July 2015

PROJECT CHINA STONE

Draft Environmental Impact Statement

EXECUTIVE SUMMARY

Hansen Bailey
ENVIRONMENTAL CONSULTANTS

MACMINES AUSTASIA

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1 INTRODUCTION

Hansen Bailey has prepared this draft Environmental Impact Statement (EIS) on behalf of MacMines Austasia Pty Ltd (MacMines) for Project China Stone (the project). The project involves the construction and operation of a large-scale coal mine on a greenfield site in Central Queensland (Figure 1). The project site is remote, being located approximately 270 km south of Townsville and 300 km west of Mackay, at the northern end of the Galilee Basin. The EIS has been prepared under the *State Development and Public Works Organisation Act 1971* (SDPWO Act) in support of an application for an Environmental Authority (EA), Mining Lease (ML) and approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

This Executive Summary provides a high level overview of the project, the environmental impact assessment process, and the key findings of the EIS.

The Proponent

The project proponent is MacMines Austasia Pty Ltd (MacMines). MacMines was registered and established in Queensland in 1999 and has since been focussed on geological exploration. MacMines holds a number of Exploration Permits for Coal (EPC) in Queensland, including EPC 987 which is split between a northern and southern block. The project site is located entirely within the southern block of EPC 987.

MacMines has been wholly owned by the Yao family since 2007 and is a related entity of Shanxi Meijin Energy Group Limited (Meijin). Meijin is also owned by the Yao family and was founded in 1981. Meijin is based in Qingxu County, Shanxi Province, China. Meijin is the largest manufacturer of commercial metallurgical coke in China and is the owner, operator and manager of a fully integrated mine to steel product chain.

Project Need

There are substantial undeveloped thermal coal resources within the project site. The project is proposed in order to efficiently extract these coal resources.

Thermal coal is used to generate electricity and currently accounts for about 40% of global electricity needs. Despite the recent softening in the price of thermal coal, the long term forecast is for demand to remain strong, particularly in Asia.

The project will provide substantial economic benefits to the region, Queensland and Australia. The project will create up to approximately 3,900 jobs during construction and up to approximately 3,400 jobs in the operations phase. The project will contribute up to $1,700 million annually to the economy of the Townsville and Mackay Regions during the operations phase. The project will also contribute significant revenue to the Queensland and Australian governments through coal royalties (approximately $5.9 billion over the life of the mine) and additional revenues associated with other government taxes.

FIGURE 1 LOCATION PLAN

2 REGULATORY FRAMEWORK

Key Project Approvals and EIS Process

The key approvals required for the project are summarised in Table 1. These approvals are required prior to the commencement of construction of the project.

This EIS has been prepared for the project using the environmental impact assessment process under the SDPWO Act. The assessment process will culminate in an evaluation report being issued by the Coordinator-General (CG) who administers the SDPWO Act. The key approvals for the project under the MR Act, EP Act and EPBC Act, as shown in Table 1, will then be obtained.

Figure 2 shows the main steps in obtaining approval for the project (including the EIS preparation and approval process) and these steps are described below:

Preliminary Planning

Background investigations, including mine planning and the assessment of alternatives, were undertaken. During the project planning stage preliminary investigations into surface water and mine water management, groundwater, mine waste geochemistry and flora and fauna were undertaken. The results of these studies were taken into account in the project design and engineering assessment.

Declaration as a Coordinated Project

The CG declared the project a 'coordinated project' under the SDPWO Act on 31 October 2012. This declaration requires an EIS to be prepared in order to assess the potential impacts of the project.

Stakeholder Consultation

Consultation has been ongoing throughout the EIS process and is described further in Section 3. The interactions between community consultation and the EIS process are shown in Figure 2.

Terms of Reference

The draft Terms of Reference (TOR) for the EIS was placed on public exhibition, together with an Initial Advice Statement (IAS) in November 2012. The final TOR for the EIS was issued by the CG on 9 January 2013. The TOR was revised on 4 December 2014 to include the DotE's requirements for the assessment of Matters of National Environmental Significance (MNES) under the accredited assessment process.

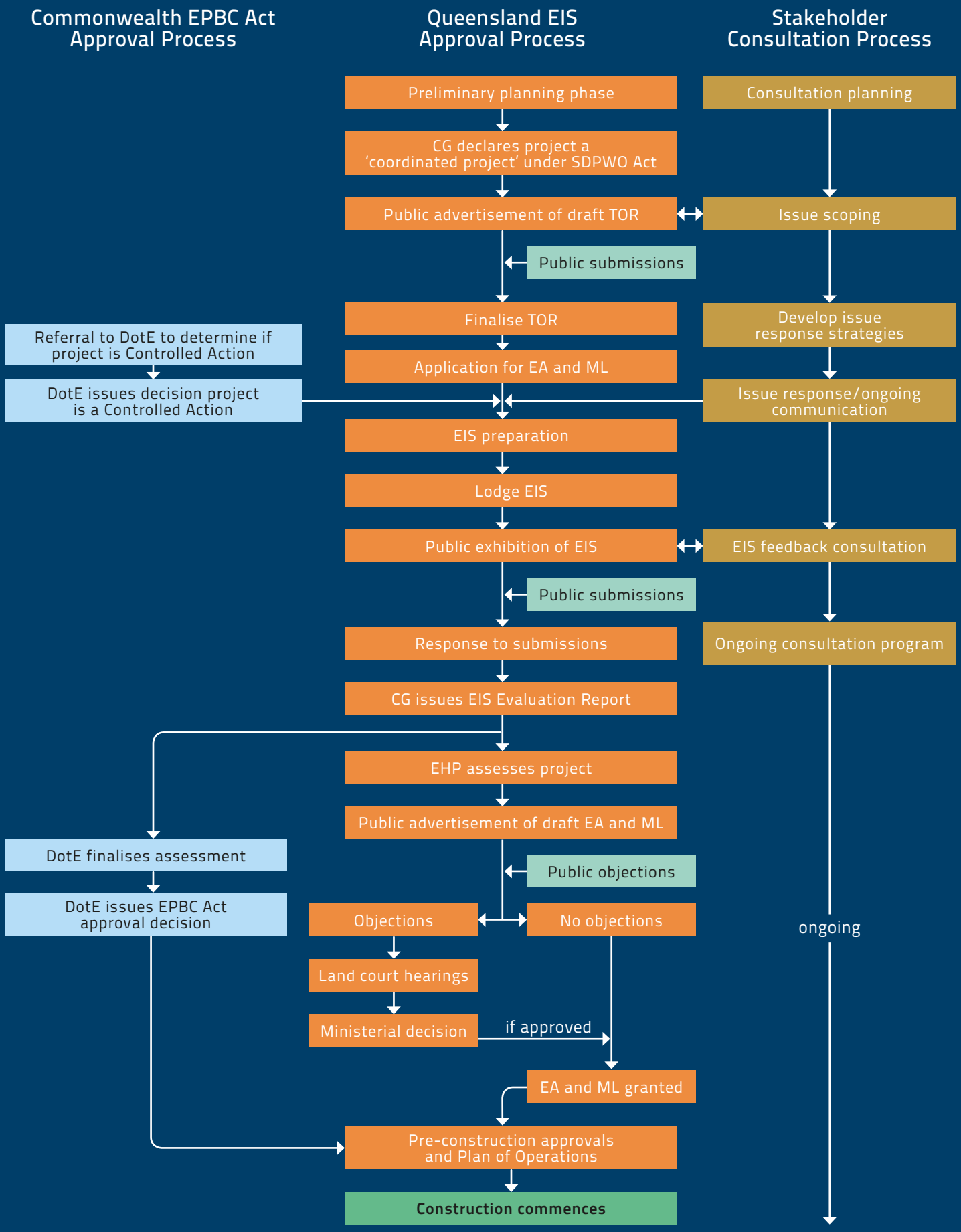
Application for EA and ML

The proponent lodged an EA and ML application with the DNRM on 30 January 2014. The EA and ML application was supported by a Preliminary Environmental Assessment Report. The EHP notified MacMines on 18 March 2014 that the EA and ML application requires additional information, which will be satisfied by this EIS.

TABLE 1 KEY PROJECT APPROVALS

APPROVAL	LEGISLATION	ADMINISTERING AUTHORITY
Mining Lease	Queensland *Mineral Resources Act 1989* (MR Act)	Queensland Department of Natural Resources and Mines (DNRM)
Environmental Authority	Queensland *Environmental Protection Act 1994* (EP Act)	Queensland Department of Environment and Heritage Protection (EHP)
EPBC Act Approval	Commonwealth EPBC Act	Commonwealth Department of the Environment (DotE)

FIGURE 2 PROJECT APPROVAL PROCESS



EPBC Act Controlled Action Decision

The project has been declared a Controlled Action under the EPBC Act, therefore requiring approval under the EPBC Act. The controlling provisions are EPBC Act listed threatened flora and fauna species and vegetation communities, listed migratory species and a water resource in relation to a large coal mining development. The DotE have determined that the project will be assessed using an accredited assessment under the SDPWO Act, meaning the DotE will make use of the EIS and the CG's EIS evaluation report prepared under the Queensland SDPWO Act for its assessment of the project's impacts on the controlling provisions.

EIS Preparation

The EIS was prepared following the completion of baseline studies, environmental input into project planning, and consideration of potential impacts and mitigation measures. The EIS studies were conducted by a team of multi-disciplinary technical specialists. The EIS was prepared in accordance with the requirements of the SDPWO Act and the EIS TOR and also considers issues and feedback from the stakeholder consultation program undertaken as part of the EIS process.

Lodgement and Public Exhibition of EIS

The preliminary draft EIS was submitted to the CG on 31 March 2015. Following approval by the CG to proceed, the draft EIS will be placed on public exhibition. During this period government agencies and the public are invited to make submissions to the CG. EIS comments and submissions must be made in writing and sent to the CG within the public exhibition period, as advertised in the EIS public notice.

Proponent Response

The CG will issue a copy of all accepted submissions to the proponent. The proponent will summarise and respond to submissions and provide the CG with any amendments to the EIS arising from the responses.

Assessment under the SDPWO Act

Once the CG has accepted the final EIS, the CG will prepare an EIS evaluation report which will include an evaluation of the environmental effects of the project and conditions and recommendations for the project. In conducting the evaluation of the EIS, the CG will consult with the relevant advisory agencies for the project. These will potentially include the Department of Transport and Main Roads, the Department of Agriculture and Fisheries, Queensland Health, Queensland Ambulance Service, Queensland Police Service, the Department of State Development, the Department of National Parks, Sport and Racing and the Department of Infrastructure, Local Government and Planning. The CG evaluation report is not an approval in itself; however it will include stated conditions that are required to be incorporated into the relevant key approvals that must be subsequently obtained from other agencies in order for the project to proceed. The CG will coordinate the EIS assessment by those other agencies. The CG evaluation report may also include conditions that are imposed by the CG and are enforceable under the SDPWO Act.

Assessment under the EP Act

The EHP will finalise their assessment of the EIS and develop a draft EA following receipt of the CG's EIS evaluation report. The draft EA will include the CG's stated conditions for the EA.

Ecologists conducting field survey

Draft EA and ML Application

The EHP will issue a draft EA for the project. The ML application documentation will be advertised and stakeholders may lodge objections to the draft EA and ML application.

EA and ML Decision

Any unresolved objections to the ML application and/or draft EA will be referred to the Land Court for a recommendation. The Land Court will make an objections decision and provide it as a recommendation to the Minister for the MR Act and the Minister for State Development. The Minister for the EP Act consults with the Minister for the MR Act and the Minister for State Development, and then the Minister for the EP Act makes a decision on the EA. The EA will be granted or the EA application refused.

Assessment under the EPBC Act

The CG's EIS evaluation report will also consider the impacts of the project on the declared controlling provisions under the EPBC Act and may include recommended conditions for the EPBC Act approval. The Federal Minister for the Environment will make a decision on approval and will impose conditions on the approval to protect MNES.

Pre-construction Approvals

Prior to the commencement of construction, the proponent will develop any necessary environmental management plans and will obtain any necessary pre-construction approvals including a Plan of Operations.

Secondary Approvals

The project requires approvals related to the management of the site and the environment, in addition to the key approvals listed in Table 1. These secondary approvals are listed in Table 2 and the EIS includes discussion of these approvals.

TABLE 2 SECONDARY APPROVALS

APPROVAL	LEGISLATION	APPROVAL BODY	TIMING
Plan of Operations	EP Act	EHP	Prior to commencement of the project
CG imposed conditions (contained in CG EIS Evaluation Report)	SDPWO Act	As specified in the conditions	As required by conditions.
Biodiversity offsets	Commonwealth EPBC Act Queensland *Environmental Offsets Act 2014* (EO Act) *Environmental Offsets Policy 2014* *Environmental Offsets Regulation 2014*	DotE EHP	Any applicable offsets will be conditioned as part of the EPBC Act approval and the EA.
Aerodrome certification	*Civil Aviation Act 1988* *Civil Aviation Regulations 1998*	Civil Aviation Safety Authority (CASA)	The private airstrip for the project will be designed and constructed in accordance with CASA regulations and guidelines. An aerodrome certification will be obtained, once it has been constructed.
Agreement with authorities to alter a stock route	*Land Protection (Pest and Stock Route Management) Act 2002* (LP Act)	DNRM	There is one travelling stock route, U398 which traverses the southern part of the project site within the mining disturbance footprint that may require re-alignment. The proponent will liaise with DNRM and the Isaac Regional Council regarding any alterations to the stock route, including obtaining any necessary agreements.
Licence for taking of or interference with groundwater	*Water Act 2000* *Water Resource (Great Artesian Basin) Plan 2006* (GAB WRP) *Water Regulation 2002*	DNRM	Prior to commencement of construction activities.
Approval to take native wildlife	*Nature Conservation Act 1992* (NC Act)	EHP	Prior to construction activities commencing, as required.
Species Management Program	*Nature Conservation (Wildlife Management) Regulation 2006* (NC WM Regulation)	EHP	Prior to tampering with an animal breeding place.
Rehabilitation Permit (spotter catcher endorsement)	NC WM Regulation	EHP	Prior to undertaking spotter catcher activities.
Damage Mitigation Permit	NC WM Regulation	EHP	If there is a need to remove fauna posing a threat to human health or wellbeing.
Cultural Heritage Management Plan (CHMP)	*Aboriginal Cultural Heritage Act 2003*	Department of Aboriginal and Torres Strait Islander Partnerships	A CHMP will be developed for the project with the relevant Aboriginal party, prior to the commencement of construction.

3 CONSULTATION

A comprehensive stakeholder consultation program was undertaken as an integral part of the EIS process. It included consultation with the neighbouring landholders, local, state and federal government, community groups and other interested parties. The aim of the consultation program was to identify stakeholders' issues and to ensure that these issues were addressed as part of the EIS process. Figure 2 shows the interactions between the stakeholder consultation process and the EIS process.

The consultation program involved the five stages listed below.

- **Stakeholder Identification**
  The objective of this stage was to identify all relevant stakeholders in order to involve them early in the process.
- **Issue Scoping**
  The objective of this stage was to provide information on the project and EIS process to stakeholders to enable them to identify issues in relation to the project.
- **Social Impact Assessment Consultation**
  This stage occurred in parallel with the Issue Scoping Stage and was undertaken to validate the baseline profile of the study area, and assist in the identification and assessment of socio-economic impacts.
- **Issue Response**
  The objective of this stage was to address and proactively respond to all relevant stakeholder issues.
- **EIS Feedback Consultation**
  The objective of this stage is to provide feedback on the results of the EIS specialist studies to stakeholders. This stage will be undertaken during the EIS public exhibition period.

Consultation methods and tools have included community information sheets, one-on-one meetings, small group meetings, and telephone interviews.

Issues identified during consultation have been addressed in the project design and in the EIS.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unity Information Sheet
THREE
September 2014
Project China Stone is Macmines
(MacMines). MacMines was established
n 1999. MacMines' current interests
coal exploration areas in central Queensland.
wholly owned by the Yao family, and is a related
anxi Meijin Energy Group Limited.
Approval Process Flowchart
Preliminary project planning
Advertisement of draft EIS Terms of Reference
Final EIS Terms of Reference issued
We are here
Preparation of EIS
Lodgement of EIS
Public exhibition of EIS
Response to submissions
EIS Assessment Report issued
Government determines whether project approvals are granted
Consultation Program
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Government in late 2014. Following
e EIS will be placed on public exhibition.
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the EIS. Stakeholders will also have
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consider any submissions as p
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r during early 2015. Stake
ommencement of public
rier Mail and a regiona
included landholders within and
neighbouring the project site, state
and local government agencies,
service providers, community groups,
Indigenous representatives and small
business owners.
Based on feedback received during
this consultation, a further round
of consultation was conducted in
June 2013. This second round of
consultation included surveys of
business capability in Charters Towers
and Clermont. The results of the
surveys have been collated and will
be presented in the EIS. The findings
of the surveys provided valuable
information for consideration in the
assessment of project socio-economic
impacts and in the development of
suitable management measures.
We would like to thank everyone who
participated in the business capability
surveys and in stakeholder consultation
conducted for the project to date.
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PROJECT DESCRIPTION

Project Overview

The project involves the construction and operation of a large-scale coal mine on a greenfield site in Central Queensland at the northern end of the Galilee Basin. The mine will produce up to 55 Million tonnes per annum (Mtpa) of Run of Mine (ROM) coal, which equates to approximately 38 Mtpa of thermal coal for the export market. The mine life will be in the order of 50 years.

Coal will be mined using both open cut and underground mining methods. Open cut mining operations will involve multiple draglines and truck and shovel pre-stripping. Underground mining will involve up to three operating longwalls in two underground mining areas. Coal will be washed and processed on site and product coal will be transported from the site by rail.

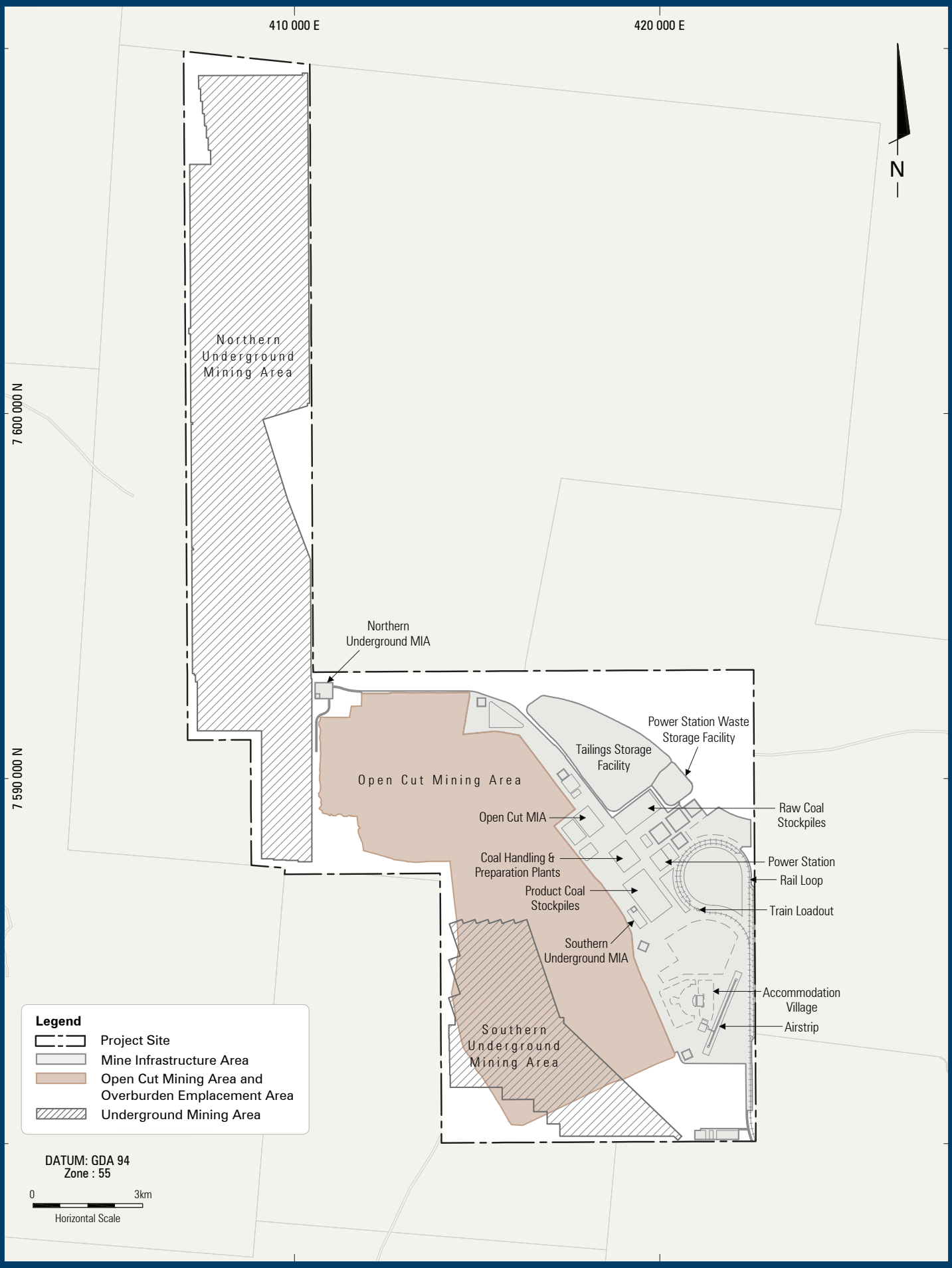
The majority of the mine infrastructure will be located to the east of the open cut mining area (Figure 3). It will include Coal Handling and Preparation Plants (CHPPs), stockpiles, conveyors, rail loop and train loading facilities, workshops and water storage dams.

Raw coal from the project will be washed at the CHPP. The washing of coal will generate coarse and fine rejects. Coarse rejects will be hauled by truck for storage within the overburden emplacement areas. Fine rejects, or tailings, will be transported via a slurry pipeline to a designated Tailings Storage Facility (TSF). The TSF will be a conventional tailings dam with sufficient storage capacity for life-of-mine tailings.

The project includes the construction and operation of an on-site power station and associated Power Station Waste Storage Facility (PSWSF). The power station will be used for mine power supply. It will comprise 350 Mega Watt (MW) air-cooled supercritical generating units utilising circulating fluidised bed technology. It will utilise coal rejects from the mine as feed coal. The PSWSF will involve the storage of dry power station waste including fly ash, bottom ash and clinker. These dry waste materials will be placed in the PSWSF using dump trucks in a similar manner to the development of an out-of-pit overburden emplacement. The PSWSF will have capacity for the storage of power station waste for the first 10 years of operations. After this time the power station waste will be buried within the overburden emplacements.

A workforce accommodation village will be located in the south-eastern part of the project site (Figure 3). The accommodation village will be constructed in stages in response to the progressive increase of the workforce during the project's development. The village will ultimately comprise approximately 3,050 rooms and will include facilities such as kitchens and mess halls, common rooms and recreation facilities, health and first aid facilities, and water and sewage treatment facilities.

FIGURE 3 PROJECT LAYOUT



Overburden removal by truck and excavator

A private airstrip will be constructed adjacent to the accommodation village for the transport of mine workers to and from the site (Figure 3). The airstrip will be designed to cater for a range of aircraft and will be designed, constructed and operated in accordance with CASA regulations and guidelines. Current planning estimates approximately 40 flights per week will be required during operations, from a range of coastal centres.

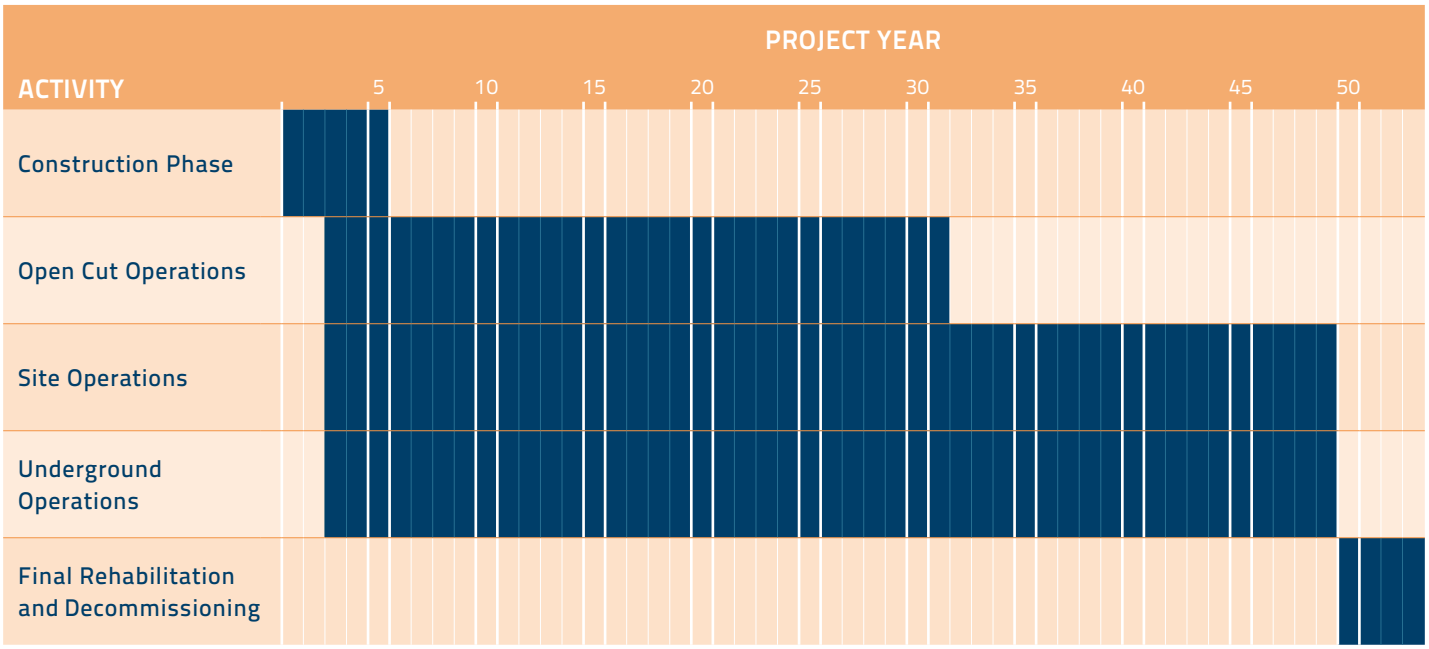
Minor surface facilities for the underground mines, such as ventilation shafts, underground communication cables, gas drainage and mine dewatering boreholes, will also be constructed progressively above the underground mining areas. There is considerable flexibility with respect to the location of these surface facilities and, as per current practice, these facilities will be sited to avoid significant surface features, as far as possible.

The scope of the EIS is limited to the mine site activities and does not include off-lease infrastructure that will be required for the project. Off-lease infrastructure will include port capacity, rail connection to port, mine site access road connection and raw water supply. These will be subject to separate environmental impact assessments and approvals. The current preferred option and status of each off-lease infrastructure component are discussed in the EIS.

Project Schedule

Chart 1 presents the relative timing of the key components of the project development schedule. It is important to note that this is an indicative schedule, subject to change based on detailed planning as well as economic and mining conditions. The timing of the commencement of construction is also subject to the receipt of environmental approvals, an ML and other necessary approvals. Construction of mine site infrastructure, including the accommodation village and airstrip is scheduled to commence in Project Year 1, which is currently anticipated to be 2016, subject to gaining the necessary approvals. Construction of mine site infrastructure is scheduled to be completed in Project Year 5. First coal production from the open cut and underground mines is scheduled for Project Year 3, once initial mine development works have been completed. Open cut mining is expected to be completed by Project Year 32 and underground mining would continue until Project Year 49. Mining will be followed by a final rehabilitation and decommissioning period.

CHART 1 PROJECT DEVELOPMENT SCHEDULE



Project Workforce

Chart 2 illustrates the anticipated project workforce by project phase, based on current project planning. The size of the project workforce for the construction and operations phase will fluctuate over time, reflecting changes in the construction and mining activities. The anticipated peak workforce during the construction phase is 3,892 persons during the fourth year of the project.

There are two distinct operations phases for the project. Operations phase 1 includes the operation of the open cut mine, as well as operation of the three underground longwall mines. Operations phase 1 represents the peak operations phase for the project and runs from Project Year 6 to Project Year 31. Operations phase 1 will have an average annual workforce of 3,119 persons across the phase and a peak workforce of 3,391 persons in Project Year 8. Operations phase 2 runs from Project Year 32 to Project Year 49 and commences following the completion of open cut mining. Mining operations in phase 2 are limited to underground longwall mining in the Northern Underground. This phase has an average annual workforce of 1,016 persons. The peak workforce in this phase is 1,377 persons in Project Years 32-34.

At the completion of mining in Project Year 49, a four-year Final Rehabilitation and Decommissioning Phase will run from Project Year 50 to Project Year 53. A small decommissioning workforce is expected to be required for this phase, with a peak of 275 workers in Project Year 50.

Project Alternatives and Justification

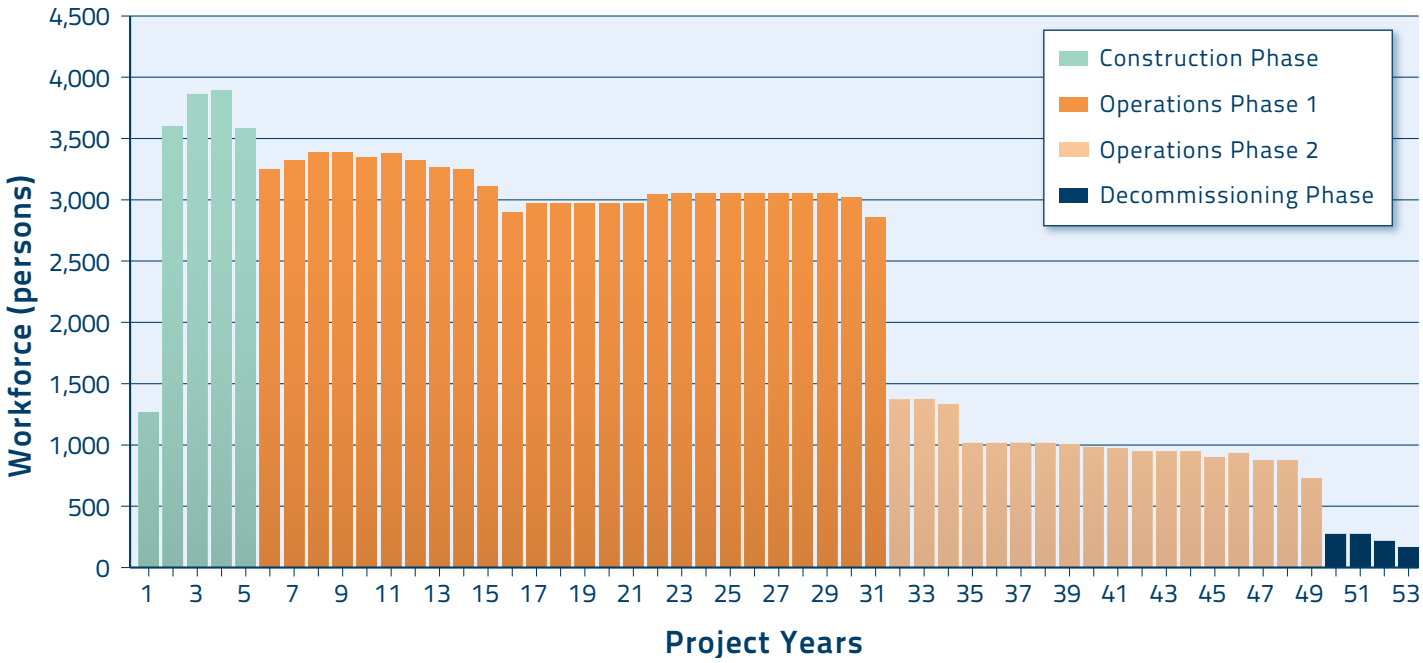
Project Alternatives

The key aspects of the project where alternatives were considered during project planning include:

- **Alternative mining methods**

  The project involves mining the shallower coal seams by open cut mining, and the deeper coal seams by underground mining. The coal seams in the open cut mining area are thick and could not be extracted by underground mining methods with an acceptable level of resource recovery or economic viability. Open cut mining is not economically viable for the deeper underground seams. The proponent intends using conventional longwall mining methods to extract the deeper target seams. Alternative underground mining methods, including Longwall Top Coal Caving and bord and pillar mining, were considered. Longwall Top Coal Caving was considered in the A seam in the Northern Underground, however it is not proposed due to the uncertainty and associated risk in relation to its technical feasibility. Although bord and pillar mining would result in reduced surface subsidence effects in the underground mining areas, it was not considered further due to the lower resource recovery, lower productivity and higher operating cost which is not feasible for a high production capacity mining operation.

CHART 2 PROJECT WORKFORCE



Alternative project layout

The project site, although large, is highly constrained by the large scale open cut mining operations and the limited suitable area available for mine infrastructure. The location of the open cut mine is determined by the shallower target coal seams. The location of the underground mining areas is determined by the location of the deeper target coal seams, and the mine layouts are designed to maximise resource utilisation. The eastern portion of the project site is the only suitable and sufficient area available for the construction of the mine infrastructure. In order to minimise the impact of the project on downstream drainage, the design of the mine infrastructure area includes drainage corridors at the northern and southern ends with capacity to convey drainage through the site. The northern corridor has been designed to avoid disturbance of a drainage line traversing the north-eastern corner of the site.

Alternative tailings storage strategies

Alternative tailings storage options that were considered included storage within the open cut pits and disposal of dewatered tailings within the overburden emplacement areas. The option for in-pit storage was not progressed for the purposes of the EIS as it is not feasible in the initial years of operations due to a lack of available in-pit storage area. The potential feasibility of this option in later years would be subject to detailed production scheduling, open cut mine planning and open cut mine scheduling, as well as detailed geotechnical investigations. This option may be considered again in the future, subject to the completion of favourable feasibility studies and gaining the necessary approvals. Disposal of dewatered tailings in the overburden emplacement was also considered; however due to the volume of tailings being generated by the project, mechanical dewatering of the tailings is not considered economically viable. A conventional tailings dam is proposed as it is a proven and economically viable option considering the volume of tailings generated by the project.

Alternative power supply

Alternative power supply options, including the construction of a high voltage transmission line to connect to the existing power grid, were considered as part of project planning. This option was not preferred due to the considerably higher operating and power purchase costs over the 50 year mine life, the long lead time for a connection, and potential transmission loss due to the long distances involved. The low cost power supply provided by an on-site power station is fundamental to the economic feasibility of the project. It also results in higher resource utilisation and greater security for power supply.

Alternative workforce strategy

Alternative workforce strategies that were considered included the option for workers to live locally, construction of an off-lease township, and a shared accommodation village or township with Adani Mining Pty Ltd (Adani). Due to the remote location of the project site and the lack of surrounding amenities or infrastructure, there are limited options for workers to live locally or to create an off-site township. At present, Adani's proposed accommodation village is approximately 30 km from the project site, so the option of an on-site accommodation village is considered the most suitable for the project workforce. However, the proponent will continue discussions with Adani regarding the possibility of a shared facility.

Alternative open cut ROM coal transport options

In-pit coal crushing and transport of raw coal from the open cut pits to the CHPP raw coal stockpiles by conveyor is an alternative to transporting coal from the pits in haul trucks. The EIS studies have been based on haulage of open cut coal by truck as this would be the worst case with regard to potential environmental impacts. For example, the noise and dust emissions from coal haul trucks would be higher than a coal conveyor. A final decision on the preferred transport option for open cut coal will be made during detailed mine planning.

Project Justification

The proponent's justification for the project is:

- It involves a responsible mine plan that incorporates appropriate constraints and control measures to limit any adverse environmental and social impacts to an acceptable level;
- It maximises the responsible utilisation of the coal resource; and
- It will result in significant economic benefits for the local area and Queensland, including substantial job creation, the addition of potentially $1.5 billion annually to the gross state product of Queensland, and payment of an annual average of $188 million to the Queensland Government through coal royalties.

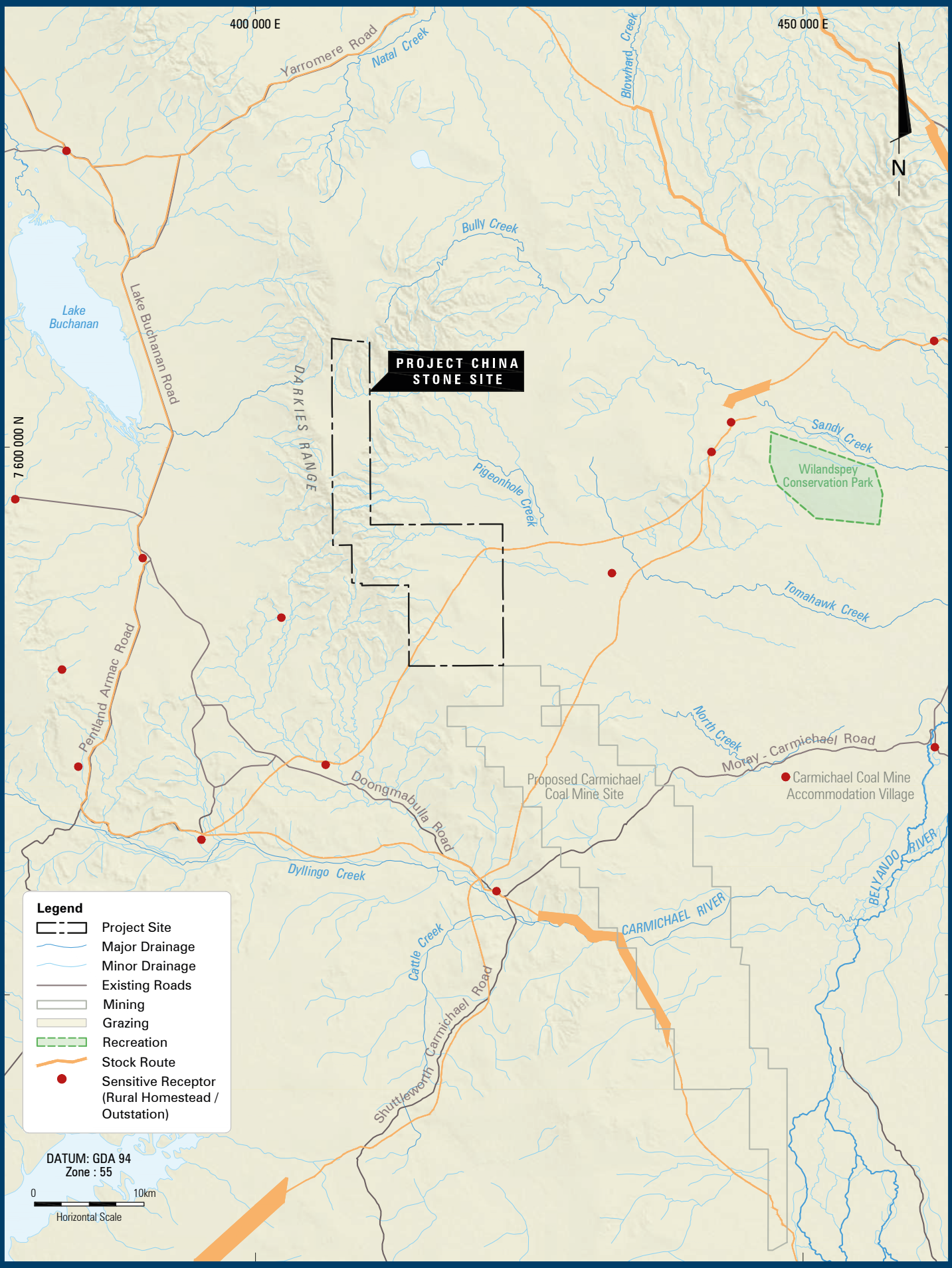
5 LAND USE

Surrounding Land Use

Land use surrounding the project site is shown on Figure 4, and includes:

- Grazing, which is the primary land use within the project site and surrounding area. A stock route traverses the southern part of the project site.
- Coal resource exploration and future mining at the proposed Carmichael Coal Mine, a proposed 60 Mtpa (product) open cut and underground coal mine that adjoins the project site to the south-east. The Carmichael Coal Project is currently in the approval phase.
- Remote, isolated rural residences with the closest homestead being located approximately 7.2 km to the west of the project site. The nearest settlement is Belyando Crossing (population of approximately five people) which is located approximately 140 km by unsealed roads to the east of the project site.
- Recreation including Lake Buchanan which is located approximately 20 km to the north-west of the project site and is used by the local community for recreational activities such as water-skiing, camping and picnics. Wilandspey Conservation Park is located approximately 25 km to the east of the project site and is used for outdoor recreational activities, tourism and for the preservation of natural ecosystems.

FIGURE 4 LAND USE



Sensitive Receptors

Sensitive receptors that have been identified in the vicinity of the project site are shown on Figure 4 and include a number of isolated rural residences and the proposed Carmichael Coal Mine accommodation village.

Project Site

The project site comprises approximately 20,000 ha of well vegetated land, with low-lying scrub in the south and east and a densely vegetated ridgeline, known as Darkies Range, running north to south through the western portion of the site.

The south-eastern portion of the site is characterised by flat to undulating plains with sandy loam soils that support large expanses of savannah woodlands. These sand plains graduate to elevated sandstone ranges to the north and west of the project site that support low Eucalyptus woodlands and shrublands. The project site itself is relatively dry and is characterised by ephemeral drainage lines, two seasonal wetlands and two artificial farm dams.

Sensitive environmental areas within the project site include a number of areas or features identified as Matters of State Environmental Significance (MSES) and/or MNES. These include one of concern Regional Ecosystem (RE), one wetland mapped as a wetland of High Ecological Significance, remnant riparian vegetation, and four threatened fauna species and one additional fauna species listed as special least concern. One near threatened fauna species was also identified. Potential impacts on these ecological features are addressed within the EIS.

The project site is located on three parcels of Crown land, leased by three separate lessees. The proponent has commenced discussions with all affected landholders in relation to obtaining access to the land for the project.

The project site includes land that may be subject to Native Title and is within the Wangan and Jagalingou People's registered Native Title claim application. The proponent will negotiate with the Wangan and Jagalingou People, as the registered Native Title claimants, in accordance with the requirements of the Commonwealth *Native Title Act 1993*.

Existing land use within the project site is limited to cattle grazing and coal mining exploration.

Land Use Compatibility

The development of the project is compatible with the current surrounding land uses which include grazing, mining exploration and future mining development. Although the development of the project will result in a change to the rural character of the region, the project will not have a significant impact on the surrounding rural residences or recreation areas in terms of air quality, noise, aesthetic impacts and community values.

Beef cattle on the project site

6 SUBSIDENCE

The project involves establishing up to three longwall operations in the Northern and Southern Underground Mining Areas (Figure 5). The Southern Underground will involve single seam longwall mining. The majority of the Southern Underground is located beneath the open cut mine. The Northern Underground will involve both single and dual seam longwall mining.

Longwall mining typically results in subsidence which leads to the progressive development of shallow, trough-like depressions on the surface above each extracted longwall panel. The trough-like depressions have gentle grades and develop relative to the natural surface topography. Detailed subsidence predictions have been prepared to enable the assessment of subsidence effects and development of suitable rehabilitation strategies.

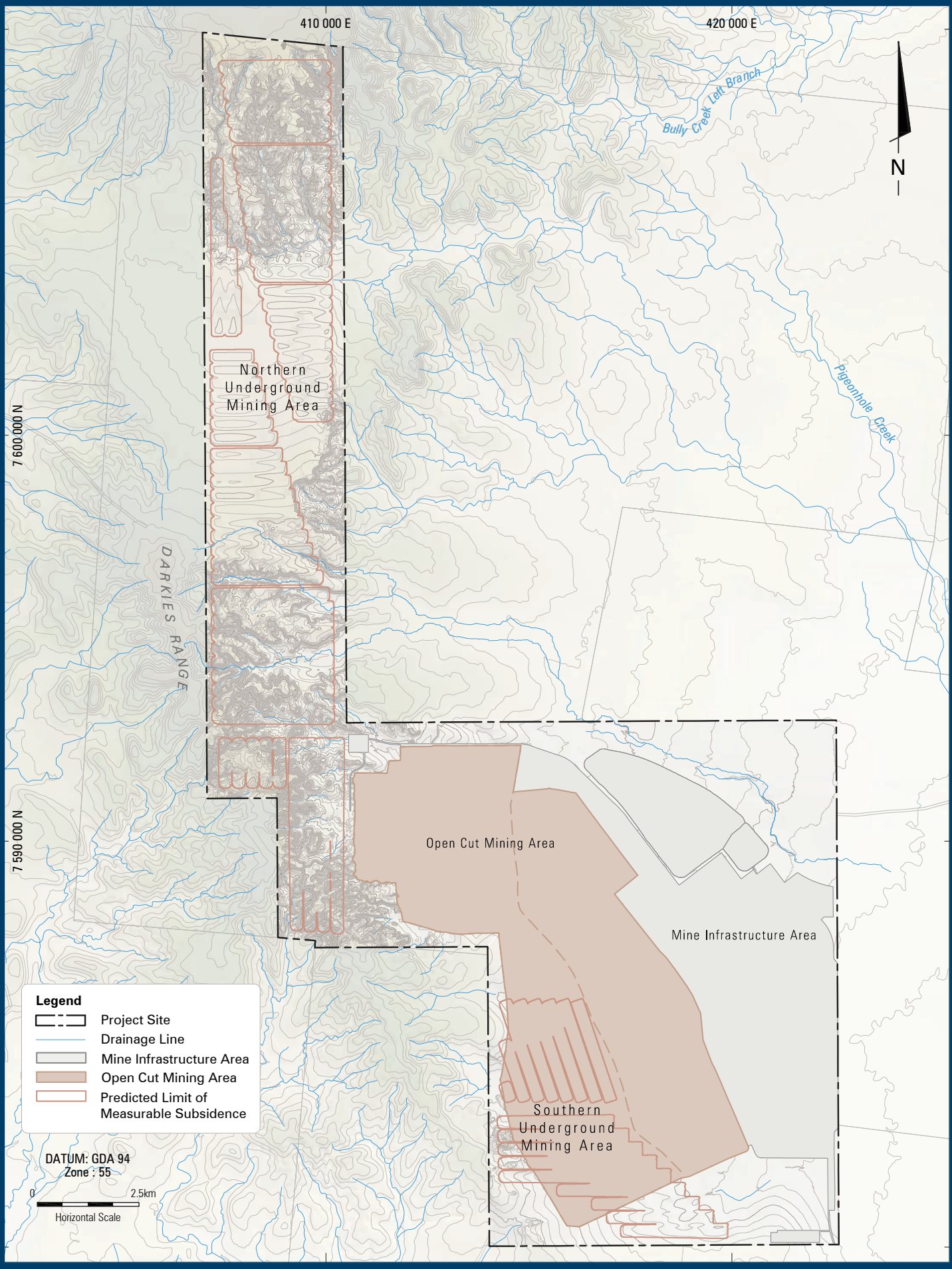
The aerial extent of predicted surface subsidence is shown in Figure 5. This area is defined by the predicted Limit of Measurable Subsidence and covers an area of approximately 4,950 ha. Subsidence may give rise to localised surface cracking within the predicted subsidence area due to tensile strain on the ground surface. Residual tensile strain and potential tension cracks will occur around the perimeter of each underlying longwall panel. The exact location of cracks can only be confirmed through monitoring, although the majority of the subsided surface area will be unaffected by cracking. Residual tension cracks occur within a few weeks of an area being mined.

Tension cracks are anticipated up to a maximum width of 0.2 m, and larger cracks may occur in isolated locations. A tension crack rehabilitation program has been developed for the project, which involves monitoring areas potentially subject to tension cracking and repairing any cracks that develop. This targeted method of surface subsidence crack rehabilitation has been proposed in order to minimise disturbance of vegetation. This method is consistent with the method used at a number of operating longwall mines in Central Queensland.

Subsidence troughs can result in localised alteration of surface drainage paths and can create ponding areas. Minor remedial drainage earthworks will be installed as required to re-establish free drainage in any ponding areas. There will consequently be no significant residual ponding impacts, and no significant changes in the existing surface drainage regime.

The effect of subsidence on the natural features and environmental values within the project site was assessed in the relevant technical studies prepared for the EIS. The assessment of subsidence impacts and the development of mitigation and management measures have drawn on operational experience at other comparable longwall mining operations. Subsidence impacts will be managed in accordance with a Subsidence Management Plan. The conclusion of the impact assessment is that the effects of subsidence on natural features will be manageable and will not give rise to any long term adverse impacts.

FIGURE 5 MINE SUBSIDENCE AREAS



7

TAILINGS AND POWER STATION WASTE STORAGE FACILITIES

The project will generate the following mine wastes that will be stored in dedicated storage facilities on the project site:

- Tailings generated by processing coal at the CHPPs. Life-of-mine tailings will be stored in a conventional wet TSF. The tailings will be pumped from the CHPP to the TSF as a slurry via a surface pipeline.
- Dry power station waste material (fly ash, bottom ash and clinker) generated by the power station. Waste from the power station will be transported by haul truck for storage in the PSWSF. The PSWSF will be a dry emplacement area constructed in a similar manner to an out-of-pit overburden emplacement. The PSWSF will have sufficient capacity to store power station waste for the first 10 years of operations. After this time, power station waste will be stored within the open cut mine overburden emplacement areas.

The proposed management and storage strategies for mine wastes have been informed by the geochemistry of these materials with respect to their potential risk to cause harm to the environment. The geochemistry assessment conducted for the EIS has found that the tailings and power station waste material are likely to be benign and non-acid forming. Accordingly no special management measures or rehabilitation techniques are required in relation to the geochemistry of these materials.

The EIS includes conceptual designs for the TSF and PSWSF, which were informed by geotechnical assessment of the storage facility foundation areas and landform stability analysis. The layout of the TSF and PSWSF is shown in Figure 6.

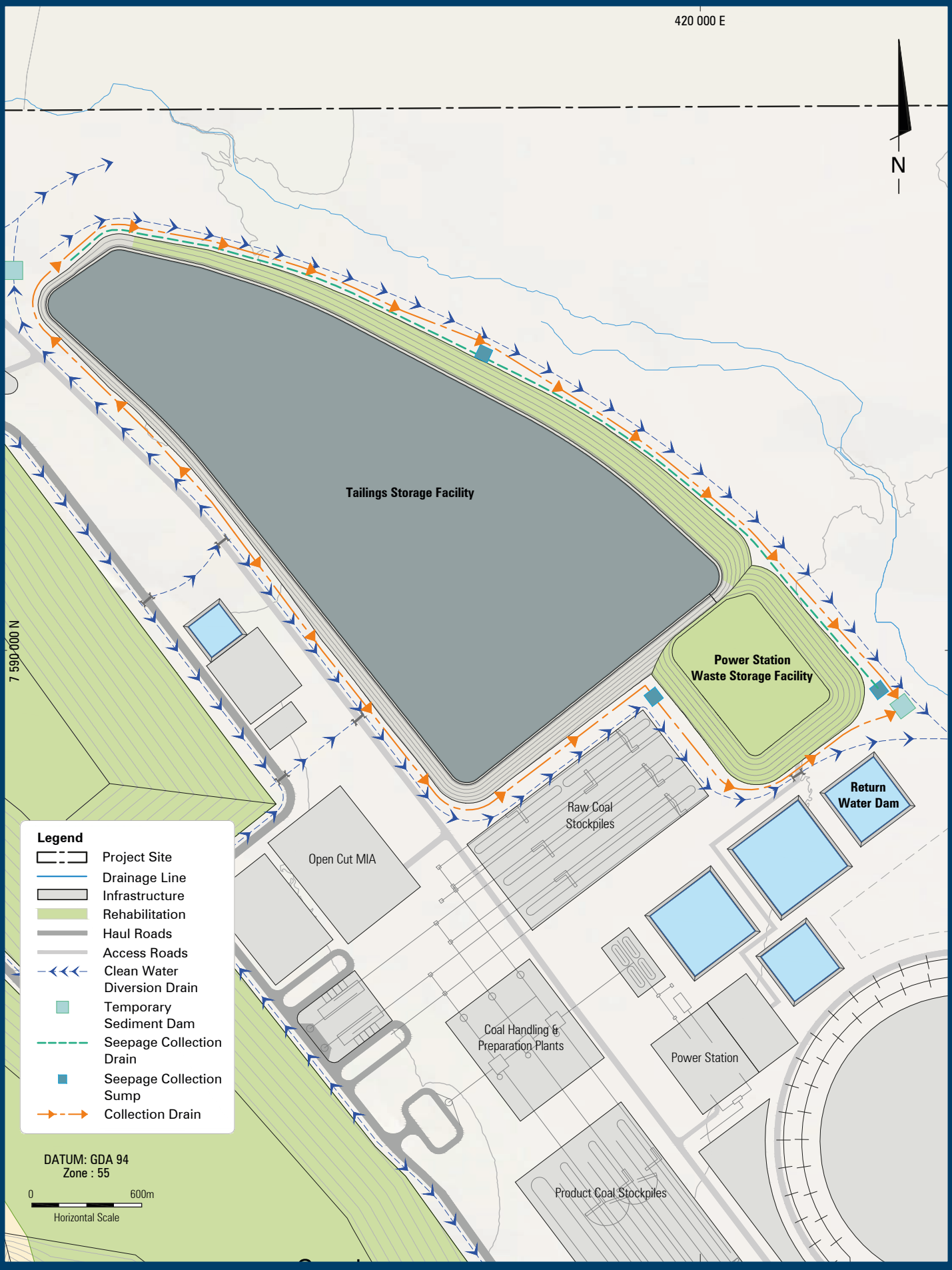
The TSF has been designed with a total storage capacity of approximately 96 Mm^3. This is sufficient storage for the life of mine tailings production. The final TSF footprint will be approximately 603 ha and the maximum TSF embankment height will be approximately 34 m. The external embankment slopes of the TSF will be 6H:1V.

The TSF will have an isolated internal catchment and tailings will be discharged from the embankments in order to maintain a central decant water pond. Tailings supernatant and runoff will collect in the decant pond. A low water level will be maintained in the decant pond by pumping collected water to the Return Water Dam for storage and re-use in the CHPP. Any seepage from the TSF will be collected in a seepage collection drain and returned to the TSF decant pond.

The PSWSF has been designed with a total storage capacity of approximately 16 Mm^3. The final PSWSF footprint will be approximately 80 ha and the maximum PSWSF height will be approximately 30 m. The external slopes of the PSWSF will be 6H:1V and the top surface of the PSWSF will have a 2% grade to promote runoff.

The PSWSF catchment will be isolated by perimeter diversion drains. The active PSWSF areas will be constructed to be internally draining to collection sumps. Collected runoff from the PSWSF will be transferred to the TSF decant pond. Any seepage from the PSWSF will be collected in a seepage collection drain and transferred to the TSF decant pond.

FIGURE 6 TSF AND PSWSF LAYOUT – YEAR 30



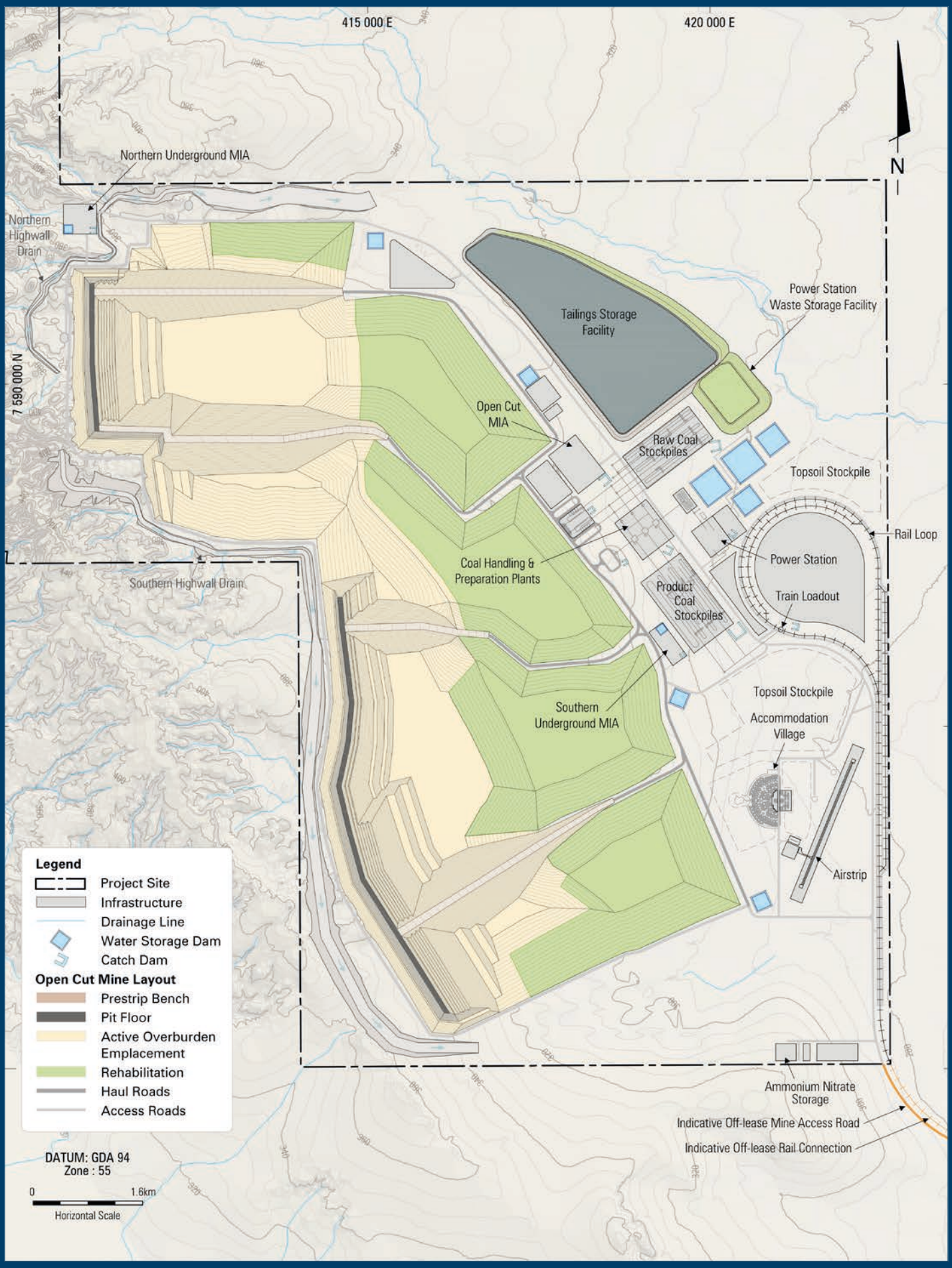
8 REHABILITATION

Rehabilitation and Mine Closure

Rehabilitation will be undertaken in accordance with a Rehabilitation Management Plan. Rehabilitation activities that will be undertaken as part of the project include progressive rehabilitation of overburden emplacement areas, areas disturbed by subsidence, and the TSF and PSWSF.

Overburden emplacement areas will store overburden excavated from the open cut mining areas as well as coarse coal rejects, generated from the processing of coal at the CHPPs, and power station waste after the PSWSF has been filled to capacity. The geochemical characterisation of these materials indicates they are all likely to be benign and non-acid forming.

FIGURE 7 OPEN CUT MINE LAYOUT – YEAR 30



The overburden materials are also likely to have low sodicity levels and therefore have a relatively low risk of being susceptible to significant dispersion and erosion. Accordingly no special management measures or rehabilitation techniques are required for the overburden emplacement areas and the project will implement a conventional rehabilitation strategy. This will include maximum external slopes of 6H:1V and a 2% grade on the top plateau areas to promote runoff (Figure 7).

As discussed previously, underground longwall mining will result in surface subsidence, surface tension cracks and surface buckling effects in localised areas. Subsidence may also result in ponding of water in shallow surface depressions. There are no significant waterways within the area that will be affected by mine subsidence. However, any minor drainage lines that are subsided will be monitored and remedial measures will be implemented to address any areas of erosion or instability. Rehabilitation of surface subsidence effects will be conducted in accordance with a Subsidence Management Plan.

Rehabilitation of the completed TSF and PSWSF will involve provision of capping and topsoil layers, and seeding. A self-sustaining native ecosystem will be established on the TSF and PSWSF landforms.

Rehabilitation of areas disturbed by the construction of mine infrastructure will be undertaken as part of mine decommissioning and closure in accordance with a Mine Closure Plan. Mine infrastructure will be dismantled and removed from site and infrastructure areas will be rehabilitated during mine closure.

The open cut mine final voids and ramps will be left in a geotechnically stable form. The catchment area of the final voids will be limited by highwall drains and the direction of drainage from the overburden emplacement area away from the voids, where possible. Modelling of the final void water balance indicates that a lake will form in the final void. The modelling indicates that the lake will reach a quasi-equilibrium level approximately 50 m below the spill point of the final void. Overflow from the final void is therefore very unlikely. The predicted lake level is also below the level of the pre mining water table. This means that the final void will continue to act as a groundwater sink in the post mining phase and void lake water will not migrate way from the void and will not potentially affect groundwater quality. Groundwater modelling also indicates that groundwater inflows to the final void will be relatively minor in the post mining phase, based on conservative groundwater modelling assumptions.

The decommissioned site will be free draining with the exception of the final voids. Flood modelling conducted for the EIS indicates that the decommissioned site has a suitable drainage arrangement and the final voids will have immunity from the Probable Maximum Flood.

Soils and Land Suitability

A comprehensive soils and land suitability assessment was undertaken, covering the full extent of the site. The majority of the project site is considered agricultural land class C3 and is suitable for light grazing of native pastures in accessible areas. The remainder of the project site is agricultural land class D which is land not suitable for agricultural uses. Post mining land suitability will be similar to pre mining land suitability, with the exception of the areas disturbed by open cut mining, including the overburden emplacement areas and final void, and the TSF and PSWSF. No grazing is proposed on these areas in order to protect the integrity of the rehabilitation. These areas will be revegetated to achieve a self-sustaining native ecosystem post mining.

The soils assessment has identified there is a significant surplus of topsoil resources on the project site for the proposed rehabilitation activities including suitable capping resources for rehabilitation of the TSF and PSWSF. The depth of available topsoil resources varies from 0.1 m to 1.3 m. A Topsoil Management Plan will be developed to manage topsoil resources for the project.

Scraper used for topsoil stripping

9

TERRESTRIAL ECOLOGY

The EIS includes a detailed ecological assessment that involved multi-season terrestrial flora and fauna surveys. The entire project site is remnant vegetation comprising Eucalyptus and Acacia open woodland.

One vegetation community listed as of concern under the *Vegetation Management Act 1999* is present within the project site, namely RE 10.10.3 *Eucalyptus drepanophylla* open-woodland on sandstone ranges.

RE 10.10.3 occurs as a minor component of a number of mixed vegetation communities. A total of approximately 271 ha of RE 10.10.3 occurs within the project site (Figure 8). There are no groundwater dependent ecosystems in the project site, given the lack of shallow groundwater.

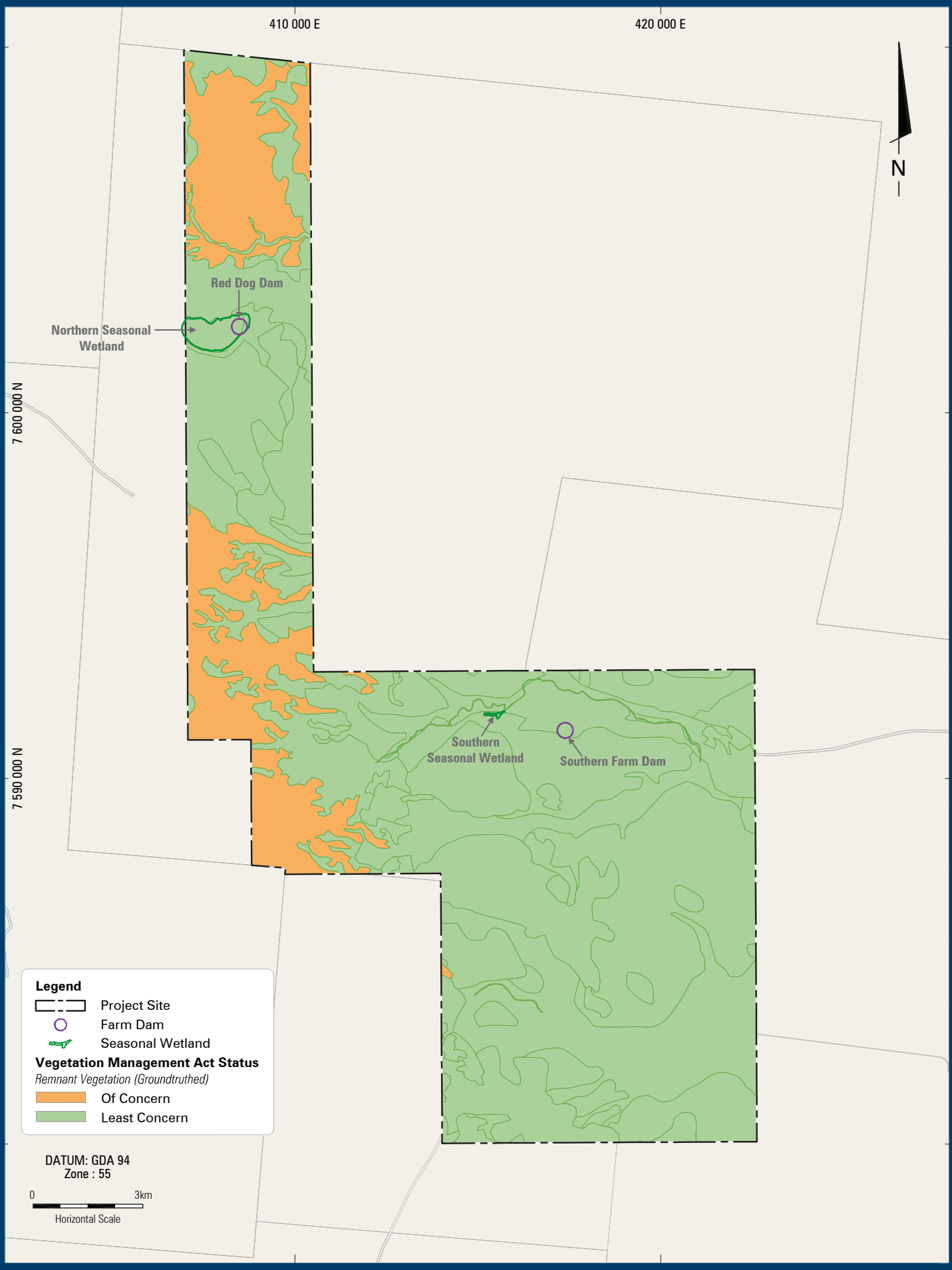
No threatened flora species listed under the NC Act were recorded or are considered likely to occur within the project site.

The following threatened and/or special least concern fauna species listed under the NC Act were recorded on the project site:

- Squatter Pigeon (southern subspecies) (*Geophaps scripta scripta*) (vulnerable);
- Black-throated Finch (white-rumped subspecies) (*Poephila cincta cincta*) (endangered);
- Koala (*Phascolarctos cinereus*) (special least concern); and
- Short-beaked Echidna (*Tachyglossus aculeatus*) (special least concern).

In addition, the Australian Painted Snipe (*Rostratula australis*), listed as vulnerable under the NC Act, was assessed as having a moderate potential to occur on the project site.

FIGURE 8 VEGETATION COMMUNITIES



The EIS includes an assessment of potential impacts on flora and fauna. The assessment considered direct impacts due to vegetation clearing for open cut mining and the construction of mine infrastructure. Potential impacts including the loss of habitat features, habitat fragmentation and indirect impacts such as the effects of noise and vibration, vehicle strikes, lighting, dust, erosion and the introduction of invasive species were also assessed. Impacts arising from subsidence, specifically the disturbance of vegetation as a result of the subsidence crack rehabilitation program and the installation of minor remedial drainage earthworks were also assessed.

The project will give rise to potentially significant residual impacts on the Squatter Pigeon (southern subspecies), Black-throated Finch (white-rumped subspecies) and Koala. The EIS contains a Biodiversity Offset Strategy which describes the offsets that will be provided for impacts on these species. The EIS does not predict any significant impacts on the Australian Painted Snipe or the Short-beaked Echidna.

The project will also give rise to potentially significant residual impacts on vegetation classified as MSES. Open cut mining and the construction of mine infrastructure will clear approximately 24 ha of RE 10.10.3 and approximately 359 ha of riparian vegetation as defined by the EHP vegetation management watercourse map. The EIS contains a Biodiversity Offset Strategy which describes the offsets that will be provided for impacts on these MSES.

The EIS describes a number of management plans and procedures that will be put in place to limit impacts of the project on flora and fauna, including a Biodiversity Management Plan, Feral Animal and Weed Management Plan, Species Management Plan (prepared in accordance with the NC WM Regulation) and a Subsidence Management Plan.

Black-throated Finch (white-rumped subspecies)

Storr's Monitor

10 AQUATIC ECOLOGY

This EIS includes a detailed aquatic ecology assessment that involved multi-season aquatic biology surveys. The project site is located in the headwaters of the Belyando River catchment and site drainages are highly ephemeral. There are no watercourses (as defined by the *Water Act 2000*) on the project site. Site drainages are in the form of highly ephemeral drainage lines which flow only during and shortly after rainfall.

There is very limited aquatic habitat in the project site. Aquatic habitat is restricted to remnant pools that form along the ephemeral drainage lines after rainfall, along with two seasonal wetlands and two artificial farm dams (Figure 8). One of the seasonal wetlands, namely the northern seasonal wetland, has been mapped as a High Ecological Significance (HES) Wetland by EHP. The northern seasonal wetland has been created by rainfall accumulating during the wet season. The construction of a nearby farm dam also helps to retain water in this area. The northern seasonal wetland is not dependent on groundwater recharge.

No listed (NC Act or EPBC Act) aquatic flora and fauna species were found utilising the project site and, based on a review of habitat requirements and known species distribution, none are expected to occur. No listed aquatic communities were identified within the project site. The project site does not contain any fish habitat areas, aquatic reserves or habitat areas declared under state provisions.

Overall, the project is not considered likely to have any significant impacts on aquatic ecology or stygofauna.

The northern seasonal wetland is located above the Northern Underground and will be subject to subsidence. The northern seasonal wetland is mapped by the EHP as a HES wetland and consequently it will be necessary to provide offsets under the *Environmental Offsets Regulation 2014* in the event the project has a significant, residual impact on the wetland. The need for offsets will be determined prior to any subsidence of the wetland based on detailed mine planning and subsidence predictions for the area.

The EIS describes a number of management plans and procedures that will be put in place to limit impacts of the project on aquatic ecology, including a Biodiversity Management Plan, Feral Animal and Weed Management Plan, Species Management Plan (prepared in accordance with the NC WM Regulation) and a Subsidence Management Plan.

11

MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

The project was declared a controlled action on 30 October 2014 and requires approval under the EPBC Act before it can proceed. The controlling provisions are:

- Listed threatened species and communities (Sections 18 & 18A);
- Listed migratory species (Sections 20 & 20A); and
- A water resource, in relation to coal seam gas development and large coal mining development (Section 24D).

No threatened ecological communities or threatened flora species listed under the EPBC Act were recorded or are considered likely to occur within the project site.

The following threatened fauna species listed under the EPBC Act were recorded on the project site:

- Squatter Pigeon (southern subspecies) (*Geophaps scripta scripta*) (vulnerable);
- Black-throated Finch (white-rumped subspecies) (*Poephila cincta cincta*) (endangered); and
- Koala (*Phascolarctos cinereus*) (vulnerable).

The Australian Painted Snipe (*Rostratula australis*) (endangered) was assessed as having a moderate potential to occur on the project site.

In addition, three migratory species listed under the EPBC Act were recorded on the project site, namely the Eastern Great Egret (*Ardea modesta*), Rainbow Bee-eater (*Merops ornatus*) and Satin Flycatcher (*Myiagra cyanoleuca*). Two additional migratory species were assessed as having a high potential to occur within the project site, namely the Fork-tailed Swift (*Apus pacificus*) and Cattle Egret (*Ardea ibis*). The Latham's Snipe (*Gallinago hardwickii*), was also assessed as having a moderate potential to occur within the project site.

The EIS includes an assessment of potential impacts on these species and concluded that the project will give rise to potentially significant impacts on the Squatter Pigeon (southern subspecies), Black-throated Finch (white-rumped subspecies) and Koala. The EIS contains a Biodiversity Offset Strategy which describes the offsets that will be provided for impacts on these species. The EIS does not predict any significant impacts on the Australian Painted Snipe or on any migratory species.

The EIS describes a number of management plans and procedures that will be put in place to limit impacts of the project on flora and fauna, including a Biodiversity Management Plan, Feral Animal and Weed Management Plan, Species Management Plan and a Subsidence Management Plan.

The other controlling provision for the project is "*A water resource, in relation to coal seam gas development and large coal mining development*". An overview of the assessment of impacts on water resources is provided in the following groundwater and surface water sections.

Squatter Pigeon (southern subspecies)

12 GROUNDWATER

The EIS groundwater assessment included field investigations, the installation of monitoring bores, and the development of a 3D numerical groundwater model to predict the impact of mining during the operational and post-mining phases. The groundwater assessment also considered the potential cumulative impacts with the adjacent Carmichael Coal Mine Project.

The local groundwater regime is summarised in Figure 9, along with a schematic of the regional hydrogeology. Groundwater is not widely used in the region because of low yields and variable water quality.

Field investigations confirmed that the minor drainage features and overland flow paths present within the project site and downstream catchment are characterised by rock channels or exposed Tertiary sediments. Extensive, deep alluvial deposits and associated shallow groundwater are therefore absent from the project site and surrounding area.

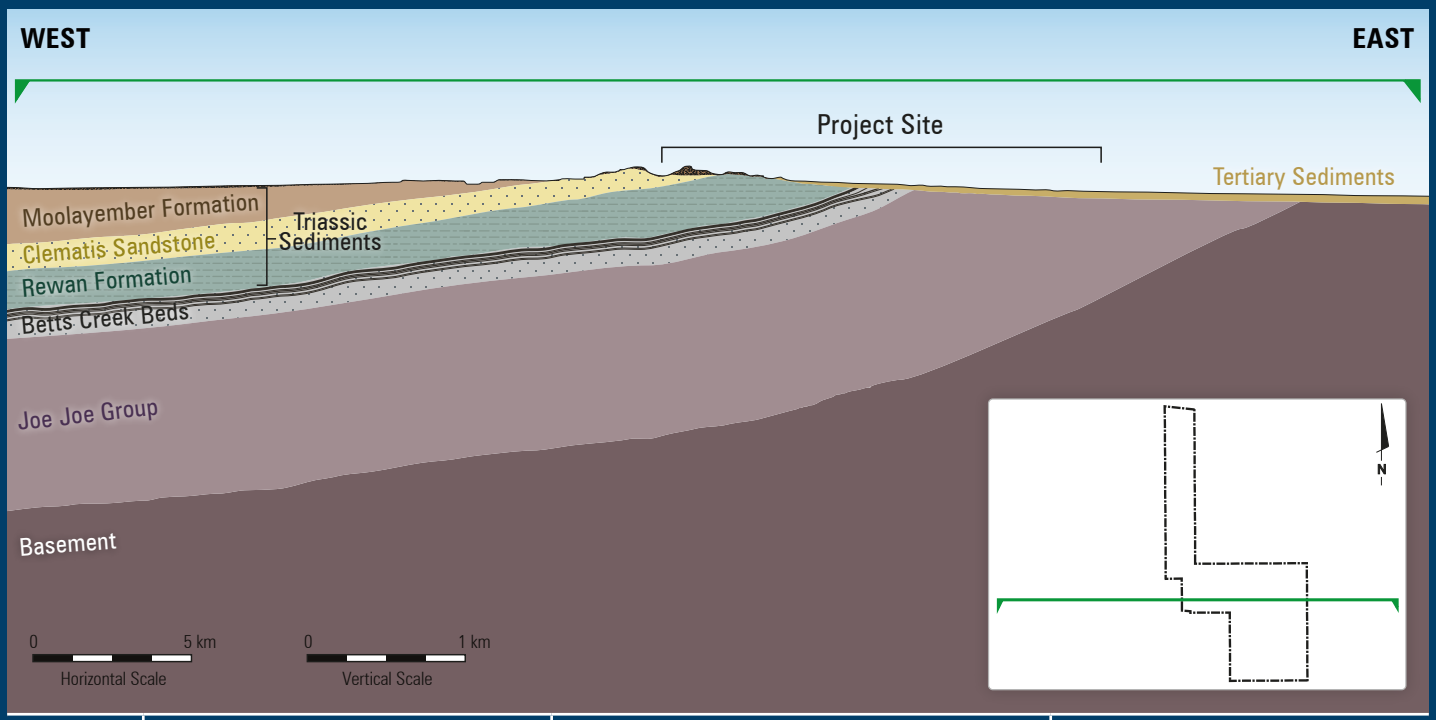
Groundwater use in the region is sporadic and dispersed over a wide area due to the generally significant depth to groundwater and typically low yields. Water quality is variable, but is generally suitable for stock watering.

The groundwater assessment considered impacts on the groundwater regime due to open cut and underground mining; as well as the effects of sub-surface cracking in areas that are subject to longwall mining. The groundwater assessment includes detailed predictions of groundwater depressurisation. Key conclusions of the assessment in relation to impacts as a result of groundwater depressurisation are as follows:

- The project will not impact on any springs, surface drainage features or groundwater dependent ecosystems as a result of groundwater drawdown.
- Depressurisation will result in some water take from the Great Artesian Basin (GAB) aquifers. However, the predicted water take during the operations phase is relatively minor when compared to the estimated total groundwater storage within the GAB. No short term or long term loss of recharge to the GAB is predicted as a result of the project.
- During mining operations the project is not predicted to impact on bores that are located beyond the project site. Private bores within the project site will be managed through land access arrangements with landholders. As part of mine closure planning, the proponent will enter into agreements with landholders of any bores potentially impacted by drawdown post mining.

Potential impacts on groundwater quality, including potential for contamination from the storage of hydrocarbons and potential seepage from the TSF and PSWSF, were considered in the EIS. Hydrocarbons will be stored in accordance with the procedures described in the EIS that are designed to prevent contamination of groundwater. Groundwater contamination from the TSF and PSWSF is not considered to be a significant risk because these facilities will be constructed on a low permeability foundation with a seepage collection system. In addition, geochemical testing has confirmed that any leachate will be pH neutral to slightly alkaline, with low levels of salinity comparable to that of natural underlying groundwater. Predicted cumulative impacts with the proposed Carmichael Coal Mine are limited to the area where the two projects adjoin. There are no significant impacts predicted as a result of cumulative groundwater depressurisation in this area. A groundwater monitoring program was established during the preparation of the EIS and will continue over the life of the project. The monitoring program is designed to confirm the groundwater impacts are as predicted and will identify any unexpected impacts.

FIGURE 9 REGIONAL HYDROGEOLOGY CROSS SECTION



	TERTIARY SEDIMENTS	TRIASSIC SEDIMENTS	PERMIAN BETTS CREEK BEDS
Overview	Highly weathered detrital deposit comprising claystone and weakly indurated sandstone and siltstone. Distributed over low lying areas either side of Darkies Range. Generally thin or absent on the elevated ridge of Darkies Range. Range in thickness across the project site from 0 to 60 m. A water table forms within these sediments in the south-east of the project site and extends east towards the Belyando River.	The Moolayember Formation is the youngest Triassic formation in the vicinity and comprises siltstone, mudstone and sandstone. This unit subcrops to the west of Darkies Range within 7 km of the project site. The Clematis Sandstone is a sandstone unit, with minor interbeds of siltstone and claystone. The Clematis Sandstone is a key aquifer of the GAB and outcrops within the project site. The Clematis Sandstone is dry and unsaturated throughout the project site, except where faulted in the north. West of the project site, the Clematis Sandstone is overlain by the Moolayember Formation, a unit of the GAB. The Clematis Sandstone is underlain by the Rewan Formation, a recognised regional aquitard.	Low permeability coal measures that include the target coal seams for the project. Groundwater storage is typically within fractures and fissures within individual coal seams. The Betts Creek Beds are underlain by the Joe Joe Group and the basement formation of the Drummond Basin.
Recharge	In elevated areas, recharge is diffuse and limited to sporadic rainfall events over small catchment areas. In the lower lying areas beyond Darkies Range, recharge is expected to be enhanced as the topography transitions from the sloping ridge to flatter plains.	The deep localised water table in the vicinity of Darkies Range indicates a low rate of groundwater recharge from infiltration of direct rainfall where the Clematis Sandstone and Rewan Formation outcrop. Elsewhere, recharge is diffuse and limited to sporadic rainfall events	Recharged through weathered zone underlying Tertiary sediments. Limited recharge from Darkies Range via overlying outcropping Triassic units.
Discharge	Discharge is predominantly to the Belyando River. Groundwater is unlikely to provide any baseflow to surface water in the vicinity of the project site, given the depth to groundwater and distinct ephemeral nature of the surface water systems.	Limited discharge into overlying formations and Lake Buchanan.	Limited discharge into overlying formations.
Water Use and Quality	Fresh to slightly brackish water suitable for use as cattle watering supply.	Clematis Sandstone shows moderate yields of slightly brackish water typically used as cattle watering supply. Moolayember Formation shows lower yields of slightly brackish to 'salty' water typically used as cattle watering supply.	Low yields of slightly brackish to brackish water typically used as cattle watering supply.

13 SURFACE WATER

Surface Water

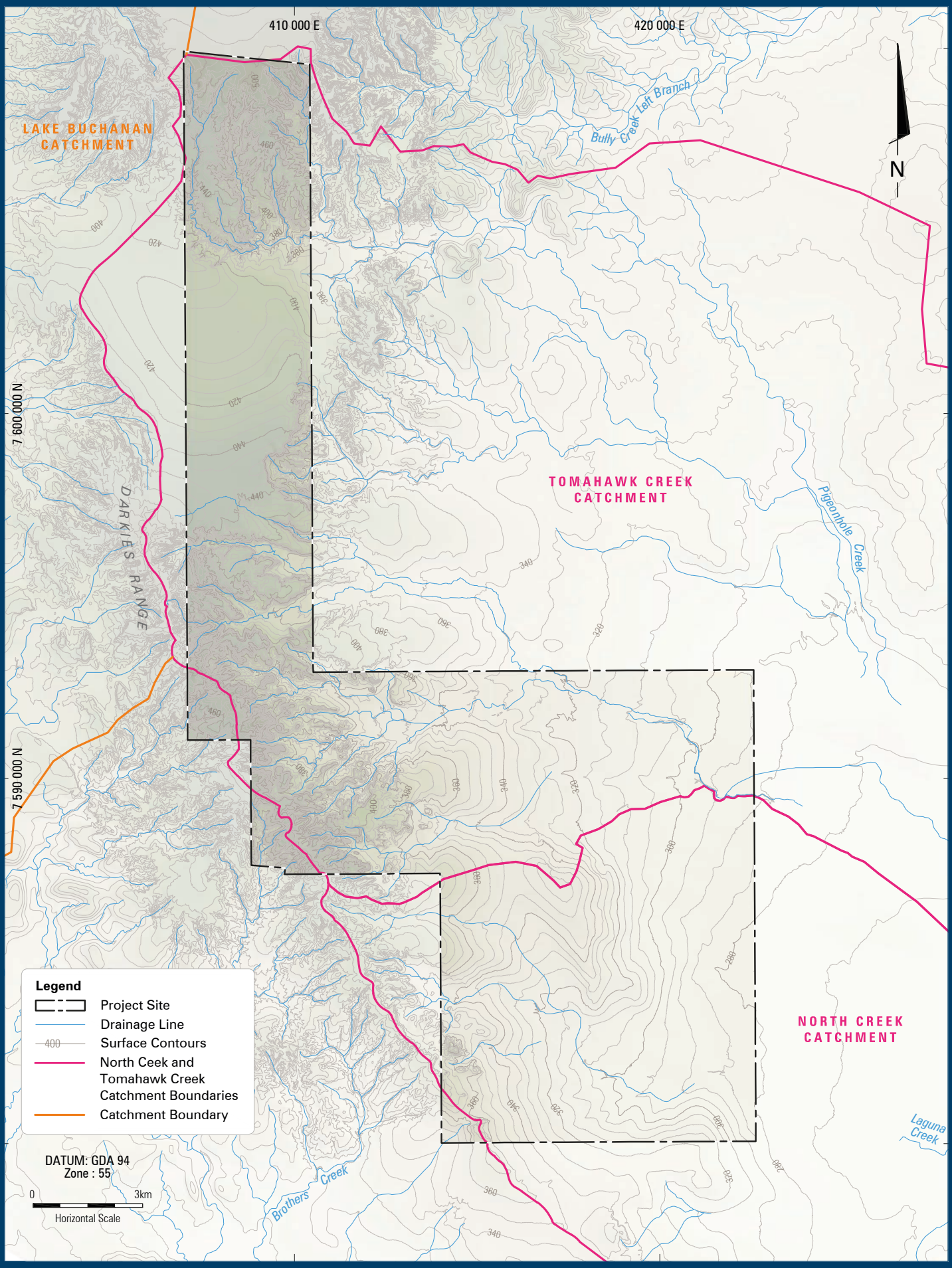
The project site is located within the Belyando Basin, approximately 255 km upstream of the Burdekin Falls Dam. The majority of the project site is drained by the headwaters of Tomahawk Creek and North Creek (Figure 10). These creeks flow to the south-east to the Belyando River downstream of the project site. The Belyando River is an ephemeral, regionally significant watercourse that enters the Suttor River upstream of the Burdekin Falls Dam. The site is located at the head of the Tomahawk and North Creek catchments and site drainage is therefore highly ephemeral. There are no major waterways traversing the project site.

Environmental values for the existing surface water environment in the vicinity of the project site were derived from the Queensland Government's *Environmental Protection Policy (Water)* (2009) and Queensland Water Quality Guidelines and assessed through both field observations and water quality analysis.

The existing surface water environment can be summarised as slightly to moderately disturbed by human activities (including agriculture) with naturally high sediment loads arising primarily from hillslope erosion.

North Creek at Moray Bulliwalla Road, downstream of project site

FIGURE 10 LOCAL CATCHMENT SETTING



Mine Water Management

The EIS proposes management strategies for waters generated by the project. These strategies are dependent on the quality of the water and are designed to prevent any adverse impacts on downstream surface water values. The requirements to maximise the reuse of mine-affected water for water supply, minimise the demand for external water supply and minimise the risk of uncontrolled discharge of any mine-affected water from the project site were also key considerations in the selection of appropriate water management strategies.

The project water management system has been designed to manage each of the water types generated by the project. These include:

- Pit water from underground and open cut mining areas;
- Return water from the TSF and PSWSF;
- Runoff from areas disturbed by project activities including overburden emplacement areas and mine infrastructure areas;
- Runoff from areas affected by mine subsidence; and
- Runoff from areas undisturbed by project activities.

The EIS includes a conceptual site drainage plan that includes the following:

- Diversion of clean runoff from undisturbed areas around areas disturbed by mining activities to allow it to drain from the site;
- Control of suspended sediment in site drainage water to prevent downstream sedimentation;
- Containment of mine-affected water in on-site mine water storages for use as mine water supply and release of any excess mine-affected water under controlled conditions in accordance with EHP's model EA conditions;
- Provision of an adequate level of flood protection for mine infrastructure and the open cut pit; and
- Establishment of a free-draining post mining landform beyond the final void.

Drainage infrastructure including diversion drains, collection drains, sediment dams and sediment traps will be constructed progressively as the operations expand over the life of the mine.

Hydraulic modelling of the mine drainage system was conducted for the 1 in 2 and 1 in 50 Annual Exceedance Probability flood events in order to assess surface water impacts on downstream properties and stream geomorphology. The predicted changes in flood levels and distribution will not impact on any structures or property, and in most cases will not be discernible when compared to existing conditions due to the wide shallow nature of the flow paths. The grazing land use on the downstream properties is also not sensitive to the predicted minor and localised changes in flood levels and flow distribution. No significant flood impacts are therefore predicted.

The water management system involves the use of mine-affected waters as mine water supply, and an external raw water supply to meet high quality water supply requirements and make up any shortfall in the site water balance. An operational simulation model has been used to assess the project water balance across a range of climatic conditions over the life of the project. The modelling results indicate a significant overall water deficit for the project and the need for a significant external water supply. There are a number of parties currently developing water supply options for the Galilee Basin coal mines. The current preferred water supply option would be to gain an allocation from a piped water supply from one of two schemes being proposed to harvest water from the Cape River or the Belyando/Suttor River system.

The modelling results also indicate that the mine water management system has adequate capacity to contain mine affected water generated by the project with a low probability of uncontrolled discharge. During extended rainfall periods the open cut pit will collect significant volumes of rainfall runoff and this will result in a surplus of mine-affected water within the mine water management system. Following such events, in order to dewater the open cut pits and allow continuing production, it will be necessary for accumulated pit water to be discharged from site under controlled conditions. A Site Water Management Plan will be developed for the project. It will include surface water and mine water balance monitoring programs.

14 CLIMATE

Climatic data has been collected from two Bureau of Meteorology meteorological stations located in proximity to the site. The closest station to the project site is located approximately 12 km to the south-west on the Carmichael property and has collected rainfall data since 2003. The Clermont Post Office meteorological station which, although being located approximately 180 km to the south-east of the project site, is the nearest weather station that records additional meteorological parameters. It has collected rainfall, temperature and humidity data from 1870 until 2011 when it was decommissioned.

Central Queensland has a sub-tropical continental climate characterised by high variability in rainfall, temperature and evaporation. The region can experience droughts, floods, heatwaves and frosts. In general, winter days are warm and nights are cool, while summer days are hot and nights are warm. The seasonal average maximum temperature measured at Clermont is 34.8 °C in summer and 25.3 °C in winter. Seasonal average minimum temperatures range from 21.6 °C in summer to and 6.7 °C in winter.

Rainfall is summer dominant with almost half of the average annual rainfall occurring from December to February due to storms and tropical lows associated with cyclones. Average monthly rainfall ranges from 15 mm in May to 127 mm in January with an annual average rainfall of 525 mm. Relative humidity is generally 20% higher in the morning compared to the afternoon. The highest monthly average relative humidity was recorded in February for both morning and afternoon values (71% and 47%, respectively).

Winds are typically light to moderate, originating predominantly from the north-east to the south-east. The most prevalent wind speeds experienced are moderate winds ranging from 2 to 5 m/s, which occur 59% of the time. Light winds ranging between 0 and 2 m/s speeds occur 32% of the time, strong winds greater than 5 m/s, occur only 9% of the time.

15 AIR QUALITY

The EIS air quality assessment included review of background air quality data, estimation of emission rates from mining activities and the power station, and dispersion modelling to estimate air quality in the vicinity of the project site. Air quality objectives relevant to mining activities have been developed from the Queensland Government's *Environmental Protection Policy (Air)* (2008) (EPP Air). These criteria are provided in Table 3.

Air quality objectives relevant to emissions from the power station were also developed, based on the following:

- *Approved methods for the modelling and assessment of air pollutants in NSW* (NSW DEC, 2005);
- *Texas Commission on Environmental Quality Effects Screening Levels 2009* (TCEQ, 2009); and
- *Ambient Air Quality Criteria, 2008* (OME, 2008).

The closest homestead to the project site is approximately 7.2 km to the west. The air quality assessment concluded that predicted dust levels will be within applicable ambient air quality objectives at all sensitive receptors.

The assessment also concluded that, due to the significant distance between the underground mining areas and the closest sensitive receptors, potential odour impacts from underground mine ventilation are extremely unlikely.

An assessment of the potential cumulative air quality impacts of the project with the proposed Carmichael Coal Mine and the adjacent Moray Power Project was also undertaken. The assessment concluded that the project will not have a significant contribution to any cumulative air quality impacts.

An assessment of greenhouse gas emissions was undertaken consistent with the guidance provided in the National Greenhouse Accounts and the Greenhouse Gas Protocol. The EIS provides annual predicted greenhouse gas emissions for the project. Greenhouse gas emissions from the project will be predominantly due to the operation of the power station as well as the consumption of diesel fuels and fugitive emissions of coal seam gas. Any reduction in the significant energy requirements for the project will result in decreased GHG emissions. The EIS outlines a number of greenhouse mitigation strategies that are being evaluated for the project.

TABLE 3 AMBIENT AIR QUALITY OBJECTIVES

PARAMETER	AVERAGING PERIOD	VALUE
TSP	Annual	90 µg/m³
PM_{10}	24-hour	50 µg/m³ *(with five exceedances per annum permitted)*
$PM_{2.5}$	24-hour	25 µg/m³
	Annual	8 µg/m³
Dust Deposition Rate	Annual	120 mg/m²/day

16 NOISE AND VIBRATION

A detailed noise assessment was undertaken and included assessment of predicted noise levels resulting from the mining operations, low frequency noise emissions, construction noise, road traffic noise, aircraft noise, and blasting impacts. Potential cumulative noise impacts with the proposed Carmichael Coal Mine were also assessed.

The noise assessment concluded that predicted noise levels and blast effects will be below the relevant noise criteria at all sensitive residential receptors.

17 VISUAL AMENITY

A visual impact assessment was undertaken to determine the impact of the project on the visual quality and character of the surrounding area.

The local visual landscape is dominated by grazing land and remnant woodland vegetation. A well vegetated ridgeline known as Darkies Range is a dominant feature in the landscape and runs in a roughly north to south alignment through the western portion of the project site.

The main potentially visible elements of the project include the elevated overburden emplacement areas and significant mine infrastructure such as CHPP, rail loop and train loading facilities, workshops, mine waste storage facilities, workforce accommodation village and the power station stacks.

Visual receptors identified in the vicinity of the project site include a number of isolated rural residences. The closest residence is approximately 7.2 km from the project site.

The project will also potentially be visible from Elgin-Moray Road and Moray-Carmichael Road which are both unsealed local government roads that provide the primary access from the Gregory Developmental Road to the project site. They are typically utilised by local rural residents and coal exploration related traffic, and are not common routes for tourists.

The visual assessment concluded that the visual impact on sensitive receptors, including residential receptors and users of the local road network, would be low. The visual impact is reduced by the fact that the majority of visual receptors will have limited views of the mine due to screening by intervening topography and/or vegetation, and/or the extended viewing distances.

Access track in southern area of project site

18

SOCIO-ECONOMIC IMPACT ASSESSMENT

Social and economic assessments, integrated with a comprehensive stakeholder consultation program, were undertaken for the project. This enabled the identification of community and social issues associated with the project and the development of strategies to address these issues.

The social assessment considered the impacts associated with the project, particularly impacts (both positive and negative) due to the project workforce. Due to the remote location of the project site, the condition of the surrounding regional road network and the size of the workforce required for the project, it is anticipated that the majority of workers will be employed on a non-resident, long distance commuting basis and will be housed in an on-site accommodation village.

The social assessment considered the following broad areas: employment and labour market dynamics, regional development, employee health and wellbeing, community health and wellbeing, community infrastructure and services, and social amenity. The project will give rise to positive and negative impacts within these broad areas.

The positive impacts of the project relate to the strengthening of the local and regional economies through:

- Creation of significant, long-term employment opportunities, including Indigenous employment opportunities.
- Skills enhancement and training opportunities.
- Increased supply chain opportunities.
- Increased economic activities.
- Increased real wage.
- Resident population growth in regional centres.
- Improved infrastructure and services for the surrounding area.

Potential negative impacts are predicted to include the following:

- Labour draw in response to the labour requirements of the project and the existing and anticipated skill shortages of relevance to the project.
- Employee health implications related to the non-resident commuting workforce.
- Increased traffic movements and reduced road safety.
- Increased demand on emergency services.
- Change in rural character.

A series of management plans will be developed to enhance the social and economic benefits of the project and to limit the potential adverse social impacts on the local community. These action plans relate to project workforce recruitment including Indigenous participation, training and skills development, local industry participation, and employee wellbeing. The proponent will also report on an annual basis to relevant stakeholders from the commencement of the construction phase and for two years following the commencement of mining operations. The annual report will:

- Describe the actions to inform the communities of the local area about project impacts and show that community concerns about project impacts have been taken into account when reaching decisions;
- Describe the actions to enhance local and regional employment, training and development opportunities; and
- Describe the actions to avoid, manage or mitigate project-related impacts on local community services, social infrastructure and community safety and wellbeing.

The key economic benefits of the project include:

- Direct employment of up to approximately 3,900 persons during the construction phase, and up to approximately 3,400 persons during the operations phase;
- Creation of substantial indirect employment in Queensland during the construction and operations phases;
- The addition of up to $1.5 billion annually to the gross state product of Queensland; and
- The payment of an annual average of $188 million to the Queensland Government in the form of royalty payments.

Mosman Street, Charters Towers

19 TRAFFIC AND TRANSPORT

Road Traffic

The key roads that will be used by the project traffic are the Flinders Highway, Gregory Developmental Road, Elgin-Moray Road and Moray-Carmichael Road (Figure 11). The Peak Downs Highway may also be used to a much lesser extent. A new mine access road will connect the project site to the Moray-Carmichael Road. An indicative alignment of the access road is shown on Figure 11.

A detailed assessment of traffic and transport impacts was completed which considered the impacts of traffic generated by the project on affected public roads and intersections. The traffic study provides conservative worst-case project traffic volumes and estimates of the increase in total traffic volumes for affected public roads.

The project's potential impact on intersections was considered at the following locations:

- Flinders Highway/Gregory Developmental Road intersection;
- Gregory Developmental Road/Elgin-Moray Road intersection (point of access to the State-controlled road network); and
- Proposed Moray-Carmichael Road/Project China Stone Mine Access Road intersection.

A detailed analysis of these intersections indicated the following:

- The Flinders Highway/Gregory Developmental Road intersection will continue to meet industry standard performance thresholds and will continue to provide an appropriate level of safety irrespective of the presence of project traffic demands.
- Improved turn treatments of the Gregory Developmental Road/Elgin-Moray Road intersection should be provided at the intersection to safely accommodate future traffic volumes. It is noted that upgrade of the intersection to include protected turn lane treatments is required as part of the development of the Carmichael Coal Mine and Rail Project (CCM&RP) which is anticipated to precede Project China Stone.
- The provision of a basic right turn treatment and a basic left turn treatment at the new mine access road intersection would provide an appropriate level of safety and operational performance.

A significance assessment was undertaken to identify if the additional heavy vehicle movements generated during the project's construction phase and operations phase will have a significant impact on the State-controlled road network. Potentially significant impacts on pavement rehabilitation were identified on sections of the Flinders Highway and Gregory Developmental Road during the construction and operations phases. Potentially significant increases in pavement maintenance impacts have been identified on sections of the Townsville Port Road, Flinders Highway, Gregory Developmental Road and the Peak Downs Highway. It is noted that in many cases the duration of significant impact is limited to the construction phase only. The project's pavement rehabilitation impact and pavement maintenance impact will need to be recalculated prior to the commencement of construction based on confirmed pavement loadings and traffic estimates associated with the CCM&RP. This will enable the accurate quantification of any monetary contribution towards pavement rehabilitation and pavement maintenance activities in accordance with the TMR guideline.

Elgin-Moray Road, east of the project site

Gill Street, Charters Towers

An assessment of the crash data for the road network indicated no obvious trends that could potentially be exacerbated by the increase in traffic associated with the project.

Rail Traffic

Coal from the project is proposed to be transported by rail to the Abbot Point Coal Terminal located at the Port of Abbot Point. An on-site rail loop and train loading facility will connect to a future off-site rail spur connecting the mine site to a future rail line from the Galilee Basin to the Abbot Point Coal Terminal. The proponent will be responsible for developing the off-site rail spur connection. The rail line connecting the Galilee Basin to the Abbot Point Coal Terminal will be developed by another party. The alignment of the preferred rail line from the Galilee Basin to the Abbot Point Coal Terminal is not certain at this stage and consequently it is not possible to confirm the location of the off-site rail spur connection at this stage. The off-site rail spur would be subject to a separate environmental impact assessment and approval. These will be progressed once the alignment of the rail spur can be determined.

At its peak production capacity, the project will be serviced by an average of six coal trains per day, up to a peak of eight trains per day.

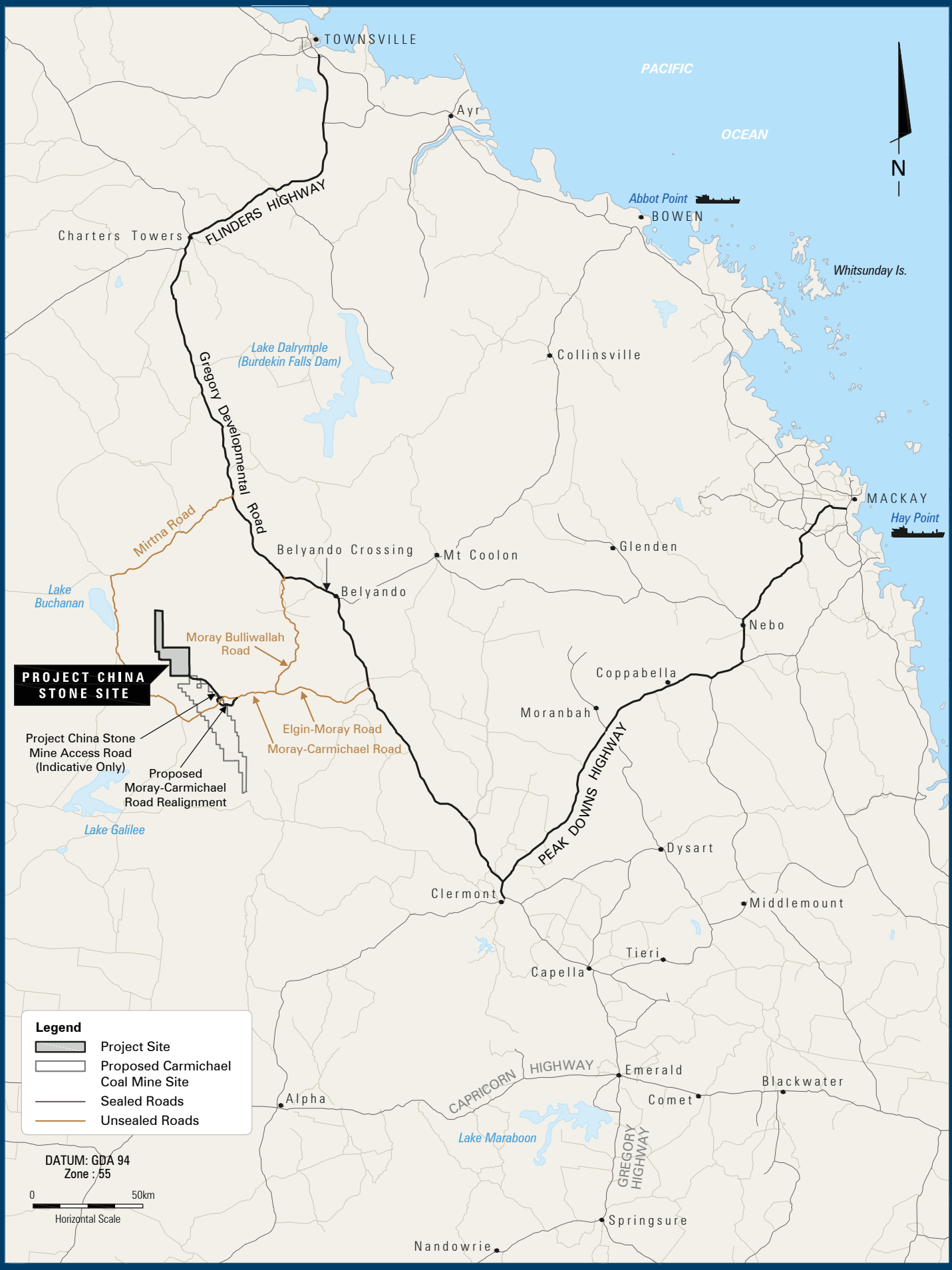
Air Traffic

A private airstrip will be constructed in the south-eastern part of the project site, for the transport of the mine workforce and materials. Construction of the airstrip is scheduled to be completed prior to the end of Project Year 1. The airstrip facilities will include baggage handling and passenger security.

The airstrip will be designed to cater for a range of aircraft, including Boeing 737s, Airbus 320s and Bombardiers. Current planning estimates approximately 40 flights per week will be required during operations from a range of potential coastal centres including Brisbane, Gold Coast, Wide Bay, Townsville and Cairns.

The airstrip will be designed, constructed and operated in accordance with CASA regulations and guidelines. Project air traffic control will be coordinated with the airports at the workforce source locations. Project air traffic control will also be coordinated with the Carmichael Coal Mine airstrip.

FIGURE 11 REGIONAL ROAD NETWORK



20 CULTURAL HERITAGE

The EIS considers Aboriginal heritage in relation to the requirements of the *Aboriginal Cultural Heritage Act 2003* and includes a detailed assessment of non-Indigenous heritage values on the project site.

No declarations in relation to Aboriginal heritage have been made under Commonwealth legislation for the project site and there are no sites listed on Commonwealth heritage lists. The Wangan and Jagalingou People have been identified as the Aboriginal party for the project in accordance with the *Aboriginal Cultural Heritage Act 2003*. The proponent has put in place with its consultant the process to initiate a Cultural Heritage Management Plan (CHMP) with the Wangan and Jagalingou People in accordance with this Act. The CHMP is required to be finalised prior to the commencement of construction.

The non-Indigenous heritage assessment included a desktop review (including interviews with landholders and local residents) to identify heritage themes in the region and to predict the locations and types of items of cultural heritage potentially located on the project site. A field inspection was then undertaken to locate and describe any cultural heritage.

The non-Indigenous heritage assessment did not identify any sites of national, state or local heritage significance on the project site. The proponent will implement procedures to mitigate impacts in the unlikely event that previously unrecorded sites of non-Indigenous cultural heritage significance are located during ground disturbance associated with the project.

21 NON-MINING WASTE MANAGEMENT

The main wastes anticipated to be generated by the project include:

- Green waste;
- Scrap metal;
- Waste oils, other hydrocarbons and miscellaneous chemicals;
- Batteries and tyres;
- Sewage; and
- General waste.

The proponent will develop and implement a waste management system for the project which will meet the *Waste Reduction and Recycling Act 2011*, the *Waste Reduction and Recycling Regulation 2011*, the *Environmental Protection (Waste Management) Regulation 2000*, the EP Act and the *Environmental Protection Regulation 2008*.

The waste management system will provide for the identification of waste types; commit to the use of licensed waste transport contractors; and outline the process for tracking of relevant regulated wastes. The principles of cleaner production will form an important component of the project's waste management system. The waste management system will include design and management of an on-site landfill to dispose of general wastes in accordance with the Queensland Government *Guideline - Landfill Siting, Design, Operation and Rehabilitation, EM2319, Version 2* (EHP 2013).

A site history of the project site, compiled in accordance with the *Contaminated Land Assessment Guideline* (EHP 2014), revealed no properties on the project site that are listed on the Contaminated Land Register or the Environmental Management Register, and there are no known historical or existing contaminated sites within the project site.

The project includes the following Notifiable Activities (NAs):

- 1 Abrasive Blasting;
- 7 Chemical Storage;
- 8 Coal Fired Power Station;
- 14 Engine Reconditioning Works;
- 20 Landfill; and
- 29 Petroleum Product or Oil Storage.

The risk of land contamination from project activities, including NAs, will be reduced through appropriate design and construction of the facilities and post-mining rehabilitation.

22

HAZARD AND RISK

The introduction of a mine or industrial facility to an area carries potential hazards and risks.

A suite of legislation exists in relation to occupational health and safety at mine sites. This is supplemented by codes of practice issued under regulations and Australian Standards that represent best practice for managing risks.

The proponent will implement a Safety and Health Management System (SHMS), which will meet the requirements of appropriate legislation and standards, to address the construction, operations and decommissioning phases of the project. The SHMS will include operational hazard analysis, regular hazard audits, fire safety, emergency response plans, qualitative risk assessment, and construction safety. The proponent will develop a Hazard, Defect and Incident Procedure to monitor conformance with the SHMS. Audits, inspections, reviews and independent contributions will all be used to identify corrective actions as part of the process of continual improvement in the SHMS.

A Preliminary Hazard Analysis (PHA) has been undertaken to assess the level of risk that the project presents to surrounding land uses and community values. In identifying hazards associated with the project, consideration has been given to project activities and also natural and technological events, and malicious acts. The highest risks derived under the PHA relate to loss of containment, combustion of dangerous goods, catastrophic failure of the power station, aircraft crashes and bushfires. These hazards have moderate to major consequences but generally have a low likelihood of occurrence, resulting in medium to significant risks.

The overall risk profile for the project assessed by the PHA is low due to the controls that have been included within the current design, the proposed SHMS development and the remoteness of the site in relation to populated areas and built infrastructure.

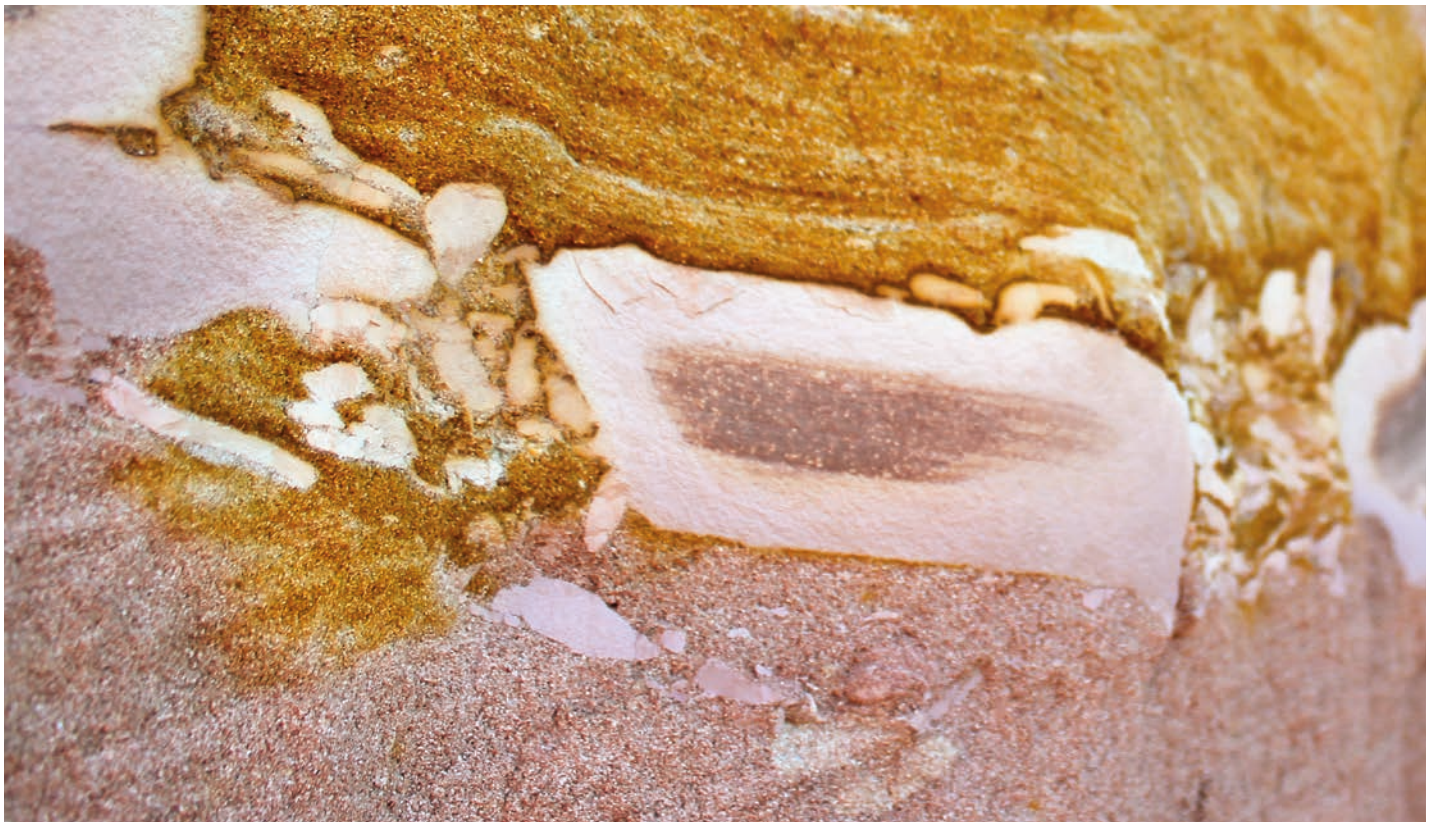
Ongoing consultation will be undertaken with local and regional representatives from the emergency services in relation to the management of hazard and risk. In addition, consultation with key stakeholders will be undertaken as part of the emergency preparedness and response planning, including consultation with local and regional representatives from the emergency services.

In the interests of ensuring that the emergency services are prepared should they be required to respond to an incident at the project site, the proponent will provide relevant information as it becomes available.

23 CUMULATIVE IMPACTS

Cumulative impact assessments have been completed as a component of each of the relevant environmental studies within the EIS. The cumulative impact assessments include the impacts from the proposed Carmichael Coal Mine and, where relevant, the Moray Power Project which is proposed to provide power to the Carmichael Mine. These projects are both currently in the approval phase. The Carmichael Mine site adjoins the project site to the south-east and the Moray Power Project is located approximately 23 km to the south-east of the project site, adjacent to the Carmichael Mine site. The two mines and power station are expected to be operational over a similar time period.

Overall, the project is not anticipated to contribute to any significant adverse cumulative impacts. Where necessary, appropriate management measures have been identified for any potential adverse cumulative impacts with the proposed Carmichael Coal Mine. The proponent will consult with Adani Mining Pty Ltd (the proponent for the proposed Carmichael Coal Mine) to ensure the effective management of potential cumulative impacts including impacts on air quality, land use, traffic and transportation and socio-economic impacts. No significant adverse cumulative impacts are predicted in association with the Moray Power Project.



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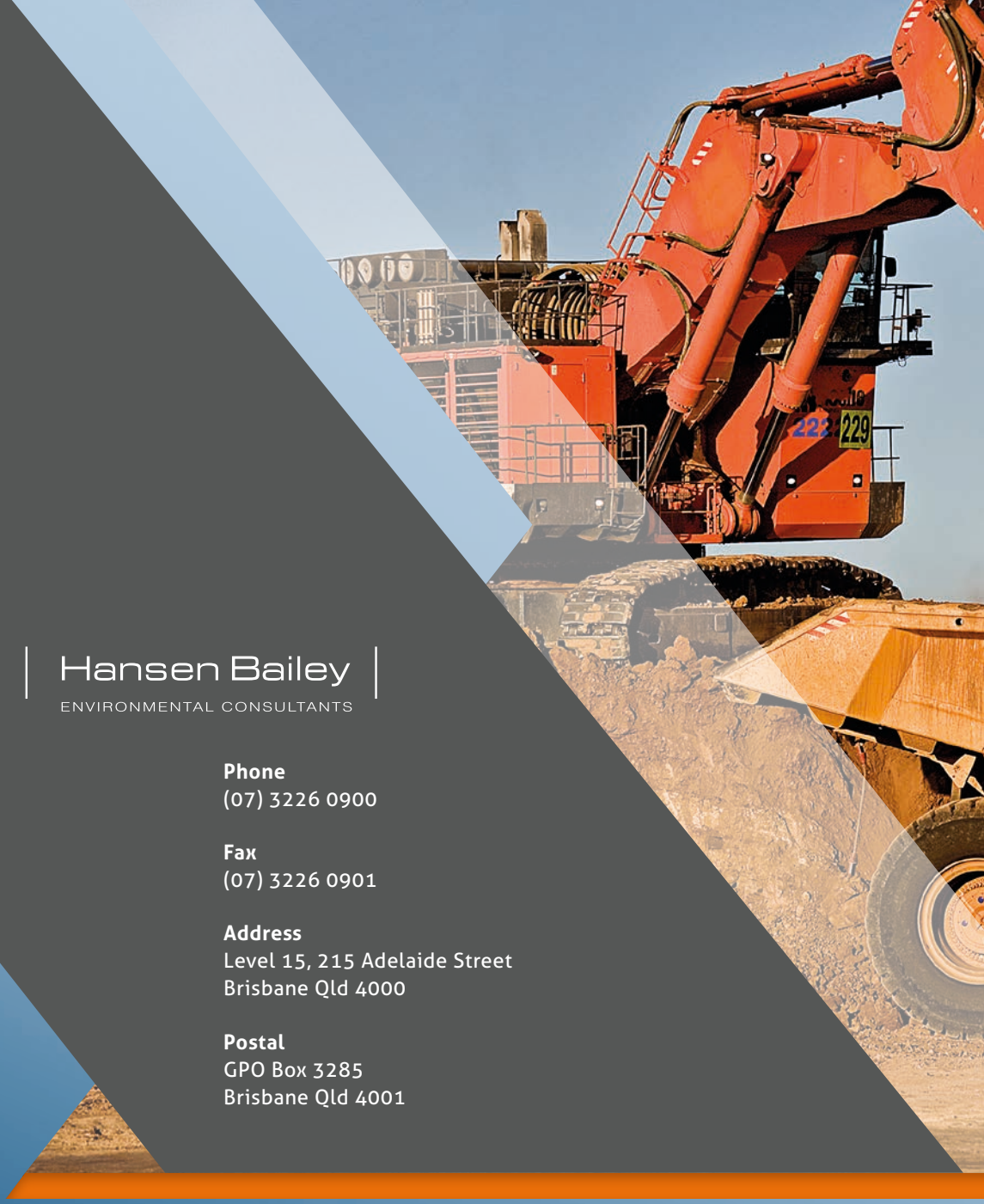
ENVIRONMENTAL MANAGEMENT

The EIS contains measurable and auditable commitments to environmental management practices for the project. The implementation of these commitments will ensure that the project is undertaken in accordance with a high standard of environmental management.

The EIS contains a section on environmental management which provides a summary of key environmental management commitments.

Grevillea on project site



Hansen Bailey
ENVIRONMENTAL CONSULTANTS

Phone
(07) 3226 0900

Fax
(07) 3226 0901

Address
Level 15, 215 Adelaide Street
Brisbane Qld 4000

Postal
GPO Box 3285
Brisbane Qld 4001