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Bushfire Management Plan

The Village at Wellard West

Prepared for
Peet Limited
by Strategen

June 2016

CITY OF KWINANA ENDORSED

3 August 2016

 **strategen**
ENVIRONMENTAL

Bushfire Management Plan

The Village at Wellard West

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June 2016

Limitations

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Client: Peet Limited

Report Version	Revision No.	Purpose	Strategen author/reviewer	Submitted to Client	
				Form	Date
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1. Introduction

1.1 Background

Peet Limited (Peet) is in the process of developing the latter stages of the Village at Wellard for urban residential purposes. This area relates to the western portion of the overall development site and is subject to WAPC subdivision approval plus numerous bushfire management reports prepared by Strategen, including an approved Fire Management Plan (FMP) and a number of separate Bushfire Attack Level (BAL) assessments.

Due to the current extent of on-site and adjacent vegetation, the majority of the proposed development area in the western portion of the Village at Wellard site is designated as bushfire prone on the Western Australian *Map of Bush Fire Prone Areas* (DFES 2016).

Taylor Burrell Barnett (on behalf of Peet) has prepared a subdivision redesign over the Western Precinct, as outlined in Figure 1. In addition, Peet intends to lodge a number of updated Local Development Plans (LDPs) in response to new areas of vegetation clearance within the site in order to capture the associated reduction in Bushfire Attack Level (BAL) response required for individual lots.

As a result of the bushfire prone designation, Strategen has prepared this Bushfire Management Plan (BMP) to fulfil two key objectives:

1. Accompany submission of the Western Precinct subdivision application to City of Kwinana (the City) in order to meet planning requirements triggered under *State Planning Policy 3.7 Planning in Bushfire-Prone Areas* (SPP 3.7; WAPC 2015a).
2. Separate to the above; accompany submission of relevant updated LDPs to the City to ensure the BAL ratings recommended for individual lots reflect modified site conditions.

This BMP has been prepared in accordance with *Guidelines for Planning in Bushfire-Prone Areas* (the Guidelines; WAPC 2015b). The project area and scope of this BMP encompasses the following stages of development:

- Village Centre South (VCS) 3, 4 and 5 (subject to previous BAL assessment by Strategen)
- Stages 26 and 27 (subject to previous BAL assessment by Strategen)
- Stages 33–44 (subject to previous FMP prepared by Strategen).

By incorporating the above areas, this BMP provides an updated and consolidated plan that deals with ongoing bushfire management for all areas of the Village at Wellard yet to be developed in the west of the site, whilst adhering to current policy and guidelines.

This BMP is consistent with management measures recommended in previous reports and provides updated bushfire assessment and management outcomes where necessary in response to recent site changes, such as new vegetation clearing. Following approval by the City, this BMP will supersede the previously approved FMP and individual BAL assessment reports relevant to the project area.

1.2 Purpose and application of the plan

The purpose of this BMP is to provide guidance on how to plan for and manage the bushfire risk to future assets of the project area through implementation of a range of bushfire management measures. The BMP outlines how future on-site assets can be protected during the summer months when the threat from bushfire is at its peak. This is particularly relevant when existing fire appliances in the area may be unable to offer an immediate emergency suppression response; therefore, development planning and design should aim to provide mitigation strategies that protect future life and property from bushfire as a priority.



Plan of Subdivision
 LOTS 501, 9058, 9060 & 9401 WELLARD ROAD, WELLARD
 A PEET LIMITED & HOUSING AUTHORITY JV PROJECT

TAYLOR BURNETT BARNETT

DRAFT

DATE: 02/11/2016
 TIME: 09:44:2016
 SCALE: 1:10000
 PROJECT: PCC-14

1:10000 (A1) | 1:15000 (A2)

Taylor Burnett Barnett Town Planning & Design
 27 BIRCH STREET, SUITE 101, WILLOW PARK, AUCKLAND
 TEL: 09 816 1833 FAX: 09 816 7887 EMAIL: admin@tbb.co.nz

Source: TBB 2016

Figure 1: Plan of subdivision



2. Spatial consideration of bushfire threat

2.1 Existing site characteristics

2.1.1 Location

The project area is contained predominantly within Lots 501, 9058 and 9401 Wellard Road, Wellard in the City of Kwinana. The project area generally captures the remaining undeveloped portion of the Village at Wellard residential development situated in the western portion of the overall development site.

The project area is bound by existing developed areas of the Village at Wellard to the east, Perth-Mandurah railway line to the north and Leda Nature Reserve (Bush Forever Site 349) to the west and south (Figure 2).

2.1.2 Zoning and land use

The project area is zoned 'Residential' under the Town of Kwinana Town Planning Scheme No. 2. Urban residential development is progressing across the site from east to west resulting in staged clearing of vegetation within the site. The project area will ultimately comprise a cleared, urban built footprint with managed pockets of Public Open Space (POS), meaning the post-development vegetation extent internal to the site will be minimal.

2.1.3 Assets

Life and property assets within the project area consist of early stage lot development and dwelling construction within Stages 26A, 33 and 34. The remainder of the project area is undeveloped and contains no life or property assets; however, these critical assets will intensify significantly across the site as development progresses.

The majority of on-site vegetation is proposed to be cleared as development staging progresses; however, environmental assets in the form of significant habitat trees for native fauna are proposed to be retained where possible within POS and along road verges. Retention of individual overstorey trees in these areas will not pose a bushfire risk to the site provided the POS/road verge understorey is regularly managed in a low fuel state.

2.1.4 Access

The project area is currently accessed via a selection of public roads and site construction tracks that extend from the eastern boundary into recently released development stages. The post-development vehicular access network proposed throughout the project area will be extensive.

2.1.5 Water and power supply

Reticulated water and underground power supply infrastructure and services are available to the site.

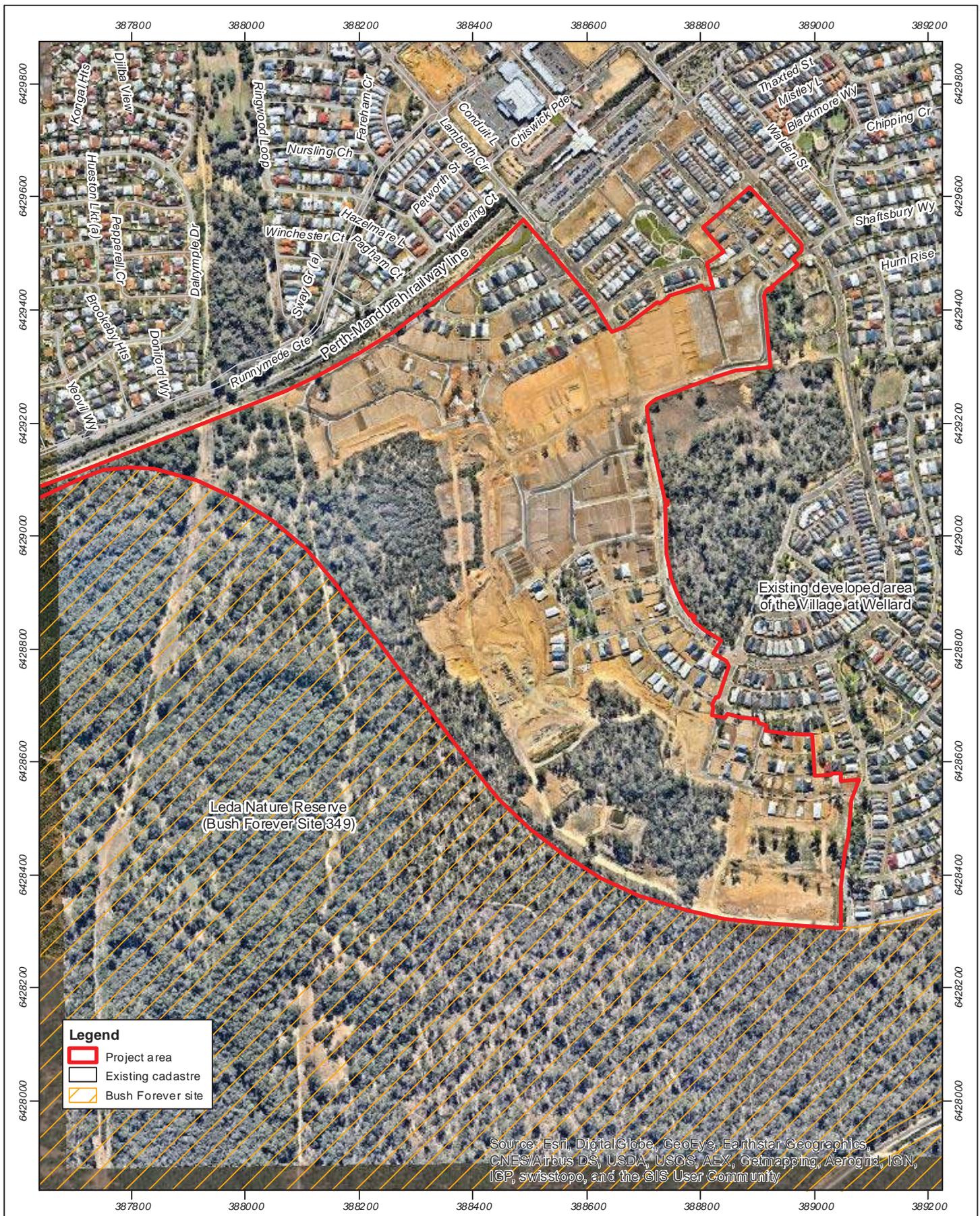


Figure 2 Site overview

Scale 1:9,000 at A4
 0 50 100 150 200 m

Coordinate System: Transverse Mercator
 Note that positional errors may occur in some areas
 Date: 3/06/2016
 Author: JCrute

Source: Aerial image: Client 06/2016, 09/2015. Background aerial: ESRI, approx. 2012. Subdivision Plan: Client 05/2016. Existing cadastre: SLIP, Landgate 2016. Bush Forever: DoP 2014.



2.2 Existing fire environment

2.2.1 Vegetation class

Vegetation class has been assessed for this site in accordance with methodology contained within *AS 3959–2009 Construction of Buildings in Bushfire-Prone Areas* (AS 3959; SA 2009). Strategen assessed vegetation class within the project area and adjacent 100 m through numerous on-ground site investigations that have been undertaken since 2014. A summary of results is provided below and depicted in Figure 3:

- Leda Nature Reserve to the west and south contains a combination of Class A forest and Class B woodland as previously assessed and documented in the approved FMP (Plate 1 and Plate 2)
- Perth-Mandurah railway line to the north contains Class G grassland as a result of the low open shrubland type as previously assessed and documented in the approved FMP (Plate 3)
- the vegetated corridor north of Perth-Mandurah railway line contains Class A forest as previously assessed and documented in the approved FMP (Plate 4).

Areas that are currently, or proposed to be cleared, built or landscaped as part of the Village at Wellard development are excluded under Clause 2.2.3.2 (e) and (f) of AS 3959 since these areas are, or will be:

- non-vegetated areas such as infrastructure or roads
- landscaped POS (low threat vegetation) managed on a regular and ongoing basis.

This information has been used to inform the BAL assessment for proposed lots (refer to Section 2.4).

2.2.2 Site topography and effective slope

Effective slope has been assessed for this site in accordance with methodology contained within AS 3959. Strategen assessed effective slope within the project area and adjacent 100 m through numerous on-ground site investigations that have been undertaken since 2014. A summary of results is provided below and depicted in Figure 3:

- Class A forest and Class B woodland within Leda Nature Reserve to the west and south are subject to flat to undulating topography resulting in fluctuations in effective slope between flat land and 0–5 degrees, both up-slope and down-slope (as previously assessed and documented in the approved FMP)
- Class G grassland and Class A forest within the Perth-Mandurah railway line and vegetated corridor to the north have an effective slope of flat land (as previously assessed and documented in the approved FMP), noting that the sunken railway line provides a short, sharp fluctuation in landscape topography, which is not representative of the average slope north of the site and will not significantly affect potential bushfire impacts received by the site.

This information has been used to inform the BAL assessment for proposed lots (refer to Section 2.4).

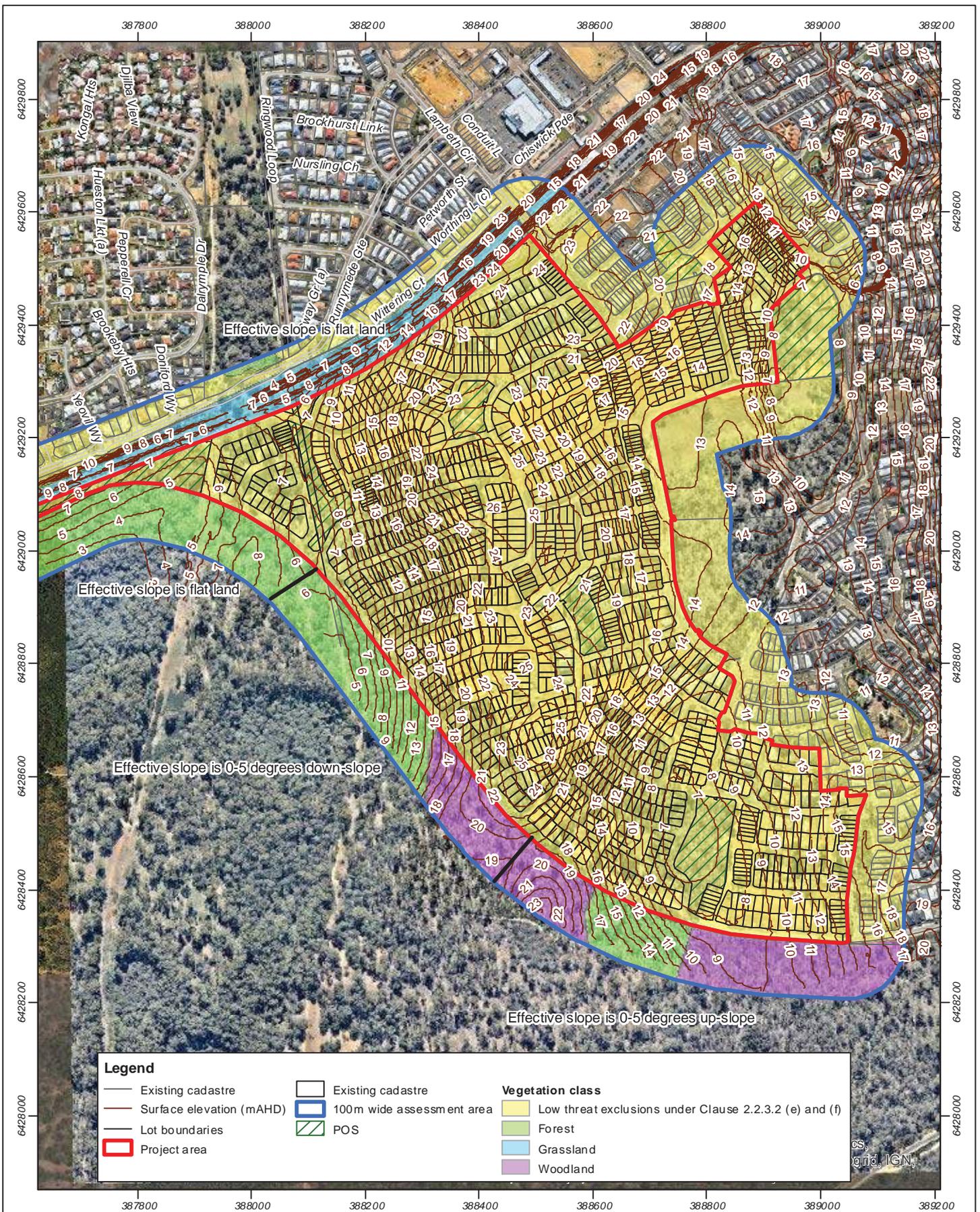


Figure 3 Vegetation class and effective slope

Scale 1:9,000 at A4



Coordinate System: Transverse Mercator
 Note that positional errors may occur in some areas

Date: 3/06/2016

Author: JCrute

Source: Aerial image: Client 06/2016, 09/2015 and 01/2013. Background aerial: ESRI approx. 2012. Subdivision Plan & existing cadastre: Client 05/2016.



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Plate 1: Class A forest within Leda Nature Reserve, west and south of the project area



Plate 2: Class B woodland within Leda Nature Reserve, west and south of the project area



Plate 3: Class G grassland within Perth-Mandurah railway line, north of the project area



Plate 4: Class A forest within vegetated corridor, north of Perth-Mandurah railway line

2.3 Bushfire hazard level 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 project area and adjacent 100 m on the basis of vegetation class and effective slope assessed in Sections 2.2.1 and 2.2.2 respectively. A summary of results is provided below and depicted in Figure 4:

- all areas of Class A forest and Class B woodland have been assigned an extreme bushfire hazard level
- all areas located within 100 m of extreme bushfire hazards have been assigned a moderate bushfire hazard level by default to reflect the increased level of risk and 100 m wide Hazard Separation Zone (HSZ) requirements (WAPC 2015b)
- Class G grassland within the Perth-Mandurah railway line has been assigned a low bushfire hazard level, which is consistent with the approved FMP and current *Map of Bush Fire Prone Areas* (DFES 2016)
- areas that are currently, or proposed to be cleared, built or landscaped as part of the Village at Wellard development are low threat exclusions under Clause 2.2.3.2 (e) and (f) of AS 3959 and as such, have been assessed as having a low bushfire hazard level.

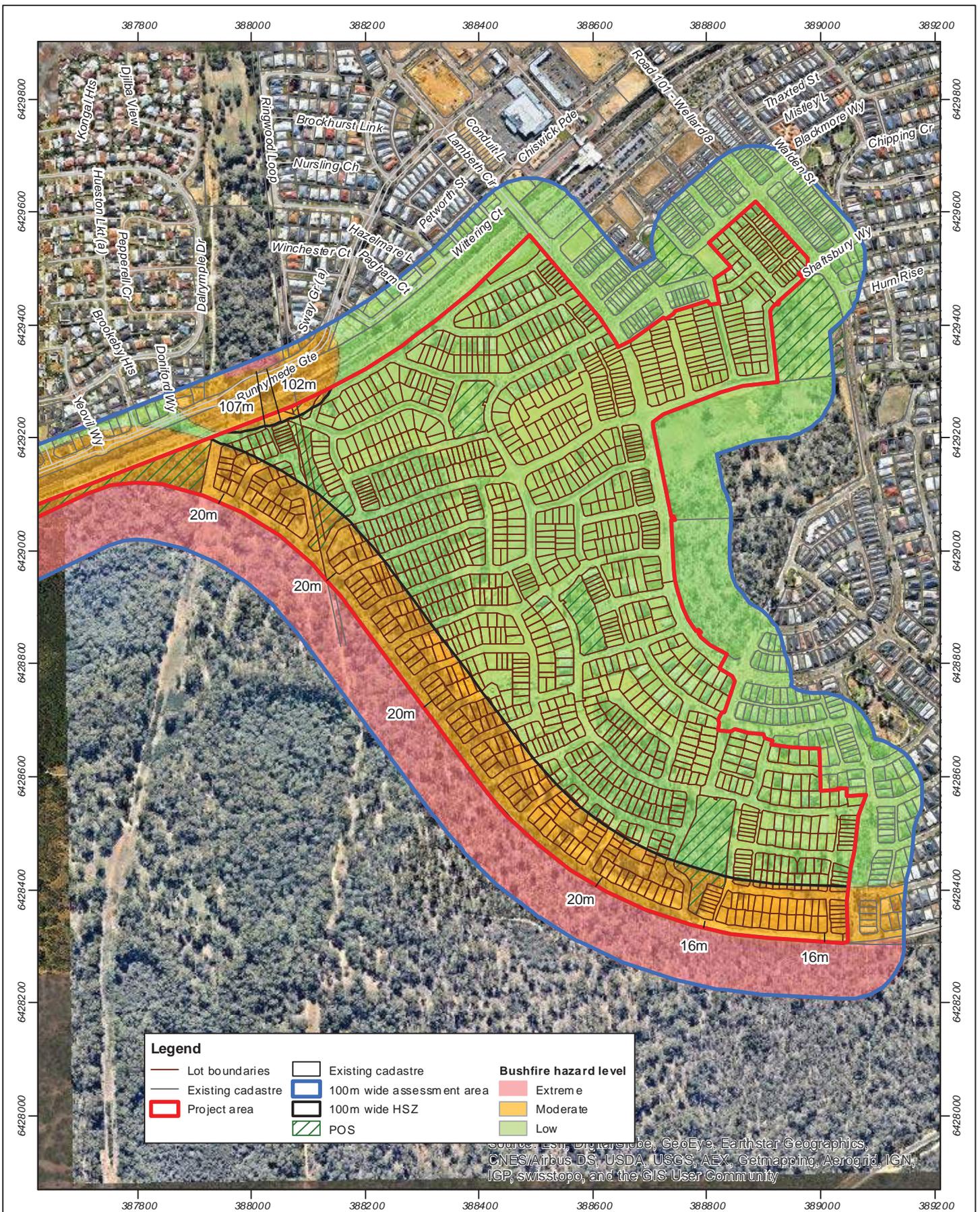
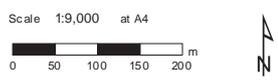


Figure 4 Bushfire hazard level assessment



Coordinate System: Transverse Mercator
 Note that positional errors may occur in some areas
 Date: 3/06/2016

Author: JCrute

Source: Aerial image: Client 06/2016, 09/2015 and 01/2013. Background aerial: ESRI approx. 2012. Subdivision Plan & existing cadastre: Client 05/2016.



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2.4 BAL assessment

Any proposed development situated within the 100 m wide HSZ will require application of AS 3959 via implementation of increased building construction standards in response to the assessed BAL. This relates to proposed development areas situated within 100 m of Leda Nature Reserve bushland to the west and south.

The Method 1 procedure for calculating the BAL (as outlined in AS 3959) incorporates the following factors:

- state-adopted FDI rating
- vegetation class
- effective slope under classified vegetation
- distance maintained between proposed development areas and the classified vegetation.

Based on the specified BAL, building construction/separation requirements for proposed buildings can then be assigned. A Method 1 BAL calculation for proposed development is outlined in the following subsections.

2.4.1 Fire Danger Index

A blanket rating of FDI 80 is adopted for Western Australian environments, as outlined in AS 3959 and endorsed by Australasian Fire and Emergency Service Authorities Council.

2.4.2 Vegetation class as per AS 3959

Vegetation class is described in Section 2.2.1 (Figure 3) and consists of Class A forest and Class B woodland.

2.4.3 Effective slope under classified vegetation

Effective slope under classified vegetation is described in Section 2.2.2 (Figure 3). Effective slope is a combination of flat land and 0–5 degrees both up-slope and down-slope.

2.4.4 Distance between proposed development areas and the classified vegetation

Strategen has assessed the separation distances between proposed development and areas of Class A forest and Class B woodland. A summary of results is provided below and depicted in Figure 4:

- the minimum separation distance between Stage 27 lots and Leda Nature Reserve to the south will be 16 m provided by the interfacial road reserve
- the minimum separation distance between Western Precinct lots and Leda Nature Reserve to the west will be 20 m provided by the interfacial road reserve
- the minimum separation distance between Western Precinct lots and the vegetated corridor to the north of Perth-Mandurah railway line is currently 102 m, which is the combined width of the railway easement, interfacial road reserve and POS.

2.4.5 Method 1 BAL calculation

A Method 1 BAL calculation has been completed for proposed development within the 100 m wide HSZ in accordance with AS 3959 methodology (Table 1). The BAL rating gives an indication of the level of bushfire attack (i.e. the radiant heat flux) that may be received by the proposed building and subsequently informs the standard of building construction required for that building to withstand such impacts.

The assessed BAL ratings for the project area are depicted as BAL contours in Figure 5. All proposed lots situated outside of the 100 m wide HSZ are BAL–Low, where there is insufficient risk to warrant specific building construction requirements.

Table 1: Method 1 BAL calculation

Classified vegetation	Effective slope	Hazard separation distance	BAL rating	Comment
Class A forest	All up-slopes and flat land (0 degrees)	<16 m	BAL-FZ	No development is proposed in this area
		16-<21	BAL-40	Some lots adjacent to Leda Nature Reserve occur partially in this area but development will be avoided through provision of an APZ
		21-<31	BAL-29	Development is proposed in this area
		31-<42	BAL-19	Development is proposed in this area
		42-<100	BAL-12.5	Development is proposed in this area
	Down-slope >0-5 degrees	<20 m	BAL-FZ	No development is proposed in this area
		20-<27	BAL-40	Some lots adjacent to Leda Nature Reserve occur partially in this area but development will be avoided through provision of an APZ
		27-<37	BAL-29	Development is proposed in this area
		37-<50	BAL-19	Development is proposed in this area
		50-<100	BAL-12.5	Development is proposed in this area
Class B woodland	All up-slopes and flat land (0 degrees)	<10 m	BAL-FZ	No development is proposed in this area
		10-<14	BAL-40	No development is proposed in this area
		14-<20	BAL-29	Some lots adjacent to Leda Nature Reserve occur partially in this area but development will be avoided through provision of an APZ
		20-<29	BAL-19	Development is proposed in this area
		29-<100	BAL-12.5	Development is proposed in this area
	Down-slope >0-5 degrees	<13 m	BAL-FZ	No development is proposed in this area
		13-<17	BAL-40	No development is proposed in this area
		17-<25	BAL-29	Development is proposed in this area
		25-<35	BAL-19	Development is proposed in this area
		35-<100	BAL-12.5	Development is proposed in this area

3. Bushfire management measures

Strategen has identified a range of bushfire management measures that on implementation will enable all proposed lots to be developed with a manageable level of bushfire risk whilst maintaining full compliance with the Guidelines and AS 3959. The bushfire management measures are discussed in the following subsections and depicted in Figure 5 (where applicable).

3.1 Separation distances and fuel management

3.1.1 APZs

An Asset Protection Zone (APZ) will be implemented at the interface between proposed development and Leda Nature Reserve. The width of the APZ will be a minimum of 20 m wide. The width of the APZ will be widened beyond 20 m where necessary so that a BAL-29 rating or lower can be achieved. The APZ will be accommodated within the perimeter road reserve to the west and south, as well as building setbacks into the first row of lots where required.

The APZ discussed above is 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 all year round. Since the majority of the APZ consists as a road reserve (i.e. long term low fuel tenure), the ongoing management onus to maintain the APZ will not be significant and will mainly require regular slashing of the road verge to maintain the APZ in a low fuel state. Individual street trees can be retained within the APZ provided the understorey is managed through regular slashing. Where the APZ occurs as a building setback into a private lot, then this area is to consist of low threat minimal fuel vegetation such as regularly managed lawns or gardens and paved areas such as driveways. No buildings are permitted in the APZ.

3.1.2 HSZs

A formal HSZ is not required around the APZ in this instance since proposed construction for each proposed dwelling meets the standard appropriate to the BAL for that location (WAPC 2015b).

3.1.3 POS

All on-site POS areas will be landscaped and maintained in a low threat minimal fuel condition on a regular and ongoing basis in accordance with approved Landscape Management Plans. Creation and maintenance of landscaped POS will occur on a staged basis and in advance where necessary (i.e. prior to development) to ensure building construction is not inhibited by future POS in adjacent stages yet to be created.

3.1.4 On-site staging buffers

Clearing will occur throughout the project area on a staged basis and in advance where necessary to ensure building construction is not inhibited by vegetation within adjacent development 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. 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.

3.1.5 School site clearing

A strip of vegetation within the future school site located central east of the project area has been recently cleared. This has enabled the adjacent residential lots to achieve 100 m of hazard separation and a subsequent BAL–Low rating. The cleared land 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 school is developed.

3.2 Increased building construction standards

Strategen has assigned BAL–29, BAL–19 and BAL–12.5 contours where necessary throughout the 100 m wide HSZ as depicted in Figure 5. The BAL contours have been assigned in accordance with AS 3959, as described in the Method 1 BAL calculation (Section 2.4). No development will occur within BAL–FZ or BAL–40 areas.

As a precaution and in addition to the above, Strategen recommends that a BAL–29 rating be adhered to as a minimum requirement for the first row of lots adjacent to Leda Nature Reserve, regardless of whether this rating is formally required or not under AS 3959. This is through response to broader landscape risk and acknowledgment that Leda Nature Reserve poses the highest bushfire risk to the site as a result of the long fire run through long unburnt areas of dense forest and woodland vegetation to the west and south. The potential fire behaviour received at the development bushland interface can be expected to exhibit elevated levels of radiant heat and ember attack, particularly during predominant afternoon wind conditions in summer (i.e. strong sea breeze from the southern and western quadrants), conditions which are expected to occur 95% of the time during the designated bushfire season. This precautionary outcome is consistent with measures documented in the previously approved FMP. The level of BAL–29 application depicted in Figure 5 in the west and south of the site reflects this precautionary approach.

Further to the above, Strategen has assigned a blanket rating of BAL–12.5 for the initial 50 m of development adjacent to the Perth–Mandurah railway line in the north as a precaution. This area of BAL application will extend to the western boundary of Stage 34 and is consistent with the negotiated outcome agreed with the City, as documented in the previously approved FMP. This precautionary approach was developed in anticipation that areas on either side of the railway line within the easement may be rehabilitated in the future (as stated by the City), meaning adjacent development to the south may be subject to potential ember attack should a bushfire occur to the north of the site. The BAL–12.5 contour depicted in Figure 5 in the north of the site reflects this precautionary approach.

Buildings within lots assigned with a BAL rating will need to be constructed in accordance with the corresponding building construction standard outlined in AS 3959 unless it can be demonstrated otherwise at a later date through a BMP addendum or individual lot BAL assessment. If a lot is affected by more than one BAL, then the worst case BAL shall apply unless it can be demonstrated that the worst case BAL can be avoided through strategic building location (i.e. at the building licence application stage).

All proposed lots situated outside of the 100 m wide HSZ are BAL–Low, where there is insufficient risk to warrant specific construction requirements. The extent of BAL–Low assigned throughout the site in Figure 5 relies on the separation distances and fuel management measures being implemented as per Section 3.1.

BALs for individual lots will be confirmed as required at the Local Development Plan (LDP) stage or through individual lot BAL assessment at the building licence application stage.

3.3 Vehicular access

The two key vehicular access routes linking proposed development with the surrounding public road network are the site entrances located at Lambeth Circle in the northeast and Ebrington Road in the southeast. All future residents and visitors within the project area will have through access to these two access points, including during staging.

The proposed vehicular access network includes a small number of cul-de-sacs. All public roads and cul-de-sacs constructed as part of the development will comply with technical requirements of the Guidelines, as outlined in Table 2.

Table 2: Vehicular access technical requirements

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

* Refer to E3.2 Public roads: Trafficable surface

Source: WAPC 2015b

3.4 Reticulated water supply

All proposed development areas will be provided a reticulated water supply through extension of existing services from surrounding residential areas. The reticulated system will ensure an all year round supply of water is provided for each lot to meet minimum domestic and emergency water supply requirements.

A network of hydrants will also be provided along the internal road network at locations which meet relevant water supply authority and DFES requirements, in particular the Water Corporation Design Standard DS 63 'Water Reticulation Standard Design and Construction Requirements for Water Reticulation Systems up to DN250'. This standard will guide construction of the internal reticulated water supply system and fire hydrant network, including spacing and positioning of fire hydrants 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 120 m and the hydrants shall be no more than 200 m apart.

3.5 Additional measures

Strategen makes the following additional recommendations to inform ongoing planning stages of the development:

1. **Notification on Title:** notification is to be placed on the Title of all proposed lots with a designated BAL rating (either through condition of subdivision or other head of power) to ensure all landowners/proponents and prospective purchasers are aware that their lot is currently in a designated bushfire prone area and that increased building construction standards may apply to future buildings as determined by this BMP unless it can be demonstrated otherwise at later date through addendum to this BMP or individual lot BAL assessment. The notification on title is also to include that the site is subject to a Bushfire Management Plan.
2. **BMP addendum and individual lot BAL assessment:** a BMP addendum or individual lot BAL assessment may be prepared at a later date to demonstrate any change in subdivision design, the assessed BAL or other management measure documented in this BMP. This may be required to confirm the BAL for individual lots as a result of a change in the separation distance between proposed development and the classified vegetation (i.e. through LDPs or following detail of individual building footprints at the building licence application stage).
3. **Compliance with current City of Kwinana annual firebreak notice:** the developer/land manager and prospective land purchasers are to comply with the current City of Kwinana annual firebreak notice (Appendix 1).

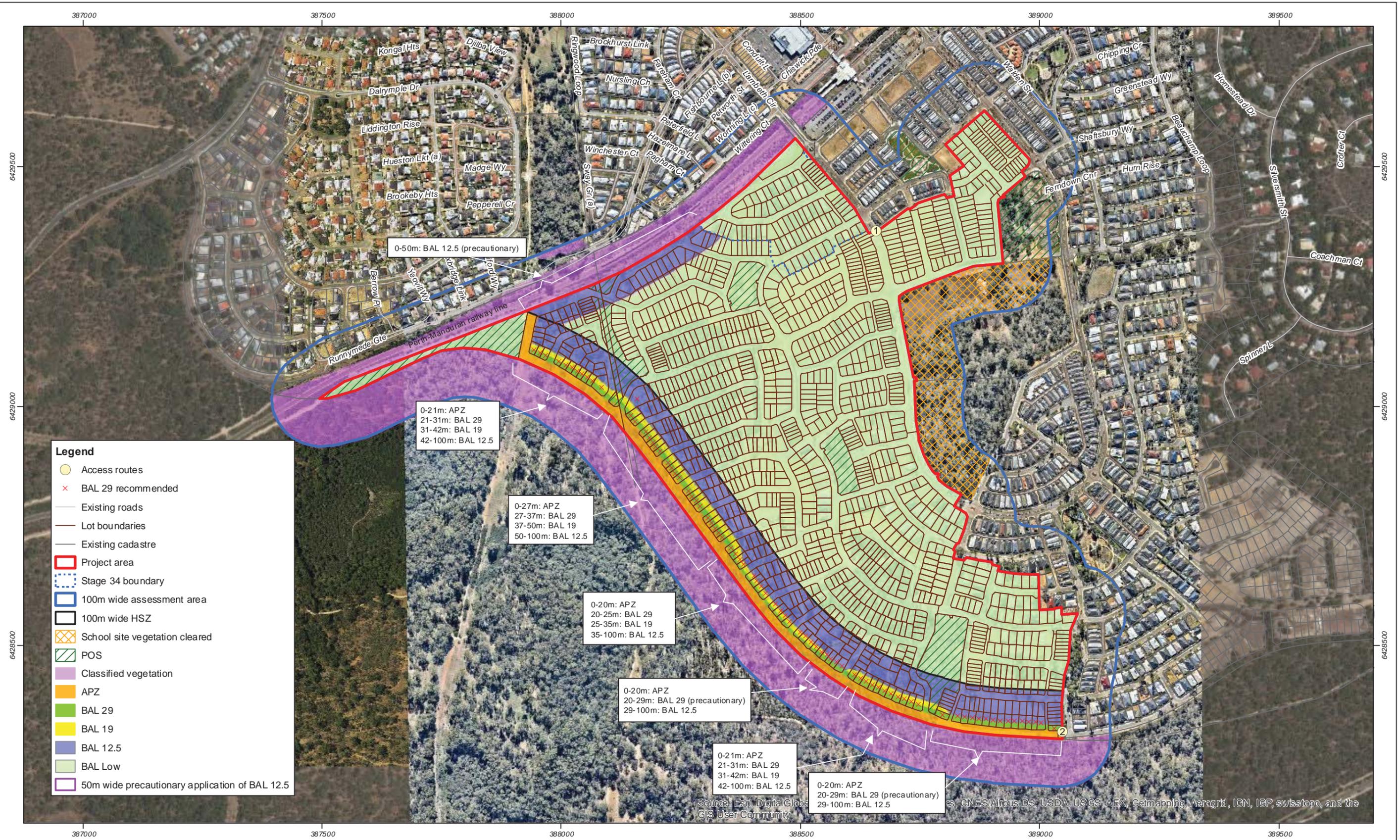


Figure 5 Fire Management Plan: The Village at Wellard West

Scale 1:7,309 at A3
0 50 100 150 200 m



Coordinate System: Transverse Mercator
 Note that positional errors may occur in some areas
 Date: 3/06/2016
 Author: JCrute
 Source: Aerial image: Client 06/2016, 09/2015 and 01/2013. Background aerial: ESRI, approx. 2012. Subdivision Plan & existing cadastre: Client 05/2016.
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4. Proposal compliance and justification

Proposed development within the project area is required to comply with SPP 3.7 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.

6.4 Information to accompany subdivision applications

Any subdivision application to which policy measure 6.2 applies is to be accompanied by the following information in accordance with the Guidelines:

a) a BAL Contour Map to determine the indicative acceptable BAL ratings across the subject site, in accordance with the Guidelines. BAL Contour Maps should be prepared by an accredited Bushfire Planning Practitioner

b) the identification of any bushfire hazard issues arising from the BAL Contour Map

c) an assessment against the bushfire protection criteria requirements contained within the Guidelines demonstrating compliance within the boundary of the subdivision site.

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, the bushfire management measures, as outlined in Section 3, have been devised for the proposed development in accordance with acceptable solutions of the Guidelines to meet compliance with bushfire protection criteria. An 'acceptable solutions' assessment 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 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
Element 1: Location	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 Section 3.2, which demonstrates that development will only occur in areas of BAL–29 or lower. No development will occur in BAL–FZ or BAL–40 areas.	The measures proposed are considered to comply and meet the intent of Element 1 Location.
Element 2: Siting and design of development	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, which demonstrates that a minimum 20 m wide APZ will be provided at the development-bushland interface.	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.	HSZs are not proposed since individual dwelling construction meets the standard appropriate to the BAL for that location.	
Element 3: Vehicular access	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 a minimum of two different vehicular access routes will be provided for the proposed development via the internal road network.	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 4 Column 1 of the Guidelines.	Refer to Section 3.3, which demonstrates that all proposed public roads will meet requirements of the Guidelines (refer to 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 as per Table 4 Column 2 of the Guidelines.	Refer to Section 3.3, which demonstrates that all proposed cul-de-sacs will meet requirements of the Guidelines (refer to Table 2).	
		A3.4 Battle-axe Battle-axe access legs 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 as per Table 4 Column 3 of the Guidelines.	N/A No battle-axe lots are proposed as part of the development.	

		<p>A3.5 Private driveway longer than 50 m A private driveway is to meet detailed requirements as per Table 4 Column 3 of the Guidelines.</p>	N/A No private driveways longer than 50 m are proposed as part of the development.	
		<p>A3.6 Emergency access way An access way that does not provide through access to a public road is to be avoided in bushfire prone areas. Where no alternative exists (this will need to be demonstrated by the proponent), an emergency access way is to be provided as an alternative link to a public road during emergencies. An emergency access way is to meet detailed requirements as per Table 4 Column 4 of the Guidelines.</p>	N/A No emergency access ways are required as part of the development.	
		<p>A3.7 Fire service access routes (perimeter roads) Fire service access routes are to be established to provide access within and around the edge of the subdivision and related development to provide direct access to bushfire prone areas for fire fighters and link between public road networks for fire fighting purposes. Fire service access routes are to meet detailed requirements as per Table 4 Column 5 of the Guidelines.</p>	N/A No fire service access routes are required as part of the development.	
		<p>A3.8 Firebreak width Lots greater than 0.5 hectares must have an internal perimeter firebreak of a minimum width of three metres or to the level as prescribed in the local firebreak notice issued by the local government</p>	N/A No firebreaks are required as part of the development.	
Element 4: Water	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>A4.1 Reticulated areas The subdivision, development or land use is provided with a reticulated water supply in accordance with the specifications of the relevant water supply authority and Department of Fire and Emergency Services.</p>	Refer to Section 3.4, which demonstrates that all proposed lots will be provided a reticulated water supply and network of hydrants in accordance with local water authority, City and DFES requirements.	The measures proposed are considered to comply and meet the intent of Element 4 Water
	<p>A4.2 Non-reticulated areas 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>	N/A The proposed development will not occur within a non-reticulated area.		
	<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>	N/A The proposed development will not occur within a non-reticulated area.		

5. Implementation and enforcement

Implementation of the BMP applies to the developer, prospective landowners and the City to ensure bushfire management measures are adopted and implemented on an ongoing basis. A summary of the bushfire management measures described in Section 3, as well as a works program, is provided in Table 4. These measures will be implemented to ensure the ongoing protection of proposed life and property assets is achieved. Timing and responsibilities are also defined to assist with implementation of each measure.

Table 4: Proposed works program

Bushfire management measure	Timing for application	Responsibility
Creation and ongoing maintenance of APZ	To be created for each development stage where required, prior to development within that stage, and maintained as required to ensure the APZ is kept in a low threat minimal fuel condition on a regular and ongoing basis	Developer during development of each relevant stage, City and prospective landowners where required following completion of each relevant stage
Creation and ongoing maintenance of landscaped POS	To be created for each development stage where required, or in advance where required, prior to development within that stage, in accordance with approved Landscape Management Plans, and maintained as required to ensure the POS is kept in a low threat minimal fuel condition on a regular and ongoing basis	Developer during development of each relevant stage, City following completion of each relevant stage
Creation and maintenance of on-site staging buffers	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	Developer
Maintenance of school site clearing area	As required to ensure the buffer is kept in a low threat minimal fuel condition on a regular and ongoing basis until future school is developed	Developer
Confirmation of recommended BAL ratings for individual lots	As required at the LDP stage or through individual lot BAL assessment at the building licence application stage	Developer, prospective landowners
Building construction to the recommended BAL ratings	At the building construction stage	Prospective landowners, builder
Construction of public roads and cul-de-sacs	Prior to construction of dwellings for each relevant stage	Developer
Provision of reticulated water supply and network of hydrants	Prior to construction of dwellings for each relevant stage	Developer
Notification on Title	Following subdivision approval	Developer
BMP addendum or individual lot BAL assessment	As required prior to building construction to demonstrate a change in the assessed BAL or other management measure documented in this BMP	Developer, prospective landowners
Compliance with current City of Kwinana annual firebreak notice	All year round as specified in the current firebreak notice (Appendix 1)	Developer, prospective landowners

5.1 Document review

This BMP will be updated as necessary following the date of approval to ensure:

1. Implementation is assessed and corrective actions are applied in cases of non-compliance.
2. The effectiveness and impact of fire prevention work is evaluated and any significant changes in development design or the surrounding environment are reassessed in a revised BMP or addendum report.

The developer will be responsible for updating and revising the BMP as required until such time that the development is complete, after which time the City will be the authority responsible for updating and revising the BMP as required.

5.2 Stakeholder consultation

Strategen has undertaken consultation with the planner, developer and the City to ensure aims and objectives of the BMP are in accordance with stakeholder expectations and the BMP maintains compliance with the Guidelines.

6. References

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>, [22/03/2016].

Standards Australia (SA) 2009, *Australian Standard AS 3959–2009 Construction of Buildings in Bushfire-prone Areas*, Standards Australia, Sydney.

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
City of Kwinana annual firebreak notice

Bush Fires Act 1954

Fire Breaks Notice 2015/16

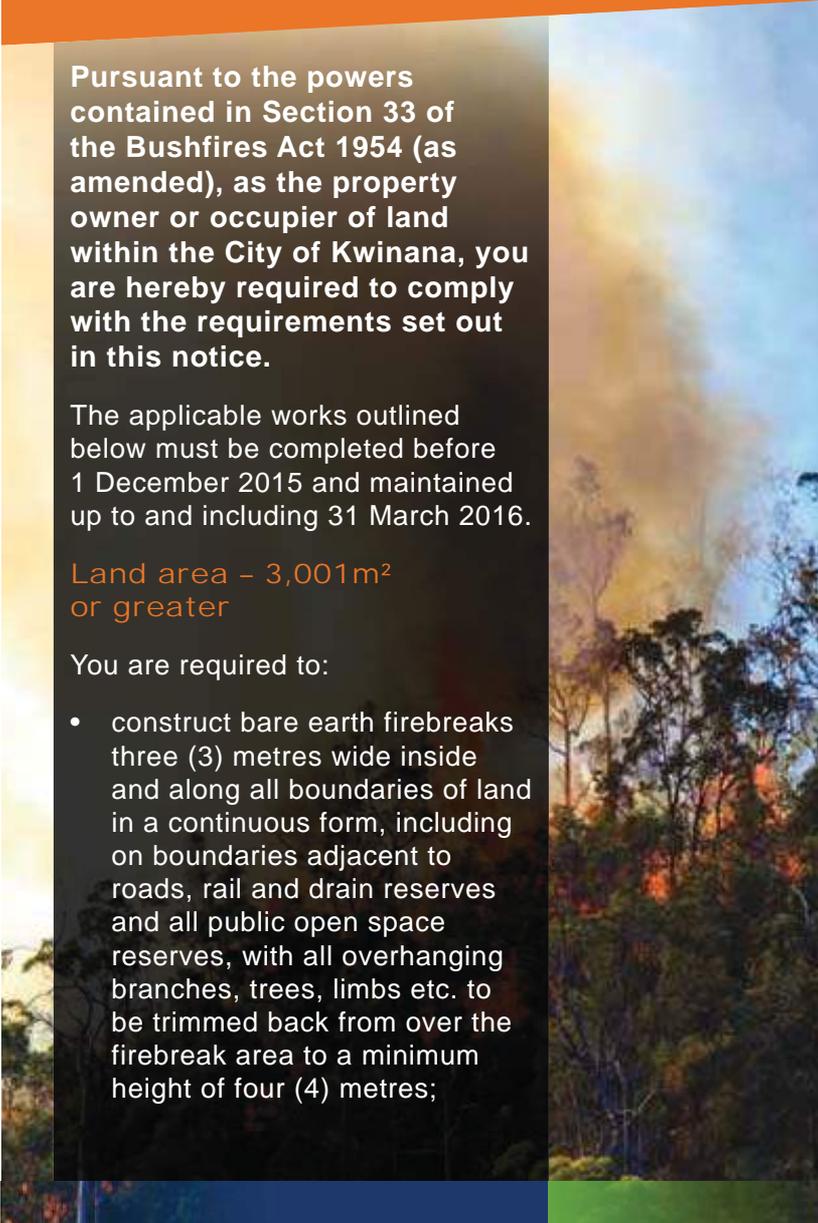
Pursuant to the powers contained in Section 33 of the Bushfires Act 1954 (as amended), as the property owner or occupier of land within the City of Kwinana, you are hereby required to comply with the requirements set out in this notice.

The applicable works outlined below must be completed before 1 December 2015 and maintained up to and including 31 March 2016.

**Land area – 3,001m²
or greater**

You are required to:

- construct bare earth firebreaks three (3) metres wide inside and along all boundaries of land in a continuous form, including on boundaries adjacent to roads, rail and drain reserves and all public open space reserves, with all overhanging branches, trees, limbs etc. to be trimmed back from over the firebreak area to a minimum height of four (4) metres;



- remove all flammable matter except living trees, shrubs, plants under cultivation and lawns, three (3) metres wide and minimum height of four (4) metres immediately surrounding all buildings situated on the land;
- firebreaks three (3) metres in width and minimum height of four (4) metres are to be cleared immediately surrounding any place where wood or timber piles, hay stacks, tyres, vehicles, flammable liquids, chemicals and gas products are kept on the land; and
- maintained and living lawns are acceptable in conjunction with or in lieu of mineral earth firebreaks, provided that the same minimum width and height requirements for a firebreak are maintained.

Land area – 3,000m² or less

You are required to:

- have all flammable material such as long dry grass, weeds, etc. slashed, mowed or trimmed down by other means to a height no greater than 50mm across the entire property.

Bare earth fire breaks are not necessary on properties that are 3,000m² or less in areas where slashing, mowing or living and maintained garden beds or lawn is established.

Fire break variations

If it is impractical to install a firebreak immediately inside a property boundary, for environmental or any other reasons, you are required to apply to the City of Kwinana in writing by 1 October 2015 to obtain approval to install fire breaks in an alternative position.

Previously approved fire break variations do not need to be reapplied for unless circumstances have changed.

Joanne Abbiss

CHIEF EXECUTIVE OFFICER

To: Jared Robertson

Date: 28 September 2018

Company: Peet Limited

Project No: PEE14071.07

Email: Jared.Robertson@peet.com.au

Inquiries: Zac Cockerill

AS 3959 Bushfire Attack Level (BAL) Compliance Report Stage 41 The Village at Wellard



Site Details			
Address:	25 residential lots within Stage 41 The Village at Wellard		
Suburb:	Wellard	State:	Western Australia
Local Government Area:	City of Kwinana		
Description of building works:	Class 1a buildings with associated Class 10a buildings		
Report details			
Report/Job number:	PEE14071.07	Report reference:	PEE14071_07 M002 Rev A
Assessment date:	7 September 2018	Report date:	28 September 2018
Endorsement/Review	Zac Cockerill BPAD Level 2: 37803		

Introduction

This Bushfire Attack Level (BAL) compliance report has been prepared for 25 residential lots within Stage 41 The Village at Wellard (hereon referred to as the project area), located in the City of Kwinana.

This report provides a post-subdivisional works update of the BAL ratings for individual lots within the project area and has been prepared for the benefit of the developer, future lot purchasers and decision-makers. BAL certificates for each individual lot (contained in Appendix 1) have been prepared based on the final site compliance check and are appended to this report for use at the building permit stage.

The BAL assessment outlined in this report is the most up to date assessment relating to the project area and therefore supersedes any previous Strategen assessments undertaken within the project area, including those documented in the following reports previously prepared by Strategen:

- Stages 33–44 subdivision Fire Management Plan (April 2015)
- The Village at Wellard West Bushfire Management Plan (June 2016).

The approach for preparation of this BAL compliance report is consistent with Section 4.2 and Appendix 3 of *Guidelines for Planning in Bushfire Prone Areas* (the Guidelines).

The BAL compliance assessment has been completed by a Level 2 accredited Bushfire Planning and Design practitioner (Zac Cockerill, BPAD37803) in accordance with Method 1 of *AS 3959–2009 Construction of Buildings in Bushfire-prone Areas* (AS 3959) and results are consistent with on-ground conditions observed at the time of inspection on 7 September 2018.

Should subdivision design or the classified vegetation extent be further modified prior to building construction, then an updated BAL assessment for the affected lots may need to be undertaken to account for these changes.

Site assessment and site plan

The assessment of this site/development was undertaken on 7 September 2018 by a BPAD Accredited Practitioner for the purpose of determining the Bushfire Attack Level in accordance with AS 3959 - 2009 (Simplified Procedure [Method 1]).

A site plan and site assessment results are depicted in Figure 1.

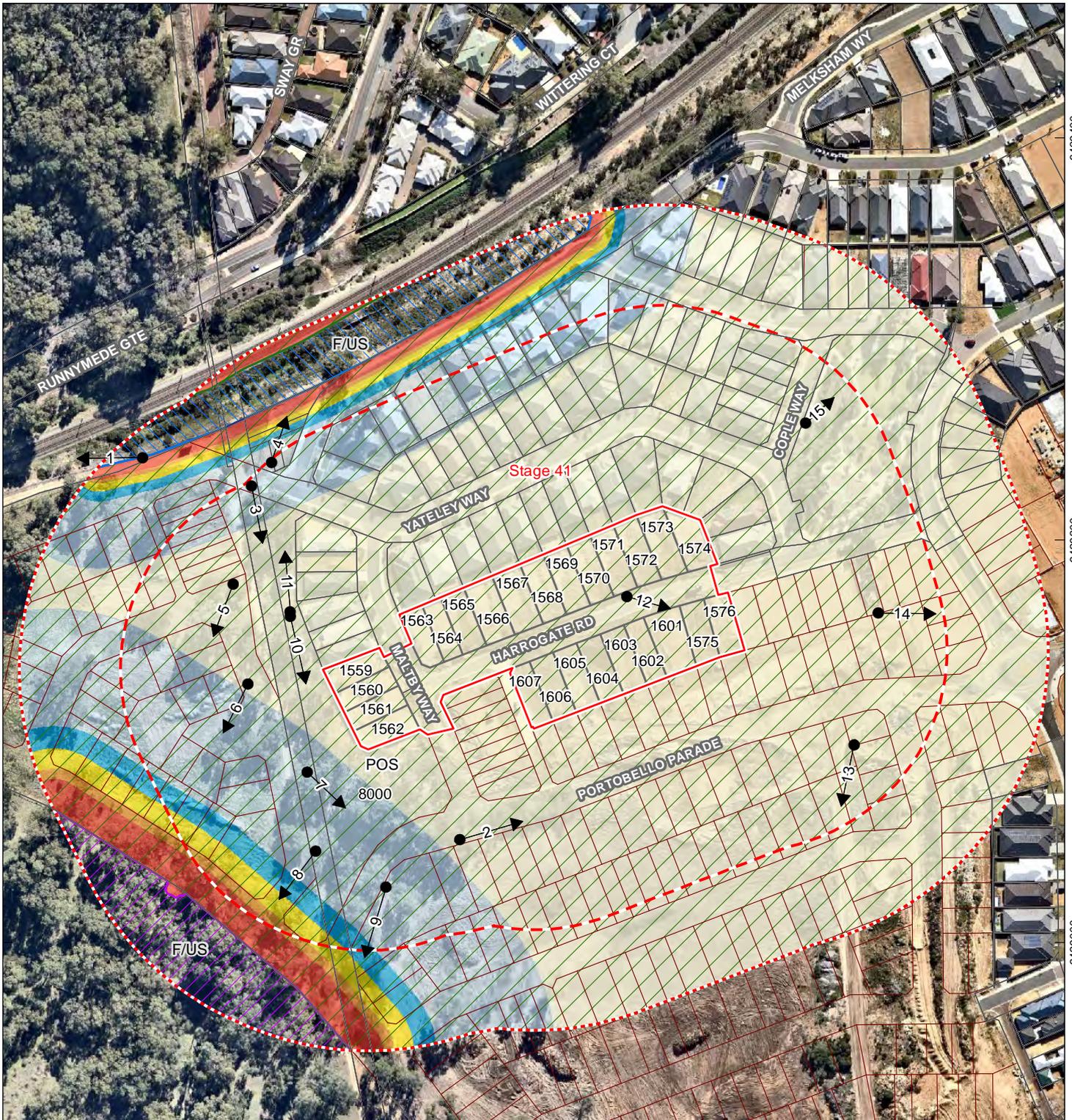
Vegetation classification

All vegetation within 150 m of the site/development was classified in accordance with Clause 2.2.3.2 of AS 3959-2009 and the *Visual Guide for Bushfire Risk Assessment in Western Australia*. Each distinguishable vegetation class with the potential to determine the Bushfire Attack Level is outlined in Table 1 and displayed in Figure 1.

All land situated within 100 m of the project area was identified to be excluded from classification as a result of subdivisional works and ongoing staging management. The following exclusions were observed:

- the project area is in a cleared, non-vegetated state and is excluded from classification under Clause 2.2.3.2 (e)
- a 100 m wide low threat staging buffer to the south and west of the project area has been implemented comprising cleared, managed land awaiting future subdivisional staging works and development and is excluded from classification under a combination of Clauses 2.2.3.2 (e) and (f).

Class A forest with an effective slope of flat/up-slope was identified beyond 100 m to the west. This vegetation consisted of a three-tiered fuel profile with surface fuel coverage, midstorey shrubs and small trees and overstorey eucalypts. Class G grassland with an effective slope of flat/up-slope was identified beyond 100 m to the north within the railway reserve. This narrow strip of vegetation contained a predominant unmanaged grassland (weed) profile with sparse shrub coverage.



Legend		Vegetation class		BAL contours	
●➔	Photo point and direction	▭ (dashed red)	100m assessment area	▭ (red)	BAL FZ
▭ (red)	Project area	▭ (dotted red)	150m assessment area	▭ (orange)	BAL 40
—	Development layout	▭ (purple)	Class A Forest	▭ (blue)	BAL 19
▭ (grey)	Cadastre	▭ (blue)	Class G Grassland	▭ (light blue)	BAL 12.5
		▭ (green)	Excluded under Clause 2.2.3.2 (e) and (f)	▭ (yellow)	BAL 29
		— (red)	Surrounding development	▭ (light yellow)	BAL Low

Figure 1: BAL compliance Stage 41 The Village at Wellard

N

Scale 1:2,750 at A4

Coordinate System: GDA 1994 MGA Zone 50

Date: 28/09/2018

Q:\Consult\2014\PEE\PEE14071\ArcMap_documents\PEE14071.07\PEE14071_07_G002_Rev8.mxd info@strategen.com.au | www.strategen.com.au

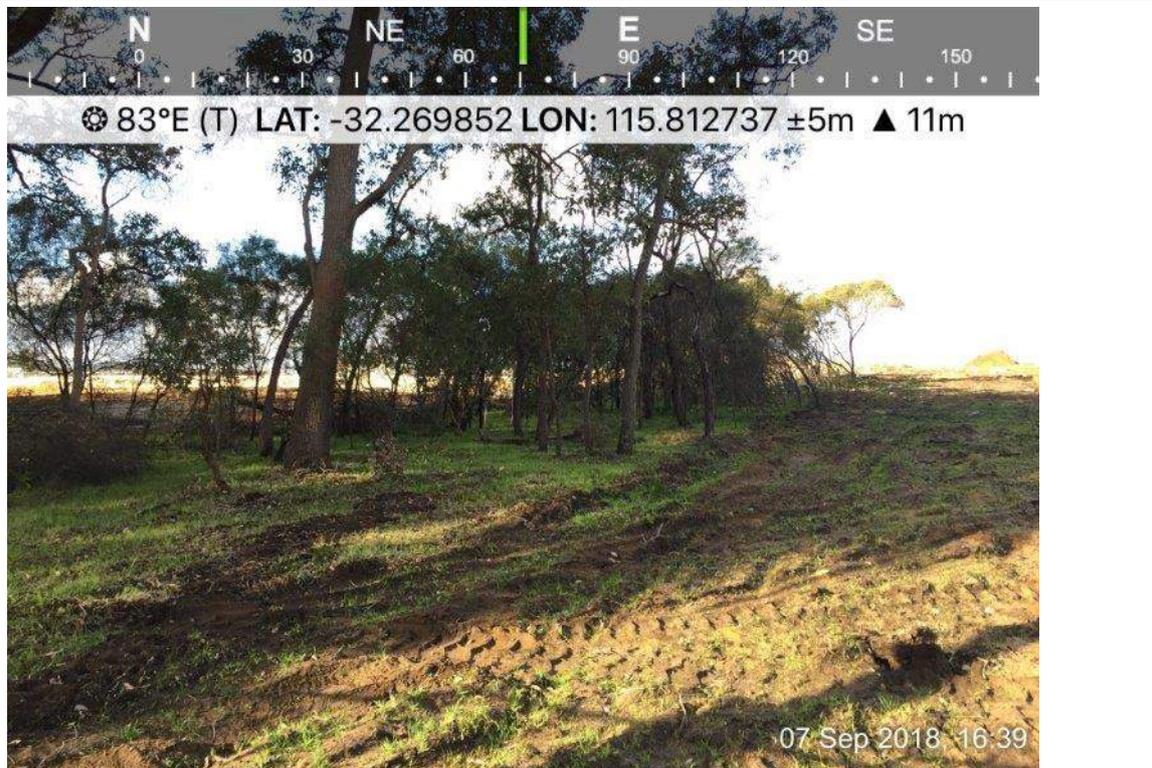
© 2017. Whilst every care has been taken to prepare this map, Strategen & PEET makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Data source: Nearmap: Aerial image, flown 06/2018. Landgate: Cadastre, 11/2017. Client: Development layout, 07/2018. Created by: CJT

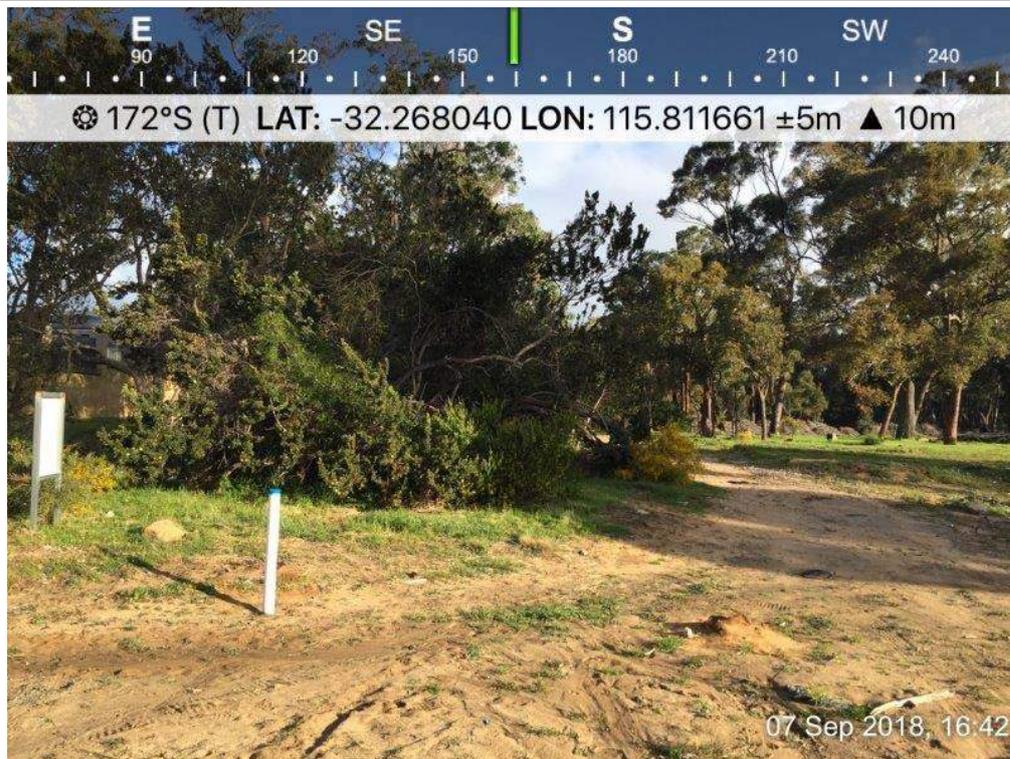
Table 1: Vegetation classification



Plot 1:	Class G Grassland
Photo 1:	Dominated by grasses and fine fuel structure with sparse shrubs



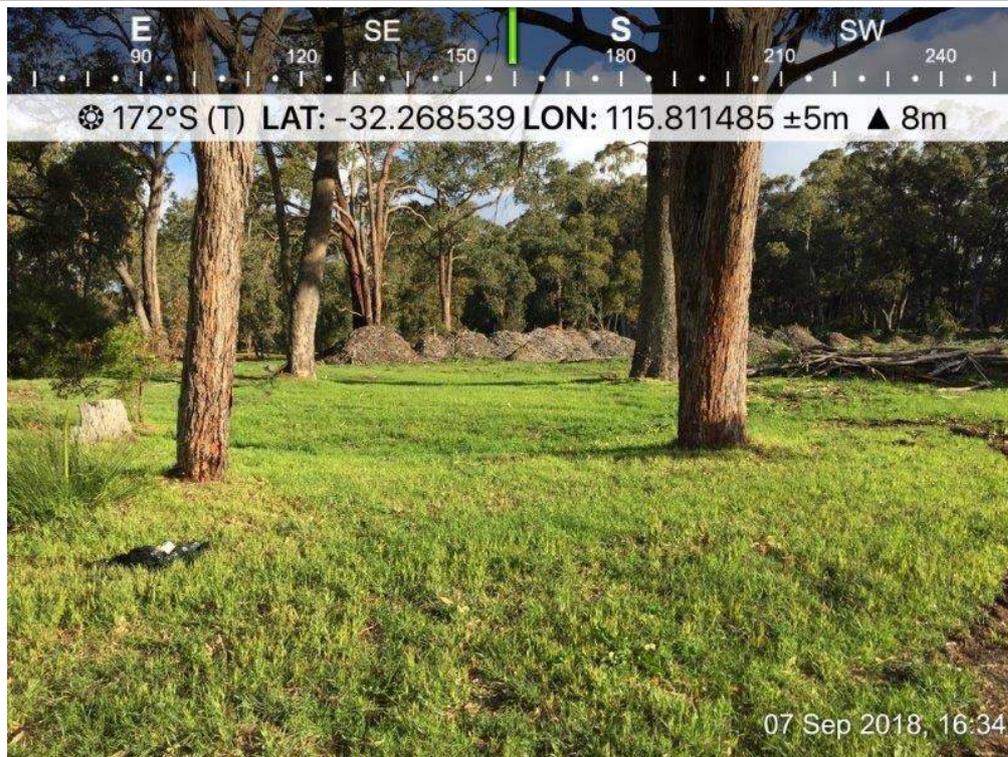
Plot N/A:	Excluded – Low threat (Clause 2.2.3.2 [f])
Photo 2:	Low threat managed vegetation and cleared areas



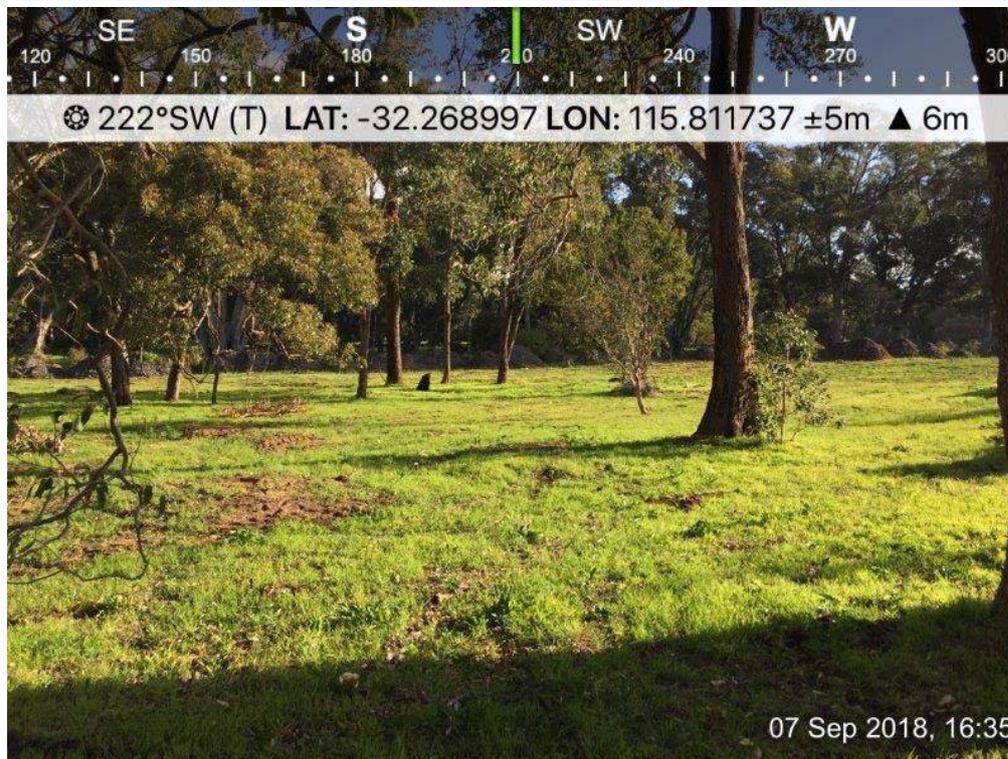
Plot N/A:	Excluded – Non-vegetated & Low threat (Clauses 2.2.3.2 [e] and [f])
Photo 3:	Non-vegetated tracks and low threat managed vegetation



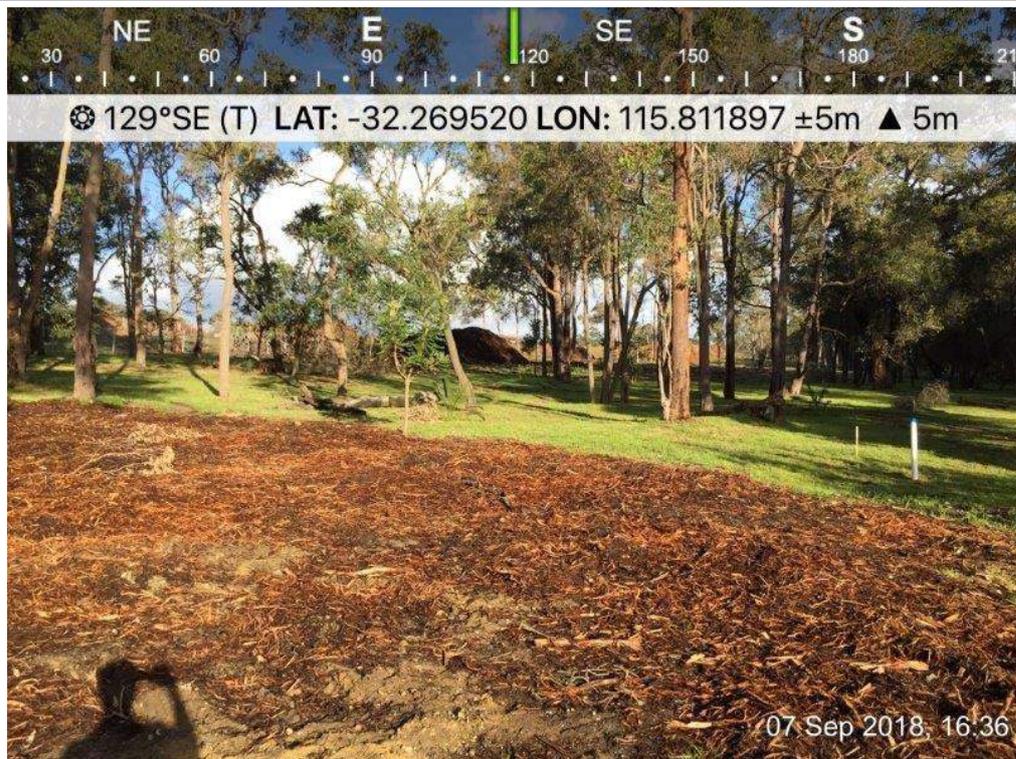
Plot N/A:	Excluded – Low threat (Clause 2.2.3.2 [f])
Photo 4:	Low threat managed vegetation with grass under 100 mm



Plot N/A:	Excluded – Low threat (Clause 2.2.3.2 [f])
Photo 5:	Low threat managed parkland cleared fuel profile



Plot N/A:	Excluded – Low threat (Clause 2.2.3.2 [f])
Photo 6:	Low threat managed parkland cleared fuel profile



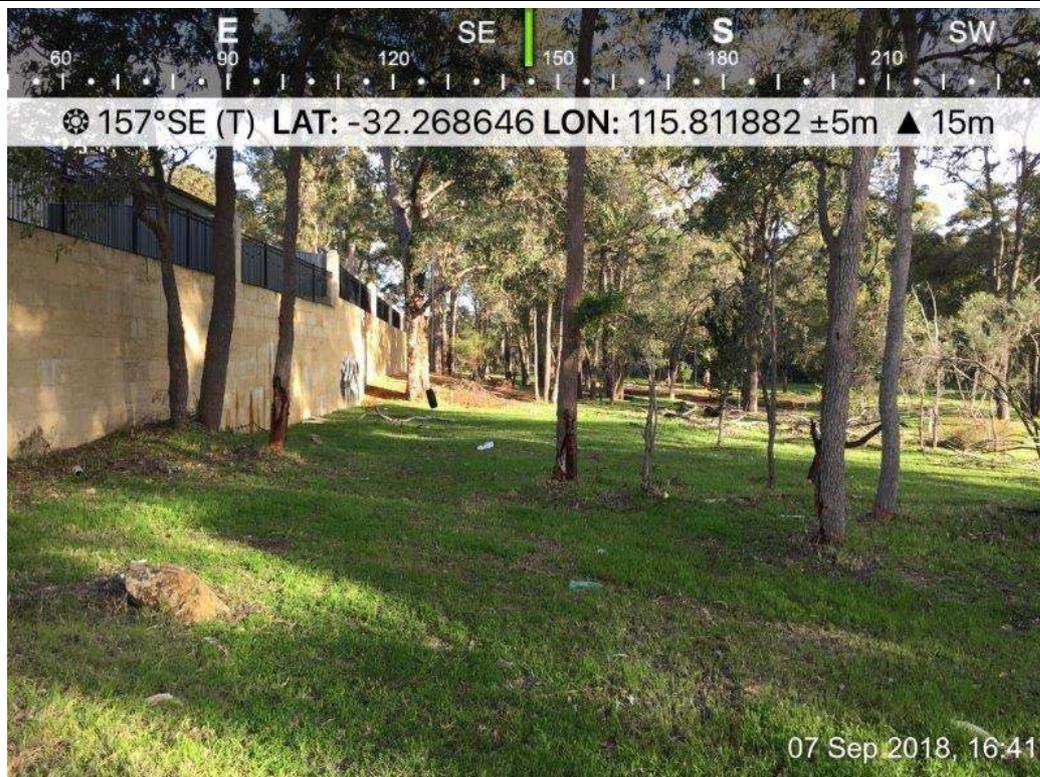
Plot N/A:	Excluded – Low threat (Clause 2.2.3.2 [f])
Photo 7:	Low threat managed parkland cleared fuel profile



Plot N/A:	Excluded – Low threat (Clause 2.2.3.2 [f])
Photo 8:	Low threat managed parkland cleared fuel profile in foreground, Class A forest in background



Plot N/A:	Excluded – Low threat (Clause 2.2.3.2 [f])
Photo 9:	Low threat managed parkland cleared fuel profile



Plot N/A:	Excluded – Low threat (Clause 2.2.3.2 [f])
Photo 10:	Low threat managed parkland cleared fuel profile



Plot N/A:	Excluded – Low threat (Clause 2.2.3.2 [f])
Photo 11:	Low threat managed parkland cleared fuel profile



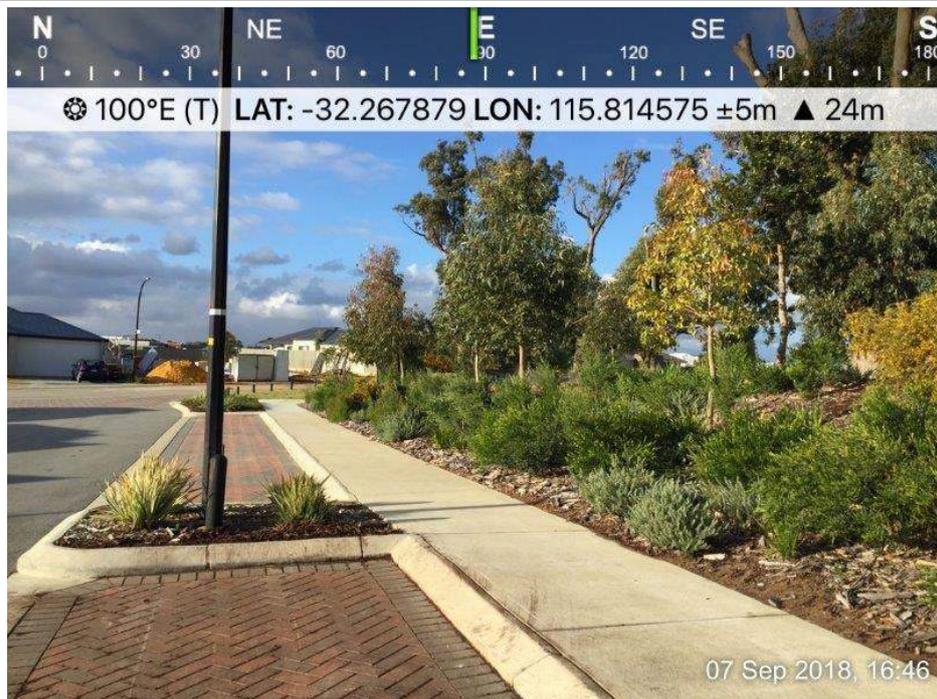
Plot N/A:	Excluded – Non-vegetated (Clause 2.2.3.2 [e])
Photo 12:	Non-vegetated project area



Plot N/A:	Excluded – Non-vegetated & Low threat (Clauses 2.2.3.2 [e] and [f])
Photo 13:	Non-vegetated road surrounded by slashed and low threat grasses



Plot N/A:	Excluded – Non-vegetated (Clause 2.2.3.2 [e])
Photo 14:	Non-vegetated area in preparation for development



Plot N/A:	Excluded – Low threat (Clause 2.2.3.2 [f])
Photo 15:	Managed and low threat gardens with dense woodchip mulch

Relevant Fire Danger Index

The fire danger index for this site/development has been determined in accordance with Table 2.1 of AS 3959–2009 or otherwise determined in accordance with a jurisdictional variation applicable to the site.

Fire Danger Index			
FDI 40 <input type="checkbox"/> <small>Table 2.4.5</small>	FDI 50 <input type="checkbox"/> <small>Table 2.4.4</small>	FDI 80 <input checked="" type="checkbox"/> <small>Table 2.4.3</small>	FDI 100 <input type="checkbox"/> <small>Table 2.4.2</small>

Potential bushfire impacts

The potential bushfire impact to the site/development from each of the identified vegetation plots are identified in Table 2.

Table 2: Method 1 BAL calculation

Classified vegetation	Effective slope	BAL contour width (m)	BAL rating	Comment
Class A forest to the west	Flat/ upslope	<16	BAL-FZ	No development is proposed in this area
		16-<21	BAL-40	No development is proposed in this area
		21-<31	BAL-29	No development is proposed in this area
		31-<42	BAL-19	No development is proposed in this area
		42-<100	BAL-12.5	No development is proposed in this area
Class G grassland to the north	Flat/ upslope	<6	BAL-FZ	No development is proposed in this area
		6-<8	BAL-40	No development is proposed in this area
		8-<12	BAL-29	No development is proposed in this area
		12-<17	BAL-19	No development is proposed in this area
		17-<50	BAL-12.5	No development is proposed in this area

Determined Bushfire Attack Level

The Determined Bushfire Attack Level (highest BAL) for the proposed development has been determined in accordance with Clause 2.2.6 (Simplified Procedure [Method 1]) of AS 3959-2009 using the above analysis and documented in each of the BAL certificates in Appendix 1. No development will occur in areas of BAL-40 or BAL-FZ.

BAL certificates

BAL certificates are provided in Appendix 1 for all 25 residential lots within the project area as per the BAL compliance assessment outlined in Figure 1.

Conclusion and recommendations

This BAL compliance report has been prepared for lots within Stage 41 The Village at Wellard to provide a final BAL check for individual lots for use at the building permit stage. Assessment results are consistent with current on-ground conditions. Strategen can confirm that the existing BMPs over the site have been implemented as intended throughout the duration of subdivisional works for the relevant Stage 41 area and adjacent land to achieve the intended bushfire management outcomes.

In the absence of any change in development design or post-development classified vegetation extent, Strategen considers that the BAL assessment and BAL certificates outlined in this report are accurate to inform individual lot building permit applications.

Should the extent of classified vegetation change or new vegetation be introduced within 100 m of proposed development, then the BAL rating should be reassessed at the building permit stage to ensure accuracy with on-ground conditions.

The BAL assessment outlined in this report is the most up to date assessment relating to the project area and therefore supersedes any previous Strategen BAL assessments undertaken within the project area.

Ongoing requirements of the current City of Kwinana annual firebreak notice should continue to be implemented as required, particularly with regards to ongoing fuel management of vacant land and road reserves.

Appendix 1
BAL certificates

Bushfire Attack Level (BAL) Certificate

Determined in accordance with AS 3959-2009

This Certificate has been issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme. The certificate details the conclusions of the full Bushfire Attack Level Assessment Report (full report) prepared by the Accredited Practitioner.

Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1559	Maltby Way / Stage 41 The Village at Wellard	
Local government area	Suburb			State	Postcode
	Wellard			WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
Method 1	Class A forest	Flat / upslope	>100m	BAL-LOW

BPAD Accredited Practitioner Details

Name Zac Cockerill	<div style="border: 1px solid black; padding: 5px;"> <p>I hereby declare that I am a BPAD accredited bushfire practitioner. </p> <p>Accreditation No. <u>37803</u></p> <p>Signature <u><i>ZC</i></u></p> <p>Date <u>28/9/18</u></p> </div>
Company Details Strategen Environmental	
I hereby certify that I have undertaken the assessment of the above site and determined the Bushfire Attack Level stated above in accordance with the requirements of AS 3959-2009 (Incorporating Amendments 1, 2 and 3).	

Authorised Practitioner Stamp

Reliance on the assessment and determination of the Bushfire Attack Level contained in this certificate should not extend beyond a period of 12 months from the date of issue of the certificate. If this certificate was issued more than 12 months ago, it is recommended that the validity of the determination be confirmed with the Accredited Practitioner and where required an updated certificate issued.

Bushfire Attack Level (BAL) Certificate

Determined in accordance with AS 3959-2009

This Certificate has been issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme. The certificate details the conclusions of the full Bushfire Attack Level Assessment Report (full report) prepared by the Accredited Practitioner.

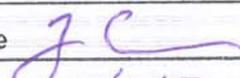
Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1560	Maltby Way / Stage 41 The Village at Wellard	
Local government area	Suburb			State	Postcode
	Wellard			WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
Method 1	Class A forest	Flat / upslope	>100m	BAL-LOW

BPAD Accredited Practitioner Details

Name Zac Cockerill	<div style="border: 1px solid black; padding: 10px;"> <p>I hereby declare that I am a BPAD accredited bushfire practitioner. </p> <p>Accreditation No. <u>37803</u></p> <p>Signature <u></u></p> <p>Date <u>28/9/18</u></p> </div>
Company Details Strategen Environmental	
I hereby certify that I have undertaken the assessment of the above site and determined the Bushfire Attack Level stated above in accordance with the requirements of AS 3959-2009 (Incorporating Amendments 1, 2 and 3).	

Authorised Practitioner Stamp

Reliance on the assessment and determination of the Bushfire Attack Level contained in this certificate should not extend beyond a period of 12 months from the date of issue of the certificate. If this certificate was issued more than 12 months ago, it is recommended that the validity of the determination be confirmed with the Accredited Practitioner and where required an updated certificate issued.

Bushfire Attack Level (BAL) Certificate

Determined in accordance with AS 3959-2009

This Certificate has been issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme. The certificate details the conclusions of the full Bushfire Attack Level Assessment Report (full report) prepared by the Accredited Practitioner.

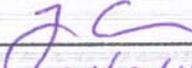
Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1561	Maltby Way / Stage 41 The Village at Wellard	
Local government area	Suburb			State	Postcode
	Wellard			WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
Method 1	Class A forest	Flat / upslope	>100m	BAL-LOW

BPAD Accredited Practitioner Details

Name Zac Cockerill	<div style="border: 1px solid black; padding: 10px;"> <p>I hereby declare that I am a BPAD accredited bushfire practitioner. </p> <p>Accreditation No. <u>37803</u></p> <p>Signature <u></u></p> <p>Date <u>28/9/18</u></p> </div>
Company Details Strategen Environmental	
I hereby certify that I have undertaken the assessment of the above site and determined the Bushfire Attack Level stated above in accordance with the requirements of AS 3959-2009 (Incorporating Amendments 1, 2 and 3).	

Authorised Practitioner Stamp

Reliance on the assessment and determination of the Bushfire Attack Level contained in this certificate should not extend beyond a period of 12 months from the date of issue of the certificate. If this certificate was issued more than 12 months ago, it is recommended that the validity of the determination be confirmed with the Accredited Practitioner and where required an updated certificate issued.

Bushfire Attack Level (BAL) Certificate

Determined in accordance with AS 3959-2009

This Certificate has been issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme. The certificate details the conclusions of the full Bushfire Attack Level Assessment Report (full report) prepared by the Accredited Practitioner.

Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1562	Maltby Way / Stage 41 The Village at Wellard	
Local government area	Suburb			State	Postcode
	Wellard			WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
Method 1	Class A forest	Flat / upslope	>100m	BAL-LOW

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Bushfire Attack Level (BAL) Certificate

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Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1563	Harrogate Road / Stage 41 The Village at Wellard	
Local government area	Suburb		State	Postcode	
	Wellard		WA	6170	
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
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Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1564	Harrogate Road / Stage 41 The Village at Wellard	
Local government area	Suburb			State	Postcode
	Wellard			WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
Method 1	Class A forest	Flat / upslope	>100m	BAL-LOW

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Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1565	Harrogate Road / Stage 41 The Village at Wellard	
Local government area	Suburb			State	Postcode
	Wellard			WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
Method 1	Class A forest	Flat / upslope	>100m	BAL-LOW

BPAD Accredited Practitioner Details

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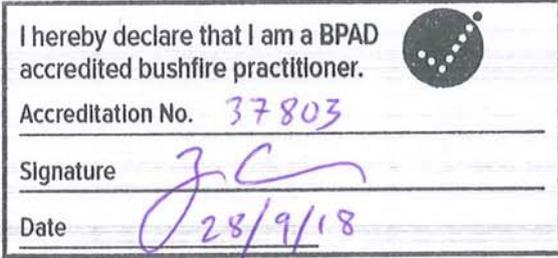
Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1566	Harrogate Road / Stage 41 The Village at Wellard	
Local government area	Suburb			State	Postcode
	Wellard			WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
Method 1	Class A forest	Flat / upslope	>100m	BAL-LOW

BPAD Accredited Practitioner Details

Name Zac Cockerill	 <p>I hereby declare that I am a BPAD accredited bushfire practitioner. Accreditation No. 37803 Signature Date 28/9/18</p>
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Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1567	Harrogate Road / Stage 41 The Village at Wellard	
Local government area	Suburb			State	Postcode
	Wellard			WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
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Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1568	Harrogate Road / Stage 41 The Village at Wellard	
Local government area	Suburb			State	Postcode
	Wellard			WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
Method 1	Class A forest	Flat / upslope	>100m	BAL-LOW

BPAD Accredited Practitioner Details

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Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1569	Harrogate Road / Stage 41 The Village at Wellard	
Local government area	Suburb			State	Postcode
	Wellard			WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
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Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1570	Harrogate Road / Stage 41 The Village at Wellard	
Local government area	Suburb		State	Postcode	
	Wellard		WA	6170	
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

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Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1571	Harrogate Road / Stage 41 The Village at Wellard	
Local government area	Suburb			State	Postcode
	Wellard			WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
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Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1572	Harrogate Road / Stage 41 The Village at Wellard	
Local government area	Suburb		State	Postcode	
	Wellard		WA	6170	
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
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Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1573	Harrogate Road / Stage 41 The Village at Wellard	
Local government area	Suburb			State	Postcode
	Wellard			WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
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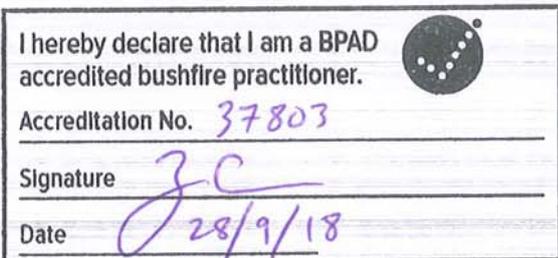
Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1574	Harrogate Road / Stage 41 The Village at Wellard	
Local government area	Suburb			State	Postcode
	Wellard			WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
Method 1	Class A forest	Flat / upslope	>100m	BAL-LOW

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Property Details and Description of Works				
Address Details	Unit no	Street no	Lot no	Street name / Plan Reference
			1575	Harrogate Road / Stage 41 The Village at Wellard
Local government area	Suburb		State	Postcode
	Wellard		WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling	
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure			

Determination of Highest Bushfire Attack Level				
AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
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BPAD Accredited Practitioner Details	
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Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1576	Harrogate Road / Stage 41 The Village at Wellard	
Local government area	Suburb			State	Postcode
	Wellard			WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

Determination of Highest Bushfire Attack Level

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Method 1	Class A forest	Flat / upslope	>100m	BAL-LOW

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Name Zac Cockerill	<div style="border: 1px solid black; padding: 5px;"> <p>I hereby declare that I am a BPAD accredited bushfire practitioner. </p> <p>Accreditation No. <u>37803</u></p> <p>Signature <u><i>ZC</i></u></p> <p>Date <u>28/9/18</u></p> </div> <p><i>Authorised Practitioner Stamp</i></p>
Company Details Strategen Environmental	
I hereby certify that I have undertaken the assessment of the above site and determined the Bushfire Attack Level stated above in accordance with the requirements of AS 3959-2009 (Incorporating Amendments 1, 2 and 3).	

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Bushfire Attack Level (BAL) Certificate

Determined in accordance with AS 3959-2009

This Certificate has been issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme. The certificate details the conclusions of the full Bushfire Attack Level Assessment Report (full report) prepared by the Accredited Practitioner.

Property Details and Description of Works

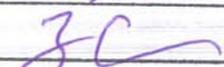
Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1601	Harrogate Road / Stage 41 The Village at Wellard	
Local government area	Suburb			State	Postcode
	Wellard			WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
Description of the building or works	Residential Class 1a dwelling with associated Class 10a structure				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
Method 1	Class A forest	Flat / upslope	>100m	BAL-LOW

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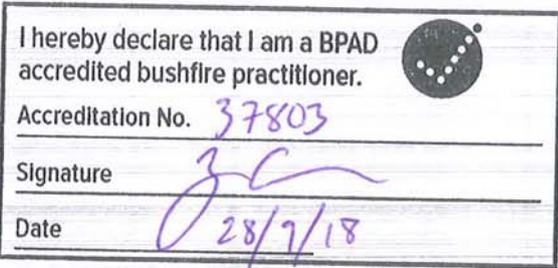
Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
			1602	Harrogate Road / Stage 41 The Village at Wellard	
Local government area	Suburb			State	Postcode
	Wellard			WA	6170
Main BCA class of the building	Class 1a	Use(s) of the building	Residential dwelling		
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			1603	Harrogate Road / Stage 41 The Village at Wellard	
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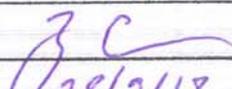
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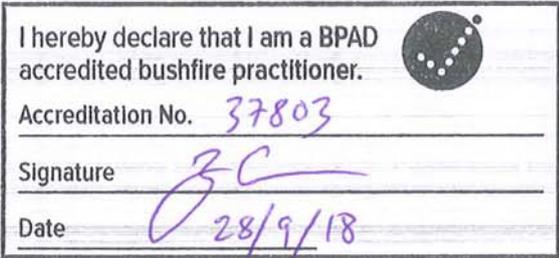
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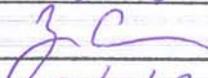
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