

Section 9

Abbreviations, Acronyms
and Glossary



**Narrabri Underground Mine
Stage 3 Extension Project**
Environmental Impact Statement

9 ABBREVIATIONS, ACRONYMS AND GLOSSARY

9.1 ABBREVIATIONS AND ACRONYMS

%	per cent	ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
µg/m ³	micrograms per cubic metre	ARTC	Australian Rail Track Corporation
µm	micrometre	As	Arsenic
µS/cm	microSiemens per centimetre	AS	Australian Standard
°	degree	BAM	Biodiversity Assessment Method
°C	degrees Celsius	BC Act	<i>Biodiversity Conservation Act 2016</i>
2rog	2rog Consulting Pty Ltd	BCD	Biodiversity Conservation Division
ACARP	Australian Coal Association Research Program	BC Regulation	<i>Biodiversity Conservation Regulation 2017</i>
ACHA	Aboriginal Cultural Heritage Assessment	BDAR	Biodiversity Development Assessment Report
ACHMP	Aboriginal Cultural Heritage Management Plan	BFMP	Built Features Management Plan
ACT	Australian Capital Territory	BoM	Commonwealth Bureau of Meteorology
AGE	Australasian Groundwater and Environmental Consultants Pty Ltd	BSAL	Biophysical Strategic Agricultural Land
AHD	Australian Height Datum	CCC	Community Consultative Committee
AHIMS	Aboriginal Heritage Information Management System	CDM Smith	CDM Smith Australia Pty Ltd
AIP	<i>NSW Aquifer Interference Policy</i>	CFMEU	Construction, Forestry, Maritime, Mining and Energy Union
AMBS	AMBS Ecology and Heritage Pty Ltd	CHPP	Coal Handling and Preparation Plant
AnalytEcon	AnalytEcon Pty Ltd	CMSC Act	<i>Coal Mine Subsidence Compensation Act 2017</i>
ANZECC	Australian and New Zealand Environmental and Conservation Council	CO ₂	carbon dioxide
ARI	average recurrence interval	CO ₂ -e	carbon dioxide equivalent
		Commonwealth Minister	Commonwealth Minister for the Environment and Energy
		COP	Community of Parties
		COVID-19	Coronavirus Disease

CPDP	Conceptual Project Development Plan	EDAW	EDAW Australia Pty Ltd
CSG	Coal Seam Gas	EEC	Endangered Ecological Community
CSIRO	Commonwealth Scientific and Industrial Research Organisation	EIS	Environmental Impact Statement
DAWE	Commonwealth Department of Agriculture, Water and the Environment	EL	Exploration Licence
dB	decibel	ELA	Eco Logical Australia
dba	A-weighted decibel	ENRS	Environment and Natural Resource Solutions Pty Ltd
DEC	NSW Department of Environment and Conservation (now DPIE)	EP&A Regulation	NSW <i>Environmental Planning and Assessment Regulation 2000</i>
DECC	NSW Department of Environment and Climate Change (now BCD)	EP&A Act	NSW <i>Environmental Planning and Assessment Act 1979</i>
DECCW	NSW Department of Environment, Climate Change and Water (now BCD and DPIE – Water)	EPA	NSW Environment Protection Authority
DEE	Commonwealth Department of Environment and Energy (now Commonwealth Department of Agriculture, Water and the Environment)	EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
DLWC	NSW Department of Land and Water Conservation	EPL	Environment Protection Licence
DoP	Department of Planning (now DPIE)	ERA	Environmental Risk Assessment
DotE	Commonwealth Department of the Environment (now Commonwealth Department of Agriculture, Water and the Environment)	ESD	Ecologically Sustainable Development
DP&E	NSW Department of Planning and Environment (now DPIE)	<i>et al.</i>	and others
DP&I	NSW Department of Planning and Infrastructure (now DPIE)	FM Act	NSW <i>Fisheries Management Act 1994</i>
DPI	Department of Primary Industries	g/m ² /month	grams per square metre per month
DPIE	NSW Department of Planning, Industry and Environment	GDE	Groundwater Dependent Ecosystem
EC	electrical conductivity	GDE Atlas	Groundwater Dependent Ecosystem Atlas
		GDP	Gross domestic product
		GEM	Geo-Environmental Management
		GHG Protocol	Greenhouse Gas Protocol
		GNAC	Gomeroi Narrabri Aboriginal Corporation
		GSC	Gunnedah Shire Council

GT Environmental	GT Environmental Pty Ltd	L _{Aeq}	equivalent continuous noise level (A-weighted)
ha	hectare	L _{AFmax}	maximum noise level criteria
HDPE	high density poly-ethylene	LALC	Local Aboriginal Land Council
HVCCC	Hunter Valley Coal Chain Coordinator	L _{AN}	noise exceedance level
i.e.	that is	LEP	Local Environmental Plan
ICNG	NSW Interim Construction Noise Guideline	LGA	Local Government Area
ICOMOS	International Council on Monuments and Sites	LSC	land and soil capability
IESC	Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development	m	metre
		m/s	metres per second
		m ³ /s	cubic metres per second
Infrastructure SEPP	<i>State Environmental Planning Policy (Infrastructure) 2007</i>	MCP	Mine Closure Plan
Interim Protocol	Interim Protocol for site verification and mapping biophysical strategic agricultural land	MDB	Murray Darling Basin
IPC	Independent Planning Commission	MEG	Mining, Exploration and Geosciences (within the Department of Regional NSW)
ISO	International Organisation for Standardisation	mg/L	milligrams per litre
Jacobs	Jacobs Group (Australia) Pty Ltd	Mining SEPP	<i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i>
km	kilometre	ML/day	megalitres per day
km/h	kilometres per hour	ML/year	megalitres per year
km ²	square kilometre	MLA	Mining Lease Application
Koala Habitat Protection SEPP	<i>State Environmental Planning Policy (Koala Habitat Protection) 2019</i>	MLs	Mining Leases
kV	kilovolt	mm	millimetre
L	litre	mm/m	millimetres per metre
L/s	litres per second	mm/s	millimetres per second
L _{A10}	A-weighted noise exceeded by 10% for the measurement period. Commonly referred to as the average maximum.	Mo	Molybdenum
		MOP	Mining Operations Plan

Mt CO ₂ -e	million tonnes of carbon dioxide equivalent	PED	Personal Emergency Device
		PHA	Preliminary Hazard Analysis
Mt	million tonnes	PM ₁₀	particulate matter with an equivalent aerodynamic diameter of 10 µm or less
Mtpa	million tonnes per annum		
NAF	non-acid forming	PM _{2.5}	particulate matter with an equivalent aerodynamic diameter of 2.5 µm or less
Namoi-Gwydir BPMC	Namoi-Gwydir Bush Fire Management Committee		
NARClIM	NSW and ACT Regional Climate Modelling	PoEO Act	NSW <i>Protection of the Environment Operations Act 1997</i>
Narrabri LEP	<i>Narrabri Local Environmental Plan 2012</i>	ppm	parts per million
NCOPL	Narrabri Coal Operations Pty Ltd	RAP	Registered Aboriginal Party
NCPL	Narrabri Coal Pty Ltd	RCP	Representative Concentration Pathway
NDCs	nationally determined contributions	RING	Rail Infrastructure Noise Guideline
NGAF	National Greenhouse Accounts Factors	RMP	Rehabilitation Management Plan
		RMS	NSW Roads and Maritime Services
NGER Act	<i>Commonwealth National Greenhouse and Energy Reporting Act 2007</i>	RNP	<i>NSW Road Noise Policy</i>
NGERS	<i>Commonwealth National Greenhouse and Energy Report Scheme</i>	ROM	run-of-mine
		SAIL	Serious and Irreversible Impact
NPfI	NSW Noise Policy for Industry	Santos	Santos NSW (Eastern) Pty Ltd
NPV	net present value	Sb	Antimony
NRAR	Natural Resources Access Regulator	SDSs	Safety Data Sheets
NSC	Narrabri Shire Council	SEARs	Secretary's Environmental Assessment Requirements
NSED	<i>National Strategy for Ecologically Sustainable Development</i>	SEPP 33	<i>State Environmental Planning Policy No. 33 – Hazardous and Offensive Development</i>
NSW	New South Wales	SEPP 55	<i>State Environmental Planning Policy No. 55 – Remediation of Land</i>
OEH	NSW Office of Environment and Heritage	SEPP	state environmental planning policy
OpRM	Operational Risk Mentoring	SIA	Social Impact Assessment
PCI	pulverised coal injection		
PCT	Plant Community Type		

Significant Impact Guidelines for Water Resources *Significant impact guidelines 1.3: Coal seam gas and large coal mining developments—impacts on water resources*

SILO Scientific Information for Land Owners

SIS Surface to in-seam

SSD State Significant Development

t tonnes

TARP Trigger Action Response Plan

TDS Total Dissolved Solids

TfNSW Transport for New South Wales

The Best Practice Report *NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining*

the Minister the NSW Minister for Planning and Public Spaces

the Project Narrabri Underground Mine Stage 3 Extension Project

TSP total suspended particulates

TSS total suspended solids

TTPP The Transport Planning Partnership

TUNRA TUNRA Bulk Solids Research Associates

UIS underground in seam

UNFCCC United Nations Framework Convention on Climate Change

VWP vibrating wire piezometer

WALs Water Access Licences

WBCSD World Business Council for Sustainable Development

Whincop Whincop Archaeology Pty Ltd

Whitehaven Whitehaven Coal Limited

Wilkinson Murray Wilkinson Murray Pty Limited

WRI World Resources Institute

WRM WRM Water & Environment Pty Ltd

WSP Water Sharing Plan

9.2 GLOSSARY

A-weighted decibel (dBA)

Unit used for most measurements of environmental noise; the scale is based upon typical responses of the human ear to sounds of different frequencies.

Alluvial

A general term for clay, silt, sand and gravel transported by water and deposited on the bed of a floodplain, river or stream.

Alluvium

Sediment (gravel, sand, silt, clay) transported by water (i.e. deposits in a stream channel or floodplain).

Amenity

Useful and enjoyable quality.

Aquatic

Living in or on water, or concerning water.

Aquifer

A sub-surface rock formation containing water in recoverable quantities.

Aquitard

A geological unit that is less permeable than an aquifer and incapable of transmitting useful quantities of water.

Average Recurrence Interval	The expected value or average value of the periods between exceedances of a given event magnitude. A term used in water engineering. Also known as “return period”.	Coal Wash	By-product of the coal washing process generally comprising a mixture of carbonaceous shale and mudstone with minor quantities of sandstone and low-quality coal.
Background	The condition (e.g. noise levels) already present in an area before the commencement of a specific activity.	Conveyor	Fixed mechanical apparatus consisting of a continuous moving belt used to transport coal from one place to another.
Baseflow	The discharge of sub-surface water into a stream (i.e. groundwater seepages).	Cross-section	A two-dimensional diagram of an object presented as if the object had been cut across its length.
Baseline Monitoring	Monitoring conducted over time to collect a body of information to define specific characteristics of an area (e.g. species occurrence or noise levels) prior to commencement of a specific activity.	Crusher	Part of a preparation plant where material is mechanically crushed into smaller pieces.
Biodiversity	The diversity of different species of plants, animals and micro-organisms, including the genes they contain, in the ecosystem of which they are part.	Cyclone	A conical vessel that uses centrifugal action to separate particulate matter of differing specific gravity.
Bund	An earth, rock or concrete wall or mound constructed to restrict the inflow or outflow of liquids or noise.	Decibel (dB)	Unit used to express sound intensity.
Catchment	The entire land area from which water (e.g. rainfall) drains to a specific watercourse or water body.	Decommissioning	Removal or reuse of infrastructure.
Cliff	a continuous rockface having a minimum height of 10 m, a minimum length of 20 m and minimum slope of greater than 55°.	Depressurisation	Depression in the potentiometric surface of an aquifer. Depressurisation does not necessarily result in physical drawdown within constrained aquifer units.
		Drawdown	The localised lowering of groundwater level.

Drift	An underground passage driven through rock to access or intersect a coal seam.	Greenhouse gases	Gases with potential to cause climate change (e.g. methane, carbon dioxide and non-methane volatile organic compounds). Usually expressed in terms of carbon dioxide equivalent.
Ecologically Sustainable Development (ESD)	Development that improves the quality of life, in a way that maintains the ecological processes on which life depends.	Groundwater	All waters occurring below the land surface; the upper surface of the soils saturated by groundwater in any particular area is called the watertable.
Ecosystem	An interacting system of animals, plants, other organisms and non-living parts of the environment.	Groundwater Dependent Ecosystem (GDE)	An ecosystem that has its species composition and natural ecological processes wholly or partially determined by groundwater.
Electrical Conductivity (EC)	The ability of a substance (either solid, liquid or gas) to transmit electricity.	Habitat	The particular local environment occupied by an organism.
Emission	The discharge of a substance (e.g. dust) into the environment.	Hydraulic conductivity	A measure of the rate at which water moves through a soil/rock mass. It is the volume of water that moves within a unit of time under a unit hydraulic gradient through a unit cross-sectional area that is perpendicular to the direction of flow.
Existing/Approved	An existing component or activity at the Narrabri Mine, or a component or activity which is approved, but not yet constructed and operated.	Hydraulic gradient	The change in static head (i.e. elevation and pressure) per unit of distance in a given direction (units: dimensionless).
Fault	Major fracture of the earth's crust caused by the relative movement of the rock masses on either side.	Hydraulic properties	Parameters that measure the rate at which water moves through a soil/rock mass.
Fracturing	Fractures formed in a stream bed or rockbar which result in water diversion and reduced pool water levels.		
Gate roads	An underground roadway (tunnel) that provides access to a working longwall for continuous mining.		

<i>in-situ</i>	A term used to distinguish material (e.g. soils, minerals, fossils, etc.) found in its original position of formation, deposition, or growth, as opposed to transported material.	Land capability	A method of land use assessment used to estimate the ability of the land to support a particular land use. Classification is based on an assessment of the land's biophysical characteristics.
Income	The amount of money or its equivalent received during a period of time in exchange for labour or services, from the sale of goods or property, or as profit from financial investments.	Mine water	Water that accumulates within or drains from, active mining and infrastructure areas, and any other areas where runoff may have come in contact with carbonaceous material.
Infrastructure	The supporting installations and services that supply the needs of the Project.	Mitigation	Measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards.
Inter-generational equity	The concept that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.	Overburden	Waste rock material overlying <i>in-situ</i> coal that must be removed prior to mining of coal.
Intra-generational equity	The concept that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of their own generation.	Piedmont	Landform created at the foot of a mountain.
		Permeability	The ability of a rock or soil to allow fluid to pass through it.
L _{A10}	A-weighted noise exceeded by 10% for the measurement period. Commonly referred to as the average maximum.	Permian age	The youngest geological period of the Palaeozoic era, covering a span between approximately 290-250 million years before present.
L _{Aeq}	A-weighted equivalent continuous noise level – the level of noise equivalent to the energy-average of noise levels occurring over a measurement period.	pH	A measure of the degree of acidity or alkalinity of a solution; expressed numerically (logarithmically) on a scale of 1 to 14, on which 1 is most acid, 7 is neutral, and 14 is most basic (alkaline).

Population	A group of individuals of one species in an area.	Rock Face Feature	in length with a height of 2 m to 5 m and slope greater than 55° or a discontinuous rock face less than 20 m in length having heights between 5 m and 10 m with slopes greater than 55°.
Potable water	Water of quality suitable for human consumption.		
Rating Background Level	The overall single-figure sound background level representing each assessment period (day/evening/night) over the whole monitoring period, and is the level used for assessment purposes.	Riparian	Pertaining to, or situated on, the bank of a body of water, especially a watercourse such as a river.
Recharge	The addition of water to an aquifer, directly from the surface, indirectly from the unsaturated zone, or by discharge from overlying or underlying aquifer systems.	Runoff	A portion of precipitation (rain, hail and snow) that flows across the ground surface as water.
Rehabilitation	The restoration of a landscape and especially the vegetation following its disturbance.	Salinity	The total content of dissolved solids in groundwater or surface water, commonly expressed as parts of dissolved solids per million parts of solution, or milligrams of dissolved solids per litre of solution (mg/L).
Relative humidity	The ratio of actual moisture in the air to the amount the air could hold if saturated, at a given temperature.	Seepage	Liquid or fluid such as water, seeping or flowing from beneath the ground to the surface.
Remnant Vegetation	Native vegetation remaining after widespread clearing has taken place.	Slope	ranging between 18° and 35° with numerous continuous rock outcrops with lengths greater than 20 m and heights greater than 5 m or discontinuous rock outcrops or rock face features with lengths less than 20 m, heights less than 5 m and slopes greater than 55°.
Rock Face	a continuous rock face greater than 20 m.	Spontaneous combustion	Self-heating and ignition of a combustible material such as coal.

Stakeholder	Any individual, group or organisation that can affect, be affected by, or perceive itself to be affected by the behaviour of a company or an organisation.	the Project	The Narrabri Underground Mine Stage 3 Extension Project.
Steep Rocky Slope	An area of land having a natural gradient ranging between 18° and 35° with numerous continuous rock outcrops with lengths greater than 20 m and heights greater than 5 m or discontinuous rock outcrops or rock face features with lengths less than 20 m, heights less than 5 m and slopes greater than 55°.	Topsoil	The upper or top layer of soil, that typical has higher levels of organic matter and associated micro-organisms.
Steep Slope	An area of land having a natural gradient ranging between 18° and 35° with nil to occasional rock outcrops (typically creek banks). Only steep slopes with overall heights greater than 5 m considered in the stability assessment.	Total suspended particulate matter (TSP)	The mass of all particulate matter suspended in a solution (e.g. the air).
		Total suspended solids (TSS)	A common measure used to determine suspended solids concentrations in a waterbody and expressed in terms of mass per unit of volume (e.g. milligrams per litre).
		Tributary	A smaller watercourse, which discharges into a larger watercourse.
Stratigraphic	Stratigraphy – The branch of geology concerned with the origin, composition, sequence, and correlation of rock strata.	Value added	The difference between the value of a firm's output and the cost of the inputs of raw materials, components or services brought in to produce that output.
Subsoil	Soils that underlie the top layer of soil, typically having lower levels of organic matter and associated micro-organisms than in topsoil.	Ventilation Shaft	An opening on the land surface down to the underground workings through which fresh air is introduced or ventilation air is exhausted.
Temperature inversion	An atmosphere phenomenon in which air temperature increases with height over a particular interval.		
Terrestrial	Living or growing on the land.		