

The background is a solid teal color. Overlaid on this are several large, concentric, irregular shapes in a lighter shade of teal. These shapes are roughly circular but have soft, wavy edges, creating a layered, organic effect. The shapes are centered on the right side of the page, framing the text.

## **APPENDIX 5**

Management and  
Mitigation Measures

## **Appendix 5 – Management and Mitigation Measures**

The following provides a consolidated list of the management and mitigation measures proposed for the Project. These commitments do not affect management and mitigation measures associated with operations approved under the Mount Owen Consent unless specified in Section 3.3 of the Main Text.

### **Surrender of Development Consents**

- The existing Glendell development consent (DA 80/952) would be surrendered within a reasonable time following commencement of the Project, or as otherwise agreed with the Planning Secretary.

### **Hours of Operation**

- As per the existing operation, mining and associated activities for the Project will be undertaken 24 hours a day, 7 days a week.
- Construction of the Hebden Road realignment, Yorks Creek Realignment, Heavy Vehicle Access Road, relocation of the Ravensworth Homestead, new Glendell MIA and the demolition of the existing Glendell MIA, Ravensworth East MIA and Ravensworth East Conveyor will generally occur during standard construction hours of 7.00 am to 6.00 pm, Monday to Friday and 8.00 am to 1.00 pm on Saturday. Construction activities that are completed within standard construction hours will be managed in accordance with the relevant construction noise criteria. Construction works outside of the standard construction hours will be managed to ensure that total noise emissions will be in compliance with the operational noise criteria for the Project, unless otherwise agreed with affected landowners.
- All other on site construction activities will be undertaken 24 hours per day, 7 days a week.

### **Air Quality**

- Glencore will continue to implement air quality controls in accordance with the Mount Owen Complex Air Quality and Greenhouse Gas Management Plan (AQGHGMP) which will be reviewed and updated to reflect the relevant aspects of the Project following approval. The revisions to the AQGHGMP will focus on the changes relevant to the Project with the existing air quality management processes identified in the approved AQGHGMP being applied to the Project where relevant and remaining valid for activities and areas outside the Project.
- A review of the existing air quality monitoring locations will be undertaken prior to the commencement of the Project to ensure that the monitoring network provides adequate coverage of the Project Area. Any changes to the monitoring network will also be included in the revised AQGHGMP.

### **Noise**

- Glendell Mine will continue to operate in accordance with the approved Mount Owen Complex Noise Management Plan (NMP) which will be reviewed and updated to reflect the relevant aspects of the Project following approval. It is noted that the revisions to the NMP will focus on the changes relevant to the Project with the existing noise management processes identified in the approved NMP being applied to the Project where relevant and remaining valid for activities and areas outside the Project.
- The suitability of the noise management controls is to be assessed on an annual basis as part of ongoing review of operational risks to the Project.

- Glencore will maintain the Mount Owen Complex noise monitoring network consisting of fixed and mobile continuous noise monitoring units and weather stations.
- During adverse weather conditions, Glencore will continue to initiate changes to operations to mitigate potential noise impacts (as detailed in the NMP). Glencore uses predictive forecasting of adverse weather conditions to identify when and where management measures are likely to be required as a result of an adverse weather event. The current NMP outlines the procedural requirement for the predictive forecasting of adverse weather conditions.
- The Noise Management Trigger Action Response Plan (TARP) developed for the approved operations will be reviewed and updated to reflect the relevant aspects of the Project. The TARP details the limits and response required by the mine in the event noise alarms are triggered.

### **Blasting**

- Glencore will review and update the existing Blast Management Plan (BMP) as part of the implementation of the Project and implement this plan for all blasting operations. The BMP will be revised to detail the application of monitoring and management controls to manage blasting impacts associated with the Project to maintain compliance with relevant blasting criteria as required.
- Mining in the Glendell Pit (including the Glendell Pit Extension, will involve no more than eight blast events per week (averaged over a 12 month period) or two blast events per day between the hours of 9.00 am and 6.00 pm Monday to Saturday, with an allowance for additional blasts where there are low vibration blasts, misfires or where blasts are required to ensure the safety of the mine or its workers will occur.
- No more than 12 blasts per year between the hours of 7.00 am and 9.00 am Monday to Saturday will occur in the Glendell Pit (Including the Glendell Pit Extension).
- Glencore will consult with the asset owner to seek agreement to modify any vibration limits on infrastructure, where deemed relevant. The BMP will be updated following any changes to the relevant vibration limits.
- Glencore will develop and implement a Road Closure Management Plan to manage the impacts on public roads and infrastructure. The risks of flyrock will also be managed via the implementation of the Road Closure Management Plan.
- Glencore will continue to liaise with nearby operations through the current blast notification and management system in relation to the coordination of blasts to avoid concurrent blasting and therefore reduce the potential for cumulative airblast overpressure and ground vibration impacts.
- Glencore will continue to operate the blasting hotline and provide up to date information for the community relating to the blasting schedule for the Mount Owen Complex.
- The existing multi-station blast monitoring system at Glendell Mine will continue to be used. This monitoring system will also be reviewed and revised as required to cover the sensitive receivers located in the vicinity of the Glendell Pit Extension. Glencore will install two new blast monitoring stations to the west of the Glendell Pit Extension, representative of the closest locations to infrastructure such as electricity transmission lines. If the Ravensworth Homestead is relocated to the Ravensworth Farm option a blast monitoring station will be established at this site.

- When blasting within 300 m of the high bank of Bowmans Creek, as a precautionary measure, Glencore will undertake regular site inspections along the western highwall of the Glendell Pit Extension and the closest section of Bowmans Creek for any damage, to identify and monitor blast induced surface impacts such as surface cracking. A review of the blast design processes will be undertaken if surface cracking beyond 12 m is observed.

### Surface Water

- The existing Mount Owen Complex Water Management Plan (WMP) (including sub plans) will be updated to reflect the changes to water management associated with the Project. It is noted that the revisions to the WMP will focus on the changes relevant to the Project with the existing management processes identified in the approved WMP remaining valid for activities and areas outside the Project.
- A Yorks Creek Realignment Plan will be prepared as part of the detailed design prior to construction which includes consideration of flow velocities and sediment movement, and criteria for monitoring performance and stability.
- To minimise impacts on water quality, erosion and sedimentation associated with spills and/or construction activities in watercourses, works within or adjacent to watercourses will be undertaken in accordance with the Yorks Creek Realignment Plan which will include a Construction Erosion and Sediment Control Plan.
- A levee will be constructed at the southern end of the constructed flood plain in the Yorks Creek Realignment to prevent inundation of the Glendell Pit Extension up to a 1 in 1000 year ARI flood (0.1% AEP) event. A similar levee adjacent to the points of intersection of the Glendell Pit Extension with Yorks Creek and Swamp Creek will also be implemented where necessary to prevent flood ingress into the Glendell Pit Extension during mining operations. These levees, if required, will also be developed to the 0.1% AEP event design standard.
- The following changes to the surface water monitoring program will be implemented:
  - Following the realignment of Yorks Creek, the existing monitoring location YC3 will be replaced by a new location, YC4, located along the realignment (refer to **Section 7.5.9.2** of the EIS). Observations from YC4 may be used to assess the performance of the realignment in providing habitat
  - A new monitoring location, BMC6, will be established downstream of the confluence of the Yorks Creek Realignment with Bowmans Creek. BMC6 should be a similar distance downstream of the new Yorks Creek confluence as BMC4 is downstream of the existing confluence, so that the two sites are comparable. Observations from BMC6 may be used to assess the performance of the realignment in minimising adverse impacts of water quality in Bowmans Creek
  - Monitoring of SC3 will cease following disturbance of this area by the Glendell Pit Extension. The existing SC4 will provide adequate coverage for the remnant reach of Swamp Creek.
  - Monitoring of key pit dewatering points.
  - Monitoring of the following analytes in the mine water storages: pH, EC, SO<sub>4</sub>, Ca, Mg, K, Na, Cl, Al, As, Co, Cu, Fe, Mn, Ni and Zn.
  - Monitoring of alkalinity at the same frequency as pH and EC for all monitoring sites.
  - pH, EC, alkalinity SO<sub>4</sub>, Ca, Mg, K, Na and Cl tested monthly at mine water monitoring sites ECD2, W10, West Pit dewatering, North Pit dewatering and Glendell Pit dewatering for 12 months and reviewed.

- The WMP will be updated to indicate the locations of the proposed monitoring and updated program.
- Site specific guideline values for YC4 will be adopted from YC2 and YC3, and for BMC6 from BMC3 and BMC4, until 24 observations have been made to establish site specific guideline values for these new locations.
- Monitoring of new dirty and mine water storages will be integrated into the existing surface water monitoring program at the Mount Owen Complex, as these storages are commissioned.

### **Groundwater**

- The Mount Owen Complex Groundwater Monitoring and Management Plan (GWMMP) will be reviewed as part of the management plan update process should the Project be approved. This review will have regard to the need for any supplementary bores to replace bores removed as a result of the Glendell Pit Extension.
- Groundwater quality analysis will continue consistent with current operations in the existing GWMMP and any new bores to detect any changes in groundwater quality during mining.
- The results of the monitoring will be reviewed annually to determine if any additional monitoring sites are required, or if optimisation of the existing monitoring sites, frequency of sampling and analytical suite should be undertaken.
- Every three years the validity of the groundwater model predictions will be assessed by comparing the extraction volumes and groundwater level data against model predictions. If the data indicates significant divergence from the model predictions, an updated groundwater model will be constructed for the simulation of mining.
- The existing Trigger Action Response Plans (TARPs) contained in the Groundwater Management and Monitoring Plan will be reviewed and updated where required as a result of the Project. These TARPs will be reviewed periodically as part of the regular review process of the Plan.

### **Terrestrial Biodiversity**

- The existing approved Mount Owen Complex Biodiversity and Offset Management Plan (BOMP), which provides guidance for minimising the impacts on biodiversity will be updated as part of the implementation of the Project. It is noted that the updates to the BOMP will focus on the changes relevant to the Project only, with the management processes identified in the approved BOMP remaining valid.
- The biodiversity offset strategy will be developed during the assessment process in consultation with the BCD and DPIE and based on the credits required to be retired to offset the impacts of the Project as specified in the BDAR and the offset options available under the BC Act and BC Regulation including:
  - land based offsets (Glencore would retire the required number and class of credits (determined in accordance with the BDAR and the offset rules in the BC Regulation) through the establishment of new Stewardship Sites (and the subsequent retirement of credits) or by retiring credits from existing Stewardship Sites)
  - ecological rehabilitation (allowable for mining projects)
  - purchasing credits from the market, and/or
  - paying into the Biodiversity Conservation Fund.

- Site inductions will identify the location of sensitive flora and fauna and the policies being implemented to protect the biodiversity values of such areas.

### **Aquatic Ecology**

- Where the Project may require removal of large woody debris from watercourses in the Project Area, this would be relocated to the proposed Yorks Creek Realignment, where practicable.
- A range of strategies are proposed to mitigate adverse impacts to aquatic ecology during the operational phase of the Project. This includes specific measures to minimise the potential impacts on the aquatic ecological values of the Project Area and the locality, including:
  - implementation of permit for work controls so that unintended impacts on aquatic habitats are avoided during operations
  - ongoing weed management
  - regular inspection and maintenance of built watercourse structures to check functionality and minimise blockage of fish passage
  - management of spills
  - mine water will be contained and re-used within the GRAWTS, with any mine water discharges managed in accordance with Hunter River Salinity Trading Scheme (HRSTS)
  - all sediment and erosion control dams will be designed to meet Blue Book design and management requirements
  - re-instating the creek landform and re-establishing riparian vegetation for the realignment of Yorks Creek.

### **Aboriginal Cultural Heritage**

- The Glendell Mine will continue to operate in accordance with the Mount Owen Complex Aboriginal Cultural Heritage Management Plan (ACHMP) which will be updated to include the management and mitigation measures recommended. The revised ACHMP will focus on the outcomes of the Aboriginal Cultural Heritage Assessment for the Project with the management processes identified in the approved ACHMP remaining valid where unchanged by the Project.
- Glencore will undertake manual archaeological excavation at four locations (GN OS6, GN OS34, Bowmans Creek 7 and Bowmans/Swamp Creek Trench 1) as recommended in the AAIA (refer to **Appendix 22**) to confirm the nature of the archaeological deposits.
- Glencore will engage an arborist to inspect Glendell North ST1 to provide an option on whether the scar has a cultural origin, determine the age of the scar and consider strategies for conserving the site in the landscape.
- Sites 37-3-0343, 37-3-1560 and 37-3-1513 will be permanently fenced and signed prior to works beginning to provide adequate protection.
- the support for the off-site cultural heritage management measures outlined in **Table 1** would be available for applications from the local Aboriginal community for a period of three years from the commencement of the Project. A process and criteria for the application for this support would be developed following approval of the Project. A budget of \$400,000 will be allocated to the off-site cultural heritage management measures as part of the implementation of the Project.
- The final projects for funding would be developed in consultation with the RAPs and Knowledge Holder groups as part of updating the ACHMP within twelve months of Project approval.

**Table 1 Proposed Management and Mitigation Measures**

Action	Proposed Management Measure
<b>Onsite Cultural Heritage Management Measures</b>	
<b>Aboriginal Cultural Heritage Management Plan (ACHMP)</b>	
Update ACHMP	<p>The existing Mount Owen Complex Aboriginal Cultural Heritage Management Plan (ACHMP) will be reviewed and updated to include the Project within 12 months of Project approval to outline all Aboriginal heritage management measures for the Project, responsibilities of all parties and the timeframe for required heritage works.</p> <p>The ACHMP will include a staged approach to the required research and salvage works to ensure that areas required for earliest disturbance are completed as a priority.</p>
ACHMP Dispute Resolution process	The revised ACHMP will include specific provisions regarding ongoing engagement with the RAPs and would include mechanisms for dispute resolution and communications protocols.
<b>Survey, Collection and Analysis</b>	
Survey, collection and analysis	Salvage (excavation, analysis and collection) as per the recommendations of the Aboriginal Archaeology Impact Assessment Report (OzArk 2019) for the salvage of the archaeological sites to be harmed within the Additional Disturbance Area.
Discovery of previously unknown cultural heritage items	<p>The Project agrees to follow all relevant NSW Government guidelines regarding the location of human skeletal remains. The Project will apply the precautionary principle to the development of management measures for the Additional Disturbance Area.</p> <p>This approach will include the development of culturally appropriate management measures for the management of human remains, should this occur during the Project life. Protocols and approach will be developed in consultation with RAPs and updated in the revised ACHMP.</p>
Recording of archaeological sites	The ACHMP will be revised to include the new sites identified in the Aboriginal Archaeology Impact Assessment Report completed for the Project
<b>Care and Control</b>	
Care and control measures regarding Aboriginal objects	Care and control management measures will be developed and included in the ACHMP for Aboriginal objects recovered through the archaeological research and salvage program implemented for the Project and for long term storage of artefacts recovered from previous research and salvage programs. The care and control management measures will have regard to cultural considerations. Glencore propose to store artefacts from the salvage program at the soon to be constructed Wollombi Brook Regional Teaching and Keeping Place.
Repatriation of artefacts from Project Area	<p>Glencore propose to store artefacts from the salvage program at the soon to be constructed Wollombi Brook Regional Teaching and Keeping Place.</p> <p>The Project will consider the repatriation of artefacts across rehabilitation areas as part of a closure planning process at the cessation of mining.</p>
Sites not to be impacted	Glencore will implement the Aboriginal archaeological management measures program for sites in the Project Area that will not be impacted by the Project as recommended in the Aboriginal Archaeology Impact Assessment report for the Project. These measures will be further outlined in the updated ACHMP.

Action	Proposed Management Measure
<b>Offsite Cultural Heritage Management Measures</b>	
<b>Intergenerational Equity</b>	
<b>Cultural Awareness and Education</b>	<p>Currently Glencore Coal Assets Australia (GCAA) through its voluntary Community Development Plan is committed to:</p> <ul style="list-style-type: none"> <li>The Galuwa Aboriginal School scholarship program which currently supports 30 scholarships for Aboriginal students from the Upper Hunter in years 6, 7 and 8 to support their academic progress, cultural identity and career aspirations.</li> <li>Singleton Clontarf Academy supporting 80 Aboriginal boys and 4 staff at Singleton High School to support the personal development and education of these boys.</li> </ul> <p>GCAA's approach to supporting Aboriginal education is to work closely with NSW Department of Education to provide meaningful and needed Aboriginal education support that compliments and does not duplicate existing initiatives within NSW Education and other providers who support Aboriginal Education.</p> <p>Other initiatives and programs that would be considered include:</p> <ul style="list-style-type: none"> <li>Young Mob (a World Vision program) which aims to increase the cultural identity and connection to country of Indigenous youth through youth camps. A strong identity and connection to country have been identified as being vital to the health, social and emotional wellbeing of Indigenous youth.</li> <li>The Girls Academy which develops and empowers Aboriginal girls through leadership training, mentoring, sport and extra-curricular programs with the goal of creating an environment within schools where Aboriginal girls receive the support and programs needed to help them realise their full potential.</li> </ul>
<b>Bringing people together</b>	<p>Knowledge holders and RAPs raised a range of issues and potential mitigation strategies with regards to cultural loss, these included:</p> <ul style="list-style-type: none"> <li>A desire for community (or groups) to come together outside of development application/disturbance processes</li> <li>A desire for a range of cultural experiences (such as cultural camps, Elders Camps, teaching to younger generations).</li> </ul> <p>Glencore would consider supporting a program or activities to assist in promoting cultural awareness and education for young people.</p>
<b>Employment</b>	<p>Through the ACHAR and Social Impact Assessment processes for a number of recent projects, and ongoing consultation with local Aboriginal parties, Glencore has heard the recommendations for a work experience program for local Aboriginal people in the Hunter Valley. Separate to the Project, Glencore are currently planning for the roll out of a Program in 2020.</p>
<b>Land Management</b>	<p>As part of the Project, Glencore proposes to fund a traineeship or a work experience position in the area of cultural heritage management, biodiversity or land management, ecology, rehabilitation or other appropriately related field, through a third-party provider. Glencore will first approach the National Parks and Wildlife Service (NPWS) who offer a 2-year field officer traineeship in land management. In the event that this cannot be secured, Glencore would seek an alternate provider.</p>
	<p>As part of the ACHMP development a process and criteria for the application for this support would be developed.</p>
	<p>Yorks Creek Realignment to receive appropriate riparian vegetation treatment post earthworks.</p>
<b>Cultural Awareness and Education</b>	<p>Glencore would develop interactive and interpretive materials documenting the early conflict history between Aboriginal people and European settlers within and across Ravensworth Estate.</p>



## Historic Heritage

### General Heritage Commitments

- Glencore will develop a Ravensworth Heritage Management Plan (RHMP) prior to the commencement of any works relating to the relocation of the Ravensworth Homestead Complex to the satisfaction of the Planning Secretary to include the general commitments contained in Section 4.3.1.2 of the Statement of Heritage Impact (**Appendix 23d**).
- Glencore will develop an interpretation strategy that includes display and storage proposals for historical archaeological relics salvaged from the Core Estate Lands.
- Archival recordings of the following sites within the Ravensworth Estate will be undertaken prior to any activity associated with the Project that may disturb these sites (refer **Figure 7.8.14** of the EIS for site locations):
  - Site No. 1 Ravensworth Homestead Complex including its immediate setting)
  - Site No. 2 (woolshed site)
  - Site No. 3A (silo site)
  - Site No. 4 (northwest paddock)
  - Site No. 6 (brick-lined well site)
  - Site No. 13 (linear stone feature)
  - Site No. 17 (former farm site)
  - Site No. 20 (former farm site)
  - Site No. 21 (former farm site)
  - Site No. 27 (Ravensworth Farm site)
  - Site No. 27A (Ravensworth Farm dairy)
  - Site No 34 (Hebden Public School site)
  - Landscape Groups 1, 2, 3 and 4 (refer **Figure 7.8.8** and **7.8.9** of the EIS)
  - Historic dams: D1 to D14 (refer **Figure 7.8.8** and **7.8.9** of the EIS)
  - Modified historic dams: Dma to Dmf (refer **Figure 7.8.8** and **7.8.9** of the EIS)
  - Hebden Road (where directly impacted by the Project) (refer **Figure 7.8.8** and **7.8.9** of the EIS)
  - Yorks Creek (where directly impacted by the Project) (refer **Figure 7.8.8** and **7.8.9** of the EIS).
- Glencore will stabilise the Hebden Public School (Site 34) generally in accordance with the preliminary scope of works prepared by Lucas Stapleton Johnson provided in **Appendix 23i**.
- Glencore will develop a 3D digital recording of the current Ravensworth Homestead Complex that will enable viewing by the public in the future in order to capture the existing Homestead Complex location and condition, and its interpretation. A Virtual Reality version will be
- considered to enable smart phone users to “walk” through the original complex, and 3D scanning data will be publicly available for future research purposes.

### Option 1 – Intact Move to Ravensworth Farm

- Mining would not commence within the Core Estate Lands as shown in **Figure 1.5 of Appendix 23a** until appropriate archaeological programs have been completed in accordance with the recommendations contained in Ravensworth Homestead Complex and Surrounds: Historical Archaeological Test Excavation Report and Impact Statement for the Core Estate Lands, Casey & Lowe, 2019, to the satisfaction of the Planning Secretary.
- Glencore will develop a Ravensworth Heritage Management Plan (RHMP) to the satisfaction of the Planning Secretary. The RHMP will include the recommendations in **Section 4.3.2.1 of Appendix 23d** Statement of Heritage Impact, Lucas Stapleton Johnson.
- Trees and plants identified for salvaging from the existing garden and immediate surrounds will be initially housed in a temporary nursery located onsite before being incorporated into the final landscape scheme.
- Relocation of the Ravensworth Homestead to the Ravensworth Farm site would be carried out using the intact move methodology. At Ravensworth Farm, the original configuration would be modified generally in accordance with the conceptual adaptation plans, drawing nos. 123800/SK106/J, SK109/E, DK110/D, SK111/B and SL112/E contained in **Appendix 23g**.
- Glencore will undertake landform modification works at the Ravensworth Farm site generally in accordance with the preliminary earthworks plan contained in **Appendix 23g**.
- Glencore will develop the landscaping works at the Ravensworth Farm site generally in accordance with Conceptual Landscape Drawings nos. LP01-07, contained in **Appendix 23g**.
- Prior to the occupation of the relocated Homestead, Glencore will update the RHMP to a Ravensworth Farm Conservation Management Plan (CMP). The Plan will address ongoing management, treatment, use and maintenance of the Ravensworth Homestead Complex and its immediate landscape setting.
- Archival records, research and recording material including historic photographs, reports, maps, plans, architectural and archaeological drawings and investigation reports relating to the Ravensworth Homestead Complex will be compiled and stored in the adapted Men’s Quarters (Ravensworth History Building) at Ravensworth Farm as part of the interpretation strategy.
- Glencore will offer to provide a copy of measured drawings and details and a copy of archival photography of the pre-move configuration of the Ravensworth Homestead Complex (prepared in accordance with the guidelines of the Heritage Council of NSW) to the Singleton Public Library local history collection.
- As part of mine closure planning, Glencore will:
  - prepare a management strategy, designs and planting schedules for the removal and rehabilitation of the new MIA to develop an appropriate post-mining setting.
  - undertake a final land use assessment that considers alternate uses for the Homestead with regard to:
    - Land use in the area at the time of mine closure including return to use as a farmstead with an attached landholding
    - the potential viability of any future enterprise.

- For the post-mining use identified for the Homestead as part of the final land use assessment provide:
  - The entity that would be responsible for the management, use, treatment and maintenance of the relocated buildings
  - A management plan for the management, use, treatment and maintenance of the relocated buildings and adjacent landscape including the implementation of the cyclical maintenance plan
  - Details of the proposed alterations of the buildings and the adjacent landscape to be carried out post-mining to suit the proposed use
  - Identify existing commitments to rehabilitate overburden on the periphery of the visual catchment by Glendell. Make supplementary proposals for further visual mitigation
  - Update the CMP and a proposal as to how it is to be implemented. Option 2 – Dismantle and Relocate to Broke
- Mining would not commence within the Core Estate Lands as shown in **Figure 1.5 of Appendix 23a** until:
  - appropriate archaeological programs have been completed in accordance with the recommendations contained in Ravensworth Homestead Complex and Surrounds: Historical Archaeological Test Excavation Report and Impact Statement for the Core Estate Lands, Casey & Lowe, 2019, to the satisfaction of the Planning Secretary.
  - appropriate procedures and plans have been developed to detail the dismantling and cataloguing of the Ravensworth Homestead buildings, gardens and associated features required for re-assembly at Broke, to the satisfaction of the Planning Secretary.
- Dismantling of the Ravensworth Homestead Complex buildings will not commence until the additional approvals, as described in **Section 5**, are in place.
- Should the additional approvals required for Option 2 not be in place within two years of commencement of development under the SSD development consent (SSD 9349), Glencore will undertake the intact move Option 1 relocation of the Ravensworth Homestead to Ravensworth Farm, as described in **Section 5** and **Appendix 23g** of the EIS.

### Rehabilitation and Closure

- The Mount Owen Rehabilitation Strategy will be revised to reflect the Project in consultation with the Resources Regulator and DPIE (refer to **Section 7.9** and **Appendix 24** of the EIS). The revisions to the Rehabilitation Strategy will focus on the changes relevant to the Project with the management and mitigation processes identified in the approved Rehabilitation Strategy remaining valid as applicable to the approved Mount Owen operational areas unaffected by the Project.
- Consistent with the existing regulatory framework, the detailed rehabilitation practices, including details of natural landform design principles in the rehabilitated landform and final landform catchments, to be implemented at the Mount Owen Complex including the Glendell Pit Extension will be documented in the Mining Operations Plan (MOP)/Rehabilitation Management Plan (RMP).
- The Verified BSAL areas not impacted by either the Hebden Road realignment or areas where landform shaping is required for final landform development and/or drainage purposes will be rehabilitated to at least LSC Class 4 land.
- Soil from the Verified BSAL areas directly impact by the Project will be stripped prior to the construction of infrastructure.

- Soils from the Verified BSAL areas removed for construction purposes that cannot be used for vegetated bunding on the Heavy Vehicle Access Road and MIA will be preferentially used in the rehabilitation of areas of the Mount Owen Complex identified in the final landform for open grasslands, where practicable.
- Detailed final void design and erosion management control will be developed as part of the mine closure planning process. Key management measures are likely to include:
  - final void design will include erosion controls to be installed on the low wall slopes
  - final landform drainage designed to divert water away from the void catchment where practicable, and towards the natural environment
  - revegetation will include consideration of soil stabilisation measures
  - erosion modelling will be undertaken as part of the detailed final landform design process to inform the detailed drainage design and revegetation strategy.

### Visual Amenity

- Glencore will undertake the following measures to reduce the potential impact on visual amenity (refer to **Section 7.10** of the EIS):
  - progressive rehabilitation will be undertaken to reduce the duration of visible soil exposure, including the use of temporary rehabilitation as appropriate
  - implementation of a small bund and planting/seeding of tree screens along the realigned section of Hebden Road immediately adjacent to the proposed MIA to reduce the availability of direct views of the proposed MIA by public road users. Select bunding and vegetation would be removed post-mining to allow views northwards from the realigned Hebden Road towards the proposed Ravensworth Farm site, if the Homestead is relocated to this site (refer to conceptual landscape sketches in **Appendix 23g**).
  - proposed tree planting between Hebden Road and Heavy Vehicle Access Road to screen views of mobile mining fleet movements by public road users. Additional planting would also occur along the Heavy Vehicle Access Road safety bund where considered necessary
  - proposed tree planting on Glencore owned land to restrict views of the proposed mining operations from the New England Highway (refer to **Appendix 23g-E**).
  - continued implementation of the pre-blasting procedure and site-specific blast management plan to manage fume/plume resulting from blasting to reduce the associated visual impacts
  - ongoing management of mobile lighting to reduce the impacts of lighting at night, positioning lights so they are not pointing off site, and are shielded by walls, overburden emplacement areas and/or vegetation, where practicable. Procedures will continue to be implemented regarding the appropriate placement of mobile lighting plant to reduce the potential for lighting impacts on local residents and public roads
  - all new fixed lighting associated with the Project will be installed and maintained in accordance with Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting.

### Traffic and Transport

- Glencore will prepare and implement a Construction Traffic Management Plan (CTMP) in consultation with Singleton Council and RMS prior to construction commencing. The CTMP will include appropriate Traffic Control Plans and include detail with respect to:
  - traffic control measures in works areas
  - restrictions on the delivery of heavy plant and materials to site

- identify the appropriate entry/exit points for the proposed construction compound area(s)
- methods such as signage and local media advertisements for advising motorists of the change in traffic conditions associated with the work
- road closure requirements due to blasting associated with construction works.
- Glencore will construct the Hebden Road realignment largely offline to the existing Hebden Road prior to tying it in with the existing road network to minimise disruption to traffic during the construction phase.
- Glencore will change line marking at the Hebden Road/Glendell Access Road intersection and the Hebden Road/Ravensworth East Access Road intersections to be in line with the new Austroads methodology to improve delineation along Hebden Road and road safety at each mine access intersection.
- Glencore will complete a road safety audit during the construction of the Hebden Road realignment to ensure that there is no net worsening of road safety conditions associated with the proposed realignment. Glencore will improve delineation on Hebden Road through the Hebden Road realignment which will include lane edge marking and guide posts.
- During operations, blasting activities will be conducted (as far as practicable) in off peak times and at times when school related traffic is not expected in order to minimise impacts on Hebden Road travel times and road safety conditions associated with the proposed operations.
- The final design of the Hebden Road realignment will be prepared in consultation with Singleton Council.

### **Greenhouse Gas and Energy**

- Glencore will continue to implement the existing energy management controls currently implemented at the Mount Owen Complex. At an operational level, Glencore will continue to develop and implement mitigation and management measures to maximise resource recovery efficiency, improve energy efficiency and reduce greenhouse gas emissions including:
  - limiting the length of material haulage routes (where feasible), to reduce diesel usage and associated emissions
  - optimising ramp gradients and reducing rolling resistance of haul roads to reduce diesel usage and associated emissions
  - seek to continually improve the fuel efficiency of haul trucks operating at the mine to reduce diesel use and associated emissions
  - Payload management to reduce diesel usage and associated emissions
  - consideration of energy efficiency in the selection of new equipment and vehicles and scheduling activities so that equipment and vehicle operation is optimised.
  - blasting strategies to improve extraction and processing energy use efficiency and reduce associated emissions
  - working machines to their upper design performance to optimise energy usage and associated emissions
  - in-pit servicing will continue to be undertaken to reduce diesel usage associated with transporting equipment

- new MIA and parking areas will use LED lighting and replacement of existing lighting plants with LED lights.
- Use of chemical dust suppressants on haul roads will continue to be undertaken to reduce energy consumption by water carts.

## **Hazards and Bushfire**

### Hazards

- The relocated combustible and flammable liquids storage facilities will be designed, installed and operated in accordance with AS1940 – 2017. The storage and handling of flammable and combustible liquids (AS1940).
- Glencore will also consider the requirements of AS/NZS 60079.10.1 – 2009 Explosive atmospheres Classification of areas - Explosive gas atmospheres for the storage and handling of Class 2.1 flammable gas and Class 3 flammable liquids and implement appropriate designs and controls to ensure ignition sources are not introduced into the defined hazardous area envelope.
- The magazine will at all times be located more than the minimum buffer distance from publicly accessible areas to ensure that the minimum separation distance trigger value for Class 1.1 materials is maintained.

### Bushfire

- 10 m Asset Protection Zone (APZ) will be implemented for proposed infrastructure; the APZ will be maintained to the standard of an inner protection area (IPA) for the life of the Project to provide adequate access for firefighting purposes.
- Glencore will continue to manage the Mount Owen Complex in accordance with the existing Bushfire Emergency Response Procedure which will be updated in consultation with the RFS, to include all new access points relevant to the Project Area and any other relevant changes associated with the Project.
- The proposed MIA will also be equipped with resources for firefighting including maintaining access to water for firefighting purposes.

## **Waste Management**

- Ongoing management of waste at the Mount Owen Complex will be undertaken through continued implementation of the existing Waste Management Plan, which will be updated to incorporate relevant aspects of the Project if approved. Key waste management includes:
  - No waste will be disposed of onsite except for inert wastes permissible under applicable legislation and waste tyres buried deep in pit.
  - Waste will continue to be separated on site to allow different waste streams to be appropriately managed.
  - Waste that cannot be reused or recycled will be transported off-site by licensed waste management contractors.

## Social

- As part of the Project, Glencore will negotiate a VPA with Singleton Council which will afford opportunities for the Project to contribute to programs designed to improve or address local community issues and perceived impacts through financial contributions to Singleton Council. Local community improvements have been highlighted in the Singleton Council Community Strategic Plan, and further discussion will be held around prioritising the use of contributions in local areas around the Project, as well as in the broader LGA.
- Glencore proposes to identify additional Community Enhancement Projects to benefit stakeholders in close proximity to the mine. Such projects/initiatives will include:
  - opportunities to enhance local infrastructure/services enhancements e.g. Hebden Hall and Mt Olive Hall
  - stabilisation and improvements to the appearance of the Hebden Public School building (Site No. 34) in line with project heritage commitments
  - exploring opportunities to partner with the local RFS on emergency response initiatives.
- These Community Enhancements Projects would:
  - be integrated into Glendell's existing Community Investment Programs and/or
  - form part of heritage commitments as outlined in the EIS and/or
  - considered in the development of the Planning Agreement for the Project, in consultation with Singleton Council.
- As part of the ACHAR, the Project proposes to investigate funding a traineeship or a work experience position in the area of cultural heritage management, biodiversity or land management, ecology, rehabilitation or another appropriately related field, through a third-party provider, such as the National Parks and Wildlife Service (NPWS), who currently offer a 2-year field officer traineeship in land management.
- Glencore will notify the local community of how they can find information regarding available employment opportunities.
- In order to document heritage values and increase cultural awareness and education in relation to the homestead, the Project proposes to develop a series of interpretive strategies that address the history and significance of the Ravensworth Homestead Complex and the broader Ravensworth Estate. This information would be made publicly accessible through existing services such as the Singleton Public Library. Interpretive information would include:
  - documentation of oral histories: recount of historical events that have taken place at the homestead and its surrounds, family and community stories, community events etc.
  - preparation of detailed 3D digital recordings of the exterior and interior of the existing Ravensworth Homestead Complex and development of a digital interpretation of the Ravensworth Homestead Complex for public viewing and research purposes.
  - development of interactive and interpretive materials documenting the history across the Ravensworth Estate.

- Glencore will develop a Social Impact Management Plan (SIMP) that defines and guides the monitoring and evaluation activities for the Project. The SIMP will be developed in accordance with the SIA Guideline and will:
  - identify opportunities to enhance positive and mitigate negative social and economic impacts of the Project on communities
  - detail adaptive management and mitigation strategies to address potential impacts of the Project identify appropriate stakeholder responsibilities
  - identify appropriate monitoring, reporting and review mechanisms, including the purpose of monitoring and the parameters that will be monitored and how and when monitoring data will be collected
  - outline a process to engage with relevant stakeholders and communities, with a focus on practical mechanisms for the community to collaborate and record their observations and experiences of social impacts and any proposed community participation
  - include an incident notification and reporting process, including providing applicable information to the community
  - develop a process for reviewing the above elements to assess whether they are still appropriate, and whether any new issues have emerged that should be included in ongoing monitoring
  - develop a process for making monitoring results and associated information publicly available, including any revisions to the monitoring and management framework.