Clean TeQ Sunrise Project
Rehabilitation Management Plan
2020-CTEQ-0000-66PA-0001

11 July 2019

REVISION 2

CONTENTS

FIGURES

TABLES

1. INTRODUCTION

The Clean TeQ Sunrise Project (the Project) is situated near the village of Fifield, approximately 350 kilometres west-northwest of Sydney, in New South Wales (NSW) (Figure 1).

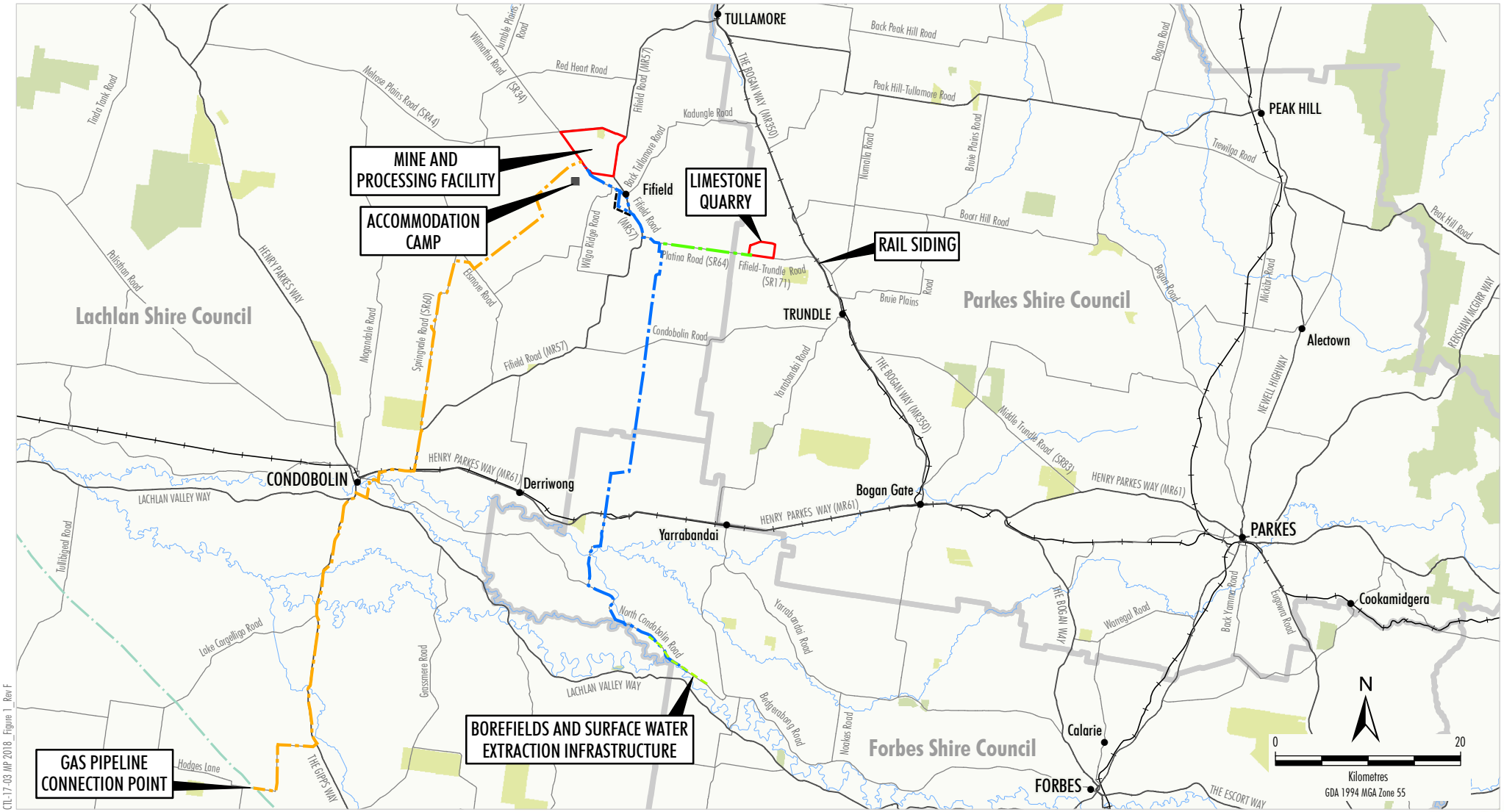
The Project includes the establishment and operation of the following:

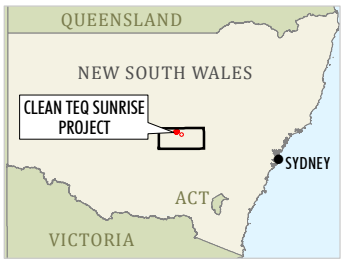
- mine (including the processing facility);
- limestone quarry;
- rail siding;
- gas pipeline;
- borefields, surface water extraction infrastructure and water pipeline;
- accommodation camp; and
- associated transport activities and transport infrastructure (e.g. the Fifield Bypass, road and intersection upgrades).

Clean TeQ Sunrise Pty Ltd owns the rights to develop the Project. Clean TeQ Sunrise Pty Ltd is a wholly owned subsidiary of Clean TeQ Holdings Limited (Clean TeQ).

Development Consent DA 374-11-00 for the Project was issued under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) in 2001. Six modifications to Development Consent DA 374-11-00 have since been granted under the EP&A Act:

- 2005 – to allow for an increase of the autoclave feed rate, limestone quarry extraction rate and adjustments to ore processing operations;
- 2006 – to allow for the reconfiguration of the borefields;
- 2017 – to allow for the production of scandium oxide;
- 2017 – to amend hazard study requirements;
- 2018 – to relocate the accommodation camp; and
- 2018 – to implement opportunities to improve the overall efficiency of the Project.





LEGEND

- National Park/Conservation Area
- State Forest
- Local Government Boundary
- Railway
- Existing Gas Pipeline
- Mining Lease Boundary (ML)
- Fifield Bypass
- Gas Pipeline
- Water Pipeline
- Limestone Quarry Water Pipeline
- Borefield Infrastructure Corridor

Source: Black Range Minerals (2000); Clean TeQ (2017, 2018); NSW Department of Industry (2018); NSW Land & Property Information (2017); Office of Environment and Heritage NSW (2017)

CLEAN TEQ SUNRISE PROJECT

Regional Location

Figure 1

CTL-17-03 MP 2018_Figure 1_Rev F

1.1 Purpose and Scope

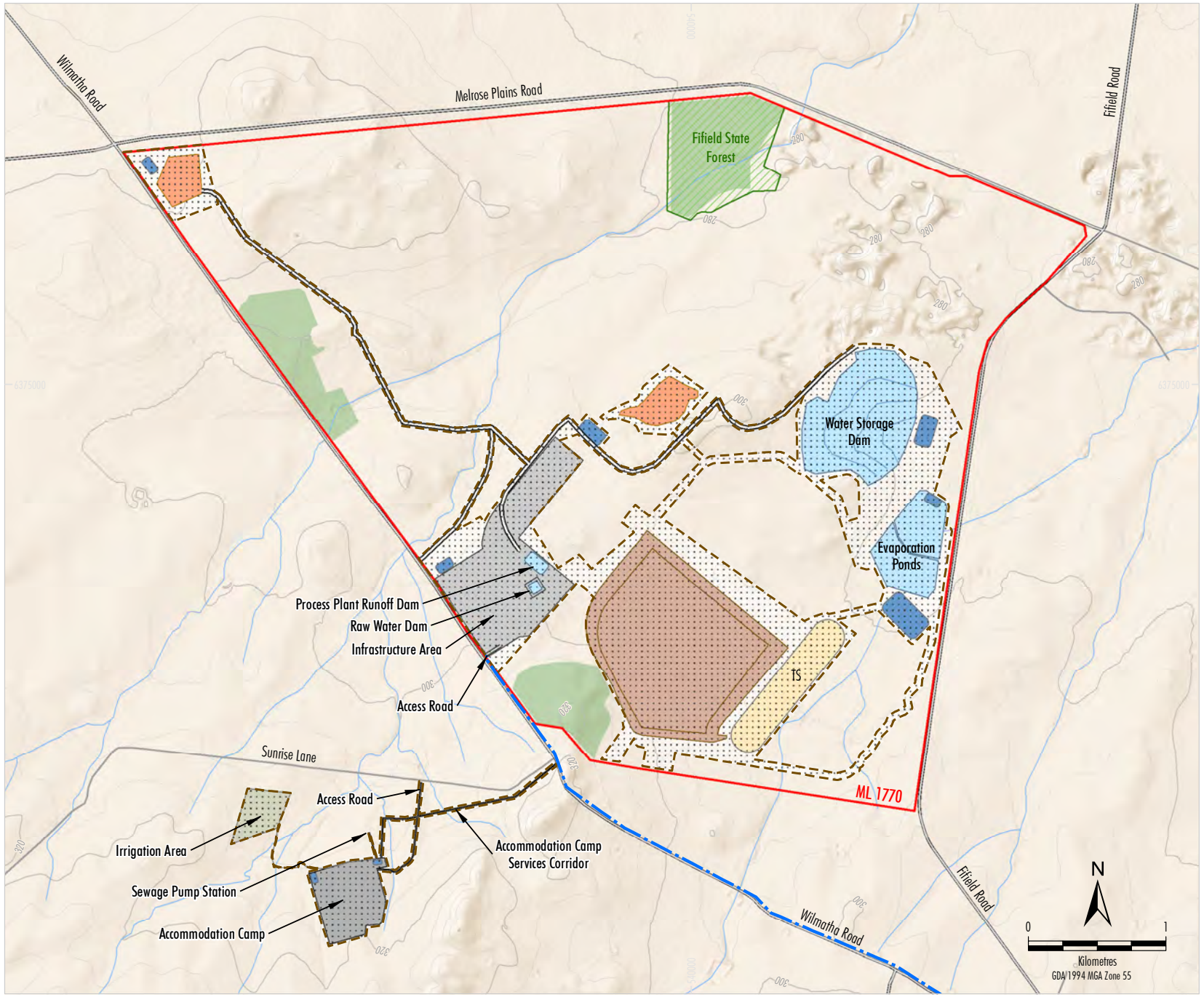
This Rehabilitation Management Plan (RMP) has been prepared by Clean TeQ to satisfy the requirements of Conditions 57 and 58, Schedule 3 of Development Consent DA 374-11-00 (Table 1).

Table 1 – Development Consent Conditions Relevant to the Rehabilitation Management Plan

Development Consent DA 374-11-00 Schedule 3	**RMP Section**
Rehabilitation Management Plan 57. *Prior to carrying out any development under this consent after 6 May 2017, the Applicant must prepare a Rehabilitation Management Plan for the development to the satisfaction of the Secretary. This plan must:*	This RMP
a) be prepared in consultation with the Department, OEH, DPI and relevant Councils;	Sections 1.3 and 2
b) be prepared in accordance with relevant guidelines and consistent with the rehabilitation objectives in the EIS and in Table 10;	Sections 3.4 and 5.1
c) include detailed performance and completion criteria for evaluating the performance of the rehabilitation of the site, and triggering remedial action (if necessary);	Sections 7 and 9
d) describe the measures that would be implemented to ensure compliance with the relevant conditions of this consent, and address all aspects of rehabilitation including timeframes for achieving specified rehabilitation objectives;	Sections 6 to 9
e) review the final land use options, including the use of void water at the mine and limestone quarry;	Sections 5.2.1 and 5.3.1
f) include a mine closure strategy that details measures to minimise the long term impacts associated with mine closure, including final landform and the final voids, final land use and socio-economic issues;	Section 12
g) include interim rehabilitation where necessary to minimise the area exposed for dust generation;	Section 6.1
h) include a strategy for the preparation of the site for habitat rehabilitation as part of the revegetation program, including the exclusion of stock feeding on bushland reconstruction areas;	-
i) include a program to monitor, independently audit and report on the effectiveness of the measures, and progress against the detailed performance and completion criteria; and	Sections 8 and 10
j) build to the maximum extent practicable on the other management plans required under this consent.	Section 6
58. *The Applicant must implement the approved Rehabilitation Management Plan for the development.*	-

On 5 July 2018 the Secretary of the NSW Department of Planning and Environment (the Secretary) approved the progressive submission of environmental management plans for the Project in accordance with Condition 12, Schedule 2 of Development Consent DA 374-11-00. The scope of this RMP is specifically related to the following initial Project construction activities:

- development of the mine (Figure 2), including:
  - site establishment and earthworks;
  - construction of site access roads and haul roads;
  - processing facility earthworks;
  - establishment of temporary facilities required for construction activities (e.g. offices, lay down areas, communications infrastructure);



LEGEND

- State Forest
- Mining Lease Boundary (ML)
- Initial Construction Activities
- Surface Development Area
- Tailings Storage Facility
- Borrow Pit
- TS Topsoil Stockpile
- Infrastructure Area
- Water Storage
- Sediment Dam
- Existing Open Woodland to be Maintained
- Water Pipeline

Note: The sediment dam located in the footprint of the evaporation ponds will be used during construction of the evaporation ponds and will be decommissioned once the evaporation ponds are constructed.

Source: Black Range Minerals (2000); Clean TeQ (2017, 2019); NSW Department of Industry (2018); NSW Land & Property Information (2017)

CLEAN TEQ SUNRISE PROJECT

Mine and Processing Facility General Arrangement (Initial Construction Activities)

Figure 2

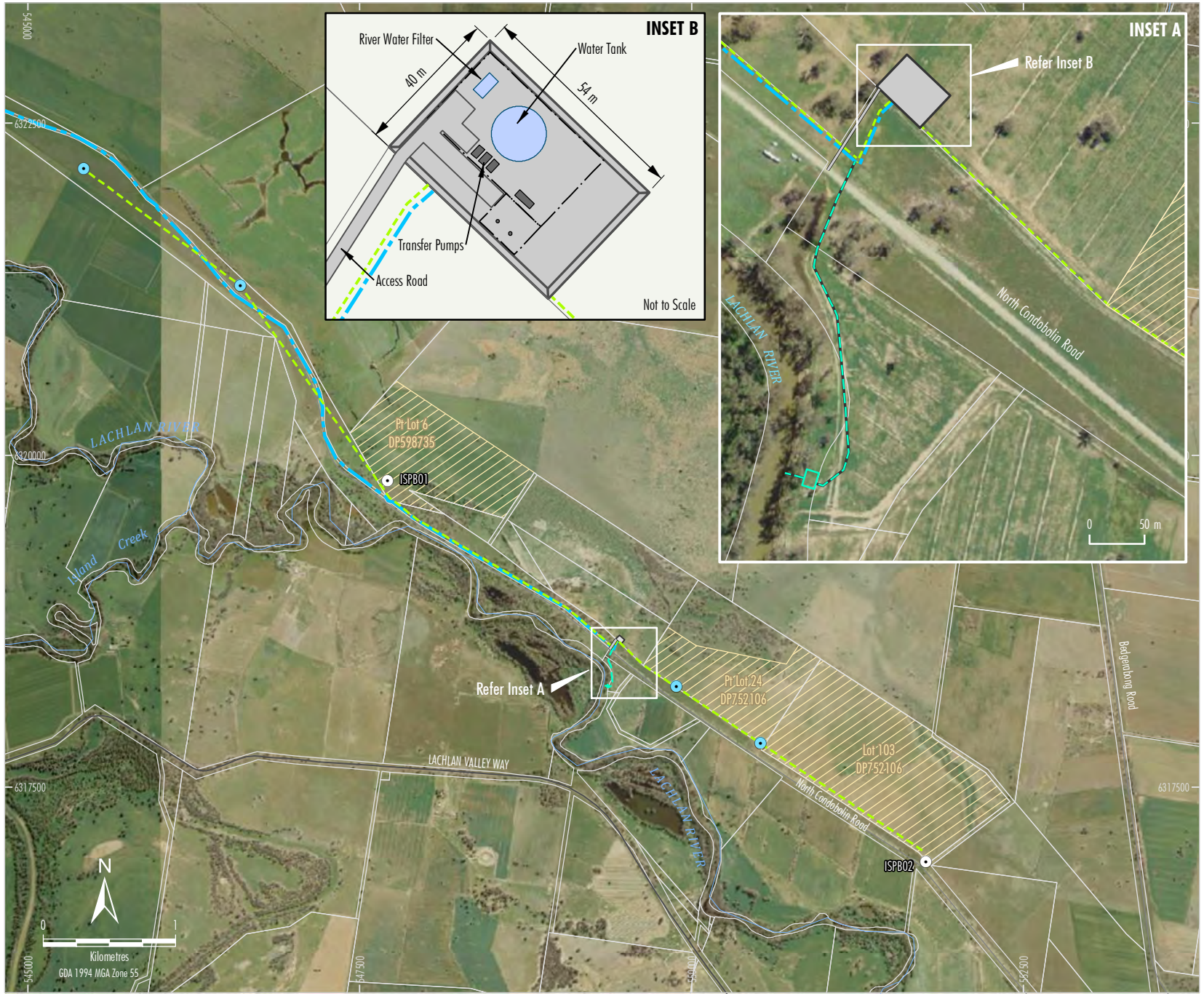
  - construction of the mine infrastructure area including the offices, workshops, warehouse, laboratory and amenities buildings, fuel storage areas, potable water treatment plant and car parking facilities;
  - construction of the tailings storage facility and evaporation pond;
  - construction of water management infrastructure including the raw water dam, water storage dam and sediment dams;
  - construction and operation of the concrete batch plant;
  - development of gravel and clay borrow pits (including blasting and crushing);
  - installation of appropriate fencing and barriers for public safety and security for mining and construction; and
  - other associated minor infrastructure, plant, equipment and activities.
- development and operation of the accommodation camp (Figure 2);
- development and operation of the borefields, surface water extraction infrastructure and water pipeline[1] (Figures 1 and 3); and
- road upgrades (Figure 4).

1.2 Structure of this Rehabilitation Management Plan

The remainder of this RMP is structured as follows:

Section 2: Describes the review and update of this RMP.
Section 3: Provides the statutory requirements of the Project.
Section 4: Describes the baseline data on site.
Section 5: Provides details of the rehabilitation planning and management.
Section 6: Provides details of rehabilitation implementation strategy.
Section 7: Provides rehabilitation completion criteria.
Section 8: Outlines the rehabilitation monitoring program.
Section 9: Describes potential risks to rehabilitation and contingency measures.
Section 10: Provides details of RMP scheduled review and improvement of environmental performance.
Section 11: Outlines reporting protocols.
Section 12: Describes the mine closure strategy.
Section 13: Provides the references used in this RMP.

[1] The water pipeline includes the Fifield Bypass and Alternative Pipeline Route alignments.



LEGEND

- Property Boundary
- Borefield Location
- Water Pipeline
- Borefield Infrastructure Corridor *
- Surface Water Infrastructure Corridor *
- Pump Station
- Transfer Station
- Access Road
- Production Bore (constructed)
- Production Bore (not constructed)

* Infrastructure Corridor includes linking pipline, access road and electricity transmission line.

Source: Clean TeQ (2017, 2019); Ivanplats Syerston (2005); NSW Land & Property Information (2018)
NSW Imagery: © Department of Finance, Services & Innovation (2018)

CLEAN TEQ SUNRISE PROJECT

Borefields and Surface Water Extraction General Arrangement

Figure 3

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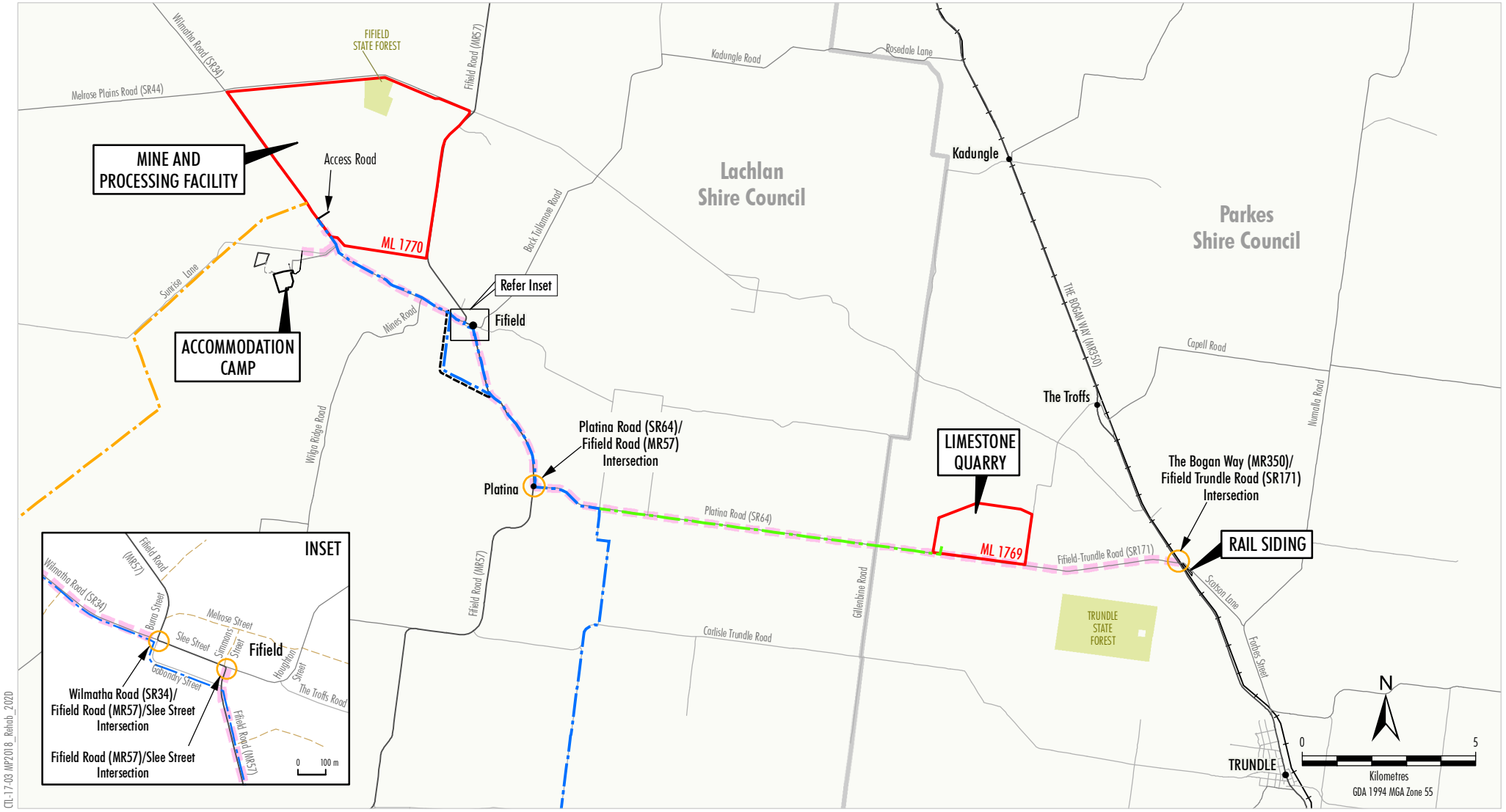


LEGEND

- State Forest
- Local Government Boundary
- Mining Lease Boundary (ML)
- Fifield Bypass
- Gas Pipeline
- Water Pipeline
- Limestone Quarry Water Pipeline
- Extent of Road Upgrade

Source: Clean TeQ (2017, 2019); Black Range Minerals (2000); NSW Department of Industry (2018); NSW Land & Property Information (2017); Office of Environment and Heritage NSW (2107)

CLEAN TEQ SUNRISE PROJECT

Road Upgrades

Figure 4

1.3 Consultation

In accordance with Condition 57, Schedule 3 of Development Consent DA 374-11-00, the previous version of this RMP was prepared in consultation with the Department of Planning & Environment (DPE), NSW Office of Environment and Heritage (OEH), NSW Department of Industry – Lands and Water Division, Crown Lands (Crown Lands), Parkes Shire Council (PSC), Forbes Shire Council (FSC) and Lachlan Shire Council (LSC). A summary of the consultation is provided in Table 2. The comments from these consultees were included in this RMP.

Table 2 – Summary of Consultation

Consultee	RMP Provided for Consultation	Consultee Comments Provided
Department of Planning and Environment	3 October 2018	November 2018 and 21 November 2018
Office of Environment and Heritage	5 October 2018	23 October 2018
NSW Department of Industry – Lands and Water Division, Crown Lands	15 October 2018	30 October 2018
Lachlan Shire Council	30 October 2018	14 November 2018
Parkes Shire Council	5 October 2018	15 November 2018
Forbes Shire Council	5 October 2018	30 November 2018

Following this consultation, minor revisions have been made to reflect the determination of Modification 4 in December 2018. With the agreement of the Secretary (letter dated 27 March 2019) and consistent with Condition 12, Schedule 2 of Development Consent DA 374-11-00, this RMP has not been re-submitted to the OEH, Crown Lands, PSC, FSC or LSC for comment due to the minor nature of these revisions.

2. REHABILITATION MANAGEMENT PLAN REVIEW AND UPDATE

Consistent with the Secretary's approval for the progressive submission of environmental management plans on 5 July 2018, this RMP will be re-submitted and approved prior to the commencement of construction of the limestone quarry, rail siding and gas pipeline, as well as prior to the commencement of mining operations.

In accordance with Condition 6, Schedule 5 of Development Consent DA 374-11-00, this RMP will be reviewed, and if necessary revised (to the satisfaction of the Secretary), within three months of the submission of:

- an Annual Review (Condition 5, Schedule 5);
- an incident report (Condition 8, Schedule 5);
- an independent environmental audit (Condition 10, Schedule 5); or
- any modification to the conditions of Development Consent DA 374-11-00 (unless the conditions require otherwise).

The reviews will be undertaken to ensure this RMP is updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the Project.

Within four weeks of conducting a review of this RMP, the Secretary will be advised of the outcomes of the review and any revised documents submitted to the Secretary for approval.

If agreed with the Secretary, a revision to this RMP required under Development Consent DA 374-11-00 may be prepared without undertaking consultation with all parties nominated under the relevant condition of Development Consent DA 374-11-00.

The revision status of this RMP is indicated on the title page of each copy.

The approved RMP will be made publicly available on the Clean TeQ website, in accordance with Condition 12, Schedule 5 of Development Consent DA 374-11-00.

3. STATUTORY REQUIREMENTS

Clean TeQ's statutory obligations relevant to rehabilitation are contained in:

- the conditions of Development Consent DA 374-11-00;
- relevant licences and permits, including conditions attached to Mining Lease 1770; and
- other relevant legislation.

Obligations relevant to this RMP are described below.

3.1 Development Consent DA 374-11-00

3.1.1 Rehabilitation Management Plan Requirements

Conditions 57 and 58, Schedule 3 of Development Consent DA 374-11-00 require the preparation of a RMP. Table 1 presents these requirements and indicates where they are addressed in this RMP.

3.1.2 Management Plan (General) Requirements

In addition to the RMP requirements prescribed in Condition 57, Schedule 3;
Condition 4, Schedule 5 of Development Consent DA 374-11-00 outlines the management plan (general) requirements that are also applicable to the preparation of this RMP (Table 3).

Table 3 presents these requirements and indicates where each is addressed within this RMP.

Table 3 – Management Plan (General) Requirements

Development Consent DA 374-11-00 Schedule 5	**RMP Section**
Management Plan Requirements *4. The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, are consistent with other plans prepared for other stakeholders, and include:*	This RMP
a) detailed baseline data;	Section 4
b) a description of: • *the relevant statutory requirements (including any relevant approval, licence or lease conditions);* • *any relevant limits or performance measures/criteria;* • *the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;*	Section 3 Section 7 Section 7
c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Section 5, 6 and 8
d) a program to monitor and report on the: • *impacts and environmental performance of the development;* • *effectiveness of any management measures (see c above);*	Section 8
e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 9
f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Sections 8 and 10

Table 3 (Continued) – Management Plan (General) Requirements

Development Consent DA 374-11-00 Schedule 5	RMP Section
g) a protocol for managing and reporting any: • *incidents;* • *complaints;* • *non-compliances with statutory requirements; and* • *exceedances of the impact assessment criteria and/or performance criteria; and*	Section 11.1 Section 11.2 Section 11.3 Sections 9, 10 and 11
h) a protocol for periodic review of the plan.	Section 2

3.2 Licences, Permits and Leases

In addition to the requirements of Development Consent DA 374-11-00, all activities at or in association with the Project will be undertaken in accordance with the following licences, permits and leases which have been issued or are pending issue:

- Mining Lease 1770 issued by the NSW Minister for Resources under the NSW *Mining Act, 1992*.
- Mining Operations Plan(s) submitted and approved by the NSW Division of Resources and Geoscience.
- Environment Protection Licence (EPL) 21146 issued by the Environmental Protection Authority under the NSW *Protection of the Environment Operations Act 1997* (POEO Act).
- Water supply works, water use approvals and water access licences (WALs) issued by the Department of Industry – Water under the NSW *Water Management Act, 2000* including:
  - Water Supply Works Approval 70CA614098 for the Project borefields.
  - WAL 32068 in the Upper Lachlan Alluvial Groundwater Source (Upper Lachlan Alluvial Zone 5 Management Zone) for 3,154 share components under the *Water Sharing Plan for the Lachlan Unregulated and Alluvial Water Sources 2012*.
  - WAL 39837 in the Upper Lachlan Alluvial Groundwater Source (Upper Lachlan Alluvial Zone 5 Management Zone) for 766 share components under the *Water Sharing Plan for the Lachlan Unregulated and Alluvial Water Sources 2012*.
  - WAL 28681 in the Lachlan Fold Belt Murray-Darling Basin (MDB) Groundwater Source (Lachlan Fold Belt MDB [Other] Management Zone), for 243 share components under the *Water Sharing Plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources 2011*.
  - WAL 6679 for 123 share components (General Security) under the *Water Sharing Plan for the Lachlan Regulated River Water Source 2016*.
  - WAL 1798 in the Lachlan Regulated River Water Source, for 300 share components (General Security) under the *Water Sharing Plan for the Lachlan Regulated River Water Source 2016*.
  - WAL 42370 in the Lachlan Regulated River Water Source, for zero share components (High Security) under the *Water Sharing Plan for the Lachlan Regulated River Water Source 2016*.
- Groundwater licences for monitoring bores under the *Water Management Act 2000.*

- Aboriginal Heritage Impact Permits (AHIP) (AHIP #C0003049 and AHIP #C0003887) issued by the OEH under the NSW *National Parks and Wildlife Act 1974*.
- Mining and workplace health and safety related approvals granted by the NSW Department of Industry and SafeWork NSW.
- Heavy Vehicle Authorisation Permit 119039 issued by the National Heavy Vehicle Regulator under the *Heavy Vehicle National Law NSW.*
- Crown Land Licences issued under the *Crown Land Management Act, 2016*.

3.3 Other Legislation and Relevant Requirements

Clean TeQ will conduct the Project consistent with the requirements of Development Consent DA 374-11-00 and any other legislation that is applicable to an approved Part 4 Project under the EP&A Act.

In addition to the statutory obligations described in Sections 3.1 and 3.2, the following NSW Acts (and their Regulations) may be applicable to the conduct of the Project:

- *Aboriginal Land Rights Act 1983*
- *Biodiversity Conservation Act, 2016;*
- *Biosecurity Act, 2015;*
- *Crown Land Management Act, 2016;*
- *Contaminated Land Management Act, 1997;*
- *Dams Safety Act, 1978;*
- *Dam Safety Act, 2015*
- *Dangerous Goods (Road and Rail Transport) Act, 2008;*
- *Energy and Utilities Administration Act, 1987;*
- *EP&A Act;*
- *Fisheries Management Act, 1994;*
- *Forestry Act, 2012;*
- *Mining Act, 1992;*
- *National Parks and Wildlife Act, 1974;*
- *Pipelines Act, 1967;*
- POEO Act;
- *Rail Safety (Adoption of National Law) Act, 2012;*
- *Roads Act, 1993;*
- *Soil Conservation Act, 1938*;
- *Water Act, 1912;*
- *Water Management Act, 2000;*
- *Work Health and Safety Act, 2011; and*

- *Work Health and Safety (Mines and Petroleum Sites) Act, 2013.*

Commonwealth Acts which may also be applicable to the conduct of the Project include:

- *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act); and
- *Native Title Act, 1993.*

Relevant licences or approvals required under these Acts will be obtained as required.

3.4 Relevant Guidelines

This RMP has been prepared in consideration of the following relevant guidelines:

- *ESG3: Mining Operations Plan (MOP) Guidelines, September 2013 (ESG3)* (Department of Trade and Investment, Regional Infrastructure and Services, 2013);
- *Leading Practice Sustainable Development Program for the Mining Industry – Mine Closure* (Department of Industry, Innovation and Science, 2016); and
- *Guidelines for Controlled Activities on Waterfront Land* (Department of Primary Industries [DPI], 2012).

4. EXISTING ENVIRONMENT

4.1 Landform and Land Use

The mine site and accommodation camp are generally flat to very gently undulating. Several areas of low hills occur across the site with broad shallow valleys between. Surface elevations at the mine site and accommodation camp vary from approximately 325 metres (m) Australian Height Datum (AHD) in the south, down to approximately 275 m AHD in the north-eastern section.

Two ephemeral watercourses cross the mine site. The northern watercourse discharges into Bullock Creek to the north-east which flows north-easterly and then discharges to the Bogan River. The southern watercourse loses definition north-east of the site due to a combination of flat terrain and interruption by remnant mining operations in the area. Watercourses in the location of the mine site are shallow broad vegetated ephemeral channels.

Existing land use in the vicinity of the mine site is generally characterised by agricultural land uses. Agricultural land uses include pasture for grazing and dryland cropping (principally grain production). There are several small old mine workings and mullock heaps scattered in the north-eastern corner of the mine site. Limited vegetation exists within Mining Lease 1770 and is concentrated along the northern boundary.

Land use at the borefield and surface water extraction infrastructure (Figure 3) includes agriculture and road reserve. Agricultural land uses include dryland cropping (principally grain production).

The water pipeline alignment (Figure 1) follows existing road easements. Land adjacent to the road is characterised by agricultural land, vegetated areas and the village of Fifield.

The road upgrades (Figure 4) are located in existing road reserves.

4.2 Soils and Land Soil Capability

OEH's (2018) regional Australian Soil Classification mapping at the mine site includes Kandosols, Chromosols and Rudosols/Tenosols. Chromosols and Rudosols/Tenosols are also mapped at the accommodation camp, surface water extraction infrastructure, borefield transfer station and along the water pipeline alignment. The inherent soil fertility of these soils is "Moderate" to "Low" (OEH, 2018).

The OEH's Land and Soil Capability system is used to give an indication of the land management practices that can be applied to a parcel of agricultural land. Agricultural land is classified by evaluating biophysical features of the land and soil including landform position, slope gradient, drainage, climate, soil type and soil characteristics to derive detailed rating tables for a range of land and soil hazards (OEH, 2012). OEH (2018) regionally mapped Land and Soil Capability Classes in the vicinity of the mine site and accommodation camp are Classes 3, 4 and 6, the vicinity of the surface water extraction infrastructure and borefields as Classes 3 and 4 and the water pipeline alignment as Classes 4 and 6 (OEH, 2012):

> *Class 3: High capability land:*
>
> *Land has moderate limitations and is capable of sustaining high-impact land uses, such as cropping with cultivation, using more intensive, readily available and widely accepted management practices. However, careful management of limitations is required for cropping and intensive grazing to avoid land and environmental degradation.*
>
> *Class 4: Moderate capability land:*
>
> *Land has moderate to high limitations for high-impact land uses. Will restrict land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture. These limitations can only be managed by specialised management practices with a high level of knowledge, expertise, inputs, investment and technology.*
>
> *Class 6: Low capability land:*
>
> *Land has very high limitations for high-impact land uses. Land use restricted to low-impact land uses such as grazing, forestry and nature conservation. Careful management of limitations is required to prevent severe land and environmental degradation.*

4.3 Vegetation

The initial Project construction activities at the mine site will clear small areas of woodland vegetation. Fifield State Forest occurs partly within the mine site, but will not be cleared for the initial Project construction activities. Some patches of remnant Box woodland outside of the Project area will be preserved.

The location of the borefields and surface water extraction infrastructure largely comprises of cultivated land that is grazed by sheep and dominated by exotic plants. The surface water extraction infrastructure will be constructed near the Lachlan River and will be located in River Red Gum Woodland.

The water pipeline will be established in existing road easements beside public roads for the majority of their length. The density of native vegetation in the easements varies considerably along the corridors (from cleared to intact) and depends on the width of the easement and degree of past disturbance (Orchid Research, 2000).

The road upgrades will occur along a narrow road easement that has thin strips of remnant native vegetation either side (Black Range Minerals, 2000).

4.4 Meteorology

Historical data show the warmest months within the Project region are November through to March, with the coolest temperatures falling from May through to September. The highest average monthly maximum temperature occurs in January. The lowest average monthly minimum temperature occurs in July.

The rain falls relatively uniformly throughout the year while evaporation fluctuates between summer and winter. Monthly trends in evaporation show January and December as having the highest rates of evaporation, while June and July record the lowest rates. Mean annual evaporation is almost four times the mean annual rainfall.

5. REHABILITATION PLANNING AND MANAGEMENT

The Project's approved rehabilitation strategy is described in the Project Environmental Impact Statement (EIS) (Black Range Minerals, 2000) and subsequent environmental approval documentation. The Project's rehabilitation principles and objectives, final landform and revegetation concepts, rehabilitation domains and rehabilitation monitoring programme detailed in this RMP reflect the approved rehabilitation strategy.

5.1 Rehabilitation Objectives and Principles

Condition 55, Schedule 3 of Development Consent DA 374-11-00 outlines the rehabilitation objectives for the Project and these are reproduced in Table 4. In accordance with Condition 55, Schedule 3 of Development Consent DA 374-11-00, rehabilitation at the Project will comply with these rehabilitation objectives.

Table 4 – Rehabilitation Objectives

Features	Objective	Time Frame
Site (as a whole)	• Safe, stable and non-polluting. • Materials (including topsoils, substrates and seeds of the disturbed areas) are recovered, appropriately managed and used effectively as resources in the rehabilitation of the site. • Final land forms to: – restore native vegetation communities and ecosystem function (in the applicable domains); – sustain intended land use for the post- mining domains; – minimise visual impacts; – be generally in keeping with the natural terrain features of the area; and – incorporate micro-relief. • Incorporate drainage lines consistent with topography and natural drainage where reasonable and feasible.	Post-mining.
Final Voids	• Minimise: – the size and depth of the final void/s; – the drainage catchment of the final voids; and – risk of flood interaction for all flood events up to and including a 1 in 100 year or 1% annual exceedance probability storm event.	
Surface Infrastructure	• To be decommissioned and removed, unless agreed otherwise by the Secretary of the DP&E.	
Agriculture	• Agriculture (pasture for grazing) land use areas are established and self-sustaining within a reasonable timeframe.	
Community	• Ensure public safety. • Minimise the adverse socio-economic effects associated with mine closure.	

The rehabilitation principles for the Project include:

- Preservation of areas of existing vegetation outside the approved surface development area.
- Rehabilitation of mine landforms will be progressive and conducted in accordance with approved plans (i.e. Mining Operations Plan and Rehabilitation Management Plan).

- The newly prepared (i.e. topsoiled) landforms will be protected via the construction of moisture-retaining passive drainage systems, water-holding structures (e.g. surface depressions) and, where appropriate, the use of authorised hybrid cover crops to provide initial erosion protection.
- Revegetated landforms will form an expansion of, and be continuous with, existing woodland areas.
- Outer embankments of the tailings storage facility will be rehabilitated progressively during operational years.
- Livestock will be excluded from rehabilitated areas where agriculture is not the final land use.
- Rehabilitation concepts should be flexible and allow for adjustments, based on trials.

5.2 Final Landform Concepts

5.2.1 Mine Site and Accommodation Camp

Key features of the approved final landform include:

- two final voids;
- two waste rock emplacements to a maximum final elevation of approximately 330 m AHD;
- a tailings storage facility;
- evaporation ponds;
- water storage dam; and
- surface water diversions.

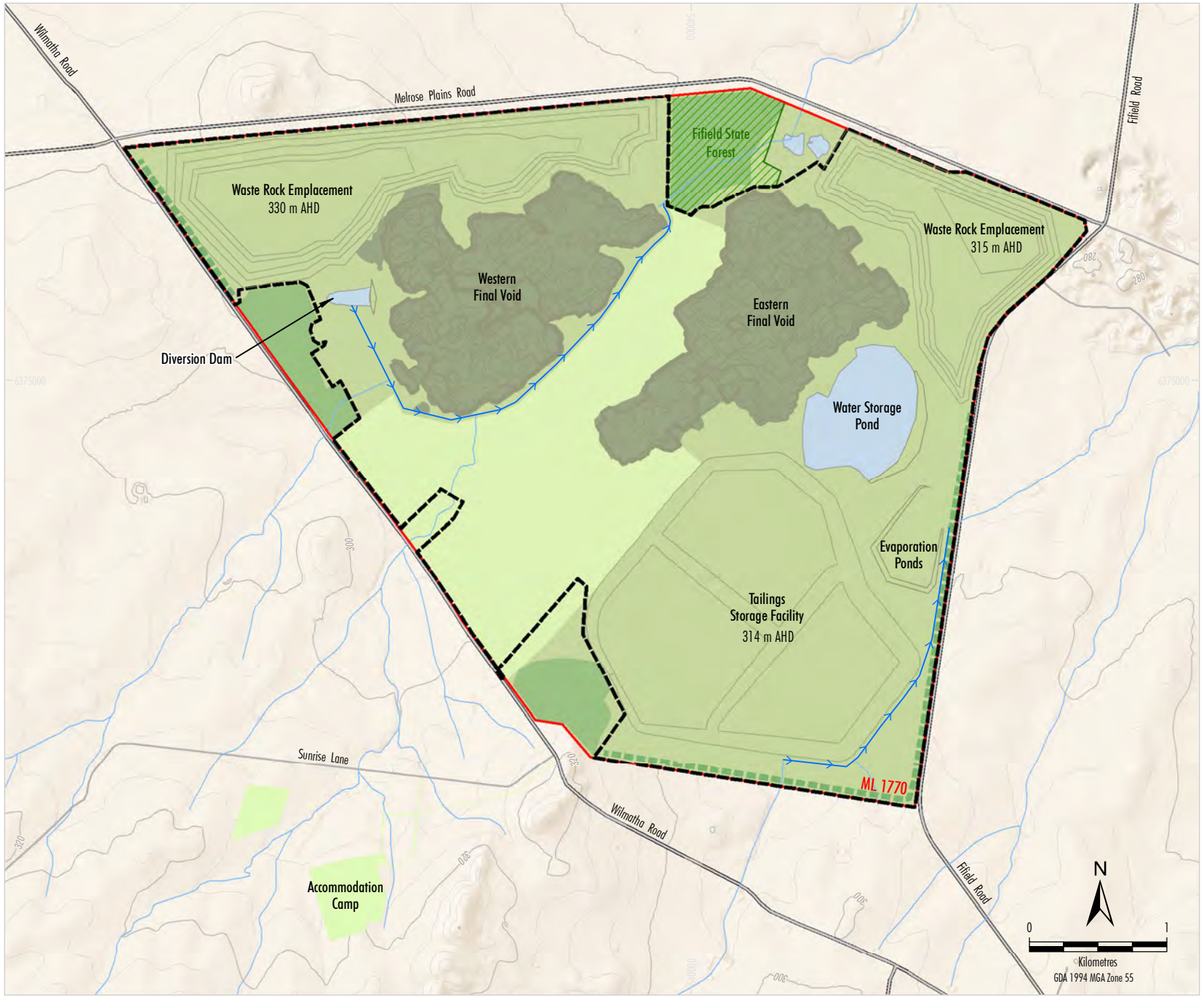
Figure 5 illustrates the conceptual rehabilitated final landform and post-mining land uses.

Final Voids

At the completion of mining, the Project final landform will include two final voids (Figure 5). The final voids will have an average depth of 35 m with localised deeper areas up to approximately 55 m.

It is unlikely that perennial waterbodies will occur in the final voids due to the following:

- long-term groundwater inflows are expected to be minor (0.002 litres per second) (Golder Associates, 2017);
- annual average evaporation (approximately 1,490 millimetres per year) is greater than annual average rainfall (488 millimetres per year) at the Project site (Golder Associates, 2017);
- surface water runoff to the final voids will be minimised in accordance with the Project rehabilitation objectives (Table 4).



LEGEND

- State Forest
- Mining Lease Boundary (ML)
- Approved Surface Development Area

Final Land Use

- Nature Conservation (Endemic Woodland)
- Agriculture (Pasture for Grazing)
- Final Void
- Water Management Area
- Diversion Structure
- Vegetation Screening
- Existing Open Woodland to be Maintained

Source: Clean TeQ (2017, 2018); Black Range Minerals (2000); NSW Department of Industry (2018); NSW Land & Property Information (2017)

CLEAN TEQ SUNRISE PROJECT

Conceptual Final Landform and Land Uses

Figure 5

CTL-17-03 MP2018_Rehab_203B

The salinity of a potential final void waterbody will likely trend upwards due to evapo-concentration effects (Black Range Minerals, 2000).

Waste Rock Emplacements

Waste rock material generated would be placed either in one of two waste rock emplacements (Figure 5). The waste rock emplacements would be up to approximately 20 m and 30 m high (or a maximum elevation of approximately 330 m AHD).

The waste rock emplacements will be progressively rehabilitated, as soon as practicable following dumping to the final height, to minimise potential visual and air quality impacts.

Tailings Storage Facility

Tailings would be pumped from the processing facility to the tailings storage facility (Figure 5). The final elevation of the tailings storage facility will be approximately 314 m AHD.

The external batters of the tailings storage facility embankments will be progressively constructed and rehabilitated as soon as practicable as they become available, to minimise potential visual and air quality impacts.

Evaporation Ponds

The internal partition embankment and the north-eastern external embankment will be breached and profiled to be a free-draining landform with runoff reporting to the natural environment.

Water Storage Dam

It is expected that the water storage dam will be retained as a water storage post-mining (subject to the agreement of the Secretary of the DP&E). The external batters of the water storage will be modified to allow for the collection of runoff.

Surface Water Diversions

The design of the surface water diversions will consider long term stability and compatibility with existing hydrological features, landforms and vegetation. The surface water diversions will be rehabilitated progressively and the rehabilitated diversions will be safe, stable and non-polluting landform.

A detailed description of the clean water diversion systems will be included in the Surface Water Management Plan in accordance with Condition 30, Schedule 3 of Development Consent DA 374-11-00.

5.2.2 Borefields, Surface Water Extraction Infrastructure and Water Pipeline

The decommissioning and land use options for the borefields, surface water extraction infrastructure and water pipeline will be determined in consultation with landowners, Lachlan Shire Council and Forbes Shire Council and subject to the agreement of the Secretary of the DP&E.

Borefields and Surface Water Extraction Infrastructure

The following decommissioning options exist for the borefields and surface water extraction infrastructure:

- transfer ownership to regional landholders with surface water extraction infrastructure, bores and transfer stations remaining in working condition; or
- dismantle surface water extraction infrastructure and cap bores, remove infrastructure (including borehead facilities) and rehabilitated the area to its former land use.

Water Pipeline

The following decommissioning options exist for the water pipeline:

- disconnect and leave the pipeline infrastructure for future use (e.g. town water supply);
- utilise the infrastructure for other purposes; or
- dismantle the infrastructure and return the area to its former land use.

If an option to dismantle pipeline infrastructure is selected, the following procedures would be followed:

- remove infrastructure and backfill trenches;
- rehabilitate disturbed areas; and
- return the area to its former land use.

5.3 Final Land Use Strategy

5.3.1 Mine Site and Accommodation Camp

The approved post-mining land use at the mine site and accommodation camp is a combination of agriculture (pasture for grazing) and endemic woodland areas (Black Range Minerals, 2000). Figure 5 illustrates the conceptual post-mining land uses.

The approved post-mining land use is generally consistent with existing land uses in the Project area and the relevant objectives of the *Lachlan Shire Local Environmental Plan 2013*.

The approved post-mining land uses are also consistent with the Project rehabilitation objectives (Table 4).

Clean TeQ has reviewed potential post-mining land uses considering the relevant strategic land use objectives of the area in the vicinity of the Project, existing land uses in the Project area, and the potential benefits of the post-mining land use to the environment, future landholders and the community. Based on this review, Clean TeQ concluded that the approved post-mining land use is appropriate.

Approximately 380 ha of agriculture (pasture for grazing) and approximately 1,065 ha of endemic woodland areas would be rehabilitated at the mine site and accommodation camp.

The final landform will include two final voids (Figure 5). As described in Section 5.2.1, it is unlikely that perennial waterbodies will occur in the final voids and the salinity of any waterbody would trend upwards due to evapo-concentration. The final void waterbody is therefore considered to not be a reliable source for water users in the Project area. Notwithstanding the above, Clean TeQ will consult with the Lachlan Shire Council, relevant landholders, DI-Water and the DP&E regarding the potential use of the final void water at mine closure.

Approximately 420 ha of final voids and approximately 65 ha of water management areas would remain at the mine site.

5.3.2 Borefield, Surface Water Extraction Infrastructure and Water Pipeline

The decommissioning and land use options for the borefields, surface water extraction infrastructure and water pipeline will be determined in consultation with landowners, Lachlan Shire Council and Forbes Shire Council and subject to the agreement of the Secretary of the DP&E.

Borefields and Surface Water Extraction Infrastructure

The following decommissioning options exist for the borefields and surface water extraction infrastructure:

- transfer ownership to regional landholders with surface water extraction infrastructure, bores and transfer stations remaining in working condition; or
- dismantle surface water extraction infrastructure and cap bores, and remove infrastructure (including borehead facilities) and return the area to its former land use.

Water Pipeline

The following decommissioning options exist for the water pipeline:

- disconnect and leave the pipeline infrastructure for future use (e.g. town water supply);
- utilise the infrastructure for other purposes; or
- dismantle the infrastructure and return the area to its former land use.

If an option to dismantle pipeline infrastructure is selected, the following procedures would be followed:

- remove infrastructure and backfill trenches;
- rehabilitate disturbed areas; and
- return the area to its former land use.

5.4 Rehabilitation Domains

5.4.1 Mine Site and Accommodation Camp

The *ESG3: Mining Operations Plan (MOP) Guidelines* (NSW Trade and Investment, Regional Infrastructure and Services – Division of Resources and Energy, 2013) state that for rehabilitation planning and mine closure it is useful to separate a mines site into smaller conceptual domains.

Conceptual rehabilitation domains for planning purposes are shown on Figure 6. The conceptual rehabilitation domains are outlined in Table 5.

Table 5 – Rehabilitation Domains

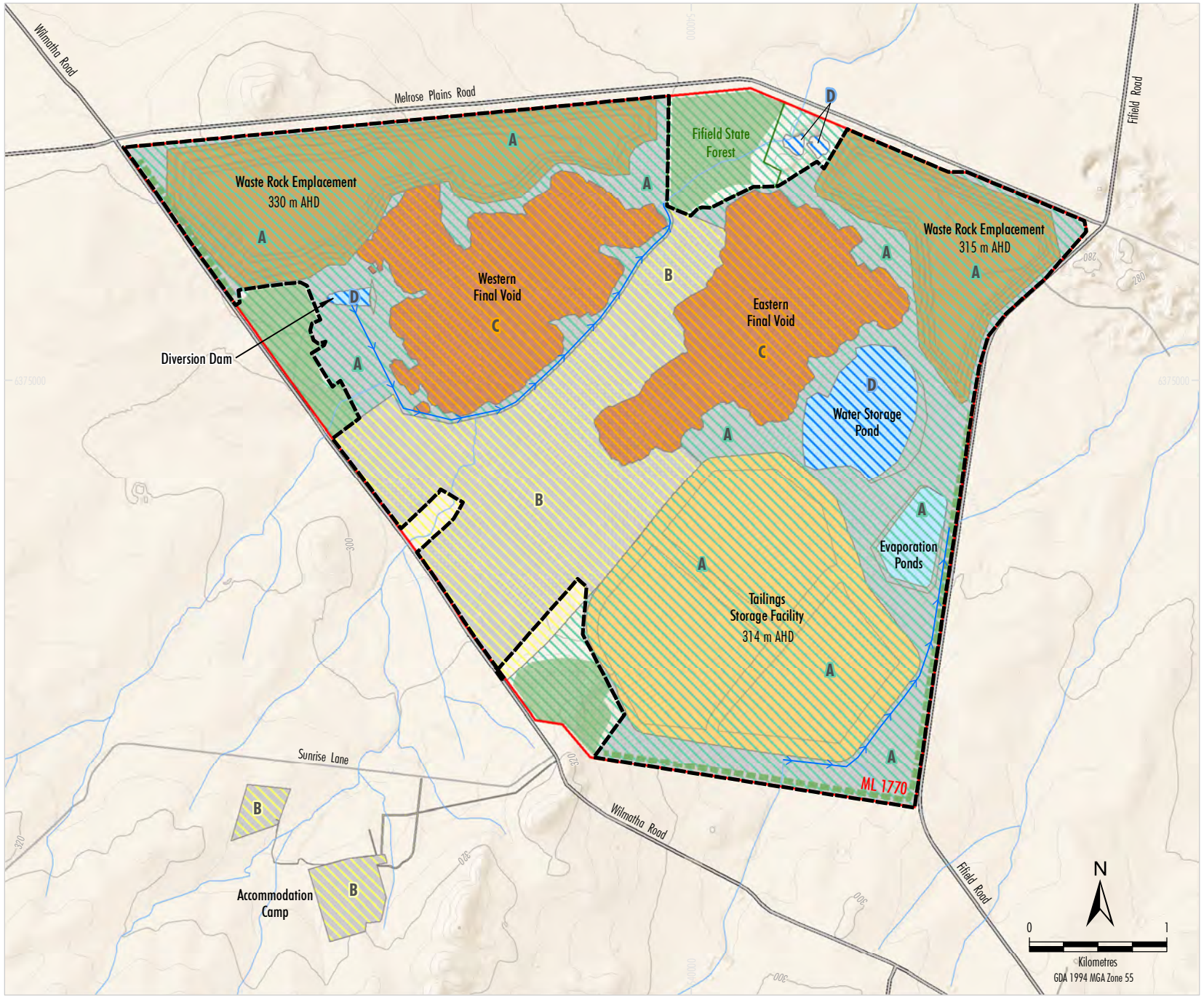
Code	Primary Domain	Code	Secondary Domain
1	Infrastructure	A	Endemic Woodland Areas
2	Waste rock Emplacements	B	Agriculture (Pasture for Grazing)
3	Tailings Storage Facility	C	Final Void
4	Final Voids	D	Water Management Area
5	Water Management		

Key features within these conceptual rehabilitation domains and the domain objectives are described below.

Infrastructure Domain (Domains 1A and 1B)

This domain is dominated by the processing facility and general supporting infrastructure. The infrastructure domain will include, but is not limited to:

- processing facility;
- run-of-mine pad ore stockpiles;
- reagent production plants and storage areas;
- gas-fired power plant and associated power distribution infrastructure;
- accommodation camp;
- concrete batch plant;
- offices, workshops, warehouse, laboratory and amenities buildings and car parking facilities;
- fuel storage areas;
- potable water treatment plant;
- wastewater (including sewage) treatment plant;
- laydown areas;
- access road, internal roads and haul roads; and
- other associated minor infrastructure, plant, equipment and activities.



LEGEND

- State Forest
- Mining Lease Boundary (ML)
- Approved Surface Development Area
- Diversion Structure
- Vegetation Screening
- Existing Open Woodland to be Maintained

Primary Domains

1. Infrastructure
2. Waste Rock Emplacement
3. Tailings Storage Facility
4. Final Void
5. Water Management Area

Secondary Domains

- A Nature Conservation (Endemic Woodland Areas)
- B Agriculture (Pasture for Grazing)
- C Final Void
- D Water Management Area

Source: Clean TeQ (2017, 2018); Black Range Minerals (2000); NSW Department of Industry (2018); NSW Land & Property Information (2017)

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Rehabilitation Domains

Figure 6

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The conceptual mine closure and rehabilitation objectives for the infrastructure domain are:

- Infrastructure with no on-going beneficial use would be decommissioned and removed, unless otherwise agreed by the Secretary of the DP&E.
- Hydrocarbons (petrol, diesel, oils, greases, degreasers and kerosene), explosives, chemicals and liquid and non-liquid wastes unused at the completion of mining would be returned to the supplier in accordance with relevant safety and handling procedures.
- If there are any contaminated soils associated with the Project, these would be identified and remediated in accordance with the requirements of the NSW *Contaminated Land Management Act 1997*.
- Water management structures and sediment control structures would either be retained as water sources for future land uses or decommissioned and rehabilitated.
- The domain would be profiled to a free-draining landform with runoff reporting to the natural environment and would be revegetated to either endemic woodland or pasture areas.
- An approximate 0.2 m layer of soil (depending on the outcomes of trials) would be placed on the landform prior to revegetation (Black Range Minerals, 2000).
- Following rehabilitation, a combination of agriculture (pasture for grazing) and endemic woodland land uses would occur in the infrastructure domain.

Waste Rock Emplacements (Domain 2A)

Waste rock material generated would be placed either in one of two waste rock emplacements (Figure 5).

The conceptual mine closure and rehabilitation objectives for the waste rock emplacement domain would be:

- The waste rock emplacement would be profiled to incorporate micro-relief and natural appearing landform features as a component of finalising site landforms and slopes.
- The overall batter slopes of the waste rock emplacements would be 1V:4H with intermediate batter slopes constructed to 1V:3H (Black Range Minerals, 2000).
- Reverse graded berms would be located at approximately 10 m intervals (Black Range Minerals, 2000).
- Batter drainage would be via the reverse-graded berms. The berms would diffusely grade inwards and the surfaces would be kept as rough as possible to maximise absorption, to avoid the use of artificial drainage structures on the batters (Black Range Minerals, 2000).

- Drainage on the top surfaces of the waste rock emplacements would be similarly managed via a series of small shallow basins (i.e. depressions or micro-relief), and endemic woodland vegetation with a high water demand. The use of depressions is aimed at maximising internal drainage without creating permanent ponding (Black Range Minerals, 2000).
- An approximate 0.5 m layer of soil (depending on the outcomes of trials) would be placed on the reprofiled landform prior to revegetation (Black Range Minerals, 2000).
- Water management structures and sediment control structures would either be retained as water sources for future land uses or decommissioned and rehabilitated.
- Following rehabilitation, endemic woodland land use would occur in the waste rock emplacements domain.

Final Voids (Domain 4C)

At the completion of mining, the modified Project final landform would include two final voids (Figure 5).

Conceptual mine closure and rehabilitation objectives for the final voids domain would be:

- Mine planning would target minimising the size and depth of the final voids as far as reasonable and feasible.
- Areas of the domain may be revegetated to endemic woodland areas where it is feasible.
- The catchment of the final voids would be minimised with the provision of permanent perimeter bunds, diversion channels and/or bunds/embankment walls.
- The final landform design would provide flood immunity for flood events up to a 1 in 100 year ARI rainfall event.
- Final void access restrictions (e.g. fencing) for safety and exclusion of livestock would be designed and implemented in consultation with relevant authorities.

Tailings Storage Facility (Domain 3A)

Tailings would be pumped from the processing facility to the tailings storage facility (Figures 5).

The design of the tailings storage facility will conform to the relevant design (including geotechnical stability) requirements described in Condition 29, Schedule 3 of Development Consent DA 374-11-00. This includes the requirements for permeability of liners, storage capacity and Dam Safety Committee design requirements.

The external batters of the tailings storage facility embankments would be progressively rehabilitated as they become available. Rehabilitation of the top surfaces of the tailings storage could only be undertaken at the completion of its operational life.

Conceptual mine closure and rehabilitation objectives for the tailings storage facility are as follows:

Tailings Storage Facility External Batters

- The overall tailings storage facility external batter slopes would be 1V:4H (Black Range Minerals, 2000).
- Drainage of the external batters would be facilitated by the construction of berms to reverse grade, and be left rough to enhance absorption. The berms would longitudinally fall to low depressions constructed every 50 to 100 m along the berm to cater for high rainfall events (Black Range Minerals, 2000).
- Ripping on the external batters to create surface roughness and absorption prior to revegetation operations would be undertaken.
- An approximate 0.5 m layer of soil (depending on the outcomes of trials) would be placed on the reprofiled landform prior to revegetation (Black Range Minerals, 2000).

Tailings Storage Facility Top Surface

- The decant area would be allowed to dry and the decant tower would be capped with fill and/or a concrete plug.
- The underdrains and associated sumps would be grouted.
- The tailings discharge pipes and other infrastructure would be dismantled for reuse or disposal.
- A number of surface swale drains would be developed on the top surface to minimise the potential for erosion. The storage surfaces would form contained catchments (i.e. would not spill over the batters).
- Surface materials, a passive drainage regime and revegetation would maximise water storage and/or evapotranspiration (Black Range Minerals, 2000).
- Trials would be undertaken to refine the rehabilitation cover system. Options for surface treatment prior to revegetation would include (Black Range Minerals, 2000):
    - placement of waste rock to serve as a stabiliser and to enhance soil and vegetation trapment;
    - covering the tailings surface directly with variable thicknesses of soil; and
    - direct planting into tailings without the establishment of a soil cover.

Following rehabilitation, endemic woodland land use would occur in the tailings storage facility domain.

Water Management (Domains 5A and 5D)

The key water management-related landforms at the mine include the evaporation ponds, water storage dam and the diversion structures.
Conceptual mine closure and rehabilitation objectives for the water management domains are as follows:

Evaporation Ponds

- The internal partition embankment and the north-eastern external embankment would be breached and profiled to be a free-draining landform with runoff reporting to the natural environment.
- Internal and external embankments and batters would be flattened to a maximum slope of 1V:3H (Black Range Minerals, 2000).
- If there are any contaminated soils associated with the Project, these would be identified and remediated in accordance with the requirements of the NSW *Contaminated Land Management Act 1997*.
- An approximate 0.5 m layer of soil (depending on the outcomes of trials) would be placed on the landform prior to revegetation (Black Range Minerals, 2000).
- Following rehabilitation, endemic woodland land use would occur on the rehabilitated evaporation ponds.

Water Storage Dam

- It is expected that the water storage dam would be retained as a water storage post-mining (subject to the agreement of the Secretary of the DP&E).
- The external batters would be modified to allow for the collection of runoff.
- An approximate 0.5 m layer of soil (depending on the outcomes of trials) would be placed on the external batter of the water storage dam prior to revegetation (Black Range Minerals, 2000).
- Following rehabilitation, endemic woodland land use would occur on the external batter of the water storage dam.

Diversions

- The rehabilitated diversions would be safe, stable and non-polluting landform.
- The design would consider long term stability and compatibility with existing hydrological features, landforms and vegetation.

Detailed description of the clean water diversion systems would be included in the Surface Water Management Plan in accordance with Condition 30, Schedule 3 of Development Consent DA 374-11-00.

5.4.2 Borefields, Surface Water Extraction Infrastructure and Water Pipeline

The main rehabilitation objectives following construction of the borefields, surface water extraction infrastructure and water pipeline are as follows:

- management of weed species;
- implementation of erosion and sediment control measures;
- replacement of soil from original location (water pipeline); and
- management of tree growth.

Rehabilitation of sites within 40 m of watercourses will be undertaken in consideration of the *Guidelines for Controlled Activities on Waterfront Land* (DPI, 2012).

The decommissioning and land use options for the borefields, surface water extraction infrastructure and water pipeline will be determined in consultation with landowners, Lachlan Shire Council and Forbes Shire Council and subject to the agreement of the Secretary of the DP&E.

Borefields and Surface Water Extraction Infrastructure

The following decommissioning options exist for the borefields and surface water extraction infrastructure:

- transfer ownership to regional landholders with surface water extraction infrastructure, bores and transfer stations remaining in working condition; or
- dismantle surface water extraction infrastructure and cap bores, and remove infrastructure (including borehead facilities) and return the area to its former land use;

Water Pipeline

The following decommissioning options exist for the water pipeline:

- disconnect and leave the pipeline infrastructure for future use (e.g. town water supply);
- utilise the infrastructure for other purposes; or
- dismantle the infrastructure and return the area to its former land use.

If an option to dismantle pipeline infrastructure is selected, the following procedures would be followed:

- remove infrastructure and backfill trenches;
- rehabilitate disturbed areas; and
- return the area to its former land use.

5.5 Rehabilitation Phases

Consistent with the rehabilitation planning concepts in the *ESG3: Mining Operations Plan (MOP) Guidelines* (NSW Trade and Investment, Regional Infrastructure and Services – Division of Resources and Energy, 2013), rehabilitation of disturbed lands will be undertaken sequentially (or in phases) to achieve the final land use. A description of these phases of rehabilitation is provided in Table 6.

Table 6 – Rehabilitation Phases

Phase	Description
Decommissioning	The process of removing plant and equipment from active services and rendering the area safe.
Landform Establishment	The process of shaping unformed rock or other sub-stratum material into a desired land surface profile. This includes earthworks activities such as cut and fill, rock raking, water storage and drainage construction.
Growth Medium Development	The process of establishing and enhancing the physical structure, chemical properties and biological properties of a topsoil and subsoil (or regolith) stratum suitable for plant growth. This includes placing and spreading soil and applying ameliorants.
Ecosystem and Land Use Establishment	The process of seeding, planting and transplanting plant species. Incorporates management actions such as weed and feral pest control to achieve species establishment and growth to juvenile communities, and habitat augmentation.
Ecosystem and Land Use Sustainability	The process of applying management techniques to encourage an ecosystem to grow and develop towards a desired and sustainable post-mining and use outcome. Incorporates features including species reproduction, nutrient recycling and community structure.

A general overview of the rehabilitation methodology for each rehabilitation phase is provided below.

Decommissioning Phase

Detailed mine closure planning will include an assessment of all structures to be decommissioned and demolished. A demolition strategy will be prepared in accordance with Australian Standard AS 2601-2001: The Demolition of Structures (or its latest version) to determine the appropriate demolition techniques, equipment required, and the optimal decommissioning sequencing.

All fixed plant, built infrastructure, equipment and services will be progressively decommissioned when infrastructure items and plant become redundant. All mining related infrastructure will be removed at mine closure, however some infrastructure may be retained to support future postmining land uses.

Landform Establishment Phase

Landform establishment is the process of shaping the final landform to a safe, stable and free draining landform that is appropriate for the desired final land use and consistent with the surrounding landscape. Key landform establishment activities include:

- constructing and shaping completed/backfilled open cut pits and overburden emplacements in accordance with design criteria (such as desired grade, compaction and select surface layers); and
- constructing surface drainage features required for water management in the final landform landscape consistent with contemporary guidelines (refer Section 6.6).

Preliminary completion criteria for the Landform Establishment Phase are provided in Section 7.

Growth Medium Development Phase

Growth medium development includes activities to reinstate soils (including subsoil/regolith soils) with the physical, chemical and biological characteristics required for vegetation establishment and growth. Soil management methodologies are described in Section 6.4.

Preliminary completion criteria for the Growth Medium Development Phase are provided in Section 7.

Ecosystem and Land Use Establishment Phase

Ecosystem and land use establishment includes activities to establish the desired floristic composition (species diversity and density relevant to the post-mining land use/secondary domain). Activities will include:

- seeding, tubestock planting and/or transplanting (as required);
- activities to enhance successful vegetation establishment such as weed and pest management, erosion control and bushfire mitigation; and
- installing habitat augmentation features in native vegetation rehabilitation areas to improve habitat opportunities for native fauna.

General revegetation methodologies and species selection are discussed in Section 6.5.

Ecosystem and Land Use Sustainability Phase

The Leading Practice Sustainable Development Program for the Mining Industry – Mine Rehabilitation (Department of Industry, Tourism and Resources, 2006) defines a functional ecosystem as one that is:

- stable (not subject to high rates of erosion);
- effective in retaining water and nutrients; and
- self-sustaining.

The Ecosystem and Land Use Sustainability Phase is therefore considered to involve those activities necessary to develop ecosystems that are self-sustaining and assist the area to meet the nominated completion criteria. Key activities in the Ecosystem and Land Use Sustainability Phase include:

- rehabilitation monitoring (Section 8);
- rehabilitation maintenance including:
  - weed and feral animal control of rehabilitation;
  - maintenance of erosion control works;
  - maintenance fertilizing and re-seeding (where required);
  - repair of fence lines, access tracks and other related general land management activities; and
- intervention and adaptive management (Section 9).

6. REHABILITATION IMPLEMENTATION STRATEGY

6.1 Progressive Rehabilitation

Consistent with the rehabilitation principles and objectives (Section 5.1) and in accordance with Condition 56, Schedule 3 of Development Consent DA 374-11-00, where possible Clean TeQ will rehabilitate the site progressively, that is, as soon as is practicable following disturbance, to the satisfaction of the Secretary of Industry.

Progressive rehabilitation may also include interim/temporary rehabilitation (such as seeding with non-persistent cover crops) of waste rock emplacement, soil stockpile and infrastructure areas expected to be inactive for a period of time to minimise potential erosion, air quality and visual impacts and to contribute organic matter for future rehabilitation.

A description, quantification and mapping of the status of progressive rehabilitation will be documented in the Mining Operations Plan and reported in the Annual Review.

6.2 Vegetation Clearance Protocol and Habitat Enhancement

A Vegetation Clearance Protocol has been developed for the Project to minimise the impact from vegetation clearance activities on native flora and fauna, including threatened species. The Vegetation Clearance Protocol is outlined in the Biodiversity Management Plan – Revegetation Strategy and involves:

- clearing restrictions;
- undertaking pre-clearance surveys;
- applying clearing methods to minimise impacts on fauna;
- salvaging of material (including seed) for habitat enhancement;
- installation of artificial bat roosts;
- rehabilitation following construction; and
- reporting.

Clean TeQ will implement the Vegetation Clearance Protocol outlined in the Biodiversity Management Plan – Revegetation Strategy in accordance with Condition 36, Schedule 3 of Development Consent DA 374-11-00.

6.3 Seed Collection

Salvage of material (including seed) for habitat enhancement will be undertaken opportunistically for beneficial reuse in the rehabilitation at the mine site.

As a component of the Vegetation Clearance Protocol, during the habitat assessment phase of the pre-clearance surveys, trees will be examined to identify seed resources for seedling propagation for use in Project rehabilitation.

In accordance with Condition 35(c), Schedule 3 of Development Consent DA 374-11-00, seed will be opportunistically collected from felled trees at the mine site for seedling propagation (or used directly in rehabilitation) to reduce the demand of commercial seed for mine site rehabilitation.

In addition to the above, Clean TeQ proposes to engage an external consultant to prepare a seed supply and planting implementation strategy for the Project's rehabilitation program. The strategy will include implementation plans/programmes for:

- seed collection/harvesting and seed processing and storage;
- seed propagation;
- site preparation and planting; and
- maintenance (including supplementary plantings and weed and pest control).

The strategy will include an assessment of the potential risks associated with the seed supply and planting implementation program.

6.4 Soil Stripping and Management

General soil management practices will include the stripping and stockpiling of soil resources for use in rehabilitation. The objectives of soil resource management will be to:

- identify and quantify potential soil resources for rehabilitation;
- optimise the recovery of usable soil reserves during soil stripping operations;
- retention of ground cover (e.g. small logs, fallen branches and leaf litter) within stripped topsoil to improve the viability of the soil when it is used in rehabilitation;
- manage soil reserves so as not to degrade the resource when stockpiled; and
- establish effective soil amelioration procedures to maximise the availability and suitability of soil reserves for future rehabilitation works.

Soils will be progressively stripped and stockpiled in a manner that minimises the degradation of soil quality, including the following procedures (Black Range Minerals, 2000):

- topsoil and subsoils would be stockpiled separately if different soil horizons are evident;
- stockpiles would not be located in drainage lines or trafficable areas;
- upslope surface water runoff would be diverted around soil stockpiles and ancillary infrastructure;
- stockpiling time would be minimised by prioritising the reuse of these materials;
- stockpiles would be seeded with suitable endemic grass and legume species as soon as practicable after construction, if endemic grass and legume species do not colonise naturally and extended storage is anticipated;
- colonising weed species would be controlled;
- stockpiled soils would be monitored and rejuvenated if necessary; and
- soil stockpiles would be located adjacent to disturbance areas.

6.5 Plant Species Selection for Revegetation

The majority of the native vegetation to be cleared at the mine site comprises Western Grey Box (*E. microcarpa*) and Poplar Box (*E. populnea*). In recognition that Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions Endangered Ecological Community (Inland Grey Box Woodland EEC) is listed under the *Biodiversity Conservation Act, 2017*, target revegetation species in endemic woodland rehabilitation areas will be consistent with the Inland Grey Box Woodland EEC.

A provisional list of revegetation species from the Inland Grey Box Woodland EEC Final Determination (NSW Scientific Committee, 2011) is provided in Table 7. The placement of these species (or other species) in the revegetation areas will depend on final slopes, drainage and topsoil characteristics.

Seed of local endemic (adapted) species will preferentially be used, however consideration will be given to the use of a high quality seed sourced further from the site compared to a low quality, more local, seed source.

Future versions of the Mining Operations Plan will include specific details of the locations and composition of the vegetation communities to be established in rehabilitated areas once the necessary mining planning and design processes have been undertaken.

Initial revegetation will be undertaken using native and introduced grasses to facilitate rapid stabilisation. Final long-term revegetation will comprise the use of native species to re-establish endemic woodland.

Table 7 – Provisional Revegetation Species List

Provisional Revegetation Species List		
Abutilon otocarpum	*Einadia nutans*	*Myoporum montanum*
Acacia buxifolia	*Enchylaena tomentosa*	*Myoporum platycarpum*
Acacia hakeoides	*Enteropogon acicularis*	*Oxalis perennans*
Acacia homalophylla	*Eremophila debilis*	*Paspalidium jubiflorum*
Alectryon oleifolius	*Eremophila deserti*	*Pittosporum angustifolium*
Allocasuarina luehmannii	*Eucalyptus albens*	*Plantago debilis*
Angophora floribunda	*Eucalyptus camaldulensis*	*Podolepis jaceoides*
Atriplex semibaccata	*Eucalyptus conica*	*Pterostylis longifolia*
Austrodanthonia auriculata	*Eucalyptus largiflorens*	*Ptilotus obovatus*
Austrodanthonia caespitosa	*Eucalyptus melliodora*	*Rumex brownii*
Austrodanthonia setacea	*Eucalyptus microcarpa*	*Sclerolaena birchii*
Austrostipa scabra subsp. falcata	*Eucalyptus pilligaensis*	*Sclerolaena muricata*
Brachychiton populneus	*Eucalyptus populnea subsp. bimbil*	*Senna aciphylla*
Bursaria spinosa	*Geijera parviflora*	*Senna artemisioides*
Callitris endlicheri	*Glycine clandestina*	*Sida corrugata*
Callitris glaucophylla	*Goodenia pinnatifida*	*Solanum parvifolium*
Calotis cuneifolia	*Hardenbergia violacea*	*Tricoryne elatior*
Carex inversa	*Hibbertia obtusifolia*	*Vittadinia dissecta*
Cassinia arcuata	*Indigofera australis*	*Vittadinia gracilis*
Casuarina cristata	*Jacksonia scoparia*	*Wahlenbergia communis*
Casuarina pauper	*Lomandra filiformis*	*Wahlenbergia luteola*
Chamaesyce drummondii	*Maireana enchylaenoides*	*Walwhalleya subxerophilum*
Chloris truncata	*Maireana microphylla*	*Xerochrysum viscosa*
Crassula sieberiana	*Microlaena stipoides*	*Zieria cytisoides*
Dodonea viscosa subsp. cuneata	*Microseris lanceolata*	

Primary species to facilitate rapid stabilisation include Windmill grass (*Chloris truncata*) and Wheat grass (*Elymus scaber*), as well as slower establishing species such as Kangaroo grass (*Themeda triandra*) and Wallaby grass (*Rytidosperma* spp.). All non-native introduced grasses will be non-persistent. A list of all non-native species used in revegetation activities will be established closer to the commencement of revegetation activities and documented in the Mining Operations Plan.

6.6 Erosion and Sediment Control

A Surface Water Management Plan has been developed for the Project in accordance with Condition 30(b), Schedule 3 of Development Consent DA 374-11-00. The Surface Water Management Plan includes a description of the erosion and sediment control system for the Project.

Erosion and sediment controls will be designed, installed and maintained generally in accordance with the series *Managing Urban Stormwater: Soils and Construction* including *Volume 1* (Landcom, 2004), *Volume 2A – Installation of Services* (Department of Environment and Climate Change [DECC], 2008a) and *Volume 2C – Unsealed Roads* (DECC, 2008b).

Water collected from the disturbance footprint (e.g. internal haul roads and waste dumps) will be temporarily contained in the sediment dams.

Erosion and sediment control structures will be inspected on a regular basis and following rainfall events in order to assess the structural integrity and effectiveness of the control structures and any pumping requirements. Results of this monitoring would be used to evaluate necessary ameliorative measures.

6.7 Weed Control

A Biodiversity Management Plan – Revegetation Strategy has been developed in accordance with Conditions 33 and 35, Schedule 3 of Development Consent DA 374-11-00. The Biodiversity Management Plan – Revegetation Strategy includes a weed control program that aims to manage weeds to minimise their impact on native flora and fauna at the Project.

All weeds will be monitored and controlled *by an appropriately qualified contractor using standard methods.* The procedure for controlling and monitoring weeds is as follows:

1. Monitor (map) the location and density of all weeds through inspections of the mine site.
2. Identification of suitable control methods for identified weeds.
3. Implementation of the selected control methods on the identified weeds.
4. Follow-up site inspections to evaluate the effectiveness of the weed control.
5. Follow-up control where previous control has been sub-optimal.

The control of priority weeds is required under the NSW Biosecurity Act, 2015. In the event that any priority weed is identified, it will be controlled in accordance with the appropriate strategy as defined in *Central West Regional Strategic Weed Management Plan 2017–2022* (Central West Local Land Services, 2017 or its revision).

Recommended published techniques for the removal of priority weeds will be consulted prior to weed control, e.g. *Noxious and Environmental Weed Control Handbook* (DPI, 2014). The control of weeds is intended to be adaptive and will be informed/reviewed based on monitoring.

Weed control activities implemented for the Project will be reported in the Annual Review.

6.8 Feral Animal Control

A Biodiversity Management Plan – Revegetation Strategy has been developed in accordance with Conditions 33 and 35, Schedule 3 of Development Consent DA 374-11-00. The Biodiversity Management Plan – Revegetation Strategy includes a feral animal control program that aims to manage feral animals to minimise their impact on native flora and fauna.

Clean TeQ will maintain a clean, rubbish-free environment across the mine and processing facility site, particularly around administration and contractor areas. This will discourage scavenging and reduce the potential for colonisation of these areas by non-endemic fauna (e.g. introduced rodents, birds).

Feral animals *within* the mine site will be monitored and controlled during the initial Project construction activities *by an appropriately qualified contractor using standard methods.* The procedure for controlling feral animals is as follows:

1. Monitor the abundance of feral animals.
2. Identification of target feral animals and suitable control methods (e.g. trapping and/or baiting).
3. Implementation of the selected control methods on the target feral animals.
4. Re-monitor the abundance of feral animals to evaluate the effectiveness of the control methods.
5. Follow-up control where previous control has been sub-optimal.

Control measures will be implemented by Clean TeQ or by an appropriate Pest Control Contractor(s) as required. All personnel involved in feral animal control will be required to hold relevant and valid licences/permits, including any relevant chemical licences for pesticide use. The *Humane Pest Animal Control: Code of Practice and Standard Operating Procedures* (DPI, 2013, or its revision) will be followed.

Control methods for moderately common or abundant feral animals are outlined in the Biodiversity Management Plan – Revegetation Strategy. A selection of these techniques or additional techniques may be undertaken depending on the feral animal species which is in an abundance that requires control (as determined through monitoring) and the success of these control techniques. The control of feral animals is intended to be adaptive and will be informed/reviewed based on monitoring.

Feral animal control at the accommodation camp would be undertaken in accordance with the Biodiversity Management Plan.

Feral animal control activities implemented for the Project will be reported in the Annual Review.

6.9 Access Control

To reduce the degree of disturbance to the rehabilitation areas, measures will be put in place to limit access to these areas by authorised personnel only. Measures may include restricting vehicles to existing access tracks only and signage denoting rehabilitation area. The mine site boundary will be fenced to restrict access to the site and signage installed at intervals along the fence denoting authorised access only.

6.10 Management of Agriculture

Livestock will be excluded from active operational mining areas and rehabilitation areas.

For rehabilitation areas with an agricultural post-mining land use, grazing (with the exception of grazing trials) will only commence on these areas once the completion criteria have been met. A suitable stocking rate for these areas will be determined in consultation with the relevant regulatory authorities based on the performance of the revegetation following closure of the mine and outcomes of grazing trials.

For rehabilitation areas that do not have an agricultural post-mining land use, these areas will be fenced to restrict grazing and access post-mining.

6.11 Bushfire Management

In accordance with Condition 49, Schedule 3 of the Development Consent (DA 374-11-00), Clean TeQ will:

- ensure the development provides for asset protection in accordance with the NSW Rural Fire Service's *Planning for Bushfire Protection 2006* (or equivalent) and is suitably equipped to respond to fires on site;
- develop procedures to manage potential fires on site and in the vicinity of the site, in consultation with the NSW Rural Fire Service; and
- assist the NSW Rural Fire Service and emergency services as much as possible if there is a fire in the vicinity of the site.

A Bushfire Management Plan will be prepared to provide procedures and protocols for the management of lands associated with the mine and processing facility. It will address, but not be limited to, the management of bushfire risk and be developed in consultation with the local NSW Rural Fire Service and the Lachlan Shire Council. The Bushfire Management Plan will include:

- identification of fire hazards and assets at risk;
- identification of areas within Mining Lease 1770 requiring fuel management;
- description of fuel management strategies;

- planning and implementation procedures for hazard reduction;
- detection, reconnaissance and reporting of fires; and
- fire-fighting activities.

During the induction process, all staff and contractors will undergo training in bushfire prevention and management strategies.

Bushfire management at the accommodation camp would be undertaken in accordance with the Biodiversity Management Plan.

6.12 Visual Impact Management

In accordance with the rehabilitation objectives (Table 4) and Condition 48, Schedule 3 of Development Consent DA 374-11-00, the visual impact of final landforms will be minimised as far as is reasonable and feasible.

Mine areas would be rehabilitated as soon as practicable following disturbance in order to reduce the contrast between the mine landforms and the surrounding environment. Final landforms will be rehabilitated with vegetation consistent with the post-mining land use for the landform.

A vegetation screen will be established along the western, southern and eastern boundaries of the mine (Figure 5) to limit potential views of the Project from Wilmatha Road and Fifield Road. The vegetation screen will be established within three years of the commencement of development on the mine site (unless otherwise agreed the Secretary) and will be maintained throughout the life of the development.

In addition, Clean TeQ will implement a number of other measures to minimise potential visual impacts at the Project:

- The visual appearance of all ancillary infrastructure (including paint colours, specifications and screening) would blend in as far as possible with the surrounding landscape.
- Whilst ensuring that operational safety is not compromised, Clean TeQ would minimise light emissions from the Project by select placement, configuration and direction of lighting so as to reduce off-site nuisance effects where practicable.
- All external lighting at the Project would be operated in accordance with AS 4282 (INT):1997 – *Control of Obtrusive Effects of Outdoor Lighting*.
-

6.13 Rehabilitation Trials and Studies

Rehabilitation trials and studies will be undertaken to refine the rehabilitation methodologies and validate rehabilitation performance indicators and completion criteria.

7. PERFORMANCE MEASURES AND COMPLETION CRITERIA

Condition 57(c), Schedule 3 of Development Consent DA 374-11-00 requires detailed performance and completion criteria for evaluating the performance of the rehabilitation of the site, triggering remedial action if necessary.

Table 8 lists performance indicators and completion criteria for each rehabilitation phase relevant to the initial Project construction activities (Section 1.1). The performance indicators and completion criteria for the remainder of the rehabilitation phases will be included in future versions of this RMP.

Table 8 – Performance Indicators and Completion Criteria

Stage of Ecosystem Development	Objective	Completion Criteria	Performance Indicators
Decommissioning	Not required during initial Project construction activities – to be included in future revisions of this RMP.		
Landform Establishment	Final landform will be suitable for the intended land use and consistent with the surrounding landscape.	Landform compatibility	Constructed landforms are assessed to be consistent with the surrounding topography.
	Final landforms are safe, stable, non-polluting and drain to the local environment.	Slopes	Landform regraded to a stable grade, with slopes generally 1V:3H to 1V:4H.
		Landform stability	Reconstructed landforms are stable with no evidence of slumping.
		Non-polluting landform	Dirty water run-off is captured, treated and discharged in accordance with the EPL and Water Management Plan
		Free draining landform	Landforms are free draining (excluding retained water storage dams & final voids).
		Final landform drainage design	Final landform water management structures and storages have been designed and constructed in accordance with DECC [2008c] *Managing Urban Stormwater: Mines and Quarries Volume 2E* requirements and the approved final landform drainage design.
	Habitat features are salvaged and re-used in rehabilitation areas to provide fauna habitat resources.	Habitat features.	Habitat features are incorporated into rehabilitation areas (including within watercourses and retained dams) where appropriate.
Growth Medium Development	Suitable soil chemical and physical properties	Soil properties are suitable for the establishment and maintenance of selected vegetation species.	pH; Electrical Conductivity; Organic Matter; Phosphorus; Nitrate; Cation Exchange Capacity; and Exchangeable Sodium Percentage within acceptable range.
	Effective use of topsoil and subsoil to assist in improved rehabilitation.	Topsoil/subsoil.	Topsoils and subsoils are re-spread on rehabilitation areas at appropriate depth for final land use.
	Topsoils and subsoils are salvaged and managed to retain physical, chemical and biological properties.	Topsoil/subsoil salvaging.	Topsoil and subsoils are stripped and respread or stockpiled for later use in accordance with soil stripping and stockpiling procedures.
			Topsoil and subsoils (and topsoil substitutes including tuffaceous clays) are selectively stripped and managed according to postmining land uses.
	Erosion is minimised.	Erosion and sediment control structures.	Temporary erosion and sediment control structures are installed prior to topsoil respreading.
			Permanent erosion control features (e.g. rock armouring) installed where required.
Ecosystem and Land Use Establishment	Not required during initial Project construction activities – to be included in future revisions of this RMP.		
Ecosystem and Land Use Sustainability	Not required during initial Project construction activities – to be included in future revisions of this RMP.		

Development of the performance indicators and completion criteria will be an iterative process, whereby monitoring results will be used to continuously refine the completion criteria in future revisions of this RMP in accordance with Rehabilitation and Mine Closure in the Mining Operations Plan Guidelines. Rehabilitation performance will be considered to be satisfactory when monitoring data indicates the completion criteria have been met.

Monitoring to be conducted to assess the performance indicators are described in Section 8.

8. REHABILITATION MONITORING

Annual rehabilitation monitoring will be undertaken to:

- measure the progress and success of the rehabilitation program against performance indicators and completion criteria;
- inform the continuous improvement process and refine rehabilitation methodologies and completion criteria; and
- identify when rehabilitation is not trending toward completion criteria in an appropriate timeframe, triggering adaptive management.

A description of the rehabilitation monitoring program methodologies is provided in the sections below.

Rehabilitation monitoring program results will be reported and assessed within an annual rehabilitation monitoring report.

A summary of the monitoring results, including any trend analysis and any proposed modifications to the monitoring program will be reported in the Annual Review (Section 10.1).

8.1 Mine Site and Accommodation Camp

8.1.1 Monitoring Site Selection

Permanent transects at a number of representative monitoring sites will be established in rehabilitation areas at the mine site and accommodation camp and corresponding analogue sites.

Rehabilitation area transects will be established on rehabilitation areas within 24 months of the rehabilitation areas being seeded. A number of permanent transects will also be established in adjacent undisturbed (analogue) communities during the first year of construction. The information obtained will be used to track the rehabilitation progress, predict self-sustainable values and compare the rehabilitation and analogue sites.

Each transect will be established using the following technique:

- The site will be randomly selected within the desired vegetation type.
- A 50 m transect will be laid down-slope (according to the requirements of the Ecosystem Function Analysis methodology [Section 8.1.2]).
- A metal star picket will be securely fixed at the start and finish of each transect.
- Each transect/star picket will be numbered (with aluminium tag or plate).

- Each star picket will be marked with a length of high visibility flagging tape (or similar) to maximise the visibility of the transect.
- The location of each end of the transect will be recorded with GPS, photographed and included on plans in a future version of the RMP.

The location of the rehabilitation monitoring sites will be included in future versions of this RMP.

8.1.2 Monitoring Methodology – Ecosystem Function Analysis

The Ecosystem Function Analysis (EFA) methodology (Tongway and Ludwig, 2011) will be used to assess rehabilitation success and comprises the following components:

- Landscape Function Analysis (LFA);
- Landscape Organisation Index (LOI);
- Soil Surface Assessment (producing Stability, Infiltration and Nutrient Indices); and
- Vegetation Dynamics, including assessment of:
  - canopy cover for overstorey components;
  - ground cover components (plant basal cover, bare ground and leaf litter);
  - woody species density;
  - woody species richness;
  - woody species function/health;
  - habitat complexity; and
  - disturbance factors.

Each of these components are assessed to individually characterise key elements of an ecosystem, as well as establish the relationships between these elements to provide a more comprehensive picture of the relative health of an ecosystem. EFA will be used to assess the status of rehabilitation areas and to demonstrate that the site is on a trajectory toward self-sustainability.

Ground flora monitoring will also be undertaken in permanent quadrats established along the EFA transects. At least three transects will be established in a rehabilitation area (where possible). All visible ground cover plants within the quadrat are recorded to determine the species abundance and diversity. Dominant species present are compared to those of analogue sites to determine if rehabilitation is progressing toward the targeted vegetation community.

Woody species density, richness and habitat complexity will be quantified using the plot-less technique described by Tongway and Ludwig (2011).

Landscape Function Analysis

LFA is the primary component of the EFA monitoring methodology. It assesses ecosystem functionality at the soil landscape level in terms of the landscape's ability to retain water and nutrients within the system. In terms of LFA, a soil landscape on the trajectory toward self-sustainability (in context of vegetation cover and soil stability) would have:

- A high LOI. That is, a low number of bare soil patches (interpatches) between obstruction components (patches) in the soil landscape, which would affect wind and water movement and the introduction and transportation of resources into and out of the system.
- High Soil Surface Assessment indices, indicating that the site had favourable nutrient, infiltration and stability characteristics.

Vegetation Dynamics

Vegetation dynamics assesses the functional role of vegetation in each stratum in the rehabilitation area. Measurements of plants on the EFA transects are used to calculate density of plants in each stratum and total canopy area. Measurements are used to derive the total canopy volume and wind amelioration index (i.e. the wind shielding capacity of the canopy).

Habitat Complexity

In addition to the vegetation dynamics parameters, presence of desirable habitat features including leaf litter, rocks and logs and water availability are measured to derive a habitat complexity index score. The habitat complexity index is a measure of the development of suitable habitat and resources for arboreal fauna.

Vegetation Monitoring

Vegetation monitoring is the other component of the EFA monitoring tool. This component is not undertaken in agricultural/pasture areas as woody vegetation is not represented in these areas.

An assessment of woody species density, species richness and canopy cover all contribute to the findings of the LFA in terms of available nutrients, soil stability and water infiltration. In terms of vegetation dynamics, a landscape that is on a trajectory to self-sustainability in context of vegetative cover would have:

- high percentage ground cover vegetation and/or leaf litter components with a corresponding low percentage of bare soil areas;
- high percentage canopy cover;
- high density of woody species; and

- ideally high species richness (particularly pertinent to habitat complexity components).

8.1.3 Monitoring Methodology – Visual Monitoring

Visual Monitoring

Visual monitoring will include annual field based rapid assessments to visually assess and rate landscape contributors to rehabilitation. Components assessed will include:

- vegetation components (overstorey, understorey and groundcover);
- surface stability and erosion issues;
- presence of weed species;
- habitat complexity; and
- disturbance factors.

Each of these subcomponents is scored to generate an overall score for each site. This allows comparison between different sites and over time. It also allows the identification of areas requiring remediation as indicated by low scores.

Photo Points

Photographic records of rehabilitation transects will be undertaken in addition to EFA to visually assess rehabilitation progress.

A permanent photo point will be established at each star picket that designates the start of each EFA transect. The photo will be taken at the star picket, facing down the transect. An additional photo of the transect number tag/plate will be taken just prior to taking the transect photo to assist with documentation of each image with the relevant transect.

The photos will be reviewed to assist with documenting rehabilitation progress, including (but not limited to):

- surface stability and erosion issues;
- presence of weed species;
- vegetation function/health (e.g. die-back or flowering); and
- evidence of pest animal presence/disturbance.

8.1.4 Rehabilitation Methodology Records

Clean TeQ will record the details of each rehabilitation campaign (including mapping) to provide context for rehabilitation monitoring results and assist the continuous improvement process. The key monitoring parameters to be included in the program include:

- landform design details;
- drainage design details;
- substrate geology (i.e. geology of waste rock directly below topsoil);
- site preparation techniques (e.g. topsoil and source, time of sowing, soil ameliorants used);
- revegetation methodologies (e.g. rate and type of fertiliser, cover crop species, seeding rates, native seed viability, native seed sources/location, seedling sources, revegetation contractors);
- weather conditions;
- photographic records; and
- initial follow-up care and maintenance works and any ongoing maintenance works required.

8.2 Borefields, Surface Water Extraction Infrastructure and Water Pipeline

Rehabilitation monitoring of the rehabilitated borefields, surface water extraction infrastructure and water pipeline will include annual visual monitoring. The visual monitoring will include a field based rapid assessment to visually assess and rate landscape contributors to rehabilitation. Components assessed will include:

- vegetation components (groundcover);
- surface stability and erosion issues;
- presence of weed species;
- habitat complexity; and
- disturbance factors.

Each of these subcomponents is scored to generate an overall score for each site. This allows comparison between different sites and over time. It also allows the identification of areas requiring remediation as indicated by low scores.

9. RISKS TO REHABILITATION AND CONTINGENCY MEASURES/REMEDIAL ACTION

Rehabilitation monitoring results will be assessed annually to identify if rehabilitation is trending towards the completion criteria. In the event that rehabilitation monitoring results indicate a significant risk of rehabilitation failure, Clean TeQ will respond with a series of actions to investigate the cause(s) for the unsatisfactory rehabilitation performance, and take any necessary remedial actions.

A preliminary review of all site rehabilitation monitoring data will be conducted to determine the extent and potential causes of the unsatisfactory rehabilitation performance and to identify possible relationships between rehabilitation monitoring results, site conditions and rehabilitation practices.

Additional site investigations may be required if the contributing factors, and extent of rehabilitation failure are not clearly understood using the annual rehabilitation monitoring results. The scope of any additional site investigations will be to:

- define the areas where rehabilitation results are not satisfactory;
- identify specific site characteristics (e.g. topsoil and subsoil geochemical properties) that may be contributing to rehabilitation underperformance; and
- develop recommendations for site-specific management and mitigation actions or more broad amendments to rehabilitation methodologies.

Following site investigations, Clean TeQ will undertake appropriate remedial actions to mitigate the identified contributing factors.

9.1 Adaptive Management

In accordance with Condition 3, Schedule 5 of Development Consent DA 374-11-00, Clean TeQ will assess and manage risks to comply with the criteria and/or performance measures outlined in Schedule 3 of Development Consent DA 374-11-00.

Where any exceedance of these criteria and/or performance measures occurs, at the earliest opportunity, Clean TeQ will:

- take all reasonable and feasible measures to ensure that the exceedance ceases and does not recur;
- consider all reasonable and feasible options for remediation and submit a report to the DP&E describing these options and preferred remediation measures; and
- implement remediation measures as directed by the Secretary of the DP&E.

9.2 Specific Contingency Measures/Remedial Actions

Table 9 provides potential risks and associated contingency measures (remedial actions) to be implemented if the rehabilitation monitoring program results indicate a significant risk of rehabilitation failure (i.e. completion criteria not being met). Contingency measures may not be limited to those listed in Table 9.

Table 9 – Contingency Measures/Remedial Actions

Aspect of Rehabilitation	Potential Risk	Contingency Measures/Remedial Actions
Revegetation	Revegetation is not successfully established.	• Conduct field inspections and implement remediation works which may include additional or ameliorated growth medium, additional plantings or further actions following planting such as application of fertilizer or watering of rehabilitation areas. • Seek specialist advice and liaise with government agencies to determine a remediation plan. • Prepare an appropriate mitigation / remediation plan relating to the particular cause.
Drought	Severe and/or prolonged drought leading to widespread failure of revegetation/rehabilitation.	• Implement remediation measures which may include application of additional native pasture hay to protect growth medium materials, or additional revegetation campaign or watering rehabilitation areas (subject to suitable conditions). • Ongoing monitoring of vegetation health indicators.
Controlling Erosion	Erosion and sedimentation	• Targeted revegetation along drainage lines and scalded areas to minimise risk of erosion; • Restriction of livestock access to erosion prone areas (e.g. along watercourses); and • Maximise the re-use of existing infrastructure (e.g. access roads).
Weed Control	Weed invasion – perennial and annual grasses, perennial herbs, annual and biennial herbs and woody weeds	• Review additional strategies to control target weed species; • Increase the frequency of weed control and monitoring; and • Re-evaluate the grazing strategy.
Feral Animal Control	Sustained increase in feral animal numbers despite control measures	• Review additional strategies to control target feral animals; and • Increase the frequency of feral animal control and monitoring.
Grazing Livestock	Livestock breach exclusion areas	• Remove stray livestock and ameliorate the access problem; and • Include stray livestock check in maintenance schedule.

In addition, general remedial actions will be implemented where rehabilitation monitoring results identify a requirement for maintenance or remedial works. These may include:

- repair of erosion (i.e. regrading of eroded areas);
- repair of drainage structures and de-silting of sediment control structures;
- supplementary seeding or planting;
- application of fertiliser;
- application of gypsum or lime to control pH and improve soil structure;
- bushfire management activities; and
- implementation of weed and pest control measures.

The effectiveness of the remedial actions will be regularly monitored, with results reported in the Annual Review and used to inform and refine the rehabilitation programme. Clean TeQ will also implement any preferred contingency measures identified to address an incident (Section 11.1).

10. REVIEW AND IMPROVEMENT OF ENVIRONMENTAL PERFORMANCE

10.1 Annual Review

In accordance with Condition 5, Schedule 5 of Development Consent DA 374-11-00, Clean TeQ will review the environmental performance of the Project by the end of March each year (for the previous calendar year) to the satisfaction of the Secretary.

In relation to rehabilitation management, the Annual Review will (where relevant):

- describe the development that was carried out in the past calendar year, and the development that is proposed to be carried out over the current calendar year;
- include a comprehensive review of the monitoring results and complaints records of the development over the past year, which includes a comparison of these results against the:
  - relevant statutory requirements, limits or performance measures/criteria;
  - monitoring results of previous years; and
  - relevant predictions in the Syerston Nickel Cobalt Project Environmental Impact Statement (Black Range Minerals, 2000) and subsequent environmental assessments;
- identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
- identify any trends in the monitoring data over the life of the development;
- identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
- describe what measures will be implemented over the next year to improve the environmental performance of the development.

10.2 Independent Environmental Audit

In accordance with Condition 10, Schedule 5 of Development Consent DA 374-11-00, an independent environmental audit of the Project will be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary.

The independent environmental audit will assess the environmental performance of the Project and review the adequacy of this RMP. If necessary, appropriate measures or actions to improve the environmental performance of the Project or this RMP will be recommended.

The independent environmental audit, and Clean TeQ's response to the recommendations in the audit, will be made publicly available on the Clean TeQ website, in accordance with Condition 12, Schedule 5 of Development Consent DA 374-11-00.

11. REPORTING PROTOCOLS

In accordance with Condition 4(g), Schedule 5 of Development Consent DA 374-11-00, Clean TeQ has developed protocols for managing and reporting the following:

- incidents;
- complaints;
- non-compliances with statutory requirements; and
- exceedances of the impact assessment criteria and/or performance criteria.

These protocols are described in detail in Clean TeQ's Environmental Management Strategy.

In accordance with Condition 9, Schedule 5 of Development Consent DA 374-11-00, Clean TeQ will provide regular reporting on the environmental performance of the Project on the Clean TeQ website.

11.1 Incident Reporting

An incident is defined as a set of circumstances that causes or threatens to cause material harm to the environment and/or breaches or exceeds the limits or performance measures/criteria in Development Consent DA 374-11-00.

In the event that review of rehabilitation monitoring data indicates an incident has occurred, the incident will be reported in accordance with Condition 8, Schedule 5 of Development Consent DA 374-11-00. Clean TeQ will notify the Secretary and any other relevant agencies including the relevant Councils immediately after it becomes aware of the incident. Clean TeQ will also notify any affected landholders of any incident that has caused, or threatens to cause, material harm to the environment.

Within seven days of the date of the incident, Clean TeQ will provide the Secretary and any other relevant agencies with a detailed report on the incident and such further reports as may be requested. The report will:

- describe the date, time and nature of the exceedance/incident;
- identify the cause (or likely cause) of the exceedance/incident;
- describe what action has been taken to date; and
- describe reasonable and feasible options to address the incident and identify the preferred option to address the incident (Section 10.1).

11.2 Complaints

Clean TeQ will maintain a Community Complaints Line (tel: 1800 952 277) and email address (community@cleanteq.com) for the sole purpose of receiving community contacts and complaints. The Community Complaints Line number will be available on the website and included in Clean TeQ's advertising and community communication tools. The Community Complaints Line will be staffed 24 hours a day, seven days a week during construction and operations. Clean TeQ will respond to callers on the next business day. If the issue is urgent a member of the leadership team will be contacted immediately.

Clean TeQ has developed a procedure that outlines its commitment to receiving, resolving and recording complaints received from the community. Detailed records of each complaint resolution are kept in Clean TeQ's record management systems.

Complaints will be investigated within 24 hours of receipt. The cause of the complaint will be analysed and actions to resolve the complaint taken as soon as possible. In complex cases where resolution will take more than 48 hours, Clean TeQ will commit to update the community member regularly until the complaint is resolved.

In accordance with Condition 12(a), Schedule 5 of Development Consent DA 374-11-00, a complaints register will be made available on the Clean TeQ website and updated monthly.

11.3 Non-Compliance with Statutory Requirements

A protocol for managing and reporting non-compliances with statutory requirements has been developed as a component of Clean TeQ's Environmental Management Strategy and is described below.

Compliance with all approvals, plans and procedures is the responsibility of all personnel (staff and contractors) employed on or in association with Clean TeQ and the Project.

The Clean TeQ Environmental Superintendent will undertake regular inspections and internal audits, and initiate directions identifying any remediation/rectification work required, and areas of actual or potential non-compliance.

As described in Section 11.1, Clean TeQ will report incidents in accordance with Condition 8, Schedule 5 of Development Consent DA 374-11-00 and in accordance with the protocol for industry notification of pollution incidents under Part 5.7 of the POEO Act. Clean TeQ will notify the Secretary and any other relevant agencies including the relevant Councils immediately after the authorised person becomes aware of the incident which causes or threatens to cause material harm to the environment. Within seven days of the date of the incident, Clean TeQ will provide the Secretary and any other relevant agencies with a detailed report on the incident and such further reports as may be requested.

A review of compliance with all conditions in Development Consent DA 374-11-00, Mining Lease 1770 and all other approvals and licences will be undertaken prior to (and included within) each Annual Review (Section 10.1).

Additionally, in accordance with Condition 10, Schedule 5 of Development Consent DA 374-11-00, an independent environmental audit (Section 10.2) will be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary to assess whether Clean TeQ is complying with the requirements in Development Consent DA 374-11-00, and any other relevant approvals, EPLs, and/or mining leases.

12. MINE CLOSURE STRATEGY

Mine closure planning at the Project will be undertaken in consideration of the following key industry best practice guidelines:

- The *Strategic Framework for Mine Closure* (Australian and New Zealand Minerals and Energy Council and the Minerals Council of Australia, 2000);
- *Leading Practice Sustainable Development Program for the Mining Industry – Mine Closure* (Department of Industry, Innovation and Science, 2016).

The principal objectives of mine closure planning for the Project include:

- providing an overall framework for mine closure including rehabilitation and decommissioning strategies;
- addressing the Project rehabilitation objectives (Section 5.1);
- maintaining adequate financial provision to cover the cost of decommissioning, final rehabilitation and any other post closure costs related to the closure of the site;
- establishing clear and agreed criteria with all relevant stakeholders, which can be used to provide the standard to which the final mine rehabilitation and post-mining land use can be assessed against;
- minimising potential adverse environmental effects once the mine ceases operation;
- minimising potential adverse socio-economic impacts once the mine ceases operation;
- completing closure in accordance with industry best practice as well as meeting the statutory requirements.

A detailed Mine Closure Strategy will be developed for the Project at least 5 years prior to mine closure (mining operations at the Project are currently approved for 21 years). The Mine Closure Strategy will include a detailed description of the final landform (including final void) and final land uses.

Condition 57(f), Schedule 3 of Development Consent DA 374-11-00 requires Clean TeQ to minimise the adverse socio-economic effects associated with mine closure. Accordingly, the detailed Mine Closure Strategy will include consideration of socio-economic impacts as part of the mine closure process. The Mine Closure Strategy will be prepared in consultation with the LSC, PSC and FSC and the following key issues with regard to closure will be considered:

- the demands and contributions of the Project on local services to assess the impacts of closure on those demands and contributions;

- the relationships with local suppliers (including arrangements for conducting local business planning workshops prior to closure to assist local businesses to move on from reliance on the mine);
- studies/monitoring of social contributions and sustainability post closure;
- development of a stakeholder consultation strategy; and
- stakeholders' final land use perceptions and incorporating their input into development of the Mine Closure Strategy.

13. REFERENCES

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