

ATLAS-CAMPASPE

Mineral Sands Project

ENVIRONMENTAL IMPACT STATEMENT



SECTION 7 › SUMMARY OF MANAGEMENT, MITIGATION, MONITORING AND REPORTING

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7 SUMMARY OF MANAGEMENT, MITIGATION, MONITORING AND REPORTING

7.1 OVERVIEW

This section provides a consolidated summary of proposed Project environmental management, mitigation and monitoring measures.

7.1.1 Project Environmental Management

Section 4 of this EIS outlines proposed environmental management, mitigation, monitoring and biodiversity offset measures.

These include measures relating to land use, agricultural production, land contamination, groundwater, surface water, geochemistry, flora, fauna, Aboriginal heritage, non-Aboriginal heritage, air quality, greenhouse gas emissions, noise, road transport, visual character, hazard and risk and socio-economic impacts. In addition, Section 5 of this EIS describes the Project Rehabilitation Strategy.

Where relevant, Project-specific environmental monitoring programmes are proposed in Section 4.

Cristal Mining would develop and implement an environmental management strategy comprising numerous plans and programmes and would review, revise and build on them over time. A summary of the proposed management, mitigation, monitoring and reporting documents are provided in Table 7-1.

It is recognised that changes to the Project environmental management, mitigation, monitoring and reporting proposed in this EIS may be considered necessary during further consultation with government agencies in the assessment and approval process of the Project.

Project environmental management, mitigation, monitoring and reporting would be conducted in accordance with finalised Development Consent conditions, Controlled Action Decision conditions and associated licences and approvals, with the final monitoring details (i.e. locations, parameters and frequencies) to be provided in the relevant management plans and monitoring programmes.

7.1.2 Safety, Health and Environmental Policy

The Project would be carried out in accordance with Cristal Mining's safety, health and environmental policy provided in Section 3.3.1.

7.1.3 Environmental Management Responsibilities

Environmental management for the Project would be the responsibility of all employees, with co-ordination provided by the Senior Environmental Officer, who reports to the Operations Manager.

All employees and contractors would undertake an induction and environmental awareness programme prior to working independently on-site.

7.2 CONSULTATION AND COMMUNITY

7.2.1 Website and Community Contact

Cristal Mining would maintain a website within its existing web domain (www.cristalmining.com) for the general public to keep up to date with the Project operations.

The website would provide information on the environmental management and performance of the Project, including documentation required to be made publically available in accordance with the Project Development Consent, Controlled Action Decision and associated licences and approvals.

Cristal Mining would also establish a telephone line (during and after hours) for community members to contact a Cristal Mining representative with any questions or concerns they may have regarding the Project.

7.2.2 Community Support

Cristal Mining would continue its support of local community programmes and groups (Section 3.3.3) during the life of the Project.

7.3 ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURES

Environmental management, mitigation and offset measures to be implemented for the Project area are described in Section 4. The Rehabilitation Strategy for the Project is provided in Section 5. Key environmental management and mitigation measures for the Project are provided in the following sub-sections.

Table 7-1
Summary of Project Management, Mitigation, Monitoring and Reporting

Proposed Management, Monitoring and Reporting	Key EIS Sections and Appendices
Management and Monitoring	
Environmental Management Strategy	Sections 4 and 5
Water Management Plan	Sections 4.4.3 and 4.5.3 and Appendices F and G
<ul style="list-style-type: none"> Groundwater Management Plan (including Groundwater Monitoring Programme) Site Water Balance 	Section 4.4.3 and Appendix F Sections 2.9.5, 4.4.3 and 4.5.3 and Appendices F and G
<ul style="list-style-type: none"> Erosion and Sediment Control Plan(s) Surface Water Monitoring Programme 	Section 4.5.3 and Appendix G Section 4.5.3 and Appendix G
Biodiversity Management Plan	Sections 4.6.3 and 4.7.3 and Appendices A and B
Heritage Management Plan	Section 4.8.3 and Appendix E
Air Quality and Greenhouse Gas Management Plan (including Air Quality Monitoring Programme)	Sections 4.10.3 and 4.11.3 and Appendix K
Noise Management Plan (including Noise Monitoring Programme)	Section 4.12.3 and Appendix J
Radiation Management Plan	Section 4.3.3 and Appendix L
Radioactive Waste Management Plan	Section 4.3.3 and Appendix L
Mineral Concentrate and MSP Process Waste Transport Management Plan [^]	Section 4.13.3 and Appendix D
Rehabilitation Management Plan (including rehabilitation monitoring and revegetation programme and radiation monitoring)	Sections 4.6.3, 4.7.3 and 5.6 and Appendices A and B
Mine Closure Plan	Section 5.8
Construction Environmental Management Plan – Ivanhoe Rail Facility	Section 4 and Appendices A, B, E, G, H, J and K
Operational Environmental Management Plan – Ivanhoe Rail Facility	Section 4 and Appendices A, B, E, G, H, J, K and L
Reporting Requirements	
Annual Review	Section 7.5.1
Development Consent, Controlled Action Decision and associated Licences and Approvals	Sections 6 and 7.5.2 and Attachments 5 and 6
Independent Environmental Audit	Sections 6.7, 6.8 and 7.5.3
Mining, Rehabilitation and Environmental Management Process (MOP and AEMR)	Section 7.5.4
Annual Return	Section 7.5.4
Water Licences – Annual Reporting	Sections 4.4.4, 4.5.4 and 7.5.4 and Attachment 5
Commonwealth Government's EEO Program	Sections 6.4.2 and 7.5.4
National Pollutant Inventory	Section 7.5.4 and Appendix K
National Greenhouse and Energy Reporting	Sections 6.4.2 and 7.5.4 and Appendix K
Community Complaints	Section 7.5.4

[^] Up until cessation of the Ginkgo and Snapper Mine operations (approximately Year 12 of the Project) the transport of MSP process waste would be undertaken in accordance with existing/approved Transport Management Plan required under PA 06_0168 for the Snapper Mine and Traffic Code of Conduct and Transport of Hazardous Materials Plan required under Development Consent (DA 251-09-01) for the Ginkgo Mine, or as otherwise modified subject to separate assessment and approval.

7.3.1 Groundwater

Section 4.4.3 describes the Project groundwater management and mitigation measures. Groundwater licensing requirements for the Project are described in Section 4.4.4. Key management components are summarised below.

Groundwater Management Plan

A Groundwater Management Plan would be prepared and included as a component of the Water Management Plan for the Atlas-Campaspe Mine.

It would include a summary of the Groundwater Monitoring Programme (Section 7.4.2) and procedures/reporting that would be implemented over the life of the Project (e.g. responses to complaints, progressive numerical model refinement and periodic reporting to inform the site water balance review).

The Groundwater Management Plan would also describe contingent mitigation, compensation, and/or offset options that would be enacted if, in the unlikely event, users of groundwater resources in the region are adversely affected by the Project.

Numerical Model and Water Balance Review

The numerical model developed and used for the Hydrogeological and Water Supply Assessment (Appendix F) would be used as a management tool for the periodic review and calibration of predicted groundwater drawdown through the life of the Project.

Groundwater Licensing

Cristal Mining would obtain and hold appropriate volumetric licences for the Project (Table 4-3) in accordance with the requirements of the *Water Sharing Plan for the NSW Murray Darling Basin Porous Rock Groundwater Sources, 2011*.

7.3.2 Surface Water

Sections 2.9 and 4.5.3 describe the Project site and surface water management measures. Key management components are summarised below.

Surface Water Management Plan

A Water Management Plan would be prepared for the Atlas-Campaspe Mine. The Water Management Plan would describe the operational site water management system and include provisions for review of the site water balance, erosion and sediment controls, surface water (and groundwater) monitoring and management.

Site Water Balance

Review and progressive refinement of the site water balance would be undertaken for the life of the Project.

Erosion and Sediment Control

Erosion and sediment control plans would be developed over the life of the Project to identify activities that could cause soil erosion and generate sediment and describe the specific controls (including locations, function and structure capacities) to minimise the potential for soil erosion and transport of sediment off-site.

7.3.3 Biodiversity and Offset

Sections 4.6 and 4.7 describe the proposed management of biodiversity and the biodiversity offset strategy for the Project. Key components are summarised below.

Biodiversity Management Plan

A Biodiversity Management Plan for the Project would be prepared by suitably qualified persons, including the following aspects:

- land clearance strategies;
- weed control;
- management of vegetation within the MLA;
- management of vegetation at the Ivanhoe Rail Facility;
- land management (Boree Plains Station, Wampo Station, Iona Station and Carrawatha Station);
- dust suppression;
- management of the Black Box Woodland;
- bushfire prevention;
- awareness and education;
- habitat supplementation;
- management of exotic animals;
- management of artificial lighting;
- management of vehicles;

- management measures for threatened species including the Mossiel Daisy (*Brachyscome papillosa*), Cobar Greenhood Orchid (*Pterostylis cobarensis*) and Malleefowl (*Leipoa ocellata*); and
- the biodiversity offset strategy.

Land Management (Boree Plains Station and Wampo Station, Iona Station and Carrawatha Station)

Cristal Mining is entering into agreements with the leaseholders for the lease of the land in the vicinity of the Atlas-Campaspe Mine for the Project. Cristal Mining would manage Boree Plains Station, Wampo Station, Iona Station and Carrawatha Station in accordance with the requirements of the Western Lands Lease (e.g. control of noxious weeds and management of grazing). The management of the land would be consistent with the *Guidelines for developments adjoining Department of Environment and Climate Change land* (DECC, 2008d).

Proposed Biodiversity Offset Area

Cristal Mining commits to offset the residual impacts of the Project on flora and fauna and maintain or improve the biodiversity values of the region in the medium to long-term.

The biodiversity offset strategy for the Project involves conserving areas of land with existing conservation values and providing active management to maintain and enhance their values.

The proposed biodiversity offset area is shown on Figure 7-1. A summary of the management of the proposed biodiversity offset area is outlined in Table 7-2.

Management of Vegetation at the Ivanhoe Rail Facility

The Ivanhoe Rail Facility would include retention and management of 15 ha of existing vegetation in a Vegetation Management Area (Appendix A). The perimeter of the area would be fenced with a goat proof fence to facilitate regeneration of the native vegetation.

7.3.4 Aboriginal Heritage

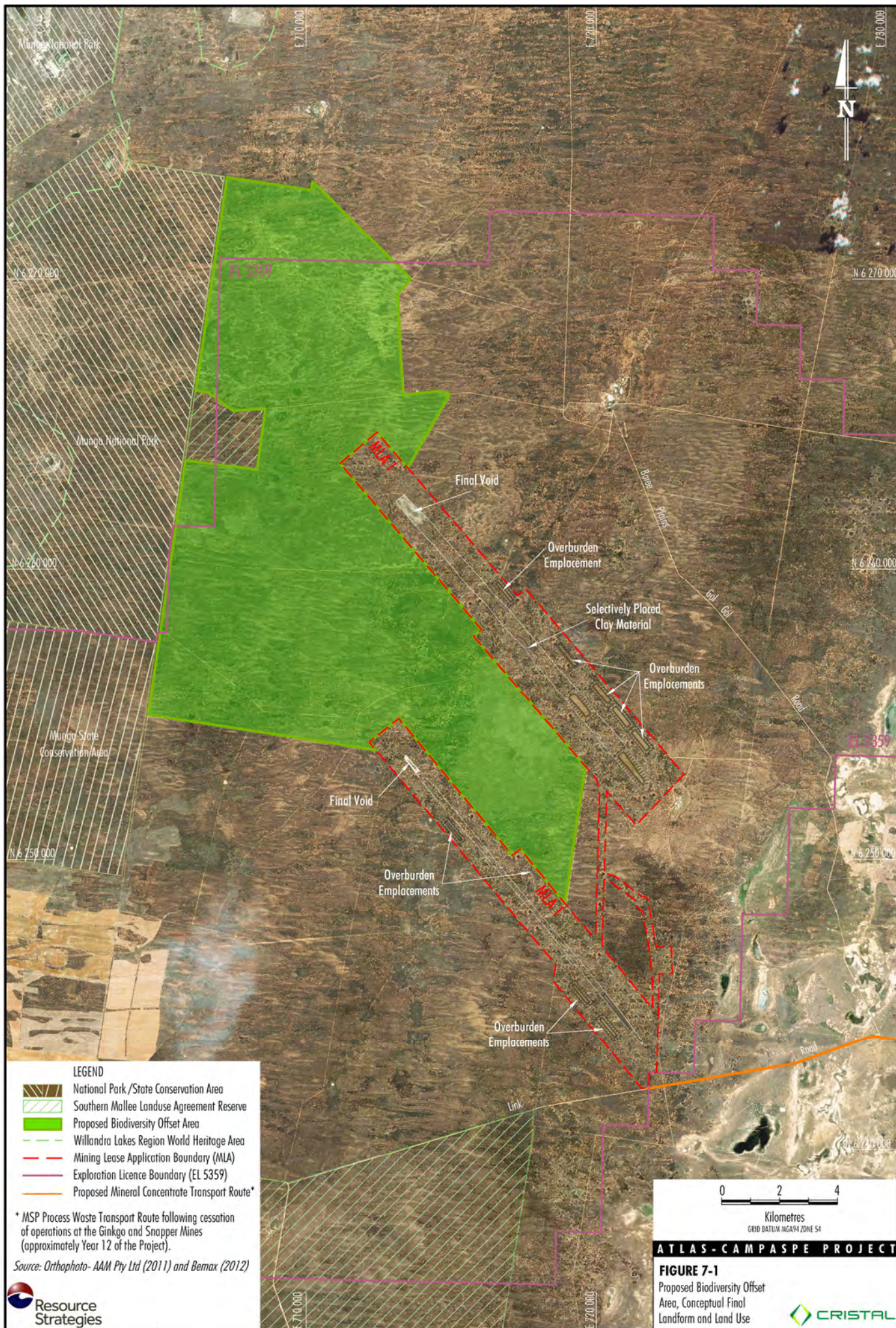
Section 4.8.3 describes the Project Aboriginal heritage management measures.

Where practicable, known Aboriginal heritage sites would be avoided during Project construction and operation works.

Where avoidance of known Aboriginal heritage sites is not practicable, site(s) would be subject to baseline recording in consultation with the registered Aboriginal stakeholders, prior to disturbance and artefacts would be salvaged for safekeeping in accordance with the stakeholders wishes.

**Table 7-2
Management of the Proposed Biodiversity Offset Area**

Aspect	Description
Removal of Livestock Grazing	Livestock would be removed and excluded from the proposed biodiversity offset area through the provision of appropriate stock fencing.
Closure of Artificial Watering Points	Artificial watering points would be fenced to prevent access from feral animals.
Control of Feral Animals	Feral animals (goats [<i>Capra hircus</i>] and European rabbits [<i>Oryctolagus cuniculus</i>]) would be controlled and monitored by an appropriately qualified contractor using standard methods.
Control of Weeds	Weeds (including declared noxious weeds) would be controlled and monitored by an appropriately qualified contractor using standard methods.
Bushfire Management	Bushfire prevention measures would be detailed in the plan. For example, fire breaks would be constructed and maintained around the perimeter of the proposed biodiversity offset area.
Revegetation of Cleared Land	Cleared land within the proposed biodiversity offset area would be allowed to naturally regenerate through the cessation of cultivation and the removal of grazing by livestock. Should the native vegetation not regenerate naturally, the cleared land would be actively managed to promote revegetation. This would include the planting or seeding of flora species represented in the surrounding vegetation communities (e.g. <i>Acacia melvillei</i> Shrubland EEC).
Threatened Flora Species	The management plan would also include management strategies for threatened flora (e.g. restoration of <i>Acacia melvillei</i> Shrubland EEC).
Restriction of Entry	All mine personnel would be restricted from entering the proposed biodiversity offset area, unless authorised.



Heritage Management Plan

A Heritage Management Plan would be developed in consultation with the Aboriginal community and the OEH. During development of the Heritage Management Plan, the Aboriginal community would be requested to provide advice on the storage of collected artefacts and the management of artefacts at the completion of Project activities (e.g. artefact replacement onto the post-mining landscape or retained for educational purposes).

Once formalised, the Heritage Management Plan would be implemented to manage potential impacts to Aboriginal heritage for surface disturbance throughout the life of the Project.

7.3.5 Air Quality and Greenhouse Gas

Sections 4.10.3 and 4.11.3 describe the Project air quality and greenhouse gas management measures respectively.

Air Quality and Greenhouse Gas Management Plan

An AQGHGMP would be developed for the Project and would detail the management and mitigation measures relevant to air quality and greenhouse gases.

The AQGHGMP would describe emission controls and management measures, energy efficiency considerations and include an Air Quality Monitoring Programme.

The AQGHGMP would be prepared in consideration of the *Guidelines for Energy Savings Action Plans* (Department of Energy, Utilities and Sustainability, 2005).

The management measures in the AQGHGMP would be implemented during construction and operation of the Project.

7.3.6 Noise

Section 4.12.3 describes the Project noise management measures.

Noise Management Plan

A NMP would be developed for the Project and would describe and include the following:

- applicable noise criteria;
- potential sources of noise emissions;

- emission mitigation and management measures;
- the Noise Monitoring Programme;
- emission management protocols;
- stakeholder consultation; and
- reporting requirements.

7.3.7 Road Transport

Section 4.13.3 describes the Project road transport management measures. Key management components are summarised below.

Mineral Concentrate and MSP Process Waste Transport Management Plan

A Mineral Concentrate and MSP Process Waste Transport Management Plan would be prepared for the Project that would cover the following aspects:

- driver training;
- operating hours;
- vehicle identification;
- driver code of conduct;
- load covering;
- labelling and placarding requirements for transporting MSP process waste;
- fatigue management;
- drug and alcohol policy;
- vehicle maintenance and safety programme; and
- emergency response plan.

Up until cessation of the Ginkgo and Snapper Mine operations (approximately Year 12 of the Project) the transport of MSP process waste would be undertaken in accordance with existing/approved Transport Management Plan required under PA 06_0168 for the Snapper Mine and Traffic Code of Conduct and Transport of Hazardous Materials Plan required under Development Consent (DA 251-09-01) for the Ginkgo Mine, or as otherwise modified subject to separate assessment and approval.

Road Maintenance Contributions

Cristal Mining would enter into road maintenance agreements with BSC, CDSC and RMS to address the ongoing maintenance requirements for the Project.

The road maintenance agreements would specify the timing for the implementation of maintenance to address the safety deficiencies identified in the Road Safety Audit (GTA Consultants, 2012b).

7.3.8 Agricultural Land

A Biodiversity Management Plan would be prepared by suitably qualified persons to facilitate the management of agricultural land in the Project area and on adjoining lands controlled by Cristal Mining.

The implementation of the Biodiversity Management Plan would serve to minimise the potential direct impacts of the Project on agricultural production within the Project area and lands controlled by Cristal Mining, and potential indirect impacts (e.g. weeds and pests) on surrounding agricultural lands.

7.3.9 Rehabilitation and Mine Closure

Section 5 describes the Project Rehabilitation Strategy and management of mine closure. Key components are summarised below.

Rehabilitation Management Plan

Cristal Mining would prepare a Rehabilitation Management Plan to guide rehabilitation planning for the Project and would describe in detail the Rehabilitation Strategy and revegetation programme proposed to achieve the final use and relinquishment of the Atlas-Campaspe Mine site.

The Rehabilitation Management Plan would be developed in consultation with relevant government agencies, and in accordance with the relevant DRE rehabilitation and mine closure guidelines.

Mine Closure Plan

Cristal Mining would develop a mine closure strategy in a Mine Closure Plan for the Project. The Mine Closure Plan would be prepared in consultation with the DRE, BSC, CDSC, DP&I and the local community, and would include consideration of amelioration of potential adverse socio-economic effects due to the reduction in employment at Project closure.

7.4 ENVIRONMENTAL MONITORING

Environmental monitoring to be implemented for the Project is described in Section 4. Table 7-3 provides an overview of the Project environmental monitoring regime. Figure 7-2 depicts the locations of existing and proposed environmental monitoring sites.

7.4.1 Meteorology

The Boree Plains AWS at the Atlas-Campaspe Mine would operate for the life of the Project.

The data recorded would be used: to assist in the interpretation of the groundwater, surface water, air quality and noise monitoring data; site water balance reviews; and in assessing the performance of erosion and sediment controls and rehabilitation.

7.4.2 Groundwater

Groundwater Monitoring Programme

A Groundwater Monitoring Programme would be developed for the Project.

In addition to the existing monitoring bores installed at the Atlas deposit (AM1 to AM4), up to five additional monitoring bores would be installed at the Atlas-Campaspe Mine including (Figure 7-2):

- **AM5** – to monitor the groundwater table south-west of the Atlas deposit where groundwater drawdown extents are anticipated due to the groundwater supply borefield.
- **AM6 and AM7** – to monitor the groundwater table between the Atlas and Campaspe deposits where combined groundwater drawdown extents are anticipated.
- **AM8 and AM9** – to monitor the groundwater table response at the Campaspe deposit as mining advances to the north-west.

Existing site AM4 would be retained for the life of the Project to monitor the groundwater table west of the groundwater supply borefield (i.e. outside of the Willandra Lakes Region World Heritage Area and Mungo National Park) where groundwater drawdown extents are anticipated.

Monitoring would also be undertaken at the existing Boree Plains bore (GW063606) to the north of the Campaspe deposit to confirm and validate that model predicted groundwater table drawdown extents do not extend to the privately-owned bore.

Available groundwater monitoring data from the existing NOW bore monitoring network to the south-west and east (GW036790, GW036674 and GW036875) would be used to supplement the groundwater monitoring network for the Project.

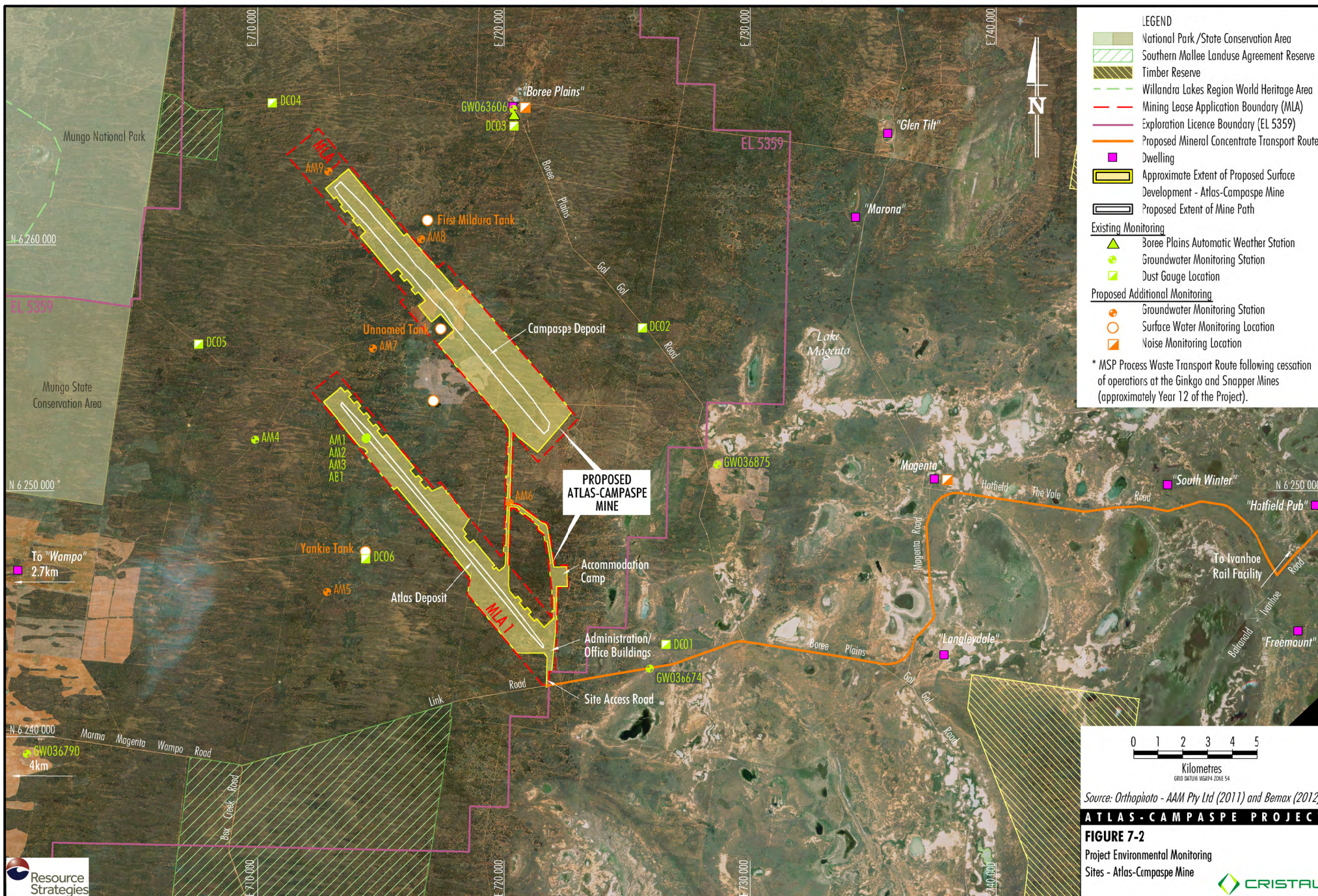
Table 7-3
Summary of the Project Environmental Monitoring Regime

Aspect	Environmental Monitoring*	Frequency*
Meteorology	<ul style="list-style-type: none"> <i>Rainfall, temperature, barometric pressure, humidity, dew point, solar radiation and wind speed/direction</i> – Boree Plains AWS. 	Continuous.
Groundwater	<ul style="list-style-type: none"> <i>Groundwater levels and quality</i> – groundwater supply borefield bores[#], AM1 to AM9, Boree Plains bore (GW063606), NOW bores[^] (GW036790, GW036674 and GW036875). <i>Groundwater extraction</i> – groundwater supply borefield bores (pump flow meters). 	Quarterly. When operating.
Site/Surface Water	<ul style="list-style-type: none"> <i>Site water volumes and consumption</i> – process water storages, RO plant feed, water disposal dams. <i>Surface water quality</i> – First Mildura Tank, Yankie Tank, an unnamed tank (located approximately 500 m south of the Campaspe footprint) and the natural depression located between the Atlas and Campaspe footprints. 	Varies. Monthly for 12 months, then every six months.
Biodiversity and Rehabilitation	<ul style="list-style-type: none"> <i>Weeds and exotic animals</i> – MLA, Boree Plains Station, Wampo Station, Iona Station, Carrawatha Station, proposed biodiversity offset area, Ivanhoe Rail Facility and the Ivanhoe Vegetation Management Area. <i>Flora monitoring</i> (including restoration of <i>Acacia melvillei</i> Shrubland) – proposed biodiversity offset area. <i>Fauna usage monitoring</i> – proposed biodiversity offset area. <i>Bush fuel load monitoring</i> – MLA and proposed biodiversity offset area. <i>Rehabilitation monitoring (flora surveys for revegetation and threatened species management measures)</i> – rehabilitation areas. <i>Rehabilitation monitoring (general fauna usage)</i> – rehabilitation areas. <i>Rehabilitation monitoring (fauna usage of nest boxes)</i> – rehabilitation areas. <i>Radiation monitoring</i> – Atlas-Campaspe Mine (background sites), Ivanhoe Rail Facility (background sites), mineral concentrate stockpiles and backloaded MSP process waste stockpiles. 	Annually. Annually. Every 3 years. Annually. Annually. Every 3 years. Annually. Prior to and during operations.
Air Quality	<ul style="list-style-type: none"> <i>Dust deposition</i> – DC01-DC06. 	Monthly.
Greenhouse Gas	<ul style="list-style-type: none"> <i>Greenhouse Gas Emissions</i> – Project operations. <i>Energy Consumption</i> – Project operations. 	Annually. Annually.
Noise	<ul style="list-style-type: none"> <i>Attended Noise Monitoring</i> – Boree Plains, Magenta, Ivanhoe (Warakirri) Correctional Centre, Cobb Highway residences and Ivanhoe Township. 	Half yearly.

* As required by management plans and monitoring programmes under the Development Consent, EPLs, MLs and Water Licence conditions and on-site investigations.

Water quality samples would only be required from one of the groundwater supply borefield bores.

^ Subject to availability of data from the NOW.



Flow meters would be installed on all bores to monitor pumping rates from the groundwater supply borefield.

Water levels would be recorded on a quarterly basis. Samples for water quality analysis (e.g. pH, EC, cations, anions and metals) would also be taken at such time. Groundwater quality samples would also be taken during drilling of any new/future piezometer bores.

Groundwater monitoring results would be reported: in the Annual Review; in accordance with the requirements of the MREMP; in the Annual Return; and in accordance with conditions of relevant water licences.

7.4.3 Surface Water

Site Water Balance

The status of inflows, storage, transfers and consumption of water at the Atlas-Campaspe Mine would be recorded to optimise ongoing water management performance and allow progressive refinement of the site water balance for the life of the Project.

Surface Water Monitoring Programme

A Surface Water Monitoring Programme would be developed for the Project.

The proposed Surface Water Monitoring Programme would involve sampling of water from a number of natural and constructed waterbodies in the vicinity of the Atlas-Campaspe Mine site, including (Figure 7-2):

- the First Mildura Tank (i.e. a reference water body not affected by the Project);
- an unnamed tank located approximately 500 m south of the Campaspe footprint;
- the natural depression located between the Atlas and Campaspe footprints; and
- Yankie Tank located approximately 3 km south of the Atlas footprint.

Water samples would be analysed for the parameters including pH, turbidity, total phosphorus, total nitrogen, chlorophyll-a, salinity and TDS.

To establish existing baseline conditions and to develop specific local 'trigger values' that would warrant further investigation if exceeded, monitoring would be undertaken on a monthly basis for a 12 month period.

Water quality monitoring would be undertaken in accordance with the *Australian Guidelines for Water Quality Monitoring and Reporting* (ANZECC and ARMCANZ, 2000) and *Approved Methods for the Sampling and Analysis of Water Pollutants in NSW* (DEC, 2004c).

In view of the highly episodic and rare occurrence of surface runoff in the area, following the initial monthly sampling for 12 months, ongoing sampling would only be undertaken every six months, or whenever that had been significant rainfall leading to:

- inflow from natural catchments to the monitoring points; or
- discharge from the sediment basins within the Atlas-Campaspe Mine site.

Surface water monitoring results would be reported: in the Annual Review; in accordance with the requirements of the MREMP; and in the Annual Return.

7.4.4 Biodiversity and Rehabilitation

Sections 4.6.3 and 4.7.3 describe the proposed Project biodiversity monitoring measures. Section 5 describes the Rehabilitation Strategy. Key components are summarised below.

Weed Control and Management of Exotic Animals

Land under Cristal Mining's control (i.e. the MLA, Boree Plains Station, Wampo Station, Iona Station, Carrawatha Station, proposed biodiversity offset area, Ivanhoe Rail Facility and the Ivanhoe Vegetation Management Area) would be managed to reduce weeds and pests.

Appropriately qualified persons would be engaged to undertake weed monitoring and control. Follow-up site inspections would occur to determine the effectiveness of weed control.

Measures to control exotic animals (e.g. feral goats, European rabbits and European red foxes [*Vulpes vulpes*]) would be implemented by an appropriately qualified person(s). Follow-up monitoring would occur to determine the effectiveness of trapping and/or baiting programmes.

A report would be prepared annually that includes a summary of previous monitoring and control efforts, results of that years monitoring and proposed intervention strategies, if required.

Proposed Biodiversity Offset Area

A programme would be undertaken to monitor and report on the effectiveness of the measures (Table 7-2) and the performance of the revegetation in the proposed biodiversity offset area, with summary reporting to be carried out annually. The monitoring would be undertaken by suitably qualified persons.

Fauna surveys would also be conducted every 3 years to monitor the use of the proposed biodiversity offset area by vertebrate fauna.

Bush Fuel Load Monitoring

Bushfire preventative measures would include annual inspections to identify areas requiring bushfire control measures including assessment of surrounding fuel loads (Section 4.6.3).

Rehabilitation Monitoring and Revegetation Programme

Revegetation of the post-mine landforms would be under regular review, including annual flora surveys by appropriately qualified and experienced persons to identify the progress of the rehabilitation programme (in terms of plant growth and species diversity).

After the revegetation programme is established fauna monitoring surveys would be performed by the appropriately qualified personnel at 3 year intervals.

Detailed monitoring reports would be prepared annually and summarised in the Annual Review. Further information is provided in Section 5.

Nest Box Programme

A nest box programme would also be implemented on the rehabilitated mine landform. Once installed, the nest boxes would be monitored by an appropriately qualified and experienced person to observe fauna usage. A monitoring report would be prepared annually that includes a summary of previous monitoring reports, results of that years monitoring and proposed intervention strategies, if required.

Radiation Monitoring

To determine background radiation levels at the Project, environmental gamma radiation monitoring would be conducted at the following locations prior to the commencement of operations:

- Atlas and Campaspe mine paths at 200 m intervals.
- Mineral concentrate and MSP process waste stockpile areas adjacent the HMC treatment facility.
- Mineral concentrate stockpile and MSP process waste container storage areas at the Ivanhoe Rail Facility.

Environmental gamma radiation monitoring would be conducted at these same locations after rehabilitation to determine if radiation levels equivalent to the natural background radiation level are being achieved (Section 5.7).

Radiation monitoring results would be reported: in the Annual Review; in accordance with the requirements of the MREMP; and in the Annual Return.

7.4.5 Air Quality

Air Quality Monitoring Programme

An Air Quality Monitoring Programme would be developed for the Project. The existing dust deposition network (DC01-DC06) would be maintained throughout the Project.

Air quality monitoring results would be reported: in the Annual Review; in accordance with the requirements of the MREMP; in the Annual Return; and annual National Pollutant Inventory (NPI) reports.

7.4.6 Greenhouse Gas

Greenhouse Gas Emissions and Energy Consumption

Ongoing monitoring of greenhouse gas emissions and energy consumption at the Project would occur through Cristal's participation in the Commonwealth Government's EEO Program and reporting requirements of the NGERs (Sections 6.4.2 and 7.5.4).

7.4.7 Noise

Noise Monitoring Programme

A Noise Monitoring Programme would be developed for the Project. Section 4.12.3 describes the proposed noise monitoring regime and is summarised below.

Half yearly attended noise monitoring would be undertaken at receivers along the mineral concentrate transport route and surrounding the Ivanhoe Rail Facility (Figures 7-2 and 7-3). Following the completion of two years of attended noise monitoring (i.e. four complete rounds of noise monitoring results) at these receivers, the need for attended noise monitoring would be re-evaluated.

Half yearly attended noise monitoring at the nearest residential receiver to the Atlas-Campaspe Mine (Boree Plains) would be undertaken during Years 14 to 18 (i.e. when mining operations are nearest to Boree Plains). Following this period (i.e. when mining operations progress away from Boree Plains) the need for half yearly attended monitoring would be reviewed.

Noise monitoring results would be reported: in the Annual Review; in accordance with the requirements of the MREMP; and in the Annual Return.

7.5 REPORTING

7.5.1 Annual Review

Cristal Mining would produce an Annual Review of the environmental performance of the Project for each 12 month reporting period. Copies of the Annual Review would be made available on the Cristal Mining website (Section 7.2.1).

Environmental monitoring results as described in Section 7.4 would be compared against relevant statutory requirements, monitoring results of previous years and relevant predictions of this EIS.

Biodiversity management, offsets and rehabilitation monitoring results and various environmental activities planned for the next 12 months would also be discussed in the Annual Review.

7.5.2 Development Consent and Controlled Action Decision Requirements

Cristal Mining would provide regular reporting of environmental performance of the Project on the Cristal Mining website, in accordance with the reporting arrangements in any plans or programmes (as described in Sections 7.5.3 and 7.5.4) approved under the conditions of the Project Development Consent, Controlled Action Decision and associated licences and approvals.

7.5.3 Independent Environmental Audit

Consistent with contemporary DP&I reporting requirements, Cristal Mining would commission an independent environmental audit of the Project every 3 years.

Upon completion of the independent environmental audit, Cristal Mining would submit responses to the DP&I and where necessary, revise environmental management plans.

7.5.4 Other Reporting

Mining, Rehabilitation and Environmental Management Process

Cristal Mining would prepare a MOP to the satisfaction of the DRE prior to the commencement of operations, and subsequently report each year in accordance with the relevant requirements for an AEMR.

Annual Return

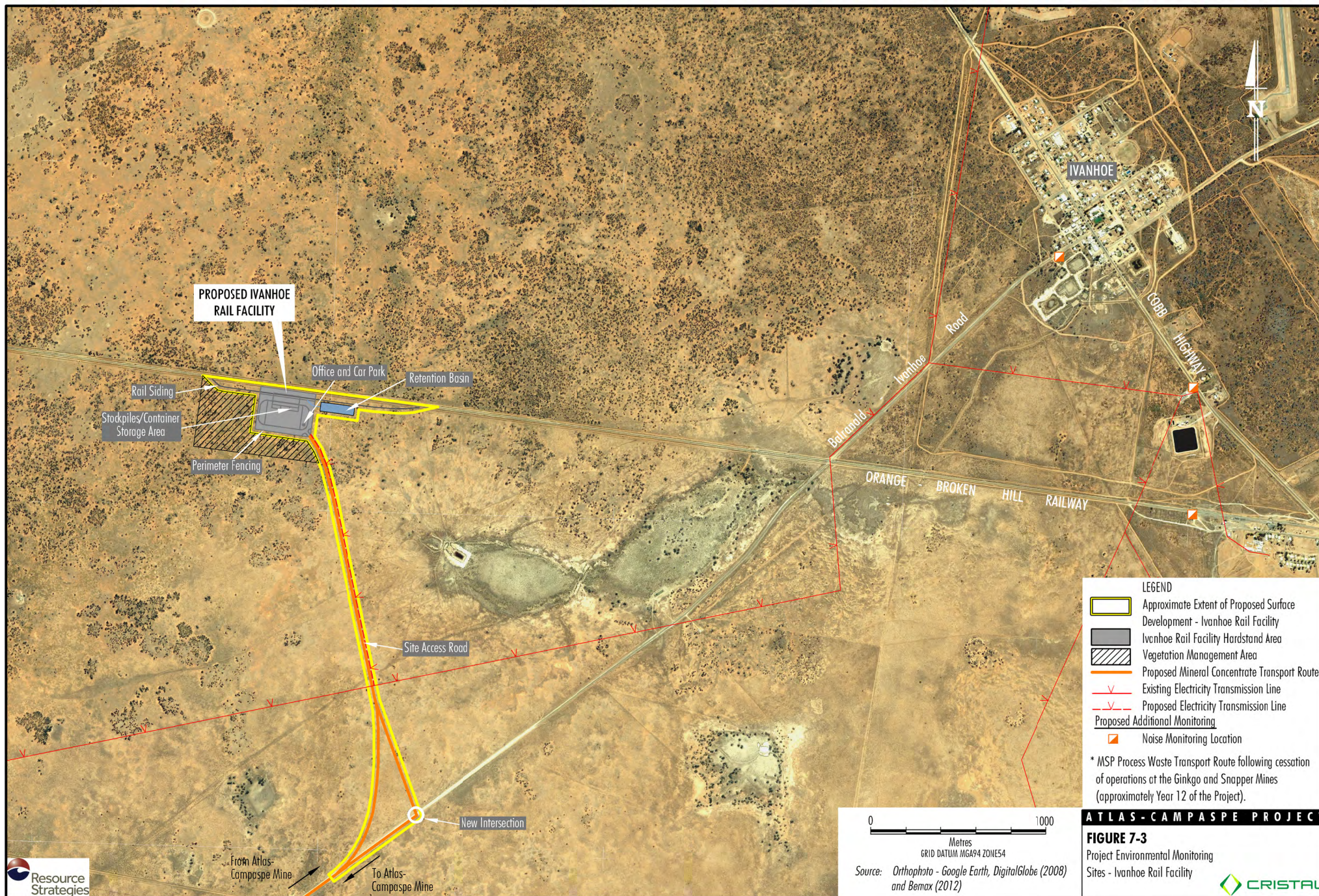
A summary of monitoring required by the EPLs (including the recording of complaints) and a Statement of Compliance would be reported in Annual Returns and submitted to the EPA.

Water Licences – Annual Reporting

Cristal Mining would report in accordance with the conditions of existing and any future water licences to the NOW.

Commonwealth Environment Protection and Biodiversity Conservation Act 1999 Approval

Cristal Mining would prepare an annual report for the Commonwealth Government to describe how Cristal Mining are complying to the relevant conditions of the EPBC Act approval.



Greenhouse Gas Reporting

Cristal Mining would report in accordance with the NGERS requirements on an annual basis to the Commonwealth Greenhouse and Energy Data Officer.

Commonwealth Government EEO Program

Cristal is a participant in the Commonwealth Government's EEO Program. Cristal would assess energy usage from all aspects of its operations, including the Project, and publicly report the results of energy efficiency assessments.

NPI Reporting

Cristal Mining would provide annual NPI reports to the EPA. Emissions data for the Project would be made publicly available on the Federal Government's NPI website (www.npi.gov.au) and would also be reported in the Annual Review.

Community Complaints Register

A community complaints register would be maintained by Cristal Mining for the Project. Complaints and subsequent actions undertaken would be reported in the Annual Review, Annual Return and on the Cristal Mining website.