

## 37. GLOSSARY AND ABBREVIATIONS

The following glossary technical terms, acronyms and abbreviations are defined in the context of their use in this environmental impact statement. Some definitions have been adapted from the relevant supporting studies, the Macquarie Dictionary and online dictionaries and encyclopaedias.

### Numbers

**1P gas reserves** *abbr.* proven gas reserves.

**2P gas reserves** *abbr.* proven and probable gas reserves.

**3P gas reserves** *abbr.* proven, probable and possible gas reserves.

### A

**ABARES** *abbr.* Australian Bureau of Agriculture and Resource Economics and Sciences.

**ABS** *abbr.* Australian Bureau of Statistics.

**access track** *n.* a cleared and graded track to a project site constructed where existing tracks are not available.

**AEMO** *abbr.* Australian Energy Market Operator.

**aggregate** *adj.* a mixture of different mineral substances separable by mechanical means.

**AHD** *abbr.* Australian height datum.

**AL** *abbr.* assessment location.

**ALARP** *abbr.* as low as reasonably practicable.

**alignment** *n.* the line or lines that describe a linear-infrastructure route; it defines accurately how the linear infrastructure (such as a road, railroad or pipeline) will be located in relation to the features encountered along the route.

**allotment** *n.* a plot of land let to an individual or organisation.

**alluvial** *n.* usually refers to a valley or fan, consisting of sediment deposited by an ephemeral stream at the base of a mountain in arid or semi-arid regions.

**alluvium** *n.* unconsolidated deposits of inorganic materials (clay, silt, sand, gravel, boulders) deposited by flowing water.

**ancillary infrastructure** *n.* infrastructure providing necessary support to the primary activities or operation of the project.

**anthropogenic** *adj.* associated with human activities, as opposed to those occurring in biophysical environments without human influence.

**ANZECC** *abbr.* Australian and New Zealand Environment Conservation Council.

**APIA** *abbr.* Australian Pipeline Industry Association.

**APLNG** *abbr.* Australia Pacific Liquid Natural Gas Project.

**AQIS** *abbr.* Australian Quarantine and Inspection Service.

**arboreal** *adj.* living in or among trees.

**archaeological** *adj.* relating to the systematic study of any culture, especially a prehistoric one, by excavation and description of its remains.

**ARI** *abbr.* annual recurrence interval.

**ARMCANZ** *abbr.* Agriculture and Resource Management Council of Australia and New Zealand.

**Arrow** *abbr.* Arrow Energy Holdings Pty Ltd.

**Arrow Energy** *abbr.* Arrow (CSG) Australia Pty Ltd.

**AS** *abbr.* Australian standard.

**ascidian** *n.* a sea squirt.

**ASL** *abbr.* above sea level.

**asphyxiant gas** *n.* a non-toxic or minimally toxic gas which reduces or displaces the normal oxygen concentration in breathing air. Prolonged breathing of oxygen depleted air can lead to death by suffocation.

**ASS** *abbr.* acid sulfate soils.

**ATP** *abbr.* authority to prospect.

### B

**background creep** *adj.* the gradual increase in background noise levels in an area as a result of successive developments generating constant noise levels at a particular location.

**background noise level** *n.* the noise level in the absence of intermittent noise sources.

**backhoe dredger** *n.* a hydraulic excavator equipped with a half open shell, which moves along the sea floor collecting sediment.

**baseflow** *n.* the portion of stream flow that comes from the sum of deep subsurface flow and delayed shallow subsurface flow.

**baseline** *n.* basic standard or level, usually regarded as a reference point for comparison: baseline data.

**bathymetry** *n.* the measurement of depth of water in oceans, seas, or lakes.

**batter slope** *n.* a receding slope, back from a vertical given in order to increase stability.

**benthic** *adj.* the animals and plants that live on the floor of the sea or lakes.

**benthos** *n.* the animals and plants living on the floor of the sea or lakes.

**bentonite** *n.* a clay formed by the decomposition of volcanic ash, used as a drilling mud in oil exploration.

**berth pocket** *n.* a space for a ship to dock or anchor.

**berths** *n.* room allowed for a vessel to moor at a dock or ride at anchor.

**bioavailable** *adj.* of or relating to a chemical, especially a toxin, which can be absorbed by an organism.

**biodiversity** *n.* the variety of species of plants, animals and microorganisms, their genes, and the ecosystems they comprise, often considered in relation to a particular area.

**bioregion** *n.* a relatively large land area characterised by broad, landscape-scale natural features and environmental processes that influence the functions of entire ecosystems and capture the large-scale geophysical pattern of the area. These patterns in the landscape are linked to fauna and flora assemblages and processes at the ecosystem scale, thus providing a useful means for simplifying and reporting on more complex patterns of biodiversity.

**biosecurity** *n.* security measures against the transmission of disease to the plants or animals of a particular region.

**biota** *n.* the total animal and plant life of a region.

**BLEVE** *abbr.* boiling liquid evaporation vapour explosion event.

**BOD** *abbr.* biochemical oxygen demand.

**BOM** *abbr.* Bureau of Meteorology.

**borrow pit** *n.* a pit created to provide earth that can be used as fill at another site.

**boundary layer** *n.* the lowest part of the atmosphere; its behaviour is directly influenced by its contact with the surface of the earth.

**breccias** *n.* coarse sedimentary rock consisting of angular fragments; or rock broken into angular fragments by faulting.

**bryozoan** *adj.* a phylum of marine and freshwater animals which form colonies of many small polyps. Each has a circular or horseshoe-shaped ridge bearing tentacles.

**BTEX** *abbr.* benzene, toluene, ethyl benzene and xylene.

**Burra Charter** *n.* is the accepted standard for measuring the significance of cultural heritage sites and items in Australia. The Burra Charter was developed by cultural heritage specialists to define criteria for measuring significance and prescribe measures for the management and protection of significant places.

## C

**CAMBA** *abbr.* China-Australia Migratory Bird Agreement.

**capsize vessel** *n.* a vessel typically greater than 150,000 long tons deadweight.

**Carboniferous** *adj.* relating to a geological period or a system of rocks preceding the Permian, and following the Devonian.

**CASA** *abbr.* civil aviation safety authority.

**catchment** *n.* a drainage area, especially of a reservoir or river.

**CBD** *abbr.* central business district.

**CCRCMP** *abbr.* Curtis Coast Regional Coastal Management Plan.

**cetacean** *n.* an order of aquatic, chiefly marine, mammals, including the whales, dolphins and porpoises.

**CFC** *abbr.* chlorofluorocarbons.

**CH<sub>4</sub>** *abbr.* methane.

**CHMP** *abbr.* cultural heritage management plan.

**climate change** *n.* a significant change in the usual climatic conditions persisting for an extended period, especially those thought to be caused by global warming.

**CLR** *abbr.* contaminated land register.

**CO** *abbr.* carbon monoxide.

**CO<sub>2</sub>** *abbr.* carbon dioxide.

**CO<sub>2-e</sub>** *abbr.* carbon dioxide equivalent.

**COAG** *abbr.* Council for Australian Governments.

**coal seam gas** *n.* form of natural gas extracted from coal beds.

**cofferdam** *n.* a watertight enclosure constructed in rivers, etc., and then pumped dry so that bridge foundations, etc., may be constructed in the open.

**Coffey Environments** *abbr.* Coffey Environments Australia Pty Ltd.

**colluvial** *n.* of or relating to colluvium. Colluvium is loose deposits, usually at the foot of a slope or cliff line and brought by gravity.

**CONCAWE** *abbr.* Conservation of Clean Air and Water in Europe.

**confined aquifers** *n.* an aquifer bounded above and below by impervious layers; in a confined aquifer, the water is under sufficient pressure to cause it to rise above the top of the aquifer if given the opportunity, for example, if penetrated by a bore.

**conglomerates** *n.* very coarse-grained sedimentary rock consisting of rounded clasts.

**constraints analysis** *n.* analysis of potential constraints, and environmental controls that inform site selection and development plans, as well as the environmental management of construction, operation and decommissioning activities.

**Coordinator-General** *abbr.* Coordinator-General of the State of Queensland.

**coral bommies** *n.* outcrops of rock and coral.

**cryogenic pipelines** *n.* cooled pipelines for loading LNG from storage facilities (tanks) to LNG carriers at a jetty.

**CSG** *abbr.* coal seam gas.

**CSIRO** *abbr.* Commonwealth Scientific and Industrial Research Organisation.

**cultural heritage** *n.* is the legacy of physical artefacts (cultural property) and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations. Cultural heritage includes tangible culture (such as buildings, monuments, landscapes, books, works of art, and artefacts), intangible culture (such as folklore, traditions, language, and knowledge), and natural heritage (including culturally-significant landscapes, and biodiversity).

**Cultural Heritage Management Plan** *n.* the Aboriginal Cultural Heritage Act requires an approved cultural heritage management plan, or an agreement with Aboriginal parties that does not preclude cultural heritage management, for any project that also requires completion of an EIS process. The cultural heritage management plan must address the management of Aboriginal cultural heritage present in the project area.

**cumulative impacts** *n.* the effect experienced by increasing or growing by accumulation or successive additions.

**cutter suction dredger** *n.* a dredger which uses a rotating cutter head to disaggregate the material to be dredged.

**Cwlth** *abbr.* Commonwealth.

## D

**dB(A)** *abbr.* a weighted noise or sound power level in decibels.

**declared pest** *n.* a species (plant or animal) declared under the Land Protection (Pest and Stock Route Management) Act 2002 (Queensland). These species are targeted for control under state legislation and are species that have, or may have, a serious impact on Queensland's economy, environment or society. Landholders must control declared species.

**decommissioning phase** *n.* project phase during which decommissioning occurs.

**DEEDI** *abbr.* Department of Employment, Economic Development and Innovation (Queensland).

**DERM** *abbr.* Department of Environment and Resource Management.

**desalination** *n.* The process of removing the dissolved salts from sea water so that it becomes suitable for drinking water or for agricultural irrigation.

**desktop study** *n.* an examination and analysis of a particular subject using secondary sources.

**DEWHA** *abbr.* Department of Environment, Water, Heritage and the Arts (now DSEWPC) (Commonwealth).

**DIDO** *abbr.* drive-in, drive-out.

**diffuse recharge** *n.* groundwater recharge that occurs from precipitation distributed over large areas and subsequent infiltration through the soil.

**DIN** *abbr.* the German Institute for Standardization.

**disaggregate** *adj.* to separate out into smaller units or component parts.

**disposal areas** *n.* areas used to dispose of dredged material.

**diversion channel** *n.* a constructed waterway used to divert drainage lines and watercourses around infrastructure areas.

**DOS** *abbr.* degree of saturation.

**dredge spoil** *n.* dredged material.

**dredging** *adj.* to clear out with a dredge; remove sand, silt, mud, from the bottom of a river, port or harbour.

**DSEWPC** *abbr.* Department of Sustainability, Environment, Water, Populations and Communities (Commonwealth).

**DTMR** *abbr.* Department of Transport and Main Roads.

## E

**ecological** *n.* relating to the branch of biology that deals with the relations between organisms and their environment.

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

**ecosystem** *n.* a community of organisms interacting with one another and with the environment in which they live, as in a pond, a forest, etc.

**Eh** *n.* measurement of redox potential.

**EIA** *abbr.* environmental impact assessment.

**EIS** *abbr.* environmental impact statement.

**embayment** *n.* an indentation in a shoreline forming an open bay.

**EMP** *abbr.* environmental management plan.

**EMR** *abbr.* environmental management register.

**EMS** *abbr.* environmental management system.

**endemic** *adj.* (of a plant or animal) native to a country or a locality, though also found elsewhere.

**endorsed parties** *n.* are those Aboriginal Parties who have responded in a timely manner to notices issued pursuant to provisions of Part 7 of the ACH Act and have been granted the status of endorsed parties for the purpose of developing a CHMP.

**environmental authority** *n.* the environmental authority issued in accordance with the Environmental Protection Act 1994 (Qld) (EP Act). It is the primary statutory document that sets conditions on authorised petroleum activities that will be used by the Department of Environment and Resource Management (DERM) to assess and administer regulatory environmental compliance of the project.

**environmental impact statement** *n.* a document that describes potential positive and adverse environmental impacts of a proposed development. It proposes mitigation measures to avoid, minimise, manage and offset potential adverse impacts.

**environmental management plan** *n.* provides operational detail of how environmental management measures identified in the EIS will be implemented.

**environmental values** *n.* the *Environmental Protection Act 1994* (Qld) states that an environmental value is: a) a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or b) another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.

**environmentally relevant activity** *n.* are usually industrial activities with the potential to release contaminants to the environment, for example chemical processing, waste treatment, spray painting. ERAs (excluding mining and petroleum activities) are required to have a development approval. Petroleum related ERAs form part of environmental authorities that are used by the Department of Environment and Resource Management to assess the environmental compliance of a given project.

**environmentally sensitive area** *n.* a location, however large or small, that has environmental values 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.

**EP Act** *abbr.* Environmental Protection Act 1994.

**EPBC Act** *abbr.* Environment Protection and Biodiversity Conservation Act.

**EPC** *abbr.* engineering, procurement and construction.

**ephemeral** *n.* a water body that exists for a limited period following precipitation.

**EPP** *abbr.* Environmental Protection Policy.

**ERA** *abbr.* environmentally relevant activity.

**ESA** *abbr.* environmentally sensitive area.

**ESD** *abbr.* ecologically sustainable development.

**essential habitat** *n.* for species of wildlife listed as endangered, vulnerable, rare, or near threatened under the Nature Conservation Act 1992 (Qld), an area of vegetation shown on the regional ecosystem map or remnant map as remnant vegetation (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 or (b) in which the protected wildlife, at any stage of its life cycle, is located. Essential habitat areas are identified on a map certified by the chief executive of DERM for the purposes of the Vegetation Management Act 1999 (Qld).

**evapotranspiration** *adj.* the sum of evaporation and plant transpiration from the surface to the atmosphere.

**EVR** *abbr.* endangered, vulnerable and rare.

**endangered, vulnerable and rare** *adj.* flora and fauna as listed under the Environmental Protection and Biodiversity Conservation Act or Nature Conservation Act.

**exotic** *n.* an introduced species.

## F

**fabric** *adj.* an archaeological term to describe the materials and assemblage of a physical structure.

**factor income** *n.* comprises compensation of employees by, and operating surplus of, producers.

**factor input** *n.* factor inputs or factors of production may also refer specifically to the primary factors, which are stocks including land, labour (the ability to work), and capital goods applied to production.

**fauna** *n.* the animals of a given region or period, taken collectively.

**FEED** *abbr.* front end engineering and design.

**feed gas pipeline** *n.* a high pressure gas pipeline used to deliver gas to the LNG plant.

**felsic** *adj.* of or relating to light-coloured rocks containing an abundance of such minerals as feldspar, feldspathoid and silica.

**feral** *adj.* having reverted to the wild state, as from domestication.

**FHA** *abbr.* fish habitat areas.

**FID** *abbr.* final investment decision.

**FIFO** *abbr.* fly-in, fly-out.

**flora** *n.* the plants of a given region or period, taken collectively.

**flow-on/indirect economic impacts** *n.* flow-on (or indirect) economic impacts refer to impacts throughout an economy induced by a direct increase in expenditure.

**fly ash** *n.* fine particle residue generated during the combustion of coal, such as in a coal-fired power station..

**fossil fuel** *n.* a hydrocarbon deposit, such as petroleum, coal, or natural gas, derived from living matter of a previous geologic time and used for fuel.

**fragmentation** *n.* the emergence of discontinuities (fragmentation) in an organism's preferred environment (habitat), causing population fragmentation.

## G

**g/L** *abbr.* grams per litre.

**Gas reserve** *n.* quantity of gas in a natural gas field.

**GAWB** *abbr.* Gladstone Area Water Board.

**GBRMP** *abbr.* Great Barrier Reef Marine Park.

**GBRMPA** *abbr.* Great Barrier Reef Marine Park Authority.

**GBRWHA** *abbr.* Great Barrier Reef World Heritage Area.

**geomorphology** *n.* the branch of geology dealing with the characteristics, origin, and development of landforms.

**GIS** *abbr.* geographic information system.

**GJ** *abbr.* gigajoule.

**GLNG** *abbr.* Gladstone Liquid Natural Gas Project.

**GPC** *abbr.* Gladstone Ports Corporation.

**GPS** *abbr.* global positioning system.

**GQAL** *abbr.* good quality agricultural land.

**GRC** *abbr.* Gladstone Regional Council.

**greenhouse effect** *n.* the effect on the temperature of the earth caused by its atmosphere acting as the glass of a greenhouse does, this warming of the lower atmosphere maintaining temperatures suitable for life on earth.

**greenhouse gas** *n.* one of a number of gases found in the atmosphere that contribute to the greenhouse effect.

**gross regional product** *n.* the market value of all final goods and services produced within a metropolitan area in a given period of time.

**groundcover** *n.* low spreading plants which cover the earth and retard the growth of weeds.

**groundtruthing** *adj.* the process of sending technicians to gather data in the field that either complements or disputes remote sensing data collected by aerial photography, satellite images, or infrared images.

**GSDA** *abbr.* Gladstone State Development Area.

**GSP** *abbr.* gross state product.

## H

**H<sub>2</sub>S** *abbr.* hydrogen sulphide.

**ha** *abbr.* hectare.

**HAT** *abbr.* highest astronomical tide.

**HAZID** *abbr.* hazard identification. A technique for early identification of potential hazards and threats.

**HAZOP** *abbr.* hazard and operability. A structured hazard identification and analysis tool in the design and operation of a facility.

**HDD** *abbr.* horizontal directional drilling.

**hearths** *n.* a hearth is a firepit or other fireplace feature of any period.

**HEMP** *abbr.* hazard and effect management plan.

**HerbRECS** *abbr.* Queensland Herbarium Records System.

**highway** *n.* high-order road of a high standard, facilitating connectivity between regional centres.

**hogback ridges** *n.* a steep sided ridge of steeply dipping rock sequences.

**hopper barges** *n.* Vessels used for transportation of dredged material to disposal sites.

**HSE** *abbr.* Health, safety and environment.

**HSEMS** *abbr.* health, safety and environmental management system.

**HSSE** *abbr.* health, safety, security and environment.

**hydraulic conductivity** *n.* the rate at which water can move through a permeable medium.

**hydrology** *n.* the science dealing with water on the land, or under the earth's surface, its properties, laws, geographical distribution, etc.

**Hz** *abbr.* Hertz.

## I

**ICOMOS** *abbr.* International Council on Monuments and Sites.

**IDAS** *abbr.* Integrated Development Assessment System.

**In-situ** *adj.* In the original or natural place or site.

**Indigenous cultural heritage** *n.* Indigenous heritage value of a place means a heritage value of the place that is of significance to Indigenous persons in accordance with their practices, observances, customs, traditions, beliefs or history.

**Indigenous Land Use Agreement** *n.* an Indigenous land use agreement (ILUA), registered in accordance with the Native Title Act 1993 (Cwlth) that addresses cultural heritage management and satisfies the requirement of a CHMP. When a CHMP is approved (or an ILUA registered), compliance with the CHMP (or ILUA) ensures compliance with the Aboriginal cultural heritage duty of care as specified in the Aboriginal Cultural Heritage Act.

**initial advice statement** *n.* prepared to provide preliminary information about the physical, ecological and socio-economic environment in relation to a project.

**inter-tidal zones** *n.* the area of seashore above water during low tide and under water during high tide.

**invertebrate** *n.* of or relating to animals without backbones.

**IPCC** *abbr.* Intergovernmental Panel on Climate Change.

**IRPA** *abbr.* international risk per annum.

**ISO** *abbr.* International Standards Organisation.

**IUCN** *abbr.* International Union for Conservation of Nature.

**IUCN Red List of Threatened Species** *n.* a listing of biological species ranking their conservation status, developed by the IUCN.

## J

**JAMBA** *abbr.* Japan-Australia Migratory Bird Agreement.

**JSEA** *abbr.* job safety environment analysis.

## K

**King tide** *n.* a high tide above average height.

**kg** *abbr.* kilogramme.

**kg/m<sup>3</sup>** *abbr.* kilogrammes per cubic metre.

**kg/s** *abbr.* kilogrammes per second.

**km** *abbr.* kilometre.

**km/h** *abbr.* kilometres per hour.

**km<sup>2</sup>** *abbr.* square kilometre.

**kPa** *abbr.* kilo Pascal.

**kt** *abbr.* kilotonnes.

**kV** *abbr.* kilovolt.

## L

**L/s** *abbr.* litres per second.

**LAT** *abbr.* lowest astronomical tide.

**lateral connection** *n.* connection to or from the main pipeline.

**LCT** *abbr.* landscape character type.

**LED** *abbr.* light emitting diode.

**licensed waste disposal facility** *n.* a facility approved under a development approval and operated by a holder of a registered certificate for environmentally relevant activity 75 under schedule 1 of the Environmental Protection Regulation 1998.

**littoral zone** *n.* the region of the shore of a lake, sea or ocean.

**liquefaction** *n.* the process of liquefying or making liquid.

**LNG** *abbr.* liquefied natural gas.

**LNG train** *n.* one continuous processing unit containing the liquefaction and purification facilities required to condense natural gas from a gaseous state to a liquid state.

**LOS** *abbr.* level of service.

**LPG** *abbr.* liquefied petroleum gas.

**LVIA** *abbr.* landscape and visual impact assessment.

## M

**m** *abbr.* metre.

**m/yr** *abbr.* metres per year.

**m<sup>3</sup>** *abbr.* cubic metres.

**m/d** *abbr.* metres per day.

**m<sup>3</sup>/hr** *abbr.* cubic metres per hour.

**mm/d** *abbr.* millimetres per day.

**m/s** *abbr.* metres per second.

**m<sup>3</sup>/s** *abbr.* cubic metres per second.

**mS/cm** *abbr.* milli Siemens per centimetre.

**macroinvertebrate** *n.* animals that have no backbone and are visible without magnification.

**macrophyte** *n.* an aquatic plant that grows in or near water and is either emergent, submergent, or floating.

**magnitude** *n.* size; extent: to determine the magnitude of an angle.

**Maintenance dredging** *adj.* Additional dredging to remove fine sediment siltation in the navigation channels.

**MARPOL** *abbr.* International Convention of Prevention Pollution from Ships.

**material change of use** *n.* the start of a new use of the premises, the re-establishment on the premises of a use that has been abandoned, or a material change in the intensity or scale of the use of the premises.

**MNES** *abbr.* matters of national environmental significance.

#### **Matters of National Environmental**

**Significance** *n.* designation given under the EPBC Act to nationally significant environmental assets including world heritage properties, national heritage places, RAMSAR wetlands, listed threatened species and ecological communities, listed migratory species, activities related to nuclear energy and the Commonwealth marine environment including the Great Barrier Reef Marine Park.

**mbgl** *abbr.* metres below ground level.

**metamorphic** *adj.* relating to or exhibiting structural change, or metamorphism.

**mg/L** *abbr.* milligrams per litre.

**micro tunnelling** *n.* a drilling technique to construct small tunnels.

**Migratory species** *n.* species that pass periodically from one region to another.

**Mitigation** *n.* to lessen in force or intensity; to moderate the severity of (anything distressing).

**ML** *abbr.* megalitre.

**ML** *abbr.* measurement location.

**ML/yr** *abbr.* megalitres per year.

**mm** *abbr.* millimetre.

**MPa** *abbr.* Mega Pascal.

**MOF** *abbr.* materials offloading facility.

**MSL** *abbr.* mean sea level.

**MSQ** *abbr.* maritime safety Queensland.

**Mt** *abbr.* mega tonnes.

**Mtpa** *abbr.* million tonnes per annum.

**MW** *abbr.* megawatt.

## **N**

**N<sub>2</sub>** *abbr.* nitrogen.

**N<sub>2</sub>O** *abbr.* nitrous oxide.

**native title** *n.* in Australia, the right to land or water enjoyed by Indigenous people who have maintained their connection to said land or water and whose possession under their traditional law or customs is recognised by Australian law; established by the *Native Title Act 1993*, which followed the Mabo decision of the High Court of Australia in 1992.

**NC Act** *abbr.* Nature Conservation Act 1992.

**nekton** *n.* the aggregate of actively swimming organisms at the surface of the sea.

**Nemerteans** *n.* a group of unsegmented marine worms.

**NGA** *abbr.* The National Greenhouse Account Factors.

**NGER Act** *abbr.* National Greenhouse and Energy Reporting Act, 2007.

**NO<sub>2</sub>** *abbr.* nitrogen dioxide.

**NO<sub>x</sub>** *abbr.* nitrogen oxide.

**NO<sub>3</sub>** *abbr.* nitrate.

**nocturnal** *adj.* active by night.

**non-Indigenous cultural heritage** *n.* refers to cultural heritage sites and archaeological places that were established post European contact by persons of non-Indigenous lineage.

**northern infrastructure corridor** *n.* linear infrastructure corridor within the GSDA on the mainland to house materials transportation and service corridors for other LNG proponents on Curtis Island.

**nephelometric turbidity units** *n.* a measurement of turbidity.

**NSW** *abbr.* New South Wales.

**NTU** *abbr.* nephelometric turbidity units.

**NZS** *abbr.* New Zealand Standard.

## **O**

**O<sub>3</sub>** *abbr.* ozone.

**OC** *abbr.* organochloride.

**OCP** *abbr.* organochlorine pesticides.

**OP** *abbr.* organophosphate.

**OPP** *abbr.* organophosphorus pesticides.

## **P**

**P&G Act** *n.* Petroleum and Gas (Production and Safety) Act 2004 (Qld).

**pa** *abbr.* per annum.

**PAH** *abbr.* polycyclic aromatic hydrocarbons.

**PANS-OPS** *abbr.* procedures for air navigation services - aircraft operational surfaces.

**PASS** *abbr.* potential acid sulfate soil.

**Pathogen** *n.* a disease producing organism.

**PCB** *abbr.* polychlorinated biphenyl.

**PCIMP** *abbr.* Port Curtis Integrated Monitoring Program.

**pelagic** *adj.* living at or near the surface of the ocean, far from land, as certain animals or plants.

**perennial** *adj.* Lasting for an indefinitely long time; enduring.

**permanent easement** *n.* a permanent right held by one person/company to make use of the land of another.

**permeability** *n.* the ease with which a fluid can pass through a porous medium, such as an aquifer; it is expressed in metres per day (m/d).

**pest** *n.* an organism considered harmful.

**petroleum activity** *n.* as defined in the Environmental Protection Act 1994 (Qld)

**petroleum authority** *n.* a right granted under the Petroleum Act 1923 (Qld) or Petroleum and Gas (Production and Safety) Act 2004 (Qld) to allow a proponent to explore for or develop the state's petroleum resources; the types of authorities that may be granted under these acts include authority to prospect, petroleum lease, data acquisition authority, water monitoring authority, petroleum facility licence, survey license, and pipeline licence.

**petroleum facility licence** *n.* allows for the construction and operation of the LNG plant, as well as for 'incidental activities' which include but are not limited to the construction of plant works such as trenches, roads and tunnels.

**petroleum pipeline licence** *n.* authorises the construction and operation of a pipeline.

**petroleum survey licence** *n.* provides for access to land to investigate, survey and identify a pipeline route associated with a petroleum pipeline licence or the likely site of a petroleum facility associated with a petroleum facility licence.

**Petroleum tenure** *n.* a right granted under the *Petroleum Act 1923 (Qld)* or *Petroleum and Gas (Production and Safety) Act 2004 (Qld)* to allow a proponent to explore for or develop the state's petroleum resources.

**pH** *n.* the absolute value of the decimal logarithm of the hydrogen-ion concentration (activity), used as an indicator of acidity (pH less than 7) or alkalinity (pH greater than 7) or neutrality (pH 7).

**photochemical reaction** *n.* a chemical reaction initiated by the absorption of energy in the form of light.

**phreatophyte** *n.* a plant with a long root, adapted for survival in desert or arid environments, so that it can source water at deep levels underground.

**pipe bundle** *n.* an assembly of parallel pipes.

**PJ** *abbr.* petajoule.

**PJ/a** *abbr.* petajoules per annum.

**PL** *abbr.* petroleum lease.

**PLA** *abbr.* petroleum lease application.

**PM** *abbr.* particulate matter.

**pollution** *n.* the introduction into the environment of any substance or factor by the action of humans that is or results in harmful effects to humans or the environment.

**polychaete worms** *n.* a division of annelids having unsegmented swimming appendages, includes most of the common marine worms.

**PPB** *abbr.* parts per billion.

**PPL** *abbr.* petroleum pipeline licence.

**PPM** *abbr.* parts per million.

**ppt** *abbr.* parts per thousand.

**Precautionary principle** *n.* states that if an action or policy has a suspected risk of causing harm to the public or the environment, in the absence of scientific consensus that the action or policy is harmful, the burden of proof that it is not harmful falls on those taking the action.

**PRMS** *abbr.* Petroleum Resources Management System.

**project area** *n.* the area of potential disturbance by project activities within the study area.

**PSI** *abbr.* preliminary site investigation.

**pycnogonids** *n.* marine arthropods; sea spiders.

## Q

**QCLNG** *abbr.* Queensland Curtis Liquid Natural Gas Project.

**QER** *abbr.* Queensland Energy Resources.

**QGS** *abbr.* Queensland Gas Scheme.

**QLD** *abbr.* Queensland.

**QRA** *abbr.* quantitative risk assessment. A formal and systematic method of combining historical data, scientific and engineering knowledge and expert judgement to assess the potential for loss from unwanted events.

**Quaternary** *adj.* relating to the most recent of the three periods of the Cenozoic Era. The Quaternary includes two geologic epochs; the Pleistocene and the Holocene.

## R

**RA** *abbr.* restricted area.

**Ramsar wetlands** *n.* the convention on Wetlands of International Importance. Intergovernmental treaty that provides for the conservation and sustainable use of wetlands around the world.

**RBL** *abbr.* rating background level.

**RCCC** *abbr.* Gladstone Region LNG Community Consultative Committee.

**RE** *abbr.* regional ecosystem.

**reach** *n.* a portion of a river between bends.

**REDD** *abbr.* regional ecosystem description database.

**redox potential** *n.* reduction/oxidation potential is a measure of the tendency of a chemical species to acquire or lose electrons.



**refugia** *n.* an area where an organism can survive during a period of unfavourable conditions.

**regional ecosystem** *n.* the relationships between major floral species and the environment at the regional scale; regional ecosystems are mostly derived by linking vegetation mapping units based on dominant canopy species (those recognisable at a scale of 1:100,000) to land zones that represent major environmental variables, in particular, geology, rainfall and landform; under the *Vegetation Management Act 1999* (Qld), each regional ecosystem is assigned a conservation status based on an assessment of the preclearing and remnant extent of that regional ecosystem.

**register of the national estate** *n.* a nationwide list of places with heritage significance, compiled by the Australian Heritage Commission. The Register included places with natural, indigenous and historic heritage values.

**regulatory framework** *n.* administrative procedure according to regulation.

**relief** *n.* the departure of the land surface in any area from that of a level surface.

**remnant vegetation** *n.* under the *Vegetation Management Act 1999* (Qld), an aggregation of native vegetation in which the predominant canopy of the vegetation covers more than 50% of the equivalent undisturbed canopy, averages more than 70% of the vegetation's undisturbed height, and is composed of species characteristic of the vegetation's undisturbed predominant canopy.

**remote sensing** *n.* the identification of data, usually about features of the earth or other bodies in space, from a satellite, aeroplane, etc.

**residual impact** *n.* impact remaining; left over (following application of mitigation measures).

**right of way** *n.* the area required to construct a pipeline, road or railway.

**rilling** *adj.* to flow in a small stream.

**riparian** *adj.* of, relating to, or situated or dwelling on the bank of a river or other body of water.

**riprap** *n.* broken stone deposited loose in revetments, embankments, breakwaters, etc., to prevent erosion of the soft soil.

**riverine** *adj.* of or relating to a river.

**rock armouring** *n.* a loose assemblage of broken stones erected in water or on soft ground as a foundation for erosion protection.

**ROKAMBA** *abbr.* Republic of Korea-Australia Migratory Bird Agreement

**RoPax** *abbr.* roll-on roll-off passenger ferry.

**ROW** *abbr.* right of way.

**runoff** *n.* the water from rain or irrigation that flows over the land surface and is not absorbed into the ground, instead flowing into watercourses or other surface waters or land depressions.

## S

**salt marsh** *n.* A marshy community of plants and low shrubs that can tolerate high soil salinity and the occasional inundation of salt water; often located at the upper levels of the intertidal zone.

**SCADA** *abbr.* supervisory control and data acquisition systems.

**scarred trees** *n.* are trees which have had bark removed by Indigenous Australians for the creation of canoes, shelters, shields and containers, such as coolamons.

**sclerophyllous** *n.* vegetation often with small tough leaves.

**SDPWO Act** *abbr.* State Development and Public Works Organization Act 1971 (Qld).

**SEC** *abbr.* Securities and Exchange Commission (US).

**sedimentary** *adj.* of, relating to, or of the nature of sediment. Geology formed by deposition of sediment, as rock.

**sedimentary sequence** *n.* a grouping of sedimentary units bounded on top and bottom by regional unconformities.

**sedimentation** *n.* the deposition or accumulation of sediment.

**SEIFA Index** *abbr.* Socio-economic Indexes of Areas.

**semi-confined aquifer** *n.* an aquifer confined by a low-permeability layer that permits water to slowly flow through it. Also known as a leaky artesian or leaky confined aquifer.

**sensitive receptor** *n.* sensitive place or sensitive receptor *n.* an area or structure sensitive to a predicted environmental impact (usually from air emissions or noise), such as a dwelling (excluding dwellings owned by Arrow Energy and that will be unoccupied at the time of operations); a library, childcare centre, kindergarten, school, college, university or other educational institution; a hospital, surgery or other medical institution; a protected area or an area identified under a conservation plan as a critical habitat or an area of major interest under the *Nature Conservation Act 1992* (Qld); a marine park under the *Marine Parks Act 2004* (Qld); or a park or garden that is open to the public.

**sensitivity** *n.* the ability of an organism or part of an organism to react to stimuli; irritability. Degree of susceptibility to stimulation.

**shell middens** *n.* a shell midden is a type of archaeological site made almost entirely of mussel shells.

**shotcrete** *n.* shotcrete is concrete conveyed through a hose and pneumatically projected at high velocity onto a surface, as a construction technique.

**SIA** *abbr.* social impact assessment.

**significance** *n.* the quality of being significant or having a meaning.

**SIMP** *abbr.* social impact management plan.

**sinuosity** *n.* a curve, bend, or turn.

**SO<sub>2</sub>** *abbr.* sulfur dioxide.

**social impact management plan** *n.* details how social impact management recommendations will be implemented.

**sodic** *adj.* of or relating to soils which have a high level of sodium.

**SP** *abbr.* social performance.

**SP Act** *abbr.* Sustainable Planning Act.

**SPE** *abbr.* Society of Petroleum Engineers.

**SPP** *abbr.* State Planning Policy.

**stakeholder** *n.* individuals or representatives of a group who have an interest in the proposed project.

**Stanwell–Gladstone Infrastructure Corridor** *n.* designated infrastructure corridor of land between Stanwell Energy Park and the Gladstone State Development Area to house multiple underground pipelines.

**stick-built** *n.* constructed entirely or largely on site.

**stockpile** *n.* a large supply of essential materials, held in reserve for later use.

**storm tide** *n.* the combined effect of normal tides and storm surges acting together to increase water levels.

**stream order** *n.* classification system that defines the size of a stream. The smallest tributaries are classified first-order streams; the largest rivers twelfth order waterways.

**study area** *n.* the area that was studied in relation to the project area.

**subtidal** *n.* the zone of the shoreline that is submerged most of the time, and is exposed only briefly during extreme low tides.

**supratidal** *n.* the marginal zone above the level of high tide.

**superlative** *adj.* of the highest kind or order; surpassing all others; supreme; extreme.

**sustainable yield** *n.* the rate of water extraction from a groundwater system that, if exceeded, could reduce the water table.

## T

**t** *abbr.* tonne.

**TBT** *abbr.* tributyltin.

**TAFE** *abbr.* training and further education college.

**TBM** *abbr.* tunnel boring machine.

**TDS** *abbr.* total dissolved solids.

**termitaria** *n.* termite colony.

**terrestrial** *adj.* 1. relating to, consisting of, or representing the earth. 2. of or relating to the land as distinct from the water.

**threatened** *adj.* species term used where habitat or a species is being pressured by habitat disturbance or modification, recreational or commercial pressures, etc.

**tidal flow** *n.* water currents caused by tides.

**tidal prism** *n.* the volume of water in an estuary between mean high tide and mean low tide i.e., the volume of water leaving and estuary during ebb tide.

**TKN** *abbr.* total Kjeldahl nitrogen.

**toxicant** *n.* poisonous substance.

**tpa** *abbr.* tonnes per annum.

**TPH** *abbr.* total petroleum hydrocarbons.

**trailing suction hopper dredge** *n.* a machine used for dredging wherein suction pipes are lowered on both sides of a ship to the seabed. Dredge material is then transferred up by the suction head into a hold or hopper. The excess water is drained via overflow pipes.

**trenchfall** *n.* entrapment of fauna in open trenches during construction.

**Triassic** *adj.* relating to, or denoting the earliest period of the Mesozoic era, between the Permian and Jurassic periods.

**tributary** *n.* a stream contributing its flow to a larger stream or other body of water.

**TSS** *abbr.* total suspended solids.

**turbid plume** *n.* sediment laden flow of water through a main body of water which has a higher density and turbidity than the liquid through which it flows.

**turbidity** *n.* (of liquids) opaque or muddy with particles of extraneous matter.

**TWAF** *abbr.* temporary workers accommodation facility.

## U

**µg/L** *abbr.* micrograms per litre.

**unconfined aquifer** *n.* an aquifer with no confining layer between the watertable and the ground surface where the watertable is free to fluctuate.

**unconfined disposal** *n.* disposal of dredged material in an area without structures that provide control of potential releases of contaminants to the environment.

**UNESCO** *abbr.* United Nations Educational, Scientific and Cultural Organisation.

**UNFCCC** *abbr.* United Nations Framework Convention on Climate Change.

**UV** *abbr.* ultraviolet.

## V

**VMA** *abbr.* Vegetation Management Act 1999 (Queensland).

**VOC** *abbr.* volatile organic compound.

## W

**Wandilla formation** *n.* a geological unit within the Gladstone and Curtis Island region forming a broad northwest trending belt approximately 10 km wide. The unit comprises mudstone, lithic sandstone, siltstone, jasper, chert, slate and local schist.

**watershed** *n.* drainage basin.

**WBDD Project** *abbr.* Western Basin Dredging and Disposal Project.

**weir** *n.* a dam in a river or stream to stop and raise the water, as for conducting it to a mill, for purposes of irrigation, etc.

**WHA** *abbr.* world heritage area.

**WHO** *abbr.* World Health Organisation.

**wild river areas** *n.* a part of the state of Queensland declared as a wild river area under the Wild Rivers Act 2005 (Qld). Wild river areas may include high preservation areas, preservation areas, floodplain management areas, and subartesian management areas.

**wildlife corridor** *n.* habitats linked to allow natural migration or movement of wildlife.

## Z

**ZTV** *abbr.* zone of theoretical visibility.

Environment Impact Statement  
Arrow LNG Plant