Environmental Impact Statement Scoping Document Application

Mugga Quarry Overburden Expansion Project | 321 Mugga Lane, Symonston, ACT

Prepared for Boral Resources (Country) Pty Ltd | 13 July 2018

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Prepared for Boral Resources (Country) Pty Ltd | 10 August 2018

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Environmental Impact Statement Scoping Document Application

Final – Minor Amendment

Report J17174RP1 | Prepared for Boral Resources (Country) Pty Ltd | 13 July 2018

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1 Introduction

Boral Resources (Country) Pty Ltd (Boral), a wholly owned subsidiary of Boral Limited, proposes to establish a new permanent bund and temporary emplacement area to store quarried overburden and weathered rock material from its Mugga Quarry operations (the project) at 321 Mugga Lane, Symonston (the site).

The project is required to enable the ongoing extraction operations of the quarry and supply of aggregates and quarry products to the construction market within the Australian Capital Territory (ACT) and surrounding New South Wales (NSW) regional areas.

The site in its regional and local context can be seen in Figure 1 and Figure 2.

This Environment Impact Statement (EIS) Scoping Document Application has been prepared in accordance with the requirements of the *Planning and Development Act 2007* (P&D Act) for submission to the ACT Environment, Planning and Sustainable Development Directorate - Planning (EPSDD). In preparing this EIS Scoping Document Application, the relevant codes and statutory considerations have been addressed in accordance with the requirements of the P&D Act and the *Territory Plan 2008* (Territory Plan).

EMM Consulting Pty Ltd (EMM) has been engaged by Boral to prepare this EIS Scoping Document Application.

1.1 Overview of the project

The project involves the establishment of a new permanent bund and temporary emplacement area to store up to 620,000 cubic metres (m^3) of quarried overburden and weathered rock material from Mugga Quarry.

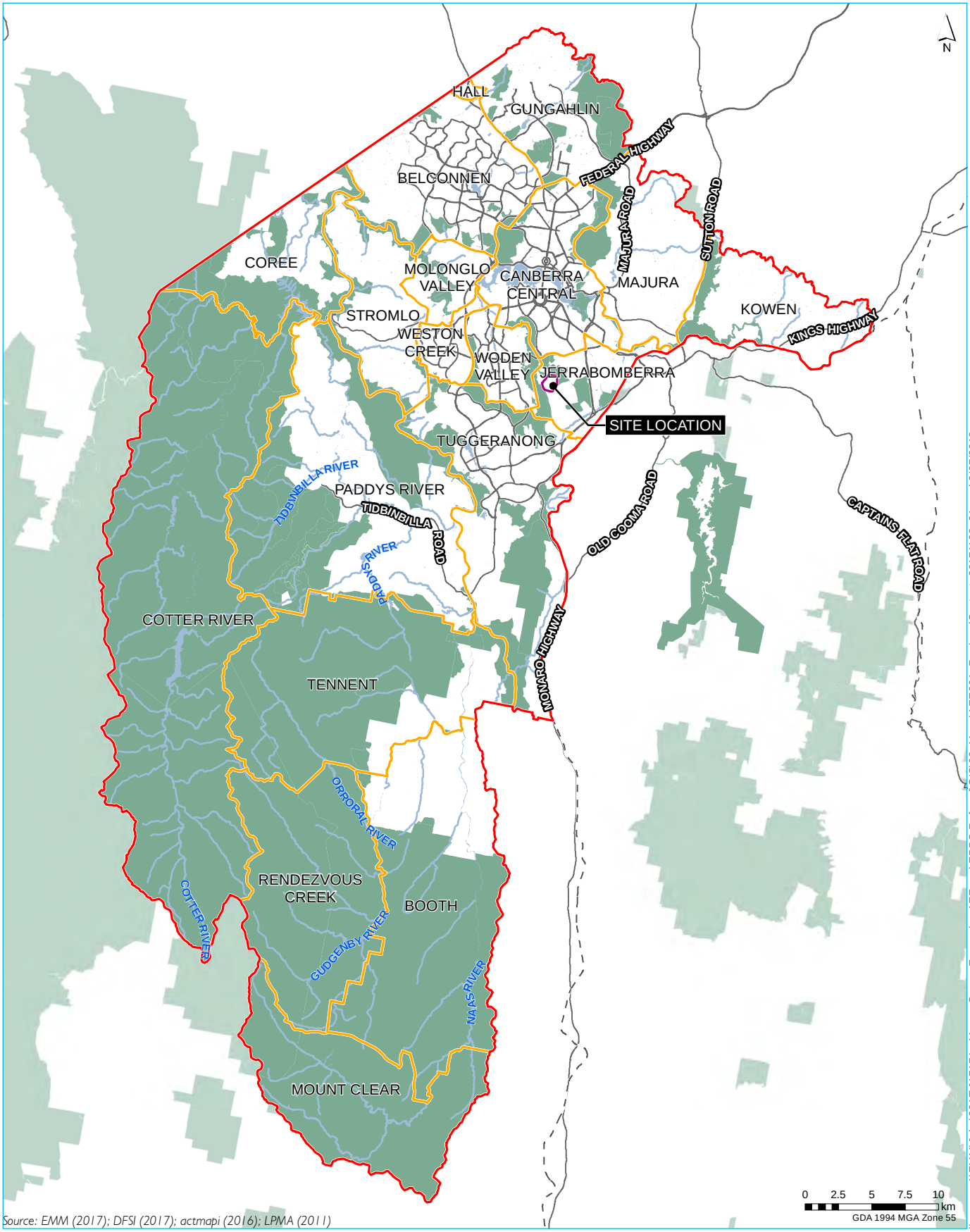
The additional bund and emplacement areas will be located north and east of the quarry's existing operations between the pit face and Mugga Lane (public road) and resides within an extractive industry lease area of 106.4 hectares (ha).

The topography of the site is undulating with a slope across the proposed extension area from the south-west to the north-east. Elevation within the proposed extension area varies from approximately 730 m Australian Height Datum (AHD) in the south-west to approximately 690 m AHD in the north-east.

The site has a long history of supporting construction materials manufacturing and contains four Boral operations, namely an asphalt plant, a concrete batching plant, a recycling facility and the hard rock quarry that is associated with the proposed emplacement area (see Figure 3).

The quarry is located in the central portion of the site and currently produces crushed rock products with a capacity to produce up to 1,000,000 tonnes per annum (tpa). The average production rate is in the vicinity of 500,000 tpa. Elements of the existing quarry include an extraction area, crushing and screening plant, product stockpiling area, offices and amenities. The quarry can operate 24 hours a day, seven days a week however is usually operating from 6:00 am to 6:00 pm Monday to Saturday.

As total production of the quarry will not be increasing, there will be no change to current operating hours, external traffic movements, groundwater management or employment. No changes are proposed to the other operations at the site.



Source: EMM (2017); DFSI (2017); actmapi (2016); LPMA (2011)

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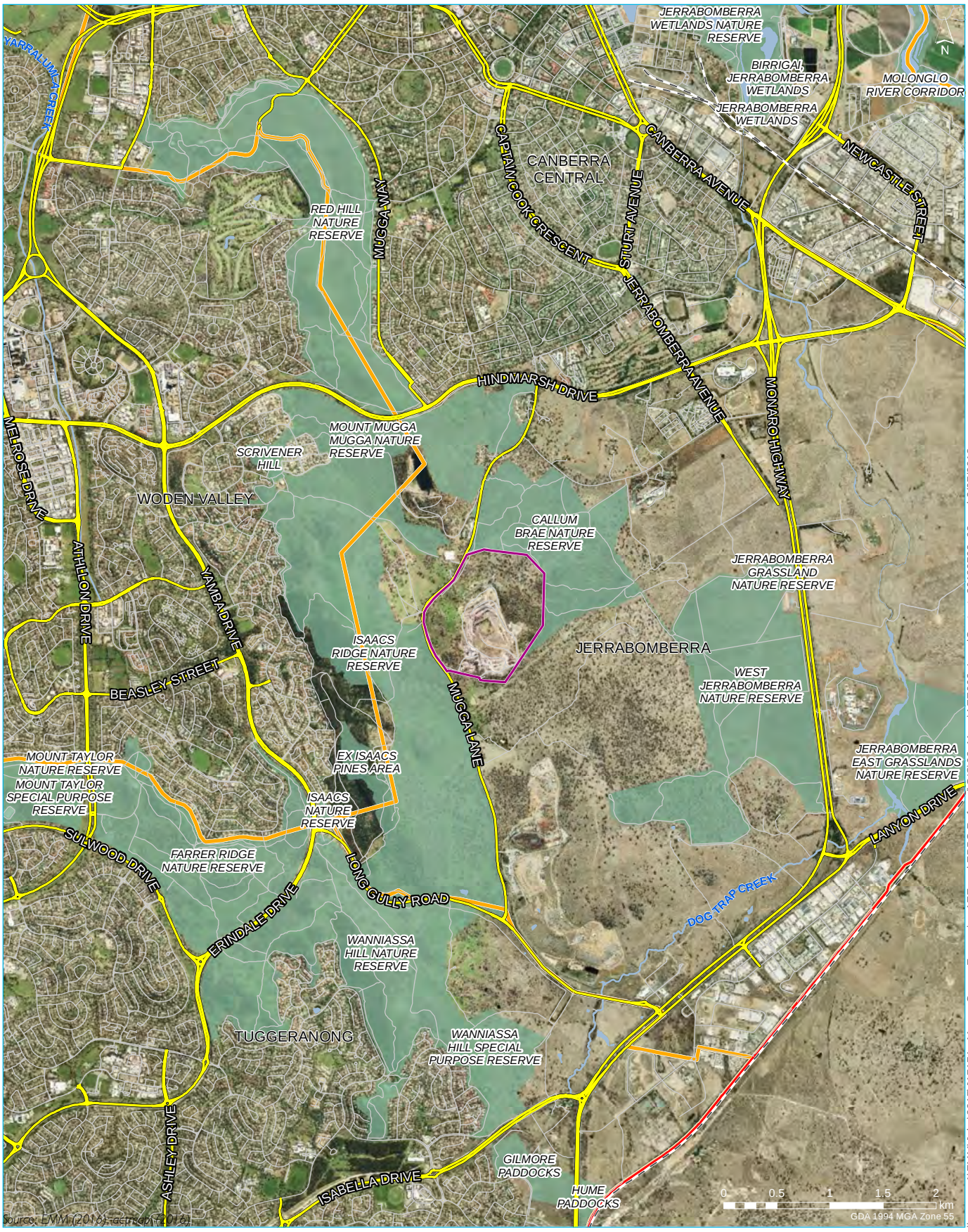
KEY

- Site location - 321 Mugga Lane, Symonston
- ACT boundary
- District boundary
- Railway
- Main road
- Watercourse
- Waterbody
- ACT reserve
- NPWS reserve

Regional context

Boral - Mugga Quarry overburden expansion
EIS scoping document
Figure 1

EMM



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KEY

- Site location - 321 Mugga Lane, Symonston
- ACT boundary
- District boundary
- Electricity transmission line
- Main road
- Local road
- Rail line
- Watercourse
- Waterbody
- ACT reserve

Local context

Boral - Mugga Quarry overburden expansion
EIS scoping document
Figure 2

EMM

KEY

- Total disturbance area
- Approved pit extent
- Emplacement contours (Boral)
- Proposed eastern emplacement contours (EMM)
- Main road
- Local Road
- Block boundary
- ACT reserve

Proposed permanent bund and temporary stockpile

Boral - Mugga Quarry overburden expansion
EIS scoping document
Figure 3

EMM

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1.2 The site and surrounds

1.2.1 The site

The site is leased Territory Land, identified as Block 2031 Jerrabomberra District. The site is located approximately 10 kilometres (km) to the south-east of Canberra Central. The site is generally known as 321 Mugga Lane, Symonston.

Located within a broadacre rural setting and surrounded by low density land uses and established remnant native vegetation, the site has a long history of supporting the operation of a hard rock quarry and associated asphalt plant, concrete batching facility and recycling facility. Vehicular access to the site is via an existing entry off Mugga Lane, adjacent to the site's south-western boundary.

An overview of the existing site operations is provided in Table 1.1.

Table 1.1 Overview of site operations

Operational element	Production rate	Details
Hard rock quarry	Up to 1,000,000 tpa. Average production rate approximately 500,000 tpa	Located in the central portion of the site and currently produces crush rock products with a production rate at times up to 1,000,000 tpa. The average production rate is in the vicinity of 500,000 tpa. Elements of the existing quarry include an extraction area, crushing and screening plant, product stockpiling area, offices and amenities. The quarry can operate 24 hours a day, seven days a week however is usually operating from 6:00 am to 6:00 pm Monday to Saturday.
Fixed asphalt plant	Up to 75,000 tpa Average 145 tons per day (tpd) production rate, with maximum 1,000 tpd	The project would produce up to 75,000 tpa of asphalt, with an average of 140 tpd to a peak of 1,000 tpd. The fixed asphalt plant is approved to operate 24 hours a day, 7 days a week.
Concrete Batching Plant (CBP)	36,000 m^3 per annum Maximum capacity to produce up to 60,000 m^3	Located to the north of the asphalt plant. It currently produces 36,000 m^3 per annum and has a maximum capacity to produce up to 60,000 m^3. Elements of the existing CBP include cement and flyash silos, aggregate storage bins, concrete production and loading facilities, offices and amenities. The CBP operates 24 hours a day, seven days a week.
Recycling facility	Up to 100,000 tpa	Recycling is located on the central western edge of the quarry and currently processes up to 100,000 tpa of recycled construction and demolition waste. Elements of the recycling facility include raw and finished material stockpiles, a mobile crushing plant, offices and amenities. The recycling facility can operate 24 hours a day, 7 days a week however deliveries generally occur between 7:00 am and 4:30 pm with production occurring overnight when needed to meet market demand.

The topography is undulating with a significant slope across the site from the north-east to south-east with a fall of approximately 40 metre (m). The site is leased by Boral Resources (Country) Pty Ltd, a wholly owned subsidiary of Boral Limited.

The site is zoned Non-Urban NUZ1 Broadacre under the Territory Plan.

1.2.2 The project area

This project includes the establishment of a new permanent bund and temporary emplacement area to store up to 620,000 m^3 of quarried overburden and weathered rock material located north and east of the quarry's existing operations between the pit face and Mugga Lane (public road).

A plan of the project area can be seen in Figure 4.

1.2.3 The surrounds

The site is situated within a broadacre rural setting surrounded by low density land uses and established remnant native vegetation.

The land use zoning for the site has made provisions requiring a 1 km clearance buffer around the site to afford protection to adjacent development. The nearest rural residence is located approximately 2 km to the south and approximately 2 km to the west of the site.

Land uses surrounding the site include:

- **north** – Mugga Lane (public road), vacant broadacre land, reservoir, bus depot, one rural residence and Boral's Mugga 2 quarry;
- **east -** vacant broadacre land;
- **south –** vacant broadacre land and one rural residence; and
- **west** – Mugga Lane, vacant broadacre land and one rural residence.

1.3 Project alternatives

Boral considered the following alternatives for the emplacement of overburden and weathered rock:

- emplacement within the Mugga 1 pit – Boral is already planning to emplace approximately 270,000m^3 of overburden and weathered rock within the pit, for possible processing or relocation. Total overburden material in-pit emplacement is not considered viable as it would begin to sterilise approved resource and shorten the lifespan of the quarry;
- emplacement within the disused Mugga 2 quarry pit – inquiries are being made with the ACT Government to determine whether this is a possibility and whether it would be commercially viable. However, based on haulage costs, even without a tipping fee, it is not an attractive from a commercial perspective. Emplacement within the Mugga 2 pit would also negate later re-use and blending of the weathered rock material;
- emplacement at another Boral quarry – the closest Boral Quarry is at Hall Quarry at Jeir NSW, approximately 55 km to the north. Hall Quarry does not have development approval to receive overburden from external sites, and the cost involved in trucking material over such a long distance is not commercially viable. It would also negate later re-use and blending of the weathered rock material; and

- emplacement out of pit on adjoining quarry land – this has been considered the most viable solution from a commercial perspective, given it's the shortest haulage distance. It also means the weathered rock material can be later blended and re-used, instead of simply being applied to land.

KEY

- Total disturbance area
- Approved pit extent
- Emplacement contours (Boral)
- Proposed eastern emplacement contours (EMM)
- Electricity transmission line
- Main road
- Block boundary
- ACT reserve

The project

Boral - Mugga Quarry overburden expansion
EIS scoping document
Figure 4

EMM

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The vegetation surveys, topography and stormwater capture requirements have further refined the design of the emplacement to minimise its environmental footprint.

To determine the final overburden emplacement the design process investigated different on-site layouts which combined environmental impacts and Boral's project objectives, including:

- ecological assessment of significance;
- approved final Mugga Quarry pit extent;
- topography and site contours;
- surface water sedimentation dam locations;
- overburden design contours; and
- proposed alternative overburden area.

The outcome of the above is an overburden placement design that includes both in-pit and out-of-pit emplacement.

1.4 Existing environment

1.4.1 Topography

As previously stated, the topography of the site is undulating with a slope across the proposed extension area from the south-west to the north-east. Elevation within the proposed extension area varies from approximately 730 m AHD in the south-west to approximately 690 m AHD in the north-east.

1.4.2 Climate and meteorology

The Bureau of Meteorology (BoM) Canberra Airport and Tuggeranong automatic weather stations (AWS) are situated approximately 10 km north-east and south-west of the site respectively. A dominance of wind direction from the northwest and southeast is evident, with a less defined southwest flow.

The general southeast-northwest alignment of winds is evident in both the BoM Canberra Airport and Tuggeranong AWS wind roses, with directional variations attributable to local terrain features around the two monitoring stations. Investigation of this southwest flow (ie CALMET meteorological modelling) shows the predicted flow occurs during night/early morning hours and is associated with the influence of the ridgeline to the west of the site.

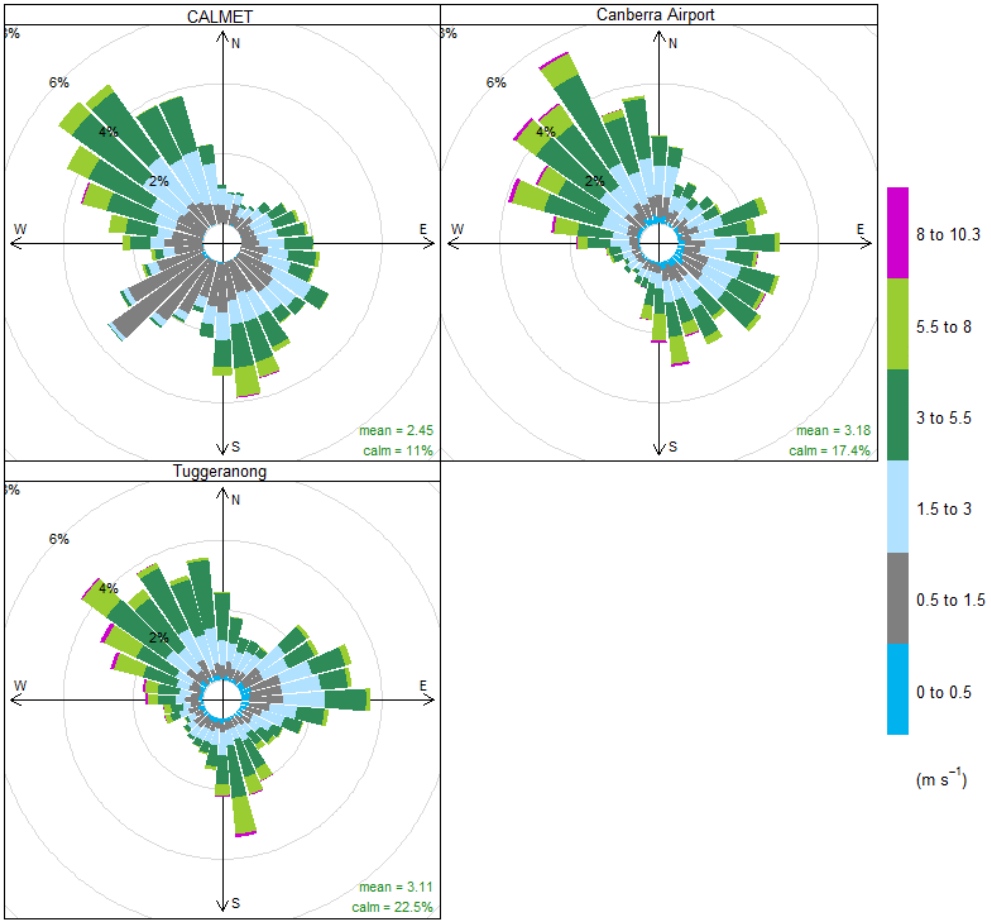


Figure 5 Annual wind rose for 2015 – BoM Canberra Airport and Tuggeranong AWSs

Monthly mean minimum temperatures range from 0 degrees celsius (°C) to 14°C, while monthly mean maximum temperatures of 12°C to 29°C. Peak temperatures occur during the summer months, with the highest temperatures typically being recorded between November and February. The lowest temperatures are usually experienced between June and August.

The region is characterised by low to moderate rainfall, with a mean annual rainfall of 640 millimetres (mm), and an annual rainfall range between 340 mm and 1,100 mm. There is notable variation in monthly rainfall throughout the year, with the lowest rainfall occurring in mid to late autumn and peaking during the summer months.

Further details on the proposed EIS air quality scope are outlined in Section 4.

1.4.3 Geology

The 1:50,000 Canberra and Queanbeyan Geological Map (1980) suggests that the site is underlain by green-grey dacitic crystal tuff and purple and green tuff, coarse sandstone, shale and ashstone.

1.4.4 Ecology

Vegetation at the site comprises approximately 2.84 ha of Red Stringybark (*Eucalyptus macrorhyncha*) Tableland Grass/Shrub Forest, Yellow Box – Red Gum Grassy Woodland. The vegetation is classed as very low, low and moderate condition (representing 3.23, 6.24 and 2.50 ha, respectively). There is 1.97 ha of cleared area containing three isolated Red Box trees (see Figure 6).

The patches of Yellow Box – Red Gum Grassy Woodland in low and moderate condition (ie 5.04 ha) meet the description of the community listed under the ACT *Nature Conservation Act* and White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grasslands listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999.* Approximately 5.04 ha of the listed Yellow Box Red Gum Grassy Woodland will be cleared for the project.

Woodland at Mugga Quarry and in the proposed expansion area is part of a 2,325 ha woodland area in the Callum Brae-Jerrabomberra Valley complex, which is one of the largest areas of contiguous woodland in the ACT region (ACT Government 2004). It includes 1,040 ha of Yellow Box – Red Gum Grassy Woodland community.

The Project was referred to the Department of the Environment and Energy (DoEE), pursuant to the EPBC Act for assessment on 6 February 2018 (EPBC 2018/8151). On 25 March 2018, the project was determined to be a controlled action, with DoEE determining the project was likely to have a significant impact on listed threatened species and communities to be assessed by Preliminary Documentation (PD).

The advice received from DoEE specifies that the project is likely to have a significant impact on the following matters of national environmental significance (MNES):

- White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box Gum Woodland), a critically endangered ecological community; and
- Superb Parrot (*Polytelis swainsonii*).

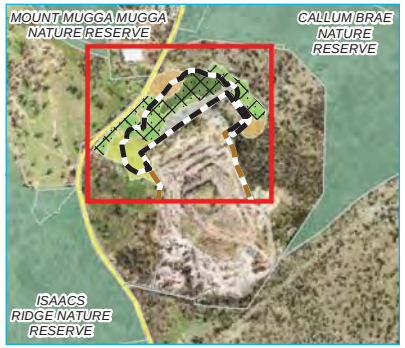
Further details of proposed EIS ecology scope are summarised in Section 4.

1.4.5 Hydrology

The site is characterised by moderately steep to steep terrain that drains through a number of discrete ephemeral drainage lines into four separate waterways. Figure 7 shows the existing waterways, dam locations and catchment divides (or ridge lines) relative to the proposed emplacement area and existing and proposed pit extents. The term waterway refers to waterways shown on a 1:25,000 scale topographic map. There are no waterways shown on a 1:25,000 scale topographic map within the project area. Drainage lines that are not shown as waterways on a 1:25,000 scale topographic map are referred to as ephemeral drainage lines in this document.

i Area 1

Area 1 is located to the north-west of the existing pit and drains to the north via a number of natural and excavated drainage lines. The area drains into a small farm dam that is located on the southern side of Mugga Lane. Overflow from the dam passes under Mugga Lane through a culvert structure before continuing to flow to the north towards the O'Malley residential area. Runoff ultimately enters Yarralumla Creek, 5 km downstream of the project area. Photograph 1.1 shows an excavated drainage line in Area 1.



KEY

- Total disturbance area
- Approved pit extent
- Block boundary
- Electricity transmission line
- Main road
- ACT reserve
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (EPBC Act)
- Yellow Box - Red Gum Grassy Woodland (NC Act)
- Cleared area

Native vegetation

- Grass/shrub forest
- Yellow Box - Red Gum Grassy Woodland (very low condition)
- Yellow Box - Red Gum Grassy Woodland (low condition)
- Yellow Box - Red Gum Grassy Woodland (moderate condition)
- Red Box

Native vegetation & threatened ecological communities

Boral - Mugga Quarry overburden expansion EIS scoping document

Figure 6

EMM

Source: EMM (2018); Boral (2018); actmapi (2016); LPI (2015)

0 100 200 m

GDA 1994 MGA Zone 55

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Photograph 1.1 An excavated drainage line in Area 1

ii Area 2

Area 2 is located to the north of the approved bund that has been progressively constructed adjacent to the final pit extent (as indicated in Figure 7). Runoff from this area drains into an ephemeral drainage line that is located in a well defined gully that drains to the east through the Callumbrea Nature Reserve before joining Jerrabomberra Creek, 3.5 km downstream of the project area. Moderate gully and bank erosion was observed in some sections of this drainage line. Photograph 1.2 shows a typical section of the incised ephemeral drainage line that is located in Area 2.

Photograph 1.2 A typical section of the incised ephemeral drainage line that is located in Area 2

iii Area 3

Area 3 drains to the east and receives runoff from the area immediately to the north and north-east of the existing quarry pit. As indicated in Figure 7, the majority of this catchment is within the approved pit extent and will be removed as the quarry progresses. Runoff from Area 3 drains to the east via a discreet drainage line through the Callumbrea Nature Reserve before joining Jerrabomberra Creek, 3.5 km downstream of the project area. A small spring was located on this drainage line, immediately to the west of the final pit extent (refer to Figure 7 for the spring location). The spring was interpreted to be associated with the change in slope and significant rainfall that occurred prior to sampling. The spring waters returned to subsurface flows shortly downstream of the spring location.

Photograph 1.3 Shows the terrain in Area 3 to the east of the existing pit. Surface drainage is via subtle ephemeral drainage lines

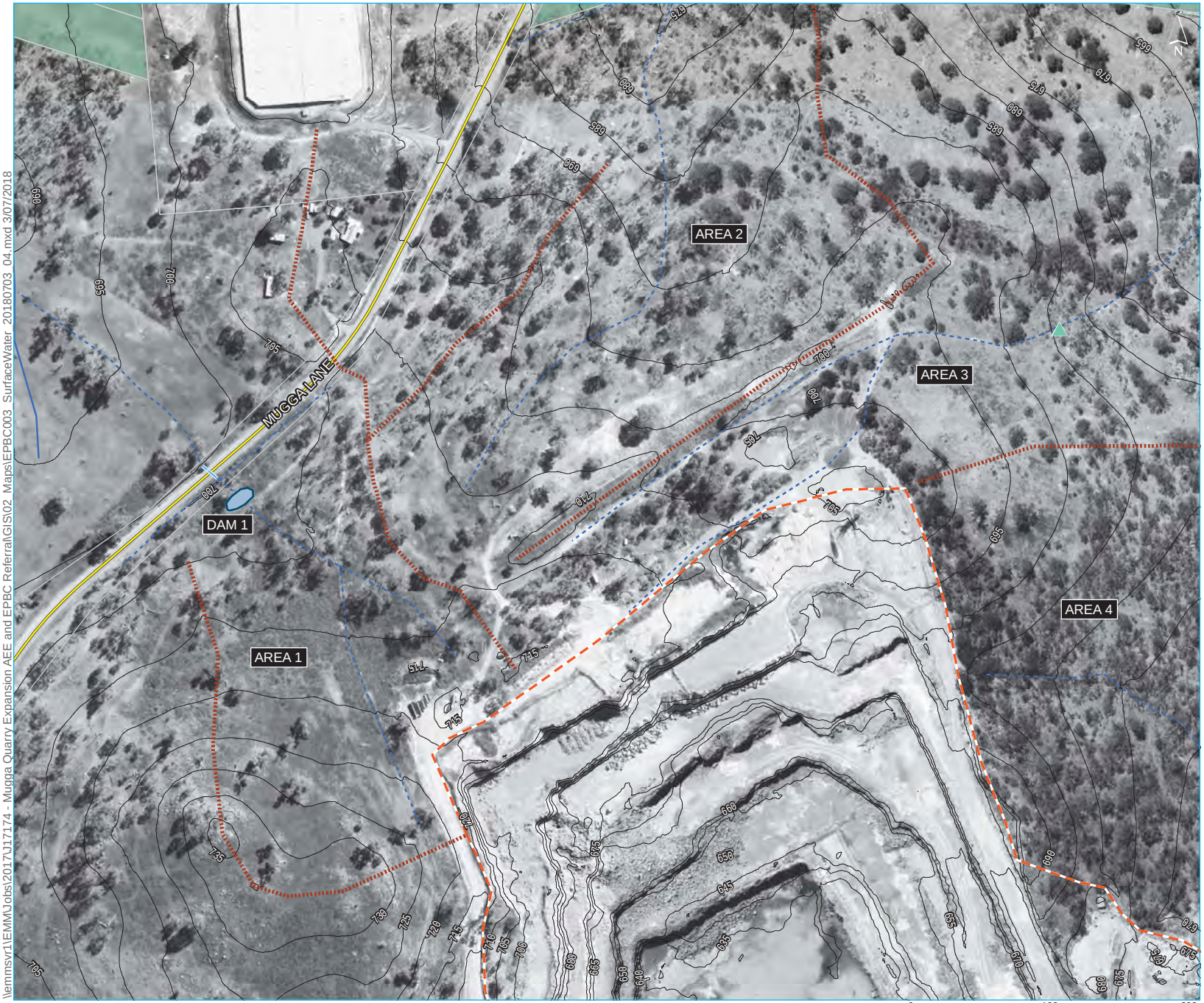
iv Area 4

Area 4 is located to the east of the existing pit. Runoff from Area 4 drains to the south in a steep ephemeral drainage line that flows through the Callumbrea Nature Reserve before joining Jerrabomberra Creek, 3.5 km downstream of the project area. Minimal disturbance is proposed in Area 4.

v Existing surface water regime

All drainage lines within the project area are ephemeral, with surface flows only occurring for short periods of time during and shortly after material rainfall. This was substantiated by observed conditions during EMM's site inspection on 4 December 2017, which observed drainage lines to be generally dry, despite significant rainfall (64 mm) occurring over 2 and 3 December 2017. Note Photograph 1.1, Photograph 1.2 and Photograph 1.3 were taken on 4 December 2017.

Further details of the proposed EIS surface water management scope are summarised in Section 4.



KEY

- Extent of the quarry's existing water management area
- Main road
- Ridge line
- Culvert
- Ephemeral spring (indicative location)
- Minor drainage line
- Watercourse (on a 1 to 25:000 topographic map)
- Contour (5m)
- Existing dam
- Block boundary
- ACT reserve

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Source: EMM (2017); actmapi (2016); LPI (2015)

0 100 200 m

GDA 1994 MGA Zone 55

Existing surface water environment

Boral - Mugga Quarry overburden expansion EIS scoping document

Figure 7

EMM

1.4.6 Hydrogeology

As previously stated, the topography at the site generally slopes from the north to the southeast with groundwater also generally flowing in this direction. Based on the geology of the area groundwater is likely to be present in discontinuities (ie fissures, fault, fractures and bedding planes) in the underlying strata.

Monitoring wells surrounding the project area and within the broader site record groundwater at an elevation of 647 m and 667 m AHD (noting fractured rock aquifer water levels), and these have data loggers continuously recording groundwater levels, and water quality sampling is also undertaken. Given the minimum site elevation of 681 m AHD in the south eastern corner, groundwater is approximately 14 m beneath the site and is unlikely to be encountered during construction or operation of the project.

Ongoing monitoring of water quality and levels would continue during operation with further details of the proposed EIS surface water management scope summarised in Section 6.

1.5 Purpose of this EIS scoping document application

This EIS scoping document application has been prepared to provide sufficient information for EPSDD to evaluate the environmental impact of the project, in order to enable a scope to be provided for the preparation of a subsequent EIS. The structure of this EIS scoping document application is outlined in Table 1.2.

Table 1.2 EIS scoping document application structure

Requirements	Section where addresses
A summary of the EIS scoping document application	Executive Summary
Overview of the project, the site and surrounds	Section 1.1 and Section 1.2
Legislative context	Section 2
Preliminary risk assessment of impact on the environment	Section 3
Overview of proposed supporting assessments	Section 4
Stakeholder engagement	Section 5
Justification and conclusion	Section 6

The EIS scoping document application has been prepared in accordance with the requirements set out in the P&D Act to support the preparation of a subsequent EIS for the proposed establishment of a permanent bund and temporary emplacement area at the existing Mugga Quarry operations.

2 Legislative context

This chapter provides an overview of the legislative context for the Project under the ACT *Planning and Development Act 2007*.

2.1 Planning and Development Act 2007

The *Planning and Development Act 2007* (P&D Act) provides, under Part 7.1, for three tracks in environmental assessment:

- the code track;
- the merit track; and
- the impact track.

Division 7.2.1 of the P&D Act provides for the process by which assessment tracks are determined. Under section 114, the P&D Act stipulates that the development table (Territory Plan) sets out the criteria to be applied when determining the appropriate assessment track. Section 212(1) of the P&D Act provides:

> *(1) A proponent of a development proposal must apply to the planning and land authority under this section if—*
>
> *(a) an EIS, whether completed or draft, is required for the proposal; and*
>
> *(b) the proponent has—*
>
> *(i) not applied for an EIS exemption for the proposal; or*
>
> *(ii) applied for an EIS exemption for the proposal, but the Minister has refused to grant the EIS exemption under section 211H.*

If section 212(1) is enlivened, then section 121(2) provides that the planning and land authority must:

> *(a) identify the matters that are to be addressed by an EIS in relation to the development proposal; and*
>
> *(b) prepare a notice (the scoping document) of the matters*

Section 123 of the Act also states that the impact track provisions of the Territory Plan apply to any proposal listed in Schedule 4 of the Act.

There is a reference in section 213(1) that the regulations can provide for the minimum content for scoping documents. In this respect, clause 54 of the Planning and Development Regulation 2008 itemises the content requirements of a scoping study for an EIS.

The proposed development is of a kind mentioned in Schedule 4 of the P&D Act. The proposed works are within an area noted to support an endangered ecological community (EEC), and it is noted that Part 4.3 of Schedule 4 - "Development proposals requiring EIS - areas and processes" - includes:

> *proposal that is likely to have a significant adverse environmental impact on 1 or more of the following, unless the conservator of flora and fauna provides an environmental significance opinion indicating that the proposal is not likely to have a significant adverse environmental impact:*
>
> *(a) a critically endangered species;*
>
> *(b) an endangered species;*
>
> *(c) a vulnerable species;*
>
> *(d) a conservation dependent species;*
>
> *(e) a regionally threatened species;*
>
> *(f) a regionally conservation dependent species;*
>
> *(g) a provisionally listed threatened species;*
>
> *(h) a listed migratory species;*
>
> *(i) a threatened ecological community;*
>
> *(j) a protected native species;*
>
> *(k) a Ramsar wetland;*
>
> *(l) any other protected matter*

Schedule 4 also captures any proposal which involves the clearing of more than 0.5 ha of native vegetation *other than on land that is designated as a future urban area under the Territory Plan, unless the conservator of flora and fauna produces an environmental significance opinion that the clearing is not likely to have a significant adverse environmental impact* (refer to item 2 in the table shown at P&D Act Part 4.3).

The impact track applies to a development proposal if:

- the relevant development table states that the impact track applies;
- the proposal is of a kind mentioned in schedule 4 in the PD Act;
- the Minister declares that the impact track applies to a proposal;
- section 125 (declaration by Public Health Act Minister affects assessment track) or section 132 (impact track applicable to development proposals not otherwise provided for) applies to the proposal; or

- the proposal is a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and is being assessed by the Commonwealth under Preliminary Documentation with a determination to be provided during the assessment of the EIS.

The application for the project is therefore proposed to be made under Section 212(1) of the P&D Act.

As previously stated, this EIS scoping document application has been prepared to provide sufficient information for EPSDD to evaluate the environmental impact of the project, in order to enable a scope to be provided for the preparation of a subsequent EIS.

2.2 National Capital Plan

The National Capital Plan (NCP) is the strategic plan for Canberra and the ACT. It ensures that '*Canberra and the Territory are planned and developed in accordance with their national significance*'. The key matters of national significance include:

- the pre-eminence of the role of Canberra and the ACT as the centre of National Capital functions, and as the symbol of Australian national life and values;
- conservation and enhancement of the landscape features which give the National Capital its character and setting, and which contribute to the integration of natural and urban environments;
- respect for the key elements of the Griffins' formally adopted plan for Canberra;
- creation, conservation and enhancement of fitting sites, approaches and backdrops for national institutions and ceremonies as well as National Capital uses; and
- the development of a city which both respects environmental values and reflects national concerns with the sustainability of Australia's urban areas.

In accordance with Section 10 of the ACT *(Planning and Land Management) Act 1988* (P&LM Act), the NCP sets out the broad planning principles and policies for Canberra and the ACT, and detailed conditions of planning, design and development for the 'Designated Areas' because of their particular importance to the special character of the national capital. The detailed conditions of planning, design and development are set out in the NCP. Works Approval for development within the 'Designated Areas' in the responsibility of the National Capital Authority (NCA).

For the purpose of this EIS scoping document application, Mugga Quarry does not form part of the Inner Hills and is not specified as a Designated Area within the NCP (refer to Figure 8), while with Section 3.2.4.4 of the NCP prescribes Extractive Industry (Mugga Quarry only) as a permitted land use within Hills, Ridges and Buffer Spaces.

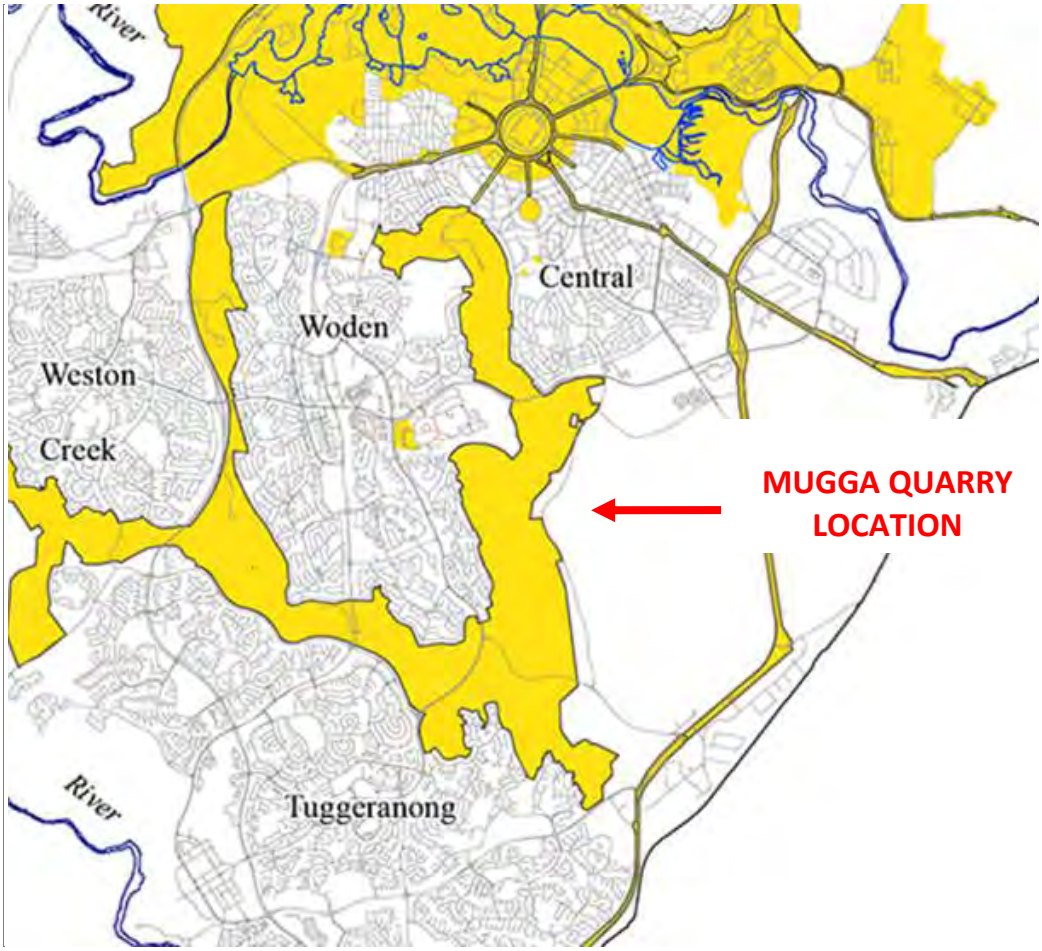


Figure 8 NCP Designated Areas (shown in 'yellow')

2.3 Territory Plan

The subject site is zoned in the Territory Plan as NUZ1 – Broadacre.

The project is consistent with the Territory Plan definition for 'mining industry'.

The Non-Urban Zone specifically allows for the use of 'mining industry' on Block 2031 Jerrabomberra.

The Territory Plan is the key statutory planning document in the ACT, providing the policy framework for the administration of planning in the Territory. The purpose of the Territory Plan is to manage land use change and development in a manner consistent with strategic directions set by the ACT Government, Legislative Assembly and the community.

The site is zoned NUZ1 – Broadacre Zone for which the following objectives apply:

- make provision in a predominantly rural landscape setting for a range of uses which require larger sites and/or a location outside urban areas;
- make provision for activities requiring clearance zones or protection from conflicting development;
- ensure that development does not adversely impact or visually intrude on the landscape and environmental quality of the locality; and
- ensure, where appropriate, that development and the use of land does not undermine the future use of land which may be required for urban and other purposes.

2.4 Non-urban development code

The project will be assessed against the requirements of the ACT *Non-Urban Zones Development Code* to confirm compliance with the zone objectives and planning, design and environmental controls.

The project will be subject to the impact track assessment with Table 2.1 to Table 2.4 below outlining compliance with the rules or criteria and providing an assessment and supporting plans to demonstrate that the project satisfies the criteria and therefore the intent of the element.

Table 2.1 Non urban zones development code – Part A zone specific controls

Part A (1) – NUZ1 – Broadacre Zone				
Element 1 – Restrictions on use				
Rule	**Complies**	**Criteria**	**Complies**	**Statement**
1.1 Restrictions on use				
	-	C1	N/A	Not relevant to this application – the project is for the emplacement of overburden material for the existing approved Mugga Quarry.
	-	C2	N/A	
Element 2 – Building and site controls				
Rule	**Complies**	**Criteria**	**Complies**	**Statement**
2.1 Scale and type of development				
	-	C3	Yes	Not relevant to this application – the project is for the emplacement of overburden material for the existing approved Mugga Quarry. The proposed overburden emplacement is compatible with the scale, function and character of the existing Mugga Quarry site and surrounding area which comprises low density non-urban uses within a vegetated setting.

Table 2.2 Non urban zones development code – Part B general development controls

Part B (1) – General development controls

Element 1 – Restrictions on use

Rule	Complies	Criteria	Complies	Statement
1.1 Adjunct uses				
	-	C16	N/A	Not relevant to this project – the site is not within a designated area (ie not subject to requirements of the National Capital Plan).
1.2 Assessment of environmental effects				
	-	C17	Yes	Not relevant to this project – an EIS will be prepared to satisfy the P&D Act.
1.3 Plans of Management				
	-	C18	N/A	Not relevant to this project – the site is not subject site to any approved plan(s) of management.

Element 3 – Built form

Rule	Complies	Criteria	Complies	Statement
3.1 Building design and materials				
N/A	-	C22	Yes	A visual assessment for the overburden emplacement will be prepared for the project. The project does not raise any matters that conflict with the surrounding landscape.
N/A	-	C23	Yes	Not relevant to this application – the project is for the emplacement of overburden material for the existing approved Mugga Quarry.
3.2 Crime prevention through environmental design				
	-	C24	N/A	Not relevant to this project – refer to Table 1 of the CPTED General Code.
3.3 Access and mobility				
	-	C25	N/A	Not relevant to this project – refer to Table 1 of the Access and Mobility General Code.
3.4 Location requirements for community and recreation facilities				
N/A	-	C25A	N/A	Not relevant to this project – proposal is for a 'Mining Industry' development.

Element 4 – Parking and access

Rule	Complies	Criteria	Complies	Statement
4.1 Parking and access				
	-	C26	Yes	'Mining Industry' development is subject to individual assessment. There is no proposed change to staff numbers. Accordingly there are no additional requirements for on-site parking provisions.
	-	C27	N/A	Not relevant to this project.

Element 5 – Amenity

Rule	Complies	Criteria	Complies	Statement
5.1 Signs				
	-	C28	N/A	Not relevant to this project – additional signage is not proposed as part of the proposed works on site.
	-	C29	N/A	
5.2 Lighting				
R30	Yes	C30	-	Not relevant to this application – the project is for the emplacement of overburden material for the existing approved Mugga Quarry.
R31	Yes	C31	-	

Table 2.2 Non urban zones development code – Part B general development controls

Part B (1) – General development controls

Element 6 – Environment

Rule	Complies	Criteria	Complies	Statement
6.1 Heritage				
R32	N/A	C32	-	Not relevant to this project.
6.2 Water use				
N/A	-	C33	Yes	Not relevant to this application – the project is for the emplacement of overburden material for the existing approved Mugga Quarry. Boral is committed to the reduction of water consumption and waste where possible.
6.3 Erosion and sediment control				
R34	N/A	C34	N/A	Not relevant to this project – site is greater than 0.3 ha.
R35	-	C35	Yes	The proposed construction activities, including erosion and sediment control are to be incorporated into Boral's Environmental Management Plan (EMP)
6.4 Contamination				
R36	Yes	C36	-	Not relevant to this application – the project is for the emplacement of overburden material for the existing approved Mugga Quarry.
6.5 Hazardous material				
R37	-	C37	Yes	Not relevant to this application – the project is for the emplacement of overburden material for the existing approved Mugga Quarry. The construction activities will be guided by Boral's EMP.
6.6 Trees				
R38	N/A	-	N/A	Not relevant to this project – the ACT *Tree Protection Act 2005* does not apply as the site is located outside the urban area declared by the Minister under the Act.
6.7 Bushfire risk mitigation				
N/A	-	C39	Yes	The development complies with the Planning for *Bushfire Risk Mitigation General Code*. Boral acknowledges the inherent risks associated with the existing site and advises that fire mitigation measures are currently in place on the site.

Element 7 – Site services

Rule	Complies	Criteria	Complies	Statement
7.1 Waste management				
R40	-	C40	Yes	Boral has a waste management procedure which is currently in place on site. The purpose of the waste management procedure is to describe how to manage any impact arising from waste in the operation of the plant. Boral's EMP will manage waste generation during construction.
7.2 Servicing and site management				
R41	-	C41	Yes	The site is already serviced from the existing infrastructure in the vicinity.
7.3 Utilities				
R42	-	C42	Yes	Electrical, water, sewer and telecommunication services area already available on site are considered to be adequate for the project.
		C43	N/A	Not relevant to this project – no new septic tank(s) will be constructed as part of the project.

Table 2.3 Non urban zones development code – Part C site specific controls

Part C (4) – Jerrabomberra

Element 1 – Restrictions on use

Table 2.2 Non urban zones development code – Part B general development controls

Part B (1) – General development controls

Rule	Complies	Criteria	Complies	Statement
1.1 Quarry				
		C48	Yes	The project is for the emplacement of overburden material, which is consistent with quarrying and other compatible uses during the life of the existing quarry.

2.4.1 Jerrabomberra District Precinct Code

The site is also subject to the *Jerrabomberra District Precinct Code* which provides additional planning, design and environmental controls for specific areas or blocks (refer to Table 2.4).

Table 2.4 Jerrabomberra District Precinct Code

RC1 – Jerrabomberra Quarry

Element 1 – Use

Rule	Complies	Criteria	Complies	Statement
1.1 Mining operations and rehabilitation				
		C1	Yes	The project complies with the definition of mining industry and is compatible with Mugga Quarry's existing operations. The height of the proposed overburden emplacement will be largely screened by established vegetation and will avoid breaking the sky line to the east.

3 Preliminary risk assessment of impact on the environment

This chapter provides a preliminary environmental risk assessment of the project and impact on the environment.

3.1 Environmental risk assessment

A preliminary environmental risk assessment was undertaken to determine potential environmental impacts of the project.

3.2 Method

The risk assessment was undertaken using two variables, namely:

- the potential severity or consequences of the impact; and
- the likelihood of the impact occurring.

The variables were evaluated, assuming standard management measures would be in place.

The definitions in Table 3.1 and Table 3.2 were applied.

Table 3.1 Severity or consequence of impacts

Severity or consequence of impact	Description
Minor	Near-source confined and promptly reversible impact on-site with little or no off-site impact.
Medium	Near source confined and short-term reversible impact on-site with little promptly reversible off-site impact.
Serious	Near-source confined and medium-term recovery impact on-site with near-source and short-term reversible off-site impact.
Major	Impact that is unconfined and requiring long-term recovery, leaving residual damage on-site with near-source confined and medium-term recovery of off-site impacts.

Table 3.2 Likelihood of impact

Severity or consequence of impact	Description
Rare	Impact is very unlikely to occur during the lifetime of the project.
Unlikely	Impact is unlikely to occur during the lifetime of the project.
Possible	Impact may occur during the lifetime of the project.
Likely	Impact may occur frequently during the lifetime of the project.
Almost certain	Recurring event expected during the lifetime of the project.

The risk matrix (refer to Table 3.3) was then used to determine the environmental risk rankings for the project. In each case, a score of 1 to 5 is given for the consequence and likelihood of impact, with the sum of the scores used to determine the environmental risk.

Table 3.3 Environmental assessment matrix

	Consequence				
	1 Minor	2 Medium	3 Serious	4 Major	5 Catastrophic
5 Almost certain	6 (Moderate)	7 (High)	8 (Critical)	9 (Critical)	10 (Critical)
4 Likely	5 (Moderate)	6 (High)	7 (High)	8 (Critical)	9 (Critical)
3 Possible	4 (Low)	5 (Moderate)	6 (High)	7 (Critical)	8 (Critical)
2 Unlikely	3 (Low)	4 (Low)	5 (Moderate)	6 (High)	7 (Critical)
1 Rare	2 (Low)	3 (Low)	4 (Moderate)	5 (High)	6 (High)

Table 3.4 lists the four classes of environmental risk utilised in the assessment:

Table 3.4 Risk rating

Risk rating	Description
Low	Risk that are below the risk acceptance threshold and do not require active management. Certain risks could require additional monitoring.
Moderate	Risks that lie on the risk acceptance threshold and require active monitoring. The implementation of additional measures could be used to reduce the risk further.
High	Risks that exceed the risk acceptance threshold and require proactive management. Includes risk for which proactive actions have been taken, but further risk reduction is impractical.

3.3 Results

The results of the environmental risk assessment without mitigation are provided in Table 3.5.

Table 3.5 Environmental risk rating within mitigation

Potential areas of impact	Likelihood	Consequence	Risk ranking
Ecology			
Adverse impacts to flora and fauna	4 (Likely)	3 (Serious)	7 (High)
Aboriginal cultural heritage			
Adverse impacts to Aboriginal and non-Aboriginal cultural heritage	4 (Likely)	2 (Medium)	5 (Moderate
Air emissions (dust)			
Short-term nuisance impacts off-site during construction	3 (Possible)	1 (Minor)	4 (Low)
Adverse impacts off-site during operation	3 (Possible)	2 (Medium)	5 (Moderate)
Visual			
Adverse impacts to the amenity of nearby properties	3 (Possible)	2 (Medium)	5 (Moderate)
Noise and vibration			
Site noise impacts including sleep disturbance during construction	3 (Possible)	1 (Minor)	4 (Low)
Site noise impacts including sleep disturbance during operations	3 (Possible)	1 (Minor)	4 (Low)
Traffic and transport			
Traffic delays and congestion on public roads during construction	2 (Unlikely)	1 (Minor)	3 (Low)
Traffic delays and congestion on public roads during operation	2 (Unlikely)	1 (Minor)	3 (Low)
Construction management			
Presence of contamination	2 (Unlikely)	1 (Minor)	3 (Low)
Water quality	3 (Possible)	1 (Minor)	4 (Low)
Adverse impacts to the existing surface flow regime	3 (Possible)	2 (Medium)	5 (Moderate)
Hazardous material storage and management	2 (Unlikely)	1 (Minor)	3 (Low)
Waste management	2 (Unlikely)	1 (Minor)	3 (Low)
Compliance planning and management	3 (Possible)	1 (Minor)	4 (Low)

The level of risk associated with each environmental attribute was considered in the context of the P&D Act and Territory Plan requirements to determine the level of assessment.

The identification of risks has enabled the determination of assessment priorities for the EIS scoping document application and further amelioration measures to be incorporated into the design of the project. Standalone technical reports assessing potential impacts and proposed mitigation measures are proposed to be prepared for ecology, heritage, surface water, noise and vibration, air quality and visual (refer to Section 4).

4 Overview of proposed supporting assessments

This chapter outlines the proposed scope of the EIS environmental assessments to:

- support the project; and
- demonstrate how impacts can be appropriately managed to comply with relevant statutory requirements and provide adequate protection for the environment.

4.1 Ecology

An ecology assessment was completed for the project in January 2018 to support an EPBC Referral to DoEE and preparation of an Environmental Significance Opinion (ESO) Application to the ACT Conservator of Flora and Fauna.

The ecology assessment comprised:

- field surveys to map vegetation and threatened communities, and to identify threatened fauna and habitats;
- targeted searches for threatened species known or likely to occur in the project area;
- completion of an assessment of the significance at the Commonwealth level for impact on *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland* and *Derived Native Grassland*; and
- assessment and determination of potential biodiversity offsets, based on the project design.

The outcome of the ecology assessment determined the project would require the clearance of 9.16 hectares (ha) of vegetation, comprising 5.04 ha of White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands and potential Superb Parrot habitat.

An assessment of significance considered the project would not result in a significant impact for the listed species or community.

4.1.1 EPBC Referral determination

The Project was referred to the DoEE for assessment on 6 February 2018 (EPBC 2018/8151).

On 25th March 2018 the project was determined to be a 'controlled action', with DoEE determining it was likely to have a significant impact on following MNES:

- White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box Gum Woodland), a critically endangered ecological community; and
- Superb Parrot (Polytelis swainsonii).

The referral determination stated that the decision was made on the basis of clearing 5.04 ha of Box Gum Woodland, inadequate consideration of indirect and buffer zone impacts to Box Gum Woodland and impacts to 7.04 ha of habitat which may be critical to the survival of the Superb Parrot (refer Appendix A).

DoEE provided Preliminary Documentation (PD) requirements on the 9 April 2018 (refer Appendix B) requesting the following additional information requirements to assess the project:

- Box Gum Woodland:
  - information on management of edge effects, including Asset Protection Zone (APZ) specifications;
  - areas of impact, APZs and 30 metre notional buffer mapped and tabulated; and
  - proposals to offset residual significant impacts.
- Superb Parrot:
  - proposals to offset residual significant impacts; and
  - clarify the number of hollow bearing trees to be removed from within the project's development footprint.

4.1.2 Methodology

To support the EIS and respond to DoEE's PD requirements the following additional ecology assessment will be undertaken:

i Box Gum Woodland

- Additional mapping of vegetation adjacent to the proposed overburden emplacement area to assess edges effects in buffer zones;
- completion of four additional plots/transects as per the ACT Environmental Offsets Policy and associated ACT Environmental Offsets Calculator Assessment Methodology (ACT Government 2015) to meet minimum plot requirements; and
- offset assessment to identify suitable location(s) within ACT and/or Regional NSW.

The Box Gum Woodland offset would be proposed to be delivered in accordance with agreed offset requirements of the ACT and DoEE.

ii Superb Parrot habitat

- Survey mapping of all hollow-bearing trees across the project area, and determination of their suitability as breeding habitat for Superb Parrot (ie large, living trees with many hollow branches, typically located close to a watercourse); and
- targeted surveys for the Superb Parrot, undertaken in accordance with the Survey Guidelines for Australia's Threatened Birds (Commonwealth of Australia 2010). This will require areas searches undertaken in the early morning (sunrise to 10 am) and evening (4 pm to sunset), with a minimum of 12 hours across four days.

The PD report will set out the listed species occurrence on site, impacts, measures to avoid/minimise and mitigate impacts and offsets for any residual significant impacts. The PD report would be summarised for inclusion in the EIS.

4.2 Aboriginal heritage

A cultural heritage assessment was completed for the project on 2 July 2018 to support a Statement of Heritage Effect application to ACT Heritage.

The cultural heritage assessment comprised:

- desktop analysis
    - review of archaeological reports completed for the local area;
    - review of ethnohistorical accounts relating to Aboriginal cultural heritage;
    - review landscape information relevant to its implications for Aboriginal cultural heritage; and
    - searches of ACT Heritage Register;
- stakeholder consultation with Boral, ACT Heritage Council and Aboriginal community;
- predictive modelling to identify the most archaeologically sensitive parts of the project area;
- field survey and reporting, including consultation and attendance with Representative Aboriginal Organisations (RAOs); and
- preparation of a Statement of Heritage Effect and management plan for ACT Heritage Council approval prior to submission of the EIS.

4.2.1 Assessment results

The cultural heritage survey and assessment:

- identified nine (9) stone artefact sites in the project area, comprising five isolated artefacts and four artefact scatters;
- assessed the Aboriginal artefacts as not meeting the threshold to fulfil the ACT *Heritage Act 2004* cultural or natural historical significance criterion; and
- proposes surface collection as the mitigation strategy prior to ground disturbance activities within the project area.

In accordance with *Heritage Act 2004*, a copy of the draft cultural heritage assessment report was provided to RAOs for comment and to seek additional information about the Aboriginal cultural and social significance of the identified sites. No comments were received from ROAs within the 18 day response timeframe or at the time of preparing this report.

A Statement of Heritage Effect application has been submitted to ACT Heritage Council for approval under Section 61H of the *Heritage Act 2004*. The cultural heritage assessment and Statement of Heritage Effects determination will be summarised for inclusion into the EIS.

4.3 Surface water

A surface water assessment will be undertaken for the project comprising:

- review the existing water management system and relevant consent conditions;
- complete an assessment of potential surface water impacts associated with the overburden emplacement;
- prepare a site water balance to assess the effectiveness of the existing and proposed water management systems relative to existing consent conditions and best management practice;
- identify the need for and scope any additional water management controls or revised operating procedures; and
- surface water assessment report that addresses relevant legislation, guidelines and consent conditions suitable for inclusion in the EIS.

4.3.1 Methodology

The following methodology is proposed:

- desktop analysis to review available data including past reports, survey, GIS, consent conditions, Environment Authorisation (EA);
- undertake site inspection;
- preparation of a water management strategy for the emplacement area in accordance with the methods recommended *the Environment Protection Guidelines for Construction and Land Development in ACT* (EPA, 2011); and
- preparation of conceptual engineering design of the proposed water management infrastructure:
    - assess impacts of the proposed works on the quarry's existing water management system;
    - establish a surface water monitoring program; and
    - establish contingency measures.

4.3.2 Preliminary assessment

A preliminary surface water assessment has identified the following water management measures:

- surface drains to be established to manage runoff from the overburden area. The drains would be designed and constructed in accordance with the methods recommended:
    - Environment Protection Guidelines for Construction and Land Development in ACT (EPA, 2011); and

- *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004).

Rock armouring would also be used to manage scour and erosion risks:

- all runoff from disturbance areas will be captured in three sedimentation dams that would be designed in accordance with the methods recommended in *Environment Protection Guidelines for Construction and Land Development in ACT* (EPA, 2011). The sedimentation dams will capture all runoff from the disturbance area.

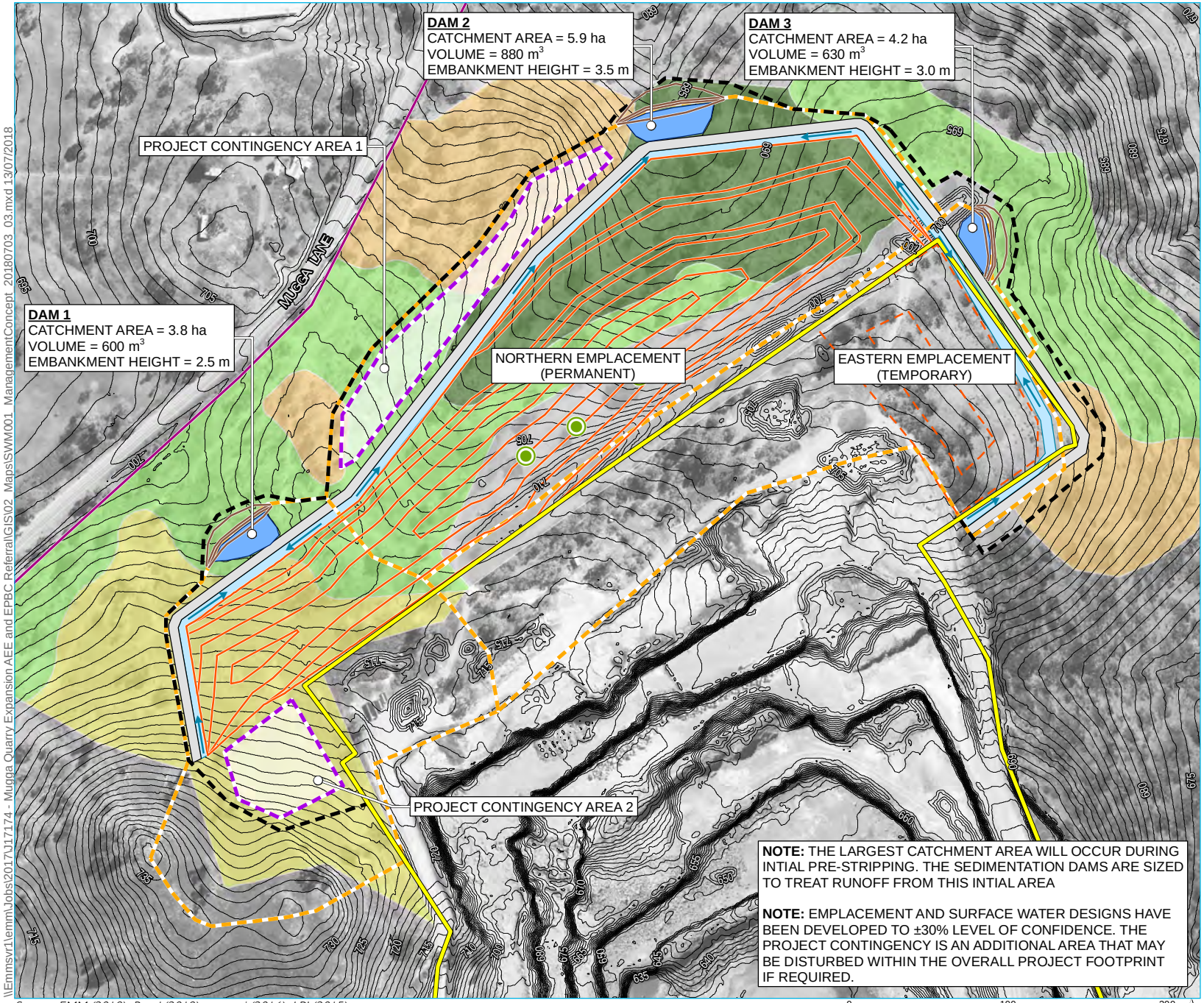
- following rainfall events, the sedimentation dams would be dewatered with water used for haul road dust suppression. Dewatering the dams will reduce the frequency and volume of dam overflows.

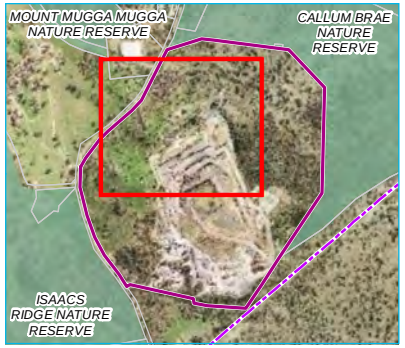
- Boral would also implement a surface water monitoring program. If monitoring identifies that the sedimentation dams are not providing effective treatment during overflow conditions, the following additional measures can be implemented to reduce water quality risks:

    - gypsum (or chemical flocculants such as alum) can be applied to the basin water bodies to improve sedimentation rates; and/or

    - water from the dams can be dewatered to the open pit where it will be temporarily stored and used for process water make.

A draft surface water management concept plan is provided in Figure 9.





KEY

- Site location - 321 Mugga Lane, Symonston
- Total disturbance area
- Approved pit extent
- Emplacement contours (Boral)
- Proposed eastern emplacement contours (EMM)
- Dam embankment
- Sedimentation dam
- Perimeter road (6 m width, including batters)
- Toe drain (5 m width, including batters)
- Project contingency area
- Sedimentation dam catchment area
- Contour (LiDAR - 1m)
- Cleared area

Native vegetation

- Grass/shrub forest
- Yellow Box - Red Gum Grassy Woodland (very low condition)
- Yellow Box - Red Gum Grassy Woodland (low condition)
- Yellow Box - Red Gum Grassy Woodland (moderate condition)
- Red Box

Proposed surface water management concept

Boral - Mugga Quarry overburden expansion EIS scoping document

Figure 9

EMM

Source: EMM (2018); Boral (2018); actmapi (2016); LPI (2015)

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4.4 Noise and vibration

A noise and vibration assessment will be undertaken for the project comprising:

- review existing noise conditions, previous noise monitoring data and any other background information relevant to the site;
- quantify the current noise environment at nearest noise sensitive receivers;
- undertake noise measurements of current operations to establish existing plant and equipment noise emission levels. Any gaps in available data will be supplemented using plant and equipment sound power level database or sourced from past noise impact assessment reports prepared for the site;
- establish relevant noise and vibration criteria and identify other regulatory requirements to be considered in the assessment;
- determine site-specific prevailing weather conditions;
- predict worse case noise levels from the site for two operational scenarios which represent existing approved operations and one stage for the proposed expansion; and
- prepare a noise impact assessment report suitable for inclusion in the EIS.

4.4.1 Methodology

The noise impact assessment will be prepared in accordance with relevant ACT Regulations. Where guidance is not provided in this document (eg sleep disturbance), reference has been made to the NSW Noise Policy for Industry (NPfI).

Specifically, the assessment will be undertaken with reference to the following relevant policies and guidelines:

- ACT Government 2005, *Environment Protection Regulation* (EPR);
- NSW Environmental Protection Authority (EPA) 2017, *Noise Policy for Industry* (NPfI);
- NSW Department of Environment, Climate Change and Water (DECCW) 2011, *Road Noise Policy* (RNP);
- ACT Government 2010, Noise Environment Protection Policy (NEPP); and
- reference will also be made to the relevant existing EA noise conditions.

A three-dimensional environmental noise model will be used to predict potential noise emissions of operations incorporating several factors that influence noise propagation, such as topography, meteorological conditions and atmospheric influences.

4.5 Air quality

An air quality impact assessment will be undertaken for the project comprising:

- review of proposed bund and overburden emplacement information;
- estimate particulate matter emissions (TSP, PM_{10}, $PM_{2.5}$) from various key stages of the bund construction/quarry expansion project;
- develop project operational scenario's and undertake dispersion modelling for each scenario to predict air quality impacts at the nearest sensitive receptors;
- assess cumulative impacts of the predicted emissions with emissions from the existing site operations infrastructure (eg asphalt plant) and background concentrations;
- provide analysis of predicted outcomes against air quality criteria; and
- prepare an air quality impact assessment report suitable for inclusion in the EIS.

4.5.1 Methodology

Due to the proximity of the proposed overburden expansion area to Mugga Lane and rural residences, it is proposed to conduct the dispersion modelling for future operational scenarios to identify periods of peak potential impact, and as necessary, inform additional modifications to project design to reduce impacts from the project.

To best integrate the dimensions of the quarry topography and progressive development of the bund and overburden emplacement into the model predictions, it is proposed to undertake dispersion modelling using the AERMOD atmospheric dispersion model. Meteorology information generated by CALMET for a previous operational assessment (approved Mugga Quarry asphalt plant development) would be used as input to AERMOD.

4.6 Visual

An assessment of the potential visual impact of the project will be undertaken to qualitatively assess existing views, visual amenity and proposed location and height of the overburden stockpile bund area(s).

The visual assessment will comprise:

- confirming the sensitivity of the existing landscape to accommodate change;
- assessing the likely visual impact of the expansion project on the specific and wider landscape;
- assessing the likely visual impact of the project against the Non-Urban Zones Development Code criterion; and
- provision of recommendations to mitigate visual impacts suitable for inclusion in the EIS.

4.6.1 Methodology

The visual assessment methodology will comprise the following:

- an assessment of the regional and local landscape settings;
- identification of public vantage points and private receptors;

- site inspection with photographs and information from representative viewpoints to be collected;
- preparation of photomontages from representative viewpoints;
- an assessment of the visibility of the proposed overburden emplacement bund from public vantage points and private receptors; and
- determination of the potential visual impacts of the project based upon an analysis of the visual absorption capacity and visual sensitivity of the locality.

4.7 Environmental construction and management

The Mugga Quarry Overburden Expansion Project will incorporate best practice extractive industry construction and operation.

There will be no changes to the total production of Mugga Quarry, current operating hours, external traffic movements or employment. No changes are proposed to the other operations at the site.

Boral have experienced staff and contractors to manage the project, including the implementation of environmental management strategies to minimise any potential environmental impacts during construction and operation.

An environmental management framework will be presented in the EIS to outline the systems and procedures to be implemented during construction and operation to ensure activities comply with relevant statutory requirements and provide adequate protection for the environment.

Mugga Quarry operates under an existing environmental management plan (EMP) – the EMP details the performance criteria (where relevant), mitigation and management and environmental performance monitoring. A summary of the management measures, include:

- air quality;
- operational noise;
- product transportation;
- surface water;
- hydrocarbon/spill;
- biodiversity;
- visual amenity;
- heritage;
- waste management and product handling; and
- contaminated land management.

Boral's EMP would be updated to include the proposed project activities and will be summarised in the EIS.

5 Stakeholder engagement

This chapter provides an overview of the stakeholder engagement proposed to be undertaken for the EIS.

5.1 Objectives

The objectives for stakeholder consultation:

- inform stakeholders about the project;
- identify and address any potential issues (where required) prior to submitting the EIS; and
- gain valuable feedback to improve the projects operations and performance.

5.2 Preliminary consultation

Key stakeholders consulted on the project to date include:

- ACT Environment, Planning and Sustainable Development Directorate;
- Commonwealth Department of Environment and Energy;
- Registered Aboriginal Organisations:
    - Buru Ngunawal Aboriginal Corporation;
    - King Brown Tribal Group;
    - Little Gudgenby River Tribal Council; and
    - Ngarigu Currawong Clan.

5.3 Government consultation - overview

On 21 May 2018, in separate meetings, EMM and Boral consulted with representatives from the EPSDD and the DoEE in relation to the project.

The purpose of the preliminary consultation was to:

- provide an overview of the proposal to create a new permanent bund and temporary stockpile area to store quarried weathered work and overburden material up to 620,000 m3;
- discuss the proposed ecology assessment approach to meeting DoEEs PD requirements
- discuss the proposed mechanism for fulfilling and delivering the offset in accordance with ACT and DoEE legislative requirements;
- providing an update on the cultural heritage assessment and proposed submission of a Statement of Heritage Effect application to ACT Heritage Council for approval under s61H of the *Heritage Act 2004;* and

- discuss the impact assessment pathway for the project given DoEEs controlled action determination.

The following general matters were noted during the preliminary consultation:

- EPSDD advised that the project would be assessed via Impact Assessment Pathway (ie EIS) and Boral to prepare an EIS scoping document:
  - concurrent to PD assessment (ie the purpose of this report); or
  - apply for EIS exemption for ecology and heritage following the conclusion of DoEE and ACT Heritage assessment processes.
- EPSDD advised that the EIS would need to include (but not be limited to) the following technical assessments:
  - ecology;
  - heritage;
  - visual;
  - noise;
  - air quality; and
  - surface water.

  This EIS scoping application outlines the proposed scope and methodology to complete these assessments.

5.4 Registered Aboriginal organisations

The RAOs were contacted on 26 February 2018 with a letter which presented the project, requested cultural information and notified of EMM's intent to survey the project area with an invitation to attend (refer Table 5.1).

All RAOs indicated they had received the presentation of information and they would provide a representative for the survey. However, only one RAO (Justin Bell from Buru Ngunawal Aboriginal Corporation) attended the survey.

Table 5.1 A list of registered Aboriginal organisations supplied by the ACT Heritage Council

Registered Aboriginal Organisation	Contact Type	Date
Buru Ngunawal Aboriginal Corporation	Registered express post	26 February 2018
King Brown Tribal Group	Registered express post	26 February 2018
Little Gudgenby River Tribal Council	Registered express post	26 February 2018
Ngarigu Currawong Clan	Registered express post	26 February 2018

As previously stated, a draft version of the cultural heritage assessment report, which included all background information, survey results, draft significance assessment and draft management recommendations, was issued to all RAOs on 8 June 2018 (refer Table 5.2).

Table 5.2 A list of RAOs supplied with the draft cultural heritage assessment

Registered Aboriginal Organisation	Contact Type	Date
Buru Ngunawal Aboriginal Corporation	Registered express post	8 June 2018
King Brown Tribal Group	Registered express post	8 June 2018
Little Gudgenby River Tribal Council	Registered express post	8 June 2018
Ngarigu Currawong Clan	Registered express post	8 June 2018

5.5 Proposed EIS consultation

Consultation is proposed to be undertaken with relevant ACT government agencies, comprising:

- ACT EPSDD;
- Conservator of Flora and Fauna;
- EPA;
- Icon Water; and
- ACTewAGL

Consultation will also be undertaken with surrounding land occupiers.

The EIS will summarise and outline issues raised during the stakeholder consultation process and where they have been addressed in the EIS.

All relevant issues and opportunities associated with the project will be identified and addressed in the EIS.

6 Justification and Conclusion

Boral proposes to establish a new permanent bund and temporary emplacement area to store quarried overburden and weathered rock material from its Mugga Quarry operations.

The project is required to enable the ongoing extraction operations of the quarry and supply of aggregate and quarry products to the construction market within the Australian Capital Territory (ACT) and surrounding New South Wales (NSW) regional areas.

This EIS Scoping Document Application has been prepared in accordance with the requirements of the P&D Act and outlines the proposed investigations and analysis that will be undertaken to support the preparation of the EIS, including ecology, cultural heritage, surface water, noise, air quality and visual. The findings of these technical assessments will help demonstrate how impacts can be appropriately managed to comply with relevant statutory requirements and provide adequate protection for the environment.

In addition, biodiversity offsets proposed to be delivered in accordance with the ACT and DoEE legislative requirements to adequately address residual impacts of the project. In preparing this document, Boral has carried out preliminary consultation with relevant ACT Government agencies. Further stakeholder engagement is proposed with ACT Government agencies, utilities providers and surrounding landowners. All relevant issues and opportunities associated with the project will be identified and addressed.

This EIS scoping document application has been prepared to provide sufficient information for EPSDD to evaluate the environmental impact of the project, in order to enable a scope to be provided for the preparation of a subsequent EIS.

Abbreviations

AERMOD	dispersion modelling
AHD	Australian Height Datum
AWS	automatic weather station
BoM	Bureau of Meteorology
CALMET	meteorological model
CBP	concrete batching plant
DoEE	Department of Environment and Energy
EA	Environmental Authorisation
EIS	Environmental Impact Statement
EMM	EMM Consulting Pty Ltd
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPSDD	ACT Environment, Planning and Sustainable Development Directorate
ESO	Environmental Significance Opinions
GIS	geographic information system
INP	Industry Noise Policy
NCA	National Capital Authority
NCP	National Capital Plan
P&D Act	*Planning and Development Act 2007*
P&LM Act	*Planning and Land Management Act 1988*
RAO	Representative Aboriginal Organisation
tpa	tonnes per annum
tpd	tonnes per day
TSP	total suspended particles

Appendix A

DoEE Preliminary Documentation Determination

Australian Government
Department of the Environment and Energy

EPBC Ref: 2018/8151

Mr Rod Wallace
Planning and Development Manager
Boral Resources (Country) Pty. Limited
PO Box 6041
NORTH RYDE NSW 2113

Dear Mr Wallace

Additional information required for preliminary documentation
Mugga Quarry Overburden Expansion Project, Symonston, ACT (EPBC 2018/8151)

I am writing to you in relation to your proposal to extend the existing Mugga Lane Quarry (Mugga Quarry) to create a new permanent bund and temporary stockpile area.

On 20 March 2018, a delegate of the Minister determined that the the proposed action is a controlled action and that it will be assessed by preliminary documentation. Further information will be required to be able to assess the relevant impacts of the proposed action.

Details of the further information required are at Attachment A.

Details on the assessment process and the responsibilities of the proponent are set out in the enclosed fact sheet. Further information is available from the Department's website at www.environment.gov.au/epbc.

If you have any questions about the assessment process or the further information required, please contact Lachlan John, by email to lachlan.john@environment.gov.au, or telephone 02 6274 1579, and quote the EPBC reference number shown at the beginning of this letter.

Yours sincerely

Mike Smith
Director
Southern NSW Assessments Section

9 April 2018

Appendix B

DoEE Preliminary Documentation Requirements

Preliminary documentation – specified information requirements
Mugga Quarry Overburden Expansion Project, Symonston, ACT (EPBC 2018/8151)

On 20 March 2018, your proposed action was determined to be a controlled action for the purposes of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), subject to the following controlling provisions:

- listed threatened species and communities

At the same time, it was determined that your proposed action will be assessed on preliminary documentation. This is a flexible assessment approach that is commonly used to assess proposed actions that have relatively limited public interest, utilise conventional methods and technologies, and are expected to impact relatively few protected matters.

This document sets out the specified information required by the Minister under section 95 A of the EPBC Act for the assessment of the impacts of your proposed action (the 'preliminary documentation').

It is important that you read this document carefully and make sure that you understand it. If you have not followed the guidance in this document, your draft preliminary documentation will be rejected. Please contact your Assessment Officer (Lachlan John – telephone 02 6274 1579 or e-mail lachlan.john@environment.gov.au) as early as possible if you have any questions or concerns.

Format and style

It is important to the integrity of the assessment process that your preliminary documentation, consisting of a main document and any number of indexed appendices, is presented in a way that is intelligible to the general public, who may not be familiar with the history of your proposed action or with the technical aspects of its assessment. You should:

- present your documentation in standard formats, noting that it will be published in hardcopy (eg A4 / A3 hardcopies) and electronic formats (eg PDF or MSWord files)
- include all key claims, findings, proposals and undertakings in the main document
- use maps and / or diagrams where appropriate to support textual information
- present all maps and diagrams at an appropriate size and scale
- explain (or avoid) technical jargon and acronyms
- reference all supporting documentation (including websites) clearly and consistently
- publish key supporting documents (eg survey data, technical reports) as appendices
- ensure that other supporting documents (eg academic studies, regulatory standards) are publicly accessible, with electronic links provided where possible

Content

Your preliminary documentation must include all the information provided in your referral documentation (updated or corrected as necessary), as well as the additional information requested in this document. It may be useful to include the referral itself as an appendix.

Your preliminary documentation should enable the Minister (or delegate) and any other interested stakeholders to understand the impacts of the proposed action. Variables, assumptions and uncertainties must be clearly identified.

Your preliminary documentation must make reference to all relevant standards, policies and other guidance material published by the Department. Any instances where published guidance is not followed must be justified. Where no Commonwealth standards exist, state government and / or industry standards may be useful.

Names, roles and qualifications (where relevant) of all persons involved in preparing the preliminary documentation must be provided.

If it is necessary to rely on any confidential material, you should consult the Department on the handling of that material before submitting your preliminary documentation for publication.

Controlling provision – listed threatened species and communities

Under this controlling provision, any listed threatened species or community is potentially relevant to the assessment. However, based on the information provided in your referral, and other available information, the Department is particularly interested in the species and communities tabulated below.

Relevant guidance material (including in particular survey guidelines, conservation advices, recovery plans, threat abatement plans and policy statements) is available through the Department's Species Profile and Threats (SPRAT) database. It is your responsibility to ensure that you have identified the relevant documents.

Species / communities adequately addressed in your referral
The Department broadly accepts the claims and conclusions made in your referral documentation in relation to the following species / communities. Unless circumstances have changed, your preliminary documentation only needs to repeat or reference information provided in the referral documentation.
Canberra Spider Orchid (Arachnorchis *(Calaedia actensis)* - critically endangered
Hoary Sunray *(Leucochrsum albicans var. tricolor)* - endangered
Pale pomaderris *(Pomaderris pallida)* - endangered
Tarengo leek orchid *(Prasophyllum peti/um)* - endangered
Button Wrinklewort *(Rutidosis leptorhynchoides)* - endangered
Small Purple-pea *(Swainsona recta),* - endangered
Austral toadflax- (*Thesium australe*) - vulnerable
Pink-tailed Worm Lizard (*Aprasia parapulchella*) - vulnerable

Species / communities for which further information is required	
Further evidence (eg field surveys) and / or a more detailed argument is required to satisfy the Department of claims and conclusions made in your referral documentation in relation to the following species / communities and / or explain how impacts on them will be addressed.	
Species	Details of information required (if applicable)
White box-yellow box-Blakely's red gum grassy woodland and derived native grassland – critically endangered	• information on management of edge effects, including APZ specifications • areas of impact, APZs and 30 metre notional buffer mapped and tabulated • proposals to offset residual significant impacts
Superb Parrot (*Polytelis swainsonii*) - vulnerable	• proposals to offset residual significant impacts • clarify the number of hollow bearing trees to be removed from within the project's development footprint.

While all relevant species and communities must be addressed, the Department understands that it is appropriate to address different matters at different levels of detail and that some matters can best be addressed in thematic groups. The following factors must be considered in relation to each species or community:

- its occurrence at the site of the proposed action
- its potential to be impacted by the proposed action
- measures proposed to avoid or mitigate potential impacts
- compensation (offsets) proposed for any residual significant impacts (ie impacts that cannot be avoided or mitigated)

Occurrence

Occurrence of species and / or communities at the site of the proposed action should be informed by relevant experts following relevant survey standards. Survey methodology must be described and results appended to the preliminary documentation.

Consideration must be given to occupancy trends relating to season and time of day. Longer term trends including climate change may also be relevant. In relation to habitat for listed threatened species, the type of habitat (eg foraging, breeding, dispersal etc) must also be considered.

Impacts

Direct and indirect impacts of the proposed action must be considered, in relation to the specific needs and characteristics of relevant listed threatened species and communities. The Department has identified the following types of impacts as being particularly relevant to your proposed action:

Expected impacts of the proposed action
clearing (direct impact) associated with the development
edge effects (indirect impacts) on retained listed threatened communities or species habitat arising from development activities, including but not necessarily limited to noise and light disturbance, weed invasion, spread of root rot fungus *Phytophthora cinnamomi,* altered fire regime and altered hydrology (in terms of quality and quantity)

Consideration must also be given to cumulative impacts of the proposed action when considered in conjunction with concurrent and expected future developments. Note that cumulative impacts may include interactive and / or compounding impacts as well as additive impacts.

Avoidance and mitigation measures

Proposed avoidance and mitigation measures must be discussed in terms of their expected effectiveness and cost. Note that in deciding whether to approve the proposed action, the Minister is required to consider whether (as far as possible) any condition is a cost-effective means for achieving its intended objective.

Management commitments by the person proposing to take the action must be clearly distinguished from recommendations or statements of best practice made by the author or other technical expert. It is preferable to provide a consolidated table of management commitments, including details on funding, roles and responsibilities and measurable performance criteria.

Offsets

Significant residual (ie after any avoidance and mitigation measures have been considered) impacts on any listed threatened species or community must be offset in accordance with the Department's *EPBC Environmental Offsets Policy 2012* and offset assessment guide. If using the offset assessment guide, be sure to provide and clearly justify the scores entered into the tool.

Offsets will generally need to be underway prior to commencement of the proposed action, but not necessarily prior to approval.

Economic and social matters

Your preliminary documentation must provide information about the expected economic and social impacts of the proposed action. This should include, but not necessarily be limited to, the following:

- consideration of both costs (eg disruption to existing community infrastructure or environmental features) and benefits (eg increased housing or employment)
- consideration of different scales of impact where relevant (eg local versus national)
- specific dollar or other numerical values where relevant

Environmental history of the person proposing to take the action

Your preliminary documentation must provide details of any proceedings under a Commonwealth, state or territory law for the protection of the environment, or the conservation and sustainable use of natural resources, against the person proposing to take the action (or if the person is a corporation, its executive officers).

If the person proposing to take the action is a corporation, details of the corporation's environmental policy and planning framework must be provided.

Relevant policies and other considerations

Various policy statements and other publications that may be relevant to your assessment can be found on the Department's website. Some key policies are summarised below.

Be sure to identify where Commonwealth definitions, methodologies and standards differ from those required or recommended by state government agencies. Ensuring that Commonwealth survey and identification requirements are incorporated into surveys at the earliest opportunity will reduce the likelihood of additional surveys being required. Ask your assessment officer if you are unsure.

Defining patches of a community

A patch is a discrete and mostly continuous area of an ecological community (or species habitat), as defined by the key diagnostics, but can include small-scale variations, gaps and disturbances that do not significantly alter the overall function of the patch. Permanent structures, such as roads and buildings, are typically excluded from a patch, although a patch may be considered to be continuous across or around them.

When it comes to defining a patch of an ecological community allowances are made for 'breaks' between areas that meet the key diagnostics (eg a narrow strip of other native vegetation along a watercourse). The size of break that can be included within a patch without altering its overall function varies for different ecological communities – further guidance on a specific community may be provided in a conservation advice, policy statement or similar.

Variation in structure, quality or condition of vegetation across a patch of an ecological community does not necessarily mean it should be split into multiple patches. For example, woodland communities often incorporate areas of derived native grassland, which should generally be considered as part of the same patch. Average quality across the largest area that meets the key diagnostics should be used in determining the overall condition of the ecological community. Where the average condition falls below the minimum condition thresholds for a patch as a whole, the largest area or areas that meet minimum condition thresholds should be identified as the patch or patches of the nationally listed ecological community.

Buffer zones

A buffer zone is an area adjacent to a patch of an ecological community (or species habitat) that is important for protecting the integrity of the ecological community. The purpose of a buffer zone is to minimise the risk of indirect impact by physically separating the patch from direct impacts and by identifying it to land managers. For instance, a buffer zone will help protect the root zone of edge trees and other components of the ecological community from spray drift (fertiliser, pesticide or herbicide sprayed in adjacent land), weed invasion, polluted water runoff and other damage. The best buffer zones are typically comprised of native vegetation. A buffer zone is not part of the ecological community, so while having a buffer zone is strongly recommended, it is not protected as part of the ecological community and is not included in the calculation of the patch size.

The Department may not consider that a retained patch of an ecological community (or species habitat) has been effectively avoided if the design of a development does not include a buffer zone. In these cases, the Department will generally consider the outer edge of the patch (typically up to 30 m) to have been impacted or partially impacted, requiring an appropriate offset.

Outcomes based conditions

Outcomes-based conditions can provide approval holders with greater flexibility and autonomy while still holding them accountable for achieving sound environmental outcomes. The Department promotes the use of outcomes-based conditions where possible, in accordance with its *Outcomes-based Conditions Policy 2016*.

However, outcomes-based conditions are generally only appropriate where the person proposing to take the action has a good environmental record and the baseline condition of a site is well understood and documented.

Please advise your Assessment Officer if you would like to pursue this approach. Your preliminary documentation would need to:

- thoroughly document the baseline condition of the relevant impacted matter(s)
- identify conservation objectives (outcomes) for the relevant impacted matters, preferably with reference to any applicable conservation advices, recovery plans and threat abatement plans
- outline how performance against specified objectives will be measured and reported

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