfire threat vegetation (i.e. mown grass and larger trees where they do not form a continuous canopy) and must be managed by the property owner where located within the private lot.

Managed vegetation zones within areas shown as public open space will be managed by Logan City Council with appropriate management requirements specified in the vegetation management plan.

5. Construction Requirements under AS3959-2009

AS3959-2009 provides a methodology for determining any construction requirements (i.e. Bushfire Attack Levels).

It is generally considered at the Planning Phase that a good Planning outcome is achieved when the sites maximum BAL is 29.



AS3959 provides under Method 2 the following adopted default positions: -

- Fuel loads 12.5 tonne/ha +2.5 vertical = Total 15 tonne/ha
- FFDI – 40
- Forest Vegetation
- Flame Width – 100m
- Flame Temp 1090°C
- Flame Emissivity 0.95

This produces a table of separations needed to achieve BAL29.

DETERMINATION OF BAL FOR FFDI 40
w = 12.5 t/ha W = 15 t/ha
Level and Downslope

Degrees	10m	15m	20m	25m	30m	35m	40m	45m	50m	55m	60m	65m	70m	75m	80m	85m	90m	95m	100m
Level	15.739	12.140	8.823		5.458		3.750		2.728										
5	23.421	15.300	11.170		6.942		4.779		3.480										
10	29.677	19.632	14.432	11.219	9.028		6.207		4.506										
15	37.823	25.387	18.850	14.750	11.875		8.136		5.879										
20	48.558	32.779	24.658	19.462	15.728	12.913	10.752		7.724										
25	75.035	42.059	31.982	25.553	20.845	17.173	14.300	12.034	10.221										
30	75.035	41.321	33.067	27.381			19.065	16.057	13.621	11.649	10.033								BAL

Preliminary assessment suggests BAL's of 12.5 – 19 will be the outcome for almost all the lots. It is possible that 14 lots may require a BAL of 29. A Radiant Heat Exposure Map based on slope, fuel loads and separation distances is provided (see Radiant Heat Exposure Map).

The BAL levels applying to future housing can only be accurately assessed at the time of construction and will be a consideration for a certifier assessing the building application.

6. Compliance with Part 8 of the Logan Planning Scheme

Section 8.2.3 provides that the purpose of the Bushfire Overlay Code is to protect people and premises in a Bushfire Hazard area. (see Appendix 1)

This includes: -

- Allotment design with Asset Protection Zones.



- Vehicular Access
- Water Supply

The Code provides a set of acceptable outcomes as shown in Appendix 1.

7. Conclusion

The provision of a sound roading system, reticulated water and asset protection buffers ensures that this will be a safe development.



L.S. Hawkes, B.Sc.(For), MIFA, MRFAQ

Senior Associate

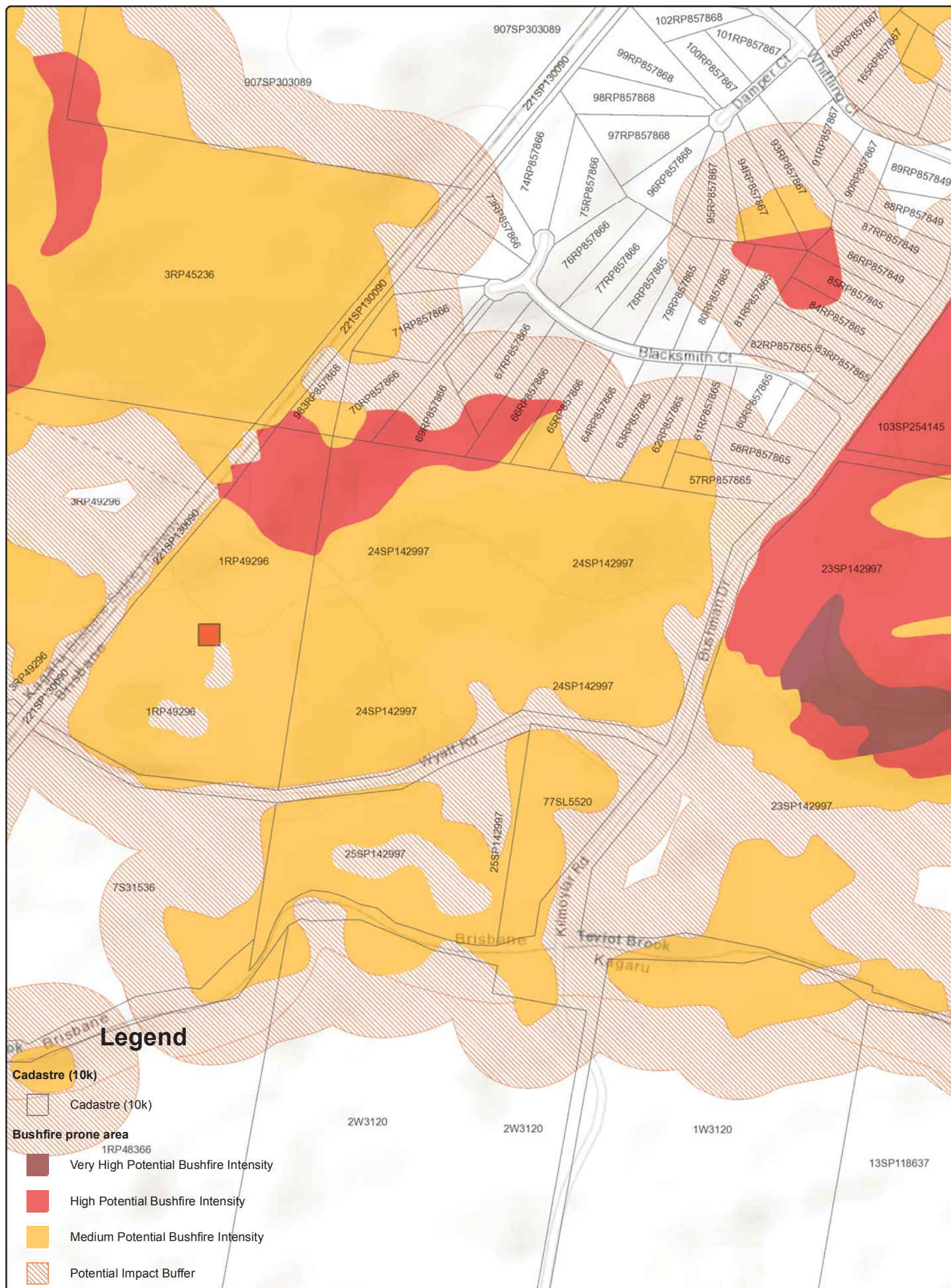
(CV attached)





Aerial Photograph

- Property Boundary
- Upgraded Wyatt Road
(Southern Boundary for Development)
- Major Gully System



Department of State
 Development, Manufacturing,
 Infrastructure and Planning

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Date: 04/09/2018

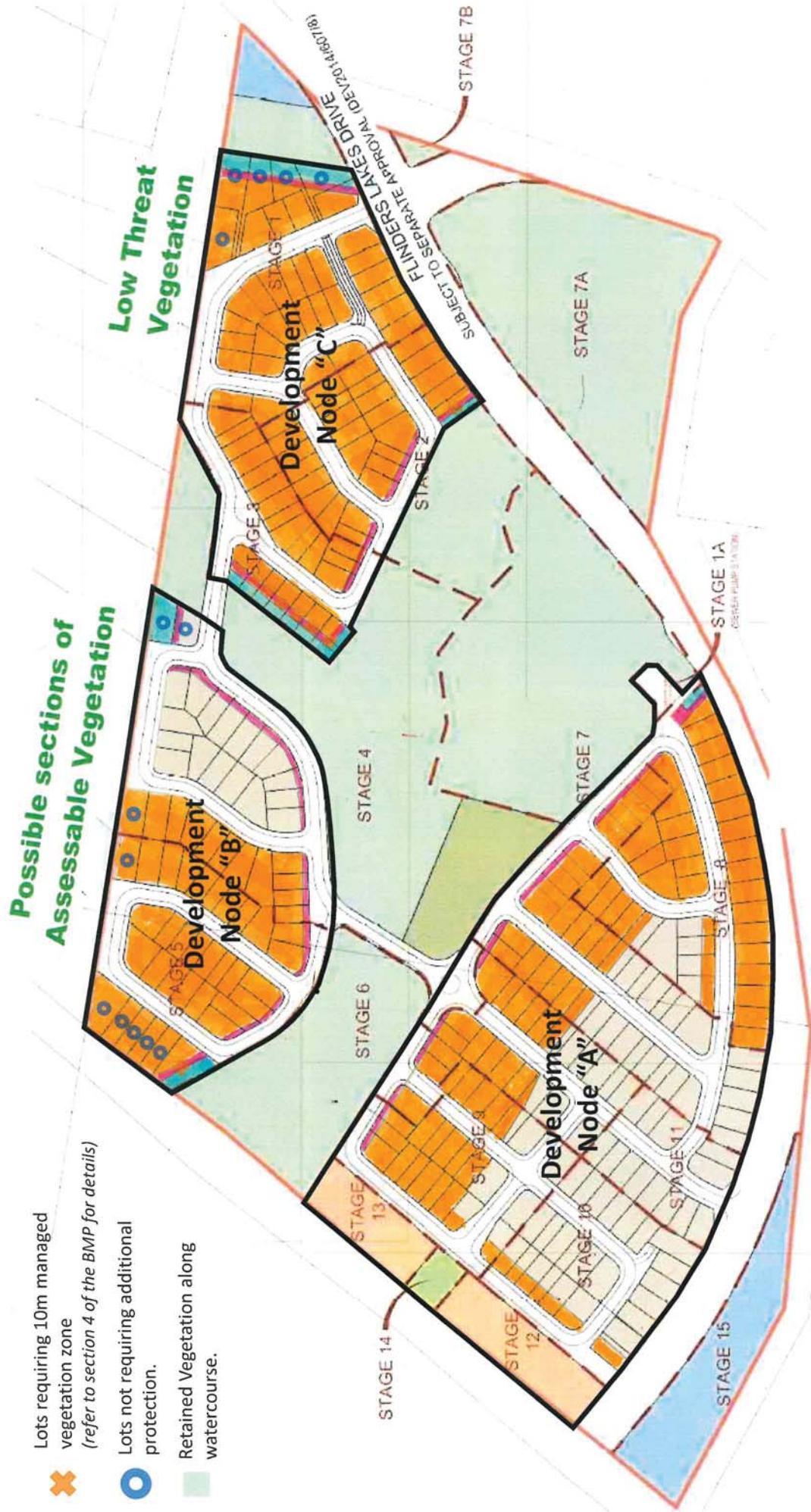
Legend:

- ✕ Lots requiring 10m managed vegetation zone (refer to section 4 of the BMP for details)
- ⊙ Lots not requiring additional protection.
- Retained Vegetation along watercourse.

Map Labels:

- STAGE 1, STAGE 2, STAGE 3, STAGE 4, STAGE 5, STAGE 6, STAGE 7, STAGE 8, STAGE 9, STAGE 10, STAGE 11, STAGE 12, STAGE 13, STAGE 14, STAGE 15
- Development Node "A"
- Development Node "B"
- Development Node "C"
- FLINDERS LAKES DRIVE
- SUBJECT TO SEPARATE APPROVAL (DE/2014/60718)
- STAGE 7A
- STAGE 1A (SEWER PUMP STATION)

- ✗ Lots requiring 10m managed vegetation zone
(refer to section 4 of the BMP for details)
- Lots not requiring additional protection.
- Retained Vegetation along watercourse.





Photograph No. 1



Photograph No. 2



Photograph No. 3



Photograph No. 4



Photograph No. 5



Photograph No. 6



Photograph No. 7



Photograph No. 8



Photograph No. 9

Part 8 Overlays

8.2 Overlay codes

8.2.3 Bushfire hazard overlay code

8.2.3.1 Application

- (1) This code applies to self-assessable and assessable development for which the Bushfire hazard overlay code is identified in the assessment criteria column in Table 5.10.3.1—Bushfire hazard overlay map OM-03.00 in Part 5—Tables of assessment.
- (2) When using this code, reference should be made to section 5.3.2—Determining the level of assessment and, where applicable, section 5.3.3—Determining the assessment criteria located in Part 5—Tables of assessment.

Note— Pursuant to section 32(a) of the *Building Act 1975* and section 12 of the *Building Regulation 2006*, land identified as a Bushfire hazard area on Bushfire hazard overlay map—OM-03.00 is a 'designated bushfire prone area' for the Building Code of Australia and the Queensland Development Code.

8.2.3.2 Purpose

- (1) The purpose of the code is to protect people and premises in a Bushfire hazard area.
- (2) The purpose of the code will be achieved through the following overall outcomes:
 - (a) Development protects people and premises from bushfire risk:
 - (i) through allotment design and siting of development envelope areas and asset protection zones;
 - (ii) by providing vehicular access, fire maintenance trails and evacuation routes that are safe and facilitate easy way finding;
 - (iii) by providing an accessible water supply for firefighting purposes;
 - (iv) by ensuring the function of community infrastructure is not adversely impacted by bushfire;
 - (v) by protecting personal health and safety and the environment from hazardous materials.

8.2.3.3 Criteria for assessment

Part A—Criteria for self-assessable and assessable development

Table 8.2.3.3.1—Bushfire hazard overlay code: self-assessable and assessable development

Performance outcomes		Acceptable outcomes	Comments
For self-assessable and assessable development			
Location, design and siting of development			
PO1 Development is designed to: (a) minimise risk of bushfire hazard; (b) provide safe premises; (c) create efficient emergency access for fire-fighting and other emergency vehicles. Note—Planning scheme policy 6—Management of bushfire hazard provides guidelines on how to achieve this outcome.	AO1 Development: (a) does not increase the number of persons living in, or lots in, the Bushfire hazard area identified on Bushfire hazard overlay map—OM—03.00; or (b) is on a site that a bushfire hazard assessment prepared in accordance with the methodology in planning scheme policy 6—Management of bushfire hazard determines is of low bushfire hazard.	The development sites are Low Bushfire Hazard - COMPLIES	

Performance outcomes	Acceptable outcomes	Comments
PO2 Development is sited and constructed to minimise the bushfire hazard and maximise the protection of life and property from bushfire.	AO2 Development is located and constructed: (a) where there is no bushfire management plan approved by an existing development approval: (i) such that the bushfire attack level is less than or equal to BAL-29; (ii) away from the most likely direction of a fire front; (iii) so that elements of the development least susceptible to fire are sited closest to the bushfire hazard; (iv) such that asset protection zones are sited on land with a slope less than 18 degrees; (v) such that asset protection zones are entirely within the boundaries of the private property of the development site; or (b) where an approved bushfire management plan directs development to be located. Note—BAL = Bushfire attack level is the radiant heat flux a building will experience during a bushfire and is a measure of heat energy impacting on a surface expressed as kW/m². BAL is calculated from the following factors; vegetation type, fuel loads, distance to vegetation, Forest Fire danger Index (FFDI), flame length, fire behaviour/intensity and slope. BAL is used to determine the required construction level of a building and the size of asset protection zones (inner and outer radiation zones). Further information on calculating the BAL can be obtained from AS3959-2009. Editor's note—Asset protection zones are not located on slopes greater than 18 degrees to ensure maintenance is practical, soil stability is not compromised and the potential for crown/canopy fires is reduced. Editor's note—Planning scheme policy 6—Management of bushfire hazard contains guidance on the preparation of bushfire management plans.	BAL's of 12.5 – 19 achievable - COMPLIES

Performance outcomes	Acceptable outcomes	Comments
PO3 Reconfiguring a lot ensures that lots are designed to minimise bushfire hazard and provide safe sites for people, property and buildings.	AO3 Lots: (a) are suitable for people, property and buildings by: (i) having a bushfire attack level less than or equal to BAL-29; or (ii) containing a development envelope area that has a bushfire attack level less than or equal to BAL-29; (b) provide asset protection zones that: (i) are located on land with a slope less than 18 degrees; (ii) are located on the same lot.	COMPLIES
Vehicular access and fire maintenance trails		
PO4 Access for fire management and evacuation is provided by access that: (a) separates premises from adjoining vegetation; (b) is safely accessible by fire fighting vehicles; (c) has regular vehicular access points for bushfire management, response and evacuation; (d) has regular vehicle passing and turning areas for bushfire management, response and evacuation; (e) allows access at all times for fire fighting vehicles; (f) allows for maintenance, burning off and bushfire response; (g) has vehicular links to an alternative through road; (h) is readily maintained. Editor's note—Planning scheme policy 6— Management of bushfire hazard provides details on alternative solutions for	AO4 Access for fire management and evacuation is provided by vehicular access in the form of a perimeter road: (a) with a minimum reserve width of 20 metres; (b) located between the premises and adjoining vegetation; (c) with a maximum gradient of 12.5 percent; (d) constructed to otherwise comply with section 3.4—Movement infrastructure standards of planning scheme policy 5—Infrastructure; (e) that has a layout that does not include a cul-de-sac.	COMPLIES

Performance outcomes	Acceptable outcomes	Comments
providing fire management access and evacuation		
Water supply		
PO5 Development has access to adequate water supply for fire fighting purposes.	AO5 Development: (a) is connected to a reticulated water supply scheme that has sufficient flow and pressure characteristics for fire fighting purposes at all times with a minimum pressure and flow of 10 litres per second at 200kPa; or has an on-site water storage in accordance with (b) Table 8.2.3.3.2—Water storage for fire fighting, dedicated or retained for fire fighting purposes that is made of fire resistant materials and is: (i) a separate tank; or (ii) a reserve section in the bottom part of the main water supply tank. Editor's note—The requirement in AO5 is: – in addition to the requirement for potable water supply/storage in AO2 in Table 9.4.3.3.2—Infrastructure code: self-assessable and assessable development;, – reflected in AO5 in Table 9.4.3.3.2—Infrastructure code: self-assessable and assessable development.	COMPLIES

Performance outcomes	Acceptable outcomes	Comments
For assessable development		
Community infrastructure		
PO6 Community infrastructure is not located in a bushfire hazard area or is able to function effectively during and immediately after a bushfire event.	AO6 Community infrastructure is: (a) not located in a Bushfire hazard area identified on Bushfire hazard overlay map—OM—03.00; or (b) located to ensure that: (i) the core services provided by the community infrastructure is able to function effectively during bushfire events; (ii) access to the community infrastructure is not compromised by bushfire events; (iii) the safe storage of valuable records, public records and items of cultural or historic significance is able to be maintained during a bushfire event.	N/A
Hazardous materials		
PO7 Public safety and the environment are not adversely affected by the adverse impacts of bushfire on hazardous materials including fuels, explosives and flammable chemicals manufactured or stored in bulk on premises.	AO7 Hazardous materials: (a) storage is in compliance with AS1940—The storage and handling of flammable and combustible liquids; (b) manufacturing does not occur in a Bushfire hazard area on Bushfire hazard overlay map—OM—03.00.	N/A

Table 8.2.3.3.2–Water storage for fire fighting

Column 1 Lot size / use type	Column 2 Water requirement
For each residential lot:	
(a) less than 1000m ²	5000 litres
(b) between 1000m ² and less than 1 hectare	10,000 litres
(c) greater than 1 hectare	20,000 litres
Multiple dwelling	5000 litres per dwelling up to a maximum of 20,000 litres
A use other than Multiple dwelling	5000 litres or the prevailing rural fire brigade standard



THE CONSULTANCY BUREAU

CURRICULUM VITAE

LESLIE HAWKES, SENIOR ASSOCIATE

Qualifications

- ◆ BSc For ANU 1969

Professional Affiliations

- ◆ Member of the Institute of Foresters of Australia
- ◆ Justice of the Peace (Qualified)

Areas of Expertise

- ◆ Land use planning, including the resolution of land use conflicts
- ◆ Development of community-based management strategies for natural resources, including forests, bushfire and wildlife
- ◆ Development of environmental guidelines
- ◆ Development and implementation of fire management plans and strategies
- ◆ Resource assessments for native and plantation timber
- ◆ Farm, social and community forestry (including the development of resource materials)
- ◆ Silviculture and management of native rainforest, eucalypt and plantation forests
- ◆ Forest recreational planning and management of State Forests and National Parks

Relevant Experience

- ◆ Extensive experience as a Natural Resource Consultant, preparing Reports on Environmental Performance, Court Appearances as an expert witness, performing forest, environmental, habitat assessments and Bushfire Plans.
- ◆ Extensive experience in Queensland, participating in forums and negotiations relating to land use conflicts, including conflicts between forestry and sugar growing industries.
- ◆ Sound understanding of the operations of the sugar growing industry and of the agricultural and grazing sectors, from continuing contact with participants in the industry and from direct experience as a primary producer.
- ◆ Appreciation of the constraints and challenges facing the farming sector and individual farmers from ongoing contacts with the primary production sector, from direct farming experience, and as a small business proprietor.

Work Experience

1992 – present Natural Resource Consultant - The Consultancy Bureau Pty Ltd

Achievements

- ◆ Provide consultancy services to public and private sector within Queensland on wide range of ecological assignments including
 - Prepare Bushfire Management Plans throughout Queensland and present expert evidence in the courts for Local Authorities and Developers.
 - Environmental Impact Assessments on large sub division proposals, roads, quarries and underground cable projects.
 - Prepare legal reports on environmental performance for Local Authorities and private developers (court appearance as expert witness).
 - Review, develop community based management strategies for rural Queensland areas, e.g. (Western Cypress areas around Roma).
 - Assist in the review of Environmental Labelling for Forest products in Australia.
 - Assist in financial auditing for Queensland Government Department.
 - Major review of habitat of the Mahogany Glider in the Herbert Valley.

1992 - 2007 Small business owner/operator

1992-1995: Party Hire Owner/Operator

1996-2007: Ladder Manufacture and Distribution, Qld and NSW

1998-2007: Wholesale Leather Distribution Company.

1990 - 1992 Manager, Forest Advisory Branch, Queensland Forest Service.

Achievements

- ◆ Management, development and delivery of information services to keep the public informed of the intent and the detail of all programs and services of the Queensland Forest Service.
- ◆ Co-ordinate and enhance the quality of the rural and urban environment by encouraging and facilitating the planting, care and retention of trees along with the rehabilitation of degraded land by promoting the role of trees and forests in sustainable land management including assessment of private commercial forest proposals.
- ◆ Developing and producing appropriate awareness campaign along with literature to ensure the wider community is fully informed on suitable practices on the land.



1985 - 1990 District Forester at Ingham District - Queensland Forest Service

Achievements

- ◆ High level negotiations and demonstration of the Department's management of the rainforests in North Queensland.
- ◆ High level of both technical and managerial skills in a senior field position.
- ◆ High degree of expertise in managing the development of tropical forests.
- ◆ Major resource assessments of all lowland native forest in Ingham region for land use classification.
- ◆ Management of a large budget, including financial monitoring and auditing.
- ◆ Workforce management and control, including responsibility for planning the downsizing of the workforce following the cessation of rainforest harvesting.
- ◆ Establish and manage 10000 ha of exotic pine plantation.

1980-1985 Officer In Charge of the Imbil District - Queensland Forest Service

Achievements

- ◆ Management of a 14,000 ha plantation of Hoop Pine which involved:-
 - raising 500,000 nursery stock annually.
 - Establishment of approximately 250ha of new plantation, annually, silvicultural maintenance including weeding, pruning and thinning, commercial harvesting of 40,000 cubic metres of thinning and preparation for the imminent harvesting of much larger volumes of timber of the final crop.
- ◆ Management of highly productive native hardwood forests for both timber and high use recreational pursuits including all the Connondale Range area.
- ◆ Management and workforce control of 120+ staff

1978 - 1980 Marketing Development Officer - Marketing Division - Queensland Forest Service, Head Office

Achievements

- ◆ Review of pricing systems for the Services forest products.
- ◆ Investigation and development of operational and environmental guidelines for forestry activities
- ◆ Review environmental logging guidelines in native forests.



1977-1978 Fire Protection Officer for Queensland

Achievements

- ◆ Responsible for management to ensure the effective protection of all state forests from fire.
- ◆ Extensive work in pioneering helicopter hazard reduction burning of both native forests and exotic plantations.
- ◆ Developing and running Fire Schools for all Field Officers in Queensland.

1970 - 1977 Various management positions in the Queensland Forest Service

- ◆ Forester in Charge of Native Forest Management Esk Gatton Crows Nest.
- ◆ Forester in Charge of Jimna SF. including Native Forest Management of Conondale Range.

Consultancy Experience

Human Resource Management

- ◆ Up-sizing and down-sizing of workforces, for example:-
 - Increases in plantation establishment, staff from 50 to 120.
 - Shut down of Rainforest logging and complete review of all positions in North Queensland and report on down-sizing.
 - Implementation of performance management systems from 1982 - 1992.
 - Development of the Queensland wide forestry extension program including budgets, staff position descriptions, recruitment and placement.

Human Resource Development

- ◆ Developing training course and providing Fire Training Schools for Queensland wide Fire Prevention staff.
- ◆ Produced training videos for Farm Forestry, manuals for Farm Forestry, quarterly corporate publication and computer based Tree Selection System with accompanying book version for Farm Forestry activities.

Organisational Structures and Functions

- ◆ 1976 Department of Forestry Restructure
- ◆ 1982 Review of roles / responsibilities and reporting systems for Queensland Wide Sub-Districts.



- ◆ 1989 Review of North Queensland - Forestry Structure, Personnel and redundancy needs following the closure of Rainforest Management.
- ◆ 1990 Develop a state-wide structure for Forest extension including interaction with Land Care, Integrated Catchment Management and Extension Research.
- ◆ 1993 Business planning and development of a Hire Equipment business.
- ◆ 1996 Purchase of a Ladder Manufacturing business and implementation of a new factory system and a changed marketing strategy.
- ◆ 1998 Purchased leather distribution company and implemented change to post a 400% increase in turnover in 30 months.

Additional Skills

- ◆ Considerable involvement with Aboriginal Communities over a 25 year period including - assistance in developing skills (sawmilling, fire protection, and special native treecrops).
- ◆ Assistance with employment training schemes especially using unskilled labour.
- ◆ Developing and assisting with problems employing people of diverse cultural backgrounds.
- ◆ Major team building has included:-
 - Forest Extension Programme
 - Up-sizing for new Plantation Programme
 - Staff morale reviews during and after the Rainforest Logging Debate

Scope of Consultancy Services

- ◆ Les Hawkes has a strong operational background with excellent interpersonal skills at the work place. He has extensive experience in feasibility studies and design of projects and programmes. Les possesses extensive experience in project implementation / with large workforces and budgets, and develops sound operational plans showing achievement milestones and required reporting arrangements.
- ◆ Considerable experience in land use evaluation reporting and conflict resolution.

