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Coastwide Materials Pty Ltd
Hillview Hard Rock Quarry
Preliminary Environmental Assessment

June 2018

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Coastwide Materials Pty Ltd

Hillview Hard Rock Quarry

Preliminary Environmental Assessment

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1 INTRODUCTION

1.1 Overview

Coastwide Materials intends to seek development consent for a new hard rock quarry within a rural area known as Booral in the Great Lakes Region of New South Wales (NSW). The proposed Hillview Hard Rock Quarry (the Development) proposes to extract up to 1.5 million tonnes per annum (Mtpa) over a planned life of 30 years, operate site infrastructure including a concrete batching plant, and transport material off site via public roads.

The Development is classified as State significant development (SSD) under the provisions of Division 4.7 of Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) in accordance with the State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP). It will require development consent from the Minister (or delegate), along with some secondary approvals. Information addressing the permissibility of the Development and planning considerations is provided in **Section 4**.

This Preliminary Environmental Assessment (PEA) has been prepared in order to describe the Development Site and proposed Development, identify the planning approval pathway and other key regulatory considerations, provide an overview of the key environmental issues and outline the proposed approach to stakeholder engagement. It aims to provide sufficient information to allow the preparation of development-specific Secretary's Environmental Assessment Requirements (SEARs).

An Environmental Impact Statement (EIS) will be prepared in accordance with the EP&A Act and associated *Environmental Planning and Assessment Regulations 2000* (EP&A Regulation) to accompany the development application to the Department of Planning and Environment (DP&E). The EIS will present a comprehensive and focussed evaluation of the Development to a level of detail commensurate with the nature and scale of the proposed quarry and concrete batching plant operation and the existing environmental conditions, along with industry standards and the legislative framework under which it is permissible.

1.2 The Proponent

The proponent of the Development is Coastwide Materials based on the Central Coast of NSW. The company directors have been involved in the operation of construction material developments/facilities for approximately 40 years.

1.3 The Project Team

SLR has been engaged by Coastwide Materials to assist in the project management and environmental impact assessments required to gain approval for the Development. SLR and various other specialist consultants will also be engaged to assess key environmental risks.

1.4 Development Application Timing

An indicative timeline for the development application process is presented in **Table 1**.

Table 1 - Development Application Indicative Timeline

Action	Indicative Timeline
Submit PEA and SEARs application	June 2018
Receive SEARs	July 2018
Submit EIS	December 2018
EIS exhibition	February 2019
Response to submissions (if required)	April 2019
Determination	July 2019

2 SITE DESCRIPTION

2.1 Overview

The Development Site is located approximately 8 kilometres (km) south of Stroud and 5 km northwest of Allworth on the western side of Bucketts Way in the Great Lakes Region of NSW (see **Figures 1 and 2**) and the Mid-Coast local government area (LGA), which was formed in 2016 through a merger of Gloucester Shire, Great Lakes and the City of Taree Council's. It is addressed to and accessed from 67 Maytoms Lane, Booral NSW. **Table 2** lists the various land titles within the Development Site, which cumulatively comprise approximately 448 hectares.

Table 2 - Schedule of Land Titles

Lot	Deposited Plan (DP)	Tenure
Lot 1	DP 159902	Freehold
Lots 2, 3 and 4	DP 1166923	
Lot 60	DP 1094397	
Lot 62 and 63	DP 95029	
Lot 64	DP 95030	

Maytoms Lane, which is an un-sealed rural access road, connects the Development Site to Bucketts Way. Bucketts Way, which is a sealed two-lane regional road, connects to the A1 Pacific Highway approximately 20 km south of the Development Site and Gloucester about 50 km to the north. The Pacific Highway provides connection to the State's major cities and service areas, including Newcastle and Sydney to the south.

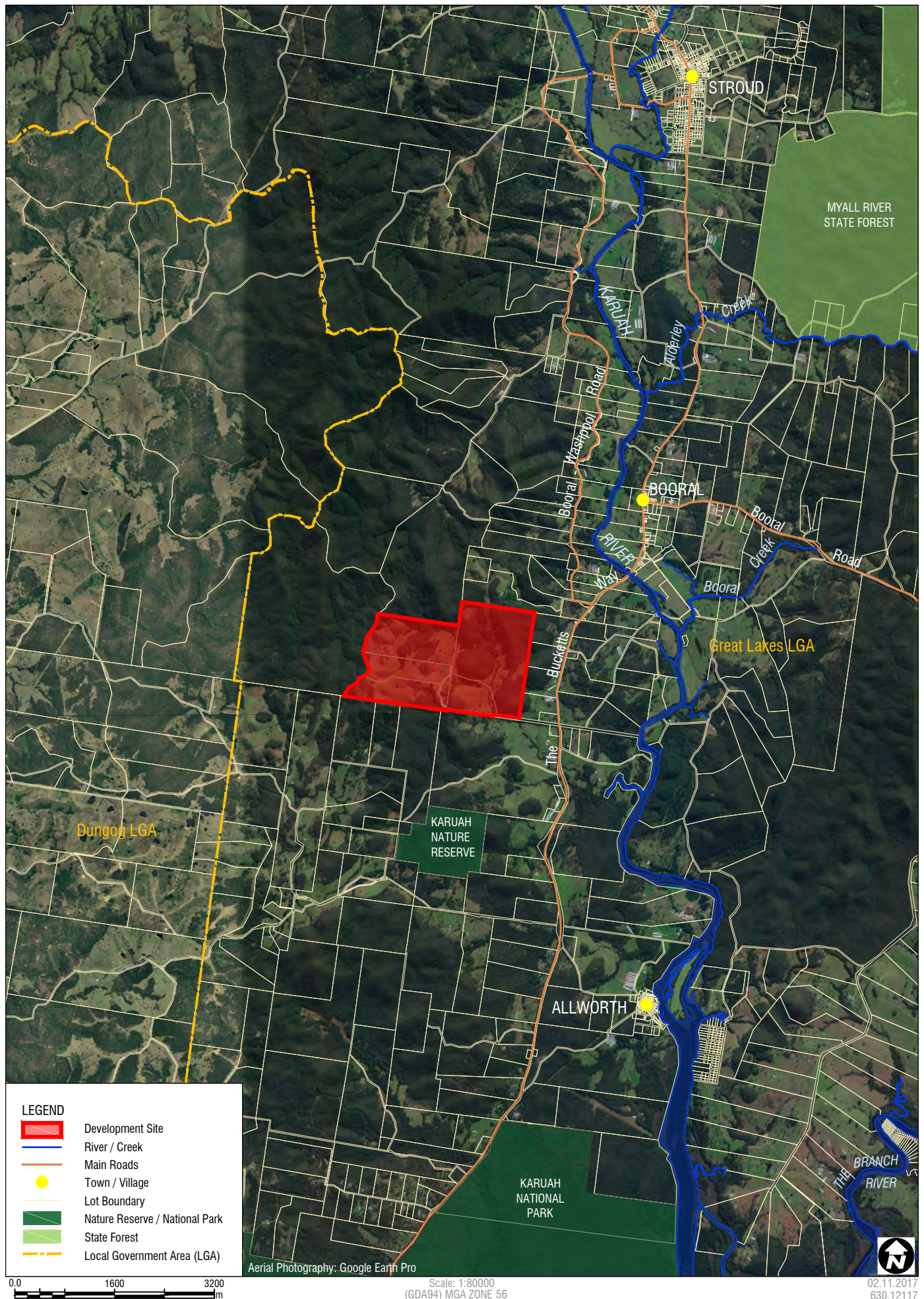
The visual amenity of the general area is that of a river valley surrounded by undulating topography, with significant areas of remnant vegetation interspersed with land that has been cleared or partially cleared and being used for stock grazing, small-scale poultry operations and small rural/lifestyle holdings. While the Development Site has been partially modified and disturbed as a result of past clearing and agricultural activities, there are some significant areas of undisturbed land and native vegetation within the lots described above in Table 2.



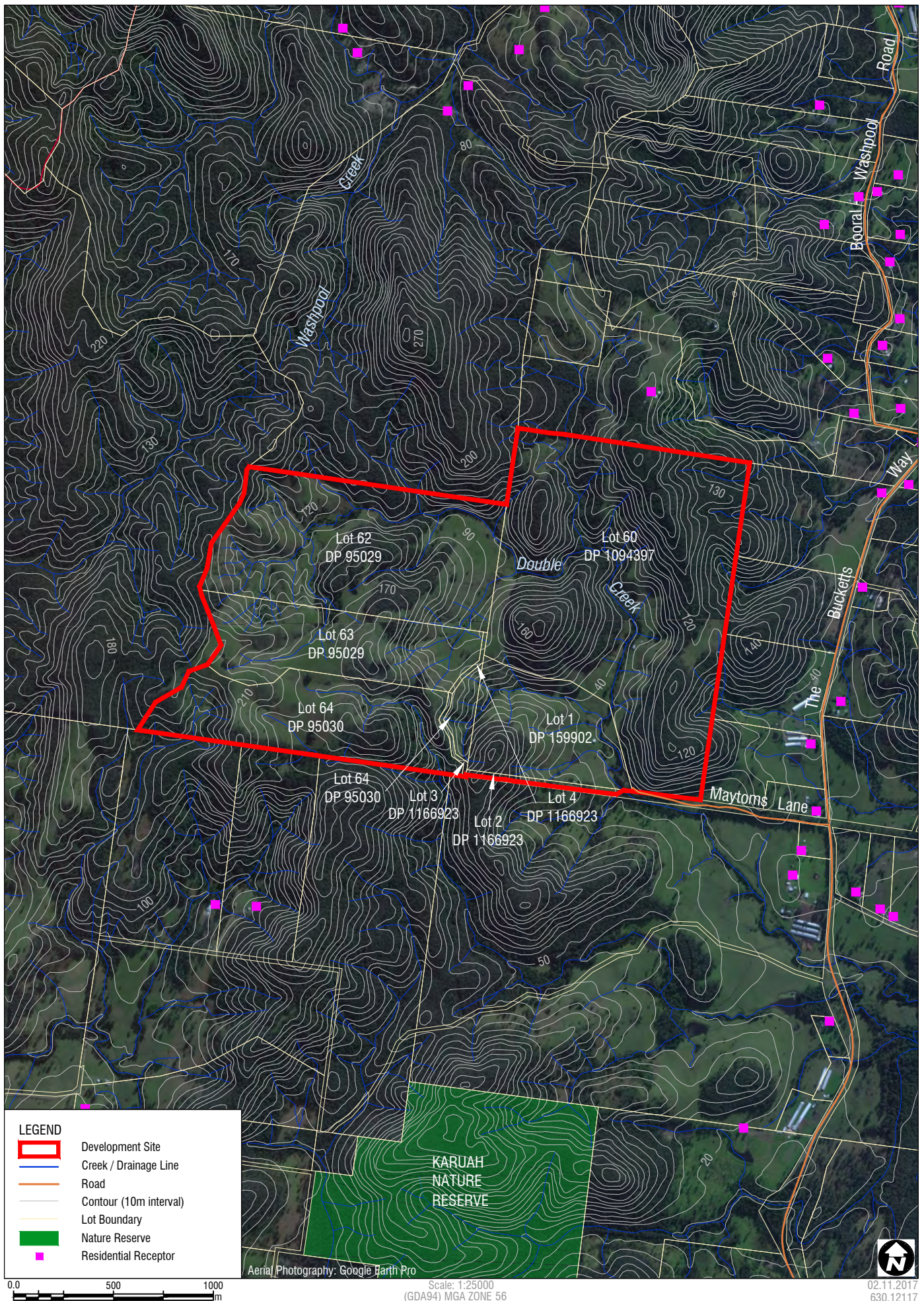
Plate 1 – Part of the Development Site

Double Creek traverses the Development Site in a south-easterly direction draining in to the Karuah River located on the eastern side of Bucketts Way approximately 2 km from the Site. Several other minor/intermittent drainage lines also traverse the Site. Local topography is irregular and undulating. Elevations within the Development Site range between approximately 30 and 200 metres Australian Height Datum (m AHD), with slopes ranging up to approximately 40 percent. **Section 7** contains further information in relation to existing environmental conditions.

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2.2 Zoning

Under the provisions of the *Great Lakes Local Environmental Plan 2014* (Great Lakes LEP), and as shown on **Figure 3**, the Development Site is zoned “RU2 Rural Landscape”.

All land adjoining the Development Site is also zoned RU2 Rural Landscape.

2.3 Existing Land Use

The long-standing and existing use of the Development Site is traditional agricultural production, with stock grazing being the predominate use.

The potential for significant contamination to be present within the Development Site, as a result of past and present land use activities, is considered to be low.

2.4 Surrounding Land Uses and Receptors

The surrounding neighbourhood is characterised by a mix of land uses, including traditional agricultural production (primarily stock grazing), small-scale poultry operations and small rural/lifestyle holdings. The Karuah Nature Reserve is located approximately 1.5 km to the south.

The nearest populated areas (see **Figure 1**) are the relatively small villages of:

- Booral approximately 2 km to the northeast;
- Allworth approximately 5 km to the southeast; and
- Stroud approximately 8 km to the north.

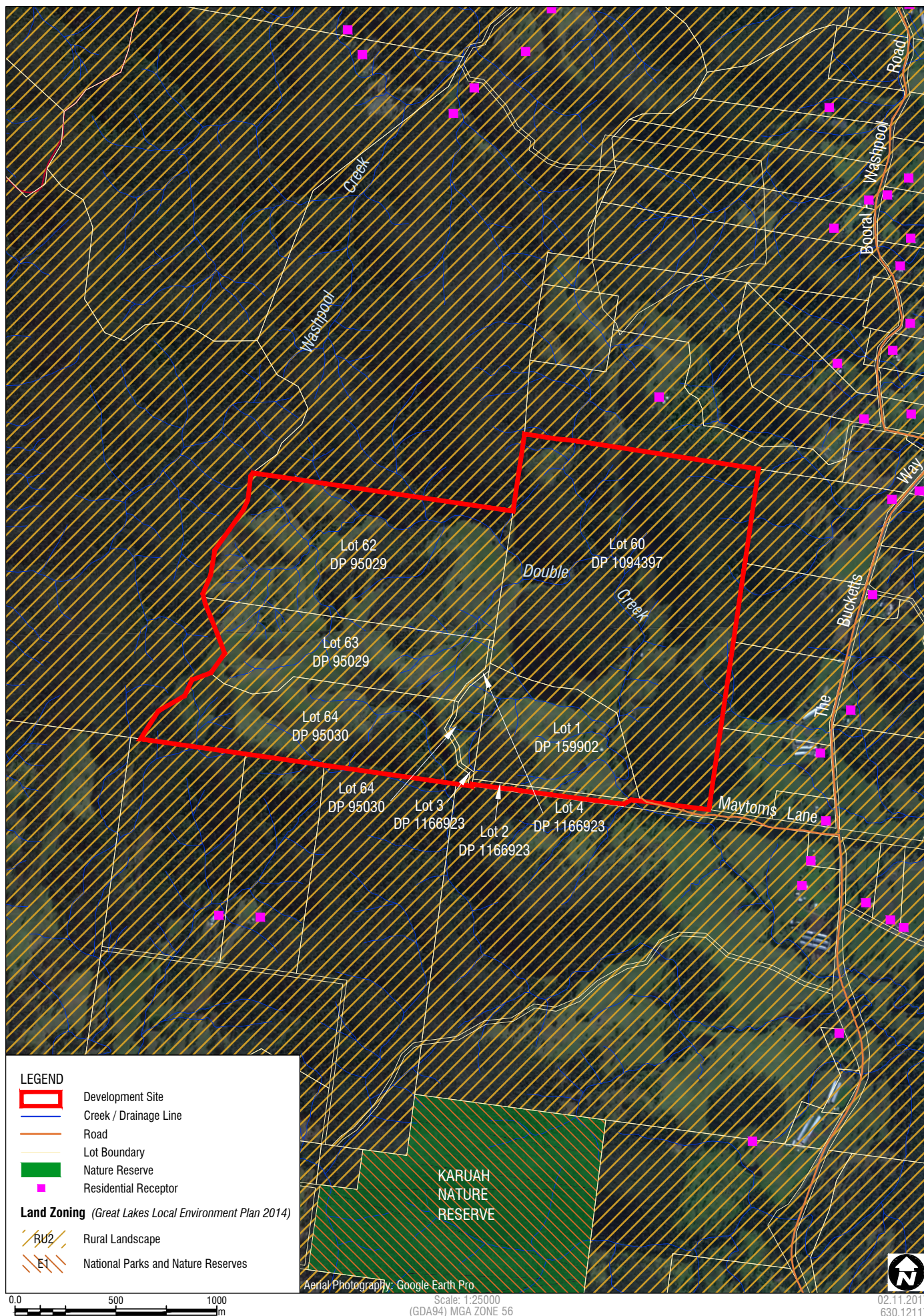
Figure 2 shows the privately-owned residences currently identified in the vicinity of the Development Site.

2.5 Geology

The Booral region is underlain by complex suite of lithologies, which range from Permian aged sandstones, mudstones, conglomerates and coal seams to Carboniferous aged basalt flows, ignimbrites and rhyolites (Division of Resources and Geoscience's on-line NSW Seamless Geology Map Viewer). The lithologies are intersected by the Targan Fault, a reverse fault that strikes in a north-south direction and dips at a moderate angle between 31 and 60 degrees. The geological features of the site are shown on Figure 4.

On-site geological investigations have found that the Development Site is underlain by a Rhyolitic Tuff composed of finely microcrystalline, coarse phenoclasts of feldspar and quartz, as well as other trace minerals. The Rhyolitic Tuff is thought to have originated as an acid ash flow tuff comprised of quartz and feldspars dispersed through a welded matrix of vitric shards and some compressed pumice. The upper 28 metres (on average) of Rhyolitic Tuff is hematized, with the underlying material being free of haematite mineralisation. Geotechnical aspects of the stratum are suitable for use in concrete and road construction applications.

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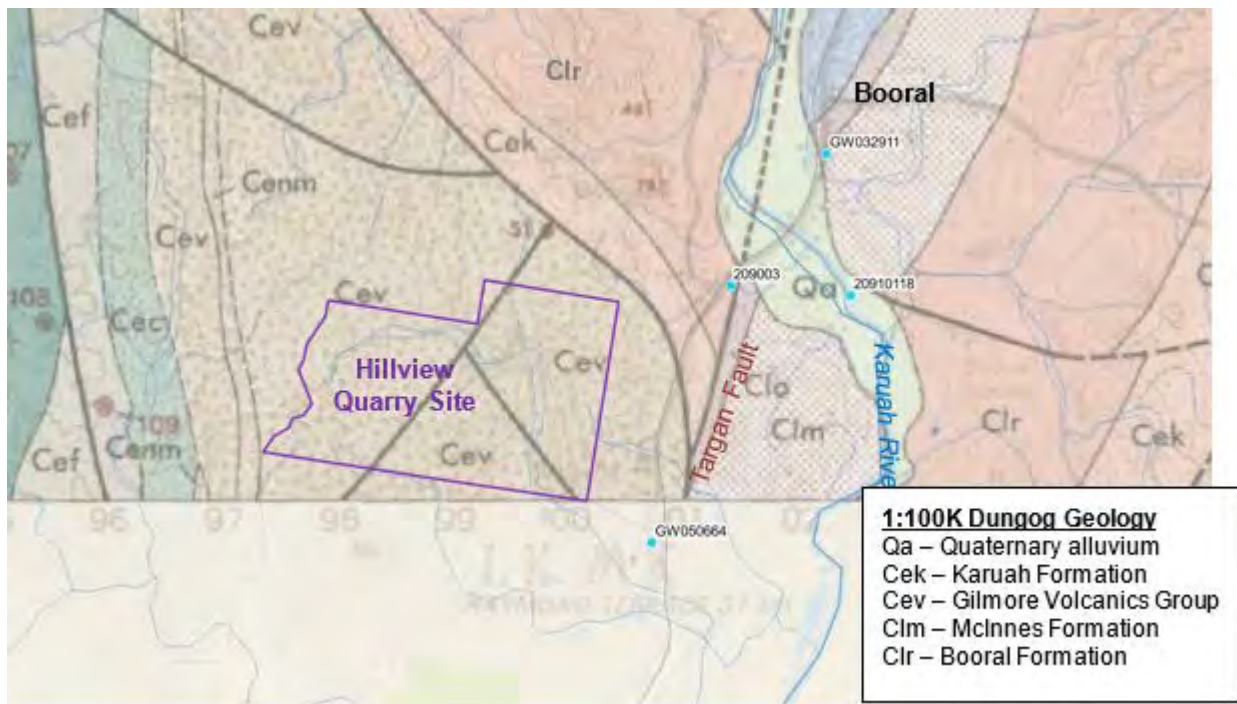


Figure 4 - Geology and Registered Groundwater Bores

3 PROPOSED DEVELOPMENT

3.1 Overview

Coastwide Materials intends to seek development consent under Division 4.7 of the EP&A Act to develop Hillview Hard Rock Quarry (the Development) within the Development Site described in **Section 2**. The primary components of the Development are:

- Clearing of relatively small areas of vegetation to make way for access, construction and operational activities;
- Site preparation and earthworks;
- Road upgrade works to Maytoms Lane and the intersection with Bucketts Way to effectively cater for the anticipated traffic generation;
- Construction and use of internal access roads;
- Installation and/or upgrade of required site servicing infrastructure;
- Installation and operation of ancillary site infrastructure, including two weighbridges, crushing and screening plant, pugmill, pre-coat plant, workshop, site office and amenities, parking areas and product storage areas;
- Staged extraction of approximately 35 million tonnes (Mt) (total resource) of hard rock over a planned life of 30 years at a rate of 600,000 tpa over the first 5 years and 1.5 Mtpa for the remaining 25 years;
- Removal and stockpiling of overburden (exploration indicates very little overburden) from the quarry extraction area (not included in the extraction rate) for use during rehabilitation;
- Installation and operation of a concrete batching plant with a capacity of 15,000 cubic metres per year;
- Receipt of up to 7,000 tpa of sand, 3,750 tpa of cement and 1,500 tpa of flyash from off site for use in the concrete batching plant;
- Receipt of up to 30,000 tpa of concrete waste from off-site concrete batching plants in order to produce blended recycled aggregates and road base;
- Transportation of material off site via existing public roads; and
- Progressive rehabilitation of disturbed areas.

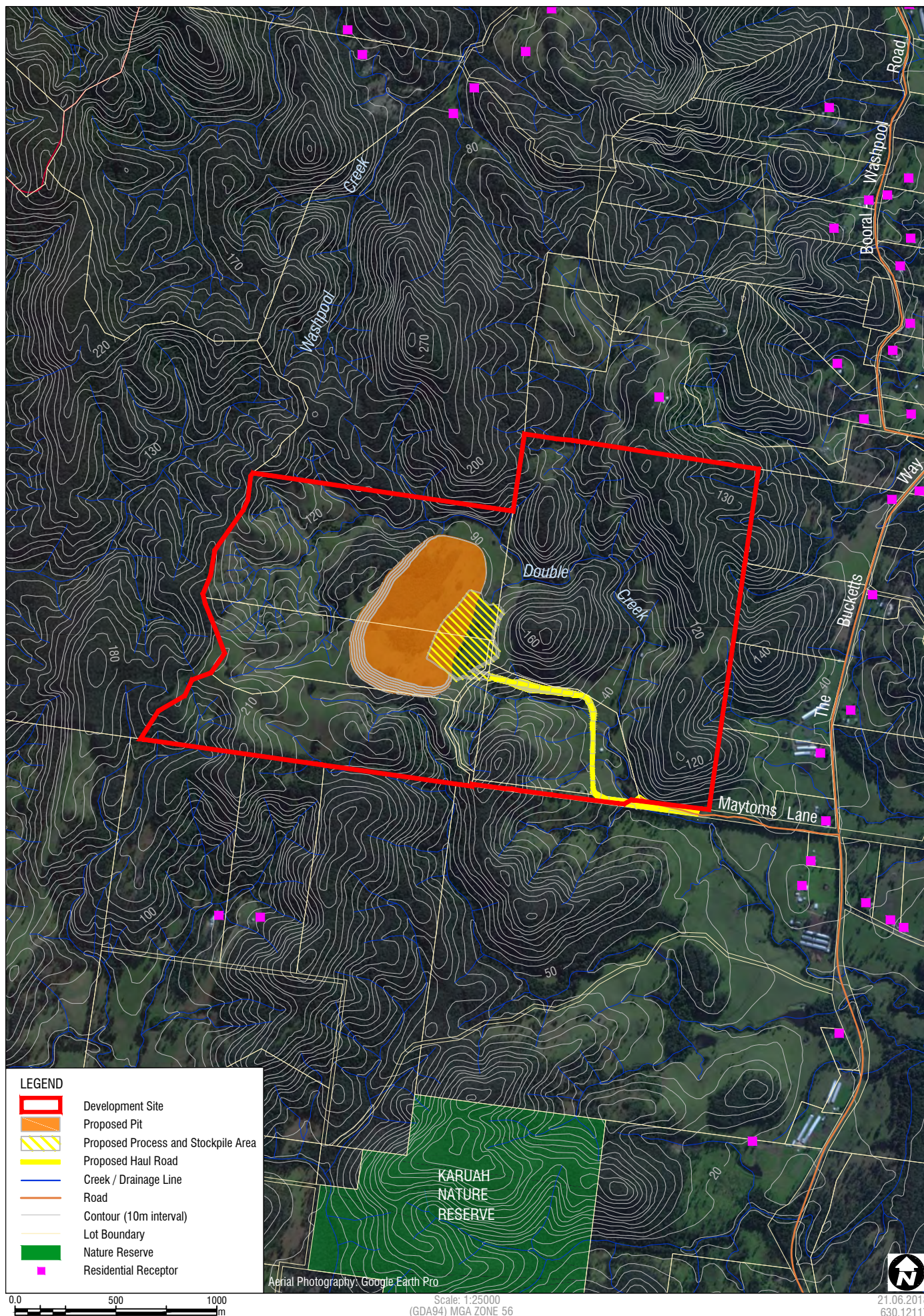
The preliminary conceptual layout of the Development is shown on **Figure 5**.

The disturbance footprint for the Development will be largely confined to the areas shown on **Figure 5**.

3.2 Development Need

As outlined in **Section 2.5**, the resource is a hard rock known as Rhyolitic Tuff, which has a variety of uses including road base material, construction aggregate, concrete batching aggregate, drainage works, fill, landscaping and various other uses. The Development will extract and deliver this valuable resource to the construction and infrastructure sectors in the Sydney metropolitan area, Hunter region and Central Coast area. The quarry is essential for the guaranteed supply of construction materials for major/critical infrastructure projects of local, State and National significance. These projects are currently driving strong market demand and this demand is anticipated to remain strong well in to the future.

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3.3 Construction Activities

A construction program will be developed to cover the required civil, structural, electrical and building works. Construction will involve the erection of temporary buildings and facilities, including light and heavy vehicle access and parking areas, equipment storage compounds, diesel generators, diesel compressors, services and amenities.

It is anticipated that the construction program will span approximately 12 months and include:

- Site preparation (including erosion and sediment control) and earthworks;
- Road upgrade works to Maytoms Lane and the intersection with Bucketts Way;
- Establishment of internal access roads, including several creek crossings;
- Installation and/or upgrade of required servicing infrastructure;
- Establishment of the ancillary site infrastructure and amenities;
- Installation of surface water management infrastructure; and
- Rehabilitation and revegetation works.

All construction activities will be undertaken during standard daytime construction hours, which in accordance with the *Interim Construction Noise Guideline* (ICNG) (Department of Environment and Climate Change [DECC] 2009) are:

- Monday to Friday - 7.00 am to 6.00 pm;
- Saturday - 8.00 am to 1.00 pm; and
- No construction work on Sunday and public holidays.

Appropriate erosion and sediment control measures will be installed in accordance with *Managing Urban Stormwater: Soils and Construction Volume 1* and *Volume 2E: Mines and Quarries* (Landcom 2004, also referred to as the "Blue Book") and *Erosion and Sediment Control on Unsealed Roads* (OEH 2012) to ensure no off-site impacts. Disturbed areas will be promptly rehabilitated and revegetated to a stable landform.

3.4 Extraction and Processing

An assessment of the available resource has been conducted and identified approximately 35 Mt of available material within the proposed extraction area shown on **Figure 4**. The extraction area will be approximately 44 hectares and range from reduced level (RL) 206 m AHD down to 90 m AHD. This will provide access to enough resource to sufficiently cover the planned 30-year life span of the quarry at the proposed extraction rates of 600,000 tpa over the first 5 years and up to 1.5 Mtpa over the remaining 25 years, and provide long term security for the resource.

The quarrying process will involve traditional drill and blasting techniques to produce rock fragments suitable for haulage to the crushing and screening plant. The quarry will have one working face that will advance generally in a northeast to southwest direction in 15 metre bench heights. Extraction will be carried out by mobile plant and equipment, including excavators and dump trucks, with the extracted material hauled from the pit to raw product stockpiles at the processing area.

The processing area will include raw material stockpiles and a crushing and screening plant for rock size reduction. The raw material extracted will not be washed and therefore the Development does not include a wash plant. The processed rock will be hauled in dump trucks to end product stockpiles in the product storage area.

3.5 Supporting Infrastructure

Various items of ancillary infrastructure will be installed and operated to support the quarry. These include, but may not be limited to, the following:

- Two weighbridges to weigh heavy vehicles as they enter and exit the Development Site;
- Crushing and screening plant for processing the extracted hard rock material;
- Concrete batching plant with a capacity of 15,000 cubic metres per year;
- Pugmill and pre-coat plant for road base products (asphalts);
- Workshop;
- Site office and amenities;
- Parking areas; and
- Product storage areas.

3.6 Hours of Operation

Coastwide Materials proposes to undertake extraction and processing activities between the hours of 6.00 am and 10.00 pm Monday to Saturday, with product transfer to stockpiles between 6.00 am and 12 midnight Monday to Saturday. Haulage of material in to the Development Site and from the Development Site is proposed between 7.00 am and 6.00 pm Monday to Saturday. These proposed hours may change, including possibly be extended, subject to the noise impact assessment and other potentially relevant assessments.

Blasting activities will be limited to between 9.00 am and 4.00 pm Monday to Friday.

Maintenance activities are proposed 24 hours a day, seven days a week.

3.7 Vehicular Access and Traffic

The Development includes the upgrade of Maytoms Lane and the Maytoms Lane – Bucketts Way intersection to provide access and effectively cater for the anticipated traffic generation.

At full production, the quarry is expected to generate a significant number of light and heavy vehicle movements on a daily basis. Estimated numbers and a full analysis will be provided in the EIS. It is anticipated that the majority of heavy vehicle traffic will originate from the south and travel from the Development to the south towards Sydney, the Hunter and Central Coast. On this basis, the primary transport route will comprise Maytoms Lane, Bucketts Way and the Pacific Highway.

As advised above, haulage would be limited to the hours between 7.00 am and 6.00 pm Monday to Saturday. These hours may change (including be extended) subject to the noise impact assessment and other potentially relevant assessments.

3.8 Site Servicing

Power

Coastwide Materials is consulting with Essential Energy in terms of extending and upgrading the existing overhead electricity supply infrastructure as the Development's principal source of power, however; this would be outside the scope of the EIS. If this is found to be cost limiting, the Development may rely on diesel generators.

Water Supply

The surface water management system will be designed in order to ensure that the Development is self-sufficient in terms of water supply and therefore not place any additional demand on local water supplies. It is anticipated that the Development's operational water supply needs will be met via capture and reuse of runoff on site.

Potable water supply needs for staff amenities will be met via rainwater collection (tanks) from the roofs of the site office and workshop. If water levels in the tanks become low due to an extended dry period, potable water will be trucked in as required.

Sewage

An aerated wastewater treatment system will be installed and operated to treat and dispose of the relatively low volume of sewage to be generated by staff amenities.

3.9 Waste Management

General Wastes

Appropriate management systems will be implemented to deal with the various waste streams that will be generated by the Development. Coastwide Materials will aim to optimise on-site processes in an attempt to minimise waste generation and implement any reuse/recycling opportunities. There will not be any disposal of waste materials on site.

Production Wastes

Exploration activities indicate very little overburden material will be required to be removed to allow extraction of the hard rock. The small volume of overburden removed, which would constitute virgin excavated natural material (VENM), will be stockpiled on-site for use during rehabilitation activities or other civil related applications.

3.10 Surface Water Management

An engineered surface water management system will be designed and installed in order to:

- Capture and reuse runoff for on-site operational requirements and ensure the Development is self-sufficient in terms of water supply (See **Section 3.8**); and
- Provide long-term structural controls to mitigate the potential for impact on local water resources.

The system will also include appropriate erosion and sediment control works.

3.11 Rehabilitation

Coastwide Materials is committed to ensuring progressive rehabilitation of disturbance areas in order to minimise the areas of exposure and hence reduce the potential air quality impacts, erosion and sedimentation, and visibility of quarrying activities from surrounding residences and public vantage points.

Short-term rehabilitation objectives include:

- Minimise clearing/vegetation disturbance consistent with operational requirements;
- Schedule operations and revegetation to minimise visual exposure;
- Promptly rehabilitate all areas of disturbance no longer required for quarry-related operations; and
- Stabilise all earthworks, drainage lines and disturbed areas to minimise erosion and sedimentation.

Long-term rehabilitation objectives include:

- Reduce or eliminate adverse environmental effects once the quarry ceases operation;
- Ensure closure is completed in accordance with leading industry practice;
- Provide a low maintenance, geotechnically stable and safe landform that meets government, community and company expectations;
- Ensure the closed quarry does not pose an unacceptable risk to public health and safety; and
- Establish clear and agreed criteria that can be used to provide the standard against which the final rehabilitation and post-development land uses can be assessed.

A Decommissioning and Rehabilitation Strategy will be prepared as part of the EIS to address the methodologies and management strategies for post-development closure and rehabilitation.

3.12 Operational Environmental Management Plan

A site-specific Operational Environmental Management Plan (OEMP) will be prepared following development consent and implemented to ensure that the commitments made within the EIS, along with the conditions imposed by the development consent and environmental protection licence, are fully implemented and complied with. The OEMP will likely contain the following key components:

- Environmental management framework, including key contacts, roles and responsibilities and regulatory requirements;
- Environmental management commitments and responsibilities;
- Monitoring, inspections and reporting requirements;
- Complaints management strategy; and
- Environmental incident management strategy.

3.13 Socio-Economic Aspects

3.13.1 Employment

At full operation the Development will require around 15 full-time equivalent employees, including a quarry manager, supervisors, drivers, weighbridge operator and administration clerk. It is anticipated that the majority of the workforce will be drawn from the surrounding region. There will also be several haulage companies contracted for the transport of materials to and from the Development Site.

The salaries and wages paid to employees and contractors will support additional flow-on activity in other sectors of the economy.

3.13.2 Capital Investment

The Development's capital investment value (CIV) is currently estimated at approximately \$6.5 million.

3.13.3 Consumables and Flow-On Benefits

It is difficult to quantify the expenditure on various consumable products and services that will be required to construct, operate and maintain the Development. For example, there will be opportunities for local transport companies to participate in the haulage of materials to and from the Development Site for both the construction and operational phases, along with opportunities for local business to fulfil maintenance and servicing requirements. There will also be a range of taxes levied on the Development.

There should be significant and sustained stimulus to the local and regional economies during the life of the Development.

4 PERMISSIBILITY AND PLANNING CONSIDERATIONS

4.1 Permissibility

The Development Site is zoned RU2 Rural Landscape under the provisions of the Great Lakes LEP.

The Development is classified as an “extractive industry”, which is defined in the LEP as:

the winning or removal of extractive materials (otherwise than from a mine) by methods such as excavating, dredging, tunnelling or quarrying, including the storing, stockpiling or processing of extractive materials by methods such as recycling, washing, crushing, sawing or separating, but does not include turf farming.

Extractive industries are permissible, with development consent, within the RU2 Rural Landscape zone.

4.2 Consent Pathway

Clause 7(1) of Schedule 1 of the SRD SEPP identifies development for the purpose of extractive industry to be SSD if it extracts more than 500,000 tonnes of material per year or extracts from a total resource of more than 5 Mt. Given that Coastwide Materials proposes to extract up to 1.5 Mtpa, pursuant to clause 8(1)(b) of the SRD SEPP, the Development comprises SSD.

The Minister for Planning (or their delegate) determines development applications for SSD under Division 4.1 of Part 4 of the EP&A Act.

4.3 Secondary Approvals

The Development will require the following secondary approvals:

- An environment protection licence (EPL) administered by the Environment Protection Authority (EPA) under the *Protection of the Environment Operations Act 1997* (POEO Act) (see **Section 4.5.2**); and
- Consent under Section 138 of the *Roads Act 1993* in respect to the proposed road upgrade works (see **Section 4.5.3**).

Depending on the expected level of impact on the groundwater aquifer, an aquifer interference approval may also be required from the Department of Primary Industries – Water (DPI Water) under Section 91 of the *Water Management Act 2000* (WM Act).

Pursuant to Clause 4.42 of the EP&A Act, an authorisation of the following kind (as relevant to the Development) cannot be refused if it is necessary for carrying out an approved SSD proposal and must be granted “substantially consistent” with the SSD consent:

- An EPL under Chapter 3 of the POEO Act; and
- A consent under Section 138 of the *Roads Act 1993*.

Furthermore, pursuant to Section 4.41 of the EP&A Act, the following authorisations (as potentially relevant to the Development) are not required for approved SSD proposals:

- A permit under section 201, 205 or 219 of the *Fisheries Management Act 1994*;
- An approval under Part 4, or an excavation permit under section 139, of the *Heritage Act 1977*;
- An Aboriginal heritage impact permit under Section 90 of the *National Parks and Wildlife Act 1974*;

- A bush fire safety authority under Section 100B of the *Rural Fires Act 1997*; and
- A water use approval under Section 89, a water management work approval under Section 90 or an activity approval (other than an aquifer interference approval) under Section 91 of the *Water Management Act 2000*.

4.4 Commonwealth Legislation

4.4.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is administered by the Commonwealth Department of Environment and Energy (DEE) and provides a legal framework to protect and manage nationally important flora, fauna, ecological communities, groundwater and heritage places defined as matters of “national environmental significance”. An action that “has, will have or is likely to have a significant impact on a matter of National Environmental Significance” may not be undertaken without prior approval of the Commonwealth Minister, as provided under Part 9 of the EPBC Act. Approval under the EPBC Act is also required where actions are proposed on, or will affect, Commonwealth land and its environment.

An assessment of whether the Development may have a significant impact on any matters of national environmental significance will be undertaken during the EIS investigations. Once this is complete, a decision on whether referral to the Commonwealth Minister is required will be made.

4.5 NSW State Legislation

4.5.1 Environmental Planning and Assessment Act 1979

The EP&A Act is the principal piece of legislation overseeing the assessment and determination of development proposals in NSW. The objects of the EP&A Act generally seek to promote management and conservation of natural and artificial resources, while also permitting appropriate development to occur.

As outlined in **Section 4.2**, the Development is classified as SSD and, accordingly, consent is required from the Minister under Division 4.7 of Part 4 of the EP&A Act. The EIS will consider the matters listed in Section 4.15 of Part 4 of the EP&A Act, as relevant.

4.5.2 Protection of the Environment Operations Act 1997

The POEO Act establishes the State’s environmental regulatory framework and includes licensing requirements for certain activities. As advised in **Section 4.3**, the Development is a scheduled activity under the POEO Act requiring the occupier to hold an EPL administered by the EPA under Section 43 of the Act.

4.5.3 Roads Act 1993

The objectives of the *Roads Act 1993* include (but are not limited to) regulating the carrying out of various activities on public roads.

The Development includes the upgrade of Maytoms Lane and the Maytoms Lane – Bucketts Way intersection and, as such, requires consent under section 138 of the *Roads Act 1993* from the appropriate roads authority. The *Roads Act 1993* specifies that a local council is generally the roads authority for all roads within its LGA except freeways. As such, MidCoast Council is the relevant roads authority for the Development in terms of the consent under section 138.

4.5.4 Water Management Act 2000

The WM Act is intended to ensure that water resources are conserved and properly managed for sustainable use benefitting both present and future generations. Water sharing plans prepared in accordance with the WM Act include rules for protecting the environment and administering water licencing and trading.

By the operation of Section 89J of the EP&A Act, the Development will not require a water use approval under Section 89 of the WM Act, a water management approval under Section 90 or a controlled activity approval under Section 91. However, depending on the expected level of impact on the groundwater aquifer, it may require an aquifer interference approval under Section 91 of the WM Act.

4.5.5 Other Key NSW State Legislation

The provisions and requirements of other relevant pieces of NSW legislation, including those relating to biodiversity, Aboriginal heritage and so on, will be considered and addressed within the EIS as applicable.

4.6 State Environmental Planning Policies

State Environmental Planning Policies (SEPPs) are legal environmental planning instruments (EPIs) prepared by the Minister to address issues significant to NSW. The following SEPPs are identified as relevant considerations for the Development and will be addressed within the EIS:

- SEPP 33 – Hazardous and Offensive Development;
- SEPP 44 – Koala Habitat Protection;
- SEPP 55 – Remediation of Land;
- SEPP (Infrastructure) 2007;
- SEPP (Mining, Petroleum Production and Extractive Industries) 2007; and
- SRD SEPP (see **Section 4.2**).

4.7 Great Lakes Local Environmental Plan 2014

Local Environmental Plans (LEPs) are legal EPIs that guide planning decisions for LGAs. They allow Council's to supervise the ways in which land is used through zoning and development consents.

As outlined in **Section 4.1**, the Development Site is zoned RU2 Rural Landscape under the provisions of the Great Lakes LEP and the Development, which is classified as an extractive industry, is permissible, with development consent.

Relevant development standards and local provisions in the LEP will be addressed within the EIS.

4.8 Great Lakes Development Control Plan

Development Control Plans (DCPs) differ from EPIs in that they are never more than factors to be considered. DCPs are not legally binding even though they might spell out planning policy and development standards in quite specific terms.

The provisions of the *Great Lakes Development Control Plan* will be considered in the EIS.

5 STAKEHOLDER CONSULTATION

A stakeholder consultation plan is being prepared for the Development. It will identify the various stakeholders that may have an interest or be influenced by the Development and provide a management framework for consulting with each stakeholder. The plan will be designed to ensure that stakeholders associated with the Development have sufficient understanding of how it may affect them, how the EIA and SIA processes work and how they can participate in the consultation process.

Key stakeholders include:

- Government agencies (Federal, State and local);
- Local community, including nearby residents and landowners;
- Aboriginal groups;
- Any relevant non-government organisations; and
- Service providers.

Consultation will be undertaken with reference to the Community and Stakeholder Engagement: Draft Environmental Impact Assessment Guidance Science June (DP&E, June 2017) and the Social Impact Assessment Guideline for State significant mining, petroleum production and extractive industry development (DP&E, September 2017). A number of different consultation strategies will be used. These may include, but not be limited to, the following:

- A scoping meeting with the DP&E;
- Additional consultation (meetings, emails, phone conversations) with government agencies as required;
- Regular newsletters to nearby residents and landowners to describe the Development, provide progress updates and outline the outcomes of key specialist impact assessments (as relevant);
- Consultation with the local Aboriginal people in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (Department of Climate Change and Water [DECCW] 2010) as part of the Aboriginal Heritage Impact Assessment (see **Section 7.9**);
- A community information session to introduce the Development, outline the relevant matters for consideration in the EIS and provide a point of contact to obtain additional information or discuss concerns;
- Potentially a second community information session to outline and discuss the outcomes of key specialist impact assessments (for example, noise and traffic); and
- Face-to-face meetings with nearby residents and landowners where required or requested.
- Consultation specific to the social impact assessment (e.g. surveys and interviews).

A stakeholder consultation log will be maintained as a record of the consultation activities undertaken and the following information will be summarised in the EIS:

- Each stakeholder identified and how they were consulted/engaged; and
- The issues raised during consultation activities and how these were addressed (if any issues were not addressed, why not).

6 ENVIRONMENTAL RISK ASSESSMENT

A high level environmental risk assessment was completed in September 2017 in order to:

- Identify those issues relating to the Development that represent the greatest risk to the local environment and surrounding populace; and
- Assist in setting (and justifying) priorities for the level of assessment required to address each identified risk within the EIS.

A qualitative risk assessment methodology, which was developed in accordance with the requirements of the *Australian Standard AS/NZS 31000:2018 – Risk Management –Guidelines*, was utilised to provide a consistent and reliable approach. Where the individual risk(s) was considered unacceptable, or where a knowledge gap was identified, specialist studies are being commissioned and appropriate mitigation measures and/or management responses will be nominated.

The Risk Register contained in **Appendix A** was prepared to document the findings and outcomes. The various issues considered, in no particular order, are:

- | | |
|-------------------------------------|------------------------------|
| • Noise; | • Traffic; |
| • Blasting and vibration; | • Land use conflict; |
| • Air quality – particulate matter; | • Soils and land capability; |
| • Surface water; | • Waste; |
| • Groundwater; | • Hazardous materials; |
| • Biodiversity; | • Visual amenity; and |
| • Heritage; | • Rehabilitation. |

The risk assessment did not identify any issues with a residual risk ranking (taking into account the proposed mitigation measures) of “extreme” (Level V). This can primarily be attributed to the location of the Development Site, including separation distances to populated areas, the nature of the existing environment, the engineering design features of the Development and the mitigation measures to be employed.

One issue with a residual risk ranking of “high” (Level IV) was identified relating to heavy vehicle traffic generation, and three issues with a residual risk ranking of “medium” (Level III) were identified relating to noise emissions, groundwater interaction and the potential to impact upon local biodiversity. Specialist consultants will be engaged to assess each of these issues and develop appropriate controls where required.

7 KEY ENVIRONMENTAL ISSUES

The key environmental risks or issues warranting a more detailed assessment and reporting will be identified through:

- The existing environmental condition of the Development Site and surrounding locality (see **Section 2**);
- The legislative framework applicable to the Development (see **Section 4**);
- The environmental risk assessment (see **Section 6** and **Appendix A**);
- The DP&E's SEARs, including input from other consulted government agencies; and
- Consultation undertaken with relevant government agencies and the community (see **Section 5**).

7.1 Noise

No published information on existing noise levels within the locality has been identified. However, it is reasonable to say that the existing noise levels in the area are directly related to the current land use activities and infrastructure. On this basis, noise can be considered typical of a rural environment that primarily comprises some agricultural activities and heavy vehicle traffic on Buckets Way.

Potential sources of noise from the Development will be:

- Construction activities, including plant and equipment and traffic;
- Operational noise, including plant and equipment and internal heavy vehicle manoeuvring; and
- Heavy vehicle traffic generation.

A specialist consultant will be engaged to prepare a Noise and Vibration Impact Assessment as part of the EIS in accordance with the *Interim Construction Noise Guideline* (DECC 2009), *NSW Industrial Noise Policy* (EPA 2000) and the *NSW Road Noise Policy* (DECCW 2011). The Development will adopt best practice management and the noise impact assessment will set out suitable environmental management and mitigation measures to further minimise the potential for adverse noise impacts.

The assessment will also be used to determine suitable operating hours for both on-site operations and haulage (see **Section 3.6**).

7.2 Blasting and Vibration

A specialist consultant will be engaged to assess ground vibration and airblast overpressure associated with blasting activities as part of the Noise and Vibration Impact Assessment in accordance with the *Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration* (Australian and New Zealand Environment Council 1990).

Through the implementation of appropriate design and procedure safeguards, blast emissions can be limited to a level where:

- The safety of the public, quarry employees and visitors will not be threatened;
- Ground vibration occur at acceptable levels, with no risk to the structural integrity of nearby buildings;
- Noise, ground and air vibrations have no impact on nearby livestock;
- Noise and air vibration levels at nearby residences are within acceptable limits and compatible with the safety and comfort of human beings; and
- The generation of dust is minimised and maintained at acceptable levels.

7.3 Air Quality

No published information on existing air quality within the locality has been identified. However, as the Development Site is located in a rural area with no major sources of air pollution, the local air quality is unlikely to exceed any of the air quality criteria. There are some small-scale poultry operations in the area, however these are unlikely to notably impact on the air shed other than to generate odour, which is not likely to conflict with the Development.

The potential sources of particulate matter from the Development will be:

- Construction activities, including vegetation clearing, bulk earthworks and traffic;
- Operational activities, including excavation, crushing and stockpiling of rock material, plant and equipment, and heavy vehicle manoeuvring; and
- Wind erosion from exposed surfaces.

The key emissions for consideration are:

- Total suspended particulates (TSP);
- Particulate matter less than 10 microns (PM₁₀);
- Particulate matter less than 2.5 microns (PM_{2.5}); and
- Dust deposition.

A specialist consultant will be engaged to prepare an Air Quality Impact Assessment as part of the EIS in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (EPA 2017). The Development will adopt best practice management and the air quality impact assessment will set out suitable environmental management and mitigation measures to further minimise the potential for adverse dust impacts.

A meteorological station has been installed within the Development Site in order to obtain baseline meteorological data for use in the impact assessment.

7.4 Surface Water

The Development Site is located within the Karuah River catchment, which has an area of approximately 4,480 square kilometres (km²) (DPI Water 2017). The Karuah River originates from the south-eastern slopes of the Gloucester Tops section of the Great Dividing Range, south-west of Gloucester, flows generally south-east and south, and discharges into Port Stephens near the township of Karuah (Australian Government 2017), over 20 km south of the Development Site.

Karuah River is unregulated in that it does not have any major water storages. Water users in the catchment include Hunter Water Corporation, local councils, dairy farms, poultry farms, oyster farms and fishing industries. The Karuah River is also popular for recreational activities, including fishing and swimming.

The only notable surface water feature within the Development Site is Double Creek, which traverses the Development Site eventually draining in to the Karuah River. There are several ephemeral drainage lines that traverse the Site, along with several farm dams.

Given that the Development is located upslope of the Karuah River, there is potential to impact on the local waterway system and downstream surface water resources. However, as advised in **Section 3.10**, an engineered surface water management system will be designed and installed in order to:

- Capture and reuse runoff for on-site operational requirements and ensure the Development is self-sufficient in terms of water supply; and
- Provide long-term structural controls to mitigate the potential for impact on local water resources.

The system will also include appropriate erosion and sediment control (ESC) works.

Key water management principles that will apply throughout the operational phase of the Development include:

- Clean water will be diverted around all disturbance and operational areas;
- Dirty water will be contained within sediment basins (or similar) or directed through appropriate sediment control structures before being suitably released;
- Wash down waters will be contained within the engineered surface water management system;
- An ESC plan will be developed for any new disturbance areas and appropriate ESC measures will be installed such as to contain and treat any dirty water runoff;
- All water management infrastructure will be subject to regular inspections to ensure their functionality and reduce the potential for uncontrolled overflow or release of potentially pollutant laden waters; and
- Disturbed areas and rehabilitation areas will be managed to ensure the risk of erosion is minimised and rehabilitation is effective.

A specialist consultant will be engaged to prepare a Surface Water Impact Assessment as part of the EIS, including a detailed site water balance. The Development will adopt best practice management and the surface water impact assessment will set out suitable environmental management and mitigation measures to ensure the potential for impact on local water resources is negligible.

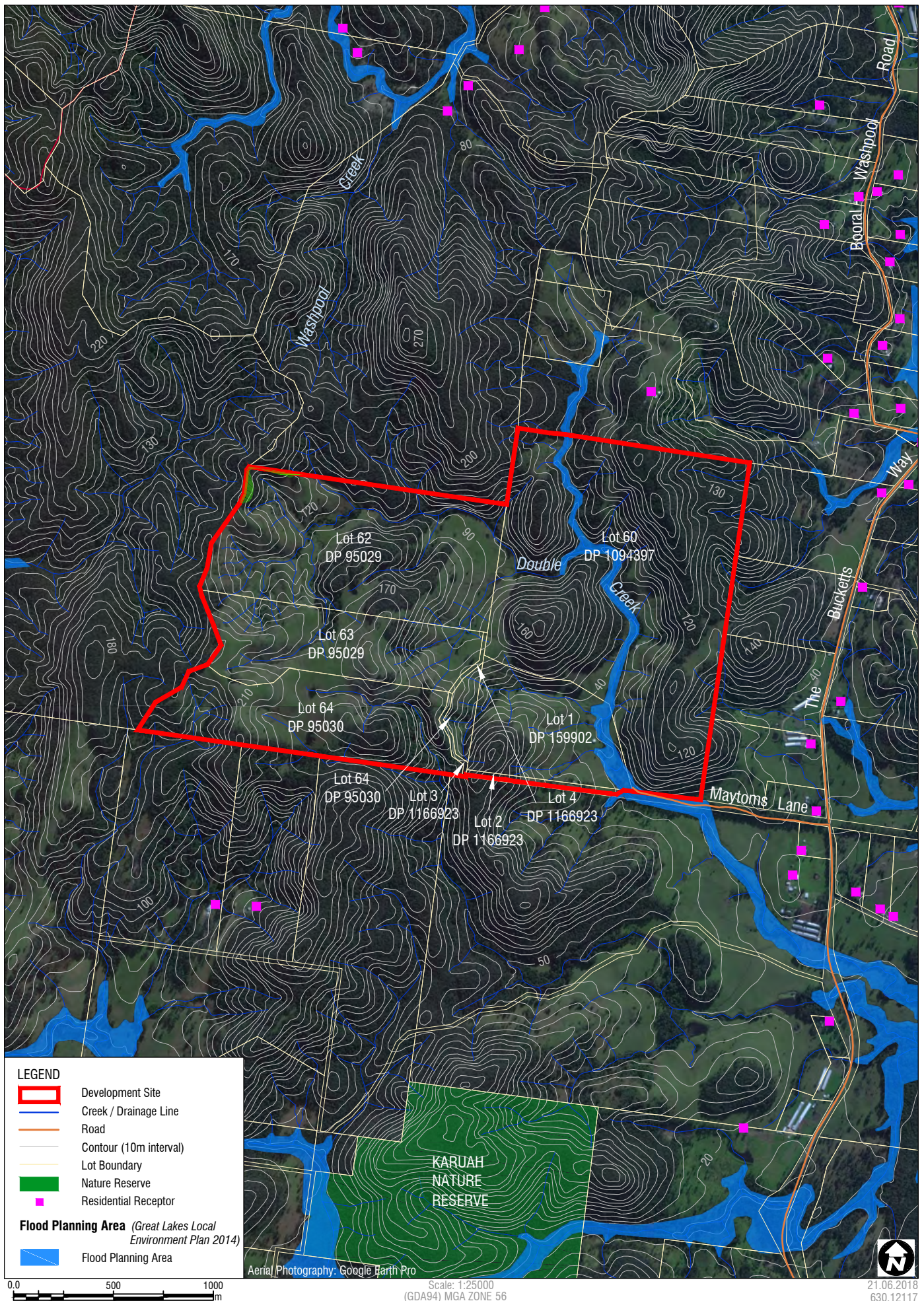
As described in Section 3.5, erosion and sediment control measures will be installed in accordance with *Managing Urban Stormwater: Soils and Construction Volume 1* and *Volume 2E: Mines and Quarries* (Landcom 2004, also referred to as the “Blue Book”) and *Erosion and Sediment Control on Unsealed Roads* (OEH 2012) to ensure no off-site impacts. Disturbed areas will be promptly rehabilitated and revegetated to a stable landform.

7.5 Flooding

The Karuah River has a relatively narrow valley in the vicinity of the Development Site due to the local topography and, as a result, flooding is largely confined to areas close to the River. As evident on **Figure 6**, the Flood Planning Area for Karuah River, as mapped in the Great Lakes LEP, does not extend to the Development. However, there is a narrow strip of Flood Planning Area associated with Double Creek traversing through the Development Site and across Maytoms Lane.

Based on the Flood Planning Area shown on **Figure 6** and the proposed siting and layout of the Development, no significant impact to downstream flooding is expected as a result of the Development. There may be minor changes associated with the slightly reduced catchment area to Double Creek and upgrade of the internal access road crossing Double Creek. The design of the Maytoms Lane upgrade will take surface water and flooding issues in to consideration.

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7.6 Groundwater

The Development Site falls within three groundwater management areas:

- North Coast Fractured and Porous Rock Groundwater Sources;
- Karuah River Water Source; and
- Hunter Unregulated and Alluvial Water Sources.

7.6.1 Hydrogeology

The Development Site is on the Myall block of the New England Orogen, approximately 3 km south of the Gloucester Basin. As shown on **Figure 4**, the geology comprises the Late Carboniferous aged Gilmore Volcanic Group, which consists of sedimentary siliciclastic and igneous felsic volcanics (Roberts et al 1991). The Gilmore Volcanic Group is absent east of the Site along the alignment of the north-south trending Targan Fault. The Booral, McInnes and Karuah formations are present east of the fault, which comprise siltstones, sandstones, conglomerates and mudstone. Quaternary alluvium is not present at the Development Site, however is localised along Karuah River approximately 2 km to the east. Due to the presence of the Targan Fault to the east of the Development (see **Figure 4**), hydraulic connection to the alluvium of the Karuah River through faults is considered unlikely (faults can act both as conduits for or barriers to groundwater flow).

7.6.2 Registered Groundwater Bores

Searches of the Bureau of Meteorology's (BoM) *Australian Groundwater Explorer* were conducted to identify potential groundwater users within the vicinity of the Development Site. While there were no registered groundwater bores identified in the immediate area, four registered bores were identified to the southeast and east of the Development Site. The approximate locations of these bores are shown on **Figure 4**. The operational status and function of the bores is currently unknown, however two (GW032911 and GW050664) are apparently used for domestic supply. While there is limited stratigraphic information available on the bores, it is anticipated that one (GW050664) intersects the Gilmore Volcanic Group and the remaining three intersect the Quaternary alluvium. No water level data is available at present.

7.6.3 Groundwater Dependent Ecosystems

A search of the BoM's *Groundwater Dependent Ecosystems Atlas* indicates that there are no groundwater dependent ecosystems (GDEs) reliant on surface expression of groundwater (rivers, springs, wetlands) within the Development Site. While the *Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016* does contain a number of high priority GDEs, none of these are located within or around the Development Site.

7.6.4 Impact Assessment

While the exact elevation of the groundwater table within the Development Site is unknown at this point in time, the proposed extraction activities may result in groundwater seeping into the quarry pit and causing drawdown of groundwater within the Gilmore Volcanic Group (North Coast Fractured and Porous Rock Groundwater Sources). Due to the distance and structural geology in the area, it is anticipated that the Development will not result in direct take of groundwater from the Quaternary alluvium. However, a reduction in baseflow contributions from Double Creek to Karuah River could result in an indirect take under the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009*.

The registered bores intersecting Quaternary alluvium along the Karuah River are not likely to be impacted by the Development due to the lack of direct take and the position of the bores up-stream of the Development Site. The registered bore GW050664 is located within 800 metres southeast of the Development Site (see **Figure 6**) and intersects the same stratigraphy (Gilmore Volcanic Group). Depending on the hydraulic properties and structure of the stratigraphy, there is potential that water supply to the bore could be impacted as a result of the quarry operation.

The *NSW Aquifer Interference Policy* (NSW Office of Water 2012) requires that potential impacts on groundwater sources, including their users and GDEs, be assessed against minimal impact considerations. If the predicted impacts are less than the Level 1 minimal impact considerations, then these impacts will be considered as acceptable.

A specialist consultant will be engaged to prepare a Groundwater Impact Assessment as part of the EIS. Key areas of assessment will include:

- Review of the requirement to develop and implement a field program to obtain relevant hydrogeological data, including the possible installation of a monitoring network and/or a landholder bore census;
- Assessment of groundwater data to assess potential impacts on groundwater sources (quantity and quality);
- Review of the requirement to develop tools to quantify groundwater take and predict potential impacts (i.e. numerical groundwater model); and
- Assessment of potential impacts on aquifers and groundwater users.

The Development will adopt best practice management and the groundwater impact assessment will set out suitable environmental management and mitigation measures to ensure the potential for impact on groundwater resources is negligible.

A network of groundwater monitoring bores and piezometers have been installed within the Development Site in order to obtain baseline information and assist in the impact assessment. Baseline monitoring will commence in the very near future on a regular basis.

7.7 Biodiversity

While the Development Site has been partially modified and disturbed as a result of past clearing and agricultural activities, there are some significant areas of undisturbed land and native vegetation within the property owned by the proponent. The centre of the Development Site appears largely clear of remnant vegetation, with areas of trees mainly around the boundary of the Development Site and at elevated areas towards the centre of the Site. These areas, along with the extensive bushland in the surrounding area, would provide habitat value for most native species. There is limited riparian vegetation along Double Creek traversing the Site.

7.7.1 Vegetation Types (Plant Communities)

Regional scale vegetation mapping (OEH 2015) indicates that the plant communities listed in **Table 3** and shown on **Figure 7** occur within the Development Site.

Table 3 - Plant Community Type Name and Status

Plant Community Name	Approximate Area (ha)	TSC Act ¹ Status	EPBC Act ² Status
Black Booyong/Giant Stinging Tree/Rosewood/Moreton Bay Fig lowland subtropical rainforest of the Lower North Coast	1.96	Critically Endangered	Critically Endangered
Non-native Vegetation	202.5	-	-
Sandpaper Fig/Whalebone Tree warm temperate rainforest	3.8	Critically Endangered	Critically Endangered
Spotted Gum/Broad-leaved Mahogany/Red Ironbark shrubby open forest	189.7	Endangered	-
Spotted Gum/Narrow-leaved Ironbark shrub/grass open forest of the central and lower Hunter	0.5	Endangered	-
Tallowwood/Spotted Gum/Grey Gum grassy tall open forest of the lower North Coast	1.7	-	-

1 - *Threatened Species Conservation Act 1995*

2 - *Environment Protection and Biodiversity Conservation Act 1999*

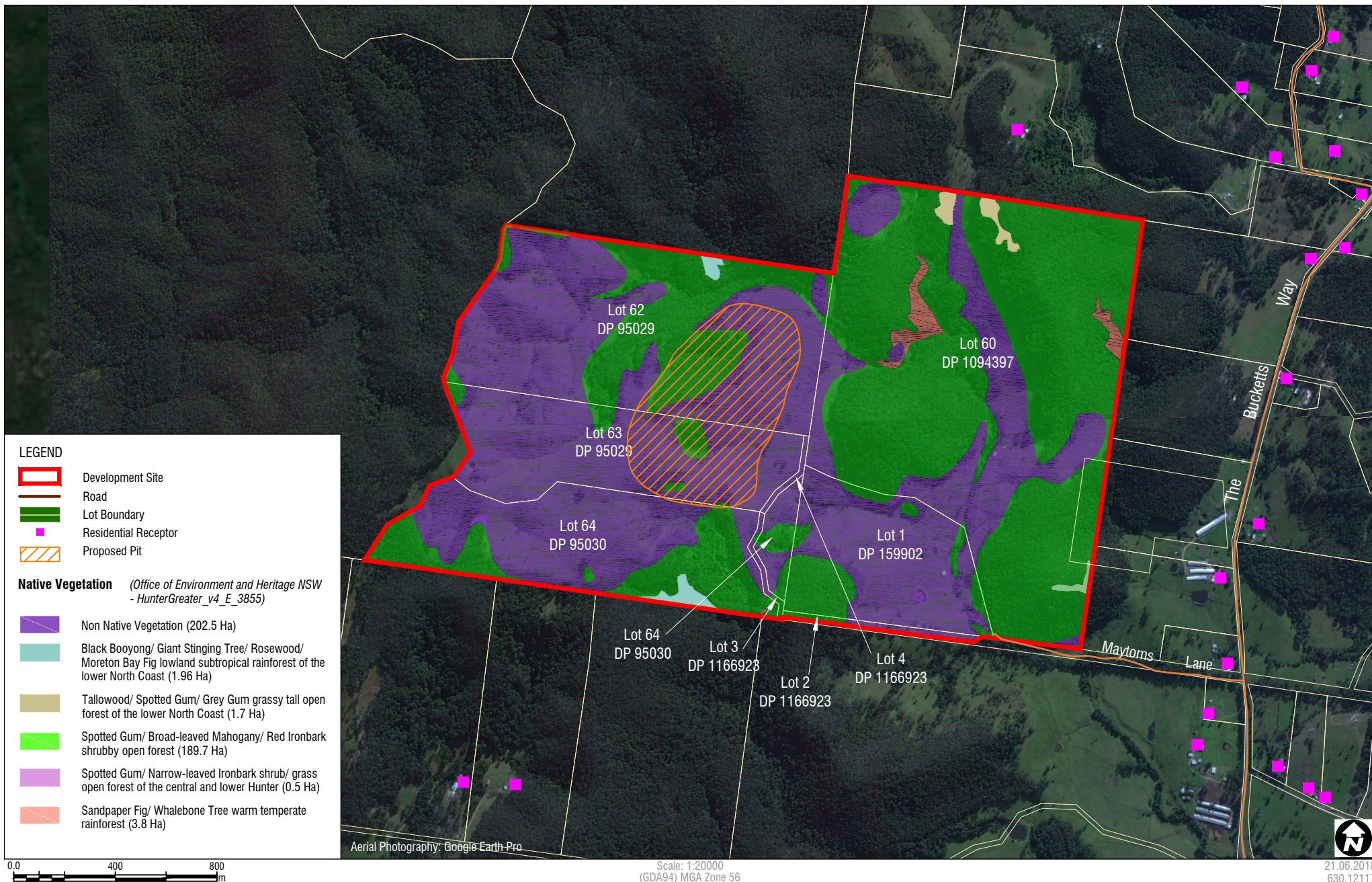
Close to 50 percent of the Development Site is mapped as “Non-native vegetation”. These are the parts of the Site that have been either cleared of native vegetation or contain weeds or other exotic plants. The remainder is mapped as containing native vegetation.

Two of the communities, being the Black Booyong/Giant Stinging Tree/Rosewood/Moreton Bay Fig lowland subtropical rainforest of the Lower North Coast and the Sandpaper Fig/Whalebone Tree warm temperate rainforest, are likely to form part of the critically endangered ecological community Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions, as listed under the *Threatened Species Conservation Act 1995* (TSC Act), and also the critically endangered Lowland Rainforest of Subtropical Australia, as listed under the Commonwealth EPBC Act.

The Spotted Gum/Broad-leaved Mahogany/Red Ironbark shrubby open forest and Spotted Gum/Narrow-leaved Ironbark shrub/grass open forest of the central and lower Hunter potentially form part of the Lower Hunter Spotted Gum-Ironbark Forest in the Sydney Basin Bioregion endangered ecological community.

7.7.2 Threatened Species

An on-line search of the OEH's *Atlas of NSW Wildlife* revealed previous records for 31 threatened species listed under the TSC Act within the locality of the Development Site (10 km radius). These species comprise 15 threatened bird species, one threatened amphibian species, eight threatened mammal species and seven threatened plant species. A copy of the search results is contained in **Appendix B**.



Of these 31 species, only the Yellow-bellied Glider has previously been recorded within the Development Site. The native vegetation within the Site suggests that there could be fauna habitat features and foraging resources that could be utilised by threatened species.

7.7.3 Threatened Ecological Communities

The search of the *Atlas of NSW Wildlife* also indicates the following threatened ecological communities (TECs) have been recorded within the locality of the Development Site:

- Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions;
- Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions;
- Hunter Lowland Redgum Forest in the Sydney Basin and New South Wales North Coast Bioregions;
- Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions;
- Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions;
- Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion;
- River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions;
- Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion;
- Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions
- Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions; and
- Themeda grassland on seaciffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions.

7.7.4 EPBC Act Matters

An on-line search of the DEE's *Protected Matters Search Tool* identified the following matters of national environmental significance (and/or their habitats) protected under the EPBC Act in relation to the Development Site and surrounding locality:

- One threatened ecological community, being the Lowland Rainforest of Subtropical Australia, that is likely to occur within area;
- Twenty seven threatened species, comprising nine bird species, two frog species, eight mammal species and eight plant species, that may occur within area or are likely to occur within area; and
- Fifteen migratory bird species that may occur within area or are likely to occur within area.

A copy of these search results is contained in **Appendix C**.

As advised above, two plant communities mapped as occurring within the Development Site could potentially constitute the Lowland Rainforest of Subtropical Australia threatened ecological community. In addition, the native vegetation within the Site and large areas of surrounding native bushland, suggests that a variety of threatened species, as listed under the EPBC Act, may utilise the Site for foraging, shelter and/or breeding.

7.7.5 Impact Assessment

While the Development Site has been partially modified and disturbed as a result of past clearing and agricultural activities, there are some significant areas of undisturbed land and native vegetation. The Development will increase disturbance levels within the Development Site as a result of construction activities (vegetation clearing, bulk earthmoving, vehicle movements) and operational activities (excavation), and this will include the removal of some native vegetation. However, the potential for impact to native biota will be reduced through the siting and layout of the Development, which, as evident on **Figure 4**, will avoid impact to significant stands of vegetation.

A specialist consultant will be engaged to prepare a Biodiversity Assessment Report (BAR) as part of the EIS in accordance with the new *Biodiversity Assessment Method* (OEH 2017). Ecological field surveys will be completed to determine the presence, condition and extent of native plant communities within the Development Site. Field surveys will also be completed to determine the presence or likely occurrence of threatened species. The BAR will set out suitable environmental management and mitigation measures and, if required, an offsetting strategy will be developed and presented in the EIS.

7.8 Wetlands

The Wetlands Map in Great Lakes LEP shows that the closest wetlands to the Development Site are to the east and southeast of Allworth adjacent to the Karuah River approximately 5 km from the Site. The Myall Lakes Ramsar wetland (internationally significant) is located within the Myall Lakes National Park over 9 km to the east and northeast of the Development Site.

Given the separation distances, the Development does not pose any impacts to wetlands and no assessment will be included in the EIS.

7.9 Aboriginal Heritage

An on-line search of the OEH's *Aboriginal Heritage Information Management System* (AHIMS) did not reveal any recorded Aboriginal sites or places within the Development Site. Copies of the AHIMS search reports are contained within **Appendix D**.

While the Development Site has been partially cleared for agricultural production activities, there are some significant areas of undisturbed land and remnant vegetation. A specialist consultant will be engaged to prepare an Aboriginal Cultural Heritage Impact Assessment as part of the EIS in accordance with OEH requirements for field survey, assessment and Aboriginal community consultation. Consultation will be undertaken in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010). The presence (or otherwise) of any Aboriginal sites/places within the Development Site will be verified in the field using standard survey methods, and the impact assessment will set out suitable management and mitigation measures.

7.10 European Heritage

An on-line search of the OEH's *State Heritage Register*, which lists heritage items deemed to be of State significance, found no references within the Development Site. The nearest listed heritage item is the Gundayne House Group on the southern outskirts of Booral approximately 2 km from the Development Site.

Heritage items of significance at a local government level are listed in the heritage schedules of the relevant LEP. The Great Lakes LEP does not list any heritage items within the Development Site. The nearest listed items are the Booral Wharf and Booral House, both on the eastern side of the Karuah River approximately 2.5 km and 3 km from the Development Site, respectively.

Given the separation distances, the Development does not pose any impacts to European heritage and no assessment will be included in the EIS.

7.11 Traffic

The Development is expected to generate a number of light and heavy vehicle movements on a daily basis. Estimated numbers and a full analysis will be provided in the EIS.

It is anticipated that the majority of heavy vehicle traffic will originate from the south and travel from the Development to the south towards Sydney, the Hunter and Central Coast. On this basis, the primary transport route will comprise Maytoms Lane, Bucketts Way and the Pacific Highway. Trucks would not necessarily be precluded from travelling north however, depending on demand. As previously advised, the Development will include upgrade works to Maytoms Lane and the Maytoms Lane – Bucketts Way intersection. No other road upgrade works should be required.

A specialist consultant will be engaged to prepare a Traffic Impact Assessment as part of the EIS in accordance with relevant guidelines/standards of the Roads and Maritime Services (RMS) and Council guidelines/standards. The assessment will include the consideration of peak traffic generation, any impacts on the operational efficiency and safety of the public road network, heavy vehicle route(s) and design requirements for the road upgrade works.

7.12 Soil and Land Resources

7.12.1 Soil Landscapes

The Development Site is located in an area dominated by a landscape ranging from undulating low hills on Carboniferous sediments and acid volcanics (Ten Mile Road soil landscape) to steep conical hills on Carboniferous lithic sandstone and ignimbrites (Gilmore Hill soil landscape) in the Clarendetown Hills regions (Henderson 2000). Soils within the area are dominated by moderately deep to deep, well to imperfectly drained Brown, Grey and Yellow Kurosols and Bleached Leptic Tenosols. The limitations of these two soil landscapes include:

- Ten Mile Road soil landscape - high water erosion hazard, high run-on, seasonal waterlogging, localised shallow soils and strongly to extremely acid soils of low fertility; and
- Gilmore Hill soil landscape – steep slopes, water erosion hazard, rock outcrop, foundation hazard, shallow stony and strongly acid soils of low fertility.

7.12.2 Land and Soil Capability

Information on land and soil capability (LSC) has been sourced from the OEH's *eSPADE* system, with the classes defined by *The Land and Soil Capability Assessment Scheme: Second Approximation* (OEH 2012). The LSC dataset consists of eight classes representing a decreasing capability of the land to sustain land use based on a number of criteria, including biophysical characteristics and soil erosion hazard. Class 1 represents land capable of sustaining most land uses, including those with a high impact on the soil (for example, regular cultivation), while Class 8 represents land that can only sustain very low impact land uses (for example, nature conservation). The Development Site appears to comprise Class 4 and Class 7 land, each covering approximately 50 percent of the Site. LSC Class 4 is defined as land with moderate to high limitations for high-impact land uses, which will restrict land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture. LSC Class 7 is defined as very low capability land that is generally incapable of agricultural land use.

7.12.3 Biophysical Strategic Agricultural Land

A review of the *NSW Strategic Agricultural Land Map STA_046* showed no Biophysical Strategic Agricultural Land (BSAL) within the Development Site. The nearest mapped BSAL is located outside the southeast corner of the Site, on an alluvial landform associated with Double Creek.

7.12.4 Acid Sulfate Soil

The OEH's *Acid Sulfate Soil Risk Mapping* shows that the Development Site is not within any known acid sulfate soil (ASS) risk zones. The nearest risk zone is located almost 2 km to the southeast along the Karuah River.

7.12.5 Impact Assessment

The engineering design and the environmental controls adopted will ensure that the disturbance footprint for the Development will be as small as possible. The Development will not deny access to large areas of viable agricultural lands nor significantly reduce the land area available for agricultural production. Importantly, the Development Site does not contain any mapped BSAL or ASS.

A specialist consultant will be engaged to prepare a Soil and Land Capability Assessment, including necessary field survey work, in order to:

- Classify and describe the soil on site in accordance with the *Australian Soil Classification System* (ASC) and appropriate NSW technical guidelines;
- Assess the pre- and post-disturbance land and soil capability classes in accordance with the appropriate NSW technical guidelines; and
- Provide recommendations on disturbance management, including soil stripping depths, topsoil handling and topsoil re-spreading.

The Development will adopt best practice management and commit to a comprehensive suite of environmental management and mitigation measures to minimise the potential for adverse impact on soil and land resources and also to minimise the potential for conflict between the Development and the existing surrounding land uses.

7.13 Waste

As advised in **Section 3.9**, appropriate management systems will be implemented to deal with the various general waste streams and production waste that will be generated by the Development.

The EIS will identify all waste streams to be generated by the Development and provide their respective waste classifications under the *Waste Classification Guidelines Part 1: Classifying Waste* (EPA 2014), estimated quantities and intended reuse/recycling/disposal method.

7.14 Hazards

7.14.1 Bush Fire

The Development Site does contain areas mapped as “bush fire prone land” (MidCoast Council 2017).

The EIS will address the potential for bush fire and set out appropriate management strategies for minimising the risk in accordance with the NSW Rural Fire Service's *Planning for Bush Fire Protection* (2006). While this guideline is aimed at habitable developments, it advises that applications for developments that are not residential/rural residential subdivisions should satisfy the objectives of the guideline and propose an appropriate combination of bush fire protection measures. This is particularly important in terms of ensuring appropriate access, water servicing and vegetation management.

7.14.2 Dangerous Goods

The Development will store and use small quantities of a range of dangerous goods.

A specialist will be engaged to undertake a Preliminary Risk Screening and Preliminary Hazard Analysis in accordance with *Hazardous and Offensive Development Application Guidelines, Applying SEPP 33* (Department of Planning 2011a) and *Hazardous Industry Planning Advisory Paper No. 6 – Hazard Analysis* (Department of Planning 2011b) as part of the EIS. The outcomes of these will determine if further consequence analysis is necessary.

While explosive materials will be periodically used on site for blasting, there will not be any on-site storage of such materials. Explosives will be brought to the Development Site by the specialist blasting contractor at the time of the scheduled blasting and will be handled and used in accordance with relevant Australian Standards. Through the implementation of appropriate design and procedure safeguards, blasting will be undertaken in a manner that ensures the safety of the public, employees and visitors.

7.15 Visual Amenity

The visual amenity of the general area is that of a river valley surrounded by undulating topography, with significant areas of remnant vegetation interspersed with land that has been cleared or partially cleared and being used for stock grazing, small-scale poultry operations and small rural/lifestyle holdings.

As evident on **Figure 4**, the quarry and associated infrastructure will be setback from Bucketts Way by a significant distance and there is intervening topography between the Development and Bucketts Way and also between the Development and surrounding residential dwellings. Quarry development/staging, rehabilitation and revegetation will be scheduled to minimise the extent of clearing/vegetation disturbance at any one time and minimise visual exposure. Rehabilitation will be undertaken on a progressive basis to ensure areas of disturbance no longer required for quarry-related operations will be promptly rehabilitated and revegetated.

A specialist consultant will be engaged to prepare a Visual Impact Assessment as part of the EIS in order to:

- Identify public vantage points and dwellings within the surrounding area that will likely have a line of sight to the Development;
- Assess the visual significance of the Development from these locations; and
- If necessary, determine suitable mitigation measures.

7.16 Socio-Economic Considerations

The Development will extract up to 1.5 Mt of hard rock annually (first five years at 600,000 Mt) and deliver this valuable resource to the construction and infrastructure sectors in the Sydney, Hunter and Central Coast areas. The quarry is essential for the guaranteed supply of construction materials for major infrastructure projects of local, State and National significance.

The Development will create positive social and economic outcomes for the local community and surrounding region stemming from job creation directly in terms of employment at the quarry and indirectly in terms of haulage and servicing/maintenance contracts, along with other flow-on benefits.

The potential for adverse social impact as a result of the Development, including upon local land use and amenity, will be considered as part of the EIS. Social and Economic Impact Assessments will be prepared in accordance with the Social impact assessment guideline for State significant mining, petroleum production and extractive industry development (DP&E September 2017).

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Appendix A – Environmental Risk Register

RISK REGISTER FOR THE PROPOSED HILLVIEW HARD ROCK QUARRY				
Aspect	Risk Reference Number	Potential Issue / Risk	RISK	Proposed Additional Controls / Recommended Actions
Land Access	1	Potential for private landholder(s) opposition for access along Maytoms Lane	H	Stakeholder Engagement and Communication Strategy Consideration of specialist studies
Land Ownership/Acquisition	2	Exceedance of road noise criteria at some receptors	M	Consideration of all reasonable and feasible mitigation measures in the noise impact assessment. Individual agreements. Stakeholder Engagement and Communication Strategy.
Land Ownership/Acquisition	3	Exceedance of noise criteria at some receptors due to elevation and proximity to extraction area.	L	Consideration of all reasonable and feasible mitigation measures in the noise impact assessment. Individual agreements. Stakeholder Engagement and Communication Strategy.
Land Tenure	4	Other leases (petroleum or mining) over the property	L	There are currently no coal or mineral titles over the project area but there are two expired petroleum exploration licences; PEL 285 held by AGL Upstream Investments Pty Limited, and PEL 476 held by Pangaea Oil & Gas Pty Limited.
Flora and Fauna	5	Impact on flora/fauna as a result of clearing activities associated with construction of the quarry	M	Undertake targeted surveys for threatened species Prepare a biodiversity impact assessment report Prepare a biodiversity offset package (includes undertaking appropriate methodologies for field surveys) Maximise opportunities for upcoming spring survey Consider need for Federal referral (after initial survey)
Flora and Fauna	6	Listed species found on site	L	Run Federal and State approvals in parallel (offset strategy), if threatened species found.
Flora and Fauna	7	Site footprint constrained by threatened species found on site	L	Ample space enables the extraction footprint to be designed to avoid threatened species.
Cultural Heritage	8	Impact on Aboriginal artefacts as a result of clearing activities associated with construction of the quarry	L	Archaeological assessment with nominated Aboriginal groups
Cultural Heritage	9	Impact on European heritage items as a result of clearing activities associated with construction of the quarry	L	Include European heritage in the assessment
Noise and Vibration	10	Noise impacts on sensitive receptors during construction of quarry	M	Construction timeframe and noise limits Application of best practice mitigation measures Engage in early consultation Stakeholder engagement and Community strategy Quantify existing ambient noise environment
Noise and Vibration	11	Noise impacts on sensitive receptors during operation of quarry	M	Application of Best Practice Engage in early consultation Mitigation options, Technical studies, monitoring and measurement Quantify existing ambient noise environment
Noise and Vibration	12	Noise impacts on sensitive receptors along Maytoms Lane	H	Engage in early consultation Quantify existing ambient noise environment Consider mitigated equipment and operating scenarios to minimise noise.
Noise and Vibration	13	Appropriate representation of the meteorological environment at the site and surrounds	L	Install a met station on site (completed).
Noise and Vibration	14	Operations – Blasting overpressure and vibration	L	Complete a blast impact assessment. Technical Studies
Noise and Vibration	15	Road closure required during blasts within 500 m of public road and private property	L	Confirm status of crown roads and proximity or private land to blasting Blast Management Plan Technical Studies
Air Quality	16	Air Quality impacts on sensitive receptors during construction of quarry	M	Application of best practice management measures Engage in early consultation Stakeholder Engagement and Community strategy Quantify existing ambient air quality environment Technical Studies - monitoring and measurement
Air Quality	17	Air Quality impacts on sensitive receptors during operation of quarry	M	Application of best practice management measures Engage in early consultation Quantify existing ambient air quality environment Stakeholder engagement and community strategy
Air Quality	18	Appropriate representation of the meteorological environment at the site and surrounds	L	Install and operate a met station (completed).
Transport	19	Increase in traffic resulting in increased noise	H	Traffic consultant to recommend mitigation measures Preliminary work suggests no constraints.
Transport	20	Product truck movements and intersections with Bucketts Way	H	Engage a qualified traffic consultant Ensure early consultation with RMS - Stakeholders engagement and community strategies.
Surface Water	21	Flooding	L	Investigate impact of infrastructure on existing flooding regime in the SW impact assessment
Surface Water	22	Maximum harvestable right does not meet quarry needs	M	Define the project water requirements Complete time-step water balance Identify suitable location and design for dams Technical Studies
Surface Water	23	Discharge of water from site	M	Assess likelihood of discharge from site Ensure assessments include assessment of quality and quantity of discharge Recommend licencing for any discharge Technical Studies
Visual Amenity	24	Quarry is visible from adjoining residences	M	Construct quarry out of view by leaving the front ridge in-tact. Infrastructure to be built in colours suitable to the surrounding environment (brown/green) Technical Studies
Groundwater and Aquifer Interference	25	Impact on groundwater during operation extraction	H	Make exploration bores Piezometers where possible Gain access to GW bore on Bucketts way. Use information to scope whether a hydrological assessment is required. Investigate installation of a GW bore on the property Technical studies
Soil and Agriculture	26	Un-mapped BSAL on the site	M	Preliminary investigation to verify BSAL If BSAL is found, avoid areas
Soil and Agriculture	27	Loss of agricultural grazing land and potential impact on nearby poultry farms.	L	Complete AIS Technical Studies
Rehabilitation	28	Inability to achieve suitable rehabilitation outcome for stakeholders (community and government)	L	Complete a rehabilitation and closure plan for the site incorporating current rehabilitation policy and expectations.
Infrastructure	29	Insufficient power supply to service current project	H	Consult service provider to discuss upgrades as required

Appendix B – Atlas of NSW Wildlife Search Results



You are here: [Home](#) > Atlas search results

Search results

Which species or group?

All
entities

Animals

Plants

Fungi

Communities

Threats

Endangered
populations

Search for a species or group of species (e.g.
birds)

No records found

Search criteria: Public Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Endangered Populations in selected area [North: -32.44 West: 151.89 East: 151.99 South: -32.54] returned 0 records for 0 species.
Report generated on 28/07/2017 11:37 AM.





You are here: [Home](#) > Atlas search results

Search results

Which species or group?

All entities

Animals

Plants

Fungi

Communities

Threats

Endangered populations

Search for a species or group of species (e.g. birds)

[Download records](#)

[Save species list](#)

[View map](#)

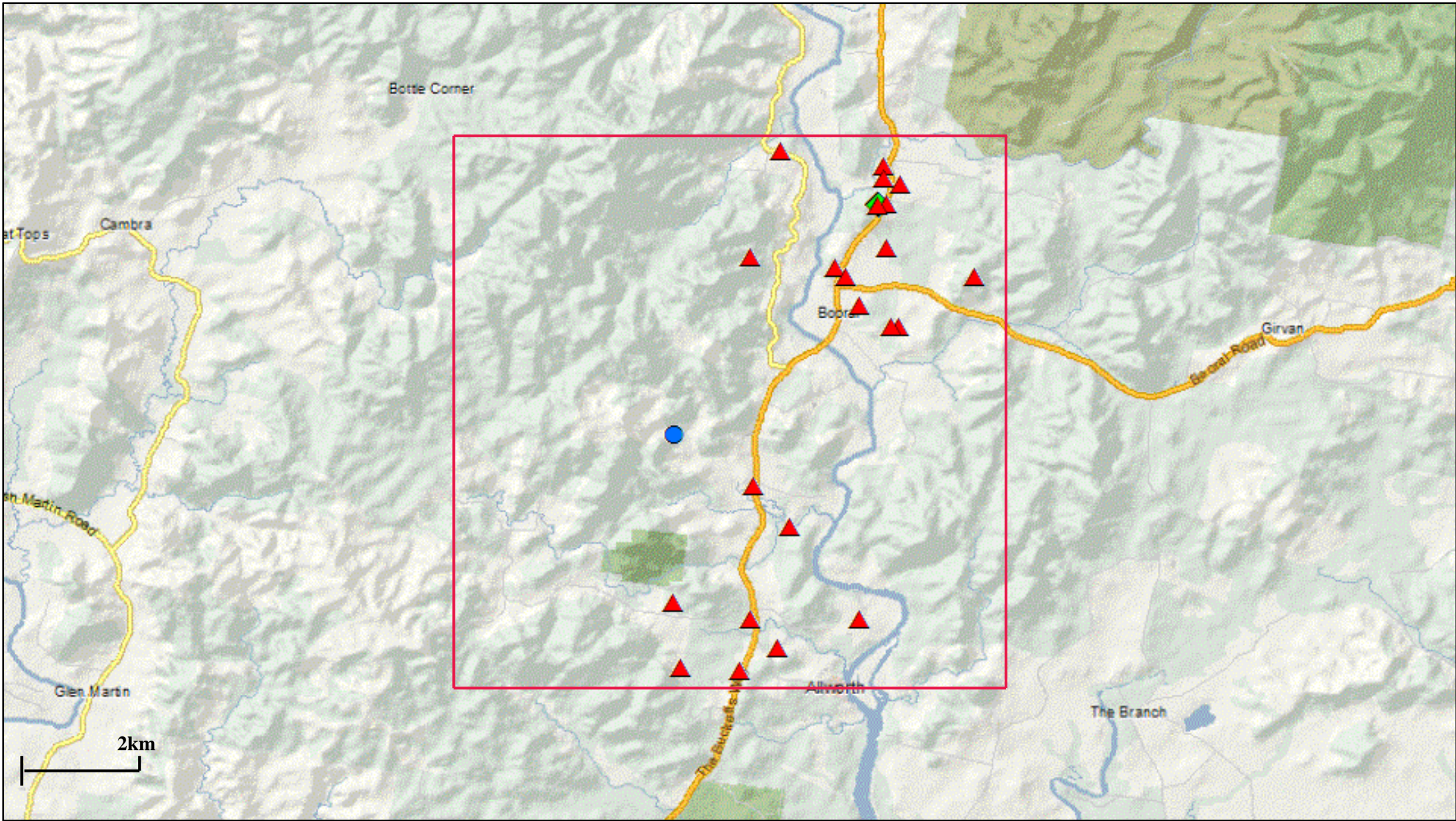
Search criteria: Public Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Animals in selected area [North: -32.44 West: 151.89 East: 151.99 South: -32.54] returned a total of 30 records of 8 species.
Report generated on 28/07/2017 11:29 AM.

Displaying 1-8 of 8 species below




To **map records for individual species**, select up to 5 species then click "view map".

To **map all records**, click on "view map" (without selecting any species first).

	Common name	Scientific name	Map [Clear all]	NSW status	Comm. status	No. of records	
Animalia							
Aves							
Cacatuidae	Glossy Black-Cockatoo	<i>^Calyptorhynchus lathami</i>	<input type="checkbox"/>	V,P,2		1	
Tytonidae	Masked Owl	<i>^^Tyto novaehollandiae</i>	<input type="checkbox"/>	V,P,3		1	
Neosittidae	Varied Sittella	<i>Daphoenositta chrysoptera</i>	<input type="checkbox"/>	V,P		1	
Campephagidae	Barred Cuckoo-shrike	<i>Coracina lineata</i>	<input type="checkbox"/>	V,P		1	
Mammalia							
Dasyuridae	Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	<input type="checkbox"/>	V,P	E	2	
Phascolarctidae	Koala	<i>Phascolarctos cinereus</i>	<input type="checkbox"/>	V,P	V	22	
Petauridae	Yellow-bellied Glider	<i>Petaurus australis</i>	<input type="checkbox"/>	V,P		1	
Vespertilionidae	Little Bentwing-bat	<i>Miniopterus australis</i>	<input type="checkbox"/>	V,P		1	



Legend

-  Koala (*Phascolarctos cinereus*)
-  Yellow-bellied Glider (*Petaurus australis*)
-  Little Bentwing-bat (*Miniopterus australis*)

Atlas of NSW Wildlife records
630.12117 Animals 2



Data from the BioNet Atlas of NSW Wildlife website, which holds records from a number of custodians. Location accuracy varies. Maps from the website are interactive: map displays can be modified from the original extent and a maximum of 5 species can be selected to display. Map may contain errors and omissions. Neither the Office of Environment and Heritage nor any other data custodian will accept liability for any loss, damage, cost or expenses incurred as a result of the use of, or reliance upon, the information in the map. Map copyright the State of NSW through the Office of Environment and Heritage.

Your Selection: Public Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Animals in selected area
[North: -32.44 West: 151.89 East: 151.99 South: -32.54] returned a total of 30 records of 8 species.

Report generated on 28/07/2017 11:29 AM



You are here: [Home](#) > Atlas search results

Search results

Which species or group?

All
entities

Animals

Plants

Fungi

Communities

Threats

Endangered
populations

Search for a species or group of species (e.g.
birds)

[Download records](#)

[Save species list](#)

[View map](#)

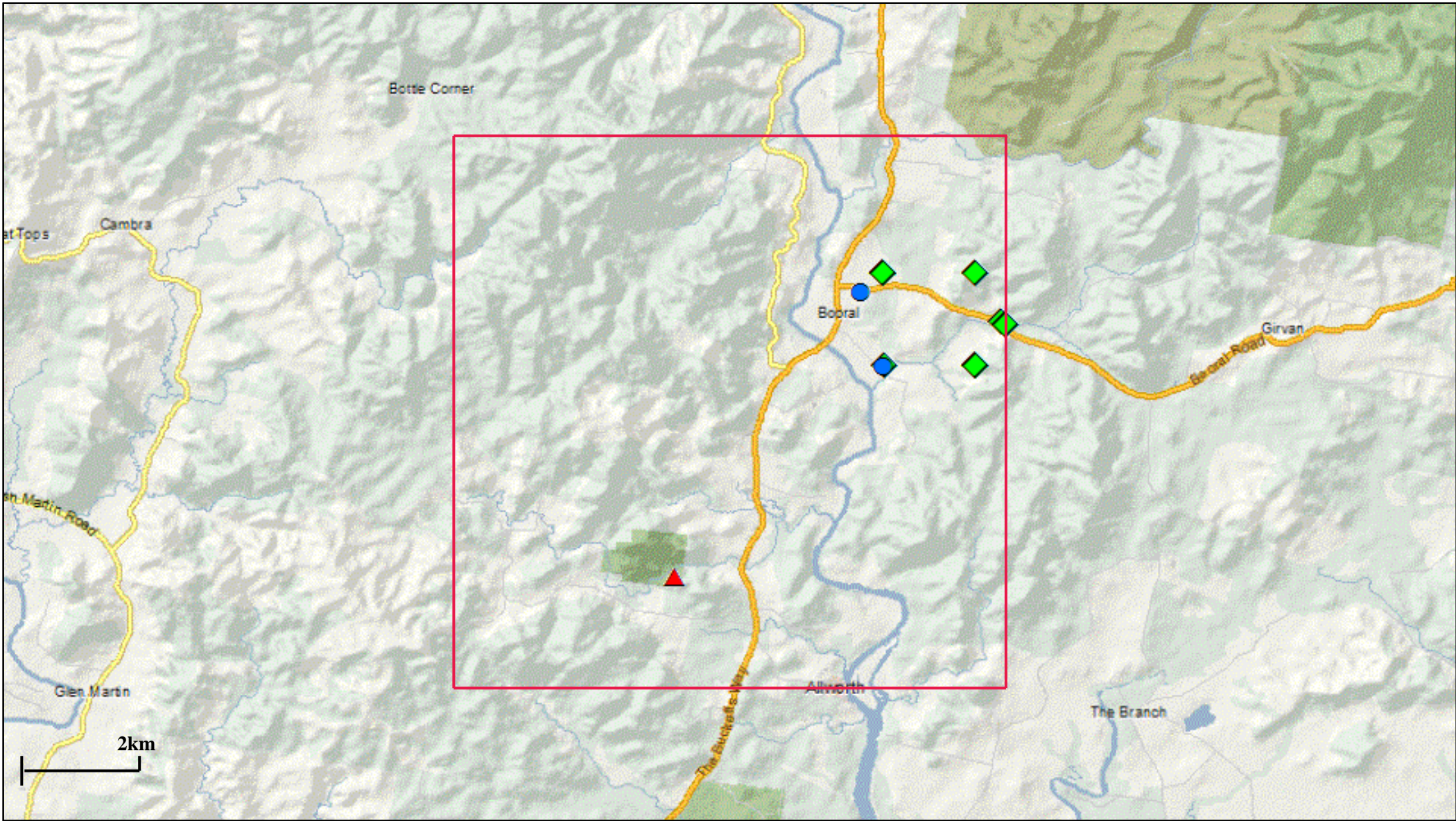
Search criteria: Public Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Plants in selected area [North: -32.44 West: 151.89 East: 151.99 South: -32.54] returned a total of 19 records of 3 species.
Report generated on 28/07/2017 11:35 AM.

Displaying 1-3 of 3 species below




To **map records for individual species**, select up to 5 species then click "view map".

To **map all records**, click on "view map" (without selecting any species first).

	Common name	Scientific name	Map [Clear all]	NSW status	Comm. status	No. of records	
Plantae							
Flora							
Myrtaceae	Netted Bottle Brush	<i>Callistemon linearifolius</i>	<input checked="" type="checkbox"/>	V,P,3		1	
	Slaty Red Gum	<i>Eucalyptus glaucina</i>	<input checked="" type="checkbox"/>	V,P	V	2	
Proteaceae	Guthrie's Grevillea	<i>Grevillea guthrieana</i>	<input checked="" type="checkbox"/>	E1,P	E	16	



Legend

-  Slaty Red Gum (*Eucalyptus glaucina*)
-  Guthrie's Grevillea (*Grevillea guthrieana*)
-  ^Netted Bottle Brush (*Callistemon linearifolius*)

^^ Category 3 sensitive spp. 0.01°(~1km) rounded

**Atlas of NSW Wildlife records
630.12117 Plants**



Data from the BioNet Atlas of NSW Wildlife website, which holds records from a number of custodians. Location accuracy varies. Maps from the website are interactive: map displays can be modified from the original extent and a maximum of 5 species can be selected to display. Map may contain errors and omissions. Neither the Office of Environment and Heritage nor any other data custodian will accept liability for any loss, damage, cost or expenses incurred as a result of the use of, or reliance upon, the information in the map. Map copyright the State of NSW through the Office of Environment and Heritage.

Your Selection: Public Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Plants in selected area [North: -32.44 West: 151.89 East: 151.99 South: -32.54] returned a total of 19 records of 3 species.

Report generated on 28/07/2017 11:35 AM

Appendix C – Protected Matters Search Tool Results



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 28/07/17 11:46:14

[Summary](#)

[Details](#)

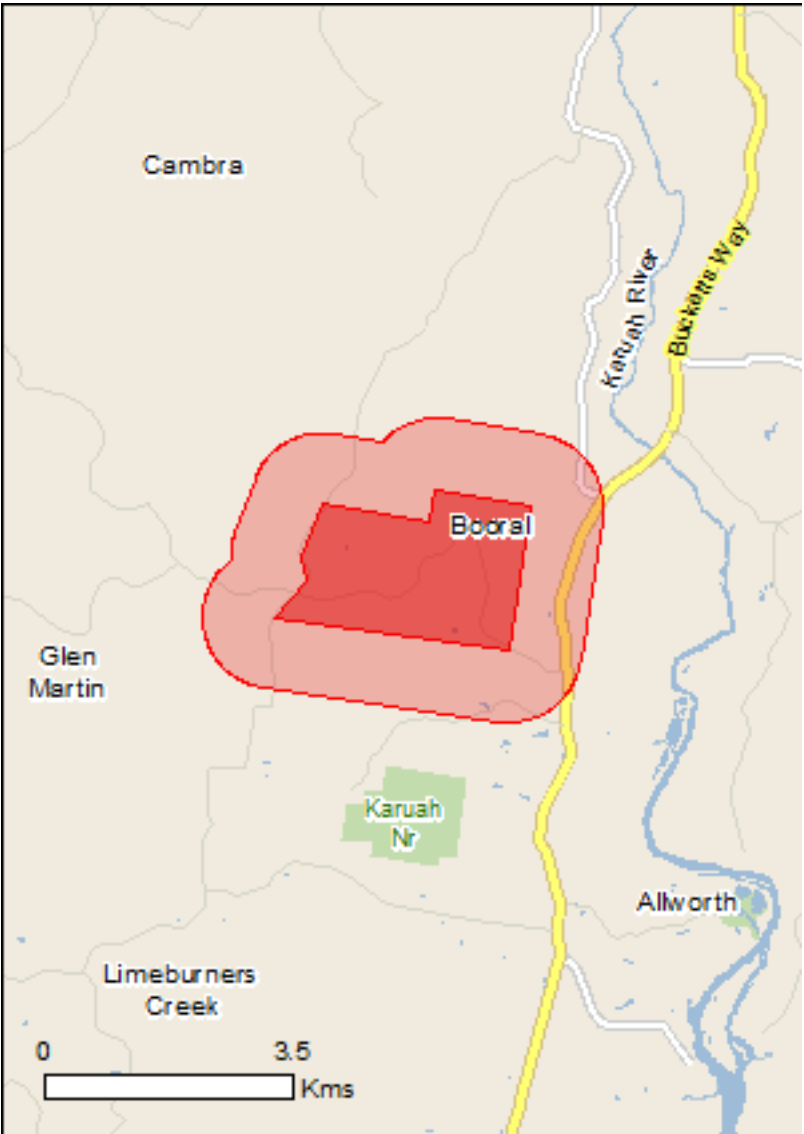
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

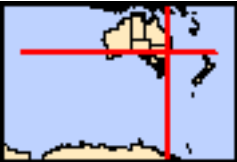
[Acknowledgements](#)



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[Buffer: 1.0Km](#)



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	27
Listed Migratory Species:	15

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	21
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	1
Invasive Species:	38
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)		[Resource Information]
Name		Proximity
Myall lakes		Within 10km of Ramsar

Listed Threatened Ecological Communities		[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.		

Name	Status	Type of Presence
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community likely to occur within area

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Frogs		
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat may occur within

Name	Status	Type of Presence area
Mixophyes balbus Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat may occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE mainland) [66645]	Vulnerable	Species or species habitat likely to occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Plants		
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area
Grevillea guthrieana [64521]	Endangered	Species or species habitat likely to occur within area
Melaleuca biconvexa Biconvex Paperbark [5583]	Vulnerable	Species or species habitat may occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area
Syzygium paniculatum Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat likely to occur within area
Tetratheca juncea Black-eyed Susan [21407]	Vulnerable	Species or species habitat likely to occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species

[Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus		
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat known to occur within area
Monarcha melanopsis		
Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus		
Spectacled Monarch [610]		Species or species habitat likely to occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons		
Rufous Fantail [592]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus		
Osprey [952]		Species or species habitat known to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Cuculus saturatus Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within

Name	Threatened	Type of Presence
Myiagra cyanoleuca Satin Flycatcher [612]		area Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area

Extra Information

Regional Forest Agreements	[Resource Information]
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Note that all areas with completed RFAs have been included.

Name	State
North East NSW RFA	New South Wales

Invasive Species	[Resource Information]
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Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Pycnonotus jocosus Red-whiskered Bulbul [631]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides Alligator Weed [11620]		Species or species

Name	Status	Type of Presence
Asparagus asparagoides		habitat likely to occur within area
Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Cabomba caroliniana		
Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera		
Bitou Bush, Boneseed [18983]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. monilifera		
Boneseed [16905]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. rotundata		
Bitou Bush [16332]		Species or species habitat likely to occur within area
Eichhornia crassipes		
Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana		
Broom [67538]		Species or species habitat may occur within area
Lantana camara		
Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Pinus radiata		
Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate		
Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla		
Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii		
Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta		
Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis		
Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-32.483126 151.940686,-32.498531 151.937939,-32.494941 151.90807,-32.490945 151.912396,-32.488512 151.911641,-32.482894 151.914113,-32.484805 151.927914,-32.48133 151.928532,-32.48301 151.940617,-32.48301 151.940617,-32.483126 151.940686

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

Appendix D – AHIMS Search Results

Eryn Bath

Date: 28 July 2017

SLR Consulting 2 Lincoln Street
Lane Cove New South Wales 2066

Attention: Eryn Bath

Email: ebath@slrconsulting.com

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Lot : 1, DP:DP159902 with a Buffer of 50 meters,
conducted by Eryn Bath on 28 July 2017.**

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the [NSW Government Gazette \(http://www.nsw.gov.au/gazette\)](http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not to be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

Eryn Bath

Date: 28 July 2017

SLR Consulting 2 Lincoln Street
Lane Cove New South Wales 2066

Attention: Eryn Bath

Email: ebath@slrconsulting.com

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Lot : 2, DP:DP1166923 with a Buffer of 50 meters,
conducted by Eryn Bath on 28 July 2017.**

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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Eryn Bath

Date: 28 July 2017

SLR Consulting 2 Lincoln Street
Lane Cove New South Wales 2066

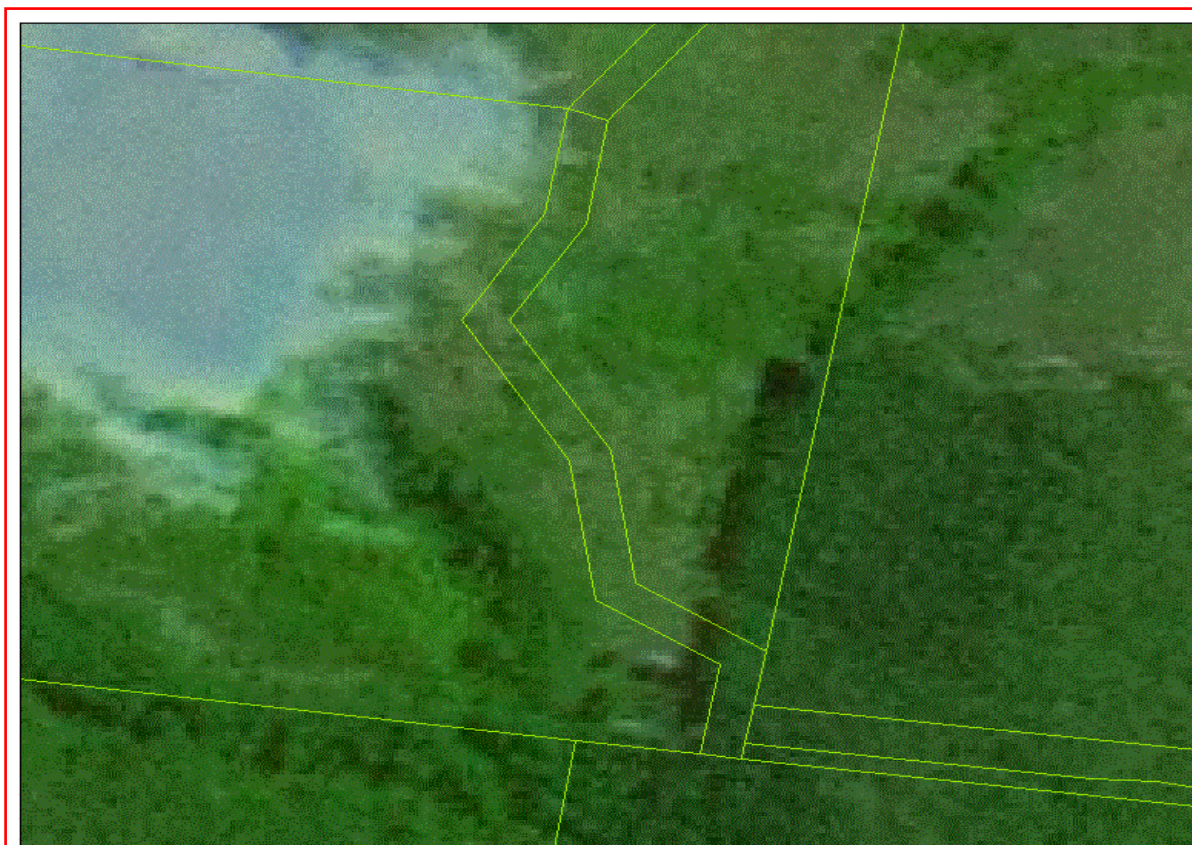
Attention: Eryn Bath

Email: ebath@slrconsulting.com

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 3, DP:DP1166923 with a Buffer of 50 meters, conducted by Eryn Bath on 28 July 2017.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



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- This search can form part of your due diligence and remains valid for 12 months.

Eryn Bath

Date: 28 July 2017

SLR Consulting 2 Lincoln Street
Lane Cove New South Wales 2066

Attention: Eryn Bath

Email: ebath@slrconsulting.com

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Lot : 4, DP:DP1166923 with a Buffer of 50 meters,
conducted by Eryn Bath on 28 July 2017.**

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



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Eryn Bath

Date: 28 July 2017

SLR Consulting 2 Lincoln Street
Lane Cove New South Wales 2066

Attention: Eryn Bath

Email: ebath@slrconsulting.com

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Lot : 60, DP:DP1094397 with a Buffer of 50 meters,
conducted by Eryn Bath on 28 July 2017.**

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



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- This search can form part of your due diligence and remains valid for 12 months.

Eryn Bath

Date: 28 July 2017

SLR Consulting 2 Lincoln Street
Lane Cove New South Wales 2066

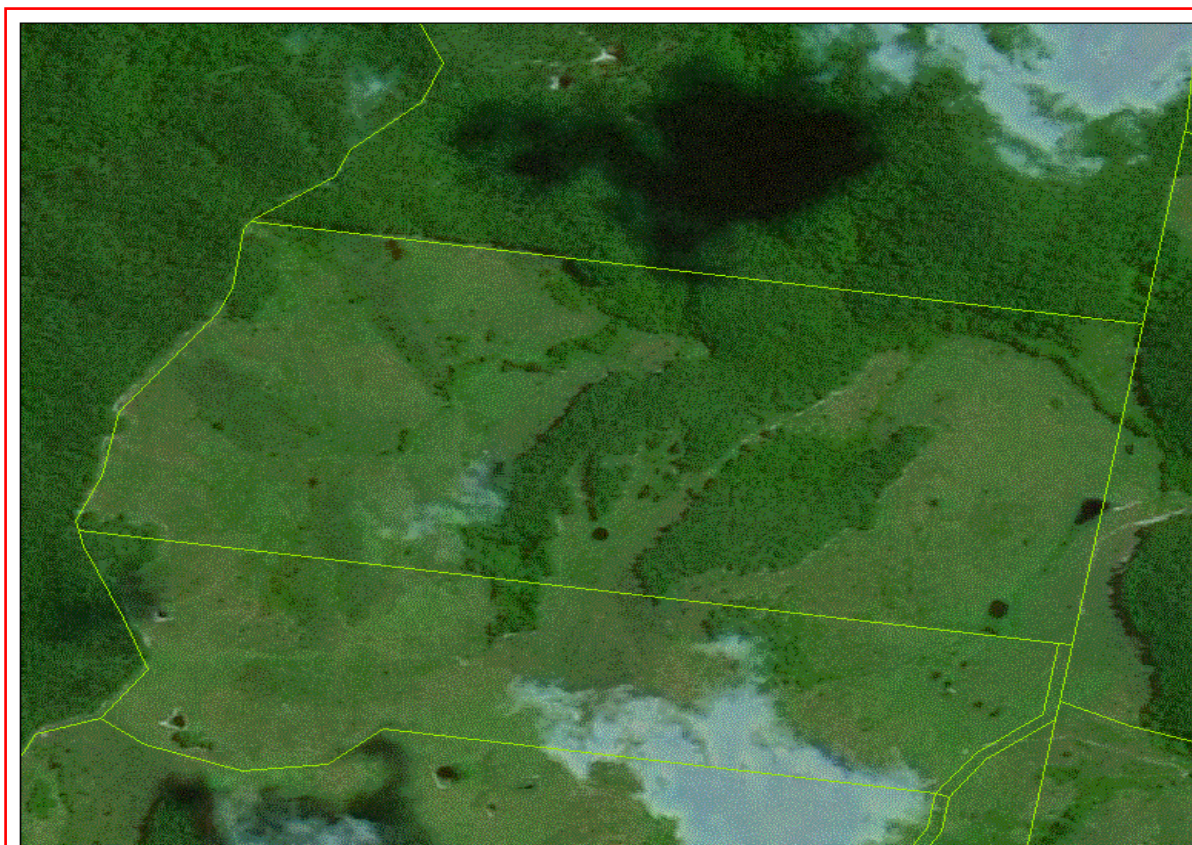
Attention: Eryn Bath

Email: ebath@slrconsulting.com

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Lot : 62, DP:DP95029 with a Buffer of 50 meters,
conducted by Eryn Bath on 28 July 2017.**

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



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- This search can form part of your due diligence and remains valid for 12 months.

Eryn Bath

Date: 28 July 2017

SLR Consulting 2 Lincoln Street
Lane Cove New South Wales 2066

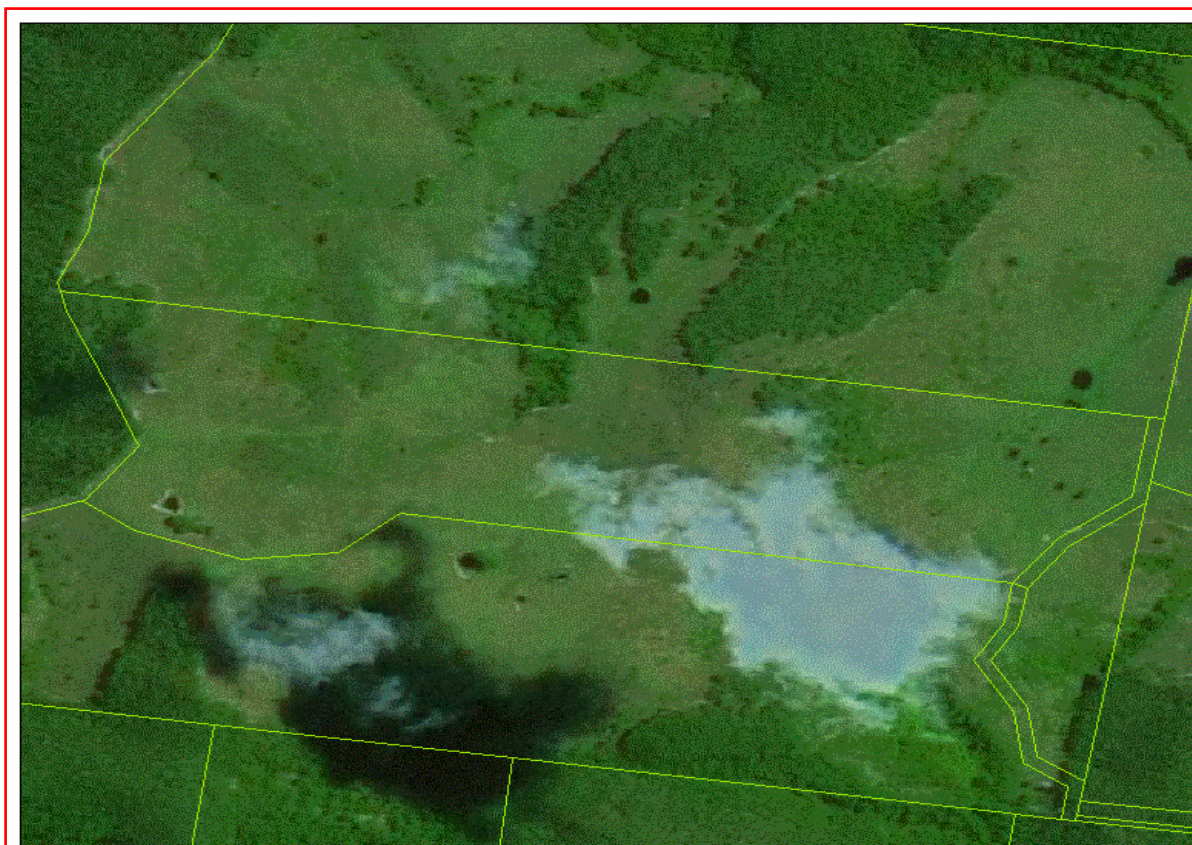
Attention: Eryn Bath

Email: ebath@slrconsulting.com

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Lot : 63, DP:DP95029 with a Buffer of 50 meters,
conducted by Eryn Bath on 28 July 2017.**

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



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- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

Eryn Bath

Date: 28 July 2017

SLR Consulting 2 Lincoln Street
Lane Cove New South Wales 2066

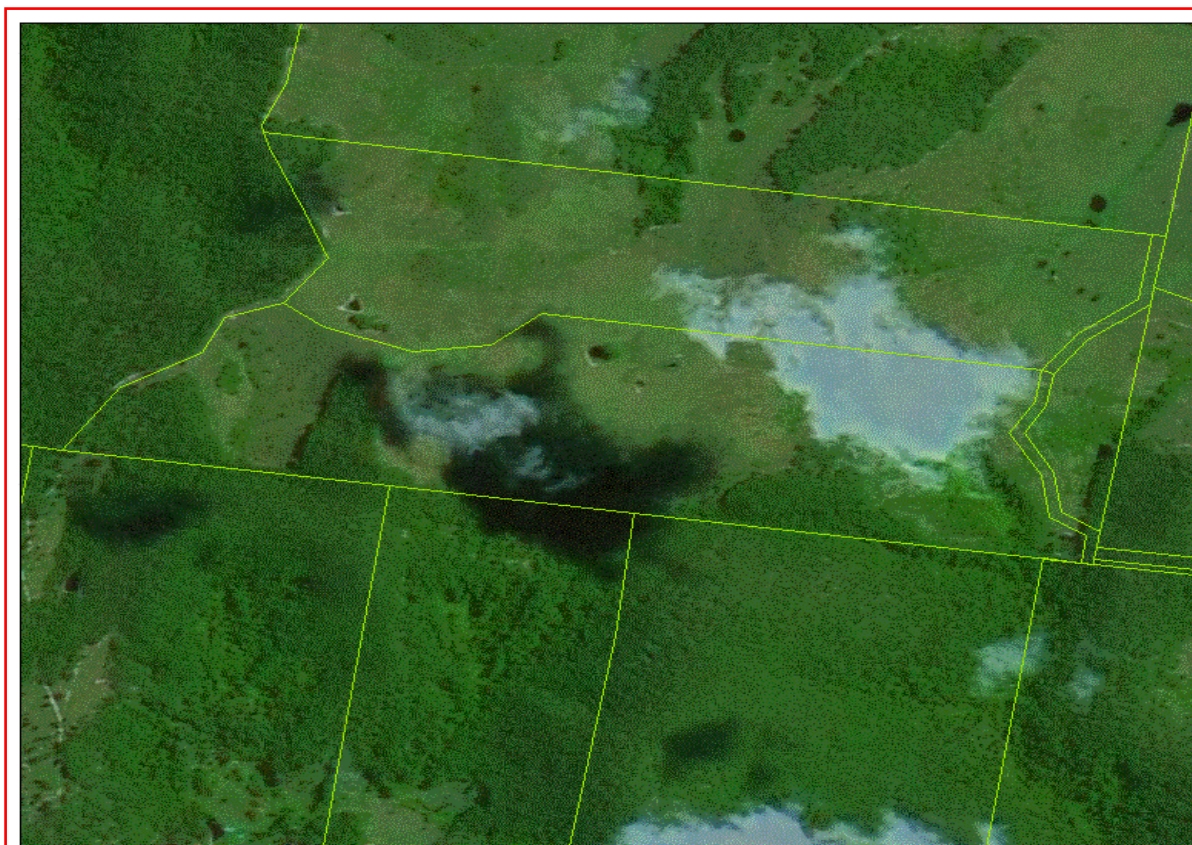
Attention: Eryn Bath

Email: ebath@slrconsulting.com

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Lot : 64, DP:DP95030 with a Buffer of 50 meters,
conducted by Eryn Bath on 28 July 2017.**

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the [NSW Government Gazette \(http://www.nsw.gov.au/gazette\)](http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date .Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.