

4 MODIFICATION DESCRIPTION

This section provides a detailed description of the proposed Modification. It also describes the alternatives that were considered during the preliminary mine planning phase for the Modification.

4.1 OVERVIEW

HVCC seeks to modify PA 08_0101 to extend its approved longwall mining operations within the Middle Liddell coal seam. This will facilitate the recovery of up to an additional 9.9 Mt of ROM coal. The currently approved mine plan is located entirely within the boundaries of CL 382. The Modification proposes to extend the mine plan for the Middle Liddell seam further to the north and beyond the boundaries of CL 382 (see **Figure 9**).

The Modification includes the following mining activities and associated surface infrastructure:

- Adjustments to the approved mine plan for the Middle Liddell seam, including:
 - Realignment and extension of main headings further to the north-west;
 - Increases to the dimensions of the approved LWs 15-17; and
 - Mining of up to three additional longwall panels within the Future Underground Extraction Area.
- Construction and use of additional surface infrastructure to support the mine plan adjustments and ongoing mining operations, including:
 - Goaf Dewatering Site consisting of additional dewatering boreholes and associated infrastructure;
 - Surface auxiliary fans and associated shafts down to the longwall maingates to assist in the efficient ventilation of the longwall mining area;
 - Additional electricity transmission lines and distribution lines;
 - Additional gas drainage boreholes to facilitate the safe operation of the underground mine;
 - Increased usage of the currently approved gas flares;
 - Relocation and upgrade of the existing store at the Main Surface Facilities;
 - An additional access road off Middle Falbrook Road; and
 - Use of the C4 Dam (at Rix's Creek North Mine) to store raw water from Glennies Creek.

The key components of the Modification are conceptually illustrated in **Figure 2A**.

Table 5 provides a comparison of the approved operations at Integra Underground with the proposed Modification.

Table 5
Summary of the Modification

Aspect	Approved Project	Modified Project
Integra (PA 08_0101)		
Project Duration	25 years (until 31 December 2035)	No change
Mining Method	Underground mining (predominantly through longwall mining but also some bord and pillar mining)	No change
Coal Reserves	57 Mt of ROM coal from the Hebden and Barrett seams (in addition to previously approved 48.3 Mt of ROM coal from the Middle Liddell seam)	Up to an additional 9.9 Mt of ROM coal from the Middle Liddell seam
Production Rate	Maximum of 4.5 Mtpa of ROM coal	No change
Surface Infrastructure	<ul style="list-style-type: none"> Three ROM coal stockpiles Portal entry Ventilation shafts Administration building and bathhouse Gas drainage boreholes Gas flares 	<ul style="list-style-type: none"> No change No change No change to approved ventilation shafts. Additional surface auxiliary fans within the Future Underground Extraction Area No change Additional gas drainage boreholes within the Modified Project Boundary Increased use of existing gas flares, but no additional flares Goaf Dewatering Site New store and access road
Mine Plan	<ul style="list-style-type: none"> 17 longwall panels in the Middle Liddell seam 15 longwall panels in the Hebden seam 7 longwall panels in the Barratt seam First workings in the Hebden, Barrett and Middle Liddell seams 	<ul style="list-style-type: none"> Extension to the lengths of LWs 15-17 and mining of additional longwall panels within the Future Underground Extraction Area No change No change No change to approved first workings, except for realignment and extension of the North Mains
Coal Transportation	<ul style="list-style-type: none"> Truck haulage of ROM coal from stockpiles to the CHPP Rail to Newcastle 8,500 tonne capacity trains 	<ul style="list-style-type: none"> No change No change No change

Aspect	Approved Project	Modified Project
	<ul style="list-style-type: none"> Train loading occurs at Integra Open Cut Mine (Rix's Creek North Mine) 	<ul style="list-style-type: none"> No change
Employment	Up to 280 full-time equivalent personnel	No change
Water Management	<ul style="list-style-type: none"> Portal Sump Process Water Dam Transfer of mine water from Portal Sump to Integra Open Cut Mine (Rix's Creek North Mine) Transfer of mine water from Portal Sump to MOC Water Management System 	<ul style="list-style-type: none"> No change No change No change No change to transfer of mine water from Portal Sump to MOC. Water will also be transferred from the Goaf Dewatering Site to MOC. Use of Dam C4 (at Rix's Creek North Mine) to store fresh water pumped from Glennies Creek for process water (subject to agreement with Bloomfield Collieries)
Management of Reject Materials	<ul style="list-style-type: none"> Coarse rejects are co-disposed in overburden emplacement areas at Integra Open Cut Mine (Rix's Creek North) Tailings are dewatered and emplaced within Tailings Dams (TD2 and TD3) at Integra Open Cut Mine (Rix's Creek North Mine) 	<ul style="list-style-type: none"> No change No change
Operational Hours	24 hours a day, 7 days a week	No change

4.2 MINE PLAN AMENDMENTS

4.2.1 Background

HVCC currently has approval to mine 17 longwall panels (LWs 1–17) within the Middle Liddell coal seam. These longwall panels are mined in a north-east to south-west direction and facilitate the extraction of approximately 48.3 Mt of ROM coal (see **Figure 10A**). The dimensions of the approved longwall panels are generally constrained by mining lease boundaries, identified environmental constraints and the inferred presence of geological structures.

Due to HVCC's acquisition of Integra Underground in 2015, both Integra Underground and MOC are currently owned by subsidiaries of Glencore. This has given rise to the opportunity to extend Integra Underground's mining operations further to the north and beneath previously mined areas and surface infrastructure at MOC.

The proposed alterations to the longwall layout for the Middle Liddell seam will facilitate the recovery of up to an additional 9.9 Mt of ROM coal. The proposed mining activities will be undertaken within the Future Underground Extraction Area (see **Figure 2A**) which encompasses an area of approximately 493 ha. A portion of the Future Underground Extraction area (approximately 264 ha) is located outside of the boundaries of CL 382 (which is held by HVCC). This portion of the Future Underground Extraction Area is located within mining authorisations held by other subsidiaries of Glencore.

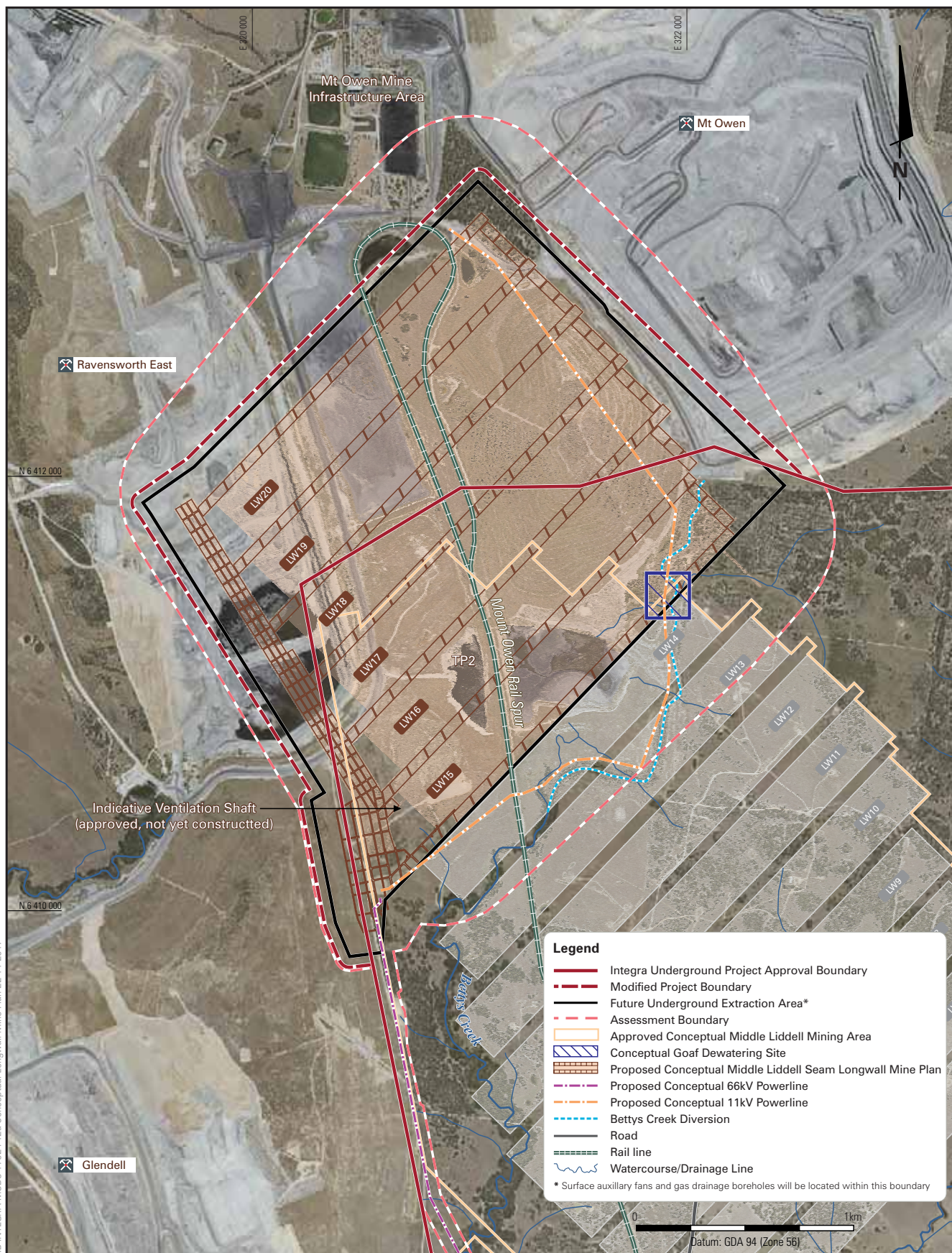
4.2.2 Mine Plan Design

The proposed extension of the mine plan for the Middle Liddell seam will facilitate underground mining beneath active and completed open cut mining areas at MOC. The main headings (North Mains) are currently being developed in a generally northerly direction. The extension of the mine plan will require the realignment and extension of the North Mains towards the north west. The realignment of the North Mains will facilitate increases to the lengths of LWs 15-17 and the extension of the North Mains will enable the development of additional longwall panels.

The panel widths for the proposed longwalls (LWs 15-17 and the additional panels) may range from the approved widths of LWs 15-17 to a maximum width of 320 m. Adopting the currently approved width will enable the development of three additional longwall panels (LWs 18-20), as illustrated in **Figure 12A**. The maximum panel width of 320 m will allow for two additional longwall panels (LWs 18-19) to be developed, as illustrated in **Figure 12B**. The panel width that is ultimately adopted will depend on the economic conditions at the time of the proposed mining activities.

The proposed longwall panels will utilise an extraction height of up to 3.3 m. The depth of mining for the proposed longwall panels varies from 270 m to 580 m below the current ground surface (as modified by surface mining activities at MOC).

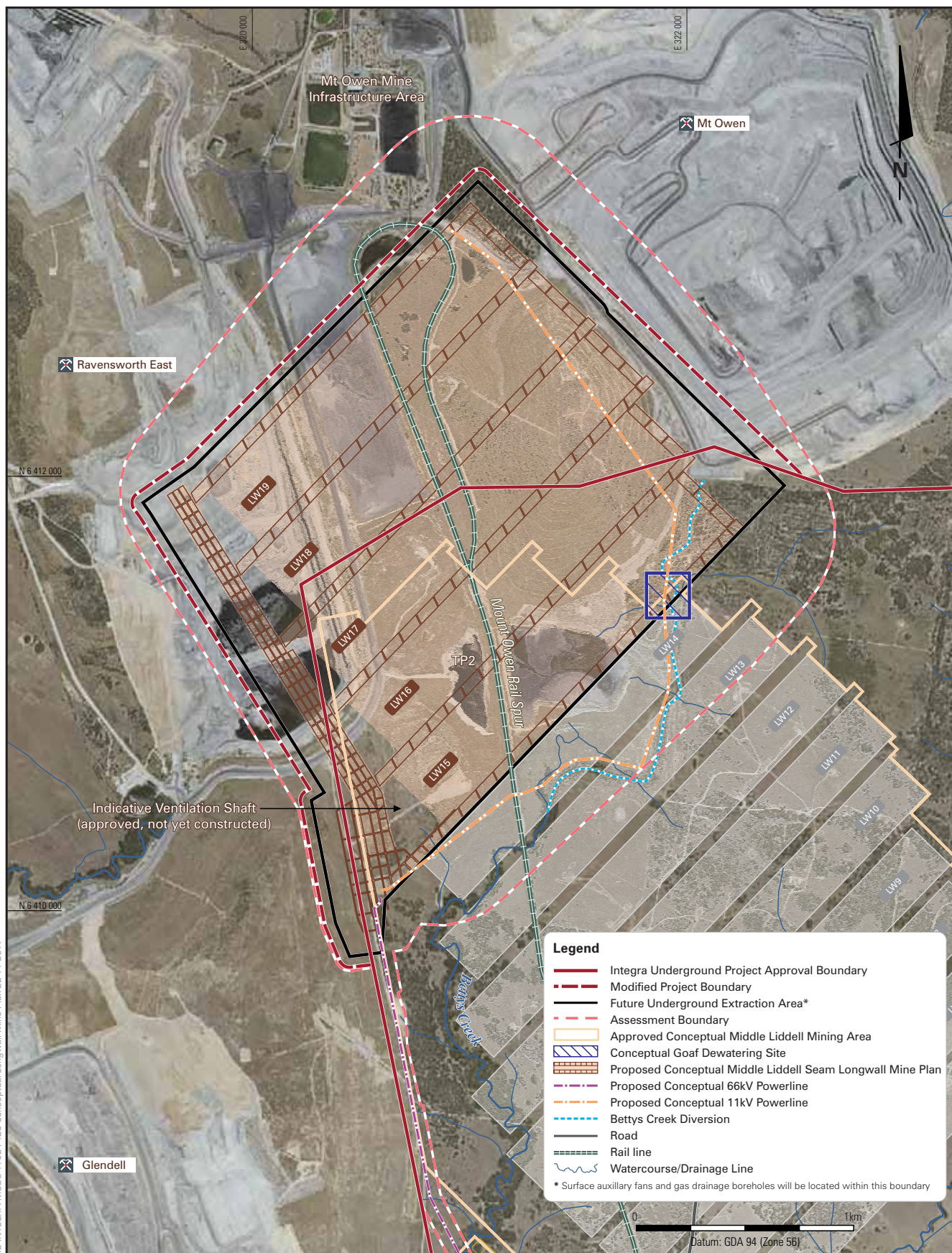
The eastern extents of the proposed longwall panels are constrained by the inferred presence of a geological structure (the Hebden Thrust) near the north-eastern boundary of the Future Underground Extraction Area. Indicative dimensions of the proposed longwall panels are shown in **Figure 12A** and **Figure 12B**. Further exploration and development activities will be undertaken to define the actual starting positions for the proposed longwall panels. Unless otherwise stated, this EA assesses potential environmental impacts and recommends mitigation measures based on full extraction of the longwall panels (as illustrated in **Figure 12A** and **Figure 12B**). This assumption ensures that the impact predictions are representative of the potential worst case.



INTEGRA UNDERGROUND MINE

Conceptual Longwall Mine Plan (246m)

FIGURE 12A



4.2.3 Indicative Production & Timing

The Modification will facilitate the recovery of up to an additional 9.9 Mt of ROM coal from the Middle Liddell seam. The Modification will not require any change to the approved maximum production rate of 4.5 Million tonnes per annum (Mtpa) of ROM coal.

HVCC recommenced underground mining operations at Integra Underground in February 2017, with longwall operations in LW 13 commencing at the end of May 2017. Current mine planning indicates that secondary extraction of LWs 13-14 will continue until the end of 2018. The primary development (first workings) required for the mining of LW 15 is scheduled to commence in 2018. Secondary extraction of the longwall panels that form part of the Modification will be undertaken from early 2019 until early 2023 (subject to approval).

The Modification will not alter the approved conceptual mine plans for the Hebden and Barrett coal seams. HVCC anticipates that primary development within the Hebden seam will occur concurrently with longwall extraction in the Middle Liddell seam. Longwall extraction of the Hebden seam is approved to commence following the completion of longwall extraction in the Middle Liddell seam. The Barrett seam is approved to be mined after the Hebden seam. All proposed and approved mining activities within the Middle Liddell, Hebden and Barrett coal seams are scheduled to be completed within the approved duration of mining (i.e. prior to 31 December 2035). Accordingly, the Modification does not involve any change to the approved duration of mining.

4.3 SURFACE INFRASTRUCTURE

4.3.1 Overview

Since acquiring Integra Underground, HVCC has undertaken extensive mine planning to confirm the safest and most efficient approach for extracting the mineable coal resources at the site. Prior to Integra Underground being placed under care and maintenance by the former owners in 2014, mining operations were conducted in conjunction with the neighbouring Rix's Creek North Mine (formerly Integra Open Cut Mine).

The mine planning has identified the requirement for additional surface infrastructure to support the approved and proposed mining operations at Integra Underground. This additional infrastructure is described in the following sections.

4.3.2 Goaf Dewatering Site

The proposed underground mining operations will continue to experience groundwater inflows into the mine workings. To facilitate the dewatering of the proposed mine workings associated with the Modification, a Goaf Dewatering Site is proposed to be constructed near the north eastern end of LW 14, as shown in **Figure 12B**.

The Goaf Dewatering Site (if required) will occupy only a minor portion of the conceptual surface infrastructure area. The final position of the Goaf Dewatering Site will be dependent on the contours within the coal seam and the locations of sensitive environmental features (such as threatened ecological communities).

The Goaf Dewatering Site (if required) will include dewatering boreholes, pump and water pipelines, 11 kV switch room, electrical transformer and diesel generators (to assist in the event of a power failure), and ancillary water management infrastructure. A minor access road may be constructed from an existing MOC access track to provide access to the Goaf Dewatering Site.

A network of water pipelines will transfer the dewatered mine inflows to the MOC Water Management System. This water can be utilised at MOC or transferred to other mines within the GRAWSS.

Erosion and sediment controls will be installed to divert clean runoff away from the hardstand area for Goaf Dewatering Site.

4.3.3 Surface Auxiliary Fans

The detailed mine planning conducted by HVCC has identified the requirement for further management of mine ventilation for the proposed mining operations associated with the Modification. As such, surface auxiliary fans and associated bleeder shafts are proposed to be constructed within the Future Underground Extraction Area. The bleeder shafts will be located along the proposed longwall maingates and will extend from the surface to the coal seam. The auxiliary fans will be installed at the tops of these shafts and will facilitate the ventilation of the underground mine workings.

The surface auxiliary fans will be located directly above the maingates for the proposed longwall panels. Exact locations of the surface auxiliary fans will be determined once the dimensions of the proposed longwall panels are finalised. All of the surface auxiliary fan sites will be located within areas of grassland. That is, construction of the surface auxiliary fans will not result in disturbance of native woodland.

The power supply for the surface auxiliary fans will be provided by an 11 kV distribution line emanating from the Goaf Dewatering Site (see **Figure 2A**).

The surface auxiliary fan sites will be rehabilitated in accordance with the approved EAMSIMP (HVCC, 2017d). This management plan will be updated to include the locations of surface auxiliary fans and indicative timeframes for their construction.

4.3.4 Gas Drainage Boreholes

Gas drainage boreholes will be installed to facilitate the safety of underground mining operations.

HVCC currently has approval under PA 08_0101 (as modified) to install up to 10 gas drainage boreholes per longwall panel (ERM, 2009). The Modification seeks to remove the limitation on the quantity of boreholes to enable HVCC to install any boreholes that are required for the safe operation of the underground mine. The operation of gas drainage boreholes will be managed such that operational noise and air quality criteria are adhered to.

The proposed gas drainage boreholes will be surface to seam boreholes. Each borehole site will be established within an approximately 40 m x 40 m pad and all sites will be located within the Modified Project Boundary (see **Figure 2A**). All boreholes will be located in either areas of grassland or the approved disturbance area for MOCO (see **Figure 8**). As a result, the proposed gas drainage boreholes will not result in any additional surface disturbance (beyond areas that are currently approved for disturbance).

The surface infrastructure at each borehole site will include a free venting stack (equipped with flame arrestors), lightning protection, fire suppression equipment and security fencing. Some boreholes may require gas extraction equipment, which consists of a generator, motor and exhaust fan.

The gas drainage borehole sites will be decommissioned and rehabilitated in accordance with the approved EAMSIMP (HVCC, 2017d) and Rehabilitation Management Plan (HVCC, 2017e). These management plans will be updated to include the locations of gas drainage boreholes prior to their construction.

The management of the extracted gas will remain unchanged from current operations. The extracted gas will be reticulated to the Glennies Creek Power Station for beneficial use. Surplus gas will be released via the existing gas flares. Free venting of gas will only be undertaken as a contingency measure, when other gas management options are not practicable.

The greenhouse gas assessment included in the ERM EA was based on the conservative assumption that there would be no control of fugitive emissions (i.e. no flaring or beneficial use). Therefore, the ongoing use of gas flares for the Modification will not exceed the predicted emissions volumes in the ERM EA.

4.3.5 Power Supply Infrastructure

Additional transmission lines and distribution lines will be established to supply power to the Goaf Dewatering Site and surface auxiliary fans. A 66 kV powerline will be constructed from the Forest Road Ventilation Site to the approved (but not yet constructed) ventilation shaft site overlying the North Mains. The site overlying the North Mains will contain a substation (66 kV to 11 kV). An additional 11 kV powerline will be constructed from this substation to the Goaf Dewatering Site and surface auxiliary fans. Indicative alignments of the proposed powerlines are illustrated in **Figure 2A**.

The proposed powerlines will require crossings of Bettys Creek. The supporting towers and poles will be designed so that the creek channel can be crossed by a span of the powerline. As such, disturbance to the creek channel will be avoided.

4.3.6 Clean Water Storage

Integra Underground currently utilises raw water from Glennies Creek (extracted in accordance with relevant water access licences) for underground mining purposes. This raw water is currently pumped from Glennies Creek to the Process Water Dam (either directly or via the Runoff Pond). Water from the Process Water Dam is subsequently pumped underground for use in mining operations. The Process Water Dam has a capacity of approximately 30 ML.

The Modification proposes the use of the C4 Dam at the neighbouring Rix's Creek North Mine Dam (subject to a commercial agreement with Bloomfield Collieries) for additional storage of raw water. The C4 Dam has a contributing catchment area of approximately 25 ha and a storage capacity of approximately 90 ML. The use of the C4 Dam will ensure that there is additional raw water available during periods when raw water is unable to be pumped directly from Glennies Creek at the rates required to meet operational demands. A pipeline system will be utilised to transfer raw water from the C4 Dam to the Process Water Dam.

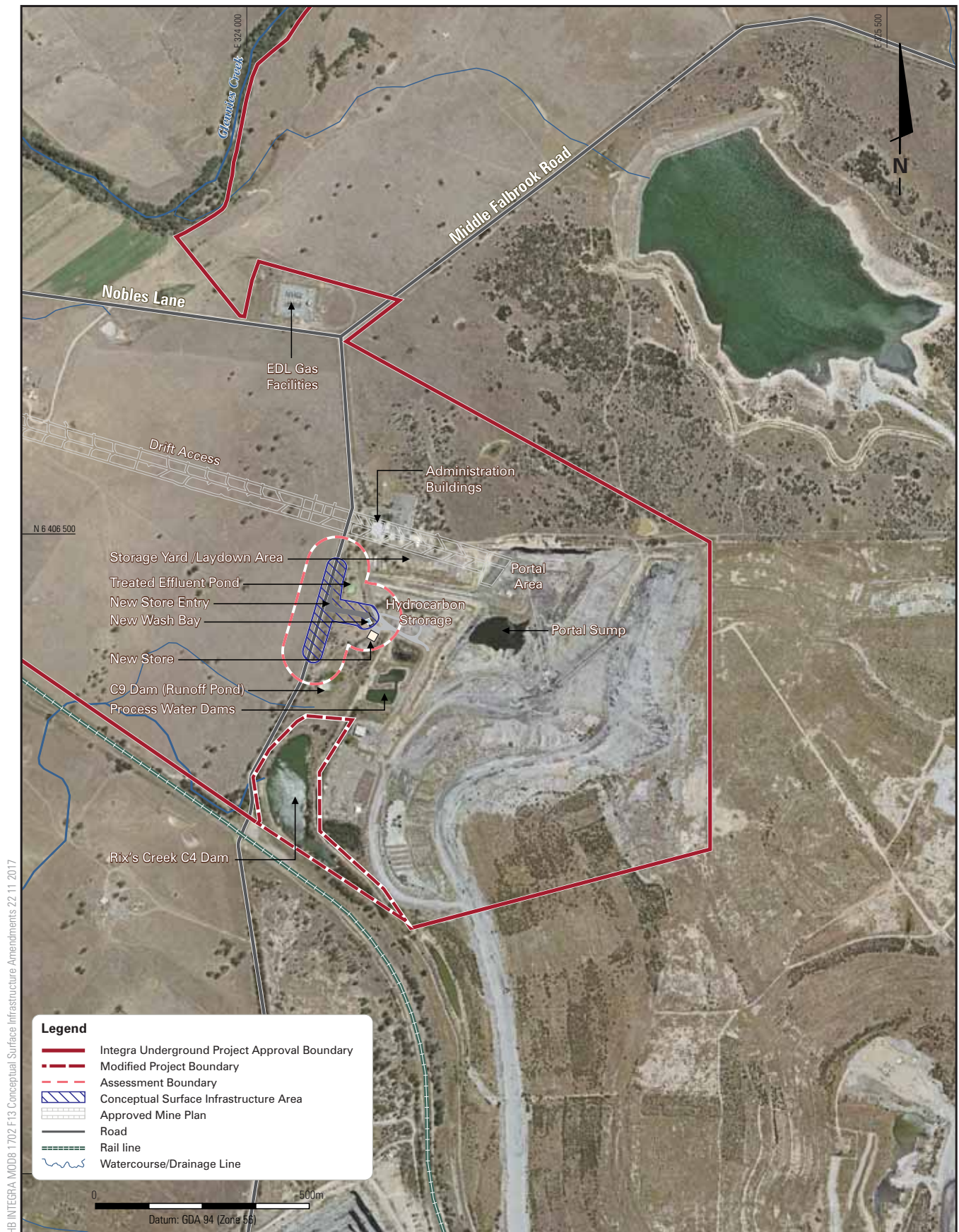
HVCC will continue to consult with Bloomfield Collieries regarding the proposed use of the C4 Dam.

4.3.7 Access to Surface Facilities

The Modification proposes the construction of a new store at the Main Surface Facilities (see **Figure 13**). The proposed location of the new store provides greater operational efficiency than the existing location.

HVCC has identified the need for improved vehicular access to the Main Surface Facilities. Accordingly, the Modification is seeking approval for the construction and use of a new access road. The new access road will be located along Middle Falbrook Road, approximately 470 m to the south-west of the existing access road (see **Figure 13**).

The proposed access road will be designed in accordance with the relevant Austroads guidelines. Parking areas will be established at the location of the new store facility.



INTEGRA UNDERGROUND MINE

Conceptual Surface Infrastructure Amendments

FIGURE 13

4.4 CONSTRUCTION

The construction phase for the Modification will include the following construction activities;

- Construction of 66 kV and 11 kV powerlines;
- Construction of the Goaf Dewatering Site (if required);
- Relocation and upgrade of the store facility; and
- Construction of the new access road.

The estimated duration of the initial construction phase is approximately 12 months.

The proposed gas drainage boreholes and surface auxiliary fans are not included in the construction phase as these will be established incrementally as mining progresses.

The construction equipment required for the Modification may consist of earthmoving equipment (excavators, loaders, dozers, graders etc), trucks (for movement and supply of materials), mobile cranes, and drilling and boring machines.

4.5 INTERACTIONS WITH OTHER DEVELOPMENTS

4.5.1 Rix's Creek North Mine

The current interactions between Integra Underground and Rix's Creek North Mine are outlined in **Table 1**. In addition, the Modification proposes to utilise the C4 Dam at Rix's Creek North Mine for storage of raw water extracted from Glennies Creek. The C4 Dam is an approved clean water dam under the Project Approval for Rix's Creek North Mine (PA 08_0102). Accordingly, the Modification is consistent with PA 08_0102.

4.5.2 Mount Owen Complex

The Modification will be undertaken within the approval boundaries for both MOCO (SSD-5850) and Glendell Mine (DA 80/952), including underground mining directly beneath the surface mining operations at MOC. As a result, the mine infrastructure at MOC will experience subsidence effects induced by the Modification. Potential impacts to mine infrastructure will be managed in accordance with Extraction Plans, which will be developed by HVCC in consultation with, and to the satisfaction of, Mt Owen and Glendell.

The Modification will involve the transferring of mine water from Integra Underground to MOC, consistent with Condition 30 of PA 08_0101. SSD-5850 (Modification 1) enables MOC to accept water from Integra Underground. Therefore, the proposed transferring of mine water from Integra Underground to MOC is consistent with SSD-5850.

Mt Owen has updated its Water Management Plan to include the approved transfers of mine water from Integra Underground. HVCC will continue to consult closely with Mt Owen regarding water management.

The proposed powerlines will be located in the vicinity of the Bettys Creek Habitat Management Area, which was established as an offset area for the Glendell Mine in

accordance with DA 80/952. However, these powerlines have been sited such that disturbance to this offset area is avoided. Therefore, the Modification will not affect Glendell's offsetting obligations under DA 80/952.

4.6 NEED FOR THE MODIFICATION

HVCC acquired Integra Underground in December 2015. Given that HVCC and Mt Owen Pty Limited are both subsidiaries of Glencore, HVCC's acquisition of Integra Underground has given rise to the opportunity to recover the coal resources beneath the surface mining operations at MOC. Given the ability to extend underground mining beneath MOC, HVCC has undertaken extensive mine planning to optimise the recovery of coal from the Middle Liddell seam. The Modification will enable the extraction of up to an additional 9.9 Mt of ROM coal from the Middle Liddell coal seam, whilst not impacting upon the approved coal recovery at MOC. The Modification is predicted to generate net benefits to NSW valued at \$205.5 million (present value). The expected net benefits (direct and indirect) include royalties, payroll tax, council rates, and economic benefits to workers and suppliers.

4.7 PROJECT ALTERNATIVES

4.7.1 Do Nothing

Not undertaking the Modification would result in the sterilisation of approximately 9.9 Mt of ROM coal. Due to the presence of the Hebden Thrust, there is unlikely to be any alternative feasible method of recovering this resource. The sterilisation of this resource would result in reduced royalties and other economic benefits to NSW.

4.7.2 Maximum Extraction Scenario

HVCC has considered an alternative longwall layout which utilises greater panel lengths than the longwall panels proposed for the Modification. This alternative longwall layout would have involved mining further beneath the North Pit at MOC. This alternative was not adopted due to the inferred presence of a geological structure (Hebden Thrust) near the eastern limit of the proposed longwall panels.

4.7.3 The Modification

The Modification optimises the recovery of coal from the Middle Liddell seam within the geological constraints present at the site. The Modification will facilitate the extraction of up to 9.9 Mt of ROM coal from the Middle Liddell seam, in addition to the approved coal reserves at Integra Underground. The additional coal reserves can be recovered without any increase to the maximum ROM coal production rate or the duration of mining operations.

5 REGULATORY FRAMEWORK

This section briefly describes the relevant provisions of NSW and Commonwealth legislation that are applicable to the Modification.

5.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

5.1.1 Objects of the EP&A Act

The objects of the EP&A Act are listed under Section 5 of the Act:

- (a) *“to encourage:*
 - (i) *the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
 - (ii) *the promotion and co-ordination of the orderly and economic use and development of land,*
 - (iii) *the protection, provision and co-ordination of communication and utility services,*
 - (iv) *the provision of land for public purposes,*
 - (v) *the provision and co-ordination of community services and facilities, and*
 - (vi) *the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
 - (vii) *ecologically sustainable development, and*
 - (viii) *the provision and maintenance of affordable housing, and*
- (b) *to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and*
- (c) *to provide increased opportunity for public involvement and participation in environmental planning and assessment.*

The Modification will facilitate the extraction of up to an additional 9.9 Mt of ROM coal from the Middle Liddell seam. Compared to the approved mine plan, the proposed mine plan for the Middle Liddell seam will result in the more economically efficient extraction of coal. Therefore, the Modification represents the proper development of mineral resources and the economic use of land.

The extraction of the additional coal reserves will generate royalties for the state of NSW and will therefore result in significant economic benefits. Given the highly modified nature of the landform within the Future Underground Extraction Area and the approved operations at the MOC, the modification is unlikely to have significant environmental impacts when compared to the current approved operations. The Modification represents the proper development of natural resources and is therefore consistent with the objects of the EP&A Act.

5.1.2 Applicability of Part 3A

The Project Approval for the Integra Underground Coal Project (PA 08_0101) was granted under Part 3A of the EP&A Act. Part 3A of the EP&A Act was repealed on 1 October 2011. However, Schedule 6A of the EP&A Act provides that the provisions of Part 3A will continue to apply to “transitional Part 3A projects”. Clause 2 under Schedule 6A states that the following projects are “transitional Part 3A projects”:

- (a) *an approved project (whether approved before or after the repeal of Part 3A),*
- (b) *a project that is the subject of an approved concept plan (whether approved before or after the repeal of Part 3A),*
- (c) *a project for which environmental assessment requirements for approval to carry out the project, or for approval of a concept plan for the project, were last notified or adopted within 2 years before the relevant Part 3A repeal date (unless the environmental assessment is not duly submitted on or before 30 November 2012 or on or before such later day as the Secretary may allow by notice in writing to the proponent),*
- (d) *a project for which an environmental assessment (whether for approval to carry out the project or for approval of a concept plan for the project) was duly submitted before the relevant Part 3A repeal date.*

The Integra Underground Coal Project constitutes a “transitional Part 3A project” because it was approved under Part 3A. Therefore, the provisions of Part 3A continue to apply to the Integra Underground Coal Project.

Section 75W of the EP&A Act provides for the modification of approvals granted under Part 3A. Section 75W(3) states that the request for modification is to be lodged with the Director-General (now the Secretary) of DP&E. The Secretary may issue Environmental Assessment Requirements that the proponent must satisfy before the request for modification can be determined. Although the Secretary has not issued formal Environmental Assessment Requirements, DP&E provided a letter on 6 October 2017 which notified HVCC of the matters that should be considered in the EA.

The Modification will involve the extension of approved longwall mining operations in the Middle Liddell Seam and the construction and operation of ancillary surface infrastructure.

The following aspects of Integra Underground will remain consistent with PA 08_0101 (as modified):

- Mining methods and maximum annual coal production rate;
- Duration of mining operations;
- Methods of coal processing, reject management and coal transportation;
- Hours of operations; and
- Operational workforce.

In its letter dated 6 October 2017, DP&E advised that the Modification falls within the scope of Section 75W of the EP&A Act.

Section 75U of the EP&A Act lists a number of authorisations (under other Acts) that are not required to be obtained for an approved project under Part 3A. Section 75V identifies a number of authorisations that must be granted in respect of an approved project under Part 3A. Although Sections 75U and 75V have been repealed, they continue to apply to Integra Underground by virtue of its status as a “transitional Part 3A project”.

5.1.3 Strategic Agricultural Land

Clause 20 of Schedule 6A of the EP&A Act applies to proposed modifications of transitional Part 3A projects that are located on Strategic Agricultural Land. This clause provides that the modification application must be accompanied by either a Gateway Certificate or a Site Verification Certificate if the application relates to “*mining or petroleum development*” on the following land:

- (a) Land shown on the Strategic Agricultural Land Map; or
- (b) Land that is the subject of a Site Verification Certificate.

The definition of “*mining or petroleum development*” is limited to proposed developments that are located either wholly or partly outside of existing mining leases (and therefore require a new mining lease). As explained in **Section 5.3.1**, a new mining lease is required for part of the proposed mining activities in the Middle Liddell seam. As such, the Modification constitutes “*mining and petroleum development*”.

The Modification is proposed to be undertaken on land that is shown on the Strategic Agricultural Land Map. Accordingly, the Modification triggers the requirement under Clause 20 of Schedule 6A of the EP&A Act for either a Gateway Certificate or a Site Verification Certificate.

In accordance with Clause 20 of Schedule 6A of the EP&A Act, an application for a Site Verification Certificate was lodged on 18 August 2017 in respect of the land where a new mining lease is required. On 11 September 2017, the Deputy Secretary of DP&E issued a Site Verification Certificate (SVC 8691) certifying that this land does not constitute BSAL.

5.2 ENVIRONMENTAL PLANNING INSTRUMENTS

5.2.1 Mining SEPP

The *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP) determines the permissibility of mining developments in NSW. Clause 7(1) of the Mining SEPP relevantly states:

“(1) Mining

Development for any of the following purposes may be carried out only with development consent:

- (a) underground mining carried out on any land,*
- (b) mining carried out:*
 - (i) on land where development for the purposes of agriculture or industry may be carried out (with or without development consent), or*
 - (ii) on land that is, immediately before the commencement of this clause, the subject of a mining lease under the Mining Act 1992 or a mining licence under the Offshore Minerals Act 1999”*

The Mining SEPP enables underground mining to be carried out (with development consent) on any land.

Clauses 10 and 10A of the Mining SEPP declares certain development at approved mine sites to be Exempt Development, provided that the development results in minimal environmental impact and is not located within an environmentally sensitive area of state significance. Exempt Development can be carried out without the need for development consent.

In addition, Clause 11 of the Mining SEPP declares certain development at approved mine sites to be Complying Development, provided that the development is not located within an environmentally sensitive area of state significance.

There are aspects of the Modification that constitute Exempt Development or Complying Development. Although Development Consent is not required for the undertaking of these works, they have been included as components of the Modification.

5.2.2 Singleton Local Environmental Plan

The Singleton Local Environmental Plan 2013 (Singleton LEP) imposes planning controls for proposed developments within the Singleton Local Government Area (LGA).

The Modification is located entirely on land zoned as “RU1 Primary Production”. The land use table in the Singleton LEP does not list “underground mining” as a permissible development within zone RU1. However, “open cut mining” is permissible (with development consent) in zone RU1.

The land use table in the Singleton LEP is inconsistent with Clause 7 of the Mining SEPP, which enables underground mining to be carried out on any land (see **Section 5.2.1**). Clause 5 of the Mining SEPP provides that where there is an inconsistency between the Mining SEPP and another environmental planning instrument, the SEPP will prevail to the extent of the inconsistency. Therefore, the Mining SEPP overrides the Singleton LEP with respect to the permissibility of underground mining.

5.3 OTHER NSW LEGISLATION

5.3.1 Mining Act

The mining of coal in NSW is regulated by the *Mining Act 1992* (Mining Act). Section 5 of the Mining Act states that mining can only be conducted in accordance with a mining lease (ML). As shown in **Figure 9**, the entirety of the Future Underground Extraction Area is within mining authorisations held by Glencore's subsidiaries. However, ML 1561 and ML 1475 only apply to the land surface and the underlying strata to a depth of 15.24 m. There is currently no mining lease that applies to the Middle Liddell seam beneath ML 1561 and ML 1475. The areas of the Middle Liddell Seam that are the subject of existing mining leases are shown in **Figure 14**. In accordance with Section 5 of the Mining Act, a mining lease will be obtained for the portion of the Middle Liddell seam within the Future Underground Extraction Area that is not currently subject to a mining lease.

Authorisation 268 applies to the Middle Liddell seam in the area of the proposed mining lease (see **Figure 14**). Authorisation 268 is currently held by Mt Owen. Mt Owen is in the process of transferring part of Authorisation 268 (in the location of the proposed mining lease) to HVCC. Once this transfer is complete, HVCC will be the holder of an exploration licence in respect of the area of the proposed mining lease. Accordingly, HVCC will be entitled to make an application for a mining lease pursuant to Section 51(3A) of the Mining Act.

A mining lease cannot be granted until development consent or project approval has been granted over the area. Section 75V(1)(c) of the EP&A Act provides that a mining lease must be granted if it is necessary for the carrying out of an approved project under Part 3A of the EP&A Act.

Section 6 of the Mining Act provides that a mining authorisation is required for certain mining purposes. Section 6(3) states:

- “(3) The mining purposes specified for the purposes of this section are the following mining related purposes:*
- (a) the construction, maintenance or use of any reservoir, dam (including a tailings dam), drain or water race, other than any reservoir, dam, drain or water race principally used for purposes not connected with mining or any other activities regulated by or under an authorisation,*
 - (b) opal puddling,*

- (c) *the removal, stockpiling or depositing of overburden, ore or tailings to the extent that it is associated with mineral extraction or mine beneficiation.”*

The Modification may involve the construction of sediment dams within the Future Underground Extraction Area. The mining authorisations held by Glencore’s subsidiaries apply to the large majority of the land surface within these areas (as shown in **Figure 15**). The proposed sediment dams will be sited within the existing mining leases. There are no other aspects of the Modification that conform to the mining purposes listed under Section 6 of the Mining Act. Therefore, no additional mining leases are required for the development of the surface infrastructure associated with the Modification.

All mining operations must be subject to a Mining Operations Plan approved by the Director General of DRE.

Section 380AA(1) of the Mining Act provides that:

- (1) *An application for development consent, or for the modification of a development consent, to mine for coal cannot be made or determined unless (at the time it is made or determined) the applicant is the holder of an authority that is in force in respect of coal and the land where mining for coal is proposed to be carried out, or the applicant has the written consent of the holder of such an authority to make the application.*

The definition of ‘development consent’ under the Mining Act includes approvals under Part 3A of the EP&A Act. Accordingly, Section 380AA applies to the Modification. In areas where it is proposed to extract coal from land within the Modification Underground Extraction Area HVCC is either the holder of an authority that is in force in respect to the relevant land, or has obtained the written consent of the holder of the relevant authorities (see **Appendix A**).

5.3.2 Protection of the Environment Operations Act

Section 48 of the *Protection of the Environment Operations Act 1997* (POEO Act) provides that an EPL is required for scheduled activities under the Act. Under Clause 28 of Schedule 1 of the POEO Act, “*mining for coal*” is deemed to be a scheduled activity if the daily production exceeds 500 tonnes, or if the disturbance area exceeds 4 ha. Mining operations at Integra Underground constitute a scheduled activity for the purposes of the POEO Act. Accordingly, HVCC currently holds EPL 3390 in respect of its operations at Integra Underground. The Modification will not give rise to any requirement to vary this EPL.

5.3.3 Biodiversity Conservation Act

The *Biodiversity Conservation Act 2016* (BC Act) identifies threatened species and ecological communities in NSW. The potential impacts of the Modification on threatened species and ecological communities are assessed in **Section 8.8**.

Part 7 of the BC Act contains requirements for biodiversity assessment and approvals under the EP&A Act. Pursuant to the *Biodiversity Conservation (Savings and Transitional) Regulation 2017* (BC Regulation), the BC Act applies to the modification of a 'planning approval' granted before the commencement of the BC Act (unless the modification application is a pending or interim planning application). 'Planning approval' is defined as a development consent under Part 4 of the EP&A Act or a State significant infrastructure approval under Part 5.1 of the EP&A Act. Therefore, Part 7 of the BC Act does not apply to the Modification as it is a transitional Part 3A project.

5.3.4 National Parks and Wildlife Act

Under section 86 of the *National Parks and Wildlife Act 1974* (NPW Act), it is an offence to harm or desecrate an Aboriginal object or place unless the harm or desecration was authorised by an Aboriginal Heritage Impact Permit (AHIP) issued under section 90. As explained in **Section 8.9**, the Modification is not expected to result in impacts to Aboriginal objects or Aboriginal places.

Pursuant to Section 75U(1)(d) of the EP&A Act, approvals under Section 90 of the NPW Act are not required for approved projects. Therefore, Integra Underground (including approved modifications) is exempt from the requirement for an AHIP.

Integra Underground operates in accordance with an approved Aboriginal Heritage Management Plan, which was prepared in accordance with PA 08_0101. The Modification will be carried out in accordance with the Aboriginal Heritage Management Plan.

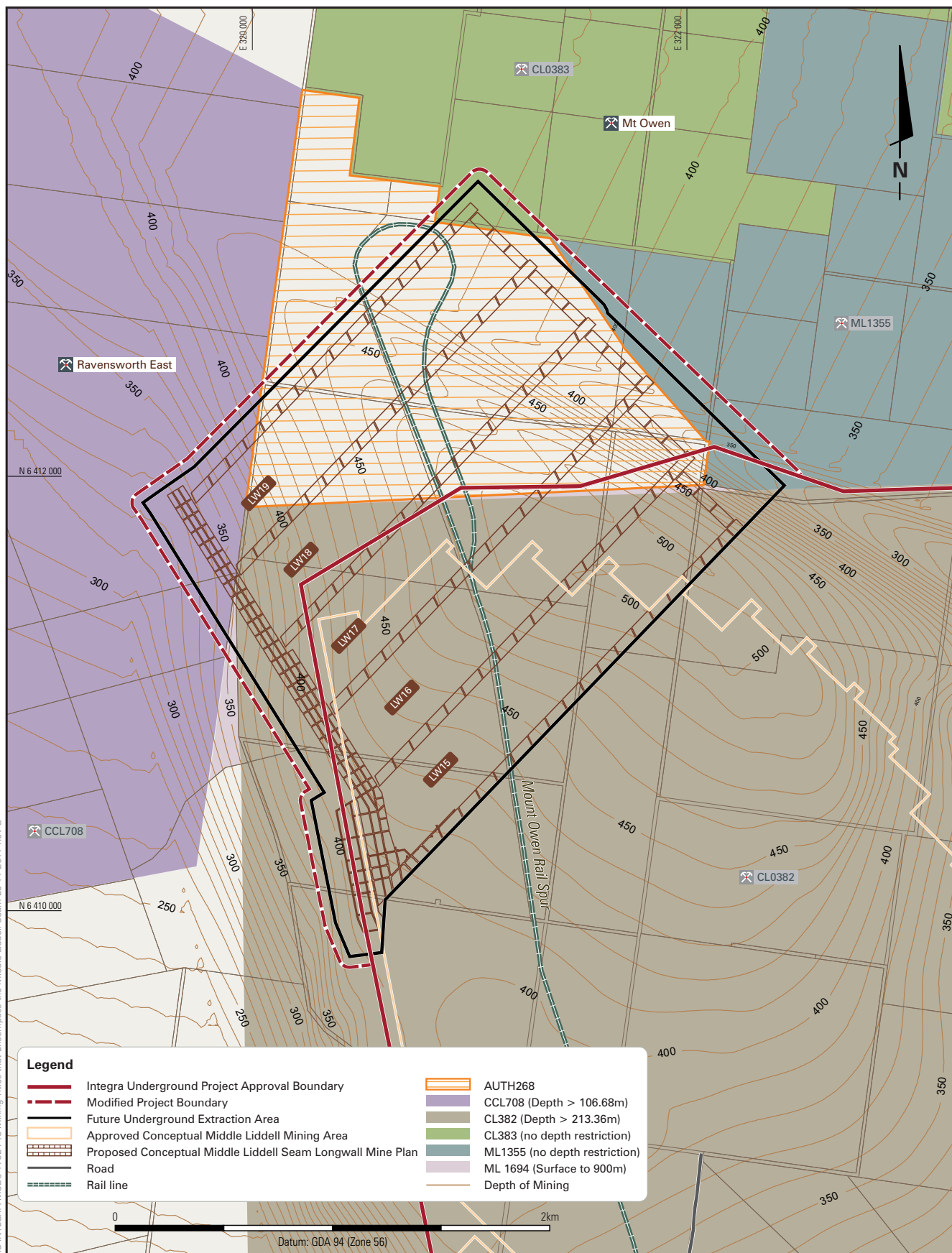
5.3.5 Heritage Act

The *Heritage Act 1977* provides for the conservation and management of built, moveable and natural heritage. The Modification will not result in any impact to heritage items (see **Section 8.10**).

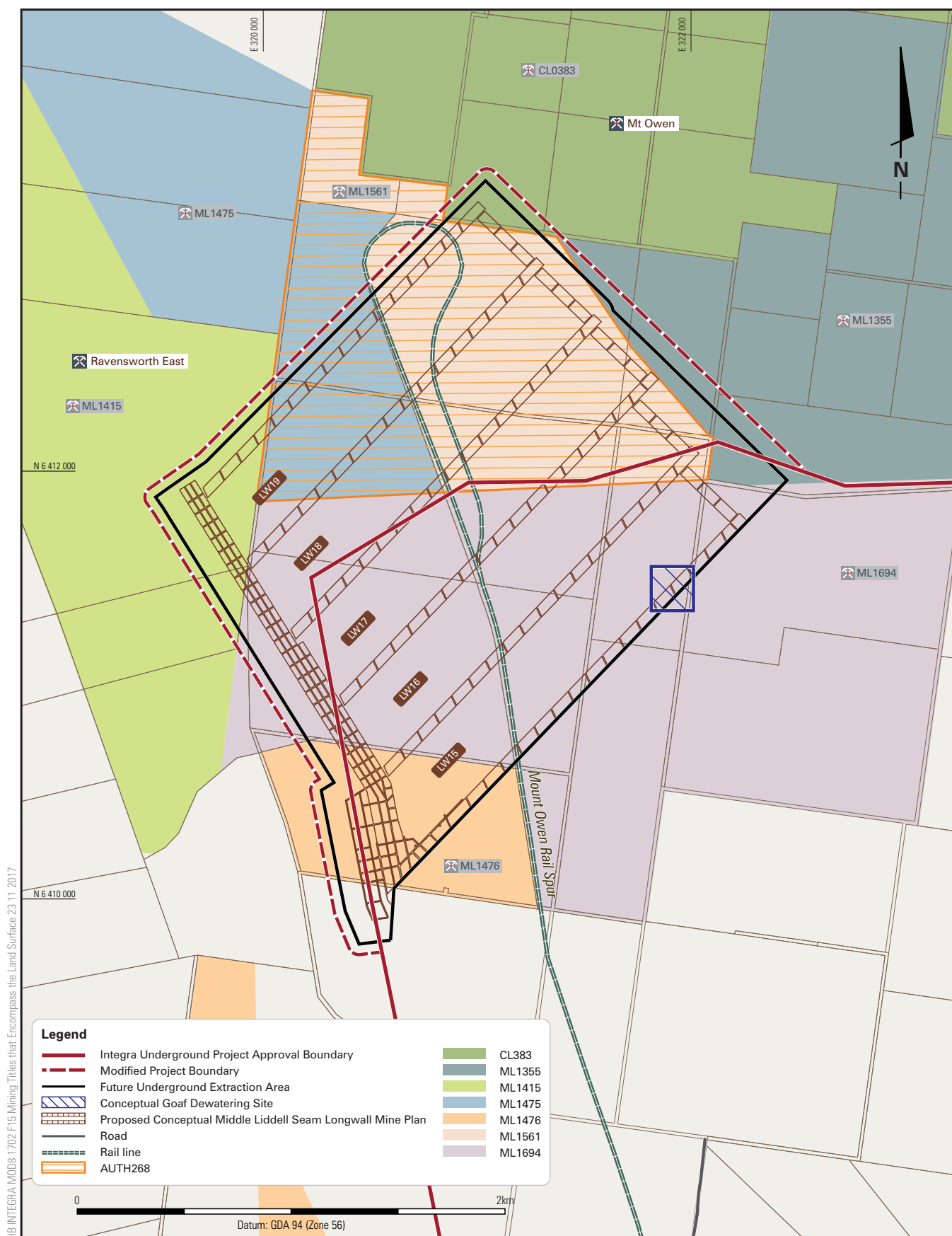
5.3.6 Water Management Act

The *Water Management Act 2000* (WM Act) establishes a licensing regime for the taking and use of water in NSW. The provisions of the WM Act apply to water sources that are the subject of a Water Sharing Plan (WSP). The water sources in the vicinity of the Modification are the subject of the following WSPs:

- *Water Sharing Plan for the Hunter Regulated River Water Source 2016* (Hunter Regulated WSP);
- *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009* (Hunter Unregulated WSP); and
- *Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016* (North Coast Groundwater WSP).



INTEGRA UNDERGROUND MINE



INTEGRA UNDERGROUND MINE

The Hunter Regulated WSP applies to surface water within the Hunter River and Glennies Creek, as well as water contained in the alluvial sediments underlying the waterfront land for these streams. As per the definition under the WM Act, “waterfront land” extends up to 40 m from the bank of the stream. Therefore, the Hunter Regulated WSP applies to the portions of the Hunter River alluvium and Glennies Creek alluvium that are within 40 m of the stream banks.

The Hunter Unregulated WSP applies to all surface water within the catchments of Bettys Creek and Main Creek, as well as the groundwater contained in the alluvial sediments of these streams. The WSP also applies to the parts of the Hunter River alluvium and Glennies Creek alluvium that are greater than 40 m from the stream banks (i.e. the parts of the alluvium that the Hunter Regulated WSP does not apply to).

The Modification is located within the plan area of the Sydney Basin-North Coast Groundwater Source under the North Coast Groundwater WSP. The North Coast Groundwater WSP applies to all groundwater within the plan area of the water source, except for water contained in unconsolidated sediments of quaternary and tertiary age. That is, the North Coast Groundwater WSP does not apply to the alluvial aquifers in the vicinity of the Modification.

Under Section 60A of the WM Act, Water Access Licences (WALs) are required to account for any water taken from a water source that is the subject of a WSP. The water licensing requirements for the Modification are discussed in **Section 8.4**.

Section 75U of the EP&A Act provides that approvals under Sections 89, 90 and 91 of the WM Act are not required for approved projects. Accordingly, the Modification is exempt from the requirements for water use approvals (Section 89), water management work approvals (Section 90) and activity approvals (Section 91).

5.3.7 Dams Safety Act

The *Dams Safety Act 2015* establishes Dams Safety NSW, which is responsible for ensuring the safety of “declared dams”. Dams Safety NSW has the power to declare certain dams to be “declared dams” and to implement measures and guidelines aimed at ensuring the safety of “declared dams”.

As explained in **Section 2.7.1**, TP1 is listed as a “prescribed dam” under the *Dams Safety Act 1978*. Although this declaration occurred under the *Dams Safety Act 1978*, activities that have the potential to impact upon TP1 will be undertaken in accordance with the *Dams Safety Act 2015* and any guidelines issued by Dams Safety NSW.

5.3.8 Roads Act

Pursuant to Section 138 of the *Roads Act 1993*, the consent of the relevant roads authority is required for works that involve disturbing the surface of a public road. The Modification involves the construction of a new intersection along Middle Falbrook Road. The relevant roads authority for Middle Falbrook Road is Singleton Shire Council (SSC). HVCC will obtain the consent of SSC prior to undertaking construction works on Middle Falbrook Road. Section 75V of the EP&A Act states that consent under Section 138 of the Roads Act must be granted for any project that was approved under Part 3A of the EP&A Act.

5.4 COMMONWEALTH LEGISLATION

5.4.1 Environment Protection and Biodiversity Conservation Act

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) prescribes the role of the Commonwealth in the assessment of proposed developments. A proponent must make a Referral under Section 68 of the EPBC Act if the proponent thinks that the proposed action may be or is likely to result in significant impacts to Matters of National Environmental Significance (MNES) and is therefore a “controlled action”. There are nine MNES that are afforded protection by the Act:

- World heritage properties;
- National heritage places;
- Wetlands of international importance;
- Listed threatened species and ecological communities;
- Listed migratory species;
- Commonwealth marine areas;
- Great Barrier Reef Marine Park;
- Protection of the environment from nuclear actions (including uranium mining); and
- Protection of water resources from coal seam gas development and large coal mining development.

Aspects of the Modification have the potential to impact upon listed threatened species, threatened ecological communities and migratory species listed under the EPBC Act. The potential impacts of the Modification on these MNES are discussed in **Section 8.8**.

The Modification involves activities which have the potential to impact upon surface water and groundwater resources. The predicted impacts to water resources are discussed in **Sections 8.3 and 8.4**.

The Modification was assessed as not being likely to have a significant impact on any MNES. However, a Referral under Section 68 of the EPBC Act was lodged in respect of the aspects of the Modification where there is a potential for impacts on MNES, in order for the Minister to decide whether or not the 'action' is a 'controlled action'. The Referral includes an assessment of the action in accordance with the '*Matters of National Environmental Significance: Significant impact guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999*' (DoE, 2013a) and the '*Significant impact guidelines 1.3: Coal seam gas and large coal mining developments – impacts on water resources*' (DoE, 2013b).

5.4.2 Native Title Act 1993

The *Native Title Act 1993* (NT Act) establishes a statutory mechanism for the recognition and protection of Native Title. There is one native title claim (NC2013/006) that applies to the land within the Modified Project Boundary.

Section 23C of the NT Act provides that native title in relation to land is extinguished by any "previous exclusive possession act" undertaken by the Commonwealth prior to 23 December 1996. The definition of "previous exclusive possession act" under Section 23B includes the granting of a freehold estate in relation to the land. As shown in **Figure 7**, the Modification is situated entirely on freehold land. It has been confirmed that native title has been extinguished for all land that is subject to the Modification.

6 STAKEHOLDER ENGAGEMENT

This section provides a summary of the stakeholder engagement undertaken for the purposes of this Modification.

6.1 STAKEHOLDER ENGAGEMENT

Table 6 outlines the stakeholder consultation undertaken for this Modification. The stakeholder engagement program included consultation with regulatory authorities (including local, state and Commonwealth government agencies), industry stakeholders, registered Aboriginal stakeholders and the joint Community Consultative Committee (CCC) for MOC and Integra Underground.

Table 6
Stakeholder Engagement Consultation

Stakeholder	Method of Consultation	Items Discussed
Public Stakeholders		
Local Community	Greater Ravensworth Community Newsletter (Summer 2017 and Winter 2017)	The local community was informed of HVCC's proposal to conduct further longwall mining operations in the Middle Liddell Seam. The Winter 2017 edition of the newsletter explained that a modification was being sought under Section 75W of the EP&A Act and that an Environmental Assessment was being prepared.
Aboriginal Cultural Heritage Working Group	Site visit and presentation held 24 August 2017	The site visit enabled stakeholders to gain understanding of the current and proposed operations at MOC and Integra Underground. All Registered Aboriginal Parties were provided copies of the presentations provided during this site visit.
MOC and Integra Underground CCC	Meeting held 5 October 2017	Description of the Modification
Private Landholder	Face-to-face meeting on 8 September 2017	The private landholder was informed of HVCC's proposal to conduct further longwall mining operations in the Middle Liddell Seam. HVCC advised that environmental assessments were being undertaken.
Industry Stakeholders		
Mount Owen Complex	Regular meetings and written communications	Groundwater modelling and cumulative impacts to groundwater resources
		Management of water transferred from Integra Underground to MOC
		Written notification of an application for a Site Verification Certificate
		Proposed mining within MOC's mining authorisations

Stakeholder	Method of Consultation	Items Discussed
Bloomfield Collieries	Regular meetings and written communications	Commercial agreement for continued processing and transportation of coal extracted from Integra Underground
		Management of water transfers between Integra Underground and Rix’s Creek North Mine
Regulatory Stakeholders		
DP&E	Meeting held 30 June 2017	Description of the Modification
		Approvals pathway for the Modification
		Environmental assessments to be undertaken
		Inclusion of a geotechnical assessment to adequately assess impacts on highwall instability and mine infrastructure at MOC
DoEE	Meeting held 21 August 2017	Description of the Modification
		Potential impacts to MNES
		Approach for assessing potential impacts to water resources
		Approvals pathway under the EPBC Act
DRG	Meeting held on 22 August 2017 and site visit on 27 September 2017	Proposed mine plan and alternatives considered
		Mining Titles
		Economic value of the coal resource
		Decommissioning and rehabilitation of the final landform
Department of Primary Industries – Water (DPI-Water)	Meeting held on 28 September 2017	Description of the Modification
		Regional groundwater modelling undertaken for the Modification (methodology, calibration, preliminary results)
		The water management at Integra Underground and within the GRAWSS
		Water licencing requirements and requirements of the Modification
Office of Environment and Heritage (OEH)	Written communications	Application for a Site Verification Certificate
SSC	Meeting held on 2 November 2017	Description of the Modification
		Potential traffic impacts during construction and operational phases of the Modification
		Conceptual layout of proposed new intersection on Middle Falbrook Road.
Dams Safety Committee	Phone discussion on 20 November 2017	Description of the Modification and potential interactions with TP1 (a Prescribed Dam)
		Ongoing consultation with Mt Owen (owner of TP1)
		Conditions of CL 382 regarding Prescribed Dams
Forestry	Phone discussion on 4	Description of the Modification

Stakeholder	Method of Consultation	Items Discussed
Corporation of NSW	September 2017 Letter dated 21 November 2017	Potential interactions between the Modification and the Ravensworth State Forest (including subsidence effects)

6.2 ISSUE SCOPING

The stakeholder engagement program undertaken for this Modification identified the key issues that needed to be addressed in this EA. The key issues raised by stakeholders are listed in **Table 7**.

Table 7
Key Issues Raised by Stakeholders

Stakeholder	Key Issues	Relevant Sections
Public Stakeholders		
MOC and Integra Underground CCC	Nil	N/A
Aboriginal Cultural Heritage Working Group	Nil	N/A
Private landholder	Nil	N/A
Industry Stakeholders		
MOC	Regional groundwater model to consider mining operations at MOC	Section 8.3.2
	Management of water transferred from Integra Underground to MOC	Section 8.4.3
	Proposed mining within MOC's mining authorisations	Section 5.3.1
Bloomfield Collieries	Management of water transfers between Integra Underground and Rix's Creek North Mine	Section 6.3 Section 8.4.4
Regulatory Authorities		
DP&E	Geotechnical assessment of impacts on the highwall of the MOC North Pit	Section 8.2
	Social Impacts	Not required due to no change in operational workforce
	Personnel Safety	Section 3.3.7
	Surface Infrastructure	Section 4.3
	Waste	Section 3.3.6
DoEE	Impacts to listed species and ecological communities	Section 8.8.3
	Impacts to water resources	Section 8.3.3
DRG	Mining authorities required for the Modification	Section 5.3.1
	Mine decommissioning and rehabilitation	Section 8.13.3
	Economic value of the resource	Section 8.12.3
DPI-Water	Impacts to water resources	Section 8.3.3
	Water licensing requirements	Section 5.3.6

Stakeholder	Key Issues	Relevant Sections
		Section 8.3.3
SSC	Impacts to local road network	Section 8.11.3
DSC	Nil	N/A

6.3 ONGOING STAKEHOLDER ENGAGEMENT

Various mechanisms have been implemented by HVCC and Mt Owen to engage with the community. The Stakeholder Engagement Strategies for Integra Underground and MOC have the objectives of identifying and understanding stakeholder concerns, and ensuring that the community is factually informed of current and proposed mining developments.

Stakeholder consultation methods that are utilised include:

- Regular consultation with neighbouring land owners and industry (including face to face meetings and the operation of a blasting hotline);
- Consultation with the Aboriginal Cultural Heritage Working Group;
- CCC updates;
- Preparation and distribution of quarterly newsletters; and
- Preparation and distribution of the Annual Reviews for both Integra Underground and MOC.

Further consultation with regulatory authorities will be undertaken as the mine plan and surface infrastructure components of the Modification are finalised. This will include consultation with the Forestry Corporation of NSW in relation to potential subsidence impacts on land within the Ravensworth State Forest.

HVCC has consulted closely with Mt Owen during the preparation of this Environmental Assessment. Consultation methods have included regular interaction meetings, attended by key senior management and operational personnel from both parties. In addition, HVCC and Mt Owen hold Technical Committee and Working Group meetings in relation to Integra Underground's potential interactions with the Mt Owen Rail Spur, bridges and associated infrastructure. HVCC will continue to work with Mt Owen to manage operational interactions between Integra Underground and MOC (see **Appendix A**).

Given that the Modification will involve mining within the notification area of a Prescribed Dam (TP1), HVCC will continue to consult with the Dams Safety Committee and Mt Owen (the owner of the dam).

HVCC will continue to consult with Bloomfield Collieries to manage interactions between Integra Underground and Rix's Creek North Mine, including the proposed use of the C4 Dam (see **Appendix A**).

7 SCOPING PROCESS

This section describes the scoping of the environmental studies presented in this EA.

A scoping process was undertaken to identify the environmental issues that needed to be considered in this EA, and the appropriate level of assessment for each of these issues. The scoping process consisted of a preliminary risk assessment, as well as consultation with relevant stakeholders (see **Section 6**).

Given that the Modification relates to underground mining, the environmental issues associated with underground mining activities were deemed to be the higher priority issues. Underground mining generally does not require significant surface disturbance. As such, the environmental issues associated with surface disturbance and construction activities were deemed to be lower priority issues. The priority ratings for the environmental issues relevant to the Modification are present in **Table 8**.

Table 8
Priority Ratings for Environmental Issues

Priority	Aspect
High	Subsidence, Geotechnical, Groundwater, Surface Water
Medium	Ecology, Greenhouse Gas
Low	Noise, Air Quality, Aboriginal Heritage, Historic Heritage, Traffic