ERA Standard

Environmental Protection Act 1994

Eligibility Criteria and Standard Conditions for Petroleum Activities on an Authority to Prospect or Data Acquisition Authority

This document provides eligibility criteria and standard conditions for petroleum exploration activities.

An environmentally relevant activity (ERA) standard is made up of two parts:

- **Eligibility criteria** are constraints set to ensure environmental risks associated with the operation of the ERA are able to be managed by the standard conditions.
- **Standard conditions** are the minimum operating requirements an environmental authority holder must comply with.

For requirements for the surrender of an environmental authority refer to the *Environmental Protection Act 1994.*

Eligibility criteria

To be eligible for a standard or variation application for an environmental authority, the activity (the relevant activity) must consist of undertaking petroleum exploration to which the tenure applies, where the relevant activity meets the following eligibility criteria:

Eligibility criteria category	Eligibility criteria	
ERA	Petroleum activity on an authority to prospect or Petroleum activity on a data acquisition authority	
Activity description	Exploration, testing and evaluation of petroleum production feasibility or Data acquisition activities.	
Tenure Description	Legislation:	*Petroleum and Gas (Production and Safety) Act 2004* or the *Petroleum Act 1923*
	Tenement Type:	Authority to Prospect (ATP)
	Legislation:	*Petroleum and Gas (Production and Safety) Act 2004*
	Tenement Type:	Data Acquisition Authority (DAA)
Activity location	The activity is not carried out in an area constrained for the ERA Standard for Petroleum Activities on an Authority to Prospect or Data Acquisition Authority in Appendix 1	
Activity operations	The petroleum activity will not: a) cause a total significant disturbance to more than 1% of the total land area on the relevant tenure(s) at any point in time;	

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	b) involve the injection of a waste fluid or gas for gas storage into a natural underground reservoir or aquifer; c) include a regulated structure; d) include the carrying out of the following general ERAs: i. ERA 8 – Chemical Storage; ii. ERA 60(1a) – (1d) – Regulated waste disposal; iii. ERA 60(2d) – (2h) – General waste disposal > 10,000t/year; iv. ERA 63(1a)(ii) – (1b)(ii), (1c) – (1g) – Sewage treatment with a total daily peak design capacity of greater than 21 equivalent persons (EP) which releases to other than an infiltration trench or irrigation scheme or where the sewage treatment activities have a total combined daily peak design capacity exceeding 1500 EP v. ERA 64(2a) and (2b) and (4a) and (4b) – Water treatment where desalination of more than 0.5ML of water is treated, allowing the release of waste to waters other than seawater; or carrying out, in a day, advanced treatment of 5ML or more of water, allowing the release of waste only to seawater; or to waters other than seawater.

Which conditions apply

All conditions apply to activities authorised under the environmental authority.

Note: Defined terms in this document are underlined the first time they appear, and their definitions are provided in Appendix 1.

Standard conditions

Schedule A – Authorised activities ***Explanatory note:*** *Schedule A outlines the activities that are authorised under the Petroleum and Gas (Production and Safety) Act 2004 and the Petroleum Act 1923, a number of activities are not authorised or are otherwise restricted under the standard conditions in Schedule A (i.e. the 'PESCA' conditions). This is because the process followed for a standard application does not require a formal assessment by the administering authority. An environmental authority for petroleum activities is not an authority to negatively impact on water levels or pressure heads in groundwater aquifers in or surrounding formations. There are obligations to minimise or mitigate any such negative impact under other Queensland Government and Commonwealth Government legislation.*	
Condition Number	**Condition**
PESCA 1	The following types of petroleum activities are not authorised: a) processing or storing petroleum or petroleum by-products that are not necessarily associated with well operations b) extracting earthen materials (other than drilling waste rock) of more than 100,000t/year

	c) extracting by dredging of more than 1000t/year of material from the bed of naturally occurring surface waters d) drilling wells with fluids that are oil-based or synthetic oil-based e) carrying out stimulation activities using stimulation fluid that contains chemical additives where polycyclic aromatic hydrocarbons are in concentrations above the reporting limit.
PESCA 2	Petroleum activities must not cause environmental nuisance from dust, odour, light, smoke or noise at a sensitive place, other than where an alternative arrangement is in place.
PESCA 3	Contaminants must not be directly or indirectly released to waters, land or air except for those releases authorised by standard conditions (PESCC 7), (PESCC 9), (PESCC 10), (PESCC 17), (PESCC 18), (PESCC 20), (PESCC 21), (PESCC 22), (PESCC 23), (PESCC 24), (PESCC 25), (PESCC 26), (PESCC 27) (PESCC 29), (PESCC 30) or (PESCC 32).

Schedule B: Environmental Values

***Explanatory note**: Schedule B outlines the environmental values to be protected or enhanced to minimise environmental harm resulting from the petroleum activities. Negative impacts to these environmental values beyond the authorisations in the standard conditions in Schedule B (i.e. the 'PESCB' conditions) are considered unlawful environmental harm.*

Where there are overlapping values (e.g., a state forest and essential habitat), the area with the most stringent limitation is to be applied to the location of the overlap. A risk assessment of the environmental values, impacts and mitigation measures can be developed to help demonstrate compliance with the PESCA standard conditions

PESCB 1	Unless authorised by a condition of this authority activities must not result in environmental harm to: a. an environmental value in a protected area, other than a coordinated conservation area, under the *Nature Conservation Act 1992*; b. an environmental value in a marine park that is classified as a conservation park zone, buffer zone, scientific research zone, marine national park zone or preservation zone, under the *Marine Parks Act 2004*; c. an environmental value in a legally secured offset area under the *Environmental Offsets Act 2014*;
PESCB 2	Only low impact petroleum activities are permitted in: a) a resources reserve under the *Nature Conservation Act 1992*; b) a nature refuge under the *Nature Conservation Act 1992*; c) a coordinated conservation area under the *Nature Conservation Act 1992*; d) an of concern regional ecosystem; e) an endangered regional ecosystem; f) a designated precinct of a Strategic Environmental Area g) habitat for threatened wildlife; *h)* a feature protection area, State forest park or scientific area under the *Forestry Act 1959;* *i)* an area where marine plants are located.

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	j) a wetland of significant environmental values; *k)* a watercourse of significant environmental values. *l)* a declared fish habitat area under the *Fisheries Act 1994*; m) a legally secured offset area under the *Environmental Offsets Act 2014.*
PESCB 3	Only standard essential petroleum activities are permitted within: a) a State forest under the *Forestry Act 1959*; *b)* a timber reserve under the *Forestry Act 1959;* *c)* All other areas (i.*e. not a designated precinct) in a Strategic Environmental Area* d) An area of high value regrowth vegetation.
PESCB 4	Activities within a waterway providing for the passage of fish must maintain a flow path and fish passage.
Site planning	
PESCB 5.	Prior to carrying out petroleum activities, the location of petroleum activities must be selected to: a) firstly avoid, then minimise, then mitigate any negative impacts on areas of vegetation or other areas of ecological value; b) minimise disturbance to land that may otherwise result in land degradation; c) minimise isolation, fragmentation or dissection of tracts of vegetation that would lead to a reduction in the current level of ecosystem functioning or ecological connectivity; d) minimise clearing of mature or hollow bearing trees.
PESCB 6.	Prior to any significant disturbance to land, a suitably qualified person must undertake: a) an ecological assessment of areas with native vegetation that are to be significantly disturbed, with the assessment conducted in accordance with the Queensland Government's Biocondition, a Condition Assessment Framework for Terrestrial Biodiversity in Queensland, Assessment Manual; b) an assessment of the impacts that will occur as a result of significant disturbance to land must be undertaken; and c) an assessment of the likely presence of native fauna and/or relevant habitat features (e.g., logs, hollows, burrows, nests etc.) that may support native fauna in the disturbance area.
PESCB 7.	Significant disturbance to land with potential to result in impacts to native fauna as identified by condition PESCB 6(c) must be undertaken under the direction of a fauna spotter-catcher that is a suitably qualified person. The fauna spotter must be actively engaged to identify, relocate and minimise impacts to native fauna.
PESCB 8.	Records must be kept to demonstrate compliance with standard conditions (PESCB 5), (PESCB 6) and (PESCB 7).

Schedule C – Operating Standards

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Explanatory note: *Schedule C outlines the operating requirements considered by the administering authority to be acceptable performance standards. In complying with the standard conditions in Schedule C (i.e. the 'PESCC' conditions), the holder will be carrying out the petroleum activities in a way that reduces the risk of environmental harm. Industry is encouraged to exceed these performance standards.*	
Documentation	
PESCC 1.	All plans, procedures and reports must: a) be certified by a suitably qualified person; and b) be kept on record for a minimum of 5 years.
PESCC 2.	All plans and procedures required to be developed must be implemented.
Plant and equipment	
PESCC 3.	All plant and equipment reasonably necessary to ensure compliance with the standard conditions must be installed, maintained and operated in their proper and effective condition.
PESCC 4.	Fauna must not become entrapped during the construction and operation of well infrastructure and dams
Activities in wetlands, lakes, springs and watercourses	
PESCC 5.	Petroleum activities that require earthworks, vegetation clearing and/or placing fill, other than that associated with the construction of linear infrastructure, are not permitted in or within: a) 200 metres of any wetland, lake or spring; or b) 100 metres of the outer bank of any other watercourse.
PESCC 6.	The construction and/or maintenance of linear infrastructure that will result in significant disturbance to a wetland, lake, spring or watercourse must be conducted in accordance with the following order of preference. Conducting works: a) Firstly, in times where there is no water present. b) Secondly, in times of no flow. c) Thirdly, in times of flow, but in a way that does not impede low flow.
PESCC 7.	Petroleum activities must not result in water turbidity increases of more than 10% in high ecological value waters outside contained construction or maintenance areas.
PESCC 8.	The construction and/or maintenance of linear infrastructure that will result in significant disturbance to a lake, spring, watercourse or wetland must be designed and undertaken by a suitably qualified person in accordance with the Riverine protection permit exemption requirements (WSS/2013/726).
Erosion and sediment control	
PESCC 9.	Measures to minimise stormwater entry onto significantly disturbed land must be implemented and maintained.

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PESCC 10.	For petroleum activities involving significant disturbance to land, control measures that are commensurate to the site-specific risk of erosion, and risk of sediment release to waters must be implemented to: a) allow stormwater to pass through the site in a controlled manner and at non-erosive flow velocities b) minimise soil erosion resulting from wind, rain, and flowing water c) minimise the duration that disturbed soils are exposed to the erosive forces of wind, rain, and flowing water d) minimise work-related soil erosion and sediment runoff; and e) minimise negative impacts to land or properties adjacent to the activities (including roads).
Chemical storage	
PESCC 11.	Chemicals and fuels on the relevant tenures must be stored in, or serviced by, an effective containment system that meets Australian Standards, where such a standard is relevant.
Structures that are dams or levees	
PESCC 12.	Other than for flare pits and sumps used to store residual drilling material and drilling fluids, the hazard category of any structure to be used in carrying out petroleum activities must be assessed in accordance with the Queensland Government Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933).
PESCC 13.	Low hazard structures must be: a) constructed, operated and maintained in accordance with accepted engineering standards currently appropriate for the purpose for which the structure is intended to be used; and b) designed and constructed with a floor and sides made of material that will contain the wetting front and any entrained contaminants within the bounds of the containment system during both its operational life and including any period of decommissioning and rehabilitation.
PESCC 14.	All low hazard structures must be monitored for early signs of loss of structural or hydraulic integrity as specified in the initial hazard assessment.
PESCC 15.	When no longer required, all low hazard structures must be decommissioned to no longer accept inflow from the petroleum activities and be either: a) rehabilitated; or b) agreed to in writing by the administering authority and the landholder to remain in situ following the cessation of the petroleum activity (ies) associated with the structure, with the contained water of a quality suitable for the intended ongoing uses(s) by that landholder.
Blasting	
PESCC 16.	A Blast Management Plan must be developed for each blasting activity in accordance with Australian Standard 2187.

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PESCC 17.	Blasting operations must not exceed an airblast overpressure level of 120 dB (linear peak) at any time at a sensitive place.
PESCC 18.	Blasting operations must not exceed a ground-borne vibration peak particle velocity of 10mm/s at any time at a sensitive place.
Waste management	
PESCC 19.	Measures must be implemented so that waste is managed in accordance with the waste and resource management hierarchy and the waste and resource management principles.
PESCC 20.	Waste, including waste fluids but excluding waste gas, must be transported off-site for lawful re-use, remediation, recycling or disposal unless the waste is specifically authorised by standard conditions (PESCC 21), (PESCC 22), (PESCC 23), (PESCC 24), (PESCC 25), (PESCC 26), (PESCC 27) or (PESCC 29) to be disposed of or used on site.
PESCC 21.	Sumps may be used for residual drilling material and drilling fluids only for the duration of drilling activities.
PESCC 22.	Green waste may be used on-site for rehabilitation and/or sediment and erosion control purposes.
Treated sewage effluent	
PESCC 23.	Treated sewage effluent or greywater can be released to land provided it: a) meets or exceeds secondary treated class B standards for a treatment system with a daily peak design capacity of between 150 EP and 1500 EP; or b) meets or exceeds secondary treated class C standards for a treatment system with a daily peak design capacity of less than 150 EP; and c) is released within fenced and signed contaminant release area(s) and does not result in pooling or run-off or aerosols or spray drift or vegetation die-off.
Produced water	
PESCC 24.	Produced water and stimulation flow-back water may be reused in: a) drilling and well hole activities; or b) stimulation activities where its use will not result in negative effects on waters beyond the stimulation impact zone.
PESCC 25.	Produced water may be used for dust suppression and construction activities provided that it does not result in adverse effects on the composition and structure of soil or subsoils; does not result in runoff or release to waters and can be demonstrated to meet the following standards: a) pH between 6–9; b) electrical conductivity (EC) not exceeding 3000µS/cm; c) sodium adsorption ratio (SAR) not exceeding 8 (d) bicarbonate ion concentration not exceeding 100mg/L.

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PESCC 26.	Produced water may only be provided to a third party if the quality meets the irrigation or livestock watering criteria as relevant to those purposes in the latest version of Australian and New Zealand Guidelines for Fresh and Marine Water Quality and it is managed in accordance with the *Waste Reduction and Recycling Act 2011*.
Residual drilling material	
PESCC 27.	Residual drilling material can only be disposed of on-site: a) by mix-bury-cover method if the residual drilling material meets the approved quality criteria; or b) if it is certified by a suitably qualified third party as being of acceptable quality for disposal to land by the proposed method and that environmental harm will not result from the proposed disposal.
PESCC 28.	Records must be kept of drilling fluids and all additives used in drilling activities.
Explanatory note: *Despite the required quality criteria, these conditions do not remove obligations to comply with the contaminated land provisions in the Environmental Protection Act 1994 (EP Act). Mix-bury-cover of residual drilling materials may trigger the 'duty to notify' as either Notifiable Activity 20: Landfill—disposing of waste (excluding inert construction and demolition waste) as listed in Schedule 3 of the EP Act or through the presence of hazardous contaminants. Where notification has occurred and where that notification results in the property being listed on the Environmental Management Register, the administering authority will have a record of the locations where disposal has occurred. The rehabilitation conditions require any contaminated land to be remediated and restored prior to surrender. Where this is not possible, further discussion with the administering authority should be undertaken to determine an appropriate management solution. It should also be noted that a Suitably Qualified Person (SQP) undertaking tasks in relation to contaminated land obligations has a specific statutory definition in the EP Act which differs from the definition in this standard.*	
Venting and well flaring	
PESCC 29.	Unless venting is authorised under section 72 of the *Petroleum and Gas (Production and Safety) Act 2004* or section 74M of the *Petroleum Act 1923*, waste gas from production testing must be flared in a manner such that: a) an automatic ignition system is used; and b) a flame is visible at all times while the waste gas is being flared; and c) there is no visible smoke emissions other than for a total period of no more than 5 minutes in any 2 hours; or d) it uses an enclosed flare.
Explanatory note: *If an enclosed flare is used, the requirements in relation to the ignition system, flame and smoke do not apply.*	
Stimulation	
PESCC 30.	The petroleum activities must not involve well stimulation activities at a well located within 2 kilometres laterally of a landholder's active groundwater bore and sourced from a formation within 200 metres vertically of the stimulation impact zone.

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PESCC 31.	Prior to undertaking well stimulation activities, written stimulation management procedures must be developed and implemented.
PESCC 32.	Stimulation activities must not result in: a) negative impacts to groundwater quality beyond the stimulation impact zone; or b) negative impacts to water quality in landholder's active groundwater bore(s) which tap into the target formation; or c) interconnectivity between the target formation and another aquifer.
Explanatory note: *The stimulation management procedures may incorporate other documents by reference.*	
Rehabilitation ***Explanatory note***: *Rehabilitation activities must be completed in accordance with the conditions of the authority. A surrender application must be supported by sufficient information to decide the application. Any water holding* structures proposed to be retained by the landholder must meet the irrigation or livestock watering criteria as relevant to those purposes in the latest version of Australian and New Zealand Guidelines for Fresh and Marine Water Quality.	
PESCC 33.	Significantly disturbed areas that are no longer required for the ongoing conduct of the petroleum activities must be rehabilitated within 6 months (unless an exceptional circumstance in the area to be rehabilitated (e.g., a flood event) prevents this timeframe being met) so that: a) any infrastructure is removed, unless agreed to in writing by the landholder to remain; and b) for any water storages with contained water of a quality suitable for the intended ongoing use(s) by that landholder; and c) the areas are reshaped to a stable landform; and d) the areas are re-profiled to contours consistent with the surrounding landform; and e) surface drainage lines are re-established; and f) top soil is reinstated.
PESCC 34.	All significantly disturbed land caused by the carrying out of the petroleum activity(ies) must be rehabilitated to meet standard condition (PESCC 33) and the following final acceptance criteria: a) any contaminated land (e.g., contaminated soils, decommissioned dams containing salt) is remediated and rehabilitated. b) rehabilitation is undertaken in a manner such that any actual or potential acid sulfate soils on the area of significant disturbance are treated to prevent or minimise environmental harm in accordance with the Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines. c) for land that is not being cultivated by the landholder: i groundcover, that is not an invasive plant species is established and self-sustaining; ii vegetation of similar species richness and species diversity to pre-selected analogue sites is established and self-sustaining.

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	d) for land that is to be cultivated by the landholder, cover crop is reinstated, unless the landholder will be preparing the site for cropping within 3 months of petroleum activities being completed.
PESCC 35.	Monitoring of performance indicators must be carried out on rehabilitation activities until final acceptance criteria in standard condition (PESCC 34) have been met for the rehabilitated area.

Schedule D: Monitoring and reporting conditions ***Explanatory note:*** *Schedule D outlines the monitoring and reporting requirements (i.e. the 'PESCD' conditions) that are necessary and desirable to ensure the activities are being undertaken in compliance with the standard conditions under Schedule B and Schedule C.*	
Monitoring and sampling	
PESCD 1.	In addition to the requirements under section 319 of the *Environmental Protection Act 1994*, if requested by the administering authority in relation to investigating a complaint or incident involving contamination of the environment and/or environmental nuisance, monitoring and sampling must be undertaken by a suitably qualified person, in the way and within the timeframe required by the administering authority.
PESCD 2.	All documents and records required to be developed under this environmental authority must be kept for five years.

General Obligations

In addition to the requirements found in the conditions of this ERA standard, you must also meet your obligations under the *Environmental Protection Act 1994*, and the regulations made under the Act. For example, you must comply with the following provisions of the Act:

- the general environmental duty (section 319), including special provision for activities involving industrial chemicals (section 319A).
- duty to notify environmental harm (section 320-320G), and
- duty to restore the environment (section 319C).

Unless specially authorised by a condition of this ERA Standard, this ERA Standard does not authorise:

- an act that causes serious or material environmental harm (sections 437 - 439) or an environmental nuisance (section 440)
- an act that contravenes a noise standard (section 440Q)
- a deposit of a contaminant, or release of stormwater run-off, mentioned in section 440ZG of the EP Act, or
- placing a contaminant where environmental harm or nuisance may be caused (section 443).

For more information search 'ERA standard' on the Business Queensland webpage (www.business.qld.gov.au).

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Relationship with other legislation

This Standard does not remove, replace, or limit the need to comply with the *Petroleum and Gas (Production and Safety) Act 2004* or the *Petroleum Act 1923* or any other applicable legislation.

This Standard does not authorise the take of water and does not remove the requirement to obtain any approvals required under the *Water Act 2000*.

References to other documents

References in this document to laws, regulations, standards, policies, programs, guidelines and similar documents and instruments are to the current version of those documents and instruments, as amended or replaced from time to time.

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Appendix 1: Areas of land constrained for the eligibility criteria of the ERA Standard for petroleum activities on an authority to prospect or a Data Acquisition Authority (Eligibility Criteria and Standard Conditions for Petroleum Activities on an Authority to Prospect or a Data Acquisition Authority)

1. a protected area under the *Nature Conservation Act 1992*, other than a resource reserve, a nature refuge or a coordinated conservation area under that Act.
2. a marine park under the *Marine Parks Act 2004* that is classified under that Act as a conservation park zone, buffer zone, scientific research zone, marine national park zone, or preservation zone.
3. a legally secured offset area under the *Environmental Offsets Act 2014*.
4. carried out in an area to the seaward side of the highest astronomical tide.

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Appendix 2: Definitions

Explanatory note: Where a term is not defined in this document, the definition in the *Environmental Protection Act 1994,* its regulations and environmental protection policies, then the *Acts Interpretation Act 1954* then the Macquarie Dictionary should be used in that order.

<table>
<tr><th>Term</th><th>Definition</th></tr>
<tr><td>acid sulfate soil(s)</td><td>means a soil or soil horizon which contains sulfides or an acid soil horizon affected by oxidation of sulfides.</td></tr>
<tr><td>accepted engineering standards</td><td>in relation to dams, means those standards of design, construction, operation and maintenance that are broadly accepted within the profession of engineering as being good practice for the purpose and application being considered. In the case of dams, the most relevant documents would be publications of the Australian National Committee on Large Dams (ANCOLD), guidelines published by Queensland government departments and relevant Australian and New Zealand Standards.</td></tr>
<tr><td>administering authority</td><td>has the meaning in Schedule 4 of the Environmental Protection Act 1994.</td></tr>
<tr><td>alternative arrangement</td><td>means a written agreement about the way in which a particular nuisance impact will be dealt with at a sensitive place, and may include an agreed period of time for which the arrangement is in place. An alternative arrangement may include, but is not limited to, a range of nuisance abatement measures to be installed at the sensitive place, or provision of alternative accommodation for the duration of the relevant nuisance impact.</td></tr>
<tr><td>analogue site(s)</td><td>means an area of land which contains values and characteristics representative of an area to be rehabilitated prior to disturbance. Such values must encompass land use, topographic, soil, vegetation and other ecological characteristics. Analogue sites can be the pre-disturbed site of interest where significant surveying effort has been undertaken to establish benchmark parameters.</td></tr>
<tr><td>approved quality criteria</td><td>for the purposes of residual drilling materials, means the residual drilling material meet the following quality standards:
Part A
In all cases:
<table>
<tr><th>Parameter</th><th>Maximum concentration</th></tr>
<tr><td>pH</td><td>6-10.5(range)</td></tr>
<tr><td>Electrical Conductivity</td><td>20dS/m (20,000µS/cm)</td></tr>
<tr><td>Chloride*</td><td>8000 mg/L</td></tr>
<tr><td colspan="2">*Chloride analysis is only required if an additive containing chloride was used in the drilling process.</td></tr>
<tr><td>Arsenic</td><td>20mg/kg</td></tr>
<tr><td>Selenium</td><td>5mg/kg</td></tr>
<tr><td>Boron</td><td>100mg/kg</td></tr>
</table></td></tr>
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<table>
<tr><td></td><td>
<table>
<tr><td>Cadmium</td><td>3mg/kg</td></tr>
<tr><td>Chromium (total)</td><td>400mg/kg</td></tr>
<tr><td>Copper</td><td>100mg/kg</td></tr>
<tr><td>Lead</td><td>600mg/kg</td></tr>
<tr><td>Nickel</td><td>60mg/kg</td></tr>
<tr><td>Zinc</td><td>200mg/kg</td></tr>
<tr><td>Mercury</td><td>1mg/kg</td></tr>
</table>

The limits in Part B refer to the post soil/by-product mix.
<table>
<tr><td>TPH</td><td>Maximum concentration</td></tr>
<tr><td>C6-C10</td><td>170mg/kg</td></tr>
<tr><td>C10-C16</td><td>150mg/kg</td></tr>
<tr><td>C16-C34</td><td>1300mg/kg</td></tr>
<tr><td>C34-C40</td><td>5600mg/kg</td></tr>
<tr><td>Total Polycyclic Aromatic Hydrocarbons (PAHs)</td><td>20mg/kg</td></tr>
<tr><td>Phenols (halogenated)</td><td>1mg/kg</td></tr>
<tr><td>Phenols (non-halogenated)</td><td>60mg/kg</td></tr>
<tr><td>Monocyclic aromatic hydrocarbons[1]</td><td>7mg/kg</td></tr>
<tr><td>Benzene</td><td>1mg/kg</td></tr>
</table>
The limits in Part C refer to the post soil/by-product mix

[1]Total sum of benzene, toluene, ethyl benzene, xylenes (includes ortho, para and meta xylenes) and styrene.</td></tr>
<tr><td>aquifer</td><td>means an identifiable stratigraphic formation that has the potential to produce useful flows of water.</td></tr>
<tr><td>areas of pre-existing disturbance</td><td>means areas where environmental values have been negatively impacted as a result of anthropogenic activity and these impacts are still evident. Areas of pre-disturbance may include areas where legal clearing, logging, timber harvesting, or grazing activities have previously occurred, where high densities of weed or pest species are present which have inhibited re-colonisation of native regrowth, or where there is existing infrastructure (regardless of whether the infrastructure is associated with the authorised petroleum activities). The term ‘areas of pre-disturbance’ does not include areas that have been impacted by wildfire/s, controlled burning, flood or natural vegetation die-back.</td></tr>
<tr><td>artesian drill holes</td><td>includes a shaft, well, gallery, spear or excavation, and any works constructed in connection with the shaft, well, gallery, spear or excavation, that taps an aquifer and the water flows or has flowed naturally to the surface.</td></tr>
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bed	of any waters, has the meaning in Schedule 19, Part 2 of the Environmental Protection Regulation 2019.
certified	in relation to any matter other than a design plan, 'as constructed' drawings or an annual report regarding dams means, a Statutory Declaration by a suitably qualified person or suitably qualified third party accompanying the written document stating: • the person's qualifications and experience relevant to the function; • that the person has not knowingly included false, misleading or incomplete information in the document; • that the person has not knowingly failed to reveal any relevant information or document to the administering authority; • that the document addresses the relevant matters for the function and is factually correct; and • that the opinions expressed in the document are honestly and reasonably held.
clearing	has the meaning in the dictionary of the *Vegetation Management Act 1999*.
cultivated	means used for cropping or gardening.
contaminant	has the meaning in section 11 of the *Environmental Protection Act 1994*.
dam(s)	means a land-based structure or a void that is designed to contain, divert or control flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and associated works. 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.
daily peak design capacity	for sewage treatment works, has the meaning in Schedule 2, section 63(4) of the Environmental Protection Regulation 2019 as the higher equivalent person (EP) for the works calculated using each of the formulae found in the definition for EP.
designated precinct	has the meaning in Part 5 section 15(3) of the Regional Planning Interests Regulation 2014 and means: a. for a strategic environmental area mentioned in section 4(1) – the area identified as a designated precinct on the strategic environmental area map for the strategic environmental area; or b. if a strategic environmental area is shown on a map in a regional plan – the area identified on the map as a designated precinct for the strategic environmental area.
detrimental impact	includes, but not limited to, an impact resulting in a significant residual impact under the *Environmental Offsets Act 2014*, as though the activity was a prescribed activity under that Act.
domestic purposes	has the meaning in Schedule 2 of the Petroleum and Gas (Production and Safety) Act 2004 and section 86 of the Petroleum Act 1923.

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ecological connectivity	is a measure of ecological condition and means the flow or connection of organisms and ecological processes across landscapes at multiple scales. Ecological connectivity has a positive relationship with landscape connectivity and habitat connectivity and effects vary between species. It includes connectivity by stepping stone or contiguous bioregional/local corridor networks.
ecosystem functioning	means the interactions between and within living and nonliving components of an ecosystem and generally correlates with the size, shape and location of the vegetation community.
eligibility criteria	for an environmentally relevant activity, has the meaning in section 112 of the *Environmental Protection Act 1994*.
enclosed flare	means a device where the residual gas is burned in a cylindrical or rectilinear enclosure that includes a burning system and a damper where air for the combustion reaction is admitted.
endangered regional ecosystem	means an endangered regional ecosystem identified in the database known as the 'Regional ecosystem description database' published on the department's website. PROVIDED FOR CONSULTATION – MAY BE REMOVED WITH AMENDMENT OF EP REG
environmental harm	has the meaning in section 14 of the *Environmental Protection Act 1994*.
environmental value(s)	has the meaning in section 9 of the *Environmental Protection Act 1994*.
environmental nuisance	has the meaning in section 15 of the *Environmental Protection Act 1994*.
environmentally relevant activity (ERA)	has the meaning in section 18 of the *Environmental Protection Act 1994*.
equivalent person (EP)	has the meaning under section 3 of the Planning Guidelines for Water Supply and Sewerage (2010), published by the Queensland Government. It is calculated in accordance with Schedule 2, section 63(4) of the Environmental Protection Regulation 2019 where: • EP = V/200 where V is the volume, in litres, of the average dry weather flow of sewage that can be treated at the works in a day; or • EP = M/2.5 where M is the mass, in grams, of phosphorus in the influent that the works are designed to treat as the inlet load in a day.
estimated rehabilitation cost	has the meaning in section 300(2) of the *Environmental Protection Act 1994*.
essential habitat	For threatened wildlife, means essential habitat for the wildlife within the meaning of the *Vegetation Management Act 1999*, section 20AC(2). PROVIDED FOR CONSULTATION – MAY BE REMOVED WITH AMENDMENT OF EP REG
essential habitat map	has the meaning in section 20AC(1) of the *Vegetation Management Act 1999*. PROVIDED FOR CONSULTATION – MAY BE REMOVED WITH AMENDMENT OF EP REG

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fish passage	means the ability for fish to move upstream and downstream through a watercourse and between connected habitats without undue obstruction.
flare pit	means a containment area where any hydrocarbon that is discovered in an over pressured reservoir during the drilling operation is diverted to, and combusted. The flare pit is only used during the drilling and workover process.
flow path	means a continuous route by which water moves through a watercourse, including any channel, depression, culvert, crossing or other structure, that maintains hydraulic connectivity within the watercourse.
gas storage	means activities authorised under the *Greenhouse Gas Storage Act 2009*.
green waste	means waste that is grass cuttings, trees, bushes, shrubs, material lopped from trees, untreated timber or other waste that is similar in nature but does not include invasive plant species.
greywater	means wastewater generated from domestic activities such as laundry, dishwashing, and bathing. Greywater does not include sewage.
habitat for threatened wildlife	means habitat that – a) an area validated from ground-truthing surveys as 'essential habitat' on the Queensland Government Essential Habitat Map in accordance with section 20AC of the *Vegetation Management Act 1999* for a species of wildlife listed as critically endangered, endangered, vulnerable under the Nature Conservation Act 1992; b) an area validated from ground-truthing surveys as 'protected wildlife habitat' that is category A, B or C on the Regulated Vegetation Management Map, in accordance with section 20A of the Vegetation Management Act 1999, for a species of wildlife listed as critically endangered, endangered or vulnerable under the Nature Conservation Act 1992 c) is in a koala habitat area under the Nature Conservation (Koala) Conservation Plan 2017, section 7B.
hazard category	means a category, either low, significant or high, into which a structure is assessed as a result of the application of tables and other criteria in Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933), published by the Queensland Government, as amended from time to time.
high ecological value waters	means Queensland waters that are scheduled waters under the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 as high value ecological waters.
invasive plant species	means a species that is an invasive plant under Schedule 4 of the *Biosecurity Act 2014*.
lake	means: • a lagoon, swamp or other natural collection of water, whether permanent or intermittent; and

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	• the bed and banks and any other element confining or containing the water.
landholder's active groundwater bore	means bores that are able to continue to provide a reasonable yield of water in terms of quantity for the bores authorised purpose or use. This term does not include monitoring bores owned by the administering authority of the *Water Act 2000*.
levee	means an embankment that only provides for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from releases from other works, during the progress of those stormwater or flood flows or those releases; and does not store any significant volume of water or flowable substances at any other times.
linear infrastructure	means powerlines, pipelines, roads and access tracks.
low hazard structure	means any structure that is not classified as high or significant as assessed using the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933), published by the Queensland Government and which contains contaminants in concentrations which exceed or will exceed, during the structure's operational life, the values or range shown in Table 3 of the manual.
low impact petroleum activities	means petroleum activities which do not: - result in the clearing of native vegetation; - removal, destruction or damage of a marine plant; - cause disruption to soil profiles through earthworks or excavation or result in significant disturbance to land which cannot be rehabilitated immediately using hand tools after the activity is completed. Examples of such activities include but are not necessarily limited to soil surveys (excluding test pits), topographic surveys, cadastral surveys and ecological surveys, may include installation of monitoring equipment provided that it is within the meaning of low impact and traversing land by car or foot via existing access tracks or routes or in such a way that does not result in permanent damage to vegetation
mix-bury-cover	means the stabilisation of residual drilling solids in the bottom of a sump by mixing with subsoil and which occurs in accordance with the following methodology: • the base of the subsoil and residual solid mixture must be separated from the groundwater table by at least one metre of a continuous layer of impermeable subsoil material (kw=10–8m/s) or subsoil with a clay content of >20%; and • the residual solids is mixed with subsoil in the sump and cover; and • the subsoil and residual solids is mixed at least three parts subsoil to one part waste (v/v); and • a minimum of one metre of clean subsoil must be placed over the subsoil and residual solids mixture; and

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	• topsoil is replaced.
Month	has the meaning in section 36 of the *Acts Interpretation Act 1954*.
of concern regional ecosystem	means an of concern regional ecosystem identified in the database known as the 'Regional ecosystem description database' published on the department's website. PROVIDED FOR CONSULTATION – MAY BE REMOVED WITH AMENDMENT OF EP REG
oil-based	in relation to a fluid, means where the base fluid is a petroleum product such as diesel fuel.
outer bank	has the meaning in section 5A of the *Water Act 2000*.
performance indicator(s)	means a quantitative measure against which success can be assessed and audited in a consistent, objective and repeatable manner.
production testing	has the meaning in section 73 of the *Petroleum and Gas (Production and Safety) Act 2004*.
regulated structure	means any structure in the significant or high consequence category as assessed using the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933), published by the Queensland Government, as amended from time to time.
rehabilitation or rehabilitated	means the process of reshaping and revegetating land to restore it to a stable landform and in accordance with acceptance criteria and, where relevant, includes remediation of contaminated land.
release, releases or released	has the meaning in Schedule 4 of the *Environmental Protection Act 1994*.
reporting limit	means the lowest concentration that can be reliably measured within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes, the reporting limit is selected as the lowest non-zero standard in the calibration curve. Results that fall below the reporting limit will be reported as 'less than' the value of the reporting limit. The reporting limit is also referred to as the practical quantitation limit or the limit of quantitation. For polycyclic aromatic hydrocarbons, the reporting limit must be based on super-ultra trace methods and, depending on the specific polycyclic aromatic hydrocarbon, will range between 0.005µg/L – 0.02µg/L.
residual drilling material	means waste drilling materials including muds and cuttings returned from well holes and which have been left behind after the drilling fluids are pumped out.
stable	for a site, means the rehabilitation and restoration of the site is enduring or permanent so that the site is unlikely to collapse, erode or subside.
secondary treated class B standards	means treated sewage effluent or greywater which meets the following standards: • total phosphorous as P, maximum 20mg/L • total nitrogen as N, maximum 30mg/L

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	• 5-day biochemical oxygen demand (inhibited) (e.g. release pipe from sewage treatment plant), maximum 20mg/L • suspended solids, maximum 30mg/L • pH, range 6.0 to 8.5 • e-coli, 80th percentile based on at least 5 samples with not less than 30 minutes between samples, 1000cfu per 100mL, maximum 10000cfu per 100mL.
secondary treated class C standards	means treated sewage effluent or greywater which meets the following standards: • total Phosphorous as P, maximum 20mg/L • total Nitrogen as N, maximum 30mg/L • 5-day Biochemical oxygen demand (inhibited) (e.g. Release pipe from sewage treatment plant), maximum 20mg/L • suspended solids, maximum 30mg/L • pH, range 6.0 to 8.5 • e-Coli, 80th percentile based on at least 5 samples with not less than 30 minutes between samples, 10000cfu per 100mL, maximum 100000cfu per 100mL.

Standard essential petroleum activities	means activities that are carried out under a standard environmental authority that are essential to bringing the resource to the surface and are only the following:
	• low impact petroleum activities
	• single well sites not exceeding 1 hectare disturbance and multi-well sites not exceeding 1.5 hectare disturbance
	• associated infrastructure located on a well site necessary for the construction and operations of wells:
	  ○ water pumps and generators
	  ○ flare pits
	  ○ above ground containers and chemical / fuel storages
	  ○ sumps for residual drilling material and drilling fluids
	  ○ dams to contain stimulation flow back waters that are not significant or high hazard structures
	  ○ erosion and sediment and control structures
	  ○ pipe laydown and vegetation stockpile areas
	  ○ a temporary camp associated with a drilling rig that may involve sewage treatment works that are no release works.
	• communication and power lines that are necessary for the undertaking of petroleum activities and that are located within well sites, well pads

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	and pipeline right of ways without increasing the disturbance area of petroleum activities
	• water and groundwater monitoring activities undertaken:
	  ○ under section 187 of the *Petroleum and Gas (Production and Safety) Act 2004* or former equivalent legislative provisions
	  ○ as required under Chapter 3 of the *Water Act 2000* for resource tenure holders for the exercise of their underground water rights (e.g. monitoring required in a water monitoring strategy of an approved underground water impact report).
	  ○ as required by a condition of an Environmental Authority under the *Environmental Protection Act 1994*.
	• ecological surveys, geophysical surveys, topographic or cadastral surveys or geological surveys (including seismic and geotechnical petroleum activities).
	• gathering / flow pipelines from a well head to the initial compression facility.
	• Supporting access tracks

sensitive place	means: • a dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel) • a library, childcare centre, kindergarten, school, university or other educational institution • a medical centre, surgery or hospital • a protected area • a public park or garden that is open to the public (whether or not on payment of money) for use other than for sport or organised entertainment • a workplace used as an office or for business or commercial purposes, which is not part of the petroleum activity(ies) and does not include employees accommodation or public roads • for noise, a place defined as a sensitive receptor for the purposes of the Environmental Protection (Noise) Policy 2008.
significant environmental value	has the meaning in section 9A of the *Environmental Protection Act 1994.*

significantly disturbed or
significant disturbance or
significant disturbance to land or areas
	a) Is land that:
	  i is contaminated land; or
	  ii has been disturbed and human intervention is needed to rehabilitate it—
	  1) to a condition required under the relevant environmental authority; or

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	2) (ii) if the environmental authority does not require the land to be rehabilitated to a particular condition—to the condition it was in immediately before the disturbance. Examples of a disturbance to land— • the covering, compaction, exposure, removal or stockpiling of soil or other material • the destruction or removal of vegetation • the construction and/or maintenance of linear infrastructure in a watercourse or wetland • the submergence of an area with a hazardous contaminant, or water b) Without limiting (ii) above, land requires human intervention to rehabilitate it if— i the disturbance has made the land more susceptible to erosion; or ii the land use capability or suitability of the land is diminished; or iii the quality of water in a watercourse downstream of the land has been significantly reduced. c) If land is significantly disturbed land because it is contaminated land, it ceases to be significantly disturbed land if a suitability statement is issued for the land advising the land is suitable for any use. d) If land is significantly disturbed land under subsection (a)(ii), it ceases to be significantly disturbed land if the administering authority is satisfied the land has been rehabilitated— i to the condition it was in immediately before the disturbance; or to another condition decided by the administering authority.
species richness	means the number of different species in a given area.
species diversity	means the diversity within an ecological community that incorporates both species richness and the evenness of species' abundances.
spring(s)	has the meaning in Schedule 4 of the Water Act 2000.
stable	in relation to land, means landform dimensions are or will be stable within tolerable limits now and in the foreseeable future. Stability includes consideration of geotechnical stability, settlement and consolidation allowances, bearing capacity (trafficability), erosion resistance and geochemical stability with respect to seepage, leachate and related contaminant generation.
stimulation	means a technique used to increase the permeability of a natural underground reservoir that is undertaken above the formation pressure and involves the addition of chemicals. It includes hydraulic fracturing/hydrofraccing, fracture acidizing and the use of proppant treatments. ***Explanatory note:*** *This definition is restricted from that in the Petroleum and Gas (Production and Safety) Act 2004 in order to only capture the types of*

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	stimulation activities that pose a risk to the environmental values of water quality in aquifers.
stimulation fluid	means the fluid injected underground to increase permeability. For clarity, the term stimulation fluid only applies to fluids injected down well post-perforation.
stimulation impact zone	means a 100 metres maximum radial distance from the stimulation target location within a gas producing formation.
stimulation management procedures	means procedures for the management of stimulation activities that include, but is not necessarily limited to information on: • the local stratigraphy including aquifers, faults, linear features, hydraulic conductivity, porosity, seismic risk and groundwater dependent assets • the impacts of applied stresses including aquifer drawdown, on connectivity to aquifers above and below the fractured zone subsequent to the stimulation activity • the extent to which there are vertically impermeable formations between the fractured zone and other aquifers • methods to ensure isolation of hydrocarbon bearing formations from aquifers and internal and external mechanical integrity of well(s) • process control techniques incorporating real-time analysis, fracture modelling and formation understanding utilising techniques such as micro-seismic measurements • quantity and quality monitoring of flow back water.
stock purposes	has the meaning in Schedule 2 of the Petroleum and Gas (Production and Safety) Act 2004 and section 86 of the Petroleum Act 1923.
strategic environmental area	has the meaning in section 11(1) of the *Regional Planning Interests Act 2014.*
structure	means a dam or levee.
suitably qualified person	means a person who has the professional qualifications, training, skills and experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis about performance relative to the subject matter using the relevant protocols, standards, methods or literature.
suitably qualified third party	means a person who: a) has qualifications and experience relevant to performing the function including but not limited to: i a bachelor's degree in science or engineering; and ii 3 years' experience in undertaking soil contamination assessments; and b) is a member of at least one organisation prescribed in Schedule 14 of the Environmental Protection Regulation 2019; and

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	c) not be an employee of, nor have a financial interest or any involvement which would lead to a conflict of interest with the holder(s) of the environmental authority.
synthetic oil-based	means for a mud or drilling fluid, the base fluid being a synthetic oil, consisting of chemical compounds which are artificially made or synthesised by chemically modifying petroleum components or other raw materials rather than the whole crude oil.
threatened wildlife	Has the meaning provided in schedule (dictionary) of the *Nature Conservation Act 1992* PROVIDED FOR CONSULTATION – MAY BE REMOVED WITH AMENDMENT OF EP REG
top soil	means the surface (top) layer of a soil profile, which is more fertile, darker in colour, better structured and supports greater biological activity than underlying layers. The surface layer may vary in depth depending on soil forming factors, including parent material, location and slope, but generally is not greater than about 300mm in depth from the natural surface.
waste and resource management hierarchy	has the meaning provided in section 9 of the Waste Reduction and Recycling Act 2011.
waste and resource management principles	has the meaning provided in section 4(2)(b) of the Waste Reduction and Recycling Act 2011.
waters	means all or any part of a creek, river, stream, lake, lagoon, swamp, wetland, spring, unconfined surface water, unconfined water in natural or artificial watercourses, bed and bank of any waters, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and underground water.
Waterway providing for fish passage	Means a waterway providing for the passage of fish as identified in the Fisheries Act 1994.
watercourse	has the meaning in Schedule 4 of the *Environmental Protection Act 1994* and means: a) a river, creek or stream in which water flows permanently or intermittently— i) in a natural channel, whether artificially improved or not; or ii) in an artificial channel that has changed the course of the watercourse. b) Watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.
Watercourse of significant environmental values	Watercourse of significant environmental values means a watercourse in high ecological value waters within the meaning of the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 Definition may be removed pending inclusion in Environmental Protection Act 1994 or Environmental Protection Regulation 2019.

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well infrastructure	means infrastructure required for the construction, completion and operation of a well including but not limited to cellar pits, dams and drill sumps.
well site	means a maximum area of land disturbance for the purposes of constructing, installing and operating an exploration well or such wells as part of a multi-well arrangement and includes well lease infrastructure.
wetland	means a wetland as defined under the Queensland Wetlands Program and are areas of permanent or periodic/intermittent inundation, 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 metres. To be classified as a wetland, the area must have one or more of the following attributes: • at least periodically, the land supports plants or animals that are adapted to; and • dependent on living in wet conditions for at least part of their life cycle; or • the substratum is predominantly undrained soils that are saturated, flooded; or • ponded long enough to develop anaerobic conditions in the upper layers; or • the substratum is not soil and is saturated with water, or covered by water at some time. For the purposes of petroleum activities, wetlands do not include springs and watercourses and those wetlands that are defined in the Wetland Mapping and Classification Methodology (2005) published by the Queensland Government as: • H2M1 Riverine or ex-riverine (lacustrine) water bodies associated with dams and weirs located in a channel; • H2M3p Ponded pastures; • H2M5 Palustrine/lacustrine water bodies where ecological character has changed due to gross mechanical disturbance (e.g. cropping); • H2M6 Palustrine/lacustrine water bodies that have been converted, completely or mostly, to a ring tank or other controlled storage; • H2M7 Riverine water bodies that have been converted mostly to canals or irrigation channels; • H3C1 Artificial stand-alone water storages not within a natural water body or channel; or • H3C2 Artificial Channel drain/canal – bore drains, swales, bores and irrigation channel overflows/ponding. ***Explanatory note:*** *This definition has been amended from the Queensland Wetlands Program definition so that low value wetlands and man-made water bodies are excluded.*

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Wetland of significant environmental values	means - a wetland in a wetland protection area shown on the map of Great Barrier Reef wetland protection areas - a wetland of high ecological significance shown on the map of Queensland wetland environmental values - wetland in high ecological value waters within the meaning of the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 Definition may be removed pending inclusion in Environmental Protection Act 1994 or Environmental Protection Regulation 2019.
year(s)	has the meaning in section 36 of the *Acts Interpretation Act 1954*.

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