



Bushfire Hazard Assessment

90 Gindurra Road, Somersby, 2250. (Lot 4/-/DP227279).



Project Details

Assessed as:	Other Development.
Assessed by	Matthew Noone Accreditation No. BPAD-PD 25584
Highest BAL on any facade	Not Applicable to this type of development.
Project Description	Construction of internal road, construction of a hardstand area, construction of a storm water management system, construction of a noise barrier and construction of production storage bays.
Project Number	BR-75018-F



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27-July-2020



BUSHFIRE RISK ASSESSMENT CERTIFICATION

Development Address	90 Gindurra Road Somersby 2250.
Parcel number	(Lot 4/-/DP227279).
Development description	Proposed Landscape Storage and Recycling Facility
Drawings Reviewed.	Attached to report BR-75018-F.
Assessed Bushfire Attack Level	Not applicable
Does the assessment rely on alternate solutions?	No.
Assessed by Matthew Noone BPAD Accreditation Scheme No.	FPAA No. BPAD-PD 25584
Certificate Number:	BR-75018-F

I hereby certify, in accordance with s.4.14 of the Environmental Planning and Assessment Act 1979 that;

1	I am a person recognised by the NSW Rural Fire Service as a qualified consultant in bushfire risk assessment; and
2	Subject to the recommendations contained in the attached Bushfire Risk Assessment Report the proposed development conforms to the relevant specifications and requirements*

* The relevant specifications and requirements being; specifications and requirements of the document entitled Planning for Bush Fire Protection prepared by the NSW Rural Fire Service in co-operation with the Department of Planning and any other document as prescribed by s.4.14 of the Environmental Planning and Assessment Act 1979.

I am aware that the Bushfire Assessment Report, prepared for the above mentioned site is to be submitted in support of a development application for this site and will be relied upon by Council as the basis for ensuring that the bushfire risk management aspects of the proposed development have been addressed in accordance with Planning for Bushfire Protection (2019).

The following have been provided and or included in our assessment.

- ☒ - Bushfire Risk Assessment Report.
- ☒ - Recommendations.
- ☒ - Statement of vegetation impact in relation to APZ.

CONTROLLED DOCUMENT DISTRIBUTION AND REVISION REGISTER

ISSUED TO	DATE	REVISION	ISSUED BY
Jackson Environmental & Planning	26/02/2018	A	Matthew Noone
Jackson Environmental & Planning	09/03/2018	B	Matthew Noone
Jackson Environmental & Planning	13/03/2018	C	Matthew Noone
Jackson Environmental & Planning	04/07/2018	D (draft)	Matthew Noone
Jackson Environmental & Planning	12/07/2018	D (draft)	Matthew Noone
Jackson Environmental & Planning	18/07/2018	D	Matthew Noone
Jackson Environmental & Planning	20/12/2018	E (draft)	Matthew Noone
Jackson Environmental & Planning	14/01/2019	E	Matthew Noone
Jackson Environmental & Planning	28/07/2020	F (draft)	Matthew Noone
Jackson Environmental & Planning	30/07/2020	F (draft)	Matthew Noone
Jackson Environmental & Planning	30/07/2020	F	Matthew Noone

DISCLAIMER

Quote from Standards Australia *"It should be borne in mind that the measures contained in this Standard cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the degree of vegetation management, the unpredictable nature of behaviour of fire, and extreme weather conditions."*

Bushfire Planning & Design cannot be held liable for any loss of life or property in the event of a bushfire. This report has been based on all relevant bushfire codes and regulations with regard to the construction of a building in a bushfire prone area. Bushfire Planning and Design has no control over workmanship and is rarely asked by the certifier prior to the release of an occupation certificate to advise if the construction standards and recommendations in this report have been adhered to. Buildings degrade over time and vegetation if not managed will regrow. In addition construction standards are subject to change.

This report reflects our opinions of bushfire risk, expected radiant heat loads and required asset protection zones relating to the proposed development. Our views are based on our interpretation of Planning for Bushfire Protection (2019), AS3959 (2018) and the methodology for site specific bushfire assessment. The Rural Fire Service have a higher authority and can upon their review, increase or reject any recommendation contained within this report. Any such recommendations made by the RFS take precedence. Our role is intermediary between our Client and the consenting authority. We apply our knowledge of the standards for bushfire protection to provide the best possible outcome for our Client, both from a bushfire safety and financial perspective. Should the RFS modify our recommendations or reject a proposal we will not be held liable for any financial losses as a result.

This document may only be used for the purpose for which it was commissioned. Bushfire Planning and Design accepts no liability or responsibility for any use or reliance upon this report and its supporting material by any unauthorized third party. Information provided is not intended to be a substitute for site specific assessment or legal advice in relation to any matter. Outcomes within this report may have arisen due to specific advice from our client and in relation to a specific development application therefore the validity of this report is nullified if used for any other purpose than for which it was commissioned. Unauthorized use of this report in any form is strictly prohibited.

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REPORT SUMMARY

Bushfire Planning and Design has been engaged to undertake a bushfire hazard assessment at 90 Gindurra Road, Somersby, 2250. The site is identified as being bushfire prone as depicted on the bushfire prone land map. The site is currently used for storage and sorting of landscape materials and a Development Application (DA) is required to increase the permitted operational area to allow the design and construction of a recycling facility.

The development consists of two stages, stage 1 involving the demolition of existing buildings and the construction of a front office and workshop, front parking areas. DA consent has been approved for stage 1. Stage 2, involves earthworks to facilitate on-site drainage, construction of on-site roads, a hardstand area, a storm water management system, a noise barrier and the construction of waste storage and product storage bays.

The site is located at 90 Gindurra Rd, Somersby (Lot4/DP227279) which is under the jurisdiction of the Central Coast Council. The land is zoned IN1 General Industrial and is accessed from Gindurra road on the northern boundary. Kangoo road borders the southern boundary. The site is currently used for storing and screening soil and sand, which is sold for landscaping. The majority of the site is bushland with approximately 14,000 m² cleared and currently used as a processing and sorting area. Bushland is located to the west of the site and to the north of Gindurra road. Managed land is located to the east and to the south of Kangoo road.

The proposed development has been assessed against the potential threat of bushfire. It is noted that the proposed works relate to the construction of four unenclosed, non-combustible and non-habitable structures (mulcher operation building, crusher operation building, aggregate storage bay, landscape storage bay, waste receival bay and waste storage bay). The proposed development is considered to be "Other Development" in the context of PBP (2019).

Building classifications 5-8 and Class 10 buildings not associated with a Class 1 structure are not required to comply with AS3959 (2018) with regards to the construction of a building in a bushfire prone area. The general fire safety construction provisions of the NCC (2020) are taken as acceptable solutions, but the aims and objectives of PBP (2019) apply in relation to other matters such as access, water and services, emergency planning and landscaping/vegetation management. All proposed built structures are non-combustible and suitably located. In the event of a bushfire it is our view that the proposed development will not influence bushfire behaviour and will not increase bushfire risk for any adjoining properties.

There are no specific asset protection zones required for this type of development. The RFS have requested that the entire development area be managed as an Inner APZ. In addition to managing the development area as an Inner APZ, all storage bays are bounded by concrete retaining walls that will prevent potential fire spreading from the subject site onto adjoining bush land and vice versa.

Unobstructed vehicular access is provided to all key areas within the development site and unobstructed pedestrian access is provided to the rear of the site consistent with the RFS recommendations.

Site access, including access via the public road system is suitable for emergency response vehicles. The development complies with Planning for Bushfire Protection (2019) with regards to the provision of water. The requirements for electricity and gas (if applicable) can also be complied with. A bushfire emergency evacuation plan has been prepared such that employees and visitors are informed about suitable egress routes away from the site in the event of bushfire.

We trust that the information within this report is satisfactory. Should you wish to discuss any of the above, please contact the undersigned.

Regards,



Matthew Noone

Grad.Dip. Design for Bushfire Prone Areas.

BSc (Geology)

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T/A Bushfire Planning and Design



SECTION 1. BACKGROUND AND BRIEFING NOTES

1.0 INTRODUCTION

Bushfire Planning and Design has been engaged to undertake a bushfire hazard assessment at the subject site. The site is mapped as being bushfire prone under Section 10.3 (2) of the Environmental Planning and Assessment Act 1979.

The development is captured under Section 4.14 of the Environmental Planning and Assessment Act 1979; Consultation and development consent – certain bush fire prone land. For the purpose of bushfire assessment the development is considered infill development as described in the New South Wales Rural Fire Service document Planning for Bushfire Protection (PBP 2019). The site is currently used for storage and sorting of landscape materials and a Development Application is required to increase the permitted operational area to allow the design and construction of a recycling facility.

The proposed development relates to the proposed construction of internal roads, non-habitable structures, storage bays, hardstands and earth works. The development is considered to be a Class 7 development (National Construction Code (NCC 2020) Classification). Class 7 and Class 10 developments are not required to comply with the NCC (2020) with regards to bushfire protection and as a consequence, nor are they required to comply with AS3959. The general fire safety provisions of the NCC are deemed to be adequate. The project is required to comply with the aims and objectives of Planning for Bushfire Protection (2019) with regards to access, water supply and services, emergency evacuation and planning.

1.2 SITE DESCRIPTION

The site is located at 90 Gindurra Rd, Somersby (Lot4/DP227279) which is under the jurisdiction of the Central Coast Council. The land is zoned IN1 General Industrial and is accessed from Gindurra road on the northern boundary. Kangoo road borders the southern boundary. The site is currently used for storing and screening soil and sand, which is sold for landscaping. The majority of the site is bushland with approximately 14,000 m² cleared and currently used as a processing and sorting area. Bushland is located to the west of the site and to the north of Gindurra road. Managed land is located to the east and to the south of Kangoo road.

1.3 PURPOSE OF THE REPORT

Development applications on bush fire prone land must be accompanied by a Bush Fire Assessment within the Statement of Environmental Effects demonstrating the degree to which the proposed development complies with or deviates from the aims, objectives and performance criteria of Planning for Bushfire Protection (2019).

- To determine the expected fire behaviour and threat to the proposed development.
- To provide the land owner, Central Coast Council, the RFS and other relevant stakeholders with a bushfire report that determines the extent of the bushfire hazard on and surrounding the subject site.
- To identify compliance with the Building Code of Australia (BCA).
- To identify compliance with the specific objectives and performance requirements of Planning for Bushfire Protection (2019).

1.4 SCOPE OF THE REPORT

This report has been prepared to accompany the specific development application referred to in this document and as attached in Appendix B. This report has considered all current relevant bushfire legislation, planning instruments, codes and standards for the construction of a building in a bush fire prone areas. For the purpose of this report it is necessary to describe the surrounding vegetation to 140m from the boundary and slope to 100m from the boundary. This report does not directly assess the bushfire hazard on any adjacent site and cannot be used to support any development on an adjoining allotment.

1.6 REGULATORY FRAMEWORK

The main legislation, planning instruments, development controls and guidelines that are related to this project are as follows;

4.14 Consultation and development consent— certain bush fire prone land

(1) Development consent cannot be granted for the carrying out of development for any purpose (other than a subdivision of land that could lawfully be used for residential or rural residential purposes or development for a special fire protection purpose) on bush fire prone land unless the consent authority:

(a) is satisfied that the development conforms to the specifications and requirements of the document entitled Planning for Bush Fire Protection, prepared by the NSW Rural Fire Service in co-operation with the Department of Planning (or, if another document is prescribed by the regulations for the purposes of this paragraph, that document) that are relevant to the development (“the relevant specifications and requirements”), or

(b) has been provided with a certificate by a person who is recognised by the NSW Rural Fire Service as a qualified consultant in bush fire risk assessment stating that the development conforms to the relevant specifications and requirements. (EPA & A, 1979).

Class 1, 2, 3, 4, 9 Special Fire Protection Purpose and Class 10a building or deck associated with a Class 1 buildings are required to comply with the Building Code of Australia. The BCA is a performance based code which derives its statutory power from the Environmental Planning and Assessment Act 1979.

The BCA contains both performance requirements and deemed-to-satisfy provisions for all aspects of building, including the construction of buildings in bush fire prone areas. Compliance with the performance requirements of the BCA is achieved by way of a deemed to satisfy solution which is satisfied by;

A	Complying with AS3959, the Australian Standard for the Construction of Buildings in Bushfire Prone Areas except as amended by Planning for Bush Fire Protection; and for Section 9 for Bushfire Attack Level FZ (BAL-FZ); or
B	Complying with the NASH Standard – Steel Framed Construction in Bushfire Areas except—as amended by Planning for Bush Fire Protection; and for buildings subject to Bushfire Attack Level FZ (BAL-FZ); or
C	The requirements above as modified by the development consent following consultation with the NSW Rural Fire Service under section 4.14 of the Environmental Planning and Assessment Act 1979 if required; or
D	The requirements above as modified by development consent with a bushfire safety authority issued under section 100B of the Rural Fires Act 1997 for the purposes of integrated development.

SECTION 1. BACKGROUND AND BRIEFING NOTES

1.1 INTRODUCTION

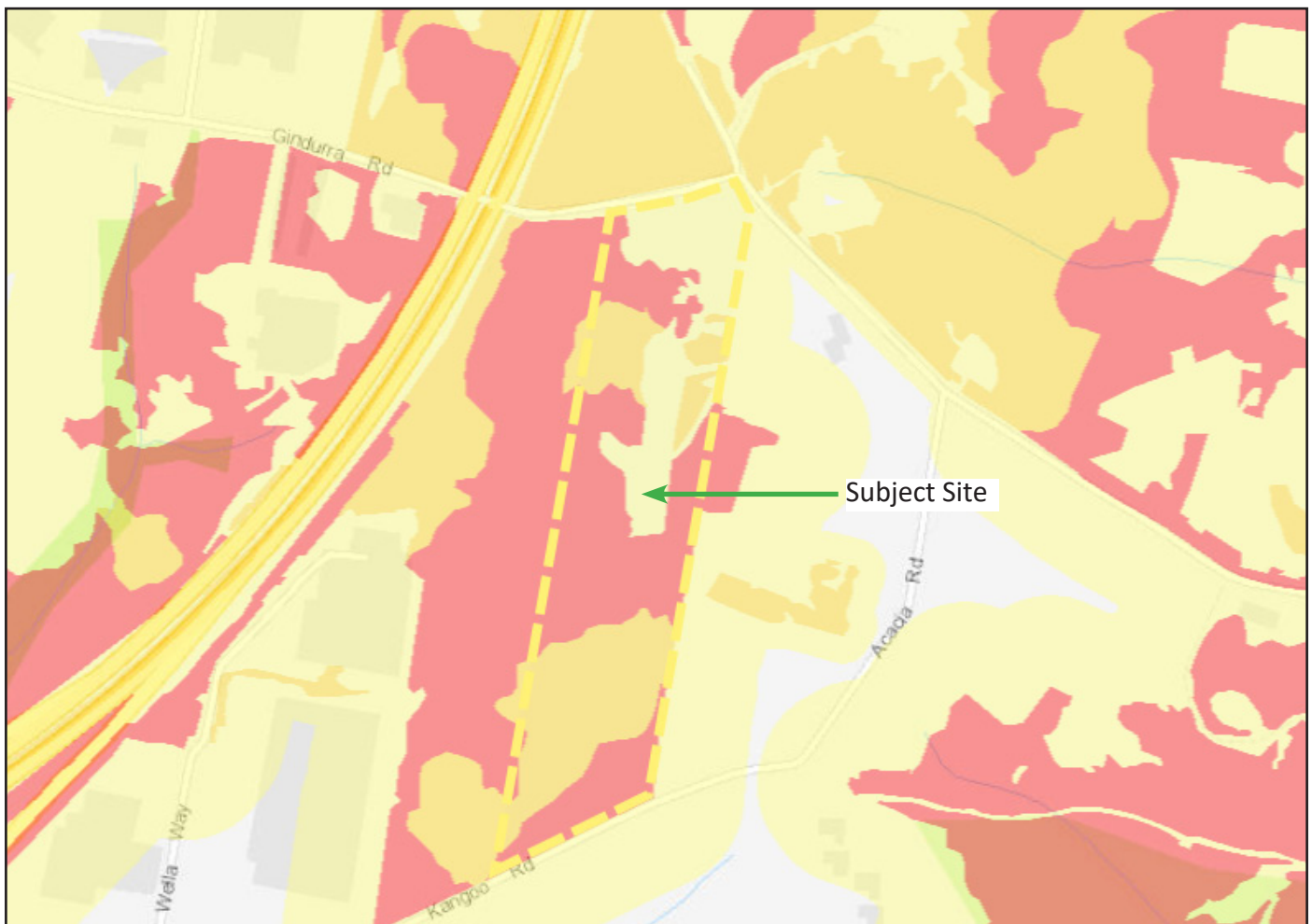
The subject site whether in whole or part is recorded as bushfire affected on a relevant map certified under Section 10.3 (2) of the Environmental Planning and Assessment Act 1979. The development relates to the development of bushfire prone land and therefore must address the legislative requirements stipulated in Section 4.14 of the Environmental Planning and Assessment Act 1979. The development is required to comply with the New South Wales Rural Fire Service document Planning for Bushfire Protection (2019).

Figure A - BUSHFIRE PRONE LAND MAP

Date of Issue 27 July 2020

Department of Planning, Industry and Environment (www.planningportal.nsw.gov.au).

Certified Bushfire Prone Land Map extract obtained from the Planning Portal managed by the Department of Planning, Industry and Environment. Found at www.planningportal.nsw.gov.au. The subject site is mapped as bushfire affected.



100m Buffer



Vegetation Category 2



Vegetation Category 1

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SECTION 2. PBP 2019 OBJECTIVES “OTHER DEVELOPMENT”

The NCC does not provide for any bush fire specific performance requirements for these particular classes of buildings. As such AS 3959 and the NASH Standard are not considered as a set of Deemed to Satisfy provisions, however compliance with AS 3959 and the NASH Standard must be considered when meeting the aims and objectives of PBP. Whilst bush fire is not captured in the NCC for Class 5-8 buildings, the following objectives will be applied in relation to access, water supply and services, and emergency and evacuation planning (PBP 2019 s.8.3.1);

PBP (2019): To provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation.

Bushfire Planning and Design Comment:

The facility is designed to facilitate the entry of large vehicles into the site. Suitable access and egress is provided for firefighters providing property protection during a bush fire and for occupant egress for evacuation.

Can compliance be achieved?

Yes.

PBP (2019): To provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development.

Bushfire Planning and Design Comment:

A bushfire emergency management plan has been prepared for the development. This is consistent NSW RFS publication: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan.

Can compliance be achieved?

Yes.

PBP (2019): To provide adequate services of water for the protection of buildings during and after the passage of bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.

Bushfire Planning and Design Comment:

Reticulated water is connected to the site. Suitable water provisions are provided. No gas services are proposed.

Can compliance be achieved?

Yes.

PBP (2019): Provide for the storage of hazardous materials away from the hazard wherever possible.

Bushfire Planning and Design Comment:

The facility is designed to store aggregates, metals, asphalt, landscaping mulches and timber. The majority of the materials are non combustible. All combustible materials are separated from any bush land with 3m-5m high concrete walls. The non-combustible separation will mitigate the potential transfer of fire from the subject site to the surrounding bush land and vice versa.

Can compliance be achieved?

Yes.

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SECTION 3. BUSHFIRE ATTACK LEVEL ASSESSMENT

2.1 INTRODUCTION

For the purpose of this bushfire assessment, the vegetation is required to be described to a distance of 140m from the boundary and the slope to 100m from boundary. Vegetation type and slope under vegetation are the factors that will significantly affect bushfire behaviour.

‘Research has shown that 85% of houses are lost in the first 100m from bushland and that ember attack is a significant form of attack on properties’ (RFS 2006).

We note that with the exception of the processing shed, admin office and amenities building which has already had development consent, all other proposed structures relating to this development are open dominantly non-combustible storage bays which will be utilized for the storage and recycling of building and landscaping materials. A crusher building and timber mulching building are located within the processing area.

2.2 EXECUTIVE SUMMARY

To clarify our findings, the vegetation within 100m of the site which could significantly influence bushfire behaviour is Hawkesbury Banksia Scrub and Hawkesbury Woodland. The northern part of the site has been part cleared (approximately 14,000m²) for its current land usage approved under a separate development application. Disturbed canopy, bare ground and patches of vegetation and regrowth are distributed around the northern part of the site (refer site photos in appendix). The proposed development will extend the existing facility towards the south.

The vegetation to the south of the proposed works is a combination of Hawkesbury Banksia Scrub and Hawkesbury Woodland (Gosford Council vegetation mapping). The land to the west of the proposed works is dominantly Hawkesbury Banksia Scrub and the land to the east is dominantly managed land.

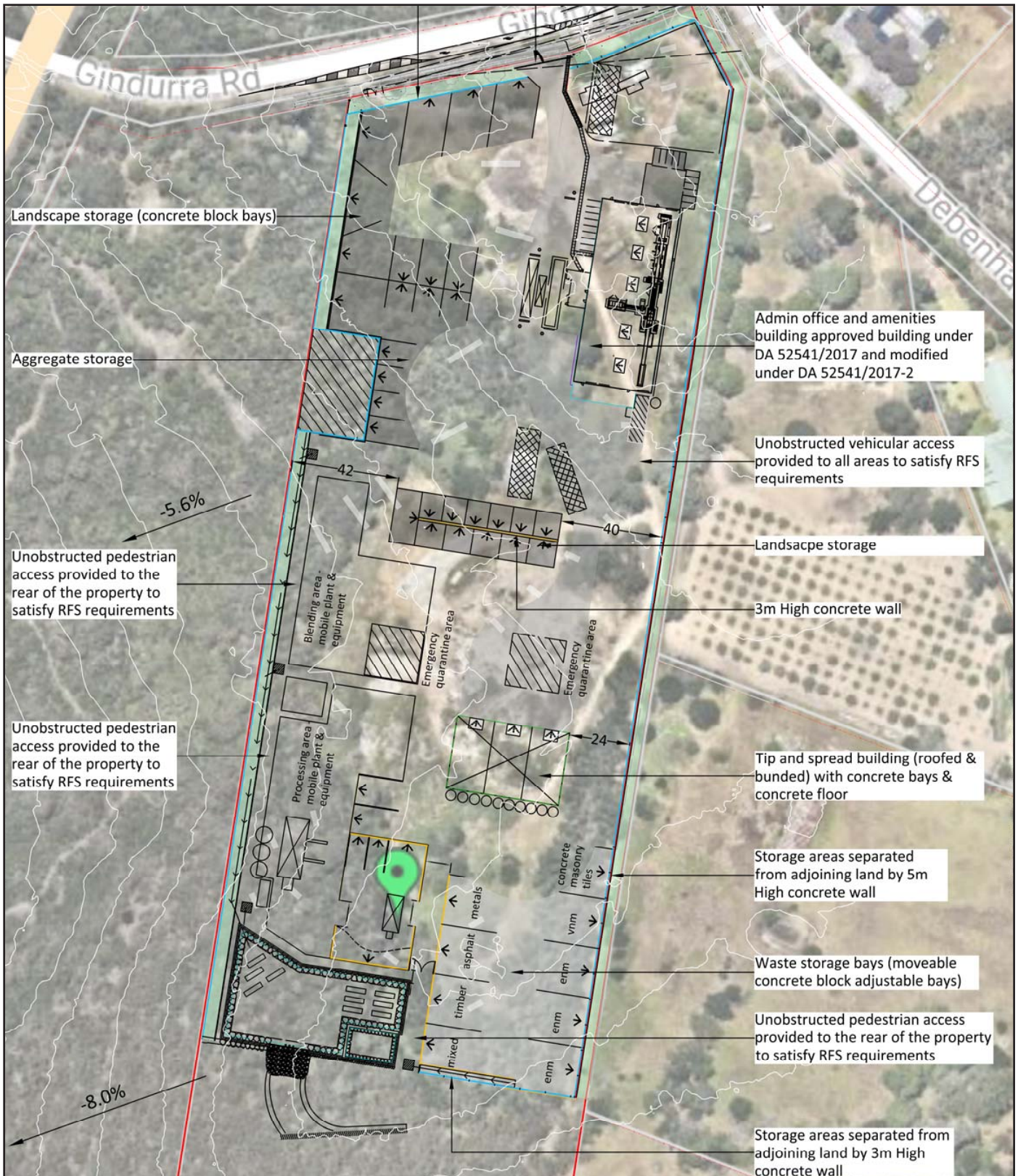
The effective slope is 0-5° down-slope the west, east and south and up-slope to the north.

As per the requirements of PBP (2019) and the NCC (2020), the proposed development is not required to be constructed to any specific bushfire attack level (BAL). The proposed development is suitably separated from the adjoining bush land by 3-5m high concrete retraining walls. Each of the storage bays are open structures enclosed within moveable concrete block bays. Any potential fire that may occur within the storage areas will be contained within the concrete holding bays.

The separation of the storage areas from the adjoining lands by non-combustible retaining walls is deemed to be appropriate. As per the RFS recommendations, suitable internal access provisions allow RFS vehicular access to key structures within the site and unobstructed pedestrian access is provided to the rear of the property.

Figure 1B - Site Analysis Drawing

Date of Issue 27 July 2020

Aerial image modified from Near Map (www.nearmap.com.au)**LEGEND**

- Not used.
- Not used.

NOTES:

1. The slope data used for this assessment has been based on 2m LiDAR contours.

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SECTION 4. ASSET PROTECTION ZONE (APZ) REQUIREMENTS

PERFORMANCE CRITERIA (PBP 2019)

Intent of measures: to provide sufficient space and maintain reduced fuel loads, so as to ensure radiant heat levels at buildings are below critical limits and to prevent direct flame contact with a building.

- A defensible space is to be provided within the boundary of the site.
- An asset protection zone is provided and maintained for the life of the development.

Asset protection zones and in particular the Inner Asset Protection Zones are critical for providing defensible space and reducing flame length and rate of spread (PBP 2019). APZs are designed to provide sufficient open space for emergency workers to operate and for occupants to egress the site safely. They are divided into Inner Asset Protection Areas (IPAs) and Outer Asset Protection Areas (OPAs) and are required to be maintained for the life of the development. The IPA provides for defensible space and a reduction of radiant heat levels at the building line and the OPA provides for the reduction of the rate of spread and filtering of embers. The required Asset Protection Zones are identified in table 5 below.

TABLE 5.0				
	NORTH	SOUTH	EAST	WEST
REQUIRED APZ	18m	18m	18m	18m
ACHIEVED APZ	> 18m	> 18m	> 18m	> 18m

Based on woodland (and scrub) with a maximum 0-5° down-slope, a minimum 18m APZ is recommended to be applied around each proposed structure. We note that the proposed development relates to non-habitable open storage bays. The intent of providing APZs for the various storage bays is to provide a non-combustible buffer to prevent fire spreading from the subject site onto adjoining bushland and vice versa. The RFS have requested that the entire development area be managed as an inner APZ. The following points are to be adhered to for the provision of APZs.

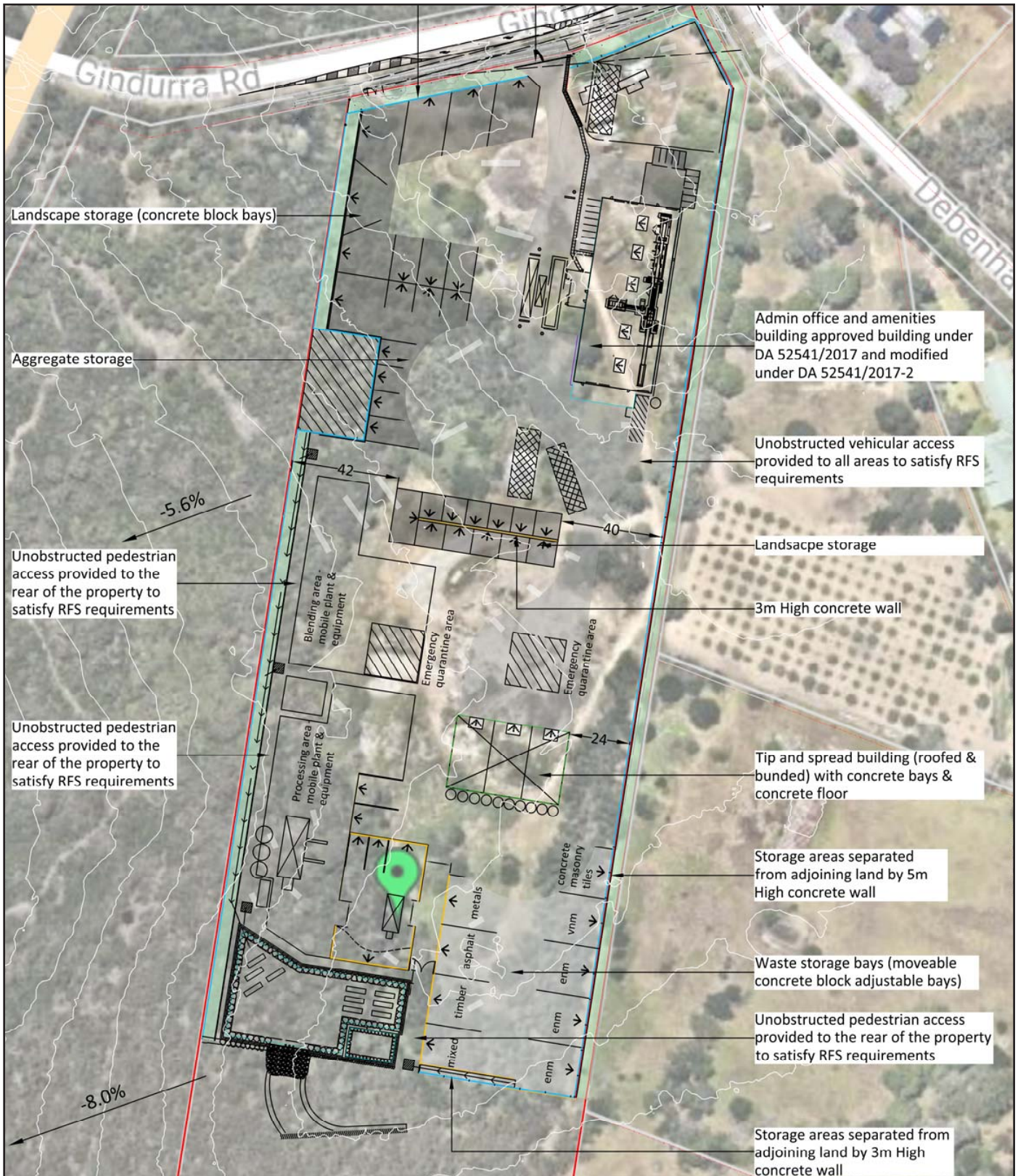
- The Inner Asset Protection Area (IPA) is to have a tree canopy cover less than 15%.
- The Outer Asset Protection Area (OPA) is to have a tree canopy cover less than 30%.
- No trees are to be located within 2m of the building roof line.
- Garden beds with flammable shrubs are to be located a minimum 10m from the building.
- Tree limbs within 2m of the ground are to be removed.
- Removal of ground fuels should be removed each year prior to the bushfire season (October-March).

Refer to the Rural Fire Service document “Standards for Asset Protection” for information, methods etc for creating and maintaining asset protection zones. Extracts from this document have been attached to the appendix of this report.

ADDITIONAL COMMENTS IN RELATION TO ASSET PROTECTION ZONES	ACCEPTABLE SOLUTION
The proposed development can comply with PBP (2019).	

Figure 1C - ASSET PROTECTION ZONES

Date of Issue 27 July 2020

Aerial image modified from Near Map (www.nearmap.com.au)**LEGEND**

- Not used.
- Not used.

NOTES:

1. The slope data used for this assessment has been based on 2m LiDAR contours.

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SECTION 5. CONSTRUCTION REQUIREMENTS

PERFORMANCE CRITERIA (PBP 2006)	ACCEPTABLE SOLUTION
<p>It must be demonstrated that a proposed building can withstand bush fire attack in the form of wind, smoke, embers, radiant heat and flame contact. Class 7 developments and Class 10 developments not associated with a Class 1 dwelling are not required to comply with the deemed to satisfy provisions of the NCC (NCC 2020, G5.2). The general fire safety construction provisions are taken as acceptable solutions, but the aims and objectives of PBP apply in relation to other matters such as access, water and services, emergency planning and landscaping/vegetation management.</p> <p>There are no specific construction requirements applicable to the proposed development.</p>	

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SECTION 6. ACCESS REQUIREMENTS

PERFORMANCE CRITERIA (PBP 2006)

Intent of measures: To provide safe operational access for emergency services personnel in suppressing a bush fire, while residents are accessing or egressing an area.

- Fire-fighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.
- The capacity of access roads is adequate for fire-fighting vehicles.
- There is appropriate access to water supply.
- Fire-fighting vehicles can access the dwelling and exit the property safely.

PUBLIC ROADS - SPECIFIC REQUIREMENTS

No specific public road requirements. The public road system is deemed to be adequate.

PROPERTY ACCESS - SPECIFIC REQUIREMENTS

The following criteria are to be applied to the proposed access onto and inside the site.

- Minimum carriageway width of 4.5m (one way) or 8m (two way).
- Minimum vertical clearance of 4m to any overhanging obstructions.
- Curves have a minimum 6m inner radius.
- Minimum 6m between inner and outer curves.
- Crossfall is not more than 10°.
- Maximum grades for sealed roads is 15°.
- Maximum grades for unsealed roads is 10°.
- Some short constrictions in the access may be accepted where they are not less than 3.5m and extend for no more than 30m
- For internal roads: roads are to be through roads. Maximum length of a dead end roads is 100m in from a through road. Dead end roads to be clearly sign posted.
- For internal roads: provide a minimum 12m outer radius turning circle for dead end roads.

ADDITIONAL COMMENTS IN RELATION TO ACCESS

ACCEPTABLE SOLUTION

Unobstructed vehicular access is provided to all key areas within the development site and unobstructed pedestrian access is provided to the rear of the site consistent with the RFS recommendations. The proposed development can comply with PBP (2019).

SECTION 7. SERVICES REQUIREMENTS - WATER

PERFORMANCE CRITERIA (PBP 2006)

Intent of measures: to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building

- Adequate water and electricity services are to be provided for fire fighting operations.

WATER - SPECIFIC REQUIREMENTS

The proposed development can comply with the PBP (2019) with regards to water requirements. Reticulated water is provided however the hydrant sizing, spacing or pressures have not been tested. Fire hydrant spacing, sizing and pressures comply with the Australian Standard AS 2419.1. It is assumed that reticulated water services installed by Central Coast Council (Gosford City Council) have been installed in accordance with the Australian Standard. No additional water for the suppression of bushfire is required for the proposed development. The following points are to be adhered to for the life of the development.

- All above ground water and gas service pipes and fittings external to the building are to be metal.

ADDITIONAL COMMENTS IN RELATION TO THE PROVISION OF WATER

ACCEPTABLE SOLUTION

Fire hydrants and fire hose reels are suitably distributed within the site and that the hydraulic design can comply with the relevant clauses of AS 2419.1:2005 for fire hydrant spacing, design, sizing and flow rates. Therefore the intent of measures is to provide adequate services of water for the protection of buildings during and after the passage of a bush fire in the context of PBP is satisfied. The proposed development can comply with PBP (2019).

SECTION 8. SERVICES REQUIREMENTS - ELECTRICITY & GAS

PERFORMANCE CRITERIA (PBP 2006)

Intent of measures: to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building

- Gas and electricity services are to be located so as not to contribute to the risk of fire to a building.

ELECTRICITY AND GAS - SPECIFIC REQUIREMENTS

The proposed development can comply with the PBP (2019) with regards to electricity and gas requirements. The following points are to be adhered to (where applicable) for the provision of electricity and gas services where applicable.

ELECTRICITY REQUIREMENTS

- Where practicable place electrical transmission lines are underground or,
- If overhead electrical transmission lines are proposed:- lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).

GAS REQUIREMENTS

- Reticulated or bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities.
- Metal piping is to be used.
- All fixed gas cylinders are to be kept clear of all flammable materials to a distance of 10m and shielded on the hazard side of the installation.
- Release valves are directed away from the building and at least 2m away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are to be metal.
- Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used.

ADDITIONAL COMMENTS IN RELATION TO THE PROVISION OF ELECTRICITY AND GAS.**ACCEPTABLE SOLUTION**

The proposed development can comply with PBP (2019).

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SECTION 09. LANDSCAPING AND PROPERTY MAINTENANCE

GENERAL REQUIREMENTS (PBP 2006)

It is expected that the nominated APZs will be maintained by the owner of the land as part of the development. It is accepted practice that after construction of a dwelling, gardens will be established and landscaping of the grounds will be undertaken. The following principles should be applied for the establishment of gardens and property maintenance.

GARDEN DESIGN

- Apply the principles for APZ and vegetation management as attached to the appendix of this report.
- Maintain short cropped grass less than 100mm adjacent to any building.
- Keep areas under fences, fence posts and gates and trees raked and cleared of fuel.
- Utilising non-combustible fencing and retaining walls.

MAINTENANCE

Prior to the bushfire season which runs from October to March the site should be maintained utilising the following guidelines from Appendix 5 PBP (2019).

- Remove organic material from the roof and gutters and valleys.
- Check tiles and roof lines for broken tiles or dislodged roofing materials.
- Ensure painted surfaces are in good condition with decaying timbers being given particular attention to prevent the lodging of embers within gaps.
- Doors are fitted with draught seals and well maintained.
- Mats are of non combustible material or in areas of low potential exposure.
- Screens on windows and doors are in good condition without breaks or holes in fly screen material and frames are well fitting into sills and window frames.
- Where applicable, check pumps and water supplies are available and in working order.
- Where applicable, drenching or spray systems are tested before the fire season.
- Hoses and hose reels are not perished and fittings are tight and in good order.
- Woodpiles, garden sheds and other combustible materials are located away from the house.

SECTION 10. SYDNEY REGIONAL ENVIRONMENTAL PLAN NO.20

As per the Fire and Incident Management Study brief for the Proposed Development of Kariong Sand and Soil Supplies, the Sydney Regional Environmental Plan No.20 is required to be addressed. The Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River (No 2—1997) encompasses the Greater Metropolitan Region and includes the Gosford area.

Part 2 Clause 6(2) of the plan provides guidelines for environmentally sensitive areas. The policy relates to

“ The environmental quality of environmentally sensitive areas must be protected and enhanced through careful control of future land use changes and through management and (where necessary) remediation of existing uses”.

The following table provides comments on how from a bushfire perspective the development complies with the strategies identified in the plan.

Sydney Regional Environmental Plan No 20 Part 2 Clause 6.2 Strategies		Compliance
(a)	Rehabilitate parts of the riverine corridor from which sand, gravel or soil are extracted so that attached aquatic plant beds are replaced and water quality and faunal habitats improved.	Not applicable
(b)	Minimise adverse impacts on water quality, aquatic habitats, riverine vegetation and bank stability.	Not applicable
(c)	Minimise direct and indirect adverse impacts on land reserved or dedicated under the National Parks and Wildlife Act 1974 or the Forestry Act 1916 and conservation area sub-catchments in order to protect water quality and biodiversity.	Not applicable
(d)	Protect wetlands (including upland wetlands) from future development and from the impacts of land use within their catchments.	Not applicable
(e)	Consider the need to include buffer zones (such as adequate fire radiation zones) for proposals on land adjacent to land reserved or dedicated under the National Parks and Wildlife Act 1974 or the Forestry Act 1916.	Not applicable (Adjoining lands are not reserved for National Parks and Wildlife or the Forestry).
(f)	Consider the views of the Director-General of National Parks and Wildlife about proposals for land adjacent to land reserved or dedicated under the National Parks and Wildlife Act 1974.	Not applicable
(g)	Consideration should be given to the impact of the development concerned on the water table and the formation of acid sulphate soils.	Not applicable
(h)	New development in conservation area sub-catchments should be located in areas that are already cleared.	Not applicable

SECTION 11. GLEP 2014 and GDCP 2013

GOSFORD LOCAL ENVIRONMENTAL PLAN (GLEP) 2014.

We have reviewed the Gosford Local Environmental Plan 2014. Clause 5.11 of the plan relates to bushfire hazard reduction and states the following:

“ Bush fire hazard reduction work authorised by the Rural Fires Act 1997 may be carried out on any land without development consent. Note. The Rural Fires Act 1997 also makes provision relating to the carrying out of development on bush fire prone land”.

Clause 5.11 (GLEP 2014) does not affect the proposed development in any way. The land owner currently has a responsibility to manage the bush fire hazards on their property and this will continue into the future. Before undertaking bushfire hazard reduction the owner will need to obtain a bush fire hazard reduction certificate, use the 10/50 Vegetation Clearing Code of Practice or obtain a fire permit before using fire to treat a bush fire hazard the property. During the bush fire danger period a permit may also be required. With regards to lighting fires for the purpose of hazard reduction in the future it is advisable to contact the local RFS or Council.

GOSFORD DEVELOPMENT CONTROL PLAN (GDCP) 2013.

We have reviewed the Gosford Development Plan 2013 and did not sight any clauses that relate or affect the development at 90 Gindurra Road.

SECTION 12. RECOMMENDATIONS

Prior to the bushfire season which runs from October to March, the property should be maintained in accordance with the guidelines in Section 9.

We recommend that at bushfire emergency evacuation plan is prepared such that employees and visitors are informed about suitable egress routes away from the site in the event of bushfire.

SECTION 13. DEVELOPMENT REQUIREMENTS

The following points are to be complied with as part of this development.

1. Comply with the APZ requirements nominated in Section 4.
3. Comply with the provision of water, electricity and gas (where applicable) as discussed in Section 7 & 8.
4. Comply with the access provisions as discussed in Section 6.
5. Comply with the landscaping and property maintenance requirements in Section 9.

SECTION 14. CONCLUSION

The proposed development has been assessed against the potential threat of bushfire. It is noted that the proposed works relate to the construction of four unenclosed, non-combustible and non-habitable structures (mulcher operation building, crusher operation building, aggregate storage bay, landscape storage bay, waste receival bay and waste storage bay). The proposed development is considered to be “Other Development” in the context of PBP (2019).

Building classifications 5-8 and Class 10 buildings not associated with a Class 1 structure are not required to comply with AS3959 (2018) with regards to the construction of a building in a bushfire prone area. The general fire safety construction provisions of the NCC (2020) are taken as acceptable solutions, but the aims and objectives of PBP (2019) apply in relation to other matters such as access, water and services, emergency planning and landscaping/vegetation management. All proposed built structures are non-combustible and suitably located. In the event of a bushfire it is our view that the proposed development will not influence bushfire behaviour and will not increase bushfire risk for any adjoining properties.

There are no specific asset protection zones required for this type of development. The RFS have requested that the entire development area be managed as an Inner APZ. In addition to managing the development area as an Inner APZ, all storage bays are bounded by concrete retaining walls that will prevent potential fire spreading from the subject site onto adjoining bush land and vice versa.

Unobstructed vehicular access is provided to all key areas within the development site and unobstructed pedestrian access is provided to the rear of the site consistent with the RFS recommendations.

Site access, including access via the public road system is suitable for emergency response vehicles. The development complies with Planning for Bushfire Protection (2019) with regards to the provision of water. The requirements for electricity and gas (if applicable) can also be complied with. A bushfire emergency evacuation plan has been prepared such that employees and visitors are informed about suitable egress routes away from the site in the event of bushfire.

We trust that the information within this report is satisfactory. Should you wish to discuss any of the above, please contact the undersigned.

Regards,



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BSc (Geology)

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T/A Bushfire Planning and Design

SECTION 15. REFERENCES

AS3959 (2018)	Australian Standard, Construction of buildings in bushfire-prone areas, AS 3959, Third edition 2018 Standards Australia International Ltd, Sydney.
BCA (2019)	Building Code of Australia 2019, Building Code of Australia, Australian Building Codes Board, Canberra 2019.
EPA Act (1979)	Environmental Planning and Assessment Act 1979, NSW Government, NSW, legislation found at www.legislation.nsw.gov.au
PBP (2019)	Planning for Bushfire Protection, a Guide for Councils,Planners, Fire Authorities, Developers and Home Owners. Rural Fire Service 2019, Australian Government Publishing Service, Canberra.
RFS (2015)	Rural Fire Service, Guide For Bush Fire Prone Land Mapping, Version 5b.

SECTION 16. APPENDICES

Appendix A - Standards for Asset Protection.

Appendix B - Site Photos.

Appendix C - Civil Site Plan.

Appendix D - SEARs and Agency Commentary.

Appendix E - Bushfire Emergency Evacuation Plan.

APPENDIX A - STANDARDS FOR ASSET PROTECTION

RFS STANDARDS FOR ASSET PROTECTION

The following information has been taken directly from the RFS document “Standards for Asset Protection”. The full version of this document can be found at www.rfs.nsw.gov.au.

The intensity of bush fires can be greatly reduced where there is little to no available fuel for burning. In order to control bush fire fuels you can reduce, remove or change the state of the fuel through several means.

Reduction of fuel does not require removal of all vegetation, which would cause environmental damage. Also, trees and plants can provide you with some bush fire protection from strong winds, intense heat and flying embers (by filtering embers) and changing wind patterns. Some ground cover is also needed to prevent soil erosion.

RAKING OR MANUAL REMOVAL OF FINE FUELS

- Ground fuels such as fallen leaves, twigs (less than 6 mm in diameter) and bark should be removed on a regular basis. This is fuel that burns quickly and increases the intensity of fire.
- Fine fuels can be removed by hand or with tools such as rakes, hoes and shovels.

MOWING OR GRAZING OF GRASS

- Grass needs to be kept short and, where possible, green.

REMOVAL OR PRUNING OF TREES, SHRUBS AND UNDERSTOREY

- The control of existing vegetation involves both selective fuel reduction (removal, thinning and pruning) and the retention of vegetation.
- Prune or remove trees so that you do not have a continuous tree canopy leading from the hazard to the asset. Separate tree crowns by two to five metres. A canopy should not overhang within two to five metres of a dwelling.
- Native trees and shrubs should be retained as clumps or islands and should maintain a covering of no more than 20% of the area.

WHEN CHOOSING PLANTS FOR REMOVAL, THE FOLLOWING BASIC RULES SHOULD BE FOLLOWED

- Remove noxious and environmental weeds first. Your local council can provide you with a list of environmental weeds or ‘undesirable species’. Alternatively, a list of noxious weeds can be obtained at www.agric.nsw.gov.au/noxweed/;
- Remove more flammable species such as those with rough, flaky or stringy bark; and
- Remove or thin understorey plants, trees and shrubs less than three metres in height
- The removal of significant native species should be avoided.

GARDEN DESIGN

The following information has been taken directly from the RFS document “Standards for Asset Protection”. The full version of this document can be found at www.rfs.nsw.gov.au.

LAYOUT OF GARDENS IN AN APZ

When creating and maintaining a garden that is part of an APZ you should:

- ensure that vegetation does not provide a continuous path to the house;
- remove all noxious and environmental weeds;
- plant or clear vegetation into clumps rather than continuous rows;
- prune low branches two metres from the ground to prevent a ground fire from spreading into trees;
- locate vegetation far enough away from the asset so that plants will not ignite the asset by direct flame contact or radiant heat emission;
- plant and maintain short green grass around the house as this will slow the fire and reduce fire intensity. Alternatively, provide non-flammable pathways directly around the dwelling;
- ensure that shrubs and other plants do not directly abut the dwelling. Where this does occur, gardens should contain low-flammability plants and non flammable ground cover such as pebbles and crush tile; and
- avoid erecting brush type fencing and planting “pencil pine” type trees next to buildings, as these are highly flammable.

LAYOUT OF GARDENS IN AN APZ

When designing your garden it is important to consider the type of plant species and their flammability as well as their placement and arrangement.

Given the right conditions, all plants will burn. However, some plants are less flammable than others.

- Trees with loose, fibrous or stringy bark should be avoided. These trees can easily ignite and encourage the ground fire to spread up to, and then through, the crown of the trees.

Plants that are less flammable, have the following features:

- high moisture content
- high levels of salt
- low volatile oil content of leaves
- smooth barks without “ribbons” hanging from branches or trunks; and
- dense crown and elevated branches.

APPENDIX B - SITE IMAGES



View looking west from the northern end of the site.



View looking west from the northern end of the site. Numerous stock piles distributed around the site.



View looking south from the northern end of the site.



View looking south west from the middle part of the site. Hawkesbury Banksia Scrub.

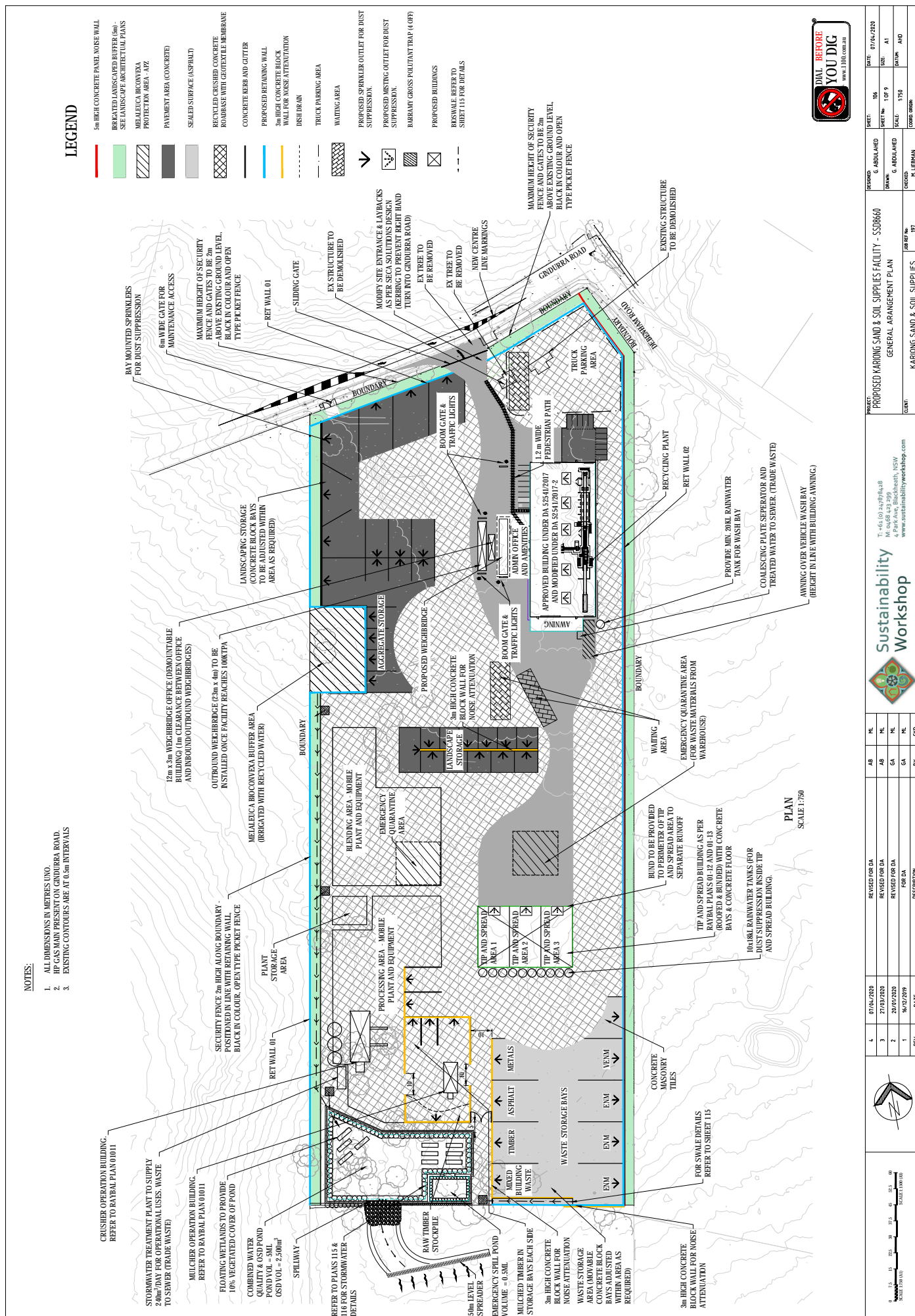


View looking south from the northern part of the site. Disturbed canopy, scattered vegetation.



View looking east from the north-middle part of the site. Managed land to the east.

APPENDIX C - CIVIL DRAWINGS



APPENDIX D - SEARS AND AGENCY COMMENTARY

Agency	Requirement / comment.	Response / where addressed.
SEARs	An assessment of bushfire risks and asset protections zones (APZ) in accordance with NSW Rural Fire Service Guidelines	Section 2-8.
Comments on EIS from Public Exhibition (Feb – Mar 2019).		
NSW Rural Fire Service	The New South Wales Rural Fire Service (NSW RFS) has reviewed the information provided and advises that a bush fire assessment report shall be prepared which identifies the extent to which the proposed development conforms with or deviates from the relevant provision under section 4.3.6(f) of Planning for Bush Fire Protection 2006 (PBP 2006). In particular, the proposed development needs to demonstrate compliance with the aim and objectives of PBP 2006 in relation to access, water and services, emergency planning, landscaping and vegetation management.	Section 2-8. Appendix E.
1. NSW Rural Fire Service	<p>Asset Protection Zones</p> <p>The intent of measures is to provide sufficient space and maintain reduced fuel loads so as to ensure radiant heat levels of buildings are below critical limits and to prevent direct flame contact with a building. To achieve this, the following conditions shall apply:</p> <p>At the commencement of building works and in perpetuity, the entire development area of the subject site, as shown on the 'Concept General Arrangement Plan' prepared by Cardno Pty Ltd dated 27/04/2018 (drawing number 80518002-CI-106, Revision 13), shall be maintained as an inner protection area (IPA) as outlined within section 4.1.3 and Appendix 5 of Planning for Bush Fire Protection 2006 and the NSW Rural Fire Service's document Standards for asset protection zones.</p>	Section 4.

2. NSW Rural Fire Service	<p>Water and Utilities</p> <p>The intent of measures is to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity, so as not to contribute to the risk of fire to a building. To achieve this, the following conditions shall apply:</p> <p>Water, electricity and gas are to comply with section 4.1.3 of Planning for Bush Fire Protection 2006.</p>	Section 2. Section 7-8.
3. NSW Rural Fire Service	<p>Access</p> <p>The intent of measures for property access is to provide safe access to/ from the public road system for firefighters providing property protection during a bush fire and for occupants faced with evacuation. To achieve this, the following conditions shall apply:</p> <p>Property access roads shall comply with the following requirements of section 4.1.3 (2) of Planning for Bush Fire Protection 2006.</p>	Section 2. Section 6.
	<ul style="list-style-type: none"> • Bridges, if any, shall clearly indicate load rating and pavements and bridges are capable of carrying a load of 15 tonnes. 	
	<ul style="list-style-type: none"> • Roads do not traverse a wetland or other land potentially subject to periodic inundation (other than a flood or storm surge). 	
	<ul style="list-style-type: none"> • A minimum carriageway width of 4 metres shall be provided. 	
	<ul style="list-style-type: none"> • A minimum vertical clearance of 4 metres to any overhanging obstruction, including tree branches. 	
	<ul style="list-style-type: none"> • Internal roads provide a loop road around any dwelling or incorporate a turning circle with a minimum 12 metre outer radius. 	
	<ul style="list-style-type: none"> • Curves have a minimum inner radius of 6 metres and are minimal in number to allow for rapid access and egress. 	
	<ul style="list-style-type: none"> • The minimum distance between the inner and outer curves is 6 metres. 	
	<ul style="list-style-type: none"> • The crossfall is not to exceed 10 degrees. 	
	<ul style="list-style-type: none"> • Maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads. 	

4. NSW Rural Fire Service	To aid in the fire fighting activities, an unobstructed pedestrian access to the rear of the property shall be provided and maintained at all times.	Section 6.
5. NSW Rural Fire Service	Landscaping Landscaping to the site is to comply with the principles of Appendix 5 of Planning for Bush Fire Protection 2006.	Section 9.
SEARs	Emergency and Evacuation Planning The intent of measures is to provide suitable emergency and evacuation (and relocation) arrangements for occupants. An Emergency /Evacuation Plan is to be prepared consistent with the NSW RFS document Guidelines for the Preparation of Emergency/ Evacuation plan.	A bushfire emergency management plan has been prepared.
DPIE Adequacy Review Comments on updated EIS (Feb 2020)		
DPIE	Site layout plan adopted in the BHR is inconsistent with the current proposal.	Appendix C.
	Item 101 of the Comments from Government Agencies response refers to Fire Safety Study in regard to water supply for bushfire management. This should be updated to Bushfire Hazard Assessment prepared by Bushfire Planning & Design.	Section 2, Section 7-8