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11 April 2023

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Re: Modification to DA070/22 Geotechnical investigation works

1 Introduction

EnergyAustralia NSW Pty Ltd (EnergyAustralia) obtained development consent from Lithgow City Council (Council) on 15 August 2022 to carry out geotechnical investigation works on land owned by EnergyAustralia in South Bowenfels, NSW (DA070/22). The works will inform the Lake Lyell Pumped Hydro Energy Storage (PHES) project for which separate development consent would be sought.

EnergyAustralia is seeking to modify the consent for the geotechnical investigation works (DA070/22) to allow additional bores to be drilled for the purpose of establishing a groundwater monitoring network and continuation of geotechnical investigation works. Consistent with the need for geotechnical investigations, the groundwater monitoring network would provide data to support and inform the feasibility and design of the PHES, further developing an understanding of the existing hydrogeological conditions and informing how they may be affected by a future PHES.

This modification request is sought with regard to s4.55(1A) of the *Environmental Planning and Assessment Act 1979*. The proposed modification involves minimal environmental impact and is substantially the same development as the original consent granted by Lithgow City Council. The proposed modification would not exceed the disturbance footprint previously approved.

2 Approved development

The approved development involves the installation of nine boreholes from seven drill pad locations, a 2.6 km seismic survey, and access track establishment on land north of the Farmers Creek arm of Lake Lyell (see Figure 2.1). A description of the development, the proposed impacts and management measures were detailed in the Statement of Environmental Effects (EMM, 2022) and supporting civil engineering concept design (Arup, 2022), which form part of the consent.

The approved disturbance footprint to carry out the development is 0.97 hectares (ha). The development is currently being carried out and some refinements have been made to optimise the drilling program, including removing or relocating boreholes within the footprint and subsequently reducing the length of access road works required. The actual ground disturbance for completion of the approved development has been measured by qualified surveyor to be around 0.5 ha.

Source: EMM (2023); EnergyAustralia (2022); ESRI (2022); DFSI (2017); GA (2011)

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GDA2020 MGA Zone 56

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KEY

- Approved disturbance footprint
- Investigation envelope
- Vehicular track
- Named waterbody
- Cadastral boundary
- NPWS reserve

INSET KEY

- Major road
- NPWS reserve
- State forest

Approved development

Lake Lyell Geotechnical Drilling Program
Geotechnical drilling program – Modification report
Figure 2.1

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3 Proposed modification

The proposed modification to the development comprises:

- Drilling four groundwater monitoring boreholes on existing drill pads and within the approved disturbance footprint
- Drilling six groundwater monitoring boreholes at three new drill pads (i.e., two "twinned" boreholes per drill pad) outside the approved disturbance footprint, however utilising existing disturbed areas where possible to minimise the need for additional clearing or extensive earthworks; and
- Drilling up to four additional geotechnical boreholes within the investigation envelope.

The modified development will therefore consist of the following:

- Up to 13 geotechnical boreholes drilled from existing or new (groundwater monitoring) drill sites;
- Four groundwater monitoring bores drilled from existing drill sites;
- Three twinned groundwater monitoring bores (i.e. six bores) drilled from three new drill sites;
- Up to 2.6 km of low-impact seismic refraction and coincident resisitivity surveying;
- Clearing and establishment of approximately 1.3 km of new vehicle tracks to enable access to geotechnical investigation locations; and
- Repairing existing vehicle tracks and fire trails where necessary to ensure safe access.

The proposed modification would not exceed the previously approved disturbance area of 0.97 ha. The proposed modification is located on the same land parcel as the approved development (Lot 103/DP751651), which is wholly owned by EnergyAustralia NSW Pty Ltd.

The modified development is shown in Figure 3.1.

To respond to ground or geological constraints during drilling, or to seek additional engineering or environmental data to assist the geotechnical and hydrogeological investigations, there may be a need to relocate or drill up to four additional geotechnical or groundwater bores not shown on Figure 3.1. These additional bores would be assessed for consistency as described in Section 3.3 before proceeding.

3.1 Site selection

Groundwater monitoring bore sites were initially identified at a desktop level by qualified hydrogeologists, with the aim of selecting sites that would appropriately target the local and regional aquifer systems to allow a robust characterisation of the existing hydrogeological conditions. Initial sites were subsequently ground-truthed and re-located by a hydrogeologist, ecologist, archaeologist and representatives from Mingaan Wiradjuri Aboriginal Corporation and Bathurst Local Aboriginal Land Council, ensuring the sites could be drilled with minimal environmental impact and avoid any sensitive ecological communities or species, or sites of archaeological or Aboriginal cultural heritage value.

3.2 Revised disturbance footprint

The disturbance footprint estimated to be required for the modified development is approximately 0.62 ha with impacts at each of the locations described in Table 3.1. The revised disturbance footprint is less than the approved footprint and demonstrates the modified development can be completed with minimal impact. While the revised disturbance footprint is predicted to be reduced, the modified development would maintain the flexibility to clear up to 0.97 ha if required due to on site constraints identified during drill pad establishment and/or drilling.

Table 3.1 Revised disturbance locations and associated footprint

Site/bore reference	Easting	Northing	Target depth below ground level	Area of disturbance required (approx. incl drill pad)	
				Original/approved	Revised
BH101-BH108	Refer SEE		Varying depths (refer SEE)	0.968	0.50
New access road			N/A		
MB2201B	229873	6290406	40 m	Within existing BH104/BH105 pad (refer SEE)	N/A
MB2202B	229280	6290069	40 m	Within existing BH106/BH106A pad (refer SEE)	N/A
MB2203A/B	229860	6290820	200 / 40 m	Within existing BH103 pad (refer SEE)	N/A
MB2204A/B	229207	6290724	200 / 40 m	N/A	0.04
MB2205A/B	229193	6290436	200 / 40 m	N/A	0.04
MB2206A/B	229182	6289776	100 / 40 m	N/A	0.04
			Total	0.968	0.62
			Total maximum	0.97	0.97

3.3 Scope refinement

As experienced during the on-site establishment works for the geotechnical program, there may be a need to relocate or drill up to four additional bores to respond to ground constraints, geological constraints during drilling or to seek additional engineering or environmental data to assist the geotechnical and hydrogeological investigations. Where relocation or additional sites are required, EnergyAustralia would conduct appropriate consistency assessment to ensure the works are within the limits of the approval and include additional assessment as necessary such as conducting further walkover with the local Aboriginal community should any sites need to be located outside of the investigation envelope. The total disturbance footprint for all works under this modification would not exceed the approved disturbance footprint of 0.97 hectares. Any activity not consistent with the approval (as modified) would be subject to a separate approval process.

Source: EMM (2023); EnergyAustralia (2022); ESRI (2022); DFSI (2017); GA (2011)

0 250 500 m

GDA2020 MGA Zone 56

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KEY

- Modified disturbance footprint
- Investigation envelope
- Vehicular track
- NPWS reserve

Modified development

Lake Lyell Geotechnical Drilling Program
Geotechnical drilling program – Modification report
Figure 3.1

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3.4 Access

The primary access route identified for the approved development was originally from Great Western Highway and Girraween Drive near Marrangaroo. However, incorporating feedback from the local community and to reduce disturbance to Girraween Drive residents, this access route is now only retained as a secondary or alternative access option for light vehicles. The primary access to the site is from Great Western Highway via Oakey Forest Road. An access agreement has been developed in consultation with the Central Districts Kart Club for access to the site from Oakey Forest Road. The access routes to site are shown in Figure 3.2.

No new access tracks are required. Consistent with the approved project, any existing access tracks between the development and access from public roads would be maintained for use during the works period. Minor disturbance to existing access tracks may be required to facilitate safe site access for workers. Examples of minor disturbance includes:

- placement of clean fill material across drainage depressions to enable vehicles to safely cross without becoming bogged and causing further impacts; and
- filling in of eroded sections of the access track with clean, free draining rock fill, to facilitate safe access for vehicles.

No widening or other modification of existing tracks is proposed. No vegetation clearing would be undertaken.

Source: EMM (2023); EnergyAustralia (2022); ESRI (2022); DFSI (2017, 2021); GA (2011)

0 0.5 1 km

GDA2020 MGA Zone 56

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KEY

- Investigation envelope
- Modified disturbance footprint
- Primary access route
- Secondary access route
- Major road
- Minor road
- Vehicular track
- Named waterbody
- NPWS reserve

Site access

Lake Lyell Geotechnical Drilling Program
Geotechnical drilling program – Modification report
Figure 3.2

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3.5 Borehole drilling and monitoring bore installation

Borehole drilling and installation of a groundwater monitoring network is required to develop a detailed hydrogeological model of the site. A total of ten groundwater monitoring bores are proposed for the groundwater network, targeting inferred shallow and deep aquifers, to a maximum depth of around 200 m below ground level. Of the ten boreholes, four would be co-located at drill sites already approved for the geotechnical investigations. If it is determined additional monitoring bores could be installed at existing drill sites, they may be completed in line with the consistency assessment process described in Section 3.3.

The monitoring sites referenced in this document will each include two groundwater monitoring bores in twinned construction, as shown indicatively in Figure 3.3. Borehole diameters would be a minimum of 120 mm to allow installation of appropriate casing and monitoring equipment.

Services, plant and equipment required for drilling are consistent with those previously described in the SEE and include:

- hand and power tools for vegetation management;
- one or two drilling rigs;
- one water truck/cart for transporting water to and from the drilling activities;
- one service vehicle to remove waste from the drilling process;
- service vehicles (light 4WD vehicles) to transport personnel to and from the various activities;
- mobilisation of site-based equipment likely to consist of generator, air compressor, site services and ablution facilities; and
- testing vehicles with logging, testing and sampling equipment, tool kits and supplies.

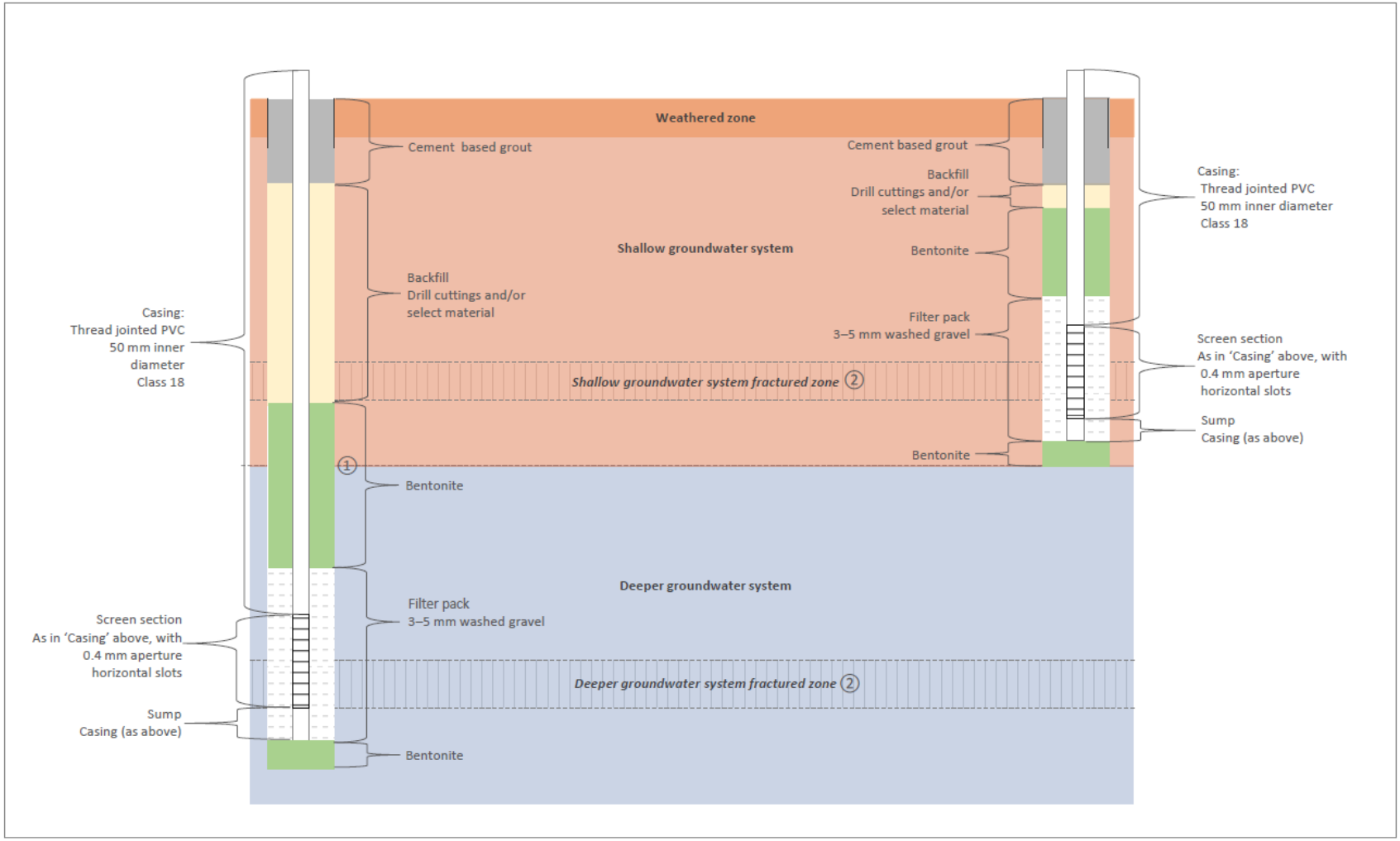
Testing and equipment installation is likely to include rising and falling head aquifer hydraulic testing (slug testing) to estimate hydraulic conductivity of the groundwater systems. Dedicated double-valve pumps (DVP) and groundwater level dataloggers would be installed at each monitoring bore within the network to provide representative groundwater quality samples and to monitor groundwater level fluctuations. The equipment would be utilised on an ongoing basis for groundwater sampling, supporting groundwater quality data capture and supporting a groundwater quality assessment.

3.6 Site rehabilitation

Site rehabilitation requirements for boreholes BH101-BH108 remain consistent with the SEE and are dependent on the whether the PHES project ultimately proceeds. The drill pad for BH107-BH108 site however would be immediately rehabilitated following completion of work due to its proximity to Lake Lyell.

Each groundwater monitoring bore location is to be retained for a period of at least two years to allow an appropriate period of data collection. Regardless of whether the PHES project ultimately proceeds, EnergyAustralia would independently determine the life and need for an ongoing groundwater monitoring program. Full restoration of the drilling pads following completion of groundwater bore construction is therefore not proposed, but would be implemented if the PHES project ultimately does not proceed.

Site selection has ensured that previously disturbed areas are utilised for drill pads with minimal clearing of vegetation required. At completion of drilling, erosion and sediment controls would be removed, the surface re-instated, and stabilised with weed-free vegetation. No re-planting is proposed.



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Notes

① Interface between the shallow and deeper groundwater system will be isolated using bentonite or similar material

② fractured zone will be targeted with the bore screen section, as inferred by an appreciable increase in air-lift yield tests

Indicative twinned groundwater monitoring bore construction detail
Geotechnical drilling program – Modification report
Figure 3.3
Not to scale, conceptual only

Figure 3.3 Indicative twinned groundwater monitoring bore construction

3.7 Workforce and accommodation

There would be no changes to the workforce and accommodation arrangements as currently approved. The number of people on-site for drilling is expected to vary over the duration of the work, however, a typical daily workforce of up to 8–10 personnel is expected.

No on-site accommodation is required. The workforce would travel to and from site daily from nearby accommodation within the Lithgow region.

3.8 Water requirements and management

There would be no changes to the water supply arrangements as currently approved. No surface water take from Farmers Creek or Lake Lyell is proposed. All water needed for site works, including drilling and site facilities would be sourced from Lithgow Council water filling stations and trucked to site. It is estimated an average of approximately 3–5 kL of water per week would be required for the duration of the works.

Chemistry parameters would be measured during the drilling process and would inform suitability for discharge. Any discharge of water would be in line with relevant ANZECC guidelines and would be downgradient of the work site, away from drainage lines and watercourses. No dirty water would be discharged to the environment.

3.9 Waste management

There would be no changes to the waste management arrangements as currently approved. All waste from the works, including general waste, green waste, drilling fluids, and other waste generated during the works would be removed from site and disposed of at a suitable licenced facility.

3.10 Duration and timing

The duration of drilling the additional bores would depend on access (weather-dependent) however is expected to take approximately four to five months from mobilisation to completion. Once installed, the groundwater monitoring bores would be retained for ongoing monitoring. The duration of this monitoring would be a minimum of two years however some may be retained for the duration of the PHES project should it proceed and those within the PHES footprint would be terminated.

Work hours will be consistent with the development consent, with construction and site works occurring between the hours of 6.00am and 6.00pm Monday to Sunday. No works are proposed outside these hours.

4 Planning considerations

The original development application sought integrated approval from WaterNSW and Department of Planning – Water (DPE-W), for work within Sydney Water Drinking catchment and work on waterfront land, respectively. WaterNSW's general terms of approval are included in the development consent. No general terms of approval were provided by DPE-W however a controlled activity approval was obtained by EnergyAustralia for work on waterfront land (CAA-2022-10374), under Section 92 of the *Water Management Act 2000*.

The proposed modification is located within Sydney Water Drinking catchment however does not involve work on waterfront land. As such, additional or modified controlled activity approvals are not required.

The proposed modification is located on the same land parcel and zoning as the approved development and is permissible with consent.

5 Assessment of impacts

The likely impacts of the development have been considered in the SEE. Additional impacts that may arise as a result of the proposed modification have been considered and are discussed in this section.

5.1 Biodiversity

The biodiversity assessment completed for the investigation envelope was updated to assess the modified disturbance footprint and inclusion of additional groundwater monitoring bores (see **Attachment A**). The additional sites were inspected by an EMM ecologist on 15 December 2022.

Mapping of plant community types for the investigation envelope was reviewed and due to the predicted reduction in the disturbance footprint, overall impacts to native vegetation are also predicted to be reduced. It is noted that while impacts are predicted to reduced, the modified works may impact up to a total maximum disturbance area of 0.97 ha. The additional drill sites contain vegetation mapped as PCT 732 and otherwise cleared/disturbed and non-native vegetation. A summary of impacted vegetation is provided in Table 5.1.

Table 5.1 Vegetation types recorded within the disturbance footprint.

Plant community type	Area (ha) in disturbance footprint	BC Act conservation status	EPBC Act conservation status
1197 – Snow Gum – Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion	0.47	Endangered Ecological Community[1]	-
732 – Broad-leaved Peppermint – Ribbon Gum grassy open forest in the north east of the South Eastern Highlands Bioregion	0.09	-	-
1093 – Red Stringybark – Brittle Gum – Inland Scribbly Gum dry open forest of the tablelands; South Eastern Highlands Bioregion	0.03	-	-
Cleared/disturbed non-native vegetation	0.03	-	-

Notes:

1. The vegetation mapped as PCT 1197 is not entirely typical of the EEC as it does not occur on basalt, contains a higher diversity of canopy species and contains a number of shrub species more typically associated with lower soil fertility. It is therefore considered marginal for inclusion in the EEC. For the purposes of this assessment, taking a precautionary approach, all areas of PCT 1197 have been assumed to be consistent with the EEC.

Minor changes to the threatened species likely to occur within the disturbance footprint have been considered based on the revised vegetation mapping however no change to the overall listing of species likely to occur or those impacts of the development on species habitat are predicted.

Source: EMM (2023); EnergyAustralia (2022); ESRI (2022); DFSI (2017); GA (2011)

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KEY

- Investigation envelope
- Modified disturbance footprint
- Vehicular track
- Named watercourse
- NPWS reserve
- Minimal native vegetation

Plant community type

- 732 | Broad-leaved Peppermint - Ribbon Gum grassy open forest in the north east of the South Eastern Highlands Bioregion
- 1093 | Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands; South Eastern Highlands Bioregion
- 1197 | Snow Gum - Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion

Plant community types

Lake Lyell Geotechnical Drilling Program
Geotechnical drilling program – Modification report
Figure 5.1

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5.2 Aboriginal heritage

The Aboriginal heritage due diligence completed for the investigation envelope was updated to assess the modified disturbance footprint and inclusion of additional groundwater monitoring bores (see **Attachment B**). The additional sites were inspected by an archaeologist on 15 December 2022 with a representative from the Bathurst Aboriginal Land Council, and with a representative from the Mingaan Wiradjuri Aboriginal Corporation on 23 January 2023. The site inspection assessed the proposed drill pads with the purpose of determining:

- the potential for physical remains of past Aboriginal occupation to exist at the pads; and
- the intangible Aboriginal cultural heritage values of the landscape incorporating the modified development.

No Aboriginal sites, objects or other landforms of interest were identified at any of the additional locations inspected. It was confirmed with Aboriginal representatives that the land and landforms within the proposed geotechnical drill pads are:

- partially disturbed,
- subject to seasonal high energy stormwater runoff; and
- unlikely to have potential to retain physical remains of past Aboriginal occupation.

Results of the recent inspections therefore generally support the previous conclusion of the due diligence that the development area has limited or low archaeological potential. The development area is unlikely to contain items other than disturbed remains of Aboriginal occupation in low artefact densities, if any such remains exist at all.

Despite the absence of identified Aboriginal sites within the areas inspected to be impacted by the development, the site inspections highlighted the importance and need for EnergyAustralia to maintain its active engagement with relevant Aboriginal community in relation to the identification and management of broad intangible and landscape heritage values (the values of Country) that would be impacted if the Lake Lyell Pumped Hydro project progresses beyond concept design.

Source: EMM (2023); EnergyAustralia (2022); ESRI (2022); DFSI (2017)

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KEY

- Modified disturbance footprint
- Investigation envelope
- Vehicular track
- Named watercourse
- NPWS reserve

Archaeological potential

- Low archaeological potential

Archaeological potential

Lake Lyell Geotechnical Drilling Program
Geotechnical drilling program – Modification report
Figure 5.2

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5.3 Surface water

The additional groundwater monitoring locations are not located within 40m of any watercourse. However, during site inspection of the area surrounding drill pad MB2206, noting the inspection occurred after recent rainfall, running water was observed approximately 40m from the access track. Overland flow after rain occurs frequently at the site due to the steep surrounding terrain. Potential impacts from the proposed modification are consistent with those previously assessed, including sedimentation from soil disturbance during drill pad establishment, flooding from overland flow, and water quality impacts from controlled and uncontrolled discharge. Management measures would also be consistent with the SEE and a detailed CEMP would be prepared specifically for the drilling and establishment of groundwater monitoring bores.

The use of access tracks during and after rainfall events may be unsafe and increase erosion and subsequently increase sediment load and the turbidity of runoff. However, EnergyAustralia's access agreement with National Parks Wildlife Service (NPWS) stipulates;

1. No use of heavy vehicles through the National Park track during rain, and
2. No use of any vehicles through the National Park track when >20mm rain is recorded at the Marrangaroo weather station in the previous 24 hours.

The additional groundwater monitoring bores are located at elevated levels above Lake Lyell and will not be impacted by flooding events from the waterbody. The risk posed by flooding would be managed by appropriate location of the drilling site to avoid overland flow paths, and by monitoring weather conditions and forecasts. Due to access restrictions to the site during high rainfall events, risks to workers is also appropriately managed.

Any drilling additives (such as biodegradable hammer lubricants, if required) would be bio-degradable and non-toxic to the environment. Controlled discharges may be required and would only occur if water quality parameters do not exceed the thresholds identified in the relevant ANZECC guidelines. Water quality parameters are measured during the drilling process and discharges would be managed in accordance with the CEMP. No discharge of water would occur directly to Lake Lyell or other watercourses.

Specific site management measures would be developed to ensure sedimentation and erosion from the drilling pads do not occur and, therefore, the potential for impacts to Lake Lyell is extremely low. Following the successful construction and drilling of each borehole, all equipment will be demobilised from site, and erosion and sediment controls would be deconstructed following the completion of reinstatement. Detailed controls to minimise the potential impact to water quality in Lake Lyell would be outlined in the CEMP.

Potential adverse impacts on water quality within Lake Lyell and the Farmers Creek catchment are expected to be avoided through the use of controls described above. As such, the proposed development is assessed to have no effect on water quality within the Sydney drinking water catchment area, in accordance with *State Environmental Planning Policy (Biodiversity and Conservation) 2021.*

Source: EMM (2023); EnergyAustralia (2022); ESRI (2022); DFSI (2017)

0 250 500 m

GDA 1994 MGA Zone 56

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KEY

- Modified disturbance footprint
- Investigation envelope
- Vehicular track
- Watercourse/drainage line
- Named waterbody
- NPWS reserve
- Extent of waterfront land within environmental assessment boundary

Hydrological context

Lake Lyell Geotechnical Drilling Program
Geotechnical drilling program – Modification report
Figure 5.3

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5.4 Groundwater

The additional groundwater monitoring locations would intercept shallow and deep aquifers, where present, for the purposes of characterising the regional hydrogeology. No permanent hydrogeological impacts would result from the geotechnical drilling program. The boreholes would be drilled in accordance with the *Minimum Construction Requirements for Water Bores in Australia* (2020).

Potential impacts could include localised groundwater quality impacts immediately adjacent to the borehole annulus, however the boreholes would be developed and cleaned after drilling to remove any bio-degradable additives (in accordance with Section 5.3). Additives and any other fuels or lubricants (including diesel fuel or engine oils) would be stored in dedicated, above ground containers and all used product would be disposed of at a licensed facility. Based on previous geotechnical drilling and the observed geology, no significant volume of groundwater take is expected. Any groundwater influx is expected to be significantly below the 3 ML requirement for incidental take.

A detailed CEMP will be prepared specifically for the drilling and establishment of groundwater monitoring bores.

5.5 Traffic and access

The main transport route to the site has been amended from the original development to alleviate community concerns regarding traffic impacts and public safety from the access route via Girraween Drive. As identified in Section 3.3, the main transport route to the site for the proposed modification is now from Oakey Forest Road and Great Western Highway near Marrangaroo. The access route from Girraween Drive would still be retained as an alternative access route, but for occasional light vehicle use only.

Potential impacts associated with the change in primary access include additional safety requirements to consider:

- heavy and light vehicle movements past residential properties;
- heavy and light vehicles and the level railway crossing along Oakey Forest Road; and
- heavy and light vehicle interaction with other heavy vehicle traffic utilising Oakey Forest Road, noting it is the only access route to Metromix Marrangaroo Quarry.

These safety and access considerations are already included in the existing Traffic Management Plan (TMP). The amended transport route to site via Oakey Forest Road provides improved access from Great Western Highway due to longer line of sight compared to the alternative route via Girraween Drive.

Traffic movements to and from site and associated impacts would be consistent with or reduced from the approved project. There would be an initial peak during mobilisation and de-mobilisation activities for the drilling rig and materials to be delivered to site, however once drilling has commenced vehicle movements are likely to be mostly limited to light vehicles transporting staff to and from site daily and water truck deliveries (up to daily).

5.6 Other impacts

Other impacts of the modified development are consistent with the approved development, however would be a continuation given the extension in duration of the program. This includes temporary and localised noise and minor emissions of engine exhaust, dust and odours during drilling and transport. These impacts are not significant and are managed as part of mitigation measures adopted within the TMP and CEMP approved by Lithgow City Council, such as timing of works, access via Oakey Forest Road (instead of Girraween Drive) where

possible, watering of access tracks or vehicles (dust suppression) as needed, and other relevant measures. These measures would continue to be adopted.

6 Additional management measures

A detailed CEMP will be prepared specifically for the drilling and establishment of groundwater monitoring bores and will include the management measures required by the SEE and additional measures identified in Table 6.1. The existing TMP approved by Council would continue to be implemented.

Table 6.1 Additional management measures required for modified development

Environmental aspect	Proposed mitigation measure	Timing
General	Apply those identified in the SEE	-
	Where relocation or additional drill sites are required, EnergyAustralia would conduct appropriate consistency assessment to ensure the works are within the limits of the approval and include additional assessment as necessary such as conducting further walkover with the local Aboriginal community. Any activity not consistent with the approval would be subject to a separate approval process.	Construction
Biodiversity	Apply those identified in the SEE	-
Aboriginal heritage	Apply those identified in the SEE	-
Surface water	Apply those identified in the SEE	-
	Discharge of water to the environment to occur only when: • Appropriate erosion and sediment control is in place in line with the CEMP • Water quality parameters do not exceed relevant ANZECC guidelines • Directed downgradient of a work site • Are not directed toward any stream or watercourse • Volumes do not increase erosion risk	Construction
Groundwater	Apply those identified in the SEE	-
Traffic and access	Apply the approved TMP	Construction
Other	Apply those identified in the SEE	-

7 Conclusion

This modification request is sought with regard to s4.55(1A) of the *Environmental Planning and Assessment Act 1979*. The modification is consistent with the approved development as it is for the purposes of investigation and identifying considerations to be addressed during design and construction of any future PHES. Further:

- The modification is located on the same land parcel as the approved development.
- The modification would not exceed the previously approved disturbance of 0.97 ha.
- No new access tracks are required.
- Revised biodiversity and Aboriginal heritage assessments have been completed and determined that predicted impacts are able to be managed through the implementation of mitigation measures identified in the SEE (and CEMP). Overall, impacts are consistent with the approved development, noting that no increase in disturbance is expected.
- Additional mitigation measures will be implemented to manage any discharge of water encountered during drilling, and incorporated into an updated CEMP for the groundwater drilling works.
- While the modification of the development would extend the duration of works, impacts would be consistent with those already assessed and approved.

The proposed modification involves minimal environmental impact and is substantially the same development as the original consent granted by Lithgow City Council. In conclusion, the modified development is considered to provide a low residual risk to the local environment and the community.

Yours sincerely

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