Permit

Environmental Protection Act 1994

Environmental authority EPPG00945113

This environmental authority is issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994.

Environmental authority number: EPPG00945113

Environmental authority takes effect on 03 September 2019

Environmental authority holder(s)

Name(s)	Registered address
APA WGP Pty Ltd	C/- APA Group - Level 19 HSBC Building 580 George Street SYDNEY NSW 2000

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Resource Activity, Schedule 2A, 03: A petroleum activity that is likely to have a significant impact on a category A or B environmentally sensitive area	State of Queensland
Resource Activity, Schedule 2A, 03: A petroleum activity that is likely to have a significant impact on a category A or B environmentally sensitive area	PPL154
Resource Activity, Schedule 2A, 03: A petroleum activity that is likely to have a significant impact on a category A or B environmentally sensitive area	PPL155
Resource Activity, Schedule 2A, 03: A petroleum activity that is likely to have a significant impact on a category A or B environmentally sensitive area	PPL153

Additional information for applicants

Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority (EA) is issued is a restatement of the ERA as defined by legislation at the time the EA is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an EA as to the scale, intensity or manner of carrying out an ERA, the conditions prevail to the extent of the inconsistency.

ABN 46 640 294 485

Queensland Government

An EA authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the EA specifically authorises environmental harm.

A person carrying out an ERA must also be a registered suitable operator under the Environmental Protection Act 1994 (EP Act).

Contaminated land

It is a requirement of the EP Act that an owner or occupier of contaminated land give written notice to the administering authority if they become aware of the following:

- the happening of an event involving a hazardous contaminant on the contaminated land (notice must be given within 24 hours); or
- a change in the condition of the contaminated land (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the contaminated land (notice must be given within 20 business days);

that is causing, or is reasonably likely to cause, serious or material environmental harm.

For further information, including the form for giving written notice, refer to the Queensland Government website www.qld.gov.au, using the search term 'duty to notify'.

Take effect

Please note that, in accordance with section 200 of the EP Act, an EA has effect:

a) if the authority is for a prescribed ERA and it states that it takes effect on the day nominated by the holder of the authority in a written notice given to the administering authority-on the nominated day; or
b) if the authority states a day or an event for it to take effect-on the stated day or when the stated event happens; or
c) otherwise-on the day the authority is issued.

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the Sustainable Planning Act 2009 or an SDA Approval under the State Development and Public Works Organisation Act 1971), this EA will not take effect until the additional authorisation has taken effect.

If this EA takes effect when the additional authorisation takes effect, you must provide the administering authority written notice within 5 business days of receiving notification of the related additional authorisation taking effect.

If you have incorrectly claimed that an additional authorisation is not required, carrying out the ERA without the additional authorisation is not legal and could result in your prosecution for providing false or misleading information or operating without a valid environmental authority.

Environmental authority

Clancy Mackaway
Department of Environment and Science
Delegate of the administering authority
Environmental Protection Act 1994

Date issued: 03 September 2019

Enquiries:
Petroleum and Gas Unit
Department of Environment and Science
Phone: 3330 5715
Email: petroleumandgas@des.qld.gov.au

ABN 46 640 294 485

Obligations under the Environmental Protection Act 1994

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)

Permit

Environmental Protection Act 1994

Environmental authority EPPG00945113

This environmental authority is issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994.

Environmental authority number: EPPG00945113

Environmental authority takes effect on 2 September 2019

Environmental authority holder(s)

Name(s)	Registered address
APA WGP Pty Ltd	C/- APA Group - Level 19 HSBC Building 580 George Street SYDNEY NSW 2000

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 2A 03: A petroleum activity that is likely to have a significant impact on a category A or B environmentally sensitive area	State of Queensland
Schedule 2A 03: A petroleum activity that is likely to have a significant impact on a category A or B environmentally sensitive area	PPL154
Schedule 2A 03: A petroleum activity that is likely to have a significant impact on a category A or B environmentally sensitive area	PPL155
Schedule 2A 03: A petroleum activity that is likely to have a significant impact on a category A or B environmentally sensitive area	PPL153

ABN 46 640 294 485

Queensland Government

Additional information for applicants

Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority (EA) is issued is a restatement of the ERA as defined by legislation at the time the EA is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an EA as to the scale, intensity or manner of carrying out an ERA, the conditions prevail to the extent of the inconsistency.

An EA authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the EA specifically authorises environmental harm.

A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

Contaminated land

It is a requirement of the EP Act that an owner or occupier of contaminated land give written notice to the administering authority if they become aware of the following:

- the happening of an event involving a hazardous contaminant on the contaminated land (notice must be given within 24 hours); or
- a change in the condition of the contaminated land (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the contaminated land (notice must be given within 20 business days);

that is causing, or is reasonably likely to cause, serious or material environmental harm.

For further information, including the form for giving written notice, refer to the Queensland Government website www.qld.gov.au, using the search term 'duty to notify'.

Take effect

Please note that, in accordance with section 200 of the EP Act, an EA has effect:

a) if the authority is for a prescribed ERA and it states that it takes effect on the day nominated by the holder of the authority in a written notice given to the administering authority-on the nominated day; or

b) if the authority states a day or an event for it to take effect-on the stated day or when the stated event happens; or

c) otherwise-on the day the authority is issued.

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the *Sustainable Planning Act 2009* or an SDA Approval under the *State Development and Public Works Organisation Act 1971*), this EA will not take effect until the additional authorisation has taken effect.

If this EA takes effect when the additional authorisation takes effect, you must provide the administering authority written notice within 5 business days of receiving notification of the related additional authorisation taking effect.

If you have incorrectly claimed that an additional authorisation is not required, carrying out the ERA without the additional authorisation is not legal and could result in your prosecution for providing false or misleading information or operating without a valid environmental authority.

Clancy Mackaway
Department of Environment and Science
Delegate of the administering authority
Environmental Protection Act 1994

Date issued: 2 September 2019

Enquiries:
Petroleum and Gas Unit
Department of Environment and Science

Phone: 3330 5715
Email: petroleumandgas@des.qld.gov.au

Obligations under the *Environmental Protection Act 1994*

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)

Schedule A – General Conditions

Prevent and/or Minimise Likelihood of Environmental Harm

(A1) This environmental authority does not authorise environmental harm unless a condition contained in this environmental authority explicitly authorises that harm. Where there is no condition, the lack of a condition shall not be construed as authorising harm.

(A2) In carrying out petroleum activities the holder of this authority must prevent or minimise the likelihood of environmental harm being caused.

(A3) Contaminants must not be directly or indirectly released into the environment, except for those releases authorised by this environmental authority.

Maintenance of Measures, Plant and Equipment

(A4) All plant and equipment reasonably necessary to ensure compliance with the conditions of this environmental authority must be installed.

(A5) All plant and equipment must be maintained and operated in their proper and effective condition.

(A6) All measures reasonably necessary to ensure compliance with the conditions of this environmental authority must be implemented.

Compliance with Australian Pipeline and Gas Association Ltd Code of Environmental Practice

(A7) Pipeline operation and maintenance must be in accordance, to the greatest possible extent, with the relevant section of the APGA *Code of Environmental Practice: Onshore Pipelines* and/or AS 2885.3:2012.

Estimated Rehabilitation Cost

(A8) Prior to any changes in petroleum activities which would result in an increase to the maximum disturbance since the last estimated rehabilitation cost amount was submitted, the holder of this environmental authority must submit, and the administering authority must have approved, an application to amend the estimated rehabilitation cost.

Definitions

(A9) Words and phrases used in this authority are defined in Part D – Definitions. Where a definition for a term used in this authority is sought and the term is not defined within this authority, the definitions in the *Environmental Protection Act 1994*, its Regulation and Environmental Protection Policies must be used.

Documents

(A10) 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.

(A11) All plans and procedures required to be developed must be implemented.

(A12) Written procedures must be developed to ensure operations and maintenance of the pipeline complies with the conditions of the environmental authority.

Environmental Management Plan

(A13) An Environmental Management Plan (EM plan) must be implemented that provides for the effective management of the actual and potential impacts resulting from the carrying out of the petroleum activities and which demonstrates compliance with the conditions of this environmental authority. Documentation relating to the EM plan must be kept.

(A14) The EM plan required by condition (A13) must address, at least, the following:

(a) describe each of the following:
  i. each relevant resource authority for the environmental authority;
  ii. all relevant petroleum activities;
  iii. the land on which the activities are to be carried out; and
  iv. the environmental values likely to be affected by the activities.

(b) state the environmental protection commitments the applicant proposes for the activities to protect or enhance the environmental values under best practice environmental management;

(c) include a rehabilitation program for land and waters proposed to be disturbed under each relevant resource authority for the application;

(d) the conduct of periodic reviews of environmental performance and procedures adopted, not less frequently than once every three years; and

(e) a program for continuous improvement.

(A15) Petroleum activities involving significant disturbance to land cannot commence until the development of written contingency procedures for emergency environmental incidents which include, but are not necessarily limited to:

(a) a clear definition of what constitutes an environmental emergency incident or near miss for the petroleum activity.

(b) consideration of the risks caused by the petroleum activity including the impact of flooding and other natural events on the petroleum activity

(c) response procedures to be implemented to prevent or minimise the risks of environmental harm occurring

(d) the practices and procedures, to be employed to restore the environmental or mitigate any environmental harm caused
(e) procedures to investigate causes and impacts including impact monitoring programs for releases to waters and/or land
(f) training of staff to enable them to effectively respond
(g) procedures to notify the administering authority, local government and any potentially impacted landholder.

Schedule B – Environmental Nuisance

Odour, dust and other airborne contaminants

(B1) Petroleum and petroleum pipeline 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.

Noise

(B2) Notwithstanding condition (B1), emission of noise from the petroleum activities at levels other than those specified in **Schedule B, Table 1 – Noise Limits at Sensitive Receptors** are not considered be environmental nuisance.

Schedule B, Table 1 – Noise Limits at Sensitive Receptors As $L_{Aeq\ Adj}$*

Time Period	Metric	Short-term	Medium-term	Long-term
7:00am – 6:00pm	$L_{Aeq,adj,15\ min}$	45 dBA	43 dBA	40 dBA
6:00pm – 10:00pm	$L_{Aeq,adj,15\ min}$	40 dBA	38 dBA	35 dBA
10:00pm – 6:00am	$L_{Aeq,adj,15\ min}$	28 dBA	28 dBA	28 dBA
	Max $L_{pA,\ 15\ mins}$	55 dBA	55 dBA	55 dBA
6:00am – 7:00am	$L_{Aeq,adj,15\ min}$	40 dBA	38 dBA	35 dBA

1. *L_{Aeq} and* Max L_{pA} *are to be measured over any 15 minute period.*

2. *The noise limits in Table 1 have been set based on the following deemed background noise levels (L_{ABG}):*
   7:00 am – 6:00 pm: 35 dBA
   6:00 pm – 10:00 pm: 30 dBA
   10:00 pm – 6:00 am: 25 dBA
   6:00 am – 7:00 am: 30 dBA

(B3) If the noise subject to a valid complaint is tonal or impulsive, the adjustments detailed in **Schedule B, Table 2 – Adjustments to be Added to Noise Levels at Sensitive Receptors** are to be added to the measured noise level(s) to derive $L_{Aeq,\ adj,\ 15\ min}$.

Schedule B, Table 2 – Adjustments to be Added to Noise Levels at Sensitive Receptors

Noise Characteristic	Adjustment to Noise
Tonal characteristic is just audible	+ 2 dB(A)
Tonal characteristic is clearly audible	+ 5 dB(A)

Impulsive characteristic is just audible	+ 2 dB(A)
Impulsive characteristic is clearly audibly	+ 5 dB(A)

Low Frequency Noise

(B4) Notwithstanding Condition (B1), emission of any low frequency noise must not exceed either condition B4(a) and B4(b), or B4(c) and B4(d) in the event of a valid compliant about low frequency noise being made to the administering authority:

(a) 60 dB(C) measured outside the sensitive receptor; and
(b) the difference between the internal A-weighted and C-weighted noise levels is no greater than 20dB; or
(c)50 dB(z) measured inside the sensitive receptor; and
(d) the difference between the internal A-weighted and Z-weighted (Max $_{LpZ, 15\ min}$) noise levels is no greater than 15 dB.

Vibration and Blasting Activities

(B5) A Blast Management Plan must be developed for each blasting activity in accordance with Australian Standard 2187.

(B6) Blasting operations must be designed not to exceed an airblast overpressure level of 120dB (linear peak) at any time, when measured at or extrapolated to any sensitive place.

(B7) Blasting operations must be designed to not exceed a ground-borne vibration peak particle velocity of 10mm/s at any time, when measured at or extrapolated at any sensitive place.

Schedule C – Water Management

Release to Waters

(C1) The holder of this authority must not release contaminants to waters.

Release to Land

(C2) Trench water, hydrostatic testing water or water from low point drains, may be released to land provided that it:

(a) can be demonstrated to meet the acceptable standards for release to land; and

(b) is released in a way that does not cause visible scouring or erosion.

(C3) If hydrostatic testing water quality does not or cannot be treated, to meet the requirements of condition C2, it must be managed in accordance with conditions (D1) and (D2).

Associated Water Use for Dust Suppression

(C4) Produced water may be used for dust suppression provided the following criteria are met:

(a) the amount applied does not exceed the amount required to effectively suppress the dust; and

(b) the application:

i. does not cause on-site ponding or runoff;

ii. is directly applied to the area being dust suppressed;

iii. does not harm vegetation surrounding the area being dust suppressed; and

iv. does not cause visible salting.

(C5) If there is any indication that any of the circumstances in condition (C4)(b)(i) to (C4)(b)(iv) are occurring, the use must cease immediately and the affected area must be remediated without delay.

(C6) Despite Condition C4, CSG water produced from the authorised petroleum activities must not be used for dust suppression on PPL155.

Determining Water Quality Contaminants

(C7) The methods of surface water sampling must comply with that set out in the Queensland Government's *Monitoring and Sampling Manual 2009 – Environmental Protection (Water) Policy 2009*.

Schedule D – Waste

(D1) 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.

(D2) For waste fluids that can be stored in a container other than a low hazard dam, the container must either be an above ground container or a structure which contains the wetting front.

(D3) Green waste may be used on-site for rehabilitation and/or sediment and erosion control purposes.

Schedule E – Land and Waterway Management

Minimising Disturbance to Land and Soil Management

(E1) The holder of this authority must:

(a) limit the pipeline right of way width to a maximum of 40 metres except as otherwise authorised by the administering authority in writing;
(b) minimise disturbance to land in order to prevent land degradation;
(c) ensure that for land that is to be significantly disturbed by petroleum activities (except in areas of highly erosive soils), the top layer of the soil profile is removed; and
  i. stockpiled in a manner that will preserve its biological and chemical properties, and
  ii. used for rehabilitation purposes in accordance with conditions (F6) and (F12).

(E2) The soil management procedures prepared prior to the commencement of the petroleum activities must be implemented to the extent that it relates to the operation of the petroleum pipelines and the decommissioning of the pipelines.

Erosion and Sediment Control

(E3) Measures must be implemented and maintained to minimise stormwater entry onto significantly disturbed land.

(E4) Sediment and erosion control measures to prevent soil loss and deposition beyond significantly disturbed land must be implemented and maintained.

(E5) The measures required by conditions (E3) and (E4) must be in accordance, to the greatest practicable extent, with the International Erosion Control Association (ICEA) *Best Practice Erosion and Sediment Control* (BPESC) document and/or the APGA Code of Environmental Practice: Onshore Pipelines and/or AS 2885.3, or their current versions.

Acid Sulfate Soils

(E6) Acid sulfate soils must be treated and managed in accordance with the latest edition of the *Queensland Acid Sulfate Soil Technical Manual*.

Minimising Disturbance to Areas of Ecological Value

(E7) Prior to any significant disturbance to land:

(a) an ecological assessment of areas with native vegetation that are to be significantly disturbed, must be conducted in accordance with the Queensland Government's *Biocondition, a Condition Assessment Framework for Terrestrial Biodiversity in Queensland, Assessment Manual*; and

(b) an assessment of the impacts that will occur as a result of significant disturbance to land must be undertaken.

(E8) Petroleum activities must:

(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; and

(d) minimise clearing of mature or hollow bearing trees.

(E9) Where significant disturbance to land is to occur, records demonstrating compliance with condition (E8) must be kept.

(E10) Any vegetation clearing authorised under this authority must be stockpiled in a manner that facilitates respreading or salvaging and does not impede vehicle, stock or wildlife movements.

(E11) The holder of this authority must ensure that clearing activities are not undertaken in Semi-Evergreen Vine Thicket areas, unless clearing is authorised by the conditions of this environmental authority.

(E12) The holder of this environmental authority must comply with any environmental offset agreement made in accordance with the conditions of this environmental authority.

Environmentally Sensitive Areas

(E13) A maximum area of 399.25 hectares of vegetation may be cleared within the PPL 153 boundary, comprising:

(a) Endangered Regional Ecosystems 11.4.3 – 1.28 hectares
(b) Of Concern Regional Ecosystems 11.3.2, 11.3.3, 11.3.4 and 11.3.25 –2.5 hectares
(c) Not Of Concern Regional Ecosystems –395.47 hectares

Land Clearing

(E14) A maximum area of 370.5 hectares of vegetation may be cleared within the boundary of PPL154 for the pipeline right of way, receipt station, mainline valves, interconnection facilities, access tracks and turnaround bays comprising:

(a) Endangered Regional Ecosystems 11.9.5, 11.9.4a, 11.10.9, 11.12.21 and 11.11.18 – 5.18 hectares;
(b) Of Concern Regional Ecosystems 11.3.2, 11.3.4, 11.3.25, 11.5.13, 11.3.6, 11.12.3, 11.9. and 11.5.13-25.5 hectares;

(c) Not of Concern Regional Ecosystems – 339.82 hectares

(E15) A maximum area of 109.05 hectares of vegetation may be cleared within the boundary of PPL155 for the authorised petroleum activities, as detailed in **Schedule E – Table 1: Maximum Vegetation Clearing Authorised** (see also Appendix 3).

Schedule E – Table 1: Maximum Vegetation Clearing Authorised

Pipeline Section	Regional Ecosystem Classification [1]	Regional Ecosystem Descriptor [1]	Area (ha)
Phillipies Landing Road (Right of Way)	Of Concern	11.3.26/11.3.4/11.11.15a	5.63
	Not Of Concern	11.11.3	0.04
	Non-remnant vegetation	n/a	0.58
	Subtotal		**6.25**
Phillipies Landing Road Section	Of Concern	11.3.26/11.3.4/11.11.15a	37.00
	Not Of Concern	11.1.2a; 11.11.3	0.17
	Non-remnant vegetation	n/a	4.19
	Subtotal		**41.36**
Creek Section	Of Concern	11.3.26/11.3.4/11.11.15a	0.19
	Not Of Concern	11.1.2a; 11.1.4a; 11.1.4d; 11.5.9d	8.72
	Subtotal		**8.91**
Marshland Section	Not Of Concern	11.1.2a; 11.1.4c	9.68
	Subtotal		**9.68**
Narrows Section	Not of Concern	11.1.2a; 12.1.3; 12.11.6	0.45
	Subtotal		**0.45**
Curtis Island (Landing)	Not Of Concern	12.11.6	5.75
	Non-remnant vegetation	n/a	0.05
	Subtotal		**5.80**
Curtis Island (Right of Way)	Endangered	12.3.3; 12.3.3/12.3.7	1.08
	Of Concern	12.11.6/12.11.14; 12.3.11	6.58
	Not Of Concern	12.11.6	12.83
	Subtotal		**20.49**
Curtis Island Section (Other)	Endangered	12.3.3; 12.3.3/12.3.7	2.00
	Of Concern	12.11.6/12.11.14; 12.3.11	5.74

[1] Regional ecosystem classification and descriptors as per the administering authority's Regional Ecosystem Description Database.

	Not Of Concern	12.11.6	8.30
	Subtotal		**16.01**

(E16) Unless otherwise authorised under this environmental authority the holder of this authority must ensure that:

(a) petroleum activities, other than activities for pipeline operations and maintenance of linear infrastructure, are not located in or within 200 metres of any listed category A ESA; and

(b) all camps, borrow pits, vehicle access tracks or additional work areas associated with the construction of the pipeline right of way and turnaround bays are not located in or within 200 metres of any listed category B or C ESA.

(E17) The clearing of vegetation undertaken in constructing an access track to the Phillipies Land Road Section work area must not exceed 20 metres in width.

(E18) Only one access track to the Phillipies Land Road Section work area may be constructed.

(E19) The holder of this environmental authority must ensure that clearing of Essential Habitat is not undertaken, other than for:

(a) the pipeline right of way on Lot 58 on BWR355;

(b) the pipeline right of way on Lot 6 on Plan RP893550; and

(c) the pipeline right of way between kilometre point (KP) 255 and KP 256, and between KP 267 and 269.

(E20) Petroleum activities that require earthworks, vegetation clearing and/or placing fill, other than associated with the construction and/or maintenance of linear infrastructure, are not permitted in or within:

(a) 200 metres of any lake or spring

(b) 100 metres of the outer bank of any other watercourse.

(E21) Despite Condition (E21), the infrastructure specified in **Schedule E, Table 1 – Authorised infrastructure within 100 metres of a wetland** is permitted in or within 100 metres of a wetland .

Schedule E, Table 1 – Authorised infrastructure within 100 metres of a wetland

Infrastructure	Impacted Wetland	Location of wetland entry and exit points
Kenya Collection Lateral infrastructure within right of way including a 6m wide temporary access track	Nine Mile Creek	Northern Entry Point: -26.9290 150.4647 Southern Exit Point -26.9306 150.4650

(E22) The construction and/or maintenance for 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, inter times when 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 flow.

(E23) The construction and/or maintenance for linear infrastructure that will result in significant disturbance to a lake, spring or watercourse must be designed and undertaken by a suitably qualified person in accordance with the guideline *Activities in a watercourse, lake or spring associated with a resource activity or mining operations,* or its current version.

(E24) The construction and/or maintenance for linear infrastructure that will result in significant disturbance to a wetland must be designed and undertaken by a suitably qualified person taking into consideration sections 5 and 6 of the guideline *Activities in a watercourse, lake or spring associated with a resource activity or mining operations,* or its current version.

(E25) Pipeline and road construction and maintenance works may be undertaken in watercourses, where there is no practicable alternative such as the use of horizontal directional drilling methods, provided that the works are conducted in accordance with the following order of preference:

(a) a maximum period of 10 business days; or
(b) such other time as is permitted by any relevant statutory Code or Guideline for undertaking works in a watercourse, provided:
  i. the relevant statutory Code and/or Guideline is complied with; and
  ii. the administering authority is notified and provided details of the relevant statutory Code and/or Guideline under which the works may extend beyond 10 business days; and
  iii. the administering authority is notified prior to commencement of the works beyond the 10 day period; or
(c) such other time as agreed in writing by the administering authority.

(E26) Activities or works resulting in significant disturbance to the bed or banks of a watercourse must:

(a) only be undertaken where necessary for the construction and/or maintenance of roads, tracks and pipelines that are essential for carrying out the authorised petroleum activities and no reasonable alternative location is feasible;
(b) be no greater than the minimum area necessary for the purpose of the significant disturbance;
(c) be designed and undertaken by a suitably qualified and experienced person taking into account the matters listed in the Department of Natural Resources and Mines– *Activities in a watercourse, lake or spring associated with mining operations dated* April 2008, or more recent editions as such become available; and
(d) upon cessation of the activities or works, commence rehabilitation immediately such that the final rehabilitation is to a condition that will ensure the ongoing physical integrity and the natural ecosystem values of the site.

(E27) The holder of this environmental authority must not excavate or place fill in a way that interferes with the flow of water in a watercourse including works that divert the course of flow of the water or works that impound the water.

(E28) Sediment control measures must be implemented to minimise any increase in water turbidity due to carrying out petroleum activities in the bed or banks of a watercourse.

Storage and Handling of Chemicals, Flammable and Combustible Liquids

(E29) Any liquids stored on site that have the potential to cause environmental harm must be stored in or serviced by an effective containment system that is impervious to the materials stored and managed to prevent the release of liquids to waters or land. Where no relevant Australian Standard is available, the following must be applied:

(a) storage tanks must be bunded so that the capacity and construction of the bund is sufficient to contain at least 110% of a single storage tank or 100% of the largest storage tank plus 10% of the second largest storage tank in multiple storage areas; and
(b) drum storages must be bunded so that the capacity and construction of the bund is sufficient to contain at least 25% of the maximum design storage volume within the bund.

(E30) All containment systems must be designed to minimise rainfall collection within the system.

Schedule F: Rehabilitation

Pipeline Rehabilitation

(F1) Pipeline trenches must be backfilled and toposils reinstated within three months after pipe laying.

(F2) Reinstatement and revegetation for the pipeline right of way must commence within six months after the completion of petroleum activities for the purpose of pipeline construction.

(F3) Backfilled, reinstated and revegetated pipeline trenches and right of way must be:

(a) a stable landform;
(b) re-profiled to a level consistent with surrounding soils;
(c) re-profiled to original contours and established drainage lines
(d) vegetated with groundcover which is not a declared restricted plant species or declared invasive plant species, as defined in the *Biosecurity Act 2015* (Qld).

(F4) The holder of this authority must ensure that the pipeline right of way is reinstated to a maximum width of 12 metres once construction of the pipeline is completed.

Progressive Rehabilitation

(F5) Progressive rehabilitation of disturbed areas must commence as soon as practicable following the completion of any operational works associated with the authorised petroleum activities on the relevant petroleum authority.

(F6) The holder of the environmental authority must ensure that the progressive rehabilitation of significantly disturbed land caused by the carrying out of the petroleum activities includes:

(a) remediation of any contaminated land (e.g. contaminated soils, acid sulfate soils);
(b) reshaping of all significantly disturbed land to a stable landform;
(c) reprofiling of all significantly disturbed land to original contours unless otherwise agreed in writing by the administering authority;
(d) on all significantly disturbed land:
    i. reestablishment of surface drainage lines;
    ii. reinstatement of the top layer of the soil profile;
    iii. establishment of groundcover to ensure that erosion is minimised; and
    iv. establishment of vegetation of floristic species composition found in analogue sites; and
(e) undertaking rehabilitation in a manner such that any actual and potential acid sulfate soils on the site are either not disturbed, or are managed in accordance with an Acid Sulfate Soils Management Plan, or as agreed in writing by the administering authority.

(F7) As soon as practicable and within three months at the end of petroleum activities that cause any significant disturbance to land, the holder of this authority must investigate contaminated land status in accordance with *Environmental Protection Act 1994* requirements and the National Environment

Protection (Site Assessment) Measure 1999 where land has been subject to contamination caused by petroleum activities authorised under this authority.

Final Rehabilitation

(F10) A Rehabilitation Plan must be developed by a suitably qualified person and must include the:

(a) rehabilitation goals; and

(b) procedures to be undertaken for rehabilitation that will:
i. achieve the requirements of conditions (F9), and (F11) to (F14), inclusive; and
ii. provide for appropriate monitoring and maintenance.

(F11) Significantly disturbed areas that are no longer required for the on-going petroleum activities, must be rehabilitated within 12 months (unless an exceptional circumstances in the area to be rehabilitated (e.g. a flood event) prevents this timeframe being met) and be maintained to meet the following acceptance criteria:

(a) contaminated land resulting from petroleum activities is remediated and rehabilitated;
(b) and the areas are:
iii. non-polluting
iv. a stable landform
v. re—profiled to contours consistent with the surrounding landform
(c) surface drainage lines are re-established
(d) topsoil is re-instated; and
(e) either
vi. groundcover, that is not a declared restricted plant species or declared invasive plant species, is growing; or
vii. an alternative soil stabilisation methodology that achieves effective stabilisation is implemented and maintained.

(F12) All significantly disturbed areas caused by petroleum activities which are not being or intended to be utilised by the landholder or overlapping tenure holder, must be rehabilitated to meet the following final acceptance criteria measured either against the highest ecological value adjacent land use or pre-disturbed land use:

(a) greater than or equal to 70% of native ground cover species richness;
(b) greater than or equal to the total per cent of groundcover;
(c) less than or equal to the per cent species richness of declared restricted plant species or declared invasive plant species; and
(d) where the adjacent land use contains, or the pre-clearing land use contained, one or more regional ecosystem(s), then at least one regional ecosystem(s) from the same broad vegetation group, and with the equivalent biodiversity status or a biodiversity status with a higher

conservation value as any of the regional ecosystem(s) in either the adjacent land or pre-disturbed land, must be present.

(F13) Maintenance of rehabilitated areas must take place to ensure and demonstrate:

(a) stability of landforms;
(b) erosion control measures remain effective;
(c) stormwater runoff and seepage from rehabilitated areas does not negatively affect the environmental values of any waters;
(d) plants show healthy growth and recruitment is occurring;
(e) declared pest plants are controlled on rehabilitated areas to a level consistent with the surrounding property and prevented from spreading to unaffected areas through authorised petroleum activities.

(F14) Conditions F10 to F13 inclusive continue to apply after this environmental authority has ended or ceased to have effect.

Schedule G – Project Infrastructure

(G15) The pipeline corridor and compression facility on PPL153 must be built within the locations outlined in **Schedule G, Table 1 – Location of the PPL 153 pipeline corridor and compression facility.**

Schedule G, Table 1 – Location of the PPL 153 pipeline corridor and compression facility

PPL153 Component	Location	Latitude	Longitude	Lot on Plan Reference
Collection Header	KP0 (Start Point) – Braemar SF	-27.230	150.858	3RP194939
	KP100 – Warrego Highway	-26.668	150.275	-
	KP141 – Intersection with Export Pipeline (PPL 154)	-26.317	150.202	-
	KP197 (End Point) – Woleebee Creek CPP, Wandoan	-26.285	149.726	2FT394
Bellevue Collection Lateral	(Start Point) Collection Header connection	-26.694	150.279	-
	(End Point) Bellevue CPP	-26.691	150.281	47BWR107
Kenya Collection Lateral	(Start Point) Collection Header connection	-26.948	150.455	-
	(End Point) Kenya CPP	-26.862	150.483	20RG34
Jordan Collection Lateral	(Start Point) Collection Header connection	-27.110	150.716	-
	(End Point) Jordan CPP	-27.112	150.714	13SP226733

(G16) The pipeline corridor on PPL154 must be built within the locations outlined in **Schedule G, Table 2 – Location of the PPL 154 pipeline corridor.**

Schedule G, Table 2 – Location of the PPL 154 pipeline corridor

Pipeline Licence No.	Tenure Component	Location (KP)	Easting (MGA Zone 56)	Northing (MGA Zone 56)
PPL 154	Export Pipeline	0.0 (Start Point) – MLV0	220717.170	7087163.949
		121.2 – Eidsvold-Theodore Road	255549.258	7195215.476

		217.4 – Burnett Highway	260444.312	7287037.646
		271.1 – Dawson Highway	272460.792	7330936.840
		311.9 – Bruce Highway	298207.839	7357323.099
		333.7 (End Point) – MLV7	306751.000	7371821.000
	Wandoan	(Start Point) APLNG Gas Hub outlet	219905.845	7086227.808
	Interconnect Facility	(End Point) QCLNG Export Pipeline connection	220704.474	7087162.735

(G3) In the carrying out of the petroleum activities on PPL155, the holder of this environmental authority must not exceed the maximum disturbance area for each of the specified pipeline sections listed in **Schedule G, Table 3- Authorised Petroleum Activities on PPL155** (see also Appendix 3).

Schedule G, Table 3 - Authorised Petroleum Activities on PPL155

Pipeline Section [2, 3]	**Petroleum Activities**	**Maximum disturbance area**
Phillipies Landing Right of Way	Pipeline right of way from MLV7 to the Creek Section	6.26 ha
Phillipies Landing Road Section	Includes: Acid sulfate soils treatment area/s Laydown area/s Pipe stringing area/s Access track to site Other incidental infrastructure	41.36 ha
Creek Section	Includes: Piled rail/bridge system HDD pad Temporary access way Other incidental infrastructure	8.92 ha
Marshland Section	Includes: Cofferdam Temporary access way	9.71 ha

2 Each pipeline section is defined in Part D – Definitions.

3 Please note that the Phillipies Landing Road Section, Creek Section, Marshland Section, Narrows Section and Curtis Island Section (Landing) are in common with the 'Narrows Crossing MLV 4 to APLNG Facility (Curtis Island) Pipeline' project by Australia Pacific Liquefied Natural Gas, as licensed under Environmental Authority number PEN101718310 and Petroleum Pipeline Licence (PPL) 162. The Phillipies Landing Right of Way, the Curtis Island Right of Way and the Curtis Island Section (Other) sections are unique to this Environmental Authority (PEN101591310).

	Other incidental infrastructure	
Narrows Section	Includes: Dredging Other incidental infrastructure	22.14 ha
Curtis Island Section (Landing)	Includes: Laydown area/s Jetty Cofferdam Pipe stringing area/s	5.81 ha
Curtis Island Right of Way	Pipeline right of way from land fall of the Narrows Section to the delivery station	20.49 ha
Curtis Island Section (Other)	Includes: Laydown area/s Other incidental infrastructure	16.03 ha
ALL SECTIONS	**MAXIMUM DISTURBANCE**	**130.72 ha**

(G4) All buried pipelines must be decommissioned in accordance with the requirements of Australian Standard 2885.

(G5) All petroleum infrastructure must be removed from the relevant petroleum authority prior to the surrender of this authority, except where agreed in writing by the administering authority and the current landowner.

(G6) The holder of this authority must decommission the pipeline to a situation where ongoing, or potential environmental harm is prevented or minimised. As a minimum, the pipeline must be decommissioned such that:

(a) it no longer contains hazardous contaminants;
(b) it is left in stable condition;
(c) all the above ground infrastructure is removed; and
(d) all areas disturbed by above ground infrastructure are rehabilitated in accordance with the requirements of this authority.

Fauna Management

(G7) Measures to prevent fauna entrapment must be implemented during the construction of pipelines in pipe sections and pipeline trenches and operation of dams.

Schedule H – Monitoring Programs

(H1) All monitoring must be undertaken by a suitably qualified person.

(H2) If requested by the administering authority in relation to investigating a valid complaint, monitoring must be undertaken within 10 business days.

(H3) All laboratory analyses and tests must be undertaken by a laboratory that has NATA accreditation for such analyses and tests, except as otherwise authorised in writing by the administering authority.

(H4) Notwithstanding condition (H3), where there are no NATA accredited laboratories available to test for a specific analyte or substance, then duplicate samples must be sent to separate laboratories for independent testing or evaluation.

(H5) The methods of surface water sampling must comply with that set out in the Queensland Government's *Monitoring and Sampling Manual 2009 – Environmental Protection (Water) Policy 2009*.

(H6) The methods of groundwater sampling must comply with the Australian Government's *Groundwater Sampling and Analysis – A Field Guide* (2009:27 GeoCat #6890.1).

(H7) Noise must be measured in accordance with the prescribed standards in the *Environmental Protection Regulation 2008*.

(H8) The method of measurement of ambient air quality or point source contaminant releases to air must comply with the *Queensland Air Quality Sampling Manual* and/or Australian Standard 4323.1:1995 *Stationary source emissions method 1: Selection of sampling positions,* whichever is appropriate for the relevant measurement.

(H9) The annual return must include an Update Report detailing activities during the annual return period, demonstrating:

(a) significant disturbance during the period
(b) rehabilitation undertaken
(c) a list of all valid complaints relating to environmental issues made, including the date, source, reason for the compliant and a description of investigations undertaken in resolving the compliant
(d) the results of all monitoring undertaken.

Schedule I – Community Issues

Complaints

(I1) A record of all complaints must be kept, including the date, complainant's details, source, reason for the complaint, description of investigations and actions undertaken in resolving the complaint.

(I2) When the administering authority advises the holder of a complaint alleging nuisance (e.g. caused by dust or noise), the holder must investigate the complaint and advise the administering authority of the action proposed or undertaken in relation to the complaint.

Schedule J – Notification Procedures

Notification of Emergencies and Incidents

(J1) In addition to the requirements under Chapter 7, Part 1, Division 2 of the *Environmental Protection Act 1994*, the administering authority must be notified through the Pollution Hotline and in writing, as soon as possible, but within 48 hours of becoming aware of any of the following events:

(a) any unauthorised significant disturbance to land
(b) unauthorised releases of any volume of prescribed contaminants to waters
(c) unauthorised releases of volumes of contaminants, in any mixture, to land greater than:
    i. 200L of hydrocarbons; or
    ii. 5,000L of raw sewage; or
    iii. 10,000L of treated sewage effluent
(d) monitoring results where two out of five consecutive samples do not comply with the relevant limits in the environmental authority.
(e) Unauthorised removal of regulated waste.

(J2) A record of incidents must be maintained to include a record of all incidents occurring in the previous 5 years.

DEFINITIONS

Note: *Where a term Is not defined in this environmental authority the definition in the* Environmental Protection Act 1994*, its regulations and Environmental Protection Policies or the* Petroleum and Gas (Production and Safety) Act 2004 *and its regulations must be used in that order.*

"14-day rolling average Benthic PAR" means the mean total daily Benthic PAR calculated over a 14-day period, or if data is unavailable for less than 24-hours at a monitoring site specified in *Schedule B – Table 2a: Monitoring of Photosynthetically Active Radiation (PAR) at Receiving Water*, the mean total daily Benthic PAR calculated over a 14-day period which includes a replicate of the total daily Benthic PAR from the 24-hour period immediately preceding the period of the missing data.

"6-hour EWMA" means exponentially weighted moving average, calculated by using a 60:40 weighting system where the mean turbidity for the most recent 6 hours comprises 60% of the EWMA and the mean turbidity for the 6 hours previous to that comprises 40% of the EWMA.

"acceptable standards for release to land" means:

(a) electrical conductivity (EC) not exceeding 3000µS/cm
(b) sodium absorption ratio (SAR) not exceeding 8
(c) and for hydrostatic testing water, water from low point drains and flush water, total heavy metals for each element listed meets the respective short term trigger value in Table 4.2.6 – Heavy metals and metalloids in Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC) 2000.

"accepted engineering standards", 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.

"acid sulfate soils" means soil or sediment containing highly acidic soil horizons or layers affected by the oxidation of iron sulfides (*actual acid sulfate soils*) and/or soil or sediment containing iron sulfides or other sulfidic material that has not been exposed to air and oxidised (*potential acid sulfate soils*). The term acid sulfate soil generally includes both actual and potential acid sulfate soils. Actual and potential acid sulfate soils are often found in the same soil profile, with actual acid sulfate soils generally overlying potential acid sulfate soil horizons.

"acidic drain water" means any water less than pH 6.5.

"adjacent land use(s)" means the ecosystem function adjacent to an area of significant disturbance, or where there is no ecosystem function, the use of the land. An adjacent land use does not include an adjacent area that shows evidence of edge effect.

"analyte(s)" means a chemical parameter determined by either physical measurement in the field or by laboratory analysis.

"annual return period" means the most current 12-month period between 2 anniversary dates.

"associated works" in relation to a dam, means:

- operations of any kind and all things constructed, erected or installed for that dam; and
- any land used for those operations.

"alternative arrangement" means a written agreement between the holder of this environmental authority and an affected or potentially affected person at a sensitive receptor for a defined noise nuisance impact and may include an agreed period of time for which the arrangement is in place. An agreement for alternative arrangements may include, but not necessarily be limited to a range of noise abatement measures to be installed at a sensitive receptor and/or provision of alternative accommodation for the duration of the defined noise nuisance impact.

"background noise level" means the sound pressure level, measured in the absence of the noise under investigation, as the L A90,T being the A-weighted sound pressure level exceeded for 90 percent of the measurement time period T of not less than 15 minutes, using Fast response.

"bed and banks" for a watercourse or wetland means land over which the water of the watercourse or wetland normally flows or that is normally covered by the water, whether permanently or intermittently; but does not include land adjoining or adjacent to the bed or banks that is from time to time covered by floodwater.

"being or intended to be utilised by the landholder or overlapping tenure holder" for significantly disturbed land, means there is a written agreement (e.g. land and compensation agreement) between the landholder or the overlapping tenure holder and the holder of the environmental authority identifying that the landholder or the overlapping tenure holder has a preferred use of the land such that rehabilitation standards for revegetation by the holder of the environmental authority are not required; for dams, means there is a written agreement (e.g. land and compensation agreement) between the landholder or the overlapping tenure holder and the holder of the environmental authority identifying that the landholder or the overlapping tenure holder has a preferred use for the dam such that rehabilitation standards for revegetation by the holder of the environmental authority are not required.

"beneficial use" means

- with respect to dams, that the current or proposed owner of the land on which a dam stands, has found a use for that dam that is:
  - of benefit to that owner in that it adds real value to their business or to the general community,
  - in accordance with relevant provisions of the *Environmental Protection Act 1994*,
  - sustainable by virtue of written undertakings given by that owner to maintain that dam, and
  - the transfer and use have been approved or authorised under any relevant legislation. Or
- with respect to coal seam gas water, refer the EHP's Operational Policy *Management of water produced in association with petroleum activities (CSG water)* and *Notice of decision to approve a resource for beneficial use – CSG water* which can be accessed on EHP's website at www.ehp.qld.gov.au.

"brine" means either saline water with a total dissolved solid concentration greater than 40,000 mg/l or CSG water after it has been concentrated through water treatment processes and/or evaporation.

"bund or bunded" in relation to spill containment systems for fabricated or manufactured tanks or containers designed to a recognised standard means an embankment or wall of brick, stone, concrete or other impervious material which may form part or all of the perimeter of a compound and provides a barrier to retain liquid. Since the bund is the main part of a spill containment system, the whole system (or bunded area) is sometimes colloquially referred to within industry as the bund. The bund is designed to contain spillages and leaks from liquids used, stored or processed above ground and to facilitate clean-up operations. As well as being used to prevent pollution of the receiving environment, bunds are also used for fire protection, product recovery and process isolation.

"business day" has the meaning in section 36 of the *Acts Interpretation Act 1954* (Qld).

"category A environmentally sensitive area" means any area listed in Schedule 12, Section 1 of the Environmental Protection Regulation 2008.

"category B environmentally sensitive area" means any area listed in Schedule 12, Section 2 of the Environmental Protection Regulation 2008.

"category C environmentally sensitive area" means any of the following areas:

- Nature Refuges as defined under the Nature Conservation Act 1992;
- Koala Habitat Areas as defined under the Nature Conservation Act 1992;
- State Forests or Timber Reserves as defined under the Forestry Act 1959;
- Declared catchment areas under the Water Act 2000;
- Resources reserves under the Nature Conservation Act 1992
- An area identified as "Essential Habitat" for a species of wildlife listed as endangered, vulnerable, rare or near threatened under the Nature Conservation Act 1992;
- Any wetland shown on the Map of Referable Wetlands available from the Department of Environment and Heritage Protection's website; or

- "Of concern" regional ecosystems identified in the database maintained by the Department of Environment and Heritage Protection called 'Regional ecosystem description database' containing regional ecosystem numbers and descriptions

"certification" or **"certified"** means a written statement from a suitably qualified person that the content of a document is accurate and true and meets the required intent of the document.

"certification or certified by a suitably qualified and experienced person" in relation to a design plan or an annual report regarding dams, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

- exactly what is being certified and the precise nature of that certification;
- the relevant legislative, regulatory and technical criteria on which the certification has been based;
- the relevant data and facts on which the certification has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and
- the reasoning on which the certification has been based using the relevant data and facts, and the relevant criteria.

"clearing" means:

- in relation to grass, scrub or bush—the removal of vegetation by disturbing root systems and exposing underlying soil (including burning), but does not include—
    - the flattening or compaction of vegetation by vehicles if the vegetation remains living; or
    - the slashing or mowing of vegetation to facilitate access tracks; or
    - the clearing of noxious or introduced plant species; and
- in relation to trees—cutting down, ringbarking, pushing over, poisoning or destroying in any way.

"commercial place" means a work place used as an office or for business or commercial purposes, which is not part of the petroleum activities and does not include employees accommodation or public roads.

"construction" in relation to a dam includes building a new dam and modifying or lifting an existing dam.

"Creek Section" is the area identified as 'Creek' in Map No.: M_05673_03, Rev B, dated 20/10/2011, titled 'The Narrows Crossing Corridor C) Creek Section, as depicted in *Appendix 3*.

"CSG water" means groundwater that is necessarily or unavoidably brought to the surface in the process of coal seam gas exploration or production. CSG water typically contains significant concentrations of salts, has a high sodium adsorption ratio (SAR) and may contain other contaminants that have the potential to cause environmental harm if released to land or waters through inappropriate management. CSG water is a waste, as defined under s13 of the EP Act.

"CSG water dams" include any type of dam (storage or evaporation) used to contain groundwater that is necessarily or unavoidably brought to the surface in the process of coal seam gas exploration or production.

"Curtis Island Section (Landing)" is the area labelled 'Curtis Island Landing' in Map No.: M_05673_06, Rev G, dated 13/08/2012, titled 'The Narrows Crossing Corridor F) Curtis Island Section, as depicted in *Appendix 3*.

"Curtis Island Section" is the area labelled 'Curtis Island' in Map No.: M_05673_06, Rev G, dated 13/08/2012, titled 'The Narrows Crossing Corridor F) Curtis Island Section, as depicted in *Appendix 3*.

"Curtis Island Right of Way" is the area shaded as the 'Proposed Right of Way' in Map No.: M_05673_06, Rev G dated 13/08/2012, titled 'The Narrows Crossing Corridor F) Curtis Island Section, as depicted in *Appendix 3*.

"dam" 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.

"design plan" means the documentation required to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, and the criteria to be used for operating the dam. The documents must include design and investigation reports, specifications and certifications, together with the planned decommissioning and rehabilitation works and outcomes. A design plan may include 'as constructed' drawings.

"discharge area" means:

(a) that part of the land surface where groundwater discharge produces a net movement of water out of the groundwater; and

(b) identified by an assessment process consistent with the document *Salinity Management Handbook, Queensland Department of Natural Resources, 1997*; or

(c) identified by an approved salinity hazard map held by the Department of Environment and Heritage Protection.

"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 by stepping stone or contiguous bioregional/local corridor networks.

"ecologically dominant layer" has the meaning in the Methodology for Surveying and Mapping of Regional Ecosystems and Vegetation Communities in Queensland (Version 3.2 August 2012) and means the layer making the greatest contribution to the overall biomass of the site and the vegetation community (NLWRA 2001). This is also referred to as the ecologically dominant stratum or the predominant canopy in woody ecosystems.

"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.

"end" means the stopping of the particular activity that has caused a significant disturbance in a particular area. It refers to, among other things, the end of a seismic survey or the end of a drilling operation. It does not refer to the end of all related activities such as rehabilitation. In other words, it does not refer to the 'completion' of the petroleum activity, the time at which the petroleum authority ends or the time that the land in question ceases to be part of an authority.

"environmental nuisance" has the meaning in section 15 of the *Environmental Protection Act 1994*.

"evaporation dam" means a dam where CSG water or brine is contained until the water content has been removed by evaporation.

"EWMA" refers to an Exponentially Weighted Moving Average.

"fill" or **"backfill"** means any kind of material in solid form (whether or not naturally occurring) capable of being deposited at a place but does not include material that forms a part of, or is associated with, a structure constructed in a watercourse, wetland or spring including a bridge, road, causeway, pipeline, rock revetment, drain outlet works, erosion prevention structure or fence.

"flowable substance" means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.

"foreseeable" means a period used for assessing the total probability of an event occurring. Permanent structures and ecological sustainability should be expected to still exist at the end of a 150 year foreseeable future with an acceptably low probability of failure before that time.

"foreseeable future' means the period used for assessing the total probability of an event occurring. Permanent structures and ecological sustainability should be expected to still exist at the end of a 150 year foreseeable future with an acceptably low probability of failure before that time.

"hazard" in relation to a dam as defined, means the potential for environmental harm resulting from the collapse or failure of the dam to perform its primary purpose of containing, diverting or controlling flowable substances.

"hazard category" means a category, either low significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the Department of Environment and Heritage Protection's *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Version 1.0, 2008)* or any updated version of the Manual that becomes available from time to time

"HDD" means **"horizontal directional drilling"**.

"high bank" means the defining terrace or bank or, if no bank is present, the point on the active floodplain, which confines the average annual peak flows in a watercourse.

"highly erodible soils" means very unstable soils that are generally described as Sodosols with hard –setting, fine sandy loam to silty clay loam surfaces (solodics, solodised solonetz and solonetz) or soils with a dispersible layer located less than 25 cm deep or soils less than 25 cm deep.

"hydraulic performance" means the capacity of a regulated dam to contain or safely pass flowable substances based on a probability (AEP) of performance failure specified for the relevant hazard category in the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Version 1.0, 2008)* published by the Environmental Protection Agency on its website.

"impulsive sound" means sound characterised by brief excursions of sound pressure (acoustic impulses) that significantly exceed the background sound pressure. The duration of a single impulsive sound is usually less than one second.

"infrastructure" means water storage dams, roads and tracks, equipment, buildings and other structures built for the purpose and duration of the conduct of the petroleum activities, but does not include other facilities required for the long term management of the impact of those activities or the protection of potential resources. Such other facilities include dams other than water storage dams (e.g. evaporation dams), pipelines and assets, that have been decommissioned, rehabilitated, and lawfully recognised as being subject to subsequent transfer with ownership of the land.

"interconnection facilities" means those facilities required to connect a third party gas network to the QGC upstream or pipeline facilities for the purposes of sale or supply of gas under various scenarios. The facilities shall include, but shall not be limited to: tie-in valving, pig receiving and launching equipment, interconnecting pipeline, compression facilities (where required), shutdown and control systems, over pressure protection, power generation, utility systems and/or connections, and facility / pipeline depressuring vents (as required).

"$LA_{eq, adj*, 15 mins}$" means an A-weighted sound pressure level of a continuous steady sound, adjusted for tonal character, that within a 15 minute period has the same square sound pressure as a sound level that varies with time.

"lake" means:
(a) a lagoon, swamp or other natural collection of water, whether permanent or intermittent; and
(b) the bed and banks and any other element confining or containing the water.

"leachate" means a liquid that has passed through or emerged from, or is likely to have passed through or emerged from, a material stored, processed or disposed of on site which contains soluble, suspended or miscible contaminants likely to have been derived from the said material.

"levee" means a dyke or bund that is designed only to provide for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from unplanned releases from other works of infrastructure, during the progress of those stormwater or flood flows or those unplanned releases; and does not store any significant volume of water or flowable substances at any other times.

"limited petroleum activities" mean only activities including:
(a) geophysical surveys (including seismic activities);
(b) well sites;
(c) well pads;
(d) sumps;
(e) flare pits;
(f) flow lines; and
(g) supporting access tracks.

For clarity, limited petroleum activities do not include:
(a) the construction of infrastructure for processing or storing petroleum or by-products;
(b) dams;
(c) compressor stations;
(d) campsites/workforce accommodation;
(e) power supplies;
(f) waste disposal; or
(g) other supporting infrastructure for the project.

"low hazard dam" means any dam in the low hazard category as assessed using the *"*Manual for Assessing Hazard Categories and Hydraulic Performance of Dams", prepared by the Department of Environment and Heritage Protection, as amended from time to time.

"Marshland Section" is the area identified as 'Marshland' in Map No.: M_05673_04, Rev B, dated 20/10/2011, titled 'The Narrows Crossing Corridor, D) Marshland Section as depicted in *Appendix 3*, and that is otherwise known as the Kangaroo Island Wetlands.

"mature trees" means trees of the *Eucalyptus*, *Corymbia*, *Angophora* and *Lophostemon* genera with stem diameters of more than 40 cm when measured at 1.3 metres high, and trees of genera other than *Eucalyptus*, *Corymbia*, *Angophora*, *Lophostemon* with stem diameters of more than 30 cm when measured at 1.3 metres high. Note that for multi-stemmed plants, the diameters of all stems should be added.

"Max $L_{pZ, 15\ min}$" means the maximum value of the Z-weighted sound pressure level measured over 15 minutes.

"Max $L_{pA, 15\ min}$" means the absolute maximum instantaneous A-weighted sound pressure level, measured over 15 minutes.

"mg/L" means milligrams per litre.

"meter" means a device for measuring, or giving an output signal proportional to, quantities of water passed and/or the rate of flow in a pipe."

"month" has the meaning in section 36 of the *Acts Interpretation Act 1954*.

"Narrows Section" is the area identified as 'Narrows' in Map No.: M_05675_05, Rev B, dated 20/10/2011, titled 'The Narrows Crossing Corridor, E) Narrows Section, as depicted in *Appendix 3*.

"NATA accreditation" means accreditation by the National Association of Testing Authorities Australia.

"NTU" means Nephelometric Turbidity Units.

"outer bank" has the meaning in section 5A of the *Water Act 2000*.

"overland flow water" means water, including floodwater, flowing over land, otherwise than in a watercourse or lake:

- after having fallen as rain or in any other way; or
- after rising to the surface naturally from underground.

"PAR" means photosynthetically active radiation and is measured as mol/m^2/day.

"permanent infrastructure" includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads, pipelines etc), which is to be left by agreement with the landowner.

"pest" means species:
(a) declared under the *Land Protection (Pest and Stock route Management) Act 2002*;
(b) declared under Local Government model local laws; and
(c) which may become invasive in the future.

"Phillipies Landing Road Section" is the area labelled as 'Phillipies Land Road' in Map No.: M_05673_02, Rev D, dated 20/10/2011, titled 'The Narrows Crossing Corridor, B) Phillipies Landing Road Section', as depicted in Appendix 3.

"Phillipies Landing Right of Way" is the area shaded as the 'Proposed Right of Way' in Map No.: M_05673_02, Rev D, dated 20/10/2011, titled 'The Narrows Crossing Corridor, B) Phillipies Landing Road Section', as depicted in Appendix 3.

"ppt" means parts per thousand.

"pre-disturbed land use" means the function or use of the land as documented prior to significant disturbance occurring at that location.

"predominant species" means has the meaning in the Methodology for Surveying and Mapping of Regional Ecosystems and Vegetation Communities in Queensland (Version 3.2 August 2012) and means a species that contributes most to the overall above-ground biomass of a particular stratum.

"prescribed contaminants" has the meaning in s 440ZD of the *Environmental Protection Act 1994* (Qld).

"Receipt Station" means the facility at which QGC's gas collection headers (GCH South and GCH North) and third party **interconnection facilities** are combined into the Export Pipeline (E05). The facilities include, but are not limited to, gas filtration, metering, gas chromatographs and moisture analysers, shutdown systems, control systems, future mid-line compression, and facility / pipeline depressuring vents.

"regulated dam" means any dam in the significant or high hazard category as assessed using the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Version 1.0, 2008)* or any updated version of the Manual that becomes available from time to time.

"rehabilitation" means the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria and, where relevant, includes remediation of contaminated land. For the purposes of pipeline rehabilitation, rehabilitation includes reinstatement, revegetation and restoration.

"reinstated" or "reinstatement" means the process of bulk earth works and structural replacement of pre-existing conditions of a site (i.e. soil surface typography, watercourses, culverts, fences and gates and other landscape(d) features) and is detailed in the APGA *Code of Environmental Practice: Onshore Pipelines, 2017* .

"remnant unit" means a continuous area of remnant vegetation representative of a single Regional Ecosystem type or a single heterogeneous unit (multiple Regional Ecosystem types that cannot be distinguished individually due to the scale of mapping).

"revegetated", "revegetation", "revegetating or "revegetate" means to actively re-establish vegetation through seeding or planting techniques in accordance with site specific management plans.

"sensitive place" means:

- a dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel; or
- a library, childcare centre, kindergarten, school, university or other educational institution;
- a medical centre, surgery or hospital; or
- a protected area; or
- 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; or
- a work place used as an office or for business or commercial purposes, which is not part of the petroleum activities and does not include employees accommodation or public roads.

"sensitive receptor" means an area or place where noise (including low frequency, vibration and blasting) is measured investigate whether nuisance impacts are occurring and includes:

- a dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel; or
- a library, childcare centre, kindergarten, school, university or other educational institution;
- a medical centre, surgery or hospital; or
- a protected area; or
- 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; or
- a work place used as an office or for business or commercial purposes, which is not part of the petroleum activities and does not include employees accommodation or public roads.

"significantly disturbed land" or **"significant disturbance to land"** means disturbance to land as defined in section 28 of the Environmental Protection Regulation 2008.

"site" means the petroleum authority(ies) to which the environmental authority relates.

"species richness" means the number of different species in a given area.

"spring" means the land to which water rises naturally from below the ground and the land over which the water then flows.

"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.

"structure" means a dam or levee.

"suitably qualified person" means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis to performance relative to the subject matter using the relevant protocols, standards, methods or literature.

"suitably qualified and experienced person" in relation to a hazard assessment of a dam, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

- exactly what has been assessed and the precise nature of that assessment;
- the relevant legislative, regulatory and technical criteria on which the assessment has been based;
- the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and
- the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

"suitably qualified and experienced person" in relation to dams means one who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the *Professional Engineers Act 1988*, OR registered as a National Professional Engineer (NPER) with the Institution of Engineers Australia, OR holds equivalent professional qualifications to the satisfaction of the administering authority for the Act; AND the administering authority for the Act is satisfied that person has knowledge, suitable experience and demonstrated expertise in relevant fields, as set out below:

- knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and
- a total of five years of suitable experience and demonstrated expertise in the geomechanics of dams with particular emphasis on stability, geology and geochemistry, and
- a total of five years of suitable experience and demonstrated expertise each, in three of the following categories:
  - investigation and design of dams;
  - construction, operation and maintenance of dams;
  - hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology;
  - hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes;
  - hydrogeology with particular reference to seepage, groundwater;
  - solute transport processes and monitoring thereof; or
  - dam safety.

"third party auditor" means a suitably qualified person who is either a certified third party auditor or an internal auditor employed by the holder of the environmental authority and the person is independent of the day to day management and operation of activities covered by this environmental authority

"threatening processes" means processes, features and actions that can have a detrimental effect upon the health and viability of an area of vegetation. For example, altered hydrology, land use practices, invasion by pest and weed species, land degradation, edge effects and fragmentation.

"tolerable limits" means a range of parameters regarded as being sufficient to meet the objective of protecting relevant environmental values. For example, a range of settlement for a tailings capping, rather than a single value, could still meet the objective of draining the cap quickly, preventing damage and limiting infiltration and percolation.

"topsoil" 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.

"valid complaint" means a complaint the administering authority considers is not frivolous, nor vexatious, nor based on mistaken belief.

"vegetation" means any plant that is a component of a regional ecosystem type described in the Queensland Herbarium's Regional Ecosystem Description Database.

"void" means any man-made, open excavation in the ground (includes borrow pits, drill sumps, frac pits, flare pits, cavitation pits and trenches).

"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*.

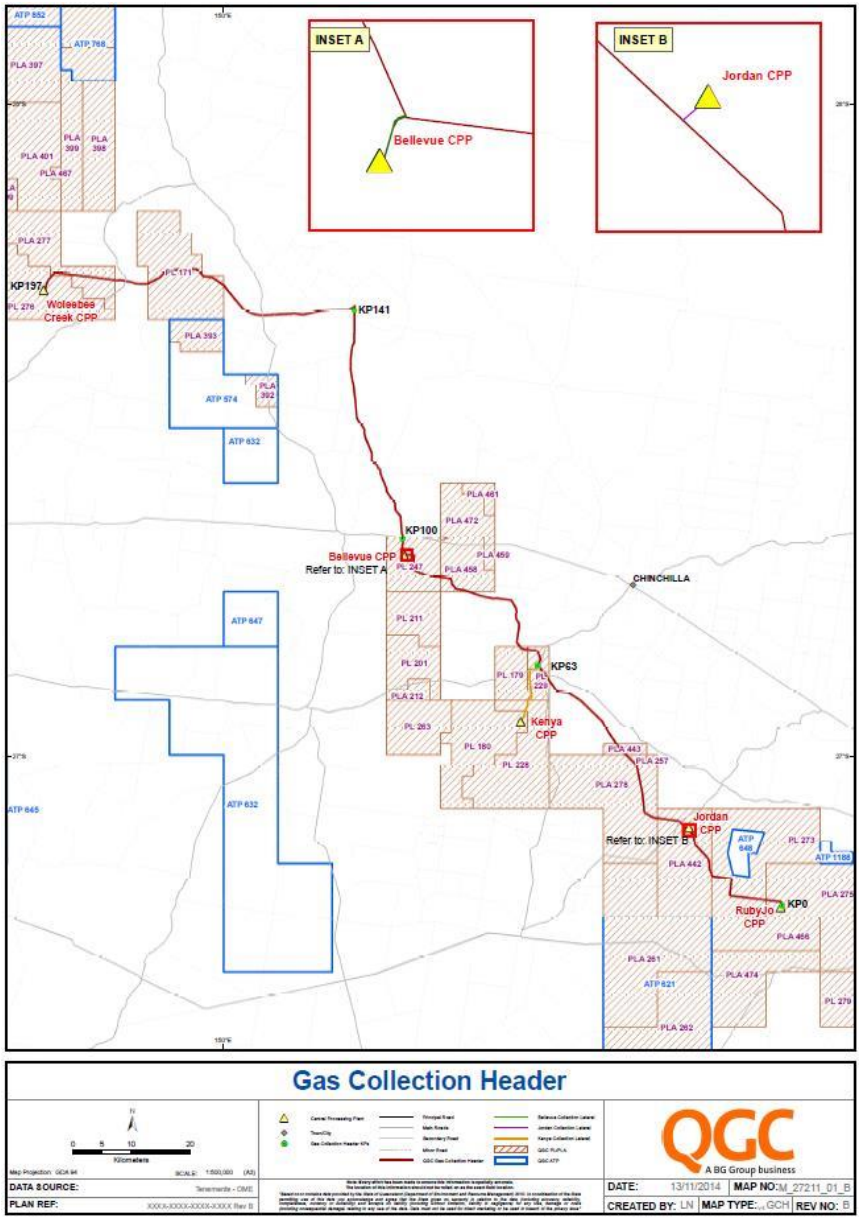
"waters" includes all or any part of a creek, river, stream, lake, lagoon, dam, swamp, wetland, spring, unconfined surface water, unconfined water in natural or artificial watercourses, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and underground water.

"watercourse" has the meaning provided in s 5 of the *Water Act 2000* and includes the bed and banks and any other element of a river, creek or stream confining or containing water.

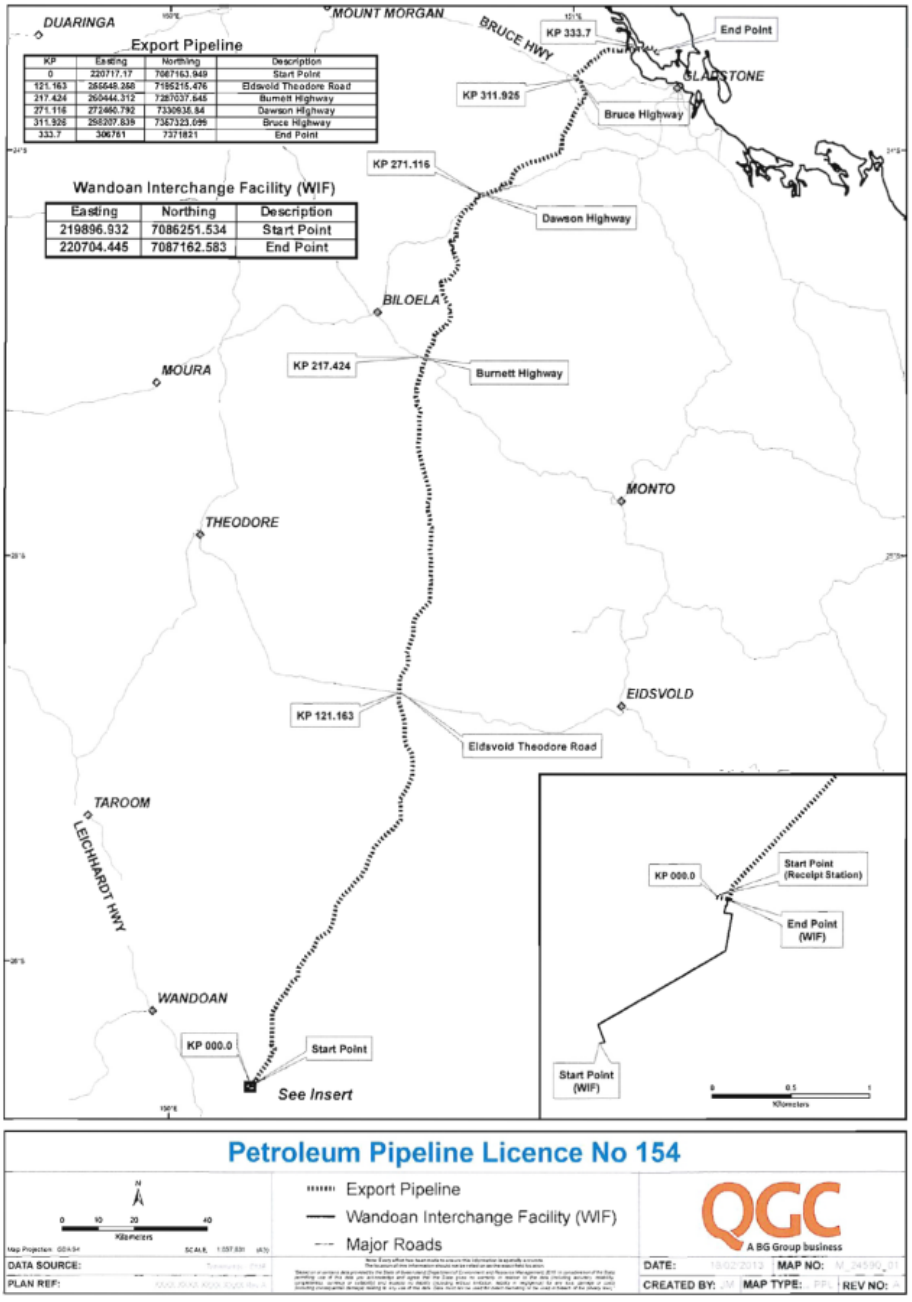
"wetland" means an area shown as a wetland on a 'Map of referable wetlands', a document approved by the chief executive (environment). A map of referable wetlands can be viewed at www.ehp.qld.gov.au.

PART B - APPENDICES

APPENDIX 1 – LOCATION OF PETROLEUM PIPELINE LICENCE (PPL) 153



APPENDIX 2 – LOCATION OF PETROLEUM PIPELINE LICENCE (PPL) 154



Export Pipeline

KP	Easting	Northing	Description
0	220717.17	7087163.949	Start Point
121.163	265648.268	7195215.476	Eldsvold Theodore Road
217.424	260444.312	7287037.645	Burnett Highway
271.116	272460.792	7330635.84	Dawson Highway
311.926	258207.839	7367323.056	Bruce Highway
333.7	306761	7371821	End Point

Wandoan Interchange Facility (WIF)

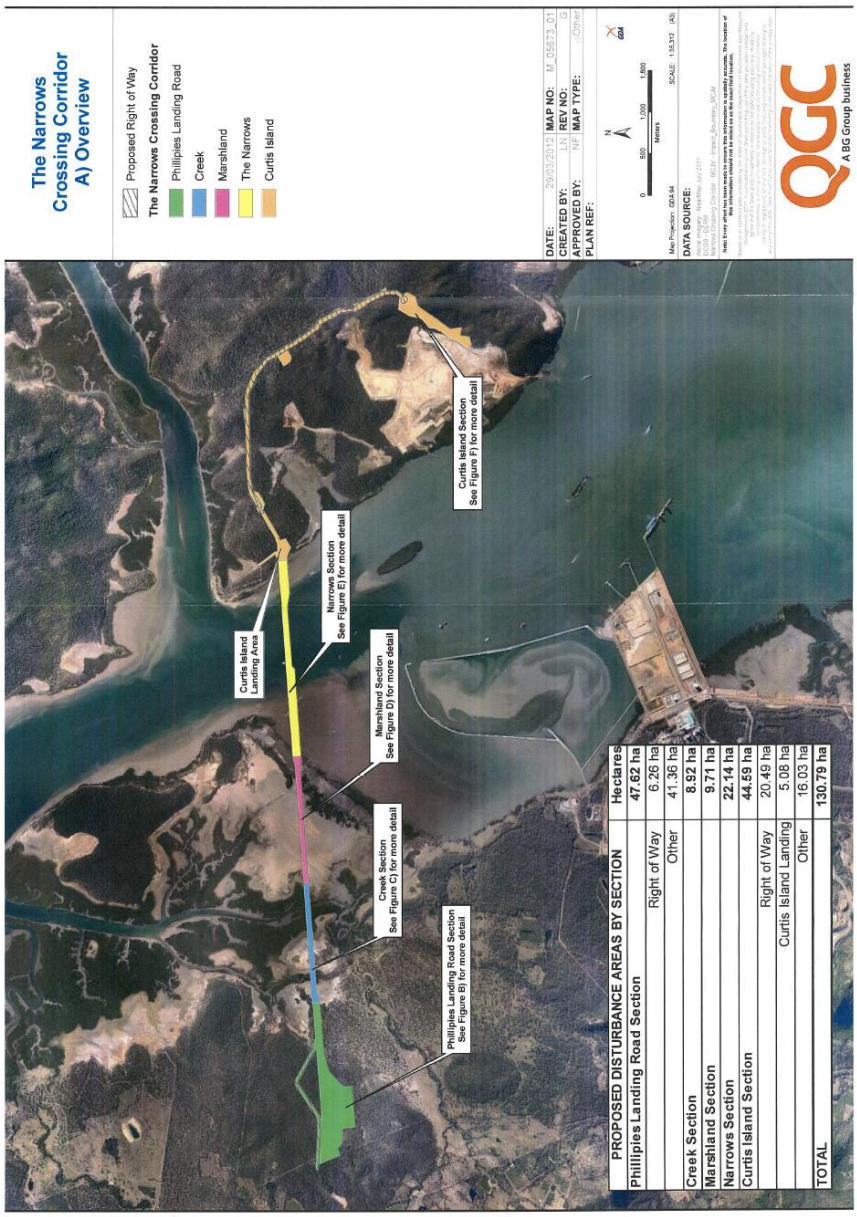
Easting	Northing	Description
219896.932	7086251.534	Start Point
220704.445	7087162.583	End Point

Petroleum Pipeline Licence No 154

Queensland Government

APPENDIX 3 – DISTURBANCE MAPS FOR PPL155

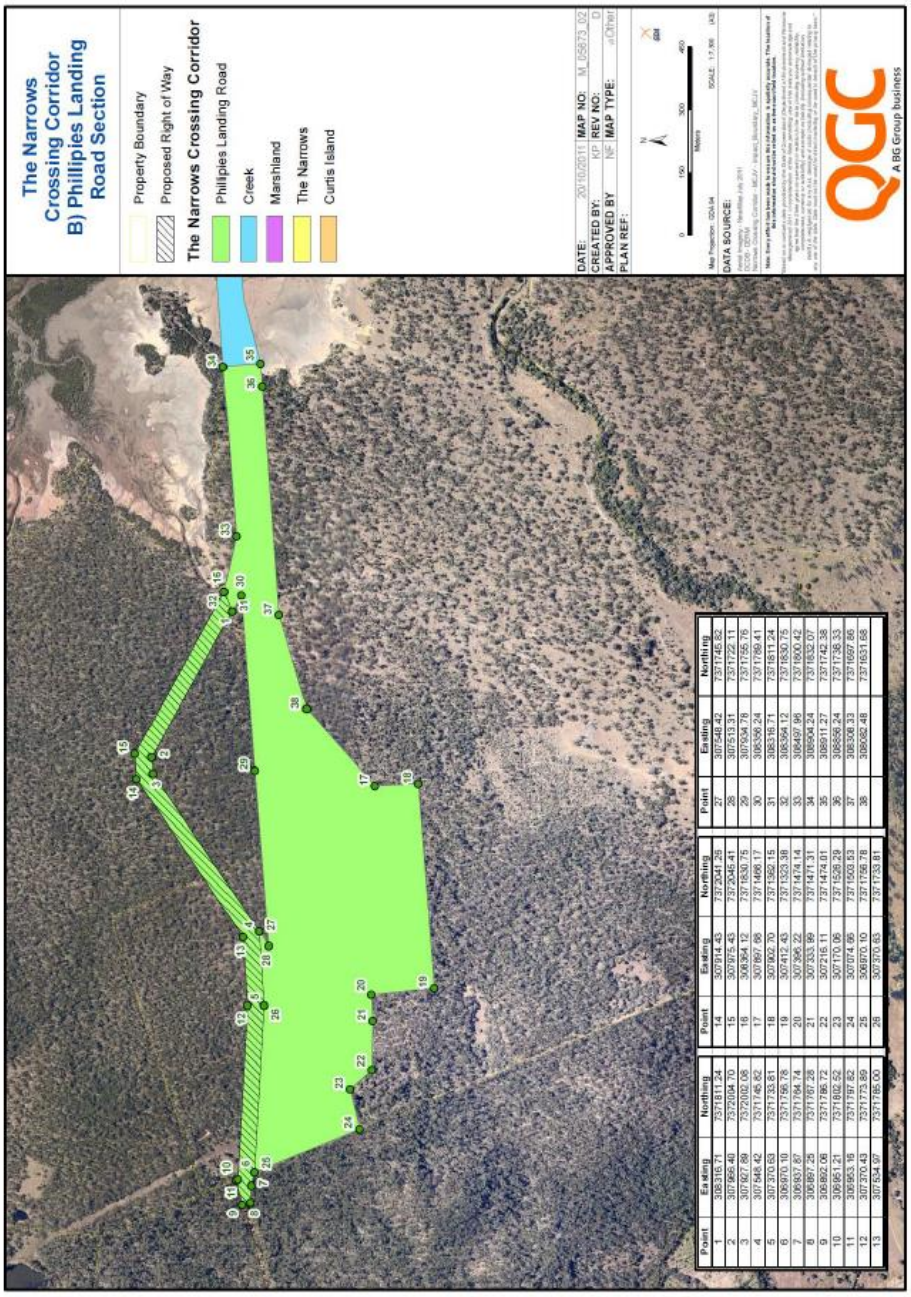
The Narrows Crossing Corridor A) Overview *(Map No.: M_05673_01, Rev G)*



PROPOSED DISTURBANCE AREAS BY SECTION		Hectares
Phillipies Landing Road Section		47.62 ha
	Right of Way	6.26 ha
	Other	41.36 ha
Creek Section		8.92 ha
Marshland Section		9.71 ha
Narrows Section		22.14 ha
Curtis Island Section		44.59 ha
	Right of Way	20.49 ha
	Curtis Island Landing	5.08 ha
	Other	16.03 ha
TOTAL		130.79 ha

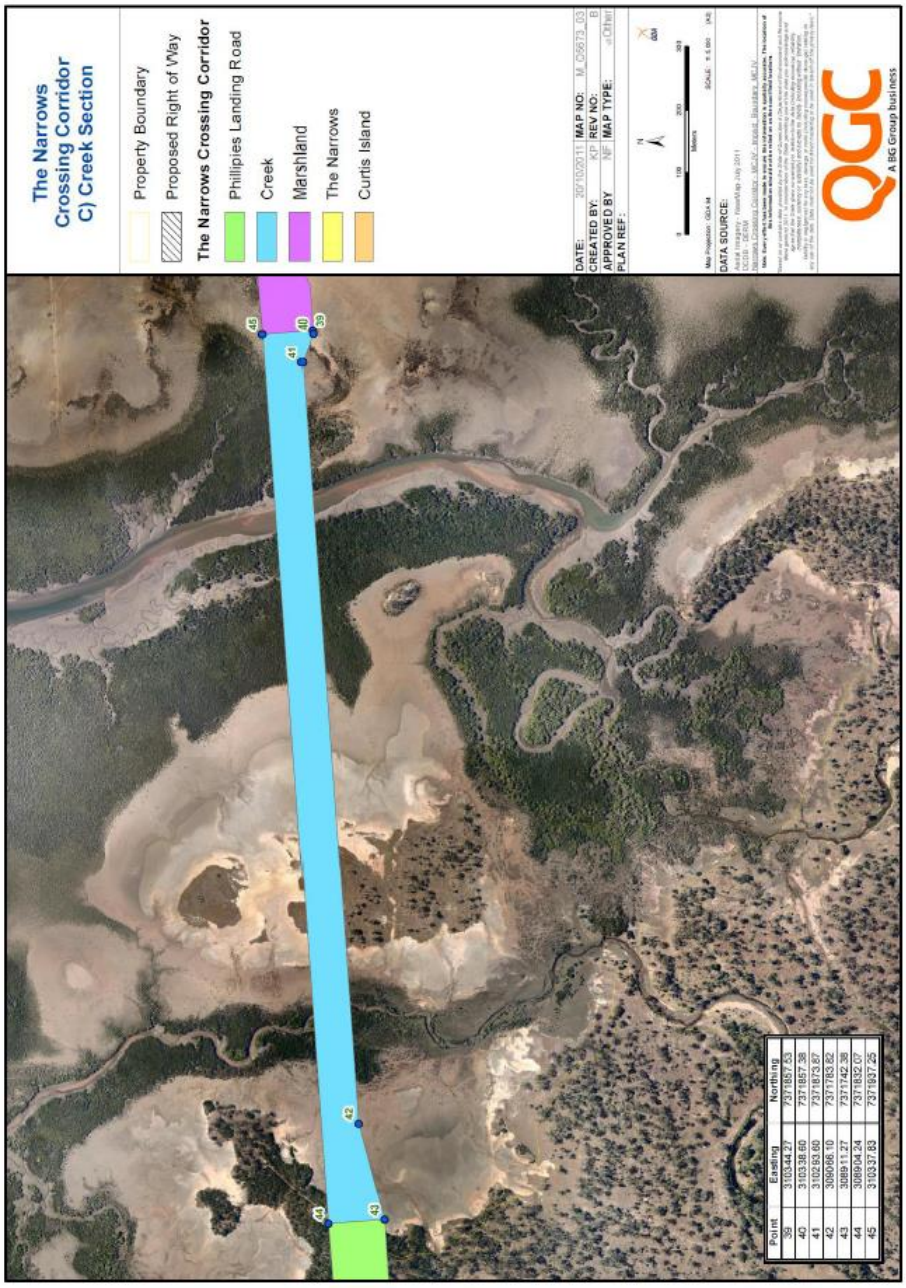
Queensland Government

The Narrows Crossing Corridor B) Phillipies Landing Road Section ***(Map No.: M_05673_02, Rev D)***

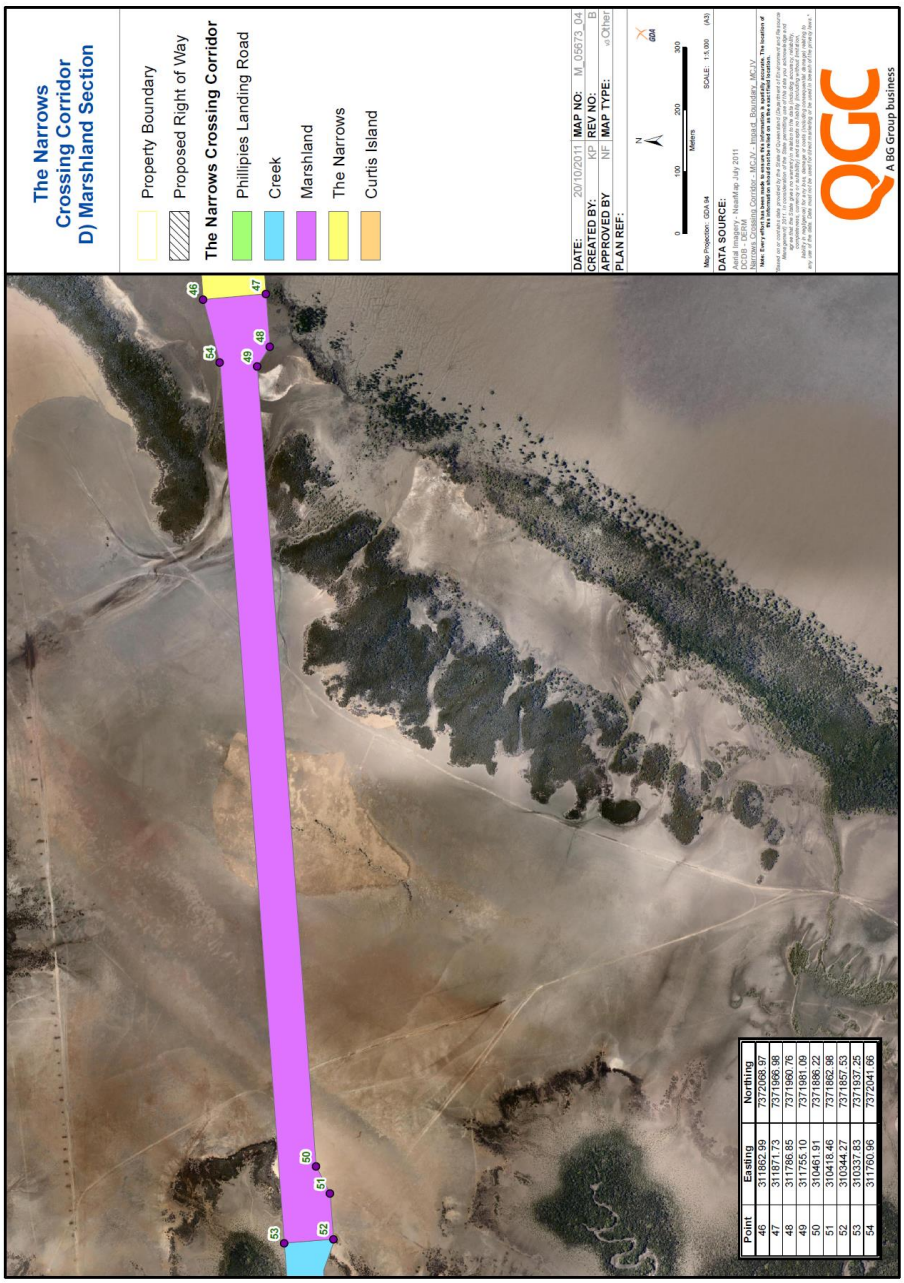


Point	Easting	Northing
1	308316.71	7371811.24
2	307866.40	7372004.70
3	307827.89	7372002.06
4	307548.42	7371745.82
5	307370.63	7371733.81
6	306970.10	7371756.78
7	306937.87	7371764.74
8	306897.25	7371787.28
9	306862.06	7371786.72
10	306951.21	7371802.52
11	306963.16	7371797.82
12	307370.43	7371773.69
13	307554.87	7371785.00
14	307914.43	7372041.29
15	307875.43	7372045.41
16	308364.12	7371830.75
17	307867.66	7371466.17
18	307902.70	7371362.15
19	307412.43	7371323.38
20	307366.22	7371474.14
21	307333.89	7371471.31
22	307316.11	7371474.01
23	307170.05	7371528.29
24	307074.66	7371503.53
25	306970.10	7371756.78
26	307370.63	7371733.81
27	307548.42	7371745.82
28	307513.31	7371722.11
29	307934.78	7371755.76
30	308366.24	7371769.41
31	308316.71	7371811.24
32	308364.12	7371830.75
33	308497.96	7371800.42
34	308904.24	7371832.07
35	308911.27	7371742.38
36	308366.24	7371738.33
37	308308.33	7371697.66
38	308082.48	7371651.68

The Narrows Crossing Corridor C) Creek Section (*Map No.: M_05673_03, Rev B)*



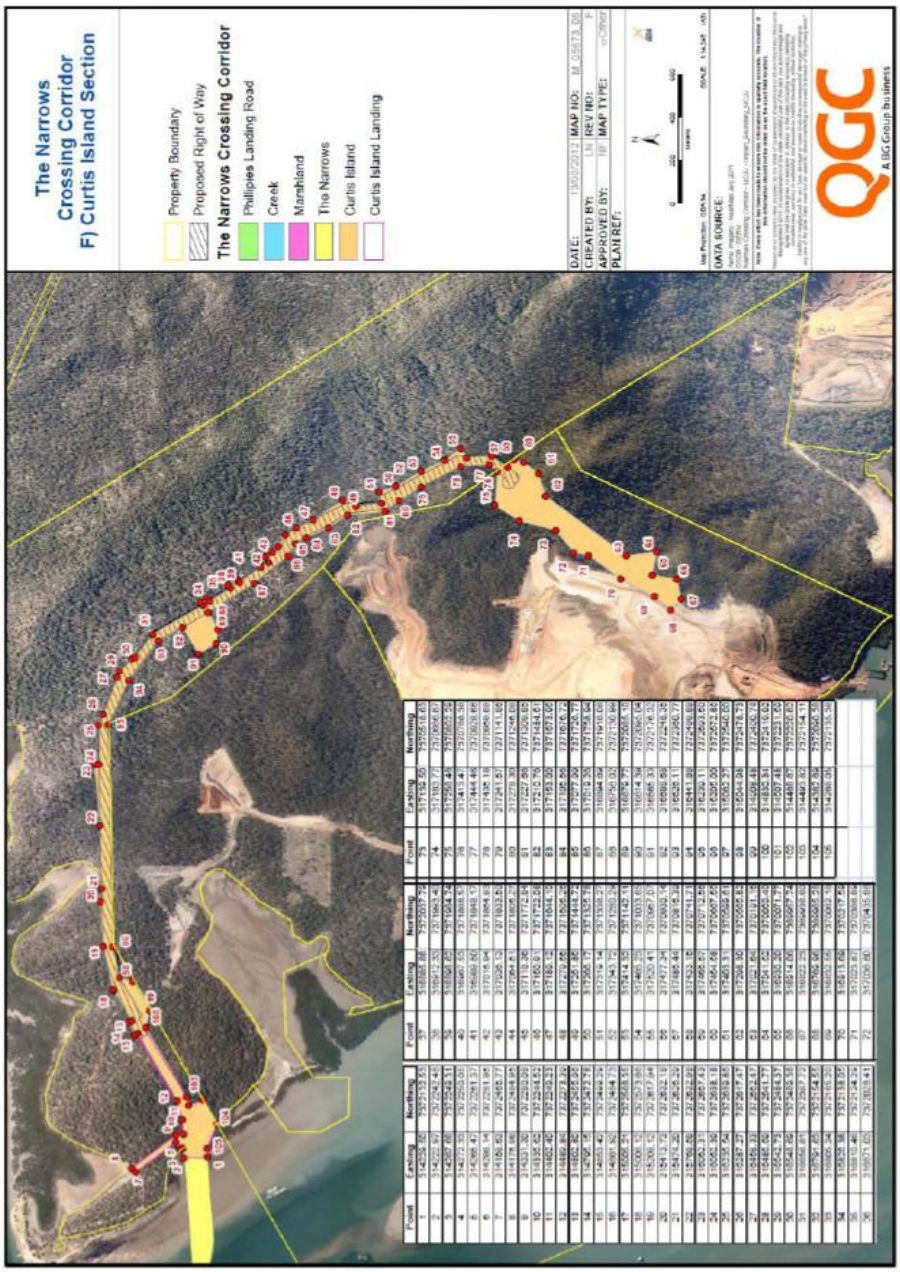
The Narrows Crossing Corridor D) Marshland Section *(Map No.: M_05673_04, Rev B)*



The Narrows Crossing Corridor E) Narrows Section *(Map No.: M_05673_05, Rev B)*

Queensland Government

The Narrows Crossing Corridor F) Curtis Island Section *(Map No.: M_05673_06, Rev F)*



ABN 46 640 294 485

Queensland Government