

Section 8

Glossary of Technical Terms, Acronyms, Symbols & Units

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ACRONYMS AND ABBREVIATIONS

AADT	Annual Average Daily Traffic	EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
ABS	Australian Bureau of Statistics	EPL	Environment Protection Licence
ADO	Automotive Diesel Oil	ESD	Ecologically Sustainable Development
AEMR	Annual Environmental Management Report	INP	Industrial Noise Policy
AHD	Australian Height Datum; generally equivalent to mean sea level	LALC	Local Aboriginal Land Council
AMD	Acid Mine Drainage	LEP	Local Environmental Plan
ANZECC	Australia and New Zealand Environment and Conservation Council	LGA	Local Government Area
AS	Australian Standard	MOP	Mining Operations Plan
CCL	Consolidated Coal Lease	NEPC	National Environment Protection Council
CD	Collection District (Australian Bureau of Statistics)	NEPM	National Environment Protection Measure
Council	Lithgow City Council	NHMRC	National Health and Medical Research Council
DECC	Department of Environment and Conservation	NSESD	National Strategy for Ecologically Sustainable Development
DECCW	Department of Environment, Climate Change & Water	NPWS	National Parks and Wildlife Service
DIPNR	Department of Infrastructure, Planning and Natural Resources	PFM	Planning Focus Meeting
I&I NSW	Industry & Investment NSW	PM_{2.5}	particulate matter <2.5µm in diameter
DP	Deposited Plan	PM₁₀	particulate matter <10µm in diameter
EC	Electrical Conductivity	PVS	Peak Vector Sum
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>	RBL	Rating Background Level
		REP	Regional Environmental Plan



RH	Relative Humidity
RTA	Roads and Traffic Authority
SCSC	Specialist Consultant Studies Compendium
SEPP	State Environmental Planning Policy
TAPM	The Air Pollution Model
TSC Act	<i>Threatened Species Conservation Act 1995</i>
TSP	Total Suspended Particulates



SYMBOLS

% percentage.

‘000 t multiples of one thousand tonnes.

< less than.

> greater than.

Av average.

°C degrees Celsius.

cm centimetre (unit of length).

dB decibel, unit used to express sound intensity.

dB(A) the unit of measurement of sound pressure level typically heard by the human ear, expressed in “A” scale.

ha hectare (10 000m²).

hr hour.

g/m²/month grams per metre squared per month.

km kilometre (= 1 000 metres).

km² square kilometres.

km/hr kilometres per hour.

kV thousand volts (unit of electrical potential).

L litre (=1 000 mL).

L_{A1} sound level exceeded 1 per cent of the sampling time.

L_{A10} sound level exceeded 10 per cent of the sampling time.

L_{A90} sound level exceeded 90 per cent 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 motor vehicles.

m metre.

mAHD metres of elevation relative to the Australian Height Datum.

m² square metre.

m³ cubic metre.

ML megalitres.

mm millimetres (= 0.001 metres).

Mm/s millimetre per second.

m/s metres per second.

Mtpa million tonnes per annum.

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 acidic, 7 is neutral acid, and 14 is most basic (alkaline).

t tonnes.

tpa tonnes per annum.

tph tonnes per hour.

tsp total suspended particulate.

µg/m³ micrograms per cubic metre.

µm micron, one millionth of a metre (one thousandth of a millimetre).

vkt vehicle kilometres travelled.

vph vehicles per hour.



GLOSSARY OF TECHNICAL TERMS

PROJECT SPECIFIC

Pine Dale Coal Mine - the currently approved coal mining operation encompassing an area of approximately 83ha north of the Castlereagh Highway (see **Figure 1.3**)

Private Coal Haul Road – privately owned coal haul road from Angus Place Colliery to the Mount Piper Power Station

Proponent – Enhance Place Pty Limited

Project Site – Proposed Pine Dale Coal Mine and the Yarraboldy Extension Area (see **Figure 1.3**)

Yarraboldy Extension area - the proposed mining area to the north of the existing Pine Dale Coal Mine which encompasses an area of approximately 27ha (see **Figure 1.3**). This area encompasses the former Yarraboldy Open Cut Coal Mine

Yarraboldy Open Cut Mine - an unrehabilitated former open cut coal mine to the north of the existing Pine Dale Coal Mine which is situated within the Yarraboldy Extension area

GENERAL

adverse weather conditions (with respect of dust) – conditions, such as high wind, that assist the movement of dust from the Project Site towards receptors

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

air contaminant – 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 pollution")

alkaline – having a pH greater than 7.0

alkalinity – in water analysis a measure of the carbonates, bicarbonates, hydroxides and occasionally the borates, silicates and phosphates in the water

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

aquifer - a layer of water-bearing material which is permeable and can transmit significant quantities of water

aquitard - a layer of water-bearing material which is relatively impermeable and cannot transmit significant quantities of water

amenity – the desirability of an area

ambient – relating to conditions outside the active Project Site.

arboreal – pertaining to tree habitats

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

attenuation – reduction in sound pressure levels between two locations

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

background dust level – dust level in the absence of Project-related 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)

batter – an engineered slope of soil or rock fill on either side upslope or downslope of a road or embankment



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

biophysical – relating to the biological and physical attributes of the environment

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, rock and coal

catch drain – drain used to intercept and redirect runoff

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

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

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

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

contractor – specialist brought in to perform a specific task, such as the construction of site infrastructure

ecology – the relationship between living things and their environment

deceleration lane – a lane used for decreasing speed before leaving a through road

decibel – unit expressing difference in power between acoustic signals

deposition – laying down of particulate material (e.g. sediment in a lake)

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

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

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

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

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

Ecologically Sustainable Development (ESD) – using, conserving and enhancing the community's resources so that the ecological processes on which life depends, are maintained, and the total quality of life now and in the future, can be increased (Commonwealth of Australia 1992)

ecosystem – a functional unit of energy transfer and nutrient cycling in a given place. It includes all the relationships within the biotic community and between the biotic components of the system

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



emission factor – an expression for the rate at which a pollutant is generated as a result of some activity, divided by the level of that activity

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 Assessment (EA) – a report required to accompany a planning application for a major project – covering the project description, assessment of impacts and proposed safeguards and commitments

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

ephemeral – lasting only a short time e.g. creek flow

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

evaporation – the loss of water as vapour from the dam surface of a liquid

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

excavator – item of earth-moving equipment fitted with a bucket on an articulated boom 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 such as birds, reptiles, marsupials, fish etc

flora – a general term for plants

front-end loader – machine generally used to lift and place soil, earth, rocks, etc or to load products into trucks

grader – an item of rubber tyred earthmoving equipment, 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

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, water vapour and other greenhouse gases in the lower atmosphere and eventually returns to the surface

groundwater – water contained in voids such as fractures and cavities in rocks and inter-particle spaces in sediments e.g. sand

groundwater dependent ecosystem – those parts of the environment, the species composition and natural ecological processes of which are determined by the permanent or temporary presence or influence of ground water

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

hydrogeology – the study of groundwater

hydraulic conductivity (k) – the rate of flow of water through the soil profile or in an aquifer through a cross section of unit area under a unit hydraulic gradient, at the prevailing temperature. Usually expressed in units of metres per second or metres per day

hydraulic gradient – the direction of flow of groundwaters

igneous – a rock or mineral that solidified from molten or partly molten material

impact – the effect of human induced action on the environment (modified from Westman, 1985)



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 or ground

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

interburden – material occurring between coal seams

inter-generational equity – the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations

intra-generational equity – the present generation should ensure that improved well-being and welfare are accessible to all sectors of society within Australia and that improved welfare within Australia does not result in decreased welfare in other nations

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

jointing – planes of discontinuity in rockmass which exhibit no evidence of relative movement

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

major project – an activity as defined under the State Environmental Planning Policy (Major Projects) 2005

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 measures – measures implemented to reduce (mitigate) an impact (such as the construction of a amenity bund to reduce sound emissions)

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

monitoring – 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

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

pervious – permeability

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

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)

Project Application – an application to the Department of Planning for approval of a major project (see **Appendix 1**)



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

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

residence time – the time that inflowing water is retained in a wetland or basin before being discharged. The RT is related to the volume of the inflow versus the total storage volume of the basin or wetland

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

silt – classic sediment, most of the particles of which are between 0.063mm and 0.004mm in diameter

social equity – embraces value concepts of justice and fairness so that the basic needs of all the sectors of society are met and there is a fairer distribution of costs and benefits to improve the well-being and welfare of the community, population or society

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

stockpile – a pile used to store material, such as products

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

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 – an atmospheric state where there is an increase in air temperature with height

topography – the physical relief and contour of an area

topsoil – the surface layer of a soil profile containing the main percentage of organic material and viable life forms and seeds

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)

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



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