Integra to Mount Owen Complex Water Pipeline Modification
(MP 08_0101 MOD 7 and SSD 5850 MOD 1)

Environmental Assessment Report
Sections 75W and 96(1A) of the *Environmental Planning and Assessment Act 1979*

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1. BACKGROUND

Glencore Coal Pty Limited (Glencore) owns and operates a number of coal mines throughout NSW, including the Integra Underground Mine (Integra Underground) and Mount Owen Complex (Mount Owen) in the Upper Hunter Valley. Both operations are situated within the Singleton Local Government Area.

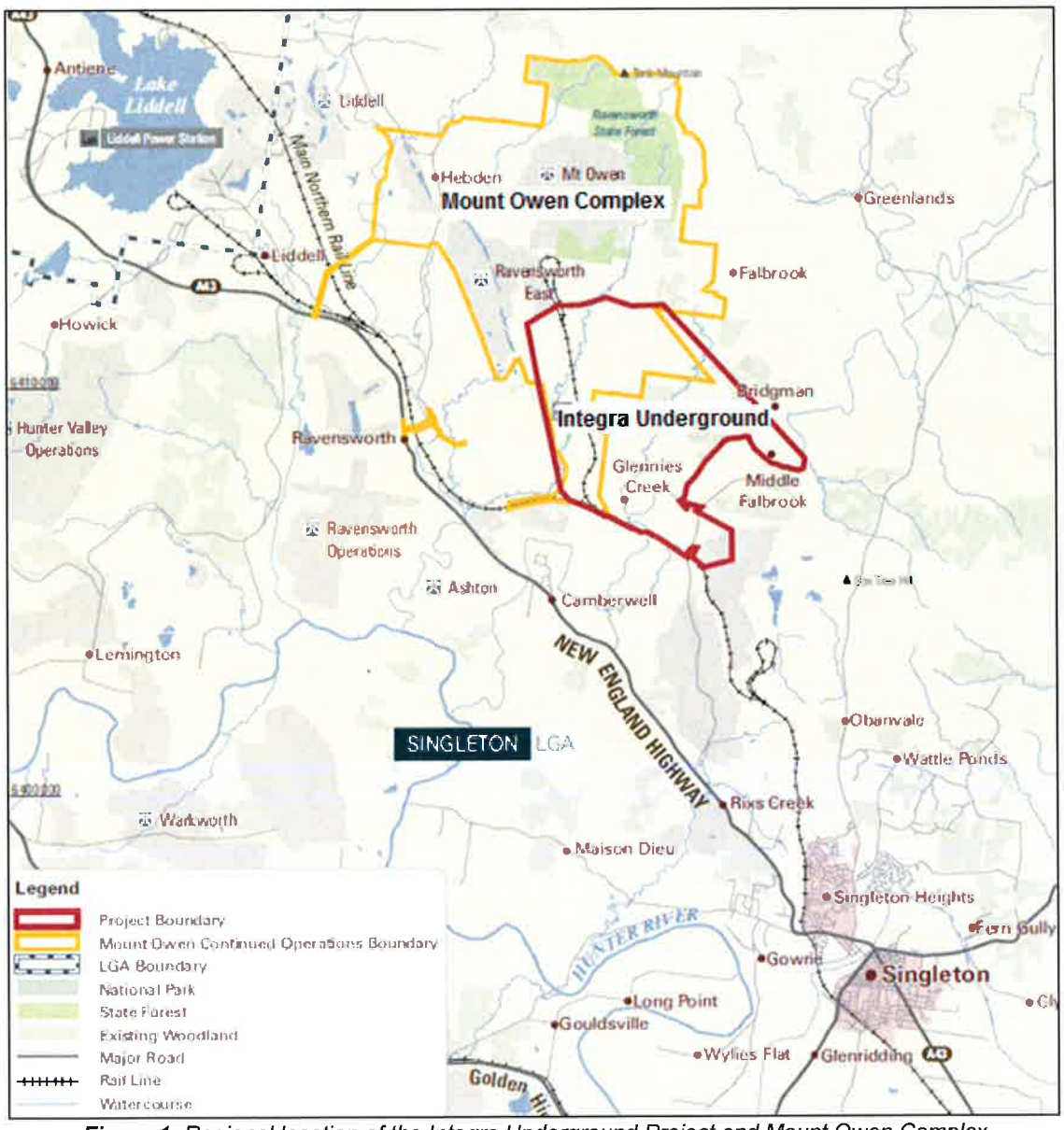

***Figure 1**: Regional location of the Integra Underground Project and Mount Owen Complex*

Mount Owen is located approximately 20 kilometres (km) north-west of Singleton and comprises three open cut pits known as the Main, Bayswater and Glendell Pits. The location of Mount Owen is shown in **Figure 1** above. Operations at Mount Owen are managed by Mount Owen Pty Ltd, a wholly owned subsidiary of Glencore, and governed by development consent SSD 5850 for the Mount Owen Continued Operations (MOCO) Project, which allows mining to be conducted until 31 December 2031.

Integra Underground is located southeast of Mount Owen and approximately 10 km north-west of Singleton (see **Figure 1**). Integra Underground is managed by HV Coking Coal Pty Ltd (HVCC), a subsidiary of Glencore, and extracts coal by underground mining in the Hebden, Barrett and Middle Liddell seams.

On 26 November 2010, the then Minister granted project approval under a single consolidated instrument for the operation of the Integra Underground Project (MP 08_0101) and the Integra Open Cut Project (MP 08_0102), replacing previous consents and approvals for what was then an integrated mining complex known as the Integra Coal Complex.

In December 2015, Bloomfield Collieries Pty Ltd (Bloomfield) acquired the Integra Open Cut Project from HVCC, separating the previous mining complex into two independent operations. Bloomfield, the owner of the adjacent Rix's Creek Coal Mine, now operates the Integra Open Cut Project under the new project title "Rix's Creek North". The Integra Underground Project has been retained by HVCC.

On 23 August 2016, the consolidated approval was modified by the Planning Assessment Commission, as delegate of the Minister. This modification separated management of the open cut and underground mining operations into two independent project approvals, MP 08_0102 and MP 08_0101, respectively.

2. PROPOSED MODIFICATION

2.1 Water Pipeline

Glencore is seeking to modify MP 08_0101 to allow for the construction and operation of a water pipeline from Integra Underground to Mount Owen. The pipeline would enable the transfer of mine water from Integra Underground to Mount Owen's mine water management system, effectively integrating Integra Underground into Glencore's Greater Ravensworth Area Water Sharing Scheme (GRAWSS).

The GRAWSS was established by Glencore to enable mine water to be easily transferred between its operations at Mount Owen, Liddell Mine and Ravensworth Operations Mine. This strategic approach to water management is more efficient and enables water deficits or surpluses to be managed across the sites, with less water take from the surrounding environment.

The proposed water pipeline would be approximately 10 km in length, running south-east to north-west along one of two alternative alignments (see **Figure 2**). Mine water from the Integra Underground would be drawn from the existing Integra Underground portal sump and pumped as a one way flow to Mount Owen. While this water could be pumped to any approved mine water storage at Mount Owen, the EA/SEE has assumed that it would be pumped to either the Mount Owen Environmental Control Dam (ECD) or an additional feeder dam that would be constructed on previously disturbed land adjacent to the ECD. The pipeline itself would be constructed using 400 mm diameter polyethylene pipe, which would allow for the conveyance of mine water at a flow rate of up to 130 litres/second.

As illustrated in **Figure 2,** the proposed alignment of the pipeline would cross Glennies Creek, Bettys Creek and Main Creek, by either digging and backfilling trenches, underboring the pipeline beneath the creeks or erecting bridges. A further detailed description of the modification is provided in Glencore's Environmental Assessment/Statement of Environmental Effects (EA/SEE - see **Appendix A**).

2.2 Construction

Construction of the water pipeline would last approximately 3 months with most of the components involved in the construction phase to be pre-fabricated off-site.

The water pipeline would be mounted on concrete sleepers, suspended approximately 20 cm above the ground surface, allowing for reduced ground disturbance and flood interaction. Some sections of the pipeline may also be buried using boring equipment or excavators, particularly near public roads, access tracks, one adjacent private residence and the main channels of Main Creek and Bettys Creek.

A pump station and associated pipeline infrastructure would be constructed at the Integra Portal Sump, with water levels at this location being regularly monitored. Communication cables would also be installed adjacent to the pipeline.

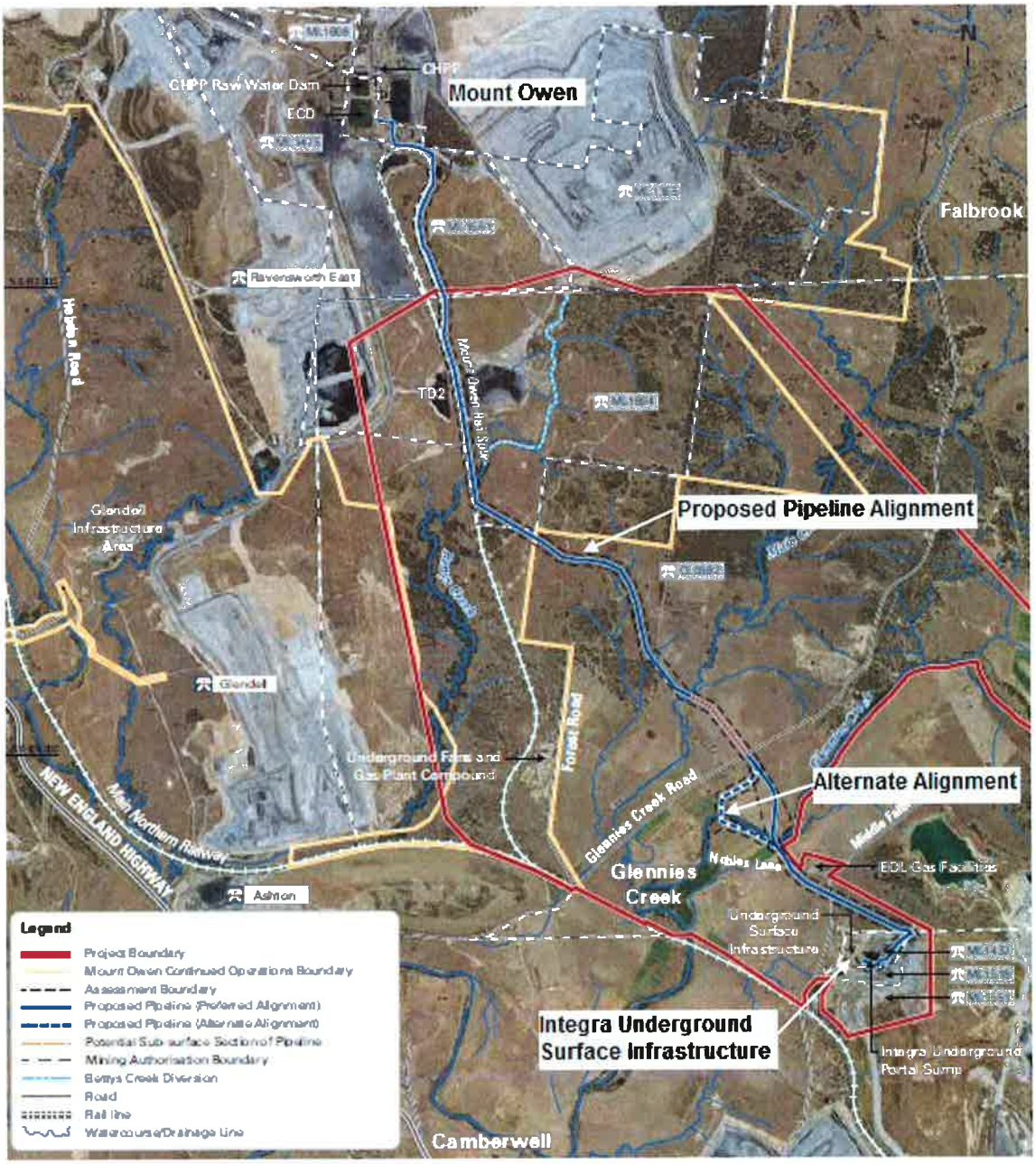

***Figure 2**: Location and alignment of proposed pipeline*

2.3 Need for Modification

Prior to the separation of the Integra Coal Complex into two independent operations in August 2016, the Integra Underground Project and the Integra Open Cut Project were managed as a single entity, with water management infrastructure primarily located at the Integra Open Cut Mine.

Following the transfer of ownership to two separate mining companies, Glencore is seeking approval to develop a self-sufficient water management system that ties into the existing GRAWSS and does not rely on commercial arrangements with the neighbouring Rix's Creek North Mine.

3. STATUTORY CONTEXT

To enable construction of the pipeline, Glencore is seeking approval to modify MP 08_0101 for the Integra Underground under section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and SSD 5850 for the MOCO Project under section 96(1A) of the EP&A Act.

3.1 Section 75W

MP 08_0101 was approved under the now repealed Part 3A of the EP&A Act. The project remains a 'transitional Part 3A project' under Schedule 6A of the EP&A Act and the modification must therefore be determined under the former section 75W of the Act.

The proposed modification involves the construction of ancillary infrastructure to support the approved mining operations at Integra Underground. The proposal would not change any of the core elements of the project, including the approved disturbance limits, mining methods, operational hours and annual extraction volumes and processing rates. Consequently, the Department is satisfied that the proposed modification is within the scope of section 75W, and may be determined accordingly.

3.2 Section 96(1A)

SSD 5850 was granted under Part 4, Division 4.1 of the EP&A Act. Development consents granted under Part 4 may be modified under section 96 of the Act. It is noted that the EA/SEE incorrectly states that Glencore is seeking a modification under section 96(2) of the Act. Glencore has acknowledged this error and confirmed that the proposed modification is sought under section 96(1A).

Section 96(1A) provides for the consent authority to modify a development consent if it is satisfied that:

- the proposed modification is of minimal environmental impact; and
- the development, as proposed to be modified, is substantially the same as the development for which consent was originally granted.

Following a detailed assessment of the proposal, the Department is satisfied that the modification is of minimal environmental impact. Similarly, the proposed modification would not change the core elements of the approved development and would simply allow for the management of mine water from Integra Underground to be incorporated into the GRAWSS.

Therefore, the Department is satisfied that the development, as it is proposed to be modified, would be substantially the same as that originally approved. Consequently, the Department considers that the proposal is within the scope of section 96(1A) of the EP&A Act, and may be determined accordingly.

3.3 Approval Authority

The Minister for Planning is the approval authority for the application. However, the Planning Assessment Commission must determine the application under the Minister's delegations of 14 September 2011 and 16 February 2015 because a related entity, Glencore Australia Holdings Pty Ltd, has declared reportable political donations.

3.4 Environmental Planning Instruments

A number of environmental planning instruments apply to the modification, including:

- *State Environmental Planning Policy (SEPP) (Mining, Petroleum Production and Extractive Industries) 2007;*
- *SEPP (Infrastructure) 2007;*
- *SEPP (State and Regional Development) 2011;*
- *SEPP No. 33 – Hazardous and Offensive Development;*
- *SEPP No. 44 – Koala Habitat Protection;*
- *SEPP No. 55 – Remediation of Land;* and
- *Singleton Local Environmental Plan 2013.*

The Department has considered the assessment of relevant environmental planning instruments in the EA/SEE and assessed the proposed modification against the relevant provisions of these instruments. Based on this assessment, the Department is satisfied that the proposed modification can be carried out in a manner that is consistent with the aims, objectives and provisions of these instruments.

4. CONSULTATION

4.1 Exhibition and Notification

Under the former section 75W and section 96(1A) of the EP&A Act, the Department is not required to notify or exhibit the modification applications. Given the minor nature of the proposed modifications, the Department did not consider that public exhibition was warranted. However, the EA/SEE was made publicly available on the Department's website. No community submissions were received.

The Department sought agency comments from the Environmental Protection Authority (EPA), Department of Primary Industries (DPI), Office of Environment and Heritage (OEH), Heritage Council of NSW and the Department's Division of Resources and Geoscience (DRG) (see **Appendix B**).

The Department is satisfied that the notification process meets the requirements of the EP&A Act and the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).

4.2 Agency Submissions

The **EPA** advised that a variation to the current Environmental Protection Licence (EPL) would be required for either Mount Owen or the Integra Underground Project. This EPL variation would formalise the management and control of the pipeline on one of the premises. The EPA also requested information pertaining to contingency plans in place to mitigate potential pipeline breakages.

The **Heritage Council of NSW** noted that the proposed water pipeline would not impact on any State Heritage items and that it would be removed upon cessation of mining operations. The Heritage Council noted that it had no further comments provided the pipeline construction and operation were carried out in accordance with the Historic Heritage Management Plan (HHMP) that it had endorsed on 18 January 2017.

DPI recommended that all pipeline construction and operation undertaken within or surrounding watercourses be executed in accordance with its 2012 *Water Guidelines for Controlled Activities*. Further recommendations included consultation with DPI Water regarding necessary updates to the Water Management Plan, design and construction of any potential bridge structure over Glennies Creek and that, following the completion of mining, any buried pipeline between Glennies Creek and Main Creek be removed or buried to a minimum of 1200 mm below ground level so as to not impact on future agricultural activities.

DRG did not raise any concerns with the proposal but noted that DPI Water should be consulted regarding the proposed creek crossings and associated environmental impacts.

OEH was satisfied with the assessment of Aboriginal cultural heritage and proposed several conditions for management of potential related impacts, including consultation with local registered Aboriginal parties, development of an Aboriginal cultural education induction program for any personnel involved in pipeline construction and preparation of appropriate recording and registration of any Aboriginal sites that are impacted. Further to this, **OEH** recommended protocols should ground disturbance locate previously unidentified Aboriginal objects. The Department has sought to incorporate the intent of OEH's advice in its recommended conditions.

OEH also raised initial concerns with the adequacy of information provided with respect to the predicted maximum flood levels, the potential for flood impacts on privately-owned land and the requirement to account for and offset the impacts of the modification of biodiversity. These matters are dealt with in detail in **Sections 5.2** and **5.3**, below.

4.3 Response to Submissions

On 11 July 2017, Glencore submitted a Response to Submissions (RTS – see **Appendix C**) to address the issues raised in agency submissions. The RTS confirmed that the EPLs in place at Mount Owen and Integra Underground would both need to be altered to address the management of the proposed water pipeline and highlighted Glencore's intention to carry out regular reviews and potential updates of the management plans currently in place for these projects.

In response to requests from the Department, Glencore also provided additional information to address outstanding matters raised by agencies (also see **Appendix C**).

5. ASSESSMENT

The Department has assessed the merits of the proposed modification in accordance with the relevant objects and requirements of the EP&A Act. In assessing these merits, the Department has considered the:

- Environmental Assessment (EA) for the original Integra Underground Project application and the Environmental Impact Statement (EIS) for the MOCO Project application;
- conditions of approval or consent for the original Integra Underground Project and MOCO Project, as amended by subsequent modifications;
- the modification applications MP 08_0101 (MOD 7) and SSD 5850 (MOD 1); and
- relevant environmental planning instruments, policies and guidelines.

The Department considers the key issues for assessment are the potential impacts for water resources, biodiversity and flood management. Consideration of these issues is provided below.

5.1 Water Resources

The proposed modification would integrate the Integra Underground Project into the GRAWSS, expanding its scope and allowing mine water generated from that site to be beneficially used at the other sites within the GRAWSS including Mount Owen, Liddell Mine and Ravensworth Operations.

The EA/SEE included water balance modelling conducted for the entire GRAWSS scheme to evaluate whether its capacity was sufficient to accommodate the additional transfer of mine water from the Integra Underground Project. This water balance did not include potential mine water transfers between the Integra Underground Project and Rix's Creek North Mine, although this option remains available.

The water balance model simulated the GRAWSS operations over a 1 year period from 1 January 2018 to 1 January 2019 and was repeated to account for a range of climatic conditions. The water balance model revealed that the proposed pipeline would result in annual mine water transfers from the Integra Underground Project to Mount Owen of around 1798 megalitres (ML). With these inflows Mount Owen would no longer require water from the Liddell Mine or Ravensworth Operations, would increase the use of its existing onsite water storages and export an additional 1002 ML per annum to the broader GRAWSS.

The EA/SEE identified that the water transfer and pumping capacity of the pipeline would be capable of dewatering the estimated inflows of water to the Integra Underground Project portal sump at target operational levels for around 95% of modelled days. Glencore has identified that on excessively wet days where the modelled capacity of the portal sump is predicted to overflow, water would be directed into the underground workings for emergency storage, to prevent any offsite discharges to the environment. Additional contingency measures would also be considered to manage operational dewatering during adverse climatic conditions, including lowering the operational level of the portal sump to reduce overflow risk and pumping of excess water to Rix's Creek North Mine, using the existing infrastructure and negotiated commercial water management transfer agreements with Bloomfield.

Glencore has acknowledged that the modifications would increase the likelihood of overflows from the Mount Owen ECD from less than 5% of any given year to approximately 7%. However, all overflows from the ECD would be managed and conveyed via internal drainage lines to the Mount Owen West Pit. Given the small scale and risk of these overflows and the preferential use of mine water from Integra Underground in the Mount Owen CHPP, Mount Owen would be expected to increase use of its 20,000 ML capacity West Pit water storage from 2,300 ML to 3,400 ML under the 95th percentile weather event. Glencore has identified that the modifications would not appreciably increase the need for offsite discharges from the GRAWSS and would not require any changes to the offsite discharge limits under its existing EPLs.

In addition to commenting on the need for EPL variations, the EPA requested further details of the management and contingency measures that would be employed by Glencore to mitigate the risks of undetected breakages in the pipeline, which could lead to the contravention of the *Protection of the Environment Operations Act* 1997, particularly near waterways and sensitive environments.

The RTS reiterates Glencore's commitment to install and operate flow meters between the pump and pipeline outlet at ECD, to determine any losses in water volume, which would indicate a potential leak or breakage in the pipeline. Any detected change in water volume would automatically trigger the

cessation of pumping and Glencore would undertake an inspection of the pipeline to determine the cause of this discrepancy and any necessary corrective action. The RTS further notes that the detailed construction of the pipeline would include additional measures to manage any potential leaks near sensitive environments. These measures may include minor drainage lines and sumps, shut off valves at creek crossings and the use of secondary containment for any bridges built over creek crossings.

Having considered the water balance modelling undertaken for the modification, the Department is satisfied that:

- the GRAWSS scheme would have sufficient capacity to manage mine water transfers from the Integra Underground Project to Mount Owen;
- the additional average annual inflows to Mount Owen would not require any changes to the offsite discharge limits under existing EPLs; and
- appropriate controls can be incorporated into updated Water Management Plans, such that the construction and operation of the proposed water pipeline would not result in significant additional risks of leakages or water storage overflows to receiving environments.

Overall the Department is satisfied that the modification is unlikely to result in detrimental impacts on nearby water resources and downstream users, and that the recommended conditions and updated Water Management Plans would provide appropriate controls for the protection of water resources.

5.2 Biodiversity

The EA/SEE was accompanied by an Ecological Impact Assessment (EIA) prepared by Cumberland Ecology, which considered the likely flora, fauna and ecological impacts of the pipeline's construction. This EIA included a desktop analysis of the 134.1 hectare (ha) corridor within which Glencore is seeking to construct the pipeline and a targeted field survey of vegetation communities and fauna habitat present in this area. These surveys identified that the pipeline corridor comprises 7.3 ha of native woodland, 1.6 ha of planted vegetation and 125.2 ha of derived native grassland or disturbed areas.

While no threatened fauna or threatened flora species were recorded during field surveys, the EIA acknowledged that records of the surrounding area indicate the likely occurrence of 18 threatened fauna species and five threatened flora species within the assessment boundary.

The EIA identifies that the native vegetation communities within the potential disturbance corridor generally occur as isolated patches of open woodland or constitute the edge of larger parcels of woodland that extend outside the pipeline corridor. In total, the modification is predicted to result in temporary disturbance and/or long term removal of native woodland vegetation comprising about:

- 0.48 ha of *Central Hunter Ironbark – Spotted Gum – Grey Box Forest* Endangered Ecological Community (EEC), listed under the *Threatened Species Conservation Act 1995* (TSC Act);
- 0.25 ha of Central Hunter Swamp Oak Forest;
- 0.28 ha - 0.44 ha of Hunter Valley River Oak Forest;
- 0.46 ha of regenerated Central Hunter Bulloak Forest; and
- 0.64 ha of rehabilitation and planted vegetation.

With respect to the grassland component of the corridor, the Department notes that the pipeline would be suspended above ground level over the majority of its length, thereby minimising the extent of grassland disturbance, other than in respect of instalment of concrete sleepers. While some sections of the pipeline may be buried, Glencore has committed to returning topsoil to disturbed areas as soon as possible following installation. The Department considers that the appropriate management of topsoil resources and timely backfilling of trenches would assist in the retention of viable seedbanks and mitigate the potential impacts to grassland areas. The Department is satisfied that these management measures could be reflected in updated Biodiversity Management Plans.

To address the potential occurrence of threatened flora species (including terrestrial orchids) and fauna habitat within the pipeline corridor, the Department has recommended that Glencore be required to undertake pre-clearance surveys at appropriate times to identify key flora species (such as *Diuris tricolour)* and fauna habitat features, which could then be avoided where practicable. Where disturbance is necessary, translocation of certain species could be undertaken in accordance with updated Biodiversity Management Plans. The Department and OEH are satisfied that the likelihood of significant long term impacts on derived native grassland areas and associated threatened species is very low and is manageable through implementation of the mitigation measures proposed in the recommended conditions.

Similarly, by establishing a disturbance corridor and using flexible construction materials, the final disturbance footprint for the pipeline could be designed to minimise the extent of impacts on woody forest and riparian vegetation. Glencore has argued that this flexible design, the relatively young nature of woody vegetation present within the disturbance boundary and the mitigation measures proposed in the EA/SEE mean that pipeline construction would not result in any significant ecological impacts. Consequently, Glencore considers that there is no need to provide biodiversity offsets for the modifications.

The Department notes that OEH's submission recommends that Glencore calculate its offset obligation for the proposed modifications using the *NSW Biodiversity Offsets Policy for Major Projects* and *Framework for Biodiversity Assessment* (FBA) (OEH 2014). In this regard, OEH noted that an approximate calculation of the credit requirements for the predicted impacts to vegetation communities and associated threatened fauna habitat would be around 105 ecosystem credits.

Having considered the information available, the Department agrees that the project would directly impact native forest communities, including an EEC listed under the TSC Act, and that compensation should be required to account for these ecological impacts. However, given the minor amount of remnant woody vegetation to be cleared and the mitigation measures proposed, the Department does not consider an FBA assessment to be the most appropriate way to account for these impacts.

Rather, consistent with the approach taken for recent assessments of tailings pipelines and electricity transmission line infrastructure at Mount Owen, the Department considers that the biodiversity impacts of the proposed modifications can be addressed by implementing detailed measures under the Biodiversity Management Plans to avoid vegetation clearance wherever possible and provide compensatory plantings for any mature vegetation cleared for the pipeline infrastructure.

To this end, the Department has recommended conditions requiring Integra Underground to plant and maintain 10 like-for-like trees for every mature tree that cannot be avoided and is cleared as part of the pipeline construction, along with conditions requiring that any areas of temporarily disturbed land are replanted and rehabilitated in a timely manner, with a focus on the regeneration, re-establishment and enhancement of the four native forest communities to be disturbed by the pipeline.

The Department has also reinforced and built upon the proposed management and mitigation measures contained in the EA/SEE and RTS, by requiring Glencore to ensure that the construction of the water pipeline avoids removal of any stags or hollow bearing trees and does not disturb the existing Bettys Creek Habitat Management Area.

OEH has reviewed the Department's recommended conditions. The Department and OEH are satisfied that the recommended pre-clearance surveys, mitigation and management measures, rehabilitation requirements and additional compensatory plantings are sufficient to account for the proposal's biodiversity impacts. The Department considers that these requirements could be readily reflected in updated versions of the existing Biodiversity Management Plans.

5.3 Flooding and Floodplain Management

The EA/SEE included hydrologic and hydraulic modelling of the implications of the proposed modifications on the flood risks and conditions of Glennies Creek, Main Creek and Bettys Creek. This modelling included an analysis of the current and proposed environment to ascertain the relative impacts of the proposed water pipeline on flood discharges, levels, depths, extents and velocities in the surrounding environment, under a 1% Annual Exceedance Probability (AEP) rainfall event.

Glencore's preferred option for crossing the ephemeral watercourses of Bettys Creek and Main Creek is to establish a trench in the dry creek bed, install the pipeline sections and backfill this trench and cap it with rock for protection against high flows. Given the higher water flows and increased span of the Glennies Creek, Glencore has indicated that its preferred method for this crossing would be to drill or underbore beneath the creek bed in one of two locations. In the event that underboring or trenching is not undertaken, Glencore is seeking the option to build bridge structures to suspend the pipeline over the creeks. These structures would likely comprise multi-truss spans and supporting piers.

As the construction of bridges represents a greater physical barrier to flood waters, the modelling has been conservatively based on the assessment of flood impacts following the construction of bridge

crossings. Should Glencore choose to pursue the preferred underboring or trenching of creek crossings, the predicted impacts would be expected to reduce.

Based on the above, the model assessed the elevated sections of pipeline to be constructed across the floodplains by assuming that the 400 mm wide pipeline would obstruct any water directly colliding with it and the gap between the pipeline and the ground would experience a 20% blockage rate due to the presence of concrete sleepers and debris. For bridge structures, the model assumed that the pipeline would again obstruct any flows colliding with it and that the bridge structure would block 2% of water flows due to the presence of bridge piers and about 20% of flows as a result of the truss spans.

Overall, the modelling found that the pipeline would result in localised increases in flood velocities and peak flood levels on Glencore-owned land around Bettys Creek and would result in changes to flow velocities, minor increases in peak flood levels and erosion risks along sections of Glennies Creek and Main Creek, including some impacts on adjacent parcels of private and mine-owned land.

OEH advised that the flood modelling presented in the EA/SEE was fit for purpose but recommended that further consideration and sensitivity analysis be undertaken for the Probable Maximum Flood event, particularly given the relatively low ground clearance of the water pipeline and the potential implications this could have on flood levels and velocities, should flood debris block and concentrate water behind the pipeline infrastructure. OEH also noted the potential for the pipeline to increase flood risks and impacts on other mine-owned and privately-owned properties.

The pipeline is predicted to increase localised flooding around any bridge constructed over Bettys Creek by up to 11 cm under a 1% AEP. As shown in **Figure 3**, these impacts would be contained to Glencore-owned land, with no material change in upstream impacts. The Department considers the modelled impacts to be conservative given they were based on the larger pre-mining catchment area of Bettys Creek and notes that Glencore is already conditioned to ensure that the upstream Bettys Creek Diversion is constructed to be hydraulically and geomorpholigically stable, and to comply with Water Performance Management Measures for the construction and operation of infrastructure to:

- Design, install and maintain erosion and sediment controls generally in accordance with the series *Managing Urban Stormwater: Soils and Construction* including *Volume 1, Volume 2A – Installation of Services, Volume 2C – Unsealed Roads*, *Volume 2D – Main Road Construction and Volume 2E - Mines and Quarries*;
- Design, install and maintain all new infrastructure within 40 m of watercourses generally in accordance with the *Guidelines for Controlled Activities on Waterfront Land* (DPI 2007), or its latest version; and
- Design, install and maintain creek crossings generally in accordance with the *Policy and Guidelines for Fish Friendly Waterway Crossings* (NSW Fisheries, 2003) and *Why Do Fish Need To Cross The Road? Fish Passage Requirements for Waterway Crossings* (NSW Fisheries 2003), or their latest versions.

The EA/SEE predicted that the pipeline would increase peak flood levels around any bridge constructed over Main Creek by around 3 cm under the 1% AEP, with localised increases of up to 12 cm and minor decreases directly downstream. These impacts are shown in **Figure 3** and would extend around 160 m upstream of the bridge. The RTS further clarified that under the 1% AEP, the pipeline was predicted to increase peak flood levels by about 1 cm on one privately-owned landholding downstream of the infrastructure on Main Creek (Residence 80). The RTS considered this change to be negligible in relation to the overall flood levels on this landholding. Given the modelling predicted worst case impacts associated with a bridge and that Glencore would have the option to bury a portion of the pipeline along the boundary of this private landholding and/or establish the pipeline crossing of Main Creek using a backfilled and rock armoured trench, the Department is satisfied that the predicted flood impacts could be managed.

Likewise, the RTS noted that the preferred pathway for a bridge over Glennies Creek would have the potential to increase flood levels under the 1% AEP by about 2 cm, extending up to 600 m upstream of the pipeline. These increased flood levels would include impacts of between 1-2 cm across the alluvial flats associated with three Bloomfield-owned properties located upstream of the infrastructure. The Flood Impact Assessment in the EA/SEE concluded that, given the existing flood levels in this area exceed 5 m, the relative change in flood levels should not be considered a significant impact. Further, the RTS noted that any impacts to nearby properties would be localised to alluvial areas and would not

Main Creek

Glennies Creek (preferred alignment)

Bettys Creek

Glennies Creek (alternative alignment)

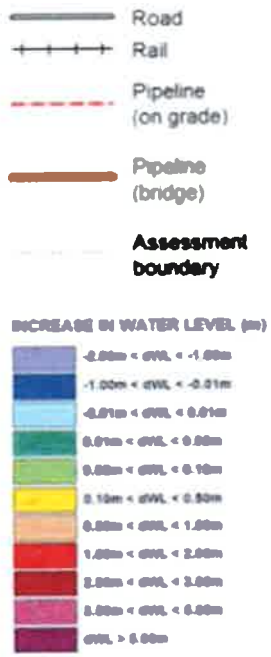

***Figure 3**: Predicted increase in peak flood levels under 1% AEP*

impact on existing infrastructure associated with the Rix's Creek North Mine. Importantly, the Department notes that the two options for the pipeline alignment would result in similar localised increases in flood levels, but that the impacts associated with the more westerly (alternative) alignment would almost completely avoid Bloomfield-owned land (see **Figure 3**).

To address flood impacts, the Department has recommended conditions that strengthen the existing requirements for management of flooding and erosion risks under the Integra Underground Water Management Plan and a new condition that requires the detailed design of any bridge crossing for the water pipeline infrastructure to be determined following consideration of further modelling that has been undertaken to the satisfaction of OEH and that assesses the impacts for flood events up to and including the Probable Maximum Flood. This design and modelling must demonstrate to the satisfaction of the Secretary that the infrastructure would not result in any significant impacts on privately-owned land. The Department is satisfied that a condition in this form satisfactorily manages the higher flood risks associated with any bridge structures adopted, while not limiting use of the trenching or underboring options which carry no significant flood risk. OEH has reviewed the recommended conditions and is satisfied that they address its concerns in relation to flood management and mitigation and the protection of privately-owned land.

In addition to the above, the Department supports OEH's recommendation that Glencore maintains continued consultation with neighbouring private residents to inform them of any possible flooding impacts and other potentially adverse impacts of the pipeline. The Department notes that Glencore has committed to continue to consult with affected private landholders about potential flood impacts and is satisfied that this consultation process could be detailed in updated Water Management Plans.

With the implementation of appropriate management measures, the Department is satisfied that the water pipeline is unlikely to significantly increase flood levels or result in any significant offsite impacts. The Department also notes that the water pipeline would be removed following the closure of the Integra Underground mine and would not result in any long-term flooding impacts following mine closure.

5.4 Other Impacts

The Department has considered the other potential impacts of the proposed modification, and has summarised these considerations in **Table 1**.

***Table 1**: Assessment of other issues*

Issue	*Consideration*	*Recommendation*
Noise	• The EA/SEE included an Acoustics Assessment for the modifications, undertaken by Bridges Acoustics. This assessment focused on construction noise impacts, in line with the Interim Construction Noise Guideline (EPA, 2009) (ICNG), and considered the 'worst case' operational implications associated with use of a diesel pump to power the water transfer. • Construction activities would occur 24 hours a day for a period of 10 weeks and are expected to generate elevated levels of noise at the nearest private residence. • In particular, elevated noise levels are predicted to occur in relation to the burying of a section of pipeline adjacent to Residence 80, construction of any above ground pipeline in this location, underboring of Glennies Creek and construction of any bridge across Glennies Creek. • Glencore has identified that all relevant construction staff would be provided with awareness training in relation to noise generating matters and that construction works undertaken outside of standard construction hours would be limited to tasks located a sufficient distance from receivers, in order to meet the operational noise criteria in MP 08_0101. • As the closest private receiver to the construction works, Residence 80 would be the most affected by construction noise. While this receiver is already entitled to mitigation measures and acquisition upon request under MP 08_0101, the Department sought information on	• The Department has recommended that the combined operational and construction noise for the project be limited to 5 dB(A) above the sites' operational noise criteria during ICNG standard construction hours and remain within operational noise criteria outside of these times. • Should temporarily higher limits be required for short-term noise generating activities, the Department has recommended that Glencore prepare an out-of-hours Construction Noise Work Protocol to the satisfaction of the Secretary, or reach agreement with the affected landowner to undertake these works. • No changes to existing operational noise criteria

	whether additional measures could be employed to manage construction noise impacts at this residence. • Glencore has since committed to adjust its construction program to minimise noise impacts at Residence 80 and to undertake all construction works within 1.2 km of this receiver during standard construction hours. • In consideration of the background noise environment and relatively low sound power level associated with the operation of a diesel-powered pump, Bridges Acoustics found that the modification would result in operational noise impacts of 25 $LA_{eq\ (15\ min)}$ at the nearest private residence.	are considered necessary. However, the Department has made minor administrative updates to reflect their relationship with construction noise limits.
Aboriginal and Historic Heritage	• The EA/SEE included an Aboriginal and Historic Heritage Impact Assessment (AHHIA) prepared by OzArk Environmental and Heritage Management, using data from previous heritage studies and targeted site surveys. • This AHHIA identified that the modification areas contain three previously recorded Aboriginal cultural heritage (ACH) sites and two unlisted historic heritage sites. • OzArk's assessment noted that neither of the historic heritage sites were listed on relevant heritage registers and concluded that neither site had heritage significance. • While the modification would not impact site MOH13 and is not expected to impact the house ruins associated with site MOH14, it is predicted to intersect with a section of the driveway associated with MOH14. • In general, Glencore has identified that the materials used to construct the pipeline provide sufficient flexibility to alter its alignment to avoid impacts on heritage sites. • Glencore has also identified the following management measures to minimise impacts to heritage items: – the installation of fencing around all three ACH sites, to clearly identify their location and avoid impacts; – training for all personnel regarding the locations and cultural significance of Aboriginal heritage items; and – avoidance of historic heritage site MOH13, the house ruins associated with site MOH14, and if practicable, adjustment of the pipeline alignment to avoid the driveway associated with site MOH14; • The existing Heritage Management Plan also includes protocols for managing any new sites or human remains that may be discovered during construction. • Overall, the Department is satisfied that the modifications would not materially affect heritage items and that the management of potential impacts could be achieved under an updated Integra Underground Heritage Management Plan.	• The Department has carefully reviewed existing conditions and recommended minor changes to strengthen provisions for protection of Aboriginal heritage items from direct and indirect harm. • The Department has also updated conditions for the Integra Underground Heritage Management Plan to reflect the need to avoid (as far as practicable) and otherwise manage ACH on site, and to implement an ACH education program for all personnel and contractors involved in construction or surface disturbance activities.
Air Quality	• The installation of the water pipeline would result in minor dust generating activities for around 10 weeks. • The EA/SEE identified that, without adequate controls, these construction works have the potential to impact nearby residences and proposed dust mitigation measures to manage and mitigate these impacts. • However, overall this construction-generated dust would make a very minor addition to existing background dust levels (including mine generated dust) in the region. • The Department is satisfied that the air quality impacts of the modification could be effectively managed under existing Air Quality Management Plans.	• No change to existing conditions.
Traffic	• The proposed pipeline alignment would cross Middle Falbrook Road, Nobles Lane, Glennies Creek Road, Forest Road and some private access tracks. • These road crossings could be achieved through the temporary disturbance and reinstatement of the road surface to bury the pipeline.	• No change to conditions

	• To mitigate impacts on road users, Glencore has committed to only closing one lane of any public road at a time during construction of the pipeline trenches. These construction and installation works are expected to last approximately one day per road crossing. • Glencore has committed to reinstate any disturbed sections of public roads to the satisfaction of Singleton Shire Council, as the relevant roads authority. • Council has confirmed that it has no objections to the proposed road works and has already granted section 138 approval under the *Roads Act* 1993 to undertake works on the three affected local roads: Middle Falbrook Road, Nobles Lane and Glennies Creek Road. • The Department notes that the relevant roads authority has no objections to the road works and is satisfied that Glencore would need to comply with the conditions of Council's section 138 approval in undertaking the works.	

6. CONCLUSION

The Department has drafted recommended Notices of Modification (see **Appendix D**) and consolidated versions of the project approval and development consent as they are proposed to be modified (see **Appendix E**). The Department considers that the environmental impacts of the proposal can otherwise continue to be managed through existing conditions of consent.

The Department has also taken the opportunity to recommend some minor administrative changes to update existing conditions and reflect the Department's current drafting standards.

Glencore has considered the recommended conditions and has not raised any objections.

The Department has completed its assessment of the two modification applications, having carefully considered the EA/SEE, agency submissions, the RTS and the potential impacts of the proposal, in accordance with relevant requirements of the EP&A Act. The Department has paid particular attention to the likely impacts of the proposal on the natural and cultural environments and on nearby residents. The Department is satisfied that the environmental impacts of the proposal would be minimal, and could be appropriately managed by existing, modified and/or updated conditions.

The proposed modifications would integrate Integra Underground into the GRAWSS water management scheme and allow for receipt of this water at Mount Owen. The proposed pipeline would facilitate long-term management of mine water at Integra Underground and increase water sharing opportunities across Glencore's existing operations, without significant environmental impacts. The Department is therefore satisfied that the proposed modifications are in the public interest.

Following its assessment of the modifications, the Department considers that the modifications are approvable, subject to modified conditions of consent (**Appendices D & E**). This assessment report is hereby presented to the Planning Assessment Commission for determination.

Howard Reed 4.9.17

Howard Reed
Director
Resource Assessments

6/9/17

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