

Chapter 26

References and terminology

Contents

Contentsi

26 References and terminology26-1

 26.1 References26-1

 26.2 Glossary of terms and abbreviations.....26-6

26 References and terminology

26.1 References

- Acid Sulfate Soils Management Advisory Committee, 1998, *Acid Sulfate Soils Manual*
- Active Living NSW, 2018, *Creating Walkable Neighbourhoods*
- Advisory Committee on Tunnel Air Quality, 2016, *In-Tunnel Air Quality (Nitrogen Dioxide) Policy*
- AECOM & Aurecon Joint Venture, 2022, *Great Western Highway – Central: Preliminary Infrastructure Sustainability Management Plan*, GHWC-AEAU-GWH-ENSB-BHLHL-PLAN
- Attenbrow, 2003, *Sydney's Aboriginal Past: Investigating the Archaeological and Historical Records*
- Australia and New Zealand Environment and Conservation Council, 1990, *Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration*
- Australia ICOMOS, 2013, *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*
- Australian Bureau of Statistics, 2016, *Census of Population and Housing*
- Australian Bureau of Statistics, 2021, *Census of Population and Housing*
- Australian Standard AS 2187, *Explosives – Storage and Use – Part 2: Use of Explosives*
- Australian Standard AS 3959-2018, *Construction of Buildings in Bushfire Prone Areas*
- Australian Standard AS 4970-2009, *Protection of trees on development sites*
- Australian Standard AS 4282:1977, *Control of Obtrusive Effects of Outdoor Lighting*
- Australian Standard AS 4825:2011, *Tunnel Fire Safety*
- Australian Standard AS 3959-2018, *Construction of Buildings in Bushfire Prone Areas*
- Australian/New Zealand Standard AS/NZS ISO 14001:2004, *Environmental management systems—Requirements with guidance for use*
- Austroroads, 2020, *Guide to Traffic Management – Part 3 Traffic Studies and Analysis*
- Blue Mountains City Council, 2000, *A Map for Action: Towards a More Sustainable Blue Mountains 2000-2025*
- Blue Mountains City Council, 2017, *Waterways Health Report 2017*
- British standard BS 7385: Part 2-1993, *Evaluation and Measurement for Vibration in Buildings Part 2*
- Bureau of Meteorology, 2022, *Australian Groundwater Explorer*
- Department of Climate Change, Energy, the Environment and Water, 2021, *Coal and coal seam gas – About*
- Department of Environment and Climate Change, 2008, *Managing Urban Stormwater: Soils and construction - Volume 2D (the 'Blue Book')*
- Department of Environment and Climate Change, 2009, *Interim Construction Noise Guideline*
- Department of Environment, Climate Change and Water, 2010, *Aboriginal Cultural Heritage Consultation Requirements for Proponents*
- Department of Environment, Climate Change and Water, 2011, *NSW Road Noise Policy*
- Department of Environment and Conservation, 2006, *Assessing Vibration – A Technical Guide*

Department of Infrastructure, Transport, Regional Development and Communities, 2021, *Faster Rail*

Department of Planning and Environment, 2016a, *Dark Sky Planning Guideline: Protecting the observing conditions at Siding Spring*

Department of Planning and Environment, 2016b, *Hydrogeological Landscapes of New South Wales and the Australian Capital Territory*

Department of Planning and Environment, 2017, *Central West and Orana Regional Plan 2036*

Department of Planning, Industry and Environment, 2020a, *Biodiversity Assessment Method*

Department of Planning, Industry and Environment, 2020b, *Net Zero Plan Stage 1: 2020-2030*

Department of Planning, Industry and Environment, 2021a, *Technical Supplement: Social Impact Assessment Guideline for State Significant Projects*

Department of Planning, Industry and Environment, 2021b, *NSW Waste and Sustainable Materials Strategy 2041*

Department of Planning, Industry and Environment, 2021c, *Undertaking Engagement Guidelines for State Significant Projects*

Department of Planning, Industry and Environment, 2021d, *Cumulative Impact Assessment Guidelines for State Significant Projects*

Department of Planning, Industry and Environment, 2021e, *Social Impact Assessment Guideline for State Significant Projects*

Department of Planning, Industry and Environment, 2022, *State significant infrastructure guidelines – preparing an environmental impact statement: Appendix B to state significant infrastructure guidelines*

Department of Primary Industries, 2013, *Policy and Guidelines for Fish Habitat Conservation and Management*

Department of Primary Industries, 2014, *Hawkesbury-Nepean Valley Flood Management Review Stage One*

Department of Primary Industries, 2022, *Key Fish Habitat maps*

Department of Regional NSW, 2019, *NSW Exploration and Mining Titles*, (<https://datasets.seed.nsw.gov.au/dataset/nsw-mining-titles>)

Department of Sustainability, Environment, Water, Population and Communities, 2012, *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*

Department of the Environment, Water, Heritage and the Arts, 2013, *Significant Impact Guidelines 1.1 - Matters of National Environmental Significance*

de Vries, S, Verheij, RA, Groenewegen, PP & Spreeuwenberg, P, 2003, *Natural Environments—Healthy Environments? An Exploratory Analysis of the Relationship between Greenspace and Health*

Eco Logical Australia, 2020, *Sydney Drinking Water Catchment Audit 2019*

EMM Consulting, 2022, *Great Western Highway Upgrade Project – Blackheath to Little Hartley, Development of Air Quality Impact Descriptors – Report for ACTAQ*

enHealth, 2012, *Environmental Health Risk Assessment: Guidelines for assessing human health risks from environmental hazards*

Environmental Protection Agency Victoria, 2022, *Guideline for Assessing and Minimising Air Pollution in Victoria*

German standard DIN 4150-3: 1992-02, *Vibration in Buildings – Part 3: Effects on Structures*

Government Architect NSW, 2017, *Better Placed – An integrated design policy for built environment of New South Wales*

Government Architect of NSW, 2019, *Aligning Movement and Place – Outline for understanding places in relation to movement infrastructure*

Government Architect NSW, 2020a, *Designing with Country*

Government Architect NSW, 2020b, *Connecting with Country Draft Framework*

Greater Sydney Commission, 2018, *A Metropolis of Three Cities – the Greater Sydney Region Plan*

Health Scotland, 2008, *Health Impact Assessment of Greenspace, a Guide*

HealthStats NSW, 2022, *Nepean Blue Mountains Local Health District: Explore Population Health Data and Information*

Heritage NSW, 1998, *NSW Skeletal Remains: Guidelines for Management of Human Remains*

Heritage NSW, 2011, *Care agreement application form: Criteria for the assessment of excavation directors*

Heritage NSW, *NSW Heritage Manual*

Infrastructure Australia, 2020, *Infrastructure Priority List*

Infrastructure Australia, 2021, *2021 Australian Infrastructure Plan*

Infrastructure NSW, 2018, *NSW State Infrastructure Strategy 2018-2038*

Infrastructure NSW, 2022, *NSW State Infrastructure Strategy 2022-2042*

Institute of Air Quality Management, 2014, *Assessment Dust from Demolition and Construction 2014, Version 1.1 (United Kingdom)*

Intergovernmental Panel on Climate Change, 2021, *Sixth Assessment Report*

Jacobs and Arcadis, 2021, *Great Western Highway Upgrade Program: Little Hartley to Lithgow (West Section) Technical Working Paper – Traffic and transport*

Karskens, 1988, *An Historical and Archaeological Study of Cox's Road and Early Crossings of the Blue Mountains, New South Wales*

KJA, 2020, *Blackheath Co-Design Committee: Consultation Process and Outcomes Report: A report prepared for Transport for NSW: Great Western Highway Upgrade Program*

Kendal, D, Lee, K, Ramalho, C, Bower, K & Bush, J, 2016, *Benefits of Urban Green Space in the Australian Context*

Landcom, 2004, *Managing Urban Stormwater – Soils and Construction, Volume 1*

Li, Y, Y. Wang, B. Wang, Y. Wang, & W. Yu, 2019, *The Response of Plant Photosynthesis and Stomatal Conductance to Fine Particulate Matter (PM_{2.5}) based on Leaf Factors Analyzing*

Maas, J, Verheij, RA, Groenewegen, PP, de Vries, S & Spreeuwenberg, P, 2006, *Green space, urbanity, and health: how strong is the relation?*

Mair, R.J., Taylor R.N., & Burland, J.B 1996, *Prediction of ground movements and assessment of risk of building damage due to bored tunnelling*

Mitchell, R & Popham, F, 2007, *Greenspace, urbanity and health: relationships in England*

Mount Victoria to Lithgow Alliance, 2011, *Great Western Highway Upgrade, Mount Victoria to Lithgow Alliance, Environmental Corridor Study, Groundwater*

National Environmental Protection Council, 2021, *National Environment Protection (Ambient Air Quality) Measure*

National Environmental Protection Council, 2004, *National Environmental Protection (Air Toxics) Measure*

National Parks and Wildlife Services, 2020, *Developments adjacent to National Parks and Wildlife Service lands: Guidelines for consent and planning authorities*

National Parks and Wildlife Services, 2021, *Blue Mountains National Park Amendment to Plan of Management*

National Transport Commission, 2020, *Australian Dangerous Goods Code*

NSW Environment Protection Authority, 2014, *Waste Management Guidelines*

NSW Environment Protection Authority, 2017, *Noise Policy for Industry*

NSW Environment Protection Authority, 2022a, *Approved Methods for Modelling and Assessment of Air Pollutants in New South Wales*

NSW Environment Protection Authority, 2022b, *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*

NSW Environment Protection Authority, 2020c, *Draft Construction Noise Guideline*

NSW Health, 2003, *M5 East Tunnels Air Quality Monitoring Project*

NSW Health, 2009, *Healthy Urban Development Checklist, section 10*

NSW Heritage Office, 2001, *Assessing Heritage Significance*

NSW Heritage Office, 2006, *Photographic Recording of Heritage Items Using Film or Digital Capture*

NSW Government, 2011, *Hazardous and Offensive Development Application Guidelines: Applying SEPP 33*

NSW Government, 2013, *NSW Freight and Ports Strategy*

NSW Government, 2014, *Dangerous Goods (Road and Rail Transport) Regulation*

NSW Government, 2018, *NSW Freight and Ports Plan*

NSW Government, 2020a, *Practitioner's Guide to Movement and Place*

NSW Government, 2020b, *Greener Places – Establishing an urban Green Infrastructure policy for New South Wales*

NSW Government, 2021a, *Property Acquisition – A guide for residential owners*

NSW Government, 2021b, *Property Acquisition – A guide for residential tenants*

NSW Government, 2021c, *Electric Vehicle Strategy*

NSW Government, 2022, *NSW Climate Change Adaptation Strategy*

NSW National Parks and Wildlife Service, 2009, *Greater Blue Mountains World Heritage Area Strategic Plan*

NSW National Parks and Wildlife Service, 2020, *Developments adjacent to National Parks and Wildlife Service lands: Guidelines for consent and planning authorities*

NSW Rural Fire Service, 2015, *Bush Fire Prone Land Mapping Tool*

NSW Rural Fire Service, 2019, *Planning for Bush Fire Protection*

Office of Environment and Heritage, 2016, *NSW Climate Change Policy Framework*

Office of Environment and Heritage, 2019, *NSW Government Resource Efficiency Policy*

Parolin, B, 2011, *Economic evaluation of town bypasses: Review of Literature, NSW Roads and Maritime Services*

Parolin, B, 2012, *Economic evaluation of town bypasses: Final Report, NSW Roads and Traffic Authority*

Rankin, 1998, *Ground Movements Resulting from Urban Tunnelling: Predictions and Effects*

Responsible Construction Leadership Group, 2018, *Responsible Construction Leadership Group Sustainable Site Facilities requirements*

Roads and Maritime Services, 2015, *Guideline for Batter Surface Stabilisation using Vegetation*

Roads and Maritime Services, 2017, *Tunnel Urban Design Guideline: Design Guideline to Improve the Customer and Community Experience of Road Tunnels*

Roads and Maritime Services, 2011a, *Stockpile Site Management Guideline*

Roads and Maritime Services, 2011b, *Biodiversity Guidelines: Protecting and Managing Biodiversity on RTA Projects*

Roads and Maritime Services, 2011c, *Procedure for Aboriginal Cultural Heritage Consultation and Investigation*

Roads and Traffic Authority, 2008, *Great Western Highway Upgrade Mt Victoria to Lithgow: Background and Proposed Project Development Report*

Smith, 2021, *Impact of the 2019-20 Fires on the Greater Blue Mountains*

Stacey Agnew, 2022, *Blackheath to Little Hartley Tunnel, Ventilation Report for TfNSW*

Tindale, 1974, *Aboriginal Tribes of Australia: Their Terrain, Environmental Controls, Distribution, Limits and Proper Names*

Transport for NSW, 2013, *Traffic Modelling Guidelines*

Transport for NSW, 2015a, *Noise Mitigation Guideline*

Transport for NSW, 2015b, *Environmental Noise Management Manual*

Transport for NSW, 2017, *NSW Sustainable Design Guidelines Version 4.0*

Transport for NSW, 2018a, *Tourism and Transport Plan*

Transport for NSW, 2018b, *Regional NSW Services and Infrastructure Plan*

Transport for NSW, 2018c, *Road Safety Plan 2021*

Transport for NSW, 2019, *Great Western Highway Upgrade Program – Freight productivity and regional growth FAQ*

Transport for NSW, 2020a, *Future Energy Strategy*

Transport for NSW, 2020b, *Beyond the Pavement*

Transport for NSW, 2020c, *Environmental Impacts Assessment Practice Note – Guideline for Landscape Character and Visual Impact Assessment EIA-N04*

Transport for NSW, 2021a, *Blackheath Consultation Summary Report*

Transport for NSW, 2021b, *Significant travel delays on Great Western Highway and Bells Line of Road in the Blue Mountains until Sunday 18 April*

Transport for NSW, 2021c, *Great Western Highway West – Little Hartley to Lithgow Upgrade Review of Environmental Factors*

Transport for NSW, 2021d, *Great Western Highway Blackheath to Little Hartley Scoping Report*

Transport for NSW, 2021e, *Transport Sustainability Plan*

Transport for NSW, 2021f, *Great Western Highway Duplication - Katoomba to Lithgow: PACHCI Stage 3: Aboriginal Cultural Heritage Assessment Report*

Transport for NSW, 2021g, *Climate Risk Assessment Guidelines*

Transport for NSW, 2021h, *Community Consultation Summary Report*

Transport for NSW, 2021i, *Community Update | Preferred tunnel option | Blackheath Consultation Summary Report*

Transport for NSW, 2022a, *Traffic Volume Viewer*

Transport of NSW, 2022b, *Construction Noise and Vibration Guideline (for Road and Maritime Works)*

Transport for NSW, 2022c, *Great Western Central Highway WCSA - PACHCI 2 Addendum*

Transport for NSW, 2022d, *Unexpected Heritage Items Procedure*

Transport for NSW, 2022e, *Road Noise Model Validation Guideline*

Transport for NSW, 2022f, *Road Noise Criteria Guideline*

Transport for NSW, 2022g, *Future Transport Strategy: Our vision for transport in NSW*

Transport for NSW, 2022h, *Stakeholder Engagement Strategy Great Western Highway Upgrade Program*

Tyrrell Studio and Office of the Government Architect, 2017, *Sydney Green Grid – Spatial Framework and Project Opportunities*

UK Institute of Air Quality Management, 2014, *Guidance on the Assessment of Dust from Demolition and Construction*

WaterNSW, 2021, *Annual Water Quality Monitoring Report*

WaterNSW, 2022, *WaterNSW Realtime Data*

Water Quality Australia, 2018, *National Acid Sulfate Soils Guidance: National Acid Sulfate Soils Identification and Laboratory Methods Manual*

WorkCover NSW, 2005, *Storage and Handling of Dangerous Goods Code of Practice*

World Health Organisation, 2010, *WHO Guidelines for Indoor Air Quality, Selected Pollutants*

World Resources Institute and World Business Council for Sustainable Development, n.d., *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard*

26.2 Glossary of terms and abbreviations

26.2.1 Terms

Term	Definition
active transport	Collective term for walking and cycling
acute or short-term exposure	Contact with a substance that occurs only once or for a short period of time, typically an hour or less, but may be up to 14 days
adverse health effect	A change in body function or cell structure that might lead to disease or health problems
Air Quality Criteria	Refers to the ambient air quality criteria set by the NSW EPA used to assess predicted ground level pollutant concentrations under the Approved Methods for Modelling and Assessment of Air Pollutants in NSW
AM peak hour	Trips travelling on the road network defined in Appendix D (Technical report – Transport and traffic)
ambient noise	The all-encompassing noise at a point composed of sound from all sources near and far

Term	Definition
amenity	Refers to the quality of a place, its appearance, feel and sound, and the way the community experiences the place. Amenity contributes to a community's identity and its sense of place. Aesthetic qualities are an important part of amenity, but the broader concept of amenity is determined also by the physical design of a place and the human activity that takes place within it. A place that has 'amenity' is regarded as pleasant and attractive, as well as convenient and comfortable
Approved Methods (air quality)	Approved Methods for Modelling and Assessment of Air Pollutants in NSW 2017
background concentration (air quality)	Describes all contributing sources of a pollutant concentration other than road traffic. It includes, for example, contributions from natural sources, industry and domestic activity
background noise	The underlying level of noise present in the ambient noise when extraneous noise (such as transient traffic and dogs barking) is removed. The L90 sound pressure level is used to quantify background noise
biodiversity offsets	The gain in biodiversity values achieved from the implementation of management actions on areas of land, to compensate for losses to biodiversity values from the impacts of development
Blackheath Co-Design Committee	A project working group comprising representatives from Transport for NSW, key stakeholders, the community, Blue Mountains City Council and emergency services
capacity	The nominal maximum number of vehicles which has a reasonable expectation of passing over a given section of a lane or roadway in one direction during a given time period under prevailing roadway conditions
carcinogen	A substance that causes cancer
chronic or long-term exposure	Contact with a substance that occurs repeatedly over a long time, with the USEPA indicating defining this as exposures that occur for more than approximately 10% of a lifetime, Exposures that occur for less than 10% of a lifespan are considered sub-chronic
climate change	A change in the state of the climate that can be identified (e.g., using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer
construction fatigue	An impact that may be experienced by receivers that are in the vicinity of concurrent or consecutive project construction activities where the activities overlap or have little or no break between the activities of one project, or multiple adjacent projects
construction footprint	The total extent of surface disturbance areas required for the construction of the project, including construction and operational ancillary facilities and land temporarily required for construction
corridor	A substantial segment of the transport network, in which parallel, possibly competing, transport routes (and modes, where appropriate) operate between two locations

Term	Definition
cumulative (human health)	Total exposure, used in the health impact assessment to refer to exposures that include the background plus project, or to multiple different sources from the project
cut-and-cover	A method of tunnel construction whereby the structure is built in an open excavation and subsequently covered
day (noise)	Construction noise: <ul style="list-style-type: none"> the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays Road traffic noise: <ul style="list-style-type: none"> the period from 7am to 10pm every day of the week
direct impact (biodiversity)	Direct impacts on biodiversity values include those related to clearing native vegetation and threatened species habitat, and impacts on biodiversity values prescribed by the Biodiversity Conservation Regulation 2017 (NSW)
drained	Describing structures that groundwater can enter to lower the groundwater level adjacent the structure
drawdown	Reduction in the level of the water table caused by changes in the local environment
earthworks	Operations involved in loosening, excavating, placing, shaping and compacting soil or rock
ecosystem credits	A measurement of the value of threatened ecological communities, threatened species habitat for species that can be reliably predicted to occur with a plant community type (PCT), and PCTs generally. Ecosystem credits measure the loss in biodiversity values at a development, activity, clearing or biodiversity certification site and the gain in biodiversity values at a biodiversity stewardship site
emission factor	A quantity which expresses the mass of a pollutant emitted per unit or activity
erosion	A natural process where wind or water detaches a soil particle and provides energy to move the particle
evening (noise)	Construction noise: <ul style="list-style-type: none"> the period from 6pm to 10pm Monday to Sunday and Public Holidays Road traffic noise: <ul style="list-style-type: none"> not applicable
exposure (human health)	Contact with a substance by swallowing, breathing, or touching the skin or eyes. Exposure may be short-term (acute exposure), of intermediate duration, or long-term (chronic exposure)
flood prone land	Land susceptible to flooding by the probable maximum flood (also referred to as flood liable land)
floodplain	Area of land which is inundated by floods up to and including the probable maximum flood event (i.e., flood prone land)

Term	Definition
Great Western Highway	Major east to west arterial road between Sydney and Bathurst
greenhouse gas	Gaseous constituents of the atmosphere that absorb and emit infra-red radiation at specific wavelengths within the spectrum of terrestrial radiation emitted by the Earth's surface, the atmosphere itself, and by clouds. This radiation generates heat which warms the atmosphere, and therefore greenhouse gases are a key contributor to the changing climate
groundwater dependent ecosystem	Communities of plants, animals and other organisms whose extent and life process are dependent on groundwater, such as wetlands and vegetation on coastal sand dunes
habitat	An area or areas occupied, or periodically or occasionally occupied, by a species, population or ecological community, including any biotic or abiotic component
heavy vehicles	A heavy vehicle is classified as a Class 3 vehicle (a two-axle truck) or larger, in accordance with the Austroads Vehicle Classification System
impact	Influence or effect exerted by a project or other activity on the natural, built and community environment
indirect impact	Impacts that occur when the project affects native vegetation and threatened species habitat beyond the subject land or within retained areas (e.g., transporting weeds or pathogens, dumping rubbish). This includes impacts from activities related to the construction or operational phase of the project and prescribed impacts
inhalation (human health)	The act of breathing. A hazardous substance can enter the body this way
Katoomba to Blackheath Upgrade	Great Western Highway East – Katoomba to Blackheath Upgrade. Part of the Great Western Highway Upgrade Program
lane	A portion of the carriageway allotted for the use of a single line of vehicles
Little Hartley to Lithgow Upgrade	Great Western Highway Upgrade Program – Little Hartley to Lithgow (West Section). Part of the Great Western Highway Upgrade Program
Medlow Bath Upgrade	Great Western Highway – Medlow Bath. Part of the Great Western Highway Upgrade Program
Matter of National Environmental Significance	A matter of national environmental significance (MNES) is any of the nine defined components protected by a provision of Part 3 of the EPBC Act
microns	Unit of length equal to one millionth of a metre
mid-block	The section of road between two intersections
mitigation	Actions or measures to avoid or reduce the impacts of a project

Term	Definition
morbidity	A diseased condition or state or the incidence or prevalence of disease in a population
mortality	Death, which may occur as a result of a range of reasons or diseases
night (noise)	Construction noise: <ul style="list-style-type: none"> the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays Road traffic noise: <ul style="list-style-type: none"> the period from 10pm to 7am every day of the week
peak flood level	The maximum water level occurring during a flood event
peak flood velocity	The maximum velocity of the water in flooding at any given location
placemaking	Describes an approach to the planning, design and management of public spaces
PM peak hour	Trips travelling on the road network defined in Appendix D (Technical report – Transport and traffic)
population	A group or number of people living within a specified area or sharing similar characteristics (such as occupation or age)
population (biodiversity)	A group of organisms, all of the same species, occupying a particular area
portal emissions option	One of two tunnel ventilation options being considered for the project. This option would involve tunnel emissions being dispersed via the tunnel portals
prescribed impacts	The prescribed impacts identified in Clause 6.1 of the Biodiversity Conservation (BC) Regulation. Prescribed impacts can be direct or indirect impacts
the project	Upgrade of the Great Western Highway between Blackheath and Little Hartley
project impact criteria	Air quality impact criteria developed specifically for the project and endorsed by Advisory Committee on Tunnel Air Quality (ACTAQ). The criteria are listed in Appendix E (Technical report – Air quality)
proponent	For the purpose of the project, the proponent is Transport for NSW
residual impacts	Impacts of the project that remain after mitigation measures are implemented
residual land	Land that would be wholly or partially occupied during construction of the project, but would not be required for permanent operational infrastructure or other operational activities
risk	The probability that something would cause injury or harm
runoff	the amount of rainfall that ends up as streamflow, also known as rainfall excess

Term	Definition
Scope 1 emissions	Direct emissions: greenhouse gas emissions generated by sources owned or controlled by the project, for example emissions generated by the use of diesel fuel in project-owned construction plant, equipment or vehicles
Scope 2 emissions	Indirect emissions: greenhouse gas emissions from the consumption of purchased electricity in project-owned or controlled equipment or operations. These greenhouse gas emissions are generated outside the project's boundaries, for example the use of electricity purchased from the grid
Scope 3 emissions	Indirect upstream/downstream emissions: greenhouse gas emissions generated in the wider economy due to third party supply chains and road users as a consequence of activity within the boundary of the project, for example greenhouse gas emissions associated with the mining, production and transport of materials used in construction (referred to as the embodied energy of a material)
sensitive receiver	Includes residences, educational institutions (including preschools, schools, universities, TAFE colleges), health care facilities (including nursing homes, hospitals), religious facilities (including churches), child care centres, passive recreation areas (including outdoor grounds used for teaching), active recreation areas (including parks and sports grounds), commercial premises (including film and television studios, research facilities, entertainment spaces, temporary accommodation such as caravan parks and camping grounds, restaurants, office premises, retail spaces and industrial premises)
settlement or ground movement	Refers to how ground can move due to the construction of new infrastructure
serious and irreversible impact	Impacts likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct in accordance with the principles set out in Clause 6.7(2) of the BC regulation
social infrastructure	Infrastructure assets that deliver social services and other community uses, including schools, hospitals, childcare centres, libraries, and sport and recreation facilities. The term can also be used to broadly encompass the networks of facilities, places, spaces, programs, projects, and services that sustain a communities' quality of life and wellbeing
sound power level	The total sound emitted by a source
species credits	The class of biodiversity credits created or required for the impact on threatened species that cannot be reliably predicted to use an area of land based on habitat surrogates. Species that require species credits are listed in the Threatened Biodiversity Data Collection
standard construction hours	7am to 6pm Monday to Friday, 8am to 1pm Saturdays, and no work on Sundays or public holidays
stockpile	Temporary stored materials such as soil, sand, gravel, spoil/waste

Term	Definition
study area	Based on the project design to be assessed in the EIS, each technical discipline has defined a study area based on the project footprint and a suitable buffer area
substratum acquisition	The acquisition of land below the surface of the ground
traffic noise	The total noise resulting from road traffic. The Leq sound pressure level is used to quantify traffic noise
Transport	Transport for NSW
the Upgrade Program	<p>The Upgrade Program consists of:</p> <ul style="list-style-type: none"> • Great Western Highway Upgrade – Medlow Bath (Medlow Bath Upgrade): upgrade and duplication of the existing surface road corridor with intersection improvements and a new pedestrian bridge • Great Western Highway East – Katoomba to Blackheath (Katoomba to Blackheath Upgrade): upgrade, duplication and widening of the existing surface road corridor, with connections to the existing Great Western Highway east of Blackheath • Great Western Highway Upgrade Program – Little Hartley to Lithgow (West Section) (Little Hartley to Lithgow Upgrade): upgrade, duplication and widening of the existing surface road corridor, with connections to the existing Great Western Highway at Little Hartley • Great Western Highway Blackheath to Little Hartley: construction and operation of a twin tunnel bypass of Blackheath and Mount Victoria and surface road works for tie-ins to the east and west of the tunnel (the project)
undrained	Describing structures that do not let in groundwater either by cut-off or waterproofing, thereby limiting groundwater drawdown in the aquifer surrounding the structure
ventilation outlet option	One of two tunnel ventilation options being considered for the project. This option would include a ventilation building and ventilation outlet near the tunnel portals at Blackheath and at Little Hartley
waste hierarchy	Approach of prioritising waste avoidance and resource recovery (including reuse, reprocessing, recycling and energy recover) before consideration of waste disposal

26.2.2 Abbreviations

Abbreviation	Definition
ABS	Australian Bureau of Statistics
ACHAR	Aboriginal Cultural Heritage Assessment Report
ACTAQ	Advisory Committee on Tunnel Air Quality
AEI	Areas of environmental interest
AEP	Annual exceedance probability

Abbreviation	Definition
AHD	Aboriginal Heritage Database
AHIP	Aboriginal Heritage Impact Permit
AHIMS	Aboriginal Heritage Information Management System
AHMP	Aboriginal Heritage Management Plan
AIP	Aquifer Interference Policy
ASR	Acid sulfate rock
ASRMP	Acid sulfate rock management plan
ASSMP	Acid sulfate soils management plan
AQIA	Air quality impact assessment
AQMS	Air quality monitoring station
BAM	Biodiversity Assessment Method
BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>
BC Regulation	Biodiversity Conservation Regulation 2017 (NSW)
BCC	Blackheath Co-Design Committee
BDAR	Biodiversity Development Assessment Report
BoM	Bureau of Meteorology
BTEXN	Benzene, toluene, ethylbenzene, xylenes and naphthalene
CBD	Central Business District
CCTV	Closed Circuit Television
CEMP	Construction Environmental Management Plan - A site specific plan developed for the construction phase to ensure that all contractors and sub-contractors comply with the environmental conditions of approval and that the environmental risks are properly managed
CNVMP	Construction Noise and Vibration Management Plan
CTAMP	Construction Transport and Access Management Plan
CWMP	Construction Waste Management Plan
CO	Carbon monoxide
CO ₂	Carbon dioxide
CoPC	Contaminants of potential concern

Abbreviation	Definition
dB	Decibel. A logarithmic scale is used to describe the level of sound, referenced to a standard level. It is widely accepted that a 3dB change in traffic noise levels (of the same character) is barely, if at all detectable; whereas a change of 5 dB is clearly noticeable. A 10 dB increase is typically considered to sound twice as loud (noting a change of -10 dB would typically sound half as loud)
dB(A)	A-weighted decibels. The A weighting is a frequency filter applied to measured noise levels to represent how the human ear hears sounds. Adjustments are applied between 10Hz and 20 kHz. When an overall sound level is A-weighted it is expressed in units of dB(A) or dBA
DECCW	Department of Environment, Climate Change and Water
DPE	NSW Department of Planning and Environment
DPE Water	NSW Department of Planning and Environment Water
DPI	Department of Primary Industries
DPM	Diesel particulate matter
EIS	Environmental impact statement
EPA	NSW Environmental Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW). Provides the legislative framework for land use planning and development assessment in NSW
EP&A Regulation	Environmental Planning and Assessment Regulation 2000 (NSW)
EPBC Act	<i>Environment Protection and Biodiversity Act 1999</i> (Commonwealth)
EPL	Environment Protection Licence
FM Act	<i>Fisheries Management Act 1994</i> (NSW)
GDE	Groundwater dependent ecosystem
GRAMM	Graz Mesoscale Model
GRAL	Graz Lagrangian Model
ha	Hectares
IAQM	Institute of Air Quality Management
ICNG	Interim Construction Noise Guideline
INSW	Infrastructure New South Wales
IRSD	Index of Relative Socio-economic Disadvantage. The IRSD is a general socio-economic index that summarises a range of information about the socioeconomic condition of people and households within an area and provides an indicator of the relative disadvantage or lack of disadvantage within a population

Abbreviation	Definition
ITS	Intelligent Transport Systems
KTP	Key Threatening Process
LALC	Local Aboriginal Land Council
LCZ	Landscape character zone
Leq	Equivalent continuous sound level. The constant sound level which, when occurring over the same period of time, would result in the receiver experiencing the same amount of sound energy
LGA	Local Government Area
Lmax	The maximum sound pressure level measured over the measurement period
Lmin	The minimum sound pressure level measured over the measurement period
LoS	Level of service. A qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers
m	Metres
m AHD	Metres Australian Height Datum
mg/m ³	Milligrams per cubic metre
microns	Unit of length equal to one millionth of a metre
MNES	Matter of National Environmental Significance
m/s	Metres per second
m ³ /s	Cubic metres per second
NCA	Noise catchment area
NEPC	National Environment Protection Council
NHL	National Heritage List
NO	Nitrogen oxide
NorBE	Neutral or beneficial effect on water quality
NO ₂	Nitrogen dioxide
NML	Noise management level
NSW	New South Wales
O ₃	Ozone
OCPs	Organochlorine pesticides
OEMP	Operational environmental management plan

Abbreviation	Definition
OPPs	Organophosphorus pesticides
PACHCI	Procedure for Aboriginal Cultural Heritage Consultation and Investigation
PAHs	Polycyclic aromatic hydrocarbons
PA system	Public address system
PBS	Performance based standards
PCBs	Polychlorinated biphenyls
PCT	Plant community type
PFAS	Per- and poly-fluoroalkyl substances
PM	Particulate matter
PMF	Probable maximum flood
PM _{2.5}	Particulate matter equal to or less than 2.5 microns in diameter
PM ₁₀	Particulate matter equal to or less than 10 microns in diameter
POEO Act	<i>Protection of the Environment Operations Act 1997</i> (NSW)
ppm	Parts per million
PVC	Polyvinyl chloride
RAP	Registered Aboriginal Party
RBL	Rating background level. The overall background level for each day, evening and night period for the entire length of noise monitoring
SAII	Serious and irreversible impact
SEARs	Secretary's environmental assessment requirements
SEPP	State environmental planning policy
SHR	State Heritage Register
SIDRA	Modelling software used to assess intersection performance
SSI	State significant infrastructure
SVOCs	Semi-volatile organic compounds
TBM	Tunnel boring machine
tCO ₂ -e	Tonnes of carbon dioxide equivalent
TEC	Threatened ecological community
THPSS	Temperate Highland Peat Swamps on Sandstone

Abbreviation	Definition
TPH	Total petroleum hydrocarbons
TRH	Total recoverable hydrocarbons
USEPA	Unites States Environmental Protection Agency
VENM	Virgin excavated natural material
VHT	vehicle hours travelled
VIC EPA	Victoria Environment Protection Authority
VKT	Vehicle kilometres travelled
VMS	Variable message sign
VOCs	Volatile organic compounds
WHL	World Heritage List
WHO	World Health Organisation
UK	United Kingdom
µg/m ³	Micrograms per cubic metre