Permit

Environmental Protection Act 1994

Environmental authority EPML00725113

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

Environmental authority number: EPML00725113

Environmental authority takes effect on 6 February 2026.

Environmental authority holder(s)

Name(s)	Registered address
RTA WEIPA PTY LTD	155 Charlotte Street Aluminium Pacific Operations BRISBANE CITY QLD 4000

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 - 11 - Mining bauxite	ML6024, ML7024
Ancillary 08 - Chemical Storage - 3 - Storing more than 500 cubic metres of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c)	
Ancillary 14 - Electricity generation - 2(a) - Generating electricity by using a fuel, other than gas, at a rated capacity of 10MW electrical to 150MW electrical	
Ancillary 16 - Extraction and Screening - 1(d) - Dredging, in a year, the following quantity of material - more than 1,000,000t	
Ancillary 16 - Extraction and Screening - 2(a) - Extracting, other than by dredging, in a year, the following quantity of material - 5,000t to 100,000t	

Queensland Government

Environmentally relevant activity/activities	Location(s)
Ancillary 16 - Extraction and Screening - 3(a) - Screening, in a year, the following quantity of material - 5,000t to 100,000t	
Ancillary 31 - Mineral processing - 2(b) - Processing, in a year, the following quantities of mineral products, other than coke - more than 100,000t	
Ancillary 55 - Other waste reprocessing or treatment - 2(a) - Operating a facility for receiving and either reprocessing or treating, in a year, the following quantity of category 2 regulated waste - 5,000t or less	
Ancillary 60 - Waste disposal - 2(c) - Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(b) - more than 5000t but not more than 10,000t	
Ancillary 62 - Resource recovery and transfer facility operation - 1(b) - Operating a facility for receiving and sorting, dismantling, baling or temporarily storing general waste	
Ancillary 62 - Resource recovery and transfer facility operation - 1(c) - Operating a facility for receiving and sorting, dismantling, baling or temporarily storing category 2 regulated waste	
Ancillary 63 - Sewage Treatment - 1(d) - Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of more than 4000 but not more than 10,000EP	
Ancillary 64 - Water treatment - 3 - Treating 10ML or more raw water in a day	

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).

Mobile and temporary activities

If you operate a mobile and temporary environmentally relevant activity (ERA), other than regulated waste transport, you are required to maintain a work diary. You must:

- use the approved form for a work diary (ESR/2015/1696);
- keep the work diary records for 2 years after the last entry;
- inform the administering authority within 7 days of the work diary being lost or stolen;
- record the information required in the work diary for each location within 1 day of leaving the location.

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 *Planning Act 2016* 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.

The anniversary day of this environmental authority is 30 August. The payment of the annual fee will be due each year on this day. An annual return will be due each year on 01 April.

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.

RAPettit	6 February 2026
Signature	Date

Robert Pettit
Department of the Environment, Tourism, Science, and Innovation
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Minerals Business Centre
PO Box 7230, CAIRNS, QLD. 4870
Phone: (07) 4222 5352
Email: ESCairns@detsi.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)

Other permits required

This permit only provides an approval under the *Environmental Protection Act 1994*. In order to lawfully operate you may also require permits / approvals from your local government authority, other business units within the department and other State Government agencies prior to commencing any activity at the site. For example, this may include permits / approvals with your local Council (for planning approval), the Department of Transport and Main Roads (to access State controlled roads), the Department of Resources (to clear vegetation), and the Department of Agriculture and Fisheries (to clear marine plants or to obtain a quarry material allocation).

Obligations under the *Mining and Quarrying Safety and Health Act 1999*

If you are operating a quarry, other than a sand and gravel quarry where there is no crushing capability, you will be required to comply with the *Mining and Quarrying Safety and Health Act 1999*. For more information on your obligations under this legislation contact Mine Safety and Health at www.resources.qld.gov.au, or phone 13 QGOV (13 74 68) or your local Mines Inspectorate Office.

Conditions of environmental authority

Location: ML6024, ML7024

Weipa.

This **environmental authority** incorporates the following schedules:

Schedule A – General

Schedule B – Air

Schedule C - Land and Rehabilitation

Schedule D - Regulated Dams

Schedule E - General and Regulated waste management

Schedule F - Evans Landing landfill

Schedule G – Noise

Schedule H – Water

Schedule I - Sewage Treatment

Schedule J – Marine

Schedule K - Definitions/Acronyms

Schedule L – Plans

Appendix 1 - Maximum Contaminant Levels in Regulated Waste.

The environmentally relevant activity(ies) conducted at the location as described above must be conducted in accordance with the following site-specific conditions of approval.

SCHEDULE A – GENERAL

Activity

(A1) This environmental authority authorises environmental harm caused by the carrying out of mining activities by the holder of this environmental authority, provided the mining activities are carried out in accordance with conditions herein. Where a condition in this environmental authority refers to environmental harm the condition is taken to authorise the environmental harm occurring in compliance with the condition. Where there is no condition or the authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

(A2) The activities to be carried out under this environmental authority are the mining activities defined within Table A1 – Authorised Activities and identified in Schedule L Plan 1 – Weipa General Area Plan, Plan 2 – East Weipa and Andoom Operational Areas and Plan 3 – South of Embley Project Infrastructure and Conceptual Mine Plan.

Table A1 – Authorised Activities

Mining Activity / Domain	Mine Feature	Tenure	Maximum Surface Area of Disturbance (ha)	Coordinates (GDA94 MGA z54)	
				Northing	Easting
Extraction Areas	Mining Areas	ML7024	246,629	N/A	N/A
	Nanum Tawap Sand Quarry	ML7024	14.5	8595750 8595870 8596060 8596250	599248 599563 599068 599482
	Sand extraction areas	ML7024	200	8596526 8596518 8595605 8595549	598726 599640 598815 599599
	Boyd Port dredge extraction area	ML7024	78	8571105 8574142 8573560 8570525	567170 561485 561175 566860
	Hey River Terminal dredge extraction area	ML6024	3	8590950 8590950 8590665 8590665	597005 597140 597140 597005
Processing Activities	Weipa Beneficiation Plant	ML7024	2.1	8599830 8599820 8599690 8599700	594472 594636 594624 594458
	Andoom Beneficiation Plant	ML7024	1.8	8614370 8614320 8614210 8614230	590825 590986 590952 590830
	Boyd Beneficiation Plant (as part of total infrastructure area)	ML7024	270 (partial)	8570410 8570379 8570126 8570173	568284 568349 568232 568146
	Norman Creek Beneficiation Plant (as part of total infrastructure area)	ML7024	260 (partial)	TBD[2]	TBD[2]
Regulated Dams	East Weipa Tailings Storage Facility (EW)	ML7024	442	8600663 8600557 8602613 8602229	593810 596535 596691 594045
	East Weipa 1 Tailings Storage Facility (EW1)	ML7024	50	8600139 8599265 8599278 8600093	595866 595760 596343 596605

Mining Activity / Domain	Mine Feature	Tenure	Maximum Surface Area of Disturbance (ha)	Coordinates (GDA94 MGA z54)	
				Northing	Easting
	East Weipa 2 Tailings Storage Facility (EW2)	ML7024	65	8600096 8600037 8598967 8599063	596608 597208 597049 596274
	Andoom Tailings Storage Facility	ML7024	519	8617190 8616130 8614020 8614880	590732 593374 592696 589971
	Emergency Dam	ML7024	40	8600199 8600143 8599291 8599725	595254 595860 595750 594969
	West Weipa 2 (WW2)	ML7024	170	8601590 8602090 8600841 8600510 8600604	593810 591786 590547 591304 592197
	G & X Dam	ML7024	20	8600987 8600643 8600596 8601196	592356 592150 592717 592813
	G2 Dam	ML7024	40	8600416 8600564 8600048 8599803	592094 591318 591235 591735
	Torro Tailings Storage Facility	ML7024	1100	8569720 8569720 8565185 8565185	567195 569705 567195 569705
	Norman Creek Tailings Storage Facility	ML7024	1100	8560000 8560000 8555000 8555000	576000 581500 582550 576000
Water Supply Dam	Arraw Dam (formerly Dam C)	ML7024	780	8566275 8566890 8564570 8561490 8562600	574055 579665 581175 575595 574200
Waste Disposal / Treatment	Evans Landing Landfill	ML7024	37.8	8600165 8600821 8600142 8600308 8600220 8600463	590760 590805 591045 591087 591654 591693
	Awonga Point Sewage Treatment Plant	ML7024	6.5	8606290 8606290 8605800 8605810	597124 597223 597179 597012
	Camp in the area North of Weipa	ML7024	0.1	8688010 8688380 8688300 8687930	612220 612560 612700 612350
	Sewage Treatment Plant for temporary camps in the Area south of the Embley River	ML7024	N/A[1]	N/A[1]	N/A[1]
	Boyd Infrastructure Area Sewage Treatment Plant	ML7024	N/A[1]	N/A[1]	N/A[1]

Mining Activity / Domain	Mine Feature	Tenure	Maximum Surface Area of Disturbance (ha)	Coordinates (GDA94 MGA z54)	
				Northing	Easting
	Boyd Accommodation Village Sewage Treatment Plant	ML7024	N/A[1]	N/A[1]	N/A[1]
	Norman Creek Infrastructure Area Sewage Treatment Plant	ML7024	N/A[1]	N/A[1]	N/A[1]
Electricity Generation	Andoom Power Station	ML7024	0.3	8614190 8614190 8614150 8614150	590977 591045 591043 590976
	Lorim Point Power Station	ML7024	1.6	8600050 8600040 8599930 8599940	594039 594179 594167 594030
	Weipa Town Renewable Energy Facility (PV Solar Farm)	ML7024	20	8602040 8601790 8601530 8601625	592480 593275 593460 592590
	Boyd Infrastructure Area Power Station	ML7024	N/A[1]	N/A[1]	N/A[1]
	Amrun Renewable Energy Facility (PV Solar Farm)	ML7024	90	8571800 8571800 8570950 8570950	570550 572520 572520 570550
	Norman Creek Infrastructure Area Power Station	ML7024	N/A[1]	N/A[1]	N/A[1]
	Norman Creek Renewable Energy Facility	ML7024	60[2]	TBD[2]	TBD[2]
	Electrical Generators (Mobile)	ML6024 & ML7024	N/A[1]	N/A[1]	N/A[1]
Chemical Storage Areas	Andoom Power Station Fuel Storage	ML7024	0.1	8614060 8614060 8614090 8614090	590972 591000 590972 591000
	Weipa Airport	ML7024	0.2	8597870 8597830 8597810 8597850	600444 600508 600493 600430
	Andoom Fuel Farm (Service Bay)	ML7024	0.1	8613830 8613840 8613820 8613810	590368 590393 590407 590382
	East Weipa Fuel Farm (above ground)	ML7024	0.2	8599800 8599800 8599760 8599760	601718 601757 601757 601718
	East Weipa Fuel Farm (underground)	ML7024	0.2	8599880 8599880 8599850 8599850	601646 601707 601710 601647
	For Heavy Equipment in Mining Areas (Mobile/Temporary)	ML7024	N/A[1]	N/A[1]	N/A[1]
Chemical Storage Areas	Weipa Main Store	ML7024	2.9	8599920 8599910 8599750 8599760	594001 594177 594159 593984

Mining Activity / Domain	Mine Feature	Tenure	Maximum Surface Area of Disturbance (ha)	Coordinates (GDA94 MGA z54)	
				Northing	Easting
	Weipa Environmental Compound	ML7024	1.6	8602930 8602970 8602900 8602860	595322 595540 595556 595337
	Weipa Waste Oil Fuel Farm	ML7024	0.1	8599390 8599390	594843 594875
				8599340 8599350	594873 594841
	Temporary camps in the area south of the Embley River	ML7024	N/A[1]	N/A[1]	N/A[1]
	Camp in the area North of Weipa	ML7024	0.1	8688010 8688380 8688300 8687930	612220 612560 612700 612350
	Boyd Infrastructure Area	ML7024	N/A[1]	N/A[1]	N/A[1]
	Norman Creek Infrastructure Area	ML7024	N/A[1]	N/A[1]	N/A[1]
Motor Vehicle Workshops	Town and Industrial Area	ML7024	N/A[1]	N/A	N/A
	Andoom Heavy Equipment workshop	ML7024	8.1	8613610 8613570 8613310 8613350	589948 590255 590214 589907
	Andoom Contractor Workshop	ML7024	0.2	8613864 8613817 8613817 8613864	590459 590458 590421 590421
	East Weipa Heavy Equipment workshop	ML7024	9.6	8599920 8599700 8599700 8599920	601550 601550 601850 601850
	Light vehicle workshop	ML7024	0.5	8599720 8599650 8599650 8599720	594310 594310 594380 594380
	Lorim Point Contractor Workshop	ML7024	0.3	8600283 8600283 8600235 8600235	594426 594476 594476 594426
	Temporary Camp in the area North of Weipa	ML7024	0.1	8688010 8688380 8688300 8688730	612220 612560 612700 612350
	Boyd Infrastructure Area	ML7024	N/A[1]	N/A[1]	N/A[1]
	Arraw Dam vehicle workshop (formerly Dam C vehicle workshop)	ML7024	N/A[1]	N/A[1]	N/A[1]
	Norman Creek Infrastructure Area	ML7024	N/A[1]	N/A[1]	N/A[1]
Accommodation	Camp in the area North of Weipa	ML7024	3.6	8688010 8688380 8688300 8688730	612220 612560 612700 612350
	Temporary camps in the area south of the Embley River	ML7024 & ML6024	55	N/A[1]	N/A[1]

Mining Activity / Domain	Mine Feature	Tenure	Maximum Surface Area of Disturbance (ha)	Coordinates (GDA94 MGA z54)	
				Northing	Easting
	Boyd Bay Fly-camp	ML7024		8571458 8571458 8571661 8571661	570155 570076 570155 570076
	Amrun Accommodation Village (formerly Boyd Accommodation Village)	ML7024		8575795 8575795 8575060 8575060	577632 578343 577632 578343
Port / Ship Loading Facilities	Boyd Port	ML7024	10	8571220 8570465 8570410 8571170	566305 567725 567695 566275
Barge / Ferry Terminal	Hey River Terminal	ML6024	0.5	8590700 8590896 8590668 8590620	596760 597108 597101 596800
	Pera Head Temporary Seaborne Access (Barge Landing)	ML7024	0.5	TBD[2] TBD[2] TBD[2] TBD[2]	TBD[2] TBD[2] TBD[2] TBD[2]
	Boyd Point Temporary seaborne access (passenger jetty)	ML7024	TBD[2]	TBD[2] TBD[2]	TBD[2] TBD[2]
Water Treatment	Weipa Water Treatment Plant	ML7024	0.7	8603650 8603650 8603530 8603530	595565 595627 595626 595565
	Lorim Point Water Treatment Plant	ML7024	0.2	8599700 8599640	594448 594442
				8599640 8599700	594402 594406
	Water Treatment Plant for temporary camps in area south of the Embley River	ML7024	N/A[1]	N/A[1]	N/A[1]
	Amrun Mine Infrastructure Area Water Treatment Plant (formerly Boyd Infrastructure Area Water Treatment Plant)	ML7024	N/A[1]	N/A[1]	N/A[1]
	Amrun Accommodation Village Water Treatment Plant	ML7024	N/A[1]	8575795 8575795 8575060 8575060	577632 578343 577632 578343
	Norman Creek Infrastructure Area Water Treatment Plant	ML7024	N/A[1]	N/A[1]	N/A[1]
Transport Corridors	Transport Corridor	ML6024	Entire Mining Lease	N/A	N/A
	Haul Roads / Access Tracks	ML6024 & ML7024	N/A[1]	N/A	N/A
Town Activities	Weipa Township	ML7024	1079 (within the boundary of the township of Weipa)	As per the current boundary of the township of Weipa as approved by regulation	
Pipeline	Under Embley River Pipeline	ML6024 & ML7024	Linear pipeline	TBD[2] TBD[2]	TBD[2] TBD[2]

Mining Activity / Domain	Mine Feature	Tenure	Maximum Surface Area of Disturbance (ha)	Coordinates (GDA94 MGA z54)	
				Northing	Easting

[1] Maximum surface area of disturbance and location included in the total infrastructure area within the mining activity/domain identified as "Extraction Areas", "Processing Activities" or "Accommodation".
[2] To be determined and notified to the administering authority upon completion of final design.

Maintenance of Measures, Plant and Equipment

(A3) The holder of this environmental authority must:

(a) install measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;

(b) maintain such measures, plant and equipment in a proper condition; and

(c) operate such measures, plant and equipment in a proper manner.

(A4) No change, replacement or alteration of any plant or equipment is permitted if the change, replacement or alteration increases, or is likely to increase the risk of environmental harm caused by the mining activities.

Monitoring & Reporting

(A5) Any management or monitoring plans, systems or programs required to be developed and implemented by a condition of this environmental authority must be reviewed for effectiveness in minimising the likelihood of environmental harm each time a Plan of Operations is prepared or amended, or otherwise in accordance with the relevant timeframe as specified in this environmental authority, and amended as promptly as necessary to meet that objective.

(A6) The holder of this environmental authority must record, compile, evaluate and keep for a period of five (5) years all monitoring results, records and documents required by this environmental authority and any complaints received about the mining activities, and make available for inspection all or any of these records upon request by the administering authority.

(A7) All monitoring referred to in this environmental authority shall be undertaken by a suitable competent person using monitoring equipment that is accurately calibrated and maintained in good working order and condition.

(A8) All analyses and tests required to be conducted under this environmental authority must be carried out by a laboratory that has NATA certification for such analyses and tests, except as otherwise authorised by the administering authority.

Financial Assurance

(A9) The environmental authority holder must provide a financial assurance of an amount determined by the administering authority in accordance with the administering authority's Guideline – *Financial assurance under the Environmental Protection Act 1994* and in a form acceptable to the administering authority. The financial assurance must remain in force until the administering authority is satisfied no claim on the assurance will be required.

Risk Management

(A10) The holder of this environmental authority must develop and implement a risk management system for mining activities which conforms to the Australian Standard for Risk Management (AS/NZS 31000:2009) or the latest edition of the Australian Standard for Risk Management:

(a) before 31 August 2012 in areas other than on land south of the Embley River before; and

(b) prior to commencement of significant construction work for land south of the Embley River.

Emergency Response/Contingency

(A11) An emergency response/contingency plan must be developed and implemented to respond to emergency events and incidents. This plan must be provided to the administering authority upon request.

(A12) The emergency response/contingency plan must be developed in accordance with the most recent version of ISO14001 standard and must include but not be limited to the following matters:

(a) response procedures which aim to minimise the extent and duration of environmental harm;

(a) procedures to investigate the cause of an emergency event or incident and remedial actions to be taken to prevent a recurrence;

(c) timely and accurate reporting of the circumstance and nature of an emergency event or incident to the administering authority;

(d) procedures for accessing monitoring points during an emergency event or incident; and

(e) procedures to notify any person who may be affected by the emergency event or incident within twenty-four (24) hours, with the following information to be provided at a minimum:
(i) the location of the emergency event or incident;
(ii) the date and time of the emergency event or incident;
(iii) the estimated quantity and type of any substances (if in available concentrations) involved in the emergency event or incident; and
(iv) the potential impacts to environmental values, livestock and public health caused by the emergency event or incident.

Notification of Emergencies, Incidents and Exceedances

(A13) The holder of this environmental authority must notify the administering authority by telephone, email or facsimile as soon as reasonably possible (but no later than twenty-four (24) hours after becoming aware of:

(a) any emergency event or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this environmental authority; or

(b) any monitoring result that indicates an exceedance of any environmental authority limit.

(A14) The notification must include but not be limited to the following:

(a) the environmental authority number and name of the holder;

(b) the name and telephone number of the designated contact person;

(c) the location of the emergency event, incident or exceedance;

(d) the date and time of the emergency event, incident or exceedance;

(e) the time the holder of this environmental authority became aware of the emergency event, incident or exceedance;

(f) the estimated quantity and type of substances involved in the emergency event, incident or exceedance, if known;

(g) the cause of the emergency event, incident or exceedance if known;

(h) a description of the nature and effects of the emergency event, incident or exceedance including risks to the environment, public health or livestock, if known;

(i) immediate actions taken to prevent or mitigate any further environmental harm caused by the emergency event, incident or exceedance release; and

(j) details of any notification of persons who may be affected by the emergency event, incident or exceedance.

(A15) Within fourteen (14) days or as otherwise agreed following the initial notification of an emergency event, incident or exceedance or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority including the following:

(a) results and interpretation of any samples taken and analysed;

(b) outcomes of actions taken at the time to prevent or minimise unlawful environmental harm; and

(c) proposed actions to prevent a recurrence of the emergency event, incident or exceedance.

Transition to New Standards

(A16) Where a condition requires compliance with a standard published externally to this environmental authority and the standard is amended or changed subsequent to issue, the holder of this environmental authority must, unless otherwise agreed with the administering authority:

(a) comply with the amended or changed standard within two (2) years, unless a different period is specified in the amended standard or relevant legislation; and
(b) until compliance with the amended or changed standard can be achieved, continue to remain in compliance with the standard that was current immediately prior to the relevant amendment or change.

Community

(A17) The holder of this environmental authority must establish, promote and maintain easily accessible lines of communication between residents and land owners to ensure that community impacts are identified and managed.

Regard for Comment

(A18) Where comments are provided by the administering authority with respect to any plans, systems or programs required to be developed by a condition of this environmental authority, the holder of this environmental authority must have due regard for these comments.

Town Activities

(A19) In carrying out the town activities the environmental authority holder must take all reasonable and practicable measures to minimise environmental harm caused by the town activity and otherwise comply with any specific condition of this environmental authority applicable to that activity.

Complaints

(A20) Records must be kept of all environmental complaints received about the mining activities including the following details and must be made available for inspection by the administering authority on request:

(a) name, address and contact number for complainant;
(b) time and date of complaint;
(c) reasons for the complaint;
(d) investigations undertaken;
(e) conclusions formed;
(f) actions taken to resolve complaint;
(g) any abatement measures implemented; and
(h) person responsible for resolving the complaint.

(A21) When requested by the administering authority, the holder of this environmental authority must undertake relevant specified monitoring within a timeframe agreed to by the administering authority to investigate any complaint of environmental harm considered in the opinion of an authorised officer not to be vexatious or frivolous. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures implemented must be provided to the administering authority within fourteen (14) days of completion of the investigation.

Third Party Auditing

(A22) Compliance with the conditions of this environmental authority must be audited by an appropriately qualified third party auditor nominated by the holder of this environmental authority and accepted by the administering authority:

(a) before 31 August 2012 for areas other than land south of the Embley River; and

(b) within twelve (12) months from the commencement of significant construction work for land south of the Embley River; and

(c) then at regular intervals not exceeding once every three (3) years.

A copy of the final audit report must be submitted to the administering authority upon request.

(A23) The holder of this environmental authority must promptly respond to any findings arising from the audit and implement measures or take necessary action to ensure compliance with the conditions of this environmental authority.

Existing Structures

(A24) Structures existing on the date of commencement of this environmental authority that were designed and constructed in accordance with relevant practices applicable to the respective structures at the time of their construction are not required to be upgraded to a different standard after commencement. Such structures must be maintained to ensure their performance in accordance with their respective designs. This condition applies to, but is not intended to limit the following types of structures:

(a) railway infrastructure;

(b) bridges, roads, transport infrastructure;

(c) decommissioned Tailings Storage Facilities;

(d) water supply infrastructure;

(e) landfills other than the active Evans Landing landfill; and

(f) erosion control and bank stabilisation structures.

Note: This condition does not apply to the ecological rehabilitation of mined areas.

Exploration

(A25) Disturbance due to exploration activities in areas not scheduled to be mined must be rehabilitated in accordance with provisions detailed in the administering authority's *Code of Environmental Compliance for Exploration and Mineral Development Projects*.

END OF CONDITIONS FOR SCHEDULE A

SCHEDULE B - AIR

General

(B1) The release of dust, noxious or offensive odour or any other airborne contaminants resulting from the mining activities must not cause environmental harm at any sensitive place or commercial place.

(B2) The holder of this environmental authority must ensure that vehicles (including trains) used for transporting bulk materials from the mining lease, leave the mining lease with appropriate load preparation to minimise the spillage and / or loss of particulate matter and / or windblown dust during transport.

(B3) In the event of a complaint made to the administering authority (which in the opinion of an authorised officer is considered neither frivolous nor vexatious) about airborne contaminants generated in carrying out the authorised activity, dust and particulate matter must not exceed any of the limits identified in Table B1 – Ambient Air Quality Limits when measured at any sensitive or commercial place:

Table B1 – Ambient Air Quality Limits

Contaminant	Limit	Methodology
Particulate matter with an aerodynamic diameter of less than 10 micrometres (PM_{10}) suspended in the atmosphere	50 micrograms per cubic metre, averaged over twenty-four (24) hours	Monitored in accordance with the most recent version of the relevant Australian Standard for measuring 10 micrometres (PM_{10}) suspended Note: Five (5) days of exceedances allowed each year including natural causes
Particulate matter (TSP) suspended in the atmosphere	90 micrograms per cubic metre, averaged over one (1) year	Monitored in accordance with any method for measuring TSP as recommended in the most recent version of the relevant Australian Standard for measuring TSP

(B4) If monitoring indicates the airborne contaminants specified in Condition (B3) have been exceeded, the holder of this environmental authority must compare the results of the impacted site to that of the reference monitoring site. If the level of airborne contaminants at the impacted site does not exceed the reference monitoring site, then no action is to be taken and the contaminants will be regarded as not having been generated in the carrying out of the authorised activity.

(B5) If monitoring indicates the limits in Condition (B3) have been exceeded, the holder of this environmental authority must promptly implement dust abatement measures so that emissions of dust generated by the mining activities cease to exceed the limits in Condition (B3).

Ambient Air Quality Monitoring

(B6) Before 1 June 2012, the holder of this environmental authority must develop and implement an Ambient Air Quality Monitoring Program for monitoring particulate emissions at the locations identified in Table B2 – Location of Particulate Monitoring Stations and identified in Schedule L Plan 4 – Air Quality Monitoring Sites.

Table B2 – Location of Particulate Monitoring Stations

Site	Coordinates (GDA94 MGA z54)		Location
	Northing	Easting	
Compliance			
1	8602161	593928	Nanum
2	8599189	597145	Napranum
3	8604509	596646	Rocky Point
Reference			
4	8603081	616754	Scherger RAAF Base

(B7) Particulate monitoring stations can be put into care and maintenance mode on the receipt of 100 mm of rainfall in one calendar month at the Weipa Meteorological Station or the portable automatic meteorological station described in conditions B20. The Particulate Monitoring Stations must be reinstated by 1 May, or when less than 100 mm of rainfall is recorded in a calendar month, whichever occurs first.

Light

(B8) In the event of a complaint about light emissions from any mining activity that, after investigation is in the opinion of an authorised person causing a nuisance at a sensitive place, the administering authority may request the holder of this environmental authority to take appropriate action to mitigate the nuisance and the holder must take appropriate action (e.g. by screening or directing the light away from the sensitive place) within a time set by the administering authority.

(B9) Lighting management and monitoring must be implemented at Boyd Port and the seaborne access location associated with the temporary barge landing area north of Pera Head to minimise light horizon changes on and over the beach that negatively impact on turtles.

(B10) Low-pressure sodium vapour lamps or other lighting demonstrated to have a low impact on the relevant turtle species, that are shielded and appropriately directed to minimise light spill, must be used at Boyd Port and the seaborne access location associated with the temporary barge landing north of Pera Head to minimise impacts on nesting and hatchling turtles.

(B11) Lights must be positioned away from nesting shorebirds, unless otherwise required for the safe operation of vehicle and plant.

Point Source Releases to Air

(B12) Power station emissions must only be released to the atmosphere from the release points specified in Table B3 – Release Points.

(B13) Except during engine start up, maintenance and engine shut down, the release of contaminants at the locations specified in Table B3 – Release Points must be:

(a) directed vertically upwards with no impedance; and

(b) released in accordance with the minimum velocity, gas temperature and release height identified in Table B3 – Release Points; and

(c) released at a mass emission rate and concentration that does not exceed the limits stated in Table B3 – Release Points.

Table B3 - Release Points

Power Station	Release Point / Monitoring Location	Minimum Release Height (m)	Minimum Exit Gas Temperature (°C)	Minimum Efflux Velocity (m/s)	Contaminant Parameter	Mass Emission Rate (per stack unit)[4,5]	Frequency of Monitoring
Weipa (Lorim Point) Power Station	stacks 1 – 6	10	300	15	Carbon monoxide	1.2 g/s	Annually
					Oxides of nitrogen (expressed as NO_2)	16.7 g/s	
	stacks S1-S3	9	300	15	Carbon monoxide	0.9 g/s	
					Oxides of nitrogen (expressed as NO_2)	2.1 g/s	
Andoom Power Station	stacks 1 – 7	6	300	15	Carbon monoxide	TBD	
					Oxides of nitrogen (expressed as NO_2)	TBD	
Boyd Infrastructure Area Power Station	stack 1 – 22	8.5	300	15	Carbon monoxide	3 g/kw-hr	Annually
					Oxides of nitrogen (expressed as NO_2)	20 g/kw-hr	
					Total particulate matter	0.3 g/kw-hr	
Norman Creek Infrastructure Area Power Station	stack TBD[1]	TBD[1]	TBD[1]	TBD[1,2]	Carbon monoxide	TBD[1]	
					Oxides of nitrogen (expressed as NO_2)	TBD[1]	
					Total particulate matter	TBD[1]	

1. To be determined and notified to the administering authority upon completion of the final design plan for the power station.
2. Average velocity based on four (4) consecutive sampling events.
3. Contaminant limits are to be determined based on the results of the Stack Emission Monitoring Program completed at the Weipa (Lorim Point) and Andoom Power Stations in accordance with Condition (B15).
4. All determinations of point source emissions to air are to be taken from isokinetic sample results.
5. All determinations of point source emissions to air are to be corrected to Dry @ Standard Temperature & Pressure (273K, 101.3KPa).

(B14) The holder of this environmental authority must develop and implement a Stack Emission Monitoring Program (SEMP) to monitor and record the release of contaminants from the power stations and ensure that emissions generated by the power station do not exceed the limits identified in Table B3 – Release Points.

(B15) The SEMP must be developed and implemented by 28 February 2014 for existing power stations and upon commissioning of any new power stations and include but not be limited to the following tests performed and recorded for each sample taken at the release locations identified in Table B3 – Release Points:

(a) monitoring provisions for the release points must comply with the most recent edition of Australian Standard AS4323.1 *Stationary source emissions method 1: Selection of sampling provisions*;

(b) all determinations of contaminant releases to the atmosphere must be made in accordance with methods prescribed in the most recent version of the administering authority's *Air Quality Sampling Manual*. If monitoring requirements for specific contaminants are not described in the Air Quality Sampling Manual, monitoring protocols must be in accordance with a method as approved by New South Wales DEC/EPA, Victorian EPA or United States EPA;

(c) the following tests must be performed for each sample taken at each release point specified in Table B3 - Release points:
(i) gas velocity, volume and mass flow rate;
(ii) temperature and oxygen content; and
(iii) water vapour concentration (for non-continuous sampling).

(d) samples taken must be representative of the contaminants discharged when operating under maximum operating conditions; and

(e) during the sampling period the following additional information must be gathered:
(i) plants throughput rate at the time of sampling;
(ii) fuel type and consumption rate;
(iii) any factors that may influence odour and particulates emissions;
(iv) the odour and particulates treatment system operating, system status and flow rate; and
(v) reference to actual test methods and accuracies.

(B16) When requested by the administering authority, the density of smoke released from an exhaust stack at the Weipa (Lorim Point) and Andoom Power Stations must be monitored using the Ringelmann method to investigate any complaint of environmental nuisance at any sensitive place or commercial place. Smoke emissions are not considered to be environmental harm if monitoring shows the density of smoke from any exhaust stack serving a generator unit at the Weipa (Lorim Point) and Andoom Power Stations does not exceed Ringelmann 1 except for a two (2) minute period immediately after engine start-up, maintenance or engine shut down of the power station unit served by the release point.

(B17) The sulphur content of any fuel burned in the Weipa (Lorim Point) and Andoom Power Station units on the mining lease(s) must not exceed 0.5 percent by weight.

(B18) Any power generator must be designed, operated and maintained in accordance with the relevant Australian Standard.

Land Based Metal Surface Coating

(B19) The holder of this environmental authority must develop and implement an abrasive blasting and spray painting risk assessment and control plan which considers the following:

(a) coating selection with due regard to types and levels of contaminants within coatings to be removed/ applied;

(b) quantity of coating to be removed/ applied;

(c) type of abrasive blasting media to be used;

(d) sensitivity of receiving environment;

(e) the use of suitable shrouds, barriers, screen or other means of containment in a manner that will localise the collection of spent abrasive material and/or over spray;

(f) the collection and storage of wastes and resultant dusts and other materials from all surfaces as soon as practicable after completion of abrasive blasting and spray painting;

(g) the containment and treatment or disposal of any waters, including stormwater, that may become contaminated as a result of undertaking the activity;

(h) during the period of blasting and/or spray painting, maintenance of daily records that will identify the job particulars, dates and times of blasting and/or spray painting, description of wind conditions and name of the person(s) conducting the activity. Such daily reports are to be verified as correct by the signature of the person responsible for supervision of the activity; and

(i) ensuring that structures requiring abrasive blasting and metal surface coating are maintained regularly.

Meteorological Monitoring

(B20) Under circumstances where relevant wind, temperature and rainfall data cannot be provided to the holder of this environmental authority from the Weipa Meteorological Station operated by the Bureau of Meteorology, the holder must promptly deploy a portable automatic meteorological station to continuously measure and record wind speed and direction, temperature and rainfall data when and where these data measurements are required.

(B21) The portable automatic meteorological station referred to in Condition (B20) must be installed in accordance with the latest edition of the Bureau of Meteorology - Observation Specification No.2013.1 - *Guidelines for the siting and exposure of meteorological instruments and observing facilities*.

(B22) The holder of this environmental authority must record, compile, evaluate and keep all monitoring records obtained from the portable automatic meteorological station for a period of 5 years.

END OF CONDITIONS FOR SCHEDULE B

SCHEDULE C – LAND & REHABILITATION

General

(C1) Contaminants that will or may cause environmental harm must not be directly or indirectly released to land except as permitted under this environmental authority.

(C2) Any spillage of wastes, contaminants or other materials must be promptly cleaned up. Such spillages must be cleaned up using methods that minimise the release of wastes, contaminants or materials to any stormwater drainage system, roadside gutter or waters.

Disturbance to Land

(C3) When carrying out mining activities the holder of this environmental authority must:

(a) avoid, minimise or mitigate (in order of preference) any impacts on areas of sensitive vegetation or other areas of ecological value;

(b) minimise the risk of injury, harm, or entrapment to wildlife and stock;

(c) minimise disturbance to land that may otherwise result in land degradation;

(d) ensure that for land that is to be significantly disturbed by mining activities the topsoil layer is removed and handled in a manner that will minimise degradation of its biological, chemical and physical properties and is used for rehabilitation purposes (in accordance with Condition C21 & C22);

(e) prior to carrying out any disturbance activities, make all relevant staff, contractors or agents carrying out those activities, aware of the location of any Category A, B or C Environmentally Sensitive Area (ESA) and the relevant requirements of this environmental authority;

(f) if significant disturbance to land is unavoidable, clear vegetation in a way which minimises fragmentation; and

(g) manage cleared vegetation so that it is stockpiled in a manner that facilitates salvage, respreading or burning and does not impede vehicle, stock or wildlife movements.

Note: This environmental authority does not authorise the taking of protected animals or the tampering with an animal breeding place that is being used by a protected animal to incubate or rear the animal's offspring.

(C4) Subject to Condition (F8), the holder of this environmental authority may burn vegetation cleared in the course of carrying out extraction activities provided the activity does not cause environmental harm at any sensitive place or commercial place.

(C5) The holder of this environmental authority must ensure that mining activities are not conducted:

(a) in or within 200 metres of any listed Category A, B or C ESA;

(b) within 50m of any high bank of a watercourse with stream order 1 or 2;

(c) within 100m of any high bank of a watercourse with stream order 3 or 4;

(d) within 200m of any high bank of a watercourse with stream order 5 and above;

(e) within 100m of any natural wetland; and

(f) within 200m of any natural significant wetland.

(g) within 200 metres of any aquatic habitat where a potential new species of aquatic fauna in the areas south of Embley River has been identified unless otherwise expressly permitted by the administering authority.

Note: Activities which are ancillary to extraction activities such as exploration, the Port, stockpiles, barge and ferry terminals, haul and access roads, conveyors, bridges, loading ramps, pumps and pipelines and water management infrastructure may encroach upon buffer areas (all reasonable measures will be undertaken to minimise such disturbances) and these will be detailed in the Plan of Operations.

Land Use Management Plan

(C6) The holder of this environmental authority must develop, implement and submit to the administering authority a Land Use Management Plan (LUMP) before 31 August 2012 for areas other than land south of the Embley River and for land south of the Embley River, prior to significant construction work. The LUMP must include:

(a) plans and procedures for managing vegetation including buffer systems, pre-clearing surveys for any Category A, B or C ESA's and the presence of species classed as endangered, vulnerable, or near threatened under the *Nature Conservation Act 1992*;

(b) plans and procedures for the preparation and burning of vegetation cleared in the course of carrying out mining activities;

(c) plans and procedures for obtaining base line soils information covering the identification of soil units within areas to be disturbed by mining activities as nominated in the Plan of Operations at a scale of 1:100,000, in accordance with the "*Guidelines for Surveying Soil and Land Resources, 2nd Edition*" (McKenzie *et al*. 2008) or "*Australian Soil and Land Survey Handbook, 3rd Edition*" (National Committee on Soil and Terrain 2009) or "*The Australian Soil Classification*" (Isbell 2002) or similar recent guidelines;

(d) plans and procedures for managing acid sulphate soils so that when clearing in areas with acid sulphate soils (soils or potential acid sulphate soils), the holder of this environmental authority must develop and implement an acid sulphate soil environmental management plan prepared in accordance with the "*State Planning Policy 2/02 Guideline Planning and Managing Development Involving Acid Sulphate Soils*" and the administering authority's "*Queensland Acid Sulphate Soil Technical Manual*" (Version 2.2 September 2004) or more recent editions or supplements to these documents when these become available. The holder of this environmental authority must treat and manage acid sulphate soils in accordance with the latest edition of the administering authority's Instructions for the treatment and management of acid sulphate soils.

(e) plans and procedures for the carrying out of mining activities to prevent or minimise harm or the potential risk of causing harm to native fauna. The fauna management procedures must include training and awareness of staff and contractors, or access to appropriately qualified contractors trained in fauna handling, to ensure that any planned fauna handling is undertaken by an appropriately qualified person;

(f) for land south of the Embley River, a survey plan to determine the distribution of the potential new species of freshwater crab identified in Winda Winda Creek and the potential new species of stygofauna identified in the Ward River. In preparing the survey plan, the holder of this environmental authority must liaise with the Queensland Museum and the administering authority and have regard to comments made by those agencies.

Note: The holder of this environmental authority must make a recommendation to the administering authority on any proposed change to the setback distance identified in Condition (C5) (g) within two (2) months of the potential new species of freshwater crab identified in Winda Winda Creek and the potential new species of stygofauna identified in the Ward River being listed as endangered, threatened or near threatened under the Nature Conservation (Wildlife) Regulation 2006.

(g) plans and procedures for an effective pest management program that includes but is not limited to the following:

(i) identification of pest species and infestation areas;
(ii) prevents and/or minimises the introduction and/or spread of pests; and
(iii) control and management of pest outbreaks as a result of mining activities.

(h) where constructed access road crossings of Winda Winda Creek and the southern branch of Norman Creek require culverts, the design will ensure habitat continuity along the riparian corridor is maintained.

(C7) Prior to conducting mining activities that involve significant disturbance to land, an assessment must be undertaken in accordance with the LUMP to determine the type and ecological value of any vegetation in such areas where the activity is proposed to take place.

(C8) The assessment required by Condition (C7) must be undertaken by an appropriately qualified person and include the carrying out of field validation surveys, observations and mapping of any Category A, B or C ESA's and the presence of species classed as endangered, vulnerable or near threatened under the *Nature Conservation Act 1992*, in accordance with the LUMP.

Terrestrial Biodiversity Offset Plan

(C9) A final Terrestrial Biodiversity Offset Plan for the land south of the Embley River generally consistent with the requirements of the Queensland Biodiversity Offset Policy (BOP) and Queensland Government Environmental Offsets Policy (QGEOP) must be submitted to the administering authority for approval within twelve (12) months of the final investment decision for the South of Embley project.

(C10) The final Terrestrial Biodiversity Offset Plan for the land south of the Embley River must include the following elements and be consistent with the offset proposal submitted to the Coordinator-General on 5 April 2012.

(a) 2:1 ratio of riparian habitat comprising one or more of RE 3.3.5, RE 3.3.9, RE 3.3.21 (355.2 hectares), of which 110.6 hectares must be RE3.3.9;

(b) translocate and/or propagate 3.5 plants of Cooktown Orchid and Chocolate Tea Tree Orchid as well as any other listed flora species under the *Nature Conservation Act 1992* for each plant found within the footprint of disturbance and establish these within the offset area(s);

(c) the offset area(s) may be located on ML7024 subject to meeting ecological equivalence measures and agreement of Traditional Owners and relevant Government agencies; and

(d) the offset area(s) are to be managed *in accordance with the approved Terrestrial Biodiversity Offset Plan* to protect and enhance environmental values including ecologically appropriate fire protection and feral animal controls.

(C11) This condition continues to apply after the environmental authority has ended or ceased to have effect. The holder of this environmental authority must implement the approved Terrestrial Biodiversity Offset Plan until evidence is submitted in accordance with condition (C11-B) that the requirements of the approved Terrestrial Biodiversity Offset Plan have been achieved.

(C11-A) Any use of the offset area that is inconsistent with the requirements of condition (C11), relating to how the environmental offset is required to be managed, is a significant residual impact on the prescribed environmental matter.

(C11-B) The holder of this environmental authority must submit evidence to the administering authority demonstrating that the requirements of the approved Terrestrial Biodiversity Offset Plan in condition (C11) have been achieved, at least two (2) years prior to any surrender of the environmental authority.

(C11-C) The holder of this environmental authority must investigate an appropriate legal mechanism to secure the offset detailed in the approved Terrestrial Biodiversity Offset Plan:

a) every ten (10) years from 1 July 2020; or
b) if the holder of this environmental authority becomes aware of an appropriate legal mechanism at an earlier time, the earlier time.

(C11-D) The holder of this environmental authority must submit evidence to the administering authority demonstrating that an investigation in accordance with condition (C11-C) has been undertaken.

(C11-E) In the event that the administering authority and the holder of this environmental authority identify an agreed legal mechanism to secure the offset in accordance with condition (C11-C), the holder of this environmental authority must secure the offset under the identified agreed legal mechanism upon the granting of that legal mechanism.

Species Management Plan

(C12) The holder of this environmental authority must develop, implement and submit to the administering authority for approval a Species Management Plan for fauna species prescribed as endangered, vulnerable or near threatened under the *Nature Conservation Act 1992* and identified in the EIS as species where impacts may be likely or possible for land south of the Embley River, prior to any clearing of vegetation associated with significant construction work.

(C13) The Species Management Plan must satisfy the requirements of the *Nature Conservation (Wildlife Management) Regulation 2006* relating to tampering with animal breeding places.

(C14) The Species Management Plan must at a minimum address the Red Goshawk, Bare-rumped Sheathtail Bat, Palm Cockatoo, Estuarine Crocodile, Rufous Owl, Square-tailed Kite and Masked Owl.

(C15) The Species Management Plan must include:

(a) protection of riparian, wetland, estuarine, vine forest and coastal vegetation on sand from mining by an environmental buffer system. The buffer system must at a minimum comply with condition (C5);

(b) surveys must be carried out to define the boundaries of mapped sensitive vegetation types in the field prior to disturbance;

(c) surveys must be conducted for red goshawk, masked owl and squaretailed kite nests prior to undertaking significant disturbance to land located within 1km of permanent water supporting riparian gallery forest or paperbark wetland, seasonally inundated coastal wetlands, seasonal water courses supporting riparian gallery forest, or an estuary. If any active red goshawk, masked owl or square-tailed kite nests are found within mining areas, a 200m buffer around the nesting tree must not be mined until the end of the breeding season (being until fledglings no longer use the nest for habitat);

(d) relocation of mature crocodiles, if required due to safety concerns, in consultation with the administering authority; and

(e) for the Bare-rumped Sheathtail bat:

(i) undertake an additional targeted bat survey, using broad spectrum acoustic monitoring, prior to the commencement of significant construction works. The survey must relate to areas planned for initial infrastructure required prior to production;

(ii) support a research program being conducted by the Australian Bat Society which will aim to improve the quality of the reference call library for microbats of the Cape York region;

(iii) utilise the reference calls acquired by the research program to analyse the targeted survey results for the bare-rumped sheathtail bat and further define habitat preferences for the species. Should the species be identified through analysis of survey results, then in liaison with the administering authority, adaptive management measures to avoid and mitigate impacts from the project must be implemented based on the habitats within which it is found.

Note: The Species Management Plan may exist in isolation to or form part of the Land Use Management Plan required under Condition (C6).

Foreshore Access Management Plan

(C16) Prior to any clearing of vegetation associated with significant construction work, the holder of this environmental authority must prepare and implement a Foreshore Access Management Plan for the foreshore area between Ina Creek and Winda Winda Creek that restricts access to foreshore areas to permitted persons only in order to protect environmental and heritage values.

Note: The Foreshore Access Management Plan may exist in isolation to or form part of the Communities Heritage and Environment Plan or the Land Use Management Plan required in accordance with Condition (C6).

Rehabilitation Objectives

(C17) Land disturbed by mining activities as identified in Schedule L Plan 2 – East Weipa and Andoom Operational Areas and Plan 3 – South of Embley Infrastructure and Conceptual Mine Plan, must be rehabilitated in accordance with Table C1 – Rehabilitation Requirements and the objectives of the Rehabilitation Management Plan required under Condition (C23) and other requirements set out in this environmental authority.

(C18) Areas that are available for rehabilitation must be identified in the current Plan of Operations.

(C19) Rehabilitation must commence progressively as areas become available in accordance with the Plan of Operations.

(C20) Rehabilitation can be considered successful when:

(a) the site can be managed for its designated land-use (e.g. similar to that of surrounding undisturbed areas);
(b) no greater management input than for other land in the area being used for a similar purpose is required and there is evidence that the rehabilitation has been successful;
(c) the rehabilitation is carried out in accordance with the goals, objectives, indicators and completion criteria as specified in Table C1 – Rehabilitation Requirements; and
(d) written agreement is obtained from the landowner/holder and administering authority.

Table C1 - Rehabilitation Requirements

Mine Domain	Mine Feature Name	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
Land north of the Embley River					
TBD[1]	TBD[1]	All land subject to mining activities must be rehabilitated to meet the requirements of the administering authority's *Guideline - Rehabilitation Requirements for Mining Projects* and will be defined in the Rehabilitation Management Plan	TBD[1]	TBD[1]	TBD[1]
Land south of the Embley River					
TBD[1]	TBD[1]	All land subject to mining activities must be rehabilitated to meet the requirements of the administering authority's *Guideline - Rehabilitation Requirements for Mining Projects* and will be defined in the Rehabilitation Management Plan	TBD[1]	TBD[1]	TBD[1]

[1] Post mine land use, rehabilitation indicators and completion criteria are to be nominated in accordance with Condition C23

[2] Post mine land use, rehabilitation indicators and completion criteria are to be nominated in accordance with Condition C24

Topsoil

(C21) Topsoil and subsoils must be stripped separately and replaced directly in an area awaiting rehabilitation or else be stockpiled and subsequently used in rehabilitation.

(C22) Topsoil must be managed in accordance with the Rehabilitation Management Plan and stockpiled in a manner that ensures stability. Measures must include:

(a) vegetating topsoil stockpiled during the months 1 November to 1 May;

(b) optimising the height and footprint of stockpiles; and

(c) re-using stockpiles as soon as possible.

Rehabilitation Management Plan

(C23) The holder of this environmental authority must develop, implement and submit to the administering authority a Rehabilitation Management Plan before 31 August 2013 for areas other than land south of the Embley River and within three (3) years from commencement of bauxite extraction for land south of the Embley River that must include:

(a) schematic representation of final land form inclusive of drainage features;
(b) slope and cover designs;
(c) drainage design;
(d) erosion controls proposed on reformed land;
(e) revegetation methods inclusive of plant species selection, re-profiling, soil handling (including stockpiling), soil ameliorants/amendments, surface preparation and method of propagation;
(f) materials balance including available topsoil and low permeability capping material;
(g) geotechnical, geochemical and hydrological studies;
(h) chemical, physical and biological properties of soil and water;
(i) agreed post mining land and/or infrastructure use with the landowner/holder and the administering authority;
(j) rehabilitation goal, rehabilitation objective, indicators and measurable completion criteria for each agreed post mining land use within each domain that enables determination of rehabilitation success;
(k) description of experimental design for monitoring of reference and rehabilitated areas inclusive of statistical design;
(l) a rehabilitation monitoring program based on a statistically sound, mutually agreed sampling design;
(m) research program and associated milestones;
(n) programs for maintenance of rehabilitation as required to achieve the nominated rehabilitation objective; and
(o) on-site revegetation trials for the areas south of the Embley River which test:
    i. selected species,
    ii. seeding rates,
    iii. establishment methodologies, and
    iv. the feasibility of the use of felled timber for fauna refuge in rehabilitation areas is feasible.

Note: trials carried out north of the Embley may be utilised for the area south of the Embley River, where relevant.

(C24) An interim Rehabilitation Management Plan for land south of the Embley River must be prepared and submitted to the administering authority for consideration prior to commencement of significant construction work for the South of Embley project and must include rehabilitation goals, rehabilitation objectives, indicators and measurable completion criteria for each agreed post mining land use within each domain that enables determination of rehabilitation success. The plan must also address, as far as practicable, those other matters listed in Condition (C23).

(C25) The holder of this environmental authority must review and update the interim Rehabilitation Management Plan yearly thereafter until the final Rehabilitation Management Plan required in accordance with Condition (C23) and is developed, implemented and submitted to the administering authority.

Infrastructure

(C26) All infrastructure, mining equipment and plant erected and/or used for the mining activities must be removed from the licensed place prior to surrender except where agreed in writing by the administering authority and the landowner.

Post Closure Management Plan

(C27) A Post Closure Management Plan must be prepared eighteen (18) months prior to final ore processing on site and implemented for a nominal period of:

(a) at least thirty (30) years following final ore processing onsite; or,

(b) a shorter period if the site is proven to be geo-technically and geo-chemically stable and it can be demonstrated to the satisfaction of the administering authority that no release of contaminants from the site will result in environmental harm.

(C28) The Post Closure Management Plan must include, where necessary, the following elements:

(a) operation and maintenance of:
  (i) wastewater collection, treatment and reticulation systems;
  (ii) the groundwater monitoring network;
  (iii) final cover systems; and
  (iv) vegetative cover.
(b) monitoring of:
  (i) surface water quality;
  (ii) groundwater quality;
  (iii) erosion rates;
  (iv) the integrity and effectiveness of final cover systems; and
  (v) the health and resilience of vegetative cover.

Storage & Handling of Hazardous Materials

(C29) Before 31 August 2012, conduct an assessment of all explosives, hazardous chemicals, corrosive substances, toxic substances, gases, dangerous goods, flammable and combustible liquids stored and handled on areas other than land south of the Embley River to determine whether these substances are stored and handled in accordance with the relevant Australian Standard. Where this assessment finds an inconsistency between the current Australian Standard and the manner in which the substances are stored and handled, the environmental authority holder must implement actions to comply with the relevant Australian Standard before 27 February 2015.

(C30) Subject to Condition (C29) all explosives, hazardous chemicals, corrosive substances, toxic substances, gases, dangerous goods, flammable and combustible liquids must be stored and handled in accordance with the relevant Australian Standard where such is available. Where no relevant Australian Standard exists, store such materials within an effective on-site containment system in accordance with Condition (C31).

(C31) Notwithstanding the requirements of any Australian Standard, any hazardous materials stored on the licensed place 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) all transportable chemical containers must be stored within a bund, where the capacity of the bund is sufficient to contain 125% of the largest storage container.

(C32) All containment systems for chemicals and flammable or combustible liquids must be designed to minimise rainfall collection within the system.

(C33) Minimise the potential for contamination of land and waters by diverting stormwater around contaminated areas and facilities used for the storage of explosives, hazardous chemicals, corrosive substances, toxic substances, gases, dangerous goods, flammable and combustible liquids.

(C34) Spillage of any contaminant must be contained and land remediated to prevent environmental harm.

Release of Contaminants to Land

(C35) *The r*elease of contaminants to land from the licensed place must only occur at the release points specified in Schedu – Release Points.

Table C2 – Release Points

Release Point		Description of Releases	Description of Receiving Environment	Coordinates (GDA94 MGA z54)	
				Easting	Northing
Oil Water Separators – Andoom					
HEQ	Wash Pad	Treated water overflow	Bushland	590164	8613432
	Truck Body Wash		Bushland	590200	8613968
	Workshop		Bushland	590164	8613432
Rake Mover RM01			Ground adjacent to CPS unit	590990	8614124
Rake Mover RM02			Ground adjacent to CPS unit	590890	8614133
Service Bay (refuel pad)			Bushland	590200	8613984
Service Bay			Bushland	590470	8613910
Workshop (Q-Birt)			Bushland	590475	8613871
Power Station Tank Farm			Bushland	590972	8614097
Fuel Storage Area			Bushland	590475	8613825
Power Station			Bushland	590957	8614200
Oil Water Separators – Lorim Point					
Railway Workshop (loco refuel area)		Treated water overflow	Bushland	593724	8600615
Oil Water Separators – Lorim Point					
Rail Dump Station RM01		Treated water overflow	Ground adjacent to CPS unit	594659	8600537
Rail Dump Station RM02			Ground adjacent to CPS unit	594691	8600545
Apron Feeder 6&7			Bushland	594745	8600517
Truck Dump Station			Low lying sump area	595025	8600160
Tank 11 & 12			Bushland	594890	8599230
Waste Oil Farm			Bushland	594879	8599360
Greaser Shed			Bushland	594735	8599858
Workshop (Q Birt)			Ground adjacent to CPS unit	594444	8600280
Civil Workshop			Bushland	594266	8600208
Oil Water Separators – East Weipa					
HEQ	Wash Pad	Treated water overflow	Bushland	601569	8599812
	Truck Body Wash		Bushland	601550	8599908

Release Point	Description of Releases	Description of Receiving Environment	Coordinates (GDA94 MGA z54)	
			Easting	Northing
Workshop		Bushland	601569	8599812
Fuel Storage Area		Bushland	601775	8599774
Landfill Washdown Pad		Ground Adjacent to CPS Unit	590960	8600243
Airport Fuel Bund		Ground Adjacent to CPS Unit	600489	8597809
Oil Water Separators – General				
Regen Fuel Tank	Treated water overflow	Bushland	595525	8602950
Landfill Washdown Pad		Ground adjacent to CPS Unit	590960	8600243
Airport Fuel Bund		Ground adjacent to CPS Unit	600489	8597809
Bioremediation Area - Andoom				
Bioremediation Area	Stormwater overflow	Bushland	590164	8613432
Bioremediation Area – East Weipa				
Bioremediation Area	Stormwater overflow	Bushland	595405	8599500

[1] To be determined and notified to the administering authority upon final design.

Contaminated Land

(C36) Prior to making an application for Surrender or approval for Progressive Rehabilitation the holder of this environmental authority must undertake a contaminated land assessment / investigation of the relevant areas of the licensed place in accordance with the administering authority's *Guideline: Contaminated Land Professionals.*

Contaminated Site Register

(C37) For the area south of the Embley River, the environmental authority holder must develop and maintain a contaminated site register.

Bio-Remediation Areas

(C38) Soil and absorbent materials potentially contaminated with hydrocarbons must be treated on site in a designated bioremediation area. Treated material will not be used for any purpose unless contamination thresholds defined in Table C3 - TRH Thresholds in Treated Soils are achieved.

Table C3 - TRH Thresholds in Treated Soils

Recoverable Hydrocarbon Fraction	Maximum[1]
C6-C9	100 mg/kg
C10-14	100 mg/kg
C15 and greater	1000 mg/kg

Bulk Materials Handling and Management

(C39) Bulk storage and handling of materials for land south of the Embley River must be carried out in a manner which minimises the release of dust and particulate matter, prevents or minimises the contamination of land and stormwater.

(C40) The holder of the environmental authority must develop and implement an operating procedure for land south of the Embley River where bulk materials are handled, which must include, but not be limited to:

(a) the completion of periodic inspections of the mining lease where mining activities are carried out including all structures, plant, equipment and trafficked surfaces to identify and remove or stabilise exposed bulk materials that may be mobilised by wind, water or equipment movement and have the potential to impact sensitive receptors;

(b) an ongoing cleaning and maintenance schedule to minimise any potential release of bulk materials and to ensure there is no accumulation of bulk materials over time in areas where it may be mobilised and have the potential to impact sensitive receptors;

(c) placement of any removed materials in a designated storage area; and

(d) periodic review of the management and operation of bulk materials storage and handling activities including identification of options for continuous improvement.

END OF CONDITIONS FOR SCHEDULE C

SCHEDULE D – REGULATED DAMS (including structures containing mineral waste)

General

(D1) The consequence category of all dams must be assessed by a suitably qualified and experienced person at least once every two (2) years, based on documented evidence sufficient to define or confirm the current nature and extent of environmental consequences for potential failure of that dam.

(D2) The holder of this environmental authority must not commence construction of any regulated dam (i.e. dams determined to be in the significant or high consequence category) unless the location, hydraulic performance, size and purpose of that dam are specifically referenced in accordance with this environmental authority in the form of tabulated details as identified in Conditions (D4), (D5) & (D21).

(D3) Tailings must only be stored at the locations and within the parameters described in Table D1 – Location of Regulated Dams and Table D2 – Size and Purpose of Regulated Dams. This condition does not exclude the storage of water or tailings that otherwise comply with other applicable conditions of this environmental authority.

Location of Regulated Dams

(D4) The construction and operation of regulated dams listed in Table D1 - Location of Regulated Dams, must be located on the mining lease(s) within the polygonal area defined by the co-ordinates listed in Table D1 – Location of Regulated Dams.

Table D1 - Location of Regulated Dams

Name of Regulated Dams	Coordinates (GDA94 MGA z54)	
	Easting	Northing
East Weipa and Andoom		
East Weipa Tailings Storage Facility (EW)	593810	8600663
	596535	8600557
	596691	8602613
	594045	8602229
East Weipa 1 Tailings Storage Facility (EW1)	595866	8600139
	595760	8599265
	596343	8599278
	596605	8600093
East Weipa 2 Tailings Storage Facility (EW2)	596608	8600096
	597208	8600037
	597049	8598967
	596274	8599063
Emergency Dam	595254	8600199
	595860	8600143
	595750	8599291
	594969	8599725
West Weipa 2 (WW2)	593127	8601590
	591786	8602090
	590547	8600841
	591746	8600348
G2 Dam	592094	8600416
	591318	8600564
	591235	8600048
	591735	8599803
G & X Dam	592356	8600987

Name of Regulated Dams	Coordinates (GDA94 MGA z54)	
	Easting	Northing
	592717	8600596
	592150	8600643
	592813	8601196
Andoom Tailings Storage Facility	593576	8616217
	592791	8614046
	590173	8614851
	590431	8617165
South of Embley		
Torro Tailings Storage Facility	567195	8569720
	569705	8569720
	567195	8565185
	569705	8565185
Norman Creek Tailings Storage Facility	TBD[1]	TBD[1]
	TBD[1]	TBD[1]
	TBD[1]	TBD[1]
	TBD[1]	TBD[1]

[1] To be determined and notified to the administering authority upon completion of final design in accordance with Condition (D6).

(D5) The construction and operation of regulated dams must comply with Table D2 - Size and Purpose of Regulated Dams.

Table D2 - Size and Purpose of Regulated Dams

Regulated Dam	Consequence Category (Dam break unless otherwise noted)	Maximum Surface Area (Ha)	Maximum Volume (Mm^3)	Maximum RL[1] (m)	Purpose
East Weipa and Andoom					
East Weipa Tailings Storage Facility (EW)	High	380	104	40	Storage of tailings
East Weipa 1 Tailings Storage Facility (EW1)	Low	50	Non-operational		
East Weipa 2 Tailings Storage Facility (EW2)	Low	65	Non-operational		
Emergency Dam	Significant	40	8	40	
West Weipa 2 (WW2)	Significant	159	Non-operational		
G2 Dam	Very low	40	Non-operational		
G & X Dam	Very low	20	Non-operational		
Andoom Tailings Storage Facility	High	460	116	40	
South of Embley					
Torro Tailings Storage Facility	Low (Failure to High	1100	240	55	Storage of tailings

Regulated Dam	Consequence Category (Dam break unless otherwise noted)	Maximum Surface Area (Ha)	Maximum Volume (Mm^3)	Maximum RL[1] (m)	Purpose
	contain – seepage)				
Norman Creek Tailings Storage Facility	Significant	1100	260	80	

[1] RL represents a height above the Australian Height Datum (A.H.D.).

Regulated Dams - Certification and Operation

(D6) Every regulated dam must be constructed in accordance with a certified design plan that has been submitted to the administering authority and developed so that the resulting dam will deliver the performance identified in the submitted design plan and is compliant with this environmental authority.

(D7) The holder of this environmental authority must not commence construction of a regulated dam unless the holder has submitted to the administering authority two (2) electronic copies (including one (1) locked and one (1) working copy) of a design plan together with the certification of a suitably qualified and experienced person that the design of the regulated dam will deliver the performance stated in that submitted design plan and that dam is compliant with this environmental authority.

(D8) A containment used for the storage of tailings from the processing of bauxite must be designed and operated to minimise impact on the environment, including any potential impact on people and the community.

(D9) Where the hazard associated with a regulated dam involves a population at risk , within the meaning of the Guidelines on Acceptable Flood Capacity for Dams December 2019 or its successor pursuant to the *Water Supply (Safety and Reliability) Act 2008* (that Act), the holder must demonstrate to the satisfaction of the administering authority that adequate design, operational and emergency procedures have been put in place consistent with the requirements for that population at risk under that Act.

(D10) When construction or modification of any regulated dam is complete and prior to commencing operation of that dam, the holder must submit to the administering authority two (2) electronic copies (including one (1) locked and one (1) working copy) of 'as constructed' drawings, together with the certification of a suitably qualified and experienced person that the dam 'as constructed' will deliver the performance stated in the submitted design plan and that the dam is compliant with this environmental authority.

(D11) An operational plan must be kept current for each regulated dam, and cover all matters relevant to its operation and maintenance so as to be consistent with conditions in this environmental authority.

(D12) Where an operational plan covers decommissioning and rehabilitation, those operations are to be consistent with the design plan for the regulated dam and the rehabilitation requirements of this environmental authority.

(D13) Any operational plans and certified design plans for regulated dams on the licensed place must be consistent with the Erosion and Sediment Control Plan required in accordance with Condition (H25) & (H26).

Inspection of Regulated Dams

(D14) A suitably qualified and experienced person must inspect all regulated dams annually before 1 November each year and at any time when abnormal or otherwise unsatisfactory conditions are observed.

(D15) At each annual inspection, the condition and adequacy of each regulated dam must be assessed for dam safety and in terms of the necessary structural, geotechnical and hydraulic performance criteria.

(D16) At each annual inspection if a mandatory reporting level is required it must be determined and marked on each regulated dam.

(D17) A final assessment of the adequacy of available storage in each regulated dam must be based on a dam level observed within the month of October each year and result in an estimate of the level in that dam as at 1 November each year.

(D18) For each annual inspection, two (2) electronic copies (including one (1) locked and one (1) working copy) of a final report on the condition and adequacy of each regulated dam, certified by the suitably qualified and experienced person and including any recommended actions to be taken to ensure the integrity of each regulated dam, must be provided to the administering authority by 1 December each year.

(D19) The holder of this environmental authority must, upon receipt of the final annual inspection report, consider the report and its recommendations and within one month of receipt of the annual inspection report, formulate actions to ensure that each regulated dam safely performs to its intended functions. Taking into account the weather conditions at the time, the holder of this environmental authority must promptly implement the formulated actions where practicable.

(D20) All containment embankments within all regulated dams must be monitored for signs of embankment deterioration in accordance with the monitoring requirements of the design plan.

Hydraulic Performance Criteria

(D21) Regulated dams constructed on the mining lease(s) must comply with the hydraulic performance criteria shown in Table D3 - Hydraulic Performance Criteria for Regulated Dams.

Table D3 - Hydraulic Performance Criteria for Regulated Dams

Name of Regulated Dam	Design Storage Allowance (Dams other than levees) AEP	Spillway Capacity or Diversion Capacity (Levees) AEP	Mandatory Reporting Level[1] (Dams other than levees) AEP[2]
East Weipa and Andoom			
East Weipa Tailings Storage Facility	1 in 10 AEP, 2 month wet season plus other net inputs for the 2 month wet season, to be available on 1st November each year	PMF[3]	1 in 100 AEP, 72 hour duration rainfall event plus wave allowance
Emergency Dam	1 in 10 AEP, 2 month wet season plus other net inputs for the 2 month wet season, to be available on 1st November each year	1 in 100 AEP	1 in 100 AEP, 72 hour duration rainfall event plus wave allowance
West Weipa 2 (WW2)	N/A[4]	1 in 100 AEP	N/A[4]
G2 Dam	Non-operational	Non-operational	Non-operational
G & X Dam	Non-operational	Non-operational	Non-operational
Andoom Tailings Storage Facility	1 in 10 AEP, 2 month wet season plus other net inputs for the 2 month wet season, to be available on 1st November each year	1 in 1000 AEP	1 in 100 AEP, 72 hour duration rainfall event plus wave allowance

Name of Regulated Dam	Design Storage Allowance (Dams other than levees) AEP	Spillway Capacity or Diversion Capacity (Levees) AEP	Mandatory Reporting Level[1] (Dams other than levees) AEP[2]
South of Embley			
Torro Tailings Storage Facility	1 in 20 AEP, 2 month wet season plus other net inputs for the 2 month wet season, to be available on 1st November each year	1 in 1000 AEP	1 in 10 AEP, 72 hour duration rainfall event plus wave allowance
Norman Creek Tailings Storage Facility	1 in 20 AEP, 2 month wet season plus other net inputs for the 2 month wet season, to be available on 1st November each year	1 in 1000 AEP	1 in 10 AEP, 72 hour duration rainfall event plus wave allowance

[1] Refers to the level below the spillway crest, required to contain both the AEP (design risk) 72hr storm and the AEP (design risk) wave allowance.
[2] AEP means the Annual Exceedance Probability, which is the probability that at least one event in excess of a particular magnitude will occur in any given year.
[3] PMF refers to the Probable Maximum Flood.
[4] Not applicable as Dam is low consequence for overtopping.

(D22) The spillway for any regulated dam constructed within the operational land must be designed and maintained to withstand the peak flow from the critical design storm in Table D3 - Hydraulic Performance Criteria for Regulated Dams.

(D23) The holder of this environmental authority must notify the administering authority as soon as possible, but within twenty-four (24) hours, of the level in any regulated dam reaching the mandatory reporting level in Table D3 - Hydraulic Performance Criteria for Regulated Dams; and must promptly act to prevent or minimise the risk of environmental harm.

East Weipa Tailings Facility

(D24) Tailings must not be placed against the walls of Cell 2A until such time as either:

(a) the tailings storage capacity of Cell 2B has been filled to the authorised RL25 or,

(b) the placement procedure for tailings in Cell 2B has demonstrated to the satisfaction of the administrating authority that the tailings placed on beaches are non-flowable under all possible scenarios.

(D25) At least forty-eight (48) hours prior to the commencement of earthworks on Cell 2A & Cell 2B of the East Weipa Tailings Storage Facility, the holder of this environmental authority must complete a program of public notification for the Nanum community providing information on the works to be completed. Details must include but should not be limited to the following:

(a) the nature of the works to be completed;

(b) the date works are expected to begin and the timeframe for completion;

(c) the expected hours of operation of plant and machinery;

(d) where the works will and are likely to be conducted;

(e) the measures in place to mitigate impacts on the Nanum community from noise, vibration, dust or light nuisance; and

(f) a contact phone number to assist in recording and responding to community concerns.

Decommissioning of Regulated Dams – Objective

(D26) Regulated dams must be dealt with in accordance with the conditions of this environmental authority and must not be abandoned.

(D27) On cessation of operation of any regulated dam, that regulated dam must be maintained so as to avoid environmental harm until that regulated dam is decommissioned.

(D28) Prior to the cessation of mining activities, each regulated dam must be decommissioned such that it either:

(a) becomes a stable landform that safely confines flowable substances;

(b) is approved or authorised under relevant legislation for a beneficial use;

(c) is a void authorised by the administering authority to remain after decommissioning; or

(d) is compliant with the rehabilitation requirements of this environmental authority.

(D29) The holder of this environmental authority must, prior to surrender of the mining leases implement either:

(a) a plan for de-commissioning the regulated dams such that, amongst other things, the regulated dams and their contents will be structurally stable and resistant to erosion and any seepage or other emissions will not cause environmental harm; or

(b) a site management plan for the continued operation and maintenance of the regulated dams.

Decommissioning of Regulated Dams – Documentation and Compliance

(D30) Decommissioning activities for regulated dams must be documented. Where the detailed documentation is not already contained in the design plan for the dam the detailed documentation is considered to be an amendment to the design plan and must be submitted as an amendment to the design plan.

(D31) All engineering aspects, including but not limited to stability, cover and drainage design of the proposed land forms forming part of any decommissioning and rehabilitation, must be provided as a design plan and certified by a suitably qualified and experienced person.

(D32) The design plan for the Torro and Norman Creek Tailings Storage Facilities must include a plan for the decommissioning and rehabilitation of the regulated dam at the end of its operational life.

END OF CONDITIONS FOR SCHEDULE D

SCHEDULE E – GENERAL AND REGULATED WASTE MANAGEMENT

General & Regulated Waste Disposal

(E1) This schedule does not apply to the Evans Landing Landfill.

(E2) The following wastes may be disposed of on the mining lease at locations beyond the boundary of the Evans Landing Landfill in accordance with the requirements of this environmental authority:

(a) mine waste including green waste, waste bauxite and tailings; and

(b) sewage sludge in drying beds located at the Awonga Point Sewage Treatment Plant (STP), the Lorim Point STP, the STP for the temporary camps in the area south of the Embley River, and Boyd Infrastructure Area STP and Norman Creek Infrastructure Area STP.

(E3) General and regulated waste generated in the mining activity can be temporarily stored on site awaiting removal provided it is handled, stored and transferred to ensure there is minimal risk of causing fire or contamination to land or waters.

Waste Management Program

(E4) Before 28 August 2013 a Waste Management Program in accordance with Part 5 of the *Environmental Protection (Waste Management) Policy 2008* must be developed, implemented and maintained for all mining activities on the mining lease(s). The waste management program must include:

(a) a description of the mining activities that may generate waste;

(b) the types and amounts of wastes generated by the mining activities;

(c) a program for reusing, recycling or disposing of all wastes;

(d) how the waste will be dealt with in accordance with the waste and resource management hierarchy, including a description of the types and amounts of waste that will be dealt with under each of the waste management practices in the waste and resource management hierarchy (i.e. avoidance, reuse, recycling, energy recovery, disposal);

(e) how the waste will be stored, handled and transferred in a proper and effective manner;

(f) procedures for identifying and implementing opportunities to minimise the amount of waste generated, promote efficiency in the use of resources and improve the waste management practices employed;

(g) procedures for dealing with accidents, spills, and other incidents that may impact on waste management;

(h) details of any accredited management system employed, or planned to be employed, to deal with the waste;

(i)how often the performance of the waste management practices will be assessed;

(j)the indicators or other criteria on which the performance of the waste management practices will be assessed; and

(k) staff training and induction to the waste management program.

Regulated Waste

(E5) Regulated waste, other than that authorised to be disposed of onsite under this authority, must only be removed and transported from the site by a person who holds a current authority to transport such wastes to a facility that is lawfully able to accept the waste under the *Environmental Protection Act 1994*.

(E6) Each container of regulated waste stored awaiting movement off-site must be clearly marked to identify the contents.

END OF CONDITIONS FOR SCHEDULE E

SCHEDULE F - EVANS LANDING LANDFILL

Activity

(F1) General and regulated waste is authorised to be stored and disposed of at the Evans Landing Landfill located within the Cook Shire Local Authority Reserve identified as the Gonbung Refuse Tip on ML7024 and identified in Schedule L Plan 5 – Evans Landing Landfill, or can be removed to an alternative facility that can lawfully accept these wastes.

Site Development Plan

(F2) A Site Development Plan must be developed and implemented for the Evans Landing Landfill before 1 March 2012. The Site Development Plan must be revised every three (3) years and must include details of at least the following:

(a) dimensions of landfill units used for waste disposal or storage;

(b) an accurate level survey of any area to be utilised for the disposal or storage of wastes. The levels must be reduced to a common datum and related to contour plans;

(c) the dimensions of the active waste disposal face;

(d) location of any new site infrastructure or extensions such as a new waste disposal cell, leachate dam, pond, or pump well or other plant and equipment required for the leachate collection, storage and recirculation infrastructure installed to serve the new cell;

(e) location of any new stormwater drains, diversion embankments or settling ponds required to serve any new cell;

(f) location of any areas to be capped (both final and interim capping where the next stage on the completed cell will not commence within twelve (12) months), the proposed capped surface levels and contours, surface drainage system and species of vegetation to be planted as part of a rehabilitation program;

(g) location of any new groundwater monitoring or collection bores required to serve any new cell; and

(h) progressive recording of waste deposition such that the location of a deposited load can be readily identified.

Continual Improvement in Waste Management Practices

(F3) For the purpose of minimising the disposal of recyclable waste to the landfill (excluding commingled waste) in accordance with the waste management hierarchy and the principles of the *Environmental Protection (Waste Management) Policy 2008*, the holder of this environmental authority must implement a Waste Management Plan that addresses at least the following matters:

a) waste management practices that will ensure that recyclables are diverted from the landfill;

b) procedures for identifying and implementing opportunities to improve the waste management practices employed including information and education packages for waste generators to assist in maximising the diversion of recyclable materials from landfill;

c) details of any accredited management system employed, or planned to be employed, to implement the waste management practices;

d) training programs and guidance for waste transport contractors in the identification and source separation of recyclable materials;

e) procedures for auditing waste loads to identify material to be removed for recycling;

f) how often the performance of the waste management practices will be assessed (at least annually);

g) the indicators or other criteria taking into account economic, social and environmental factors on which the performance of the waste management practices will be assessed; and

h) submission to the administering authority on the date the annual return is due each year of operation, an annual report for the preceding financial year, on the implementation of the Waste Management Plan. This report must include the following:

i) any new measures adopted or materials newly diverted from landfill disposal; and

ii) a summary (expressed in tonnes/year wherever appropriate) of the following information including wastes received, recyclable material recovered, fate of recyclables (e.g. transported off site for reuse/recycling, reused/recycled on site or stored on site) and a calculated percentage diversion rate for the materials specified below:

- Amount of green and organic waste collected and recycled;
- Amount of green and organic waste disposed to landfill;
- Amount of biosolids collected and recycled;
- Amount of construction and demolition waste collected and recycled;
- Amount of construction and demolition waste disposed to landfill;
- Amount of commercial and industrial waste (including agricultural) recycled;
- Amount of commercial and industrial waste (including agricultural) disposed to landfill;
- Amount of electrical equipment collected for recycling;
- Amount of Tallow and Vegetable oil collected;
- Number of scrap tyres collected for recycling (Equivalent Passenger Units - EPUs);
- Number of batteries collected for recycling;
- Amount of waste oil recycled;
- Total amount of paper and cardboard recycled;
- Total amount of plastics recycled;
- Total amount of aluminium cans recycled;
- Total amount of steel recycled;
- Other types and quantities of recyclables (please specify) recycled;
- Amount of waste disposed to landfill;
- Amount domestic waste disposed to landfill; and
- Total amount of landfill cover material used.

Note: Recoverable buried storage of recyclable material on the licensed place is not regarded as landfill disposal for the purposes of this approval, where such burial and recovery is unlikely to cause any environmental harm

Security

(F4) Measures must be taken to prevent unauthorised access to the facility.

(F5) While the facility is open, staffing of the facility must provide for:

(a) controlling the reception, storage and removal of waste;

(b) maintaining the facility;

(c) controlling all employees working in the facility; and

(d) supervising all persons entering the facility.

Litter

(F6) Litter control methods must be implemented in order to effectively capture wind-blown litter within the active waste disposal area.

Waste Storage and Reprocessing Areas

(F7) All storage and reprocessing of wastes must only be carried out on a hard stand area(s):

(a) constructed of compacted clay or other low permeability material to minimise soil infiltration;

(b) graded to prevent rainwater ponding;

(c) bunded to contain the materials stored; and

(d) graded to facilitate the collection of leachates and contaminated stormwater runoff for discharge to first flush ponds.

Fire Management

(F8) The holder of this environmental authority must not:

(a) burn waste at or on the Evans Landing Landfill;

(b) allow waste to burn or be burnt at or on the Evans Landing Landfill; or

(c) remove waste (other than large items of green waste) and burn such waste elsewhere.

(F9) Clear access to the water supply must be provided for fire-fighting vehicles at all times.

(F10) An effective fire break must be provided and maintained around the boundary of the waste management facility.

Access Roads

(F11) The holder of this environmental authority must ensure all weather access roads are installed and maintained so that at all times whilst the site is open for receiving wastes, vehicles have access to any waste storage or treatment area or any active waste disposal area.

Storage of Tyres

(F12) Tyres stored must be stockpiled in stable stacks in volumes less than 3m in height and 200m^2 in area and at least 10m from any other tyre storage area or combustible or flammable material including vegetation.

Asbestos Disposal

(F13) All asbestos waste must be:

a) disposed to a designated asbestos landfill area:

i) that is separate to the active waste disposal area; and

ii) where no excavation will take place following the disposal of asbestos waste;

b) promptly covered after disposal with a minimum of 200 mm of consolidated earth or equivalent cover material; and

c) placed to ensure that a minimum distance of two (2) metres is achieved from both the surface and boundary of the landfill excluding any final cover system required by this approval.

Battery Storage

(F14) Waste wet cell batteries may only be temporarily stored for a period no longer than six (6) months in a covered enclosure that has been bunded to contain spillages and leakages.

Car Bodies

(F15) Car bodies must be drained of all fluids prior to compaction and must only be stored in the scrap steel storage and processing area. All fluids must be collected and appropriately managed for recycling and/or treatment.

Waste Acceptance Criteria

(F16) The following wastes may be disposed of at the Evans Landing Landfill:

(a) domestic waste;
(b) commercial waste;
(c) industrial waste;
(d) regulated waste in accordance with Condition (F19); and
(e) construction and demolition waste.

(F17) Segregated recyclable materials including tyres, scrap steel and aluminium, lead acid batteries and waste oil must not be disposed of in the landfill area but must be dealt with in accordance with the following hierarchy with the preference reducing down the list:

(a) reuse;
(b) recycling; or
(c) energy recovery.

(F18) Notwithstanding any condition of this environmental authority, the following waste materials (other than where the following materials are commingled in waste received) are not permitted to be disposed of in the landfill:

- hot ash;
- material that is smoldering or aflame;
- material containing a substance which is ignitable, corrosive, reactive or toxic (other than materials containing a toxic substance from domestic premises);
- radioactive wastes;
- explosives;
- ammunition, other than ammunition that no longer contains explosives, pyrotechnics or propellants apart from trace residues that are no longer capable of supporting combustion or an explosive reaction;
- cytotoxic wastes;
- tallow and vegetable oils unless rendered incapable of yielding free liquids;
- liquid or semi-liquid waste other than liquid or semi-liquid waste which has been generated on the Evans Landing Landfill;
- wastes yielding free liquid;
- sludges from acid, alkaline and solvent baths;
- waste oil and oil/water emulsions;
- tyres;
- filled or partly filled drums containing liquid wastes;
- waste pesticide containers or other drums which have not been triple rinsed, pressure rinsed or otherwise thoroughly cleaned;
- soluble chemical wastes;
- car bodies;
- wet cell batteries;
- nickel metal hydride or nickel cadmium batteries;
- waste pesticides;
- waste paints and solvents;
- gas bottles;
- treatment tank sludge or residues unless dewatered;
- biosolids (sewage sludges) unless dewatered;
- grease trap wastes unless dewatered; and
- green waste (other than mulch used for day cover).

(F19) A regulated waste (excluding commingled waste) must not be disposed of at the Evans Landing Landfill:

(a) if it exhibits any of the hazard characteristics listed in Table F1 – Hazard Characteristics; and

(b) unless the holder of this environmental authority effectively implements risk assessment practices and procedures for sampling and contaminant testing to ensure that the material accepted contains less than the maximum contaminant levels in Appendix 1 – Maximum Contaminant Levels in Regulated Waste; Table 1 – Maximum Contaminant Levels and/or the maximum leaching contaminant levels prescribed in Table 2 - Maximum Leaching Contaminant Levels or Table 3 - Maximum Contaminant Levels in Soils and Table 4 - Maximum Leaching Contaminant Levels in Soils.

Table F1 – Hazard Characteristics

Hazard Characteristic	Description of the Hazard Characteristic
Ignitability	Regulated wastes that are capable of causing a fire when ignited through friction, absorption of moisture, or spontaneous chemical changes under standard temperature and pressure.
Corrosivity	Regulated wastes which on dissolution exhibit a pH of 2 or less or 12.5 or greater.
Reactivity	Regulated wastes that have any of the following properties: • react violently with water; and/or, • form potentially explosive mixtures with water and other substances likely to be disposed of in the landfill facility; and/or, • generate toxic gases, vapours, or fumes dangerous to human health or the environment when mixed with water and other substances likely to be disposed of in the landfill facility; and/or, • contain substances which generate toxic gases, vapours or fumes when exposed to pH conditions between 2 and 12.5; and/or, • are capable of detonation or explosive reaction when subjected to a strong initiating source or if heated under confinement; and/or, • are readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.
Toxicity	Regulated wastes that have: • contaminant concentrations in the waste exceeding the maximum contaminant levels in Appendix 1 – Maximum Contaminant Levels in Regulated Waste; Table 1 – Maximum Contaminant Levels; or, • leaching contaminant levels in the waste when measured in accordance with Toxicity Characteristic Leaching Procedure (TCLP), exceeding the concentrations prescribed in Appendix 1 – Maximum Contaminant Levels in Regulated Waste; Table 2 - Maximum Leaching Contaminant Levels. For any soil contaminated by radioactive material: • the gross alpha and gross beta activity concentration in the Toxicity Characteristic Leaching Procedure (TCLP) extracts from the material are no more than one hundred (100) times the concentrations for the screening of gross alpha and gross beta activity concentrations specified in the NHMRC/ARMCANZ Australian Drinking Water Guidelines, 2004.

(F20) Records of the volumes and type of waste accepted at the landfill facility must be kept and maintained and made available for inspection upon request by the administering authority.

Note: The submission of an annual report on these volumes for the local government's waste management strategic plan or otherwise required by the administering authority will be deemed to satisfy the reporting requirement of this condition.

Contaminated Soils and Bio-solids

(F21) Contaminated soils or aged bio-solids may be used for day cover material upon waste disposal cells if contaminated levels are less than the:

(a) maximum contaminant levels in Appendix 1 – Maximum Contaminant Levels in Regulated Waste; Table 3 – Maximum Contaminant Levels in Soils; and,

(b) maximum leaching contaminant levels prescribed in Appendix 1 – Maximum Contaminant Levels in Regulated Waste; Table 4 - Maximum Leaching Contaminant Levels in Soils.

Removal or Disposal of Prohibited Waste

(F22) In the event the holder of this environmental authority becomes aware of any prohibited waste being received at the Evans Landing Landfill, the holder must:

(a) cease depositing such waste if it is still occurring;

(b) remove the prohibited waste and store in a covered and bunded area; and

(c) arrange for a person who can lawfully transport such waste to promptly collect it after it being identified and remove it to a facility that can lawfully accept it.

(F23) If the holder of this environmental authority becomes aware that a person has removed regulated waste from the Evans Landing Landfill and/or disposed of regulated waste in a manner that is improper or unlawful or which is not authorised by this environmental authority, then the holder of this environmental authority must, as soon as practicable, notify the administering authority of all relevant facts, matters and circumstances known concerning the disposal.

Waste Oil Storage

(F24) Waste oil may be temporarily stored for a period no longer than six (6) months in drums or other containers provided that the drums or containers are:

(a) stored in a covered area designated for this purpose;

(b) bunded to contain spillages and leakages; and

(c) securely sealed when full to prevent spillage.

Equipment Containing Ozone Depleting Gases

(F25) Waste refrigerators, freezers, air conditioners or any other equipment containing ozone depleting gases received at the Evans Landing Landfill must be either degassed by an appropriately qualified person at the Evans Landing Landfill or, if degassed off site, accompanied by a degassing certificate signed by a qualified person.

Regulated Waste Loading and Unloading

(F26) All loading and unloading of liquid regulated wastes must only take place in bunded areas capable of containing and permit recovery of any spillage.

(F27) The holder of this environmental authority must ensure that sufficient equipment is available for the containment and recovery of spillages of liquid regulated waste.

Mixing of Regulated Wastes

(F28) The holder of this environmental authority must not cause or permit the mixing of incompatible regulated wastes.

Movement of Regulated Wastes

(F29) All vehicles used to transport regulated waste must be registered with the administering authority.

(F30) Where regulated waste is removed from the Evans Landing Landfill other than as permitted under another schedule of this environmental authority, the holder of this environmental authority must ensure that:

(a) the removal and transport of such wastes, where it constitutes an environmentally relevant activity under the *Environmental Protection Regulation 2008*, is carried out by a person licensed for carrying out this activity to a facility that is lawfully able to accept the waste under the *Environmental Protection Act 1994*; and

(b) records are kept of the following:

(i) the date, quantity and type of waste removed;
(ii) name of the regulated waste transporter(s) that removed the waste; and
(iii) the intended treatment/disposal destination of the waste.

Note: Records of documents maintained in compliance with a waste tracking system established under the *Environmental Protection Act 1994* or any other law for regulated waste will be deemed to satisfy this condition.

(F31) All vehicles (including load areas), containers and secondary containers used to transport regulated waste must be:

(a) maintained in a proper and efficient condition at all times to prevent spillage or leakage of waste;

(b) kept clean at all times whilst regulated waste is not being transported; and

(c) mounted securely, sealed and maintained in a condition that will prevent spillage or leakage of the waste.

(F32) Each container of regulated waste stored awaiting movement off site must be clearly marked to identify the contents.

(F33) Regulated waste is not permitted to be released from any vehicle or any container transported by that vehicle other than at the designated regulated waste disposal area located at the Evans Landing Landfill.

(F34) All asbestos transport must be:

(a) placed in bins/containers on the vehicle and double wrapped with 0.2mm thick polyethylene sheets and sealed with adhesive tape;

(b) labelled to indicate the presence of asbestos and the asbestos risk safety phrases;

(c) securely stored on the vehicle during transit in such way as not to cause the packaging to rupture;

(d) off loaded in such a manner as to not cause the packaging to rupture; and

(e) repackaged promptly if rupturing of the package(s) occurs.

Disposal of Clinical Waste

(F35) Untreated clinical waste must be disposed of under supervised burial in a designated area.

(F36) Promptly after disposal has taken place, untreated clinical waste must be covered with a layer of compacted waste or earth to a minimum depth of one (1) metre.

Clinical Waste Acceptance Criteria

(F37) Notwithstanding any condition of this environmental authority, the following clinical waste materials are not permitted to be disposed of in the landfill:

(a) cytotoxic;

(b) human body parts;

(c) pharmaceutical;

(d) radioactive; and

(e) chemical waste.

Landfill Liner Construction

(F38) A landfill liner system must be installed and maintained for any newly constructed waste cell at the Evans Landing Landfill in accordance with the administering authority's *Guideline – Landfill Siting, Design, Operation and Rehabilitation* to effectively prevent any release of contaminants to waters.

Leachate Management

(F39) Measures must be implemented to prevent hazardous leachate being directly or indirectly released or likely to be released as a result of any landfill activity to any groundwater or surface water.

(F40) A leachate collection system must be installed and maintained at the Evans Landing Landfill to effectively and efficiently:

(a) collect any leachate generated within the landfill footprint;

(b) deliver the collected leachate to a leachate storage or disposal facility; and

(c) for any newly constructed waste cell, control the leachate head on any leachate collection sump serving the landfill so that it does not exceed 0.3 metres.

(F41) Any leachate collection system or first flush pond must be maintained in an effective operating condition as per the design criteria and managed so that stored leachate or stormwater volumes are minimised following each rainfall event to reinstate holding capacity in readiness for the next rainfall event.

(F42) Leachate or contaminated stormwater intercepted by the leachate collection system may only be managed:

(a) by evaporation in a pond constructed on the Evans Landing Landfill;

(b) by recirculation back into the landfilled waste;

(c) by irrigation over exposed wastes on the Evans Landing Landfill; or

(d) by disposal to a sewage treatment plant.

(F43) All ponds used for the storage of leachate on the Evans Landing Landfill must be constructed to a standard no more permeable than $1x10^{-9}$ m/sec and $1x10^{-8}$ m/sec for all first flush stormwater ponds. All ponds must be maintained to prevent release of contaminated water through the bed or banks of the pond to any waters including ground water.

(F44) Leachate pumping stations must be fitted with pump-failure alarms as well as high-level alarms to warn of imminent pump station overflow. Backup pumps must be readily available on site in the event of pump system failure. All alarms must be able to operate without mains power if such a power failure occurs and when in operation, must notify the appropriate person to respond to the alarm.

Leachate Management and Monitoring

(F45) The holder of this environmental authority must develop and implement a leachate quality and quantity management and monitoring program for the leachate generated and recirculated at the Evans Landing Landfill that includes at least the following:

(a) measurement and recording of daily rainfall or rainfall events (if an event is longer than twenty-four (24) hours) at the Evans Landing Landfill;

(b) daily measurement and recording of the quantity of recirculated leachate during the wet season (1 Nov – 31 March) and weekly measurement and recording of the quantity of recirculated leachate during other periods;

(c) for any newly constructed waste cell, during the wet season (1 Nov – 31 March) weekly calculation of the volume of leachate in the landfill based on monitoring of the level of leachate at any leachate collection sump or monitoring well correlated to both AHD (Australian Height Datum) and the level of the top of the closest perimeter bund to the sump or monitoring well and monthly calculation during other periods;

(d) calculation of an annual water balance for the landfill that includes but is not necessarily limited to, incident rainfall, evapotranspiration and leachate recirculation rates;

(e) a sufficient number of monitoring locations to establish the composition and volume of leachate generated within the landfill;

(f) sampling of leachate (when present) from the landfill on at least a quarterly basis each year. If no leachate is present, the environmental authority holder must record that no leachate is present; and

(g) analysis of leachate samples for the quality characteristics identified for leachate in Table F3 – Monitoring Requirements.

Stormwater Management

(F46) Contaminated stormwater runoff from any waste handling, processing, storage or disposal area on the Evans Landing Landfill or any vehicle maintenance, washdown area or wheel washer must not be released directly or indirectly to any waters except as permitted under the conditions of this environmental authority.

Surface Water Monitoring

(F47) The release of contaminants from the landfill must only occur at the release points specified in Table F2 – Release Points.

Table F2 - Release Points

Release Point	Description of Water Released	Contaminant Source	Description & Nature of Receiving Waters	Coordinates (GDA94 MGAz54) Monitoring Location	
				Northing	Easting
Stormwater Ponds					
Spillway 1	Surface Area Drainage (SW1)	Surface of waste disposal cells	Bushland and Embley River	8600491	590797
Spillway 2	Surface Area Drainage (SW2)			8600277	590780
Spillway 3	Surface Area Drainage (SW3)			8600190	591055
Spillway 4	Surface Area Drainage (SW4)			8600344	591144
Spillway 5	Surface Area Drainage (SW5)			8600307	591264

(F48) The release of contaminants from the release points must be monitored at the monitoring locations listed in Table F2 – Release Points and at a frequency specified in Condition (F49).

(F49) The release of contaminants at the release points specified in Table F2 – Release Points, waters must be monitored for each quality characteristic specified for surface water in Table F3 – Monitoring Requirements. For any release, waters must be monitored if it is safe to do so:

(a) promptly and within twenty-four (24) hours of the commencement of release;

(b) daily during release for seven (7) days;

(c) weekly thereafter for one (1) month; and

(d) monthly for the remainder of the wet season.

Groundwater Monitoring

(F50) An effective groundwater monitoring program must be developed in accordance with the ANZECC (2000) methodology and submitted to the administering authority before 31 August 2012. The program must include:

a) installation of a groundwater monitoring network which:
   i) establishes the reference quality of groundwater up gradient of the landfill site;
   ii) are installed and maintained by a person possessing appropriate qualifications and experience in the fields of hydrogeology and groundwater monitoring program design to be able to competently make recommendations about these matters;
   iii) include a sufficient number of "compliance bores" to detect any impact on groundwater as a consequence of landfill operations, constructed in accordance with the "Minimum Construction Requirements for Water Bores in Australia" (Agricultural and Resource Management Council of Australia and New Zealand 1997), that are located not more than 150 metres from the landfill area or at the boundary of the landfill facility whichever is the closer; and
   iv) provides representative groundwater samples for the aquifers being sampled;
b) analysis of groundwater samples for at least the quality characteristics identified for groundwater in Table F3 – Monitoring Requirements;
c) collection of groundwater quality samples from groundwater bores at least quarterly; and
d) quarterly assessment of monitoring results to determine whether or not there has been any adverse change for each groundwater quality characteristic at locations hydraulically down gradient of the landfill unit when compared to reference values.

Table F3 – Monitoring Requirements

Quality Characteristic	Leachate	Surface Water	Groundwater
pH	X	X	X
electrical conductivity	X	X	X
Total dissolved solids	X	X	X
dissolved oxygen	X	X	
bicarbonate ($HC0_3$)	X		X
Nitrate	X	X	X
Ammonia	X	X	X
Calcium	X	X	X
Sulphate	X	X	X
Chloride	X	X	X
hexavalent chromium	X	X	
Cadmium	X	X	
Manganese	X	X	X
total iron	X	X	X
Copper	X	X	X
Lead	X	X	X
Zinc	X	X	X
pesticides (organochlorines and organophosphates)	X		
Polynuclear Aromatic Hydrocarbons (PAHs)	X		
Total Recoverable Hydrocarbons	X	X	X
BTEX (Benzene, Toluene, Ethyl Benzene and Xylene)	X		
Chemical Oxygen Demand (COD)	X	X	X
5-Day Biological Oxygen Demand (BOD_5)	X	X	
Total Organic Carbon (TOC)	X		

Receiving Environment Monitoring Program

(F51) A Receiving Environment Monitoring Program (REMP) must be developed and implemented by 1 July 2012 to monitor and record the effects of the release of contaminants on the receiving environment periodically and whilst contaminants are being discharged from the licensed place, with the aim of identifying and describing the extent of any adverse impacts on local environmental values and to monitor any changes in receiving waters (including groundwater). A copy of the REMP and any update or variation of the REMP following adoption of a new Plan of Operations must be provided to the administering authority prior to its implementation and due consideration given to any comments made on the REMP by the administering authority.

Note: For the purposes of the REMP, the receiving environment is the waters and connected waterways (including groundwater) downstream of any release associated with the Evans Landing Landfill.

(F52) The REMP must address (but not necessarily be limited to) the following:

(a) description of potentially affected receiving groundwaters and surface waters including key communities and reference water quality and sediment characteristics based on accurate and reliable monitoring data that takes into consideration any temporal variation (e.g. seasonality);

(b) description of applicable environmental values and water quality objectives to be achieved (i.e. as scheduled pursuant to the Environmental Protection (Water) Policy);

(c) any relevant reports prepared by other governmental or professional research organisations that relate to the receiving environment to which the REMP applies;

(d) water and sediment quality targets within the receiving environment to be achieved and clarification of contaminant concentrations or levels indicating adverse environmental impacts during the period upon which the REMP applies;

(e) monitoring for any potential adverse environmental impacts caused by a release;

(f) monitoring of stream flow or alternative estimation method to gain an understanding of the hydrology of the receiving waters and the circumstances under which releases occur;

(g) monitoring of toxicants that must consider the indicators specified in Table F3 – Monitoring Requirements to assess the extent of compliance of concentrations with water quality objectives and/or the ANZECC & ARMCANZ (2000) Guidelines for slightly to moderately disturbed ecosystems;

(h) monitoring of physical and chemical parameters including as a minimum those specified in Table F3 – Monitoring Requirements (in addition to dissolved oxygen saturation and temperature). The list of quality characteristics required to be monitored as per Table F3 - Monitoring Requirements will be reviewed once the results of the monitoring data become available. If it is determined that there is no need to monitor for certain individual quality characteristics then these can be removed from Table F3 - Monitoring Requirements;

(i) monitoring of biological indicators in accordance with the administering authority's monitoring and sampling manual using recognised standard methodology approved by the administering authority and monitoring metals/metalloids in sediments (in accordance with ANZECC & ARMCANZ (2000), Simpson et al (2005) *Handbook for Sediment Quality Assessment* and/or the most recent version of AS5667*.1 Guidance on Sampling of Bottom Sediments*);

(j) the locations of monitoring points (including the locations of reference/upstream and downstream potentially impacted sites for each release point). Reference sites must comply with the following criteria:

(i) be from the same bio-geographic and climatic region;
(ii) have similar geology, soil types and topography;
(iii) contain a range of habitats similar to those at the potentially impacted sites;
(iv) have a similar flow regime; and
(v) not be so close to the potentially impacted sites that any disturbance at the potentially impacted sites also results in a change at the reference site;

(k) a frequency or scheduling of sampling and analysis that is sufficient to determine water quality objectives and to derive site specific reference values within two (2) years (depending on wet season flows) in accordance with the *Queensland Water Quality Guidelines*. For ephemeral streams, this should include periods of flow irrespective of landfill or other discharges;

(l) specify sampling and analysis methods and quality assurance and control;

(m) any historical datasets to be relied upon;

(n) description of the statistical basis on which conclusions are drawn;

(o) any spatial and temporal controls to exclude potential confounding factors; and

(p) inclusion of additional monitoring points at least twelve (12) months prior to potential impact on the site as set out in the Plan of Operations.

(F53) A report outlining the findings of the REMP including all monitoring results and interpretations in accordance with Condition (F52) must be prepared and submitted in writing to the administering authority by 31 January 2015. This should include an assessment of reference water quality, any assimilative capacity for those contaminants monitored and the suitability of current discharge limits to protect downstream environment values and include recommendations to monitor appropriate quality characteristics.

Active Waste Disposal Cell Management

(F54) The holder of this environmental authority must ensure that waste disposal activities do not extend beyond the boundary of the active waste cell.

(F55) The holder of this environmental authority must ensure that all wastes accepted for disposal at the Evans Landing Landfill are not disposed of:

(a) outside any active waste disposal cell;

(b) into waters or leachate collected at the base of any active waste disposal cell; and

(c) beyond the catchment of any leachate collection drains installed as part of a leachate collection system.

(F56) All wastes must be deposited in lifts not exceeding a vertical height of four (4) metres.

(F57) Every lift of waste deposited in the active waste disposal cell must be effectively compacted in order to maximise waste density within the cell. Accurate boundary and topographic surveys must be completed prior to each lift.

(F58) Large items for disposal must be compacted before and/or after being deposited to minimise residual void space in the landfill.

(F59) Wastes deposited in any active waste disposal cell must be consolidated, compacted and covered with a layer of inert earthen material or mulch, as often as is necessary, but at least daily, to effectively minimise the quantity of wind-blown litter, odour and fly nuisance resulting from exposure of putrescibles waste.

Waste Disposal Cell Interim Cover

(F60) The holder of this environmental authority must apply interim cover on waste disposal cells. This cover is to be placed on areas that are inactive for a period of four months or greater and does not include the operational areas at the cell face. The interim cover must conform to the following criteria:

1. consists of at least 300 mm of compacted material; and,
2. to achieve a maximum permeability of 1 x 10^{-7} metres per second;
3. minimise infiltration of water into the waste and ponding of water on the surface of the cell; and
4. is resistant to erosion by surface water flows.

(F61) Material for day cover must be readily available at all times in a quantity sufficient for not less than two weeks normal operation of the waste disposal cell. Day cover is to be applied to operational areas of the cell face to conceal waste.

(F62) The holder of this environmental authority must ensure that any day cover on a cell is removed promptly prior to any subsequent waste disposal.

Landfill Capping

(F63) A trial capping program must be finalised at least twelve (12) months prior to the completion of waste receipt operations for the landfill. This program must include but should not be limited to the following:

(a) schematic representation of final land form inclusive of drainage features;

(b) slope designs;

(c) cover design;

(d) drainage design;

(e) erosion controls proposed on reformed land;

(f) description of experimental design for monitoring of analogue and rehabilitated areas inclusive of statistical design;

(g) proposed revegetation criteria including but not limited to:

(i) species diversity, abundance and composition,

(ii) projective cover, and

(iii) dry matter production;

(h) proposed revegetation methods inclusive of plant species selection, re-profiling, re-spreading soil, soil ameliorants/amendments, surface preparation and method of propagation;

(i) materials balance including available topsoil for all sites and low permeability encapsulation media; and

(j) research program and associated milestones.

Rehabilitation

(F64) Rehabilitation of disturbed areas must take place progressively as waste disposal cells are completed.

(F65) Access to areas awaiting rehabilitation or being rehabilitated must be restricted by suitable barriers to prevent disturbance of these areas.

Closure and Post Closure Care Plan

(F66) A Closure and Post Closure Care Plan must be submitted to the administering authority at least twelve (12) months prior to the completion of waste receipt operations for the landfill.

(F67) The Closure and Post Closure Care Plan for the Evans Landing Landfill must be implemented for a nominal period of:

(a) at least thirty (30) years after completion of waste disposal activities; or

(b) a shorter period such that the landfill unit and surrounding Evans Landing Landfill are geo-technically stable and it can be demonstrated to the administering authority that there will be no likely release of waste materials, leachate or other contaminants to the environment.

(F68) The post closure care element of the Closure and Post Closure Care Plan must include at least the following:

(a) monitoring of:
  (i) the leachate collection and recirculation system;
  (ii) the groundwater monitoring network;
  (iii) leachate quality;
  (iv) groundwater quality; and
  (v) surface water quality;

(b) maintenance of:
  (i) the leachate collection and recirculation system;
  (ii) the groundwater monitoring network; and
  (iii) the integrity and effectiveness of final cover systems.

END OF CONDITIONS FOR SCHEDULE F

SCHEDULE G – NOISE

General

(G1) Noise from any mining activity must not cause environmental harm at any sensitive place or commercial place.

(G2) In the event of a complaint made to the administering authority (considered in the opinion of an authorised officer to be neither frivolous or vexatious) about noise generated in carrying out the mining activity and the noise is considered by the administering authority to be an unreasonable noise, the holder of this environmental authority must take action to ensure that it is no longer an unreasonable noise.

Noise Monitoring

(G3) Ensure that noise generated by the mining activities (excluding public roads, railway and port) does not cause the limits of goals in Table G1 – Noise Limits to be exceeded.

Table G1 - Noise Limits

Noise Level dB(A) measured as:	Monday to Saturday			Sundays and Public Holidays		
	7am to 6pm	6pm to 10pm	10pm to 7am	9am to 6pm	6pm to 10pm	10pm to 9am
$L_{Aeq,\ adj,\ 1\ hour}$	45	45	43	45	45	43
$L_{A1,\ adj,\ 1\ hour}$	50	50	45	50	50	45

(G4) When requested by the administering authority, noise monitoring and recording must be undertaken within a timeframe nominated by the administering authority to investigate any complaint of environmental nuisance (considered in the opinion of an authorised officer to be neither frivolous or vexatious) at any sensitive place or commercial place and the results must be provided to the administering authority within fourteen (14) days following completion of monitoring.

(G5) Noise monitoring and recording must include the following descriptor characteristics and matters:

(a) $L_{\mathbf{Aeq,}}$ and L_{A1} (where N equals the statistical levels of 1, 10 and 90 and T = 60 mins);

(b) background noise $L_{A90,}$;

(c) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels;

(d) atmospheric conditions including temperature, relative humidity and wind speed and directions;

(e) effects due to any extraneous factors such as traffic noise;

(f) location, date and time of monitoring;

(g) if the complaint concerns low frequency noise, Max $Lp_{LIN,T}$; and

(h) if the complaint concerns low frequency noise, one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.

(G6) The method of measurement and reporting of noise levels must comply with the most recent edition of the administering authority's Noise Measurement Manual or the most recent version of *AS1055 Acoustics – Description and measurement of environmental noise.*

END OF CONDITIONS FOR SCHEDULE G

SCHEDULE H – WATER

General

(H1) Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters except as permitted under the conditions of this environmental authority.

(H2) The maintenance and cleaning of vehicles and any other equipment or plant must be carried out in areas and in a manner which minimises the potential for environmental harm.

(H3) All determinations of water quality must be:

(a) made in accordance with methods prescribed in the latest edition of the administering authority's *Monitoring and Sampling Manual*; and

(b) carried out on representative samples.

(H4) The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format when requested:

(a) the date and time upon which the sample was taken;

(b) the monitoring point at which the sample was taken;

(c) the measured or estimated daily quantity of the contaminants released from all release points identified in Table H1 – Release Points (point source release);

(d) where practicable flow rate at the time of sampling for each release point identified in Table H1 – Release Points (point source release);

(e) the results of all monitoring and details of any exceedances with the conditions of this environmental authority; and

(f) water quality monitoring data provided electronically in the specified format.

Contaminant Release to Waters

*(H5) The r*elease of contaminants to waters from mining activities must only occur:

(a) at the release points specified in Table H1 – Release Points (point source release); and

(b) from extraction areas specified in Table H2 – Release from Extraction Areas

Table H1 - Release Points (point source release)

Release Point	Description of Water Released	Contaminant Source	Description & Nature of Receiving Waters	Release Monitoring Locations	
				Northing (GDA94)	Easting (GDA94)
North of the Embley					
Andoom TSF Emergency Spillway	Tailings decant water	Andoom TSF Cells 1 - 4	Andoom Creek	8616705	590654
East Weipa TSF Emergency Spillway		East Weipa TSF Cells 1, 2A, 2B & 3	Trunding Creek	8602123	594652
East Weipa TSF (20MG) Reclaim Dam Spillway			Embley River	8600684	594977

Release Point	Description of Water Released	Contaminant Source	Description & Nature of Receiving Waters	Release Monitoring Locations	
				Northing (GDA94)	Easting (GDA94)
East Weipa 55 MG Process Water Dam	Process Water	East Weipa TSF Cells 1, 2A, 2B & 3, Shallow Aquifer & Artesian Aquifer	Embley River	8600178	594051
East Weipa Infrastructure Area	Tailings decant water East Weipa Processing area drainage Perry's Pond discharges	Emergency Dam Perry's Pond Plant Infrastructure	Embley River	8599182	595069
East Weipa 1&2 Spillway	Tailings decant water	East Weipa 1&2 TSF	Embley River	8599495	595414
Lake Mcleod and Lake Patricia Overflow Causeway	Stormwater runoff	West Weipa TSF G & X Dam & West Weipa 2	Mission River via Lake McLeod	8602097	591668
Andoom Processing Area – Kings Canyon	Processing Area Drainage	Plant Infrastructure	Saleng Tea Tree Swamp	8612996	589730
South of the Embley					
Torro TSF North Cell Spillway	Tailings decant water	Torro TSF	Norman Creek Tributary	8569004	569657
Torro TSF South Cell Spillway				8567457	569657
Torro Tailings Recovery Slot			Norman Creek Tributary	8567610	569950
Norman Creek TSF North Cell Spillway		Norman Creek TSF	Tributary of Norman Creek	TBD[1]	TBD[1]
South of the Embley					
Norman Creek TSF South Cell Spillway	Tailings decant water	Norman Creek TSF	Tributary of Norman Creek	TBD[1]	TBD[1]
Norman Creek Tailings Recovery Slot				TBD[1]	TBD[1]
Boyd Process Water Pond		Torro TSF	Gulf of Carpentaria via unnamed drainage	8569850[2]	568250[2]

Release Point	Description of Water Released	Contaminant Source	Description & Nature of Receiving Waters	Release Monitoring Locations	
				Northing (GDA94)	Easting (GDA94)
Boyd MIA Drainage Slot	Processing area drainage	Plant Infrastructure		8570981	568918
Boyd Northern Stockpile Sediment Pond	Stormwater runoff	Ore stockpiles		8570648[2]	567952[2]
Boyd Southern Stockpile Sediment Pond			Unnamed Creek near Pera Head	8568446[1]	566886[1]
Norman Creek Stockpile Sediment Pond			Gulf of Carpentaria via unnamed drainage	TBD[1]	TBD[1]
Norman Creek Process Water Pond	Tailings decant water	Norman Creek TSF	Norman Creek Tributary	TBD[1]	TBD[1]
Norman Creek MIA Drainage Slot	Processing area drainage	Plant Infrastructure		TBD[1]	TBD[1]

[1] To be determined and notified to the administering authority three (3) months prior to construction.
[2] If the release is directed via site drainage to the Boyd MIA Drainage Slot, and not directly to receiving environment, the Release Monitoring Location is the Boyd MIA Drainage Slot and monitoring is only required when a release occurs from the Boyd MIA Drainage Slot.

Table H2 – Release from Extraction Areas

Monitoring Location	Description of Water Releases	Contaminant Source	Description of Receiving Waters	Coordinates (GDA94 MGAz54) Monitoring Location	
				Northing	Easting
Downstream Sites					
Defined in Plan of Operations in accordance with the REMP	Release of contaminated stormwater via sediments dams	Extraction area	Streams, creeks, rivers and coastal environment in and adjacent to ML 7024 and ML 6024	As described in the current Plan of Operations in accordance with the REMP	As described in the current Plan of Operations in accordance with the REMP
Reference Sites					
Defined in Plan of Operations in accordance with the REMP	Release of stormwater uncontaminated by mining activities	NA	Streams, creeks, rivers and coastal environment in and adjacent to ML 7024 and ML 6024	As described in the current Plan of Operations in accordance with the REMP	As described in the current Plan of Operations in accordance with the REMP

(H6) The release of contaminants to waters from the release points must be monitored at the monitoring locations listed in Table H1 – Release Points (point source release) in accordance with the frequency specified in condition H8. The release of contaminants to waters from extraction areas must be monitored at the monitoring locations Table H2 – Release from Extraction Areas in accordance with the REMP.

(H7) The release of contaminants to waters from release points specified in Table H1 - Release Points (point source release) must not exceed the contaminant limit specified in Table H3 – Release Water Contaminant Limit.

(H8) Where there is a release to waters at the release points specified in Table H1 – Release Points (point source release) waters must be monitored for each quality characteristic specified in Table H3 – Release Water Contaminant Limit. For any release, waters must be monitored if it is safe to do so:

(a) promptly and within twenty-four (24) hours of the commencement of release;
(b) daily during release for seven (7) days;
(c) weekly thereafter for one (1) month; and
(d) monthly for the remainder of the wet season.

Table H3 – Release Water Contaminant Limit

Quality Characteristic	**Contaminant Limit**
Suspended Solids (mg/L)	70[1]
Dissolved Aluminium (µg/L)	320[2]
pH/EC/DO	For interpretation purposes

1. 99th percentile of three wet seasons of North of Embley Release Point data; excluding high suspended solids data from King Canal Sediment Dam
2. 99th percentile of three wet seasons of North of Embley Release point data; excluding data from King Canal and Lorim Point Polishing Pond.

(H9) The release of contaminants directly or indirectly to waters must not:

(a) produce any slick or other visible or odorous evidence of oil, grease or petrochemicals; or
(b) contain visible floating oil or grease.

(H10) Releases to waters from the mining activities must be undertaken so as not to cause erosion of the bed and banks of the receiving waters or cause a material build-up of sediment in such waters.

(H11) The authorised mining activities must not cause an exceedance of any limit for any quality characteristics as specified in Table H4 – Receiving Water Trigger Levels (Wet Season – December to April) (North of Embley) and Table H6 - Receiving Water Trigger Levels (Wet Season – December to April) (South of Embley).

If a release of contaminants to waters from extraction areas specified in Table H2 – Release from Extraction Areas exceed any limit for any quality characteristics as specified in Table H4 – Receiving Water Trigger Levels (Wet Season – December to April) (North of Embley) and Table H6 - Receiving Water Trigger Levels (Wet Season – December to April) (South of Embley) , the holder of this environmental authority must investigate the exceedance of the limit to determine if it is a result of the authorised mining activities in accordance with condition (H14).

Table H4 – Receiving Water Trigger Levels (Wet Season – December to April) (North of Embley)

Quality Characteristic	*Trigger Levels - freshwater*	Trigger Levels – estuarine waters	Limit type
pH (pH unit)	5.4 [1,3] (minimum) 6.3 [1,3] (maximum)	7.0 [4] (minimum) 8.5 [4] (maximum)	Median measured over the wet season
Turbidity (NTU)	21 [2,3]	37 [2,3]	Median measured over the wet season
Suspended Solids (mg/L)	8 [2,3]	30 [2,3]	Median measured over the wet season
Aluminium (µg/L)	90 [2,3]	104 [2,3]	Median measured over the wet season
Dissolved Oxygen (mg/L)	For interpretation purposes		
Temperature (°C)			
EC (µS/cm)			

[1] Trigger levels based on 80th percentile (maximum) and 20th percentile (minimum) of at least 10 reference site wet season samples derived using the DERM (2009) methodology.
[2] Trigger levels are based on the 80th percentiles of at least 10 consecutive reference site wet season samples, derived using the DERM (2009) methodology (Table D1, and section 3.4.3.1).
[3] Reference sites are to be determined in accordance with Condition (H17).
[4] Default trigger levels – from ANZECC (2000) trigger levels for aquatic ecosystems indicative of slightly disturbed tropical Australian estuarine ecosystems.
Note: Aluminium must be measured as total (unfiltered) and dissolved (<0.45µm filtered). Trigger levels for aluminium apply if dissolved results exceed trigger.

(H12) If there is an exceedance in accordance with condition H11 identified that will or has potential to cause environmental harm, the holder of the environmental authority must notify the administering authority in accordance with conditions A13, A14 and A15.

Receiving Waters Monitoring

(H13) Receiving waters must be monitored at the locations specified in Table H5 - Receiving Water Reference and Downstream Monitoring Locations monthly during the wet season (December to April) for each quality characteristic stated in Table H4 – Receiving Water Trigger Levels (Wet Season-December to April) (North of Embley) and Table H6 - Receiving Water Trigger Levels (Wet Season – December to April) (South of Embley).

Table H5- Receiving Water Reference and Downstream Monitoring Locations

Release Point	Description of Water Released	Contaminant Source	Description & Nature of Receiving Waters	Downstream Receiving Waters Monitoring Locations		Release Reference Monitoring Locations	
				Northing	Easting	Northing	Easting
				Coordinates (GDA94 MGAz54)			
North of Embley							
Andoom TSF Emergency Spillway	Tailings decant water	Andoom TSF Cells 1 - 4	Andoom Creek	8617302	591806	8616946	603924
						8614977	604598
						8598327	621077
						8597092	618804
East Weipa TSF Emergency Spillway		East Weipa TSF Cells 1, 2A, 2B & 3	Trunding Creek	8602725	594683	8616946	603924
						8614977	604598
						8598327	621077
						8597092	618804
			Embley River	8599804	592987	8593092	618204

Release Point	Description of Water Released	Contaminant Source	Description & Nature of Receiving Waters	Downstream Receiving Waters Monitoring Locations		Release Reference Monitoring Locations	
				Northing	Easting	Northing	Easting
				Coordinates (GDA94 MGAz54)			
East Weipa TSF (20MG) Reclaim Dam Spillway	Tailings decant water	East Weipa TSF Cells 1, 2A, 2B & 3				8608448	603973
East Weipa 55 MG Process Water Dam	Process Water	East Weipa TSF Cells 1, 2A, 2B & 3, Shallow Aquifer & Artesian Aquifer	Embley River	8599804	592987	8593092	618204
						8608448	603973
East Weipa Infrastructure Area East Weipa 1&2 Spillway	Tailings decant water Processing area drainage Perry's Pond discharges	Emergency Dam Perry's Pond Plant Infrastructure	Embley River	8598748	595061	8593092	618204
						8608448	603973
Lake Mcleod and Lake Patricia Overflow Causeway	Stormwater runoff	West Weipa TSF G & X Dam & West Weipa 2	Mission River via Lake McLeod	8603213	590670	8593092	618204
						8608448	603973
Andoom Processing Area – Kings Canyon	Processing Area Drainage	Plant Infrastructure	Saleng Tea Tree Swamp	8612758	588893	8616946	603924
						8614977	604598
						8598327	621077
						8597092	618804
South of Embley							
Tailings Storage Facilities							
Torro TSF North Cell Spillway	Tailings decant water	Torro TSF	Norman Creek Tributary	8565654	571316	8569300	575551
Torro TSF South Cell Spillway							
Torro Tailings Recovery Slot							
Norman Creek TSF North Cell Spillway		Norman Creek TSF	Tributary of Norman Creek	TBD[1]	TBD[1]	TBD[1]	TBD[1]
Norman Creek TSF South Cell Spillway				TBD[1]	TBD[1]	TBD[1]	TBD[1]
Norman Creek Tailings Recovery Slot				TBD[1]	TBD[1]	TBD[1]	TBD[1]

Release Point	Description of Water Released	Contaminant Source	Description & Nature of Receiving Waters	Downstream Receiving Waters Monitoring Locations		Release Reference Monitoring Locations	
				Northing	Easting	Northing	Easting
				Coordinates (GDA94 MGAz54)			
Beneficiation Plant/Infrastructure Areas							
Boyd Process Water Pond	Tailings decant water	Torro TSF	Gulf of Carpentaria via unnamed drainage	8571572	569128	8552876	570096
						8575100	581194
Boyd MIA Drainage Slot	Processing area drainage	Plant Infrastructure		8571572	569128	8552876	570096
						8575100	581194
Boyd Northern Stockpile Sediment Pond	Stormwater runoff	Ore stockpiles		8571572	569128	8552876	570096
						8575100	581194
Boyd Southern Stockpile Sediment Pond			Unnamed Creek near Pera Head	8567881	566097	8552876	570096
						8575100	581194
Norman Creek Stockpile Sediment Pond			Gulf of Carpentaria via unnamed drainage	TBD[1]	TBD[1]	TBD[1]	TBD[1]
Norman Creek Process Water Pond	Tailings decant water	Norman Creek TSF	Norman Creek Tributary	TBD[1]	TBD[1]	TBD[1]	TBD[1]
Norman Creek MIA Drainage Slot	Processing area drainage	Plant Infrastructure		TBD[1]	TBD[1]	TBD[1]	TBD[1]
Extraction Areas: North of Embley and South of Embley							
Defined in the Plan of Operations	Release of contaminated stormwater via sediment dams.	Extraction areas	Streams, creeks, rivers and coastal environments in and adjacent to ML6024 and ML7024.	TBD[1]	TBD[1]	TBD[1]	TBD[1]

[1] To be determined and notified to the administering authority within three (3) months prior to the completion of construction.
Note; a single reference monitoring location may apply to more than one release point and may be located in another sub-catchment.

(H14) If the wet season (December – April) median of the quality characteristics of the receiving water monitored at the downstream monitoring locations defined in Table H5 - Receiving Water Reference and Downstream Monitoring Locations exceed any of the trigger levels specified in Table H4 – Receiving Water Trigger Levels (Wet Season – December to April) (North of Embley) and Table H6 - Receiving Water Trigger Levels (Wet Season – December to April) (South of Embley), the holder of this environmental authority must:

a) notify the administering authority in accordance with conditions A13, A14 and A15.

b) complete an investigation in accordance with the ANZECC & ARMCANZ (2000) methodology into the potential for environmental harm and provide a written report to the administering authority outlining:

i. details of the investigation carried out; and
ii. assessment as to whether the exceedance caused environmental harm; and
iii. if the investigation determines the exceedance caused environmental harm, outline the details of investigations taken and actions taken to prevent environmental harm ; and
iv. report all values above the trigger levels.

Table H6 – Receiving Water Trigger Levels (Wet Season – December to April) (South of Embley)

Quality Characteristic	*Trigger Levels – freshwater*	Trigger Levels – estuarine waters	Limit type
pH	20th percentile[1, 2, 4, 6] of reference[3] or 6.0[7] (minimum), whichever is lower 80th percentile[1, 2, 4, 6] of reference[3] or 8.0[7] (maximum), whichever is higher	20th percentile[1, 2, 4, 6] of reference[3] or 7.0[8] (minimum), whichever is lower. 80th percentile[1, 2, 4, 6] of reference[3] or 8.5[8] (maximum), whichever is higher.	Median measured over the wet season
Turbidity	80th percentile[1, 2, 4, 6] of reference[3] or 15 (NTU)[7], whichever is higher	80th percentile[1, 2, 4, 6] of reference[3] or 20 (NTU)[8], whichever is higher	Median measured over the wet season
Suspended Solids	80th percentile[1, 2, 4, 6] of reference[3]	80th percentile[1, 2, 4, 6] of reference[3]	Median measured over the wet season
Aluminium (µg/L)	80th percentile[1, 2, 4, 6] of reference[3] or 27 [9], whichever is higher	80th percentile[1, 2, 4, 5, 6] of reference[3]	Median measured over the wet season
Total Nitrogen[10] (µg/L)	80th percentile[1, 2, 4, 6] of reference[3] or 200-300 [7], whichever is higher	N/A	Median measured over the wet season
Total Phosphorus[10] (µg/L)	80th percentile[1, 2, 4, 6] of reference[3] or 10 [7], whichever is higher	N/A	Median measured over the wet season
Ammonia-N[10] (µg/L)	80th percentile[1, 2, 4, 6] of reference[3] or 10 [7], whichever is higher	N/A	Median measured over the wet season
Dissolved Oxygen (mg/L)	For interpretation purposes.		
Temperature (°C)			
EC (µS/cm)			

[1] An interim trigger value can be derived from ≥ 8 but ≤17 consecutive reference site samples, derived using the DERM (2009) methodology (Table D1, and section 3.4.3.1).
[2] Trigger values are based on the 80th percentile of at least 10 consecutive reference site samples, derived using the DERM (2009) methodology (Table D1, and section 3.4.3.1).
[3] Reference sites are to be determined in accordance with Condition (H17).
[4] 80th percentiles are calculated using ANZECC (2000) methodology (section 7.4.4.1).
[6] To be determined based on Receiving Environment Monitoring Program.
[7] ANZECC 2000, default trigger value for tropical Australia for slightly disturbed ecosystems, lowland river.
[8] ANZECC 2000, default trigger value for tropical Australia for slightly disturbed ecosystems, estuaries and marine
[9] ANZECC 2000, default trigger value for tropical Australia for high conservation/ecological value systems, freshwater.
[10] Monitoring of this quality characteristic only applies to receiving freshwater monitoring locations associated with a release from the Boyd MIA Drainage Slot and/or Norman Creek MIA Drainage Slot.
Note: Trigger levels for aluminium apply if dissolved results exceed trigger.

(H15) The holder of this environmental authority must develop and adopt a suitable methodology to determine and record stream flows at the locations upstream of each release point as specific in Table H1 – Release point (point source releases) for any receiving water into which a release occurs.

Receiving Environment Monitoring Program

(H16) A Receiving Environment Monitoring Program (REMP) must be developed and implemented to monitor and record the effects of the release of contaminants on the receiving environment periodically and whilst contaminants are being discharged from the licensed place with the aim of identifying and describing the extent of any adverse impacts on local environmental values and to monitor any changes in the receiving water (including groundwater) by:

(a) 1 July 2012 for the area north of the Embley River; and
(b) prior to commencement of significant construction work for the area south of the Embley River.

A copy of the REMP and any update or variation of the REMP following adoption of a new Plan of Operations must be provided to the administering authority prior to its implementation and due consideration given to any comments made on the REMP by the administering authority.

For the purposes of the REMP, the receiving environment is the waters and connected waterways (including groundwater) downstream of any release associated with the following:

(a) release points specified in Table H1 – Release Points (point source release); and

(b) extraction areas specified in Table H2 – Release from Extraction Areas.

(H17) The REMP must address (but not necessarily be limited to) the following:

a) description of potentially affected receiving groundwaters and surface waters including key communities and reference water quality and sediment characteristics based on accurate and reliable monitoring data that takes into consideration any temporal variation (e.g. seasonality);
b) description of applicable environmental values and water quality objectives to be achieved (i.e. as scheduled pursuant to the *Environmental Protection (Water) Policy*);
c) any relevant reports prepared by other governmental or professional research organisations that relate to the receiving environment to which the REMP applies;
d) water and sediment quality targets within the receiving environment to be achieved and clarification of contaminant concentrations or levels indicating adverse environmental impacts during the period upon which the REMP applies;
e) monitoring for any potential adverse environmental impacts caused by a release;
f) monitoring of stream flow or alternative estimation method to gain an understanding of the hydrology of the receiving waters and the circumstances under which releases occur;
g) monitoring of toxicants that must consider the indicators specified in Table H3 - Release Water Contaminant Limits or H6 – Receiving Water Trigger Levels (Wet Season – December to April) (South of Embley) and to assess the extent of the compliance of concentrations with water quality objectives and/or the ANZECC & ARMCANZ (2000) Guidelines for slightly to moderately disturbed ecosystems;
h) monitoring of physical and chemical parameters including as a minimum those specified in Table H3 - Release Water Contaminant Limits or H6 – Receiving Water Trigger Levels (Wet Season – December to April) (South of Embley) (in addition to dissolved oxygen saturation and temperature). The list of quality characteristics required to be monitored as per Table H3 - Release Water Contaminant Limits and H6 – Receiving Water Trigger Levels (Wet Season – December to April) (South of Embley) will be reviewed once the results of the monitoring data become available. If it is determined that there is no need to monitor for certain individual quality characteristics then these can be removed from Table H3 - Release Water Contaminant Limits or H6 – Receiving Water Trigger Levels (Wet Season – December to April) (South of Embley);
i) monitoring of biological indicators in accordance with the administering authority's monitoring and sampling manual using recognised standard methodology approved by the administering authority and monitoring metals/metalloids in sediments (in accordance with ANZECC & ARMCANZ (2000), Simpson et al (2005) *Handbook for Sediment Quality Assessment* and/or the most recent version of AS5667*.1 Guidance on Sampling of Bottom Sediments*;
j) the locations of monitoring points (including the locations of reference/upstream and downstream potentially impacted sites for each release point). Reference sites must be as representative as possible of the following criteria:
    (i) be from the same bio-geographic and climatic region;
    (ii) have similar geology, soil types and topography;
    (iii) contain a range of habitats similar to those at the potentially impacted sites;

(iv) have a similar flow regime; and
(v) not be so close to the potentially impacted sites that any disturbance at the potentially impacted sites also results in a change at the reference site; and,

k) a frequency or scheduling of sampling and analysis that is sufficient to determine water quality objectives and to derive site specific reference values within two (2) years (depending on wet season flows) in accordance with the *Queensland Water Quality Guidelines*. For ephemeral streams, this should include periods of flow irrespective of mine or other discharges;
l) specify sampling and analysis methods and quality assurance and control;
m) any historical datasets to be relied upon;
n) description of the statistical basis on which conclusions are drawn;
o) any spatial and temporal controls to exclude potential confounding factors; and
p) inclusion of additional monitoring points at least twelve (12) months prior to potential impact on the site as set out in the Plan of Operations.

(H18) A report outlining the findings of the REMP including all monitoring results and interpretations in accordance with Condition (H16) must be prepared and submitted in writing to the administering authority:

(a) for the area north of the Embley River by 31 January 2015; and

(b) for the area south of the Embley River within two (2) years of the submission of the REMP.

This should include an assessment of reference water quality, any assimilative capacity for those contaminants monitored and the suitability of current discharge limits to protect downstream environment values and include recommendations to set appropriate contaminant limits for the purpose of Conditions (H11) and (H14).

Water Supply Dam (South of Embley)

(H19) Groundwater abstracted from artesian bores located on ML7024 must not be directed to the Water Supply Dam (Dam C).

(H20) Water may be released from the Water Supply Dam (Dam C) at the release point identified as Dam C valve or spillway.

Groundwater

(H21) Groundwater monitoring bores installed after 30 August 2011 must be constructed and operated in accordance with methods prescribed in the latest edition of the manual titled *Minimum Construction Requirements for Water Bores in Australia.*

(H22) Annual groundwater monitoring reports analysing groundwater chemistry and hydro-geological status of all sub-artesian groundwater bores and groundwater conditions must be prepared and submitted to the administering authority on request.

Groundwater Monitoring (South of Embley)

(H23) Groundwater level (surface RL[1]) and water quality must be monitored if it is safe to do so at the locations and frequencies specified in Table H7 - Groundwater Monitoring Locations (South of Embley).

Table H7 - Groundwater Monitoring Locations (South of Embley)

Monitoring Location	Coordinates (GDA94 MGA z54)		Quality Characteristic	Monitoring Frequency
	Northing	Easting		
GM1 (Boyd MIA)	8570992	568847	Surface RL[1] (m), Total P, Total N, Ammonia, pH, Electrical Conductivity	Quarterly
GM2 (Boyd MIA)	8570697	568414		
GM3 (Norman Creek MIA)	TBD[2]	TBD[2]		
GM4 (Norman Creek MIA)	TBD[2]	TBD[2]		
GM5 (Torro TSF North)	8569770	568507	Surface RL[1] (m), pH, Electrical Conductivity	
GM6 (Torro TSF East)	8568410	569696		
GM7 (Torro TSF South)	8565436	569696		
GM8 (Torro TSF West)	8567655	567152		
GM9 (Norman Creek TSF North)	TBD[2]	TBD[2]		
GM10 (Norman Creek TSF East)	TBD[2]	TBD[2]		
GM11 (Norman Creek TSF South)	TBD[2]	TBD[2]		
GM12 (Norman Creek TSF West)	TBD[2]	TBD[2]		
GM13 (upgradient of mining areas)	8569755	580485	Surface RL[1] (m), pH, Electrical Conductivity	Quarterly
GM14 (within mining areas)	8568664	573303		
GM15 (downgradient of mining areas)	8566726	572991		
GM16 (upgradient of mining areas)	8574092	580496		
GM17 (within mining areas)	8571720	573093		
GM18 (downgradient of mining areas)	8571564	571080		
Bore 1	8570666	573297		
Bore 3	8572656	576494		
MB01	8564656	567707		
MB02	8563676	570084		
MB03a	8569770	568507		
MB04	8566660	572490		
SOE10	8566680	565313		

[1] RL must be measured to the nearest 5cm from the top of the bore casing.
[2] To be determined and notified to the administering authority upon construction of the bore.
Note: Groundwater monitoring locations in the area north of the Embley River are identified in the REMP (in accordance with Condition H17)

(H24) The Environmental Authority holder may request, as a part of the report prepared under Condition (H22) that the Administering Authority reduce the frequency of monitoring or vary the water quality parameters monitored.

Stormwater, Sediment and Erosion Controls

(H25) An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of mining activities on the mining lease(s) to prevent or minimise erosion and the release of sediment to receiving waters and the contamination of storm water for:

(a) areas other than land south of the Embley River by 1 March 2013; and

(b) prior to commencement of significant construction work for areas south of the Embley River.

(H26) The Erosion and Sediment Control Plan must provide for at least the following stormwater management functions and be made available to the administering authority upon request:

(a) prevent or minimise the contamination of stormwater;

(b) diverting uncontaminated stormwater run-off around areas disturbed by mining activities or where contaminants or wastes are stored or handled;

(c) contaminated stormwater runoff, incident rainfall and leachate is collected; and treated, reused, or released in accordance with the conditions of this environmental authority;

(d) roofing where practicable or minimising the size of areas where contaminants or wastes are stored or handled;

(e) using alternate materials and or processes (such as dry absorbents) to clean up spills that will minimise the generation of contaminated waters;

(f) erosion and sediment control structures are placed to minimise erosion of disturbed areas and prevent the contamination of any waters;

(g) procedures to ensure that erosion and sediment control structures are maintained and adequate storage is available in sediment dams in accordance with design criteria; and

(h) training of staff that will be responsible for maintenance and operations of erosion and sediment control structures.

(i) for areas south of the Embley River the plan must also provide for:
  (i) restrict clearing to areas essential for mining and associated facilities;
  (ii) vegetation clearing and topsoil stripping will occur following the wet season where possible;
  (iii) backfilled pits will be revegetated as soon practicable;
  (iv) in the event that active or backfilled pits are not fully internally draining, storm water runoff must be directed via a sediment pond;
  (v) disturbed areas around construction sites must be rehabilitated promptly if not in an area subject to mining or infrastructure;
  (vi) sediment traps must be included as part of the drainage designs at points where haul roads cross watercourses; and
  (vii) relevant aspects of the engineering Guidelines for Queensland for Soil Erosion and Sediment Control will be followed.

(H27) Erosion protection and sediment control measures must be implemented and maintained to minimise erosion and the release of sediment and contamination of stormwater as described in the Erosion and Sediment Control Plan.

(H28) Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable to minimise the release of wastes, contaminants or materials to any stormwater drainage system or receiving waters.

(H29) Sediment dams identified in Table H1 - Release Points (point source release) in the area south of Embley River must be designed and constructed with a minimum volume equivalent to a 1 in 10 year Annual Exceedance Probability (AEP) 24-hour storm event and must be maintained above the maximum sediment deposition levels.

(H30) Sediment dams constructed in the area south of Embley River as part of erosion and sediment control measures that treat releases of water from extraction areas to surface waters or to a place that is reasonably expected to reach surface water are to be built at a minimum with a volume equivalent to a 1 in 10 year Annual Exceedance Probability (AEP) 24-hour storm event and must be maintained above the maximum sediment deposition levels.

Water Management Plan

(H31) A Water Management Plan must be developed and implemented for areas other than land south of the Embley River by 31 August 2012 and prior to commencement of significant construction work for areas south of the Embley River. The Water Management Plan shall provide for the proper and effective management of the actual and potential environmental impacts resulting from the mining activity and to ensure compliance with the conditions of this environmental authority.

(H32) The Water Management Plan must include at least the following components:

(a) contaminant source study;
(b) site water balance and model;
(c) water management system;
(d) saline drainage prevention and management measures;
(e) emergency and contingency planning; and
(f) monitoring and review.

(H33) Each year the holder of this environmental authority must undertake a review of the Water Management Plan no later than 1 November to ensure that proper and effective *measures, practices or procedures are in place so that the mine is* operated in accordance with the conditions of this environmental authority and that environmental harm is prevented or minimised.

(H34) A copy of the Water Management Plan and/or a copy of the final review document of the Water Management Plan must be provided to the administering authority on request.

Vehicle Wash Down Bays (South of Embley)

(H35) Water from the heavy and light vehicle wash bays in the infrastructure areas south of the Embley River must be treated with oil water separators prior to release.

PFAS Sampling and Monitoring

(H36) The holder of this environmental authority must develop a PFAS Monitoring and Management Program to manage PFAS risks on site and monitor for, identify, and describe any impacts of PFAS to environmental values of the receiving environment.

(H37) The PFAS Monitoring and Management Program must be implemented by 01 December 2020.

(H38) The PFAS Monitoring and Management Program must at a minimum:

(a) include biannual monitoring of surface water and groundwater;
(b) Include annual monitoring of sediments; and
(c) document sampling and monitoring methodology in accordance with the *National Environmental Management Plan for PFAS* and the *National Environmental Protection (Assessment of Contaminated Land) Measure 1999*;
(d) ensure that monitoring and data analysis is undertaken to detect any change to PFAS contaminant levels as presented in the *PFAS Detailed Site Investigation (Revision 0, April 2019)*;
(e) assess the risk to the receiving environment in the event that an increase in PFAS contaminant levels is detected;
(f) document the arrangements for managing PFAS-contaminated soil and water on site;
(g) document remediation and management measures necessary for preventing or minimising impacts of PFAS to environmental values of the receiving environment.
(h) be consistent with the locations, compounds, and methodology identified in the *PFAS Sampling Analysis and Quality Plan (26 August 2019)* unless otherwise agreed with the administering authority.
(i) at a minimum monitor for each of the quality characteristics specified in Table H8– PFAS contaminant sampling.

Table H8 – PFAS contaminant sampling.

Media	Description	PFAS (Per- and poly-fluoroalkyl substances)
Groundwater	Drinking Water	PFOS
		PFOA
		Sum of PFHxS and PFOS
Surface water	Aquatic ecosystem	PFOA
		PFOS
	Recreational water	PFOS
		PFOA
		Sum of PFHxS and PFOS

PFOS - Perfluorooctane sulfonate
PFHxS - Perfluorohexane sulfonic acid
PFOA - Perfluorooctanoic acid

(H39) The PFAS Monitoring and Management Program must be described in a document, which must be provided to the administering authority upon request.

(H40) A report outlining the findings of the PFAS Monitoring and Management Program, including all monitoring results, interpretations and assumptions relied upon, must be prepared by an appropriately qualified person and submitted to the administering authority by 01 December 2021 and thereafter every twelve (12) months.

END OF CONDITIONS FOR SCHEDULE H

SCHEDULE I – SEWAGE TREATMENT

Awonga Point STP – General

(I1) The activity conducted under this environmental authority must not be conducted contrary to any of the following limitations:

(a) As a minimum, inflows up to 3.6 ML/day must be treated through the standard process of the plant; and

(b) Flows in excess of 3.6ML/day may be bypassed.

Note: The minimum treatment capacity of 3.6 ML/day is three (3) times the Design Average Dry Weather Flow (DADWF) of 1.2 ML/day.

Awonga Point STP - Release to Waters

(I2) Treated sewage effluent and bypass must only be released to surface waters at the release point identified in Table I1 – Release Point & Schedule L and Plan 6 – Awonga Point Sewage Treatment Plant Water Release & Water Quality Monitoring Sites.

Table I1 – Release Point

Description	Coordinates (GDA94 MGA z54)		Release Point
	Easting	Northing	
Awonga Point Sewage Treatment Plant submerged outfall	597148	8606812	Mission River - 60m offshore

(I3) Releases to waters:

(a) must be monitored at the location identified in Table I2 – Monitoring Location and Schedule L Plan 6 – Awonga Point Sewage Treatment Plant Water Release & Water Quality Monitoring Sites for each quality characteristic and at the frequency stated in Table I3 - Release Water Contaminant Limits; and

(b) excluding bypass releases covered by EA conditions (I7) must not exceed the contaminant limits stated in Table I3 – Release Water Contaminant Limits and the conditions of this environmental authority.

Table I2 – Monitoring Location

Description	Location
Awonga Point Sewage Treatment Plant outflow pipeline	Awonga Point Sewage Treatment Plant

Table I3 – Release Water Contaminant Limits

Quality Characteristic	Unit	Release Limit	Limit Type	Frequency
5 day Biochemical oxygen demand (BOD)	mg/L	30 10 5	Maximum 50th percentile short term 50th percentile long term	Weekly
Total Suspended Solids	mg/L	45 15 10	Maximum 50th percentile short term 50th percentile long term	
Total Residual Chlorine	mg/L	0.55	Maximum	
Dissolved Oxygen	mg/L	2	Minimum	
pH	pH units	6.0 - 8.5	Range	

Quality Characteristic	Unit	Release Limit	Limit Type	Frequency
Temperature	°C	<2% increase	Range	
Thermo-tolerant Coliforms	CFU / 100ml	1000	Maximum	Fortnightly
Ammonia	mg/L	6 2 1	Maximum 50th percentile short term 50th percentile long term	
Total Nitrogen	mg/L	10 5	Maximum 50th percentile long term	
Total Phosphorus	mg/L	2 1	Maximum 50th percentile long term	

(I4) Calculate and keep records of daily, median monthly and annual mass loads of total nitrogen and total phosphorus released to waters at the monitoring point identified in Table I2 – Monitoring Point. Mass loads must be calculated by the following formula:

(a) Daily Mass Load = Measured value[1] of contaminant (mg/L) x Daily Flow for release point;
(b) Monthly Mass Load = the sum of all the daily mass loads for that month; and
(c) Annual Load = the sum of the daily mass loads released for that calendar year

[1] The measured value being the value measured that day or on the most recent sampling occasion if not measured that day.

(I5) The daily volume of contaminants released to waters must be determined or estimated by an appropriate method, for example a flow meter and records kept of such determinations and estimates.

(I6) In addition to condition (I3) and excluding bypass releases, the release to waters must not produce any slick or other visible evidence of oil or grease, nor contain visible floating oil, grease, scum, litter, or other visually objectionable matter.

(I7) Bypass flows must be screened prior to redirection into the Awonga Point Stormwater Lagoon or release via the release point identified in Table I1 – Release Point.

(I8) The administering authority must be notified within 24 hours of any bypass release ceasing.

(I9) The following details must be recorded in relation to each bypass release:

(a) the start time, date and duration of the release;

(b) the estimated volume of the bypass release;

(c) the level of treatment at the sewage treatment plant prior to discharge;

(d) the cause of the release; and

(e) any monitoring of the water quality released.

Awonga Point STP - Receiving Waters

(I10) The quality of the receiving waters must be monitored at the locations specified in Table I5 - Receiving Water Reference Sites and Downstream Monitoring Points for each quality characteristic and at the frequency stated in Table I6 - Receiving Waters Contaminant Trigger Levels.

Table I5 - Receiving Water Reference Sites and Downstream Monitoring Points

Monitoring Points	Receiving Waters Location Description	Coordinates (GDA94 MGA z54)	
		Easting	Northing
Reference[1] Monitoring Points			
SW/MIS/UPS	Mission River	603973	8608448
SW/EMB/UPS	Embley River	618204	8593092
Downstream Monitoring Points			
SW/MIS/MID	Mission River	597137	8607542

Monitoring Points	Receiving Waters Location Description	Coordinates (GDA94 MGA z54)	
		Easting	Northing

[1] A minimum of two (2) sites must be nominated for reference monitoring points
[2] To be determined based on Receiving Environment Monitoring Program

(I11) If the quality characteristics of a downstream monitoring point exceed any of the trigger levels specified in Table I6 - Receiving Waters Contaminant Trigger Levels, the holder of this environmental authority must compare the results of the downstream monitoring site to the data from reference monitoring sites and:

(a) if the level of contaminants at the downstream site does not exceed the reference monitoring site data, then no action is to be taken; or
(b) if the level of contaminants at the downstream site is greater than the reference monitoring site data, complete an investigation in accordance with the ANZECC & ARMCANZ (2000) methodology into the potential for environmental harm and provide a written report to the administering authority within three (3) months outlining:
    (i) details of the investigations carried out; and
    (ii) actions taken to prevent environmental harm, if any actions have occurred.

Note: Where an exceedance of a trigger level has occurred and is being investigated in accordance with I11 (b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.

Table I6 - Receiving Waters Contaminant Trigger Levels

Quality Characteristic	Unit	Trigger Level	Trigger Type	Frequency
Dissolved Oxygen	mg/L	2.6mg/L	Minimum	Monthly
pH	pH units	7.0[1] (minimum) 8.5[1] (maximum)	Range *The median pH level of 12-month period should be within trigger level range.*	
Thermo-tolerant Coliforms	CFU / 100ml	1000	Maximum *The median bacterial content of a 12-month period should not exceed 1000 faecal coliform organisms/100mL.*	
Ammonia	µg/L	36	Maximum *A trigger for further investigation will be deemed to have occurred when the median concentration of samples taken over a 12-month period at a test site exceeds the trigger level.*	
Total Nitrogen	µg/L	310		
Total Phosphorus	µg/L	20		
Oil & Grease		No visible film	Observation during each sampling run.	
Temperature	For interpretation purposes only			

[1] Default trigger levels – from ANZECC (2000) trigger levels for aquatic ecosystems indicative of slightly disturbed tropical Australian estuarine ecosystems.

Awonga Point STP - Receiving Environment Monitoring Program

(I12) A Receiving Environment Monitoring Program (REMP) must be developed and implemented by 1 July 2012 to monitor and record the effects of the release of contaminants on the receiving environment periodically and whilst contaminants are being discharged from the mining lease(s) with the aim of identifying and describing the extent of any adverse impacts on local environmental values and to monitor any changes in the receiving water (including groundwater). A copy of the REMP and any update or variation of the REMP following adoption of a new Plan of Operations must be provided to

the administering authority prior to its implementation and due consideration given to any comments made on the REMP by the administering authority.

Note: For the purposes of the REMP, the receiving environment is the waters and connected waterways downstream (including groundwater) of any release associated with the Awonga Point Sewage Treatment Plant.

(I13) The REMP must address (but not necessarily be limited to) the following:

(a) description of potentially affected receiving groundwaters and surface waters including key communities and reference water quality and sediment characteristics based on accurate and reliable monitoring data that takes into consideration any temporal variation (e.g. seasonality);
(b) description of applicable environmental values and water quality objectives to be achieved (i.e. as scheduled pursuant to the *Environmental Protection (Water) Policy);*
(c) any relevant reports prepared by other governmental or professional research organisations that relate to the receiving environment to which the REMP applies;
(d) water and sediment quality targets within the receiving environment to be achieved and clarification of contaminant concentrations or levels indicating adverse environmental impacts during the period upon which the REMP applies;
(e) monitoring for any potential adverse environmental impacts caused by a release;
(f) monitoring of stream flow or alternative estimation method to gain an understanding of the hydrology of the receiving waters and the circumstances under which releases occur;
(g) monitoring of toxicants that must consider the indicators specified in Table I6 - Receiving Waters Contaminant Trigger Levels to assess the extent of the compliance of concentrations with water quality objectives and/or the ANZECC & ARMCANZ (2000) Guidelines for slightly to moderately disturbed ecosystems;
(h) monitoring of physical and chemical parameters including as a minimum those specified in Table I6 - Receiving Waters Contaminant Trigger Levels (in addition to temperature). The list of quality characteristics required to be monitored as per Table I6 - Receiving Waters Contaminant Trigger Levels will be reviewed once the results of the monitoring data become available. If it is determined that there is no need to monitor for certain individual quality characteristics then these can be removed from Table I6 - Receiving Waters Contaminant Trigger Levels;
(i) monitoring of biological indicators in accordance with the administering authority's monitoring and sampling manual using recognised standard methodology approved by the administering authority and monitoring metals/metalloids in sediments (in accordance with ANZECC & ARMCANZ (2000), Simpson et al (2005) *Handbook for Sediment Quality Assessment* and/or the most recent version of AS5667*.1 Guidance on Sampling of Bottom Sediments*;
(j) the locations of monitoring points (including the locations of reference/upstream and downstream potentially impacted sites for each release point). Reference sites must comply with the following criteria:
    (i) be from the same bio-geographic and climatic region;
    (ii) have similar geology, soil types and topography;
    (iii) contain a range of habitats similar to those at the potentially impacted sites;
    (iv) have a similar flow regime; and
    (v) not be so close to the potentially impacted sites that any disturbance at the potentially
    (vi) impacted sites also results in a change at the reference site;
(k) a frequency or scheduling of sampling and analysis sufficient to determine water quality objectives and to derive site specific reference values within two (2) years (depending on wet season flows) in accordance with the *Queensland Water Quality Guidelines*. For ephemeral streams, this should include periods of flow irrespective of mine or other discharges;
(l) specify sampling and analysis methods and quality assurance and control;
(m) any historical datasets to be relied upon;
(n) description of the statistical basis on which conclusions are drawn;
(o) any spatial and temporal controls to exclude potential confounding factors;
(p) inclusion of additional monitoring points at least twelve (12) months prior to potential impact on the site as set out in the Plan of Operations.

(I14) A report outlining the findings of the REMP including all monitoring results and interpretations in accordance with Condition (I13) must be prepared and submitted in writing to the administering authority by 31 January 2015. This should include an assessment of reference water quality, any assimilative capacity for those contaminants monitored and the suitability of current discharge limits to protect downstream environment values and include recommendations to set appropriate contaminant limits for the purpose of Condition (I13).

Awonga Point STP - Waste Management

(I15) Screenings, grit, sewage and wastewater treatment plant sludge generated by the sewage treatment process at the Awonga Point Sewage Treatment Plant must not be stored at the Awonga Point Sewage Treatment Plant for any period of time longer than necessary to dewater the screenings, grit and sludge and prepare it for transport and disposal at the Evans Landing Landfill.

(I16) Screenings, grit, sewage and wastewater treatment plant sludge's generated must be stored, managed and utilised so as not to cause environmental harm.

(I17) Sewage sludge generated on the mining lease(s) must be monitored at least annually to obtain the following information:

(a) the estimated annual quantity and nature of each sludge produced; and

(b) the current method(s) of pre-treatment or disposal.

Awonga Point STP - Sewage Pump Stations

(I18) Pump stations must be fitted with stand-by pumps and pump-failure alarms as well as high level alarms to warn of imminent pump station overflow. All alarms must be able to operate without mains power.

(I19) Plant and equipment must be designed to allow for continued operation during flood events and inundation of the site.

Awonga Point STP - Sewage Treatment Pond Conditions

(I20) The Awonga Point Sewage Treatment lagoon must be available to hold at least 10ML, excluding the freeboard allowance.

(I21) All ponds used for the storage or treatment of contaminants, sewage or wastes at the Awonga Point Sewage Treatment Plant must be constructed, installed and maintained:

(a) to minimise the likelihood of any release of effluent through the bed or banks of the pond to any waters (including ground water);
(b) so that a freeboard of not less than 300mm is maintained for all design conditions;
(c) to ensure the stability of the ponds' construction; and
(d) to prevent access to waters by all livestock and minimise access by native fauna.

Boyd and Norman Creek Mine Infrastructure Area (MIA) STP - Release to Waters

(I22) Treated sewage effluent must only be directly released to receiving waters from the release points identified in Table I7 – Release Points for the Boyd and Norman Creek MIA STP, and in accordance with the conditions of this environmental authority.

Table I7 – Release Points for the Boyd and Norman Creek MIA STP

Release Point	Description of Water Released	Contaminant Source	Description & Nature of Receiving Waters	Monitoring Location	Coordinates (GDA94 MGAz54)	
					Easting	Northing
Boyd MIA Drainage Slot spillway	Treated effluent mixed with other waters from the water management structures	Boyd MIA Sewage Treatment Plant	Gulf of Carpentaria via unnamed drainage.	Boyd MIA Sewage Treatment Plant	0568779	8570784
		Boyd Accommodation Village Sewage Treatment Plant		Boyd Accommodation Village Sewage Treatment Plant	577711	8575105
Norman Creek MIA Drainage Slot spillway		Norman Creek MIA Sewage Treatment Plant	TBD[1]	Norman Creek MIA Sewage Treatment Plant	TBD[1]	TBD[1]

[1] To be determined and notified to the administering authority upon commissioning.

(I23) Treated sewage effluent released to receiving waters must:

(a) be monitored at the location identified in Table I7 – Release Points for the Boyd and Norman Creek MIA STP;

(b) not exceed the contaminant limits stated in Table I8 – Release Water Contaminant Limits.

Table I8 – Release Water Contaminant Limits

Quality Characteristic	Unit	Contaminant Limit	Limit Type	Frequency
5 day Biochemical Oxygen Demand (BOD)	mg/L	30 20	Maximum Median	Weekly
Total Suspended Solids	mg/L	45 15 10	Maximum 50th percentile short term 50th percentile long term	
pH	pH units	6.0 - 8.5	Range	
Thermo-tolerant Coliforms	CFU / 100ml	1000[3] 10[2]	Maximum[3] Median [1,2]	Fortnightly

[1] Median value must be based on at least 5 but no more than 10 consecutive samples.
[2] Note: Based on Class A recycled water, as outlined under the Queensland Water Recycling Guidelines, December 2005, Table 6.2b.
[3] Note: Based on Class C recycled water, as outlined under the Queensland Water Recycling Guidelines, December 2005, Table 6.2b.

(I24) The release of contaminants to waters must not:

(a) produce any slick, discoloration of ambient waters or visible evidence of oil or grease;

(b) contain visible floating oil, grease, scum, litter or other objectionable matter; or

(c) have any other properties or contain any other contaminants in concentrations that may cause environmental harm.

Waste Management (South of Embley)

(I25) Upon decommissioning, screenings, grit and sewage treatment plant sludge in drying beds located at the Boyd Infrastructure Area Sewage Treatment Plant, the Norman Creek Infrastructure Area Sewage Treatment Plant, the Boyd Accommodation Village Sewage Treatment Plant and temporary camps in the south of the Embley River must be rehabilitated using a low permeability cap, or removed to a licensed facility. The cap must conform to the following criteria:

(a) consists of at least 300 mm of compacted material;

(b) achieve a maximum permeability of 1 x 10^{-7}metres per second;

(c) minimise infiltration of water into the waste and ponding of water on the surface of the site; and

(d) is resistant to erosion by surface water flows.

(I26) Screenings, grit, sewage and wastewater treatment plant sludge's generated at the Boyd Infrastructure Area Sewage Treatment Plant, the Norman Creek Infrastructure Area Sewage Treatment Plant, the Boyd Accommodation Village Sewage Treatment Plant and temporary camps in the area south of the Embley River must be stored, managed and utilised so as not to cause environmental harm.

(I27) Sewage sludge generated at the Boyd Infrastructure Area Sewage Treatment Plant and the Norman Creek Infrastructure Area Sewage Treatment Plant, the Boyd Accommodation Village Sewage Treatment Plant and temporary camps in the area south of the Embley River must be monitored at least annually to obtain the following information:

(a) the estimated annual quantity and nature of each sludge produced; and

(b) the current method(s) of pre-treatment or disposal.

(I28) Plant and equipment must be designed to allow for continued operation during flood events and inundation of the site.

Release to Land

(I29) Sewage effluent (including treated sewage effluent released to land within the nominated irrigation areas) must only be released to land within the areas identified in Table I9 – Release Points to Land and Schedule L Plan 7 - Release Points to Land (East Weipa) and Plan 8 - Release Points to Land (South of Embley).

(I30) Monitoring of the release of contaminants to land from sewage systems must be undertaken at the monitoring locations and in accordance with the monitoring frequency identified in Table I9 – Release Points to Land for the quality characteristics identified in Table I10 – Contaminant Release Limits to Land.

Table I9 – Release Points to Land

Release Point[1]	**Description of Land Releases**	**Contaminant Source**	**Coordinates (GDA94 MGA z54)/ Monitoring Location**		**Monitoring Frequency**
			Easting	**Northing**	
Sewage Systems – North of Embley					
Rail Workshop	Treated Effluent - Trench Discharge	Septic System	593687	8600564	N/A
Beneficiation Control Area			594613	8599711	
Occupational Training Centre			594720	8599781	
Heavy Equipment Workshop	Treated Effluent - Evapotranspiration Bed Discharge	Icon Septech System	601739	8599814	N/A
Domestic Airport	Treated Effluent - Trench Discharge	Septic System	TBD[1]	TBD[1]	
Sewage System – South of Embley					
Temporary camps in area south of Embley River	Treated Effluent - Irrigation Discharge to Irrigation Area	Package Sewage Treatment Plant	TBD[1]	TBD[1]	Fortnightly
			578224	8575242	

Release Point[1]	Description of Land Releases	Contaminant Source	Coordinates (GDA94 MGA z54)/ Monitoring Location		Monitoring Frequency
			Easting	Northing	
Boyd Accommodation Village	Treated Effluent - Irrigation Discharge to Irrigation Area	Boyd Accommodation Village Sewage Treatment Plant	577711	8575105	
Sewage System – North of Weipa					
North of Weipa camp	Treated Effluent – Trench Discharge	Septic System	TBD[2]	TBD[2]	N/A

[1] To be determined and notified to the administering authority upon final design.

[2] To be determined and notified to the administering authority on completion of installation.

(I31) The release of contaminants to land from the release points defined in Table I9 – Release Points to Land must not exceed the contaminant limits stated in Table I10 - Contaminant Release Limits to Land (for irrigation systems only).

Table I10 – Contaminant Release Limits to Land

Quality Characteristic	Unit	Release Limit	Limit Type
5 day Biochemical oxygen demand (BOD)	mg/L	20[1]	Maximum
Total Suspended Solids	mg/L	30	Maximum
Nitrogen	mg/L	30 10 5	Maximum 50th percentile short term 50th percentile long term
Phosphorus	mg/L	15 8 5	Maximum 50th percentile short term 50th percentile long term
E coli	Organisms/100ml	200	Maximum
		10[2]	95% of samples taken over 12 months[2]
Faecal Coliforms	CFU/100ml	1000[1]	Maximum
		10[2]	95% of samples taken over 12 months[2]
pH	pH units	6.0 - 8.5	Range

[1] Based on at least 5 but no more than 10 consecutive samples.

[2] Contaminant release limits and limit type applies only to the release point identified as the temporary camp in area south of Embley River in Table I9 – Release Points to Land.

Septic Systems

(I32) Septic systems specified in Table I9– Release Points to Land must be designed, operated and maintained in accordance with the relevant Australian standard.

Irrigation of Treated Sewage Effluent

(I33) Treated effluent release to land through an irrigation system identified in Table I9 – Release Points to Land must utilise a minimum area 1000m^2 of land, excluding any necessary buffer zones, for the irrigation of treated sewage effluent.

(I34) The daily volume of effluent released to land must be determined or estimated by an appropriate method, for example a flow meter and records kept of the volumes of effluent released.

(I35) Any sewage system with a total daily peak design capacity of less than twenty-one (21) equivalent persons must be designed, operated and maintained in accordance with the relevant Australian Standard.

(I36) Excluding the sewage treatment plant for the temporary camp in the area south of the Embley River, treated sewage effluent may only be released to land by irrigation in accordance with the following outcomes:

(a) efficient application of effluent;
(b) control of sodicity in the soil;
(c) minimal degradation of soil structure;
(d) control of the build-up of nutrients and heavy metals in the soil and subsoil from effluent and other sources;
(e) prevention of subterranean flows of effluent to waters;
(f) prevention of impacts on the groundwater resource through infiltration;
(g) prevention of the run-off of effluent or seepage from disposal areas by limitation of application rates and the use of structures such as bunds and catch dams;
(h) prevention of surface ponding; and
(i) prevention of damage to native vegetation;

(I37) Treated sewage effluent from the temporary camp in the area south of the Embley River may only be released to land by irrigation in accordance with the following outcomes:

(a) efficient application of effluent;
(b) prevention of subterranean flows of effluent to waters;
(c) prevention of impacts on the groundwater resource through infiltration;
(d) prevention of the run-off of effluent or seepage from disposal areas by limitation of application rates and the use of structures such as bunds and catch dams where required;
(e) prevention of surface ponding; and
(f) prevention of damage to native vegetation;

(I38) The holder of this environmental authority must take all measures to ensure that persons are not exposed to pathogens in treated sewage effluent released to land by irrigation as identified in Table I9 – Release Points to Land including, but not limited to:

(a) prevention of spraydrift or overspray from effluent disposal areas through the selection of irrigator equipment with low exposure risk;
(b) appropriate timing of irrigation;
(c) restriction of access to areas either being irrigated or that are freshly irrigated;
(d) buffers between irrigation areas and areas of human occupation; and
(e) provide prominent signage in areas irrigated with effluent and which are accessible, advising that effluent should not be consumed or used.

END OF CONDITIONS FOR SCHEDULE I

SCHEDULE J – MARINE

Release to Waters

(J1) In carrying out dredging activities, the release of contaminants (including any release caused by extraction of material from the bed and banks of waters) must:

(a) only occur from the permitted areas identified in the plan(s) referred to in Condition (J22).

(b) only occur in accordance with conditions of this environmental authority.

(c) be carried out taking all practical measures necessary to minimise the concentration of suspended solids released during the loading of the vessel.

(J2) Once a vessel has berthed, the use of the vessel's propulsion system must be minimised to the extent practicable and safe to reduce the risk of disturbance to the seabed during loading/unloading operations at the Hey River barge/ferry terminal ramp.

(J3) Bed levelling activities must not result in the release of contaminants to waters.

(J4) Treat and manage acid sulphate soils in accordance with the latest edition of the Queensland Acid Sulfate Soil Technical Manual.

Dredging - General

(J5) The administering authority must be advised in writing at least (5) business days prior to the date of commencement of a capital or maintenance dredging campaigns.

(J6) The administering authority must be advised in writing within ten (10) days following completion of the capital or maintenance dredging campaigns.

Trained/Experienced Operators

(J7) All persons engaged in the conduct of dredging activities including but not limited to employees and contract staff must be:

(a) trained in the procedures and practices necessary to:

(i) comply with the conditions of this environmental authority; and

(ii) prevent environmental harm during normal operation and emergencies, or

(b) under the close supervision of a trained person.

Measures and Equipment

(J8) Any dredging activities must be conducted using equipment that is in survey and registered and, in relation to environmental performance, is equal to or superior to the following equipment:

(a) Trailing Suction Hopper Dredge that is equipped, at a minimum, with:
(i) below keel discharge of tail waters via an anti-turbidity control valve;
(ii) on-board systems for determining solids to water ratio or density of dredged material;
(iii) electronic positioning and depth control system for defining the location and depth of dredging activities; and
(iv) dredge heads capable of, and where appropriate, depth control and fitted with marine wildlife protection or fauna exclusion devices (e.g. turtle deflector, deflector plates, tickler chains or drag heads) prior to and during operation.

(b) Cutter Suction Dredge that is equipped, at a minimum, with:

(i) electronic positioning and depth control system for defining the location and depth of dredging activities;
(ii) a system or process to ensure the delivery system integrity is maintained at all times; and

(iii) systems for determining solids to water ratio or density of dredged material during operations.

(c) Grab Dredge or barge mounted back hoe that is equipped, as a minimum, with:

(i) electronic positioning system for defining the location and depth of dredge activities.

(J9) Where trailer suction dredging is carried out, an effective turtle exclusion device must be fitted to the dredge head. Evidence that this device has been installed and used on the dredge for the entire period of the dredging activity must be provided to the administering authority on request.

Dredge Management Plans

(J10) The following Dredge Management Plans must be provided to the administering authority for review no later than 6 months or any other period as agreed by the administering authority prior to dredging commencing:

(a) any capital dredge campaign at Boyd Port;
(b) any capital dredge campaign at Hey River terminal;
(c) any long term maintenance dredge program.

(J11) Dredging activities can only be carried out when the final dredge management plans are approved by the administering authority.

(J12) All dredging must be undertaken in accordance with a dredge management plan/s (DMP/s) based on the draft DMP/s in the Supplementary Report to the Environmental Impact Statement approved by DEHP prior to dredging commencing.

(J13) The final Initial Capital Dredge Management Plan for Boyd Port must be consistent with the conditions of this environmental authority and must:

(a) include results of 3D modelling, or alternative methodology as agreed with the administering authority, to:
    (i) estimate sediment plumes generated by capital dredging and spoil disposal operations for Boyd Port;
    (ii) details the turbidity through the water column;
    (iii) define the Zones of Influence of the dredging and spoil disposal sediment plumes;
    (iv) identify high, moderate and low risk periods for key Concern Sites (i.e. where sensitive receptors are situated);
    (v) inform where key Concern Site monitoring locations should be situated; and
    (vi) provide risk estimates that are based on the key water quality parameters, specifically increases in turbidity, sedimentation rates, and reduction in photosynthetically active radiation (PAR), for the key Concern Sites.
(b) establish turbidity-based trigger values as shown in Table J1 - Initial Boyd Port Capital Dredge Monitoring: Water Quality Trigger Levels, that:
    (i) considers, and is informed by, the findings of all relevant published studies, including available water quality guidelines, trigger values from other comparable dredging programs with similar environmental conditions, and site specific baseline data;
    (ii) considers the most sensitive receptor type and the most relevant water quality parameters (e.g. turbidity, PAR, sedimentation rate) and the reported impacts of turbidity on coral health from the literature and other dredging programs in areas with near shore coral reefs;
    (iii) includes season-specific turbidity trigger values;
    (iv) considers sediment plume intensity, duration and frequency of occurrence in establishing trigger values;
    (v) considers the additive effect of multiple stressors; and
    (vi) considers the effect of depth and water column variation as predicted from the 3D modelling.
(c) implement a water quality monitoring program that includes, as a minimum, telemetered monitoring of turbidity at Reference and Concern Sites, and details:
    (i) the appropriateness of established Reference Sites to specific key Concern Sites based on demonstrated similarity of physicochemical parameter trends; and
    (ii) relationship between turbidity, PAR and sedimentation rate from baseline data at each of the Boyd Port key Concern Sites.
(d) include the telemetered monitoring system being operated and maintained for 3 months before dredging operations commence, during dredging operations, and for a period after dredging operations cease, to demonstrate that turbidity concentrations have returned to ambient levels.

(e) include a QA/QC procedure that validates and records the telemetered systems' state of calibration when performing routine maintenance, including as a minimum the measurement of turbidity and total suspended solids.
(f) develop and implement a coral health monitoring program that includes:
    (i) routine monitoring, and reactive monitoring based on exceedance of turbidity trigger values as identified in Table J1 Initial Boyd Port Capital Dredge Monitoring: Water Quality Trigger Levels;
    (ii) establishing indicator (s) that are capable of detecting adverse change in health of coral assemblages;
    (iii) a monitoring methodology that includes the use of diver-less technology appropriate for reporting on the selected coral health indicators, that maximises the data quality to provide an appropriate level of statistical power to detect change in coral health indicators; and
    (iv) a methodology that ensures that coral monitoring assessment results are not compromised due to dredging operations active at the time of monitoring.
(g) implement adaptive management processes and measures, as detailed in dredge management plans in:
    (i) Water Quality Management Process;
    (ii) Coral Health Management Process;
    (iii) Turtle and Marine Mammal Management Procedure (Dredging); and
    (iv) Turtle and Marine Mammal Management Procedure (Spoil Disposal).
(h) include reporting and review by the BPDTAG (as per condition J31).

(J14) The final Capital and Maintenance Dredge Management Plans for the Hey River facilities must be consistent with the conditions of this environmental authority and must include details of:
(a) water quality or PAR monitoring programs to be implemented or utilised;
(b) adaptive management measures; and
(c) reporting and review by the NQBP TACC in accordance with condition (J33).

Table J1 - Initial Boyd Port Capital Dredge Monitoring: Water Quality Trigger Levels

Monitoring Locations	Coordinates (GDA94 MGA z54)		Quality Characteristic	Unit	Trigger Level						Frequency
	Easting	Northing			Wet season			Dry season			
Reference Sites: TBA[3]	TBA[3]	TBA[3]	Turbidity (as a surrogate WQ parameter for PAR[1] and SR[2])	NTU	Site	85	95	Site	85	95	Continuous, Telemetered, Logged at 15 minute intervals
					I1	32	90	I1	5	9	
					I2	11	42	I2	4	6	
					I3	20	72	I3	5	6	
					I4	15	57	I4	6	8	
			PAR	Mol./m^2/d	N/A			N/A			TBD[5]
			SR	mg/cm^2/d	N/A			N/A			TBD[5]
Concern Sites: TBA[3]	TBA[3]	TBA[3]	Turbidity (as a surrogate WQ parameter for PAR and SR)	NTU	TBD[4]			TBD[4]			Continuous, Telemetered, Logged at 15 minute intervals
			PAR	Mol/m^2/d	N/A			N/A			TBD[5]
			SR	mg/cm^2/d	N/A			N/A			TBD[5]

[1] PAR means Photosynthetically Active Radiation.
[2] SR means Sedimentation Rate.
[3] To be advised based on results of modelling.
[4] To be determined in approved Dredge Management Plans: statistically derived turbidity trigger, based on site specific baseline data and trigger values from other dredging programs with similar environmental conditions together with literature on potential impacts of turbidity on coral health.
[5] To be determined in approved Initial Capital Dredge Management Plan.
Note: Trigger values may vary at different monitoring locations and the number of monitoring locations will be determined through DMP.

(J15) The long term maintenance Dredge Management Plans for Boyd Port must be consistent with the conditions of this environmental authority and must:

(a) consider results of modelling, or alternative assessment methodology as agreed with the administering authority, to:

(i) estimate sediment plumes that may be generated by maintenance dredging and spoil disposal operations for Boyd Port;
(ii) provide risk estimates relevant to sensitive receptors that are based on the key water quality parameters, specifically increases in turbidity, sedimentation rates, and reduction in photosynthetically active radiation (PAR), for the key Concern Sites(i.e. where sensitive receptors are situated); and
(iii) define the zones of Influence of the dredging and spoil disposal sediment plumes.

(b) implement a water quality monitoring program, as informed by previous dredging campaigns in consultation with the BPDTAG in accordance with condition (J31).

(c) in considering the maintenance dredging schedule consider any potential adverse effects on:

(i) coral spawning; and
(ii) marine turtle nesting.

(d) include reporting to and review by the BPDTAG in accordance with condition (J31).

(J16) All subsequent Capital Dredge Management Plans for Boyd Port must be consistent with the conditions of this environmental authority and must:

(a) consider results of modelling, or alternative assessment methodology as agreed, to:

(i) estimate the extent, duration and intensity of sediment plumes under a range of tidal and oceanic current conditions that are likely to be generated by dredging and spoil disposal operations for Boyd Port;

(ii) provide risk estimates relevant to sensitive receptors that are based on the key water quality parameters, specifically increases in turbidity, sedimentation rates, and reduction in photosynthetically active radiation (PAR), for the key Concern Sites (i.e. where sensitive receptors are situated); and

(iii) define the Zones of Influence of the dredging and spoil disposal sediment plumes;

(b) implement a Water Quality Monitoring Program, as informed by the Initial Capital Dredge Management Program and recommended by the BPDTAG (as per condition J31), with trigger values as shown in Table J2 - Boyd Port Subsequent Capital Dredge Monitoring: Water Quality Trigger Levels;

(c) implement a Coral Health Monitoring Program, as informed by the Initial Capital Dredge Management Program and recommended by the BPDTAG (as per condition J31); and

(d) include reporting and review by the BPDTAG (as per condition J31).

Table J2 - Boyd Port Subsequent Capital Dredge Monitoring: Water Quality Trigger Levels

Monitoring Locations	Coordinates (GDA94 MGA z54)		Quality Characteristic	Unit	Trigger Level		Frequency
	Easting	Northing			Wet season	Dry season	
Reference Sites: TBA[3]	TBA[3]	TBA[3]	Turbidity (as a surrogate WQ parameter for PAR[1] and SR[2])	NTU	N/A	N/A	Continuous, Telemetered, Logged at 15 minute intervals
			PAR	Mol/m^2/d	N/A	N/A	TBD[5]
			SR	mg/cm^2/d	N/A	N/A	TBD[5]
Concern Sites: TBA[3]	TBA[3]	TBA[3]	Turbidity (as a surrogate WQ parameter for PAR and SR)	NTU	TBD	TBD	Continuous, Telemetered, Logged at 15 minute intervals
			Any other parameters in accordance with (J15(b))				

[1] PAR means Photosynthetically Active Radiation.
[2] SR means Sedimentation Rate.
[3] To be advised based on results of modelling and initial capital dredging monitoring program.
[4] To be determined in approved Subsequent Capital Dredge Management Plans: statistically derived turbidity trigger, based on site specific baseline data, initial capital dredging data and trigger values from other dredging programs with similar environmental conditions together with literature on potential impacts of turbidity on coral health.
[5] To be determined in approved Subsequent Capital Dredge Management Plans

Note: Monitoring locations, quality characteristic, trigger levels and frequency will be determined in the approved subsequent Capital Dredge Management Plans which will be informed by results from the Initial Capital Dredge Management Program's Water Quality Monitoring Program.

(J17) If dredge monitoring trigger levels specified in Table J1: Initial Boyd Port Capital Dredge Monitoring: Water Quality Trigger Levels or J2 Boyd Port Subsequent Capital Dredge Monitoring: Water Quality Trigger Levels are exceeded as a result of the dredging activity:

(a) the administering authority must be advised within 24 hours of the event of the corrective action that has been or will be implemented.

(b) measures must be implemented in accordance with corrective actions specified in the approved dredge management plan.

(J18) The administering authority and the Department of Agriculture, Fisheries and Forestry must be consulted during preparation of all final Dredge Management Plans

(J19) North Queensland Bulk Ports must be consulted during preparation of the final Dredge Management Plan for Hey River.

(J20) All dredging activities must be undertaken in accordance with the relevant approved final dredge management plan.

Limit of Dredging Approved

(J21) The holder of this environmental authority must not commence dredging activities at Boyd Port and the Hey River barge/ferry terminal unless the holder has submitted to the administering authority plans for dredging activities certified by a Registered Professional Engineer of Queensland.

(J22) Dredging activities must be confined to the removal of capital or maintenance dredge material at the location shown on the plan(s) referred to in Condition (J21).

(J23) The maximum volume of material to be removed as a result of Boyd Port and Hey River capital dredging activities are identified in Table J3 - Volumes of Capital Dredged Material.

Table J3 - Volumes of Capital Dredged Material

Location	Volume of Capital Dredged Material (m^3)
Boyd Port – Stage 1[1]	6 500 000
Boyd Port – Stage 2[2]	2 400 000
Hey River	37 380

[1] Boyd Port – Stage 1 is Berths 1 & 2 of wharf and shipping channel. Capital dredge campaigns will be undertaken incrementally, with no campaign exceeding 2 600 000m^3

[2] Boyd Port – Stage 2 is Berths 3 & 4 of wharf and shipping channel

Disposal of Dredge Spoil Material

(J24) Unless otherwise authorised, dredge spoil must not be disposed of on the mining lease.

(J25) Dredge spoil material must not be disposed of on land unless otherwise authorised.

(J26) Dredging activities must not start until provision has been made to lawfully place or dispose of the dredge spoil material. Evidence of applicable approvals must be made available to the administering authority on request.

Dredging Operations

(J27) The transportation of dredge material must be carried out such that the dredge material is kept wet at all times.

(J28) Prior to the commencement of the capital or maintenance dredging and prior to commissioning of the Port, hydrographic surveys of the bed levels of the area dredged must be completed.

Monthly Report

(J29) A monthly monitoring report must be prepared and submitted to the administering authority throughout the period that initial capital dredging and spoil disposal works are being undertaken. This report must include:

(a) a summary of results of all monitoring required by the environmental authority and dredge management plan, with raw data provided in an electronic format appendix (i.e. spreadsheet);

(b) an evaluation and explanation of the data from these monitoring programs;

(c) a daily summary of dredge movements (specifying the boundaries of the dredged area by GPS coordinates and disposal activity;

(d) details of turtle captures by the dredge and species involved;

(e) details of any complaints received including investigations undertaken, conclusions formed and action taken;

(f) a summary of significant equipment failures or events that have potential environmental management consequences;

(g) an outline of corrective actions that will or have been taken to minimise or reduce environmental harm, and

(h) the quantity (volume in cubic metres) and location of dredging material removed and disposed of; or

(i) different details and frequency of reporting as agreed to by the administering authority.

Boyd Port Dredging

(J30) The holder of this environmental authority must establish a Boyd Port Dredging Technical Advisory Group (BPDTAG) which must include representatives from the Administering Authority and Department of Agriculture, Fisheries and Forestry (DAFF) for dredging at Boyd Port.

(J31) The holder of this environmental authority must report to the BPDTAG on proposed dredging activities for Boyd Port and implementation of the Dredge Management Plan(s) for the South of Embley port, including monitoring results, management triggers and response actions. The group will assist in the establishment, where appropriate, of longer term management for the maintenance dredging program.

Hey River Dredging

(J32) The administering authority, Department of Agriculture, Fisheries and Forestry and North Queensland Bulk Ports must be consulted during preparation of the final Dredge Management Plan for the Hey River.

(J33) The holder of this environmental authority must report on the implementation of the final Dredge Management Plan for the Hey River to the North Queensland Bulk Ports Technical Advisory and Consultative Committee for the Port of Weipa.

(J34) All reasonable and practicable measures must be taken to minimise the potential for turbidity plumes to cause environmental harm to seagrass meadows adjacent to the dredge site at the Hey River barge/ferry terminal.

(J35) The dredging campaign at the Hey River barge/ferry terminal must not occur for a period longer than fourteen (14) consecutive days. Dredging may extend over a longer time period, provided:

(a) there is a pause in dredging of at least three (3) days between periods of dredging at each dredging site in the river; or

(b) where turbidity monitoring is employed, turbidity levels have not increased significantly above background levels as defined in the final Dredge Management Plan.

Marine Fauna Management

(J36) Mobile dredging operations:

(a) must not commence if dugongs, turtles or cetaceans are observed within 300 meters of the dredge;
(b) where underway, must alter the course if dugongs, turtles or cetaceans are likely to be struck or captured.

(J37) Stationary dredging operations:

(a) must not commence if dugongs, turtles or cetaceans are observed within 300 metres of the dredge;

(b) must cease if dugongs, turtles or cetaceans are observed within 50 metres of the dredge head.

(J38) Daily monitoring for impacted turtles must be undertaken at the dredge and at the shoreline down-current from the dredging operation. If monitoring indicates that more than two (2) turtles are killed within a 24 hour period as a result of dredging, the dredge must relocate from the area until an incident investigation has been carried out and relevant preventative actions implemented.

(J39) Operating procedures must be developed prior to the commencement of dredging activities that minimise the risk of turtle capture by the dredge head and the risk from all activities of injury to marine species of conservation significance.

(J40) The administering authority must be immediately notified of any turtle captures by the dredge or injury to any marine species of conservation significance.

(J41) All reasonable and practicable measures must be taken to minimise the impact of dredging activities on marine fauna.

Marine Turtle Offset Plan

(J42) The holder of this environmental authority must prepare and submit to the administering authority a marine turtle offset plan for approval within six (6) months of the final investment decision for the South of Embley project. The final marine turtle offset plan must include the following, and be consistent with, the offset proposal submitted to the Coordinator General on 5 April 2012 and presented in the Coordinator-General's report dated 23 May 2012 as Appendix 5:

(a) annual control of feral pigs on ML7024 in the coastal zone between Ina Creek and Winda Winda Creek and associated riparian hinterland areas
(b) annual monitoring of beaches for turtle nesting and nest predation rates.

(J43) The holder of this environmental authority must implement the marine turtle offset plan referred to in condition (J42).

Marine Works - General

(J44) All Marine works (excluding dredging and site establishment works) must be undertaken in accordance with a marine works environmental management plan (marine works EMP) and be approved by the administering authority prior to any marine works commencing.

(J45) The marine works environmental management plan (marine works EMP) must include management strategies to minimise impacts on the receiving environment, including but not limited to:

(a) environmental commitments - a commitment by senior management to achieve specified and relevant environmental goals;
(b) identification of environmental issues and potential impacts (including stormwater management / erosion and sediment control measures, water, land disturbance and controls, waste, noise and air).
(c) the actual and potential release of all contaminants;
(d) the potential impact of these sources and contaminants;
(e) what actions will be taken to minimise the impacts on the receiving environment (including stormwater management / erosion and sediment control measures, water, land disturbance and controls, waste, noise and air).
(f) monitoring of contaminant releases including contaminant release locations and conducting environmental impact assessments, if relevant;;

(g) contingency plans including the practices and procedures to be employed to restore the environment or to mitigate impacts on the receiving environment;
(h) including emergency and notification procedures for emergency events, incidents to minimise the risk of environmental harm arising from emergency events
(i) organisational structure and responsibility;
(j) effective communication;
(k) staff training;
(l) periodic review of environmental performance and continual improvement.

(J46) The holder of this environmental authority must not commence construction of any marine works unless the holder has submitted to the administering authority design drawings certified by a Registered Professional Engineer of Queensland.

(J47) The holder of this environmental authority must construct the marine works in accordance with the certified design drawings referred to in Condition (J46).

(J48) A report from a Registered Professional Engineer of Queensland must be submitted to the administering authority within three (3) months of the date of commissioning of marine works certifying that:

(a) The marine works (including any other associated works) have been constructed in accordance with the drawings referred to in Condition (J46);

(b) The coastal works:

(i) are structurally adequate for the anticipated use

(ii) comply with all relevant codes including the administering authority's operational policy.

Note: This approval does not constitute a ruling on the structural safety of the coastal works. It is the responsibility of the holder of this environmental authority to ensure adequacy of the design, construction and ongoing maintenance of the works.

(J49) All temporary marine works associated with construction must be removed from the site at the completion of the works unless otherwise authorised by the administering authority and all wastes must be collected from the site by the holder of this environmental authority and reused or disposed of at a licensed waste facility.

(J50) All rock, stone, gravel, sand or other fill material used in construction must be:

(a) suitable for the purpose having regard to the location of the land and the proposed use of the land;

(b) free from contaminants that may cause environmental harm.

(J51) Acid sulphate soils must be managed so that contaminants are not directly or indirectly released to any waters.

(J52) The design, construction and ongoing maintenance of coastal works must maintain local and regional drainage and hydrological systems, other than to the extent provided for under the approved plans as required under condition (J46).

(J53) The holder of this environmental authority must remove any debris, other than material from the authorised activities that are deposited outside of the alignment of the coastal works shown on the approved plans as required under condition (J46) or any debris that falls or is deposited on tidal lands or into tidal waters during the construction of the works.

Marine Transport – Temporary Seaborne Access facility

(J54) The temporary seaborne access facility comprising a barge landing north of Pera Head and passenger jetty in Boyd Bay are to be removed following commissioning of the barge and ferry terminals in the Hey River and mine access road unless otherwise agreed to by the administering authority.

(J55) After removal of the temporary seaborne access facility, the surrounding land and marine environment are to be reinstated to the condition that existed previously to the satisfaction of the administering authority.

(J56) The temporary seaborne access facilities must be located in the area that minimise impact on seagrass, live coral and reef habitat, taking into account other factors, including stakeholder concerns.

(J57) Prior to construction the holder of the environmental authority must carry out a survey of the landform in the area to be disturbed by the temporary seaborne access facility.

(J58) The holder of the environmental authority must monitor erosion both within and outside the authorised disturbance area and localised repair work must be carried out if erosion caused by the works is detected.

(J59) The holder of this environmental authority must construct and maintain a defined pathway for the barge landing access to minimise disturbance to the adjacent beach and fauna.

(J60) The holder of this environmental authority must develop and implement a rehabilitation plan for the temporary seaborne access facility prior to decommissioning. The rehabilitation must ensure that:

(a) material placed in tidal waters is removed within six (6) months of decommissioning unless otherwise agreed with the administering authority;
(b) the area is re-profiled to match, as near as practicable, the land contours existing prior to disturbance within 12 months of decommissioning; and
(c) post rehabilitation, bathymetric, landform and revegetation surveys of the disturbed area must be carried out and corrective actions undertaken where necessary..

Note: The rehabilitation plan may exist in isolation to or form part of the interim Rehabilitation Management Plan required under Condition (C24).

Hey River Infrastructure

(J61) The holder of this environmental authority must report on the implementation of the marine works environmental management plan (marine works EMP) to the North Queensland Bulk Ports.

Pile Driving

(J62) Pile driving activities must be carried out in a manner that minimise impacts on the surrounding environment and must include the following:

(a) soft-start approach to disperse of any marine fauna in the vicinity of proposed works;
(b) monitoring by an observer prior to commencing and during normal pile driving activities; and
(c) normal pile driving operations:
i. must not commence if turtles, dugongs or cetaceans are within the exclusion zone specified under the marine works environmental management plan as required in Condition (J44);
ii. must cease if turtles, dugongs or cetaceans are within the exclusion zone specified under the marine works environmental management plan as required in Condition (J44)

Boyd Port Infrastructure

(J63) Catch tray(s) or similar equipment must be installed under the Boyd Port ship loader tripper to minimise spillage.

(J64) The holder of this environmental authority must capture and pump any contaminated runoff from the Boyd Port tripper catch tray, belt cleaning at the conveyor head pulley, and the sealed maintenance area at the end of the wharf at Boyd Port to the onshore to the sedimentation ponds or the mine infrastructure area.

(J65) Transfer of minerals and bulk materials to ships at the Boyd Port must be carried out in a manner that minimises the likelihood of any release of minerals or bulk materials to the atmosphere or waters.

END OF DEFINITIONS FOR SCHEDULE J

SCHEDULE K – DEFINITIONS/ACRONYMS

Key terms and/or phrases used in this document are defined in this section and **bolded** throughout this document. Applicants should note that where a term is not defined, the definition in the *Environmental Protection Act 1994*, its regulations or environmental protection policies must be used. If a word remains undefined it has its ordinary meaning.

Interpretation - Word definitions/acronyms

"active waste disposal cell" means a cell currently being used for the disposal of wastes accepted under a condition of this approval and includes all or part of a disposal cell.

"administering authority" means the Department of Environment & Science or its successor.

"AEP" means the Annual Exceedance Probability, which is the probability that at least one event in excess of a particular magnitude will occur in any given year.

"ambient (or total) noise" at a place, means the level of noise at the place from all sources (near and far), measured as the Leq for an appropriate time interval.

"animal breeding place" means a bower, burrow, cave, hollow, nest or other thing that is commonly used by the animal to incubate or rear the animal's offspring.

"ANZECC" means the Australian and New Zealand Environment Conservation Council

"appropriately 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 on performance relative to the subject matter using the relevant protocols, standards, methods or literature.

"ARMCANZ" means Agriculture and Resource Management Council of Australia and New Zealand

"assess" by a 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:

(a) exactly what has been assessed and the precise nature of that assessment;
(b) the relevant legislative, regulatory and technical criteria on which the assessment has been based;
(c) 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
(d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

"background noise" means the existing acoustic environment including both near and far noise sources under normal mining operations.

"beneficial use" in respect of dams means that the current or proposed owner of the land on which a dam stands, has found a use for that dam that is:

(a) of benefit to that owner in that it adds real value to their business or to the general community,
(b) in accordance with relevant provisions of the *Environmental Protection Act 1994*,
(c) sustainable by virtue of written undertakings given by that owner to maintain that dam, and
(d) the transfer and use have been approved or authorised under any relevant legislation.

"bypass" means when the standard treatment processes of the plant do not occur as a result of wet weather and inflows that are in excess of the peak design capacity for inflow resulting in the release of untreated or partially treated effluent from the sewage treatment plant to the environment.

"capital dredging" means dredging for navigation to enlarge or deepen existing channel and port areas or to create new channel and port areas and dredging for engineering purposes to create trenches for pipes, cables, immersed tube tunnels or to remove material unsuitable for foundations or overburden for aggregate extraction.

"capping" means the covering of a landfill with suitable material as outlined within this EA to inhibit penetration by liquids.

"certification", **"certifying"** 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:

(a) exactly what is being certified and the precise nature of that certification.
(b) the relevant legislative, regulatory and technical criteria on which the certification has been based;
(c) 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
(a) the reasoning on which the certification has been based using the relevant data and facts, and the relevant criteria.

"clinical waste" means waste that has the potential to cause disease including, for example, the following:

- animal waste;
- discarded sharps;
- human tissue waste;
- laboratory waste.

"coastal works" means marine works.

"concern site" means a location relating to an environmental value, such as water quality, a coral reef, fishing ground, or other feature as defined in the Queensland Water Quality Guidelines that is likely to be affected by a disturbance caused by the proposed activity. The proposed activity has been identified to place the environmental value under some level of risk and therefore is termed a Concern Site. Specifically in relation to dredging activities to which this environmental authority relates, Concern Sites includes coral reef locations that have been identified to be at some level of risk of elevated turbidity, suspended solids and sedimentation rates through 3D modelling, and consequently, reduced photosynthetically active radiation. Concern Sites do not include areas that are expected to experience extreme levels of disturbance that are likely, or certain, to result in severe levels of impact which has been authorised under this environmental authority. Concern Sites are sometimes also referred to as Impact or influence sites.

"construction" or "constructed" in relation to a dam includes building a new dam and modifying or lifting an existing dam, but does not include investigations and testing necessary for purposes of preparing a design plan.

"commercial place" means a place used as an office or for business or commercial purposes, other than a place within the boundaries of the operational land.

"completion criteria" means the measures by which the actions implemented to rehabilitate the land are deemed to be complete. The completion criteria indicate the success of the decommissioning and rehabilitation outcomes or remediation of areas which have been significantly disturbed by the mining activities. Completion criteria may include information regarding:

- stability of final land forms in terms of settlement, erosion, weathering, pondage and drainage;
- control of geochemical and contaminant transport processes;
- quality of runoff waters and potential impact on receiving environment;
- vegetation establishment, survival and succession;
- vegetation productivity, sustained growth and structure development;
- fauna colonisation and habitat development;
- ecosystem processes such as soil development and nutrient cycling, and the re-colonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes;
- microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;
- effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;
- resilience of vegetation to disease, insect attack, drought and fire;
- vegetation water use and effects on ground water levels and catchment yields.

"commingled waste" means waste that is mixed in such a way that it cannot be reasonably expected that the individual waste types can be segregated.

"consequence 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 most recent version of the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933).

"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. However; a dam does *not* mean a fabricated or manufactured tank or container designed to a recognised standard, *nor* does a dam mean a land-based structure where that structure is designed to an Australian Standard. In case there is any doubt, a levee (dyke or bund) is a dam, but (for example) a bund designed for spill containment to AS1940 is *not* a dam.

"dB" means decibel. The unit used to measure sound level.

"decommissioned" means plant, infrastructure or equipment that has been removed or retired from active service.

"design plan" is 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 all investigation and design reports, plans and specifications sufficient to hand to a contractor for construction, and planned decommissioning and rehabilitation outcomes; so as to address all hazard scenarios that would be identified by a properly conducted hazard assessment for the structure. Documentation must be such that a 'suitable qualified and experience person' could conduct an independent review without seeking further information from the designer.

"design average dry weather flow (DADWF)" means the average dry weather flow of the treatment plant at the design horizon.

"design storage allowance" or **"DSA"** means an available volume, estimated in accordance with the Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME 1995), that must be provided in a dam as at the first of November each year in order to prevent a discharge from that dam to a probability (AEP) specified in that guideline. The DSA is estimated based on 100% runoff of wet season rainfall at the relevant AEP, taking account of process inputs during that wet season, with no allowance for evaporation.

"dredge material" means mud, sand, coral, ballast, shingle, gravel, clay, earth and other material removed by dredging from the bed of Queensland tidal and non-tidal waters.

"dredging" means extraction of mud, sand, coral, ballast, shingle, gravel, clay, earth and other material from the bed of Queensland tidal and non-tidal waters. Dredging does not include the banks of a waterway.

"domain" means a parcel of land for which the same rehabilitation goal, rehabilitation objective, indicators and measurable completion criteria for each agreed post mining land use can be defined.

"EIS" means the Environmental Impact Statement for the South of Embley Project (August 2011) and the Supplementary report to the EIS for the South of Embley Project (February 2012).

"environmental authority" means an environmental authority granted in relation to a mining activity under the *Environmental Protection Act 1994*.

"environmentally sensitive areas" means areas as described in the codes of compliance for tenures relating to mining and Chapter 5A (*Environmental Protection Regulation 2008*) activities, towns and roads.

"equivalent passenger-tyre unit (EPU)" is equivalent to one passenger tyre from a normal sedan or station wagon.

"extraction areas" include any areas of ML6024 and ML7024 disturbed by mining activities associated with the extraction of bauxite or that facilitate the extraction of bauxite including but not limited to pits, haul roads, access tracks, pipelines and conveyors.

"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.

"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.

"high bank" of a watercourse is the level to which water rises during normal season peak flows and may include a flood plain area.

"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 consequence category

in the most recent version of the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933).

"levee", "dyke" or "bund" means a long embankment 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 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.

"$L_{A90,T}$" *is the A-weighted sound pressure level exceeded 90% of the sample duration T.*

"land" in the 'land schedule' of this document means land excluding waters and the atmosphere.

"land capability" as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

"land suitability" as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

"land use" term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

"large items of green waste" means oversize items of green waste that are incapable of being processed by a tub grinder.

"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 at the operational land which contains soluble, suspended or miscible contaminants likely to have been derived from the said material.

"leaching contaminant levels" means the results of the "Toxicity Characteristic Leaching Procedure (TCLP)" means the test described in "U.S. EPA: Toxicity Characteristic Leaching Procedure (TCLP)" Federal Register, 40 CFR, Vol. 51, No. 286, Appendix 2, Part 268, page 40643 or as modified to reflect non-acidic leaching procedures suitable for waste characteristic assessment where co-disposal with putrescible wastes will not occur.

"long term 50th percentile" means that not more than twenty-six (26) of the measured values of the quality characteristic are to exceed the stated release limit for any fifty-two (52) consecutive samples where:

- the consecutive samples are taken over a one (1) year period;
- the consecutive samples are taken at approximately equal periods; and
- the time interval between the taking of each consecutive sample is not less than three (3) days or greater than eleven (11) days.

"maintenance dredging" means dredging to ensure that channels, berths or other port areas are maintained at their designed dimensions.

"mandatory reporting level" or **"MRL"** means a warning and reporting level determined in accordance with the criteria in the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/193314) published by the administering authority.

"marine works" means all work (other than dredging activities) including construction and maintenance works being carried out over marine waters, on the beach and foreshore areas.

"measures" includes any measures to prevent or minimise environmental impacts of the activity such as bunds, silt fences, diversion drains, capping, and containment systems.

"MIA" means mine infrastructure area.

"**mining activities**" means an activity as described in section 110 of the *Environmental Protection Act 1994*.

Note: Mining activities authorised on ML6024 and ML7024 under the *Mineral Resources Act 1989* are those authorised under the *Commonwealth Aluminium Corporation Pty Ltd Agreement Act 1957*.

"mining related infrastructure" The facilities, structures and installations needed for mining including but not limited to mining transportation networks, processing plant, communications systems and tailings storage facilities.

"NATA" means National Association of Testing Authorities.

"natural flow" means the flow of water through waters caused by nature.

"noxious" means harmful or injurious to health or physical well-being, other than trivial harm.

“non-polluting” means having no adverse impacts upon the receiving environment.

"offensive" means causing reasonable offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive, other than trivial harm.

"operational plan" means a document that amongst other things sets out procedures and criteria to be used for operating a dam during a particular time period. The operational plan as defined herein may form part of a plan of operations or plan otherwise required in legislation.

"permeability" means a measure of the rate at which a fluid will pass through a medium. The coefficient of permeability of a given fluid is an expression of the rate of flow through unit area and thickness under unit differential pressure at a given temperature. Synonymous with hydraulic conductivity when the fluid is water.

“PFAS” means per- and poly- fluoroalkyl substances.

“PFAS Detailed Site Investigation (Revision 0, April 2019)” means the report submitted to the administering authority by the holder of this environmental authority on 30 April 2019 in accordance with the requirements of STAT1304.

"progressive rehabilitation" means rehabilitation (defined below) undertaken progressively OR a staged approach to rehabilitation as mining operations are ongoing.

"Queensland waters" means a stretch of water for which Queensland has jurisdictional powers. The limit of Queensland waters is defined by a line three nautical miles seaward of the territorial sea baseline.

“receiving environment” means all groundwater, surface water, land, and sediments that are not disturbed areas authorised by this environmental authority.

For the purposes of PFAS monitoring, the receiving environment means

- Andoom Creek including Sunrise Creek, Botchett and Saleng Tea Tree Swamps;
- Embley River, including the tidal creeks, foreshore, mangrove and mudflats of the Embley River and the tidal influence of the Embley River in the Hey River. Includes Beening Creek, Marmoss Creek, McLeod Lake, and Patricia Lake;
- Mission River including the tidal creeks, foreshore, mangrove and mudflats of the Mission River. Includes Trundling Creek, Pappan Creek;

and as depicted in Figure F1 of PFAS Detailed Site Investigation (Revision 0, April 2019).

- Groundwaters of the Bulimba Formation (Napranum Sand and Undifferentiated) and Trunding Clay within the Weipa and Andoom areas (also referred to as the Shallow Aquifer).

“receiving waters” means all groundwater and surface water that are not disturbed areas authorised by this environmental authority.

“Reference Site” means a location relating to an environmental value, such as water quality, a coral reef, fishing ground, or other feature as defined in the Queensland Water Quality Guidelines that will not be affected by a disturbance caused by the proposed activity. Where a proposed activity has been identified to place one or more environmental values under some level of risk, Reference Site(s) serve to indicate the state of the natural condition outside of the influence of the proposed activity. Reference sites are typically matched or correspond to one or more Concern Sites. Reference Sites are sometimes referred to as Control Sites when they do not strictly comply with the true definition of Reference Sites in the QWQG and ANZECC & ARMCANZ (2000).

“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 published by the administering authority.

"rehabilitation” the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the completion criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.

"representative” means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activities.

“Ringelmann method” refers to a chart that provides shades of grey by which the density of columns of smoke rising from stacks may be compared.

"self-sustaining” means an area of land which has been rehabilitated and has maintained the required completion criteria without human intervention for a period nominated by the administering authority.

"sensitive place” means:

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- an educational institution; or
- a medical centre or hospital; or
- a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or
- a public park or gardens; or
- a place used as a workplace, an office or for business or commercial purposes which is not part of the mining activity and does not include employees accommodation or public roads.

"short term 50th percentile" means not more than five (5) of the measured values of the quality characteristic are to exceed the stated release limit for any ten (10) consecutive samples for a release/monitoring point at any time during operation.

"significant construction works" means construction works to facilitate or support mining activities but does not include early site access works or activities to support exploration, site investigation or site establishment works where approvals are held.

“significant wetlands” are those designated under the Ramsar Convention as containing representative, rare or unique wetlands, or wetlands that are important for conserving biological diversity. They are listed on the List of Wetlands of International Importance because of their ecological, botanical, zoological, limnological or hydrological importance.

“South of Embley” means the area on ML7024 and ML 6024 south of the Embley River.

"spillway" means a weir, channel, conduit, tunnel, gate or other structure designed to permit discharges form the dam, normally under flood conditions or in anticipation of flood conditions.

"stable" in relation to land, means land form dimensions are and will remain within tolerable limits now and in the foreseeable future. Issues to be properly considered in regard to whether or not the landform is stable include geotechnical stability, settlement and consolidation allowances, bearing capacity (trafficability), erosion resistance and geochemical stability with respect to seepage, leachate and related contaminant generation.

“stream order” denotes a stream classification system where a watercourse is given a classification according to the number of additional tributaries associated with the watercourse.

"suitably qualified and experienced person" in relation to dams means a person 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:

(b) knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and
(c) 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
(d) 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.
    - dam safety.

"temporary seaborne access facility" means the temporary barge access and/or temporary passenger jetty.

"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 ponding and limiting infiltration and percolation.

"**town activities**" means the activities carried out by the holder of this environmental authority pursuant to the Commonwealth Aluminium Corporation Pty Limited Agreement Act 1957 in connection with the operation of the township of Weipa.

"TRH" means total recoverable hydrocarbon.

"µS/cm" means micro Siemens per centimetre.

"void" means any constructed, open excavation in the ground.

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

"**water release event**" means release of any waters that are or maybe contaminated by the mining activity.

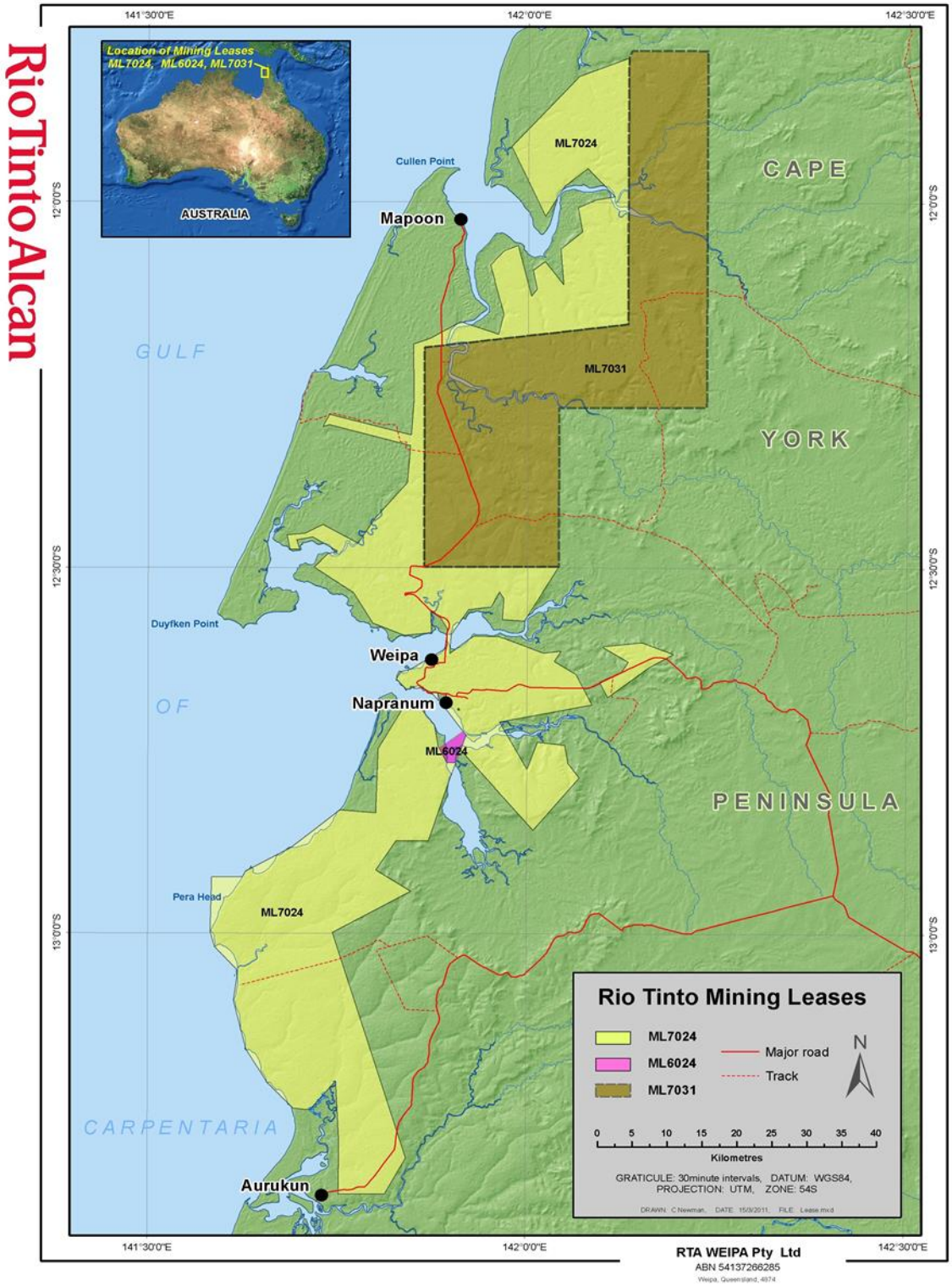
"wetlands" are areas of permanent or periodic/intermittent inundation, with water that is static or flowing fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed 6 metres. To be classified as a wetland, the area must have one or more of the following attributes:

a) 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
b) the substratum is predominantly undrained soils that are saturated, flooded or ponded long enough to develop anaerobic conditions in the upper layers, or
c) the substratum is not soil and is saturated with water, or covered by water at some time.

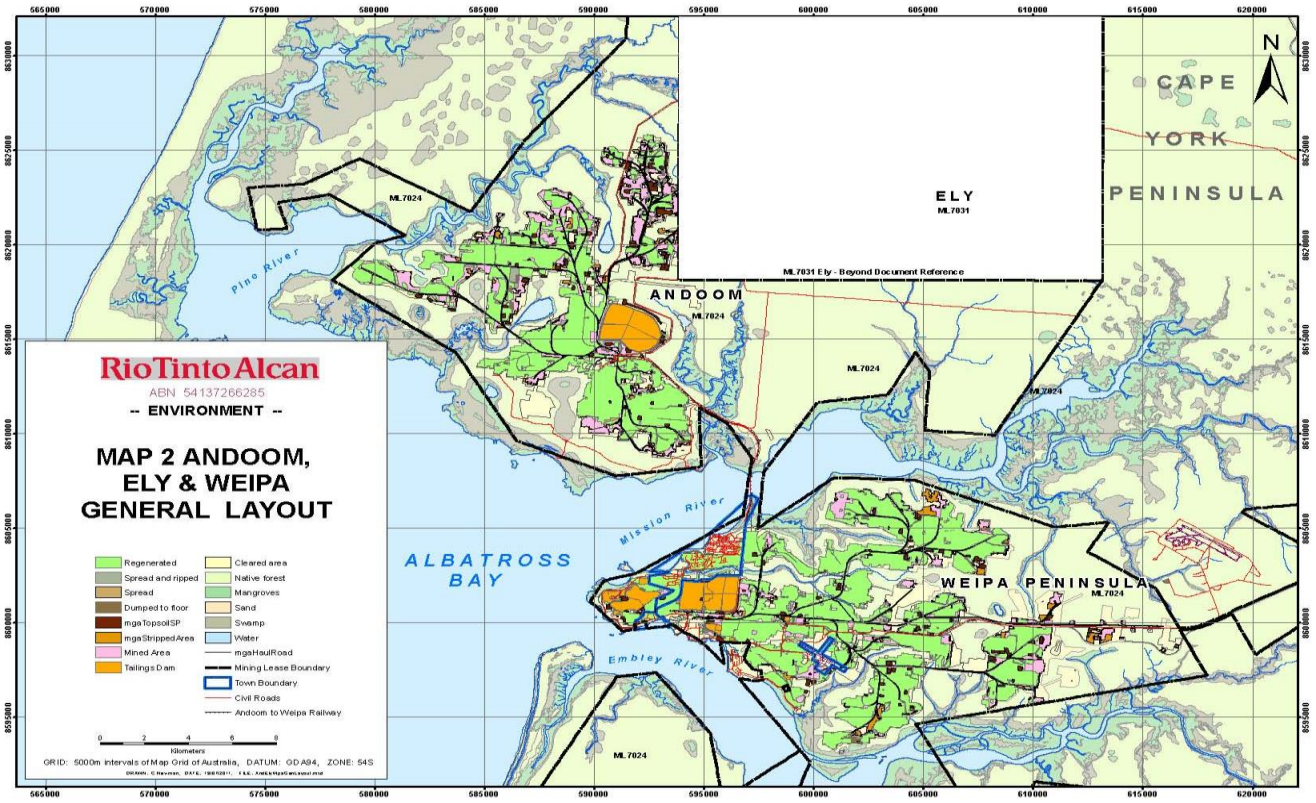
END OF DEFINITIONS FOR SCHEDULE K

SCHEDULE L – PLANS

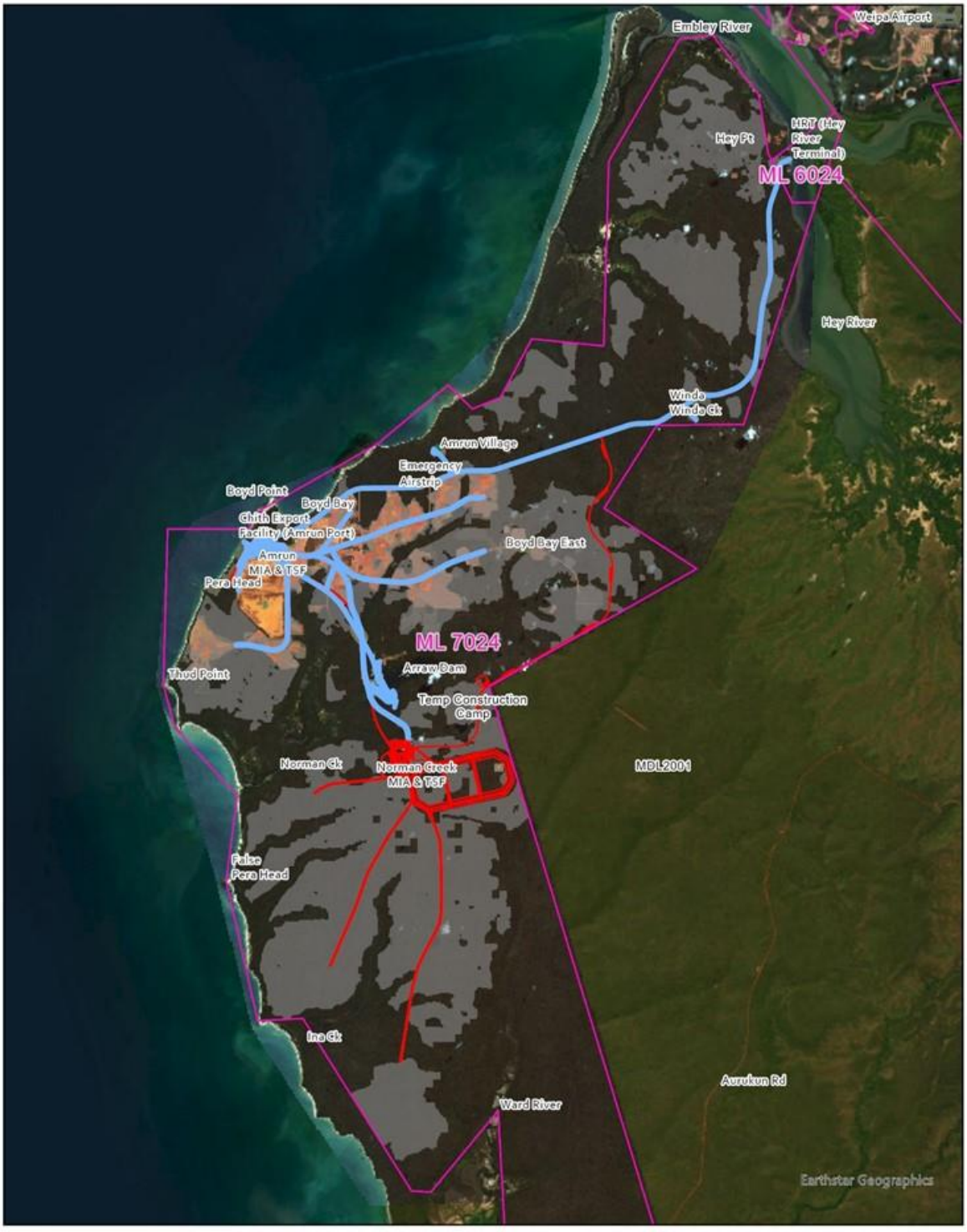
Plan 1 – Weipa General Area Plan



Plan 2 – East Weipa and Andoom Operational Areas



Plan 3 – South of Embley Infrastructure and Conceptual Mine Plan



Legend

- Conceptual Mine Areas years 1-40
- RTW Mine Lease GDA94
- Conceptual FS Norman Creek Expansion
- Amrun (Boyd) Infrastructure

South of Embley Project Conceptual Infrastructure and Mine Plan (Up to 40yrs)
EPML00725113 Plan 3

N

0 2.5 5 10 Kilometers

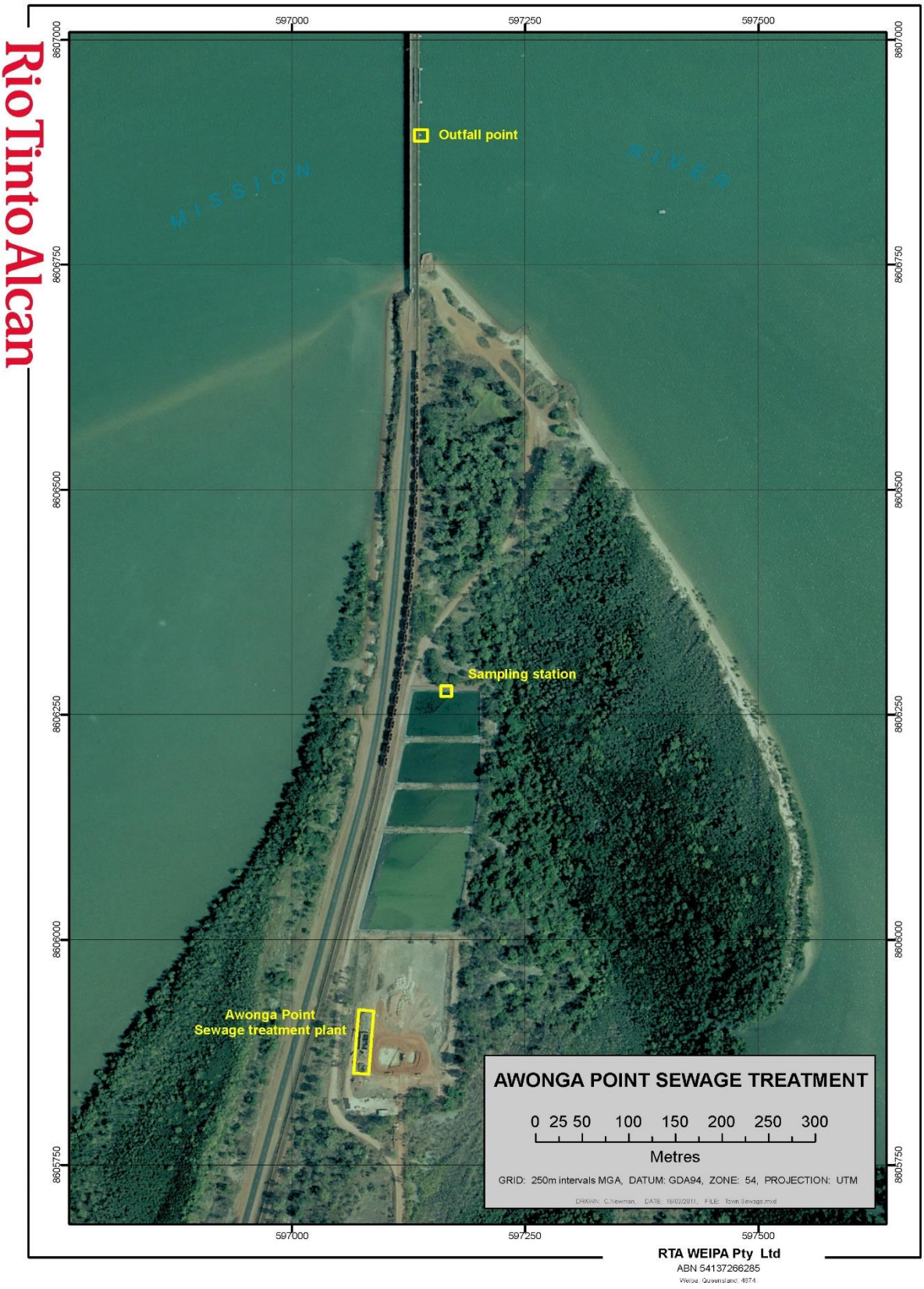
Datum Projection: GDA 94 MGA Zone 54

Date:1/12/2025

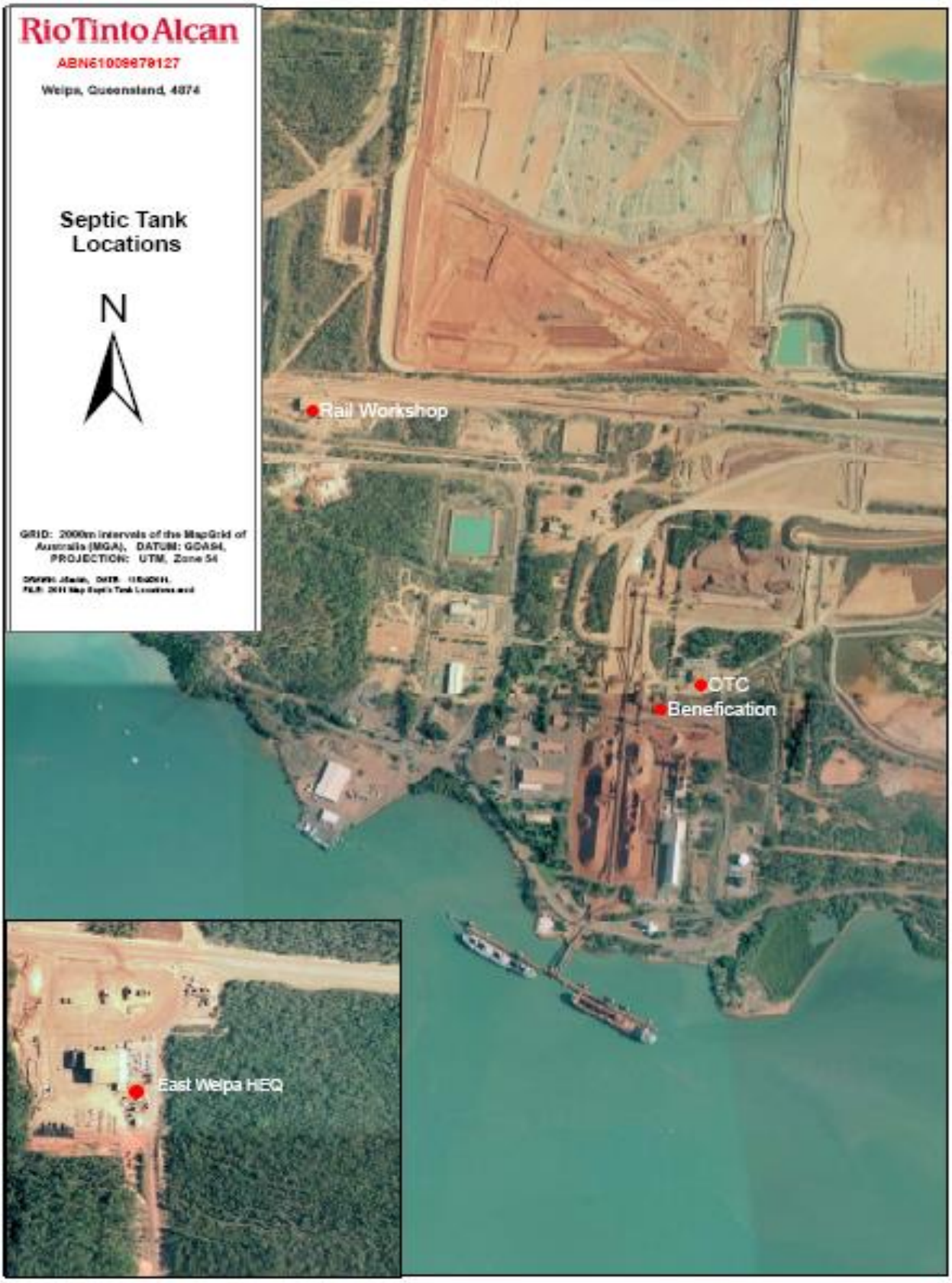
Plan 4 - Air Quality Monitoring Sites

Plan 5 – Evans Landing Landfill

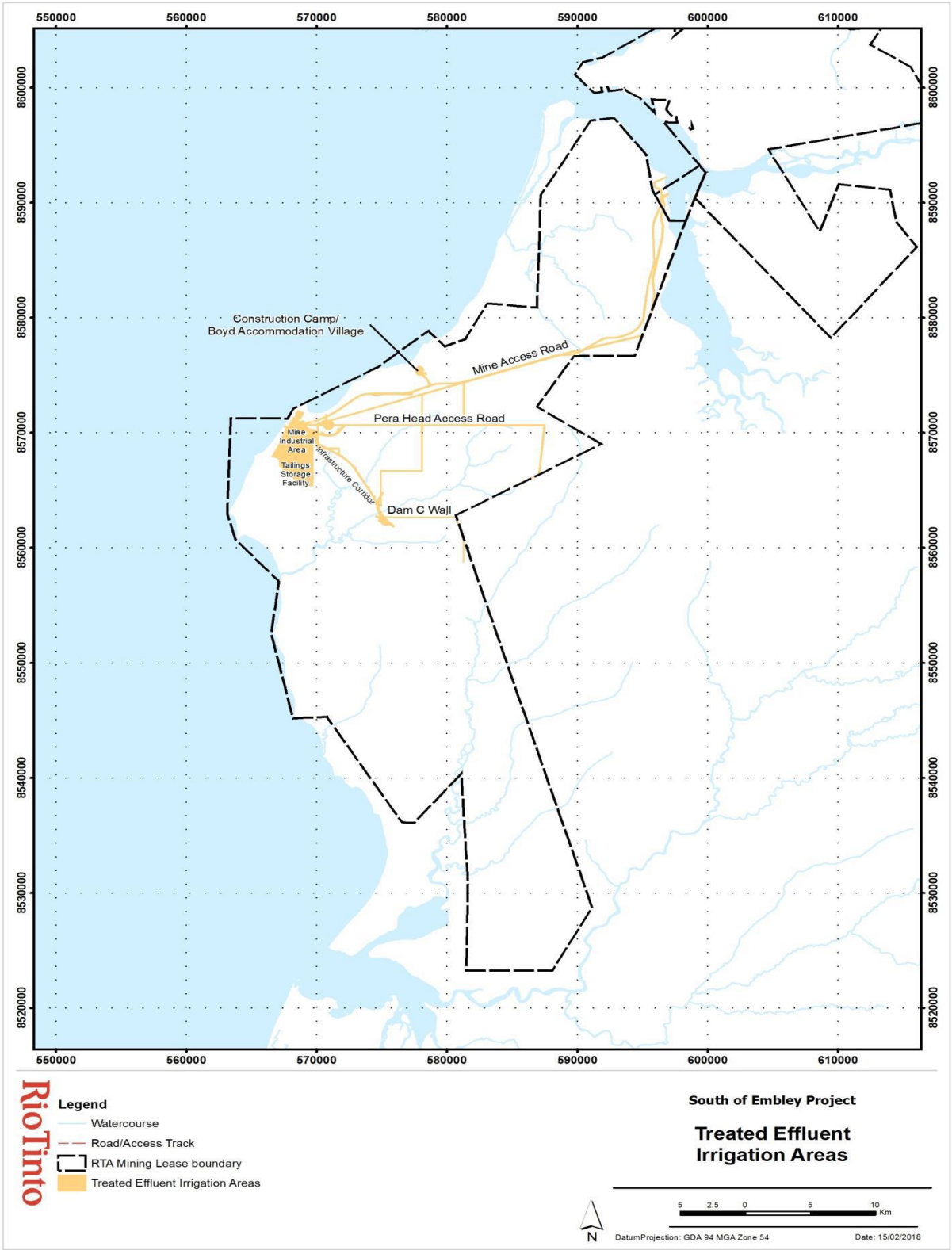
Plan 6 – Awonga Point Sewage Treatment Water Release & Water Quality Monitoring Sites



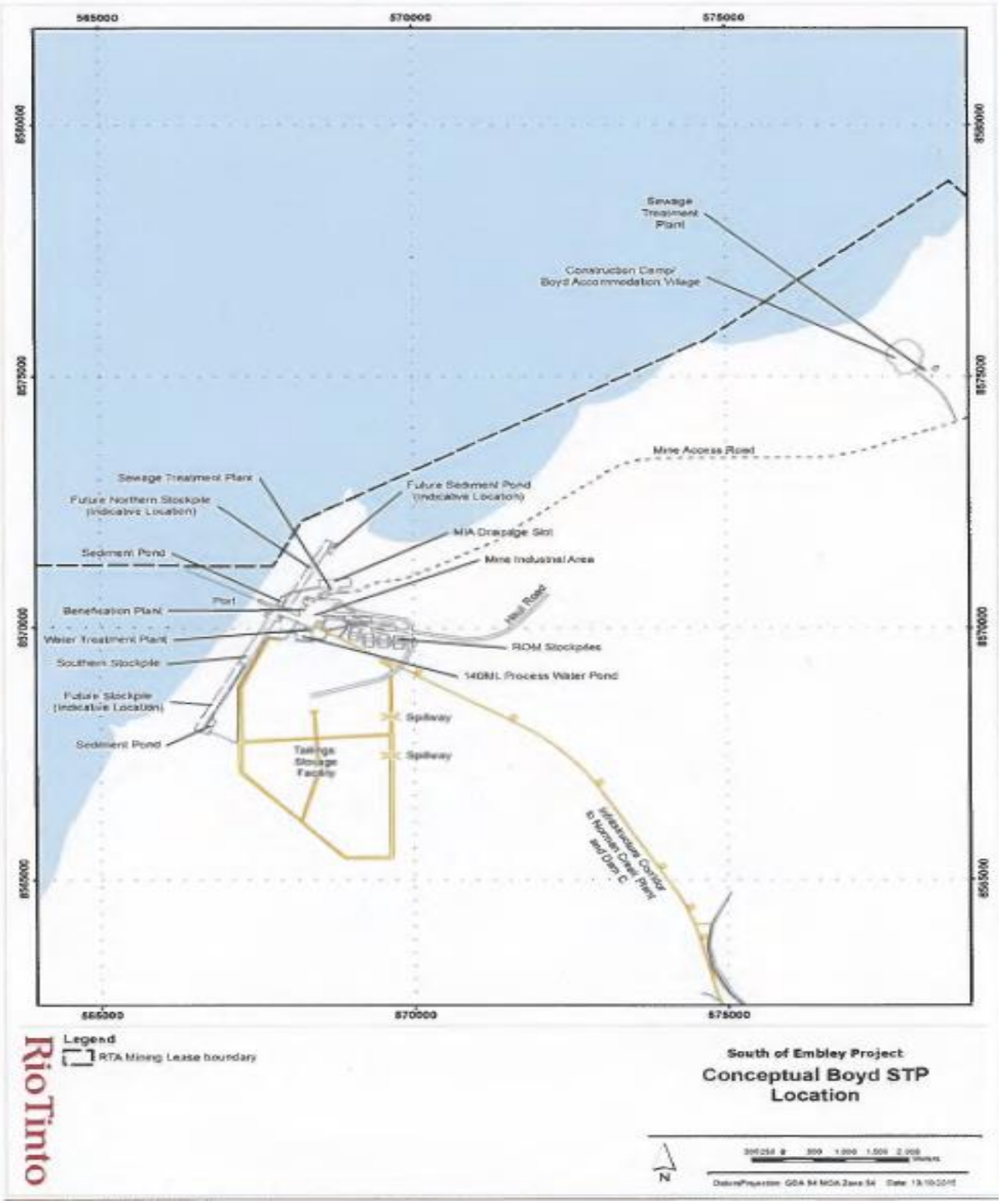
Plan 7 – Release Points to Land (East Weipa)


RioTinto Alcan
ABN61009679127
Weipa, Queensland, 4874
Septic Tank Locations
N
GRID: 2000m intervals of the MapGrid of Australia (MGA), DATUM: GDA94, PROJECTION: UTM, Zone 54
Rail Workshop
OTC
Benefication
East Weipa HEQ

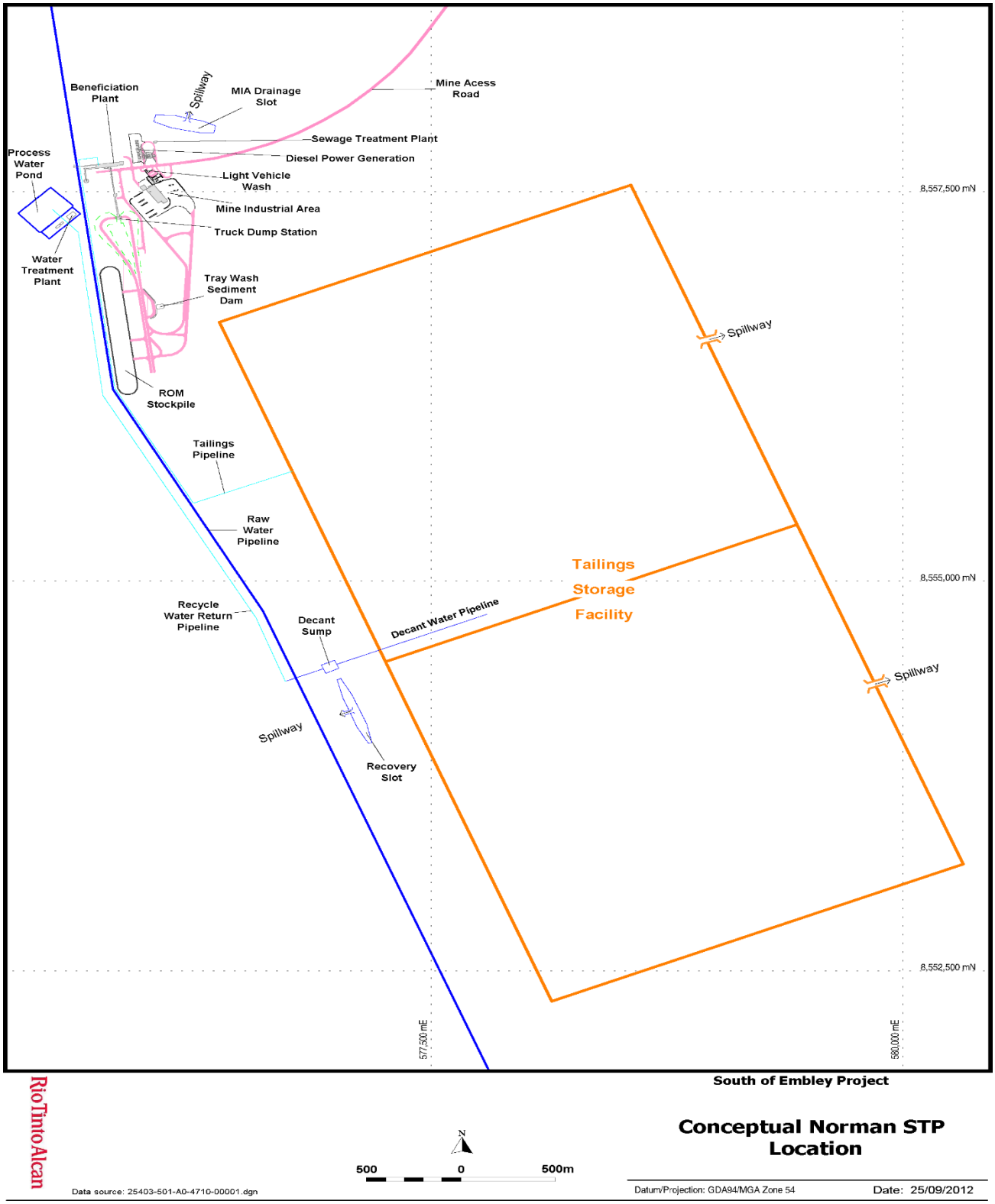
Plan 8 – Release Points to Land (South of Embley)



Plan 9 - Conceptual Boyd STP Location



Plan 10 - Conceptual Norman STP Location



Appendix 1 – Maximum Contaminant Levels in Regulated Waste

Table 1 – Maximum Contaminant Levels

Contaminant	Maximum Contaminant Level (mg/kg)
Monocyclic Aromatic Hydrocarbons(MAH)	
Benzene	20
Ethyl Benzene	1000
Toluene	600
Xylene	500
Total MAH	1 000
Polycyclic Aromatic Hydrocarbons(PAH)	
Total PAH	1 000
Phenolic Contaminants	
Non halogenated compounds:	
Phenol	250
m-cresol	500
o-cresol	500
p-cresol	500
Total non halogenated phenol	500
Halogenated phenol:	
Chlorophenol	5
Trichlorophenol	20
Pentachlorophenol	20
Total halogenated phenol	20
Chlorinated Hydrocarbons	
Chlorinated Aliphatic Compounds:	
Carbon tetrachloride	10
1,2 Dichloroethane	20
l,1 Dichloroethene	1
Tetrachloroethene	20
Trichloroethene	25
Total chlorinated aliphatic compounds	50
Chlorinated Aromatic Compounds:	
Chlorobenzene	200
Hexachlorobenzene	1
Total Chlorinated Aromatic compounds	200
Pesticides	
Total organochlorine	50
Total herbicides	50
Total carbamates	50
Total organophosphorus	50
Petroleum Hydrocarbons	
Total petroleum hydrocarbons(C6-C9)	1 000
Total petroleum hydrocarbons(C10-C14)	10 000
Total petroleum hydrocarbons(C15-C28)	50 000
Total petroleum hydrocarbons(C28-C36)	50 000
Non Scheduled Solid Polychlorinated Biphenyls (PCBs)	50

Table 2 - Maximum Leaching Contaminant Levels

Contaminant	Maximum Leaching Contaminant Levels (mg/L)
Non Specific Contaminants	
Biochemical Oxygen Demand	20 000
Total 0rganic Carbon	10 000
Petroleum Hydrocarbons	50
Metals/Non-Metals	
Antimony	5.0
Arsenic	5.0
Barium	100.0
Cadmium	0.5
Chromium	5.0
Cobalt	5.0
Copper	200.0
Lead	5.0
Mercury	0.1
Molybdenum	5.0
Nickel	5.0
Selenium	1.0
Silver	10.0
Thallium	1.0
Tin	3.0
Vanadium	5.0
Zinc	500.0
Inorganic Anions	
Bromide	50.0
Chloride	6 000
Cyanide (total)	8
Fluoride	150.0
Sulphate	50 000
Nitrate	5 000
Monocyclic Aromatic Hydrocarbon(MAH)	
Benzene	1.0
Ethyl benzene	50.0
Toluene	80.0
Xylene	60.0
Total MAH	80.0
Polycyclic Aromatic Hydrocarbons(PAH)	
Anthracene	0.7
Benz (a) anthracene	0.05
Benz (c) phenanthrene	0.05
Benzo (a) pyrene	0.02
Benzo (b) fluoranthene	0.05
Benzo (k) fluoranthene	0.05
Chrysene	0.1
Dibenz (a,h) anthracene	0.02
Dibenz (a,h) pyrene	0.1
Dimethylbenz (a) anthracene	0.05
Fluoranthene	0.2
Indeno (1,2,3-cd) pyrene	0.1
Naphthalene	0.7
Phenanthrene	0.1
Pyrene	0.7
Total PAH	1.0
Phenolic Contaminants	

Contaminant	Maximum Leaching Contaminant Levels (mg/L)
Non halogenated compounds:	
Phenol	10.0
m-Cresol	20.0
o-Cresol	20.0
p-Cresol	20.0
Halogenated phenols:	
Chlorophenol	0.1
Trichlorophenol	1.0
Pentachlorophenol	1.0
Chlorinated Hydrocarbons	
Chlorinated Aliphatic Compounds:	
Carbon tetrachloride	0.3
1,2 Dichloroethane	1.0
1,1 Dichloroethene	0.03
Tetrachloroethene	1.0
Trichloroethene	3.0
Chlorinated Aromatic Compounds:	
Chlorobenzene(total)	30.0
Hexachlorobenzene	0.02
Pesticides	
Organochlorine:	
Aldrin	0.03
Chlordane	0.1
Dieldrin	0.03
DDT	2
Endrin	0.03
Heptachlor	0.03
Lindane	2
Methoxychlor	30
Toxaphene	0.05
Herbicides:	
2,4-D	3
2,4-DB	2.0
MCPA	2.0
2,4,5 –T	10
Carbamates:	
Carbaryl	3
Carbofuran	1
Organophosphorus:	
Diazinon	0.3
Parathion	1
Methyl Parathion	10

Table 3 – Maximum Contaminant Levels in Soils

Contaminant	Maximum Contaminant Levels in Soils (mg/kg)
Arsenic (total)	200
Beryllium	40
Cadmium	40
Chromium (iii)	240 000
Chromium (vi)	200
Copper	2000
Lead	600
Manganese	3000
Methyl Mercury	20

Contaminant	Maximum Contaminant Levels in Soils (mg/kg)
Mercury (inorganic)	30
Nickel	600
Zinc	14000
Monocyclic Aromatic Hydrocarbons(MAH)	
Benzene	10
Ethyl Benzene	500
Toluene	300
Xylene	250
Total MAH	500
Polycyclic Aromatic Hydrocarbons(PAH)	
Total PAH	500
Phenolic Contaminants	
Phenol	100
m-cresol	250
o-cresol	250
p-cresol	250
Total non halogenated phenol	250
Chlorophenol	1
Trichlorophenol	5
Pentachlorophenol	5
Total halogenated phenol	5
Chlorinated Hydrocarbons	
Carbon tetrachloride	5
1,2 Dichloroethane	10
l,1 Dichloroethene	1
Tetrachloroethene	10
Trichloroethene	25
Total chlorinated aliphatic cpds	50
Chlorobenzene	100
Hexachlorobenzene	1
Total Chlorinated Aromatic cpds	100
Pesticides	
Total organochlorine	5
Total herbicides	25
Total carbamates	25
Total organophosphorus	10
Petroleum Hydrocarbons	
Total petroleum hydrocarbons(C6-C9)	500
Total petroleum hydrocarbons(C10-C14)	5 000
Total petroleum hydrocarbons(C15-C28)	10 000
Total petroleum hydrocarbons(C28-C36)	10 000

Table 4 - Maximum Leaching Contaminant Levels in Soils

Contaminant Analysis	Maximum Leaching Contaminant Levels in Soils (mg/L)
Non Specific Contaminants	
Biochemical Oxygen Demand	20 000
Total 0rganic Carbon	10 000
Petroleum Hydrocarbons	25
Metals/Non-Metals	
Antimony	0.5
Arsenic	0.5
Barium	10.0
Cadmium	0.05
Chromium	0.5

Contaminant Analysis	Maximum Leaching Contaminant Levels in Soils (mg/L)
Cobalt	0.5
Copper	10.0
Lead	0.5
Mercury	0.01
Molybdenum	0.1
Nickel	0.5
Selenium	0.1
Silver	0.5
Thallium	0.1
Tin	0.3
Vanadium	0.5
Zinc	50.0
Inorganic Anions	
Bromide	5.0
Chloride	6 000
Cyanide (total)	1.0
Fluoride	15.0
Sulphate	2 500
Nitrate	100.0
Monocyclic Aromatic Hydrocarbon(MAH)	
Benzene	0.1
Ethyl benzene	5.0
Toluene	3.0
Xylene	2.0
Total MAH	5.0
Polycyclic Aromatic Hydrocarbons(PAH)	
Anthracene	0.07
Benz (a) anthracene	0.005
Benz (c) phenanthrene	0.005
Benzo (a) pyrene	0.002
Benzo (b) fluoranthene	0.005
Benzo (k) fluoranthene	0.005
Chrysene	0.10
Dibenz (a,h) anthracene	0.002
Dibenz (a,h) pyrene	0.01
Dimethylbenz (a) anthracene	0.005
Fluoranthene	0.02
Indeno (1,2,3-cd) pyrene	0.01
Naphthalene	0.07
Phenanthrene	0.01
Pyrene	0.07
Total PAH	0.1
Phenolic Contaminants	
Non haloqenated compounds:	
Phenol	1.0
m-Cresol	2.0
o-Cresol	2.0
p-Cresol	2.0
Halogenated phenols:	
Chlorophenol	0.01
Trichlorophenol	0.1
Pentachlorophenol	0.1
Chlorinated Hydrocarbons	
Chlorinated Aliphatic Compounds:	
Carbon tetrachloride	0.03

Contaminant Analysis	Maximum Leaching Contaminant Levels in Soils (mg/L)
1,2 Dichloroethane	0.1
1,1 Dichloroethene	0.003
Tetrachloroethene	0.1
Trichloroethene	0.3
Chlorinated Aromatic Compounds:	
Chlorobenzene(total)	1.0
Hexachlorobenzene	0.002
Pesticides	
Organochlorine:	
Aldrin	0.001
Chlordane	0.006
Chlorpyrifos	0.01
Dieldrin	0.001
DDT	0.003
Endrin	0.001
Heptachlor	0.003
Lindane	0.1
Methoxychlor	0.1
Toxaphene	0.005
Herbicides:	
2,4-D	0.1
2,4-DB	0.2
MCPA	0.2
2,4,5 –T	0.002
Carbamates:	
Carbaryl	0.06
Carbofuran	0.03
Organophosphorus:	
Diazinon	0.01
Parathion	0.03
Methyl Parathion	0.006
Triazines:	
Atrazine	0.01
Simazine	0.01

END OF APPENDIX 1

END OF ENVIRONMENTAL AUTHORITY