

**SHIRE OF MOORA
LOCAL PLANNING SCHEME NO.4**



NOTICE OF PUBLIC ADVERTISEMENT OF PLANNING PROPOSAL

Planning and Development Act 2005
Shire of Moora

The local government has received an application to use and/or develop land for the following purpose and public comments are invited.

Property Address: Lot M1740 Gabalong East Road, Gabalong

Proposal: Tree farm for carbon sequestration purposes.

Details of the proposal are available for inspection at the Shire Administration Centre, 34 Padbury Street, Moora and the 'Notifications' section of Shire's website ([Latest News » Shire of Moora](#)) up to and including Friday 29 November 2023.

Comments on the proposal are now invited and can be emailed to shire@moora.wa.gov.au or posted to the Shire's Chief Executive Officer at PO Box 211 MOORA WA 6510. All submissions must include the following information:

- Your name, address and contact telephone number;
- How your interests are affected; whether as a private citizen, on behalf of a company or other organisation, or as an owner or occupier of property;
- Address of property affected (if applicable); and
- Whether your submission is in support of, or objecting to the proposal and provide any arguments supporting your comments.

All submissions received may be made public at a Council meeting and included in a Council Agenda, which will be available on the Shire's website, unless a submission specifically requests otherwise.

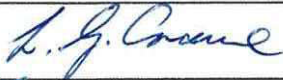

Gavin Robins
Chief Executive Officer
Shire of Moora


25 October 2023

SHIRE OF MOORA LOCAL PLANNING SCHEME NO.4



FORM 1 - APPLICATION FOR DEVELOPMENT APPROVAL

| | | |
|--|------|-------------------------|
| Owner Details | | |
| Name/s: Leslie George Crane Murray Leslie Crane | | |
| ABN (if applicable): 14962427535 | | |
| Postal Address: 263 Tucks Rd Gabalong | | Postcode: |
| Work Phone: | Fax: | E-mail: |
| Home Phone: | | cranebindi3@bigpond.com |
| Mobile Phone: 0427889390 | | |
| Contact Person for Correspondence: | | |
| Signature:  | | Date: 9-10-23 |
| Signature:  | | Date: 09/10/2023 |
| NOTES: | | |
| <p>i) Use and attach a separate copy of this page where there are more than two (2) landowners.</p> <p>ii) The signature/s of all registered owner(s) as listed on the land's Certificate of Title is required. This application cannot proceed without the required signature/s. For the purposes of signing this application an owner includes the persons referred to in the Planning and Development (Local Planning Schemes) Regulations 2015 Schedule 2 clause 62(2). Land owned by an incorporated body (i.e. a company) must be signed by:</p> <ul style="list-style-type: none"> - 1 director of the company, accompanied by the company seal; or - 2 directors of the company; or - 1 director and 1 secretary of the company; or - 1 director if a sole proprietorship company. <p>Print the full names and positions of company signatories underneath the signatures.</p> <p>iii) A copy of the Certificate of Title for all land the subject of this application must be provided and can be purchased through Landgate directly if required.</p> <p>iv) Development Applications relating to Unallocated Crown Land, Unmanaged Crown Reserves, land under management order to the Shire of Moora where the development is not consistent with the reserve's purpose, or is used for commercial purposes, or land which is subject to a lease issued under the Land Administration Act 1997 need to be referred to the Lands Division of the Department of Planning, Lands and Heritage for consideration and signing.</p> | | |
| Applicant Details (if different from owner) | | |
| Name/s: Wheatbelt Connect | | |
| Address: L22, 100 St Georges Tce Perth WA 6000 | | Postcode: |

| | | |
|--|-------------------------------------|-------------------------------------|
| Work Phone: 0402965078 | Fax: | E-mail: caryn.earnshaw@inpx.com.au |
| Home Phone: | | |
| Mobile Phone: | | |
| Contact Person for Correspondence: Caryn Earnshaw | | |
| Signature:  | Date: 18/07/03 | |
| NOTES: | | |
| <p>i) Failure to provide a suitably completed development application form, a copy of the relevant Certificate/s of Title, sufficient plans and other supporting information and/or the correct application fee may result in the application being returned or placed on hold.</p> <p>ii) The application fee payable will be confirmed by the local government following receipt of the application. Processing of the application will not commence until the fee is paid in full.</p> <p>iii) As per Schedule 2 clause 64 of the Planning and Development (Local Planning Schemes) Regulations 2015 the information and plans provided with this application may be made available by the local government for public viewing in connection with the application.</p> <p>iv) If public advertising of the application is required by the local government an additional fee in accordance with the local government's adopted schedule of fees and charges will be payable by the applicant. Further processing of the application following completion of public advertising will not proceed until the additional fee is paid in full.</p> <p>v) The original of this application and supporting information and plans will be retained by the local government for its records and will not be returned to the applicant/landowner following final determination.</p> | | |
| Property Details | | |
| NOTE: The details provided must match those shown on the relevant Certificate/s of Title. | | |
| Lot No: M1740 | House/Street No: | Location No: |
| Survey Diagram or Plan No: 6395 | Certificate of Title Volume No: 425 | Certificate of Title Folio No: 171A |
| Title encumbrances (e.g. easements, restrictive covenants etc. as listed on the Second Schedule of the relevant Certificate/s of Title): | | |
| n/a. | | |
| Street name: Gabalong East Tuck's Road Rd | Suburb: Bindi Bindi | |
| Nearest street intersection: | | |
| Gabalong East Road and Dam Road | | |
| Proposed Development: | | |
| Nature of development: <input checked="" type="checkbox"/> Works (New construction works with no change of land use) <input checked="" type="checkbox"/> Use (Change of use of land with no construction works) <input type="checkbox"/> Works and Use | | |
| NOTE: If the proposal involves advertising signage the Additional Information for Development Approval for Advertisements form (i.e. a Form 2) must be completed and submitted with this application. | | |
| Is an exemption from development claimed for part of the development? Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> | | |
| If yes, is the exemption for: <input checked="" type="checkbox"/> Works <input checked="" type="checkbox"/> Use | | |

Description of proposed works and/or land use:

Carbon Farming Project

Description of exemption claimed (if relevant):

Nature of any existing buildings and/or land use:

Broadacre Agriculture, predominantly grazing

Approximate cost of proposed development (excluding GST):

\$250,000

OFFICE USE ONLY

Date application received:

Received by:

Application reference number:

Application fee payable: \$

Date of receipt of application fee from applicant:

Receipt number for application fee:

WESTERN



AUSTRALIA

| | |
|---------------------|-----------------------|
| REGISTER NUMBER | |
| M 1740/P6395 | |
| DUPLICATE EDITION | DATE DUPLICATE ISSUED |
| N/A | N/A |

RECORD OF CERTIFICATE OF TITLE
 UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **425** FOLIO **171A**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BGRoberts
 REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT M 1740 ON PLAN 6395

REGISTERED PROPRIETOR:
 (FIRST SCHEDULE)

LESLIE GEORGE CRANE OF TUCK'S ROAD, BINDI BINDI
 IN 2/3 SHARE
 MURRAY LESLIE CRANE OF UNIT 5, 1 THIRLMERE ROAD, MOUNT LAWLEY
 IN 1/3 SHARE
 AS TENANTS IN COMMON

(T L333203) REGISTERED 2/6/2010

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
 (SECOND SCHEDULE)

- EXCEPT AND RESERVING METALS, MINERALS, GEMS AND MINERAL OIL SPECIFIED IN TRANSFER 2030/1962.
- THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 425 FOL 171A.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
 * Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
 Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 425-171A (M 1740/P6395)
 PREVIOUS TITLE: 188-135A
 PROPERTY STREET ADDRESS: NO STREET ADDRESS INFORMATION AVAILABLE.
 LOCAL GOVERNMENT AUTHORITY: SHIRE OF MOORA

NOTE 1: A333442 INCLUDES CLOSED ROAD LAND ACT 1933.

END OF PAGE 1 - CONTINUED OVER



NET
ZERO
BY 2050

Wheatbelt Connect
Shire of Moora
Permanence Plan



Company name

Registration number

Address line 1

Address line 2

Address line 3

T Company telephone

F Company fax

E Company email

W Company web

Contents

| | |
|---|----------|
| 1. Land Information | 4 |
| 1. Land..... | 4 |
| 2. Landowner | 4 |
| 2. Wheatbelt Connect Overview..... | 4 |
| 1. Biomass Harvesting..... | 5 |
| 3. Plantation Management Plan | 6 |
| 1. Relevant Law, Codes of Practice, Guidelines and Standards..... | 6 |
| 2. Site Features and Current Condition..... | 6 |
| 3. Establishment Plan..... | 6 |
| 4. Weeds, Pests and Diseases | 7 |
| 5. Drought..... | 7 |
| 6. Measurement, Monitoring and Maintenance | 7 |
| 7. Roads, Tracks and Firebreaks | 7 |
| 8. Fertiliser..... | 7 |
| 9. Grazing..... | 7 |
| 4. Fire Management Plan | 8 |
| 1. Purpose | 8 |
| 2. Fire Contact Details | 8 |
| 3. Neighbour details..... | 9 |
| 4. Vehicle Access | 9 |
| 5. Fire Maps..... | 9 |
| 6. Firebreak Maintenance..... | 9 |
| 7. Measures to Reduce Hazard..... | 10 |
| 8. Fire Detection and Reporting and Initial Response..... | 10 |
| 9. Water Points and Fire Equipment | 10 |
| 10. Fuel Reduction Burns | 10 |

Appendices

1 - Map of the area

1. Land Information

1. Land

Table 1. Landowner property details

| | | | | |
|-------------------|--|----------------|------|-------|
| Address | 306 Summers East Road, Gabalong 6574 in the Shire of Moora | | | |
| Location Numbers | Lot No. | Deposited Plan | Vol. | Folio |
| | M1740 | 6395 | 425 | 171A |
| Tree species | <i>Eucalyptus loxophleba</i> subsp <i>lissophloia</i> | | | |
| Total Area | ~220 ha | | | |
| Previous land use | Pasture – sheep and cattle | | | |
| Adjacent land use | Annual mixed cropping, sheep, and cattle farming | | | |

Land area



2. Landowner

Table 2. Contact details

| | |
|--------------|-------------------------------|
| Name | Leslie George Crane |
| Address | 263 Tucks Road, Gabalong 6574 |
| Phone number | 0447 889 390 |
| Email | cranebindi3@bigpond.com |

2. Wheatbelt Connect Overview

The Wheatbelt Connect project aims to achieve sustainable land use through a combination of revegetation and rehabilitation efforts, while sharing and aligning the current land use that includes grazing and cropping. The project recognises the unique nature of each revegetation opportunity and will adapt the plantings to suit the landowner's needs and farm conditions.

This approach is designed to create a sustainable and balanced long-term combined use of the land, aligning the project's goals of environmental and economic viability. Wheatbelt Connect aims to integrate land restoration and agricultural practices to achieve a holistic and sustainable approach to land management. This approach recognizes the historical land use while promoting restoration efforts that contribute to the overall health and resilience of the of

ecosystem. The project aims to achieve long-term land recovery that enables increasingly productive land to support integrated land use for multiple productive agricultural purposes.

Wheatbelt Connect will deliver a native revegetation project that spans a minimum of 25 years to generate Australian Carbon Credits Units (ACCUs) in the Western Australian Wheatbelt. These ACCUs will be used to reduce the liability of greenhouse gas emissions of the Wheatbelt Connect participants.

The project is a joint venture between INPEX, ANZ and Qantas with each organisation bringing their values and expertise to the project. INPEX, as the Operating partner of Wheatbelt Connect, is accountable for the delivery, operations and outcomes of the project.

The project recognises that each revegetation opportunity is unique, and as such, the design of plantings will be adapted specifically to the landholder, their farm and sustainable rehabilitation that restores agricultural productivity. Each opportunity will be identified as one of three different revegetation methods:

1. **Restoration plantings** on marginal land surrounding areas impacted by varying degrees of land degradation including salinity, soil erosion which are at risk of ongoing degradation.
2. **Biodiversity plantings** on areas surrounding and linking remnant native vegetation; and
3. **Biomass plantings** of mallee monoculture located on productive land where belts or blocks will be integrated into cropping and pasture paddocks.

A variety of native species will be incorporated into the biodiversity plantings which will focus on areas surrounding existing remnant vegetation. The restoration plantings will contain species that are adapted to the conditions, for instance, salt tolerant eucalypts, casuarinas, and melaleuca species around salt scalds. The biomass plantings will be restricted to mallee eucalypts for harvest as feedstock for renewable biofuels production.

Land will be leased from the landholder for the life of the project which will span a minimum of 25-years as specified by Carbon Credits (Carbon Farming Initiative) Act 2011. ACCUs will be generated with reporting to the Clean Energy Regulator using either direct measurement or using the Full Carbon Accounting Model (FullCAM) tool, a desktop carbon modelling tool designed by the Federal Government to estimate the carbon sequestration for revegetation projects.

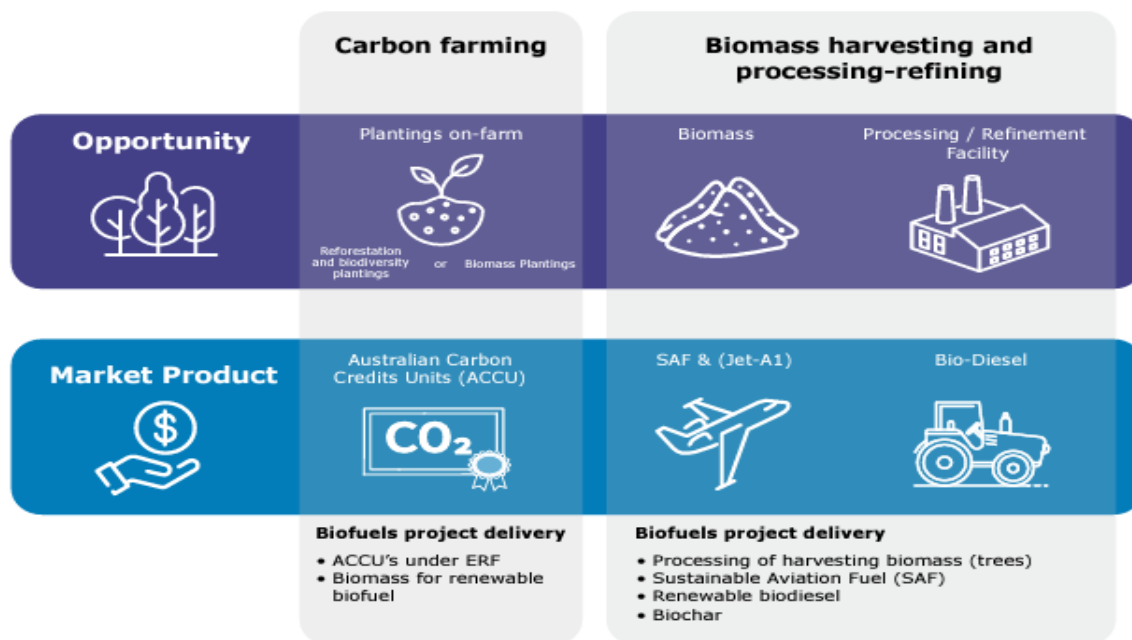


Figure 2-1: Wheatbelt Connect Future Phase

1. Biomass Harvesting

INPEX, ANZ and Qantas are currently engaged in a joint study agreement assessing the technology to convert biomass to biofuels. We have completed the experimental validation phase and have successfully produced Naphtha, Sustainable Aviation Fuel and Biodiesel. We are currently moving into pilot assessment phase and have sent 6 dried tonnes of biomass to further assess the selected technology. If Phase 2 is successful, a techno-economic assessment

will take place which will drive the decision of the location of the first biofuel plants. The location of biofuel plants will be primarily driven by the availability of feedstock. All 2023 mallee plantings will be incorporated into the localised assessment of available biomass.

Pending these assessments, and with discussion with the landholder, we may apply for a Project Variation to the Regulator to convert certain plantings from non-harvest methodologies (Reforestation by Environmental or Mallee Plantings—FullCAM) to a harvest methodology (Plantation Forestry or Measurement Based Methods for New Farm Forestry Plantations) to generate biomass for biofuels.

Harvesting of plantings will be undertaken in consultation with the landowner to achieve a strategy of maximum growth in degraded land; this may result in selective harvesting to make way for a change of species that has proven itself to be more adaptable and tolerant according to localised conditions across the property.

3. Plantation Management Plan

1. Relevant Law, Codes of Practice, Guidelines and Standards

In addition to the laws of the Commonwealth and the state of Western Australia focused on carbon credit generation, the following may be relevant to each project:

- Planning and Development Act 2005
- Code of Practice for Timber Plantations in Western Australia (2014)
- Guidelines for Plantation Fire Protection (2011)
- Code of Practice for the use of agricultural and veterinary chemicals in Western Australia (2005)
- Bush Fires Act 1954

The registration of our business under the Carbon Dioxide Removal Registry and standards established by INPEX commits us to a rigorous standard of scientific integrity and the pursuit of positive environmental and community outcomes.

As a core value, INPEX is committed to conduct all aspects of its business dealings and operations in a professional, open, and ethical manor.

This project aims to establish a ~230 ha mallee planting registered under the Carbon Credits (Carbon Farming Initiative) Act 2011, and specifically, the Reforestation by Environmental or Mallee Plantings—FullCAM method. The requirements for these plantings will be to achieve a permanence period of a minimum of 25 years.

2. Site Features and Current Condition

Topography and soil description

Goomalling system

Poorly drained valley flats, in the northern Zone of Rejuvenated Drainage, with grey deep sandy duplex (sometimes alkaline) and saline wet soil. York Gum-Jam-Wandoo-Salmon Gum-Sheoak woodland

3. Establishment Plan

Eucalyptus loxophleba subsp. *lissophloia* block plantation

- In autumn 2023, the site will be ripped and mounded with rip lines configured every 2 m then 6 m.
- A knockdown herbicide (such as glyphosate) and a pre-emergent herbicide (such as simazine) will be applied prior to planting.
- The site will be hand planted at a density of approximately 600 stems per hectares following significant rain events.

- The site will be monitored approximately every three months following planting. A key objective of field inspections will be to note any disturbance events, such as drought deaths, and to determine weed control requirements.
- Infill planting will be conducted in 2024 if required to achieve a survival rate of 80%.

4. Weeds, Pests and Diseases

Initial weed control is crucial for successful establishment of plantations. It is anticipated, depending on the weed burden, that the entire area will be sprayed with a knockdown herbicide with the addition of a pre-emergent.

The landowner will be responsible for monitoring and controlling the property as necessary, but consistent with contemporary practices to manage pests (such as insects, rabbits, and kangaroos), diseases and declared weeds.

Generally, dieback disease caused by the soil fungus *Phytophthora cinnamomi* is not an issue in the Shire of Moora. However, care will be taken that Wheatbelt Connect personnel, contractors and other vehicles travelling from outside the region do not introduce infected soil.

5. Drought

Drought is not considered a risk to the project as all plantings are mallee eucalypts which are adapted to low rainfall environments. The mallee species to be planted is *Eucalyptus loxophleba* subsp. *lissophloia*, which is a species endemic to the lower rainfall areas in the Wheatbelt and Goldfields regions.

6. Measurement, Monitoring and Maintenance

The sites will be monitored by Wheatbelt Connect personnel approximately every three months following planting and at least annually over the first five years. Thereafter, there will be at least one field inspection in each reporting period. A key objective of field inspections will be to note any disturbance events, or forest loss from events such as wildfires or extreme winds.

Survival counts will occur in September of the first year so we can order seedlings for infill planting if necessary.

If sections of the plantations are damaged or destroyed, then under the carbon farming legislation, re-establishment of forest cover and carbon stocks may be required.

7. Roads, Tracks and Firebreaks

Maintenance of access tracks and firebreaks will be the responsibility of the landowner. This includes installing and maintaining all firebreaks according to the Shire of Moora's regulations. On occasion, the plantation will need to be accessed by Wheatbelt Connect personnel or contractors, who will notify the landholder by written permission.

8. Fertiliser

It is anticipated that fertiliser will not be required at this site due to its agricultural history which is likely to provide enough nutrients for plantation establishment. If the plantation is harvested as a biofuel feedstock, research has shown that nutrient replacement, especially nitrogen, will be required to maintain growth rates.

9. Grazing

Grazing by sheep or other livestock will occur once the trees are assessed by Wheatbelt Connect as being sufficiently mature to withstand grazing. Generally, that is expected from around three years after planting.

As well as providing income for the landowner, allowing grazing has other important benefits including:

- Reduced weed burden.

- Reduced fuel loads and therefore, fire risk (see the Fire Management Plan below); and
- Reduced lower foliage on the trees which will improve access between the rows of trees for fire suppression and harvesting, and
- Demonstrate improvement in the rehabilitation of the land and its capacity to support a broader range of agricultural purposes.

The project approach is to provide more substance about the grazing component of the Wheatbelt Connect project. Our approach to grazing is guided by sustainable land management practices that aim to balance livestock production with environmental conservation.

The project team will implement grazing management techniques that promote rotational grazing to ensure sustainable use of vegetation and prevent overgrazing. This approach helps maintain healthy pasture conditions, promotes biodiversity, and reduces erosion and degradation risks.

Monitoring and adaptive management practices will be used to continually used to assess grazing impacts, vegetations response and ecological indicators. This will enable to project team to make informed decisions and adjust grazing strategies as needed to achieve the desired outcome of the sustainable land use.

4. Fire Management Plan

1. Purpose

The purpose of the Fire Management Plan is to create a documented reference point for the fire management of the mallee planting at Gabalong Farms. This plan details how Wheatbelt Connect will manage fire risks on the property in conjunction with the landowner’s fire management plan. The plan will be reviewed and updated periodically as contact details may change and goals of land use and approaches to fire management may be updated. The fire management plan will supplement the Shire of Moora requirements.

The high-risk seasons are generally summer and autumn, particularly throughout the restricted and prohibited burning periods.

The main ignition risks are:

- lightning strikes
- agricultural vehicles and machinery, i.e., harvesting operations or vehicle movement across paddocks.
- escaped burning operations on nearby lands.

Fire risk mitigation include:

- Plantation layout of trees including strategic fire breaks in accordance with section 33 of the Bush Fires Act (1954)
- Maintaining access to existing passive water storage; and
- Monitoring and plantation management as required.

2. Fire Contact Details

The landowner of the property will be the primary contact for bushfire related matters. Table 3 provides contact details for the fire agencies.

Table 3. Local fire agencies

| Agency | Address | Phone | Contact Person |
|---------------------------------|---------|------------|----------------|
| For all fire emergencies | | 000 | |

| | | | |
|--|----------------------------------|-----------------------------|--|
| Department of Fire and Emergency Services (DFES) | Western Australia | 13 33 37 | For fire or life-threatening emergencies |
| Shire of Moora | 34 Padbury Street, Moora 6510 WA | 9651 0000 | Chief Fire Control Officer |
| Shire of Moora | As above | 0427 541 086 / 0427 541 083 | Chief / Deputy Bush Fire Control Officer |
| Fire Brigade – Bindi Bindi Ward | | 0417 990 504 / 0417 968 944 | Toby Ellis / Graham Popplewell |

3. Neighbour details

Table 4. Neighbour details

| Name | Location in relation to the project area | Address | Phone number |
|-----------------|--|------------------|--------------|
| Mal King | Adjoining to the south | 1 King Rd | 0417 953 907 |
| Justin King | Adjoining to the south | 1 King Rd | 0409 543 045 |
| Stephen Turner | Adjoining to the east & west | Bindi-Toodyay Rd | 0427 545 073 |
| Hayden Turner | Adjoining to the east & west | Piper Rd | 0428 980 448 |
| Toby Ellis | Adjoining to the north | Bindi-Toodyay Rd | 0417 990 504 |
| Bill Waters | Located to the west | Bindi-Toodyay Rd | 0427 543 015 |
| Neil Mackintosh | Located to the North | Bindi East Rd | 0428 526 015 |

4. Vehicle Access

Vehicle access to the property will be facilitated via dedicated access tracks as required. Access will be restricted to minimise risks, and vehicles will be required to meet minimum requirements appropriate to the risks i.e., carry fire extinguishers; communication; and maps detailing routes, muster locations and water points. Laneways and access to water supplies in the area shall be maintained by the Landholder as specified in the lease.

5. Fire Maps

An updated fire map, showcasing access points, tracks, water points, hazards and operational layout will be produced once the plantation has been established. Maps will be provided to the necessary emergency services.

6. Firebreak Maintenance

Firebreaks will be maintained by the landholder of Gabalong Farms. This will be stipulated as a requirement under the project lease agreement.

All firebreaks must be maintained according to the Shire of Moora Firebreak Notice. The requirements for agricultural land (and plantations) are as follows:

- Annually, on or before 1 November, landowner to comply with the below directives to reduce the outbreak, spread and extension of a bushfire and maintain at that standard until 29 March annually under section 33 of the Bush Fires Act 1954.
- Slashing: dead flammable matter including dead grass, shrubs and plants shall be slashed, mowed, or trimmed down by other means to a height no greater than 50 mm across the entire property. Unless used for pasture or cropping.
- Asset Protection: maintain all dead flammable material below 2 tonne per hectare extending 20 metres out from all buildings. (See definitions for fuel load)
- Clean Gutters: ensure roofs, gutters and walls of all buildings are free of flammable matter.
- Fire Breaks: Install a minimum 3-metre-wide cleared fire break no further than 3 metres away from:
 - The entirety of the property boundary;
 - All buildings, sheds, and fuel storage;

- All stationary internal combustion engines; and
- All electric motors or pumps.

Plantations over 3 hectares must adhere to these firebreak standards:

- 15 m wide by 4 m high clearance fire break around the entirety;
- 6 m wide by 4 m high clearance internal fire breaks a minimum of every 30 hectares;
- Minimum of 25,000 litres of water supply and hard stand for every 50 hectares no further than 20 minutes turnaround.

7. Measures to Reduce Hazard

Annual inspection of the property by Wheatbelt Connect personnel to assess the fire risk and impact on the surrounding environment will be taken if required and appropriate management measures will take place.

8. Fire Detection and Reporting and Initial Response

The landowners will provide initial suppression, supported by the Fire Brigade and other local volunteer fire brigades, as soon as possible after the detection of a fire.

The Shire of Moora Chief Fire Control Officer will be responsible for coordination of initial suppression.

If a major wildfire develops, other firefighting organisations will be used to control the wildfire., Department of Fire and Emergency Services (DFES), Parks and Wildlife Service (PWS) in the Department of Biodiversity Conservation and Attractions (DBCAs), and the Forest Products Commission.

9. Water Points and Fire Equipment

Firefighting water supplies on Gabalong Farms include the following:

Note: the locations of the tanks in the vicinity of the proposed plantations are shown on the maps in Appendix 1.

Water tanks with pumps or gravity fed 2-inch 50 mm outlets.

Emergency shire water supply tanks within 3 km of both sites 2-inch 50 mm outlets.

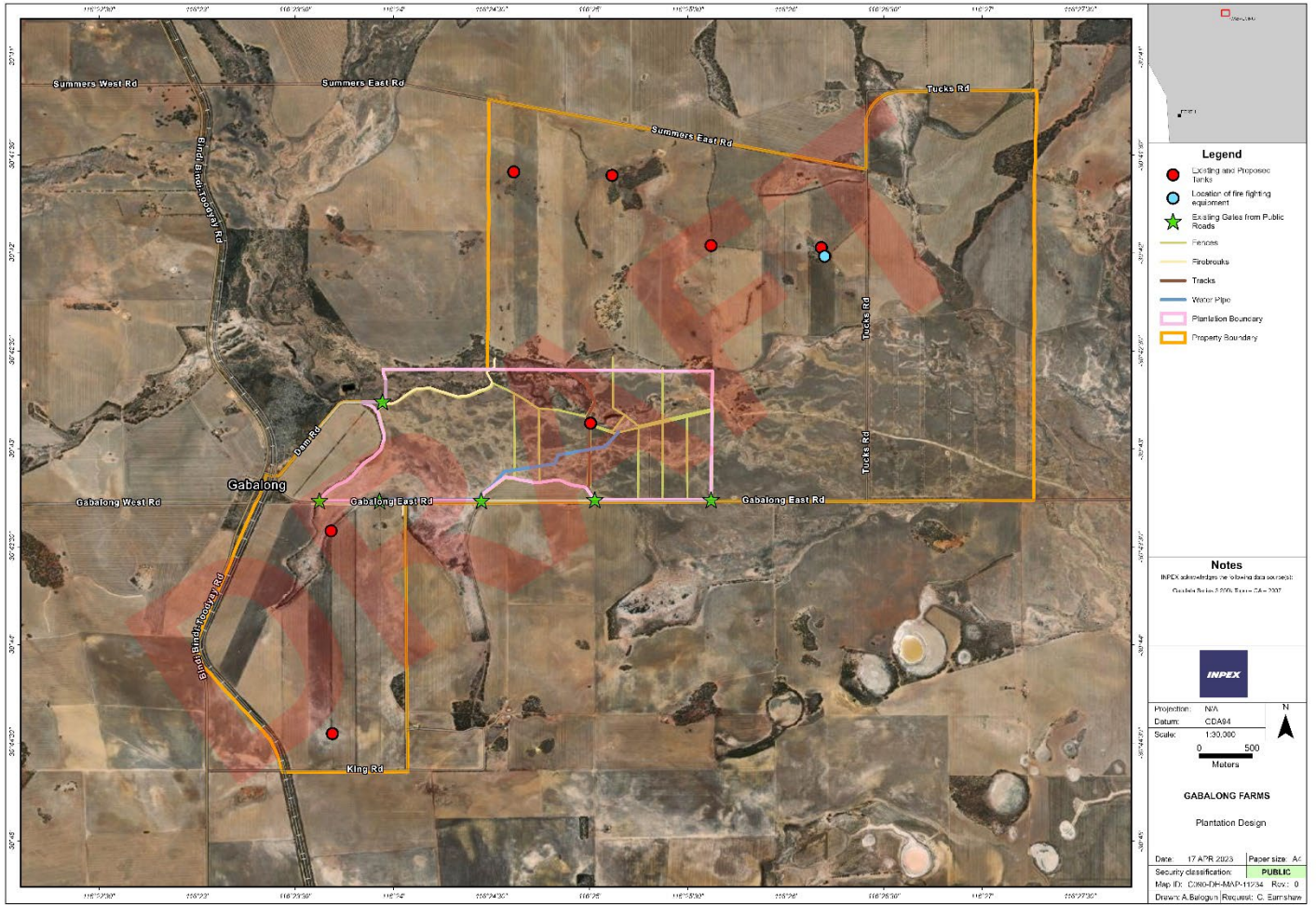
Table 5. On-farm firefighting equipment.

| Owner | Unit | Available on-site during agricultural harvest and other fire-risk operations? | Storage location |
|----------------|------------------|---|------------------|
| Gabalong Farms | Slip-on unit | Yes | 263 Tucks Rd |
| Gabalong Farms | Trailer unit | Yes | 263 Tucks Rd |
| Gabalong Farms | Front end loader | Yes | 263 Tucks Rd |
| Gabalong Farms | Offset discs | Yes | 263 Tucks Rd |

10. Fuel Reduction Burns

Fuel reduction burns in the plantations or surrounding cleared farmlands are not planned. However, suitable livestock will be introduced to the plantations at age three years or as soon as the trees are sufficiently mature to withstand grazing. Besides controlling weeds, the grazing will have the beneficial effect of reducing fire fuel loads and improving access between the tree rows for vehicles.

Appendices 1



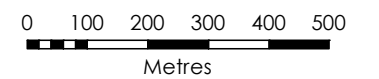
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Figure 1.0
Proposed Plantation Area

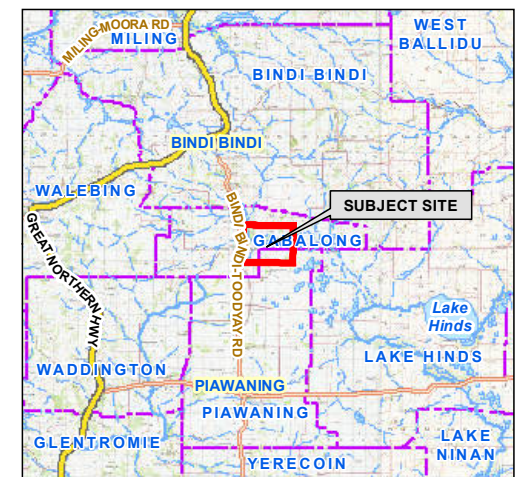
GABALONG SITE
 Lot M1740 on Plan 006395, Area : 385.2564 ha
 Gabalong-Dam Road
 GABALONG
 SHIRE OF MOORA

----- LEGEND -----

- Subject Site
- Proposed Plantation Area
- Other Lots
- ⊕ Strategic Water Point
- ⊗ Gate
- Access / Egress**
- 6m Track
- Proposed Firebreaks**
- Firebreaks 6m Wide
- Firebreaks 14m Wide
- Firebreaks 15m Wide

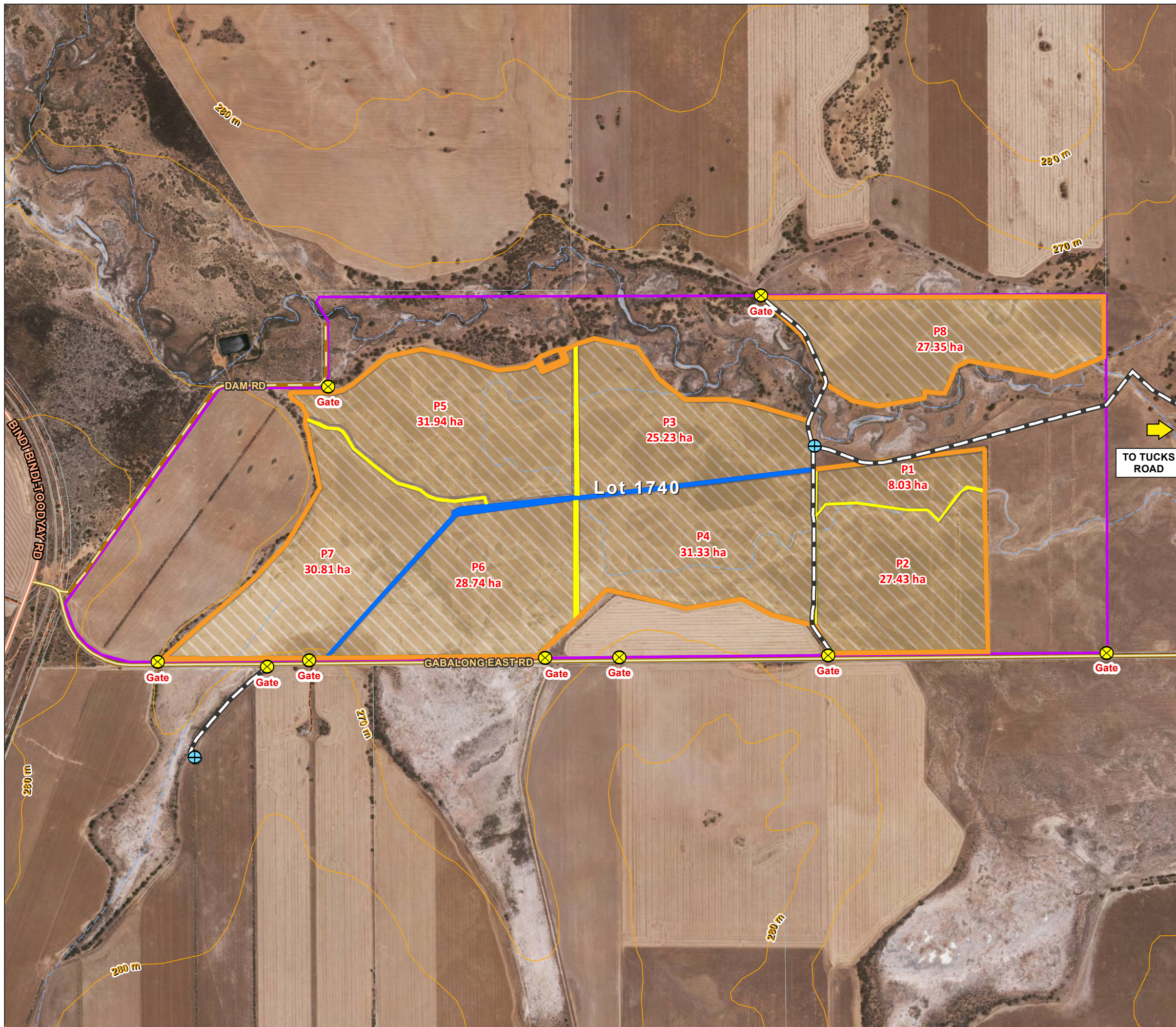


----- LOCALITY -----



Aerial Imagery : Landgate/SLIP
 Image Date : 2017

Coordinate System: GDA 1994 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre
 Map compiled by: Ian Ross 4/10/2023
 Map updated by: Ian Ross 4/10/2023
 A3 Scale 1:12,500



Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence arising from relying on any information depicted.
 Map Document Path / Name: K:\Projects\Jobs 2023\230745 - Gabalong-Dam Road Gabalong (BMP)\Mapping\MXD\230745_Fig1-0_DEV_Gabalong-Dam Rd Gabalong.mxd

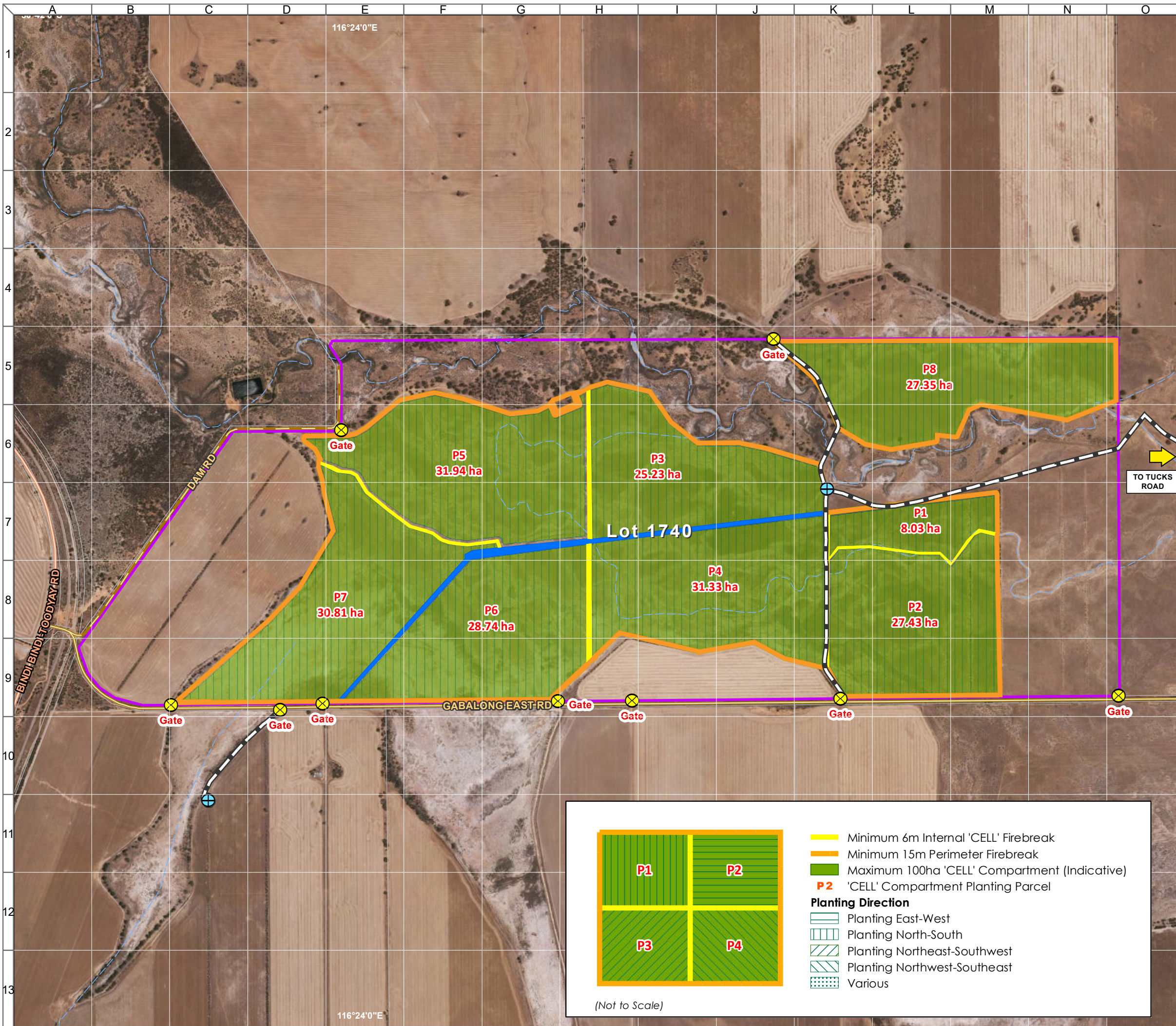
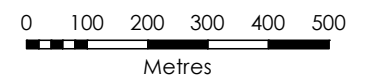
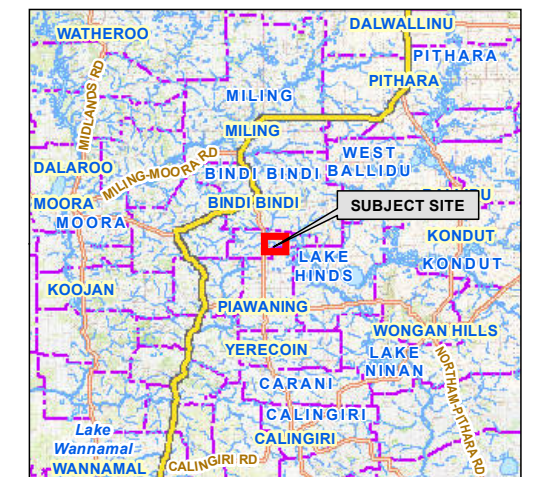


Figure 2.0
**Indicative Planting Cells,
 Limited to Areas Under 100 ha**
GABALONG SITE
 Lot M1740 on Plan 006395, Area : 385.2564 ha
 Gabalong-Dam Road
 GABALONG
 SHIRE OF MOORA

- LEGEND -----
- Subject Site
 - Other Lots
 - + Strategic Water Point
 - x Gate
- Access / Egress**
- 6m Track
- Proposed Firebreaks**
- Firebreaks 6m Wide
 - Firebreaks 14m Wide
 - Firebreaks 15m Wide



----- LOCALITY -----



Aerial Imagery : Landgate/SLIP
 Image Date : 2017

Coordinate System: GDA 1994 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre
 Map compiled by: Ian Ross 4/10/2023
 Map updated by: Ian Ross 4/10/2023
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- Minimum 6m Internal 'CELL' Firebreak
- Minimum 15m Perimeter Firebreak
- Maximum 100ha 'CELL' Compartment (Indicative)
- 'CELL' Compartment Planting Parcel

Planting Direction

- Planting East-West
- Planting North-South
- Planting Northeast-Southwest
- Planting Northwest-Southeast
- Various

(Not to Scale)

Bushfire management plan/Statement addressing the Bushfire Protection Criteria coversheet

Site address:

Site visit: Yes No

Date of site visit (if applicable): Day Month Year

Report author or reviewer:

WA BPAD accreditation level (please circle):

Not accredited Level 1 BAL assessor Level 2 practitioner Level 3 practitioner

If accredited please provide the following.

BPAD accreditation number: Accreditation expiry: Month Year

Bushfire management plan version number:

Bushfire management plan date: Day Month Year

Client/business name:

| | Yes | No |
|--|--------------------------|-------------------------------------|
| Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the bushfire protection criteria elements)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| Is the proposal any of the following (see SPP 3.7 for definitions)? | Yes | No |
|--|--------------------------|--------------------------|
| Unavoidable development (in BAL-40 or BAL-FZ) | <input type="checkbox"/> | <input type="checkbox"/> |
| Strategic planning proposal (including rezoning applications) | <input type="checkbox"/> | <input type="checkbox"/> |
| High risk land-use | <input type="checkbox"/> | <input type="checkbox"/> |
| Vulnerable land-use | <input type="checkbox"/> | <input type="checkbox"/> |


None of the above

Note: Only if one (or more) of the above answers in the tables is yes should the decision maker (e.g. local government or the WAPC) refer the proposal to DFES for comment.

Why has it been given one of the above listed classifications (E.g. Considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

The information provided within this bushfire management plan to the best of my knowledge is true and correct:

Signature of report author
or reviewer



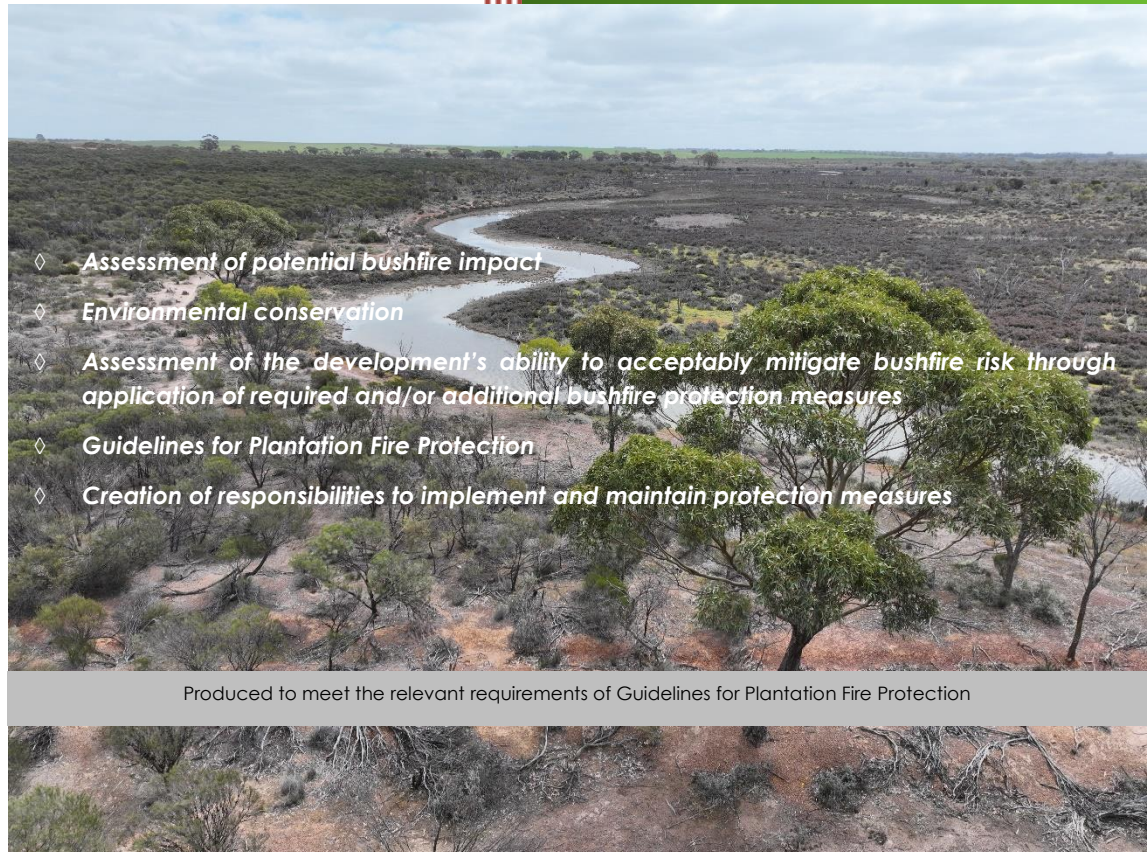
Date



Wheatbelt Connect Native Reforestation Stored Carbon Project

(Gabalong)

Bushfire Management Plan (BMP)



- ◇ *Assessment of potential bushfire impact*
- ◇ *Environmental conservation*
- ◇ *Assessment of the development's ability to acceptably mitigate bushfire risk through application of required and/or additional bushfire protection measures*
- ◇ *Guidelines for Plantation Fire Protection*
- ◇ *Creation of responsibilities to implement and maintain protection measures*

Produced to meet the relevant requirements of Guidelines for Plantation Fire Protection

Lot M1740 Gabalong East Road, Gabalong
Shire of Moora

Change in Land Use – Plantations

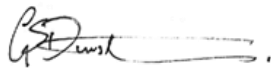

3 October 2023

Job Reference No: 230745

BPP GROUP PTY LTD T/A BUSHFIRE PRONE PLANNING

ACN: 39 166 551 784 | ABN: 39 166 551 784

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| Reviewed: | Kathy Nastov (BPAD Level 3 No. 27794) |  |

VERSION HISTORY

| Version | Details | Date |
|---------|----------------------|-------------------|
| 1.0 | For Comment - review | 27 September 2023 |
| 1.0 | Original | 3 October 2023 |

BMP (Master) Template v9.1

DISTRIBUTION

| Destination | | Version | No. Copies | Hard Copy | Electronic Copy |
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| Les Crane | cranenbindi3@bigpond.com | 1.0 | 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Limitations: The protection measures contained in this Bushfire Management Plan are minimum requirements and they do not guarantee that buildings or infrastructure will not be damaged in a bushfire, persons injured, or fatalities occur either on the subject site or off the site while evacuating. This is substantially due to the unpredictable nature and behaviour of fire and fire weather conditions. Additionally, the correct implementation of the recommended protection measures will depend upon, among other things, the ongoing actions of the landowners and/or operators over which Bushfire Prone Planning has no control.

All surveys, forecasts, projections and recommendations made in this report associated with the proposed development are made in good faith based on information available to Bushfire Prone Planning at the time. All maps included herein are indicative in nature and are not to be used for accurate calculations.

Notwithstanding anything contained therein, Bushfire Prone Planning will not, except as the law may require, be liable for any loss or other consequences whether or not due to the negligence of their consultants, their servants or agents, arising out of the services provided by their consultants.

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TABLE OF CONTENTS

| | |
|---|----------|
| SUMMARY STATEMENTS..... | 4 |
| 1 PROPOSAL DETAILS AND THE BUSHFIRE MANAGEMENT PLAN..... | 7 |
| 1.1 THE PROPOSED LAND USE DETAILS, PLANS AND MAPS | 7 |
| 1.2 THE BUSHFIRE MANAGEMENT PLAN (BMP)..... | 11 |
| 1.2.1 COMMISSIONING AND PURPOSE | 11 |
| 1.3 BUSHFIRE MANAGEMENT OBJECTIVES | 11 |
| 1.4 ENVIRONMENTAL CONSIDERATIONS | 12 |
| 1.5 RISK MANAGEMENT (BASIC) | 14 |
| 1.5.1 PEOPLE..... | 14 |
| 1.5.2 RESOURCES..... | 14 |
| 1.5.3 AIR QUALITY..... | 14 |
| 1.5.4 WATER QUALITY..... | 14 |
| 1.5.5 HABITAT MODIFICATION | 14 |
| 1.5.6 SOIL QUALITY | 14 |
| 1.5.7 COMMERCIAL IMPERATIVES | 14 |
| 1.6 SAFETY..... | 15 |
| 1.6.1 FITNESS FOR FIRE-FIGHTING | 15 |
| 1.6.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)/PERSONAL PROTECTIVE CLOTHING (PPC)..... | 15 |
| 1.6.3 STANDARD OPERATING PROCEDURES (SOP'S) AND GUIDELINES..... | 15 |
| 1.6.4 VERY HIGH HAZARD AREAS..... | 15 |
| 1.6.6 VEHICLES AND DRIVING | 16 |
| 1.6.7 CAPABILITY | 16 |
| 1.6.8 PERSONNEL..... | 16 |
| 1.7 EQUIPMENT..... | 17 |
| 1.7.1 FIRE APPLIANCES AND MACHINERY | 17 |
| 1.8 BUSHFIRE MANAGEMENT PROGRAM..... | 18 |
| 1.8.1 BUSHFIRE PREVENTION | 18 |
| 1.8.2 PLANNING AND PREPAREDNESS..... | 18 |
| 1.8.3 PRE-INCIDENT PLANS | 18 |
| 1.8.4 HAZARDOUS FUEL MANAGEMENT | 19 |
| 1.8.5 PRESCRIBED BURN PLANS | 20 |
| 1.8.6 APPROVING PRESCRIBED BURN PLANS..... | 20 |
| 1.8.7 BUSHFIRE | 20 |
| 1.8.8 BUSHFIRE RECOVERY..... | 20 |
| 1.8.9 REHABILITATION..... | 20 |

| | |
|--|-----------|
| 1.8.10 ENFORCEMENT..... | 21 |
| 1.9 DATA CAPTURE, MONITORING AND REPORTING..... | 21 |
| 1.9.1 CURRENCY AND COMPETENCY..... | 21 |
| 1.9.2 POST INCIDENT AND END-OF-SEASON DEBRIEFS AND REPORTS..... | 21 |
| 1.9.3 MONITORING AND RECORDING..... | 21 |
| 1.10 VEGETATION ASSESSMENT AND CLASSIFICATION..... | 24 |
| 2 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA (GUIDELINES V1.4)..... | 35 |
| 3 RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE BUSHFIRE PROTECTION MEASURES..... | 46 |
| 3.1 DEVELOPER/LANDOWNER RESPONSIBILITIES – PRIOR TO OPERATION..... | 46 |
| 3.2 LANDOWNER/OCCUPIER RESPONSIBILITIES – ONGOING MANAGEMENT..... | 48 |
| 3.3 LOCAL GOVERNMENT - ONGOING MANAGEMENT..... | 50 |
| APPENDIX A: PLANTATION SPECIES..... | 51 |
| A1.2: SUMMARY SITE DATA APPLIED TO CONSTRUCTION OF THE BAL CONTOUR MAP(S)..... | 53 |
| APPENDIX B: PLANTATION BUSHFIRE PROTECTION SPECIFICATIONS..... | 55 |
| APPENDIX C: RESPONSIBLE PERSONS ONSITE..... | 56 |
| APPENDIX D: EMERGENCY CONTACTS & INFORMATION TO MONITOR..... | 57 |
| APPENDIX E: ONSITE VEGETATION MANAGEMENT - THE APZ..... | 62 |
| E1: THE DIMENSIONS AND LOCATION OF THE APZ TO BE ESTABLISHED AND MAINTAINED..... | 62 |
| E2: THE STANDARDS FOR THE APZ AS ESTABLISHED BY THE GUIDELINES (DPLH, V1.4)..... | 63 |
| E3: THE STANDARDS FOR THE APZ AS ESTABLISHED BY THE LOCAL GOVERNMENT..... | 64 |
| E4: MAINTAINING LOW THREAT AND NON-VEGETATED AREAS EXCLUDED FROM CLASSIFICATION..... | 65 |
| APPENDIX F: LANDSCAPING DESIGN & CONSTRUCTION PRINCIPLES TO APPLY..... | 66 |
| APPENDIX G: TECHNICAL REQUIREMENTS FOR VEHICULAR ACCESS..... | 69 |
| APPENDIX H: TECHNICAL REQUIREMENTS FOR FIREFIGHTING WATER SUPPLY..... | 70 |
| H1: RETICULATED AREAS – HYDRANT SUPPLY..... | 70 |
| H2: NON-RETICULATED AREAS – STATIC SUPPLY..... | 71 |
| APPENDIX I: BUSHFIRE WARNINGS – WHEN A BUSHFIRE IS IDENTIFIED..... | 73 |
| APPENDIX J: FIRE DANGER RATINGS – FORECAST BUSHFIRE RISK..... | 74 |
| APPENDIX K: BUSHFIRE RISKS AND DANGERS..... | 75 |
| APPENDIX L: GUIDELINES FOR TRAVELLING IN CARS DURING A BUSHFIRE..... | 76 |
| APPENDIX M: INDICATIVE BUSHFIRE BEHAVIOUR TO IMPACT THE SITE..... | 77 |

LIST OF FIGURES

| | |
|--|----|
| Figure 1.0: Proposed Plantation Area..... | 8 |
| Figure 1.1: Location map (spatial context)..... | 9 |
| Figure 1.2: Map of Bushfire Prone Areas (Office of Bushfire Risk Management, DFES) | 10 |
| Figure 2.0: Indicative Planting Cells, Limited to Areas up to 30ha..... | 13 |
| Figure 3.1: Classified vegetation and Topography Map (Existing) | 22 |
| Figure 3.2.1: Classified vegetation and Topography Map (Post re-vegetation) | 23 |

SUMMARY STATEMENTS

THIS DOCUMENT – STATEMENT OF PURPOSE

The Bushfire Management Plan (BMP)

The BMP sets out the required package of bushfire protection measures to lessen the risks associated with a bushfire event. It establishes the responsibilities to implement and maintain these measures.

The BMP also identifies the potential for any negative impact on any environmental, biodiversity and conservation values that may result from the application of bushfire protection measures or that may limit their implementation.

Risks Associated with Bushfire Events

The relevant risks are the potential for loss of life, injury, or destroyed or damaged assets which results in personal loss and economic loss. For a given site, the level of that risk to persons and assets (the exposed elements) is a function of the potential threat levels generated by the bushfire hazard, and the level of exposure and vulnerability of the at risk elements to the threats.

Bushfire Protection Measures

The required package of protection measures is established by State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7), its associated Guidelines and any other relevant guidelines or position statements published by the Department of Planning, Lands and Heritage. These measures are limited to those considered by the WA planning authorities as necessary to be addressed for the purpose of land use planning. They do not encompass all available bushfire protection measures as many are directly relevant to a planning approval stage. For example:

- Protection measures to reduce the vulnerability of buildings to bushfire threats is primarily dealt with at the building application stage. They are implemented through the process of applying the Building Code of Australia in accordance with WA building legislation and the application of construction requirements based on a building's level of exposure - determined as a Bushfire Attack Level (BAL) rating); or
- Protection measures to reduce the threat levels of consequential fire (ignited by bushfire and involving combustible materials surrounding and within buildings) and measures to reduce the exposure and vulnerability of elements at risk exposed to consequential fire, are not specifically considered.

The package of required bushfire protection measures for plantations established by the Guidelines for Plantation Fire Protection 2011 includes:

- Planning for Plantation Fire Management.
- Plantation Fire Protection Specifications.
- Equipment and Training.

The set of fire protection standards for plantations aims to protect human life and local community interests, while minimising fire risk to plantation assets.

Compliance of the Proposed Land Use with 'Guidelines for Plantation Fire Protection' Requirements

The BMP indicates how the proposed land use is able to implement and maintain the required 'acceptable' measures and any additionally recommended bushfire protection strategies - or its capacity to satisfy the Guidelines intent through the justified application of additional bushfire protection measures as supportable 'alternative' solutions.

Compliance of the Proposed Development or Use with SPP 3.7 Requirements

The BMP assesses the capacity of the proposed development or use to implement and maintain the required 'acceptable' solutions and any additionally recommended bushfire protection measures - or its capacity to satisfy the policy intent through the justified application of additional bushfire protection measures as supportable 'alternative' solutions.

The package of required bushfire protection measures established by the Guidelines includes:

- The requirements of the bushfire protection criteria which consist of:
 - Element 1: Location (addresses threat levels).
 - Element 2: Siting and Design of Development (addresses exposure levels of buildings).
 - Element 3: Vehicular Access (addresses exposure and vulnerability levels of persons).
 - Element 4: Water (addresses vulnerability levels of buildings).

| THE PROPOSED DEVELOPMENT/USE – BUSHFIRE PLANNING COMPLIANCE SUMMARY | | |
|--|----------------------------------|---------------------------|
| Environmental Considerations | | Assessment Outcome |
| Will identified environmental, biodiversity and conservation values limit the full application of the required bushfire protection measures? | | No |
| Will identified environmental, biodiversity and conservation values need to be managed in the implementation and maintenance of the bushfire protection measures - but not limit their application? | | Yes |
| Summary Statement: The proposal will include revegetation of native plant assemblages. The establishment and maintenance of the required Asset Protection Zone(s) around existing buildings or assets of value will be implemented. | | |
| Required Bushfire Protection Measures | | Assessment Outcome |
| The Acceptable Solutions of the Bushfire Protection Criteria (Guidelines) | | |
| Element | The Acceptable Solutions | |
| 1: Location | A1.1 Development location | Fully Compliant |
| 2: Siting and Design of Development | A2.1 Asset Protection Zone (APZ) | Fully Compliant |
| 3: Vehicular Access | A3.1 Public roads | Fully Compliant |
| | A3.2a Multiple access routes | Fully Compliant |
| | A3.2b Emergency access way | N/A |
| | A3.3 Through-roads | N/A |
| | A3.4a Perimeter roads | N/A |
| | A3.4b Fire service access route | N/A |

| | | |
|--|---|-----------------|
| | A3.5 Battle-axe legs | N/A |
| | A3.6 Private driveways | Fully Compliant |
| 4: Water | A4.1 Identification of future water supply | N/A |
| | A4.2 Provision of water for firefighting purposes | Fully Compliant |
| Other Documents Establishing Bushfire Protection Measure Variations or Additions | | N/A |
| The Methodology Applied to the Development of an Alternative Solution The necessity for an alternative solution is in response to non-compliance with the applicable acceptable solutions. | | N/A |
| Other 'Bushfire Planning' Documents to Be Produced | | N/A |

This BMP indicates how the proposed land use is able to implement and maintain the required 'acceptable' measures as detailed in the Guidelines for Plantation Fire Protection. Elements of the DPLH Guidelines for Planning in Bushfire Prone Areas are not specifically relevant where the development proposal is for plantation purposes only and no built infrastructure or subdivision land use proposed. A pragmatic approach in the consideration of the bushfire mitigation measures and intent of both 'Guidelines' is in this instance warranted.

The Department of Fire and Emergency Services and the Department of Planning Lands and Heritage endorse the Guidelines for Plantation Fire Protection and encourage local authorities to adopt them.

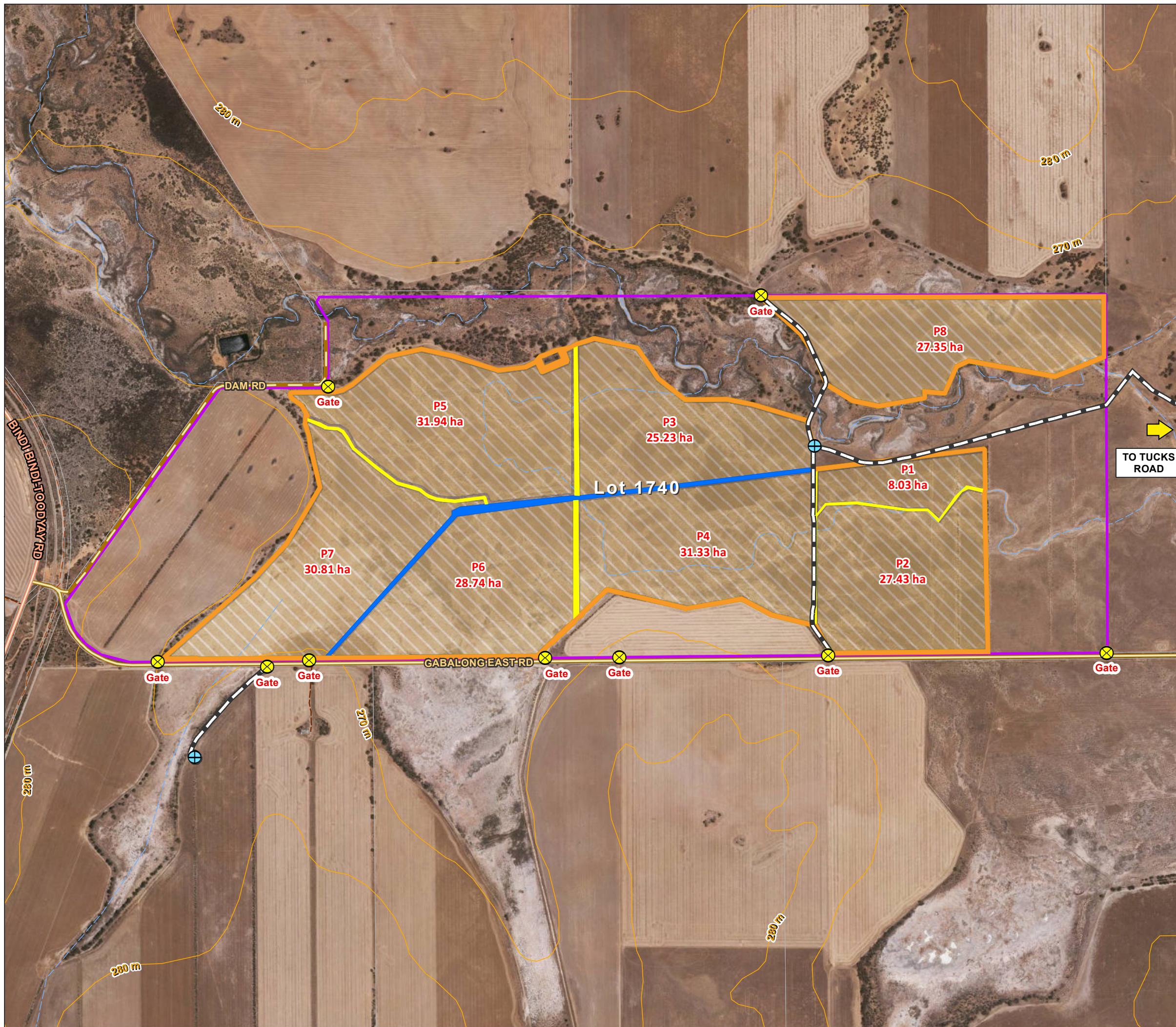
1 PROPOSAL DETAILS AND THE BUSHFIRE MANAGEMENT PLAN

1.1 The Proposed Land Use Details, Plans and Maps

| | |
|--|---|
| Land use type: | Reforestation Plantation for the purposes of carbon stores. |
| Factors that have identified the proposal's bushfire planning requirements: | <p>Compliance with applicable local government legislation obligations. State Planning Policy 3.7 and the associated Guidelines for Planning in Bushfire Prone Areas.</p> <p>Australian Government Clean Energy Regulator requirements for proponents to manage the risk of bush fire in Emissions Reduction Fund vegetation projects.</p> <p>Department of Fire and Emergency Services (DFES) Guidelines for Plantation Fire Protection (as agreed upon by the Forest Industries Federation of Western Australia (FIFWA)).</p> |
| Subject lot/site total area: | Landgate Lot on Plan: P006395 (385.2564 hectares) |
| Plantation type(s): | Native Mixed Species – Mallee dominant |
| Description of the proposed development/use: | |
| <p>Objective: Provide bushfire protection standards for the Plantation that aim to protect life and local community interests, while minimising fire risk to the plantation assets. This Bushfire Management Plan contains both an operational component and a Development Application planning component.</p> <p>The intent of the Plantation for carbon stores is to retain native vegetation where possible, avoid unnecessary clearing and minimise environmental impact on the site. The bushfire management plan provides specific detail on the management and configuration of 'Cells' with the intent on minimising the ignition sources and potential for bushfire originating within the site.</p> <p>The Plantation landowner is required to comply with elements of the Shire of Moora Firebreak Notice, in conjunction with the Guidelines for Plantation Fire Protection.</p> <p>Areas outside of site are not under the control of the landowner. The management of these areas is limited generally to unprogrammed or un-coordinated seasonal planned burning (where undertaken by an adjoining landowner) and firebreak maintenance. Therefore the potential for bushfire impact originating from the broader landscape external to the subject site has been considered in preparing this plan.</p> <p>The landowner is responsible for the ongoing management of the plantation site. Future responsibilities for implementation and management of the bushfire protection measures may be established through contractor mutual agreement and contracted obligations for the project duration, in line with a project activity timelines schedule. As such, on formal cessation of the project works by either party, the responsibilities for the continued management of the bushfire protection measures detailed within the bushfire management plan for the site remains the responsibility of the landowner.</p> | |

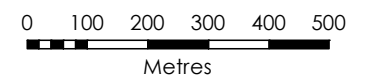
Figure 1.0
Proposed Plantation Area

GABALONG SITE
 Lot M1740 on Plan 006395, Area : 385.2564 ha
 Gabalong-Dam Road
 GABALONG
 SHIRE OF MOORA

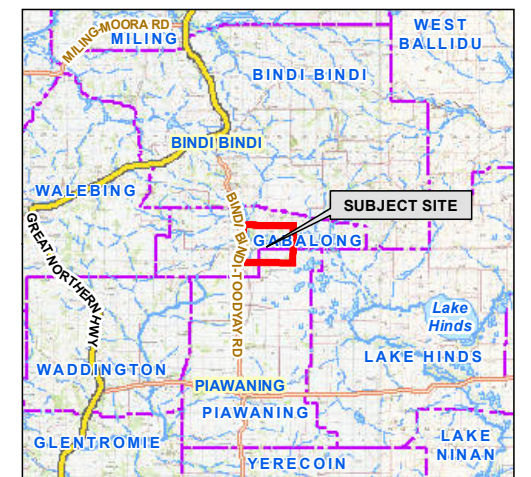


----- LEGEND -----

- Subject Site
- Proposed Plantation Area
- Other Lots
- + Strategic Water Point
- x Gate
- Access / Egress**
- 6m Track
- Proposed Firebreaks**
- Firebreaks 6m Wide
- Firebreaks 14m Wide
- Firebreaks 15m Wide



----- LOCALITY -----



Aerial Imagery : Landgate/SLIP
 Image Date : 2017

Coordinate System: GDA 1994 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre
 Map compiled by: Ian Ross 4/10/2023
 Map updated by: Ian Ross 4/10/2023
 A3 Scale 1:12,500



Figure 1.3
Location Plan

GABALONG SITE
Lot M1740 on Plan 006395, Area : 385.2564 ha
Gabalong-Dam Road
GABALONG
SHIRE OF MOORA

----- LEGEND -----

-  Subject Site
-  Local Government Authority
-  Bush Fire Brigade
-  State Emergency Service Unit
-  Volunteer Fire & Emergency Service Unit
-  Volunteer Fire & Rescue Service

Reserves

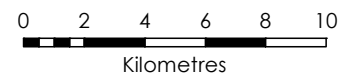
-  Reserves

Legislated Lands and Waters

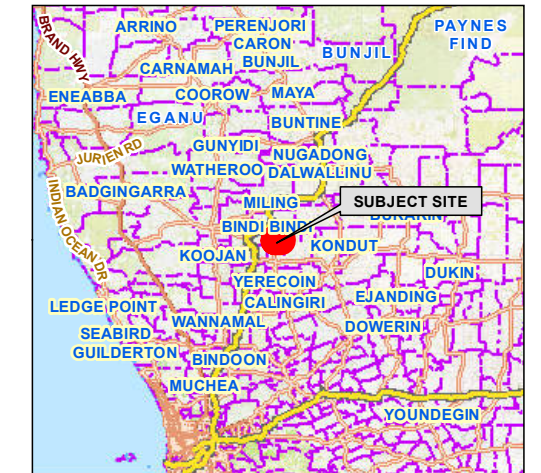
-  Nature Reserve
-  Conservation Park
-  Section 5(1)(h) Reserve

DBCA Lands of Interest

-  Crown Freehold - Dept Interest




----- LOCALITY -----



Aerial Imagery : Landgate/SLIP
Image Date : 2017

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
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Map updated by: Ian Ross 27/09/2023
A3 Scale 1:250,000









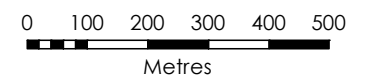

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Map Document Path / Name: K:\Projects\Jobs 2023\230563 - Woodside - Karakin (BMP)\Mapping\MXD\230745_Fig1-1_LOC_Gabalong-Dam Rd Gabalong.mxd

Figure 1.2
Bushfire Prone Area

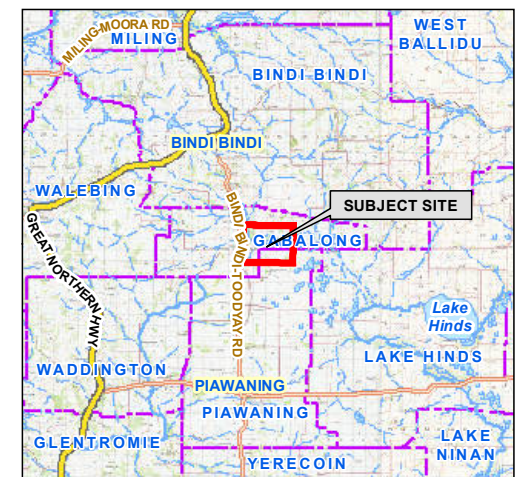
GABALONG SITE
 Lot M1740 on Plan 006395, Area : 385.2564 ha
 Gabalong-Dam Road
 GABALONG
 SHIRE OF MOORA

----- **LEGEND** -----

-  Subject Site
-  Other Lots
-  Strategic Water Point
-  Gate
- Access / Egress**
-  6m Track
- Bush Fire Prone Areas**
-  Bushfire Prone Areas (2021)

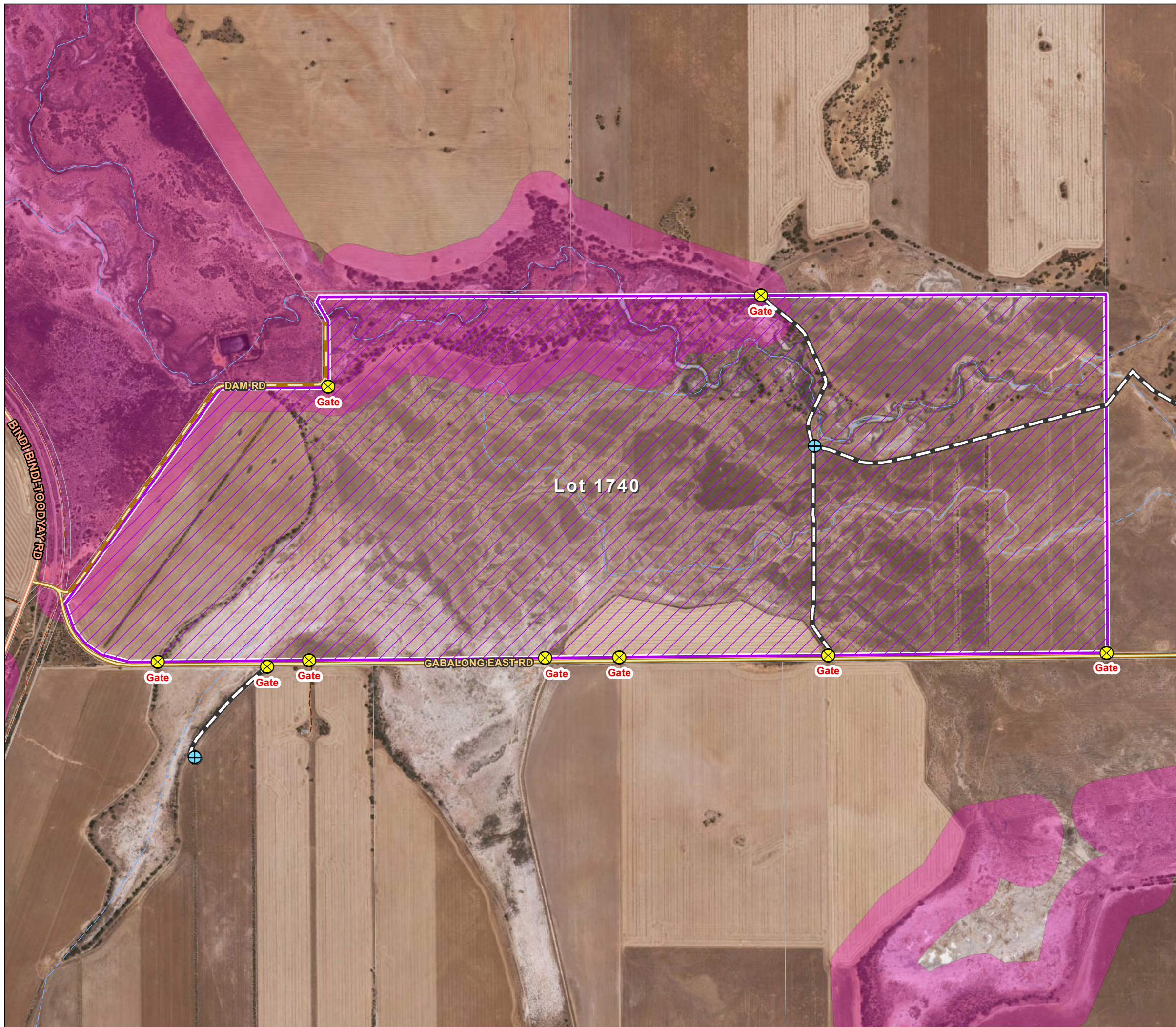


----- **LOCALITY** -----



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 Map Document Path / Name: K:\Projects\Jobs 2023\230745 - Gabalong-Dam Road Gabalong (BMP)\Mapping\MXD\230745_Fig1-2_BPA_Gabalong-Dam Rd Gabalong.mxd

1.2 The Bushfire Management Plan (BMP)

1.2.1 Commissioning and Purpose

| | |
|---|--|
| Landowner / proponent: | Leslie G Crane 263 Tucks Road GABALONG WA 6574 |
| Bushfire Prone Planning commissioned to produce the BMP by: | INPEX 100 St Georges Tce PERTH WA 6000 |
| Purpose of the BMP: | Development Application - To identify and subsequently implement the minimum standards responding to the local risk and local government requirements of the proposed re-vegetation (Plantation) area. |
| Local Govt. Area: | Shire of Moora |

1.3 Bushfire Management Objectives

A major impact to the site assets (Plantation) is bushfire. Obligations for bushfire management arise from the *Bush Fires Act 1954* and the *Code of Practice for timber Plantations in Western Australia*. The 'Act' and 'Code' place a responsibility on the landowner/plantation management to:

- Protect life and property from bushfire;
- Minimise the spread of bushfire originating from the plantation land, and
- Protect surrounding properties, community interests and State forests from the damaging effects of bushfire.

In addition to these responsibilities, Local Governments have a statutory ability to consider the impact of plantations or large areas of re-vegetation with local species and implement provisions to ensure the safe management through their town planning scheme which may require additional considerations.

This Bushfire Management Plan describes the measures developed to implement bushfire management strategies on the land to meet its obligations and business priorities. The Plan provides the base framework for how the site manager/s intends to manage the accumulative fuel loads, firebreaks and access, water supplies for fire-fighting and respond to bushfire originating on or from an external impact to the site. It is not intended to repeat existing plans, policies or procedures, but to provide overarching guidance to the bushfire management arrangements. Included are strategies, and approaches to minimise the fire risks to the assets of value on the site and to neighbours and wider community.

The broad range of vegetation types, fire history, climate change, weather conducive to bushfire, unpredictability between years and seasons and local vegetation values across the local area mean that the risk posed by bushfire varies significantly therefore there is a requirement for a planned approach to site management.

The term 'bushfire management' includes both fire prevention and fire suppression activities. It is recommended that a cooperative bushfire management and response arrangement is established between key local fire authorities and forms part of the annual reviewing of the bushfire management planning for the site. These arrangements assist the site landowner and/or manager to lessen accumulative bushfire fuel on their land and to adequately respond to and control bushfire where conditions are tenable to do so. It also facilitates high levels of support and coordination between the agencies to ensure sufficient resources to respond to escalating bushfire situations which are beyond the capability of the site manager or any one agency. It provides for a shared responsibility and ability to operate within an inter-agency coordinated system.

Any substantial loss of plantation resources has long term implications. In order to deliver bushfire protection to the greatest extent possible, INPEX, in partnership with the landowner, recognises that it needs to:

- Work collaboratively with local fire authorities to develop bushfire management and operations plans;
- Implement programs for bushfire prevention, mitigation, preparedness, response and recovery;

- Work cooperatively with local fire authorities to respond to bushfires to minimise the adverse impacts on human life, on social, economic and environmental values;
- Use fire under appropriate conditions to promote ecosystem health, diversity and resilience in native vegetation areas, and as a risk reduction strategy;
- Maintain appropriate levels of bushfire management capability to effectively discharge its responsibilities as an organization, recognising that bushfire mitigation is a responsibility of the landowner/plantation management for this site.

1.4 Environmental Considerations

Many bushfire prone areas also have high biodiversity values. Consideration of environmental priorities within the boundaries of the land being developed can avoid excessive or unnecessary modification or clearing of vegetation. Approval processes (and exemptions) apply at both Commonwealth and State levels.

Any 'modification' or 'clearing' of vegetation to reduce bushfire risk is considered 'clearing' under the **Environmental Protection Act 1986** (EP Act) and requires a clearing permit under the **Environmental Protection (Clearing of Native Vegetation) Regulations 2004** (Clearing Regulations) – unless for an exempt purpose.

Clearing native vegetation is an offence, unless done under a clearing permit or the clearing is for an exempt purpose. Exemptions are contained in the EP Act or are prescribed in the Clearing Regulations (note: these do not apply in environmentally sensitive areas).

The **Department of Water and Environmental Regulation** (DWER) is responsible for issuing 'clearing' permits and the framework for the regulation of clearing. Approvals under other legislation, from other agencies, may also be required, dependent on the type of flora or fauna present.

Local Planning Policy or Local Biodiversity Strategy: Natural areas that are not protected by the above Act and Regulations (or any other National or State Acts) may be protected by a local planning policy or local biodiversity strategy. Permission from the local government will be required for any modification or removal of native vegetation in these Local Natural Areas (LNA's). Refer to the relevant local government for detail.

For further information refer to Guidelines v1.4, the Bushfire and Vegetation Factsheet - WAPC, Dec 2021 and <https://www.der.wa.gov.au/our-work/clearing-permits>

INPEX, in partnership with the Landowner, (and any future landowner/s) are to adopt principles of environmental care when planning and conducting bushfire management activities in line with the following:

- Protect water quality and quantity by implementing measures designed to minimise the impact of bushfire on swampy ground and bodies of standing water, and their physical, chemical, and biological qualities;
- Protect soil to maintain its physical and chemical properties and promote stabilisation of bare or disturbed earth;
- Consider landscape values, geomorphologic features, and cultural and historical sites when planning operations;
- Protect indigenous flora and fauna following bushfire suppression by measures which promote the re-establishment of the ecological processes existing prior to the bushfire;
- Avoid the possible introduction and spread of pest plants and animals, plant diseases, and insect pests;
- Address air quality by measures which reduce the impacts of smoke generated by prescribed burning;
- Maintain the dynamism and diversity in WA's indigenous flora and fauna species populations and communities through use of appropriate fire regimes and bushfire mitigation activities.

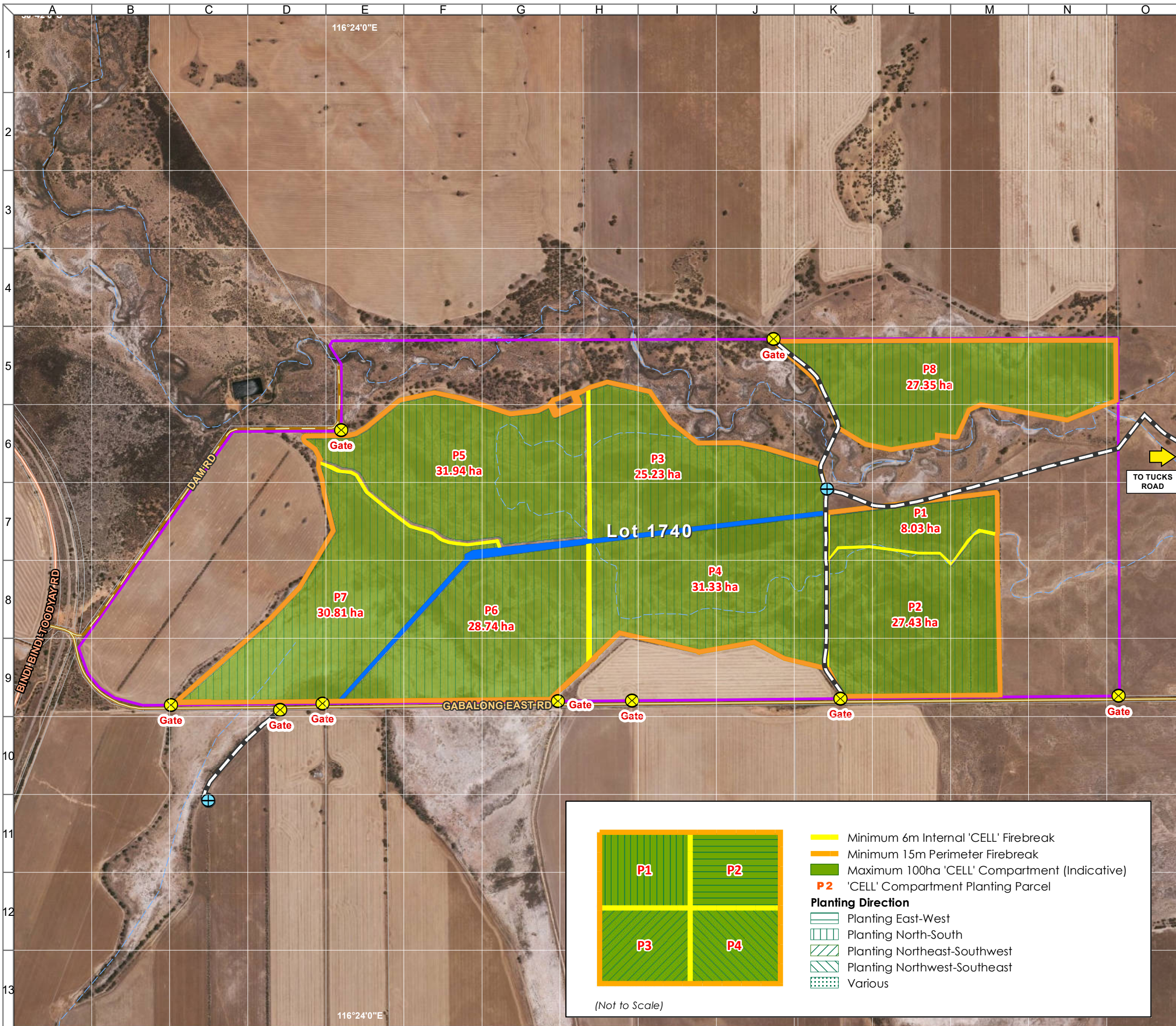
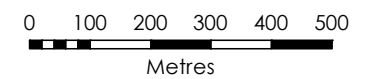
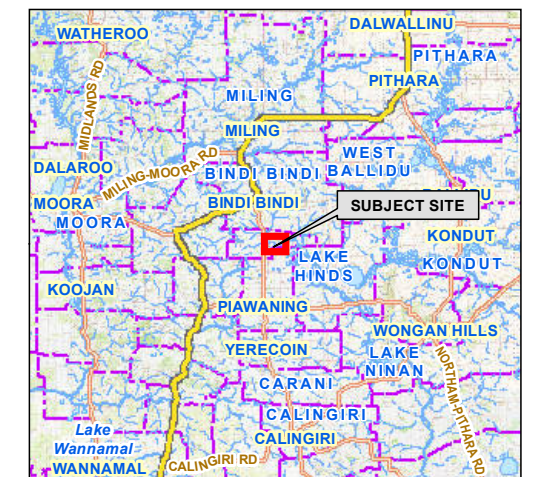


Figure 2.0
**Indicative Planting Cells,
 Limited to Areas Under 100 ha**
GABALONG SITE
 Lot M1740 on Plan 006395, Area : 385.2564 ha
 Gabalong-Dam Road
 GABALONG
 SHIRE OF MOORA

- LEGEND -----
- Subject Site
 - Other Lots
 - + Strategic Water Point
 - x Gate
- Access / Egress**
- 6m Track
- Proposed Firebreaks**
- Firebreaks 6m Wide
 - Firebreaks 14m Wide
 - Firebreaks 15m Wide



----- LOCALITY -----



Aerial Imagery : Landgate/SLIP
 Image Date : 2017

Coordinate System: GDA 1994 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre
 Map compiled by: Ian Ross 4/10/2023
 Map updated by: Ian Ross 4/10/2023
 A3 Scale 1:12,500

(Not to Scale)

- Minimum 6m Internal 'CELL' Firebreak
- Minimum 15m Perimeter Firebreak
- Maximum 100ha 'CELL' Compartment (Indicative)
- 'CELL' Compartment Planting Parcel

Planting Direction

- Planting East-West
- Planting North-South
- Planting Northeast-Southwest
- Planting Northwest-Southeast
- Various

1.5 Risk Management (basic)

INPEX and the Landowner are to adopt a risk management approach throughout its plantation maintenance programs and bushfire operations. The main risk categories for bushfire management considerations are described below.

1.5.1 People

Bushfire presents risks to the health, safety and welfare of personnel, contractors and visitors to the site. Fire and associated smoke can also impact the local community and neighbours. INPEX may also develop partnerships with First Nations peoples as the Traditional Owners and ongoing custodians of the land to insure the maintenance and protection of their culture and values.

1.5.2 Resources

Maintain bushfire management resources according to that defined in 'future' site Pre-Incident Plans and Preparedness Guidelines (which are formulated around daily Australian Fire Danger Ratings - AFDR).

1.5.3 Air quality

Bushfire can have a significant impact on air quality causing detrimental impacts on major population centers, airports, major roads, neighbours and other sensitive areas.

Planning and risk analysis are to be undertaken for each prescribed burn to determine the comparative risk of smoke impacts from burns on the local community and air quality with the risks to public safety and natural assets from potential bushfire. Information on weather, fire behaviour, smoke trajectory predictions, burn location and size of the area to be fuel reduced are of strategic importance in determining the most suitable burn prescription and ignition application to achieve an effective burn outcome with low smoke impacts.

1.5.4 Water quality

Planning and operations are to be assessed by risk to minimise the impact on water quality, and reduce risks associated with increased chance of sedimentation.

1.5.5 Habitat modification

Habitat modification includes destruction of ground cover and subsequent accelerated erosion (land degradation), changes in ground cover species composition (perennial grasses to annual weeds), physical modification of stream profiles and water quality and physical destruction of individual plants.

1.5.6 Soil quality

Bushfire can lead to increased erosion through the removal of ground cover. Prescribed burn planning must consider the impacts of fire on soils and aim to deliver mosaic burn patterns that maintain soil cover while at the same time reducing fuel loads. Plantation operations and earthworks are to be undertaken in accordance with strict "best practice guidelines" to ensure soil quality is not degraded. Post fire recovery operations should also be undertaken to insure soil stability.

1.5.7 Commercial imperatives

One of the greatest risks to the plantation for carbon stores is the impact of unplanned bushfire. The loss of significant areas of plantation or native forest regrowth ultimately impacts the ability to meet the carbon store commitments.

The Plantation which is intended to incorporate local native species is susceptible to bushfire, particularly at regular intervals. History shows a tolerance to mild fire once native vegetation is established. However, when not killed outright, fire can damage plantation trees or greatly reduce growth rates. Whilst it may still be possible to recover

plantation cell areas, it will be at a much-reduced carbon offset value until fully established again. There is a significant loss of resource and time to re-establish these areas if they are impacted by bushfire.

1.6 Safety

Safety is a key driver in the management of the plantation site. Keeping 'INPEX' people safe and ensuring that they get home safely to their families at the end of each day is a priority.

INPEX shall:

- Ensure the safety of all firefighting and support personnel is given the highest priority in the planning and application of all fire management operations;
- Review and apply standards for the medical and physical fitness requirements of all fire management personnel in accordance with current information and experience as set out for the workplace.

Guidelines for managing the personnel tasked with bushfire responsibilities:

- Make available critical incident stress debriefing to personnel subjected to traumatic events or circumstances;
- Give personnel sufficient time to rest to relieve fatigue and stress arising from their involvement in bushfire suppression operations as far as is reasonably practical;
- Random drug and alcohol testing can be undertaken at any time and at any part of the workplace, including on the fire ground, as per the alcohol and drug policy for the site.

The following initiatives and procedures are suggested to further enhance and promote the safety of all personnel working at the plantation site.

1.6.1 Fitness for fire-fighting

It is recommended that Plantation personnel involved in fire-fighting activities including planned/prescribed burning programs and bushfire management measures, should undertake a fitness assessment to ensure they are fit for task.

Fire operational personnel should be required to undertake further medical checks annually or as recommended by a medical practitioner.

1.6.2 Personal Protective Equipment (PPE)/Personal Protective Clothing (PPC)

All plantation personnel involved in fire prevention and fire operations are to be supplied with, and expected to wear or carry, standard firefighting PPE/ PPC. PPE/ PPC is to meet Australian Standards and it is the responsibility of the wearer to ensure it is maintained and worn or carried in accordance with plantation policy and protocols.

1.6.3 Standard Operating Procedures (SOP's) and Guidelines

Fire-related Standard Operating Procedures and Guidelines are to be developed and updated as required.

All firefighting personnel are expected to be aware of and abide by these SOPs and Guidelines.

1.6.4 Very High Hazard Areas

The safety of firefighters is always paramount in firefighting operations, and dangerous areas within the site must be identified and included on the response/site plan for the plantation.

1.6.5 Fatigue Management

Fatigue management guidelines apply within the Plantation site for management teams and personnel accordingly. INPEX should implement a procedure for managing personnel fatigue during bushfire operations.

1.6.6 Vehicles and Driving

The location of the plantation and operations means that personnel are likely required to drive long distances as part of their workday. Driving is considered one of the highest critical risks. This is intensified in fire management because of the work environment, which can include night-time operations and extended periods of work. INPEX are to limit this risk by enforcing fatigue management guidelines, monitoring vehicle movements and safe driving practice. Personnel are to be regularly reminded of the risks and controls to minimize accidents and incidents associated with driving.

1.6.7 Capability

INPEX are to ensure capability for bushfire response within the plantation site to be defined and established in accordance with the INPEX risk-minimisation approach. The approach should incorporate a daily readiness and preparedness which is informed by the Australian Fire Danger Rating (AFDR) and status of fire activity in the surrounding areas on any given day. Preparedness should include:

- A pre-incident readiness for the bushfire season, which considers resources and procedures for daily activities and requirements for fire preparedness and response or to assist local bushfire brigades with bushfire operations such as 'mop up';
- Hazardous fuel load reduction mitigation works, revised annually, with scheduled mitigation activities that reduce the risk of bushfire ignition and impact or support operational activities in terms of ability to respond effectively to extinguishment of bushfire.

INPEX (Plantation Management) will establish a relationship and maintain communication with local brigades on local bushfire issues. Fire fighting capabilities include equipment on the property, water available for fire fighting activities at strategic locations near roadways and central to the plantings, maintained accessways, maps at key entrances for fire and equipment information on the property.

1.6.8 Personnel

Capability requirements for the plantation site should define the number of fire operations and support personnel that are necessary to undertake programed mitigation works and provide assistance at fires on site at any given time. INPEX personnel are expected to be bushfire trained where required to respond directly or to support the firefighting effort in other ways. Seasonal personnel may be necessary to supplement firefighting capacity to meet the seasonal operational requirement numbers.

It is recommended that Personnel are to be trained in a range of competencies to enable plantation resources to assist with the management of fires, with roles ranging from on ground basic fire fighters through to senior management roles. Once fires go beyond INPEX capability, local government and DFES resources are likely to take over operational control of an incident.

1.6.9 Training

Bushfire training is an essential component of safe, efficient and effective fire management operations. INPEX are to:

- Apply national standards as the basis of competency definition, or where these do not exist, accepted industry standards;
- Define competency requirements;
- Review the competencies of personnel according to established currency requirements;
- Provide and/or facilitate training programs and competency assessments for skills acquisition, maintenance and personal and professional development to ensure personnel have the required competencies.
- Maintain systems to record training and competency for all fire management activities.
- Training requirements and review/expiry dates are to be tracked and monitored through an appropriate system for all operational Plantation firefighting personnel.

1.7 Equipment

The Landowner has a legal responsibility to prevent fire from escaping their land in accordance with the Bush Fire Act 1954. It must be possible for INPEX personnel and the Landowner (or appropriate representatives) to attend a bushfire on the plantation site.

As a minimum for the plantation site, INPEX is to ensure 2 x suitably constructed 4WD vehicle mounted 'slip-on' units and 1 x trailer mounted fire pump/water tank unit, to ensure sufficient mobile water capacities and fire-fighting ability, is available for responding to bushfire within the plantation site boundaries. This equipment will be on-site whilst INPEX personnel/workers are undertaking activities conducive to ignition of a bushfire and available during the bushfire season.

1.7.1 Fire Appliances and Machinery

The Plantation management should have access to, owns, or contracts light and heavy machinery that can be used in firefighting. Additional Heavy plant such as front-end loaders (FEL) may be specifically stood-up and ready for deployment, particularly during periods of increased fire danger.

Heavy plant to be fit for purpose, that is Roll Over Protection (ROP's), Falling Object Protection (FOP's) and (OPG) Operator Protection Guarding compliant, which meets the relevant Australian or International Standard. Personnel (Heavy Plant Operators) must be trained and highly experienced in operating and supervising heavy plant. To the greatest extent possible, site managers should always provide a heavy Plant Supervisor (machine supervisor) to direct and work with heavy plant on the fire ground to ensure communications with the plant operator and to also provide fire protection for plant working on fire lines.

- Firefighting equipment must be in good working order and well maintained;
- All machinery is to be fitted with approved, serviceable fire extinguisher in line with Australian Standards (This is a requirement of the Bush Fires Act 1954 and Bush Fires Regulations 1954);
- Refueling of machinery and equipment will not occur in the planted area. Refueling must be undertaken on a hardstand area, free from flammable material;
- Vehicles and machinery operating in the plantation during the bushfire season must comply with the Bush Fires Act 1954 and must adhere to the requirements of Harvest and Vehicle Movement Bans and Total Fire Bans when set by the Local Government and/or Fire and Emergency Services Commissioner.

Radio Communications and Technology:

INPEX and the Landowner are to maintain its own radio network which can be used in bushfire control situations and daily operational requirements. Liaison with local fire agencies is required to develop a working relationship to ensure that during a bushfire incident plantation personnel can communicate effectively with other agencies to ensure inter-operability.

Procedures relating to appropriate radio installation, upkeep and maintenance should be developed.

DFES has implemented the WAERN (Western Australian Emergency Response Network) throughout the Wheatbelt and southern Western Australia provide bushfire appliances the ability to communicate with UHF (CB) radios (these dual band radios allow communications on both the UHF and VHF band and can be setup as a repeater if required).

In addition, Telstra GO Repeaters are network coverage extension devices that maximise mobile signal in areas of low coverage. Telstra GO Repeaters receive a signal from a nearby Telstra mobile base station before amplifying and distributing this improved mobile signal to the desired area via an antenna. Mobile & Vehicle Cel Fi Go Repeater Kit can be installed in site vehicles as appropriate.

The availability of options such as 'StarLink' mobility can also provide high-speed, low-latency broadband internet in the most rural and remote locations.

1.8 Bushfire Management Program

The "Prevention, Preparedness, Response, Recovery model" is suggested as the framework for delivery of bushfire management planning and programs undertaken by INPEX on plantation sites.

1.8.1 Bushfire Prevention

The objective for INPEX plantation management is to work cooperatively with Department of Biodiversity, Conservation and Attractions (DCBA), Department of Fire and Emergency Service (DFES), local government authorities and other stakeholders on programs to prevent the occurrence of unplanned fires.

Measures for bushfire prevention are determined and implemented at a Management Area/Plantation Protection Area level. Measures applied are:

- Compliance with the Shire of Moora Firebreak Notice and DEFS declared Total Fire Ban days to prevent ignition by machinery and enforce fire use restrictions to reduce accidental ignition.
- Systems for ceasing plantation operations during extreme fire weather to reduce accidental ignitions.
- Surveillance (if appropriate) of selected areas of the site to stop/regulate access into the plantation or other areas of the property during adverse conditions.
- Undertaking fuel reduction planned burning programs. (This should be undertaken in accordance with state fire legislation and local fire permit requirements.

1.8.2 Planning and Preparedness

INPEX should aim to undertake fire prevention and preparedness activities in a planned and cohesive manner, delivering the best possible level of bushfire protection, as required by legislation, while simultaneously maximising ecological and other land management outcomes.

Measures applied are:

- Annual pre-readiness for the bushfire season, fire suppression strategies and priorities, and
- Annual hazardous fuel mitigation works, to mitigate the risk of bushfires on its managed land.

This provides for a consistent and cohesive approach for both suppression and fuel management activities.

Management activities must:

- Include an assessment of risk to life and property, economic risk to commercial assets, and risks to rare and threatened species and communities
- Describe the priorities for fire protection works for a five-year period.

1.8.3 Pre-Incident Plans

Prior to fire season commencement each year, pre-incident preparedness is undertaken, to ensure effective response to bushfires on the site. Levels of preparedness and defined numbers of personnel and equipment required for initial attack are determined in accordance to predicted fire danger rating. (Refer Appendix 'L').

Pre-incident preparedness is to consider the following information:

- Fire preparedness guidelines and fire danger information (AFDR);
- Response arrangements (communication with local brigades and the local government);
- Local emergency services (volunteer bush fire brigades) contact information;
- Links to weather information;
- Reviewed annually any recommendations or current strategies, prior to the commencement of the fire season.

1.8.4 Hazardous Fuel Management

Hazardous fuel management considers the range of fire protection strategies and practices available and adopts those which best meet both fire protection objectives and the principles of environmental management. These may include use of fire in a controlled environment.

- At an overall property scale, excluding the use of fire to sensitive areas on site;
- A means to achieve ecological outcomes by altering habitat structure and composition of flora and fauna species;
- To protect or enhance water catchment on the site, historical, Indigenous and other cultural values;
- Accommodating fire protection objectives outlined in the Shire of Moora Firebreak Notice

Hazardous fuel management should consider rolling targets for seasonal prescribed burning subject to weather conditions or seasonal mechanical methods of hazardous fuel reduction areas within the site, including weed management by slashing, ploughing or other environmentally approved technique.

Fuel Management Plan components:

Geographical Information System Mapping (GIS)

- GIS allows analysis of spatial information such as the planning area, fire history, built, natural and cultural assets and values.
- Layers can be periodically reviewed and updated to incorporate new data and fire history or site detail as required.
- Map layers are to be stored in the Corporate GIS database.

Each Plantation Area to have a series of Risk Based Maps which identify the following:

Assets at risk

- This map identifies fire-vulnerable asset location.
- Settlements/townships adjoining State Forest.
- Plantations high value young regrowth areas.
- Land tenure boundaries.
- Probable high-intensity fire paths to plantation areas and fire-vulnerable assets on site.

Hazard reduction constraints

- Identify areas that are hazard reduction treatable and non-treatable land/ vegetation classification map.
- Non-burnable area categories (such as hazardous areas or areas such as peatlands).
- Land excluded from planned burning by environmental regulations.
- Plantation high value young regrowth areas.
- Fire sensitive area types in which mechanical fuel reduction is preferred to burning as a fuel management treatment (*Note: Grazing may also be a suitable option*).
- Land not tenable for hazard reduction burning due to operational constraints (neighbour fencing/assets not feasible to protect, no reliable burn boundaries, access issues etc.).

1.8.5 Prescribed Burn Plans

This bushfire management plan details a suite of measures that will be undertaken to ensure carbon remains sequestered in the project area. The plan includes management actions that have or will be undertaken to prevent the risk of fire starting and spreading within the project site, including the frequency and scale of these actions. The management of accumulative fuel loads to reduce the intensity and spread of fires includes hazard reduction burning (prescribed/planned burning). Ensuring managed burning will have a far lower impact on the site over the life of the project than an uncontrolled bushfire. All planned burns will have an approved operational plan prior to burning. Safety and environmental considerations and potential impacts on other stakeholders are assessed as part of the planning process (due diligence).

Operational plans include:

- Burn objectives;
- An operational map;
- Environmental approvals;
- Burn area details;
- Resources required;
- Standards to be met;
- Checks and notifications to be undertaken;
- Authorisations to be obtained; and
- Post burn appraisals to be conducted.

Operational Plans for planned burning remain current for 5 years but should be reviewed prior to each planned burn.

1.8.6 Approving Prescribed Burn Plans

All site-specific burn plans must be approved by INPEX designated officer, or their delegate, and all burns must be authorized prior to commencement of burning. All planned burning to be undertaken in accordance with State Legislation and Local Government requirements pursuant to provisions of the Bush Fires Act 1954.

1.8.7 Bushfire

Details for each individual bushfire including situation reports, communication, mapping, photos, video, documents, predictions, and Incident Action Plans (IAP) should be developed and archived.

All detail including logs, maps and planning should be captured and stored in case it needs to be produced later, where appropriate.

1.8.8 Bushfire Recovery

Directly, or assist other agencies to, undertake recovery activities of bushfire affected areas on site in reconstruction of the physical infrastructure and restoration of plantation areas.

Other bushfire recovery actions may include operations to salvage, repair, rehabilitate or replace fire damaged assets and sites disturbed by fire control operations.

All recovery operations and actions post bushfire should be carried out in accordance with an Incident Action Plan for the bushfire.

Further significant recovery operations may include salvage operations for recoverable vegetation and replanting of plantation or silvicultural operations to facilitate regeneration.

1.8.9 Rehabilitation

Undertake rehabilitation of disturbance resulting from firefighting operations as soon as practical after the bushfire is contained. Where substantial rehabilitation works are or will be required, a rehabilitation plan is prepared and implemented. In some circumstances, the bushfire may be declared a natural disaster and funding for rehabilitation and recovery works may be available under the Natural Disasters Recovery Fund. Where possible, rehabilitation activities such as erosion control measures should be undertaken in conjunction with control activities.

1.8.10 Enforcement

Where there is sufficient evidence to suggest that a person (or persons) was responsible for deliberately lighting or negligently causing a fire on the site or a fire that subsequently enters onto plantation managed areas, this must be reported to the relevant authorities, DFES and WA Police. Action may be taken to recover the costs of suppression and/or damage caused by the fire.

1.9 Data capture, monitoring and reporting

1.9.1 Currency and competency

Personnel who participate in fire related operational activities including both bushfire and prescribed burning should log the details of their hours and operational roles in an appropriate system. This enables capture of activity for maintenance of currency and competency against fire qualifications.

1.9.2 Post Incident and End-Of-Season Debriefs and Reports

Major fire suppression events undertaken by Plantation personnel may be subject to a post incident debrief.

End of season debriefs are also undertaken and actions or 'lessons learnt' identified and addressed in training, procedure review and/or development or communicated out to all firefighting personnel.

The format and scope of the post incident debrief depends on the incident level and the nature of events during the incident. The style of debriefing can range from an informal discussion between plantation manager and personnel on a small incident, to a formal debriefing with relevant agencies on a complex incident.

1.9.3 Monitoring and Recording

All data, such as fire histories, prescribed burning and results of management programs to be recorded on a regular basis to update GIS layers and to inform annual planning and reporting.

Requirements for additional records or reporting, such as a fire investigation, planning developments, training and Quality Assurance Audits/Operational Inspection Reports will be maintained in a format that complies with the INPEX Records Management Policy.

Evidence to support any claims must be kept ensuring these records provide details of land management actions with respect to activities that reduce bushfire risk on the site. This might include copies of prescribed burn permits, date stamped photos of fire hazard reduction activities or receipts from service providers.

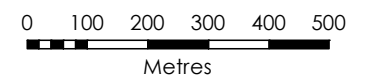
Figure 3.1
Classified Vegetation & Topography

GABALONG SITE
 Lot M1740 on Plan 006395, Area : 385.2564 ha
 Gabalong-Dam Road
 GABALONG
 SHIRE OF MOORA

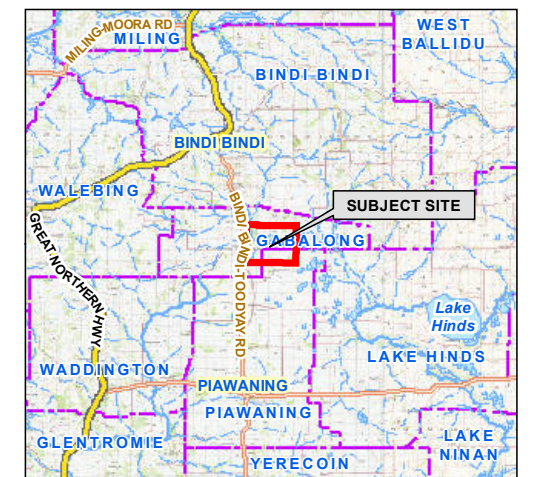


----- LEGEND -----

- Subject Site
- Proposed Plantation Area
- Other Lots
- Photo & Direction
- Strategic Water Point
- Gate
- 150m Vegetation Assessment Area**
- 150m from Subject Site
- Classified Vegetation**
- Class (C) Shrubland
- Class (D) Scrub
- Class (G) Grassland
- Excluded 2.2.3.2



----- LOCALITY -----



Aerial Imagery : Landgate/SLIP
 Image Date : 2017

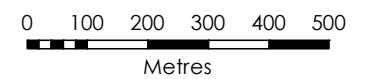
Coordinate System: GDA 1994 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre
 Map compiled by: Ian Ross 4/10/2023
 Map updated by: Ian Ross 4/10/2023
 A3 Scale 1:12,500



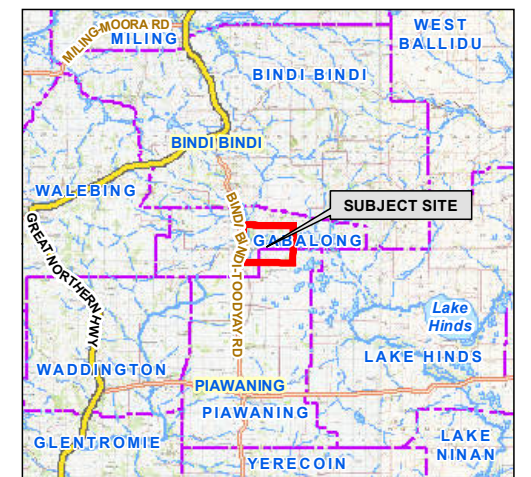
Figure 3.1.2
Classified Vegetation & Topography (Post Development)
GABALONG SITE
 Lot M1740 on Plan 006395, Area : 385.2564 ha
 Gabalong-Dam Road
 GABALONG
 SHIRE OF MOORA



- LEGEND -----
- Subject Site
 - Other Lots
 - + Strategic Water Point
 - X Gate
- Access / Egress**
- 6m Track
- 150m Vegetation Assessment Area**
- 150m from Subject Site
- Classified Vegetation**
- Class (C) Shrubland
 - Class (D) Scrub
 - Class (G) Grassland
 - Excluded 2.2.3.2
- Proposed Firebreaks**
- Firebreaks 15m Wide
 - Firebreaks 6m Wide



----- LOCALITY -----



Aerial Imagery : Landgate/SLIP
 Image Date : 2017

Coordinate System: GDA 1994 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre
 Map compiled by: Ian Ross 28/09/2023
 Map updated by: Ian Ross 28/09/2023
 A3 Scale 1:12,500



1.10 Vegetation Assessment and Classification

Vegetation Types and Classification

In accordance with AS 3959:2018 clauses 2.2.3 and C2.2.3.1, all vegetation types within 100 metres of the 'site' (defined as "the part of the allotment of land on which a building stands or is to be erected"), are identified and classified. Any vegetation more than 100 metres from the site that has influenced the classification of vegetation within 100 metres of the site, is identified and noted. The maximum excess distance is established by AS 3959: 2018 cl 2.2.3.2 and is an additional 100 metres.

Classification is also guided by the Visual Guide for Bushfire Risk Assessment in WA (WA Department of Planning February 2016) and any relevant FPA Australia practice notes.

Modified Vegetation

The vegetation types have been assessed as they will be in their natural mature states, rather than what might be observed on the day. Vegetation destroyed or damaged by a bushfire or other natural disaster has been assessed on its expected re-generated mature state. Modified areas of vegetation can be excluded from classification if they consist of low threat vegetation managed in a minimal fuel condition, satisfying AS 3959:2018 s2.2.3.2(f), and there is sufficient justification to reasonable expect that this modified state will exist in perpetuity.

The Influence of Ground Slope

Where significant variation in effective slope exists under a consistent vegetation type, these will be delineated as separate vegetation areas to account for the difference in potential bushfire behaviour, in accordance with AS 3959:2018 clauses 2.2.5 and C2.2.5.







THE INFLUENCE OF VEGETATION GREATER THAN 100 METRES FROM THE SUBJECT SITE







Vegetation area(s) within 100m of the site whose classification has been influenced by the existence of bushfire prone vegetation from 100m – 200m from the site:

Nos 3 & 4.







Assessment Statement:







Vegetation comprising shrubland interface with scrub within the relevant broader area influences the classification of vegetation within 100 metres of the subject site. Where shrubland is not isolated, a worst case scenario approach has been considered and scrub classification applied.






| VEGETATION AREA 1 | | | | | | |
|---|--|--------------------|--|-------------|---------------------------|--|
| Classification (Existing) | G. GRASSLAND | | Classification (Post-Development) | | D. SCRUB | |
| Types Identified | Sown pasture G-26 | | Tussock grassland G-22 | | Low open shrubland G-19 | |
| Effective Slope | Measured | flat 0 degrees | Applied Range (Method 1) | | Upslope or flat 0 degrees | |
| Foliage Cover (all layers) | <10% | Shrub/Heath Height | <2m | Tree Height | N/A | |
| Additional Justification: | Large areas of grass and cropping land with low shrubs. Off-site grassland/paddock areas likely to remain as such. | | | | | |
| Post Development Assumptions: | On-site land will be re-vegetated with Mallee (York Gum) species. Proposed planting densities constitute a 'Scrub' vegetation for the Cells. Class G Grassland will be revegetated into Class D Scrub mix. | | | | | |
|  | | |  | | | |
| PHOTO ID: 1 | | | PHOTO ID: 2 | | | |
|  | | |  | | | |
| PHOTO ID: 3 | | | PHOTO ID: 4 | | | |
|  | | |  | | | |
| PHOTO ID: 5 | | | PHOTO ID: 6 | | | |

| VEGETATION AREA 1 | | | | | | |
|---|--|--------------------|--|-------------|---------------------------|--|
| Classification (Existing) | G. GRASSLAND | | Classification (Post-Development) | | D. SCRUB | |
| Types Identified | Sown pasture G-26 | | Tussock grassland G-22 | | Low open shrubland G-19 | |
| Effective Slope | Measured | flat 0 degrees | Applied Range (Method 1) | | Upslope or flat 0 degrees | |
| Foliage Cover (all layers) | <10% | Shrub/Heath Height | <2m | Tree Height | N/A | |
| Additional Justification: | Large areas of grass and cropping land with low shrubs. Off-site grassland/paddock areas likely to remain as such. | | | | | |
| Post Development Assumptions: | On-site land will be re-vegetated with Mallee (York Gum) species. Proposed planting densities constitute a 'Scrub' vegetation for the Cells. Class G Grassland will be revegetated into Class D Scrub mix. | | | | | |
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| PHOTO ID: 7 | | | PHOTO ID: 8 | | | |
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| PHOTO ID: 9 | | | PHOTO ID: 10 | | | |
|  | | |  | | | |
| PHOTO ID: 11 | | | PHOTO ID: 12 | | | |




| VEGETATION AREA 1 | | | | | | | | | | | | | | | |
|---|--|--------------------|---|-------------------------|---------------------------|--|--|---|--------------|--------------|--|--|--|--|--|
| Classification (Existing) | G. GRASSLAND | | On-site Classification (Post-Development) | D. SCRUB | | | | | | | | | | | |
| Types Identified | Sown pasture G-26 | | Tussock grassland G-22 | Low open shrubland G-19 | | | | | | | | | | | |
| Effective Slope | Measured | flat 0 degrees | Applied Range (Method 1) | | Upslope or flat 0 degrees | | | | | | | | | | |
| Foliage Cover (all layers) | <10% | Shrub/Heath Height | <2m | Tree Height | N/A | | | | | | | | | | |
| Additional Justification: | Large areas of grass and cropping land with low shrubs. Off-site grassland/paddock areas likely to remain as such. | | | | | | | | | | | | | | |
| Post Development Assumptions: | On-site land will be re-vegetated with Mallee (York Gum) species. Proposed planting densities constitute a 'Scrub' vegetation for the Cells. Class G Grassland will be revegetated into Class D Scrub mix. | | | | | | | | | | | | | | |
| <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <div data-bbox="148 589 724 1019" data-label="Image"> </div> </td> <td style="width: 50%; vertical-align: top;"> <div data-bbox="847 589 1423 1019" data-label="Image"> </div> </td> </tr> <tr> <td style="text-align: center;">PHOTO ID: 13</td> <td colspan="6" style="text-align: center;">PHOTO ID: 14</td> </tr> </table> | | | | | | | <div data-bbox="148 589 724 1019" data-label="Image"> </div> | <div data-bbox="847 589 1423 1019" data-label="Image"> </div> | PHOTO ID: 13 | PHOTO ID: 14 | | | | | |
| <div data-bbox="148 589 724 1019" data-label="Image"> </div> | <div data-bbox="847 589 1423 1019" data-label="Image"> </div> | | | | | | | | | | | | | | |
| PHOTO ID: 13 | PHOTO ID: 14 | | | | | | | | | | | | | | |


| VEGETATION AREA 2 | | | | | | |
|---|---|--------------------|--|-------------------------|---------------------------|--|
| Classification (Existing) | G. GRASSLAND | | Classification (Post-Development) | G. GRASSLAND | | |
| Types Identified | Sown pasture G-26 | | Tussock grassland G-22 | Dense sown pasture G-25 | | |
| Effective Slope | Measured | flat 0 degrees | Applied Range (Method 1) | | Upslope or flat 0 degrees | |
| Foliage Cover (all layers) | <10% | Shrub/Heath Height | N/A | Tree Height | N/A | |
| Additional Justification: | Large areas of gently grass and cropping land. Off-site grassland/cropping land likely to remain as such. | | | | | |
| Post Development Assumptions: | Class G Grassland will remain as cropping areas. | | | | | |
|  | | |  | | | |
| PHOTO ID: 15 | | | PHOTO ID: 16 | | | |
|  | | |  | | | |
| PHOTO ID: 17 | | | PHOTO ID: 18 | | | |
|  | | |  | | | |
| PHOTO ID: 19 | | | PHOTO ID: 20 | | | |


| VEGETATION AREA 2 | | | | | | |
|--|---|--------------------|-----------------------------------|---------------------|---------------------------|--|
| Classification (Existing) | G. GRASSLAND | | Classification (Post-Development) | G. GRASSLAND | | |
| Types Identified | Sown pasture G-26 | | Tussock grassland G-22 | | Dense sown pasture G-25 | |
| Effective Slope | Measured | flat 0 degrees | Applied Range (Method 1) | | Upslope or flat 0 degrees | |
| Foliage Cover (all layers) | <10% | Shrub/Heath Height | N/A | Tree Height | N/A | |
| Additional Justification: | Large areas of gently grass and cropping land. Off-site grassland/cropping land likely to remain as such. | | | | | |
| Post Development Assumptions: | Class G Grassland will remain as cropping areas. | | | | | |
| <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;">  </div> <div style="width: 48%;">  </div> </div> | | | | | | |
| PHOTO ID: 21 | | | PHOTO ID: 22 | | | |
| <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;">  </div> <div style="width: 48%;">  </div> </div> | | | | | | |
| PHOTO ID: 23 | | | PHOTO ID: 24 | | | |
| <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;">  </div> <div style="width: 48%;">  </div> </div> | | | | | | |
| PHOTO ID: 25 | | | PHOTO ID: | | | |



| VEGETATION AREA 3 | | | | | |
|--|---|--|-----------------------------------|---------------------------|-----|
| Classification (Existing) | C. SHRUBLAND | | Classification (Post-Development) | C. SHRUBLAND | |
| Types Identified | Low shrubland C-12 | | | | |
| Effective Slope | Measured | flat 0 degrees | Applied Range (Method 1) | Upslope or flat 0 degrees | |
| Foliage Cover (all layers) | >30% | Shrub/Heath Height | <2m | Tree Height | N/A |
| Additional Justification: | Mixed species shrub composition. Scattered scrub >2m in height within shrubland. | | | | |
| Post Development Assumptions: | Classified as Shrubland as these areas are not identified as changing in land use or further reforestation. | | | | |
| DIRECTION 29 deg(T) 30.71272°S ACCURACY 5 m 116.39757°E DATUM WGS84 | | DIRECTION 177 deg(T) 30.70921°S ACCURACY 5 m 116.40861°E DATUM WGS84 | | | |
|  | |  | | | |
| 2023-09-14 12:33:34+08:00 | | 2023-09-14 13:02:58+08:00 | | | |
| PHOTO ID: 26 | | | PHOTO ID: 27 | | |
| DIRECTION 289 deg(T) 30.71861°S ACCURACY 5 m 116.38995°E DATUM WGS84 | | DIRECTION 79 deg(T) 30.70922°S ACCURACY 5 m 116.40860°E DATUM WGS84 | | | |
|  | |  | | | |
| 2023-09-14 12:23:01+08:00 | | 2023-09-14 13:02:46+08:00 | | | |
| PHOTO ID: 28 | | | PHOTO ID: 29 | | |
| DIRECTION 79 deg(T) 30.70922°S ACCURACY 5 m 116.40860°E DATUM WGS84 | |  | | | |
| 2023-09-14 13:02:46+08:00 | | PHOTO ID: - | | | |
| PHOTO ID: 30 | | | PHOTO ID: - | | |

| VEGETATION AREA 4 | | | | | |
|-------------------------------|---|--------------------|-----------------------------------|-----------------|---------------------------|
| Classification (Existing) | D. SCRUB | | Classification (Post-Development) | D. SCRUB | |
| Types Identified | Closed scrub D-13 | | Low shrubland C-12 | Open scrub D-14 | |
| Effective Slope | Measured | flat 0 degrees | Applied Range (Method 1) | | Upslope or flat 0 degrees |
| Foliage Cover (all layers) | >30% | Shrub/Heath Height | <2m | Scrub Height | Up to 6m |
| Additional Justification: | Mixed scrub composition Mallee and Paper Bark species. Understory of low shrubs. Broader landscape fire impact/indication - continuous scrub vegetation abutting site boundaries. (Height staff 5m) | | | | |
| Post Development Assumptions: | Classified as Scrub as these areas are not identified as changing in land use or further reforestation. | | | | |
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| PHOTO ID: 31 | | | PHOTO ID: 32 | | |
| | | | | | |
| PHOTO ID: 33 | | | PHOTO ID: 34 | | |
| | | | | | |
| PHOTO ID: 35 | | | PHOTO ID: 36 | | |

| VEGETATION AREA 4 | | | | | |
|---|---|--------------------|---|---------------------------|----------|
| Classification (Existing) | D. SCRUB | | Classification (Post-Development) | D. SCRUB | |
| Types Identified | Closed scrub D-13 | | Low shrubland C-12 | Open scrub D-14 | |
| Effective Slope | Measured | flat 0 degrees | Applied Range (Method 1) | Upslope or flat 0 degrees | |
| Foliage Cover (all layers) | >30% | Shrub/Heath Height | <2m | Scrub Height | Up to 6m |
| Additional Justification: | Mixed scrub composition Mallee and Paper Bark species. Understory of low shrubs. Broader landscape fire impact/indication - continuous scrub vegetation abutting site boundaries. (Height staff 5m) | | | | |
| Post Development Assumptions: | Classified as Scrub as these areas are not identified as changing in land use or further reforestation. | | | | |
|  | | |  | | |
| PHOTO ID: 37 | | | PHOTO ID: 38 | | |
|  | | | | | |
| PHOTO ID: 39 | | | PHOTO ID: - | | |

| VEGETATION AREA 2 | | | | | | |
|---|---|--------------------|-----------------------------------|-------------------------|---------------------------|--|
| Classification (Existing) | G. GRASSLAND | | Classification (Post-Development) | G. GRASSLAND | | |
| Types Identified | Sown pasture G-26 | | Tussock grassland G-22 | Dense sown pasture G-25 | | |
| Effective Slope | Measured | flat 0 degrees | Applied Range (Method 1) | | Upslope or flat 0 degrees | |
| Foliage Cover (all layers) | <10% | Shrub/Heath Height | N/A | Tree Height | N/A | |
| Additional Justification: | Large areas of gently grass and cropping land. Off-site grassland/cropping land likely to remain as such. | | | | | |
| Post Development Assumptions: | Class G Grassland will remain as cropping areas. | | | | | |
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| PHOTO ID: 40 | | | | PHOTO ID: - | | |

| VEGETATION AREA 3 | | | | | | |
|--|---|--------------------|-----------------------------------|--------------|---------------------------|--|
| Classification (Existing) | C. SHRUBLAND | | Classification (Post-Development) | C. SHRUBLAND | | |
| Types Identified | Low shrubland C-12 | | | | | |
| Effective Slope | Measured | flat 0 degrees | Applied Range (Method 1) | | Upslope or flat 0 degrees | |
| Foliage Cover (all layers) | >30% | Shrub/Heath Height | <2m | Tree Height | N/A | |
| Additional Justification: | Mixed species shrub composition. Salt impacted low lying land. | | | | | |
| Post Development Assumptions: | Classified as Shrubland as these areas are not identified as changing in land use or further reforestation. | | | | | |
|  | | | | | | |
| PHOTO ID: 41 | | | | PHOTO ID: 42 | | |

| VEGETATION AREA 4 | | | | | | |
|---|---|--------------------|---|-------------------|---------------------------|--|
| Classification (Existing) | D. SCRUB | | Classification (Post-Development) | D. SCRUB | | |
| Types Identified | Open scrub D-14 | | Open tussock G-23 | Sown pasture G-26 | | |
| Effective Slope | Measured | flat 0 degrees | Applied Range (Method 1) | | Upslope or flat 0 degrees | |
| Foliage Cover (all layers) | >30% | Shrub/Heath Height | N/A | Scrub Height | Up to 6m | |
| Additional Justification: | Mixed scrub composition Mallee (York Gum) species. Understory of grasses. | | | | | |
| Post Development Assumptions: | Classified as Scrub as these areas are identified as changing in land use - further reforestation. Example planting rows. | | | | | |
|  <p>DIRECTION 358 deg(T) 30.72098°S ACCURACY 5 m 116.42242°E DATUM WGS84</p> <p>2023-09-14 11:47:10+08:00</p> | | |  <p>DIRECTION 0 deg(T) 30.72079°S ACCURACY 10 m 116.42173°E DATUM WGS84</p> <p>2023-09-14 11:48:15+08:00</p> | | | |
| PHOTO ID: 43 | | | PHOTO ID: 44 | | | |

2 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA (GUIDELINES V1.4)

2.1 Bushfire Protection Criteria Elements Applicable to the Proposed Development/Use

APPLICATION OF THE CRITERIA, ACCEPTABLE SOLUTIONS AND PERFORMANCE ASSESSMENT

The criteria are divided into five elements – location, siting and design, vehicular access, water and vulnerable tourism land uses. Each element has an intent outlining the desired outcome for the element and reflects identified planning and policy requirements in respect of each issue.

The example acceptable solutions (bushfire protection measures) provide one way of meeting the element's intent. Compliance with these automatically achieves the element's intent and provides a straightforward pathway for assessment and approval.

Where the acceptable solutions cannot be met, the ability to develop design responses (as alternative solutions that meet bushfire performance requirements) is an alternative pathway that is provided by addressing the applicable performance principles (as general statements of how best to achieve the intent of the element).

A merit based assessment is established by the SPP 3.7 and the Guidelines as an additional alternative pathway along with the ability of using discretion in making approval decisions (sections 2.5, 2.6 and 2.7). This is formally applied to certain development (minor and unavoidable – sections 5.4.1 and 5.7). Relevant decisions by the State Administrative Tribunal have also supported this approach more generally.

Elements 1 – 4 should be applied for all strategic planning proposals, subdivision or development applications, except for vulnerable tourism land uses which should refer to Element 5. Element 5 incorporates the bushfire protection criteria in Elements 1 – 4 but caters them specifically to tourism land uses. (Guidelines DPLH 2021v1.4)

| The Bushfire Protection Criteria | Applicable to the Proposed Development/Use |
|---|--|
| Element 1: Location | Yes |
| Element 2: Siting and Design | Yes |
| Element 3: Vehicular Access | Yes |
| Element 4: Water | Yes |
| Element 5: Vulnerable Tourism Land Uses | No |

2.2 Local Government Variations to Apply

Local governments may add to or modify the acceptable solutions to recognise special local or regional circumstances (e.g., topography / vegetation / climate). These are to be endorsed by both the WAPC and DFES before they can be considered in planning assessments. (Guidelines DPLH 2021v1.4).

| | |
|---|----|
| Do endorsed regional or local variations to the acceptable solutions apply to the assessments against the Bushfire Protection Criteria for the proposed development /use? | No |
|---|----|

The local government will advise the proponent of other applicable specifications such as signage and gates where they apply and "The technical construction requirements" for each access type/component can and will be complied with.

2.3 Assessment Statements for Element 1: Location

| LOCATION | |
|---|--|
| Element 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. |
| Proposed Development/Use – Relevant Planning Stage | (Do) Development application other than for a single dwelling, ancillary dwelling or minor development |
| Element Compliance Statement | The proposed development/use achieves the intent of this element by being fully compliant with all applicable acceptable solutions. |
| Pathway Applied to Provide an Alternative Solution | N/A |
| Acceptable Solutions - Assessment Statements | |
| All details of acceptable solution requirements are established in the Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines) and apply the guidance established by the Position Statement: 'Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design' (WAPC Nov 2019) and the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (WA Department of Planning, Lands and Heritage, 2021 Rev B) as relevant. These documents are available at https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas . | |
| Solution Component Check Box Legend | <input checked="" type="checkbox"/> Relevant & met <input checked="" type="checkbox"/> Relevant & not met <input type="checkbox"/> Not relevant |
| A1.1 Development location | Applicable: Yes Compliant: Yes |
| ASSESSMENT AGAINST THE REQUIREMENTS ESTABLISHED BY THE GUIDELINES | |
| <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The 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. | |
| Supporting Assessment Details: No new buildings proposed, however, the proposed development is able to provide an area of land within the subject site that can be considered suitable for development should buildings be proposed in the future, as BAL-40 or BAL-FZ construction requirements will not be required to be applied. Where new buildings are required to comply with increased building construction standards, the appropriate sized APZ can be implemented within the subject Lot. This meets the requirements established by Acceptable Solution A1.1. | |
| ASSESSMENTS APPLYING THE GUIDANCE ESTABLISHED BY THE WAPC ELEMENT 1 & 2 POSITION STATEMENT (2019) | |
| <p>"Consideration should be given to the site context where 'area' is the land both within and adjoining the subject site. The hazards remaining within the site should not be considered in isolation of the hazards adjoining the site, as the potential impact of a bushfire will be dependent on the wider risk context, including how a bushfire could affect the site and the conditions for a bushfire to occur within the site."</p> <p>Strategic Planning Proposals: Consider the threat levels from any vegetation <u>adjoining</u> and <u>within</u> the subject site for which the potential intensity of a bushfire in that vegetation would result in it being classified as an Extreme Bushfire Hazard Level (BHL). Identify any proposed design strategies to reduce these threats.</p> <p>Structure Plans (lot layout known) and Subdivision Applications: As for strategic planning proposals but <u>within</u> the subject site the relevant threat levels to consider are the radiant heat levels represented by BAL-FZ and BAL-40 ratings.</p> | |

The planning proposal is a development application, consequently the referenced position statement is not applicable to the Element 1 assessment.

2.4 Assessment Statements for Element 2: Siting and Design

| SITING AND DESIGN OF DEVELOPMENT | |
|--|--|
| Element Intent | To ensure that the siting and design of development minimises the level of bushfire impact. |
| Proposed Development/Use – Relevant Planning Stage | (Do) Development application other than for a single dwelling, ancillary dwelling or minor development |
| Element Compliance Statement | The proposed development/use achieves the intent of this element by being fully compliant with all applicable acceptable solutions. |
| Pathway Applied to Provide an Alternative Solution | N/A |
| Acceptable Solutions - Assessment Statements | |
| <p>All details of acceptable solution requirements are established in the Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines) and apply the guidance established by the Position Statement: 'Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design' (WAPC Nov 2019) and the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (WA Department of Planning, Lands and Heritage, 2021 Rev B) as relevant. These documents are available at https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas.</p> | |
| Solution Component Check Box Legend | <input checked="" type="checkbox"/> Relevant & met <input checked="" type="checkbox"/> Relevant & not met <input type="checkbox"/> Not relevant |
| A2.1 Asset Protection Zone (APZ) | Applicable: Yes Compliant: Yes |
| APZ DIMENSIONS – DIFFERENCES IN REQUIREMENTS FOR PLANNING ASSESSMENTS COMPARED TO IMPLEMENTATION | |
| <p>A key required bushfire protection measure is to reduce the exposure of buildings/infrastructure (as exposed vulnerable elements at risk), to the direct bushfire threats of flame contact, radiant heat and embers and the indirect threat of consequential fires that result from the subsequent ignition of other combustible materials that may be constructed, stored or accumulate in the area surrounding these structures. This reduces the associated risks of damage or loss.</p> <p>This is achieved by separating buildings (and consequential fire fuels as necessary) from areas of classified bushfire prone vegetation. This area of separation surrounding buildings is identified as the Asset Protection Zone (APZ) and consists of no vegetation and/or low threat vegetation or vegetation continually managed to a minimal fuel condition. The required separation distances will vary according to the site specific conditions and local government requirements.</p> <p>The APZ dimensions stated and/or illustrated in this Report can vary dependent on the purpose for which they are being identified.</p> | |
| <p><i>Note: Appendix B 'Onsite Vegetation Management' provides further information regarding the different APZ dimensions that can be referenced, their purpose and the specifications of the APZ that are to be established and maintained on the subject lot.</i></p> | |
| THE 'PLANNING BAL-29' APZ DIMENSIONS | |
| <p>Purpose: To provide evidence of the development or use proposal's ability to achieve minimum vegetation separation distances. To achieve 'acceptable solution' planning approval for this factor, it must be demonstrated that the minimum separation distances corresponding to a maximum level of radiant transfer to a building of 29 kW/m², either exist or can be implemented (with certain exceptions). These separation distances are the 'Planning BAL-29' APZ dimensions.</p> <p><i>The 'Planning BAL-29' APZ is not necessarily the size of the APZ that must be physically implemented and maintained by a landowner. Rather, its sole purpose is to identify if an acceptable solution for planning approval can be met.</i></p> | |

THE 'REQUIRED' APZ DIMENSIONS

Purpose: Establishes the dimensions of the APZ to be physically implemented by the landowner on their lot: These will be the minimum required separation distances from the subject building(s) to surrounding bushfire prone vegetation (identified by type and associated ground slope). These are established by:

- A. The 'BAL Rating APZ' of the subject building(s) when distances are greater than 'B' below (except when 'B' establishes a maximum distance); or
- B. The 'Local Government' APZ' derived from the Firebreak/Hazard Reduction Notice when distances are greater than 'A' above, other than when a maximum distance is established, in which case this will apply; or
- C. A combination of 'A' and 'B'.

Within this Report/Plan it is the 'Planning BAL-29' APZ that will be identified on maps, diagrams and in tables as necessary – unless otherwise stated.

The 'Required' APZ dimension information will be presented in Appendix B1.1 and on the Property Bushfire Management Statement, when required to be included for a development application.

ASSESSMENT AGAINST THE REQUIREMENTS ESTABLISHED BY THE GUIDELINES

APZ Width: The proposed (or a future) habitable building(s) on the lot(s) of the proposed development - or an existing building for a proposed change of use – can be (or is) located within the developable portion of the lot and be surrounded by a 'Planning BAL-29' APZ of the required dimensions (measured from any external wall or supporting post or column to the edge of the classified vegetation), that will ensure their exposure to the potential radiant heat impact of a bushfire does not exceed 29 kW/m².

Restriction on Building Location: It has been identified that the current developable portion of a lot(s) provides for the proposed future (or a future) building/structure location that will result in that building/structure being subject to a BA-40 or BAL-FZ rating. Consequently, it may be considered necessary to impose the condition that a restrictive covenant to the benefit of the local government pursuant to section 129BA of the Transfer of Land Act 1893, is to be placed on the certificate(s) of title of the proposed lot(s) advising of the existence of a restriction on the use of that portion of land (refer to Code F3 of Model Subdivision Conditions Schedule, WAPC June 2021 and Guidelines s5.3.2).

APZ Location: The required dimensions for a 'Planning BAL-29' APZ can be contained solely within the boundaries of the lot(s) on which the proposed (or a future) habitable building(s) - or an existing building(s) for a proposed change of use – is situated.

APZ Location: The required dimensions for a 'Planning BAL-29' APZ can be partly established within the boundaries of the lot(s) on which the proposed (or a future) habitable building(s) - or an existing building(s) for a proposed change of use – is situated. The balance of the APZ would exist on adjoining land that satisfies the exclusion requirements of AS 3959:2018 cl 2.2.3.2 for non-vegetated areas and/or low threat vegetation and/or vegetation managed in a minimal fuel condition.

APZ Location: It can be justified that any adjoining (offsite) land forming part of a 'Planning BAL-29' APZ will:

- If non-vegetated, remain in this condition in perpetuity; and/or
- If vegetated, be low threat vegetation or vegetation managed in a minimal fuel condition in perpetuity.

APZ Management: The area of land (within each lot boundary), that is to make up the required 'Landowner' APZ dimensions (refer to Appendix B, Part B1), can and will be managed in accordance

| |
|---|
| <p>with the requirements of the Guidelines Schedule 1 'Standards for Asset Protection Zones' (refer to Appendix B).</p> |
| <p><input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Subdivision Staging: There are undeveloped future stages of subdivision, containing bushfire prone vegetation, that have been taken into consideration for their potentially 'temporary' impact on the ability to establish a 'Planning BAL-29' APZ on adjoining developed lots. A staging plan is developed to manage this.</p> |
| <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Firebreak/Hazard Reduction Notice: Any additional requirements established by the relevant local government's annual notice to install firebreaks and manage fuel loads (issued under s33 of the Bushfires Act 1954), can and will be complied with.</p> |
| <p>Supporting Assessment Details: No buildings proposed for this site. Existing infrastructure and buildings where located within the plantation site to comply with Guidelines for Plantation Fire Protection and the Local Government Firebreak Notice, asset protection zone requirements. Consideration to be given to existing infrastructure and buildings within 100m of the plantation site so as not to adversely impact these buildings, ensuring separation from plantation vegetation meets the Guidelines for Plantation Fire Protection and the Local Government Firebreak Notice, asset protection zone requirements.</p> |
| <p align="center">ASSESSMENTS APPLYING THE GUIDANCE ESTABLISHED BY THE WAPC ELEMENT 1 & 2 POSITION STATEMENT (2019)</p> |
| <p>Strategic Planning Proposals: "At this planning level there may not be enough detail to demonstrate compliance with this element. The decision-maker may consider this element is satisfied where A1.1 is met." Structure Plans (lot layout known) and Subdivision Applications: "Provided that Element 1 is satisfied, the decision-maker may consider approving lot(s) containing BAL-40 or BAL-FZ under the following scenarios."</p> |

The planning proposal is a development application, consequently the referenced position statement is not applicable to the proposed development.

2.5 Assessment Statements for Element 3: Vehicular Access

| VEHICULAR ACCESS | |
|---|---|
| Element Intent | To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event. |
| Proposed Development/Use – Relevant Planning Stage | (Do) Development application other than for a single dwelling, ancillary dwelling or minor development |
| Element Compliance Statement | The proposed development/use achieves the intent of this element by being fully compliant with all applicable acceptable solutions. |
| Pathway Applied to Provide an Alternative Solution | N/A |
| Acceptable Solutions - Assessment Statements | |
| <p>All details of acceptable solution requirements are established in the <i>Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines)</i> and apply the guidance established by the <i>Position Statement: 'Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design' (WAPC Nov 2019)</i> and the <i>'Bushfire Management Plan Guidance for the Dampier Peninsula' (WA Department of Planning, Lands and Heritage, 2021 Rev B)</i> as relevant. These documents are available at https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas.</p> <p>The technical construction requirements for access types and components, and for each firefighting water supply component, are also presented in <i>Appendices 2 and 3</i>. The local government will advise the proponent where different requirements are to apply and when any additional specifications such as those for signage and gates are to apply (these are included in the relevant appendix if requested by the local government).</p> | |
| Solution Component Check Box Legend | <input checked="" type="checkbox"/> Relevant & met <input checked="" type="checkbox"/> Relevant & not met <input type="checkbox"/> Not relevant |
| A3.1 Public roads | Applicable: Yes Compliant: Yes |
| <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The technical construction requirements of vertical clearance and weight capacity (Guidelines, Table 6) can and will be complied with (Refer also to Appendix C in this BMP). | |
| <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> All other applicable technical requirements of trafficable width, gradients and curves, are required to be in "accordance with the class of road as specified in the IPWEA Subdivision Guidelines, Liveable Neighbourhoods, Ausroad Standards and/or any applicable standard in the local government area" (Guidelines, Table 6 and E3.1. Refer also to Appendix C in this BMP). The assessment conducted for the bushfire management plan indicates that it is likely that the proposed development can and will comply with the requirements. However, the applicable class of road, the associated technical requirements and subsequent proposal compliance, will need to be confirmed with the relevant local government and/or Main Roads WA. | |
| <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A traversable verge is available adjacent to classified vegetation (Guidelines, E3.1), as recommended. | |
| Supporting Assessment Details: No new roads being constructed as part of the development proposal. Existing local roads provide emergency services and public access relevant to the local conditions and local government planning requirements. | |
| A3.2a Multiple access routes | Applicable: Yes Compliant: Yes |
| <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> For each lot, two-way public road access is provided in two different directions to at least two different suitable destinations with an all-weather surface. | |

| | |
|--|---|
| <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> | <p>The two-way access <u>is</u> available at an intersection no greater than 200m from the relevant boundary of each lot, via a no-through road.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> | <p>The two-way access is <u>not</u> available at an intersection within 200m from the relevant boundary of each lot. However, the available no-through road satisfies the established exemption for the length limitation in every case. These requirements are:</p> <ul style="list-style-type: none"> • Demonstration of no alternative access (refer to A3.3 below); • The no-through road travels towards a suitable destination; and • The balance of the no-through road that is greater than 200m from the relevant lot boundary is within a residential built-out area or is potentially subject to radiant heat levels from adjacent bushfire prone vegetation that correspond to the BAL-LOW rating (<12.5 kW/m²). |
| <p>Supporting Assessment Details: Gabalong East Road/Gabalong West Road and Bindi Bindi-Toodyay Road enables travel in two different directions via the local road network. These local roads, where unsealed, provide a trafficable surface with two-way traffic capability.</p> | |
| <p>A3.2b Emergency access way Applicable: No Compliant: -</p> | |
| <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> | <p>The proposed or existing EAW provides a through connection to a public road.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> | <p>The proposed or existing EAW is less than 500m in length and will be signposted and gated (remaining unlocked) to the specifications stated in the Guidelines and/or required by the relevant local government.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> | <p>The technical construction requirements for widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.2b. Refer also to Appendix C in this BMP), can and will be complied with.</p> |
| <p>Supporting Assessment Details: 'None Required'</p> | |
| <p>A3.3 Through-roads Applicable: No Compliant: -</p> | |
| <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> | <p>A no-through public road is necessary as no alternative road layout exists due to site constraints.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> | <p>The no-through public road length does not exceed the established maximum of 200m to an intersection providing two-way access (Guidelines, E3.3).</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> | <p>The no-through public road exceeds 200m but satisfies the exemption provisions of A3.2a as demonstrated in A3.2a above.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> | <p>The public road technical construction requirements (Guidelines, Table 6 and E3.1. Refer also to Appendix C in this BMP), can and will be complied with as established in A3.1 above.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> | <p>The turnaround area requirements (Guidelines, Figure 24) can and will be complied with.</p> |
| <p>Supporting Assessment Details: 'None Required'</p> | |
| <p>A3.4a Perimeter roads Applicable: No Compliant: -</p> | |
| <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> | <p>The proposed greenfield or infill development consists of 10 or more lots (including those that are part of</p> |

| | | | |
|---|--------------------------|----------------------------------|---|
| a staged subdivision) and therefore should have a perimeter road. This is planned to be installed. | | | |
| The proposed greenfield or infill development consists of 10 or more lots (including those that are part of a staged subdivision). However, it is not required on the established basis of: | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="radio"/> | <ul style="list-style-type: none"> The vegetation adjoining the proposed lots is classified Class G Grassland; Lots are zoned rural living or equivalent; It is demonstrated that it cannot be provided due to site constraints; or All lots have existing frontage to a public road. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="radio"/> | The technical construction requirements of widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.4a) can and will be complied with. |
| Supporting Assessment Details: 'None Required' | | | |
| A3.4b Fire service access route | | Applicable: | Compliant: |
| | | No | - |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="radio"/> | The FSAR can be installed as a through-route with no dead ends, linked to the internal road system every 500m and is no further than 500m from a public road. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="radio"/> | The technical construction requirements of widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.4b. Refer also to Appendix C in this BMP), can and will be complied with. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="radio"/> | The FSAR can and will be signposted. Where gates are required by the relevant local government, the specifications can be complied with. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="radio"/> | Turnaround areas (to accommodate type 3.4 fire appliances) can and will be installed every 500m on the FSAR. |
| Supporting Assessment Details: 'None Required' | | | |
| A3.5 Battle-axe access legs | | Applicable: | Compliant: |
| | | No | - |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="radio"/> | A battle-axe leg cannot be avoided due to site constraints. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="radio"/> | The proposed development is in a reticulated area and the battle-axe access leg length from a public road is no greater than 50m. No technical requirements need to be met. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="radio"/> | The proposed development is not in a reticulated area. The technical construction requirements for widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.5. Refer also to Appendix C in this BMP), can and will be complied with. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="radio"/> | Passing bays can and will be installed every 200m with a minimum length of 20m and a minimum additional trafficable width of 2m. |
| Supporting Assessment Details: 'None Required' | | | |
| A3.6 Private driveways | | Applicable: | Compliant: |
| | | Yes | Yes |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="radio"/> | The private driveway to the most distant external part of the development site is within a lot serviced by reticulated water, is accessed via a public road with a speed limit of 70 km/hr or less and has a length is no greater than 70m (measured as a hose lay). No technical requirements need to be met. |

The technical construction requirements for widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.6. Refer also to Appendix C in this BMP), can and will be complied with.

Passing bays can and will be installed every 200m with a minimum length of 20m and a minimum additional trafficable width of 2m.

The turnaround area requirements (Guidelines, Figure 28, and within 30m of the habitable building) can and will be complied with.

Supporting Assessment Details: Driveways, where these apply to the subject site, are to be constructed to meet the technical construction requirements for widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.6. Refer also to Appendix F in this BMP), can and will be complied with.

Note: The plantation will be serviced by firebreaks and access tracks that shall be constructed to the horizontal surface and vertical height standards to meet the Guidelines for Plantation Fire Protection and Shire of Moora Firebreak Notice requirements.

The plantation site has access to a minimum of two different points of entry/exit via Gabalong East Road. (Refer mapping figures within this report).

2.6 Assessment Statements for Element 4: Water

| FIREFIGHTING WATER | |
|---|--|
| Element Intent | To ensure water is available to enable people, property and infrastructure to be defended from bushfire. |
| Proposed Development/Use – Relevant Planning Stage | (Do) Development application other than for a single dwelling, ancillary dwelling or minor development |
| Element Compliance Statement | The proposed development/use achieves the intent of this element by being fully compliant with all applicable acceptable solutions. |
| Pathway Applied to Provide an Alternative Solution | N/A |
| Acceptable Solutions - Assessment Statements | |
| <p>All details of acceptable solution requirements are established in the <i>Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines)</i> and apply the guidance established by the <i>Position Statement: 'Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design' (WAPC Nov 2019)</i> and the <i>'Bushfire Management Plan Guidance for the Dampier Peninsula' (WA Department of Planning, Lands and Heritage, 2021 Rev B)</i> as relevant. These documents are available at https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas.</p> <p>The technical construction requirements for access types and components, and for each firefighting water supply component, are also presented in <i>Appendices 2 and 3</i>. The local government will advise the proponent where different requirements are to apply and when any additional specifications such as those for signage and gates are to apply (these are included in the relevant appendix if requested by the local government).</p> | |
| Solution Component Check Box Legend <input checked="" type="checkbox"/> Relevant & met <input checked="" type="checkbox"/> Relevant & not met <input type="checkbox"/> Not relevant | |
| A4.1 Identification of future firefighting water supply | Applicable: No Compliant: - |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> It can be demonstrated that reticulated or sufficient non-reticulated water for firefighting can be provided at the subdivision and/or development application stage in accordance with the specifications of the relevant water supply authority or the requirements of Schedule 2. | |
| Supporting Assessment Details: 'None Required' | |
| A4.2 Provision of water for firefighting purposes | Applicable: Yes Compliant: Yes |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A reticulated water supply is available to the proposed development. The existing hydrant connection(s) are provided in accordance with the specifications of the relevant water supply authority. | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A reticulated water supply will be available to the proposed development. Hydrant connection(s) can and will be provided in accordance with the specifications of the relevant water supply authority. | |
| <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A static water supply (tank/s) for firefighting purposes will be installed on the lot that is additional to any water supply that is required for drinking and other domestic purposes. | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A strategic water supply (tank or tanks) for firefighting purposes will be installed within or adjacent to the proposed development that is additional to any water supply that is required for drinking and other domestic purposes. The required land will be ceded free of cost to the local government and the lot or road reserve where the tank is to be located will be identified on the plan of subdivision. | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The strategic static water supply (tank or tanks) will be located no more than 10 minutes travel time from | |

a subject site (at legal road speeds).

The technical requirements (location, number of tanks, volumes, design, construction materials, pipes and fittings), as established by the Guidelines (A4.2, E4 and Schedule 2) and/or the relevant local government, can and will be complied with.

Supporting Assessment Details: Water supplies in accordance with the Department of Fire and Emergency Services (DFES) **Guidelines for Plantation Fire Protection** (as agreed upon by the Forest Industries Federation of Western Australia (FIFWA)), will be provided. This is in addition to any water supply that is required for drinking and other domestic purposes.

A minimum of 50,000L strategically located water supply and hard stand, no further than 20 minutes turnaround from the area of coverage, is to be available for fire fighting operations, including the required couplings, access, turn-around and hardstand area.

The tank water point sites will be sign posted as identified water sources for fire fighting operations.

All above ground exposed pipes and fittings to be modified to non-combustible material.

An asset protection zone will be constructed around the tank/s devoid of vegetation (all grasses and combustible materials removed) to maintain the integrity throughout a bushfire. The required couplings, access, turn-around and hardstand area will be provided at this water point site.

Refer to information contained in Appendix D for the firefighting water supply specifications and technical requirements.

3 RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE BUSHFIRE PROTECTION MEASURES

The landowner is responsible for the ongoing management of the plantation site. Future responsibilities for implementation and management of the bushfire protection measures may be established through mutual agreement and contracted obligations for the project duration, in line with the project activity timelines schedule. As such, on formal cessation of the project by either party, the responsibilities for the continued management of the bushfire protection measures detailed within the bushfire management plan for the site is the responsibility of the landowner.

3.1 Developer/Landowner Responsibilities – Prior to Operation

| DEVELOPER/LANDOWNER RESPONSIBILITIES – PRIOR TO OPERATION | |
|---|--|
| No. | Implementation Actions |
| 1 | <p>The local government may condition a development application approval with a requirement for the landowner/proponent to register a notification onto the certificate of title and deposited plan.</p> <p>This will be done pursuant to Section 70A <i>Transfer of Land Act 1893</i> as amended ('Factors affecting use and enjoyment of land, notification on title'). This is to give notice of the bushfire hazard and any restrictions and/or protective measures required to be maintained at the owner's cost.</p> <p>This condition ensures that:</p> <ol style="list-style-type: none"> 1. Landowners/proponents are aware their lot is in a designated bushfire prone area and of their obligations to apply the stated bushfire risk management measures; and 2. Potential purchasers are alerted to the Bushfire Management Plan so that future landowners/proponents can continue to apply the bushfire risk management measures that have been established in the Plan. |
| 2 | <p>Establish the Asset Protection Zone (APZ) around habitable buildings (and other structures as required) to satisfy:</p> <ul style="list-style-type: none"> • The dimension requirements established by the assessed site specific conditions and the building's determined BAL rating, or the dimensions established by the annually issued local government Firebreak Notice – whichever is greater; and • The standards established by the Guidelines DPLH, 2021 v1.4, Schedule 1, or as varied by the local government through their annually issued Firebreak Notice. <p>This is the responsibility of the developer/landowner before occupancy.</p> |
| 3 | <p>The subject lot is to be compliant with current version of the Shire of Moora Firebreak Notice issued under s33 of the Bushfires Act 1954.</p> <p>This may include specifications for asset protection zones that differ from Schedule 1 in the Guidelines DPLH, 2021 v1.4, with the intent to better satisfy local conditions.</p> |
| 4 | <p>Construct the internal private driveways (where applicable) to comply with the technical requirements referenced in the BMP.</p> |
| 5 | <p>Install/Maintain the required firefighting static water supply to comply with the technical requirements stated in the BMP.</p> |

| | |
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| 6 | Implement the bushfire protection measures that have been established within this BMP as measures additional to those established by the acceptable solutions. |
| 7 | Indicate on plantation map and erect signage to show compartment (Cell) name/number, to be prominently displayed within the site that informs those persons onsite the Cell location in the event of a bushfire. This will include evacuation route information. |
| 8 | All actions contained within the 'Pre-Season Preparation Procedure' established by the Bushfire Management Plan, must be completed. |
| 9 | <p>A BAL assessment report may be required for new building works to confirm determined ratings and will be required when ratings are indicative. BAL certificates will need to be issued to accompany building applications.</p> <p>The BMP may also establish, as an additional bushfire protection measure, that construction requirements to be applied will be those corresponding to a specified higher BAL rating.</p> <p>Compliance with the Building Code of Australia (Volumes 1 and 2 of the National Construction Code), will require certain bushfire resistant construction requirements be applied to residential buildings in bushfire prone areas (i.e., Class 1, 2 and 3 and associated Class 10a buildings and decks). Other classes of buildings may also be required to comply with this construction when established by the relevant authority or if identified as an additional bushfire protection measure within the BMP.</p> <p>The deemed to satisfy solutions that will meet the relevant bushfire performance requirements are found in AS 3959 – Construction of Building in Bushfire Prone Areas (as amended) and the NASH Standard - Steel Framed Construction in Bushfire Areas (as amended).</p> |

3.2 Landowner/Occupier Responsibilities – Ongoing Management

| LANDOWNER/OCCUPIER – ONGOING MANAGEMENT | |
|---|---|
| No. | Management Actions |
| 1 | <p>Maintain the Asset Protection Zone (APZ) around habitable buildings (and other structures as required) to satisfy:</p> <ul style="list-style-type: none"> The dimension requirements established by the assessed site specific conditions and the building's determined BAL rating, or the dimensions established by the annually issued local government Firebreak Notice – whichever is greater; and The standards established by the Guidelines DPLH, 2021 v1.4, Schedule 1, or as varied by the local government through their annually issued Firebreak Notice. |
| 2 | Comply with the Local Government/s Fire Break and Fuel Hazard Reduction Notice issued under s33 of the Bush Fires Act 1954. Check the notice annually for any changes. |
| 3 | Maintain vehicular access routes within the lot to comply with the technical requirements referenced in the BMP and the relevant local government annual firebreak notice. |
| 4 | Maintain the signposted 'Cell' indicators. |
| 5 | Maintain the static firefighting water supply tanks and associated pipes/fittings/pump and vehicle hardstand in good working condition. |
| 6 | <p>Ensure that builders engaged to construct dwellings/additions and/or other relevant structures on the lot, are aware of the existence of this approved Bushfire Management Plan (BMP). The plan identifies that the development site is within a designated bushfire prone area and states the indicative (or determined) BAL rating(s) that may (or will) be applied to buildings/structures. A BAL assessment report may be required to confirm determined ratings and will be required when ratings are indicative. BAL certificates will need to be issued to accompany building applications.</p> <p>The BMP may also establish, as an additional bushfire protection measure, that construction requirements to be applied will be those corresponding to a specified higher BAL rating.</p> <p>Compliance with the Building Code of Australia (Volumes 1 and 2 of the National Construction Code), will require certain bushfire resistant construction requirements be applied to residential buildings in bushfire prone areas (i.e., Class 1, 2 and 3 and associated Class 10a buildings and decks). Other classes of buildings may also be required to comply with this construction when established by the relevant authority or if identified as an additional bushfire protection measure within the BMP.</p> <p>The deemed to satisfy solutions that will meet the relevant bushfire performance requirements are found in AS 3959 – Construction of Building in Bushfire Prone Areas (as amended) and the NASH Standard - Steel Framed Construction in Bushfire Areas (as amended).</p> |
| 7 | <p>Ensure all future buildings the landowner has responsibility for, are designed and constructed in full compliance with:</p> <ul style="list-style-type: none"> The bushfire resistant construction requirements of the Building Code of Australia (Volumes 1 and 2 of the National Construction Code), as established by the Building Regulations 2012 (WA Building Act 2011); and <p>Any additional bushfire protection measures this Bushfire Management Plan has established are to be</p> |

| | |
|----|--|
| | implemented. |
| 8 | Maintain the bushfire protection measures that have been established within this BMP as measures additional to those established by the acceptable solutions. |
| 9 | Annually review the Bushfire Management Plan and complete all actions at the appropriate times of the year. |
| 10 | The bushfire specific content of the operation's site emergency plan must be reviewed annually, relevant information updated and ensure all bushfire related preparation procedures are carried out. |
| 11 | <p>Implement the bushfire protection measures that have been established within this BMP as strategies additional to those established by the acceptable solutions:</p> <ol style="list-style-type: none"> 1. Seasonal Prescribed Burning Planning; 2. Seasonal Hazardous Fuel Management; 3. Seasonal Pre Incident Preparedness. |

3.3 Local Government - Ongoing Management

| LOCAL GOVERNMENT – ONGOING MANAGEMENT | |
|---------------------------------------|---|
| No. | Management Actions |
| 1 | <p>Monitor landowner compliance with the annual Local Government Fire Break & Fuel Hazard Reduction Notice and with any bushfire protection measures that are:</p> <ul style="list-style-type: none"> • Established by this BMP; • Are required to be maintained by the landowner/occupier; and • Are relevant to local government operations. |

APPENDIX A: PLANTATION SPECIES

Mixed species composition (Various Mallee Species) for long duration non-harvesting carbon stores requires the long term management of fuel loads in these plantings and may be limited due to contract restrictions which needs to be factored. Most plantations have a high grassy fuel understory for the first few years after planting which will require management strategies to be implemented. It is assumed that plantation areas may be managed to some degree (through fuel load reduction) in a reduced fuel condition in the understory with a predominance of emergent grasses, which will support fragmented wind-driven grassland fire behaviour in the early phases of plant establishment. The vegetation classifications given below assume insufficient management for classification as Low Threat vegetation, and thus classification follows AS3959-2018. Species with mature heights of maximally ~6m or less, or where heights of >6m are rare, are considered shrubs, and classified to either Class C Shrubland or Class D Scrub depending on predicted mature heights. Species with mature heights are commonly >6m are considered as trees, Class A Forest (AS3959-2018).

Planting Management Guide – Canopy >2m tall and cover up to 20% at maturity over the planting area

| Lifecycle situation | Fuel Description | Bushfire Hazard |
|--|---|---|
| e.g. Young plantation up to 2 years after planting | Grassy fuels dominate. | Low Hazard |
| | Fuel load: <5 tonnes per hectare. | |
| | Vulnerable to grass fires. Grass and weed control required. | |
| e.g. Developing plantation 3 to 6 years after planting | Grassy fuel cover. Fuel rates depend on site location and will be a mixture of grass and some leaf litter and fine limbs. Fuel load: <5 tonnes per hectare. | Low Hazard |
| e.g. Plantation 6 to 10 years after planting | Continuous fuel cover, primarily of grass and leaf litter. Leaf litter will be around 2 to 3 tonnes per hectare. Grass fuels will be around 5 tonnes per hectare unless harvested/slashed. | Low Hazard |
| | Planting format will result in canopy closure within plantation. | |
| | Continuous fuel cover, primarily of grass and leaf litter. Leaf litter will be greater than 3 tonnes per hectare. Grass fuels will be around 5 tonnes per hectare unless harvested/slashed. When combined available grass fuels and leaf litter exceed 10 tonnes per hectare, hazard reduction work must be undertaken. It is acceptable for between 20 to 40 percent of the area to be > 8t/ha in any year, but the fuel load must be < 5t/ha in the 300 metres adjacent to any external compartment boundary. | |
| | Planting format will permit canopy closure across the site. When this occurs the fuel accumulation rate will increase. | |
| e.g. Plantation greater than 10 years after planting | | Moderate Hazard unless fuel loads are reduced |

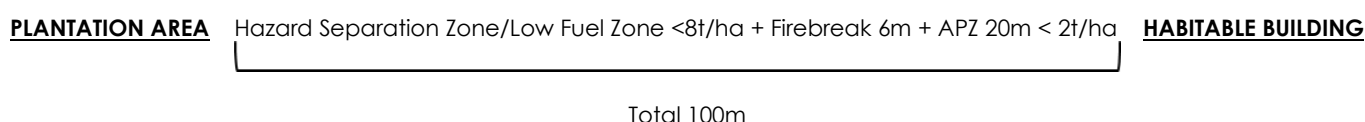
Additional Considerations:

- Develop a planned burning program. Plan for low intensity burns, during autumn or late spring, that create a mosaic of fuels and will not scorch canopy or kill trees so they can regenerate.
- Implement good hygiene measures to minimise risk of dieback spread during activities.
- Plan for post-fire weed control to assist regeneration after fire.
- If you are undertaking a planned burn for bushfire mitigation purposes then you are able to undertake burning at intervals which will be influenced by fuel loads. However, where possible and without compromising any bushfire mitigation requirements, it is better to extend the period between burns to assist in maintaining vegetation health.
- The planned fire regime should be developed to consider the frequency, season, intensity and pattern characteristics of fire. These can be influenced by decisions including how, when and under which conditions fires are lit.
- Fire exclusion can also be classed as a fire regime as plant and animal compositions will continue to change in the absence of fire.

Plantation Hazard Separation and Asset Protection Zone:

1. The Shire of Moora standard requirement for an asset protection zone (APZ) dimension around a building or an asset of value is 20m.
2. Guidelines for Plantation Fire Protection require an asset protection zone (APZ) between the plantation and an existing or approved habitable building must be a minimum of 100 metres, unless the building has been constructed to an approved higher standard.
3. Guidelines for Plantation Fire Protection require an asset protection zone (APZ) between the plantation and an existing or approved non- habitable structure (i.e. sheds and enclosed storage areas) must be a minimum of 50 metres.

The above Guidelines for Plantation Fire Protection requirements for an APZ comprise the following (Refer Figures 3.2):



A1.2: Summary Site Data Applied to Construction of the BAL Contour Map(s)

Table A1.2: Summary of applied calculation input variables applied to determining the site specific separation distances corresponding to each bushfire attack level.

| SUMMARY OF CALCULATION INPUT VARIABLES (INCLUDING SITE DATA) APPLIED TO THE DETERMINATION OF SEPARATION DISTANCES CORRESPONDING TO BUSHFIRE ATTACK LEVELS ¹ | | | | | | | | | | | | |
|--|---------------|---|-------------------|----------|------------|--------------|-------------|-----------------------|-------------|--------------------|--------------|----------------------|
| Applied BAL Determination Method | | METHOD 1 - SIMPLIFIED PROCEDURE (AS 3959:2018 CLAUSE 2.2) | | | | | | | | | | |
| Calculation Variables Corresponding to BAL Determination Method | | | | | | | | | | | | |
| Methods 1 and 2 | | Method 1 | | | Method 2 | | | | | | | |
| Vegetation Classification | | FDI | Effective Slope | | Site Slope | FFDI or GFDI | Flame Temp. | Elevation of Receiver | Flame Width | Fireline Intensity | Flame Length | Modified View Factor |
| | | | Applied Range | Measured | | | | | | | | |
| Area | Class | | degree range | degrees | degrees | | K | metres | metres | kW/m | metres | % Reduction |
| 1 | (G) Grassland | 80 | Upslope or flat 0 | 0 | | | | | | | | |
| 2 | (G) Grassland | | Upslope or flat 0 | 0 | | | | | | | | |
| 3 | (C) Shrubland | | Upslope or flat 0 | 0 | | | | | | | | |
| 4 | (D) Scrub | | Upslope or flat 0 | 0 | | | | | | | | |

¹ All data and information supporting the determination of the classifications and values stated in this table and any associated justification, is presented in Appendix A. Where the values are stated as 'default' these are either the values stated in AS 3959:2018, Table B1 or the values calculated as intermediate or final outputs through application of the equations of the AS 3959:2018 BAL determination methodology. They are not values derived by the assessor.

Measured slope across the site average 0 degrees – Flat land

Table A1.3: Vegetation separation distances corresponding to radiant heat levels and illustrated as BAL contours in Figure 3.2.

| THE CALCULATED VEGETATION SEPARATION DISTANCES CORRESPONDING TO THE STATED LEVEL OF RADIANT HEAT ¹ | | | | | | | | | |
|---|---------------|---|--------|--------|--------|---------|---------|---------------------------|---------------------|
| Vegetation Classification | | Separation Distances Corresponding to Stated Level of Radiant Heat (metres) | | | | | | | |
| | | Bushfire Attack Level | | | | | | Maximum Radiant Heat Flux | |
| Area | Class | BAL-FZ | BAL-40 | BAL-29 | BAL-19 | BAL12.5 | BAL-LOW | 10 kW/m ² | 2 kW/m ² |
| 1 | (G) Grassland | <6 | 6-<8 | 8-<12 | 12-<17 | 17-<50 | >50 | - | - |
| 2 | (G) Grassland | <6 | 6-<8 | 8-<12 | 12-<17 | 17-<50 | >50 | - | - |
| 3 | (C) Shrubland | <7 | 7-<9 | 9-<13 | 13-<19 | 19-<100 | >100 | | |
| 4 | (D) Scrub | <10 | 10-<13 | 13-<19 | 19-<17 | 17-<100 | >100 | | |

¹ All calculation input variables are presented in Table A1.2

APPENDIX B: PLANTATION BUSHFIRE PROTECTION SPECIFICATIONS

Install and maintain external perimeter and internal firebreaks that form compartment cells and engage in hazard reduction measures that reduce fuel loads so as to protect neighbouring communities and essential infrastructure, including any additional requirements determined by the Local Government.

| | | | |
|--|---|---|--|
| Compartment Size (Cell) | Up to ~30 hectares each 'Cell' based on local conditions (sandy soils, moderate rainfall, existing remnant vegetation, plantation species (scrub) and density of the proposed planting (600 stems per hectare). Plantation mapping is indicative of the final established planting area available. | | |
| Firebreaks & Access | <p>A minimum 15 metre bare earth immediately inside all external boundaries of the plantation areas.</p> <p>A minimum width of 6 metres of bare earth for all internal firebreaks for compartments (Cells) not larger than ~30 hectares. Plantation mapping is indicative of the final established planting area available.</p> <p>Maintained in a trafficable condition for emergency vehicles (fire appliances) with a vertical axis clearance of 4 metres for all firebreaks.</p> <p>Firebreaks must be maintained in line with the annual firebreak notice developed by the Local Government.</p> <p>Firebreaks and Access to meet the technical requirements as detailed in Appendix F</p> | | |
| Water Supplies | <p>Maintain a strategic water supply of minimum 50,000ltrs (tank/s) dedicated to fire fighting on site).</p> <p>Water sources are required to be positioned to provide a maximum 20 minute refill turnaround from anywhere within the plantation.</p> <p>The water source point must have a hardstand area for heavy trucks to park on whilst drawing water. Suitable metal fittings must be available on the water tank for fire appliance connection.</p> | | |
| Dwellings and assets of value | <p>Habitable Buildings: 100 metre hazard separation zone incorporating 6 metre firebreak.</p> <p>Non-Habitable Buildings/Sheds: 50 metre hazard separation zone incorporating 6 metre firebreak.</p> | | |
| Western Power – Both sides from centreline | Power – Single pole support up to 33kV | Horizontal Clearance 7 metres | Vertical Clearance 3 metres around lines |
| | Power – Double pole support up to 66 - 132kV | Horizontal Clearance 7 metres | Vertical Clearance 4 metres around lines |
| | Power – Steel pylon support up to 330kV | Contact service provider | Vertical Clearance Contact service provider |
| Telstra (No heavy machinery to turn around on lines) | Telephone (Copper) | 5 metres both sides or 6 metres total if accurately line marked | |
| | Telephone (Fibre optic) | 10 metres both sides | |
| Water/sewer pipelines (Water Corporation) | 6 metres | | |
| Gas pipeline | 30 metres easement plus additional setbacks as required by the WAPC Planning Bulletin 87 and the Department of Planning Land Use Guidelines in pipeline corridors or subsequent versions of these documents. | | |

*All clearance/separation distances may be subject to changes and must be confirmed with the relevant agency

APPENDIX C: RESPONSIBLE PERSONS ONSITE

RESPONSIBILITIES

The landowner is responsible for the ongoing management of the plantation site. Future responsibilities for implementation and management of the bushfire protection measures may be established through mutual agreement and contracted obligations for the project duration, in line with the project activity timelines schedule. As such, on formal cessation of the project by either party, the responsibilities for the continued management of the bushfire protection measures detailed within the bushfire management plan for the site is the responsibility of the landowner.

A property layout map is to be provided to the local government and local brigades containing fire equipment locations and contacts. These are updated annually and submitted at the commencement of bushfire season. Copies of this information are placed in fire information tubes at key entrances the property (plantation site).

CONTACTS:

This contact list must be updated regularly with any changes of responsibility

INPEX AUSTRALIA PROJECT MANAGEMENT

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LANDOWNER

Leslie Crane

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Gabalong WA 6574

Mobile +61 447 889 390
cranebindi3@bigpond.com

INPEX AUSTRALIA SITE MANAGEMENT

Dr Beren Spencer

Environmental Scientist
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Perth WA 6000

Mobile +61 462 278 882
Beren.spencer@INPEX.com.au

APPENDIX D: EMERGENCY CONTACTS & INFORMATION TO MONITOR

EMERGENCY CONTACTS

EMERGENCY SERVICES

| AGENCY/AUTHORITY | SERVICES | CONTACT |
|--|---|--|
| Department of Fire and Emergency Services / Police / Ambulance | Will respond to life threatening emergencies. Use to report a fire. | Phone call: triple zero '000' Phone app: EMERGENCY PLUS |
| State Emergency Service (SES) | Emergency assistance - securing your property, rescuing persons. | 13 2500 |

FACILITY/PREMISES PERSONNEL WITH EMERGENCY RESPONSIBILITIES

| EMERGENCY ROLE | POSITION HELD AT FACILITY/PREMISES | LOCATION | CONTACT |
|---|------------------------------------|----------|---------|
| <p>A property layout map is to be provided to the local government and local brigades containing fire equipment locations and contacts. These are updated annually and submitted at the commencement of bushfire season. Copies of this information are placed in fire information tubes at key entrances the property (plantation site).</p> <p>(Refer Appendix C)</p> | | | |

UTILITIES / MEDICAL / ASSISTANCE

| AGENCY/ORGANISATION | SERVICES | CONTACT |
|-----------------------|--|--|
| Moora Hospital | Medical services | (08) 9651 0222 |
| Wongan Hills Hospital | Medical services | (08) 9691 1222 |
| Dalwallinu Hospital | Medical services | (08) 9661 0200 |
| Western Power | Response to electricity supply outages and damage. | 13 1351 |
| Crisis Care | Crisis accommodation | 1800 199 008 |
| Australian Red Cross | Humanitarian assistance | 1800 733 276 Website: redcross.org.au/emergencies |
| Salvation Army | Social services care | 13 72 58 (13 SALVOS) Website: salvationarmy.org.au/need-help/disasters-and-emergencies/ |

SHIRE OF MOORA BUSH FIRE CONTACTS (To be updated annually)

CHIEF BUSH FIRE CONTROL OFFICER / COMMUNITY EMERGENCY SERVICES MANAGER

Brendan Pratt (CBFCO) Mob: 0427 541 086

Nic Parry (CESM) Ph: 9628 7004

DEPUTY CHIEF BUSH FIRE CONTROL OFFICERS

James McNamara (Jimmy) Mob: 0427 541 083

CHIEF FIRE WEATHER OFFICER

Hugh Bryan Mob: 0427 542 007

BUSH FIRE CONTROL OFFICERS (UHF 11)

BINDI BINDI

Toby Ellis (Captain) Mob: 0417 990 504

Stephen Turner Mob: 0427 545 073

COOMBERDALE WARD

Brad Tonkin (Captain) Mob: 0427 518 011

David McLean Mob: 0427 518 013

KOOJAN WARD

Brendan Van Beek (Captain) Mob: 0428 359 076

Glenn Vanzetti Mob: 0407 446 265

MILINING WARD

Gary Bailey Mob: 0429 648 948

Derek Stewart Mob: 0428 549 074

WATHEROO WARD

Brad Millstead Mob: 0429 008 750

Len Mitchell Mob: 0429 373 247

MOORA SHIRE (UHF 11)

Sean Harris (Ranger) - Permits only Mob: 0408 511 409

NEIGHBOUR DETAILS

| | | |
|-----------------|------------------------------|-------------------|
| Mal King | Adjoining to the south | Mob: 0417 953 907 |
| Justin King | Adjoining to the south | Mob: 0409 543 045 |
| Stephen Turner | Adjoining to the east & west | Mob: 0427 545 073 |
| Hayden Turner | Adjoining to the east & west | Mob: 0428 980 448 |
| Toby Ellis | Adjoining to the north | Mob: 0417 990 504 |
| Bill Waters | Located to the west | Mob: 0427 543 015 |
| Neil Mackintosh | Located to the north | Mob: 0428 526 015 |



INFORMATION TO MONITOR AND INFORM DECISION MAKING

IMPORTANT - AWARENESS OF YOUR SURROUNDINGS

Know the types of vegetation that grow on surrounding land. Be aware of the potential behaviour of a fire in this vegetation and the threats it can present under different conditions.

Relevant information is included in **Appendix 5**.

Knowledge and current environment awareness is a valuable source of information that will assist with decision making. Stay alert to current and immediate past weather conditions (hot/dry presenting the worst conditions). Lookout for any evidence of fire (smoke) within your surrounding landscape, for as far as you can see. Be aware of the current and forecast wind direction as any fire will be likely to spread in the direction to which the wind is blowing.

| SOURCE | INFORMATION | CONTACT |
|---|---|--|
| Emergency WA | Alerts & Warnings. Incidents, fire danger ratings, total fire bans, prescribed burns, preparation, and recovery information. | Website: emergency.wa.gov.au |
| Department of Fire & Emergency Services | General public emergency information. | Information Line: 13 3337 (13 DFES)  dfes_wa  dfeswa Website (during a bushfire): dfes.wa.gov.au/hazard-information/bushfire/during Website (recovering from a bushfire): dfes.wa.gov.au/hazard-information/bushfire/recovery |
| Local Radio | Bushfire alerts, warnings, and information. | Local Radio Stations: ABC (AM/digital) or 6PR (882) Website: abc.net.au/radio/stations |
| Emergency Alert on Phone | Voice messages (landline) and text messages (mobile) can be sent within a defined area under an immediate threat. | An automated government telephone warning system. |
| Bushfire.IO | Map based bushfire warnings, bushfire incidents and wind forecasts. Good visual tool run privately – crosscheck with other sources. | Website: bushfire.io |

| | | |
|----------------------------|---|---|
| Bureau of Meteorology | Current / forecast fire weather and fire danger ratings. | Website: bom.gov.au/wa/index.shtml |
| Parks and Wildlife Service | Bushfire alerts and warnings, prescribed burns in national parks. | Website: dpaw.wa.gov.au |
| Main Roads WA | Incidents, issues and roadworks. | 13 8138 Website: travelmap.mainroads.wa.gov.au/Home/Map |

Understanding Certain Fire Behaviours: The information below will assist decision making by making persons aware of potential limitations to the time available to conduct the designated Primary Procedure. This is important information to be aware of - particularly in the absence of any Emergency Warnings. If evacuating, it must be conducted early to be safe. Leaving late is a high risk action as the likelihood of the facility/premises or the evacuation route being impacted by fire increases significantly. Being on roads when a bushfire is close is a high risk

| DAILY FORECAST FIRE DANGER RATING | BUSHFIRE | | GRASSFIRE |
|-----------------------------------|---|-----------------------------------|--|
| | Potential Forward Rate of Spread | Potential Spotting Ahead Distance | Potential Forward Rate of Spread |
| Catastrophic | >2km/hr can be expected, possibly >3km/hr | 20-30 km | >8km/hr can be expected, possibly >16km/hr |
| Extreme | 0.7km/hr to 3km/hr | 12 km | 5km/hr to 16km/hr |
| High | 0.3km/hr to 1km/hr | 4 km | 2.5km/hr to 10km/hr |
| Moderate | 60 to 600m/hr | 2 km | 0.5km/hr to 6km/hr |
| No rating | 20 to 110m/hr | <150 m | <1.3km/hr |

Slope: Fire in vegetation will travel quicker up a slope. For every 10 degrees, the forward rate of spread will double.

Vegetation Spotting Potential: Bark fuels are the greatest contributor. Fine fibrous bark = massive ember quantity and short distance spotting; ribbon/candle bark = substantial quantities of spotting at distances greater than 2km and shorter distances; smooth/platy/papery/course fibre barks = limited quantities of short distance spotting.

APPENDIX E: ONSITE VEGETATION MANAGEMENT - THE APZ

THE ASSET PROTECTION ZONE (APZ)

This is an area surrounding a habitable building containing either no fire fuels and/or low threat fire fuels that are maintained in a minimal fuel condition. The primary objectives include:

- To ensure the building is sufficiently separated from the bushfire hazard to limit the impact of its direct attack mechanisms. That is, the dimensions of the APZ will, for most site scenarios, remove the potential for direct flame contact on the building, reduce the level of radiant heat to which the building is exposed and ensure some reduction in the level of ember attack (with the level of reduction being dependent on the vegetation types of present);
- To ensure any vegetation retained within the APZ presents low threat levels and prevents surface fire spreading to the building;
- To ensure other combustible materials that can result in consequential fire (typically ignited by embers) within both the APZ and parts of the building, are eliminated, minimised and/or appropriately located or protected. The explanatory notes in the Guidelines provide some guidance for achieving this objective and other sources are available. This is a primary cause of building loss in past bushfire events; and
- Provide a defensible space for firefighting activities.

E1: The Dimensions and Location of the APZ to be Established and Maintained

THE APZ DIMENSIONS

The determined BAL rating of the relevant building/structure will establish the corresponding bushfire construction requirements that are to apply. The minimum required APZ dimensions must be those that will ensure the retention of the determined BAL rating. This ensures that the potential radiant heat exposure of the building/structure will be limited to the level that the applied construction requirements are designed to resist.

The size of the APZ that is to be established and maintained surrounding the subject building/structure, will be the largest that is defined by either:

- The dimensions corresponding to the determined BAL rating stated on the BAL Certificate and which accounts for the specific site conditions; or
- The dimensions established by the relevant local government's annual firebreak notice as can be issued under s33 of the Bushfires Act 1954. This may state a required single minimum dimension for an APZ surrounding a building, or a dimension that varies with slope of the land under the different areas of bushfire prone vegetation that impact the building. Check the notice annually for revisions to requirements.

THE APZ LOCATION

The APZ should be contained solely within the boundaries of the lot, except in instances where the neighbouring lot(s) or adjacent public land is non-vegetated or will be maintained to a low-fuel state in perpetuity, and this can be justified. Where possible, planning for siting and design of development should incorporate elements that include non-vegetated areas (e.g., roads / parking / drainage / water body) and/or formally managed areas of vegetation (public open space / recreation areas / services installed in a common section of land), as either part of the required APZ dimensions for each lot or to additionally increase separation distances to reduce exposure further.

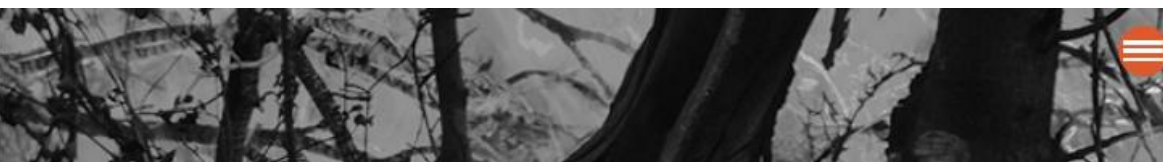
E2: The Standards for the APZ as Established by the Guidelines (DPLH, v1.4)

Within the Guidelines (source: <https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas>), the management Standards are established by:

- Schedule 1: Standards for Asset Protection Zones (see extract below) established by the Guidelines; and
- The associated explanatory notes (Guidelines E2) that address (a) managing an asset protection zone (APZ) to a low threat state (b) landscaping and design of an asset protection zone and (c) plant flammability.

Guidelines for
Planning in
Bushfire
Prone Areas

71

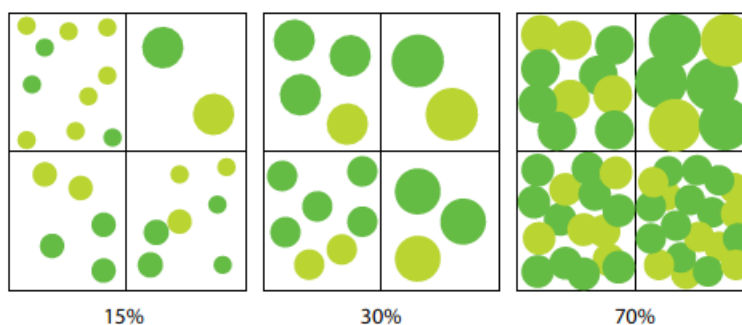


ELEMENT 2: SITING AND DESIGN OF DEVELOPMENT

SCHEDULE 1: STANDARDS FOR ASSET PROTECTION ZONES

| OBJECT | REQUIREMENT |
|---|---|
| Fences within the APZ | <ul style="list-style-type: none"> • Should be constructed from non-combustible materials (for example, iron, brick, limestone, metal post and wire, or bushfire-resisting timber referenced in Appendix F of AS 3959). |
| Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness) | <ul style="list-style-type: none"> • Should be managed and removed on a regular basis to maintain a low threat state. • Should be maintained at <2 tonnes per hectare (on average). • Mulches should be non-combustible such as stone, gravel or crushed mineral earth or wood mulch >6 millimetres in thickness. |
| Trees* (>6 metres in height) | <ul style="list-style-type: none"> • Trunks at maturity should be a minimum distance of six metres from all elevations of the building. • Branches at maturity should not touch or overhang a building or powerline. • Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation. • Canopy cover within the APZ should be <15 per cent of the total APZ area. • Tree canopies at maturity should be at least five metres apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided that the total canopy cover within the APZ will not exceed 15 per cent and are not connected to the tree canopy outside the APZ. |

Figure 19: Tree canopy cover – ranging from 15 to 70 per cent at maturity



| | |
|---|---|
| <p>Shrub* and scrub* (0.5 metres to six metres in height). Shrub and scrub >6 metres in height are to be treated as trees.</p> | <ul style="list-style-type: none"> • Should not be located under trees or within three metres of buildings. • Should not be planted in clumps >5 square metres in area. • Clumps should be separated from each other and any exposed window or door by at least 10 metres. |
| <p>Ground covers* (<0.5 metres in height. Ground covers >0.5 metres in height are to be treated as shrubs)</p> | <ul style="list-style-type: none"> • Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above. • Can be located within two metres of a structure, but three metres from windows or doors if >100 millimetres in height. |
| <p>Grass</p> | <ul style="list-style-type: none"> • Grass should be maintained at a height of 100 millimetres or less, at all times. • Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation. |
| <p>Defendable space</p> | <ul style="list-style-type: none"> • Within three metres of each wall or supporting post of a habitable building, the area is kept free from vegetation, but can include ground covers, grass and non-combustible mulches as prescribed above. |
| <p>LP Gas Cylinders</p> | <ul style="list-style-type: none"> • Should be located on the side of a building furthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building. • The pressure relief valve should point away from the house. • No flammable material within six metres from the front of the valve. • Must sit on a firm, level and non-combustible base and be secured to a solid structure. |

* Plant flammability, landscaping design and maintenance should be considered – refer to explanatory notes

E3: The Standards for the APZ as Established by the Local Government

Refer to the Firebreak Notice issued annually (under s33 of the Bushfires Act 1954) by the relevant local government. It may state Standards that vary from those established by the Guidelines and that have been endorsed by the WAPC and DFES as per Section 4.5.3 of the Guidelines.

A copy of the relevant annual notice is not included here as they are subject to being reviewed and modified prior to issuing each year. Refer to ratepayers notices and/or the local government's website for the current version.

E4: Maintaining Low Threat and Non-Vegetated Areas Excluded from Classification

AS 3959 establishes the methodology for determining a bushfire attack level (BAL). The methodology includes the classification of the subject site's surrounding vegetation according to their 'type' and the application of the corresponding bushfire behaviour models to determine the BAL. Certain vegetation can be considered as low threat and excluded from classification. Where this has occurred in assessing the site, the extract from AS3959:2018 below state the requirements (including the size of the vegetation area if relevant to the assessment) for maintenance of those areas of land.

15

AS 3959:2018

2.2.3.2 Exclusions—Low threat vegetation and non-vegetated areas

The following vegetation shall be excluded from a BAL assessment:

- (a) Vegetation of any type that is more than 100 m from the site.
- (b) Single areas of vegetation less than 1 ha in area and not within 100 m of other areas of vegetation being classified vegetation.
- (c) Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other or of other areas of vegetation being classified vegetation.
- (d) Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m of the site or each other, or other areas of vegetation being classified vegetation.
- (e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.
- (f) Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition, mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks.

NOTES:

- 1 Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack (recognizable as short-cropped grass for example, to a nominal height of 100 mm).
- 2 A windbreak is considered a single row of trees used as a screen or to reduce the effect of wind on the leeward side of the trees.

APPENDIX F: LANDSCAPING DESIGN & CONSTRUCTION PRINCIPLES TO APPLY

Where initial or renovation landscaping of grounds surrounding buildings and assets of value is being conducted, apply the directions and principles of the following measures to the greatest extent possible.

For additional guidance, refer to:

- The *Guidelines for Planning in Bushfire Prone Areas within the Explanatory Notes for Element 2 of the Bushfire Protection Criteria and Schedule 1: Standards for Asset Protection Zones (WAPC 2021)*; and
- The DFES 'Bushfire Preparation Toolkit' publication. Website: publications.dfes.wa.gov.au/?hazard=Bushfire

Use of Non-Vegetated Areas:

Reduce the exposure of the facility/premises to the direct and indirect threats of bushfire by incorporating low threat uses of land adjoining the facility/premises and/or the bushfire hazard. These uses create robust and easier managed asset protection zones and include:

- Non-vegetated areas e.g. footpaths, paved areas, roads, driveways, parking, drainage.
- Formally managed areas of vegetation (public open space and other recreation areas), including irrigated areas; and
- Services installed in a common section of non-vegetated land.

Landscaping – Non-Combustible Construction: Ensure non-combustible materials are used for fencing and any other landscaping construction, including retaining walls.

Landscaping – Tree and Plant Species Selection

Utilise trees and plants with characteristics that are more resistant to burning. Refer to *Guidelines for Planning in Bushfire Prone Areas, Appendix 4 'Explanatory Notes E2: Plant Flammability' (WAPC 2021)* for initial guidance.

Avoid planting trees with ribbon or stringy barks (ember/firebrand production). Preference for smooth bark.

Landscaping – Tree and Plant Separation from Buildings/Assets of Value (Location):

Trees (greater than 6 metres in height: Minimise the potential for tree strike damage (falling or blown) to the buildings/assets of value (allowing flame, radiant heat and ember entry to internal spaces), and debris accumulation on, in and around the facility/premise. Principles to apply are:

- Ideally trees will be separated from buildings/structures by a distance of at least 1.5 times the height of the tallest tree;
- As a minimum, trunks at maturity should be at least 6 metres from all elevations of the building, branches at maturity should not touch or overhang a building or powerlines. Mature tree canopies should be separated at least 5m with total canopy cover not exceeding 15% and not connected to tree canopy outside the APZ;
- Species of trees that produce significant quantities of debris (fine fuels) during the bushfire season should be located a sufficient distance away from vulnerable exposed elements to ensure debris cannot drop and accumulate within at least 4m of buildings/structures or be likely to be relocated by wind to closer than 4m to buildings / structures.

Shrubs and scrub (0.5 metres to 6 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 (unless they can be classified as low flammability plants); and
- Shrubs greater than 6 metres in height are to be treated as trees.

Ground covers (less than 0.5 metres in height):

- Can be planted under trees but and no closer than two metres from a structure but 3 metres from doors or windows if greater than 100 mm in height; and
- Ground covers greater than 0.5 metres in height are to be treated as shrubs.

Grass: Where possible utilise irrigated perennial species.

Mulches should be non-combustible e.g., stone, gravel and crushed rock. Where wood mulch is used it should be greater than 6mm in thickness.

Separation Between the Buildings/Assets of Value and the Consequential Fire Fuels of Stored Flammable Products (Fuels / Other Hazardous Materials):

If applicable, establish sufficient separation distance between the consequential fire fuels and the facility/premises. The required separation distance will be dependent on the fuel and storage type and will need to be determined.

Separation Between the Buildings/Assets of Value and the Consequential Fire Fuels of Stored and Constructed Combustible Items:

These consequential fire fuels include:

- Stored Combustible Items - Heavy Fuels (greater than 6mm diameter) e.g. building materials, packaging materials, firewood, branches, sporting/playground equipment, outdoor furniture, garbage bins etc:
- Stored Combustible Items – Large Heavy Fuels e.g. vehicles, caravans, boats, trailers and large quantities of dead vegetation materials stored as part of site use.
- Constructed Combustible Items – Heavy Fuels e.g. landscaping structures including fences, screens, walls, plastic water tanks.
- Constructed Combustible Items – Large Heavy Fuels e.g. adjacent buildings/structures including houses, sheds, garages, carports. (Note: If the adjacent structure is constructed to BAL-29 requirements or greater and can implement a significant number of additional bushfire protection measures associated with reducing exposure and vulnerability, these minimum separation distances could be reduced by 30%).

Apply the rule of thumb "assume flames produced from a consequential fire source will be twice as high as the object itself ... where the consequential fire source is a structure, then the maximum eave height is a reasonable measure of maximum height".

Apply the following separation distances from the subject building/structure as a multiple of the height of the consequential fire source and dependent on the bushfire construction standard applied to the building/structure:

- At least six times the height when the facility/premises construction incorporates design and materials that is only intended to resist low levels of radiant heat up to 12.5 kW/m² and no flame contact (BAL-12.5);
- Between 4 and 6 six times the height when the facility/premises construction incorporates design and materials intended to resist radiant heat up to 29 kW/m² and no flame contact (BAL-29).
- Between 2 and 4 times the height when the facility/premises construction incorporates design and materials intended to resist up to 40kW/m² and potential flame contact (BAL-40).
- Less than 2 times the height when the facility/premises construction incorporates design and materials intended to resist extreme levels of radiant heat and flame contact (BAL-FZ).
- Zero separation distance is required if the facility/premises is separated by a non-combustible FRL 60/60/60 rated wall, or the potential consequential fire source is fully enclosed by the facility/premises.

Constructed Barriers to Shield Buildings/Assets of Value from Bushfire: Where applicable, install walls, fences and/or landforms to shield the buildings/Assets of Value (or any identified consequential fire fuels – refer to previous item) from direct and indirect bushfire attack mechanisms and reduce the potential impact of these threats.

These barriers should be constructed using appropriate fire resistant / non-combustible construction materials (e.g. masonry, steel, earthworks). These are to withstand the impact of direct bushfire attack mechanisms for the required period.

- Constructed Barriers to Shield Buildings/Assets of Value from Consequential Fire:** Applicable to all identified consequential fire fuel sources. Install a non-combustible barrier (including complete enclosure when appropriate), of required robustness, that will reduce the exposure of the buildings/assets of value to the threats of consequential fire.

- Planted Vegetation Barrier to Shield Buildings/Assets of Value:** Use appropriate species (lower flammability) of hedges and trees strategically to reduce the buildings/assets of value exposure to radiant heat, to filter/trap embers and firebrands, and to lower wind speeds (prevailing synoptic and/or fire driven).

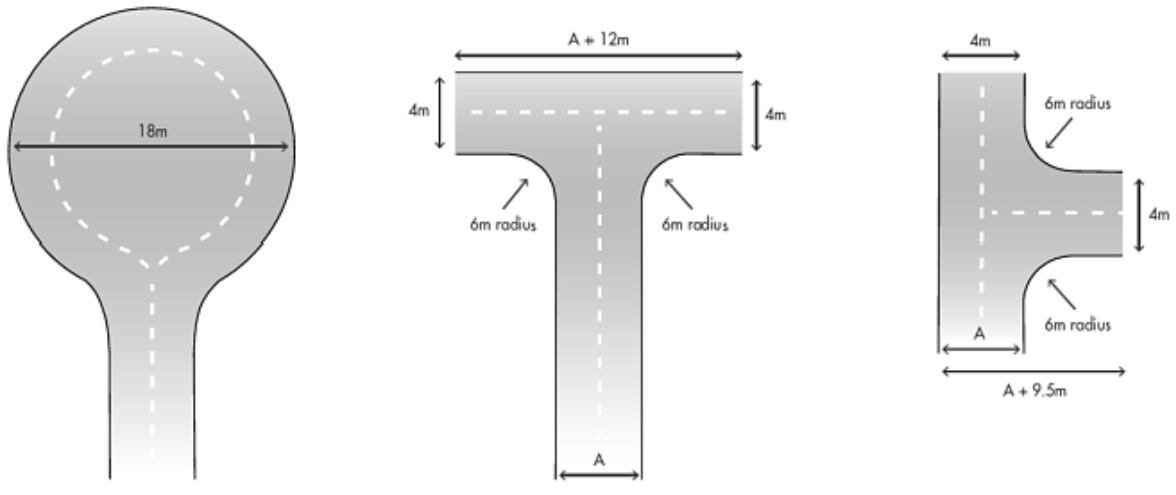
- Shield Non-Structural Essential Elements:** These are vulnerable elements essential to the continued operation of the buildings/assets of value which are potentially exposed to the fire attack mechanisms of both bushfire and consequential fire. They include electricity cabling and water plumbing and also applies to any installed firefighting equipment / water storage.

When the use of fire rated materials to the degree necessary is not possible or practical, the application of non-combustible shielding can be applied to reduce exposure to the bushfire threats. Shielding includes underground installation.

APPENDIX G: TECHNICAL REQUIREMENTS FOR VEHICULAR ACCESS

The design/layout requirements for access are established by the acceptable solutions of the Guidelines (DPLH, 2021 v1.4) Element 3 and vary dependent on the access component, the land use and the presence of 'vulnerable' persons. Consequently, the best reference source are the Guidelines. The technical requirements that are fixed for all components and uses are presented in this appendix.

GUIDELINES TABLE 6, EXPLANATORY NOTES E3.3 & E3.6 AND RELEVANT ACCEPTABLE SOLUTIONS

| Technical Component | Vehicular Access Types / Components | | | |
|--|---|-----------------------------------|--|---|
| | Public Roads | Emergency Access Way ¹ | Fire Service Access Route ¹ | Battle-axe and Private Driveways ² |
| Minimum trafficable surface (m) | In accordance with A3.1 | 6 | 6 | 4 |
| Minimum Horizontal clearance (m) | N/A | 6 | 6 | 6 |
| Minimum Vertical clearance (m) | 4.5 | | | |
| Minimum weight capacity (t) | 15 | | | |
| Maximum Grade Unsealed Road ³ | As outlined in the IPWEA Subdivision Guidelines | 1:10 (10%) | | |
| Maximum Grade Sealed Road ³ | | 1:7 (14.3%) | | |
| Maximum Average Grade Sealed Road | | 1:10 (10%) | | |
| Minimum Inner Radius of Road Curves (m) | | 8.5 | | |
| Turnaround Area Dimensions for No-through Road, Battle-axe Legs and Private Driveways ⁴ | | | | |
|  | | | | |
| Passing Bay Requirements for Battle-axe leg and Private Driveway | | | | |
| When the access component length is greater than the stated maximum, passing bays are required every 200m with a minimum length of 20m and a minimum additional trafficable width of 2m (i.e. the combined trafficable width of the passing bay and constructed private driveway to be a minimum 6m). | | | | |
| Emergency Access Way – Additional Requirements | | | | |
| Provide a through connection to a public road, be no more than 500m in length, must be signposted and if gated, gates must be open the whole trafficable width and remain unlocked. | | | | |
| ¹ To have crossfalls between 3 and 6%. ² Where driveways and battle-axe legs are not required to comply with the widths in A3.5 or A3.6, they are to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision. ³ Dips must have no more than a 1 in 8 (12.5% or 7.1 degree) entry and exit angle. ⁴ The turnaround area should be within 30m of the main habitable building. | | | | |

APPENDIX H: TECHNICAL REQUIREMENTS FOR FIREFIGHTING WATER SUPPLY

H1: Reticulated Areas – Hydrant Supply

The Guidelines state "where a reticulated water supply is existing or proposed, hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority."

The main scheme water suppliers / authorities in WA are The Water Corporation, AqWest – Bunbury Water Corporation and Busselton Water Corporation. Various local authority exists in other non-scheme and regional areas. However, most existing fire hydrants are connected to Water Corporation water mains.

Consequently, the hydrant location specifications from The Water Corporation's 'No 63 Water Reticulation Standard' (Ver 3 Rev 15) are provided in the extract below with the key distances relevant to bushfire planning assessments being highlighted. This Standard is deemed to be the baseline criteria for developments and should be applied unless different local water supply authority conditions apply. Other applicable specification will be found in the Standard.

Note: The maximum distance from a hydrant to the rear of a lot/building is generally interpreted as not applicable to large lot sizes where the maximum distance becomes an impractical limitation i.e., typically rural residential areas.

Design Standard DS 63
Water Reticulation Standard



2.2.1.5 Appurtenances

c. Hydrants

Hydrants shall be screw-down hydrant with built-in isolation valve and installed only on DN100 or larger pipes. Hydrants shall be located:

- so that the maximum distance between a hydrant and the rear of a building envelope, (or in the absence of a building envelope the rear of the lot) shall be 120m;
- so that spacing (as measured by hose-run) between hydrants in non-residential or mixed use areas shall be maximized and no greater than 100m;
- so that spacing (as measured by hose-run) between hydrants in residential areas with lots per dwelling <10,000m² shall be maximized and no greater than 200m;
- so that spacing between hydrants (as measured by hose-run) in rural residential areas where minimum lots per dwelling is >10,000 m² (1ha) shall be maximized and no greater than 400m;
- centrally along the frontage of a lot to avoid being under driveways, unless the lot features a frontage 6m or less, in which case it shall be placed to the side opposite the driveway;
- at lots that have the widest frontage in the local area;
- where appropriate at the truncation of road junctions or intersections so that they can serve more than one street and can be readily located;
- on both sides of the major roads at staggered intervals where there are mains on both sides of the road;
- at major intersections on dual multi-lane roads, where two hydrants are to be sited on diagonally opposite corners;
- hydrants should be located at least 20m from traffic calming devices i.e., median slow points or chokers, chicanes, mini traffic circles, and intersection 'pop-outs' to ensure traffic is not impeded;
- in a position not less than 10m from any high voltage main electrical distribution equipment such as transformers and distribution boards, liquefied petroleum gas or other combustible storage;
- directly on top of the main using a tee unless proved to be impractical.

H2: Non-Reticulated Areas – Static Supply

For specified requirements, refer to the Guidelines Element 4: Water – Acceptable Solution A4.2 , Explanatory Notes E4 (that provide water supply establishment detail under the headings of water supply; independent water and power supply; strategic water supplies, alternative water sources and location of water tanks) and the technical requirements established by Schedule 2 (reproduced below).

SCHEDULE 2: WATER SUPPLY DEDICATED FOR BUSHFIRE FIREFIGHTING PURPOSES

2.1 Water supply requirements

Water dedicated for firefighting should be provided in accordance with Table 7 below, and be in addition to water required for drinking purposes.

Table 7: Water supply dedicated for bushfire firefighting purposes

| PLANNING APPLICATION | NON-RETICULATED AREAS |
|---|--|
| Development application | 10,000L per habitable building |
| Structure Plan / Subdivision: Creation of 1 additional lot | 10,000L per lot |
| Structure Plan / Subdivision: Creation of 3 to 24 lots | 10,000L tank per lot or 50,000L strategic water tank |
| Structure Plan / Subdivision: Creation of 25 lots or more | 50,000L per 25 lots or part thereof Provided as a strategic water tank(s) or 10,000L tank per lot |

2.2 Technical requirements

2.2.1 Construction and design

An above-ground tank and associated stand should be constructed of non-combustible material. The tank may need to comply with AS/NZS 3500.1:2018.

Below ground tanks should have a 200mm diameter access hole to allow tankers or emergency service vehicles to refill direct from the tank, with the outlet location clearly marked at the surface. The tank may need to comply with AS/NZS 3500.1:2018. An inspection opening may double as the access hole provided that the inspection opening meets the requirements of AS/NZS 3500.1:2018. If the tank is required under the BCA as part of fire hydrant installation, then the tank will also need to comply with AS 2419.

Where an outlet for an emergency service vehicle is provided, then an unobstructed, hardened ground surface is to be supplied within four metres of any water supply.

2.2.2 Pipes and fittings

All above-ground, exposed water supply pipes and fittings should be metal. Fittings should be located away from the source of bushfire attack and be in accordance with the applicable section below, unless otherwise specified by the local government.

2.2.2.1 Fittings for above-ground water tanks:

- Commercial land uses: 125mm Storz fitting; or
- Strategic water tanks: 50mm or 100mm (where applicable and adapters are available) male camlock coupling with full flow valve; or
- Standalone water tanks: 50mm male camlock coupling with full flow valve; or
- Combined water tanks: 50mm male camlock coupling with full flow valve or a domestic fitting, being a standard household tap that enables an occupant to access the water supply with domestic hoses or buckets for extinguishing minor fires.

2.2.2.2 Remote outlets

In certain circumstances, it may be beneficial to have the outlet located away from the water supply. In such instances in which a remote outlet is to be used, the applicant should consult the local government and DFES on their proposal.

EXAMPLE CONSTRUCTION AND FITTINGS



Strategic 47,000 Litre Concrete Tank & Protected Fittings



10,000 Litre Concrete Tank



Storz and Camlock Couplings



Full Flow 50mm Ball Valve



Full Flow 50mm Gate Valve and Male Camlock

APPENDIX I: BUSHFIRE WARNINGS – WHEN A BUSHFIRE IS IDENTIFIED



EMERGENCY WARNING

An out of control fire is approaching fast and you need to take immediate action to survive. If you haven't prepared your home it is too late.

You must seek shelter or leave now if it is safe to do so.



WATCH AND ACT

A fire is approaching and there is a possible threat to lives or homes. Put your plan into action. If your plan is to leave, make sure you leave early. If your plan is to stay, check all your equipment is ready.

Only stay and defend if you are mentally and physically prepared.







ADVICE

A fire has started but there is no immediate danger. Stay alert and watch for signs of a fire.

Be aware and keep up to date.

Where can I get information during an emergency?

 emergency.wa.gov.au  13 DFES (13 33 37)

 @dfeswa  @dfes_wa  Local ABC Radio



APPENDIX J: FIRE DANGER RATINGS – FORECAST BUSHFIRE RISK

THE HIGHER THE RATING, THE MORE DANGEROUS THE CONDITIONS AND THE GREATER THE CONSEQUENCES IF A FIRE STARTS.



Australian Fire Danger Rating System

Moderate: Plan and prepare.

Most fires can be controlled. Stay up to date and be alert for fires in your area.

High: Be ready to act.

Fires can be dangerous. Decide what you will do if a fire starts. Leave bushfire risk areas if necessary.

Extreme: Take action now to protect your life and property.

Fires will spread quickly and be extremely dangerous. Put your bushfire plan into action. If you and your property are not prepared to the highest level, plan to leave early.

Catastrophic: For your survival, leave bushfire risk areas.

These are the most dangerous conditions for a fire. If a fire starts and takes hold, lives are likely to be lost. Homes cannot withstand fires in these conditions.



When there is minimal risk, Fire Danger Ratings will be set to **'No Rating'**. On these days you still need to remain alert and abide by local seasonal laws and regulations.



Monitor conditions and [emergency.wa.gov.au](https://www.emergency.wa.gov.au) for ratings and bushfire warnings. If a fire starts near you, take action immediately to protect your life. Do not wait for a warning.



Your life may depend on the decisions you make, even before there is a fire. Create or review your bushfire plan at [mybushfireplan.wa.gov.au](https://www.mybushfireplan.wa.gov.au)



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JUNE/2022/V1.0



HOW FIREPROOF IS YOUR PLAN?



APPENDIX K: BUSHFIRE RISKS AND DANGERS

BUSHFIRE RISKS AND DANGERS



BUSHFIRES HAPPEN EVERY SUMMER; THEY CAN START SUDDENLY AND WITHOUT WARNING.

If you live in or near bushland you need to understand the risks and dangers that bushfires cause.

Remember that flames are not the only risk you face in a bushfire.



EMBER ATTACK

Ember attack occurs before, during and after a fire front passes.

Embers are pieces of burning bark, leaves or twigs that are carried by the wind around the main fire creating spot fires.

Spotting can be carried over half a kilometre from a fire.

Embers can land in areas around your home such as your garden, under or in the gutters of your home and on wooden decks.

If not extinguished, your house could catch fire.

RADIANT HEAT

The hotter, drier and windier the day, the more intense a bushfire will be and the more radiant heat it will generate.

Radiant heat can cause injury and death from burns and cause the body's cooling system to fail, leading to heat exhaustion and possible heart failure.

It is important that you include water and appropriate clothing in your emergency kit and consider where you will shelter during a bushfire to protect yourself from radiant heat.

SMOKE

Lung injuries and suffocation can occur where the body is exposed to smoke and super-heated air.

It is important to seek shelter when heat and smoke are most intense.

Your nose and mouth should be covered with a dust mask, wet towel or scarf.

A special filter mask should be included in your survival kit for people in your family who suffer respiratory conditions such as asthma.

For more information visit
dfes.wa.gov.au/bushfire

or contact DFES Community Preparedness:
Community.Preparedness@dfes.wa.gov.au
or **9395 9816**



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September 2020 V1.0



HOW FIREPROOF IS YOUR PLAN?

APPENDIX L: GUIDELINES FOR TRAVELLING IN CARS DURING A BUSHFIRE

TRAVELLING DURING A BUSHFIRE



BUSHFIRES CAN START WITHOUT WARNING. People have been killed or seriously injured during bushfires. If you are travelling or staying near bushland, fire is a real risk to you. **Pack an emergency kit including important items such as woollen blankets, drinking water and protective clothing.**



IF THERE IS A LOT OF SMOKE

- Slow down as there could be people, vehicles and livestock on the road.
- Turn your car headlights and hazard lights on.
- Close the windows and outside vents.
- If you can't see clearly, pull over and wait until the smoke clears.

IF YOU BECOME TRAPPED BY A FIRE

- Sheltering inside a vehicle is a very high risk strategy. It is unlikely that a person will survive in all but the mildest circumstances.**
- Park the vehicle off the roadway where there is little vegetation, with the vehicle facing towards the oncoming fire front.
- Turn the engine off.
- Close the car doors, windows and outside vents, **and call 000.**
- Stay in the car until the fire front has passed. Stay as close to the floor as possible and cover your mouth with a damp cloth to avoid inhalation of smoke.
- Stay covered in woollen blankets, continue to drink water and wait for assistance.
- Once the front has passed and the temperature has dropped, cautiously exit the vehicle.

IMPORTANT INFORMATION

- Find the local ABC radio frequency in the area. Stay up to date in a major emergency, when lives and property are at risk, ABC radio will issue broadcast warnings at a quarter to and a quarter past the hour.
- Main Roads provides updated information on road closures throughout WA. Call 138 138 or www.mainroads.wa.gov.au
- Check the weather forecast and current fire restrictions. Be aware of the Fire Danger Rating for the area you are travelling to and be prepared to reassess your plans.
- Download the Bushfire Traveller's Checklist at www.dfes.wa.gov.au

For more information visit
dfes.wa.gov.au/bushfire

or contact DFES Community Preparedness:
Community.Preparedness@dfes.wa.gov.au
or **9395 9816**



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November 2021/V1.0



DFES
Department of Fire & Emergency Services

HOW FIREPROOF IS YOUR PLAN?

APPENDIX M: INDICATIVE BUSHFIRE BEHAVIOUR TO IMPACT THE SITE

Information Relevance: This information is included in the Bushfire Plan to inform and assist the decision making of those persons onsite who have the responsibility to manage a bushfire emergency for the subject facility/premises.

The information establishes the key factors to be considered in understanding the types and scale of key bushfire behaviours that can be expected to impact the site on a given day. These factors are the type of vegetation that exists on the land surrounding the subject premises/facility, the relevant surrounding terrain, and the forecast Fire Danger Rating (FDR) that applies to the locality.

Information Source: The information is taken from the bushfire behaviour modelling applied within the **Australian Fire Danger Rating System (AFDRS)**. Within this system, eight accepted bushfire behaviour models, describing mathematically the way fire moves and spreads through different vegetation types, are currently available and are applied to twenty two different vegetation types across Australia.

The modelling is used to derive the Fire Behaviour Index (FBI) that assists firefighting operational decision making. From the FBI, Fire Danger Ratings (FDR) are derived which provide the broad categories needed to communicate fire danger to the community. The determination of the daily FDR considers the vegetation types present and the forecast fire weather conditions. The higher the rating, the more dangerous the conditions and the greater the consequences if a fire starts. (Source: AFDRS project led by NSW RFS, Australian Bureau of Meteorology and AFAC).

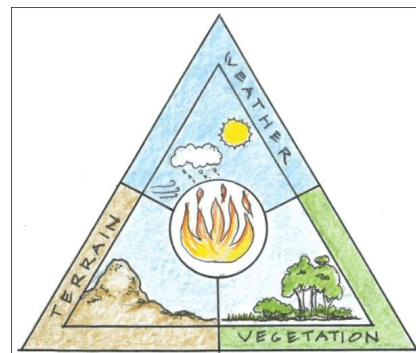
The Fire Behaviour Triangle

The behaviour of a bushfire, including the types of threats, intensity and how quickly it moves, depends on the three factors of vegetation, weather and terrain.

This is known as the fire behaviour triangle – because all three factors combine to shape the characteristics of the bushfire (source: CSIRO 'Bushfire best practice guide' at ... research.csiro.au/bushfire/).

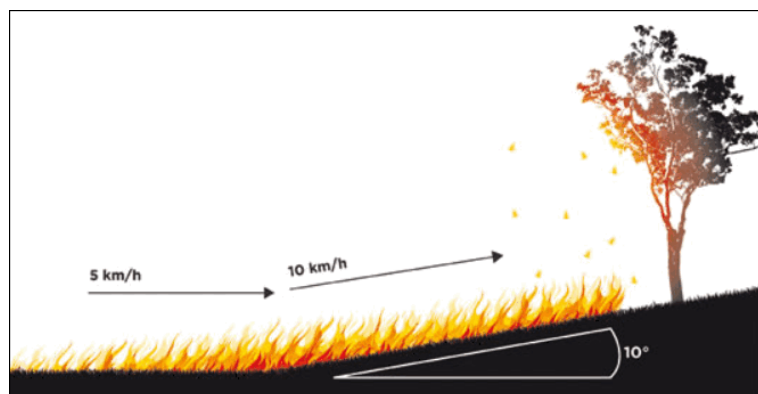
The influence of fire weather (FDR) and vegetation types (as per AFDRS) on the potential bushfire impact to the subject facility/premises, can be derived from the tables presented on the following page(s). Greater fuel loads will result in behaviours at the higher end of stated values.

The influence of terrain can be derived by considering the existence and degree of sloping ground and changes in changes in relief (e.g., flat, undulating or rugged land), surrounding the subject facility/premises and particularly under the vegetation.



The Influence of Terrain (topography)

A fire will burn faster uphill. This is because the flames can easily reach more unburnt fuel in front of the fire. Radiant heat pre-heats the fuel in front of the fire, making the fuel even more flammable.



(source: Country Fire Authority, Victoria).

For every 10° slope, the fire will double its speed. For example, if a fire is travelling at 5 km per hour along flat ground and it hits a 10° slope it will double in speed to 10 km per hour up the hill. By increasing in speed the fire also increases in intensity, becoming even hotter.

The opposite applies to a fire travelling downhill. The flames reach less fuel, and less radiant heat pre-heats the fuel in front of the fire. For every 10° of downhill slope, the fire will halve its speed. Fires tend to move more slowly as the slope decreases.

Terrain should be considered for its potential to increase adverse fire behaviour including flame heights, forward rates of spread and ember production (in relevant vegetation i.e., primarily bark fuels). Essentially, where vegetation exists on sloping land near your site, assume that the higher end of adverse fire behaviours is much more likely to apply.





| VEGETATION TYPES IDENTIFIED SURROUNDING AND WITHIN THE SUBJECT SITE | | |
|---|--|--|
| As Applied in the AFDRS | | Vegetation Location Relative to the Site |
| Fire Behaviour Model (short name) | Fuel Types / Description | |
| Forest | Dry eucalypt forests, shrubby understorey/litter surface fuel. Forests with high moisture content due to structure, topography or inundation. | Forest areas are not prevalent in the surrounding area. |
| Grassy Woodland (Savanna) | Woodland and shrubland with a continuous grass understorey. Arid woodland/shrubland with short lasting (seasonal) grass understorey. Perennial woody horticulture with grass understorey (orchard/vineyard). Rural/Urban residential areas of grass with variable tree cover. | The structure of vegetation comprising medium canopy trees with shrubland and grass understorey exists on and external to the site, generally resulting from agricultural practices and historic clearing of land. |
| Shrubland | Temperate shrublands and heathlands of varying heights. Includes wet heathlands. | Low lying areas within the site and external to the site are made up of low shrubland interface with Scrub and Grassland. |
| Grassland | Continuous/tussock grasslands. Modified/native pasture (grazing). Non-irrigated cropping. Low shrublands (wet or arid) with no overstorey. | Grassland exists in the form of cropping land and pasture paddock areas within and external to the site, in the broader landscape. |
| Mallee-Heath | Semi-arid woodland and shrubland with shrub understorey. | The planting density and arrangement on site is likely to constitute a Scrub arrangement in its mature state. |
| Spinifex | Woodland and shrubland with a hummock grass understorey. Includes mallee if spinifex understorey. | N/A |
| Pine | Pine plantations | N/A |

SAVANNA (GRASSY WOODLAND)

THE INDICATIVE FIRE BEHAVIOUR CORRESPONDING TO THE FIRE BEHAVIOUR INDEX (0-100) AND THE ASSOCIATED FIRE DANGER RATING (FDR)



Source: AFDRS v. 2022_6

| FDR | INDICATIVE BUSHFIRE BEHAVIOUR | | | | |
|--------------|-----------------------------------|---|------------------------------------|---|--|
| NO RATING | MAX FLAME HEIGHT <0.5 m | 0-5  | RATE OF SPREAD 0-50 m/hr | Fire difficult to ignite and sustain. Fires generally unlikely to spread and likely to self-extinguish. | SPOTTING POTENTIAL Potential for any spotting is extremely limited |
| | <0.5-1.5 m | 6-11  | <1.5km/hr | Fire easily sustained. Typically wind driven fires that can spread quickly. Fires mostly only partially consuming fuels, typically creating a mosaic of burnt and unburnt patches (decreasing patchiness with increasing intensity). | Potential for spotting is limited |
| MODERATE | 1.5-2.5 m | 12-49  | 1-8 km/hr | Wind driven, rapidly spreading fires with potential for development into large fire area/size and with the potential for short distance spotting and long flame lengths. Fires typically consuming all available fuel. Increasing scorch height of tree canopy (up to 20-25 m) and char height (up to 3-4 m). | Possible short distance spotting occurring |
| HIGH | | | | | |
| EXTREME | | | | | |
| CATASTROPHIC | >2.5m | 50+  | >5 and likely >8 km/hr | Extremely rapid fire growth and increasing likelihood of large final fire area/size. Possibility for fire behaviour to become erratic and plume driven. Strong convective column formation. Wind speed and direction likely to be erratic at times. Fires consuming all available fuel. | Likely short distance spotting |

SHRUBLAND

THE INDICATIVE FIRE BEHAVIOUR CORRESPONDING TO THE FIRE BEHAVIOUR INDEX (0-100) AND THE ASSOCIATED FIRE DANGER RATING (FDR)

Source: AFDRS v.2022_6



| FDR | INDICATIVE BUSHFIRE BEHAVIOUR | | | | |
|--------------|--|--------------|--|--|--|
| NO RATING | <p>MAX FLAME HEIGHT <0.5 m</p> | <p>0-5</p> | <p>RATE OF SPREAD 0-20 m/hr</p> | <p>Flame dimensions are generally insufficient to breach sparse and discontinuous fuels or inter-hummock gaps.</p> | <p>SPOTTING POTENTIAL</p> <p>Potential for any spotting is extremely limited</p> |
| | <p><0.5-1.5 m</p> | <p>6-11</p> | <p>20-150 m/hr</p> | <p>Sustained spread of fire.</p> | <p>Potential for spotting is limited</p> |
| MODERATE | <p>1-4 m</p> | <p>12-23</p> | <p>150-1300 m/hr</p> | <p>Fast moving, wind-driven fires that are mostly actively crowning.</p> | <p>Potential for spotting is limited except where eucalypt/mallee trees are present where spotting is likely to be minimal and limited</p> |
| HIGH | <p>2-8 m</p> | <p>24-49</p> | <p>up to 6.5 km/hr</p> | <p>Fast moving, wind-driven, crown fires with high potential for large fire areas. Mostly complete combustion of fuels and few unburnt patches.</p> | <p>Possible short distance spotting mostly <20 m or where eucalypt/mallee trees are present where spotting is likely to be minimal and limited to short distances (<100 m). Any spot fires are typically overrun by the main head fire</p> |
| EXTREME | <p>>4m and likely >8m</p> | <p>50+</p> | <p>>1.5 and likely >6.5 km/hr</p> | <p>Rapid fire growth, extremely fast moving, wind-driven fires. High potential for large fire areas with complete combustion of fuels and few unburnt patches.</p> | <p>Possible short distance spotting mostly <40 m except where eucalypt/mallee trees are present where spotting may be up to 200 m with spot fires typically quickly overrun by the main head fire</p> |
| CATASTROPHIC | | | | | |

GRASSLAND

THE INDICATIVE FIRE BEHAVIOUR CORRESPONDING TO THE FIRE BEHAVIOUR INDEX (0-100) AND THE ASSOCIATED FIRE DANGER RATING (FDR)

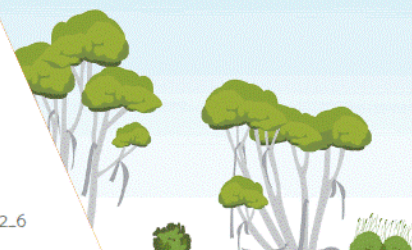
Source: AFDRS v. 2022_6






| FDR | INDICATIVE BUSHFIRE BEHAVIOUR | | | | |
|--------------|---------------------------------|-------|--|---|---|
| NO RATING | MAX FLAME HEIGHT <1 m | 0-5 | RATE OF SPREAD 0-30 m/hr | Fire difficult to ignite and sustain. Fires generally unlikely to spread and likely to self-extinguish. | SPOTTING POTENTIAL Potential for any spotting is very limited. |
| | <1.5 m | 6-11 | <13 km/hr | Fire easily sustained. Typically wind driven fires that can spread quickly. | Potential for spotting Potential for short distance spotting is limited. |
| MODERATE | 1.5-2.5 m | 12-23 | 0.5-6 km/hr | Typically wind driven and rapidly spreading fires with the potential to gain size quickly. | Possible short distance spotting occurring. |
| HIGH | 2-3 m | 24-49 | 2.5-10 km/hr | Wind driven, rapidly spreading fires with potential for development into large fire area/size and with the potential for short distance spotting and long flame lengths. | Short distance spotting occurring with increasing frequency. |
| EXTREME | 2.5-3.5m | 50-99 | 5-16 km/hr | Extremely rapid fire growth and increasing likelihood of large final fire area/size. Possibility for fire behaviour to become erratic and plume driven. Strong convective column formation. Wind speed and direction likely to be erratic at times. | Likely short distance spotting occurring with increasing frequency. |
| CATASTROPHIC | >3m | 100+ | >8 km/hr can be expected, possibly >16 km/hr | Extremely rapid fire growth and high likelihood of large final fire area/size. Possibility for fire behaviour to become erratic and plume driven. Strong convective column formation. Wind speed and direction likely to be erratic at times. | Likely short distance spotting occurring with increasing frequency. |

MALLEE-HEATH

THE INDICATIVE FIRE BEHAVIOUR CORRESPONDING TO THE FIRE BEHAVIOUR INDEX (0-100) AND THE ASSOCIATED FIRE DANGER RATING (FDR)

Source: AFDRS v. 2022_6



| FDR | INDICATIVE BUSHFIRE BEHAVIOUR | | | | |
|--------------|-------------------------------------|--|---------------------------------------|---|---|
| NO RATING | <p>MAX FLAME HEIGHT <1 m</p> | <p>0-5</p>  | <p>RATE OF SPREAD 0-40 m/hr</p> | <p>Probability of self-sustained, surface fire is low.</p> | <p>SPOTTING POTENTIAL Potential for any spotting is extremely limited</p> |
| | <p><5 m</p> | <p>6-11</p>  | <p><2 km/hr</p> | <p>Surface fires whereby the flame front is able to overcome fine scale fuel discontinuities. Isolated torching of overstorey fuels.</p> | <p>Short range spotting possible up to 10 m</p> |
| MODERATE | <p><6 m</p> | <p>12-23</p>  | <p>1-3 km/hr</p> | <p>Intermittent crown fire. The passage of the flame front on surface fuels is followed by torching of overstorey fuels. Canopy fuel combustion occurs somewhat behind the leading edge of the flame front. Average flame front properties not affected by the level of torching and rate of fire spread largely determined by surface phase.</p> | <p>Short range spotting up to 50 m likely, allowing fire to cross small areas of fuel discontinuity such as roads or small fuel breaks</p> |
| HIGH | <p><8 m</p> | <p>24-49</p>  | <p>1.5-5.5 km/hr</p> | <p>Active or dependent crown fires with crown phase determining the overall rate of spread. Fire propagates faster than observed for a surface or intermittent crown fire under same environmental conditions. A reduction of the surface phase heat output below a certain level will lead the fire to an intermittent crown fire regime.</p> | <p>Escalation in fire activity is typically accompanied by an increase in the number of firebrands generated and possible distances >50 m ahead of the flame front</p> |
| EXTREME | <p>>8m</p> | <p>50+</p>  | <p>>3 and likely >5.5 km/hr</p> | <p>Active or dependent crown fire.</p> | <p>Escalation in fire activity is typically accompanied by an increase in the number of firebrands generated and possible distances >50 m ahead of the flame front</p> |
| CATASTROPHIC | | | | | |