

Section 7

Glossary of Terms, Acronyms and Symbols

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GLOSSARY OF SYMBOLS AND UNITS

- °** degrees.
- °C** degrees Celsius.
- %** percentage.
- \$M** million dollars.
- <** less than.
- >** greater than.
- Bq/g** becquerel/gram - unit of radioactive decay where one Bq is a quantity of radioactive material in which one nucleus decays every second.
- cm** centimetre (= 10mm).
- dB** decibel, unit used to express sound intensity.
- dB(A)** the unit of measurement of sound pressure level heard by the human ear, expressed in "A" scale, i.e. excludes the lower and higher frequencies that the average person cannot hear.
- dB(C)** the unit of measurement that includes the higher and particularly lower frequency noise and is used to assess potential damage that may be caused by the imperceptible component of loud noise.
- Dose** is also a relative measure of the effect (or 'detriment') of radiation on the human body.
- g** gram (= 0.001 kilogram).
- g/m²/month** grams per square metre per month – unit for deposited dust.
- GL** Gigalitre (= 1 000ML)
- GWhr** Gigawatt Hours (unit of energy = 1 000 KWh)
- ha** hectare (100m x 100m).
- kg** kilogram (= 1 000 grams).
- kL** kilolitre (= 1 000 litres).
- km** kilometre (= 1 000 metres).
- km²** square kilometre (= 1 million m²).
- km/hr** kilometres per hour.
- kPA** Kilopascal (unit of pressure defined as force per unit area = 1000 Pascals)
- kV** kilovolts.
- L** litre.
- L/s** litres per second.
- L_{A10}** sound level exceeded 10% of the sampling time.
- L_{A90}** sound level exceeded 90% of the sampling time.
- L_{Aeq}** the L_{Aeq} is the "equal energy" average noise levels, and is used in some instances for the assessment of traffic noise effects or the risk of hearing impairment due to noise exposures.
- L_{Aeq(1 hour)}** the "equal energy" average noise level over 60 minutes – used for assessing impacts of noise from motor vehicles on public roads.
- L_{Amax}** the absolute maximum noise level measured in a given time interval.
- m** metre.
- m AHD** metres Australian Height Datum.
- M** million.
- m²** square metre.
- m³** cubic metre.
- m/s** metres per second.
- mg** milligram (weight unit = 0.001 gram).
- mg/L** milligrams per litre (parts per million).
- ML** megalitre (=1 000kL).
- mm** millimetre (= 0.001 metres).
- mm/s** millimetres per second

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mSv millisieverts (= 1 000th of a Sievert)

Mt million tonnes (metric tonne = 1 000kg).

Mtpa million tonnes per annum.

NTU Nephelometric turbidity units.

PM_{2.5} particulate matter <2.5µm in diameter.

PM₁₀ particulate matter <10µm in diameter.

P₈₀ particle size that 80 percent of a given quantity is smaller than

Sv Sievert. Unit of measure for a dose of radiation received at a point or to a person.

SWL standing water level.

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t tonne (= 1 000kg).

Tj Terrajoules (unit measure of energy)

tpa tonnes per annum.

V:H vertical to horizontal ratio

µS/cm microsiemens per centimetre – unit of electrical conductivity

µm micrometres (= 0.001mm)

µg/m³ micrograms (1 x 10⁻⁶ grams) per cubic metre

µSv microsievert (=1 000 000th of a Sievert)



GLOSSARY OF TERMS

A horizon – part of soil profile immediately below the topsoil.

adverse weather conditions (in respect of dust) – conditions, such as high wind, that assist the movement of dust from the mine towards receptors.

adverse weather conditions (in respect of noise) – conditions, such as temperature inversions or gentle winds (<3m/s) from the mine towards receptors.

aerial photograph – a photograph of the landscape taken from a plane (typically covering several kilometres across) used for the surveying and interpretation of vegetation type, geology, land use, etc.

aerial survey – survey of a landscape from an aeroplane, typically involving aerial photography, to determine specific characteristics (e.g. mineral potential or land use).

airblast overpressure – a shock wave from a blast transmitted through the air, normally measured in dB(Linear).

air pollutant – a substance in ambient atmosphere, resulting from the activity of man or from natural processes, causing adverse effects to man and the environment (also called "air contaminant").

air pollution emissions inventory – all information, collection and processing system containing data on emissions of, and sources of, air pollution from both man-made and natural causes.

air quality criteria – quantitative relationship between a pollutant's dose, concentration, deposition rate or any other air quality-related factors, and the related effects on receptors, e.g. humans, animals, plants, or materials. Air quality criteria serve as the scientific basis for formulating ambient air quality standards or objectives.

alkaline – having a pH greater than 7.0.

alluvial – pertaining to material, such as sand or silt, deposited by running water (e.g. a creek or river).

ambient level – existing level of a phenomenon without the influence of the project.

amenity – the desirability of an area.

amphibian – animals (such as frogs) adapted to live both on land and in water.

anecdotal evidence – informal, oral or written evidence of an event.

Applicant – person, organisation or company proposing to carry out an activity / seeking development consent, i.e. Australian Zirconia Ltd.

aquifer – rock or sediment capable of holding and transmitting groundwater; a layer of water-bearing material which is permeable and can transmit significant quantities of water.

arboreal – pertaining to tree habitats.

archaeology – the scientific study of human history, particularly the relics and cultural remains of the distant past.

artefact – anything made by human workmanship, particularly by previous cultures (such as chipped and modified stones used as tools).

atmospheric stability – a measure of turbulence which determines the rate at which the effluent is dispersed as it is transported by the wind.

attenuation – reduction in sound pressure levels between two locations.

average annual daily traffic (AADT) – unit of assessment of traffic flow along a road.

average annual rainfall – the average amount of rain to fall at a specific location over the period of 1 year (measured in millimetres).

Average Recurrence Interval (ARI) – statistical period in years for a design storm event.

B horizon – subsoil material located below the A horizon material and above the parent rock.



background dust level – dust level in the absence of mining and processing activities.

background noise level – the level of the ambient sound indicated on a sound level meter in the absence of the sound under investigation (eg sound from a particular noise source; or sound generated for test purposes).

baseline monitoring – monitoring performed prior to site development.

batter – an engineered slope of soil or rock fill on either side upslope or downslope of a road, embankment or mine waste storage.

bedrock – unweathered rock lying below the soil and weathering profile.

bench – a horizontal step in the face of a quarry or mine which could be up to 1m to 5m wide (if terminal).

biodiversity – the full range of living things and the ecosystem in which they live.

biodiversity offset strategy – a method of providing for disturbance attributable to the project through additional or compensatory measures.

biota – living components of a habitat.

blasting – the operation of breaking rock by means of explosives.

bore – a well, usually of less than 20cm diameter, sunk into the ground and from which water is pumped.

brackish – a term for water that contains noticeable proportion of salt but far less than salt water.

buffer – a physical barrier / structure or width of land that encloses, partially encloses, or defines a particular environment. A buffer serves to minimise the impacts of non-desirable external influences on the adjoining environment.

bulldozer – an item of tracked mobile earth moving equipment fitted with a front blade and with rear rippers used for pushing and ripping soil and rock.

bund – embankment of clay or weathered rock emplaced for visual or acoustic screening or to control surface water flow.

catch bank – an earth bank constructed to divert water away from disturbed areas.

catchment area – the area determined by topographic features within which rainfall will contribute to runoff at a particular point.

cation – an ion having a positive charge and characteristically moving toward a negative electrode.

channel (natural) – river or irrigation channel, includes bed and bank.

channel (surface water control structure) – extraction used to intercept and redirect runoff.

chronic – long term (health risk assessment).

clay – a size term denoting particles, regardless of mineral composition, with diameter less than 0.004 mm.

colluvium – unconsolidated soil and angular rock material moved largely by gravity, deposited on lower slopes and/or at the base of a slope.

community – a combination of plants that are dependent on their environment and influence one another and modify their own environment. They form together, with their common habitat and other associated organisms, an ecosystem, which is also related to neighbouring ecosystems and to the macroclimate of the region.

concentration – the amount of a substance, expressed as mass or volume, in a unit volume of air.

conductivity – the measurement of the ability of a substance (either a measure of solid, liquid or gas) to transmit electricity; a measure of the salt content.

confluence – junction of streams.

conservation – the management of resources in a way that will benefit both present and future generations.

contour bank – an earth bank constructed across a slope parallel to contours.

conveyor – a device fitted with an endless rubber belt used for moving materials.

cross-section – a two-dimensional representation of an area presented as if the area had been cut along its length.

crusher – that part of a processing plant where the coal is mechanically crushed into smaller pieces.

crushing – the mechanical process of reducing rock size usually by pressure or impact.

culvert – large pipe or channel carrying water underneath a structure (eg. a road).

cumulative – increasing by successive additions.

decibel – unit expressing difference in power between acoustic signals.

density – 1. The mass of a substance (e.g. sediment) divided by its volume; water has a density of exactly 1 kilogram per litre;

2. The coverage of vegetation (e.g. trees) per unit of distance (along a linear transect) or unit of area (in an area transect).

Derived grassland – in accordance with the description of Benson (1996).

Development Application - an application a local council or other Authority for approval of an activity deemed to require an approval prior to commencement.

dispersibility – a characteristic of soils relating to their structural breakdown in water into individual particles.

dispersion model – a set of mathematical equations relating to the release of air pollutants to the corresponding concentrations in the ambient atmosphere or deposition on surfaces.

dissolved oxygen – the amount of gaseous oxygen dissolved in water and available for a biochemical activity (e.g. breathing in by fish).

distribution of species – the entire area in which a population of a species, subspecies or other taxon is found.

drawdown – the difference between the water level observed during pumping and the non-pumping water level (static water level or static head).

drilling – the action of boring holes (usually less than 30 centimetres in diameter and up to several kilometres deep) into the ground, typically to establish a water bore or to investigate the geology found at depth.

dust – particles of mostly mineral origin generated by erosion of surfaces and the mining and handling of materials.

dust concentration – the amount of a substance, expressed as mass or volume, in a unit volume of air.

electrical conductivity (EC) – the ability of a substance (either solid, liquid or gas) to transmit electricity, often used as a measure of salinity.

ecology – the relationship between living things and their environment.

ecologically sustainable development (ESD) – using, conserving and enhancing the community's resources so that ecological processes on which life depends are maintained and the total quality of life, now and in the future can be increased.

ecosystem – the totality of biological processes and interactions within a specified physical environment.

emission – a discharge of a substance (e.g. dust) into the environment.

environment – a general term for all the conditions (physical, chemical, biological and social) in which an organism or group of organisms (including human beings) exists.

environmental constraint – limitation on a project by components of the existing environment.

environmental policy – statement by an organisation of its intentions and principles, in relation to the overall environmental performance, which provides a framework for action and for the setting of its environmental objectives and targets.

ephemeral – not permanent, e.g. a stream that flows only seasonally or after rainfall or a lake that periodically dries out.

erodibility – the tendency of soil, earth or rock to erode.

erosion – the wearing away of the land surface (whether natural or artificial) by the action of water, wind and ice.

erosion potential – the susceptibility of a parcel of land to the prevailing agents of erosion. It is dependent on a combination of climate, landform, soil, land use and land management factors.

evaporation – the loss of water as vapour from the surface of a liquid that has a temperature lower than its boiling point.

excavate – to dig into natural material or fill using an excavator or other machinery.

excavator – item of earth moving equipment fitted with a bucket on an articulated boom and used for digging material from a face in front of, or below the machine.

exotic – introduced or foreign, not native.

fauna – a general term for animals (birds, reptiles, marsupials, fish etc.) particularly in a defined area or over a defined time period.

feral – domesticated animals that have become wild.

formation – a large stratigraphic sequence of rock beds (sandstone, shale, limestone, etc.) generally deposited over a distinct geological period.

fragmentation – the extent to which rock is broken into small pieces by primary blasting.

front-end loader – machine used to lift and place soil, earth, rocks, etc. on a construction site.

fugitive emission – emission not entering the atmosphere from a stationary vent (stack). Examples of fugitive dust sources include vehicular traffic on unpaved roads, handling of raw materials, wind erosion of dusty surfaces, etc.

geological reserves – the measured total quantity of in-situ resource in a deposit, prior to consideration of mining parameters.

geotechnical – technical or engineering aspects relating to soil, rock and other materials.

grader – an item of earthmoving equipment, rubber tyred and fitted with a centrally mounted blade and rippers used to shape and trim the ground surface.

gradient – rate of change of a given variable (such as temperature or elevation) with distance.

grassland – an extensive area of largely treeless land covered mainly by natural grasses.

greenhouse – the heating of the earth's surface because outgoing long-wavelength radiation from the earth is absorbed and re-emitted by the carbon dioxide and water vapour in the lower atmosphere and eventually returns to the surface.

ground vibration – oscillatory motion of the ground caused by the passage of seismic waves originating from a blast.

groundcover – vegetation that grows close to the ground (such as grasses and herbs) providing protection from erosion.

groundwater – all waters occurring below the land surface; the upper surface of the soils saturated by groundwater in any particular area is called the water table.

habitat – the place where an organism normally lives; habitats can be described by their floristic and physical characteristics.

haul road – road used in a mine for haulage of material mined and for general site access.

haul truck – a truck specifically designed for off-road hauling of material mined.

heavy metals – normally trace metals which occur in ore deposits which, depending on their concentration may be environmentally hazardous e.g. copper, lead and zinc.

heritage – the things of value which are inherited.

heritage significance – of aesthetic, historic, scientific, cultural, social, archaeological, natural or aesthetic value for past, present or future generations.

hydraulic gradient – the direction of flow of groundwaters.

hydrogeology (geohydrology) – the study of groundwater and the related geologic aspects of surface waters.

impact – the effect of human induced action on the environment.

indigenous – belonging to, or found naturally in, a particular environment.

in situ – a term used to distinguish material (e.g. rocks, minerals, fossils, etc.) found in its original position of formation, deposition, or growth, as opposed to transported material.

infiltration – the process of surface water soaking into the soil.

in-flow – flow directed into a particular feature, such as a lake or a mine pit.

infrastructure – the supporting installations and services that supply the needs of a project, e.g. road or rail.

inter-generational equity – the principle 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.

intermittent – flows periodically, irregularly.

invertebrate – commonly, animals without a backbone (jellyfish, worms, molluscs, etc.).

ion – an atom or compound that has gained or lost an electron, so that it is no longer electrically neutral but carries a positive or negative charge.

landform – a specific feature of a landscape (such as a hill) or the general shape of the land.

loam – loose soil composed of clay and sand, especially a kind containing organic matter and of great fertility.

Local Environmental Plan (LEP) – a plan developed by a council to control development in part or all of their shire or municipality.

long-term – a period of time often associated with annual air quality standards. Long-term models usually address pollutant concentrations over several seasons to one year.

mammal – animal of the class Mammalia, distinguished by the presence of hair and mammary glands.

maximum instantaneous charge (MIC) – the maximum amount of explosives detonated during each delay during a blast.

migratory – passing, usually predictably (based on aquatic species), from one region or climate to another, for purposes of feeding, breeding, or other biological purposes.

mitigation measure – measure employed to reduce (mitigate) an impact (such as the construction of a perimeter bund to reduce sound emissions).

mobile equipment – wheeled or tracked self propelled equipment such as trucks and front-end loaders.

monitoring – systematic sampling and, if appropriate, sample analysis to record changes over time caused by impacts such as mining; the regular measurement of components of the environment to understand a feature of the environment and/or establish that environmental standards are being met.

native – said of an organism or group of organisms that is restricted to a particular region or environment. A local inhabitant of a place.

natural – existing in, or formed by, nature (generally excludes anything obviously modified by human beings).

neutral – neither acidic nor basic (e.g. a pH equal to 7.0).

noxious – introduced species considered to be harmful to native species or to the habitat of native species.

nutrient – generally refers to nitrogen and phosphorus, which are essential for biological growth.

particle size distribution – the relative proportions of particles (e.g. in a sediment) that fall within specific size categories.

particulate matter – small solid or liquid particles suspended in or falling through the atmosphere - sometimes expressed by the term particulates.

peak particle velocity (ppv) – a measure of ground vibration reported in millimetres per second (mm/sec).

perennial – refers to stream which has flow throughout the year or plant that lives for more than two growing seasons.

permeability – a material property relating to the ability of the material to transmit water.

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 acid, and 14 is most basic (alkaline).

Phreatic surface – is the location below surface where the pore water pressure is under atmospheric conditions, i.e. the pressure head is zero, coinciding with the water table. The slope of the phreatic surface is assumed to indicate the direction of groundwater movement in an unconfined aquifer.

piezometer – a core drilled specifically for the monitoring of groundwater levels and water quality.

pollution – the alteration of air, soil, or water as a result of human activities such that it is less suitable for any purpose for which it could be used in its natural state.

population – a group of organisms all of the same species occupying a particular area.

potable – water suitable for human consumption.

precautionary principle – where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation; a principle of ESD which states that decisions about any proposed development should be guided by careful management to avoid serious and irreversible damage to the environment.

progressive rehabilitation – rehabilitation of mine or disturbed areas as soon as practicable after they are released during the life of the mine or after the final landform is achieved.

quadrat – a square survey area.

quantify – to determine the quantity or amount of a component in a substance.

Rating Background Level – the overall single-figure background noise level representing each assessment period (day / evening / night) over the whole monitoring period.

radon – chemical element with symbol Rn (atomic number 86). It is a radioactive, colourless, odourless, tasteless noble gas, occurring naturally as an indirect decay product of uranium or thorium.

radionuclide – or a radioactive nuclide, is an atom with an unstable nucleus, characterized by excess energy available to be imparted either to a newly created radiation particle within the nucleus or via internal conversion. During this process, the radionuclide is said to undergo radioactive decay.

raffinate – is the liquid stream which remains after solutes from the original liquid are removed.

Receptor – A privately-owned residence, community facility or enterprise at which noise and/or air quality is predicted as a result of modelling of the Proposal.

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.

rehabilitation – the preparation of a final landform after mining and its stabilisation with grasses, trees and shrubs. In mining, rehabilitation means restoring mined land so that it can be used for the same or some other purpose after mining has finished.

relative humidity – the ratio of actual moisture in the air to the amount the air could hold if saturated, at a given temperature.

remnant native vegetation – native vegetation remaining after widespread clearing has taken place.

reptile – cold-blooded vertebrates, including lizards, snakes, turtles, and crocodiles.

reserves – in the mining context refers to those parts of a resource where sufficient information is available to undertake mine planning.

residue – material remaining after ore material has been processed and the relevant valuable materials have been removed.

resources – an estimate of potentially usable magnetite and limestone in a defined area based on preliminary information.

revegetation – replacement of vegetation, principally grasses and legumes on areas disturbed by mining activities.

riparian – pertaining to a river or stream bank.

runoff – that portion of the rainfall falling on a catchment area that flows from the catchment past a specified point.

saline – water with high salt concentration.

salinity – the dissolved content of water expressed in terms of milligrams per litre.

scarred tree – tree with cuts in its bark or wood made by Aborigines.

sediment – material such as mud and sand that has been moved and deposited by water, ice or wind.

sediment basin – a small excavation designed to trap the coarse material washed from disturbed areas.

sequence (geological) – layers of (predominantly) sedimentary rocks sourced from a common geological environment or period.

sight distance – the distance along the road visible to the driver. It is measured along the normal travelled path of a roadway from the driver's location (such as at an intersection) to a specified height above the roadway when the view is unobstructed by traffic.

solubility – the ability of a substance (such as copper) to dissolve in a solvent (such as water); solubility depends on such factors as temperature and pH.

species – a taxonomic grouping of organisms that are able to interbreed with each other but not with members of other species.

species diversity – a measure of the number of different species in a given area.

stable – used with respect to the atmospheric boundary layer, when the vertical temperature gradient is greater than the adiabatic lapse rate. Vertical air motions are suppressed. The turbulence intensity is low resulting in poor dispersion conditions.

stakeholder – person, group or organisation or company with an interest in an activity or outcome.

stockpile – a pile used to store material for future use.

storage capacity – the maximum volume of liquid able to be retained in a container (e.g. a reservoir or lake).

stormwater – surface water runoff immediately after rainfall.

stratigraphy – the succession and age of strata of rock and unconsolidated material. Also concerns the form, distribution and lithologic composition of the strata.

stream order – defined by the Strahler stream order used to define stream size based upon a hierarchy of tributaries.

- **first order streams** – the smallest streams in a drainage network that have no tributary streams.

- **second order streams** – two first order streams unite to form a second order stream.
- **third order streams** – have second and first order streams as tributaries.
- **fourth, fifth, sixth, etc. orders** – reflect a similar approach to second or third order streams.

As the order of the stream increases, the discharge increases, the gradient decreases and the channel dimensions increase to accommodate discharge.

stripping – removal of vegetation and topsoil.

structure (soil) – the physical texture of the soil arising from the interrelationship between the grain size, composition, and organic nature of a soil.

subsoil – the layer of soil lying below the topsoil; usually contains less organic matter and is less fertile.

surface water – all water flowing over, or contained on, a landscape (e.g. runoff, streams, lakes, etc.).

suspended solids – analytical term applicable to water samples referring to material recoverable from the sample by filtration.

sustainable development – development that meets the needs of the present without compromising the ability of future generations to meet their needs (World Commission on Environment and Development 1990).

temperature inversion – a weather term for a surface defining the boundary between two layers of air or different temperatures; generally used in meteorology with respect to an increase of temperature with height in contrast with the usual decrease of temperature with height in the troposphere. An inversion layer is distinguished by its large stability, which limits the turbulence and therefore the dispersion of pollutants.

terrestrial – of or relating to the land, as distinct from air or water.

texture (of soil) – variations in composition, grain size distribution, and structure.

thorium – is a naturally occurring radioactive chemical element (symbol Th and atomic number 90). Virtually all thorium is found as thorium 232, which undergoes alpha decay with a half-life of about 14.05 billion years. Thorium produces a radioactive gas, radon-220, as one of its decay products.

threatened species – a species specified in Part 1 or 4 of Schedule 1, Part 1 of Schedule 1A or Part 1 of Schedule 2 of the TSC Act 1995 or listed in the categories as defined in Section 179 of the EPBC Act 1999.

topography – the physical relief and contour of a region.

topsoil – the surface or upper layer of soil, usually containing more organic material, viable life forms, seeds and nutrients than the subsoil beneath it.

total suspended particulates (TSP) – the mass of all particulate matter suspended in a solution.

total suspended solids – 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 stream or river that flows into a larger river or lake.

uranium – a silvery-white metallic chemical element (Symbol U and atomic number 92) in the actinide series of the periodic table. Uranium is weakly radioactive because all its isotopes are unstable.

vehicle movement – a one-way trip.

vibration – oscillating movement.

visual amenity – attractiveness to the eye.

watercourse – a passage along which water concentrates and flows towards a stream, drainage plain or swamp intermittently during or following rain.

waste rock – in the mining context refers to non-economic material to be removed to allow access to the resource.

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weed – any plant (in particular an herbaceous one) that survives in an area where it is harmful or troublesome to the desired land use.

wildlife corridor – a strip of vegetation that has a design purpose of allowing animals to pass from one area to another and acting as an undisturbed area for wildlife preservation.

wind direction – the direction from which the wind, averaged over a certain period of time, is blowing.

wind erosion – wearing away of exposed soil, earth, or rock surfaces by the abrasive action of wind-blown particles (e.g. grains of sand).

wind rose – diagrammatic representation of wind direction, strength, and frequency of occurrence over a specified period.

woodland – plant communities dominated by trees whose crowns shade less than 30% of the ground.

yield – (of a water bore) 1) the capacity of the bore to produce water. 2) the amount of water actually withdrawn.



GLOSSARY OF ACRONYMS

AADT	Annual Average Daily Traffic.	AWS	Airport Weather Station
ABS	Australian Bureau of Statistics.	AZL	Australian Zirconia Ltd.
ACHCR	Aboriginal Cultural Heritage Consultation Requirements.	BAL	Basic Left Turn.
ACHMP	Aboriginal Cultural Heritage Management Plan.	BAR	Basic Right Turn.
AEMR	Annual Environmental Management Report.	BBAM	BioBanking Assessment Methodology.
AGO	Australian Greenhouse Office.	BEC	Biosphere Environmental Consultants Pty Ltd.
AHA	Alison Hunt & Associated Pty Ltd.	BMP	Blast Management Plan.
AHD	Australian height datum (in metres).	BOA	Biodiversity Offset Area.
AHIMS	Australian Heritage Information Management System.	BOM	Bureau of Meteorology.
AIS	Agricultural Impact Statement.	BOS	Biodiversity Offset Strategy.
ALARA	As low as reasonably achievable.	BVT	Broad vegetation types.
ANFO	Ammonium Nitrate Fuel Oil.	BWWHS	Binjang Wellington Wiradjuri Heritage Survey.
ANSTO	Australian Nuclear Science and Technology Organisation.	CAA	Controlled Activity Approvals.
ANZECC	Australian and New Zealand Environment and Conservation Council.	C&L	Catchment and Lands.
APIA	Australian Pipeline Industry Association.	CAP	Catchment Action Plan.
APZ	Asset Protection Zone.	CBR	California Bearing Ratio.
AQMP	Air Quality Management Plan.	CCC	Community Consultative Committee.
ARI	Annual Recurrence Interval.	CEEC	Critically Endangered Ecological Community.
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency.	CEMP	Construction Environmental Management Plan.
ARTC	Australian Rail Track Corporation.	CHR	Channelised Right Turn.
AS	Australian Standard.	CMA	Catchment Management Authority.
AUL	Auxiliary Left Turn.	CORTN	Calculation of Road Traffic Noise.
AUSRIVAS	Australian River Assessment System	CPDP	Conceptual Project Development Plan.
		CSG	Coal Seam Gas.
		CSM	Conceptual Site Model.

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CT	Contaminant Threshold.	DTIRIS	Department of Trade and Investment, Regional Infrastructure and Services.
CVO	Cadia Valley Operations.	DWE	(Former) Department of Water & Energy.
CW	Central West.	DZP	Dubbo Zirconia Project.
CWR	Continuous Welded Rail.	EBITDA	Earnings before Interest, Taxes, Depreciation, and Amortization.
dB(A)	decibels, A-weighted scale.	EC	Electrical Conductivity.
dB(A)	decibels, C-weighted scale.	ECRTN	Environmental Criteria for Road Traffic Noise.
DCC	Dubbo City Council.	EEC	Endangered Ecological Community.
DECA	D.E. Cooper & Associates Pty Ltd.	EES	Environmental Earth Sciences Pty Ltd.
DECC	(Former) Department of Environment and Climate Change (NSW).	EFA	Ecosystem Function Analysis
DCCEE	Department of Climate Change and Energy Efficiency.	EIS	Environmental Impact Statement.
DECCW	(Former) Department of Environment Climate Change and Water (NSW).	EL	Exploration Licence.
DFN	Dubbo Field Naturalists.	ELA	Exploration Licence Application.
DFS	Definitive Feasibility Study.	EMM	EMGA Mitchell McLennen.
DG	Dust Deposition Gauge.	EPA	Environment Protection Authority.
DGR	Director-General's Requirements.	EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW).</i>
DLWC	NSW Department of Land and Water Conservation.	EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth).</i>
DoP	(Former) Department of Planning (NSW).	EPL	Environment Protection Licence.
DP	Deposited Plan.	EPMS	Engineering and Project-Management Services.
DPI	Department of Primary Industries.	ERICA	Environmental Risk from Ionising Contaminants Assessment.
DPI-MR	(Former) Department of Primary Industries - Mineral Resources. (See I&I NSW).	ERML	Environmental Radiation Monitoring Locations.
DP&I	Department of Planning and Infrastructure (NSW).	ESD	Ecologically Sustainable Development.
DPP	Demonstration Pilot Plant.	ETL	Electricity Transmission Line.
DRE	Division of Resources and Energy (of DTIRIS).	FDI	Fire Danger Index.
DSEWPaC	Department of Sustainability, Environment, Water, Heritage, Populations and Communities (Commonwealth).	FIFO	Fly In Fly Out.



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FM Act	<i>Fisheries Management Act 1994.</i>	LEP	Local Environmental Plan.
FWD	Falling Weight Deflectometer.	LGA	Local Government Area.
GCNRC	Geoff Cunningham Natural Resource Consultants Pty Ltd.	LPMA	(Former) Land & Property Management Authority (NSW).
GDE	Groundwater dependent ecosystem.	LREC	Light Rare Earth Concentrate.
GHG	Greenhouse Gas.	LREE	Light Rare Earth Element.
GLC	Ground-level concentration.	LRLG	Little Rive Landcare Group.
GRP	Gross Regional Product.	LRSF	Liquid Residue Storage Facility.
GVM	Gross Vehicle Mass	MDD	Maximum Dry Density.
HDPE	High Density Polyethylene.	MIC	Maximum Instantaneous Charge.
HEC-RAS	Hydrologic Engineering Centres River Analysis System.	ML	Mining Lease.
HGL	Hydrogeological-Landscape.	MLA	Mining Lease Application.
HGL&	Hydrogeological-Landscape Units.	MLC	Member of the Legislative Council.
HIF	Historical Isolated Finds.	MOP	Mining Operations Plan.
HIPAP	NSW Hazard and Industry Planning Advisory Paper.	MP	Member of Parliament.
HRE	Heavy Rare Earth Concentrate.	MR	Main Road.
HREE	Heavy Rare Earth Element.	MRWP	Macquarie River Water Pipeline.
HS	Historical Sites.	NA	Not Applicable.
HS&E	Health, Safety and Environmental.	NAA	National Archives of Australia.
HV	High Voltage.	NATA	National Association of Testing Authorities.
I&I NSW	(Former) Industry & Investment NSW.	NEPC	National Environment Protection Council.
ICNG	Interim Construction Noise Guideline.	NEPM	National Environment Protection Measure.
ICRP	International Commission on Radiological Protection.	NES	National Environmental Significance.
IGANRIP	Interim Guideline for Assessment of Noise from Rail Infrastructure Projects.	NGA	National Greenhouse Accounts.
INP	Industrial Noise Policy.	NGER	National Greenhouse and Energy Reporting.
JRHC	JRHC Enterprises Pty Ltd.	NHMRC	National Health and Medical Research Council.
JHR	John Holland Rail.	NHB	Non-human biota.
LALC	Local Aboriginal Land Council.	NLA	National Library of Australia.



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NMP	Noise Management Plan.	PoM	Plan of Management.
NMVOG	Non-methane volatile organic compounds.	PSA	Particle Size Analysis.
NNTT	National Native Title Tribunal.	PSNL	Project-specific Noise Level.
NOW	NSW Office of Water.	QRA	Quantitative Risk Assessment.
NPW Act	<i>National Parks and Wildlife Act 1974 (NSW).</i>	R	Residence.
NPWS	(Former) National Parks and Wildlife Service (NSW).	RAP	Registered Aboriginal Party.
NSW	New South Wales.	RAV	Restricted Access Vehicle.
NTSCORP	Native Title Services Corporation Limited.	RBL	Rating Background Level.
NTU	Nephelometric Turbidity Units.	RBG	Royal Botanic Gardens.
NVC Act	<i>Native Vegetation Conservation Act 1997 (NSW).</i>	RC Act	Radiation Control Act.
NZS	New Zealand Standard.	RCE	Riparian, Channel and Environmental Inventory.
OCP	Organochlorine Pesticides.	RE	Rare Earth.
OEH	Office of Environment and Heritage (NSW).	REE	Rare Earth Element.
OLM	Ozone Limiting Method.	REF	Review of Environmental Factors.
OMC	Optimum Moisture Content.	REO	Rare Earth Oxides.
ORA	Obley Road Alignment.	RFS	Rural Fire Service.
OzArk	OzArk Environmental Heritage and Management Pty Limited.	RH	Relative Humidity.
OROC	Orana Regional Organisation of Councils.	RHA	Richard Heggie & Associates Pty Ltd.
PAD	Potential Archaeological Deposit.	RING	Rail Infrastructure Noise Guideline.
PEL	Pacific Environment Limited.	RO	Reverse Osmosis.
PFM	Planning Focus Meeting.	ROM Pad	Run of Mine Pad.
PHA	Preliminary Hazard Analysis.	ROTAP	Rare or Threatened Australian Plants.
PHGM	Peak Hill Gold Mine.	RMS	Roads and Maritime Services.
PLS	Pregnant Leach Solution.	RNP	Road Noise Policy.
POEO Act	<i>Protection of the Environment Operations Act 1997 (NSW).</i>	RSF	Residue Storage Facility.
		RTA	Roads and Traffic Authority.
		RWC	R.W. Corkery & Co Pty Limited.
		SB	Sediment Basins.
		SEC	Salt Encapsulation Cell.



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SEEC	Strategic Environmental and Engineering Consultants Pty Ltd.	TSP	Total Suspended Particulate.
SEL	Sound Exposure Level.	TSS	Total Suspended Solids.
SEPP	State Environmental Planning Policy.	TZMI	TZ Minerals International Pty Ltd.
SH	State Highway.	VCP	Vegetation Clearing Protocol.
SLU	Soil Landscape Units.	VPA	Voluntary Planning Agreement.
SPL	Sound Power Level.	WAL	Water Access Licence.
SRLUP	Strategic Regional Land Use Policy.	WBCSD	World Business Council for Sustainable Development.
SRSF	Solid Residue Storage Facility.	WEEC	Wambangalang Environmental Education Centre.
SSD	State Significant Development.	WDD	Wirrimbah Direct Descendants.
SSID	Safe Intersection Sight Distance.	WM Act	<i>Water Management Act 2000.</i>
SSM	Sustainable Soils Management.	WRE	Waste Rock Emplacement.
SX	Solvent Extraction.	WRI	World Resources Limited.
TAPM	The Air Pollution Model.	WSP	Water Sharing Plan.
TDS	Total Dissolved Solids.	WTSA	Welded Track Stability Analysis.
TEC	Threatened Ecological Community.	ZBS	Zirconium Basic Sulphate.
TSC Act	<i>Threatened Species Conservation Act 1995 (NSW).</i>	ZOH	Zirconium Hydroxide.

