



APPENDIX H BUSH FIRE

Southern Memorial Park

Bushfire Fire Design Brief

Mugga Lane, Hume ACT

Date: 24 November 2020

Prepared by:

Bushfire Protection Planning & Assessment Services Pty Ltd

MATT JONES *BAppSc Environmental Health, Grad. Dip Design for Bushfire Prone Areas*
BPAD-L3-14598 Accredited Practitioner - *Fire Protection Association of Australia*



E: mattj@bushfireconsultants.com.au M: 0428 296 526

1.0 Purpose

This assessment forms part of a Bush Fire Design Brief (BFDB) for Southern Memorial Park (SMP). SMP is planned to be delivered in 4 stages staged over 100 years. Due to extended delivery timeframe of SMP the BFDB will address specific & initial bushfire safety requirements and ongoing management plans for Stage 1 of the SMP, which would initially include the Works Depot (office / administration building, workshop / works compound and ≈1.2km of internal roadway access (including associated parking areas). Some information is included to assist in the design of the Central Visitor Facility in Stage 2.

2.0 Site Location

The proposed SMP site is located on Mugga Lane, Hume. EPSDD are the current custodians of the site and it is leased for the Rose Cottage Horse Agistment. The SMP site comprises of Tuggeranong Registered Rural Block 1676; Tuggeranong Approved Rural Block 1676, Tuggeranong Approved Rural Block 1676 1673 and part Tuggeranong Approved Rural Block Blocks 1520, 1521 and 1695.

The 764,881m² site is bounded to the east by the Mugga Lane Solar Farm, to the north by Mugga Lane Waste Management Facility and to the west and south by Wanniasa Hill Special Purpose Reserve and Wanniasa Hill Nature Reserve.

3.0 Proposed Development

Southern Memorial Park (SMP) is planned to be delivered in 4 stages staged over 100 years. SMP will feature a Main Visitor Facility and Works Depot incorporating buildings & infrastructure designed for occupation and classified by the National Construction Code (NCC) as;

- small Memorial Hall (NCC Class 9B),
- large Memorial Hall (NCC Class 9B),
- small Function hall (NCC Class 9B),
- large Function hall (NCC Class 9B),
- café / eatery (NCC Class 6),

- commercial kitchen and amenities (NCC Class 6),
- general store (NCC Class 6),
- administrative and office space buildings (NCC Class 5),
- crematorium (NCC Class 8),
- work compound (NCC N/A),
- workshop (NCC Class 10a), &
- equipment shed (NCC Class 10a).

The SMP masterplan also includes a substantial network ($\approx 6.5\text{km}$) of internal access roadway and parking areas throughout the site ($\approx 82\text{ha}$) to service the built facilities and associated memorial / cemetery areas, and areas of proposed wetland landscaping.

A detailed analysis of the site structures, overlaid with SMP plans indicates the proposed built infrastructure will be primarily comprised of:

1. Main Visitor Facility ($\approx 7,400\text{sqm}$ footprint) which would contain the halls, memorial halls, café / eatery, general store, amenities, crematorium and commercial kitchen.
2. Works Depot (detached / separated by $>6\text{m}$) to the memorial hall would be an office / administrative building, crematorium, workshop / works compound & associated equipment / storage sheds.

4.0 Specific & initial bushfire safety requirements and ongoing management plans

There's probably a number of ways to describe the actual and potential bushfire hazard / risk across this area, but effectively the majority of the site is mostly grassland with scattered woodland remnants and areas of recent woodland plantings. The average gradients across the site would not reasonably exceed 10° . The site photos show a good representation of the potential / effective hazard within the site.

With regard to the crematorium, its operation it would be effectively 'intrinsically safe' in as far as any associated combustion / incineration process being entirely contained within the main visitor facility structure. The structures design and associated ventilation / exhaust systems would NOT allow burning debris or potential airborne ignition to leave the structure. Notwithstanding, I've initially / conservatively identified the proposed crematorium site (option) as a potential ignition risk where located closer to potential / remnant woodland vegetation.

Preliminary mapped assessment and identified / recommended bushfire hazard mitigation requirements are attached to back of this document.

5.0 Specific & initial bushfire safety requirements and ongoing management plans

The purpose of the BFDB is to address the specific & initial bushfire safety requirements and ongoing management plans for Stage 1 of the SMP, which would initially include the Works Depot (office / administration building, workshop / works compound and ≈1.2km of internal roadway access (including associated parking areas).

5.1 Minimum Standards

The minimum number of standards and guidelines collectively and/or reasonably referred for prescribed or augmented bushfire safety outcomes include;

- ACT Strategic Bushfire Management Plan 2019 (*SBMP*), including reference to Sensitive Use Development (*SUD*)
- ACT Bushfire Management Standards 2014 (*BMS*),
- NSW Planning for Bushfire Protection Guidelines 2019 (*PBP*), including reference to Special Fire Protection Purpose (*SFPP*) development,
- Australian Standard 3939 Construction of buildings in bushfire-prone areas (*AS3959*), &
- Australian Standard 3745 Planning for emergencies in facilities (*AS3745*),

5.2 Recommended Criteria

For the preliminary purpose of a BFDB, the recommended primary acceptance criteria is identified as the provision of:

- Maintenance of safe vehicle access at all times for Category 1 Bushfire Tanker(s) or similar larger Fire Fighting Appliance(s) entering the SMP,
- Maintenance of defendable space to any new building structure,
- Identification and maintenance of a strategic / perimeter fire trail to the site,
- Identification and maintenance of powerline easement management to reduce ignition potential within vicinity of the site,
- Conservative consideration of full APZ compliance to the memorial hall structure given any suggestion it may qualify as Special Use Development in accordance with the SBMP,
- Conservative consideration of minimum BAL compliance to the memorial hall structure (AS3959 BAL-12.5) given any suggestion it may qualify as Sensitive Use Development in accordance with the SBMP,
- Formal Emergency Management & Evacuation Planning and associated signage, &
- formal Fuel Management Planning

5.3 Specific Criteria

Safe vehicle access will be based upon the relevant and reasonable provisions of PBP Table 6.8b (SFPP Access) & ACT Bushfire Management Standards, including:

- all internal & publicly accessible roads two-wheel drive and all weather roads,
- traffic management devices constructed to facilitate access by emergency services vehicles. If gates are used to control traffic flow during non-emergency periods, they must not be locked.
- vehicle access provided to all structures,
- the capacity of road surfaces and bridges sufficient to carry fully loaded firefighting vehicles (>23-25 tonnes for potential fire tanker access),

- minimum 5.5m identified carriageway width for all internal / two-way road sections - kerb to kerb,
- one-way only access roads are no less than 3.5m wide and provide parking within parking bays, and locate hydrants & associated services outside of the parking bays to ensure accessibility to reticulated water for fire suppression (where applicable),
- parking is provided outside of the identified carriageway width,
- parking bays are a minimum of 2.6 m wide from kerb edge to road pavement,
- any bridges and water crossings / causeways clearly indicate load rating,
- a minimum vertical clearance of 4.2m to any overhanging obstructions, including tree branches,
- provide suitable turning areas at any vehicle access dead end, such as a minimum 24m-diameter unobstructed turning circle which is clearly signposted as a dead end and directs traffic away from any identified bushfire hazard,
- curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress,
- the minimum distance between inner and outer curves is 6m,
- the crossfall is not more than 3.5° (6%),
- maximum grades for sealed roads do not exceed 15° (28%) and not more than 10° (18%) for unsealed roads or other gradient specified by road design standards, whichever is the lesser gradient,
- hydrants located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression (where applicable),
- hydrants are provided in accordance with the relevant clauses of AS 2419 (where applicable),
- suitable access for a Category 1 fire appliances to within 4m of the static water supply where no reticulated supply is available (where applicable),
- curves of roads have a minimum inner radius of 6m,
- all internal & publicly accessible roads are clearly signposted (with easily distinguishable names), and buildings and properties are clearly numbered / labelled,

- Emergency accesses may be used to link up with roads to allow alternative access and egress during emergencies where traffic flow designs do not allow for two-way access.

Defendable space will be based on an area or width of 10m fuel free / managed minimum to provide reasonable pedestrian or vehicle access around any new building structure, or 10m managed buffer to existing overhead powerlines within the proposed SMP masterplan area.

At least 4m defendable space will be maintained between proposed wetland areas (where vegetated) and Central Visitor Facility.

At least 2m defendable space will be maintained between the edges (both sides) of the primary access sections where adjoining any remnant or regenerating woodland areas.

Strategic perimeter / fire trail is considered to be the existing access trail servicing Rose Cottage Horse Agistment Paddocks and powerline easements to the west of the proposed development area (\approx 2.5km trail, 3-4m wide, linking the southeast corner of the site at Mugga Lane to Long Gully Road further north of the site. The use and maintenance of this trail is to be based upon the relevant and reasonable provisions of ACT Bushfire Management Standards to facilitate the safe passage of fire fighting tankers (e.g. 4 × 4 trucks, 8–12 tonnes, carrying a water tank of 2500– 5000 litres), including;

- minimum 4m carriageway width which does not exceed a maximum grade of 15°,
- a natural, grassed, sealed or gravel surface as required,
- any corners of sufficient radius to make 3-point turns by tankers unnecessary,
- roadside and overhanging vegetation (up to 4m high) maintained / removed to allow unimpeded access by tankers at all times,

- provision for vehicles to pass in either direction at 250m intervals, facilitating a passing bay / area of at least 6m width and 20m long.

The strategic perimeter / fire trail will also be maintained / designed to facilitate reasonable vehicle access to the southernmost dam within the SMP masterplan area and provide a linkage to the primary internal access road

Powerline easement management will be the scheduled (annually and prior to bushfire danger periods) or ongoing management / reduction of available fuel or unmanaged grassland within 10m buffered (or defensible space) distance from the overhead powerlines within the proposed development area.

Central Visitor Facility APZ requirements will be a minimum 50m (i.e. >40-60m) beyond the building line of the structure, based upon the relevant and reasonable provisions of ACT Bushfire Management Standards for Inner APZ requirements only to a primary and secondary asset interface (Table 3).

A 50m APZ requirement is also consistent with PBP Table A1.12.1 (Minimum distances for APZs – SFPP developments <10kW/m², 1200K) based upon a reasonable and conservative assessment of the effective hazard being woodland over an average gradient not exceeding 5° within 100m of the Memorial hall building line.

Central Visitor Facility BAL requirements will be a minimum BAL-12.5 (Sections 3 & 5 of AS3959 where reasonably applicable to the structure), based upon a simplified assessment in accordance with AS3959.

Emergency Management and Evacuation Planning (herein '*EMEP*') will be prepared as formally and publicly accessible documentation and associated building & roadside signage / notifications to specifically address predetermined Bushfire Action Planning (herein '*BAP*') requirements.

The EMEP / BAP shall be prepared in accordance with, or else as a 'sub-plan' of, AS3745 and any other relevant guideline / standard as may be nominated by the ACT Emergency Services Agency

The EMEP / BAP shall be provided to the ACT Emergency Services Agency for its information prior to any occupation or use of the proposed development site. Detailed plans of all emergency assembly areas including on-site and off-site arrangements shall be clearly displayed, and an annual emergency evacuation drill conducted.

The EMEP / BAP must consider mechanisms for the early relocation of occupants or pre-emptive building / site closure on days when adverse fire weather is notified or adverse fire activity occurs within nearby areas of the ACT. This including site and weather specific triggers for and activation of BAP requirements for elevated bushfire danger periods or extenuating weather / fuel conditions affecting the SMP and surrounding region (e.g. high winds, unusually dry understorey or increased rangeland / grassland fuel loads).

Fuel Management Planning will be prepared as formally and publicly accessible documentation to specifically address predetermined Bushfire Operational Planning (herein 'BOP ') requirements in accordance with the SBMP which describes a BOP as detailing the *specific type, location and timing of fuel reduction, access and infrastructure activities proposed to be undertaken by the landholder.*

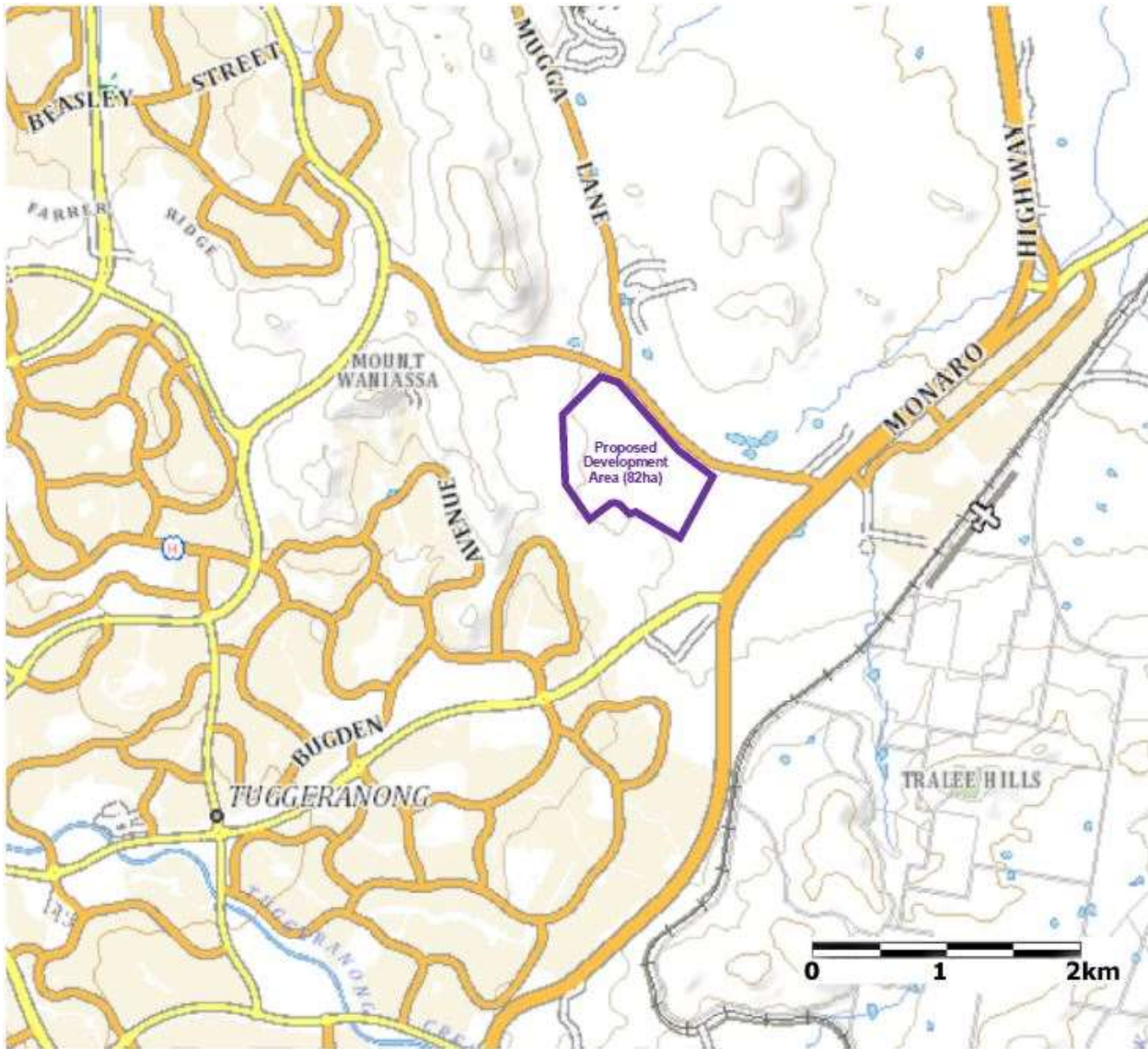
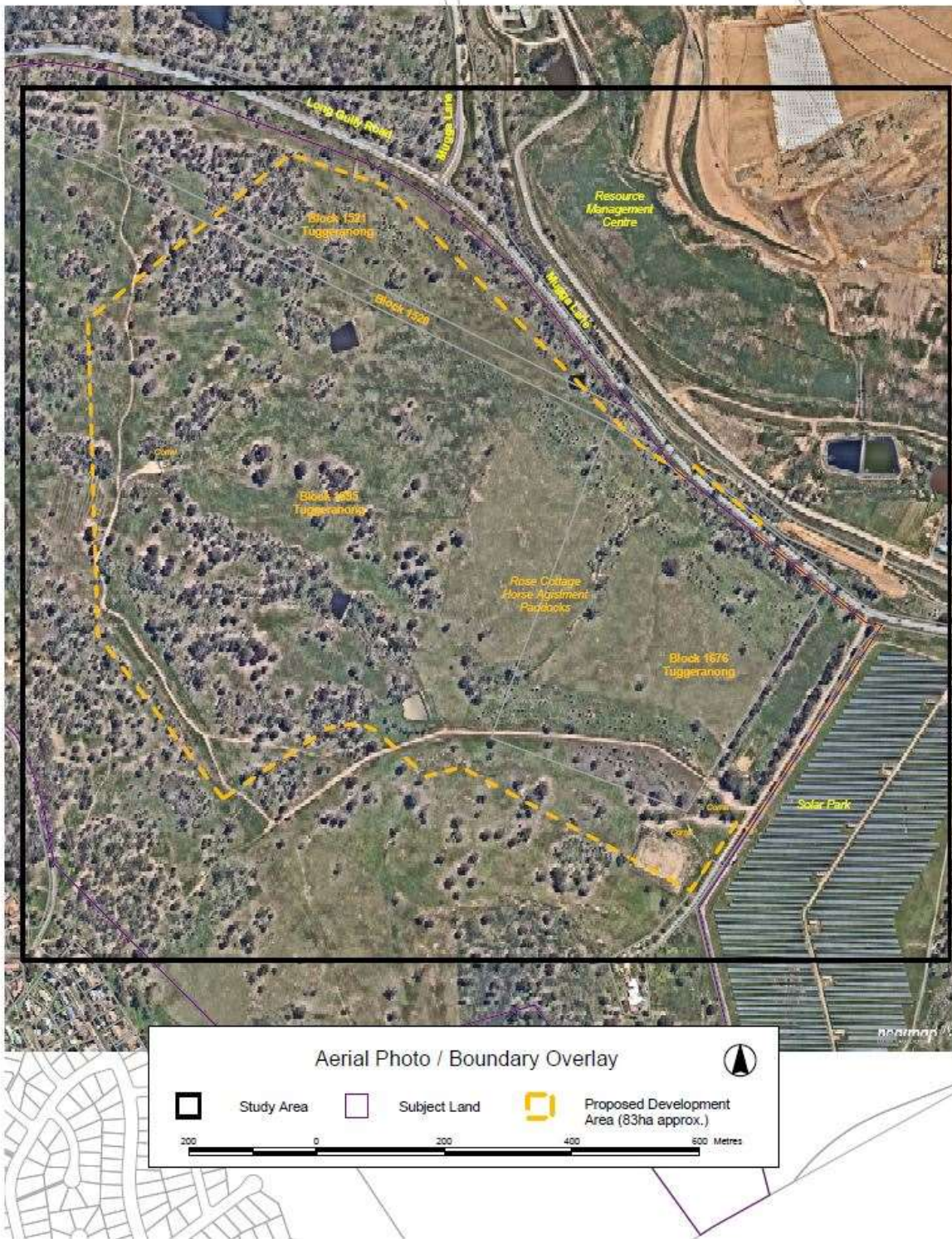


Figure 1: Location Plan



Courtesy: <http://maps.au.nearmap.com/>

Figure 2: Aerial Photography of the site.

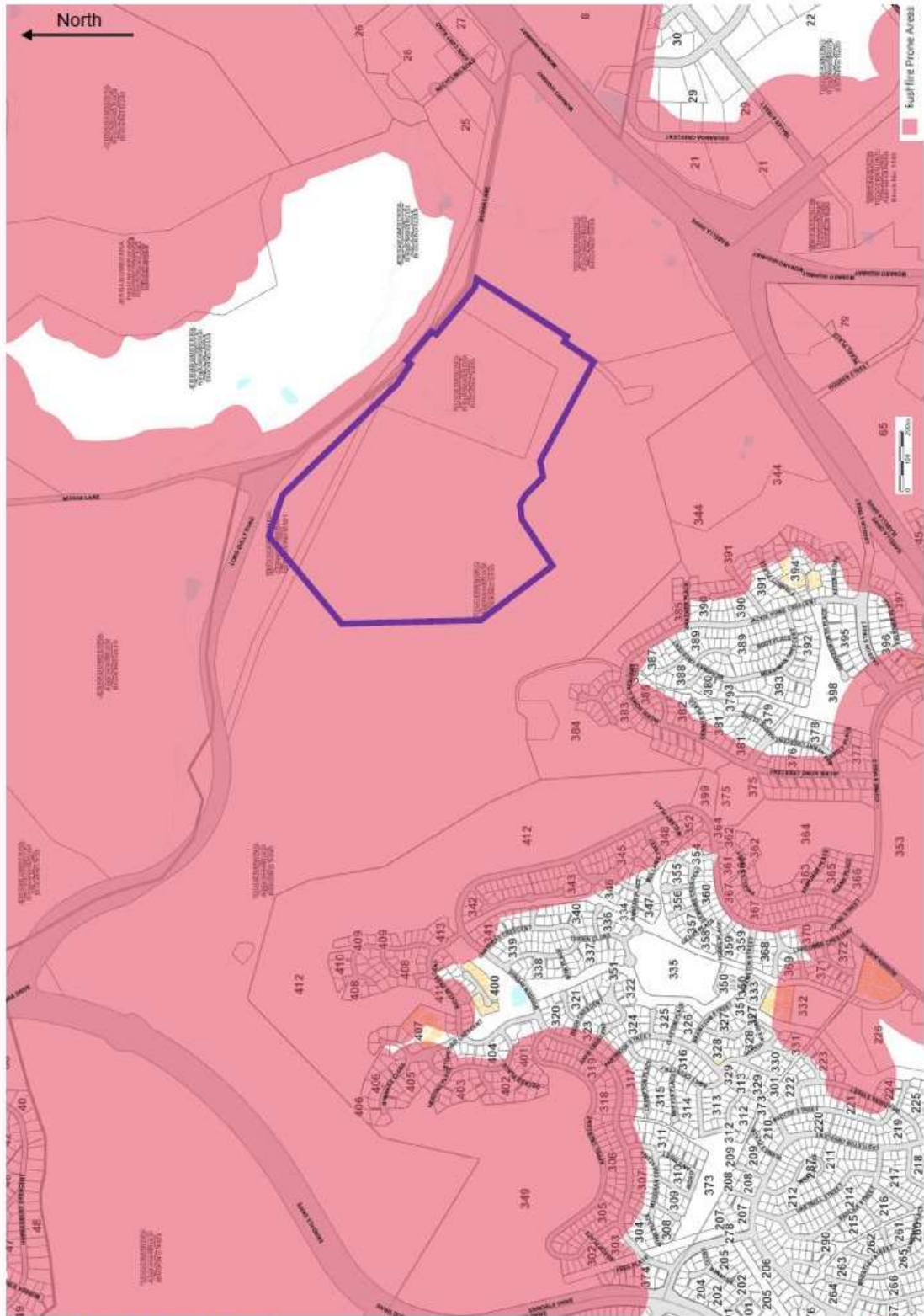


Figure 3: Bushfire Prone Zones

Figure 5: Site Images







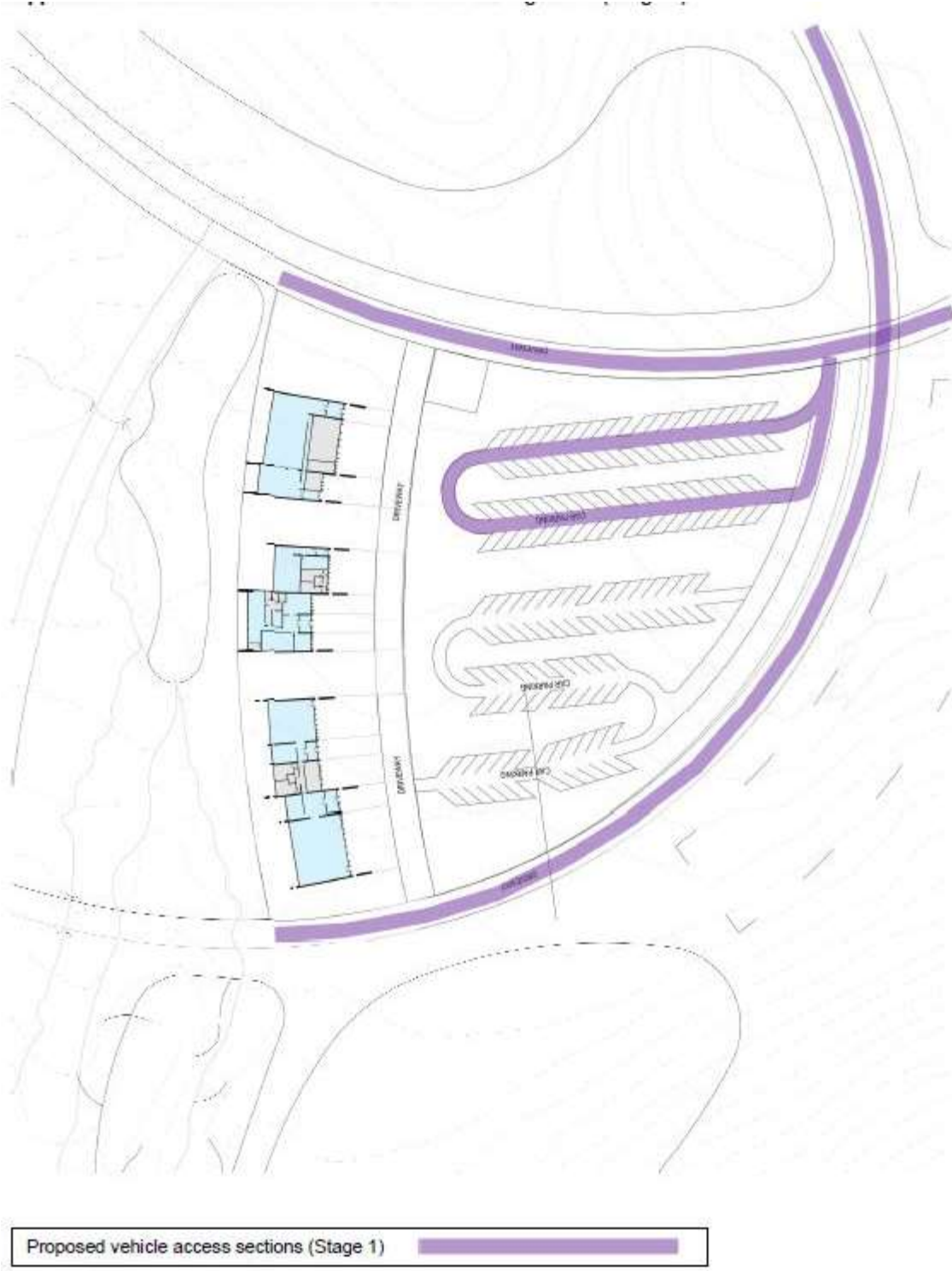


Figure 6 Access Roads (Stage 1)

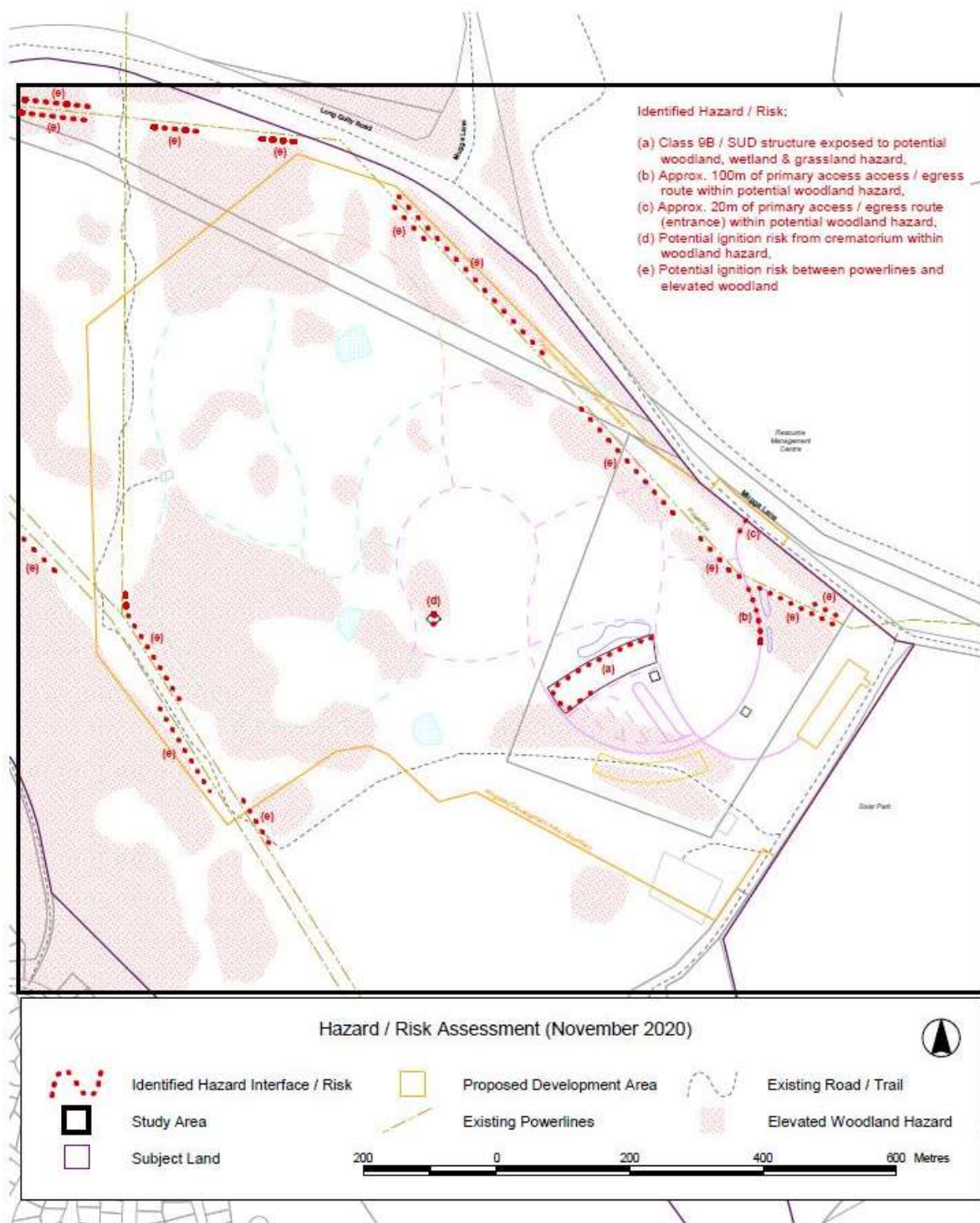


Figure 7: Identified Hazard to New and Existing infrastructure

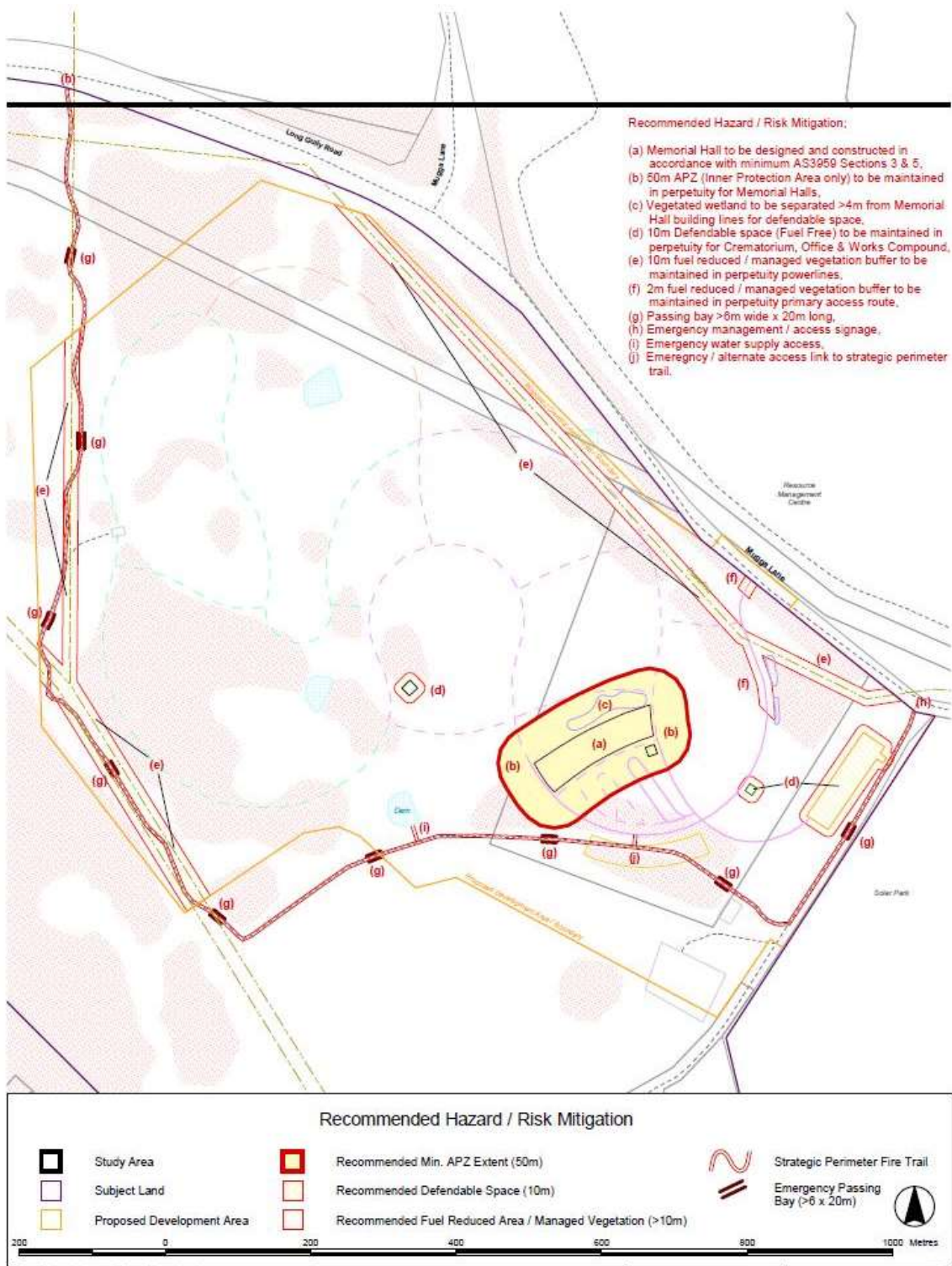


Figure 8: Recommend Hazard and Risk Mitigation

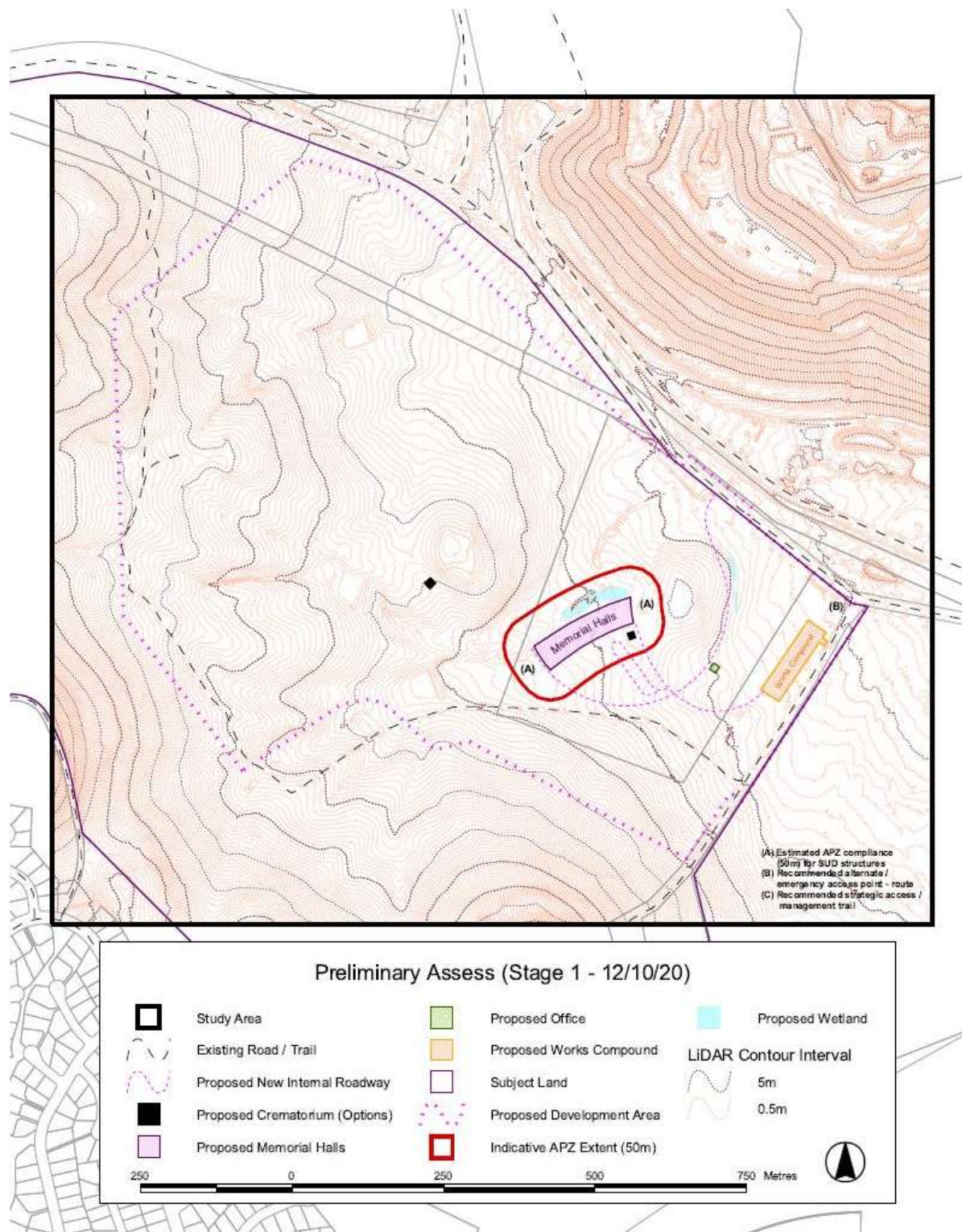


Figure 9.: Central Visitor Facility APZ