Premise

ACENERGY PTY LTD

Apsley BESS

BUSHFIRE ASSESSMENT

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1. INTRODUCTION

Premise has been commissioned by ACEnergy Pty Ltd to prepare a Bushfire Risk Assessment to accompany a State Significant Development Application (SSDA) for a proposed electricity generating works (battery energy storage system, hereafter known as a BESS) at 9010 Mitchell Highway, Apsley (also known as Lot 3 DP1012686 and Lot 107 DP756920). The project also impacts on an unconstructed Crown road reserve located between Lots 3 and 107. The development is state significant development (SSD) as the capital investment value exceeds $30 million.

The development entails the following specific elements:

- New driveway from Mitchell Highway leading to a gated entry to the BESS;
- Security fencing around the BESS with two rows of landscaping external to the western, northern, and southern fences;
- Permanent carpark and temporary (construction) loading zone adjacent to the western security fence;
- Containerised lithium-ion phosphate batteries with associated power conversion systems;
- 40-foot inverter and MPVS containers, separated into rows;
- A 132kV switching station in the south-eastern corner of the BESS site; and
- 132 kV sub-transmission lines to connect the BESS to the existing powerlines to the east.

The site is not mapped via the Dubbo Regional Council Bushfire Prone Land Map as containing bushfire prone land. However, consultation with the NSW Rural Fire Service during the scoping stage of the project confirms that the site may be considered as having a grassland hazard and thus an assessment is required that addresses the requirements of *Planning for Bush Fire Protection 2019* (the PBFP). The report is prepared pursuant to Clause 44 of the *Rural Fires Regulation 2013* and the NSW Rural Fire Services' "Submission Requirements". This report is set out in the following format:

- **Section 2** provides a description of the site subject to the DA.
- **Section 3** provides a description of significant environmental features at the site.
- **Section 4** provides a Bushfire Risk Assessment for the proposed development.
- **Section 5** concludes the report.

2. BACKGROUND

2.1 The site

The project development site is 9091 Mitchell Highway, Apsley, also known as Lot 3 DP1012686 and Lot 107 DP756920. The project also impacts (via proposed over-spanning electrical transmission lines) an unconstructed Crown Road reserve located between Lots 3 and 107). Lots 3 and 107 form part of a larger landholding held in the same ownership. The landholding, together with the development site, are depicted in the context of the locality in **Figure 1**.

The development footprint is predominantly located within Lot 3, which has a rectangular shape with an area of 18.34 hectares and a frontage of 404.21 metres to Mitchell Highway and depth of 451 metres. The development footprint occupies approximately six hectares within Lot 3.

The site has undulating topography with local highpoint at 392 metres in the south-eastern corner and low point at 365 metres in the north-western corner. There is no current access point directly into the site from the Mitchell Highway. The site is currently used for grazing and cropping. A single dwelling house is located

in the northern portion of adjacent Lot 2 DP 1012686 and a shed in the eastern portion of Lot 3, all within the over arching site land holding. A north-south electrical easement runs to the east of the site through Lot 107 and will be the point of grid connection for the project. There are no known existing approvals applying to the site.

Two Exploration and Mining Titles apply to the site, held by Colossus Metals Pty Ltd and Silver City Minerals Ltd. There are no known existing Aboriginal Sites within the site. Nearest groundwater boreholes indicate a standing water level of 20 metres. No mapped watercourses are present within the site, other than an isolated farm dam in the north-eastern corner. Land and soil capability varies between Class 3 and 6.

No native trees or shrubs are present on the site. The land is not directly impacted by bushfire prone land – refer **Figure 2**.

3. THE DEVELOPMENT

3.1 Proposed Development and Zoning

The site is located on land zoned RU1 – Primary Production pursuant to the *Dubbo Regional Local Environmental Plan 2022* (LEP). Land to the immediate west is zoned SP2 – Infrastructure (classified road), being the alignment of the Mitchell Highway – refer **Figure 3**.

Under the DLEP 2022, development for the purposes of electricity generating works is prohibited in the RU1 Primary Production zone in which the site is located. Nevertheless, the development is permitted with consent on the grounds that:

- Under clause 2.7(1) of *State Environmental Planning Policy (Transport and Infrastructure) 2022* (the Infrastructure SEPP), where there is an inconsistency between the Infrastructure SEPP and another environmental planning instrument, the Infrastructure SEPP prevails (with few exceptions, none of which are relevant to this application); and
- Under clause 2.36(1)(b) of the Infrastructure SEPP, electricity generating works may be carried out by any person with consent in a prescribed rural, industrial or special use zone (the RU1 Primary Production zone is a prescribed rural zone).

The proposed development is State Significant Development (SSD) on the grounds that:

1. Under Section 4.36(2) of the *Environmental Planning and Assessment Act 1979* (the EP&A Act), a State Environmental Planning Policy (SEPP) may declare any development, or any class or description of development, to be SSD.
2. Under Section 2.6(1) of *State Environmental Planning Policy (Planning Systems) 2021* (the Systems SEPP), development is declared to be State significant for the purposes of the EP&A Act if:
    a. the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the EP&A Act; and
    b. the development is specified in Schedule 1 or 2 of the SEPP.

In relation to 2(a) above: The proposed development satisfies clause 2.6(1)(a) of the Systems SEPP on the grounds that it is permitted with consent under clause 2.36(1)(b) of the Infrastructure SEPP.

In relation to 2(b) above: The proposed development satisfies clause 2.6(1)(b) of the Systems SEPP on the grounds that it is for the purposes of electricity generating works that has a capital investment value of more than $30 million in accordance with clause 20 of Schedule 1 of the SEPP.

Figure 1 – The subject site

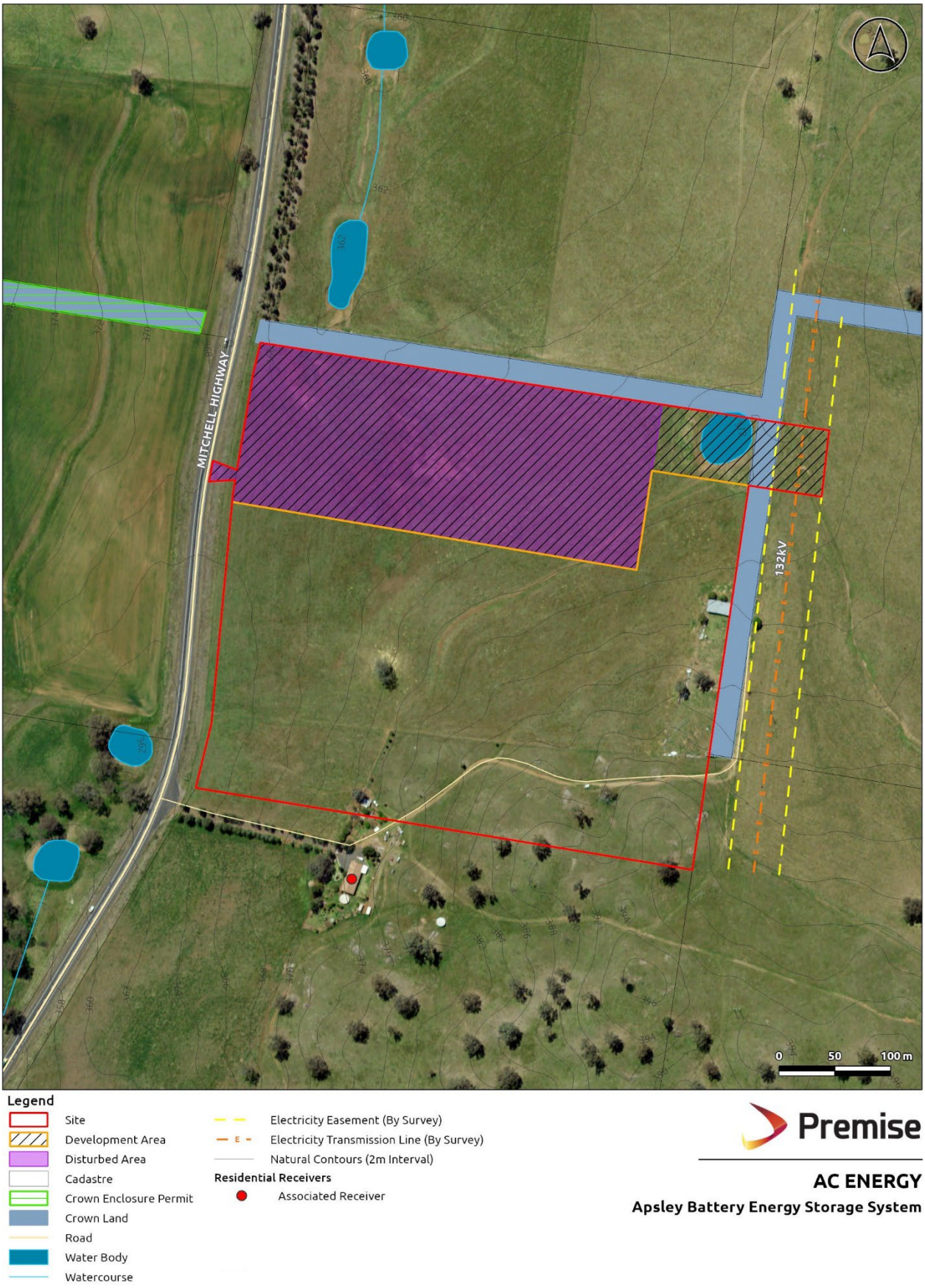


Figure 2 – Environmental features including bushfire prone land

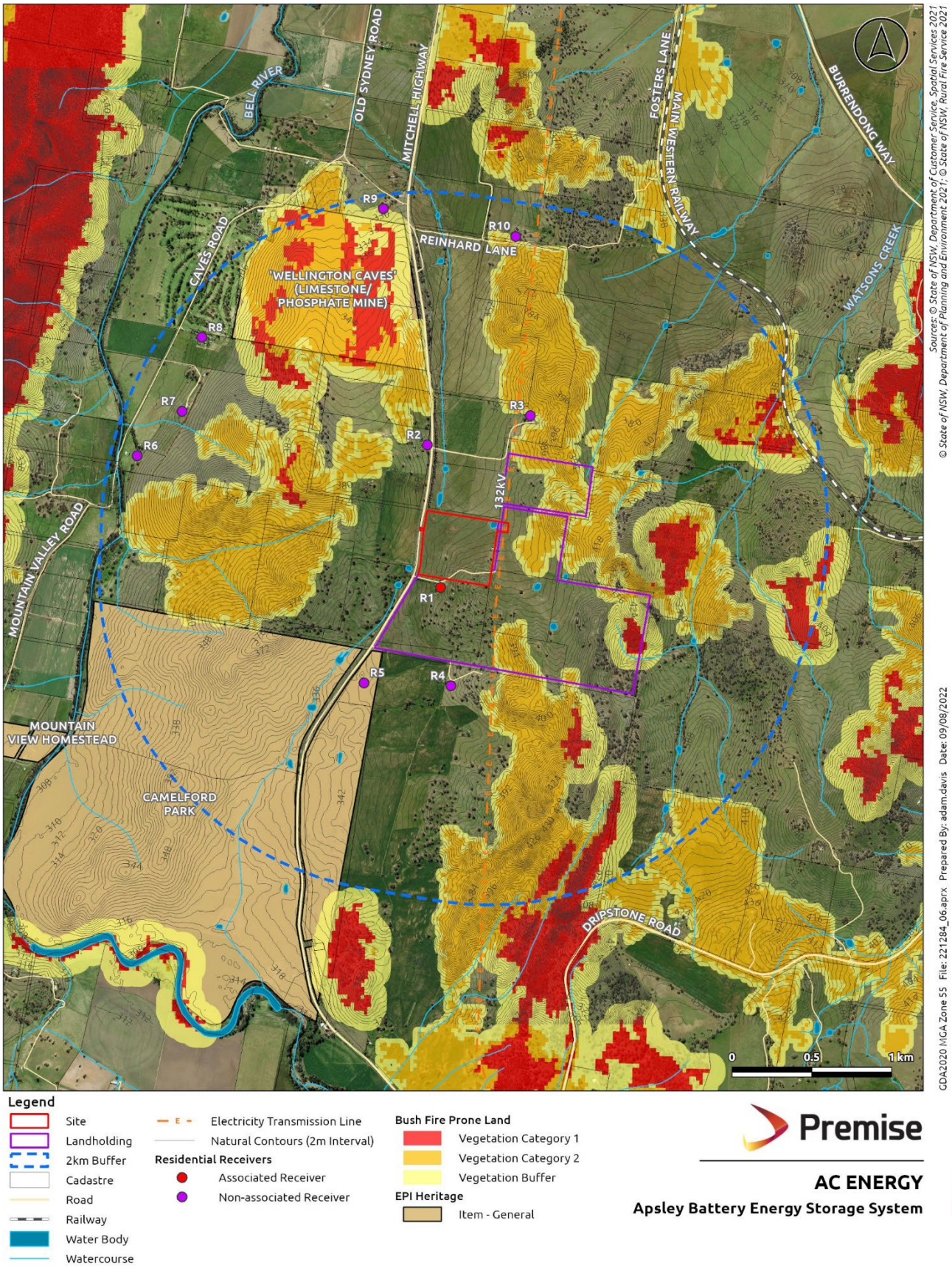
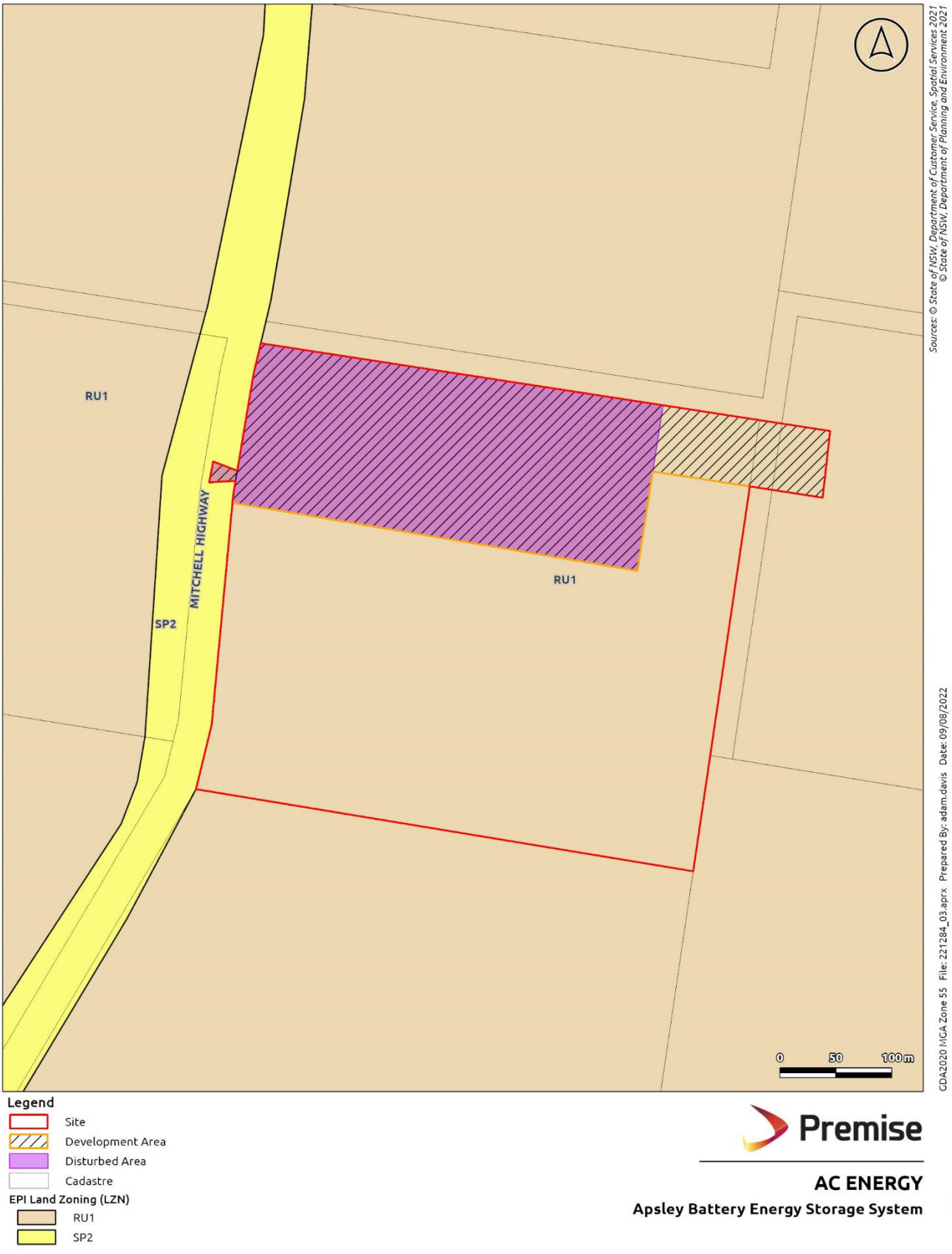


Figure 3 – Land use zoning in the locality



3.2 Vegetation

By reference to the Biodiversity Development Assessment Report (BDAR) prepared to support this SSDA, vegetation formations within the subject site consist of cleared agricultural land meeting the definition of Category 1 – exempt land under Section 60H of the *Local Land Services Act 2013* (LLS Act). Clearing vegetation on Category 1 land does not require assessment under the BC Act as the land can lawfully be cleared under the LLS Act. A separate Land Category Report was prepared and endorsed by the Biodiversity, Conservation and Science Directorate of the Department of Planning, Industry and Environment in December 2021.

The original vegetation pre-European settlement is considered most likely to have comprised open grassy woodlands with a sparse shrub midstorey and a densely grassy understory. There are remnants of this open woodland in the surrounding landscape with scattered White Box (*Eucalyptus albens*) on the lower slopes and White Cypress (*Callitris glaucophylla*) on the hilltops.

Access to the proposed BESS site along the Mitchell Highway will require clearing to allow vehicles to turn safely. The access point is not Category 1 land and therefore requires assessment under the BC Act. Vegetation within this area is considered to most appropriately represent *PCT266 – White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion (White Box Woodland).* The impacted land has an area of 0.03 ha, a current vegetation integrity score of 6.9 and a proposed integrity score of 0 (on the basis that the whole 0.03 ha will be cleared as a result of the project).

The BDAR confirms that the project does not generate a credit liability and would not result in a significant impact.

3.3 Slope

Slopes across the site are generally minor. As noted, there is no mapped bushfire prone land located on site. The nearest mapped bushfire prone land is located approximately 80 metres to the east of the project footprint. The site has undulating topography with local highpoint at 392 metres in the south-eastern corner and low point at 365 metres in the north-western corner. **Figure 4** depicts slope at the site.

3.4 Bushfire prone land

As noted, the subject land is not mapped as bushfire prone however land within 140 metres is mapped as bushfire prone. This nearest land is mapped as a bushfire buffer, adjacent category 2 bushfire prone land. The closest category 1 bushfire prone land is located approximately 900 metres to the east.

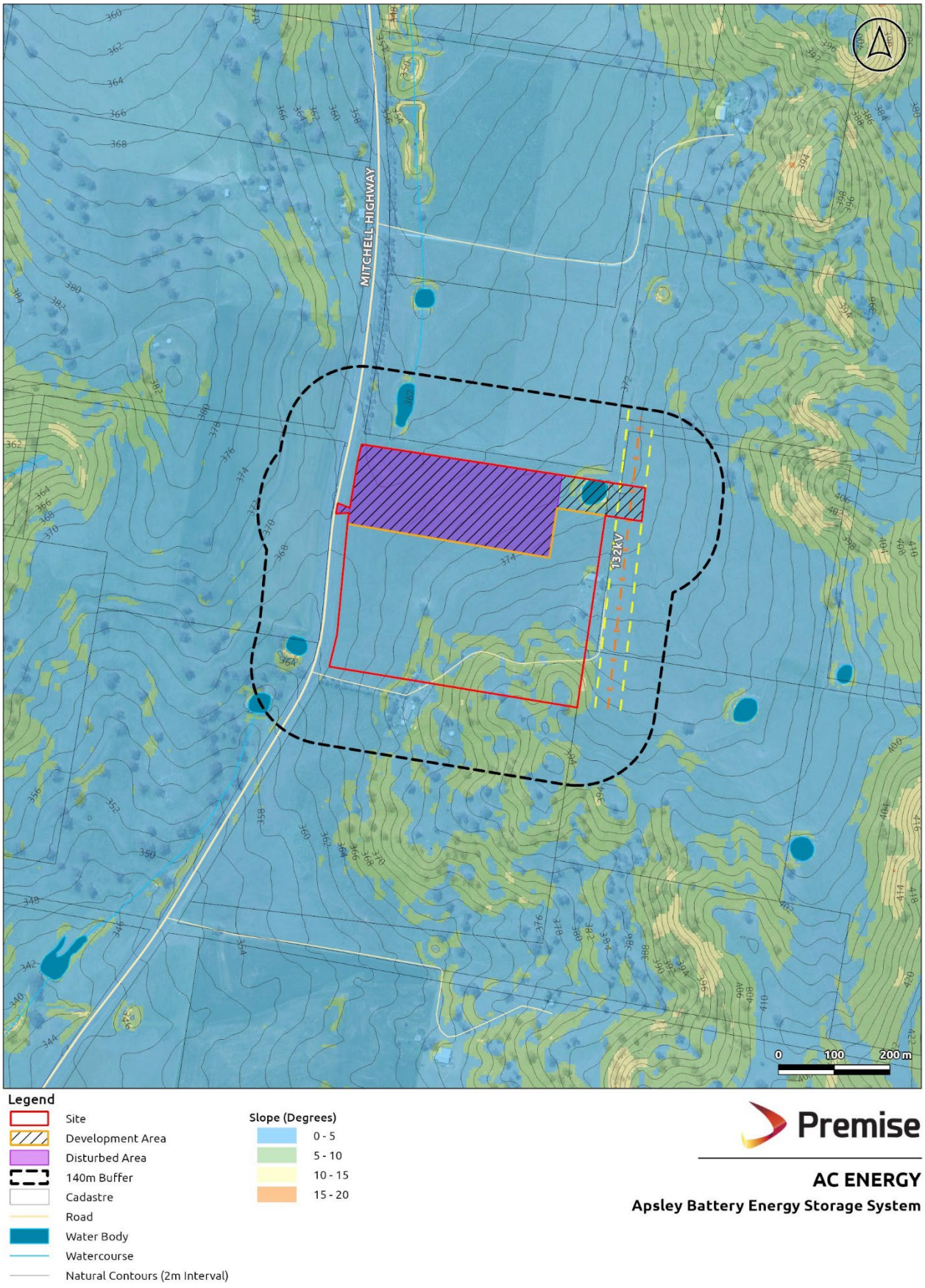
The site is located within the Dubbo Regional Council Local Government Area, which has a fire danger index of 80.

4. SIGNIFICANT ENVIRONMENAL FEATURES

4.1 Ecology

By reference to **Section 3.2**, the site contains managed land in use for ongoing agricultural purposes. For the purposes of this assessment, this has been characterised as grassland vegetation.

Figure 4 – Slope



4.2 Indigenous heritage

The site has been subject to an Aboriginal Cultural Heritage Assessment, which confirms the location of a number of Aboriginal artefacts of significance located to the south-east of the project area.

No impact to these areas would occur as a result of the project and demarcation fencing would be installed at construction stage to ensure no inadvertent impacts.

4.3 Extractive resources

The site is not located within a Mine Subsidence District. However, as shown in **Figure 5**, the site is located at the intersection of two NSW Exploration and Mining Titles, including:

- EL8735 over the eastern portion of the site, held by Colossus Metals Pty Ltd; and
- EL8971 over the western portion of the site, held by Silver City Minerals Ltd.

4.4 Contamination

A review of the NSW EPA Contaminated Land Record and List of NSW contaminated sites notified to the EPA on the 22/04/2022 confirms there are no known contaminated sites at or near the site.

An assessment of contamination risk has been undertaken and is provided as part of the EIS. The site is unlikely to be contaminated due to significant distances from known contaminated sites listed under the NSW EPA contaminated land record and list of notified sites.

5. BUSHFIRE RISK ASSESSMENT

5.1 Introduction

The site is currently undeveloped and does not contain any buildings are features that are at a high risk as a result of bushfire.

5.2 Asset Protection Zones

5.2.1 DEFINITIONS

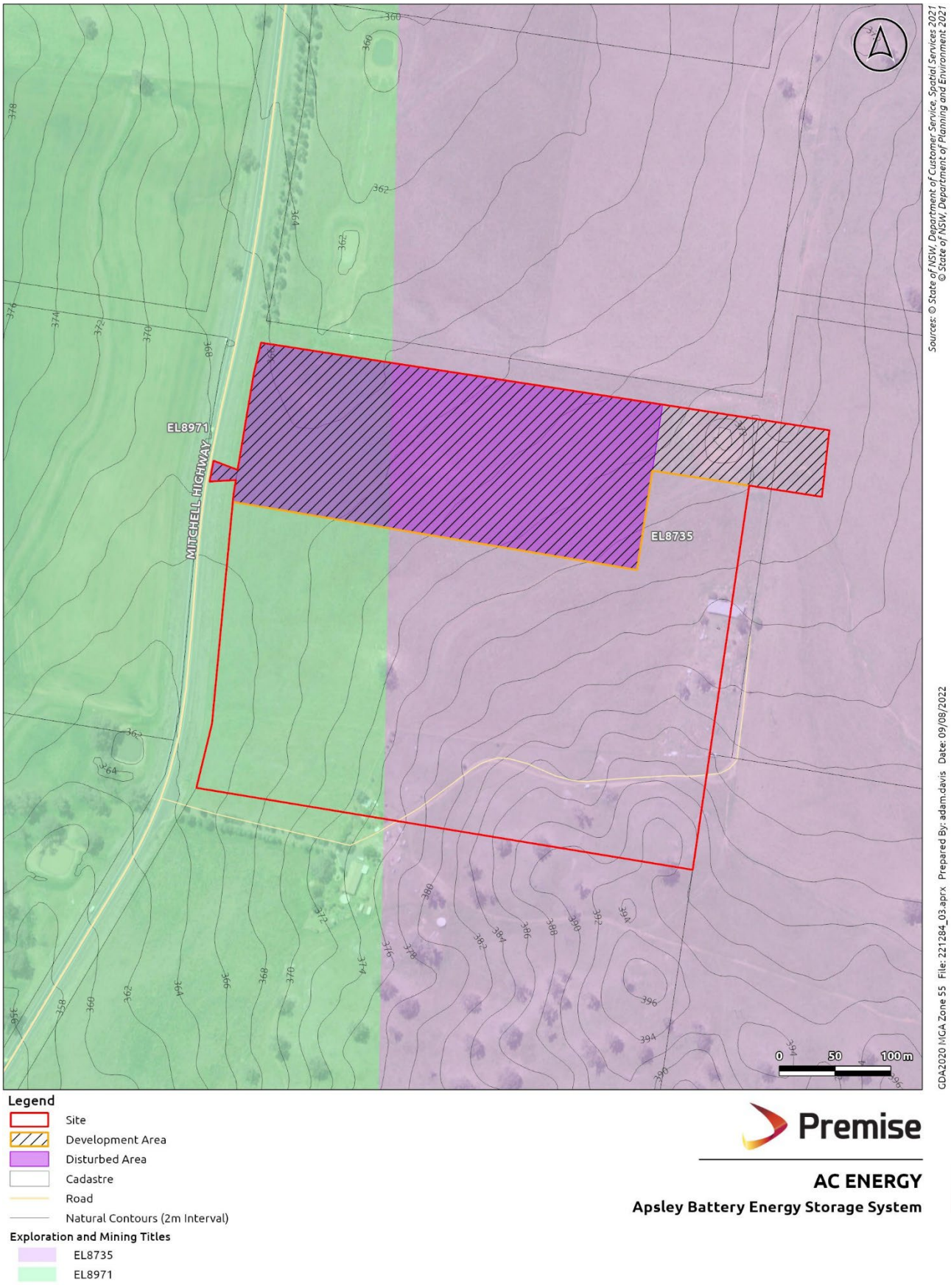
An Asset Protection Zone (APZ) is defined under the PFBP as:

> *An APZ is a buffer zone between a bush fire hazard and buildings. The APZ is managed to minimise fuel loads and reduce potential radiant heat levels, flame, localised smoke, and ember attack. The appropriate APZ distance is based on vegetation type, slope, and the nature of the development (NSW RFS 2019).*

APZs consist of:

- Inner Protection Area (IPA): The component of an APZ which is closest to the asset (measured from unmanaged vegetation). It consists of an area maintained to minimal fuel loads so that a fire path is not created between the hazard and the building.
- Outer Protection Area (OPA): located between the IPA and the unmanaged vegetation The outer component of an APZ, where fuel loads are maintained at a level where the intensity of an approaching bush fire would be significantly reduced.

Figure 5 – Mining and exploration titles



- A defendable space: an area within the Inner Protection Area (IPA) of an APZ adjoining a building. This space provides a safe working environment in which efforts can be undertaken to defend the structure, before and after the passage of a bush fire (NSW RFS 2019).

5.2.2 OBJECTIVES

Table 5.3a of the PBFP identifies the performance criteria and acceptable solution applicable for determining appropriate APZ's for rural and residential subdivision. These are summarised and addressed in **Table 1**.

Table 1 – Asset Protection Zones

Performance Criteria	Acceptable Solutions	Assessment
Potential building footprints must not be exposed to radiant heat levels exceeding 29 kw/m² on each proposed lot.	APZs are provided in accordance with Tables A1.12.2 and A1.12.3 based on the FFDI.	The proposal entails the development of an electricity generating works (BESS) within a cleared environment. Imposition of requirements with respect to APZ will ensure that these criteria can be achieved.
APZs are managed and maintained to prevent the spread of a fire towards the building.	APZs are managed in accordance with the requirements of Appendix 4 of PBFP.	This would be achieved by reference to the above and the comments provided in **Section 5.2.4**.
The APZs is provided in perpetuity.	APZs are wholly within the boundaries of the development site	This would be achieved.
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	APZs are located on lands with a slope less than 18 degrees.	APZs are located on lands with slope not exceeding 18 degrees where practical APZ maintenance can be achieved without compromising soil stability or increasing the potential for crown fires.
Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	– Landscaping is in accordance with Appendix 4 of PBFP; and – Fencing is constructed in accordance with section 7.6 of PBFP.	This is capable of being achieved in relation to future residential developments on the land.

5.2.3 REQUIRED SETBACKS

Appendix 1 of PFBP provides the procedure for determining bush fire attack assessment on a building within a designated bushfire prone area. The requirements and assessed outcomes are discussed in **Table 2**.

Table 2 – Bushfire assessment

Setback assessment	Assessment response
Determine vegetation formation in all directions around the building to a distance of 140 metres (refer to A1.2).	Vegetation within 140 metres of the subject site is grassland.
Determine the effective slope of the land from the building for a distance of 100 metres (refer to A1.4 and A1.5).	Slope is variable across the land (as outlined in **Figure 4**), as follows: - North -Downslope – 0-5 degrees - West - Downslope 0-5 degrees

Setback assessment	Assessment response
	- South - Downslope 0-5 degrees - East – Upslope
Determine the relevant FFDI for the council area in which the development is to be undertaken (refer to A1.6); and	The FFDI is 80
Match the relevant FFDI, vegetation formation and effective slope to determine the APZ required from the appropriate table of this Appendix (refer to A1.7).	By reference to the above, it is proposed to provide a 10 metre APZ around the project facility to ensure that controls are in place that meet the objectives of PBFP. The recommended APZ aims to ensure that radiant heat levels at the building surface remain below 29kW/m2.

The APZ is to be established and maintained for the life of the development to the standard of an Inner Protection Areas (IPA) as outline within section 4.1.3 and Appendix 5 of PBP and the NSW RFS document Standard for Asset Protection Zones. This would consist of:

- A Fuel Free Area (e.g., sand, gravel, concrete etc)
- Grass: Grass to be kept short and mown/ maintained to a heigh <10cm.

Note: 'Infrastructure' for the purposes of requiring APZ excludes road access to the site and power or other services to the site and associated fencing.

5.2.4 APZ LANDSCAPE MAINTENCE

This bushfire assessment assumes that the recommended 10m APZ would be managed to the prescribed APZ (IPA) standards e.g., fuel free (sand, gravel, concrete) or short mown grass <10cm high. There are no known environmental constraints to the ongoing management of the APZ to this standard, noting that management does not impact on any mapped drainage lines.

5.2.5 BUILDING CONSTRUCTION STANDARDS

PBFP recognises the general fire safety provisions of the National Construction Code (NCC) as acceptable solutions in relation to bushfire protection for buildings of Class 5 to 8 of the NCC. The construction of the BESS and ancillary infrastructure is inherently constructed of fire resilient materials. Nevertheless, the following measures are recommended to control the risk of accidental fire ignitions during construction and ongoing operations:

- APZ (10m IPA) and water supply (hydrants/tank) for bushfire fighting purposes to be constructed as the first stage of development.
- Construction of the BESS and associated infrastructure to the general fire safety provisions of the National Construction Code (NCC).
- Permits for hot works (e.g., grinders, welders, slashers) and no hot works on Total
- Fire Ban Days.
- Essential equipment should be designed and housed in such a way as to minimise the impact of bush fires on the capabilities of the infrastructure during bush fire emergencies. It should also be designed and maintained so that it will not serve as a bush fire risk to surrounding bush. In this regard it is recommended that substations and other new building be constructed to comply with *Australian Standard AS 3959- 2018 Construction of buildings in bushfire-prone areas*, commensurate with the modelled bushfire attack levels.

5.2.6 WATER SUPPLY

As the site does not have access to a reticulated water supply, a static supply of water is to be supplied on site for fire-fighting purposes; meeting the following requirements:

- Strategically located within the site to ensure accessibility, (e.g., adjacent to the existing vehicle access road and adjacent to the planned BESS);
- Have a capacity of 50,000-80,000 litres;
- Be made of steel or concrete;
- The tank should incorporate fast fill options and easily accessible fill points such as 65mm Storz fittings for hydrant stands or direct link to tanks; and
- Hardstand access capable of supporting weight and turning capacity for a fully loaded fire truck (23 tonne) should be provide at the tank location.

5.2.7 ELECTRICITY

Overhead connection for the BESS to the grid are to be installed to meet the following PBFP requirements:

- Short pole spacing preferred (30m); and
- No part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 *Guideline for Managing Vegetation Near Power Lines*.

5.2.8 GAS

Bottled gas (if required) shall be installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities.

5.2.9 ACCESS REQUIREMENTS

The proposed property access is to be constructed to the following standards:

- The property access road is to be two-wheel drive, all weather, with a road surface capable of carrying a fully loaded firefighting vehicle (up to 23 tonnes).
- Any bridges and causeways are to clearly indicate the load rating.
- The access road can be sealed or unsealed. Maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads.
- Access is to be provided to hydrants that are provided in accordance with the relevant clauses of AS 2419.1:2005

  OR
- There is to be a suitable access for a category 1 fire appliance to within 4m of the water tank where no reticulated water supply is available.
- The access road is to be provided with a turnaround provision of 22m diameter or a 'T' junction at the position of the dedicated water supply tank.
- The road is to be a minimum 4m carriageway width and have a minimum 4m vertical clearance to any overhanging obstructions, including tree branches.
- The access road must provide a passing bay every 200m that is 20m long x 2m wide, making a minimum trafficable width of 6m at the passing bay. Curves in the access road are to have a minimum inner radius of 6m and are to be minimal in number to allow for rapid access and egress.
- The access road has a crossfall less than 6 degrees.

5.2.10 OTHER MITIGATION MEASURES

Measures to be implemented to avoid, minimise and be in a position to effectively and safely manage potential risks and hazards associated with the development include consultation with both the NSW Rural Fire Service (RFS) and Fire and Rescue NSW (FRNSW):

- during detailed design;
- during construction;
- prior to commencement of operations (ie. export of electricity into the grid); and
- during operations.

Detail on the intent, scope and outcomes of these consultations is provided below.

5.2.10.1 Detailed Design

As detailed design progresses, equipment suppliers are selected, and the BESS infrastructure layout is refined, it is proposed to further consult with both the RFS and FRNSW. The intention of this consultation will be twofold.

1. To provide detail on the technology proposed and the proposed BESS layout to allow (if necessary) design refinement to incorporate any specific requirements the RFS/FRNSW may have.
2. To provide the requisite information that will be needed to prepare an Emergency Response Plan (ERP).

In terms of design principles to minimise risk, the BESS layout will be designed to:

- provide a defendable space around infrastructure;
- ensure that appropriate access, egress and manoeuvrability within the BESS is provided for first responders;
- provide for ongoing management and maintenance of bush fire protection measures; and
- ensure that services are adequate to meet the needs of firefighters.

5.2.10.2 Construction

- Prior to construction commencing the EPC contractor will engage with Wellington RFS local brigade and details about the construction schedule, contact numbers and site access arrangements will be shared.
- Five (5) 10 kL tanks, being Static Water Supplies dedicated exclusively for fire-fighting purposes, will be located strategically around the site and appropriately plumbed for the duration of construction.
- The fuel load over the site prior to and during construction will be monitored and reduction measures implemented as required. These measures will be restricted to mechanical slashing or stock crash grazing.
- The following work practices would be implemented throughout construction:
  - No burning of vegetation or any waste material would take place on site;
  - Fire extinguishers will be available in all vehicles;
  - During the bushfire season (October to March) the fire danger status would be monitored daily (through the RFS website *http://www.rfs.nsw.gov.au*) and communicated to personnel;
  - Total Fire Ban rules will be adhered to. That is, the EPC contractor will not:
    - (in any grass, crop or stubble land) drive or use any motorised machine unless the machine is constructed so that any heated areas will not come into contact with combustible matter;
    - carry out Hot Works (eg. welding operations or use an angle grinder or any other implement that is likely to generate sparks), unless the necessary exemption from the RFS Commissioner has been obtained and work complies with all requirements specified in the exemption; and
- Any fuel or flammable liquid would be stored in a designated area and will be sign posted "Fuel Storage Area."

- A register will be maintained that confirms the quantities and location of any flammable material stored on-site.

5.2.10.3 Prior to Operations

The Apsley BESS is located within the Dubbo RFS Fire District. In the event of a significant fire event (either within the Apsley BESS site or in close proximity to the BESS), FRNSW will either assist the RFS or fulfil the role of designated combat agency. Either the RFS and/or FRNSW would be first responders.

Should a fire occur during the operational life of the Apsley BESS it is recognised as important that the first responders have ready access to information which enables effective and safe control measures to be rapidly implemented.

Given the potential for electrical hazards associated with an energy generating facility, and potential risks to firefighters, both FRNSW and the RFS must be able to implement effective and appropriate risk control measures when managing an emergency incident in order to safely mitigate potential risks (including electrical hazards and venting electrolyte) to firefighters.

The detail required to prepare this plan will be contingent on the equipment proposed and the BESS layout and services. These features would have been communicated to and refined in consultation with both RFS and FRNSW during detailed design. As such, the operator of the Apsley BESS will have had the information required to prepare an Emergency Response Plan (ERP) prior to commencement of operations (ie. export of electricity into the grid).

5.2.10.4 Emergency Response Plan

The ERP will address foreseeable on-site and off-site fire events and other emergency incidents (eg. fires involving BESS infrastructure and equipment, bushfires in the immediate vicinity).

The ERP will detail the appropriate risk control measures that would need to be implemented in order to safely mitigate potential risks to the health and safety of firefighters, including electrical hazards. These measures would include the level of personal protective clothing required to be worn, the minimum level of respiratory protection required, minimum evacuation zone distances and a safe method of shutting down and isolating the BESS (either in its entirety or partially, as determined by risk assessment). The ERP would also include any other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the BESS.

Two copies of the ERP would be stored in a prominent *Emergency Information Cabinet* located in a position directly adjacent to the site's main entry.

The operator of the Apsley BESS would then make contact with the relevant local emergency management committee (LEMC) and provide a copy of the ERP.

5.2.10.5 During Operations

Unmanaged grasslands can create a bushfire risk hazard. The performance measure for managing the bushfire risk will be to operate the Apsley BESS and maintain the site in such a manner that no grass fire originates from within the Apsley BESS site, and/or any approaching bushfire does not intensify as a consequence of entering the Apsley BESS site because of excessive fuel loads.

The fuel load over the Apsley BESS property will be constantly monitored and fuel load reduction measures implemented as required. These measures will be either mechanical slashing or crash grazing (sheep). Procedures for ensuring this outcome and demonstrating active management of the fuel load will be specified in the OEMP.

Hazard reduction burning is not proposed.

6. CONCLUSION

Subject to the implementation of measures outlined in this bushfire assessment, the proposed development is capable of complying with the provisions of the Rural Fire Service publication *Planning for Bushfire Protection 2019* and *Australian Standard 3959-2018 Construction of buildings in bushfire prone areas.*

7. REFERENCES

NSW Rural Fire Service (RFS). 2019, *Planning for Bushfire Protection*, Sydney
Premise. 2022a, Apsley BESS Biodiversity Development Assessment Report, Orange, NSW
Premise. 2022b, Apsley BESS Aboriginal Cultural Heritage Assessment, Orange, NSW

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