

# Appendix XV: Strategen Bush Fire Assessment

## Bushfire Management Plan Coversheet

This Coversheet and accompanying Bushfire Management Plan has been prepared and issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme.

### Bushfire Management Plan and Site Details

Site Address / Plan Reference: Boodarie Strategic Industrial Area

Suburb: South Hedland

State: WA

P/code: 6722

Local government area: Port Hedland

Description of the planning proposal: Structure Plan for Boodarie Strategic Industrial Area

BMP Plan / Reference Number: URB16493.01

Version: Rev 0

Date of Issue: 01/12/2016

Client / Business Name: LandCorp and Department of State Development

Reason for referral to DFES	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 BPC elements)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Is the proposal any of the following special development types (see SPP 3.7 for definitions)?</b>		
Unavoidable development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Strategic planning proposal (including rezoning applications)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Minor development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
High risk land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vulnerable land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If the development is a special development type as listed above, explain why the proposal is considered to be one of the above listed classifications (E.g. considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

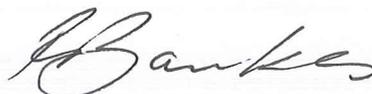
Note: The decision maker (e.g. local government or the WAPC) should only refer the proposal to DFES for comment if one (or more) of the above answers are ticked "Yes".

### BPAD Accredited Practitioner Details and Declaration

<b>Name</b> Roger Banks	<b>Accreditation Level</b> Level 2	<b>Accreditation No.</b> BPAD	<b>Accreditation Expiry</b> 30/08/2017
<b>Company</b> Strategen		<b>Contact No.</b> 9792 4797	

I declare that the information provided within this bushfire management plan is to the best of my knowledge true and correct

Signature of Practitioner



Date 01/12/2016



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# Bushfire Management Plan

## Boodarie Strategic Industrial Area

Prepared for  
Department of State Development and LandCorp  
by Strategen

December 2016



# **Bushfire Management Plan**

## **Boodarie Strategic Industrial Area**

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December 2016

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Within the limitations imposed by the scope of services, the preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted environmental consulting practices. No other warranty, whether express or implied, is made.

## **Client: Department of State Development and LandCorp**

Report Version	Revision No.	Purpose	Strategen author/reviewer	Submitted to Client	
				Form	Date
Draft Report	A	For client review	A Ennis / R Banks (Level 2 BPAD No. 36857)	Electronic (email)	3/11/2016
Final Report	0	Issued for use: to accompany proposed Structure Plan	A Ennis / R Banks (Level 2 BPAD No. 36857)	Electronic (email)	1/12/2016

Filename: URB16493\_01 R001 Rev 0 - 1 December 2016

## Executive Summary

Boodarie Strategic Industrial Area (BSIA) is located within the Town of Port Hedland and covers more than 4,100 ha. Department of State Development and LandCorp have prepared a Structure Plan for the BSIA, to guide staged development for a variety of heavy industrial developments.

Due to the current extent of on-site and adjacent vegetation, majority of the BSIA is designated as bushfire prone, as outlined on the Western Australian *Map of Bush Fire Prone Areas* (DFES 2016). Strategen has prepared this Bushfire Management Plan (BMP) to accompany the Structure Plan in order to meet planning requirements triggered under *State Planning Policy 3.7 Planning in Bushfire-Prone Areas* (WAPC 2015a).

Under Section 78B of the *Planning and Development (Local Planning Schemes) Amendment Regulations 2015* bushfire management provisions only apply to habitable<sup>1</sup> buildings. Although the dominant development within the BSIA is unlikely to be habitable buildings, permissible land uses within the BSIA under the 'Town of Port Hedland Local Planning Scheme include land uses for habitable buildings such as offices.

Given that timing of required planning and subsequent staged construction within the BSIA cannot be forecast at the strategic level, this BMP has been prepared based on existing state of the on-site and surrounding fire environment. A pre-development bushfire hazard level assessment identifies the BSIA as having a 'Low' 'Moderate' bushfire hazard level, reflecting that the majority of native vegetation consists of grassland and shrubland fuels with a discontinuous fuel profile and confirming that development can avoid areas of 'Extreme' bushfire hazard level. Given that proposed development will result in clearing and/or management of the remaining on-site vegetation, the post development state of the site will result in even lower hazard levels.

Strategen considers a bushfire approaching the BSIA from the northwest or north to be the worst case bushfire scenarios due to the continuous bushfire runs in these directions and the likely summer prevailing winds from the northwest and north in the afternoon.

To manage bushfire risk to future assets and achieve compliance with bushfire planning requirements, this BMP recommends a range of bushfire management measures to be addressed as part of future bushfire planning requirements for development within the BSIA, including:

- provision of minimum 20 m Asset Protection Zones to achieve a maximum BAL-29 rating under Australian Standard AS 3959-2009 *Construction of Buildings in Bushfire-prone Areas* (SA 2009)
- staged vegetation clearing within development areas in advance to achieve 100 m low fuel buffers where necessary to ensure habitable building construction is not inhibited by temporary vegetation extent located within adjacent stages yet to be cleared
- construction of habitable buildings to meet the standard appropriate to the BAL for that location, regardless of building class, and to not exceed BAL-29
- design at future planning stages to ensure that all occupiers and visitors are provided with at least two vehicular access routes connecting to the surrounding public road network at all times, including during development staging
- any proposed public roads, cul-de-sacs, private driveways longer than 50 m, emergency access ways or fire service access routes to meet or exceed technical requirements of the *Guidelines for Planning in Bushfire-Prone Areas* (WAPC 2015b)
- implementation of and compliance with provisions of the Town of Port Hedland annual firebreak notice

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<sup>1</sup> 'Habitable building' is defined as any permanent or temporary structure that is fully or partially enclosed and has at least one wall and a roof of solid material and is used for a purpose that involves the use of the interior of the structure by people for living, working, studying or being entertained.

- staged implementation of water supply services as development progresses to provide a non-reticulated system that ensures an all year round supply of water to meet emergency water supply requirements
- at subsequent planning stages, preparation of and implementation of a detailed plan demonstrating the location and capacity of fire emergency water infrastructure
- at subsequent planning stages, BMPs to include a requirement for notification to be placed on title for all lots within bushfire prone areas as a condition of subdivision to ensure landowners and prospective purchasers are aware that increased building construction standards and the BMP may apply
- at development application stage, preparation and implementation of emergency evacuation plans and risk management plans for proposed high risk land uses located in areas of BAL-12.5 to BAL-29
- individual BMPs and revision of existing BMPs, including detailed BAL contour assessment on an individual lot basis, to be required at appropriate future planning stages (such as subdivision) to ensure the management measures and BAL ratings and separation distances are consistent with the final development proposal.

Implementation of bushfire management measures within the BSIA will apply to developers, prospective landowners and local government to ensure bushfire management measures are adopted and implemented on an ongoing basis. An indicative works program has been provided to guide future planning and will need to be revised and updated as part of further bushfire planning requirements as planning stages progress.

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Appendix 1 Town of Port Hedland annual firebreak notice
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# 1. Introduction

## 1.1 Background

Boodarie Strategic Industrial Area (BSIA) covers approximately 4,190 ha and is located in the Town of Port Hedland. Department of State Development and LandCorp have prepared a Structure Plan for the BSIA, to guide staged development for a variety of heavy industrial developments (Figure 1). The Structure Plan identifies precincts to guide the location of future industrial land uses within the BSIA.

Due to the current extent of on-site and adjacent vegetation, majority of the BSIA is designated as bushfire prone, as outlined on the Western Australian *Map of Bush Fire Prone Areas* (DFES 2016). As a result, Strategen has prepared this Bushfire Management Plan (BMP) to inform strategic planning and fulfil the following key objective:

1. Accompany the proposed Structure Plan in order to meet planning requirements triggered under *State Planning Policy 3.7 Planning in Bushfire-Prone Areas* (SPP 3.7; WAPC 2015a).

The following information is required to accompany the Structure Plan as required under SPP 3.7 Policy Measure 6.3:

- Results of a Bushfire Hazard Level assessment determining the applicable hazard level(s) across the subject land in accordance with methodology set out in *Guidelines for Planning in Bushfire-Prone Areas* (the Guidelines; WAPC 2015b) – refer to Section 2.3 and Figure 4.
- Where lot layout of the proposal is known, a Bushfire Attack Level (BAL) contour map to determine the indicative acceptable BAL ratings across the subject site, in accordance with the Guidelines – given that lot layout is not yet known a BAL contour map has not been prepared as part of this BMP.
- Identification of any bushfire hazard issues arising from the relevant assessments – refer to Section 2.4.
- Clear demonstration that compliance with the bushfire protection criteria in the Guidelines can be achieved in subsequent planning stages – refer to Section 4 and Table 3.

This BMP has been prepared in accordance with the Guidelines and addresses all of the above information requirements to satisfy SPP 3.7 at the strategic planning stage.

This BMP will need to be reviewed at subsequent planning stages (subdivision and development application), at which time any changes to development and clearing within and surrounding the BSIA can be considered and addressed in a revised BMP or BMP addendum.

A small area within the BSIA (Stage 1A on Boodarie Station Access Road) is subject to an existing BMP (RUIC 2016) prepared to accompany a subdivision proposal to create 17 industrial lots. This BMP, prepared to accompany the BSIA Structure Plan, does not impact on the bushfire management measures identified within the existing Stage 1A BMP.

## 1.2 Purpose and application of the plan

The purpose of this BMP is to provide a high level consideration of bushfire risk within the BSIA and provide guidance on bushfire planning and requirements at future planning and development stages.



## 2. Spatial consideration of bushfire threat

### 2.1 Existing site characteristics

#### 2.1.1 Location

The BSIA is located approximately 4 km west of South Hedland and approximately 12 km south of the Port Hedland townsite in the Town of Port Hedland. The Structure Plan area comprises approximately 4,190 ha of land.

The BSIA is bound by the following (Figure 2):

- undeveloped land to the north
- Great Northern Highway and undeveloped land to the south
- Great Northern Highway, undeveloped land and extractive industry to the east
- Roy Hill railway and infrastructure and undeveloped land to the west.

#### 2.1.2 Zoning and land use

The BSIA is zoned 'Strategic Industry' under provisions of the Town of Port Hedland Local Planning Scheme No 5.

Heavy industrial development, specialising in downstream resource processing, is the ultimate land uses within the BSIA being established through the Structure Plan, with a staged release of development.

Under Section 78B of the *Planning and Development (Local Planning Schemes) Amendment Regulations 2015* bushfire management provisions only apply to habitable<sup>2</sup> buildings. Although the dominant development within the BSIA is unlikely to consist of habitable buildings, permissible land uses within the 'Strategic Industry' zone under the Town of Port Hedland Local Planning Scheme that have the potential to include habitable buildings include:

- office
- off-site canteen
- warehouse
- emergency services.

The majority of the site is currently subject to cattle grazing. There are many current leasehold land tenure arrangements within the BSIA, with the majority of the land being held by the Crown and subject of the "Boodarie" Pastoral Lease held by BHP Billiton, the De Grey – Mullewa stock yard route, a Stock Holding Reserve vested in the Town of Port Hedland and a number of General Purpose and Mining Leases (LandCorp 2014). The land is also subject to a number of power, gas and water easements.

Land surrounding the BSIA is zoned 'Rural' and identified as the 'Boodarie Industrial Buffer Special Control Area' under provisions of the Town of Port Hedland Local Planning Scheme.

#### 2.1.3 Assets

Land within the BSIA is largely undeveloped, with a number of small scale land uses in operation including power generation. The site is bisected by a number of regional service mains, including a gas pipeline, which comprises the main infrastructure servicing the Alinta gas fired power station (LandCorp 2014).

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<sup>2</sup> 'Habitable building' is defined as any permanent or temporary structure that is fully or partially enclosed and has at least one wall and a roof of solid material and is used for a purpose that involves the use of the interior of the structure by people for living, working, studying or being entertained.

Proposed industrial development will ultimately increase the critical life and property assets of the site by intensifying the number of occupiers, visitors and built assets across the BSIA.

The majority of the BSIA is undeveloped and vegetated. A flora and fauna assessment undertaken by GHD (2010) identified native vegetation within the BSIA as being predominantly in excellent condition, although a significant proportion of vegetation structure has been impacted by bushfire. The assessment did not identify any priority or threatened flora species, priority or threatened ecological communities or vegetation communities below the recognised 30% retention target.

The flora and fauna assessment identified potential fauna habitat for the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed Mulgara (*Dasyercus cristicaduda*).

LandCorp has existing approvals for clearing within the BSIA of not more than 81.35 ha of Mulgara habitat under the *Environmental Protection Act 1984* (EP Act).

The presence of and potential impacts on environmental assets will be considered as part of standard referral requirements at the relevant planning and development stages under the EPBC Act and EP Act.

#### 2.1.4 Access

The BSIA is currently accessed via Great Northern Highway from the north and south and Boodarie Station Access Road and Whim Creek Road from the east and west (see Figure 2). The project area is also traversed by a number of informal access tracks.

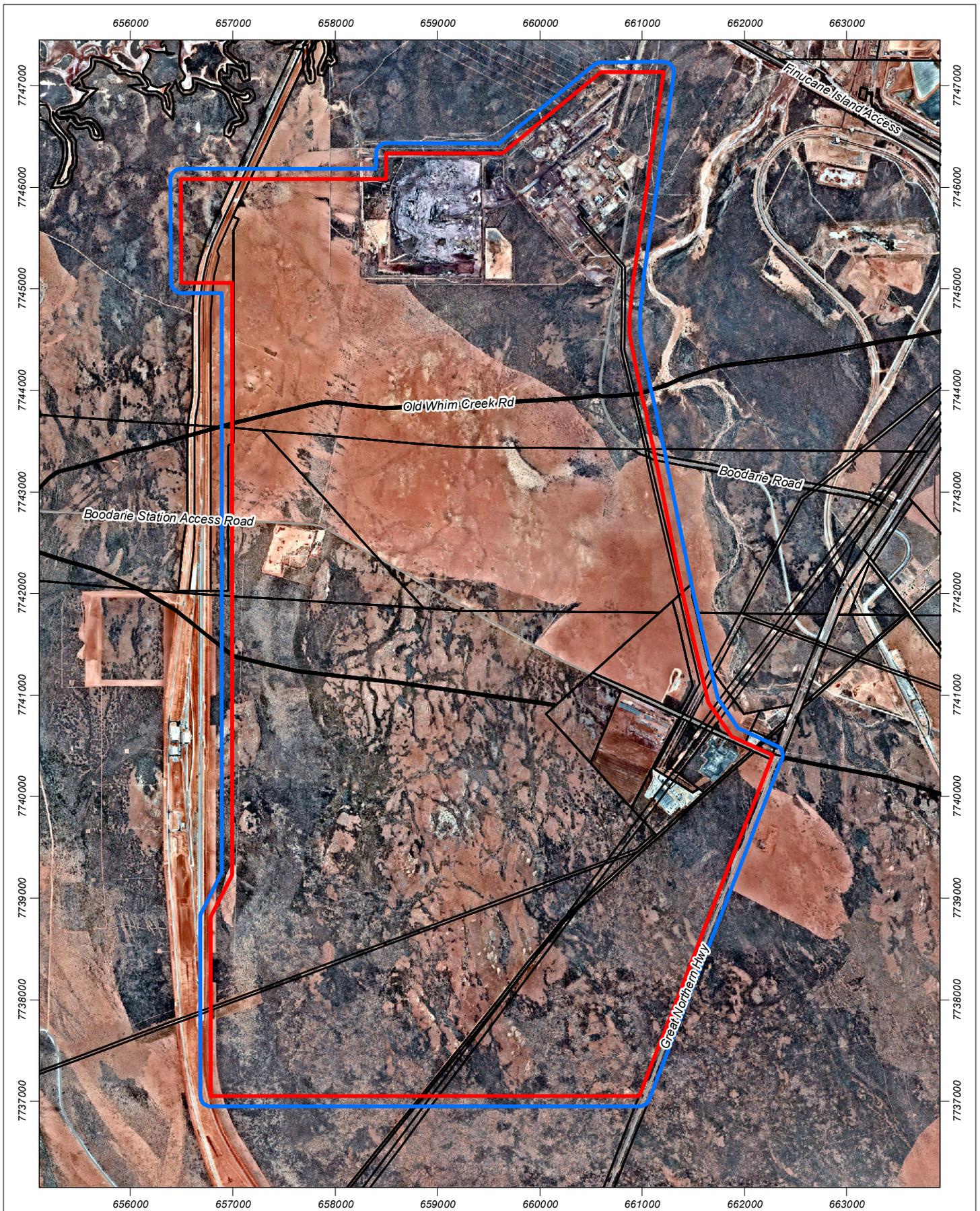
#### 2.1.5 Water and power supply

Existing reticulated water and power supply infrastructure and services vary throughout the BSIA. The site is not located in a reticulated water supply area.

Untreated water is currently supplied to the Alinta Energy Power Station from the Water Corporation Yule Borefield pressure main which traverses the BSIA to the Water Corporation South Hedland tank site, with BHP Billiton being directly supplied from that tank site (LandCorp 2014).

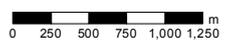
The remainder of the BSIA is not serviced for either potable water or wastewater. Infrastructure will generally be required to be funded by proponents and will be guided by LandCorp (GHD 2013a).

Power reticulation and main distribution will originate from the Alinta Energy and Horizon Power station and switchyard/HV infrastructure located at Boodarie and Wedgefield Sub Station, possibly with augmentation from the Hedland Terminal (LandCorp 2014).



**Figure 2: Site overview**

Scale 1:50,000 at A4



Coordinate System: GDA 1994 MGA Zone 50  
 Note that positional errors may occur in some areas  
 Date: 2/11/2016  
 Author: JCrute

Source: Aerial Image: Nearmap, flown 04/2016. Development & existing cadastre: Client 10/2016.

**Legend**

- Boodarie Strategic Industrial Area boundary
- 100m wide assessment area
- Existing cadastre



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## 2.2 Existing fire environment

### 2.2.1 Vegetation

Strategen undertook an assessment of the vegetation within the BSIA and 100 m of surrounding land on 15 October 2016. The majority of the BSIA and adjacent land is undeveloped and vegetated.

Vegetation within the project area is dominated by low open heath over tussock grasslands, with changes due to differing dominance of individual grass/*Triodia* species, fire and other disturbances. Tussock grasslands are present with emergent tree overstorey species (Eucalypt and Acacia sp.) on the sandplains (GHD 2010).

Vegetation was assessed in accordance with the *Visual guide for bushfire risk assessment in Western Australia* (DoP 2016) and Australian Standard 3959-2009 Construction of Buildings in *Bushfire Prone Areas* (AS 3959-2009: SA 2009). Based on results of the site investigation and where areas could not be accessed as part of the site investigation the flora and vegetation survey (GHD 2010), the following provides a summary of the pre-development site conditions (see Figure 3):

- the BSIA consists of:
  - \* Class C Shrubland (Plate 1 and Plate 2)
  - \* Class G Grassland (Plate 3, Plate 4, Plate 5 and Plate 6)
  - \* low threat vegetation, including areas where vegetation structure has been removed from bushfire (Plate 7, Plate 8 and Plate 9)
  - \* non-vegetated areas (e.g. roads and buildings) (Plate 10).
- adjacent vegetation consists of:
  - \* Class C Shrubland (Plate 11)
  - \* Class G Grassland (Plate 12, Plate 13 and Plate 14)
  - \* low threat vegetation, including areas where vegetation structure has been removed from bushfire (Plate 15)
  - \* non-vegetated areas (e.g. roads and buildings) (Plate 16).

Vegetation that is either currently managed to or occurs in a low threat, minimal fuel condition is excluded from classification under Clause 2.2.3.2 (f) of AS 3959. Any non-vegetated areas occupied by waterways, rocky outcrops, roads, dwellings or other infrastructure are excluded from classification under Clause 2.2.3.2 (e) of AS 3959.

Strategen emphasises that the vegetation extent discussed above and mapped in Figure 3 demonstrates current site conditions and does not take into account vegetation clearance proposed as part of future staged development. Therefore, the extent of Clause 2.2.3.2 exclusions within and adjacent to the BSIA will increase as development progresses throughout the site and on adjacent land.

The above information has been used to inform a pre-development bushfire hazard level assessment for the BSIA (refer to Section 2.3).

### 2.2.2 Site topography and slope under vegetation

Strategen has assessed site topography and effective slope under classified vegetation within the subject site and adjacent 100 m through assessment of topographic information and on-ground verification in accordance with AS 3959 methodology (Figure 3).

The BSIA consists of flat to undulating land, with topographic elevation across the site ranging from approximately 18 Australian Height Datum (mAHD) in the south to approximately 8 mAHD in the north. The majority of the BSIA is located within a low lying area which is prone to flooding and placement of fill will be required to achieve proposed development levels across the site (GHD 2013b).

The above information has been used to inform a pre-development bushfire hazard level assessment for the BSIA (refer to Section 2.3).



Plate 1: On-site shrubland (Class C) vegetation in eastern portion of BSIA



Plate 2: On-site shrubland (Class C) vegetation in western portion of BSIA



Plate 3: On-site grassland (Class G) vegetation within northeast portion of BSIA



Plate 4: On-site grassland (Class G) vegetation along Boodarie Drive near eastern boundary of BSIA



Plate 5: On-site grassland (Class G) vegetation along Boodarie Station Access Road within central portion of BSIA

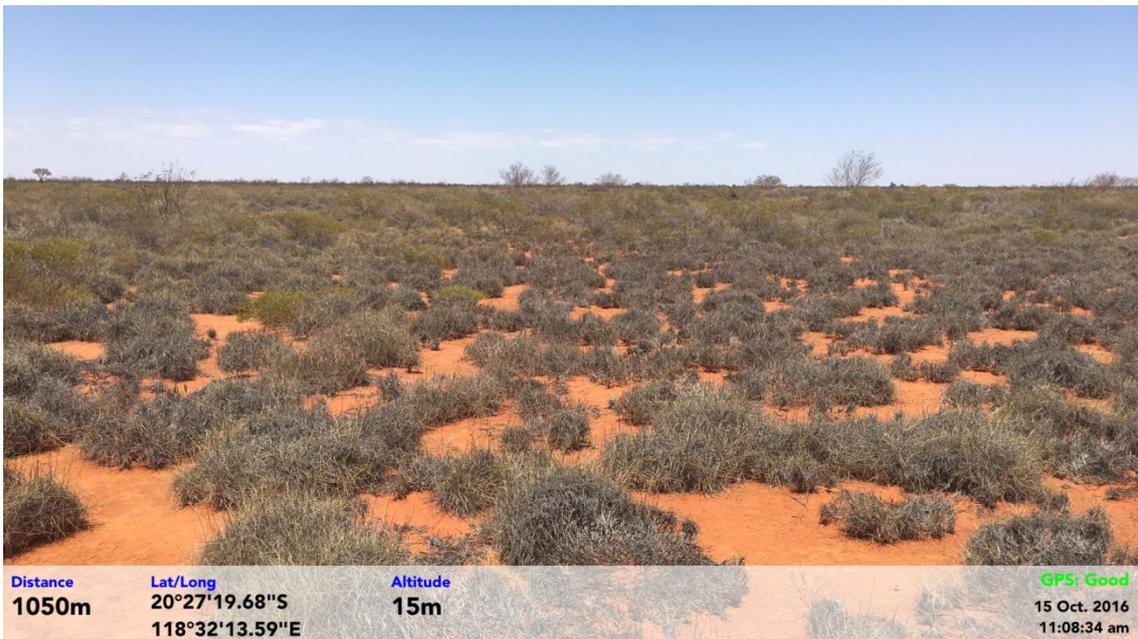


Plate 6: On-site grassland (Class G) vegetation within southeast portion of BSIA



Plate 7: On-site low threat areas impacted by bushfire within northwest portion of BSIA



Plate 8: On-site low threat areas impacted by bushfire within northwest portion of BSIA



Plate 9: On-site low threat areas impacted by bushfire along Old Whim Creek Road within BSIA



Plate 10: On-site cleared areas within northeast portion of BSIA



Plate 11: Off-site shrubland (Class C) vegetation west of BSIA

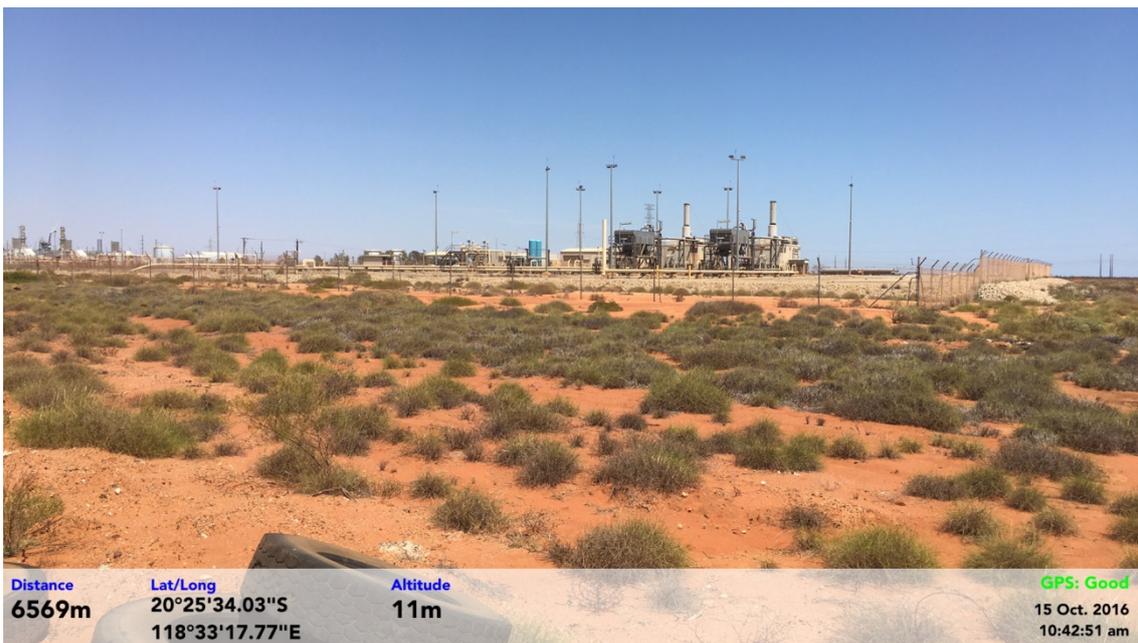


Plate 12: Off-site grassland (Class G) vegetation near power station and eastern boundary of BSIA



Plate 13: Off-site grassland (Class C) vegetation near Great Northern Hwy and east of BSIA

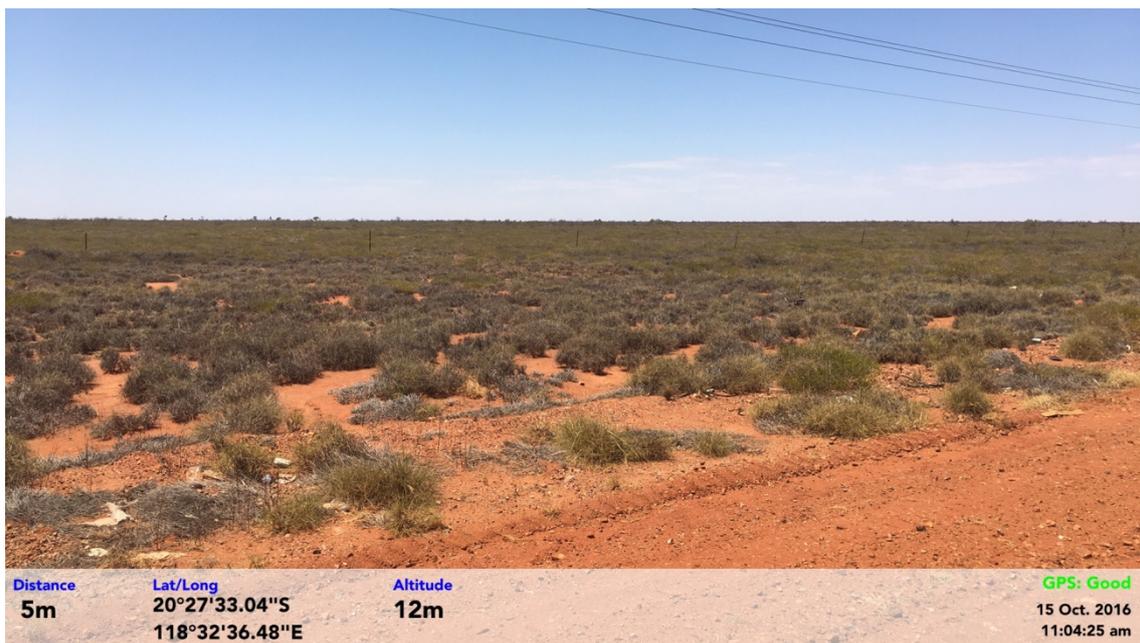


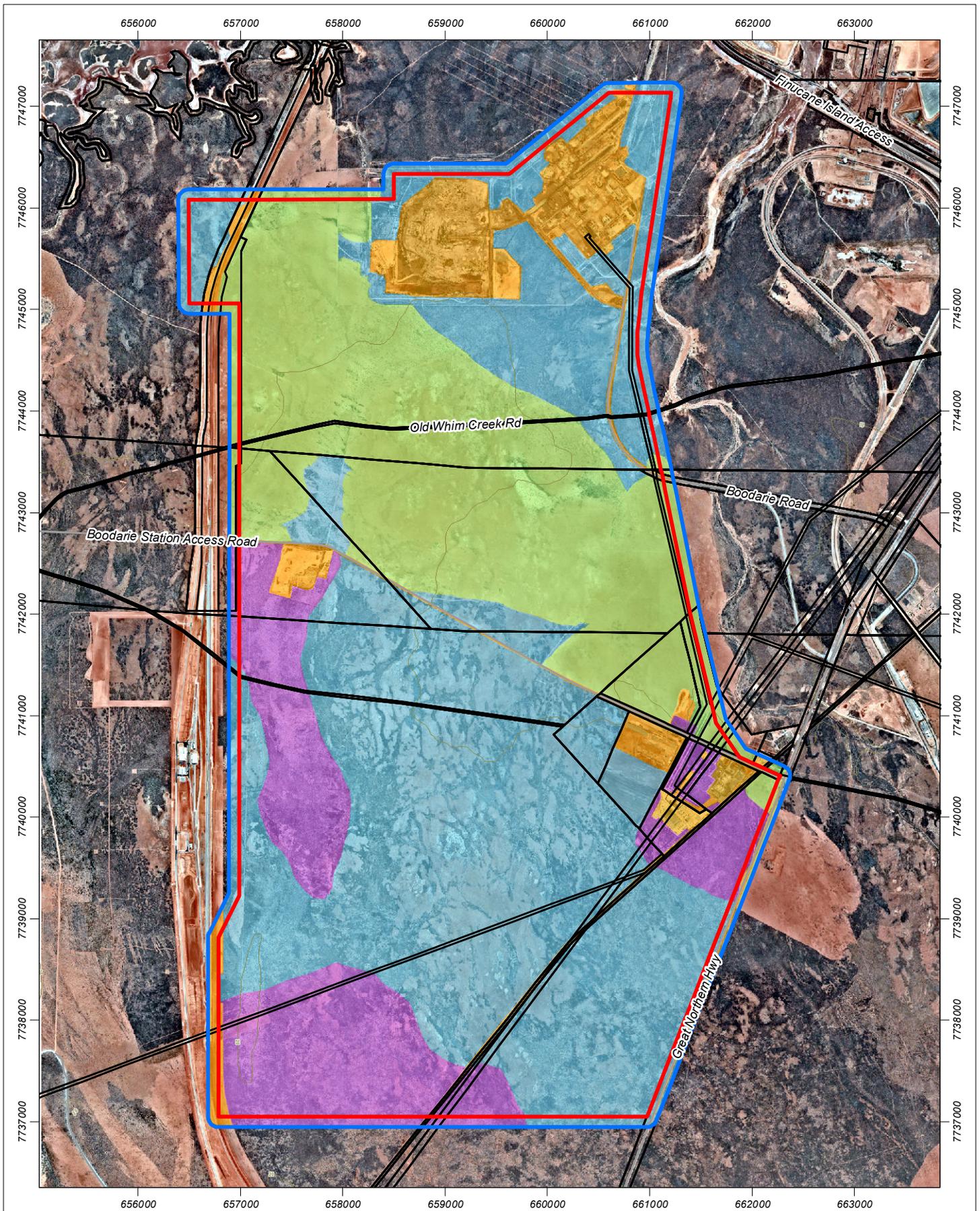
Plate 14: Off-site grassland (Class G) vegetation near southeast boundary of BSIA



Plate 15: Off-site low threat areas impacted by bushfire north of BSIA

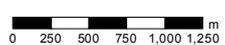


Plate 16: Off-site cleared areas northeast of BSIA



**Figure 3: Vegetation class and effective slope**

Scale 1:50,000 at A4



Coordinate System: GDA 1994 MGA Zone 50  
 Note that positional errors may occur in some areas  
 Date: 3/11/2016

Author: JCrute

Source: Aerial Image: Nearmap, flown 04/2016. Development & existing cadastre: Client 10/2016.  
 Surface elevation: SLIP, Landgate 2016.

Path: Q:\Consult\2016\URB\URB16493\ArcMap\_documents\UR01\RevA\URB16493\_01\_R001\_RevA\_F003.mxd

**Legend**

- Boodarie Strategic Industrial Area boundary
- 100m wide assessment area
- Existing cadastre
- Surface elevation (mAHD)

**Vegetation class**

- Class C Shrubland
- Class G Grassland
- Cleared areas
- Low threat vegetation/bushfire impacted



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## 2.3 Bushfire hazard assessment

Bushfire hazard levels have been assessed for this site in accordance with methodology contained within the Guidelines. Strategen has mapped the bushfire hazard levels within the BSIA and adjacent 100 m as per the pre-development conditions outlined in Figure 3.

A summary of results is provided below and depicted in Figure 4:

- Class C Shrubland: 'Moderate'
- Class G Grassland: 'Moderate'
- low threat vegetation, including areas where vegetation structure has been removed from bushfire: 'Low'
- non-vegetated areas: 'Low'
- areas within 100 m of a 'Moderate' hazard : 'Moderate'
- all other land within the BSIA and the surrounding 100 m of land: 'Low'.

As identified in Figure 4 the BSIA is considered to have a 'Low' or 'Moderate' bushfire hazard level, reflecting that the majority of remaining native vegetation consists of grasslands or open shrublands. Development will therefore be able to avoid areas of 'Extreme' bushfire hazard level.

Should existing areas of low threat vegetation that have been impacted by bushfire regenerate, these areas will eventually pose a 'Moderate' bushfire hazard level. Any natural regeneration of these areas is likely to take a number of years.

Given that proposed development will result in clearing and/or management of a significant proportion of the on-site remaining vegetation extent, the post development vegetation extent will result in even lower hazard levels than those currently depicted within Figure 4.

## 2.4 Identification of any bushfire hazard issues

Strategen considers that a bushfire approaching the BSIA from the northwest or north will be the worst case bushfire scenario for this site. This is due to the potential bushfire run in this direction and that under standard weather conditions in summer, the likely prevailing summer winds in the area are from the northwest and north in the afternoon (BoM 2016). In the event of a bushfire under these conditions, vehicular access along Great Northern Highway to the north will provide the safest egress option.

There will be no significant bushfire risk or fire run through on-site or adjacent dense vegetation or steep terrain. Grassland fuels within the BSIA and surrounding the site have a discontinuous fuel layer as depicted in Plate 3 to Plate 6 meaning that fire behaviour and ability of fire to spread is particularly influenced by wind speed and direction. The Town of Port Hedland experiences a number of bushfires every year, with the main causes being escapes from burning operations, deliberately lit fires and lightning (Town of Port Hedland 2014).

Volunteer Fire and Emergency Services resources stationed at South Hedland and Port Hedland are expected to provide a best case emergency suppression response time of 30-45 minutes should a bushfire threaten development within the BSIA.

A pre-development bushfire hazard level assessment identifies the majority of the BSIA as having a 'Low' or 'Moderate' bushfire hazard level, reflecting that the majority of native vegetation consists of grassland and shrubland fuels with a discontinuous fuel profile and confirming that development can avoid areas of 'Extreme' bushfire hazard level. Given that proposed development will result in clearing and/or management of the remaining on-site vegetation, the post development state of the site will result in even lower hazard levels.

The bushfire risks to proposed development posed by post development hazards can be managed through standard application of acceptable solutions under the Guidelines, including provision for and implementation of Asset Protection Zones (APZs), relevant bushfire construction standards, provision of adequate emergency water supply and vehicular access, as well as through a direct bushfire suppression response if required.

Given the staged nature of proposed development, vehicular access arrangements in the short, medium and long term duration of development will need to ensure that all occupiers and visitors are provided with at least two vehicular access routes at all times.

On completion of development within the BSIA, there will be a reduced bushfire risk to future assets as a result of vegetation clearing that will be undertaken to facilitate development. Vegetation clearing throughout development staging will play an important role in managing the bushfire risk posed by on-site temporary vegetation during roll out of individual development stages. This is discussed as a key management measure in Section 3.1.2.

On this basis, Strategen considers the bushfire hazards within and adjacent to the BSIA and the associated bushfire risk to be readily manageable through standard management responses outlined in the Guidelines and AS 3959. These responses will be factored in to proposed development early in the planning process to ensure a suitable, compliant and effective bushfire management outcome is achieved for protection of future life, property and environmental assets.

## 2.5 BAL contour assessment

A BAL contour assessment has not been undertaken as part of this BMP on the basis that proposed lot layout over the BSIA is not yet known.

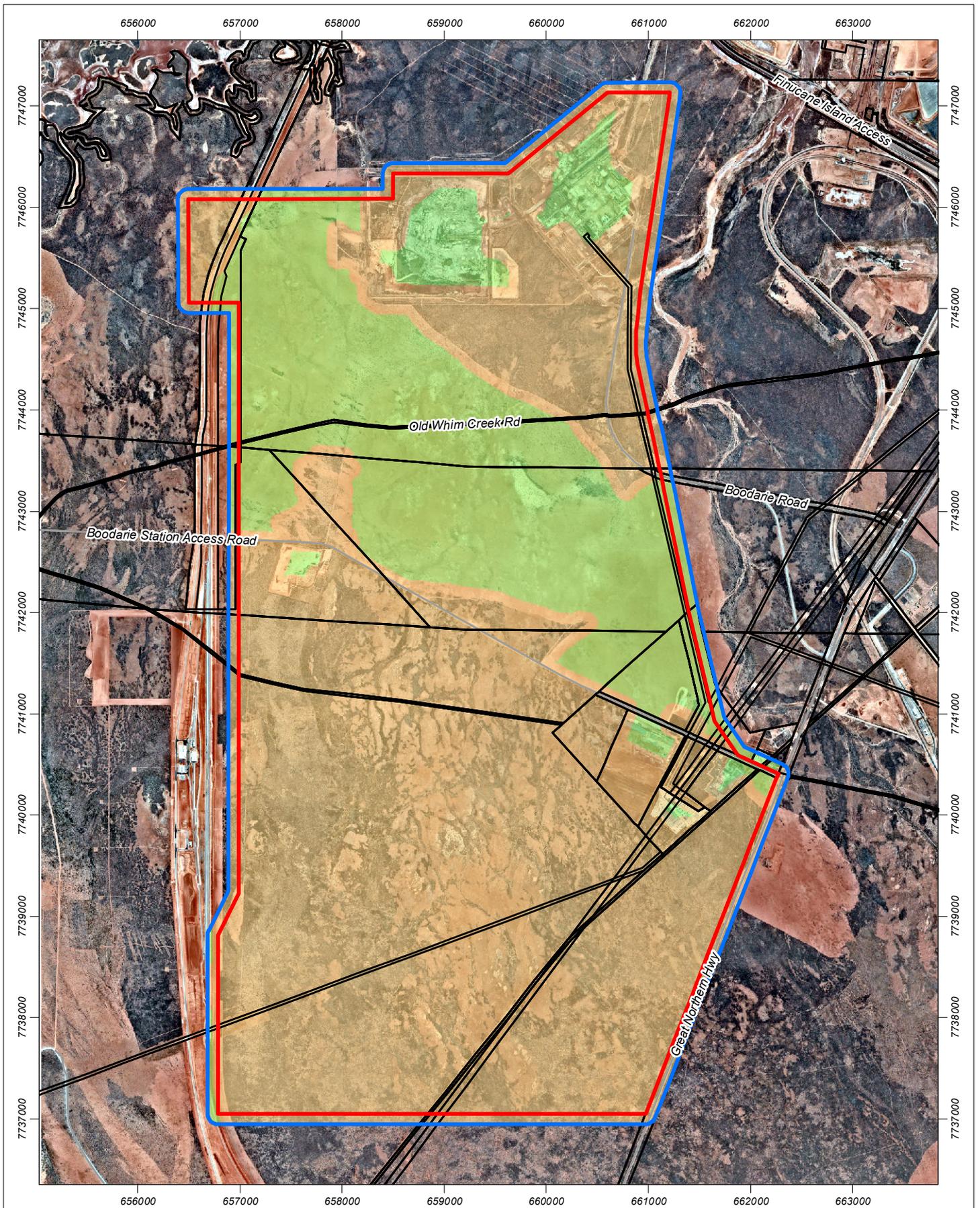
A small area (Stage 1A on Boodarie Station Access Road) within the BSIA is subject to a BMP (RUIC 2016) prepared to accompany a subdivision proposal to create 17 industrial lots. This BMP includes a BAL contour map for the subdivision area.

Further BAL contour assessments will need to be undertaken throughout the BSIA at future planning stages and updated BMPs prepared to reflect the outcomes of the assessment, including requirements that any proposed development consisting of habitable buildings located within 100 m of classified post development vegetation may require application of AS 3959 and increased building construction standards in response to assessed BAL.

Proposed development areas consisting of habitable buildings will need to achieve minimum hazard separation distances necessary for a BAL-29 or lower rating and to meet minimum 20 m APZ requirements from classified vegetation (Table 1).

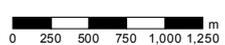
Table 1: Minimum hazard separation distances based on effective slope

Classified vegetation	Effective slope	Minimum hazard separation distance (APZ)	Corresponding separation distance range from Table 2.4.3 of AS 3959	Corresponding maximum BAL rating
Shrubland (Class C)	Up-slope and flat	20 m	19-<100 m	12.5
Grassland (Class G)	Up-slope and flat	20 m	17-<50 m	12.5



**Figure 4: Pre-development bushfire hazard levels**

Scale 1:50,000 at A4



Coordinate System: GDA 1994 MGA Zone 50  
 Note that positional errors may occur in some areas  
 Date: 3/11/2016

Author: JCrute  
 Source: Aerial Image: Nearmap, flown 04/2016.  
 Development & existing cadastre: Client 10/2016.

Path: Q:\Consult\2016\URB\URB16493\ArcMap\_documents\R001\RevA\URB16493\_01\_R001\_RevA\_F004.mxd

**Legend**

- Boodarie Strategic Industrial Area boundary
- 100m wide assessment area
- Existing cadastre

**Bushfire hazard level**

- Moderate
- Low



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 www.strategen.com.au

### 3. Bushfire management measures

Strategen has identified a range of bushfire management measures to be addressed as part of future bushfire planning requirements for the BSIA to achieve compliance with the Guidelines. It should be noted that these measures are being provided at the strategic level in the absence of detailed development plans and that future addendums to this BMP will need to be prepared to align with future planning stages on provision of greater levels of detail. This BMP demonstrates a commitment to ensuring that all of the bushfire management measures identified will be implemented to achieve compliance with the Guidelines in subsequent planning stages.

#### 3.1 Hazard separation distances

##### 3.1.1 Asset Protection Zones

APZs will be identified for habitable buildings as part of BMPs or a revised BMP to be prepared at future planning stages on the basis of compliance with minimum separation distances necessary to achieve a maximum BAL-29 rating under AS 3959-2009. Minimum 20 m APZ requirements, as specified under the Guidelines, will be met through existing/proposed infrastructure corridors, existing/proposed development areas and/or building setbacks.

APZs are low fuel areas required to be maintained on a regular and ongoing basis at a fuel load less than 2 t/ha to achieve a low threat minimal fuel condition status all year round. Overstorey trees can be retained to some extent within the APZs provided all flammable material including understorey grasses, weeds, shrubs and scrub are removed from the fuel profile, essentially creating a managed parkland cleared landscape, which would result in a diminishing level of radiant heat, ember attack and fire rate of spread at the building interface. Lawns, managed gardens, paving and driveways are also suitable within the APZ.

The Town of Port Hedland annual firebreak notice (Appendix 1) also requires land 2000 m<sup>2</sup> or less to be clear of all flammable material across the entirety of the property.

It is proposed that construction of habitable buildings will meet the standard appropriate to the BAL for that location (see Section 3.2) and will not exceed BAL-29 (WAPC 2015b) and therefore Hazard Separation Zones (HSZs) will not be required around APZs. The requirement for HSZs will need to be subject to further review in revised BMPs when proposed development layout is identified at future planning stages.

##### 3.1.2 On-site staging buffers

Given that timing of required planning and subsequent construction cannot be forecast at the strategic level, BMPs to be prepared at future planning stages will not be able to rely on full construction within adjacent development areas.

Vegetation clearing may need to occur within each development area on a staged basis and in advance where necessary to ensure building construction is not inhibited by a temporary vegetation extent located within adjacent stages yet to be cleared. This can be achieved by ensuring each approved stage subject to construction is surrounded by a 100 m wide, on-site cleared or low threat buffer prior to development (not including vegetation proposed to be retained). Once the buffers are created, they will need to be maintained on a regular and ongoing basis at a fuel load less than 2 t/ha to achieve a low threat minimal fuel condition all year round until such time that the buffer area is developed as part of the next development stage.

This BMP will be reviewed at subsequent planning stages, at which time any changes to development and clearing within surrounding areas can be considered and addressed in a revised BMP.

### 3.2 Increased building construction standards

As outlined in Section 2.5, BAL contour assessments will need to be undertaken at future planning stages and BMPs updated to reflect the outcomes of the assessments.

As outlined in Section 3.1.1, APZs will be identified for habitable buildings as part of BMPs to be prepared at future planning stages on the basis of compliance with minimum separation distances necessary to achieve a maximum BAL-29 rating under AS 3959-2009 and minimum 20 m wide APZ requirements, as outlined in Table 1.

Strategen acknowledges that the bushfire construction provisions of the Building Code of Australia do not apply to Class 4 to Class 9 buildings, which are likely to be the dominant types of habitable buildings constructed throughout the BSIA. Therefore, the proponent has the discretion to utilise any or all of the elements of AS 3959 in the construction of the building that they deem appropriate if the building is a Class 4 to Class 9 building (WAPC 2015b).

Whilst acknowledging the above, Strategen considers however that to achieve a best practice outcome for protection of future life and property assets, building design measures be applied for all proposed habitable buildings situated within the 100 m wide (from classified vegetation other than Class G grassland) and 50 m wide (from Class G grassland) Hazard Separation Zones to ensure the building construction standard aligns with the assessed BAL under AS 3959 as far as reasonably practicable, regardless of building class. This measure intends to address the deemed provisions relating to construction of habitable buildings<sup>3</sup> in Bushfire Prone areas as outlined in Section 78B of the *Planning and Development (Local Planning Schemes) Amendment Regulations 2015*.

Permissible land uses within the 'Strategic Industry Zone' under provisions of the Town of Port Hedland Local Planning Scheme that would have the potential to include habitable buildings include:

- office
- off-site canteen
- warehouse
- emergency services.

### 3.3 Vehicular access

Given the staged nature of proposed development, vehicular access arrangements in the short, medium and long term duration of development will need to ensure that all occupiers and visitors are provided with at least two vehicular access routes at all times.

The proposed vehicular access network will be required to link to the surrounding public road network and development design at future planning stages will be able to ensure that all occupants and visitors to the site are provided with at least two vehicular access routes connecting to the surrounding public road network at all times, including during development staging. Due to the staged nature of development, this may involve construction of temporary access tracks during development staging until two formal access roads are available.

The BSIA Structure Plan identifies key infrastructure corridors (being the main north-south Central and Western corridors) and two east-west corridors intersecting the main central corridor and providing a connection to the future outer harbour corridor to the west. The Structure Plan also identifies how these corridors extend outside of the BSIA, connecting into the Port land to the north and extending further south from the BSIA.

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<sup>3</sup> 'Habitable building' is defined as any permanent or temporary structure that is fully or partially enclosed and has at least one wall and a roof of solid material and is used for a purpose that involves the use of the interior of the structure by people for living, working, studying or being entertained.

The Structure Plan provides for three main access points to the Great Northern Highway. This will ensure that site occupants will have the option of safe access and egress to at least two different destinations via Great Northern Highway to the north or south.

The Town of Port Hedland annual firebreak notice (Appendix 1) requirements for firebreaks include:

- land greater than 2000 m<sup>2</sup>: minimum 2 m wide firebreaks immediately surrounding any buildings or inside and within 2 m of external lot boundaries
- pastoral lands: minimum 2 m wide firebreaks within 3 m of perimeter of all buildings and/or haystacks or groups of buildings
- rural lands: minimum 4 m wide firebreaks along and within 10 m of external lot boundaries and minimum 2 m wide firebreaks within 3 m of perimeter of all buildings and/or haystacks or groups of buildings.

Any proposed public roads, cul-de-sacs, private driveways longer than 50 m, emergency access ways or fire service access routes as part of future development will need to comply with technical requirements of the Guidelines, as outlined in Table 2.

Development design to be undertaken at future planning stages can ensure that the proposed development will avoid inclusion of any battle-axe access legs.

Table 2: Vehicular access technical requirements

Technical requirement	Public road	Cul-de-sac	Private driveway	Emergency access ways	Fire service access routes
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal distance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 m	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum crossfall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius	8.5	8.5	8.5	8.5	8.5

\* Refer to E3.2 Public roads: Trafficable surface

Source: WAPC 2015b

### 3.4 Water supply

Currently the BSIA is not serviced for either potable water or wastewater, and there is no planning by the Water Corporation to service the site. Infrastructure will generally be required to be funded by proponents and will be guided by LandCorp. Although a water source has not been selected for the BSIA, investigations completed to date demonstrate that viable water sources exist and will need to be developed in a staged manner in parallel to the staging of development (GHD 2013a).

In order to future proof the provision of water within the BSIA, the Structure Plan assumes supply from variable water sources, allowing for the use of any of them as development progresses. These water sources include existing and new bore fields and aquifers, desalination, effluent re-use from wastewater, and possible surface water sources. To facilitate its provision, approximately 60 hectares has been allocated in the centrally located Utility Precinct to produce fit-for purpose industry feedwater and a centralised and joint energy facility (LandCorp 2014).

The Water Corporation is currently investigating a non-potable scheme to supply industry in Port Hedland, and will look at all options for supply and demand from potential industry proponents. If required by proponents, high quality/potable water for future development of the BSIA, particularly for the initial development, may be supplied by either direct feed from the Water Corporation South Hedland Tank Site or from a new tank storage facility potentially located on higher ground to the south west of the BSIA, up from the nearby Turner River. The new storage facility would be supplied from the South Hedland Tank Site, or other alternative high quality water sources as and when established (LandCorp 2014).

At subsequent planning stages, developers will be required to prepare, have approved by the relevant water supply authority and Department of Fire and Emergency Services (DFES), and implement a detailed plan demonstrating the location and capacity of fire emergency infrastructure.

Water tanks for fire fighting purposes with a hydrant or standpipe will need to be provided as per the following requirements under the Guidelines:

- volume: minimum 50,000 litres per tank
- ratio of tanks to lots: minimum one tank per 25 lots (or part thereof)
- tank location: no more than 2 km to the further most habitable building within the development to allow a 2.4 appliance to achieve a 20 minute turnaround time at legal road speeds
- hardstand and turnaround areas suitable for a type 3.4 appliance (i.e. kerb to kerb 17.5 m) are provided within 3 m of each water tank
- water tanks and associated facilities are vested in the relevant local government.

### 3.5 Additional measures

Strategen makes the following recommendations for additional bushfire management measures to inform ongoing planning stages of the development and increase the level of bushfire risk mitigation across the site:

1. **BMP and BAL assessment at future planning stages:** Proposed management measures are based on information at the strategic planning stage. Consequently, a revised BMP(s), including detailed BAL contour assessment on an individual lot basis, will be required for proposed development at an appropriate future planning stage (such as subdivision) to ensure the management measures and separation distances are consistent with the final development proposal.
2. **Notification on Title:** Strategen recommends that the abovementioned revised BMP(s) include a requirement for notification to be placed on title for all lots (either through condition of subdivision or other head of power) to ensure all landowners/proponents and prospective purchasers are aware that their lot is subject to an approved BMP and BAL assessment, however, since the lot is situated within a designated bushfire prone area (at creation of title), the BAL for proposed buildings may, at the discretion of the Town of Port Hedland, need to be confirmed at the building permit stage.
3. **High risk land uses:** proposed industrial development has the potential to establish high risk land uses<sup>[1]</sup> throughout the BSIA. Where they can't be avoided, high risk land uses located in areas of BAL-12.5 to BAL-29 will require the following under Policy Measure 6.6.1 of SPP 3.7 to accompany submission of development or building permit applications (whichever is deemed more appropriate):
  - (a) Emergency Evacuation Plan
  - (b) Risk Management Plan
4. **Compliance with the Town of Port Hedland annual firebreak notice:** the developer/land manager and prospective land purchasers are to comply with the current Town of Port Hedland (Appendix 1) annual firebreak notice.

<sup>[1]</sup> High risk land uses may include, but are not limited to: service stations, landfill sites, bulk storage of hazardous materials, fuel depots and certain heavy industries as well as military bases, power generating land uses, saw-mills, highways and railways, among other uses meeting the definition.

## 4. Proposal compliance and justification

Proposed development within the BSIA is required to comply with SPP 3.7 and the Guidelines, as required under the following policy measures:

### 6.2 Strategic planning proposals, subdivision and development applications

**a)** Strategic planning proposals, subdivision and development applications within designated bushfire prone areas relating to land that has or will have a Bushfire Hazard Level (BHL) above low and/or where a Bushfire Attack Level (BAL) rating above BAL-LOW apply, are to comply with these policy measures.

**b)** Any strategic planning proposal, subdivision or development application in an area to which policy measure 6.2 a) applies, that has or will, on completion, have a moderate BHL and/or where BAL-12.5 to BAL-29 applies, may be considered for approval where it can be undertaken in accordance with policy measures 6.3, 6.4 or 6.5.

**c)** This policy also applies where an area is not yet designated as a bushfire prone area but is proposed to be developed in a way that introduces a bushfire hazard, as outlined in the Guidelines.

### 6.3 Information to accompany strategic planning proposals

Any strategic planning proposal to which policy measure 6.2 applies is to be accompanied by the following information prepared in accordance with the Guidelines:

**a) (i)** the results of a BHL assessment determining the applicable hazard level(s) across the subject land, in accordance with the methodology set out in the Guidelines. BHL assessments should be prepared by an accredited Bushfire Planning Practitioner; or

**a) (ii)** where the lot layout of the proposal is known, a BAL Contour Map to determine the indicative acceptable BAL ratings across the subject site, in accordance with the Guidelines. The BAL Contour Map should be prepared by an accredited Bushfire Planning Practitioner; and

**b)** the identification of any bushfire hazard issues arising from the relevant assessment; and

**c)** clear demonstration that compliance with the bushfire protection criteria in the Guidelines can be achieved in subsequent planning stages.

This information can be provided in the form of a Bushfire Management Plan or an amended Bushfire Management Plan where one has been previously endorsed.

Implementation of this BMP is expected to meet the following objectives of SPP 3.7:

**5.1** Avoid any increase in the threat of bushfire to people, property and infrastructure. The preservation of life and the management of bushfire impact are paramount.

**5.2** Reduce vulnerability to bushfire through the identification and consideration of bushfire risks in decision-making at all stages of the planning and development process.

**5.3** Ensure that higher order strategic planning documents, strategic planning proposals, subdivision and development applications take into account bushfire protection requirements and include specified bushfire protection measures.

**5.4** Achieve an appropriate balance between bushfire risk management measures and, biodiversity conservation values, environmental protection and biodiversity management and landscape amenity, with consideration of the potential impacts of climate change.

In response to the above requirements of SPP 3.7 and the Guidelines, bushfire management measures, as outlined in Section 3, have been devised for the proposed development in accordance with Guideline acceptable solutions to meet compliance with bushfire protection criteria. An 'acceptable solutions' assessment at the strategic planning stage is provided in Table 3 to assess the proposed bushfire management measures against each bushfire protection criteria in accordance with the Guidelines and demonstrate that the measures proposed at future planning stages meet the intent of each element of the bushfire protection criteria.

Table 3: Acceptable solutions assessment against bushfire protection criteria

Bushfire protection criteria	Intent	Acceptable solutions	Proposed bushfire management measures	Compliance statement
<b>Element 1: Location</b>	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	A1.1 Development location The strategic planning proposal, subdivision and development application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL-29 or below.	Refer to Sections 2.3, 2.5 and 3.2, which demonstrate that proposed development to be identified as part of future planning stages will be located within a Low or Moderate bushfire hazard level area and designed and located to ensure a rating of BAL 29 or below is achieved.	The measures proposed are considered to comply and meet the intent of Element 1 Location.
<b>Element 2: Siting and design of development</b>	To ensure that the siting and design of development minimises the level of bushfire impact	A2.1 Asset Protection Zone Every building is surrounded by an APZ, depicted on submitted plans, which meets detailed requirements (refer to the Guidelines for detailed APZ requirements).	Refer to Section 3.1.1, which demonstrates that proposed development to be identified as part of future planning stages will be designed to ensure all development areas within 100 m of post development classified vegetation are provided a minimum 20 m wide APZ from classified vegetation.	The measures proposed are considered to comply and meet the intent of Element 2 Siting and design of development
		A2.2 Hazard Separation Zone Every building and its contiguous APZ is surrounded by an HSZ, depicted on submitted plans, that meets detailed requirements (refer to the Guidelines for detailed HSZ requirements). An HSZ may not be required if the proposed construction meets the standard appropriate to the BAL for that location, and does not exceed BAL-29.	Refer to Section 3.1.1, which demonstrates that HSZs will not be required since individual dwelling construction requirements will be adopted to meet the standard appropriate to the BAL for that location, not exceeding BAL-29. The requirement for HSZs will need to be reviewed when proposed development layout is identified at future planning stages.	
<b>Element 3: Vehicular access</b>	To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event	A3.1 Two access routes Two different vehicular access routes are provided, both of which connect to the public road network, provide safe access and egress to two different destinations and are available to all residents/the public at all times and under all weather conditions.	Refer to Section 3.3, which demonstrates that proposed development to be identified as part of future planning stages will be designed to provide two access routes for all proposed lots through a combination of existing roads, proposed internal roads and temporary access if required.	The measures proposed are considered to comply and meet the intent of Element 3 Vehicular access
		A3.2 Public road A public road is to meet the requirements in Table 2, Column 1.	Refer to Section 3.3, which demonstrates that any proposed public roads will be designed to meet minimum requirements outlined in Table 2.	
		A3.3 Cul-de-sac (including a dead-end-road) A cul-de-sac and/or a dead end road should be avoided in bushfire prone areas. Where no alternative exists (i.e. the lot layout already exists and/or will need to be demonstrated by the proponent), detailed requirements will need to be achieved (refer to the Guidelines for detailed cul-de-sac requirements).	Refer to Section 3.3, which demonstrates that any proposed cul-de-sacs will be designed to meet minimum requirements outlined in Table 2.	

		<p><b>A3.4 Battle-axe</b> Battle-axe access leg should be avoided in bushfire prone areas. Where no alternative exists, (this will need to be demonstrated by the proponent) detailed requirements will need to be achieved (refer to the Guidelines for detailed battle-axe requirements).</p>	<p>Refer to Section 3.3, which demonstrates that proposed development will avoid inclusion of any battle-axe access legs.</p>	
		<p><b>A3.5 Private driveway longer than 50 m</b> A private driveway is to meet detailed requirements (refer to the Guidelines for detailed private driveway requirements).</p>	<p>Refer to Section 3.3, which demonstrates that any proposed private driveways longer than 50 m will be designed to meet minimum requirements outlined in Table 2.</p>	
		<p><b>A3.6 Emergency access way</b> An access way that does not provide through access to a public road is to be avoided in bushfire prone areas. Where no alternative exists (this will need to be demonstrated by the proponent), an emergency access way is to be provided as an alternative link to a public road during emergencies. An emergency access way is to meet detailed requirements (refer to the Guidelines for detailed EAW requirements).</p>	<p>Refer to Section 3.3, which demonstrates that any proposed emergency access ways will be designed to meet minimum requirements outlined in Table 2.</p>	
		<p><b>A3.7 Fire service access routes (perimeter roads)</b> Fire service access routes are to be established to provide access within and around the edge of the subdivision and related development to provide direct access to bushfire prone areas for fire fighters and link between public road networks for fire fighting purposes. Fire service access routes are to meet detailed requirements (refer to the Guidelines for detailed fire service access route requirements).</p>	<p>Refer to Section 3.3, which demonstrates that any proposed fire service access routes will be designed to meet minimum requirements outlined in Table 2.</p>	
		<p><b>A3.8 Firebreak width</b> Lots greater than 0.5 hectares must have an internal perimeter firebreak of a minimum width of three metres or to the level as prescribed in the local firebreak notice issued by the local government</p>	<p>Refer to Section 3.3, which demonstrates that relevant lots will need to meet minimum internal perimeter firebreak requirements as per the Town of Port Hedland annual firebreak notice.</p>	
<p><b>Element 4: Water</b></p>	<p>To ensure that water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire.</p>	<p><b>A4.1 Reticulated areas</b> The subdivision, development or land use is provided with a reticulated water supply in accordance with the specifications of the relevant water supply authority and Department of Fire and Emergency Services.</p>	<p>N/A The BSIA is not within a reticulated water supply area.</p>	<p>The measures proposed are considered to comply and meet the intent of Element 4 Water</p>
		<p><b>A4.2 Non-reticulated areas</b> Water tanks for fire fighting purposes with a hydrant or standpipe are provided and meet detailed requirements (refer to the Guidelines for detailed requirements for non-reticulated areas)</p>	<p>Refer to Section 3.4, which demonstrates that viable water sources exist to meet fire fighting water requirements and will be developed in a staged manner in parallel to staged development.</p>	

		<p>A4.3 Individual lots within non-reticulated areas (Only for use if creating 1 additional lot and cannot be applied cumulatively) Single lots above 500 square metres need a dedicated static water supply on the lot that has the effective capacity of 10 000 litres.</p>	<p>N/A The BSIA Structure Plan will result in creation of more than 1 lot.</p>	
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## 5. Implementation and enforcement

Implementation of the BMP and future revisions of the BMP apply to the developer, prospective landowners and local government to ensure bushfire management measures are adopted and implemented on an ongoing basis. A summary of the strategic bushfire management measures described in Section 3, as well as an indicative works program to guide future planning, is provided in Table 4.

This indicative works program will need to be revised and updated as part of requirements for preparation of revised BMPs as planning stages progress.

Table 4: Indicative works program

Bushfire management measure	Timing for application	Responsibility
Creation and maintenance of APZs as per Section 3.1.1	To be created for each development stage where required, prior to development within that stage, and maintained as required to ensure the APZs are kept in a low threat minimal fuel condition on a regular and ongoing basis	Developer during development of each relevant stage, relevant land authority/manager where required following completion of each relevant stage
Creation and maintenance of on-site staging buffers as per Section 3.1.2	To be created around each development stage where required, prior to development within that stage, and maintained as required to ensure the buffer is kept in a low threat minimal fuel condition on a regular and ongoing basis until developed	Developer
Habitable building construction to the recommended BAL ratings (to be identified at future planning stages) as far as reasonably practicable as per Section 3.2	At the building construction stage	Local government, builder, prospective landowners
Construction of public roads, cul-de-sacs, private driveways, emergency access ways, fire service access routes or firebreaks as per Section 3.3	Following subdivision approval and prior to construction of proposed buildings	Developer
Construction of temporary access tracks to achieve two access routes during staging as per Section 3.3	Following subdivision approval and prior to construction of proposed buildings	Developer
Implementation and maintenance of firebreaks as per Section 3.3	As required in accordance with Town of Port Hedland annual firebreak notice	Current and prospective landowners
Provision of non-reticulated water supply as per Section 3.4	Prior to construction of proposed buildings	Developer
Preparation of Emergency Evacuation Plan and Risk Management Plan as per Section 3.5	At the Development Application stage for any high risk land uses proposed in BAL-12.5 to BAL-29 areas	Prospective landowner
Notification on Title as per Section 3.5	Following subdivision approval	Developer
Revised BMP and BAL assessments at future planning stages as per Section 3.5	Prior to subdivision approval	Developer
Compliance with current Town of Port Hedland annual firebreak notice as per Section 3.5	All year round as specified in the current firebreak notice	Developer, prospective landowner, relevant land authority/manager

## 5.1 Document review

This BMP will need to be updated as part of future planning stages to ensure:

1. Proposed management measures are based on a final detailed development plan, including lot boundaries, road layout and building locations.
2. Final development details and management measures are re-assessed for compliance with bushfire protection criteria.

The developer(s) will be responsible for updating and revising the BMP until such time that the development is complete.

## 5.2 Stakeholder consultation

Strategen has undertaken consultation with the clients to ensure the aims and objectives of the BMP are in accordance with stakeholder expectations and the BMP maintains compliance with the BMP.

## 6. References

- Bureau of Meteorology (BoM) 2016, *Climate statistics for Australian locations: Monthly climate statistics for Port Hedland Airport*, [Online], Commonwealth of Australia, available from: [http://www.bom.gov.au/climate/averages/tables/cw\\_004032.shtml](http://www.bom.gov.au/climate/averages/tables/cw_004032.shtml), [18/10/2016].
- Department of Fire and Emergency Services (DFES) 2016, *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from: <http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx>, [18/10/2016].
- GHD Pty Ltd (GHD) 2010, *Report for proposed Boodarie Industrial Areas, Flora and Fauna Assessment*, GHD.
- GHD Pty Ltd (GHD) 2013a, *Boodarie Strategic Industrial Area, District Water Management Strategy*, GHD.
- GHD Pty Ltd (GHD) 2013b, *Boodarie Strategic Industrial Area, Report on Geotechnical Investigation*, GHD.
- LandCorp 2014, *Boodarie Strategic Industrial Area Development Plan – November 2014*, Urbis Pty Ltd.
- RIUC Fire (RIUC) 2016, *Bushfire Management Plan, Subdivision Application, Boodarie Strategic Industrial Area – Stage 1A*, RIUC.
- Standards Australia (SA) 2009, *Australian Standard AS 3959–2009 Construction of Buildings in Bushfire-prone Areas*, Standards Australia, Sydney.
- Town of Port Hedland 2014, *Town of Port Hedland Bushfire Management Plan, Version 3*, Town of Port Hedland.
- Western Australian Planning Commission (WAPC) 2015a, *State Planning Policy 3.7 Planning in Bushfire-Prone Areas*, Western Australian Planning Commission, Perth.
- Western Australian Planning Commission (WAPC) 2015b, *Guidelines for Planning in Bushfire-Prone Areas*, Western Australian Planning Commission, Perth.

**Appendix 1**  
**Town of Port Hedland annual firebreak**  
**notice**

**LG502**

**BUSH FIRES ACT 1954**  
**Firebreak Order (Section 33)**

Notice to Owners and Occupiers of Land in the Town of Port Hedland

Pursuant to the powers contained in Section 33 of the above Act, Owners and Occupiers of land in the municipality of the Town of Port Hedland shall provide and maintain firebreaks during the firebreak period commencing 1 October in any year concluding on 30 September the following year in accordance with the following—

**(a) Townsite Land**

Where the area of land is two thousand (2,000) sqm or less, all flammable material from the whole of the land is required to be removed.

Where the area of land is greater than two thousand (2,000) sqm, a firebreak of not less than two (2) metres width, immediately surrounding any buildings or not less than two (2) metres wide inside along and within two (2) metres of the external boundaries of the land is required.

All gardens must be kept free of unnecessary leaves and rubbish. Trees which may be hazardous in the event of a fire should be kept lopped.

**(b) Pastoral Lands**—Being all land outside the townsite held under pastoral lease. Firebreaks are required to be no less than two (2) metres wide and within three (3) metres of the perimeter of all buildings and/or haystacks or groups of buildings.

**(c) Rural Lands**—Being all land outside the townsite and not being held under pastoral lease. Firebreaks are required to be not less than four (4) metres wide inside, along and within ten (10) metres of the external boundaries as well as not less than two (2) metres wide within three (3) metres of the perimeter of all buildings and/or haystacks or groups of buildings.

**(d) Fuel Dumps and Depots**

All flammable material must be removed from land where fuel drum ramps or dumps are located and where fuel drums, whether containing fuel or not, are stored to a distance of at least five (5) metres outside the perimeter of any dump, ramp or stack of drums.

**(e)** The acts referred to in paragraphs a. - d. hereof must be performed to the satisfaction of any duly authorised officer of the Town of Port Hedland.

**(f)** Application may be made annually in writing to Council or any duly authorised officer for permission to provide firebreak alternative positions or to take alternative action to abate fire hazards on the land. If permission is not granted by Council or its duly authorised officer you must comply with the requirements of this notice.

If the requirements of this notice are carried out by burning, such burning must comply with the relevant provisions of the Bush Fires Act, and a permit obtained from a Bush Fire Control Officer.

The penalty for failing to comply with this notice is a fine of \$250 by way of an infringement notice or up to \$5000 if prosecuted. A person in default is also liable, whether prosecuted or not, to pay the cost of performing the work directed in this notice, if it is not carried out by the owner or occupier by the date required by this notice.

A. FORD, Chief Executive Officer.

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