

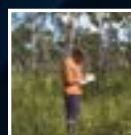
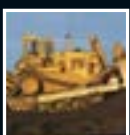
**Appendix T**  
***Social Impact Assessment***



# BOGGABRI COAL MINE MODIFICATION 8

## SOCIAL IMPACT ASSESSMENT

*for Boggabri Coal Operations Pty Ltd*  
*22 April 2021*



## DOCUMENT CONTROL

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### Document Details

<b>Project name</b>	Boggabri Coal Mine Modification 8
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## **APPENDICES**

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## ABBREVIATIONS LIST

Abbreviation	Meaning
ABS	Australian Bureau of Statistics
ASCF	Aboriginal Stakeholder Consultative Forum
ATSI	Aboriginal and Torres Strait Islander
BC Act	<i>Biodiversity Conservation Act 2016</i> (NSW)
BCM	Boggabri Coal Mine
BCOPL	Boggabri Coal Operations Pty Ltd
BOA	Biodiversity Offset Area
BTM	Boggabri – Tarrawonga – Maules Creek
CCC	Community Consultative Committee
CHPP	Coal Handling and Preparation Plant
DIDO	Drive-in drive-out
DPIE	Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
EP&A Act	<i>Environment Planning and Assessment Act 1979</i> (NSW)
EPA	Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
ERP	Estimated Resident Population
FIFO	Fly-in fly-out
FTE	Full-time Equivalent
GISERA	Gas Industry Social and Environment Research Alliance
GSC	Gunnedah Shire Council
ha	Hectares
IAR	Idemitsu Australia Resources
ICSEA	Index of Community Socio-Educational Advantage
km	Kilometres
km <sup>2</sup>	Square Kilometres
LEP	Local Environment Plan
LGA	Local Government Area
m	Metres
M	Million
MCCPL	Maules Creek Coal Pty Limited



Abbreviation	Meaning
Mt	Million tonnes
Mtpa	Million tonnes per annum
NENW	New England North West
NSC	Narrabri Shire Council
NSW	New South Wales
PA	Project Approval
ROM	Run-Of-Mine
SA4	Statistical Area Level 4
SEIFA	Socio-Economic Indexes for Areas
SIA	Social Impact Assessment
SIA Guideline	<i>Social Impact Assessment Guideline for State significant mining, petroleum production, and extractive industry development</i>
SIMP	Social Impact Management Plan
SRA	Southern Rehabilitation Area
SS	State Suburb
SSD	State Significant Development
t	Tonnes
TPCL	Tarrawonga Coal Pty Limited
VPA	Voluntary Planning Agreement

# 1 INTRODUCTION

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## 1.1 Overview

The Boggabri Coal Mine (BCM) is an open cut coal mine located 15 kilometres (km) north-east of the township of Boggabri in north-western New South Wales (NSW) (Figure 1). BCM is located wholly within the Narrabri Local Government Area (LGA) (Figure 2). It is located immediately adjacent to the existing Tarrawonga Mine to the south and the existing Maules Creek Mine to the north (Figure 1). Tarrawonga Mine is operated by Tarrawonga Coal Pty Limited (TCPL). Maules Creek Mine is operated by Maules Creek Coal Pty Limited (MCCPL). Both TCPL and MCCPL are subsidiaries of Whitehaven Coal Limited (Whitehaven Coal).

The BCM is managed by Boggabri Coal Operations Pty Ltd (BCOPL), which is a wholly owned subsidiary of Idemitsu Australia Resources (IAR) Group. IAR is a subsidiary of the Japanese company Idemitsu Kosan Co. Ltd (Idemitsu Kosan). BCM is a joint venture between IAR (via its subsidiary Boggabri Coal Pty Ltd) (80%), Chugoku Electric Power Australia Resources Pty Ltd (10%) and NS Boggabri Pty Limited (10%).

Environmental assessments first commenced at BCM in 1976 followed by grant of approval for the project in 1989, and the commencement of operations in 2006. On 18 July 2012, Boggabri Coal was granted Project Approval (now declared to be a State Significant Development Approval (SSD)) 09\_0182 for the Continuation of Mining Project under the former Part 3A of the *Environmental Planning & Assessment Act 1979* (EP&A Act). The approved BCM is described within the Boggabri Coal Mine Continuation of Mining Environmental Assessment (Boggabri EA) (Hansen Bailey, 2010) which supports SSD 09\_0182<sup>1</sup>. SSD 09\_0182 (as modified) provides approval for the production of up to 8.6 Million tonnes per annum (Mtpa) of product coal until December 2033 and the transport of up to 10 Mtpa of product coal by rail (up to 8.6 Mtpa from BCM and up to 3 Mtpa from TCM (subject to agreement)).

BCOPL is seeking a modification to SSD 09\_0182 under Section 4.55(2) of the EP&A Act to increase the depth of approved mining operations which will result in the extension of mine life by six years and to facilitate the construction of a fauna movement crossing across the existing haul road at BCM (MOD 8). A Modification Report supports the MOD 8 application.

## 1.2 Purpose and Scope

This Social Impact Assessment (SIA) has been prepared by Hansen Bailey on behalf of BCOPL and forms part of the Modification Report. The SIA considers:

- The potential incremental social impacts and benefits of MOD 8 throughout the life of mining at BCM; and
- Identifies appropriate strategies to avoid, mitigate or manage the negative impacts and to enhance the positive opportunities resulting from MOD 8.

This SIA has been prepared in consideration of the NSW *Social Impact Assessment Guideline for State significant mining, petroleum production, and extractive industry development* (SIA Guideline) (Department of Planning and Environment, 2017).

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<sup>1</sup> On 20 June 2019, a delegate of Minister declared the PA 09\_0182, as modified to be "State Significant Development" under Clause 6 of Schedule 2 of the *Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017*, for the purposes of the *Environmental Planning & Assessment Act 1979* (EP&A Act). This order took effect upon its publication in the NSW Government Gazette on 28 June 2019, and from this date, PA 09\_0182 became known as SSD 09\_0182.

This document informs government agencies and other stakeholders about the potential social impacts and benefits of MOD 8, and outlines the measures that will be implemented by BCOPL to manage, mitigate and offset incremental social impacts and enhance social benefits.

## 1.3 Assessment Requirements

MOD 8 is subject to the following NSW regulatory requirements and guidelines relating to the conduct of the SIA:

- SSD 09\_0182 in relation to BCM, which MOD 8 is seeking to vary by way of an application submitted under Section 4.55(2) of the EP&A Act; and
- The SIA Guideline (Department of Planning and Environment, 2017).

### 1.3.1 SIA Assessment Requirements

The SIA Guideline documents the approach to the conduct of SIA for State Significant resource projects in NSW. The SIA Guideline details the approach required for the identification and assessment of social impacts and opportunities. The SIA Guideline also applies to applications to modify State Significant resource projects where the social impacts associated with the proposed modification are new or different to those that were approved under the original development consent.

This SIA addresses key requirements of the SIA Guideline taking into consideration the scale of change anticipated with MOD 8 i.e. the incremental impacts beyond those already approved for BCM. Accordingly, this SIA relies upon the previous assessments of social impacts of BCM and identifies any incremental additional impacts and benefits resulting from MOD 8.

The SIA also considers the guidance on modifications as provided by the Draft NSW *Social Impact Assessment Guideline State Significant Projects* (Draft NSW SIA Guideline) (Department of Planning, Industry and Environment, 2020).

## 1.4 Document Structure

The SIA is structured as follows:

- Section 1 – Introduction: provides an overview of MOD 8 and describes the purpose and scope of the SIA.
- Section 2 – Modification Description: describes the approved BCM operations including interactions with other nearby mining operations in the Narrabri and Gunnedah LGAs, describes the components of MOD 8 and characteristics relevant to the assessment of social impacts.
- Section 3 – SIA Methodology: describes the SIA objectives, provides an explanation of the SIA methodology, and describes the approach to stakeholder engagement.
- Section 4 – Social Baseline: presents a summary of the key socio-economic characteristics of MOD 8's social area of influence.
- Section 5 – Social Impact Assessment: presents the predicted social impacts and opportunities of MOD 8 and describes the measures to avoid, mitigate or manage the identified impacts.
- Section 6 – Conclusion.

## 2 MODIFICATION DESCRIPTION

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This section provides an overview of the operations at BCM including a description of the relevant socio-economic characteristics of the existing operations. It also describes the characteristics of MOD 8 relevant to the assessment of potential incremental social impacts and opportunities. A complete description of MOD 8 is provided in the Modification Report.

### 2.1 Existing Approved Operations

#### 2.1.1 Boggabri Coal Mine Operations

The approved mining operations at BCM are illustrated in Figure 3. Mining operations at BCM occur on a 24 hour, 7 days a week basis using conventional truck, shovel and excavator open cut mining methods to extract up to 8.6 Mtpa of product coal from the Maules Creek formation including coal from the Herndale seam down to the Merriown seam. Up to 4.2 Mtpa of run-of-mine (ROM) coal is approved for processing through the Coal Handling and Preparation Plant (CHPP), with the ability for ROM coal to bypass the beneficiation process.

Coal is mined and processed on-site to produce an export quality steaming coal and other products suitable for metallurgical and pulverised coal injection applications. Up to 8.6 Mtpa of product coal may be transported via rail from BCM to the Port of Newcastle, where it is exported to overseas markets.

Whilst BCM is approved to receive, process, stockpile and load onto trains up to 3 Mtpa of coal from the neighbouring TCM, to date no commercial agreement has been reached with Whitehaven to enable this to occur.

Approximately 750 personnel including employees and contract workers are currently employed at BCM. A number of other short-term contractors and consultants are also employed at BCM for temporary projects and maintenance activities.

#### 2.1.2 Workforce Arrangements

##### Operations Workforce

The Boggabri EA describes that the operations at BCM are to be supported by up to 500 employees (indicative) at the peak production of 7 Mtpa of product coal. It should be noted that the Boggabri EA estimate of 500 full time equivalent (FTE) did not account for contractors employed for short term or shutdowns or persons accessing site for very short periods of time, which are now captured by contemporary industry reporting through the use of the FTE value recording system. At July 2020, BCM was staffed by approximately 750 personnel including employees and contract workers. The largest share of the total workforce at BCM in July 2020 was attributed to BCOPL, with the remaining employed through onsite contractors. During this time, the BCOPL team at BCM consisted of 454 employees, of which 80 employees worked a five-day Monday to Friday shift roster, and 374 worked in operations and processing.

As at July 2020, the major mining contractors on site included Goldings (161 workers), One Key (55 workers), Orica Australia Pty Ltd (Orica) (37 workers) and Action Drill & Blast Pty Ltd (Action Drilling) (38 workers)..

The majority of the BCM workforce are permanent residents of the local and regional areas (Table 1). A small portion of the BCM workforce currently fly-in fly-out (FIFO) and/or drive-in drive-out (DIDO) for block shifts. The BCM DIDO workforce typically resides in private rental properties located in Gunnedah, Narrabri and Boggabri.

## Workforce Residential Location

### BCOPL Employees

Table 1 presents a breakdown of the LGAs where the permanent BCOPL employees reside and where the contractor workforce resides. The majority of BCOPL employees reside in the town of Gunnedah and the majority of contractors reside in Other NSW.

**Table 1 Residential Locality of BCOPL Employees and Contractors, 2020**

Locality	BCOPL Employees	Contractors
Boggabri	56	23
Baan Baa	4	0
Curlewis	5	0
Gunnedah	186	80
Manilla	20	0
Moore Creek	2	0
Narrabri	42	21
Sommerton	2	0
Tamworth	46	0
Willala	2	0
Other NSW	82	143
QLD	7	20
<b>Total</b>	<b>454</b>	<b>287</b>

Source: (BCOPL, 2020a)

### Mining Contractors

## Workforce Training and Upskilling

BCOPL sources and conducts a wide variety of training (both internal and external) based upon the needs of the workforce and of the business. BCOPL currently provide training and upskilling programmes for all levels of personnel, including:

- Health Safety Representative Course;
- Frontline Leadership Program;
- Certificate IV Training and Assessment and Assessor Training Program;
- Emergency Response Team Training;
- Trainee Program - New/Unskilled Operators;
- Upskill and Optimisation Training Programs;
- Skills and Competency Trainings - i.e. Confined Space/Working at Heights; and
- Procedural and Information sessions and training.

BCOPL will continue to provide quality training both internally and externally to ensure the workforce has the required skills and knowledge to keep personnel safe, and to operate to the highest level.

## Land Ownership

BCOPL land ownership is shown in Figure 4. Land ownership in the region largely includes private freehold, Narrabri Shire Council (NSC) owned land, State Forest, and mining industry owned land e.g. Whitehaven Coal, BCOPL and joint ownership. BCOPL has purchased a total of 34 properties since 2006. These properties include residential lots and lots for project use and infrastructure, closed roads and crown land. No additional private property acquisition is proposed as part of MOD 8.

### 2.1.3 Existing Community Consultative Committee Arrangements

Schedule 5, Condition 7 of SSD 09\_0182 requires BCOPL to operate a Community Consultative Committee (CCC) for BCM to the satisfaction of the Secretary of NSW Department of Planning, Industry and Environment (DPIE).

The BCM CCC was established in 2011 to provide a forum for ongoing communication between BCOPL, local communities and local government authorities. The BCM CCC meets quarterly to discuss issues directly relating to BCM's operations, including environmental performance and community relations. Whilst its membership has varied over the years, the CCC generally comprises Councillors from the Gunnedah and Narrabri LGAs, representatives of local community organisations and representatives from the local Indigenous community. The BCM CCC meetings minutes are provided on Idemitsu's BCM website (<https://www.idemitsu.com.au/mining/operations/boggabri-coal/community/community-consultative-committee/>).

The BCM CCC minutes provide an overview of key BCM issues and how they are being managed. The BCM CCC minutes indicates that over the past eight years, key concerns have shifted from a focus on construction to operations and largely relate to environmental issues, including groundwater quantity and impacts to individual bores, air quality (i.e. dust levels) and noise due to traffic and blasting.

BCOPL is also a member of the Boggabri - Tarrawonga - Maules Creek (BTM) CCC, which was established in 2013 to discuss cumulative impacts and management between the projects in the area. The focus of the BTM CCC is largely on environmental issues, such as cumulative air and noise emissions.

### 2.1.4 Existing Social Impact Management Approach

#### Social Impact Management Plan

The potential social impacts of the existing BCM operations are identified and adaptively managed principally through the BCM Social Impact Management Plan (SIMP). The preparation and implementation of a SIMP for the BCM was a condition of approval in SSD 09\_0182. The latest version of the BCM SIMP is a draft SIMP (2020 SIMP) (BCOPL, 2020c) that will be revised following consultation feedback. The 2020 SIMP provides the framework for ensuring the potential social impacts are identified and managed in accordance with the relevant conditions of approval for SSD 09\_0182. The 2020 SIMP also incorporates processes to ensure that throughout the BCM lifecycle:

- The effectiveness of management measures is monitored; and
- Ineffective management measures are amended.

The *2020 SIMP* forecasts the potential social impacts of the continued operation of BCM to 2022, sets performance goals in relation to these impact areas and proposes measures to manage these impacts. The following impact categories are considered in the *2020 SIMP*:

- Housing affordability and availability;
- Employment and training;
- Local business development;
- Social and community infrastructure;
- Farming communities;
- Indigenous opportunities;
- Traffic management; and
- Cumulative impacts.

### **Other Approval Conditions**

In addition to the *2020 SIMP*, and relevant to the management of potential social impacts, BCOPL is required to implement the following two conditions of approval for SSD 09\_0182:

- Environmental Performance Condition 73 and 74 of Schedule 3 of SSD 09\_0182 related to farming communities; and
- Commitment No. 30 of the Project Statement of Commitments (Appendix 5 of SSD 09\_0182) referred to as the Boggabri Housing Commitment and Condition 75 of Schedule 3 of SSD 09\_0182.

### **Farming Communities Conditions**

The purpose of the farming communities' condition is to ensure that impacts to agricultural productivity are minimised and to mitigate the cumulative pressures on the farming community. BCOPL provides employment opportunities for the agriculture sector workforce in times of drought and low productivity. BCOPL also supports agricultural operations, predominantly cattle grazing, on approximately 4,000 hectares of country that it holds. BCOPL also undertakes cropping and grazing activities on land surrounding the BCM under private lease agreements with local landholders.

### **Boggabri Coal Housing Commitment**

The Boggabri Coal Housing Commitment describes the actions to be taken by BCOPL to mitigate the cumulative pressure on housing availability and affordability in both Narrabri Local Government Area (LGA) and Gunnedah LGA. The Boggabri Coal Housing Commitment includes a requirement for BCOPL to:

- Implement the Boggabri Housing Commitment, in consultation with Council, to provide for:
  - » Construction of a minimum of 10 dwellings in Boggabri, within a timeframe agreed by NSC;
  - » Construction of a minimum of 20 dwellings in Narrabri, within a timeframe agreed by NSC; and
- Monitor the effect of increasing employment numbers at BCOPL on housing affordability and availability in the Narrabri and Gunnedah LGAs.

BCOPL has consulted with the NSC and agreed to commence the planning and scheduling for the construction of these dwellings during the second half of 2021.

Through the Annual Review and SIMP review process, BCOPL remains informed of local housing market conditions and the potential impact of any changes in BCM workforce numbers.

During consultation with the NSC in 2018, the NSC advised the need for an early learning facility within Boggabri (Boggabri ELF). To this end, BCOPL sought the relevant approvals to develop an ELF within Boggabri

and construction of the Boggabri ELF commenced in 2020. The construction of the Boggabri ELF is expected to meet the requirement for part of the housing commitment to NSC. The status of the Boggabri Coal Housing Commitment is detailed in the *2020 SIMP*. The *2020 SIMP* has been provided to local councils and DPIE for comment.

### 2.1.5 Existing Complaints Management

BCOPL has an established Complaints Management Procedure. BCOPL has a dedicated complaints hotline (1800BOGGABRI (1800 264 422 74)). All complaints received are recorded in a company database for follow-up and are also tabled at BCM CCC meetings. As a minimum, BCOPL records the following information for each complaint:

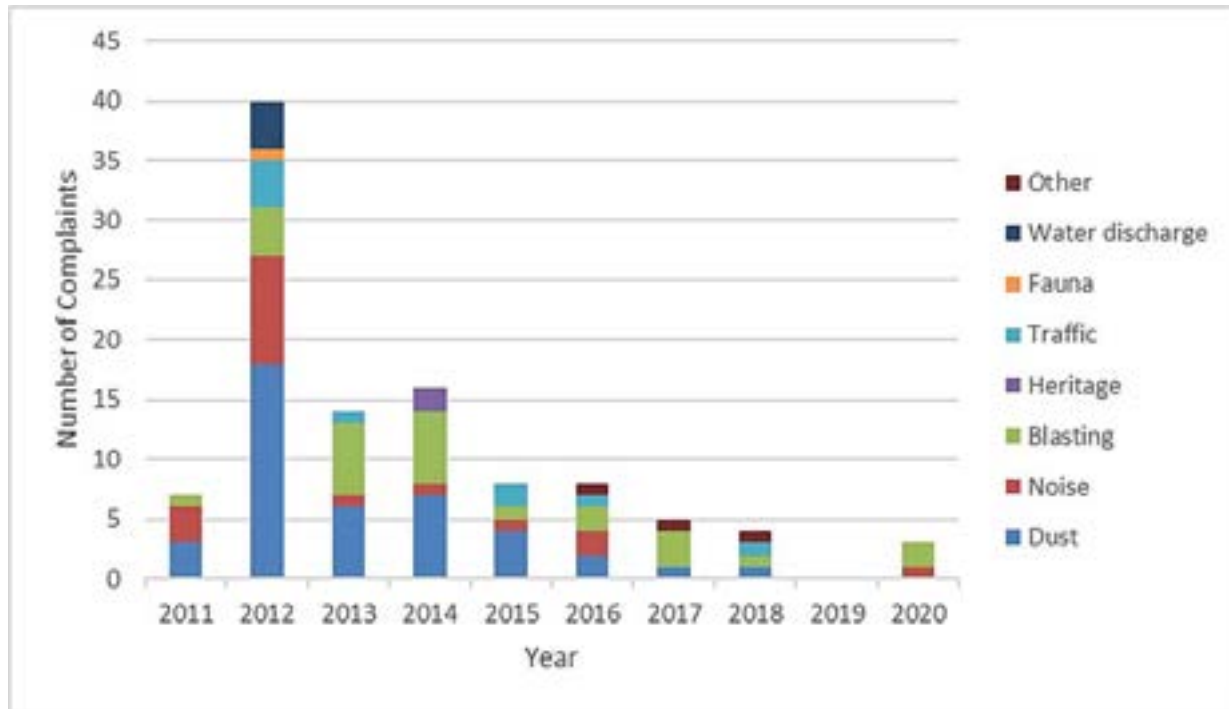
- Date the complaint was logged;
- Personal details provided by the complainant;
- Nature of the complaint;
- Action taken regarding the complaint, or if no action was taken, the reason why; and
- Follow-up contact with the complainant.

A review of the BCM Complaints Register (2011-2020) indicates that the complaints lodged since the start of construction in 2012 mirror the issues raised in the BCM CCC and the BTM CCC. Complaints have largely been associated with dust, noise due to traffic and construction activities, blasting (including vibration), and traffic (particularly with regard to traffic safety).

Graph 1 presents an analysis of the complaints received by BCOPL between 2011 and 2020. Over the 7 year period, BCOPL has received less than 120 complaints in total. Fewer complaints have been received since the transition to mine operations; of the complaints received during operations, blasting complaints are the most common. Several complaints regarding water discharges were raised in 2012, while heritage was raised several times as an issue in 2014. It is noted that only four complaints were received in 2018 and there were no complaints received in 2019. As at December 2020, only three complaints had been raised over the course of the year. These complaints were primarily in relation to noise and blasting impacts, including fumes. Analysis of the BCM Complaints Register indicates that social impacts have been raised infrequently.



**Graph 1 Complaints Analysis 2011-2020**



Source: (BCOPL, 2020b).

### 2.1.6 Contributions and Donations

#### Existing Voluntary Contribution Arrangements

In 2012 a Voluntary Planning Agreement (VPA) was executed pursuant to the then section 93F of the EP&A Act, by DPIE, BCOPL and NSC. To date, \$12,411,258.85 has been provided through the VPA, (since its commencement in 2013) to fund projects in the Narrabri LGA (Table 2). Royalty payments have increased in parallel with the increase in operations at BCM i.e. increase in production. Table 2 confirms contributions made to date by BCOPL. Contributions will continue to be paid in accordance with the VPA.

**Table 2 Breakdown of VPA Contributions (to end 2020)**

Description	Amount Contributed	Date Contributed
Upgrade to Boggabri Caravan Park and Swimming Pool Complex	\$1,600,000	1 July 2013
Community contribution to the Boggabri Home and Community Care Centre applied to the purchase of its current premises and any upgrade of those premises	\$200,000	31 May 2013
Funds applied to the replacement of the bridge across the Namoi River (and other works) on Harparary Road	\$4,300,000	1 July 2014
Funds applied to the upgrade of the Narrabri Aquatic Centre to assist in it becoming a 365 day per year facility	\$2,500,000	1 July 2013

Description	Amount Contributed	Date Contributed
Funds applied to 'Environment' developments within proximity of the BCOPL Mining Precinct, as directed by the BCOPL CCC	\$100,000	1 July 2013
Royalties	\$3,891,258.85	Paid since 1 March 2013
<b>Total</b>	<b>\$12,411,258.85</b>	

Source: (BCOPL, 2019a), (BCOPL, 2020b).

## Community Contributions

In addition to the VPA, BCOPL has provided ongoing sponsorships and grants to a range of local community initiatives, groups and events including:

- Boggabri Drivers Campfire;
- Boggabri and Maules Creek Campdraft;
- Boggabri Public School Facilities Upgrades;
- Narrabri Business Awards;
- Narrabri and District Chamber of Commerce;
- Boggabri Public School Annual Presentation;
- Gunnedah Fire Brigade;
- The Courier 'Live & Leard Locally' Promotion;
- NSW Police Country North;
- Spring Fair and Food Festival; and
- Clontarf Foundation.

Table 3 lists the total annual BCOPL community contributions from 2012-2020.

**Table 3 BCOPL Community Contributions 2012 - 2020**

Year	Total Contributions
2012	\$98,876
2013	\$39,100
2014	\$52,000
2015	\$64,254
2016	\$80,441
2017	\$125,141
2018	\$130,510
2019	\$155,750
2020	\$107,987
<b>Total (2012-2020)</b>	<b>\$854,059</b>

Source: (BCOPL, 2019a), (BCOPL, 2020b).

### 2.1.7 Local Procurement

During 2019, BCOPL had a direct local spend of \$20.3 million (Table 4). Direct local spend encompasses engaging local trades to perform work on site and the use of local suppliers wherever possible. Local trades and suppliers benefiting from local spend include, but are not limited to:

- Trades - Plumbers, fabricators, fitters, mechanics, auto electricians;
- Smash repairers and garages;
- Car dealers;
- Pest control;
- Earthmoving;
- Water carrier services;
- Printeries; and
- Small shops.

**Table 4 BCOPL Local Spend 2013 - 2020**

Year	Total Local Spend (exc. GST)
2013	\$27,757,129
2014	\$23,580,672
2015	\$8,460,064.68
2016	\$12,704,398.46
2017	\$15,348,559.78
2018	\$20,426,923.31
2019	\$20,314,391
2020	\$20,165,770
<b>Total</b>	<b>\$148,757,908.23</b>

Source: (BCOPL, 2019a), (BCOPL, 2021).

## 2.2 The Modification Project

This section provides a summary description of MOD 8, including the proposed construction and operational activities and the associated workforce numbers. A detailed description and conceptual layout of MOD 8 is provided in the Modification Report. Figure 5 illustrates the conceptual layout proposed for MOD 8. MOD 8 generally comprises the following:

- Increasing the approved maximum depth of mining down to the Templemore Coal Seam to recover an additional 61.6 Million tonnes (Mt) of Run of Mine (ROM) coal resource within the currently approved mine disturbance boundary which will be suitable for producing thermal, semi-soft coking and pulverised coal injection (PCI) quality products for sale to the export market. This will result in the extension of the mine life by six (6) years; and
- Construction of a specifically designed fauna movement crossing of the existing haul road between the mining area and the Mine Infrastructure Area. The establishment of the fauna movement crossing is proposed to improve the movement of fauna from the Leard State Forest through the Southern Rehabilitation Area (SRA).

The proposed changes to mining operations will remain within the currently approved Mine Disturbance Boundary. Some very minor substitution of disturbance (less than 1.21 ha) will be required to facilitate the construction of the Fauna Movement Crossing. However, this will be immediately rehabilitated as part of the crossing construction program and overall there will be a net decrease of approximately 2.06 ha in the total area of native vegetation disturbance from what is currently approved at BCM.

MOD 8 has assessed a construction workforce of approximately 15 FTEs for the construction of the fauna movement crossing. No construction personnel will be required for the proposed increase in the depth of mining at BCM. The construction phase is anticipated to be short-term (approximately three months) with construction occurring in parallel with continued operations. During the construction activities in 2013, BCOPL prioritised the hiring of locals, and encouraged its contractors to do the same. A high percentage of the earthworks and civil trade roles during this construction were taken up by locals. BCOPL will continue to prioritise the hiring of locals for construction activities associated with MOD 8.

As discussed in Section 2.1.2, BCM supported a peak workforce of approximately 750 personnel (including employees and contract workers) in June 2020. The proposed MOD 8 workforce is expected to have a peak workforce of 770 FTE which is broadly equivalent to current peak operations at BCM and has been used for SIA assessment purposes. The potential MOD 8 FTE workforce is anticipated to fluctuate from time to time e.g. due to changes such as life of mine scheduling and mine planning. Any potential impacts arising from changes in FTE are addressed in revisions to the SIMP.

## 2.3 Comparison with Approved Operations

A detailed overview of the components of MOD 8 beyond those already approved is provided in the Modification Report. Key components of MOD 8 relevant to the consideration of social impacts and opportunities include:

- A six year extension to the approved mine life i.e. mining operations until 31 December 2039;
- An increase in the depth of approved mining operations, representing an additional 61.6 Mt of ROM coal;
- Continued employment for BCM employees; and
- A construction workforce of up to 15 FTEs during the construction phase i.e. construction activities associated with the development of the fauna movement crossing.

## 3 SIA METHODOLOGY

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This section presents a summary description of the SIA methodology including scope and approach to SIA consultation. A description of the MOD 8 consultation undertaken by BCOPL is provided in the Modification Report.

### 3.1 Objectives

The objectives for this SIA were to:

- Identify the social area of influence of MOD 8;
- Conduct a stakeholder engagement process that informs the social baseline, the impact and opportunities assessment and the development of mitigation measures;
- Develop a comprehensive baseline of social conditions in the social area of influence based on research, analysis and stakeholder engagement;

- Identify potential direct, indirect and cumulative social impacts and opportunities of MOD 8 for the social area of influence;
- Provide an assessment of the likely impacts and benefits, and their significance for each stage of MOD 8 (construction, operation and post-mining); and
- Develop strategies to avoid and/or mitigate social impacts, and actions which would enhance social benefits.

## 3.2 SIA Methodology

Table 5 provides a summary of the SIA methodology against key phases in the SIA process, and outlines the assessment and engagement mechanisms utilised during these phases.

**Table 5 SIA Approach and Methodology**

Methodology	Description of Activities	Reference
<b>Phase 1 – Preparation</b>		
Stakeholder engagement plan	<ul style="list-style-type: none"> <li>■ Initial stakeholder identification and analysis.</li> </ul>	Modification Report Section 3.3
<b>Phase 2 – Scoping</b>		
Identification of material impacts	<ul style="list-style-type: none"> <li>■ Review of 2020 SIMP for the BCM.</li> <li>■ Review of BCOPL complaints register for BCM.</li> <li>■ Review of BCOPL Annual Reports and CCC meeting minutes for BCM and BTM Complex CCC.</li> <li>■ Define social area of influence.</li> </ul>	Section 5.3 Figure 3
<b>Phase 3 – Community Profiling of Social Area of Influence</b>		
Socio-demographic analysis	<ul style="list-style-type: none"> <li>■ Review and analysis of Australian Bureau of Statistics (ABS) Census data and other relevant social and community statistical data sets.</li> <li>■ Identification of areas of community vulnerability through analysis of particular demographic indicators.</li> <li>■ Review of socio-economic statistics relevant to the Indigenous community.</li> </ul>	Section 4
<b>Phase 4 – Identification and Assessment of Impacts and Opportunities</b>		
Analysis of impacts/opportunities	<ul style="list-style-type: none"> <li>■ Stakeholder engagement.</li> <li>■ Review and analysis of the findings of broader Modification Report engagement.</li> <li>■ Identification of potential social impacts and opportunities.</li> </ul>	Section 5

Methodology	Description of Activities	Reference
<b>Phase 5 – Identification of Management and Enhancement Strategies</b>		
Social impact management	<ul style="list-style-type: none"> <li>Review of the management measures contained in the <i>2020 SIMP</i> for relevance to the potential impacts and opportunities of MOD 8.</li> <li>Where necessary, identification and development of additional strategies to address predicted impacts and enhance opportunities.</li> </ul>	Section 5.4
Impact significance assessment	<ul style="list-style-type: none"> <li>Identification of potential social impact significance.</li> </ul>	Section 5.5
Performance monitoring	<ul style="list-style-type: none"> <li>Review of the <i>2020 SIMP</i> monitoring program for relevance to MOD 8 and development of additional performance monitoring tools as necessary.</li> </ul>	<i>2020 SIMP</i> Section 5.6

### 3.3 Stakeholder Engagement

This section provides a summary of the scope of stakeholder engagement undertaken by Hansen Bailey to inform the SIA. A description of the stakeholder consultation process undertaken for MOD 8 is presented in the Modification Report.

#### 3.3.1 Purpose

The purpose of SIA consultation was to validate social baseline data, understand community values and aspirations, and inform an understanding of the different stakeholder perceptions of MOD 8.

#### 3.3.2 Objectives

The key objectives of the SIA engagement program were to:

- Validate social baseline information with key stakeholders;
- Understand issues and concerns;
- Identify potential actions to manage social impacts and/or enhance opportunities; and
- Maintain and enhance existing relationships between BCOPL and key stakeholders.

#### 3.3.3 Stakeholder Identification and Engagement

A detailed description and analysis of key stakeholders for MOD 8 is presented in the Modification Report. Key stakeholders were identified in order to determine stakeholder interest in MOD 8 and the extent to which each stakeholder may be capable of influencing Modification outcomes.

Stakeholder groups who participated in the SIA consultation program are as follows:

- Local Government representatives e.g. Narrabri Shire Council and Gunnedah Shire Council;
- Peak community organisations;
- CCC members;
- Local and regional service and facility providers, including health and emergency services;
- Housing providers e.g. community housing and real estate;

- Business owners and operators; and
- Local and regional community members.

SIA engagement for MOD 8 was undertaken in January 2021 – February 2021. The findings of SIA engagement were supplemented by engagement undertaken by BCOPL and social baseline information presented in available literature. A range of engagement methods (i.e. interviews, telephone discussions and telephone surveys and information dissemination through newsletters) were utilised to gain an understanding of the social areas of influence, as well as to inform the SIA. Consistent with the SIA Guideline, SIA consultation confirmed data, assumptions, findings and potential recommendations. SIA consultation provided insight into the social areas of influence, and allowed perceived impacts and benefits to be considered. It also proved to be useful for information dissemination e.g. providing stakeholders with a MOD 8 briefing.

Engagement with the BCM Aboriginal Stakeholder Consultative Forum (ASCF) in relation to MOD 8 entailed two meetings hosted by BCOPL in September and December 2020. The primary purpose for these meetings were to discuss the proposed methodology for the Aboriginal Cultural Heritage surveys for MOD 8 and to discuss the assessment findings and any final comments on the draft Aboriginal Archaeological Due Diligence Assessment report.

SIA consultation included the distribution of a community newsletter to key stakeholder groups and 13 telephone interviews/surveys with a total of 19 participants. Both community and service provision surveys were designed and conducted. Consultation efforts extended beyond that of total participation and a number of key service providers and organisations were contacted for SIA engagement.

### 3.3.4 Limitations of SIA Consultation

Limitations of the SIA consultation include:

- Some participants were not fully informed of MOD 8 and its' key components prior to the conduct of consultation. This is primarily attributable to the timing of the SIA consultation;
- Stakeholder perceptions of MOD 8 and potential impacts and benefits are based on early MOD 8 understanding; and
- The willingness of stakeholders to engage in telephone discussions/schedule meetings.

## 4 SOCIAL BASELINE

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This section presents a social baseline summary of the BCM communities of interest i.e. Narrabri and Gunnedah LGAs, as well as Boggabri State Suburb (SS).

### 4.1 Social Area of Influence

The social area of influence of the BCM extends along the Namoi Valley from Wee Waa in the north-west, to Narrabri Township, Boggabri, and Gunnedah Township to the south of the mine. Gunnedah Township is the main mining industry service centre for the Gunnedah Basin. The social area of influence is illustrated in Figure 2 and has been defined by the geographic boundaries of the LGA's of Narrabri and Gunnedah. The social area of influence is made up of a local study area and regional study area. The social area of influence has been defined based on an assessment of the communities likely to be impacted by MOD 8, the residential location of the existing BCM workforce and the geographic spread of community contributions and procurement spend made by BCM to date.

### 4.1.1 Local Study Area

The local study area includes BCM and encompasses those neighbours who are at risk of experiencing impacts as a result of MOD 8. The local study area is defined by the boundary of the Boggabri SS and near neighbours. The local study area is illustrated in Figure 2.

Boggabri, the closest town to BCM, is located approximately 15 km south-west of BCM. The town of Boggabri had a population of approximately 1,130 people in 2016 (ABS, 2017). Boggabri is a small rural township that historically was a grazing area. Boggabri boasts a heritage-listed railway station established in 1882 that originally serviced the surrounding region. The history and character of Boggabri remain largely that of a small rural community, despite the influence of the mining industry in the past few decades. Further information on Boggabri, including services and facilities is provided in the following sections.

### 4.1.2 Regional Study Area

BCM is located wholly within the Narrabri LGA. BCM is in close proximity to the Narrabri LGA and Gunnedah LGA administrative boundaries. Gunnedah Township is the main mining industry service centre of the Gunnedah Basin. The regional study area is therefore defined as the combined area of the Narrabri and Gunnedah LGAs.

The Narrabri LGA and the Gunnedah LGA form part of the larger NENW Region, which is defined by the boundaries of the New England North West Statistical Area Level 4 (NENW SA4). The economic benefits of MOD 8 are likely to accrue to the regional study area and beyond to other areas in the NENW Region. The NENW SA4 is considered in this SIA for comparative purposes only and does not form a part of the social area of influence.

These areas are further described in the below sections.

#### Narrabri LGA

In 2016, Narrabri LGA comprised an area of 13,015 km<sup>2</sup> and a population of approximately 13,084 people (ABS, 2017). The Namoi Valley, within Narrabri LGA produces some of the world's highest quality wheat, cotton, lamb and beef. Over time, land use in the Narrabri LGA has diversified from grazing and crop cultivation to cotton production, coal mining and coal seam gas production. Narrabri has a strong and growing economy centred on agricultural production, agribusiness and mineral resource production and includes several research institutions (DPE, 2017).

The town of Narrabri is the key regional centre for the Narrabri LGA and is located approximately 45 km north-west from the BCM. Narrabri township, settled during the 1860s, provides district level services to nearby centres of Boggabri and Wee Waa and smaller settlements in the LGA including Pilliga and Baan Baa.

The main transport connections through Narrabri are the Newell Highway and the Kamilaroi Highway. The Narrabri Airport is also a large transportation hub for the area.

#### Gunnedah LGA

In 2016, the Gunnedah LGA had an estimated resident population (ERP) of 12,215 people (ABS, 2017) and comprised an area of 4,987 km<sup>2</sup>. The population of Gunnedah LGA increased to approximately 12,681 people in 2019 (Profile ID, 2020). Major land uses in the Gunnedah LGA include urban settlement and agriculture (a combination of cropping, grazing and livestock breeding) as well as coal mining. The main transport connections through Gunnedah LGA are the Kamilaroi Highway, the Oxley Highway, the Werris Creek to Mungindi Railway Line north-western railway line and a small airport.



Gunnedah township is the regional centre for the Gunnedah LGA and is located approximately 40 km south from BCM. The town provides district level services.

Gunnedah township was established in the 1850s to support the development of the wheat industry, and later, the construction of a railway that opened in 1879. Coal mining began in the area in the 1880s, however significant population and housing development did not occur until the 1950s and 1960s, responding to the growth of Australia's wool industry.

### **New England North West Region**

The Narrabri and Gunnedah LGAs are located within the south-west area of the NENW Region, for which the closest regional city is Tamworth. The NENW Region has a diverse economy and grows up to a fifth of NSW's agricultural produce (DPE, 2017). The NENW Region includes the LGAs of Armidale, Glen Innes, Severn, Gunnedah, Gwydir, Inverell, Liverpool Plains, Moree Plains, Narrabri, Tamworth, Tenterfield, Uralla, and Walcha. In 2016, the NENW Region had a population of 181,555 people (ABS, 2017).

#### **4.1.3 Indigenous Areas**

The BCM is located within the Kamilaroi people's traditional nation which extends from Muswellbrook LGA within the south east to the Queensland border at Mungindi.

#### **4.1.4 Statistical Geography and Data Sources**

The social baseline draws primarily on the most recently available 2016 ABS Census data as well as the 2006 and 2011 ABS Census data sets. Census data presented in the following sections is for the geographical areas of the Narrabri and Gunnedah LGAs and the significant urban areas within those LGAs, namely the towns of Boggabri, Narrabri and Gunnedah. Data is also provided for the New England North West Statistical Area Level 4 (NENW SA4) and the State of NSW for comparative purposes.

To inform the social baseline further, a multitude of data sources were considered and utilised. In addition to census data, data was sourced from realestate.com, SQM Research, Residex, Public Health Information Development Unit (PHIDU) and the NSW Bureau of Crime Statistics and Research.

#### **Baseline Data Availability**

The majority of data provided by the ABS is sourced from the 2016 ABS Census and is no longer current. Specific data e.g. health and labour market information was also inconsistently available for some of the selected geographical areas e.g. Boggabri SS. The inconsistent release times and overall accessibility of data meant that other data sources were considered to supplement the findings of the social baseline further i.e. housing data. This is largely due to a lag time between data collation and data availabilities to the public. As a result of these constraints, interviews were conducted with service providers, and local Government stakeholders to confirm baseline data.

## **4.2 Policy and Planning Context**

This section describes the planning context relevant to MOD 8 with reference to regional and local strategic and corporate planning guidance.

### **4.2.1 Regional Plan**

BCM is located in the NENW Region of NSW. Development across the NENW Region is guided by the provisions of the *New England North West Regional Plan 2036* (Regional Plan) (DPE, 2017). The Regional Plan replaces the former New England North West Strategic Regional Land Use Plan (SRLUP) (DPI, 2012). The

Regional Plan includes a suite of actions relating to the effective management of the social impacts of mining and coal seam gas development in the NENW Region.

The Regional Plan provides an overarching framework to guide subsequent and more detailed land use plans, development proposals and infrastructure funding decisions in the NENW Region. The Regional Plan is a tool to guide the NSW Government's land use planning priorities and decisions over the next 20 years. The vision for the NENW Region is articulated in four regionally focused goals, as presented in Table 6.

**Table 6 BCM's Contribution to NENW Region Goals**

NENW Region – Goals	BCM Contribution
Have a strong and dynamic regional economy.	BCM provides employment and procurement opportunities and benefits, whilst also committing to local spend. BCM encourages a strong regional economy.
Encourage a healthy environment with pristine waterways.	The potential environmental impacts of BCM are minimised through Modification design, compliance with regulatory requirements and through the implementation of a number of environmental management plans.
Develop strong infrastructure and transport networks for a connected future.	Through the delivery of the Boggabri ELF, the fulfilment of the Boggabri Housing Commitment and investments facilitated by the BCM VPA and BCOPL community sponsorships and donations, the BCM supports improvements in social infrastructure across the Narrabri and Gunnedah LGAs.
Encourage attractive and thriving communities.	The BCM employs a locally based workforce which in turn supports population stability and contributes to community strength. The BCM VPA and community investments by BCOPL support the development of thriving local communities.

The priorities outlined in the Regional Plan for the Gunnedah and Narrabri LGAs and relevant to the socio-economic context of the SIA include:

- Deliver a variety of housing options and promote development that contributes to the unique character of the region;
- A focus on the development of employment lands and new industry opportunities;
- Expand nature-based adventure and cultural tourism places; and
- Diversification of the energy and agricultural sectors including upskilling workers.

#### 4.2.2 Narrabri and Gunnedah Shire Council Plans and Strategies

Development in the LGAs of Narrabri and Gunnedah are controlled by the provisions of the relevant Local Environmental Plans (LEPs), including Strategic Plans. LEPs specify the planning and land use management aims for public and private land through zoning in accordance with the EP&A Act. BCM is located within the Narrabri LGA and the development is subject to the land use zoning provisions of the Narrabri Local Environmental Plan 2012 (Narrabri LEP). Adjoining land to BCM is located within the Gunnedah LGA. Therefore, the zoning provisions of the Gunnedah Local Environmental Plan 2012 (Gunnedah LEP) are also considered within this section. Land use zonings relevant to BCM are discussed in Section 4.4.

Table 7 summarises the objectives and desired outcomes of the Narrabri LEP, Gunnedah LEP and Strategic Plans.

**Table 7 Narrabri and Gunnedah Shire Council Plans and Strategies**

Plan / Strategy	Summary
Narrabri LEP (2012) <sup>1</sup>	<p>The aims of the Narrabri LEP include:</p> <ul style="list-style-type: none"> <li>■ Orderly management, development and conservation of natural, mineral, agricultural and heritage resources;</li> <li>■ Diversity of settlement and living options; and</li> <li>■ Diversity of business enterprise and employment options.</li> </ul>
Narrabri Community Strategic Plan (2017-2027) <sup>2</sup>	<p>NSC's vision is to develop as a strong and vibrant regional growth centre, including:</p> <ul style="list-style-type: none"> <li>■ Narrabri LGA as a regional centre with infrastructure that supports business, tourism, connectivity;</li> <li>■ Adequate health services to meet the needs of a regional centre;</li> <li>■ Expanded education services and learning pathways;</li> <li>■ Adequate housing options available to meet demand;</li> <li>■ Sustainable planning, land use, and resource consumption;</li> <li>■ Preservation of the natural environment for future generations;</li> <li>■ A safe and supportive community where all are welcomed, valued, and connected.</li> </ul>
Gunnedah LEP (2012) <sup>3</sup>	<p>The aims of the Gunnedah LEP include to:</p> <ul style="list-style-type: none"> <li>■ Conserve and enhance local ecological integrity, heritage and significance;</li> <li>■ Promote local economic wellbeing in a socially and environmentally responsible way;</li> <li>■ Proper management of productive agricultural land, avoiding fragmentation;</li> <li>■ Facilitate a range of new housing and housing choice;</li> <li>■ Facilitate provision and co-ordination of community services and facilities;</li> <li>■ Seek provision of adequate infrastructure to meet future needs of development;</li> <li>■ Provide direction and guidance in the management of growth and development;</li> <li>■ Environmental hazards associated with development;</li> <li>■ Conserve the cultural and environmental heritage of Gunnedah; and</li> <li>■ Minimise risk of environmental hazards associated with development.</li> </ul>
Gunnedah Community Strategic Plan (2017-2027) <sup>4</sup>	<p>The strategic plan is based on a vision for a prosperous, caring and proud community which includes:</p> <ul style="list-style-type: none"> <li>■ Welcoming and supporting one another, working in partnership;</li> <li>■ Embracing and preserving heritage, natural resources and social fabric; and</li> <li>■ Enjoying access to services and facilities in Gunnedah and Tamworth while valuing the tranquillity, safety, beauty and friendliness of a rural community.</li> </ul>

*Sources:*

1. (NSW Government, 2012a)
2. (Narrabri Shire Council, 2017)
3. (NSW Government, 2012b)
4. (Gunnedah Shire Council, 2017)

### 4.3 Mining Development and Major Projects

Gunnedah LGA and Narrabri LGA have significant resources of thermal and coking coal, and both LGAs contain underground and open cut coal mines and projects. The coal mining industry has expanded in the both LGAs over several decades. BCM is one of six mines located in the regional study area. Whitehaven Coal operates four open cut mines and one large underground mine in the surrounding area, including Maules Creek and Narrabri Underground Mine.

Existing mining operations, approved projects and currently proposed projects located in the vicinity of BCM are presented in Table 8 and Table 9. These tables provide some insight as to the potential scale of future planned development and land use activities in the areas of interest.

The social and economic environment of the communities within which BCM operates has the potential to change if one or more of the projects currently progressing through the regulatory approvals process are approved and progress to construction and operation within the next three years.

In 2020, both the Narrabri Gas Project and the Vickery Extension Project were approved. Both projects are located within the regional study area and are in proximity to the BCM. The Narrabri Gas Project and the Vickery Extension Project anticipate sizeable workforces. The cumulative impacts of approved projects e.g. the Vickery Extension Project and the Narrabri Gas Project, and BCM are considered in Section 5.5.

**Table 8 Nearby Existing Operations and Approved Projects**

Project	Description	Location	Project life	Workforce
<b>Existing Mining Operations</b>				
Werris Creek	Open cut coal mine	Liverpool Plains LGA	2005-2032	Approx. 70 FTE jobs
Tarrowonga Coal	Open cut coal mine	Narrabri LGA	2006-2029	Approx. 120 FTE jobs
Rocglen Coal	Open cut coal mine	Gunnedah LGA	2008-2020	Approx. 55 FTE jobs
Narrabri North Coal	Underground coal mine	Narrabri LGA	2010-2031	Approx. 330 FTE jobs
Narrabri Coal - Stage 2 (Modification 6)	Approved Modification	Narrabri LGA	2010-2031	N/A
Maules Creek	Open cut coal mine	Narrabri LGA	2013-2034	Approx. 450 FTE jobs
Sunnyside Coal	Open cut coal mine	Gunnedah LGA	2009-2020	Up to approx. 40 FTE jobs
Whitehaven Coal Handling and Preparation Plant (CHPP)	CHPP	Gunnedah LGA	2002-2022	Approx. 10 FTE jobs
<b>Approved Projects</b>				
Narrabri Gas Project	Approved petroleum extraction	Narrabri LGA	20 year project life	Construction approx. 1,300 FTE jobs; operation

Project	Description	Location	Project life	Workforce
				approx. 200 FTE jobs.
Watermark Coal Project (Shenhua)	Approved open cut coal mine	Gunnedah LGA	30 year mine life	Construction approx. 600 FTE jobs; operation approx. 600 FTE jobs.
Vickery Coal Mine Project	Approved open cut coal mine	Gunnedah LGA	2014-2044	Operation approx. 250 FTE
Vickery Extension Project	Approved open cut coal mine	Narrabri LGA and Gunnedah LGA	30 year mine life	Construction approx. 500 FTE jobs; operation approx. 450 FTE jobs.
Narrabri South Solar Farm, Canadian Solar	Approved solar farm	Narrabri LGA	30 year operational life	Construction approx. 200 FTE jobs; operation approx. 4 jobs.
Orange Grove Solar Farm	Approved solar farm	Gunnedah LGA	30 year project life	Construction approx. 100 FTE jobs; operation 3 FTE jobs.
Wilga Park Power Station (MOD 7)	Approved MOD Power Station	Narrabri LGA	One month	NA
Narrabri Gas – Dewhurst Exploration Modification 3	Approved MOD	Narrabri LGA	NA	NA
Tarrowonga Mine MOD 7	Approved MOD	Narrabri LGA	No change	No change

Source: DPE, 2019a.

**Table 9 Projects in the Development Approvals Process**

Project	Status	Location	Project life	Workforce
Inland Rail (Narromine to Narrabri, Narrabri to North Star (Phases 1 and 2))	EIS Preparation (Narromine to Narrabri). Determination approved (Narrabri to North Star Phase 1) and More Information Required (Narrabri to North Star Phase 2).	Narrabri LGA and others	48 months construction (Narromine to Narrabri); 44 months construction (Narrabri to North Star Phase 1), expected to be operational in 2025.	Construction approx. 500 jobs (Narrabri to North Star Phase 1)

Project	Status	Location	Project life	Workforce
Wee Waa Solar Farm	EIS Preparation	Narrabri LGA	30 year project life	Construction approx. 80 FTE jobs; operation approx. 3 FTE jobs.
Silverleaf Solar Farm	Response to Submissions	Narrabri LGA	35 year operational life	Construction approx. 120 FTE jobs; operation 6 FTE jobs.
Narrabri Underground Mine - Stage 3	EIS Exhibition	Narrabri LGA	20 year project life	Continued operational employment of 370 employees
Narrabri Grain Storage and Rail Transfer Facility	EIS Preparation	Narrabri LGA	NA	NA
Maules Creek Coal Mine (MOD 7)	On public exhibition	Narrabri LGA	NA	NA

Source: (DPIE, 2021)

## 4.4 Surrounding Land Use

This section provides a brief summary of the land use surrounding the BCM and the key land use changes since the granting of SSD 09\_0182. Further information on surrounding land use is provided in the Modification Report.

### 4.4.1 Existing Zoning Land Use

Narrabri LEP land use zonings within and adjoining the BCM include:

- RU3 – Forestry (and covers the area of the BCM mining areas within the Leard State Forest);
- RU1 – Primary Production; and
- E1 – National Parks and Nature Reserves.

Land ownership within and surrounding the BCM is shown in Figure 4 and largely includes the following land uses:

- State forest which includes commercial forestry activities (Pilliga East, Leard, and Jacks Creek State Forests);
- Rural land under the ownership of the proponent and utilised for a range of rural land uses including cropping and grazing;
- Open-cut mining operations – Whitehaven Coal’s Maules Creek Mine adjoins the north-eastern boundary of the BCM. Tarrowonga Mine is located immediately south of the BCM (Figure 1);
- Underground mining operations – Whitehaven Coal’s Narrabri Underground Mine is located approximately 25 km north-west of the BCM (Figure 1);
- Biodiversity conservation (Leard State Conservation Area and Mount Kaputar National Park) (Figure 1); and
- Traditional agriculture (cropping and grazing) on privately held freehold land.

In 2016, grazing was the dominant land use in the Boggabri SS occupying 73% of the land area. Approximately 21% of the land area is used for dryland farming. Irrigated production has been developed across 7% of the land area. Cotton is the main irrigated crop, with a small amount of horticulture production, and irrigated pasture and cereal production. Other agricultural outputs include wheat, barley, legumes and sheep (Murray–Darling Basin Authority, 2016).

#### 4.4.2 Local and Regional Land Use Change

Land use zoning maps from the Narrabri LEP were reviewed to identify any significant changes in land use zoning proximate to the BCM (Section 4.2.2). This review did not identify any material changes to land use zonings proximate to BCM since the introduction of the Narrabri LEP in 2012.

Google Earth imagery from the mid-1990s to 2020 was reviewed to identify key land use changes in the local and regional social areas of influence since the granting of SSD 09\_0182.

The LGA boundaries for Narrabri and Gunnedah have remained consistent between 2011 and 2020.

At the time of the granting of SSD 09\_0182, the dominant land uses within areas proximate to the BCM were:

- Residential;
- Agriculture and primary production – primarily cropping activities; and
- Forestry – within the State Forests.

As of December 2020, residential and agricultural land uses remain dominant, however, open-cut mining is now also prevalent across the social area of influence. Since the granting of SSD 09\_0182, there has been a significant increase in the amount of land surrounding BCM and the Leard State Forest that is now owned by mining companies i.e. Whitehaven Coal, specifically land to the north, north-east and south of the BCM. A handful of properties to the west of the BCM are now also owned by BCOPL.

Residential land uses proximate to the BCM continue to be concentrated in the township of Boggabri to the south-west of BCM. Additional houses have been built within the current footprint of the Boggabri township, but these have not expanded the township boundary. Agricultural land uses in the larger Narrabri LGA and Gunnedah LGA have changed little in the period since the granting of SSD 09\_0182. Since the granting of SSD 09\_0182, the most significant land use change in proximity to the BCM is the construction and commencement of operations at Tarrawonga Mine and Maules Creek Mine. Both Tarrawonga Mine and Maules Creek Mine are open cut mining operations. The Maules Creek Mine has significantly encroached upon the northern portion of Leard State Forest. BCM and Tarrawonga Mine have encroached on the southern portion of the forest and are generally advancing northwards towards the operations at Maules Creek Mine.

The effects (positive and negative) of mining expansion across the Narrabri and Gunnedah LGAs (due to employment, workforce demands and economic output) largely accrue to the communities of Boggabri, Narrabri and Gunnedah due to proximity to the mining operations. The intensification of coal mining and emergence of gas interests over the last 10 years in the local and regional social area of influence, has challenged the traditional agricultural basis of nearby communities, creating key changes in attitudes to land use and several new opportunities for employment and economic growth.

The effects of drought on the agricultural industry in the LGAs of Narrabri and Gunnedah are extensive, and drought conditions have the potential to impact future agricultural land uses within these LGAs (Gunnedah Shire Council, 2019) (Gregory, 2019). Changes in land use has promoted changing attitudes towards land use, including individuals' who perceive the mining industry as increasing economic livelihood and individuals' who perceive the mining industry as a threat to the rural way of living in Narrabri and nearby areas i.e. Gunnedah (Askland H, Askew M, Hanley J, Sherval M, Farrugia D, Threadgold S, Coffey J., 2016).



In summary, the findings of the land use analysis show that since the granting of SSD 09\_0182:

- No material changes have occurred in land zoning adjoining and proximate to the BCM.
- At a regional level, the most significant land use changes relate to the expansion in the coal mining industry with the approval and commencement of mining operations e.g. Whitehaven operations (Tarrawonga Mine and Maules Creek Mine).
- There has been a significant change in land ownership in the region. The amount of land owned by mining corporations in the social area of influence has increased.
- There has been limited change and/or growth in the footprints of the townships of Boggabri, Narrabri and Gunnedah. However, residential development has occurred on the outskirts of these townships. A small area land zone RU4 Primary Production Small Lots is located to the immediate north west of the Boggabri urban footprint.
- Gunnedah LGA continues to develop as a regional centre to support the surrounding mining and agriculture industries. This growth, however, has not resulted in significant residential growth.
- In line with the expansion of the surrounding coal mining industry and recent mining approvals, residential growth is anticipated in the regional centres of Gunnedah and Narrabri.

## 4.5 Population and Demography

The following data, primarily sourced from the ABS 2016 Census, provides an overview of the population and key demographic characteristics of the social area of influence.

### 4.5.1 Population and Population Growth

Table 10 presents the population growth in all relevant geographic areas for the ABS Census years 2006, 2011 and 2016.

Between 2006 and 2016, Gunnedah LGA experienced a steady population increase (5.7%) in comparison with the surrounding Narrabri LGA, which experienced a decrease of 0.2%. NENW Region also experienced a steady population increase between 2006 and 2016 (5%). This reflects the population growth trend in the wider area of NSW (12%).

At a local level, the Boggabri SS experienced a small overall increase in population between 2006 and 2016 but a population decline between 2011 and 2016. This decline in population is likely associated with the completion of the construction phase of the Boggabri Continuation of Mining Project at BCM and transition to operations

**Table 10 Population Growth, 2006-2016**

Geographic Area	2006	2011	2016	Change 2006-2016 (%)
Boggabri SS	1,072	1,189	1,130	5.1
Gunnedah LGA	11,524	12,065	12,215	5.7
Narrabri LGA	13,113	12,926	13,084	-0.2
NENW SA4	172,396	176,193	181,555	5.0
NSW	6,549,174	6,917,656	7,480,228	12.4

Source: (ABS, 2007; ABS, 2012; ABS, 2017)



## Indigenous Population

Table 11 presents Aboriginal and Torres Strait Islander (ATSI) population data for the social area of influence. The Indigenous population is a significant component of the population of both Narrabri and Gunnedah LGAs, comprising 13% of the population of Gunnedah LGA and 12% of the population of Narrabri LGA. The Indigenous population of Gunnedah LGA is the highest of all the areas of interest. Boggabri township also has a high percentage of ATSI persons (11%) with significant population growth occurring between 2011 and 2016.

**Table 11 Aboriginal and Torres Strait Islander Population - 2006-2016**

Geographic Area	2006	2011	2016	Change 2006-2016 (%)
Boggabri SS	68	65	127	46.5
Gunnedah LGA	1,169	1,363	1,568	25.5
Narrabri LGA	1,201	1,388	1,595	24.7
NENW (SA4)	-	15,797	18,415	14.2 <sup>1</sup>
NSW	138,506	172,620	216,176	35.9

Source: (ABS, 2007; ABS, 2012; ABS, 2017).

Note:

1. This percentage change is from 2011 to 2016, and SA4 data was not available in 2006.

### 4.5.2 Population Projections

The NSW Government releases population projections for LGAs in NSW, taking into account findings from the 2016 ABS Census, preliminary ERPs published by the ABS for the period 2006-2016, and the latest data and expertise on fertility, mortality and migration. These projections do not take into account in-migration within NSW and the workforces associated with potential projects such as mining related projects. Table 12 presents the DPIE population projections from 2016 to 2041 for the areas of interest.

**Table 12 Population Projections, 2016-2041**

Geographic Area	2016	2026	2036	2041	Change 2016-2041 (%)
Narrabri LGA	13,367	13,176	12,765	12,505	-6.4%
Gunnedah LGA	12,491	12,698	12,693	12,618	1.0%
NENW Region <sup>1</sup>	185,681	191,348	191,894	190,965	2.8%
NSW	7,732,858	9,011,010	10,077,964	10,572,696	36.7%

Source: (DPIE, 2020a), (DPIE, 2020b).

Note:

1. Data available for New England North West Region (NEWNW Region). NEWNW Region boundary is consistent with the NENW SA4.

Table 12 shows that Gunnedah LGA and NEMW Region are both expected to grow at a substantially slower rate than NSW between 2016 and 2041. In comparison, the Narrabri LGA population is expected to decline by 6.4% during the period of 2016-2041. This projected decline could be associated with the current closure

dates for the Maules Creek Mine and BCM. Consultation findings with NSC indicate that this decline is no longer anticipated/is unfounded due to the continuation of resource projects in the area, and the recent approval of several projects in the area e.g. Vickery Extension Project, Narrabri Gas Project and the Inland Port. Through the continuation of projects, the NSC anticipates the Narrabri population to remain steady/experience a slight increase from project workforces.

### 4.5.3 Age and Gender

Table 13 shows key age and gender indicators for the social area of influence and comparative areas.

**Table 13 Age and Gender Indicators, 2016**

Location	% Males	Median Age (persons) (#)	<15 years (persons) (%)	>65 years (persons) (%)
Boggabri SS	50.5	41	18.4	21.6
Gunnedah LGA	50	40	20.6	19
Narrabri LGA	49.9	40	21.3	17.6
NENW (SA4)	49.2	41	19.6	19.6
NSW	49.3	38	18.5	16.3

Source: (ABS, 2017).

All areas of interest have a slightly higher median age than NSW and also have a slightly higher proportion of persons over 65 years of age compared to NSW. All other age and gender indicators within the social area of influence remain comparable.

## 4.6 Population Mobility

Population mobility levels provide some indication of community cohesion, as retaining a stable community population over time supports a stronger community.

Table 14 shows the mobility of the communities of interest in 2011 and 2016. Table 14 highlights relatively stable levels of mobility in the population of the communities of interest in 2016. Between 2011 and 2016, rates of mobility have increased. In 2016, over half of the population in each area of interest has lived at the same address as 5 year ago. All reported areas mimic the NSW averages. The slight variance suggests that there is a relatively proportionate influx and outflow of people in these areas. The data also reflects the transition from construction to operations at BCM in 2016.

**Table 14 Population Mobility, 2011 – 2016**

Geographic Area	Same usual address in 2011 as:		Same usual address in 2016 as:	
	1 Year Ago (%)	5 Years Ago (%)	1 Year Ago (%)	5 Years Ago (%)
Boggabri SS	82	57	77	55
Narrabri LGA	81	60	77	58
Gunnedah LGA	80	58	77	55

Geographic Area	Same usual address in 2011 as:		Same usual address in 2016 as:	
	1 Year Ago (%)	5 Years Ago (%)	1 Year Ago (%)	5 Years Ago (%)
NENW (SA4)	80	57	76	55
NSW	81	57	77	54

Source: (ABS, 2017)

## 4.7 Family and Household Composition

### 4.7.1 Household Composition

Table 15 presents household composition in the areas of interest. Relevant trends in the data include:

- All areas of interest have a relatively high proportion of family households;
- Boggabri SS has a significantly higher proportion of lone person households than all other areas of interest; and
- Boggabri SS has a larger proportion of group households.

**Table 15 Household Composition, 2016**

Geographic Area	Households (%)			Total Households
	Family	Lone Person	Group	
Boggabri SS	65.3	31.0	3.6	321
Narrabri LGA	69.5	27.6	2.8	4,618
Gunnedah LGA	69.3	28.2	2.5	4,532
NENW (SA4)	68.1	28.8	3.1	66,302
NSW	72	23.8	4.2	2,604,306

Source: (ABS, 2017).

### 4.7.2 Family Composition

Table 16 presents the percentage of families by family type for the social area of influence and comparative areas. Table 16 shows that the Boggabri SS has a significantly lower proportion of couple family households with children compared to the other areas of interest. The Boggabri SS also has a larger proportion of one parent family households and lone person households when compared to all other areas of interest.

**Table 16 Household Composition, 2016**

Geographic Area	Couple Family:		One Parent Family (%)	Other Family (%)
	No Children (%)	With Children (%)		
Boggabri SS	27.4	21.3	16.1	0.7
Narrabri LGA	28.7	28.3	11.7	0.8
Gunnedah LGA	28.2	28.8	11.2	1.1
NENW (SA4)	28.9	26.0	12.0	1.1
NSW	25.8	33.6	11.4	1.3

Source: (ABS, 2017).

## 4.8 Housing and Accommodation Profile

The following data, sourced from the 2016 Census, SQM Research, Residex and realestate.com.au, provides an overview of the key housing characteristics of the geographic areas relevant to the social area of influence. The review of baseline housing conditions in the social area of influence shows notable changes in housing market conditions in key locations since 2016. The housing data shows some tightening of the housing market across the Boggabri, Narrabri and Gunnedah localities. This aligns with the findings of SIA consultation that indicated a low vacancy rate and a high rate of purchase.

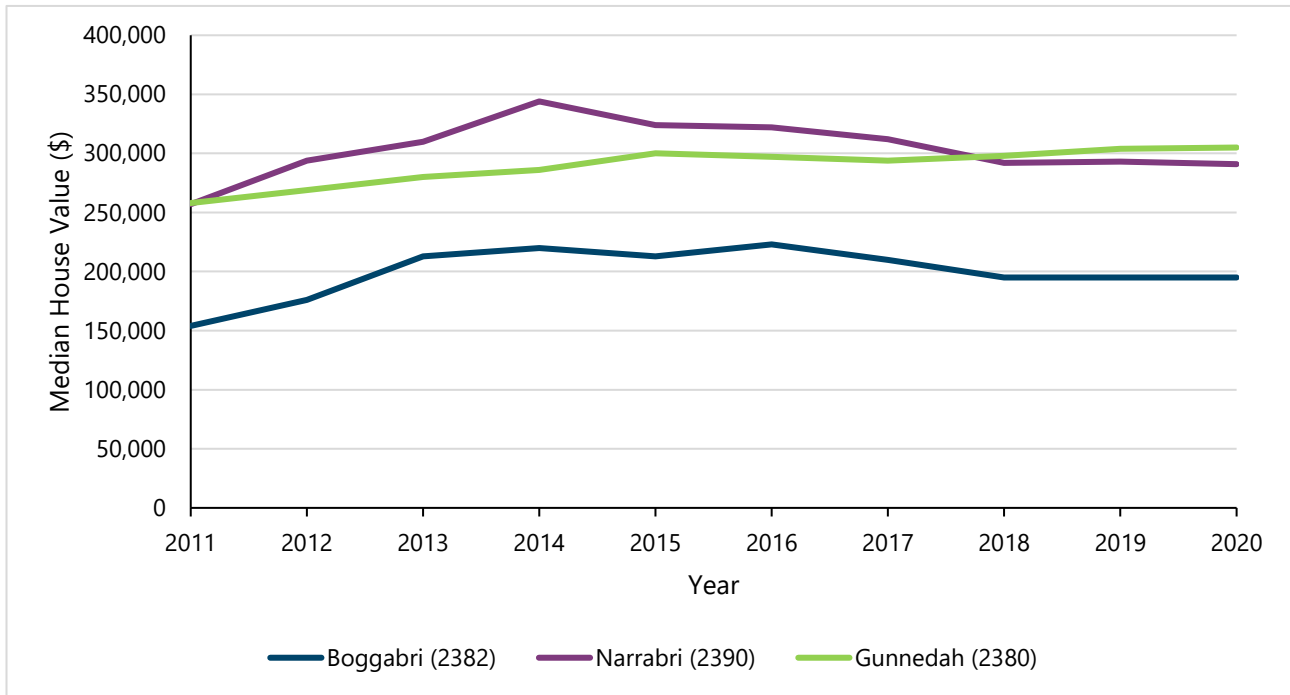
In addition to ABS geographic areas, this section assesses the key housing characteristics of the three primary residential areas nearby BCM. These residential areas are defined by their postcodes and are:

- Narrabri 2390;
- Boggabri 2382; and
- Gunnedah 2380.

### 4.8.1 Median House Prices

Graph 2 presents the median house prices for Boggabri, Narrabri and Gunnedah postcode areas (based on non-ABS suburb areas) between 2011 and 2020. The information is drawn from Residex Pty Ltd (2020). Graph 2 shows that the median house price in Boggabri between 2011 and 2020 has been consistently lower than both Narrabri and Gunnedah. There was a trend of increasing house prices from 2011 to 2014 for Boggabri and Narrabri, following which there has been a slight decline from 2016 to 2020.

**Graph 2 Median House Prices, 2011-2020**



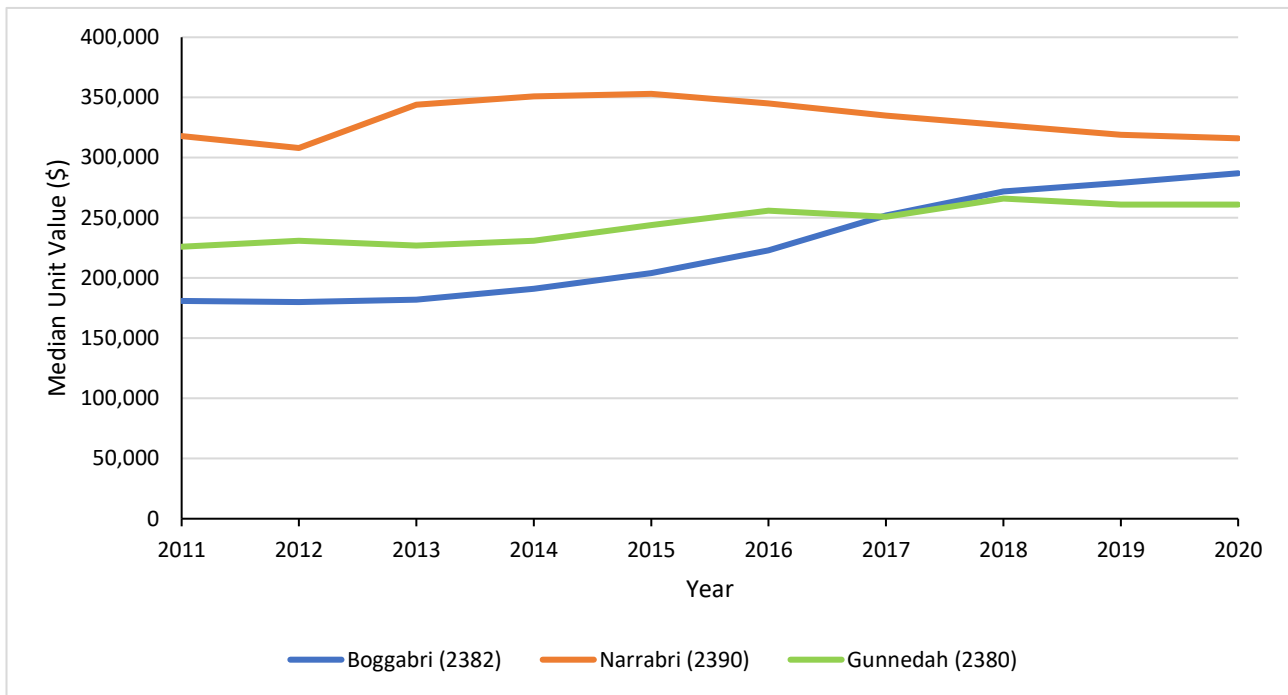
Source: (Residex Pty Ltd, 2020a; Residex Pty Ltd, 2020b; Residex Pty Ltd, 2020c)

In consultation with regional real estate providers, it was noted that housing prices are increasing in the region, specifically in the Gunnedah LGA. They spoke about the increasing popularity of Gunnedah township as a ‘tree change’ destination.

**4.8.2 Median Unit Prices**

The median unit prices for Boggabri, Narrabri and Gunnedah postcode areas are shown in Graph 3 for the years 2011-2020. Information was drawn from suburb reports available on Residex Pty Ltd (Residex Pty Ltd, 2020a; Residex Pty Ltd, 2020b; Residex Pty Ltd, 2020c). Narrabri had the highest unit price for the period between 2011 and 2020, peaking at \$353 thousand (K) in 2015 and then steadily decreasing to 2020. Unit prices increased in both Boggabri and Gunnedah between 2011 and 2020, however the median unit price in Boggabri changed substantially over this period, increasing by almost 60% to \$287 K in 2020.

**Graph 3 Median Unit Prices, 2011-2020**



Source: (Residex Pty Ltd, 2020a; Residex Pty Ltd, 2020b; Residex Pty Ltd, 2020c)

### 4.8.3 Median Weekly Rent

Table 17 outlines the median rent over time for the areas of interest. Table 17 shows a trend of increasing median rent from 2006 to 2016 across all areas of interest, with the most significant increase (150%) experienced in Boggabri SS. This can be partly attributed to the expansion of operations at BCM during the early 2010’s and the popularity of Boggabri as a locality for mine employees and their families.

**Table 17 Median Rent, 2006-2016**

Geographic Area	2006	2011	2016	Change 2006-2016 (%)
Boggabri SS	100	150	250	150
Narrabri LGA	110	141	200	81
Gunnedah LGA	120	180	240	100
NENW (SA4)	130	175	220	69
NSW	210	300	380	81

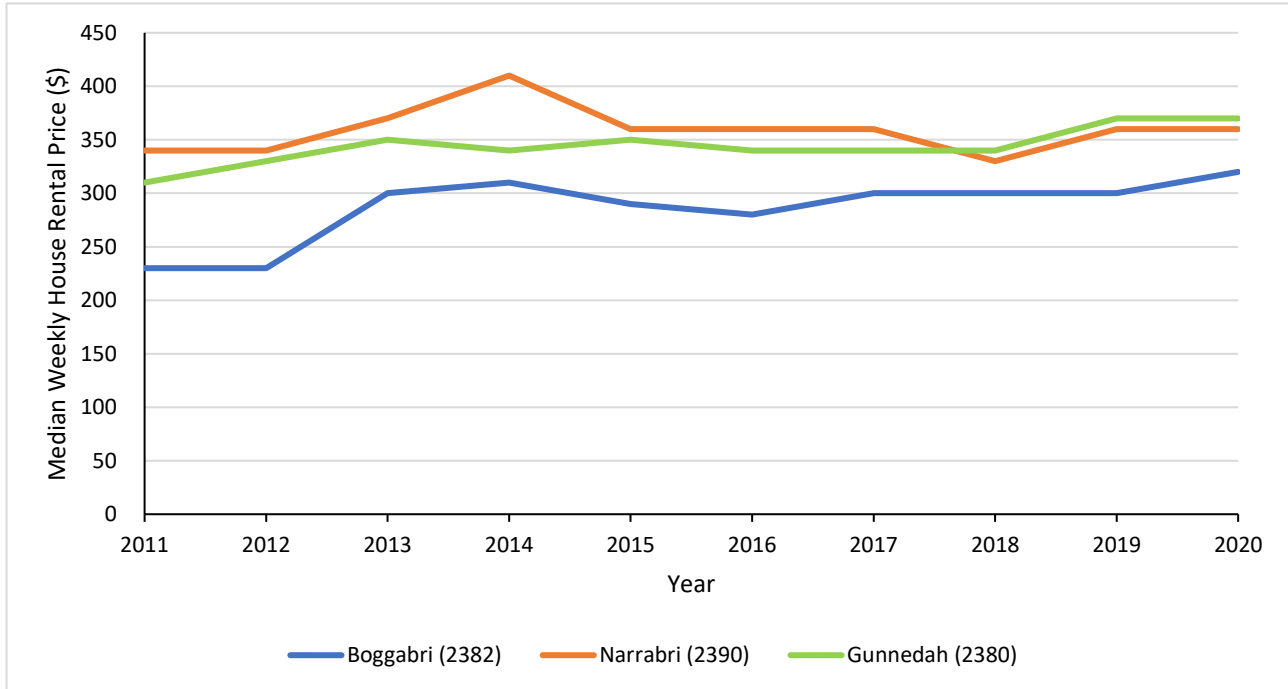
Source: (ABS, 2007; ABS, 2012; ABS, 2017)

### Median House Weekly Rent

The weekly rental price for houses in Boggabri, Narrabri and Gunnedah postcode areas is shown in Graph 4. Information on median house weekly rent was sourced from Residex Pty Ltd (2020). Weekly house rental prices between 2011 and 2020 were similar for Narrabri and Gunnedah. The weekly house rental prices were consistently lower in Boggabri between 2011 and 2020, suggesting that the Boggabri SS is slightly more

affordable than neighbouring townships (Section 4.8.4). Narrabri experienced a peak weekly house rental price of \$410 in 2014, consistent with the peak in median housing prices.

**Graph 4 Median House Weekly Rent, 2011-2020**

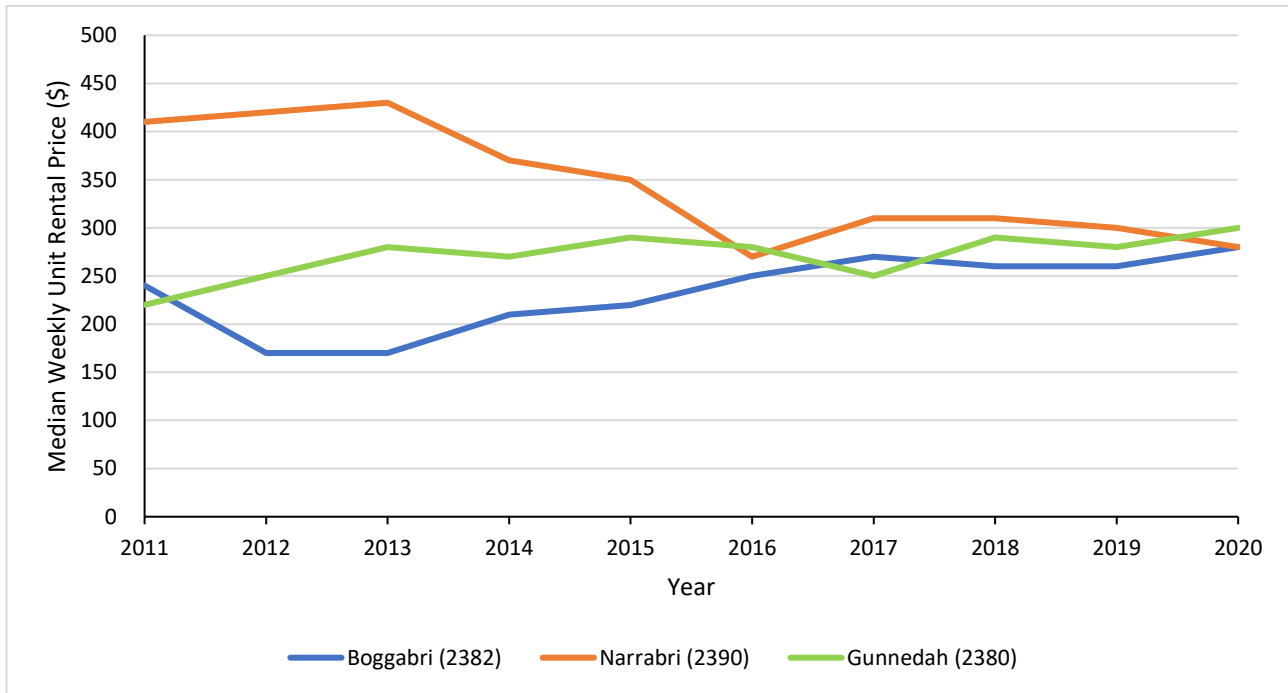


Source: (Residex Pty Ltd, 2020a; Residex Pty Ltd, 2020b; Residex Pty Ltd, 2020c)

**Median Unit Weekly Rent**

Graph 5 shows the median weekly rental price for units in Boggabri, Narrabri and Gunnedah postcode areas. Information was drawn from Residex Pty Ltd (2020). The median weekly unit rental prices show Narrabri having the highest price from 2011-2015, followed by Gunnedah and Boggabri. Since 2016, median weekly unit rental prices in all three postal suburbs have been more similar. The highest median weekly unit rental price was \$430 for Narrabri in 2013.

**Graph 5 Median Unit Weekly Rent, 2011-2020**



Source: (Residex Pty Ltd, 2020a; Residex Pty Ltd, 2020b; Residex Pty Ltd, 2020c)

#### 4.8.4 Housing Affordability

Affordability is a function of both housing costs and household income. The housing affordability characteristics of the social area of influence, drawn from the ABS (2017), are described below:

- All areas of interest have significantly fewer households in rental stress than NSW (12.9%):
  - » Boggabri SS – 8.3%;
  - » Gunnedah LGA – 10%;
  - » Narrabri – 8.5%;
  - » NENW 10.4%; and
- Analysis of purchase stress shows there are fewer purchasers in housing stress in Boggabri SS (3.8%), Gunnedah LGA (4.2%), Narrabri LGA (4.2%) and NENW (4.7%) compared to purchasers in housing stress in NSW (7.4%) (ABS, 2017).

During SIA consultation, a number of real estate providers indicated that tenants and potential tenants are experiencing feelings of anxiety and stress in relation to decreased residential vacancy and overall lack of housing availability (Section 4.8.4 and 4.8.5 respectively).

#### 4.8.5 Residential Vacancy Rates

Between 2009 and 2020, residential vacancy rates in Narrabri (postcode 2390) fluctuated significantly from less than 1% (two vacancies) in 2009, to a peak of around 5% (55 properties) in December 2015 and a current vacancy rate of 1.4% (19 vacancies) in December 2020 (SQM Research 2020). Rental vacancy rates reflect demand for rental accommodation.

Between 2009 and 2020, vacancy rates in Boggabri (postcode 2382) peaked in September 2013 at around 14% (25 vacancies) before dropping to a ten-year low of around 2% (4 vacancies) in September 2014. Between



2014 and 2019, vacancy rates in Boggabri fluctuated with another low of 2% in May 2018 before increasing to 4.6% in April 2019, and then decreasing to a current rate of 1.6% (five vacancies) (SQM Research, 2020).

Between 2009 and 2020, vacancy rates in Gunnedah (postcode 2380) peaked in both May 2013 and August 2015 at around 6% (more than 75 vacancies and more than 80 vacancies respectively). Over the 11-year period, vacancy rates dropped to a low of around 1% in September 2014 before increasing through to the August 2015 high. The current residential vacancy rate in Gunnedah is 0.7% (12 vacancies). *“Gunnedah has been identified as having one of the lowest vacancy rates across the State”* (Dickins, 2020). SIA consultation findings suggest that the rental and purchase markets are reaching a saturation point resulting in a competitive and higher priced market. Consultation findings suggest that this change in the market is resulting in perceived limited social welfare housing that is available to vulnerable groups/individuals within the community (Section 4.8.7).

The significantly low residential vacancy rate recorded in 2014 in both the Boggabri and Gunnedah residential markets coincides with a peak in the BCM construction workforce, as well as the construction period for neighbouring mines in the region (i.e. Maules Creek and Tarrawonga).

A real estate agent in the region attributes the low vacancy rates to *“a combination of mining, the recent rail overpass project, the solar farms, and general influx of people coming [to] Gunnedah”* (Dickins, 2020). The current low residential vacancy rates across Narrabri, Boggabri and Gunnedah and the corresponding increase in median weekly rent may also reflect the global repercussions of the Covid-19 pandemic and a corresponding increase in demand for accommodation. People who have previously commuted from other locations to Narrabri and Gunnedah LGAs for block shifts may have taken up permanent residence in these Shires in order to continue working. Covid-19 has also increased the attractiveness of regional rural centres and there is anecdotal evidence of people moving from significant urban centres such as Sydney to regional centres such as Gunnedah and Narrabri. Job losses in Sydney during Covid-19 may also have resulted in former residents of these Shires returning to the location, attracted by the relatively inexpensive housing. The attractiveness of rural areas across NSW as residential locations has also increased with the breaking of the drought.

#### 4.8.6 Housing Availability

Table 18 shows available rental property data in the postcode areas of Boggabri, Narrabri and Gunnedah in December 2020. Given the very low vacancy rates in the local and regional study areas, a number of private single rooms and caravan sites are now being advertised for rent. These rooms and sites have not been included in the total number of properties as shown in Table 18.

**Table 18 Housing Availability, December 2020<sup>1</sup>**

Property Type and Location	Lowest Rent (\$p/w)	Highest Rent (\$p/w)	Number of Properties
<b>Boggabri (postcode 2382)</b>			
All Properties	350	600	6
3-bedroom + houses	350	600	3
2-bedroom houses	N/A	N/A	0
<b>Narrabri (postcode 2390)</b>			
All Properties	250	605	6
3-bedroom + houses	260	400	3

Property Type and Location	Lowest Rent (\$p/w)	Highest Rent (\$p/w)	Number of Properties
2-bedroom houses	250	605	3
<b>Gunnedah (postcode 2380)</b>			
All Properties	230	650	18
3-bedroom + houses	255	650	17
2-bedroom houses	230	230	1

Source: (Realestate.com.au, 2020).

Note:

1. The lowest rent and highest rent are not reflective of the median weekly rent in Section 4.8.3. The lowest rent for Boggabri captured in December 2020 was \$30 above median weekly rent e.g. \$320 per week. However, this data was captured at a certain point in time, thus reflecting the varying nature of the housing market. Data available for New England North West Region (NEWNW Region). NENW Region boundary is consistent with the NENW SA4.

A review of housing data available on realestate.com.au (accessed 1 December 2020) showed:

- 25 residential properties for sale in Boggabri, the majority of which were three or four bedroom homes. Properties ranged in price from \$115,000 to \$525,000;
- 124 residential properties for sale in Narrabri the majority of which were three or four bedroom homes. Properties ranged in price from \$100,000 to \$639,000; and
- 107 residential properties for sale in Gunnedah the majority of which were houses with three or four bedrooms. Properties ranged in price from \$95,000 to \$1,150,000 (Realestate.com.au, 2020).

#### 4.8.7 Social Housing Provision

Table 19 shows the proportion of social housing in the local and regional social areas of influence as well as NSW for 2016. This data shows that Boggabri SS, Narrabri LGA and Gunnedah LGA have very limited social housing compared to that of NSW. Relatively low living costs, housing affordability and ready access to Tamworth and Sydney makes this region an attractive destination for low socio-economic households.

**Table 19 Rented Dwellings by Selected Landlord Type, 2016**

Geographic Area	Selected Landlord Type		Total (%)
	State or territory housing authority (%)	Housing co-operative/community/church group (%)	
Boggabri SS	0.0	0.7	0.7
Narrabri LGA	3.8	1.0	4.8
Gunnedah LGA	2.8	0.9	3.7
NENW (SA4)	3.4	1.1	4.5
NSW	12.7	2.1	14.8

Source: (ABS, 2017).

### 4.8.8 Short-Term Accommodation

Short-term accommodation relates to those types of accommodation that are typically provided to visitors or tenants for a short period of time; for example, motels, serviced apartments, bed and breakfast, self-contained homes, caravan and camping, although the length of tenancy in these forms of accommodation can often extend to lengthy stays, depending on accommodation availability, price and personal circumstances.

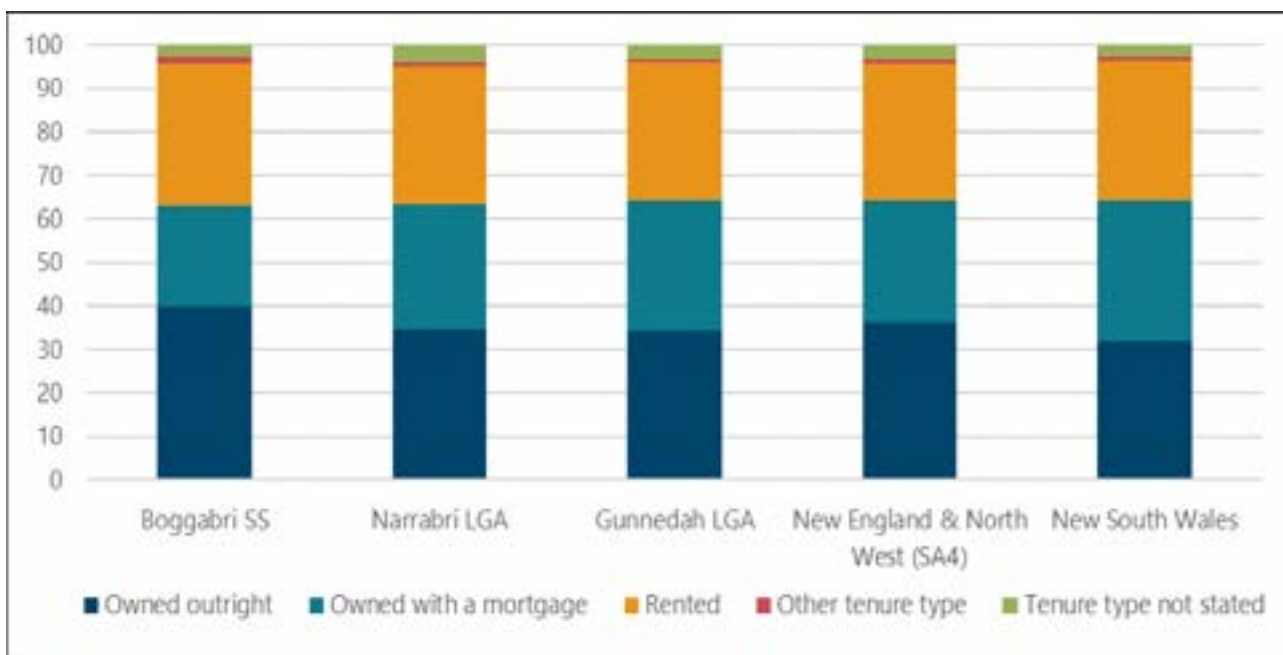
Short-term accommodation in the social area of influence includes hotels, motels, Air BnB establishments, camping grounds, and bed and breakfast accommodation. Within Narrabri and Boggabri there are also accommodation villages (CIVEO Villages). The CIVEO Narrabri Village provides 500 ensuite rooms, and the CIVEO Boggabri Village has 600 ensuite rooms (CIVEO, 2021). The CIVEO Villages both provide meals, laundry amenities and fitness and recreation facilities (CIVEO, 2021). Consultation findings suggest that the CIVEO Villages are largely used by contractor groups. During SIA consultation, a number of accommodation providers and real estate providers suggested that the use of short-term accommodation in the Narrabri and Gunnedah regions, outside of the CIVEO Villages, has declined over time as a result of the construction of the Villages.

As described in Section 2.2, BCOPL will encourage non-local workers to utilise available workers accommodation at the CIVEO Boggabri Village. SIA consultation findings indicated that the construction workforce required for MOD 8 is not anticipated to increase demand upon short-term accommodation providers in the region.

### 4.8.9 Housing Tenure

Graph 6 shows housing tenure for the areas of interest. It is notable that housing tenure arrangements are similar across all areas of interest. All reported areas have relatively high levels of home ownership, either outright or with a mortgage. This suggests a longer-term population base in all areas.

**Graph 6 Housing Tenure, 2016**



Source: (ABS, 2017)

#### 4.8.10 Dwelling Type

Table 20 shows the total number of dwellings and dwelling type in the areas of interest. Table 20 shows that the dominant housing type in the areas of interest is a “separate house”, which in 2016 formed:

- 93.4% of the Boggabri SS housing stock;
- 89.1% of Narrabri LGA housing stock; and
- 89.7% of housing stock in Gunnedah LGA.

Boggabri SS has a significantly higher proportion of separate housing in comparison with all other areas of interest including NSW. Boggabri SS also has a correspondingly lower proportion of flat, unit or apartment housing stock when compared with the other areas of interest.

**Table 20 Dwelling Type, 2016**

Geographic Area	Separate House	Semi-detached	Flat, Unit or Apartment	Other	Location
% Total Dwellings					
Boggabri SS	93.4	0.0	3.8	1.6	423
Narrabri LGA	89.1	3.4	5.4	1.5	4,625
Gunnedah LGA	89.7	3.5	5.5	0.8	4,527
NENW (SA4)	88.5	5.4	3.9	1.4	66,307
NSW	66.4	12.2	19.9	0.9	2,604,314

Source: (ABS, 2017).

#### 4.8.11 Household and Dwelling Projections

##### Household Projections

Table 21 presents NSW DPIE housing projections from 2016 to 2041 for the areas of interest. The NSW DPIE housing projections indicate that the number of households in Gunnedah LGA and NENW Region are expected to increase between 2016 and 2041, whilst the number of households is anticipated to decline (0.8%) in Narrabri LGA during the period of 2016 to 2041. This is consistent with the NSW population decline projections for Narrabri LGA. The NSW DPIE projections suggest a forecast reduction in demand for housing in Narrabri into the future. However, the NSC has indicated in consultation that the NSW DPIE population decline projection is unfounded and the NSC expects the population to increase over the projection timeframe in parallel with the construction and operation of both continued and approved projects in the area.

**Table 21 Household Projections, 2016-2041**

Geographic Area	2016	2026	2036	2041	Change 2016-2041 (%)
Narrabri LGA	5,377	5,442	5,416	5,336	-0.8
Gunnedah LGA	5,069	5,344	5,552	5,586	10.2

Geographic Area	2016	2026	2036	2041	Change 2016-2041 (%)
NENW Region <sup>1</sup>	75,743	80,371	82,493	82,674	9.2
NSW	2,903,516	3,443,630	3,910,857	4,130,248	42.2

Source: (DPIE, 2020a), (DPIE, 2020b).

Note:

1. Data only available for NEWNW Region. NENW Region boundary is consistent with the NENW SA4.

## Dwelling Projections

Table 22 shows the NSW DPIE implied dwelling projections from 2016 to 2041 for all areas of interest. Implied dwelling projections indicate a measure of likely demand for housing. The demand for dwellings is projected to increase in each area of interest, despite some areas projected decrease in household numbers and population e.g. Narrabri LGA.

**Table 22 Implied Dwelling Projections, 2016-2041**

Geographic Area	2016	2026	2036	2041	Change 2016-2041 (%)
Narrabri LGA	6,135	6,186	6,208	6,214	1.3
Gunnedah LGA	5,683	5,861	5,992	6,123	7.7
NENW Region <sup>1</sup>	85,804	88,682	90,994	92,450	7.8
NSW	3,200,831	3,510,142	3,783,939	4,041,086	26.3

Source: (DPIE, 2020a), (DPIE, 2020b).

Note:

1. Data available for New England North West Region (NEWNW Region). NENW Region boundary is consistent with the NENW SA4.

## 4.8.12 Development Approvals

### Lot and Dwelling Approvals

Growth in housing stock in the Narrabri and Gunnedah LGAs has focused principally on family housing, and housing suitable for mining workforces.

The GSC Community Strategic Plan indicates that improved housing affordability and diversity is needed. GSC has identified that residential and commercial development increased significantly from 2009 to 2014 and now remains constant. This indicates a substantial level of growth that is predicted to be sustained throughout the coming decade. In the Gunnedah LGA, 14 residential buildings were approved to be built in 2019-2020 (Profile ID, 2020). Consultation findings with GSC suggest that there is ample residential space and land for housing development to occur. GSC representatives also mentioned the recent approval of two development applications for child care facilities within the Gunnedah LGA.

During SIA consultation with NSC representatives, it was noted that housing availability is of concern to the Council and as such, a *Housing Strategy* is being prepared. The *Housing Strategy* will analyse and outline current and future demand for housing, as well as development opportunities for housing within the Narrabri LGA. The NSC *Growth Management Strategy* (Narrabri Shire Council, 2020b) was prepared in response to policy requirements for a comprehensive strategic land use plan to guide growth and development in

Narrabri over the next 20 years, and to inform the Narrabri Local Strategic Planning Statement. The *Growth Management Strategy* recommends that land use zones within the Narrabri LGA, particularly residential zoning, be reviewed (Narrabri Shire Council, 2020b). SIA consultation findings with NSC, suggest that this review coupled with the outcomes of the *Housing Strategy* may increase development potential within the Narrabri LGA.

## Building Approvals

Building approvals data provides an indication of population growth and the expansion of urban areas. Residential building approvals data from ABS shows:

- For the period 2017-2018:
  - » Approvals for ten new houses in Narrabri LGA, with a total value of approximately \$3.9 million (M).
  - » Approvals for 41 new houses in Gunnedah LGA, with a total value of approximately \$15.9 M.
- For the period 2018-2019:
  - » Approvals for eight new houses in Narrabri LGA, with a total value of approximately \$3.8 M.
  - » Approvals for 30 new houses, and two other residential buildings in Gunnedah LGA, with a total value of approximately \$10.2 M. (ABS, 2019).

## Future Land Development

Future land development in the Narrabri and Gunnedah LGAs will be centred around housing development, and several key precinct plans. All future land development options are considered to be in draft stage.

The NSC is continuing to prepare a CBD precinct plan (Master Plan). The Master Plan will improve the functionality and appeal of the Narrabri business precinct, which will also include improvements to the existing industrial and logistics precinct to be able to support the development of the Northern NSW Inland Port. NSC has a series of additional planning studies underway that will lead to appropriate zonings and the finalisation of the Master Plan for the 'Inland Port'. These studies are anticipated to be released in the first half of 2021. The Northern NSW Inland Port will facilitate future manufacturing, production and industrial and logistics operations (The Courier, 2020). It was noted during consultation with NSC that it had purchased several land parcels to develop and rezone for the purposes of supporting the 'Inland Rail' project.

In addition, the NSC is developing a Bellata Recreation Precinct Plan. The Bellata Recreation Precinct Plan will include a recreation park, sports oval, tennis courts, golf course and memorial hall in the suburb of Bellata (Ross Planning, 2019).

The *GSC Local Strategic Planning Statement - Future 2040* (Gunnedah Shire Council, 2020b) report presents the planning priorities for the Gunnedah LGA over the next 20 years. The *Local Strategic Planning Statement - Future 2040* report indicates that the GSC will:

- Increase their investment in infrastructure;
- Undertake regular monitoring of housing development, land demand and supply to remain informed of housing demands. Due to current vacancy rates (very low) in the Gunnedah LGA, the GSC is actively assessing and planning housing options, largely for smaller housing options i.e. units and apartments; and
- Identify location options for new freight hubs within the Gunnedah LGA to support the expansion of freight and logistics operations anticipated to result from the 'Inland Rail' (Gunnedah Shire Council, 2020b).

In consultation with NSC and GSC, it was noted that both Councils anticipate largescale future growth associated with approved resource projects and projects in the development approvals process.

## Business Development

In consultation with GSC representatives and community members, it was noted that they were pursuing a proactive approach to draw people and services to the Gunnedah LGA. The GSC run a 'Business Partner Program' which supplies funding through a local business grant. This program supports the continuation of local business. The NSC *Growth Management Strategy* sets out the Councils priorities in relation to business growth and business/industry diversification.

The Boggabri Business Chamber, in collaboration with the NSC, are undertaking a beautification project ('Merton Street Streetscape Project') to encourage business growth and support in the main street of Boggabri.

## 4.9 Employment and Industry

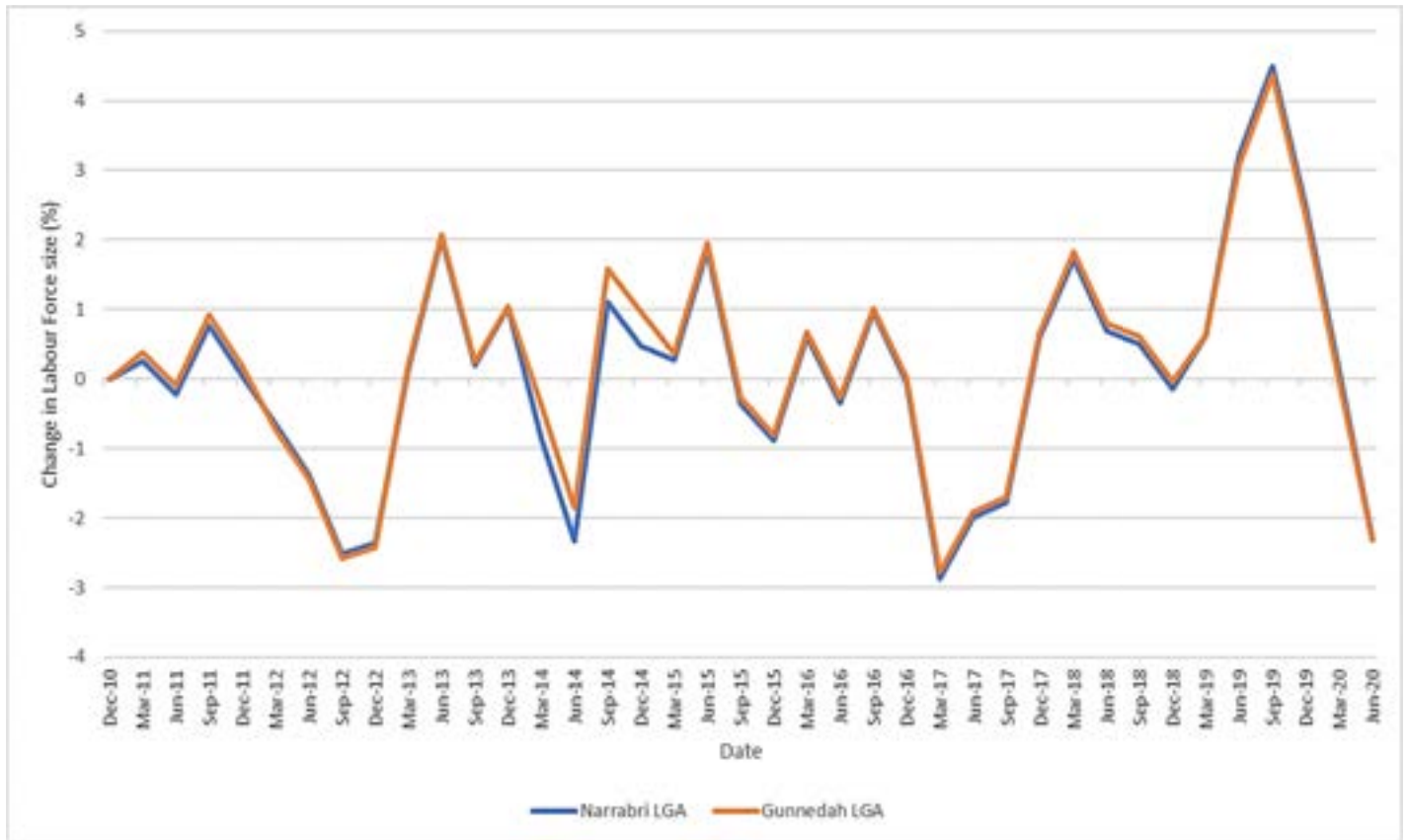
This section presents labour market information for the areas of interest. The information is drawn predominantly from the ABS and the Department of Education, Skills and Employment.

### 4.9.1 Labour Force Characteristics

In June 2020, Narrabri LGA had a labour force of 7,193 persons and Gunnedah LGA had a labour force of 6,478 persons (Department of Education, Skills and Employment (DESE), 2020). Labour force size in the LGAs of interest has fluctuated significantly between 2010 and 2020 as shown in Graph 7. There is a strong alignment of labour market conditions between Narrabri LGA and Gunnedah LGA, indicating that this area operates as a single labour region, within which labour likely reallocates in order to equalise, and follows trends within industries i.e. mining. Of note, are three significant decreases in labour force size e.g. 2012, 2014 and 2017, and equally two significant increases in labour force size e.g. 2013 and 2019. The decrease in labour force size in 2017 is likely attributable to significant declines in coal prices at this time. The increase in labour force size in 2013 aligns with the construction phases of both BCM and Maules Creek Mine.



**Graph 7 Change in Labour Force Size, 2010-2020**

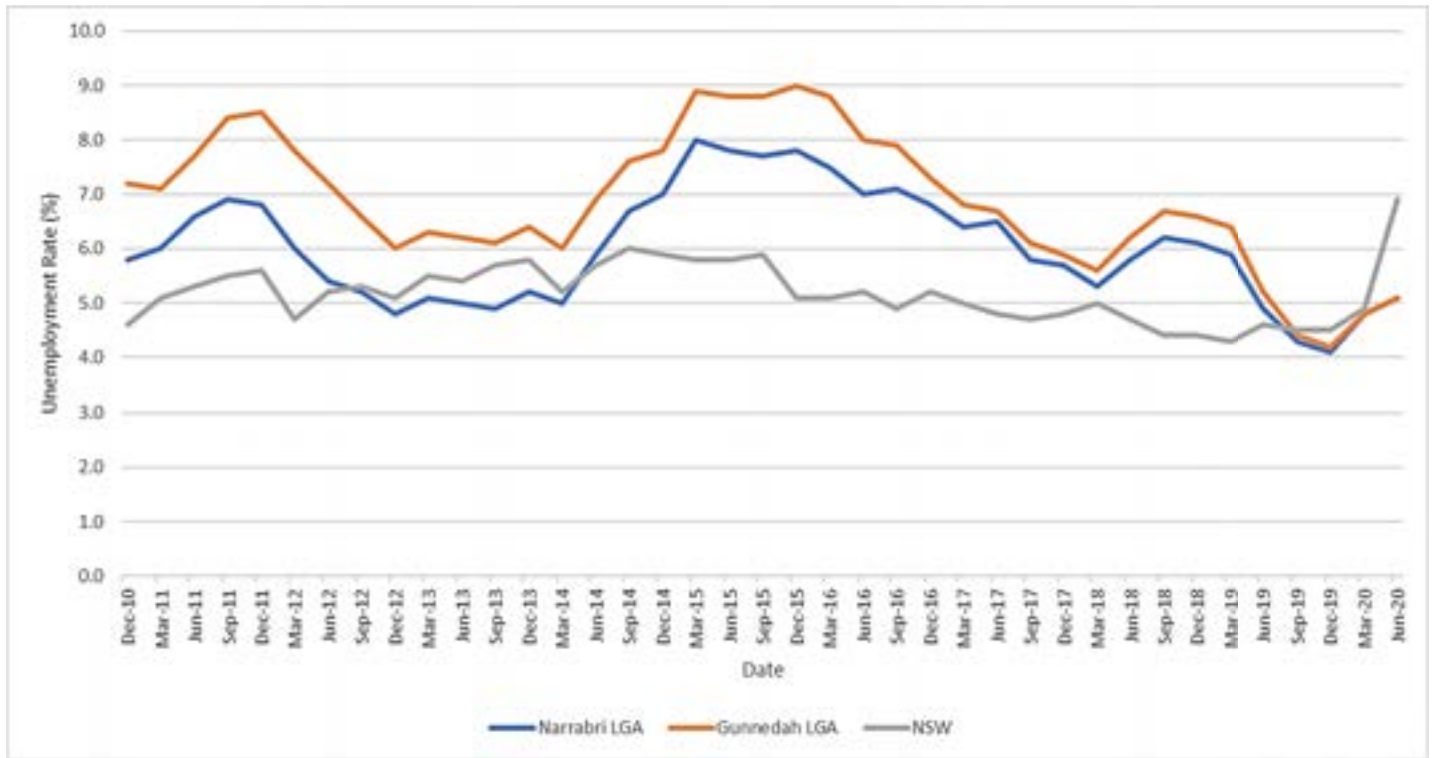


Source: (Department of Education, Skills and Employment (DESE), 2020)

Graph 8 illustrates the unemployment rate across the Narrabri and Gunnedah LGAs, as well as NSW, for the 2010-2020 period. In June 2020, the LGAs of Gunnedah and Narrabri had an unemployment rate of 5.1%, equating to 331 persons in the Gunnedah LGA and 364 persons in the Narrabri LGA (Department of Education, Skills and Employment (DESE), 2020). Both LGAs had lower unemployment rates than the current NSW rate of 6.5% (DESE, 2020) (ABS, 2020). Both LGAs also show a similar unemployment trend. Narrabri LGA and Gunnedah LGA experienced a significant decrease in unemployment commencing in 2011, before plateauing in 2013. This decrease was likely attributable to increased employment associated with construction at surrounding mines e.g. Maules Creek Mine, as well as BCM. Gunnedah LGA maintains a slightly higher unemployment rate than Narrabri, however the data suggests that in later years (2017-2018) the unemployment rate gap between Narrabri and Gunnedah closed marginally, before becoming equivalent i.e. 5.1% in 2020.



**Graph 8 Unemployment Rate, 2010-2020**



Source: (Department of Education, Skills and Employment (DESE), 2020)

### 4.9.2 Industry of Employment

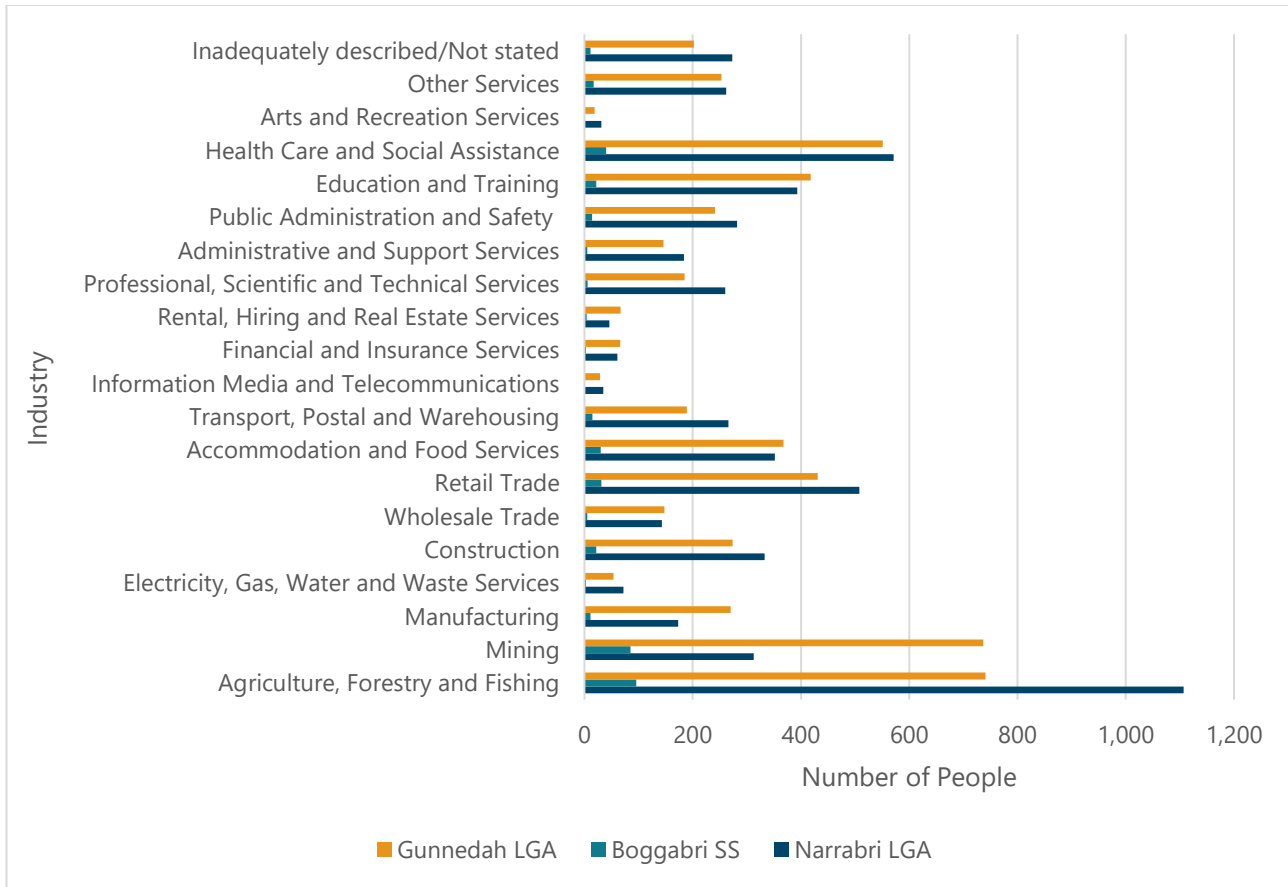
A comparison of industry of employment data for the Boggabri SS, Narrabri LGA and Gunnedah LGA (Graph 9) shows that:

- Employment in the Narrabri LGA is concentrated in the Agriculture, Forestry and Fishing sector, Health Care and Social Services sector and the Retail Trade sector; and
- Employment in the Boggabri SS and Gunnedah LGA is concentrated in the Agriculture, Forestry and Fishing sector and the Mining sector.

In 2016, the mining industry sector supported employment for 19.4% of workers in Boggabri SS, 13.7% in Gunnedah LGA and 5.5% in Narrabri LGA.

Employment in the Agriculture, Forestry and Fishing industry includes sheep, beef cattle, grain farming and cotton growing. The majority (61.6%) of employment in this industry is from sheep, beef cattle and grain farming activities. Cotton growing is also a relatively large industry in the area.

**Graph 9 Industry of Employment, 2016**



Source: (ABS, 2017).

## 4.10 Health and Vulnerability

The following discussion provides a summary of key indicators of health and wellbeing in the regional study area based on information available through ABS, the NSW Bureau of Crime Statistics and Research (BOCSAR), and the Australian Curriculum Assessment and Reporting Authority (ACARA).

### 4.10.1 Crime and Community Safety

Selected crime statistics compiled by BOCSAR (NSW Bureau of Crime Statistics and Research, 2020) for the Narrabri and Gunnedah LGAs for the period September 2019 to September 2020 were reviewed to inform the social baseline. The findings of the review indicate that for the reporting period:

- The rate of *domestic assault* increased within the Gunnedah LGA and decreased in the Narrabri LGA;
- The rate of *Malicious damage to property* decreased within both LGAs;
- The rates of *theft, trespass, assault, and murder* are stable; and
- The rates of *drug offences* are stable, despite fluctuations.

During SIA consultation, two community members expressed concern in relation to increasing domestic violence issues in the region. An SIA participant also spoke about the perceived increase in community boredom acting as a catalyst for increased crime.

### 4.10.2 Diversity and Vulnerability

Table 23 presents key indicators of cultural diversity and potential community vulnerabilities for the areas of interest. The data suggests that the proportion of people born overseas in the areas of interest is considerably lower than NSW.

In 2016, 5.4% of the NSW population identified as needing assistance with core activities, which denotes moderate to severe disability. Disability indicators for all areas of interest were comparable to NSW.

**Table 23 Population Diversity and Vulnerability Indicators, 2016**

Geographic Area	People born overseas (%)	Language other than English spoken at home (%)	Disability (need for core assistance) (%)
Boggabri SS	3.0	1.8	5.5
Narrabri LGA	4.8	2.2	5.5
Gunnedah LGA	4.2	1.8	4.4
NENW (SA4)	7.0	3.7	5.6
NSW	27.7	25.2	5.4

Source: (ABS, 2018).

### 4.10.3 Disadvantage

#### Socio-Economic Indexes for Areas

The Socio-Economic Indexes for Areas (SEIFA) is a composite index of factors affecting socio-economic advantage and disadvantage, measured against an Australian benchmark index of 1,000. A lower SEIFA score indicates that an area is relatively disadvantaged compared to an area with a higher score. SEIFA scores from the 2016 ABS Census have been considered in this assessment. Table 24 shows that in 2016 all areas of interest experienced relative disadvantage compared to NSW. Boggabri SS experienced the most disadvantage of all of the areas of interest.

**Table 24 SEIFA, 2016**

Geographic Area	SEIFA <sup>1</sup>
Boggabri SS	889
Narrabri LGA	938
Gunnedah LGA	943
NENW (SA4)	N/A <sup>2</sup>
NSW	1000

Source: (ABS, 2018).

Note:

1. Socio-Economic Indexes for Areas (SEIFA) ranks areas in Australia according to relative socio-economic advantage and disadvantage.
2. SEIFA data is not available at the SA4 level.

## Index of Community Socio-Educational Advantage

Table 25 presents the Index of Community Socio-Educational Advantage (ICSEA) for schools in Boggabri, Narrabri and Gunnedah for 2008, 2014, 2018 and 2019. The ICSEA value provides an indication of the socio-educational backgrounds of students. The lower the ICSEA value, the lower the level of educational advantage of students who go to the school. ICSEA is set at an average of 1,000, which is used as an ICSEA benchmark.

Table 25 shows that students at majority of the schools in the areas of interest have a lower level of educational advantage than the average. This is consistent with the 2016 SEIFA findings for Boggabri SS, Narrabri LGA and Gunnedah LGA. Changes in ICSEA value, relative to school enrolment changes between 2008 and 2019, is likely attributed to outmigration of students from primary school to high school, and or the closure of mines (i.e. loss of jobs and family income) within the area.

**Table 25 ICSEA Rating Trend Data for Selected Schools**

Selected School	ICSEA 2008	ICSEA 2014	ICSEA 2018	ICSEA 2019
<b>Boggabri SS</b>				
Boggabri Public School	911	861	855	852
Sacred Heart Primary School	983	1,035	950	983
<b>Narrabri LGA</b>				
Narrabri High School	1,008	939	906	913
Narrabri Public School	873	921	880	861
Narrabri West Public School	894	947	920	911
St Francis Xavier's Primary School	949	1,020	1,021	1,032
Fairfax Public School	946	1035	1,040	1,013
Wee Waa High School	873	843	838	866
<b>Gunnedah LGA</b>				
Carinya Christian School Gunnedah	983	1,008	1,000	1,000
Gunnedah High School	886	851	823	830
Gunnedah Public School	789	714	738	750
Gunnedah South Public School	902	914	891	888
St Mary's College	964	982	976	981
St Xavier's Primary School	966	1,006	1,007	1,013

Source: (ACARA, 2020).

## Median Weekly Income

Table 26 provides the 2016 census median weekly income of individuals, families and households located within the areas of influence, as well as NENW and NSW. Both Gunnedah and Narrabri LGAs have median weekly income levels higher than the Boggabri SS, but not as high as NSW. This may be due to the types of occupations and industries residents are employed in e.g. mining, and a perceived preference for people to reside in slightly larger townships. Within the social area of influence, the Gunnedah LGA has the highest median weekly income, consistent with the high SEIFA rating for this suburb (Section 4.10.2).

**Table 26 Median Weekly Income, 2016**

Geographical Area	Weekly Median Income (\$)		
	Personal	Family	Household
Boggabri SS	571	1,328	1,162
Narrabri LGA	632	1,531	1,242
Gunnedah LGA	618	1,586	1,253
NENW (SA4)	579	1,378	1,107
NSW	664	1,780	1,486

Source: (ABS, 2018).

## Low Income Households and Welfare Dependency

Low income households are defined as households that are within the bottom 40% of income distribution nationally. Low income households made up slightly higher proportions of the total households in the Narrabri LGA (40.9%) and the Gunnedah LGA (43.5%) compared to households in NSW (Table 27).

**Table 27 Low Income Households, 2016**

Geographical Area	Low Income Households (Bottom 40% of Income Nationally)	
	Number of Households	Percentage of Households (%)
Narrabri LGA	2,140	40.9
Gunnedah LGA	2,127	43.5
NSW	1,053,197	40.4

Source: (Torrens University Australia, 2020).

Table 28 shows that the number and proportion of welfare dependant families within the regional study area is slightly higher than that of NSW.

**Table 28 Welfare Dependant Families, 2016**

Geographical Area	Low Income Welfare Dependant Families with Children	
	Number of Families	Percentage of Families (%)
Narrabri LGA	420	12.8
Gunnedah LGA	407	12.8
NSW	170,549	8.8

Source: (ABS, 2018).

## 4.11 Social Infrastructure and Services

This section provides a brief overview of social infrastructure provision and services relevant to the communities of Boggabri SS, Narrabri LGA and Gunnedah LGA. The Narrabri and Gunnedah townships are the service hubs for each LGA and support the needs of the surrounding and smaller rural towns such as Boggabri.

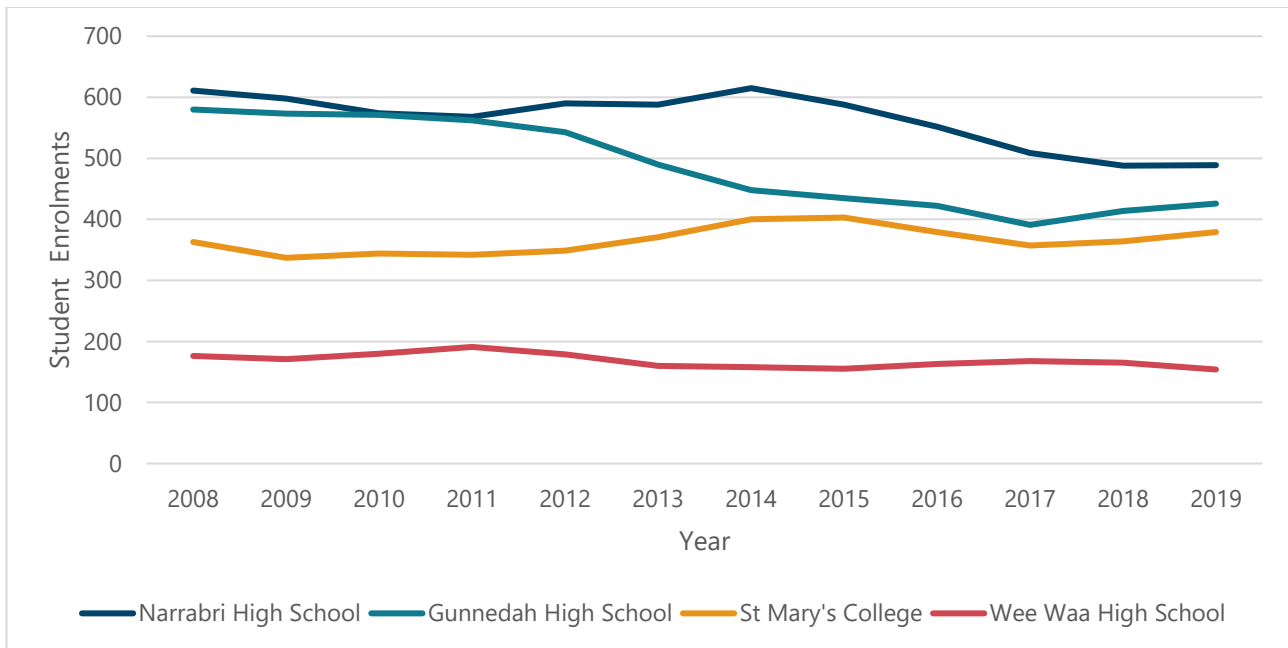
### 4.11.1 Education

The LGAs of Gunnedah and Narrabri are well serviced with educational facilities. Gunnedah LGA has two higher education facilities, two high schools (Gunnedah High School and St Mary's College) and five primary schools. In addition, there are five primary schools located in the surrounding villages (Gunnedah Shire Council, 2020a).

Narrabri LGA has two higher education facilities, two high schools (Narrabri High School and Wee Waa High School) and 12 primary schools, including two primary schools located in Boggabri and one school located in Maules Creek (Narrabri Shire Council, 2020a). As Boggabri only offers primary school education, children attend high school in the larger regional centres or go to boarding school.

Graph 10 provides a summary of annual enrolments for high schools in the areas of interest between 2008 and 2019. Graph 10 shows that Narrabri and Gunnedah High Schools experienced similar declines in enrolment numbers since 2008. Enrolments at St Mary's College and Wee Waa High School have remained relatively stable. The declining enrolment at the two largest high schools in the area of interest may be attributed to a growing trend of boarding school education or a shift to accessible private education options.

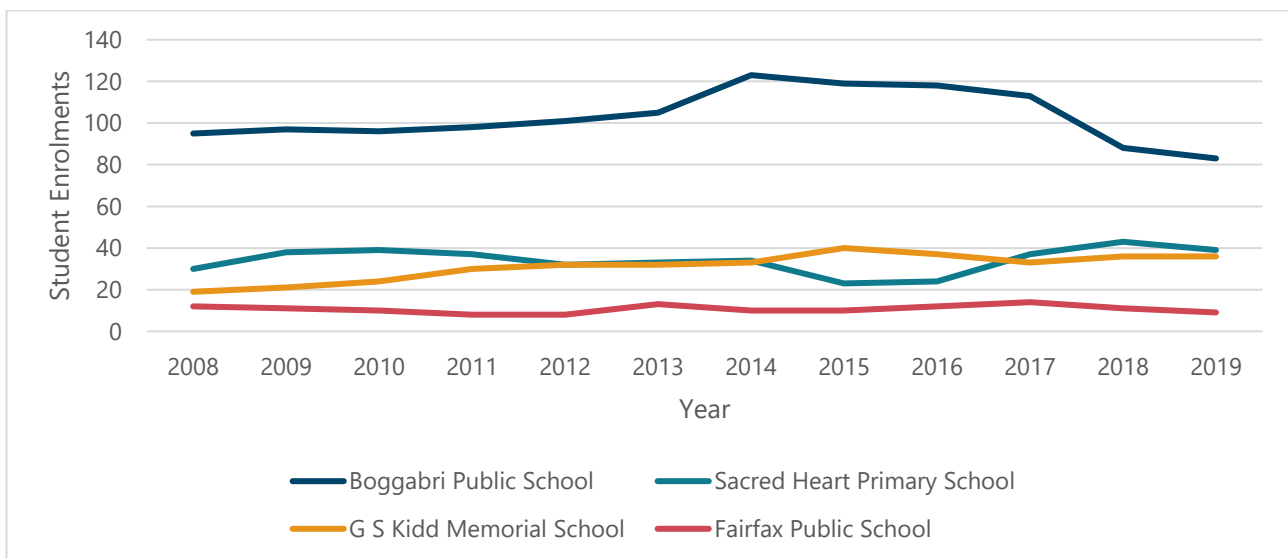
**Graph 10 Regional High School Enrolments, 2008-2019**



Source: (ACARA, 2020)

Enrolment records for all primary public schools in Gunnedah LGA, Narrabri LGA, and Boggabri SS between 2008 and 2019 indicate fluctuating student numbers, with no significant trends observed (Graph 11). G S Kidd Memorial School is considered in this analysis as the school offers both primary and secondary education.

**Graph 11 Small Local School Enrolments, 2008-2019**



Source: (ACARA, 2020)

The fluctuating school enrolments in the areas of interest could be attributed to families who have lived in the area for many years not having school aged children, and the workforce commuting arrangements prohibiting settlement of new families. The outmigration of existing families associated with the cost of living locally, housing affordability and a lack of alternative local employment options may also contribute to changing school enrolment numbers.

### 4.11.2 Children's Services

The availability of childcare services is a key priority identified in both NSC and GSC LEPs. For some time, both NSC and GSC have reported a shortage of childcare services, particularly in village areas or small rural communities (Woods, 2016).

A small number of childcare services and out of school hours care arrangements are available in the Gunnedah and Narrabri LGAs (Table 29). The Boggabri community currently has access to a mobile family resource unit that operates during school terms on nominated days only (Ooranga, 2020). Boggabri therefore does not have consistent childcare provision, long day care or any available childcare during holiday periods. Childcare services are typically accessed through Narrabri and Gunnedah. In early 2019, Idemitsu lodged a development application for the establishment of a childcare facility e.g. the Boggabri ELF. The Boggabri ELF will provide much needed childcare to the residents of Boggabri, and is anticipated to be opened in 2021 (The Courier, 2021).

**Table 29 Early Childhood Services in Narrabri LGA and Gunnedah LGA**

Services	Service Location
Community Kids - Narrabri Early Education Centre	Narrabri
Nurruby Childcare Centre and Pre-school	Narrabri
Nurruby OOSH	Narrabri
Gumnut Cottage Child Care and Pre-school	Narrabri
Jungle Babies Early Learning Centre	Narrabri
Sherpa Kids St Francis Xaviers Narrabri	Narrabri
Narrabri West Public Preschool	Narrabri
Kogil Street Pre-school	Narrabri
The Platypus Club Long Day-care and Preschool Centre	Gunnedah
Gunnedah Baptist Community Pre-School	Gunnedah
Gunnedah Preschool	Gunnedah
Mary Ranken Child Care Centre (pre-school and daycare)	Gunnedah
Goodstart Early Learning	Gunnedah
Connections 4 Kids	Gunnedah
Gunnedah Family Day Care Scheme	Gunnedah
Gunnedah PCYC Kidzcare	Gunnedah
Mary Ranken Occasional Child Care Centre	Gunnedah
Lil Achievers (Pre-School & Daycare)	Gunnedah
Sherpa Kids St Xaviers	Gunnedah
Winanga-Li Early Learning and Care Service	Gunnedah
Ooranga Family Mobile Resource Unit / Boggabri Preschool	Boggabri
Nurruby Wee Waa Community Child Care Centre and Preschool	Wee Waa
Wee Waa and District Preschool	Wee Waa

Source: (Gunnedah Shire Council, 2017; Narrabri Shire Council, 2020a)



### 4.11.3 Health and Emergency Services

#### Health Services

The Narrabri LGA has hospitals and aged care facilities in the towns of Narrabri, Boggabri and Wee Waa. The Narrabri District Health Service has a 28 bed inpatient unit and the emergency department has on call visiting medical officers (NSW Government, 2021a). The community help service includes a range of services such as speech pathology, social work, physiotherapy, occupational therapy, dietetics. The hospital also has a community nursing service, which includes women's health, child and family health services, Aboriginal Maternal and Infant Health Services, and Aboriginal Child and Family Health Services.

The Boggabri SS has a Multi-Purpose Service (hospital) that services the Boggabri community. The Multi-Purpose Service includes acute and sub-acute care with four beds, an emergency department with two beds, a residential aged care facility with 16 beds, a medical centre and an ambulance service. SIA consultation findings with health service representatives indicate that the Boggabri Multi-Purpose Service is experiencing higher demand than average due to a greater number of people from Gunnedah accessing the service. This is likely due to the below mentioned doctor shortage in the Gunnedah LGA.

The Gunnedah LGA has a district health service with 43 in-patient beds, including an emergency department with on call visiting medical officers (CDM Smith, 2020). The Gunnedah District Health Service also provides community health services e.g. child and family health, Aboriginal health, chronic and aged services, physiotherapy and X-Ray facilities (NSW Government, 2021b). The district health service also has a helipad and can access the Westpac Helicopter Service and Child flight services to Newcastle. Other health facilities in Gunnedah are NSW Ambulance and a pathology service. The Air Ambulance and Childflight Neonatal Helicopter serve the community on request.

A range of community services and groups are available within the Narrabri and Gunnedah LGAs. Some of these key services and groups include:

- GoCo – provides aged and community care within the Gunnedah LGA. Consultation findings with a representative of GoCo indicate that GoCo provides community transport for up to 400 people and home care packages for up to 40 people.
- Boggabri Home and Community Care (HACC) – a partially government funded non-for-profit organisation providing community services i.e. transport, meals on wheels and social support to 72 clients in Boggabri SS.
- Boggabri Rotary Club – operates with nine members and is a volunteer based and social support organisation.
- Narrabri Summit Community Services – provides home care for aged persons and disabled persons.
- Narrabri and District Community Aid Service (NDCAS) – offers community information and referrals to appropriate services; acts as a community resource directory (Narrabri Shire Council, 2019).

BCOPL contacted local healthcare service providers via telephone during early 2020 to evaluate the effects that BCM may have had on healthcare services in recent years. The feedback received indicated that the demand on local services has remained stable in recent years and that local providers are sufficiently staffed to cope with the number of patient visits they typically receive (BCOPL, 2020c). This aligns with the findings of SIA consultation that indicated that current demand upon health services is manageable. However, SIA consultation findings also indicated that there is a doctor shortage in the Gunnedah LGA and flow-on impacts and increased demand to other nearby health services are being experienced.

## Ambulance Services

Narrabri and Gunnedah township both have an ambulance station. The Boggabri ambulance station is co-located with the Boggabri Multi-Purpose Service (NSW Government, 2020). The ambulance stations in the regional study area service both townships and nearby mining operations.

## Fire Services

The regional study area is serviced by both the Namoi Gwyder District Rural Fire Service (RFS) and Fire and Rescue. Three RFS brigades with a total of five fire trucks service the region. In consultation with the Namoi Gwyder District RFS Manager it was noted that the regional area RFS is made up of approximately 30-40 members. SIA consultation findings also indicate that the Boggabri RFS is typically the first responder to a fire incident in proximity to, or within the BCM.

Fire and Rescue support three fire stations within the regional study area e.g. Boggabri, Narrabri and Gunnedah. SIA consultation findings suggest that:

- The Boggabri station is staffed by seven workers and operates one fire truck;
- The Gunnedah station is staffed by approximately 20 workers and has two fire trucks; and
- The Narrabri station is staffed by approximately 22 workers and has two fire trucks and a hazmat trailer. The Narrabri station responds to all nearby hazmat incidents.

## Police Services

The Narrabri, Gunnedah and Boggabri Police stations form a part of the Oxley Police District. Associated crime in these areas is presented in Section 4.10.1.

### 4.11.4 Emerging Regional Issues and Community Perceptions

This section provides a high-level overview of the different values and perceptions of the communities of the Narrabri and Gunnedah LGAs and a summary of the key issues and trends evident in these LGAs. Regional discussion papers, media articles and submissions received in response to the Vickery Extension Project and the Narrabri Gas Project were analysed to inform current regional issues and community perceptions.

A collaborative research project between the University of Newcastle (UON) and the NSW Department of Primary Industries (DPI) investigated how land use and land use change is conceptualised and understood within local contexts. The 2016 study *Local attitudes to changing land use – Narrabri Shire* focuses primarily on the Narrabri Shire and the intensification of the mining industry (Askland H, Askew M, Hanley J, Sherval M, Farrugia D, Threadgold S, Coffey J., 2016). The findings of this study are relative to nearby communities, including the Gunnedah LGA. The study states that:

*“Rural and regional New South Wales (NSW) have traditionally been defined by the relatively harmonious coexistence of competing land uses. Agricultural, manufacturing, service and mining sectors have long operated side-by-side to underpin the economic diversity of rural and regional areas and provide the foundation for community well-being and identity. More recently, however, there has been significant re-orientation of these landscapes, and this has had a deleterious effect on community cohesion” (Askland H, Askew M, Hanley J, Sherval M, Farrugia D, Threadgold S, Coffey J., 2016).*

Narrabri was identified as an area of significant land use change over the past 50 years, including the introduction of the cotton and mining industries. A total of 51 local stakeholders (residents) and 14 key

stakeholders (planners and policy makers, decision-makers, and representatives) were interviewed as a part of this study.

Local residents maintain a strong attachment to a specific vision of life in Narrabri, which emphasises its rural character (Askland H, Askew M, Hanley J, Sherval M, Farrugia D, Threadgold S, Coffey J., 2016). The mining boom and the introduction of coal seam gas pose a challenge to the meaning of Narrabri and Gunnedah as rural places. There are diverse attitudes in relation to the importance of future industries. Differences between landowners and townspeople may be expressed in attitudes towards the extractive industry that define Narrabri as an agricultural community, and political activism against the extractive industries may threaten community cohesion.

The *Gunnedah Community Strategic Plan (2017-2027)* (Gunnedah Shire Council, 2017) identifies that one of the greatest challenges in the area is to diversify the economic base in Gunnedah LGA and neighbouring centres to provide resilience and reduce dependence on certain industries. This was identified as an issue of concern for many local and regional residents having experienced drought, floods and the loss of industry over past years.

The submissions received on the Vickery Extension Project identify a non-exhaustive list of current regional issues and community perceptions in relation to the mining industry. These submissions were considered given the projects proximity to BCM and its locality within the Gunnedah LGA.

The findings of Table 30 draw on information sourced from community plans, submissions received on nearby resource and infrastructure projects, media articles, other available research papers on regional NSW trends, and SIA consultation findings. Table 30 summarises regional and local issues and trends.

**Table 30 Summary of Regional and Local Issues and Trends**

Issue/Trend	Description
Water	<ul style="list-style-type: none"> <li>■ Potential for impacts to water quality due to the proximity of the BCM to Namoi River.</li> <li>■ Depletion of regional surface water and groundwater resources due to industry water requirements, shortages of water in times of drought.</li> <li>■ Dam/water storage design – concern about the permeability of water storages.</li> <li>■ Concerns about groundwater drawdown at privately-owned bores, as well as the cumulative impact of MOD 8 on groundwater resources from multiple mining operations in the region.</li> <li>■ Concerns in relation to water are heightened by current drought conditions. Water is a highly valuable resource.</li> <li>■ Competition between industries for water usage. Perceptions around the mining industry and large water usage in comparison to other industry.</li> </ul>
Land use	<ul style="list-style-type: none"> <li>■ Concerns about the economic impact of the sterilisation of agricultural land.</li> <li>■ Concerns of population decline due to mine-related land acquisition and the loss of farming families.</li> </ul>
Cumulative issues	<ul style="list-style-type: none"> <li>■ Social/economic impacts on Boggabri, the closest town to the BCM: <ul style="list-style-type: none"> <li>» Cumulative impacts with existing mining operations;</li> <li>» Housing and rental prices;</li> <li>» Access to childcare services; and</li> <li>» Impact of additional rail movements.</li> </ul> </li> </ul>

Issue/Trend	Description
Local amenity and private property	<ul style="list-style-type: none"> <li>■ Concerns about amenity impacts (i.e. sleep disturbance), and noise exceedances at privately owned residences resulting from mine noise and blasting. Adequacy of proposed noise shielding.</li> <li>■ Impacts to the scenic value in the region.</li> <li>■ Night lighting – impacts to sensitive receptors including privately-owned residences, the Siding Springs observatory, stock and nocturnal animals.</li> </ul>
Environment	<ul style="list-style-type: none"> <li>■ Impacts to koala habitat, endangered species and communities.</li> </ul>
Social equity	<ul style="list-style-type: none"> <li>■ Aboriginal cultural heritage – perceived inadequate consultation and/or involvement with Indigenous persons.</li> <li>■ Early childhood education and social advantage.</li> <li>■ Improving local liveability and amenity.</li> </ul>
Local safety	<ul style="list-style-type: none"> <li>■ Traffic and transport – concern about the use of local roads by mining employees and impacts on the safety and efficiency of the road network.</li> </ul>
Housing trends	<ul style="list-style-type: none"> <li>■ Low vacancy rates and private housing availability in the area of influence, specifically the Gunnedah LGA.</li> </ul>
Community	<ul style="list-style-type: none"> <li>■ Social cohesion issues – community divide between agriculture and mining/coal seam gas.</li> <li>■ Community perceptions in relation to both the Vickery Extension Project and the Narrabri Gas Project.</li> <li>■ Community concerns in relation to the future e.g. transition to renewables.</li> <li>■ Population retention rates e.g. people in the area are perceived to be moving to Tamworth and Sydney for improved access to a greater variety of services and facilities.</li> </ul>

### Broader Public Issues and Concerns

Community issues and concerns relevant to the presence of resource activities in the Narrabri and Gunnedah LGAs have been captured most recently in a number of State Significant Development applications (SSDs) e.g. Vickery Extension Project, as well as CCC meeting minutes and research studies (e.g. those undertaken by the Gas Industry Social and Environment Research Alliance (GISERA)).

Recent consultation findings reported for major projects in the Narrabri LGA suggest the cost of living and access to affordable housing in the wider area are two areas of concern for ageing community members, lower income families and for some Aboriginal community members.

Key concerns identified through recent research carried out by GISERA (Walton & McCrea, 2017) relate to water contamination. During recent GISERA research, residents of Boggabri reported significantly less satisfaction with environmental quality than residents from Narrabri and Gunnedah. The findings of GISERA research relevant to the Boggabri community also indicates a perceived low level of economic opportunity.

When surveyed for the Narrabri Gas Project (Walton & McCrea, 2017), the community of Boggabri, indicated that social benefits would likely continue to be experienced at Gunnedah/Narrabri, but not in Boggabri. Community members raised concern in relation to potential increased volumes of through traffic heading to Narrabri or Gunnedah. Concern for road safety was raised as an issue in the community. Recent concerns have also encompassed thought on what will happen to the community identity at mine closure. Boggabri community members are also aware of cumulative project impacts and the change in character of Boggabri. Population impacts, and community cohesion have not been raised as an issue.

## 5 SOCIAL IMPACT ASSESSMENT

This section describes the predicted social impacts and opportunities of MOD 8 for the social area of influence and evaluates the significance of the identified impacts and opportunities. This section also provides a summary of SIA stakeholder engagement findings.

### 5.1 Overview

Social impacts have been identified and assessed for the social area of influence (local and regional). The impact assessment shows that the majority of potential social impacts and opportunities of MOD 8 accrue to the nearby communities i.e. Boggabri, and the broader Narrabri LGA and relate principally to employment opportunities, economic stimulus and community investment through voluntary contributions made by BCM and the existing VPA.

This section is structured as follows:

- Section 5.2 provides a summary of the SIA stakeholder engagement findings relevant to the identification and assessment of potential social impacts and opportunities;
- Section 5.3 presents the outcomes of initial impact scoping and defines the key matters for further consideration in the SIA;
- Section 5.4 describes the framework for the management of potential social impacts and enhancement of opportunities;
- Section 5.5 details the potential social impacts and opportunities, describes significance and presents specific social management strategies; and
- Section 5.6 describes the approach to the monitoring and reporting of social impacts and opportunities.

### 5.2 Stakeholder Engagement Findings

The scope and methodology of SIA consultation undertaken is described in Section 3.3. Appendix B also presents the scope of impacts assessed as informed by the findings of stakeholder engagement. Stakeholder engagement was undertaken between January 2021 and February 2021 over the course of four weeks. Consultation allowed stakeholder inputs on social baseline characteristics, experienced impacts, and perceptions of potential social impacts and benefits.

Telephone meetings and surveys were conducted with residents and other key stakeholders, including NSC and GSC, representatives of the BCM CCC and health and service providers, as well as key businesses and organisations. A community/service provider survey supplemented the SIA engagement undertaken.

In addition, BCOPL engaged with the ACSF in relation to MOD 8 in December 2020. Engagement findings with ACSF representatives e.g. RAPs, suggest:

- A perceived increase in safety for wildlife accessing surrounding bushland through the development of a fauna movement crossing;
- Continued Indigenous involvement and engagement around existing protocols in relation to cultural heritage management at BCM is necessary; and
- Potential benefits in relation to employment opportunities for Indigenous people in the area.

Table 31 presents the potential perceived project benefits as identified by stakeholder groups through SIA consultation.

**Table 31 Perceived MOD 8 Benefits**

Perceived Project Benefits	Stakeholder Group
Creation of direct and indirect employment opportunities within the Narrabri and Gunnedah LGAs during the construction phase and the operations phase.	Residents of the local and regional study area
Creation of additional supply arrangements for local businesses and enhancement of existing supply arrangements.	Residents of the local and regional study area Local and regional businesses/contract suppliers
Ongoing voluntary contributions from BCOPL to the surrounding local and regional study area through sponsorship and donations, and the VPA royalties with NSC.	Local Government
Potential for BCOPL to formalise a VPA with GSC.	Local Government
Opportunity for greater communication to exist between BCM and the local community, including local businesses	Residents of the local and regional study area Local and regional businesses/contract suppliers
Opportunity for BCOPL to maintain/increase genuine community involvement.	Key organisations

Table 32 presents the potential perceived project impacts as identified by stakeholder groups through SIA consultation.

**Table 32 Perceived MOD 8 Impacts**

Perceived Project Impacts	Stakeholder Group
Changes in property values for proximate landholders, due to adverse changes in residential amenity i.e. the potential for noise and dust impacts of the project.	Residents of the local and regional study area
Conflict between different industry sectors, namely between agriculture and mining, due to water demands and availability.	Residents of the local and regional study area
Local businesses may miss the opportunity to capitalise on continued supply chain contracts and/or new contract packages of work associated with MOD 8 due to small business status and/or ability to tender for work.	Residents of the local and regional study area Local and regional business representatives
Impacts to groundwater quality and availability if the project results in changes to the water table and surrounding landowners' bores from increasing the mining depth.	Residents of the local and regional study area
Concerns in relation final landform i.e. voids.	Local government
Impact of construction activities on existing flora and fauna may result in temporary decrease of wildlife/biodiversity in neighbouring Leard State Forest.	Residents of the local and regional study area
Perceived increased flooding due to mining.	Residents of the local and regional study area Key organisations

Perceived Project Impacts	Stakeholder Group
Potential cumulative impact upon groundwater and water availability due to a number of approved projects and other industries requiring large amounts of water/increased water access licenses.	Residents of the local and regional study area Key organisations
Potential adverse changes in residential amenity for any neighbouring landowners due to continued operations.	Residents of the local and regional study area
Increased demand for health services in the local area due to increased mine workforce.	Health service providers
Cumulative changes in amenity e.g. visual, air quality, noise, resulting from mining operations in the local and regional study areas.	Residents of the local and regional study area Health service providers
Continued operations may sustain negative perceptions of mining in community, creating conflict between community members	Residents of the local and regional study area
Continued operations may contribute to cumulative impacts from the resource industry on climate change	Local government
Impacts to flora and fauna associated with the land disturbance required for the construction of the fauna movement crossing	Local government Residents of the local and regional study area
Potential short-term construction related traffic impacts on local road network due to the nature of construction activities/required construction workforce	Proximate landholders and residents Local government
Construction activities may increase temporary demand upon emergency services	Proximate landholders and residents Emergency service representatives

### 5.3 Scope of Impact Assessment

The impact assessment considers the potential social impacts associated with the direct Modification related activities. A scoping exercise (Appendix B) was undertaken to identify the potential social impacts and opportunities associated with MOD 8 that require further consideration in the SIA. The outcomes of the scoping exercise considered the findings of stakeholder engagement, detailed complaints analysis, social baseline assessment and technical SIA expertise. Appendix B provides a comparison of the social impacts between the approved BCM and MOD 8. It identifies changes in activities that may influence each social impact theme. The social impact themes/matters as identified in Appendix B, are derived from both the SIA Guideline, and experience/expertise in SIA development. The social impact themes considered further in the SIA, as outlined in Appendix B, are as follows:

- Way of life;
  - » Employment opportunities and economic benefits;
  - » Amenity i.e. acoustic, visual and air quality;
- Access to infrastructure, services and facilities;
  - » Delivery of social infrastructure and services;
  - » Road and pedestrian safety;



- Surroundings;
  - » Amenity i.e. acoustic, visual and air quality;
  - » Environmental values;
- Health and wellbeing;
- Decision-making systems/Fears and aspirations;
  - » Resource competition between industries; and
- Community;
  - » Community cohesion and strength.

## 5.4 Approach to Management

The social impacts of MOD 8 will be managed and opportunities enhanced principally through the implementation of the BCM SIMP. Should MOD 8 be approved, the *2020 SIMP* (discussed in Section 5.6) would be reviewed and updated to reflect the outcomes of the SIA for MOD 8 and any relevant approval conditions.

Mitigation and management measures have been identified for all potential social impacts and opportunities associated with MOD 8. These measures are a combination of:

- Standard mitigation/enhancement measures. These are commonly applied mitigation measures such as the discussion of environmental monitoring results at CCC meetings, or complaints and grievances procedures e.g. 24 hour hot-line; and
- Modification specific mitigation/enhancement measures. These are measures that have been specifically identified and tailored to address the particular social impacts of MOD 8.

## 5.5 Impact and Opportunities Assessment

Table 37 describes the potential social impacts and opportunities of MOD 8, presents tailored social management/enhancement measures and presents the outcomes of the significance assessment. The assessment takes into consideration the mitigation and management measures described in the *2020 SIMP*. Additional mitigation measures to manage environmental impacts in relation to noise, air, visual and water are considered in the relevant Modification Report technical studies.

The assessment of impact significance has been adapted from the methodology described in the Draft NSW SIA Guideline. This assessment is largely considered as it presents a fair analysis of positive and negative impacts. The evaluation of significance is complex, balancing the subjectivity, scale and sensitivity of impacts and benefits. Table 33 to Table 36 present the framework for establishing the significance of social impacts and opportunities.

**Table 33 Defining Likelihood Levels**

Likelihood Level	Meaning
Almost certain	Definite or almost definitely expected
Likely	High probability
Possible	Moderate probability
Unlikely	Low probability
Very unlikely	Remote probability

Source: Adapted from Department of Planning, Industry and Environment, 2020.



**Table 34 Characteristics Considered When Determining Magnitude**

Characteristics Considered	Description of Characteristics
Extent	Who specifically is expected to be affected and at what spatial scale?
Duration	When is the social impact expected to occur? Will it be temporary, short-term or long-term i.e. for the duration of MOD 8?
Severity or scale	What is the likely scale or degree of change?
Sensitivity or importance	How sensitive or vulnerable are affected people to the impact? How important is the impact?
Level of concern or interest	How concerned or interested are people?

Source: Adapted from Department of Planning, Industry and Environment, 2020.

**Table 35 Defining Magnitude**

Characteristics Considered	Description of Characteristic
Extreme	Substantial change experienced in community health and wellbeing, livelihood, amenity, infrastructure and service provision, and/or heritage values; permanent displacement or addition of at least 20% of a community
Major	Substantial deterioration/improvement to something that people value highly, either lasting for an indefinite time, or affecting many people in a widespread area.
Moderate	Noticeable deterioration/improvement to something that people value highly, either lasting for an extensive time, or affecting a group of people
Minor	Mild deterioration/improvement, for a reasonably short time, for a small number of people who are generally adaptable and not vulnerable
Minimal	No noticeable change experienced by people in the locality.

Source: Adapted from Department of Planning, Industry and Environment, 2020.

**Table 36 Significance Assessment Framework**

Likelihood	Magnitude Level				
	1. Minimal	2. Minor	3. Moderate	4. Major	5. Extreme
A. Almost certain	A1	A2	A3	A4	A5
B. Likely	B1	B2	B3	B4	B5
C. Possible	C1	C2	C3	C4	C5
D. Unlikely	D1	D2	D3	D4	D5
E. Very Unlikely	E1	E2	E3	E4	E5
Social Risk Rating	Low	Moderate	High	Very High	

Source: Adapted from Vanclay, Esteves, Aucamp, & Franks, 2015; Department of Planning, Industry and Environment, 2020.

The outcomes of the significance evaluation indicate that the potential significant areas of social impact and benefit relate to the following areas:

- Continued local and regional employment and economic stimulus;
- Exacerbated fear associated with mining deeper and potential impacts to groundwater and surface water i.e. water availability and accessibility, livelihood etc;
- Impacts associated with the construction phase i.e. increased demand on services and infrastructure; and
- Cumulative amenity impacts to the local area, particularly nearby neighbours, from proximate coal mining operations.

**Table 37 Social Impacts and Opportunities Assessment**

Potential Social Impact/Benefit	Affected Stakeholder	Phase <sup>1</sup>	Existing Management Measures	Unmitigated Risk	Additional Management Measures	Mitigated Risk	Rationale
<b>Impact Area - Way of Life – Employment Opportunities</b>							
Continuation of employment for existing BCM workers for an additional six years. Continuation of support for the financial security and wellbeing of BCM employees and their families. Continuation of access for workers to education and training opportunities associated with BCM.	BCM employees, contractors and family members. Job seekers interested in mining industry employment.	OP	Implementation of the 2020 <i>SIMP</i> including: <ul style="list-style-type: none"> <li>Identify ways to formalise the BCOPL Local Employment Strategy.</li> <li>A focus on local recruitment and encourage new employees to relocate to the area of influence.</li> <li>Implementation of employment and contracting strategies that support the participation of workers from within social area of influence.</li> <li>Continuing to support school-based education opportunities.</li> <li>Continuing to conduct and source a wide variety of training opportunities both internal and external based upon the needs of the workforce and the business.</li> </ul>	(Positive) (High) B3	Maintain a record of the residential location of employed workers. Annual monitoring of local workforce size. Identify ways in which to improve employment opportunities for Indigenous persons, women and youth.	(Positive) (High) B4	Potential MOD 8 opportunity/benefit. Provision of employment for an average workforce of 620 FTE, with a peak FTE workforce of up to 770 workers, for an additional six years is a significant benefit to household wellbeing, particularly given the cumulative impacts of both drought and Covid-19. MOD 8 would also support the continuation of indirect employment opportunities through its supply arrangements.

<p>The construction phase will generate work opportunities for the local and regional labour force.</p>	<p>Local and regional Job seekers interested in mining industry employment. Local and regional labour pool</p>	<p>CP</p>	<p>N/A</p>	<p>(Positive) (Low) B1</p>	<p>BCOPL would implement employment and contracting strategies for MOD 8 that support the participation of workers from within the Narrabri and Gunnedah LGAs.</p>	<p>(Positive) (Moderate) B2</p>	<p>Potential MOD 8 opportunity/benefit. MOD 8 will generate employment for up to 15 persons during the CP. The labour pool in the area of influence will have an opportunity to compete for these roles.</p>
<p><b>Impact Area - Way of Life – Industry/ Business Opportunities</b></p>							
<p>Continuation of existing supply chain and business development opportunities for a further six years.</p>	<p>BCM employees and contractors, including local and regional businesses with BCM contracts</p>	<p>OPs</p>	<p>Implementation of the 2020 <i>SIMP</i> including:</p> <ul style="list-style-type: none"> <li>■ Continue to work with the Boggabri Business Chamber to identify local business opportunities.</li> <li>■ Development of a formal Local Content Plan (LCP) for operations. The LCP would include a register of local businesses. The LCP would also identify strategies that support increased involvement of local businesses in the BCM supply chain.</li> <li>■ Continue to facilitate biannual Aboriginal Stakeholder Community Forums to provide supply updates.</li> </ul>	<p>(Positive) (High) B3</p>	<p>N/A</p>	<p>(Positive) (High) B3</p>	<p>Potential MOD 8 opportunity/benefit. MOD 8 will support the continuation of existing supply chains between local and regional businesses and the BCM for the extension of mine life.</p>

<p>Creation of supply chain opportunities during the CP</p>	<p>Local and regional businesses</p>	<p>CP</p>	<p>Implementation of the 2020 <i>SIMP</i> including:</p> <ul style="list-style-type: none"> <li>Continue to work with the Boggabri Business Chamber to identify local business opportunities.</li> </ul>	<p>(Positive) (moderate) B2</p>	<p>Develop a LCP for the CP which prioritises opportunities for local business and industry participation</p>	<p>(Positive) (High) B3</p>	<p>Potential MOD 8 opportunity/benefit. MOD 8 will generate supply chain opportunities during the construction phase. Additional packages of work e.g. contracts, will be required for the construction activities associated with MOD 8.</p>
<p><b>Impact Area – Way of Life – Community Strength, Social infrastructure and Service delivery</b></p>							
<p>Economic opportunities associated with BCM benefits, continue to accrue to the Narrabri and Gunnedah LGAs supporting infrastructure investment in the local and regional social area of influence</p>	<p>NSC and GSC. Residents of Boggabri township, Narrabri LGA and Gunnedah LGA.</p>	<p>MOD 8 Life</p>	<ul style="list-style-type: none"> <li>Existing VPA commitments with NSC</li> <li>Existing voluntary community donations</li> </ul>	<p>(Positive) (Moderate) B2</p>	<p>Continuation of contributions through the VPA for an additional six years. Continuation of voluntary community donations.</p>	<p>(Positive) (Moderate) B2</p>	<p>Potential MOD 8 opportunity/benefit. BCOPL commitment to community would be maintained for MOD 8 and extension to mine life and would continue to facilitate community benefits at local and regional levels.</p>

<p>The extension of mine life will ensure continued direct and indirect benefits for community structure and cohesion</p>	<p>Residents of Boggabri township, Narrabri LGA and Gunnedah LGA.</p>	<p>OP</p>	<p>Implementation of the 2020 <i>SIMP</i> including:</p> <ul style="list-style-type: none"> <li>■ Continue to support local community activities.</li> <li>■ Continue to implement the employee code of conduct.</li> <li>■ Continue community engagement with project workforce and local residents regarding BCM approvals and modifications.</li> </ul>	<p>(Positive) (Moderate) C2</p>	<p>N/A</p>	<p>(Positive) (Moderate) C2</p>	<p>Potential MOD 8 opportunity/benefit. MOD 8 will enable existing workers to remain in the local social area of influence and will also support the continuation of resident participation in community activities and events.</p>
<p>MOD 8 will ensure continued community contributions i.e. sponsorships, donations and participation for an additional six years</p>	<p>Workforce NSC and GSC. Residents of Boggabri township, Narrabri LGA and Gunnedah LGA.</p>	<p>OP</p>	<ul style="list-style-type: none"> <li>■ Existing voluntary community contributions</li> </ul>	<p>(Positive) (Moderate) B2</p>	<p>Community contributions are further described in Section 2.1.6.</p>	<p>(Positive) (Moderate) B2</p>	<p>Potential MOD 8 opportunity/benefit. In addition to the VPA, BCOPL has provided ongoing sponsorships and grants to local community initiatives. BCOPL also contributes donations and sponsorships for local community groups and events.</p>

<p>Ongoing demand by the BCM workforce for social and community infrastructure in the Narrabri and Gunnedah LGAs, reduces access to these services for other sectors of the community</p>	<p>Workforce Service providers Community Infrastructure Communities of Boggabri, Narrabri and Gunnedah</p>	<p>OP</p>	<ul style="list-style-type: none"> <li>■ Existing VPA commitments with NSC</li> <li>■ Community contributions (as above)</li> </ul> <p>Implementation of the 2020 <i>SIMP</i> including:</p> <ul style="list-style-type: none"> <li>■ Continue to monitor workforce residential location, and presence of families. Use this information to assess potential pressures on community infrastructure.</li> <li>■ Undertake regular dialogue with service and facility providers in Narrabri and Gunnedah LGAs to understand demand and supply issues.</li> <li>■ Follow-up with Boggabri community following completion of new childcare centre to understand the extent to which the centre has addressed demand issues</li> </ul>	<p>Low D2</p>	<p>Continuation of contributions through the existing VPA and voluntary community donations for an additional six years.</p> <p>The Boggabri ELF, when operational, will provide additional child care provision in Boggabri.</p> <p>Continue to monitor workforce residential location. Use this information to assess potential pressures on community infrastructure.</p> <p>Undertake regular dialogue with service and facility providers in Narrabri and Gunnedah LGAs to understand demand and supply issues.</p> <p>Follow-up with Boggabri community following completion of new childcare centre to understand the extent to which the centre has addressed demand issues.</p>	<p>Low D1</p>	<p>Potential MOD 8 social impact.</p> <p>Funding from the existing VPA will compensate for demands on the social infrastructure network due to MOD 8. These impacts are predicted to be negligible as the proposed operations workforce is equivalent to the current 2020 workforce at BCM. Therefore, the current existing demand upon services is likely to remain consistent. Consultation findings with local health service providers indicates a shortage in doctors. However, health service providers indicated that current demand for these services was manageable. The Boggabri ELF will provide child care for local families.</p>
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Impact Area - Health and Wellbeing - Health							
<p>Access to continued employment will support the health and wellbeing of BCM personnel and their families by enabling income security and maintaining social connections. The wellbeing of business owners who supply the BCM will also be supported.</p>	<p>BCM employees, contractors and family members. Suppliers and their families.</p>	<p>MOD 8 Life</p>	<p>Implementation of the 2020 <i>SIMP</i> including:</p> <ul style="list-style-type: none"> <li>■ A focus on local recruitment and encourage new employees to relocate to the area of influence.</li> <li>■ Implementation of employment and contracting strategies that support the participation of workers from within social area of influence.</li> </ul>	<p>(Positive) (High) B3</p>	<p>No further enhancement required.</p>	<p>(Positive) (High) B3</p>	<p>Potential MOD 8 opportunity/benefit.</p>
<p>MOD 8 has the potential to exacerbate landowner fears in relation to water security. The proposed increase in the depth of approved mining operations will result in changes to the</p>	<p>Nearby agricultural operations Bore owners Nearby private residences Residents of Boggabri township, Narrabri LGA and Gunnedah LGA.</p>	<p>OP</p>	<ul style="list-style-type: none"> <li>■ Boggabri CCC</li> <li>■ BTM CCC</li> <li>■ Complaints and grievances mechanism</li> <li>■ BCOPL holds sufficient Water Access Licences (WALs) to account for all water that may be taken for mine operations.</li> </ul>	<p>Moderate C3</p>	<p>Inform nearby neighbours of Modification. Bore water monitoring available for nearby properties on request. Regularly liaise with adjacent landowners to discuss issues and concerns relating to the operation of BCM, including land use practices and</p>	<p>Low D2</p>	<p>Potential MOD 8 social impact. The predicted impacts of MOD 8 on nearby landowners with respect to surface water and groundwater impacts are not materially different to those impacts which have already been addressed through SSD 09_0182 (as modified). No changes are proposed to operations that may necessitate a</p>



<p>groundwater. The significant drought experienced in recent years, along with a number of regional bore related complaints, and issues with water supply across the BTM Complex, has exacerbated landowner fears in relation to water security.</p>					<p>water monitoring, and record the results.</p>		<p>requirement for additional water allocation beyond that approved under SSD 09_0182. The <i>Surface Water Impact Assessment</i> (Engeny Water Management (Engeny), 2021) and the <i>Groundwater Impact Assessment</i> (Australasian Groundwater and Environmental Consultants Pty Ltd, 2021) indicate that, for average conditions, MOD 8 will not result in the need to purchase any additional WALs for extraction of water from the Lower Namoi River Water Source or the Namoi Groundwater Sources i.e. BCOPL hold sufficient WALs. The findings of the <i>Groundwater Impact Assessment</i> (Australasian Groundwater and Environmental Consultants Pty Ltd, 2021) also indicates that MOD 8 is not likely to have a significant impact on groundwater users within the region.</p> <p>Consultation findings indicate that water related issues e.g. water availability, are considered a point of contention within the local community. During SIA</p>
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							consultation, several participants raised the drought as a local and regional issue. A number of SIA participants expressed concern with regards to MOD 8, and mining deeper, in relation to potential impacts on groundwater availability and/or changes.
MOD 8 has the potential to exacerbate landowner frustration and annoyance in relation to continued operations.	Nearby residents. Residents of Boggabri township, Narrabri LGA and Gunnedah LGA.	MOD 8 Life	Community engagement with project workforce and local residents regarding BCM approvals and modifications.	Low D2	BCOPL to continue to communicate with local residents, CCC, NSC and GSC. Undertake proactive and transparent engagement with the local community.	Low D2	<p>Potential MOD 8 social impact.</p> <p>The majority of properties in proximity to the BCM are owned by BCOPL. A large proportion of the BCM workforce reside in the area of influence. Given the locality and the prevalence of mining operations in the area, it is not anticipated that continued mining operations will be received negatively amongst community.</p> <p>SIA consultation findings suggest that a small number of residents expressed a general dislike towards the mining industry. However, MOD 8 was not perceived to exacerbate landowner annoyance, rather new approved resource projects were seemingly the cause of any frustrations expressed.</p>

Impact Area – Surroundings – Amenity							
<p>MOD 8 will prolong the air quality, visual impacts and noise impacts associated with operation of BCM as approved under SSD 09_0182. Noise, visual and dust emissions associated with the OEA would add to the existing cumulative environment and may be experienced as a minor change in amenity for nearby neighbours as a result.</p>	<p>Private residences proximate to the BCM.</p>	<p>OP</p>	<p>Implementation of the 2020 <i>SIMP</i> including:</p> <ul style="list-style-type: none"> <li>■ Regularly liaise with adjacent landowners to discuss issues and concerns relating to the operation of BCM</li> <li>■ Monitor the number of complaints relating to amenity impacts received by BCOP through the Complaints Register.</li> </ul>	<p>Moderate C2</p>	<p>BCOPL will review and if required update its Air Quality, Visual and Noise Management Plans in consultation with the relevant regulatory authorities.</p> <p>Regularly liaise with adjacent landowners to discuss issues and concerns relating to the operation of BCM.</p>	<p>Moderate C2</p>	<p>Potential MOD 8 social impact.</p> <p>The outcomes of the Air, Visual and Noise technical reports are presented in the Modification Report.</p> <p>The <i>Noise and Blasting Impact Assessment</i> (Global Acoustics Pty Ltd , 2021) indicates that MOD 8 is not expected to result in material increases to noise from operations and is not predicted to lead to any significant noise impacts. There are two receptors predicted to have minor exceedances of 1dB of the intrusive noise criteria (DPIE, 2018). These two receptors were not included in the original 2010 BCM Extension Project noise assessment. In addition, a third receptor is predicted to experience a minor increase in predicted maximum noise compared to the 2010 BCM Extension Project noise assessment. This minor increase is due to a change in the modelling assumptions in the MOD 8 <i>Noise and Blasting Impact Assessment</i>.</p>

							<p>The findings of the <i>Air Quality and Greenhouse Gas Assessment</i> (Jacobs Group (Australia) Pty Limited, 2021) indicates that MOD 8 is predicted to comply with all air quality criteria for the “project only” and cumulative scenarios, which includes assessments for PM10, PM2.5, Total Suspended Particulates (TSP) and deposited dust.</p> <p>The <i>Visual Impact Assessment</i> (Hansen Bailey, 2021) indicates that MOD 8 will not result in any additional impact on the surrounding visual landscape at any private receptors.</p>
<b>Impact Area – Surroundings – Environmental Values and Improved Outcomes</b>							
MOD 8 results in an improved visual outcome than that already approved at the end of mine life.	Private residences proximate to the BCM.	MC	<ul style="list-style-type: none"> <li>■ Conceptual Final Landform design presented within the Modification Report</li> <li>■ Rehabilitation of exposed faces of the OEA has largely been completed</li> <li>■ Requirement to prepare a Rehabilitation Management Plan (or Mining Operations Plan)</li> </ul>	(Positive) (Moderate) B2	N/A	(Positive) (Moderate) B2	<p>Potential MOD 8 opportunity/benefit.</p> <p>Overburden Emplacement Area (OEA) will be constructed in accordance with the Conceptual Final Landform design which has incorporated features of macro-relief to facilitate the integration of the landform with the surrounding landscape, thereby reducing the visual impact of the approved final landform.</p>

			and a Mine Closure and Rehabilitation Plan				The <i>Final Landform Assessment</i> (Landloch Pty Ltd, 2021) indicates that the maximum height of the proposed OEA is five metres higher than the approved Conceptual Final Landform design which will allow macro-relief elements to be incorporated into the surface of the final landform design. This will minimise potential visual impacts resulting from the proposed landform changes.
<b>Impact Area – Personal and Property Rights – Livelihood</b>							
Impact of increasing depth of mining into the Templemore Coal Seam could impact on groundwater and surface water availability. Rural properties rely on water for agricultural livelihood. Changes in groundwater accessibility impacts on	Private residences proximate to the BCM. Bore owners and proximal landholders. Agricultural properties.	OP	<ul style="list-style-type: none"> <li>■ Boggabri CCC</li> <li>■ BTM CCC</li> <li>■ Complaints and grievances mechanism</li> <li>■ BCOPL holds sufficient Water Access Licences (WALs) to account for all water that may be taken for mine operations.</li> <li>■</li> </ul>	Moderate C2	Undertake open and transparent engagement around water take and licensing with the local community and nearby residents. Conduct monthly bore water monitoring on nearby neighbours' bores.	Low C1	Potential MOD 8 social impact. The findings of the <i>Groundwater Impact Assessment</i> indicates that MOD 8 is not likely to have a significant impact on groundwater resources. The <i>Surface Water Impact Assessment</i> (Engeny Water Management (Engeny), 2021) and the <i>Groundwater Impact Assessment</i> (Australasian Groundwater and Environmental Consultants Pty Ltd, 2021) indicate that, for average conditions, MOD 8 will not result in the need to purchase any additional

bore water users.							WALs for extraction of water from the Lower Namoi River Water Source or the Namoi Alluvial Water Sources i.e. BCOPL hold sufficient WALs. Impact still rated moderate due to the stakeholder concern and perceived local issues around water, including times of drought.
<b>Impact Area – Surroundings - Cumulative</b>							
Cumulative amenity impacts from parallel operations of other mines in the BTM Complex and other resource projects to residents within the Narrabri and Gunnedah LGAs	Residents of Narrabri and Gunnedah LGA	MOD 8 Life	Implementation of the 2020 <i>SIMP</i> including: <ul style="list-style-type: none"> <li>■ Meet periodically with staff at NSC and GSC to understand social and community infrastructure issues.</li> <li>■ Follow-up with Boggabri community following completion of new child care centre to understand the extent to which the centre has addressed demand issues.</li> <li>■ Participation in the BCM CCC and the BTM CCC.</li> <li>■ Ongoing implementation of BCM Complaints Management Protocol.</li> </ul>	High B3	BCOPL will continue to make financial contributions to the NSC in accordance with the existing VPA, to use for investing into future development and the maintenance of social infrastructure.	Moderate B2	Potential MOD 8 social impact. Cumulative impacts considered are associated with Maules Creek Mine, Tarrawonga Mine and the Vickery Coal Mine Project. The potential cumulative impacts are further discussed in the Modification Report. The findings of the <i>Air Quality and Greenhouse Gas Assessment</i> (Jacobs Group (Australia) Pty Limited, 2021) suggests that MOD 8 is predicted to comply with all air quality criteria for the "project only" and cumulative scenarios, which includes assessments for PM <sub>10</sub> , PM <sub>2.5</sub> , TSP and deposited dust.

							<p>The <i>Noise and Blasting Impact Assessment</i> (Global Acoustics Pty Ltd , 2021) indicates that MOD 8 is predicted to comply with cumulative noise criteria specified within SSD 09_0182.</p> <p>The <i>Visual Impact Assessment</i> (Hansen Bailey, 2021) indicates that the combined disturbance areas of Tarrawonga and BCM represent only a very small proportion of the Namoi Valley and cumulatively do not significantly detract from the region’s rural landscape. MOD 8 will result in no material changes to the low visual impacts previously assessed for the approved mining activities.</p>
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Impact Area – Way of Life – Cumulative							
Cumulative economic benefits of mining in the New England and North West Region for the communities of the Narrabri and Gunnedah LGAs.	Residents of Narrabri and Gunnedah LGA	MOD 8 Life		(Positive) (High) B3	Continued operations. Continued VPA contributions to the NSC. Cumulative funding/contributions made available to NSC and GSC through MOD 8 and surrounding projects, including the approved Vickery Extension Project and the Narrabri Gas Project.	(Positive) (High) B3	Potential MOD 8 opportunity/benefit. Cumulative economic benefits associated with Maules Creek Mine, Tarrawonga Mine, Vickery Extension Project and the Narrabri Gas Project.
Cumulative housing market impacts i.e. limited vacancy, increased rental/purchase price, arising from inflated wages and the commencement of multiple projects in the region i.e. Vickery Extension Project and Narrabri Gas Project.	Residents of Narrabri and Gunnedah LGA Workforces or nearby operations	OP	Implementation of the 2020 <i>SIMP</i> including: <ul style="list-style-type: none"> <li>Continue to engage with other local mining operators and other development project operators regarding monitoring and managing the potential cumulative impacts on local housing.</li> <li>Review the potential for impacts on housing availability and affordability where changes to the size of the local workforce are anticipated.</li> </ul>	Moderate C2	Continue to communicate with the NSC on the outcomes of the NSC Housing Strategy. Continue to communicate with the NSC on the Boggabri Housing Commitment (Section 2.1.4).	Low C1	Potential MOD 8 social impact. Potential impact dependant on timing of commencement of nearby approved projects. The status of the Boggabri Housing Commitment may alleviate impacts on housing demands if dwellings are constructed/completed. This is subject to an agreed timeframe with the NSC. Negligible change to workforce resulting in limited impacts to housing market.



			<ul style="list-style-type: none"> <li>■ Continue to supply and support remote housing allowances for staff, as well as the implementation of relocation policies.</li> <li>■ Continue to run assessment centres in Narrabri and Gunnedah when a recruitment drive is required.</li> <li>■ Encourage the maintenance shutdown workforce to utilise existing workforce accommodation villages for short term accommodation requirements.</li> </ul>				<p>The construction workforce will be accommodated in the Boggabri CIVEO Village and local housing will not be required to accommodate this minor increase in workforce. MOD 8 will also not require any material changes to the operations phase workforce. The potential impact of MOD 8 would be limited to the extension of mine life.</p>
Increasing conflict between different industry sectors due to cumulative industry water demands.	Nearby landholders Residents of nearby communities e.g. Boggabri	MOD 8 Life	Tailored community engagement process with key stakeholders, nearby landholders and residents of proximate communities to ensure stakeholders are fully informed of MOD 8 and the approvals process	Moderate D3	Communicate the findings of the Modification Report water studies with interested community members to ensure common understanding of potential impacts and opportunities and also to explain existing water allocations held by BCOPL, when the WALs were obtained and how they are	Low D2	<p>Potential MOD 8 social impact.</p> <p>Cumulative alongside other resource projects in the area.</p> <p>Impact considered low. MOD 8 will not increase water usage and/or WAL requirements. The BCM contribution is existing</p> <p>Whilst MOD 8 will extend the life of the mine, it will have a lower water demand than the current approved levels of demand.</p>

					used to address existing impacts.		<p>There is a perceived existing level of conflict between different industry sectors in the region e.g. agriculture and mining. Level of conflict heightened due to drought conditions.</p> <p>Consultation findings suggest conflict is also present due to experienced impacts from increased costs of WALs.</p> <p>Representatives of the GSC indicated that during the drought period the cost of WALs increased and larger companies e.g. mines, were perceived to be in a better position to afford the licenses as compared to farmers.</p>
Increasing conflict between residents of nearby communities due to growth in mining industry sector and perceived cumulative impacts on other industry sectors e.g. agriculture.	Residents of nearby communities e.g. Boggabri, Narrabri and Gunnedah.	MOD 8 Life	N/A	Moderate D3	Communicate the findings of Modification Report technical studies with interested and affected people to ensure common understanding of potential impacts and opportunities.	Low D2	<p>Potential MOD 8 social impact.</p> <p>Cumulative alongside other resource projects in the area.</p> <p>Whilst MOD 8 will extend the existing level of impact it will not contribute to increase in the mining industry sector from that what was already approved. Therefore, the impact is considered low. Any conflict is perceived to arise due to new development. There is</p>

							a perceived existing level of conflict between residents. Level of conflict not anticipated to increase.
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Note:

1. CP = Construction Phase, OP = Operations Phase, MC = Mine Closure

## 5.6 Monitoring and Reporting

The *2020 SIMP* is the primary tool for tracking the implementation of management measures and monitoring their success. As previously stated, the *2020 SIMP* will be updated to include the potential impacts and management measures presented in Table 37.

The *2020 SIMP* includes actions, or steps that will be taken, to monitor the effectiveness of the proposed management measures. This includes collecting data and using this data to assess whether the established performance goals have been met. The *2020 SIMP* also sets out the frequency in which the monitoring will occur. Monitoring data will be reported to the BCM CCC annually, and a summary of the monitoring results will be presented in the BCM Annual Review.

The BCM SIMP will be reviewed and updated every three years. The review will involve assessing the effectiveness of the overall SIMP, reviewing the predicted impacts (in light of changing local conditions), and revising the BCM SIMP to align with the predicted impacts.

## 6 CONCLUSION

The Narrabri and Gunnedah LGAs have an extensive mining history. Many residents who reside in the local and regional social areas of influence are employed in the mining and resources sector. Yet, the findings of SIA consultation indicate mixed public perceptions regarding mining. A number of stakeholders perceive there to be too much resource development in the region, and indicated that there is a desire across the region for greater participation and effort to be targeted towards other industry e.g. agriculture. The findings of SIA consultation suggest that significant impacts resulting from MOD 8 are not anticipated. However, SIA consultation findings indicate a high level of concern in relation to the potential impacts on groundwater e.g. water availability, from mining deeper. Consultation findings also indicate that stakeholders recognise the benefits of MOD 8 i.e. continued employment and indirect and direct local spend.

The SIA has considered the impacts of MOD 8 on the needs, issues and values of the surrounding communities, largely Narrabri LGA, Gunnedah LGA and Boggabri SS. The SIA has adequately considered potential socio-economic impacts of MOD 8 consistent with the NSW SIA Guideline and best practice. Socio-economic impacts are generally associated with environmental impacts (i.e. increased noise and dust emissions, and changes in visual amenity and available water).

MOD 8 will have low to moderate social impact, noting that there would be:

- Minimal impact to surrounding amenity;
- No predicted notable change to the social and economic profile of the community except for the potential for continued employment; and
- Low to moderate cumulative changes in amenity, infrastructure including housing, and the economic profile of the region as a result of the commencement of other projects in proximity to the BCM i.e. Vickery Extension Project and Narrabri Gas Project.

Approval of MOD 8 would create additional employment associated with the construction phase of the proposed fauna movement crossing, and continued employment for current BCM employees. Royalties returned to the state and company taxes would be the major sources of public economic benefit generated by MOD 8. These are valued at approximately \$216 Million (royalties) and \$27 Million (company tax to NSW) calculated as present values over the life of MOD 8.

Proposed management measures are described in Section 5.5.

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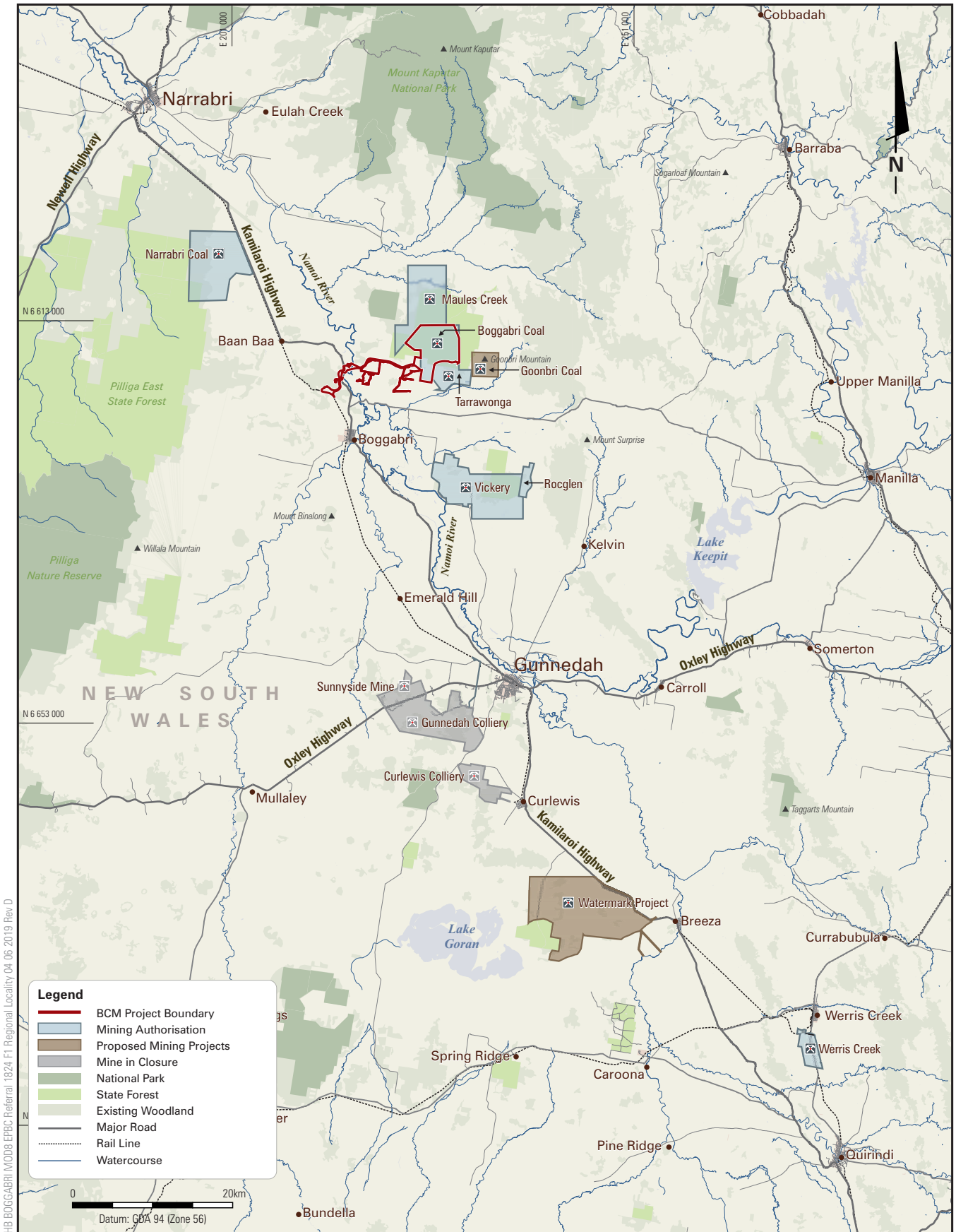
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# FIGURES

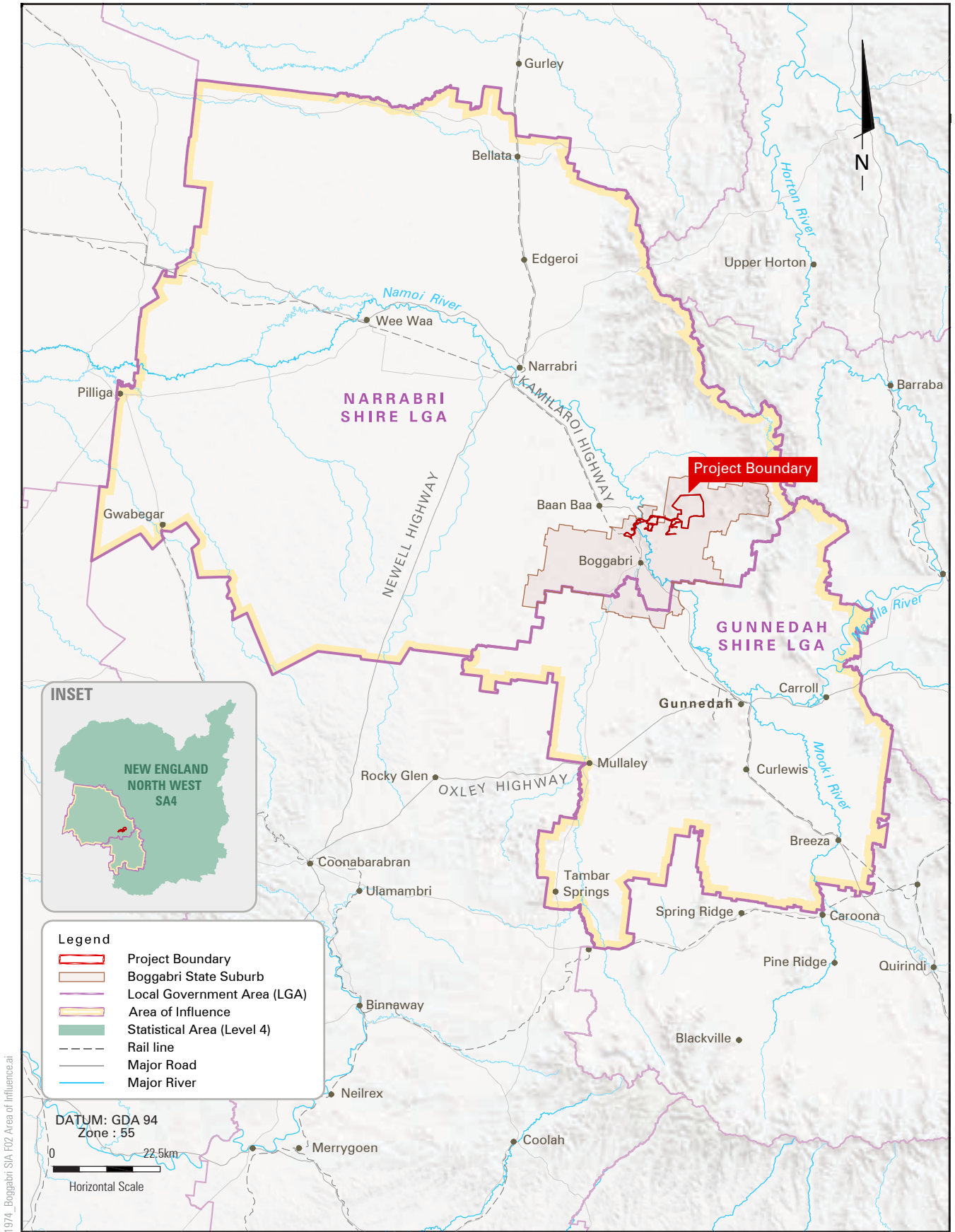




BOGGABRI COAL MINE

Regional Locality

**FIGURE 1**

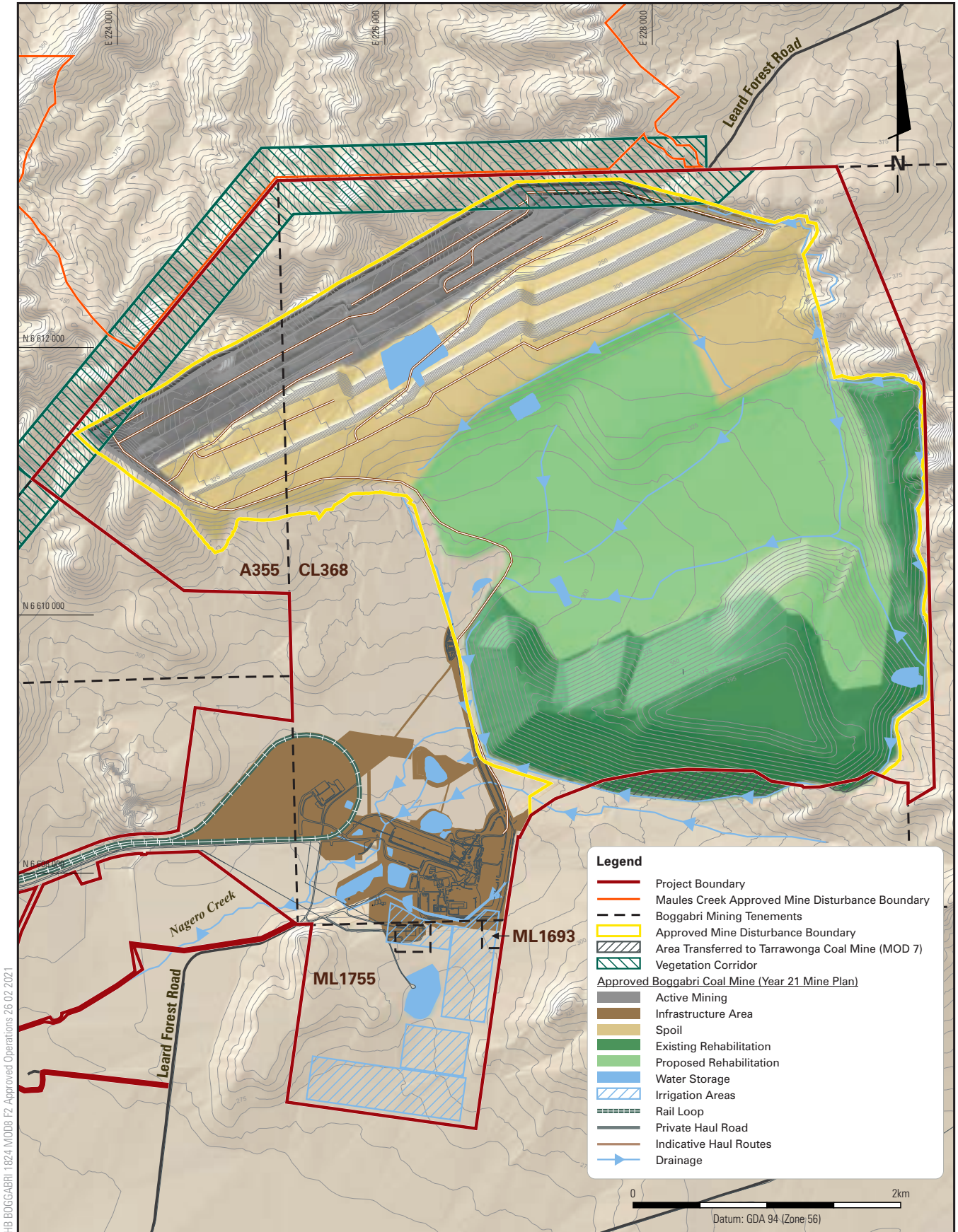


BOGGABRI COAL MINE

Area of Influence

**FIGURE 2**



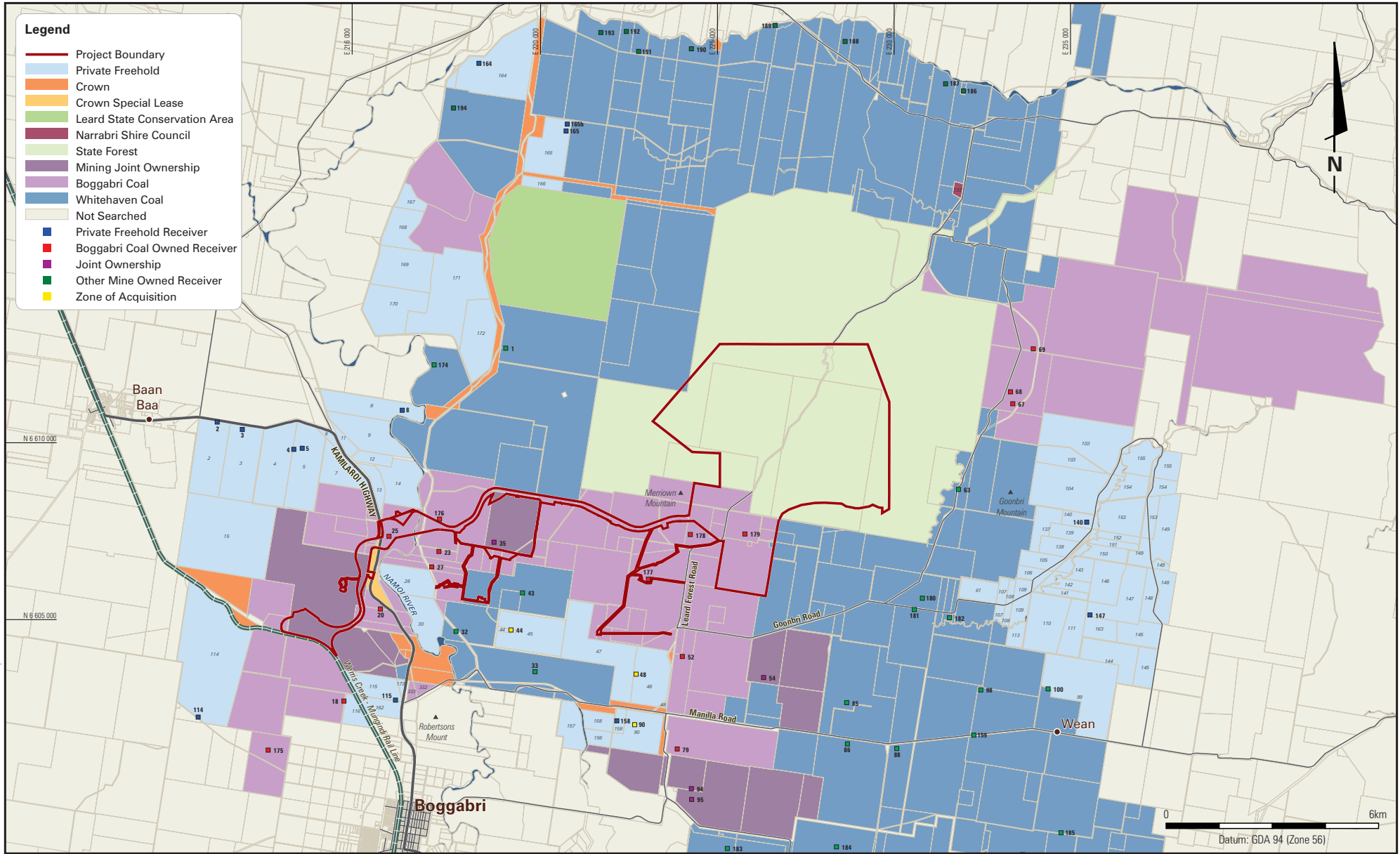


HB BOGGABRI 1824 (MOD 8 F2) Approved Operations 26 02 2021

**BOGGABRI COAL MINE**

Approved Operations

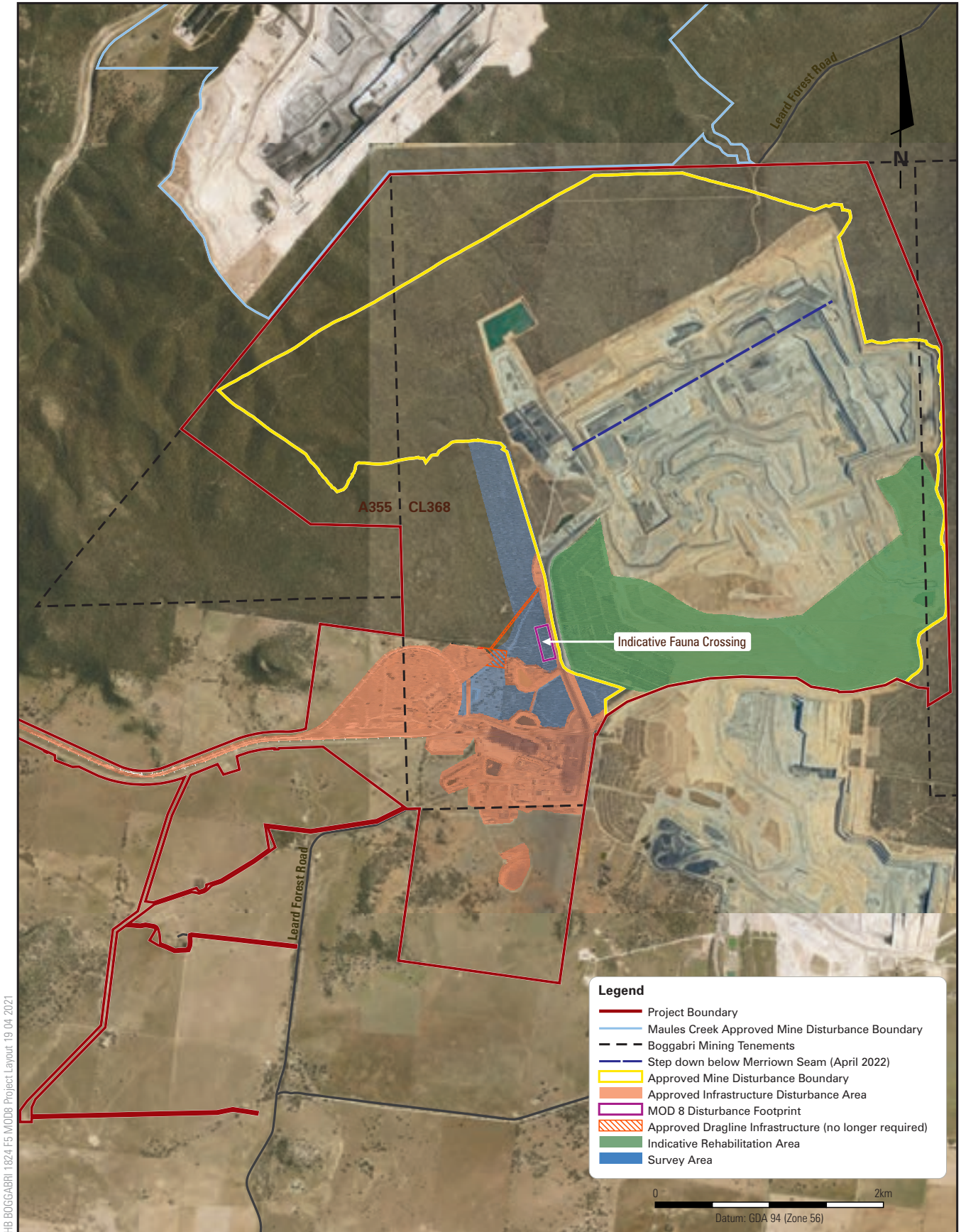
**FIGURE 3**



HB BOGGABRI MOD8 1824 F3 Land Ownership 16 02 2021

BOGGABRI COAL MINE





BOGGABRI COAL MINE

MOD 8 Conceptual Project Layout

FIGURE 5

**APPENDIX A**  
**CURRICULUM VITAE**

- Areas of Expertise**
- Social Impact Assessment, Management and Reporting
  - Quantitative and Qualitative Social Research
  - Stakeholder Consultation

- Qualifications**
- Hon (Class I) Geographical Science, the University of Queensland, 2016
  - Bachelor of Science, the University of Queensland, 2015

**Career Highlights** *Lauren is a Social Planner with experience in social impact assessment, community development and community engagement in Queensland, New South Wales, Victoria and Western Australia. She holds a Geographical Science degree which included the study of wider social impacts and demographics, an Honours degree of Geography specialising in Social Inclusion and Exclusion regarding large scale infrastructure and has had experience through working at GHD and Hansen Bailey. Currently, Lauren is assisting with social impact assessments and consultation to inform the EIS process for a proposed bauxite mine in the Cape York Peninsula and a proposed gold mine in New South Wales. Lauren also has experience in engaging with Traditional Owners and the assessment of significant social impacts on Indigenous communities.*

**Employment History** ***HANSEN BAILEY, Brisbane (June 2018 – Present)**  
Social Planner*

***GHD Pty Ltd, Brisbane (January 2017 – June 2018)**  
Stakeholder Engagement and Social Sustainability Consultant*

**Project Experience** **Social Impact Assessment (SIA)/Community Consultation**

- Boggabri Coal Mine (BCM) (Boggabri, NSW) (Idemitsu) (under preparation) Social Impact Management Plan (SIMP) – Preparation of a SIMP for the existing operations at BCM.
- Aurukun Bauxite Project (Aurukun, QLD) (Glencore) (under preparation) – SIA. Providing assistance for the preparation of an SIA, including consultation, for a substantial greenfield bauxite mining operation nearby the town of Aurukun. Project involves bauxite mining and processing, barging and transshipment activities. The SIA will require assessment of the potential social and economic impacts of the project on the relevant Traditional Owners.
- Aurukun Bauxite Project (Aurukun, QLD) (Glencore) (under preparation) – EIS Consultation. Providing assistance for the preparation of EIS consultation, including stakeholder identification, distribution of project materials, provide support to Glencore when on-country, maintain a stakeholder database and consult with stakeholder regarding EIS approvals timeframes.

- Tcharawopin Project (Aurukun, Qld) (Glencore) (complete) – SIA and stakeholder engagement. Providing assistance for the preparation of an Scoping Study and SIA for a greenfield bauxite mining operation nearby the town of Aurukun within the Aurukun Shire. Project included assessing the feasibility of bauxite mining, and barging activities in local river systems and coastal zone. Design of a community engagement program for Indigenous and non-Indigenous stakeholder engagement. The project assessment found this project not feasible.
- McPhillamys Gold Project (Blayney, NSW) (Regis Resources Limited) (under preparation) – SIA and stakeholder engagement. Providing assistance for the preparation of an SIA, including consultation, for a greenfield open cut gold mine operation in Blayney LGA. Project involves gold mining and processing on site. The SIA will require assessment of the potential social and economic impacts of the project on the relevant communities and near neighbours.
- Moranbah North Extension Project (Moranbah, QLD) (AngloAmerican) (under preparation) – Project Coordinator. Providing assistance for the preparation of a Major Environmental Authority (EA), whilst offering assistance to the Project Manager. Project involves extending the existing section of underground longwall mining. Assist with project scheduling and the submission of an EPBC Act Referral and in documenting a response for a request for information.
- Dartbrook Project (Hunter Valley, NSW) (submitted) – Modification SIA desktop report preparation. Providing assistance for the existing Dartbrook Mine through the completion and submission of an SIA for the project modification. Report included updating the social baseline and compiling and assessing project impacts.

GHD project experience includes:

- Business Impact Assessments (internal) – report diagnostics;
- Toowoomba Heritage Tunnel Upgrade Project – stakeholder engagement;
- Sydney Metro – SIA;
- North East Link (NEL) Tunnel – SIA and Options Analysis;
- Argyle Diamond Mine Closure – SIA;
- Moreton Bay Regional Council – community engagement toolbox development;
- Gold Coast Council Waste and Water Management – survey development and generate annual reports; and
- Riverside Drive Property Development – stakeholder engagement.



**APPENDIX B**

**SCOPE OF IMPACT ASSESSMENT**

**Table 1 Comparison Between the Approved Boggabri Coal Mine and MOD 8 that may Influence the Social Impact Theme**

Social Impact Theme	Key Project Activities Influencing Potential Social Impacts		Is Further Consideration of the Social Impact Theme required in the SIA?
	Currently Approved Operations (SSD 09_0182 (as modified))	MOD 8	
Way of Life - Employment opportunities and economic benefits	<ul style="list-style-type: none"> <li>■ Mining operations until 31 December 2033</li> <li>■ Approximately 500 operational personnel (it is noted that at July 2020 actual employment up to 750 workers)</li> <li>■ Significant capital and operational expenditure through local supply chain networks</li> </ul>	<ul style="list-style-type: none"> <li>■ Extension of mine life (six years) until 2039 and continuation of permanent workforce roles</li> <li>■ 15 personnel average construction workforce</li> <li>■ 620 average operational workforce, with a peak of 770 FTE workers</li> <li>■ Limited capital expenditure</li> <li>■ Continuation of operational expenditure for an additional six years</li> </ul>	<p>Yes. Continued employment for extension of mine life for existing operations workforce at BCM is considered. The SIA considers the social effects of these economic and employment benefits.</p> <p>The <i>Economic Impact Assessment</i> (Gillespie Economics, 2021) for MOD 8 has forecast the potential direct and indirect economic and employment benefits of MOD 8 (including the extension of mine life) for the social area of influence.</p> <p>Cumulative impacts will also be considered.</p>
Access to infrastructure, services and facilities - Delivery of social infrastructure and services	<ul style="list-style-type: none"> <li>■ Mining operations until 31 December 2033</li> <li>■ Approximately 500 FTE operational personnel</li> <li>■ Construction workforce accommodated at the CIVEO Boggabri Village.</li> <li>■ Approved VPA</li> </ul>	<ul style="list-style-type: none"> <li>■ Construction workforce accommodated at the CIVEO Boggabri Village.</li> <li>■ 620 average operational workforce, with a peak of 770 FTE workers (it is noted that at July 2020 actual employment up to 750 workers)</li> <li>■ Continuation of VPA arrangements and community contributions</li> </ul>	<p>Yes. Impacts have been primarily assessed through the SIA. However, the social impacts are not anticipated to be significant. The impact of the BCM operations workforce was assessed in the <i>Boggabri Coal Mine Extension Project SIA</i> (Hansen Bailey, 2010). The SIA will consider the impacts and opportunities of the extension to mine life for social infrastructure and services provision across the social area of influence.</p> <p>Any increase in demand for local services will be confined to the construction phase given no material changes are anticipated to the size of the existing operations workforce with MOD 8.</p>

Social Impact Theme	Key Project Activities Influencing Potential Social Impacts		Is Further Consideration of the Social Impact Theme required in the SIA?
	Currently Approved Operations (SSD 09_0182 (as modified))	MOD 8	
Access to infrastructure, services and facilities - Accommodation (housing and short term accommodation)	<ul style="list-style-type: none"> <li>Approximately 500 FTE operational personnel</li> <li>Construction workforce accommodated at the CIVEO Boggabri Village.</li> </ul>	<ul style="list-style-type: none"> <li>15 personnel average construction workforce (temporary)</li> <li>620 average operational workforce, with a peak of 770 FTE workers</li> <li>Temporary construction workforce encouraged to utilise accommodation at the CIVEO Boggabri Village.</li> </ul>	<p>No. The impact of the BCM operations workforce on housing and short-term accommodation across the social area of influence was assessed in the <i>Boggabri Coal Mine Extension Project SIA</i> (Hansen Bailey, 2010). No material changes are proposed to the operations phase workforce that would necessitate further consideration of potential impacts. Any potential impacts are anticipated to be indirect and minor.</p> <p>The construction phase workforce (approximately 15 workers) will be encouraged to utilise accommodation at the CIVEO Boggabri Village.</p> <p>Any potential impacts are anticipated to be indirect, short-term and minor.</p>
Way of life - Amenity (acoustic, visual and air quality)	<ul style="list-style-type: none"> <li>Project disturbance 2,047 ha</li> <li>Extraction and processing of 145 Mt ROM coal</li> <li>Train load out operation</li> <li>Blasting 9 am to 5 pm Monday to Saturday only, excluding public holidays. Up to one blast per day, maximum of 4 blasts per week</li> </ul>	<ul style="list-style-type: none"> <li>Change in final land form.</li> <li>Extension of mine life (six years) until 2039</li> </ul>	<p>Yes. Impacts will be partially assessed in other Modification Report technical studies however further consideration of the social dimensions of the impacts will be required in the SIA.</p> <p>Cumulative impacts will also be considered.</p> <p>MOD 8 will prolong the air quality, visual impacts and noise impacts (including blasting) associated with operation of BCM as approved under SSD 09_0182. Noise, visual and dust emissions associated with the Overburden Emplacement Area (OEA) would add to the existing cumulative environment and may be experienced as a minor change in amenity for changes may be experienced by nearby neighbours as a result.</p> <p>The OEA may result in improved visual outcomes.</p> <p>Changes in residential amenity may be experienced as a result of construction activities i.e. construction of overland conveyor and relocation of existing infrastructure.</p>

Social Impact Theme	Key Project Activities Influencing Potential Social Impacts		Is Further Consideration of the Social Impact Theme required in the SIA?
	Currently Approved Operations (SSD 09_0182 (as modified))	MOD 8	
			<p>Blasting will continue to occur between 7am and 6pm. Lighting at night will continue to be implemented for safety purposes. Night acoustic and light impacts at BCM have the potential to result in sleep disturbance to nearby residents. Blasting impacts are not likely to be generated beyond that already experienced.</p> <p>MOD 8 is unlikely to give rise to any significant changes in the approved noise and dust emissions that may have a material effect on property values.</p>
Access to infrastructure, services and facilities - Road and Pedestrian Safety	<ul style="list-style-type: none"> <li>Site access via Kamilaroi Highway and the Boggabri Coal private road</li> </ul>	<ul style="list-style-type: none"> <li>Approximately 15 construction personnel</li> </ul>	<p>No. Any impacts will be mostly assessed in the <i>Traffic and Transport Assessment</i> (Cardno (NSW/ACT) Pty Ltd, 2021). And the SIA will cross reference and integrate the study findings where relevant. The impacts associated with the existing operations phase workforce were assessed in Boggabri EA. No material changes are proposed to the operations phase workforce that would necessitate further consideration of potential impacts. Any potential impacts are anticipated to be indirect and minor.</p> <p>The construction phase workforce will be encouraged to utilise accommodation at the CIVEO Boggabri Village and will commute to and from site. The construction phase is considered small and temporary in nature (approximately three months) and any traffic movements associated with the construction workforce will be negligible.</p>
Health and Wellbeing	<ul style="list-style-type: none"> <li>Resident workforce</li> <li>Negotiated agreements or make good agreements with respect to private landowners and water rights</li> </ul>	<ul style="list-style-type: none"> <li>Resident workforce</li> <li>Increased depth of mining and interactions with groundwater resources</li> </ul>	<p>Yes. Impacts will not be assessed in other Modification Report technical studies and will be primarily considered in the SIA. Any potential changes in biophysical conditions (as described in Modification Report technical studies) that have implications for health and wellbeing e.g. air quality, night time noise will be considered in the SIA.</p>

Social Impact Theme	Key Project Activities Influencing Potential Social Impacts		Is Further Consideration of the Social Impact Theme required in the SIA?
	Currently Approved Operations (SSD 09_0182 (as modified))	MOD 8	
		<ul style="list-style-type: none"> <li>Extension of mine life and continuation of permanent workforce roles</li> </ul>	<p>Cumulative impacts will also be considered. Continued and further employment will likely contribute to the health and wellbeing of project personnel and their families.</p> <p>MOD 8 has the potential to exacerbate fears in relation to water security. MOD 8 will require an increase in the depth of mining. Given the prolonged drought in the area of influence, water is a highly valued resource.</p>
Personal and property rights/Surroundings - Livelihood	<ul style="list-style-type: none"> <li>Negotiated agreements or make good agreements with respect to private landowners and water rights if impacts result from operations to landholders</li> <li>Water license arrangements</li> </ul>	<ul style="list-style-type: none"> <li>Increased depth of mining and interactions with groundwater</li> <li>Extension to mine life</li> </ul>	<p>Yes. Impacts will primarily be assessed in the <i>Groundwater Impact Assessment</i> and the <i>Surface Water Impact Assessment</i>. Cumulative impacts will also be considered.</p> <p>MOD 8 will require an increase in the depth of mining, which could result in potential changes to groundwater and surface water that will be assessed in the <i>Groundwater Impact Assessment</i> and the <i>Surface Water Impact Assessment</i>. Rural properties rely on water for agricultural livelihoods.</p>
Mine water demand	<ul style="list-style-type: none"> <li>Makeup water demand of 1,211 ML during average conditions</li> <li>Approved Water Access Licences</li> </ul>	<ul style="list-style-type: none"> <li>Makeup water demand reduces to 644 ML during average conditions</li> <li>No change in Water Access Licences</li> </ul>	<p>Yes. Impacts will primarily be assessed in the <i>Groundwater Impact Assessment</i> and the <i>Surface Water Impact Assessment</i>. Perceptions around water and water licenses exist in community. It is perceived that any water take by the mining industry is significant compared to other industries.</p> <p>Cumulative impacts will be considered.</p>
Personal and property rights - Land use and Land Ownership	<ul style="list-style-type: none"> <li>Change in landownership and in land use from rural production to open-cut mining</li> </ul>	<ul style="list-style-type: none"> <li>No change in mining footprint</li> <li>Some minor additional disturbance, although will be substituted to result in a net</li> </ul>	<p>No. The social impact will not be experienced by anyone, although the measures included in the <i>2020 SIMP</i> to address the relevant conditions of SSD 09_0182 will continue to be implemented.</p> <p>No further loss of agricultural land is proposed as a part of MOD 8. Labour draw from the farming industry to the mining industry is</p>

Social Impact Theme	Key Project Activities Influencing Potential Social Impacts		Is Further Consideration of the Social Impact Theme required in the SIA?
	Currently Approved Operations (SSD 09_0182 (as modified))	MOD 8	
		reduction in disturbance for BCM. ■ No changes to zone of acquisition as a result of MOD 8	unlikely as the BCM is currently operating at a workforce size that will be similar to the proposed Modification operations workforce.
Culture - Cultural heritage and local heritage connections (Indigenous and Non-Indigenous)	■ Approved Cultural Heritage Management Plan	■ Continued reference and compliance to approved Cultural Heritage Management Plan	No additional or incremental impacts to Indigenous or non-Indigenous cultural heritage, beyond those already approved under SSD 09_0182 are likely as a result of MOD 8. The <i>Aboriginal Archaeological Due Diligence Assessment</i> (Insite Heritage Pty Ltd, 2021) states that there are no Aboriginal sites located within the disturbance boundary of MOD 8. The <i>Historic Heritage Impact Assessment</i> (Insite Heritage Pty Ltd, 2021) also indicates that there are no historic sites located within disturbance boundary of MOD 8
Personal and property rights - Property values	■ Property acquisition in accordance with SSD 09_0182 ■ Exceedances in noise and dust criteria	■ No further property acquisition required ■ Construction phase activities ■ No new operations activities proposed ■ Compliance with noise, blasting and dust criteria	No further consideration is required. BCM is an existing mine. Neighbouring property values will have already adjusted to the presence of the mine and the presence of other more recent mining operations e.g. Vickery Extension Project. MOD 8 is not anticipated to contribute to any changes in the local/regional housing market e.g. property values.
Community - Community Cohesion and Strength	■ Property acquisition in accordance with SSD 09_0182 ■ Land use change ■ Changes in biophysical conditions	■ No further property acquisition required ■ No further Land use changes proposed ■ Extension of mine life and continuation of employment	Yes, further consideration of positive benefits for community cohesion and strength is required. Significant contributions to the area of influence have and will continue to be made through the VPA and community contributions i.e. donations, funds, volunteers.

Social Impact Theme	Key Project Activities Influencing Potential Social Impacts		Is Further Consideration of the Social Impact Theme required in the SIA?
	Currently Approved Operations (SSD 09_0182 (as modified))	MOD 8	
	<ul style="list-style-type: none"> <li>Approved VPA</li> </ul>	<p>opportunities for an additional 6 years.</p>	<p>BCOPL have contributed \$12,411,258.85 to NSC through the VPA. Funds from BCOPL through the VPA have contributed towards local services and the maintenance of council owned infrastructure. Cumulative impacts will also be considered.</p> <p>Adverse changes in community cohesion can result from a number of activities including the outmigration of existing residents, the immigration of new residents (including temporary residents), the creation of conflict between groups within a community. MOD 8 will not result in the direct displacement of any existing residents. It is also unlikely that MOD 8 on its own (given the minor scale of potential change) would influence any decision by existing residents to move from the area. The construction phase will result in the in migration of a temporary workforce. Given the short-time frame for construction and the anticipated size of the construction workforce, the potential for adverse impacts to community cohesion and strength in the social area of influence are considered minimal.</p> <p>From a positive perspective the extension of mine life will have direct and indirect benefits for community structure and cohesion. It will enable existing workers to remain in the local social area of influence and the continuation of resident participation in community activities and events.</p>
Surroundings - Environmental Values	<ul style="list-style-type: none"> <li>Final landform to drain to the natural environment</li> <li>Minimise the size and depth of the final void and retains no surface water</li> <li>Project disturbance 2,047 ha</li> </ul>	<ul style="list-style-type: none"> <li>Fauna movement crossing construction</li> </ul>	<p>No. Further evaluation is not required in the SIA.</p> <p>MOD 8 involves the construction of a fauna movement crossing of the existing haul road which is proposed to improve the movement of fauna from the Leard State Forest through the Southern Rehabilitation Area.</p>

Social Impact Theme	Key Project Activities Influencing Potential Social Impacts		Is Further Consideration of the Social Impact Theme required in the SIA?
	Currently Approved Operations (SSD 09_0182 (as modified))	MOD 8	
	<ul style="list-style-type: none"> <li>■ Biodiversity Offset Areas</li> <li>■ Creation of vegetation corridor</li> </ul>		<p>Amendments to the Conceptual Final Landform design resulting from the additional mining proposed is not further considered, as rehabilitation objectives as per SSD 09_0182 will be met. The final void area will continue to be partially infilled to ensure that it does not develop a surface water pit lake, as outlined in SSD 09_0182. Therefore, there is insignificant change to the proposed final landform such that social impacts would arise.</p>



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