



# MAXWELL PROJECT

## SECTION 11

### Abbreviations, Acronyms and Glossary



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## 11 ABBREVIATIONS, ACRONYMS AND GLOSSARY

### 11.1 ABBREVIATIONS AND ACRONYMS

%	percent	ARAS	Archaeological Risk Assessment Services
°C	degrees Celsius	ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
µg/m <sup>3</sup>	micrograms per cubic metre	ARTC	Australian Rail Track Corporation
µm	micrometres	AS	Australian Standard
µS/cm	microSiemens per centimetre	ASC	Australian Soil Classification
A	Authorisation	AS/NZS	Australian Standard/New Zealand Standard
ACHA	Aboriginal Cultural Heritage Assessment	AUSRIVAS	Australian River Assessment System
ACHMP	Aboriginal Cultural Heritage Management Plan	AWS	Automatic Weather Station
ACT	Australian Capital Territory	BAM	<i>Biodiversity Assessment Method</i> (OEH, 2017a)
AECOM	AECOM Australia Pty Ltd	BC Act	<i>NSW Biodiversity Conservation Act, 2016</i>
AEMR	Annual Environmental Management Report	BC Regulation	<i>NSW Biodiversity Conservation Regulation, 2017</i>
AGL	AGL Energy Limited	BDAR	Biodiversity Development Assessment Report
AHIMS	Aboriginal Heritage Information Management System	BFMC	Bushfire Management Committee
AIP	<i>NSW Aquifer Interference Policy</i> (NSW Government, 2012a)	BoM	Commonwealth Bureau of Meteorology
ANC	acid neutralising capacity	BSAL	Biophysical Strategic Agricultural Land
ANZECC	Australian and New Zealand Environment and Conservation Council	CCC	Community Consultative Committee
ANZECC Guideline	<i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality</i> (ANZECC and ARMCANZ, 2000)	CFMMEU	Construction, Forestry, Maritime, Mining and Energy Union
ANZMEC-MCA	Australian and New Zealand Minerals Council and the Minerals Council of Australia	CGE	computable general equilibrium
AQC	AQC Dartbrook Management Pty Limited	CHPP	coal handling and preparation plant
AQ NEPM	<i>National Environmental Protection (Ambient Air Quality) Measure</i>	CIC	Critical Industry Cluster
		CL	Coal Lease
		cm	centimetres

CMSC Act	NSW <i>Coal Mine Subsidence Compensation Act, 2017</i>	DRG	Division of Resources and Geoscience
CO <sub>2</sub> -e	carbon dioxide equivalent	DSC	NSW Dams Safety Committee
CPDP	Conceptual Project Development Plan	EC	electrical conductivity
CSIRO	Commonwealth Scientific and Industrial Research Organisation	Eco Logical	Eco Logical Australia
		EIS	Environmental Impact Statement
dB	decibels	EL	Exploration Licence
dBA	A-weighted decibels	ENRS	Environment and Natural Resource Solutions
DECC	NSW Department of Environment and Climate Change (now DPIE)	EnRiskS	Environmental Risk Sciences
DECCW	NSW Department of Environment, Climate Change and Water (now DPIE)	EP&A Act	NSW <i>Environmental Planning and Assessment Act, 1979</i>
DEE	Commonwealth Department of the Environment and Energy	EP&A Regulation	NSW <i>Environmental Planning and Assessment Regulation, 2000</i>
Dellworth	Dellworth Pty Limited	EPA	NSW Environment Protection Authority
DI – Water	NSW Department of Industry – Water (now part of DPIE)	EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act, 1999</i>
DLWC	NSW Department of Land and Water Conservation	EPL	Environment Protection Licence
DMR	NSW Department of Mineral Resources	ERA	Environmental Risk Assessment
DotE	Commonwealth Department of the Environment (now DEE)	ERM	Environmental Resources Management Australia Pty Ltd
DPIE	NSW Department of Planning, Industry and Environment	ESD	ecologically sustainable development
DP&E	NSW Department of Planning and Environment (now DPIE)	EU	European Union
DP&I	NSW Department of Planning and Infrastructure (now DPIE)	Extent Heritage	Extent Heritage Pty Ltd
DPI	NSW Department of Primary Industries	Fluvial Systems	Fluvial Systems Pty Ltd
		FM Act	NSW <i>Fisheries Management Act, 1994</i>
DRE	NSW Department of Trade and Investment, Regional Infrastructure and Services – Division of Resources and Energy (now NSW Resources Regulator and DRG)	g/m <sup>2</sup> /month	grams per square metre per month
		GDE	groundwater dependent ecosystem
		GDE Atlas	<i>Groundwater Dependent Ecosystem Atlas</i> (BoM, 2018)

GDP	Ground Disturbance Permit	kL	kilolitres
GEM	Geo-Environmental Management Pty Ltd	km	kilometres
GHG Protocol	<i>Greenhouse Gas Protocol</i> (WBCSD and WRI, 2015)	km <sup>2</sup>	square kilometres
Godolphin	Godolphin Australia Pty Ltd	km/h	kilometres per hour
GRP	Gross Regional Product	kV	kilovolts
GWh	gigawatt hours	LALC	Local Aboriginal Land Council
ha	hectares	L <sub>Aeq</sub>	equivalent continuous noise level
HIPAP	Hazardous Industry Planning Advisory Paper	L <sub>AN</sub>	noise exceedance level
HVAS	High Volume Air Samplers	LEP	local environmental plan
HVCCC	Hunter Valley Coal Chain Coordinator	LGA	Local Government Area
HVEC	Hunter Valley Energy Coal Pty Ltd	LPG	liquid petroleum gas
HVO	Hunter Valley Operations Mining Complex	LSC	Land and Soil Capability
ICNG	NSW <i>Interim Construction Noise Guideline</i> (DECC, 2009)	m	metres
ICOMOS	Australian International Council on Monuments and Sites	mm	millimetres
IESC	the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development	mm/m	millimetres per metre
Interim Protocol	<i>Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land</i> (NSW Government, 2013)	mm/s	millimetres per second
IPC	NSW Independent Planning Commission	m <sup>3</sup> /s	cubic metres per second
IPM	incremental profile method	mAHD	metres Australian Height Datum
ISO	International Organisation for Standardisation	MACH Energy	MACH Energy Australia Pty Ltd
JBS&G	JBS&G Australia Pty Ltd	Malabar	Malabar Coal Limited
kg	kilograms	Mbcm	million bank cubic metres
kg TSP/t ROM	kilograms of TSP per tonne of ROM coal	MDBC	Murray Darling Basin Commission
		MEA	mine entry area
		mg/L	milligrams per litre
		MIC	Maximum Instantaneous Charge
		Mining SEPP	<i>State Environmental Planning Policy (Mining, Petroleum and Extractive Industries) 2007</i>
		ML	Mining Lease
		ML/day	megalitres per day
		ML/year	megalitres per year

MOP	Mining Operations Plan	NSESD	National Strategy for Ecologically Sustainable Development
MSEC	Mine Subsidence Engineering Consultants Pty Ltd	NSW	New South Wales
Mt	million tonnes	NTSCorp Ltd	Native Title Services Corporation Limited
Mt CO <sub>2</sub> -e	million tonnes of carbon dioxide equivalent	NuCoal	NuCoal Resources Ltd
Mtpa	million tonnes per annum	OEH	NSW Office of the Environment and Heritage (now part of DPIE)
Muswellbrook LEP	<i>Muswellbrook Local Environmental Plan 2009</i>	PAC	NSW Planning Assessment Commission (now IPC)
MW	Megawatts	PAD	potential archaeological deposit
NARCLiM	NSW and ACT Regional Climate Modelling	PAF	potentially acid forming
NGA Factors	<i>National Greenhouse Accounts Factors</i> (DEE, 2018)	PCT	Plant Community Type
NHMRC	National Health and Medical Research Council	PFAS	Per- and Poly-Fluoroalkyl Substance
NCS	Newcastle Coal Shippers Pty Limited	PHA	Preliminary Hazards Analysis
NEPC	National Environment Protection Council	PM <sub>2.5</sub>	fine particles smaller than 2.5 µm
NDC	Nationally Determined Contribution	PM <sub>10</sub>	fine particles smaller than 10 µm
NGERS	<i>Commonwealth National Greenhouse and Energy Report Scheme</i>	PMF	Probable Maximum Flood
NGER Act	<i>Commonwealth National Greenhouse and Energy Reporting Act, 2007</i>	PoEO Act	<i>NSW Protection of the Environment Operations Act, 1997</i>
NPfl	<i>NSW Noise Policy for Industry</i> (EPA, 2017)	PRP	Pollution Reduction Program
NPI	National Pollutant Inventory	PWCS	Port Waratah Coal Services Limited
NPV	net present value	RBL	Rating Background Level
NPW Act	<i>NSW National Parks and Wildlife Act, 1974</i>	RCE	Riparian, Channel and Environmental
NPWS	NSW National Parks and Wildlife Service	RFS	Rural Fire Service
NRAR	NSW Natural Resources Access Regulator	RING	<i>Rail Infrastructure Noise Guideline</i> (EPA, 2013)
		RMS	NSW Roads and Maritime Services
		RNP	<i>NSW Road Noise Policy</i> (DECCW, 2011)
		ROM	run-of-mine



RTA	NSW Road Traffic Authority (now RMS)	TEOM	Tapered Element Oscillating Microbalance
SA2	Statistical Area 2	the Commonwealth Minister	Commonwealth Minister for the Environment and Energy
SA3	Statistical Area 3		
SAII	Serious and Irreversible Impacts	the JORC Code	<i>Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves</i>
SDS	Safety Data Sheet		
SEARs	Secretary's Environmental Assessment Requirements	the Minister	NSW Minister for Planning
SEPP	State environmental planning policy	the MOP Guidelines	<i>ESG3: Mining Operations Plan (MOP) Guidelines</i> (DRE, 2013)
SEPP 33	<i>State Environmental Planning Policy No.33 – Hazardous and Offensive Development</i>	the Project	the Maxwell Project
		TSP	total suspended particulates
SEPP 44	<i>State Environmental Planning Policy No.44 – Koala Habitat Protection</i>	TSS	total suspended solids
		TTPP	The Transport Planning Partnership
SEPP 55	<i>State Environmental Planning Policy No.55 – Remediation of Land</i>	UHAQMN	Upper Hunter Air Quality Monitoring Network
		Umwelt	Umwelt (Australia) Pty Limited
SIA	Social Impact Assessment	UNFCCC	United Nations Framework Convention on Climate Change
SIDRA	SIDRA INTERSECTION 8		
SIGNAL	Stream Invertebrate Grade Number-Average Level	US EPA	United States Environmental Protection Agency
Significant Impact Guidelines for Water Resources	<i>Significant impact guidelines 1.3: Coal seam gas and large coal mining developments – impacts on water resources</i> (DotE, 2013a)	VAHS	Veritas Archaeology and History Service
		VCU	visual character unit
SLR	SLR Consulting Australia Pty Ltd	Voluntary Land Acquisition and Mitigation Policy	<i>Voluntary Land Acquisition and Mitigation Policy For State Significant Mining, Petroleum and Extractive Industry Developments</i> (NSW Government, 2018b)
State and Regional Development SEPP	<i>State Environmental Planning Policy (State and Regional Development) 2011</i>	VPA	Van Pelt Allen Visual Planning and Assessment
t	tonnes	VWP	vibrating wire peizometer
TAPM	The Air Pollutant Model	WAL	Water Access Licence
TAS	Todoroski Air Sciences Pty Ltd	WBCSD	World Business Council for Sustainable Development
TDS	total dissolved solids		
TEM survey	transient electromagnetic survey	WHO	World Health Organisation

WRI	World Resources Institute	Background	
WRM	WRM Water & Environment Pty Ltd		The condition (e.g. noise levels) already present in an area before the commencement of a specific activity.
2rog	2rog Consulting Pty Ltd		
3D	three-dimensional	Baseflow	
			The discharge of sub-surface water into a stream (i.e. groundwater seepages).
<b>11.2 GLOSSARY</b>			
Alluvial	A general term for clay, silt, sand and gravel transported by water and deposited on the bed of a floodplain, river or stream.	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.
Alluvium	Sediment (gravel, sand, silt, clay) transported by water (i.e. deposits in a stream channel or floodplain).	Batter	
			An engineered slope of soil or rock fill on either side upslope or downslope of a road, embankment or waste rock storage; the sloping banks of cut earth separating different levels in an open pit.
Ambient air quality	The all-encompassing air quality associated with a given environment. It is the cumulative result of emissions (e.g. dust, particulates) from many sources, both near and far.	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.
Ambient Noise	The all-encompassing noise associated with a given environment. It is the cumulative result of sounds from many sources, both near and far.	Catchment	
			The entire land area from which water (e.g. rainfall) drains to a specific watercourse or water body.
Amenity	Useful and enjoyable quality.	Confluence	
			A body of water formed by the flowing together of two or more watercourses.
Aquatic	Living in or on water, or concerning water.	CO <sub>2</sub> -e	
			carbon dioxide equivalent.
Aquifer	A sub-surface rock formation containing water in recoverable quantities.	Cross-section	
			A two-dimensional diagram of an object presented as if the object had been cut across its length.



dB	Decibel; unit used to express sound intensity.	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 (CO <sub>2</sub> -e).
dBA	Decibel (A-weighted scale); unit used for most measurements of environmental noise; the scale is based upon typical responses of the human ear to sounds of different frequencies.	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.
Decommissioning	Removal or reuse of infrastructure.	Habitat	The particular local environment occupied by an organism.
Depressurisation	Depression in the potentiometric surface of an aquifer. Depressurisation does not necessarily result in physical drawdown within constrained aquifer units.	Hardstand areas	Flat or gently sloping surface that has been engineered such that it is suitable for trafficking by vehicles and/or location of infrastructure.
Drawdown	The localised lowering of groundwater level.	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.
Ecologically Sustainable Development (ESD)	Development that improves the quality of life, in a way that maintains the ecological processes on which life depends.	Hydraulic gradient	The change in static head (i.e. elevation and pressure) per unit of distance in a given direction (units: dimensionless).
Ecosystem	An interacting system of animals, plants, other organisms and non-living parts of the environment.	Hydraulic properties	Parameters which measure the rate at which water moves through a soil/rock mass.
Electrical Conductivity (EC)	The ability of a substance (either solid, liquid or gas) to transmit electricity.	<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.
Emission	The discharge of a substance (e.g. dust) into the environment.		
Final void	A depression below the natural ground level at the completion of open cut mining and closure.		

Infrastructure	The supporting installations and services that supply the needs of the Project.	Maxwell Infrastructure	The area within existing mining leases held by Malabar; comprising the substantial existing infrastructure and previous mining areas.
Interburden	Rock material that separates two economically viable coal seams.	Maxwell Underground	Comprising the proposed area of underground mining operations and the MEA within EL 5460.
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.	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.
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.	Mitigation	Measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards.
L <sub>A10</sub>	A-weighted noise exceeded by 10% for the measurement period. Commonly referred to as the average maximum.	Overburden	Waste rock material overlying <i>in-situ</i> coal that must be removed prior to mining of coal.
L <sub>Aeq</sub>	A-weighted equivalent continuous noise level – the level of noise equivalent to the energy-average of noise levels occurring over a measurement period.	Permeability	The ability of a rock or soil to allow fluid to pass through it.
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.	Permian age	The youngest geological period of the Palaeozoic era, covering a span between approximately 290-250 million years before present.
Mt CO <sub>2</sub> -e	Million tonnes of carbon dioxide equivalent.	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.	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).
PM <sub>10</sub>	Particulate matter less than 10 µm in aerodynamic equivalent diameter.		
PM <sub>2.5</sub>	Particulate matter less than 2.5 µm in aerodynamic equivalent diameter.	Spontaneous combustion	Self heating and ignition of a combustible material such as coal.
Rating Background Level (RBL)	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.	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.
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.	Temperature inversion	An atmosphere phenomenon in which air temperature increases with height over a particular interval.
Rehabilitation	The restoration of a landscape and especially the vegetation following its disturbance.	Terrestrial	Living or growing on the land.
Remnant vegetation	Native vegetation remaining after widespread clearing has taken place.	the Project	The Maxwell Project.
Riparian	Pertaining to, or situated on, the bank of a body of water, especially a watercourse such as a river.	Topsoil	The upper or top layer of soil, that typical has higher levels of organic matter and associated micro-organisms.
Runoff	A portion of precipitation (rain, hail and snow) that flows across the ground surface as water.	Total suspended particulates (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).

Transport and services corridor

This would comprise a site access road, a covered, overland conveyor, power supply and other ancillary infrastructure and services.

Tributary

A smaller watercourse, which discharges into a larger watercourse.

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.