

CHAPTER

# 25

INLAND  
RAIL 

## Glossary and Abbreviations

CALVERT TO KAGARU ENVIRONMENTAL IMPACT STATEMENT

**ARTC**

The Australian Government is delivering  
Inland Rail through the Australian  
Rail Track Corporation (ARTC), in  
partnership with the private sector.

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## 25. Abbreviations and glossary

### 25.1 Abbreviations

Abbreviation	Definition
°C	Degrees Celsius
µg/m <sup>3</sup>	Micrograms Per Cubic Metre
µm	Micrometres
µs/cm	Microsiemens Per Centimetre
AADT	Annual Average Daily Traffic
AAToS	Average Annual Time of Submergence
ABL	Assessment Background Level
ABS	Australian Bureau of Statistics
ACC	Area Consultative Committee
ACH Act	<i>Aboriginal Cultural Heritage Act 2003</i> (Qld)
ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail
ADWG	Australian Drinking Water Guidelines
AEP	Annual Exceedance Probability
AGRD	<i>Austrroads Guide to Road Design (AGRD) Part 5B: Drainage</i> (Austrroads, 2013).
AHD	Australian Height Datum
AIPP	Australian Industry Participation Plan
AL Act	<i>Acquisition of Land Act 1967</i> (Qld)
ALCAM	Australian Level Crossing Assessment Model
AMO	Aeronautical Meteorological Office
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZG	Australian and New Zealand Governments
AOI	Area of Influence
APVMA	Australian Pesticides and Veterinary Medicines Authority
AQIA	Air Quality Impact Assessment
AquaBAMM	Aquatic Biodiversity Assessment and Mapping Methodology
ARD	Acid Rock Drainage
ARF	Areal Reduction Factor
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
ARR 2016	Australian Rainfall and Runoff 2016
ARTC	Australian Rail Track Corporation
AS	Australian Standard
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999
ASS	Acid Sulfate Soils
ATEC	Australian Transport and Energy Corridor
ATMS	Advanced Train Management System
ATP	Authority to Prospect
ATSIHP Act	<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i> (Cth)
BAMM	Biodiversity Assessment and Mapping Methodology

<b>Abbreviation</b>	<b>Definition</b>
BCC	Brisbane City Council
Biosecurity Act	<i>Biosecurity Act 2014</i> (Qld)
BoM	Bureau of Meteorology
BPAs	Biodiversity Planning Assessments
C&D	Construction and Demolition
C2K	Calvert to Kagaru project
CAPEX	Capital Expenditure
CBA	Cost–Benefit Analysis
CBD	Central Business District
CBR	California Bearing Ratio
CCC	Community Consultative Committee
CDMP	Coal Dust Management Plan
CE	Critically Endangered
CEMP	Construction Environmental Management Plan
CG	Coordinator–General
CGE	Computable General Equilibrium
Ch	Chainage
CHMP	Cultural Heritage Management Plan
CIA	Cumulative Impact Assessment
CID	Community Infrastructure Designation
CLR	Contaminated Land Register
CNVMP	Construction Noise and Vibration Management Plan
CO	Carbon Monoxide
COAG	Council of Australian Governments
CO <sub>2</sub> e	Carbon Dioxide Equivalent
CoP Vol 1	Road Traffic Noise Management: Code of Practice – Volume 1 (Department of Transport and Main Roads, 2013)
CoP Vol 2	Transport Noise Management Code of Practice: Volume 2 – Construction Noise and Vibration (Department of Transport and Main Roads, 2016)
CPESC	Certified Professional in Erosion and Sediment Control
CPTED	Crime Prevention Through Environmental Design
CRG	Community Reference Group
CRR	Cross River Rail
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSQ	Construction Skills Queensland
Cth	Commonwealth
CWR	Continuous Welded Rail
DoE	Department of Education
DotEE	Department of the Environment and Energy (former) (Cth)
DAF	Department of Agriculture and Fisheries
DATSIP	Department of Aboriginal and Torres Strait Islander Partnerships
DAWE	Department of Agriculture, Water and the Environment (Cth)

<b>Abbreviation</b>	<b>Definition</b>
dB	Decibel
dBA	Decibel A Weighted
DCDSS	Department of Communities, Disability Services and Seniors (Qld)
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DEHP	Department of Environment and Heritage Protection (former) (Qld)
DERM	Department of Environment and Resource Management (former) (Qld)
DES	Department of Environment and Science (Qld)
DESBT	Department of Employment Small Business and Training (Qld)
DESSFB	Department of Employment, Skills, Small and Family Business (Qld)
DEWSPaC	Department of Sustainability, Environment, Water, Population and Communities (former) (Cth)
DHPW	Department of Housing and Public Works (Qld)
DITCRD	Department of Infrastructure, Transport, Cities, Regional Development and Communications (former) (Cth)
DITRDC	Department of Infrastructure, Transport, Regional Development and Communications (Cth)
DLGRMA	Department of Local Government, Racing and Multicultural Affairs (Qld)
DNRME	Department of Natural Resources, Mines and Energy (Qld)
DO	Dissolved Oxygen
DOTARS	Department of Transport and Regional Services
DPHW	Department of Housing and Public Works (Qld)
DSDMIP	Department of State Development, Manufacturing, Infrastructure and Planning (Qld)
DSDTI	Department of State Development, Tourism and Innovation (Qld)
DTMR	Department of Transport and Main Roads (Qld)
E	Endangered
EA	Environmental Authority
EC	Electrical Conductivity
EDQ	Economic Development Queensland
EEA	European Environment Agency
EIA	Economic Impact Assessment
EIS	Environmental Impact Statement
EMEP	European Monitoring and Evaluation Programme
EMP	Environmental Management Plan
EMR	Environmental Management Register
EMS	Environmental Management System
ENSO	El Niño-Southern Oscillation
EO Act	<i>Environmental Offsets Act 2014</i> (Qld)
EO Regulation	Environmental Offsets Regulation 2014 (Qld)
EP Act	<i>Environmental Protection Act 1994</i> (Qld)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
EPG	Emergency Procedure Guides
EPP (Air)	Environmental Protection (Air) Policy 2019 (Qld)

<b>Abbreviation</b>	<b>Definition</b>
EPP (Noise)	Environmental Protection (Noise) Policy 2019 (Qld)
EPP (Water and Wetland Biodiversity)	Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (Qld)
ERA	Environmentally Relevant Activity
ESA	Environmentally Sensitive Area
ESCP	Erosion and Sediment Control Plan
ESD	Ecologically Sustainable Development
EVs	Environmental Values
EVNT	Endangered Vulnerable and Near Threatened
FAIR GO	Families Against Inland Rail GO
FBW	Flash Butt Welding
FFJV	Future Freight Joint Venture
FHA	Fish Habitat Area
Fisheries Act	<i>Fisheries Act 1994</i> (Qld)
FRL	Fire Resistance Level
FTE	Full-Time Equivalent
G2G	Gowrie to Grandchester
GABORA	Great Artesian Basin and Other Regional Aquifers
GATR	Great Australian Trunk Rail System
GB0	General Biosecurity Obligations
GDE	Groundwater Dependent Ecosystem
GIS	Geographical Information Systems
GMA	Groundwater Management Area
GMMP	Groundwater Monitoring and Management Plan
GRP	Gross Regional Product
GTEPG	Group Text Emergency Procure Guide
GTIA	Guide to Traffic Impact Assessment
H2C	Helidon to Calvert project
ha	Hectares
HES	High Ecological Significance
HVR	High Value Regrowth
Hz	Hertz
IAA	Important Agricultural Area
IAP2	International Association for Public Participation
IAQM	Institute of Air Quality Management
IAR	Impact Assessment Report
IAS	Initial Advice Statement
ICC	Ipswich City Council
ICOMOS	International Council on Monuments and Sites
IDC	Inter-Departmental Committee
IECA	International Erosion Control Association
IEO	Index of Education and Occupation

Abbreviation	Definition
ILUA	Indigenous Land Use Agreement
IARS	Inland Rail Alignment Study
IRIG	Inland Rail Implementation Group
IRSAD	Index of Relative Socio-Economic Advantage and Disadvantage
IS	Infrastructure Sustainability
ISCA	Infrastructure Sustainability Council of Australia
ISO	International Organization for Standardization
K2ARB	Kagaru to Acacia Ridge and Bromelton Project
kg/m	Kilogram Per Metre
kL	Kilolitre
km	Kilometres
km/h	Kilometres Per Hour
km <sup>2</sup>	Square Kilometres
KRA	Key Resource Area
kt	Kiloton
L	Litre
L/sec	Litres Per Second
L <sub>A10(18 hour)</sub>	The arithmetic average of the L <sub>A10(1 hour)</sub> from 6.00 am to 12.00 am
L <sub>Aeq (1 hour)</sub>	The busiest 1-hour 'equivalent continuous noise level'—it represents the typical L <sub>Aeq</sub> noise level from all the Project noise events during the busiest 1-hour of the assessment period
L <sub>Aeq (15 hour)</sub>	The daytime 'equivalent continuous noise level'—it represents the cumulative effects of all the Project noise events occurring in the daytime period from 7 am to 10 pm
L <sub>Aeq (24 hour)</sub>	The 'equivalent continuous noise level', sometimes also described as the 'energy-averaged noise level'—it represents the cumulative effects of all the Project noise events occurring in one day
L <sub>Amax</sub>	The maximum sound level recorded during the measurement period
LADP	Laydown Area Delivery Points
Land Act	<i>Land Act 1994</i> (Qld)
LCA	Landscape Character Areas
LCC	Logan City Council
LCT	Landscape Character Types
LDMG	Local Disaster Management Groups
LGA	Local Government Area
LOR	Limit of Reporting
LOS	Level of Service
LULUCF	Land Use, Land Use Change and Forestry
LVIA	Landscape Visual Impact Assessment
LVRC	Lockyer Valley Regional Council
LWR	Long Welded Rail
LX	Level Crossing
m	Metres
M	Migratory
m <sup>2</sup>	Square Metre

Abbreviation	Definition
m <sup>3</sup>	Cubic Metre
mAHD	Metres above Australian Height Datum
mbNS	Metres Below Natural Surface
MCA	Multi-Criteria Analysis
MCU	Material Change of Use
MEI	Multivariate ENSO Index
meq/100g	Millequivalents per 100 Grams of Soil
mg/L	Milligrams Per Litre
ML	Megalitre
ML/year	Megalitre Per Year
MLES	Matters of Local Environmental Significance
mm/s	Millimetres Per Second
MNES	Matters of National Environmental Significance
MR Act	<i>Mineral Resources Act 1989</i> (Qld)
MSES	Matters of State Environmental Significance
MUSIC Modelling	Model for Urban Stormwater Improvement Conceptualisation
MUTCD	Manual of Uniform Traffic Control Devices
N	Nitrogen
NATA	National Association of Testing Authorities
NC Act	<i>Nature Conservation Act 1992</i> (Qld)
NEPM	National Environmental Protection Measure
NEPM Act	<i>National Environment Protection Measures (Implementation Act) 1998</i> (Cth)
NGER Act	<i>National Greenhouse and Energy Reporting Act 2007</i> (Cth)
NGO	(Local or Regional) Non-Governmental Organisations
NHMRC	National Health and Medical Research Council
NHVR	National Heavy Vehicle Regulator
NO	Nitric Oxide
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Oxides of Nitrogen
NPI	National Pollutant Inventory
NPV	Net Present Value
NRLCSS	National Railway Level Crossing Safety Strategy
NRMMC	Natural Resource Management Ministerial Council
NSW	New South Wales
NT	Near Threatened
NT Act	<i>Native Title Act 1993</i> (Cth)
NTU	Nephelometric Turbidity Units
O <sub>3</sub>	Ozone
OCG	Office of the Coordinator-General
Outline EMP	Outline Environmental Management Plan
ONRSR	Office of the National Rail Safety Regulator
OSOM	Oversize Overmass



<b>Abbreviation</b>	<b>Definition</b>
P	Phosphorous
P&C	Parents and Citizens' Associations
PAH	Polycyclic Aromatic Hydrocarbons
PCA	Potential Commercial Area
PCNP	Principal Cycle Network Plans
PDA	Priority Development Area
PEA	Potential Expression Areas
PHIDU	Public Health Information Development Unit (at Torrens University)
PHN	Primary Health Network
PJ	Petajoules
Planning Act	<i>Planning Act 2016</i> (Qld)
PM <sub>2.5</sub>	Particulate Matter Less Than 2.5 Microns
PM <sub>10</sub>	Particulate Matter Less Than 10 Microns
PMF	Probable Maximum Flood
ppm	Parts Per Million
PPP	Public-Private Partnership
PPV	Peak Particle Velocity
the Project	Calvert to Kagaru
QAS	Queensland Ambulance Service
QEOP	Queensland Environmental Offsets Policy
QFES	Queensland Fire and Emergency Service
QGSO	Queensland Government Statistician Office
QH Act	<i>Queensland Heritage Act 1992</i> (Qld)
QLCSS	Queensland Level Crossing Safety Strategy
QLD	Queensland
QLUMP	Queensland Land Use Mapping Program
QORF	Queensland Outdoor Recreation Federation
QPS	Queensland Police Service
QR	Queensland Rail
QRFS	Queensland Rural Fire Service
QWQG	Queensland Water Quality Guidelines
RAAF	Royal Australian Air Force
RAV	Restricted Access Vehicle
RBL	Rating Background Level
RCBC	Reinforced Concrete Box Culverts
RCP	Reinforced Concrete Pipes
RCS	Respirable Crystalline Silica
RDA	Regional Development Australia
RE	Regional Ecosystem
RIA	Regional Industrial Area
RIDA	Regional Interests Development Approval
RMAR	Rail Maintenance Access Road

<b>Abbreviation</b>	<b>Definition</b>
RMS	Roads and Maritime Services
RPE	Respiratory Protective Equipment
RPI Act	<i>Regional Planning Interests Act 2014</i> (Qld)
RSIS	Regional Skills and Investment Strategy
RSNL Act	<i>Rail Safety National Law (Queensland) Act 2017</i> (Qld)
RUMP	Road Use Management Plan
SALM	Small Area Labour Markets
SAR	Standard Axle Repetition
SARA	State Assessment and Referral Agency
SCA	Strategic Cropping Area
SCR	State-Controlled Road
SDA	State Development Area
SDAP	State Development Assessment Provisions
SDPWO Act	<i>State Development and Public Works Organisation Act 1971</i> (Qld)
SEIFA	Socio-Economic Index For an Area
SEQ	South East Queensland
SES	State Emergency Service
SFRC	Southern Freight Rail Corridor
<i>ShapingSEQ</i>	South East Queensland Regional Plan
SIA	Social Impact Assessment
SIA Guideline	Social Impact Assessment Guideline (Coordinator-General, March 2018)
SIMP	Social Impact Management Plan
SLAM	State Land Asset Management Unit
SLC	Special Least Concern
SO <sub>2</sub>	Sulfur Dioxide
SOI	Southern Oscillation Index
SPL	Sound pressure level
SPP	State Planning Policy
SRI	Significant Residual Impact
SRRC	Scenic Rim Regional Council
SRM Act	<i>Stock Route Management Act 2002</i> (Qld)
SSC	State Suburb Code
SSRC Act	<i>Strong and Sustainable Resource Communities Act 2017</i> (Qld)
STEM	Science, Technology, Engineering and Mathematics
SWL	Standing Water Level
TAL	Tonne Axle Load
TAPM	The Air Pollution Model
TDM	Travel Demand Management
TDS	Total Dissolved Solids
TEC	Threatened Ecological Community
TI Act	<i>Transport Infrastructure Act 1994</i> (Qld)
TJ	Terajoules

<b>Abbreviation</b>	<b>Definition</b>
TKN	Total Kjeldahl Nitrogen
TLM	Track Laying Machine
ToR	Terms of Reference
TORUM Act	<i>Transport Operations (Road Use Management) Act 1995 (Qld)</i>
ToS	Time of Submergence
TPC Act	<i>Transport Planning and Coordination Act 1994 (Qld)</i>
TSMP	Track Stability Management Plan
TSP	Total Suspended Particulates
TSS	Total Suspended Solids
TWI	The Welding Institute
UPS	Uninterruptable Power Supply
US EPA	United States Environmental Protection Agency
USL	Unallocated State Land
USQ	University of Southern Queensland
UXO	Unexploded Ordnance
V	Vulnerable
VAM	Visibility Analysis Mapping
VDV	Vibration Dose Value
VIC	Victoria
VM Act	<i>Vegetation Management Act 1999 (Qld)</i>
VMS	Variable Message Signs
VOC	Volatile Organic Compound
Water Act	<i>Water Act 2000 (Qld)</i>
WHO	World Health Organization
WHS Act	<i>Work Health and Safety Act 2011 (Qld)</i>
WQOs	Water Quality Objectives
WRPs	Water Resource Plans
WRR Act	<i>Waste Reduction and Recycling Act 2011 (Qld)</i>
WSSR Act	<i>Water Supply (Safety and Reliability) Act 2008 (Qld)</i>

## 25.2 Glossary

Term	Definition
Access track	Cleared and graded track constructed where existing tracks are not available.
Acid sulfate soils	Soil that contains oxidised iron sulphides (actual acid sulfate soils) and/or soil that contains iron sulphides or other sulfidic material that has not been exposed to air and oxidised (potential acid sulfate soils). The term acid sulfate soil generally includes both actual and potential acid sulfate soils. Actual and potential acid sulfate soils are often found in the same soil profile, with actual acid sulfate soils generally overlying potential acid sulfate soil horizons.
Acoustics	The science of sound and sound waves.
Active bores	A term applied to groundwater bores that are able to continue to provide a reasonable yield of water in terms of quality and quantity for the bores' authorised purposes or uses.
Active control (level crossings)	Where the movement of vehicular or pedestrian traffic across a railway crossing is controlled using devices such as flashing signals, gates or barriers (or a combination of these), with the devices activated prior to, and during, the passage of a train through the crossing.
Adverse impact	Impacts that result in an unwanted and/or unanticipated result of taking a particular action. In an environmental context, an adverse impact means any change in the physical or biological conditions of the natural environment that results in a detrimental effect on flora, fauna, air, water, minerals or other natural characteristics of the area.
Aerobic	Conditions that can exist only in the presence of free oxygen.
Affected person	An affected person under the <i>Environmental Protection Act 1994</i> (Qld) includes those who have a registered interest in the land or that which adjoins it and the relevant local government.
A-horizon	Refer topsoil.
Airshed	Volume of air generally confined to a distinct geographic region.
Alignment	The line or lines that describe a linear-infrastructure route; it defines how linear infrastructure (such as a road, railroad or pipeline) will be located in relation to the features encountered along the route.
Alkaline	Having the properties of any of various bases—the hydroxides of the alkali metals and of ammonium, which neutralise acids to form salts.
Alluvial	Sediments deposited following a decrease in velocity of flowing water.
Alluvium	General term for unconsolidated deposits of inorganic materials (clay, silt, sand, gravel, and boulders) deposited following a decrease in velocity of flowing water.
Alluvium aquifer	An aquifer formed within alluvium. Refer alluvium.
Ambient air quality	The state of quality of air as it exists in the environment.
Ambient background noise	The ambient noise present in the environment at a particular location in the absence of the noise source of interest.
Ambient noise	The total noise in the environment, often composed of sound from many sources.
Anaerobic	Process taking place in the absence of oxygen.
Anisotropy	In relation to aquifers or models it is generally characterised by the tensor property of hydraulic conductivity or permeability.
Anisotropy ratio	The difference in hydraulic conductivities in two different directions (horizontal/vertical).
Annual average daily traffic	The average traffic volume expected over a 24-hour period in a given year.
Annual exceedance probability	The chance of a flood of a nominated size occurring in a particular year. The chance of the flood occurring is expressed as a percentage and, for large floods, is the reciprocal of the average recurrence interval. For example, the 1% AEP flood event is equivalent to the 100-year average recurrence interval flood event.
Anthropogenic	Associated with or relating to human influence (or impact) on the environment.

Term	Definition
Approved Methods	Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (December, 2005).
Aquaculture	Cultivation of the food resources of the sea or inland waters.
Aquatic ecosystems	The physical and chemical environment that contains a community of organisms (plants, animals, and microbes) and ecological processes within rivers and their riparian zones and reservoirs, lakes, wetlands and their fringing vegetation.
Aquifer	Rock or sediment in a formation, group of formations or part of a formation that is saturated and sufficiently permeable to transmit economic quantities of water to wells and springs.
Aquifer testing	The process where an aquifer is subjected to pumping to assess the hydraulic parameters of the aquifer.
Aquitard	Saturated geological unit with a relatively low permeability that can store large volumes of water but does not readily transmit or yield significant quantities of water to bores or springs. An aquitard can sometimes, if completely impermeable, be called an aquiclude.
Arable	Capable of producing crops or grazing land.
Arboreal	Living in or among trees.
Archaeology	The systematic study of a culture by excavation and description of its remains.
Assimilative capacity	Assimilative capacity refers to the ability of the environment or a portion of the environment (such as a stream, lake, air mass, or soil layer) to carry waste material without adverse effects on the environment or on users of its resources.
Average recurrence interval (ARI)	A term used to assess rainfall data, which describes the average or expected time periods between exceedances of a given rainfall total accumulated over a given duration. The periods between exceedances are generally random.
Artesian aquifer	A confined aquifer where the water is pressurised i.e. if tapped by a bore, would flow naturally to the surface.
Artesian bore	A term commonly used to describe a bore that taps into an artesian aquifer.
Australian Height Datum	A level datum that generally approximates mean sea level. The datum is treated as uniform throughout Australia.
Authorised person	A person holding office as an authorised person under an appointment under the <i>Environmental Protection Act 1994</i> (Qld) by the Chief Executive of a local government.
Auxiliary lane	An additional lane added to the carriageway for safety and/or intersection capacity purposes.
A-weighted	A term used in noise assessments, which describes the frequency filter that approximates the subjective response of human hearing. A-weighted sound pressure levels are designated as dB(A).
Back on Track priority species	An initiative of the Department of Environment and Science, the Back on Track species prioritisation program ranks species as critical, high, medium or low priority for the State and for the 14 Natural Resource Management Regions across QLD, irrespective of a species classification in the <i>Nature Conservation Act 1992</i> (Qld) or the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth). There is also a data deficient category according to three sets of criteria: probability of extinction, consequences of extinction and potential for successful recovery.  While not legislated, Back on Track provides a useful framework for biodiversity assessment and species prioritisation when determining ecological values.
Background creep	The gradual increase in background noise levels in an area as a result of successive developments generating simultaneous noise levels at a particular location.
Background noise	The existing noise level in the area excluding the impacts from the Project.
Ballast	Crushed rock, stone etc. used to provide a foundation for a railway track. Ballast usually provides the bed on which railway sleepers are laid, transmits the load from train movements, and restrains the track from movement.

Term	Definition
Basalt	The dark, fine-grained igneous rock of a lava flow, composed primarily of plagioclase and pyroxene. It sometimes displays a columnar structure.
Baseflow	The component of a watercourse that is derived from groundwater discharge to the river or stream.
Baseline	A basic standard or level, usually regarded as a reference point for comparison.
Bed and banks	For a watercourse or wetland, this means land over which the water normally flows or that is normally covered by the water, whether permanently or intermittently; but it does not include land adjoining or adjacent to the bed or banks that is from time to time covered by floodwater.
Best practice environmental management	Management of an activity to achieve ongoing minimisation of the activity's environmental harm through cost-effective measures, assessed against the measures currently used nationally and internationally for the activity.
B-horizon	An intermediate layer of soil beneath the A-horizon containing organic matter and clay.
Biocondition	The degree to which the attributes of a patch of vegetation differ from the attributes of the same vegetation in its reference (undisturbed) state.
Biodiversity	The number and variety of organisms found within a specified geographic region or within a given ecosystem.
Biodiversity offsets	Biodiversity offsets are measures that benefit biodiversity by compensating for the adverse impacts elsewhere of an action, such as clearing for development. Biodiversity offsets work by protecting and managing biodiversity values in one area in exchange for impacts on biodiversity values in another. In QLD, the term used is 'environmental offsets'.
Biodiversity status	<p>Biodiversity status is used for a range of planning and management applications including biodiversity planning assessments and to determine environmentally sensitive areas that are used for the regulation of the extractive industry through provisions in the <i>Environmental Protection Act 1994</i> (Qld).</p> <p>Biodiversity status is ascertained through assessing the condition of an ecosystem's remnant vegetation. An ecosystem's biodiversity status is listed according to classes as defined in the <i>Vegetation Management Act 1999</i> (Qld). The classes are defined within Vegetation Management Act conservation status of this glossary.</p>
Bioregion	Landscape pattern that reflects changes in geology and climate, as well as major changes in floral and faunal assemblages at a broad scale.
Biosecurity	Security measures against the transmission of disease to the plants or animals of a particular region.
Bore	Artificially constructed or improved groundwater cavity used for the purpose of accessing or recharging water from an aquifer. Interchangeable with <i>borehole</i> , <i>piezometer</i> .
Borrow pit	Quarry pit created to provide soil, sand, gravel or rocks that can be used as fill or construction material at another location.
Brigalow Belt	The bioregion that spans inland and eastern QLD from Townsville in the north to northern NSW, covering an area of 36,400,000 ha. The bioregion, as its name implies, is characterised by brigalows. Brigalow ( <i>Acacia harpophylla</i> ) is a species of silvery wattle that gives the mosaic of open forest and woodland communities. The bioregion also supports a range of ecosystems including eucalypt forest and woodlands, grassland, dry rainforest, cypress pine and riparian communities.
Buffer	An area of land separating adjacent land uses that is managed for the purpose of mitigating impacts of one use on another. A buffer area consists of a separation distance and one or more buffer elements.
Bulk freight	Bulk freight generally involves large quantities of homogenous product, typically liquid or loose crushed solid material (such as cement, grains and ores), transported en masse without packaging.
Bund (or bunding)	Wall of a secondary containment system, usually in the form of an embankment, used to prevent sediment and liquids from entering the environment.

<b>Term</b>	<b>Definition</b>
Cadastral	Relating to the official register of property, with details of boundaries and ownership.
Cainozoic	Relating to the geological era of rocks of most recent age (65.5 million years ago to present).
California Bearing Ratio	A penetration test used to evaluate the subgrade strength of roads and pavements. The results of these tests are used with the curves to determine the thickness of pavement and its component layers.
CALPUFF	The CALPUFF model was used to model all other open-air sections of the alignment (e.g. outside the tunnel).
Carbon dioxide equivalent (CO <sub>2</sub> -e)	Greenhouse gas emissions unit used to provide a common unit of measure between the various greenhouse gases due to their differing global warming potential.
Carbon monoxide	Toxic, colourless and odourless gas produced by burning fuels.
Catchment	The area of land that collects and transfers rainwater into a waterway.
Chemical evolution (groundwater)	Changes and trends in the chemistry of groundwater as it moves through different aquifers and rock types over geologic time.
Clay	Deposit of particles with a diameter less than 0.002 millimetre (mm), typically contain variable amounts of water within the mineral structure, and exhibit high plasticity.
Clearing	For vegetation, clearing means removing, cutting down, ringbarking, pushing over, poisoning or destroying in any way including by burning, flooding or draining; but it does not include standing vegetation destroyed by stock or lopping a tree.
Climate	The average weather experienced at a site or region over a period of many years, ranging from months to many thousands of years. The relevant measured quantities are most often surface variables such as temperature, rainfall and wind.
Climate change	Any change in long-term climatic conditions over time, whether due to natural variability or as a result of human activity.
Climate change adaptation	Actions in response to actual or projected climate change and impacts that lead to a reduction in risks or realisation of benefits.
Climate change projection	A projection of the response of the climate system to scenarios of greenhouse gas emissions or atmospheric concentrations of greenhouse gases; often based on simulations by computer-based mathematical models depending on assumptions and the response of climate systems to changes in these variables, and can therefore be distinguished from climate predictions.
Colluvium	General term applied to any loose, heterogeneous and incoherent sediment such as soil material or rock fragments transported by gravity and deposited or built up at the bottom of a low-grade slope.
Commissioning	Testing and commissioning (checking) of the rail line and communication/signalling systems will be undertaken to ensure that all systems and infrastructure are designed, installed and operating according to ARTC's operational requirements.
Computable general equilibrium model	A whole-of-economy model that captures the interactions between different sectors of the economy through a series of simultaneous equations. Computable general equilibrium models can be used to estimate how an economy might respond to changes in government policy, technology, investments or other external factors relative to a baseline.
Conceptual project design	Proposed configuration, layout and timeframes for development of the project, established for the purpose of environmental impact assessment.
Confined aquifer	An aquifer bounded above and below by impervious (confining) layers.
Confining layer	Layer of low permeability material underlying or overlying an aquifer, which restricts the vertical movement of water.
Conglomerate	Consolidated gravel consisting of rounded and waterworn pebbles, embedded in a finer cementing material.
Conservation significant species	See Threatened species.

Term	Definition
Consolidated aquifer	Water-bearing rock aquifer such as sandstone, coal, limestone or granite.
Constraints mapping	The processes used to assess the environmental framework for development, whereby areas of environmental sensitivity are graphically depicted to determine areas where development may be constrained.
Construction	<p>Construction activities include:</p> <ul style="list-style-type: none"> <li>▶ Site set out and pegging, including establishing clearing limits</li> <li>▶ Establishment of laydowns and compounds, including vehicle inspection/workshops, washdown facilities and temporary fencing, as required</li> <li>▶ Installation of erosion and sediment control measures</li> <li>▶ Clearing—using dozers, chainsaws, excavators, trucks and similar equipment</li> <li>▶ Bulk earthworks—major cut-to-fill operations including winning suitable construction material from sections of cut along the railway alignment or from borrow areas external to the site</li> <li>▶ Construction of drainage infrastructure—cut-off drains, table drains and culvert structures</li> <li>▶ Construction or installation of concrete railway bridges and culverts</li> <li>▶ Ballast—supply, delivery and installation</li> <li>▶ Concrete sleepers—supply, delivery and installation</li> <li>▶ Installation of rail track and other items of rail infrastructure using rail-mounted equipment</li> <li>▶ Installation of railway signalling and communications equipment</li> <li>▶ Construction of tunnel maintenance facilities, administration and amenities buildings, car and truck parking and bulk fuel provisioning and storage areas</li> <li>▶ Other miscellaneous activities to complete the works, such as reinstatement and rehabilitation of temporary works areas and landscaping in accordance with the Project landscape design.</li> </ul>
Construction compound	An area used as the base for construction activities, usually for the storage of plant, equipment and materials or construction site offices and worker facilities.
Contamination	The introduction of a pollutant into the environment.
Contour plot	Graphical technique for representing a three-dimensional surface by plotting contours, in a two-dimensional format.
Contractor	A company or individual engaged by ARTC to undertake a specific project, function or maintenance works in accordance with an agreement (e.g. construction, maintenance, installation, commissioning, consultancy and other specialist types of work).
Controlled action	A proposed action designated under the controlling provisions of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) that is likely to have a significant impact on a matter of national environmental significance, the environment or Commonwealth land (even if the action is taken outside Commonwealth land).
Controlling provision	Under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth), an action that a person proposes to take is a <i>controlled action</i> if the taking of the action by the person without approval under Part 9 for the purposes of a provision of Part 3 would be (or would, but for section 25AA or 28AB, be) prohibited by the provision. The provision is a <i>controlling provision</i> for the action.
Cover material	Soil, alluvium, weathered basalt or other suitable plant-growth medium, typically non-crusting and of low salinity, placed on reshaped spoil surfaces.
Critical habitat	The whole or any part or parts of an area or areas of land comprising the habitat of an endangered species, an endangered population or an endangered ecological community that is critical to the survival of the species, population or ecological community. Critical habitat is defined under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth).
Critically endangered	See: <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) conservation status.
Crossing loop	Crossing loops are places on a single-line track where trains in opposing directions can pass each other. These are double-ended and connected to the main track at both ends. Crossing loops are typically a little longer than any of the trains that might need to cross at that point. In operation, one train enters a crossing loop through one of the turnouts and idles at the other end, while the opposing train continues along the mainline track to pass the now stationary train.



Term	Definition
Crustacean	An arthropod with jointed appendages, a hard protective outer shell, two pairs of antennae and eyes on stalks (e.g. crabs, prawns).
Cultural heritage	Indigenous and non-Indigenous items and areas (commonly referred to as places) that are a significant indicator of historical and cultural events and practices.
Cultural significance	The meaning or value ascribed to the cultural landscape. It normally stems from a combination of association and integrity.
Culvert	A structure that allows water to flow under a road, railway, track, or similar obstruction.
Cumulative impact	The combined impact to one or more environmental values delivered by multiple projects being undertaken simultaneously within the same sphere of physical influence.
Cutting	Formation resulting from the construction of the road below existing ground level, where the material is cut out or excavated.
Dam	An engineered land-based structure that is designed to contain, divert or control liquid. A dam does not mean a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container.
Dangerous goods	Dangerous goods are substances or articles that pose a risk to people, property or the environment, due to their chemical or physical properties. They are usually classified with reference to their immediate risk.
Decibel (dB)	A unit of sound level measurement.
Decibel (dB)A weighted (A)	The method of frequency weighting the electrical signal from a noise-measuring instrument to simulate the way the human ear responds to a range of acoustic frequencies. The symbols for the noise parameters often include the letter 'A' (e.g. LAeq) to indicate that frequency weighting has been included in the measurement.
Deep groundwater	Groundwater resources associated with aquifers and resources at depths >100 metres (m).
Demography	The range of different groups existing in a particular populace, as distinguished by factors such as age, ethnicity, and social background.
Depressurisation	The lowering of the groundwater elevation over an area.
Desalinate	To remove dissolved salts from saline water so that it becomes suitable for beneficial uses (e.g. drinking water or for agricultural irrigation) or release to the environment.
Detailed design	Detailed design is the process of developing the Project design up to an 'Approved for Construction' stage.
Dewatering	Draining, permanently or temporarily, partially or fully, a wet area of land or an aquifer.
Direct economic impact	A measure of the total value added in a defined geographical region directly attributable to a given event, organisation or industry.
Direct impacts	Impacts that result from a direct interaction between project activities and the receptor (e.g. land clearing resulting in vegetation and habitat loss).
Discharge area	That part of the land surface where groundwater discharge produces a net movement of water out of the groundwater.
Dissolved oxygen	The amount of oxygen dissolved in water.
Dissolved solids	Minerals and organic matter dissolved in water; a measure of salinity.
Disturbance	A physical displacement of existing features that leads to impacts.
Disturbance footprint	The disturbance footprint can be described as either permanent or temporary: <ul style="list-style-type: none"> <li>▶ Permanent disturbance footprint: consists of the rail corridor, its rail tracks and associated infrastructure as well as other permanent works associated with the Project (e.g. where changes to the road network are required)</li> <li>▶ Temporary disturbance footprint: consists of the construction areas required for the Project, including both the area of the permanent disturbance footprint, where the rail infrastructure is proposed to be constructed, and those areas beyond the permanent disturbance footprint, that are proposed for use as temporary storage, haulage and laydown areas.</li> </ul>

Term	Definition
Diversion channel	A constructed waterway used to redirect drainage lines and watercourses around infrastructure areas.
Drawdown	The decline in the groundwater level in a bore from the standing water level when influenced by pumping.
Drilling rig	A machine that creates holes (usually called wells or bores) in the ground.
Dual-gauge railway	Track that allows the passage of trains of two different track gauges. It is sometimes called a 'mixed-gauge' track.
Early works	Early works and pre-construction activities can occur prior to full mobilisation of the construction contractor. These may be undertaken under a separate contract, but must not start until the Outline CEMP has been approved by the Coordinator-General, and the relevant early works and pre-construction activities CEMP has been endorsed by the Environmental Monitor. Early works and pre-construction activities must be undertaken in accordance with any relevant imposed conditions.
Earthworks	All operations involved in loosening, excavating, placing, shaping and compacting soil or rock.
Easement	Legal term used to describe land over which a third party has rights to locate infrastructure and undertake certain activities.
Ecological	Relating to the relationships between organisms and their environment.
Ecological community	An assemblage of species occupying a particular area.
Ecological sustainability	The capacity of a development to continue operating perpetually, and avoid adverse effects on ecology.
Ecologically sustainable development	Development that uses, conserves and enhances the resources of the community so that ecological processes on which life depends are maintained, and the total quality of life, now and in the future, can be increased.
Ecology	Scientific study of abundance, distribution and interactions between organisms and their natural environment.
Ecosystem	An organic community of plants, animals and bacteria and the physical and chemical environment they inhabit.
EIS investigation corridor	<p>The EIS investigation corridor is an approximately 2 km wide study area, 1 km either side of the proposed rail alignment. The study area includes the disturbance footprint, which encompasses all areas where works are proposed, including both permanent and temporary works. The study area is slightly wider around Ch 38 km to Ch 45 km to accommodate for the options analysis undertaken for the Teviot Range crossing.</p> <p>Investigations for the purposes of this EIS and ongoing engineering design, including field surveys, were generally undertaken within the EIS investigation corridor (or as required by the individual technical assessments) to ensure a robust assessment and to allow for potential future design changes. Some technical assessments used a different study area to the EIS investigation corridor depending on the requirements of the environmental aspect being assessed.</p>
Embankment	A raised area of earth or other materials used to carry a rail line in certain areas.
Emission	A substance discharged into the air.
Emission factor	Calculation factor expressing greenhouse gas emissions per unit of activity.
Enabling works	Enabling works are those undertaken separately by, or for, third parties, primarily for the relocation or provision of public utilities, or existing QR rail assets. These works may be undertaken under a separate contract, or by the relevant asset owner, and are required to comply with the relevant environmental or regulatory framework applicable to the particular works or public utility.
Endangered	Refer: <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) conservation status; <i>Nature Conservation Act 1992</i> (Qld) conservation status; <i>Vegetation Management Act 1999</i> (Qld) conservation status.
Endemic	Native to a country or a locality, although also found elsewhere.

Term	Definition
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) (EPBC Act) conservation status	<p>Under the EPBC Act, listed threatened species and ecological communities are assigned a conservation status of extinct in the wild, critically endangered, endangered or vulnerable. Definitions of these terms under the EPBC Act are as follows:</p> <p><b>Extinct in the wild</b> It is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range, or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.</p> <p><b>Critically endangered</b> It is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.</p> <p><b>Endangered</b> While the species or community is not critically endangered, it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.</p> <p><b>Vulnerable</b> It is not critically endangered or endangered and it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.</p>
Environmental authority	A licence to operate, issued in accordance with the <i>Environmental Protection Act 1994</i> (Qld), that imposes conditions on authorised activities to reduce or avoid potential environmental impacts; used by Department of Environment Science to assess and administer regulatory environmental compliance of a project.
Environmental flow	Water flow regimes required to sustain freshwater and estuarine ecosystems e.g. to deliver nutrients and sediment downstream.
Environmental impact statement	A document prepared to identify, describe and assess the potential impacts of a proposed action on the environment, and to document ways to mitigate such impacts. An EIS should provide sufficient detail to inform a decision on the proposal.
Environmental management plan	A document that provides operational details of how environmental management measures identified in the environmental impact statement will be implemented.
Environmental nuisance	An unreasonable interference or likely interference with an environmental value caused by noise, dust, odour or light; caused by an unhealthy, offensive or unsightly condition; or in another way prescribed by regulation.
Environmental offsetting	If a project has a significant residual impact in one area, environmental offsetting facilitates an environmental gain in another area.
Environmental values	Desirable characteristics, properties and behaviours or an aspect of the environment.
Environmentally relevant activity	An activity with potential to release contaminants into the environment defined in Schedule 2 of the <i>Environmental Protection Regulation 2019</i> (Qld).
Environmentally sensitive area	A location, however large or small, that has environmental values recognised in the <i>Environmental Protection Act 1994</i> (Qld) that contribute to maintaining biological diversity and integrity; has intrinsic or attributed scientific, historical or cultural heritage value; or is important in providing amenity, harmony or sense of community.
EPBC threshold criteria	The rules or principles used to measure the significance of a plant, animal or ecosystem against the requirements of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth).
Ephemeral	Relates to the amount of time that surface water persists in a watercourse or wetland; ephemeral watercourses flow only during significant rainfall events and for a short time following rainfall events.
Equivalent person	An equivalent person under Volume 1, Section 2 of the <i>Guidelines for Planning and Design of Sewerage Schemes</i> (1991), published by the Water Resources Commission, Department of Primary Industries, Fisheries and Forestry.
Erosion	Wearing away of rock or soil caused by physical or chemical processes.
Erosion stability	The ability of an area to resist the natural forces of soil erosion.

Term	Definition
Essential habitat	For species of wildlife listed as endangered, vulnerable, rare, or near threatened under the <i>Nature Conservation Act 1992</i> (Qld), an area of vegetation shown on the regional ecosystem map or remnant map as remnant vegetation: <p>(a) That has at least three essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database</p> <p>(b) In which the protected wildlife, at any stage of its life cycle, is located.</p> <p>Essential habitat areas are identified on a map certified by the Chief Executive of Queensland Department of Environment and Heritage Protection for the purposes of the <i>Vegetation Management Act 1999</i> (Qld).</p>
Estuarine	Formed in an estuary.
Extinct in the wild	See: <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) (EPBC Act) conservation status; <i>Nature Conservation Act 1992</i> (Qld) (NC Act) conservation status.
Extreme event	Weather conditions that are rare for a particular place and/or time such as an intense storm or heat wave.
Fault	Zone of displacement in rock formations resulting from forces of tension or compression in the Earth's crust.
Fauna	The animals of a given region or period, taken collectively.
Feral	Animal existing in a wild or untamed state, having escaped from domestication.
Fill	Any kind of material in solid form (whether or not naturally occurring) capable of being deposited at a place but does not include material that forms a part of, or is associated with, a structure constructed in a watercourse, wetland or spring, including a bridge, road, causeway, pipeline, rock revetment, drain outlet works, erosion prevention structure or fence.
Floodplain	Flat or nearly flat land adjacent a stream or river that stretches from the banks of its channel to the base of the enclosing valley walls and experiences flooding during periods of high flow.
Flora	The plants of a given region or period, taken collectively.
Fluvial geomorphology	The study of river-related landforms and the processes that shape them.
Foreseeable future	The period used for assessing the total probability of an event occurring. Permanent structures and ecological sustainability should be expected to still exist at the end of a 150-year foreseeable future with an acceptably low probability of failure before that time.
Forest reserve	Tenure of an interim nature for a maximum of five years and managed by the Environmental Protection Agency with associated conditions under the <i>Nature Conservation Act 1992</i> (Qld).
Formation	The earthworks and material on which the ballast, sleepers and tracks are laid.
Fossil fuel	Hydrocarbon deposit, such as petroleum, coal, or natural gas, derived from alteration of living matter of a previous geologic time, and used for fuel.
Fracture	Any break in a rock including cracks, joints and faults.
Fragmentation	Discontinuities in an organism's preferred habitat.
Freehold	Land held by the State in Fee Simple (freehold title), which includes titles surrendered to the State of Queensland (or Crown) in terms of Section 358 of the <i>Land Act 1994</i> (Qld).
Freight	Goods transported by truck, train, ship, or aircraft.
Freight task	The amount of freight transport, usually measured in tonnes or tonne-kilometres.
Fresh water	Water that contains less than 1,000 milligrams per litre dissolved solids.
Fugitive dust	Dust derived from a mixture of non-point or not easily defined sources; examples include dust from vehicular traffic on unpaved roads, materials transport and handling and disturbed (unvegetated) soils and surfaces.

Term	Definition
Full-time equivalent	A ratio of the total number of paid hours during a fixed time period by the number of hours worked in that period: $FTE = \frac{\text{Total paid hours worked in given period}}{\text{Normal working hours in given period}}$
Functional vegetation	Vegetation that consists of species able to survive and regenerate under specific conditions, providing soil erosion control and fauna habitat.
Geochemistry	The chemical characteristics of a soil or rock material.
Geographical information system (GIS)	Computer system that can capture, store, analyse, and present in various ways data that locates places on the Earth's surface.
Geomorphic process	Chemical, physical or biological operation at the Earth's surface that shape the landscape and its deposits.
Geomorphology	Study of the physical features of the surface of the Earth and their relation to underlying geological structures.
Gilgai	A Gilgai is a small, ephemeral lake formed from a depression in the soil surface expanding clay soils. It is also referred to the overall micro-relief in such areas, consisting of mounds and depressions, not just the lakes themselves.
Global climate models	Computer-generated simulations developed to predict future weather and climate trends. This includes taking into account changes in greenhouse gas concentrations in the atmosphere. Also referred to as general circulation models or climate models.
GRAL	The GRAL model was developed at the Institute for Internal Combustion Engines and Thermodynamics, Technical University Graz, Austria, specifically to assess the dispersion of pollutants from roadways and tunnel portals.
Greenfield	Of or relating to land that has not previously been developed or polluted.
Greenhouse gas	Any of the atmospheric gases that contribute to the greenhouse effect by absorbing infrared radiation produced by solar warming of the Earth's surface, including carbon dioxide (CO <sub>2</sub> ), methane (CH <sub>4</sub> ), nitrous oxide (N <sub>2</sub> O) and water vapour (H <sub>2</sub> O).
Gross domestic/state/regional product	The market value of officially recognised final goods and services produced within a country/state/region in a given period. Final goods and services are defined as those that are not used to produce other goods or services.
Groundwater	Water found in the subsurface in the saturated zone below the water table or piezometric surface i.e. the water table marks the upper surface of groundwater systems.
Groundwater dependent ecosystems	Ecosystems that require access to groundwater on a permanent or intermittent basis to meet all or some of their water requirements so as to maintain their communities of plants and animals, ecological processes and ecosystem services. Ecosystem dependency on groundwater may vary temporally (over time) and spatially (depending on its location in the landscape). GDEs include aquifers, caves, lakes, palustrine wetlands, lacustrine wetlands, rivers and vegetation.
Groundwater flow	The movement of water through openings and pore spaces in rocks below the water table, i.e. in the saturated zone.
Groundwater resource	Groundwater available for beneficial use, including human usage, aquatic ecosystems and the greater environment.
Groundwater vulnerability	The tendency or likelihood for contamination to reach a specified position in the groundwater system after introduction at some location above the uppermost aquifer.
Habitat	The area or natural environment in which an organism or population normally lives. A habitat is made up of physical factors such as soil, moisture, range of temperature, and availability of light as well as biotic factors such as the availability of food resources and the presence of predators.

Term	Definition
Hazardous material	Substance that, if improperly treated, stored, disposed of, or otherwise managed, is likely to cause serious or material environmental harm because of: <ul style="list-style-type: none"> <li>(a) Its quantity, concentration, acute or chronic toxic effects, carcinogenicity, teratogenicity, mutagenicity, corrosiveness, explosiveness, radioactivity, or flammability, or</li> <li>(b) Its physical, chemical, or infectious characteristics.</li> </ul>
Heavy vehicle	Any vehicle with three or more axles or with dual tyres on the rear axle.
HERBRECS	Database maintained by the Queensland Herbarium that provides a list of specimens and collections for a specified search area.
Heritage listed	An item, building or place included on statutory heritage lists maintained by local, state or the Australian Government.
Heritage place	Any place that may be of cultural heritage significance, or any place with potential to contain archaeological artefacts that are an important source of information about QLD's history.
Heritage precinct	A wider area that contains a number of historic and archaeological sites.
Heritage values	An object, site, area, or landscape that holds aesthetic, historic, scientific, social or spiritual value for past, present or future generations.
Heterogeneous regional ecosystem polygon	An area (polygon) comprising a mixture of regional ecosystems types. It allows mapping of areas of vegetation, which would normally be too small to map, to be shown at the scale at which regional ecosystems are normally mapped.
High bank	The defining terrace or bank or, if no bank is present, the point on the active floodplain, which confines the average annual peak flows in a watercourse.
High-value regrowth	Under the Vegetation Management and Other Legislation Amendment Bill 2018 (Qld) high-value regrowth vegetation means vegetation located: <ul style="list-style-type: none"> <li>▶ <i>on freehold land, Indigenous land, or land subject of a lease issued under the Land Act 1994 (Qld) for agriculture or grazing purposes or an occupation licence under that Act; and</i></li> <li>▶ <i>in an area that has not been cleared (other than for relevant clearing activities) for at least 15 years, if the area is:</i> <ul style="list-style-type: none"> <li>▶ <i>an endangered regional ecosystem; or</i></li> <li>▶ <i>an of concern regional ecosystem; or</i></li> <li>▶ <i>a least concern regional ecosystem.</i></li> </ul> </li> </ul>
Highly erodible soils	Very unstable soils that are generally described as sodosols with hard-setting, fine sandy loam to silty clay loam surfaces (solodics, solodised solonetz, and solonetz), soils with a dispersible layer located less than 25 cm deep or soils less than 25 cm deep.
Highway	High-order road of a high standard, facilitating connectivity between population centres.
Holocene	Holocene is the name of a geological time epoch commencing ~10,000 years ago and extending to present. Pre-Holocene is the time proceeding this epoch.
Homogeneous regional ecosystem polygon	An area (polygon) delineated on a map of regional ecosystems comprising a single regional ecosystem.
Hydraulic conductivity	Measure of the ease with which water will pass through earth material—defined as the rate of flow through a cross-section of one square metre under a unit hydraulic gradient at right angles to the direction of flow (metres per day).
Hydraulic gradient	Change in hydraulic head over a certain distance.
Hydraulic head	Elevation to which water will rise in a borehole connected to a point in an aquifer.
Hydrogeology	The study of the interrelationships of geological materials and processes with water, especially groundwater.
Hydrograph	Graph that shows groundwater or surface water properties as a function of time.
Igneous rock	Rock formed from magma that has cooled and solidified either at the Earth's surface (volcanic rock) or deep within the Earth's crust (plutonic rock).
Impact	An event that alters ecosystem, community, or population structure and alters the physical environment, directly or indirectly. An impact may have a short or long duration.

Term	Definition
Impermeable subsoil	Layer of soil below the topsoil that slows or stops infiltration.
Indirect economic impact	The flow-on value added generated in other sectors of the economy as a result of the demand stemming from a given event, organisation or industry.
Indirect impacts	Impacts that are not a direct result of project activities but that occur away from the original impact area, sometimes via a complex pathway.
Infiltration	The downward movement of water from the atmosphere into the ground; not to be confused with percolation.
Infrastructure sustainability	Infrastructure that is designed, constructed and operated to optimise environmental, social and economic outcomes of the long term.
Initial advice statement (IAS)	Document prepared to provide preliminary information about the physical, ecological and socioeconomic environment of a project; for purposes of a 'coordinated project' declaration under the <i>State Development and Public Works Organisation Act 1971</i> (Qld).
Inland Rail Program	The Inland Rail Program encompasses the design and construction of a new inland rail connection between Melbourne and Brisbane, via Wagga, Parkes, Moree, and Toowoomba. The route for Inland Rail is about 1,700 km in length. Inland Rail will involve a combination of upgrades of existing rail track and the provision of new track.
Intermediate input	Raw materials or semi-finished goods and services that are purchased from supply-industries and then used to produce other goods and services for final consumption.
Intermodal	The movement of freight using multiple modes of transport (rail, ship, truck) without handling of the freight itself when changing modes. For a railway this usually refers to the transport of freight in containers that may be double stacked on the wagons carrying them.
Intrusion	The solidified remnants of an igneous flow of rock into sedimentary strata.
Invertebrate	Animal without a backbone.
Jurassic	The geologic period that extends from 201.3± 0.6 to 145± 4 million years ago. The period occurred within the Mesozoic era, following the Triassic and preceding the Cretaceous periods.
Kandosol	Non-texture contrast soils (with little or gradual increase in clay content with depth) that have weakly to non-structured subsoils (B-horizons).
Kurosol	Soil type in which the B-horizon is significantly more clayey in texture than the A-horizon, the upper part of the B-horizon being strongly acidic.
$L_{10} / L_{A10}$ (dB or dB(A))	The noise level equalled or exceeded for 10 per cent of the measurement period. The $L_{A10}$ is commonly used to approximate the average maximum sound or noise level.
$L_{90} / L_{A90}$ (dB or dB(A))	The noise level equalled or exceeded for 90 per cent of the measurement period. The $L_{A90}$ (in the absence of the noise source under investigation) is commonly used to approximate the background sound or noise level.
$L_{A90}$ (period)	The sound pressure level exceeded for 90 per cent of the measurement period.
Lacustrine	Of or relating to a lake. Term is commonly used in reference to soils and ecosystems.
$L_{Aeq}$ (1 hour)	The busiest 1-hour 'equivalent continuous noise level'—it represents the typical $L_{Aeq}$ noise level from all the proposal noise events during the busiest 1-hour of the assessment period.
$L_{Aeq}$ (15 hour)	The daytime 'equivalent continuous noise level'—it represents the cumulative effects of all the proposal noise events occurring in the daytime period from 7.00 am to 10.00 pm.
$L_{Aeq}$ (24 hour)	The 'equivalent continuous noise level', sometimes also described as the 'energy-averaged noise level'—it represents the cumulative effects of all the proposal noise events occurring in one day.
$L_{Aeq}$ (9 hour)	The night-time 'equivalent continuous noise level'—it represents the cumulative effects of all the proposal noise events occurring in the night-time period from 10.00 pm to 7.00 am.
$L_{Aeq}$ (time)	Typically used to described ambient (background) noise levels.
Lake	Permanent or ephemeral natural or artificial body of water of considerable size surrounded by land.

Term	Definition
$L_{Amax}$	The A-weighted maximum sound pressure level measured over the measurement period.
Land degradation	An adverse change in the characteristics of the Earth's surface that results in one or more of the following: soil erosion, rising water table, the expression of salinity, mass movement by gravity of soil or rock, stream-bank instability, or a process that results in declining water quality.
Land suitability	The capacity of land resources to sustain particular forms of land use such as cattle grazing, cropping, and forestry.
Landholder	The owner, occupier, manager, or controller of land or water, including anyone acting on their behalf.
Landscape	All aspects of a tract of land, including landform, vegetation, buildings, villages, towns, cities and infrastructure.
Landscape character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, and often conveys a distinctive sense of place. This term does not imply a level of value or importance.
Landscape quality	Largely subjective judgement based on particular characteristics that influence the way in which the environment is experienced, including special interests such as cultural associations or heritage interests, the presence and/or type of elements and condition.
Leaching profile	Vertical change in chemical concentrations down the soil profile due to leaching.
Least concern or no concern present	See: <i>Vegetation Management Act 1999</i> (Qld) (VM Act) conservation status.
Lentic	Non-flowing or still water.
$L_{eq}/L_{Aeq}$ (dB or dB(A))	The constant sound pressure level that exhibits the equivalent acoustic energy of a fluctuating noise level. Otherwise known as the 'Energy-Average' sound level.
Level crossing	A place where rail lines and a road cross at the same elevation.
Level crossing protection	The level of control provided at level crossings, which is determined on a case-by-case basis, and depends on the particular characteristics of a crossing. It generally falls into two categories: <ul style="list-style-type: none"> <li>a) passive protection (uses warning signage only) or</li> <li>b) active protection (uses either signage and flashing lights only, or signage/flashing lights with boom gates).</li> </ul>
Level of service	Defined by Austroads as a measure for ranking operating road and intersection conditions, based on factors such as speed, travel time, freedom to manoeuvre, interruptions, comfort and convenience.
Licence	Approval to operate; usually imposes conditions on authorised activities and is subject to regulations.
Light vehicle	Car, four-wheel drive, motorcycle or car towing a caravan.
Linear infrastructure	Including, but not limited to, utilities (including low- and high-pressure gas and water transmission pipelines), power lines, communication, roads and access tracks.
Lithology	The physical character of rocks.
Loam	Loose soil of clay and sand with organic matter, often very fertile.
Local road	Road used primarily to access properties located along the road.
Localised irrigation	Spray or low-pressure drip directed at a plant's base or root system.
Low frequency noise	Noise containing major components in the low-frequency range (20 to 250 hertz) of the frequency spectrum.
Major flood risk areas	Land that is at risk of being inundated during major floods.
Matters of local environmental significance	Matters of local environmental significance (MLES) are valuable biodiversity that could be determined by local government to be significant at a local level. The SPP does not affect a local government's ability to identify MLES or ground truth matters of environmental significance. MLES may overlap MSES in geographical location, but must not include a matter that is already defined as MSES or MNES.



Term	Definition
Matters of national environmental significance	Listed under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth); includes listed threatened species and ecological communities, migratory species protected under international agreements, Ramsar wetlands of international importance, the Commonwealth marine environment, World Heritage properties, National Heritage places, the Great Barrier Reef Marine Park, water resources, and nuclear actions.
Matters of state environmental significance	Matters of state environmental significance (MSES) are a component of the biodiversity state interest that is defined under the State Planning Policy (SPP). MSES includes certain environmental values that are protected under QLD legislation including the: <ul style="list-style-type: none"> <li>▶ <i>Nature Conservation Act 1992</i> (Qld)</li> <li>▶ <i>Fisheries Act 1994</i> (Qld)</li> <li>▶ <i>Environmental Protection Act 1994</i> (Qld)</li> <li>▶ <i>Vegetation Management Act 1999</i> (Qld).</li> </ul> <p>Legally secured offset areas protected by a registered covenant or similar statutory mechanism.</p>
Median	The middle value of a discrete series.
Mesa	An elevated area of relatively level land, surrounded by steeper slopes or cliffs and smaller in extent than a plateau.
Mesozoic	The geological era from ~250 million to ~65 million years ago. It is the era between Palaeozoic and Cainozoic.
Meteorological	Relating to meteorology or to phenomena of the atmosphere or weather.
Migratory species	Species listed as 'migratory' under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth); refer to definitions in the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) conservation status, for meaning of 'migratory'.
Mitigation	To appropriately protect and maintain the existing environment in accordance with relevant legislation and best-management principles; taken to have the same meaning as management.
Monitoring bore	A bore used to monitor groundwater levels or quality, often containing a piezometer.
Mudstone	A clayey rock of nearly uniform texture throughout, with little or no lamination.
Multi-well lease	A well lease that hosts more than one production well.
National Environment Protection Measure (NEPM)	Broad framework-setting statutory instruments defined under the <i>National Environment Protection Council Act 1994</i> (Cth); outlines agreed national goals, standards, protocols, and guidelines for protecting or managing particular aspects of the environment.
National Park	Land reserved by the Department of Environment and Science for a National Park, National Park (Scientific), Conservation Park or Resource Reserve.
Native Title	The legal recognition of some Indigenous people's rights and interests to land and water that comes from their traditional laws and customs under the <i>Native Title Act 1993</i> (Cth); bestows different rights to the holders. In cases where the land was Crown land, it may include the right to possess and occupy an area to the exclusion of others.
Natural resource	Resource that occurs naturally, such as sunlight, wind, soil, or water.

Term	Definition
Nature Conservation Act 1992 (Qld) conservation status	<p>Under the <i>Nature Conservation Act 1992</i> (Qld), protected species are assigned a conservation status of extinct in the wild, endangered, vulnerable, near threatened or least concern.</p> <p>Definitions of these terms under the Act are as follows:</p> <p><b>Extinct in the wild</b></p> <ul style="list-style-type: none"> <li>▶ There have been thorough searches conducted for the wildlife, and</li> <li>▶ The wildlife has not been seen in the wild over a period that is appropriate for the life cycle or form of the wildlife.</li> </ul> <p><b>Endangered</b></p> <ul style="list-style-type: none"> <li>▶ There have not been thorough searches conducted for the wildlife and the wildlife has not been seen in the wild over a period that is appropriate for the life cycle or form of the wildlife, or</li> <li>▶ The habitat or distribution of the wildlife has been reduced to an extent that the wildlife may be in danger of extinction, or</li> <li>▶ The population size of the wildlife has declined, or is likely to decline, to an extent that the wildlife may be in danger of extinction, or</li> <li>▶ The survival of the wildlife in the wild is unlikely if a threatening process continues.</li> </ul> <p><b>Vulnerable</b></p> <ul style="list-style-type: none"> <li>▶ Its population is decreasing because of threatening processes, or</li> <li>▶ Its population has been seriously depleted and its protection is not secured, or</li> <li>▶ Its population, while abundant, is at risk because of threatening processes, or</li> <li>▶ Its population is low or localised or depends on limited habitat that is at risk because of threatening processes.</li> </ul> <p><b>Near Threatened</b></p> <ul style="list-style-type: none"> <li>▶ The population size or distribution of the wildlife is small and may become smaller, or</li> <li>▶ The population size of the wildlife has declined, or is likely to decline, at a rate higher than the usual rate for population changes or,</li> <li>▶ The survival of the wildlife in the wild is affected to an extent that the wildlife is in danger of becoming vulnerable.</li> </ul>
Near threatened	See: Nature Conservation Act 1992 (Qld) conservation status.
Net present value	The financial worth of a series of cash flows occurring over time, discounted to reflect the total dollar value in today's terms.
Nitrogen dioxide	An air pollutant, high concentrations of which can contribute to acid rain, eutrophication of watercourses and formation of photochemical smog.
Non-bulk freight	Non-bulk freight is generally characterised as any containerised, packaged or other unitised freight, such as: pallets; motor vehicles and trailers; or laden transported vehicles and live animals. It is generally placed or lifted onto or into transport vehicles or holds. It often involves heterogeneous goods being moved between dispersed locations. Non-bulk freight varies in density, perishability and fragility.
Non-remnant vegetation	Vegetation that is not mapped as remnant vegetation by the Department of Environment and Science and/or that fails to meet criteria for remnant vegetation (see <i>remnant vegetation</i> ); includes regrowth, heavily thinned or logged vegetation and significantly disturbed vegetation that fails to meet the structural and/or floristic characteristics of remnant vegetation. Non-remnant vegetation may retain significant biodiversity values.
Notifiable activity	An activity that could potentially result in land contamination.
Noxious	Harmful to the environment or ecosystem.
Of concern	See: <i>Vegetation Management Act 1999</i> (Qld) conservation status.
Oxidation	The addition of oxygen to a compound; entails the loss of an electron.
Oxides of nitrogen	Nitric oxide and nitrogen dioxide.
Palaeontology	The study of fossils to determine the structure and evolution of extinct animals and plants.

Term	Definition
Particulate matter	Particles (e.g. dust, vapour) that are introduced or resuspended into the air through certain activities, such as soil cultivation or vehicles operating on open fields or dirt roadways. PM <sub>10</sub> is particulate matter 10 micrometres or less in diameter. PM <sub>2.5</sub> is particulate matter 2.5 micrometres or less in diameter; generally described as fine particles.
Passive control (level crossings)	Where the movement of vehicular or pedestrian traffic across a railway crossing is controlled using signs or devices that are not activated by the approach or passage of a train, relying on the road user to detect the approach or presence of a train by direct observation.
Peak particle velocity (PPV)	The greatest instantaneous particle velocity during a given time interval.
Perched groundwater systems	A locally developed, water-saturated body located above the regional water table due to the presence of an underlying layer of low permeability.
Percolation	The movement and filtering of fluids through porous materials.
Perennial	Lasting for an indefinite amount of time.
Perennial watercourse	A watercourse that has continuous flow in parts of its stream bed all year round during years of normal rainfall.
Permeability	The ease with which a fluid can pass through a porous medium and is defined as the volume of fluid discharged from a unit area of an aquifer under unit hydraulic gradient in unit time (metres per day).
Permian	Geological period from approximately ~300 million years ago to ~251 million years ago. The Permian period occurred between the Carboniferous period and Triassic period.
Pest	Means any species: <ul style="list-style-type: none"> <li>▶ Listed as Prohibited or Restricted under the <i>Biosecurity Act 2014</i> (Qld)</li> <li>▶ Declared under local government local laws</li> <li>▶ That may become invasive in the future.</li> </ul>
pH	The absolute value of the decimal logarithm of the hydrogen-ion concentration (activity), used as an indicator of acidity (pH less than 7), alkalinity (pH greater than 7) or neutrality (pH 7).
Photochemical	Produced by the action of light triggering a chemical process.
Photochemical smog	Air pollution formed by chemical reactions that take place in the presence of sunlight between mono-nitrogen oxides and volatile organic compounds, which form ground-level ozone.
PM <sub>2.5</sub>	Particulate matter 2.5 micrometres or less in diameter. Generally defined as fine particles that can be drawn deep into the lungs and into the bloodstream. This is a classification of particles by size rather than chemical properties.
PM <sub>10</sub>	Particulate matter 10 micrometres or less in diameter. Particles in this size range make up a large proportion of dust that can be drawn deep into the lungs. This is a classification of particles by size rather than chemical properties.
Pollution	The introduction into the environment of any substance by the action of humans, which results in significant harmful effects to man or the environment.
Possession	A period of time during which a rail line is blocked to trains to permit work to be carried out on or near the line.
Potential expression area	The presence of salinity (at surface level) of soluble salts in or on soils or in waters, usually described by one or more of electrical conductivity, total dissolved ions, total dissolved solids (calculated or evaporation).
Potentiometric surface	A hypothetical surface representing the level to which groundwater would rise if not trapped in a confined aquifer (an aquifer in which the water is under pressure because of an impermeable layer above it that keeps it from seeking its level). The potentiometric surface is equivalent to the water table in an unconfined aquifer.

<b>Term</b>	<b>Definition</b>
Precautionary principle	Common principle of environmental management; where an activity has the potential to threaten or cause serious or irreversible damage to the environment or human health, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation.
Pre-construction	Refer early works.
Preferential flow	Movement of groundwater through a pathway of more permeable zones in the subsurface.
Primary view zone	Critical part of a view zone of significance to a homestead; part of a view that is within a horizontal arc of 300° either side of the centre line of a view and a vertical arc of 300° above the horizontal; seen with the greatest clarity.
Probable maximum flood	The largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation coupled with the worst flood-producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The probable maximum flood defines the extent of flood-prone land (i.e. the floodplain).
Project works	Project works include early works and pre-construction activities, works described as pre-construction, construction and commissioning works. Project works exclude enabling works.
Putrescible waste	Refuse or other discarded material that is liable to become putrid or rotten through decay or decomposition.
Qualitative	Relating to or concerned with quality or qualities, rather than quantity or measured value.
Quantitative	An assessment based on quantities or quantifiable data.
Quaternary	The geological time period beginning ~2 to ~3 million years ago and extending to present; encompasses the Pleistocene and Holocene time epochs.
Rail alignment	The exact positioning of the track, accurately defined both horizontally and vertically, along which the rail vehicles operate.
Rail corridor	The corridor within which the rail tracks and associated infrastructure are located.
Rail level	The theoretical level of the running surface of the rails.
Rail maintenance access road	A road required to facilitate maintenance of critical infrastructure (e.g. turnouts), and to provide access for emergency recovery.
Ramsar wetland	An area designated as a wetland of international importance under the Ramsar Convention (also known as the Convention on Wetlands of International Importance signed by Australia in 1971) because of its role in preserving biological diversity, or because it is a representative, rare or unique wetland type.
Rating background level	The underlying level of noise present in an area once transient and short-term noise events are filtered out. Median assessment background level (ABL) for each day, evening and night period; min $L_{A90, (1\text{hour})}$ .
Raw water	Untreated water from the environment.
Receptor	That part of the environment that may be the recipient of environmental harm; receptors may include houses, schools, hospitals, surface waters, land, and ecosystems.
Recharge	Recharge is defined as the process by which water is added from outside to the zone of saturation of an aquifer, either directly into a formation, or indirectly by way of another formation.
Refugial pool	A pool of permanent water contained either within a watercourse, or on the floodplain of a watercourse, that persists when surrounding aquatic habitats become dry. Refugial pools are places where aquatic fauna can persist during dry periods (dry seasons through to droughts) and therefore enable recolonising of other aquatic habitats following rain.
Regional connecting road	High-order road of a high standard, facilitating connectivity between townships.

Term	Definition
Regional ecosystems	<p>A vegetation community, within a bioregion, that is consistently associated with a particular combination of geology, landform and soil.</p> <p>Regional ecosystems may be classified under schedules 1–3 of the Vegetation Management Regulation 2012 (Qld) as endangered, of concern or least concern. Refer to <i>Vegetation Management Act 1999</i> (Qld) conservation status for meaning of endangered, of concern and least concern under the Act.</p>
Registered groundwater bore	Groundwater bore that is recorded in the Queensland Department of Natural Resources, Mines and Energy database.
Regrowth vegetation	<p>Defined under the <i>Vegetation Management Act 1999</i> (Qld) as vegetation that is not remnant vegetation.</p> <p>Remnant vegetation is defined under the VM Act as vegetation:</p> <p>a) <i>That is:</i></p> <ul style="list-style-type: none"> <li>i) <i>an endangered regional ecosystem; or</i></li> <li>ii) <i>an of concern regional ecosystem; or</i></li> <li>iii) <i>a least concern regional ecosystem; and</i></li> </ul> <p>b) <i>Forming the predominant canopy of the vegetation—</i></p> <ul style="list-style-type: none"> <li>i) <i>covering more than 50 per cent of the undisturbed predominant canopy; and</i></li> <li>ii) <i>averaging more than 70 per cent of the vegetation’s undisturbed height; and</i></li> <li>iii) <i>composed of species characteristic of the vegetation’s undisturbed predominant canopy.</i> </li></ul>
Regulated waste	Refuse or other discarded material, whether treated or immobilised, listed in schedule 7 of the Waste Reduction and Recycling Regulation 2011 (Qld).
Regulatory framework	System of regulations and the means to enforce them, usually established by a government to regulate a specific activity.
Rehabilitation	Returning the land to its pre-disturbance state or providing the foundations for the land to return to its pre-disturbance state.
Relative humidity	The amount of water vapour in the air relative to the saturation point at a given temperature.
Remediation	Removal of pollution or contamination from the environment to restore to health; requires that impact is reduced to some acceptable level.
Remnant vegetation	<p>Includes woody and non-woody vegetation.</p> <p>Woody vegetation is mapped as remnant vegetation where the dominant canopy has &gt;70 per cent of the height and &gt;50 per cent of the cover relative to the undisturbed height and cover of that stratum and is dominated by species characteristic of the vegetation’s undisturbed canopy.</p> <p>Non-woody remnant vegetation is predominantly composed of grasses and/or other non-woody vegetation; extent is mapped according to time since cultivation and composition of the vegetation.</p>
Reserve (tenure)	Land reserved by the Department of Environment and Science for community or public purposes.
Residual impact	The impact that is remaining or leftover following the implementation of mitigation measures.
Restricted matter	The <i>Biosecurity Act 2014</i> (Qld) defines restricted matter as biosecurity matter found in QLD and has a significant impact on human health, social amenity, the economy or the environment. Restricted matter can include diseases, viruses or parasites, invasive animals or plants (e.g. pest animals or weeds), noxious fish, insect pests.
Revegetation	Establishment of suitable plant species to support the agreed post-Project land use and stabilise soils.
Riffle zone	An area within a stream that is characterised by shallow water, rocky sediment and fast water flows.
Rilling	Type of erosion that removes soil by water from very small but well-defined, visible channels.
Riparian	Situated along or near the bank of a waterway.

<b>Term</b>	<b>Definition</b>
Riparian land	Any land that adjoins, directly influences, or is influenced by a body of water. The body of water can be a creek or stream, a river, a lake or a wetland.
Riprap	Loose stone used to form a foundation for a breakwater or other structure.
Riverine	Of or relating to a river.
Riverine area	The land confined to the flood-flow channel of a watercourse.
Road link	A section of public road, typically referring to a road excluding intersections.
Rolling stock	Rolling stock is a vehicle that operates on or uses a railway track.
Rudosol	Soil types with rudimentary pedologic organisation apart from a minimal A horizon.
Runoff	All surface and subsurface flow from a catchment, but in practice refers to the flow in a river i.e. excludes groundwater not discharged into a river.
Rural access road	Low-order road predominantly facilitating access to local land users.
Saline	Presence of salts, in water or spoil, at concentrations greater than 3,000 milligrams of total dissolved solids per litre.
Saline water	Water that is generally considered unsuitable for human consumption or for irrigation because of its high content of dissolved solids.
Scarp	A steep slope, ridge or escarpment of rock.
Sensitive receptors	Land uses that are sensitive to potential noise, air and visual impacts, such as residential dwellings, schools and hospitals.
Shallow groundwater	Groundwater resources not deeper than 100 m.
Significantly disturbed land or significant disturbance to land	Means disturbance to land as defined in Section 4 of Schedule 12 of the Environmental Protection Regulation 2008 (Qld).
Significant impact	A significant impact is an impact that is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends on the sensitivity, value, and quality of the environment that is impacted, and on the intensity, duration, magnitude and geographic extent of the impacts.
Significant residual impact	An adverse impact, whether direct or indirect, of a prescribed activity on all or part of a prescribed environmental matter that remains, or will, or is likely to remain (whether temporarily or permanently) despite onsite avoidance and mitigation measures for the prescribed activity; and is, or will, or is likely to be, significant.
Siltstone	Consolidated silt; fine-grained sedimentary rock.
Social impact management plan	Document that details how social impact management strategies will be implemented.
Sodic	Of or relating to soils that have a high level of sodium.
Sodicity	The amount of sodium present.
Soil horizon	One of the series of distinct layers found in a vertical cross-section of any well-developed soil, grouped primarily into O, A, B, and C horizons.
Soil profile	Vertical section through all the constituent horizons, or relatively uniform layers, of a soil.
Sound	Vibration of the air, usually within the frequency range perceptible to normal human hearing, but is (strictly) vibration of air at any frequency.
Sound pressure level—SPL (dB or dB(A))	Sound pressure is the measure of the level or loudness of sound. Like sound power level, it is measured in logarithmic units. The symbol used for sound pressure level is SPL, and it is generally specified in decibels (dB). Zero decibels is taken as the threshold of human hearing.
Species credit	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 species profile database.

Term	Definition
Spoil	Defined as 'rock' or 'other than rock' resulting from construction excavation and tunnelling activities.
Stakeholder	Person or group affected by or concerned with an issue or enterprise. Refer also: affected person.
State forest	Land reserved by the Department of Environment and Science for State forest purposes.
State land	Land held by the State of QLD as Unallocated State Land and other areas vested in the State (or Crown) but not held in Fee Simple or as a lease issued under the <i>Land Act 1994</i> (Qld).
State wildlife corridor	An area identified as a State wildlife corridor on a map certified by the Chief Executive of Department of Environment and Science for the purposes of the <i>Vegetation Management Act 1999</i> (Qld).
State-controlled road	Road declared to be controlled by the Department of Transport and Main Roads, including roads that comprise the National Land Transport Network in Queensland
Statutory guideline	A document that provides direction for implementing the intent of legislation.
Stock route network	The network of facilities established to provide for the movement of livestock on foot between grazing areas and markets. The network includes areas for stock to travel along (often within existing road corridors, adjacent to roadways) and areas for livestock to rest overnight, as well as watering facilities and holding yards.
Stockpile	Large supply of essential materials, held in reserve for later use.
Strahler stream order	Classification system that gives a waterway an 'order' according to the number of tributaries associated with it.
Strata	Single bed of sedimentary rock, generally consisting of one kind of matter representing continuous deposition.
Strategic cropping area	Lands specifically identified as suitable for cropping as an ongoing land use based on the criteria outlined within the <i>Regional Planning Interests Act 2014</i> (Qld).
Stratigraphy	Branch of geology dealing with the classification, nomenclature, correlation and interpretation of stratified rocks.
Study area	Area defined by each of the relevant supporting studies and specific to the particular environmental aspect being considered for the purpose of environmental impact assessment.
Subgrade	The soil or rock levelled off to support the foundation of a structure.
Subsoil	The B-horizon within the soil profile, which lies immediately below the topsoil, or A-horizon; it is not enriched or is less enriched with organic material than the topsoil and may be subject to clay or salt accumulation.
Sulfur dioxide	Toxic gas found in the emissions of volcanoes and those of burning coal or petroleum; dissolves in water to form sulfurous acid and, in the presence of oxygen, sulfuric acid.
Super T girder	A concrete bridge girder that is fully pretensioned, prestressed, and precast, and which incorporates the structural function of a box girder with permanent formwork in the deck.
Terms of Reference (ToR)	Written document developed by the regulatory authority (i.e. QLD Coordinator-General) that provides the minimum expectations for the scope of an environmental impact statement.
Terrestrial	Relating to, consisting of, or representing the Earth; relating to the land as distinct from the water.
The Air Pollution Model	Three-dimensional prognostic meteorological model used for air pollution modelling developed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO).
The proponent	Australian Rail Track Corporation.

Term	Definition
Threatened	A collective term used with reference to ecological communities, regional ecosystems or species that are critically endangered, endangered, vulnerable or near threatened as listed under the <i>Nature Conservation Act 1992</i> (Qld), the <i>Vegetation Management Act 1999</i> (Qld) or the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth). Also see <i>Nature Conservation Act 1992</i> (Qld) conservation significance, <i>Vegetation Management Act 1999</i> (Qld) conservation significance, and <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) conservation significance for meaning of 'threatened' under these Acts.
Threatened species	Generic term for a plant or animal species listed as critically endangered, endangered, vulnerable or rare under either State or Commonwealth threatened species legislation. The terms 'threatened' and 'conservation significant' are interchangeable in this context.
Threatening process	Processes that threaten, or have the capability to threaten, the survival or evolutionary development of species, populations, or ecological communities. According to the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth), a process is a threatening process if it threatens, or may threaten, the survival, abundance or evolutionary development of a native species or ecological community. Such processes can be listed as a key threatening process if it can: <ul style="list-style-type: none"> <li>▶ Cause a native species or ecological community to become eligible for inclusion in a threatened list (other than the conservation dependent category)</li> <li>▶ Cause an already listed threatened species or threatened ecological community to become more endangered</li> <li>▶ Adversely affect two or more listed threatened species or threatened ecological communities.</li> </ul>
Topsoil	The upper, outermost layer of soil, usually the top 13 cm to 25 cm. It has the highest concentration of organic matter and microorganisms and is where most of the Earth's biological soil activity occurs.
Track	The structure consisting of the rails, fasteners, sleepers and ballast, which sits on the formation.
Track formation	Refer <i>formation</i> .
Triassic	The geological time period extending from ~250 to ~200 million years ago. It is the earliest period of the Mesozoic era and occurred between the Permian and Jurassic periods.
Tributaries	A tributary is a stream or river that flows into another river (a parent river) or body of water but that does not flow directly into the sea.
Trigger level	The point at which some form of action has begun, such as exceedance of guidelines.
Turbid	Opaque or muddy liquid with particles of extraneous matter.
Turnout	A junction point where a rail vehicle can leave a given track for a branching or parallel track.
Unconfined aquifer	An aquifer with no confining layer between the water table and the ground surface where the water table is free to fluctuate.
Unconsolidated aquifer	Strata such as sand that has not been turned into rock.
Value added	The difference between the sale price and the production cost of a good or service.



Term	Definition
Vegetation Management Act 1999 (Qld) conservation status	<p>Under the <i>Vegetation Management Act 1999</i> (Qld) (VM Act), regional ecosystems are assigned a conservation status of endangered, of concern and least concern/no concern present.</p> <p>Definitions of these terms under the Act are as follows.</p> <p><b>Endangered</b></p> <p>A regional ecosystem is listed as 'endangered' under the VM Act if:</p> <ul style="list-style-type: none"> <li>▶ Remnant vegetation is less than 10 per cent of its pre-clearing extent across the bioregion, or</li> <li>▶ Between 10–30 per cent of its pre-clearing extent remains and the remnant vegetation is less than 10,000 hectares.</li> </ul> <p>For biodiversity planning purposes a regional ecosystem is listed with a Biodiversity Status of 'endangered' if:</p> <ul style="list-style-type: none"> <li>▶ Less than 10 per cent of its pre-clearing extent remains unaffected by severe degradation and/or biodiversity loss, or</li> <li>▶ Between 10–30 per cent of its pre-clearing extent remains unaffected by severe degradation and/or biodiversity loss and the remnant vegetation is less than 10,000 hectares, or</li> <li>▶ It is a rare regional ecosystem subject to a threatening process.</li> </ul> <p><b>Of concern</b></p> <p>A regional ecosystem is listed as 'of concern' under VM Act if:</p> <ul style="list-style-type: none"> <li>▶ Remnant vegetation is 10–30 per cent of its pre-clearing extent across the bioregion or</li> <li>▶ More than 30 per cent of its pre-clearing extent remains and the remnant extent is less than 10,000 hectares.</li> </ul> <p>In addition to the criteria listed for an 'of concern' regional ecosystem under the <i>Vegetation Management Act 1999</i> (Qld), for biodiversity planning purposes a regional ecosystem is listed with a Biodiversity Status 'of concern' if:</p> <ul style="list-style-type: none"> <li>▶ Between 10–30 per cent of its pre-clearing extent remains unaffected by moderate degradation and/or biodiversity loss.</li> </ul> <p><b>Least concern/no concern present</b></p> <p>A regional ecosystem is listed as 'least concern' under the VM Act if:</p> <ul style="list-style-type: none"> <li>▶ Remnant vegetation is over 30 per cent of its pre-clearing extent across the bioregion, and the remnant area is greater than 10,000 hectares.</li> </ul> <p>For biodiversity planning purposes a regional ecosystem is listed with a biodiversity status of 'no concern at present' if:</p> <ul style="list-style-type: none"> <li>▶ The degradation criteria listed above for 'endangered' or 'of concern' regional ecosystems are not met.</li> </ul>
Vehicle kilometres travelled	Measure of traffic demand, calculated as the length of a section of road in kilometres multiplied by the annual average daily traffic on it. The yearly vehicle kilometres travelled is the daily vehicle kilometres travelled multiplied by the number of days in that year.
Veneering	The application of a biodegradable, non-toxic binding agent onto the loaded wagon coal surface. The veneer forms a crust over the coal load and minimises coal dust lift-off when exposed to air passing over the surface in transit.
Vertosol	Soil type that is clayey and cracks when dry; its alternate shrinking and swelling produces gilgais.
View	The visual experience from the viewer's perspective.
Viewshed	Areas visible from a combination of locations within a defined setting (may be modelled or field-validated).
Visual amenity	The value of a particular area or view in terms of what is seen; the attractiveness of a scene or view.
Visual impact	The impacts on the views from residences, workplaces and public places. This can be positive (i.e. benefit or an improvement) or negative (i.e. adverse or a detraction).
Visual sensitivity	Degree to which a change to the landscape will be perceived in an adverse way.
Volatile organic compound (VOC)	Any organic compound that participates in atmospheric photochemical reactions.

Term	Definition
Vulnerability	The extent to which a system, asset or organisation can cope with the negative impacts of climate change, variability and extremes. It is a function of risk and adaptive capacity.
Vulnerable	Designated as vulnerable under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) and/or <i>Nature Conservation Act 1992</i> (Qld). Refer to <i>Environment Protection and Biodiversity Conservation Act 1999</i> conservation status and <i>Nature Conservation Act 1992</i> (Qld) conservation status for meaning of 'vulnerable' under these Acts.
Waste	Defined under the <i>Environmental Protection Act 1994</i> (Qld) as anything (other than an end-of-waste resource) that is left over, or an unwanted by-product from an industrial, commercial, domestic or other activity.
Waste management hierarchy	The waste management hierarchy is a set of priorities for the efficient use of resources that underpins the objectives of the <i>Waste Reduction and Recycling Act 2011</i> (Qld). The waste management hierarchy progresses from avoidance (most preferred), to re-use/recycling, to disposal (least preferred).
Water management facility	The collective term for the major infrastructure components involved in water storage and treatment.
Water resource	Water, or the rights or other claims to water, which the water report entity either holds, or for which the water report entity has management responsibilities, and from which an individual or organisation that is a water report entity, or a group of stakeholders of a physical water report entity, derives future benefits (as defined in <i>Exposure Draft of Australian Water Accounting Standard 1</i> (Water Accounting Standards Board, 2010).
Water table	The surface in an unconfined aquifer or confining bed at which the pore water pressure is atmospheric; it can be measured by installing shallow wells extending a few feet into the zone of saturation and then measuring the water level in those wells.
Watercourse	A river, creek, or other stream, including a stream in the form of an anabranch or a tributary, in which water flows permanently or intermittently, regardless of the frequency of flow events: <ul style="list-style-type: none"> <li>▶ In a natural channel, whether artificially modified or not, or</li> <li>▶ In an artificial channel that has changed the course of the stream.</li> </ul> It also includes weirs, lakes and dams.
Waterlogging	The saturation of soil by water.
Watershed	Drainage basin.
Weeds	Plant species that invade native ecosystems and can adversely affect the survival of Indigenous flora and fauna, often competing with Indigenous plants for resources such as nutrients, moisture and light. They can prevent natural regeneration, reduce wildlife habitat, alter water flows, increase soil erosion, introduce poisons into the soil or poison animals, change fire behaviour and may introduce foreign genes into local plant populations. Weed species are not necessarily exotic non-Indigenous species, but can also be non-endemic natives that are naturalised to areas outside of their natural distribution.
Wetland	Numerous definitions of wetland exist. Under the <i>Queensland Wetland Strategy</i> , wetland is defined as 'areas of permanent or periodic/intermittent inundation, whether natural or artificial, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed 6 m'. Three types of freshwater wetland (excluding aquifers) are recognised: <ul style="list-style-type: none"> <li>▶ Riverine wetlands, which are analogous to 'watercourses' used in this report</li> <li>▶ Palustrine wetlands, which are vegetated swamps. Many springs are also considered to be similar to palustrine wetlands</li> <li>▶ Lacustrine wetlands, which are areas of relatively deep, non-flowing water. Lakes, farm dams and large billabongs on floodplains are examples of lacustrine wetlands.</li> </ul> As 'watercourse' is used to refer to 'riverine wetlands', use of the term 'wetland', more specifically, refers to palustrine and lacustrine wetlands.
Wildlife corridor	Habitat linked to other habitats (often remnant patches) to allow natural migration or movement of wildlife.