



# Appendix 4

## Summary of Environmental Management and Monitoring Measures

(Total No. of pages including blank pages = 19)



This Appendix has been compiled in accordance with to record the full range of measures the Applicant would adopt when planning and operating the Project to mitigate any adverse effects on the environment.

The measures are presented in tabular form (**Table A4.1**) and record the respective objectives, actions and timing. Many of these measures would be reflected in the final conditions of consent. However, where they are not formalised, the Applicant would reflect the commitments in environmental management plans for the operation, thereby formalising them.

**Table A4.1**  
**Proposed Environmental Management and Monitoring Measures**

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Desired Outcome	Measure	Timing
<b>1. Groundwater</b>		
Ensure that groundwater within the Mine Site is monitored and impacts are minimised.	1.1 Prepare and implement a <i>Groundwater Management Plan</i> that addresses the following matters. <ul style="list-style-type: none"> <li>– A monitoring program within and surrounding the Mine Site, including suitable automated depth gauges on monitoring bores and flow meters on production bores and pumps, to record, amongst other matters, changes in the level of water within the Upper Aquifer and the volume of groundwater removed from the proposed production bores and the dredge pond.</li> <li>– A monitoring program that includes monitoring of groundwater and dredge pond water quality.</li> <li>– A monitoring program to ensure that there is not unintended surface seepage of groundwater from under the Off Path Storage Facility and a contingency plan to address any unanticipated seepage.</li> <li>– A program to estimate evaporation rates from the dredge pond using weather station data.</li> <li>– A program to verify the groundwater modelling predictions of GEO-ENG (2024) every three years.</li> <li>– Trigger Action Response Plans to address unanticipated groundwater impacts</li> <li>– A program to report annually on the volume of water removed from the Upper Aquifer.</li> </ul>	Prior to the commencement of construction
Prevent leakage between the Upper and Middle/Lower Aquifers	1.2 Ensure prior to the removal of bore GW036722 that the bore casings accessing the middle and lower aquifers in are grouted and sealed in accordance with Section 18 of the document <i>Minimum Construction Requirements for Water Bores in Australia</i> or its latest version.	Prior to disturbance of bore GW036722
	1.3 Reestablish, if required by NSW DCCEEW, monitoring bore GW036722 as close as practicable to the current location or in an alternative location as instructed by NSW DCCEEW. The replacement bore would include separate screened intervals within each of the Upper, Middle and Lower aquifers.	



**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>1. Groundwater (Cont'd)</b>		
Prevent leakage between the Upper and Middle/Lower Aquifers (Cont'd)	1.4 Attempt to relocate bore GW009721 prior to stripping the Year 1 Extraction Area and again during soil stripping and overburden removal operations. In the event that the bore is able to be relocated, ensure, if possible, that it is grouted and sealed in accordance with Section 18 of the document Minimum Construction Requirements for Water Bores in Australia or its latest version.	Prior to stripping the Year 1 Extraction Area
All water used for the Project is licenced	1.5 Ensure that adequate water access licences and associated allocations are obtained for water used within the proposed mining operations, including: <ul style="list-style-type: none"> <li>– a maximum of approximately 9.6GL/year that would be required in Year 1 of mining operations; and</li> <li>– an average of approximately 4.5GL/year that would be required across all years of construction and operations.</li> </ul>	Prior to the commencement of construction
Containment of saline water within disturbed sections of the Mine Site	1.6 Ensure that pumps and pipework are equipped as required with leak detection equipment and automatic shutdown mechanisms to prevent uncontrolled discharge of saline water to the natural land surface	Throughout the life of the Project
	1.7 Ensure that water transfer pipes are installed in-pit or, where that is not practicable, within bunded areas to ensure that any leakage that does occur is not permitted to flow to the natural land surface.	
	1.8 Ensure that all chemicals and hydrocarbons are stored in accordance with the manufacturer's specifications or the relevant Australian Standard to prevent contamination of groundwater.	
<b>2. Biodiversity</b>		
Avoid and minimise impacts on terrestrial vegetation and animal habitats	2.1 Prepare and implement the following management plans prior to the commencement of construction operations. <ul style="list-style-type: none"> <li>– A <i>Biodiversity Management Plan</i> to outline the management measures to be implemented throughout the life of the Project to minimise potential biodiversity-related impacts. The plan would include: <ul style="list-style-type: none"> <li>○ additional mitigation measures and implementation timeframes during construction and operation of the Project; and</li> <li>○ an unexpected finds protocol for threatened species.</li> </ul> </li> <li>– A <i>Rehabilitation Management Plan</i> in accordance with the latest NSW Resources Regulator requirements and guidelines.</li> </ul>	Prior to the commencement of construction and throughout the life of the Project
	2.2 Avoid and minimise clearing of native vegetation through the implementation of planning and survey controls, where possible.	Throughout the life of the Project
	2.3 Stage clearing to minimise the extent of clearing at any one time, where possible.	



**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>2. Biodiversity (Cont'd)</b>		
Avoid and minimise impacts on terrestrial vegetation and animal habitats (Cont'd)	2.4 Locate any ancillary infrastructure areas (e.g. vehicle parking, laydown yards, growth medium stockpiles) to avoid high value biodiversity areas, where possible.	Throughout the life of the Project
	2.5 Install appropriate signage and/or barriers to delineate 'No Go Zones', 'Environmental Protection Area', and the limit of approved disturbance areas.	Prior to the commencement of construction and throughout the life of the Project
	2.6 Clearly identify limit of clearing areas in site inductions	
	2.7 Ensure that <i>A. nullanulla</i> is identified as a target species in the <i>Biodiversity Management Plan</i> and the <i>Rehabilitation Management Plan</i> and identify species-specific management and mitigation measures, including: <ul style="list-style-type: none"> <li>– pre-mining exclusion of grazing fauna from known habitat to enable adequate seed collection prior to clearing</li> <li>– place gypsum-rich soils on the eastern margins of the Salt Pans during rehabilitation to provide specific habitat for <i>A. nullanulla</i> and maximise the potential for post-mining establishment of the species; and</li> <li>– the construction of grazing enclosures around retained habitat areas.</li> </ul>	Prior to the commencement of construction
	2.8 Develop a pre-clearing protocol which includes: <ul style="list-style-type: none"> <li>– a requirement to map relevant habitat features (e.g. tree hollows, spinifex grass and <i>Austrostipa nullanulla</i> habitat) prior to and during clearing works;</li> <li>– a pre-clearing protocol which includes a requirement for detailed mapping of habitat features; and</li> <li>– a requirement to ensure that a suitably qualified and trained fauna handler is present during spinifex grass clearing and hollow-bearing tree removal to rescue and relocate any displaced fauna.</li> </ul>	Prior to the commencement of construction and throughout the life of the Project
	2.9 Ensure that appropriate surface water and groundwater water controls are implemented (see Sections 6.2 and 6.7), including: <ul style="list-style-type: none"> <li>– ensuring all site vehicles carry spill kits; and</li> <li>– implementing controls such as sediment fences, mulching or jute matting where appropriate.</li> </ul>	
	2.10 Establish a speed limit of 50km/h within the Mine Site.	Throughout the life of the Project
	2.11 Ensure that soil and seed material is not transferred into the Mine Site.	
	2.12 Ensure that any weed infestations within the Mine Site are identified and mapped an appropriate weed management is implemented as outlined in the <i>Biodiversity Management Plan</i> and the <i>Rehabilitation Management Plan</i> .	



**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>2. Biodiversity (Cont'd)</b>		
Avoid and minimise impacts on terrestrial vegetation and animal habitats (Cont'd)	2.13 Implement a feral animal management program, and outline this program in the <i>Biodiversity Management Plan</i> , to reduce and/or manage populations of feral animals at the Mine Site including goats, rabbits, pigs, foxes and cats.	Throughout the life of the Project
	2.14 Ensure that site-specific management plans consider measures to mitigate impacts to biodiversity values associated with noise, vibration, waste, lighting, and air pollution.	Prior to the commencement of construction
<b>3. Soil and Land Capability</b>		
Minimise impacts on soil resources within the Mine Site	3.1 Prepare a <i>Soil Management Plan</i> which details soil stripping, storage and placement practices with reference to individual Soil Associations and their suitability for use during rehabilitation activities. Incorporate Acid Sulphate Soil Management measures into the <i>Soil Management Plan</i> .	Prior to the commencement of construction
Maximise the volume and viability of stripped soil resources	3.2 Maintain a soil inventory, including the source, location, volume and planned destination of soils in stockpile and include that information in the Annual Review to be prepared for the Project.	Throughout the life of the Project
	3.3 Undertake clearing and grubbing of trees 12 months in advance of topsoil stripping to permit soil consolidation and seed set of annual plants. Retain shrub and groundcover vegetation until shortly before topsoil stripping commences.	
	3.4 Minimise weed growth between vegetation clearing and soil stripping.	
	3.5 Stockpile cleared timber for reuse during rehabilitation operations.	Throughout the life of the Project
	3.6 Clearly delineate areas to be stripped prior to the commencement of stripping campaigns and communicate required topsoil and subsoil stripping depths to plant operators and supervisors.	
	3.7 Utilise appropriate machinery for stripping operations, with machinery circuits to be located so as to minimise compaction of both undisturbed and stockpiled soil.	
	3.8 Ensure that machinery utilised during soil stripping operations complies with any established weed management and biosecurity protocols for the Mine Site.	
	3.9 Soil material should be maintained in a slightly moist condition during stripping. Material should not be stripped in either an excessively dry or wet condition.	
	3.10 Ensure that soil is be pushed into windrows using graders or dozers for later collection by tractor scoops or loading into trucks by front-end loaders to minimise compaction of soil materials.	
	3.11 Minimise handling and rehandling of soil to the greatest extent practicable.	



**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>3. Soil and Land Capability (Cont'd)</b>		
Maximise the volume and viability of stripped soil resources (Cont'd)	3.12 Store topsoil and subsoil in separate stockpiles. In particular, ensure that saline subsoil is not incorporated with non-saline topsoil.	Throughout the life of the Project
	3.13 Construct long-term soil stockpiles with a batter slope of 14% or 1:7 (V:H) or flatter to limit erosion potential	
	3.14 Construct topsoil stockpiles to a maximum height of 2m and subsoil stockpiles to a maximum height of 4m	
	3.15 Construct soil stockpiles with a rough surface to promote water infiltration and construct sediment controls (e.g. sediment fencing, bunds) downslope of stockpiles if required.	
	3.16 Minimise overland flow across and onto soil stockpiles to the greatest extent practicable.	
	3.17 Seed soil stockpiles with an appropriate mixture of grasses and forbs, together with a soil stabilisation agent within 3 months of construction, to encourage surface stabilisation, provide competition for weeds and minimise erosion and dust generation.	
	3.18 Construct the upper surfaces of long-term stockpiles with a perimeter bund to direct runoff away from the face of the stockpile and protect against erosion.	
	3.19 Restrict access of machinery to soil stockpile areas to minimise compaction.	
	3.20 Monitor soil stockpiles for the establishment of weeds and/or erosion and implement weed and erosion control programs as required.	
	3.21 Manage grazing pressure by both native and feral animals to prevent damage to vegetation on the soil stockpiles.	
	3.22 Loosen (rip) subgrade material in compacted areas (e.g. Infrastructure Area and haul roads) prior to soil replacement to facilitate drainage past the root zone and root growth into this layer.	
	3.23 Shape subgrade surfaces to form appropriate landforms, including ensuring that upper surfaces are internally draining to minimise the potential for overland flow.	
	3.24 Test topsoil and subsoil resources prior to spreading and apply any soil ameliorants as required.	
	3.25 Ensure, where possible, that soil resources are moist rather than wet or dry during respreading.	
3.26 Manage traffic patterns and vehicle access to minimise compaction of topsoiled areas.		
3.27 Apply soil stabilising agents to minimise the potential for erosion (wind or water) prior to establishment of vegetation.		



**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>3. Soil and Land Capability (Cont'd)</b>		
Maximise the volume and viability of stripped soil resources (Cont'd)	3.28 Place stockpiled timber resources onto exposed areas (e.g. upper dune slopes, overburden stockpile batters) to protect exposed soil surfaces, support emergent seedling survival and provide habitat for fauna.	Throughout the life of the Project
	3.29 Implement appropriate erosion and sediment controls to protect respread soil resources.	
Support the establishment of vegetation for rehabilitation	3.30 Manage total grazing pressure (including livestock, native and feral animals) and disturbance of the soil by animals with hard hooves to support vegetation establishment.	
	3.31 Spread seed of suitable species using a suitable equipment that applies surface stabilising mixture, seeds and leaves a rough surface to reduce wind erosion.	
	3.32 Inoculate the rehabilitated surface with organisms suitable for forming cryptogam crusts (thin crusts of mosses, lichens, algae and bacteria) on the final rehabilitated landform.	
	3.33 Continue existing and undertake further investigations and conduct research trials in order to reduce the susceptibility of rehabilitated areas to wind erosion by determining the following. <ul style="list-style-type: none"> <li>– Best methods for improving the quality of biological cryptogam crusts in rehabilitated areas.</li> <li>– Best management practices for topsoil during the period between placement of topsoil and planting seed (e.g. desirable roughness, loose or consolidated surface texture, and efficacy of brush matting).</li> <li>– Appropriate selection of plant species and optimum planting periods (time of year, moisture regime) to maximise the success of revegetation.</li> </ul>	
	3.34 Collect seed from desirable native plant species from within the Mine Site or from areas in the vicinity of the Mine Site. Seed from species with a range of germination moisture requirements should be collected preferentially to improve the likelihood of vegetation establishment.	
	3.35 Investigate options and, if necessary, undertake trials to determine whether separate stockpiling or mulching and incorporation of shrubs into stockpiled topsoil is most effective in maintaining suitable soil resources and facilitating revegetation.	
3.36 Ensure that the result of all rehabilitation trials and research are incorporated into progressive rehabilitation operations and communicated to industry partners for use at surrounding operations.		



**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>4. Aboriginal Heritage</b>		
Appropriately manage Aboriginal objects within approved areas of disturbance	<p>4.1 Prepare and implement an <i>Aboriginal Cultural Heritage Management Plan</i> in consultation with RAPs and Heritage NSW, including the following measures.</p> <ul style="list-style-type: none"> <li>– Ensure that the entire extent of Site Copi OS-1, including the identified scarred tree, is fenced and preserved;</li> <li>– Salvage identified hearths to be impacted by the Project, and complete radiocarbon dating, prepare a report describing the results of the testing program and provide the report to the RAPs, Heritage NSW and the AHIMS database.</li> <li>– Identify, in consultation with the RAPs an area within the Mine Site be set aside as a reburial location for Aboriginal objects salvaged from areas of proposed disturbance; and</li> <li>– Implement the following management strategies identified for each site as listed in <b>Table 6.5.8</b>.               <ul style="list-style-type: none"> <li>○ Group 1 = targeted surface artefact collection</li> <li>○ Group 2 = surface artefact collection via walked transect</li> <li>○ Group 3 = limited archaeological excavation of hearths</li> <li>○ Group 4 = sites requiring management to be conserved in the landscape (e.g. fencing)</li> </ul> </li> <li>– Ungrouped – Nil, no management required</li> </ul>	Prior to the commencement of construction
	<ul style="list-style-type: none"> <li>– Implement appropriate cultural heritage training for all site personnel, including in relation to identification and management of unanticipated finds.</li> </ul>	Following artefact salvage operations
	<p>4.2 Implement the following procedures following the salvage of artefacts within areas of disturbance.</p> <ul style="list-style-type: none"> <li>– Prepare a brief salvage report to record the findings.</li> <li>– Complete an AHIMS Aboriginal Site Impact Recording Form and ensure that a copy is archived, and a digital copy is submitted to the AHIMS Registrar within four months following completion of salvage fieldwork.</li> <li>– Ensure that all salvaged artefacts are managed in consultation with RAPs, DPE and Heritage NSW. This may include the requirement for a Care and Control Agreement to be submitted to and endorsed by Heritage NSW for final artefact care arrangements or reburial within the Mine Site</li> </ul>	





**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>4. Aboriginal Heritage (Cont'd)</b>		
Appropriately manage unanticipated finds	<p>4.3 Implement the following unanticipated finds protocol in the event that a previously unknown Aboriginal site is identified within the proposed areas of disturbance.</p> <ul style="list-style-type: none"> <li>– Cease all work in the vicinity of the site immediately.</li> <li>– Temporarily fence the site to prevent further disturbance.</li> <li>– Contact Heritage NSW, the RAPs and/or a qualified archaeologist to provide further advice or to assess the site.</li> <li>– Should the site be determined to be an Aboriginal object, ensure that the site location is registered with AHIMS and that a site card is submitted.</li> <li>– Avoid disturbing the site, if practicable. If not practicable ensure that all appropriate approvals are obtained prior to disturbance.</li> </ul> <p>4.4 Implement the following unanticipated finds protocol in the event that a previously unknown Aboriginal site is identified outside of the proposed disturbance areas.</p> <ul style="list-style-type: none"> <li>– The site will be assessed by a qualified archaeologist and a RAP</li> <li>– The site will be considered for fencing depending on its proximity to the Limit of Disturbance</li> <li>– The site location will be registered with AHIMS, and a site card submitted.</li> </ul>	In the event an unanticipated Aboriginal object is identified
Appropriately manage suspected human remains	<p>4.5 Implement the following protocol in the event that suspected human skeletal material is discovered within areas to be disturbed.</p> <ul style="list-style-type: none"> <li>– Follow Requirement 25 of the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW</i> which outlines the protocol for unexpected finds of physical remains are suspected to be Aboriginal ancestral remains, including to:</li> <li>– Cease all work in the vicinity of the site immediately.</li> <li>– Temporarily fence the site with a minimum buffer of 10m, ensuring that no further disturbance occurs to the skeletal remains or associated artefacts. If skeletal remains have been removed from the ground, these should be stored in a dry location on site.</li> <li>– Contact the NSW Police and Heritage NSW to assist with identification of the burial.</li> <li>– If the skeletal material is determined to be ancient Aboriginal remains, Heritage NSW would send a Compliance and Regulation Officer to the scene and then issue an Advisory Letter setting out the required process from this point.</li> <li>– Ensure that the Aboriginal community (i.e. RAPs) are notified of the discovery.</li> </ul>	In the event suspected human remains are identified



**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>4. Aboriginal Heritage (Cont'd)</b>		
Appropriately manage suspected human remains (Cont'd)	<ul style="list-style-type: none"> <li>– Ensure that the Aboriginal remains are recorded under the direct supervision of a specialist anthropologist or other suitably qualified person.</li> </ul>	In the event suspected human remains are identified
	<ul style="list-style-type: none"> <li>– Ensure that the location of the burial is registered as an Aboriginal site on the AHIMS database.</li> </ul>	
	<ul style="list-style-type: none"> <li>– Ensure that work within the cordoned off area is not recommenced until authorisation is received in writing from Heritage NSW.</li> </ul>	
<b>5. Traffic and Transportation</b>		
Achieve safe and efficient road transport operations	5.1 Obtain all necessary approvals from Transport for NSW and Wentworth and Broken Hill Councils for all proposed road upgrade works prior to commencing those works.	Prior to the commencement of construction
	5.2 Prepare, in consultation with Wentworth and Broken Hill Councils and Transport for NSW, and implement a Construction Traffic Management Plan which includes worksite traffic control measures to be implemented throughout the road construction phase of the Project.	
	5.3 Prepare, in consultation with Wentworth and Broken Hill Councils and Transport for NSW, and implement a <i>Transport Management Plan</i> detailing procedures for the construction and operational phases of the Project, including the following. <ul style="list-style-type: none"> <li>– Procedures for oversize and/or over mass vehicles and/or loads accessing the Mine Site, including the need to obtain suitable permits from Transport for NSW.</li> <li>– A Driver Fatigue Management Plan which identifies measures to address driver fatigue during all phases of the Project, including identification of maximum travel periods and Mine Site accommodation usage requirements.</li> <li>– Procedures to stagger AB-Quad / AB-triple road train movements on the public road network in order to avoid the creation of peak haulage truck movement periods.</li> <li>– A Driver's Code of Conduct that outlines the Applicant's expectation in relation to driver behaviour, including driving in a courteous manner, adherence to all relevant road rules, minimising road traffic noise in built-up areas and ensuring that all Project-related vehicles remain on the approved transportation routes.</li> </ul>	
	5.4 Implement the infrastructure upgrades as described in Section 3.6.2.2 (Site Access Road concept plans and Broken Hill intersection upgrade concept designs are presented in Appendix A and B of Tonkin (2024)).	Throughout construction operations
	5.5 Negotiate "Good neighbour agreements" with neighbours potentially impacted by the proposed closure of Nulla Road during years 11 to 13 to permit continued suitable access to the public road network.	Throughout the life of the Project



**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>5. Traffic and Transportation (Cont'd)</b>		
Achieve safe and efficient road transport operations (Cont'd)	5.6 Facilitate suitable vehicular access to the Mine Site for surrounding landholders where appropriate and in accordance with strict safety protocols.	Throughout the life of the Project
	5.7 Reinstate Nulla Road in accordance with the requirements of the Planning Agreement with Council.	During decommissioning and rehabilitation
	5.8 Undertake an independent road safety audit of the proposed transport route	Prior to the commencement of heavy mineral product transportation.
<b>6. Surface Water Resources</b>		
Prevent pollution of surface waters	6.1 Manage sewage and effluent disposal through an approved water treatment system situated within the Mine Camp and Workshop and Stores area. Discharge treated wastewater to the sub-surface or to land.	Throughout the life of the Project
	6.2 Progressively construct bunds (at a minimum of 0.5m high) and/or roads at the perimeter of the disturbance areas to prevent sediment-laden runoff to the receiving surface water environment.	
	6.3 Ensure that bunds constructed to prevent clean water entering disturbance areas meet the design criteria for a 1% AEP 72-hour (144mm) with maximum side slopes of 7:1 (H:V) and a minimum crest width of 1m.	
	6.4 Store all hydrocarbon and chemical products in accordance with the manufacturers specification and the relevant Australian Standard.	
	6.5 Ensure that saline water used for dust suppression is applied at a rate that ensures no runoff into roadside drainages.	
	6.6 Undertake water quality monitoring of the dredge pond and ponded areas upstream of clean water bunds following a >25mm rainfall event over a 24 hour period.	
	6.7 Ensure inspections of water management infrastructure will be undertaken monthly and following a rainfall event of >25mm over a 24 hour period.	
	6.8 In any areas where active erosion of water management mitigation measures are observed, repairs shall be scheduled to re-instate full function and consideration given to installation of additional erosion mitigation as required.	
	6.9 Reinstate all disturbance areas during the rehabilitation and closure stage of the Project, including the removal of all bunds.	



**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>7. Noise</b>		
Manage and minimise noise impacts from the Project on the surrounding residents	7.1 Strictly comply with the proposed hours of operation identified in <b>Table 3.10.1</b> .	Throughout the life of the Project
	7.2 Regularly service all on-site equipment to ensure sound power levels of each item remains at or below the default/or factory-set values.	
	7.3 Install frequency modulated reversing alarms to all mobile equipment	
	7.4 Ensure that all truck drivers comply with the Applicant's Driver's Code of Conduct outlining procedures for reducing noise impacts during transportation in the vicinity of residences along the transportation route.	
	7.5 Only permit transportation of heavy mineral concentrate within the Broken Hill LGA between the hours of 7:00am and 10:00pm.	
	7.6 Contact residents surrounding the Patton Street/ Comstock Street and Comstock Street / Eyre Street intersections prior to intersection upgrade works commencing to advise them of the works and likely duration of impacts.	Prior to intersection upgrades
	7.7 Maintain an open dialogue with the surrounding community and neighbours to ensure any concerns over noise are addressed.	Prior to the commencement of construction and throughout the life of the Project.
<b>8. Air Quality and Greenhouse Gas</b>		
Minimise the emission of particulate materials from the Mine Site	8.1 Preparation and implementation of an <i>Air Quality and Greenhouse Gas Management Plan</i> which outlines air quality and greenhouse gas management measures and responsibilities for the Project.	Prior to the commencement of construction
	8.2 Implement the following emission reduction and dust controls <ul style="list-style-type: none"> <li>– Sheet unsealed roads, where practicable, with low silt, durable materials to limit generation of silt-sized particles.</li> <li>– Limit on-site vehicle speeds to 50km/h (excluding the Site Access Road).</li> <li>– Ensure that bulk heavy mineral product is stored in 3-sided bins prior to load-out.</li> <li>– Ensure movement of heavy mineral concentrate is contained within sealed containers.</li> <li>– Apply water (non-saline) or appropriate binding agents to unsealed roads within the Mine Site, as well as on Anabranch Mail Road in the vicinity of adjacent residential receivers to achieve a 90% control level.</li> </ul>	Throughout the life of the Project



**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>8. Air Quality and Greenhouse Gas (Cont'd)</b>		
Minimise the emission of particulate materials from the Mine Site (Cont'd)	<ul style="list-style-type: none"> <li>– Apply water (non-saline) or appropriate binding agents to unvegetated soil stockpiles and areas undergoing rehabilitation until such time as a suitable vegetative cover can be established.</li> </ul>	Throughout the life of the Project
	8.3 Include details regarding vehicle speed limits and other dust controls in employee site inductions and toolbox meeting, as required.	
	8.4 Maintain records of water cart use and water application to disturbed areas which include the timing and rate of water application as well as a justification for cases where water is not applied (e.g. wet conditions or binding agents applied).	
	8.5 Ensure that all vehicles, plant and equipment used both at the Mine Site and to transport materials to and from the Mine Site are regularly maintained in accordance with manufacturer's requirements.	
Minimise the emission of greenhouse gasses associated with the Project	<p>8.6 Implement the following measures, where practicable, to minimise greenhouse gas emissions to the greatest extent possible.</p> <ul style="list-style-type: none"> <li>– Turn off all vehicles, plant and equipment when not in use.</li> <li>– The use of the most efficient vehicles and routes to minimise the number of trips required and minimise greenhouse gas (and particulate) emissions per tonne of material transported. This may include the use of the largest class of vehicle possible to transport overburden within the Mine Site, the use of Type 2 road trains for transportation of heavy mineral concentrate from the Mine Site to the Rail Facility and transporting project personnel at the Mine Camp to and from site by bus.</li> <li>– Ensure that all vehicles, plant and equipment are regularly serviced (including optimisation of tyre pressures) to ensure efficient operation.</li> <li>– Disturb only the minimum area necessary for mining operations.</li> <li>– Undertake progressive rehabilitation of areas no longer required for mining operations as soon as practicable once the area is no longer required for operational purposes.</li> <li>– Clearly mark all haul roads and other roads and tracks and ensure that signposted speed limits are complied with.</li> <li>– Ensure that internal haul roads and the Site Access Road are maintained in good condition to facilitate efficient travel and transportation of materials.</li> <li>– Minimise drop heights during loading and unloading of material and avoid tipping material down a tip face.</li> </ul>	Throughout the life of the Project



**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>8. Air Quality and Greenhouse Gas (Cont'd)</b>		
Minimise the emission of greenhouse gasses associated with the Project (Cont'd)	<ul style="list-style-type: none"> <li>– Monitor meteorological conditions (including via automated alerts) to identify periods of adverse weather (little or no rainfall and wind speeds above 30km/h) and implement appropriate additional mitigation measures as required.</li> <li>– Undertake visual monitoring and mandatory reporting of visible dust emissions to site supervisors and implement measures to minimise or reduce observed dust emissions.</li> <li>– Reduce gradients around the site where feasible.</li> <li>– Utilise B5 fuel in plant and equipment (where practicable).</li> <li>– Undertake power-consuming activities during the day where solar generation capacity is highest (where practicable).</li> </ul>	Throughout the life of the Project
<b>9. Agriculture</b>		
Minimise the impacts on Agriculture associated with the Project	9.1 Strip, stockpile, replace and manage soils as described in Section 6.4.6.	Throughout the life of the Project and during rehabilitation
	9.2 Undertake rehabilitation and revegetation of disturbed lands as described in Sections 3.12.	
	9.3 Ensure that all earthmoving equipment bought to site is free from weeds and pathogens.	
	9.4 Undertake monitoring of rehabilitation success and agricultural productivity on rehabilitated lands, including ensuring that rehabilitated lands are not subjected to premature or excessive grazing pressures by domestic, feral, or native fauna.	
	9.5 Undertake monitoring of agricultural productivity of surrounding undisturbed lands to provide a benchmark for agricultural productivity of the rehabilitated final landform.	
	9.6 Undertake regular weed and pest monitoring programs on disturbed and undisturbed sections of the Mine Site.	
	9.7 Conduct targeted mechanical and/or chemical weed and pest control in consultation with neighbouring landholders, as required.	
	9.8 Monitor for the effectiveness of any control measures and undertake remedial action, if required.	
	9.9 Maintain records and results of weed and pest management programs.	



**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>10. Hazards and Public Safety</b>		
Ensure radiation-related risks are managed in accordance with relevant guidelines and are risks are minimised to the greatest extent practicable	10.1 Undertake baseline monitoring within the Mine Site, along the Site Access Road, realigned Anabranth Mail Road and Transport Route – North and within the Rail Facility prior to the commencement of mining operations.	Prior to the commencement of construction
	10.2 Review and update the Preliminary Radiation Management Plan	During commissioning of the Rare Earth Concentrate Plant.
	10.3 Implement training and monitoring for all workers and visitors appropriate to their individual roles and level of exposure.	Throughout the life of the Project
	10.4 Undertake monitoring of the above areas to demonstrate background radiation levels are no higher than pre-mining radiation levels.	Throughout the life of the Project and following the completion of mining, processing and transportation operations
	10.5 Implement an audit process to ensure compliance with the conditional requirements of all radiation-related licences, approvals and procedures.	Throughout the life of the Project
	10.6 Provide public information in relation to management of Class 7 (radioactive Material) prior to the commencement of transportation of Monazite Product from the Mine Site.	
	10.7 Restrict access to the Rare Earth Concentrate Plant and storage areas to appropriately trained and certified individuals only.	
	10.8 Ensure that Monazite Product is placed into appropriate sealed containers (205L drums or bulka bags) and is stored in sealed shipping containers labelled in accordance with the Australian Code for the Transport of Dangerous Goods by road and rail.	
	10.9 Ensure that shipping containers containing Monazite Product are appropriately stored on site pending transportation from the Mine Site.	
	10.10 Ensure that mobile plant exiting the Rare Earth Concentrate Plant is thoroughly decontaminated and tested prior to exiting the plant area.	
	10.11 Ensure that all licences and permits for transportation of Class 7 (Radioactive Material) under the Australian Code for the Transport of Dangerous Goods by road and rail are obtained.	



**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>10. Hazards and Public Safety (Cont'd)</b>		
Ensure radiation-related risks are managed in accordance with relevant guidelines and are risks are minimised to the greatest extent practicable (Cont'd)	10.12 Update the Preliminary Radiation Management Plan to address transportation of Monazite product from the Mine Site and train personnel in the procedures identified in that document, including: <ul style="list-style-type: none"> <li>– managing radiation hazards during transportation;</li> <li>– emergency management and response, including in remote areas; and</li> <li>– managing exposure for drivers and the public;</li> </ul>	Prior to transporting Monazite Product from the Mine Site and throughout the life of the Project
	10.13 Ensure that all shipping containers containing Monazite Product are suitably labelled.	Throughout the life of the Project
	10.14 Ensure that shipping containers containing Monazite Product are stored in a suitable, secure, well-marked location with access limited to appropriately trained and certified individuals only.	
	10.15 Transport shipping containers containing Monazite Product from the Rail Facility to their final destination as soon as practicable following receipt.	
Ensure that hazards and safety risks are minimised to the greatest extent practicable	10.16 Facilitate improved public communication infrastructure and services where practicable.	
	10.17 Ensure that Project-related emergency response and medical personnel and equipment are available to respond to non-Project related emergencies.	
	10.18 Facilitate establishment of a RFDS-certified airstrip.	
	10.19 Ensure that access to the Mine Site is controlled and that adequate measures are in place to detect and manage unauthorised access.	
	10.20 Store hydrocarbons and hazardous materials in bunded, impervious areas undercover in accordance with the relevant Australian Standard, including AS1940 – <i>The Storage and Handling of Flammable and Combustible Liquids</i> .	
	10.21 Manage all hazardous materials in accordance with the requirements of the <i>Work Health and Safety Regulations 2017</i> .	
	10.22 Store and transport heavy mineral concentrate in sealed containers to prevent loss of the material in transit.	
	10.23 Update the existing heavy mineral concentrate Safety Data Sheet as required.	
	10.24 Ensure that all transport operators are trained in the management of the material detailed within the Safety Data Sheet, including in the event of an unplanned spill.	
	10.25 Remove waste oils from the Mine Site on a regular basis for disposal at an appropriately licenced location.	
	10.26 Prepare and implement <i>Emergency Management and Evacuation Management Plan</i> , to safely manage bushfire and other emergency impacts.	





**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>10. Hazards and Public Safety (Cont'd)</b>		
Ensure that hazards and safety risks are minimised to the greatest extent practicable (Cont'd)	10.27 Ensure training is provided to selected site personnel in relation to specific firefighting tasks and procedures.	Throughout the life of the Project
	10.28 Undertake all hot works within cleared areas or under a Hot Works Permit system.	
	10.29 Ensure that all mobile plant and equipment is fitted with appropriate fire suppression equipment.	
	10.30 Ensure that a water cart is available, thereby providing firefighting capabilities, if required.	
	10.31 Fully comply with the requirements of Rural Fire Service and other emergency services in the event of a fire emergency.	
<b>11. Historic Heritage</b>		
Prevent inadvertent damage to items of historic heritage significant	11.1 Ensure that approved disturbance areas are clearly delineated prior to disturbance.	Throughout the life of the Project
	11.2 Ensure that each of the identified historic heritage sites are not disturbed by the Project.	
	11.3 Facilitate on request visitation by persons with a personal connection to sites Huntingfield-HS01 and Huntingfield-HS02.	
	11.4 Prepare and implement an <i>Historic Heritage Management Plan</i> (HHMP) which includes procedures to be implemented in the event that unexpected historical sites or objects or human remains are discovered during construction or operation of the Project.	Prior to the commencement of construction
<b>12. Visual Amenity</b>		
Minimise the potential for adverse visual amenity impacts	12.1 Construct on-site infrastructure from non-reflective, neutral-coloured material.	Throughout construction operations
	12.2 Progressively rehabilitate disturbed sections of the Mine Site no longer required for the Project and re-vegetate disturbed areas.	Throughout the life of the Project
	12.3 Undertake active dust management measures to reduce the potential for the creation of a 'dust cloud', especially during site establishment and transportation activities.	
	12.4 Minimise the use to night-time lighting to the extent practicable.	
	12.5 Ensure that night-time lighting is directed towards the active areas of operation only and away from Residence R1 to minimise lights shining directly towards the residence.	
	12.6 Ensure that fixed night-time lighting is directed below the horizontal to minimise the light spill from the Mine Site.	



**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>12. Visual Amenity (Cont'd)</b>		
Minimise the potential for adverse visual amenity impacts (Cont'd)	12.7 Ensure that lighting within the Rail Facility during rail loading operations is directed away from Menindee Road so as not to distract or startle motorists driving at night. At other times, ensure that the only sufficient lighting is operated to ensure site safety and security and that such lighting is also directed away from Menindee Road.	Throughout the life of the Project
<b>13. Social</b>		
Maximise positive social impacts and minimise the potential for adverse social impacts within the Local and Regional Area	13.1 Continue to consult with First Nations groups, individuals and businesses, including in relation to assisting the community to implement community-led initiatives, build skills and resilience, build broad community understanding and knowledge and manage heritage objects within the Mine Site.	Throughout the life of the Project
	13.2 Develop an Aboriginal employment policy at the corporate level and applying it to any project's pursued by the company.	
	13.3 Develop a local business strategy or a formal procurement policy aimed at prioritising businesses within the Wentworth and Broken Hill LGA's.	
	13.4 Preferentially engage local residents within the Wentworth and Broken Hill LGA's, with a particular focus on First Nations persons.	
	13.5 Facilitate capacity building within the Wentworth and Broken Hill LGAs, including providing training and skill development opportunities for local residences and businesses, with a particular focus on First Nations persons and businesses.	
	13.6 Ensure that the movement of personnel and equipment within the Mine Site is highly controlled and that go/no go areas are clearly marked on plans and on the ground with fencing, posts or other markers	
	13.7 Dedicated perimeter fencing would be constructed to improve the physical separation of the mine from nearby farming operations.	
	13.8 Implement more stringent induction and access procedures that would apply to all personnel.	
	13.9 Implement recommendations by EnviroKey (2024) regarding weed spread controls including ensuring soil and seed material is not transferred into the site, and any weed infestation found to occur within the construction footprint is to be identified and mapped for appropriate management as part of a Biodiversity Management Plan.	
	13.10 Prepare, in consultation with Council and Transport for NSW, and implement a Transport Management Plan, including a Driver's Code of Conduct, detailing procedures for the construction and operational phases of the Project.	
	13.11 Undertake an independent road safety audit of the proposed transport route prior to the commencement of heavy mineral product transportation.	



**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>13. Social (Cont'd)</b>		
Maximise positive social impacts and minimise the potential for adverse social impacts within the Local and Regional Area (Cont'd)	13.12 Ensure that the movement of personnel and equipment within the Mine Site is highly controlled and that go/no go areas are clearly marked on plans and on the ground with fencing, posts or other markers.	Throughout the life of the Project
	13.13 Ensure that all contact with surrounding landholders is managed by a Senior Manager whose role is to address Project related enquiries, concerns, and any landholder grievances.	
	13.14 Ensure that Project-related activities do not adversely impact on livestock fodder on non-Project related properties adjacent to the Mine Site.	
	13.15 Obtain negotiated or arbitrated commercial agreements with all affected landholders within and surrounding the Mine Site.	Prior to the commencement of construction
	13.16 Prepare and implement an <i>Air Quality and Greenhouse Gas Management Plan</i> which outlines air quality and greenhouse gas management measures and responsibilities for the Project.	
	13.17 Ensure that the results of all specialist assessments and ongoing monitoring are made publicly available and are explained to interested landholders on request.	Throughout the life of the Project
	13.18 Ensure that surrounding landholders are provided with regular updates in relation to current and forecast mining operations.	
	13.19 Negotiate a suitable agreement with the owner of Huntingfield Station in relation to the existing basic landholder rights, potentially including the following. <ul style="list-style-type: none"> <li>– Reconstruct the Huntingfield 2 Dam, including surface water diversions, in an alternate location.</li> <li>– Provide an alternate supply of water.</li> <li>– Provide suitable compensation.</li> </ul>	Prior to disturbance of the Huntingfield Station
	13.20 Reconstruct the Huntingfield 2 Dam within the rehabilitated landform, including lining the dam with clay to limit seepage.	
	13.21 Obtain negotiated or arbitrated commercial agreements with all affected landholders within and surrounding the Mine Site.	Prior to the commencement of construction
	13.22 Prepare a <i>Landholder Relations Plan</i> , including a landholder communications and engagement strategy and program for the ongoing analysis of social risks and opportunities arising from the Project.	
	13.23 Ensure that surrounding landholders are provided with regular updates in relation to current and forecast mining operations.	Throughout the life of the Project
	13.24 Ensure that all contact with surrounding landholders is managed by a Senior Manager whose role is to address Project related enquiries, concerns, and any landholder grievances.	



**Table A4.1 (Cont'd)**  
**Proposed Environmental Management and Monitoring Measures**

Desired Outcome	Measure	Timing
<b>13. Social (Cont'd)</b>		
Maximise positive social impacts and minimise the potential for adverse social impacts within the Local and Regional Area (Cont'd)	13.25 Develop a local business strategy or a formal procurement policy aimed at prioritising businesses within the Wentworth and Broken Hill LGA's.	Prior to the commencement of construction
	13.26 Preferentially engage local residents within the Wentworth and Broken Hill LGA's, with a particular focus on First Nations persons.	Throughout the life of the Project
	13.27 Facilitate capacity building within the Wentworth and Broken Hill LGAs, including providing training and skill development opportunities for local residences and businesses, with a particular focus on First Nations persons and businesses.	
	13.28 Negotiate good neighbour agreements with all Mine Site neighbours and residents along Anabranck Mail Road, and ensure that landholder concerns are adequately addressed.	Prior to determination of the application for development consent
	13.29 Maintain regular communication with the operators of surrounding mining operations to address potential cumulative impacts resulting from each company's operations.	Throughout the life of the Project
	13.30 Regularly publish newsletters and distribute information in relation to the Project and provide other opportunities for the community to obtain information on the Project, including town hall meetings, open days, presentations to schools and other community groups, etc.	Prior to the commencement of construction and throughout the life of the Project
	13.31 Enter into Planning Agreements with Wentworth Shire Council and Broken Hill Council.	
	13.32 Identify capacity constraints within the Wentworth LGA and work with Council to address them to maximise social and economic benefits for the local community.	
<b>14. Economic</b>		
Maximise the economic benefits of the Project	14.1 Enter into Planning Agreements that would be negotiated with the Wentworth Shire and Broken Hill City Councils for the life of the Project.	Prior to determination of the application for development consent
	14.2 Implement a Local Employment and Procurement Strategy that would: <ul style="list-style-type: none"> <li>– give preference when engaging new employees to candidates who live within the Wentworth LGA;</li> <li>– give preference to suppliers of equipment, services or consumables located within the Wentworth LGA;</li> <li>– encourage and support participation of potential locally-based employees and contractors in appropriate training or education programs to build capacity within the surrounding areas; and</li> <li>– encourage and support participation of Aboriginal people and organisations in Project-related employment and supply services.</li> </ul>	Throughout the life of the Project