TECHNICAL PAPER

14

Contaminated Land Assessment

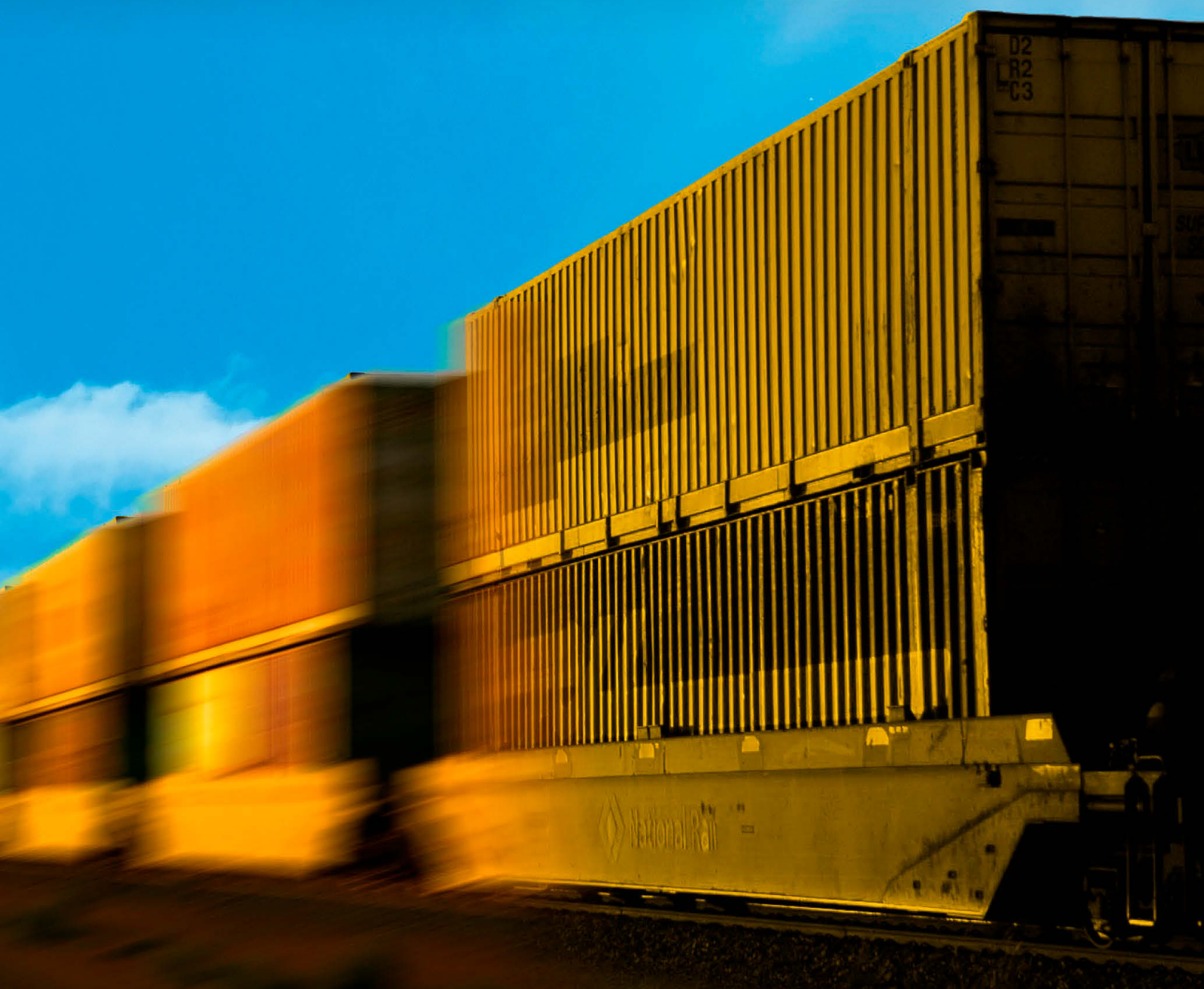
ILLABO TO STOCKINBINGAL ENVIRONMENTAL IMPACT STATEMENT

Technical and Approvals Consultancy Services: Illabo to Stockinbingal

Technical Paper 14 – Contaminated Land Assessment

July 2022

2-0001-220-EEC-00-RP-0003



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Glossary

ANZECC	Australian and New Zealand Environment and Conservation Council
ACM	Asbestos containing material
AEC	Areas of Environmental Concern
ARTC	Australian Rail Track Corporation
ARMCANZ	Agriculture, and Resource Management Council of Australia and New Zealand
ASRIS	Australian Soil Resource Information System
BTEX	Benzene, toluene, ethylbenzene and xylene
BTEXN	Benzene, toluene, ethylbenzene, xylene and naphthalene
CEMP	Construction environmental management plan
CSM	Conceptual site model
EIS	Environmental impact statement
LEP	Local environmental plan
mAHD	Metres in Australian Height Datum
NATA	National Association of Testing Authorities
NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)
NHMRC	National Health and Medical Research Council
NRMMC	National Resource Management Ministerial Council
NSW EPA	NSW Environmental Protection Authority
NSW RFS	NSW Rural Fire Service
OCPs	Organochlorine pesticides
OPPs	Organophosphate pesticides
PAHs	Polycyclic aromatic hydrocarbons
PCBs	Polychlorinated biphenyl
PFAS	Per- and Poly-fluoroalkyl Substances
Proposal site	The area that would be directly affected by construction and operation of the proposal. It includes the location of proposal infrastructure, the area that would be directly disturbed by the movement of construction plant and machinery, and the location of the storage areas/compounds sites etc., that would be used to construct that infrastructure.
PSI	Preliminary Site Investigation
SEARs	Secretary's Environmental Assessment Requirements
TRH	Total recoverable hydrocarbon
VOCs	Volatile organic compounds

Executive summary

The Australian Government has committed to delivering a significant piece of national transport infrastructure by constructing a 1,700 kilometre (km) high performance and direct interstate freight rail corridor between Melbourne and Brisbane. Inland Rail is a major national proposal that involves the design and construction of the new inland rail connection, which will enhance Australia's existing national rail network and serve the interstate freight market.

Australian Rail Track Corporation Ltd (ARTC) is seeking approval to construct and operate the Illabo to Stockinbingal section of Inland Rail ('the proposal'), which consists of about 39km of new, greenfield single track standard gauge railway and associated infrastructure between Illabo and Stockinbingal.

The proposal requires approval from the NSW Minister for Planning under Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposal is also a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and requires approval from the Australian Government Minister for the Environment.

This contamination assessment has been prepared by Inland Rail Design Joint Venture (WSP/Mott Macdonald) as part of the environmental impact statement (EIS) for the proposal. The EIS has been prepared to accompany the application for approval of the proposal and addresses the environmental assessment requirements of the Secretary of the (then) NSW Department of Planning, Industry and Environment (now the Department of Planning and Environment) (the SEARs), issued on 30 April 2021.

The proposal comprises a new single track predominantly greenfield freight rail line that would connect to the existing freight rail network near Illabo and Stockinbingal in New South Wales (the proposal site).

The contamination assessment appraisal of the proposal site's history and current use based on review of desktop sources, and site survey.

The contamination assessment identified a number of areas of environmental concern (AEC) and potential contamination sources including:

- use of the railway line, and in particular areas where historical maintenance may have occurred, predominantly around sidings and stations, rail ballast and old broken railway machines near Stockinbingal Station
- waste dumping, particularly in locations near existing roads, road crossings, or potentially in infilled gully's or dams that may be discovered during the works
- various building structures presenting a potential risk of the presence of hazardous and/or contaminated material
- unknown fill and stockpiling of waste across sections of the proposal site to construct existing nearby roads and rail infrastructure; and
- agricultural use of land adjacent to the proposal site, presenting a low risk of diffuse agricultural chemical residues and moderate potential for isolated hotspots where machinery maintenance or chemical storage and transfer activities occurred.

Potential contaminants of concern relating to the above contamination sources include (but are not limited to) heavy metals (copper, lead, zinc, cadmium, chromium, nickel, arsenic and mercury), total recoverable hydrocarbon (TRH), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), organophosphate pesticides (OPPs), polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs) and potential asbestos containing material (ACM).

In the context of the proposal these identified areas of concern have a low to moderate risk of widespread contamination. If contamination is present, the contamination is likely to be localised and manageable through the implementation of mitigation during the construction.

In addition to the contamination risk, various regional soil types have localised salinity risk associated with them. There is a need for further assessment of this risk and a management plan should be prepared in order to ensure that the development is not affected by salinity, and that the development does not exacerbate salinity hazard in the surrounds.

Further pre- and during work investigations are required to further characterise site conditions and to inform detail design. In addition to further investigative works, several mitigation measures have been identified to be adopted during construction of the proposal site and future use of the proposal. A construction environmental management plan should be prepared and will provide an unexpected finds protocol specific to the works to ensure that if contamination is discovered during the works it can be appropriately managed at the time.

1 Introduction

1.1 Overview

The Australian Government has committed to delivering a significant piece of national transport infrastructure by constructing a high performance and direct interstate freight rail corridor between Melbourne and Brisbane. Inland Rail involves the design and construction of a new inland rail connection, about 1,700 kilometre (km) long, between Melbourne and Brisbane. Inland Rail is a major national proposal that will enhance Australia's existing national rail network and serve the interstate freight market.

Australian Rail Track Corporation Ltd (ARTC) is seeking approval to construct and operate the Illabo to Stockinbingal section of Inland Rail ('the proposal'), which has a total extent of about 42.5km, and consists of about 39km of new, greenfield single track standard gauge railway and associated infrastructure between Illabo and Stockinbingal.

The proposal requires approval from the NSW Minister for Planning under Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposal is also a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and requires approval from the Minister for the Environment.

This report has been prepared by (Inland Rail Design Joint Venture (WSP/Mott Macdonald) as part of the environmental impact statement (EIS) for the proposal. The EIS has been prepared to accompany the application for approval of the proposal and addresses the Secretary's Environmental Assessment Requirements (SEARs) from the Secretary of the (then) NSW Department of Planning, Industry and Environment (now the Department of Planning and Environment), issued on 30 April 2021.

1.2 The proposal

The proposal is located between Illabo and Stockinbingal within the Riverina region of NSW. The location of the proposal is shown in Figure 1.1.

1.2.1 Key features

The key features of the proposal (which would be confirmed during detailed design) are shown in Figure 1.2 and includes:

- a total extent of about 42.5km, including about 39km of new, greenfield single track standard gauge railway between Illabo and Stockinbingal, including:
  - a combination of track vertical alignments on existing ground level, on embankments and in cuttings
  - 8 new bridges at watercourses, two road overbridges and one grade separated (road over rail) at Burley Griffin Way
  - one crossing loop and associated maintenance siding
  - construction of new level crossings and alterations of existing level crossings (at public roads and private accesses)
  - stock underpasses and other vehicular crossings on private land to allow for the movement of livestock and vehicles across the rail line
  - installation and upgrade of about 88 new and existing cross drainage culverts below the rail formation and 27 longitudinal drainage culverts below level crossings
  - removal of redundant sections of track along the existing Stockinbingal to Parkes line and Lake Cargelligo line at Stockinbingal

- upgrades of about three kilometres of existing track for the tie-in works to the existing Main South rail line at Illabo, and tie ins to the Stockinbingal to Parkes rail line at Stockinbingal
- construction of about 1.7 kilometres of new track to maintain the existing connection of the Lake Cargelligo rail line either side of the proposal
- realignment of a 1.4 kilometre section of the Burley Griffin Way to provide a road over rail bridge at Stockinbingal
- realignment of Ironbong Road to allow for safe sight lines at the new active level crossing.

Associated infrastructure would include signalling and communications, signage, fencing and services and utilities. The construction of the proposal would also require the following works:

- construction access roads and access tracks
- watercourse crossings
- temporary changes to the road network
- construction compounds.

1.2.2 Timing and operation

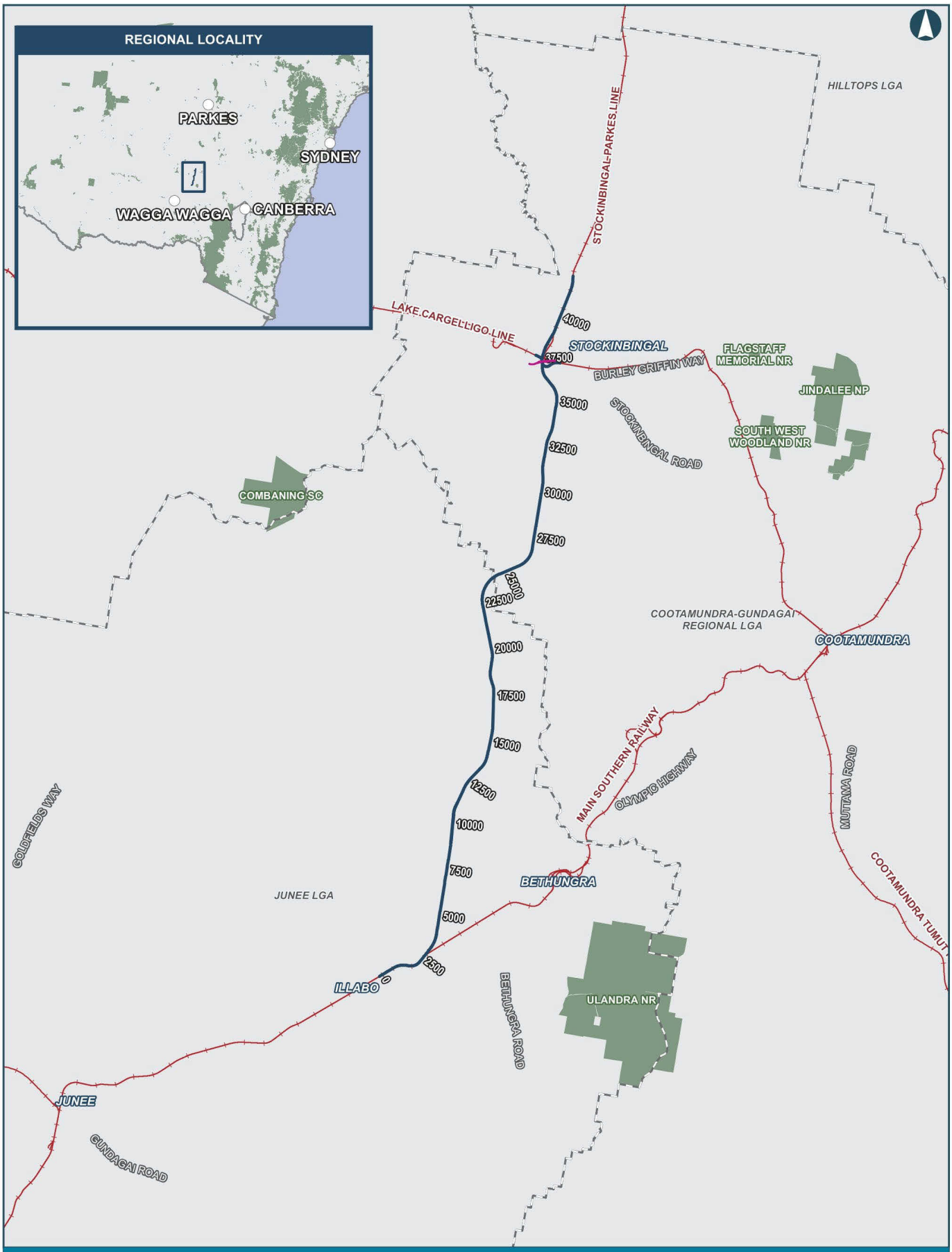
Subject to approval of the proposal, construction of the proposal is planned to start in mid-2024 and is expected to be completed mid-2026.

The proposal would form part of the rail network managed and maintained by ARTC. Train services would be provided by a variety of operators. It is estimated the Illabo to Stockinbingal section of Inland Rail would be trafficked by an average of 6 trains per day (both directions) from commencement of operations in late 2026, increasing to about 11 trains per day (both directions) in 2040.

The new rail line will be a faster, more efficient route that bypasses the Sydney rail network and will enable the use of double stacked trains (up to 6.5 metres high) along its entire length.

The trains would be diesel powered, and would be a mix of grain, intermodal (freight), and other general transport trains up to 1,800 metres in length.

The proposal is expected to be operational, as part of Inland Rail as a whole, once all 13 sections are complete, which is estimated to be in 2027. Prior to that, regional rail movements may occur on the Illabo to Stockinbingal section once complete.



ILLABO TO STOCKINBINGAL 1.1 Location of the proposal

0 2 4 6 km

Coordinate System: GDA 1994 MGA Zone 55

Date: 7/23/2021 Paper: A3

Author: IRDJV Scale: 1:200,000

Data Sources: ARTC, NSWSS, ESRI

Key features of proposal

- Key features of proposal
- 40950 Chainage (distance in metres from southern limit of the proposal)
- Burley Griffin Way realignment

Existing features

- Local Government area boundary
- Existing rail
- Parks and reserves
- Sub-arterial road
- Arterial road

INLAND RAIL ARTC

The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation (ARTC), in partnership with the private sector.

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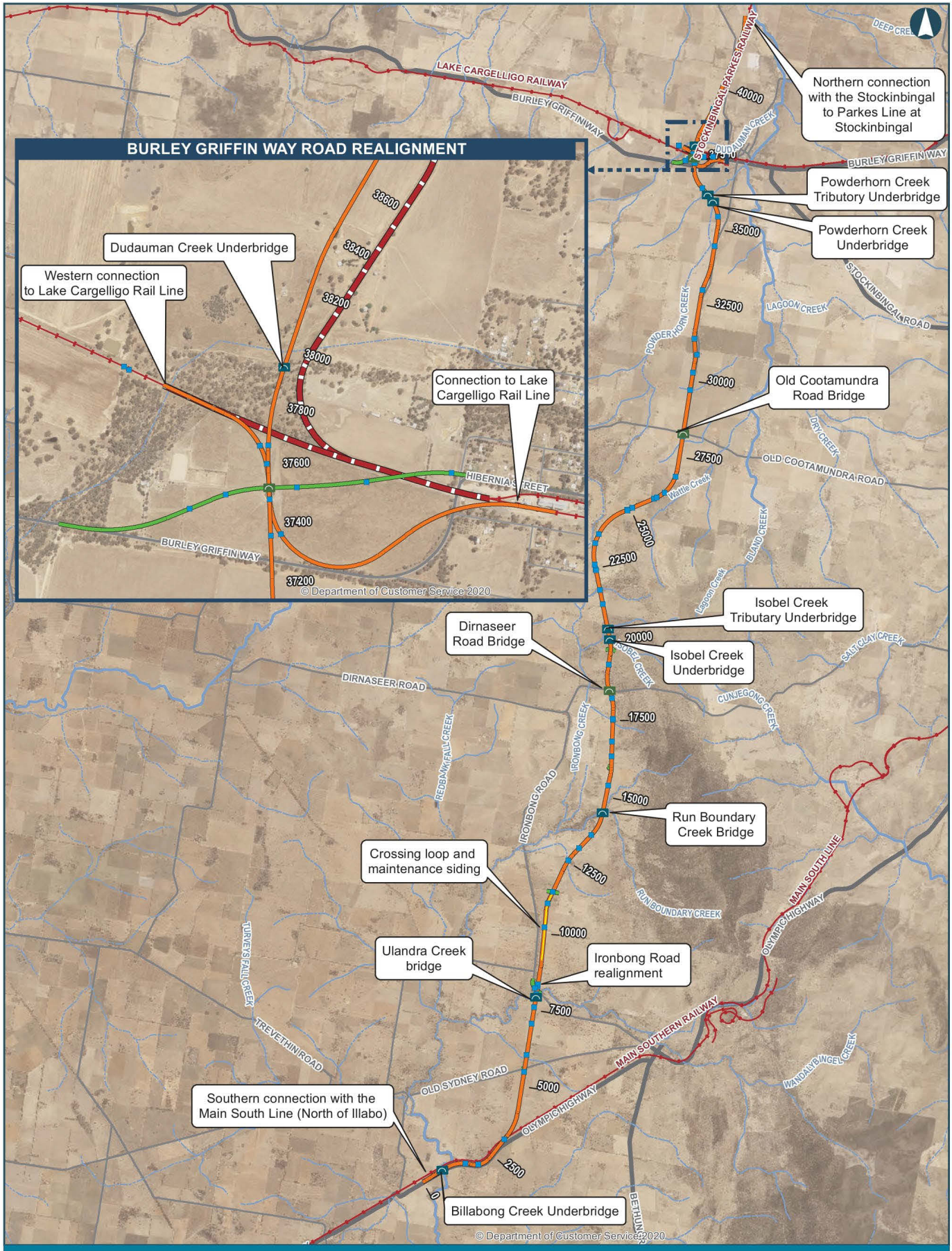

ILLABO TO STOCKINBINGAL 1.2 Key features of the proposal

0 1 2 3 km

Coordinate System: GDA 1994 MGA Zone 55

Date: 7/23/2021 Paper: A3

Author: IRDJV Scale: 1:120,000

Data Sources: ARTC, NSWSS, ESRI

Key features of proposal

- New track/track upgrade
- 40950 Chainage (distance in metres from southern limit of the proposal)
- Crossing Loop & Maintenance Siding
- Burley Griffin Way Road realignment
- Culvert
- Bridge (road crossing)
- Bridge (water crossing)

Existing features

- Sub-arterial road
- Arterial road
- Existing Rail
- Major Watercourse
- Minor Watercourse
- Redundant sections of rail to be decommissioned

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1.3 Scope and purpose of the report

This report has been prepared to specifically address the SEARs issued by the (then) NSW Department of Planning, Industry and Environment on 30 April 2021. The SEARs relevant to contamination, and references to sections where they have been addressed in the report are presented below in Table 1.1.

The SEARs relevant to contamination, and references to sections where they have been addressed in the report, are outlined in Table 1.1.

Table 1.1 Secretary's Environmental Assessment Requirements and where addressed in the report

Key issue	Requirement	Where addressed in the report
7. Soils	1 Assess whether the land is likely to be contaminated and identify if remediation of the land is required, having regard to the ecological and human health risks posed by the contamination in the context of past, existing and future land uses. Where assessment and/or remediation is required, the Proponent must document how the assessment and/or remediation would be undertaken in accordance with current guidelines.	Chapter 5 and section 6.3
	2 Assess whether salinity is likely to be an issue and if so, determine the presence, extent and severity of soil salinity within the proposal area.	Sections 4.6 and 6.2
	3 Assess the impacts of the proposal on soil salinity and how it may affect groundwater resources and hydrology.	Section 6.2 Assessment of groundwater and hydrology impacts from the proposal are assessed in Technical Paper 6 – Groundwater Impact Assessment and Technical Paper 5 – Water Quality Impact Assessment respectively.
	4 Assess the impacts on soil and land resources (including erosion risk or hazard). Particular attention must be given to soil erosion and sediment transport consistent with the practices and principles in the current guidelines.	Impacts to soil and land resources are addressed in Chapter 19 of the EIS.

2 Legislation and policy context

2.1 Legislation

2.1.1 Environment Protection and Biodiversity Conservation Act 1999

The objective of the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC* Act) is to protect and manage prescribed Matters of National Environmental Significance (MNES). Under the EPBC Act, proposed 'actions' that have the potential to significantly impact on MNES, the environment of Commonwealth land, or that are being carried out by a Federal Government agency, must be referred to the Federal Minister for the Environment for assessment.

As a result of the potential for impacts on protected matters, the proposal was referred to the (then) Australian Government Minister for the Environment in June 2018 (EPBC Referral No 2018/8233). On 6 August 2018, the (then) Australian Government Department of the Environment and Energy notified that the proposal is a controlled action, with the controlling provisions being 'listed threatened species and communities' (under section 18 & 18A of the EPBC Act).

2.1.2 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and Environmental Planning and Assessment Regulation 2021 (EP&A Regulation) establish a framework for the assessment and approval of developments in NSW. They also provide for the making of environmental planning instruments, including state environmental planning policies (SEPPs) and local environmental plans (LEPs), which determine the permissibility and approval pathway for development proposals and form a part of the environmental assessment process. In accordance with the provisions of the EP&A Act, the proposal is State Significant Infrastructure.

SSI may also be declared to be critical State significant infrastructure (CSSI) in accordance with section 5.13 of the EP&A Act, if it is of a category that, in the opinion of the NSW Minister for Planning, is essential for the State for economic, environmental or social reasons. The proposal was declared as CSSI in 2021.

Under section 5.14 of the EP&A Act, the approval of the NSW Minister for Planning is required for State significant infrastructure (including CSSI), and an EIS has been prepared under Division 5.2 of the EP&A Act.

2.1.3 Protection of The Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) provides the legislative framework for the protection and enhancement of the environment in NSW. Its primary objectives are to reduce risks to harmless levels through pollution prevention, cleaner production, application of waste management hierarchy, continual environmental improvement and environmental monitoring.

2.1.4 Contaminated Land Management Act 1997

The *Contaminated Land Management Act 1997* (CLM Act) is part of the management framework for contaminated land in NSW. The act enables the NSW Environment Protection Authority (the EPA) to respond to and manage site contamination when it considers that contamination is significant enough to require regulation. Site contamination requires regulation under the CLM Act when a site is declared "significantly contaminated land" (defined as land described in a notice having effect under Section 11 of the CLM Act) or when land is subject to a management order or an approved voluntary management proposal. Lands within the proposal site have not been declared "significantly contaminated" and are not subject to a management order.

Section 105 of the CLM Act allows the EPA to make or approve guidelines for the purposes connected with the objectives of the CLM Act.

Contaminated sites not regulated by the EPA can be managed through the planning process by the relevant planning consent authority.

2.2 State Environmental Planning Policy (Resilience and Hazards) 2021

State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP) pertains to, and aims to, promote the remediation of contaminated land. Through the development application process, planning authorities (local councils, in particular) are required to assess the contamination status of land prior to granting development consent. Resilience and Hazards SEPP lists remediation work that may be undertaken without the consent of the consent authority.

In accordance with clause 4.6 of the Resilience and Hazards SEPP, a consent authority must not consent to carrying out development on land unless it has considered whether the land is contaminated. Based on the potential for contamination from the exiting land uses the development approval needs to be able to consider if the existing information is sufficient to make planning decisions. This report has been undertaken to determine the potential for contamination and provide a recommendation on next steps in relation to contamination (if any).

2.3 National Environment Protection (Assessment of Site Contamination) Measure 1999 as Amended in 2013

The National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended in 2013 (NEPM 2013) is made under the National Environment Protection Council Act 1994 and is given effect by individual legislation and guidelines in each state and territory. The NEPM 2013 is approved by the EPA under section 105 of the CLM Act. The purpose of the measure is to establish a nationally consistent approach to the assessment of site contamination to ensure sound environmental management practices by the community, which includes regulators, site assessors, environmental auditors, landowners, developers and industry.

The objective for this measure is to provide adequate protection of human health and the environment, where site contamination has occurred, through the development of an efficient and effective national approach to the assessment of site contamination.

Under the NEPM 2013, site contamination assessment is generally carried out in stages involving progressively more detailed levels of data collection and analysis, such as preliminary site investigations, detailed site investigations and site-specific risk assessment. This contamination assessment is a preliminary site investigation (PSI), which assesses the potential for contamination to exist based on a desktop study, site walkover and review of previous reports/assessments undertaken within the proposal study area (where available).

2.4 Relevant guidelines

Other key guidelines relevant to the assessment are outlined in Table 2.1.

Table 2.1 Summary of relevant NSW and other national guidelines

Guideline	Relevance to the proposal
Acid Sulfate Soils Assessment Guidelines	The Acid Sulfate Soil Management Advisory Committee (ASSMAC) prepared the first NSW guidance on management of acid sulfate soils in 1998 (Acid Sulfate Soil Manual) and has been widely relied on for the past 20 years. The guidelines set out a stepwise process to decide whether ASS are present on site, how to mitigate potential impacts and how to prepare documentation to gain approval for works disturbing ASS. In 2018 a suite of national acid sulfate soil guidelines were prepared by the (then) Australian Government Department of Agriculture and Water Resources and represent current best practice advice for the assessment and management of acid sulfate soils these include: • national acid sulfate soils sampling and identification methods manual • national acid sulfate soils identification and laboratory methods manual • guidance for the dewatering of acid sulfate soils in shallow groundwater environments; and • overview and management of monosulfidic black ooze (MBO) accumulations in waterways and wetlands.
Guidelines for the Assessment, Remediation and Management of Asbestos – Contaminated Sites in Western Australia (WA Department of Health, 2009)	The guidelines, though not specifically approved by the NSW EPA under Section 105 of the CLM Act, provide a framework and best practice advice for the assessment, remediation and management of asbestos-contaminated sites. The guidelines are referred to in the NEPM and should be considered if the preparation of an asbestos management plan for soil is identified as being required as a result of an unexpected find during construction works.
Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (EPA, 2015)	The guidelines detail circumstances in which contamination at a site triggers the requirement to notify the NSW EPA. The guidelines are made under Section 105 of the CLM Act. The duty to report lies with landowners and those responsible for the contamination. The triggers would need to be considered if contamination is encountered within the proposal study area.
Guidelines for the NSW Site Auditor Scheme (3rd edition) (EPA, 2017)	The guidelines describe the obligations of accredited site auditors undertaking site audits in NSW. The guidelines are made under Section 105 of the CLM Act. These guidelines would need to be considered if reports are required to be prepared that may be reviewed by a site auditor (e.g. investigation report or remediation action plan). This would only occur as a result of certain unexpected find incidents and the need be determined at that time.
Other guidelines	EPA Guidelines developed under the CLM Act, including NSW EPA 2020 Contaminated Land Guidelines: Consultants Reporting on Contaminated Land. EPA Guidelines developed under the POEO Act, including NSW EPA, 2014 Waste Classification Guidelines.

3 Methodology

The contamination assessment contains an assessment of the potential presence of contamination within the proposal site based on detailed review of the proposal site's history. The assessment has been informed by a desktop review of available information and a site walkover. This assessment has been prepared with reference to the following relevant guidelines:

- *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*. NSW Office of Environment and Heritage, 2011 (OEH 2011)
- *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)*. National Environment Protection Council (NEPM, 2013).

The following section provides an overview of the methodology.

3.1 Objectives

Objectives of the assessment were to:

- assess likely past and present on-site activities for potential to have caused contamination
- document the likely associated potential chemicals of concern
- develop a conceptual site model (CSM)
- provide a preliminary assessment for potential contamination and provide recommendations for more detailed investigation and additional works (if required)
- identify need for remediation and contamination management.

The purpose of the assessment is to assess the risk of existing contamination on the proposal site. It is not intended to capture potential future risk during construction. Construction and operational risks are discussed in Chapter 25 of the EIS.

3.2 Study area

The study area is proposal site. The desktop assessment also considered a broader area to identify sites which may have the potential to result in contamination within the proposal site. The extent of the desktop assessment was generally limited to the local government areas (LGAs) relevant to the proposal site.

The findings of the desktop review would inform the scope of site walkover. Sites considered as having a potential risk for contamination were targeted for site inspection to verify the findings of the desktop assessment, in addition to general inspections of accessible areas, such as those adjoining public roadways.

3.3 Methodology

3.3.1 Desktop assessment

The following information sources were reviewed as part of the assessment:

- information relevant to soil, the vicinity of the proposal site)
- acid sulfate soil and soil salinity mapping
- NSW EPA maintained databases on regulated sites under the CLM Act and the POEO Act 1997
- ARTC records relevant to contamination
- historical aerial photography (for the years 1961, 1969, 1978, 1991, 2007 and 2019 to 2021).

3.3.2 Site walkover

A site walkover of the proposal site was completed to identify any areas of concern and verify the findings from the desktop assessment. The site inspection comprised visual appraisal of accessible public roadways and land and accessible private properties.

The site walkover was completed on 19 and 20 February 2019 by an experienced environmental scientist. Findings of the site walkover are presented in section 4.10. It is noted that a site walkover was not completed following changes to the proposal site which occurred after 2019. Following review of these changes, and the scope of the original site walkover it was confirmed that the changes to the proposal site were unlikely to affect findings from the 2019 site walkover and areas impacted by the proposal broadly remained the same.

3.3.3 Risk assessment

The findings of the desktop assessment and site walkover were used to identify risk through development of the CSM. The CSM sought to present the potential contaminants of concern, likely receptors that could potentially be impacted, and plausible pathways for exposure to occur (i.e. source, pathway, receptor linkages).

A qualitative risk matrix was used to categorise a rating for the identified risks. The risk assessment matrix is provided in Table 3.1. To identify the risk consequences, the chance of these complete pathways occurring (likelihood) was compared with the level of harm (consequence) this would cause (including potential health or ecological impact).

Table 3.1 Risk assessment matrix

		Likelihood		
Consequence		**Unlikely**	**Possible**	**Likely**
	Minor	Low	Low	Medium
	Moderate	Low	Medium	High
	Significant	Medium	High	High

The level of risk identified was defined as follows:

- Low Risk – based on review of the source, pathway receptor linkages, the Areas of Environmental Concern (AEC) is not anticipated to pose unacceptable risk to human health or the environment.
- Medium risk – based on review of the source, pathway receptor linkages, the AEC has the potential to pose unacceptable risk to human health or the environment.
- High risk – based on review of the source, pathway receptor linkages, the AEC is considered likely to pose unacceptable risk to human health or the environment.

Unacceptable risk to human health or the environment would include potential concentrations of contaminants of concern that exceed the recommended threshold from relevant guidelines appropriate to the site condition.

4 Existing environment

The following section provides a summary of the existing environment and historical review of the proposal site. The locations of key features are referenced to the chainages for the proposal, which are shown on Figure 1.2.

4.1 Proposal location and identification

Details of the location, zoning and current use of the proposal site are provided in Table 4.1 below (refer to Figure 1.1).

Table 4.1 Proposal site identification

Aspect	Information
Proposal site length	Approximately 42.5km
Current use	Rural land, rail line, roadways
Zoning	The Cootamundra Local Environmental Plan (LEP) 2013, Gundagai LEP 2011 and Junee 2012 LEP indicated the proposal is subject to two land zones, RU1–primary production across the majority of the proposal site and SP2 – infrastructure in the area near to Stockinbingal (chainage 37150 to 37950).
Proposed end use	Railway line, roads and associated infrastructure

4.2 Surrounding land uses

Based on a review of aerial imagery and observations during the site walkover, the study area is located within broadacre agricultural land, which comprises farm houses and agricultural paddocks. The proposal site also intersects a number of roads.

The proposal site also encompasses existing rail lines and the Stockinbingal Railway Station. The surrounding township of Stockinbingal is mainly made up of residential properties however also includes other development, including commercial buildings, a school and sporting areas.

4.3 Topography and hydrology

The township of Stockinbingal has an elevation of 295 metres Australian Height Datum (mAHD) and the south end of the proposal site near Illabo has an elevation of 280mAHD. The majority of the proposal site is located in areas of flat to gently undulating topography. The middle section of the proposal site, between chainage 22,000 and 27,000, passes through areas of steeper slopes, with elevations of between 400 and 480mAHD.

The proposal site intersects a number of creeks, named creeks intersected by the proposal include:

- Billabong Creek
- Ulandra Creek
- Run Boundary Creek
- Isobel Creek (and tributary)
- Powder Horn Creek(and tributary)
- Dudauman Creek.

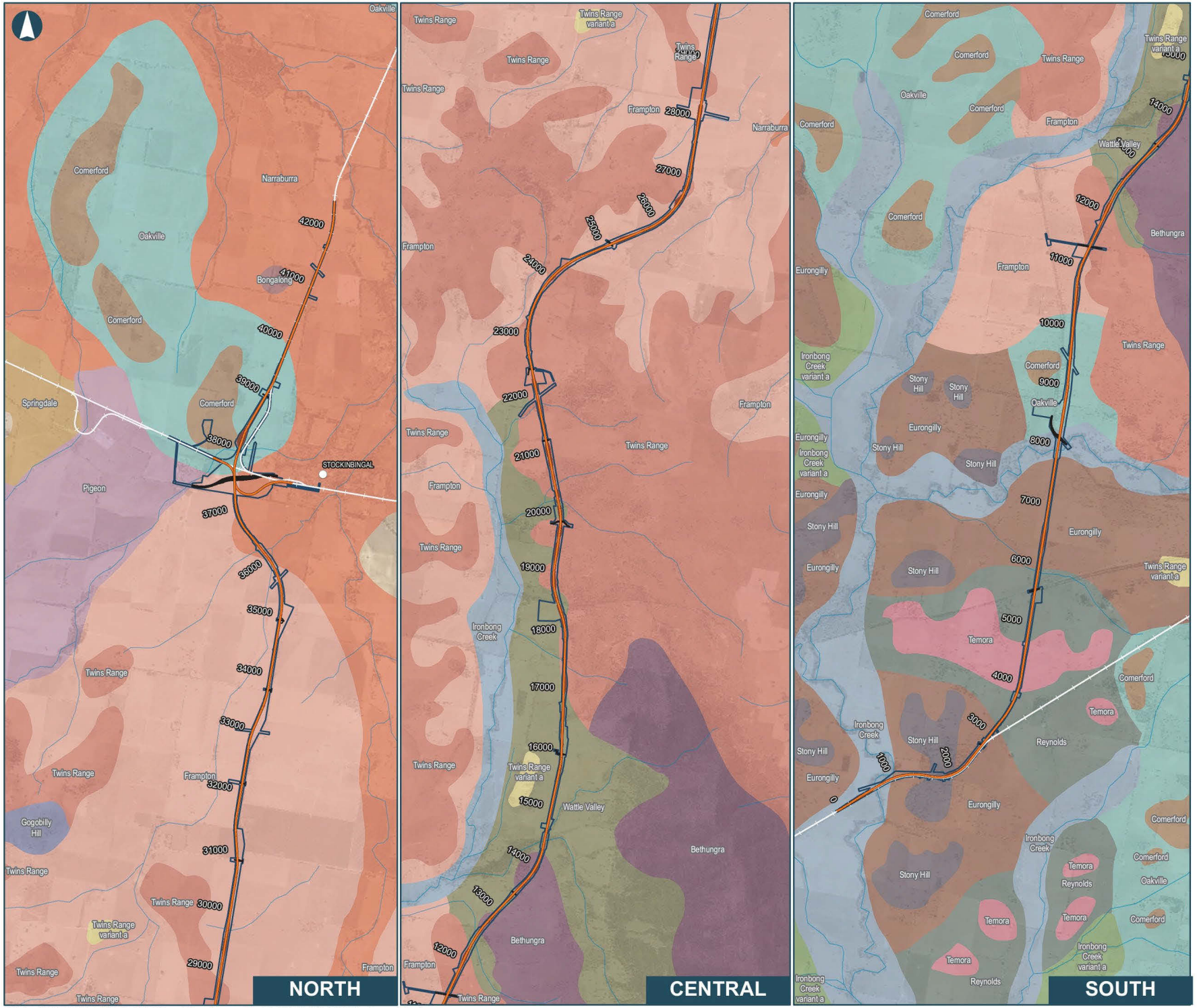
The proposal site also intersects a number of unnamed creeks or ephemeral drainage lines. Approximately 14 dams are also located adjacent to, or intersect with, the proposal site.

Further discussion of hydrology is provided in Technical Paper 4 – Hydrology and flooding impact assessment.

4.4 Soils and geology

Based on the 1:250,000 Cootamundra Geological Sheet SI/55-1 (Department of Mineral Resources,1995), the majority of the proposal site is underlain by material from the Ordovician Period (485.4 million years ago to 443.8 million years ago). Stockinbingal and its surrounds are underlain by alluvium, including gravel, sand, silt and clay. The alignment also crosses through a large area of Frampton Volcanics and Yeo Yeo Rhyodacite, which includes rhyolite, rhyodacite, dacite, quartz – feldspar sandstones, siltstone, conglomerate, numerous rhyolitic and rhyodacritic dykes, limestone, rhyodacite, ash flow tuff and rare sedimentary lenses. As the proposal site continues south near to Bethungra, it crosses areas of colluvium and eluvium, as well as pockets of Junawarra Volcanics, which includes andesite, andesitic agglomerate, latite, sedimentary rocks and minor dacite/Junawarra volcanics largely obscured by alluvium.

A summary of the soils along the alignment are shown on Figure 4.1.



INLAND RAIL ARTC

The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation (ARTC), in partnership with the private sector.

ILLABO TO STOCKINBINGAL

Figure 4.1 Soil Landscapes

- New track/track upgrades
- Proposal site
- Road realignment
- Earthworks
- Existing Rail
- Watercourse

Soil Landscape

- Bethungra
- Bongalong
- Comerford
- Eurongilly
- Frampton
- Gogobilly Hill
- Ironbong Creek
- Ironbong Creek variant a
- Narraburra
- Oakville
- Pigeon
- Reynolds
- Springdale
- Stony Hill
- Temora
- Twins Range
- Twins Range variant a
- Wattle Valley

0 1.5 3 Km

Coordinate System: GDA 1994 MGA Zone 55

Date: 8/23/2021 Paper: A3
Author: IRDJV Scale: 1:60,000
Data Sources: IRDJV, ARTC, LPI

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Soil types are usually defined by the underlying geology, the topography and the age of the soil, generally the soils fall into three landscape categories:

- erosional landscapes: generally on topographically elevated locations where soils form from colluvium eroded from the surrounding outcropping geology
- alluvial landscapes: where soils are derived from alluvial deposits; and
- transitional landscapes: generally present mid-slope with soils formed from combination of colluvial and alluvial deposits.

The typical soil landscapes encountered on the proposal site are summarised in Table 4.2.

Table 4.2 Summary of dominant soil types on the proposal site

Soil landscape	General location	Underlying geology	Soil features	Primary chainage occurrence	Limitations
Stoney Hill	Isolated portions of the Southern half of the proposal site	Silurian sedimentary rocks	Generally shallow (<50 centimetres (cm)) deep gravelly tenosols and rudosols (young soils with limited profiled development) some deeper red kandosols and dermosols.	2,500 – 3,000	• Shallow, rocky soils • Localised erosion hazard • Localised salinity hazard-Low fertility.
Eurongilly	Much of the Southern portion of the proposal site	Quaternary colluvium	Generally deep (>100cm) clay dominated soils including imperfectly drained red and brown chromosols, kurosols and dermosols. Some poorly drained sodosols on lower slopes and drainage lines.	2,000 – 3,500 5,700 – 7,500	• Sheet erosion hazard • Localised gully erosion • Localised salinity hazard • Poor drainage • Localised acidity • Localised sodicity and dispersive soils • Low fertility.
Ironbong Creek	Isolated sections of the southern portion of the proposal site	Quaternary alluvium	Moderately deep (>50cm) brown imperfectly drained chromosols and red Kandosols, and mottled brown sodosols on flood plains. Young kandosols and rudosols are present along creek lines.	500 – 2,000 7,500 – 8,000	• Seasonal waterlogging • Sheet erosion • Localised gully erosion • Poor drainage • Localised flood hazard • Localised topsoil acidity.
Oakville	Central portion of the proposal site	Quaternary colluvium	Deep red and brown chromosols on upper slopes and red and brown sodosols on lower slopes and depressions.	8,000 – 10,000 37,500 – 40,500	• Sheet erosion • Localised gully erosion • Poor drainage • Localised topsoil acidity • Localised salinity hazard • Low fertility.

Soil landscape	General location	Underlying geology	Soil features	Primary chainage occurrence	Limitations
Twin Range	Central portion of the proposal site	Hills and plateau formed on Silurian volcanics	Shallow (<25cm) to deep (>100cm) tenosols and chromosols on crests, deep red chromosols and kandosols and dermosols on slopes and brown clay dominated sodosols and sandy tenosols on lower slopes and flats.	11,500 – 12,500 17,000 – 25000 26,500 – 27,000 28,500 – 29,000	• Localised salinity hazard • Rock outcropping • Sheet erosion hazard • Localised poor drainage • Acidity • Dispersive subsoils.
Frampton	Northern portion of the proposal site	Quaternary colluvium derived from Silurian volcanics	Shallow (<50cm) sandy tenosols on upper slopes, imperfectly drained red chromosols, dermosols and kandosols on mid slopes and poorly drained brown chromosols in drainage depressions.	10,000 – 11,500 25,000 – 26,500 27,000 – 28,500 29,000 – 36,000 36,500 – 37,500	• Soil erosion hazard • Topsoil acidity • Hard setting surfaces.
Narraburra	Far north of the site	Quaternary alluvium	Deep (>100cm) sandy rudosols and poorly drained clayey sodosols along creek floodplains and depressions. Deep red chromosols and kurosols, brown dermosols on adjacent levees and plains and occasional red vertosols on back plains.	36,000 – 36,500 40,500 – 42,500	• Poor drainage • Sheet erosion hazard • Localised flood hazard • Localised salinity hazard • Seasonal waterlogging • Shrink/swell.

Notes:

Rudosol: Young soils with negligible pedological development. They usually exist on hill crests and are often stoney and well drained.

Kandosol: Generally relatively young soils which lack strong texture contrast between the surface and depth, they often have massive or only weakly structured subsoils and are not calcareous throughout.

Chromosol: Soils with strong texture contrast between topsoil (A horizons) and subsoil (B horizons). The subsoil is not strongly acid and the soils are not sodic.

Kurosol: Soils with strong texture contrast between the topsoil and subsoil, and in which the subsoil is strongly acidic (pH < 5.5).

Sodosol: Soils with strong texture contrast between topsoil and subsoil horizons, in which the subsoil is sodic (exchangeable sodium percentage >6), but not strongly acid.

Dermosol: Non calcareous soils with a structured subsoil but lacking a strong texture contrast between topsoil and subsoil. The texture grades from lighter textured topsoil to the heavier textured subsoil.

4.5 Acidity

Acidity of the soil and rock may be generated by acid sulfate soils, naturally acidic soils, and from sulfidic rock.

4.5.1 Acid sulfate soils

ASS are those that have elevated levels of Reduced Inorganic Sulfur (RIS). Typically, ASS exists as either:

- Actual Acid Sulfate Soils (AASS): Where the oxidation of the RIS has led to significant acidification of the soils; or
- Potential Acid Sulfate Soils (PASS): Where the soils have not yet been oxidised, but have the potential to become acidic if allowed to oxidise.

Some ASS has sufficient presence and availability of naturally occurring carbonates that the acid generated by the oxidation of the RIS does not affect the soil pH. These are essentially self-buffering soils.

A review of the Australian Soil Resource Information System Acid Sulfate Risk map identified that the proposal site is located within an area described as low probability of acid sulfate soil. Nevertheless, it is possible that some localised inland acid sulfate soils may be present in dams or other inundated areas where sulfides may be laid down in sediments over time.

4.5.2 Naturally acidic soils

Naturally acidic soils should not be confused with AASS. These soils are acidic, but not due to RIS oxidation. They may be acidic as a result of natural acidity inherent in the parent rock, due to organic acids being present in the soil or thought agricultural practices (fertiliser use).

A review of pH ranges from soil landscape reports accessed via the NSW Government eSPADE Portal (www.environment.nsw.gov.au/eSpade2WebApp) for three predominant soil types (Frampton, Twins Range and Eurongilly) within the proposal site was undertaken. Typical pH ranges from surface level to approximately 1.0m deep within the soil profile for each soil type in the are as follows:

- Frampton – Profile 1; 7.0–9.5pH. Profile 2; 6.5–7.5pH. Profile 3; 7.0–6.5pH
- Twins Range – Profile 1; 6.0–7.0pH. Profile 2; 7.5–8.5pH. Profile 3; 5.5pH
- Eurongilly – Profile 1; 5.0–7.0pH. Profile 2; 7.0–8.0pH. Profile 3; 8.5–9.0pH.

These pH ranges indicate soils are generally neutral to alkaline, with some instances of weak acidity. The acidity, where present, is unlikely to worsen significantly with time.

4.5.3 Sulfidic rock

Sulfidic rock is closely related to ASS in that minerals within the rock matrix have a high concentration of RIS (e.g. pyrite). When exposed to the air these rocks may become acidic affecting surrounding soils and local waterways and built structures in contact with the rock.

Sulfidic rock can occur across a wide range of geologies, both igneous and sedimentary, they are not necessarily acidic in their undisturbed state. Site specific testing to assess for the presence of potential acidity should be undertaken where cuttings into underlying bedrock are planned.

4.6 Salinity

Soil types within the study area are known to have localised salinity hazards. Salinity hazard is complex and relates to the soil type, the landscape features, local hydrology and also the development on the land.

The NSW Office of Environment and Heritage, Soil and Land Information System contains data points in the local area identifying evidence of soil salinity where soils have been sampled previously. A review of this database indicated that generally no surface salt was evident at sample locations in the vicinity of the proposal site (within 1km). This indicates that the likelihood of salt scalds at the surface is low, but salinisation remains a potential hazard on the site, and could develop in localised areas as a result of the proposed development if not managed. Management of salinity would be required in accordance with *Soil and Landscape Issues in Environmental Impact Assessment* (DLWC, 2000).

4.7 Hydrogeology

A review of the Department of Primary Industries, Registered Groundwater Bore Database indicated that there were 21 registered bores close to the proposal site. These bores are mainly registered for stock and monitoring purposes. Details of groundwater bores are summarised in Table 4.3. Groundwater bore information is provided in the work summary reports included in Appendix B. Further information on hydrogeology is provided in Technical Paper 6 – Groundwater Impact Assessment.

Table 4.3 Registered groundwater bores

Bore ID	Approximate location	Purpose	Total depth (m)	Standing water level (m)
GW057522	Approx. 1km east of chainage 39,150	Stock	105.10	67
GW050284	Approx.1km west of chainage 32,550	Stock, Domestic	99.10	73.20
GW014259	Approx.1km west of chainage 30,150	Stock	56.10	48.20
GW021174	Approx.1km west of chainage 29,550	Stock, Domestic	71.50	–
GW044890	Approx.1km west of chainage 29,550	Stock	82.30	–
GW028569	Approx.500m east of chainage 26,550	Not known	22.90	0.9
GW040747	Near to chainage 26,550	Monitoring Bore	8.3	–
GW040746	Approx.500m east of chainage 26,550	Monitoring Bore	5.25	–
GW040736	Approx.500m east of chainage 26,550	Monitoring Bore	12.6	–
GW036748	Approx.500m east of chainage 26,550	Monitoring Bore, Groundwater Exploration	52.00	–
GW040735	Approx.500m east of chainage 26,550	Monitoring Bore	14	–
GW040733	Approx.500m east of chainage 26,550	Monitoring Bore	10.75	–
GW036867	Approx.500m east of chainage 24,500	Monitoring Bore	70.00	24.5
GW036900	Approx.500m east of chainage 24,500	Monitoring Bore	35.00	9.00
GW036754	Approx.500m east of chainage 24,500	Groundwater Exploration	52.00	6.7
GW040732	Approx.500m west of chainage 24,500	Monitoring Bore	11.00	–
GW028570	Approx.500m east of chainage 21,900	Stock	45.70	12.20
GW028471	Approx.500m west of chainage 21,000	Not known	44.80	9.50
GW007156	Approx.500m west of chainage 19,450	Horticulture	23.30	23.20
GW028532	Approx.500m east of chainage 18,250	Stock, Domestic	48.80	8.20
GW045873	Approx.500m east of chainage 11,650	Stock, Domestic	9.10	–

4.8 Historical aerial photographs

Historical aerial photographs taken in 1961, 1978, 1991, 2007, and current aerial photograph 2019–2021 which capture the proposal site were reviewed, and a summary of the observed land use changes relevant to potentially contaminating development or activities for the proposal site and its surroundings are presented in Table 4.4 to Table 4.13.

Table 4.4 Review of historical aerials (Chainage 0-2,950)

Photograph dated	Land uses within the proposal site	Surroundings
1961	The rail line has been constructed and the proposal site follows the Main South Line from chainage 0–1,300, 2,600 to 2,900. The Olympic highway also follows the proposal site through those chainages. Billabong Creek crosses the proposal site at chainage 750. The remaining proposal site is predominantly occupied by rural land between these chainages.	Parts of the south-eastern portion of the proposal site is occupied by the railway line. Billabong Creek continues to flow south and north of the proposal site. A small water body is identified west of the proposal site at chainage 2,800. Remaining land to the north, south, east and west is has predominantly been developed for agricultural use, including cropping and grazing.
1978	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
1991	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
2007	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
2019–2021	Land use remains unchanged.	The surrounding land uses remain largely unchanged.

Table 4.5 Review of historical aerials (Chainage 2,950-8,000)

Photograph dated	Land uses within the proposal site	Surroundings
1961	Old Sydney Road is present at chainage 5,550. Ulandra Creek crosses the proposal site at chainage 7,950. Two dams are adjacent to the west of the proposal site at chainage 7650 and 5,650. An unnamed creek or drainage line crossed the proposal area at chainage approximately 5,450 and 5,950. The remaining land in the proposal site has predominantly been developed for agricultural use, including cropping and grazing.	Land to the north, south, east and west has predominantly been developed for agricultural use, including cropping and grazing.
1978	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
1991	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
2007	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
2019–2021	Land use remains unchanged.	The surrounding land uses remain largely unchanged.

Table 4.6 Review of historical aerials (Chainage 8,000-12,100)

Photograph dated	Land uses within the proposal site	Surroundings
1961	The proposal site runs parallel to unpaved Ironbong Road which is unpaved from chainage 8,150 to 10,050. Eulomo Settlement Road crosses the proposal site at chainage 8,750. The proposal site crosses an unnamed creek at chainage 9,900 and 10,200. A residential building is directly east of the proposal site at chainage 8,400. Two dams are adjacent to the proposal site, one directly east of the proposal site at chainage 10,200 and one directly west at chainage 10,600. The remaining proposal site is predominantly occupied by land developed for agricultural use, including cropping and grazing.	Land to the north, south, east and west has predominantly been developed for agricultural use, including cropping and grazing.
1978	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
1991	The proposal site remains the same except a single-story residential building has been constructed at chainage 9350.	The surrounding land uses remain largely unchanged.
2007	Land use remains unchanged.	The surrounding land uses remain largely unchanged
2019–2021	Land use remains unchanged.	The surrounding land uses remain largely unchanged.

Table 4.7 Review of historical aerials (Chainage 12,100-17,050)

Photograph dated	Land uses within the proposal site	Surroundings
1961	The proposal site cuts across cleared paddocks. The proposal site crosses unnamed creeks at chainage 12,400, 13,050, 13,650,15,950 and 16,300. Run Boundary Creek crosses the proposal site at chainage 14,500. There is a dam approximately 500m to the west of the proposal site at chainage 16,800.	Land to the north, south, east and west has predominantly been developed for agricultural use, including cropping and grazing.
1978	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
1991	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
2007	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
2019–2021	Land use remains unchanged.	The surrounding land uses remain largely unchanged.

Table 4.8 Review of historical aerials (Chainage 17,050-23,200)

Photograph dated	Land uses within the proposal site	Surroundings
1961	The proposal site crosses unpaved Dirnaseer Road at chainage 18,500. The proposal site crosses an unnamed creek at chainage 18,200, 19,350, 20,400, 21,800 and 22,400. The proposal site crosses Ironbong Creek at chainage 20,150.	Land to the north, south, east and west has predominantly been developed for agricultural use, including cropping and grazing. There is a building to the west of the proposal site at chainage 19,600. There are dams to the west of the proposal site at chainage 19,250, 20,550 and 21,300.
1978	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
1991	Land use remains unchanged.	Dirnaseer Road is now a paved/sealed road. A dam is located to the west of the proposal site at chainage 22,600. A building is located 200m east of the proposal site at chainage 22,150.
2007	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
2019-2021	Land use remains unchanged.	The surrounding land uses remain largely unchanged.

Table 4.9 Review of historical aerials (Chainage 23,200-28,050)

Photograph dated	Land uses within the proposal site	Surroundings
1961	The proposal site is occupied by rural land. The proposal site crosses unnamed creeks at chainage 23,200 and 23,700. The proposal site crosses unnamed creeks at chainage 23,200, 23,700 25,800, 26,000 and 26,100.	Land to the north, south, east and west has predominantly been developed for agricultural use, including cropping and grazing. A dam is located 500m east of the proposal site at chainage 23,100 and 600m to the west at chainage 24,000. Two dams are to the north of the proposal at chainage 25,750 and two dams are to the west of the proposal site at chainage 27,450 and 27,650.
1978	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
1991	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
2007	The proposal site crosses through a dam at chainage 23,300.	A dam is located to the east of the proposal site at chainage 23,700. Three dams are located south of the proposal site at chainages between 25,300 and 25,550.
2019-2021	Land use remains unchanged.	The surrounding land uses remain largely unchanged.

Table 4.10 Review of historical aerials (Chainage 27,950-33,050)

Photograph dated	Land uses within the proposal site	Surroundings
1961	The proposal site predominately runs parallel to a Dudauman Road between chainage 283,00 to 30,900 and intersects Old Cootamundra Road at chainage 28,300. The proposal site crosses an unnamed creek at chainage 28,150 and 29,750. A dam is adjacent to the proposal site at chainage 29,700.	Land to the north, south, east and west has predominantly been developed for agricultural use, including cropping and grazing. Dams are east of the proposal site at chainage 29,850 and 31,550, there is a dam to the west of the proposal site at chainage 33,050.
1978	Land use remains unchanged.	Dudauman and Old Temora Roads appear to now be sealed. A bend in Dudauman Road has been softened between chainage points 31,150 and 31,500.
1991	The proposal site intersects a dam at chainage 29700	A dam is located to the east of the proposal site at chainage 29,900.
2007	Land use remains unchanged.	A dam is located to the east of the proposal site at chainage 28,250.
2019-2021	Land use remains unchanged.	The surrounding land uses remain largely unchanged.

Table 4.11 Review of historical aerials (Chainage 32,950 – 38,050)

Photograph dated	Land uses within the proposal site	Surroundings
1961	The proposal site runs parallel to an unsealed Dudauman Road between chainages 32,950 to 35,250, where the proposal site heads in a north-westerly direction away from the road. Corbies Lane is present at chainage 33,750. The proposal site crosses Powder Horn Creek at chainage 35,950 and 36,250 and Dudauman Creek at chainage 37,950. The proposal site crosses Burley Griffin way at chainage 37,250 and then the proposal site crosses the existing railway line at chainage 37,700.	Land to the north, south, east and has predominantly been developed for agricultural use, including cropping and grazing. A dam is located to the west of the proposal site at chainage 33,000. There are dams to the east and west of the proposal area at chainage 35,000. A dam is to the east of the proposal site at chainage 35,700 and a dam is to the west of the proposal site at 37,500.
1978	Land use remains unchanged.	A dam is located to the west of the proposal site near chainage 33,850.
1991	Land use remains unchanged.	Several buildings are located to the east of the proposal site near chainage 37,850.
2007	Land use remains unchanged.	A dam is located to the east of the proposal site at chainage 33,000.
2019-2021	Land use remains unchanged.	The surrounding land uses remain largely unchanged.

Table 4.12 Review of historical aerials (Surrounding area of Chainage 37,000 – 38,500)

Photograph dated	Land uses within the proposal site	Surroundings
1961	The proposal site crosses Burley Griffin Way at chainage 37,250 and then the proposal site crosses the existing railway line at chainage 37,750.	To the west of the proposal site there has predominantly been developed for agricultural use, including cropping and grazing. The Burley Griffin Way continues west. The existing railway line continues north west. To the east of the proposal site there is the Stockinbingal railway station and a number of residential properties There is also some agricultural land to the south and west of the railway station.
1978	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
1991	Land use remains unchanged.	Increased number of residential properties since 1978.
2007	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
2019-2021	Land use remains unchanged.	The surrounding land uses remain largely unchanged.

Table 4.13 Review of historical aerials (Chainage 37,900-42,450)

Photograph dated	Land uses within the proposal site	Surroundings
1969	The proposal site follows the same line as the existing railway line from chainage points 39,150 to the end of the proposal site. The proposal site intersects Grogan Road at chainage point 40,850 and an unnamed road at 41,650. The proposal site extends east along the railway line to Dudauman Street and includes a small portion of Dudauman Street at chainage 37,750. The proposal site crosses Dudauman Creek at chainage 37,950.	Land to the north, south, east and west has predominantly been developed for agricultural use, including cropping and grazing. Dams are located either side of the proposal site at chainage 38,450, 39,550, 40,250, 40,800 and 42,300. Buildings are either side of the proposal site and the existing railway line at chainage 38,200, 38,350, 40,650 and 41,750.
1978	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
1991	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
2007	Land use remains unchanged.	The surrounding land uses remain largely unchanged.
2019-2021	Land use remains unchanged.	The surrounding land uses remain largely unchanged.

4.9 Records of contamination

A search of the NSW EPA, Contaminated Land Record Database indicated that there are no contaminated sites listed within a 1km radius of the proposal site.

A review of the NSW EPA, POEO Act Public Register, indicated that there are no properties within a 1km radius of the proposal site which hold environment protection licences. Some sites were listed from nearby suburbs but all were greater than 1km away and are not expected to impact the proposal site. The results of the searches are included in Appendix C.

A search ARTC contamination records did not identify any areas relevant to the proposal.

4.10 Site walkover

The following section details findings of the site walkover, this section was reviewed to reflect changes to the proposal site. A photographic log of the site walkover is included in Appendix D.

The majority of the proposal site is located within agricultural land, with no obvious signs of contamination observed (Photograph 8 and Photograph 9 of Appendix D are typical of the observed landscape).

The proposal site also follows the existing railway line, at the northern and southern ends of the proposal site and at the centre of Stockinbingal. which poses a potential risk of contamination. Photograph 1 and Photograph 16, shows two examples of the existing railway line at chainage 41,650 and 2,050 respectively.

A number of dams were observed to be adjacent to or be intersected by the proposal site (e.g. Photograph 4). Raised dam walls were identified at a number of locations which could indicate some filling but are more likely to be constructed using natural materials excavated from the dam and surrounding area. The alignment corridor crosses many sealed and unsealed roads (Photograph 12, 13 and 14), no obvious signs of contamination were noted at these road crossings during the site inspection.

There were a few sites along the proposal site with the potential for contamination to occur. Stockpiles of waste were observed at various locations along the proposal site, particularly where the proposal followed existing roads, comprising of demolition materials (Photograph 2).

The following potential areas of concern were identified across the proposal site:

- Close to chainage 37,500 (Photograph 3 and 6), there were three grain silos that are adjacent to the rail line. These sites would have a higher density of heavy vehicle movements at times in the year and potential for some historical vehicle maintenance and of refuelling or other to have occurred.
- Opposite Stockinbingal station, some broken machinery was observed to have been dumped. These broken parts also included large fragments of potentially asbestos containing materials (Photograph 7).
- The Bethungra Rural Fire Service shed was identified at chainage 8,900 (Photograph 10). The facility included a shed of a size suitable for one vehicle and one water tank at the rear of the shed.
- At chainage 9,800, a number of plastic agricultural unbunded empty chemical drums (herbicides) were observed around a water tank. The area appeared to be used for filling of spray rigs. There was a locked shed with ventilation and ‘chemical storage’ signage, located nearby.
- A fox baiting sign (Photograph 15) was observed on a fence of a property at Old Sydney Road, near to chainage 5,500. Baiting using Fox 1080 is a common control method.

4.11 NSW Rural Fire Service

The Bethungra Rural Fire Service shed is located approximately 120m west of the proposal site at the approximate chainage location 8900.

NSW Rural Fire Service (NSW RFS) provided information regarding the historical use of the Bethungra Rural Fire Service Shed in August 2021, a summary is provided as follows:

- the shed was constructed and occupied in 2011
- the site is within the road reserve and had no prior use
- the shed houses one vehicle (an NSW RFS truck) and does not include a toilet or kitchen
- site storage is limited equipment associated with the NSW RFS truck (e.g. portable pumps)
- low quantities of torch fuel (a mix of diesel and petrol) are stored in the shed
- fuel for portable pumps is currently stored on site; and
- there is no documented history of per- and poly-fluoroalkyl substances (PFAS) being stored or used at the site.

The Cootamundra Road and Troy Street RFS facilities are not located in proximity to the proposal site.

5 Preliminary conceptual site model

Based on the site walkover and desktop review of the proposal site setting and historical land use information, a preliminary CSM has been prepared for the proposal site to provide a summary of how and where potential contaminants across the proposal site are expected to move and what impacts such movement may have.

It is noted this CSM has been developed without investigative data to support assertions made from desktop searches and site inspections. Further investigation prior to the commencement of works and during the construction program may be required to refine the CSM.

The CSM is summarised in the following sections.

5.1 Areas of potential environmental concern

A number of AECs were identified in during the site inspection and are summarised in Table 5.1 below and presented in Figure 2 Appendix A.

Table 5.1 Summary of identified areas of potential environmental concern

AEC number	Coordinates	Material description
AEC 1	E: 147.875252 S: -34.500005	Three grain silos adjacent to the railway line.
AEC 2	E: 147.876396 S: 34.500507	Disused broken machinery and parts, potential asbestos containing material.
AEC 3	E: 147.813394 S: 34.732379	Four grain silos and machinery associated with these silos including tractors and multi-feeders within a private property.
AEC 4	E: 147.812546 S: 34.736752	Bethungra Rural Fire Brigade service shed with associated fire suppressants and one water tank.
AEC 5	E: 147.813635254 S: 34.728806	A locked chemical storage shed and drums containing pesticides. Drums were identified to contain herbicides.
AEC 6	E: 147.812892 S: 34.764652	Fox Baits.
AEC 7	E: 147.877868 S: 34.474969	Stockpile of waste including wood and rubble.
AEC 8	E: 147.880984 S: 34.467658	The Main South Line (railway line).
AEC 9	E: 147.864371 S: 34.497375	Crossing the Main South Line (railway line).
AEC 10	E: 147.875171 S: 34.480497	The Forbes line (railway line north of Stockinbingal).

5.2 Potential sources of contamination

A summary of potential sources of contamination and associated potential contaminations of concern identified within the proposal site is provided in Table 5.2.

Table 5.2 Summary of potential contamination sources/contaminants of concern

Activity along proposal site	Contaminant source	Potential contaminants of concern
Roadway and nearby commercial/industrial sites.	Dumped material and stockpiles adjacent to the proposal site, particularly at road crossings. (AEC 7)	Heavy metals (copper, lead zinc, cadmium, chromium, nickel, arsenic and mercury), asbestos, PAHs.
	Rural fire sheds and fire suppressants. (AEC 4)	TRH, BTEXN, PAHs and PFAS.
	Miscellaneous building structures.	Heavy metals, PAHs asbestos, lead containing dust, soil and/or paint.
Agricultural land adjacent to the proposal site	Use of agricultural chemicals on farm land. (AEC 5)	Heavy metals, OCPs and OPPs.
	Machinery storage and maintenance, refuelling and spray rig filling, agricultural sheds and silos. These generally considered point sources. (Identified AECs 2 and 3)	heavy metals, TRH, BTEXN, solvents, OCPs and OPPs, and asbestos.
	Fauna baits, particularly fox baits. (AEC 6)	Heavy metals, sodium fluoroacetate.
Existing railway line	Fill used in construction of the original rail line, possible historical waste disposal along the alignment and weed suppression activities (sections of the alignment between chainage 0 and 3000, and 39000 and 42500). These may be point sources (isolated hotspots) or diffuse sources.	Heavy metals, TRH, BTEXN, PAHs, asbestos along the existing rail easement, lead containing dust and/or paint.
	Old broken railway machines left near to Stockinbingal station. (AEC 2 and 3)	Heavy metals, TRH, BTEXN, PAHs, asbestos, lead containing dust and soil and/or paint.
	Rail line ballast.	Heavy metals, TRH, BTEXN, PAHs, asbestos, lead containing dust and/or paint.
	Possible maintenance activities in sidings and near silos. (Identified as AECs 1 and 3)	Heavy metals, TRH, BTEXN, PAHs, asbestos, lead containing dust and/or paint.

Notes – total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCP) and organophosphate pesticides (OPP).

5.3 Potential affected media

Based on the potential sources of contamination outlined in Table 5.2, soil is the primary potentially affected media. This is applicable to all identified potential sources and contaminants. Generally, soil contamination risks are considered low across the proposal site, however discreet areas of moderate risk have been identified within the AECs in Table 5.1.

Contamination may have the potential to have migrated to the groundwater, including hydrocarbons and metals. This would be particularly relevant if significant soil impacts are identified during construction, contamination is present in unsealed areas and areas which cross waterways. However, given known potential sources of contamination are discreet and attributed to surface sources, the migration of contamination to groundwater is considered low risk.

5.4 Potential receptors

Potential human receptors identified within the proposal site include:

- future construction workers or maintenance workers
- future users of the railway
- current and future rural and residential users of adjacent land.

Potential ecological receptors identified within the proposal site include:

- underlying soil and groundwater
- aquatic ecosystems.

5.5 Potential exposure pathways

Based on the potential contaminants and receptors identified, the following potential exposure pathways exist:

- direct contact with or ingestion of impacted surface or near surface soils by construction workers during the rail construction or maintenance workers following construction
- inhalation of dust, vapour or fibres by construction workers during the rail construction or maintenance workers following construction
- inhalation of dust, vapour or fibres by users of the rail or of adjacent land
- ingestion of or dermal contact with impacted groundwater if extracted for beneficial use by nearby site users; and
- migration of impact into the groundwater or surface water bodies.

The application of this risk matrix with regards to identified AECs and potential source, pathway, receptor linkages is discussed further in Chapter 3 and presented in detail in Table 6.1.

6 Risk assessment

The following section provides an assessment of potential risks associated with the physical environment around the proposal site (such as acid sulfate soils and salinity) as well as potential contamination sources, pathways and receptors. The impact assessment considers potential risks during construction and operation of the proposal.

6.1 Acidity

As discussed in section 4.5, there is potential for acidity across the proposal site (including sulfate soils, acid soils and sulfidic rock).

The proposal site is located within an area described as low probability of acid sulfate soil, and no impacts are anticipated. Furthermore, occurrences of acid soils are not anticipated. The soils along the route are likely to generally be alkaline or slightly acidic and as such are unlikely to be a significant limitation. The risk of encountering sulfidic rock is uncertain and should be assessed in areas where cutting into the underlying bedrock is proposed.

6.2 Salinity

The desktop review of soil types across the proposal site indicates that a number of local soil types have potential salinity hazard associated with them. Whether salinity is exacerbated by the proposal will depend on many factors including the underlying soils, the local topographical features and draining, and the construction design.

The most likely scenarios leading to an increase in salinity presence at the surface would be excavation of salt affected soil from deeper horizons and placing it at the surface, and disruption of existing drainage patterns allowing salts to be brought to the surface in seeps. Soil disruption associated with excavations or cuttings into the landscape for the proposed rail line, footings, construction compounds, bridges or levelling purposes are potential activities that could cause either of these pathways for increased salinity risk to occur.

6.3 Contamination

As outlined above, a number of potentially contaminating activities have been identified along and in the vicinity of the proposal site providing potential contamination risks. A qualitative risk assessment of the source, pathway receptor linkages for the identified AEC is provided in Table 3.1. This risk matrix allows for simple identification of the direct receptors of the contaminating activities and whether or not in this scenario they will result in unacceptable risk to human health or the environment.

Table 6.1 AEC and source pathway receptor risk ratings

Activity along proposal site	Contaminant source	Potential contaminants of concern	Pathway	Receptors	Likelihood and consequence rating (refer to chapter 3)	Assessed risk	Recommended actions
Roadway and general use	Dumped material and stockpiles adjacent to the proposal site, particularly at road crossings. (AEC 7)	Heavy metals, asbestos, PAHs	• Direct contact through inadvertent ingestion, or dermal absorption of soils • Inhalation of impacted soils/dust/fibres.	• Future workers on the proposal site.	Likelihood – Possible Consequence – Moderate	Medium – uncontrolled and potentially contaminated dumped fill, stockpiles or rubbish poses risks to workers during excavation.	• Targeted soil investigation where visual indicators of dumping • Waste classification and potential removal of dumped material/stockpiles if unsuitable to remain on site.
	Rural fire sheds and fire suppressants. (AEC 4)	TRH, BTEX, PAHs and PFAS	• Direct contact through ingestion, or dermal absorption or soils • Migration from overland flow into surface water bodies • Migration through leaching into groundwater.	• Future workers on the proposal site • Current and future residents • Terrestrial and aquatic ecology (flora and fauna) within/adjacent to creeks or waterways • Groundwater.	Likelihood – Unlikely Consequence – Low	Low – PFAS would typically be the main concern but communications from RFS indicate no record of their storage on this site. Minor risk related to storage of fuels.	• No immediate action.
	Fauna baits, particularly fox baits. (AEC 6)	Heavy metals, sodium fluoroacetate	• Direct contact through inadvertent ingestion, or dermal absorption.	• Future workers on the proposal site.	Likelihood – Possible Consequence - Minor	Low – Likely to have been intentionally placed by current landowners and isolated/sporadic in nature. Negligible impacts to soil or groundwater anticipated.	• Manage on site during construction works where encountered.

Activity along proposal site	Contaminant source	Potential contaminants of concern	Pathway	Receptors	Likelihood and consequence rating (refer to chapter 3)	Assessed risk	Recommended actions
Agricultural land adjacent to the proposal site	Use of agricultural chemicals on farm land. (AEC 5)	Heavy metals, OCPs and OPPs	• Direct contact through inadvertent ingestion, or dermal absorption of soils • Inhalation of impacted soils/dust/vapour spray.	• Future workers on the proposal site.	Likelihood – Possible Consequence – Minor	Low – unlikely to be present in significant quantities in soil within the proposal site.	• No immediate actions recommended • Review chemical usage on adjacent properties during construction phase to determine any possible airborne (vapour spray) risk to workers.
	Machinery storage and maintenance, refuelling and spray rig filling, agricultural sheds and silos. (Identified AECs 2 and 3)	Point sources of heavy metals, TRH, BTEX, solvents, OCPs and OPPs, and asbestos fragments.	• Direct contact through inadvertent ingestion, or dermal absorption of soils • Inhalation of impacted soils/dust/vapour spray • Migration through leaching into groundwater.	• Future workers on the proposal site • Current and future residents • Groundwater.	Likelihood – Possible Consequence – Moderate	Medium – long term machinery storage or maintenance may be a continued source of impact to soils and groundwater if permeated through soil profile.	• Targeted soil investigation • Waste classification and potential removal of dumped material/stockpiles if unsuitable to remain on site.

Activity along proposal site	Contaminant source	Potential contaminants of concern	Pathway	Receptors	Likelihood and consequence rating (refer to chapter 3)	Assessed risk	Recommended actions
Existing railway line	Fill used in construction of the original rail line, possible historical waste disposal along the alignment and weed suppression activities (sections of the alignment between chainage 0 and 3000, and 39000 and 42500).	Diffuse presence or isolated hotspots of Heavy metals, TRH, BTEX, PAHs, asbestos along the existing rail easement, lead containing dust and/or paint.	• Direct contact through inadvertent ingestion, or dermal absorption of soils • Inhalation of impacted soils/dust/fibres.	• Future workers on the proposal site.	Likelihood – Possible Consequence – Minor	Low – significant unsolicited waste disposal along the alignment is unlikely.	• Targeted soil investigation where visual indicators of dumping • Waste classification and potential removal of dumped material/stockpiles if unsuitable to remain on site.
	Old broken railway machines left near to Stockinbingal station. (AEC 2 and 3)	Heavy metals, TRH, BTEX, PAHs, asbestos, lead containing dust and/or paint.	• Direct contact through inadvertent ingestion, or dermal absorption of impacted soils • Inhalation of impacted soils/dust/fibres • Migration through leaching into groundwater.	• Future workers on the proposal site • Current and future residents • Groundwater.	Likelihood – Possible Consequence – Minor	Low –storage areas may present an isolated source of impact to soils.	• Targeted soil investigation if visual signs of contamination during construction works • Waste classification and potential removal of dumped material/stockpiles if unsuitable to remain on site.

Activity along proposal site	Contaminant source	Potential contaminants of concern	Pathway	Receptors	Likelihood and consequence rating (refer to chapter 3)	Assessed risk	Recommended actions
	Rail line ballast.	Heavy metals, TRH, BTEX, PAHs, asbestos, lead containing dust and/or paint.	• Direct contact through inadvertent ingestion, or dermal absorption of soils • Inhalation of impacted soils/dust/fibres.	• Future workers on the proposal site.	Likelihood – Possible Consequence – Minor	Low – potentially contain isolated spills or metals dust from trains. Ballast is typically an inert metamorphosed basalt or granite and not considered a contaminant source in of itself.	• No immediate actions recommended • Note any new evidence of former contaminating activities or operations adjacent to the existing rail line which may have impacted upon ballast.
	Possible maintenance activities in sidings and near silos. (identified as AECs 1 and 3)	Heavy metals, TRH, BTEX, PAHs, asbestos, lead containing dust and/or paint.	• Direct contact through inadvertent ingestion, or dermal absorption of soils • Inhalation of impacted soils/dust/fibres • Migration through leaching into groundwater.	• Future workers on the proposal site • Current and future residents • Groundwater.	Likelihood – Possible Consequence – Minor	Low – possible maintenance areas may present an isolated source of impact to soils.	• Targeted soil investigation if visual signs of contamination during construction works • Waste classification and potential removal of dumped material/stockpiles if unsuitable to remain on site.

6.4 Summary

The following points summarise the key risks to receptors identified in Table 6.1:

- The potential for direct contact exposure by construction workers or future maintenance workers is considered to be a low risk, with exception of the following medium risks, where workers may be exposed to soils associated with:
  - dumped materials and stockpiles along the proposal alignment
  - fire sheds
  - machine storage and maintenance areas.

  Further targeted investigation around these areas prior to bulk earthworks will clarify the contamination status and potential risk to workers.
- With regards to flora and fauna ecology (including grazing stock), the exposure risk from all AECs is considered to be low.
- Based on the AECs, the potential for significant impacts to surface water and groundwater is generally considered to be low.
- With regards to future operation of the proposal, there is likely to be similarities between identified contaminating activities associated with the current rail line. There is presumed to still be the requirement for maintenance yards, storage and staging areas for rail equipment, infrastructure, ballast, workshops etc and excess soil and material stockpiles left over from the construction phase. While this may be the case, modern day construction practices and environmental management tend to improve environmental awareness and prevent unacceptable or inadvertent contamination over the long term.

Given the assumed degree of environmental control and management anticipated to be imposed over the course of the proposal's operation, the proposal is not expected to present a significant increase in contamination risk.

6.5 Remediation

The risk of contamination across the proposal site is considered to be generally low, with discreet areas of medium risk identified. Based on the extent of the AECs identified, if contamination is confirmed to be present, it is unlikely to be identified at significant concentrations in soil and groundwater which would necessitate remediation for future use as a railway line except in the case of asbestos. Where asbestos is identified it would require removal by an appropriately licenced asbestos removalist.

However, further targeted investigation would clarify contamination risks and inform decisions around management measures. Targeted investigations are recommended for AECs 1, 2, 3, 4, 7 and filled portions of the original rail alignment where proposed works will involve excavation into the fill to inform reuse suitability or disposal options for the fill. A program of testing of dumped stockpiles along the alignment is recommended prior to works commencing so these materials can be appropriately classified for disposal. If the materials contain asbestos then reuse is prohibited and the material should be classified for disposal following the protocols provided in the NSW EPA 2014 *Waste Classification Guidelines*. Otherwise, if reuse of the material is practicable and desirable then the material may be assessed for its suitability for beneficial reuse in accordance with the NSW EPA, 2020 *The Australian Rail Track Corporation Excavated Material Order 2020.*

7 Mitigation and management measures

7.1 Approach to mitigation and management

Environmental management for the proposal would be carried out in accordance with the approach detailed in Chapter 27 (Approach to environmental management and mitigation) of the EIS.

This would include a contamination sub-plan, prepared as part of the Construction Environmental Management Plan (CEMP) and an operational environmental management framework (EMF).

7.2 Summary of mitigation measures

The mitigation measures to manage impacts to contamination from the proposal during detailed design / pre-construction, construction and operation phases are outlined in Table 7.1.

Table 7.1 Proposal-specific mitigation measures for contamination

Issue/impact	Mitigation and management measure	Project phase
Structural integrity	Detailed design would include engineering measures to minimise operational risks from dispersive, saline and/or low strength soils, particularly through foundation and batter design.	Detailed design/ pre-construction
Contamination	Hazardous materials surveys would be undertaken during detailed design for all proposed demolition activities.	Detailed design/ pre-construction
Contamination (waste)	Any hazardous or dangerous waste (for example asbestos, chemicals, oils) would be correctly stored and managed onsite, and if necessary, disposed of by a licensed contractor or facility and in accordance with the relevant State occupation health and safety legislative and regulatory obligations. This includes wastes generated as a result of demolition.	Detailed design/ pre-construction
Contamination (investigations)	Site investigations would be undertaken by a suitably qualified and experience consultant as defined in Schedule B9 of the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPC, 2013) to assess exposure risks to site workers and other receptors as a result of disturbances to the following areas considered to be at a medium to low risk of being contaminated: • AEC 2 – disused broken machinery and parts, potential asbestos containing material • AEC 3 – four grain silos and machinery associated with these silos including tractors and multi-feeders within a private property. • AEC 5 – a locked chemical storage shed and drums containing pesticides • AEC 6 – fox baits • AEC 7 – stockpile of waste including wood and rubble • AEC 8 – the Main South Line (railway line) • AEC 9 – crossing the Main South Line (railway line) • AEC 10 – The Forbes Line (railway line north of Stockinbingal). The results of the site investigations would be assessed against the criteria contained within the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPC, 2013) to determine the need for any remediation.	Detailed design/ pre-construction
Erosion and sedimentation control	Where practical, vegetation clearing and ground disturbing works should be staged sequentially/across the project to minimise areas exposed to erosion and sediment risk.	Detailed design/ pre-construction

Issue/impact	Mitigation and management measure	Project phase
General soil and erosion management	A soil and water management plan (SWMP) would be prepared as part of the CEMP. The SWMP would comply with the conditions of approval and be in accordance with best practice, reflected in *Managing Urban Stormwater: Soils and construction – Volume 1* (Landcom, 2004), *Volume 2C Unsealed roads* (DECC, 2008a) and *Volume 2D, Main Road Construction* (DECC, 2008b) (collectively known as the Blue Book). The SWMP would include: • water quality and soil/land conservation objectives for the proposal • a progressive erosion and sediment control plan that allows for staging and site-specific erosion and sediment controls at all work sites in accordance with the Blue Book. Physical controls may include sediment fences and basins, containment bunds, silt traps, turbidity barriers and diversions, dust suppression and earth compaction around stockpiles and earthworks areas. The controls would aim to: • divert water from upslope areas around the site • reduce erosion from within the site • intercept runoff and capture sediment from site • protect watercourses, drainage lines and drain inlets down-gradient from the site. The plan would identify: • monitoring locations at discharge points and selected watercourses where works are being undertaken, monitoring parameters and frequency and duration of monitoring.	Construction
Contamination management	A contaminated land and hazardous materials management plan would be prepared and implemented as part of the CEMP. The plan would include, but not be limited to: • further investigations during detailed design would be required to characterise contamination at registered or otherwise identified contaminated sites. Results would be used to further inform CEMP requirements • a methodology to manage excavation and spoil management with known contaminated sites • capture and management of any surface runoff contaminated by exposure to the contaminated land • measures to ensure the safety of site personnel, environment and local communities during construction • procedures for incident management and managing unexpected contamination finds (an unexpected finds protocol).	Construction
Rehabilitation (local roads)	Where decommissioning or realignment of local roads is required, the CEMP would include decommissioning and rehabilitation requirements, as per relevant conditions of approval and road authority requirements. This would include measures to manage: • milling and removal of bitumen pavement • removal of any decommissioned culverts • tying and ripping of base and sub-base material • application of soil ameliorants • topsoiling and/or compost blanket • stabilisation and rehabilitation (for example planting and or seeding).	Construction
Soil erosion and sedimentation	During any maintenance work where soils are exposed, sediment and erosion control devices would be installed in accordance with *Managing Urban Stormwater: Soils and Construction, Volume 1* (Landcom, 2004).	Operation
Contamination	ARTC's existing spill response procedures would be reviewed to determine applicability and suitability during operation. The adopted procedure would include measures to minimise the potential for impacts on the local community and the environment as a result of any leaks and spills.	Operation

7.3 Residual impacts

The management of any residual impacts is considered in Chapter 27 (Approach to environmental management and mitigation) of the EIS for both the construction and operation phase.

8 Conclusions

The IRDJV was commissioned by ARTC to complete a contamination assessment as part of the Illabo to Stockinbingal section of Inland Rail ('the proposal'), which consists of 42.5km of single track standard gauge railway.

The proposal site comprises:

- a portion of existing Main Line north of the village of Stockinbingal
- predominantly agricultural properties south of Stockinbingal
- a portion of existing Main South Line north of the village of Illabo, adjacent to the Olympic Highway.

The contamination assessment identified a number of AECs and potential contamination sources including:

- unknown fill and stockpiling of waste across sections of the proposal site to construct existing nearby roads and rail infrastructure
- agricultural use of land adjacent to the proposal site, presenting a low risk of diffuse agricultural chemical residues and moderate potential for isolated hotspots where machinery maintenance or chemical storage and transfer activities occurred
- use of the railway line, and in particular areas where historical maintenance may have occurred, predominantly around sidings and stations
- various building structures presenting a potential risk of the presence of hazardous and/or contaminated material
- waste dumping, particularly in locations near existing roads, road crossings, or potentially in infilled gully's or dams that may be discovered during the works.

Potential contaminants of concern relating to the above contamination sources include (but are not limited to) total recoverable hydrocarbon (TRH), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), organochlorine pesticides (OCPs), organophosphate pesticides (OPPs), polychlorinated biphenyl (PCBs, volatile organic compounds (VOCs), Per- and Poly-fluoroalkyl Substances (PFAS) and potential asbestos containing material (ACM).

The key risks to receptors identified:

- The potential for direct contact exposure by construction workers or future maintenance workers is considered to be a low risk, with exception of the following medium risks, where workers may be exposed to soils associated with:
  - dumped materials and stockpiles along the proposal alignment
  - firefighting shed and associated chemicals
  - machine storage and maintenance areas.

  Further targeted investigation around these areas prior to bulk earthworks will clarify the contamination status and potential risk to workers.
- With regards to flora and fauna ecology (including grazing stock), the exposure risk from all AEC is considered to be low.
- Based on the AECs, the potential for significant impacts to surface water and groundwater is generally considered to be low.

In the context of the proposal these identified risks are considered of be of low to medium risk as, if present, the contamination is likely to be localised and manageable through the implementation of mitigation during construction. However, further pre-work targeted investigations of various areas of concern should be conducted to confirm and clarify this risk rating. Depending on the nature of the material there may be opportunities for reuse through assessment and management in accordance with the NSW EDPA 2020 *ARTC Excavated Material Order 2020.*

In addition some regional soils have localised potential salinity hazard associated with them. The actual hazard will depend on site specific features including the soil properties, local topography and hydrology, and the proposed construction can also have an effect. The risks should be managed during the development through preparing and adopting a salinity management plan. Prior to the plan being prepared soil testing along the alignment should be conducted.

Though acid sulfate soils and acid soils are unlikely to be a significant concern on the proposal, the potential for underlying rock to be sulfidic cannot be ruled out. It is recommended that a geologist should advise on the potential for the works to intercept sulfidic rock and advice should be sought on any mitigation required so that future structures are not compromised by acid generation, or the local environment degraded. Sulfidic rock if encountered would not be suitable for reuse in the alignment or for disposal as VENM.

9 References

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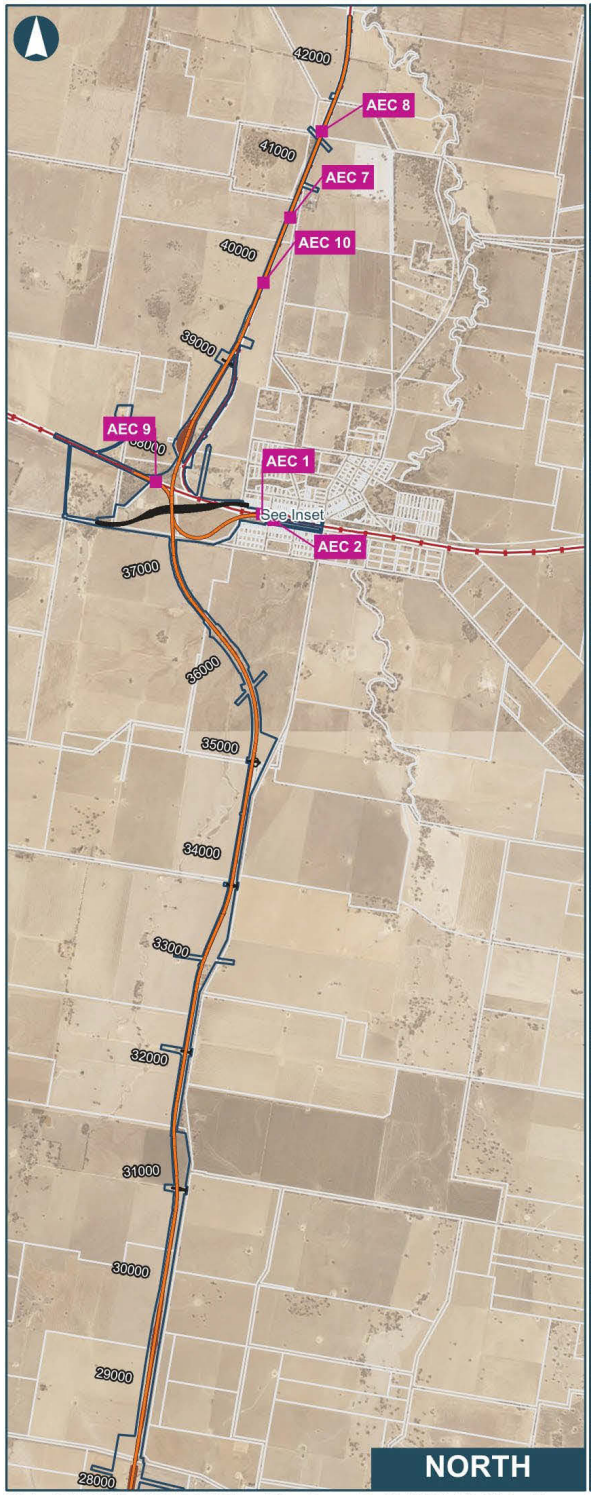
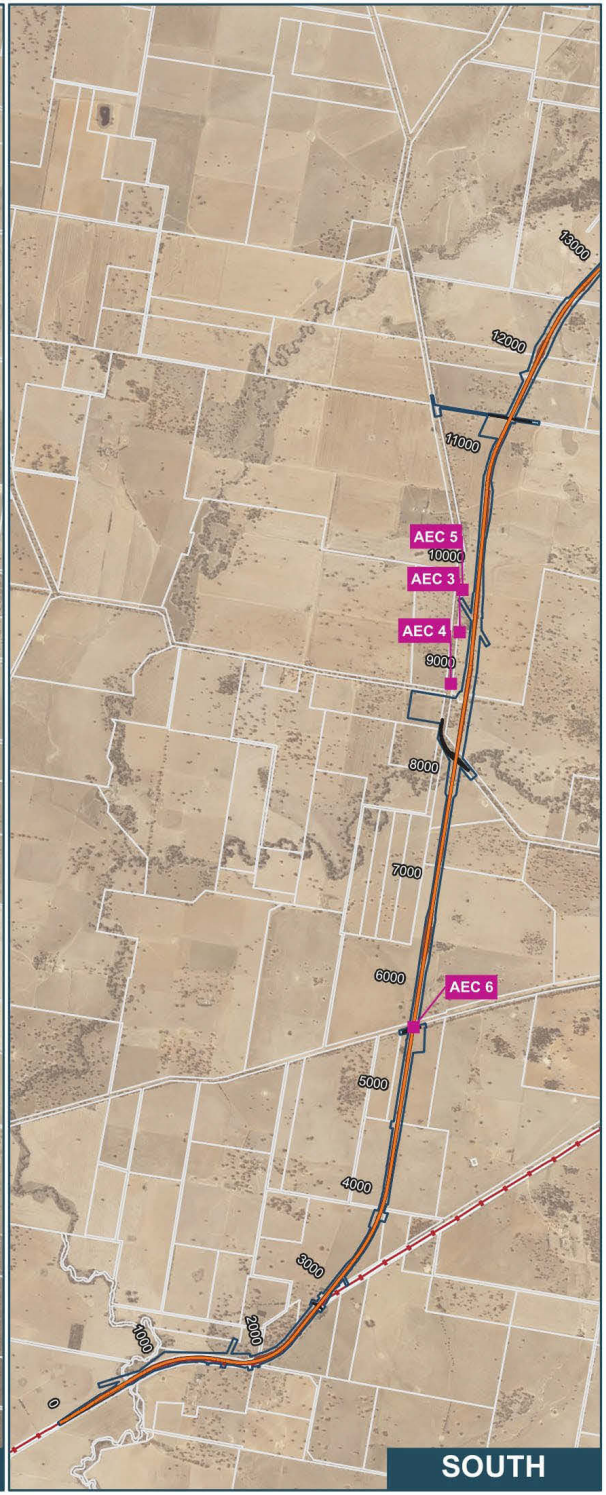
Contaminated Land Assessment

Appendix A Areas of environmental concern

ILLABO TO STOCKINBINGAL ENVIRONMENTAL IMPACT STATEMENT





INLAND RAIL ARTC

The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation (ARTC), in partnership with the private sector.

ILLABO TO STOCKINBINGAL

Figure 2 Areas of Concern

- Located Contaminants
- New track/track upgrades
- Road realignment
- Earthworks
- Proposal site
- Existing Rail
- Cadastre

0 1 2 3 Km

Coordinate System: GDA 1994 MGA Zone 55

Date: 8/20/2021 Paper: A3
Author: IRDJV Scale: 1:50,000
Data Sources: IRDJV, ARTC, LPI

G:\Projects\PS108286_I2S\Tasks\220_0115_ENV_EISReport100Percent\Documents\Specialists\CLM\220_0115_CLM_AreasOfConcern_r1v3.mxd

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Contaminated Land Assessment

Appendix B Groundwater bores

ILLABO TO STOCKINBINGAL ENVIRONMENTAL IMPACT STATEMENT

WaterNSW
Work Summary

GW014259

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): STOCK

Work Type: Bore
Work Status:
Construct.Method: Cable Tool
Owner Type: Private

Commenced Date:
Completion Date: 01/01/1954
Final Depth: 56.10 m
Drilled Depth:

Contractor Name: (None)
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BLAND	STOCKINBINGAL	273
Licensed:			

Region: 70 - Lachlan
River Basin: 412 - LACHLAN RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6176146.000
Easting: 578172.000
Latitude: 34°33'12.4"S
Longitude: 147°51'07.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Threaded Steel	-0.50	56.00	127			Seated on Bottom

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
50.00	50.00	0.00	(Unknown)	48.20		0.76			

***** End of GW014259 *****

WaterNSW
Work Summary

GW021174

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore open thru rock
Work Status:
Construct.Method: Cable Tool
Owner Type: Private

Commenced Date:
Completion Date: 01/06/1965
Final Depth: 71.50 m
Drilled Depth: 71.50 m

Contractor Name: (None)
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description: 1001-3000 ppm
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BLAND	DUDAUMAN	2
Licensed:			

Region: 70 - Lachlan
River Basin: 412 - LACHLAN RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6175162.000
Easting: 578011.000
Latitude: 34°33'44.4"S
Longitude: 147°51'01.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Threaded Steel	-0.50	69.00	152			Suspended in Clamps

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
69.50	70.10	0.60	Fractured			0.63			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.52	1.52	Topsoil	Topsoil	
1.52	12.50	10.98	Clay Stoney Sticky	Clay	
12.50	53.34	40.84	Clay Stoney	Clay	
53.34	60.96	7.62	Clay Gravel	Clay	
60.96	68.58	7.62	Clay	Clay	
68.58	70.41	1.83	Slate Water Supply	Slate	
70.41	71.48	1.07	Granite	Granite	

***** End of GW021174 *****

WaterNSW
Work Summary

GW028471

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): NOT KNOWN

Work Type: Bore
Work Status:
Construct.Method:
Owner Type: Private

Commenced Date:
Completion Date: 01/01/1945
Final Depth: 44.80 m
Drilled Depth:

Contractor Name: (None)
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CLARENDON	BUTE	3
Licensed:			

Region: 40 - Murrumbidgee
River Basin: 410 - MURRUMBIDGEE RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6167634.000
Easting: 575732.000
Latitude: 34°37'49.4"S
Longitude: 147°49'34.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Threaded Steel	-0.90	-0.90	152			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
27.40	27.50	0.10	(Unknown)	9.50					

***** End of GW028471 *****

WaterNSW
Work Summary

GW028532

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore open thru rock
Work Status:
Construct.Method: Rotary
Owner Type: Private

Commenced Date:
Completion Date: 01/03/1968
Final Depth: 48.80 m
Drilled Depth: 48.80 m

Contractor Name: (None)
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description: Fresh
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CLARENDON	BUTE	107
Licensed:			

Region: 40 - Murrumbidgee
River Basin: 410 - MURRUMBIDGEE RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6164335.000
Easting: 575960.000
Latitude: 34°39'36.4"S
Longitude: 147°49'44.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Threaded Steel	0.40	20.80	152			Driven into Hole

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
45.70	48.70	3.00	Fractured	8.20		1.90			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.52	1.52	Topsoil	Topsoil	
1.52	15.24	13.72	Clay Multicoloured	Clay	
15.24	18.29	3.05	Clay Broken	Clay	
18.29	48.77	30.48	Granite Broken Water Supply	Granite	

***** End of GW028532 *****

WaterNSW
Work Summary

GW028569

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): NOT KNOWN

Work Type: Bore open thru rock
Work Status: Needs Reconditioning
Construct.Method: Rotary
Owner Type: Private

Commenced Date:
Completion Date:
Final Depth: 22.90 m
Drilled Depth: 22.90 m

Contractor Name: (None)
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description: Brackish
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BLAND	DUDAUMAN	167
Licensed:			

Region: 70 - Lachlan
River Basin: 412 - LACHLAN RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6171518.000
Easting: 579050.000
Latitude: 34°35'42.4"S
Longitude: 147°51'43.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Threaded Steel	-0.60	12.20	152			Driven into Hole

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
15.50	19.80	4.30	Fractured	0.90		7.58			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.52	1.52	Topsoil	Topsoil	
1.52	9.14	7.62	Clay	Clay	
9.14	12.19	3.05	Schist Decomposed	Schist	
12.19	13.11	0.92	Schist	Schist	
13.11	15.24	2.13	Sand	Sand	
15.24	22.86	7.62	Schist Water Supply	Schist	

Remarks

12/06/1981: Changed from 21m to 22.86m on 10/09/65 R/C-ORIGINAL DETAILS UNKNOWN

***** End of GW028569 *****

WaterNSW
Work Summary

GW028570

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): STOCK

Work Type: Bore open thru rock
Work Status:
Construct.Method: Rotary
Owner Type: Private

Commenced Date:
Completion Date:
Final Depth: 45.70 m
Drilled Depth: 45.70 m

Contractor Name: (None)
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description: Brackish
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CLARENDON	BUTE	30
Licensed:			

Region: 40 - Murrumbidgee
River Basin: 410 - MURRUMBIDGEE RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6169357.000
Easting: 575975.000
Latitude: 34°36'53.4"S
Longitude: 147°49'43.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Threaded Steel	-0.60	12.50	152			Driven into Hole

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
18.30	42.70	24.40	Fractured	12.20		1.90			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.91	0.91	Topsoil	Topsoil	
0.91	13.72	12.81	Clay	Clay	
13.72	16.76	3.04	Schist	Schist	
16.76	17.68	0.92	Sandstone	Sandstone	
17.68	45.72	28.04	Schist Water Supply	Schist	

***** End of GW028570 *****

WaterNSW
Work Summary

GW036748

Licence: **Licence Status:**

Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE, G/WATER XPLORE

Work Type: Bore
Work Status: Manual Observations,6-12 Months
Construct.Method: Rotary
Owner Type: NSW Office of Water

Commenced Date: 01/11/1987
Completion Date: 01/12/1987
Final Depth: 52.00 m
Drilled Depth: 52.00 m

Contractor Name: DWR - GROUNDWATER DRILLING
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BLAND	DUDAUMAN	22
Licensed:			

Region: 70 - Lachlan
River Basin: 412 - LACHLAN RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6171429.000
Easting: 578616.000
Latitude: 34°35'45.4"S
Longitude: 147°51'26.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	P.V.C.	-1.00	5.00	100			Seated on Bottom
1	1	Opening	Slots	2.50	5.00	100		1	Mechanically Slotted, A: 3.00mm
2	2	Casing	Steel	-0.20	1.60	203			
2	2	Opening	Other	1.60	52.50			2	

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.50	0.50	Topsoil	Topsoil	
0.50	1.50	1.00	Boulders	Boulders	
1.50	30.00	28.50	Basalt Fractured	Basalt	
30.00	52.00	22.00	Basalt Some Bands	Basalt	

Remarks

08/05/1990: DRYLAND SALINITY CONTROL
08/05/1990: HOLE 1-5M CAS NO 1 SCN NO 1
08/05/1990: HOLE 2-52M CAS NO 3

***** End of GW036748 *****

WaterNSW
Work Summary

GW036754

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): G/WATER XPLORE

Work Type: Bore
Work Status: Test Hole
Construct.Method: Rotary Air
Owner Type: NSW Office of Water

Commenced Date: 01/11/1987
Completion Date: 01/02/1988
Final Depth: 52.00 m
Drilled Depth: 55.00 m

Contractor Name: DWR - GROUNDWATER DRILLING
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BLAND	DUDAUMAN	185
Licensed:			

Region: 70 - Lachlan
River Basin: 412 - LACHLAN RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6170548.000
Easting: 577182.000
Latitude: 34°36'14.4"S
Longitude: 147°50'30.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Backfill	Backfill	52.00	55.00				
1	1	Casing	P.V.C.	-1.00	52.00	100			Seated on Bottom
1	1	Opening	Slots	29.00	50.00	100		1	A: 3.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
3.00	3.00	0.00	Unconsolidated						
15.00	15.00	0.00	Unconsolidated						
33.00	40.00	7.00	Fractured	6.70		1.00			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	Topsoil	Topsoil	
1.00	6.00	5.00	Clay Soakage	Clay	
6.00	12.00	6.00	Clay Sandy	Clay	

12.00	18.00	6.00	Clay Grey Sandy Soakage	Clay	
18.00	23.00	5.00	Clay Grey Some	Clay	
23.00	33.00	10.00	Porphyry Weathered	Porphyry	
33.00	40.00	7.00	Basalt Fractured Water Supply	Basalt	
40.00	55.00	15.00	Basalt	Basalt	

Remarks

08/05/1990: DRYLAND SALINITY CONTROL

***** End of GW036754 *****

WaterNSW
Work Summary

GW036867

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Rotary Air
Owner Type: Other Govt

Commenced Date: 25/02/1991
Completion Date: 27/02/1991
Final Depth: 70.00 m
Drilled Depth: 70.00 m

Contractor Name: DWR - GROUNDWATER DRILLING
Driller: Michael Norman Wilson
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m): 24.500
Salinity Description:
Yield (L/s): 0.150

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BLAND	DUDAUMAN	185
Licensed:			

Region: 70 - Lachlan
River Basin: - Unknown
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6170239.000
Easting: 577358.000
Latitude: 34°36'24.4"S
Longitude: 147°50'37.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: Map Interpre

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	6.00	200			Rotary Air
1		Hole	Hole	6.00	70.00	150			Rotary Air
1		Annulus	Waterworn/Rounded	0.00	42.00				
1	1	Casing	Steel	-1.00	6.00	168			Seated on Bottom
1	1	Casing	P.V.C.	0.00	42.00	80			Seated on Bottom
1	1	Opening	Slots - Diagonal	30.00	36.00	80		1	PVC Class 18, SL: 200.0mm, A: 0.50mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
35.00	35.50	0.50	Unknown	24.50		0.15	70.00		

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	TOPSOIL REDDISH CLAY	Unknown	
1.00	10.00	9.00	WEATHERED SHALE	Unknown	

10.00	70.00	60.00	SLATE (FRACTURED AT TOP AND THEN FRESH)	Unknown	

Remarks

27/02/1991: Form A Remarks:
OBSERVATION BORE @ "WATTLE RETREAT" COOTAMUNDRA

***** End of GW036867 *****

WaterNSW
Work Summary

GW036900

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Rotary
Owner Type: Other Govt

Commenced Date:
Completion Date: 28/02/1991
Final Depth: 35.00 m
Drilled Depth: 35.00 m

Contractor Name: DWR - GROUNDWATER DRILLING
Driller: Gerard Anthony Smit
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BLAND	DUDAUMAN	185
Licensed:			

Region: 70 - Lachlan
River Basin: - Unknown
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6170485.000
Easting: 577360.000
Latitude: 34°36'16.4"S
Longitude: 147°50'37.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	5.00	200			Rotary Air
1		Hole	Hole	5.00	35.00	150			Rotary Air
1		Annulus	Waterworn/Rounded	0.00	35.00				
1	1	Casing	Steel	-1.00	5.00	168			
1	1	Casing	P.V.C.	0.00	35.00	80			Seated on Bottom
1	1	Opening	Slots - Diagonal	24.00	30.00	80		1	Sawn, PVC Class 18, SL: 200.0mm, A: 1.50mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
24.00	30.00	6.00	Unknown	9.00		1.15	35.00		

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	TOPSOIL	Unknown	

1.00	3.00	2.00	RED CLAY	Unknown	
3.00	5.00	2.00	BROWN CLAY	Unknown	
5.00	20.00	15.00	WEATHERED SLATE	Unknown	
20.00	35.00	15.00	SLATE	Unknown	

***** End of GW036900 *****

WaterNSW
Work Summary

GW040732

Licence:
Licence Status:

Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status: Test Hole
Construct.Method: Auger
Owner Type: NSW Office of Water

Commenced Date: 01/11/1987
Completion Date: 01/11/1987
Final Depth: 11.00 m
Drilled Depth:

Contractor Name: DWR - GROUNDWATER DRILLING
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BLAND	DUDAUMAN	185
Licensed:			

Region: 70 - Lachlan
River Basin: 412 - LACHLAN RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6170699.000
Easting: 577566.000
Latitude: 34°36'09.4"S
Longitude: 147°50'45.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	P.V.C.	-0.31	11.00	50			
1	1	Opening	Slots	4.60	10.60	50		0	Sawn, PVC

***** End of GW040732 *****

WaterNSW
Work Summary

GW040733

Licence:
Licence Status:

Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status: Test Hole
Construct.Method: Auger
Owner Type: NSW Office of Water

Commenced Date: 01/11/1987
Completion Date: 01/11/1987
Final Depth: 10.75 m
Drilled Depth:

Contractor Name: DWR - GROUNDWATER DRILLING
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BLAND	DUDAUMAN	22
Licensed:			

Region: 70 - Lachlan
River Basin: 412 - LACHLAN RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6171088.000
Easting: 578919.000
Latitude: 34°35'56.4"S
Longitude: 147°51'38.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	P.V.C.	-0.55	10.75	50			
1	1	Opening	Slots	0.00	8.90	50		0	Sawn, PVC

***** End of GW040733 *****

WaterNSW
Work Summary

GW040735

Licence:
Licence Status:

Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status: Test Hole
Construct.Method: Auger
Owner Type: NSW Office of Water

Commenced Date: 01/11/1987
Completion Date: 01/11/1987
Final Depth: 14.00 m
Drilled Depth:

Contractor Name: DWR - GROUNDWATER DRILLING
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BLAND	DUDAUMAN	22
Licensed:			

Region: 70 - Lachlan
River Basin: 412 - LACHLAN RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6171181.000
Easting: 578818.000
Latitude: 34°35'53.4"S
Longitude: 147°51'34.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	P.V.C.	-0.36	14.00	50			
1	1	Opening	Slots	10.00	14.00	50		0	Sawn, PVC

***** End of GW040735 *****

WaterNSW
Work Summary

GW040736

Licence:
Licence Status:

Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status: Test Hole
Construct.Method: Auger
Owner Type: NSW Office of Water

Commenced Date: 01/11/1987
Completion Date: 01/11/1987
Final Depth: 12.60 m
Drilled Depth:

Contractor Name: DWR - GROUNDWATER DRILLING
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BLAND	DUDAUMAN	22
Licensed:			

Region: 70 - Lachlan
River Basin: 412 - LACHLAN RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6171275.000
Easting: 578717.000
Latitude: 34°35'50.4"S
Longitude: 147°51'30.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	P.V.C.	-0.37	12.60	50			
1	1	Opening	Slots	6.60	12.60	50		0	Sawn, PVC

***** End of GW040736 *****

WaterNSW
Work Summary

GW040746

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status: Test Hole
Construct.Method: Auger
Owner Type: NSW Office of Water

Commenced Date: 01/11/1987
Completion Date: 01/11/1987
Final Depth: 5.25 m
Drilled Depth:

Contractor Name: DWR - GROUNDWATER DRILLING
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BLAND	DUDAUMAN	22
Licensed:			

Region: 70 - Lachlan
River Basin: 412 - LACHLAN RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6171398.000
Easting: 578718.000
Latitude: 34°35'46.4"S
Longitude: 147°51'30.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	P.V.C.	-0.35	5.25	50			
1	1	Opening	Slots	2.75	5.25	50		0	Sawn, PVC

***** End of GW040746 *****

WaterNSW
Work Summary

GW040747

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status: Equipped
Construct.Method: Auger
Owner Type: NSW Office of Water

Commenced Date: 01/11/1987
Completion Date: 01/11/1987
Final Depth: 8.30 m
Drilled Depth:

Contractor Name: DWR - GROUNDWATER DRILLING
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BLAND	DUDAUMAN	22
Licensed:			

Region: 70 - Lachlan
River Basin: 412 - LACHLAN RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6171395.000
Easting: 579024.000
Latitude: 34°35'46.4"S
Longitude: 147°51'42.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	P.V.C.	-0.35	8.30	50			
1	1	Opening	Slots	3.30	8.30	50		0	Sawn, PVC

***** End of GW040747 *****

WaterNSW
Work Summary

GW044890

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): STOCK

Work Type: Bore
Work Status: Needs Reconditioning
Construct.Method:
Owner Type: Private

Commenced Date:
Completion Date: 01/01/1930
Final Depth: 82.30 m
Drilled Depth:

Contractor Name: (None)
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BLAND	DUDAUMAN	13
Licensed:			

Region: 70 - Lachlan
River Basin: 412 - LACHLAN RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6174760.000
Easting: 578160.000
Latitude: 34°33'57.4"S
Longitude: 147°51'07.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Backfill	Backfill	82.30	85.30	127			
1	1	Casing	Threaded Steel	-0.20	85.40	127			Suspended in Clamps
1	1	Casing		0.00	82.30	152			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
54.90	57.90	3.00	(Unknown)						
79.20	79.20	0.00	(Unknown)						

Remarks

03/11/1977: R/C 127 MM CAS INSERTED
03/11/1977: CAS NO 3 IS BLUE METAL IN CASING

***** End of GW044890 *****

WaterNSW
Work Summary

GW045873

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Well
Work Status:
Construct.Method:
Owner Type: Private

Commenced Date:
Completion Date:
Final Depth: 9.10 m
Drilled Depth: 9.10 m

Contractor Name: (None)
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:			
Licensed:	CLARENDON	BETHUNGRA	67

Region: 40 - Murrumbidgee
River Basin: 410 - MURRUMBIDGEE RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6161783.000
Easting: 575455.000
Latitude: 34°40'59.4"S
Longitude: 147°49'25.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Concrete Cylnder	0.00	0.00	1219			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	9.14	9.14	Alluvium Water Supply	Alluvium	

***** End of GW045873 *****

WaterNSW
Work Summary

GW050284

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore open thru rock
Work Status:
Construct.Method: Rotary Air
Owner Type: Private

Commenced Date:
Completion Date: 01/02/1980
Final Depth: 99.10 m
Drilled Depth: 99.10 m

Contractor Name: (None)
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description: 1001-3000 ppm
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BLAND	STOCKINBINGAL	275
Licensed:			

Region: 70 - Lachlan
River Basin: 412 - LACHLAN RIVER
Area/District:
CMA Map: 8428-N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6178115.000
Easting: 578520.000
Latitude: 34°32'08.4"S
Longitude: 147°51'20.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Welded Steel	-0.30	41.80	165			Driven into Hole

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
89.90	90.60	0.70	Fractured	73.20		0.88			
93.30	93.60	0.30	Fractured	73.20		0.63			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.30	0.30	Topsoil	Topsoil	
0.30	2.40	2.10	Clay	Clay	
2.40	41.80	39.40	Shale Soft	Shale	
41.80	54.60	12.80	Shale Hard	Shale	
54.60	99.10	44.50	Slate Black Water Supply	Slate	

***** End of GW050284 *****

WaterNSW
Work Summary

GW057522

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): STOCK

Work Type: Bore open thru rock
Work Status:
Construct.Method: Rotary Air
Owner Type: Local Govt

Commenced Date:
Completion Date: 01/05/1983
Final Depth: 105.10 m
Drilled Depth: 105.10 m

Contractor Name: (None)
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description: 1001-3000 ppm
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BLAND	STOCKINBINGAL	147
Licensed:			

Region: 70 - Lachlan
River Basin: 412 - LACHLAN RIVER
Area/District:
CMA Map: 8429-S
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6182621.000
Easting: 581134.000
Latitude: 34°29'41.4"S
Longitude: 147°53'01.4"E

GS Map: -
MGA Zone: 55
Coordinate Source: GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Welded Steel	-0.30	86.20	165			Driven into Hole

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
87.40	87.70	0.30	Fractured	67.00		0.20			
99.90	100.20	0.30	Fractured	67.00		0.40			
102.40	102.70	0.30	Fractured	67.00		1.20			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.30	0.30	Topsoil	Topsoil	
0.30	80.70	80.40	Clay	Clay	
80.70	86.20	5.50	Shale Soft	Shale	
86.20	105.10	18.90	Shale Grey Hard Water Supply	Shale	

***** End of GW057522 *****

TECHNICAL PAPER 14

Contaminated Land Assessment

Appendix C EPA search

Your search for: **General Search** with the following criteria

Suburb - bethungra

returned 0 result

Search Again

Your search for: **General Search** with the following criteria

Suburb - cootamundra

returned 55 results

Export to excel

1 of 3 Pages

Search Again

Number	Name	Location	Type	Status	Issued date
10734	COOTAMUNDRA SHIRE COUNCIL	OLYMPIC HIGHWAY, COOTAMUNDRA, NSW 2590	POEO licence	Surrendered	07 Jun 2000
1009719	COOTAMUNDRA SHIRE COUNCIL	OLYMPIC HIGHWAY, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	18 Jul 2001
1021324	COOTAMUNDRA SHIRE COUNCIL	OLYMPIC HIGHWAY, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	04 Dec 2002
1603	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	GUNDAGAI ROAD, COOTAMUNDRA, NSW 2590	POEO licence	Issued	21 Jun 2000
5985	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	TURNERS LANE, COOTAMUNDRA, NSW 2590	POEO licence	Issued	17 Aug 2000
1002905	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	TURNERS LANE, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	15 Dec 2000
1010143	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	GUNDAGAI ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	25 Jul 2001
1009895	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	TURNERS LANE, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	21 Sep 2001
1013323	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	GUNDAGAI ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	24 Jan 2002
1015239	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	GUNDAGAI ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	23 May 2002
1019565	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	TURNERS LANE, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	23 Aug 2002
1029989	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	TURNERS LANE, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	26 Sep 2003
1031960	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	TURNERS LANE, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	25 Nov 2003
1033858	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	TURNERS LANE, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	28 Jan 2004
1036195	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	GUNDAGAI ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	15 Apr 2004
1039354	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	GUNDAGAI ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	12 Aug 2004
1060593	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	GUNDAGAI ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	29 May 2006
1068650	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	GUNDAGAI ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	19 Jan 2007
1071516	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	GUNDAGAI ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	29 Mar 2007
1090481	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	GUNDAGAI ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	27 Jan 2009

Your search for: **General Search** with the following criteria

Suburb - cootamundra

returned 55 results

Export to excel

2 of 3 Pages

Search Again

Number	Name	Location	Type	Status	Issued date
1096612	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	TURNERS LANE, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	20 Feb 2009
1117328	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	GUNDAGAI ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	11 Oct 2010
1512640	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	GUNDAGAI ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	17 Sep 2013
1512728	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	TURNERS LANE, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	19 Sep 2013
1520675	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	TURNERS LANE, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	04 Jul 2014
3173526227	COOTAMUNDRA-GUNDAGAI REGIONAL COUNCIL	GUNDAGAI ROAD, COOTAMUNDRA, NSW 2590	Penalty Notice	Issued	11 Sep 2018
1454	CSR LIMITED	GAP HILL, OLYMPIC WAY, COOTAMUNDRA, NSW 2590	POEO licence	Surrendered	10 Mar 2000
13413	EESI CONTRACTING PTY LTD	17 TURNERS LANE, COOTAMUNDRA, NSW 2590	POEO licence	Issued	27 May 2011
1509747	EESI CONTRACTING PTY LTD	17 TURNERS LANE, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	23 Nov 2012
1510617	EESI CONTRACTING PTY LTD	17 TURNERS LANE, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	15 Jan 2013
1521831	EESI CONTRACTING PTY LTD	17 TURNERS LANE, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	12 May 2014
1532290	EESI CONTRACTING PTY LTD	17 TURNERS LANE, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	22 Jul 2015
39	HANSON CONSTRUCTION MATERIALS PTY LTD	OLYMPIC WAY, COOTAMUNDRA, NSW 2590	POEO licence	Surrendered	29 Nov 1999
3889	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	POEO licence	Issued	01 May 2000
1013486	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	17 Jun 2002
1020256	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	11 Sep 2002
1033746	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	15 Mar 2004
1048162	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	20 Jun 2005
1049652	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	26 Jul 2005
1058702	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	02 May 2006

Your search for: **General Search** with the following criteria

Suburb - cootamundra

returned 55 results

Export to excel

3 of 3 Pages

Search Again

Number	Name	Location	Type	Status	Issued date
1076803	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	16 Aug 2007
1086714	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	27 May 2008
1119657	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	11 Oct 2010
1121825	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	16 Nov 2010
1126871	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	12 Apr 2011
3085766339	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	Penalty Notice	Issued	22 Oct 2012
1509579	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	23 Oct 2012
1512344	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	16 Oct 2013
1523051	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	10 Sep 2014
1526341	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	24 Nov 2014
1551037	MANILDRA MEAT COMPANY PTY LTD	572 TEMORA ROAD, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	16 May 2017
12523	MILBRAE QUARRIES PTY LTD	GAP HILL, OLYMPIC HIGHWAY, COOTAMUNDRA, NSW 2590	POEO licence	Issued	07 Aug 2006
1518942	MILBRAE QUARRIES PTY LTD	GAP HILL, OLYMPIC HIGHWAY, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	17 Dec 2013
1494	THE AUSTRALIAN CARTILAGE COMPANY PTY LTD	CONKEY DRIVE, COOTAMUNDRA, NSW 2590	POEO licence	Surrendered	31 May 2000
1014617	THE AUSTRALIAN CARTILAGE COMPANY PTY LTD	CONKEY DRIVE, COOTAMUNDRA, NSW 2590	s.58 Licence Variation	Issued	09 Apr 2002

Your search for: **General Search** with the following criteria

Suburb - dirnaseer

returned 0 result

Search Again

Your search for: **General Search** with the following criteria

Suburb - illabo

returned 0 result

Search Again

Your search for: **General Search** with the following criteria

Suburb - junee

returned 31 results

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Search Again

Number	Name	Location	Type	Status	Issued date
6005	JUNEE SHIRE COUNCIL	KAHMOO ROAD, JUNEE, NSW 2663	POEO licence	Issued	17 Aug 2000
752	JUNEE SHIRE COUNCIL	TEMORA ROAD, JUNEE, NSW 2663	POEO licence	Issued	13 Oct 2000
1004122	JUNEE SHIRE COUNCIL	KAHMOO ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	27 Feb 2001
1012132	JUNEE SHIRE COUNCIL	KAHMOO ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	24 Oct 2001
1011731	JUNEE SHIRE COUNCIL	TEMORA ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	11 Feb 2002
1030223	JUNEE SHIRE COUNCIL	KAHMOO ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	19 Sep 2003
1031875	JUNEE SHIRE COUNCIL	KAHMOO ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	25 Nov 2003
1034625	JUNEE SHIRE COUNCIL	TEMORA ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	17 Mar 2004
1039244	JUNEE SHIRE COUNCIL	TEMORA ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	12 Aug 2004
1042581	JUNEE SHIRE COUNCIL	KAHMOO ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	24 Jan 2005
1043666	JUNEE SHIRE COUNCIL	TEMORA ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	17 Feb 2005
1060725	JUNEE SHIRE COUNCIL	TEMORA ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	26 May 2006
1078915	JUNEE SHIRE COUNCIL	TEMORA ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	13 Nov 2007
1096485	JUNEE SHIRE COUNCIL	KAHMOO ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	20 Feb 2009
1098201	JUNEE SHIRE COUNCIL	TEMORA ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	06 Mar 2009
1512600	JUNEE SHIRE COUNCIL	TEMORA ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	31 May 2013
1512734	JUNEE SHIRE COUNCIL	KAHMOO ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	31 May 2013
1520672	JUNEE SHIRE COUNCIL	KAHMOO ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	16 Apr 2015
1544068	JUNEE SHIRE COUNCIL	KAHMOO ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	20 Sep 2016
1544173	JUNEE SHIRE COUNCIL	TEMORA ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	01 Mar 2017

Your search for: **General Search** with the following criteria

Suburb - junee

returned 31 results

Export to excel

2 of 2 Pages

Search Again

Number	Name	Location	Type	Status	Issued date
4258	MICHAEL JAMES WOO	4 Rifle Range Road, JUNEE, NSW 2663	POEO licence	Surrendered	17 Aug 2000
5348	NARASELL PTY. LIMITED	195 HAREFIELD ROAD, JUNEE, NSW 2663	POEO licence	Issued	11 Sep 2000
1012410	NARASELL PTY. LIMITED	195 HAREFIELD ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	24 Oct 2001
1019177	NARASELL PTY. LIMITED	195 HAREFIELD ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	31 Jul 2002
1022578	NARASELL PTY. LIMITED	195 HAREFIELD ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	21 Feb 2003
1079002	NARASELL PTY. LIMITED	195 HAREFIELD ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	27 Nov 2007
1087467	NARASELL PTY. LIMITED	195 HAREFIELD ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	02 Jul 2008
1512840	NARASELL PTY. LIMITED	195 HAREFIELD ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	26 Apr 2013
1543533	NARASELL PTY. LIMITED	195 HAREFIELD ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	31 Aug 2016
1548224	NARASELL PTY. LIMITED	195 HAREFIELD ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	07 Feb 2017
1565236	NARASELL PTY. LIMITED	195 HAREFIELD ROAD, JUNEE, NSW 2663	s.58 Licence Variation	Issued	22 Jun 2018

Your search for: **General Search** with the following criteria

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TECHNICAL PAPER 14

Contaminated Land Assessment

Appendix D Photographic log

ILLABO TO STOCKINBINGAL ENVIRONMENTAL IMPACT STATEMENT

wsp	**PHOTOGRAPHIC LOG – Site Inspection Photographs (Appendix D)**

Client Name	**Site Location**	**Project No.**
ARTC	Stockinbingal to Illabo Inland Rail Link	PS108286

Photo No.	**Date**
1	19/2/19

Description

South aspect from chainage 41650

Photo No.	**Date**
2	19/2/19

Description

Stockpile near to road crossing at chainage 40650

wsp	**PHOTOGRAPHIC LOG – Site Inspection Photographs (Appendix D)**	
Client Name ARTC	**Site Location** Stockinbingal to Illabo Inland Rail Link	**Project No.** PS108286

Photo No.	**Date**
3	19/2/19

Description

East aspect from B94 (near to chainage 37750) Looking toward grain silos and Stockinbingal station

Photo No.	**Date**
4	19/2/19

Description

A dam with raised sides at chainage 35200

wsp	**PHOTOGRAPHIC LOG – Site Inspection Photographs (Appendix D)**

Client Name	**Site Location**	**Project No.**
ARTC	Stockinbingal to Illabo Inland Rail Link	PS108286

Photo No.	**Date**
5	19/2/19

Description

Stockinbingal Train Station

Photo No.	**Date**
6	19/2/19

Description

Grain silos next to rail track, north-west aspect from Troy Street.

wsp	**PHOTOGRAPHIC LOG – Site Inspection Photographs (Appendix D)**

Client Name	**Site Location**	**Project No.**
ARTC	Stockinbingal to Illabo Inland Rail Link	PS108286

Photo No.	**Date**
7	19/2/19

Description

Possible Asbestos containing materials located near to the Stockinbingal Train Station

	PHOTOGRAPHIC LOG – Site Inspection Photographs (Appendix D)	
Client Name ARTC	**Site Location** Stockinbingal to Illabo Inland Rail Link	**Project No.** PS108286

Photo No.	Date
8	19/2/19

Description

South aspect near to chainage 19850, train line will follow the fence line.

Photo No.	Date
9	19/2/19

Description

Train line will cross this road at chainage 22100

wsp	**PHOTOGRAPHIC LOG – Site Inspection Photographs (Appendix D)**

Client Name	**Site Location**	**Project No.**
ARTC	Stockinbingal to Illabo Inland Rail Link	PS108286

Photo No.	**Date**
10	19/2/19

Description

Rural Fire Service shed near to chainage 8750. One water tank observed at rear of building.

Photo No.	**Date**
11	19/2/19

Description

Chemical storage shed with ventilation at chainage 9350

wsp	**PHOTOGRAPHIC LOG – Site Inspection Photographs (Appendix D)**	
Client Name ARTC	**Site Location** Stockinbingal to Illabo Inland Rail Link	**Project No.** PS108286

Photo No.	**Date**
12	19/2/19

Description

Dirt road that will be intersected by train line at chainage 11250

Photo No.	**Date**
13	20/2/19

Description

Train line crossing at Old Cootamundra Road (chainage 28350)

wsp	**PHOTOGRAPHIC LOG – Site Inspection Photographs (Appendix D)**	
Client Name ARTC	**Site Location** Stockinbingal to Illabo Inland Rail Link	**Project No.** PS108286

Photo No.	**Date**
14	20/2/19

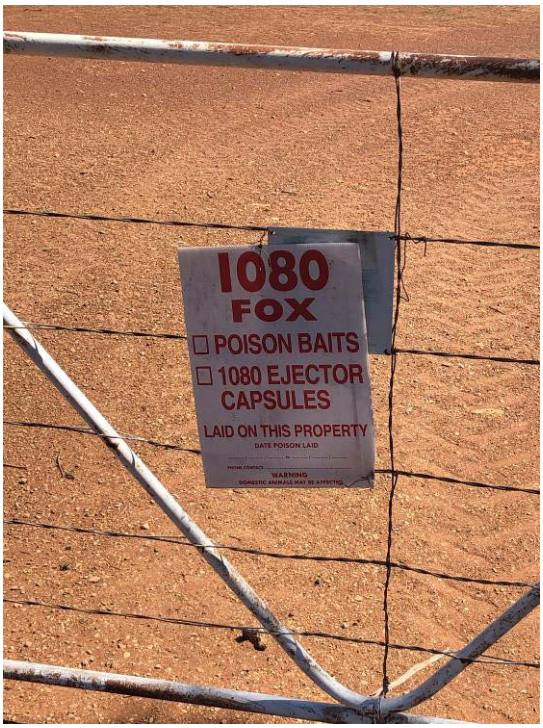
Description

Train line crossing at Old Sydney Road, chainage 5350

Photo No.	**Date**
15	20/2/19

Description

Poison bait signage on property near the to the road crossing at chainage 5350



wsp	**PHOTOGRAPHIC LOG – Site Inspection Photographs (Appendix D)**

Client Name	**Site Location**	**Project No.**
ARTC	Stockinbingal to Illabo Inland Rail Link	PS108286

Photo No.	**Date**
16	20/2/19

Description

Chainage 2050 from Olympic highway to the existing rail track where route will follow.