

PRCP schedule

Environmental Protection Act 1994

PRCP schedule

This is the approved form for a PRCP schedule issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994.

PRCP schedule P-PRCP-100904900

PRCP schedule holder(s)

Name(s)	Registered address
Cape Flattery Silica Mines Pty Ltd	Cairns Corporate Tower Level 15, 15 Lake Street, CAIRNS QLD 4870

Location details

Location(s)
Mining Lease (ML) 2806, ML2965, ML7069 and ML40048

Take effect

In accordance with section 202B of the *Environmental Protection Act 1994* (EP Act), the PRCP schedule has effect on the day the environmental authority for carrying out relevant activities on land to which the schedule relates takes effect. Pursuant to section 202C of the EP Act, a PRCP schedule continues in force until the environmental authority for the relevant activities to which the PRCP schedule relates is cancelled or surrendered, even if the resource tenure expires or is cancelled and even if the relevant environmental authority is suspended under Chapter 5, part 11 or 11A of the EP Act.

T. Gibbs

Signature

19 January 2026

Date

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

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Obligations under the *Environmental Protection Act 1994*

Pursuant to section 202E of the EP Act, if there is an inconsistency between an environmental authority and a PRCP schedule, the environmental authority prevails to the extent of the inconsistency.

Pursuant to section 285 of the EP Act:

- the holder of a PRCP schedule must commission an audit of the schedule by a rehabilitation auditor for the following periods (each an audit period) —
 - (a) the 3-year period starting on the day the schedule takes effect
 - (b) each 3-year period starting on the day after the previous audit period ended.
- the holder must, within 4 months after the end of each audit period, give the administering authority -
 - (a) the rehabilitation auditor's report (an audit report) about the audit that complies with section 286 of the EP Act, and
 - (b) a declaration for the audit report that complies with section 285 of the EP Act.

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

PRCP schedule

The PRCP schedule incorporates the following sections:

- Section A - Conditions of PRCP schedule
- Section B - Final site design and reference maps
- Section C - Post mining land uses

Section A - Conditions of PRCP schedule

Pursuant to section 206A of the EP Act:

- it is a condition of this PRCP schedule that, in carrying out a relevant activity under the schedule, the holder must comply with a requirement stated in the environmental authority relevant to carrying out the activity.
- it is a condition of this PRCP schedule that the holder must comply with the following matters stated in the schedule -
 - (a) each rehabilitation milestone and management milestone
 - (b) when each rehabilitation milestone and management milestone is to be achieved.

General conditions

- PRCP1** The land categorised as **‘non-active mining’**, excluding RA4 (Disturbance Category “Mobile infrastructure”, “Access”, “Non-active mining” (solar footprint) (Proposed rehabilitation)), must progress to **‘rehabilitation commenced’** status within 24 months of an area becoming **‘non-active mining’**.
- PRCP2** The land area categorised as **‘non-active mining’** that has not progressed to **‘rehabilitation commenced’** status must not exceed 10% of the total disturbance footprint.
- PRCP3** Where an area of land categorised as **‘non-active mining’** achieves a rehabilitation milestone, the holder must continue to achieve the milestone criteria for those areas categorised as **‘non-active mining’** until a surrender is approved.
- PRCP4** The holder must maintain a risk register that identifies the risks to not achieving a stable condition for post-mining land uses, and how the risks are being managed or minimised. The risk register must be reviewed annually.
- PRCP5** The holder must undertake monitoring and maintenance as described in this schedule and the rehabilitation planning part for the activity. Where there is any inconsistency between this schedule and the rehabilitation planning part the schedule criteria prevail to the extent of the inconsistency.
- PRCP6** The holder must make and keep up to date records on:
- (a) Achievement and maintenance of each rehabilitation milestone criteria of this schedule;
 - (b) Rehabilitation activities and the results of those activities including, actions taken, date, location, methods, data collected, QA/QC, photos, waste tracking and disposal records, appropriately qualified person details and assumptions;
 - (c) Maintenance of rehabilitation and the results of maintenance activities;
 - (d) Monitoring of rehabilitation and the results of monitoring;
 - (e) Details* and results of rehabilitation trials;
 - (f) Designs, drawings, specifications and any similar documents developed in accordance with good professional practice in relation to rehabilitation milestones or milestone criteria;
 - (g) All documents in relation to the requirements of this schedule, including reports (e.g. site investigation report), statements (e.g. site suitability statement), certifications, assessments, investigations, inspections, audits or any similar carried out in relation to rehabilitation milestones or milestone criteria;
 - (h) Landholder agreements;

- (i) Details of community consultation in their community consultation register relating to rehabilitation and closure activities;
- (j) Progressive certification for areas depicted in Figure 3 - Progressively Certified Rehabilitation Areas and continuation of maintenance in accordance with the minimum requirements of the “*Guideline Progressive certification for resource activities Environmental Protection Act 1994* (ESR/2022/5900), where required.

*Note: details of rehabilitation trials are expected to be the monitoring data collected to address the milestone criteria.

- PRCP7** Records made under PRCP6 must be kept until the relevant environmental authority has been surrendered.
- PRCP8** Records made under PRCP7 must be provided to the administering authority in the specified format within 21 business days of a written request.
- PRCP9** Surface water quality results monitored monthly during flow at, but not limited to, the downstream locations listed in Table 8 must not exceed the limits in Table 9, within 2 months prior to relinquishment.
- PRCP10** If the surface water quality exceeds condition PRCP9 during the same sampling event, the nearest applicable upstream site with available data must be compared to the downstream site result; and quality result measured at a downstream site must be within the natural variability of the quality result measured at the applicable upstream site.
- PRCP11** Groundwater quality results monitored quarterly at the locations listed in Table 10 must not exceed the limits for quality characteristics listed in Table 11, for three consecutive events, within 2 months prior to relinquishment.
- PRCP12** Should an exceedance of surface or groundwater contaminant limit in Tables 9 and/or 11 occur, an AQP must complete an assessment of the risk of rehabilitation not achieving a stable condition within the schedule timeframe and:
- a) Where there is a low risk to achieving a stable condition, then no further action is to be taken; or
 - b) Where there is a greater than low risk to achieving a stable condition, then an assessment of potential environment harm and any changes or rectification actions to rehabilitation activities must be determined and implemented.
- PRCP13** The assessment/s under PRCP12 must be completed and provided to the administering authority within 3 months of receiving the relevant sampling results.

Definitions

Appropriately qualified person (AQP)	means a person who has professional qualifications, training, skills and 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.
Active gegenwalles	means a rare and significant landform on the Cape Flattery dunefield that is characterised by small vegetated ridges (less than 2 m), that run perpendicular to the prevailing wind with deflation areas of bare sand, devoid of vegetation and seasonally inundated, occurring between the ridges.
Active mining	includes land: a) that is cleared of vegetation, stripped of topsoil, and where sand is being extracted for processing, b) that is an active rejects area.
Activity (EP Regulation)	includes that part, if any, of an activity relating to the following— (a) preparing a place for the activity before carrying out the activity; (b) rehabilitating a place after it has been used for carrying out the activity.
Acid sulphate soil (ASS)	means any material with a pH of <4.0.
Deflation corridor of active elongate/ parabolic dune	means the areas of low relief that occur between the trailing arms of active elongate parabolic dunes formed by the removal of sand by wind.
Elongate parabolic dune head	means a rare and significant landform on the Cape Flattery dunefield that is characterised by an actively advancing apical dune head of an elongate parabolic dune. It has a single or several slip faces with the upwind side paralleling the downwind side which are both devoid of vegetation.
Extensive development of small parabolic dune and associated deflation areas	means a rare and significant landform on the Cape Flattery dunefield that comprises of a field of parabolic dunes that are too small to be mapped individually. They are produced by local remobilisation of sand from their associated deflation areas.
Gegenwalles modified by parabolic dune inception	means a rare and significant landform on the Cape Flattery dunefield that is characterised by gegenwalles formations that have been substantially modified by the development of small parabolic dunes at the windward side of the landform.
Landform element	means parts of a landform with defined unique combinations of slope, relief and aspect. Refer to Table 6 for landform characteristic classes and data used to generate landform elements.
Mobile infrastructure	includes: a) infrastructure that can be relocated from one position to another b) land area associated with access tracks, conveyors, pipelines, slurry lines, power lines, transfer stations and mill infrastructure.
Non-active mining	includes disturbed land that is not active mining, mobile infrastructure or exploration, and the solar renewables project.
Potentially acid sulfate soil (PASS)	means any material with a Net Acidity of >0.03 (%S) or >18 (mol H ⁺ /t). Note: Acid Neutralising Capacity (ANC) can only be included in calculations to determine Net Acidity where it has been appropriately corroborated using laboratory methods as described in the latest version of the <i>Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines</i> or its equivalent.
Rehabilitation activity	means any activity that the holder is required to carry out in relation to this PRCP schedule.

Rehabilitation commenced	means rehabilitation works have commenced on ground. Rehabilitation of the land is deemed to have commenced once physical site works associated with achieving the first rehabilitation milestone for a rehabilitation area have commenced. Physical site works may include bulk earthworks and establishment activities.
Rehabilitation domain	means one or more rehabilitation units that are grouped by similar age, treatment and/or proximity and have a cumulative area greater than or equal to 1.8 ha and less than or equal to 40 ha.
Rehabilitation unit	means an area of land that is no longer active for mining and is under rehabilitation (i.e. terraforming has occurred).
Relict gegenwalles	means a rare and significant landform on the Cape Flattery dunefield that is characterised by gegenwalles that have been covered in vegetation and are no longer active.
Relief	means the difference in elevation relative to the surrounding landscape.
Suitably qualified and experienced person (SQP)	Suitability qualified person for performing a regulatory function under chapter 7, part 8 (Contaminated Land) of the EP Act or another function prescribed under a regulation, means a person who— (a) has qualifications and experience relevant to performing the function; and (b) if a regulation prescribes an organisation for this paragraph—is a member of the organisation.

END OF CONDITIONS

Section B - Final site design and reference maps

Figure 1 – Final Site Design

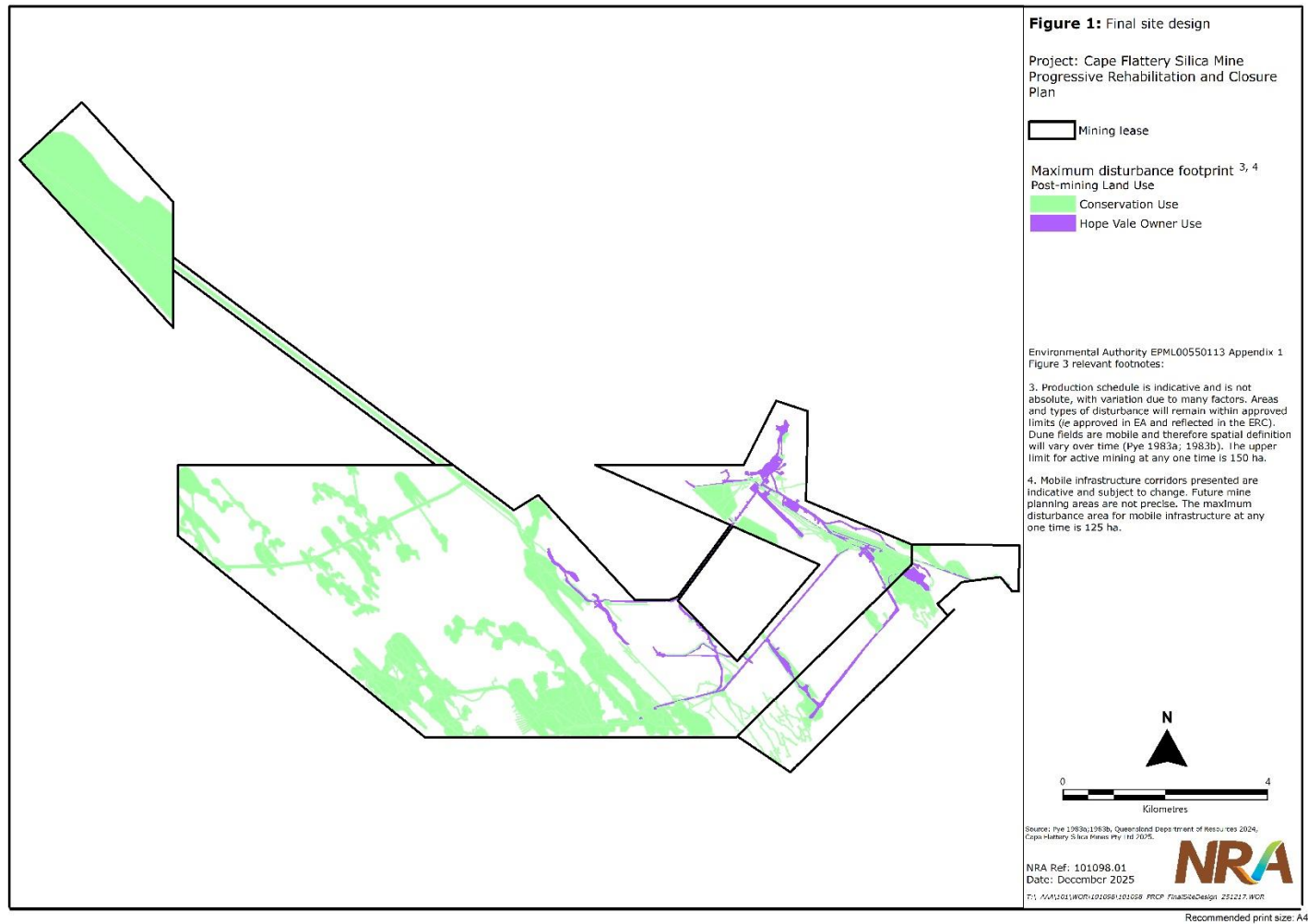


Figure 2 – Reference Map

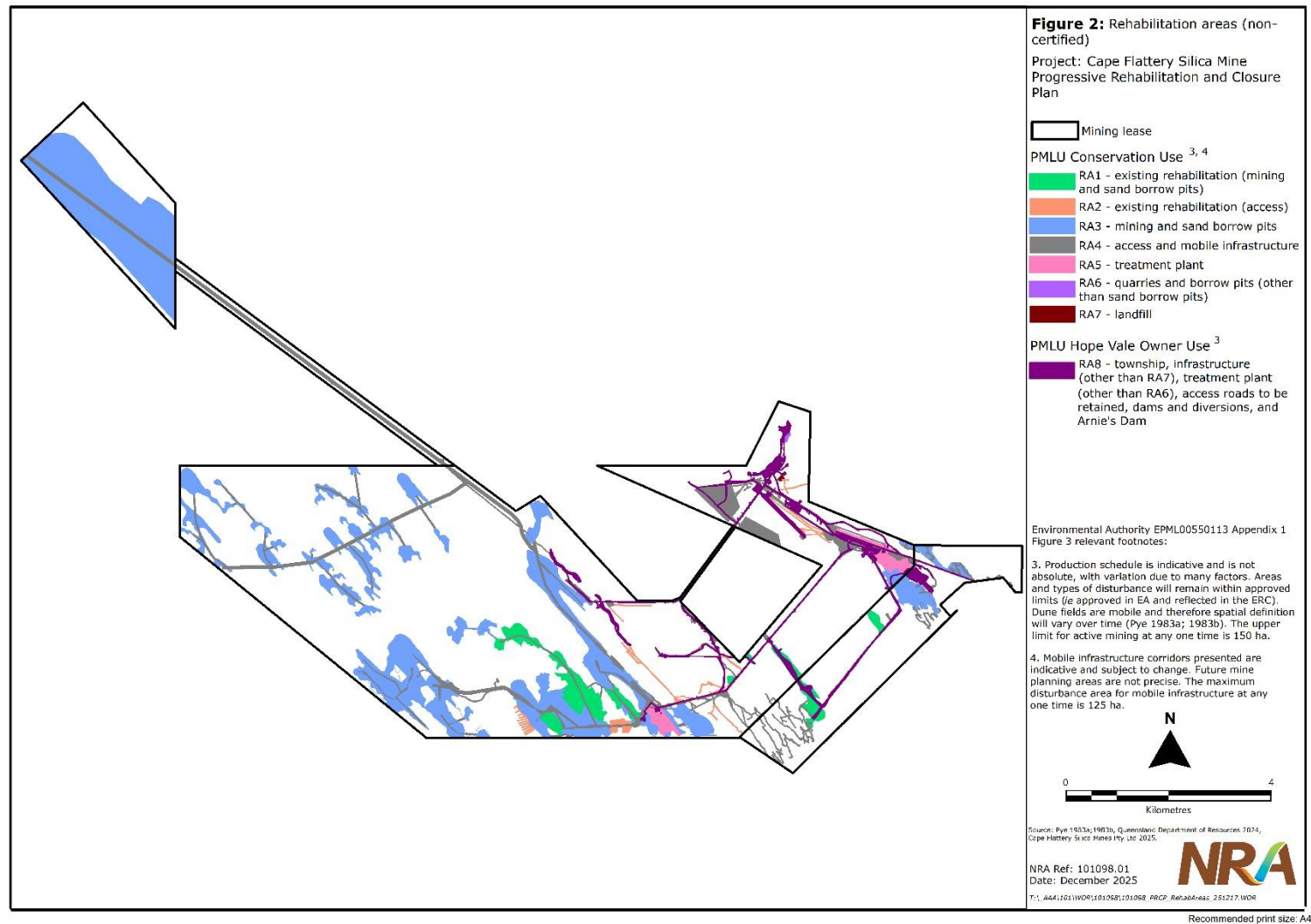
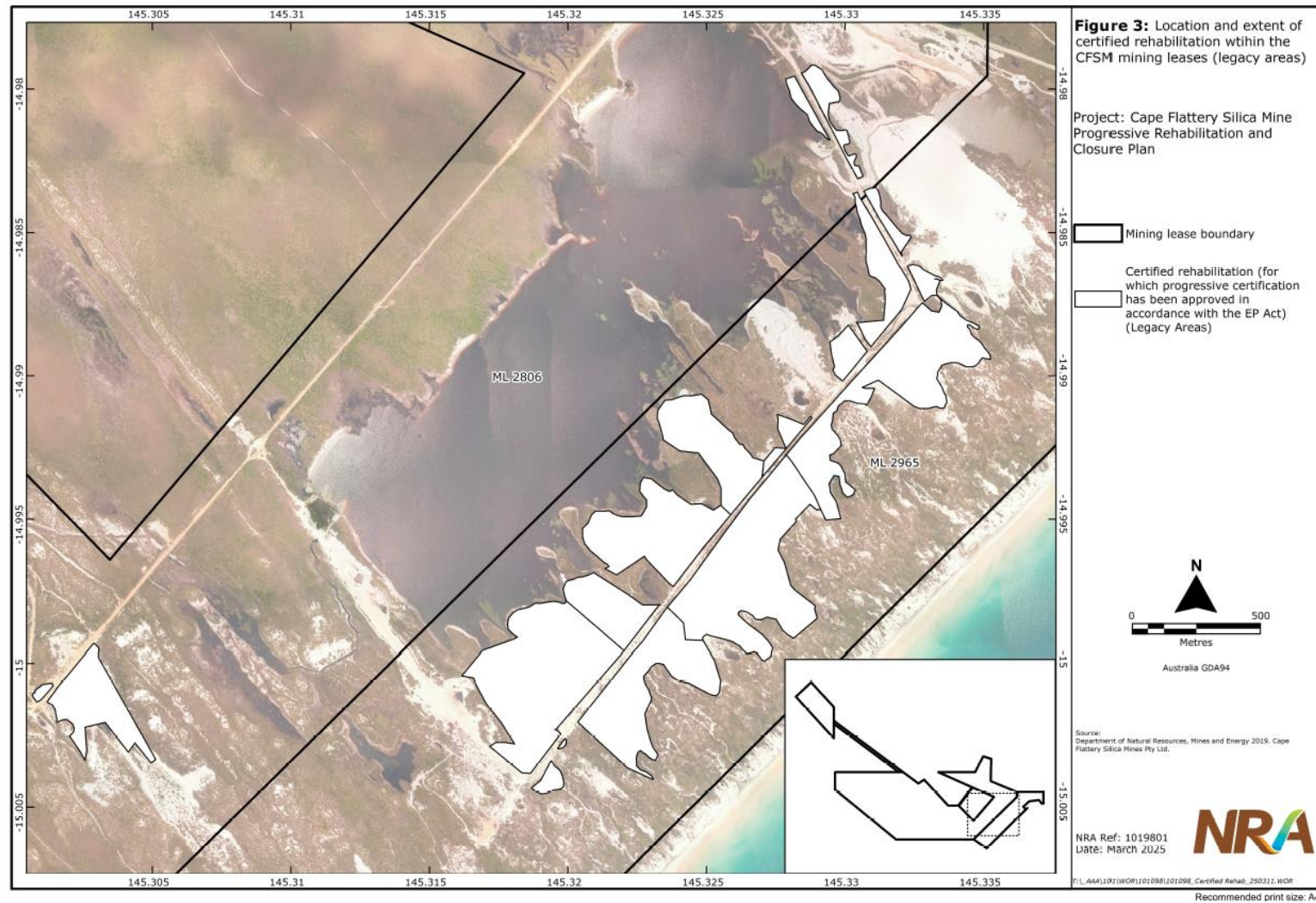


Figure 3 – Progressively Certified Rehabilitation Areas

Section C – Post mining land uses

(RA1) Rehabilitation area 1

Post-mining land uses (PMLU)								
Rehabilitation area	RA1							
Relevant activities	Disturbance Category "Active mining, non-active mining" and "Borrow Pits" (red sand borrow pits only) (Existing rehabilitation non-certified)							
Total rehabilitation area size (ha)	129							
Commencement of first milestone: RM1	Prior to commencement of this schedule							
PMLU	Conservation Use							
Date area is available	Prior to commencement of this schedule							
Cumulative area available (ha)	13	36	43	46	57	72	94	129
Milestone completed by	10/12/2038	10/12/2039	10/12/2043	10/12/2045	10/12/2047	10/12/2050	10/12/2051	10/12/2054
Milestone Reference	Cumulative area achieved (ha)							
RM1	13	36	43	46	57	72	94	129
RM6	13	36	43	46	57	72	94	129

(RA2) Rehabilitation area 2

Post-mining land uses (PMLU)			
Rehabilitation area	RA2		
Relevant activities	Disturbance Category 'Access Roads' (Existing Rehabilitation non-certified)		
Total rehabilitation area size (ha)	18		
Commencement of first milestone: RM1	Prior to commencement of this schedule		
PMLU	Conservation Use		
Date area is available	Prior to commencement of this schedule		
Cumulative area available (ha)	7	12	18
Milestone completed by	10/12/2031	10/12/2040	10/12/2043
Milestone Reference	Cumulative area achieved (ha)		
RM1	7	12	18
RM6	67	12	18

(RA3) Rehabilitation area 3

Post-mining land uses (PMLU)														
Rehabilitation area	RA3													
Relevant activities	Disturbance Category "Active mining, non-active mining" and "Borrow Pits" (Proposed rehabilitation)													
Total rehabilitation area size (ha)	1118													
Commencement of first milestone: RM1	Prior to commencement of this schedule													
PMLU	Conservation Use													
Date area is available	Prior to commencement of this schedule	1/01/2028	1/01/2033	1/01/2038	1/01/2043	1/01/2048	1/01/2053							
Cumulative area available (ha)	200	400	600	750	900	1050	1118							
Milestone completed by	10/12/2027	10/12/2032	10/12/2037	10/12/2042	10/12/2047	10/12/2052	10/12/2056	10/12/2057	10/12/2062	10/12/2067	10/12/2072	10/12/2077	10/12/2082	10/12/2086
Milestone Reference	Cumulative area achieved (ha)													
RM1	200	400	600	750	900	1050	1118							
RM6								200	400	600	750	900	1050	1118

(RA4) Rehabilitation Area 4

Post-mining land uses (PMLU)																			
Rehabilitation area	RA4*																		
Relevant activities	Disturbance Category "Mobile infrastructure", "Access", "Non-active mining" (solar footprint) (Proposed rehabilitation)																		
Total rehabilitation area size (ha)	294																		
Commencement of first milestone: RM1	1/01/2059																		
PMLU	Conservation Use																		
Date area is available	1/01/2059	1/01/2060	1/01/2063	1/01/2066	1/01/2078	1/01/2079		1/01/2082		1/01/2099	1/01/2100	1/01/2101							
Cumulative area available (ha)	26	58	79	95	135	172		181		201		228							
Milestone completed by	10/12/2059	10/12/2060	10/12/2063	10/12/2066	10/12/2078	10/12/2079	10/12/2080	10/12/2082	10/12/2083	10/12/2086	10/12/2098	10/12/2099	10/12/2021	10/12/2021	10/12/2021	10/12/2021	10/12/2021	10/12/2021	10/12/2021
Milestone Reference	Cumulative area achieved (ha)																		
RM1	26	58	79	95	135	172		181		201		228	268	294					
RM6						26	58		79	95	135	172			181	201	228	268	294

* RA4 includes areas where disturbance does not require landform reformation.

(RA5) Rehabilitation area 5

Post-mining land uses (PMLU)				
Rehabilitation area	RA5			
Relevant activities	Disturbance Category 'Treatment Plant', Disturbance Types 'Treatment Plant (new), Process pond, New mill, Stockpile and mill outwash' (Proposed rehabilitation)			
Total rehabilitation area size (ha)	44			
Commencement of first milestone: RM1	1/01/2057			
PMLU	Conservation Use			
Date area is available	1/01/2057	1/01/2058		
Cumulative area available (ha)	17	44		
Milestone completed by	10/12/2057	10/12/2058	10/12/2087	10/12/2088
Milestone Reference	Cumulative area achieved (ha)			
RM1	17	44		
RM6			17	44

(RA6) Rehabilitation area 6

Post-mining land uses (PMLU)			
Rehabilitation area	RA6*		
Relevant activities	Disturbance Category 'Quarries and Borrow Pits', Disturbance Type 'Quarry (incl borrow pits)'. (Proposed rehabilitation)		
Total rehabilitation area size (ha)	2		
Commencement of first milestone: RM1	1/01/2109		
PMLU	Conservation Use		
Date area is available	1/01/2109		
Cumulative area available (ha)	2		
Milestone completed by	10/12/2110		
Milestone Reference	Cumulative area achieved (ha)		
RM1	2		
RM3	2		
RM8	2		

* RA6 is relevant to Quarry areas at headlands including abandoned fuel storage area above the township. RA6 does not include Borrow pits (red sand) in mining areas or adjacent to haul roads.

(RA7) Rehabilitation area 7

Post-mining land uses (PMLU)			
Rehabilitation area	RA7		
Relevant activities	Disturbance Category 'Infrastructure', Disturbance Type 'Landfill'. (Proposed rehabilitation)		
Total rehabilitation area size (ha)	1		
Commencement of first milestone: RM4*	1/01/2030		
PMLU	Conservation Use		
Date area is available	1/01/2030		
Cumulative area available (ha)	1		
Milestone completed by	10/12/2030	10/12/2065	
Milestone Reference	Cumulative area achieved (ha)		
RM4	1		
RM5		1	
RM7		1	

*Landfill is decommissioned on 20 December 2007, therefore RM1 is not applicable to this RA.

(RA8) Rehabilitation area 8

Post-mining land uses (PMLU)		
Rehabilitation area	RA8	
Relevant activities	Disturbance Category 'Township' Disturbance Category 'Infrastructure', All Disturbance Types other than 'Landfill' Disturbance Category 'Treatment Plant', All Disturbance Types other than Disturbance Types 'Treatment Plant (new), Process pond, New mill, Stockpile and mill outwash' Disturbance Category 'Access Roads' to be retained Disturbance Category 'Dams and Diversions', Disturbance Type 'Water Diversions' and Disturbance Type 'Arnie's Dam'	
Total rehabilitation area size (ha)	125	
Commencement of first milestone: RM2	1/01/2109	
PMLU	Hope Vale Owner Use	
Date area is available	1/01/2109	
Cumulative area available (ha)	125	
Milestone completed by	10/12/2110	
Milestone Reference	Cumulative area achieved (ha)	
RM2	125	
RM7*	125	
RM8	125	

* RM7 is not applicable to Disturbance Category 'Access Roads' to be retained or Disturbance Category 'Dams and Diversions', Disturbance Type 'Water Diversions' and Disturbance Type 'Arnie's Dam'.

Rehabilitation area milestones

Milestone reference	Rehabilitation milestone	Milestone criteria
RM1	Infrastructure decommissioning and removal	a) An AQP has certified that all following actions, to the extent applicable to each RA, are conducted in completion of infrastructure removal: i. All services disconnected, terminated and removed. ii. All buildings and associated infrastructure dismantled and removed offsite. iii. All hardstand, concrete areas and roads (bitumen, blue metal, aggregate etc) removed. iv. All fencing that is not part of PMLU requirements removed. v. All pipelines drained and removed. vi. All waste removed. vii. All surface water drainage infrastructure removed on relinquishment. viii. All drillholes, bores, sediment ponds and sumps decommissioned on relinquishment. ix. All machinery and equipment removed from site. x. All dams dewatered and desilted. xi. All quarries decommissioned.
RM2	Infrastructure retainment	a) All infrastructure and services are retained as per Table 1 of this schedule and a current landholder statement. b) The landholder has agreed through a signed landholder statement declaring that they will accept responsibility for the infrastructure once mining has ceased. c) All infrastructure/ assets not stipulated in a landholder statement as being retained have complied with criteria outlined in RM1. All areas where infrastructure/ assets have been removed

Milestone reference	Rehabilitation milestone	Milestone criteria
		have been rehabilitated to meet the completion criteria for Conservation Use prescribed in RM6.
RM3	Achievement of headland surface requirement and post mine land use to stable condition (Conservation use)	a) Within two months prior to relinquishment, no declared pest plants ^A are recorded in the rehabilitation domain.
RM4	Achievement of decommissioned landfill maintenance	a) An AQP has certified that the decommissioned landfill site has been maintained and it is suitable for vegetation establishment.
RM5	Achievement of landfill surface requirement and post mine land use to stable condition (Conservation use)	a) On three consecutive occasions (over a period of not less than three years), measured indices sampled over an area equivalent to a 50 x 5 m plot (minimum) achieve the following. i. At least 50% of the plant functional groups (Table 2) present in analogue sites established in the undisturbed landscape at Cape Flattery (Figure 4) in vegetation communities dominated by eucalypts and acacia. ii. Crown class^B is equivalent to analogue sites; or iii. for rehabilitation that has been established for ≥10 years, crown cover (%) progressing towards^C that of analogue sites. iv. Groundcover ≥50% of that recorded in analogue sites. v. No declared pest plants^A are recorded; or vi. cover (%) of declared pest plants^A is not increasing^D. vii. Native species that are not in the original revegetation broadcast seed or planted tubestock mix^E are present. viii. At least 3 native species^F are reproductively mature (flowering or seeding). ix. At least 3 native species have at least 1 seedling or sapling^F. b) Demonstrate conditions are favourable for soil microbial processes by confirming the presence of three or more (≥3) plants with active nitrogen-fixing nodules and/or active mycorrhizal associations.

Milestone reference	Rehabilitation milestone	Milestone criteria
		c) Certification from an AQP that the rehabilitation area has achieved stable condition. This is to include demonstration that the rehabilitation area has at some point since seeding or final surface preparation experienced either: i) at least one year with annual rainfall in the first decile range; or ii) at least one fire event covering > 50% of the rehabilitation domain; or iii) at least one severe tropical cyclone (Category 3 or greater)¹; or iv) if the rehabilitation area has never experienced one of the stress events (i.e. i, ii, or iii), then plant functional groups (Table 2) ≥80% of that recorded in analogue sites.
RM6	Achievement of dunefield surface requirement and post mine land use to stable condition (Conservation use)	a) For RA1 and RA3 only, an AQP has certified that: The final rehabilitated landforms are designed and constructed in a manner that resembles a landform in the un-mined dunefield⁶ and contains a range of landform elements that are common to and characteristic of the surrounding un-mined dunefield. i. No loss of a rare or significant landform type (Table 3) in the Cape Flattery Dunefield as a result of mining on the project area. ii. Each rehabilitation unit will contain no less than 4 different landform elements (Table 4). iii. Within each rehabilitation domain, the median landform element richness per rehabilitation unit will be greater than or equal to eight landform elements (≥8). iv. The range in landform element^h richness per rehabilitation unit, across all rehabilitation domains available for assessment, will fall within the range of 3 to 47 landform elements. v. The land area of each rehabilitation domain occupied

Milestone reference	Rehabilitation milestone	Milestone criteria
		by any of the 30 common landform elements^H will be greater than or equal to 80% or vi. The land area of each rehabilitation domain occupied by any of the 24 landform elements that account for 95% of the un-mined dunefield land area^I will be greater than or equal to 75%. vii. Northeast and southwest facing landform elements will dominate and occupy greater than or equal to 60% of the land area in each rehabilitated domain. b) On three consecutive occasions (over a period of not less than three years), measured indices in two dominant landform groups^A sampled over an area equivalent to a 50 x 5m plot (minimum) in each rehabilitation domain achieve the following. i. Two or more (≥2) special use plants listed in Table 7 are present. ii. For landform group 1 (Table 4), at least 50% of the mean plant functional group richness (Table 2) present in landform group 1 analogue sites (Figure 4); and iii. For all other landform groups, at least 70% of the mean plant functional group richness present in analogue sites on equivalent landform groups are present. iv. Crown class^B of dominant landform groups in rehabilitation domains equivalent to analogue sites on the same landform groups (and similar landforms where applicable^I); or v. For rehabilitation that has been established for ≥10 years, crown cover (%) progressing towards^C that of analogue sites on the same landform groups (and similar landforms where applicable^I). vi. No declared pest plants^A are recorded in the rehabilitation domain; or

Milestone reference	Rehabilitation milestone	Milestone criteria
		vii. If declared pest plants^A are detected in analogue sites, the proportion of declared pest plant species in the rehabilitation domain relative to reference conditions is not increasing^B. viii. Native species that are not in the original revegetation broadcast seed or planted tubestock mix^E are present. ix. At least 3 native species^F are reproductively mature (flowering or seeding). x. At least 3 native species have at least 1 seedling or sapling^F. c) Demonstrate conditions are favourable for soil microbial processes by confirming the presence of three or more (≥ 3) plants with active nitrogen-fixing nodules and/or active mycorrhizal associations in each of the two dominant landform groups^K in each rehabilitation domain. d) Certification from an AQP that the area rehabilitation domain has achieved stable condition. This is to include demonstration that the rehabilitation domain has at some point since seeding or final surface preparation experienced either: i) at least one year with annual rainfall in the first decile range; or ii) at least one fire event covering > 50% of the rehabilitation domain; or iii) at least one severe tropical cyclone (Category 3 or greater)^L; or iv) for rehabilitation that has been established for ≥ 10 years, if the rehabilitation domain has never experienced one of the stress events (i.e. i, ii, or iii), then at least 80% of the plant functional groups (Table 2) in a rehabilitation domain (on equivalent landform groups), that has experienced a stress event, are present.

Milestone reference	Rehabilitation milestone	Milestone criteria
RM7	Identification, remediation of contaminated land	a) Detailed site investigation report, as required under the <i>Environmental Protection Act</i> 1994 (EP Act), completed. b) Contaminated and hazardous material either remediated in-situ or removed/transported to an approved landfill for disposal and waste tracking information recorded and submitted. c) Validation testing confirms that contaminated and hazardous materials have been removed or remediated successfully. d) Contaminated land assessment is completed by an AQP indicates that no contamination unsuitable for the post-mining land use remains or is occurring. If required, a site investigation report including a site suitability statement must be prepared and submitted in accordance with the provisions of Chapter 7, Part 8 of the EP Act. e) A site suitability statement from an AQP confirms the uses or activities for which the land is suitable, align to the approved PMLUs for the site. f) For RA7, land is removed from the Contaminated Land Register. g) For RA7, land is removed from the Environmental Management Register, if feasible. h) for RA8, a Site Management Plan is prepared in accordance with the EP Act and certified by an AQP that includes a statement by the underlying landholder accepting responsibility to implement the Site Management Plan.
RM8	Achievement of post-mining land use to stable condition (Retained infrastructures)	a) Airstrip and fuel storage meet relevant standards and are maintained at transfer. b) All signage and safety devices retained in place and maintained. c) Access roads maintained at transfer. d) Fuel and power lines in serviceable condition. e) All signage and safety devices retained in place and maintained.

Milestone reference	Rehabilitation milestone	Milestone criteria
		f) Minor tracks to be retained will remain open and usable at relinquishment. g) Certification from an AQP that the retained water storages have achieved stable condition and are non-polluting and meets the water quality criteria as per Table 9. h) Within 2 months prior to relinquishment, all retained infrastructures are certified by an AQP as: i. being fit for purpose; and ii. causing no environmental harm.

Footnotes:

A. Declared pest plant is defined as a Restricted or Prohibited Matter under the Queensland Biosecurity Act 2014, a plant listed under the Weeds of National Significance list (DoEE 2016 or equivalent) and/or the National Environmental Alert List (DoEE 2016 or equivalent). DoEE 2016, National weeds lists, Australian Government Department of the Environment and Energy, Canberra, <<http://www.environment.gov.au/biodiversity/invasive/weeds/weeds/lists/index.html>>.

B. Crown class according to Neldner et al. (2019) Table 28. 'Equivalent to' means a crown class equal to or denser than that of the surrounding vegetation. Neldner, VJ, Wilson, BA, Dillewaard, HA, Ryan, TS, Butler, DW, McDonald, WJF, Addicott, EP & Appelman, CN, 2019, Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland version 5.0, Queensland Department of Environment and Science, Brisbane.

C. If assessment of crown class shows that the rehabilitated domain is not equivalent to surrounding vegetation, crown cover (%) must be increasing towards equivalent crown class. 'Equivalent to' means a crown class equal to or denser than that of the surrounding vegetation. 'Increasing' is defined as showing a net increase over three successive monitoring events (or until equivalence is reached). Demonstration of a net increase requires a minimum of four monitoring events (with the initial monitoring event establishing a baseline for the three successive monitoring events).

D. 'Increasing' is defined as showing a net increase over three successive monitoring events. Demonstration of a net increase requires a minimum of four monitoring events (with the initial monitoring event establishing a baseline for the three successive monitoring events).

E. Verification that native species are present in rehabilitation domains that were not introduced in the seed mix/tubestock planting. For areas rehabilitated pre-2012, the seed or planted tubestock species mix is based on the plant species in analogue areas. Areas rehabilitated post-2012: this is based on records of planting stock used in individual rehabilitation areas which will be provided with the Annual Return for Environmental Authority EPML00550113. The species lists provided in the Annual Returns for areas rehabilitated after 2012 should be used to assess natural recruitment of plants into these areas.

F. These criteria are based on 'very good' condition assessment class in the Native Vegetation Condition Assessment and Monitoring Manual for Western Australia (Casson et al. 2009). Casson, N, Downes, S & Harris, A 2009, Native vegetation condition assessment and monitoring manual for Western Australia, Western Australia Department of Environment and Conservation, Perth.

- G. For reference in assessing the classification of landform type, the baseline proportions of landform elements in each landform type in the natural dunefield (**Table 3**) provide relevant benchmarks for guidance.
- H. The 30 common landform elements are 111, 112, 113, 114, 121, 122, 123, 124, 134, 211, 212, 213, 214, 221, 222, 223, 224, 233, 234, 311, 312, 313, 314, 321, 322, 323, 324, 332, 333 and 334.
- I. The landform elements that cover 95% of the un-mined dunefield are 111, 112, 113, 114, 121, 122, 123, 124, 211, 212, 213, 214, 221, 222, 224, 311, 312, 313, 314, 321, 322, 324, 332 and 334.
- J. Vegetation cover differs between ridge and non-ridge landforms. Classification of landform group 4 and 6 rehabilitation domains to ridge and non-ridge is necessary to achieve like-for-like comparison with corresponding analogue sites.
- K. If the rehabilitation domain constitutes a single dominant landform group, site replication that would be applied to the two dominant landform groups is to be applied to the relevant single landform group.
- L. Mean minimum wind speeds of ≥ 118 km/hr as measured at a weather station relevant to Cape Flattery.

Table 1 – Infrastructure to be retained for Hope Vale Owner Use as itemised in the Retained Infrastructure Deed¹

Disturbance category	Disturbance Type	Retained Infrastructure assets
Township (excluding landfill) and infrastructure	• Township • Old offices, workshop and store. • Quarry (current sand blasting area and pad) • New workshops, store and offices • Supply wharf area	1. Concrete pads that are situated under the following: • Township • Workshop, offices, store and bunker • Blast yard • Administration office • Crib rooms • Abandoned fuel storage • Washdown bay (including oil/water separator) 2. Township buildings (including swimming pool and associated infrastructure) and Ellicott House 3. Hardstand lawns and garden areas 4. Old workshop (new shed behind Main Fuel Farm) 5. Water tanks 6. Fuel storage area 7. Supply wharf area 8. Service jetty and all associated infrastructure 9. Item is deleted on 17 December 2025* 10. Administration office 11. Workshop 12. Stores buildings 13. Bunker
Access	Township access roads, fuel line and power lines	14. Main township access roads including: • All township roads • Infrastructure access roads • Wharf and beach access roads • All roads leading to concrete pads, buildings and hardstand areas

Disturbance category	Disturbance Type	Retained Infrastructure assets
	Mining access tracks to be retained	15. Main mining access roads including: • Slurry Line road • Haul roads • Conveyer road for access north of the mine • Airport Lake and First Ridge rehabilitation access roads • All roads leading to concrete pads, buildings and hardstand areas
Infrastructure	Airstrip and associated infrastructure	16. Concrete pads that are situated under the following: • Airstrip and hanger 17. Airport building 18. Hardstand, lawns and garden areas
Infrastructure and Treatment Plant	• Main fuel farm • Sewage Treatment Plant (STP) • Water supply • Power house and fuel storage Water pump, nursery, pipe shed, filter belt pad and laydown areas	19. Concrete pads that are situated under the following: • Reclaimer rails • Bucket wheel • Power screen • Nursery • Filter belt • Low Iron Plant • Old Mill • Motor Control Centre and transformers 20. Power house fuel storage 21. Main Fuel Farm 22. Sewage Treatment Plant 23. Power house 24. Crib room 25. Poly shed 26. Nursery 27. Water tanks 28. Hardstand, lawns and garden areas 29. Water supply 30. Water pump, pipe shed 31. Filter belt

Disturbance category	Disturbance Type	Retained Infrastructure assets
		32. Motor Control Centre 33. Laydown areas
Dams and Diversions	Arnie's Dam	34. Arnie's Dam (Syn. Arnie's Lake)
	Water diversions	35. Diversion channels ²
Treatment Plant (old)	Stockpile and mill outwash	36. Concrete pads that are situated under the following: • Reclaimer rails • Bucket wheel • Power screen • Filter belt • Low Iron Plant • Old Mill 37. Hardstand areas

Disturbance category	Disturbance Type	Retained Infrastructure assets
Treatment Plant (new)	Process pond and new mill infrastructure	38. Concrete pads that are situated under the following: • New mill • Trommel • Water tanks • Constant Density Cone (CDC) • Water supply 39. Hardstand areas 40. Crib room

1. Infrastructure for retention as nominated in the *Retained Infrastructure Deed* current as of 13th June 2019, with exception of 'Communications infrastructure'* that does not form part of mining related disturbance. In accordance with clauses 3.1 and 3.2 of the *Retention Infrastructure Deed* (Variations to Retained Infrastructure) between Hope Vale Congress Aboriginal Corporation and Cape Flattery Silica Mines Pty Ltd, the parties can agree to vary the list of Retained Infrastructure by adding additional items of infrastructure or removing items of infrastructure from that list. The parties agree that any variation to the Retained Infrastructure [list] must be: agreed by the AIC [Agreement Implementation Committee] in accordance with the processes set out in the Compensation Agreement (or otherwise agreed by the parties); and documented as a minute of the meeting at which the variation was agreed, upon with the terms of this Deed, as the case requires (*ie* apply to additional items of infrastructure *or* cease to apply to any items of infrastructure removed from the list of Retained Infrastructure).

2. The diversions are channels between natural waterbodies that are not disturbed by other mining operations.

Table 2 – Plant functional group codes that are used to determine plant functional groups

Plant functional attribute	Range of possible traits	Plant functional group (PFG) code component ¹
Growth form	• Woody species (trees and shrubs) • Graminoids (grasses, sedges and rushes) • Forbs (including vines, ferns and epiphytes)	• W • G • F
Nutrient acquisition strategy	• Nitrogen-fixing (may also be mycorrhizal) • Specialised root systems (some graminoids) • Mycorrhizal associations only (for woody species and forbs) • Other	• N • S • M • -
Primary regeneration mode	• Seeder • Resprouter organ (rhizomes, corms, tubers, large woody subterranean organs) • Vegetative reproduction/dispersal	• 1 • 2 • 3

1. For example, a plant species with a plant functional group code of WN1: has a woody species growth form (either a tree or a shrub), has a nitrogen-fixing nutrient acquisition strategy, and its primary reproduction mode is by seed.

Notes: Nutrient acquisition strategy identified with reference to Brundrett (2008), Lamont (1982) and MESA (1999-2015).

Brundrett, M 2008, *Mycorrhizal Associations: The Web Resource Version 2*, sponsored by Australian Centre for International Agricultural Research, Lotterywest and School of Plant Biology, The University of Western Australia, <<https://mycorrhizas.info/info.html>>.

Lamont, B 1982, Mechanisms for enhancing nutrient uptake in plants, with particular reference to mediterranean South Africa and Western Australia, *The Botanical Review*, 48: 597-689. MESA 1999-2015, *Mangroves of Australia – Adaptations*, Marine Education Society of Australasia, <<http://www.mesa.edu.au/mangroves/mangroves02.asp>>.

Table 3 – Cape Flattery Dunefield Rare or significant landform types¹ (pre-mining)

Cape Flattery Dunefield Rare or significant landform types	Landform type area mapped in dunefield (pre-mining)
Active gegenwalles	190ha
Deflation corridor of active elongate/parabolic dune	888ha
Elongate parabolic dune head	494ha
Extensive development of small parabolic dune and associated deflation areas	147ha
Gegenwalles modified by parabolic dune inception	309ha
Relict gegenwalles	2300ha

1. These data are to be referred to for the analysis of land occupied by a rare or significant landform type. Definitions of each rare or significant landform type are provided in **Definitions**.

Notes: Rare or significant landforms were classified in the CFSM Land Capability Report (NRA 1996). From the mapping presented in NRA (1996) and with reference to the Landform Mapping of Cape Flattery Dunefield Report (NRA 1995) and to the Assessment of the Cape Bedford - Cape Flattery Dunefield for National Estate Listing (Stock 1991) the rare or significant landforms were inferred.

Table 4 – Landform group and landform element classification and landform group descriptions

Landform group	Relief	Slope angle	Slope aspect	Relevant landform element codes ¹	Landform group description
1	<5 m	all	all	111-134	- All low-lying areas. Slope angle and aspect would have a negligible influence on vegetation structure and composition when relief is <5 m. - A high proportion of these areas are likely to be subject to waterlogging, which would influence vegetation composition similarly across each landform element.
2	≥5 m	<10°	all	211-214, 311-314, 411-414	- All relatively flat, elevated areas. - Relief above 5 m would have little influence on vegetation structure and composition within the narrow range of elevations at CFSM. - Slope aspect is unlikely to have an influence in relatively flat terrain because differences in exposure to prevailing conditions are negligible and inconsistent.
3	≥5 m	10° - 30°	87.5° - 177.5°	221, 321, 421	- All elevated areas with moderate slopes and aspects (<i>ie</i> sides of ridges). - Relief above 5 m would have little influence on vegetation structure and composition within the narrow range of elevations at CFSM. - Slope aspect on moderate slopes is likely to have some influence on exposure and is likely to influence vegetation structure and composition.
4	≥5 m	10° - 30°	177.5° - 267.5°	222, 322, 422	
5	≥5 m	10° - 30°	267.5° - 357.5°	223, 323, 423	
6	≥5 m	10° - 30°	357.5°-87.5°	224, 324, 424	
7	≥5 m	>30°	87.5°-177.5°	231, 331, 431	- All elevated areas with steep slopes and aspects (<i>ie</i> sides of ridges). - Relief above 5 m would have little influence on vegetation structure and composition within the narrow range of elevations at CFSM. - Slope aspect and steep terrain is likely to influence exposure and is likely to influence vegetation structure and composition.
8	≥5 m	>30°	177.5°-267.5°	232, 332, 432	
9	≥5 m	>30°	267.5°-357.5°	233, 333, 433	
10	≥5 m	>30°	357.5°-87.5°	234, 334, 434	

1. Landform elements based on Table 5 below.

Table 5 – Baseline proportions of landform elements within each landform type in the un-mined natural dunefield

Landform type ^{1,2}	Landform element proportion (%) of landform type ³											
	111	112	113	114	121	122	123	124	131	132	133	134
Active gegenwalles	10.5622	15.3794	10.3839	52.5581	0.3874	1.8761	0.5866	2.7634	0.0050	0.0158	0.0140	0.0529
Coastal parabolic dunes	8.5788	9.2444	4.9059	14.8323	2.6129	7.6858	2.1867	7.4096	0.0366	0.4228	0.1469	0.4224
Deflation corridor of active elongate/parabolic dune	12.1363	15.8274	8.6020	45.9789	0.5055	2.1935	0.5663	2.7762	0.0027	0.0325	0.0150	0.0275
Depositional area in deflation corridor	11.2686	14.0597	15.5791	49.2055	0.8484	1.9811	0.9722	2.1979	0.0070	0.0373	0.0345	0.0439
Elongate parabolic dune head	1.0412	1.4847	0.6461	3.5281	0.2383	2.0098	0.3642	2.7931	0.0091	0.2707	0.0960	0.4747
Extensive development of small parabolic dune and associated deflation areas	12.4651	19.3504	17.1167	42.5380	0.4855	1.3415	1.1937	1.1409	0.0000	0.0060	0.0074	0.0098
Gegenwalles modified by parabolic dune inception	23.1685	18.4960	3.9785	49.8857	0.0721	0.2096	0.1768	0.3618	0.0000	0.0000	0.0000	0.0067
III-defined lakes and swamps	10.9993	16.5982	12.6560	45.9403	0.4079	1.5091	0.6248	1.7545	0.0003	0.0262	0.0105	0.0282
Inter-dune sand plains <20 m ⁴	10.7109	15.4387	6.5552	34.6443	0.3962	1.2473	0.4006	1.5105	0.0074	0.0135	0.0071	0.0126
Inter-dune sand plains >20 m ⁴	6.5331	10.3129	3.0977	18.1462	0.1650	0.9159	0.2577	1.3929	0.0005	0.0077	0.0064	0.0253
Long narrow ridges	1.7665	5.0487	1.3160	7.3169	0.2090	4.2215	0.3282	3.8767	0.0044	0.3153	0.0305	0.1545
Relict gegenwalles	17.2016	36.9290	2.3307	40.7464	0.0378	1.3373	0.1096	0.2511	0.0000	0.0021	0.0022	0.0000
Small deflation areas	18.2296	11.7787	9.9205	41.0952	1.1972	1.3679	0.7729	2.7102	0.0000	0.0288	0.0000	0.0301
Small parabolic dunes	6.0700	7.6752	5.2957	15.3524	1.6984	3.9107	1.5809	3.9749	0.0349	0.2544	0.1610	0.3527
Transition: Lakes and swamps with small deflation areas	18.4041	18.5980	11.4956	41.5304	0.3875	0.5950	0.7272	0.7434	0.0000	0.0000	0.0000	0.0000
Landform type ^{1,2}	Landform element proportion (%) of landform type ³											
	211	212	213	214	221	222	223	224	231	232	233	234
Active gegenwalles	0.6649	0.7526	0.1767	0.3771	0.3259	0.7053	0.2110	0.7763	0.0086	0.0720	0.0196	0.1492
Coastal parabolic dunes	2.3528	2.3682	1.3519	2.5722	2.9581	5.7451	1.7136	5.5912	0.1293	0.9332	0.3624	0.9682
Deflation corridor of active elongate/parabolic dune	1.3593	1.1386	0.6754	2.0796	0.4442	1.0115	0.2231	1.2907	0.0119	0.0509	0.0431	0.0884
Depositional area in deflation corridor	0.4405	0.5258	0.4920	0.7846	0.2945	0.3609	0.2447	0.3882	0.0150	0.0425	0.0358	0.0588
Elongate parabolic dune head	0.5414	0.6342	0.2188	0.8512	0.6298	3.3723	0.3846	3.2248	0.0408	1.7997	0.7615	2.7412
Extensive development of small parabolic dune and associated deflation areas	0.6930	0.7032	0.4727	0.7141	0.3378	0.4455	0.3342	0.3716	0.0029	0.1001	0.0569	0.0507
Gegenwalles modified by parabolic dune inception	0.6187	0.6366	0.4280	0.5906	0.1739	0.5011	0.2748	0.2578	0.0000	0.0215	0.0069	0.0131
III-defined lakes and swamps	1.1509	2.0461	1.1039	2.3104	0.2793	0.5892	0.3055	0.6694	0.0014	0.0428	0.0227	0.0383
Inter-dune sand plains <20 m ⁴	3.0344	6.3812	2.8399	8.9798	0.2015	0.6548	0.2193	0.7163	0.0319	0.0181	0.0207	0.0278
Inter-dune sand plains >20 m ⁴	1.6353	2.5341	1.2869	3.7844	0.2472	1.2675	0.3498	1.4525	0.0040	0.0417	0.0314	0.1014
Long narrow ridges	1.3048	3.4841	0.8465	3.6765	0.8625	4.9938	0.6281	5.2197	0.0271	0.9310	0.1242	0.6948

Relict gegenwalles	0.0758	0.0779	0.0593	0.0699	0.0379	0.4349	0.1127	0.0721	0.0000	0.0078	0.0003	0.0000
Small deflation areas	2.0702	1.5370	1.0140	2.1627	1.1117	0.7066	0.3941	1.5328	0.0181	0.0254	0.0110	0.0241
Small parabolic dunes	1.8167	2.0054	1.3503	2.3718	2.8689	4.0864	1.7278	3.7810	0.2584	1.1777	0.8716	1.3575
Transition: Lakes and swamps with small deflation areas	2.1067	1.0378	0.9584	1.5194	0.4320	0.2695	0.6305	0.5341	0.0000	0.0000	0.0025	0.0280
Landform type ^{1,2}	Landform element proportion (%) of landform type ³											
	311	312	313	314	321	322	323	324	331	332	333	334
Active gegenwalles	0.2268	0.1479	0.0312	0.0650	0.0676	0.2201	0.0611	0.2556	0.0083	0.0478	0.0070	0.0378
Coastal parabolic dunes	1.2632	1.1906	0.7481	1.3497	1.6563	3.0564	0.9939	2.7561	0.1085	0.5539	0.2352	0.5417
Deflation corridor of active elongate/parabolic dune	0.7290	0.1328	0.0569	0.2244	0.4792	0.4210	0.0370	0.6943	0.0022	0.0432	0.0086	0.0729
Depositional area in deflation corridor	0.0153	0.0052	0.0089	0.0104	0.0098	0.0107	0.0083	0.0122	0.0000	0.0006	0.0003	0.0000
Elongate parabolic dune head	2.3270	1.2296	1.0972	3.6463	3.3477	7.0910	1.2741	6.3492	0.5166	9.9906	3.5317	11.5421
Extensive development of small parabolic dune and associated deflation areas	0.0064	0.0064	0.0039	0.0054	0.0103	0.0054	0.0098	0.0093	0.0000	0.0039	0.0001	0.0015
Gegenwalles modified by parabolic dune inception	0.0049	0.0072	0.0056	0.0016	0.0034	0.0636	0.0280	0.0000	0.0000	0.0048	0.0002	0.0019
Ill-defined lakes and swamps	0.0698	0.2047	0.1069	0.1003	0.0399	0.1340	0.0497	0.1321	0.0005	0.0218	0.0057	0.0195
Inter-dune sand plains <20 m ⁴	0.7556	1.9047	0.6864	2.0302	0.0493	0.2186	0.0511	0.2054	0.0078	0.0084	0.0044	0.0080
Inter-dune sand plains >20 m ⁴	5.6362	9.1914	3.7350	12.3139	0.8097	5.0181	1.0948	4.9491	0.0140	0.0937	0.0761	0.1774
Long narrow ridges	2.1398	4.3841	1.2288	4.1312	1.0747	11.5648	1.1182	8.8094	0.1667	3.1340	0.2867	2.8913
Relict gegenwalles	0.0107	0.0160	0.0193	0.0134	0.0000	0.0323	0.0088	0.0003	0.0000	0.0022	0.0005	0.0000
Small deflation areas	0.2187	0.1112	0.1750	0.4067	0.2942	0.0631	0.2010	0.7829	0.0000	0.0000	0.0038	0.0045
Small parabolic dunes	1.1765	1.1559	0.6977	1.2324	3.4299	4.0196	1.7718	3.9202	1.3537	3.4234	2.4030	3.5792
Transition: Lakes and swamps with small deflation areas	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landform type ^{1,2}	Landform element proportion (%) of landform type ³											
	411	412	413	414	421	422	423	424	431	432	433	434
Active gegenwalles	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Coastal parabolic dunes	0.0009	0.0006	0.0002	0.0006	0.0033	0.0035	0.0028	0.0033	0.0000	0.0000	0.0000	0.0000
Deflation corridor of active elongate/parabolic dune	0.0034	0.0000	0.0000	0.0000	0.0089	0.0058	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
Depositional area in deflation corridor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elongate parabolic dune head	1.6775	1.9296	0.4944	1.8873	1.1613	5.0307	0.4696	2.7944	0.1582	1.7192	0.7219	1.8564
Extensive development of small parabolic dune and associated deflation areas	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

1. These data are to be used for the analysis of the proportion of land occupied by each landform element in each dunefield landform type relevant to the borrow pits and mined-out areas disturbance types (*ie* it excludes these landform types: outcrops, sand veneer over outcrop, stream corridors and large waterbodies).

Notes: landforms were classified in the Landform Mapping of Cape Flattery Dunefield Report (NRA 1995, *Landform Mapping of Cape Flattery Dunefield*, prepared for CFSM Pty Ltd by NRA Environmental Consultants, November 1995) with reference to the Assessment of the Cape Bedford - Cape Flattery Dunefield for National Estate Listing (Stock, EC 1991, *Assessment of the Cape Bedford - Cape Flattery Dunefield for National Estate Listing*, Objection Assessment, A Report to the Australian Heritage Commission, September 1991).

2. Landform mapping was updated using contemporary elevation data captured in 2014 and aerial photography dated 2015. (NRA 2019. *Cape Flattery Silica Mine Landform Mapping Update and Baseline Natural Un-mined Dunefield Landform Element Area Proportion Table*, prepared for CFSM Pty Ltd by NRA Environmental Consultants. Issued, 25 September 2019.)

3. Landform elements are parts of a landform with defined unique combinations of slope, relief and aspect. Refer to **Table 6** for landform characteristic classes and data used to generate landform elements.

4. Refers to elevation above sea level (AHD).

Table 6 – Landform characteristic classes used to generate landform elements¹

Relief ²	Code identifier	Slope angle	Code identifier	Slope aspect	Code identifier
<5 m	100	<10°	10	87.5° - 177.5°	1
5 m – 10 m	200	10° - 30°	20	177.5° - 267.5°	2
10 m – 35 m	300	>30°	30	267.5° - 357.5°	3
>35 m	400	-	-	357.5° - 87.5°	4

1. Landform element data (generated from relief, slope angle and slope aspect characteristic classes) for assessment of rehabilitation units and domains is to be generated using a Digital Elevation Model (DEM) (created using a triangulation method) with a grid cellsize equal to or less than 2 m. For example, landform element 331 = 10 – 35 m relief, >30° slope, and south-easterly aspect.
2. Relief is the difference in elevation relative to the surrounding landscape (ie Australian Height Datum (AHD) DEM minus LakeReference DEM). Point data that are used to create the Lake Reference DEM are provided in Table 6(i).

Table 6(i) – Cape Flattery Silica Mine elevation point data for the creation of Lake Reference DEM for landform element relief component¹

Elevation (m AHD)	GDA94		Elevation (m AHD)	GDA94		Elevation (m AHD)	GDA94		Elevation (m AHD)	GDA94		Elevation (m AHD)	GDA94		Elevation (m AHD)	GDA94		Elevation (m AHD)	GDA94	
	Longitude	Latitude		Longitude	Latitude		Longitude	Latitude		Longitude	Latitude		Longitude	Latitude		Longitude	Latitude		Longitude	Latitude
0.5	145.3190	-15.0090	5	145.3260	-14.9936	5.5	145.3270	-14.9782	6.5	145.3070	-14.9991	8	145.3070	-15.0067	13	145.2480	-14.9769	19	145.2790	-14.9980
1	145.3410	-14.9888	5.5	145.3030	-15.0242	5.5	145.3280	-14.9873	6.5	145.3080	-15.0011	8.5	145.3010	-14.9863	13	145.2480	-14.9771	20	145.2610	-14.9928
1.5	145.2940	-14.9643	5.5	145.3050	-15.0098	5.5	145.3280	-14.9852	6.5	145.3080	-15.0004	8.5	145.3030	-14.9944	13	145.2480	-14.9710	20.5	145.2510	-14.9875
1.5	145.3050	-14.9637	5.5	145.3190	-14.9954	5.5	145.3280	-14.9838	6.5	145.3090	-15.0012	10	145.2490	-14.9657	13.5	145.2490	-14.9786	20.5	145.2520	-14.9867
1.5	145.3420	-14.9864	5.5	145.3190	-14.9777	5.5	145.3280	-14.9863	6.5	145.3090	-15.0014	10	145.2500	-14.9623	13.5	145.2500	-14.9784	20.5	145.2520	-14.9875
2	145.3050	-14.9639	5.5	145.3200	-14.9806	5.5	145.3280	-14.9817	6.5	145.3100	-15.0018	10.5	145.3010	-15.0020	13.5	145.2500	-14.9790	20.5	145.2520	-14.9878
2.5	145.3080	-15.0131	5.5	145.3200	-14.9886	5.5	145.3280	-14.9826	6.5	145.3100	-15.0019	10.5	145.3020	-15.0018	13.5	145.2510	-14.9790	20.5	145.2620	-14.9936
2.5	145.3090	-15.0135	5.5	145.3200	-14.9945	5.5	145.3280	-14.9831	6.5	145.3100	-15.0025	10.5	145.3020	-15.0020	13.5	145.2510	-14.9794	21	145.2260	-14.9774
2.5	145.3100	-15.0140	5.5	145.3200	-14.9956	5.5	145.3280	-14.9806	6.5	145.3100	-15.0024	10.5	145.3030	-15.0018	13.5	145.2630	-14.9827	21	145.2510	-14.9849
2.5	145.3440	-14.9835	5.5	145.3200	-14.9999	5.5	145.3290	-14.9906	6.5	145.3120	-15.0016	11	145.2540	-14.9706	14	145.2690	-14.9717	21	145.2530	-14.9872
3	145.3050	-14.9640	5.5	145.3210	-14.9844	5.5	145.3290	-14.9864	6.5	145.3150	-15.0042	11	145.2540	-14.9709	14	145.2780	-14.9872	21	145.2660	-15.0240
3	145.3060	-15.0236	5.5	145.3210	-14.9819	5.5	145.3290	-14.9875	6.5	145.3350	-14.9780	11	145.2550	-14.9725	15	145.2720	-14.9859	21	145.2660	-15.0242
3	145.3410	-14.9838	5.5	145.3220	-14.9925	5.5	145.3290	-14.9857	6.5	145.3350	-14.9816	11	145.2560	-14.9720	15	145.2810	-14.9932	21	145.2660	-15.0244
3	145.3430	-14.9834	5.5	145.3220	-14.9928	5.5	145.3290	-14.9859	6.5	145.3360	-14.9790	11	145.2560	-14.9727	15	145.2850	-14.9983	21	145.2660	-15.0249
3.5	145.3260	-14.9996	5.5	145.3220	-14.9935	5.5	145.3290	-14.9848	6.5	145.3370	-14.9786	11	145.2600	-14.9729	15	145.2850	-14.9981	21.5	145.2150	-14.9759
3.5	145.3330	-14.9903	5.5	145.3220	-14.9940	5.5	145.3300	-14.9885	6.5	145.3370	-14.9802	11	145.2640	-14.9833	15	145.2850	-14.9983	22	145.2490	-14.9857
3.5	145.3340	-14.9890	5.5	145.3220	-14.9946	5.5	145.3300	-14.9872	6.5	145.3380	-14.9829	11	145.2640	-14.9845	15	145.2860	-14.9988	22.5	145.2900	-15.0058
3.5	145.3400	-14.9839	5.5	145.3230	-14.9975	5.5	145.3300	-14.9879	6.5	145.3380	-14.9829	11	145.2650	-14.9853	15	145.2860	-14.9995	23	145.2740	-15.0061
3.5	145.3440	-14.9827	5.5	145.3230	-14.9947	5.5	145.3300	-14.9851	7	145.3030	-15.0164	11	145.2660	-14.9832	15.5	145.2740	-14.9880	23	145.2740	-15.0067
4	145.3120	-15.0126	5.5	145.3230	-14.9937	5.5	145.3300	-14.9858	7	145.3040	-15.0182	11	145.2660	-14.9857	16	145.2300	-14.9687	23.5	145.2590	-14.9976
4	145.3270	-14.9978	5.5	145.3240	-14.9961	5.5	145.3390	-14.9804	7	145.3090	-14.9982	11	145.2670	-14.9844	17	145.2810	-14.9996	24.5	145.2250	-14.9788
4	145.3310	-14.9919	5.5	145.3240	-14.9770	5.5	145.3390	-14.9822	7	145.3370	-14.9802	11	145.2670	-14.9858	17	145.2810	-14.9977	24.5	145.2250	-14.9787
4	145.3320	-14.9875	5.5	145.3240	-14.9933	6	145.3130	-15.0038	7	145.3400	-14.9779	11	145.2670	-14.9874	17	145.2830	-15.0010	25	145.2660	-14.9995
4	145.3350	-14.9870	5.5	145.3260	-14.9909	6	145.3150	-15.0029	7	145.3420	-14.9774	11	145.2670	-14.9877	17	145.2840	-15.0020	25.5	145.2250	-14.9795
4	145.3390	-14.9841	5.5	145.3260	-14.9924	6	145.3160	-15.0020	7	145.3420	-14.9766	11	145.2690	-14.9887	17	145.2840	-15.0025	27.5	145.2070	-14.9754

Elevation (m AHD)	GDA94		Elevation (m AHD)	GDA94		Elevation (m AHD)	GDA94		Elevation (m AHD)	GDA94		Elevation (m AHD)	GDA94		Elevation (m AHD)	GDA94		Elevation (m AHD)	GDA94	
	Longitude	Latitude		Longitude	Latitude		Longitude	Latitude		Longitude	Latitude		Longitude	Latitude		Longitude	Latitude		Longitude	Latitude
4.5	145.3070	-15.0100	5.5	145.3260	-14.9888	6	145.3210	-14.9781	7	145.3420	-14.9771	11	145.2700	-14.9871	17.5	145.2040	-14.9625	27.5	145.2640	-15.0013
4.5	145.3080	-15.0105	5.5	145.3260	-14.9850	6	145.3220	-14.9922	7	145.3420	-14.9761	11	145.2700	-14.9886	17.5	145.2770	-14.9957	28	145.2100	-14.9789
4.5	145.3250	-14.9983	5.5	145.3260	-14.9779	6	145.3230	-14.9926	7	145.3430	-14.9783	11	145.2710	-14.9883	17.5	145.2780	-14.9952	28	145.2100	-14.9791
4.5	145.3290	-14.9927	5.5	145.3260	-14.9932	6	145.3260	-14.9845	7.5	145.3020	-15.0207	11	145.2710	-14.9888	18	145.2800	-14.9983	28	145.2130	-14.9822
4.5	145.3400	-14.9828	5.5	145.3270	-14.9862	6	145.3270	-14.9827	7.5	145.3030	-15.0161	11	145.3010	-15.0019	18	145.2800	-14.9972	30.5	145.2460	-14.9974
4.5	145.3410	-14.9831	5.5	145.3270	-14.9851	6	145.3380	-14.9790	7.5	145.3030	-15.0155	11.5	145.2630	-14.9832	18.5	145.2800	-14.9982	31.5	145.2450	-15.0009
5	145.3060	-15.0195	5.5	145.3270	-14.9840	6.5	145.3050	-15.0173	7.5	145.3330	-14.9769	12	145.2710	-14.9892	19	145.2260	-14.9744	31.5	145.2470	-15.0017
5	145.3140	-15.0089	5.5	145.3270	-14.9824	6.5	145.3060	-14.9981	7.5	145.3330	-14.9764	12.5	145.2840	-14.9925	19	145.2710	-15.0257	32	145.2490	-15.0022
5	145.3260	-14.9941	5.5	145.3270	-14.9829															

1. These data are to be used to create the Lake Reference DEM which is then used to calculate relief. These point data were derived from the surface water elevations of lakes that occur in the Cape Flattery dunefield.

Table 7 – Special Use Plants recognised by Traditional Owners

Family	Species
Chrysobalanaceae	<i>Parinari nonda</i>
Combretaceae	<i>Terminalia muelleri</i>
Ebenaceae	<i>Diospyros compacta</i>
Ericaceae	<i>Styphelia ruscifolia</i>
Fabaceae	<i>Labichea buettneriana</i>
Menispermaceae	<i>Tinospora esiangkara</i>
Myrtaceae	<i>Asteromyrtus lysicephala</i>
Myrtaceae	<i>Leptospermum polygalifolium</i>
Myrtaceae	<i>Lithomyrtus obtusa</i>
Myrtaceae	<i>Melaleuca polandii</i>
Myrtaceae	<i>Syzygium banksii</i>
Myrtaceae	<i>Syzygium forte</i> subsp. <i>forte</i>
Myrtaceae	<i>Syzygium suborbiculare</i>
Myrtaceae	<i>Thryptomene oligandra</i>
Myrtaceae	<i>Xanthostemon arenarius</i>
Proteaceae	<i>Grevillea pteridifolia</i>
Proteaceae	<i>Persoonia falcata</i>
Restionaceae	<i>Baloskion tetraphyllum</i> subsp. <i>meiostachyum</i>
Rutaceae	<i>Boronia alulata</i>
Sapotaceae	<i>Manilkara kauki</i>
Sapotaceae	<i>Sersalisia sericea</i>

Table 8 – Surface water monitoring locations

Monitoring point	Easting (WGS 84)	Northing (WGS 84)
Lakes/Wetlands		
SWL001	318396	8341636
SWL002	319972	8343430
SWL005	320507	8342294
Reference Site		
SWL003	321928	8342811
SWL004	315932	8341660
Streams		
SWS003	320775	8342249
Reference Site		
SWS002	315246	8335059

Table 9 – Water quality limits for surface water

Quality Characteristics	Units	Contaminant limit	Limit Type
pH	Units	3.8 ¹ or 0.5 unit less than the value recorded at a reference site ² during the same sampling event, whichever is lower 8.5 ³ or 0.5 unit more than the highest value recorded at a reference site ² during the same sampling event, whichever is higher	Minimum Maximum
Turbidity	NTU	95 ⁴ or 10% more than the value recorded at the reference site ² during the same sampling event, whichever is higher	Maximum
Chlorophyll-a	µg/L	83 ⁵ or 10% more than the value recorded at the reference site ² during the same sampling event, whichever is higher	Maximum
Total recoverable hydrocarbons	NA	Oil and petrochemicals should not be noticeable as a visible film on the water nor should they be detectable by odour ³	NA

1. Value based on lowest pH recorded at reference site SWL004 in Table 11.

2. Reference sites as defined in Table 11.

3. Value based on Recreational waters ANZECC (2000) Guidelines for Recreational Water Quality and Aesthetics.

4. Value based on the highest turbidity recorded at reference site SWL003 in Table 11.

5. Value based on highest Chlorophyll-a recorded at reference site SWL004 in Table 11.

Table 10 – Groundwater monitoring bore locations

Monitoring point	Easting (WGS 84)	Northing (WGS 84)	Parameters
GW003 (Down gradient of STP)	317331	8345071	Total Nitrogen Total Phosphorus
GW004 (Bioremediation pad)	318517	8344368	Total recoverable hydrocarbons
GW005 (Stores - refuelling area)	318678	8344270	
GW006 (Powerhouse - refuelling area 1)	320044	8343611	
GW007 (Powerhouse - refuelling area 2)	320084	8343590	
GW008 (Fuel Farm 1)	318360	8345310	
GW009 (Fuel Farm 2)	318357	8345332	
GW010 (Down gradient of landfill)	318373	8344985	pH, EC, Ammonia, Lead, Manganese, Chloride
GW013 (Down gradient of the Mine Rejects Area)	315142	8341422	pH, EC, Ammonia, Total Phosphorus
GW014 (Down gradient of the New Mill)	316349	8340498	
GW015 (Down gradient of the New Mill Process Pond)	316208	8340030	
GW001 (Reference site)	320786	8342422	Total recoverable hydrocarbons, Total Nitrogen, Total Phosphorus, pH, EC, Ammonia, Lead, Manganese, Chloride
GW002 (Reference site)	319042	8340652	

Table 11 – Groundwater quality limits

Quality Characteristics	Units	Contaminant limit	Limit type
Total nitrogen	µg/L	4000 ¹ or no more than 10% higher than the value recorded at the reference site ² during the same sampling event, whichever is higher	Maximum
Total phosphorus	µg/L	1000 ¹ or no more than 10% higher than the value recorded at the reference site ² during the same sampling event, whichever is higher	Maximum
Ammonia	µg/L	1000 ¹ or no more than 10% higher than the value recorded at the reference site ² during the same sampling event, whichever is higher	Maximum
Lead	µg/L	10 ³ or no more than 10% higher than the value recorded at the reference site ² during the same sampling event, whichever is higher	Maximum
Manganese	µg/L	1900 ⁴ or no more than 10% higher than the value recorded at the reference site ² during the same sampling event, whichever is higher	95 th percentile ⁷
Chloride	µg/L	80 th percentile ⁶ of reference site ²	95 th percentile ⁷
Total recoverable hydrocarbons	µg/L	No more than 10% higher than the value recorded at the reference site ² during the same sampling event.	Maximum
pH	unit	4.0 ⁵ or 20 th percentile ⁶ of reference site ² whichever is lower 8.0 ⁵ or 80 th percentile ⁶ of reference site ² whichever is higher	Mean ⁷

EC	µS/cm	250 ⁵ or 80 th percentile ⁶ of reference site ² whichever is higher	Mean ⁷
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1. Based on CFSM EMOS (1994), GBRMPA Policy Paper 9 (1993) and Tertiary Treatment Standards

2. Reference sites defined in Table 13.

3. Based on ANZECC (2000) drinking water quality guidelines

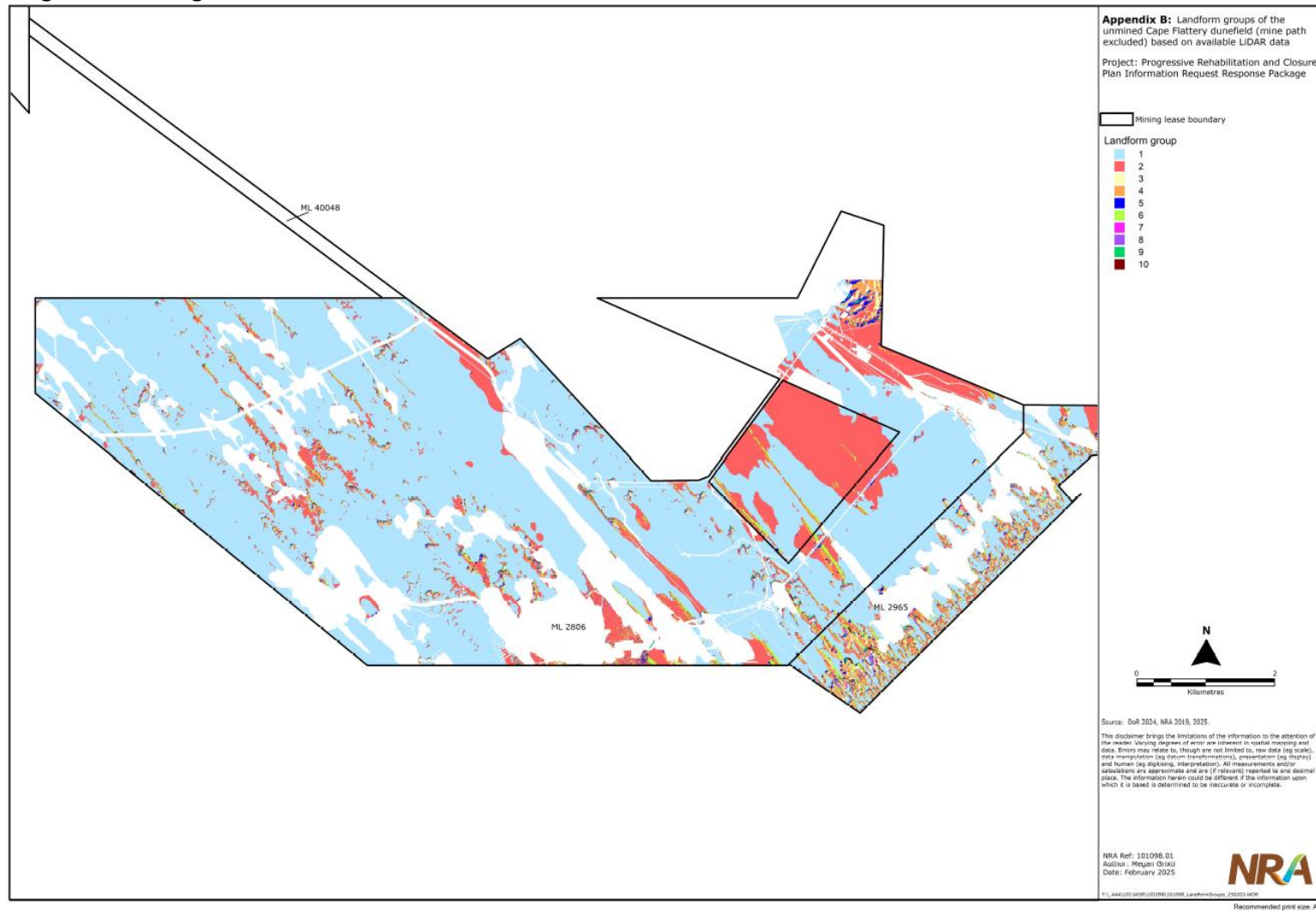
4. ANZECC (2000) contaminant trigger values for slightly – moderately disturbed aquatic ecosystems.

5. Site specific limits, based on EA EPML00550113 reference and developed through negotiation with CFSM.

6. The percentiles must be determined based on no more than ten (10) consecutive samples and derived using ANZECC (2000) methodology.

7. The mean and the 95th percentile must be determined based on no more than ten (10) consecutive samples.

Figure 4 – Analogue Areas



END OF PRCP SCHEDULE