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Cobar BioHub
Renewed Carbon Pty Ltd
21-Dec-2018

Cobar BioHub

Environmental Scoping Report

Cobar BioHub

Environmental Scoping Report

Client: Renewed Carbon Pty Ltd

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Prepared by

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Glossary and Abbreviations

Glossary

Term	Definition
Biomass	Waste material from plants and animals that is not used for food or feed and that can be used in various industrial processes, including as raw materials or in energy production
Council	Cobar Shire Council
Cobar LEP	*Cobar Local Environment Plan 2012*
Decomposition	Process by which organic substances are broken down into a more simple organic matter.
Proponent	The person or entity seeking approval for the project or acting on an approval. For this project the proponent is Renewed Carbon
Pyrolysis	Thermal decomposition of materials at elevated temperatures in an inert atmosphere.
Scoping	A process for identifying matters and potential impacts relevant to the project. Usually follows a risk management approach, with the outcomes used to establish terms of reference for the Environmental Impact Statement
the Project	A biomass processing facility, known as a 'BioHub' in the locality of Cobar, in central western New South Wales (NSW)
Thermal decomposition	A chemical decomposition caused by heat.
the Site	The Site includes Lot 604 of Deposited Plan (DP) 761557, Lots 1 and 2 of DP 755665 and Lot 684 of DP 761738
the Project Area	The overall area of disturbance of the project including construction and operational infrastructure, ancillary facilities such as transmission line connection, and a buffer.

Abbreviations

Acronym	Definition
ABS	Australian Bureau of Statistics
AHIMS	Aboriginal Heritage Information Management System
ASC	Australian soil classification
BAM	Biodiversity Assessment Method
BC Act	*Biodiversity Conservation Act 2016* (NSW)
BDAR	Biodiversity Development Assessment Report
CCP	Community Consultation Plan
CEMP	Construction Environmental Management Plan
DoEE	Commonwealth Department of the Environment and Energy
DPC	Department of the Premier and Cabinet (NSW)
DPI	Department of Primary Industries (NSW)
DPE	Department of Planning and Environment (NSW)
EIS	Environmental Impact Statement
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)

Acronym	Definition
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1993* (Commonwealth)
EPI	Environmental Planning Instrument
EPL	Environmental Protection Licence
ESR	Environmental Scoping Report
ha	hectares
ICNG	Interim Construction Noise Guideline
INS	invasive native species
ISEPP	*State Environmental Planning Policy (Infrastructure) 2007*
km	kilometres
kV	kilovolt
LEP	Local Environmental Plan
LGA	Local Government Area
LLS	Local Land Services
LSC	Land and soil capability
m	metres
MNES	Matters of National Environmental Significance
MW	megawatts
NSW	New South Wales
NSW EPA	NSW Environment Protection Authority
OEH	NSW Office of Environment and Heritage
PMST	Protected Matters Search Tool
POEO	*Protection of the Environment Operations Act 1997* (NSW)
PVP	Property Vegetation Plans
RDA	Regional Development Australia
Roads Act	*Roads Act 1993* (NSW)
Rural Lands SEPP	*State Environmental Planning Policy (Rural Lands) 2008*
SEARs	Secretary's Environmental Assessment Requirements
SEED	Sharing and Enabling Environmental Data
SEPP	State Environmental Planning Policies
SRD SEPP	*State Environmental Planning Policy (State and Regional Development) 2011*
SSD	State significant development
tpa	tonnes per annum
WM Act	*Water Management Act 2000* (NSW)

Executive Summary

Renewed Carbon is proposing to construct the 'Cobar BioHub' (the BioHub) near Cobar in central western New South Wales (NSW) (the Project). The BioHub would be a regional biomass[1] processing facility for vegetation. The facility would receive invasive native species (INS) vegetation harvested from surrounding agricultural land and process this into goods for sale and export. This would include high quality timber products, essential oils, biochar and reductant. A by-product would be the generation of around 3-5 MW of surplus energy. The BioHub would be the first of its kind in NSW and would potentially become one in a network of multiple BioHub facilities across regional NSW.

The proponent, Renewed Carbon, is a privately owned specialist developer of projects that aim to convert sustainably sourced biomass into quality assured products and by-products. Renewed Carbon has grown out of a related business, Eco Waste, which has been researching and advancing the issues, opportunities and interests related to the sustainable conversion of biomass into essential carbon based materials since 2002.

The Project would be located on land currently zoned as Primary Production (RU1) under the *Cobar Local Environment Plan 2012* (Cobar LEP).

As the capital value of the Project exceeds $30 million, Renewed Carbon is seeking consent for the Project as State Significant Development (SSD) under Part 4 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act). As an SSD project, the development application for the Project requires an environmental impact assessment to be undertaken in the form of an Environmental Impact Statement (EIS).

This Environmental Scoping Report (ESR) includes information on the '*location, nature and scale of the development or activity'* as required under Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (NSW) (EP&A Regulation). The purpose of this document is to provide adequate information to the NSW Department of Planning and Environment (DPE) to inform the preparation of the Secretary's Environmental Assessment Requirements (SEARs), which would guide the preparation of the EIS. It also provides a preliminary assessment of the potential impacts that the Project may have on the environment and local community. A prioritisation of potential issues and impact has been undertaken to highlight areas for further consideration in the EIS.

The outcome of the scoping assessment identified the following aspects which would be considered as 'key issues' in the EIS:

- hazards and risk – bushfire;
- Aboriginal heritage; and
- land (soils, erosion, contamination, land use).

Other environmental aspects that would still be considered as 'other issues' in the EIS include:

- biodiversity;
- noise and vibration;
- traffic and transport;
- landscape character and visual amenity;
- air quality;
- water;
- non-Aboriginal heritage;
- socio-economic; and

[1] Biomass can be defined as waste material from plants and animals that is not used for food or feed and that can be used in various industrial processes, including as raw materials or in energy production

- waste management.

Potential cumulative impacts would also be assessed further in the EIS. Mitigation and management measures would also be provided as a means of avoiding or reducing potential impacts during construction, operation and decommissioning of the Project.

A number of key stakeholders (including government agencies and the local council), and the local community would be consulted as part of the preparation of the EIS. A number of engagement activities have already been undertaken and are outlined in this ESR.

Upon receipt of the SEARs, Renewed Carbon will prepare an EIS according to these requirements. The EIS will thereafter be lodged for assessment by DPE as part of the SSD application process.

1.0 Introduction

1.1 Overview

Renewed Carbon is proposing to construct the 'Cobar BioHub' (the BioHub) near Cobar in central western New South Wales (NSW) (the Project). The BioHub would be a regional vegetation processing facility for vegetation. The facility would receive vegetation classified as invasive native species (INS) harvested from surrounding agricultural land and would process this into goods for sale and export. This would include high quality timber products, essential oils, biochar and reductant. A by-product of the process would be the generation of around 3-5 megawatts (MW) of electricity, which would be fed back into the grid through a new transmission line connection. The BioHub would be the first of its kind in NSW and may potentially become one of a network of similar facilities across regional NSW. The BioHub project has been undergoing research and development since 2002.

The Project would be located on land currently zoned as Primary Production (RU1) under the *Cobar Local Environment Plan 2012* (Cobar LEP).

The three component processes of the Project include:

- raw timber processing;
- essential oils extraction; and
- biomass pyrolysis (i.e. thermal decomposition)

To accommodate these processes, the following key project elements are required:

- a hardstand area for the receipt and temporary storage of input vegetation;
- an essential oils extraction plant for selected INS species;
- pyrolysis units (this includes kilns, furnaces, condensers and dust collector);
- site administration facilities, laboratory and amenities;
- approximately 14 hardstand light vehicle parking spaces;
- boundary fencing;
- on-site access tracks and upgrades to the existing track;
- upgrade works to the Barrier Highway near the intersection with the Site, and
- ancillary infrastructure including the construction of a new transmission line connection to feed surplus energy generated by the Project into the local grid.

A description of the indicative location of these project elements is provided in **Section 2.0**.

Under *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP), waste and resource management facilities with a capital cost of more than $30 million are considered State Significant Development (SSD) under Part 4 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act).

Given that the Project's capital investment value (CIV) would exceed $30 million, the Project is classified as SSD under the SRD SEPP. On this basis the Project would be subject to determination by the NSW Minister for Planning or their delegate.

Applications for SSD must be accompanied by an Environmental Impact Statement (EIS) prepared in accordance with Secretary's Environmental Assessment Requirements (SEARs) issued by the NSW Department of Planning and Environment (DPE). This Environmental Scoping Report (ESR) forms part of Renewed Carbon's request for SEARs for the Project.

1.2 Proponent

The proponent, Renewed Carbon, is a privately owned specialist developer of projects that aim to convert sustainably sourced biomass into quality assured products and by-products. Renewed Carbon is active on several standing committees and industry association working groups to develop sustainability protocols and product performance criteria.

Renewed Carbon is a proprietary company operating since 2002 in NSW and Victoria with Mr Mark Glover as the Director. In addition to Renewed Carbon, Mr Glover is a director of Eco Waste Pty Ltd - a role he has held for over 20 years. This organisation is an environmental, sustainability and resource use consultancy specialising in advice to governments, large corporations and industrial sectors. Eco Waste have been researching and advancing the issues, opportunities and interests related to the sustainable conversion of biomass into essential carbon based materials since 2002.

In addition to this, between 1994 and 2004 Mr Glover founded and was the CEO of Southern Oil Refineries Pty Ltd in Wagga Wagga. Southern Oil Refineries worked closely with Environment Australia (Commonwealth Department of the Environment) to develop, commence and achieve the aims of the *Product Stewardship (Oil) Act 2000*, which was designed to provide incentives to increase used oil recycling.

With regard to Renewed Carbon Pty Ltd, other projects currently going through the feasibility stage include:

- Casino/Northern Rivers BioHub, and;
- Gippsland BioHub.

Should these projects prove viable they would be subject to their own specific planning application at a later date and within the relevant jurisdiction.

1.3 Purpose of this report

This ESR has been prepared in accordance with DPE's draft guidelines: *Scoping an Environmental Impact Statement* (DPE, 2017). The ESR provides preliminary information on the Project and identifies potential impacts to be considered further in the EIS. The ESR is intended to support a request to DPE for SEARs for the Project. The SEARs would identify the requirements for the EIS that would accompany the Project's development application.

2.0 The Site

2.1 Site location

The BioHub is proposed to the east of Cobar, NSW, within the Cobar Shire Council Local Government Area (LGA). The BioHub is proposed to be located approximately 5.8 km east of the town of Cobar, to the north of the Barrier Highway (refer to **Figure 2-1**) (the Site). The Site is approximately 110 hectares (ha) in size and is located across four registered lots (refer to **Figure 2-2**):

- Lot 604 of DP 761557;
- Lots 1 of 2 DP 755665; and
- Lot 684 of DP 761738.

Access to the Site is via the sealed State road Barrier Highway. The Site would be accessed via an existing unsealed track off the Barrier Highway.

The Site is zoned Primary Production (RU1) under the *Cobar Local Environment Plan 2012* (Cobar LEP). The Site is largely comprised of scattered mid-storey and canopy vegetation and is generally flat, sloping gently towards the Barrier Highway to the south. The Site was used as grazing land and is now freehold. The current landowner would then sell the land to Renewed Carbon in mid to late January, 2019. The north of the site is bounded by an existing freight rail network (the Nyngan-Cobar Railway) predominately serving mines in the Cobar area. Towards the middle of the Site, there is a man-made dam. There is also an unnamed waterway intersecting the dam from the southwest corner

of the Site. This waterway connects to Yanda Creek, which is located to the east of the Site. Approximately 220 m northwest of the dam is a 22 kilovolt (kV) substation which connects to two transmission lines, a 22 kV and 19.1 kV.

Underground electricity cables and a substation are located at the Site. **Figure 2-3** illustrates the current site characteristics.

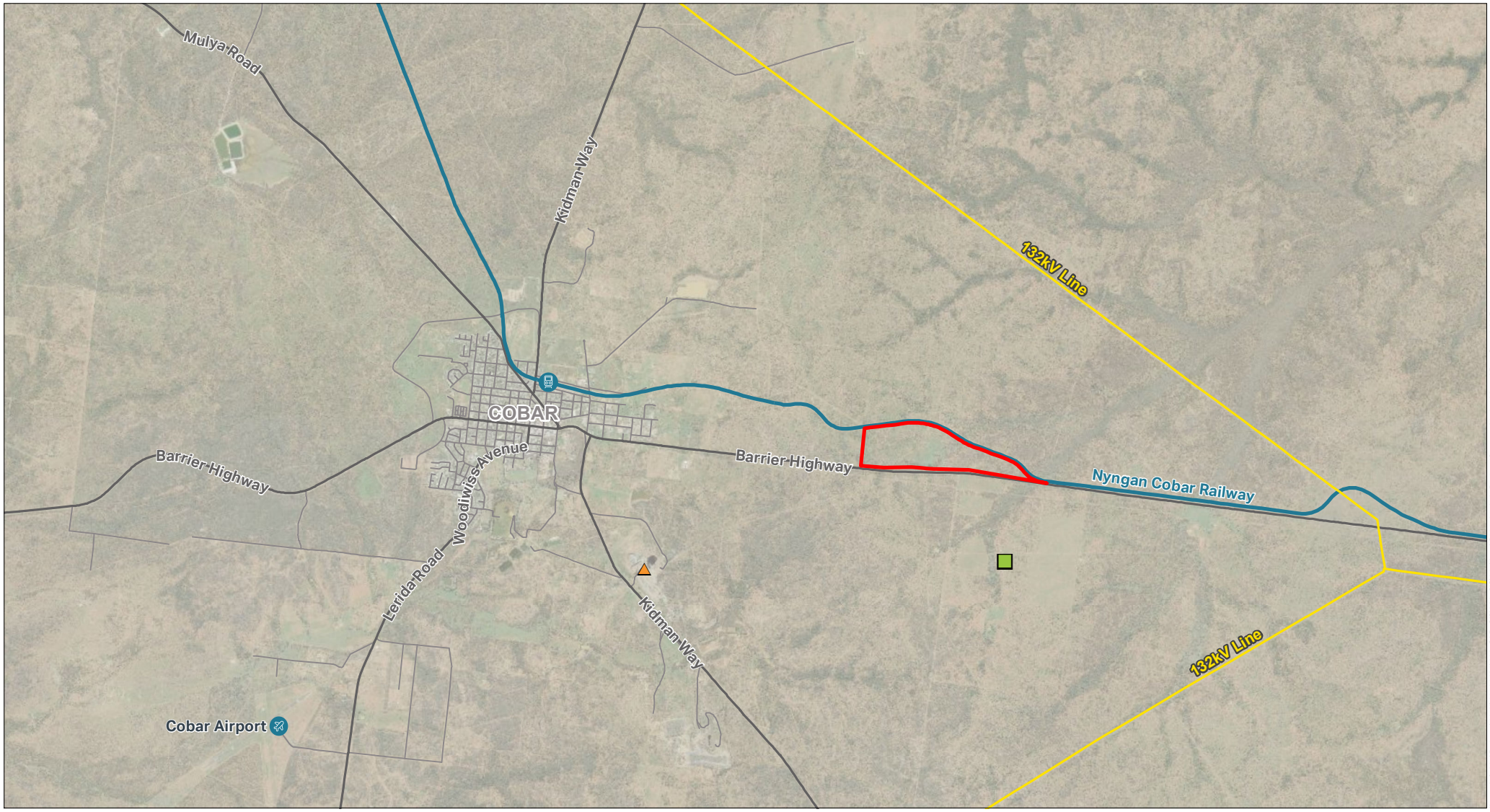
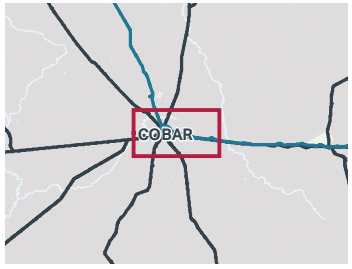


FIGURE 2-1: SITE LOCATION - REGIONAL CONTEXT

Legend

- Site boundary
- Primary road
- Local road
- Railway
- Railway station
- Airport
- Peak Gold Mines
- Closest residential receptor



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Source: Imagery © Department of Finance, Services & Innovation 2018

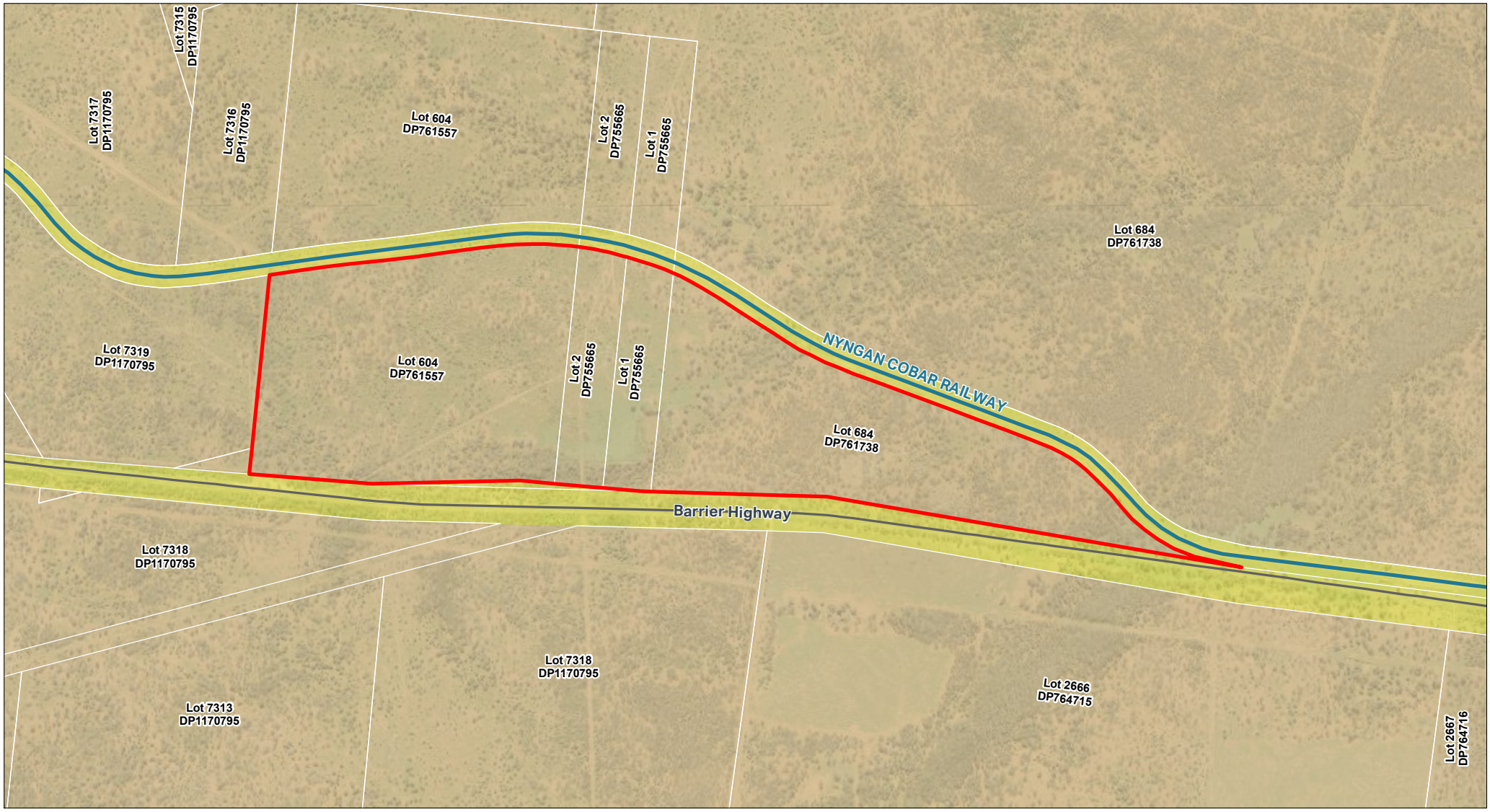


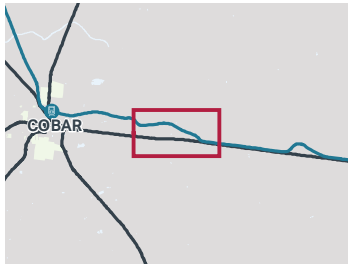
FIGURE 2-2: SITE LOCATION - LOCAL CONTEXT

Legend

- Site boundary
- Railway
- Primary road

Land Zoning

- RU1 Primary Production
- SP2 Infrastructure



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Source: Imagery © Department of Finance, Services & Innovation 2018

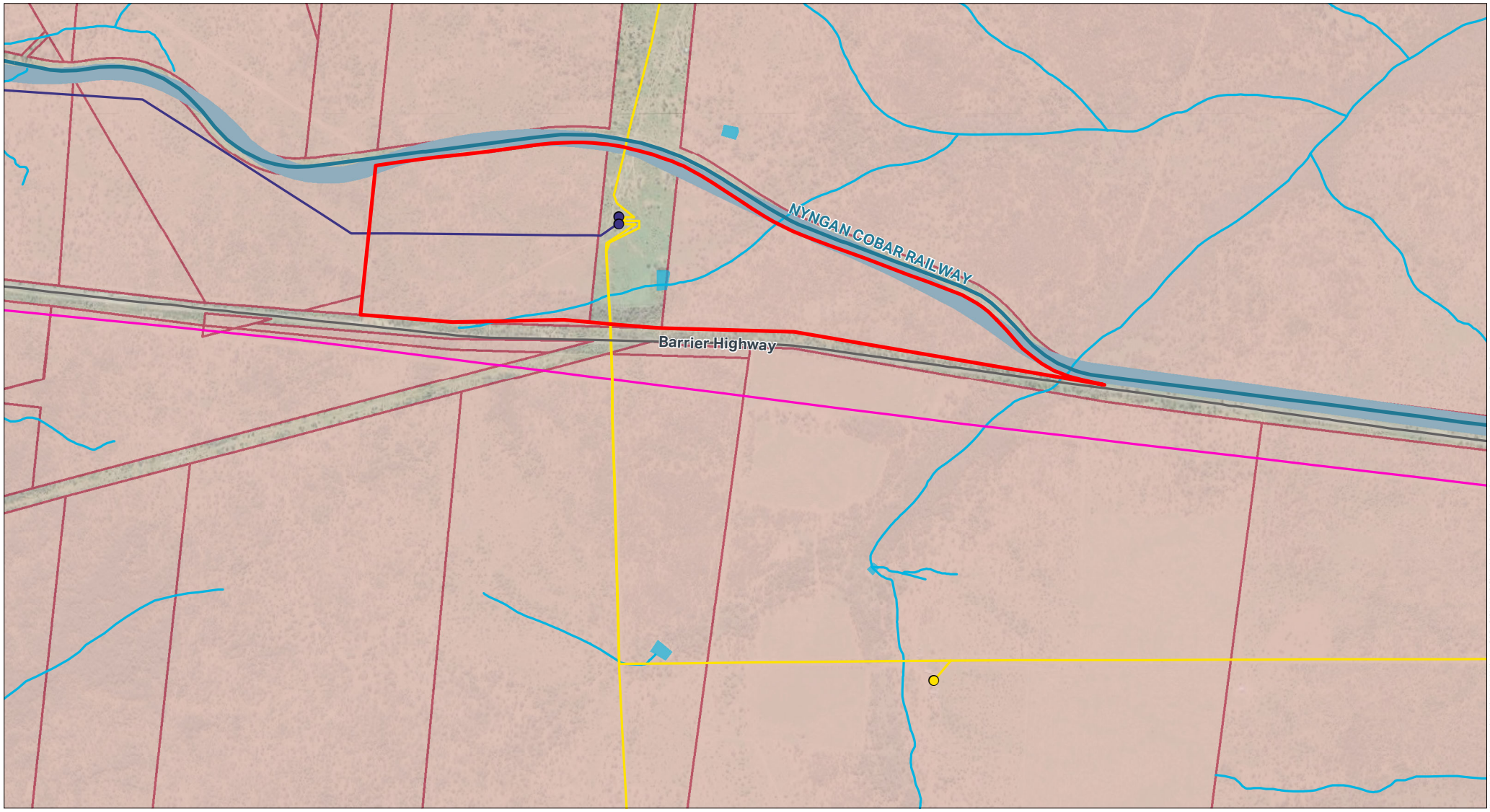
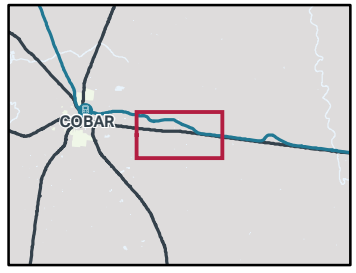


FIGURE 2-3: SITE CHARACTERISTICS

Legend

- Site boundary
- Railway
- Primary road
- Railway corridor
- Crown land
- Waterbody
- Watercourse
- 19.1kV substation
- 22kV substation
- 19.1kV line
- 22kV line
- 66kV line



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2.2 Locality

Cobar is within the Cobar Peneplain Bioregion and is described as a low undulating plain subdued bed-rock controlled landscape in the centre of a semi-arid NSW. Adjoining bioregions including the Riverina, Darling Riverine Plains and Murray Darling Depression have relatively flatter landscapes.

The topography around Cobar has residual hills, low rounded ridges, and stony slopes that formed on softer, more weathered shales, phyllites and cherts, with only occasional features standing as much as 100 metres above the plain (Office of Environment and Heritage, 2016).

Cobar is located at the intersection of three major highways:

- the Kidman Way, linking Melbourne to Brisbane;
- the Barrier Highway, linking Sydney to Adelaide via Broken Hill; and
- the Wool Track, linking the Sunraysia area to South East Queensland.

The traditional inhabitants of the region are the Ngiyampaa people.

The Cobar Shire LGA occupies approximately 45,600 square kilometres of land in central NSW. Cobar is the main population centre and is located approximately 5.8 km west of the Site. The LGA accommodates approximately 5,000 residents, with 3,990 of these residents living in the town of Cobar (Cobar Shire Council, 2017) (ABS, 2016).

Mining is the main economic driver including gold, copper, lead, silver and zinc as well as pastoral industries.

2.3 Project area

The Project Area refers to the Project's footprint of potential disturbance. This may be temporary (for construction) or permanent (for operational infrastructure) and includes any associated ancillary infrastructure such as transmission line connections and access roads. The Project Area is located within the western part of the Site, as shown in **Figure 2-4**.

As the design of the BioHub is at the concept stage, the Project Area includes sufficient allowance for flexibility in the final placement of the facility within the Site. The location of the final facility within the Project Area is not yet confirmed, however it would not be located within the transmission line corridor.

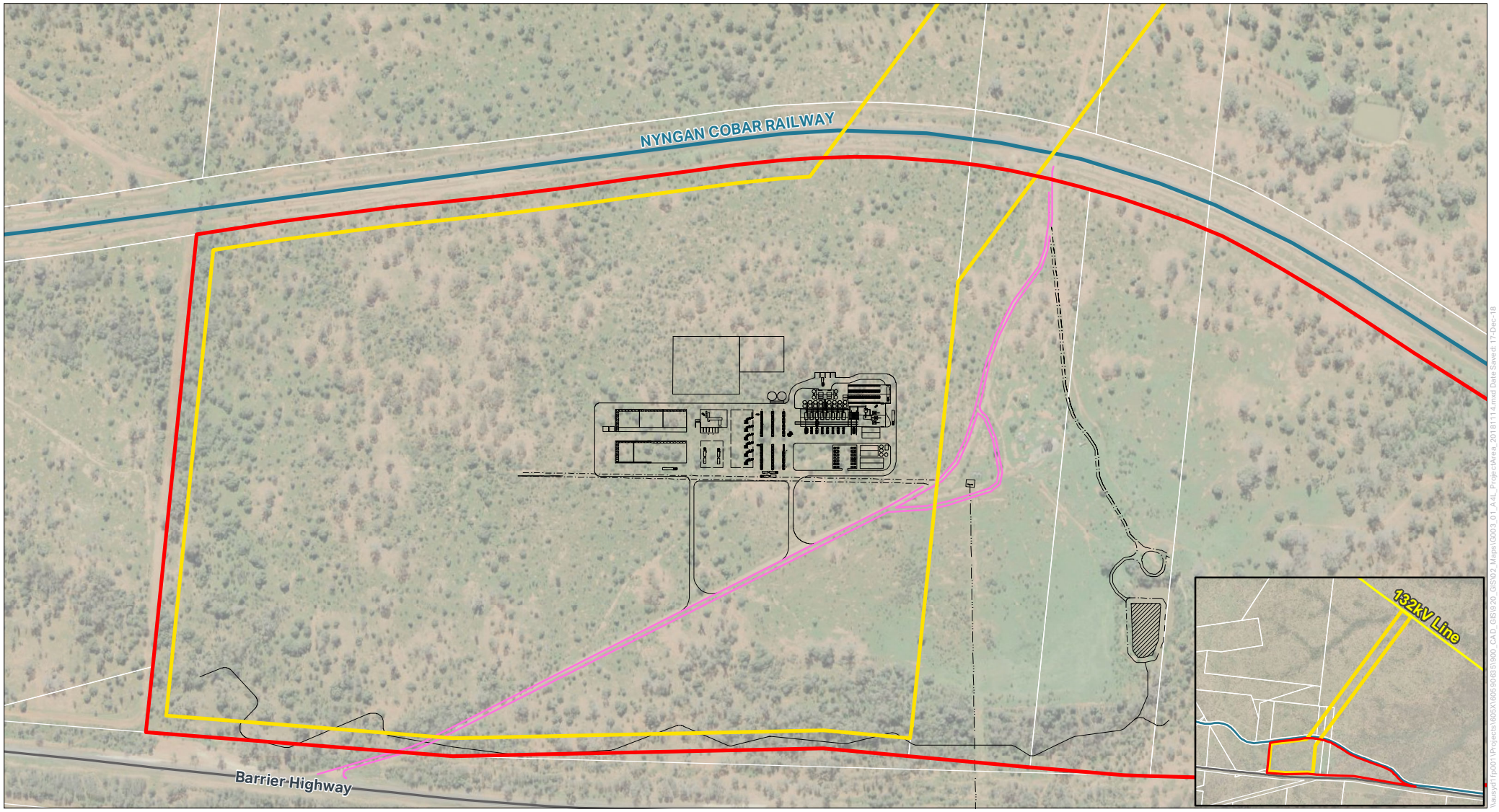

FIGURE 2-4: PROJECT AREA

Legend

- Site boundary
- Project area
- Railway
- Primary road
- Access track

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0 100 200 m

3.0 Project need, objectives and alternatives

3.1 Project need and objectives

The Project is primarily proposed to address the viability of existing ecosystems and associated agricultural production in the central and western rangelands of NSW. Substantial areas of these rangelands are overwhelmed with Invasive Native Species (INS), severely altering the pre-European state of these ecosystems and limiting the potential for sustainable agricultural activity. INS is extensive in western and central NSW, generally arising from a combination of factors associated with poor historic land management practices, including inappropriate grazing management, altered fire regimes and introduction of feral animals. However, proactive and sensitive land management practices have demonstrated the ability to restore the grassy woodlands and to support sustainable grazing practices.

The processing of the material at the BioHub would provide a sustainable and environmentally sensitive alternative to existing land management practices including near universal use of destructive methods involving bulldozers and mass burning.
The operation of the BioHub is intended to facilitate sustainable processing of INS harvested from surrounding properties. This harvesting would allow for improvements in agricultural productivity and land management practices generally by facilitating rehabilitation of these lands to a state nearer to that prior to European settlement. This would generally include open grasslands with scattered canopy cover.

The processing of INS material at the BioHub would provide a sustainable and superior alternative to existing INS removal and management practices within the region, which currently comprise highly destructive methods involving clearing by bulldozers and mass burning of cleared vegetation.

The BioHub would source INS vegetation directly from local landowners at a fair price. As such the operation of the BioHub would contribute directly to the economy of the Cobar area and would also indirectly facilitate substantially improved agricultural productivity in general.

The objectives of the BioHub development are therefore to:

- sustainably process INS material in central western NSW in a sustainable and economically beneficial manner
- provide a facility to enable the broader restoration of rangelands in central western NSW with view to improved agricultural productivity and ecological outcomes
- provide local and regional economic benefits.

3.1.1 Local context

The *Community Strategic Plan - Cobar Shire 2030* (Cobar Shire Council, 2017) outlines the main priorities and aspirations for the future of the LGA and describes strategies for achieving these aims. The plan outlines key strategic directions:

- community outcomes;
- economic strategies;
- governance strategies;
- infrastructure strategies; and
- environmental strategies.

The proposed BioHub would generally align with the key strategic directions of the Community Strategic Plan, specifically the Project would provide direct employment through construction and operation. By doing so, the Project would assist Cobar and its community in achieving economic resilience and sustainable growth.

3.2 Project alternatives

Renewed Carbon considered a range of alternative approaches to the issue of INS as part of the development of the Project.

Do-nothing - this approach would result in the continued growth and spread of INS vegetation within the region, presenting ongoing challenges for farmers, reduction of agricultural productivity and impacts upon biodiversity values. Property owners seeking to manage INS vegetation would be obligated to undertake the only viable and legal alternative entailing vegetation clearing with bulldozers and open burning/pile burning in situ. This would result in clear and ongoing adverse impacts upon the local environment and the amenity of nearby communities.

Waste to energy plant – this considered the potential for the development of a facility to burn INS within the locality to produce energy directly. This proposal brings with it considerable regulatory and technical difficulty and was not considered feasible at the present time.

Pellet plant – this alternative considered the collection of INS and processing into compressed wood pellets for export and use within wood burning boilers, particularly within Europe. As with the waste to energy solution, this proposal carries with it substantial and various technical and financial challenges and was also deemed not to be viable within the present context.

BioHub – as outlined elsewhere in this report, the development of the BioHub at Cobar is deemed a viable and sustainable solution to INS in the region. This proposal would be both technically and financially viable and would be consistent with the adoption of the Highest Net Resource Value principle whereby INS is processed separately to obtain maximum value from the constituent components.

4.0 Project description

4.1 Overview

The proposed BioHub is a processing facility for vegetation located approximately 5.8 km to the east of the centre of Cobar, NSW. The facility would process INS vegetation sourced from surrounding agricultural land and would utilise all aspects of this input material for processing into goods for sale and export. These goods would include high quality timber products, essential oils, reductants for use in metal manufacture and biochar. The facility would consist of a storage and processing plant around 4.2 ha in size.

The concept design layout is provided in **Figure 4-1**. This layout is indicative only and presents the likely location of key project components within the Project Area. The concept design has taken into consideration high level topographical and environmental constraints (refer to **Section 4.2**). Options for the design and layout of the physical infrastructure within the BioHub remain under development. This ESR is based on a concept design that is continuing to evolve and would be further developed in parallel to the preparation of the EIS.

The final layout would be subject to further detailed design following project approval; however, impacts associated with the construction and operation of the final Project would generally not exceed those outlined in the EIS, should the Project receive development consent.

4.1.1 Capital investment

The proposed BioHub has an estimated capital investment of approximately $45 million. This investment value is subject to further project development and design though is not expected to be less than $30 million.

4.2 Site selection

The following site selection criteria were considered in the identification of suitable development sites for the project (in no particular order):

- access to the existing road network;

- topography and key landscape features;
- minimal environmental constraints;
- existing land uses;
- land tenure;
- access to biomass suppliers; and
- proximity to sensitive receptors.

Renewed Carbon reviewed numerous sites within NSW and determined that the Cobar location represented one of the company's most viable opportunities for this development. This decision was primarily made on the basis of the extent of existing INS in the area and the enthusiasm of the community for a sustainable and economically viable solution to this issue.

The Site, which is relatively flat, satisfies the above criteria. The suitability of the Site was also confirmed during discussions between Renewed Carbon and NSW Department of Industry - Crown Land (Crown Lands).

4.3 Project components

4.3.1 Core components

The key components of the Project would include:

- a hardstand area for the receipt and temporary storage of input vegetation;
- an essential oils extraction plant for selected INS species;
- pyrolysis units (this includes kilns, furnaces, condensers and dust collector);
- site administration facilities, laboratory and amenities;
- approximately 14 hardstand light vehicle parking spaces;
- boundary fencing;
- on-site access tracks and upgrades to the existing track;
- upgrade works to the Barrier Highway near the intersection with the Site, and
- ancillary infrastructure including the construction of a new transmission line connection to feed surplus energy generated by the Project into the local grid.

Refer to **Figure 4-1** for the preliminary concept design layout of the BioHub.

4.3.2 Ancillary facilities and infrastructure

The Project also includes the construction of an overhead transmission line to connect to the existing 132 kV high voltage transmission network approximately 3 km to the northeast of the Site. This connection is subject to further discussions with Essential Energy. Should the transmission connection be constructed as part of the Project, this infrastructure would subsequently be handed over to Essential Energy for ongoing operation and management. An indicative corridor for the transmission line is shown on **Figure 2-4**.

There are currently no services available at the Site (i.e. water supply, sewage or electricity connections). Water requirements for the construction and operation of the facility would be trucked to the Site. Options are currently being investigated and will be assessed further in the EIS. Rainwater harvesting would also be implemented throughout the Project. An aerated wastewater treatment system would likely be installed for waste produced by workers.

4.3.3 Access tracks and road improvements

As a part of the Project, access tracks and road improvements would also be required and all roads will be sealed. Access tracks and road improvements include:

- upgrade works to the Barrier Highway involving increasing the width of the roadway by 3 m for approximately 60 m in each direction approaching the Site entrance, as well as upgrading existing culverts;
- upgrade of the existing access track on the Site for heavy vehicle use, including widening the track to 8 m to allow two-way traffic flow. The track would be graded and covered with Class 4 road base of 50 millimetres; and
- constructing two new access tracks branching off the existing Site access track to connect to the BioHub facility. These two new tracks would be around 140 m and 90 m long, 6 m wide and have a gravel surface treatment.

4.3.4 Excluded activities

The planning approval to be sought for the BioHub is for the construction and operation of the facility only and does not include the harvesting and transport of the biomass to the Site, the transport of the finished products to end markets/customers; or the use of the final products. The traffic and transport impacts associated with vehicles entering and leaving the BioHub site would be addressed as outlined in Section 7.7 of this report.

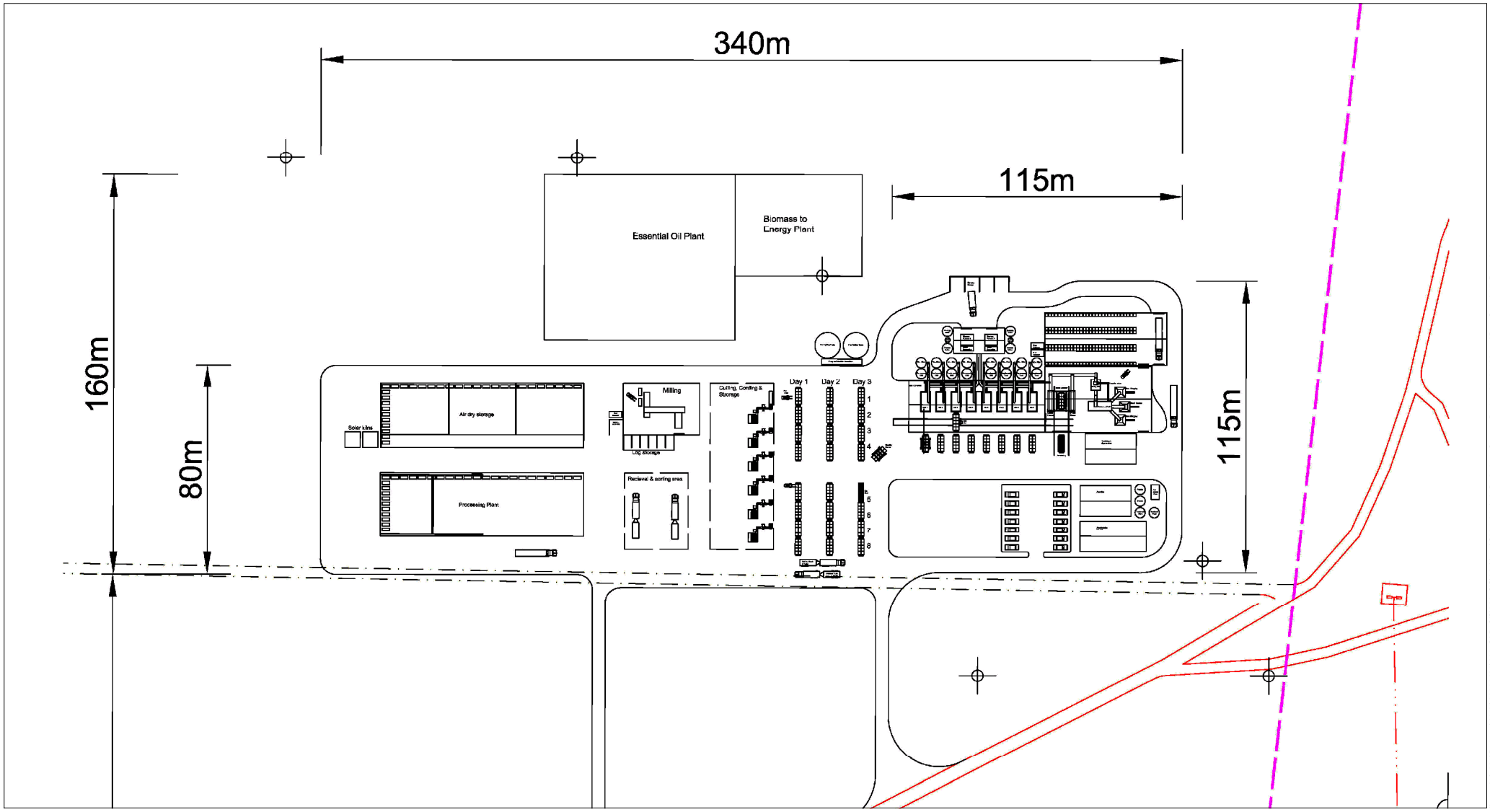
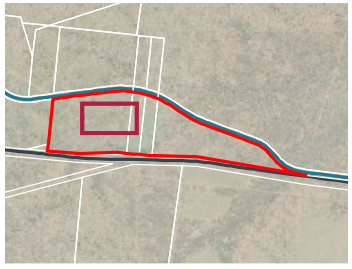


FIGURE 4-1: PRELIMINARY CONCEPT DESIGN



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0 30 60 m

4.3.5 Construction

Construction of the BioHub is likely to involve the following activities:

- site access and establishment including vegetation clearing, site fencing and construction of access roads and vehicle parking;
- minor civil works including potential cut-and-fill activities, filling in of dams, limited grading, compaction, installation of stormwater drainage and sediment controls;
- construction of hardstand areas, offices, workshops and other ancillary structures;
- construction of a transmission line to connect to the grid;
- installation of processing plant and equipment; and
- commissioning and testing.

Construction materials and workforce would be transported to the Site by road. Construction haulage routes likely to be used include the Barrier Highway, Kidman Way, Louth Road/Mulya Road and Lerida Road. It is estimated that the following plant items would be required for construction:

- 10 concrete trucks per day for a period of two weeks;
- five heavy vehicles for civil works carrying prefabricated structures;
- approximately 20 heavy vehicles carrying prefabricated plant equipment;
- one crane; and
- two excavators.

Construction of the Project is anticipated to occur over a period of six months (this excludes the transmission line connection). This construction program allows for scheduled downtime, unexpected weather conditions and other contingencies. Subject to receiving development consent, the Project is proposed to commence construction in October 2019. Commissioning and testing of the BioHub would take place over a period of around two months.

At peak construction it is anticipated that approximately 40 workers would be required to access the Site. Construction works would be undertaken during standard day time construction hours as specified in the *Interim Construction Noise Guideline* (DECC, 2009) where reasonable and feasible to do so. Standard construction hours are:

- Monday to Friday 7am to 6pm;
- Saturday 8am to 1pm; and
- No work on Sundays and public holidays.

4.3.6 Operation

Operational activities would involve receiving INS material, pre-treatment of material, processing of the material, preparation and shipping products for sale (domestic and export markets) and monitoring and maintaining equipment. Surplus electricity would be generated as a by-product of biomass processing and would be fed into the local grid, subject to agreement with the local network operator.

Operation of the Project is anticipated to commence in August 2020 and would involve the handling of more than 100,000 tonnes per annum (tpa) of INS material (up to approximately 130,000 tpa in response to individual property owners' circumstances). Input material would arrive at the BioHub by road, having been harvested from surrounding properties. The composition of the INS material may vary depending on the nature of the material growing on properties subject to harvesting, though would be broadly as follows:

- around 5% specialty timber of saw log quality;
- around 40% non-saw log quality timber; and
- around 55% low density, high ash, scrubby species.

Timber of saw log quality would be sold for use in furniture manufacture or musical instruments. Non-saw log quality timber would be processed to produce high quality reductant (a bio-anthrocyte charcoal that would replace existing typical fossil fuels) that could be used in metallurgical processes. The bulk of the biomass material comprising scrubby species would be used for the extraction of 'essential oils' or the creation of agricultural grade biochar for blending into finished fertiliser products. An indicative list of INS proposed for processing at the BioHub is provided in **Table 4-1**.

Table 4-1 List of invasive native species outlined in *Land Management (Native Vegetation) Code 2018*, as made under *Local Land Services Act 2013*.

Scientific name	Common name
Acacia aneura	Mulga
Acacia excelsa	Ironwood
Acacia homalophylla	Yarran
Acacia stenophylla	Black Wattle or River Cooba
Callitris endlicheri	Black Cypress
Callitris glaucophylla	White Cypress
Casuarina cristata	Belah
Dodonaea viscosa subsp. *Angustissima*	Narrow-leaf Hopbush
Dodonaea viscosa subsp. *Spatulata*	Broad-Leaf Hopbush
Eremophila bignoniiflora	Eurah
Eremophila bowmanii subsp. *Bowmanii*	Silver Turkey Bush
Eremophila duttonii	Harlequin Fuchsia Bush
Eremophila gilesii	Green Turkey-Bush
Eremophila longifolia	Emu Bush
Eremophila mitchellii	Budda, False Sandalwood
Eremophila sturtii	Turpentine
Eucalyptus coolabah	Coolibah
Eucalyptus intertexta	Red Box
Eucalyptus largiflorens	Black Box
Eucalyptus populnea subsp. *Bimbil*	Bimble Box or Poplar Box
Geijera parviflora	Wilga
Duma florulenta (syns.: *Muehlenbeckia cunninghamii* & *Muehlenbeckia florulenta*)	Lignum
Sclerolaena birchii	Galvanised Burr
Sclerolaena muricata includes all subsp. muricata, semiglabra and villosa.	Black Roly-Poly
Senna artemisioides subsp. X *artemisioides*(syn.: Senna form taxon 'artemisioides')	Silver Cassia
Senna artemisioides subsp. *filifolia* (syn.: Senna form taxon 'filifolia')	Punty Bush
Senna barclayana	Pepper-leaf Senna
Vachellia farnesiana	Mimosa

The Project is expected to operate for at least 30 years. Operation is expected to require up to 30 full time equivalent (FTE) jobs on a shift basis.

During operation, it is estimated that a total of 10 light vehicles per day would enter and exit the facility. However, as this facility would operate 24 hours, 7 days a week, the number of light vehicles movements may vary. In addition, approximately one to two maintenance vehicles per day would be required. It is estimated that 20 heavy vehicles with harvested materials would enter the facility daily, with two heavy vehicles leaving the facility daily with finished products.

4.3.7 Decommissioning

Upon cessation of operations the Project would be decommissioned. This would involve removal of all infrastructure and rehabilitation of the Site broadly in line with its pre-development condition. Where possible, Project components may be recycled at the end of their operational life. Any opportunity for refurbishing the equipment to extend the operational phase of the Project may be investigated at a later date and would be the subject of a separate development application, if required.

5.0 Legislation and planning policy

The planning approval pathway and requirements for the project are outlined in **Section 5.1** to **Section 5.7**. Other NSW legislative requirements are summarised in **Section 5.8** and Commonwealth requirements are discussed in **Section 5.9**.

5.1 Environmental Planning and Assessment Act 1979 (NSW)

The *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) is the primary framework legislation governing land use and development control in NSW. The EP&A Act is supported by the EP&A Regulations and a number of Environmental Planning Instruments (EPIs) which include State Environmental Planning Policies (SEPPs) and LEPs.

Section 4.36 of the EP&A Act is relevant to this Project and provides for a process where development can be declared as SSD either by a SEPP or Ministerial order published in the Gazette.

Section 4.5 of the EP&A Act provides that the consent authority for SSD is either the Independent Planning Commission or the Minister for Planning. Division 4.7 of the EP&A Act sets out provisions which apply to the assessment and determination of SSD.

5.2 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) aims to facilitate the effective delivery of infrastructure across the State. Clause 121(2) states that development for the purpose of waste or resource management facilities may be carried out by any person with consent on land in a prescribed zone. Clause 120 provides that land zoned as RU1 Primary Production is considered as a prescribed zone.

The Site is zoned RU1 Primary Production under the Cobar LEP and as such the Project is permissible with development consent.

5.3 State Environmental Planning Policy (State and Regional Development) 2011

Schedule 1 of the SRD SEPP states that the following types of development are deemed to be SSD for the purposes of section 4.36 of the EP&A Act:

> ***4 Timber milling, timber processing, paper and pulp processing***
>
> *Development that has a capital investment value of more than $30 million for any of the following purposes:*
>
> *(a) milling plants, sawmills, log processing works, wood-chipping or particle board manufacture,*
>
> […]

(e) charcoal plants,

but not including development for the purpose of plantations (unless it is ancillary to other development specified in this clause).

23 Waste and resource management facilities

[…]

(3) Development for the purpose of resource recovery or recycling facilities that handle more than 100,000 tonnes per year of waste.

The Biohub would qualify as SSD under both of the above clauses in that it would:

- involve timber milling and processing, including the production of charcoal through pyrolysis and would have an estimated capital investment value greater than $30 million, and;
- handle more than 100,000 tpa of waste for the purpose of resource recovery. Depending on individual property owners' circumstances the Biohub may handle up to approximately 130,000 tpa.

On this basis the proposal is classified as SSD and as such is subject to assessment and determination under Part 4 of the EP&A Act.

5.4 State Environmental Planning Policy (Rural Lands) 2008

State Environmental Planning Policy (Rural Lands) 2008 (Rural Lands SEPP) aims to facilitate the orderly and economic use and development of rural lands for rural and related purposes. The SEPP also identifies rural planning principles to assist in the proper management, development and protection of rural lands, reduce land use conflicts and identify State significant agricultural land to ensure its ongoing viability.

The Project is considered to be an orderly use of the rural lands comprising the Site. Potential impacts to biodiversity, heritage, land use and water resources have been considered in the Project design and would be further assessed in the EIS. Relevant mitigation and management measures would be provided as part of the assessment process. In addition, upon decommissioning, the Site would be able to be returned to close to its pre-development condition.

It is noted that the DPE has undertaken a review of the Rural Lands SEPP and four other existing SEPPs that address primary production and rural development. The Rural Lands SEPP is proposed to be replaced by a new State Environmental Planning Policy (Primary Production and Rural Development). Exhibition of the proposed new SEPP is now closed and feedback is under consideration by DPE.

5.5 State Environmental Planning Policy No. 55 – Remediation of Land

Under clause 7 of *State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP 55), a consent authority must not consent to the carrying out of any development on land unless:

a) it has considered whether the land is contaminated;

b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out; and

c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

Potential contamination within the Site would be considered as part of the EIS and, if applicable, would be managed in accordance with this SEPP.

The proposed BioHub is located on land zoned 'RU1 - Primary Production' under the Cobar LEP. The objectives of the RU1 zone include the following:

- *to encourage sustainable primary industry production by maintaining and enhancing the natural resource base;*
- *to encourage diversity in primary industry enterprises and systems appropriate for the area;*
- *to minimise the fragmentation and alienation of resource lands; and*
- *to minimise conflict between land uses within this zone and land uses within adjoining zones.*

The primary objective of the RU1 zone is to encourage primary production.

5.7 Protection of the Environment Operations Act 1997 (NSW)

The *Protection of the Environment Operations Act 1997* (POEO Act) establishes the State's environmental regulatory framework and includes licensing requirements for certain scheduled activities. The POEO Act is administered by the NSW Environment Protection Authority (NSW EPA).

Under section 48 of the POEO Act, scheduled activities as defined in Schedule 1 require an Environmental Protection Licence (EPL). Schedule 1 includes the following relevant activities:

- Energy recovery - *energy recovery from general waste*[2]*, meaning the receiving from off site of, and the recovery of energy from, any waste (other than hazardous waste, restricted solid waste, liquid waste or special waste;*
- Resource recovery - *recovery of general waste*[3]*, meaning the receiving of waste (other than hazardous waste, restricted solid waste, liquid waste or special waste) from off site and its processing, otherwise than for the recovery of energy;*
- Waste disposal (thermal treatment) – *thermal treatment of general waste*[4]*, meaning the receiving of waste (other than hazardous waste, restricted solid waste, liquid waste or special waste) from off site and its processing by thermal treatment;*
- Waste storage – *more than 12,000 tonnes of waste is received per year from off site*; and
- Wood or timber milling or processing - *meaning the sawing, machining, milling, chipping, pulping or compressing of timber or wood*[5]

The POEO Act definition of 'waste' is very broad and includes '*any otherwise discarded, rejected, unwanted, surplus or abandoned substance intended for sale or for recycling, processing, recovery or purification by a separate operation from that which produced the substance*'. Based on the above, the Project is expected to require an EPL.

5.8 Other NSW legislation

Table 5-1 summarises other NSW legislation that is relevant to the Project.

[2] involves processing more than 200 tonnes per year of waste

[3] involves having on site at any time more than 2,500 tonnes or 2,500 cubic metres of waste, or involves processing more than 12,000 tonnes of waste per year

[4] involves processing more than 200 tonnes per year of waste

[5] capacity to process more than 50,000 cubic metres of timber (or timber products) per year

Table 5-1 Other relevant NSW legislation

Legislation	Relevance
Crown Lands Act 1989	*The Crown Lands Act 1989* (CL Act) contains provisions which regulate the occupation, use, sale, lease and licence of Crown land, along with its proper management having regard to the Act's principles. The Site is currently Crown land but is in the process of being privately purchased by the existing leaseholder.
Roads Act 1993	The *Roads Act 1993* (Roads Act) regulates the carrying out of various activities on public roads, and provides for the declaration of Roads and Maritime Services (Roads and Maritime) and other public authorities, including local councils, as roads authority for different types of roads (classified and unclassified). Under section 138 of the Roads Act, the consent of the appropriate roads authority (council or Roads and Maritime) is required before a person can, for example, erect a structure or carry out a work in, on or over a public road, or dig up or disturb the surface of a public road. This would include proposed upgrades to the Barrier Highway, for which Roads and Maritime is the roads authority. . Consultation with Cobar Shire Council would be undertaken regarding the requirements for intersection upgrade works.
Biodiversity Conservation Act 2016	The *Biodiversity Conservation Act 2016* (BC Act) contains provisions for the assessment of impacts on biodiversity values of a proposed development, providing measures to calculate offsets for these impacts and establishing market-based conservation measures, including biodiversity credits. The potential to impact threatened species, populations and ecological communities listed under the BC Act is discussed in **Section 7.1** of this ESR and would be further assessed in the EIS.
Heritage Act 1977	The *Heritage Act 1977* (Heritage Act) aims to conserve environmental heritage values across the State. Environmental heritage is defined in the Heritage Act as those places, buildings, works, relics, movable objects and precincts of state or local heritage importance. Heritage items are listed on the State Heritage Register which is established under the Heritage Act. Items of local heritage significance are also found in LEPs, which contain provisions to ensure the protection of such items. Under section 4.41 of the EP&A Act, an approval under Part 4 or an excavation permit under section 139 of the Heritage Act is not required for SSD. The potential impacts on heritage items and places are discussed in **Section 7.2** and **Section 7.9** of this ESR and would be further assessed in the EIS.
Water Management Act 2000	The *Water Management Act 2000* (WM Act) regulates the use and interference with surface water and groundwater in areas where water sharing plans have been implemented. Pursuant to section 4.41 of the EP&A Act, these approvals (other than an aquifer interference approval, which is not expected to be required for this development) are not required for SSD. The Project's water needs are discussed in **Section 7.4**.
Contaminated Land Management Act 1997	Section 60 of the *Contaminated Land Management Act 1997* (CLM Act) imposes a duty on landowners to notify the NSW Office of Environment and Heritage (OEH) and potentially investigate and remediate land if contamination is above levels set by the NSW EPA. The CLM Act also contains provisions relating to the regulation of 'significantly contaminated land' by the NSW EPA. The potential for contamination at the Site is discussed in **Section 7.5** of this ESR and would be further assessed in the EIS.

Legislation	Relevance
Biosecurity Act 2015	The *Biosecurity Act 2015* provides a framework for the management of biosecurity risks from diseases, animal and plant pests, and weeds. Given the remoteness of region, biosecurity would be a risk to the ecological health of the area if invasive and exotic species are present on the construction equipment and materials imported for the project. During operation, risks could present through the collection of INS and the potential spreading of weeds and pests from other sites. These issues would be further assessed in the EIS.
Rural Fires Act 1997	The objects of the *Rural Fires Act 1997* are to provide: a. for the prevention, mitigation and suppression of bush and other fires in local government areas (or parts of areas) and other parts of the State constituted as rural fire districts b. for the co-ordination of bush firefighting and bush fire prevention throughout the State c. for the protection of persons from injury or death, and property from damage, arising from fires d. for the protection of infrastructure and environmental, economic, cultural, agricultural and community assets from damage arising from fires; and e. for the protection of the environment by requiring certain activities to be carried out having regard to the principles of ecologically sustainable development described in section 6(2) of the *Protection of the Environment Administration Act 1991*. Pursuant to section 4.41 of the EP&A Act, a bush fire safety authority under section 100B is not required for SSD.

5.9 Commonwealth legislation

5.9.1 Environmental Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1993* (EPBC Act) is administered by the Commonwealth Department of the Environment and Energy (DoEE) and provides a legal framework to protect and manage places defined as Matters of National Environmental Significance (MNES). Under the EPBC Act, actions that have or are likely to have significant impacts on a MNES are deemed a 'controlled action' and require approval from the Minister for the Environment. The assessment of the significance of the impact is based on the criteria listed in the *Significant Impact Guidelines 1.1* (Department of Environment, 2013). Should a potentially significant impact upon MNES be identified as part of the environmental assessment, a referral to Minister for the Environment would be required. The Minister would then decide whether further assessment and approval is required under the EPBC Act.

A search of matters protected by the EPBC Act was undertaken using the Protected Matters Search Tool (PMST) on 8 November 2018, for a 1 km radius around the Site. Results of the PMST are summarised in **Table 5-2** and a copy of the PMST report is provided in **Appendix A**. Potential impacts to threatened species and ecological communities are further discussed in **Section 7.1**.

Table 5-2 Results of the PMST

Matters of National Environmental Significance	
World Heritage Properties	None
National Heritage Places	None
Wetlands of International Importance	3 (nearest is 500 – 600 km upstream)
Great Barrier Reef Marine Park	None
Commonwealth Marine Area	None

Matters of National Environmental Significance	
Listed Threatened Ecological Communities	1
Listed Threatened Species	10
Listed Migratory Species	7
Other Matters Protected by the EPBC Act	
Commonwealth Land	None
Commonwealth Heritage Places	None
Listed Marine Species	13
Whales and Other Cetaceans	None
Critical Habitats	None
Commonwealth Reserves Terrestrial	None
Commonwealth Reserves Marine	None
Extra Information	
Invasive species	14

5.9.2 Native Title Act 1993

The *Native Title Act 1993* (Native Title Act) provides a legislative framework for the recognition and protection of native title rights. Native title is the recognition that, in certain circumstances, Indigenous people continue to hold rights to their land and waters, which come from their traditional laws and customs.

The Native Title Act sets up processes to determine whether native title exists, how future activity impacting upon native title may be undertaken, and to provide compensation where native title is impaired or extinguished.

A search of the National Native Title Tribunal Register was performed on 9 November 2018 and identified one native title application within a 5 km radius of the Site.

Application name	Date filed	Tribunal file no.	Federal Court file no.	Date claim entered on register	Status
Ngemba, Ngiyampaa, Wangaaypuwan and Wayilwan native title determination application	14/03/2012	NC2012/001	NSD415/2012	12/04/2012	Active

6.0 Community and stakeholder consultation

In order to undertake a comprehensive environmental impact assessment for the Project, clear and effective consultation with key stakeholders and the community is required. The objectives of consultation are to:

- provide clear communication about the scope of the Project;
- provide an understanding of the regulatory approvals and permitting process to facilitate undertaking the Project;
- seek information, feedback and local knowledge as input into the environmental assessment process;

- determine the key concerns held by government agencies, interested organisations and the community; and
- proactively work with the community, government agencies and the relevant local council as part of the EIS process for the Project.

A summary of the consultation undertaken to date is provided in **Table 6-1**.

Table 6-1 Consultation undertaken to date

Stakeholder	Date	Purpose of the meeting	Outcomes
Regional property owners (70 people)	17 August 2016	• Property owners were invited by Cobar Shire Council to a briefing by Renewed Carbon on the Project. • Purpose was to discuss the concerns of the regional property owners and for Renewed Carbon to present the BioHub concept as a possible solution.	The outcome of this community meeting provided Renewed Carbon with community endorsement for the proposed BioHub Project.
Community Reference Group No.1 (20-25 people)	16 September 2016	• The Community Reference Group was created by the Council as a single point of information exchange which would ensure property owners were provided with the latest and correct project information. • Various government agencies and Council attended the meeting, which was requested by Renewed Carbon.	As an outcome of this meeting the Community Reference Group were informed of the process in how future information would be exchanged.
Property owners (20 – 25 people)	26 October 2016	• The meeting, initiated by local property owners and leaseholders, was focused on discussing the proposed harvesting processes at their properties. • The meeting was also attended by Local Land Services (LLS) and Council.	As an outcome of this meeting, LLS requested that Renewed Carbon be responsible for the harvesting of material from properties rather than property owners themselves.[6]
Western Lands Board (20 people)	5 June 2017	• Presentation by Renewed Carbon on the need and rationale for the Project.	As a result of this meeting, a letter of support was received from Western Lands Board.

[6] Note that despite the outcome of this meeting the Project (subject of this ESR) does not include the harvesting of material off site.

Stakeholder	Date	Purpose of the meeting	Outcomes
Dubbo Department of the Premier and Cabinet (DPC)	4 July 2017	• Meeting was initiated by DPC at the request of Regional Development Australia (RDA) - Orana Division. • The purpose was to present the BioHub Project to government agencies and provide opportunities for agencies to raise any early comments or issues. The agencies in attendance included: - Department of Primary Industries (DPI); - RDA Orana; - NSW EPA; - DPC; - LLS; - Crown Lands; and - DPE.	The outcome of this meeting was to ensure all agencies were aware of the Project and time to discuss any issues.
NSW EPA	25 September 2018	• Meeting with the EPA Waste directorate to discuss the categorisation and nature of the Project.	As a result of this meeting, the NSW EPA was given the clarification of the relevant categorisation of the project.
DPE	5 November 2018	• Discussion of the categorisation of the Project, regulatory requirements, scoping inputs and further engagement required.	As a result of this meeting, the DPE was given the clarification of the relevant categorisation of the project.
NSW EPA; DPE	29 November 2018	• Follow up discussion on the relevant categorisation of the Project, waste to energy policy and licensing requirements.	As a result of this meeting, the stakeholders were given the clarification of the relevant categorisation of the project.

Written support for the BioHub has been provided by members of the community, Cobar Shire Council and the LLS. A summary of support to date is provided in **Table 6-2**.

Table 6-2 Summary of support for the Project

Stakeholder	Date	Summary of support
RDA, Orana NSW	10 January 2017	• RDA Orana has been providing project support with regard to site identification, stakeholder engagement and community support; and • RDA Orana have included the Project on their priority list and committed their ongoing support to facilitate development of such facilities within the region.
Cobar Shire Council	23 January 2017	• Council expressed their support of Renewed Carbon's proposed initiatives and acknowledged the significant impact the Project could have on the future of the shire and the region.

Stakeholder	Date	Summary of support
Kevin Humphries MP (Member for Barwon)	24 January 2017	• The MP recognised the solution the BioHub would provide to management of INS in Western NSW, acknowledged the Project benefits, good investment value and potential for job creation; as well as the Project's ability to improve productivity and sustainable land management in the region.
	15 February 2017 (news article)	• An article in *The Cobar Weekly* newspaper where Kevin Humphries pledged his support for the BioHub.
Lance Capital	29 September 2017	• Provided Renewed Carbon with a Letter of Confidence for investing in and funding the Project.

Renewed Carbon will undertake ongoing community and stakeholder engagement throughout the early development stages of the Project. A Community and Stakeholder Engagement Plan (CSEP) would be prepared as part of the EIS to ensure effective and ongoing liaison occurs with the community and key stakeholders throughout future stages of the Project.

Further measures to reduce adverse effects on the community and promote beneficial outcomes of the Project would be identified in the EIS. Stakeholder and community consultation would be undertaken in accordance with any requirements of the SEARs, when they are known.

7.0 Environmental scoping assessment

This chapter provides a preliminary assessment of the potential environmental impacts arising from the Project. The environmental aspects proposed for consideration have been based on currently available information on the Project and site-specific characteristics. These aspects include:

- Biodiversity;
- Aboriginal heritage;
- landscape character and visual amenity;
- water;
- land (soils, contamination and agriculture);
- noise and vibration;
- traffic and transport;
- hazard and risk – bushfire;
- non-Aboriginal heritage;
- socio-economic;
- air quality;
- waste management; and
- cumulative impacts.

These aspects are discussed further in **Section 7.1** to **Section 7.13**.

Following the preliminary assessment of the environmental aspects, a prioritisation of environmental issues has been undertaken to highlight potential risk areas for consideration in the EIS.

7.1 Biodiversity

7.1.1 Existing environment

A field survey of the Site was undertaken by Niche Environment and Heritage in November 2018. The survey found that the Site comprises largely of low condition, native grasses and shrubs, namely Mallee - Gum Coolabah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (refer to **Figure 7-1**).

The field survey identified that the eastern part area of the Site (on Lot 684 of DP 761738) has high vegetation constraints as it contains *Acacia loderi* shrubland community. The *Acacia loderi* shrubland is characterised as tall shrubs or small trees with a low, diverse understorey dominated by sub-shrubs and grasses. This vegetation is identified as an endangered ecological community (EEC) under the BC Act. This community is not listed as threatened under the EPBC Act.

7.1.1.1 Plant Community Types

Four Plant Community Types (PCTs) have been mapped within the Site based on the field survey (refer to **Figure 7-1**). They include:

- Poplar Box grassy woodland on flats mainly in the Cobar Peneplain Bioregion and Murray Darling Depression Bioregion;
- Mulga - Ironwood shrubland on loams and clays mainly of the Cobar Peneplain Bioregion;
- Nelia tall open shrubland of semi-arid sandplains; and
- Mallee - Gum Coolabah woodland on red earth flats of the eastern Cobar Peneplain Bioregion.

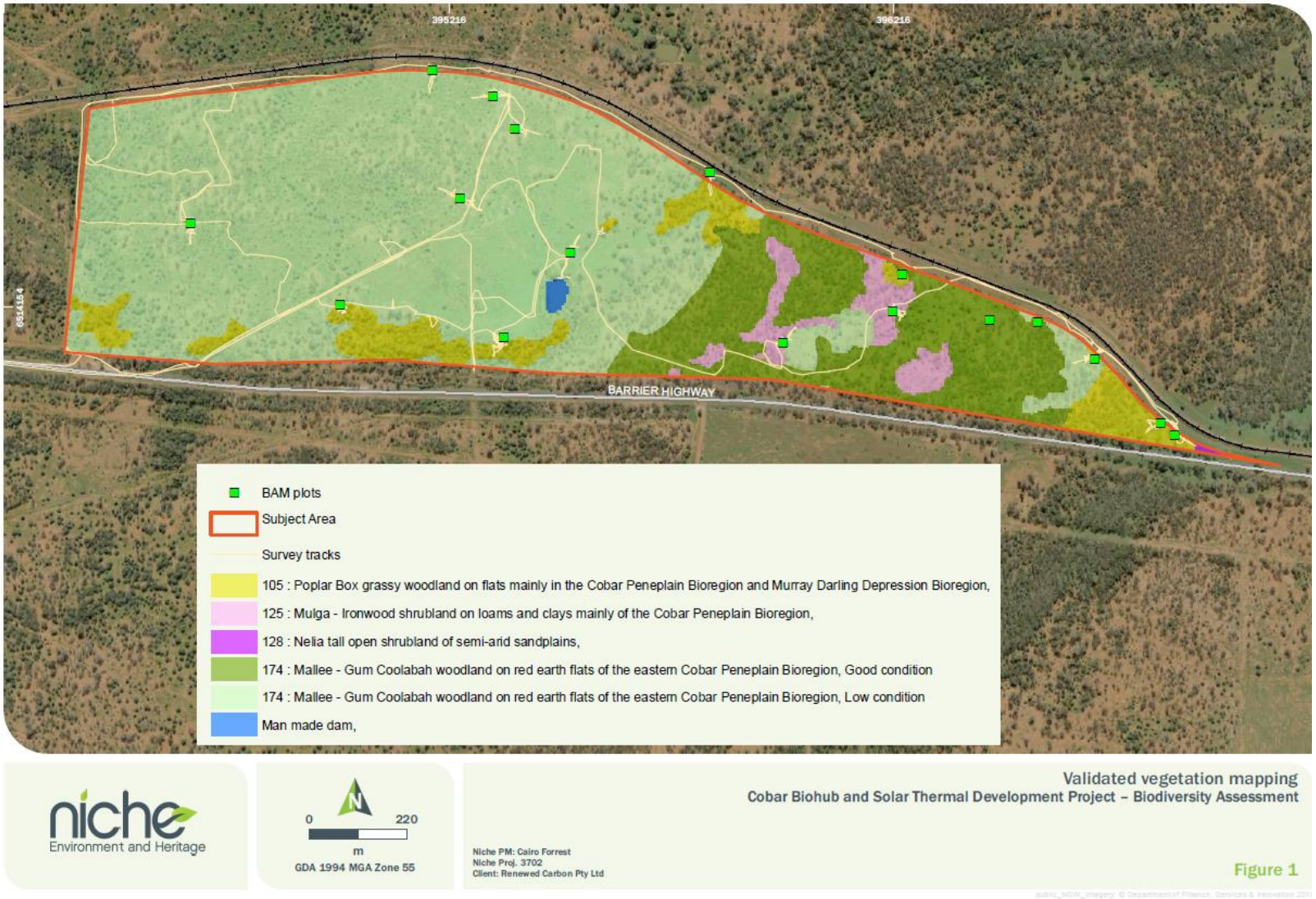

Figure 7-1 Vegetation mapping for the Site

7.1.2 Threatened Ecological Communities

Desktop based search on the PCTs identified three Threatened Ecological Communities (TECs) on the Site:

- *Acacia loderi* shrublands (Part) (endangered - BC Act);
- Mallee and Mallee-Broombush dominated woodland and shrubland, lacking Triodia, in the NSW South Western Slopes Bioregion (Part) (critically endangered – BC Act); and
- Artesian Springs Ecological Community in the Great Artesian Basin (Part) (BC Act – critically endangered; EPBC Act – endangered).

7.1.2.1 Threatened flora

No species of moderate or higher likelihood were found based on the field survey conducted.

7.1.2.2 Threatened fauna

Fourteen species of threatened fauna were considered moderately likely or higher to occur within the Site. These species are listed in **Table 7-1**.

Table 7-1 Threatened fauna likely to occur within the Site

Scientific Name	Common Name	BC Act	EPBC Act	Likelihood of occurrence
Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	-	Moderate
Certhionyx variegatus	Pied Honeyeater	Vulnerable	-	Moderate
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Vulnerable	-	Moderate
Grantiella picta	Painted Honeyeater	Vulnerable	-	Moderate
Grus rubicunda	Brolga	Vulnerable	-	Moderate
Lophochroa leadbeateri	Major Mitchell's Cockatoo	Vulnerable	-	Moderate
Melanodryas cucullata cucullata	Hooded Robin (southeastern form)	Vulnerable	-	Moderate
Ninox connivens	Barking Owl	Vulnerable	-	Moderate
Oxyura australis	Blue billed Duck	Vulnerable	-	Moderate
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	Vulnerable	-	Moderate
Antechinomys laniger	Kultarr	Endangered	-	Moderate
Chalinolobus picatus	Little Pied Bat	Vulnerable	-	Moderate
Nyctophilus corbeni	South-eastern Long-eared Bat	Vulnerable	Vulnerable	Moderate

Scientific Name	Common Name	BC Act	EPBC Act	Likelihood of occurrence
Rattus villosissimus	Long-haired Rat	Vulnerable	-	Moderate

7.1.3 Scoping assessment

Based on preliminary vegetation mapping for the Site, about 30% of the Site has high biodiversity constraints. However, this is generally located within the eastern part of the Site, and would comprise part of the Project Area.

Potential impacts to vegetation and TECs would be assessed further under the Biodiversity Assessment Method (BAM) and reported on in a Biodiversity Development Assessment Report (BDAR), which would be appended to the EIS. Any impacts to native vegetation would require offsetting in accordance with the BAM. Offsetting required under the EPBC Act would be determined following completion of an Assessment of Significance, which would also be reported on in the BDAR.

There may also be an impact to two first order streams and a man-made dam on site. Impacts to ephemeral watercourses may require further approval from WaterNSW including a preparation of a Vegetation Management Plan (VMP).

7.2 Aboriginal heritage

7.2.1 Existing environment

The Ngiyampaa people inhabited Cobar prior to European settlement over 150 years ago and the main language groups are Ngiyampaa in the centre of the Cobar Peneplain Bioregion[7], Ngemba in the northeast, Wiradjuri in the south and Paakantkji in the northwest (Cobar Shire Council, 2017).

A basic search of the online NSW Aboriginal Heritage Information Management System (AHIMS) was performed in November 2018 for a 1 km buffer around the Site. The search returned no Aboriginal sites or places within or around the Site.

The absence of previously recorded items may be due to the lack of previous surveys undertaken in the area.

7.2.2 Scoping assessment

Despite the lack of recorded Aboriginal heritage items there remains the potential for damage to unidentified Aboriginal heritage items during Project construction. Furthermore, the Project may result in indirect impacts to Aboriginal heritage values by potentially affecting culturally sensitive landscapes. Aboriginal stakeholder consultation would be undertaken in accordance OEH's Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010) guidelines. These require a specific process be followed to identity Aboriginal parties, provide information to identified groups and the manner of consultation. Field investigations involving an archaeological survey of the project area is proposed.

The Aboriginal heritage assessment would involve undertaking background research including a review of relevant previous assessments and OEH's AHIMS database and the report would be completed in accordance with OEH's Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW and the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW.

[7] OEH Cobar Peneplain regional history - https://www.environment.nsw.gov.au/bioregions/CobarPeneplain-RegionalHistory.htm - accessed November 2018

7.3 Landscape character and visual amenity

7.3.1 Existing environment

The Site has a flat topography and is rural and pastoral in nature. There are no identified residential receptors within 2 km of the Site. The closest potential residential receptor is located approximately 2.5 km west of the Site.

In respect to key landscape features, the Nyngan Cobar railway forms the northern boundary of the Site and the Barrier Highway forms the southern boundary. Cobar Regional Airport is located approximately 10 km to the southwest of the Site. It is owned, operated and maintained by Cobar Shire Council.

7.3.2 Scoping assessment

Due to the Site's low relief and general lack of nearby visual receptors the Project would not be expected to result in substantial visual amenity impacts.

Vehicle movements along the Barrier Highway are infrequent, resulting in minimal anticipated visual impacts to road users. The visual sensitivity of road users is considered to be low due to the temporary and transient nature of the view.

The small footprint (around 4.2 ha) and low profile nature of the facility would not significantly transform the rural character of the landscape.

The scope will involve a review of technical documents and undertaking desktop landscape analysis to determine the visual character of the area and potential impacts. A visual impact assessment, a landscape character impact assessment and cumulative impact assessment would be undertaken as part of the EIS to assess the landscape and visual impacts from key viewing locations. The assessment would also provide management strategies and mitigation measures where possible to avoid, reduce and offset the level of visual impact associated with the key project activities.

7.4 Water

7.4.1 Existing environment

There are currently no potable or wastewater services at the Site. Two ephemeral drainage channels exist within the Site with one traversing the middle of the Site and the other at the eastern edge. These would only provide very limited flow during high rainfall events.

A freshwater wetland has been mapped along the one of the ephemeral drainage channels (OEH, 2016). Given the past land use practices and the location of the waterbody, this was determined to be a man-made farm dam. There is also one small unnamed natural water course occurring with the Site (refer to **Figure 2-3**). This drainage line flows towards Yanda Creek located east of the Site. Yanda Creek is a 282 km stream that drains into the Darling River.

No publicly available flooding information was identified.

7.4.2 Scoping assessment

It is anticipated that the design and layout of the BioHub facility would avoid any identified drainage lines and surrounding creeks, as far as is practicable. The man-made dam may be filled in, should the area be required for development.

Water requirements for the construction and operation of the facility would be trucked to the Site. Options are currently being investigated and will be assessed further in the EIS. Rainwater harvesting would also be implemented throughout the Project. An aerated wastewater treatment system would likely be installed for waste produced by workers. No industrial wastewater treatment or discharge is anticipated.

In order to further assess the extent of potential impacts on surface water, a number of detailed desktop investigations of publicly accessible data would be undertaken to understand the local climatic conditions and relate these to the nature of the waterways. A qualitative assessment would be undertaken to assess the potential for impacts to water quality, erosion and flooding. This information would be used to understand the surface water catchments and drainage lines across the site.

A detailed flooding assessment is not considered to be required due to the type and location of the development. However, a qualitative discussion of potential flooding issues and potential impacts would be provided and appropriate mitigation identified.

7.5 Land (soils, contamination, agriculture)

7.5.1 Existing environment

A desktop search of available mapping and datasets was performed to determine the existing soils, geology, contamination and land use environment of the Site. The NSW Government Sharing and Enabling Environmental Data (SEED) portal was used to access the following datasets:

- Australian soil classification (ASC) soil type map of NSW;
- land and soil capability (LSC) mapping for NSW;
- estimated inherent soil fertility of NSW;
- Strategic regional land use policy – biophysical strategic agricultural land;
- NSW EPA contaminated land record of notices;
- list of NSW contaminated sites notified to the NSW EPA; and
- NSW mineral occurrences.

Soils at the Site are dominated by the Kurosols, Natric soil type. Kurasols are strongly acidic, have low chemical fertility, low water-holding capacity and are often high in sodium concentration. No acid sulfate soils risks were mapped within the Site.

The Site is not considered to be biophysical strategic agricultural land and has a moderately low estimated inherent soil fertility.

The Land and Soil Capability (LSC) assessment scheme classifies the Site as Class 6. Class 6 lands are defined as low capability land with very severe limitations for high impact land uses. Limitations would restrict land management options for land uses such as cropping, high intensity grazing and horticulture.

Searches of both the list of NSW contaminated sites notified to the NSW EPA and contaminated land record of notices returned no results of contamination within 4 km of the Site. The Site is known to have been used for agriculture or any other contamination generating activities and therefore there is very low potential for residual contamination to be present.

The Site is located on land zoned as RU1 (primary production), is Crown land and is currently grazing land.

7.5.2 Scoping assessment

Impacts to the soil environment are most likely to occur during the construction phase of the Project. Minor excavations for footings or vegetation removal could potentially result in soil erosion, sedimentation and dust issues if not managed appropriately.

There would be a loss of agricultural land (at least 30 years) as a result of the Project; however, this loss would not affect the region's productivity due to the small Project Area and the objectives of the project, which involves improving agricultural productivity in areas of harvesting.

On the basis that the land is currently vacant there is no potential for contamination from existing activities. Historical contamination activities such as storage of fuel tanks, mining or pesticide and herbicide use for agriculture, would be investigated further as part of the EIS.

The Project is likely to present only a minor risk of contamination through the storage of various fuels and chemicals required for both construction and operation. The scope would involve a desktop review to undertake background searches of for the potential for limitations within the project area associated with soils and contamination. This would be conducted by reviewing readily accessible published information and databases. Based on the findings of the desktop review, an assessment of potential impacts during construction and operation of the project would be undertaken as well as the identification of any residual risks that may require further investigation. Management and mitigation measures will be provided for inclusion in the EIS.

7.6 Noise and vibration

7.6.1 Existing environment

Existing noise levels are likely to be very low at the Site, consistent with a typical rural environment. The predominant existing noise source would be occasional vehicle movements along the Barrier Highway as well as freight rail movements and environmental noise such as wind and swaying vegetation.

There are no residential receptors within 1 km of the Site. The closest potential residential receptor has been identified approximately 1.5 km to the south.

7.6.2 Scoping assessment

Construction of the BioHub is likely to result in temporarily elevated noise levels. This would primarily be associated with earthworks, construction vehicle movements, plant setup and other machinery.

Construction would be undertaken during standard hours for construction works; however, there may be a need to extend construction hours into the evening and on weekends, at certain times. Any works outside of these standard working hours would be undertaken in accordance with the *Interim Construction Noise Guideline* (ICNG) (DECC, 2009).

Noise and vibration generating activities during operation would include heavy vehicle movements, timber milling and operation of the furnaces and other plant. The timber milling operations are expected to be the noisiest activities. These would be undertaken under cover, which would help to reduce overall noise levels.

Operational activities would take place 24 hours a day, seven days a week. The scope would involve a review of available information and technical data in order to identify key noise and vibration risks. An environmental baseline and criteria determination would then be determined based on the estimated background noise levels (in accordance with the ICNG) and vibration criteria (in accordance with the NSW EPA Assessing Vibration: A technical guideline (AVATG)) for the study area. The tasks mentioned above would inform the construction noise and vibration impact assessment. This assessment would be undertaken to Predict likely noise impacts associated with up to three construction scenarios for site works and determine suitable and indicative construction noise and vibration management measures.

An operational noise and vibration impact assessment would also be undertaken to review and predict sound power levels of proposed equipment within the Biohub and provide indicative noise control measures, where required, to meet the environmental noise limits.

7.7 Traffic and transport

7.7.1 Existing environment

Existing access to the Site is from the Barrier Highway, a sealed State road that forms the southern boundary of the Site. The existing Site access off the Barrier Highway would be upgraded as part of the works, with additional tracks created on the Site to access the facility. Refer to **Section 4.3.3**.

7.7.2 Scoping assessment

Construction traffic would affect traffic along both the Barrier Highway.

It is expected that there would be an increase in heavy and light vehicle traffic on the local road network during construction and operation (refer to **Section 4.3.5** and **Section 4.3.6**). Road changes, including upgrades to the Barrier Highway at the intersection with the Site access, and construction access would be managed in consultation with Roads and Maritime Services, the Council and relevant property owners.

During operation, traffic volumes are expected to increase compared to the current scenario. This would include movements for the transport of vegetation to the Site, transport of products out of the Site and for staff accessing the Site. The scope for traffic and transport would involve a desktop review to create a baseline for the existing traffic and transport conditions (private, public and active modes) within the locality and review the local and state government planning policy documents relevant to the site. A swept path analysis would be undertaken for the proposed heavy vehicle routes using the proposed design vehicle to ensure that the turning paths are achievable to and from the site.

A traffic impact assessment would be undertaken to ensure that the potential traffic impacts associated with the Project are addressed. The traffic impact assessment would consider impacts of the development at the intersection with the Barrier Highway and surrounding network as relevant. This would include qualitative assessment of intersection performance, congestion and safety. Based on an appreciation of the existing traffic environment and the likely low traffic input from the Biohub, quantitative traffic assessment (modelling) is not proposed. The likely traffic impacts would be identified and a number of mitigation measures for managing relevant construction and operation phase impacts would be presented in the assessment report.

7.8 Hazards and risk – bushfire

7.8.1 Existing environment

The Site is not considered to be bushfire prone land as reported in the NSW Rural Fire Service online tool[8].

7.8.2 Scoping assessment

The BioHub could be affected by bushfire or pose a bushfire risk. Operational hazards and risks, including bushfire, would be managed through the BioHub's Emergency Response Plan which would include engagement with the RFS, Council and neighbouring property owners. The facility would include water storage and systems for localised firefighting. Any hot works would be undertaken in accordance with industry standards and norms and safety requirements.

Further assessment of bush fire risks to impact on the Project would be investigated as part of an EIS. The works will include consultation with the local NSW Rural Fire Service (RFS) district office and if necessary the RFS Head Office. The report will include a pre-incident bushfire planning map that will detail location of infrastructure, fixed assets (including transformers and power line networks), asset protection zones, water supply points, fire trail networks and where necessary surrounding assets (e.g. neighbouring development and/or machinery including ecological assets and heritage sites where known). The report will demonstrate compliance with Planning for Bush Fire Protection (2006), the NSW Rural Fires Act 1997 and the NSW Rural Fires Regulations 2013, where applicable.

7.9 Non-Aboriginal heritage

7.9.1 Existing environment

A review of the NSW State Heritage Register and Cobar LEP has identified that there are no items of non-Aboriginal heritage recorded within the Site.

The closest recorded non-Aboriginal heritage item are remains of construction huts for residential uses within an operating gold mine (Chesney Gold Mine) known as Towser's Huts, approximately 3.5 km southwest of the Site.

[8] https://www.rfs.nsw.gov.au/plan-and-prepare/building-in-a-bush-fire-area/planning-for-bush-fire-protection/bush-fire-prone-land/check-bfpl

7.9.2 Scoping assessment

The Project is considered unlikely to impact the heritage values of non-Aboriginal heritage items due to the significant distance from the closest sites. However, a non-Aboriginal heritage assessment would involve undertaking desktop searches of relevant historic registers and listings as well as undertake a background research of the land within the project area to identify historic heritage items, including areas of archaeological sensitivity in accordance with the relevant guidelines.

7.10 Socio-economic

7.10.1 Existing environment

The Cobar Shire LGA occupies approximately 45,600 square kilometres of land in central NSW. Cobar is the main population centre and is located approximately 5.8 km west from the Site. The LGA has approximately 5,000 residents, with the majority (3,990) of the population living in the town of Cobar (Cobar Shire Council, 2017) (ABS, 2016). The median age is 35, which is considered to be a working age group. Approximately 65% of the labour force is employed full time, approximately 22% were employed part-time and 5.8% were unemployed (ABS, 2016).

Mining is the main economic driver, employing approximately 36% of Cobar's employed population (ABS, 2016). The closest operational mine, Peak Gold Mines, is located approximately 4 km southwest of the Site. The second highest industry of employment in Cobar is health care and social assistance (8%) followed by retail (7.5%). Public administration and safety is employs 7%, accommodation and food services employs 6.8%, education and training employs 6% and agriculture, forestry and fishing employs 4% (ABS, 2016).

There are five educational establishments in Cobar, including one TAFE, one high school, two primary schools and one pre-school. There are three health services in Cobar including the Cobar District Hospital, Cobar Health Service Emergency Department and the Cobar Primary Health Care Centre.

Existing accommodation in the region is limited with seven motels, one lodge and one hotel located in Cobar. The nearest town to Cobar, Nyngan, has four motels and one hotel (located approximately 128 km east of Cobar).

7.10.2 Scoping assessment

The Project would be consistent with the strategic directions outlined in the *Community Strategic Plan - Cobar Shire 2030* by Cobar Shire Council.

The Project would provide social and economic benefits to the local community through an increase in local employment opportunities, growing and diversifying the local economy.

Construction of the project may affect the Cobar community, primarily through the employment of the construction workforce. During construction, pressure on local services including accommodation and health services has the potential to increase due to the relocation of construction workers into the area. However, the presence of the project workforce could also be beneficial to the local economy due to the need for goods and services. The requirement for temporary accommodation and potential impacts of temporary accommodation, should it be required, would be further assessed in the EIS.

It is expected that approximately 30 FTE jobs would be required on a shift basis for the operation of the Project. This is unlikely to result in a significant impact on the local community, social infrastructure or health and education services.

A social and economic impact assessment of the Project is required to better identify the magnitude and severity of social and economic impacts associated with the construction and operation of the Project. This will include specific focus on the beneficial nature of the project to the community and local economy. Relevant mitigation and management measures to reduce or eliminate socio-economic impacts relating to specific activities and/or phases of the Project would be developed.

Plant will be designed to be far less than the group 6 emission limits under the EPL. Well within limits. 'Permissible fuel limits'.

7.11 Air quality

7.11.1 Existing environment

Existing air quality in the region is likely to be heavily influenced by surrounding agricultural and mining activities as well as extensive lengths of unsealed road. Sources of air pollution include vehicle emissions and dust from vehicles, mining and agricultural activities.

7.11.2 Scoping assessment

During construction, potential impacts to air quality include dust generated by vegetation clearing, earthworks activities and vehicle movements. Exhaust emissions from construction vehicles and diesel powered plant or generator use would also be anticipated. However, the small footprint of the BioHub facility, short-term nature of the construction works (six to eight months) and lack of nearby air quality receptors means that the Project's impacts upon air quality are expected to be minimal.

During operation, there is a potential for dust emissions from the handling of vegetation and timber milling operations. Vehicle emissions would also arise from heavy and light vehicle movements and the use of plant and machinery.

The processes used within the site would result in an extremely low degree of air emissions in the form of waste heat and very low amounts of waste gases from the pyrolysis process. This is due to the fact that the equipment would seek to retain all carbon elements for sale as final product and through the use of electrostatic precipitators. As such the operational plant is unlikely to significantly affect local air quality.

Dust and vehicle emissions can be controlled through the implementation of standard controls. The scope for air quality would be completed either through a quantitative and qualitative assessment. Both assessments of the construction activities would use the IAQM Construction and Demolition Guidance guideline and would be prepared outlining the findings of the study in accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW.

7.12 Waste management

7.12.1 Existing environment

As the Site is currently used as grazing land it is not associated with any waste generation.

7.12.2 Scoping assessment

Minimal waste would be generated during construction and operation.

During construction, waste generation would include solid waste such as packaging and building materials, scrap metal, as well as soil and vegetation from site clearing.

During operation, there would be solid and liquid waste generated by workers.

The scope for waste management would involve a desktop review of local or state policies regarding waste management and review of the activities, equipment and materials associated with the construction and operation of the project to understand potential waste sources and streams. The review would also assess nearby waste management facilities and their ability to accept and/or process waste likely to be generated by all phases of the Project.

A waste management assessment would be undertaken to provide detail on the types of wastes and indicative quantities likely to be generated by the Project. This assessment would also recommend appropriate management measures for each waste stream according to the waste hierarchy and in accordance with the *Waste Avoidance and Resource Recovery Act 2001*.

7.13 Cumulative impacts

7.13.1 Existing environment

A search of the NSW Major Projects website for the Cobar Shire LGA revealed that a major project for a mine was approved in September 2016 approximately 100 km southeast of Cobar. The DPE has commented that mining operations may be undertaken until 31 December 2022. However, the Mining Lease for copper, gold, lead, silver and zinc would expire in May 2034.

Another undetermined major project application currently exists within the LGA for a high pressure gas pipeline approximately 140 km south of the Site.

A search of the Council development applications did not reveal any developments occurring in the vicinity of the Site.

7.13.2 Scoping assessment

The Project is unlikely to affect or be affected by other proposed or approved State significant or local developments within the LGA. Potential developments that may interact with the construction or operation of the Project would be investigated further during stakeholder and community engagement and the technical studies for the EIS.

8.0 Prioritisation of environmental aspects

8.1 Approach

The assessment of environmental impacts associated with the Project is prioritised below. This is based on the need to recognise that a higher degree of investigation and assessment is required for the aspects with the greatest risk of potential environmental or social harm.

To understand the potential level of risk associated with each aspect, a qualitative risk assessment was conducted based on available desktop information. The risk assessment approach adopted is consistent with the principles of *AS/NZS ISO 13000:2009 Risk Management – Principles and Guidelines.* This analysis categorised levels of risk based on the likelihood of the impact occurring and the consequence of the impact. Where there is a high degree of uncertainty, the precautionary approach has been adopted and a higher risk rating applied.

The consequence and likelihood judgements are based on the criteria outlined in **Table 8-1** and **Table 8-2**.

Table 8-1 Measures of likelihood categories

Likelihood	Description
Likely	Could easily happen and would probably occur
Possible	Could happen and has occurred elsewhere
Unlikely	Not likely to happen

Table 8-2 Measures of consequence categories

Consequence	Description
Major	Long term detrimental impacts on the environment or population; large impact area; reportable incident to external agency; may result in large fines and prosecution; operational constraints; high level of community concern.
Moderate	Substantial temporary or medium term detrimental impacts on the environment or population; medium impact area; reportable incident to external agency; action required by reportable agency; community interested.
Minor	Short term detrimental impacts on the environment or population; small impact area; no operational constraints; some local community interest.

Table 8-3 presents the risk rating matrix used to identify whether the potential environmental or social risks associated with the Project would be considered to be High, Medium or Low prior to further detailed assessment.

Table 8-3 Risk rating matrix

		Consequence		
		Major	Moderate	Minor
Likelihood	Unlikely	Medium	Low	Low
	Possible	High	Medium	Low
	Likely	High	High	Medium

8.2 Assessment

This risk assessment aims to prioritise issues for further assessment in the EIS and does not consider the application of mitigation measures to manage environmental effects. In all cases, appropriate and proven mitigation measures would be used to minimise potential adverse impacts. These measures would be described in detail in the EIS. Aspects with a residual risk rating of medium or high would comprise key issues for the assessment for the Project. Aspects with a low residual risk rating would be considered in the EIS as 'other issues' and would be subject a lower intensity of impact assessment.

Table 8-4 presents the risk ratings for the unmitigated risks.

Table 8-4 Unmitigated project risk ratings

Aspect	Potential impact based on unmitigated/inherent risk	Likelihood	Consequence	Risk rating
Biodiversity	Loss of threatened flora or fauna habitat	Unlikely	Moderate	Low
	Fragmentation of threatened ecological communities	Unlikely	Moderate	Low
Aboriginal heritage	Disturbance to unidentified Aboriginal heritage items during construction	Possible	Moderate	Medium
	Indirect impacts to Aboriginal heritage items due to changes to the landscape	Unlikely	Minor	Low
Landscape character and visual amenity	Change in visual landscape and amenity for residential receptors and road users along Barrier Highway	Unlikely	Moderate	Low
Water	Altered drainage flows leading to damage to manmade dam on the Site	Unlikely	Moderate	Low
Land (soils, contamination and agriculture	Soil erosion, sedimentation and contamination from Project activities	Possible	Moderate	Medium
	Loss of agriculturally productive land affects productivity of the region	Unlikely	Moderate	Low
Noise and vibration	Noise disturbance to nearest residential receptors	Unlikely	Moderate	Low

Aspect	Potential impact based on unmitigated/inherent risk	Likelihood	Consequence	Risk rating
Traffic and transport	Increase in traffic on the surrounding road network affecting road safety and travel times for local road users	Unlikely	Minor	Low
Hazards and risk – bushfire	Increased risk of bushfire in the area	Unlikely	Major	Medium
Non-Aboriginal heritage	Impacts on non-Aboriginal heritage values or items	Unlikely	Minor	Low
Socio-economic	Construction workers in the area place pressure on local services including accommodation and health services	Possible	Minor	Low
Air quality	Reduced air quality from dust generation and vehicle and process emissions	Unlikely	Moderate	Low
Waste management	Generation of waste material negatively affects the surrounding environment	Unlikely	Minor	Low

8.2.1 Summary

The qualitative environmental risk assessment found the following environmental aspects to have a potential medium risk rating, prior to mitigation:

- hazards and risk – bushfire.
- Aboriginal heritage; and
- land (soils, erosion, contamination, land use).

These above aspects are considered to be ‘key issues’ and would be subject to detailed assessment in the EIS.

The remaining aspects with a low risk rating are:

- biodiversity;
- noise and vibration;
- traffic and transport;
- landscape character and visual amenity;
- air quality;
- water;
- non-Aboriginal heritage;
- socio-economic; and
- waste management.

These aspects do not warrant a detailed assessment but would be considered as ‘other issues’ in the EIS.

9.0 Conclusion

Renewed Carbon is seeking consent for the development of the proposed BioHub as SSD under Part 4 of the EP&A Act.

The purpose of this ESR is to provide sufficient information on the Project and potential impacts to inform the preparation of SEARs to guide the preparation of the EIS for the Project.

The environmental aspects identified as 'key issues' and would be subject to more detailed assessment in the EIS include:

- hazards and risk – bushfire;
- Aboriginal heritage; and
- land (soils, erosion, contamination, land use).

Remaining aspects that do not warrant a detailed assessment but would still be considered as 'other issues in the EIS include:

- biodiversity;
- noise and vibration;
- traffic and transport;
- landscape character and visual;
- air quality;
- water;
- non-Aboriginal heritage;
- socio-economic; and
- waste management.

Potential cumulative impacts would also be considered further in the EIS. Mitigation and management measures to avoid, reduce, mitigate or offset potential impacts on the environment during construction, operation and decommissioning of the proposed BioHub would also be presented in the EIS.

Consultation with key stakeholders and the local community would be undertaken as part of the assessment process and inform the assessment of impacts.

10.0 References

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DoEE, Protected Matters Search Tool. Accessed on 08/11/2018 from: http://www.environment.gov.au/epbc/protected-matters-search-tool

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Appendix A

Protected Matters Search Tool Results

Australian Government
Department of the Environment and Energy

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.

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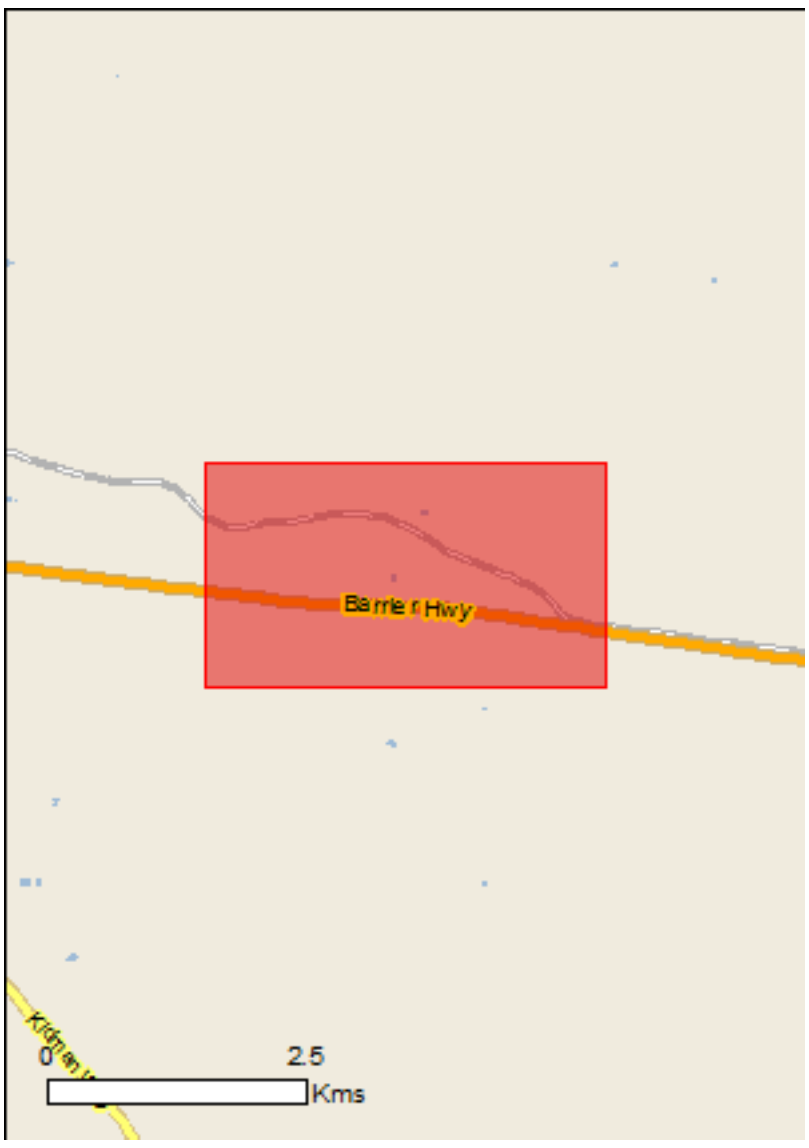

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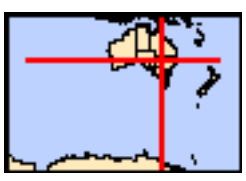

Summary

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:	3
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	10
Listed Migratory Species:	7

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:	13
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	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:	None
Invasive Species:	14
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar) [Resource Information]

Name	Proximity
Banrock station wetland complex	500 - 600km upstream
Riverland	500 - 600km upstream
The coorong, and lakes alexandrina and albert wetland	700 - 800km upstream

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
Weeping Myall Woodlands	Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat may occur within area
Rostratula australis Australian Painted-snipe, Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Mammals		
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to 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 may occur within area
Plants		
Austrostipa metatoris [66704]	Vulnerable	Species or species habitat may occur within area

Name	Status	Type of Presence
[Lepidium monoplocoides](#) Winged Pepper-cress [9190]	Endangered	Species or species habitat likely to 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		
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat may 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

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

Name	Threatened	Type of Presence
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
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to 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 may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area

Extra Information

Invasive Species [Resource Information]

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		
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		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

Name	Status	Type of Presence
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
Capra hircus Goat [2]		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
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
Sus scrofa Pig [6]		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		
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		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

-31.49387 145.88272,-31.49387 145.91757,-31.51055 145.91757,-31.51055 145.88272,-31.49387 145.88272

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.

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Appendix B

AHIMS Search Results

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Cobar 4

Client Service ID : 381532

Tuong Vi Doan

420 George St
Sydney New South Wales 2000

Attention: Tuong Vi Doan

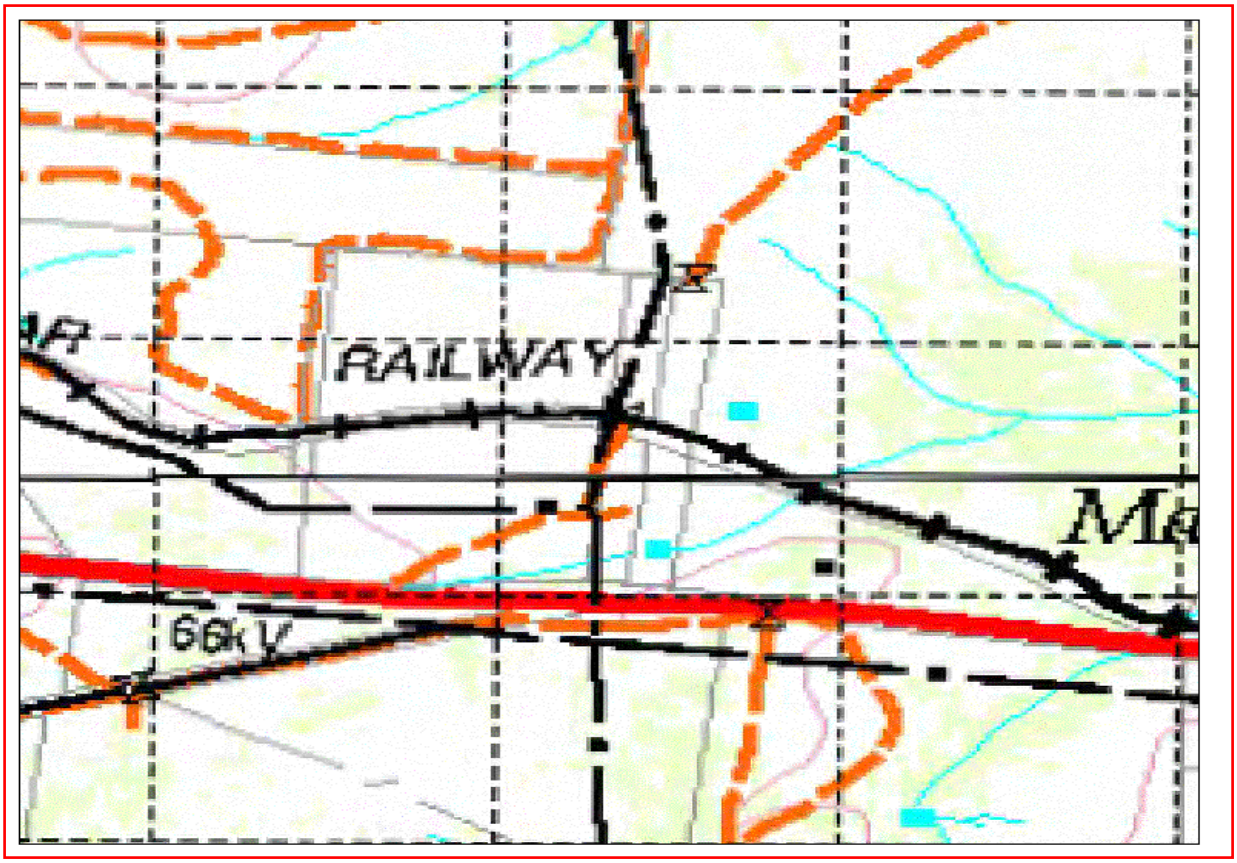
Email: vi.doan@aecom.com

Date: 08 November 2018

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 2, DP:DP755665 with a Buffer of 1000 meters, conducted by Tuong Vi Doan on 08 November 2018.

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) 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.

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